

Contactless Fare Media System Standard (CFMS)

Part V - Compliance Certification and Testing Standard

(APTA IT-UTFS-S-005-09)

Version 1.0
December, 2009

Note: Document renumbered March 2013, previously referenced as APTA S-UTFS-WP5-001-09.
No content was changed.

Prepared by members of Work Package – 5 group of the Financial Management Committee of the American Public Transportation Association (APTA) Universal Transit Fare System (UTFS) Task Force

Abstract: This document contains test cases aimed at validating the conformance of a piece of equipment (PICC, CID, RCS or ACS) to the Standard. The requirements laid down in the Standard, mainly in Parts II and III, are fully covered by these test cases.

Keywords: fare collection, media, public transportation, transit and smart card

Introduction

(This Introduction is not part of the APTA IT-UTFS-S-005-09 Standard)

This Standard is part V (Part V) of a suite of standards that together form the Contactless Fare Media System Standard (Standard). This and other parts of the Standard include the following:

Part I - Introduction and Overview (Part I)

Part II - Contactless Fare Media Data Format and Interface Standard (Part II)

Part III - Regional Central System Interface Standard (Part III)

Part IV - Security Planning and Implementation Guidelines and Best Practices (Part IV)

Part V - Compliance Certification and Testing Standard (Part V)

The parts of the Standard noted above are designed to be implemented together as part of a foundation for end-to-end integration of fare collection information processing to best provide interoperable systems within a region. Detailed descriptions of all the parts of the Standard can be found herein as well as within the introduction sections of each part.

The application of any standards, practices or guidelines contained herein is voluntary. In some cases, federal and/or state regulations govern portions of a rail transit system's operation. In those cases, the government regulations take precedence over this Standard. APTA recognizes that for certain applications, the standards or practices, as implemented by rail transit systems, may be either more or less restrictive than those given in this document.

The intent of this Part V of the Standard is to provide a mechanism by which to test and verify conformance of developed fare collection systems with the CFMS Standard. An introduction to the Standard and its various components and concepts. By applying the Standard to the design of a new fare collection system or upgrade of an existing system combined with adherence to a set of regional implementation, security and operating rules, interoperability with other compliant systems may be achieved.

Document Development Process

Development of this Standard and its parts was guided by the APTA Universal Transit Fare System (UTFS) Task Force and its bylaws as revised September 1, 2005.

It is the mission of the Task Force to develop a series of documents that provides industry guidance for the creation of an open architecture environment that promotes greater access and convenience to the public transportation network and enables integration of fare collection systems. To accomplish this mission, the Task Force membership established a broad representation of the transit industry specifically including transit system operators, the Federal Transit Administration (FTA), manufacturers, engineering and consulting firms, transit labor organizations and others with an interest in the revenue management aspects of the transit industry.

To be effective and responsive to transit industry needs, the Task Force in its effort to develop fare collection standards relies on the following guiding principles:

- Promote economies of scale for agencies and enable more competitive procurements,
- Provide a platform to support agency independence and vendor neutrality,
- Strive for an open architecture environment for hardware and software utilizing commercially available products,
- Foster development for a multi-modal and multi-application environment and
- Provide information for informed decisions and development of partnership strategies.

Applying these guidelines and relying on a broadly consensus driven decision process has produced this important industry-based standard.

To be successful, any consensus process involving organizations with diverse interests must have rules defining the procedures to be used. APTA developed the APTA UTFS Bylaws (Bylaws) as revised September 1, 2005 to govern the process. These bylaws contain the following basic principles:

- Membership open and broadly representative of industry
- Open process and open meetings
- Consensus based (defined as 75% super-majority)
- Mandatory minimum public comment period
- Response required to all reasonable comments received
- Final approval voting based on one vote per organization
- Maximum use of electronic communication
- The policy committee retains implementation authority
- The bylaws and resulting process APTA used to develop these standards followed the process required by the American National Standards Institute (ANSI) to obtain ANSI Standards Development Organization (SDO) certification.

The specific approach of the Task Force for standard development is based on a consensus driven process broadly representing all the major revenue management industry groups and stakeholders. Figure (i) is an organizational diagram depicting the relationships that have been established to develop, to approve and to implement revenue management standards, recommend practices and guidelines.

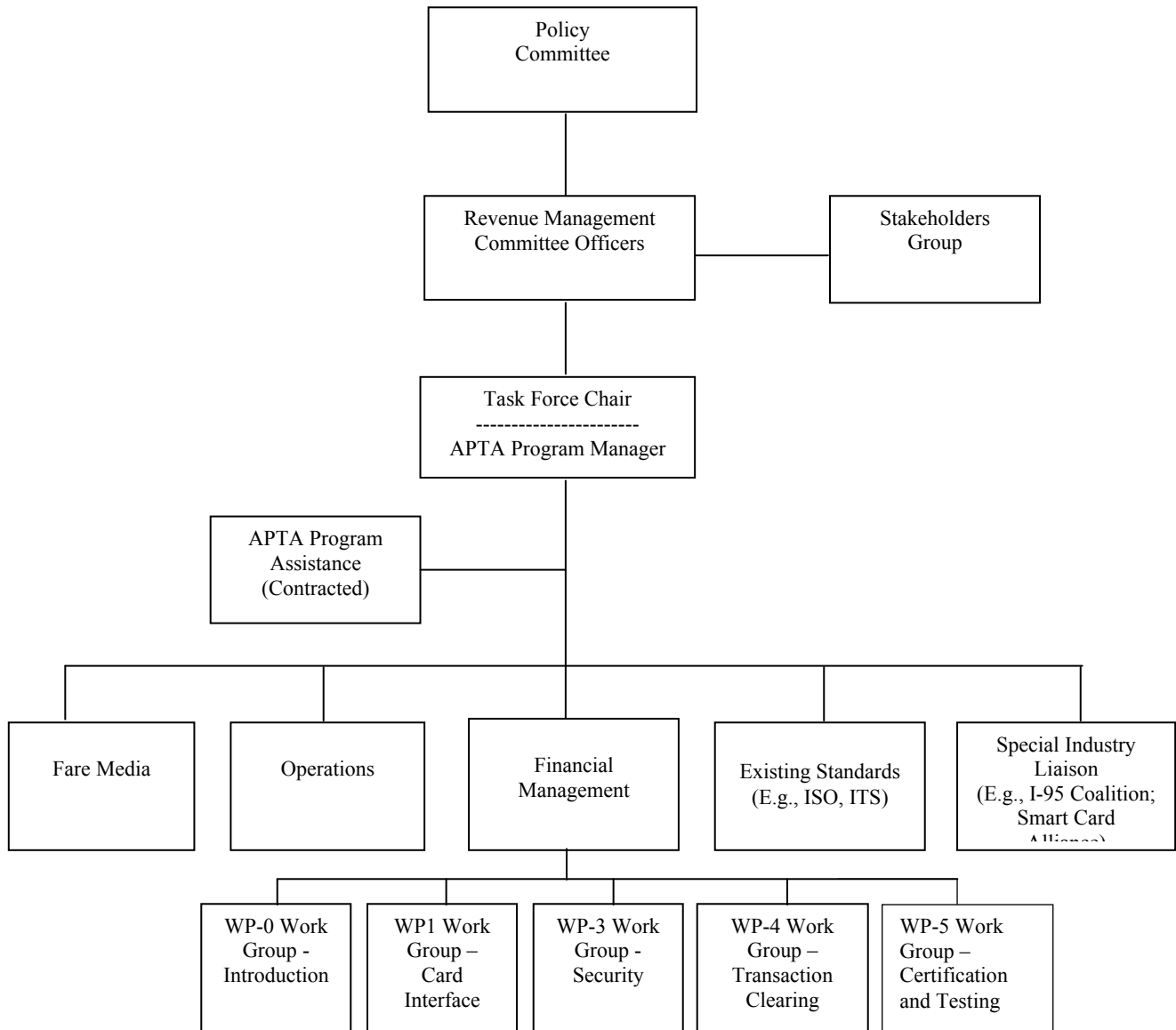


Figure (1) □ Universal Transit Fare System Standards Organization

The broad policies followed by the Task Force are set by the Rail Standards Policy and Planning Committee (Policy Committee) with oversight by the APTA Standards Development and Oversight Council (SDOC). APTA ensures that the policies set by the Policy Committee are followed. The officers of the Revenue Management Committee assist APTA staff in the implementation of policies set by the Policy Committee. The Task Force is organized into committees based on the priorities set by the stakeholders group and Revenue Management Committee officers and approved by the Policy Committee. Task Force committees develop individual work plans and schedules. Task Force committees may divide into sub-committees or working groups of subject matter experts to develop initial drafts of individual standards or recommended practices.

Given the consensus driven decision process of the Task Force, voting and balloting on release of this document for consideration by the APTA Rail Standards Policy and Planning Committee was approved using the following conditions:

A quorum of sixty of at least (60%) of the total Task Force voting members participated for a valid vote to take place.

Approval of this document required a super majority of 75% of the voting members that cast ballots (do not abstain) to vote in the affirmative for the Task Force to approve this document for release.

The approval process for documents to become a standard follows the flowchart depicted in Figure (ii) as documented in the APTA UTFS Bylaws as revised September 1, 2005 maintained and controlled by APTA. The Bylaws also provide policies on Task Force and committee organizational structure and document balloting requirements as noted above.

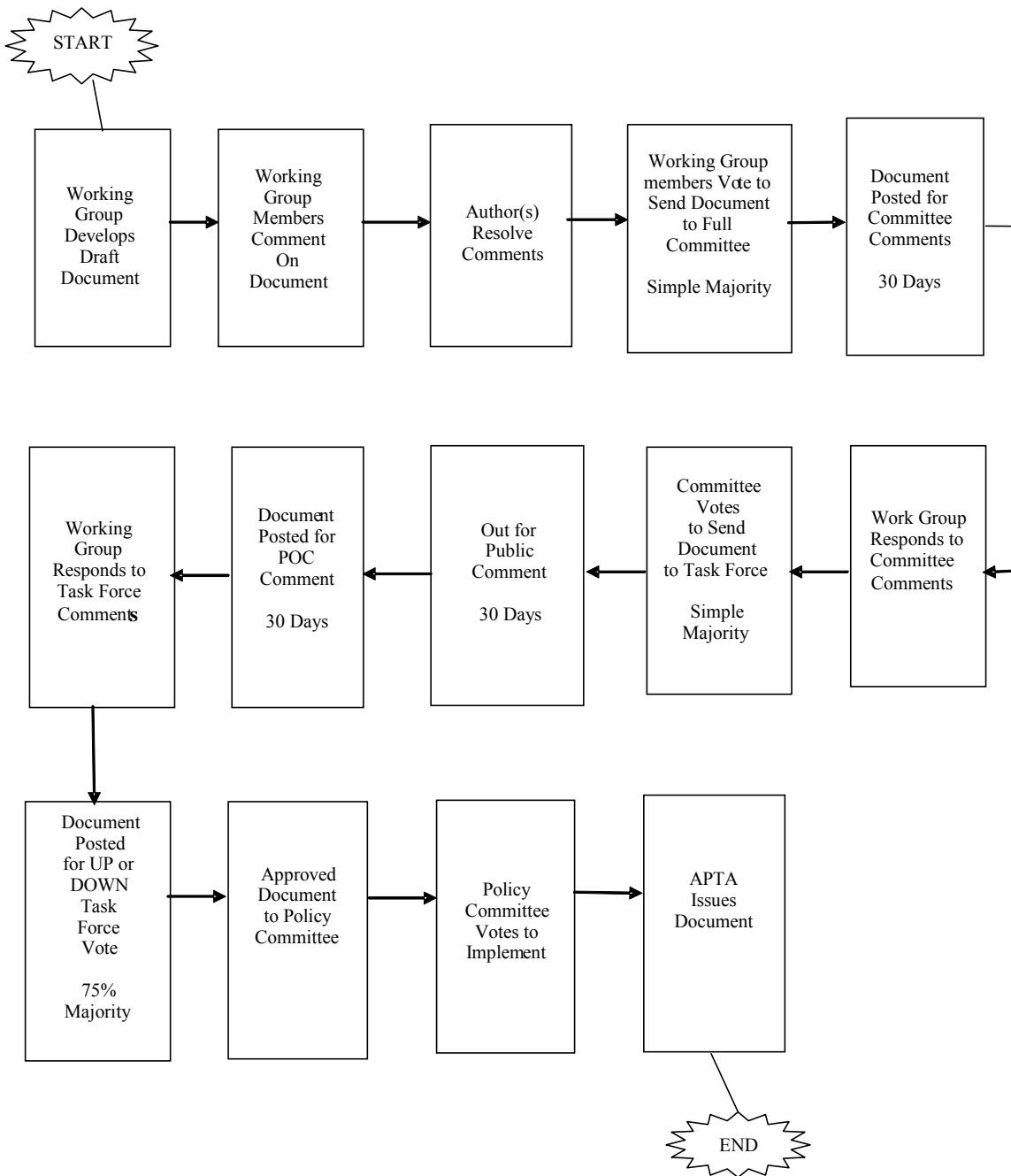


Figure (ii)—Document Comment and Approval Process

Intellectual Property Provisions

To protect those offering technology during development of the Standard and those using the Standard from copyright and patent infringements, the UTFS Task Force implements an Intellectual Property Policy. The inclusion of intellectual property provisions addressing patents, copyrights or trademarks is in accordance with APTA's Universal Transit Fare System Standard Intellectual Property Policy and Procedures, issued September 1, 2005, and enforced beginning October 17, 2005. The terms of this IP Policy are subject to the Universal Transit Fare System Standard Task Force Bylaws and in accordance with APTA Scope document, "APTA Universal Transit Farecard Standard Work Scope Specification, ATPA UTFS-D-TC-01A-05." All other documents, besides the Bylaws, concerning UTFS IP policies and procedures are controlled by this IP Policy, and other documents shall have no effect on the interpretation of the IP Policy.

Under this policy all participants in the APTA UTFS program including but not limited to transit agencies, fare collection system suppliers, financial institutions, consultants and other third party application providers shall submit a Letter of Acknowledgement, which states that, on behalf of the Organization with which they are affiliated and/or themselves, they have received and reviewed the IP Policy, and acknowledge that their participation in the UTFS standards development process, and the standard(s) adopted in the course of this process, will be subject to the IP Policy. Under this policy contributors are required to make known any patents, copyright material or other intellectual property that may be contained within the standard or essential to the standard. If contributors have intellectual property such as patents or copyright material contained within the standard/guideline, the IP Policy requires submission of a Letter of Assurance stating the terms and conditions for use of such intellectual property.

APTA further issues a call-for-patents during its public comment period prior to release of the Standard/Guideline.

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Standards vs. Guidelines/Recommended Practices

APTA develops standards and recommended practices/guidelines, and such distinction between these document types needs to be clear.

Characteristics of a Standard

A standard should be developed when the document:

- Covers a system, component, process or task that is safety critical, or
- Ensures interoperability between parts or equipment, or
- Standardizes a design or process, or
- Addresses an FRA or NISB concern, or
- May become part of a regulation.

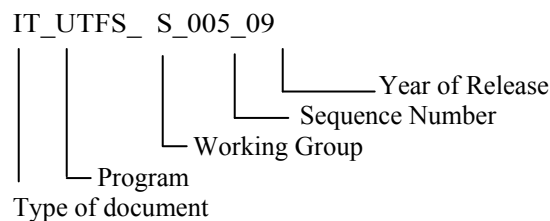
Characteristics of a Guideline/Recommended Practice

A recommended practice/guideline should be developed when:

- The document describes only one of several acceptable approaches, or
- The document is tutorial in nature, or
- The document does not meet one of the characteristics for a standard, or
- Consensus could not be reached that the document should be a standard.

Document Numbering Nomenclature

Document numbering is composed of five parts. The first part designates the standard program the document falls under, in this case IT or Information Technology. The second part designates the working group or application where the standard was developed; which for this Standard is UTFS. The third part designates the type of document. A prefix “S” represents a general standard while recommended practices carry the prefix “RP” and Guidelines carry the prefix “GL.” Finally, the last two sections attribute a document sequence number and the year the document was first released, respectively.



Document Maintenance & Requests for Revisions

APTA will review and update this document on an as needed basis, but at a minimum will review once every two years. The UTFS Task Force has responsibility for conducting reviews, addressing requests or suggestions for document revision or expansion and for implementing changes or revisions.

Requests for revisions of APTA standards and recommended practices/guidelines are welcomed from any interested party. Suggestions for changes to documents should be submitted in the form of a proposed change to the text along with the appropriate supporting documentation / rationale for the change.

Occasionally, questions may arise concerning the meaning of portions of these standards/guidelines as they are specifically applied. APTA will clarify such issues as necessary through the UTFS Task Force and the Rail Standards Policy and Planning Committee. Address comments, questions on interpretation or requests for changes to:

UTFS Staff Advisor
American Public Transportation Association
1666 K St., NW, 11th Floor
Washington, DC 20006

To obtain copies of this standard contact:

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Attention is called to the possibility that implementation of this guideline may require use of subject matter covered by patent rights. By publication of this guideline, no position is taken with respect to the existence or validity of any patent rights in connection therewith. The APTA shall not be responsible for identifying patents or patent applications for which a license may be required to implement an APTA standard or for conducting inquiries into the legal validity or scope of those patents that are brought to its attention.

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The American Public Transportation Association (APTA) greatly appreciates the contributions of Thomas Parker, Chair of UTFS Task Force and the following individuals who provided the primary effort in the drafting of this Standard.

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APTA would also like to acknowledge and thank the following organizations for contributing staff and other resources to this standards development effort:

Cubic Transportation Systems, Inc.	Collis BV
Murray Associates	Three Point Consulting
San Francisco Bay Area Rapid Transit District	Tri-County Metropolitan Transportation District of Oregon
Scheidt & Bachmann USA, Inc.	
Geisech & Devriant	

APTA acknowledges the generous support of Robert Bernard and the Port Authority of New York & New Jersey as well as Three Point Consulting for development of the Regional Interoperability Standard for Electronic Transit Fare Payments© (RIS)© on which this APTA Standard has been based.

APTA acknowledges the U.S. Federal Transit Administration and the Joint Program Office of the U.S. Department of Transportation who were instrumental in supporting and guiding this program.

Disclaimer

The American Public Transportation Association (APTA) developed this standard in consultation with a diverse group of experts, arriving at consensus positions. APTA strives to provide accurate, complete, and useful information. The information contained in herein is based upon technical information that is believed to be reliable, but for which no responsibility is assumed. Neither APTA nor any person or organization contributing to the preparation of this document makes any warranty, expressed or implied, with respect to the usefulness or effectiveness of any information, method or process disclosed in this material. Nor does APTA assume any liability for the use of, or for damages arising from the use of, any information, methods, or process disclosed in this document. No information or suggestions shall be deemed to be a recommendation to use any specific manufacturer's product(s) or any system in conflict with an existing patent right, code or regulations. This document should not serve as a substitute for sound engineering judgment.

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PART V – Compliance Certification and Testing

1. Introduction and Overview

This document is Part V of a data standard for transit fare collection systems which consists of the following:

Part I - Introduction and Overview (Part I)

Part II - Contactless Fare Media Data Format and Interface Standard (Part II)

Part III - Regional Central System Interface Standard (Part III)

Part IV - System Security Planning and Implementation Guidelines (Part IV)

Part V - Compliance Certification and Testing Standard (Part V)

These parts together complete the larger standard entitled, Contactless Fare Media System Standard (Standard). The parts of the Standard noted above are designed to be implemented together as part of a foundation for end-to-end integration of fare collection information processing to best provide an interoperable system.

1.1 Scope

This document contains test cases aimed at validating the conformance of a piece of equipment (PICC, CID, RCS or ACS) to the Standard. The requirements laid down in the Standard, mainly in Parts II and III, are fully covered by these test cases.

1.2 Test Case Format

The format of each test case in this document is as follows:

Test ID	This field is a unique identifier for this test case.
Test Purpose	This field describes the goal of the test case in one or two sentences.
Applicability	This field describes whether a test case is applicable for a certain system. There are three possibilities: Mandatory: This test case is applicable for all systems Conditional: This test case is only applicable for certain system. If this is the case, the configuration(s) for which this test case is applicable will be clearly stated. In general, this will depend on the options that the manufacturer of the system has chosen to implement. For example, test cases that aim at testing the correct format of the Add & Deduct Value History Object will only be applicable if the PICC under test does contain this object.
Pre-conditions	This field describes the actions (if any) that need to be performed to bring the system in the test situation.

Test Actions	This field describes the test actions that the tester must perform.
Pass Criteria	This field contains a clear description of the pass criteria (expected result).
Post-conditions	This field describes the actions (if any) that have to be performed to bring system-under-test back in its original situation.
References	This field contains a reference or references to the relevant section(s) in the specifications. This information is crucial both in determining the correctness of the test case and for estimating the degree of coverage of the Test Case Specification with regard to the system specifications.
Remarks	This optional field may contain any information that is deemed useful for the interpretation or implementation of the test case.

1.3 Example Implementation

Since the level of detail in the Standard that is necessary for creating test cases is sometimes lacking, Chapter 2 of this document provides an Example Implementation of the CFMS Standard which provides these details.

Some of the test cases in this document are based on this implementation. This is indicated by an explicit reference to the Example Implementation

It should be noted that the Example Implementation is not a mandatory specification. It is up to a vendor's discretion to adopt the requirements in the example implementation, or to devise a proprietary solution within the boundaries of the CFMS Standard. If a vendor chooses to adopt the example implementation, all test cases in this document that are applicable to the system under test (i.e., a PICC, CID, ACS or RCS) should be successfully executed to prove conformance of the system to the CFMS Standard.

If a vendor chooses to specify a proprietary implementation of the Standard, only the test cases that are not based on the Example Implementation are applicable. However, in this case the vendor should himself create test cases for those parts of the system under test that are based on this proprietary specification, and the equipment should successfully pass these test cases.

1.4 Intended Audience

Vendors wishing to manufacture equipment that is conformant to the Standard could use this document to test their equipment. APTA, or test houses designated by APTA, will use the test cases in this document to ascertain the conformance of a piece of equipment offered for certification to the Standard.

1.5 Document Contents

This document is built up as follows:

- Chapter 2 contains the Example Implementation
- Chapter 3 contains the test cases for a PICC
- Chapter 4 contains the test cases for a CID
- Chapter 5 contains the test cases for an ACS
- Chapter 6 contains the test cases for an RCS

2. Example Implementation

2.1 Introduction

This Example Implementation provides some details in areas where the Standard is not specific enough to base test cases on. In particular, this concerns the following areas:

- Although the Standard in Part IV provides a thorough introduction into security planning and best practices for the security of a smart-card-based e-ticketing system, it does consciously not define an actual security infrastructure, so as to leave room for implementations best suited to the needs of a given Regional System. In order to give a more concrete background for the test cases in this Part V of the Standard, section 2.2 provides more details on the keys that could exist in an concrete implementation of the Standard, and the purposes for which these keys could be used. Moreover, an example of a detailed authentication procedure between a CID and a PICC is given. Note that this still is far from a complete description of the security infrastructure of an e-ticketing system, as it does not provide details such as the key diversification algorithms, key transport & refreshment, PICC- and CID blacklisting, fraud prevention and detection, etcetera.
- The exact file structure on a PICC is consciously not defined in the CFMS Standard. In section 2.3 an example file structure is given.
- The exact details of the command and response APDUs that can be exchanged between a PICC and a CID. Part II of the Standard indicates which APDUs defined in ISO 7816-4 should be supported by CFMS-compliant equipment. However, ISO 7816-4 consciously leaves room for certain choices, so as to allow the necessary flexibility to adapt the commands and response to the needs of a given situation. For an actual implementation that must be interoperable, these choices should be unambiguously made and documented. The CFMS Standard does however not provide these details. In order to be able to derive detailed test cases, section 2.4 gives an exhaustive description of all command and response APDUs.
- In order to be able to derive test cases for a CID, information is needed about the transaction flow during the interaction of a PICC and a CID. Because the communication between a CID and a PICC is of the master-slave kind, with the CID playing the role of master, this transaction flow is determined by the CID. The CID specifications should therefore contain use cases that describe what happens when a PICC is hold in front of a CID. Examples of use cases could include:
 - Loading a product on a PICC
 - Checking in a traveler on a certain product on his PICC
 - Providing information to the PICC holder about the last actions performed on his PICC
 - Refunding the T-Purse on a PICC
 - Blocking a product or the PICC itself in case of fraud
 - Etcetera

Use cases must cover all possible transaction flows, based on both (the data on) the PICC and the CID that are involved in the interaction. Section 2.5 provides an example use case for a Check-In.

2.2 Keys in an Example Implementation

Any smart-card-based fare payments system makes use of keys on the cards, in the card readers and in the data collection and reconciliation systems behind it, to ensure the security of the system. As the CFMS Standard does not completely define system security, this section outlines the security system that is used as a basis for the test cases in later parts of this document.

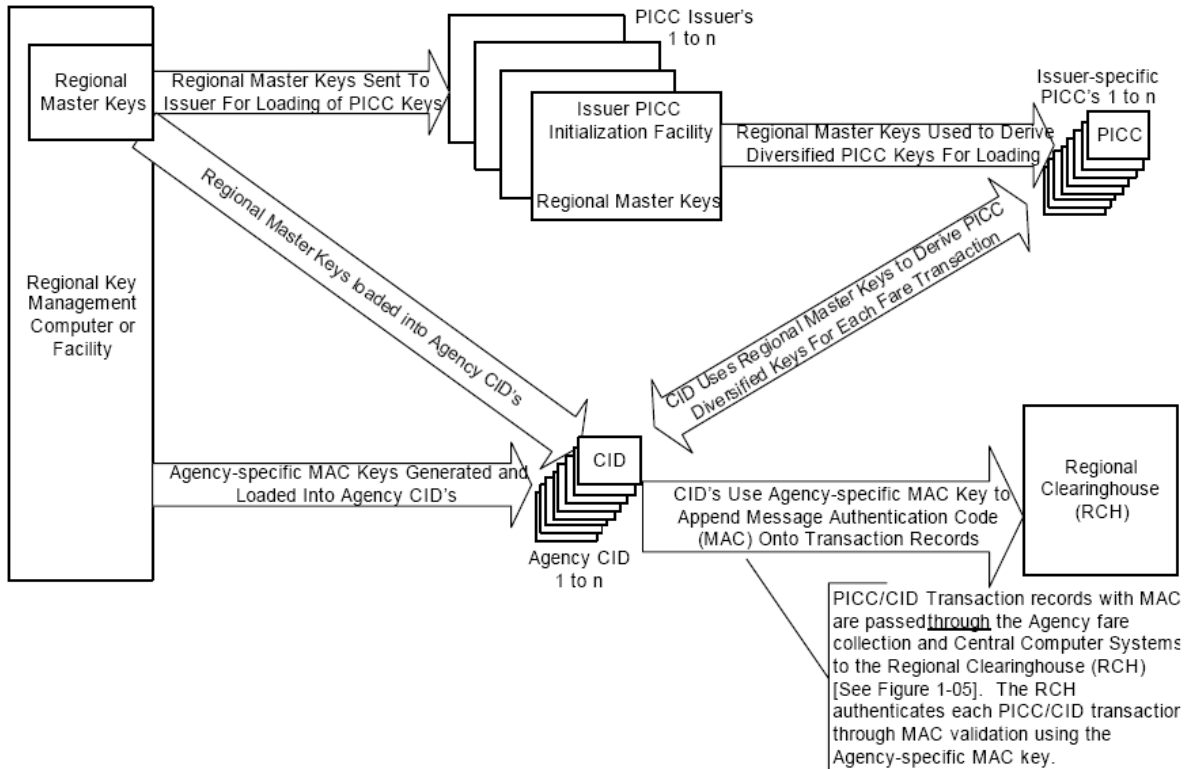


Figure 1: Security Key Relationship¹

Figure 1 gives an overview of the keys that are used in this system.

2.2.1 Regional Master Key Set and Diversified Card Keys

Access to files (or objects) on any PICC should be restricted to CIDs that are in possession of the correct key. Each PICC uses its own keys, which are stored on that PICC.

The objects on a PICC, according to Part II of the Standard, are

- The Directory Index Object (DIO)
- The Transit Application Profile Object (TAPO)

¹ Figure taken from Part 1 of the RIS Standard (Figure 1-04)

- The PICC Holder Profile Object (PHPO), which has a possible Extension File (PHPOX) that contains the PICC Holder Profile Object extensions for the personal information that requires higher security
- The Add & Deduct Value History Object (ADVO)
- The Transaction History Object (THO)
- The Product Index Object (PIO)
- Product Objects, which can be differentiated in
 - Pass Product Objects, which can be interoperable between Agencies or not
 - Transfer Product Objects, which can be interoperable between Agencies or not
 - Stored Value Product Objects, which are always specific to one Agency
 - The T-Purse Product Object (TPPO), which is always interoperable.
 - The Account Linked Product Object, which requires an Account Linked Reference Object that contains sensitive information such as a bank account number. Such a product is interoperable between Agencies.
 - AutoValue Product Objects, which can be interoperable between Agencies or not.

The access conditions for the different objects on a PICC are mentioned in the CFMS Standard Part II, section 6 and 7, and in the descriptions of the different objects. In order to be able to accommodate all of these conditions, the Regional Master Key Set consists of the following master keys:

- ***MK₀***: This is a regional key, which is available to all Agencies participating in the regional scheme and should be loaded into every CID. It gives read access to the core objects on all PICCs, plus read- and write access to all products that are interoperable.
- ***MK_I***: This is an agency-specific key, which should be loaded into all CIDs. It allows reading and writing to the non-interoperable products of the Agency it belongs to.
- ***MK_{PERS}***: This is a regional key that allows updating of the personal information in the DIO, TAPO and PHPO. Writing into these objects should only be allowed by clerk-operated devices.
- ***MK_{PHPOX}***: This is an agency-specific key that gives read- and write access to the sensitive personal information stored in the PHPOX. It should only be available to clerk-operated devices.
- ***MK_{TPPO}***: This is a regional key, available to all Agencies participating in the regional scheme. It should be distributed to all CIDs. It gives read- and write access to the T-purse on the PICC.
- ***MK_{ALRO}***: This is a regional key that gives read- and write access to the sensitive personal information stored in the ALRO. Possibly, this key could be combined with the ***MK_{PHPOX}***.

Core Objects						
	DIO	TAPO	PHPO	PHPOX	ADVO & THO	PIO
Read	MK_0	MK_0	MK_0	MK_{PHPOX}	MK_0	MK_0
Write	MK_{PERS}	MK_{PERS}	MK_{PERS}	MK_{PHPOX}	MK_0	MK_0

Table 1: Keys and Object Access for Core Objects

Product Objects							
	Pass Products	Transfer Products	Stored Value Products	TPPO, TPPOX	ALPO, ALPOX	ALRO, ALROX	AVPO, AVPOX
Read	MK_0 / MK_1	MK_0 / MK_1	MK_1	MK_{TPPO}	MK_0	MK_{ALRO}	MK_0 / MK_1
Write	MK_0 / MK_1	MK_0 / MK_1	MK_1	MK_{TPPO}	MK_0	MK_{ALRO}	MK_0 / MK_1

Table 2: Keys and Object Access for Product Objects

Table 1 and Table 2 give an overview of the different objects on a PICC, together with the keys that grant read- and write access to them.

For each card, a separate key set is derived from the master key set: k_0 , k_1 , k_{PERS} , k_{PHPOX} , k_{TPPO} and k_{ALRO} . The derived keys are card-specific, which means that using a different card means having different key values. This process makes use of some unique property of the card, usually a card identifier, in combination with a cryptographic diversification algorithm, such as TDES. This is a one-way process, meaning that it is not possible to derive a master key from the corresponding card-specific key.

The derived keys are stored on the card in the personalization phase. If a card is presented to a CID, the CID reads out the card identifier and calculates the corresponding card keys with the help of the master keys it contains. To do so, it obviously needs to know the diversification algorithm as well. The master keys themselves are never used during communication with a card.

2.2.2 MAC Keys

For communication with the RCS (or an ACS), each CID appends its messages with a so-called MAC (Message Authentication Code). All answers from the RCS are appended with a MAC as well. The MAC ensures the integrity and authenticity of the message. For the calculation of a MAC, we need the complete message, a MAC key and a MACing algorithm. One property of a MAC is that it changes completely if one bit in the original message is changed, or when a different key is used. Therefore, the receiver of a message can take that message, the MAC key and the MACing algorithm, and recalculate the MAC. If he finds the same value, he can be sure that the message was not changed and came from the party that is in possession of the MAC key.

The MAC key can be regional or agency-specific. If the latter is the case, the agency must safely communicate its MAC key to the RCS, so that the RCS is actually able to verify the MAC over the messages one of the Agency's CIDs sends to it.

2.2.3 Key Storage

To provide a secure storage medium for the master keys in a CID, one could use a so-called security access module (SAM). This SAM is a type of integrated circuit card that is specially designed for storing keys. It is protected against side channel attacks.

Whenever the CID needs a certain card-specific key, it sends the card identifier plus an indication of the key it wants (e.g. k_0). The SAM then sends back the requested card key, without revealing the master key.

In an even safer implementation, the CID could send the information it wants to be encrypted to the SAM, with the card identifier and the key the information should be encrypted with. The SAM then just returns the encrypted information, without revealing either the card key or the master key.

Which of these solutions is the best depends heavily on the speed of the transaction that is required. Because the processing power of the CID itself is much larger than that of a SAM, the first solution will be usually quicker. The balance between speed and security should be addressed when a complete security solution is developed.

2.2.4 Authentication procedure

Suppose a CID wants to read the DIO of a PICC that is presented to it. In order to do so, it needs to authenticate itself to the PICC: in other words: it needs to show that is in possession of key k_0 . Note that the reverse is also true: the CID needs to make sure that is dealing with a genuine PICC that is in possession of the expected keys. Therefore, authentication is mutual: both parties show to the other that they are trustworthy.

The authentication procedure is outlined in this section and illustrated in Figure 2.

As a first step, the CID needs to indicate to the card that it wants to use key k_0 for authentication. ISO 7816-4 has defined the *Manage Secure Environment* command for this. The CID sends this command to the PICC, using some identifier for the key that is general for all PICCs and should be known on beforehand. The card checks whether it contains the key indicated by this identifier and sets it for use if this is the case. If the card indicates it doesn't know this key, authentication is quit and the card is refused. The CID itself must calculate the key k_0 by using the master key MK_0 , the key diversification algorithm and the card identifier it read from the card in an earlier stage.

Next, the CID asks the PICC to show that it is in possession of k_0 . To do so, it generates a random number **Rcid** and sends this to the card in an *Internal Authenticate* command. Upon receipt of this command, the PICC generates two additional random numbers, **Rnd1** and **r1**. It concatenates (puts together) the three random numbers and encrypts them with the TDES algorithm, using k_0 as a key. When the CID receives the response, it decrypts it using the same key and checks whether it retrieves the number **Rcid**. If this is the case, it knows the card has key k_0 and is therefore genuine. Both parties store the randoms **Rnd1** and **r1** for further use in step 5 below. If the number received is not equal to **Rcid**, something is wrong and the CID quits authentication. The card is then refused.

Next, the CID must show to the PICC that is in possession of k_0 . It starts doing so by sending the *Get Challenge* command to the card. The card reacts by generating an 8-byte random number **Rpicc** and sending it to the CID.

Upon receipt of this number, the CID calculates two new random numbers itself, **Rnd2** and **r2**, and concatenates the three numbers. It encrypts the result using the TDES algorithm and k_0 , and sends the result to the PICC in an *External Authenticate* command. When the PICC receives this command, it decrypts it with key k_0 and checks whether the result contains the correct random number **Rpicc**. If so, it knows the CID is genuine and will acknowledge this by sending the 'OK' response. Both parties store the random

numbers **Rnd2** and **r2**. If the number received is unequal to **Rpicc**, something is wrong and the card will refuse to give the CID access to the DIO. The card is then refused.

If all is well, both parties have authenticated itself to the other. It remains to derive some session keys that will be used to ensure the integrity and authenticity of each message and reply between the CID and the PICC during the ensuing communication. For this, we use the randoms **r1** and **r2** that have been exchanged between the two parties. We set $k_{session} = r1 \text{ xor } r2$, where xor is the mathematical ‘bitwise exclusive or’ operator. The session key will be used only for this session: it will be discarded afterwards. Note that the value of $k_{session}$ has no relationship with k_0 and is not directly communicated between the CID and the PICC. Rather, it is derived from two randoms, one from each party, which are exchanged only in encrypted form. This ensures maximum security. The session key is used to calculate a MAC over each message and reply; much as is done for the communication between the RCS and a CID; see section 2.2.2.

One extra step is the calculation of an initial value for a sequence counter. The initial value is calculated by xor-ing the two randoms **Rnd1** and **Rnd2**. This initial value is increased by 1 by both parties every time a command is sent or a reply is received. The current value of the counter is used in the calculation of the MAC. In this way, ‘record and replay’ attacks are made impossible. In this type of attack, the attacker does not know the keys of a card, but simply records the complete communication between a genuine reader and the card, and replays this in a later stage. If we wouldn’t use counters, the MACs over all of these commands would still be valid, and the card would not detect anything wrong. By using (and increasing) a counter, we ensure that this will not work.

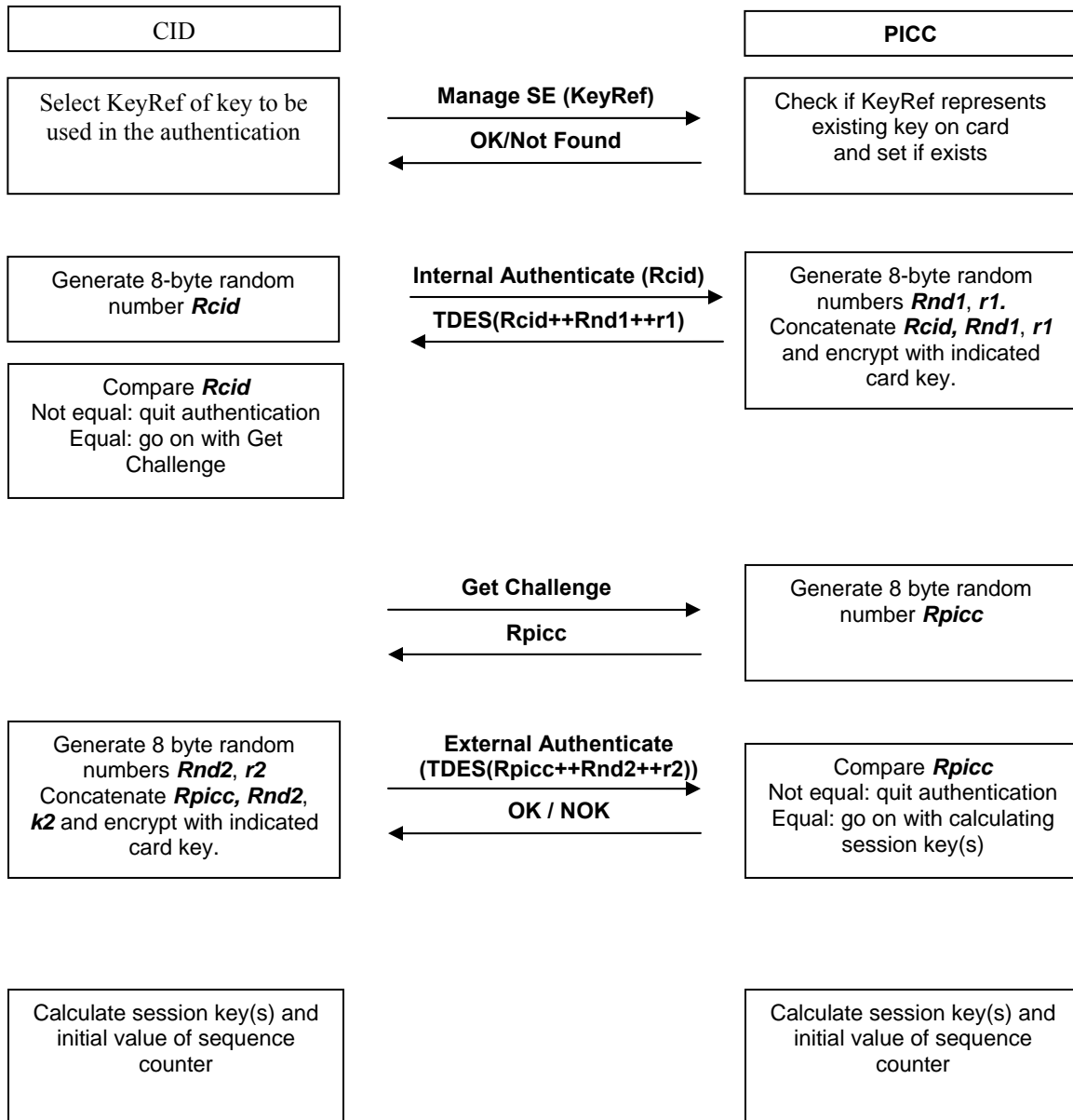


Figure 2: Authentication Procedure

2.3 PICC File Structure

The Standard describes the contents of a PICC in terms of product objects. Figure 3 gives an example of the objects that might be present on a card.

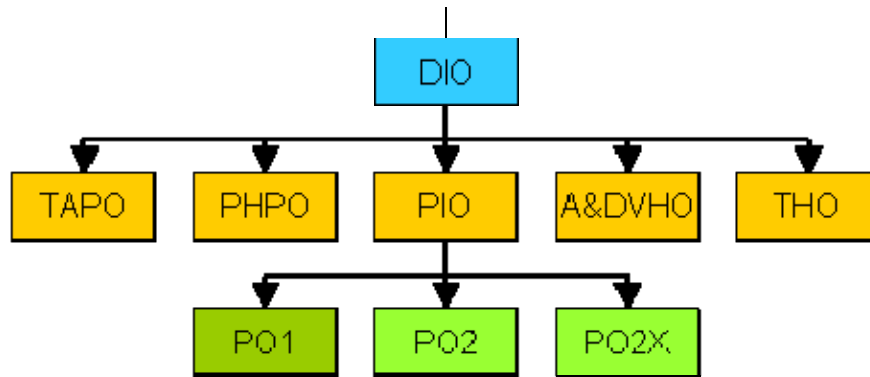


Figure 3: Example Logical Structure during operation

In this example the PICC contains product objects of two agencies. For the first agency, only one product object is present: PO1. For the second agent, there is also only one product present, but the corresponding product object PO2 needs an extension: PO2X. The Product Index Object (PIO) contains the references of all three objects of the agents.

The Standard does not specify much about how this logical structure should be translated into a physical structure. Figure 4 below gives an example of the file structure on a CFMS-compliant PICC. A PICC is an ISO 7816-compliant smart card, which means that it contains a file structure comprised of a Master File (MF) that forms the root, and of Directory Files (DF) and Elementary Files (EF) that act as folders and files, respectively.

The root (MF) contains the CFMS application in a single DF. It is the presence of this application (in the context of smart cards also called an applet) that makes the smart card a CFMS-compliant PICC. Other applets can be present on the smart card as well, but these should be completely independent of the CFMS application. If no other applications are present, the MF may act as the CFMS DF as well. Therefore both the CFMS DF and other DFs are optional.

The CFMS DF contains all files (EFs) which are specified in the Directory Index Object (DIO). The references of the standard objects to be found on any PICC (TAPO, PHPO, PIO, A&DVHO and THO) are partially contained in the DIO. The references (File IDs) of the DIO, TAPO and PHPO need to be known to the user. These files are the so-called transaction independent set and are filled with the desired content. The keys are stored in secure memory and are not part of the file structure.

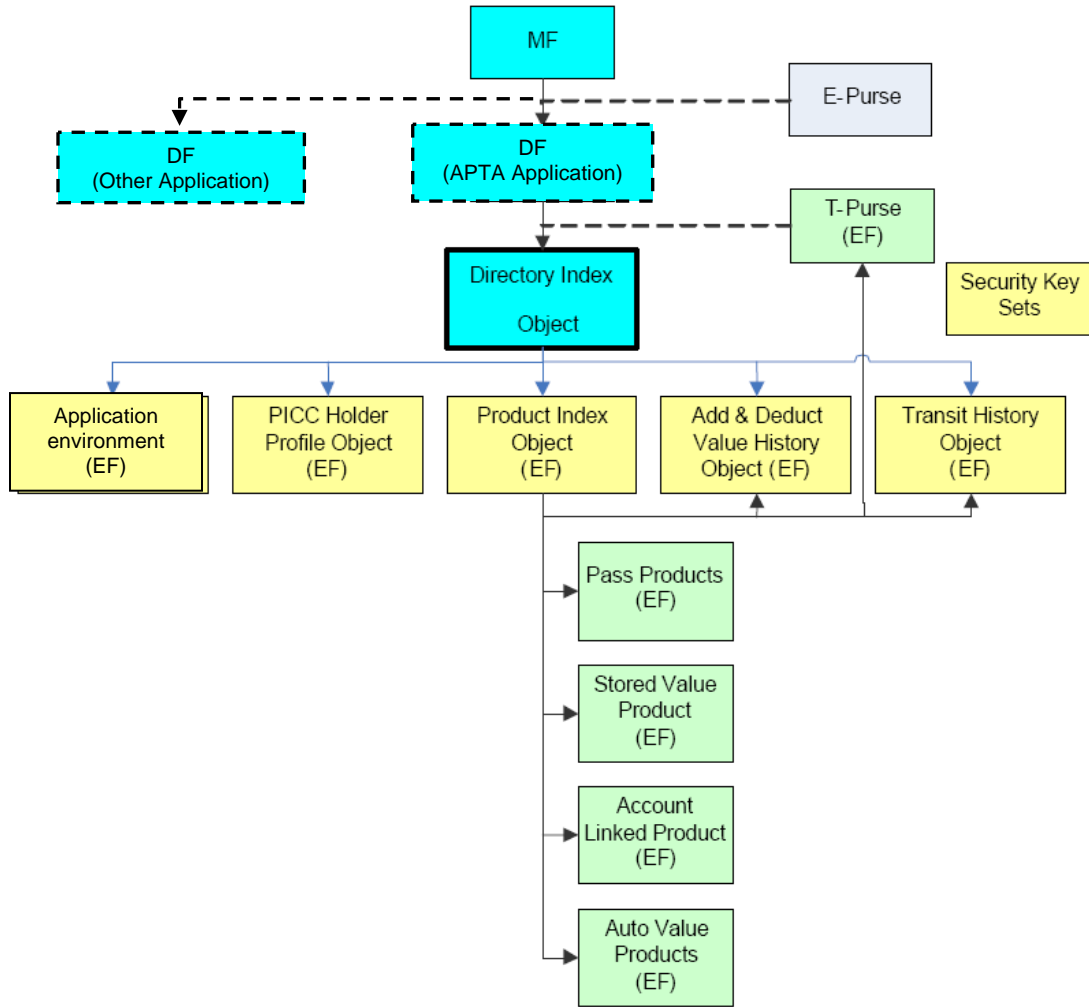


Figure 4: General file structure of a PICC²

² Figure taken from Part II of the APTA Standard (Figure 2)

2.3.1 DIO, PIO and Product Object Relationships

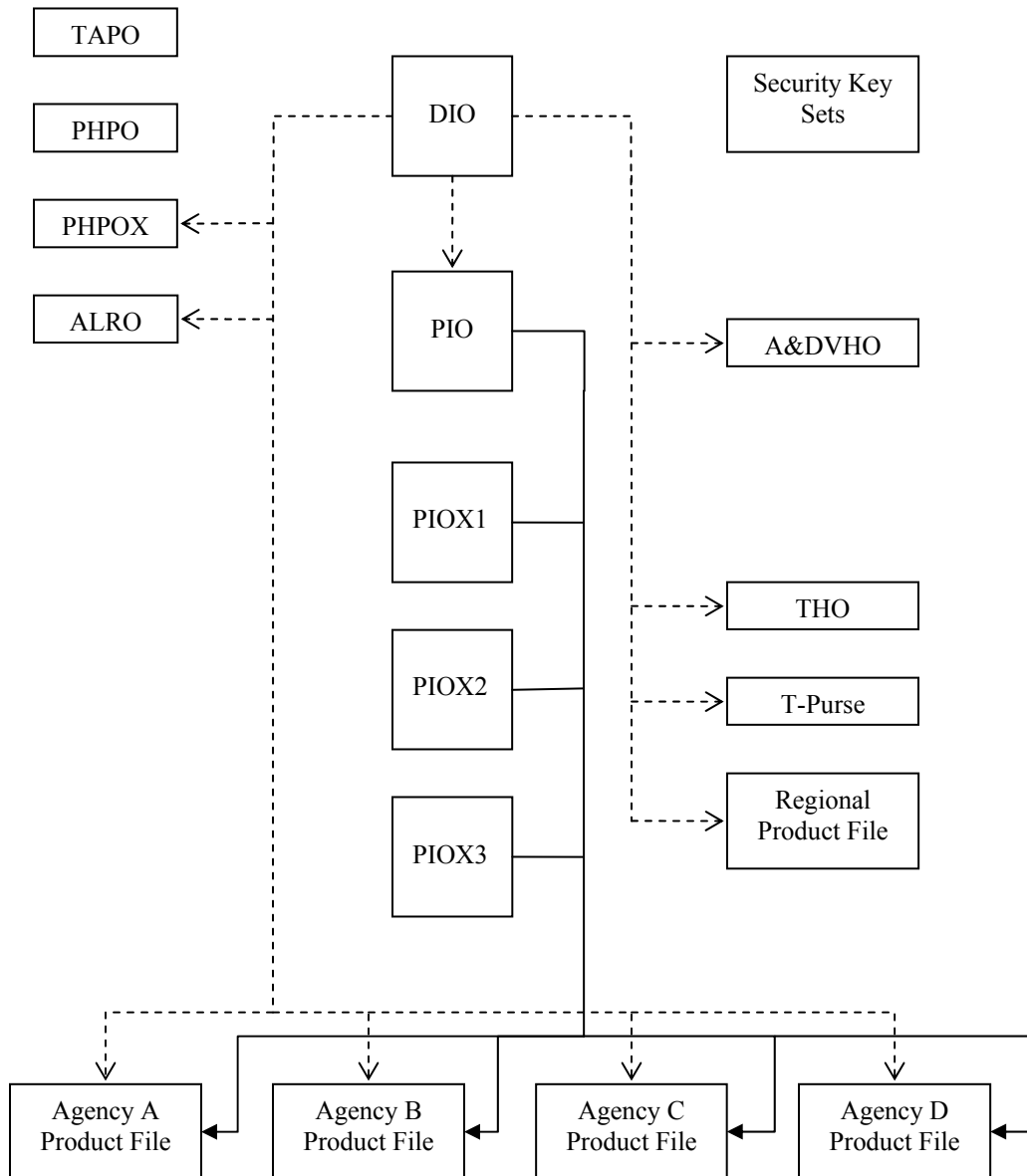


Figure 5: File Structure

Figure 5 shows an example of the file structure on a PICC. Furthermore it shows the relations between those files and the File identifiers in the DIO and PIO files.

In the DIO, references to the Product Files (including the ID of the PIO) are stored. These references are based on the File IDs. Some of the Product Files, like the THO, consist of concatenated 16 byte product objects, such that for every product object with index i (i.e. having pointer value i) its offset has value $i * 16$. In the PIO and its extensions (PIOX1, PIOX2 and PIOX3), pointers are stored in the form of indexes. These pointers refer to the specific objects within the Product Files.

Every file identifier should be uniquely linked with a two byte File ID which can be used in the SELECT command APDU. The pointers in the PIO should be consistently linked with the offsets of the product objects in the product files.

As an example, we look at the Transaction History Object File in EF_THO. This file can consist out of 16 THO objects. In the PIO a pointer is stored (product index) which refer to the most recently used THO object. To read the content of the THO representing the most recent transaction, the following needs to be done after authentication. Assume this is the second THO product object contained in the EF THO:

1. Select the DIO to obtain the File ID of the EF_THO and of the EF_PIO,
2. Select the PIO to obtain the product index of the relevant THO product object in the EF_THO file. This product index will have the value 2.
3. Select the EF_THO file,
4. Perform a Read Binary command with offset on P1/P2 equal to 32 (hexadecimal '20') and number of bytes to read 16 ($L_c = '10'$).

If a product object needs one or more extensions, they are contained in the same file as the product object itself. The only exceptions to this rule are the PHPO extensions. Because these extensions need more security than the PHPO, they are contained in a different file EF_PHPOX.

For all of the non-mandatory extensions of the products referred in the DIO, the DIO indicates if the corresponding extension is present. Furthermore, the number of extensions present – if any - is put in the product extension quantity fields. E.g. the PHPO does have either one or three extensions. In case of three extensions the PHPOX file contains 48 bytes, corresponding to three 16-byte extensions.

2.3.2 Agency Product Files

On the PICC a single file is reserved for every agency partaking in the Regional Scheme. This file contains all the products which are specific for that agency. The DIO contains for every agency three fields: the agencyID, the product fileID and the number of products. In case more than four agencies have agency-specific files on the card, agencies 5 and higher are referenced to in the DIO extension.

In the PIO (or – if necessary - in one of the PIO extensions) for every product also three fields are reserved: the product sub index, the product agencyID and the product type code. According to the guidelines, every transit fare product is represented by a single product object. The product sub index refers to the products position (offset) in the agency product file. These product files can contain pass and transfer product objects, a stored value product object, an auto value product object.

As an example, we assume agency 1 has three products on the card: a stored value product, a pass/transfer product and an auto value product. These products correspond to three product objects. Suppose one likes to obtain the value of the auto value product object. The following needs to be done:

1. Select the DIO to obtain the file ID for the EF_PIO and the fileID of the Agency 1 Product File (the corresponding agency ID field in the DIO must match the ID of agency 1),
2. Select the PIO to obtain the product sub index of the auto value product of agency 1. For this to be obtained the product agency ID must match the agency 1 ID. Furthermore: the product type code must refer to an auto value product (i.e. must have value 7),
3. If the product index is not found in the PIO, then look in the PIO extensions,
4. Perform the necessary additional authentication to be able to read the Agency 1 Product file,

5. Select the Agency 1 Product File,
6. Perform a Read Binary command with the offset based on the product sub index and with Le='10'
(read 16 bytes).

2.3.3 Regional Product File

On the PICC a single file, the Regional Product File, contains all the products which are regional, meaning that they can be used with all Agencies within the Regional Scheme. These products do not require additional authentication. These are regional pass and transfer products. Optionally also a regional auto value product can be included³.

The DIO contains for the file two fields: the product file ID and the product quantity. In the PIO (or – if necessary - in one of the PIO extensions) for every product three fields are reserved: the product sub index, the product agency ID (having value 0: regional) and the product type code. According to the guidelines every transit fare product is represented by a single product object. The product sub index refers to the products position (offset) in the Regional Product File.

³ Note: although an account linked product does not need additional authentication, it is not part of the regional product file. This because it is always used in combination with an account linked reference object, for which additional authentication is required.

2.4 PICC / CID Command and Response APDUs

In this part of the Example Implementation, all command and response APDUs that can be used between a CID and a PICC in a CFMS-compliant scheme are completely specified.

2.4.1 Select

2.4.1.1 Description

The SELECT command is used to select files on the CFMS applet on a PICC. This command can be used for the following purposes:

- Selecting the MF, DF or EF (P1 = '00').
- Selecting a DF under the current DF, by file identifier (P1 = '01').
- Selecting an EF under the current DF, by file identifier (P1 = '02').
- Selecting the parent DF of the current DF (P1 = '03').
- Selecting an EF or a DF by path, from the MF (P1 = '08'). The MF identifier should not be included in the path.
- Selecting an EF or a DF by path, from the current DF (P1 = '09'). The current DF identifier should not be included in the path.

If P1 = '00', the following rules apply:

- If the data field is absent, the MF is selected. Alternatively, the MF may be selected by sending the value '3F 00' in the data field.
- If any other file identifier is sent in the data field, the applet starts looking for a DF or EF with that file identifier in the current DF. If it finds one, that file is selected. Otherwise, the applet checks whether the current DF itself has the given identifier. If so, that DF is (re-) selected. Otherwise, an error is returned.

2.4.1.2 Conditional use

- Successful authentication with the correct key is required; see section 2.2.1.
- The SELECT command can only be used in Secure Messaging mode, i.e. a MAC (Cryptographic checksum) must be appended to the message. This requires that the CID and the PICC have mutually authenticated each other. The only exception to this is the selection of the MF, which can be selected without prior authentication.

2.4.1.3 Command APDU

2.4.1.3.1 Select MF without SM

Parameter	Value (hex) / Description	Length (bytes)
CLA	'0C'	1
INS	'A4'	1
P1	'00'	1
P2	'0C' (No response data)	1
L _c field	'00' or '02' (Length of data field in SM mode, see table below)	1
Data field	'3F 00' or empty	0 or 2
L _c field	'00'	1

2.4.1.3.2 Select MF, EF or DF

Parameter	Value (hex) / Description	Length (bytes)
CLA	'0C'	1
INS	'A4'	1
P1	'00'	1
P2	'0C' (No response data)	1
L _c field	'0A' or '06' (Length of data field in SM mode, see table below)	1
Data field	See table below	6 or 10
L _c field	'00'	1

Data field for secure messaging

Description	Value (hex)	Length (bytes)
T _{PD} : Tag for plain input data. May be absent if MF is selected	'81'	1
L _{PD} : Length of plain input data. May be absent if MF is selected	'02'	1
V _{PD} : Plain input data: file identifier. May be absent if MF is selected		2
T _{CC} : Tag for cryptographic checksum	'8E'	1
L _{CC} : Length of cryptographic checksum V _{CC}	'04'	1
V _{CC} : 4 most significant bytes of cryptographic checksum		4

2.4.1.3.3 Select DF under current DF by file identifier

Parameter	Value (hex) / Description	Length (bytes)
CLA	'0C'	1
INS	'A4'	1
P1	'01'	1
P2	'0C' (No response data)	1
L _c field	'0A' (Length of data field in SM mode, see table below)	1
Data field	See table below	10
L _c field	'00'	1

Data field for secure messaging

Description	Value (hex)	Length (bytes)
T _{PD} : Tag for plain input data	'81'	1
L _{PD} : Length of plain input data	'02'	1
V _{PD} : Plain input data: file identifier		2
T _{CC} : Tag for cryptographic checksum	'8E'	1
L _{CC} : Length of cryptographic checksum V _{CC}	'04'	1
V _{CC} : 4 most significant bytes of cryptographic checksum		4

2.4.1.3.4 Select EF under current DF by file identifier

Parameter	Value (hex) / Description	Length (bytes)
CLA	'0C'	1
INS	'A4'	1
P1	'02'	1
P2	'0C' (No response data)	1
L _c field	'0A' (Length of data field in SM mode, see table below)	1
Data field	See table below	10

L _c field	'00'	1
----------------------	------	---

Data field for secure messaging

Description	Value (hex)	Length (bytes)
T _{PD} : Tag for plain input data	'81'	1
L _{PD} : Length of plain input data	'02'	1
V _{PD} : Plain input data: file identifier		2
T _{CC} : Tag for cryptographic checksum	'8E'	1
L _{CC} : Length of cryptographic checksum V _{CC}	'04'	1
V _{CC} : 4 most significant bytes of cryptographic checksum		4

2.4.1.3.5 Select parent DF of current DF

Parameter	Value (hex) / Description	Length (bytes)
CLA	'0C'	1
INS	'A4'	1
P1	'03'	1
P2	'0C' (No response data)	1
L _c field	'06' (Length of data field in SM mode, see table below)	1
Data field	See table below	6

Data field for secure messaging

Description	Value (hex)	Length (bytes)
T _{CC} : Tag for cryptographic checksum	'8E'	1
L _{CC} : Length of cryptographic checksum V _{CC}	'04'	1
V _{CC} : 4 most significant bytes of cryptographic checksum		4

2.4.1.3.6 Select EF or DF by path, from the MF

Parameter	Value (hex) / Description	Length (bytes)
CLA	'0C'	1
INS	'A4'	1
P1	'08'	1
P2	'0C' (No response data)	1
L _c field	(Length of data field in SM mode, see table below)	1
Data field	See table below	

Data field for secure messaging

Description	Value (hex)	Length (bytes)
T _{PD} : Tag for plain input data	'81'	1
L _{PD} : Length of plain input data V _{PD}		1
V _{PD} : Path, without the MF identifier		Multiple of 2
T _{CC} : Tag for cryptographic checksum	'8E'	1
L _{CC} : Length of cryptographic checksum V _{CC}	'04'	1
V _{CC} : 4 most significant bytes of cryptographic checksum		4

2.4.1.3.7 Select EF or DF by path, from the current DF

Parameter	Value (hex) / Description	Length (bytes)
CLA	'0C'	1
INS	'A4'	1
P1	'09'	1
P2	'0C' (No response data)	1
L _c field	(Length of data field in SM mode, see table below)	1
Data field	See table below	

Data field for secure messaging

Description	Value (hex)	Length (bytes)
T _{PD} : Tag for plain input data	'81'	1
L _{PD} : Length of plain input data V _{PD}		1
V _{PD} : Path, without the current DF identifier		Multiple of 2
T _{CC} : Tag for cryptographic checksum	'8E'	1
L _{CC} : Length of cryptographic checksum V _{CC}	'04'	1
V _{CC} : 4 most significant bytes of cryptographic checksum		4

2.4.1.4 Response APDU for Select MF without SM

Parameter	Value (hex) / Description	Length (bytes)
SW1-SW2	Status bytes, see 2.4.1.6	2

2.4.1.5 Response APDU for SM

Description	Value (hex)	Length (bytes)
T _{SW} : Tag for regular status bytes	'99'	1
L _{SW} : Length for regular status bytes V _{SW} :		1
V _{SW} : Status bytes, see 2.4.1.6		2
T _{CC} : Tag for cryptographic checksum	'8E'	1
L _{CC} : Length of cryptographic checksum V _{CC}	'04'	1
V _{CC} : 4 most significant bytes of cryptographic checksum		4
Status bytes, see 2.4.1.6		

2.4.1.6 Status bytes

Status bytes (hex)	Meaning
'90 00'	Command completed successfully
'67 00'	L _c is not consistent with the length of the provided command data field
'69 82'	Secure Messaging needed: CLA = '00'
'69 84'	Incorrect structure of TLV data
'69 87'	Expected SM objects are missing
'69 88'	Incorrect SM objects
'6A 80'	Missing, superfluous or incorrect command data field. (Exact meaning depending on value of P1)
'6A 82'	File or application not found
'6A 86'	Incorrect parameters P1 – P2
'6E 00'	Invalid CLA byte: CLA ≠ '00' and CLA ≠ '0C'

2.4.1.7 Notes

If the current DF is the MF and the parent DF is selected (P1 = '03'), status word '6A 82' will be returned.

2.4.2 Read Binary

2.4.2.1 Description

The READ BINARY response data field gives (part of) the content of an EF of transparent structure. It can be used in two ways: either the file to be read is indicated by its Short File Identifier (SFI), or an EF must have been selected before this command is performed. Note that SFIs are unique only within a DF. Therefore, before a file can be read by indicating its SFI, the DF in which that file is located needs to be selected.

2.4.2.2 Conditional use

An EF has to be selected before this command is performed, if no SFI is indicated in the command APDU. Otherwise, a file with the given SFI must be present in the current DF.

If an SFI is given on P1, it should have bits 8, 7, 6 set to 1, 0, 0. Bits 5–1 should not be all equal.

Successful authentication with the correct key is required; see section 2.2.1.

This command can only be used in Secure Messaging mode, i.e. a MAC (Cryptographic checksum) must be appended to the message.

2.4.2.3 Command APDU (no SFI provided)

Parameter	Value (hex) / Description	Length (bytes)
CLA	'00'	1
INS	'B0'	1
P1	Offset in bytes from the beginning of the file: MSB; Bit 8 = 0.	1
P2	Offset in bytes from the beginning of the file: LSB	1
Lc	'09' Length of data field	1
Data field	See below	
L _c field	'00', as specified in ISO 7816-4	1

2.4.2.4 Command APDU (SFI provided)

Parameter	Value (hex) / Description	Length (bytes)
-----------	---------------------------	----------------

CLA	'00'	1
INS	'B0'	1
P1	Bit 8, 7, 6 = 1, 0, 0. Bit 5 – 1: SFI	1
P2	Offset in bytes from the beginning of the file	1
Lc	'09' or '0A' Length of data field	1
Data field	See below	
L _c field	'00', as specified in ISO 7816-4	1

Data field for secure messaging

Description	Value (hex)	Length (bytes)
T _{LE} : Tag for expected length specification	'97'	1
L _{LE} : Length of expected length	'01'	1
V _{LE} : Expected length of data		1 or 2
T _{CC} : Tag for cryptographic checksum	'8E'	1
L _{CC} : Length of cryptographic checksum	'04'	1
V _{CC} : 4 most significant bytes of cryptographic checksum		4

2.4.2.5 Response APDU

Description	Value (hex)	Length (bytes)
T _{PD} : Tag for plain data	'81'	1
L _{PD} : Length of plain data If L _{PD} ≤ 127	'XX'	1
If L _{PD} > 127	'81 XX'	2
Plain data read		N
T _{SW} : Tag for regular status bytes	'99'	1
L _{SW} : Length for regular status bytes	'02'	1
Status bytes, see 2.4.2.6		2

T _{CC} : Tag for cryptographic checksum	'8E'	1
L _{CC} : Length of cryptographic checksum	'04'	1
4 most significant bytes of cryptographic checksum		4
Status bytes, see 2.4.2.6		2

2.4.2.6 Status bytes

Status Word (hex)	Meaning
'90 00'	Command completed successfully
'62 82'	End of file reached before reading N _c bytes
'69 82'	Access conditions not satisfied, SM needed
'69 86'	No EF selected (Possible only if no SFI provided in command APDU)
'69 87'	Expected SM objects are missing
'69 88'	Incorrect SM objects
'6A 82'	No file with this SFI found in the current DF. (Possible only if an SFI provided in command APDU)
'6A 86'	Invalid P1/P2: Offset ≥ EF size or invalid SFI
'6E 00'	Invalid CLA byte: CLA ≠ '00' and CLA ≠ '0C'

2.4.2.7 Notes

EFs larger than 32,767 bytes are not supported.

2.4.3 Update Binary

2.4.3.1 Description

The UPDATE BINARY command initiates the update of bits already present in an EF with the bits given in the command data field. It can be used in two ways: either the file to be updated is indicated by its Short File Identifier (SFI), or an EF must have been selected before this command is performed. Note that SFIs are unique only within a DF. Therefore, before a file can be updated by indicating its SFI, the DF in which that file is located needs to be selected.

2.4.3.2 Conditional use

The UPDATE BINARY command can be used only in Secure Messaging mode.

An EF must have been selected if no SFI is provided in the command. Otherwise, the DF containing the EF with the given SFI must have been selected.

If an SFI is given on P1, it should have bits 8, 7, 6 set to 1, 0, 0. Bits 5–1 should not be all equal.

Successful authentication with the correct key is required; see section 2.2.1.

This command can only be used in Secure Messaging mode, i.e. a MAC (Cryptographic checksum) must be appended to the message.

2.4.3.3 Command APDU (no SFI provided)

Parameter	Value (hex) / Description	Length (bytes)
CLA	'0C'	1
INS	'D6'	1
P1	Offset in bytes from the beginning of the file: MSB. Bit 8 = 0.	1
P2	Offset in bytes from the beginning of the file: LSB	1
L _c field	Length of data field	1
Data field	See below	
L _c field	'00', as specified in ISO 7816-4	1

2.4.3.4 Command APDU (SFI provided)

Parameter	Value (hex) / Description	Length (bytes)
-----------	---------------------------	----------------

CLA	'0C'	1
INS	'D6'	1
P1	Bit 8, 7, 6 = 1, 0, 0. Bit 5 – 1: SFI	1
P2	Offset in bytes from the beginning of the file	1
L _c field	Length of data field	1
Data field	See below	
L _c field	'00', as specified in ISO 7816-4	1

Data field for secure messaging

Description	Value (hex)	Length (bytes)
T _{PV} : Tag for plain data to be written	'81'	1
L _{PD} : Length of plain data to be written		
If L _{PD} ≤ 127	'XX'	1
If L _{PD} > 127	'81 XX'	2
V _{PV} : Plain data to be written		N
T _{CC} : Tag for cryptographic checksum	'8E'	1
L _{CC} : Length of cryptographic checksum	'04'	1
V _{CC} : 4 most significant bytes of cryptographic checksum		4

2.4.3.5 Response APDU

Description	Value (hex)	Length (bytes)
T _{SW} : Tag for regular status bytes	'99'	1
L _{SW} : Length for regular status bytes	'02'	1
V _{SW} : Status bytes, see 2.4.3.6		2
T _{CC} : Tag for cryptographic checksum	'8E'	1
L _{CC} : Length of cryptographic checksum	'04'	1

V _{cc} checksum	: 4 most significant bytes of cryptographic		4
Status bytes, see 2.4.3.6			2

2.4.3.6 Status bytes

Status Word (hex)	Meaning
'90 00'	Command completed successfully
'67 00'	L _c is not consistent with the length of the provided command data field
'69 82'	Secure messaging needed: CLA = '00'
'69 84'	Incorrect structure of TLV data
'69 86'	No EF selected (Possible only if no SFI provided in command APDU)
'69 87'	Expected SM objects are missing
'69 88'	Incorrect SM objects
'6A 80'	The size of the data to be written (plus the offset) is larger than the file size
'6A 82'	No file with this SFI found in the current DF. (Possible only if an SFI provided in command APDU)
'6A 86'	Invalid P1/P2: Offset ≥ EF size or invalid SFI
'6E 00'	Invalid CLA byte: CLA ≠ '00' and CLA ≠ '0C'

2.4.3.7 Notes

UPDATE BINARY cannot be used to write keys and other sensitive data

2.4.4 Manage Security Environment

2.4.4.1 Description

The MANAGE SECURITY ENVIRONMENT command is used to let the PICC know which key is to be used in the authentication. As input the CID uses an 8 byte key reference which can refer to the diversified key k_0 , k_1 , k_{PERS} , k_{PHPOX} , k_{TPPO} or k_{ALRO} .

2.4.4.2 Conditional use

The MANAGE SE command cannot be used in Secure Messaging mode.

2.4.4.3 Command APDU

Parameter	Value (hex) / Description	Length (bytes)
CLA	'00'	1
INS	'22'	1
P1	'41'	1
P2	'A4'	1
L _c field	Var.	1
Data field	Key Reference to be set (see below)	

Data field for Manage SE

Description	Value (hex)	Length (bytes)
Control Reference Data Object: tag Key Reference	'83'	1
Length of Key Reference		
Key Reference		

2.4.4.4 Response APDU

Description	Value (hex)	Length (bytes)
Status bytes, see 2.4.4.5		2

2.4.4.5 Status bytes

Status Word (hex)	Meaning
'90 00'	Command completed successfully
'68 82'	Secure Messaging not supported (only possible if CLA = '0C')
'69 85'	Command not immediately preceded with GET CHALLENGE command
'69 88'	Verification of cryptogram not successful
'6A 88'	Key reference set by MANAGE SE command not found
'6E 00'	Invalid CLA byte: CLA ≠ '00' and CLA ≠ '0C'

2.4.5 Internal Authenticate

2.4.5.1 Description

Using the INTERNAL AUTHENTICATE command the CID can authenticate the PICC. As input the CID generates an 8 byte random number *Rcid*. As response the PICC returns the encryption of the value *Rcid*++*Rnd1*++*r1*, (*Rnd1* and *r1* are 8 byte random numbers generated by the PICC) with the corresponding diversified key referenced by the key ref set by the MANAGE SE command.

If after decryption the head of the response is equal to the *Rcid* generated before, then the CID has authenticated the card.

2.4.5.2 Conditional use

The INTERNAL AUTHENTICATE command cannot be used in Secure Messaging mode.

2.4.5.3 Command APDU

Parameter	Value (hex) / Description	Length (bytes)
CLA	'00'	1
INS	'88'	1
P1	'00'	1

P2	'00'	1
L _c field	'08'	1
Data field	See below	
L _c field	'18' (length encrypted response of PICC)	1

Data field for Internal Authenticate

Description	Value (hex)	Length (bytes)
<i>Rcid</i> : Random number generated by CID	Var.	8

2.4.5.4 Response APDU

Description	Value (hex)	Length (bytes)
Encrypted <i>Rcid</i> ++ <i>Rnd1</i> ++ <i>r1</i>	Var.	24
Status bytes, see 2.4.5.5		2

2.4.5.5 Status bytes

Status Word (hex)	Meaning
'90 00'	Command completed successfully
'67 00'	L _c is not consistent with the length of data field or L _c ≠ '08'
'68 82'	Secure Messaging not supported (only possible if CLA = '0C')
'6A 86'	Invalid P1/P2: not equal to '00 00'.
'6A 88'	Key referenced by previous MANAGE SE command not found
'6C 00'	Wrong length: L _c ≠ '18'
'6E 00'	Invalid CLA byte: CLA ≠ '00' and CLA ≠ '0C'

2.4.6 Get Challenge

2.4.6.1 Description

The GET CHALLENGE command returns a true 8 byte random number *Rpicc*. Directly after this command the EXTERNAL AUTHENTICATE shall be used.

2.4.6.2 Conditional use

The GET CHALLENGE command cannot be used in Secure Messaging mode.

2.4.6.3 Command APDU

Parameter	Value (hex) / Description	Length (bytes)
CLA	'00'	1
INS	'84'	1
P1	'00'	1
P2	'00'	1
L _c field	'08'	1

2.4.6.4 Response APDU

Description	Value (hex)	Length (bytes)
8 byte Challenge <i>Rpicc</i> generated by the PICC		8
Status bytes, see 2.4.6.5		2

2.4.6.5 Status bytes

Status Word (hex)	Meaning
'90 00'	Command completed successfully
'68 82'	Secure Messaging not supported (only possible if CLA = '0C')
'6A 86'	Invalid P1/P2: not equal to '00 00'.

'6C 00'	Wrong length: $L_c \neq '08'$
'6E 00'	Invalid CLA byte: $CLA \neq '00'$ and $CLA \neq '0C'$

2.4.7 External Authenticate

2.4.7.1 Description

Using the EXTERNAL AUTHENTICATE command the PICC can authenticate the CID. As input the CID uses the 8 byte random number *Rpicc* of in the previous GET CHALLENGE response and concatenates it with a 8 byte random number *Rnd2*. Then it encrypts the result with the derived diversified key which corresponds to the key reference set by the MANAGE SE command.

If after decryption the first 8 bytes of the command data received by the PICC is equal to the *Rpicc* generated before, then the PICC has authenticated the CID.

2.4.7.2 Conditional use

The previous command must be a successfully performed GET CHALLENGE command.

The EXTERNAL AUTHENTICATE command cannot be used in Secure Messaging mode.

2.4.7.3 Command APDU

Parameter	Value (hex) / Description	Length (bytes)
CLA	'00'	1
INS	'82'	1
P1	'00'	1
P2	'00'	1
L_c field	'18'	1
Data field	Cryptogram (see below)	

Data field for External Authenticate

Description	Value (hex)	Length (bytes)
Encrypted <i>Rpicc</i> ++ <i>Rnd2</i> ++ <i>r2</i> (both 8 byte random numbers generated by CID)	Var.	24

2.4.7.4 Response APDU

Description	Value (hex)	Length (bytes)
Status bytes, see 2.4.7.5		2

2.4.7.5 Status bytes

Status Word (hex)	Meaning
'90 00'	Command completed successfully
'67 00'	L_c is not consistent with the length of data field or $L_c \neq '18'$
'68 82'	Secure Messaging not supported (only possible if CLA = '0C')
'69 85'	Command not immediately preceded with GET CHALLENGE command
'69 88'	Verification cryptogram not succeeded
'6A 86'	Invalid P1/P2: not equal to '00 00'.
'6A 88'	Key reference set by MANAGE SE command not found
'6E 00'	Invalid CLA byte: $CLA \neq '00'$ and $CLA \neq '0C'$

2.5 PICC / CID Use Case and Transaction Flow

When a CID and a PICC interact, the transaction flow will in general depend on the data on the PICC, specific CID parameters and transaction parameters. Relevant PICC parameters might include

- The validity period of the PICC
- The number and type of fare products present on the PICC
- The history of the PICC: e.g. when a check-in is performed on a certain product, the next check-out should be on that product
- Etc.

Relevant CID parameters might include

- The type of CID: e.g. a device capable of selling products or checking in a traveler
- The location of the CID
- The agency to which the CID belongs
- The products known and accepted by the CID
- Etc.

Relevant transactions parameters might include:

- The type of transaction, e.g. a product sale or a check-in. This might be determined automatically by the CID, or it may depend on a choice of the traveler.
- Whether or not the card number is checked against a blacklist (and whether the card number is on that blacklist).
- Other circumstances such as the success or failure of a payment that must be made as part of the transaction

In Figure 6, Figure 7, Figure 8 and Figure 9 plus the accompanying text, a Check In use case is described. The use case is still rather general, and consists of three steps:

1. Initial application processing
2. General transaction processing
3. Processing of Regional or Agency Specific products – or possibly both

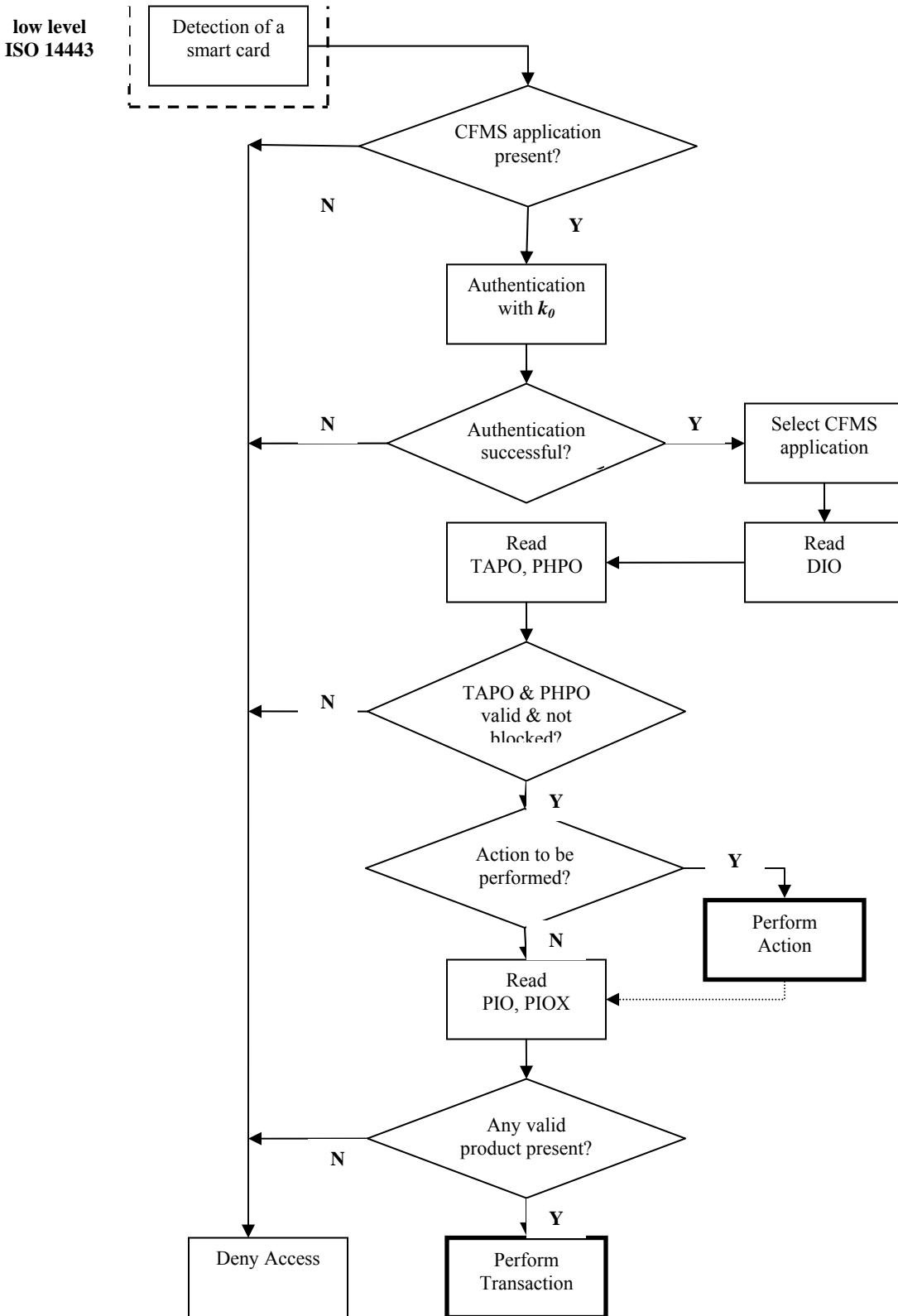


Figure 6: Initial application processing

2.5.1 Initial Application Processing

Initial application processing starts when a smart card is detected by the CID and basic communication using the ISO 14443 A or B protocol is established. In order the following steps are done:

1. The CID verifies that a CFMS application is present on the card. Presumably, it does so by checking the Application Identifier (AID) of the DFs directly in the root (MF) of the smart card. If no known AID is present, the card is not a valid PICC and the traveler is denied access.
2. If a CFMS application is found, the CID tries to authenticate itself with key k_0 , using the protocol described in section 2.2.4. If this does not succeed, the PICC is rejected and the traveler is denied access. (In such a case the PICC probably belongs to another Regional Scheme, using a different k_0 .)
3. If authentication is successful, the CFMS application is selected and the DIO, TAPO and PHPO are read. If they are not present or not readable, the PICC is rejected and the traveler is denied access.
4. Next, the CID checks whether the TAPO and PHPO are blocked. This is done by checking the value of *RtsTransAppStatus* in the PIO. If this field has value 0 then the transit application is unblocked and active. For values 1 and 2 the transit application is negative listed and blocked, making. If the application is not blocked, the CID checks the validity of the TAPO and the PHPO, as follows:

TAPO:

The validity of the TAPO can be checked by comparing the current date with the following two fields: *RtsTransitExpirationDate* (pos 34-49), *RtsPICCValidityPeriod* (pos 50-52). The validity period is the number of years prior to the transit expiration date from which the transit application is valid (if 0 then valid from issue until expiration date). If the current date is within the validity period of the transit application then the TAPO is considered to be valid.

PHPO:

The validity of the PHPO can be checked by comparing the current date with the following two fields: *RtsProfileStartDate* (pos 16-31) and *RtsProfileExpirationDate* (pos 32-47). The profile for the PICC holder is valid from the Profile Start Date until (and including) the Profile Expiration Date. If the current date is within the validity period of the profile then the PHPO is considered to be valid.

5. The CID now checks whether there is an action to perform for this PICC. Actions are one of the four types of the so-called PICC Scheme Control Messages which come to the PICC from the RCS via the local subsystem controllers. The PIO contains the two data elements needed to support the so called Autoload events: *RstActionMap* and *RstActionEventID*. The *ActionEventID* contains the identifier of the highest event that was loaded on the card. The *RtsActionMap* contains 8 bits representing the ActionEventID-1 until ActionEventID-8. If any of these action events are still pending (i.e. not loaded into the PICC yet) the corresponding bit is set to 0. When this is the case, this action needs to be performed. How this is done is not described here. In some cases, the transaction will end at this stage. An action could for instance involve the blocking of the PICC. Normally, however, the transaction will proceed with the next step.
6. The PIO and possibly PIOX are read to see if there are any valid products present on the PICC. In the DIO the number of products of the different Agencies are specified. In the PIO and PIOX the corresponding offsets in the Agency Product Files are set. For each present product i it is indicated in the field *RtsProductTypeCode* whether the product is expired or not (value 0 means it is expired). If this is not the case, the PICC is reject and the traveler is denied access. If the CID

detects valid products, it proceeds with the general transaction processing, which is described in 2.5.2

2.5.2 General Transaction Processing

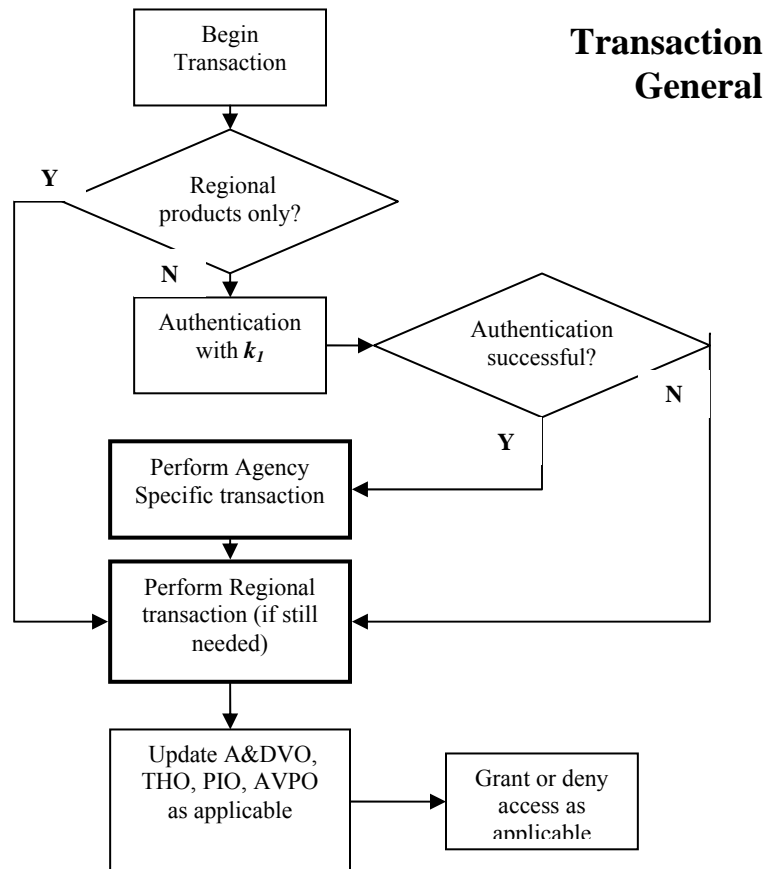


Figure 7: Transaction – General

Depending on which type of products (Regional or Agency Specific) is/are present on the PICC, a Regional or Agency Specific transaction, or both, must be performed. The order is not prescribed. The exact conditions that determine whether Regional or Agency Specific transaction processing should be executed are not described here.

After the transaction(s) is/are performed, the A&DVO, THO, PIO and AVPO objects should be updated as necessary. Note that if Agency Specific products must be used, the CID should perform an authentication with the key k_I of the relevant Agency. If this authentication is not successful, only a Regional transaction can be performed.

2.5.3 Agency Specific Transaction Processing

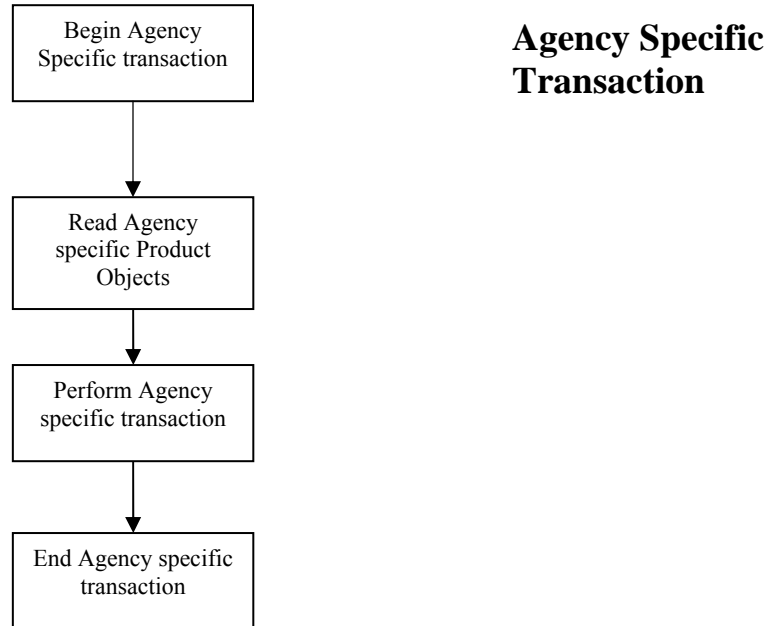


Figure 8: Agency Specific Transaction

During an Agency Specific transaction, the CID has to read the Agency specific product objects as described in section 2.3.2.

Note that the way in which the Agency specific transaction is performed is not specified in the flow diagram.

2.5.4 Regional Transaction Processing

During a Regional transaction, the CID has to read the Regional product objects are read. These are stored in the Regional Product File, see section 2.3.3.

The CID checks whether an Account Linked product or the T-Purse has to be used. The rules to determine this are not described here. Note that the order in the flow diagram is not mandatory. If one of these products should be used, the CID has to authenticate itself with k_{ALRO} or k_{TTPO} . If an authentication does not succeed, the corresponding product object may not be accessed.

Note that the way in which the Regional specific transaction is performed is not specified in the flow diagram.

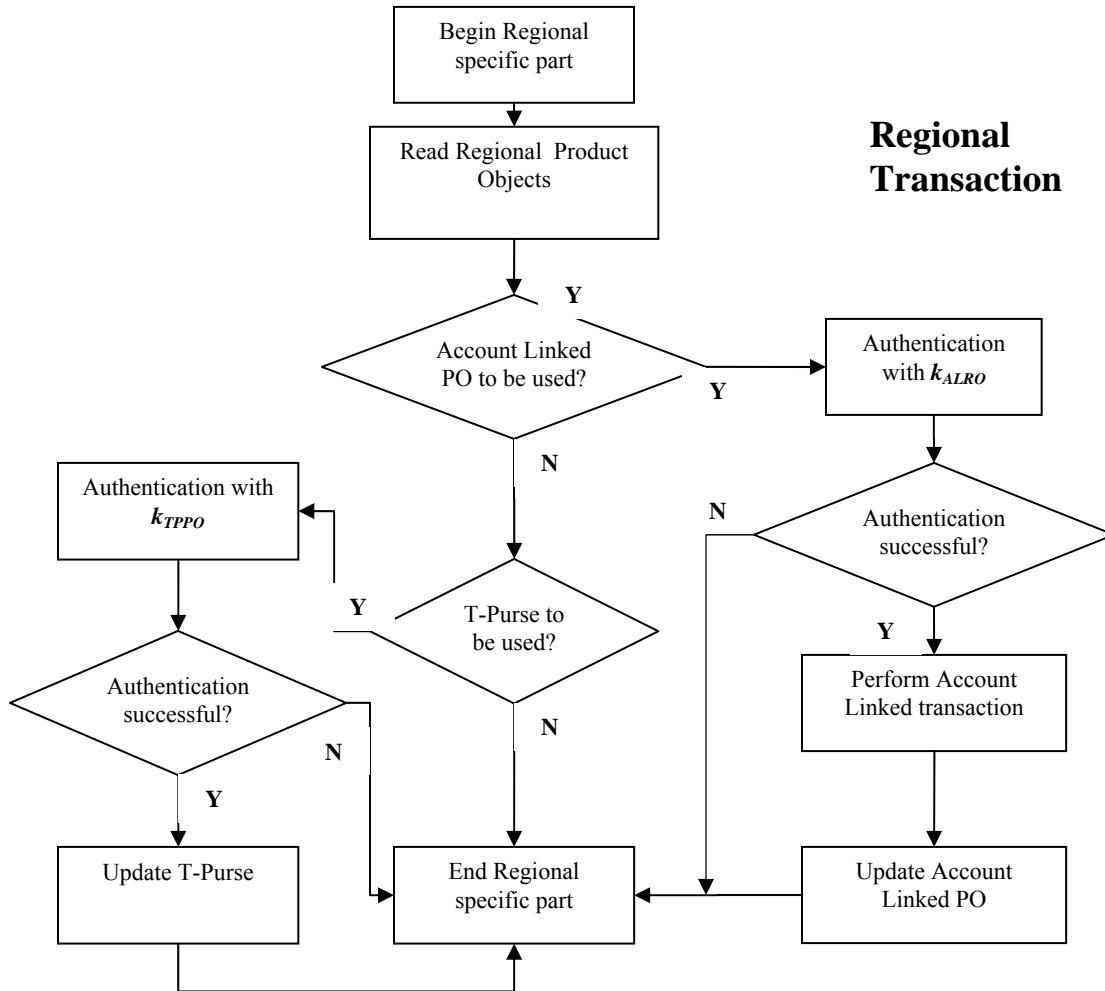


Figure 9: Transaction - Regional Specific

2.6 The CFMS Anti-Tear Mechanism

2.6.1 Introduction

Contactless cards are especially vulnerable for the occurring of partial transactions. A partial transaction might happen if the card is removed from the card reader field before the transaction is finished. In such a case, in general some data will already be written to the card, so that the card is not in a well-defined state. This might render the card unusable.

Such partial transactions are commonly referred to as tear events. Some protection mechanism is needed, and known as an anti-tear mechanism or tear mitigation. An anti-tear mechanism will take care that the card is always in a well-defined state, even after a partial transaction. This means that logically speaking, the card is not changed if a transaction was completed only partially, although physically speaking it is changed. When a card (or product object) is protected in this way it is called tear-proof.

On a CFMS-compliant card, the following objects need to be tear-proof:

- PIO (Product Index Object)
- Stored Value Products (including the T-Purse)
- Pass Product Objects
- Auto Value Product
- Account Linked Product Object

Note that the TAPO and the PHPO can only be changed (if at all) at manned devices, where the risk of the card being removed prematurely is less. Therefore these objects are not tear-protected.

2.6.2 How does the Mechanism Work?

For every tear-proof object, a mirror object is present on a PICC. (See Figure 1 for a schematic representation of the situation.) These mirror objects have exactly the same structure as the original object. At any given point of time, one of the objects is current, meaning that logically speaking it represents the card configuration at that moment. The other object is called alternate.

At the beginning of a transaction, the reader should determine which of the objects is current. (See section 1.3 for an explanation of how this should be done.) The information in the current object is used during the transactions. Now suppose some new information needs to be written to that object. Where do we put it? If we just overwrite the current version, we run the risk of damaging information we know to be correct if the card is removed from the reader too quickly. To ensure that the information in the current version of the object is not changed, the reader writes only to the alternate version of the object.

The anti-tear mechanism ensures that if something goes wrong during the writing to the alternate version, the reader will recognize the alternate version as being incorrect at the following transaction, and it will take the current version as still current. So in that case, logically speaking nothing has happened during the transaction. On the other hand, if all went well, the reader will recognize the alternate version of the object as more recent, and therefore will take this version as the current one. So, in a sequence of normal transactions, the alternate and the current versions of an object continually switch roles. The version that is current at the current transactions will be the alternate one at the next transaction, and so on.

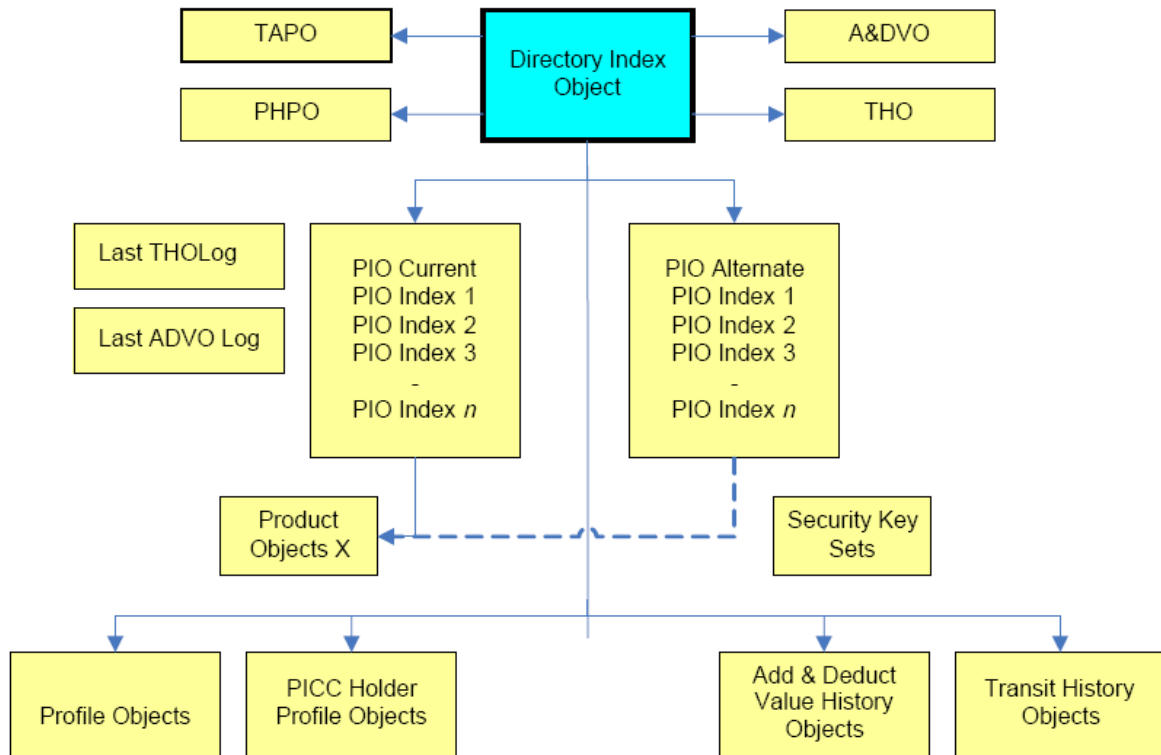


Figure 10: Tear Mitigation: 'Mirroring of Data Objects'

2.6.3 How to Check which Version of an Object is Current?

As is indicated in Figure 1, when it comes to determining which version of an object is current, there is a difference between the PIO and other objects. Basically, the current version of the PIO is determined by the card reader based on properties of the PIO. Once the current version of the PIO is established, the PIO indicates which version of each of the product objects is current. This is explained in more detail in the next sections.

2.6.3.1 Checking for the Current PIO

At the beginning of a transaction, both versions of the Product Index Object (PIO) should be read. Next, the CID should determine which one of these objects is current. This is done as follows:

Check for both versions of the PIO if they are valid. This can be done by checking the value of the checksum over the object. Both versions of the PIO are protected by a checksum (CRC or DAC). The value of a checksum of an object depends on the content of the object. Therefore, if the value of the checksum does not correspond to the content of the PIO as it is read from the card, the reader knows that something went wrong when that object was written. Since this checksum is in the last bits of the PIO, it will be written last. This means that if the card was removed from the reader anytime before the writing of the PIO was finished, the checksum over the PIO will not have the right value.

Three situations can arise:

1. Both checksums are invalid. Note that because only one of the versions of the PIO is written to during a transaction, removing the card from the reader too quickly cannot result in both checksums being invalid. However, some other reason might have led to this result. The reader might try to re-read the object to exclude a possible reading error. If the situation persists, the card is unusable.
2. One of the checksums is invalid, while the other is valid. In this case, the PIO with the valid checksum is taken to be the current PIO and is used during the transaction. This might be the result of a premature removal of the card.
3. Both versions of the PIO are valid. Actually, this will be the normal situation. When this is the case, the PIO with the highest transaction sequence number (RtsPICCTransSeqNumber) in the PIO is to be used. Because the transaction sequence numbers can roll over (going from the maximum value to zero), in case one PIO has value 127 and the other has value 0, the object with value 0 is the current PIO.

2.6.3.2 Checking for the Current Version of Other Objects

Determining the current version of other objects is very simple: the PIO indicates what the current version of each product object is. When the reader knows what the current PIO is, it also knows what the current version of the other objects is.

During any transaction, the PIO is the last object that is written. Suppose we want to change the value of the T-Purse. We change the alternate version of the T-Purse Product, so that the current version of that Product is not changed. After that, we change the T-Purse pointer in the PIO from the current version to the alternate version. Once that has been done, the alternate version will from now on be the current version.

Now suppose the card is removed while the reader is writing to the alternate version of the T-Purse. Since the PIO has not been changed yet, it will still point to the current version of the T-Purse. The next time the reader tries to read the T-Purse, it will be directed to the current version. The fact that the alternate version is changed does not make any difference on a logical level.

2.6.4 Example Scenario: Checking for the Current PIO

In order to make the above more clear, let us consider an example scenario. As explained, we have two versions of the PIO, which we call PIO1 and PIO2. Suppose we take a new card and perform 5 transactions. During the third transaction, the card is removed too quickly. In the table below we indicate the CRC status and the transaction sequence numbers (TSN) of the objects before the transaction. We also indicate which PIO is current, and which one is written to (is alternate) during the transaction.

	PIO Current	PIO written to	CRC PIO1	TSN PIO1	CRC PIO2	TSN PIO2
1.	-	PIO1	OK	0	OK	0
2.	PIO1	PIO2	OK	1	OK	0
3.	PIO2	PIO1	OK	1	OK	2
4.	PIO2	PIO1	NOK	3	OK	2
5.	PIO1	PIO2	OK	3	OK	2
6.	PIO2	PIO1	OK	3	OK	4

- 1st transaction: since this is a new card, both versions of the PIO have their initial uninitialized values and have TSN = 0. Suppose PIO1 is written to during this transaction. The transaction sequence number of PIO will be set to 1.
- 2nd transaction: During this transaction the PIO Current is PIO1, because it has the highest TSN and a correct CRC. New data is written to PIO2, which gets TSN = 2.
- 3rd transaction: During this transaction the PIO Current is PIO2, because it has the highest TSN and a correct CRC. New data is written to PIO1, which gets TSN = 3. However, the card is removed before the transaction is finished, so that the CRC of PIO1 is not correct.
- 4th transaction: At the beginning of this transaction, the reader determines that PIO2 is still the current PIO. Although the TSN of PIO1 is higher, the fact that the CRC of PIO1 is wrong indicates that the data in it is corrupted. New data is written to PIO1, which again gets TSN = 3, since the reader uses the value of the TSN of the current PIO and increases it by 1.
- 5th transaction: During this transaction the PIO Current is PIO1, because it has the highest TSN and a correct CRC. New data is written to PIO2, which gets TSN = 4.

3. Test Cases for a PICC

3.1 Introduction

This chapter is the first part of Part V of the Standard, dealing with test cases for a PICC. The other parts, in chapters 4, 5, 6, deal with test cases for a CID, an ACS and a RCS respectively.

This chapter is built up as follows:

Section 3.2 describes the Command and Response test cases. These test cases aim at validating that a PICC adheres to all requirements regarding the APDUs it shall support.

Section 3.4 describes the Object Specific Content test cases. These are meant to check the content of all data objects on a PICC

3.2 Low Level Tests

To be specified.

3.3 Command and Response Tests

3.3.1 SELECT – Happy Flow

Selection of MF/DF/EF

3.3.1.1 PICC_CR_Select_001: Selection of MF without FileID, no Secure Messaging

Test ID	PICC_CR_Select_001
Test Purpose	Check that the SELECT command returns response code '90 00' if it is correctly used to select the MF (P1='00'), and that the MF is actually selected
Configuration	
Preconditions	
Test Actions	CID sends a SELECT (P1='00', no FileID, no SM) command to PICC
Pass Criteria	The status bytes of the response to the SELECT command equal '90 00'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: Section 2.4.1
Remarks	Perform test cases from different current DFs to be sure that the MF is selected

Importance	Mandatory
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3.3.1.2 PICC_CR_Select_002: Selection of MF with FileID, no Secure Messaging

Test ID	PICC_CR_Select_002
Test Purpose	Check that the SELECT command returns response code '90 00' if it is correctly used to select the MF (P1='00'), and that the MF is actually selected
Configuration	
Preconditions	
Test Actions	CID sends a SELECT (P1='00', FileID='3F 00', no SM) command to PICC
Pass Criteria	The status bytes of the response to the SELECT command equal '90 00'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: Section 2.4.1
Remarks	Perform test cases from different current DFs to be sure that the MF is selected
Importance	Mandatory

3.3.1.3 PICC_CR_Select_003: Selection of DF without FileID

Test ID	PICC_CR_Select_003
Test Purpose	Check that the SELECT command returns response code '90 00' if it is correctly used to select a DF (P1='00'), and that the DF is actually selected
Configuration	
Preconditions	Perform the authentication with k_0 Current DF/MF contains the intended DF
Test Actions	CID sends a SELECT (P1='00', no FileID, SM) command to PICC
Pass Criteria	The status bytes of the response to the SELECT command equal '90 00'
Post-conditions	Perform SELECT command such that parent DF is selected
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: Section 2.4.1
Remarks	

Importance	Mandatory
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3.3.1.4 PICC_CR_Select_004: Reselection of DF with FileID

Test ID	PICC_CR_Select_004
Test Purpose	Check that the SELECT command returns response code '90 00' if it is correctly used to re-select the current DF (P1='00'), and that the DF is actually re-selected
Configuration	No DF or EF with the given identifier exists in the current DF The given identifier matches the identifier of the current DF
Preconditions	Perform the authentication with k_0 Select the intended DF
Test Actions	CID sends a SELECT (P1='00', FileID=FileID current DF, SM) command to PICC
Pass Criteria	The status bytes of the response to the SELECT command equal '90 00'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: Section 2.4.1
Remarks	Checking that the DF is re-selected can be done by first selecting an EF in the DF, and then reselecting the DF. No EF shall be selected anymore, which can be checked by trying to read from it
Importance	Mandatory

3.3.1.5 PICC_CR_Select_005: Selection of EF with FileID

Test ID	PICC_CR_Select_005
Test Purpose	Check that the SELECT command returns response code '90 00' if it is correctly used to select an EF (P1='00'), and that the EF is actually selected
Configuration	An EF with the given identifier FileID_EF exists in the current DF
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT (P1='00', FileID=FileID_EF, SM) command to PICC
Pass Criteria	The status bytes of the response to the SELECT command equal '90 00'
Post-conditions	
References	CFMS Standard Part 2Section 4.2

	CFMS Example Implementation: Section 2.4.1
Remarks	
Importance	Mandatory

Selection child DF

3.3.1.6 PICC_CR_Select_006: Selection of DF under current DF

Test ID	PICC_CR_Select_006
Test Purpose	Check that the SELECT command returns response code '90 00' if it is correctly used to select an DF under the current DF by file identifier (P1='01'), and that the file is actually selected
Configuration	A DF with the given file identifier exists in the current DF
Preconditions	Perform the authentication with k_0 Select the DF containing the intended DF
Test Actions	CID sends a SELECT (P1='00', FileID=FileID_DF, SM) command to PICC
Pass Criteria	The status bytes of the response to the SELECT command equal '90 00'
Post-conditions	Perform SELECT command such that parent DF is selected
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.1
Remarks	For PICC which contain no DF in other DF, this test case can be used by checking if a DF can be selected from the MF using P1='01'.
Importance	Mandatory

Selection of EF

3.3.1.7 PICC_CR_Select_007: Selection of EF under current DF

Test ID	PICC_CR_Select_007
Test Purpose	Check that the SELECT command returns response code '90 00' if it is correctly used to select an EF under the current DF by file identifier (P1='02'), and that the file is actually selected
Configuration	An EF with the given identifier FileID_EF exists in the current DF
Preconditions	Perform the authentication with k_0

	Select the DF containing the intended EF
Test Actions	CID sends a SELECT (P1='02', FileID=FileID_EF, SM) command to PICC
Pass Criteria	The status bytes of the response to the SELECT command equal '90 00'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.1
Remarks	
Importance	Mandatory

Selection parent DF

3.3.1.8 PICC_CR_Select_008: Selection of Parent DF without FileID

Test ID	PICC_CR_Select_008
Test Purpose	Check that the SELECT command returns response code '90 00' if it is correctly used to select the parent DF of the current DF (P1='03'), and that the file is actually selected
Configuration	
Preconditions	Perform the authentication with k_0 Select correct DF (different from MF)
Test Actions	CID sends a SELECT (P1='03', SM) command to PICC
Pass Criteria	The status bytes of the response to the SELECT command equal '90 00'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.1
Remarks	
Importance	Mandatory

Selection by path from MF

3.3.1.9 PICC_CR_Select_009: Selection of DF by path from MF

Test ID	PICC_CR_Select_009
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Test Purpose	Check that the SELECT command returns response code '90 00' if it is correctly used to select a DF by path, from the MF (P1='08'), and that the file is actually selected
Configuration	A DF with the given path path_from_MF_to_DF exists on the applet
Preconditions	Perform the authentication with k_0 Ensure the MF is selected
Test Actions	CID sends a SELECT (P1='08', path=path_from_MF_to_DF, SM) command to PICC
Pass Criteria	The status bytes of the response to the SELECT command equal '9000'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.1
Remarks	The file identifier for the MF shall not be included in the path
Importance	Mandatory

3.3.1.10 PICC_CR_Select_010: Selection of EF by path from MF

Test ID	PICC_CR_Select_010
Test Purpose	Check that the SELECT command returns response code '90 00' if it is correctly used to select an EF by path, from the MF (P1='08'), and that the file is actually selected
Configuration	An EF with the given path path_from_MF_to_EF exists on the applet
Preconditions	Perform the authentication with k_0 Ensure the correct DF is selected
Test Actions	CID sends a SELECT (P1='08', path=path_from_MF_to_EF, SM) command to PICC
Pass Criteria	The status bytes of the response to the SELECT command equal '90 00'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.1
Remarks	The file identifier for the MF shall not be included in the path
Importance	Mandatory

Selection by path from current DF

3.3.1.11 PICC_CR_Select_011: Selection of DF by path from current DF

Test ID	PICC_CR_Select_011
Test Purpose	Check that the SELECT command returns response code '90 00' if it is correctly used to select a DF by path, from the current DF (P1='09'), and that the file is actually selected
Configuration	A DF with the given path path_from_currentDF_to_DF exists on the applet
Preconditions	Perform the authentication with k_0 Ensure the correct DF is selected
Test Actions	CID sends a SELECT (P1='09', path=path_from_currentDF_to_DF, SM) command to PICC
Pass Criteria	The status bytes of the response to the SELECT command equal '90 00'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.1
Remarks	The file identifier of the current DF shall not be included in the path.
Importance	Mandatory

3.3.1.12 PICC_CR_Select_012: Selection of EF by path from current DF

Test ID	PICC_CR_Select_012
Test Purpose	Check that the SELECT command returns response code '90 00' if it is correctly used to select an EF by path, from the current DF (P1='09'), and that the file is actually selected
Configuration	An EF with the given path path_from_currentDF_to_EF exists on the applet
Preconditions	Perform the authentication with k_0 Ensure DF_old is selected
Test Actions	CID sends a SELECT (P1='09', path=path_from_currentDF_to_EF, SM) command to PICC
Pass Criteria	The status bytes of the response to the SELECT command equal '90 00'
Post-conditions	Select DF_old

References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.1
Remarks	The file identifier of the current DF shall not be included in the path
Importance	Mandatory

3.3.2 SELECT – Unhappy Flow

Invalid format

3.3.2.1 PICC_CR_Select_013: Lc inconsistent with command length

Test ID	PICC_CR_Select_013
Test Purpose	Check that the SELECT command returns response code '67 00' if L_c is not consistent with the length of the provided command data field, and that the file is not selected
Configuration	
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (L_c not equal to the length of the command data field, SM) to the PICC
Pass Criteria	The status bytes of the response to the SELECT command equal '67 00'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.1
Remarks	
Importance	Mandatory

3.3.2.2 PICC_CR_Select_014: Selection of EF with invalid length FileID

Test ID	PICC_CR_Select_014
Test Purpose	Check that the SELECT command returns response code '6A 80' if the file ID has an incorrect length and $P1 = '02'$, and that no file is selected
Configuration	
Preconditions	Perform the authentication with k_0

Test Actions	CID sends a SELECT command (P1='02', incorrect length FileID, SM) to PICC
Pass Criteria	The status bytes of the response to the SELECT command equal '6A 80'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.1
Remarks	Check for a file ID with length 1 and 3 bytes. These are not valid file IDs, so '6A 80' could also be returned
Importance	Mandatory

3.3.2.3 PICC_CR_Select_015: Selection Parent DF with FileID

Test ID	PICC_CR_Select_015
Test Purpose	Check that the SELECT command returns response code '6A 80' and does not select the parent DF of the current DF, if the file ID is present and P1 = '03'
Configuration	Parent DF of current DF has FileID_DF
Preconditions	Perform the Authentication to be able to perform Secure Messaging Select current DF different from MF
Test Actions	CID sends a SELECT (P1='03', FileID=FileID_DF, SM) command to PICC
Pass Criteria	The status bytes of the response to the SELECT command equal '6A 80'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.1
Remarks	The tag '81' (FileID) is not expected for P1 = '03'
Importance	Mandatory

3.3.2.4 PICC_CR_Select_016: Selection with invalid format path from current DF

Test ID	PICC_CR_Select_016
Test Purpose	Check that the SELECT command returns response code '6A 80' if the file ID is not a multiple of 2 bytes long and P1 = '09', and that no file is selected
Configuration	

Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT (P1='09', path is not multiple of 2 bytes long, SM) command to PICC
Pass Criteria	The status bytes of the response to the SELECT command equal '6A 80'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.1
Remarks	This cannot be a valid path, so '6A 82' could also be returned
Importance	Mandatory

Missing mandatory element:

3.3.2.5 PICC_CR_Select_017: Selection of EF with no FileID and P1='02'

Test ID	PICC_CR_Select_017
Test Purpose	Check that the SELECT command returns response code '6A 80' if the file ID is absent and P1 = '02', and that no file is selected
Configuration	
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (P1='02', no FileID, SM) to the PICC
Pass Criteria	The status bytes of the response to the SELECT command equal '6A 80'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.1
Remarks	'6A 82' or '69 84' could also be returned.
Importance	Mandatory

3.3.2.6 PICC_CR_Select_018: Selection with path from MF, no path

Test ID	PICC_CR_Select_018
Test Purpose	Check that the SELECT command returns response code '6A 80' if the path is absent and P1 = '08', and that no file is selected

Configuration	
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (P1='08', no path, SM) to the PICC
Pass Criteria	The status bytes of the response to the SELECT command equal '6A 82'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.1
Remarks	This cannot be a valid path, so '6A 82' could also be returned
Importance	Mandatory

File not found:

3.3.2.7 PICC_CR_Select_019: Selection with non-existing FileID

Test ID	PICC_CR_Select_019
Test Purpose	Check that the SELECT command returns response code '6A 82' if the file is not found and P1 = '00', and that no file is selected
Configuration	No DF or EF with given FileID in current DF Current DF does not have this FileID
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (P1='00', non-existing FileID, SM) to the PICC
Pass Criteria	The status bytes of the response to the SELECT command equal '6A 82'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.1
Remarks	Do not use '3F 00' as the file identifier
Importance	Mandatory

3.3.2.8 PICC_CR_Select_020: Selection of DF with non-existing FileID

Test ID	PICC_CR_Select_020
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Configuration	Current DF does not have FileID equal to FileID_EF There an EF with FileID_EF in current DF
Test Purpose	Check that the SELECT command returns response code '6A 82' if the DF is not found and P1 = '01', and that the current DF stays selected
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (P1='01', FileID=FileID_EF, SM) to the PICC
Pass Criteria	The status bytes of the response to the SELECT command equal '6A 82'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.1
Remarks	
Importance	Mandatory

3.3.2.9 PICC_CR_Select_021: Selection of EF with non-existing FileID

Test ID	PICC_CR_Select_021
Test Purpose	Check that the SELECT command returns response code '6A 82' if the EF is not found and P1 = '02', and that the current EF is still selected
Configuration	Current EF does not have FileID equal to FileID_EF There is no EF with FileID_EF in current DF
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (P1='01', FileID=FileID_EF, SM) to the PICC
Pass Criteria	The status bytes of the response to the SELECT command equal '6A 82'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.1
Remarks	
Importance	Mandatory

3.3.2.10 PICC_CR_Select_022: Selection Parent DF when MF is selected

Test ID	PICC_CR_Select_022
Test Purpose	Check that the SELECT command returns response code '6A 82' if the current DF is the MF and P1 = '03', and that the MF stays selected
Configuration	The MF is selected
Preconditions	
Test Actions	CID sends a SELECT (P1='03', SM) command to PICC
Pass Criteria	The status bytes of the response to the SELECT command equal '6A 82'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.1
Remarks	
Importance	Mandatory

3.3.2.11 PICC_CR_Select_023: Selection non existing path from MF

Test ID	PICC_CR_Select_023
Test Purpose	Check that the SELECT command returns response code '6A 82' if the file is not found and P1 = '08', and that no file is selected
Configuration	
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (P1='08', non existing path from MF, SM) to the PICC
Pass Criteria	The status bytes of the response to the SELECT command equal '6A 82'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.1
Remarks	
Importance	Mandatory

3.3.2.12 PICC_CR_Select_024: Selection non existing path from current DF

Test ID	PICC_CR_Select_024
Test Purpose	Check that the SELECT command returns response code '6A 82' if the file is not found and P1 = '09', and that no file is selected
Configuration	
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (P1='09', non existing path from current DF, SM) to the PICC
Pass Criteria	The status bytes of the response to the SELECT command equal '6A 82'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.1
Remarks	
Importance	Mandatory

Invalid parameter value:

3.3.2.13 PICC_CR_Select_025: Invalid P1

Test ID	PICC_CR_Select_025
Test Purpose	Check that the SELECT command returns response code '6A 86' if parameter P1 is not '00', '01', '02', '03', '04', '08' or '09', or P2 not equal to '0C' and that no file is selected
Configuration	
Preconditions	Perform the authentication with k_0
Test Actions	CID sends SELECT commands with SM and P1 not in the set {'00', '01', '02', '03', '04', '08', '09'} or P2 not equal to '0C'
Pass Criteria	The status bytes of the response to the SELECT command equal '6A 86'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.1
Remarks	If possible, perform a complete scan for P1 and try a few incorrect values for P2 independently.
Importance	Mandatory

3.3.2.14 PICC_CR_Select_026: Invalid CLA, no SM used when obligatory

Test ID	PICC_CR_Select_026
Test Purpose	Check that the SELECT command returns response code '69 82' if the CLA byte is '00' and no secure messaging is used if SM is mandatory. No file shall be selected
Configuration	The file EF is only accessible in SM mode with key k_0
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT EF command (no SM, CLA \neq '00') to the PICC
Pass Criteria	The status bytes of the response to the SELECT command equal '69 82'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.1
Remarks	
Importance	Mandatory

3.3.2.15 PICC_CR_Select_027: Unknown CLA

Test ID	PICC_CR_Select_027
Test Purpose	Check that the SELECT command returns response code '6E 00' if an unknown class byte is used (CLA \neq '00' and CLA \neq '0C'), and that no file is selected
Configuration	
Preconditions	Perform the authentication with k_0
Test Actions	CID sends SELECT commands with invalid CLA to the PICC
Pass Criteria	The status bytes of the response to the SELECT command equal '6E 00'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.1
Remarks	Taking one or two invalid class bytes (e.g. '01', '10') will give a clear enough picture
Importance	Mandatory

3.3.2.16 PICC_CR_Select_028: Invalid L_e

Test ID	PICC_CR_Select_028
Test Purpose	Check that the SELECT command returns response code '6C 00' if L_e is not equal to '00'
Configuration	
Preconditions	Perform the authentication with k_0
Test Actions	CID sends SELECT commands (L_e different from '00', SM) to the PICC
Pass Criteria	The status bytes of the response to the SELECT command equal '6C 00'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.1
Remarks	Taking one or two L_e values different from '00' will give a clear enough picture
Importance	Mandatory

Secure access conditions related:

3.3.2.17 PICC_CR_Select_029: Additional authentication not performed

Test ID	PICC_CR_Select_029
Test Purpose	Check that the SELECT command returns the response code '6982' if a file to be selected needs additional authentication which has not been performed
Configuration	EF to be selected needs additional authentication with key k_{add} different from k_0 which has not been performed
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command ($P1='01'$, FileID=FileID_EF, SM) to the PICC
Pass Criteria	The status bytes of the response to the SELECT command equal '69 82'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: Section 2.2 & Section 2.4.1
Remarks	
Importance	Mandatory

Secure Messaging related errors:

3.3.2.18 PICC_CR_Select_030: Missing tag ‘81’ in command data

Test ID	PICC_CR_Select_030
Test Purpose	Check that the SELECT command returns response code ‘6A 80’ if the tag ‘81’ is missing in the command data field when it shall be present
Configuration	
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (FileID, SM with missing tag ‘81’) to the PICC
Pass Criteria	The status bytes of the response to the SELECT command equal ‘69 87’
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.1
Remarks	
Importance	Mandatory

3.3.2.19 PICC_CR_Select_031: Duplicated tag ‘81’ in command data

Test ID	PICC_CR_Select_031
Test Purpose	Check that the SELECT command returns response code ‘6A 80’ if the tag ‘81’ is duplicated in the command data field
Configuration	
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (FileID, SM with duplicated tag ‘81’) to the PICC
Pass Criteria	The status bytes of the response to the SELECT command equal ‘6A 80’
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.1
Remarks	Tag ‘81’ is used to encapsulate the command data field, duplicating this tag gives an unclear picture what data is used for obtaining the checksum
Importance	Mandatory

3.3.2.20 PICC_CR_Select_032: Missing cryptographic checksum

Test ID	PICC_CR_Select_032
Test Purpose	Check that the SELECT command returns response code ‘69 87’ if the cryptographic checksum over the message in Secure Messaging mode is missing , and that no file is selected
Configuration	
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (SM without cryptographic checksum) to the PICC
Pass Criteria	The status bytes of the response to the SELECT command equal ‘69 87’
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.1
Remarks	
Importance	Mandatory

3.3.2.21 PICC_CR_Select_033: Invalid cryptographic checksum

Test ID	PICC_CR_Select_033
Test Purpose	Check that the SELECT command returns response code ‘69 88’ if the cryptographic checksum over the message in Secure Messaging mode is incorrect, and that no file is selected
Configuration	
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (SM with invalid cryptographic checksum) to the PICC
Pass Criteria	The status bytes of the response to the SELECT command equal ‘69 88’
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.1
Remarks	
Importance	Mandatory

3.3.3 READ BINARY – Happy Flow

3.3.3.1 PICC_CR_Read_Binary_001: Read transparent EF: zero offset, no SFI, SM

Test ID	PICC_CR_Read_Binary_001
Test Purpose	Check that the READ BINARY command returns the requested data plus response code '90 00' if it is correctly used with zero offset coded on P1/P2 and no SFI provided
Configuration	PICC contains EF which needs no additional authentication for access
Preconditions	Perform authentication with key k_0 Select an EF which needs no further authentication for access
Test Actions	CID sends a READ BINARY command (P1='00', P2='00') to the PICC
Pass Criteria	The plain data part of the response to the READ BINARY command equals the requested data, and the status bytes are equal to '90 00'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.2
Remarks	
Importance	Mandatory

3.3.3.2 PICC_CR_Read_Binary_002: Read transparent EF: non-zero offset, no SFI, SM

Test ID	PICC_CR_Read_Binary_002
Test Purpose	Check that the READ BINARY command returns the requested data plus response code '90 00' if it is correctly used with non-zero offset coded on P1/P2 and no SFI provided
Configuration	PICC contains EF which needs no additional authentication for access
Preconditions	Perform authentication with key k_0 Select an EF which needs no further authentication for access
Test Actions	CID sends a READ BINARY command (offset encoded on P1/P2, SM) to the PICC
Pass Criteria	The plain data part of the response to the READ BINARY command equals the requested data, and the status bytes are equal to '90 00'
Post-conditions	

References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.2
Remarks	
Importance	Mandatory

3.3.3.3 PICC_CR_Read_Binary_003: Read transparent EF: zero offset, SFI, SM

Test ID	PICC_CR_Read_Binary_003
Test Purpose	Check that the READ BINARY command returns the requested data plus response code '90 00' if it is correctly used with zero offset coded on P2 and a SFI provided on P1
Configuration	PICC contains EF with given SFI which needs no additional authentication for access
Preconditions	Perform authentication with key k_0
Test Actions	CID sends a READ BINARY command (SFI encoded on P1, P2='00') to the PICC
Pass Criteria	The plain data part of the response to the READ BINARY command equals the requested data, and the status bytes are equal to '90 00'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.2
Remarks	
Importance	Mandatory

3.3.3.4 PICC_CR_Read_Binary_004: Read transparent EF: non-zero offset, SFI

Test ID	PICC_CR_Read_Binary_004
Test Purpose	Check that the READ BINARY command returns the requested data plus response code '90 00' if it is correctly used with non-zero offset coded on P2 and a SFI provided on P1
Configuration	PICC contains EF with given SFI which needs no additional authentication for access
Preconditions	Perform authentication with key k_0
Test Actions	CID sends a READ BINARY command (SFI encoded on P1, P2 different from '00') to the PICC
Pass Criteria	The plain data part of the response to the READ BINARY command equals the

	requested data, and the status bytes are equal to '90 00'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.2
Remarks	
Importance	Mandatory

3.3.3.5 PICC_CR_Read_Binary_005: Read transparent EF: expected length = '00'

Test ID	PICC_CR_Read_Binary_005
Test Purpose	Check that the READ BINARY command returns 243 bytes plus response code '90 00' if the expected length in the command APDU is '00'
Configuration	PICC contains EF which needs no additional authentication for access
Preconditions	Perform authentication with key k_0 Select an EF which needs no further authentication for access
Test Actions	CID sends a READ BINARY command (P1='00', P2='00', Lc='00') to the PICC
Pass Criteria	The plain data part of the response to the READ BINARY command equals 243 bytes of data of the selected EF, and the status bytes are equal to '90 00'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.2
Remarks	The response data field is maximally 256 bytes long. The signature and other 'secure messaging format' bytes take up 13 bytes, so the maximum the PICC can return is 243 bytes.
Importance	Mandatory

3.3.4 READ BINARY – Unhappy Flow

End of file reached before sending all expected data:

3.3.4.1 PICC_CR_Read_Binary_006: expected length larger than file size, no SFI

Test ID	PICC_CR_Read_Binary_006
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Test Purpose	Check that the READ BINARY command returns all data in the file plus the response code '62 82' if the expected length is larger than the size of the EF and the offset coded on P1/P2 is zero
Configuration	
Preconditions	Perform authentication with key k_0 Select an EF which needs no further authentication for access
Test Actions	CID sends a READ BINARY command (P1='00', P2='00', $L_e > \text{size EF}$, SM) to the PICC
Pass Criteria	The plain data part of the response to the READ BINARY command equals all data of the selected EF, and the status bytes are equal to '62 82'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.2
Remarks	
Importance	Mandatory

3.3.4.2 PICC_CR_Read_Binary_007: Invalid combination of offset and expected length, no SFI

Test ID	PICC_CR_Read_Binary_007
Test Purpose	Check that the READ BINARY command returns all data in the file from the offset, plus response code '62 82', if the expected length plus the non-zero offset coded on P1/P2 is larger than the size of the EF. No SFI is provided on P1
Configuration	
Preconditions	Perform authentication with key k_0 Select an EF which needs no further authentication for access
Test Actions	CID sends a READ BINARY command (offset encoded on P1/P2, $L_e + \text{offset} > \text{size of EF}$, SM) to the PICC
Pass Criteria	The plain data part of the response to the READ BINARY command equals all data from the offset until the end of the selected EF, and the status bytes are equal to '62 82'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.2

Remarks	
Importance	Mandatory

3.3.4.3 PICC_CR_Read_Binary_008: Expected length larger than data object size, SFI

Test ID	PICC_CR_Read_Binary_008
Test Purpose	Check that the READ BINARY command returns all data in the file plus the response code '62 82' if the expected length is larger than the EF size and the offset coded on P2 is zero. A SFI is provided on P1
Configuration	
Preconditions	Perform authentication with key k_0
Test Actions	CID sends a READ BINARY command (SFI encoded on P1, P2='00', $L_e > \text{size of EF}$) to the PICC
Pass Criteria	The plain data part of the response to the READ BINARY command equals all data of the selected EF, and the status bytes are equal to '62 82'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.2
Remarks	
Importance	Mandatory

3.3.4.4 PICC_CR_Read_Binary_009: Invalid combination of offset and expected length and SFI

Test ID	PICC_CR_Read_Binary_009
Test Purpose	Check that the READ BINARY command returns all data in the file from the offset, plus response code '62 82', if the expected length plus the non-zero offset coded on P2 is larger than the EF size. A SFI is provided on P1
Configuration	
Preconditions	Perform authentication with key k_0
Test Actions	CID sends a READ BINARY command (SFI encoded on P1, P2 offset different from '00', $\text{expected length} + \text{offset} > \text{size EF}$) to the PICC
Pass Criteria	The plain data part of the response to the READ BINARY command equals all data from the offset until the end of the selected EF, and the status bytes are equal to '62

	82'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.2
Remarks	
Importance	Mandatory

Invalid offset:

3.3.4.5 PICC_CR_Read_Binary_010: Invalid offset

Test ID	PICC_CR_Read_Binary_010
Test Purpose	Check that the READ BINARY command returns the response code '6A 86' if the offset coded on P1 / P2 is larger than the EF size
Configuration	
Preconditions	Perform authentication with key k_0 Select an EF which needs no further authentication for access
Test Actions	CID sends a READ BINARY command (offset encoded on P1/P2 larger than EF size) to the PICC
Pass Criteria	The status bytes of the response to the READ BINARY command equal '6A 86'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.2
Remarks	
Importance	Mandatory

No file selected or found:

3.3.4.6 PICC_CR_Read_Binary_011: No EF selected, no SFI provided

Test ID	PICC_CR_Read_Binary_011
Test Purpose	Check that the READ BINARY command returns the response code '69 86' if no EF has been selected and no SFI is provided on P1.

Configuration	
Preconditions	Perform authentication with key k_0 Make sure no EF has been selected
Test Actions	CID sends a READ BINARY command (no SFI) to the PICC
Pass Criteria	The status bytes of the response to the READ BINARY command equal '69 86'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.2
Remarks	
Importance	Mandatory

3.3.4.7 PICC_CR_Read_Binary_012: No file with given SFI exists

Test ID	PICC_CR_Read_Binary_012
Test Purpose	Check that the READ BINARY command returns the response code '6A 82' if no EF with the given SFI exists in the current DF
Configuration	Current DF does not contain EF with given SFI
Preconditions	Perform authentication with key k_0
Test Actions	CID sends a READ BINARY command (SFI encoded on P1, P2='00') to the PICC
Pass Criteria	The status bytes of the response to the READ BINARY command equal '6A 82'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.2
Remarks	
Importance	Mandatory

Invalid format:

3.3.4.8 PICC_CR_Read_Binary_013: Invalid Class byte

Test ID	PICC_CR_Read_Binary_013
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Test Purpose	Check that the READ BINARY command returns the response code '6E 00' if a class byte other than '00' or '0C' is used
Configuration	
Preconditions	Perform authentication with key k_0 Select an EF which needs no further authentication for access
Test Actions	CID sends READ BINARY commands with invalid CLA to the PICC
Pass Criteria	The status bytes of the response to the READ BINARY command equal '6E 00'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.2
Remarks	Taking one or two invalid class bytes (e.g. '01' or '10') will give a clear enough picture
Importance	Mandatory

3.3.4.9 PICC_CR_Read_Binary_014: Invalid value P1

Test ID	PICC_CR_Read_Binary_014
Test Purpose	Check that the READ BINARY command returns the response code '6A 86' if the SFI on P1 is invalid (bits 8, 7, 6 are not 1, 0, 0 or bit 5 – 1 are all equal)
Configuration	
Preconditions	Perform authentication with key k_0 Select an EF which needs no further authentication for access
Test Actions	CID sends READ BINARY commands with invalid P1s to the PICC
Pass Criteria	The status bytes of the response to the READ BINARY command equal '6A 86'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.2
Remarks	Taking one or two invalid P1 bytes (e.g. '80', '9F' or 'C2') will give a clear enough picture
Importance	Mandatory

3.3.4.10 PICC_CR_Read_Binary_015: L_c present and zero

Test ID	PICC_CR_Read_Binary_015
Test Purpose	Check that the READ BINARY command returns the response code '6A 80' if L_c is '00' and no command data is present
Configuration	
Preconditions	Perform authentication with key k_0 Select an EF which needs no further authentication for access
Test Actions	CID sends a READ BINARY command (valid P1/P2, including L_c '00' byte) to the PICC
Pass Criteria	The status bytes of the response to the READ BINARY command equal '6A 80'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.2
Remarks	
Importance	Mandatory

3.3.4.11 PICC_CR_Read_Binary_016: L_c present and different from zero

Test ID	PICC_CR_Read_Binary_016
Test Purpose	Check that the READ BINARY command returns the response code '67 00' if $L_c \neq$ '00' and command data with matching length is present
Configuration	
Preconditions	Perform authentication with key k_0 Select an EF which needs no further authentication for access
Test Actions	CID sends a READ BINARY command (valid P1/P2, including L_c different from zero, command data of length L_c) to the PICC
Pass Criteria	The status bytes of the response to the READ BINARY command equal '67 00'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.2
Remarks	Command data can be arbitrary

Importance	Mandatory
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Secure access conditions related:

3.3.4.12 PICC_CR_Read_Binary_017: Selected file needs additional authentication

Test ID	PICC_CR_Read_Binary_017
Test Purpose	Check that the command returns the response code '69 82' if a file to be selected needs additional authentication which has not been performed
Configuration	EF to be read needs additional authentication with key k_{add} different from k_0 which has not been performed
Preconditions	Perform the authentication with k_0 Select an EF which needs authentication with k_{add} for access
Test Actions	CID sends a READ BINARY command (SM with k_0) to the PICC
Pass Criteria	The status bytes of the response to the READ BINARY command equal '69 82'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.2 & Section 2.4.2
Remarks	
Importance	Mandatory

Secure Messaging related:

3.3.4.13 PICC_CR_Read_Binary_018: Tag element '97' missing

Test ID	PICC_CR_Read_Binary_018
Test Purpose	Check that the READ BINARY command returns response code '69 87' if the plain value data element (tag '97') in Secure Messaging mode is missing
Configuration	
Preconditions	Perform authentication with key k_0 Select an EF which needs no further authentication for access
Test Actions	CID sends a READ BINARY command (SM with missing tag '97') to the PICC
Pass Criteria	The status bytes of the response to the READ BINARY command equal '69 87'

Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.2
Remarks	
Importance	Mandatory

3.3.4.14 PICC_CR_Read_Binary_019: Invalid format tag '97'

Test ID	PICC_CR_Read_Binary_019
Test Purpose	Check that the READ BINARY command returns response code '69 88' if the tag '97' has length different from '01'
Configuration	
Preconditions	Perform authentication with key k_0 Select an EF which needs no further authentication for access
Test Actions	CID sends a READ BINARY command (SM with invalid length for tag '79') to the PICC
Pass Criteria	The status bytes of the response to the READ BINARY command equal '6A 80'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.2
Remarks	Tag '97' is the secured L_c variable. Take length='02', value='01 00'
Importance	Mandatory

3.3.4.15 PICC_CR_Read_Binary_020: Missing cryptographic checksum

Test ID	PICC_CR_Read_Binary_020
Test Purpose	Check that the READ BINARY command returns response code '69 87' if the cryptographic checksum over the message in Secure Messaging mode is missing, and that no file is selected
Configuration	
Preconditions	Perform authentication with key k_0

	Select an EF which needs no further authentication for access
Test Actions	CID sends a READ BINARY command (SM without cryptographic checksum) to the PICC
Pass Criteria	The status bytes of the response to the READ BINARY command equal '69 87'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.2
Remarks	For the cryptographic checksum often a MAC is used with tag '8E'. Then the test case is performed with secure messaging of the command data, but without the '8E' tag
Importance	Mandatory

3.3.4.16 PICC_CR_Read_Binary_021: Invalid cryptographic checksum

Test ID	PICC_CR_Read_Binary_021
Test Purpose	Check that the READ BINARY command returns response code '69 88' if the cryptographic checksum over the message in Secure Messaging mode is incorrect, and that no file is selected
Configuration	
Preconditions	Perform authentication with key k_0 Select an EF which needs no further authentication for access
Test Actions	CID sends a READ BINARY command (SM with invalid cryptographic checksum) to the PICC
Pass Criteria	The status bytes of the response to the READ BINARY command equal '69 88'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.2
Remarks	To ensure an incorrect cryptographic checksum value, the tester could take 'correct cryptographic checksum value' + 1.
Importance	Mandatory

3.3.5 UPDATE BINARY – Happy Flow

3.3.5.1 PICC_CR_Update_Binary_001: Update transparent EF: zero offset, no SFI

Test ID	PICC_CR_Update_Binary_001
Test Purpose	Check that the UPDATE BINARY command updates the intended bytes in the EF with the bytes in the command data field and returns status code '90 00' if it is used correctly. A zero offset is coded on P1/P2
Configuration	PICC contains EF which needs no additional authentication for access
Preconditions	Perform authentication with key k_0 Select an EF which needs no further authentication for access
Test Actions	CID sends a UPDATE BINARY command (P1='00', P2='00', SM) to the PICC
Pass Criteria	The status bytes of the response to the UPDATE BINARY command equal '90 00'
Post-conditions	Perform additional UPDATE BINARY command to restore old value of EF
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.3
Remarks	Check that update has taken place by a subsequent READ BINARY command
Importance	Mandatory

3.3.5.2 PICC_CR_Update_Binary_002: Update transparent EF: non-zero offset, no SFI

Test ID	PICC_CR_Update_Binary_002
Test Purpose	Check that the UPDATE BINARY command updates the intended bytes in the EF with the bytes in the command data field and returns status code '90 00' if it is used correctly. A non-zero offset is coded on P1/P2
Configuration	PICC contains EF which needs no additional authentication for access
Preconditions	Perform authentication with key k_0 Select an EF which needs no further authentication for access
Test Actions	CID sends a UPDATE BINARY command (offset encoded on P1/P2, SM) to the PICC
Pass Criteria	The status bytes of the response to the UPDATE BINARY command equal '90 00'
Post-conditions	Perform additional UPDATE BINARY command to restore old value of EF

References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.3
Remarks	Check that update has taken place by a subsequent READ BINARY command
Importance	Mandatory

3.3.5.3 PICC_CR_Update_Binary_003: Update transparent EF: zero offset, SFI

Test ID	PICC_CR_Update_Binary_003
Test Purpose	Check that the UPDATE BINARY command updates the intended bytes in the EF with the bytes in the command data field and returns status code '90 00' if is it used correctly. A zero offset is coded on P2 and an SFI on P1
Configuration	PICC contains EF with given SFI which needs no additional authentication for access
Preconditions	Perform authentication with key k_0
Test Actions	CID sends a UPDATE BINARY command (SFI encoded on P1, P2='00', SM) to the PICC
Pass Criteria	The status bytes of the response to the UPDATE BINARY command equal '90 00'
Post-conditions	Perform additional UPDATE BINARY command to restore old value of EF
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.3
Remarks	Check that update has taken place by a subsequent READ BINARY command
Importance	Mandatory

3.3.5.4 PICC_CR_Update_Binary_004: Update transparent EF: non-zero offset, SFI

Test ID	PICC_CR_Update_Binary_004
Test Purpose	Check that the UPDATE BINARY command updates the intended bytes in the EF with the bytes in the command data field and returns status code '90 00' if is it used correctly. A non-zero offset is coded on P2 and an SFI on P1
Configuration	PICC contains EF with given SFI which needs no additional authentication for access
Preconditions	Perform authentication with key k_0
Test Actions	CID sends a UPDATE BINARY command (SFI encoded on P1, P2 different from '00', SM) to the PICC
Pass Criteria	The status bytes of the response to the UPDATE BINARY command equal '90 00'

Post-conditions	Perform additional UPDATE BINARY command to restore old value of EF
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.3
Remarks	Check that update has taken place by a subsequent READ BINARY command
Importance	Mandatory

3.3.6 UPDATE BINARY – Unhappy Flow

Invalid combination of offset and size of data to be written

3.3.6.1 PICC_CR_Update_Binary_005: Data to be written larger than file size, no SFI

Test ID	PICC_CR_Update_Binary_005
Test Purpose	Check that the UPDATE BINARY command returns the response code '6A 80' if the size of the data to be written is larger than the file size, and that the EF is not updated
Configuration	PICC contains EF which needs no additional authentication for access
Preconditions	Perform authentication with key k_0 Select an EF which needs no further authentication for access
Test Actions	CID sends a UPDATE BINARY command (P1='00', P2='00', size data to be written > size EF, SM) to the PICC
Pass Criteria	The status bytes of the response to the UPDATE BINARY command equal '6A 80'
Post-conditions	Restore file or directory selected before precondition
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.3
Remarks	
Importance	Mandatory

3.3.6.2 PICC_CR_Update_Binary_006: Invalid combination of offset and data to be written, no SFI

Test ID	PICC_CR_Update_Binary_006
Test Purpose	Check that the UPDATE BINARY command returns the response code '6A 80' if the size of the data to be written plus the offset coded on P1 / P2 is larger than the EF size, and that the EF is not updated

Configuration	PICC contains EF which needs no additional authentication for access
Preconditions	Perform authentication with key k_0 Select an EF which needs no further authentication for access
Test Actions	CID sends a UPDATE BINARY command (offset encoded on P1/P2, size data to be written+offset>size of EF, SM) to the PICC
Pass Criteria	The status bytes of the response to the UPDATE BINARY command equal '6A 80'
Post-conditions	Restore file or directory selected before precondition
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.3
Remarks	
Importance	Mandatory

3.3.6.3 PICC_CR_Update_Binary_007: Data to be written larger than file size, SFI

Test ID	PICC_CR_Update_Binary_007
Test Purpose	Check that the UPDATE BINARY command returns the response code '6A 80' if the size of the data to be written is larger than the EF size, and that the EF is not updated. A SFI is provided on P1.
Configuration	PICC contains EF with given SFI which needs no additional authentication for access
Preconditions	Perform authentication with key k_0
Test Actions	CID sends a UPDATE BINARY command (SFI encoded on P1, P2='00', size data to be written > size of EF, SM) to the PICC
Pass Criteria	The status bytes of the response to the UPDATE BINARY command equal '6A 80'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.3
Remarks	
Importance	Mandatory

3.3.6.4 PICC_CR_Update_Binary_008: Invalid combination of offset and data to be written, SFI

Test ID	PICC_CR_Update_Binary_008
Test Purpose	Check that the UPDATE BINARY command returns the response code '6A 80' if the size of the data to be written plus the offset coded on P2 is larger than the EF size, and that the EF is not updated. A SFI is provided on P1
Configuration	PICC contains EF with given SFI which needs no additional authentication for access
Preconditions	Perform authentication with key k_0
Test Actions	CID sends a UPDATE BINARY command (SFI encoded on P1, P2 offset different from '00', data to be written+offset>size EF, SM) to the PICC
Pass Criteria	The status bytes of the response to the UPDATE BINARY command equal '6A 80'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.3
Remarks	
Importance	Mandatory

Invalid offset:

3.3.6.5 PICC_CR_Update_Binary_009: Invalid offset, no SFI

Test ID	PICC_CR_Update_Binary_009
Test Purpose	Check that the UPDATE BINARY command returns the response code '6A 86' if the offset coded on P1 / P2 is larger than the EF size, and that the EF is not updated
Configuration	PICC contains EF which needs no additional authentication for access
Preconditions	Perform authentication with key k_0 Select an EF which needs no further authentication for access
Test Actions	CID sends a UPDATE BINARY command (offset encoded on P1/P2 larger than EF size, SM) to the PICC
Pass Criteria	The status bytes of the response to the UPDATE BINARY command equal '6A 86'
Post-conditions	Restore file or directory selected before precondition
References	CFMS Standard Part 2Section 4.2 CFMS Example Implementation: See Section 2.4.3
Remarks	
Importance	Mandatory

3.3.6.6 PICC_CR_Update_Binary_010: Invalid offset, SFI

Test ID	PICC_CR_Update_Binary_010
Test Purpose	Check that the UPDATE BINARY command returns the response code '6A 86' if the offset encoded on P2 is larger than the EF size, and that the EF is not updated. A SFI is provided on P1
Configuration	PICC contains EF with given SFI which needs no additional authentication for access
Preconditions	Perform authentication with key k_0
Test Actions	CID sends a UPDATE BINARY command (SFI encoded on P1, P2='00', size data to be written > size of EF, SM) to the PICC
Pass Criteria	The status bytes of the response to the UPDATE BINARY command equal '6A 80'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.3
Remarks	
Importance	Mandatory

No file selected or found:

3.3.6.7 PICC_CR_Update_Binary_011: No EF selected

Test ID	PICC_CR_Update_Binary_011
Test Purpose	Check that the UPDATE BINARY command returns the response code '69 86' if no EF has been selected
Configuration	
Preconditions	Perform authentication with key k_0 Make sure no EF has been selected
Test Actions	CID sends a UPDATE BINARY command (no SFI, SM) to the PICC
Pass Criteria	The status bytes of the response to the UPDATE BINARY command equal '69 86'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.3

Remarks	
Importance	Mandatory

3.3.6.8 PICC_CR_Update_Binary_012: No file with given SFI exists

Test ID	PICC_CR_Update_Binary_012
Test Purpose	Check that the UPDATE BINARY command returns the response code '6A 82' if no EF with the given SFI exists in the current DF
Configuration	Current DF does not contain EF with given SFI
Preconditions	Perform authentication with key k_0
Test Actions	CID sends a UPDATE BINARY command (SFI encoded on P1, P2='00', SM) to the PICC
Pass Criteria	The status bytes of the response to the UPDATE BINARY command equal '6A 82'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.3
Remarks	
Importance	Mandatory

Invalid format:

3.3.6.9 PICC_CR_Update_Binary_013: Invalid Class byte

Test ID	PICC_CR_Update_Binary_013
Test Purpose	Check that the UPDATE BINARY command returns the response code '6E 00' if a class byte other than '00' or '0C' is used
Configuration	PICC contains EF which needs no additional authentication for access
Preconditions	Perform authentication with key k_0 Select an EF which needs no further authentication for access
Test Actions	CID sends UPDATE BINARY command (SM with invalid CLA) to the PICC
Pass Criteria	The status bytes of the response to the UPDATE BINARY command equal '6E 00'
Post-conditions	

References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.3
Remarks	Taking one or two invalid class bytes (e.g. '01', '10') will give a clear enough picture
Importance	Mandatory

3.3.6.10 PICC_CR_Update_Binary_014: Invalid value P1

Test ID	PICC_CR_Update_Binary_014
Test Purpose	Check that the UPDATE BINARY command returns the response code '6A 86' if the SFI on P1 is invalid (bits 8, 7, 6 are not 1, 0, 0 or bit 5 – 1 are all equal)
Configuration	PICC contains EF which needs no additional authentication for access
Preconditions	Perform authentication with key k_0 Select an EF which needs no further authentication for access
Test Actions	CID sends UPDATE BINARY command (SM with invalid P1) to the PICC
Pass Criteria	The status bytes of the response to the UPDATE BINARY command equal '6A 86'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.3
Remarks	Taking one or two invalid P1 bytes (e.g. '80', '9F' or 'C2') will give a clear enough picture
Importance	Mandatory

3.3.6.11 PICC_CR_Update_Binary_015: Invalid Lc

Test ID	PICC_CR_Update_Binary_015
Test Purpose	Check that the UPDATE BINARY command returns the response code '67 00' if L_c is not equal to the length of the provided command data field, and that the EF is not updated
Configuration	PICC contains EF which needs no additional authentication for access
Preconditions	Perform authentication with key k_0 Select an EF which needs no further authentication for access

Test Actions	CID sends a UPDATE BINARY command (valid P1/P2, including $L_c='00'$ byte, SM) to the PICC
Pass Criteria	The status bytes of the response to the UPDATE BINARY command equal '6A 80'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.3
Remarks	
Importance	Mandatory

3.3.6.12 PICC_CR_Update_Binary_016: L_c different from zero

Test ID	PICC_CR_Update_Binary_016
Test Purpose	Check that the UPDATE BINARY command returns the response code '6C 00' if $L_c \neq '00'$
Configuration	PICC contains EF which needs no additional authentication for access
Preconditions	Perform authentication with key k_0 Select an EF which needs no further authentication for access
Test Actions	CID sends a UPDATE BINARY command (valid P1/P2, L_c different from zero, SM) to the PICC
Pass Criteria	The status bytes of the response to the UPDATE BINARY command equal '6C 00'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.3
Remarks	Command data can be arbitrary
Importance	Mandatory

Secure access conditions related:

3.3.6.13 PICC_CR_Update_Binary_017: No SM

Test ID	PICC_CR_Update_Binary_017
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Test Purpose	Check that the command returns the response code '69 82' if a file to be selected needs authentication which has not been performed
Configuration	PICC contains EF which needs no additional authentication for access
Preconditions	Perform authentication with key k_0 Select an EF which needs no further authentication for access
Test Actions	CID sends a UPDATE BINARY command (no SM) to the PICC
Pass Criteria	The status bytes of the response to the UPDATE BINARY command equal '69 82'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.3
Remarks	
Importance	Mandatory

3.3.6.14 PICC_CR_Update_Binary_018: Selected file needs additional authentication

Test ID	PICC_CR_Update_Binary_018
Test Purpose	Check that the command returns the response code '69 82' if a file to be selected needs additional authentication which has not been performed
Configuration	EF to be read needs additional authentication with key k_{add} different from k_0 which has not been performed
Preconditions	Perform the authentication with k_0 Select an EF which needs authentication with k_{add} for access
Test Actions	CID sends a UPDATE BINARY command (SM with k_0) to the PICC
Pass Criteria	The status bytes of the response to the UPDATE BINARY command equal '69 82'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.3
Remarks	
Importance	Mandatory

Secure Messaging related:

3.3.6.15 PICC_CR_Update_Binary_019: Duplicated tag '81' in command data

Test ID	PICC_CR_Update_Binary_019
Test Purpose	Check that the UPDATE BINARY command returns response code '6A 80' if the tag '81' is duplicated in the command data field
Configuration	
Preconditions	Perform authentication with key k_0 Select an EF which needs no further authentication for access
Test Actions	CID sends a UPDATE BINARY command (SM with duplicated tag '81') to the PICC
Pass Criteria	The status bytes of the response to the UPDATE BINARY command equal '6A 80'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.2 & Section 2.4.3
Remarks	Tag '81' is used to encapsulate the command data field, duplicating this tag gives an unclear picture what data is used for obtaining the checksum
Importance	Mandatory

3.3.6.16 PICC_CR_Update_Binary_020: Tag element '81' missing in command data

Test ID	PICC_CR_Update_Binary_020
Test Purpose	Check that the UPDATE BINARY command returns response code '69 87' if the plain value data element (tag '81') in Secure Messaging mode is missing
Configuration	
Preconditions	Perform authentication with key k_0 Select an EF which needs no further authentication for access
Test Actions	CID sends a UPDATE BINARY command (SM with missing tag '81') to the PICC
Pass Criteria	The status bytes of the response to the UPDATE BINARY command equal '69 87'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2

	CFMS Example Implementation: See Section 2.4.3
Remarks	
Importance	Mandatory

3.3.6.17 PICC_CR_Update_Binary_021: Tag element '81' encoded incorrectly

Test ID	PICC_CR_Update_Binary_021
Test Purpose	Check that the UPDATE BINARY command returns response code '69 84' if the length of the data element with tag '81' is encoded incorrectly; i.e. encoded on 1 byte while it is larger than 127
Configuration	
Preconditions	Perform authentication with key k_0 Select an EF which needs no further authentication for access
Test Actions	CID sends a UPDATE BINARY command (SM with tag '81' encoded on 1 byte, length data element > 127 bytes) to the PICC
Pass Criteria	The status bytes of the response to the UPDATE BINARY command equal '69 84'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.3
Remarks	
Importance	Mandatory

3.3.6.18 PICC_CR_Update_Binary_022: Missing cryptographic checksum

Test ID	PICC_CR_Update_Binary_022
Test Purpose	Check that the UPDATE BINARY command returns response code '69 87' if the cryptographic checksum over the message in Secure Messaging mode is missing, and that no file is selected
Configuration	
Preconditions	Perform authentication with key k_0 Select an EF which needs no further authentication for access
Test Actions	CID sends a UPDATE BINARY command (SM without cryptographic checksum) to the PICC

Pass Criteria	The status bytes of the response to the UPDATE BINARY command equal '69 87'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.3
Remarks	For the cryptographic checksum often a MAC is used with tag '8E'. Then the test case is performed with secure messaging of the command data, but without the '8E' tag
Importance	Mandatory

3.3.6.19 PICC_CR_Update_Binary_023: Invalid cryptographic checksum

Test ID	PICC_CR_Update_Binary_023
Test Purpose	Check that the UPDATE BINARY command returns response code '69 88' if the cryptographic checksum over the message in Secure Messaging mode is incorrect, and that no file is selected
Configuration	
Preconditions	Perform authentication with key k_0 Select an EF which needs no further authentication for access
Test Actions	CID sends a UPDATE BINARY command (SM with invalid cryptographic checksum) to the PICC
Pass Criteria	The status bytes of the response to the UPDATE BINARY command equal '69 88'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.3
Remarks	To ensure an incorrect cryptographic checksum value, the tester could take 'correct cryptographic checksum value' + 1.
Importance	Mandatory

3.3.7 MANAGE SE – Happy Flow

3.3.7.1 PICC_CR_Manage_SE_001: Set all known keys on PICC

Test ID	PICC_CR_Manage_SE_001
Test Purpose	Check that it is possible to successfully select with the MSE command all keys that are present on the PICC
Configuration	The MSE command cannot be used in Secure Messaging mode
Preconditions	
Test Actions	CID sends MANAGE SE commands (existing keyref, no SM) to the PICC
Pass Criteria	The status bytes of the response to the MANAGE SE command equal '90 00'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.2.4 & Section 2.4.4
Remarks	The number of keys on the card and their identifiers shall be communicated from the personalisator to the tester
Importance	Mandatory

3.3.8 MANAGE SE – Unhappy Flow

3.3.8.1 PICC_CR_Manage_SE_002: L_c inconsistent with length command data field

Test ID	PICC_CR_Manage_SE_002
Test Purpose	Check that the MSE command returns response code '67 00' and does not select the correct diversified key if L _c is not consistent with the length of the command data field
Configuration	The MSE command cannot be used in Secure Messaging mode
Preconditions	
Test Actions	CID sends a MANAGE SE command (existing keyref, L _c not equal to length command data field, no SM) to the PICC
Pass Criteria	The status bytes of the response to the MANAGE SE command equal '67 00'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2

	CFMS Example Implementation: See Section 2.4.4
Remarks	
Importance	Mandatory

3.3.8.2 PICC_CR_Manage_SE_003: Unknown key reference

Test ID	PICC_CR_Manage_SE_003
Test Purpose	Check that the MSE command returns response code '6A 88' when the referenced key is not present on the card
Configuration	The MSE command cannot be used in Secure Messaging mode
Preconditions	
Test Actions	CID sends a MANAGE SE command (unknown keyref, no SM) to the PICC
Pass Criteria	The status bytes of the response to the MANAGE SE command equal '6A 88'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.4
Remarks	The keyref send in the command shall not refer to an existing diversified key on the card
Importance	Mandatory

3.3.8.3 PICC_CR_Manage_SE_004: SM used

Test ID	PICC_CR_Manage_SE_004
Test Purpose	Check that the MSE command returns response code '68 82' if it is used in Secure Messaging mode (CLA = '0C')
Configuration	
Preconditions	Perform authentication with key k_0
Test Actions	CID sends a MANAGE SE command (existing keyref, SM) to the PICC
Pass Criteria	The status bytes of the response to the MANAGE SE command equal '68 82'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2

	CFMS Example Implementation: See Section 2.4.4
Remarks	
Importance	Mandatory

3.3.8.4 PICC_CR_Manage_SE_005: No key reference present

Test ID	PICC_CR_Manage_SE_005
Test Purpose	Check that the MSE command returns response code '6A 80' and does not select the correct diversified key and algorithm if no data element with tag '83' (key reference) is present in the command data
Configuration	
Preconditions	
Test Actions	CID sends a MANAGE SE command (known AlgID, no keyref, no SM) to the PICC
Pass Criteria	The status bytes of the response to the MANAGE SE command equal '6A 84'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.4
Remarks	Instead use tag '81' to provide the key identifier
Importance	Mandatory

3.3.8.5 PICC_CR_Manage_SE_006: Invalid Class byte

Test ID	PICC_CR_Manage_SE_006
Test Purpose	Check that the MSE command returns response code '6E 00' when CLA byte (CLA ≠ '00' and CLA ≠ '0C') is invalid
Configuration	
Preconditions	
Test Actions	CID sends a MANAGE SE command (invalid CLA, no SM) to the PICC
Pass Criteria	The status bytes of the response to the MANAGE SE command equal '6E 00'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2

	CFMS Example Implementation: See Section 2.4.4
Remarks	
Importance	Mandatory

3.3.8.6 PICC_CR_Manage_SE_007: Invalid P1/P2

Test ID	PICC_CR_Manage_SE_007
Test Purpose	Check that the MSE command returns response code '6A 86' if P1/P2 is not equal to '41 A4'.
Configuration	
Preconditions	
Test Actions	CID sends a MANAGE SE command (invalid P1/P2, no SM) to the PICC
Pass Criteria	The status bytes of the response to the MANAGE SE command equal '6E 00'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.4
Remarks	A few invalid values for P1/P2 will probably be sufficient
Importance	Mandatory

3.3.9 INTERNAL AUTHENTICATE – Happy Flow

3.3.9.1 PICC_CR_Internal_Authenticate_001: Valid Internal Authenticate command

Test ID	PICC_CR_Internal_Authenticate_001
Test Purpose	Check that the INTERNAL AUTHENTICATE command returns an 8 byte challenge plus response code '90 00', if correctly used
Configuration	The key referenced in the MANAGE SE command does exist
Preconditions	A successful MANAGE SE command was performed The INTERNAL AUTHENTICATE command cannot be used in Secure Messaging mode
Test Actions	CID sends a INTERNAL AUTHENTICATE command (no SM) to the PICC
Pass Criteria	The response data of the INTERNAL AUTHENTICATE command is equal to a 24 byte encrypted challenge and the status bytes are equal to '90 00'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.5
Remarks	
Importance	Mandatory

3.3.10 INTERNAL AUTHENTICATE – Unhappy Flow

3.3.10.1 PICC_CR_Internal_Authenticate_002: Lc inconsistent with length command data field

Test ID	PICC_CR_Internal_Authenticate_002
Test Purpose	Check that the INTERNAL AUTHENTICATE command returns response code '67 00' and no encrypted response, if L _c is not consistent with the length of the command data field
Configuration	The key referenced in the MANAGE SE command does exist The INTERNAL AUTHENTICATE command cannot be used in Secure Messaging mode
Preconditions	Perform a MANAGE SE command to set a key for use
Test Actions	CID sends a INTERNAL AUTHENTICATE command (no SM) to the PICC

Pass Criteria	The status bytes of the response to the INTERNAL AUTHENTICATE command equal '67 00'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.5
Remarks	
Importance	Mandatory

3.3.10.2 PICC_CR_Internal_Authenticate_003: L_c ≠ '08'

Test ID	PICC_CR_Internal_Authenticate_003
Test Purpose	Check that the INTERNAL AUTHENTICATE command returns response code '67 00' and no encrypted response, if L _c is different from '08'
Configuration	The INTERNAL AUTHENTICATE command cannot be used in Secure Messaging mode The key referenced in the MANAGE SE command does exist
Preconditions	Perform a MANAGE SE command to set a key for use
Test Actions	CID sends a INTERNAL AUTHENTICATE command (no SM) to the PICC
Pass Criteria	The status bytes of the response to the INTERNAL AUTHENTICATE command equal '67 00'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.5
Remarks	
Importance	Mandatory

3.3.10.3 PICC_CR_Internal_Authenticate_004: Use SM mode

Test ID	PICC_CR_Internal_Authenticate_004
Test Purpose	Check that the INTERNAL AUTHENTICATE command returns response code '68 82', if Secure Messaging is used (CLA = '0C')
Configuration	The key referenced in the MANAGE SE command does exist

Preconditions	Perform a MANAGE SE command to set a key for use
Test Actions	CID sends a INTERNAL AUTHENTICATE command (SM) to the PICC
Pass Criteria	The status bytes of the response to the INTERNAL AUTHENTICATE command equal '68 82'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.5
Remarks	
Importance	Mandatory

3.3.10.4 PICC_CR_Internal_Authenticate_005: Non-existing key reference

Test ID	PICC_CR_Internal_Authenticate_005
Test Purpose	Check that the INTERNAL AUTHENTICATE command returns response code '6A 88', if no successful MANAGE SE command was sent previously
Configuration	The INTERNAL AUTHENTICATE command cannot be used in Secure Messaging mode The key referenced in the MANAGE SE command does not exist
Preconditions	Perform a MANAGE SE command using a non-existing key reference
Test Actions	CID sends a INTERNAL AUTHENTICATE command (no SM) to the PICC
Pass Criteria	The status bytes of the response to the INTERNAL AUTHENTICATE command equal '6A 88'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.5
Remarks	
Importance	Mandatory

3.3.10.5 PICC_CR_Internal_Authenticate_006: Invalid P1/P2

Test ID	PICC_CR_Internal_Authenticate_006
Test Purpose	Check that the INTERNAL AUTHENTICATE command returns response code '6A

	86', if P1 and P2 are not equal to '00'
Configuration	The INTERNAL AUTHENTICATE command cannot be used in Secure Messaging mode The key referenced in the MANAGE SE command does exist
Preconditions	Perform a MANAGE SE command to set a key reference
Test Actions	CID sends INTERNAL AUTHENTICATE commands (P1 or P2 not equal to '00', no SM) to the PICC
Pass Criteria	The status bytes of the response to the INTERNAL AUTHENTICATE command equal '6A 86'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.5
Remarks	Taking one or two invalid P1/P2 pairs will give a clear enough picture
Importance	Mandatory

3.3.10.6 PICC_CR_Internal_Authenticate_007: Invalid Le

Test ID	PICC_CR_Internal_Authenticate_007
Test Purpose	Check that the INTERNAL AUTHENTICATE command returns response code '6C 00', if L _e is not equal to '18'
Configuration	The INTERNAL AUTHENTICATE command cannot be used in Secure Messaging mode The key referenced in the MANAGE SE command does exist
Preconditions	Perform a MANAGE SE command to set a key reference
Test Actions	CID sends INTERNAL AUTHENTICATE commands (L _e not equal to '18', no SM) to the PICC
Pass Criteria	The status bytes of the response to the INTERNAL AUTHENTICATE command equal '6C 00'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.5
Remarks	Taking one or two invalid L _e bytes will give a clear enough picture
Importance	Mandatory

3.3.10.7 PICC_CR_Internal_Authenticate_008: Invalid Class

Test ID	PICC_CR_Internal_Authenticate_008
Test Purpose	Check that the INTERNAL AUTHENTICATE command returns response code '6E 00' when CLA byte is invalid (CLA ≠ '00' and CLA ≠ '0C').
Configuration	The INTERNAL AUTHENTICATE command cannot be used in Secure Messaging mode The key referenced in the MANAGE SE command does exist
Preconditions	Perform a MANAGE SE command to set a key reference
Test Actions	CID sends a INTERNAL AUTHENTICATE command (invalid CLA, no SM) to the PICC
Pass Criteria	The status bytes of the response to the INTERNAL AUTHENTICATE command equal '6E 00'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.5
Remarks	Taking one or two invalid class bytes (e.g. '01', '10') will give a clear enough picture
Importance	Mandatory

3.3.11 GET CHALLENGE – Happy Flow

3.3.11.1 PICC_CR_Get_Challenge_001: Valid Get Challenge command

Test ID	PICC_CR_Get_Challenge_001
Test Purpose	Check that the GET CHALLENGE command returns an 8 byte challenge plus response code '90 00', if correctly used
Configuration	The GET CHALLENGE command cannot be used in Secure Messaging mode
Preconditions	
Test Actions	CID sends a GET CHALLENGE command (no SM) to the PICC
Pass Criteria	The response data to the GET CHALLENGE command equal an 8 byte challenge and the status bytes are equal to '90 00'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.6
Remarks	
Importance	Mandatory

3.3.12 GET CHALLENGE – Unhappy Flow

3.3.12.1 PICC_CR_Get_Challenge_002: Invalid SM mode

Test ID	PICC_CR_Get_Challenge_002
Test Purpose	Check that the GET CHALLENGE command returns response code '68 82', if Secure Messaging is used (CLA = '0C')
Configuration	
Preconditions	
Test Actions	CID sends a GET CHALLENGE command (SM) to the PICC
Pass Criteria	The status bytes of the response to the GET CHALLENGE command equal '68 82'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.6

Remarks	
Importance	Mandatory

3.3.12.2 PICC_CR_Get_Challenge_003: Invalid P1/P2

Test ID	PICC_CR_Get_Challenge_003
Test Purpose	Check that the GET CHALLENGE command returns response code '6A 86', if P1 and P2 are not equal to '00'
Configuration	The GET CHALLENGE command cannot be used in Secure Messaging mode
Preconditions	
Test Actions	CID sends GET CHALLENGE commands (P1 or P2 not equal to '00', no SM) to the PICC
Pass Criteria	The status bytes of the response to the GET CHALLENGE command equal '6A 86'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.6
Remarks	Taking one or two invalid P1/P2 pairs will give a clear enough picture
Importance	Mandatory

3.3.12.3 PICC_CR_Get_Challenge_004: Invalid L_e

Test ID	PICC_CR_Get_Challenge_004
Test Purpose	Check that the GET CHALLENGE command returns response code '6C 00', if L _e is not equal to '08'
Configuration	The GET CHALLENGE command cannot be used in Secure Messaging mode
Preconditions	
Test Actions	CID sends GET CHALLENGE commands (L _e not equal to '08', no SM) to the PICC
Pass Criteria	The status bytes of the response to the GET CHALLENGE command equal '6C 00'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.6

Remarks	Taking one or two invalid L _e bytes will give a clear enough picture
Importance	Mandatory

3.3.12.4 PICC_CR_Get_Challenge_005: Invalid Class

Test ID	PICC_CR_Get_Challenge_005
Test Purpose	Check that the GET CHALLENGE command returns response code '6E 00' when CLA byte (CLA ≠ '00' and CLA ≠ '0C') is invalid
Configuration	The GET CHALLENGE command cannot be used in Secure Messaging mode
Preconditions	
Test Actions	CID sends a GET CHALLENGE command (invalid CLA, no SM) to the PICC
Pass Criteria	The status bytes of the response to the GET CHALLENGE command equal '6E 00'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.6
Remarks	Taking one or two invalid class bytes (e.g. '01' or '10') will give a clear enough picture
Importance	Mandatory

3.3.13 EXTERNAL AUTHENTICATE – Happy Flow

3.3.13.1 PICC_CR_External_Authenticate_001: Valid External Authenticate command

Test ID	PICC_CR_External_Authenticate_001
Test Purpose	Check that the EXTERNAL AUTHENTICATE command returns response code '90 00', if correctly used
Configuration	The EXTERNAL AUTHENTICATE command cannot be used in Secure Messaging mode The key referenced in the MANAGE SE command does exist The GET CHALLENGE command immediately precedes current EXTERNAL AUTHENTICATE command
Preconditions	Perform a MANAGE SE command to set a key reference Perform a GET CHALLENGE command to obtain R_{picc} from response Generate the 8 byte random numbers $Rnd2$ and $r2$
Test Actions	CID sends a EXTERNAL AUTHENTICATE command (valid cryptogram, no SM) to the PICC
Pass Criteria	The status bytes of the response to the EXTERNAL AUTHENTICATE command equal '90 00'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.7
Remarks	Valid cryptogram is the concatenation of $R_{picc}++Rnd2++r2$ encrypted with key corresponding to keyref set in MANAGE SE command.
Importance	Mandatory

3.3.14 EXTERNAL AUTHENTICATE – Unhappy Flow

3.3.14.1 PICC_CR_External_Authenticate_002: L_c inconsistent with length command data field

Test ID	PICC_CR_External_Authenticate_002
Test Purpose	Check that the EXTERNAL AUTHENTICATE command returns response code '67 00' and no encrypted response, if L_c is not consistent with the length of the command data field

Configuration	The EXTERNAL AUTHENTICATE command cannot be used in Secure Messaging mode The key referenced in the MANAGE SE command does exist The GET CHALLENGE command immediately precedes current EXTERNAL AUTHENTICATE command
Preconditions	Perform a MANAGE SE command to set a key reference Perform a GET CHALLENGE command to obtain <i>Rpicc</i> from response Generate the 8 byte random numbers <i>Rnd2</i> and <i>r2</i>
Test Actions	CID sends a EXTERNAL AUTHENTICATE command (valid cryptogram, L _c inconsistent with length command data, no SM) to the PICC
Pass Criteria	The status bytes of the response to the EXTERNAL AUTHENTICATE command equal '67 00'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.7
Remarks	Valid cryptogram is the concatenation of <i>Rpicc</i> ++ <i>Rnd2</i> ++ <i>r2</i> encrypted with key corresponding to keyref set in MANAGE SE command.
Importance	Mandatory

3.3.14.2 PICC_CR_External_Authenticate_003: Lc ≠ '18'

Test ID	PICC_CR_External_Authenticate_003
Test Purpose	Check that the EXTERNAL AUTHENTICATE command returns response code '67 00' and no encrypted response, if L _c is different from '08'
Configuration	The EXTERNAL AUTHENTICATE command cannot be used in Secure Messaging mode The key referenced in the MANAGE SE command does exist The GET CHALLENGE command immediately precedes current EXTERNAL AUTHENTICATE command
Preconditions	Perform a MANAGE SE command to set a key reference Perform a GET CHALLENGE command to obtain <i>Rpicc</i> from response Generate the 8 byte random numbers <i>Rnd2</i> and <i>r2</i>
Test Actions	CID sends a EXTERNAL AUTHENTICATE command (valid cryptogram, L _c different from '18', no SM) to the PICC

Pass Criteria	The status bytes of the response to the EXTERNAL AUTHENTICATE command equal '67 00'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.2.4 & Section 2.4.7
Remarks	Valid cryptogram is the concatenation of <i>Rpicc</i> ++ <i>Rnd2</i> ++ <i>r2</i> encrypted with key corresponding to keyref set in MANAGE SE command.
Importance	Mandatory

3.3.14.3 PICC_CR_External_Authenticate_004: Invalid SM mode

Test ID	PICC_CR_External_Authenticate_004
Test Purpose	Check that the EXTERNAL AUTHENTICATE command returns response code '68 82', if Secure Messaging is used (CLA = '0C')
Configuration	The key referenced in the MANAGE SE command does exist The GET CHALLENGE command immediately precedes current EXTERNAL AUTHENTICATE command
Preconditions	Perform a MANAGE SE command to set a key reference Perform a GET CHALLENGE command to obtain <i>Rpicc</i> from response Generate the 8 byte random numbers <i>Rnd2</i> and <i>r2</i>
Test Actions	CID sends a EXTERNAL AUTHENTICATE command (valid cryptogram, SM) to the PICC
Pass Criteria	The status bytes of the response to the EXTERNAL AUTHENTICATE command equal '68 82'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.7
Remarks	Valid cryptogram is the concatenation of <i>Rpicc</i> ++ <i>Rnd2</i> ++ <i>r2</i> encrypted with key corresponding to keyref set in MANAGE SE command.
Importance	Mandatory

3.3.14.4 PICC_CR_External_Authenticate_005: Previous command not Get Challenge

Test ID	PICC_CR_External_Authenticate_005
Test Purpose	Check that the EXTERNAL AUTHENTICATE command returns response code '69 85', if previous command was not a GET CHALLENGE command
Configuration	The EXTERNAL AUTHENTICATE command cannot be used in Secure Messaging mode. The key referenced in the MANAGE SE command does not exist No GET CHALLENGE command immediately precedes current EXTERNAL AUTHENTICATE command
Preconditions	Perform a MANAGE SE command to set a non-existing key reference Perform an GET CHALLENGE command to obtain <i>Rpicc</i> from response Perform a different command than GET CHALLENGE which does not alter the state of the card Generate the 8 byte random numbers <i>Rnd2</i> and <i>r2</i>
Test Actions	CID sends a EXTERNAL AUTHENTICATE command (valid cryptogram, no SM) to the PICC
Pass Criteria	The status bytes of the response to the EXTERNAL AUTHENTICATE command equal '69 85'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.7
Remarks	Valid cryptogram is the concatenation of <i>Rpicc</i> ++ <i>Rnd2</i> ++ <i>r2</i> encrypted with key corresponding to keyref set in MANAGE SE command.
Importance	Mandatory

3.3.14.5 PICC_CR_External_Authenticate_006: Invalid cryptogram

Test ID	PICC_CR_External_Authenticate_006
Test Purpose	Check that the EXTERNAL AUTHENTICATE command returns response code '69 88', if the cryptogram of the command data field is invalid
Configuration	The EXTERNAL AUTHENTICATE command cannot be used in Secure Messaging mode. The key referenced in the MANAGE SE command does exist The GET CHALLENGE command immediately precedes current EXTERNAL AUTHENTICATE command

Preconditions	Perform a MANAGE SE command to set an existing key reference Perform a GET CHALLENGE command to obtain <i>Rpicc</i> from response Generate the 8 byte random numbers <i>Rnd2</i> and <i>r2</i>
Test Actions	CID sends a EXTERNAL AUTHENTICATE command (invalid cryptogram, no SM) to the PICC
Pass Criteria	The status bytes of the response to the EXTERNAL AUTHENTICATE command equal '69 88'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.7
Remarks	As invalid cryptogram for example the encryption <i>Rpicc</i> xor '01'++ <i>Rnd2</i> ++ <i>r2</i> with the keyref set in the MANAGE SE command can be used.
Importance	Mandatory

3.3.14.6 PICC_CR_External_Authenticate_007: Non-existing key reference

Test ID	PICC_CR_External_Authenticate_007
Test Purpose	Check that the EXTERNAL AUTHENTICATE command returns response code '6A 88', if key referenced set in the previous MANAGE SE command is not found
Configuration	The EXTERNAL AUTHENTICATE command cannot be used in Secure Messaging mode. The key referenced in the MANAGE SE command does not exist The GET CHALLENGE command immediately precedes current EXTERNAL AUTHENTICATE command
Preconditions	Perform a MANAGE SE command to set a non-existing key reference Perform a GET CHALLENGE command to obtain <i>Rpicc</i> from response Generate the 8 byte random numbers <i>Rnd2</i> and <i>r2</i>
Test Actions	CID sends a EXTERNAL AUTHENTICATE command (valid cryptogram, no SM) to the PICC
Pass Criteria	The status bytes of the response to the EXTERNAL AUTHENTICATE command equal '6A 88'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2

	CFMS Example Implementation: See Section 2.4.7
Remarks	
Importance	Mandatory

3.3.14.7 PICC_CR_External_Authenticate_008: Invalid P1/P2

Test ID	PICC_CR_External_Authenticate_008
Test Purpose	Check that the EXTERNAL AUTHENTICATE command returns response code '6A 86', if P1 and P2 are not equal to '00'
Configuration	The EXTERNAL AUTHENTICATE command cannot be used in Secure Messaging mode The key referenced in the MANAGE SE command does exist The GET CHALLENGE command immediately precedes current EXTERNAL AUTHENTICATE command
Preconditions	Perform a MANAGE SE command to set a key reference Perform a GET CHALLENGE command to obtain <i>Rpicc</i> from response Generate the 8 byte random numbers <i>Rnd2</i> and <i>r2</i>
Test Actions	CID sends EXTERNAL AUTHENTICATE commands (P1 or P2 not equal to '00', valid cryptogram, no SM) to the PICC
Pass Criteria	The status bytes of the response to the EXTERNAL AUTHENTICATE command equal '6A 86'
Post-conditions	
References	CFMS Standard Part 2 Section 4.2 CFMS Example Implementation: See Section 2.4.7
Remarks	Taking one or two invalid P1/P2 pairs will give a clear enough picture
Importance	Mandatory

3.3.14.8 PICC_CR_External_Authenticate_009: Invalid Class

Test ID	PICC_CR_External_Authenticate_009
Test Purpose	Check that the EXTERNAL AUTHENTICATE command returns response code '6E 00' when CLA byte (CLA ≠ '00' and CLA ≠ '0C') is invalid
Configuration	The EXTERNAL AUTHENTICATE command cannot be used in Secure Messaging

	<p>mode</p> <p>The key referenced in the MANAGE SE command does exist</p> <p>The GET CHALLENGE command immediately precedes current EXTERNAL AUTHENTICATE command</p>
Preconditions	<p>Perform a MANAGE SE command to set a key reference</p> <p>Perform a GET CHALLENGE command to obtain <i>Rpicc</i> from response</p> <p>Generate the 8 byte random numbers <i>Rnd2</i> and <i>r2</i></p>
Test Actions	CID sends a EXTERNAL AUTHENTICATE command (invalid CLA, valid cryptogram, no SM) to the PICC
Pass Criteria	The status bytes of the response to the EXTERNAL AUTHENTICATE command equal '6E 00'
Post-conditions	
References	<p>CFMS Standard Part 2 Section 4.2</p> <p>CFMS Example Implementation: See Section 2.4.7</p>
Remarks	Taking one or two invalid class bytes (e.g. '01', '10') will give a clear enough picture
Importance	Mandatory

3.4 Content Tests – Object Specific

3.4.1 DIO: Directory Index Object

3.4.1.1 PICC_COS_DIO_001: Correct Length

Test ID	PICC_COS_DIO_001
Test Purpose	Check that the length of the DIO object equals 16 bytes
Configuration	
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (Select EF DIO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00')
Pass Criteria	The length of the response plain data part shall be 16 bytes
Post-conditions	
References	CFMS Standard Part 2 Section 5.1,
Remarks	
Importance	Mandatory

3.4.1.2 PICC_COS_DIO_002: RFU bits

Test ID	PICC_COS_DIO_002
Test Purpose	Check that pos 5 and 6 of the DIO are set to 0
Configuration	
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (Select EF DIO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00')
Pass Criteria	Bit 2 and 3 of the single byte response data shall be set to 0
Post-conditions	
References	CFMS Standard Part 2 Section 5.1
Remarks	These bits are Reserved for Future Use

Importance	Mandatory

3.4.1.3 PICC_COS_DIO_003: PHPOX objects quantity

Test ID	PICC_COS_DIO_003
Test Purpose	Check that pos 12-15 of DIO correspond to at least 1 PHPOX extensions
Configuration	
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (Select EF DIO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 1, Le='01')
Pass Criteria	Bit 1-4 of the single byte response data shall be set to at least 1
Post-conditions	
References	CFMS Standard Part 2 Section 5.1
Remarks	The PICC has to contain at least 1 PHPOX extension
Importance	Mandatory

3.4.1.4 PICC_COS_DIO_004: PIOX extensions quantity

Test ID	PICC_COS_DIO_004
Test Purpose	Check that pos 20-21 of DIO correspond either to 1 or 3 PIOX extensions
Configuration	
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (Select EF DIO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00')
Pass Criteria	Pos 20-21 of the plain response data part shall be set to either 1 or 3
Post-conditions	
References	CFMS Standard Part 2 Section 5.1
Remarks	The PICC has to contain either 1 or 3 PIOX extensions
Importance	Mandatory

3.4.1.5 PICC_COS_DIO_005: THO objects quantity

Test ID	PICC_COS_DIO_005
Test Purpose	Check that pos 33-36 of DIO correspond at least 1 THO object
Configuration	
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (Select EF DIO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 1, Le='01')
Pass Criteria	Pos 29-32 of the plain response data part shall be set to at least 1
Post-conditions	
References	CFMS Standard Part 2 Section 5.1
Remarks	The PICC has to contain at least one THO object in the THO file
Importance	Mandatory

3.4.1.6 PICC_COS_DIO_006: DAC/CRC check

Test ID	PICC_COS_DIO_006
Test Purpose	Check that the DAC/CRC (pos 112-127) is correct
Configuration	
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (Select EF DIO, SM) CID sends a READ BINARY command (Read current EF, SM, offset '0E', Le='02')
Pass Criteria	The 2 byte of the response data shall represent a correct DAC/CRC
Post-conditions	
References	CFMS Standard Part 2 Section 5.1
Remarks	
Importance	Mandatory

3.4.2 DIOX: Directory Index Object Extension

3.4.2.1 PICC_COS_DIOX_001: Correct Length

Test ID	PICC_COS_DIOX_001
Test Purpose	Check that the length of the DIOX object equals 16 bytes
Configuration	EF DIOX present on the PICC
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (Select EF DIOX, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00')
Pass Criteria	The length of the response plain data part shall be 16 bytes
Post-conditions	
References	CFMS Standard Part 2 Section 5.1
Remarks	Only applicable if EF DIOX is present
Importance	Conditional

3.4.3 TAPO: Transit Application Profile Object

3.4.3.1 PICC_COS_TAPO_001: Correct Length

Test ID	PICC_COS_TAPO_001
Test Purpose	Check that the length of the TAPO object equals 16 bytes
Configuration	
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (Select EF TAPO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00')
Pass Criteria	The length of the response plain data part shall be 16 bytes
Post-conditions	
References	CFMS Standard Part 2 Section 5.2
Remarks	
Importance	Mandatory

3.4.3.2 PICC_COS_TAPO_002: RFU bits

Test ID	PICC_COS_TAPO_002
Test Purpose	Check that bit 5, 53-55 are set to 0
Configuration	
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (Select EF TAPO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00')
Pass Criteria	Bit 5, 53-55 of the response data shall be set to 0
Post-conditions	
References	CFMS Standard Part 2 Section 5.2
Remarks	These bits are Reserved for Future Use
Importance	Mandatory

3.4.3.3 PICC_COS_TAPO_003: Country ID

Test ID	PICC_COS_TAPO_003
Test Purpose	Check that the RtsCountryID of the TAPO object (pos 6-15) is a valid Country Code
Configuration	
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (Select EF TAPO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='02')
Pass Criteria	Bit 6-15 of the response data shall represent a valid 3 digit country code as specified in ISO 3166
Post-conditions	
References	CFMS Standard Part 2 Section 5.2
Remarks	
Importance	Mandatory

3.4.3.4 PICC_COS_TAPO_004: Transit Expiration Date

Test ID	PICC_COS_TAPO_004
Test Purpose	Check that the RtsTransitExpirationDate (pos 34-49) of the TAPO object is correctly formatted
Configuration	
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (Select EF TAPO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 4, Le='03')
Pass Criteria	Bit 3-18 of the response data shall represent a valid date (format ddmmyy) or filled with zero's Pos 0-4 = day (1-31) Pos 5-8 = month (1-12) Pos 9-15 = year (0-99)
Post-conditions	
References	CFMS Standard Part 2 Section 5.2
Remarks	
Importance	Mandatory

3.4.3.5 PICC_COS_TAPO_005: DAC/CRC check

Test ID	PICC_COS_TAPO_005
Test Purpose	Check that the DAC/CRC (pos 112-127) is correct
Configuration	
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (Select EF TAPO, SM) CID sends a READ BINARY command (Read current EF, SM, offset '0E', Le='02')
Pass Criteria	The 2 byte of the response data shall represent a correct DAC/CRC
Post-conditions	
References	CFMS Standard Part 2 Section 5.2
Remarks	
Importance	Mandatory

3.4.4 PHPO: PICC Holder Profile Object

3.4.4.1 PICC_COS_PHPO_001: Correct Length

Test ID	PICC_COS_PHPO_001
Test Purpose	Check that the length of the PHPO object equals 16 bytes
Configuration	
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (Select EF PHPO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00')
Pass Criteria	The length of the response plain data part shall be 16 bytes
Post-conditions	
References	CFMS Standard Part 2 Section 5.3
Remarks	
Importance	Mandatory

3.4.4.2 PICC_COS_PHPO_002: RFU bits

Test ID	PICC_COS_PHPO_002
Test Purpose	Check that bit 78-79 are set to 0
Configuration	
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (Select EF PHPO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 9, Le='01')
Pass Criteria	Bit 6, 7 of the response data shall be set to 0
Post-conditions	
References	CFMS Standard Part 2 Section 5.3
Remarks	These bits are Reserved for Future Use
Importance	Mandatory

3.4.4.3 PICC_COS_PHPO_003: Profile Birth Date

Test ID	PICC_COS_PHPO_003
Test Purpose	Check that the RtsProfileBirthDate (pos 0-15) of the PHPO object is correctly formatted
Configuration	
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (Select EF PHPO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='02')
Pass Criteria	The first two bytes of the response data shall represent a valid date (format ddmmyy) or filled with zero's Pos 0-4 = day (1-31) Pos 5-8 = month (1-12) Pos 9-15 = year (0-99)
Post-conditions	
References	CFMS Standard Part 2 Section 5.3
Remarks	
Importance	Mandatory

3.4.4.4 PICC_COS_PHPO_004: Profile Start Date

Test ID	PICC_COS_PHPO_004
Test Purpose	Check that the RtsProfileStartDate (pos 16-31) of the PHPO object is correctly formatted
Configuration	
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (Select EF PHPO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 2, Le='02')
Pass Criteria	The first two bytes of the response data shall represent a valid date (format ddmmyy) or filled with zero's Pos 0-4 = day (1-31) Pos 5-8 = month (1-12) Pos 9-15 = year (0-99)
Post-conditions	

References	CFMS Standard Part 2 Section 5.3
Remarks	
Importance	Mandatory

3.4.4.5 PICC_COS_PHPO_005: Profile Expire Date

Test ID	PICC_COS_PHPO_005
Test Purpose	Check that the RtsProfileExpireDate (pos 34-49) of the PHPO object is correctly formatted
Configuration	
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (Select EF PHPO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 4, Le='02')
Pass Criteria	The first two bytes of the response data shall represent a valid date (format ddmmyy) or filled with zero's Pos 0-4 = day (1-31) Pos 5-8 = month (1-12) Pos 9-15 = year (0-99)
Post-conditions	
References	CFMS Standard Part 2 Section 5.3
Remarks	
Importance	Mandatory

3.4.4.6 PICC_COS_PHPO_006: DAC/CRC check

Test ID	PICC_COS_PHPO_006
Test Purpose	Check that the DAC/CRC (pos 112-127) is correct
Configuration	
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (Select EF PHPO, SM) CID sends a READ BINARY command (Read current EF, SM, offset '0E', Le='02')

Pass Criteria	The 2 byte of the response data shall represent a correct DAC/CRC
Post-conditions	
References	CFMS Standard Part 2 Section 5.3
Remarks	
Importance	Mandatory

3.4.5 PHPOX: PICC Holder Profile Object Extension File

3.4.5.1 PICC_COS_PHPOX_001: Correct Length

Test ID	PICC_COS_PHPOX_001
Test Purpose	Check that the length of the PHPOX File equals number of PHPO extensions * 16 bytes
Configuration	
Preconditions	Perform the authentication with k_0 Perform the additional authentication with k_{PHPOX}
Test Actions	CID sends a SELECT command (Select EF PHPOX, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00')
Pass Criteria	The length of the response plain data part shall be 16 bytes times number of PHPO extensions and be at least 16 bytes.
Post-conditions	
References	CFMS Standard Part 2 Section 5.4
Remarks	EF PHPOX shall contain at least 1 extension
Importance	Mandatory

3.4.6 PIO: Product Index Object

3.4.6.1 PICC_COS_PIO_001: Correct Length

Test ID	PICC_COS_PIO_001
Test Purpose	Check that the length of the PIO object equals 16 bytes

Configuration	
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (Select EF PIO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00')
Pass Criteria	The length of the response plain data part shall be 16 bytes
Post-conditions	
References	CFMS Standard Part 2 Section 5.5
Remarks	
Importance	Mandatory

3.4.6.2 PICC_COS_PIO_002: DAC/CRC check

Test ID	PICC_COS_PIO_002
Test Purpose	Check that the DAC/CRC (pos 112-127) is correct
Configuration	
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (Select EF PIO, SM) CID sends a READ BINARY command (Read current EF, SM, offset '0E', Le='02')
Pass Criteria	The 2 byte of the response data shall represent a correct DAC/CRC
Post-conditions	
References	CFMS Standard Part 2 Section 5.5
Remarks	
Importance	Mandatory

3.4.7 PIOX: Product Index Object Extension File

3.4.7.1 PICC_COS_PIOX_001: Correct Length PIOX

Test ID	PICC_COS_PIOX_001
Test Purpose	Check that the length of the PIOX File equals number of PIO extensions *16 bytes

Configuration	
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (Select EF PIOX, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00')
Pass Criteria	The length of the response plain data part shall be 16 bytes times number of PHPO extensions and either be 16 or 48 bytes.
Post-conditions	
References	CFMS Standard Part 2 Section 5.6
Remarks	There shall be 1 or 3 extensions objects in the PIOX file
Importance	Conditional

3.4.8 A&DVO: Add and Deduct Value History Object File

3.4.8.1 PICC_COS_A&DVO_001: Correct Length

Test ID	PICC_COS_A&DVO_001
Test Purpose	Check that the length of the A&DVO File equals number of A&DVO product objects * 16 bytes
Configuration	EF A&DVO present on the PICC
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (Select EF A&DVO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00')
Pass Criteria	The length of the response plain data part shall be 16 bytes times number of A&DVO objects
Post-conditions	
References	CFMS Standard Part 2 Section 5.7
Remarks	Only applicable if EF A&DVO present
Importance	Conditional

3.4.8.2 PICC_COS_A&DVO_002: RFU bits

Test ID	PICC_COS_A&DVO_002
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Test Purpose	Check that bit 7 and 43 are set to 0
Configuration	EF A&DVO present on the PICC
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (Select EF A&DVO, SM) CID sends a READ BINARY command for each A&DVO product object (Read current EF, SM, offset A&DVO product object index, Le='10')
Pass Criteria	Bit 7 and 43 of the response data shall be set to 0
Post-conditions	
References	CFMS Standard Part 2 Section 5.7
Remarks	Only applicable if EF A&DVO present Offset shall be of the form 'i0'h, where i is the product object index These bits are Reserved for Future Use
Importance	Conditional

3.4.8.3 PICC_COS_A&DVO_003: Date

Test ID	PICC_COS_A&DVO_003
Test Purpose	Check that the RtsDate (pos 16-31) of the A&DVO object is correctly formatted
Configuration	EF A&DVO present on the PICC
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (Select EF A&DVO, SM) CID sends a READ BINARY command for each A&DVO product object (Read current EF, SM, 2+offset A&DVO product object index, Le='02')
Pass Criteria	The two bytes of the response data shall represent a valid date (format ddmmyy) or filled with zero's Pos 0-4 = day (1-31) Pos 5-8 = month (1-12) Pos 9-15 = year (0-99)
Post-conditions	
References	CFMS Standard Part 2 Section 5.7
Remarks	Only applicable if EF A&DVHO present

	Offset shall be of the form 'i2'h, where i is the product object index
Importance	Conditional

3.4.8.4 PICC_COS_A&DVO_004: Time

Test ID	PICC_COS_A&DVO_004
Test Purpose	Check that the RtsTime of the A&DVO object (pos 32-42) is a valid time (Transaction Time in minutes pas midnight (24:00 hour's clock))
Configuration	EF A&DVO present on the PICC
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (Select EF A&DVO, SM) CID sends a READ BINARY command for each A&DVO product object (Read current EF, SM, 4+offset A&DVHO product object index, Le='02')
Pass Criteria	The first 11 bits of the response data shall represent a value at most 1439 ('5A0'h)
Post-conditions	
References	CFMS Standard Part 2 Section 5.7
Remarks	Only applicable if EF A&DVO present Offset shall be of the form 'i4'h, where i is the product object index
Importance	Conditional

3.4.8.5 PICC_COS_A&DVO_005: Recurring Autoload Type

Test ID	PICC_COS_A&DVO_005
Test Purpose	Check that RtsRecurringAutoloadType (pos 44-47) represents a true autoload type
Configuration	EF A&DVO present on the PICC
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (Select EF A&DVO, SM) CID sends a READ BINARY command for each A&DVO product object (Read current EF, SM, 5+offset A&DVO product object index, Le='01')
Pass Criteria	Check that the last 4 bits of the 1 byte response data represents a value at most 7

Post-conditions	
References	CFMS Standard Part 2 Section 5.7
Remarks	Only applicable if EF A&DVO present Offset shall be of the form 'i5'h, where i is the product object index
Importance	Conditional

3.4.8.6 PICC_COS_A&DVO_006: DAC/CRC check

Test ID	PICC_COS_A&DVO_006
Test Purpose	Check that the DAC/CRC (pos 112-127) is correct
Configuration	EF A&DVO present on the PICC
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (Select EF A&DVO, SM) CID sends a READ BINARY command for each A&DVO product object (Read current EF, SM, 14+offset A&DVHO product object index, Le='02')
Pass Criteria	The 2 byte of the response data shall represent a correct DAC/CRC
Post-conditions	
References	CFMS Standard Part 2 Section 5.7
Remarks	Only applicable if EF A&DVO present Offset shall be of the form 'iE'h, where i is the product object index
Importance	Conditional

3.4.9 THO: Transaction History Object File

3.4.9.1 PICC_COS_THO_001: Correct Length

Test ID	PICC_COS_THO_001
Test Purpose	Check that the length of the THO File equals 16 bytes * number of THO objects, but at least 16 bytes
Configuration	
Preconditions	Perform the authentication with k_0

Test Actions	CID sends a SELECT command (Select EF THO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00')
Pass Criteria	The length of the response plain data part shall be 16 bytes times number of THO objects
Post-conditions	
References	CFMS Standard Part 2 Section 5.8
Remarks	At least one THO object shall be present in the THO File
Importance	Mandatory

3.4.9.2 PICC_COS_THO_002: DateStamp

Test ID	PICC_COS_THO_002
Test Purpose	Check that the RtsDateStamp (pos 40-55) of the THO object is correctly formatted
Configuration	
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (Select EF THO, SM) CID sends a READ BINARY command for each THO product object (Read current EF, SM, 5+offset THO product object index, Le='02')
Pass Criteria	The two bytes of the response data shall represent a valid date (format ddmmyy) or filled with zero's Pos 0-4 = day (1-31) Pos 5-8 = month (1-12) Pos 9-15 = year (0-99)
Post-conditions	
References	CFMS Standard Part 2 Section 5.8
Remarks	Offset shall be of the form 'i5'h, where i is the product object index
Importance	Mandatory

3.4.9.3 PICC_COS_THO_003: TimeStamp

Test ID	PICC_COS_THO_003
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Test Purpose	Check that the RtsTimeStamp of the THO object (pos 56-66) is a valid time (Transaction Time in minutes pas midnight (24:00 hour's clock))
Configuration	
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (Select EF THO, SM) CID sends a READ BINARY command for each THO product object (Read current EF, SM, 7+offset THO product object index, Le='02')
Pass Criteria	The first 11 bits of the response data shall represent a value at most 1439 ('5A0'h)
Post-conditions	
References	CFMS Standard Part 2 Section 5.8
Remarks	Offset shall be of the form 'i7'h, where i is the product object index
Importance	Mandatory

3.4.9.4 PICC_COS_THO_004: TransferStartTime

Test ID	PICC_COS_THO_004
Test Purpose	Check that the RtsTransferStartTime of the THO object (pos 69-79) is a valid time (transfer start time in minutes pas midnight (24:00 hour's clock))
Configuration	
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (Select EF THO, SM) CID sends a READ BINARY command for each THO product object (Read current EF, SM, 8+offset THO product object index, Le='02')
Pass Criteria	The last 11 bits of the response data shall represent a value at most 1439 ('5A0'h)
Post-conditions	
References	CFMS Standard Part 2 Section 5.8
Remarks	Offset shall be of the form 'i8'h, where i is the product object index
Importance	Mandatory

3.4.9.5 PICC_COS_THO_005: DAC/CRC check

Test ID	PICC_COS_THO_005
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Test Purpose	Check that the DAC/CRC (pos 112-127) is correct
Configuration	
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (Select EF THO, SM) CID sends a READ BINARY command for each THO product object (Read current EF, SM, 14+offset THO product object index, Le='02')
Pass Criteria	The 2 byte of the response data shall represent a correct DAC/CRC
Post-conditions	
References	CFMS Standard Part 2 Section 5.8
Remarks	Offset shall be of the form 'iE'h, where i is the product object index
Importance	Mandatory

3.4.10 THOX: Transaction History Object Extension File

3.4.10.1 PICC_COS_THOX_001: Correct Length

Test ID	PICC_COS_THOX_001
Test Purpose	Check that the length of the THOX object equals 16 bytes * number of THO extensions
Configuration	EF THOX present on the PICC
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (Select EF THOX, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00')
Pass Criteria	The length of the response plain data part shall be 16 bytes times number of THO extensions
Post-conditions	
References	CFMS Standard Part 2 Section 5.9
Remarks	Only applicable if EF THOX is present
Importance	Conditional

3.4.11 P&TPO: Agency Pass and Transfer Product Object

3.4.11.1 PICC_COS_P&TPO_AG_001: Correct Length

Test ID	PICC_COS_P&TPO_AG_001
Test Purpose	Check that the length of the P&TPO equals 16 bytes
Configuration	PICC contains an Agency <i>X</i> specific pass/transfer product object referenced in the PIO
Preconditions	Perform the authentication with k_0 Perform the additional authentication with k_1
Test Actions	CID sends a SELECT command (Select EF DIO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to obtain the FileID reference for the EF PIO and the EF AGENCYXPO CID sends a SELECT command (Select EF PIO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to obtain the product sub index reference <i>n</i> for Agency <i>X</i> specific pass/transfer product object CID sends a SELECT command (Select EF AGENCYXPO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00')
Pass Criteria	The Agency <i>X</i> specific pass/transfer product object shall cover exactly the part $n * 16$ bytes until (and excluding) $(n+1) * 16$ bytes of the plain part of the response data
Post-conditions	
References	CFMS Standard Part 2 Section 5.11
Remarks	Only applicable if agency specific pass/transfer product object present
Importance	Conditional

3.4.11.2 PICC_COS_P&TPO_AG_002: Expiration date

Test ID	PICC_COS_P&TPO_AG_002
Test Purpose	Check that the RtsExpDate (pos 9-24) of the P&TPO object is correctly formatted
Configuration	PICC contains an Agency <i>X</i> specific pass/transfer product object referenced in the PIO
Preconditions	Perform the authentication with k_0 Perform the additional authentication with k_1

Test Actions	<p>CID sends a SELECT command (Select EF DIO, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to obtain the FileID reference for the EF PIO and the EF AGENCYXPO</p> <p>CID sends a SELECT command (Select EF PIO, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to obtain the product sub index reference <i>n</i> for Agency <i>X</i> specific pass/transfer product object</p> <p>CID sends a SELECT command (Select EF AGENCYXPO, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset '<i>n</i>1'h, Le='02')</p>
Pass Criteria	<p>The two bytes of the response data shall represent a valid date (format ddmmyy) or filled with zero's</p> <p>Pos 0-4 = day (1-31)</p> <p>Pos 5-8 = month (1-12)</p> <p>Pos 9-15 = year (0-99)</p>
Post-conditions	
References	CFMS Standard Part 2 Section 5.11
Remarks	Only applicable if agency specific pass/transfer product object present
Importance	Conditional

3.4.11.3 PICC_COS_P&TPO_AG_003: Expiration Time

Test ID	PICC_COS_P&TPO_AG_003
Test Purpose	Check that the RtsExpTime of the P&TPO object (pos 25-35) is a valid time (expiration time in minutes pas midnight (24:00 hour's clock))
Configuration	PICC contains an Agency <i>X</i> specific pass/transfer product object referenced in the PIO
Preconditions	<p>Perform the authentication with <i>k₀</i></p> <p>Perform the additional authentication with <i>k₁</i></p>
Test Actions	<p>CID sends a SELECT command (Select EF DIO, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to obtain the FileID reference for the EF PIO and the EF AGENCYXPO</p> <p>CID sends a SELECT command (Select EF PIO, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to obtain the product sub index reference <i>n</i> for Agency <i>X</i> specific pass/transfer product</p>

	object CID sends a SELECT command (Select EF AGENCYXPO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 'n3'h, Le='02')
Pass Criteria	Bits 2 until and including 13 of the response data shall represent a value at most 1439 ('5A0'h)
Post-conditions	
References	CFMS Standard Part 2 Section 5.11
Remarks	Only applicable if agency specific pass/transfer product object present
Importance	Conditional

3.4.11.4 PICC_COS_P&TPO_AG_004: CID Transaction Number

Test ID	PICC_COS_P&TPO_AG_004
Test Purpose	Check that the RtsCIDTransactionNumber of the P&TPO object (pos 89-95) is equal the 7 least significant bits of the CID transaction sequence number
Configuration	PICC contains an Agency X specific pass/transfer product object referenced in the PIO
Preconditions	Perform the authentication with k_0 Perform the additional authentication with k_1
Test Actions	CID sends a SELECT command (Select EF DIO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to obtain the FileID reference for the EF PIO and the EF AGENCYXPO CID sends a SELECT command (Select EF PIO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to obtain the product sub index reference n for Agency X specific pass/transfer product object CID sends a SELECT command (Select EF AGENCYXPO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 'nB'h, Le='01')
Pass Criteria	The 7 least significant bits of the response data shall be equal to the 7 least significant bits of the CID transaction sequence number
Post-conditions	
References	CFMS Standard Part 2 Section 5.11

Remarks	Only applicable if agency specific pass/transfer product object present
Importance	Conditional

3.4.11.5 PICC_COS_P&TPO_AG_005: CID ID

Test ID	PICC_COS_P&TPO_AG_005
Test Purpose	Check that the RtsCIDID of the P&TPO object (pos 96-111) is equal to the ID of the CID
Configuration	PICC contains an Agency <i>X</i> specific pass/transfer product object referenced in the PIO
Preconditions	Perform the authentication with k_0 Perform the additional authentication with k_1
Test Actions	CID sends a SELECT command (Select EF DIO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to obtain the FileID reference for the EF PIO and the EF AGENCY <i>X</i> PPO CID sends a SELECT command (Select EF PIO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to obtain the product sub index reference <i>n</i> for Agency <i>X</i> specific pass/transfer product object CID sends a SELECT command (Select EF AGENCY <i>X</i> PPO, SM) CID sends a READ BINARY command (Read current EF, SM, offset ' <i>nC</i> 'h, Le='02')
Pass Criteria	The 2 bytes of the response data shall be equal to the ID of the CID
Post-conditions	
References	CFMS Standard Part 2 Section 5.11
Remarks	Only applicable if agency specific pass/transfer product object present
Importance	Conditional

3.4.11.6 PICC_COS_P&TPO_AG_006: DAC/CRC check

Test ID	PICC_COS_P&TPO_AG_006
Test Purpose	Check that the DAC/CRC (pos 112-127) is correct
Configuration	PICC contains an Agency <i>X</i> specific pass/transfer product object referenced in the

	PIO
Preconditions	Perform the authentication with k_0 Perform the additional authentication with k_1
Test Actions	CID sends a SELECT command (Select EF DIO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to obtain the FileID reference for the EF PIO and the EF AGENCYXPO CID sends a SELECT command (Select EF PIO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to obtain the product sub index reference n for Agency X specific pass/transfer product object CID sends a SELECT command (Select EF AGENCYXPO, SM) CID sends a READ BINARY command (Read current EF, SM, offset ' $nE'h$, Le='02')
Pass Criteria	The 2 byte of the response data shall represent a correct DAC/CRC
Post-conditions	
References	CFMS Standard Part 2 Section 5.11
Remarks	Only applicable if agency specific pass/transfer product object present
Importance	Conditional

3.4.12 P&TPOX: Agency Pass and Transfer Product Object Extension File

3.4.12.1 PICC_COS_P&TPOX_AG_001: Correct Length

Test ID	PICC_COS_P&TPOX_AG_001
Test Purpose	Check that the length of the P&TPOX_AG File equals 16 bytes * number of P&TPO extensions
Configuration	PICC contains an Agency X specific pass/transfer product extension object of a pass/transfer product referenced in the PIO
Preconditions	Perform the authentication with k_0 Perform the additional authentication with k_1
Test Actions	CID sends a SELECT command (Select EF DIO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to obtain the FileID reference for the EF PIO and the EF AGENCYXPO

	<p>CID sends a SELECT command (Select EF PIO, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to obtain the product sub index reference n for Agency X specific pass/transfer product object</p> <p>CID sends a SELECT command (Select EF AGENCYXPO, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset '$n0$'h, Le='10') to obtain offset m of extension</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00')</p>
Pass Criteria	The Agency X specific pass/transfer product object extension shall cover exactly the part $m * 16$ bytes until (and excluding) $(m+1) * 16$ bytes of the plain part of the response data
Post-conditions	
References	CFMS Standard Part 2 Section 5.11
Remarks	Only applicable if agency specific pass/transfer product object extension present
Importance	Conditional

3.4.13 P&TPO: Regional Pass and Transfer Product Object

3.4.13.1 PICC_COS_P&TPO_RE_001: Correct Length

Test ID	PICC_COS_P&TPO_RE_001
Test Purpose	Check that the length of the P&TPO equals 16 bytes
Configuration	PICC contains a Regional pass/transfer product object referenced in the PIO
Preconditions	Perform the authentication with k_0
Test Actions	<p>CID sends a SELECT command (Select EF DIO, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to obtain the FileID reference for the EF PIO and the EF REGPO</p> <p>CID sends a SELECT command (Select EF PIO, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to obtain the product sub index reference n for Regional pass/transfer product object</p> <p>CID sends a SELECT command (Select EF REGPO, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00')</p>
Pass Criteria	The Regional pass/transfer product object shall cover exactly the part $n * 16$ bytes until (and excluding) $(n+1) * 16$ bytes of the plain part of the response data

Post-conditions	
References	CFMS Standard Part 2 Section 5.11
Remarks	
Importance	Conditional

3.4.13.2 PICC_COS_P&TPO_RE_002: Expiration date

Test ID	PICC_COS_P&TPO_RE_002
Test Purpose	Check that the RtsExpDate (pos 9-24) of the P&TPO object is correctly formatted
Configuration	PICC contains a Regional pass/transfer product object referenced in the PIO
Preconditions	Perform the authentication with k_0
Test Actions	<p>CID sends a SELECT command (Select EF DIO, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to obtain the FileID reference for the EF PIO and the EF REGPO</p> <p>CID sends a SELECT command (Select EF PIO, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to obtain the product sub index reference n for Regional pass/transfer product object</p> <p>CID sends a SELECT command (Select EF REGPO, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset '$n1$'h, Le='02')</p>
Pass Criteria	<p>The two bytes of the response data shall represent a valid date (format ddmmyy) or filled with zero's</p> <p>Pos 0-4 = day (1-31)</p> <p>Pos 5-8 = month (1-12)</p> <p>Pos 9-15 = year (0-99)</p>
Post-conditions	
References	CFMS Standard Part 2 Section 5.11
Remarks	
Importance	Conditional

3.4.13.3 PICC_COS_P&TPO_RE_003: Expiration Time

Test ID	PICC_COS_P&TPO_RE_003
Test Purpose	Check that the RtsExpTime of the P&TPO object (pos 25-35) is a valid time (expiration time in minutes pas midnight (24:00 hour's clock))
Configuration	PICC contains a Regional pass/transfer product object referenced in the PIO
Preconditions	Perform the authentication with k_0
Test Actions	<p>CID sends a SELECT command (Select EF DIO, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to obtain the FileID reference for the EF PIO and the EF REGPO</p> <p>CID sends a SELECT command (Select EF PIO, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to obtain the product sub index reference n for Regional pass/transfer product object</p> <p>CID sends a SELECT command (Select EF REGPO, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset '$n3$'h, Le='02')</p>
Pass Criteria	Bits 2 until and including 13 of the response data shall represent a value at most 1439 ('5A0'h)
Post-conditions	
References	CFMS Standard Part 2 Section 5.11
Remarks	
Importance	Conditional

3.4.13.4 PICC_COS_P&TPO_RE_004: CID Transaction Number

Test ID	PICC_COS_P&TPO_RE_004
Test Purpose	Check that the RtsCIDTransactionNumber of the P&TPO object (pos 89-95) is equal the 7 least significant bits of the CID transaction sequence number
Configuration	PICC contains a Regional pass/transfer product object referenced in the PIO
Preconditions	Perform the authentication with k_0
Test Actions	<p>CID sends a SELECT command (Select EF DIO, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to obtain the FileID reference for the EF PIO and the EF REGPO</p> <p>CID sends a SELECT command (Select EF PIO, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to obtain the product sub index reference n for Regional pass/transfer product object</p>

	CID sends a SELECT command (Select EF REGPO, SM) CID sends a READ BINARY command (Read current EF, SM, offset ' <i>n</i> B'h, Le='01')
Pass Criteria	The 7 least significant bits of the response data shall be equal to the 7 least significant bits of the CID transaction sequence number
Post-conditions	
References	CFMS Standard Part 2 Section 5.11
Remarks	
Importance	Conditional

3.4.13.5 PICC_COS_P&TPO_RE_005: CID ID

Test ID	PICC_COS_P&TPO_RE_005
Test Purpose	Check that the RtsCIDID of the P&TPO object (pos 96-111) is equal to the ID of the CID
Configuration	PICC contains a Regional pass/transfer product object referenced in the PIO
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (Select EF DIO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to obtain the FileID reference for the EF PIO and the EF REGPO CID sends a SELECT command (Select EF PIO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to obtain the product sub index reference <i>n</i> for Regional pass/transfer product object CID sends a SELECT command (Select EF REGPO, SM) CID sends a READ BINARY command (Read current EF, SM, offset ' <i>n</i> C'h, Le='02')
Pass Criteria	The 2 bytes of the response data shall be equal to the ID of the CID
Post-conditions	
References	CFMS Standard Part 2 Section 5.11
Remarks	
Importance	Conditional

3.4.13.6 PICC_COS_P&TPO_RE_006: DAC/CRC check

Test ID	PICC_COS_P&TPO_RE_006
Test Purpose	Check that the DAC/CRC (pos 112-127) is correct
Configuration	PICC contains a Regional pass/transfer product object referenced in the PIO
Preconditions	Perform the authentication with k_0
Test Actions	<p>CID sends a SELECT command (Select EF DIO, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to obtain the FileID reference for the EF PIO and the EF REGPO</p> <p>CID sends a SELECT command (Select EF PIO, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to obtain the product sub index reference n for Regional pass/transfer product object</p> <p>CID sends a SELECT command (Select EF REGPO, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset '$nE'h$, Le='02')</p>
Pass Criteria	The 2 byte of the response data shall represent a correct DAC/CRC
Post-conditions	
References	CFMS Standard Part 2 Section 5.11
Remarks	
Importance	Conditional

3.4.14 P&TPOX: Pass and Transfer Product Object Extension File - Regional

3.4.14.1 PICC_COS_P&TPOX_RE_001: Correct Length

Test ID	PICC_COS_P&TPOX_RE_001
Test Purpose	Check that the length of the P&TPOX File equals 16 bytes * number of P&TPO extensions
Configuration	PICC contains a Regional pass/transfer product extension object of a pass/transfer product referenced in the PIO
Preconditions	Perform the authentication with k_0
Test Actions	<p>CID sends a SELECT command (Select EF DIO, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to obtain the FileID reference for the EF PIO and the EF REGPO</p>

	<p>CID sends a SELECT command (Select EF PIO, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to obtain the product sub index reference n for Regional pass/transfer product object</p> <p>CID sends a SELECT command (Select EF REGPO, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset 'n0'h, Le='10') to obtain offset m of extension</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00')</p>
Pass Criteria	The Regional pass/transfer product object extension shall cover exactly the part m * 16 bytes until (and excluding) $(m+1) * 16$ bytes of the plain part of the response data
Post-conditions	
References	CFMS Standard Part 2 Section 5.11
Remarks	P&TPOX is present
Importance	Conditional

3.4.15 SVPO: Stored Value Product Object

3.4.15.1 PICC_COS_SVPO_001: Correct Length

Test ID	PICC_COS_SVPO_001
Test Purpose	Check that the length of the SVPO object equals 16 bytes
Configuration	PICC contains an Agency X stored value product object referenced in the PIO
Preconditions	<p>Perform the authentication with k_0</p> <p>Perform the additional authentication with k_1</p>
Test Actions	<p>CID sends a SELECT command (Select EF DIO, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to obtain the FileID reference for the EF PIO and the EF AGENCYXPO</p> <p>CID sends a SELECT command (Select EF PIO, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to obtain the product sub index reference n for Agency X specific stored value product object</p> <p>CID sends a SELECT command (Select EF AGENCYXPO, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00')</p>
Pass Criteria	The Agency X specific stored value product object shall cover exactly the part n * 16

	bytes until (and excluding) $(n+1) * 16$ bytes of the plain part of the response data
Post-conditions	
References	CFMS Standard Part 2 Section 5.12
Remarks	Only applicable if SVPO is present
Importance	Conditional

3.4.15.2 PICC_COS_SVPO_002: Expiration date

Test ID	PICC_COS_SVPO_002
Test Purpose	Check that the RtsExpDate (pos 23-38) of the SVPO object is correctly formatted
Configuration	PICC contains an Agency <i>X</i> specific stored value product object referenced in the PIO
Preconditions	Perform the authentication with k_0 Perform the additional authentication with k_1
Test Actions	CID sends a SELECT command (Select EF DIO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to obtain the FileID reference for the EF PIO and the EF AGENCY <i>X</i> PO. CID sends a SELECT command (Select EF PIO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to obtain the product sub index reference <i>n</i> for Agency <i>X</i> specific stored value product object CID sends a SELECT command (Select EF AGENCY <i>X</i> PO, SM) CID sends a READ BINARY command (Read current EF, SM, offset ' <i>n</i> 2'h, Le='03')
Pass Criteria	Bits 8-23 of the response data shall represent a valid date (format ddmmyy) or filled with zero's Pos 0-4 = day (1-31) Pos 5-8 = month (1-12) Pos 9-15 = year (0-99)
Post-conditions	
References	CFMS Standard Part 2 Section 5.12
Remarks	Only applicable if SVPO is present
Importance	Conditional

3.4.15.3 PICC_COS_SVPO_003: CID Transaction Number

Test ID	PICC_COS_SVPO_003
Test Purpose	Check that the RtsCIDTransactionNumber of the SVPO object (pos 89-95) is equal the 7 least significant bits of the CID transaction sequence number
Configuration	PICC contains an Agency <i>X</i> specific stored value product object referenced in the PIO
Preconditions	Perform the authentication with k_0 Perform the additional authentication with k_1
Test Actions	CID sends a SELECT command (Select EF DIO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to obtain the FileID reference for the EF PIO and the EF AGENCYXPO CID sends a SELECT command (Select EF PIO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to obtain the product sub index reference <i>n</i> for Agency <i>X</i> specific stored value product object CID sends a SELECT command (Select EF AGENCYXPO, SM) CID sends a READ BINARY command (Read current EF, SM, offset ' <i>n</i> B'h, Le='01')
Pass Criteria	The 7 least significant bits of the response data shall be equal to the 7 least significant bits of the CID transaction sequence number
Post-conditions	
References	CFMS Standard Part 2 Section 5.12
Remarks	Only applicable if SVPO is present
Importance	Conditional

3.4.15.4 PICC_COS_SVPO_004: CID ID

Test ID	PICC_COS_SVPO_004
Test Purpose	Check that the RtsCIDID of the SVPO object (pos 96-111) is equal to the ID of the CID
Configuration	PICC contains an Agency <i>X</i> specific stored value product object referenced in the PIO
Preconditions	Perform the authentication with k_0

	Perform the additional authentication with k_I
Test Actions	<p>CID sends a SELECT command (Select EF DIO, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to obtain the FileID reference for the EF PIO and the EF AGENCYXPO</p> <p>CID sends a SELECT command (Select EF PIO, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to obtain the product sub index reference n for Agency X specific stored value product object</p> <p>CID sends a SELECT command (Select EF AGENCYXPO, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset 'nC'h, Le='02')</p>
Pass Criteria	The 2 bytes of the response data shall be equal to the ID of the CID
Post-conditions	
References	CFMS Standard Part 2 Section 5.12
Remarks	Only applicable if SVPO is present
Importance	Conditional

3.4.15.5 PICC_COS_SVPO_005: DAC/CRC check

Test ID	PICC_COS_SVPO_005
Test Purpose	Check that the DAC/CRC (pos 112-127) is correct
Configuration	PICC contains an Agency X specific stored value product object referenced in the PIO
Preconditions	<p>Perform the authentication with k_0</p> <p>Perform the additional authentication with k_I</p>
Test Actions	<p>CID sends a SELECT command (Select EF DIO, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to obtain the FileID reference for the EF PIO and the EF AGENCYXPO</p> <p>CID sends a SELECT command (Select EF PIO, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to obtain the product sub index reference n for Agency X specific stored value product</p>

	<p>object</p> <p>CID sends a SELECT command (Select EF AGENCYXPO, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset 'nE'h, Le='02')</p>
Pass Criteria	The 2 byte of the response data shall represent a correct DAC/CRC
Post-conditions	
References	CFMS Standard Part 2 Section 5.12
Remarks	Only applicable if SVPO is present
Importance	Conditional

3.4.16 SVPOX: Stored Value Product Object Extension

3.4.16.1 PICC_COS_SVPOX_001: Correct Length

Test ID	PICC_COS_SVPOX_001
Test Purpose	Check that the length of the SVPOX object equals 16 bytes
Configuration	PICC contains an Agency X specific stored value product extension object of a pass/transfer product referenced in the PIO
Preconditions	<p>Perform the authentication with k_0</p> <p>Perform the additional authentication with k_1</p>
Test Actions	<p>CID sends a SELECT command (Select EF DIO, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to obtain the FileID reference for the EF PIO and the EF AGENCYXPO</p> <p>CID sends a SELECT command (Select EF PIO, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to obtain the product sub index reference n for Agency X specific stored value product object</p> <p>CID sends a SELECT command (Select EF AGENCYXPO, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset 'n0'h, Le='10') to obtain offset m of extension</p>

	CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00')
Pass Criteria	The Agency <i>X</i> specific stored value product object extension shall cover exactly the part $m * 16$ bytes until (and excluding) $(m+1) * 16$ bytes of the plain part of the response data
Post-conditions	
References	CFMS Standard Part 2 Section 5.12
Remarks	Only applicable if SVPOX is present
Importance	Conditional

3.4.17 TPPO: T-Purse Product Object

3.4.17.1 PICC_COS_TPPO_001: Correct Length

Test ID	PICC_COS_TPPO_001
Test Purpose	Check that the length of the TPPO object equals 16 bytes
Configuration	EF TPPO present on the PICC
Preconditions	Perform the authentication with k_0 Perform the additional authentication with k_{TPPO}
Test Actions	CID sends a SELECT command (Select EF TPPO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00')
Pass Criteria	The length of the response plain data part shall be 16 bytes
Post-conditions	
References	CFMS Standard Part 2 Section 5.12
Remarks	Only applicable if TPPO is present
Importance	Conditional

3.4.17.2 PICC_COS_TPPO_002: Expiration date

Test ID	PICC_COS_TPPO_002
Test Purpose	Check that the RtsExpDate (pos 23-38) of the TPPO object is correctly formatted
Configuration	EF TPPO present on the PICC

Preconditions	Perform the authentication with k_0 Perform the additional authentication with k_{TPPO}
Test Actions	CID sends a SELECT command (Select EF TPPO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 2, Le='03')
Pass Criteria	Bits 8-23 of the response data shall represent a valid date (format ddmmyy) or filled with zero's Pos 0-4 = day (1-31) Pos 5-8 = month (1-12) Pos 9-15 = year (0-99)
Post-conditions	
References	CFMS Standard Part 2 Section 5.12
Remarks	Only applicable if TPPO is present
Importance	Conditional

3.4.17.3 PICC_COS_TPPO_003: CID Transaction Number

Test ID	PICC_COS_TPPO_003
Test Purpose	Check that the RtsCIDTransactionNumber of the TPPO object (pos 89-95) is equal the 7 least significant bits of the CID transaction sequence number
Configuration	EF TPPO present on the PICC
Preconditions	Perform the authentication with k_0 Perform the additional authentication with k_{TPPO}
Test Actions	CID sends a SELECT command (Select EF TPPO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 11, Le='01')
Pass Criteria	The 7 least significant bits of the response data shall be equal to the 7 least significant bits of the CID transaction sequence number
Post-conditions	
References	CFMS Standard Part 2 Section 5.12
Remarks	Only applicable if TPPO is present
Importance	Conditional

3.4.17.4 PICC_COS_TPPO_004: CID ID

Test ID	PICC_COS_TPPO_004
Test Purpose	Check that the RtsCIDID of the TPPO object (pos 96-111) is equal to the ID of the CID
Configuration	EF TPPO present on the PICC
Preconditions	Perform the authentication with k_0 Perform the additional authentication with k_{TPPO}
Test Actions	CID sends a SELECT command (Select EF TPPO, SM) CID sends a READ BINARY command (Read current EF, SM, offset '0C', Le='02')
Pass Criteria	The 2 bytes of the response data shall be equal to the ID of the CID
Post-conditions	
References	CFMS Standard Part 2 Section 5.12
Remarks	Only applicable if TPPO is present
Importance	Conditional

3.4.17.5 PICC_COS_TPPO_005: DAC/CRC check

Test ID	PICC_COS_TPPO_005
Test Purpose	Check that the DAC/CRC (pos 112-127) is correct
Configuration	EF TPPO present on the PICC
Preconditions	Perform the authentication with k_0 Perform the additional authentication with k_{TPPO}
Test Actions	CID sends a SELECT command (Select EF TPPO, SM) CID sends a READ BINARY command (Read current EF, SM, offset '0E', Le='02')
Pass Criteria	The 2 byte of the response data shall represent a correct DAC/CRC
Post-conditions	
References	CFMS Standard Part 2 Section 5.12
Remarks	Only applicable if TPPO is present
Importance	Conditional

3.4.18 TPPOX: T-Purse Product Object Extension

3.4.18.1 PICC_COS_TPPOX_001: Correct Length

Test ID	PICC_COS_TPPOX_001
Test Purpose	Check that the length of the TPPOX object equals 16 bytes
Configuration	EF TPPOX present on the PICC
Preconditions	Perform the authentication with k_0 Perform the additional authentication with k_{TPPO}
Test Actions	CID sends a SELECT command (Select EF TPPOX, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00')
Pass Criteria	The length of the response plain data part shall be 16 bytes
Post-conditions	
References	CFMS Standard Part 2 Section 5.12
Remarks	Only applicable if TPPOX is present
Importance	Conditional

3.4.19 ALPO: Account Linked Product Object

3.4.19.1 PICC_COS_ALPO_001: Correct Length

Test ID	PICC_COS_ALPO_001
Test Purpose	Check that the length of the ALPO object equals 16 bytes
Configuration	Account Linked product present on PICC
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (Select EF ALPO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00')
Pass Criteria	The length of the response plain data part shall be 16 bytes
Post-conditions	
References	CFMS Standard Part 2 Section 5.13
Remarks	Only applicable if Account Linked product is present

Importance	Conditional
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3.4.19.2 PICC_COS_ALPO_002: RFU bits

Test ID	PICC_COS_ALPO_002
Test Purpose	Check that bit 2-7, 79-88 are set to 0
Configuration	Account Linked product present on PICC
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (Select EF ALPO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00')
Pass Criteria	Bit 5, 53-55 of the response data shall be set to 0
Post-conditions	
References	CFMS Standard Part 2 Section 5.13
Remarks	Only applicable if Account Linked product is present These bits are Reserved for Future Use
Importance	Conditional

3.4.19.3 PICC_COS_ALPO_003: Day used value limit

Test ID	PICC_COS_ALPO_003
Test Purpose	Check that the RtsDayUsedValueLimit (pos 8-23) has a valid value
Configuration	Account Linked product present on PICC
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (Select EF ALPO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='03')
Pass Criteria	Bits 8-23 of the response data shall represent a value not larger than 63000 ('F618'h)
Post-conditions	
References	CFMS Standard Part 2 Section 5.13
Remarks	Only applicable if Account Linked product is present
Importance	Conditional

3.4.19.4 PICC_COS_ALPO_004: Current Day Date

Test ID	PICC_COS_ALPO_004
Test Purpose	Check that the RtsCurrentDayDate (pos 24-39) of the ALPO object is correctly formatted
Configuration	Account Linked product present on PICC
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (Select EF ALPO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 3, Le='02')
Pass Criteria	The two bytes of the response data shall represent a valid date (format ddmmyy) or filled with zero's Pos 0-4 = day (1-31) Pos 5-8 = month (1-12) Pos 9-15 = year (0-99)
Post-conditions	
References	CFMS Standard Part 2 Section 5.13
Remarks	Only applicable if Account Linked product is present
Importance	Conditional

3.4.19.5 PICC_COS_ALPO_005: Count Time Period

Test ID	PICC_COS_ALPO_005
Test Purpose	Check that the RtsCountTimePeriod of the ALPO object (pos 40-50) is a valid time (length in minutes)
Configuration	Account Linked product present on PICC
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (Select EF ALPO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 5, Le='02')
Pass Criteria	The first 11 bits of the two byte response data shall represent a value at most 1439 ('5A0'h)
Post-conditions	

References	CFMS Standard Part 2 Section 5.13
Remarks	Only applicable if Account Linked product is present
Importance	Conditional

3.4.19.6 PICC_COS_ALPO_006: Period Start Time

Test ID	PICC_COS_ALPO_006
Test Purpose	Check that the RtsCountTimePeriod of the ALPO object (pos 51-61) is a valid time (length in minutes)
Configuration	Account Linked product present on PICC
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (Select EF ALPO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 6, Le='02')
Pass Criteria	Bits 4-14 of the two byte response data shall represent a value at most 2359 ('937'h)
Post-conditions	
References	CFMS Standard Part 2 Section 5.13
Remarks	Only applicable if Account Linked product is present
Importance	Conditional

3.4.19.7 PICC_COS_ALPO_007: CID Transaction Number

Test ID	PICC_COS_ALPO_007
Test Purpose	Check that the RtsCIDTransactionNumber of the ALPO object (pos 89-95) is equal the 7 least significant bits of the CID transaction sequence number
Configuration	Account Linked product present on PICC
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (Select EF ALPO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 11, Le='01')
Pass Criteria	The 7 least significant bits of the response data shall be equal to the 7 least significant bits of the CID transaction sequence number
Post-conditions	

References	CFMS Standard Part 2 Section 5.13
Remarks	Only applicable if Account Linked product is present
Importance	Conditional

3.4.19.8 PICC_COS_ALPO_008: CID ID

Test ID	PICC_COS_ALPO_008
Test Purpose	Check that the RtsCIDID of the ALPO object (pos 96-111) is equal to the ID of the CID
Configuration	Account Linked product present on PICC
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (Select EF ALPO, SM) CID sends a READ BINARY command (Read current EF, SM, offset '0C', Le='02')
Pass Criteria	The 2 bytes of the response data shall be equal to the ID of the CID
Post-conditions	
References	CFMS Standard Part 2 Section 5.13
Remarks	Only applicable if Account Linked product is present
Importance	Conditional

3.4.19.9 PICC_COS_ALPO_009: DAC/CRC check

Test ID	PICC_COS_ALPO_009
Test Purpose	Check that the DAC/CRC (pos 112-127) is correct
Configuration	Account Linked product present on PICC
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (Select EF ALPO, SM) CID sends a READ BINARY command (Read current EF, SM, offset '0E', Le='02')
Pass Criteria	The 2 byte of the response data shall represent a correct DAC/CRC
Post-conditions	
References	CFMS Standard Part 2 Section 5.13

Remarks	Only applicable if Account Linked product is present
Importance	Conditional

3.4.20 ALPOX: Account Linked Product Object Extension

3.4.20.1 PICC_COS_ALPOX_001: Correct Length

Test ID	PICC_COS_ALPOX_001
Test Purpose	Check that the length of the ALPOX object equals 16 bytes
Configuration	EF ALPOX present on the PICC
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (Select EF ALPOX, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00')
Pass Criteria	The length of the response plain data part shall be 16 bytes
Post-conditions	
References	CFMS Standard Part 2 Section 5.15
Remarks	Only applicable if ALPOX is present
Importance	Conditional

3.4.21 ALRO: Account Linked Reference Object

3.4.21.1 PICC_COS_ALRO_001: Correct Length

Test ID	PICC_COS_ALRO_001
Test Purpose	Check that the length of the ALRO object equals 16 bytes
Configuration	Account Linked product present on PICC
Preconditions	Perform the authentication with k_0 Perform the additional authentication with k_{ALRO}
Test Actions	CID sends a SELECT command (Select EF ALRO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00')
Pass Criteria	The length of the response plain data part shall be 16 bytes
Post-conditions	

References	CFMS Standard Part 2 Section 5.14
Remarks	Only applicable if Account Linked product is present
Importance	Conditional

3.4.21.2 PICC_COS_ALRO_002: RFU bit

Test ID	PICC_COS_ALRO_002
Test Purpose	Check that bit 88 is set to 0
Configuration	Account Linked product present on PICC
Preconditions	Perform the authentication with k_0 Perform the additional authentication with k_{ALRO}
Test Actions	CID sends a SELECT command (Select EF ALRO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 11, Le='01')
Pass Criteria	Bit 1 of the response data shall be set to 0
Post-conditions	
References	CFMS Standard Part 2 Section 5.14
Remarks	Only applicable if Account Linked product is present This bit is Reserved for Future Use
Importance	Conditional

3.4.21.3 PICC_COS_ALRO_003: Bankcard PAN

Test ID	PICC_COS_ALRO_003
Test Purpose	Check that the 8 byte RtsBankcardPAN (pos 8-71) has a valid value
Configuration	Account Linked product present on PICC
Preconditions	Perform the authentication with k_0 Perform the additional authentication with k_{ALRO}
Test Actions	CID sends a SELECT command (Select EF ALRO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 1, Le='08')
Pass Criteria	The 8 byte response data shall represent a value not larger than 9 99 99 99 99 99 99

Post-conditions	
References	CFMS Standard Part 2 Section 5.14
Remarks	Only applicable if Account Linked product is present
Importance	Conditional

3.4.21.4 PICC_COS_ALRO_004: Bankcard Expiration Date

Test ID	PICC_COS_ALRO_004
Test Purpose	Check that the RtsBankcardExpDate (pos 72-82) of the ALRO object is correctly formatted
Configuration	Account Linked product present on PICC
Preconditions	Perform the authentication with k_0 Perform the additional authentication with k_{ALRO}
Test Actions	CID sends a SELECT command (Select EF ALRO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 9, Le='02')
Pass Criteria	The first 11 bits of the two byte response data shall represent a valid date (format mmyy) or filled with zero's Pos 0-4 = month (1-12) Pos 5-10 = year (0-99)
Post-conditions	
References	CFMS Standard Part 2 Section 5.14
Remarks	Only applicable if Account Linked product is present
Importance	Conditional

3.4.21.5 PICC_COS_ALRO_005: CID Transaction Number

Test ID	PICC_COS_ALRO_005
Test Purpose	Check that the RtsCIDTransactionNumber of the ALRO object (pos 89-95) is equal the 7 least significant bits of the CID transaction sequence number
Configuration	Account Linked product present on PICC
Preconditions	Perform the authentication with k_0

	Perform the additional authentication with k_{ALRO}
Test Actions	CID sends a SELECT command (Select EF ALRO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 11, Le='01')
Pass Criteria	The 7 least significant bits of the response data shall be equal to the 7 least significant bits of the CID transaction sequence number
Post-conditions	
References	CFMS Standard Part 2 Section 5.14
Remarks	Only applicable if Account Linked product is present
Importance	Conditional

3.4.21.6 PICC_COS_ALRO_006: CID ID

Test ID	PICC_COS_ALRO_006
Test Purpose	Check that the RtsCIDID of the ALRO object (pos 96-111) is equal to the ID of the CID
Configuration	Account Linked product present on PICC
Preconditions	Perform the authentication with k_0 Perform the additional authentication with k_{ALRO}
Test Actions	CID sends a SELECT command (Select EF ALRO, SM) CID sends a READ BINARY command (Read current EF, SM, offset '0C', Le='02')
Pass Criteria	The 2 bytes of the response data shall be equal to the ID of the CID
Post-conditions	
References	CFMS Standard Part 2 Section 5.14
Remarks	Only applicable if Account Linked product is present
Importance	Conditional

3.4.21.7 PICC_COS_ALRO_007: DAC/CRC check

Test ID	PICC_COS_ALRO_007
Test Purpose	Check that the DAC/CRC (pos 112-127) is correct
Configuration	Account Linked product present on PICC

Preconditions	Perform the authentication with k_0 Perform the additional authentication with k_{ALRO}
Test Actions	CID sends a SELECT command (Select EF ALRO, SM) CID sends a READ BINARY command (Read current EF, SM, offset '0E', Le='02')
Pass Criteria	The 2 byte of the response data shall represent a correct DAC/CRC
Post-conditions	
References	CFMS Standard Part 2 Section 5.14
Remarks	Only applicable if Account Linked product is present
Importance	Conditional

3.4.22 ALROX: Account Linked Reference Object Extension

3.4.22.1 PICC_COS_ALROX_001: Correct Length

Test ID	PICC_COS_ALROX_001
Test Purpose	Check that the length of the ALROX object equals 16 bytes
Configuration	EF ALROX present on the PICC
Preconditions	Perform the authentication with k_0 Perform the authentication with k_{ALRO}
Test Actions	CID sends a SELECT command (Select EF ALROX, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00')
Pass Criteria	The length of the response plain data part shall be 16 bytes
Post-conditions	
References	CFMS Standard Part 2 Section 5.16
Remarks	Only applicable if ALROX is present
Importance	Conditional

3.4.23 AVPO: Agency AutoValue Product Object

3.4.23.1 PICC_COS_AVPO_AG_001: Correct Length

Test ID	PICC_COS_AVPO_AG_001
Test Purpose	Check that the length of the AVPO object equals 16 bytes
Configuration	PICC contains an agency <i>X</i> auto value product object referenced in the PIO
Preconditions	Perform the authentication with k_0 Perform the additional authentication with k_1
Test Actions	CID sends a SELECT command (Select EF DIO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to obtain the FileID reference for the EF PIO and the EF AGENCYXPO CID sends a SELECT command (Select EF PIO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to obtain the product sub index reference <i>n</i> for agency <i>X</i> specific auto value product object CID sends a SELECT command (Select EF AGENCYXPO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00')
Pass Criteria	The agency <i>X</i> specific auto value product object shall cover exactly the part $n * 16$ bytes until (and excluding) $(n+1) * 16$ bytes of the plain part of the response data
Post-conditions	
References	CFMS Standard Part 2 Section 5.17
Remarks	Only applicable if agency specific auto value product object present
Importance	Conditional

3.4.23.2 PICC_COS_AVPO_AG_002: Date

Test ID	PICC_COS_AVPO_AG_002
Test Purpose	Check that the RtsDate (pos 16-31) of the AVPO object is correctly formatted
Configuration	PICC contains an agency specific auto value product object referenced in the PIO
Preconditions	Perform the authentication with k_0 Perform the additional authentication with k_1
Test Actions	CID sends a SELECT command (Select EF DIO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to obtain the FileID reference for the EF PIO and the EF AGENCYXPO CID sends a SELECT command (Select EF PIO, SM)

	<p>CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to obtain the product sub index reference n for agency X specific auto value product object</p> <p>CID sends a SELECT command (Select EF AGENCYXPO, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset '$n2$'h, Le='02')</p>
Pass Criteria	<p>The two bytes of the response data shall represent a valid date (format ddmmyy) or filled with zero's</p> <p>Pos 0-4 = day (1-31)</p> <p>Pos 5-8 = month (1-12)</p> <p>Pos 9-15 = year (0-99)</p>
Post-conditions	
References	CFMS Standard Part 2 Section 5.17
Remarks	Only applicable if agency specific auto value product object extension present
Importance	Conditional

3.4.23.3 PICC_COS_AVPO_AG_003: DAC/CRC check

Test ID	PICC_COS_AVPO_AG_003
Test Purpose	Check that the DAC/CRC (pos 112-127) is correct
Configuration	PICC contains an agency specific auto value product object referenced in the PIO
Preconditions	<p>Perform the authentication with k_0</p> <p>Perform the additional authentication with k_1</p>
Test Actions	<p>CID sends a SELECT command (Select EF DIO, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to obtain the FileID reference for the EF PIO and the EF AGENCYXPO</p> <p>CID sends a SELECT command (Select EF PIO, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to obtain the product sub index reference n for agency X specific auto value product object</p> <p>CID sends a SELECT command (Select EF AGENCYXPO, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset 'nE'h, Le='02')</p>
Pass Criteria	The 2 byte of the response data shall represent a correct DAC/CRC

Post-conditions	
References	CFMS Standard Part 2 Section 5.17
Remarks	Only applicable if agency specific auto value product object extension present
Importance	Conditional

3.4.24 AVPOX: Agency AutoValue Product Object Extension

3.4.24.1 PICC_COS_AVPOX_AG_001: Correct Length

Test ID	PICC_COS_AVPOX_AG_001
Test Purpose	Check that the length of the AVPOX object equals 16 bytes
Configuration	PICC contains an agency <i>X</i> specific auto value product extension object of a auto value product referenced in the PIO
Preconditions	Perform the authentication with k_0 Perform the additional authentication with k_1
Test Actions	CID sends a SELECT command (Select EF DIO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to obtain the FileID reference for the EF PIO and the EF AGENCYXPO CID sends a SELECT command (Select EF PIO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to obtain the product sub index reference <i>n</i> for agency <i>X</i> specific auto value product object CID sends a SELECT command (Select EF AGENCYXPO, SM) CID sends a READ BINARY command (Read current EF, SM, offset ' <i>n0</i> 'h, Le='10') to obtain offset <i>m</i> of extension CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00')
Pass Criteria	The agency <i>X</i> specific auto value product object extension shall cover exactly the part $m * 16$ bytes until (and excluding) $(m+1) * 16$ bytes of the plain part of the response data
Post-conditions	
References	CFMS Standard Part 2 Section 5.17
Remarks	Only applicable if agency specific auto value product object extension present
Importance	Conditional

3.4.25 Regional AutoValue Product Object

3.4.25.1 PICC_COS_AVPO_RE_001: Correct Length

Test ID	PICC_COS_AVPO_RE_001
Test Purpose	Check that the length of the AVPO object equals 16 bytes
Configuration	PICC contains a regional auto value product object referenced in the PIO
Preconditions	Perform the authentication with k_0
Test Actions	<p>CID sends a SELECT command (Select EF DIO, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to obtain the FileID reference for the EF PIO and the EF REGPO</p> <p>CID sends a SELECT command (Select EF PIO, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to obtain the product sub index reference n for regional auto value product object</p> <p>CID sends a SELECT command (Select EF REGPO, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00')</p>
Pass Criteria	The regional auto value product object shall cover exactly the part $n * 16$ bytes until (and excluding) $(n+1) * 16$ bytes of the plain part of the response data
Post-conditions	
References	CFMS Standard Part 2 Section 5.17
Remarks	Only applicable if regional auto value product object present
Importance	Conditional

3.4.25.2 PICC_COS_AVPO_RE_002: Date

Test ID	PICC_COS_AVPO_RE_002
Test Purpose	Check that the RtsDate (pos 16-31) of the AVPO object is correctly formatted
Configuration	PICC contains a regional auto value product object referenced in the PIO
Preconditions	Perform the authentication with k_0
Test Actions	<p>CID sends a SELECT command (Select EF DIO, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to obtain the FileID reference for the EF PIO and the EF REGPO</p> <p>CID sends a SELECT command (Select EF PIO, SM)</p>

	<p>CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to obtain the product sub index reference <i>n</i> for regional auto value product object</p> <p>CID sends a SELECT command (Select EF REGPO, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset '<i>n</i>2'h, Le='02')</p>
Pass Criteria	<p>The two bytes of the response data shall represent a valid date (format ddmmyy) or filled with zero's</p> <p>Pos 0-4 = day (1-31)</p> <p>Pos 5-8 = month (1-12)</p> <p>Pos 9-15 = year (0-99)</p>
Post-conditions	
References	CFMS Standard Part 2 Section 5.17
Remarks	Only applicable if regional auto value product object present
Importance	Conditional

3.4.25.3 PICC_COS_AVPO_RE_003: DAC/CRC check

Test ID	PICC_COS_AVPO_RE_003
Test Purpose	Check that the DAC/CRC (pos 112-127) is correct
Configuration	PICC contains a regional auto value product object referenced in the PIO
Preconditions	Perform the authentication with <i>k₀</i>
Test Actions	<p>CID sends a SELECT command (Select EF DIO, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to obtain the FileID reference for the EF PIO and the EF REGPO</p> <p>CID sends a SELECT command (Select EF PIO, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to obtain the product sub index reference <i>n</i> for regional auto value product object</p> <p>CID sends a SELECT command (Select EF REGPO, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset '<i>n</i>E'h, Le='02')</p>
Pass Criteria	The 2 byte of the response data shall represent a correct DAC/CRC
Post-conditions	
References	CFMS Standard Part 2 Section 5.17

Remarks	Only applicable if regional auto value product object present
Importance	Conditional

3.4.26 AVPOX: Regional AutoValue Product Object Extension

3.4.26.1 PICC_COS_AVPOX_RE_001: Correct Length

Test ID	PICC_COS_AVPOX_RE_001
Test Purpose	Check that the length of the AVPOX object equals 16 bytes
Configuration	PICC contains a regional auto value product extension object of a auto value product referenced in the PIO
Preconditions	Perform the authentication with k_0
Test Actions	<p>CID sends a SELECT command (Select EF DIO, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to obtain the FileID reference for the EF PIO and the EF REGPO</p> <p>CID sends a SELECT command (Select EF PIO, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to obtain the product sub index reference n for regional auto value product object</p> <p>CID sends a SELECT command (Select EF REGPO, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset '$n0$'h, Le='10') to obtain offset m of extension</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00')</p>
Pass Criteria	The regional auto value product object extension shall cover exactly the part $m * 16$ bytes until (and excluding) $(m+1) * 16$ bytes of the plain part of the response data
Post-conditions	
References	CFMS Standard Part 2 Section 5.17
Remarks	Only applicable if regional auto value product object extension present
Importance	Conditional

3.5 Consistency Tests – DIO related

3.5.1 DIO extension

3.5.1.1 PICC_CDR_DIOX_001: No DIOX reference in DIO then not on card

Test ID	PICC_CDR_DIOX_001
Test Purpose	Check when DIOX is referenced in DIO as not present, that no DIOX found on the PICC
Configuration	DIO field RtsExtensionStatus is set to 0: No DIOX present
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (Select EF DIOX, SM)
Pass Criteria	The status bytes of the response to the SELECT command equal '6A 82'
Post-conditions	
References	CFMS Standard Part 2 Section 5.1
Remarks	Only applicable if configuration holds for PICC
Importance	Conditional

3.5.1.2 PICC_CDR_DIOX_002: No DIOX on card then not referenced in DIO

Test ID	PICC_CDR_DIOX_002
Test Purpose	Check when no DIOX is present on card, the DIOX is referenced in DIO as not present
Configuration	No DIOX present on the PICC
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (Select EF DIO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='01')
Pass Criteria	Position 2 (bit 6) of the 1 byte response plain data part shall be set to 0: no DIOX present
Post-conditions	
References	CFMS Standard Part 2 Section 5.1
Remarks	Only applicable if configuration holds for PICC

Importance	Conditional
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3.5.1.3 PICC_CDR_DIOX_003: DIOX in DIO then also present on card

Test ID	PICC_CDR_DIOX_003
Test Purpose	Check when DIOX is referenced in DIO as present, that corresponding DIOX found on the PICC
Configuration	DIO field RtsExtensionStatus is set to 1: DIOX present
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (Select EF DIOX, SM)
Pass Criteria	The status bytes of the response to the SELECT command equal '90 00'
Post-conditions	
References	CFMS Standard Part 2 Section 5.1
Remarks	Only applicable if configuration holds for PICC
Importance	Conditional

3.5.1.4 PICC_CDR_DIOX_004: DIOX on card then also reference in DIO

Test ID	PICC_CDR_DIOX_004
Test Purpose	Check when a DIOX is present on card, the DIOX is referenced in DIO as present
Configuration	DIOX present on the PICC
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (Select EF DIO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='01')
Pass Criteria	Position 2 (bit 6) of the 1 byte response plain data part shall be set to 1: DIOX present
Post-conditions	
References	CFMS Standard Part 2 Section 5.1
Remarks	Only applicable if configuration holds for PICC
Importance	Conditional

3.5.2 PHPO extension

3.5.2.1 PICC_CDR_PHPOX_001: PHPOX in DIO then also present on card

Test ID	PICC_CDR_PHPOX_001
Test Purpose	Check that the number of PHPOX referenced in DIO also is present on the PICC
Configuration	
Preconditions	Perform the authentication with k_0 Perform the additional authentication with k_{PHPOX}
Test Actions	CID sends a SELECT command (Select EF DIO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 1, Le='01') to obtain the FileID reference of the EF PHPOX file and the number n of PHPOX objects contained in this file CID sends a SELECT command (Select EF PHPOX, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00')
Pass Criteria	The status bytes of the responses to the SELECT command equals '90 00' The length of the plain data part of the response shall be equal to 16 times the number n of PHPOX referred in the DIO field RtsProfilePHPOExtensionQty
Post-conditions	
References	CFMS Standard Part 2 Section 5.1
Remarks	The value restriction of the DIO field RtsProfilePHPOExtensionQty to be more than 0 is already covered in the test case PICC_COS_DIO_004: PIOX extensions quantity
Importance	Mandatory

3.5.2.2 PICC_CDR_PHPOX_002: PHPOX on card then also reference in DIO

Test ID	PICC_CDR_PHPOX_002
Test Purpose	Check for the number of PHPOX is present on card, the PHPOX quantity reference DIO is equal to the same number
Configuration	
Preconditions	Perform the authentication with k_0 Perform the additional authentication with k_{PHPOX}
Test Actions	CID sends a SELECT command (Select EF PHPOX, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to

	<p>obtain the FileID reference of the EF PHPOX File and the number n of extension objects (length plain data of response / 16) contained in this file</p> <p>CID sends a SELECT command (Select EF DIO, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset 1, Le='01')</p>
Pass Criteria	<p>Bit 8-5 of the 1 byte response plain data part shall be equal to the FileID reference of EF PHPOX</p> <p>Bit 4-1 of the 1 byte response plain data part shall be set to the number n of extension objects</p>
Post-conditions	
References	CFMS Standard Part 2 Section 5.1
Remarks	The testing of the presence of the mandatory existence of the PHPOX file is already covered in test case PICC_COS_PHPOX_001: Correct Length
Importance	Mandatory

3.5.3 PIO extension

3.5.3.1 PICC_CDR_PIOX_001: PIOX in DIO then also present on card

Test ID	PICC_CDR_PIO_001
Test Purpose	Check that the number of PIOX referenced in DIO also is present on the PICC
Configuration	
Preconditions	Perform the authentication with k_0
Test Actions	<p>CID sends a SELECT command (Select EF DIO, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset 1, Le='01') to obtain number n of PIOX objects</p> <p>CID sends a SELECT command (Select EF PIOX, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00')</p>
Pass Criteria	<p>The status bytes of the responses to the SELECT command equals '90 00'</p> <p>The length of the plain data part of the response shall be equal to 16 times the number n of PIOX referred in the DIO field RtsProfilePIOExtensionQty</p>
Post-conditions	
References	CFMS Standard Part 2 Section 5.1
Remarks	The value restriction of the DIO field RtsProfilePIOExtensionQty to 1 or 3 is already

	covered in the test case PICC_COS_DIO_004: PIOX extensions quantity
Importance	Mandatory

3.5.3.2 PICC_CDR_PIOX_002: PIOX on card then also reference in DIO

Test ID	PICC_CDR_PIOX_002
Test Purpose	Check for the number of PIOX is present on card, the PIOX quantity reference DIO is equal to the same number
Configuration	PIOX present on the PICC
Preconditions	Perform the authentication with k_0
Test Actions	<p>CID sends a SELECT command (Select EF PIOX, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to obtain the number n of extension objects (length plain data of response / 16)</p> <p>CID sends a SELECT command (Select EF DIO, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset 1, Le='01')</p>
Pass Criteria	<p>Bit 8-5 of the 1 byte response plain data part shall be equal to the <i>FileID reference</i> of EF PIOX</p> <p>Bit 4-1 of the 1 byte response plain data part shall be set to the number n of extension objects</p>
Post-conditions	
References	CFMS Standard Part 2 Section 5.1
Remarks	<p>Only applicable if configuration holds for PICC</p> <p>The value restriction of the DIO field RtsProfilePIOExtensionQty to 1 or 3 is already covered in the test case PICC_COS_DIO_004: PIOX extensions quantity</p> <p>he testing of the presence of the mandatory existence of the PIOX file is already covered in test case PICC_COS_PIOX_001: Correct Length PIOX</p>
Importance	Mandatory

3.5.4 A&DVHO objects

3.5.4.1 PICC_CDR_A&DVHO_001: No A&DVHO reference in DIO then not on card

Test ID	PICC_CDR_A&DVHO_001
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Test Purpose	Check when A&DVHO is referenced in DIO as not present, that no A&DVHO found on the PICC
Configuration	DIO field RtsAdd&DeductValueHistoryQty is set to 0: No A&DVHO present
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (Select EF A&DVHO, SM)
Pass Criteria	The status bytes of the response to the SELECT command equal '6A 82'
Post-conditions	
References	CFMS Standard Part 2 Section 5.1
Remarks	Only applicable if configuration holds for PICC
Importance	Conditional

3.5.4.2 PICC_CDR_A&DVHO_002: No A&DVHO on card then not referenced in DIO

Test ID	PICC_CDR_A&DVHO_002
Test Purpose	Check when no A&DVHO is present on card, the A&DVHO is referenced in DIO as not present
Configuration	No A&DVHO present on the PICC
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (Select EF DIO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00')
Pass Criteria	Position 26-28 of the response plain data part shall be set to 0: no A&DVHO present
Post-conditions	
References	CFMS Standard Part 2 Section 5.1
Remarks	Only applicable if configuration holds for PICC
Importance	Conditional

3.5.4.3 PICC_CDR_A&DVHO_003: A&DVHO in DIO then also present on card

Test ID	PICC_CDR_A&DVHO_003
Test Purpose	Check the number of A&DVHO objects referenced in DIO, do also exist on the PICC
Configuration	DIO field Add&DeductValueHistoryQty is set to at least 1: A&DVHO present

Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (Select EF DIO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00' to obtain the FileID reference for the A&DVHO object the number n of A&DVHO objects referenced in the DIO CID sends a SELECT command (Select EF A&DVHO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00')
Pass Criteria	The status bytes of the responses to the SELECT command equals '90 00' The length of the plain data part of the response shall be equal to 16 times the number n of A&DVHO objects referred in the DIO field Add&DeductValueHistoryQty
Post-conditions	
References	CFMS Standard Part 2 Section 5.1
Remarks	Only applicable if configuration holds for PICC
Importance	Conditional

3.5.4.4 PICC_CDR_A&DVHO_004: A&DVHO on card then also reference in DIO

Test ID	PICC_CDR_A&DVHO_004
Test Purpose	Check for the number of A&DVHO is present on card, the A&DVHO quantity reference DIO is equal to the same number
Configuration	A&DVHO present on the PICC
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (Select EF A&DVHO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to obtain the number n of A&DVHO objects (length plain data of response / 16) CID sends a SELECT command (Select EF DIO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00')
Pass Criteria	Pos 22-25 of the response plain data part shall be equal to the FileID reference of EF A&DVHO Pos 26-28 of the response plain data part shall be set to the number n of A&DVHO objects
Post-conditions	
References	CFMS Standard Part 2 Section 5.1

Remarks	Only applicable if configuration holds for PICC
Importance	Mandatory

3.5.5 THO objects

3.5.5.1 PICC_CDR_THO_001: THO objects in DIO then same amount present on card

Test ID	PICC_CDR_THO_001
Test Purpose	Check the number of THO objects referenced in DIO, do also exist on the PICC
Configuration	
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (Select EF DIO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00' to obtain the FileID reference for the THO object the number n of THO objects referenced in the DIO CID sends a SELECT command (Select EF THO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00')
Pass Criteria	The status bytes of the responses to the SELECT command equals '90 00' The length of the plain data part of the response shall be equal to 16 times the number n of THO objects referred in the DIO field Add&DeductValueHistoryQty
Post-conditions	
References	CFMS Standard Part 2 Section 5.1
Remarks	At least one THO object is mandatory
Importance	Mandatory

3.5.5.2 PICC_CDR_THO_002: THO objects on card then also same amount referenced in DIO

Test ID	PICC_CDR_THO_002
Test Purpose	Check for the number of THO is present on card, the THO quantity reference DIO is equal to the same number
Configuration	
Preconditions	Perform the authentication with k_0

Pass Criteria	Pos 29-32 of the response plain data part shall be equal to the <i>FileID reference</i> of EF THO Pos 33-36 of the response plain data part shall be set to the number <i>n</i> of THO objects
Post-conditions	
References	CFMS Standard Part 2 Section 5.1
Remarks	At least one THO object is mandatory
Importance	Mandatory

3.5.6 T-Purse

3.5.6.1 PICC_CDR_TPPO_001: No TPPO reference in DIO then not on card

Test ID	PICC_CDR_TPPO_001
Test Purpose	Check when TPPO is referenced in DIO as not present, that no TPPO found on the PICC
Configuration	DIO field RtsT-PurseFileID is set to 0: No TPPO present
Preconditions	Perform the authentication with k_0 Perform the additional authentication with k_{TPPO}
Test Actions	CID sends a SELECT command (Select EF TPPO, SM)
Pass Criteria	The status bytes of the response to the SELECT command equal '6A 82'
Post-conditions	
References	CFMS Standard Part 2 Section 5.1
Remarks	Only applicable if configuration holds for PICC
Importance	Conditional

3.5.6.2 PICC_CDR_TPPO_002: No TPPO on card then not referenced in DIO

Test ID	PICC_CDR_TPPO_002
Test Purpose	Check when no TPPO is present on card, the TPPO is referenced in DIO as not present
Configuration	No TPPO present on the PICC
Preconditions	Perform the authentication with k_0

	Perform the additional authentication with k_{TPPO}
Test Actions	CID sends a SELECT command (Select EF DIO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00')
Pass Criteria	Position 104-107 of the response plain data part shall be set to 0: no TPPO present
Post-conditions	
References	CFMS Standard Part 2 Section 5.1
Remarks	Only applicable if configuration holds for PICC
Importance	Conditional

3.5.6.3 PICC_CDR_TPPO_003: TPPO in DIO then also present on card

Test ID	PICC_CDR_TPPO_003
Test Purpose	Check when TPPO is referenced in DIO as present, that corresponding TPPO found on the PICC
Configuration	DIO field RtsT-PurseFileID is set to different from 0: TPPO present
Preconditions	Perform the authentication with k_0 Perform the additional authentication with k_{TPPO}
Test Actions	CID sends a SELECT command (Select EF TPPO, SM)
Pass Criteria	The status bytes of the response to the SELECT command equal '90 00'
Post-conditions	
References	CFMS Standard Part 2 Section 5.1
Remarks	Only applicable if configuration holds for PICC
Importance	Conditional

3.5.6.4 PICC_CDR_TPPO_004: TPPO on card then also reference in DIO

Test ID	PICC_CDR_TPPO_004
Test Purpose	Check when a TPPO is present on card, the TPPO is referenced in DIO as present
Configuration	TPPO present on the PICC
Preconditions	Perform the authentication with k_0

	Perform the additional authentication with k_{TPPO}
Test Actions	CID sends a SELECT command (Select EF DIO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='01')
Pass Criteria	Position 104-107 of the response plain data part shall be set to the FileID reference of TPPO
Post-conditions	
References	CFMS Standard Part 2 Section 5.1
Remarks	Only applicable if configuration holds for PICC
Importance	Conditional

3.5.7 T-Purse extension

3.5.7.1 PICC_CDR_TPPOX_001: No TPPOX reference in DIO then not on card

Test ID	PICC_CDR_TPPOX_001
Test Purpose	Check when TPPOX is referenced in DIO as not present, that no TPPOX found on the PICC
Configuration	DIO field RtsT-PurseExtension is set to 0: No TPPOX present
Preconditions	Perform the authentication with k_0 Perform the additional authentication with k_{TPPO}
Test Actions	CID sends a SELECT command (Select EF TPPOX, SM)
Pass Criteria	The status bytes of the response to the SELECT command equal '6A 82'
Post-conditions	
References	CFMS Standard Part 2 Section 5.1
Remarks	Only applicable if configuration holds for PICC
Importance	Conditional

3.5.7.2 PICC_CDR_TPPOX_002: No TPPOX on card then not referenced in DIO

Test ID	PICC_CDR_TPPOX_002
Test Purpose	Check when no TPPOX is present on card, the TPPOX is referenced in DIO as not present

Configuration	No TPPOX present on the PICC
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (Select EF DIO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='01')
Pass Criteria	Position 3 (bit 5) of the 1 byte response plain data part shall be set to 0: no TPPOX present
Post-conditions	
References	CFMS Standard Part 2 Section 5.1
Remarks	Only applicable if configuration holds for PICC
Importance	Conditional

3.5.7.3 PICC_CDR_TPPOX_003: No T-Purse on card, then no T-Purse extension on card

Test ID	PICC_CDR_TPPOX_003
Test Purpose	Check when no T-Purse is present on card, no TPPOX present
Configuration	No TPPO present on the PICC
Preconditions	Perform the authentication with k_0 Perform the additional authentication with k_{TPPO}
Test Actions	CID sends a SELECT command (Select EF TPPOX, SM)
Pass Criteria	The status bytes of the response to the SELECT command equal '6A 82'
Post-conditions	
References	CFMS Standard Part 2 Section 5.1
Remarks	Only applicable if configuration holds for PICC
Importance	Conditional

3.5.7.4 PICC_CDR_TPPOX_004: TPPOX in DIO then also present on card

Test ID	PICC_CDR_TPPOX_004
Test Purpose	Check when TPPOX is referenced in DIO as present, that corresponding TPPOX found on the PICC
Configuration	DIO field RtsT-PurseExtension is set to 1: TPPOX present

Preconditions	Perform the authentication with k_0 Perform the additional authentication with k_{TPPO}
Test Actions	CID sends a SELECT command (Select EF TPPOX, SM)
Pass Criteria	The status bytes of the response to the SELECT command equal '90 00'
Post-conditions	
References	CFMS Standard Part 2 Section 5.1
Remarks	Only applicable if configuration holds for PICC
Importance	Conditional

3.5.7.5 PICC_CDR_TPPOX_005: TPPOX on card then also reference in DIO

Test ID	PICC_CDR_TPPOX_005
Test Purpose	Check when a TPPOX is present on card, the TPPOX is referenced in DIO as present
Configuration	TPPOX present on the PICC
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (Select EF DIO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='01')
Pass Criteria	Position 3 (bit 5) of the 1 byte response data shall be set to 1: TPPOX present
Post-conditions	
References	CFMS Standard Part 2 Section 5.1
Remarks	Only applicable if configuration holds for PICC
Importance	Conditional

3.5.7.6 PICC_CDR_TPPOX_006: TPPOX on card then also T-Purse present on card

Test ID	PICC_CDR_TPPOX_006
Test Purpose	Check when a TPPOX is present on card, also the T-Purse is present
Configuration	TPPOX present on the PICC
Preconditions	Perform the authentication with k_0 Perform the additional authentication with k_{TPPO}

Test Actions	CID sends a SELECT command (Select EF TPPO, SM)
Pass Criteria	The status bytes of the response to the SELECT command equal '90 00'
Post-conditions	
References	CFMS Standard Part 2 Section 5.1
Remarks	Only applicable if configuration holds for PICC The condition that the T-Purse reference is present in the DIO when a TPPOX object is present on the card is covered by combining this test case with test case 3.5.6.4: PICC_CDR_TPPO_004: TPPO on card then also reference in DIO
Importance	Conditional

3.5.8 ALRO

3.5.8.1 PICC_CDR_ALRO_001: No ALRO reference in DIO then not on card

Test ID	PICC_CDR_ALRO_001
Test Purpose	Check when ALRO is referenced in DIO as not present, that no ALRO found on the PICC
Configuration	DIO field RtsALROFileID is set to 0: No ALRO present
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (Select EF ALRO, SM)
Pass Criteria	The status bytes of the response to the SELECT command equal '6A 82'
Post-conditions	
References	CFMS Standard Part 2 Section 5.1
Remarks	Only applicable if configuration holds for PICC
Importance	Conditional

3.5.8.2 PICC_CDR_ALRO_002: No ALRO on card then not referenced in DIO

Test ID	PICC_CDR_ALRO_002
Test Purpose	Check when no ALRO is present on card, the ALRO is referenced in DIO as not present
Configuration	No ALRO present on the PICC

Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (Select EF DIO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00')
Pass Criteria	Position 108-111 of the response plain data part shall be set to 0: no ALRO present
Post-conditions	
References	CFMS Standard Part 2 Section 5.1
Remarks	Only applicable if configuration holds for PICC
Importance	Conditional

3.5.8.3 PICC_CDR_ALRO_003: ALRO in DIO then also present on card

Test ID	PICC_CDR_ALRO_003
Test Purpose	Check when ALRO is referenced in DIO as present, that corresponding ALRO found on the PICC
Configuration	DIO field RtsALROFileID is set to 1: ALRO present
Preconditions	Perform the authentication with k_0 Perform the additional authentication with k_{ALRO}
Test Actions	CID sends a SELECT command (Select EF ALRO, SM)
Pass Criteria	The status bytes of the response to the SELECT command equal '90 00'
Post-conditions	
References	CFMS Standard Part 2 Section 5.1
Remarks	Only applicable if configuration holds for PICC
Importance	Conditional

3.5.8.4 PICC_CDR_ALRO_004: ALRO on card then also reference in DIO

Test ID	PICC_CDR_ALRO_004
Test Purpose	Check when a ALRO is present on card, the ALRO is referenced in DIO as present
Configuration	ALRO present on the PICC
Preconditions	Perform the authentication with k_0

	Perform the additional authentication with k_{ALRO}
Test Actions	CID sends a SELECT command (Select EF DIO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00')
Pass Criteria	Position 108-111 of the response plain data part shall be set to the FileID reference of TPPO
Post-conditions	
References	CFMS Standard Part 2 Section 5.1
Remarks	Only applicable if configuration holds for PICC
Importance	Conditional

3.5.9 ALRO extension

3.5.9.1 PICC_CDR_ALROX_001: No ALROX reference in DIO then not on card

Test ID	PICC_CDR_ALROX_001
Test Purpose	Check when ALROX is referenced in DIO as not present, that no ALROX found on the PICC
Configuration	DIO field RtsALROExtension is set to 0: No ALROX present
Preconditions	Perform the authentication with k_0 Perform the additional authentication with k_{ALRO}
Test Actions	CID sends a SELECT command (Select EF ALROX, SM)
Pass Criteria	The status bytes of the response to the SELECT command equal '6A 82'
Post-conditions	
References	CFMS Standard Part 2 Section 5.1
Remarks	Only applicable if configuration holds for PICC
Importance	Conditional

3.5.9.2 PICC_CDR_ALROX_002: No ALROX on card then not referenced in DIO

Test ID	PICC_CDR_ALROX_002
Test Purpose	Check when no ALROX is present on card, the ALROX is referenced in DIO as not present

Configuration	No ALROX present on the PICC
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (Select EF DIO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='01')
Pass Criteria	Position 4 (bit 4) of the 1 byte response plain data part shall be set to 0: no ALROX present
Post-conditions	
References	CFMS Standard Part 2 Section 5.1
Remarks	Only applicable if configuration holds for PICC
Importance	Conditional

3.5.9.3 PICC_CDR_ALROX_003: No ALRO on card, then no ALRO extension on card

Test ID	PICC_CDR_ALROX_003
Test Purpose	Check when no ALRO is present on card, no ALROX present
Configuration	No ALRO present on the PICC
Preconditions	Perform the authentication with k_0 Perform the additional authentication with k_{ALRO}
Test Actions	CID sends a SELECT command (Select EF ALROX, SM)
Pass Criteria	The status bytes of the response to the SELECT command equal '6A 82'
Post-conditions	
References	CFMS Standard Part 2 Section 5.1
Remarks	Only applicable if configuration holds for PICC
Importance	Conditional

3.5.9.4 PICC_CDR_ALROX_004: ALROX in DIO then also present on card

Test ID	PICC_CDR_ALROX_004
Test Purpose	Check when ALROX is referenced in DIO as present, that corresponding ALROX found on the PICC
Configuration	DIO field RtsALROExtension is set to 1: ALROX present

Preconditions	Perform the authentication with k_0 Perform the additional authentication with k_{ALRO}
Test Actions	CID sends a SELECT command (Select EF ALROX, SM)
Pass Criteria	The status bytes of the response to the SELECT command equal '90 00'
Post-conditions	
References	CFMS Standard Part 2 Section 5.1
Remarks	Only applicable if configuration holds for PICC
Importance	Conditional

3.5.9.5 PICC_CDR_ALROX_005: ALROX on card then also reference in DIO

Test ID	PICC_CDR_ALROX_005
Test Purpose	Check when a ALROX is present on card, the ALROX is referenced in DIO as present
Configuration	ALROX present on the PICC
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (Select EF DIO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='01')
Pass Criteria	Position 4 (bit 4) of the 1 byte response plain data part shall be set to 1: ALROX present
Post-conditions	
References	CFMS Standard Part 2 Section 5.1
Remarks	Only applicable if configuration holds for PICC
Importance	Conditional

3.5.9.6 PICC_CDR_ALROX_006: ALROX on card then also ALRO present on card

Test ID	PICC_CDR_ALROX_006
Test Purpose	Check when a ALROX is present on card, also the ALRO is present
Configuration	ALROX present on the PICC
Preconditions	Perform the authentication with k_0

	Perform the additional authentication with k_{ALRO}
Test Actions	CID sends a SELECT command (Select EF ALRO, SM)
Pass Criteria	The status bytes of the response to the SELECT command equal '90 00'
Post-conditions	
References	CFMS Standard Part 2 Section 5.1
Remarks	Only applicable if configuration holds for PICC The condition that the ALRO reference is present in the DIO when an ALROX object is on the card is covered by combining this test case with test case 3.5.8.4: PICC_CDR_ALRO_004: ALRO on card then also reference in DIO
Importance	Conditional

3.5.10 Agency A Products File

3.5.10.1 PICC_CDR_AGENCYAPO_001: No AGENCYAPO reference in DIO then not on card

Test ID	PICC_CDR_AGENCYAPO_001
Test Purpose	Check when EF AGENCYAPO is referenced in DIO as not present, that no EF AGENCYAPO found on the PICC
Configuration	DIO field RtsAgencyAProductsFileID is set to 0: No EF AGENCYAPO present
Preconditions	Perform the authentication with k_0 Perform the additional authentication with k_1
Test Actions	CID sends a SELECT command (Select EF AGENCYAPO, SM)
Pass Criteria	The status bytes of the response to the SELECT command equal '6A 82'
Post-conditions	
References	CFMS Standard Part 2 Section 5.1
Remarks	Only applicable if configuration holds for PICC
Importance	Conditional

3.5.10.2 PICC_CDR_AGENCYAPO_002: No AGENCYAPO on card then not referenced in DIO

Test ID	PICC_CDR_AGENCYAPO_002
Test Purpose	Check when no EF AGENCYAPO is present on card, the EF AGENCYAPO is referenced in DIO as not present
Configuration	No EF AGENCYAPO present on the PICC
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (Select EF DIO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00')
Pass Criteria	Position 44-47 of the response plain data part shall be set to 0: no EF AGENCYAPO present
Post-conditions	
References	CFMS Standard Part 2 Section 5.1
Remarks	Only applicable if configuration holds for PICC
Importance	Conditional

3.5.10.3 PICC_CDR_AGENCYAPO_003: AGENCYAPO in DIO then also present on card

Test ID	PICC_CDR_AGENCYAPO_003
Test Purpose	Check the number of AGENCYAPO objects referenced in DIO, do also exist on the PICC
Configuration	DIO field AgencyAProductsQty is set to at least 1: EF AGENCYAPO present
Preconditions	Perform the authentication with k_0 Perform the additional authentication with k_1
Test Actions	CID sends a SELECT command (Select EF DIO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00' to obtain the FileID reference for the EF AGENCYAPO and the number n of AGENCYAPO objects referenced in the DIO CID sends a SELECT command (Select EF AGENCYAPO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00')
Pass Criteria	The status bytes of the responses to the SELECT command equals '90 00' The length of the plain data part of the response shall be equal to 16 times the number n of AGENCYAPO objects referred in the DIO field AgencyAProductsQty
Post-conditions	

References	CFMS Standard Part 2 Section 5.1
Remarks	Only applicable if configuration holds for PICC
Importance	Conditional

3.5.10.4 PICC_CDR_AGENCYAPO_004: AGENCYAPO on card then also reference in DIO

Test ID	PICC_CDR_AGENCYAPO_004
Test Purpose	Check for the number of AGENCYAPO is present on card, the AGENCYAPO quantity reference DIO is equal to the same number
Configuration	EF AGENCYAPO present on the PICC
Preconditions	Perform the authentication with k_0 Perform the additional authentication with k_1
Test Actions	CID sends a SELECT command (Select EF AGENCYAPO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to obtain the number n of AGENCYAPO objects (length plain data of response / 16) contained in the EF AGENCYAPO CID sends a SELECT command (Select EF DIO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00')
Pass Criteria	Pos 44-47 of the response plain data part shall be equal to the <i>FileID reference</i> of EF AGENCYAPO Pos 48-50 of the response plain data part shall be set to the number n of AGENCYAPO objects
Post-conditions	
References	CFMS Standard Part 2 Section 5.1
Remarks	Only applicable if configuration holds for PICC
Importance	Conditional

3.5.11 Agency B Products File

3.5.11.1 PICC_CDR_AGENCYBPO_001: No AGENCYBPO reference in DIO then not on card

Test ID	PICC_CDR_AGENCYBPO_001
Test Purpose	Check when EF AGENCYBPO is referenced in DIO as not present, that no EF

	AGENCYBPO found on the PICC
Configuration	DIO field RtsAGENCYBProductsFileID is set to 0: No AGENCYBPO present
Preconditions	Perform the authentication with k_0 Perform the additional authentication with k_1
Test Actions	CID sends a SELECT command (Select EF AGENCYBPO, SM)
Pass Criteria	The status bytes of the response to the SELECT command equal '6A 82'
Post-conditions	
References	CFMS Standard Part 2 Section 5.1
Remarks	Only applicable if configuration holds for PICC
Importance	Conditional

3.5.11.2 PICC_CDR_AGENCYBPO_002: No AGENCYBPO on card then not referenced in DIO

Test ID	PICC_CDR_AGENCYBPO_002
Test Purpose	Check when no EF AGENCYBPO is present on card, the EF AGENCYBPO is referenced in DIO as not present
Configuration	No EF AGENCYBPO present on the PICC
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (Select EF DIO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00')
Pass Criteria	Position 59-62 of the response plain data part shall be set to 0: no AGENCYBPO present
Post-conditions	
References	CFMS Standard Part 2 Section 5.1
Remarks	Only applicable if configuration holds for PICC
Importance	Conditional

3.5.11.3 PICC_CDR_AGENCYBPO_003: AGENCYBPO in DIO then also present on card

Test ID	PICC_CDR_AGENCYBPO_003
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Test Purpose	Check the number of AGENCYBPO objects referenced in DIO, do also exist on the PICC
Configuration	DIO field AGENCYBProductsQty is set to at least 1: EF AGENCYBPO present
Preconditions	Perform the authentication with k_0 Perform the additional authentication with k_1
Test Actions	CID sends a SELECT command (Select EF DIO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00' to obtain the FileID reference for the EF AGENCYBPO and the number n of AGENCYBPO objects referenced in the DIO CID sends a SELECT command (Select EF AGENCYBPO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00')
Pass Criteria	The status bytes of the responses to the SELECT command equals '90 00' The length of the plain data part of the response shall be equal to 16 times the number n of AGENCYBPO objects referred in the DIO field AGENCYBProductsQty
Post-conditions	
References	CFMS Standard Part 2 Section 5.1
Remarks	Only applicable if configuration holds for PICC
Importance	Conditional

3.5.11.4 PICC_CDR_AGENCYBPO_004: AGENCYBPO on card then also reference in DIO

Test ID	PICC_CDR_AGENCYBPO_004
Test Purpose	Check for the number of AGENCYBPO is present on card, the AGENCYBPO quantity reference DIO is equal to the same number
Configuration	EF AGENCYBPO present on the PICC
Preconditions	Perform the authentication with k_0 Perform the additional authentication with k_1
Test Actions	CID sends a SELECT command (Select EF AGENCYBPO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to obtain the number n of AGENCYBPO objects (length plain data of response / 16) contained in the EF AGENCYBPO CID sends a SELECT command (Select EF DIO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00')

Pass Criteria	Pos 59-62 of the response plain data part shall be equal to the <i>FileID reference</i> of EF AGENCYBPO Pos 63-65 of the response plain data part shall be set to the number <i>n</i> of AGENCYBPO objects
Post-conditions	
References	CFMS Standard Part 2 Section 5.1
Remarks	Only applicable if configuration holds for PICC
Importance	Conditional

3.5.12 Agency C Products File

3.5.12.1 PICC_CDR_AGENCYCPO_001: No AGENCYCPO reference in DIO then not on card

Test ID	PICC_CDR_AGENCYCPO_001
Test Purpose	Check when EF AGENCYCPO is referenced in DIO as not present, that no EF AGENCYCPO found on the PICC
Configuration	DIO field RtsAGENCYCProductsFileID is set to 0: No EF AGENCYCPO present
Preconditions	Perform the authentication with k_0 Perform the additional authentication with k_1
Test Actions	CID sends a SELECT command (Select EF AGENCYCPO, SM)
Pass Criteria	The status bytes of the response to the SELECT command equal '6A 82'
Post-conditions	
References	CFMS Standard Part 2 Section 5.1
Remarks	Only applicable if configuration holds for PICC
Importance	Conditional

3.5.12.2 PICC_CDR_AGENCYCPO_002: No AGENCYCPO on card then not referenced in DIO

Test ID	PICC_CDR_AGENCYCPO_002
Test Purpose	Check when no EF AGENCYCPO is present on card, the EF AGENCYCPO is referenced in DIO as not present

Configuration	No EF AGENCYCPO present on the PICC
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (Select EF DIO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00')
Pass Criteria	Position 74-77 of the response plain data part shall be set to 0: no EF AGENCYCPO present
Post-conditions	
References	CFMS Standard Part 2 Section 5.1
Remarks	Only applicable if configuration holds for PICC
Importance	Conditional

3.5.12.3 PICC_CDR_AGENCYCPO_003: AGENCYCPO in DIO then also present on card

Test ID	PICC_CDR_AGENCYCPO_003
Test Purpose	Check the number of AGENCYCPO objects referenced in DIO, do also exist on the PICC
Configuration	DIO field AGENCYCProductsQty is set to at least 1: EF AGENCYCPO present
Preconditions	Perform the authentication with k_0 Perform the additional authentication with k_1
Test Actions	CID sends a SELECT command (Select EF DIO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00' to obtain the FileID reference for the EF AGENCYCPO object and the number n of AGENCYCPO objects referenced in the DIO CID sends a SELECT command (Select EF AGENCYCPO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00')
Pass Criteria	The status bytes of the responses to the SELECT command equals '90 00' The length of the plain data part of the response shall be equal to 16 times the number n of AGENCYCPO objects referred in the DIO field AGENCYCProductsQty
Post-conditions	
References	CFMS Standard Part 2 Section 5.1
Remarks	Only applicable if configuration holds for PICC
Importance	Conditional

3.5.12.4 PICC_CDR_AGENCYCPO_004: AGENCYCPO on card then also reference in DIO

Test ID	PICC_CDR_AGENCYCPO_004
Test Purpose	Check for the number of AGENCYCPO is present on card, the AGENCYCPO quantity reference DIO is equal to the same number
Configuration	EF AGENCYCPO present on the PICC
Preconditions	Perform the authentication with k_0 Perform the additional authentication with k_1
Test Actions	CID sends a SELECT command (Select EF AGENCYCPO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to obtain the number n of AGENCYCPO objects (length plain data of response / 16) contained in the EF AGENCYCPO file CID sends a SELECT command (Select EF DIO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00')
Pass Criteria	Pos 74-77 of the response plain data part shall be equal to the FileID reference of EF AGENCYCPO Pos 78-80 of the response plain data part shall be set to the number n of AGENCYCPO objects
Post-conditions	
References	CFMS Standard Part 2 Section 5.1
Remarks	Only applicable if configuration holds for PICC
Importance	Conditional

3.5.13 Agency D Products File

3.5.13.1 PICC_CDR_AGENCYDPO_001: No AGENCYDPO reference in DIO then not on card

Test ID	PICC_CDR_AGENCYDPO_001
Test Purpose	Check when EF AGENCYDPO is referenced in DIO as not present, that no EF AGENCYDPO found on the PICC
Configuration	DIO field RtsAGENCYDProductsFileID is set to 0: No EF AGENCYDPO present
Preconditions	Perform the authentication with k_0

	Perform the additional authentication with k_1
Test Actions	CID sends a SELECT command (Select EF AGENCYDPO, SM)
Pass Criteria	The status bytes of the response to the SELECT command equal '6A 82'
Post-conditions	
References	CFMS Standard Part 2 Section 5.1
Remarks	Only applicable if configuration holds for PICC
Importance	Conditional

3.5.13.2 PICC_CDR_AGENCYDPO_002: No AGENCYDPO on card then not referenced in DIO

Test ID	PICC_CDR_AGENCYDPO_002
Test Purpose	Check when no EF AGENCYDPO is present on card, the EF AGENCYDPO is referenced in DIO as not present
Configuration	No EF AGENCYDPO present on the PICC
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (Select EF DIO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00')
Pass Criteria	Position 89-92 of the response plain data part shall be set to 0: no EF AGENCYDPO present
Post-conditions	
References	CFMS Standard Part 2 Section 5.1
Remarks	Only applicable if configuration holds for PICC
Importance	Conditional

3.5.13.3 PICC_CDR_AGENCYDPO_003: AGENCYDPO in DIO then also present on card

Test ID	PICC_CDR_AGENCYDPO_003
Test Purpose	Check the number of AGENCYDPO objects referenced in DIO, do also exist on the PICC
Configuration	DIO field AGENCYDProductsQty is set to at least 1: EF AGENCYDPO present
Preconditions	Perform the authentication with k_0

	Perform the additional authentication with k_1
Test Actions	<p>CID sends a SELECT command (Select EF DIO, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00' to obtain the FileID reference for the EF AGENCYDPO object the number n of AGENCYDPO objects referenced in the DIO)</p> <p>CID sends a SELECT command (Select EF AGENCYDPO, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00')</p>
Pass Criteria	<p>The status bytes of the responses to the SELECT command equals '90 00'</p> <p>The length of the plain data part of the response shall be equal to 16 times the number n of AGENCYDPO objects referred in the DIO field AGENCYDProductsQty</p>
Post-conditions	
References	CFMS Standard Part 2 Section 5.1
Remarks	Only applicable if configuration holds for PICC
Importance	Conditional

3.5.13.4 PICC_CDR_AGENCYDPO_004: AGENCYDPO on card then also reference in DIO

Test ID	PICC_CDR_AGENCYDPO_004
Test Purpose	Check for the number of AGENCYDPO is present on card, the AGENCYDPO quantity reference DIO is equal to the same number
Configuration	EF AGENCYDPO present on the PICC
Preconditions	<p>Perform the authentication with k_0</p> <p>Perform the additional authentication with k_1</p>
Test Actions	<p>CID sends a SELECT command (Select EF AGENCYDPO, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to obtain the number n of AGENCYDPO objects (length plain data of response / 16) contained in the EF AGENCYDPO)</p> <p>CID sends a SELECT command (Select EF DIO, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00')</p>
Pass Criteria	<p>Pos 89-92 of the response plain data part shall be equal to the FileID reference of EF AGENCYDPO</p> <p>Pos 93-95 of the response plain data part shall be set to the number n of AGENCYDPO objects</p>

Post-conditions	
References	CFMS Standard Part 2 Section 5.1
Remarks	Only applicable if configuration holds for PICC
Importance	Conditional

3.5.14 Regional Products File

3.5.14.1 PICC_CDR_REGPO_001: No REGPO reference in DIO then not on card

Test ID	PICC_CDR_REGPO_001
Test Purpose	Check when EF REGPO is referenced in DIO as not present, that no EF REGPO found on the PICC
Configuration	DIO field RtsRegionalProductsFileID is set to 0: No EF REGPO present
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (Select EF REGPO, SM)
Pass Criteria	The status bytes of the response to the SELECT command equal '6A 82'
Post-conditions	
References	CFMS Standard Part 2 Section 5.1
Remarks	Only applicable if configuration holds for PICC
Importance	Conditional

3.5.14.2 PICC_CDR_REGPO_002: No REGPO on card then not referenced in DIO

Test ID	PICC_CDR_REGPO_002
Test Purpose	Check when no EF REGPO is present on card, the EF REGPO is referenced in DIO as not present
Configuration	No EF REGPO present on the PICC
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (Select EF DIO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00')
Pass Criteria	Position 37-40 of the response plain data part shall be set to 0: no EF REGPO present

Post-conditions	
References	CFMS Standard Part 2 Section 5.1
Remarks	Only applicable if configuration holds for PICC
Importance	Conditional

3.5.14.3 PICC_CDR_REGPO_003: REGPO in DIO then also present on card

Test ID	PICC_CDR_REGPO_003
Test Purpose	Check the number of REGPO objects referenced in DIO, do also exist on the PICC
Configuration	DIO field RegionalProductsQty is set to at least 1: EF REGPO present
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (Select EF DIO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00' to obtain the FileID reference for the EF REGPO object the number n of REGPO objects referenced in the DIO CID sends a SELECT command (Select EF REGPO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00')
Pass Criteria	The status bytes of the responses to the SELECT command equals '90 00' The length of the plain data part of the response shall be equal to 16 times the number n of REGPO objects referred in the DIO field RegionalProductsQty
Post-conditions	
References	CFMS Standard Part 2 Section 5.1
Remarks	Only applicable if configuration holds for PICC
Importance	Conditional

3.5.14.4 PICC_CDR_REGPO_004: REGPO on card then also reference in DIO

Test ID	PICC_CDR_REGPO_004
Test Purpose	Check for the number of REGPO is present on card, the REGPO quantity reference DIO is equal to the same number
Configuration	EF REGPO present on the PICC
Preconditions	Perform the authentication with k_0

Test Actions	<p>CID sends a SELECT command (Select EF REGPO, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to obtain the number <i>n</i> of REGPO objects (length plain data of response / 16) contained in the EF REGPO</p> <p>CID sends a SELECT command (Select EF DIO, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00')</p>
Pass Criteria	<p>Pos 37-40 of the response plain data part shall be equal to the <i>FileID reference</i> of EF REGPO</p> <p>Pos 41-43 of the response plain data part shall be set to the number <i>n</i> of REGPO objects</p>
Post-conditions	
References	CFMS Standard Part 2 Section 5.1
Remarks	Only applicable if configuration holds for PICC
Importance	Conditional

3.6 Consistency Tests – PIO related

3.6.1 THO object logical pointers

3.6.1.1 PICC_CPR_THO_001: THO logical pointer in PIO refers to real THO object

Test ID	PICC_CPR_THO_001
Test Purpose	Check that the THO logical pointer in the PIO refers to a real THO object
Configuration	
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (Select EF PIO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='01') to obtain logical pointer to THO object with value: n CID sends a SELECT command (Select EF THO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00')
Pass Criteria	The length of the plain data part of the response data is at least $n+1$ times 16 bytes
Post-conditions	
References	CFMS Standard Part 2 Section 5.5 & Section 5.6
Remarks	Logical pointer n is referring to offset 'n0' where the referred THO file starts
Importance	Mandatory

3.6.1.2 PICC_CPR_THO_002: Last Transaction Product reference is also included in the product reference fields of the PIO

Test ID	PICC_CPR_THO_002
Test Purpose	Check that the THO logical pointer in the PIO refers to an object which is included in the product reference fields of the PIO or one of its extensions.
Configuration	
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (Select EF PIO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to obtain last transaction product reference with value: n

	CID sends a SELECT command (Select EF PIOX, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00')
Pass Criteria	Status word '90 00' shall be returned in the responses for all commands. For $n \geq 14$, the length of the plain part data of the response data shall be 48 bytes
Post-conditions	
References	CFMS Standard Part 2 Section 5.5 & Section 5.
Remarks	n=1-5: product references shall be included in the PIO n=6-13: product references shall be included in the PIOX1 n=14-21: product references shall be included in the PIOX2 n=22-29: product references shall be included in the PIOX3 The product x reference fields are: RtsProductxSubIndex, RtsProductxAgencyID, RtsProductxTypeCode
Importance	Mandatory

3.6.2 A&DVO object logical pointers

3.6.2.1 PICC_CPR_A&DVO_001: THO logical pointer in PIO refers to real A&DVO object

Test ID	PICC_CPR_A&DVO_001
Test Purpose	Check that the A&DVO logical pointer in the PIO refers to a real A&DVO object
Configuration	The PICC contains at least one A&DVO object
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (Select EF PIO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='01') to obtain logical pointer to A&DVO object with value: n CID sends a SELECT command (Select EF A&DVO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00')
Pass Criteria	The length of the plain data part of the response data is at least $n+1$ times 16 bytes
Post-conditions	
References	CFMS Standard Part 2 Section 5.5 & Section 5.6
Remarks	Only applicable when configuration holds

Importance	Conditional

3.6.3 T-Purse and Stored Value use

3.6.3.1 PICC_CPR_TPPO&SV_001: T-Purse and SV use shall be consistent with existence of SV object

Test ID	PICC_CPR_TPPO&SV_001
Test Purpose	Check that the PIO field RtsT-Purse&SVUse shall be consistent with the existence of the SV object
Configuration	The PIO field RtsT-Purse&SVUse has value equal to 1 or 3
Preconditions	Perform the authentication with k_0 Perform the additional authentication with k_1
Test Actions	CID sends a SELECT command (Select EF SVPO, SM)
Pass Criteria	The returned status word of the response data of the SELECT command shall be equal to '90 00'
Post-conditions	
References	CFMS Standard Part 2 Section 5.5 & Section 5.6
Remarks	Only applicable when configuration holds RtsT-Purse&SVUse=1: An SV Purse was used RtsT-Purse&SVUse=3: An SV Purse and the T-Purse was used
Importance	Conditional

3.6.3.2 PICC_CPR_TPPO&SV_002 T-Purse and SV use shall be consistent with existence of TPPO object

Test ID	PICC_CPR_TPPO&SV_002
Test Purpose	Check that the PIO field RtsT-Purse&SVUse is consistent with the existence of the TPPO object
Configuration	The PIO field RtsT-Purse&SVUse has value equal to 2 or 3
Preconditions	Perform the authentication with k_0 Perform the additional authentication with k_{TPPO}

Test Actions	CID sends a SELECT command (Select EF TPPO, SM)
Pass Criteria	The returned status word of the response data of the SELECT command shall be equal to '90 00'
Post-conditions	
References	CFMS Standard Part 2 Section 5.5 & Section 5.6
Remarks	Only applicable when configuration holds RtsT-Purse&SVUse=2: An SV Purse was used RtsT-Purse&SVUse=3: An SV Purse and the T-Purse was used
Importance	Conditional

3.6.4 PIO Extension use

3.6.4.1 PICC_CPR_PIOX_001: PIO Extension use shall be consistent with existence of PIO extension objects

Test ID	PICC_CPR_PIOX_001
Test Purpose	Check that the PIO field RtsPIOExtensions is consistent with the existence of the PIO extension objects
Configuration	The PIO field RtsPIOExtensions has value equal to 1 (3 extensions in use)
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (Select EF PIOX, SM)
Pass Criteria	The length of the plain data part of the response data is equal to 48 bytes (3 extensions)
Post-conditions	
References	CFMS Standard Part 2 Section 5.5 & Section 5.6
Remarks	Only applicable when configuration holds EF PIOX shall contain either 1 or 3 PIOXs
Importance	Conditional

3.6.5 ALPO use

3.6.5.1 PICC_CPR_ALPO_001: ALPO use shall be consistent with existence of ALPO object

Test ID	PICC_CPR_ALPO_001
Test Purpose	Check that the PIO field RtsALPOUse is consistent with the existence of the ALPO object
Configuration	The PIO field RtsALPOUse has value equal to 1 (Used)
Preconditions	Perform the authentication with k_0 Perform the additional authentication with k_1
Test Actions	CID sends a SELECT command (Select EF ALPO, SM)
Pass Criteria	The returned status word of the response data of the SELECT command shall be equal to '90 00'
Post-conditions	
References	CFMS Standard Part 2 Section 5.5 & Section 5.6
Remarks	Only applicable when configuration holds
Importance	Conditional

3.6.6 PIO Product References: products 1-5

3.6.6.1 PICC_CPR_PR1-5_001: Product Agency ID shall refer to existing Agency reference

Test ID	PICC_CPR_PR1-5_001
Test Purpose	Check that the Product n AgencyID field is equal to an AgencyID contained in the DIO or the DIOX
Configuration	Product reference n is in use ($1 \leq n \leq 5$) and has value different from zero
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (Select EF PIO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to obtain the value of the Product n AgencyID field CID select a SELECT command (Select EF DIO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to check if the value of the Product n AgencyID field corresponds to an AgencyID in the

	<p>DIO</p> <p>In case no matching AgencyID is found in the DIO:</p> <p>CID select a SELECT command (Select EF DIOX, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to check if the value of the ProductnAgencyID field corresponds to an AgencyID in the DIOX</p>
Pass Criteria	<p>The returned status word of the response data of all commands shall be equal to '90 00'</p> <p>The ProductnAgencyID field value shall match with either RtsAgencyAID (pos 51-58 of DIO), RtsAgencyBID (pos 66-73), RtsAgencyCID (pos 81-88), RtsAgencyDID (pos 96-103) or with an RtsAgencyXID field in the DIOX</p>
Post-conditions	
References	CFMS Standard Part 2 Section 5.5 & Section 5.6
Remarks	<p>This test case is to be performed for every product object n reference in use for $n=1-5$</p> <p>AgencyIDs in DIO or the DIOX are contained in the RtsAgencyXID, where the variable X can obtain as value the letters referring to the different Agencies in use</p>
Importance	Conditional

3.6.6.2 PICC_CPR_PR1-5_002: Product Agency ID shall refer to an existing product object contained in the corresponding AgencyProductObject

Test ID	PICC_CPR_PR1-5_002
Test Purpose	Check that the Product n SubIndex field refers to an existing product object contained in the EF Agency X ProductObject
Configuration	<p>Product reference n is in use ($1 \leq n \leq 5$)</p> <p>Product reference ProductnAgencyID field matches with the RtsAgencyXID field contained in the DIO or DIOX for Agency X</p>
Preconditions	<p>Perform the authentication with k_0</p> <p>Perform the additional authentication with k_1</p>
Test Actions	<p>CID sends a SELECT command (Select EF PIO, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to obtain the value of the ProductnSubIndex field</p> <p>CID sends a SELECT command (Select EF AgencyXProductObject, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00')</p>

Pass Criteria	The returned status word of the response data of all command shall be equal to '90 00' The plain data part of the READ BINARY command response shall consist out of at least (Product n SubIndex+1) times 16 bytes
Post-conditions	
References	CFMS Standard Part 2 Section 5.5 & Section 5.6
Remarks	This test case is to be performed for every product object n reference in use for $n=1-5$ Product n SubIndex refers to the start position of the product n object in the EF Agency X ProductObject AgencyIDs in DIO or the DIOX are contained in the RtsAgencyXID, where the variable X can obtain as value the letters referring to the different Agencies in use
Importance	Conditional

3.6.6.3 PICC_CPR_PR1-5_003: Product type code shall match product object reference

Test ID	PICC_CPR_PR1-5_003
Test Purpose	Check that the Product n TypeCode field is equal to an AgencyID contained in the DIO or the DIOX
Configuration	Product reference n is in use ($1 \leq n \leq 5$) Product reference Product n AgencyID field matches with the RtsAgencyXID field contained in the DIO or DIOX for Agency X Product reference Product n SubIndex field shall refer to an existing product object contained in the EF Agency X ProductObject
Preconditions	Perform the authentication with k_0 Perform the additional authentication with k_1
Test Actions	CID sends a SELECT command (Select EF PIO, SM) The plain data part of the READ BINARY command response shall make clear for Product n TypeCode values: 0 : the product is expired 1-7: product is of type mentioned in PIO table 6 in the APTA Part II Specifications [2]
Pass Criteria	The returned status word of the response data of the SELECT command shall be equal to '90 00'
Post-conditions	

References	CFMS Standard Part 2 Section 5.5 & Section 5.6
Remarks	This test case is to be performed for every product object n reference in use for $n=1-5$ Product n SubIndex refers to the start position of the product n object in the EF Agency X ProductObject AgencyIDs in DIO or the DIOX are contained in the RtsAgencyXID, where the variable X can obtain as value the letters referring to the different Agencies in use
Importance	Conditional

3.6.7 PIOX Product References: products 6-13

3.6.7.1 PICC_CPR_PR6-13_001: Product Agency ID shall refer to existing Agency reference

Test ID	PICC_CPR_PR6-13_001
Test Purpose	Check that the Product n AgencyID field is equal to an AgencyID contained in the DIO or the DIOX
Configuration	Product reference n is in use ($6 \leq n \leq 13$) and has value different from zero
Preconditions	Perform the authentication with k_0
Test Actions	CID sends a SELECT command (Select EF PIOX, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='10') to obtain the value of the Product n AgencyID field CID select a SELECT command (Select EF DIO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to check if the value of the Product n AgencyID field corresponds to an AgencyID in the DIO In case no matching AgencyID is found in the DIO: CID select a SELECT command (Select EF DIOX, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to check if the value of the Product n AgencyID field corresponds to an AgencyID in the DIOX
Pass Criteria	The returned status word of the response data of all commands shall be equal to '90 00' The Product n AgencyID field value shall match with either RtsAgencyAID (pos 56-138 of DIO), RtsAgencyBID (pos 66-73), RtsAgencyCID (pos 81-88), RtsAgencyDID (pos 96-103) or with an RtsAgencyXID field in the DIOX
Post-conditions	

References	CFMS Standard Part 2 Section 5.5 & Section 5.6
Remarks	This test case is to be performed for every product object <i>n</i> reference in use for <i>n</i> =6-13 AgencyIDs in DIO or the DIOX are contained in the RtsAgencyXID, where the variable X can obtain as value the letters referring to the different Agencies in use
Importance	Conditional

3.6.7.2 PICC_CPR_PR6-13_002: Product Agency ID shall refer to an existing product object contained in the corresponding AgencyProductObject

Test ID	PICC_CPR_PR6-13_002
Test Purpose	Check that the Product <i>n</i> SubIndex field refers to an existing product object contained in the EF AgencyXProductObject
Configuration	Product reference <i>n</i> is in use ($6 \leq n \leq 13$) Product reference Product <i>n</i> AgencyID field matches with the RtsAgencyXID field contained in the DIO or DIOX for Agency X
Preconditions	Perform the authentication with <i>k</i> ₀ Perform the additional authentication with <i>k</i> ₁
Test Actions	CID sends a SELECT command (Select EF PIOX, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='10') to obtain the value of the Product <i>n</i> SubIndex field CID sends a SELECT command (Select EF AgencyXProductObject, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00')
Pass Criteria	The returned status word of the response data of all command shall be equal to '90 00' The plain data part of the READ BINARY command response shall consist out of at least (Product <i>n</i> SubIndex+1) times 16 bytes
Post-conditions	
References	CFMS Standard Part 2 Section 5.5 & Section 5.6
Remarks	This test case is to be performed for every product object <i>n</i> reference in use for <i>n</i> =6-13 Product <i>n</i> SubIndex refers to the start position of the product <i>n</i> object in the EF AgencyXProductObject AgencyIDs in DIO or the DIOX are contained in the RtsAgencyXID, where the variable X can obtain as value the letters referring to the different Agencies in use

Importance	Conditional
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3.6.7.3 PICC_CPR_PR6-13_003: Product type code shall match product object reference

Test ID	PICC_CPR_PR6-13_003
Test Purpose	Check that the Product n TypeCode field is equal to an AgencyID contained in the DIO or the DIOX
Configuration	Product reference n is in use ($6 \leq n \leq 13$) Product reference Product n AgencyID field matches with the RtsAgencyXID field contained in the DIO or DIOX for Agency X Product reference Product n SubIndex field shall refer to an existing product object contained in the EF AgencyXProductObject
Preconditions	Perform the authentication with k_0 Perform the additional authentication with k_1
Test Actions	CID sends a SELECT command (Select EF PIOX, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='10') to obtain the value of the Product n SubIndex field CID sends a SELECT command (Select EF AgencyXProductObject, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00')
Pass Criteria	The returned status word of the response data of the SELECT command shall be equal to '90 00' The plain data part of the READ BINARY command response shall make clear for Product n TypeCode values: 0 : the product is expired 1-7: product is of type mentioned in PIOX table 7 in the APTA Part II Specifications [2]
Post-conditions	
References	CFMS Standard Part 2 Section 5.5 & Section 5.6
Remarks	This test case is to be performed for every product object n reference in use for $n=6-13$ Product n SubIndex refers to the start position of the product n object in the EF AgencyXProductObject AgencyIDs in DIO or the DIOX are contained in the RtsAgencyXID, where the variable X can obtain as value the letters referring to the different Agencies in use

Importance	Conditional
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3.6.8 PIOX Product References: products 14-21

3.6.8.1 PICC_CPR_PR14-21_001: Product Agency ID shall refer to existing Agency reference

Test ID	PICC_CPR_PR14-21_001
Test Purpose	Check that the Product n AgencyID field is equal to an AgencyID contained in the DIO or the DIOX
Configuration	Product reference n is in use ($14 \leq n \leq 21$) and has value different from zero
Preconditions	Perform the authentication with k_0
Test Actions	<p>CID sends a SELECT command (Select EF PIOX, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset '10', Le='10') to obtain the value of the ProductnAgencyID field</p> <p>CID select a SELECT command (Select EF DIO, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to check if the value of the ProductnAgencyID field corresponds to an AgencyID in the DIO</p> <p>In case no matching AgencyID is found in the DIO:</p> <p>CID select a SELECT command (Select EF DIOX, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to check if the value of the ProductnAgencyID field corresponds to an AgencyID in the DIOX</p>
Pass Criteria	<p>The returned status word of the response data of all commands shall be equal to '90 00'</p> <p>The ProductnAgencyID field value shall match with either RtsAgencyAID (pos 51-58 of DIO), RtsAgencyBID (pos 66-73), RtsAgencyCID (pos 81-88), RtsAgencyDID (pos 96-103) or with an RtsAgencyXID field in the DIOX</p>
Post-conditions	
References	CFMS Standard Part 2 Section 5.5 & Section 5.6
Remarks	<p>This test case is to be performed for every product object n reference in use for $n=14-21$</p> <p>AgencyIDs in DIO or the DIOX are contained in the RtsAgencyXID, where the variable X can obtain as value the letters referring to the different Agencies in use</p>

Importance	Conditional
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3.6.8.2 PICC_CPR_PR14-21_002: Product Agency ID shall refer to an existing product object contained in the corresponding AgencyProductObject

Test ID	PICC_CPR_PR14-21_002
Test Purpose	Check that the Product n SubIndex field refers to an existing product object contained in the EF Agency X ProductObject
Configuration	Product reference n is in use ($14 \leq n \leq 21$) Product reference Product n AgencyID field matches with the RtsAgency X ID field contained in the DIO or DIOX for Agency X
Preconditions	Perform the authentication with k_0 Perform the additional authentication with k_1
Test Actions	CID sends a SELECT command (Select EF PIOX, SM) CID sends a READ BINARY command (Read current EF, SM, offset '10', Le='10') to obtain the value of the Product n SubIndex field CID sends a SELECT command (Select EF Agency X ProductObject, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00')
Pass Criteria	The returned status word of the response data of all command shall be equal to '90 00' The plain data part of the READ BINARY command response shall consist out of at least (Product n SubIndex+1) times 16 bytes
Post-conditions	
References	CFMS Standard Part 2 Section 5.5 & Section 5.6
Remarks	This test case is to be performed for every product object n reference in use for $n=14-21$ Product n SubIndex refers to the start position of the product n object in the EF Agency X ProductObject AgencyIDs in DIO or the DIOX are contained in the RtsAgency X ID, where the variable X can obtain as value the letters referring to the different Agencies in use
Importance	Conditional

3.6.8.3 PICC_CPR_PR14-21_003: Product type code shall match product object reference

Test ID	PICC_CPR_PR14-21_003
Test Purpose	Check that the Product n TypeCode field is equal to an AgencyID contained in the DIO or the DIOX
Configuration	Product reference n is in use ($14 \leq n \leq 21$) Product reference Product n AgencyID field matches with the RtsAgencyXID field contained in the DIO or DIOX for Agency X Product reference Product n SubIndex field shall refer to an existing product object contained in the EF AgencyXProductObject
Preconditions	Perform the authentication with k_0 Perform the additional authentication with k_1
Test Actions	CID sends a SELECT command (Select EF PIOX, SM) CID sends a READ BINARY command (Read current EF, SM, offset '10', Le='10') to obtain the value of the Product n SubIndex field CID sends a SELECT command (Select EF AgencyXProductObject, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00')
Pass Criteria	The returned status word of the response data of the SELECT command shall be equal to '90 00' The plain data part of the READ BINARY command response shall make clear for Product n TypeCode values: 0 : the product is expired 1-7: product is of type mentioned in PIOX table 7 in the APTA Part II Specifications [2]
Post-conditions	
References	CFMS Standard Part 2 Section 5.5 & Section 5.6
Remarks	This test case is to be performed for every product object n reference in use for $n=14-21$ Product n SubIndex refers to the start position of the product n object in the EF AgencyXProductObject AgencyIDs in DIO or the DIOX are contained in the RtsAgencyXID, where the variable X can obtain as value the letters referring to the different Agencies in use
Importance	Conditional

3.6.9 PIOX Product References: products 22-29

3.6.9.1 PICC_CPR_PR22-29_001: Product Agency ID shall refer to existing Agency reference

Test ID	PICC_CPR_PR22-29_001
Test Purpose	Check that the Product n AgencyID field is equal to an AgencyID contained in the DIO or the DIOX
Configuration	Product reference n is in use ($22 \leq n \leq 29$) and has value different from zero
Preconditions	Perform the authentication with k_0
Test Actions	<p>CID sends a SELECT command (Select EF PIOX, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset '20', Le='10') to obtain the value of the ProductnAgencyID field</p> <p>CID select a SELECT command (Select EF DIO, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to check if the value of the ProductnAgencyID field corresponds to an AgencyID in the DIO</p> <p>In case no matching AgencyID is found in the DIO:</p> <p>CID select a SELECT command (Select EF DIOX, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00') to check if the value of the ProductnAgencyID field corresponds to an AgencyID in the DIOX</p>
Pass Criteria	<p>The returned status word of the response data of all commands shall be equal to '90 00'</p> <p>The ProductnAgencyID field value shall match with either RtsAgencyAID (pos 51-58 of DIO), RtsAgencyBID (pos 66-73), RtsAgencyCID (pos 81-88), RtsAgencyDID (pos 96-103) or with an RtsAgencyXID field in the DIOX</p>
Post-conditions	
References	CFMS Standard Part 2 Section 5.5 & Section 5.6
Remarks	<p>This test case is to be performed for every product object n reference in use for $n=22-29$</p> <p>AgencyIDs in DIO or the DIOX are contained in the RtsAgencyXID, where the variable X can obtain as value the letters referring to the different Agencies in use</p>
Importance	Conditional

3.6.9.2 PICC_CPR_PR22-29_002: Product Agency ID shall refer to an existing product object contained in the corresponding AgencyProductObject

Test ID	PICC_CPR_PR22-29_002
Test Purpose	Check that the Product n SubIndex field refers to an existing product object contained in the EF AgencyXProductObject
Configuration	Product reference n is in use ($22 \leq n \leq 29$) Product reference Product n AgencyID field matches with the RtsAgencyXID field contained in the DIO or DIOX for Agency X
Preconditions	Perform the authentication with k_0 Perform the additional authentication with k_1
Test Actions	CID sends a SELECT command (Select EF PIOX, SM) CID sends a READ BINARY command (Read current EF, SM, offset '20', Le='10') to obtain the value of the Product n SubIndex field CID sends a SELECT command (Select EF AgencyXProductObject, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00')
Pass Criteria	The returned status word of the response data of all command shall be equal to '90 00' The plain data part of the READ BINARY command response shall consist out of at least (Product n SubIndex+1) times 16 bytes
Post-conditions	
References	CFMS Standard Part 2 Section 5.5 & Section 5.6
Remarks	This test case is to be performed for every product object n reference in use for $n=22-29$ Product n SubIndex refers to the start position of the product n object in the EF AgencyXProductObject AgencyIDs in DIO or the DIOX are contained in the RtsAgencyXID, where the variable X can obtain as value the letters referring to the different Agencies in use
Importance	Conditional

3.6.9.3 PICC_CPR_PR22-29_003: Product type code shall match product object reference

Test ID	PICC_CPR_PR22-29_003
Test Purpose	Check that the Product n TypeCode field is equal to an AgencyID contained in the DIO or the DIOX

Configuration	<p>Product reference n is in use ($22 \leq n \leq 29$)</p> <p>Product reference ProductnAgencyID field matches with the RtsAgencyXID field contained in the DIO or DIOX for Agency X</p> <p>Product reference ProductnSubIndex field shall refer to an existing product object contained in the EF AgencyXProductObject</p>
Preconditions	<p>Perform the authentication with k_0</p> <p>Perform the additional authentication with k_1</p>
Test Actions	<p>CID sends a SELECT command (Select EF PIOX, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset '20', Le='10') to obtain the value of the ProductnSubIndex field</p> <p>CID sends a SELECT command (Select EF AgencyXProductObject, SM)</p> <p>CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='00')</p>
Pass Criteria	<p>The returned status word of the response data of the SELECT command shall be equal to '90 00'</p> <p>The plain data part of the READ BINARY command response shall make clear for ProductnTypeCode values:</p> <p>0 : the product is expired</p> <p>1-7: product is of type mentioned in PIOX table 7 in the APTA Part II Specifications [2]</p>
Post-conditions	
References	CFMS Standard Part 2 Section 5.5 & Section 5.6
Remarks	<p>This test case is to be performed for every product object n reference in use for $n=22-29$</p> <p>ProductnSubIndex refers to the start position of the product n object in the EF AgencyXProductObject</p> <p>AgencyIDs in DIO or the DIOX are contained in the RtsAgencyXID, where the variable X can obtain as value the letters referring to the different Agencies in use</p>
Importance	Conditional

3.7 Transaction Tests

3.7.1 Authentication and additional authentication

3.7.1.1 PICC_TRT_AUTH_001: Successful authentication with k_0

Test ID	PICC_TRT_AUTH_001
Test Purpose	To see if the PICC is able to perform a successful authentication with k_0
Configuration	
Preconditions	
Test Actions	<p>Perform a MANAGE SE(k_0) command to set a key reference k_0</p> <p>Generate an 8 byte random number R_{cid}</p> <p>Perform an INTERNAL AUTHENTICATE(R_{cid}) command and decrypt the response data to obtain $Rnd1$ and $r1$</p> <p>Perform a GET CHALLENGE command to obtain $Rpicc$ from response</p> <p>Generate the 8 byte random numbers $Rnd2$ and $r2$</p> <p>Perform an EXTERNAL AUTHENTICATE($R_{picc}, Rnd2, r2$) command</p>
Pass Criteria	All command shall return a response with status word '90 00'
Post-conditions	
References	<p>CFMS Standard Part 2 Section 6</p> <p>CFMS Example Implementation: See Section 2.2 & Section 2.2.4</p>
Remarks	One can check the successful authentication with selecting files which needs only k_0 for read access
Importance	Mandatory

3.7.1.2 PICC_TRT_AUTH_002: Successful authentication with k_1

Test ID	PICC_TRT_AUTH_002
Test Purpose	To see if the PICC is able to perform a successful authentication with k_1
Configuration	
Preconditions	Perform the authentication with k_0

Test Actions	<p>Perform a MANAGE SE(k_I) command to set a key reference k_I</p> <p>Generate an 8 byte random number $Rcid$</p> <p>Perform an INTERNAL AUTHENTICATE($Rcid$) command and decrypt the response data to obtain $Rnd1$ and $r1$</p> <p>Perform a GET CHALLENGE command to obtain $Rpicc$ from response</p> <p>Generate the 8 byte random numbers $Rnd2$ and $r2$</p> <p>Perform an EXTERNAL AUTHENTICATE($Rpicc,Rnd2,r2$) command</p>
Pass Criteria	All command shall return a response with status word '90 00'
Post-conditions	
References	<p>CFMS Standard Part 2 Section 6</p> <p>CFMS Example Implementation: See Section 2.2 & Section 2.2.4</p>
Remarks	One can check the successful authentication with selecting files which needs only k_I for read access
Importance	Mandatory

3.7.1.3 PICC_TRT_AUTH_003: Successful authentication with k_{PHPOX}

Test ID	PICC_TRT_AUTH_003
Test Purpose	To see if the PICC is able to perform a successful authentication with k_{PHPOX}
Configuration	
Preconditions	Perform the authentication with k_{PHPOX}
Test Actions	<p>Perform a MANAGE SE(k_{PHPOX}) command to set a key reference k_{PHPOX}</p> <p>Generate an 8 byte random number $Rcid$</p> <p>Perform an INTERNAL AUTHENTICATE($Rcid$) command and decrypt the response data to obtain $Rnd1$ and $r1$</p> <p>Perform a GET CHALLENGE command to obtain $Rpicc$ from response</p> <p>Generate the 8 byte random numbers $Rnd2$ and $r2$</p> <p>Perform an EXTERNAL AUTHENTICATE($Rpicc,Rnd2,r2$) command</p>
Pass Criteria	All command shall return a response with status word '90 00'
Post-conditions	
References	CFMS Standard Part 2 Section 6

	CFMS Example Implementation: See Section 2.2 & Section 2.2.4
Remarks	One can check the successful authentication with selecting the PHPOX extensions file which need k_{PHPOX} for read access
Importance	Mandatory

3.7.1.4 PICC_TRT_AUTH_004: Successful authentication with k_{TPPO}

Test ID	PICC_TRT_AUTH_004
Test Purpose	To see if the PICC is able to perform a successful authentication with k_{TPPO}
Configuration	PICC contains a T-Purse object
Preconditions	Perform the authentication with k_{TPPO}
Test Actions	<p>Perform a MANAGE SE(k_{TPPO}) command to set a key reference k_{TPPO}</p> <p>Generate an 8 byte random number $Rcid$</p> <p>Perform an INTERNAL AUTHENTICATE($Rcid$) command and decrypt the response data to obtain $Rnd1$ and $r1$</p> <p>Perform a GET CHALLENGE command to obtain $Rpicc$ from response</p> <p>Generate the 8 byte random numbers $Rnd2$ and $r2$</p> <p>Perform an EXTERNAL AUTHENTICATE($Rpicc, Rnd2, r2$) command</p>
Pass Criteria	All command shall return a response with status word '90 00'
Post-conditions	
References	<p>CFMS Standard Part 2 Section 6</p> <p>CFMS Example Implementation: See Section 2.2 & Section 2.2.4</p>
Remarks	One can check the successful authentication with selecting the TPPO and (if present) the TPPO extension file which need k_{TPPO} for read access
Importance	Conditional

3.7.1.5 PICC_TRT_AUTH_005: Successful authentication with k_{ALRO}

Test ID	PICC_TRT_AUTH_005
Test Purpose	To see if the PICC is able to perform a successful authentication with k_{ALRO}
Configuration	

Preconditions	Perform the authentication with k_{ALRO}
Test Actions	Perform a MANAGE SE(k_{ALRO}) command to set a key reference k_{ALRO} Generate an 8 byte random number $Rcid$ Perform an INTERNAL AUTHENTICATE($Rcid$) command and decrypt the response data to obtain $Rnd1$ and $r1$ Perform a GET CHALLENGE command to obtain $Rpicc$ from response Generate the 8 byte random numbers $Rnd2$ and $r2$ Perform an EXTERNAL AUTHENTICATE($Rpicc, Rnd2, r2$) command
Pass Criteria	All command shall return a response with status word '90 00'
Post-conditions	
References	CFMS Standard Part 2 Section 6 CFMS Example Implementation: See Section 2.2 & Section 2.2.4
Remarks	One can check the successful authentication with selecting the ALRO or the ALRO extension file which need k_{ALRO} for read access
Importance	Mandatory

3.7.2 Check Transaction History Logs and Pointers

3.7.2.1 PICC_TRT_THO_001: Successful logging order of THOs

Test ID	PICC_TRT_THO_001
Test Purpose	To see if the PICC logging the transactions in a correct order in the THOs
Configuration	Assume the EF THO is already fully filled with transaction logs
Preconditions	Perform the authentication with k_0
Test Actions	Perform 6 transactions CID sends a SELECT command (Select EF PIO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='01') to obtain logical pointer to THO object of the most recent transaction (RtsLastTransactionProduct) with value: n CID sends a SELECT command (Select EF THO, SM) CID sends a READ BINARY command (Read current EF, SM, offset '00', Le='00')
Pass Criteria	All command shall return a response with status word '90 00'

	Concatenate the last $(16-(n+1)) * 16$ bytes of the plain part data of the last READ BINARY response with the first $(n+1) * 16$ bytes of the plain part data of the Read Binary EF THO response. This shall be the concatenation of ascending THOs in date, time i.e. the transaction logs of the 6 transactions reversed
Post-conditions	
References	CFMS Standard Part 2 Section 5.8 & Section 7 CFMS Example Implementation: See Section Error! Reference source not found.
Remarks	
Importance	Mandatory

3.7.2.2 PICC_TRT_THO_002: Successful logging transaction value of THO

Test ID	PICC_TRT_THO_002
Test Purpose	To see if the PICC logging the transactions in a correct order in the THOs
Configuration	
Preconditions	Perform the authentication with k_0 Set the transfer start time for the journey at time_start, date_start Make sure the current time and current date are chosen such that the next transaction cannot have overlapping dates and minutes and time_start<=current time or date_start<current date
Test Actions	Perform a single transaction with (starting) time = current time and (starting) date = current date, transaction value=50, value sign=0 (adding value) CID sends a SELECT command (Select EF PIO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='01') to obtain logical pointer to THO object of the most recent transaction (RtsLastTransactionProduct) with value: n CID sends a SELECT command (Select EF THO, SM) CID sends a READ BINARY command (Read current EF, SM, offset ' $n0$ ', Le='10')
Pass Criteria	All command shall return a response with status word '90 00' The plain data part of the last READ BINARY response shall have the following values at positions: Pos 40-55: RtsDateStamp: current date Pos 56-66: RtsTimeStamp: current time in minutes (padded with 0's) Pos 69-79: RtsTransferStartTime: time_start in minutes (padded with 0's)

	Pos 80-94: RtsTransValue: '000000000000050'b Pos 95: RtsTransValueSign: 0
Post-conditions	
References	CFMS Standard Part 2 Section 5.8 & Section 7 CFMS Example Implementation: See Section Error! Reference source not found.
Remarks	
Importance	Mandatory

3.7.3 Check Add & Deduct Value object and related pointers

3.7.3.1 PICC_TRT_A&DVO_001: Successful logging order of A&DVOs

Test ID	PICC_TRT_A&DVO_001
Test Purpose	To see if the PICC logging the transactions in a correct order in the A&DVOs
Configuration	Assume the EF A&DVO is already fully filled with transaction logs and contains at least 6 logs
Preconditions	Perform the authentication with k_0
Test Actions	Perform 6 transactions CID sends a SELECT command (Select EF PIO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 0, Le='01') to obtain logical pointer to A&DVO object of the most recent transaction (RtsLastTransactionProduct) with value: n CID sends a SELECT command (Select EF A&DVO, SM) CID sends a READ BINARY command (Read current EF, SM, offset '00', Le='00')
Pass Criteria	All command shall return a response with status word '90 00' Concatenate the last $(16-(n+1)) * 16$ bytes of the plain part data of the last READ BINARY response with the first $(n+1) * 16$ bytes of the plain part data of the Read Binary EF A&DVO response. This shall be the concatenation of ascending A&DVOs in date, time i.e. the transaction logs of the 6 transactions reversed
Post-conditions	
References	CFMS Standard Part 2 Section 5.8 & Section 7 CFMS Example Implementation: See Section Error! Reference source not found.
Remarks	

Importance	Mandatory
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3.7.3.2 PICC_TRT_A&DVO_002: Successful logging transaction value of A&DVO

Test ID	PICC_TRT_A&DVO_002
Test Purpose	To see if the PICC logging the transactions in a correct order in the A&DVOs
Configuration	
Preconditions	Perform the authentication with k_0 Make sure the current time and current date are chosen such that the next transaction cannot have overlapping dates and minutes
Test Actions	Perform a single transaction with (starting) time = current time and (starting) date = current date, transaction added bonus value=50, value sign=0 (positive value) CID sends a SELECT command (Select EF PIO, SM) CID sends a READ BINARY command (Read current EF, SM, offset 1, Le='01') to obtain logical pointer to A&DVO object of the most recent transaction (RtsLastTransactionProduct) with value: n CID sends a SELECT command (Select EF A&DVO, SM) CID sends a READ BINARY command (Read current EF, SM, offset ' $n0$ ', Le='10')
Pass Criteria	All command shall return a response with status word '90 00' The plain data part of the last READ BINARY response shall have the following values at positions: Pos 16-31: RtsDate: current date Pos 32-42: RtsTime: current time in minutes (padded with 0's) Pos 48-62: RtsSVTransactionValue: '000000000000050'b Pos 63: RtsSVTransactionNegative: 0
Post-conditions	
References	CFMS Standard Part 2 Section 5.8 & Section 7
Remarks	
Importance	Mandatory

3.7.4 Anti-Tear

3.7.4.1 Anti-Tear PIO

3.7.4.1.1 PICC_ANT_PIO_001: card removal during updating PIO

Test ID	PICC_ANT_PIO_001
Test Purpose	When the card is removed during an update of the PIO, check that the old value of the PIO is used, when the card is inserted again
Configuration	
Preconditions	
Test Actions	<p>Perform a valid transaction where directly after the transaction the data of the PIO has the value PIO_OLD</p> <p>Perform a second transaction in which the card is removed during the updating of the PIO (i.e. before the end of the transaction)</p> <p>Perform a valid third transaction</p>
Pass Criteria	<p>At the beginning of the third transaction (i.e. before updating the PIO)</p> <ul style="list-style-type: none"> • The data of the PIO has value PIO_OLD • The accompanying PIO in the PIO-pair referenced in the DIO has an invalid checksum (DACPIO/CRCPIO)
Post-conditions	
References	CFMS Standard Part 2 Section 5.5, 5.8
Remarks	
Importance	Mandatory

3.7.4.2 Anti-Tear Agency P&TPO

3.7.4.2.1 PICC_ANT_P&TPO_AG_001: card removal during updating Agency P&TPO

Test ID	PICC_ANT_P&TPO_AG_001
Test Purpose	When the card is removed during an update of the Agency P&TPO, check that the old value of the Agency P&TPO is used, when the card is inserted again
Configuration	
Preconditions	
Test Actions	Perform a valid transaction where the Agency P&TPO is updated

	<p>Directly after the transaction:</p> <ul style="list-style-type: none"> Denote the value of the Agency P&TPO: AGENCY_P&TPO_OLD. Denote the value of the product sub index reference in the PIO to the Agency P&TPO: PIO_REF_AGENCY_P&TPO_OLD <p>Perform a second transaction where the Agency P&TPO is to be updated. Remove the card during the update of the Agency P&TPO.</p> <p>Perform a valid third transaction</p>
Pass Criteria	<p>At the beginning of the third transaction (i.e. before updating the Agency P&TPO)</p> <ul style="list-style-type: none"> The data of the Agency P&TPO has value AGENCY_P&TPO_OLD The PIO product sub index reference to the Agency P&TPO has value PIO_REF_AGENCY_P&TPO_OLD
Post-conditions	
References	CFMS Standard Part 2 Section 5.5, 5.11
Remarks	
Importance	Mandatory

3.7.4.3 Anti-Tear Regional P&TPO

3.7.4.3.1 PICC_ANT_P&TPO_RE_001: card removal during updating Regional P&TPO

Test ID	PICC_ANT_P&TPO_RE_001
Test Purpose	When the card is removed during an update of the Regional P&TPO, check that the old value of the Regional P&TPO is used, when the card is inserted again
Configuration	
Preconditions	
Test Actions	<p>Perform a valid transaction where the Regional P&TPO is updated</p> <p>Directly after the transaction:</p> <ul style="list-style-type: none"> Denote the value of the Regional P&TPO: REGIONAL_P&TPO_OLD Denote the value of the product sub index reference in the PIO to the Regional P&TPO: PIO_REF_REGIONAL_P&TPO_OLD <p>Perform a second transaction where the Regional P&TPO is to be updated. Remove the card during the update of the Regional P&TPO</p> <p>Perform a valid third transaction</p>
Pass Criteria	At the beginning of the third transaction (i.e. before updating the Regional P&TPO)

	<ul style="list-style-type: none"> The data of the Regional P&TPO has value REGIONAL_P&TPO_OLD The PIO product sub index reference to the Regional P&TPO has value PIO_REF_REGIONAL_P&TPO_OLD
Post-conditions	
References	CFMS Standard Part 2 Section 5.5, 5.11
Remarks	
Importance	Mandatory

3.7.4.4 Anti-Tear SVPO

3.7.4.4.1 PICC_ANT_SVPO_001: card removal during updating SVPO

Test ID	PICC_ANT_SVPO_001
Test Purpose	When the card is removed during an update of the SVPO, check that the old value of the SVPO is used, when the card is inserted again
Configuration	
Preconditions	
Test Actions	<p>Perform a valid transaction where the SVPO is updated</p> <p>Directly after the transaction:</p> <ul style="list-style-type: none"> Denote the value of the SVPO: SVPO_OLD Denote the value of the product sub index reference in the PIO to the SVPO: PIO_REF_SVPO_OLD <p>Perform a second transaction where the SVPO is to be updated. Remove the card during the update of the SVPO</p> <p>Perform a valid third transaction</p>
Pass Criteria	<p>At the beginning of the third transaction (i.e. before updating the SVPO)</p> <ul style="list-style-type: none"> The data of the SVPO has value SVPO_OLD The PIO product sub index reference to the SVPO has value PIO_REF_SVPO_OLD
Post-conditions	
References	CFMS Standard Part 2 Section 5.5, 5.12
Remarks	
Importance	Conditional

3.7.4.5 Anti-Tear T-Purse

3.7.4.5.1 PICC_ANT_TPPO_001: card removal during updating TPPO

Test ID	PICC_ANT_TPPO_001
Test Purpose	When the card is removed during an update of the TPPO, check that the old value of the TPPO is used, when the card is inserted again
Configuration	
Preconditions	
Test Actions	<p>Perform a valid transaction where the TPPO is updated</p> <p>Directly after the transaction:</p> <ul style="list-style-type: none"> • Denote the value of the TPPO: TPPO_OLD • Denote the value of the product sub index reference in the PIO to the TPPO: PIO_REF_TPPO_OLD <p>Perform a second transaction where the TPPO is to be updated. Remove the card during the update of the TPPO</p> <p>Perform a valid third transaction</p>
Pass Criteria	<p>At the beginning of the third transaction (i.e. before updating the TPPO)</p> <ul style="list-style-type: none"> • The data of the TPPO has value TPPO_OLD • The PIO product sub index reference to the TPPO has value PIO_REF_TPPO_OLD
Post-conditions	
References	CFMS Standard Part 2 Section 5.5, 5.12
Remarks	
Importance	Conditional

3.7.4.6 Anti-Tear ALPO

3.7.4.6.1 PICC_ANT_ALPO_001: card removal during updating ALPO

Test ID	PICC_ANT_ALPO_001
Test Purpose	When the card is removed during an update of the ALPO, check that the old value of the ALPO is used, when the card is inserted again
Configuration	

Preconditions	
Test Actions	<p>Perform a valid transaction where the ALPO is updated</p> <p>Directly after the transaction:</p> <ul style="list-style-type: none"> Denote the value of the ALPO: ALPO_OLD Denote the value of the product sub index reference in the PIO to the ALPO: PIO_REF_ALPO_OLD <p>Perform a second transaction where the ALPO is to be updated. Remove the card during the update of the ALPO</p> <p>Perform a valid third transaction</p>
Pass Criteria	<p>At the beginning of the third transaction (i.e. before updating the ALPO)</p> <ul style="list-style-type: none"> The data of the ALPO has value ALPO_OLD The PIO product sub index reference to the ALPO has value PIO_REF_ALPO_OLD
Post-conditions	
References	CFMS Standard Part 2 Section 5.5, 5.13
Remarks	
Importance	Conditional

3.7.4.7 Anti-Tear Agency AVPO

3.7.4.7.1 PICC_ANT_AVPO_AG_001: card removal during updating Agency AVPO

Test ID	PICC_ANT_AVPO_AG_001
Test Purpose	When the card is removed during an update of the Agency AVPO, check that the old value of the Agency AVPO is used, when the card is inserted again
Configuration	
Preconditions	
Test Actions	<p>Perform a valid transaction where the Agency AVPO is updated</p> <p>Directly after the transaction:</p> <ul style="list-style-type: none"> Denote the value of the Agency AVPO: AGENCY_AVPO_OLD Denote the value of the product sub index reference in the PIO to the Agency AVPO: PIO_REF_AGENCY_AVPO_OLD <p>Perform a second transaction where the Agency AVPO is to be updated. Remove the card during the update of the Agency AVPO</p>

	Perform a valid third transaction
Pass Criteria	At the beginning of the third transaction (i.e. before updating the Agency AVPO) <ul style="list-style-type: none"> • The data of the Agency AVPO has value AGENCY_AVPO_OLD • The PIO product sub index reference to the Agency AVPO has value PIO_REF_AGENCY_AVPO_OLD
Post-conditions	
References	CFMS Standard Part 2 Section 5.5, 5.17
Remarks	
Importance	Conditional

3.7.4.8 Anti-Tear Regional AVPO

3.7.4.8.1 PICC_ANT_AVPO_RE_001: card removal during updating Regional AVPO

Test ID	PICC_ANT_AVPO_RE_001
Test Purpose	When the card is removed during an update of the Regional AVPO, check that the old value of the Regional AVPO is used, when the card is inserted again
Configuration	
Preconditions	
Test Actions	Perform a valid transaction where the Regional AVPO is updated Directly after the transaction: <ul style="list-style-type: none"> • Denote the value of the Regional AVPO: REGIONAL_AVPO_OLD • Denote the value of the product sub index reference in the PIO to the Regional AVPO: PIO_REF_REGIONAL_AVPO_OLD Perform a second transaction where the Regional AVPO is to be updated. Remove the card during the update of the Regional AVPO Perform a valid third transaction
Pass Criteria	At the beginning of the third transaction (i.e. before updating the Regional AVPO) <ul style="list-style-type: none"> • The data of the Regional AVPO has value REGIONAL_AVPO_OLD • The PIO product sub index reference to the Regional AVPO has value PIO_REF_REGIONAL_AVPO_OLD
Post-conditions	
References	CFMS Standard Part 2 Section 5.5, 5.17

Remarks	
Importance	Conditional

4. Test Cases for a CID

4.1 Introduction

This chapter is the second part of Part V of the Standard, dealing with test cases for a CID. The other parts, in chapters 3, 5 and 6, deal with test cases for a PICC, an ACS and a RCS respectively.

The low-level communication between the PCD and the PICC is quite standardized. Therefore this test specification does not contain a full set of ISO 14443-based test cases, but only a limited subset.

To be able to automate the testing it is necessary to know what type of messages are sent to the SSC. Note that the format of these messages does not need to be exactly specified, as long as the records can be labeled such that the relevant content can be deducted from the labeling.

According to the CFMS Standard Part III, the CID must support minimally the following flow of events during a transaction accompanied with the groups which are involved in the testing:

- Detect and accept the PICC according to the ISO 14443 standard (*low-level tests*),
- Select the APTA application on PICC (*command testing*),
- Read the contents of the required objects using the appropriate commands (*command tests*),
- Perform the fare product logical processing (*command tests, transactional tests*)
- Update the objects used during the transaction using the appropriate APDU command (*command tests*)

After the transaction the resulting transaction record should be stored in the CID. The transaction records are to be communicated to the SSC in the form of *CID to PICC Interaction messages*. These interaction messages contain all the PICC transaction data needed to be sent to the RCS.

Incoming from the SSC are the so-called *PICC scheme control messages*. These messages take care of the controlling of several elements which needs coordination of a central body for the region. Because these messages can influence the transaction results they need to be included in the test specification for the CID. Because no format for the messages has been specified (only the output coming from the RCS), it can only be checked whether the CID reacts with a correct response message.

This chapter is built up as follows:

Section 4.2 defines the test cards needed to perform the test cases.

Section 4.3 contains command processing schemes to relieve test case descriptions from repetitions of commands which are equal for several test cases.

Section 4.5 contains the test cases related to the initial application processing. The test cases do check that the CID is able to perform the processing until the transaction needs to be performed.

Section 4.6 contains the test cases related to general transaction processing. In the test cases it is assumed that the underlying agency specific part and the regional specific part are correctly performed.

Section 4.7 covers the agency specific part of the transaction.

Section 4.8 covers the regional specific part of the transaction.

4.2 Test environment and test cards

For testing the CID on the PICC interface, the tester needs a tool that can take the role of a PICC. The tester performs the actions described in each test case. The simulator listens to each command sent by the ACS and returns an answer.

Ideally, the PICC simulator is combined with an automated test tool on which the CID test cases are implemented. The test tool instructs the tester about the actions he has to take, checks whether the CID sends the expected command, and returns the answer (correct or incorrect) described in the test case. The tester then can check whether the CID correctly reacts to this answer.

For testing a CID, we need test cards that are configured in different ways and therefore should induce different behavior of the CID. In this section, a default test card is defined, and other test cards are defined in terms of differences with the default test card. Identifiers for the test cards are given, which are used in the test case descriptions for the CID test cases. These test cards should be simulated in the card simulator used for testing.

Again, for the low level test cases (based on ISO 14443) an automatically configurable card simulator should be used. This is needed for example to test the ACS for its ability to handle different bit rates, timings, modulation depths, sub-carrier frequencies and so on.

4.2.1 Default test card

The default test card is a fully functioning correct PICC, with valid values for all five authentication keys:

Authentication keys:

k_0

k_1

k_{ALRO}

k_{PHPOX}

k_{TPPO}

The default card contains the products mentioned below. The products should be fully functional:

Card(holder) related product objects:

DIO

TAPO

PHPO, PHPOX

PIO, PIOX

ADVO

THO

Agency Specific product objects:

Stored Value PO

At least one pass/transfer PO

AVPO

Regional Specific product objects:

Account Linked PO, ALRO

T-Purse (TPPO)

At least one pass/transfer PO

AVPO

4.2.2 Test cards different from default

Test card Identification	Description
Default	
Testcard_01: default	Default configuration.
Authentication	
Testcard_02: invalid k_0	Invalid value for key k_0 .
Testcard_03: invalid k_I	Invalid value for key k_I . At least one activated Agency product object present.
Testcard_04: invalid k_{ALRO}	Invalid value for key k_{ALRO} . Activated Account Linked product object present.
Testcard_05: invalid k_{PHPOX}	Invalid value for key k_{PHPOX} .
Testcard_06: invalid k_{TPPO}	Invalid value for key k_{TPPO} . Activated T-Purse present.
Initial Application Processing	
Testcard_07: deactivated APTA	APTA application present but deactivated.
Testcard_08: missing DIO	No DIO present.
Testcard_09: missing TAPO	No TAPO present.
Testcard_10: missing PHPO	No PHPO present.
Testcard_11: missing PIO	No PIO present.
Testcard_12: invalid PIO pointer	PIO contains invalid value for reference to DIO.
Testcard_13: invalid TAPO 1	Transit Application is expired. TAPO field <i>RtsTransitExpirationDate</i> (pos 34-49) < current date. The profile of the PICC holder is valid.
Testcard_14: invalid TAPO 2	Transit Application is not yet valid. TAPO field <i>RtsTransitExpirationDate</i> (pos 34-49) minus the

	<i>RtsTransitValidityPeriod</i> > current date. The profile of the PICC holder is valid.
Testcard_15: invalid PHPO 1	Holder Profile is expired. PHPO field <i>RtsProfileExpireDate</i> (pos 32-47) < current date. Transit Application is valid.
Testcard_16: invalid PHPO 2	Holder Profile not yet valid, Current date < PHPO field <i>RtsProfileStartDate</i> (pos 34-49). Transit Application is valid.
Testcard_17: blocked transit application	The PIO field <i>RtsTransAppStatus</i> (pos 35-36) is set to 1 or 2: PICC Transit Application is negative-listed and blocked.
Testcard_18: all products expired	The test card contains 4 products (referenced to with <i>i</i> =1-4 in the PIO) which are all expired: PIO elements <i>RtsProductiSubIndex</i> (pos 42-44) are set to 0 for all products
Transaction – Regional Specific	
Testcard_19: no ALPO, no TPPO	Card on which neither ALPO nor TPPO are activated. The card should contain no agency product objects.
Testcard_20: ALPO, no TPPO	Card on which an ALPO but no TPPO is activated. The card should contain no agency product objects.
Testcard_21: TPPO, no ALPO	Card on which an TPPO but no ALPO is activated. The card should contain no agency product objects.
Testcard_22: ALPO, TPPO	Card on which both the ALPO and TPPO are activated. The card should contain no agency product objects.
Transaction – Agency Specific	
Testcard_23: no SVPO	Card on which no Stored Value is activated. The card should contain at least one agency product object and no regional products.
Testcard_24: SVPO	Card on which the Stored Value is activated. The card should contain no regional products.
Transaction – General	
Testcard_25: SVPO, ALPO, no TPPO	Card on which the Stored Value PO and the Account Linked PO are activated. However, the T-Purse is not activated.
Testcard_26: SVPO, TPPO, no ALRO	Card on which the Stored Value PO and the T-Purse are activated. However: the Account Linked PO is not activated.
Testcard_27: no SVPO, no ALPO, no TPPO	Card on which the Stored Value PO, the Account Linked PO and the T-Purse are all not activated. The card should contain at least one activated regional product object and one activated agency specific product object.

4.3 Low Level Tests

4.3.1 ISO 14443 Type A

4.3.1.1 CID_LLT_TypeA_001

Test ID	CID_LLT_TypeA_001
Test Purpose	To check that the reader can successfully communicate with a ISO 14443 Type A PICC.
Configuration	
Preconditions	
Priority	1
Test Actions	Put a Type A PICC or PICC simulator in front of the CID.
Pass Criteria	The CID should be able to recognize the PICC and to communicate it.
Post-conditions	
References	CFMS Standard Part 2 Section 4.2
Remarks	
Importance	Mandatory

4.3.1.2 CID_LLT_TypeA_002

Test ID	CID_LLT_TypeA_002
Test Purpose	To check that the reader rejects all PICCs when two or ISO 14443 Type A PICC are present in the field.
Configuration	
Preconditions	
Priority	1
Test Actions	Put two or more Type A PICCs or PICC simulators in front of the CID simultaneously.
Pass Criteria	The CID should neglect all PICCs.
Post-conditions	
References	CFMS Standard Part 2 Section 4.2
Remarks	

Importance	Mandatory
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4.3.2 ISO 14443 Type B

4.3.2.1 CID_LLT_TypeB_001

Test ID	CID_LLT_TypeB_001
Test Purpose	To check that the reader can successfully communicate with a ISO 14443 Type B card.
Configuration	
Preconditions	
Priority	1
Test Actions	Put a Type B smart card or smart card simulator in front of the CID.
Pass Criteria	The CID should be able to recognize the card and to communicate with the card.
Post-conditions	
References	CFMS Standard Part 2 Section 4.2
Remarks	
Importance	Mandatory

4.3.2.2 CID_LLT_TypeB_002

Test ID	CID_LLT_TypeB_002
Test Purpose	To check that the reader rejects all PICCs when two or ISO 14443 Type B PICC are present in the field.
Configuration	
Preconditions	
Priority	1
Test Actions	Put two or more Type A PICCs or PICC simulators in front of the CID simultaneously.
Pass Criteria	The CID should neglect all PICCs.
Post-conditions	
References	CFMS Standard Part 2 Section 4.2

Remarks	
Importance	Mandatory

4.3.3 General

4.3.3.1 CID_LLT_General_001

Test ID	CID_LLT_General_001
Test Purpose	To check that the reader rejects all PICCs when two or ISO 14443 PICCs of different type are present in the field.
Configuration	
Preconditions	
Priority	1
Test Actions	Put two or more PICCs or PICC simulators of different types in front of the CID simultaneously.
Pass Criteria	The CID should neglect all PICCs.
Post-conditions	
References	CFMS Standard Part 2 Section 4.2
Remarks	
Importance	Mandatory

4.4 Command and Response Tests - General description

A transaction is divided in the Initial Application Processing, General Transaction Processing, Regional Transaction Processing and Agency Specific Transaction Processing, as described in the Example Implementation, section 2.5

In this section the command APDU that the CID should send to the PICC during a transaction are prescribed. Also the order in which they should be sent is indicated. The command APDUs themselves are described in detail in section 2.4 of the Example Implementation. All APDUs sent by the CID should be checked for correctness against these specifications.

In sections 4.5 - 4.8 the actual test cases are described. The descriptions refer to the descriptions in this section, to avoid unnecessary duplication of information.

4.4.1 Authentication

Authentication with the PICC should always be performed with the indicated key and according to the authentication procedure in the Example Implementation, section 2.2.4.

4.4.2 Initial Application Processing

The CID should send the following command APDUs in order:

Select the MF

Authentication with key k0

Select DF (APTA application)

Next, the CID should send the following command pairs (or the corresponding single Read Binary command if an SFI is used) in any order. The order within pairs is mandatory.

Select DIO and Read Binary DIO

Select TAPO and Read Binary TAPO

Select PHPO and Read Binary PHPO

Next, the CID should send the following commands in the order shown, or a single Read Binary command with SFI:

Select PIO, Read Binary PIO

4.4.3 General Transaction Processing

The CID should perform Regional Transaction Processing and/or Agency Specific Processing, in any order. This depends on the circumstances as explained in section 2.5.2.

If Agency Specific Processing is to be performed, the CID should authenticate itself with the PICC.

Afterwards the CID should send the following commands in any order and as applicable:

Update Binary A&DVO

Update Binary THO

Update Binary PIO

Update Binary AVPO

4.4.4 Agency Specific Transaction Processing

The CID should send the following commands:

Select Agency X Product File and Read Binary Agency X Product File (or Read Binary Agency with SFI)

Perform the Agency Specific transaction. This is not described in the Example Implementation, but will probably involve the Update Binary command for the Agency X Product File.

4.4.5 Regional Transaction Processing

The CID should send the following commands:

Select Regional Product File and Read Binary Regional Product File (or Read Binary with SFI)

Perform the Regional specific transaction. This is not described in the Example Implementation, but will probably involve the Update Binary command for the Regional Product File.

If Account Linked Product Object must be used:

Authentication with key k_{ALRO}

Select ALPO and Read Binary ALPO

Perform Account Linked transaction

Update Binary ALPO

If T-Purse product object exist:

Authentication with key k_{TPPO}

Select TPPO and Read Binary TPPO

Update Binary TPPO

4.5 Initial Application Processing Tests

4.5.1 Full initial application processing

4.5.1.1 CID_IAP_full_processing_001: Fully processed initial application processing

Test ID	CID_IAP_fully_processing_001
Test Purpose	To check that when a PICC is detected, the CID fully performs the initial application processing
Configuration	PICC has configuration Testcard_01: default
Preconditions	Ensure the CID detects and accepts the PICC
Priority	1
Test Actions	Hold the PICC in front of the CID
Pass Criteria	The CID should send the commands according to the Initial Application Processing scheme and successfully perform the transaction
Post-conditions	
References	CFMS Standard Part 2 Section 4.4
Remarks	
Importance	Mandatory

4.5.2 Invalid authorization key k_0

4.5.2.1 CID_IAP_invalid_key_001: Invalid value authorization key k_0

Test ID	CID_IAP_invalid_key_001
Test Purpose	To check that when a PICC is detected the CID fully performs the initial application processing and ends the processing after the attempt to select the CFMS application
Configuration	PICC has configuration Testcard_02: invalid k_0
Preconditions	Ensure the CID detects and accepts the PICC
Priority	1
Test Actions	Hold the PICC in front of the CID
Pass Criteria	The CID should select the MF and perform the commands according to the General

	Transaction Processing. Authenticating should be performed with key k_0 until <i>unsuccessful</i> authentication. Then the initial application processing should be stopped and the transaction not be performed
Post-conditions	
References	CFMS Standard Part 2 Section 4.4
Remarks	
Importance	Mandatory

4.5.3 Mandatory objects not present

4.5.3.1 CID_IAP_not_present_001: APTA application deactivated

Test ID	CID_IAP_not_present_001
Test Purpose	To check that when a PICC is detected the CID fully performs the initial application processing and ends the processing after the attempt to select the APTA application
Configuration	PICC has configuration Testcard_07: deactivated APTA
Preconditions	Ensure the CID detects and accepts the PICC
Priority	1
Test Actions	Hold the PICC in front of the CID
Pass Criteria	The CID should send the commands according to the Initial Application Processing scheme until the selection of the CFMS application. After receiving the error status word of the Select DIO Command the CID should stop and not perform the transaction
Post-conditions	
References	CFMS Standard Part 2 Section 4.4
Remarks	
Importance	Mandatory

4.5.3.2 CID_IAP_not_present_002: Mandatory DIO object not present

Test ID	CID_IAP_not_present_002
Test Purpose	To check that when a PICC is detected the CID fully performs the initial application processing and ends the processing after the attempt to select the DIO
Configuration	PICC has configuration Testcard_08: missing DIO

Preconditions	Ensure the CID detects and accepts the PICC
Priority	1
Test Actions	Hold the PICC in front of the CID
Pass Criteria	The CID should send the commands according to the Initial Application Processing scheme until the DIO selection. After receiving the error status word of the Select DIO Command the CID should stop and not perform the transaction
Post-conditions	
References	CFMS Standard Part 2 Section 4.4
Remarks	
Importance	Mandatory

4.5.3.3 CID_IAP_not_present_003: Mandatory TAPO object not present

Test ID	CID_IAP_not_present_003
Test Purpose	To check that when a PICC is detected the CID fully performs the initial application processing and ends the processing after the attempt to select the TAPO
Configuration	PICC has configuration Testcard_09: missing TAPO
Preconditions	Ensure the CID detects and accepts the PICC
Priority	1
Test Actions	Hold the PICC in front of the CID
Pass Criteria	The CID should send the commands according to the Initial Application Processing scheme until the TAPO selection. After receiving the error status word of the Select TAPO Command the CID should stop and not perform the transaction
Post-conditions	
References	CFMS Standard Part 2 Section 4.4
Remarks	
Importance	Mandatory

4.5.3.4 CID_IAP_not_present_004: Mandatory PHPO object not present

Test ID	CID_IAP_not_present_004
Test Purpose	To check that when a PICC is detected the CID fully performs the initial application

	processing and ends the processing after the attempt to select the DIO
Configuration	PICC has configuration Testcard_10: missing PHPO
Preconditions	Ensure the CID detects and accepts the PICC
Priority	1
Test Actions	Hold the PICC in front of the CID
Pass Criteria	The CID should send the commands according to the Initial Application Processing scheme until the PHPO selection. After receiving the error status word of the Select PHPO Command the CID should stop and not perform the transaction
Post-conditions	
References	CFMS Standard Part 2 Section 4.4
Remarks	
Importance	Mandatory

4.5.3.5 CID_IAP_not_present_005: Mandatory PIO object not present

Test ID	CID_IAP_not_present_005
Test Purpose	To check that when a PICC is detected the CID fully performs the initial application processing and ends the processing after the attempt to select the PIO
Configuration	PICC has configuration Testcard_11: missing PIO
Preconditions	Ensure the CID detects and accepts the PICC
Priority	1
Test Actions	Hold the PICC in front of the CID
Pass Criteria	The CID should send the commands according to the Initial Application Processing scheme until the PIO selection. After receiving the error status word of the Select PIO Command the CID should stop and not perform the transaction
Post-conditions	
References	CFMS Standard Part 2 Section 4.4
Remarks	
Importance	Mandatory

4.5.4 Mandatory object pointers not valid on card

4.5.4.1 CID_IAP_pointer_not_valid_001: Invalid PIO pointer

Test ID	CID_IAP_pointer_not_valid_001
Test Purpose	To check that when a PICC is detected the CID fully performs the initial application processing and ends the processing after reading the DIO with the invalid PIO pointer or after trying to select the PIO with the invalid pointer
Configuration	PICC has configuration Testcard_12: invalid PIO pointer
Preconditions	Ensure the CID detects and accepts the PICC
Priority	1
Test Actions	Hold the PICC in front of the CID
Pass Criteria	The CID should send the commands according to the Initial Application Processing scheme until the DIO reading and after end the transaction, or until the attempt to select the PIO with the invalid pointer. After receiving the error status word of the Select PIO Command the CID should stop and not perform the transaction
Post-conditions	
References	CFMS Standard Part 2 Section 4.4
Remarks	
Importance	Mandatory

4.5.5 Invalid transit application / profile of PICC-holder

4.5.5.1 CID_IAP_invalid_tapo_php0_001: Invalid TAPO – Expiration Date

Test ID	CID_IAP_invalid_tapo_php0_001
Test Purpose	To check that when a PICC is detected the CID fully performs the initial application processing and ends the processing after the TAPO check
Configuration	PICC has configuration Testcard_13: invalid TAPO 1
Preconditions	Ensure the CID detects and accepts the PICC
Priority	1
Test Actions	Hold the PICC in front of the CID
Pass Criteria	The CID should send the commands according to the Initial Application Processing scheme until the TAPO validity check and stop directly after the TAPO validity check (i.e. do not perform part 0) and not perform the transaction

Post-conditions	
References	CFMS Standard Part 2 Section 4.4
Remarks	
Importance	Mandatory

4.5.5.2 CID_IAP_invalid_tapo_php0_002: Invalid TAPO – Expiration Date with Validity Period

Test ID	CID_IAP_invalid_tapo_php0_002
Test Purpose	To check that when a PICC is detected the CID fully performs the initial application processing and ends the processing after the TAPO check
Configuration	PICC has configuration Testcard_14: invalid TAPO 2
Preconditions	Ensure the CID detects and accepts the PICC
Priority	1
Test Actions	Hold the PICC in front of the CID
Pass Criteria	The CID should send the commands according to the Initial Application Processing scheme until the TAPO validity check and end directly after the TAPO validity check (i.e. do not perform part 0) and not perform the transaction
Post-conditions	
References	CFMS Standard Part 2 Section 4.4
Remarks	
Importance	Mandatory

4.5.5.3 CID_IAP_invalid_tapo_php0_003: Invalid PHPO – Profile Expire Date

Test ID	CID_IAP_invalid_tapo_php0_003
Test Purpose	To check that when a PICC is detected the CID fully performs the initial application processing and ends the processing after the PHPO check
Configuration	PICC has configuration Testcard_15: invalid PHPO 1
Preconditions	Ensure the CID detects and accepts the PICC
Priority	1
Test Actions	Hold the PICC in front of the CID

Pass Criteria	The CID should send the commands according to the Initial Application Processing scheme until the PHPO validity check and end directly after the PHPO validity check (i.e. do not perform part 0) and not perform the transaction
Post-conditions	
References	CFMS Standard Part 2 Section 4.4
Remarks	
Importance	Mandatory

4.5.5.4 CID_IAP_invalid_tapo_phpo_004: Invalid PHPO – Profile Start Date

Test ID	CID_IAP_invalid_tapo_phpo_004
Test Purpose	To check that when a PICC is detected the CID fully performs the initial application processing and ends the processing after the PHPO check
Configuration	PICC has configuration Testcard_16: invalid PHPO 2
Preconditions	Ensure the CID detects and accepts the PICC
Priority	1
Test Actions	Hold the PICC in front of the CID
Pass Criteria	The CID should send the commands according to the Initial Application Processing scheme until the PHPO validity check and end directly after the PHPO validity check (i.e. do not perform part 0) and not perform the transaction
Post-conditions	
References	CFMS Standard Part 2 Section 4.4
Remarks	
Importance	Mandatory

4.5.6 No access allowed to transit application

4.5.6.1 CID_IAP_no_access_allowed_001: Application blocked

Test ID	CID_IAP_no_access_allowed_001
Test Purpose	To check that when a PICC is detected the CID fully performs the initial application processing and ends the processing after the TAPO check
Configuration	PICC has configuration Testcard_17: blocked transit application

Preconditions	Ensure the CID detects and accepts the PICC
Priority	1
Test Actions	Hold the PICC in front of the CID
Pass Criteria	The CID should send the commands according to the Initial Application Processing scheme and not perform the transaction
Post-conditions	
References	CFMS Standard Part 2 Section 4.4
Remarks	
Importance	Mandatory

4.5.7 All products are expired

4.5.7.1 CID_IAP_all_expired_001: All products expired

Test ID	CID_IAP_all_expired_001
Test Purpose	To check that when a PICC is detected the CID fully performs the initial application processing
Configuration	PICC has configuration Testcard_18: all products expired
Preconditions	Ensure the CID detects and accepts the PICC
Priority	1
Test Actions	Hold the PICC in front of the CID
Pass Criteria	The CID should send the commands according to the Initial Application Processing scheme and not perform the transaction.
Post-conditions	
References	CFMS Standard Part 2 Section 4.4
Remarks	
Importance	Mandatory

4.6 General Transaction Processing Tests

4.6.1 Account Linked PO, T-Purse, Stored Value PO

4.6.1.1 CID_TGE_alpo_tppo_svpo_001: Authentication k_1 , k_{ALRO} , update SVPO

Test ID	CID_TGE_alpo_tppo_svpo_001
Test Purpose	To check that when a PICC is detected and the initial application processing has been performed the CID performs the Agency Specific Part and the Regional Transaction Part
Configuration	PICC has configuration Testcard_25: SVPO, ALPO, no TPPO
Preconditions	Ensure the CID detects and accepts the PICC . Then ensure the CID has performed the initial application processing and starts to perform the fare transaction
Priority	1
Test Actions	Hold the PICC in front of the CID
Pass Criteria	The CID should send the commands according to the General Transaction scheme including the Agency Specific scheme and the Regional Transaction scheme. Furthermore the additional authentications for key k_{ALRO} shall be performed but the additional authentication for key k_{TPPO} shall not be performed. An Account Linked transaction should be performed. The Account Linked PO and the Stored Value product object shall be updated, the T-Purse shall not be updated. The above described transaction shall be successfully performed
Post-conditions	
References	CFMS Standard Part 2 Section 4.4
Remarks	
Importance	Mandatory

4.6.1.2 CID_TGE_alpo_tppo_svpo_002: Authentication k_1 , k_{TPPO} , update Stored Value PO

Test ID	CID_TGE_alpo_tppo_svpo_002
Test Purpose	To check that when a PICC is detected and the initial application processing has been performed the CID performs the Agency Specific Part and the Regional Transaction Part
Configuration	PICC has configuration Testcard_26: SVPO, TPPO, no ALRO
Preconditions	Ensure the CID detects and accepts the PICC . Then ensure the CID has performed the initial application processing and starts to perform the fare transaction
Priority	1

Test Actions	Hold the PICC in front of the CID
Pass Criteria	The CID should send the commands according to the General Transaction scheme including the Agency Specific scheme and the Regional Transaction scheme. Furthermore the additional authentications for key k_{TPPO} shall be performed but the additional authentication for key k_{ALRO} shall not be performed. An Account Linked transaction should not be performed. The T-Purse and the Stored Value PO shall be updated, the Account Linked PO shall not be updated. The above described transaction shall be successfully performed
Post-conditions	
References	CFMS Standard Part 2 Section 4.4
Remarks	
Importance	Mandatory

4.6.1.3 CID_TGE_alpo_tppo_svpo_003: No authentication k_{ALRO} , k_{TPPO} , Stored Value PO not present

Test ID	CID_TGE_alpo_tppo_svpo_003
Test Purpose	To check that when a PICC is detected and the initial application processing has been performed the CID performs the Agency Specific Part and the Regional Transaction Part
Configuration	PICC has configuration Testcard_27: no SVPO, no ALPO, no TPPO
Preconditions	Ensure the CID detects and accepts the PICC . Then ensure the CID has performed the initial application processing and starts to perform the fare transaction
Priority	1
Test Actions	Hold the PICC in front of the CID
Pass Criteria	The CID should send the commands according to the General Transaction scheme including the Agency Specific scheme and the Regional Transaction scheme. The additional authentications for key k_{ALRO} and key k_{TPPO} shall not be performed. Furthermore an Account Linked transaction should not be performed. The Account Linked PO, the Stored Value PO and the T-Purse shall not be updated. The above described transaction shall be successfully performed
Post-conditions	
References	CFMS Standard Part 2 Section 4.4
Remarks	
Importance	Mandatory

4.7 Agency Specific Transaction Processing Tests

4.7.1 Invalid value for authorization key k_1

4.7.1.1 CID_TAS_invalid_key_001: Invalid value authorization key k_1

Test ID	CID_TAS_invalid_key_001
Test Purpose	To check that when a PICC is detected the CID fully performs the initial application processing and ends the processing after the attempt to select the APTA application
Configuration	PICC has configuration Testcard_03: invalid k_1
Preconditions	Ensure the CID detects and accepts the PICC . Then ensure the CID has performed the initial application processing and starts to perform the fare transaction
Priority	1
Test Actions	Hold the PICC in front of the CID
Pass Criteria	The CID perform the commands according to the General Transaction Processing, and authenticate itself with key k_1 until <i>unsuccessful authentication</i> . Then the fare transaction processing shall be stopped and the Agency Specific part transaction not be continued.
Post-conditions	
References	CFMS Standard Part 2 Section 4.4
Remarks	
Importance	Mandatory

4.7.2 Stored Value Product Object

4.7.2.1 CID_TAS_svpo_001: Stored Value product object not present

Test ID	CID_TAS_svpo_001
Test Purpose	To check that when a PICC is detected and the initial application processing has been performed the CID performs the Agency Specific Part of the transaction, but skips the Regional Transaction Part except for the regional specific transaction
Configuration	PICC has configuration Testcard_23: no SVPO
Preconditions	Ensure the CID detects and accepts the PICC . Then ensure the CID has performed the initial application processing and starts to perform the fare transaction

Priority	1
Test Actions	Hold the PICC in front of the CID
Pass Criteria	The CID should send the commands according to the General Transaction scheme including the Agency Specific scheme and skip the Regional Transaction scheme except for the regional specific transaction. Furthermore the additional Stored Value product object shall not be updated. The above described transaction shall be successfully performed
Post-conditions	
References	CFMS Standard Part 2 Section 4.4
Remarks	
Importance	Mandatory

4.7.2.2 CID_TAS_svpo_002: Stored Value product object

Test ID	CID_TAS_svpo_002
Test Purpose	To check that when a PICC is detected and the initial application processing has been performed the CID performs the Agency Specific Part of the transaction, but skips the Regional Transaction Part except for the regional specific transaction
Configuration	PICC has configuration Testcard_24: SVPO
Preconditions	Ensure the CID detects and accepts the PICC . Then ensure the CID has performed the initial application processing and starts to perform the fare transaction
Priority	1
Test Actions	Hold the PICC in front of the CID
Pass Criteria	The CID should send the commands according to the General Transaction scheme including the Agency Specific scheme and skip the Regional Transaction scheme except for the regional specific transaction. Furthermore the additional Stored Value product object shall be updated. The above described transaction shall be successfully performed
Post-conditions	
References	CFMS Standard Part 2 Section 4.4
Remarks	
Importance	Mandatory

4.8 Regional Specific Transaction Processing Tests

4.8.1 Invalid value for authorization key k_{ALRO} or k_{TPPO}

4.8.1.1 CID_TRS_invalid_key_001: Invalid value authorization key k_{ALRO}

Test ID	CID_TRS_invalid_key_001
Test Purpose	To check that when a PICC is detected and the initial application processing has been performed the CID performs the Regional Transaction Part of the transaction, but skips the Agency Specific Part. After the unsuccessful authentication of the ALRO the CID should skip the remainder of the Regional Transaction Part
Configuration	PICC has configuration Testcard_04: invalid k_{ALRO}
Preconditions	Ensure the CID detects and accepts the PICC . Then ensure the CID has performed the initial application processing and starts to perform the fare transaction
Priority	1
Test Actions	Hold the PICC in front of the CID
Pass Criteria	The CID should send the commands according to the General Transaction Processing including the Regional Transaction Processing e and skip the Agency Specific Processing. When the CID reaches the authentication part for key k_{ALRO} , the authentication is unsuccessful. Then the CID should skip the remainder of the Regional Transaction Processing.
Post-conditions	
References	CFMS Standard Part 2 Section 4.4
Remarks	
Importance	Mandatory

4.8.1.2 CID_TRS_invalid_key_002: Invalid value authorization key k_{TPPO}

Test ID	CID_TRS_invalid_key_002
Test Purpose	To check that when a PICC is detected and the initial application processing has been performed the CID performs the Regional Transaction Part of the transaction, but skips the Agency Specific Part. After the unsuccessful authentication of the TPPO the CID should skip the remainder of the Regional Transaction Part
Configuration	PICC has configuration Testcard_06: invalid k_{TPPO}
Preconditions	Ensure the CID detects and accepts the PICC . Then ensure the CID has performed the

	initial application processing and starts to perform the fare transaction
Priority	1
Test Actions	Perform the fare transaction with the CID with a regional value change
Pass Criteria	The CID should send the commands according to the General Transaction scheme including the Regional Transaction scheme and skip the Agency Specific scheme. When the CID reaches the authentication part for key k_{TPPO} , the authentication is unsuccessful. Then the CID should skip the remainder of the Regional Transaction Processing.
Post-conditions	
References	CFMS Standard Part 2 Section 4.4
Remarks	
Importance	Mandatory

4.8.2 Account Linked Product Object, T-Purse

4.8.2.1 CID_TRS_alpo_tppo_001: No additional authentication

Test ID	CID_TRS_alpo_tppo_001
Test Purpose	To check that when a PICC is detected and the initial application processing has been performed the CID performs the Regional Transaction Part of the transaction, but skips the Agency Specific Part. Furthermore no authentication for the T-Purse or the ALRO shall be performed
Configuration	PICC has configuration Testcard_19: no ALPO, no TPPO
Preconditions	Ensure the CID detects and accepts the PICC . Then ensure the CID has performed the initial application processing and starts to perform the fare transaction
Priority	1
Test Actions	Hold the PICC in front of the CID
Pass Criteria	The CID should send the commands according to the General Transaction scheme including the Regional Transaction scheme and skip the Agency Specific scheme. Furthermore the additional authentications for keys k_{ALRO} and k_{TPPO} shall not be performed. The above described transaction shall be successfully performed
Post-conditions	
References	CFMS Standard Part 2 Section 4.4
Remarks	
Importance	Mandatory

4.8.2.2 CID_TRS_alpo_tppo_002: Additional authentication k_{ALRO} only

Test ID	CID_TRS_alpo_tppo_002
Test Purpose	To check that when a PICC is detected and the initial application processing has been performed the CID performs the Regional Transaction Part of the transaction, but skips the Agency Specific Part. Furthermore no authentication for the T-Purse shall be performed
Configuration	PICC has configuration Testcard_20: ALPO, no TPPO
Preconditions	Ensure the CID detects and accepts the PICC . Then ensure the CID has performed the initial application processing and starts to perform the fare transaction
Priority	1
Test Actions	Hold the PICC in front of the CID
Pass Criteria	The CID should send the commands according to the General Transaction scheme including the Regional Transaction scheme and skip the Agency Specific scheme. An Account Linked transaction shall be performed. The ALPO shall be updated. The authentication for key k_{TPPO} shall not be performed. The above described transaction shall be successfully performed.
Post-conditions	
References	CFMS Standard Part 2 Section 4.4
Remarks	
Importance	Mandatory

4.8.2.3 CID_TRS_alpo_tppo_003: Additional authentication k_{TPPO} only

Test ID	CID_TRS_alpo_tppo_003
Test Purpose	To check that when a PICC is detected and the initial application processing has been performed the CID performs the Regional Transaction Part of the transaction, but skips the Agency Specific Part. Furthermore no authentication for the ALRO should be done
Configuration	PICC has configuration Testcard_21: TPPO, no ALPO
Preconditions	Ensure the CID detects and accepts the PICC . Then ensure the CID has performed the initial application processing and starts to perform the fare transaction
Priority	1
Test Actions	Hold the PICC in front of the CID
Pass Criteria	The CID should send the commands according to the General Transaction scheme including the Regional Transaction scheme and skip the Agency Specific scheme.

	Furthermore the additional authentications for keys k_{ALRO} shall not be performed. The T-Purse shall be updated. The above described transaction shall be successfully performed.
Post-conditions	
References	CFMS Standard Part 2 Section 4.4
Remarks	
Importance	Mandatory

4.8.2.4 CID_TRS_alpo_tppo_004: Additional authentication k_{ALRO} and k_{TPPO}

Test ID	CID_TRS_alpo_tppo_004
Test Purpose	To check that when a PICC is detected and the initial application processing has been performed the CID performs the Regional Transaction Part of the transaction, but skips the Agency Specific Part. Furthermore no authentication for the T-Purse or the ALRO should be done
Configuration	PICC has configuration Testcard_22: ALPO, TPPO
Preconditions	Ensure the CID detects and accepts the PICC . Then ensure the CID has performed the initial application processing and starts to perform the fare transaction
Priority	1
Test Actions	Hold the PICC in front of the CID
Pass Criteria	The CID should send the commands according to the General Transaction scheme including the Regional Transaction scheme and skip the Agency Specific scheme. Furthermore the additional authentications for keys k_{ALRO} and k_{TPPO} shall not be performed. An Account Linked transaction shall be performed. The ALPO shall be updated. The T-Purse shall be updated. The above described transaction shall be successfully performed.
Post-conditions	
References	CFMS Standard Part 2 Section 4.4
Remarks	
Importance	Mandatory

4.8.2.5 CID_TRS_alpo_tppo_005: No value change so no additional authentication

Test ID	CID_TRS_alpo_tppo_005
Test Purpose	To check that when a PICC is detected and the initial application processing has been performed the CID performs the Regional Transaction Part of the transaction, but skips the Agency Specific Part. Furthermore no authentication for the T-Purse or the ALRO

	should be done
Configuration	PICC has configuration Testcard_22: ALPO, TPPO
Preconditions	Ensure the CID detects and accepts the PICC . Then ensure the CID has performed the initial application processing and starts to perform the fare transaction
Priority	1
Test Actions	Hold the PICC in front of the CID
Pass Criteria	The CID should send the commands according to the General Transaction scheme including the Regional Transaction scheme and skip the Agency Specific scheme. Furthermore no additional authentications for keys k_{ALRO} and k_{TPPO} shall be performed. An Account Linked transaction shall not be performed. The ALPO shall not be updated. The T-Purse shall not be updated. The above described transaction shall be successfully performed.
Post-conditions	
References	CFMS Standard Part 2 Section 4.4
Remarks	
Importance	Mandatory

5. Test Cases for an ACS

5.1 Introduction

This chapter is the third part of Part V of the Standard, dealing with test cases for an ACS. The other parts, in chapters 3, 4, 6, deal with test cases for a PICC, a CID and a RCS respectively.

This chapter is built up as follows:

Section 5.2 describes the test environment. In this chapter some necessary assumptions are proposed to be able to perform test cases related to the ACS and an example test case is included for clarification.

Section 5.3 contains test cases to check when the RCS has sent an action list for which a response is required, the ACS sends the appropriate response.

Section 5.4 contains the test cases related to the *CID to PICC interaction* messages. The test cases do check that the ACS is able to send these messages to the RCS and that they are correctly formatted.

Section 5.5 contains the test cases which check whether the ACS is able to read the incoming *PICC Scheme Control* messages from the RCS.

5.2 Test environment

The test cases in this document are related to the Agency Central System which sends to and receives messages from the Regional Central System. To be able to perform the test cases we need to assume everything functions well on the lower levels (i.e. on Sub System Controller, CID and PICC level).

We need to assume:

ACS passes the message through the SSCs to the CID, such that the CID receives the correct corresponding message (probably in different unspecified format)

The CID communicates the message to the PICC

The PICC performs the appropriate action to the send message

If applicable the CID sends the proper response message via the SSCs to the ACS

The specifications are not clear about the proper test environment. The test environment can be set up as follows. The ACS is directly attached to the CID to which a PICC is in the near field range of the CID. The ACS is connected with the RCS. With above assumptions the test cases can be performed.

Some incoming messages from the RCS requires a predefined type of response message from the ACS. The test cases in chapter 5.3 cover these messages. It is tested that when the RCS send a certain type of Action List related message to the ACS, that at a certain moment the ACS sends back a response message of the type specified. For this particular kind of messages we need to refine the test environment:

We need to assume:

ACS passes the message through the SSCs to the CID, such that the CID receives the correct corresponding message (probably in different unspecified format)

The CID communicates the message into one of the Action Lists send to the PICC

The PICC performs the action of the Action List specified by the send message

The CID sends the proper response message (of type stated in the test case) via the SSCs to the ACS

As example we consider the *Block Product* (A0816) message, which requires a *Product Blocked* (A0416) message as response.

Test action: send to the ACS a Block Product message to block a certain product A.

Processing assumptions: the ACS sends the message through the local subsystems to the CID. The CID sends commands to the PICC to block the product A. The commands are successfully processed, the product is blocked on the PICC. The CID send to the ACS via the local subsystems the message that product A is blocked.

Pass criteria: after progressing the ACS should send the Product Blocked (A0416) message as response.

5.3 Action List messages - response required

5.3.1 Setup Autoload

5.3.1.1 ACS_SEAU_001: Threshold Autoload Setup and Value - Agency Specific

Test ID	ACS_SEAU_001
Test Purpose	To check that when the RCS sends a Setup Stored Value or Regional T-Purse Threshold Autoload onto an agency specific Stored Value product to the ACS including value change, the ACS sends a Stored Value Threshold Autoload Setup and Value Loaded Response as response to the RCS
Configuration	
Preconditions	
Priority	1
Test Actions	Send from the RCS to the ACS a Setup Stored Value or Regional T-Purse Threshold Autoload (A0710) message to setup a threshold and load the value onto an agency specific Stored Value product
Pass Criteria	After some lower level processing the ACS should send the Stored Value Threshold Autoload Setup and Value Loaded (A2710) as response to the RCS
Post-conditions	
References	CFMS Standard Part 3 Section 1.4, Table 1
Remarks	In the sent xml message the xml field ActionEventAmount should be set to non-zero valued, the field ActionEventProductAgencyID should be set to non-zero valued
Importance	Mandatory

5.3.1.2 ACS_SEAU_002: Threshold Autoload Setup and Value - Regional

Test ID	ACS_SEAU_002
Test Purpose	To check that when the RCS sends a Setup Stored Value or Regional T-Purse Threshold Autoload onto the regional T-purse to the ACS including value change, the ACS sends a Regional T-Purse Threshold Autoload Setup and Value Loaded Response as response to the RCS
Configuration	
Preconditions	
Priority	1

Test Actions	Send from the RCS to the ACS a Setup Stored Value or Regional T-Purse Threshold Autoload (A0710) message to setup a threshold and load the value onto the T-Purse
Pass Criteria	After some lower level processing the ACS should send the Regional T-Purse Threshold Autoload Setup and Value Loaded (A2711) as response to the RCS
Post-conditions	
References	CFMS Standard Part 3 Section 1.4, Table 1
Remarks	In the sent xml message the xml field ActionEventAmount should be set to non-zero valued, the field ActionEventProductAgencyID should be set to zero valued
Importance	Mandatory

5.3.1.3 ACS_SEAU_003: Threshold Autoload Setup - Agency Specific

Test ID	ACS_SEAU_003
Test Purpose	To check that when the RCS sends a Setup Stored Value or Regional T-Purse Threshold Autoload onto an agency specific Stored Value product to the ACS with no value change, the ACS sends a Stored Value Threshold Autoload Setup Response as response to the RCS
Configuration	
Preconditions	
Priority	1
Test Actions	Send from the RCS to the ACS a Setup Stored Value or Regional T-Purse Threshold Autoload (A0710) message to setup a threshold onto an agency specific Stored Value product
Pass Criteria	After some lower level processing the ACS should send the Stored Value Threshold Autoload Setup (A2712) as response to the RCS
Post-conditions	
References	CFMS Standard Part 3 Section 1.4, Table 1
Remarks	In the sent xml message the xml field ActionEventAmount should be set to zero valued, the field ActionEventProductAgencyID should be set to non-zero valued
Importance	Mandatory

5.3.1.4 ACS_SEAU_004: Threshold Autoload Setup - Regional

Test ID	ACS_SEAU_004
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Test Purpose	To check that when the RCS sends a Setup Stored Value or Regional T-Purse Threshold Autoload onto the regional T-purse to the ACS with no value change, the ACS sends a Regional T-Purse Threshold Autoload Setup Response as response to the RCS
Configuration	
Preconditions	
Priority	1
Test Actions	Send from the RCS to the ACS a Setup Stored Value or Regional T-Purse Threshold Autoload (A0710) message to setup a threshold onto the T-Purse
Pass Criteria	After some lower level processing the ACS should send the Regional T-Purse Threshold Autoload Setup (A2713) as response to the RCS
Post-conditions	
References	CFMS Standard Part 3 Section 1.4, Table 1
Remarks	In the sent xml message the xml field ActionEventAmount should be set to zero valued, the field ActionEventProductAgencyID should be set to zero valued
Importance	Mandatory

5.3.1.5 ACS_SEAU_005: Fixed Recurring Autoload Setup and Value - Agency Specific

Test ID	ACS_SEAU_005
Test Purpose	To check that when the RCS sends a Setup Stored Value or Regional T-Purse Fixed Recurring Autoload onto an agency specific Stored Value product to the ACS including value change, the ACS sends a Stored Value Fixed Recurring Autoload Setup and Value Loaded Response as response to the RCS
Configuration	
Preconditions	
Priority	1
Test Actions	Send from the RCS to the ACS a Setup Stored Value or Regional T-Purse Fixed Recurring Autoload (A0750) message to setup a Fixed Recurring and load the value onto an agency specific Stored Value product
Pass Criteria	After some lower level processing the ACS should send the Stored Value Fixed Recurring Autoload Setup and Value Loaded (A2750) as response to the RCS
Post-conditions	
References	CFMS Standard Part 3 Section 1.4, Table 1
Remarks	In the sent xml message the xml field ActionEventAmount should be set to non-zero

	valued, the field ActionEventProductAgencyID should be set to non-zero valued
Importance	Mandatory

5.3.1.6 ACS_SEAU_006: Fixed Recurring Autoload Setup and Value - Regional

Test ID	ACS_SEAU_006
Test Purpose	To check that when the RCS sends a Setup Stored Value or Regional T-Purse Fixed Recurring Autoload onto the regional T-purse to the ACS including value change, the ACS sends a Regional T-Purse Fixed Recurring Autoload Setup and Value Loaded Response as response to the RCS
Configuration	
Preconditions	
Priority	1
Test Actions	Send from the RCS to the ACS a Setup Stored Value or Regional T-Purse Fixed Recurring Autoload (A0750) message to setup a Fixed Recurring and load the value onto the T-Purse
Pass Criteria	After some lower level processing the ACS should send the Regional T-Purse Fixed Recurring Autoload Setup and Value Loaded (A2751) as response to the RCS
Post-conditions	
References	CFMS Standard Part 3 Section 1.4, Table 1
Remarks	In the sent xml message the xml field ActionEventAmount should be set to non-zero valued, the field ActionEventProductAgencyID should be set to zero valued
Importance	Mandatory

5.3.1.7 ACS_SEAU_007: Fixed Recurring Autoload Setup - Agency Specific

Test ID	ACS_SEAU_007
Test Purpose	To check that when the RCS sends a Setup Stored Value or Regional T-Purse Fixed Recurring Autoload onto an agency specific Stored Value product to the ACS with no value change, the ACS sends a Stored Value Fixed Recurring Autoload Setup Response as response to the RCS
Configuration	
Preconditions	
Priority	1

Test Actions	Send from the RCS to the ACS a Setup Stored Value or Regional T-Purse Fixed Recurring Autoload (A0750) message to setup a Fixed Recurring onto an agency specific Stored Value product
Pass Criteria	After some lower level processing the ACS should send the Stored Value Fixed Recurring Autoload Setup (A2752) as response to the RCS
Post-conditions	
References	CFMS Standard Part 3 Section 1.4, Table 1
Remarks	In the sent xml message the xml field ActionEventAmount should be set to zero valued, the field ActionEventProductAgencyID should be set to non-zero valued
Importance	Mandatory

5.3.1.8 ACS_SEAU_008: Fixed Recurring Autoload Setup - Regional

Test ID	ACS_SEAU_008
Test Purpose	To check that when the RCS sends a Setup Stored Value or Regional T-Purse Fixed Recurring Autoload onto the regional T-purse to the ACS with no value change, the ACS sends a Regional T-Purse Fixed Recurring Autoload Setup Response as response to the RCS
Configuration	
Preconditions	
Priority	1
Test Actions	Send from the RCS to the ACS a Setup Stored Value or Regional T-Purse Fixed Recurring Autoload (A0750) message to setup a Fixed Recurring onto the T-Purse
Pass Criteria	After some lower level processing the ACS should send the Regional T-Purse Fixed Recurring Autoload Setup (A2753) as response to the RCS
Post-conditions	
References	CFMS Standard Part 3 Section 1.4, Table 1
Remarks	In the sent xml message the xml field ActionEventAmount should be set to zero valued, the field ActionEventProductAgencyID should be set to zero valued
Importance	Mandatory

5.3.2 Withdraw Autoload

5.3.2.1 ACS_WEAU_001: Threshold Autoload Withdraw and Unload Value - Agency Specific

Test ID	ACS_WEAU_001
Test Purpose	To check that when the RCS sends a Withdraw Stored Value or Regional T-Purse Threshold Autoload onto an agency specific Stored Value product to the ACS including value change, the ACS sends a Stored Value Remove Threshold Autoload Setup and Value Unloaded Response as response to the RCS
Configuration	
Preconditions	
Priority	1
Test Actions	Send from the RCS to the ACS a Withdraw Stored Value or Regional T-Purse Threshold Autoload (A0715) message to remove a threshold and unload the value from an agency specific Stored Value product
Pass Criteria	After some lower level processing the ACS should send the Stored Value Remove Threshold Autoload Setup and Value Unloaded Response (A2715) as response to the RCS
Post-conditions	
References	CFMS Standard Part 3 Section 1.4, Table 1
Remarks	In the sent xml message the xml field ActionEventAmount should be set to non-zero valued, the field ActionEventProductAgencyID should be set to non-zero valued
Importance	Mandatory

5.3.2.2 ACS_WEAU_002: Threshold Autoload Withdraw and Unload Value - Regional

Test ID	ACS_WEAU_002
Test Purpose	To check that when the RCS sends a Withdraw Stored Value or Regional T-Purse Threshold Autoload onto the regional T-purse to the ACS including value change, the ACS sends a Regional T-Purse Remove Threshold Autoload Setup and Value Unloaded Response as response to the RCS
Configuration	
Preconditions	
Priority	1
Test Actions	Send from the RCS to the ACS a Withdraw Stored Value or Regional T-Purse Threshold Autoload (A0715) message to remove a threshold and unload the value from the T-Purse
Pass Criteria	After some lower level processing the ACS should send the Regional T-Purse Remove Threshold Autoload Setup and Value Unloaded Response (A2716) as

	response to the RCS
Post-conditions	
References	CFMS Standard Part 3 Section 1.4, Table 1
Remarks	In the sent xml message the xml field ActionEventAmount should be set to non-zero valued, the field ActionEventProductAgencyID should be set to zero valued
Importance	Mandatory

5.3.2.3 ACS_WEAU_003: Threshold Autoload Withdraw - Agency Specific

Test ID	ACS_WEAU_003
Test Purpose	To check that when the RCS sends a Withdraw Stored Value or Regional T-Purse Threshold Autoload onto an agency specific Stored Value product to the ACS with no value change, the ACS sends a Stored Value Remove Threshold Autoload Setup Response as response to the RCS
Configuration	
Preconditions	
Priority	1
Test Actions	Send from the RCS to the ACS a Withdraw Stored Value or Regional T-Purse Threshold Autoload (A0715) message to remove a threshold from an agency specific Stored Value product
Pass Criteria	After some lower level processing the ACS should send the Stored Value Remove Threshold Autoload Setup Response (A2717) as response to the RCS
Post-conditions	
References	CFMS Standard Part 3 Section 1.4, Table 1
Remarks	In the sent xml message the xml field ActionEventAmount should be set to zero valued, the field ActionEventProductAgencyID should be set to non-zero valued
Importance	Mandatory

5.3.2.4 ACS_WEAU_004: Threshold Autoload Withdraw - Regional

Test ID	ACS_WEAU_004
Test Purpose	To check that when the RCS sends a Withdraw Stored Value or Regional T-Purse Threshold Autoload onto the regional T-purse to the ACS with no value change, the ACS sends a Regional T-Purse Remove Threshold Autoload Setup Response as response to the RCS

Configuration	
Preconditions	
Priority	1
Test Actions	Send from the RCS to the ACS a Withdraw Stored Value or Regional T-Purse Threshold Autoload (A0715) message to remove a threshold from the T-Purse
Pass Criteria	After some lower level processing the ACS should send the Regional T-Purse Remove Threshold Autoload Setup Response (A2718) as response to the RCS
Post-conditions	
References	CFMS Standard Part 3 Section 1.4, Table 1
Remarks	In the sent xml message the xml field ActionEventAmount should be set to zero valued, the field ActionEventProductAgencyID should be set to zero valued
Importance	Mandatory

5.3.2.5 ACS_WEAU_005: Fixed Recurring Autoload Withdraw and Unload Value - Agency Specific

Test ID	ACS_WEAU_005
Test Purpose	To check that when the RCS sends a Withdraw Stored Value or Regional T-Purse Fixed Recurring Autoload onto an agency specific Stored Value product to the ACS including value change, the ACS sends a Stored Value Remove Fixed Recurring Autoload Setup and Value Unloaded Response as response to the RCS
Configuration	
Preconditions	
Priority	1
Test Actions	Send from the RCS to the ACS a Withdraw Stored Value or Regional T-Purse Fixed Recurring Autoload (A0755) message to remove a Fixed Recurring and unload the value from an agency specific Stored Value product
Pass Criteria	After some lower level processing the ACS should send the Stored Value Remove Fixed Recurring Autoload Setup and Value Unloaded Response (A2755) as response to the RCS
Post-conditions	
References	CFMS Standard Part 3 Section 1.4, Table 1
Remarks	In the sent xml message the xml field ActionEventAmount should be set to non-zero valued, the field ActionEventProductAgencyID should be set to non-zero valued
Importance	Mandatory

5.3.2.6 ACS_WEAU_006: Fixed Recurring Autoload Withdraw and Unload Value - Regional

Test ID	ACS_WEAU_006
Test Purpose	To check that when the RCS sends a Withdraw Stored Value or Regional T-Purse Fixed Recurring Autoload onto the regional T-purse to the ACS including value change, the ACS sends a Regional T-Purse Remove Fixed Recurring Autoload Setup and Value Unloaded Response as response to the RCS
Configuration	
Preconditions	
Priority	1
Test Actions	Send from the RCS to the ACS a Withdraw Stored Value or Regional T-Purse Fixed Recurring Autoload (A0755) message to remove a Fixed Recurring and unload the value from the T-Purse
Pass Criteria	After some lower level processing the ACS should send the Regional T-Purse Remove Fixed Recurring Autoload Setup and Value Unloaded Response (A2756) as response to the RCS
Post-conditions	
References	CFMS Standard Part 3 Section 1.4, Table 1
Remarks	In the sent xml message the xml field ActionEventAmount should be set to non-zero valued, the field ActionEventProductAgencyID should be set to zero valued
Importance	Mandatory

5.3.2.7 ACS_WEAU_007: Fixed Recurring Autoload Withdraw - Agency Specific

Test ID	ACS_WEAU_007
Test Purpose	To check that when the RCS sends a Withdraw Stored Value or Regional T-Purse Fixed Recurring Autoload onto an agency specific Stored Value product to the ACS with no value change, the ACS sends a Stored Value Remove Fixed Recurring Autoload Setup Response as response to the RCS
Configuration	
Preconditions	
Priority	1
Test Actions	Send from the RCS to the ACS a Withdraw Stored Value or Regional T-Purse Fixed Recurring Autoload (A0755) message to remove a Fixed Recurring from an agency specific Stored Value product

Pass Criteria	After some lower level processing the ACS should send the Stored Value Remove Fixed Recurring Autoload Setup Response (A2757) as response to the RCS
Post-conditions	
References	CFMS Standard Part 3 Section 1.4, Table 1
Remarks	In the sent xml message the xml field ActionEventAmount should be set to zero valued, the field ActionEventProductAgencyID should be set to non-zero valued
Importance	Mandatory

5.3.2.8 ACS_WEAU_008: Fixed Recurring Autoload Withdraw - Regional

Test ID	ACS_WEAU_008
Test Purpose	To check that when the RCS sends a Withdraw Stored Value or Regional T-Purse Fixed Recurring Autoload onto the regional T-purse to the ACS with no value change, the ACS sends a Regional T-Purse Remove Fixed Recurring Autoload Setup Response as response to the RCS
Configuration	
Preconditions	
Priority	1
Test Actions	Send from the RCS to the ACS a Withdraw Stored Value or Regional T-Purse Fixed Recurring Autoload (A0755) message to remove a Fixed Recurring from the T-Purse
Pass Criteria	After some lower level processing the ACS should send the Regional T-Purse Remove Fixed Recurring Autoload Setup Response (A2758) as response to the RCS
Post-conditions	
References	CFMS Standard Part 3 Section 1.4, Table 1
Remarks	In the sent xml message the xml field ActionEventAmount should be set to zero valued, the field ActionEventProductAgencyID should be set to zero valued
Importance	Mandatory

5.3.3 Direct Load

5.3.3.1 ACS_DILO_001: Direct Load Stored Value - Agency Specific

Test ID	ACS_DILO_001
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Test Purpose	To check that when the RCS sends a Direct a Load of Stored Value onto an agency specific Stored Value product to the ACS, the ACS sends an Agency Stored Value Product Loaded as response to the RCS
Configuration	
Preconditions	
Priority	1
Test Actions	Send from the RCS to the ACS a Direct a Load a Stored Value (A0770) message to load the stored value onto an agency specific Stored Value product
Pass Criteria	After some lower level processing the ACS should send the Agency Stored Value Product Loaded (A2771) as response to the RCS.
Post-conditions	
References	CFMS Standard Part 3 Section 1.4, Table 1
Remarks	In the sent xml message the xml field ActionEventProductAgencyID should be set to non-zero valued
Importance	Mandatory

5.3.3.2 ACS_DILO_002: Direct Load Stored Value - Regional

Test ID	ACS_DILO_002
Test Purpose	To check that when the RCS sends a Direct a Load of Stored Value onto the Regional T-Purse to the ACS, the ACS sends a Regional T-Purse Loaded as response to the RCS
Configuration	
Preconditions	
Priority	1
Test Actions	Send from the RCS to the ACS a Direct a Load a Stored Value (A0770) message to load the stored value onto the Regional T-Purse
Pass Criteria	After some lower level processing the ACS should send the Regional T-Purse Loaded (A2770) as response to the RCS.
Post-conditions	
References	CFMS Standard Part 3 Section 1.4, Table 1
Remarks	In the sent xml message the xml field ActionEventProductAgencyID should be set to zero valued
Importance	Mandatory

5.3.3.3 ACS_DILO_003: Direct Load Pass Product - Agency Specific

Test ID	ACS_DILO_003
Test Purpose	To check that when the RCS sends a Direct a Load of Regional/Agency Specific Pass Product to load an agency specific pass product on the PICC to the ACS, the ACS sends an Agency Pass Product Loaded as response to the RCS
Configuration	
Preconditions	
Priority	1
Test Actions	Send from the RCS to the ACS a Direct a Load of Regional/Agency Specific Pass Product (A0780) message to load an agency specific pass product on the PICC
Pass Criteria	After some lower level processing the ACS should send the Agency Pass Product Loaded (A2781) as response to the RCS.
Post-conditions	
References	CFMS Standard Part 3 Section 1.4, Table 1
Remarks	In the sent xml message the xml field ActionEventProductAgencyID should be set to non-zero valued
Importance	Mandatory

5.3.3.4 ACS_DILO_004: Direct Load Pass Product - Regional

Test ID	ACS_DILO_004
Test Purpose	To check that when the RCS sends a Direct a Load of Regional/Agency Specific Pass Product to load a regional pass product on the PICC to the ACS, the ACS sends a Regional Pass Product Loaded as response to the RCS
Configuration	
Preconditions	
Priority	1
Test Actions	Send from the RCS to the ACS a Direct a Load of Regional/Agency Specific Pass Product (A0780) message to load a regional pass product on the PICC
Pass Criteria	After some lower level processing the ACS should send the Regional Pass Product Loaded (A2780) as response to the RCS.
Post-conditions	
References	CFMS Standard Part 3 Section 1.4, Table 1

Remarks	In the sent xml message the xml field ActionEventProductAgencyID should be set to zero valued
Importance	Mandatory

5.3.4 Direct Unload

5.3.4.1 ACS_DIUN_001: Direct Unload Stored Value - Agency Specific

Test ID	ACS_DIUN_001
Test Purpose	To check that when the RCS sends a Direct an Unload of Stored Value onto an agency specific Stored Value product to the ACS, the ACS sends an Agency Stored Value Product Unloaded as response to the RCS
Configuration	
Preconditions	
Priority	1
Test Actions	Send from the RCS to the ACS a Direct Unload an Stored Value (A0775) message to Unload the stored value onto an agency specific Stored Value product
Pass Criteria	After some lower level processing the ACS should send the Agency Stored Value Product Unloaded (A2776) as response to the RCS.
Post-conditions	
References	CFMS Standard Part 3 Section 1.4, Table 1
Remarks	In the sent xml message the xml field ActionEventProductAgencyID should be set to non-zero valued
Importance	Mandatory

5.3.4.2 ACS_DIUN_002: Direct Unload Stored Value - Regional

Test ID	ACS_DIUN_002
Test Purpose	To check that when the RCS sends a Direct an Unload of Stored Value onto the Regional T-Purse to the ACS, the ACS sends a Regional T-Purse Unloaded as response to the RCS
Configuration	
Preconditions	
Priority	1

Test Actions	Send from the RCS to the ACS a Direct an Unload a Stored Value (A0775) message to Unload the stored value onto the Regional T-Purse
Pass Criteria	After some lower level processing the ACS should send the Regional T-Purse Unloaded (A2775) as response to the RCS.
Post-conditions	
References	CFMS Standard Part 3 Section 1.4, Table 1
Remarks	In the sent xml message the xml field ActionEventProductAgencyID should be set to zero valued
Importance	Mandatory

5.3.4.3 ACS_DIUN_003: Direct Unload Pass Product - Agency Specific

Test ID	ACS_DIUN_003
Test Purpose	To check that when the RCS sends a Direct an Unload of Regional/Agency Specific Pass Product to Unload an agency specific pass product on the PICC to the ACS, the ACS sends an Agency Pass Product Unloaded as response to the RCS
Configuration	
Preconditions	
Priority	1
Test Actions	Send from the RCS to the ACS a Direct an Unload of Regional/Agency Specific Pass Product (A0785) message to Unload an agency specific pass product on the PICC
Pass Criteria	After some lower level processing the ACS should send the Agency Pass Product Unloaded (A2786) as response to the RCS.
Post-conditions	
References	CFMS Standard Part 3 Section 1.4, Table 1
Remarks	In the sent xml message the xml field ActionEventProductAgencyID should be set to non-zero valued
Importance	Mandatory

5.3.4.4 ACS_DIUN_004: Direct Unload Pass Product - Regional

Test ID	ACS_DIUN_004
Test Purpose	To check that when the RCS sends a Direct an Unload of Regional/Agency Specific Pass Product to Unload a regional pass product on the PICC to the ACS, the ACS

	sends a Regional Pass Product Unloaded as response to the RCS
Configuration	
Preconditions	
Priority	1
Test Actions	Send from the RCS to the ACS a Direct an Unload of Regional/Agency Specific Pass Product (A0785) message to Unload a regional pass product on the PICC
Pass Criteria	After some lower level processing the ACS should send the Regional Pass Product Unloaded (A2785) as response to the RCS.
Post-conditions	
References	CFMS Standard Part 3 Section 1.4, Table 1
Remarks	In the sent xml message the xml field ActionEventProductAgencyID should be set to zero valued
Importance	Mandatory

5.3.5 Block Product

5.3.5.1 ACS_BLPR_001: Block Product

Test ID	ACS_BLPR_001
Test Purpose	To check that when the RCS sends a Block Product to the ACS, that after some lower level processing the ACS sends a Product Blocked message as response to the RCS
Configuration	
Preconditions	
Priority	1
Test Actions	Send from the RCS to the ACS a Block Product (A0816) message to block a certain product
Pass Criteria	After some lower level processing the ACS should send the Product Blocked (A0416) message as response to the RCS.
Post-conditions	
References	CFMS Standard Part 3 Section 1.4, Table 1
Remarks	
Importance	Mandatory

5.3.6 Unblock Product

5.3.6.1 ACS_UNPR_001: Unblock Product

Test ID	ACS_UNPR_001
Test Purpose	To check that when the RCS sends a Unblock Product to the ACS, the ACS sends a Product Blocked message as response to the RCS
Configuration	
Preconditions	
Priority	1
Test Actions	Send from the RCS to the ACS an Unblock Product (A0817) message to block a certain product
Pass Criteria	After some lower level processing the ACS should send the Product Unblocked (A0417) message as response to the RCS.
Post-conditions	
References	CFMS Standard Part 3 Section 1.4, Table 1
Remarks	
Importance	Mandatory

5.3.7 Direct PICC Data Change

5.3.7.1 ACS_DPDC_001: Direct PICC Data Change

Test ID	ACS_DPDC_001
Test Purpose	To check that when the RCS sends a Direct PICC Data Change to the ACS, that after some lower level processing a PICC is detected the ACS sends a PICC Profile Data Changed message as response to the RCS
Configuration	
Preconditions	
Priority	1
Test Actions	Send from the RCS to the ACS a Direct PICC Data Change (A0818) message
Pass Criteria	After some lower level processing the ACS should send the PICC Profile Data Changed (A0418) as response to the RCS.
Post-conditions	

References	CFMS Standard Part 3 Section 1.4, Table 1
Remarks	
Importance	Mandatory

5.3.8 Setup/Update Autovalue

5.3.8.1 ACS_SUAU: Unblock Product

Test ID	ACS_SUAU_001
Test Purpose	To check that when the RCS sends a Setup/Update Autovalue to the ACS, the ACS sends an Autovalue Product Loaded message as response to the RCS
Configuration	
Preconditions	
Priority	1
Test Actions	Send from the RCS to the ACS a Setup/Update Autovalue (A0820) message
Pass Criteria	After some lower level processing the ACS should send the Autovalue Product Loaded (A0320) as response to the RCS.
Post-conditions	
References	CFMS Standard Part 3 Section 1.4, Table 1
Remarks	
Importance	Mandatory

5.3.9 Withdraw Autovalue

5.3.9.1 ACS_WIAU_001: Withdraw Autovalue

Test ID	ACS_WIAU_001
Test Purpose	To check that when the RCS sends a Withdraw Autovalue to the ACS, the ACS sends an Autovalue Product Unloaded message as response to the RCS
Configuration	
Preconditions	
Priority	1

Test Actions	Send from the RCS to the ACS a Withdraw Autovalue (A0821) message
Pass Criteria	After some lower level processing the ACS should send the Autovalue Product Unloaded (A0321) message as response to the RCS.
Post-conditions	
References	CFMS Standard Part 3 Section 1.4, Table 1
Remarks	
Importance	Mandatory

5.3.10 Setup Account Linked Product

5.3.10.1 ACS_SALP_001: Setup Account Linked Product

Test ID	ACS_SALP_001
Test Purpose	To check that when the RCS sends a Setup Account Linked Product to the ACS, the ACS sends a Product Blocked message as response to the RCS
Configuration	
Preconditions	
Priority	1
Test Actions	Send from the RCS to the ACS a Setup Account Linked Product (A0805) message
Pass Criteria	After some lower level processing the ACS should send the Account Linked Product Loaded (A0205) as response to the RCS.
Post-conditions	
References	CFMS Standard Part 3 Section 1.4, Table 1
Remarks	
Importance	Mandatory

5.3.11 Withdraw Autoload

5.3.11.1 ACS_WIAU_001: Withdraw Autoload

Test ID	ACS_UNPR_001
Test Purpose	To check that when the RCS sends a Withdraw Autoload to the ACS, the ACS sends

	an Account Linked Product Unloaded as response to the RCS
Configuration	
Preconditions	
Priority	1
Test Actions	Send from the RCS to the ACS a Withdraw Autoload (A0855) message
Pass Criteria	After some lower level processing the ACS should send the Account Linked Product Unloaded (A0255) as response to the RCS.
Post-conditions	
References	CFMS Standard Part 3 Section 1.4, Table 1
Remarks	
Importance	Mandatory

5.4 CID to PICC interaction messages

5.4.1 PICC Initialization

5.4.1.1 ACS_INIT_001: PICC Initialized

Test ID	ACS_INIT_001
Test Purpose	To check that the ACS is able to send the PICC Initialized message to the RCS and that it is well formatted
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the PICC Initialized message
Priority	1
Test Actions	Send from the ACS to the RCS a PICC Initialized (A0101) message
Pass Criteria	<p>The message from the ACS should be xml formatted and contain below elements:</p> <ol style="list-style-type: none"> 1. When and Where Message Identifier, Message Version, Message Revision, Location Data Object, <i>Vehicle Data Object</i>, Equipment Data Object, PICC Data Object, Date And Time Data Object, <i>Employee Data Object</i>, <i>Action Event Data Object</i> 2. Authentication Authentication Data Object 3. PICC Data objects DIO <i>AsWritten</i>, <i>DIOX AsWritten</i>, TAPO <i>AsWritten</i>, CorePIO <i>AsWritten</i>, <i>PIOX1 AsWritten</i>, <i>PIOX2 AsWritten</i>, <i>PIOX3 AsWritten</i>, THO <i>AsWritten</i>, <i>THOX AsWritten</i> 4. CID Data Batch Encoding Data Object <p>Optional elements are written in italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data</p>

	Object Definitions, Part 3 of the CFMS standard
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.4.1.2 ACS_INIT_002: PICC Issued

Test ID	ACS_INIT_002
Test Purpose	To check that the ACS is able to send the PICC Issued message to the RCS and that it is well formatted
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the PICC Issued message
Priority	1
Test Actions	Send from the ACS to the RCS a PICC Issued (A0102) message
Pass Criteria	<p>The message from the ACS should be xml formatted and contain below elements:</p> <ol style="list-style-type: none"> 1. When and Where Message Identifier, Message Version, Message Revision, Location Data Object, <i>Vehicle Data Object</i>, Equipment Data Object, PICC Data Object, Date And Time Data Object, <i>Employee Data Object</i>, <i>Action Event Data Object</i> 2. Authentication Authentication Data Object 3. PICC Data objects TAPO AsWritten, PHPO AsWritten, <i>PHPOX1 AsWritten</i>, <i>PHPOX2 AsWritten</i>, <i>PHPOX3 AsWritten</i>, CorePIO AsWritten, THO AsWritten, <i>THOX AsWritten</i> 4. CID Data Batch Encoding Data Object, PICC Serial Number

	Optional elements are written in italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.4.1.3 ACS_INIT_003: PICC Registered

Test ID	ACS_INIT_003
Test Purpose	To check that the ACS is able to send the PICC Registered message to the RCS and that it is well formatted
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the PICC Registered message
Priority	1
Test Actions	Send from the ACS to the RCS a PICC Registered (A0103) message
Pass Criteria	<p>The message from the ACS should be xml formatted and contain below elements:</p> <ol style="list-style-type: none"> 1. When and Where Message Identifier, Message Version, Message Revision, Location Data Object, <i>Vehicle Data Object</i>, Equipment Data Object, PICC Data Object, Date And Time Data Object, <i>Employee Data Object</i>, <i>Action Event Data Object</i> 2. Authentication Authentication Data Object 3. PICC Data objects PHPO AsWritten, PHPOX1 AsWritten, PHPOX2 AsWritten, PHPOX3 AsWritten 4. CID Data

	PICC Holder Info Data Object Optional elements are written in italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.4.1.4 ACS_INIT_004: PICC Queried

Test ID	ACS_INIT_004
Test Purpose	To check that the ACS is able to send the PICC Queried message to the RCS and that it is well formatted
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the PICC Queried message
Priority	1
Test Actions	Send from the ACS to the RCS a PICC Queried (A0104) message
Pass Criteria	The message from the ACS should be xml formatted and contain below elements: 1. When and Where Message Identifier, Message Version, Message Revision, Location Data Object, <i>Vehicle Data Object</i> , Equipment Data Object, PICC Data Object, Date And Time Data Object, <i>Employee Data Object</i> , Action Event Data Object 2. Authentication Authentication Data Object 3. PICC Data objects Selected Objects

	Optional elements are written in italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.4.1.5 ACS_INIT_005: Special LU PICC Initialized

Test ID	ACS_INIT_005
Test Purpose	To check that the ACS is able to send the Special LU PICC Initialized message to the RCS and that it is well formatted
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Special LU PICC Initialized message
Priority	1
Test Actions	Send from the ACS to the RCS a Special LU PICC Initialized (A0105) message
Pass Criteria	<p>The message from the ACS should be xml formatted and contain below elements:</p> <ol style="list-style-type: none"> 1. When and Where Message Identifier, Message Version, Message Revision, Location Data Object, <i>Vehicle Data Object</i>, Equipment Data Object, PICC Data Object, Date And Time Data Object, <i>Employee Data Object</i>, Action Event Data Object 2. Authentication Authentication Data Object 3. PICC Data objects LUSFDO As Written <p>Optional elements are written in italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data</p>

	Object Definitions, Part 3 of the CFMS standard
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.4.2 Load & Unload Transactions

5.4.2.1 ACS_LO&UN_001: Account Linked Product Loaded

Test ID	ACS_LO&UN_001
Test Purpose	To check that the ACS is able to send the Account Linked Product Loaded message to the RCS and that it is well formatted
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Account Linked Product Loaded message
Priority	1
Test Actions	Send from the ACS to the RCS an Account Linked Product Loaded (A0205) message
Pass Criteria	<p>The message from the ACS should be xml formatted and contain below elements:</p> <ol style="list-style-type: none"> 1. When and Where Message Identifier, Message Version, Message Revision, Location Data Object, <i>Vehicle Data Object</i>, Equipment Data Object, PICC Data Object, Date And Time Data Object, <i>Employee Data Object</i>, <i>Action Event Data Object</i> 2. Authentication Authentication Data Object 3. PICC Data objects TAPO <i>AsRead</i>, PHPO <i>AsRead</i>, ALPO <i>AsWritten</i>, <i>ALPOX AsWritten</i>, <i>ALRO AsWritten</i>, <i>ALROX AsWritten</i>, THO <i>AsWritten</i>, <i>THOX AsWritten</i> <p>Optional elements are written in italics. All elements contained in the message should</p>

	be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.4.2.2 ACS_LO&UN_002: Account Linked Product Unloaded

Test ID	ACS_LO&UN_002
Test Purpose	To check that the ACS is able to send the Account Linked Product Unloaded message to the RCS and that it is well formatted
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Account Linked Product Unloaded message
Priority	1
Test Actions	Send from the ACS to the RCS an Account Linked Product Unloaded (A0255) message
Pass Criteria	<p>The message from the ACS should be xml formatted and contain below elements:</p> <ol style="list-style-type: none"> 1. When and Where Message Identifier, Message Version, Message Revision, Location Data Object, <i>Vehicle Data Object</i>, Equipment Data Object, PICC Data Object, Date And Time Data Object, <i>Employee Data Object</i>, <i>Action Event Data Object</i> 2. Authentication Authentication Data Object 3. PICC Data objects TAPO <i>AsRead</i>, PHPO <i>AsRead</i>, ALPO <i>AsWritten</i>, <i>ALPOX AsWritten</i>, <i>ALRO AsWritten</i>, <i>ALROX AsWritten</i>, THO <i>AsWritten</i>, <i>THOX AsWritten</i> <p>Optional elements are written in italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data</p>

	Object Definitions, Part 3 of the CFMS standard
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.4.2.3 ACS_LO&UN_003: Regional T-Purse Autoloaded

Test ID	ACS_LO&UN_003
Test Purpose	To check that the ACS is able to send the Regional T-Purse Autoloaded message to the RCS and that it is well formatted
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Regional T-Purse Autoloaded message
Priority	1
Test Actions	Send from the ACS to the RCS a Regional T-Purse Autoloaded (A0302) message
Pass Criteria	<p>The message from the ACS should be xml formatted and contain below elements:</p> <ol style="list-style-type: none"> 1. When and Where Message Identifier, Message Version, Message Revision, Location Data Object, <i>Vehicle Data Object</i>, Equipment Data Object, PICC Data Object, Date And Time Data Object, <i>Employee Data Object</i>, <i>Action Event Data Object</i>, Autoload Specifier 2. Authentication Authentication Data Object 3. PICC Data objects TAPO AsRead, PHPO AsRead, Regional T-Purse Object AsWritten, <i>Regional T-Purse Extension AsWritten</i>, THO AsWritten, <i>THOX AsWritten</i> 4. CID Data Load Unload Data Object

	Optional elements are written in italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.4.2.4 ACS_LO&UN_004: Regional Pass Product Autoloaded

Test ID	ACS_LO&UN_004
Test Purpose	To check that the ACS is able to send the Regional Pass Product Autoloaded message to the RCS and that it is well formatted
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Regional Pass Product Autoloaded message
Priority	1
Test Actions	Send from the ACS to the RCS a Regional Pass Product Autoloaded (A0303) message
Pass Criteria	<p>The message from the ACS should be xml formatted and contain below elements:</p> <ol style="list-style-type: none"> 1. When and Where Message Identifier, Message Version, Message Revision, Location Data Object, <i>Vehicle Data Object</i>, Equipment Data Object, PICC Data Object, Date And Time Data Object, <i>Employee Data Object</i>, <i>Action Event Data Object</i> 2. Authentication Authentication Data Object 3. PICC Data objects TAPO AsRead, PHPO AsRead, Agency Product Object AsWritten, <i>Agency Product Object Extension AsWritten</i>, THO AsWritten, <i>THOX AsWritten</i>

	<p>4. CID Data</p> <p>Load Unload Data Object, Action Event Autoload Subscribed</p> <p>Optional elements are written in italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.4.2.5 ACS_LO&UN_005: Agency Specific Pass Product Autoloaded

Test ID	ACS_LO&UN_005
Test Purpose	To check that the ACS is able to send the Agency Specific Pass Product Autoloaded message to the RCS and that it is well formatted
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Agency Specific Pass Product Autoloaded message
Priority	1
Test Actions	Send from the ACS to the RCS an Agency Specific Pass Product Autoloaded (A0304) message
Pass Criteria	<p>The message from the ACS should be xml formatted and contain below elements:</p> <p>1. When and Where</p> <p>Message Identifier, Message Version, Message Revision, Location Data Object, <i>Vehicle Data Object</i>, Equipment Data Object, PICC Data Object, Date And Time Data Object, <i>Employee Data Object</i>, <i>Action Event Data Object</i>,</p> <p>2. Authentication</p> <p>Authentication Data Object</p> <p>3. PICC Data objects</p>

	<p>TAPO AsRead, PHPO AsRead, Regional Product Object AsWritten, <i>Regional Product Object Extension AsWritten</i>, THO AsWritten, THOX AsWritten</p> <p>4. CID Data</p> <p>Load Unload Data Object, Action Event Autoload Subscribed</p> <p>Optional elements are written in italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.4.2.6 ACS_LO&UN_006: Agency Specific Stored Value Autoloaded

Test ID	ACS_LO&UN_006
Test Purpose	To check that the ACS is able to send the Agency Specific Stored Value Autoloaded message to the RCS and that it is well formatted
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Agency Specific Stored Value Autoloaded message
Priority	1
Test Actions	Send from the ACS to the RCS an Agency Specific Stored Value Autoloaded (A0305) message
Pass Criteria	<p>The message from the ACS should be xml formatted and contain below elements:</p> <p>1. When and Where</p> <p>Message Identifier, Message Version, Message Revision, Location Data Object, <i>Vehicle Data Object</i>, Equipment Data Object, PICC Data Object, Date And Time Data Object, <i>Employee Data Object</i>, <i>Action Event Data Object</i>, Autoload Specifier</p> <p>2. Authentication</p>

	<p>Authentication Data Object</p> <p>3. PICC Data objects</p> <p>TAPO AsRead, PHPO AsRead, Agency Stored Value Object AsWritten, <i>Agency Stored Value Extension AsWritten</i>, THO AsWritten, <i>THOX AsWritten</i></p> <p>4. CID Data</p> <p>Load Unload Data Object</p> <p>Optional elements are written in italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.4.2.7 ACS_LO&UN_007: Autovalue Product Loaded

Test ID	ACS_LO&UN_007
Test Purpose	To check that the ACS is able to send the Autovalue Product Loaded message to the RCS and that it is well formatted
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Autovalue Product Loaded message
Priority	1
Test Actions	Send from the ACS to the RCS an Autovalue Product Loaded (A0320) message
Pass Criteria	<p>The message from the ACS should be xml formatted and contain below elements:</p> <p>1. When and Where</p> <p>Message Identifier, Message Version, Message Revision, Location Data Object, <i>Vehicle Data Object</i>, Equipment Data Object, PICC Data Object, Date And Time Data Object, <i>Employee Data Object</i>, <i>Action Event Data Object</i></p>

	<p>2. Authentication</p> <p>Authentication Data Object</p> <p>3. PICC Data objects</p> <p>TAPO <i>AsRead</i>, PHPO <i>AsRead</i>, AVPO <i>AsWritten</i>, <i>AVPOX AsWritten</i>, THO <i>AsWritten</i>, <i>THOX AsWritten</i></p> <p>Optional elements are written in italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.4.2.8 ACS_LO&UN_008: Autovalue Product Unloaded

Test ID	ACS_LO&UN_008
Test Purpose	To check that the ACS is able to send the Autovalue Product Unloaded message to the RCS and that it is well formatted
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Autovalue Product Unloaded message
Priority	1
Test Actions	Send from the ACS to the RCS an Autovalue Product Unloaded (A0321) message
Pass Criteria	<p>The message from the ACS should be xml formatted and contain below elements:</p> <p>1. When and Where</p> <p>Message Identifier, Message Version, Message Revision, Location Data Object, <i>Vehicle Data Object</i>, Equipment Data Object, PICC Data Object, Date And Time Data Object, <i>Employee Data Object</i>, <i>Action Event Data Object</i></p>

	<p>2. Authentication</p> <p>Authentication Data Object</p> <p>3. PICC Data objects</p> <p>TAPO AsRead, PHPO AsRead, AVPO AsRead, <i>AVPOX AsRead</i>, THO AsWritten, <i>THOX AsWritten</i></p> <p>Optional elements are written in italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.4.2.9 ACS_USTR_009: Special Limited Use PICC Value Loaded

Test ID	ACS_USTR_009
Test Purpose	To check that the ACS is able to send the Special LU PICC Value Loaded message to the RCS and that it is well formatted
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Special LU PICC Value Loaded message
Priority	1
Test Actions	Send from the ACS to the RCS a Special LU PICC Value Loaded (A0322) message
Pass Criteria	<p>The message from the ACS should be xml formatted and contain below elements:</p> <p>1. When and Where</p> <p>Message Identifier, Message Version, Message Revision, Location Data Object, <i>Vehicle Data Object</i>, Equipment Data Object, PICC Data Object, Date And Time Data Object, <i>Employee Data Object</i></p>

	<p>2. Authentication</p> <p>Authentication Data Object</p> <p>3. PICC Data objects</p> <p>LU Stored Variable Data Object AsRead, LU Stored Variable Data Object AsWritten, <u>LU Stored Fixed Data Object AsRead</u>, <u>LU Stored Fixed Data Object AsWritten</u></p> <p>4. CID Data</p> <p>Load Unload Data Object</p> <p>Optional elements are written in italics. Conditional elements are written in underlined italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.4.2.10 ACS_USTR_010: Special Limited Use PICC Product Loaded

Test ID	ACS_USTR_010
Test Purpose	To check that the ACS is able to send the Special LU PICC Product Loaded message to the RCS and that it is well formatted
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Special LU PICC Product Loaded message
Priority	1
Test Actions	Send from the ACS to the RCS a Special LU PICC Product Loaded (A0323) message
Pass Criteria	<p>The message from the ACS should be xml formatted and contain below elements:</p> <p>1. When and Where</p> <p>Message Identifier, Message Version, Message Revision, Location Data Object,</p>

	<p><i>Vehicle Data Object</i>, Equipment Data Object, PICC Data Object, Date And Time Data Object, <i>Employee Data Object</i></p> <p>2. Authentication Authentication Data Object</p> <p>3. PICC Data objects LU Stored Variable Data Object AsRead, LU Stored Variable Data Object AsWritten, <u><i>LU Stored Fixed Data Object AsRead</i></u>, <u><i>LU Stored Fixed Data Object AsWritten</i></u></p> <p>4. CID Data Load Unload Data Object</p> <p>Optional elements are written in italics. Conditional elements are written in underlined italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.4.2.11 ACS_USTR_011: Special Limited Use PICC Value and Product Loaded

Test ID	ACS_USTR_011
Test Purpose	To check that the ACS is able to send the Special LU PICC Value and Product Loaded message to the RCS and that it is well formatted
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Special LU PICC Value and Product Loaded message
Priority	1
Test Actions	Send from the ACS to the RCS a Special LU PICC Value and Product Loaded (A0324) message

Pass Criteria	<p>The message from the ACS should be xml formatted and contain below elements:</p> <p>1. When and Where</p> <p>Message Identifier, Message Version, Message Revision, Location Data Object, <i>Vehicle Data Object</i>, Equipment Data Object, PICC Data Object, Date And Time Data Object, <i>Employee Data Object</i></p> <p>2. Authentication</p> <p>Authentication Data Object</p> <p>3. PICC Data objects</p> <p>LU Stored Variable Data Object AsRead, LU Stored Variable Data Object AsWritten, <u><i>LU Stored Fixed Data Object AsRead</i></u>, <u><i>LU Stored Fixed Data Object AsWritten</i></u></p> <p>4. CID Data</p> <p>Load Unload Data Object</p> <p>Optional elements are written in italics. Conditional elements are written in underlined italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.4.2.12 ACS_LO&UN_012: Out of Region T-Purse Autoloaded

Test ID	ACS_LO&UN_012
Test Purpose	To check that the ACS is able to send the Out of Region T-Purse Autoloaded message to the RCS and that it is well formatted
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for

	sending the Out of Region T-Purse Autoloaded message
Priority	1
Test Actions	Send from the ACS to the RCS a Out of Region T-Purse Autoloaded (A0325) message
Pass Criteria	<p>The message from the ACS should be xml formatted and contain below elements:</p> <p>1. When and Where Message Identifier, Message Version, Message Revision, Location Data Object, <i>Vehicle Data Object</i>, Equipment Data Object, PICC Data Object, Date And Time Data Object, <i>Employee Data Object</i>, Action Event Data Object</p> <p>2. Authentication Authentication Data Object</p> <p>3. PICC Data objects TAPO AsRead, PHPO AsRead, Regional T-Purse Object AsWritten, <i>Regional T-Purse Extension AsWritten</i>, THO AsWritten, <i>THOX AsWritten</i></p> <p>4. CID Data Load Unload Data Object</p> <p>Optional elements are written in italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.4.2.13 ACS_LO&UN_013: Threshold Stored Value Autoload Setup and Value Loaded Response

Test ID	ACS_LO&UN_013
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Test Purpose	To check that the ACS is able to send the Threshold Stored Value Autoload Setup and Value Loaded Response message to the RCS and that it is well formatted
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Threshold Stored Value Autoload Setup and Value Loaded Response message
Priority	1
Test Actions	Send from the ACS to the RCS a Threshold Stored Value Autoload Setup and Value Loaded Response (A2710) message
Pass Criteria	<p>The message from the ACS should be xml formatted and contain below elements:</p> <p>1. When and Where</p> <p>Message Identifier, Message Version, Message Revision, Location Data Object, <i>Vehicle Data Object</i>, Equipment Data Object, PICC Data Object, Date And Time Data Object, <i>Employee Data Object</i>, <i>Action Event Data Object</i></p> <p>2. Authentication</p> <p>Authentication Data Object</p> <p>3. PICC Data objects</p> <p>TAPO AsRead, PHPO AsRead, Agency Stored Value Object AsWritten, Agency Stored Value Extension AsWritten, A&DVHO AsWritten, THO AsWritten, THOX AsWritten</p> <p>4. CID Data</p> <p>Load Unload Data Object</p> <p>Optional elements are written in italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.4.2.14 ACS_LO&UN_014 Threshold Regional T-Purse Autoload Setup and Value Loaded Response

Test ID	ACS_LO&UN_014
Test Purpose	To check that the ACS is able to send the Threshold Regional T-Purse Autoload Setup and Value Loaded Response message to the RCS and that it is well formatted
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Threshold Regional T-Purse Autoload Setup and Value Loaded Response message
Priority	1
Test Actions	Send from the ACS to the RCS a Threshold Regional T-Purse Autoload Setup and Value Loaded Response (A2711) message
Pass Criteria	<p>The message from the ACS should be xml formatted and contain below elements:</p> <ol style="list-style-type: none"> 1. When and Where Message Identifier, Message Version, Message Revision, Location Data Object, <i>Vehicle Data Object</i>, Equipment Data Object, PICC Data Object, Date And Time Data Object, <i>Employee Data Object</i>, <i>Action Event Data Object</i> 2. Authentication Authentication Data Object 3. PICC Data objects TAPO AsRead, PHPO AsRead, Regional T-Purse AsWritten, Regional T-Purse Extension AsWritten, A&DVHO AsWritten, THO AsWritten, THOX AsWritten 4. CID Data Load Unload Data Object <p>Optional elements are written in italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions

Remarks	
Importance	Mandatory

5.4.2.15 ACS_LO&UN_015 Threshold Stored Value Autoload Setup Response

Test ID	ACS_LO&UN_015
Test Purpose	To check that the ACS is able to send the Threshold Stored Value Autoload Setup Response message to the RCS and that it is well formatted
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Threshold Stored Value Autoload Setup Response message
Priority	1
Test Actions	Send from the ACS to the RCS a Threshold Stored Value Autoload Setup Response (A2712) message
Pass Criteria	<p>The message from the ACS should be xml formatted and contain below elements:</p> <ol style="list-style-type: none"> 1. When and Where Message Identifier, Message Version, Message Revision, Location Data Object, <i>Vehicle Data Object</i>, Equipment Data Object, PICC Data Object, Date And Time Data Object, <i>Employee Data Object</i>, <i>Action Event Data Object</i> 2. Authentication Authentication Data Object 3. PICC Data objects TAPO AsRead, PHPO AsRead, Agency Stored Value Object AsWritten, Agency Stored Value Extension AsWritten, A&DVHO AsWritten, THO AsWritten, THOX AsWritten <p>Optional elements are written in italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions

Remarks	
Importance	Mandatory

5.4.2.16 ACS_LO&UN_016: Threshold Regional T-Purse Autoload Setup Response

Test ID	ACS_LO&UN_016
Test Purpose	To check that the ACS is able to send the Threshold Regional T-Purse Autoload Setup Response message to the RCS and that it is well formatted
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Threshold Regional T-Purse Autoload Setup Response message
Priority	1
Test Actions	Send from the ACS to the RCS a Threshold Regional T-Purse Autoload Setup Response (A2713) message
Pass Criteria	<p>The message from the ACS should be xml formatted and contain below elements:</p> <ol style="list-style-type: none"> 1. When and Where Message Identifier, Message Version, Message Revision, Location Data Object, <i>Vehicle Data Object</i>, Equipment Data Object, PICC Data Object, Date And Time Data Object, <i>Employee Data Object</i>, <i>Action Event Data Object</i> 2. Authentication Authentication Data Object 3. PICC Data objects TAPO AsRead, PHPO AsRead, Regional T-Purse AsWritten, Regional T-Purse Extension AsWritten, A&DVHO AsWritten, THO AsWritten, THOX AsWritten <p>Optional elements are written in italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions

Remarks	
Importance	Mandatory

5.4.2.17 ACS_LO&UN_017: Threshold Stored Value Remove Autoload Setup and Value Unloaded Response

Test ID	ACS_LO&UN_017
Test Purpose	To check that the ACS is able to send the Threshold Stored Value Remove Autoload Setup and Value Unloaded Response message to the RCS and that it is well formatted
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Threshold Stored Value Remove Autoload Setup and Value Unloaded Response message
Priority	1
Test Actions	Send from the ACS to the RCS a Threshold Stored Value Remove Autoload Setup and Value Unloaded Response (A2715) message
Pass Criteria	<p>The message from the ACS should be xml formatted and contain below elements:</p> <ol style="list-style-type: none"> 1. When and Where Message Identifier, Message Version, Message Revision, Location Data Object, <i>Vehicle Data Object</i>, Equipment Data Object, PICC Data Object, Date And Time Data Object, <i>Employee Data Object</i>, Action Event Data Object 2. Authentication Authentication Data Object 3. PICC Data objects TAPO AsRead, PHPO AsRead, Agency Stored Value Object AsWritten, Agency Stored Value Extension AsWritten, THO AsWritten, THOX AsWritten, A&DVHO AsWritten 4. CID Data Load Unload Data Object

	Optional elements are written in italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.4.2.18 ACS_LO&UN_018: Threshold Regional T-Purse Remove Autoload Setup and Value Unloaded Response

Test ID	ACS_LO&UN_018
Test Purpose	To check that the ACS is able to send the Threshold Regional T-Purse Remove Autoload Setup and Value Unloaded Response message to the RCS and that it is well formatted
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Threshold Regional T-Purse Remove Autoload Setup and Value Unloaded Response message
Priority	1
Test Actions	Send from the ACS to the RCS a Threshold Regional T-Purse Remove Autoload Setup and Value Unloaded Response (A2716) message
Pass Criteria	<p>The message from the ACS should be xml formatted and contain below elements:</p> <ol style="list-style-type: none"> 1. When and Where Message Identifier, Message Version, Message Revision, Location Data Object, <i>Vehicle Data Object</i>, Equipment Data Object, PICC Data Object, Date And Time Data Object, <i>Employee Data Object</i>, Action Event Data Object 2. Authentication Authentication Data Object 3. PICC Data objects TAPO AsRead, PHPO AsRead, Regional T-Purse AsWritten, Regional T-Purse Extension AsWritten, THO AsWritten, THOX AsWritten, A&DVHO AsWritten

	<p>4. CID Data</p> <p>Load Unload Data Object</p> <p>Optional elements are written in italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.4.2.19 ACS_LO&UN_019: Threshold Stored Value Remove Autoload Setup Response

Test ID	ACS_LO&UN_019
Test Purpose	To check that the ACS is able to send the Threshold Stored Value Remove Autoload Setup Response message to the RCS and that it is well formatted
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Threshold Stored Value Remove Autoload Setup Response message
Priority	1
Test Actions	Send from the ACS to the RCS a Threshold Stored Value Remove Autoload Setup Response (A2717) message
Pass Criteria	<p>The message from the ACS should be xml formatted and contain below elements:</p> <p>1. When and Where</p> <p>Message Identifier, Message Version, Message Revision, Location Data Object, <i>Vehicle Data Object</i>, Equipment Data Object, PICC Data Object, Date And Time Data Object, <i>Employee Data Object</i>, Action Event Data Object</p> <p>2. Authentication</p> <p>Authentication Data Object</p>

	<p>3. PICC Data objects</p> <p>TAPO AsRead, PHPO AsRead, Agency Stored Value Object AsWritten, Agency Stored Value Extension AsWritten, THO AsWritten, THOX AsWritten</p> <p>Optional elements are written in italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.4.2.20 ACS_LO&UN_020: Threshold Regional T-Purse Remove Autoload Setup Response

Test ID	ACS_LO&UN_020
Test Purpose	To check that the ACS is able to send the Threshold Regional T-Purse Remove Autoload Setup Response message to the RCS and that it is well formatted
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Threshold Regional T-Purse Remove Autoload Setup Response message
Priority	1
Test Actions	Send from the ACS to the RCS a Threshold Regional T-Purse Remove Autoload Setup Response (A2718) message
Pass Criteria	<p>The message from the ACS should be xml formatted and contain below elements:</p> <p>1. When and Where</p> <p>Message Identifier, Message Version, Message Revision, Location Data Object, <i>Vehicle Data Object</i>, Equipment Data Object, PICC Data Object, Date And Time Data Object, <i>Employee Data Object</i>, Action Event Data Object</p> <p>2. Authentication</p> <p>Authentication Data Object</p>

	<p>3. PICC Data objects</p> <p>TAPO AsRead, PHPO AsRead, Regional T-Purse AsWritten, Regional T-Purse Extension AsWritten, A&DVHO AsWritten, THO AsWritten, THOX AsWritten</p> <p>Optional elements are written in italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.4.2.21 ACS_LO&UN_021: Agency Pass Product Autoload Setup and Initial Load Response

Test ID	ACS_LO&UN_021
Test Purpose	To check that the ACS is able to send the Agency Pass Product Autoload Setup and Initial Load Response message to the RCS and that it is well formatted
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Agency Pass Product Autoload Setup and Initial Load Response message
Priority	1
Test Actions	Send from the ACS to the RCS an Agency Pass Product Autoload Setup and Initial Load Response (A2730) message
Pass Criteria	<p>The message from the ACS should be xml formatted and contain below elements:</p> <p>1. When and Where</p> <p>Message Identifier, Message Version, Message Revision, Location Data Object, <i>Vehicle Data Object</i>, Equipment Data Object, PICC Data Object, Date And Time Data Object, <i>Employee Data Object</i>, Action Event Data Object</p> <p>2. Authentication</p> <p>Authentication Data Object</p>

	<p>3. PICC Data objects</p> <p>TAPO AsRead, PHPO AsRead, Agency Product Object AsWritten, Agency Product Object Extension AsWritten, A&DVHO AsWritten, THO AsWritten, THOX AsWritten</p> <p>4. CID Data</p> <p>Load Unload Data Object</p> <p>Optional elements are written in italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.4.2.22 ACS_LO&UN_022: Regional Pass Product Autoload Setup and Initial Load Response

Test ID	ACS_LO&UN_022
Test Purpose	To check that the ACS is able to send the Regional Pass Product Autoload Setup and Initial Load Response message to the RCS and that it is well formatted
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Regional Pass Product Autoload Setup and Initial Load Response message
Priority	1
Test Actions	Send from the ACS to the RCS a Regional Pass Product Autoload Setup and Initial Load Response (A2731) message
Pass Criteria	<p>The message from the ACS should be xml formatted and contain below elements:</p> <p>1. When and Where</p> <p>Message Identifier, Message Version, Message Revision, Location Data Object, <i>Vehicle Data Object</i>, Equipment Data Object, PICC Data Object, Date And Time Data Object, <i>Employee Data Object</i>, Action Event Data Object</p>

	<p>2. Authentication</p> <p>Authentication Data Object</p> <p>3. PICC Data objects</p> <p>TAPO AsRead, PHPO AsRead, Regional Product Object AsWritten, Regional Product Object Extension AsWritten, THO AsWritten, THOX AsWritten</p> <p>4. CID Data</p> <p>Load Unload Data Object</p> <p>Optional elements are written in italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.4.2.23 ACS_LO&UN_023: Agency Pass Product Autoload Setup Response

Test ID	ACS_LO&UN_023
Test Purpose	To check that the ACS is able to send the Agency Pass Product Autoload Setup Response message to the RCS and that it is well formatted
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Agency Pass Product Autoload Setup Response message
Priority	1
Test Actions	Send from the ACS to the RCS an Agency Pass Product Autoload Setup Response (A2732) message
Pass Criteria	<p>The message from the ACS should be xml formatted and contain below elements:</p> <p>1. When and Where</p>

	<p>Message Identifier, Message Version, Message Revision, Location Data Object, <i>Vehicle Data Object</i>, Equipment Data Object, PICC Data Object, Date And Time Data Object, <i>Employee Data Object</i>, Action Event Data Object</p> <p>2. Authentication</p> <p>Authentication Data Object</p> <p>3. PICC Data objects</p> <p>TAPO AsRead, PHPO AsRead, Agency Product Object AsWritten, Agency Product Object Extension AsWritten, A&DVHO AsWritten, THO AsWritten, THOX AsWritten</p> <p>Optional elements are written in italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.4.2.24 ACS_LO&UN_024: Regional Pass Product Autoload Setup Response

Test ID	ACS_LO&UN_024
Test Purpose	To check that the ACS is able to send the Regional Pass Product Autoload Setup Response message to the RCS and that it is well formatted
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Regional Pass Product Autoload Setup Response message
Priority	1
Test Actions	Send from the ACS to the RCS a Regional Pass Product Autoload Setup Response (A2733) message
Pass Criteria	<p>The message from the ACS should be xml formatted and contain below elements:</p> <p>1. When and Where</p>

	<p>Message Identifier, Message Version, Message Revision, Location Data Object, <i>Vehicle Data Object</i>, Equipment Data Object, PICC Data Object, Date And Time Data Object, <i>Employee Data Object</i>, Action Event Data Object</p> <p>2. Authentication</p> <p>Authentication Data Object</p> <p>3. PICC Data objects</p> <p>TAPO AsRead, PHPO AsRead, Regional Product Object AsWritten, Regional Product Object Extension AsWritten, A&DVHO AsWritten, THO AsWritten, THOX AsWritten</p> <p>Optional elements are written in italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.4.2.25 ACS_LO&UN_025: Agency Pass Product Remove Autoload Setup and Product Unloaded Response

Test ID	ACS_LO&UN_025
Test Purpose	To check that the ACS is able to send the Agency Pass Product Remove Autoload Setup and Product Unloaded Response message to the RCS and that it is well formatted
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Agency Pass Product Remove Autoload Setup and Product Unloaded Response message
Priority	1
Test Actions	Send from the ACS to the RCS an Agency Pass Product Remove Autoload Setup and Product Unloaded Response (A2735) message
Pass Criteria	The message from the ACS should be xml formatted and contain below elements:

	<p>1. When and Where</p> <p>Message Identifier, Message Version, Message Revision, Location Data Object, <i>Vehicle Data Object</i>, Equipment Data Object, PICC Data Object, Date And Time Data Object, <i>Employee Data Object</i>, Action Event Data Object</p> <p>2. Authentication</p> <p>Authentication Data Object</p> <p>3. PICC Data objects</p> <p>TAPO AsRead, PHPO AsRead, Agency Product Object AsWritten, Agency Product Object Extension AsWritten, THO AsWritten, THOX AsWritten, Load Unload Data Object</p> <p>Optional elements are written in italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.4.2.26 ACS_LO&UN_026: Regional Pass Product Remove Autoload Setup and Product Unloaded Response

Test ID	ACS_LO&UN_026
Test Purpose	To check that the ACS is able to send the Regional Pass Product Remove Autoload Setup and Product Unloaded Response message to the RCS and that it is well formatted
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Regional Pass Product Remove Autoload Setup and Product Unloaded Response message
Priority	1
Test Actions	Send from the ACS to the RCS a Regional Pass Product Remove Autoload Setup and

	Product Unloaded Response (A2736) message
Pass Criteria	<p>The message from the ACS should be xml formatted and contain below elements:</p> <p>1. When and Where</p> <p>Message Identifier, Message Version, Message Revision, Location Data Object, <i>Vehicle Data Object</i>, Equipment Data Object, PICC Data Object, Date And Time Data Object, <i>Employee Data Object</i>, Action Event Data Object</p> <p>2. Authentication</p> <p>Authentication Data Object</p> <p>3. PICC Data objects</p> <p>TAPO AsRead, PHPO AsRead, Regional Product Object AsWritten, Regional Product Object Extension AsWritten, THO AsWritten, THOX AsWritten, Load Unload Data Object</p> <p>Optional elements are written in italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.4.2.27 ACS_LO&UN_027: Agency Pass Product Remove Autoload Setup Response

Test ID	ACS_LO&UN_027
Test Purpose	To check that the ACS is able to send the Agency Pass Product Remove Autoload Setup Response message to the RCS and that it is well formatted
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Agency Pass Product Remove Autoload Setup Response message
Priority	1

Test Actions	Send from the ACS to the RCS an Agency Pass Product Remove Autoload Setup Response (A2737) message
Pass Criteria	<p>The message from the ACS should be xml formatted and contain below elements:</p> <p>1. When and Where</p> <p>Message Identifier, Message Version, Message Revision, Location Data Object, <i>Vehicle Data Object</i>, Equipment Data Object, PICC Data Object, Date And Time Data Object, <i>Employee Data Object</i>, Action Event Data Object</p> <p>2. Authentication</p> <p>Authentication Data Object</p> <p>3. PICC Data objects</p> <p>TAPO AsRead, PHPO AsRead, Agency Product Object AsWritten, Agency Product Object Extension AsWritten, THO AsWritten, THOX AsWritten</p> <p>Optional elements are written in italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.4.2.28 ACS_LO&UN_028: Regional Pass Product Remove Autoload Setup Response

Test ID	ACS_LO&UN_028
Test Purpose	To check that the ACS is able to send the Regional Pass Product Remove Autoload Setup Response message to the RCS and that it is well formatted
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Regional Pass Product Remove Autoload Setup Response message
Priority	1

Test Actions	Send from the ACS to the RCS a Regional Pass Product Remove Autoload Setup Response (A2738) message
Pass Criteria	<p>The message from the ACS should be xml formatted and contain below elements:</p> <p>1. When and Where</p> <p>Message Identifier, Message Version, Message Revision, Location Data Object, <i>Vehicle Data Object</i>, Equipment Data Object, PICC Data Object, Date And Time Data Object, <i>Employee Data Object</i>, Action Event Data Object</p> <p>2. Authentication</p> <p>Authentication Data Object</p> <p>3. PICC Data objects</p> <p>TAPO AsRead, PHPO AsRead, Regional Product Object AsWritten, Regional Product Object Extension AsWritten, A&DVHO AsWritten, THO AsWritten, THOX AsWritten</p> <p>Optional elements are written in italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.4.2.29 ACS_LO&UN_029: Fixed Recurring Stored Value Autoload Setup and Value Loaded Response

Test ID	ACS_LO&UN_029
Test Purpose	To check that the ACS is able to send the Fixed Recurring Stored Value Autoload Setup and Value Loaded Response message to the RCS and that it is well formatted
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Fixed Recurring Stored Value Autoload Setup and Value Loaded

	Response message
Priority	1
Test Actions	Send from the ACS to the RCS a Fixed Recurring Stored Value Autoload Setup and Value Loaded Response (A2750) message
Pass Criteria	<p>The message from the ACS should be xml formatted and contain below elements:</p> <p>1. When and Where Message Identifier, Message Version, Message Revision, Location Data Object, <i>Vehicle Data Object</i>, Equipment Data Object, PICC Data Object, Date And Time Data Object, <i>Employee Data Object</i>, Action Event Data Object</p> <p>2. Authentication Authentication Data Object</p> <p>3. PICC Data objects TAPO AsRead, PHPO AsRead, Agency Stored Value Object AsWritten, Agency Stored Value Extension AsWritten, THO AsWritten, THOX AsWritten, A&DVHO AsWritten</p> <p>4. CID Data Load Unload Data Object</p> <p>Optional elements are written in italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.4.2.30 ACS_LO&UN_030: Fixed Recurring Regional T-Purse Autoload Setup and Value Loaded Response

Test ID	ACS_LO&UN_030
Test Purpose	To check that the ACS is able to send the Fixed Recurring Regional T-Purse Autoload Setup and Value Loaded Response message to the RCS and that it is well formatted
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Fixed Recurring Regional T-Purse Autoload Setup and Value Loaded Response message
Priority	1
Test Actions	Send from the ACS to the RCS a Fixed Recurring Regional T-Purse Autoload Setup and Value Loaded Response (A2751) message
Pass Criteria	<p>The message from the ACS should be xml formatted and contain below elements:</p> <ol style="list-style-type: none"> 1. When and Where Message Identifier, Message Version, Message Revision, Location Data Object, <i>Vehicle Data Object</i>, Equipment Data Object, PICC Data Object, Date And Time Data Object, <i>Employee Data Object</i>, Action Event Data Object 2. Authentication Authentication Data Object 3. PICC Data objects TAPO AsRead, PHPO AsRead, Regional T-Purse AsWritten, Regional T-Purse Extension AsWritten, THO AsWritten, THOX AsWritten, A&DVHO AsWritten 4. CID Data Load Unload Data Object <p>Optional elements are written in italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.4.2.31 ACS_LO&UN_031: Fixed Recurring Stored Value Autoload Setup Response

Test ID	ACS_LO&UN_031
Test Purpose	To check that the ACS is able to send the Fixed Recurring Stored Value Autoload Setup Response message to the RCS and that it is well formatted
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Fixed Recurring Stored Value Autoload Setup Response message
Priority	1
Test Actions	Send from the ACS to the RCS a Fixed Recurring Stored Value Autoload Setup Response (A2752) message
Pass Criteria	<p>The message from the ACS should be xml formatted and contain below elements:</p> <p>1. When and Where</p> <p>Message Identifier, Message Version, Message Revision, Location Data Object, <i>Vehicle Data Object</i>, Equipment Data Object, PICC Data Object, Date And Time Data Object, <i>Employee Data Object</i>, Action Event Data Object</p> <p>2. Authentication</p> <p>Authentication Data Object</p> <p>3. PICC Data objects</p> <p>TAPO AsRead, PHPO AsRead, Agency Stored Value Object AsWritten, Agency Stored Value Extension AsWritten, THO AsWritten, THOX AsWritten</p> <p>Optional elements are written in italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.4.2.32 ACS_LO&UN_032: Fixed Recurring Regional T-Purse Autoload Setup Response

Test ID	ACS_LO&UN_032
Test Purpose	To check that the ACS is able to send the Fixed Recurring Regional T-Purse Autoload Setup Response message to the RCS and that it is well formatted
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Fixed Recurring Regional T-Purse Autoload Setup Response message
Priority	1
Test Actions	Send from the ACS to the RCS a Fixed Recurring Regional T-Purse Autoload Setup Response (A2753) message
Pass Criteria	<p>The message from the ACS should be xml formatted and contain below elements:</p> <p>1. When and Where</p> <p>Message Identifier, Message Version, Message Revision, Location Data Object, <i>Vehicle Data Object</i>, Equipment Data Object, PICC Data Object, Date And Time Data Object, <i>Employee Data Object</i>, Action Event Data Object</p> <p>2. Authentication</p> <p>Authentication Data Object</p> <p>3. PICC Data objects</p> <p>TAPO AsRead, PHPO AsRead, Regional T-Purse AsWritten, Regional T-Purse Extension AsWritten, THO AsWritten, THOX AsWritten</p> <p>Optional elements are written in italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.4.2.33 ACS_LO&UN_033: Fixed Recurring Stored Value Remove Autoload Setup and Value Unloaded Response

Test ID	ACS_LO&UN_033
Test Purpose	To check that the ACS is able to send the Fixed Recurring Stored Value Remove Autoload Setup and Value Unloaded Response message to the RCS and that it is well formatted
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Fixed Recurring Stored Value Remove Autoload Setup and Value Unloaded Response message
Priority	1
Test Actions	Send from the ACS to the RCS a Fixed Recurring Stored Value Remove Autoload Setup and Value Unloaded Response (A2755) message
Pass Criteria	<p>The message from the ACS should be xml formatted and contain below elements:</p> <ol style="list-style-type: none"> 1. When and Where Message Identifier, Message Version, Message Revision, Location Data Object, <i>Vehicle Data Object</i>, Equipment Data Object, PICC Data Object, Date And Time Data Object, <i>Employee Data Object</i>, Action Event Data Object 2. Authentication Authentication Data Object 3. PICC Data objects TAPO AsRead, PHPO AsRead, Agency Stored Value Object AsWritten, Agency Stored Value Extension AsWritten, THO AsWritten, THOX AsWritten, A&DVHO AsWritten 4. CID Data Load Unload Data Object <p>Optional elements are written in italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	

References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.4.2.34 ACS_LO&UN_034: Fixed Recurring Regional T-Purse Remove Autoload Setup and Value Unloaded Response

Test ID	ACS_LO&UN_034
Test Purpose	To check that the ACS is able to send the Fixed Recurring Regional T-Purse Remove Autoload Setup and Value Unloaded Response message to the RCS and that it is well formatted
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Fixed Recurring Regional T-Purse Remove Autoload Setup and Value Unloaded Response message
Priority	1
Test Actions	Send from the ACS to the RCS a Fixed Recurring Regional T-Purse Remove Autoload Setup and Value Unloaded Response (A2756) message
Pass Criteria	<p>The message from the ACS should be xml formatted and contain below elements:</p> <ol style="list-style-type: none"> 1. When and Where Message Identifier, Message Version, Message Revision, Location Data Object, <i>Vehicle Data Object</i>, Equipment Data Object, PICC Data Object, Date And Time Data Object, <i>Employee Data Object</i>, Action Event Data Object 2. Authentication Authentication Data Object 3. PICC Data objects TAPO AsRead, PHPO AsRead, Regional T-Purse AsWritten, Regional T-Purse Extension AsWritten, THO AsWritten, THOX AsWritten, A&DVHO AsWritten 4. CID Data Load Unload Data Object

	Optional elements are written in italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.4.2.35 ACS_LO&UN_035: Fixed Recurring Stored Value Remove Autoload Setup Response

Test ID	ACS_LO&UN_035
Test Purpose	To check that the ACS is able to send the Fixed Recurring Stored Value Remove Autoload Setup Response message to the RCS and that it is well formatted
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Fixed Recurring Stored Value Remove Autoload Setup Response message
Priority	1
Test Actions	Send from the ACS to the RCS a Fixed Recurring Stored Value Remove Autoload Setup Response (A2757) message
Pass Criteria	<p>The message from the ACS should be xml formatted and contain below elements:</p> <ol style="list-style-type: none"> 1. When and Where Message Identifier, Message Version, Message Revision, Location Data Object, <i>Vehicle Data Object</i>, Equipment Data Object, PICC Data Object, Date And Time Data Object, <i>Employee Data Object</i>, Action Event Data Object 2. Authentication Authentication Data Object 3. PICC Data objects TAPO AsRead, PHPO AsRead, Agency Stored Value Object AsWritten, Agency

	<p>Stored Value Extension AsWritten, THO AsWritten, THOX AsWritten</p> <p>Optional elements are written in italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.4.2.36 ACS_LO&UN_036: Fixed Recurring Regional T-Purse Remove Autoload Setup Response

Test ID	ACS_LO&UN_036
Test Purpose	To check that the ACS is able to send the Fixed Recurring Regional T-Purse Remove Autoload Setup Response message to the RCS and that it is well formatted
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Fixed Recurring Regional T-Purse Remove Autoload Setup Response message
Priority	1
Test Actions	Send from the ACS to the RCS a Fixed Recurring Regional T-Purse Remove Autoload Setup Response (A2758) message
Pass Criteria	<p>The message from the ACS should be xml formatted and contain below elements:</p> <ol style="list-style-type: none"> 1. When and Where Message Identifier, Message Version, Message Revision, Location Data Object, <i>Vehicle Data Object</i>, Equipment Data Object, PICC Data Object, Date And Time Data Object, <i>Employee Data Object</i>, Action Event Data Object 2. Authentication Authentication Data Object 3. PICC Data objects

	<p>TAPO AsRead, PHPO AsRead, Regional T-Purse AsWritten, Regional T-Purse Extension AsWritten, THO AsWritten, THOX AsWritten</p> <p>Optional elements are written in italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.4.2.37 ACS_LO&UN_037: Regional T-Purse Loaded

Test ID	ACS_LO&UN_037
Test Purpose	To check that the ACS is able to send the Regional T-Purse Loaded message to the RCS and that it is well formatted
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Regional T-Purse Loaded message
Priority	1
Test Actions	Send from the ACS to the RCS a Regional T-Purse Loaded (A2770) message
Pass Criteria	<p>The message from the ACS should be xml formatted and contain below elements:</p> <ol style="list-style-type: none"> 1. When and Where Message Identifier, Message Version, Message Revision, Location Data Object, <i>Vehicle Data Object</i>, Equipment Data Object, PICC Data Object, Date And Time Data Object, <i>Employee Data Object</i>, <i>Action Event Data Object</i> 2. Authentication Authentication Data Object 3. PICC Data objects <p>TAPO AsRead, PHPO AsRead, Regional T-Purse Object AsWritten, Regional T-</p>

	<p>Purse Extension asWritten, THO AsWritten, THOX AsWritten, A&DVHO AsWritten</p> <p>4. CID Data</p> <p>Load Unload Data Object</p> <p>Optional elements are written in italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.4.2.38 ACS_LO&UN_038: Agency Stored Value Loaded

Test ID	ACS_LO&UN_038
Test Purpose	To check that the ACS is able to send the Agency Stored Value Loaded message to the RCS and that it is well formatted
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Agency Stored Value Loaded message
Priority	1
Test Actions	Send from the ACS to the RCS an Agency Stored Value Loaded (A2771) message
Pass Criteria	<p>The message from the ACS should be xml formatted and contain below elements:</p> <p>1. When and Where</p> <p>Message Identifier, Message Version, Message Revision, Location Data Object, <i>Vehicle Data Object</i>, Equipment Data Object, PICC Data Object, Date And Time Data Object, <i>Employee Data Object</i>, <i>Action Event Data Object</i></p> <p>2. Authentication</p> <p>Authentication Data Object</p>

	<p>3. PICC Data objects</p> <p>TAPO AsRead, PHPO AsRead, Agency Stored Value Object AsWritten, Agency Stored Value Extension asWritten, THO AsWritten, THOX AsWritten, A&DVHO AsWritten</p> <p>4. CID Data</p> <p>Load Unload Data Object</p> <p>Optional elements are written in italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.4.2.39 ACS_LO&UN_039: Regional T-Purse Unloaded

Test ID	ACS_LO&UN_039
Test Purpose	To check that the ACS is able to send the Regional T-Purse Unloaded message to the RCS and that it is well formatted
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Regional T-Purse Unloaded message
Priority	1
Test Actions	Send from the ACS to the RCS a Regional T-Purse Unloaded (A2775) message
Pass Criteria	<p>The message from the ACS should be xml formatted and contain below elements:</p> <p>1. When and Where</p> <p>Message Identifier, Message Version, Message Revision, Location Data Object, <i>Vehicle Data Object</i>, Equipment Data Object, PICC Data Object, Date And Time Data Object, <i>Employee Data Object</i>, <i>Action Event Data Object</i></p>

	<p>2. Authentication</p> <p>Authentication Data Object</p> <p>3. PICC Data objects</p> <p>TAPO AsRead, PHPO AsRead, Regional T-Purse Object AsWritten, Regional T-Purse Extension asWritten, THO AsWritten, THOX AsWritten</p> <p>4. CID Data</p> <p>Load Unload Data Object, PICC Trade Serial Number</p> <p>Optional elements are written in italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.4.2.40 ACS_LO&UN_040: Agency Stored Value Unloaded

Test ID	ACS_LO&UN_040
Test Purpose	To check that the ACS is able to send the Agency Stored Value Unloaded message to the RCS and that it is well formatted
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Agency Stored Value Unloaded message
Priority	1
Test Actions	Send from the ACS to the RCS an Agency Stored Value Unloaded (A2776) message
Pass Criteria	<p>The message from the ACS should be xml formatted and contain below elements:</p> <p>1. When and Where</p> <p>Message Identifier, Message Version, Message Revision, Location Data Object, <i>Vehicle Data Object</i>, Equipment Data Object, PICC Data Object, Date And Time</p>

	<p>Data Object, <i>Employee Data Object</i>, <i>Action Event Data Object</i></p> <p>2. Authentication Authentication Data Object</p> <p>3. PICC Data objects TAPO AsRead, PHPO AsRead, Agency Stored Value Object AsWritten, Agency Stored Value Extension asWritten, THO AsWritten, THOX AsWritten</p> <p>4. CID Data Load Unload Data Object, PICC Trade Serial Number</p> <p>Optional elements are written in italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.4.2.41 ACS_LO&UN_041: Regional Pass Product Loaded

Test ID	ACS_LO&UN_041
Test Purpose	To check that the ACS is able to send the Regional Pass Product Loaded message to the RCS and that it is well formatted
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Regional Pass Product Loaded message
Priority	1
Test Actions	Send from the ACS to the RCS a Regional Pass Product Loaded (A2780) message
Pass Criteria	The message from the ACS should be xml formatted and contain below elements:

	<p>1. When and Where</p> <p>Message Identifier, Message Version, Message Revision, Location Data Object, <i>Vehicle Data Object</i>, Equipment Data Object, PICC Data Object, Date And Time Data Object, <i>Employee Data Object</i>, <i>Action Event Data Object</i></p> <p>2. Authentication</p> <p>Authentication Data Object</p> <p>3. PICC Data objects</p> <p>TAPO AsRead, PHPO AsRead, Regional Pass Product Object AsWritten, Regional Pass Product Extension asWritten, THO AsWritten, THOX AsWritten</p> <p>4. CID Data</p> <p>Load Unload Data Object</p> <p>Optional elements are written in italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.4.2.42 ACS_LO&UN_042: Agency Pass Product Loaded

Test ID	ACS_LO&UN_042
Test Purpose	To check that the ACS is able to send the Agency Pass Product Loaded message to the RCS and that it is well formatted
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Agency Pass Product Loaded message
Priority	1
Test Actions	Send from the ACS to the RCS an Agency Pass Product Loaded (A2781) message

Pass Criteria	<p>The message from the ACS should be xml formatted and contain below elements:</p> <p>1. When and Where</p> <p>Message Identifier, Message Version, Message Revision, Location Data Object, <i>Vehicle Data Object</i>, Equipment Data Object, PICC Data Object, Date And Time Data Object, <i>Employee Data Object</i>, <i>Action Event Data Object</i></p> <p>2. Authentication</p> <p>Authentication Data Object</p> <p>3. PICC Data objects</p> <p>TAPO AsRead, PHPO AsRead, Agency Pass Object AsWritten, Agency Pass Extension Object asWritten, THO AsWritten, THOX AsWritten</p> <p>4. CID Data</p> <p>Load Unload Data Object</p> <p>Optional elements are written in italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.4.2.43 ACS_LO&UN_043: Regional Pass Product Unloaded

Test ID	ACS_LO&UN_043
Test Purpose	To check that the ACS is able to send the Regional Pass Product Unloaded message to the RCS and that it is well formatted
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Regional Pass Product Unloaded message

Priority	1
Test Actions	Send from the ACS to the RCS a Regional Pass Product Unloaded (A2785) message
Pass Criteria	<p>The message from the ACS should be xml formatted and contain below elements:</p> <p>1. When and Where</p> <p>Message Identifier, Message Version, Message Revision, Location Data Object, <i>Vehicle Data Object</i>, Equipment Data Object, PICC Data Object, Date And Time Data Object, <i>Employee Data Object</i>, <i>Action Event Data Object</i></p> <p>2. Authentication</p> <p>Authentication Data Object</p> <p>3. PICC Data objects</p> <p>TAPO AsRead, PHPO AsRead, Regional Pass Product Object AsWritten, Regional Pass Product Extension asWritten, THO AsWritten, THOX AsWritten</p> <p>Optional elements are written in italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.4.2.44 ACS_LO&UN_044: Agency Pass Unloaded

Test ID	ACS_LO&UN_044
Test Purpose	To check that the ACS is able to send the Agency Pass Unloaded message to the RCS and that it is well formatted
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Agency Pass Unloaded message
Priority	1

Test Actions	Send from the ACS to the RCS an Agency Pass Unloaded (A2786) message
Pass Criteria	<p>The message from the ACS should be xml formatted and contain below elements:</p> <p>1. When and Where</p> <p>Message Identifier, Message Version, Message Revision, Location Data Object, <i>Vehicle Data Object</i>, Equipment Data Object, PICC Data Object, Date And Time Data Object, <i>Employee Data Object</i>, <i>Action Event Data Object</i></p> <p>2. Authentication</p> <p>Authentication Data Object</p> <p>3. PICC Data objects</p> <p>TAPO AsRead, PHPO AsRead, Agency Pass Object AsWritten, Agency Pass Extension Object asWritten, THO AsWritten, THOX AsWritten</p> <p>Optional elements are written in italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.4.3 Use Transactions

5.4.3.1 ACS_USTR_001: Use of Regional T-Purse

Test ID	ACS_USTR_001
Test Purpose	To check that the ACS is able to send the Use of Regional T-Purse message to the RCS and that it is well formatted
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Use of Regional T-Purse message

Priority	1
Test Actions	Send from the ACS to the RCS an Use of Regional T-Purse (A0401) message
Pass Criteria	<p>The message from the ACS should be xml formatted and contain below elements:</p> <p>1. When and Where</p> <p>Message Identifier, Message Version, Message Revision, Location Data Object, <i>Vehicle Data Object</i>, Equipment Data Object, PICC Data Object, Date And Time Data Object, <i>Employee Data Object</i>, Action Event Data Object</p> <p>2. Authentication</p> <p>Authentication Data Object</p> <p>3. PICC Data objects</p> <p>TAPO AsRead, PHPO AsRead, Regional T-Purse Object AsWritten, Regional T-Purse Extension asWritten, THO AsWritten, THOX AsWritten</p> <p>4. CID Data</p> <p>Use Deduct Data Object, Use Validation Data Object</p> <p>Optional elements are written in italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.4.3.2 ACS_USTR_002: Use of Regional Pass Product With or Without a Step-up Fare

Test ID	ACS_USTR_002
Test Purpose	To check that the ACS is able to send the Use of Regional Pass Product With or Without a Step-up Fare message to the RCS and that it is well formatted
Configuration	

Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Use of Regional Pass Product With or Without a Step-up Fare message
Priority	1
Test Actions	Send from the ACS to the RCS an Use of Regional Pass Product With or Without a Step-up Fare (A0402) message
Pass Criteria	<p>The message from the ACS should be xml formatted and contain below elements:</p> <p>1. When and Where</p> <p>Message Identifier, Message Version, Message Revision, Location Data Object, <i>Vehicle Data Object</i>, Equipment Data Object, PICC Data Object, Date And Time Data Object, <i>Employee Data Object</i>, <i>Action Event Data Object</i></p> <p>2. Authentication</p> <p>Authentication Data Object</p> <p>3. PICC Data objects</p> <p>TAPO AsRead, PHPO AsRead, Regional Product Object AsWritten, Regional Product Object Extension AsWritten, <u>Regional T-Purse Object AsWritten</u>, Regional T-Purse Extension asWritten, <u>Agency Stored Value Object AsWritten</u>, Agency Stored Value Extension AsWritten, <u>ALPO AsWritten</u>, ALRO AsRead, ALROX AsRead, THO AsWritten, THOX AsWritten</p> <p>4. CID Data</p> <p>Use Deduct Data Object, Use Validation Data Object</p> <p>Optional elements are written in italics. Conditional elements are written in underlined italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.4.3.3 ACS_USTR_003: Use of Agency Specific Product With or Without a Step-up Fare

Test ID	ACS_USTR_003
Test Purpose	To check that the ACS is able to send the Use of Agency Specific Product With or Without a Step-up Fare message to the RCS and that it is well formatted
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Use of Agency Specific Product With or Without a Step-up Fare message
Priority	1
Test Actions	Send from the ACS to the RCS an Use of Agency Specific Product With or Without a Step-up Fare (A0403) message
Pass Criteria	<p>The message from the ACS should be xml formatted and contain below elements:</p> <p>1. When and Where</p> <p>Message Identifier, Message Version, Message Revision, Location Data Object, <i>Vehicle Data Object</i>, Equipment Data Object, PICC Data Object, Date And Time Data Object, <i>Employee Data Object</i>, <i>Action Event Data Object</i></p> <p>2. Authentication</p> <p>Authentication Data Object</p> <p>3. PICC Data objects</p> <p>TAPO AsRead, PHPO AsRead, Agency Product Object AsWritten, Agency Product Object Extension AsWritten, <u>Regional T-Purse Object AsWritten</u>, Regional T-Purse Extension asWritten, <u>Agency Stored Value Object AsWritten</u>, Agency Stored Value Extension AsWritten, <u>ALPO AsWritten</u>, THO AsWritten, THOX AsWritten</p> <p>4. CID Data</p> <p>Use Deduct Data Object, Use Validation Data Object</p> <p>Optional elements are written in italics. Conditional elements are written in underlined italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	

References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.4.3.4 ACS_USTR_004: Use of Agency Stored Value Product

Test ID	ACS_USTR_004
Test Purpose	To check that the ACS is able to send the Use of Agency Stored Value Product message to the RCS and that it is well formatted
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Use of Agency Stored Value Product message
Priority	1
Test Actions	Send from the ACS to the RCS an Use of Agency Stored Value Product (A0405) message
Pass Criteria	<p>The message from the ACS should be xml formatted and contain below elements:</p> <ol style="list-style-type: none"> 1. When and Where Message Identifier, Message Version, Message Revision, Location Data Object, <i>Vehicle Data Object</i>, Equipment Data Object, PICC Data Object, Date And Time Data Object, <i>Employee Data Object</i>, <i>Action Event Data Object</i> 2. Authentication Authentication Data Object 3. PICC Data objects TAPO AsRead, PHPO AsRead, Agency Stored Value Object AsWritten, Agency Stored Value Extension AsWritten, THO AsWritten, THOX AsWritten 4. CID Data Use Deduct Data Object, Use Validation Data Object <p>Optional elements are written in italics. All elements contained in the message should</p>

	be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.4.3.5 ACS_USTR_005: Use of Special Limited Use Value PICC

Test ID	ACS_USTR_005
Test Purpose	To check that the ACS is able to send the Use of Special LU Value PICC message to the RCS and that it is well formatted
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Use of Special LU Value PICC message
Priority	1
Test Actions	Send from the ACS to the RCS an Use of Special LU Value PICC (A0406) message
Pass Criteria	<p>The message from the ACS should be xml formatted and contain below elements:</p> <ol style="list-style-type: none"> 1. When and Where Message Identifier, Message Version, Message Revision, Location Data Object, <i>Vehicle Data Object</i>, Equipment Data Object, PICC Data Object, Date And Time Data Object, <i>Employee Data Object</i> 2. Authentication Authentication Data Object 3. PICC Data objects LU Stored Variable Data Object AsRead, LU Stored Variable Data Object AsWritten, LU Stored Fixed Data Object AsRead 4. CID Data Use Deduct Data Object, Use Validation Data Object

	Optional elements are written in italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.4.3.6 ACS_USTR_006: Use of Special Limited Use Product PICC

Test ID	ACS_USTR_006
Test Purpose	To check that the ACS is able to send the Use of Special LU Product PICC message to the RCS and that it is well formatted
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Use of Special LU Product PICC message
Priority	1
Test Actions	Send from the ACS to the RCS an Use of Special LU Product PICC (A0407) message
Pass Criteria	<p>The message from the ACS should be xml formatted and contain below elements:</p> <ol style="list-style-type: none"> 1. When and Where Message Identifier, Message Version, Message Revision, Location Data Object, <i>Vehicle Data Object</i>, Equipment Data Object, PICC Data Object, Date And Time Data Object, <i>Employee Data Object</i> 2. Authentication Authentication Data Object 3. PICC Data objects LU Stored Variable Data Object AsRead, LU Stored Variable Data Object AsWritten, LU Stored Fixed Data Object AsRead

	<p>4. CID Data</p> <p>Use Deduct Data Object, Use Validation Data Object</p> <p>Optional elements are written in italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.4.3.7 ACS_USTR_007: Transfer on Special Limited Use Product PICC

Test ID	ACS_USTR_007
Test Purpose	To check that the ACS is able to send the Transfer on Special LU Product PICC message to the RCS and that it is well formatted
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Transfer on Special LU Product PICC message
Priority	1
Test Actions	Send from the ACS to the RCS an Transfer on Special LU Product PICC (A0407) message
Pass Criteria	<p>The message from the ACS should be xml formatted and contain below elements:</p> <p>1. When and Where</p> <p>Message Identifier, Message Version, Message Revision, Location Data Object, <i>Vehicle Data Object</i>, Equipment Data Object, PICC Data Object, Date And Time Data Object, <i>Employee Data Object</i></p> <p>2. Authentication</p> <p>Authentication Data Object</p> <p>3. PICC Data objects</p>

	<p>LU Stored Variable Data Object AsRead, LU Stored Variable Data Object AsWritten, LU Stored Fixed Data Object AsRead</p> <p>4. CID Data</p> <p>Use Deduct Data Object, Use Validation Data Object</p> <p>Optional elements are written in italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.4.3.8 ACS_USTR_008: Transfer With or Without a Step-up Fare

Test ID	ACS_USTR_008
Test Purpose	To check that the ACS is able to send the Transfer With or Without a Step-up Fare message to the RCS and that it is well formatted
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Transfer With or Without a Step-up Fare message
Priority	1
Test Actions	Send from the ACS to the RCS a Transfer With or Without a Step-up Fare (A0409) message
Pass Criteria	<p>The message from the ACS should be xml formatted and contain below elements:</p> <p>1. When and Where</p> <p>Message Identifier, Message Version, Message Revision, Location Data Object, <i>Vehicle Data Object</i>, Equipment Data Object, PICC Data Object, Date And Time Data Object, <i>Employee Data Object</i>, <i>Action Event Data Object</i></p> <p>2. Authentication</p>

	<p>Authentication Data Object</p> <p>3. PICC Data objects</p> <p>TAPO AsRead, PHPO AsRead, <u>Agency Product Object As Written</u>, Agency Product Object Extension As Written, <u>Regional Product Object AsWritten</u>, Regional Product Object Extension AsWritten, <u>Regional T-Purse Object AsWritten</u>, Regional T-Purse Extension asWritten, <u>Agency Stored Value Object AsWritten</u>, Agency Stored Value Extension AsWritten, <u>ALPO AsWritten</u>, ALRO AsRead, ALROX AsRead, THO AsWritten, THOX AsWritten</p> <p>4. CID Data</p> <p>Use Deduct Data Object, Use Validation Data Object</p> <p>Optional elements are written in italics. Conditional elements are written in underlined italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.4.3.9 ACS_USTR_009: Attempted Use of a Negative Listed PICC

Test ID	ACS_USTR_009
Test Purpose	To check that the ACS is able to send the Attempted Use of a Negative Listed PICC message to the RCS and that it is well formatted
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Attempted Use of a Negative Listed PICC message
Priority	1
Test Actions	Send from the ACS to the RCS an Attempted Use of a Negative Listed PICC (A0410) message
Pass Criteria	The message from the ACS should be xml formatted and contain below elements:

	<p>1. When and Where</p> <p>Message Identifier, Message Version, Message Revision, Location Data Object, <i>Vehicle Data Object</i>, Equipment Data Object, PICC Data Object, Date And Time Data Object, <i>Employee Data Object</i>, <i>Action Event Data Object</i></p> <p>2. Authentication</p> <p>Authentication Data Object</p> <p>3. PICC Data objects</p> <p>DIO AsRead, TAPO AsRead, PHPO AsRead, Core PIO As Written, Core PIO As Read, THO AsRead, THO AsWritten, THOX AsWritten, LU Stored Variable Data Object AsRead, LU Stored Variable Data Object AsWritten, LU Stored Fixed Data Object AsRead</p> <p>4. CID Data</p> <p>Use Validation Data Object</p> <p>Optional elements are written in italics. Conditional elements are written in underlined italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.4.3.10 ACS_USTR_010: Product Activation (first use of rolling product)

Test ID	ACS_USTR_010
Test Purpose	To check that the ACS is able to send the Product Activation (first use of rolling product) message to the RCS and that it is well formatted
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Product Activation (first use of rolling product) message

Priority	1
Test Actions	Send from the ACS to the RCS an Product Activation (first use of rolling product) (A0411) message
Pass Criteria	<p>The message from the ACS should be xml formatted and contain below elements:</p> <p>1. When and Where</p> <p>Message Identifier, Message Version, Message Revision, Location Data Object, <i>Vehicle Data Object</i>, Equipment Data Object, PICC Data Object, Date And Time Data Object, <i>Employee Data Object</i>, <i>Action Event Data Object</i></p> <p>2. Authentication</p> <p>Authentication Data Object</p> <p>3. PICC Data objects</p> <p>TAPO AsRead, PHPO AsRead, <u>Agency Product Object AsRead</u>, Agency Product Object Extension AsRead, <u>Regional Product Object AsRead</u>, Regional Product Object Extension AsRead, <u>Agency Product Object As Written</u>, Agency Product Object Extension As Written, <u>Regional Product Object AsWritten</u>, Regional Product Object Extension AsWritten, THO AsWritten, THOX AsWritten, <u>LU Stored Variable Data Object AsRead</u>, <u>LU Stored Variable Data Object AsWritten</u>, <u>LU Stored Fixed Data Object AsRead</u></p> <p>Optional elements are written in italics. Conditional elements are written in underlined italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.4.3.11 ACS_USTR_011: Use of Account Linked Product

Test ID	ACS_USTR_011
Test Purpose	To check that the ACS is able to send the Use of Account Linked Product message to the RCS and that it is well formatted

Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Use of Account Linked Product message
Priority	1
Test Actions	Send from the ACS to the RCS an Use of Account Linked Product (A0412) message
Pass Criteria	<p>The message from the ACS should be xml formatted and contain below elements:</p> <p>1. When and Where</p> <p>Message Identifier, Message Version, Message Revision, Location Data Object, <i>Vehicle Data Object</i>, Equipment Data Object, PICC Data Object, Date And Time Data Object, <i>Employee Data Object</i>, <i>Action Event Data Object</i></p> <p>2. Authentication</p> <p>Authentication Data Object</p> <p>3. PICC Data objects</p> <p>TAPO AsRead, PHPO AsRead, <u>ALPO AsWritten</u>, ALPOX AsWritten, <u>ALRO AsRead</u>, ALROX AsRead, THO AsWritten, THOX AsWritten</p> <p>4. CID Data</p> <p>Use Deduct Data Object, Use Validation Data Object</p> <p>Optional elements are written in italics. Conditional elements are written in underlined italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.4.3.12 ACS_USTR_012: Rejected Transaction

Test ID	ACS_USTR_012
Test Purpose	To check that the ACS is able to send the Rejected Transaction message to the RCS and that it is well formatted
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Rejected Transaction message
Priority	1
Test Actions	Send from the ACS to the RCS a Rejected Transaction (A0413) message
Pass Criteria	<p>The message from the ACS should be xml formatted and contain below elements:</p> <p>1. When and Where Message Identifier, Message Version, Message Revision, Date And Time Data Object, Reject Reason</p> <p>2. Authentication Transaction Message</p> <p>Optional elements are written in italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.4.3.13 ACS_USTR_013: Use of Regional T-Purse of an Out of Region PICC

Test ID	ACS_USTR_013
Test Purpose	To check that the ACS is able to send the Use of Regional T-Purse of an Out of Region PICC message to the RCS and that it is well formatted
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Use of Regional T-Purse of an Out of Region PICC message

Priority	1
Test Actions	Send from the ACS to the RCS an Use of Regional T-Purse of an Out of Region PICC (A0414) message
Pass Criteria	<p>The message from the ACS should be xml formatted and contain below elements:</p> <p>1. When and Where</p> <p>Message Identifier, Message Version, Message Revision, Location Data Object, <i>Vehicle Data Object</i>, Equipment Data Object, PICC Data Object, Date And Time Data Object, <i>Employee Data Object</i>, Action Event Data Object</p> <p>2. Authentication</p> <p>Authentication Data Object</p> <p>3. PICC Data objects</p> <p>TAPO AsRead, PHPO AsRead, Regional T-Purse AsWritten, Regional T-Purse Extension AsWritten, THO AsWritten, THOX AsWritten</p> <p>4. CID Data</p> <p>Use Deduct Data Object, Use Validation Data Object</p> <p>Optional elements are written in italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.4.3.14 ACS_USTR_014: Use/Travel on an Autovalue Product

Test ID	ACS_USTR_014
Test Purpose	To check that the ACS is able to send the Use/Travel on an Autovalue Product message to the RCS and that it is well formatted

Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Use/Travel on an Autovalue Product message
Priority	1
Test Actions	Send from the ACS to the RCS an Use/Travel on an Autovalue Product (A0415) message
Pass Criteria	<p>The message from the ACS should be xml formatted and contain below elements:</p> <p>1. When and Where</p> <p>Message Identifier, Message Version, Message Revision, Location Data Object, <i>Vehicle Data Object</i>, Equipment Data Object, PICC Data Object, Date And Time Data Object, <i>Employee Data Object</i>, <i>Action Event Data Object</i></p> <p>2. Authentication</p> <p>Authentication Data Object</p> <p>3. PICC Data objects</p> <p>TAPO AsRead, PHPO AsRead, Autovalue Product Object AsRead, Autovalue Product Object AsWritten, Autovalue Product Object Extension AsRead, Autovalue Product Object Extension AsWritten, <u>Regional T-Purse AsWritten</u>, Regional T-Purse Extension AsWritten, <u>Agency Stored Value AsWritten</u>, Agency Stored Value Extension AsWritten, ALPO AsWritten, ALRO AsRead, ALROX AsRead, THO AsWritten, THOX AsWritten</p> <p>4. CID Data</p> <p>Use Deduct Data Object, Use Validation Data Object</p> <p>Optional elements are written in italics. Conditional elements are written in underlined italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.4.3.15 ACS_USTR_015: Product Blocked

Test ID	ACS_USTR_015
Test Purpose	To check that the ACS is able to send the Product Blocked message to the RCS and that it is well formatted
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Product Blocked message
Priority	1
Test Actions	Send from the ACS to the RCS a Product Blocked (A0416) message
Pass Criteria	<p>The message from the ACS should be xml formatted and contain below elements:</p> <p>1. When and Where</p> <p>Message Identifier, Message Version, Message Revision, Location Data Object, <i>Vehicle Data Object</i>, Equipment Data Object, PICC Data Object, Date And Time Data Object, <i>Employee Data Object</i>, <i>Action Event Data Object</i></p> <p>2. Authentication</p> <p>Authentication Data Object</p> <p>3. PICC Data objects</p> <p>TAPO AsRead, PHPO AsRead, <u>Agency Product Object AsRead</u>, Agency Product Object Extension AsRead, <u>Regional Product Object AsRead</u>, Regional Product Object Extension AsRead, <u>Regional T-Purse AsRead</u>, Regional T-Purse Extension AsRead, <u>Agency Stored Value AsRead</u>, Agency Stored Value Extension AsRead, <u>ALPO AsRead</u>, ALPOX AsRead, ALRO AsRead, ALROX AsRead, <u>Autovalue Product Object AsRead</u>, Autovalue Product Object Extension AsRead, THO AsRead, <u>THOX AsRead</u></p> <p>Optional elements are written in italics. Conditional elements are written in underlined italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions

Remarks	
Importance	Mandatory

5.4.3.16 ACS_USTR_016: Product Unblocked

Test ID	ACS_USTR_016
Test Purpose	To check that the ACS is able to send the Product Unblocked message to the RCS and that it is well formatted
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Product Unblocked message
Priority	1
Test Actions	Send from the ACS to the RCS a Product Unblocked (A0417) message
Pass Criteria	<p>The message from the ACS should be xml formatted and contain below elements:</p> <ol style="list-style-type: none"> 1. When and Where Message Identifier, Message Version, Message Revision, Location Data Object, <i>Vehicle Data Object</i>, Equipment Data Object, PICC Data Object, Date And Time Data Object, <i>Employee Data Object</i>, <i>Action Event Data Object</i> 2. Authentication Authentication Data Object 3. PICC Data objects TAPO AsRead, PHPO AsRead, <u>Agency Product Object AsRead</u>, Agency Product Object Extension AsRead, <u>Regional Product Object AsRead</u>, Regional Product Object Extension AsRead, <u>Regional T-Purse AsRead</u>, Regional T-Purse Extension AsRead, <u>Agency Stored Value AsRead</u>, Agency Stored Value Extension AsRead, <u>ALPO AsRead</u>, ALPOX AsRead, ALRO AsRead, ALROX AsRead, <u>Autovalue Product Object AsRead</u>, Autovalue Product Object Extension AsRead, THO AsRead, <u>THOX AsRead</u> <p>Optional elements are written in italics. Conditional elements are written in underlined italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>

Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.4.3.17 ACS_USTR_017: PICC Profile Data Changed

Test ID	ACS_USTR_017
Test Purpose	To check that the ACS is able to send the PICC Profile Data Changed message to the RCS and that it is well formatted
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the PICC Profile Data Changed message
Priority	1
Test Actions	Send from the ACS to the RCS a PICC Profile Data Changed (A0418) message
Pass Criteria	<p>The message from the ACS should be xml formatted and contain below elements:</p> <ol style="list-style-type: none"> 1. When and Where Message Identifier, Message Version, Message Revision, Location Data Object, <i>Vehicle Data Object</i>, Equipment Data Object, PICC Data Object, Date And Time Data Object, <i>Employee Data Object</i>, <i>Action Event Data Object</i> 2. Authentication Authentication Data Object 3. PICC Data objects TAPO AsWritten, PHPO AsWritten, PHPOX1 AsWritten, PHPOX2 AsWritten, PHPOX3 AsWritten, THO AsWritten, THOX AsWritten <p>Optional elements are written in italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	

References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.4.3.18 ACS_USTR_018: Use of Stored Value from Multiple SV Sources

Test ID	ACS_USTR_018
Test Purpose	To check that the ACS is able to send the Use of Stored Value from Multiple SV Sources message to the RCS and that it is well formatted
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Use of Stored Value from Multiple SV Sources message
Priority	1
Test Actions	Send from the ACS to the RCS a Use of Stored Value from Multiple SV Sources (A0419) message
Pass Criteria	<p>The message from the ACS should be xml formatted and contain below elements:</p> <ol style="list-style-type: none"> 1. When and Where Message Identifier, Message Version, Message Revision, Location Data Object, <i>Vehicle Data Object</i>, Equipment Data Object, PICC Data Object, Date And Time Data Object, <i>Employee Data Object</i>, <i>Action Event Data Object</i> 2. Authentication Authentication Data Object 3. PICC Data objects TAPO AsRead, PHPO AsRead, <u>Regional T-Purse AsWritten</u>, Regional T-Purse Extension AsWritten, <u>Agency Stored Value AsWritten</u>, Agency Stored Value Extension AsWritten, <u>ALPO AsWritten</u>, ALPOX AsWritten, ALRO AsRead, ALROX AsRead, <u>Autovalue Product Object AsWritten</u>, Autovalue Product Object Extension AsWritten, THO AsWritten, <u>THOX AsWritten</u> 4. CID Data Use Deduct Data Object, Use Validation Data Object

	Optional elements are written in italics. Conditional elements are written in underlined italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.5 ACS ability to read messages

5.5.1 Action List

5.5.1.1 ACS_ACLI_001: Set up Stored Value or Regional T-Purse Threshold Autoload

Test ID	ACS_ACLI_001
Test Purpose	To check that the ACS is able to read an Action List with single directive message Set up Stored Value or Regional T-Purse Threshold Autoload from the RCS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the RCS for sending an Action List with single directive message Set up Stored Value or Regional T-Purse Threshold Autoload
Priority	1
Test Actions	Send from the RCS to the ACS an Action List with single directive message Set up Stored Value or Regional T-Purse Threshold Autoload (A0710)
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.5.1.2 ACS_ACLI_002 Withdraw Stored Value or Regional T-Purse Threshold Autoload

Test ID	ACS_ACLI_002
Test Purpose	To check that the ACS is able to read an Action List with single directive message Withdraw Stored Value or Regional T-Purse Threshold Autoload from the RCS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the RCS for sending an Action List with single directive message Withdraw Stored Value or Regional T-Purse Threshold Autoload
Priority	1
Test Actions	Send from the RCS to the ACS an Action List with single directive message Withdraw Stored Value or Regional T-Purse Threshold Autoload (A0715)

Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.5.1.3 ACS_ACLI_003: Set up Regional/Agency Specific Pass Product Setup Autoload

Test ID	ACS_ACLI_003
Test Purpose	To check that the ACS is able to read an Action List with single directive message Set up Regional/Agency Specific Pass Product Setup Autoload from the RCS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the RCS for sending an Action List with single directive message Set up Regional/Agency Specific Pass Product Setup Autoload
Priority	1
Test Actions	Send from the RCS to the ACS an Action List with single directive message Set up Regional/Agency Specific Pass Product Setup Autoload (A0730)
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.5.1.4 ACS_ACLI_004: Withdraw Regional/Agency Specific Pass Product Setup Autoload

Test ID	ACS_ACLI_004
Test Purpose	To check that the ACS is able to read an Action List with single directive message Withdraw Regional/Agency Specific Pass Product Setup Autoload from the RCS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the RCS for sending an Action List with single directive message Withdraw Regional/Agency Specific Pass Product Setup Autoload

Priority	1
Test Actions	Send from the RCS to the ACS an Action List with single directive message Withdraw Regional/Agency Specific Pass Product Setup Autoload (A0735)
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.5.1.5 ACS_ACLI_005: Set up Stored Value or Regional T-Purse Fixed Recurring Autoload

Test ID	ACS_ACLI_005
Test Purpose	To check that the ACS is able to read an Action List with single directive message Set up Stored Value or Regional T-Purse Fixed Recurring Autoload from the RCS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the RCS for sending an Action List with single directive message Set up Stored Value or Regional T-Purse Fixed Recurring Autoload
Priority	1
Test Actions	Send from the RCS to the ACS an Action List with single directive message Set up Stored Value or Regional T-Purse Fixed Recurring Autoload (A0750)
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.5.1.6 ACS_ACLI_006: Withdraw Stored Value or Regional T-Purse Fixed Recurring Autoload

Test ID	ACS_ACLI_006
Test Purpose	To check that the ACS is able to read an Action List with single directive message

	Withdraw Stored Value or Regional T-Purse Fixed Recurring Autoload from the RCS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the RCS for sending an Action List with single directive message Withdraw Stored Value or Regional T-Purse Fixed Recurring Autoload
Priority	1
Test Actions	Send from the RCS to the ACS an Action List with single directive message Withdraw Stored Value or Regional T-Purse Fixed Recurring Autoload (A0755)
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.5.1.7 ACS_ACLI_007: Direct a Load of Stored Value

Test ID	ACS_ACLI_007
Test Purpose	To check that the ACS is able to read an Action List with single directive message Direct a Load of Stored Value from the RCS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the RCS for sending an Action List with single directive message Direct a Load of Stored Value
Priority	1
Test Actions	Send from the RCS to the ACS an Action List with single directive message Direct a Load of Stored Value (A0770)
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.5.1.8 ACS_ACLI_008: Direct an Unload of Stored Value

Test ID	ACS_ACLI_008
Test Purpose	To check that the ACS is able to read an Action List with single directive message Direct an Unload of Stored Value from the RCS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the RCS for sending an Action List with single directive message Direct an Unload of Stored Value
Priority	1
Test Actions	Send from the RCS to the ACS an Action List with single directive message Direct an Unload of Stored Value (A0775)
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.5.1.9 Direct a Load of Regional/Agency Specific Pass Product

Test ID	ACS_ACLI_009
Test Purpose	To check that the ACS is able to read an Action List with single directive message Direct a Load of Regional/Agency Specific Pass Product from the RCS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the RCS for sending an Action List with single directive message Direct a Load of Regional/Agency Specific Pass Product
Priority	1
Test Actions	Send from the RCS to the ACS an Action List with single directive message Direct a Load of Regional/Agency Specific Pass Product (A0780)
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.5.1.10 ACS_ACLI_010: Direct an Unload of Regional/Agency Specific Pass Product

Test ID	ACS_ACLI_010
Test Purpose	To check that the ACS is able to read an Action List with single directive message Direct an Unload of Regional/Agency Specific Pass Product from the RCS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the RCS for sending an Action List with single directive message Direct an Unload of Regional/Agency Specific Pass Product
Priority	1
Test Actions	Send from the RCS to the ACS an Action List with single directive message Direct an Unload of Regional/Agency Specific Pass Product (A0785)
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.5.1.11 ACS_ACLI_011: Setup/update an Account Linked Product

Test ID	ACS_ACLI_011
Test Purpose	To check that the ACS is able to read an Action List with single directive message Setup/update an Account Linked Product from the RCS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the RCS for sending an Action List with single directive message Setup/update an Account Linked Product
Priority	1
Test Actions	Send from the RCS to the ACS an Action List with single directive message Setup/update an Account Linked Product (A0805)
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	

Importance	Mandatory
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5.5.1.12 ACS_ACLI_012: Block a Product

Test ID	ACS_ACLI_012
Test Purpose	To check that the ACS is able to read an Action List with single directive message Block a Product from the RCS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the RCS for sending an Action List with single directive message Block a Product
Priority	1
Test Actions	Send from the RCS to the ACS an Action List with single directive message Block a Product (A0816)
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.5.1.13 ACS_ACLI_013: Unblock a Product

Test ID	ACS_ACLI_013
Test Purpose	To check that the ACS is able to read an Action List with single directive message Unblock a Product from the RCS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the RCS for sending an Action List with single directive message Unblock a Product
Priority	1
Test Actions	Send from the RCS to the ACS an Action List with single directive message Unblock a Product (A0817)
Pass Criteria	To be based on vendor's specification
Post-conditions	

References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.5.1.14 ACS_ACLI_014: Direct a PICC Data Change

Test ID	ACS_ACLI_014
Test Purpose	To check that the ACS is able to read an Action List with single directive message Direct a PICC Data Change from the RCS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the RCS for sending an Action List with single directive message Direct a PICC Data Change
Priority	1
Test Actions	Send from the RCS to the ACS an Action List with single directive message Direct a PICC Data Change (A0818)
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.5.1.15 ACS_ACLI_015: Setup/update an Autovalue Product

Test ID	ACS_ACLI_015
Test Purpose	To check that the ACS is able to read an Action List with single directive message Setup/update an Autovalue Product from the RCS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the RCS for sending an Action List with single directive message Setup/update an Autovalue Product
Priority	1
Test Actions	Send from the RCS to the ACS an Action List with single directive message Setup/update an Autovalue Product (A0820)

Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.5.1.16 ACS_ACLI_016: Withdraw an Autovalue Product

Test ID	ACS_ACLI_016
Test Purpose	To check that the ACS is able to read an Action List with single directive message Withdraw an Autovalue Product from the RCS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the RCS for sending an Action List with single directive message Withdraw an Autovalue Product
Priority	1
Test Actions	Send from the RCS to the ACS an Action List with single directive message Withdraw an Autovalue Product (A0855)
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.5.1.17 ACS_ACLI_017: Withdraw an Account Linked Product

Test ID	ACS_ACLI_017
Test Purpose	To check that the ACS is able to read an Action List with single directive message Withdraw an Account Linked Product from the RCS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the RCS for sending an Action List with single directive message Withdraw an Account Linked Product
Priority	1

Test Actions	Send from the RCS to the ACS an Action List with single directive message Withdraw an Account Linked Product (A0855)
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.5.1.18 ACS_ACLI_018: CID Action Event List Failure Response

Test ID	ACS_ACLI_018
Test Purpose	To check that the ACS is able to read an Action List with single directive message CID Action Event List Failure Response from the RCS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the RCS for sending an Action List with single directive message CID Action Event List Failure Response i.e. the CID is unable to apply a directive
Priority	1
Test Actions	Send from the RCS to the ACS an Action List with single directive message CID Action Event List Failure Response (A0860)
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.5.2 Negative List

5.5.2.1 ACS_NELI_001: Negative List Message

Test ID	ACS_NELI_001
Test Purpose	To check that the ACS is able to read a Negative List message from the RCS

Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the RCS for sending a Negative List message
Priority	1
Test Actions	Send from the RCS to the ACS a Negative List message (B0110)
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.5.3 Fare Policy Framework

5.5.3.1 ACS_FPFR_001: Fare Policy Framework

Test ID	ACS_FPFR_001
Test Purpose	To check that the ACS is able to read a Fare Policy Framework table from the RCS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the RCS for sending a Fare Policy Framework table (B0120-B0124)
Priority	1
Test Actions	Send from the RCS to the ACS a Fare Policy Framework table
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.5.4 Key Management

5.5.4.1 ACS_KEMA_001: Load PICC Key-Set

Test ID	ACS_KEMA_001
Test Purpose	To check that the ACS is able to read a Load PICC Key-Set message from the RCS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the RCS for sending a Load PICC Key-Set message
Priority	1
Test Actions	Send from the RCS to the ACS a Load PICC Key-Set message (B0130)
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.5.4.2 ACS_KEMA_002: Load MAC Key-Set

Test ID	ACS_KEMA_002
Test Purpose	To check that the ACS is able to read a Load MAC Key-Set message from the RCS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the RCS for sending a Load MAC Key-Set message
Priority	1
Test Actions	Send from the RCS to the ACS a Load MAC Key-Set message (B0131)
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.5.4.3 ACS_KEMA_003: Load DAC Key-Set

Test ID	ACS_KEMA_003
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Test Purpose	To check that the ACS is able to read a Load DAC Key-Set message from the RCS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the RCS for sending a Load DAC Key-Set message
Priority	1
Test Actions	Send from the RCS to the ACS a Load DAC Key-Set message (B0132)
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

5.5.4.4 ACS_KEMA_004: Control PICC Key-Set

Test ID	ACS_KEMA_004
Test Purpose	To check that the ACS is able to read a Control PICC Key-Set message from the RCS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the RCS for sending a Control PICC Key-Set message
Priority	1
Test Actions	Send from the RCS to the ACS a Control PICC Key-Set message (B0133)
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6. Test Cases for a RCS

6.1 Introduction

This chapter is the fourth part of Part V of the Standard, dealing with test cases for an ACS. The other parts, in chapters 3, 4, 5, deal with test cases for a PICC, a CID and a RCS respectively.

This chapter is built up as follows:

Section 6.2 describes the test environment. In this chapter some necessary assumptions are proposed to be able to perform test cases related to the ACS. Furthermore the format of the message types are clarified.

Section 6.3 contain the test cases related to the *PICC Scheme Control* messages. The test cases do check that the RCS is able to send these messages to the ACS and that they are correctly formatted.

Section 6.4 contain the test cases which check whether the RCS is able to read the incoming *CID to PICC interaction* messages from the ACS.

6.2 Test environment

In this document we are testing that the RCS is able to sent correctly formatted messages. Because we are testing the messages on the ACS, RCS level we need to assume everything functions well on the lower levels (i.e. on Sub System Controller, CID and PICC level).

We need to assume:

1. RCS sends the message to the ACS. The ACS passes the message through to the SSCs to the CID, such that the CID receives the correct corresponding message (probably in different unspecified format)
2. The CID communicates the message to the PICC
3. The PICC performs the appropriate action to the send message
4. If applicable the CID sends the proper response message via the SSCs to the ACS

The specifications are not clear about the proper test environment. The test environment can be set up as follows. The ACS is directly attached to the CID to which a PICC is in the near field range of the CID. The ACS is connected with the RCS. With above assumptions the test cases can be performed.

The messages the RCS are sending are the so called PICC Scheme Control Messages, which are special formatted. In fact they can be composed out of multiple messages.

6.2.1 Action List

A0700 – Header

Directives (A0701 – A0855)
A0850 – Authentication

Table 3: Action List Component⁴

The Action List is composed out of messages in the format of above Table 3: Action List Component. The first element of the list is equal to the header message (A0700). The last element of the list is always equal to the authentication message (A0850).

To test the format of the Action List Component we assume the RCS is able to produce Action Lists with a single Action List Directive (it contains only one message). The first test case is to cover the format testing of the header message (A0700) combined with the authentication message (A0850). To remove redundancy, in the remainder of the Action List test cases it will assumed these two messages are correctly formatted.

6.2.2 Negative List

The Negative List is message composed out of directives which are adjoined with a collection of either one element (Single Entry) or two (Range) elements, which are related to PICC serial numbers. The combined structure of a directive together with the adjoined PICC Serial Numbers is as in below Table 4: Negative List Layout.

To test the format of the Negative List we need to assume a fixed number of PICCs is on the negative lists.

⁴ Compare Figure 15: Action List Components CMFS Part 3 Section 6.2.74

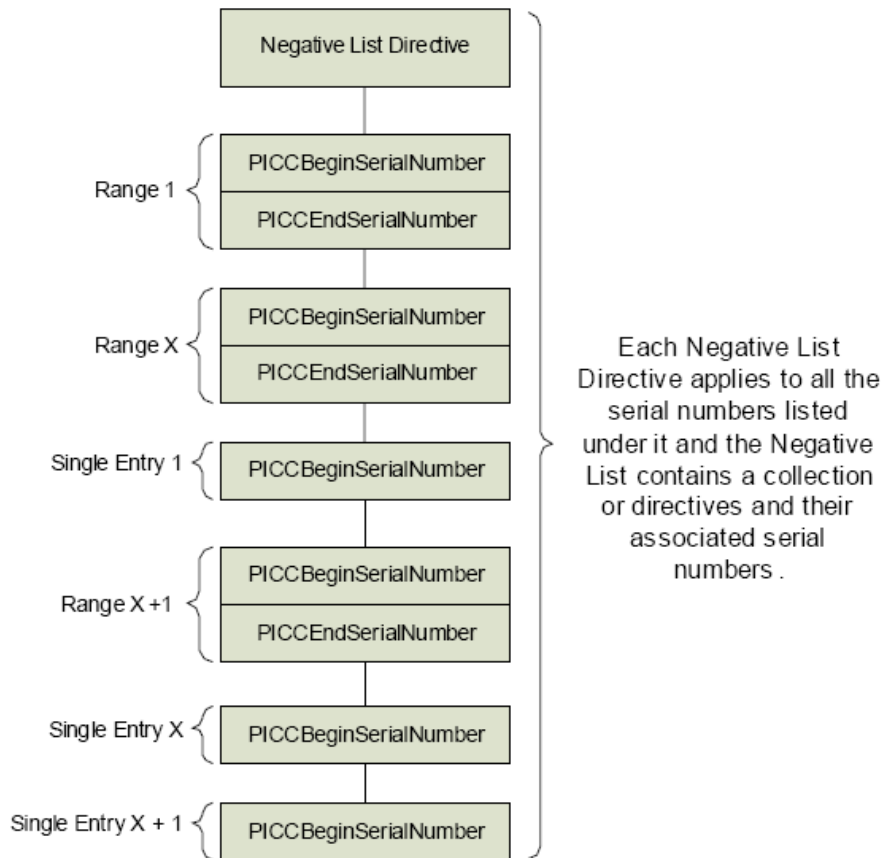


Table 4: Negative List Layout⁵

6.2.3 Fare Policy Framework

The Fare Policy List is composed out of messages in the format of below Table 5: Fare Policy Framework Components. The first element of the list is equal to the header message (B0120). The last element of the list is always equal to the authentication entry (B0124).

To test the format of the Fare Policy List we separate the test cases into two subsets. The first test case is to cover the format testing of the header message (B0120) combined with the authentication message (B0124). To remove redundancy, in the remainder of the Fare Policy List test cases it will assumed these two messages are correctly formatted.

B0120 – Header
B0121 – Regional Profile Codes
B0121 – Regional Profile Codes

⁵ Figure 13: Negative List Layout CFMS Part 3 Section 6.2.68

...
B0122 – Regional Product IDs
B0122 – Regional Product IDs
...
B0123 – Regional Agency IDs
B0123 – Regional Agency IDs
...
B0124 – Authentication Entry

Table 5: Fare Policy Framework Components⁶

6.2.4 Key Management

These messages are normally formatted, except the value of element KeySet has been encrypted.

⁶ Figure 14: Fare Policy Framework Components Section 6.2.69

6.3 PICC Scheme Control Messages

6.3.1 Action List

6.3.1.1 RCS_ACLI_001: Action List Header and Action List Authentication

Test ID	RCS_ACLI_001
Test Purpose	To check that the RCS is able to send an Action List with a well formatted action list header (A0700) message and well formatted action list authentication (A0850) message
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the RCS for sending an Action List
Priority	1
Test Actions	Send from the RCS to the ACS an Action List
Pass Criteria	<p>The messages in the Action List sent from the RCS should be xml formatted and contain at least below elements for the stated messages:</p> <p>Action Event List Header (A0700):</p> <p>1. When and Where Message Identifier, Message Version, Message Revision</p> <p>Action Event List Authentication Message (A0850):</p> <p>1. When and Where Message Identifier</p> <p>2. Action Event Items Action Event List Date Time, Action Event List Expiry Date</p> <p>3. Authentication Authentication Data Object</p>

	All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.3.1.2 RCS_ACLI_002: Set up Stored Value or Regional T-Purse Threshold Autoload

Test ID	RCS_ACLI_002
Test Purpose	To check that the RCS is able to send an Action List with single directive message Set up Stored Value or Regional T-Purse Threshold Autoload
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the RCS for sending an Action List with single directive message Set up Stored Value or Regional T-Purse Threshold Autoload
Priority	1
Test Actions	Send from the RCS to the ACS an Action List with single directive message Set up Stored Value or Regional T-Purse Threshold Autoload (A0710)
Pass Criteria	<p>The directive part of the Action List from the RCS should be xml formatted and contain below elements:</p> <ol style="list-style-type: none"> 1. When and Where Message Identifier, PICC Serial Number 2. Action Event Items Action Event ID, Action Event Amount, Action Event Product Agency ID, Action Event Product Type, Autoload Threshold Index, Action Event Directive Expiry <p>All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	

References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.3.1.3 RCS_ACLI_003: Withdraw Stored Value or Regional T-Purse Threshold Autoload

Test ID	RCS_ACLI_003
Test Purpose	To check that the RCS is able to send an Action List with single directive message Withdraw Stored Value or Regional T-Purse Threshold Autoload
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the RCS for sending an Action List with single directive message Withdraw Stored Value or Regional T-Purse Threshold Autoload
Priority	1
Test Actions	Send from the RCS to the ACS an Action List with single directive message Withdraw Stored Value or Regional T-Purse Threshold Autoload (A0715)
Pass Criteria	<p>The directive part of the Action List from the RCS should be xml formatted and contain below elements:</p> <p>1. When and Where Message Identifier, PICC Serial Number</p> <p>2. Action Event Items Action Event ID, <i>Action Event Amount</i>, Action Event Product Agency ID, Action Event Product Type, Action Event Directive Expiry</p> <p>Optional elements are written in italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.3.1.4 RCS_ACLI_004: Set up Regional/Agency Specific Pass Product Setup Autoload

Test ID	RCS_ACLI_004
Test Purpose	To check that the RCS is able to send an Action List with single directive message Set up Regional/Agency Specific Pass Product Setup Autoload
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the RCS for sending an Action List with single directive message Set up Regional/Agency Specific Pass Product Setup Autoload
Priority	1
Test Actions	Send from the RCS to the ACS an Action List with single directive message Set up Regional/Agency Specific Pass Product Setup Autoload (A0730)
Pass Criteria	<p>The directive part of the Action List from the RCS should be xml formatted and contain below elements:</p> <p>1. When and Where Message Identifier, PICC Serial Number</p> <p>2. Action Event Items Action Event ID, Action Event Product Agency ID, Action Event Product Type, Action Event Directive Expiry, Action Event Location Validity, Action Event Location Validity Encoding Type, Action Event Product Expiry, Action Event Autoload Subscribed, Product Ref ID</p> <p>Optional elements are written in italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.3.1.5 RCS_ACLI_005: Withdraw Regional/Agency Specific Pass Product Setup Autoload

Test ID	RCS_ACLI_005
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Test Purpose	To check that the RCS is able to send an Action List with single directive message Withdraw Regional/Agency Specific Pass Product Setup Autoload
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the RCS for sending an Action List with single directive message Withdraw Regional/Agency Specific Pass Product Setup Autoload
Priority	1
Test Actions	Send from the RCS to the ACS an Action List with single directive message Withdraw Regional/Agency Specific Pass Product Setup Autoload (A0735)
Pass Criteria	<p>The directive part of the Action List from the RCS should be xml formatted and contain below elements:</p> <p>1. When and Where Message Identifier, PICC Serial Number</p> <p>2. Action Event Items Action Event ID, Action Event Product Agency ID, Action Event Product Type, Action Event Directive Expiry, <i>Action Event Location Validity</i>, <i>Action Event Location Validity Encoding Type</i>, Action Event Unload, <i>Action Event Autoload Subscribed</i>, <i>Product Ref ID</i></p> <p>Optional elements are written in italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.3.1.6 RCS_ACLI_006: Set up Stored Value or Regional T-Purse Fixed Recurring Autoload

Test ID	RCS_ACLI_006
Test Purpose	To check that the RCS is able to send an Action List with single directive message Set up Stored Value or Regional T-Purse Fixed Recurring Autoload
Configuration	

Preconditions	The preconditions should be set up such that the conditions are met for the RCS for sending an Action List with single directive message Set up Stored Value or Regional T-Purse Fixed Recurring Autoload
Priority	1
Test Actions	Send from the RCS to the ACS an Action List with single directive message Set up Stored Value or Regional T-Purse Fixed Recurring Autoload (A0750)
Pass Criteria	<p>The directive part of the Action List from the RCS should be xml formatted and contain below elements:</p> <p>1. When and Where Message Identifier, PICC Serial Number</p> <p>2. Action Event Items Action Event ID, Action Event Amount, Action Event Product Agency ID, Action Event Product Type, Autoload Recurring Type, Action Event Directive Expiry</p> <p>All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.3.1.7 RCS_ACLI_007: Withdraw Stored Value or Regional T-Purse Fixed Recurring Autoload

Test ID	RCS_ACLI_007
Test Purpose	To check that the RCS is able to send an Action List with single directive message Withdraw Stored Value or Regional T-Purse Fixed Recurring Autoload
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the RCS for sending an Action List with single directive message Withdraw Stored Value or Regional T-Purse Fixed Recurring Autoload
Priority	1

Test Actions	Send from the RCS to the ACS an Action List with single directive message Withdraw Stored Value or Regional T-Purse Fixed Recurring Autoload (A0755)
Pass Criteria	<p>The directive part of the Action List from the RCS should be xml formatted and contain below elements:</p> <p>1. When and Where Message Identifier, PICC Serial Number</p> <p>2. Action Event Items Action Event ID, <i>Action Event Amount</i>, Action Event Product Agency ID, Action Event Product Type, Action Event Directive Expiry</p> <p>Optional elements are written in italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.3.1.8 RCS_ACLI_008: Direct a Load of Stored Value

Test ID	RCS_ACLI_008
Test Purpose	To check that the RCS is able to send an Action List with single directive message Direct a Load of Stored Value
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the RCS for sending an Action List with single directive message Direct a Load of Stored Value
Priority	1
Test Actions	Send from the RCS to the ACS an Action List with single directive message Direct a Load of Stored Value (A0770)
Pass Criteria	The directive part of the Action List from the RCS should be xml formatted and contain below elements:

	<p>1. When and Where</p> <p>Message Identifier, PICC Serial Number</p> <p>2. Action Event Items</p> <p>Action Event ID, Action Event Amount, Action Event Product Agency ID, Action Event Product Type, Action Event Directive Expiry</p> <p>All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.3.1.9 RCS_ACLI_009: Direct an Unload of Stored Value

Test ID	RCS_ACLI_009
Test Purpose	To check that the RCS is able to send an Action List with single directive message Direct an Unload of Stored Value
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the RCS for sending an Action List with single directive message Direct an Unload of Stored Value
Priority	1
Test Actions	Send from the RCS to the ACS an Action List with single directive message Direct an Unload of Stored Value (A0775)
Pass Criteria	<p>The directive part of the Action List from the RCS should be xml formatted and contain below elements:</p> <p>1. When and Where</p> <p>Message Identifier, PICC Serial Number</p>

	<p>2. Action Event Items</p> <p>Action Event ID, Action Event Amount, Action Event Product Agency ID, Action Event Product Type, Action Event Directive Expiry</p> <p>All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.3.1.10 Direct a Load of Regional/Agency Specific Pass Product

Test ID	RCS_ACLI_010
Test Purpose	To check that the RCS is able to send an Action List with single directive message Direct a Load of Regional/Agency Specific Pass Product
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the RCS for sending an Action List with single directive message Direct a Load of Regional/Agency Specific Pass Product
Priority	1
Test Actions	Send from the RCS to the ACS an Action List with single directive message Direct a Load of Regional/Agency Specific Pass Product (A0780)
Pass Criteria	<p>The directive part of the Action List from the RCS should be xml formatted and contain below elements:</p> <p>1. When and Where</p> <p>Message Identifier, PICC Serial Number</p> <p>2. Action Event Items</p> <p>Action Event ID, Action Event Product Agency ID, Action Event Product Type, Action Event Directive Expiry, Action Event Location Validity, Action Event Location Validity Encoding Type, Action Event Product Expiry, Action Event Product Rides, Product Ref ID</p>

	Optional elements are written in italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.3.1.11 Direct an Unload of Regional/Agency Specific Pass Product

Test ID	RCS_ACLI_011
Test Purpose	To check that the RCS is able to send an Action List with single directive message Direct an Unload of Regional/Agency Specific Pass Product
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the RCS for sending an Action List with single directive message Direct an Unload of Regional/Agency Specific Pass Product
Priority	1
Test Actions	Send from the RCS to the ACS an Action List with single directive message Direct an Unload of Regional/Agency Specific Pass Product (A0785)
Pass Criteria	<p>The directive part of the Action List from the RCS should be xml formatted and contain below elements:</p> <ol style="list-style-type: none"> 1. When and Where Message Identifier, PICC Serial Number 2. Action Event Items Action Event ID, Action Event Product Agency ID, Action Event Product Type, Action Event Directive Expiry, Action Event Location Validity, Action Event Location Validity Encoding Type, Action Event Product Expiry, Action Event Pass Product Remove, Product Ref ID <p>Optional elements are written in italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data</p>

	Object Definitions, Part 3 of the CFMS standard
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.3.1.12 RCS_ACLI_012: Setup/update an Account Linked Product

Test ID	RCS_ACLI_012
Test Purpose	To check that the RCS is able to send an Action List with single directive message Setup/update an Account Linked Product
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the RCS for sending an Action List with single directive message Setup/update an Account Linked Product
Priority	1
Test Actions	Send from the RCS to the ACS an Action List with single directive message Setup/update an Account Linked Product (A0805)
Pass Criteria	<p>The directive part of the Action List from the RCS should be xml formatted and contain below elements:</p> <p>1. When and Where Message Identifier, PICC Serial Number</p> <p>2. Action Event Items Action Event ID, Action Event Directive Expiry, Action Event ALPO, <i>Action Event ALPOX</i>, <i>Action Event ALRO</i>, <i>Action Event ALROX</i></p> <p>Optional elements are written in italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions

Remarks	
Importance	Mandatory

6.3.1.13 RCS_ACLI_013: Block a Product

Test ID	RCS_ACLI_013
Test Purpose	To check that the RCS is able to send an Action List with single directive message Block a Product
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the RCS for sending an Action List with single directive message Block a Product
Priority	1
Test Actions	Send from the RCS to the ACS an Action List with single directive message Block a Product (A0816)
Pass Criteria	<p>The directive part of the Action List from the RCS should be xml formatted and contain below elements:</p> <p>1. When and Where Message Identifier, PICC Serial Number</p> <p>2. Action Event Items Action Event ID, Action Event Product Agency ID, Action Event Product Type, Action Event Location Validity, Action Event Location Validity Encoding Type</p> <p>All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.3.1.14 RCS_ACLI_014: Unblock a Product

Test ID	RCS_ACLI_014
Test Purpose	To check that the RCS is able to send an Action List with single directive message Unblock a Product
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the RCS for sending an Action List with single directive message Unblock a Product
Priority	1
Test Actions	Send from the RCS to the ACS an Action List with single directive message Unblock a Product (A0817)
Pass Criteria	<p>The directive part of the Action List from the RCS should be xml formatted and contain below elements:</p> <p>1. When and Where Message Identifier, PICC Serial Number</p> <p>2. Action Event Items Action Event ID, Action Event Product Agency ID, Action Event Product Type, Action Event Location Validity, Action Event Location Validity Encoding Type</p> <p>All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.3.1.15 RCS_ACLI_015: Direct a PICC Data Change

Test ID	RCS_ACLI_015
Test Purpose	To check that the RCS is able to send an Action List with single directive message Direct a PICC Data Change
Configuration	

Preconditions	The preconditions should be set up such that the conditions are met for the RCS for sending an Action List with single directive message Direct a PICC Data Change
Priority	1
Test Actions	Send from the RCS to the ACS an Action List with single directive message Direct a PICC Data Change (A0818)
Pass Criteria	<p>The directive part of the Action List from the RCS should be xml formatted and contain below elements:</p> <p>1. When and Where Message Identifier, PICC Serial Number</p> <p>2. Action Event Items Action Event ID, <i>Action Event TAPO</i>, <i>Action Event PHPO</i>, <i>Action Event PHPOX1</i>, <i>Action Event PHPOX2</i>, Action Event PHPOX3, Action Event Directive Expiry</p> <p>Optional elements are written in italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.3.1.16 RCS_ACLI_016: Setup/update an Autovalue Product

Test ID	RCS_ACLI_016
Test Purpose	To check that the RCS is able to send an Action List with single directive message Setup/update an Autovalue Product
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the RCS for sending an Action List with single directive message Setup/update an Autovalue Product
Priority	1
Test Actions	Send from the RCS to the ACS an Action List with single directive message

	Setup/update an Autovalue Product (A0820)
Pass Criteria	<p>The directive part of the Action List from the RCS should be xml formatted and contain below elements:</p> <p>1. When and Where Message Identifier, PICC Serial Number</p> <p>2. Action Event Items Action Event ID, Action Event Product Agency ID, Action Event Product Type, Action Event Directive Expiry, Action Event Autovalue Product Object, <i>Action Event Product Object X</i></p> <p>Optional elements are written in italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.3.1.17 RCS_ACLI_017: Withdraw an Autovalue Product

Test ID	RCS_ACLI_017
Test Purpose	To check that the RCS is able to send an Action List with single directive message Withdraw an Autovalue Product
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the RCS for sending an Action List with single directive message Withdraw an Autovalue Product
Priority	1
Test Actions	Send from the RCS to the ACS an Action List with single directive message Withdraw an Autovalue Product (A0855)
Pass Criteria	The directive part of the Action List from the RCS should be xml formatted and contain below elements:

	<p>1. When and Where</p> <p>Message Identifier, PICC Serial Number</p> <p>2. Action Event Items</p> <p>Action Event ID, Action Event Product Agency ID, Action Event Product Type, Action Event Directive Expiry</p> <p>All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.3.1.18 RCS_ACLI_018: Withdraw an Account Linked Product

Test ID	RCS_ACLI_018
Test Purpose	To check that the RCS is able to send an Action List with single directive message Withdraw an Account Linked Product
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the RCS for sending an Action List with single directive message Withdraw an Account Linked Product
Priority	1
Test Actions	Send from the RCS to the ACS an Action List with single directive message Withdraw an Account Linked Product (A0855)
Pass Criteria	<p>The directive part of the Action List from the RCS should be xml formatted and contain below elements:</p> <p>1. When and Where</p> <p>Message Identifier, PICC Serial Number</p>

	<p>2. Action Event Items</p> <p>Action Event ID, Action Event Amount, Action Event Directive Expiry</p> <p>All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.3.1.19 RCS_ACLI_019: CID Action Event List Failure Response

Test ID	RCS_ACLI_019
Test Purpose	To check that the RCS is able to send an Action List with single directive message CID Action Event List Failure Response
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the RCS for sending an Action List with single directive message CID Action Event List Failure Response i.e. the CID is unable to apply a directive
Priority	1
Test Actions	Send from the RCS to the ACS an Action List with single directive message CID Action Event List Failure Response (A0860)
Pass Criteria	<p>The directive part of the Action List from the RCS should be xml formatted and contain below elements:</p> <p>1. When and Where</p> <p>Message Identifier, Message Version, Message Revision, Location Data Object, <i>Vehicle Data Object</i>, Equipment Data Object, PICC Data Object, Date And Time Data Object, <i>Employee Data Object</i>, Action Event Data Object</p> <p>2. Authentication</p> <p>Authentication Data Object</p>

	<p>3. Action Event Items</p> <p>Action Event ID, Action Event Reject Code</p> <p>Optional elements are written in italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.3.2 Negative List

6.3.2.1 RCS_NELI_001: Negative List Message

Test ID	RCS_NELI_001
Test Purpose	To check that the RCS is able to send a Negative List message
Configuration	PICC_A and PICC_B should be on the regional Negative List
Preconditions	The preconditions should be set up such that the conditions are met for the RCS for sending a Negative List message with single directive and including PICC_A and PICC_B only
Priority	1
Test Actions	Send from the RCS to the ACS a Negative List message (B0110) with single directive and including PICC_A and PICC_B
Pass Criteria	<p>The message from the RCS should be xml formatted and contain below elements:</p> <ol style="list-style-type: none"> 1. When and Where Message Identifier, Message Version, Message Revision 2. Action Event Items Negative List Directive,

	<p>PICC A not part of range: PICC Begin Serial Number: equal to PICC_A serial number</p> <p>PICC A part of range: PICC Begin Serial Number, PICC End Serial Number: PICC_A serial number is covered within the range defined by both elements</p> <p>PICC B not part of range: PICC Begin Serial Number: equal to PICC_B serial number</p> <p>PICC B part of range: PICC Begin Serial Number, PICC End Serial Number: PICC_B serial number is covered within the range defined by both elements</p> <p>Note that when PICC_A and PICC_B have serial numbers which are in the same range, the elements PICC Begin Serial Number, PICC End Serial Number for the corresponding range indication serial numbers are not duplicated</p> <p>3. Authentication Authentication Data Object</p> <p>All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p> <p>PICC_A Serial Number, PICC_B Serial Number should occur at most ones in the message</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.3.3 Fare Policy Framework

6.3.3.1 RCS_FPFR_001: Header and Authentication

Test ID	RCS_FPFR_001
Test Purpose	To check that the RCS is able to send a Fare Policy Framework table with a well formatted fare policy framework table header (B0120) message and well formatted fare policy framework authentication entry (B0124) message
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the RCS for sending a Fare Policy Framework table
Priority	1
Test Actions	Send from the RCS to the ACS a Fare Policy Framework table
Pass Criteria	<p>The messages in the Fare Policy Framework table sent from the RCS should be xml formatted and contain at least below elements for the stated messages:</p> <p>Fare Policy Framework - Header (B0120):</p> <p>1. When and Where</p> <p>Message Identifier, Message Version, Message Revision</p> <p>Fare Policy Framework – Authentication Entry (B0124):</p> <p>1. When and Where</p> <p>Message Identifier, Authentication Data Object, Fare Policy Framework As Of Date, Fare Policy Framework Effective Date</p> <p>All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.3.3.2 RCS_FPFR_002: Regional Profile Codes only

Test ID	RCS_FPFR_002
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Test Purpose	To check that the RCS is able to send a Fare Policy Framework table with a well formatted Regional Profile Codes message
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the RCS for sending a Fare Policy Framework table including only Regional Profile Codes messages (B0121)
Priority	1
Test Actions	Send from the RCS to the ACS a Fare Policy Framework table including only Regional Profile Codes messages (B0121)
Pass Criteria	<p>The Regional Profile Code messages in the Fare Policy Framework sent from the RCS should be xml formatted and contain below elements:</p> <p>1. When and Where Message Identifier</p> <p>2. Fare Policy Framework Component Items Regional Profile Code, Regional Profile Code Description</p> <p>All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.3.3.3 RCS_FPFR_003: Regional Product IDs only

Test ID	RCS_FPFR_003
Test Purpose	To check that the RCS is able to send a Fare Policy Framework table with a well formatted Regional Product IDs message
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the RCS for sending a Fare Policy Framework table including only Regional Product IDs

	messages (B0122)
Priority	1
Test Actions	Send from the RCS to the ACS a Fare Policy Framework table including only Regional Product IDs messages (B0122)
Pass Criteria	<p>The Regional Product IDs messages in the Fare Policy Framework sent from the RCS should be xml formatted and contain below elements:</p> <p>1. When and Where</p> <p>Message Identifier</p> <p>2. Fare Policy Framework Component Items</p> <p>Regional Product Type, Regional Product Description, <i>Regional Product Type Code</i>, Regional Product Operational Parameters Data Object, Regional Location Validity, Regional Location Validity Encoding, Product Ref ID, Regional Product Cost Data Object</p> <p>Optional elements are written in italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.3.3.4 RCS_FPFR_004: Regional Agency IDs only

Test ID	RCS_FPFR_004
Test Purpose	To check that the RCS is able to send a Fare Policy Framework table with a well formatted Agency IDs message
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the RCS for sending a Fare Policy Framework table including only Agency IDs messages (B0123)
Priority	1
Test Actions	Send from the RCS to the ACS a Fare Policy Framework table including only

	Regional Agency IDs messages (B0123)
Pass Criteria	<p>The Agency IDs messages in the Fare Policy Framework sent from the RCS should be xml formatted and contain below elements:</p> <p>1. When and Where Message Identifier</p> <p>2. Fare Policy Framework Component Items Agency ID, Agency Description</p> <p>All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.3.3.5 RCS_FPFR_005: Regional Profile Codes, Product IDs and Agency IDs

Test ID	RCS_FPFR_005
Test Purpose	To check that the RCS is able to send a Fare Policy Framework table with combined Regional Profile Codes, Product IDs, Agency IDs messages
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the RCS for sending a Fare Policy Framework table including Regional Profile Codes (B0121), Regional Product IDs (B0122) and Agency IDs (B0123) messages
Priority	1
Test Actions	Send from the RCS to the ACS a Fare Policy Framework table including Regional Profile Codes (B0121), Regional Product IDs (B0122) and Agency IDs (B0123) messages
Pass Criteria	The Fare Policy Framework sent from the RCS should contained all components as illustrated in Table 5: Fare Policy Framework Components

	All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard and in above Fare Policy Framework test cases
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.3.4 Key Management

6.3.4.1 RCS_KEMA_001: Load PICC Key-Set

Test ID	RCS_KEMA_001
Test Purpose	To check that the RCS is able to send a Load PICC Key-Set message
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the RCS for sending a Load PICC Key-Set message
Priority	1
Test Actions	Send from the RCS to the ACS a Load PICC Key-Set message (B0130)
Pass Criteria	<p>The message sent from the RCS should be xml formatted and contain below elements:</p> <ol style="list-style-type: none"> 1. When and Where Message Identifier, Message Version, Message Revision 2. Authentication Authentication Data Object 3. PICC Data objects Country ID, Region ID, <i>Agency ID</i>, PICC Manufacturer ID, Key Set Identifier, Key Set, Key Set As Of Date <p>Optional elements are written in italics. All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data</p>

	Object Definitions, Part 3 of the CFMS standard
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.3.4.2 RCS_KEMA_002: Load MAC Key-Set

Test ID	RCS_KEMA_002
Test Purpose	To check that the RCS is able to send a Load MAC Key-Set message
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the RCS for sending a Load MAC Key-Set message
Priority	1
Test Actions	Send from the RCS to the ACS a Load MAC Key-Set message (B0131)
Pass Criteria	<p>The message sent from the RCS should be xml formatted and contain below elements:</p> <ol style="list-style-type: none"> 1. When and Where Message Identifier, Message Version, Message Revision 2. Authentication Authentication Data Object 3. PICC Data objects Country ID, Region ID, Key Set Identifier, Key Set, Key Set As Of Date, Key Set Effective Date <p>All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions

Remarks	
Importance	Mandatory

6.3.4.3 RCS_KEMA_003: Load DAC Key-Set

Test ID	RCS_KEMA_003
Test Purpose	To check that the RCS is able to send a Load DAC Key-Set message
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the RCS for sending a Load DAC Key-Set message
Priority	1
Test Actions	Send from the RCS to the ACS a Load DAC Key-Set message (B0132)
Pass Criteria	<p>The message sent from the RCS should be xml formatted and contain below elements:</p> <ol style="list-style-type: none"> 1. When and Where Message Identifier, Message Version, Message Revision 2. Authentication Authentication Data Object 3. PICC Data objects Country ID, Region ID, Agency ID, Key Set Identifier, Key Set, Key Set As Of Date, Key Set Effective Date <p>All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.3.4.4 RCS_KEMA_004: Control PICC Key-Set

Test ID	RCS_KEMA_004
Test Purpose	To check that the RCS is able to send a Control PICC Key-Set message
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the RCS for sending a Control PICC Key-Set message
Priority	1
Test Actions	Send from the RCS to the ACS a Control PICC Key-Set message (B0133)
Pass Criteria	<p>The message sent from the RCS should be xml formatted and contain below elements:</p> <p>1. When and Where Message Identifier, Message Version, Message Revision</p> <p>2. Authentication Authentication Data Object</p> <p>3. PICC Data objects Country ID, Region ID, Agency ID, PICC Manufacturer ID, Key Set Identifier A, Key Set Identifier B, Key Set Use Priority, Key Set Effective Date</p> <p>All elements contained in the message should be correctly formatted as defined in the corresponding tables of Chapter 5: Data Object Definitions, Part 3 of the CFMS standard</p>
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.4 RCS ability to read messages

6.4.1 PICC Initialization

6.4.1.1 RCS_INIT_001: PICC Initialized

Test ID	RCS_INIT_001
Test Purpose	To check that the RCS is able to read the PICC Initialized message from the ACS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the PICC Initialized message
Priority	1
Test Actions	Send from the ACS to the RCS a PICC Initialized (A0101) message
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.4.1.2 RCS_INIT_002: PICC Issued

Test ID	RCS_INIT_002
Test Purpose	To check that the RCS is able to read the PICC Issued message from the ACS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the PICC Issued message
Priority	1
Test Actions	Send from the ACS to the RCS a PICC Issued (A0102) message
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions

Remarks	
Importance	Mandatory

6.4.1.3 RCS_INIT_003: PICC Registered

Test ID	RCS_INIT_003
Test Purpose	To check that the RCS is able to read the PICC Registered message from the ACS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the PICC Registered message
Priority	1
Test Actions	Send from the ACS to the RCS a PICC Registered (A0103) message
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.4.1.4 RCS_INIT_004: PICC Queried

Test ID	RCS_INIT_004
Test Purpose	To check that the RCS is able to read the PICC Queried message from the ACS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the PICC Queried message
Priority	1
Test Actions	Send from the ACS to the RCS a PICC Queried (A0104) message
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	

Importance	Mandatory
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6.4.1.5 RCS_INIT_005: Special LU PICC Initialized

Test ID	RCS_INIT_005
Test Purpose	To check that the RCS is able to read the Special LU PICC Initialized message from the ACS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Special LU PICC Initialized message
Priority	1
Test Actions	Send from the ACS to the RCS a Special LU PICC Initialized (A0105) message
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.4.2 Load & Unload Transactions

6.4.2.1 RCS_LO&UN_001: Account Linked Product Loaded

Test ID	RCS_LO&UN_001
Test Purpose	To check that the RCS is able to read the Account Linked Product Loaded message from the ACS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Account Linked Product Loaded message
Priority	1
Test Actions	Send from the ACS to the RCS an Account Linked Product Loaded (A0205) message
Pass Criteria	To be based on vendor's specification
Post-conditions	

References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.4.2.2 RCS_LO&UN_002: Account Linked Product Unloaded

Test ID	RCS_LO&UN_002
Test Purpose	To check that the RCS is able to read the Account Linked Product Unloaded message from the ACS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Account Linked Product Unloaded message
Priority	1
Test Actions	Send from the ACS to the RCS an Account Linked Product Unloaded (A0255) message
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.4.2.3 RCS_LO&UN_003: Regional T-Purse Autoloaded

Test ID	RCS_LO&UN_003
Test Purpose	To check that the RCS is able to read the Regional T-Purse Autoloaded message from the ACS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Regional T-Purse Autoloaded message
Priority	1
Test Actions	Send from the ACS to the RCS a Regional T-Purse Autoloaded (A0302) message
Pass Criteria	To be based on vendor's specification

Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.4.2.4 RCS_LO&UN_004: Regional Pass Product Autoloaded

Test ID	RCS_LO&UN_004
Test Purpose	To check that the RCS is able to read the Regional Pass Product Autoloaded message from the ACS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Regional Pass Product Autoloaded message
Priority	1
Test Actions	Send from the ACS to the RCS a Regional Pass Product Autoloaded (A0303) message
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.4.2.5 RCS_LO&UN_005: Agency Specific Pass Product Autoloaded

Test ID	RCS_LO&UN_005
Test Purpose	To check that the RCS is able to read the Agency Specific Pass Product Autoloaded message from the ACS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Agency Specific Pass Product Autoloaded message
Priority	1
Test Actions	Send from the ACS to the RCS an Agency Specific Pass Product Autoloaded (A0304) message

Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.4.2.6 RCS_LO&UN_006: Agency Specific Stored Value Autoloaded

Test ID	RCS_LO&UN_006
Test Purpose	To check that the RCS is able to read the Agency Specific Stored Value Autoloaded message from the ACS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Agency Specific Stored Value Autoloaded message
Priority	1
Test Actions	Send from the ACS to the RCS an Agency Specific Stored Value Autoloaded (A0305) message
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.4.2.7 RCS_LO&UN_007: Autovalue Product Loaded

Test ID	RCS_LO&UN_007
Test Purpose	To check that the RCS is able to read the Autovalue Product Loaded message from the ACS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Autovalue Product Loaded message
Priority	1

Test Actions	Send from the ACS to the RCS an Autovalue Product Loaded (A0320) message
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.4.2.8 RCS_LO&UN_008: Autovalue Product Unloaded

Test ID	RCS_LO&UN_008
Test Purpose	To check that the RCS is able to read the Autovalue Product Unloaded message from the ACS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Autovalue Product Unloaded message
Priority	1
Test Actions	Send from the ACS to the RCS an Autovalue Product Unloaded (A0321) message
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.4.2.9 RCS_USTR_009: Special Limited Use PICC Value Loaded

Test ID	RCS_USTR_009
Test Purpose	To check that the RCS is able to read the Special LU PICC Value Loaded message from the ACS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Special LU PICC Value Loaded message
Priority	1

Test Actions	Send from the ACS to the RCS a Special LU PICC Value Loaded (A0322) message
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.4.2.10 RCS_USTR_010: Special Limited Use PICC Product Loaded

Test ID	RCS_USTR_010
Test Purpose	To check that the RCS is able to read the Special LU PICC Product Loaded message from the ACS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Special LU PICC Product Loaded message
Priority	1
Test Actions	Send from the ACS to the RCS a Special LU PICC Product Loaded (A0323) message
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.4.2.11 RCS_USTR_011: Special Limited Use PICC Value and Product Loaded

Test ID	RCS_USTR_011
Test Purpose	To check that the RCS is able to read the Special LU PICC Value and Product Loaded message from the ACS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Special LU PICC Value and Product Loaded message
Priority	1

Test Actions	Send from the ACS to the RCS a Special LU PICC Value and Product Loaded (A0324) message
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.4.2.12 RCS_LO&UN_012: Out of Region T-Purse Autoloaded

Test ID	RCS_LO&UN_012
Test Purpose	To check that the RCS is able to read the Out of Region T-Purse Autoloaded message from the ACS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Out of Region T-Purse Autoloaded message
Priority	1
Test Actions	Send from the ACS to the RCS a Out of Region T-Purse Autoloaded (A0325) message
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.4.2.13 RCS_LO&UN_013: Threshold Stored Value Autoload Setup and Value Loaded Response

Test ID	RCS_LO&UN_013
Test Purpose	To check that the RCS is able to read the Threshold Stored Value Autoload Setup and Value Loaded Response message from the ACS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for

	sending the Threshold Stored Value Autoload Setup and Value Loaded Response message
Priority	1
Test Actions	Send from the ACS to the RCS a Threshold Stored Value Autoload Setup and Value Loaded Response (A2710) message
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.4.2.14 RCS_LO&UN_014 Threshold Regional T-Purse Autoload Setup and Value Loaded Response

Test ID	RCS_LO&UN_014
Test Purpose	To check that the RCS is able to read the Threshold Regional T-Purse Autoload Setup and Value Loaded Response message from the ACS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Threshold Regional T-Purse Autoload Setup and Value Loaded Response message
Priority	1
Test Actions	Send from the ACS to the RCS a Threshold Regional T-Purse Autoload Setup and Value Loaded Response (A2711) message
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.4.2.15 RCS_LO&UN_015 Threshold Stored Value Autoload Setup Response

Test ID	RCS_LO&UN_015
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Test Purpose	To check that the RCS is able to read the Threshold Stored Value Autoload Setup Response message from the ACS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Threshold Stored Value Autoload Setup Response message
Priority	1
Test Actions	Send from the ACS to the RCS a Threshold Stored Value Autoload Setup Response (A2712) message
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.4.2.16 RCS_LO&UN_016: Threshold Regional T-Purse Autoload Setup Response

Test ID	RCS_LO&UN_016
Test Purpose	To check that the RCS is able to read the Threshold Regional T-Purse Autoload Setup Response message from the ACS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Threshold Regional T-Purse Autoload Setup Response message
Priority	1
Test Actions	Send from the ACS to the RCS a Threshold Regional T-Purse Autoload Setup Response (A2713) message
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.4.2.17 RCS_LO&UN_017: Threshold Stored Value Remove Autoload Setup and Value Unloaded Response

Test ID	RCS_LO&UN_017
Test Purpose	To check that the RCS is able to read the Threshold Stored Value Remove Autoload Setup and Value Unloaded Response message from the ACS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Threshold Stored Value Remove Autoload Setup and Value Unloaded Response message
Priority	1
Test Actions	Send from the ACS to the RCS a Threshold Stored Value Remove Autoload Setup and Value Unloaded Response (A2715) message
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.4.2.18 RCS_LO&UN_018: Threshold Regional T-Purse Remove Autoload Setup and Value Unloaded Response

Test ID	RCS_LO&UN_018
Test Purpose	To check that the RCS is able to read the Threshold Regional T-Purse Remove Autoload Setup and Value Unloaded Response message from the ACS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Threshold Regional T-Purse Remove Autoload Setup and Value Unloaded Response message
Priority	1
Test Actions	Send from the ACS to the RCS a Threshold Regional T-Purse Remove Autoload Setup and Value Unloaded Response (A2716) message
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.4.2.19 RCS_LO&UN_019: Threshold Stored Value Remove Autoload Setup Response

Test ID	RCS_LO&UN_019
Test Purpose	To check that the RCS is able to read the Threshold Stored Value Remove Autoload Setup Response message from the ACS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Threshold Stored Value Remove Autoload Setup Response message
Priority	1
Test Actions	Send from the ACS to the RCS a Threshold Stored Value Remove Autoload Setup Response (A2717) message
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.4.2.20 RCS_LO&UN_020: Threshold Regional T-Purse Remove Autoload Setup Response

Test ID	RCS_LO&UN_020
Test Purpose	To check that the RCS is able to read the Threshold Regional T-Purse Remove Autoload Setup Response message from the ACS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Threshold Regional T-Purse Remove Autoload Setup Response message
Priority	1
Test Actions	Send from the ACS to the RCS a Threshold Regional T-Purse Remove Autoload Setup Response (A2718) message
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	

Importance	Mandatory
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6.4.2.21 RCS_LO&UN_021: Agency Pass Product Autoload Setup and Initial Load Response

Test ID	RCS_LO&UN_021
Test Purpose	To check that the RCS is able to read the Agency Pass Product Autoload Setup and Initial Load Response message from the ACS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Agency Pass Product Autoload Setup and Initial Load Response message
Priority	1
Test Actions	Send from the ACS to the RCS an Agency Pass Product Autoload Setup and Initial Load Response (A2730) message
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.4.2.22 RCS_LO&UN_022: Regional Pass Product Autoload Setup and Initial Load Response

Test ID	RCS_LO&UN_022
Test Purpose	To check that the RCS is able to read the Regional Pass Product Autoload Setup and Initial Load Response message from the ACS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Regional Pass Product Autoload Setup and Initial Load Response message
Priority	1
Test Actions	Send from the ACS to the RCS a Regional Pass Product Autoload Setup and Initial Load Response (A2731) message
Pass Criteria	To be based on vendor's specification

Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.4.2.23 RCS_LO&UN_023: Agency Pass Product Autoload Setup Response

Test ID	RCS_LO&UN_023
Test Purpose	To check that the RCS is able to read the Agency Pass Product Autoload Setup Response message from the ACS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Agency Pass Product Autoload Setup Response message
Priority	1
Test Actions	Send from the ACS to the RCS an Agency Pass Product Autoload Setup Response (A2732) message
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.4.2.24 RCS_LO&UN_024: Regional Pass Product Autoload Setup Response

Test ID	RCS_LO&UN_024
Test Purpose	To check that the RCS is able to read the Regional Pass Product Autoload Setup Response message from the ACS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Regional Pass Product Autoload Setup Response message
Priority	1
Test Actions	Send from the ACS to the RCS a Regional Pass Product Autoload Setup Response (A2733) message

Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.4.2.25 RCS_LO&UN_025: Agency Pass Product Remove Autoload Setup and Product Unloaded Response

Test ID	RCS_LO&UN_025
Test Purpose	To check that the RCS is able to read the Agency Pass Product Remove Autoload Setup and Product Unloaded Response message from the ACS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Agency Pass Product Remove Autoload Setup and Product Unloaded Response message
Priority	1
Test Actions	Send from the ACS to the RCS an Agency Pass Product Remove Autoload Setup and Product Unloaded Response (A2735) message
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.4.2.26 RCS_LO&UN_026: Regional Pass Product Remove Autoload Setup and Product Unloaded Response

Test ID	RCS_LO&UN_026
Test Purpose	To check that the RCS is able to read the Regional Pass Product Remove Autoload Setup and Product Unloaded Response message from the ACS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Regional Pass Product Remove Autoload Setup and Product Unloaded

	Response message
Priority	1
Test Actions	Send from the ACS to the RCS a Regional Pass Product Remove Autoload Setup and Product Unloaded Response (A2736) message
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.4.2.27 RCS_LO&UN_027: Agency Pass Product Remove Autoload Setup Response

Test ID	RCS_LO&UN_027
Test Purpose	To check that the RCS is able to read the Agency Pass Product Remove Autoload Setup Response message from the ACS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Agency Pass Product Remove Autoload Setup Response message
Priority	1
Test Actions	Send from the ACS to the RCS an Agency Pass Product Remove Autoload Setup Response (A2737) message
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.4.2.28 RCS_LO&UN_028: Regional Pass Product Remove Autoload Setup Response

Test ID	RCS_LO&UN_028
Test Purpose	To check that the RCS is able to read the Regional Pass Product Remove Autoload Setup Response message from the ACS

Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Regional Pass Product Remove Autoload Setup Response message
Priority	1
Test Actions	Send from the ACS to the RCS a Regional Pass Product Remove Autoload Setup Response (A2738) message
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.4.2.29 RCS_LO&UN_029: Fixed Recurring Stored Value Autoload Setup and Value Loaded Response

Test ID	RCS_LO&UN_029
Test Purpose	To check that the RCS is able to read the Fixed Recurring Stored Value Autoload Setup and Value Loaded Response message from the ACS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Fixed Recurring Stored Value Autoload Setup and Value Loaded Response message
Priority	1
Test Actions	Send from the ACS to the RCS a Fixed Recurring Stored Value Autoload Setup and Value Loaded Response (A2750) message
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.4.2.30 RCS_LO&UN_030: Fixed Recurring Regional T-Purse Autoload Setup and Value Loaded Response

Test ID	RCS_LO&UN_030
Test Purpose	To check that the RCS is able to read the Fixed Recurring Regional T-Purse Autoload Setup and Value Loaded Response message from the ACS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Fixed Recurring Regional T-Purse Autoload Setup and Value Loaded Response message
Priority	1
Test Actions	Send from the ACS to the RCS a Fixed Recurring Regional T-Purse Autoload Setup and Value Loaded Response (A2751) message
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.4.2.31 RCS_LO&UN_031: Fixed Recurring Stored Value Autoload Setup Response

Test ID	RCS_LO&UN_031
Test Purpose	To check that the RCS is able to read the Fixed Recurring Stored Value Autoload Setup Response message from the ACS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Fixed Recurring Stored Value Autoload Setup Response message
Priority	1
Test Actions	Send from the ACS to the RCS a Fixed Recurring Stored Value Autoload Setup Response (A2752) message
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.4.2.32 RCS_LO&UN_032: Fixed Recurring Regional T-Purse Autoload Setup Response

Test ID	RCS_LO&UN_032
Test Purpose	To check that the RCS is able to read the Fixed Recurring Regional T-Purse Autoload Setup Response message from the ACS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Fixed Recurring Regional T-Purse Autoload Setup Response message
Priority	1
Test Actions	Send from the ACS to the RCS a Fixed Recurring Regional T-Purse Autoload Setup Response (A2753) message
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.4.2.33 RCS_LO&UN_033: Fixed Recurring Stored Value Remove Autoload Setup and Value Unloaded Response

Test ID	RCS_LO&UN_033
Test Purpose	To check that the RCS is able to read the Fixed Recurring Stored Value Remove Autoload Setup and Value Unloaded Response message from the ACS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Fixed Recurring Stored Value Remove Autoload Setup and Value Unloaded Response message
Priority	1
Test Actions	Send from the ACS to the RCS a Fixed Recurring Stored Value Remove Autoload Setup and Value Unloaded Response (A2755) message
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	

Importance	Mandatory
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6.4.2.34 RCS_LO&UN_034: Fixed Recurring Regional T-Purse Remove Autoload Setup and Value Unloaded Response

Test ID	RCS_LO&UN_034
Test Purpose	To check that the RCS is able to read the Fixed Recurring Regional T-Purse Remove Autoload Setup and Value Unloaded Response message from the ACS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Fixed Recurring Regional T-Purse Remove Autoload Setup and Value Unloaded Response message
Priority	1
Test Actions	Send from the ACS to the RCS a Fixed Recurring Regional T-Purse Remove Autoload Setup and Value Unloaded Response (A2756) message
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.4.2.35 RCS_LO&UN_035: Fixed Recurring Stored Value Remove Autoload Setup Response

Test ID	RCS_LO&UN_035
Test Purpose	To check that the RCS is able to read the Fixed Recurring Stored Value Remove Autoload Setup Response message from the ACS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Fixed Recurring Stored Value Remove Autoload Setup Response message
Priority	1
Test Actions	Send from the ACS to the RCS a Fixed Recurring Stored Value Remove Autoload Setup Response (A2757) message

Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.4.2.36 RCS_LO&UN_036: Fixed Recurring Regional T-Purse Remove Autoload Setup Response

Test ID	RCS_LO&UN_036
Test Purpose	To check that the RCS is able to read the Fixed Recurring Regional T-Purse Remove Autoload Setup Response message from the ACS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Fixed Recurring Regional T-Purse Remove Autoload Setup Response message
Priority	1
Test Actions	Send from the ACS to the RCS a Fixed Recurring Regional T-Purse Remove Autoload Setup Response (A2758) message
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.4.2.37 RCS_LO&UN_037: Regional T-Purse Loaded

Test ID	RCS_LO&UN_037
Test Purpose	To check that the RCS is able to read the Regional T-Purse Loaded message from the ACS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Regional T-Purse Loaded message

Priority	1
Test Actions	Send from the ACS to the RCS a Regional T-Purse Loaded (A2770) message
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.4.2.38 RCS_LO&UN_038: Agency Stored Value Loaded

Test ID	RCS_LO&UN_038
Test Purpose	To check that the RCS is able to read the Agency Stored Value Loaded message from the ACS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Agency Stored Value Loaded message
Priority	1
Test Actions	Send from the ACS to the RCS an Agency Stored Value Loaded (A2771) message
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.4.2.39 RCS_LO&UN_039: Regional T-Purse Unloaded

Test ID	RCS_LO&UN_039
Test Purpose	To check that the RCS is able to read the Regional T-Purse Unloaded message from the ACS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for

	sending the Regional T-Purse Unloaded message
Priority	1
Test Actions	Send from the ACS to the RCS a Regional T-Purse Unloaded (A2775) message
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.4.2.40 RCS_LO&UN_040: Agency Stored Value Unloaded

Test ID	RCS_LO&UN_040
Test Purpose	To check that the RCS is able to read the Agency Stored Value Unloaded message from the ACS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Agency Stored Value Unloaded message
Priority	1
Test Actions	Send from the ACS to the RCS an Agency Stored Value Unloaded (A2776) message
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.4.2.41 RCS_LO&UN_041: Regional Pass Product Loaded

Test ID	RCS_LO&UN_041
Test Purpose	To check that the RCS is able to read the Regional Pass Product Loaded message from the ACS
Configuration	

Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Regional Pass Product Loaded message
Priority	1
Test Actions	Send from the ACS to the RCS a Regional Pass Product Loaded (A2780) message
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.4.2.42 RCS_LO&UN_042: Agency Pass Product Loaded

Test ID	RCS_LO&UN_042
Test Purpose	To check that the RCS is able to read the Agency Pass Product Loaded message from the ACS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Agency Pass Product Loaded message
Priority	1
Test Actions	Send from the ACS to the RCS an Agency Pass Product Loaded (A2781) message
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.4.2.43 RCS_LO&UN_043: Regional Pass Product Unloaded

Test ID	RCS_LO&UN_043
Test Purpose	To check that the RCS is able to read the Regional Pass Product Unloaded message from the ACS
Configuration	

Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Regional Pass Product Unloaded message
Priority	1
Test Actions	Send from the ACS to the RCS a Regional Pass Product Unloaded (A2785) message
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.4.2.44 RCS_LO&UN_044: Agency Pass Unloaded

Test ID	RCS_LO&UN_044
Test Purpose	To check that the RCS is able to read the Agency Pass Unloaded message from the ACS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Agency Pass Unloaded message
Priority	1
Test Actions	Send from the ACS to the RCS an Agency Pass Unloaded (A2786) message
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.4.3 Use Transactions

6.4.3.1 RCS_USTR_001: Use of Regional T-Purse

Test ID	RCS_USTR_001
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Test Purpose	To check that the RCS is able to read the Use of Regional T-Purse message from the ACS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Use of Regional T-Purse message
Priority	1
Test Actions	Send from the ACS to the RCS an Use of Regional T-Purse (A0401) message
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.4.3.2 RCS_USTR_002: Use of Regional Pass Product With or Without a Step-up Fare

Test ID	RCS_USTR_002
Test Purpose	To check that the RCS is able to read the Use of Regional Pass Product With or Without a Step-up Fare message from the ACS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Use of Regional Pass Product With or Without a Step-up Fare message
Priority	1
Test Actions	Send from the ACS to the RCS an Use of Regional Pass Product With or Without a Step-up Fare (A0402) message
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.4.3.3 RCS_USTR_003: Use of Agency Specific Product With or Without a Step-up Fare

Test ID	RCS_USTR_003
Test Purpose	To check that the RCS is able to read the Use of Agency Specific Product With or Without a Step-up Fare message from the ACS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Use of Agency Specific Product With or Without a Step-up Fare message
Priority	1
Test Actions	Send from the ACS to the RCS an Use of Agency Specific Product With or Without a Step-up Fare (A0403) message
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.4.3.4 RCS_USTR_004: Use of Agency Stored Value Product

Test ID	RCS_USTR_004
Test Purpose	To check that the RCS is able to read the Use of Agency Stored Value Product message from the ACS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Use of Agency Stored Value Product message
Priority	1
Test Actions	Send from the ACS to the RCS an Use of Agency Stored Value Product (A0405) message
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.4.3.5 RCS_USTR_005: Use of Special Limited Use Value PICC

Test ID	RCS_USTR_005
Test Purpose	To check that the RCS is able to read the Use of Special LU Value PICC message from the ACS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Use of Special LU Value PICC message
Priority	1
Test Actions	Send from the ACS to the RCS an Use of Special LU Value PICC (A0406) message
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.4.3.6 RCS_USTR_006: Use of Special Limited Use Product PICC

Test ID	RCS_USTR_006
Test Purpose	To check that the RCS is able to read the Use of Special LU Product PICC message from the ACS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Use of Special LU Product PICC message
Priority	1
Test Actions	Send from the ACS to the RCS an Use of Special LU Product PICC (A0407) message
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.4.3.7 RCS_USTR_007: Transfer on Special Limited Use Product PICC

Test ID	RCS_USTR_007
Test Purpose	To check that the RCS is able to read the Transfer on Special LU Product PICC message from the ACS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Transfer on Special LU Product PICC message
Priority	1
Test Actions	Send from the ACS to the RCS an Transfer on Special LU Product PICC (A0407) message
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.4.3.8 RCS_USTR_008: Transfer With or Without a Step-up Fare

Test ID	RCS_USTR_008
Test Purpose	To check that the RCS is able to read the Transfer With or Without a Step-up Fare message from the ACS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Transfer With or Without a Step-up Fare message
Priority	1
Test Actions	Send from the ACS to the RCS a Transfer With or Without a Step-up Fare (A0409) message
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.4.3.9 RCS_USTR_009: Attempted Use of a Negative Listed PICC

Test ID	RCS_USTR_009
Test Purpose	To check that the RCS is able to read the Attempted Use of a Negative Listed PICC message from the ACS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Attempted Use of a Negative Listed PICC message
Priority	1
Test Actions	Send from the ACS to the RCS an Attempted Use of a Negative Listed PICC (A0410) message
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.4.3.10 RCS_USTR_010: Product Activation (first use of rolling product)

Test ID	RCS_USTR_010
Test Purpose	To check that the RCS is able to read the Product Activation (first use of rolling product) message from the ACS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Product Activation (first use of rolling product) message
Priority	1
Test Actions	Send from the ACS to the RCS an Product Activation (first use of rolling product) (A0411) message
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.4.3.11 RCS_USTR_011: Use of Account Linked Product

Test ID	RCS_USTR_011
Test Purpose	To check that the RCS is able to read the Use of Account Linked Product message from the ACS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Use of Account Linked Product message
Priority	1
Test Actions	Send from the ACS to the RCS an Use of Account Linked Product (A0412) message
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.4.3.12 RCS_USTR_012: Rejected Transaction

Test ID	RCS_USTR_012
Test Purpose	To check that the RCS is able to read the Rejected Transaction message from the ACS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Rejected Transaction message
Priority	1
Test Actions	Send from the ACS to the RCS a Rejected Transaction (A0413) message
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.4.3.13 RCS_USTR_013: Use of Regional T-Purse of an Out of Region PICC

Test ID	RCS_USTR_013
Test Purpose	To check that the RCS is able to read the Use of Regional T-Purse of an Out of Region PICC message from the ACS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Use of Regional T-Purse of an Out of Region PICC message
Priority	1
Test Actions	Send from the ACS to the RCS an Use of Regional T-Purse of an Out of Region PICC (A0414) message
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.4.3.14 RCS_USTR_014: Use/Travel on an Autovalue Product

Test ID	RCS_USTR_014
Test Purpose	To check that the RCS is able to read the Use/Travel on an Autovalue Product message from the ACS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Use/Travel on an Autovalue Product message
Priority	1
Test Actions	Send from the ACS to the RCS an Use/Travel on an Autovalue Product (A0415) message
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.4.3.15 RCS_USTR_015: Product Blocked

Test ID	RCS_USTR_015
Test Purpose	To check that the RCS is able to read the Product Blocked message from the ACS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Product Blocked message
Priority	1
Test Actions	Send from the ACS to the RCS a Product Blocked (A0416) message
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions, CFMS Example Implementation Chapter Error! Unknown document property name.
Remarks	
Importance	Mandatory

6.4.3.16 RCS_USTR_016: Product Unblocked

Test ID	RCS_USTR_016
Test Purpose	To check that the RCS is able to read the Product Unblocked message from the ACS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Product Unblocked message
Priority	1
Test Actions	Send from the ACS to the RCS a Product Unblocked (A0417) message
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.4.3.17 RCS_USTR_017: PICC Profile Data Changed

Test ID	RCS_USTR_017
Test Purpose	To check that the RCS is able to read the PICC Profile Data Changed message from the ACS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the PICC Profile Data Changed message
Priority	1
Test Actions	Send from the ACS to the RCS a PICC Profile Data Changed (A0418) message
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

6.4.3.18 RCS_USTR_018: Use of Stored Value from Multiple SV Sources

Test ID	RCS_USTR_018
Test Purpose	To check that the RCS is able to read the Use of Stored Value from Multiple SV Sources message from the ACS
Configuration	
Preconditions	The preconditions should be set up such that the conditions are met for the ACS for sending the Use of Stored Value from Multiple SV Sources message
Priority	1
Test Actions	Send from the ACS to the RCS a Use of Stored Value from Multiple SV Sources (A0419) message
Pass Criteria	To be based on vendor's specification
Post-conditions	
References	CFMS Standard Part 3 Section 6.2 Message Definitions
Remarks	
Importance	Mandatory

7. References

Ref.	Title	Author	Version	Date
[1]	Contactless Fare Media System Standard Part I – Introduction and Overview (APTA IT-UTFS-S-001-07)	APTA	1.0	January 27, 2007
[2]	Contactless Fare Media System Standard Part II - Contactless Fare Media Data Format and Interface Standard (APTA IT-UTFS-S-002-06)	APTA	1.0	October 8, 2006
[3]	Contactless Fare Media System Standard Part III – Regional Central System Interface Standard (APTA IT-UTFS-S-003-07)	APTA	1.0	January 27, 2007
[4]	Contactless Fare Media System Standard Part IV – Security Planning and Implementation Guidelines and Best Practices (APTA IT-UTFS-S-004-06)	APTA	1.0	October 8, 2006
[5]	APTA Test Design Specification	Collis	0.92	11-04-2008