

Row #	Transportation Mode	Testing Name	Name of Test	Vehicle Type	Step in Build Process	Test Type	Specification	Required for Speed	Standard	Fra	Testing Categorization	Facility Requirements	Proposed Location
1	Intercity, Regional, Commuter	Compatibility	480V HEP trainline	Passenger Cars	Specification	Signaling and Train Control	19.6.10.5.1	<125 mph	Other	Yes	Reliability	Test Track	Builder
2	Heavy Rail, Subways, Metros	Acceleration and Braking	Acceleration	Passenger Cars	Specification	Specification Compliance	P-2001-TT	All	Other	No	Operational Safety	Test Track	Third Party Test Facility or Revenue Track
3	Intercity, Regional, Commuter	Acceleration and Braking	Acceleration	Passenger Cars	Specification	Specification Compliance	P-2001-TT	All	Other	No	Operational Safety	Test Track	Third Party Test Facility or Revenue Track
4	Light Rail/Street Car	Acceleration and Braking	Acceleration	Passenger Cars	Specification	Specification Compliance	P-2001-TT	All	Other	No	Operational Safety	Test Track	Third Party Test Facility or Revenue Track
5	Intercity, Regional, Commuter	Acceleration and Braking	Acceleration Acceptance	Locomotive, EMU/DMUs	Qualification	Specification Compliance	Table 19-1: Test Matrix	<125 mph	Other	Yes	Operational Safety	Test Track	Third Party Test Facility or Revenue Track
6	Heavy Rail, Subways, Metros	Acceleration and Braking	Acceleration Effect-On Car	Passenger Cars	Specification	Noise/Vibration	PN-2001-TT	All	Other	No	Operational Safety	Test Track	Third Party Test Facility or Revenue Track
7	Intercity, Regional, Commuter	Acceleration and Braking	Acceleration Effect-On Car	Passenger Cars	Specification	Noise/Vibration	PN-2001-TT	All	Other	No	Operational Safety	Test Track	Third Party Test Facility or Revenue Track
8	Light Rail/Street Car	Acceleration and Braking	Acceleration Effect-On Car	Passenger Cars	Specification	Noise/Vibration	PN-2001-TT	All	Other	No	Operational Safety	Test Track	Third Party Test Facility or Revenue Track
9	Heavy Rail, Subways, Metros	Acceleration and Braking	Adhesion-Deceleration	Passenger Cars	Specification	Specification Compliance	A-3021-TT	All	Other	No	Operational Safety	Test Track	Third Party Test Facility or Revenue Track
10	Intercity, Regional, Commuter	Acceleration and Braking	Adhesion-Deceleration	Passenger Cars	Specification	Specification Compliance	A-3021-TT	All	Other	No	Operational Safety	Test Track	Third Party Test Facility or Revenue Track
11	Light Rail/Street Car	Acceleration and Braking	Adhesion-Deceleration	Passenger Cars	Specification	Specification Compliance	A-3021-TT	All	Other	No	Operational Safety	Test Track	Third Party Test Facility or Revenue Track
12	Intercity, Regional, Commuter	Acceleration and Braking	Air brake tests	Locomotive, EMU/DMUs	Specification	Specification Compliance	19.3.15.1	<125 mph	Other	Yes	Operational Safety	Test Track	Third Party Test Facility or Revenue Track
13	Intercity, Regional, Commuter	Crashworthiness	Allowable stresses	Passenger Cars	Specification	Structural Integrity	19.5.2.1	<125 mph	Other	Yes	Structural Safety	Rail Facility	Builder Facility or Third Party Test Facility
14	Intercity, Regional, Commuter	Electrical Safety	Battery and battery charger operation	Passenger Cars	Specification	Electrical & Propulsion Performance and Compatibility	19.6.10.2.1	<125 mph	Other	Yes	Reliability	Test Track or Rail Facility	Builder
15	Intercity, Regional, Commuter	Electrical Safety	Battery and battery charger operation	Passenger Cars	Specification	Electrical & Propulsion Performance and Compatibility	19.6.10.2.4	<125 mph	Other	Yes	Reliability	Test Track or Rail Facility	Builder
16	Intercity, Regional, Commuter	Electrical Safety	Battery and Battery Charger Tests	Passenger Cars	Specification	Electrical & Propulsion Performance and Compatibility	19.5.10.3	<125 mph	Other	Yes	Reliability	Test Track or Rail Facility	Builder
17	Intercity, Regional, Commuter	Electrical Safety	Battery capacity	Passenger Cars	Specification	Electrical & Propulsion Performance and Compatibility	19.6.10.2.2	<125 mph	Other	Yes	Reliability	Test Track or Rail Facility	Builder
18	Intercity, Regional, Commuter	Electrical Safety	Battery/Battery Charger Performance	Passenger Cars	Specification	Electrical & Propulsion Performance and Compatibility	19.6.10.2.3	<125 mph	Other	Yes	Reliability	Test Track or Rail Facility	Builder
19	Intercity, Regional, Commuter	Acceleration and Braking	Blended brake test	Locomotive, EMU/DMUs	Specification	Specification Compliance	19.3.15.2	<125 mph	Other	Yes	Operational Safety	Test Track	Third Party Test Facility or Revenue Track
20	Intercity, Regional, Commuter	Acceleration and Braking	Brake Capacity Tests	Passenger Cars	Specification	Specification Compliance	19.5.4.4	<125 mph	Other	Yes	Operational Safety	Test Track	Builder
21	Intercity, Regional, Commuter	Acceleration and Braking	Brake Component Fatigue Tests	Passenger Cars	Specification	Specification Compliance	19.5.4.2	<125 mph	Other	Yes	Operational Safety	Test Track	Builder
22	Intercity, Regional, Commuter	Acceleration and Braking	Brake control operation	Passenger Cars	Specification	Signaling and Train Control	APTA PR-M-S-011-99	<125 mph	APTA	Yes	Operational Safety	Test Track	Builder
23	Intercity, Regional, Commuter	Acceleration and Braking	Brake Pad and Shoe Force Tests	Passenger Cars	Specification	Specification Compliance	19.5.4.1	<125 mph	Other	Yes	Operational Safety	Test Track	Builder
24	Intercity, Regional, Commuter	Acceleration and Braking	Brake Test	Locomotive, EMU/DMUs	Specification	Specification Compliance	19.3.9	<125 mph	Other	Yes	Operational Safety	Test Track	Third Party Test Facility
25	Intercity, Regional, Commuter	Compatibility	Cab Car Compatibility with the Locomotive	Locomotive, EMU/DMUs	Specification	Specification Compliance	Table 19-1: Test Matrix	<125 mph	Other	Yes	Reliability	Test Track	Third Party Test Facility or Revenue Track
26	Intercity, Regional, Commuter	Communications	Cab indicator operation	Passenger Cars	Specification	Signaling and Train Control	19.6.13.8	<125 mph	Other	Yes	Operational Safety	N/A	Builder
27	Intercity, Regional, Commuter	Weight	Car Weight	Passenger Cars	Specification	Specification Compliance	19.6.14.1.1	<125 mph	Other	Yes	Reliability	Weigh Station in Track	Builder
28	Intercity, Regional, Commuter	Clearances	Clearance Diagram Compliance Tests	Passenger Cars	Specification	Specification Compliance	19.6.14.1.2	<125 mph	Other	Yes	Operational Safety	None (diagram)	Builder
29	Heavy Rail, Subways, Metros	Clearances	Clearance Diagram Compliance Tests	Passenger Cars	Specification	Specification Compliance	Agency Specified	All	Other	No	Operational Safety	None (diagram)	Builder
30	Light Rail/Street Car	Clearances	Clearance Diagram Compliance Tests	Passenger Cars	Specification	Specification Compliance	Agency Specified	All	Other	No	Operational Safety	None (diagram)	Builder
31	Intercity, Regional, Commuter	Clearances	Clearance Test	Locomotive, EMU/DMUs	Specification	Specification Compliance	19.3.6	<125 mph	Other	Yes	Operational Safety	Test Track or Rail Facility	Third Party Test Facility, Builder Facility, or Revenue Track
32	Heavy Rail, Subways, Metros	Clearances	Clearance Test	Locomotive, EMU/DMUs	Specification	Specification Compliance	Agency Specified	All	Other	No	Operational Safety	Test Track or Rail Facility	Third Party Test Facility, Builder Facility, or Revenue Track
33	Light Rail/Street Car	Clearances	Clearance Test	Locomotive, EMU/DMUs	Specification	Specification Compliance	Agency Specified	All	Other	No	Operational Safety	Test Track or Rail Facility	Third Party Test Facility, Builder Facility, or Revenue Track
34	Intercity, Regional, Commuter	Crashworthiness	Colliding Equipment Override	All Vehicles	Specification	Structural Integrity	RSAC Paragraph 3.3	<125 mph	FRA	Yes	Structural Safety	Test Track	Builder Facility or Third Party Test Facility
35	Heavy Rail, Subways, Metros	Crashworthiness	Colliding Equipment Override	All Vehicles	Specification	Structural Integrity	RT-2-2008	All	Other	Yes	Structural Safety	Test Track	Builder Facility or Third Party Test Facility
36	Light Rail/Street Car	Crashworthiness	Collision Post (Collision Wall) and Corner Post Loads Test	All Vehicles	Specification	Structural Integrity	RT-1-2015 10.3.4	All	Other	No	Structural Safety	Rail Facility	Builder Facility or Third Party Test Facility
37	Heavy Rail, Subways, Metros	Crashworthiness	Collision Post (Collision Wall) and Corner Post Loads Test	All Vehicles	Specification	Structural Integrity	RT-2-2008 10.3.4	All	Other	No	Structural Safety	Rail Facility	Builder Facility or Third Party Test Facility
38	Intercity, Regional, Commuter	Crashworthiness	Collision post elastic-plastic test	Passenger Cars	Specification	Structural Integrity	APTA PR-CS-S-034-99	<125 mph	APTA	Yes	Structural Safety	Rail Facility	Builder
39	Heavy Rail, Subways, Metros	Crashworthiness	Collision Post Loads: Elastic-AC308-Plastic Design Load	All Vehicles	Specification	Structural Integrity	RT-2-2008 10.3.5	All	Other	No	Structural Safety	Rail Facility	Builder Facility or Third Party Test Facility
40	Intercity, Regional, Commuter	Crashworthiness	Collision Post Test	Locomotive, EMU/DMUs	Specification	Structural Integrity	APTA PR-CS-S-034-99	<125 mph	Other	Yes	Structural Safety	Rail Facility	Third Party Test Facility
41	Intercity, Regional, Commuter	Crashworthiness	Collision with Conventional Equipment	All Vehicles	Specification	Structural Integrity	RSAC Paragraph 3.1	<125 mph	FRA	Yes	Structural Safety	Test Track	Builder Facility or Third Party Test Facility
42	Heavy Rail, Subways, Metros	Crashworthiness	Collision with Conventional Equipment	All Vehicles	Specification	Structural Integrity	RT-2-2008	All	Other	Yes	Structural Safety	Test Track	Builder Facility or Third Party Test Facility
43	Intercity, Regional, Commuter	Crashworthiness	Complete coupler, draft gear, radial connector, yoke, etc.	Passenger Cars	Specification	Structural Integrity	19.5.3 per FRA Regs & APTA RPs	<125 mph	APTA & FRA	Yes	Structural Safety	Rail Facility	Builder Facility or Third Party Test Facility
44	Intercity, Regional, Commuter	Crashworthiness	Compression load test at the draft stop	Passenger Cars	Specification	Structural Integrity	APTA PR-CS-S-034-99	<125 mph	APTA	Yes	Structural Safety	Rail Facility	Builder
45	Light Rail/Street Car	Crashworthiness	Compression Loads	All Vehicles	Specification	Structural Integrity	RT-1-2015 10.3.3	All	Other	No	Structural Safety	Rail Facility	Builder Facility or Third Party Test Facility
46	Heavy Rail, Subways, Metros	Crashworthiness	Compression Loads	All Vehicles	Specification	Structural Integrity	RT-2-2008 10.3.3	All	Other	No	Structural Safety	Rail Facility	Builder Facility or Third Party Test Facility
47	Intercity, Regional, Commuter	Crashworthiness	Connected Equipment Override	All Vehicles	Specification	Structural Integrity	RSAC Paragraph 3.4	<125 mph	FRA	Yes	Structural Safety	Test Track	Builder Facility or Third Party Test Facility
48	Heavy Rail, Subways, Metros	Crashworthiness	Connected Equipment Override	All Vehicles	Specification	Structural Integrity	RT-2-2008	All	Other	Yes	Structural Safety	Test Track	Builder Facility or Third Party Test Facility
49	Intercity, Regional, Commuter	Crashworthiness	Corner post elastic-plastic test	Passenger Cars	Specification	Structural Integrity	APTA PR-CS-S-034-99	<125 mph	APTA	Yes	Structural Safety	Rail Facility	Builder
50	Intercity, Regional, Commuter	Crashworthiness	Corner post longitudinal load test	Passenger Cars	Specification	Structural Integrity	APTA PR-CS-S-034-99	<125 mph	APTA	Yes	Structural Safety	Rail Facility	Builder
51	Intercity, Regional, Commuter	Crashworthiness	Corner Post Test	Locomotive, EMU/DMUs	Specification	Structural Integrity	APTA PR-CS-S-034-99	<125 mph	APTA	Yes	Structural Safety	Rail Facility	Third Party Test Facility
52	Intercity, Regional, Commuter	Crashworthiness	Corner Post Transverse Load Test	Passenger Cars	Specification	Structural Integrity	APTA PR-CS-S-034-99	<125 mph	APTA	Yes	Structural Safety	Rail Facility	Builder
53	Intercity, Regional, Commuter	Crashworthiness	Coupler Energy Absorbed Test	Locomotive, EMU/DMUs	Specification	Structural Integrity	19.5.1	<125 mph	Other	Yes	Structural Safety	Rail Facility	Third Party Test Facility

Row #	Need to be Modified	Comments	Reference1	Reference2	Reference3	Reference4	International Standard	International Standard Name	Spec. check date
54	No	Individual cars require fixture modification-fabrication	http://www.highspeed-rail.org/Documents/PRIA_Bi-Level_Spec_305-001_Approved_rev%20C.1.pdf#PRIA%20Specification%20for%20Bi-Level%20Passenger%20Rail%20Car,%20No.305-001,Rev.C.1-1/a				EN 15227-2008-A1-2010, GM/RT2102	CRASHWORTHINESS REQUIREMENTS FOR RAILWAY VE	9/16/2019
55	No		http://www.highspeed-rail.org/Documents/loco-spec-reva-2012jul10.pdf#PRIA%20Specification%20for%20Diesel%20Electric%20Passenger%20Locomotives,%20No.305-005,Rev.A-1/a				EN 15227-2008-A1-2010	CRASHWORTHINESS REQUIREMENTS FOR RAILWAY VE	9/16/2019
56	No		http://www.highspeed-rail.org/Documents/PRIA_Bi-Level_Spec_305-001_Approved_rev%20C.1.pdf#PRIA%20Specification%20for%20Bi-Level%20Passenger%20Rail%20Car,%20No.305-001,Rev.C.1-1/a				EN 15227-2008-A1-2010, GM/RT2102	CRASHWORTHINESS REQUIREMENTS FOR RAILWAY VE	9/16/2019
57	No	Specification may be purchased by user	https://www.asme.org/codes-standards/find-codes-standards/1-1-safety-standard-structural-requirements-light-rail-vehicles&SafetyStandards				EN 15227-2008-A1-2010	CRASHWORTHINESS REQUIREMENTS FOR RAILWAY VE	9/16/2019
58	No	Specification may be purchased by user	https://www.asme.org/codes-standards/find-codes-standards/1-2-safety-standard-structural-requirements-heavy-rail-transit-vehicles&SafetyStandards				EN 15227-2008-A1-2010	CRASHWORTHINESS REQUIREMENTS FOR RAILWAY VE	9/16/2019
59	No		https://www.apta.com/wp-content/uploads/Standards_Documents/APTA-PR-CS-5-034-99.pdf#PRIA%20Specification%20for%20Single-Level%20Passenger%20Rail%20Cars,%20No.305-003/a	http://www.highspeed-rail.org/Documents/PRIA_Bi-Level_Spec_305-001_Approved_rev%20C.1.pdf#PRIA%20Specification%20for%20Bi-Level%20Passenger%20Rail%20Car,%20No.305-001,Rev.C.1-1/a	http://www.highspeed-rail.org/Documents/PRIA%20305%20DocSpec%20and%20other%20NGEC%20Documents/PRIA%20single%20level%20spec%20305%20003%20Approved%20Initial%20Release.pdf#PRIA%20Specification%20for%20Single-Level%20Passenger%20Rail%20Cars,%20No.305-003/a	http://www.highspeed-rail.org/Documents/PRIA%20305%20DocSpec%20and%20other%20NGEC%20Documents/PRIA%20single%20level%20spec%20305%20003%20Approved%20Initial%20Release.pdf#PRIA%20Specification%20for%20Single-Level%20Passenger%20Rail%20Cars,%20No.305-003/a	EN 15227-2008-A1-2010, GM/RT2100	CRASHWORTHINESS REQUIREMENTS FOR RAILWAY VE	9/16/2019
60	No	Specification may be purchased by user	https://www.asme.org/codes-standards/find-codes-standards/1-1-safety-standard-structural-requirements-light-rail-vehicles&SafetyStandards				EN 15227-2008-A1-2010	CRASHWORTHINESS REQUIREMENTS FOR RAILWAY VE	9/16/2019
61	No	Specification may be purchased by user	https://www.asme.org/codes-standards/find-codes-standards/1-2-safety-standard-structural-requirements-heavy-rail-transit-vehicles&SafetyStandards				EN 15227-2008-A1-2010	CRASHWORTHINESS REQUIREMENTS FOR RAILWAY VE	9/16/2019
62	No	Specification may be purchased by user	https://shop.bsigroup.com/ProductDetail/?pid=000000000302175148&Railway%20applications,%20Current%20collection%20systems,%20Requirements%20for%20validation%20of%20measurements%20of%20the%20dynamic%20interaction%20between%20pantograph%20and%20overhead%20contact%20line/a						9/16/2019
63	No	Specification may be purchased by user	https://shop.bsigroup.com/ProductDetail/?pid=000000000302175148&EN%205013-2012,%20Current%20collection%20systems,%20Requirements%20for%20validation%20of%20measurements%20of%20the%20dynamic%20interaction%20between%20pantograph%20and%20overhead%20contact%20line/a						9/16/2019
64	No	Specification may be purchased by user	https://shop.bsigroup.com/ProductDetail/?pid=000000000302175148&EN%205013-2012,%20Current%20collection%20systems,%20Requirements%20for%20validation%20of%20measurements%20of%20the%20dynamic%20interaction%20between%20pantograph%20and%20overhead%20contact%20line/a						9/16/2019
65	No	Specification may be purchased by user	https://shop.bsigroup.com/ProductDetail/?pid=000000000302175148&EN%205013-2012,%20Current%20collection%20systems,%20Requirements%20for%20validation%20of%20measurements%20of%20the%20dynamic%20interaction%20between%20pantograph%20and%20overhead%20contact%20line/a						9/16/2019
66	No	Specification may be purchased by user	https://shop.bsigroup.com/ProductDetail/?pid=000000000302175148&EN%205013-2012,%20Current%20collection%20systems,%20Requirements%20for%20validation%20of%20measurements%20of%20the%20dynamic%20interaction%20between%20pantograph%20and%20overhead%20contact%20line/a						9/16/2019
67	No	Specification may be purchased by user	https://shop.bsigroup.com/ProductDetail/?pid=000000000302175148&EN%205013-2012,%20Current%20collection%20systems,%20Requirements%20for%20validation%20of%20measurements%20of%20the%20dynamic%20interaction%20between%20pantograph%20and%20overhead%20contact%20line/a						9/16/2019
68	No	Specification may be purchased by user	https://shop.bsigroup.com/ProductDetail/?pid=000000000302175148&EN%205013-2012,%20Current%20collection%20systems,%20Requirements%20for%20validation%20of%20measurements%20of%20the%20dynamic%20interaction%20between%20pantograph%20and%20overhead%20contact%20line/a						9/16/2019
69	No	Specification may be purchased by user	https://shop.bsigroup.com/ProductDetail/?pid=000000000302175148&EN%205013-2012,%20Current%20collection%20systems,%20Requirements%20for%20validation%20of%20measurements%20of%20the%20dynamic%20interaction%20between%20pantograph%20and%20overhead%20contact%20line/a						9/16/2019
70	No	UMTA-MA-06-0025-75-14	https://archive.org/details/generalvehiclete0neat/page/n1678&PN=3001-TT,Deceleration%20Effect%20On%20Car/a				Japan Ministerial Standards 2012		9/16/2019
71	No	UMTA-MA-06-0025-75-14	https://archive.org/details/generalvehiclete0neat/page/n1678&PN=3001-TT,Deceleration%20Effect%20On%20Car/a				Japan Ministerial Standards 2012		9/16/2019
72	No	UMTA-MA-06-0025-75-14	https://archive.org/details/generalvehiclete0neat/page/n598&P=3001-TT,Deceleration%20Blended%20Braking/a				Japan Ministerial Standards 2012		9/16/2019
73	No	UMTA-MA-06-0025-75-14	https://archive.org/details/generalvehiclete0neat/page/n598&P=3001-TT,Deceleration%20Blended%20Braking/a				Japan Ministerial Standards 2012		9/16/2019
74	No	UMTA-MA-06-0025-75-14	https://archive.org/details/generalvehiclete0neat/page/n738&P=3003-TT,Deceleration%20Dynamic%20Braking/a				Japan Ministerial Standards 2012		9/16/2019
75	No	UMTA-MA-06-0025-75-14	https://archive.org/details/generalvehiclete0neat/page/n738&P=3003-TT,Deceleration%20Dynamic%20Braking/a				Japan Ministerial Standards 2012		9/16/2019
76	No	UMTA-MA-06-0025-75-14	https://archive.org/details/generalvehiclete0neat/page/n738&P=3003-TT,Deceleration%20Dynamic%20Braking/a				Japan Ministerial Standards 2012		9/16/2019
77	No	UMTA-MA-06-0025-75-14	https://archive.org/details/generalvehiclete0neat/page/n738&P=3003-TT,Deceleration%20Dynamic%20Braking/a				Japan Ministerial Standards 2012		9/16/2019
78	No	UMTA-MA-06-0025-75-14	https://archive.org/details/generalvehiclete0neat/page/n818&P=3004-TT,Deceleration%20Emergency%20Braking/a				Japan Ministerial Standards 2012		9/16/2019
79	No	UMTA-MA-06-0025-75-14	https://archive.org/details/generalvehiclete0neat/page/n818&P=3004-TT,Deceleration%20Emergency%20Braking/a				Japan Ministerial Standards 2012		9/16/2019
80	No	UMTA-MA-06-0025-75-14	https://archive.org/details/generalvehiclete0neat/page/n678&P=3002-TT,Deceleration%20Service%20Frictions/a				Japan Ministerial Standards 2012		9/16/2019
81	No	UMTA-MA-06-0025-75-14	https://archive.org/details/generalvehiclete0neat/page/n678&P=3002-TT,Deceleration%20Service%20Frictions/a				Japan Ministerial Standards 2012		9/16/2019
82	No	UMTA-MA-06-0025-75-14	https://archive.org/details/generalvehiclete0neat/page/n678&P=3002-TT,Deceleration%20Service%20Frictions/a				Japan Ministerial Standards 2012		9/16/2019
83	No	UMTA-MA-06-0025-75-14	https://archive.org/details/generalvehiclete0neat/page/n678&P=3002-TT,Deceleration%20Service%20Frictions/a				Japan Ministerial Standards 2012		9/16/2019
84	No	UMTA-MA-06-0025-75-14	https://archive.org/details/generalvehiclete0neat/page/n678&P=3002-TT,Deceleration%20Service%20Frictions/a				Japan Ministerial Standards 2012		9/16/2019
85	No		http://www.highspeed-rail.org/Documents/PRIA_Bi-Level_Spec_305-001_Approved_rev%20C.1.pdf#PRIA%20Specification%20for%20Bi-Level%20Passenger%20Rail%20Car,%20No.305-001,Rev.C.1-1/a	http://www.highspeed-rail.org/Documents/PRIA%20305%20DocSpec%20and%20other%20NGEC%20Documents/PRIA%20single%20level%20spec%20305%20003%20Approved%20Initial%20Release.pdf#PRIA%20Specification%20for%20Single-Level%20Passenger%20Rail%20Cars,%20No.305-003/a	http://www.highspeed-rail.org/Documents/PRIA%20305%20DocSpec%20and%20other%20NGEC%20Documents/PRIA%20single%20level%20spec%20305%20003%20Approved%20Initial%20Release.pdf#PRIA%20Specification%20for%20Single-Level%20Passenger%20Rail%20Cars,%20No.305-003/a	http://www.highspeed-rail.org/Documents/PRIA%20305%20DocSpec%20and%20other%20NGEC%20Documents/PRIA%20single%20level%20spec%20305%20003%20Approved%20Initial%20Release.pdf#PRIA%20Specification%20for%20Single-Level%20Passenger%20Rail%20Cars,%20No.305-003/a	EN 15227-2008-A1-2010	CRASHWORTHINESS REQUIREMENTS FOR RAILWAY VE	9/16/2019
86	No		http://www.highspeed-rail.org/Documents/PRIA_Bi-Level_Spec_305-001_Approved_rev%20C.1.pdf#PRIA%20Specification%20for%20Bi-Level%20Passenger%20Rail%20Car,%20No.305-001,Rev.C.1-1/a	http://www.highspeed-rail.org/Documents/PRIA%20305%20DocSpec%20and%20other%20NGEC%20Documents/PRIA%20single%20level%20spec%20305%20003%20Approved%20Initial%20Release.pdf#PRIA%20Specification%20for%20Single-Level%20Passenger%20Rail%20Cars,%20No.305-003/a	http://www.highspeed-rail.org/Documents/PRIA%20305%20DocSpec%20and%20other%20NGEC%20Documents/PRIA%20single%20level%20spec%20305%20003%20Approved%20Initial%20Release.pdf#PRIA%20Specification%20for%20Single-Level%20Passenger%20Rail%20Cars,%20No.305-003/a	http://www.highspeed-rail.org/Documents/PRIA%20305%20DocSpec%20and%20other%20NGEC%20Documents/PRIA%20single%20level%20spec%20305%20003%20Approved%20Initial%20Release.pdf#PRIA%20Specification%20for%20Single-Level%20Passenger%20Rail%20Cars,%20No.305-003/a	EN 15227-2008-A1-2010	CRASHWORTHINESS REQUIREMENTS FOR RAILWAY VE	9/16/2019
87	No	UMTA-MA-06-0025-75-14	https://archive.org/details/generalvehiclete0neat/page/n878&P=4001-TT,Dirft%20Test%20Traction%20Resistance/a						9/16/2019
88	No	UMTA-MA-06-0025-75-14	https://archive.org/details/generalvehiclete0neat/page/n878&P=4001-TT,Dirft%20Test%20Traction%20Resistance/a						9/16/2019
89	No	UMTA-MA-06-0025-75-14	https://archive.org/details/generalvehiclete0neat/page/n878&P=4001-TT,Dirft%20Test%20Traction%20Resistance/a						9/16/2019
90	No	UMTA-MA-06-0025-75-14	https://archive.org/details/generalvehiclete0neat/page/n938&P=5001-TT,Duty%20Cycle%20Friction%20Brakes/a						9/16/2019
91	No	UMTA-MA-06-0025-75-14	https://archive.org/details/generalvehiclete0neat/page/n938&P=5001-TT,Duty%20Cycle%20Friction%20Brakes/a						9/16/2019
92	No	UMTA-MA-06-0025-75-14	https://archive.org/details/generalvehiclete0neat/page/n938&P=5001-TT,Duty%20Cycle%20Friction%20Brakes/a						9/16/2019
93	No	UMTA-MA-06-0025-75-14	https://archive.org/details/generalvehiclete0neat/page/n1758&R=0001-XX,Dynamic%20Shake%20Test%20Vertical/a						9/16/2019
94	No	UMTA-MA-06-0025-75-14	https://archive.org/details/generalvehiclete0neat/page/n1758&R=0001-XX,Dynamic%20Shake%20Test%20Vertical/a						9/16/2019
95	No	UMTA-MA-06-0025-75-14	https://archive.org/details/generalvehiclete0neat/page/n1758&R=0001-XX,Dynamic%20Shake%20Test%20Vertical/a						9/16/2019
96	No	UMTA-MA-06-0025-75-14	https://archive.org/details/generalvehiclete0neat/page/n1838&R=0002-XX,Dynamic%20Shake%20Test%20Lateral/a						9/16/2019
97	No	UMTA-MA-06-0025-75-14	https://archive.org/details/generalvehiclete0neat/page/n1838&R=0002-XX,Dynamic%20Shake%20Test%20Lateral/a						9/16/2019
98	No	UMTA-MA-06-0025-75-14	https://archive.org/details/generalvehiclete0neat/page/n1838&R=0002-XX,Dynamic%20Shake%20Test%20Lateral/a						

Row #	Transportation Mode	Testing Name	Name of Test	Vehicle Type	Step in Build Process	Test Type	Specification	Required for Speed	Standard	Fra	Testing Categorization	Facility Requirements	Proposed Location
117	Intercity, Regional, Commuter	Crashworthiness	End Structure Integrity of Cab End	All Vehicles	Specification	Structural Integrity	RSAC Paragraph 3.6	<125 mph	FRA	Yes	Structural Safety	Test Track	Builder Facility or Third Party Test Facility
118	Heavy Rail, Subways, Metros	Crashworthiness	End Structure Integrity of Cab End	All Vehicles	Specification	Structural Integrity	RT-2-2008	All	Other	Yes	Structural Safety	Test Track	Builder Facility or Third Party Test Facility
119	Intercity, Regional, Commuter	Crashworthiness	End Structure Integrity of Non-cab End	All Vehicles	Specification	Structural Integrity	RSAC Paragraph 3.7	<125 mph	FRA	Yes	Structural Safety	Test Track	Builder Facility or Third Party Test Facility
120	Heavy Rail, Subways, Metros	Crashworthiness	End Structure Integrity of Non-cab End	All Vehicles	Specification	Structural Integrity	RT-2-2008	All	Other	Yes	Structural Safety	Test Track	Builder Facility or Third Party Test Facility
121	Heavy Rail, Subways, Metros	Noise and Vibration	Equipment Noise Survey Wayside	Passenger Cars	Specification	Noise/Vibration	CN 0001-TT	All	Other	No	Passenger Satisfaction	Test Track	Third Party Test Facility or Revenue Track
122	Intercity, Regional, Commuter	Noise and Vibration	Equipment Noise Survey Wayside	Passenger Cars	Specification	Noise/Vibration	CN 0001-TT	All	Other	No	Passenger Satisfaction	Test Track	Third Party Test Facility or Revenue Track
123	Light Rail/Street Car	Noise and Vibration	Equipment Noise Survey Wayside	Passenger Cars	Specification	Noise/Vibration	CN 0001-TT	All	Other	No	Passenger Satisfaction	Test Track	Third Party Test Facility or Revenue Track
124	Intercity, Regional, Commuter	Communications	Event recorder performance	Passenger Cars	Specification	Signaling and Train Control	19.6.13.3	<125 mph	Other	Yes	Operational Safety	N/A	Builder Facility or Third Party Test Facility
125	Intercity, Regional, Commuter	Communications	Event recorder-video performance	Passenger Cars	Specification	Signaling and Train Control	19.3.13.4	<125 mph	Other	Yes	Operational Safety	N/A	Builder Facility or Third Party Test Facility
126	Intercity, Regional, Commuter	Materials	Fluid Entry Inhibition	All Vehicles	Specification	Structural Integrity	RSAC Paragraph 3.5	<125 mph	FRA	Yes	Structural Safety	Test Track	Builder Facility or Third Party Test Facility
127	Heavy Rail, Subways, Metros	Materials	Fluid Entry Inhibition	All Vehicles	Specification	Structural Integrity	RT-2-2008	All	Other	Yes	Structural Safety	Test Track	Builder Facility or Third Party Test Facility
128	Intercity, Regional, Commuter	Acceleration and Braking	Friction Brake Performance Test	Passenger Cars	Specification	Component Performance	19.5.14.2.8	<125 mph	Other	Yes	Operational Safety	Test Track	Third Party Test Facility
129	Intercity, Regional, Commuter	Acceleration and Braking	Friction Brake System Endurance Tests	Passenger Cars	Specification	Specification Compliance	19.5.4.3	<125 mph	Other	Yes	Operational Safety	Test Track	Third Party Test Facility
130	Intercity, Regional, Commuter	Compatibility	Functionality Tests of all equipment	Passenger Cars	Specification	Specification Compliance	19.7.2	<125 mph	Other	Yes	Reliability	Test Track	Revenue Track
131	Intercity, Regional, Commuter	Acceleration and Braking	Hand Brake Operation	Passenger Cars	Specification	Specification Compliance	19.6.4.2	<125 mph	Other	Yes	Operational Safety	Test Track	Builder
132	Intercity, Regional, Commuter	Acceleration and Braking	Handbrake Tests	Passenger Cars	Specification	Specification Compliance	19.5.4.5 per APTA PR-M-5-006-98	<125 mph	Other	Yes	Operational Safety	Test Track	Builder
133	Intercity, Regional, Commuter	Compatibility	Head End Power (HEP) Test	Locomotive, EMUs, DMUs	Specification	Electrical & Propulsion Performance and Compatibility	19.3.16	<125 mph	Other	Yes	Reliability	Test Track	Third Party Test Facility or Revenue Track
134	Intercity, Regional, Commuter	Communications	Headlight and crossing light tests	Passenger Cars	Specification	Signaling and Train Control	19.6.13.14 per 49CFR Section 229.125	<125 mph	Other	Yes	Operational Safety	N/A	Builder
135	Intercity, Regional, Commuter	Communications	Headlights, Misc. Light Adjustment	Locomotive, EMUs, DMUs	Specification	Specification Compliance	Table 19-1; Test Matrix	<125 mph	Other	Yes	Operational Safety	N/A	Third Party Test Facility, Builder Facility, or Revenue Track
136	Intercity, Regional, Commuter	Compatibility	HEP Test per APTA RP-E-011-08	Locomotive, EMUs, DMUs	Specification	Electrical & Propulsion Performance and Compatibility	Table 19-1; Test Matrix	<125 mph	Other	Yes	Reliability	Test Track	Third Party Test Facility or Revenue Track
137	Intercity, Regional, Commuter	Track Geometry/Vehicle Response	High-speed Testing/Vehicle Qualification	All Vehicles	Qualification	Vehicle Dynamics	49CFR 213.345	<125 mph	Other	Yes	Operational Safety	125 mph, instrumented car, SMS	Third Party Test Facility or Revenue Track
138	Intercity, Regional, Commuter	Communications	Horn and bell operation	Passenger Cars	Specification	Signaling and Train Control	19.6.13.12	<125 mph	Other	Yes	Operational Safety	Rail Facility	Builder
139	Intercity, Regional, Commuter	Communications	Horn Test per 49CFR 229.129	Locomotive, EMUs, DMUs	Specification	Specification Compliance	Table 19-1; Test Matrix	<125 mph	Other	Yes	Operational Safety	Rail Facility	Third Party Test Facility, Builder Facility, or Revenue Track
140	Intercity, Regional, Commuter	Crashworthiness	Interior Fixture Attachment	All Vehicles	Specification	Structural Integrity	RSAC Paragraph 3.11	<125 mph	FRA	Yes	Structural Safety	Test Track	Builder Facility or Third Party Test Facility
141	Heavy Rail, Subways, Metros	Crashworthiness	Interior Fixture Attachment	All Vehicles	Specification	Structural Integrity	RT-2-2008	All	Other	Yes	Structural Safety	Test Track	Builder Facility or Third Party Test Facility
142	Heavy Rail, Subways, Metros	Noise and Vibration	Interior Noise Survey	Passenger Cars	Specification	Noise/Vibration	PN-1301-TT	All	Other	No	Passenger Satisfaction	Test Track	Third Party Test Facility or Revenue Track
143	Intercity, Regional, Commuter	Noise and Vibration	Interior Noise Survey	Passenger Cars	Specification	Noise/Vibration	PN-1301-TT	All	Other	No	Passenger Satisfaction	Test Track	Third Party Test Facility or Revenue Track
144	Light Rail/Street Car	Noise and Vibration	Interior Noise Survey	Passenger Cars	Specification	Noise/Vibration	PN-1301-TT	All	Other	No	Passenger Satisfaction	Test Track	Third Party Test Facility or Revenue Track
145	Intercity, Regional, Commuter	Acceleration and Braking	Locomotive and air brake control	Passenger Cars	Specification	Signaling and Train Control	16.6.13.6	<125 mph	Other	Yes	Operational Safety	Test Track	Builder
146	Intercity, Regional, Commuter	Compatibility	Locomotive Auxiliary Tests	Locomotive, EMUs, DMUs	Specification	Electrical & Propulsion Performance and Compatibility	19.3.13	<125 mph	Other	Yes	Reliability	Test Track	Builder Facility or Third Party Test Facility
147	Intercity, Regional, Commuter	Crashworthiness	Locomotive Carbody Compression Test	Locomotive, EMUs, DMUs	Specification	Structural Integrity	APTA PR CS-5-034-99	<125 mph	Other	Yes	Structural Safety	Rail Facility	Builder Facility or Third Party Test Facility
148	Intercity, Regional, Commuter	Compatibility	Locomotive Electrical Test	Locomotive, EMUs, DMUs	Specification	Electrical & Propulsion Performance and Compatibility	Table 19-1; Test Matrix	<125 mph	Other	Yes	Reliability	Test Track	Builder Facility or Third Party Test Facility
149	Intercity, Regional, Commuter	Compatibility	Locomotive Electrical Tests	Locomotive, EMUs, DMUs	Specification	Electrical & Propulsion Performance and Compatibility	19.3.11	<125 mph	Other	Yes	Reliability	Test Track	Builder Facility or Third Party Test Facility
150	Intercity, Regional, Commuter	Compatibility	Locomotive Propulsion Tests	Locomotive, EMUs, DMUs	Specification	Electrical & Propulsion Performance and Compatibility	19.3.12	<125 mph	Other	Yes	Reliability	Test Track	Builder Facility or Third Party Test Facility
151	Intercity, Regional, Commuter	Compatibility	Locomotive Sequence Test	Locomotive, EMUs, DMUs	Specification	Specification Compliance	Table 19-1; Test Matrix	<125 mph	Other	Yes	Operational Safety	Test Track	Builder Facility or Third Party Test Facility
152	Intercity, Regional, Commuter	Compatibility	Locomotive Sequence Tests	Locomotive, EMUs, DMUs	Specification	Electrical & Propulsion Performance and Compatibility	19.3.14	<125 mph	Other	Yes	Operational Safety	Test Track	Builder Facility or Third Party Test Facility
153	Intercity, Regional, Commuter	Track Geometry/Vehicle Response	Locomotive Track Test	Locomotive, EMUs, DMUs	Specification	Vehicle Dynamics	19.3.8	<125 mph	Other	Yes	Operational Safety	Test Track	Third Party Test Facility
154	Intercity, Regional, Commuter	Track Geometry/Vehicle Response	Locomotive Track Test Acceptance	Locomotive, EMUs, DMUs	Qualification	Vehicle Dynamics	Table 19-1; Test Matrix	<125 mph	Other	Yes	Operational Safety	Test Track	Third Party Test Facility
155	Intercity, Regional, Commuter	Materials	Material Certification	Locomotive, EMUs, DMUs	Specification	Specification Compliance	19.6	<125 mph	Other	Yes	Operational Safety	N/A	Third Party Test Facility or Revenue Track
156	Intercity, Regional, Commuter	Track Geometry/Vehicle Response	Minimally Compliant Analytical Track (MCAT)	All Vehicles	Qualification	Vehicle Dynamics	49CFR213.345 (proposed)	Class 6 Track or 6 inches of cant deficiency	FRA	Yes	Operational Safety	None (simulations)	N/A
157	Heavy Rail, Subways, Metros	Track Geometry/Vehicle Response	Minimally Compliant Analytical Track (MCAT)	All Vehicles	Qualification	Vehicle Dynamics	Agency Specified	Class 6 Track or 6 inches of cant deficiency	BFP	No	Operational Safety	None (simulations)	N/A
158	Light Rail/Street Car	Track Geometry/Vehicle Response	Minimally Compliant Analytical Track (MCAT)	All Vehicles	Qualification	Vehicle Dynamics	Agency Specified	Class 6 Track or 6 inches of cant deficiency	Other	No	Operational Safety	None (simulations)	N/A
159	Intercity, Regional, Commuter	Communications	MU and COMM trainline function operation	Passenger Cars	Specification	Signaling and Train Control	19.6.13.9	<125 mph	Other	Yes	Operational Safety	Test Track	Third Party Test Facility or Revenue Track
160	Intercity, Regional, Commuter	Noise and Vibration	Noise and Vibration Tests	Passenger Cars	Specification	Noise/Vibration	19.5.14.2.7 per ANSI Standard S1.4 Type2	>90 mph	Other	Yes	Passenger Satisfaction	Test Track or Rail Facility	Builder Facility or Third Party Test Facility
161	Intercity, Regional, Commuter	Crashworthiness	Occupant Protection Features	All Vehicles	Specification	Structural Integrity	RSAC Paragraph 3.12	<125 mph	FRA	Yes	Structural Safety	Test Track	Builder Facility or Third Party Test Facility
162	Heavy Rail, Subways, Metros	Crashworthiness	Occupant Protection Features	All Vehicles	Specification	Structural Integrity	RT-2-2008	All	Other	Yes	Structural Safety	Test Track	Builder Facility or Third Party Test Facility
163	Intercity, Regional, Commuter	Crashworthiness	Occupied Volume Integrity	All Vehicles	Specification	Structural Integrity	RSAC Paragraph 3.2	<125 mph	FRA	Yes	Structural Safety	Test Track	Builder Facility or Third Party Test Facility
164	Heavy Rail, Subways, Metros	Crashworthiness	Occupied Volume Integrity	All Vehicles	Specification	Structural Integrity	RT-2-2008	All	Other	Yes	Structural Safety	Test Track	Builder Facility or Third Party Test Facility
165	Intercity, Regional, Commuter	Track Geometry/Vehicle Response	On Board Acceleration	All Vehicles	Ongoing Monitoring	Vehicle Dynamics	49CFR213.333 j	>125mph	FRA	Yes	Operational Safety	Revenue Track	Third Party Test Facility or Revenue Track
166	Intercity, Regional, Commuter	Track Geometry/Vehicle Response	On Board Acceleration	All Vehicles	Ongoing Monitoring	Vehicle Dynamics	49CFR213.333 k	>110mph	FRA	Yes	Operational Safety	Revenue Track	Third Party Test Facility or Revenue Track
167	Intercity, Regional, Commuter	Track Geometry/Vehicle Response	On Board Acceleration	All Vehicles	Ongoing Monitoring	Vehicle Dynamics	49CFR213.333 l	>125mph	FRA	Yes	Operational Safety	Revenue Track	Third Party Test Facility or Revenue Track
168	Heavy Rail, Subways, Metros	Track Geometry/Vehicle Response	On Board Acceleration	All Vehicles	Ongoing Monitoring	Vehicle Dynamics	Agency Specified	All	BFP	No	Operational Safety	Revenue Track	Revenue Track
169	Heavy Rail, Subways, Metros	Track Geometry/Vehicle Response	On Board Acceleration	All Vehicles	Ongoing Monitoring	Vehicle Dynamics	Agency Specified	All	BFP	No	Operational Safety	Revenue Track	Revenue Track
170	Heavy Rail, Subways, Metros	Track Geometry/Vehicle Response	On Board Acceleration	All Vehicles	Ongoing Monitoring	Vehicle Dynamics	Agency Specified	>125 mph	BFP	No	Operational Safety	Revenue Track	Revenue Track
171	Light Rail/Street Car	Track Geometry/Vehicle Response	On Board Acceleration	All Vehicles	Ongoing Monitoring	Vehicle Dynamics	Agency Specified	All	BFP	No	Operational Safety	Revenue Track	Revenue Track
172	Light Rail/Street Car	Track Geometry/Vehicle Response	On Board Acceleration	All Vehicles	Ongoing Monitoring	Vehicle Dynamics	Agency Specified	All	BFP	No	Operational Safety	Revenue Track	Revenue Track
173	Light Rail/Street Car	Track Geometry/Vehicle Response	On Board Acceleration	All Vehicles	Ongoing Monitoring	Vehicle Dynamics	Agency Specified	>125mph	Other	No	Operational Safety	Revenue Track	Revenue Track
174	Intercity, Regional, Commuter	Compatibility	Parking brake tests	Locomotive, EMUs, DMUs	Specification	Specification Compliance	19.3.15.3	<125 mph	Other	Yes	Operational Safety	Test Track	Revenue Track
175	Intercity, Regional, Commuter	Compatibility	Plaid Train Compatibility with Existing Amtrak Bilevel	Passenger Cars	Qualification	Specification	19.5.14.2.2	<125 mph	Other	Yes	Operational Safety	(California Air Superliner, Superliner)	Revenue Track

Row #	Transportation Mode	Testing Name	Name of Test	Vehicle Type	Step in Build Process	Test Type	Specification	Required for Speed	Standard	Fra	Testing Categorization	Facility Requirements	Proposed Location
176	Intercity, Regional, Commuter	In-Service Requirements	Pilot Train Testing	Passenger Cars	Specification	Endurance/Revenue Service	19.5.14.2.1	<125 mph	Other	Yes	Operational Safety	Test Track	Revenue Track
177	Intercity, Regional, Commuter	Communications	Positive Train Control (PTC) and/or Automatic Train Control	Locomotive, EMUs, DMUs	Specification	Signaling and Train Control	Table 19-1: Test Matrix	<125 mph	Other	Yes	Operational Safety	Test Track	Revenue Track
178	Intercity, Regional, Commuter	Communications	Positive train control system	Passenger Cars	Specification	Signaling and Train Control	19.6.13.5	<125 mph	Other	Yes	Operational Safety	Test Track	Revenue Track
179	Intercity, Regional, Commuter	Compatibility	Post Delivery Testing of Pilot Train with Other Equipment	Passenger Cars	Specification and Qualification	Endurance/Revenue Service	19.8.	<125 mph	Other	Yes	Reliability	Test Track	Revenue Track
180	Heavy Rail, Subways, Metros	Compatibility	Power Consumption	Passenger Cars	Specification	Electrical & Propulsion Performance and Compatibility	PC-5011-TT	All	Other	No	Reliability	Test Track	Third Party Test Facility or Revenue Track
181	Intercity, Regional, Commuter	Compatibility	Power Consumption	Passenger Cars	Specification	Electrical & Propulsion Performance and Compatibility	PC-5011-TT	All	Other	No	Reliability	Test Track	Third Party Test Facility or Revenue Track
182	Light Rail/Street Car	Compatibility	Power Consumption	Passenger Cars	Specification	Electrical & Propulsion Performance and Compatibility	PC-5011-TT	All	Other	No	Reliability	Test Track	Third Party Test Facility or Revenue Track
183	Light Rail/Street Car	Crashworthiness	Proof Load Tests	All Vehicles	Specification	Structural Integrity	RT-1-2015 10.3	All	Other	No	Structural Safety	Rail Facility	Builder Facility or Third Party Test Facility
184	Heavy Rail, Subways, Metros	Crashworthiness	Proof Load Tests	All Vehicles	Specification	Structural Integrity	RT-2-2008 10.3	All	Other	No	Structural Safety	Rail Facility	Builder Facility or Third Party Test Facility
185	Intercity, Regional, Commuter	Compatibility	Propulsion Test	Locomotive, EMUs, DMUs	Specification	Electrical & Propulsion Performance and Compatibility	Table 19-1: Test Matrix	<125 mph	Other	Yes	Reliability	Test Track	Third Party Test Facility or Revenue Track
186	Heavy Rail, Subways, Metros	Communications	Radio Frequency Interference	Passenger Cars	Specification	Electrical & Propulsion Performance and Compatibility	PS-6001-TT	All	Other	No	Operational Safety	Test Track	Third Party Test Facility or Revenue Track
187	Intercity, Regional, Commuter	Communications	Radio Frequency Interference	Passenger Cars	Specification	Electrical & Propulsion Performance and Compatibility	PS-6001-TT	All	Other	No	Operational Safety	Test Track	Third Party Test Facility or Revenue Track
188	Light Rail/Street Car	Communications	Radio Frequency Interference	Passenger Cars	Specification	Electrical & Propulsion Performance and Compatibility	PS-6001-TT	All	Other	No	Operational Safety	Test Track	Third Party Test Facility or Revenue Track
189	Heavy Rail, Subways, Metros	Materials	Radiography inspection of critical welds on first production	All Vehicles	Specification	Structural Integrity	Agency Specified	All	RFP	No	Structural Safety	Rail Facility	Builder
190	Intercity, Regional, Commuter	Materials	Radiography inspection of critical welds on first production	All Vehicles	Specification	Structural Integrity	Agency Specified	All	RFP	No	Structural Safety	Rail Facility	Builder
191	Light Rail/Street Car	Materials	Radiography inspection of critical welds on first production	All Vehicles	Specification	Structural Integrity	Agency Specified	All	RFP	No	Structural Safety	Rail Facility	Builder
192	Intercity, Regional, Commuter	In-Service Requirements	Reliability and Post-Delivery Tests	Passenger Cars	Specification	Endurance/Revenue Service	19.9	<125 mph	Other	Yes	Operational Safety	Test Track	Revenue Track
193	Heavy Rail, Subways, Metros	Noise and Vibration	Ride Quality	All Vehicles	Specification and Qualification	Vehicle Dynamics	ISO 2631-1 Second Edition 1997-05-01	All	Other	No	Passenger Satisfaction	Test Track	Third Party Test Facility or Revenue Track
194	Light Rail/Street Car	Noise and Vibration	Ride Quality	All Vehicles	Specification and Qualification	Vehicle Dynamics	ISO 2631-1 Second Edition 1997-05-01	All	Other	No	Passenger Satisfaction	Test Track	Revenue Track
195	Intercity, Regional, Commuter	Noise and Vibration	Ride Quality Tests	All Vehicles	Specification and Qualification	Vehicle Dynamics	ISO 2631-1 Second Edition 1997-05-01	All	Other	Yes	Passenger Satisfaction	Test Track	Third Party Test Facility or Revenue Track
196	Heavy Rail, Subways, Metros	Noise and Vibration	Ride Roughness Acceleration	Passenger Cars	Specification	Vehicle Dynamics	R-2001-TT	All	Other	No	Passenger Satisfaction	Test Track	Third Party Test Facility or Revenue Track
197	Intercity, Regional, Commuter	Noise and Vibration	Ride Roughness Acceleration	Passenger Cars	Specification	Vehicle Dynamics	R-2001-TT	All	Other	No	Passenger Satisfaction	Test Track	Third Party Test Facility or Revenue Track
198	Light Rail/Street Car	Noise and Vibration	Ride Roughness Acceleration	Passenger Cars	Specification	Vehicle Dynamics	R-2001-TT	All	Other	No	Passenger Satisfaction	Test Track	Third Party Test Facility or Revenue Track
199	Heavy Rail, Subways, Metros	Noise and Vibration	Ride Roughness-Component Induced Vibration	Passenger Cars	Specification	Vehicle Dynamics	R-0010-TT	All	Other	No	Passenger Satisfaction	Test Track	Third Party Test Facility or Revenue Track
200	Intercity, Regional, Commuter	Noise and Vibration	Ride Roughness-Component Induced Vibration	Passenger Cars	Specification	Vehicle Dynamics	R-0010-TT	All	Other	No	Passenger Satisfaction	Test Track	Third Party Test Facility or Revenue Track
201	Light Rail/Street Car	Noise and Vibration	Ride Roughness-Component Induced Vibration	Passenger Cars	Specification	Vehicle Dynamics	R-0010-TT	All	Other	No	Passenger Satisfaction	Test Track	Third Party Test Facility or Revenue Track
202	Heavy Rail, Subways, Metros	Noise and Vibration	Ride Roughness Deceleration	Passenger Cars	Specification	Vehicle Dynamics	R-3001-TT	All	Other	No	Passenger Satisfaction	Test Track	Third Party Test Facility or Revenue Track
203	Intercity, Regional, Commuter	Noise and Vibration	Ride Roughness Deceleration	Passenger Cars	Specification	Vehicle Dynamics	R-3001-TT	All	Other	No	Passenger Satisfaction	Test Track	Third Party Test Facility or Revenue Track
204	Light Rail/Street Car	Noise and Vibration	Ride Roughness Deceleration	Passenger Cars	Specification	Vehicle Dynamics	R-3001-TT	All	Other	No	Passenger Satisfaction	Test Track	Third Party Test Facility or Revenue Track
205	Heavy Rail, Subways, Metros	Noise and Vibration	Ride Roughness-Worst Speeds	Passenger Cars	Specification	Vehicle Dynamics	R-1101-TT	All	Other	No	Passenger Satisfaction	Test Track	Third Party Test Facility or Revenue Track
206	Intercity, Regional, Commuter	Noise and Vibration	Ride Roughness-Worst Speeds	Passenger Cars	Specification	Vehicle Dynamics	R-1101-TT	All	Other	No	Passenger Satisfaction	Test Track	Third Party Test Facility or Revenue Track
207	Light Rail/Street Car	Noise and Vibration	Ride Roughness-Worst Speeds	Passenger Cars	Specification	Vehicle Dynamics	R-1101-TT	All	Other	No	Passenger Satisfaction	Test Track	Third Party Test Facility or Revenue Track
208	Intercity, Regional, Commuter	Track Geometry/Vehicle Response	Roll Angle Tests	Passenger Cars	Specification	Vehicle Dynamics	19.5.14.1 per 49CFR 213.57	<125 mph	Other	Yes	Operational Safety	Test Track or Rail Facility	Builder
209	Intercity, Regional, Commuter	Crashworthiness	Roof Integrity	All Vehicles	Specification	Structural Integrity	RSAC Paragraph 3.8	<125 mph	FRA	Yes	Structural Safety	Test Track	Builder Facility or Third Party Test Facility
210	Heavy Rail, Subways, Metros	Crashworthiness	Roof Integrity	All Vehicles	Specification	Structural Integrity	RT-2-2008	All	Other	Yes	Structural Safety	Test Track	Builder Facility or Third Party Test Facility
211	Heavy Rail, Subways, Metros	Noise and Vibration	Screech Loop Survey-On Car	Passenger Cars	Specification	Noise/Vibration	PN-1201-TT	All	Other	No	Operational Safety	Test Track	Third Party Test Facility or Revenue Track
212	Intercity, Regional, Commuter	Noise and Vibration	Screech Loop Survey-On Car	Passenger Cars	Specification	Noise/Vibration	PN-1201-TT	All	Other	No	Operational Safety	Test Track	Third Party Test Facility or Revenue Track
213	Light Rail/Street Car	Noise and Vibration	Screech Loop Survey-On Car	Passenger Cars	Specification	Noise/Vibration	PN-1201-TT	All	Other	No	Operational Safety	Test Track	Third Party Test Facility or Revenue Track
214	Heavy Rail, Subways, Metros	Noise and Vibration	Screech Loop Survey-Wayside	Passenger Cars	Specification	Noise/Vibration	CN-1201-TT	All	Other	No	Operational Safety	Test Track	Third Party Test Facility or Revenue Track
215	Intercity, Regional, Commuter	Noise and Vibration	Screech Loop Survey-Wayside	Passenger Cars	Specification	Noise/Vibration	CN-1201-TT	All	Other	No	Operational Safety	Test Track	Third Party Test Facility or Revenue Track
216	Light Rail/Street Car	Noise and Vibration	Screech Loop Survey-Wayside	Passenger Cars	Specification	Noise/Vibration	CN-1201-TT	All	Other	No	Operational Safety	Test Track	Third Party Test Facility or Revenue Track
217	Intercity, Regional, Commuter	Crashworthiness	Side Structure Integrity	All Vehicles	Specification	Structural Integrity	RSAC Paragraph 3.9	<125 mph	FRA	Yes	Structural Safety	Test Track	Builder Facility or Third Party Test Facility
218	Heavy Rail, Subways, Metros	Crashworthiness	Side Structure Integrity	All Vehicles	Specification	Structural Integrity	RT-2-2008	All	Other	Yes	Structural Safety	Test Track	Builder Facility or Third Party Test Facility
219	Heavy Rail, Subways, Metros	In-Service Requirements	Simulated Revenue Service	Passenger Cars	Qualification	Endurance/Revenue Service	RS-5001-TT	All	Other	No	Operational Safety	Test Track	Third Party Test Facility or Revenue Track
220	Intercity, Regional, Commuter	In-Service Requirements	Simulated Revenue Service	Passenger Cars	Qualification	Endurance/Revenue Service	RS-5001-TT	All	Other	No	Operational Safety	Test Track	Third Party Test Facility or Revenue Track
221	Light Rail/Street Car	In-Service Requirements	Simulated Revenue Service	Passenger Cars	Qualification	Endurance/Revenue Service	RS-5001-TT	All	Other	No	Operational Safety	Test Track	Third Party Test Facility or Revenue Track
222	Intercity, Regional, Commuter	Acceleration and Braking	Single Car Air Brake and Pneumatic System Operation	Passenger Cars	Specification	Specification Compliance	APTA PR-M-5-005-98 and AAR 5471	<125 mph	APTA	Yes	Operational Safety	Test Track	Builder Facility or Third Party Test Facility
223	Intercity, Regional, Commuter	Materials	Smoke and Flame Components per 49CFR 238.103	Locomotive, EMUs, DMUs	Specification	Specification Compliance	Table 19-1: Test Matrix	<125 mph	Other	Yes	Operational Safety	Facility that tests flammability	Builder
224	Intercity, Regional, Commuter	Noise and Vibration	Sound Level Test	Locomotive, EMUs, DMUs	Specification	Noise/Vibration	19.3.7 as per 49CFR Section 229.121	<125 mph	Other	Yes	Passenger Satisfaction	Test Track or Rail Facility	Third Party Test Facility or Revenue Track
225	Intercity, Regional, Commuter	Communications	Speedometer/overspeed performance	Passenger Cars	Specification	Signaling and Train Control	19.6.13.2	<125 mph	Other	Yes	Operational Safety	Test Track	Builder
226	Heavy Rail, Subways, Metros	Acceleration and Braking	Spin/Slide-Acceleration	Passenger Cars	Specification	Specification Compliance	P-2011-TT	All	Other	No	Reliability	Test Track	Third Party Test Facility or Revenue Track
227	Intercity, Regional, Commuter	Acceleration and Braking	Spin/Slide-Acceleration	Passenger Cars	Specification	Specification Compliance	P-2011-TT	All	Other	No	Reliability	Test Track	Third Party Test Facility or Revenue Track
228	Light Rail/Street Car	Acceleration and Braking	Spin/Slide-Acceleration	Passenger Cars	Specification	Specification Compliance	P-2011-TT	All	Other	No	Reliability	Test Track	Third Party Test Facility or Revenue Track
229	Heavy Rail, Subways, Metros	Acceleration and Braking	Spin/Slide-Deceleration	Passenger Cars	Specification	Specification Compliance	P-3011-TT	All	Other	No	Operational Safety	Test Track	Third Party Test Facility or Revenue Track
230	Intercity, Regional, Commuter	Acceleration and Braking	Spin/Slide-Deceleration	Passenger Cars	Specification	Specification Compliance	P-3011-TT	All	Other	No	Operational Safety	Test Track	Third Party Test Facility or Revenue Track
231	Light Rail/Street Car	Acceleration and Braking	Spin/Slide-Deceleration	Passenger Cars	Specification	Specification Compliance	P-3011-TT	All	Other	No	Operational Safety	Test Track	Third Party Test Facility or Revenue Track
232	Heavy Rail, Subways, Metros	Track Geometry/Vehicle Response	Static Lean	All Vehicles	Specification and Qualification	Vehicle Dynamics & Vehicle Dynamics Modeling	Agency Specified	All	RFP	No	Operational Safety	Rail Facility	Builder Facility or Third Party Test Facility
233	Light Rail/Street Car	Track Geometry/Vehicle Response	Static Lean	All Vehicles	Specification and Qualification	Vehicle Dynamics & Vehicle Dynamics Modeling	Agency Specified	All	RFP	No	Operational Safety	Rail Facility	Builder Facility or Third Party Test Facility
234	Intercity, Regional, Commuter	Track Geometry/Vehicle Response	Static Lean-Proposed (Clearance)	All Vehicles	Specification and Qualification	Vehicle Dynamics & Vehicle Dynamics Modeling	49CFR213.57	All	FRA	Yes	Operational Safety	Rail Facility	Builder Facility or Third Party Test Facility
235	Intercity, Regional, Commuter	Track Geometry/Vehicle Response	Static Roll Stability 49CFR 213.329	Locomotive, EMUs, DMUs	Specification	Vehicle Dynamics	Table 19-1: Test Matrix	<125 mph	Other	Yes	Operational Safety	Rail Facility	Builder Facility or Third Party Test Facility
236	Intercity, Regional, Commuter	Crashworthiness	Structural Absorber Energy Absorption	Passenger Cars	Specification	Structural Integrity	Table 19-1 CEM System Test Matrix (4.21.4 & 4.21.5)	<125 mph	Other	Yes	Structural Safety	Rail Facility	Builder Facility or Third Party Test Facility
237	Heavy Rail, Subways, Metros	Crashworthiness	Structures Acceleration	Passenger Cars	Specification	Structural Integrity	S-2001-TT	All	Other	No	Structural Safety	Test Track	Third Party Test Facility or Revenue Track

Row #	Transportation Mode	Testing Name	Name of Test	Vehicle Type	Step in Build Process	Test Type	Specification	Required for Speed	Standard	Fra	Testing Categorization	Facility Requirements	Proposed Location	
238	Intercity, Regional, Commuter	Crashworthiness	Structures-Acceleration	Passenger Cars	Specification	Structural Integrity	S-2001-TT	All		Other	No	Structural Safety	Test Track	Third Party Test Facility or Revenue Track
239	Light Rail/Street Car	Crashworthiness	Structures-Acceleration	Passenger Cars	Specification	Structural Integrity	S-2001-TT	All		Other	No	Structural Safety	Test Track	Third Party Test Facility or Revenue Track
240	Heavy Rail, Subways, Metros	Crashworthiness	Structures-Constant Velocity	Passenger Cars	Specification	Structural Integrity	S-1001-TT	All		Other	No	Structural Safety	Test Track	Third Party Test Facility or Revenue Track
241	Intercity, Regional, Commuter	Crashworthiness	Structures-Constant Velocity	Passenger Cars	Specification	Structural Integrity	S-1001-TT	All		Other	No	Structural Safety	Test Track	Third Party Test Facility or Revenue Track
242	Light Rail/Street Car	Crashworthiness	Structures-Constant Velocity	Passenger Cars	Specification	Structural Integrity	S-1001-TT	All		Other	No	Structural Safety	Test Track	Third Party Test Facility or Revenue Track
243	Heavy Rail, Subways, Metros	Crashworthiness	Structures-Deceleration	Passenger Cars	Specification	Structural Integrity	S-3001-TT	All		Other	No	Structural Safety	Test Track	Third Party Test Facility or Revenue Track
244	Intercity, Regional, Commuter	Crashworthiness	Structures-Deceleration	Passenger Cars	Specification	Structural Integrity	S-3001-TT	All		Other	No	Structural Safety	Test Track	Third Party Test Facility or Revenue Track
245	Light Rail/Street Car	Crashworthiness	Structures-Deceleration	Passenger Cars	Specification	Structural Integrity	S-3001-TT	All		Other	No	Structural Safety	Test Track	Third Party Test Facility or Revenue Track
246	Intercity, Regional, Commuter	Communications	Train Speed Control Test	Locomotive, EMUs, DMUs	Specification	Signaling and Train Control	19.3.20	<125 mph		Other	Yes	Operational Safety	Test Track	Third Party Test Facility or Revenue Track
247	Intercity, Regional, Commuter	Communications	Trainline Tests	Passenger Cars	Specification	Electrical & Propulsion Performance and Compatibility	19.5.10.2	<125 mph		Other	Yes	Operational Safety	Test Track	Builder
248	Intercity, Regional, Commuter	Crashworthiness	Trigger, Fragible Element, Fuse 4.21.4 & 4.21.5	Passenger Cars	Specification	Structural Integrity	Table 19-1 CEM System Test Matrix (4.21.4 & 4.21.5)	<125 mph		Other	Yes	Structural Safety	Rail Facility	Builder
249	Intercity, Regional, Commuter	Track Geometry/Vehicle Response	Truck Attachment	All Vehicles	Specification	Structural Integrity	49 CFR §238.217 Truck-to-carbody attachment	>125 mph		FRA	Yes	Operational Safety	Test Track	Builder Facility or Third Party Test Facility
250	Heavy Rail, Subways, Metros	Track Geometry/Vehicle Response	Truck Attachment	All Vehicles	Specification	Structural Integrity	RT-2-2008	All		Other	Yes	Structural Safety	Test Track	Builder Facility or Third Party Test Facility
251	Heavy Rail, Subways, Metros	Track Geometry/Vehicle Response	Truck Equalization	All Vehicles	Specification and Qualification	Vehicle Dynamics & Vehicle Dynamics Modeling	APTA PR-M-S-014-06 Wheel Load Equalization	All		APTA	No	Operational Safety	Test Track or Rail Facility	Third Party Test Facility, Builder Facility, or Revenue Track
252	Light Rail/Street Car	Track Geometry/Vehicle Response	Truck Equalization	All Vehicles	Specification and Qualification	Vehicle Dynamics & Vehicle Dynamics Modeling	APTA PR-M-S-014-06 Wheel Load Equalization	All		APTA	No	Operational Safety	Test Track or Rail Facility	Third Party Test Facility, Builder Facility, or Revenue Track
253	Intercity, Regional, Commuter	Track Geometry/Vehicle Response	Truck Equalization Test	All Vehicles	Specification	Vehicle Dynamics	APTA PR-M-S-014-06 Wheel Load Equalization	<125 mph		APTA	Yes	Operational Safety	Rail Facility	Builder Facility or Third Party Test Facility
254	Intercity, Regional, Commuter	Lifecycle/Maintenance Intervals	Truck Frame Fatigue Test	Passenger Cars	Specification	Structural Integrity	APTA PR-M-RP-009-98	<125 mph		APTA	Yes	Structural Safety	Rail Facility	Builder Facility or Third Party Test Facility
255	Intercity, Regional, Commuter	Lifecycle/Maintenance Intervals	Truck Frame Load Test	Passenger Cars	Specification	Structural Integrity	19.5.2.3	<125 mph		Other	Yes	Structural Safety	Rail Facility	Builder Facility or Third Party Test Facility
256	Intercity, Regional, Commuter	Lifecycle/Maintenance Intervals	Truck Frame Overload Test	Passenger Cars	Specification	Structural Integrity	19.5.2.4	<125 mph		Other	Yes	Structural Safety	Rail Facility	Builder Facility or Third Party Test Facility
257	Intercity, Regional, Commuter	Track Geometry/Vehicle Response	Truck Primary Suspension Tests	Passenger Cars	Specification	Structural Integrity	19.5.2.6	<125 mph		Other	Yes	Structural Safety	Rail Facility	Builder Facility or Third Party Test Facility
258	Intercity, Regional, Commuter	Track Geometry/Vehicle Response	Truck, Coupler and Cable Curving Test	Locomotive, EMUs, DMUs	Specification	Vehicle Dynamics	Table 19-1: Test Matrix	<125 mph		Other	Yes	Operational Safety	Rail Facility	Third Party Test Facility or Revenue Track
259	Heavy Rail, Subways, Metros	Track Geometry/Vehicle Response	Twisted Track Twist	Passenger Cars	Specification	Vehicle Dynamics	EN 14363	All		Other	No	Operational Safety	Rail Facility	Builder Facility or Third Party Test Facility
260	Intercity, Regional, Commuter	Track Geometry/Vehicle Response	Twisted Track Twist	Passenger Cars	Specification	Vehicle Dynamics	EN 14363	All		Other	No	Operational Safety	Rail Facility	Builder Facility or Third Party Test Facility
261	Light Rail/Street Car	Track Geometry/Vehicle Response	Twisted Track Twist	Passenger Cars	Specification	Vehicle Dynamics	EN 14363	All		Other	No	Operational Safety	Rail Facility	Builder Facility or Third Party Test Facility
262	Intercity, Regional, Commuter	Track Geometry/Vehicle Response	Vehicle Qualification	All Vehicles	Qualification	Vehicle Dynamics	49CFR213.345	<125 mph		FRA	Yes	Operational Safety	Test Track	Revenue Track
263	Heavy Rail, Subways, Metros	Track Geometry/Vehicle Response	Vehicle Qualification	All Vehicles	Qualification	Vehicle Dynamics	Agency Specified	All		RFP	No	Operational Safety	Test Track	Revenue Track
264	Light Rail/Street Car	Track Geometry/Vehicle Response	Vehicle Qualification	All Vehicles	Qualification	Vehicle Dynamics	Agency Specified	All		RFP	No	Operational Safety	Test Track	Third Party Test Facility or Revenue Track
265	Intercity, Regional, Commuter	Track Geometry/Vehicle Response	Vehicle/track system qualification	All Vehicles	Qualification	Vehicle Dynamics	49CFR213.345	Class 6 Track or 5 inches of cant deficiency		FRA	Yes	Operational Safety	Revenue Track	Third Party Test Facility or Revenue Track
266	Heavy Rail, Subways, Metros	Track Geometry/Vehicle Response	Vehicle/track system qualification	All Vehicles	Qualification	Vehicle Dynamics	Agency Specified	Class 6 Track of 5 inches of cant deficiency		RFP	No	Operational Safety	Revenue Track	Revenue Track
267	Light Rail/Street Car	Track Geometry/Vehicle Response	Vehicle/track system qualification	All Vehicles	Qualification	Vehicle Dynamics	Agency Specified	Class 6 Track of 5 inches of cant deficiency		Other	No	Operational Safety	Revenue Track	Third Party Test Facility or Revenue Track
268	Intercity, Regional, Commuter	Crashworthiness	Vertical load test	Passenger Cars	Specification	Structural Integrity	APTA PR-CS-5-034-99	<125 mph		APTA	Yes	Structural Safety	Rail Facility	Builder Facility or Third Party Test Facility
269	Light Rail/Street Car	Crashworthiness	Vertical Load Test	All Vehicles	Specification	Structural Integrity	RT-1-2015 10.3.2C-CQ32DG-G	All		Other	No	Structural Safety	Rail Facility	Builder Facility or Third Party Test Facility
270	Heavy Rail, Subways, Metros	Crashworthiness	Vertical Load Test	All Vehicles	Specification	Structural Integrity	RT-2-2008 10.3.2	All		Other	No	Structural Safety	Rail Facility	Builder Facility or Third Party Test Facility
271	Intercity, Regional, Commuter	Track Geometry/Vehicle Response	Wheel Slip/Slide System Test	Locomotive, EMUs, DMUs	Specification	Specification Compliance	19.3.10	<125 mph		Other	Yes	Operational Safety	Test Track	Third Party Test Facility
272	Intercity, Regional, Commuter	Track Geometry/Vehicle Response	Wheelslide Control System Operation	Passenger Cars	Specification	Specification Compliance	19.6.4.3	<125 mph		Other	Yes	Operational Safety	Test Track	Third Party Test Facility

