

# Federal Railroad Administration

Integrating World Class  
High Speed Rail Equipment  
Design into the US Market:

## FRA's Regulatory Approach

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## The Engineering Task Force(ETF):

- Is a Rail Safety Advisory Committee (RSAC) Task Force.
- Includes the railroad industry and industry stakeholders in the development of consensus based rules.
- RSAC's role is to provide recommendations and advice to the FRA Administrator on ways to address safety issues.

Engineering Task Force was established by the Passenger Safety Working Group on August 12, 2009 to:

- Develop Technical Criteria and Procedures for the Crashworthiness of Alternatively-designed Tier I Equipment

ETF was Re-tasked by PSWG on July 28, 2010. The ETF's authority was expanded to:

- Address Any Type of Equipment
- Address Any Safety Features of the Equipment

The full Railroad Safety Advisory Committee adopted the new ETF task on September 23, 2010

- Objective: Develop engineering requirements for assuring the safety of equipment to be used in High Speed Rail service
- Purpose: Identify to the rail industry the safety requirements for passenger equipment intended for operation up to 220 mph.

# Why did RSAC Re-Task the ETF?

1. To ensure that investment in HSR will allow the development of a nationwide HSR system.
  - Promote a nationwide approach to HSR technology and deployment.
  - Support operational compatibility between conventional and high speed trainsets.
  - Share stations, platforms, and infrastructure to the greatest extent possible.
  - Make use of existing connections to downtown stations to help reduce initial capital costs.
  
2. To provide Federal guidance to potential HSR suppliers to reduce risk during project procurements.
  - Define what is acceptable to DOT and FRA.

## High-Speed Rail Operation (Tier III Operation):

- Trainsets operate at maximum speeds above 125 mph up to 220 mph.
- Exclusive right-of-way is required above 125 mph.
- No intermixing with freight or non-Tier III passenger operations (Tier I or Tier II) is allowed at speeds above 125 mph.
- No grade crossings are allowed when operating above 125 mph.
- Trainsets are compatible, from a crashworthiness standpoint, with Tier I and Tier II equipment at speeds of 125 mph and below.
- Trainsets can operate safely in a Tier I environment.

# ETF Reviewed and Agreed on Many Tier III Requirements

1. Collision with Conventional Equipment
2. Occupied Volume Integrity
3. Colliding Equipment Override
4. Connected Equipment Override
5. Fluid Entry Inhibition
6. End Structure Integrity of Cab End
7. End Structure Integrity of Non-Cab End
8. Roof Integrity
9. Side Structure Integrity
10. Truck Attachment
11. Interior Fixture Attachment
12. Seat Fixture Strength  
(Passenger and Engineer):
13. Interoperability / Compatibility
14. Fire Safety
15. Emergency Evacuation
16. Forward Facing Cab Glazing
17. Side Facing Cab Glazing
18. Emergency Lighting
19. Luggage Racks & Retention
20. Side Facing Windows – Non Cab
21. Passenger Occupied Lead Car

## First NPRM to include:

- Adoption of Tier I Alternate Compliance Equipment (the original work of the ETF).
- Alignment of Tier II definition with Vehicle Track Interaction Rule (Allow Tier II to operate at 160 mph train speeds on Class 8 track).
- Adoption of Tier III Equipment Requirements as recommended by the Task Force.



- Consensus Reached on;
  - Performance Criteria for alternatives to current crashworthiness requirements (essential to Tier I and III equipment).
  - Fundamental Tier III requirements and definition.
  - Tier III brake system requirements.
  - NPRM rule text - to be presented to the full RSAC for approval on June 14, 2013.
- Ongoing Discussions on:
  - Operating cab glazing requirements.
  - Low-speed vehicle track interaction.
  - Tier III Inspection, testing, and maintenance requirements.
  - Establish “best practice” and methodology for assessing compliance for modern equipment designs

First NPRM:

Tier III requirements Regulatory Targets:

- Publish NPRM – Summer 2013
- Publish Final Rule – Early 2014

Other Regulations Generated by the ETF to Follow

# What do the Tier III Requirements Accomplish?

1. Allow the adoption of existing high speed rail trainsets with only minor modifications.
2. Eliminate the need for carbuilders to redesign high speed rail trainset platforms for the US market.
3. Preserve the service proven reliability and safety characteristics enjoyed by high speed rail trainsets throughout the world.
4. Provide predictability on what FRA deems acceptable in a high speed rail trainset configuration.
5. Simplify special approval requirements or rules of particular applicability.
6. Reduce project and procurement costs by reducing car builder technical risk.
7. Reduce procurement costs through competition.

## **Government:**

Federal Railroad Administration  
Volpe Transportation Center  
Transport Canada  
Japanese Ministry of Land, Infrastructure,  
Transport and Tourism  
China Ministry of Railways  
National Transportation Safety Board  
California Department of Transportation

## **HSR Authorities:**

California High-Speed Rail Authority  
Xpress West

## **Railroads:**

National Railroad Passenger Corporation (Amtrak)  
CSX Transportation  
Central Japan Railway Company  
East Japan Railway Company  
New Jersey Transit                      RTD – Denver  
Metro North Railroad                      DCTA  
Long Island Railroad                      MARTA  
METRA    MBCR  
SCRRRA

## **Carbuilders:**

Alstom Transport  
Ansaldo Breda  
Bombardier Transportation  
China Southern Railway  
General Electric Transportation  
Hyundai Rotem  
Kawasaki Heavy Industries, Ltd  
Mitsubishi Electric  
Nippon Sharyo  
Siemens Industry, Inc.  
Stadler Rail  
Talgo, Inc.

## **Trade Associations:**

American Public Transportation Association  
American Short line and Regional Railroad  
Association  
Association of American Railroads

## **Labor:**

Brotherhood of Locomotive Engineers and  
Trainmen  
TCIU/Brotherhood of Railway Signalmen

## **Other Organizations:**

American Association of Private Railroad Car  
Owners  
European Railway Agency  
EWI  
Faively Transport  
Japan International Transport Institute  
Marsh Inc.  
Nabtesco  
Safetrain Systems  
Texas Central High Speed Rail Association  
Transportation Technology Center Inc.  
TUV Rheinland  
US Japan High-Speed Rail  
Veolia Transportation  
Voith Turbo Scharfenberg  
Wabtec

## **Consultants:**

Bechtel Corporation  
ENSCO  
Interfleet  
KPS, N.A., Inc.  
LTK Engineering Services  
Paladin Consulting Group  
Parsons Brinkerhoff  
Raul V. Bravo + Associates  
Sharma and Associates  
Simpson Gumpertz & Heger  
STV, Incorporated  
Systra