



# Railroad Safety Advisory Committee

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## Engineering Task Force Update

to

## The 45<sup>th</sup> Railroad Safety Advisory Committee Meeting

December 8, 2011  
Washington, DC

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# Outline

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- Background
- Tier I Criteria and Procedures
- ETF Task 2
- Status
- Schedule

# Background

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- Engineering Task Force Established by Passenger Safety Working Group, August 12, 2009
    - Developed Technical Criteria and Procedures for the Crashworthiness of Alternatively-designed Tier I Equipment
  - ETF Retasked by PSWG, July 28, 2010
    - May Address Any Type of Equipment
    - May Address Any Safety Features of the Equipment
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# Tier I Criteria and Procedures

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- Reflects Substantial Change in Technology
  - Final report on FRA website October 28, 2011
  - Being applied by DCTA to new DMUs
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# Tier I Alternate Compliance



STADLER GTW DMU  
for  
DENTON COUNTY, TEXAS

# ETF Task 2

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- Objective: Develop engineering requirements for assuring the safety of equipment to be used in High Speed Rail (Tier III) service
  - Purpose: Identify to the rail industry the safety requirements for passenger equipment intended for operation up to 220 mph.
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# ETF Task 2 Status

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- Consensus Topics (21 Items)
  - Consensus-not-yet-reached topics
    - Definition of Tier III
  - Task Groups formed:
    - Vehicle Track Interaction
    - Brake Systems
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# Consensus Items:

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 Window Glazing
18. Emergency Lighting
19. Luggage Racks
20. Side Facing Windows – Non Cab
21. Passenger Occupied Lead Car<sub>8</sub>





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## Definition of Tier III

- Accepted by most ETF participants
  - Reservation expressed by Amtrak
  - Ongoing dialogue
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# Definition of Tier III

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- “Tier III” is FRA’s designation for the highest-speed trainset safety requirements.
- The Tier III designation will cover HSR operations up to 220 mph.

# Definition of Tier III

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

- Trainsets operate at maximum speeds above 125 mph up to 220 mph.
  - Exclusive right-of-way required above 125 mph.
  - No intermixing with freight or non-Tier III passenger operations (Tier I or Tier II) at speeds above 125 mph.
  - No grade crossings 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 safely operate in a Tier I environment.
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# Task Groups

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- Vehicle Track Interaction
- Brake Systems

***Workgroups formed; teleconferences ongoing***

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# ETF 2 Schedule

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- Meeting #1—October 20 and 21, 2010 in Cambridge, MA
    - Discussions of scenarios, structural crashworthiness, occupant protection, and glazing
  - Meeting #2—January 11 and 12, 2011 in Orlando, FL
    - Consensus on scope of scenarios, structural crashworthiness, occupant protection, and glazing
  - Meeting #3—February 14 and 15, 2011 in Washington
    - Consensus on some structural crashworthiness requirements
  - Meeting #4—March 30 and 31, 2011 in Washington
    - Consensus on most structural crashworthiness requirements
  - Meeting #5— June 16 and 17, 2011 in Cambridge
    - Consensus on most crashworthiness, occupant protection, and glazing requirements
  - Meeting #6 – October 6 and 7, 2011 in New Orleans
    - Consensus on Crashworthiness, Occupant Protection, Glazing, Fire Safety and E-Prep Requirements
    - Suspension and Brake Workgroups initiated
  - Meeting #7 – March, 2012, in TBD (west coast)
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# Long Term Activities

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- Rulemaking – Tier I Alternate Compliance Equipment
  - Rulemaking – Tier III Equipment
  - Action on Vehicle Track Interaction Task Group results
  - Action on Brake System Task Group results
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