
Wabtec's I-ETMS®

APTA Rail Conference

June 3, 2013

I-ETMS[®] Segments



Office Segment

- Train Data
- Authorities
- Restrictions

Communications Segment

- RF Base Stations
 - 802.11
 - Cellular



Wayside Segment

- Signal Status
- Switch Status
- Radio Frequency Communication



Locomotive Segment

- Onboard Computer & Display
 - GPS
- RF Communication

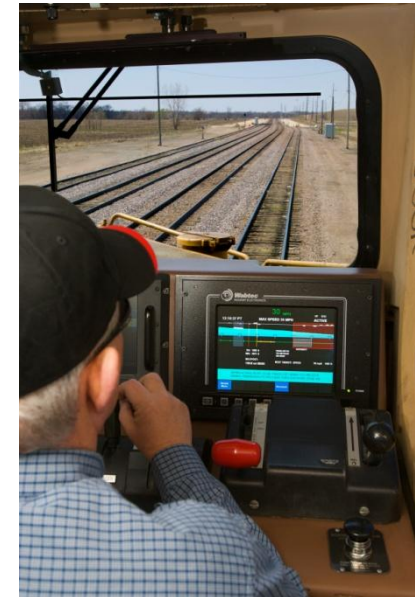


Wabtec Segment Participation

- Locomotive Segment
 - On-Board Computer & Display
 - GPS
 - Fabrication and Locomotive Connectivity
- Office Segment
 - Back Office Server (BOS)
 - TMDS™ Dispatch Systems
- Wayside Segment
 - Wayside Interface Unit Design & Installation

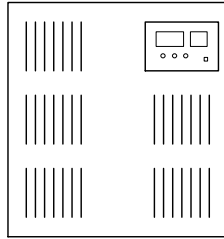
Product Overview

- Train Management Computer
 - Accepts & Validates Operating Data from Peripheral Devices, Office Segment and Wayside Segment
 - Determines Train Location, Speed
 - Enforces Authorized Train Movement
- Cab Display Unit
 - Human Interface to I-ETMS Functions

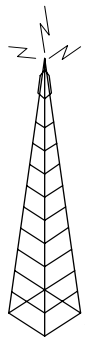


I-ETMS[®] – How Does It Work?

Office Systems



- Before a train leaves its originating terminal all relevant information is downloaded from the ETMS[®] back-office systems



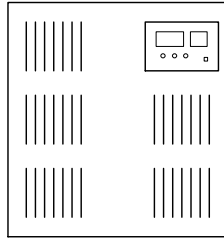
Track Database
Speed Restrictions
Train Consist

Initialization

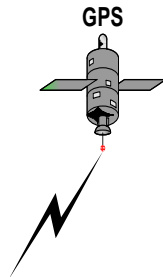
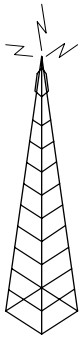


I-ETMS[®] – How Does It Work?

Office Systems

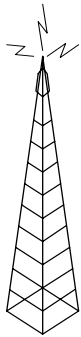
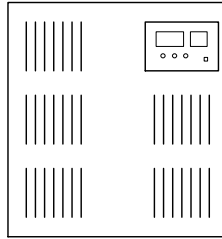


- GPS works in conjunction with the on-board geographic track data base to determine train location



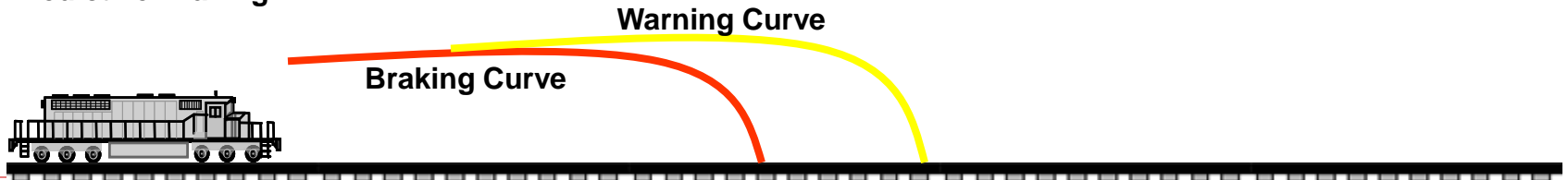
I-ETMS[®] – How Does It Work?

Office Systems



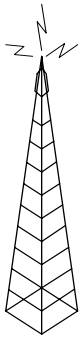
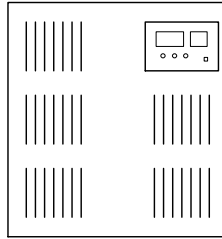
- As the train moves, the ETMS[®] onboard computer constantly calculates a warning and braking curve based on all current operational data

Predictive Braking



I-ETMS[®] – How Does It Work?

Office Systems



- As the train moves, ETMS[®] pings wayside devices checking for broken rails, proper switch alignment, and signal aspects



Wabtec Services Support

- Installation, Training and Support
 - Technical Support or Turn Key Installation
 - Installation Training Services
- PTC Track Data Generation
 - Complete Generation and Verification Services
 - Generation and Verification Tools support
- Wayside Signal and Communication Design Services
- Systems Integration Program Administration
- Regulatory Support

Thank You!

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