# TECHNOLOGY ASSURANCE LABS



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## Features:

- **Single or Multi Track support**

- **Stand-Alone or Clustered installation**

- **Wide array of communication choices**

- **Solar Power option**

- **Supports a variety of RFID readers**

- **Customizable output**

# Train
# Verification System

Technology Assurance Labs began developing an AEI reader system for CSX rail yards in 2009. During our development we noticed that the existing AEI infrastructure was aging. It appeared little had been done to update the AEI architecture since the deployments in the 1990s. We identified opportunities to leverage advances in technology and to address the coming shortage of repair and replacement parts.

Over time, we have worked on many legacy architectures which needed creative thinking to refresh them and turn them into Next-Gen architectures— this is where Technology Labs excels. As a result of our analysis, Technology Assurance Labs decided to create the Trackside Train Build Verification System (TTBVS ©) aimed directly at deployments inside rail yards. TTBVS is currently installed in a large hump yard in the Southeast and has demonstrated read accuracies around 99%. This powerful system is capable of being adapted to handle an entire yard from a single point.

Technology Assurance Labs continues to improve upon the design of the TTBVS. In late 2010, we embarked on an effort to simplify the design, lower the cost, and increase the performance of this system. The result is a new system design utilizing RFID readers from multiple manufacturers, centralized or distributed processing, onboard or offloaded I/O inputs, simplified installation options and the ability to install a unit where no commercial power or communication lines exist!

Introducing the **Train Verification System** by Technology Assurance Labs.

## A Next-Gen Rail Yard or Mainline Consist Reader System

For more information visit

**www.talabs.com/rail**

## Technology Assurance Labs

Technology Assurance Labs was formed in 2003 as an independent Lab to support service providers, vendors, and venture capitalists in all aspects of technology from strategic to tactical--our services are consulting, design, and testing. The Lab provides these services to both large enterprises and small companies including state and local governmental agencies.

We provide an expertise and knowledge base across many disciplines and technologies not usually available in most organizations. Our goal is to find the right solution for our customers which meets their requirements and fits their budget. One of the Labs core competencies is the Transportation Sector and RFID technologies used in high speed, Open-Road Tolling. Technology Assurance Labs leveraged this expertise into the Train Verification System using a RFID reader that can read at 120 mph.

**The Importance of Diversity**

The majority of "Line of Road" readers in use today in the rail environment are systems based on the Transcore AI1200 series readers. Vendors offering rail reader "solutions" have often used this same reader in their products. This choice has resulted in an operational environment which depends on a single manufacturer for support and a limited competitive market space.

Our vision for Next-Gen architecture includes a swappable reader to reduce reliance on a single vendor for product and support. Recognizing the need for diversity, Technology Assurance Labs contacted multiple RFID reader manufactures and launched a Lab testing program to ensure reader compliance with ATA protocols (ISO 10374). We also evaluated the feasibility of installing the readers in railroad environments and the effort required to incorporate new readers into the design. To date, we have tested readers from two top manufacturers and have had additional conversations with two other manufacturers of ATA compliant readers.

## Specifications:

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|---|---|
| Frequency: | UHF 860-960Mhz band |
| Supported RFID Protocols: | ISO10374 (ATA), ISO18000-6C, ISO18000-6B, IPx, T21, IT2200, SeGo, IAG |
| Communications: | 10/100 Ethernet, RS-232 Serial, Wireless (802.11a/b/g/n, 3G, 4G, Satellite, custom frequency bands) |
| Antenna Interface: | 50-ohm, SMA or N-Type (depending on version) |
| Antenna Ports: | 2 or 4 depending on configuration |
| Input Power: | 24 VDC, 110VAC, 220VAC (AC voltage requires additional equipment), Solar power option available |
| Power Consumption: | Varies by configuration 60 Watts in worst case |
| Operating Temperature: | -40°C - +55°C |
| Storage Temperature: | -40°C - +85°C |
| Humidity: | 100% - Condensing |
| Supported Readers: | Transcore (E5, E6, AI1200, MPRR), SIRIT Identity Series (ID5200, ID5204) |
| Digital IO: | 4 ports (can be extended to 32 ports through add on module) |
| Field Upgradeable Software: | Yes |
| Output Formats: | AAR S918a (multiple hosts with different formats), custom formats for yard management systems |
| Track Configurations: | Single or multiple tracks |
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