# Electronic Vehicle Registration (*EVR)*

***FACTS***

- *Government agencies lose millions of dollars each year due to an estimated 7 to 15 percent of vehicles not compliant with annual registration requirements.*
- *Thousands of unsafe, uninsured and/or excessively polluting vehicles in violation of government regulations are on our roads at any given point in time.*
- *Manual compliance monitoring methods are sporadic and usually depend upon other incident detection events, resulting in minimal sampling of the total vehicle population.*
- *Homeland security is a growing concern – tracking and monitoring vehicles in secure areas and throughout various transportation corridors supports national security goals.*

Electronic vehicle registration (EVR) uses radio frequency identification (RFID) technology to electronically identify vehicles and validate the identity, status, and authenticity of vehicle data. Government agencies can now automatically detect and screen motor vehicles for compliance with federal, state, and municipal vehicle regulations, as well as process enforcement actions for those that are non-compliant, resulting in greatly increased efficiency.

In contrast, manual, visual-based identification, tracking, and enforcement systems are labor intensive and expensive. The inefficiencies of those systems can result in significant revenue losses for government agencies. As the leader in RFID technology for the transportation industry, TransCore's automated EVR solutions are flexible, cost-effective, and reliable.

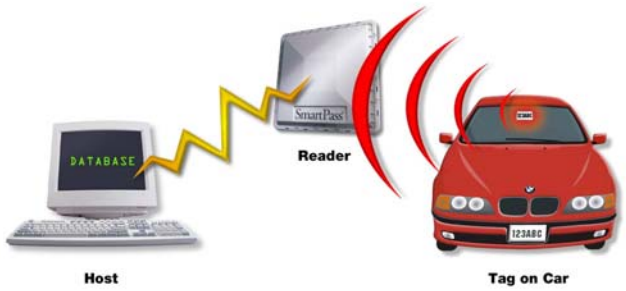
**TransCore and RFID-Based AVI**

RFID technology has become the globally preferred technology for Automatic Vehicle Identification (AVI), due to its ability to function effectively at highway speeds and reasonable distances, to identify vehicles and verify compliance status. Increasingly, AVI systems are used to fulfill both commercial and governmental functions.

TransCore is the leader in RFID-based AVI applications. TransCore's AVI solutions are currently used in many transportation applications, such as electronic toll collection (ETC), border crossing, airport ground transportation operations, parking, access control, rail, fleet, and intermodal asset management. TransCore's systems include positive detection and identification of vehicles, containers, cargo, trucks and trailers, as well as drivers, crews, travelers, and passengers.

A basic RFID system consists of tags, antennas, readers, and a host system. The host is composed of a database and applications-specific software. A unique electronic identification code is established for each vehicle via a

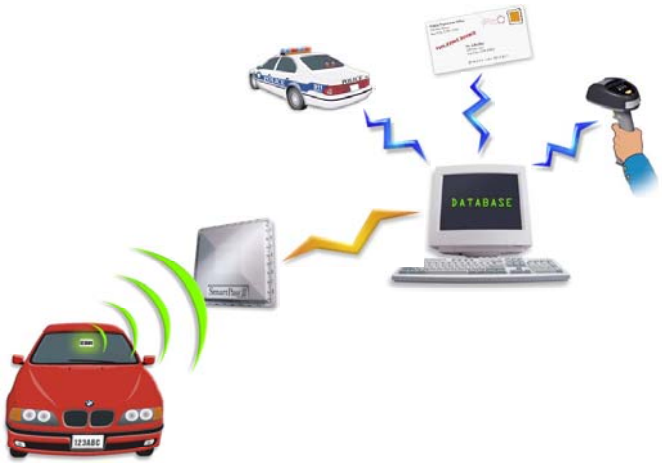
tamper-resistant windshield sticker tag, and each unique code is linked to a record in the centralized owner/vehicle-based database.




In operation, the reader's antenna broadcasts RF energy over an adjustable area called the read zone or reader footprint. The tag on the vehicle reflects a small part of this RF energy back to the antenna, and the reflected radio waves denote the tag's unique identification code and other stored data. The reader then transmits this code to the responsible government agency's host system to determine the vehicle's compliance. The tag-to-reader identification process takes only milliseconds.

TransCore's AVI systems are based on passive backscatter technology, which allows readers to communicate with tagged vehicles traveling in excess of 100 miles per hour (160 kilometers per hour). This highly stable and reliable technology is the transportation industry's preferred method of AVI.

**EVR Applications**




- Affords government agencies a wide variety of applications to increase their efficiency and effectiveness in many areas related to vehicles traveling our roads and in our communities; enhances the integrity of vehicle registration compliance and related revenue collection

- Increases revenue because the vehicles on the road that are not legally registered result in huge amounts of lost revenue for government agencies

- Enhances compliance with other registration-related requirements through automatic detection of mechanical safety, pollution emission level, and valid insurance – all vehicular requirements to protect our population, which can now be monitored on a more effective basis

- Provides automated enforcement regarding vehicle violations and regulations

- Enables monitoring of *thousands vs. hundreds* of vehicles daily, around the clock

- Allows accident reporting procedures to be more automated and accurate

- Provides technology-based means to detect and recover stolen vehicles or vehicles reportedly involved in other crimes; enhances traffic management functions (traffic polling and probes) via the use of the deployed registration tags

**The eGo™ System**

TransCore's newest generation of RFID products, eGo, provides a powerful new entry into the transportation industry's wireless communications market. Through a series of groundbreaking design innovations, this wireless RFID technology overcomes adoption and cost barriers for large-scale opportunities such as EVR. The eGo product is distinctive because it is the first single-chip passive tag that has been fully qualified to meet the rigorous performance demands for transportation applications, including automated enforcement of all registration requirements. TransCore's AVI technology is more than three times as efficient as a manual system – to appreciate this, compare 1,800 vehicles per hour under an AVI system to only 500 vehicles per hour if identified and processed manually via a stop-and-go process.

**eGo Tags**

The eGo wireless communications tag is a paper-thin, tamper-resistant windshield sticker tag with single-chip technology that allows user-defined information to be read from or communicated to the tag. It requires no battery and sets a new price/performance standard for AVI tags.

TransCore's eGo tags have read/write capability holding multiple fields of variable data and/or fixed data. The tags can store up to 960 bits of data. The read/write tag also features read and write password protection and allows communication over an extended area or a number of lanes.

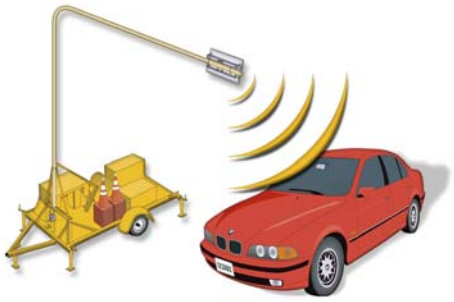
The tag operates in the 915 MHz radio frequency band and is an RF-programmable device. The flexible, tamper-resistant package is ideally suited for EVR, offering a higher degree of security to prevent tags from being stolen and reused. Attempts to remove the tag will render it inoperable. The tag is designed to withstand extreme temperatures, sunlight, humidity, and vibration. Custom control numbers etched on the outside of each tag track the tag inventory and also help law enforcement personnel identify tag validity.


**eGo Readers**

eGo readers are fully integrated, 915 MHz wireless communications devices. The reader easily connects to any computer, and will read a passing tag within milliseconds. The reader includes an RF module, digital signal processor, power supply, and antenna. Selected models are configured with separate external antennas. The unit is supplied with a pole-mount bracket specifically designed for controlled traffic lanes.

Models include single-protocol readers capable of reading eGo windshield sticker tags and dual-protocol readers capable of reading both eGo windshield sticker tags and conventional Amtech®/American Trucking Associations (ATA) protocol tags. All readers are designed to

withstand extreme temperatures, humidity, and vibration. RS-232 with Wiegand or RS-422 with Wiegand-compatible protocol interfaces are available.



Fixed readers are positioned on gantries to monitor high-volume traffic corridors, borders, traffic flow, or tag registration and registration compliancy. Readers can also be transportable and temporarily positioned along the road to monitor changeable locations.

**Tough, Smart, and Totally Dependable**

The accuracy of TransCore's systems has exceeded customer expectations. We design our systems with security features to prevent tampering or fraudulent use. Built-in, self-diagnostic capabilities allow continuous performance monitoring to detect or prevent possible problems early on. The tag code is unique to each vehicle, is virtually impossible to duplicate, and includes inherent, discreet security features.

**TransCore is the Right Choice**

TransCore provides technology-based services and products that enable its customers to efficiently manage ground transportation systems, assets, and transactions. With a world-class ISO 9001:2000-certified design, development, and manufacturing center and more than 80 patents, TransCore's expertise in providing solutions that improve transportation efficiency and security is unparalleled.

For more information on the electronic vehicle registration application, e-mail a request to ContactUs@transcore.com. Additional downloadable literature is available at http://www.transcore.com/markets/Electronic_Vehicle_Registration_Downloads.htm and http://www.transcore.com/technology/rfid_pdf.htm

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