



We make highways talk™

# TACS™

Powered by  
**VECTORSENSE™**

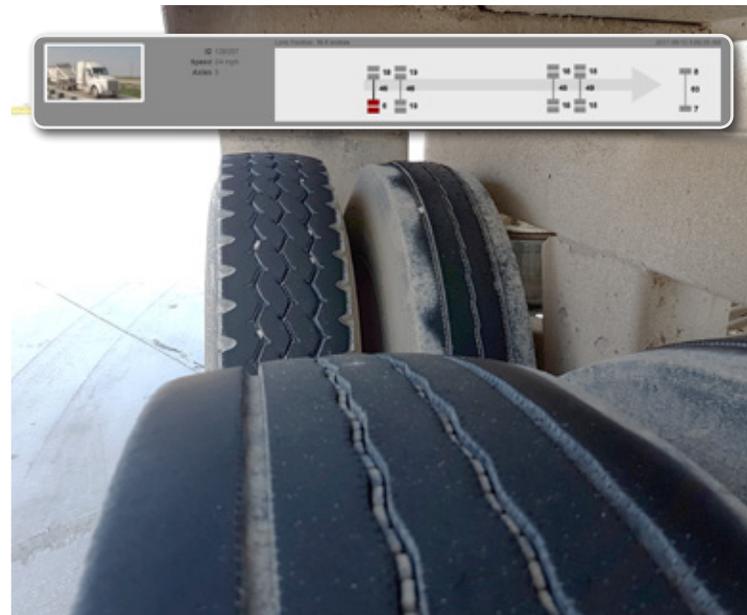
## Case Study: Oklahoma DOT Commercial Vehicle Screening for Anomalous Tires

### ► Successful Anomalous Tire Safety Project

IRD recently supplied multiple Electronic Screening Systems (ESS) for Oklahoma DOT. These systems provided Oklahoma with new, technologically advanced facilities that enabled cost-effective screening of commercial vehicles for weight, credential or safety violations. When IRD introduced the VectorSense™ Tire Sensor Suite, it offered the State the potential to add screening for anomalous tires to its existing port-of-entry commercial vehicle screening sites. Oklahoma DOT agreed to a trial of the Tire Anomaly and Classification System (TACS™) powered by the VectorSense™ Tire Sensor Suite.

### ► Ground Truthing at Love and Kay County, Oklahoma Ports-of-Entry

Over two days of operation, at two port-of-entry sites, a number of tire anomalies were successfully identified by the TACS™ system. At the first site, six (6) tire anomalies were identified by TACS™. Of those, five (5) were confirmed flat or missing, and one was an older, worn tire adjacent to a new tire in the trailer dual. At the second site, 23 anomalies were identified. All were confirmed flat or missing except two. Finally, one was flagged which was another worn/new dual tire combination. Another five (5) vehicles were identified, but were not pulled in for inspection as the station was already busy. Overall, the inspection station could have confidence that close to 100% of flagged vehicles would have an identified tire anomaly that justified further inspection, with 90% resulting in a vehicle being placed out of service. With tire anomalies being identified at a rate of one (1) per hour of operation during the study, TACS™ offers an opportunity to efficiently target significant numbers of unsafe commercial vehicles using an automated process.



One of the Tire Anomalies Identified by TACS™



# Tire Anomaly & Classification System (TACS™) Enforcement Study

## ► TACS™ Trial Interface

For the study, a custom interface displayed vehicle records sequentially in a similar fashion to IRD's Virtual Weigh Station and Operator Workstation software. Ultimately, IRD will integrate the TACS™ alerts into existing systems, but for the purposes of the study each vehicle record included only a side-fire photograph and the data obtained from the VectorSense™ tire sensor suite, which included Speed, Number of Axles, Tire Width, Lane Position, and highlighting of any tires identified as anomalous. The simple layout effectively highlighted commercial vehicles with tire anomalies. Of those vehicles identified as having anomalous tires, 90% had serious enough tire defects to place the vehicle out of service.

## ► Sample TACS™ Image

The screenshot shows a web browser window displaying the VectorSense™ VI²M interface. The interface has a green header with the IRD logo and 'VI²M' branding. Below the header is a navigation bar with 'Love County Ramp' and 'Views' options. The main content area displays three truck records sequentially. Each record includes a side-view photograph of the truck, its ID, speed, and number of axles. To the right of the photo is a diagram of the truck's axle layout with tire sensor locations marked by numbers. Red squares indicate anomalous tires. The records are as follows:

Record ID	Speed	Axes	Lane Position	Anomalous Tires
137842	24 mph	5	12.2 inches	7, 18, 19
137841	24 mph	5	15.4 inches	7, 18, 19
137840	25 mph	3	14.2 inches	None

Two (2) trucks identified with flat tires on the inside of the dual.



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