

PUBLIC-INTEREST FINDING FOR PROPRIETARY-MATERIAL USE

Non-intrusive radar based vehicle sensors, SmartSensor SS 105 (microwave radar), SmartSensor HD SS125 by Wavetronix and Remote Traffic Microwave Sensor (RTMS) G4 by Image Sensing Systems

ROUTE: VARDES NO: VAR

PROJECT NO: VAR COUNTY: VAR

PROJECT DESCRIPTION: Programmatic approval.

FHWA OVERSIGHT: YES NO

PROPRIETARY MATERIAL:

SmartSensor SS105 (microwave radar);

SmartSensor HD SS125

Manufactured by Wavetronix LLC

Remote Traffic Microwave Sensor (RTMS) G4

Manufactured by Image Sensing Systems, Inc.

1. Description of Need:

The ITS Technology Deployment Division of the Indiana Department of Transportation is seeking approval to create a recurring special provision and ultimately incorporate into the Standard Specifications equipment important to the detection and measurement of the traffic on Indiana roadways.

Desired materials are non-intrusive radar-based vehicle sensors. Installed on the side of the road, they provide capability to detect, count, determine speeds of passing vehicles, and, in some configurations, classified them.

Required functionality includes:

- Provide ability to monitor 8-12 user defined zones (lanes of traffic).
- Provide ability to detect presence of vehicle in the detection zone, count vehicles passing through the zone, determine speeds of vehicles, and classify vehicles.
- Provide ability to monitor up to 250 ft of road surface (across the lanes).
- Provide interface with existing network (TMC).
- Provide accurate, per-line data.

2. Product History:

These devices have been in use in Indiana for over 8 years. Over 200 of SS105, SS125, and RTMS G4 devices are currently being used in Indiana. They demonstrate very high reliability (over 96% uptime) and maintainability. Desired product is currently listed on INDOT Approved Materials [List](#) for Traffic Signal and ITS Control Equipment under ITS AFP Controller. Testing was conducted according to the ITM No. 953-10P

3. Product Availability: SmartSensors, manufactured by Wavetronix LLC and RTMS G4 by Image Sensing Systems, Inc. are only product on the market, meeting all requirements. Although there are many vehicle detecting microwave radar sensors, most of them are designed for different purposes. There were no attempts by the manufacturers to present their products to be tested to ITM No. 953-10P.

4. Product Cost: There is no equipment on the market, meeting the requirements, to make a cost comparison with. The next closest product is Microwave Vehicle Motion Sensor TC26-B manufactured by MS SEDCO and priced \$3300.00. However, this device is not capable of counting, speed detection, and classification of the vehicles.

5. Project Compatibility: Desired products are the only products on the market that meet INDOT requirements for the vehicle detection and data compatibility with currently used Data Bases..

6. Maintenance: Desired equipment is very reliable. Current system allows for remote monitoring of the detection sites which drives the maintenance costs down. Training is available on line in Wiki Notes, accessible for tech personnel from any location in Indiana. Low failure rate (less then 5% including "acts of God") and short order turn around time results in the minimal storage requirement.

7. Engineering Analysis: This application is programmatic by nature and unique not to a specific ITS project, but to the ITS architecture that is already in place. Microwave radar sensors are essential components that allow monitoring of the live traffic volumes, speed, and classification. The specifications are needed for synchronization with existing system and not unique to the specific project.

8. Expanded Economic Analysis: Due to the fact, that there is no equipment on the market to do comparison life cycle analysis, it may be stated that actual yearly maintenance cost is low. The average life cycle of the desired product is evaluated as 5 years. There are units currently in service installed in 2008. Annual replacement rate, including damage done by lightning, is 8 units with approximately 200 units being now in service.

9. Contractual or Performance Implications: Use of desired items does not impose any restrictions on the use of other items on the contracts.

10. Attach Supplemental Documentation: Attached are:

- a) INDOT ITS Architecture;
- b) ITM # 953-10P Microwave Vehicle Radar.

11. Length of Time that Approval is Effective: 3/1/2017 to 3/1/2020

Prepared By: Konstantin Veygman

Field Engineer

INDOT-ITS Technology Deployment Division

Date:

APPROVED: James M. Poth Date: 2/27/17

INDOT Deputy Commissioner
Engineering and Asset Management

APPROVED: Thomas L. Duncan Date: 3/06/17
Federal Highway Administration



RTMS G4



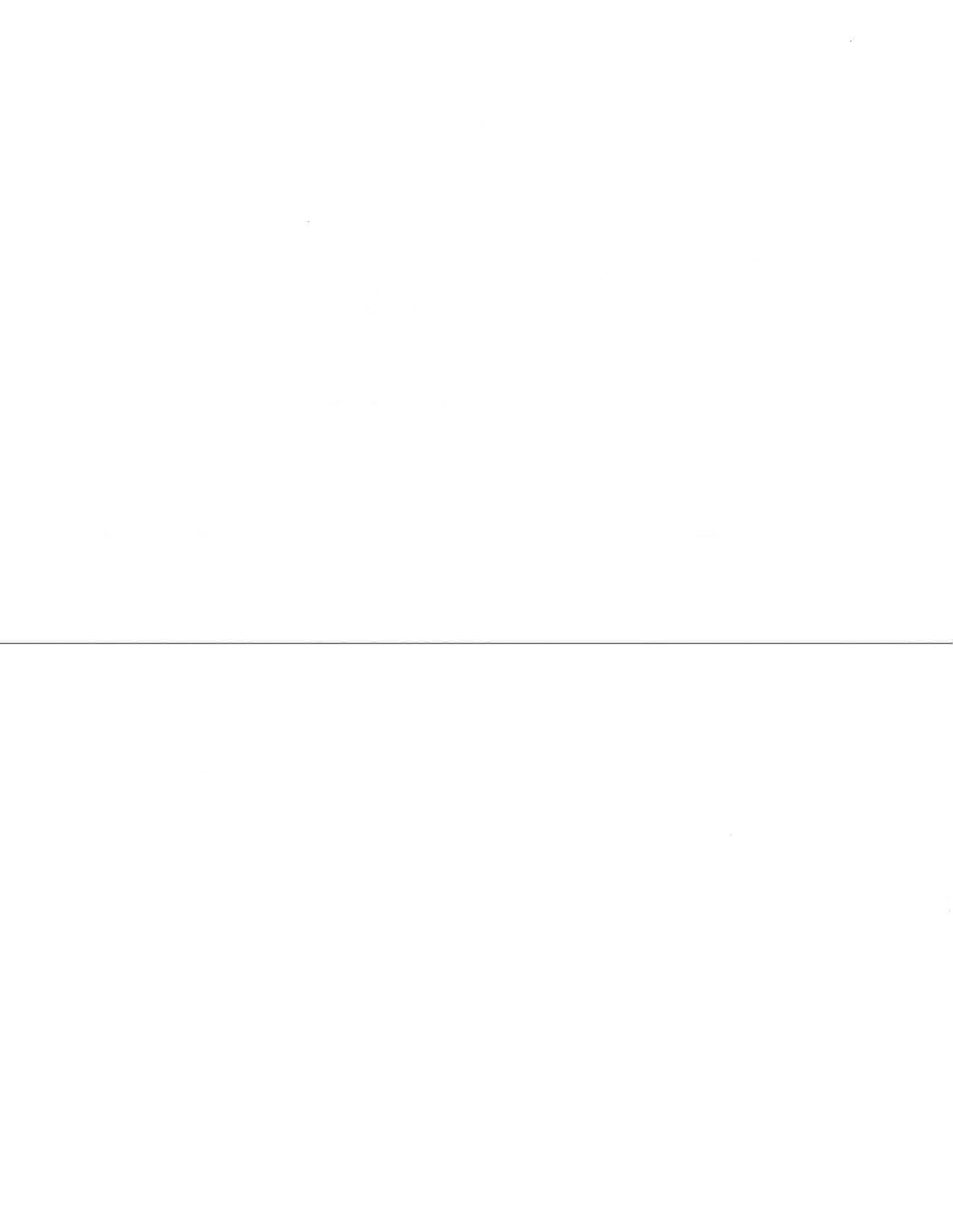
Presentation to: ITE/IMSA-2011
John Hansen 2 ITS-Help, LLC

Remote Traffic Microwave Sensor (RTMS)
Based Traffic Solutions



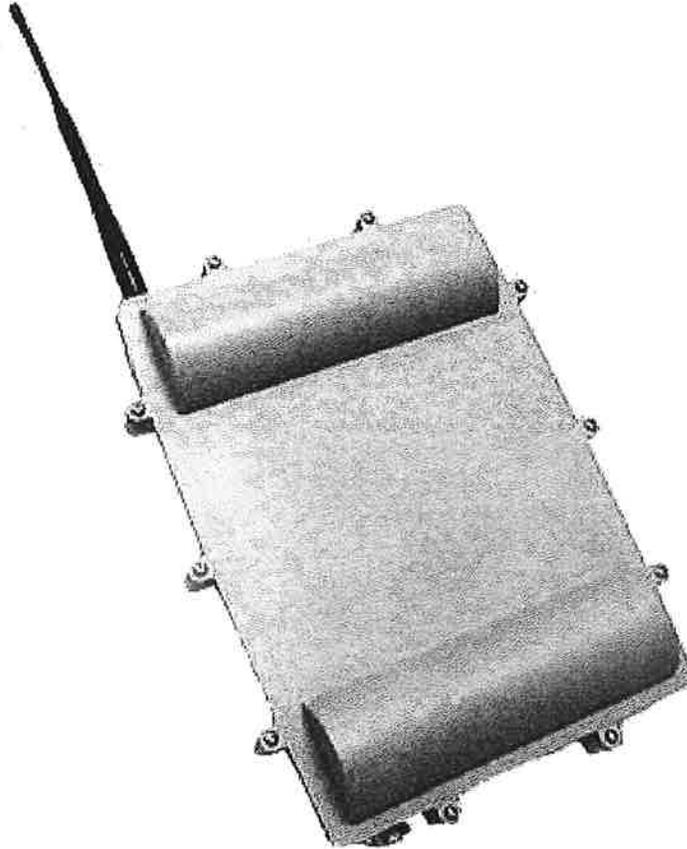
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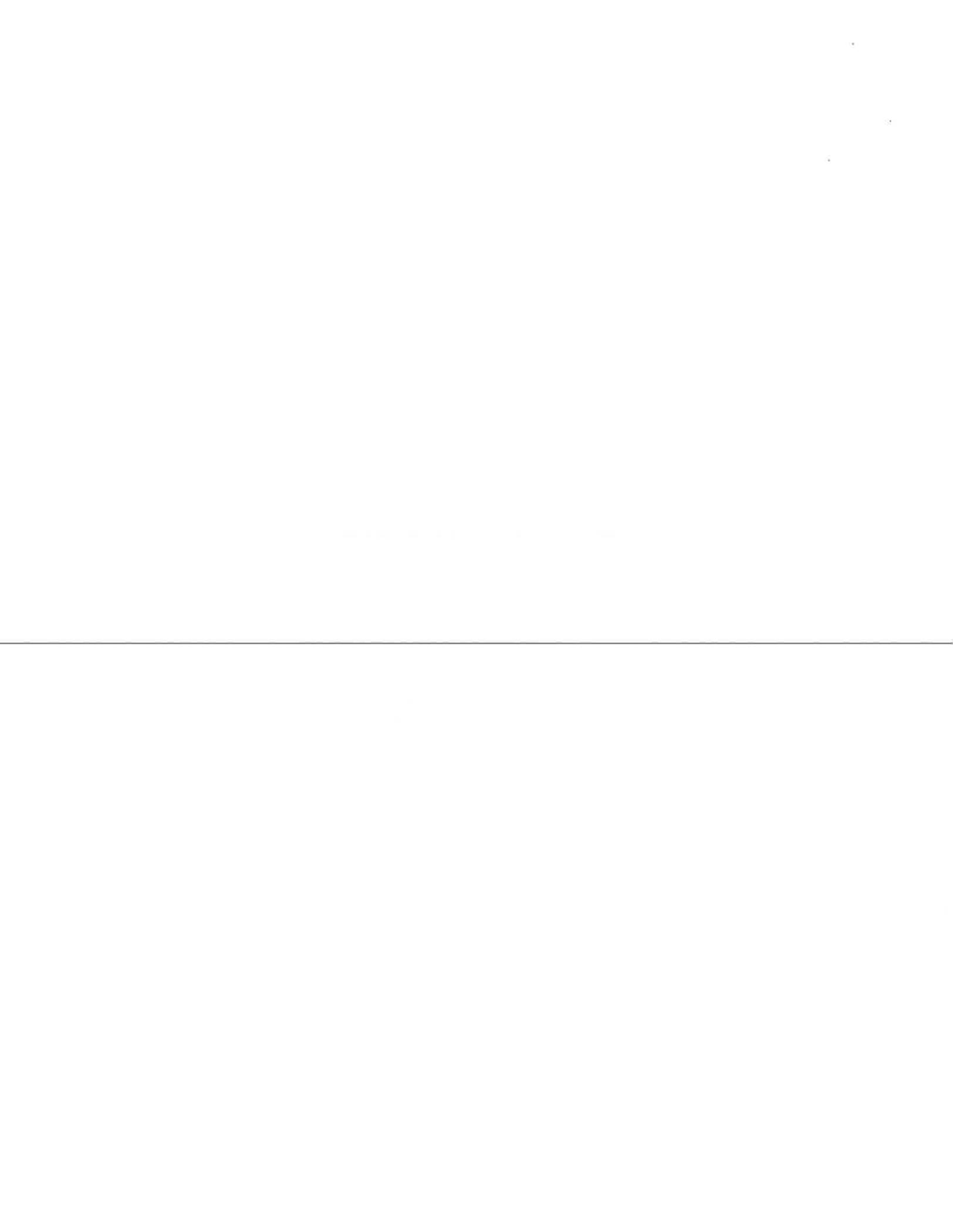
SmartSensor SS105



Reliable, Non-Intrusive ITS Traffic Radar

Logan Harris
Director of Engineering
Intelligent Transportation Systems

Wavetronix, LLC
Aug. 20, 2002



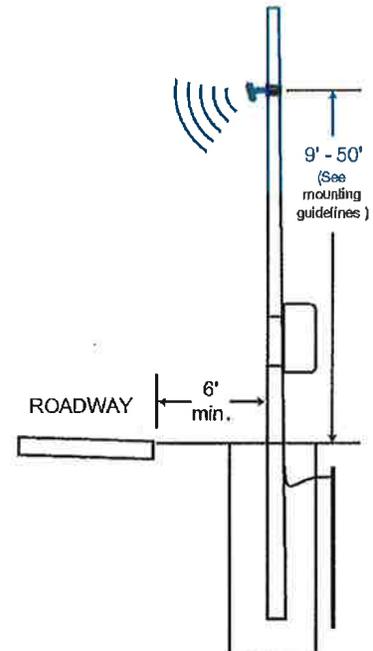
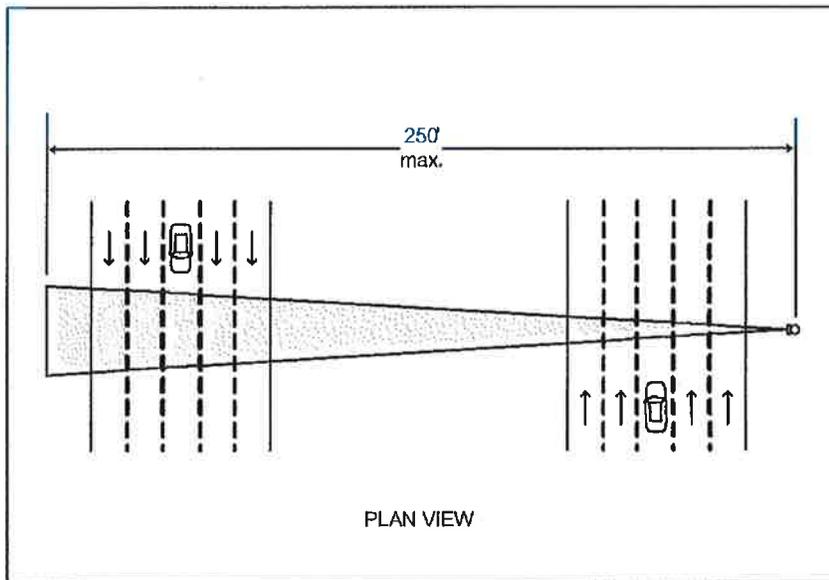


SmartSensor HD

The SmartSensor HD™ delivers consistently accurate data for traffic monitoring systems, even in slow or congested traffic. Operating at five times the bandwidth, the HD has five times the resolution of the original SmartSensor, a detection range of 250 feet and the ability to simultaneously detect up to 10 lanes of traffic.

Features

- Detects up to ten lanes of traffic
- Reports the speed, length and classification of individual vehicles
- Works over barriers, guardrails, medians and gores
- Accurately detects lane-changing vehicles
- Patented Digital Wave Radar II™ technology
- Patented auto-configuration process for PC and Pocket PC®
- Easy to install and operate
- Remote accessible for easy management
- Flash upgradeable
- Integrates with Wavetronix Click™ products
- Requires no tweaking or tuning
- All-weather, all-condition performance
- No performance variance due to temperature
- Flash memory protects data storage
- Automated manufacturing process



SMART
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