1.0 SCOPE.

1.1 This test procedure covers the methods that a wireless vehicle detection system (WVDS) is bench tested, evaluated in the field, and is placed, maintained, or removed from an approval list.

1.2 This ITM may involve hazardous materials, operations, and equipment. This ITM does not purport to address all of the safety problems associated with the ITM’s use. The ITM user's responsibility is to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

2.0 REFERENCES.

2.1 ITM Standards.

934 Procedure for Evaluating Vehicle Detection Performance

2.2 NEMA Standards.


3.0 TERMINOLOGY. Definitions for terms and abbreviations shall be in accordance with the Department’s Standard Specifications, Section 101 and NEMA TS-2 Section 1.

4.0 SIGNIFICANCE AND USE. This ITM is used to evaluate, approve, maintain approval, and remove from the approval listing of wireless vehicle detection systems which is placed on the Department’s List of Approved Traffic Controller Equipment. Each model of WVDS will be bench tested and field tested separately.

5.0 APPARATUS. A fully functional instrumented intersection, with detector data output logging and live video overlay capabilities
6.0 **SAMPLING.** The manufacturer shall furnish, at no cost to the Department, one randomly selected production-run wireless vehicle detection system of each model for bench testing and field testing. The model shall include all components and purpose-built cables and connectors necessary for operation.

The wireless vehicle detection system shall consist of all electronic equipment, in-pavement sensors, receiver/processors, repeaters, mounting hardware, cables, and power supplies.

7.0 **PROCEDURE.** The Department will evaluate the performance of individual vehicle detectors upon successful completion of all other requirements specific to the vehicle detector being tested.

8.0 **SUBMITTAL REVIEW.** The documentation will be reviewed for usability of the WVDS with Department approved NEMA TS-2 traffic controller assemblies. The documentation will be reviewed for product compliance with the MUTCD and the Department specifications. The manufacturer’s recommended schedule and extent of maintenance will be reviewed for acceptability.

9.0 **BENCH TESTING.** The WVDS will be bench tested for compatibility with all NEMA TS-2 signal controller assemblies used by the Department. The WVDS will be verified for full NEMA TS-2 functionality and full manufacturer’s claimed optional functionality.

10.0 **FIELD TESTING.** Field testing of the WVDS shall be in accordance with ITM 934.

11.0 **REPORT.** A final report will include the notations and findings from the electronic bench test and field testing results and documentation.

12.0 **APPROVAL LIST.**

12.1 **Approval of a Wireless Vehicle Detection System.** The WVDS model may be placed on the approval list when the following conditions are met:

12.1.1 A potential net benefit to the Department is realized by inclusion of the item on the list.

12.1.2 The bench and field testing are completed with satisfactory results.

12.1.3 The required documentation is submitted.

12.1.4 No excessive amount of routine or periodic maintenance is required.
12.1.5 No failure with any of the different types of NEMA TS-2 traffic controller assemblies or individual traffic control components used by the Department.

12.1.6 The wireless vehicle detection system shall include:

a) All manuals & documents
b) All required software to realize full potential of the WVDS.

12.1.7 Only minimal maintenance operations were necessary during the field testing.

12.2 Maintaining Approval. Maintaining approval of the WVDS shall be in accordance with ITM 934.

12.3 Removal from Approval List. Removal from the approval list shall be in accordance with ITM 934.
INDIANA DEPARTMENT OF TRANSPORTATION
DIVISION OF OPERATIONS SUPPORT
PRELIMINARY INFORMATION FOR PRODUCT MATERIAL EVALUATION

Trade Name ____________________________ Date __________________

Manufacturer __________________________ Patented? Yes ______ No ______ Applied for _____

Address ______________________________________________________________________
Street No (P. O. Box) City State Zip Code

Representative __________________________ Phone No (          )___________

Address ______________________________________________________________________
Street No (P. O. Box) City State Zip Code

Product Information ____________________________________________________________
_____________________________________________________________________________
_____________________________________________________________________________
Materials Composition __________________________________________________________
_____________________________________________________________________________
_____________________________________________________________________________

** Is this product considered HAZARDOUS MATERIAL when disposing of non-used or surplus materials? Yes ______ No ______

** What is the shelf life of this material? Years ______ Months ______ N/A__________

Recommended Use-Primary ______________________________________________________
_____________________________________________________________________________
_____________________________________________________________________________
Recommended Use-Alternate _____________________________________________________
_____________________________________________________________________________
_____________________________________________________________________________
Advantages and/or Benefits

** Materials specifications by manufacturer, installation/operation manual, maintenance manual, literature, test results, guarantee, hazardous material data sheets, plan, picture or sketch must be submitted with this form. In the case of electronic devices the schematic diagram, parts list, and parts layout diagram must be submitted for each printed circuit board within the device.

Meets following specifications:

<table>
<thead>
<tr>
<th>Specifications</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>AASHTO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ASTM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OTHER</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Use by highway authorities or similar agencies in other states.

<table>
<thead>
<tr>
<th>Agency</th>
<th>Years Used</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

** Has product ever been evaluated by and rejected for use by a governmental agency?

Yes ______ No ______ If yes, by what agency and for what reason?

Will demonstration be provided? Yes ______ No ______

Availability: Seasonal ________ Nonseasonal ________ Delivery at site ________

After receipt of order, are quantities limited? Yes ______ No ______
** Will FREE SAMPLES be furnished? Yes ________ No ______
If yes, Quantity Furnished ____________

** If the sample is salvageable, do you desire to have it returned  Yes ________ No _______
(Desired return of salvageable samples will be at the supplier’s expense.)
(The manufacturer agrees upon the return of salvageable samples, such samples may be damaged or non-operable. Normal care will be taken that the samples, when returned, are in operable condition; INDOT, however, does not guarantee that the returned samples are operable.)

Will laboratory analysis be furnished? Yes ________ No ______

** Approximate cost _________________ Royalty Cost _______________________________

When was the product introduced to the market? ________________________________

This product is an alternate for what product? ________________________________
___________________________________________________________________________
___________________________________________________________________________

Will warranty be provided? Yes ________ No ________ If yes, for how long? ___________

Background of company, including principal products ________________________________
___________________________________________________________________________
___________________________________________________________________________
___________________________________________________________________________

What offices of the Indiana Department of Transportation have been contacted?
____________________________________________________________________________

Additional Information __________________________________________________________
____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________

(Attach additional sheets as necessary)
Person furnishing information

Name                                             Title

Address   _____________________________________________________________________

Street No (P. O. Box)                  City                          State                            Zip Code

Items marked ** MUST BE RESPONDED TO or further consideration may not be given for this product.

Please mail this form to:  Manager, Office of Traffic Engineering
100 N. Senate Ave., Room N925
Indianapolis, IN  46204-2249

If INDOT elects to evaluate your product/material - traffic signal equipment will be shipped to:

Electronic Technician Supervisor
Indiana Department of Transportation
6400 E. 30th Street
Indianapolis, IN  46219-8222

While all other materials to be evaluated will be shipped to:

Traffic Evaluations Engineer
Indiana Department of Transportation
6400 E. 30th Street
Indianapolis, IN  46219-8222