|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | FDOT Traffic Engineering Research Laboratory (TERL)  Vehicular Traffic Signal Assembly LED Optical Unit Compliance Matrix | By signing this form, the applicant declares that he/she has read and understands the provisions of Sections 650 and 995 of the FDOT *Standard Specifications for Road and Bridge Construction,* and all implemented modifications. The requirements listed on this matrix are derived from Sections 650 and 995, and are the basis for determining a product’s compliance and its acceptability for use on Florida’s roads. |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| Date: | Click here to enter a date. | Applicant’s  Name (print): |  |
| Manufacturer: |  |  |  |
| Item, Model No.: |  | Signature: |  |

|  |  | **\*\* Greyed out rows in table below are for TERL use only \*\*** |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **ID No** | **Section** | **Requirement** | **Item Comply? (Yes/No/NA)** | **Comments (Applicant must provide information as indicated)** | **TERL Evaluation Method** |
| 1 | 995-1.1 | All equipment is permanently marked with manufacturer name or trademark, part number, and date of manufacture or serial number. |  | *Applicant may provide comments in this field.* | Physical Inspection |
|  |  | TERL Test Cases (Steps): LOU002 (Step 1) |  |  | Init.: |
| 2 | 995-4.2.8 | The LED Optical Unit conforms to the requirements of the Institute of Transportation Engineers (ITE), Performance Specification, “Vehicle Traffic Control Signal Heads - Light Emitting Diode (LED) Circular Signal Supplement” dated June 27, 2005 or Vehicle Traffic Signal Control Signal Heads – Light Emitting Diode (LED) Vehicle Arrow Traffic Signal Supplement, dated July 1, 2007, with exceptions as noted below. |  | *Provide a third-party test report that demonstrates compliance with this requirement. The test report must be less than 5 years old and meet the requirements of FDOT Product Certification Handbook (PCH), section 7.2.* | Document Review |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): LOU001 (Step 1) |  |  | Init.: |
| 3 |  | LED Signal Module is compatible with currently approved traffic signal housings. |  | *Applicant may provide comments in this field.* | Physical Inspection |
|  |  | TERL Test Cases (Steps): LOU002 (Step 2) |  |  | Init.: |
| 4 |  | Lens is tinted with an appropriate color (red, amber, or green) to reduce sun phantom affect and enhance on/off contrast. |  | *Applicant may provide comments in this field.* | Physical Inspection |
|  |  | TERL Test Cases (Steps): LOU002 (Steps 3, 4) |  |  | Init.: |
| 5 |  | Tinting is uniform across the face of the lens, free from streaks, wrinkles, chips, bubbles, or other imperfections. |  | *Applicant may provide comments in this field.* | Physical Inspection |
|  |  | TERL Test Cases (Steps): LOU002 (Step 5) |  |  | Init.: |
| 6 |  | If lens is polymer, a surface coating is incorporated to provide abrasion resistance. |  | *Provide a statement of conformance in this field.* | Compliance Matrix Review |
|  |  | TERL Test Cases (Steps): LOU001 (Step 2) |  |  | Init.: |
| 7 |  | Red and green modules meet the requirements of ITE’s Performance Specification, Vehicle Traffic Control Signal Heads – Light Emitting Diode (LED) Circular Signal Supplement dated June 27, 2005, with the exception that yellow modules are 1.7 times brighter than the ITE specification. |  | *Provide a third-party test report that demonstrates compliance with this requirement. The test report must be less than 5 years old and meet the requirements of FDOT PCH, section 7.2.* | Document Review |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): LOU001 (Step 3) |  |  | Init.: |
| 8 |  | Arrow modules meet the requirements of ITE’s Performance Specification, Vehicle Traffic Control Signal Heads - Light Emitting Diode (LED) Vehicle Arrow Traffic Signal Supplement, dated July 1, 2007. |  | *Provide a third-party test report that demonstrates compliance with this requirement. The test report must be less than 5 years old and meet the requirements of FDOT PCH, section 7.2.* | Document Review |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): LOU001 (Step 4) |  |  | Init.: |
| 9 | 995-4.2.9 | Electrical conductors for LED signal modules are a minimum of 36 inches in length. |  | *Provide a statement of conformance in this field.* | Compliance Matrix Review and Physical Inspection |
|  |  | TERL Test Cases (Steps): LOU001 (Step 5), LOU002 (Step 6) |  |  | Init.: |
| 10 |  | Each lead from the LED module is terminated with insulated slide-on terminals. |  | *Provide a statement of conformance in this field.* | Compliance Matrix Review and Physical Inspection |
|  |  | TERL Test Cases (Steps): LOU001 (Step 6), LOU002 (Step 7) |  |  | Init.: |
| 11 |  | Conductors are color coded as follows:  White identifies the neutral lead;  Red circular signals are identified with a red lead;  Yellow circular signals are identified with a yellow lead;  Green circular signals are identified with a green lead;  Red arrows are identified with a red and black tracer lead;  Yellow arrows are identified with a yellow and black tracer lead;  Green arrows are identified with a green and black tracer lead. |  | *Provide a statement of conformance in this field.* | Compliance Matrix Review and Physical Inspection |
|  |  | TERL Test Cases (Steps): LOU001 (Step 7), LOU002 (Step 8) |  |  | Init.: |
| The following compliance matrix criteria are for transit signal heads. | | | | | |
| 12 | 650-3.13 | The 12-inch optical unit indications comply with the MUTCD, Section 8C.11 and as illustrated in Figure 8C-3. |  | *Provide a statement of conformance in this field.* | Compliance Matrix Review and Physical Inspection |
|  |  | TERL Test Cases (Steps): LOU001 (Step 8), LOU002 (Step 9) |  |  | Init.: |
| 13 |  | The 12-inch LED optical unit conforms to the requirements of the ITE’s Performance Specification, Vehicle Traffic Control Signal Heads Light Emitting Diode (LED) Circular Signal Supplement regarding environmental requirements, transient protection, operating voltage range, and electronic noise. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): LOU001 (Step 9) |  |  | Init.: |
| 14 |  | The indication (bar symbol) measures 1-1/2 inches wide by 9 inches long. The indication is capable of being displayed in any angle of orientation from horizontal to vertical. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and Physical Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): LOU001 (Step 10), LOU002 (Steps 10, 11) |  |  | Init.: |
| The following compliance matrix criteria are for all LED optical units. | | | | | |
| 15 | 650-4 | LED signal modules have a manufacturer’s warranty covering defects for a minimum of five years from the date of final acceptance in accordance with 5-11 and 608. |  | *Provide a statement of conformance in this field.* | Compliance Matrix Review |
|  |  | TERL Test Cases (Steps): LOU001 (Step 11) |  |  | Init.: |
| 16 |  | Warranty includes providing replacements, within 30 calendar days of notification, for any defective parts and equipment (including falling below minimum intensity levels) during the warranty period at no cost to the Department or the maintaining agency. |  | *Provide a statement of conformance in this field.* | Compliance Matrix Review |
|  |  | TERL Test Cases (Steps): LOU001 (Step 12) |  |  | Init.: |

**Document History for:**

**Vehicular Traffic Signal Assembly LED Optical Unit Compliance Matrix**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Rev | Description | Authored and Checked | Reviewed | Approved | Approval Date | Rev More Stringent? |
| 1.0 | Update CM to reflect changes from A650 of MSTCSD to 650 of SSRBC. Revised document approver title. | R. Meyer  A. Burleson | J. Morgan | J. Morgan | 11/13/2014 | No |
| 2.0 | Update to latest FA date (12-23-14). No criteria change. | D. Bremer | J. Morgan | J. Morgan | 09/09/2015 | No |
| 3.0 | Updated CM to reflect spec changes for FA 8/01/2019 update. Added reference to ITE requirement for arrows and clarified ITE standard dates. | J. Morgan | M. DeWitt | D. Vollmer | 11/14/2019 | Yes |
| 4.0 | Minor revision to update CM to reflect FA date 8-5-2020. No changes to this matrix. | W. Geitz | C. Raimer | D. Vollmer | 12/30/2020 | No |
| 5.0 | Move division 2 specification to 995. Added warranty information. | W. Geitz | C. Raimer  M. DeWitt | D. Vollmer | 12/28/2021 | No |
| 6.0 | Update to the latest FA Date 10-24-22. | W. Geitz | R. Washington  M. DeWitt | D. Vollmer | 06/12/2023 | No |
| 7.0 | Added test cases/steps. Updated TERL Evaluation Method column. | A. Burleson | R. Washington  D. Bremer  W. Geitz | D. Vollmer | 11/21/2023 | No |