|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | FDOT Traffic Engineering Research Laboratory (TERL)  Electronic Display Sign (EDS) Compliance Matrix | By signing this form, the applicant declares that he/she has read and understands the provisions of Section 995 of the FDOT *Standard Specifications for Road and Bridge Construction* and all implemented modifications. The requirements listed on this matrix are derived from Section 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** |
| The following compliance matrix criteria are for all EDS. | | | | | |
| 1 | 995-1.1 | EDS 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): EDS002 (Step 1) |  |  | Init.: |
| 2 | 995-17.1 | EDS meets the physical display and operational requirements for warning, guide or regulatory signs described in the Manual on Uniform Traffic Control Devices (MUTCD) and the Standard Highway Signs (SHS) manual. |  | *Applicant may provide comments in this field.* | Document Review, Physical Inspection and Functional Inspection |
| The following compliance matrix criteria (referencing the MUTCD) are from the MUTCD and are for ESFS. | | | | | |
| 3 | MUTCD Section  2C.13.02 | A Vehicle Speed Feedback (W13-20) sign or (W13-20aP) plaque (see Figure 2C-4) that displays the speed of an approaching vehicle to the vehicle operator may be used to provide warning to drivers of their speed in relation to either a speed limit (R2-1) sign or a horizontal alignment warning sign assembly with a posted advisory speed. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement. ESFS must be embedded in the YOUR SPEED sign/plaque (see MUTCD Figure 2C-4).* | Document Review and Physical Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): EDS001 (Step 1), EDS002 (Steps 2-4) |  |  | Init.: |
| 4 | MUTCD Section  2C.13.04 | The legend YOUR SPEED has a black legend on a yellow retroreflective background. |  | *Applicant may provide comments in this field.* | Physical Inspection |
|  |  | TERL Test Cases (Steps): EDS002 (Step 5) |  |  | Init.: |
| 5 |  | The changeable legend displaying the speed of the approaching  vehicle shall be a yellow luminous legend on a black opaque background. |  | *Applicant may provide comments in this field.* | Functional Inspection |
|  |  | TERL Test Cases (Steps): EDS004 (Step 2) |  |  | Init.: |
| 6 |  | The vehicle speed displayed on the changeable portion of the sign is displayed as an integer. |  | *Applicant may provide comments in this field.* | Functional Inspection |
|  |  | TERL Test Cases (Steps): EDS004 (Step 2) |  |  | Init.: |
| 7 |  | The Vehicle Speed Feedback sign and plaque does not flash, strobe, change color, or use other animated elements integrated into the changeable legend display. |  | *Applicant may provide comments in this field.* | Functional Inspection |
|  |  | TERL Test Cases (Steps): EDS004 (Step 3) |  |  | Init.: |
| 8 |  | When no vehicles are approaching, the changeable display does not display a legend. |  | *Applicant may provide comments in this field.* | Functional Inspection |
|  |  | TERL Test Cases (Steps): EDS004 (Step 4) |  |  | Init.: |
| The following compliance matrix criteria are for EDS. | | | | | |
| 9 | 995-17.1 | EDS allows attachment to vertical and horizontal support structures as part of a single or double signpost configuration. |  | *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): EDS001 (Step 2), EDS002 (Step 6) |  |  | Init.: |
| 10 |  | Bolts are used for all load bearing attachments. |  | *Provide a statement of conformance in this field.* | Compliance Matrix Review |
|  |  | TERL Test Cases (Steps): EDS001 (Step 3) |  |  | Init.: |
| 11 | 995-17.2 | EDS is designed to withstand the loads defined in the Department’s Structures Manual without deformation or damage. |  | *Provide structural calculations that are signed and sealed by a Florida P.E.* | Document Review |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): EDS001 (Step 4) |  |  | Init.: |
| 12 |  | EDS provides an option to include flashing beacons (excludes BOS). |  | *Provide a statement of conformance in this field.* | Compliance Matrix Review and Physical Inspection |
|  |  | TERL Test Cases (Steps): EDS001 (Step 5), EDS002 (Step 7) |  |  | Init.: |
| 13 |  | Printed circuit boards are protected with conformal coating. |  | *Provide product literature that indicates the circuit boards meet this requirement.* | Document Review |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): EDS001 (Step 6) |  |  | Init.: |
| 14 |  | Housings which contain electronics are constructed of aluminum alloy with a minimum thickness of .090 inches. |  | *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): EDS001 (Step 7), EDS002 (Step 8) |  |  | Init.: |
| 15 |  | Welding used during the construction of EDS is performed in accordance with Section 965. |  | *Provide American Welding Society welding certificate or equivalent.* | Document Review |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): EDS001 (Step 8) |  |  | Init.: |
| 16 | 995-17.2.1 | If EDS is configured with both a static sign panel and dynamic display, the static sign panel meets FDOT requirements for highway signing. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement. Also, provide the Approved Product List number for the sign sheeting used.* | Document Review and Physical Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): EDS001 (Step 9), EDS002 (Step 9) |  |  | Init.: |
| 17 | 995-17.2.2 | Electronic display appears completely blank (dark) when not energized; no phantom characters or graphics exist under any ambient light conditions. |  | *Applicant may provide comments in this field.* | Functional Inspection |
|  |  | TERL Test Cases (Steps): EDS004 (Step 5) |  |  | Init.: |
| 18 | 995-17.2.3 | The housing protects and seals the dynamic display and other internal electronics. |  | *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): EDS001 (Step 10), EDS002 (Step 10) |  |  | Init.: |
| 19 |  | Polycarbonate material used on the sign face is a minimum 90 percent ultraviolet (UV) opaque and resistant to fading and yellowing. |  | *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): EDS001 (Step 11) |  |  | Init.: |
| 20 |  | The housing is National Electrical Manufacturers Association (NEMA) 3R rated and prevents unauthorized access. |  | *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): EDS001 (Step 12), EDS002 (Step 11) |  |  | Init.: |
| 21 |  | The housing includes weather tight cable entry, or connection points for any required power or data connections. |  | *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): EDS001 (Step 13), EDS002 (Step 12) |  |  | Init.: |
| 22 | 995-17.2.4 | Equipment cabinet, if provided with the EDS, is listed on the approved Product List (APL). |  | *Indicate Approved Product List number(s) in this field.* | Compliance Matrix Review |
|  |  | TERL Test Cases (Steps): EDS001 (Step 14) |  |  | Init.: |
| 23 | 995-17.2.5 | All light emitting diodes (LED) operate within the LED manufacturer’s recommendations for typical forward voltage, peak pulsed forward current, and other ratings; component ratings are not exceeded under any operating conditions. |  | *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): EDS001 (Step 15) |  |  | Init.: |
| 24 | 995-17.2.6 | All LEDs used in the display have a wavelength output that varies no more than ±2 nanometers from the specified peak wavelength. |  | *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): EDS001 (Step 16) |  |  | Init.: |
| 25 |  | Display and LED pixel cone of vision is a minimum of 15 degrees (centered around the optical axis, or zero point, of the pixel); the cone perimeter is defined by the point where light output intensity is 50 percent of the intensity measured at the zero point of the pixel. |  | *Provide the following:*   * *A third party test report that demonstrates compliance with this requirement.* * *A completed Testing Laboratory and Report Checklist.* | Document Review |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): EDS001 (Step 17) |  |  | Init.: |
| 26 |  | For all colors other than white, the sign display produces an overall luminous intensity of at least 9200 candelas per square meter when operating at 100 percent intensity; for white or full color matrix display the sign display produces white with an overall luminous intensity of at least 12,400 candelas per square meter when operating at 100 percent intensity. |  | *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): EDS001 (Step 18) |  |  | Init.: |
| 27 |  | Documentation is provided that indicates the LED brightness and color bins that are used in each pixel. |  | *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): EDS001 (Step 19) |  |  | Init.: |
| 28 |  | LEDs are individually mounted on a printed circuit board (PCB) and are able to be removed and replaced using conventional electronic repair methods; LEDs are not encapsulated. |  | *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): EDS001 (Step 20), EDS002 (Step 13) |  |  | Init.: |
| The following compliance matrix criteria are for ERS. | | | | | |
| 29 |  | LEDs are arranged and powered in a manner that maintains a discernible message in the event of a single LED or pixel failure. |  | *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): EDS001 (Step 21) |  |  | Init.: |
| The following compliance matrix criteria are for all EDS. | | | | | |
| 30 | 995-17.2.7 | The minimum numeral and letter size of the electronic display meets or exceeds the numeral and letter sizes prescribed in the MUTCD and SHS companion document; fonts and graphics mimic the characteristics of fonts and graphics defined in the MUTCD and SHS. |  | *Applicant may provide comments in this field.* | Functional Inspection |
|  |  | TERL Test Cases (Steps): EDS004 (Steps 6, 7) |  |  | Init.: |
| 31 | 995-17.2.8 | Electronic display controller is housed within the sign and equipped with a security lockout feature to prevent unauthorized use. |  | *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): EDS001 (Step 22), EDS002 (Step 14) |  |  | Init.: |
| 32 |  | Controller has the capability to provide a stipulated default message upon loss of controller function; a blank message is acceptable. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and Functional Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): EDS001 (Step 23), EDS004 (Step 8) |  |  | Init.: |
| 33 | 995-17.2.9 | Controller possesses at least one serial, Ethernet, USB, or Bluetooth interface with the ability to connect to a laptop computer. The serial data interface supports multiple data rates from 9600 bps to 115200 bps. |  | *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): EDS001 (Step 24), EDS002 (Step 15) |  |  | Init.: |
| 34 | 995-17.2.10 | Sign is provided with computer software from its manufacturer that allows a user to program, operate, exercise, diagnose, and read current status of all sign features and functions using a laptop. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and Functional Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): EDS001 (Step 25), EDS005 (Step 1) |  |  | Init.: |
| 35 |  | Configuration and management functions are password protected. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and Functional Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): EDS001 (Step 26), EDS005 (Step 2) |  |  | Init.: |
| 36 | 995-17.2.11 | EDS is visible from a distance of at least ¼ mile and legible from a distance of 400 feet for applications on roads with a speed limit less than 45 miles per hour (mph) and visible from a distance of at least 1/2 mile and legible from a distance of at least 650 feet for roads with speed limits 45 mph or higher; these requirements are met under both day and night conditions. |  | *Applicant may provide comments in this field.* | Functional Inspection |
|  |  | TERL Test Cases (Steps): EDS007 (Steps 6-11) |  |  | Init.: |
| 37 |  | Display automatically adjusts brightness for day and night operation. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and Functional Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): EDS001 (Step 27), EDS006 (Steps 1, 5) |  |  | Init.: |
| 38 |  | EDS is equipped with a light sensor that accurately measures ambient light level conditions at the sign location. |  | *Provide drawing showing location of light sensor.* | Document Review and Physical Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): EDS001 (Step 28), EDS002 (Step 16) |  |  | Init.: |
| 39 |  | EDS automatically adjusts LED intensity based on the ambient light conditions in small enough increments that the sign’s brightness changes smoothly, with no perceivable brightness change between adjacent levels; stray headlights shining on the photoelectric sensor at night do not cause LED brightness changes. |  | *Applicant may provide comments in this field.* | Functional Inspection |
|  |  | TERL Test Cases (Steps): EDS006 (Steps 2, 3, 6, 7) |  |  | Init.: |
| 40 | 995-17.2.12 | EDS mounting provisions and mounting hardware accommodate sign weight and wind loading requirements of the FDOT Structures Manual. |  | *Applicant may provide comments in this field.* | Compliance Matrix Review |
|  |  | TERL Test Cases (Steps): EDS001 (Step 29) |  |  | Init.: |
| The following compliance matrix criteria are for BOS. | | | | | |
| 41 |  | BOS is designed to accommodate overhead attachment using a tri-stud signal hanger; multiple tri-stud attachment points may be used to meet weight and wind loading requirements; tri-stud attachment points are weather-tight and structurally reinforced. |  | *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): EDS001 (Step 30), EDS002 (Step 17) |  |  | Init.: |
| The following compliance matrix criteria are for all EDS. | | | | | |
| 42 | 995-17.2.13 | All assembly hardware less than 5/8 inch in diameter is Type 304 or 316 passivated stainless steel. Stainless steel bolts, screws and studs meet ASTM F593 and nuts meet ASTM F594. |  | *Provide statement of conformance from hardware supplier that shows the product meets this requirement.* | Document Review |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): EDS001 (Step 31) |  |  | Init.: |
| 43 |  | All assembly hardware greater than or equal to 5/8 inch in diameter is galvanized. Bolts, studs, and threaded rod meet  ASTM A307 and structural bolts meet ASTM F3125, Grade A325. |  | *Provide statement of conformance from hardware supplier that shows the product meets this requirement.* | Document Review |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): EDS001 (Step 32) |  |  | Init.: |
| 44 | 995-17.2.14 | All power inputs are fuse and reverse polarity protected. |  | *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): EDS001 (Step 33) |  |  | Init.: |
| 45 |  | EDS is able to recover from power loss and return to its operational state without user intervention. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and Functional Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): EDS001 (Step 34), EDS003 (Step 9) |  |  | Init.: |
| The following compliance matrix criteria are for solar powered EDS. | | | | | |
| 46 | 995-17.2.14.1 | Sign is capable of fully autonomous operation 24 hours per day, 365 days per year. |  | *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): EDS001 (Step 35) |  |  | Init.: |
| 47 |  | Battery is a standard 12-volt deep cycle battery suitable for the application and operating environment. Battery is not a flooded lead-acid battery. |  | *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): EDS001 (Step 36), EDS002 (Step 18) |  |  | Init.: |
| 48 |  | Battery is capable of providing 10 days of continuous operation without sunlight. |  | *Applicant may provide comments in this field.* | Functional Inspection |
|  |  | TERL Test Cases (Steps): EDS003 (Steps 5, 6) |  |  | Init.: |
| 49 |  | Charging system uses a solar charge controller with temperature compensation; the system provides for automatic battery charging, overcharge protection, and has indications that display current status and faults. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and Functional Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): EDS001 (Step 37), EDS003 (Steps 7, 8) |  |  | Init.: |
| The following compliance matrix criteria are for AC powered EDS. | | | | | |
| 50 | 995-17.2.14.2 | Fluctuations in line voltage have no visible effect on the appearance of the display. |  | *Applicant may provide comments in this field.* | Functional Inspection |
|  |  | TERL Test Cases (Steps): EDS003 (Step 10) |  |  | Init.: |
| The following compliance matrix criteria are for all EDS. | | | | | |
| 51 | 995-17.2.15 | The EDS assembly operates properly during and after being subjected to the environmental testing procedures described in NEMA TS4 Section 2. |  | *Provide the following:*   * *A third party test report that demonstrates compliance with this requirement.* * *A completed Testing Laboratory and Report Checklist.* * *A completed NEMA TS4 2.2.3-2.2.6, 3.1.1 & 5.4 Checklist.* | Document Review |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): EDS001 (Step 38) |  |  | Init.: |
| 52 |  | Fog, frost, and condensation do not form within the dynamic portion of the sign. |  | *Provide a statement with an explanation of conformance that condensation or frost accumulation in front of the pixels does not inhibit legibility of the display.* | Compliance Matrix Review |
|  |  | TERL Test Cases (Steps): EDS001 (Step 39) |  |  | Init.: |
| 53 |  | Electronics meets requirements of Federal Communications Commission (FCC) Title 47, Subpart B, Section 15. |  | *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): EDS001 (Step 40) |  |  | Init.: |
| 54 | 995-17.2.16 | EDS systems and equipment furnished have a manufacturer’s warranty covering defects for a minimum of 3 years from the date of final acceptance. |  | *Provide product warranty documentation that shows the product meets this requirement.* | Document Review |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): EDS001 (Step 41) |  |  | Init.: |
| The following compliance matrix criteria are for Electronic Warning Signs (EWS). | | | | | |
| 55 | 995-17.3 | EWS includes a secure wireless connection to communicate with a nearby laptop. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and Functional Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): EDS001 (Step 42), EDS005 (Step 3) |  |  | Init.: |
| 56 | 995-17.3.1 | If a black background is used on the changeable electronic display, the color used for the legend matches the background color that would be used on a standard sign for that type of legend, in accordance with the MUTCD. |  | *Applicant may provide comments in this field.* | Functional Inspection |
|  |  | TERL Test Cases (Steps): EDS004 (Step 9) |  |  | Init.: |
| 57 |  | Black EWS display background is flat black (Federal Standard 595A-37038) with a reflectance value not exceeding 25 percent. |  | *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): EDS001 (Step 43), EDS002 (Step 19) |  |  | Init.: |
| 58 |  | EWS utilizes yellow LEDs with a peak wavelength of either 585 or 590 nanometers. |  | *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): EDS001 (Step 44) |  |  | Init.: |
| 59 |  | EWS has a minimum 1-inch contrasting margin around illuminated characters or graphics. |  | *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): EDS001 (Step 45), EDS002 (Step 20) |  |  | Init.: |
| The following compliance matrix criteria are for EWS with speed detection. | | | | | |
| 60 | 995-17.3.2 | EWS is programmable for the posted speed limit and the maximum speed to display. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and Functional Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): EDS001 (Step 46), EDS005 (Step 4) |  |  | Init.: |
| 61 |  | When the detected speed exceeds the maximum programmed speed (high speed cut-off) threshold, the display will automatically blank. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and Functional Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): EDS001 (Step 47), EDS004 (Step 10) |  |  | Init.: |
| 62 |  | EWS detects when the posted speed is exceeded by 1 mph and then activates the display. |  | *Provide a statement of conformance in this field.* | Compliance Matrix Review |
|  |  | TERL Test Cases (Steps): EDS001 (Step 48) |  |  | Init.: |
| 63 |  | When no advancing traffic is detected, the display is blank; the speed detector does not activate alerts for vehicles outside the display cone of vision. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and Functional Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): EDS001 (Step 49), EDS004 (Step 11) |  |  | Init.: |
| 64 |  | EWS meets the requirements of FCC Title 47, Part 90 and does not require an FCC operating license. |  | *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): EDS001 (Step 50) |  |  | Init.: |
| 65 |  | The speed detector operates on 10.8 to 16.6 VDC and draws less than 3 amperes. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and Functional Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): EDS001 (Step 51), EDS003 (Steps 11, 12) |  |  | Init.: |
| 66 |  | EWS monitors and displays the speed of approaching traffic only; the EWS detector is able to accurately detect and determine the speed of approaching vehicles. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and Functional Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): EDS001 (Step 52), EDS004 (Steps 12, 13) |  |  | Init.: |
| 67 |  | EWS is capable of measuring speeds of approaching traffic only between 10 and 99 mph with an accuracy of plus or minus 1 mph, 1,000 feet in advance of the sign. |  | *Provide the following:*   * *A third party test report that demonstrates compliance with this requirement.* * *A completed Testing Laboratory and Report Checklist.* | Document Review |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): EDS001 (Step 53) |  |  | Init.: |
| The following compliance matrix criteria are for ERS. | | | | | |
| 68 | 995-17.4 | ERS display module has a minimum two-inch contrasting margin around digits, text, or graphics. |  | *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): EDS001 (Step 54), EDS002 (Step 21) |  |  | Init.: |
| 69 |  | ERS utilizes LED technology for the dynamic display. |  | *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): EDS001 (Step 55), EDS002 (Step 22) |  |  | Init.: |
| 70 | 995-17.4.1 | AC powered signs include a battery backup system that maintains full operation of the sign for a minimum of 2 hours in the event of utility power loss. Operation on battery backup has no visible effect on the appearance of the display. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement* | Document Review and Functional Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): EDS001 (Step 56), EDS003 (Steps 14, 15) |  |  | Init.: |
| The following compliance matrix criteria are for Variable Speed Limit Signs (VSLS). | | | | | |
| 71 | 995-17.4.2 | VSLS can display speed limits from 5-70 mph in 5 mph increments and mimic the physical appearance of a static regulatory speed limit sign as shown in the MUTCD and SHS. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and Functional Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): EDS001 (Step 57), EDS004 (Step 14) |  |  | Init.: |
| The following compliance matrix criteria (referencing the MUTCD) are from the MUTCD and are for VSLS. | | | | | |
| 72 | MUTCD Section 2B.21.28 | The variable speed limit sign legend “SPEED LIMIT” has a black legend on a white retroreflective background. |  | *Provide the FDOT APL Number for the Retroreflective Sign Sheeting used.* | Compliance Matrix Review and Physical Inspection |
|  |  | TERL Test Cases (Steps): EDS001 (Step 58), EDS002 (Step 23) |  |  | Init.: |
| 73 |  | The variable speed limit legend is displayed in white LEDs on an opaque black background. |  | *Applicant may provide comments in this field.* | Functional Inspection |
|  |  | TERL Test Cases (Steps): EDS004 (Step 15) |  |  | Init.: |
| The following compliance matrix criteria are for VSLS. | | | | | |
| 74 |  | VSLS logs the time and date of any speed limit change to internal non-volatile memory; the log can record a minimum of 1,000 events in a first-in, first-out fashion. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and Functional Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): EDS001 (Step 59), EDS005 (Step 5) |  |  | Init.: |
| 75 | 995-17.4.2.1 | VSLS is equipped with a sign controller that includes a minimum of 1 Ethernet 10/100 Base TX 8P8C port. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and Functional Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): EDS001 (Step 60), EDS005 (Steps 7, 8) |  |  | Init.: |
| 76 | 995-17.4.2.2 | VSLS can be managed remotely from a Traffic Management Center (TMC) and managed locally using a laptop computer; the TMC and a laptop computer can be used to remotely reset VSLS controller. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and Functional Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): EDS001 (Step 61), EDS005 (Steps 10, 11) |  |  | Init.: |
| 77 |  | VSLS logs and reports status, errors, and failures, including data transmission errors, receipt of invalid data, communication failure recoveries, alternating current power failures, power recoveries, display errors, , temperature status, power supply status, and information on the operational status of the temperature, photocell, airflow, humidity, and LED power supply sensors. |  | *Provide information on how to retrieve VSLS logs, content of logs and examples of logs including data specified in this requirement.* | Document Review |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): EDS001 (Step 62) |  |  | Init.: |
| 78 |  | Sign controller is addressable through an Ethernet communication network using software that complies with the NTCIP requirements published online by the Department’s Traffic Engineering Research Laboratory (TERL) at: https://www.fdot.gov/traffic/. |  | *Provide a statement of conformance in this field.* | Compliance Matrix Review |
|  |  | TERL Test Cases (Steps): EDS001 (Step 63) |  |  | Init.: |
| 79 |  | Sign implements any NTCIP standards required to achieve interoperability and interchangeability; any additional objects implemented by the software do not interfere with the standard operation of any mandatory objects. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and Functional Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): EDS001 (Step 64), EDS005 (Step 12) |  |  | Init.: |
| The following compliance matrix criteria are for BOS. | | | | | |
| 80 | 995-17.5 | EDS designed for BOS applications has a black exterior finish (Federal Standard 595A-37038) with a reflectance value not exceeding 25 percent. |  | *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): EDS001 (Step 65), EDS002 (Step 24) |  |  | Init.: |
| 81 |  | Overhead BOS includes a visor. |  | *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): EDS001 (Step 66), EDS002 (Step 25) |  |  | Init.: |
| The following compliance matrix criteria are for ESFS. | | | | | |
| 82 | 995-17.6 | The ESFS display background is flat black (Federal Standard 595-37038) with a reflectance value not exceeding 25 percent. |  | *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): EDS001 (Step 67), EDS002 (Step 26) |  |  | Init.: |
| 83 |  | ESFS has a minimum 1-inch contrasting margin around illuminated characters. |  | *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): EDS001 (Step 68), EDS002 (Step 27) |  |  | Init.: |
| 84 | 995-17.6.1 | ESFS is programmable for the posted speed limit and the maximum speed to display. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and Functional Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): EDS001 (Step 69), EDS005 (Step 4) |  |  | Init.: |
| 85 |  | When the detected speed exceeds the maximum programmed speed (high speed cut-off) threshold, the display will automatically blank. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and Functional Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): EDS001 (Step 70), EDS004 (Step 10) |  |  | Init.: |
| 86 |  | The speed detector does not display speeds for vehicles outside the display’s cone of vision. |  | *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): EDS001 (Step 71) |  |  | Init.: |
| 87 |  | ESFS meets the requirements of FCC Title 47, Part 90 and does not require an FCC operating license. |  | *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): EDS001 (Step 72) |  |  | Init.: |
| 88 |  | The speed detector operates on voltages from 10.8 to 16.6 VDC. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and Functional Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): EDS001 (Step 73), EDS003 (Steps 10, 11) |  |  | Init.: |
| 89 |  | ESFS is capable of measuring and displaying speeds of approaching traffic only between 10 and 99 mph with an accuracy of plus or minus 1 mph, 1,000 feet in advance of the sign. |  | *Provide the following:*   * *A third party test report that demonstrates compliance with this requirement.* * *A completed Testing Laboratory and Report Checklist.* | Document Review |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): EDS001 (Step 74) |  |  | Init.: |

**Document History for:**

**Electronic Display Sign (EDS) Compliance Matrix**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Rev | Description | Authored and Checked | Reviewed | Approved | Approval Date | Rev More Stringent? |
| 1.0 | Transition from Excel to Word and from A700 to 700. | D. Bremer | C. Morse | J. Morgan | 10/31/2013 | N/A |
| 2.0 | Updated to match FA 1-16-15. | R. Meyer | J. Morgan | J. Morgan | 07/07/2015 | No |
| 3.0 | Updated to latest FHWA approved date of 7/27/15. No content change. | M. Lucas | J. Morgan | J. Morgan | 11/09/2015 | No |
| 4.0 | Updated to the latest FA approval date of 08/15/18. Updated NEMA requirements. | R. Brooks | J. Morgan | D. Vollmer | 12/28/2020 | Yes |
| 5.0 | Revisions to reflect FA dates of 8-6-2020 and 8-5-2021. | W. Geitz | M. DeWitt  C. Raimer | D. Vollmer | 04/27/2022 | No |
| 6.0 | Made corrections to CM ID 28 to reflect Standard Specs July 2022 updates. | R. Brooks | M. DeWitt | D. Vollmer | 05/26/2022 | No |
| 7.0 | Moved from 700 to 995 (FA 10-24-2022) | W. Geitz | R. Washington M. DeWitt | D. Vollmer | 05/16/2023 | No |
| 8.0 | Updated to latest FA spec date of 10-6-23 for 995. | W. Geitz | R. Washington | D. Vollmer | 12/1/2023 | No |
| 9.0 | Updated CM with new MUTCD requirements for ESFS. Updated to new FA date of 8-7-24 for spec 995. CM IDs 3, 6, 7, 62 and 87 contain more stringent requirements. | W. Geitz | D. Bremer  D. Vollmer | M. DeWitt | 03/26/2025 | Yes |
| 10.0 | Added test cases/steps and made other changes throughout document. | A. Cramer | W. Geitz | M. DeWitt | 10/09/2025 | No |