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| --- | --- | --- | --- | --- |
|  | FDOT Traffic Engineering Research Laboratory (TERL)  Truck Mounted Changeable Message Sign Compliance Matrix | By signing this form, the applicant declares that he/she has read and understands the provisions of Section 990 of the FDOT *Standard Specifications for Road and Bridge Construction* and all implemented modifications. The requirements listed on this matrix are derived from Section 990 and are the basis for determining a product’s compliance and its acceptability for use on Florida’s roads. |  |  |

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

| **ID No** | **Section** | **Requirement** | **Item**  **Comply? (Yes/No/NA)** | **Comments (Applicant must provide information as indicated)** | **TERL Evaluation Method** |
| --- | --- | --- | --- | --- | --- |
| 1 | 990-3.1 | Device meets the physical display and operational requirements of the Federal Highway Administration’s Manual on Uniform Traffic Control Devices (MUTCD). |  | *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.* |
| 2 |  | 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.* |
| 3 |  | 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.* |
| 4 |  | The controllers and associated on-board circuitry meet the requirements of the Federal Communications Commission (FCC) Title 47, Subpart B, Section 15 regulations concerning the emission of electronic noise by Class A digital devices. |  | *Provide FCC certificate that shows the product meets this requirement.* | Document Review |
| *Indicate location of requested information in submittal.* |
| 5 |  | All electronic assemblies shall operate as specified during and after being subjected to the environmental tests described in NEMA TS 4-2016 Section 2. |  | *Provide a third party test report that demonstrates compliance with this requirement. The test report must meet the requirements of FDOT Product Certification Handbook (PCH), section 7.2.* | Document Review |
| *Indicate location of requested information in submittal.* |
| 6 |  | The controller and associated on-board circuitry are not affected by mobile radio, or any other radio transmissions. |  | *Provide FCC certificate that shows the product meets this requirement.* | Document Review |
| *Indicate location of requested information in submittal.* |
| 7 |  | An operator’s manual is furnished with each unit. |  | *Provide a statement of conformance in this field.* | Compliance Matrix Review |
| 8 |  | All portable devices are permanently marked with the manufacturer’s name or trademark, model/part number, and date of manufacture or serial number. |  | *Applicant may provide comments in this field.* | Physical Inspection |
| 9 | 990-3.6.1 | The sign can be secured on a vehicle for normal operation. |  | *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.* |
| 10 |  | A fault light is located on the rear of the sign and operates whenever the sign is displaying a message. The light flashes at the same rate as the message being displayed |  | *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.* |
| 11 | 990-3.6.2 | The housing size does not exceed 96 inches wide. |  | *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.* |
| 12 |  | The housing is designed to withstand exposure to the elements and includes a locking device to secure the housing from unauthorized entry. |  | *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.* |
| 13 |  | Provisions (by convection or fan) are made for heat dissipation within the unit. |  | *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.* |
| 14 |  | The message matrix panel background and frame for the changeable message assembly are painted flat black, federal specification TT-E-489. |  | *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.* |
| 15 |  | The face of the display is easily opened from the front and can be locked to stay open far enough to allow for servicing of all message panel components. |  | *Applicant may provide comments in this field.* | Physical Inspection |
| 16 |  | The face of the sign is covered by an impact resistant polycarbonate face that aids against glare and includes an ultraviolet inhibitor to protect from fading and yellowing. |  | *Applicant may provide comments in this field.* | Physical Inspection |
| 17 |  | The display panel support structure, when raised in the upright position, is designed to allow for a minimum height of seven feet from the bottom of the panel to the ground. |  | *Applicant may provide comments in this field.* | Physical Inspection |
| 18 |  | The unit has a manual and automatic control mechanism to raise and lower the display assembly. |  | *Applicant may provide comments in this field.* | Physical Inspection |
| 19 |  | A locking device is provided to ensure the display panel will remain in the raised or lowered position. |  | *Applicant may provide comments in this field.* | Physical Inspection |
| 20 | 990-3.6.3 | The message matrix utilizes amber (590 nm dominate wavelength).light emitting diodes (LED) and meet the visibility requirements of this specification. |  | *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.* |
| 21 |  | LEDs have a viewing angle no less than 30 degrees, and LED intensity will not fall below 80 percent within three years. |  | *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.* |
| 22 |  | All display modules are identical and interchangeable. |  | *Applicant may provide comments in this field.* | Physical Inspection |
| 23 |  | The matrix is capable of displaying a minimum of two lines of eight characters each, using a 10 inch font that meets the height to width ratio and character spacing requirements in the MUTCD, Section 2L.04 (paragraphs 05, 06, and 08) and Section 6F.60, paragraph 15. |  | *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.* |
| 24 |  | The matrix provides variable letter, graphic and symbol sizes from 10 to 36 inches that meet or exceed the numeral and letter sizes prescribed in the MUTCD and SHS companion document. |  | *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.* |
| 25 |  | Fonts and graphics must mimic the characteristics of fonts and graphics defined in NEMA TS4, 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.* |
| 26 | 990-3.6.4 | The power supply is a 12 VDC system designed to operate the sign with a dedicated battery or batteries that are charged by the vehicle electrical system, but isolated so it does not drain the vehicle 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.* |
| 27 |  | All internal sign components are treated with a protective, weather-resistant polyurethane conformal coating to protect against the adverse effects of humidity and moisture. |  | *Applicant may provide comments in this field.* | Physical Inspection |
| 28 | 990-3.6.5 | The controller is housed inside the sign and equipped with a security lockout feature to prevent unauthorized use. |  | *Applicant may provide comments in this field.* | Physical Inspection |
| 29 |  | An external weather-resistant, hand-held control keypad is used to display the message on the sign. |  | *Applicant may provide comments in this field.* | Physical Inspection |
| 30 |  | The controller has the capability to provide a predetermined or blank default message upon loss of controller function. |  | *Applicant may provide comments in this field.* | Functional Inspection |
| 31 | 990-3.6.6 | The message is displayed in upper case. |  | *Applicant may provide comments in this field.* | Functional Inspection |
| 32 |  | The message matrix panel is visible from one-half mile. |  | *Applicant may provide comments in this field.* | Physical Inspection |
| 33 |  | With a 10-inch character displayed, the sign is legible from a distance of 400 feet in both day and night conditions. |  | *Applicant may provide comments in this field.* | Physical Inspection |
| 34 |  | Under variable light level conditions, the sign automatically adjusts its light source to meet the 400-foot visibility requirement. |  | *Applicant may provide comments in this field.* | Physical Inspection |
| 35 |  | The sign has the capability to store a minimum of 40 common messages / graphics of which a minimum of 30 are user-programmable messages. |  | *Applicant may provide comments in this field.* | Functional Inspection |
| 36 |  | All messages are capable of being flashed or sequenced. |  | *Applicant may provide comments in this field.* | Functional Inspection |
| 37 |  | In the sequence mode, the message consists of no more than two phases. |  | *Applicant may provide comments in this field.* | Functional Inspection |
| 38 |  | Each phase of a displayed message does not exceed three lines. |  | *Applicant may provide comments in this field.* | Functional Inspection |
| 39 |  | Both message dwell time and message flash rate are individually programmable. |  | *Applicant may provide comments in this field.* | Functional Inspection |

**Document History for:**

**Truck Mounted Changeable Message Sign Compliance Matrix**

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| --- | --- | --- | --- | --- | --- | --- |
| Rev | Description | Authored and Checked | Reviewed | Approved | Approval Date | Rev More Stringent? |
| 1.0 | Initial 990 version for truck mounted CMS. | R. Meyer | J. Morgan | J. Morgan | 10/22/2014 | N/A |
| 2.0 | Updating to latest FHWA. | D. Bremer | C. Morse  M. DeWitt | J. Morgan | 08/19/2015 | No |
| 3.0 | Updated to reflect latest FA approval date of 8-11-15. | A. Burleson | J. Morgan | J. Morgan | 02/05/2016 | No |
| 4.0 | Updated to reflect the latest FA approval date of 8-20-18. Updated NEMA testing procedures. | R. Brooks | J. Morgan | J. Morgan | 09/18/2018 | No |
| 5.0 | Updated to reflect the latest FA approval date of 10-31-19. Updated NEMA testing procedures. | W. Geitz | M. DeWitt  J. Morgan | D. Vollmer | 04/03/2020 | No |
| 6.0 | Updated CM to change sign width to 96 inches. The height and depth requirements were also deleted from spec. | W. Geitz | C. Raimer  M. DeWitt | D. Vollmer | 10/27/2020 | No |
| 7.0 | Update FA Date to 2/22/2021. No changes to the CM. | W. Geitz | C. Raimer  M. DeWitt | D. Vollmer | 10/12/2021 | No |