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| --- | --- | --- | --- | --- | --- |
|  | FDOT Traffic Engineering Research Laboratory (TERL) Dynamic Message Sign (DMS) 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 is for all DMS | | | | | |
| 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): DMS002 (Step 1) |  |  | Init.: |
| The following compliance matrix criteria are for Front Access DMS. | | | | | |
| 2 | 995-16.1.1 | Front access sign meets the requirements of National Electrical Manufacturers Association (NEMA) TS4 2016, section 3.2.6. |  | *Applicant may provide comments in this field.* | Physical Inspection |
|  |  | TERL Test Cases (Steps): DMS002 (Step 2) |  |  | Init.: |
| The following compliance matrix criteria are for Walk-In DMS. | | | | | |
| 3 | 995-16.1.2 | Walk-in sign meets the requirements of NEMA TS4 2016, section 3.2.8. |  | *Applicant may provide comments in this field.* | Physical Inspection |
|  |  | TERL Test Cases (Steps): DMS002 (Step 3) |  |  | Init.: |
| The following compliance matrix criteria are for Embedded DMS. | | | | | |
| 4 | 995-16.1.3 | Embedded Dynamic Message Sign (DMS) can be mounted to Ground Traffic Signs, Overhead Traffic Signs, or Overhead Cantilever Traffic Signs. |  | *Applicant may provide comments in this field.* | Physical Inspection |
|  |  | TERL Test Cases (Steps): DMS002 (Step 4) |  |  | Init.: |
| The following compliance matrix criteria are for all DMS. | | | | | |
| 5 | 995-16.2 | The external skin of the sign housing is constructed of aluminum alloy 5052 H32. |  | *Provide a drawing that details the design and material used for construction.* | Document Review |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): DMS001 (Step 1) |  |  | Init.: |
| 6 |  | The interior structure is constructed of aluminum. |  | *Provide a drawing that details the design and material used for construction.* | Document Review |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): DMS001 (Step 2) |  |  | Init.: |
| 7 |  | Internal frame connections or external skin attachments do not solely rely on adhesive bonding or rivets. |  | *Provide a drawing that details the design and material used for construction.* | Document Review and  Physical Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): DMS001 (Step 3), DMS002 (Step 5) |  |  | Init.: |
| 8 |  | Sign enclosure meets the requirements of NEMA TS4 2016, section 3.1.1 |  | *Provide a first- or third-party test report that demonstrates the sign meets the requirements of 3R, when tested to the requirements off NEMA 250. 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): DMS001 (Step 4) |  |  | Init.: |
| 9 |  | All drain holes and other openings in the sign housing are screened to prevent the entrance of insects and small animals. |  | *Applicant may provide comments in this field.* | Physical Inspection |
|  |  | TERL Test Cases (Steps): DMS002 (Steps 6-8, 10) |  |  | Init.: |
| 10 |  | Sign housing complies with the fatigue resistance requirements of the American Association of State Highway and Transportation Officials (AASHTO) LRFD (Load and Resistance Factor Design) Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals. |  | *Provide structural calculations (hardcopy and electronic copy) that are signed and sealed by a Florida P.E.* | Document Review |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): DMS001 (Step 5) |  |  | Init.: |
| 11 |  | DMS is designed and constructed for continuous usage of at least 20 years. |  | *Indicate how this requirement is met.* | Document Review |
|  |  | TERL Test Cases (Steps): DMS001 (Step 6) |  |  | Init.: |
| 12 |  | Sign assembly is designed in accordance with the FDOT Structures Manual, including a wind load of 150 mph. |  | *Provide structural calculations (hardcopy and electronic copy) that are signed and sealed by a Florida P.E.* | Document Review |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): DMS001 (Step 5) |  |  | Init.: |
| 13 |  | Top of the housing includes multiple steel lifting eyebolts or equivalent hoisting points positioned such that the sign remains level when lifted. |  | *Provide a drawing that details the design and material used for construction.* | Document Review and Physical Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): DMS001 (Step 7), DMS002 (Step 11) |  |  | Init.: |
| 14 |  | The hoist points and sign frame allow the sign to be shipped, handled, and installed without damage. |  | *Provide a drawing that details the design and material used for construction.* | Document Review and Physical Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): DMS001 (Step 7), DMS002 (Step 11) |  |  | Init.: |
| 15 |  | All assembly hardware, including nuts, bolts, screws, and locking washers less than 5/8 inch in diameter, are type 304 or 316 passivated stainless steel and meet the requirements of American Society for Testing and Materials (ASTM) F593 and ASTM F594 |  | *Provide a drawing, a bill of materials, or similar documentation that details all assembly hardware used.* | Document Review and Physical Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): DMS001 (Step 8), DMS002 (Step 9) |  |  | Init.: |
| 16 |  | All assembly hardware greater than or equal to 5/8 inch in diameter is galvanized and meets the requirements of ASTM A307. |  | *Provide a drawing, a bill of materials, or similar documentation that details all assembly hardware used.* | Document Review and Physical Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): DMS001 (Step 8), DMS002 (Step 9) |  |  | Init.: |
| 17 |  | All exterior, excluding the sign face, and all interior housing surfaces are a natural aluminum mill finish. |  | *Applicant may provide comments in this field.* | Physical Inspection |
|  |  | TERL Test Cases (Steps): DMS002 (Step 12) |  |  | Init.: |
| 18 |  | Sign is fabricated, welded, and inspected in accordance with the requirements of the current American National Standard Institute/American Welding Society (ANSI/AWS) Structural Welding Code-Aluminum. |  | *Provide ANSI/AWS welding certificates or equivalent.* | Document Review |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): DMS001 (Step 9) |  |  | Init.: |
| 19 |  | Sign housing meets the requirements of NEMA TS4 2016, section 3.2.9 for convenience outlets. |  | *Applicant may provide comments in this field.* | Physical Inspection |
|  |  | TERL Test Cases (Steps): DMS002 (Steps 13-16) |  |  | Init.: |
| The following compliance matrix criteria are for Walk-In DMS. | | | | | |
| 20 | 995-16.2.1 | All exterior seams and joints, except the finish-coated face pieces, are continuously welded using an inert gas welding method. |  | *Applicant may provide comments in this field.* | Physical Inspection |
|  |  | TERL Test Cases (Steps): DMS002 (Step 17) |  |  | Init.: |
| 21 |  | There are no more than three seams on the top of the housing. Exterior housing panel material is stitch welded to the internal structural members forming a unitized structure. |  | *Applicant may provide comments in this field.* | Physical Inspection |
|  |  | TERL Test Cases (Steps): DMS002 (Steps 18, 19) |  |  | Init.: |
| 22 |  | Exterior mounting assemblies are fabricated from aluminum alloy 6061-T6 extrusions and are a minimum of 0.1875 inch thick. |  | *Provide a drawing that details the design and material used for construction.* | Document Review and Physical Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): DMS001 (Step 11), DMS002 (Step 20) |  |  | Init.: |
| 23 |  | A minimum of three 6061-T6 structural aluminum Z members are included on the rear of the sign housing in accordance with the Standard Plans. These structural members run parallel to the top and bottom of the sign housing and are each a single piece of material that spans the full width of the sign. |  | *Provide a drawing that details the design and material used for construction.* | Document Review and Physical Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): DMS001 (Step 12), DMS002 (Step 21) |  |  | Init.: |
| 24 |  | Structural aluminum Z members are attached to the internal framework of the sign. |  | *Provide a drawing that details the design.* | Document Review and Physical Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): DMS001 (Step 13), DMS002 (Step 22) |  |  | Init.: |
| 25 |  | Hoist points are attached directly to structural frame members by the sign manufacturer. |  | *Provide a drawing that details the design and material used for construction.* | Document Review and Physical Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): DMS001 (Step 14), DMS002 (Step 23) |  |  | Init.: |
| 26 |  | Access to the housing is provided through an access door meeting the requirements of NEMA TS4 2016, section 3.2.8.1. |  | *Provide a statement of conformance that the door, when opened will not deform in a 64.4 km/hr wind gust.* | Document Review and Physical Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): DMS001 (Steps 15-18), DMS002 (Steps 24-27) |  |  | Init.: |
| 27 |  | Access door includes a keyed tumbler lock and a door handle with a hasp for a padlock. |  | *Applicant may provide comments in this field.* | Physical Inspection |
|  |  | TERL Test Cases (Steps): DMS002 (Step 26) |  |  | Init.: |
| 28 |  | Door includes a closed-cell neoprene gasket and stainless-steel hinges. |  | *Provide a drawing or equivalent documentation that details the design and material used for construction.* | Document Review and Physical Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): DMS001 (Step 19), DMS002 (Step 28) |  |  | Init.: |
| 29 |  | Sign housing meets the requirements of NEMA TS4 2016, section 3.2.8.3 for service lighting. |  | *Applicant may provide comments in this field.* | Physical Inspection |
|  |  | TERL Test Cases (Steps): DMS001 (Step 20), DMS002 (Steps 29-33) |  |  | Init.: |
| 30 |  | If incandescent lamps are provided, they are fully enclosed in heavy-duty shatterproof, protective fixtures with aluminum housing and base, a porcelain socket, and clear glass inner cover; all removable components are secured with set screws. If fluorescent lamps are provided, they are fitted with protective guards. |  | *Applicant may provide comments in this field.* | Physical Inspection |
|  |  | TERL Test Cases (Steps): DMS002 (Step 29) |  |  | Init.: |
| 31 |  | Sign housing includes emergency lighting that automatically illuminates the interior in the event of a power outage. |  | *Applicant may provide comments in this field.* | Physical and Functional Inspection |
|  |  | TERL Test Cases (Steps): DMS002 (Step 33), DMS003 (Step 2) |  |  | Init.: |
| 32 |  | Emergency lighting is capable of operation without power for at least 90 minutes. |  | *Applicant may provide comments in this field.* | Functional Inspection |
|  |  | TERL Test Cases (Steps): DMS003 (Step 3) |  |  | Init.: |
| 33 | 995-16.2.1.1 | Walk-In DMS has a work area meeting the requirements of NEMA TS4 2016, section 3.2.8.2. |  | *Provide a statement of conformance that the walkway meets the loading requirements specified in NEMA TS4 2016, section 3.2.8.2.* | Document Review and Physical Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): DMS001 (Steps 9, 21), DMS002 (Steps 34-38) |  |  | Init.: |
| 34 |  | All edges of the walkway are finished to eliminate sharp edges or protrusions. |  | *Applicant may provide comments in this field.* | Physical Inspection |
|  |  | TERL Test Cases (Steps): DMS002 (Step 39) |  |  | Init.: |
| The following compliance matrix criteria are for Front Access and Embedded DMS. | | | | | |
| 35 | 995-16.2.2 | Sign meets the requirements of NEMA TS4 2016, section 3.2.5, and section 3.2.6. Specialized tools or excessive force is not required to access the sign. |  | *Provide a statement of conformance that the access panel assembly in the opened position can withstand a 48.3 km/hr wind.* | Document Review and Physical Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): DMS001 (Steps 22-23), DMS002 (Steps 40-44) |  |  | Init.: |
| The following compliance matrix criteria are for all DMS. | | | | | |
| 36 | 995-16.2.3 | Sign face meets the requirements of NEMA TS4 2016, Section 3.1.3. |  | *Provide first-party accelerated testing or calculations using data from the display properties test to demonstrate the front face material will not preclude ongoing conformity to NEMA TS4 section 5 for the life of the sign. The test report must be less than 5 years old and meet the requirements of FDOT PCH, section 7.2. 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.* | Document Review and Physical Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): DMS001 (Steps 24-25), DMS002 (Step 46) |  |  | Init.: |
| 37 |  | All sign face surfaces are finished with a matte black coating system which meets or exceeds American Architectural Manufacturers Association (AAMA) Specification No. 2605. |  | *Provide product literature from the coating manufacturer that indicates conformance with AAMA specification No. 2605.* | Document Review |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): DMS001 (Step 26) |  |  | Init.: |
| 38 |  | Certification that the sign face parts are coated with the prescribed thickness is provided. |  | *Provide a statement of conformance in this field.* | Compliance Matrix Review |
|  |  | TERL Test Cases (Steps): DMS001 (Step 26) |  |  | Init.: |
| 39 |  | Sign face includes a contrast border that meets the requirements of NEMA TS4 2016, section 3.1.6, unless sign is an embedded DMS. |  | *Applicant may provide comments in this field.* | Physical Inspection |
|  |  | TERL Test Cases (Steps): DMS002 (Steps 47-49) |  |  | Init.: |
| The following compliance matrix criteria are for Walk-In DMS. | | | | | |
| 40 | 995-16.2.3.1 | There are no exposed fasteners on the housing face. Display modules can be easily and rapidly removed from within the sign without disturbing adjacent display modules. |  | *Applicant may provide comments in this field.* | Physical Inspection |
|  |  | TERL Test Cases (Steps): DMS002 (Steps 50-51) |  |  | Init.: |
| The following compliance matrix criteria are for Front Access and Embedded DMS. | | | | | |
| 41 | 995-16.2.3.2 | Exposed fasteners on the housing face are the same color and finish as the housing face. All fasteners used on the housing face are captive. |  | *Applicant may provide comments in this field.* | Physical Inspection |
|  |  | TERL Test Cases (Steps): DMS002 (Steps 52-53) |  |  | Init.: |
| The following compliance matrix criteria are for all DMS with external fascia panels or lens panel assemblies. | | | | | |
| 42 | 995-16.2.3.3 | External fascia panels are constructed using aluminum and are finished with a matte black coating system that meets or exceeds AAMA Specification No. 2605. |  | *Provide product literature that describes the design of the fascia panels and product literature from the coating manufacturer that indicates conformance with AAMA specification No. 2605.* | Document Review |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): DMS001 (Step 26) |  |  | Init.: |
| 43 | 995-16.2.3.4 | Lens panel assemblies are modular, removable, and interchangeable without misalignment of the lens panel and the light-emitting diode (LED) pixels |  | *Applicant may provide comments in this field.* | Physical Inspection |
|  |  | TERL Test Cases (Steps): DMS002 (Step 54) |  |  | Init.: |
| 44 |  | Lens panel assembly consists of an environmental shielding layer coating to protect and seal the LEDs and internal electronics. Coating is a minimum 90% ultraviolet (UV) opaque. |  | *Provide product literature that describes environmental shielding and coatings.* | Document Review and Physical Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): DMS001 (Step 27) |  |  | Init.: |
| 45 |  | Lens panel has a matte black coating that meets or exceeds AAMA Specification No. 2605. |  | *Provide product literature from the coating manufacturer that indicates conformance with AAMA specification No. 2605.* | Document Review |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): DMS001 (Step 26) |  |  | Init.: |
| 46 |  | Lens panel includes a mask constructed of 0.080-inch minimum thickness aluminum. |  | *Provide drawings of the lens panel that indicate the material used and thickness.* | Document Review |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): DMS001 (Step 28) |  |  | Init.: |
| 47 |  | Mask is perforated to provide an aperture for each pixel on the display module and apertures do not block the LED output at the required viewing angle. |  | *Provide a first or third party display properties test report that demonstrates the apertures do not block the LED output (intensity and chromaticity) at the required viewing angle. The test report must be less than 5 years old and meet the requirements of FDOT PCH, section 7.2.* | Document Review and Physical Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): DMS001 (Step 29) |  |  | Init.: |
| The following compliance matrix criteria are for all DMS. | | | | | |
| 48 | 995-16.2.4 | Ventilation system meets the requirements of NEMA TS4 2016, section 3.1.2. |  | *Provide a drawing or equivalent documentation that details the design and materials used for construction.* | Document Review |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): DMS001 (Steps 30-33) |  |  | Init.: |
| 49 |  | Air drawn into the sign is filtered upon entry. Ventilation system is automatically tested once each day; it may be tested on command from remote and local control access locations. |  | *Applicant may provide comments in this field.* | Physical and Functional Inspection |
|  |  | TERL Test Cases (Steps): DMS002 (Step 55), DMS005 (Step 2) |  |  | Init.: |
| 50 |  | Sign includes a sensor or a sensor assembly to monitor airflow volume to predict the need for a filter change. |  | *Applicant may provide comments in this field.* | Physical Inspection |
|  |  | TERL Test Cases (Steps): DMS002 (Step 55) |  |  | Init.: |
| 51 |  | The ventilation system fans have a 100,000-hour, L10 life rating. |  | *Provide documentation that confirms the ventilation fans meet the requirement.* | Document Review |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): DMS001 (Step 34) |  |  | Init.: |
| The following compliance matrix criteria are for Walk-In DMS. | | | | | |
| 52 | 995-16.2.4.1 | Sign includes a fail-safe ventilation subsystem with a snap disk thermostat preset at 130°F that is independent of the sign controller. |  | *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): DMS001 (Step 35) |  |  | Init.: |
| 53 |  | If the sign housing’s interior reaches 130°F, the thermostat overrides the normal ventilation system, bypassing the sign controller and turning on all fans, which will remain on until the internal sign housing temperature falls to 115°F. |  | *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): DMS001 (Step 36) |  |  | Init.: |
| The following compliance matrix criteria are for all DMS. | | | | | |
| 54 | 995-16.2.5 | Sign controller continuously measures and monitors the temperature sensors. |  | *Applicant may provide comments in this field.* | Functional Inspection |
|  |  | TERL Test Cases (Steps): DMS006 (Step 1) |  |  | Init.: |
| 55 |  | Sign will blank when a critical temperature is exceeded and will report this event when polled. |  | *Applicant may provide comments in this field.* | Functional Inspection |
|  |  | TERL Test Cases (Steps): DMS006 (Steps 2-6) |  |  | Init.: |
| 56 |  | Remote and local computers can read all temperature measurements from the sign controller. |  | *Applicant may provide comments in this field.* | Functional Inspection |
|  |  | TERL Test Cases (Steps): DMS006 (Step 1) |  |  | Init.: |
| 57 | 995-16.2.6 | Humidity sensor is not a humidistat and detects from 0 to 100% relative humidity in 1% or smaller increments. Sensor will operate and survive in 0 to 100% relative humidity, with an accuracy that is better than plus or minus 5% relative humidity. |  | *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): DMS001 (Step 37), DMS006 (Step 7) |  |  | Init.: |
| 58 | 995-16.2.7 | Sign meets the requirements of NEMA TS4 2016, section 9.1.3. Photo sensors provide accurate ambient light condition information to the sign controller for automatic light intensity adjustment. |  | *Applicant may provide comments in this field.* | Functional Inspection |
|  |  | TERL Test Cases (Steps): DMS001 (Step 38), DMS006 (Steps 8-9) |  |  | Init.: |
| 59 |  | Automatic adjustment of the LED driving waveform duty cycle occurs in small enough increments that the sign’s brightness changes smoothly, with no perceivable brightness change between adjacent levels. |  | *Applicant may provide comments in this field.* | Functional Inspection |
|  |  | TERL Test Cases (Steps): DMS006 (Step 8) |  |  | Init.: |
| 60 |  | 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): DMS006 (Step 10) |  |  | Init.: |
| 61 |  | The brightness and color of each pixel is uniform over the sign’s entire face within a 30-degree viewing angle in all lighting conditions. |  | *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): DMS001 (Step 39), DMS006 (Step 12) |  |  | Init.: |
| 62 | 995-16.3 | Display modules are manufactured by one source and fully interchangeable throughout the manufacturer’s sign system(s). |  | *Indicate the manufacturer of the display modules in this field.* | Compliance Matrix Review |
|  |  | TERL Test Cases (Steps): DMS001 (Step 40) |  |  | Init.: |
| 63 |  | Removal or replacement of a complete display module or LED board can be accomplished without the use of special tools. |  | *Applicant may provide comments in this field.* | Physical Inspection |
|  |  | TERL Test Cases (Steps): DMS002 (Step 51) |  |  | Init.: |
| 64 |  | Display modules contain the solid-state electronics needed to control pixel data and read pixel status. |  | *Applicant may provide comments in this field.* | Functional Inspection |
|  |  | TERL Test Cases (Steps): DMS006 (Steps 13-15) |  |  | Init.: |
| 65 |  | Sign has a full matrix display area as defined in NEMA TS4 2016, Section 1.6. |  | *Applicant may provide comments in this field.* | Physical Inspection |
|  |  | TERL Test Cases (Steps): DMS002 (Step 56) |  |  | Init.: |
| 66 | 995-16.3.1 | LED lamps have a minimum viewing angle of 30 degrees. |  | *Provide a first or third party display properties test report that demonstrates the pixels have a minimum viewing angle of 30 degrees. 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): DMS001 (Step 39) |  |  | Init.: |
| 67 |  | All pixels in all signs in a project, including operational support supplies, will have equal color and on-axis intensity. |  | *Applicant may provide comments in this field.* | Document Review |
|  |  | TERL Test Cases (Steps): DMS001 (Step 39) |  |  | Init.: |
| 68 |  | Sign display meets the luminance requirements of NEMA TS4 2016, section 5.4, for light emitting signs connected at full power. |  | *Provide a first or third party display properties test report that demonstrates the display meets the requirements of NEMA TS4 2016, section 5.4 for light emitting signs connected at full power. The report must contain the intensity and chromaticity values (at one degree intervals within the required viewing angle) for colors supported by the sign. For full color signs, the colors include: white, red, green, blue, yellow, and orange. Chromaticity plots must be included showing where the sign’s colors are located in relation to the NEMA requirements and 23 CFR Part 655, table 1. 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): DMS001 (Step 39) |  |  | Init.: |
| 69 |  | Amber displays produce an overall luminous intensity of at least 9200 candelas per square meter when operating at 100% intensity. |  | *Provide a first or third party display properties test report that demonstrates the sign meets 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): DMS001 (Step 41) |  |  | Init.: |
| 70 |  | LED manufacturer demonstrates testing and binning according to the International Commission on Illumination (CIE) 127- 1997 Standard. |  | *Provide a statement from the LED manufacturer that they meet this requirement.* | Document Review |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): DMS001 (Step 42) |  |  | Init.: |
| 71 |  | All LEDs 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 condition. |  | *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): DMS001 (Step 43) |  |  | Init.: |
| 72 |  | Operational status of each pixel in the sign can be automatically tested once a day. |  | *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): DMS001 (Step 44) |  |  | Init.: |
| 73 |  | Pixel status test determines the functional status of the pixel as defined by the pixel Failure Status object in National Transportation Communications for ITS Protocol (NTCIP) 1203v02.39 and does not affect the displayed message for more than half a second. |  | *Applicant may provide comments in this field.* | Functional Inspection |
|  |  | TERL Test Cases (Steps): DMS006 (Step 13) |  |  | Init.: |
| 74 |  | LEDs are individually mounted directly on a printed circuit board (PCB). |  | *Applicant may provide comments in this field.* | Physical Inspection |
|  |  | TERL Test Cases (Steps): DMS002 (Step 57) |  |  | Init.: |
| 75 | 995-16.3.2 | Display modules are rectangular and have an identical vertical and horizontal pitch between adjacent pixels. |  | *Applicant may provide comments in this field.* | Physical Inspection |
|  |  | TERL Test Cases (Steps): DMS002 (Step 56) |  |  | Init.: |
| 76 |  | The separation between the last column of one display module and the first column of the next module is equal to the horizontal distance between the columns of a single display module. |  | *Applicant may provide comments in this field.* | Physical Inspection |
|  |  | TERL Test Cases (Steps): DMS002 (Step 56) |  |  | Init.: |
| 77 |  | If sign is full matrix, it must have the ability to display messages  with 20mm pixel pitch (resolution). |  | *Applicant may provide comments in this field.* | Physical Inspection |
|  |  | TERL Test Cases (Steps): DMS002 (Step 58) |  |  | Init.: |
| 78 |  | The LED circuit board is a NEMA FR4-rated, single 0.062 inch, black PCB. No PCB has more than two PCB jumper wires present. All PCBs are finished with a solder mask and a component-identifying silk screen. |  | *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): DMS001 (Step 45), DMS002 (Step 59) |  |  | Init.: |
| 79 |  | Conformal coatings meet the requirements of IPC-CC-830 or MIL-I-46058C Military Standard, United States Department of Defense (USDOD). |  | *Provide product literature for the conformal coating that indicates it meets this requirement.* | Document Review |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): DMS001 (Step 46) |  |  | Init.: |
| 80 |  | Devices used to secure LEDs do not block air flow to the LED leads or block the LED light output at the required viewing angle. |  | *Provide a statement of conformance in this field.* | Compliance Matrix Review |
|  |  | TERL Test Cases (Steps): DMS001 (Step 47) |  |  | Init.: |
| 81 |  | All components on the LED side of PCBs are black. |  | *Applicant may provide comments in this field.* | Physical Inspection |
|  |  | TERL Test Cases (Steps): DMS002 (Step 60) |  |  | Init.: |
| 82 |  | There are a minimum of two power supplies wired in a parallel configuration for redundancy. |  | *Applicant may provide comments in this field.* | Physical and Functional Inspection |
|  |  | TERL Test Cases (Steps): DMS002 (Step 61) |  |  | Init.: |
| 83 |  | The sign is supplied with enough power to run 40% of all pixels at a 100% duty cycle with an ambient operating temperature of 165°F if one or 25% of the supplies in a group, whichever is greater, completely fails. |  | *Applicant may provide comments in this field.* | Functional Inspection |
|  |  | TERL Test Cases (Steps): DMS006 (Step 16) |  |  | Init.: |
| 84 |  | The sign controller continuously measures and monitors all LED module power supply voltages and provides the voltage readings to the TMC or a laptop computer on command. |  | *Applicant may provide comments in this field.* | Functional Inspection |
|  |  | TERL Test Cases (Steps): DMS006 (Step 17) |  |  | Init.: |
| 85 |  | LEDs are protected from external environmental conditions, including moisture, snow, ice, wind, dust, dirt, and UV rays. |  | *Provide product literature, specifications, user manual,or similar information that shows the product meets this requirement.* | Physical Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): DMS002 (Step 62) |  |  | Init.: |
| 86 |  | LEDs are not encapsulated in epoxy |  | *Applicant may provide comments in this field.* | Physical Inspection |
|  |  | TERL Test Cases (Steps): DMS002 (Step 57) |  |  | Init.: |
| The following compliance matrix criteria are for Walk-In DMS. | | | | | |
| 87 | 995-16.3.3 | The display area is capable of displaying three lines with a minimum of 15 characters per line using an 18-inch font that meets the height to width ratio and character spacing in the Manual on Uniform Traffic Control Devices for Streets and Highways 2009 Edition (MUTCD), section 2L.04, paragraphs 05, 06, and 08. |  | *Applicant may provide comments in this field.* | Functional Inspection |
|  |  | TERL Test Cases (Steps): DMS006 (Step 18) |  |  | Init.: |
| The following compliance matrix criteria are for all DMS. | | | | | |
| 88 | 995-16.4 | The DMS is capable of displaying American Standard Code for Information Interchange (ASCII) characters 32 through 126, including all uppercase and lowercase letters and digits 0 through 9, at any location in the message line. |  | *Applicant may provide comments in this field.* | Functional Inspection |
|  |  | TERL Test Cases (Steps): DMS006 (Step 19) |  |  | Init.: |
| 89 |  | DMS is loaded (as a factory default) with a font in accordance with or that resembles the standard font set described in NEMA TS4 2016, section 5.6. |  | *Applicant may provide comments in this field.* | Functional Inspection |
|  |  | TERL Test Cases (Steps): DMS006 (Step 19) |  |  | Init.: |
| The following compliance matrix criteria are for DMS with a pixel pitch of 35 mm or less. | | | | | |
| 90 |  | The DMS is loaded (as a factory default) with a font set that resembles the Federal Highway Administration (FHWA) Series E2000 standard font. |  | *Applicant may provide comments in this field.* | Functional Inspection |
|  |  | TERL Test Cases (Steps): DMS006 (Step 21) |  |  | Init.: |
| The following compliance matrix criteria are for all DMS. | | | | | |
| 91 |  | DMS fonts have character dimensions that meet the MUTCD, section 2L.04, paragraph 08. |  | *Applicant may provide comments in this field.* | Functional Inspection |
|  |  | TERL Test Cases (Steps): DMS006 (Step 19) |  |  | Init.: |
| The following compliance matrix criteria are for full color DMS. | | | | | |
| 92 |  | Full-color DMS can display the colors prescribed in the MUTCD, section 1A.12. |  | *Provide a first or third party display properties test report that demonstrates the display meets this requirement. The report must contain the intensity and chromaticity values, at one degree intervals within the required viewing angle. The colors include: white, red, green, blue, yellow, and orange. Chromaticity plots must be included showing where the signs colors are located in relation to the NEMA requirements and 23 CFR Part 655, table 1. The test report must be less than 5 years old and meet the requirements of FDOT PCH, section 7.2.* | Document Review and Functional Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): DMS006 (Step 22) |  |  | Init.: |
| The following compliance matrix criteria are for all DMS. | | | | | |
| 93 | 995-16.5 | The DMS operates on a nominal single-phase power line voltage of 120 or 240 VAC. |  | *Applicant may provide comments in this field.* | Physical Inspection |
|  |  | TERL Test Cases (Steps): DMS002 (Step 63) |  |  | Init.: |
| 94 |  | The DMS meets the requirements of NEMA TS4 2016, Section 10.2. |  | *Applicant may provide comments in this field.* | Physical Inspection |
|  |  | TERL Test Cases (Steps): DMS002 (Steps 64-67) |  |  | Init.: |
| 95 |  | 120 VAC wiring has an overall nonmetallic jacket or is placed in metal conduit, pull boxes, raceways, or control cabinets and installed as required by the National Electrical Code (NEC). |  | *Applicant may provide comments in this field.* | Physical Inspection |
|  |  | TERL Test Cases (Steps): DMS002 (Step 68) |  |  | Init.: |
| 96 |  | The sign housing is not used as a wiring raceway or control cabinet. |  | *Applicant may provide comments in this field.* | Physical Inspection |
|  |  | TERL Test Cases (Steps): DMS002 (Step 69) |  |  | Init.: |
| 97 |  | Surge Protective Devices (SPDs) are installed or incorporated in the sign system by the manufacturer to guard against lightning, transient voltage surges, and induced current. |  | *Applicant may provide comments in this field.* | Physical Inspection |
|  |  | TERL Test Cases (Steps): DMS002 (Step 70) |  |  | Init.: |
| 98 |  | SPDs meet or exceed the requirements of Section 996. |  | *Indicate the manufacturer and models of all SPDs used in the assembly. List APL numbers for all FDOT approved SPDs.* | Document Review |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): DMS002 (Step 70) |  |  | Init.: |
| 99 |  | SPDs protect all electric power and data communication connections. |  | *Provide a statement of conformance in this field.* | Compliance Matrix Review |
|  |  | TERL Test Cases (Steps): DMS002 (Step 70) |  |  | Init.: |
| The following compliance matrix criteria are for Walk-In DMS. | | | | | |
| 100 | 995-16.6 | A UPS can be installed in the sign housing or within the ground mounted control cabinet. |  | *Provide drawings that detail how the UPS would be installed and wired in both locations.* | Document Review |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): DMS001 (Step 48) |  |  | Init.: |
| The following compliance matrix criteria are for Front Access and Embedded DMS. | | | | | |
| 101 |  | A UPS can be installed within the control cabinet. |  | *Provide drawings that detail how the UPS would be installed within the control cabinet.* | Document Review |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): DMS001 (Step 49) |  |  | Init.: |
| The following compliance matrix criteria are for all DMS. | | | | | |
| 102 |  | The UPS system is capable of displaying the current message on a sign when a power outage occurs. |  | *The sign must be capable of displaying the current message without disruption when a power failure occurs. For full color signs, the sign must be capable of displaying a message using 100% of the pixels at full intensity when a power failure occurs.* | Functional Inspection |
|  |  |  |  | *Applicant may provide comments in this field.* |  |
|  |  | TERL Test Cases (Steps): DMS006 (Step 23) |  |  | Init.: |
| 103 |  | The sign can operate on battery power and display text messages for a minimum of two hours. |  | *The sign must be capable of displaying an amber message using 25% of the pixels at full intensity for 2 hours.* | Functional Inspection |
|  |  |  |  | *Applicant may provide comments in this field.* |  |
|  |  | TERL Test Cases (Steps): DMS006 (Step 24) |  |  | Init.: |
| 104 |  | The UPS system uses sealed absorbed glass mat (AGM) batteries. |  | *Applicant may provide comments in this field.* | Physical Inspection |
|  |  | TERL Test Cases (Steps): DMS002 (Step 71) |  |  | Init.: |
| 105 | 995-16.8 | All components meet the requirements of NEMA TS4 2016, Section 8. |  | *Provide a statement of conformance in this field.* | Compliance Matrix Review |
|  |  | TERL Test Cases (Steps): DMS001 (Step 50) |  |  | Init.: |
| 106 | 995-16.8.1 | All fasteners, including bolts, nuts, and washers less than 5/8 inch in diameter, are passivated stainless steel, Type 316 or Type 304 and meet the requirements of ASTM F593 and 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): DMS001 (Step 8) |  |  | Init.: |
| 107 |  | All bolts and nuts 5/8 inch and over in diameter are galvanized and meet the requirements of ASTM A307. |  | *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): DMS001 (Step 8) |  |  | Init.: |
| 108 |  | The sign does not have self-tapping screws. |  | *Provide a statement of conformance in this field.* | Compliance Matrix Review |
|  |  | TERL Test Cases (Steps): DMS001 (Step 51) |  |  | Init.: |
| 109 |  | All parts are fabricated from corrosion resistant materials, such as plastic, stainless steel, aluminum, or brass. |  | *Provide a statement of conformance in this field.* | Compliance Matrix Review |
|  |  | TERL Test Cases (Steps): DMS001 (Step 52) |  |  | Init.: |
| 110 |  | Construction materials are resistant to fungus growth and moisture deterioration. |  | *Provide a statement of conformance in this field.* | Compliance Matrix Review |
|  |  | TERL Test Cases (Steps): DMS001 (Step 53) |  |  | Init.: |
| 111 |  | Dissimilar metals are separated with an inert, dielectric material. |  | *Provide a statement of conformance in this field.* | Compliance Matrix Review |
|  |  | TERL Test Cases (Steps): DMS001 (Step 54) |  |  | Init.: |
| 112 | 995-16.8.2 | The sign controller monitors the sign in accordance with NEMA TS4 2016, section 9. |  | *Provide a statement of conformance in this field.* | Compliance Matrix Review and Functional Inspection |
|  |  | TERL Test Cases (Steps): DMS001 (Step 55) |  |  | Init.: |
| 113 |  | The sign monitors the status of any photocells, LED power supplies, humidity sensors, and airflow sensors. |  | *Applicant may provide comments in this field.* | Functional Inspection |
|  |  | TERL Test Cases (Steps): DMS006 (Steps 1,7,9,10,13,15,17) |  |  | Init.: |
| 114 |  | Fiber optic cables are used for data connections between the sign housing and the ground-level cabinet. |  | *Applicant may provide comments in this field.* | Physical Inspection |
|  |  | TERL Test Cases (Steps): DMS002 (Step 72) |  |  | Init.: |
| 115 |  | The sign controller meets the requirements of NEMA TS4 2016, Sections 8.3 and 8.4. |  | *Provide a statement of conformance in this field.* | Compliance Matrix Review and Functional Inspection |
|  |  | TERL Test Cases (Steps): DMS001 (Step 56), DMS006 (Steps 1-33) |  |  | Init.: |
| 116 |  | The sign controller is capable of displaying a self-updating time and date message on the sign. |  | *Applicant may provide comments in this field.* | Functional Inspection |
|  |  | TERL Test Cases (Steps): DMS006 (Step 25) |  |  | Init.: |
| 117 |  | Sign controllers within ground cabinets are rack-mountable, designed for a standard Electronic Industries Alliance (EIA)-310 19-inch rack, and include a keypad and display. |  | *Applicant may provide comments in this field.* | Physical Inspection |
|  |  | TERL Test Cases (Steps): DMS002 (Step 73) |  |  | Init.: |
| 118 | 995-16.8.3 | The sign utilizes a system data interface circuit for communications between the sign controller and display modules. |  | *Provide drawings that detail the interface circuitry between the controller and the display modules.* | Document Review and Physical Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): DMS001 (Step 62), DMS002 (Step 74) |  |  | Init.: |
| The following compliance matrix criteria are for all DMS except Embedded DMS. | | | | | |
| 119 |  | A sign controller, display system interface circuits, display modules, power supplies, local and remote-control switches, LED indicators, EIA-232 null modem cables (minimum of 4 feet long for connecting a laptop computer to the sign controller), and surge protective devices are located within the sign housing. |  | *Applicant may provide comments in this field.* | Physical Inspection |
|  |  | TERL Test Cases (Steps): DMS002 (Steps 75) |  |  | Init.: |
| The following compliance matrix criteria are for all DMS. | | | | | |
| 120 | 995-16.8.4 | Control cabinet meets the requirements of Section 676, and the minimum height of the cabinet is 46 inches. |  | *Indicate the control cabinet's APL number in this field.* | Compliance Matrix Review and Physical Inspection |
|  |  | TERL Test Cases (Steps): DMS001 (Step 57), DMS002 (Step 76) |  |  | Init.: |
| 121 |  | Ground control cabinet includes the following components and assemblies: power indicator, surge suppression on both sides of all electronics, communication interface devices, connection for a laptop computer for local control and programming, a 4 foot long cable to connect laptop computers, a workspace for a laptop computer, and duplex outlets. |  | *Applicant may provide comments in this field.* | Physical Inspection |
|  |  | TERL Test Cases (Steps): DMS002 (Step 77) |  |  | Init.: |
| 122 |  | All telephone, data, control, power, confirmation connections, wiring harnesses, and connectors between the sign and ground control box are provided. |  | *Applicant may provide comments in this field.* | Physical Inspection |
|  |  | TERL Test Cases (Steps): DMS002 (Step 78) |  |  | Init.: |
| 123 | 995-16.8.5 | The sign controller has communication interfaces in accordance with NEMA TS4 2016, Section 8.3.2. |  | *Applicant may provide comments in this field.* | Physical and Functional Inspection |
|  |  | TERL Test Cases (Steps): DMS002 (Step 79-80), DMS006 (Step 11) |  |  | Init.: |
| 124 |  | The EIA-232 serial interface supports:  Data Bits – 7 or 8 bits  Parity – Even, Odd, or None  Stop Bits – 1 or 2 bits |  | *Applicant may provide comments in this field.* | Functional Inspection |
|  |  | TERL Test Cases (Steps): DMS004 (Step 2) |  |  | Init.: |
| 125 |  | The sign controller has a 10/100 Base TX 8P8C port or a 100 Base FX port Ethernet interface. |  | *Applicant may provide comments in this field.* | Functional Inspection |
|  |  | TERL Test Cases (Steps): DMS004 (Step 5) |  |  | Init.: |
| 126 |  | Sign controller can be reset remotely from the TMC or a laptop computer. |  | *Applicant may provide comments in this field.* | Functional Inspection |
|  |  | TERL Test Cases (Steps): DMS006 (Step 26) |  |  | Init.: |
| 127 | 995-16.9 | The DMS provides both remote operation, where the TMC commands and controls the sign and determines the appropriate message or test pattern, and local operation, where the sign controller or a laptop computer commands and controls the sign and determines the appropriate message or test pattern. |  | *Applicant may provide comments in this field.* | Functional Inspection |
|  |  | TERL Test Cases (Steps): DMS006 (Steps 27, 28) |  |  | Init.: |
| 128 |  | The sign allows selection of local or remote sign control, and a visual indicator on the controller identifies whether the sign is under local or remote control. |  | *Applicant may provide comments in this field.* | Functional Inspection |
|  |  | TERL Test Cases (Steps): DMS006 (Step 11) |  |  | Init.: |
| 129 |  | The sign allows message selection, where the sign controller can select a blank message, or any message stored in the sign controller’s nonvolatile memory when the control mode is set to local. |  | *Applicant may provide comments in this field.* | Functional Inspection |
|  |  | TERL Test Cases (Steps): DMS006 (Step 27) |  |  | Init.: |
| 130 |  | The sign controller can activate selected messages. |  | *Applicant may provide comments in this field.* | Functional Inspection |
|  |  | TERL Test Cases (Steps): DMS006 (Step 26) |  |  | Init.: |
| 131 |  | The sign can be programmed to display a user-defined message, including a blank page, in the event of power loss. |  | *Applicant may provide comments in this field.* | Functional Inspection |
|  |  | TERL Test Cases (Steps): DMS006 (Step 20) |  |  | Init.: |
| 132 |  | Message addition, deletions, and sign controller changes can be made from either the remote TMC or a local laptop computer. |  | *Applicant may provide comments in this field.* | Functional Inspection |
|  |  | TERL Test Cases (Steps): DMS006 (Step 34) |  |  | Init.: |
| 133 |  | Fonts are customizable and modifications to a font may be downloaded to the sign controller from the TMC or a laptop computer at any time without any software or hardware modifications. |  | *Applicant may provide comments in this field.* | Functional Inspection |
|  |  | TERL Test Cases (Steps): DMS006 (Steps 28-31) |  |  | Init.: |
| 134 |  | There is no perceivable flicker or ghosting of the pixels during erasure or writing periods. |  | *Applicant may provide comments in this field.* | Functional Inspection |
|  |  | TERL Test Cases (Steps): DMS006 (Step 19) |  |  | Init.: |
| 135 | 995-16.10 | The sign controller is addressable by the TMC through the Ethernet communications network using software that complies with the NTCIP 1101 base standard, the NTCIP Simple Transportation Management Framework, and conforms to Compliance Level 1. |  | *Provide a statement of conformance in this field.* | Compliance Matrix Review |
|  |  | TERL Test Cases (Steps): DMS001 (Step 59) |  |  | Init.: |
| 136 |  | The sign controller software implements all mandatory objects in the supplemental requirement SR-700-4-1.1-01 FDOT Dynamic Message Sign NTCIP Requirements. |  | *Applicant may provide comments in this field.* | Functional Inspection |
|  |  | TERL Test Cases (Steps): DMS006 (Step 33) |  |  | Init.: |
| 137 |  | The sign complies with NTCIP 1102v01.15, 2101v01.19, , 2201v01.15, 2202v01.05, and 2301v02.19 standards. |  | *Provide a statement of conformance in this field.* | Compliance Matrix Review |
|  |  | TERL Test Cases (Steps): DMS001 (Step 60) |  |  | Init.: |
| 138 |  | The sign complies with NTCIP 1103v02.17, Section 3. |  | *Applicant may provide comments in this field.* | Functional Inspection |
|  |  | TERL Test Cases (Steps): DMS006 (Step 33) |  |  | Init.: |
| 139 |  | The sign controller’s internal time clock can be configured to synchronize to a time server using the network time protocol (NTP). |  | *Applicant may provide comments in this field.* | Functional Inspection |
|  |  | TERL Test Cases (Steps): DMS004 (Step 11) |  |  | Init.: |
| 140 |  | The NTP synchronization frequency is user-configurable and permits polling intervals from once per minute to once per week in one-minute increments. |  | *Applicant may provide comments in this field.* | Functional Inspection |
|  |  | TERL Test Cases (Steps): DMS004 (Step 12) |  |  | Init.: |
| 141 |  | The controller allows the user to define the NTP server by internet protocol (IP) address. |  | *Applicant may provide comments in this field.* | Functional Inspection |
|  |  | TERL Test Cases (Steps): DMS004 (Step 11) |  |  | Init.: |
| 142 | 995-16.11 | The sign is provided with computer software that allows an operator to program, operate, exercise, diagnose, and read current status of all sign features and functions using a laptop computer. |  | *Applicant may provide comments in this field.* | Functional Inspection |
|  |  | TERL Test Cases (Steps): DMS006 (Step 32) |  |  | Init.: |
| 143 |  | The sign control software provides a graphical representation that visibly depicts the sign face and the current ON/OFF state of all pixels as well as allows messages to be created and displayed on the sign. |  | *Applicant may provide comments in this field.* | Functional Inspection |
|  |  | TERL Test Cases (Steps): DMS006 (Step 28) |  |  | Init.: |
| 144 | 995-16.12 | The DMS meets the requirements of NEMA TS4 2016, Section 2. |  | *Provide a third party test report that demonstrates the sign meets 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): DMS001 (Steps 4, 61) |  |  | Init.: |
| 145 | 995-16.13 | The DMS system and equipment have a manufacturer’s warranty covering defects for a minimum of 5 years from the date of final acceptance. |  | *Provide a statement of conformance in this field.* | Compliance Matrix Review |
|  |  | TERL Test Cases (Steps): DMS001 (Step 63) |  |  | Init.: |

**Document History for:**

**Dynamic Message Sign Compliance Matrix**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Rev | Description | Authored and Checked | Reviewed | Approved | Approval Date | Rev More Stringent? |
| 1.0 | New compliance matrix for revised DMS specification. Also converting CM to Word from Excel. | D. Vollmer  D. Bremer | J. Morgan  R. Meyer | J. Morgan | 08/30/2012 | No |
| 2.0 | Changed document control panel to include column for “Rev more stringent?” and added Rev # to header of matrix corresponding to latest approved document. Modified disclaimer to indicate compliance matrix is governing document and referencing PCH section 7.2 in place of A601-3. | A. Burleson | J. Morgan | J. Morgan | 02/28/2013 | No |
| 3.0 | Remove Warranty Language | D. Bremer | J. Morgan | J. Morgan | 05/09/2013 | No |
| 4.0 | Updated to reflect changes implemented in FA 7-25-12 version of the specification | D. Vollmer | R. Meyer | J. Morgan | 05/20/2013 | Yes |
| 5.0 | Updated to reflect changes in the merge from 781 to 700 (FA 08-06-13). | D. Vollmer | R. Meyer | J. Morgan | 09/23/2013 | No |
| 6.0 | Fixed typo in CM line ID 146; year of standard changed from 2004 to 2005. | A. Burleson | J. Morgan | J. Morgan | 12/11/2013 | No |
| 7.0 | Replaced FDOT logo with latest approved one and added CM ID # to header. Revised document approver title. | D. Bremer  K. Moser | J. Morgan | J. Morgan | 10/30/2014 | No |
| 8.0 | Updated to latest FHWA approved date of 1/16/2015 and also revised SPD reference in 700-4.5, cabinet reference in 700-4.8.4. | R. Meyer | J. Morgan | J. Morgan | 04/30/2015 | No |
| 9.0 | Updated to latest FHWA approved date of 7/27/2015. No content change. | M. Lucas | J. Morgan | J. Morgan | 10/29/2015 | No |
| 10.0 | Updated to reflect spec changes for FA 1-17-18 update. | J. Morgan | R. Brooks  M. DeWitt | D. Vollmer | 06/04/2020 | Yes |
| 11.0 | Spec updated to remove the minimum external skin requirement of the sign housing. | W. Geitz | C. Raimer  M. DeWitt | D. Volmer | 12/28/2020 | No |
| 12.0 | Update FA Date to 2-12-21. No changes to the CM. | W. Geitz | D. Vollmer | D. Vollmer | 07/08/2021 | No |
| 13.0 | Added warranty information. Updated to latest FA date of 8-5-21. | A. Burleson | W. Geitz | M. DeWitt | 02/01/2022 | No |
| 14.0 | Added test cases and steps. | R. Washington | D. Bremer  W. Geitz | D. Vollmer | 01/25/2023 | No |
| 15.0 | Moved from 700 to 995, updated to latest FA Date 10-24-22. Removed 35mm pixel pitch as an option (CM ID 77). | W. Geitz | R. Washington M. DeWitt | D. Vollmer | 03/30/2023 | Yes |
| 16.0 | Updated test cases/steps and TERL evaluation methods. | R. Washington | D. Bremer  M. DeWitt | D. Vollmer | 08/01/2023 | No |
| 17.0 | Updated to latest FA dates 10-6-23 & 10-18-23 for spec 995. | W. Geitz | R. Washington | D. Vollmer | 01/10/2024 | No |