

9951400 TRAFFIC CONTROL SIGNAL AND DEVICE MATERIALS
COMMENTS FROM INTERNAL/INDUSTRY REVIEW

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The following Internal comments were extracted from the returned Internal Review document, highlighted sections are the area(s) of note.

Comments: (7-20-22 Internal) (Bernice Stuefen)
Soon to have a revision, 2022. 2016 may be fine until next year

995-16 Dynamic Message Signs.
995-16.1 General: Dynamic message signs (DMS) must meet the requirements of NEMA TS4-2016. DMS are classified by the type of sign display and the type of mechanical construction. Use only equipment and components that meet the requirements of these minimum specifications and are listed on the APL. DMS LED retrofit kits must be listed on the APL.

Response: Until the new version of NEMA TS4 is published, the date will remain as 2016.

Comments: (7-20-22 Internal) (Bernice Stuefen)
Must not rely solely upon adhesive bonding or rivets.

995-16.2 Sign Housing Requirements for all DMS: The external skin of the sign housing must be constructed of aluminum alloy 5052 H32. The interior structure must be constructed of aluminum. Internal frame connections or external skin attachments must not rely upon adhesive bonding or rivets.

Response: Agree. The word “solely” will be added. The sentence will read as follows: “Internal frame connections or external skin attachments must not solely rely upon adhesive bonding or rivets.”

Comments: (7-20-22 Internal) (Bernice Stuefen)
Should this change to IPC standard?

995-16.3.2 Optical, Electrical, and Mechanical Specifications for Display Modules: The display modules must be rectangular and have an identical vertical and horizontal pitch between adjacent pixels. The separation between the last column of one display module and the first column of the next module must be equal to the horizontal distance between the columns of a single display module. Full matrix DMS must have the ability to display messages with 20mm pixel pitch (resolution).
The LED circuit board must be a NEMA FR4-rated, single 0.062-inch, black PCB. No PCB shall have more than two PCB jumper wires present. All PCBs shall be finished with a solder mask and a component-identifying silk screen.
PCBs with conformal coating meeting the material requirements of MIL-I-46058C Military Standard, United States Department of Defense (USDOD) must be provided.

Response: MIL-I-46058C has been deactivated in November 1998. The standard was inactive for new design and is no longer used, except for replacement purposes. IPC-CC-830A was issued in July 1999. Coatings which meet the requirements of MIL-I-46058C by default are qualified to

IPC-CC-830. The coatings that meet IPC-CC-830 are not automatically qualified to MIL-I-46085C.

The main advantage of MIL-I-46058C is that it requires independent testing by a MIL approved laboratory. For IPC-CC-830, there is no requirement to use an independent test laboratory, and there is no QPL maintained for this specification.

Since IPC-CC-830 is not backward compatible with MIL-I-46085C, add "IPC-CC-830 or". The sentence will read as follows: "PCBs with conformal coating meeting the material requirements of IPC-CC-830 or MIL-I-46058C Military Standard, United States Department of Defense (USDOD) must be provided."

Comments: (7-20-22 Internal) (Bernice Stuefen)

Is the intent to specify one size, or will you adjust this spec for different size options by project?

encapsulate the LEDs.
995-16.3.3 Display Area for Walk-In DMS: The display area must be 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 MUTCD, Section 2L.04, paragraphs 05, 06, and 08.

Response: The sizes shown is the current FDOT standard. Other DMS sizes can be specified by the project requirements.

Comments: (7-20-22 Internal) (Bernice Stuefen)

NEMA TS4 is being updated so it may be different in the next few months.

995-16.4 Characters, Fonts, and Color: The signs must be 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. Submit a list of the character fonts to the Engineer for approval.
All signs must be loaded (as a factory default) with a font in accordance with or that resembles the standard font set described in NEMA TS 4-2016, Section 5.6. For signs with a pixel pitch of 35 mm or less, the sign must be loaded (as a factory default) with a font set that resembles the FHWA Series E2000 standard font.

Response: Until the new version of NEMA TS4 is published, the date will remain as 2016.

Comments: (7-20-22 Internal) (Bernice Stuefen)

UPS that can install either within the sign housing or within the ground control cabinet depending on the site.

995-16.6 Uninterruptible Power Supply (UPS): Walk-in DMS must include a UPS that can be installed within the sign housing and within the ground mounted control cabinet. Front access and embedded signs must include a UPS that can be installed within the ground mounted control cabinet. The UPS system must be capable of displaying the current messages on a sign when a power outage occurs. Signs with an UPS must be able to operate on battery power and display text messages for a minimum of two hours. The system must use sealed absorbed glass mat (AGM) batteries.

Response: Agree. It should be within the sign housing OR within the ground mounted cabinet. The sentence will read as follows: “Walk-in DMS must include a UPS that can be installed within the sign housing or within the ground mounted control cabinet.”

Comments: (7-20-22 Internal) (Steve Bostrom)

Recommend this be removed. In general, NTCIP 2103 (PPP) is used with dial-up connectivity. We do not see Point to Point and RS232 serial connections as an industry standard (obsolete).

995-16.10 TMC Communication Specification for all DMS: The sign controller must be addressable by the TMC through the Ethernet communications network using software that complies with the NTCIP 1101 base standard (formerly the NEMA TS 3.2-1996 Standard), including all amendments as published at the time of Contract letting, the NTCIP Simple Transportation Management Framework, and conforms to Compliance Level 1. The software must implement all mandatory objects in the supplemental requirement SR-700-4.1.1, Dynamic Message Sign NTCIP Requirements, as published on the Department’s State Traffic Engineering and Operations Office web site at the following URL: <https://www.fdot.gov/traffic/Traf-Sys/Product-Specifications.shtm>.

The sign must comply with the NTCIP 1102v01.15, 2101v01.19, 2103v02.07, 2201v01.15, 2202v01.05, and 2301v02.19 Standards. The sign must comply with NTCIP 1103v02.17, Section 3.

Response: Agree to remove. The NTCIP 2103v02.07 is obsolete. The sentence will now read: “The sign must comply with the NTCIP 1102v01.15, 2101v01.19, 2201v01.15, 2202v01.05, and 2301v02.19 Standards. The sign must comply with NTCIP 1103v02.17, Section 3.”

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Comments: (8-9-22 Industry)

9951400 Traffic Control Signal and Device Materials:

After a review of the revisions being made to the above referenced specification, I have one comment which is an area of concern, please read below.

Thank you.

1. Verbiage stating the contractor should follow Manufactures Requirements for installation should be kept as is, in some instances if manufacturer installation requirements are not followed as suggested Warranty Defects could be considered null and void.

Response: Agree. The verbiage stating the Contractor should follow Manufactures Requirements for installation has been retained in Section 700. Please see Industry draft 7000000.