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|  | FDOT Traffic Engineering Research Laboratory (TERL) Traffic Controller Accessories 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. |

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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 | 995-1.1 | Ensure that all traffic controller accessories are permanently marked with manufacturer’s name or trademark, model or part number, and serial number.  |  | *Applicant may provide comments in this field.* | Physical Inspection |
| The following compliance matrix criteria are for NEMA TS1 Conflict Voltage Monitors.  |
| 2 | 995-12.1 | The Conflict Voltage Monitor meets the requirements of NEMA TS1-1989, Section 6.  |  | *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.* |  |
| The following compliance matrix criteria are for NEMA TS2 Malfunction Management Units. |
| 3 |  | The MMU meets the requirements of NEMA TS2 2021, Section 4. |  | *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.* |  |
| The following compliance matrix criteria are for NEMA TS2 Power Supply.  |
| 4 |  | The power supply meets the requirement of NEMA TS2-2021, Section 5.3.5 |  | *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.* |  |
| The following compliance matrix criteria are for Load Switches.  |
| 5 |  | The load switch meets the requirements of NEMA TS2-2021, Section 6.2. |  | *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.* |  |
| The following compliance matrix criteria are for Flashers.  |
| 6 |  | The Flasher meets the requirements of NEMA TS2 2021, Section 6.3.  |  | *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.* |  |
| The following compliance matrix criteria are for Bus Interface Units. |
| 7 |  | The Bus Interface Unit meets the requirements of NEMA TS2 2021, Section 8. |  | *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.* |  |
| The following compliance matrix criteria are for Model 206L Power Supply Unit. |
| 8 |  | The Model 206LPower Supply Unit meets the requirements of CALTRANS TEES, 2020 Section 3.4. |  | *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.* |  |
| The following compliance matrix criteria are for Model 208 Monitor Unit. |
| 9 |  | The Model 208 Monitor Unit meets the requirements of CALTRANS TEES, 2020 Section 3.5. |  | *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.* |  |
| The following compliance matrix criteria are for Model 210 Monitor Unit. |
| 10 |  | The Model 210 Monitor Unit meets the requirements of CALTRANS TEES, 2020 Section 3.6. |  | *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.* |  |
| The following compliance matrix criteria are for Power Distribution Assemblies. |
| 11 |  | The Power Distribution Assembly meets the requirements of CALTRANS TEES, 2020 Section 6.4.3.  |  | *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.* |  |
| The following compliance matrix criteria are for Input Files. |
| 12 |  | The Input File meets the requirements of CALTRANS TEES, 2020 6.4.4. |  | *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.* |  |
| The following compliance matrix criteria are for all NEMA traffic controller accessories.  |
| 13 |  | Traffic controller accessories can perform all specified functions during and after being subjected to the environmental testing procedures described in NEMA TS2, Sections 2.2.7, 2.2.8, and 2.2.9.  |  | *Provide a third party test report that demonstrates the device performs all required functions during and after being subjected to the environmental testing as described in NEMA TS2 section 2.2.7, 2.2.8, and 2.2.9. The test report must be less than 5 years old and meet the requirements of FDOT Product Certification Handbook, section 7.2.* | Document Review  |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| The following compliance matrix criteria are for all CALTRANS traffic controller accessories.  |
| 14 |  | Traffic controller accessories can perform all specified functions during and after being subjected to the environmental testing procedures described in CALTRANS TEES 2020, Chapter 1, Section 8  |  | *Provide a third party test report that demonstrates the device performs all required functions during and after being subjected to the environmental testing as described in* CALTRANS TEES 2020, Chapter 1, Section 8 *The test report must be less than 5 years old and meet the requirements of FDOT Product Certification Handbook, section 7.2.* | Document Review  |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| The following compliance matrix criteria are for Time Switches.  |
| 15 | 995-12.2 | The time switch is a 24-hour timer which controls the daily switching operation of circuit contacts at preselected times.  |  | *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.* |  |
| 16 |  | Type 1 time switch contains a single circuit contact and a solid-state timer with at least 48 programmable on and off times.  |  | *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.* |  |
| 17 |  | Type 2 time switch contains two circuit contacts and a solid state timer with at least three independently programmable on and off times per circuit.  |  | *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.* |  |
| 18 |  | Type 3 time switch contains three circuit contacts and a solid state timer with at least three independently programmable on and off times per circuit.  |  | *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.* |  |
| 19 | 995-12.2.1 | Solid state timing is accomplished by digital circuits utilizing the power line 60 Hz frequency as the normal timing reference or GPS Time Sync.  |  | *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.* |  |
| 20 |  | Time-of-day is settable and displayed in maximum increments of one minute.  |  | *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.* |  |
| 21 | 995-12.2.2 | Programming for selection of contact openings or closures is provided in maximum increments of one minute for Types 1 through 3 time switches.  |  | *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.* |  |
| 22 |  | A day omit device or circuit is provided with Types 1 through 3 time switches to omit the programmed switching operation for any combination of up to three days of the week.  |  | *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.* |  |
| 23 |  | A positive means of indicating the day of the week is provided with Types 1 through 3 time switches.  |  | *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 | 995-12.2.3 | Type 1, Type 2, and Type 3 solid state time switches are provided with a battery backup circuit which maintains time during a power failure of up to 10 hours.  |  | *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 |  | The timing accuracy of battery backup circuits during a power failure is plus or minus 0.5 seconds. |  | *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 | 995-12.2.4 | Each output circuit contact is rated for a 3A, 115 VAC load. |  | *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.* |  |
| 27 |  | The output circuit contact has 115 VAC present when the timer turns the circuit on.  |  | *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.* |  |
| 28 | 995-12.2.5 | Time switch is enclosed in durable sheet aluminum or approved alternate housing.  |  | *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.* |  |
| 29 |  | A terminal strip or screws is provided with the time switch for AC power and all output circuit contacts.  |  | *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.* |  |
| The following compliance matrix criteria are for Model 210 Conflict Monitors with absence of red monitoring.  |
| 30 | 995-12.3 | Conflict monitor is a Model 210 "Plus" capable of detecting fault sequencing of signals on a per channel basis (i.e., short or absence of yellow interval and/or simultaneous dual indications). |  | *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.* |  |
| 31 |  | All integrated circuits with 14 pins or more are socket mounted. |  | *Applicant may provide comments in this field.* | Physical Inspection |
| 32 | 995-12.3.1 | Conflict monitor is capable of monitoring for the absence of voltage on all of the inputs of a channel (defined here as red, yellow, and green). |  | *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.* |  |
| 33 |  | If an output is not present on at least one input of a channel at all times, the unit begins timing the duration of this condition. |  | *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.* |  |
| 34 |  | If the ‘output not present’ condition exists for less than 700 milliseconds, the unit does not trigger.  |  | *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.* |  |
| 35 |  | If output not present condition exists for more than 1000 milliseconds, the unit triggers as if a conflict had occurred, causing the intersection to transfer immediately into a flashing mode, and "stop-time" is applied to the 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.* |  |
| 36 |  | A red signal requires the presence of a minimum of 60 VAC, plus or minus 10 VAC, to satisfy the requirements of a red indication. |  | *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.* |  |
| 37 |  | The red input signals are connected to the conflict monitor through an auxiliary connector on the monitor's front panel.  |  | *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.* |  |
| 38 |  | A similar auxiliary connector is provided on the output file, with a removable harness connecting the two. |  | *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.* |  |
| 39 |  | The front panel of the monitor includes an indicator to identify the triggering of the monitor in response to the absence of red condition. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review, Physical Inspection and Functional Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |

**Document History for:**

**Traffic Controller Accessories Compliance Matrix**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Rev | Description | Authored and Checked | Reviewed | Approved | Approval Date | Rev More Stringent? |
| 1.0 | New CM  | R. Brooks | J. Morgan | J. Morgan | 10/10/2017 | N/A |
| 2.0 | Power Switch and GPS specs entered to reflect changes to FA 8-6-18. | R. Brooks | J. Morgan | J. Morgan | 12/19/2018 | No |
| 3.0 | Move to 995 from 678. Updated to FA date 10-24-22. | W. Geitz | I. Sing M. DeWitt | D. Vollmer | 2/1/2023 | No |
| 4.0 | Updated to latest FA date of 10-6-23 for spec 995. | W. Geitz | P. BlaiklockR. Washington | D. Vollmer | 11/28/2023 | No |