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|  | FDOT Traffic Engineering Research Laboratory (TERL)  Pedestrian Detection System Compliance Matrix | By signing this form, the applicant declares that he/she has read and understands the provisions of Sections 665 and 995 of the FDOT *Standard Specifications for Road and Bridge Construction* and all implemented modifications. The requirements listed on this matrix are derived from Sections 665 and 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** |
| --- | --- | --- | --- | --- | --- |
| The following compliance matrix criteria are for all pedestrian detection systems. | | | | | |
| 1 | 995-1.1 | Equipment is permanently marked with manufacturer name or trademark, part number, date of manufacture and serial number. |  | *Applicant may provide comments in this field.* | Physical Inspection |
| 2 | 995-9.1 | Pedestrian detection system includes the pushbutton, pedestrian actuation signs, electronics, wiring and mounting hardware. |  | *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.* |  |
| The following compliance matrix criteria are for standard pedestrian pushbutton detectors. | | | | | |
| 3 | 995-9.2 | Pushbutton is raised from or flush with the housing and is a minimum of 2 inches in the smallest dimension. The pushbutton requires no more than 5 pounds of force to activate. |  | *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.* |  |
| 4 |  | The detector is weather-tight and tamper resistant. |  | *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.* |  |
| 5 | 995-9.2.1 | The housing is a two piece unit consisting of a base housing and a removable cover. The housing is cast aluminum meeting ASTM B26 for alloys S5A and CS72A. |  | *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.* |  |
| 6 |  | The housing or adapter (saddle) conforms to the shape of a pole to provide a flush, secure fit. Saddle is made of the same material and construction as the housing. |  | *Applicant may provide comments in this field.* | Physical Inspection |
| 7 |  | Pushbuttons for wood poles include a housing with threaded holes for ½ inch conduit in the top or bottom of the housing and a ¾ inch hole with an insulated bushing is provided in the back of the 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.* |  |
| 8 |  | Housing is provided with painted weatherproof fittings, matching the housing, to close unused openings. |  | *Applicant may provide comments in this field.* | Physical Inspection |
| 9 |  | Housing has a powder-coat finish and is painted in accordance with Military Standard MIL-PRF-24712A. |  | *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 | 995-9.2.2 | Pushbutton includes a normally open, mechanical phenolic enclosed, positive-acting, spring-loaded, audible (i.e., click) snap-action switch with single pole, single throw contacts, or a Piezo driven solid state switch rated for a minimum of 50 V. |  | *Applicant may provide comments in this field.* | Physical Inspection |
| 11 |  | The Piezo driven solid state switch, when activated, gives an audible (i.e., two-tone chirp)indication of actuation. A visual indication of operation is optional. If a visual indication is used, the visual indication of actuation remains illuminated until the pedestrian’s WALKING PERSON (symbolizing WALK) signal indication is displayed. |  | *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 |  | Switch connections inside the housing allow wiring and installation without binding. The switch has a design life of one million operations (minimum) at rated load. |  | *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 | 995-9.2.3 | The wiring is No. 18 AWG stranded (minimum) with 600 V outdoor insulation rating. |  | *Provide statement of conformance from hardware supplier that shows the product meets this requirement.* | Document Review |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| The following compliance matrix criteria are for Accessible (Audible/Tactile) Pedestrian Pushbutton Detectors. | | | | | |
| 14 | 995-9.3 | The accessible pedestrian pushbutton detector consists of all electronic control equipment, wiring, mounting hardware, pushbuttons, and pedestrian actuation signs designed to provide both a pushbutton with a raised, vibrating tactile arrow on the button as well as a variety of audible indications for differing pedestrian signal functions. |  | *Applicant may provide comments in this field.* | Physical Inspection |
| 15 | 995-9.3.1 | The accessible pedestrian pushbutton detector includes electronic control equipment that is programmable and adjustable using a laptop computer or vendor supplied programmer. Electronic control equipment can be installed within a traffic controller cabinet or within a pedestrian signal 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.* |  |
| 16 |  | Electronic control equipment installed within a traffic controller cabinet allows the use of up to 16 pushbuttons (4 maximum per channel) with a single traffic controller cabinet. The accessible pedestrian pushbutton detector receives timing from Walk and Don't Walk signals. |  | *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.* |  |
| 17 | 995-9.3.1.1 | Audible messages are programmable. All audible messages and tones emanate from the accessible pedestrian pushbutton housing. |  | *Applicant may provide comments in this field.* | Functional Inspection |
| 18 |  | The accessible pedestrian pushbutton detector utilizes digital audio technology and has, at a minimum, three programmable locator tones. |  | *Applicant may provide comments in this field.* | Functional Inspection |
| 19 |  | The accessible pedestrian pushbutton detector has independent minimum and maximum volume limits for the Locator Tone, Walk, and Audible Beaconing features. The Wait message will only annunciate once per actuation. |  | *Applicant may provide comments in this field.* | Functional Inspection |
| 20 | 995-9.3.1.2 | The accessible pedestrian pushbutton detector provides independent ambient sound adjustment for the locator tone feature. The accessible pedestrian pushbutton detector allows the locator tone to be deactivated. |  | *Applicant may provide comments in this field.* | Functional Inspection |
| 21 | 995-9.3.1.3 | The accessible pedestrian pushbutton detector includes a Vibrating Pushbutton (VPB) which is a single assembly and contains: a) an ADA compliant, vibro-tactile, directional arrow button, b) a weatherproof audible speaker and c) a pedestrian actuation sign with the optional placard Braille message. |  | *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 |  | The VPB tactile arrow is 2 inches in length, field adjustable to two directions, and requires no more than 5 pounds of applied force to activate. |  | *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.* |  |
| 23 | 995-9.3.1.4 | The accessible pedestrian pushbutton detector monitors the Walk condition for conflict operation and disables the Walk functionality if a conflict is detected. |  | *Applicant may provide comments in this field.* | Functional Inspection |
| 24 | 995-9.3.1.5 | If the accessible pedestrian pushbutton detector includes a CCU for interfacing and connecting the system, the CCU has labeled LED indicators for each channel operation. The CCU resets upon loss of internal communication. |  | *Applicant may provide comments in this field.* | Physical Inspection |
| 25 | 995-9.3.2 | All inputs and outputs use Mil-Spec multipin connectors. |  | *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.* |  |
| 26 | 995-9.3.2.1 | Walk and Don’t Walk inputs are optically isolated 80-150 volts AC/DC, 5mA max. General purpose inputs are optically isolated 10-36 volts AC/DC, 10mA max. |  | *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 | 995-9.3.2.2 | Outputs are optically isolated 36 volts AC/DC peak, 300mA solid state fused contact closures. CCUs include a normally open relay contact fault output. |  | *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 | 995-9.3.3 | The CCU includes an Ethernet interface and has an integral web server that provides information on audible/tactile pedestrian-pushbutton detector status, access to event logs, and provides for remote Configuration of accessible pedestrian pushbutton detector system options. |  | *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.* |  |
| 29 |  | VPB includes an Ethernet, serial, USB or Bluetooth programming interface. |  | *Applicant may provide comments in this field.* | Document Review |
| The following compliance matrix criteria are for Passive Detection systems. | | | | | |
| 30 | 995-9.4 | The passive detector consists of all electronic control equipment, wiring, and mounting hardware. |  | *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.* |  |
| 31 | 995-9.4.1 | A passive detector system uses one or more sensors and analytics hardware and software to detect the presence and direction of pedestrians and activate the traffic control device without any required action by the pedestrian. |  | *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.* |  |
| 32 | 995-9.4.2 | The passive detector is provided with software that allows local and remote configuration and monitoring. |  | *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.* |  |
| 33 |  | Ensure that the system can display detection zones and detection activations overlaid on live passive detector inputs. |  | *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 |  | Ensure that the passive detector allows a user to edit previously defined configuration parameters, including size, placement, and sensitivity of detection zones. |  | *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 |  | Ensure that the passive detector retains its programming in nonvolatile memory. |  | *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 |  | Ensure that the detection system configuration data can be saved to a computer and restored from a saved file. |  | *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.* |  |
| 37 |  | Ensure that all communication addresses are user programmable. |  | *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.* |  |
| 38 | 995-9.4.3 | Ensure outputs meet the requirements of NEMA TS2-2021, 6.5.2.26. |  | *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.* |  |
| 39 | 995-9.4.4 | Ensure the system operates using a nominal input voltage of 120V of alternating currents (VAC). |  | *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.* |  |
| 40 |  | Ensure that the system will operate with an input voltage ranging from 89 to 135 VAC. |  | *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.* |  |
| 41 |  | If a system device requires operating voltage other than 120 VAC, a voltage converter is provided. |  | *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.* |  |
| The following compliance matrix criteria are for all Pedestrian Detection systems. | | | | | |
| 42 | 995-9.5 | Wiring meets applicable NEC requirements. |  | *Applicant may provide comments in this field.* | Physical Inspection |
| 43 |  | Accessible pedestrian pushbutton detector operates using a nominal input voltage of 120 volts alternating current (VAC). |  | *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.* |  |
| 44 |  | If device requires nominal input voltage of less than 120 VAC, the appropriate voltage converter is furnished. |  | *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.* |  |
| 45 |  | Accessible pedestrian pushbutton detector control electronics that are mounted in a pedestrian signal head can be powered through the Walk and Don’t Walk circuits of the signal head. |  | *Applicant may provide comments in this field.* | Physical Inspection |
| 46 |  | Control electronics do not require more than four wires for each pushbutton connection, and no more than two wires for each controller pedestrian input. Voltage at the pushbutton does not exceed 24 VAC |  | *Applicant may provide comments in this field.* | Physical Inspection |
| 47 | 995-9.6 | Self-tapping screws are not used on the exterior of the assembly. |  | *Provide statement of conformance from hardware supplier that shows the product meets this requirement* | Document Review and Physical Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| 48 |  | All parts are made of corrosion resistant materials, such as plastic, stainless steel, anodized aluminum, brass, or gold plated metal. |  | *Applicant may provide comments in this field.* | Physical Inspection |
|  |  |  |  |  |  |
| 49 |  | All assembly hardware, including nuts, bolts, external screws and locking washers less than 5/8 inch in diameter, are 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.* |  |
| 50 |  | 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.* |  |
|  |  |  |  |  |  |
| 51 |  | Enclosures have a NEMA 4X rating. |  | *Applicant may provide comments in this field.* | Physical Inspection |
| 52 |  | Pushbutton housings for intersections are black. |  | *Applicant may provide comments in this field.* | Physical Inspection |
| 53 | 995-9.7 | Equipment performs all required functions during and after being subjected to the environmental testing procedures described in NEMA TS2-2021, Sections 2.2.7, 2.2.8, and 2.2.9. |  | *Provide a third party test report that demonstrates compliance with this requirement. 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.* |  |
| 54 | 665-3 | The pedestrian detection system has a manufacturer’s warranty covering defects for a minimum of 5 years from the date of final acceptance by the Engineer in accordance with 5-11 and Section 608. |  | *Provide a statement of conformance in this field.* | Compliance Matrix Review |
| 55 |  | The warranty includes providing replacements, within 10 calendar days of notification, for defective parts and equipment during the warranty period at no cost to the Department or the maintaining agency. |  | *Provide a statement of conformance in this field.* | Compliance Matrix Review |

**Document History for:**

**Pedestrian Detection System Compliance Matrix**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Rev | Description | Authored and Checked | Reviewed | Approved | Approval Date | Rev More Stringent? |
| 1.0 | Conversion of CM to Word. | K. Hinson  D. Bremer | C. Morse  J. Morgan | J. Morgan | 10/22/2012 | 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 | 05/09/2013 | No |
| 3.0 | Moving from MSTCSD to SSRBC. Includes audible tactile detectors | D. Bremer | J. Morgan | J. Morgan | 10/24/2013 | No |
| 4.0 | 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 |
| 5.0 | Updated to latest FHWA approved specification (FA 10-21-14). | L. Bijelic  A. Burleson | J. Morgan | J. Morgan | 10/15/2015 | No |
| 6.0 | Updated CM to reflect spec changes for FA 8-1-17 update | R. Brooks | M. DeWitt  M. Tomatani | J. Morgan | 05/23/2018 | No |
| 7.0 | Updated CM to reflect spec changes for FA 7 16 19 update | F. Deasy | M. DeWitt  J. Morgan | J. Morgan | 1/13/2020 | No |
| 8.0 | Updated CM to reflect spec changes for FA 7-2-20. Added Bluetooth communication option. Update NEMA TS2-2003 to 2016. | W. Geitz | C.Raimer  M. DeWitt | D. Vollmer | 01/25/2021 | No |
| 9.0 | Added warranty information. Corrected matrix name and revision level. | A. Burleson | W. Geitz | M. DeWitt | 02/01/2022 | No |
| 10.0 | Moved to specification 995 (FA 10-24-22). NEMA updated from 2016 to 2021. | W. Geitz | P. Blaiklock  M. DeWitt | D. Vollmer | 01/30/2023 | No |