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

|  |  |  |  |
| --- | --- | --- | --- |
| 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 AFADs. |
| 1 | 990-3.1 | Device meets the physical display and operational requirements of the MUTCD. |  | *Provide a statement of conformance in this field.* | Compliance Matrix Review |
| 2 |  | All assembly hardware less than 5/8 inch in diameter is type 304 or 316 passivated stainless steel. Stainless steel bolts, screws and studs meet ASTM F593 and nuts meet ASTM F594. |  | *Provide statement of conformance from hardware supplier that shows the product meets this requirement.* | Document Review |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| 3 |  | All assembly hardware greater than or equal to 5/8 inch in diameter is galvanized. Bolts, studs, and threaded rod meet ASTM A307 and structural bolts meet ASTM A325, A325. |  | *Provide statement of conformance from hardware supplier that shows the product meets this requirement.* | Document Review |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| 4 |  | Controller and associated on-board circuitry meet the requirements of the Federal Communications Commission (FCC) Title 47, Subpart B, Section 15 regulations concerning the emission of electronic noise by Class A digital devices |  | *Provide FCC certificate that shows the product meets this requirement.* | Document Review |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| 5 |  | The controller and associated on-board circuitry are not affected by mobile radio, or any other radio transmissions |  | *Provide a statement of conformance in this field.* | Compliance Matrix Review |
| 6 |  | All electronic assemblies meet the requirements of NEMA TS-4-2016 Section 2. |  | *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 (PCH), section 7.2.* | Document Review |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| 7 |  | An operator’s manual is furnished with each unit. |  | *Provide a statement of conformance in this field.* | Compliance Matrix Review |
| 8 |  | AFAD is marked with the manufacturer’s name or trademark, model/part number, and date of manufacture or serial number. |  | *Applicant may provide comments in this field.* | Physical Inspection |
| 9 |  | Portable devices and trailers are delineated on a permanent basis by affixing retroreflective sheeting in a continuous line on the face of the trailer as seen by oncoming road users. |  | *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 | 990-3.1.1.1 | The unit provides automatic recharging of power supply batteries to normal operating levels with meters showing charge. |  | *Applicant may provide comments in this field.* | Physical Inspection and Functional Inspection |
| 11 |   | Solar array recovery time is accomplished in a maximum of three hours. |  | *Applicant may provide comments in this field.* | Functional Inspection |
| 12 | 990-3.1.1.2 | The photovoltaic unit is designed to provide 2 days of continuous operation without sunlight with a minimum of onsite maintenance. |  | *Provide instructions on how to disconnect solar array and cellular connections. Also, provide minimum starting voltage required for the autonomy testing.* | Document Review and Functional Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| 13 |   | The battery is equipped with a battery controller to prevent overcharging and over-discharging; an external battery level indicator 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.* |  |
| 14 |   | The battery, controller, and power panel are protected from the elements and vandalism. |  | *Applicant may provide comments in this field.* | Physical Inspection |
| 15 |   | Automatic recharging of power supply batteries is provided with charge indicator meter. |  | *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.* |  |
| 16 |   | An AC/DC battery charger unit is provided. |  | *Applicant may provide comments in this field.* | Physical Inspection |
| 17 | 990-3.1.3 | Controller and control panel are housed in a weather, dust, and vandal resistant lockable cabinet. |  | *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.* |  |
| 18 |  | Controller and associated on-board circuitry meet the requirements of the Federal Communications Commission (FCC) Title 47, Subpart B, Section 15 regulations concerning the emission of electronic noise by Class A digital devices. |  | *Provide FCC certificate that shows the product meets this requirement.* | Document Review |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| 19 | 990-3.1.4 | The support chassis is self-contained and self-supporting without the use of additional equipment or tools. |  | *Applicant may provide comments in this field.* | Physical Inspection |
| 20 |  | The sign, power supply unit and all support systems are mounted on a trailer or non-trailer unit |  | *Applicant may provide comments in this field.* | Physical Inspection |
| The following compliance matrix criteria are for trailer mounted AFADs. |
| 21 |  | The trailer is equipped with class-A lights, using a plug adaptor. |  | *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 trailer is equipped with adjustable outrigger leveling pads, one on each of the four frame corners. |  | *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 |  | The trailer can be set up at the site with its own chassis and outriggers, without being hitched to a vehicle. |  | *Applicant may provide comments in this field.* | Functional Inspection |
| 24 |  | The trailer is equipped with fenders over the tires made from heavy-duty material sufficient to allow a person to stand and operate or perform maintenance on the unit. |  | *Applicant may provide comments in this field.* | Physical Inspection |
| 25 |  | The trailer meets all equipment specifications set forth in Chapter 316 of the Florida Statutes, and by such rule, regulation or code that may be adopted by the Department of Highway Safety and Motor Vehicles. |  | *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 AFADs. |
| 26 | 990-3.7 | Typical application of the device is in accordance with Standard Plans, Index 102-603.  |  | *Provide detailed drawings that demonstrate compliance with this requirement.* | Document Review |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| 27 |  | Electronic assemblies meet the requirements of NEMA TS-5 2017, Section 4. |  | *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 PCH, section 7.2.* | Document Review |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| The following compliance matrix criteria are for Stop/Slow AFADs. |
| 28 | 990-3.7.2 | Stop/Slow AFAD is provided with a Stop/Slow sign that alternately displays the stop face and the slow face of a Stop/Slow paddle. |  | *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 |  | If the AFAD includes a gate arm, the gate arm is able to descend to a down position across the approach lane of traffic when the stop face is displayed and ascends upright when the slow face 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.* |  |
| 30 |  | Gate arm is fully retro reflectorized on both sides, with vertical alternating red and white stripes at 16-inch intervals measured horizontally in accordance with the MUTCD. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and Physical Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| 31 |  | When the arm is in the down position, the vertical aspect of the arm and sheeting is a minimum of 2 inches and the end of the arm reaches at minimum to the center of the through lane being controlled. |  | *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 Red/Yellow Lens AFADs. |
| 32 | 990-3.7.3 | Red/Yellow Lens AFAD includes remotely operated Red/Yellow Lens that alternately displays a steadily illuminated circular red lens and a flashing circular yellow lens to control traffic. |  | *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.* |  |
| 33 |  | AFAD includes a gate arm that descends to a position across the approach lane of traffic when the steady circular red lens is illuminated and then ascends to an upright position when the flashing circular yellow lens is illuminated. |  | *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.* |  |
| 34 |  | Gate arm is fully retro reflectorized on both sides, with vertical alternating red and white stripes at 16-inch intervals measured horizontally in accordance with the MUTCD. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and Physical Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
| 35 |  | When the arm is in the down position, the vertical aspect of the arm and sheeting is a minimum of 2 inches and the end of the arm reaches at minimum to the center of the through lane being controlled. |  | *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.* |  |
| 36 |  | There is no change interval between the solid red and flashing yellow 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 |  | AFAD provides a steady illuminated circular yellow indication, with at least a 5 second duration, between the transition from flashing circular yellow indication and the display of the steady circular 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.* |  |

**Document History for:**

**Automated Flagger Assistance Device Compliance Matrix**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Rev | Description | Authored and Checked | Reviewed | Approved | Approval Date | Rev More Stringent? |
| 1.0 | Initial compliance matrix | D. Bremer | C. MorseD. Vollmer | J. Morgan | 01/25/2013 | N/A |
| 2.0 | Modified disclaimer to indicate compliance matrix is governing document. | A. Burleson | J. Morgan | J. Morgan | 05/09/2013 | No |
| 3.0 | Replaced FDOT logo with latest approved one and added CM ID # to header. Revised document approver title. | A. BurlesonK. Moser | J. Morgan | J. Morgan | 10/31/2014 | No |
| 4.0 | Minor wording to bring to latest FHWA approved spec. Spec is currently out for FHWA approval, but there are no proposed changes in AFAD area. | D. Bremer | M. DeWitt | J. Morgan | 08/19/2015 | No |
| 5.0 | Updated to reflect latest FA approval date of 8-11-15. | A. Burleson | J. Morgan | J. Morgan | 02/05/2016 | No |
| 6.0 | Updated to reflect latest FA approval date of 10-31-19. | W. Geitz | M. DeWittJ. Morgan | D. Vollmer | 03/25/2020 | No |
| 7.0 | Update AFAD CM to reflect changes in battery operation length and remove dimming requirement, based on latest FHWA approved spec. | W. Geitz | C. RaimerM. DeWitt | D. Vollmer | 12/29/2020 | No |
| 8.0 | Updated to reflect FA 2-22-21. No changes to this CM. | W. Geitz | C. RaimerM. DeWitt | M. DeWitt | 06/03/2022 | No |
| 9.0 | Updated to latest FA date of 12-5-23 for spec 990. Removed signed and sealed drawing requirement for CM ID 26. | W. Geitz | P. Blaiklock  | D. Vollmer | 01/03/2024 | No |