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|  | FDOT Traffic Engineering Research Laboratory (TERL)  Surge Protective Device (SPD) for Low Voltage Power, Control, Data, and Signal Systems Compliance Matrix | By signing this form, the applicant declares that he/she has read and understands the provisions of Sections 620 and 996 of the FDOT *Standard Specifications for Road and Bridge Construction* and all implemented modifications. The requirements listed on this matrix are derived from Sections 620 and 996, 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: |  |

|  |  | **\*\* 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** |
| 1 | 996-1.1 | SPD 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): SPD002 (Step 1) |  |  | Init.: |
| 2 | 996-4.2.4 | Device complies with the functional requirements for all available modes (i.e. power L-N, N-G, L-G; data and signal center pin-to-shield, L-L, L-G, and shield-G where appropriate) as shown below. |  | *Provide product literature, specifications, user manual,or similar information that indicates compliance. (Indicate specific configurations by model number or series).* | Document Review |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): SPD001 (Step 1) |  |  | Init.: |
| 3 |  | 12 VDC SPD has a clamping voltage of 15-20 V with surge capacity of 5kA per mode (8x20 µs) and a maximum let-through of <150 Vpk. |  | *Provide a first or third party test report that demonstrates the device meets this requirement. The test report must 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): SPD001 (Step 3) |  |  | Init.: |
| 4 |  | 24 VAC SPD has a clamping voltage of 30-55 V with surge capacity of 5kA per mode (8x20 µs) and a maximum let-through of <175 Vpk. |  | *Provide a first or third party test report that demonstrates the device meets this requirement. The test report must meet the requirements of FDOT PCH, section 7.2.* | Document Review |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): SPD001 (Step 4) |  |  | Init.: |
| 5 |  | 48 VDC SPD has a clamping voltage of 60-85 V with surge capacity of 5kA per mode (8x20 µs) and maximum let-through of <200 Vpk. |  | *Provide a first or third party test report that demonstrates the device meets this requirement. The test report must meet the requirements of FDOT PCH, section 7.2.* | Document Review |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): SPD001 (Step 5) |  |  | Init.: |
| 6 |  | Coaxial Composite Video SPD has a clamping voltage of 4-8 V with surge capacity of 10kA per mode (8x20 µs) and maximum let-through of <65 Vpk (8x20µs/1.2x50µs; 6kV, 3kA). |  | *Provide a first or third party test report that demonstrates the device meets this requirement. The test report must meet the requirements of FDOT PCH, section 7.2.* | Document Review |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): SPD001 (Step 6) |  |  | Init.: |
| 7 |  | RS422/RS485 SPD supports data rates up to 10 Mbps and has a clamping voltage of 8-15 V with surge capacity of 10kA per mode (8x20 µs) and maximum let-through of <30 Vpk. |  | *Provide a first or third party test report that demonstrates the device meets this requirement. The test report must meet the requirements of FDOT PCH, section 7.2.* | Document Review |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): SPD001 (Step 7) |  |  | Init.: |
| 8 |  | T1 SPD supports data rates up to 10 Mbps and has a clamping voltage of 13-30 V with surge capacity of 10kA per mode (8x20 µs) and maximum let-through of <30 Vpk. |  | *Provide a first or third party test report that demonstrates the device meets this requirement. The test report must meet the requirements of FDOT PCH, section 7.2.* | Document Review |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): SPD001 (Step 8) |  |  | Init.: |
| 9 |  | Ethernet Data SPD supports data rates up to 1 Gbps and has a clamping voltage of 7-12 V with surge capacity of 1kA per mode (10x1000 µs) and maximum let-through of <30 Vpk. |  | *Provide a first or third party test report that demonstrates the device meets this requirement. The test report must meet the requirements of FDOT PCH, section 7.2.* | Document Review |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): SPD001 (Step 9) |  |  | Init.: |
| 10 |  | PoE SPD supports data rates up to 1 Gbps and has a clamping voltage of 60-70 V with surge capacity of 5kA per mode (8x20 µs) and maximum let-through of <200 Vpk (100kHz 0.5μs; 6kV, 500A). |  | *Provide a first or third party test report that demonstrates the device meets this requirement. The test report must meet the requirements of FDOT PCH, section 7.2.* | Document Review |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): SPD001 (Step 10) |  |  | Init.: |
| 11 |  | PoE+ and PoE++ SPD supports data rates up to 1 Gbps and have a clamping voltage <150 V with surge capacity of 1kA L-G (8x20 µs) and maximum let-through of <350V |  | *Provide a first or third party test report that demonstrates the device meets this requirement. The test report must meet the requirements of FDOT PCH, section 7.2.* | Document Review |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): TERL Test Cases (Steps): SPD001 (Step 11) |  |  | Init.: |
| 12 | 996-4.2.5 | SPDs for PoE, PoE+, and PoE++ applications meet IEEE 8802-3. |  | *Provide product literature, specifications, user manual, or similar information that indicates compliance. (Indicate specific configurations by model number or series).* | Document Review |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): SPD001 (Step 12) |  |  | Init.: |
| 13 | 996-4.2.5 | SPDs meet the requirements of UL 497B or UL 497C, as applicable, and are listed by a NRTL. |  | *Provide product literature, specifications, user manual, or similar information that indicates compliance. (Indicate specific configurations by model number or series).* | Document Review |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): SPD001 (Step 13) |  |  | Init.: |
| 14 | 996-4.2.5 | All parts are made of corrosion-resistant materials, such as plastic, stainless steel, anodized aluminum, brass, or gold-plated metal. |  | *Provide product literature, specifications, user manual, or similar information that indicates compliance. (Indicate specific configurations by model number or series).* | Document Review and Physical Inspection |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): SPD001 (Step 14), SPD002 (Step 2) |  |  | Init.: |
| 15 | 996-4.2.6 | SPD operates properly during and after being subjected to the temperature and humidity test described in NEMA TS 2, Section 2.2.7, and the vibration and shock tests described in NEMA TS 2-2021, Sections 2.2.8., and 2.2.9. |  | *Provide a first or third party test report that demonstrates the device meets this requirement. The test report must meet the requirements of FDOT PCH, section 7.2.* | Document Review |
|  |  |  |  | *Indicate location of requested information in submittal.* |  |
|  |  | TERL Test Cases (Steps): SPD001 (Step 15) |  |  | Init.: |
| 16 | 620-2.7.4 | SPD has a manufacturer’s warranty covering defects for a minimum of 2 years from the date of final acceptance. |  | *Provide a statement of conformance in this field.* | Compliance Matrix Review |
|  |  | TERL Test Cases (Steps): SPD001 (Step 16) |  |  | Init.: |
| 17 |  | If the SPD, including any component of the unit, should fail during the warranty period, the entire SPD will be replaced by the manufacturer at no cost to the Department or maintaining agency. |  | *Provide a statement of conformance in this field.* | Compliance Matrix Review |
|  |  | TERL Test Cases (Steps): SPD001 (Step 17) |  |  | Init.: |

**Document History for:**

**Surge Protective Device (SPD) for Low Voltage Power, Control, Data, and Signal Systems Compliance Matrix**

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| Rev | Description | Authored and Checked | Reviewed | Approved | Approval Date | Rev More Stringent? |
| 1.0 | New CM to correspond with specification content move from Section 785 to 620. This CM updates and replaces previous CM-785-2.2-03. Revised document approver title. | R. Meyer  K. Moser | J. Morgan | J. Morgan | 10/27/2014 | N/A |
| 2.0 | Moved fom Spec 620 to Spec 996. | W. Geitz | M. DeWitt  J. Morgan | D. Vollmer | 01/30/2020 | No |
| 3.0 | Added warranty information. | W. Geitz | M. DeWitt  C. Raimer | D. Vollmer | 01/28/2022 | No |
| 4.0 | Added test cases and steps. | P. Blaiklock | W. Geitz | D. Vollmer | 02/14/2023 | No |
| 5.0 | Updated to latest FA dates of 9-13-23 and 12-1-23 for specs 620 and 996, respectively. | W. Geitz | L. Audisio | D. Vollmer | 01/10/2024 | No |