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|  | FDOT Traffic Engineering Research Laboratory (TERL)  Digital Video Decoder Compliance Matrix | By signing this form, the applicant declares that he/she has read and understands the provisions of Sections 684 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 684 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: |  |

| **ID No** | **Section** | **Requirement** | **Item Comply? (Yes/No/NA)** | **Comments (Applicant must provide information as indicated)** | **TERL Evaluation Method** |
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| The following compliance matrix criteria are for all decoders. | | | | | |
| 1 | 996-1.1 | DVD 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 | 996-3.5.1 | The digital video decoder (DVD) is a specialized network-based hardware device or software which reconstructs encoded video and data signals transmitted across Internet Protocol (IP) networks. |  | *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.* |
| 3 | 996-3.5.2 | All setup, control programs, and diagnostic software related to the DVD along with equipment licenses, where required for any software or hardware in the system are included. |  | *Applicant may provide comments in this field.* | Physical Inspection |
| The following compliance matrix criteria are for decoders that support MPEG-2. | | | | | |
| 4 | 996-3.5.3 | DVD utilizes the Moving Picture Experts Group’s MPEG-2 video compression technology in accordance with the International Organization for Standardization (ISO) and International Electrotechnical Commission (IEC) requirements detailed in the ISO/IEC 13818 standard. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and Functional Inspection |
| *Applicant may provide comments in this field.* |
| 5 |  | DVD is capable of decoding unicast and multicast streams. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and Functional Inspection |
| *Applicant may provide comments in this field.* |
| 6 |  | MPEG-2 DVD supports programmable bit rates. |  | *Applicant may provide comments in this field.* | Functional Inspection |
| 7 |  | MPEG-2 DVD supports fixed bit rate mode. |  | *Applicant may provide comments in this field.* | Functional Inspection |
| The following compliance matrix criteria are for decoders that support H.264. | | | | | |
| 8 | 996-3.5.4 | DVD utilizes video compression technology in accordance with the ISO and IEC requirements detailed in the ISO/IEC 14496-10:2009 standard. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and Functional Inspection |
| *Applicant may provide comments in this field.* |
| 9 |  | DVD is capable of unicast and multicast operation and supports Real Time Streaming Protocol (RTSP). |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and Functional Inspection |
| *Applicant may provide comments in this field.* |
| 10 |  | H.264 DVD equipment supports programmable bit rates. |  | *Applicant may provide comments in this field.* | Functional Inspection |
| 11 |  | H.264 equipment supports fixed bit rate mode. |  | *Applicant may provide comments in this field.* | Functional Inspection |
| The following compliance matrix criteria are for all hardware-based decoders. | | | | | |
| 12 | 996-3.5.6 | DVD has a minimum of one video 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.* |
| 13 |  | DVD has a minimum of one data interface for configuration functions. |  | *Applicant may provide comments in this field.* | Physical Inspection and Functional Inspection |
| 14 |  | DVD has an Ethernet interface for connection to IP networks. |  | *Applicant may provide comments in this field.* | Physical Inspection and Functional Inspection |
| 15 | 996-3.5.7 | DVD is compatible and fully interoperable with digital video encoders (DVE) from the DVD manufacturer, as well as a minimum of two other DVEs from other manufacturers. |  | *Provide a list of DVEs the device can decode.* | Document Review and Functional Inspection |
| *Indicate location of requested information in submittal.* |
| 16 |  | DVD can be controlled using SunGuide® or supports stream selection and switching using ONVIF commands. |  | *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 | 996-3.5.8 | Analog video outputs utilize BNC connectors. |  | *Applicant may provide comments in this field.* | Physical Inspection |
| 18 |  | Video outputs support one volt peak-to-peak (Vp-p) NTSC composite video. |  | *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.* |
| 19 |  | DVD operates with both color and monochrome video. |  | *Applicant may provide comments in this field.* | Functional Inspection |
| 20 |  | DVD is capable of delivering color and monochrome video at 30 fps regardless of resolution. |  | *Applicant may provide comments in this field.* | Functional Inspection |
| 21 |  | Decoders that support MPEG-2 format support resolutions that include, but are not limited to: 352 x 240, 352 x 480, 720 x 480;  Decoders that support H.264 format support resolutions that include, but are not limited to: 176 x 120, 352 x 240, 720 x 480. |  | *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 | 996-3.5.10 | DVD local area network (LAN) connection supports the requirements detailed in the Institute of Electrical and Electronics Engineers (IEEE) 802.3 Standard for 10/100 Ethernet connections. |  | *Applicant may provide comments in this field.* | Functional Inspection |
| 23 |  | DVD has a minimum of one Ethernet port, which is a 10/100 Base-TX connection or a 100 Base-FX ST, SC, LC or FC interface. |  | *Applicant may provide comments in this field.* | Physical Inspection |
| 24 |  | Connector complies with applicable EIA and Telecommunications Industry Association (TIA) requirements. |  | *Provide a statement of conformance in this field.* | Compliance Matrix Review |
| 25 |  | Copper-based network interface ports utilize RJ-45 connectors. |  | *Applicant may provide comments in this field.* | Physical Inspection |
| 26 |  | Fiber ports are single mode with a minimum link budget of 30 dB. |  | *Fiber ports are not mandatory, and type and power may be detailed in plans based upon project needs. If the encoder can be configured with optical ports, then provide product literature that indicates the optics and link budgets that are available.* | Document Review |
| *Indicate location of requested information in submittal.* |
| 27 |  | The network communication conforms to UDP, Version 4 of the Internet Protocol (IP) and IGMP Version 2. |  | *Provide product literature, specifications, user manual, or similar information that shows the product meets this requirement.* | Document Review and Functional Inspection |
| *Applicant may provide comments in this field.* |
| 28 | 996-3.5.11 | DVD has light-emitting diode (LED) displays, liquid crystal displays (LCDs), or similar illuminated displays to indicate status for power and data activity. |  | *Applicant may provide comments in this field.* | Physical Inspection |
| 29 | 996-3.5.12 | DVD supports local and remote configuration and management functions with access to all user-programmable features, including but not limited to addressing, serial port configuration, video settings, device monitoring, diagnostic utilities, and security functions via serial login, telnet login, web browser, or Simple Network Management Protocol (SNMP). |  | *Applicant may provide comments in this field.* | Functional Inspection |
| 30 | 996-3.5.13 | There are no self-tapping screws on the exterior of the assembly. |  | *Applicant may provide comments in this field.* | Physical Inspection |
| 31 |  | Equipment is constructed of parts 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 |
| 32 | 996-3.5.14 | Equipment operates on a nominal voltage of 120 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.* |
| 33 |  | If the device requires operating voltages of less than 120 VAC, the appropriate voltage converter is supplied. |  | *Applicant may provide comments in this field.* | Physical Inspection |
| The following compliance matrix criteria are for field hardened decoders. | | | | | |
| 34 | 996-3.5.15 | DVD 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 first or third party test report that demonstrates compliance with environmental requirements. If a voltage converter is required for the device to operate with a 120VAC input voltage, then the voltage converter must be tested with the device, i.e. in the temperature chamber. 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.* |
| The following compliance matrix criteria are for decoders to only be installed in a TMC or other climate-controlled facility. | | | | | |
| 35 |  | Hardware DVD installed in a climate-controlled environment, such as a TMC computer room, has an operating temperature range of 32 to 104°F |  | *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.* |
| 36 | 684-5.1 | DVD has a manufacturer’s warranty covering defects for 1 year from the date of final acceptance. |  | *Provide a statement of conformance in this field.* | Compliance Matrix Review |
| 37 |  | DVD manufacturer will furnish replacements for any part or equipment found to be defective during the warranty period at no cost to the Department or the maintaining agency within 10 calendar days of notification. |  | *Provide a statement of conformance in this field.* | Compliance Matrix Review |

**Document History for:**

**Digital Video Decoder Compliance Matrix**

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| Rev | Description | Authored and Checked | Reviewed | Approved | Approval Date | Rev More Stringent? |
| 1.0 | Conversion of Matrix from Excel to Word, addition of evaluation method column, and changes to match FHWA approved specification for July 2012. | D. Vollmer | R. Meyer | J. Morgan | 8/30/2012 | 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 | 02/19/2013 | No |
| 3.0 | Remove warranty language. | D. Bremer | J. Morgan | J. Morgan | 05/09/2013 | No |
| 4.0 | Edited to match FA 7-30-13. | R. Meyer | J. Morgan | J. Morgan | 08/15/2013 | No |
| 5.0 | 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 |
| 6.0 | Edited to match FA 1-6-15. | R. Meyer | J. Morgan | J. Morgan | 09/24/2015 | No |
| 7.0 | Edited to match FA 10-31-19. | W. Geitz | M. DeWitt  C. Raimer | D. Vollmer | 06/16/2020 | No |
| 8.0 | Updated to latest FA dates of 12-4-23 and 12-1-23 for specs 684 and 996, respectively. | W. Geitz | D. Pedraza | D. Vollmer | 01/19/2024 | No |