



## Florida Department of Transportation

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GOVERNOR

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**ANANTH PRASAD, P.E.**  
SECRETARY

July 26, 2011

Monica Gourdine  
Program Operations Engineer  
Federal Highway Administration  
545 John Knox Road, Suite 200  
Tallahassee, Florida 32303

Re: Office of Design, Specifications  
Section 784  
Proposed Specification: 7840302 ITS – Network Devices

Dear Ms. Gourdine:

We are submitting, for your approval, two copies of the above referenced Supplemental Specification.

The changes are proposed by Gene Glotzbach to update functional requirements for the data rates and programmable bit rates for encoders/decoders based on device evaluations at the traffic Engineering Research Laboratory.

Please review and transmit your comments, if any, within two weeks. Comments should be sent via Email to SP965RP or rudy.powell@dot.state.fl.us.

If you have any questions relating to this specification change, please call Rudy Powell, State Specifications Engineer at 414-4280.

Sincerely,

Signature on File

Rudy Powell, Jr., P.E.  
State Specifications Engineer

RP/ft

Attachment

cc: Calvin Johnson, Chief Civil Litigation  
Florida Transportation Builders' Assoc.  
State Construction Engineer

**INTELLIGENT TRANSPORTATION SYSTEMS – NETWORK DEVICES.****(REV ~~11-10-105-31-11~~) (~~FA-1-24-11~~) (~~7-11~~)**

SUBARTICLE 784-3.2.1 (of the Supplemental Specifications) is deleted and the following substituted:

**784-3.2.1 General:** Use DVEs and DVDs that are specialized network-based hardware devices and software which allow video and data signals to be ~~encapsulated and~~ transmitted across IP networks. Ensure that the video and data packets produced by the DVE and placed onto the network allow reconstruction of digital video signals by hardware-based and software-based DVDs that are also attached to the network.

Ensure that the complete video and data transmission system, defined as the combination of DVE and DVD hardware together with the existing or planned network infrastructure, simultaneously transports video and data from multiple remote field locations to multiple monitoring locations for roadway surveillance and traffic management. Ensure that end-to-end transmission of 30 frames-per-second (fps) D1 resolution video and data signals from DVE inputs to DVD outputs occurs within 250 milliseconds.

SUBARTICLE 784-3.2.3 (of the Supplemental Specifications) is deleted and the following substituted:

**784-3.2.3 MPEG-2 Format:** Furnish DVE and DVD components that utilize 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. Ensure that the DVE and DVD are capable of unicast and multicast operation, and that they support the Session Announcement Protocol (SAP) as recommended by the Internet Engineering Task Force (IETF) RFC 2974. Ensure that the DVE provides 99.999% error-free operation. Ensure MPEG-2 DVE and DVD equipment supports programmable bit rates ~~from 1 Mbps to 8 Mbps~~. Ensure that MPEG-2 equipment supports fixed bit rate mode.

SUBARTICLE 784-3.2.4 (of the Supplemental Specifications) is deleted and the following substituted:

**784-3.2.4 H.264 Format:** Furnish DVE and DVD components that utilize video compression technology in accordance with the International Organization for Standardization (ISO) and International Electrotechnical Commission (IEC) requirements detailed in the ISO/IEC 14496-10:2009 standard. Ensure that the DVE and DVD are capable of unicast and multicast operation, and that they support the Session Announcement Protocol (SAP) as recommended by the Internet Engineering Task Force (IETF) RFC 2974, and Real Time Streaming Protocol (RTSP). Ensure that the

DVE provides 99.999% error-free operation. Ensure H.264 DVE and DVD equipment supports programmable bit rates ~~from 64 kbps to 8 Mbps~~. Ensure that H.264 equipment supports fixed bit rate mode.

SUBARTICLE 784-3.2.9 (of the Supplemental Specifications) is deleted and the following substituted:

**784-3.2.9 Serial Interface:** Ensure that hardware-based DVEs and DVDs provide a minimum of one serial data ~~interface and connector that conforms to EIA-232/422/485 standards. Ensure that the serial~~ interface *that* supports ~~2-wire and 4-wire EIA/TIA-232 and TIA-422. EIA-485 connections~~. Ensure that the serial port(s) support data rates up to ~~230-115~~ kbps; error detection procedures utilizing parity bits (i.e., none, even, and odd); and stop bits (1 or 2).

Ensure that hardware-based DVEs and DVDs provide a TCP/IP interface to their serial port using a network socket connection with configurable IP address and port number. Serial interface ports may utilize RJ-45 connectors, D-sub connectors, or screw terminals.

**INTELLIGENT TRANSPORTATION SYSTEMS – NETWORK DEVICES.****(REV 5-31-11)**

SUBARTICLE 784-3.2.1 (of the Supplemental Specifications) is deleted and the following substituted:

**784-3.2.1 General:** Use DVEs and DVDs that are specialized network-based hardware devices and software which allow video and data signals to be transmitted across IP networks. Ensure that the video and data packets produced by the DVE and placed onto the network allow reconstruction of digital video signals by hardware-based and software-based DVDs that are also attached to the network.

Ensure that the complete video and data transmission system, defined as the combination of DVE and DVD hardware together with the existing or planned network infrastructure, simultaneously transports video and data from multiple remote field locations to multiple monitoring locations for roadway surveillance and traffic management. Ensure that end-to-end transmission of 30 frames-per-second (fps) D1 resolution video and data signals from DVE inputs to DVD outputs occurs within 250 milliseconds.

SUBARTICLE 784-3.2.3 (of the Supplemental Specifications) is deleted and the following substituted:

**784-3.2.3 MPEG-2 Format:** Furnish DVE and DVD components that utilize 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. Ensure that the DVE and DVD are capable of unicast and multicast operation, and that they support the Session Announcement Protocol (SAP) as recommended by the Internet Engineering Task Force (IETF) RFC 2974. Ensure that the DVE provides 99.999% error-free operation. Ensure MPEG-2 DVE and DVD equipment supports programmable bit rates. Ensure that MPEG-2 equipment supports fixed bit rate mode.

SUBARTICLE 784-3.2.4 (of the Supplemental Specifications) is deleted and the following substituted:

**784-3.2.4 H.264 Format:** Furnish DVE and DVD components that utilize video compression technology in accordance with the International Organization for Standardization (ISO) and International Electrotechnical Commission (IEC) requirements detailed in the ISO/IEC 14496-10:2009 standard. Ensure that the DVE and DVD are capable of unicast and multicast operation, and that they support the Session Announcement Protocol (SAP) as recommended by the Internet Engineering Task Force (IETF) RFC 2974, and Real Time Streaming Protocol (RTSP). Ensure that the DVE provides 99.999% error-free operation. Ensure H.264 DVE and DVD equipment

supports programmable bit rates. Ensure that H.264 equipment supports fixed bit rate mode.

SUBARTICLE 784-3.2.9 (of the Supplemental Specifications) is deleted and the following substituted:

**784-3.2.9 Serial Interface:** Ensure that hardware-based DVEs and DVDs provide a minimum of one serial data interface that supports EIA/TIA-232 and TIA-422. Ensure that the serial port(s) support data rates up to 115 kbps; error detection procedures utilizing parity bits (i.e., none, even, and odd); and stop bits (1 or 2).

Ensure that hardware-based DVEs and DVDs provide a TCP/IP interface to their serial port using a network socket connection with configurable IP address and port number. Serial interface ports may utilize RJ-45 connectors, D-sub connectors, or screw terminals.