7840104 ITS – NETWORK DEVICES
COMMENTS FROM INDUSTRY REVIEW

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Comment:
Spec 7840104, Video Encoder Comment #1
The proposed specification revision calls for "H.264 bit rates from 64 kpbs to 8 Mbps and fixed bit rate mode." Although this language is acceptable, we strongly suggest a modification to "H.264 bit rates from 64 kpbs to 8 Mbps, variable bit and fixed bit rate modes."

The H.264 codec is extremely efficient in the absence of motion and a fixed bitrate setting WILL waste bandwidth by not taking advantage of one of the primary strengths of H.264, namely variable bitrate transmissions. In low motion scenes, H.264 requires very little bandwidth. Being able to specifically select variable bitrate transmission needs to be a specifically required option that will result in significant bandwidth savings with no loss in video quality, yielding overall network efficiency.

Response: The fixed bit rate mode is a minimum requirement. This does not prohibit devices from supporting variable bit rates, as this would exceed the minimum requirement. We will consider the incorporation of a minimum requirement for variable bit rate support at a later date.

Spec 7840104, Video Encoder Comment #2
The H.264 industry standard also allows for fine tuning of video quality. The proposed FDOT specification is silent on requirement of and user access to configuring these elements. We suggest that the 784-3.2.2 specification explicitly ADD a statement: "The Iframe, Bframe, and Pframe intervals are to be user configurable options of an H.264 encoder."

Response: We will consider the incorporation of minimum requirements for specific configuration variables at a later date if deemed necessary after product evaluation by the Traffic Engineering Research Laboratory.

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Comments:

7840104
784 items

With regard to spec 7840104, I would suggest spelling out what the all the acronyms stand for in their first occurrence.
Most are spelled out however, some are not; MFES and NEMA for example.

Response: The document provided for review contains only those sections with proposed modifications. MFES (Managed Field Ethernet Switch) is defined in section 784-1.1, upon its initial use. NEMA is defined in Section 1 of the Standard Specifications for Road and Bridge Construction, so we did not define the acronym at it first occurrence in this Supplemental Specification.

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Comments:
Good afternoon. I realize the documents referenced below are being distributed for industry review and comment however I hope you will consider my informal comments below for your consideration in the final versions.
Have a safe and happy New Year...

Most manufactures offer a GUI (graphical user interface) for local (serial connection) management of field devices. Would a requirement to provide a 32 bit GUI in lieu of a simple command line or 8/16 DOS type menu be of any benefit to (field) technicians? For remote management SunGuide would of course provide the GUI to TMC operators.

Document “Proposed Specification: 7840104 ITS – Network Devices”

Section 784-1.4.1 and other sections containing the acronym “MFES”;
The acronym “MFES” does not appear to be defined within this document (Plain Language Initiative).

784-1.4 Testing:

784-1.4.1 General: Subject the MFES to ~~design approval tests (DATs) and~~ field acceptance tests (FATs). Develop and submit a test plan for ~~DATs and~~ FATs to the Engineer for consideration and approval.

~~The Engineer may accept certification by an independent testing laboratory in lieu of the DATs to satisfy the requirement that certain features and functions have been witnessed and documented as performing satisfactorily. The Contractor shall arrange for~~

Response: The document provided for review contains only those sections with proposed modifications. MFES (Managed Field Ethernet Switch) is defined in section 784-1.1, upon its initial use.

Section 784-3.2 Materials;
The acronyms “DVE” and “DVD” do not appear to be defined within this document (Plain Language Initiative).
Although the terms can be identified in sections 784-3.2.5 and 784-3.2.6, the use of the acronym appears several times prior to this information.

784-3.2 Materials:

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

Response: The document provided for review contains only those sections with proposed modifications. DVE and DVD are both defined in section 784-3.1., upon their initial use.

Section 784-3.2.6.2
The acronym “API” does not appear to be defined within this document (Plain Language Initiative).

784-3.2.5~~6~~.2 Software-based Decoder: Provide a software-based DVD that is compatible with the Department’s SunGuide~~®SM~~ software. Ensure that any software-based decoder applications do not interfere with SunGuide~~®SM~~ software operating when installed and used together on a shared hardware platform. Ensure that the software application provides PC desktop display of IP network video streams and control of any PTZ camera connected to the network. The decoder and PTZ functions may be achieved through the use of discrete software applications. Ensure that the software-based decoder offers an open API and software development kit available to the Department at no cost for integration with third party software and systems.

Response: The definition for API has been added.

Section 784-3.2.14 Environmental Specifications;
The specified temperature ranges are in Fahrenheit where most manufactures seem to list them in Celsius. Is there a need to supply the Celsius information?

Response: The directive from the Specifications Office is that Imperial measurements be used in FDOT documents.

There is no differentiation between hardware or software temperature specifications for the DVD (Digital Video Decoder). If a software DVD does the computer or device hosting the software black box) need to meet these specifications?

operating voltages of less than 120 VAC, supply the appropriate voltage converter.

784-3.2.13~~4~~ Environmental Specifications: Except as may be stated otherwise in the plans, provide DVEs and DVDs that meet all specifications during and after being subjected to an ambient operating temperature range of -30 degrees (°) to 165° Fahrenheit (F) as defined in the environmental requirements section of the NEMA TS 2 standard, with a maximum non-condensing relative humidity of 95%.

Ensure that cabinets housing system components comply with the environmental requirements detailed in the NEMA TS 2 standard. House the DVE in a field cabinet with protection from moisture and airborne contaminants, blowing rain, wind, blowing sand, blowing dust, humidity, roadside pollutants, vandalism, and theft. Ensure that the DVE is resistant to vibration and shock, and conforms to Sections 2.1.9 and 2.1.10, respectively, of the NEMA TS 2 standard.

Ensure that a DVD installed in a climate-controlled environment, such as a TMC computer room, meets all specifications during and after being subjected to an ambient operating temperature range of 32 degrees (°) to 113° Fahrenheit (F).

Example of broadcast encoder cut sheet below (ref http://www.logici.com/docs/MSE-2200.pdf)

Operating Conditions
Operating temperature range: 0 to 50° C (32 to 122° F)
Non-operating/storage: -40 to 70° C (-40 to 158° F)
Relative humidity non-operating: 95% at 30° C (86° F) non-condensing
Max. acoustic emissions: 56 dB

Response: Document modified for clarification. Hardware DVD environmental requirements are specified. Ranges differ if DVD is to be installed in air conditioned environment rather than roadside cabinet.

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