

# Origination Form

## Specifications

<b>Name:</b>	Ronald Meyer	<b>Specification Number:</b>	684-2.1, 684-2.5, 684-2.7, 684-4.5, 684-4.6, 684-6, 684-7
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<b>Date:</b>	2024-06-30T13:39:16Z	<b>Verified:</b>	VERIFIED

### Summary:

The proposed changes remove requirements for obsolete technology (i.e., DVE and DVD) and add requirements for wireless communication systems and cellular modems.

### Justification:

Standalone video encoders and decoders are no longer common and use of current technology (i.e., IP cameras with built-in encoding, etc.) is recommended. There is also a need to introduce standardized requirements for wireless communication systems and cellular modems to reduce the need for repeated project TSPs and MSPs.

### Do the changes affect other types of specifications?

Neither

### List Specifications Affected:

Other Affected Documents/Offices	Contacted	Yes/No
Other Standard Plans		No
Florida Design Manual		No
Structures Manual		No
Basis of Estimates Manual	Ryan Gray	Yes
Approved Product List	Melissa Hollis	Yes
Construction Office		No
Maintenance Office		No
Materials Manual		No

**Are changes in line with promoting and making progress on improving safety, enhancing mobility, inspiring innovation, and fostering talent; explain how?**

Yes. Changes reflect stakeholder needs, advancement of technology, and improve consistency of specification content.

**What financial impact does the change have; project costs, pay item structure, or consultant fees?**

Pay item structure will need to be updated and expanded to accommodate introduction of new devices.

**What impact does the change have on production or construction schedules?**

No expected impacts to production or construction schedules.

**How does this change improve efficiency or quality?**

Changes improve efficiency and quality by incorporating technical content that will reduce the need for project specific TSPs and MSPs, provide consistency with similar requirements, and follow standardized formatting styles.

**Which FDOT offices does the change impact?**

Traffic Engineering and Operations

**What is the impact to districts with this change?**

The number of MSPs and TSPs required to incorporate wireless communication systems or cellular modems within project requirements should be reduced.

**Does the change shift risk and to who?**

No expected shift in risk.

**Provide summary and resolution of any outstanding comments from the districts or industry.**

Comments and Responses are available on the Track the Status of Revisions hyperlink located on the Specifications landing page: <https://www.fdot.gov/programmanagement/Specs.shtm>

**What is the communication plan?**

Through the established specification revision process (e.g., Internal and Industry Review)

**What is the schedule for implementation?**

The Standard Specifications eBook and Workbook are effective July 1st every year.

**NETWORK DEVICES**  
**(REV 6-30-24)**

SUBARTICLE 684-2.1 is deleted and the following substituted:

**684-2.1 General:** Meet the following requirements:

Managed Field Ethernet Switch* .....	Section 996
Managed Hub Ethernet Switch .....	Section 996
Device Server* .....	Section 996
<u>Digital Video Encoder*</u> .....	<u>Section 996</u>
<u>Digital Video Decoder*</u> .....	<u>Section 996</u>
<u>Wireless Communication System*</u> .....	<u>Section 996</u>
Media Converter* .....	Section 996
<u>Cellular Modem*</u> .....	<u>Section 996</u>

\*Use products listed on the Department's APL.

SUBARTICLE 684-2.5 is deleted and the following substituted:

~~**684-2.5 Digital Video Encoder and Decoder:** Ensure that the complete video and data transmission system, defined as the combination of digital video encoder (DVE) and digital video decoder (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.~~

~~Provide a software decoding and control package that allows the viewing of any video source connected to the network through a DVE, and which allows the pan tilt zoom (PTZ) control of any PTZ camera on the network, the discovery of DVE and DVD devices on the network, and the control and adjustment of programmable parameters in the DVE and DVD equipment, including the network addresses of these devices, at no additional cost.~~

~~**684-2.5.1 Digital Video Decoder:** Provide a DVD that is either a hardware-based network device or a software application that resides on a workstation PC. Ensure that the software application provides PC desktop display of IP network video streams.~~

~~Provide all setup, control programs, and diagnostic software related to the DVE or DVD.~~

~~Provide all equipment licenses, where required for any software or hardware in the system.~~

~~Ensure that any software-based decoder applications do not interfere with SunGuide® software operating when installed and used together on a shared hardware platform. Ensure that the software-based decoder offers an open Application Programming Interface (API) and software development kit available to the Department at no cost for integration with third party software and systems.~~

~~**684-2.5.2 Interoperability:** Provide DVE and DVD devices and software that are interoperable and interchangeable with DVE and DVD devices and software from other manufacturers.~~

~~**684-2.5.3 Network Interface:** Ensure that fiber ports are single mode with a minimum link budget of 30 dB or the type and power detailed in the Contract Documents.~~

**684-2.5 Wireless Communication System:** The wireless communication system (WCS) must provide connectivity between devices, systems, and locations as required by the Contract Documents. Ensure that the WCS is fully compatible and interoperable with connected Ethernet devices and the traffic control system network.

SUBARTICLE 684-2 is expanded by the following:

**684-2.7 Cellular Modem:** The cellular modem must provide connectivity between devices, systems, and locations as required by the Contract Documents. Ensure that the cellular modem is fully compatible and interoperable with connected Ethernet devices and the traffic control system network. Coordinate cellular services, network configuration, and settings for cellular modems with the Department a minimum of thirty (30) days prior to scheduled installation.

SUBARTICLE 684-4.5 is deleted and the following substituted:

**684-4.5 ~~DVE and DVD~~ Wireless Communication System Field Acceptance Testing:** Conduct inspection and testing at the installed equipment location according to the approved test plan. Perform the following:

1. Verify that physical construction has been completed as detailed in the Plans.
2. Inspect the quality and tightness of ground and surge protector connections.
3. Verify proper voltages for all power supplies and related power circuits.
4. Connect devices to the power sources.
5. Verify all connections, including correct installation of communication and power cables.
6. Verify ~~video image is present and free from oversaturation and any other image defect in both color and monochrome mode~~ all device settings comply with the network configurations and settings provided by the Department using a laptop PC.
7. Verify ~~network connection to the DVE and DVD through ping and telnet session from a remote PC.~~ connectivity and data exchange between the WCS, connected devices, and the traffic control network.
- ~~8. Verify serial data transmission through the DVE and DVD serial ports.~~
- ~~9. Verify support of unicast, multicast, and SAP.~~

684-4 is expanded by the following:

**684-4.6 Cellular Modem Field Acceptance Testing:** Conduct inspection and testing at the installed equipment location according to the approved test plan. Perform the following:

1. Verify that physical construction has been completed as detailed in the Plans.
2. Inspect the quality and tightness of ground and surge protector connections.
3. Verify proper voltages for all power supplies and related power circuits.
4. Connect devices to the power sources.
5. Verify all connections, including correct installation of communication and power cables.

6. Verify all device settings comply with the network configurations and settings provided by the Department using a laptop PC.

7. Verify connectivity and data exchange between the cellular modem, connected devices, and the traffic control network.

ARTICLE 684-6 is deleted and the following substituted:

**684-6 Method of Measurement.**

The Contract unit price for each network device, furnished and installed, will include furnishing, placement, and testing of all equipment and materials, and for all tools, labor, hardware, operational software packages and firmware, supplies, support, personnel training, shop drawings, documentation, and incidentals necessary to complete the work.

~~Provide software based decoders at no additional cost when furnished in conjunction with DVEs.~~

~~A software based DVD provided individually must be paid under the pay item below.~~

ARTICLE 684-7 is deleted and the following substituted:

**684-7 Basis of Payment.**

Price and payment will be full compensation for all work specified in this Section.

Payment will be made under:

Item No. 684- 1- Managed Field Ethernet Switch-each.

Item No. 684- 2- Device Server-each.

~~Item No. 684- 3- Digital Video Encoder with Software Decoder each.~~

~~Item No. 684- 4- Digital Video Decoder each.~~

Item No. 684- 5- Media Converter-each.

Item No. 684- 6- Wireless Communication System Device-each.

Item No. 684- 7- Managed Hub Ethernet Switch-each

Item No. 684- 8- Cellular Modem-each