SPECIFICATIONS:

NOTATION
Cepoint's DVR are custom built per specifications and requested documentations are not available (N/A).

1. Environment

1.1 Altitude (Pressure): The recorder shall be capable of operation in an un-pressurized environment, ascending from sea level to 48,000 feet Above Sea Level (ASL) and descending back to sea level at a maximum change rate of 32.8 ft/sec. The accepted testing method for low pressure operation shall be MIL-STD-810G Method 500.5 Procedure II – Operation/Air Carriage or equivalent.
"Meets"
Cepoint AVR meets this requirement.

1.2 Temperature: The recorder shall be operable in temperatures ranging from -40 deg C to +70 deg C. The accepted testing method for high temperature shall be MIL-STD-810G Method 501.5 Procedure II – Operation or equivalent. The accepted testing method for low temperature shall be MIL-STD-810G Method 502.5 Procedure II – Operation or equivalent.
"Meets"
Cepoint AVR meets this requirement

1.3 Humidity: The recorder shall be operable within a 0% to 95% relative, non-condensing air humidity environment. The accepted testing method for humidity shall be MIL-STD-810G Method 507.5 Procedure II – Aggravated or equivalent.
"Meets"
Cepoint AVR meets this requirement

1.4 Acceleration: The recorder shall be operable when subjected to the acceleration levels specified in MIL-STD-810G Table 513.6-II for Aircraft application. The accepted testing method for acceleration shall be MIL-STD-810G Method 513.6 Procedure II – Operational Test or equivalent. **"Meets"**

Cepoint AVR meets this requirement

1.5 Vibration: The recorder shall be operable within an operational jet aircraft vibration environment as installed materiel. Vibration exposure levels shall conform to the guidance provided in MIL-STD-810G Method 514.6 Annex D Table 514.6D-I with WO = 0.083 G2/Hz. The accepted testing method for vibration shall be MIL-STD-810G Method 514.6 Procedure I General Vibration or equivalent. **"Meets"**

Cepoint AVR meets this requirement

1.6 Operational Shock: The recorder shall be operable when subjected to a Shock Response Spectrum specified in MIL-STD-810G Figure 516.6-8 Functional Test for Flight Equipment in each axis. The test waveform Effective Transient (Te) duration shall not exceed 15-23 milli-seconds, as specified in Table 516.5-I for Functional Test for Flight Equipment. The accepted testing method for shock shall be MIL-STD-810G Method 516.6 Procedure I – Functional Shock or equivalent. **"Meets"**

Cepoint AVR meets this requirement

1.7 Electro-Magnetic Compatibility (EMC): The recorder's conducted and radiated electromagnetic emissions must be sufficiently benign for unrestricted operation on aircraft when installed as recommended by the manufacturer. The equipment must comply with the requirements of MIL-STD-461E CE102 (Conducted Emissions) and RE102 (Radiated Emissions) or equivalent. **"Meets"**

Cepoint AVR meets this requirement

2 System Effectiveness Requirements

2.1 Successful Previous Applications: The contractor must demonstrate that the recorder is proven off-the-shelf equipment with a history of successful on-aircraft usage. **"Meets, N/A"**

Cepoint AVR meets this requirement. N/A

2.2 Warranty: The contractor shall provide comprehensive parts and service warranty coverage for a minimum of one year following acceptance. **"Meets"**

Cepoint AVR meets this requirement

3 Digital Video Recorder: The recorder must meet the requirements outlined below:

3.1 Video: The recorder must have at least one video input. All video inputs must meet the specifications below: **"Meets"**

Cepoint AVR meets this requirement

3.1.1 Interface: Connectors must be positive locking employing bayonet (e.g. BNC), screw-anchored (e.g. D-connectors), or threaded coupling systems **"Meets"**

Cepoint AVR meets this requirement (BNC)

3.1.2 Input Format: The recorder must be able to accept an NTSC signal at 29.97 frames per second for each video input **"Meets"**

Cepoint AVR meets this requirement

3.1.3 Input Impedance: Input impedance for the video signal input line must be 75 Ohms **"Meets"**

Cepoint AVR meets this requirement

3.1.4 Video Compression: The recorder shall use one or more of the following compression methods: MPEG-2, MPEG-4, H.264, Motion JPEG2000 **"Meets"**

Cepoint AVR meets this requirement

3.1.5 Compression level: The video compression settings shall be configurable to control quality and length of recording **"Meets"**

Cepoint AVR meets this requirement

3.1.6 Pixel resolution: Recorder must allow minimum resolution width of 720 pixels and minimum resolution height of 480 pixels **"Meets"**

Cepoint AVR meets this requirement

3.1.7 File format: The video file generated by the recorder shall be playable without needing conversion with proprietary software by at least one of following media players: VLC, Windows Media player, QuickTime
Cepoint AVR meets this requirement

3.2 Audio: The recorder must have at least one audio input. All audio inputs must meet these specifications: **"Meets"**

Cepoint AVR meets this requirement

3.2.1 Interface: Connectors must be positive locking employing bayonet (e.g. BNC), screw-anchored (e.g. D-connectors), or threaded coupling systems **"Meets"**

Cepoint AVR meets this requirement (BNC)

3.2.2 Input Impedance: Audio input line must allow 600 ohms or more impedance **"Meets"**

Cepoint AVR meets this requirement

3.2.3 Input level: Must accept line level audio up to 1 volt RMS (Root-Mean-Square) **"Meets"**

Cepoint AVR meets this requirement

3.3 Control inputs: Must allow remote control inputs for record-start, record-stop, and event-mark **"Meets"**

Cepoint AVR meets this requirement

3.4 Status indicators: Must have indicators (e.g. LED) to monitor recording status **"Meets"**

Cepoint AVR meets this requirement

3.5 Power Supply: The recorder must accept an input voltage range of 28 VDC ±4 VDC **"Meets"**

Cepoint AVR meets this requirement

3.6 Power consumption: The recorder must not consume more than 20 Watts power in normal **"Meets"**
Cepoint AVR meets this requirement

3.7 Power loss: In case of loss of power during a recording session, there shall be no loss of recording prior to the moment of the power loss **"Meets"**

Cepoint AVR meets this requirement
3.8 Data Security: No classified data shall remain onboard the recorder once the removable storage media has been removed. There shall be no data written to memory that is non-removable and non-volatile **"Meets"**

Cepoint AVR meets this requirement

3.9 Programming Interface: The programming connection interface shall be RS232/422, USB, Firewire, or Ethernet **"Meets"**

Cepoint AVR meets this requirement (RS232/422, USB or Ethernet)

3.10 Software licensing: Any proprietary software provided by the contractor shall be deployable to at least five computers and allow simultaneous usage of the software on all computers it is installed on **"Meets"**

Cepoint AVR meets this requirement

3.11 Time synchronization: The recorder shall accept an IRIG-B time signal and must synchronize the video frame's time stamps with this input time signal **"Meets"**

Cepoint AVR meets this requirement

3.12 Time stamping: The recorder must be able to stamp consecutive time on each frame of the Video **"Meets"**

Cepoint AVR meets this requirement

3.13 Time stamp display: The recorder shall have the option to move or turn off the time stamp display in the video **"Meets"**

Cepoint AVR meets this requirement

3.14 Mechanical Interface: The recorder must include mounting flanges with fastener holes to facilitate attachment of the unit to an FTI pallet. **"Meets"**

Cepoint AVR meets this requirement

3.15 Dimensions: The recorder (including mounting flanges and storage media) must physically fit into a space no larger than 6.5" W x 6.5" D x 2.75" H. **" Doesn't Meet"**
Exception: Cepoint AVR with specified features will be 8.4" W x 9.4" D x 3.7" H

3.16 Weight: The recorder weight (including storage media), with all necessary modules (if applicable), shall not exceed 5 lbs **"Doesn't Meet"**
Exception: Cepoint AVR with specified features will be around 12.4lbs

3.17 Event marking: The recorder shall have the ability to mark events while actively recording Video **"Meets"**

Cepoint AVR meets this requirement

3.18 Event browsing: The contractor shall provide video playback software with ability to browse to any of the marked events **"Meets"**

Cepoint AVR meets this requirement

Storage media

The storage media must meet following specifications:

1 General: The storage media must meet the same altitude, temperature, vibration, operational shock and humidity specifications as the recorder specifications covered under section 1 – Environment **"Meets"**

Cepoint AVR meets this requirement

2 Storage capacity: The storage media must have enough capacity to allow simultaneous recording of video, audio and time for at least 120 minutes with a compression ratio of 6:1 or lower compared to raw uncompressed video under the following settings:
Frame size: 720p wide by 480p tall (p=pixels)
Frames per sec: 30 FPS (interlaced)
Pixels/colour: 16 pixels **"Meets"**

Cepoint AVR meets this requirement

3 Media Format: Acceptable storage media shall include Compact Flash cards and non-volatile Solid State Disks **"Meets"**

Cepoint AVR meets this requirement

4 Removal: Storage media must be removable and replaceable while the recorder is mounted **"Meets"**

Cepoint AVR meets this requirement

5 Storage media interface: The contractor must provide a device reader or interface cable and required drivers to connect the storage media or recorder to a standard USB 2.0 port on a computer running Windows XP or later Windows operating system
"Meets"

Cepoint AVR meets this requirement

Acronyms

AETE – Aerospace Engineering Test Establishment
DC – Direct Current
EMC – Electromagnetic Compatibility
FTI – Flight Test Instrumentation
GB – Giga Bytes
GPS – Global Positioning System
IRIG – Inter-Range Instrumentation Group
JPEG – Joint Photographic Experts Group
MPEG – Moving Picture Experts Group
NTSC – National Television Systems Committee
VDC – Volts Direct Current
VCR – Video Cassette Recorder
RMS – Root Mean Square
LED – Light Emitting Diode

NOTATION:

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