High-Speed Ruggedized LVDS Video and Data Recording Device

**General Information**
The DDC Video and Advanced Data Recorder (VAADR) records real-time video in ruggedized applications, accommodating high frame-rate, 16-bit high-resolution imagery and/or data. Capture RAW or compressed imagery, as well as associated meta-data. The RAW imagery recording and associated playback allows unprecedented advanced image analysis and processing during debriefing. The unit provides multiple channels, with mixed record/playback, a variety of conventional digital video controls, and a mix of very advanced image analysis and processing during playback. Additionally, it handles metadata acquisition, synchronization, management, and output to display.

**Features and Capabilities**
- Records LVDS cameras and data
- Simultaneous recording and playback of multiple channels
- No debriefing station required, just a PC or laptop
- High bandwidth extraction via USB3.0
- Record RAW or compressed data
- Ruggedized for military use
- Optional chem-film
- Plug-and-play USB2.0 and USB3.0
- Instant access to your video and data
- View recorded video with third-party applications
- Optional VAADRVi ew provides instant access to the video to block out sensitive information, bookmark video, and export video to various formats

**Applications**
This unit can record almost any FLIR/CCD camera, sensor, or other video source, while providing instant access to the data during playback, as well as world-class image processing/enhancement. As a result, it offers many advantages in multiple applications:
- Space
- Military or commercial airborne recording
- Ground vehicle recording
- Reconnaissance
- UAV
- Mission training
- Hostile environments
- Medical
- Research
- Camera characterization
- Industrial

DDC-VAADR2-RWM-512-001
Interfaces

| Input Power | 12V - 28V |
| Interfaces | USB 3.0 (if required) | VAADRLink |
| Ports | 4 RX pairs | 4 TX pairs LVDS / HSTLII | 4 Bidirectional XAUI lanes (if required) |

Environmental / Physical

| Dimensions | 6.5” x 4.7” x 1.4” |
| Temperature | -40° to +60°C (ambient operation) | Built-in temperature monitor |
| Operational Envelope | 7.5G Envelope |
| | • Vertical Maneuver: 7.5G max in operating mode and storage |
| | • Altitude: 40K ft in operating mode / 50K ft in storage |
| Power | < 20 W at 12V |
| Mechanical Shock | Method 516.5, in opposite directions along each of three orthogonal axes, with waveform / amplitude of shock impulse characteristics: |
| | • Operating: ±20 G |
| | • All shocks: half sine pulses |
| | • All three axes: 11 milliseconds duration |
| Vibration | Method 514.5, Procedure 1 |

VAADR MIL-K7 Models Available

- DDC-VAADR2-RWM-512-001 (512GB)
- DDC-VAADR2-RWM-1T-001 (1TB)
- DDC-VAADR2-RWM-2T-001 (2TB)
- DDC-VAADR2-RWM-4T-001 (4TB)

VAADR MIL-K7 Example Record Times

<table>
<thead>
<tr>
<th>Video</th>
<th>RS-170 (74 Mbps)</th>
<th>640x480 16 bit at 30 fps (147 Mbps)</th>
<th>720p 16 bit at 60 fps (885 Mbps)</th>
<th>1024x1024 16 bit at 30 fps (503 Mbps)</th>
<th>1024x1024 16 bit at 60 fps (1.01 Gbps)</th>
<th>1080i 16 bit at 30 fps (995 Mbps)</th>
<th>1080p 16 bit at 60 fps (1.99 Gbps)</th>
<th>4K 16 bit at 30 fps (4.25 Gbps)</th>
<th>4K 16 bit at 60 fps (8.49 Gbps)</th>
</tr>
</thead>
<tbody>
<tr>
<td>RAW</td>
<td>MPEG2</td>
<td>RAW</td>
<td>RAW</td>
<td>RAW</td>
<td>RAW</td>
<td>RAW</td>
<td>RAW</td>
<td>RAW</td>
<td>RAW</td>
</tr>
<tr>
<td>512 GB</td>
<td>16h</td>
<td>8.2d</td>
<td>8.2h</td>
<td>4.1d</td>
<td>1.3h</td>
<td>16h</td>
<td>2.4h</td>
<td>29h</td>
<td>1.2h</td>
</tr>
<tr>
<td>1 TB</td>
<td>32h</td>
<td>16.1d</td>
<td>16h</td>
<td>8d</td>
<td>2.7h</td>
<td>32h</td>
<td>4.7h</td>
<td>2.3d</td>
<td>2.3h</td>
</tr>
<tr>
<td>2 TB</td>
<td>2.6d</td>
<td>32.3d</td>
<td>32h</td>
<td>16.1d</td>
<td>5.3h</td>
<td>2.6d</td>
<td>9.4h</td>
<td>4.7d</td>
<td>4.7h</td>
</tr>
<tr>
<td>4 TB</td>
<td>5.3d</td>
<td>64.7d</td>
<td>2.7d</td>
<td>32.3d</td>
<td>10h</td>
<td>5.3d</td>
<td>18h</td>
<td>9.4d</td>
<td>9.4h</td>
</tr>
</tbody>
</table>

*Table assumes a compression factor of 12. Larger compression factors of 25 or beyond are possible, but will affect video quality.*
VAADRView Console and Debriefing Software

Running on almost any PC or laptop, and directly connecting to VAADR hardware via USB, the VAADRView application can **instantly** open up (or drag and drop) all VAADR video and data. Use the console to pan, play, single-step, fast-forward, rewind while zoomed, or simultaneous with other contrast analysis or processing operations. The functionality of the application works on VAADR or other imagery, RAW or compressed.

**Multiple Videos**
- Supports multiple videos loaded simultaneously, for side-by-side comparison
- Analyze differences between any frame from one video and any frame from another video

**Processing**
- Dynamic controls for zoom, contrast, rotation, flip, brightness, LAP, sharpen, histogram stretch, AGC, invert, color corrections, interpolate, white hot / black hot, various filters, thresholding, etc.
- RAW video untouched, despite the processing done to enhance the playback
- Supports plugins
- Statistical and histogram analysis to analyze and detect defects or oddities in your sensor
- Declassify mode for black-boxing selected areas

**MetaData**
- Animates 3D projection onto Google Earth and NASA World Wind in real time using collected metadata
- Displays metadata simultaneously alongside footage

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