SPIE Annual Meeting 2002

Field Tests of Error-Resilient 3-D SPIHT vs. MPEG-2

Experimental Results

Sungdae Cho
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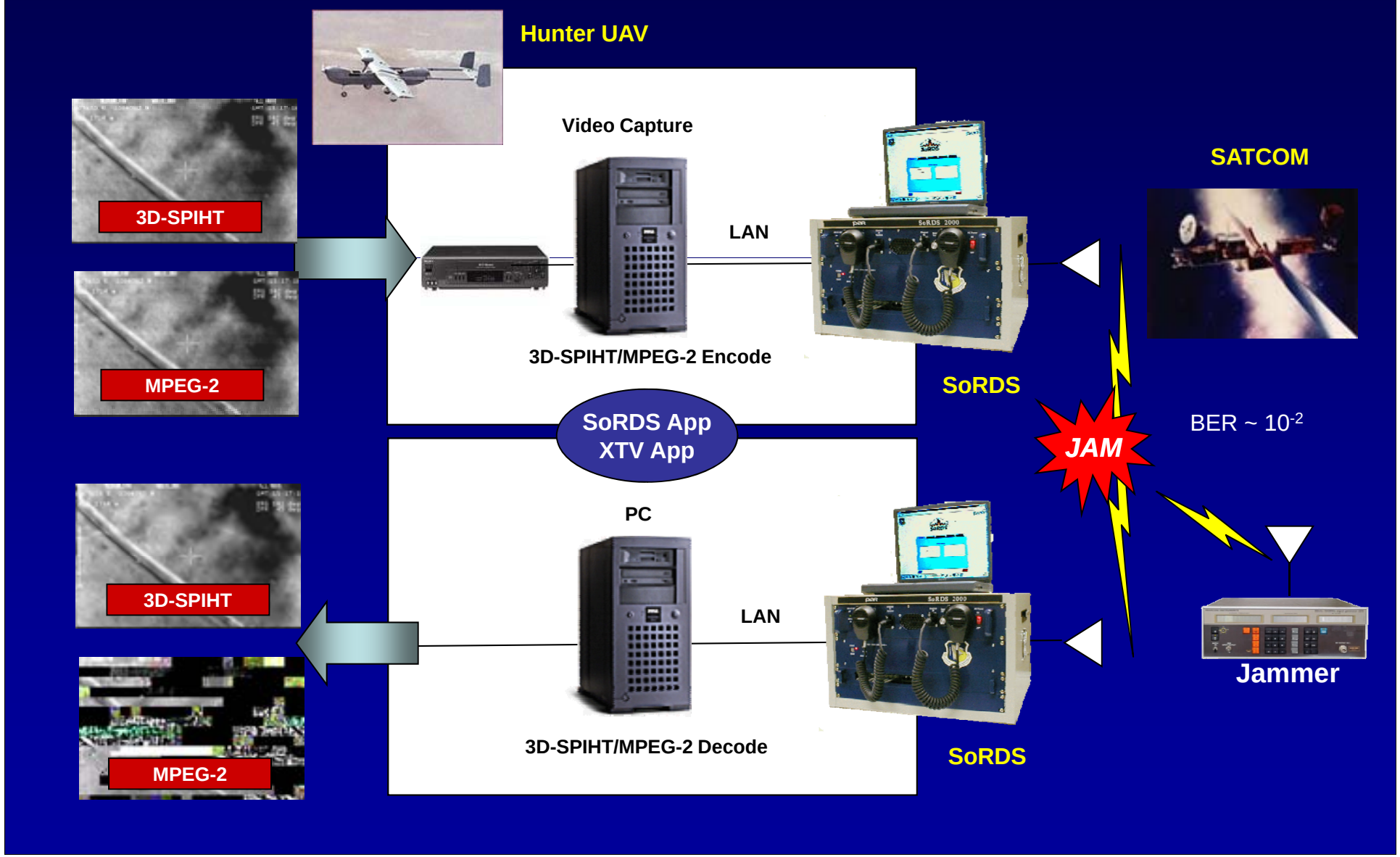
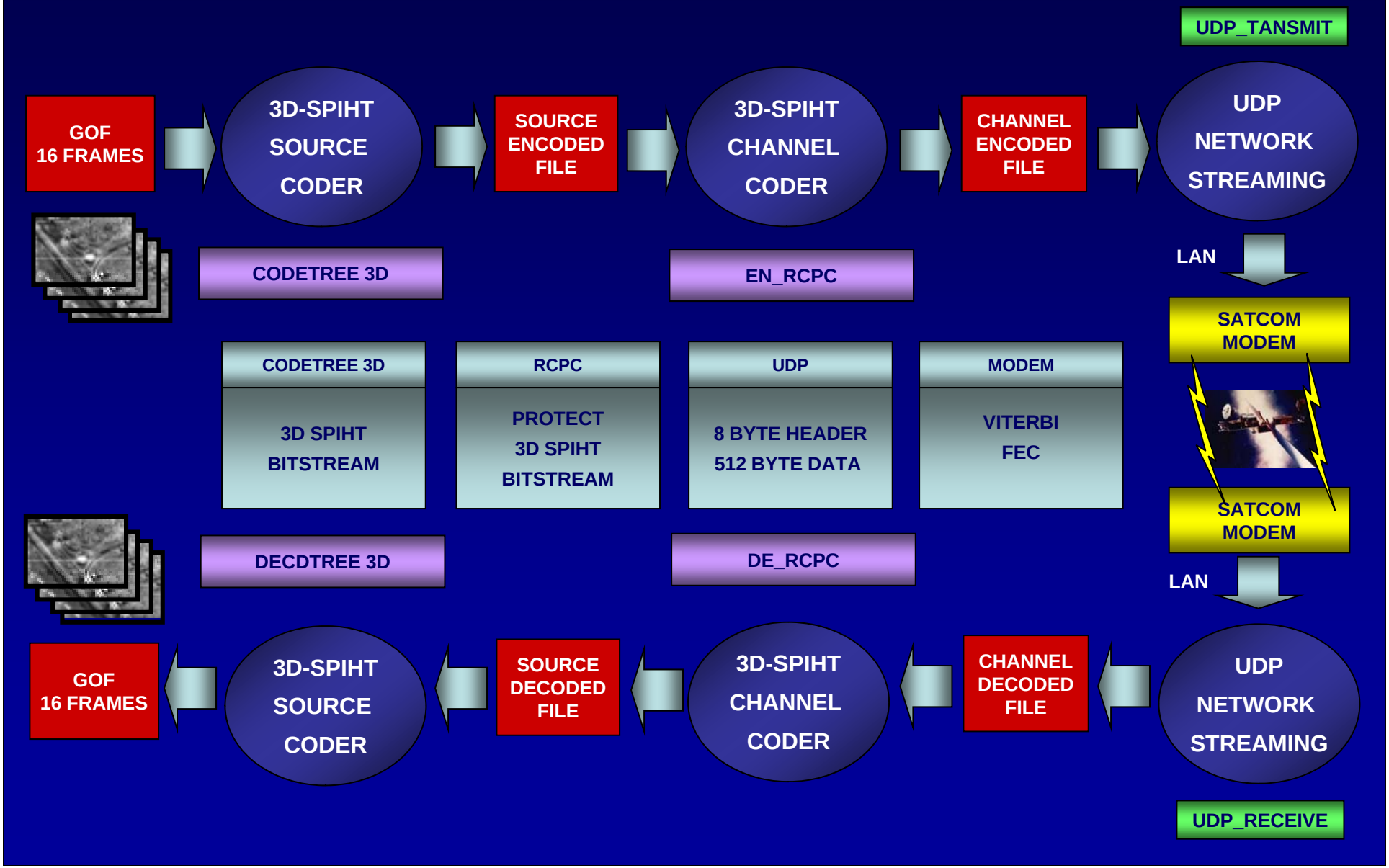
Experimental Setup and Data Collection Procedure

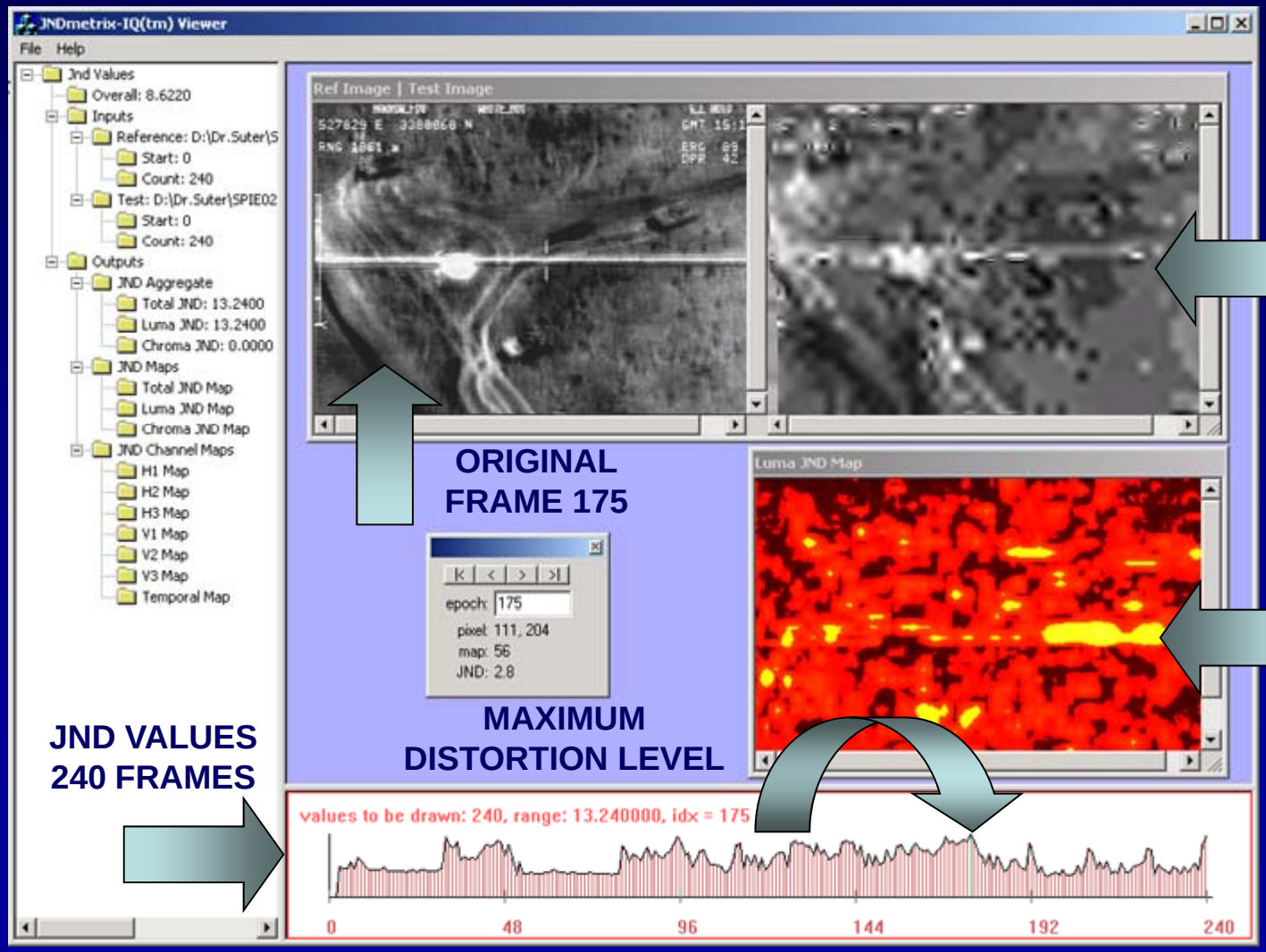


3D-SPIHT (ERC-SPIHT)
Field Test Framework



JNDmetrix-IQ Analysis Results
3D-SPIHT (ERC-SPIHT)

VIDEO QUALITY MEASUREMENT DATA



3D-SPIHT IMAGE

ORIGINAL FRAME 175

DISTORTION MAP

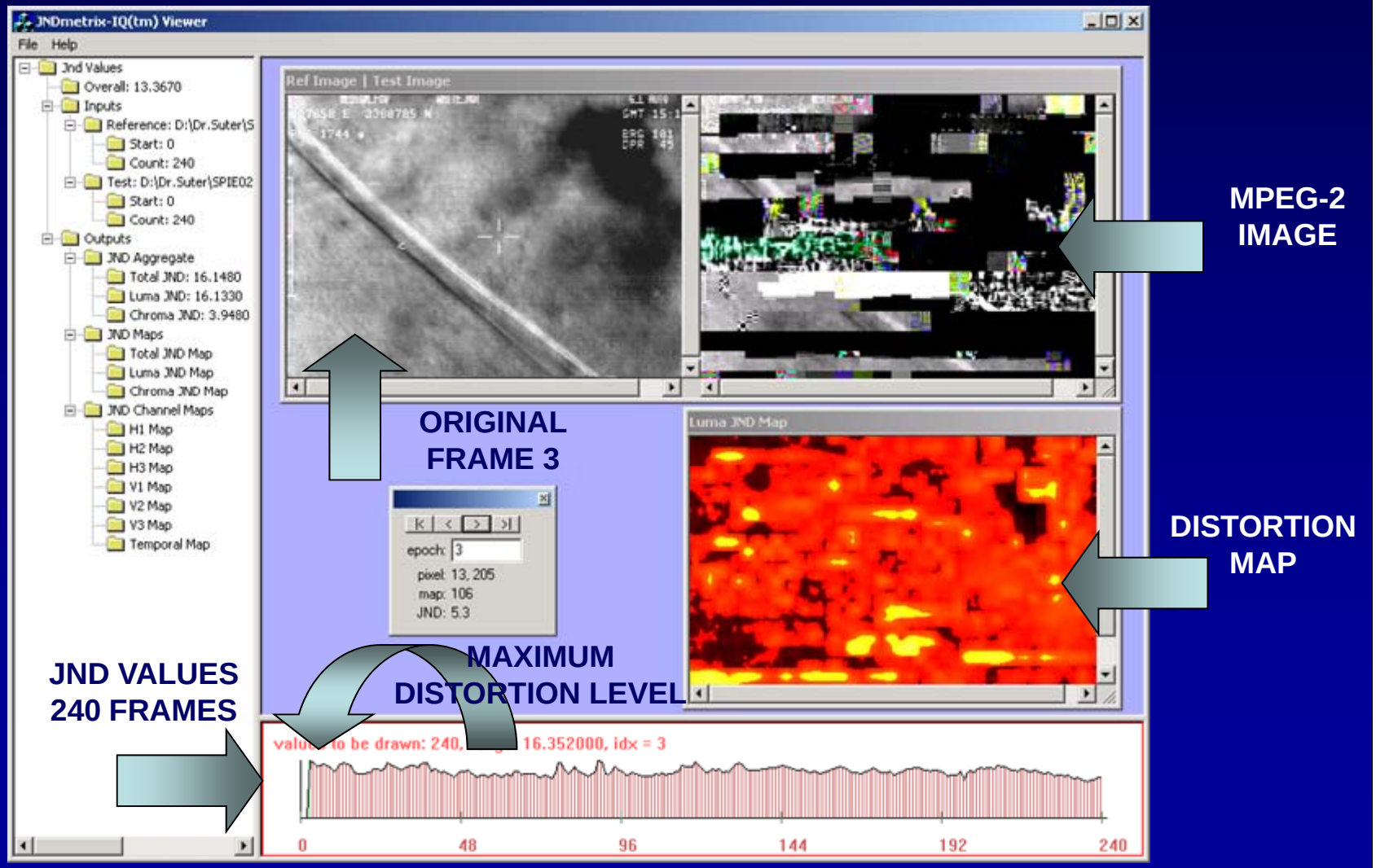
MAXIMUM DISTORTION LEVEL

JND VALUES 240 FRAMES

JNDmetrix-IQ Analysis Results

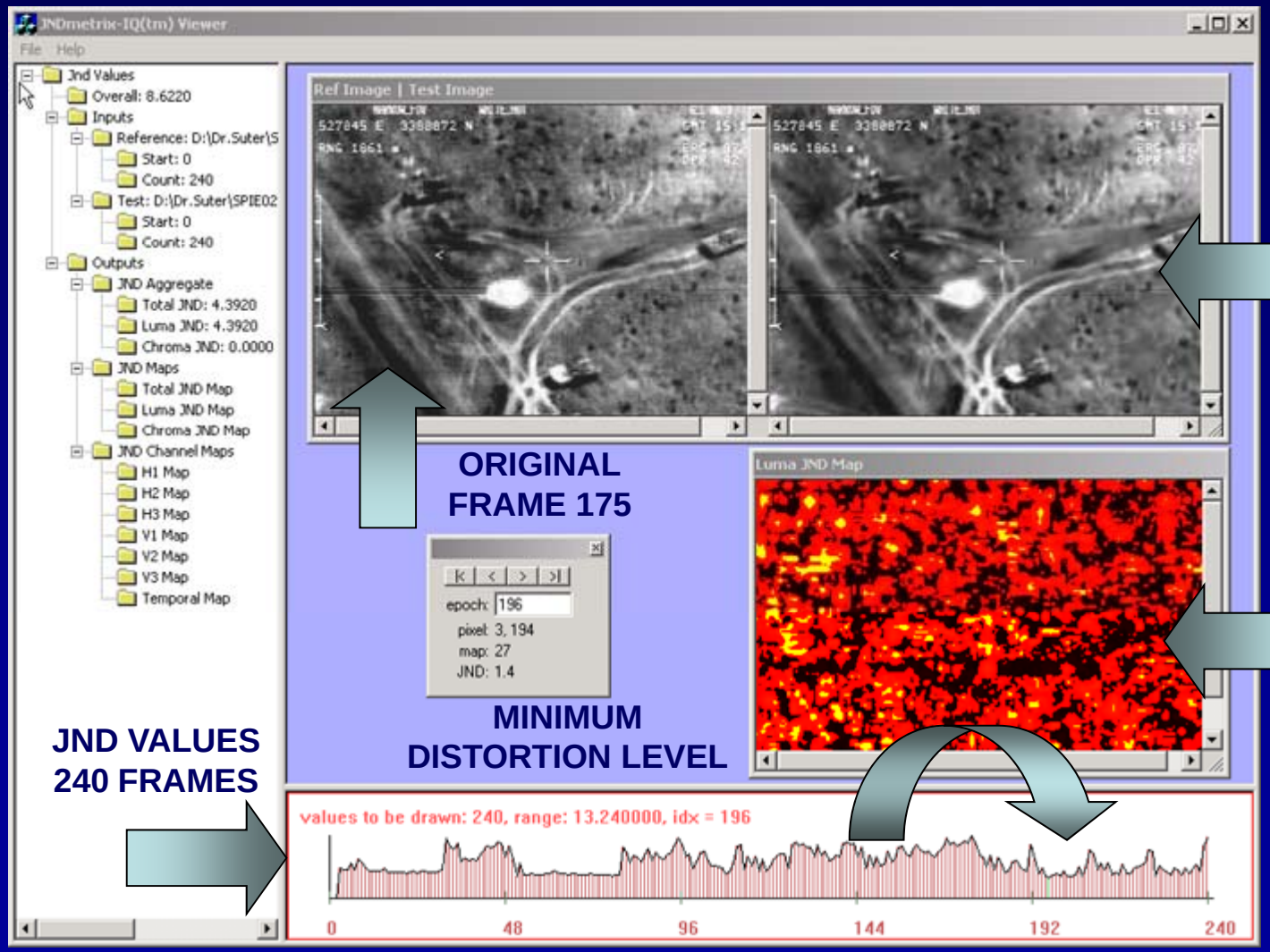
MPEG-2

VIDEO QUALITY MEASUREMENT DATA



JNDmetrix-IQ Analysis Results
3D-SPIHT (ERC-SPIHT)

VIDEO QUALITY MEASUREMENT DATA



3D-SPIHT IMAGE

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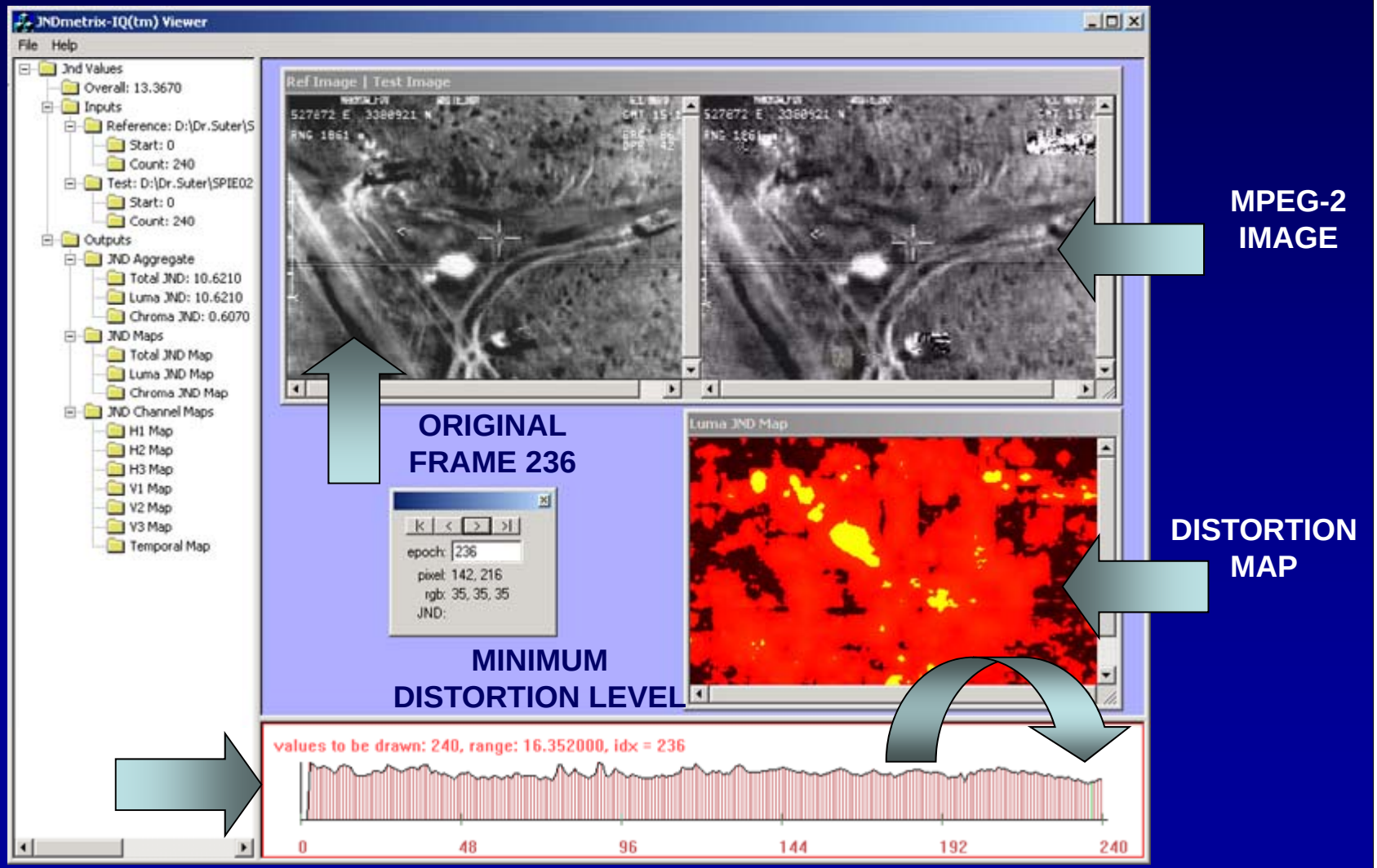
VIDEO QUALITY MEASUREMENT DATA



Corrupted Video Sequences
3-D SPIHT vs. MPEG-2

3-D SPIHT

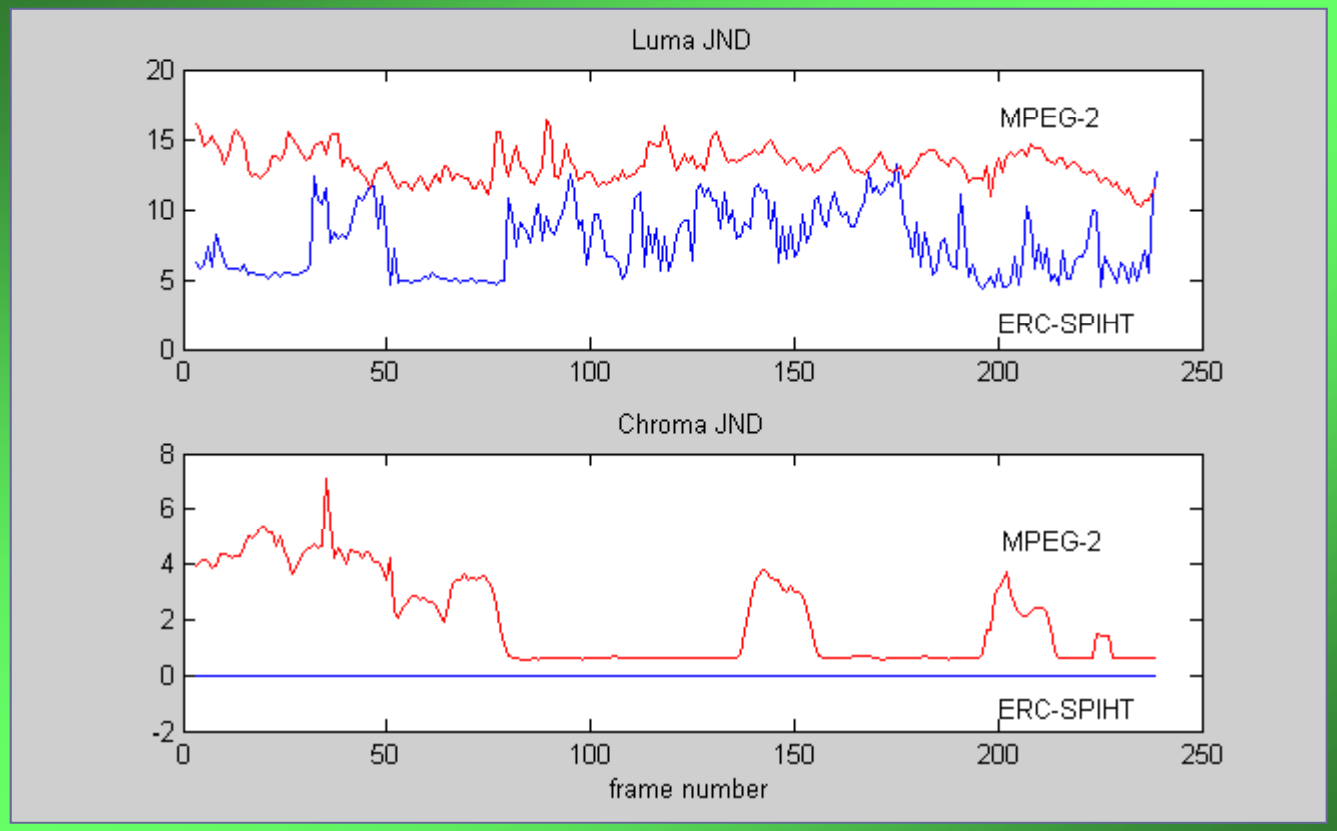
Frame 156:179

MPEG-2

Frame 1:24

JNDmetrix-IQ Analysis Results
3D-SPIHT (ERC-SPIHT) vs. MPEG-2

VIDEO QUALITY MEASUREMENT DATA



Video Sequences
Original vs. 3D-SPIHT

ORIGINAL

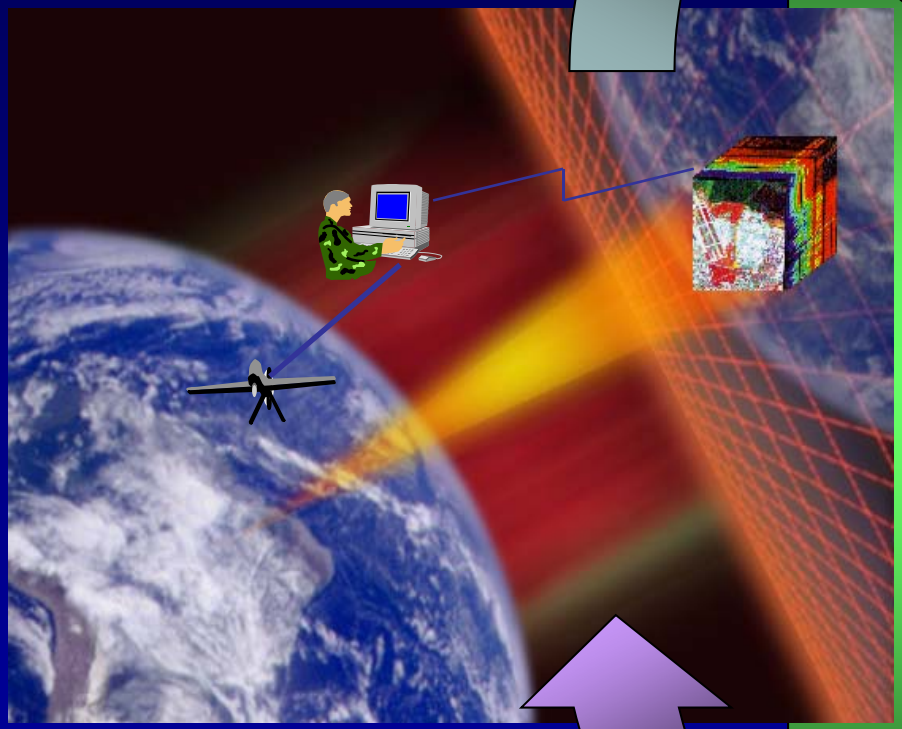
3D-SPIHT

Video Sequences
Original vs. MPEG-2

ORIGINAL

MPEG-2

CONCLUSION



Superior Performance of Error-Resilient 3-D SPIHT over MPEG-2

<u>ERC-SPIHT</u>

Interleaved tree blocks provide

- **Error resilience/recovery**
- **Coding efficiency**

<u>MPEG-2 with FEC</u>

Burst of packet erasures or decoding failure