RIDLE

Data Sheet

Context

- Wireless transmission of images/videos is an essential capability in many applications.
- Resilience is required to maintain integrity of the transmitted data in the harshest environments.
- Mission critical situations demand confident decision-making.

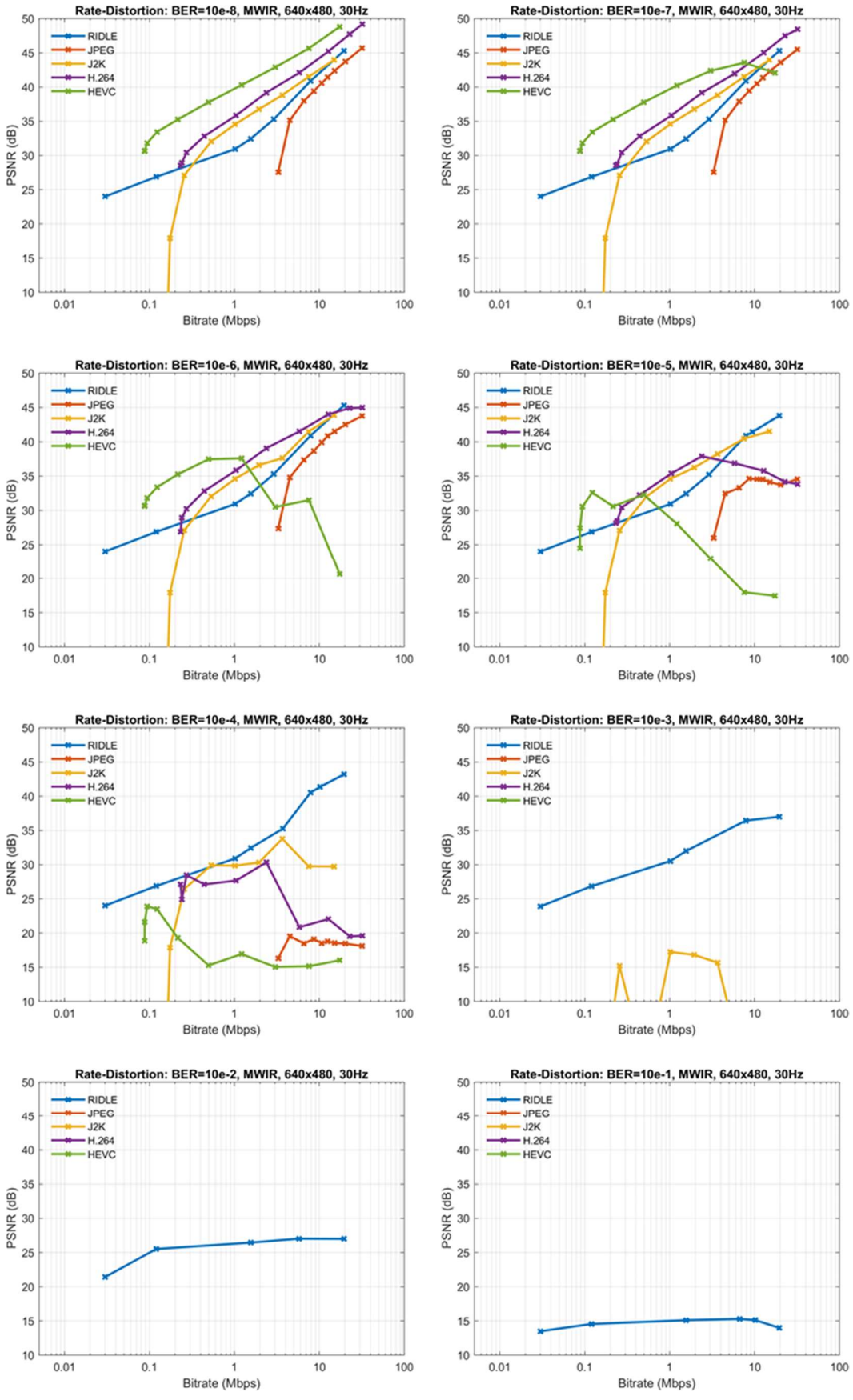
Benchmarked Codecs

- RIDLE – baseline model with varying block size, quantization and resilience settings.
- JPEG – MATLAB version with default parameters. Quality factor is varied.
- JPEG2000 – MATLAB version with default parameters. Compression ratios are varied.
- H.264 – x264 ffmpeg 4.0 version with main profile and constrained intra. Target bitrate varied. Slow Preset.
- HEVC – x265 ffmpeg 4.0 with main (v2) profile and constrained intra. Target bitrate varied. Slow Preset.

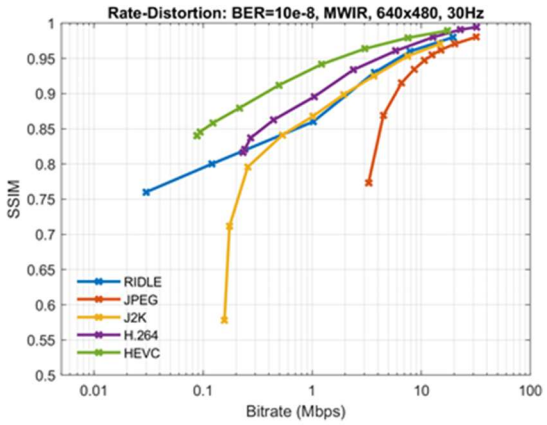
Video Test Sequence

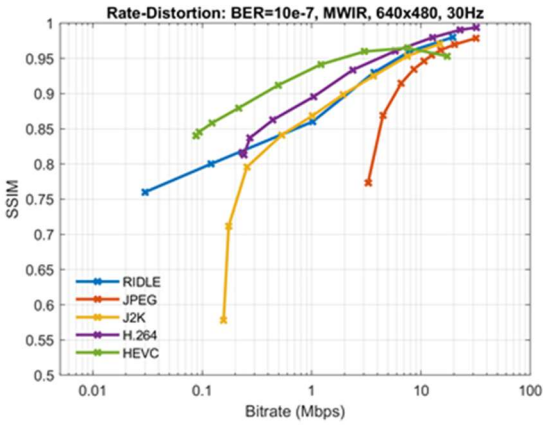
- Single channel Long-Wave Infrared (LWIR) 8-bit depth imagery.
- 640x480 spatial resolution.
- 60 seconds at 30 frames per second (fps) totaling 1800 frames.
- Bit errors modelled as flipped bits e.g. 0->1 or 1->0 with probability equal to the Bit Error Rate (BER).
- Each video sequence is corrupted 10 times, and the average quality reported.
- Similar results observed across a range of classified imagery.

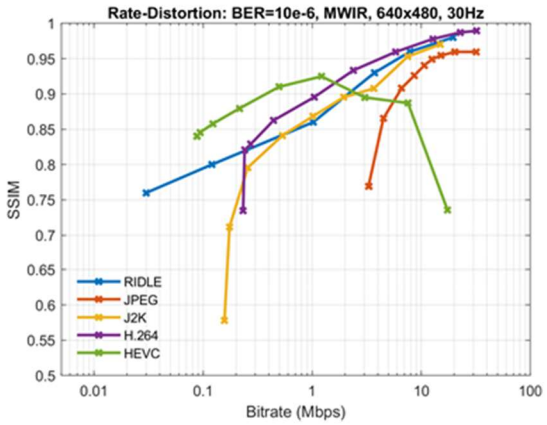
Performance data in the next 3 pages; more data available on request and specific use case can be evaluated

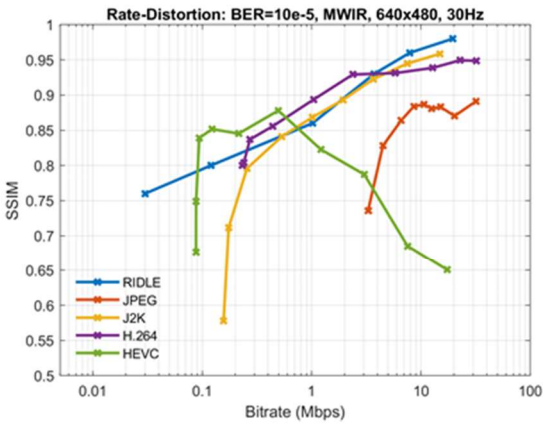


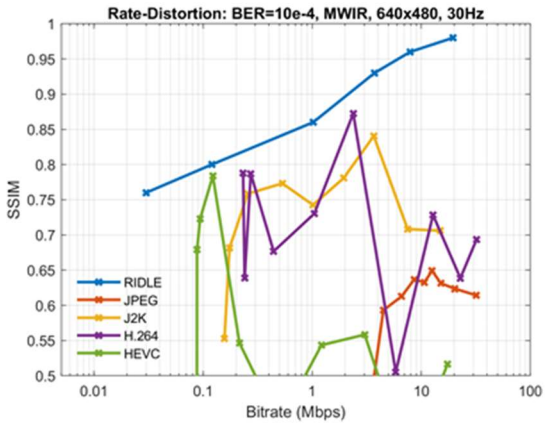
Increasing Interference

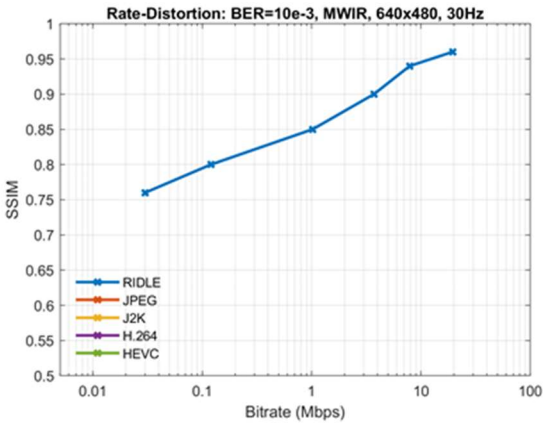


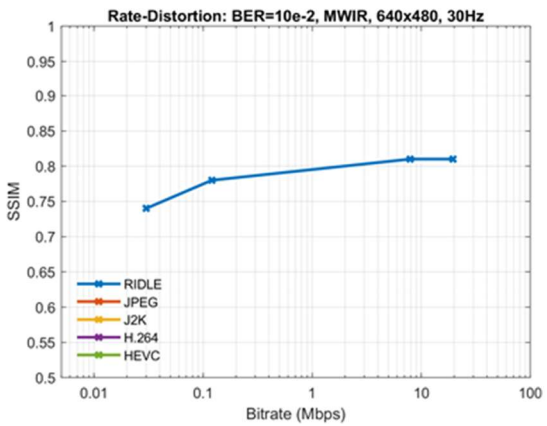


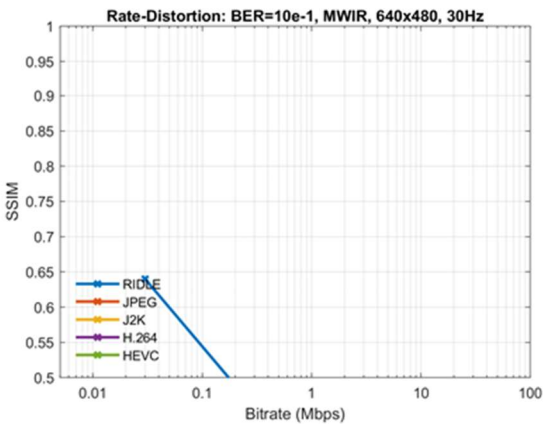


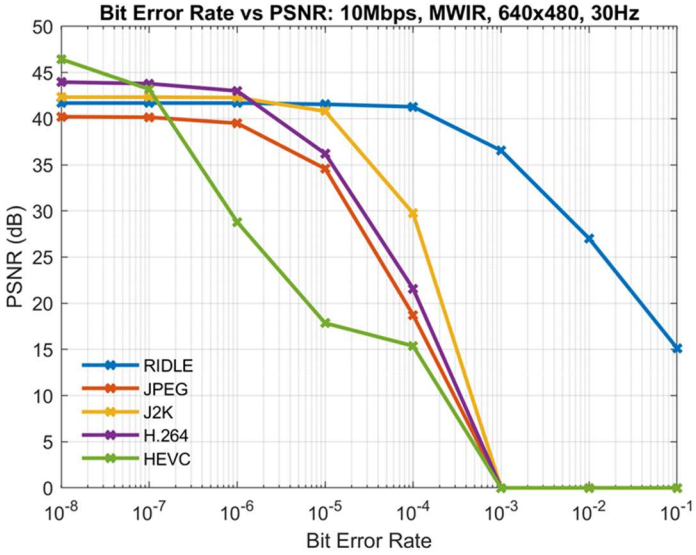


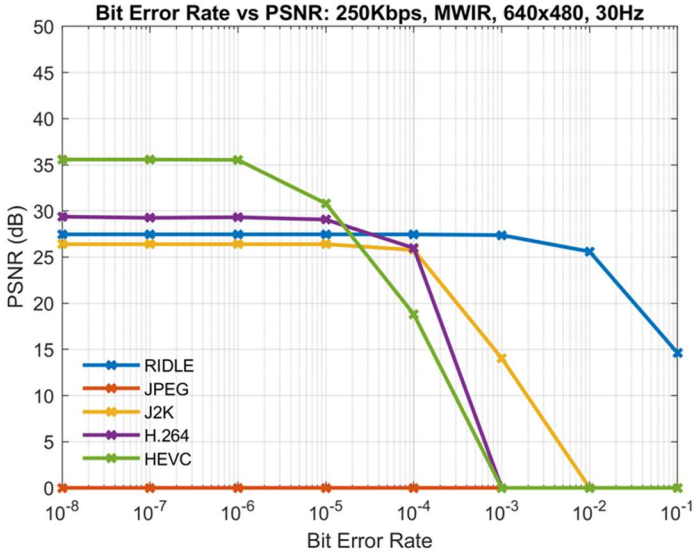


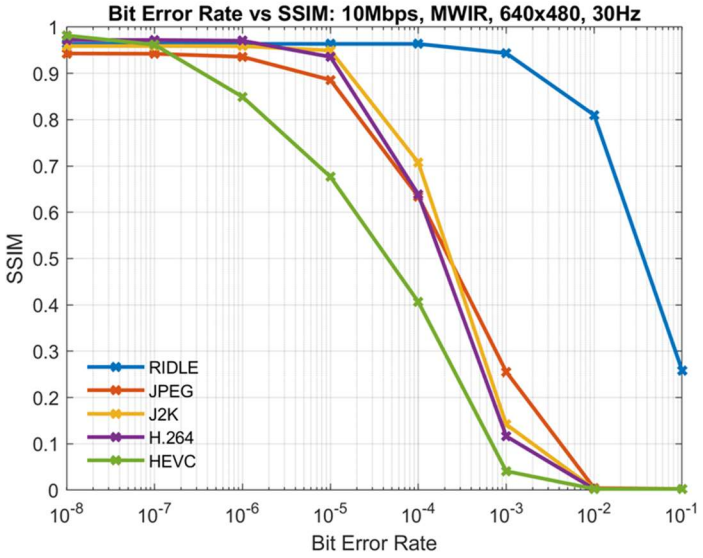


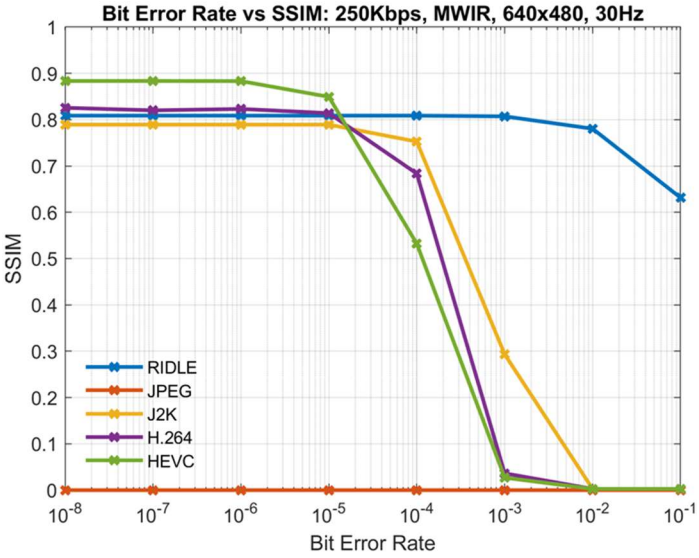












*JPEG not able to encode video at 250Kbps