SRI International

SRI International creates world-changing solutions to make people safer, healthier, and more productive. SRI, a research center headquartered in Menlo Park, California, works primarily in advanced technology and systems. Biosciences, computing, and education. SRI brings its innovations to the marketplace through technology licensing, spin-off ventures, and new product solutions.

Standard Formats
- SD (576, 486p, 486)
- HD (720p, 1080i, 1080p)
- 2k (2048 x 1080)
- UHD (3840 x 2160)
- 4k (4096 x 2160)
- Custom formats: any resolution, frame rate, and color space

Media File Formats
- R'GB'T 10-bit 4:4:4 Rec. 709 in DPX files
- Y'UV 10-bit 4:2:2 Rec. 709 in V'2'10' files
- Uncompressed Y'UV 4:2:2, in media wrapper
- Compressed MPEG2 as MPEG-2 Transport Streams
- Compressed H.264-AVC as MPEG-2 Transport Streams

Silicon Valley
(Headquarters)
333 Rengartner Avenue
Menlo Park, CA 94025

Princeton, NJ
201 Washington Road
Princeton, NJ 08540
+1.609.734.2553
info@sri.com

www.sri.com/tg-100

STAY CONNECTED

Visualizer™ Digital Video Test Pattern Quick Reference

The Visualizer™ test pattern offers a comprehensive way to evaluate more than 20 key parameters of video quality from a single screen. It enables you to easily identify processing and transmission errors throughout the digital signal chain.

End-to-End Digital Video Diagnostics

The Visualizer™ test box is an easy-to-interpret, visual pattern that enables accurate evaluation and calibration of a wide range of digital video systems. From simplifying equipment configuration to measuring compression performance, the Visualizer pattern takes the guesswork out of digital video quality control.

The pattern is available as an uncompressed or compressed video sequence. In streaming form—as H.264/MPEG-4 AVC and MPEG-2 video—it is suitable for testing both file-based and streaming systems. The sequence has been carefully compressed using custom SRI encoders, ensuring that compression-sensitive features remain intact.

- Quantifies compression fidelity
- Identifies HD (709) and SD (601) color matrix mismatch
- Determines bit depth and chroma subsampling
- Reveals skipped frames
- Quantifies lip sync errors
- Provides 18 additional tests

Scan with your smartphone for narrated video demonstrations
Frequency Response
At the left, H and V linear frequency sweeps from zero to the Nyquist limit. At right, after conversion from 1920x1080 to 1280x720 and back. Note the aliasing at the top that should have been filtered away to gray. Note the strong Moire pattern 2/3 the way up. 2/3 = 720/1080. Use pattern’s 12-unit grid scale to measure frequency ratios (8/12 = 720/1080).

Compression Fidelity
Right: Some regions have missing detail. At each frequency, note the highest bit depth with visible signal. Left: Uncompressed shows visible signal from bottom to top in every frequency burst (Contrast exaggerated).

Reference Image
Check skin tones, detail in hair and jewelry; check for highlight clipping, black clipping. The image is color-managed for gamma and RGB primaries.

Display Gamma
Each step is 10% the previous step’s light level (at the gamma shown at the top). Left and right sides have low-contrast steps. Bottom step is black.

ST-303M
See User Guide Appendix for RGB values for each chip. Note six dim blocks in the fifth row. They are: 1200, 1400, 1/1200, 1/1400, 1/2000, 1/4000 of the linear light range.

Lava Lamp
Right half: luma only. Left: half: chroma only. Look for jumps or stutter indicating dropped or repeated frames. 1/4 way up, speed is 1 line per frame or field. Look for jaggies there. Look for differences between luma and chroma resolution and motion smoothness.

Chroma Downsampling
Chroma 4:4:4 Chroma 4:2:2 Chroma 4:2:0p Chroma 4:2:0i

Color Matrix
Correct Rec.709 YUV encoded as Rec. 601 YUV encoded as Rec. 601 YUV encoded as Rec. 709

White Pluge
Correct Blown out

Chroma Upsampling Back to 4:4:4

Pluge
+ 4, 2, 1%. Left image: monitor brightness too high. Adjust down until 1st and 2nd columns merge (middle image). All 3rd column chips are different than 2nd column. Right: monitor brightness too high, but column 1 (super black) has been clipped off upstream in the monitor.

Border Marquee & Crop Lines
Correct: Top white dashed line is showing

Bit Depth
Left: 10-bit shows no contour lines. Eithered 8-bit may look almost as smooth. Right: 8-bit video has rotating contour lines. Compression artifacts may also appear (Contrast exaggerated)

Color Phase & Gain
Calibrate NTSC monitor color settings

Field Dominance
Correct

Lip Sync
Correct: Ticks are heard when center mark flashes,

Chroma Motion Error
Demonstrates incorrect processing of Chroma in interlaced 4:2:0 systems

Correct

Border Marquee & Crop Lines
Top line is missing

When content cropped to the indicated aspect ratio, the associated dashed line will be the edge pixels of the new image.