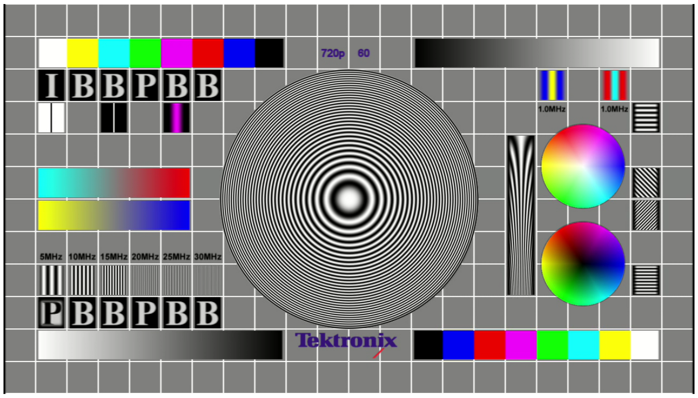
MPEG Generation Tools

Tclips MPEG Test Streams Data Sheet



Features & Benefits

- Broad Range of MPEG-2 Transport Streams Designed to Test Receivers across a Broad Range of Video and Audio Formats
- Contains Compliant Service Information (SI) Conforming to the MPEG, DVB, and ATSC Standards
- Standard and High-definition Video Encoded with both MPEG-2 and H.264/AVC
- Broad Range of Video Resolutions, Aspect Ratios, Frame Rates, Profile and Levels, and Bit Rates
- Test Patterns for Verifying Luminance and Chrominance Amplitudes, Chrominance Phase, and Frequency Response
- MPEG-1 and AC-3 Encoded Audio Content using Stereo and 5.1 Channels

Applications

- **Equipment Manufacturers**
  - Development and Verification of Receivers such as Set-top Boxes, Integrated Digital TVs (iDTV), and Personal Computers
  - Use with the Multiplexer to Produce a Library of Regression Test Streams. See Data Sheet 2AW-21201 for More Information

Characteristics

Tclips Contents

The video test streams all use 4:2:0 Chroma format: Both interlaced (I) and progressive (P) formats are used.

Audio Test Stream Parameters (as elements within transport stream files)

Characteristic	Description
Audio MPEG-1 Layer II (if present)	
Channels	Stereo
Sample Rate	48 kHz
Bit Rate	256 Kb/s
Tones L/R, Ref Level	800/1200 -18 dBFS
Audio AC-3 (if present)	
Channels	5.1 Surround
Sample Rate	48 kHz
Bit Rate	448 Kb/s
Tones L/R/C/LS/RS/LFE, Ref Levels	1000/4000/2000/500/8000/100 Hz at -20 dBFS

Service Information

- PSI is encoded as per the MPEG-2 standard, ISO/IEC 13818-1: systems
- SI is encoded as per the DVB standard, ETS 300 468
- PSIP is encoded as per the ATSC standard, A/65

H.264 Samples (See VM6000 Test Streams for additional H.264 files)

Motion video test patterns that are useful for verifying GOP structure and playout order, plus other attributes.

Total Files	Video H×V	Format	Aspect Ratio	Frame Rate (Hz)	Profile / Level	SI	Duration (seconds)
2	704×480	I	4×3	29.97	Main/L4	PSI	30
2	704×576	I	4×3	25	Main/L4	PSI	30
1	1280×720	P	16×9	59.94	Main/L4	PSI	30
2	1920×1080	I	16×9	29.97	Main/L4	PSI	30

PQA200-300

The MPEG-2 video consists of various types of motion including pan, zoom, rapid change, and sports. It is encoded at 15 Mb/s.
MPEG 1 Layer II audio is present, but only as silence (no tones present).

Total Files	Video H×V	Format	Aspect Ratio	Frame Rate (Hz)	Profile / Level	SI	Duration (seconds)
1	704×480	I	4×3	29.97	Main/Main	PSI, SI	153
1	704×576	I	4×3	25	Main/Main	PSI, SI	148

Motion Test Patterns

Motion video MPEG-2 test patterns that are useful for verifying GOP structure and playout order, plus other attributes. Video is open GOP encoded at 4 Mb/s (Interlaced), 8 Mb/s (Progressive), and 16 Mb/s (HD).
MPEG-1 Layer II audio and AC-3 audio is contained in all files.

Total Files	Video H×V	Format	Aspect Ratio	Frame Rate (Hz)	Profile / Level	SI	Duration (seconds)
3	704×480	I and P	4×3 and 16×9	29.97 and 59.94	Main/Main and Main/H1440	PSI, SI, PSIP	30
3	720×576	I and P	4×3 and 16×9	25 and 50	Main/Main and Main/H1440	PSI, SI, PSIP	30
3	1280×720	P	16×9	50, 59.94, 60, 23.976, 24, 25, 29.97 and 30	Main/H1440 and Main/High	PSI, SI, PSIP	30
8	1920×1080	I and P	16×9	29.97 and 30	Main/High	PSI, SI, PSIP	30

Static Test Patterns

MPEG-2 video consisting of 5-step luminance patterns, 75 and 100% color bars, convergence patterns, and multiburst test patterns. They are open GOP encoded at 4 Mb/s (Interlaced), 8 Mb/s (Progressive), and 16 Mb/s (HD). These clips are useful for verifying luminance and chrominance amplitudes, chrominance phase, and frequency response.
MPEG-1 Layer II audio and AC-3 audio are contained in all files.

Total Files	Video H×V	Format	Aspect Ratio	Frame Rate (Hz)	Profile / Level	SI	Duration (seconds)
18	704×480	I and P	4×3 and 16×9	29.97 and 59.94	Main/Main and Main/H1440	PSI, SI, PSIP	30
18	720×576	I and P	4×3 and 16×9	25 and 50	Main/Main and Main/H1440	PSI, SI, PSIP	30
21	1280×720	P	16×9	50, 59.94, 60, 23.976, 24, 25, 29.97, and 30	Main/H1440 and Main/High	PSI, SI, PSIP	30
56	1920×1080	I and P	16×9	29.97 and 30	Main/High	PSI, SI, PSIP	30

TG130A-131A-VM700 Matrix

MPEG-2 video static test patterns in both PAL and NTSC formats encoded at 6 Mb/s.

Total Files	Video H×V	Format	Aspect Ratio	Frame Rate (Hz)	Profile / Level	SI	Duration (seconds)
1	704×480	I	4×3	29.97	Main/High	PSI, SI	15
1	704×576	I	4×3	25	Main/High	PSI, SI	15

TG700 DVG7 Test Patterns

MPEG-2 video static test patterns including CCIR, bowtie, and percentage color levels encoded at 4 Mb/s. These clips are useful for verifying luminance and chrominance amplitudes, chrominance phase, gamut limits, and frequency response.
MPEG-1 Layer II audio is contained in all files.

Total Files	Video H×V	Format	Aspect Ratio	Frame Rate (Hz)	Profile / Level	SI	Duration (seconds)
50	704×480	I	4×3	29.97	Main/High	PSI, SI	30
47	704×576	I	4×3	25	Main/High	PSI, SI	30

VM700-AV Delay

MPEG-2 video of various motion and static content with inserted text encoded at 6 Mb/s.
MPEG-1 Layer II audio is contained in all files.

Total Files	Video H×V	Format	Aspect Ratio	Frame Rate (Hz)	Profile / Level	SI	Duration (seconds)
1	704×480	I	4×3	29.97	Main/Main	PSI	156
1	704×576	I	4×3	25	Main/Main	PSI	163

Audio Test Patterns (audio elementary files: 32, 44.1 and 48 kS/s; bit rates from 64 up to 384 Kb/s)

The MPEG-1 Layer II audio streams contain a selection of single and multiple tones, polarity test tones, plus mono and stereo tones.

Total Files	File Type	TS Bit Rate	SI	Duration (seconds)
32	Elementary Stream	N/A	N/A	Varies
1	Transport Stream	500 Kb/s	PSI, SI	478

MTS400 Streams

The streams containing MPEG-2 video and MPEG-1 layer II audio. Various transport layer errors including PCR and SI/PSI errors, out-of-range SI repetition rates, and loss of synchronization.

Total Files	Programs	Video Bit Rate	Audio Bit Rate	SI	Duration (seconds)
6	SPTS and MPTS	2-14 Mb/s	64-384 Kb/s	SI, PSI	50-60

VM6000 Test Streams

SD and HD matrix test pattern Transport Streams of 60-second duration encoded as H.264 video at multiple frame rates and profiles with AC3 audio. Streams are optimized for use with the VM6000 Automated Video Measurement set and are useful for testing decoders video output signal quality.

Total Files	Video H×V	Format	Frame Rate (Hz)	Profile / Level
4	1920×1080	I and P	24, 50,59	Main / L4 and 4.2
2	704×480	I and P	59	Main / L3 and 3.1
2	704×576	I and P	50	Main / L3 and 3.1
3	1280×720	P	29, 50, 59	Main / L4

Ordering Information

TC – Transport Stream clips for test and optimization of video equipment.

CE

Tektronix is registered to ISO 9001 and ISO 14001 by SRI Quality System Registrar.

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