Leader

LV5600-SER33
LV7600-SER33
JPEG XS Option

JPEG XS

ZEN
WAVEFORM MONITOR
LV5600

LV5600
MULTI WAVEFORM MONITOR

ZEN
RASTERIZER
LV7600

LV7600
MULTI RASTERIZER

World's 1st waveform monitor/rasterizer supporting JPEG XS

/ Overview

This license option enables the LV5600 Waveform Monitor and LV7600 Rasterizer to analyze SMPTE ST 2110-22 (JPEG XS) streams, decode HD and 4K. It can simultaneously measure three type of signals in HD mode, SMPTE ST 2110-22 (JPEG XS), SMPTE ST2110-20 (Uncompressed) and HD-SDI, allowing each signal to be displayed and compared simultaneously. Analyze and display the headers of JPEG XS packets to check JPEG XS format information and compression level information. Test pattern signals for compressed HD and 4K video in SMPTE ST 2110-22 (JPEG XS) can be transmitted. This test signals can also be configured with compression parameters, etc. The receiver and transmitter functions of the JPEG XS are NMOS-compatible.

* The LV5600-SER06/LV7600-SER06 (IP option) is required to send and receive JPEG XS.
  The LV5600-SER32/LV7600-SER32 (IP TSG option) is required to transmit JPEG XS test pattern signals.
  For 4K format support, the LV5600-SER28/LV7600-SER28 (4K option) is required.

/ Features

JPEG XS decoding and test pattern output support
It is possible to check the picture and waveform of compressed video signals in SMPTE ST 2110-22 (JPEG XS). In combination with the SER32 (IP TSG) option, test pattern output of JPEG XS encoded video signals is also possible.

JPEG XS packet header analysis
Receives the streams specified in SMPTE ST 2110-22 (JPEG XS), analyses the packet headers and displays them. By analyzing the packet's header information, the video format information, etc. can be checked.

JPEG XS packet error detection
Detects errors in the sequence of JPEG XS packets.

JPEG XS format comparison
JPEG-XS, SDP and ST2110-40 (payload ID) comparative display.

Supported IP standards

Transmission standard	SMPTE ST 2110 - 22
Compression standard	ISO/IEC 21122、RFC9134
Profile	High Profile 422.12
Packetize	Code stream
Number of streams	1

JPEG XS analysis display

Function

When a JPEG XS stream is received at the configured multicast address, the packet's header is analyzed and displayed.

Transmission mode (T)	: Transmission Mode
Packetization mode (K)	: Packetization mode
Last packet (L)	: Last packet of frames
Interlaced (I)	: Frame scan
Frame counter	: Frame number
Slice counter	: Slice number
Packet counter	: Packet number

Video Information box
・Bit Rate	: Maximum bit rate of the video stream
・Frame Rate	: Frames per second
・Sample Struct	: Pixel configuration
・Timecode	: Time code

Profile and Level box
・Profile	: Code stream profiles
・Level	: Code stream level

Color Specification box
・Color Space Type	: Color Space

Error Detection

Function detects errors in the sequence of packets in a JPEG XS stream when the order of the packets is swapped or missing.

Compression-compatible video formats

JPEG XS receive and transmit format (SMPTE ST 2110-22)

Colour System	quantization accuracy	Resolution	Frame (field) frequency/ Scanning	Compression Method	Supported Standards
YC$_B$C$_R$ 4:2:2	10bit	1280×720	60/59.94/50 /P 30/29.97/25/24/23.98 /P	JPEG XS	SMPTE ST 2110-22
		1920×1080	60/59.94/50 /I 60/59.94/50 /P 30/29.97/25/24/23.98 /P 30/29.97/25/24/23.98 /PsF		
		3840×2160	60/59.94/50 /P 30/29.97/25/24/23.98 /P		

Rx/Tx compression ratio

Format	: Bits per Pixels / Ratio
2160p	: 0.5 - 4.0 bpp / 40 : 1 - 5 : 1
1080p/i	: 0.5 - 8.0 bpp / 40 : 1 - 2.5 : 1
720p	: 0.5 - 10.0 bpp / 40 : 1 - 2 : 1

Format Comparison Display

Function Displays a comparison of formats detected by SDP, ST2110 - 40 (PID) and ST2110 - 22 (JPEG XS).
Supported standards SDP, SMPTE ST 2110 - 40 (PID), SMPTE ST2110 - 22 (JPEG XS)

	auto	SDP	ST2110-40	ST2110-22(JPEG-XS)
Image	1920x1080	1920x1080	1920x1080	1920x1080
FrameRate	29.97	29.97	29.97	29.97
I/P/PsF	interlace	interlace	interlace	interlace
SamplingStructure	---	4:2:2	4:2:2	4:2:2
Color	---	YCbCr	YCbCr	YCbCr
BitDepth	---	10	10	10
HDR/SDR	---	SDR	SDR	---
Colorimetry	---	BT.709	BT.709	BT.709

Auto: Obtained from the packet data being received.
SDP: Controlled by NMOS
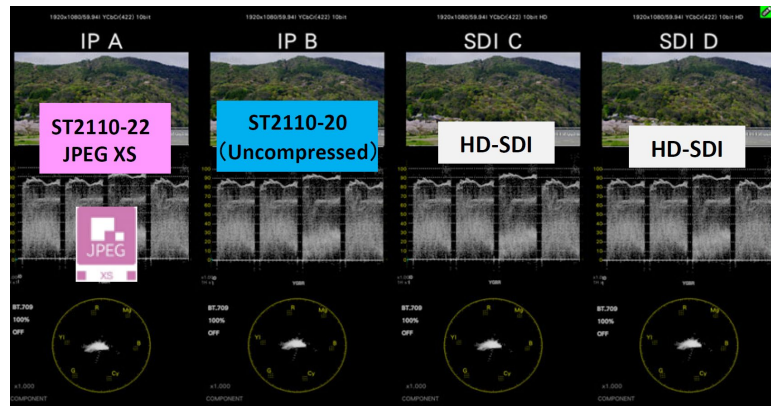ST2110 - 40: Payload ID carried on ST2110 - 40
ST2110 - 22: JPEG XS packet information

Simultaneous monitoring of JPEG XS, ST2110-20 and SDI

• Simultaneous monitoring of compressed (JPEG XS), uncompressed (ST2110) and SDI is possible.
• Simultaneous monitoring makes it possible to check the video quality due to compression.

2K/HD input & simultaneous display

Case1	JPEG XS	1
	ST2110	1
	SDI	1
	SDI	1
Case2	JPEG XS	1
	SDI	1
	SDI	1
	SDI	1

IP A — ST2110-22 JPEG XS
IP B — ST2110-20 (Uncompressed)
SDI C — HD-SDI
SDI D — HD-SDI

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