Spectrum Media and Wrapper Formats

Part Number: 28-0386

Revision C

Compressed and Uncompressed Media Formats

Spectrum Systems support the following compressed and uncompressed media formats, depending upon the selected MediaPort:

- DV
- DVCPRO, DVCPRO 50, DVCPRO HD
- MPEG-2 HDV 720p, MPEG-2 I-Frame, MPEG-2 IMX, MPEG-2 Long GOP, MPEG-2

  XDCAM-HD, MPEG-2 XDCAM-EX

- VC-3
- AVC-Intra Class 50, AVC-Intra Class 100
- Data
- Audio

The following table shows supported VANC and VBI Storage media types.

Metadata Type	Video Media Type	Embedded Video	Side-Band
Uncompressed VBI	Standard Definition MPEG-2	Omneon user data	Omneon VBI File (QuickTime only) GXF VBI track
			SMPTE 436M (MXF only) GXF VBI track
	DV, DVCPRO, DVCPRO 50	Unavailable	Omneon VBI File (QuickTime only) GXF VBI track
			SMPTE 436M (MXF only) GXF VBI track
VANC	High Definition MPEG-2	SMPTE 328M	SMPTE 436M (MXF only) GXF VANC track
	DVCPRO HD	SMPTE 375M	
	AVC-Intra	Panasonic Spec	

Note the following:

- Capture and playout of SD VANC information is supported. Contact Harmonic Technical Support for additional information.
- SMPTE 328M: VANC is stored in the MPEG-2 user data.
- SMPTE 436M: HD and SD VANC is stored in MXF SMPTE 436M track.
- Omneon VBI File: VBI data is stored in an Omneon proprietary format in the clip.
- Panasonic Embedded: For AVC-Intra the Panasonic specification describes a technique for storing VANC in the essence.

■ DV Embedded: This is stored in the essence according to SMPTE 374/375/376. For SD VANC formats, only audio, timecode, and closed caption data are stored.

Media Wrapper Formats and Track Types

The following table shows supported combinations of media wrapper formats and track types:

Track Type	QuickTime (Reference)	QuickTime (Self- Contained)	MXF OP1a (Standard)	MXF OP1a (Standard, Low Latency)	MXF OP1b (External)	MXF OP1a (Internal-EVTR, Low Latency)	MXF AS-02 (2009, 2011)	MXF OP1a (SMPTE RDD9 and Internal, early Sony style XDCAM-HD RDD9)	GXF (Play only)
DV	Yes	Yes	Yes	Yes	Yes	No	Yes	No	Yes
DVCPRO	Yes	Yes	Yes	Yes	Yes	No	Yes	No	Yes
DVCPRO 50	Yes	Yes	Yes	Yes	Yes	No	Yes	No	Yes
DVCPRO HD	Yes	Yes	Yes	Yes	Yes	No	Yes	No	Yes
MPEG-2 I-Frame	Yes	Yes	Yes	Yes	Yes	No	Yes	No	Yes
MPEG-2 IMX	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
MPEG-2 LGOP	Yes	Yes	Yes	Yes	Yes	No	Yes	No	Yes
VC-3	Yes	No	Yes	Yes	No	No	No	No	No
MPEG-2	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
AVC-Intra Class 100	Yes	Yes	Yes	Yes	Yes	No	No	No	Yes
AVC-Intra Class 50	Yes	Yes	Yes	Yes	Yes	No	No	No	Yes
ProRes	Yes	Yes	Yes	No	Yes	Yes	Yes	No	Yes
Uncompressed (SD only) (MIP-1002 only)	Yes	No	No	No	No	No	No	No	No
Data	Yes	No	No	No	No	No	No	No	No
Audio	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Media Wrapper Formats and Audio Track Type Compatibility

The following table shows supported combinations of audio types and media wrapper formats.

Wrapper Format	AIFF (Big Endian)	WAV (Little Endian)	AES3	8-bit A law
QuickTime Reference QuickTime Self-Contained MXF OP1a (Standard) MXF OP1b (External)	Total of (2, 4, 6, 8, 10, 12, 14, or 16) audio channels recorded with (1, 2, 4, or 8) channels per file or per track with sample size (16 or 24) bits.		No	No
MXF OP1a (eVTR)	N/A		Total 8 audio channels recorded with 8 channels per file with 24-bit samples stored in 32 bits each.	N/A
MXF AS-02 (2009, 2011)	Total of (2, 4, 6, 8, 10, 12, 14, or 16) audio channels recorded with (1, 2, 4, or 8) channels per file with sample size (16 or 24) bits.		No	No
MXF OP1a (Standard and Low Latency)				Yes
MXF OP1a (SMPTE RDD9 and Internal, early Sony style XDCAM-HD RDD9)	No	Total of (2, 4, 6, or 8) audio channels recorded with 1 channel per file with sample size (16 or 24) bits.	No	No
GXF (Play only)*	No	Total of (1, 2, 4, 8, 10, 12, 14, or 16) audio channels with 1 channel per file with sample size (16 or 24) bits.	No	No

*Please note the following about support for GXF:

- GXF is a read-only format. It is a serialization of Grass Valley's native asset. If it is necessary to make any modifications to a GXF clip for use on Spectrum systems, Harmonic suggests rewrapping the clip into either an MXF or QuickTime format.
- GXF-wrapped clips must have a ".gxf" extension.
- Offspeed play and shuttle/jog of GXF clips is not supported.
- GXF-wrapped AVC-Intra clips are not supported.