Spectrum Media and Wrapper Formats

Part Number: 28-0386

Revision D

Compressed and Uncompressed Media Formats

Spectrum Systems support the following compressed and uncompressed media formats, depending on the selected MediaPort or ChannelPort module:

- DV
- DVCPRO, DVCPRO 50, DVCPRO HD
- MPEG-2 I-Frame, MPEG-2 IMX, MPEG-2 Long GOP
- VC-3
- AVC-Intra Class 50, AVC-Intra Class 100, AVC (H.264) Long GOP[*]
- ProRes
- Audio: 48 kHz PCM (16 or 24 bits); optionally, PCM can contain AC-3 (16 bits) or Dolby E (24 bits)

VANC and VBI Storage

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 OP1a only) GXF VBI track
	DV, DVCPRO, DVCPRO 50	Unavailable	Omneon VBI File (QuickTime only) GXF VBI track
			SMPTE 436M (MXF OP1a only) GXF VBI track
VANC	High Definition MPEG-2	SMPTE 328M	SMPTE 436M (MXF OP1a only) GXF VANC track
	DVCPRO HD	SMPTE 375M	
	AVC-Intra	Panasonic Spec	
	Others	Unavailable	

---

[*] AVC (H.264) Long GOP is available only when rewrapped from PitchBlue® transport streams and is play only.

PitchBlue is a registered trademark of Vigor Systems.

Please 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 Supported Track Types

The following are supported combinations of media wrapper formats and track types.

QuickTime (Reference and Self-contained)

- DV, DVCPRO, DVCPRO 50, DVCPRO HD
- MPEG-2: I-Frame, IMX, LGOP
- VC-3
- AVC: Intra Class 50, Intra Class 100, AVC (H.264) LGOP
- ProRes
- Audio

MXF OP1a/OP1a low latency/OP1b

- DV, DVCPRO, DVCPRO 50, DVCPRO HD
- MPEG-2: I-Frame, IMX, LGOP
- VC-3
- AVC: Intra Class 50, Intra Class 100, AVC (H.264) LGOP
- Audio

MXF OP1a RDD9

- MPEG-2 LGOP
- Audio

MXF OP1a EVTR

- MPEG-2 IMX
- Audio

GXF (Play only)

- DV, DVCPRO, DVCPRO 50, DVCPRO HD
- MPEG-2: I-Frame, IMX, LGOP
- AVC: Intra Class 50, Intra Class 100
- Audio

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) MXF OP1a (Standard and Low Latency)	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 Yes

Wrapper Format	AIFF (Big Endian)	WAV (Little Endian)	AES3	8-bit A law
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. **Note**: 16 audio channels are supported but such configurations may not work with all software or devices that expect compliant material.	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.