AMI

TECHNICAL
SPECIFICATIONS

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Independent Asset Specifications

Program Structure

Broadcast versions of Independent assets are required to follow the program structure in the below table:

Time Code	Duration	Audio	Video	File
00:58:30;00	60 seconds	Reference Tones	SMPTE RP 219 HD colour bars	
00:59:30;00	20 seconds	Silence	Slate	
00:59:50;00	9 seconds	Silence	Countdown	
00:59:59;00	1 frame	1kHz @ reference level	SMPTE RP 219 HD colour bars	
01:00:00;00	----	Program Segment #1	Program Segment #1	----
----	2 seconds	Silence	Black	----
----	----	Program Segment #2	Program Segment #2	----
----	2 seconds	Silence	Black	----
----	----	Program Segment #3, etc.	Program Segment #3, etc.	----
----	2 seconds	Silence	Black	----

Segmentation

First program segment must start at timecode 01:00:00;00. Additional program segments must be separated by 2 seconds of black/silence.

Colour Bars

The colour bars, in HD 16:9 format, shall be compliant with the SMPTE recommended practice RP 219-2002. The colour bars should be generated from a test generator in the edit suite that produced the final edit, and to which the edit suite has been calibrated. The colour bars must not be generated by the internal test generator of the recording VTR.

Vocal Track Identification

The recording shall include a vocal identification of the Audio Tracks in the slate lasting 60 seconds. It shall be clear, precise, and sequential, such that track allocation is easily identifiable.

Audio Test Tones

A reference tone shall be present before the start of the program material; it shall be in phase and be on all audio channels used for the program. Accessible Media Inc.'s reference level is set at -20dBFS as defined in the SMPTE recommended practice RP155-2004. It corresponds to an alignment level of +4dBu. The reference tone shall be consistent with the recorded program.

The test tone shall be 1 kHz on all channels. The length of the test tones shall be 60 seconds. Unused channels shall be silent.

Slate

The slates shall include the following information:

- Program Title
- Series name and episode title/number
- Program length (HH:MM:SS;FF)
- Main program audio type (mono, stereo, multichannel)
- Audio/Vocal track allocation
- CC (English/French)
- Segment #1 start time code
- Segment #2 start time code
- Segment #3 start time code, etc.
- Audio reference level (-20 DBFS)
- Integrated loudness value (-24 LKFS)
- Described video (yes, no, or integrated)

Audio/Video Synchronization

The audio/video synchronization signals shall be composed of a one-frame long of colour bars and 1 kHz tone at the reference level.

Accessible Media Inc. reserves the right to reject productions that do not meet the criteria described herein. Unless otherwise specified in the document, the term "program" also includes the interstitials.

Credits

All credits shown in vertical scroll or flash-on style shall be produced in a way that makes them clearly readable and be free of judder or blur.

File Format

Broadcast versions of Independent assets are required to be encoded in the following format:

Video	XDCAM HD422 50 Mbps in a MXF Wrapper
Bit Rate	50 Mbps
File Type	MPEG-2 compression
Resolution	1920x1080
Frame Rate	59.94 Hz (29.97 fps)
Aspect Ratio	16:9, 1.78:1
Scan	Interlaced Upper Field First
Timecode	Matching LTC & VITC, continuous, synchronous with video
Timecode Start of Content	TCR 01:00:00;00
Drop Frame	Yes
Closed Captioning	Embedded Closed Captions EIA-608
Audio	Stereo pairs, 48 kHz, 24-bit PCM
Audio Channel Allocation	Ch 1 = MAIN + DV L Ch 2 = MAIN + DV R Ch 3 = MAIN L Ch 4 = MAIN R Ch 5 = M&E L Ch 6 = M&E R Ch 7 = MAIN Dialogue only L Ch 8 = MAIN Dialogue only R

Containers

The following format is required:

- MXF OP1a, per SMPTE ST 378:2004 standard. MXF files shall be closed as per SMPTE ST 377-1:2011 standard definition – section 5.2.4

Encoding

The following format is required:

- XDCAM HD 422 @ 50 Mbps

Closed Captions

The closed caption data is required to be embedded:

- EIA-608 (Ancillary Data/CDP)
- EIA-608 data shall be carried in a SMPTE ST 334-1/2:2007 compliant ANC packet within a SMPTE ST 436:2006-compliant VBI/ANC Generic Container Element, using 8-bit encoding. This process complies with the AMWA AS-03 and AS-11 file formats.

Audio File Format

The following format is required:

- Uncompressed audio, 24 bit @ 48kHz per channel
- Linear PCM, 24 bit @ 48kHz

The digital audio format must be compliant with AES-3 standard, with a resolution of 24 bits and at a 48 kHz sampling rate. The recording should contain, for all the channels, the full transmittable audio bandwidth (20 Hz to 20 kHz).

Described Video

Accessible Media Inc. is acquiring external material including Described Video (DV) content and possesses the infrastructure to include this service with the on-air presentation program.

The described video channels are a stereo mix derived from the main program to which descriptive commentary is added. The audio level of these channels shall be similar to the main program level and comply with the loudness specifications described.

Audio Channel Allocation

Broadcast versions of Independent assets shall include eight stereo audio tracks (the "**Audio Tracks**"), which are as follows:

- 1+2 MAIN + DV: Stereo audio track of main program containing DV or IDV, including described end credits.
- 3+4 MAIN: Stereo audio track of main program containing DV or IDV, excluding described end credits
- 5+6 M&E: Stereo or dual mono audio track of music and effects only, minus dialogue for international dubbing purposes
- 7+8 MAIN - M&E: Stereo or dual mono audio track of dialogue only, minus M&E for promo and dubbing purposes.

Audio Levels

Audio levels must be mixed to -24 LKFS as per the ATSC A/85 "Establishing and Maintaining Audio Loudness" standard.

- Audio Reference levels: +4 dBu and/or -20 dbfs, as applicable
- Peak levels Range: -18 dBfs to -7 dBfs
- Loudness: -24 LKFS +/-2LU

Service Asset Specifications

Program Structure

Broadcast versions of Service assets are required to follow the program structure in the below table:

Time Code	Duration	Audio	Video	File
00:00:00;00	----	Program Segment #1	Program Segment #1	----
----	2 seconds	Silence	Black	----
----	----	Program Segment #2	Program Segment #2	----
----	2 seconds	Silence	Black	----
----	----	Program Segment #3, etc.	Program Segment #3, etc.	----
----	2 seconds	Silence	Black	----

Segmentation

First program segment must start at timecode 00:00:00;00. Additional program segments must be separated by 2 seconds of black/silence.

Credits

All credits shown in vertical scroll or flash-on style shall be produced in a way that makes them clearly readable and be free of judder or blur.

File Format

Broadcast versions of Service assets are required to be encoded in the following format:

Video	XDCAM HD422 50 Mbps in a MXF Wrapper
Bit Rate	50 Mbps
File Type	MPEG-2 compression
Resolution	1920x1080
Frame Rate	59.94 Hz (29.97 fps)
Aspect Ratio	16:9, 1.78:1
Scan	Interlaced Upper Field First
Timecode	Matching LTC & VITC, continuous, synchronous with video
Timecode Start of Content	TCR 00:00:00;00
Drop Frame	Yes
Closed Captioning	Embedded Closed Captions EIA-608
Audio	Stereo pairs, 48 kHz, 24-bit PCM
Audio Channel Allocation	Ch 1 = MAIN + DV L Ch 2 = MAIN + DV R

Containers

The following format is required:

- MXF OP1a, per SMPTE ST 378:2004 standard. MXF files shall be closed as per SMPTE ST 377-1:2011 standard definition – section 5.2.4

Encoding

The following format is required:

- XDCAM HD 422 @ 50 Mbps

Closed Captions

The closed caption data is required to be embedded:

- EIA-608 (Ancillary Data/CDP)
- EIA-608 data shall be carried in a SMPTE ST 334-1/2:2007 compliant ANC packet within a SMPTE ST 436:2006-compliant VBI/ANC Generic Container Element, using 8-bit encoding. This process complies with the AMWA AS-03 and AS-11 file formats.

Audio File Format

The following format is required:

- Uncompressed audio, 24 bit @ 48kHz per channel
- Linear PCM, 24 bit @ 48kHz

The digital audio format must be compliant with AES-3 standard, with a resolution of 24 bits and at a 48 kHz sampling rate. The recording should contain, for all the channels, the full transmittable audio bandwidth (20 Hz to 20 kHz).

Described Video

Accessible Media Inc. is acquiring external material including Described Video (DV) content and possesses the infrastructure to include this service with the on-air presentation program.

The described video channels are a stereo mix derived from the main program to which descriptive commentary is added. The audio level of these channels shall be similar to the main program level and comply with the loudness specifications described.

Audio Channel Allocation

Broadcast versions of Service assets shall include 2 stereo audio tracks (the "**Audio Tracks**"), which are as follows:

- 1+2 MAIN + DV: Stereo audio track of main program containing DV or IDV, including described end credits.

Audio Levels

Audio levels must be mixed to -24 LKFS as per the ATSC A/85 "Establishing and Maintaining Audio Loudness" standard.

- Audio Reference levels: +4 dBu and/or -20 dbfs, as applicable
- Peak levels Range: -18 dBfs to -7 dBfs
- Loudness: -24 LKFS +/-2LU

Acquired Asset Specifications

File Format

Broadcast versions of acquired assets are required to be encoded in the following format:

Video	XDCAM HD422 50 Mbps in a MXF Wrapper
Bit Rate	50 Mbps
File Type	MPEG-2 compression
Resolution	1920x1080
Frame Rate	59.94 Hz (29.97 fps)
Aspect Ratio	16:9, 1.78:1
Scan	Interlaced Upper Field First
Timecode	Matching LTC & VITC, continuous, synchronous with video
Timecode Start of Content	TCR 01:00:00;00
Drop Frame	Yes
Closed Captioning	Embedded Closed Captions EIA-608, or "Scenarist" closed caption file (.SCC)
Audio	Stereo pairs, 48 kHz, 24-bit PCM
Audio Channel Allocation	Ch 1 = Stereo Left Ch 2 = Stereo Right Ch 3 = Ltotal +DV (if no DV, duplicate Stereo Left) Ch 4 = Rtotal +DV (if no DV, duplicate Stereo Right) Ch 5 = 5.1 Left Ch 6 = 5.1 Right Ch 7 = 5.1 Center Ch 8 = 5.1 LFE Ch 9 = 5.1 Left Surround Ch 10 = 5.1 Right Surround Ch 11 = Dialogue Ch 12 = Effects

Containers

The following format is required:

- MXF OP1a, per SMPTE ST 378:2004 standard. MXF files shall be closed as per SMPTE ST 377-1:2011 standard definition – section 5.2.4

Encoding

The following format is required:

- XDCAM HD 422 @ 50 Mbps

Closed Captions

The closed caption data is required to be embedded:

- "Scenarist" closed caption file (.SCC)
- EIA-608 (Ancillary Data/CDP)
- EIA-608 data shall be carried in a SMPTE ST 334-1/2:2007 compliant ANC packet within a SMPTE ST 436:2006-compliant VBI/ANC Generic Container Element, using 8-bit encoding. This process complies with the AMWA AS-03 and AS-11 file formats.

Audio Format

The following format is required:

- Uncompressed audio, 24 bit @ 48kHz per channel
- Linear PCM, 24 bit @ 48kHz

The digital audio format must be compliant with AES-3 standard, with a resolution of 24 bits and at a 48 kHz sampling rate. The recording should contain, for all the channels, the full transmittable audio bandwidth (20 Hz to 20 kHz).

Audio Levels

Audio levels must be mixed to -24 LKFS as per the ATSC A/85 "Establishing and Maintaining Audio Loudness" standard.

- Audio Reference levels: +4 dBu and/or -20 dbfs, as applicable
- Peak levels Range: -18 dBfs to -7 dBfs
- Loudness: -24 LKFS +/-2LU

Corus Specifications

Corus will only accept material delivered with the following general specifications:

- A minimum of two AES/EBU audio channel pairs in a stereo or mono mix with a clearly outlined audio channel description.
- SMPTE drop frame time code is mandatory for all submitted material. Time code shall adhere to the SMPTE 12M specification, be continuous and synchronous with video
- Up-converted SD content is not acceptable. Exceptions will be made for stock footage of historical events.
- Aspect ratio must be noted, and the Active Format Description (AFD) descriptor code should be left blank in the file.

Digital Exclusives

Program Structure

Digital exclusive assets are required to follow the program structure in the below table:

Time Code	Duration	Audio	Video	File
00:00:00;00	----	Program Segment #1	Program Segment #1	----
----	2 seconds	Silence	Black	----
----	----	Program Segment #2	Program Segment #2	----
----	2 seconds	Silence	Black	----
----	----	Program Segment #3, etc.	Program Segment #3, etc.	----
----	2 seconds	Silence	Black	----

Segmentation

Digital Exclusive's start at timecode 00:00:00;00, and additional program segments must be separated by 2 seconds of black/silence.

Credits

All credits shown in vertical scroll or flash-on style shall be produced in a way that makes them clearly readable and be free of judder or blur.

File Format

Digital exclusives are required to be encoded in the following format:

Video	XDCAM HD422 50 mbps in a MXF Wrapper
Bit Rate	50 Mps
File Type	MPEG-2 compression
Resolution	1920x1080
Frame Rate	29.97 fps
Aspect Ratio	16:9, 1.78:1
Scan	Interlaced upper field first
Timecode	Matching LTC & VITC, continuous, synchronous with video
Timecode Start of Content	TCR 00:00:00;00
Drop Frame	Yes
Closed Captioning	Embedded closed captions EIA-608, side car ".scc", ".srt", and ".vtt" files.
Audio	Stereo pairs, 48 kHz, 24-bit PCM
Audio Channel Allocation	Ch 1 = MAIN + DV L Ch 2 = MAIN + DV R

Containers

The following format is required:

- MXF OP1a, per SMPTE ST 378:2004 standard. MXF files shall be closed as per SMPTE ST 377-1:2011 standard definition – section 5.2.4

Encoding

The following format is required:

- XDCAM HD 422 @ 50 Mbps

Closed Captions

The following closed caption file formats are required:

- "Scenarist" closed caption file (.SCC)
- SubRip (.SRT)
- WebVTT (.VTT)
- EIA-608 (Ancillary Data/CDP)
- EIA-608 data shall be carried in a SMPTE ST 334-1/2:2007 compliant ANC packet within a SMPTE ST 436:2006-compliant VBI/ANC Generic Container Element, using 8-bit encoding. This process complies with the AMWA AS-03 and AS-11 file formats.

Audio File Format

The following format is required:

- Uncompressed audio, 24 bit @ 48kHz per channel
- Linear PCM, 24 bit @ 48kHz

The digital audio format must be compliant with AES-3 standard, with a resolution of 24 bits and at a 48 kHz sampling rate. The recording should contain, for all the channels, the full transmittable audio bandwidth (20 Hz to 20 kHz).

Described Video

Accessible Media Inc. is acquiring external material including Described Video (DV) content and possesses the infrastructure to include this service with the on-air presentation program.

The described video channels are a stereo mix derived from the main program to which descriptive commentary is added. The audio level of these channels shall be similar to the main program level and comply with the loudness specifications described.

Audio Channel Allocation

Digital exclusive assets shall include 1 stereo audio track (the "**Audio Tracks**"), which are as follows:

- MAIN + DV: Stereo audio track of main program containing DV or IDV, including described end credits.

Audio Levels

Audio levels must be mixed to -24 LKFS as per the ATSC A/85 "Establishing and Maintaining Audio Loudness" standard.

- Audio Reference levels: +4 dBu and/or -20 dbfs, as applicable
- Peak levels Range: -18 dBfs to -7 dBfs
- Loudness: -24 LKFS +/-2LU

Podcasts

Video Podcasts

Video versions of podcast assets are required to be encoded in the following format:

Video	H.264 in a MP4 Wrapper
Bit Rate	4 Mbps
Video Profile	Main
Video Level	3.1
Resolution	1920x1080
Frame Rate	29.97 fps
Drop Frame	Yes
Aspect Ratio	16:9, 1.78:1
Scan	Progressive
Timecode Start of Content	TCR 00:00:00;00
Closed Captioning	Side car ".scc", ".srt", and ".vtt" files.
Audio	Stereo pairs, 48 kHz, 320000 bps, AAC

Containers

The following format is required:

- Mp4

Encoding

The following format is required:

- H.264

Audio File Format

The following format is required:

- AAC, 2-channel audio, 320000 bps @ 48kHz

Audio Levels

Audio levels must be mixed to -24 LKFS as per the ATSC A/85 "Establishing and Maintaining Audio Loudness" standard.

- Audio Reference levels: +4 dBu and/or -20 dbfs, as applicable
- Peak levels Range: -18 dBfs to -7 dBfs
- Loudness: -24 LKFS +/-2LU

Closed Captions

The following closed caption file formats are required:

- "Scenarist" closed caption file (.SCC)
- SubRip (.SRT)
- WebVTT (.VTT)

Audio Podcasts

Audio versions of podcasts are required to be encoded in the following format:

Audio Format	Mp3
Sample Rate	48000 Hz
Compression	128000 kbps
Audio Channels	2 Channel Stereo

Containers

The following format is required:

- Mp3

Audio File Format

The following format is required:

- 2-channel stereo, 128000 kbps @ 48kHz

Audio Levels

Audio levels must be mixed to -24 LKFS as per the ATSC A/85 "Establishing and Maintaining Audio Loudness" standard.

- Audio Reference levels: +4 dBu and/or -20 dbfs, as applicable
- Peak levels Range: -18 dBfs to -7 dBfs
- Loudness: -24 LKFS +/-2LU

Closed Captions

The following closed caption file formats are required:

- "Scenarist" closed caption file (.SCC)
- SubRip (.SRT)
- WebVTT (.VTT)

File Quality

All programs must not have any video or audio impairment such as digital and colorimetric errors, compression or encoding artifacts, etc.

Right of Refusal

Accessible Media Inc. reserves the right to reject any production that fails to meet the specifications described in this document.

Contact

For any questions or concerns regarding the contents of this document, please contact:

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