



Media Delivery  
Technical Specifications  
for  
VMN US Network Operations

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**VIACOM MEDIA NETWORKS  
US NETWORK OPERATIONS CENTER  
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## 1.0 Standard Definition Media Delivery

All standard definition (SD) program media submitted for on-air playout or archive may be delivered electronically via file transfer, or via video tape, as outlined in the sections below. Please check with your network representative regarding the accepted delivery method for a given program.

### 1.1 SD General Technical Specifications

This section describes the technical standards and practices that apply to all standard definition content delivered for archive and/or on-air playout.

#### 1.1.1 Video Standard

SD video content must be delivered in NTSC 525 line format (59.94hz) at 29.97 frames per second. All program material and test signals must conform to ITU-R Recommendation BT.601 standards, as amended, for NTSC serial digital video

#### 1.1.2 Video Levels

- Luminance (white level) must not exceed 100 IRE (714mv) on transient peaks when measured as a derived composite video signal with an IRE filter applied on a calibrated broadcast waveform monitor.
- Combined Luminance and chrominance signals should not exceed 110 IRE (785mv) when measured as a derived composite video signal in flat response mode on a calibrated broadcast waveform monitor.
- Chrominance signals must remain within the legal 0-700mV range when measured in the RGB domain on a calibrated digital broadcast waveform monitor. A diamond waveform display or equivalent should be used to avoid gamut errors and prevent illegal colors during production.
- Chrominance levels created in an RGB color space must result in a valid signal when transformed to Y'PrPb ("601") color space in accordance with ITU-R Rec. BT.601 for NTSC video.
- Black level must be at zero IRE units when measured as a component serial digital signal. 7.5IRE "setup" must not be applied to the SDI black signal in the digital domain.
- Closed Caption Line 21 waveform must conform to EIA608 standards (see Section 1.1.6).

### 1.1.3 Audio Standard

Audio content must be delivered as 16-bit, 20-bit, or 24-bit uncompressed (PCM) digital audio at 48kHz sample rate.

### 1.1.4 Audio Levels

- The level of normally-spoken dialog within the mix should be -24 dB LKFS (+/- 2db), as measured on a meter compliant with ITU B.S. 1770-3 (or future revision). The measurement shall be integrated over the duration of the program segment or short-form item as defined in ATSC A/85:2013 Recommended Practice for Audio Loudness. (Dialog levels can be measured within a mix by using a meter equipped with Dolby Dialog Intelligence technology, or equivalent.)
- If LKFS measurement of the dialog within the mix is not possible, then the integrated LKFS audio level of the entire program audio track of each segment or short form item must be -24 DBFS (+/-2db), as measured on a .ITU B.S. 1770-3 meter (or future revision).
- Peak audio levels must not exceed -2dbfs True Peak as measured using a meter compliant with ITU BS-1770-3 (or future revision)
- Audio must be free from distortion, dropouts, aliasing, and other objectionable artifacts.
- In accordance with federal regulations (the “CALM Act”) and ATSC A/85:2013 (or future revision), the level of any program segment or short form content will be corrected to an average level of -24 dBFS +/- 2db during transmission at the US NOC
- A dialog normalization level (dialnorm) value of -24 will be applied to all program audio transmitted from the US NOC. Content producers are encouraged to deliver content that complies with a -24LKFS dialog loudness, measured in accordance with ITU-R BS.1770-3 (or future revision) and ATSC A/85:2013 (or any future revision) as described above.
- The purpose of dialog normalization is to provide consistent audio level between programs, commercial spots, interstitials, and other broadcast/cable channels. Please be advised that program audio loudness level will be automatically conformed to this level during broadcast transmission.
- A copy of the ATSC A/85 document can be found here: <http://atsc.org/recommended-practice/a85-techniques-for-establishing-and-maintaining-audio-loudness-for-digital-television/>

### 1.1.5 Audio Channel Assignments

- Stereo Left and Right audio signals must appear on Channels 1 and 2 respectively.
- Monaural audio may be substituted for Stereo on channels 1 and 2, but must appear on both channels and must be in-phase.
- Secondary Audio Program (SAP, Spanish) if available, must be delivered as dual-mono on Channels 3 and 4 (not stereo).
- Descriptive Video Service (DVS) audio, if available, must be delivered as dual-mono audio on Channels 3 and 4 UNLESS SAP (Spanish) is also delivered. (See next item)
- If both SAP and DVS are delivered, SAP must appear on channel 3 and DVS must appear on channel 4.
- **If neither SAP nor DVS are delivered**, a mono mix of channels 1 and 2 **must** be delivered on Channel 3 and 4. Note: It is NOT acceptable to copy the Channel 1&2 stereo mix to Channels 3&4 - rather, a mono sum of 1&2 must be created and delivered on 3 and 4. This is to ensure that viewers who listen to SAP audio receive a complete audio service on their mono SAP signal, not simply “half” of a stereo signal.
  
- Dolby-E is NOT accepted for Standard Definition delivery for US channels at this time.

### 1.1.6 Closed Captioning

- Closed Caption data must be provided in accordance with EIA-608 specification, on vertical interval (VBI) line 21 field 1 and 2.
- English/primary language Closed Captioning must be provided in the CC1 area (Field 1) of the caption data.
- Spanish or any other secondary language captioning, if available, must be provided on CC3 (Field 2).

## **1.2 SD Broadcast Video Tape Delivery Specification**

This section describes the delivery standards and practices that apply to standard definition content delivered on video tape for archive and/or on-air playout.

### **1.2.1 Technical Compliance**

All SD video tape content must conform to the SD General Technical Specifications set forth in section 1.1 and subsections above.

### **1.2.2 Tape Format**

SD video tape content will be accepted Sony Digital Betacam (DigiBeta) format only.

### **1.2.3 Tape Stock**

All programs must be delivered on new tape stock, free of video and audio dropouts, flash frames, glitches and other playback artifacts.

### **1.2.4 Length**

- No program segment or clip shorter than 5 seconds will be accepted for air.
- Tape media may be any length or size appropriate for the content being delivered.
- Multi-segment programs should contain all segments on a single tape, unless the total running time of all segments exceeds 110 minutes.

### **1.2.5 Timecode**

- Tape must contain continuous drop-frame longitudinal timecode (LTC) on the timecode track, formatted as per SMPTE-12M.
- Tape must also contain continuous drop-frame Vertical Interval Timecode (VITC), synchronous with LTC timecode, on VBI line 14 and 16 per SMPTE RP-164

### **1.2.6 Test Sequence**

Tape must contain 30 seconds of SMPTE standard definition 75% Color Bars test signal (SMPTE EG-1) and audio tone at reference level on all tracks containing program audio content (i.e. "bars and tone"), from timecode 00:59:00 – 00:59:30, followed by 10 seconds of black/silence from 00:59:30 – 00:59:40.

### **1.2.7 Slate**

Tape must contain 10 seconds of title slate from timecode 00:59:40 – 00:59:50, followed by 10 seconds of Black from 00:59:50 – 01:00:00. The following information must be contained in the slate text:

- Network/Channel Name
- Program Title
- Episode Number and Title
- Version Letter
- Segment \_\_\_ of \_\_\_
- Record date
- Server ID, when available
- Starting timecode and length of each segment
- Total Program Running Time (excluding black/slate)
- Audio Channel assignments
- Indication (Y/N) of Secondary Audio Program (SAP) on audio channel 3
- Indication (Y/N) of Descriptive Video Service (DVS), channel number
- Indication (Y/N) of Closed Captioning on Line 21
- Indication of Aspect Ratio of active Picture (4x3 or 16x9)
- Name of production facility and edit room/location

### **1.2.8 Program Segments**

First program segment must start at timecode 01:00:00. Additional program segments must be separated by 10 seconds of black, 10 seconds of Slate (see Section 1.2.7), and 10 seconds of black between segments.

### **1.2.9 Commercial Spots**

Most commercial spots and promo segments are delivered digitally as files - see Section 1.3 below. Any spots or promos which cannot be digitally delivered must be delivered on individual tapes, formatted the same as Program Segments above. Tapes containing multiple commercial spots will not be accepted.

### **1.2.10 Promo Reels**

Many promo segments are delivered digitally as files - see Section 1.3 below. Any spots or promos which cannot be digitally delivered must be delivered on tapes, formatted the same as Program Segments above. Tapes may contain multiple versions of a given promo, separated by at least 10



seconds of black followed by slate (see Section 1.2.7) and 10 seconds of additional black.

**1.2.11 Trailing Black**

There must be at least 20 seconds of black following the final program segment on tape.

**1.2.12 Tape Labeling**

- The label on the tape cassette and the storage box must contain the same information as contained on the title slate described above.
- A written rundown summarizing start and end timecode values for each segment, along with segment running time, must be included with the tape.

**1.2.13** [intentionally left blank]

**1.2.14** [intentionally left blank]

## **1.3 SD Broadcast File Delivery Specification**

This section describes the delivery standards and practices that apply to standard definition content digitally delivered as a file for archive and/or on-air payout.

### **1.3.1 Technical Compliance**

All SD video files must conform to the SD General Technical Specifications set forth in section 1.1 and subsections above.

### **1.3.2 File Format**

SD video files for Archive and on-air playback must conform to the following standard:

- Container: MXF OP1a (SMPTE D10, SMPTE 356M-2001)
- Resolution: 720x512 resolution
- Encoding: MPEG2, 50Mbps I-Frame, 4:2:2 Profile@ Main Level, 29.97 frames per second / 59.94 fields per second (IMX50)
- Audio: Uncompressed 4-channel audio, 24bit @48khz, AES3
- Closed Caption data contained as VBI waveform data on Line 21 in accordance with EIA608

### **1.3.3 File Compression**

All programs must be delivered free of video and audio dropouts, flash frames, glitches, macroblocking, and other playback or encoding artifacts.

### **1.3.4 File Size**

- No program segment or clip shorter than 5 seconds will be accepted for air
- File must not be padded with leading or trailing zeros or null values

### **1.3.5 Timecode**

File must contain continuous drop frame longitudinal timecode l6m formatted as per SMPTE-12M, contained as VBI waveform data on Lines 14 and 16 as per SMPTE RP164.

### **1.3.6 Test Sequence**

File must contain 30 seconds of SMPTE standard definition 75% Color Bars test signal (SMPTE EG-1) with multichannel audio tone at reference level on all tracks containing program

content (i.e. “bars and tone”), from timecode 00:59:00 – 00:59:30, followed by 10 seconds of black/silence from 00:59:30 – 00:59:40

### **1.3.7 Slate**

File must contain 10 seconds of title slate from timecode 00:59:40 – 00:59:50, followed by 10 seconds of Black from 00:59:50 – 01:00:00. The following information must be contained in the slate text:

- Network/Channel Name
- Program Title
- Episode Number and Title
- Version Letter
- Segment \_\_\_ of \_\_\_
- Record date
- Server ID, when available
- Starting timecode and length of each segment
- Total Program Running Time (excluding black and slate)
- Audio Channel assignments
- Indication (Y/N) of Secondary Audio Program (SAP) on audio channel 3
- Indication (Y/N) of Descriptive Video Service (DVS) on audio channel 3 or 4
- Indication (Y/N) of Closed Captioning on Line 21
- Indication of Aspect Ratio of active Picture (4x3 or 16x9)
- Name of production facility and edit room/location

### **1.3.8 Program Segments**

First program segment must start at timecode 01:00:00. Additional program segments must be separated by 10 seconds of black, followed by 10 seconds of slate (see Section 1.3.7) and 10 seconds of black between segments.

### **1.3.9 Commercial Spots**

All commercial spots must be delivered as individual files, formatted the same as episodic Program Segments described above. Files containing more than one commercial spot per file will not be accepted.

### **1.3.10 Promo Files**

All promo segments must be delivered as individual files, formatted the same as episodic Program Segments described above. Files containing more than one promo per file will not be accepted.

**1.3.11 Trailing Black**

There must be at least 2 frames of black following the final frame of active video.

**1.3.12 File Naming Conventions**

- [tbd]
- [tbd]

**1.3.13** [intentionally left blank]

**1.3.14** [intentionally left blank]

## 2.0 High Definition Media Delivery

All HD program media submitted for on-air playout may be delivered electronically via file transfer, or via video tape, as outlined in the sections below. Please check with your network representative regarding the accepted delivery method for a given program.

### 2.1 HD Technical Specification

This section describes the technical standards and practices that apply to all high definition content delivered for archive and/or on-air playout.

#### 2.1.1 Video Standard

HD video content must be delivered as 1920x1080 16x9 Interlaced (1080i) 10-bit 4:2:2 component digital video in accordance with the ITU-R BT.709 part 2 standard, at 29.97 frames per second (59.94 fields per second).

#### 2.1.2 Video Levels

- Luminance must not exceed 714mv (100 IRE units).
- Chrominance levels in the Y/Pr/Pb domain must not exceed 785mv (110IRE).
- Chrominance signals must remain within the legal 0-700mV range when measured in the RGB domain on a calibrated digital broadcast waveform monitor. A diamond waveform display or equivalent should be used to avoid gamut errors and prevent illegal colors during production.
- Chrominance levels created in an RGB color space must result in a valid signal when transformed to Y'PrPb (709) color space in accordance with ITU-R Rec 709 for HDTV video.
- Black level must be at zero IRE units as measured in the component digital domain.

#### 2.1.3 Audio Standard

Audio content must be delivered as 16-bit, 20-bit, or 24-bit uncompressed (PCM) digital audio at 48khz sample rate.

#### 2.1.4 Audio Levels

- The level of normally-spoken dialog within the mix should be -24 dB LKFS (+/- 2db), as measured on a meter compliant with ITU B.S. 1770-3 (or future revision). The measurement shall be integrated over the duration of the program segment or short-form item as defined in ATSC

A/85:2013 Recommended Practice for Audio Loudness.  
(Dialog levels can be measured within a mix by using a meter equipped with Dolby Dialog Intelligence technology, or equivalent.)

- If LKFS measurement of the dialog within the mix is not possible, then the integrated LKFS audio level of the entire program audio track of each segment or short form item must be -24 DBFS (+/-2db), as measured on a .ITU B.S. 1770-3 meter (or future revision).
- Peak audio levels must not exceed -2dbfs True Peak as measured using a meter compliant with ITU BS-1770-3 (or future revision)
- Audio must be free from distortion, dropouts, aliasing, and other objectionable artifacts.
- In accordance with federal regulations (the “CALM Act”) and ATSC A/85:2013 (or future revision), the level of any program segment or short form content will be corrected to an average level of -24 dBFS +/- 2db during transmission at the US NOC
- A dialog normalization level (dialnorm) value of -24 will be applied to all program audio transmitted from the US NOC. Content producers are encouraged to deliver content that complies with a -24LKFS dialog loudness, measured in accordance with ITU-R BS.1770-3 (or future revision) and ATSC A/85:2013 (or any future revision) as described above.
- The purpose of dialog normalization is to provide consistent audio level between programs, commercial spots, interstitials, and other broadcast/cable channels. Please be advised that program audio loudness level will be automatically conformed to this level during broadcast transmission.
- A copy of the ATSC A/85 document can be found here: <http://atsc.org/recommended-practice/a85-techniques-for-establishing-and-maintaining-audio-loudness-for-digital-television/>
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### 2.1.5 Audio Channel Assignments

- Stereo Left and Right audio signals must appear on channel 1 and 2 respectively
- Monaural audio may be substituted for Stereo on channels 1 and 2, but must appear on both channels and must be in-phase.

- Secondary Audio Program (SAP, Spanish) if available, must be delivered as dual-mono on Channels 3 and 4 (not stereo).
- Descriptive Video Service (DVS) audio, if available, must be delivered as dual-mono audio on Channels 3 and 4 UNLESS SAP (Spanish) is also delivered. (See next item)
- If both SAP and DVS are delivered, SAP must appear on channel 3 and DVS must appear on channel 4.
- **If neither SAP nor DVS are delivered**, a mono mix of channels 1 and 2 **must** be delivered on Channel 3 and 4. Note: It is NOT acceptable to copy the Channel 1&2 stereo mix to Channels 3&4 - rather, a mono sum of 1&2 must be created and delivered on 3 and 4. This is to ensure that viewers who listen to SAP audio receive a complete audio service on their mono SAP signal, not simply “half” of a stereo signal.
- 5.1 Surround Audio, (discrete audio tracks) if available, must appear on Channels 5-10 in the following channel assignment format:
  - Channel 1: Lt or Lo (indicated on slate)
  - Channel 2: Rt or Ro (indicated on slate)
  - Channel 3: SAP/DVS/Mono Mix
  - Channel 4: SAP/DVS/Mono Mix
  - Channel 5: Left Front
  - Channel 6: Right Front
  - Channel 7: Center
  - Channel 8: Low Frequency/Effects (LFE)
  - Channel 9: Left Rear
  - Channel 10: Right Rear
- Dolby-E for US Domestic HD channels is accepted ONLY on Group 4 Pair 2 (Channel 15 and 16) for HD Content. Dolby E must be delivered in addition to (not instead of) the discrete audio channel assignments described above
  - The audio channel assignments within the Dolby-E audio package conform to the following standard:
  - Channel 1: Left Front
  - Channel 2: Right Front
  - Channel 3: Center
  - Channel 4: Low Frequency/Effects (LFE)
  - Channel 5: Left Rear
  - Channel 6: Right Rear
  - Channel 7: SAP/DVS if available, otherwise Mono downmix

- Channel 8: SAP/DVS if available, otherwise Mono downmix
- Music and Effects (M&E) tracks, are optional, but if provided must appear on Channel 11 and 12. These will not be broadcast to air and are included for archive purposes only.

#### **2.1.6 Closed Captioning**

- Closed caption data must be provided in accordance with the EIA-708 specification, encoded as VANC data on line 9, DID 61h SDID 101h as per SMPTE334M.
- Closed caption data may also be provided in accordance with the EIA-608 specification, encoded as VANC data on line 9, DID 61h SDID 102h.
- Captions must be stored in MPEG-2 Picture User Data as per SMPTE 328M.
- English/primary language captions must be provided in the Service 1 area of the 708 caption data.
- Spanish or any other secondary language captioning, if available, must be provided on 708 Service 2.



## **2.2 HD Broadcast Video Tape Delivery Specification**

This section describes the delivery standards and practices that apply to high definition content delivered on video tape for archive and/or on-air playout.

### **2.2.1 Technical Compliance**

All HD video tape content must conform to the HD General Technical Specifications set forth in section 2.1 and subsections above.

### **2.2.2 Tape Format**

- HD content will be accepted on Sony HDCam-SR format.
- In certain circumstances, Sony HDCam tape will also be accepted; however, no program containing more than 4 channels of audio will be accepted on HDCam format (i.e. Dolby E is not accepted on HDCam). See Section 2.1.5 for Audio Channel Assignment information on SR-format tapes.

### **2.2.3 Tape Stock**

All programs must be delivered on new tape stock, free of video and audio dropouts, flash frames, glitches and other playback artifacts.

### **2.2.4 Length**

- No program segment or clip shorter than :05 seconds will be accepted for air.
- Tape may be any length or size, appropriate for the content being delivered.
- Multi-segment programs should contain all segments on a single tape, unless the total running time of all segments exceeds 110 minutes.

### **2.2.5 Timecode**

Tape must contain continuous drop-frame longitudinal timecode and vertical-interval timecode, embedded in the HANC and VANC data in accordance with SMPTE RP-188.

### **2.2.6 Test Sequence**

Tape must contain 30 seconds of SMPTE high definition Color Bars test signal as per SMPTE RP-219-2002, with multichannel audio tone at reference level on all tracks containing program audio content (“bars and tone”), from timecode 00:59:00 –

00:59:30, followed by 10 seconds of black/silence from 00:59:30 – 00:59:40.

### **2.2.7 Slate**

Tape must contain 10 seconds of title slate from timecode 00:59:40 – 00:59:50, followed by 10 seconds of Black from 00:59:50 – 01:00:00. The following information must be contained in the slate text:

- Network/Channel Name
- Program Title
- Episode Number and Title
- Version Letter
- Segment \_\_\_ of \_\_\_
- Record date
- Server ID, when available
- Starting timecode and length of each segment
- Total Program Running Time (excludes black and slate)
- Indication of Stereo or 5.1 Surround Audio
- Audio Channel assignments
- Indication (Y/N) of Secondary Audio Program (SAP) on audio channel 3
- Indication (Y/N) of Descriptive Video Service (DVS) on audio channel 3 or 4
- Indication (Y/N) of Closed Captioning on VANC Line 9
- Indication of Aspect Ratio of active Picture (4x3 or 16x9)
- Name of production facility and edit room/location

### **2.2.8 Program Segments**

First program segment must start at timecode 01:00:00. Additional program segments must be separated by 10 seconds of black, 10 seconds slate (see Section 2.2.7), and 10 seconds of black between segments.

### **2.2.9 Commercial Spots**

Most commercial spots are delivered digitally as files. See section 2.3 below. Any spots or promos which cannot be digitally delivered must be delivered on individual tapes, formatted the same as Program Segments above. Tapes containing multiple commercial spots will not be accepted.

### **2.2.10 Promo Reels**

Many promo segments are delivered digitally as files - see Section 2.3 below. Any spots or promos which cannot be digitally delivered must be delivered on tapes, formatted the

same as Program Segments above. Tapes may contain multiple versions of a promo, separated by at least 10 seconds of black followed by 10 seconds slate (see Section 2.2.7) and 10 seconds of additional black.

**2.2.11 Trailing Black**

There must be at least 20 seconds of black following the final program segment on tape.

**2.2.12 Tape Labeling**

- The label on the tape cassette and the storage box must contain the same information as contained on the title slate described above.
- A written rundown summarizing start and end timecode values for each segment, along with segment running time, must be included with the tape.

**2.2.13** [intentionally left blank]

**2.2.14** [intentionally left blank]

## **2.3 HD Broadcast File Delivery Specification**

This section describes the delivery standards and practices that apply to high definition content digitally delivered as a file for archive and/or on-air playout.

### **2.3.1 Technical Compliance**

All HD video files must conform to the HD General Technical Specifications set forth in section 2.1 and subsections above.

### **2.3.2 File Format - Longform**

HD longform video files for Archive and on-air playback must conform to the following standard:

- Container: MXF OP1a (SMPTE 378M)
- Resolution: 1920x1080i (interlaced) 16x9 aspect ratio
- Encoding: MPEG2, 4:2:2 Profile@ High Level, 100Mbps I-Frame, CBR, 29.97 frames per second (59.94 fields per second)
- Audio: Uncompressed 4-, 12- or 16-channel audio, 24bit @48khz, BWF (SMPTE 382M). All audio channels must be contained within 1 MXF track.

### **2.3.3 File Format – Short Form**

HD shortform video files (Commercial Spots, Promos, Interstitial Material, etc.) for Archive and on-air playback must conform to the following standard:

- Container: MXF OP1a (SMPTE 378M)
- Resolution: 1920x1080i (interlaced) 16x9 aspect ratio
- Encoding: MPEG2, 4:2:2 Profile@ High Level, 50Mbps Long GOP, CBR, 29.97 frames per second (59.94 fields per second)
- Audio: Uncompressed 2-, 4-, 12- or 16-channel audio, 24bit @48khz, BWF (SMPTE 382M). All audio channels must be contained within 1 MXF track.

### **2.3.4 File Compression**

All programs must be delivered free of video and audio dropouts, flash frames, glitches, macroblocking, and other playback or encoding artifacts.

### **2.3.5 File Size**

- No program segment or clip shorter than :05 seconds will be accepted for air.

- Files must not be padded with leading or trailing zeros or null values.

### **2.3.6 Timecode**

File must contain continuous SMPTE Drop Frame Timecode (SMPTE 12M) embedded in HD-SDI VANC Line 9 DID 60h SDID 60h, in accordance with SMPTE RP188 and SMPTE 291M. Timecode must be retained in the MXF as per SMPTE 328M.

### **2.3.7 Test Sequence**

File must contain 30 seconds of SMPTE high-definition definition Color Bars test signal and multichannel audio tone at reference level on all tracks containing program audio (“bars and tone”), from timecode 00:59:00 – 00:59:30, followed by 10 seconds of black/silence from 00:59:30 – 00:59:40.

### **2.3.8 Slate**

File must contain 10 seconds of title slate from timecode 00:59:40 – 00:59:50, followed by 10 seconds of Black from 00:59:50 – 01:00:00. The following information must be contained in the slate text:

- Network/Channel Name
- Program Title
- Episode Number and Title
- Version Letter
- Segment \_\_\_ of \_\_\_
- Record date
- Server ID, when available
- Starting timecode and length of each segment
- Total Program Running Time (excludes black and slate)
- Indication of Stereo or 5.1 Surround Audio
- Audio Channel assignments
- Indication (Y/N) of Secondary Audio Program (SAP) on audio channel 3
- Indication (Y/N) of Descriptive Video Service (DVS) on audio channel 3 or 4
- Indication of 5.1 Surround Channel audio stems on audio channels 5-10 (Y/N)
- Indication (Y/N) of Closed Captioning on Line 9 VANC
- Indication of Aspect Ratio of active Picture (4x3 or 16x9)
- Name of production facility and edit room/location

**2.3.9 Program Segments**

First program segment must start at timecode 01:00:00. Additional program segments must be separated by 10 seconds of black, 10 seconds slate (see Section 2.2.7), and 10 seconds of black between segments.

**2.3.10 Commercial Spots**

All commercial spots must be delivered as individual files, formatted the same as episodic Program Segments described above. Files containing more than one commercial spot per file will not be accepted.

**2.3.11 Promos**

All promo segments must be delivered as individual files. Files containing more than one promo per file will not be accepted.

**2.3.12 Trailing Black**

There must be at least 2 frames of black following the final program segment in the file.

**2.3.13 File Naming Conventions**

- [tbd]
- [tbd]

**2.3.14** [intentionally left blank]

**2.3.15** [intentionally left blank]