



**TECHNICAL SPECIFICATIONS  
CONTENT DELIVERY FOR BROADCAST**

RELEASED: JUNE 2019

## REVISION HISTORY

Version	Revision Date	Revision Description	Approved By	Notes
1	Sept 1, 2017	First version of new spec released	Director, Broadcast Operations	
2	June, 2019	Removed SD format and general updates	Director, Broadcast Operations	

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## **PURPOSE:**

This document describes the video and audio practices and technical standards for the delivery of content for broadcast to Corus Entertainment's Specialty channels and the Global Television network.

For the delivery of commissioned original and acquired material to Corus Entertainment, Corus Studios and Nelvana, please reference the [Nelvana & Commissioned Technical Specifications](#).

## **GENERAL:**

The master copy of the program should be recorded directly from Licensor's "master".

All program content should be recorded in accordance with standard industry practices and in accordance with the appropriate ANSI/SMPTE/ITU-R Standards and Recommended Practices.

- All file delivery must be tested and approved by Corus prior to content delivery.
- All files can be delivered via Signiant, Aspera, or onboarded ad-delivery partner. Alternate delivery methods will need to be determined and agreed to on a case by case basis.
- Best efforts must be made to meet Corus Entertainment's format specifications. Alternate file specs may be accepted only with prior written consent from Corus Entertainment and following the evaluation of a test file.
- Content distributors should anticipate a 1-3 week period to onboard and evaluate new file deliveries.

## **PLEASE NOTE:**

- The technical specifications outlined below are subject to change based on ongoing development.
- Please check with your network executive for delivery requirements prior to delivery.

## 1. FILE SPECIFICATIONS FOR BROADCAST

Video	XDCAM HD422 50 Mbps in a MXF wrapper
Bit Rate	50 Mbps
File type	MPEG -2 compression
Resolution	1920 x 1080i (interlaced)
Frame Rate	59.94 Hz (29.97 fps)
Aspect Ratio	16:9, 1.78:1
Timecode	Matching LTC & VITC, continuous, synchronous with video
Time Code Start of Content	TCR 01:00:00;00
Closed Captioning	Scenarist Closed Caption: *.scc file, DF, plus embedded
Audio	Stereo pairs, 48 kHz, 24 bit PCM recorded as:
	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 Centre Ch 8 = 5.1 LFE Ch 9 = 5.1 Left Surround Ch 10 = 5.1 Right Surround Ch 11 = Dialogue Ch 12 = Effects

### SPECIFICATIONS FOR AUDIO

Audio reference levels: +4 dBu and/or -20 dBfs, as applicable

Peak levels: range between -18 dBfs and -7 dBfs

Audio levels must be mixed to -24 LKFS as per ATSC A/85 “Establishing and Maintaining Audio Loudness” standard. The official ATSC A/85 document can be found [here](#) (of key importance is section H.6.1 – Long Form Content). For information regarding ITU-R BS.1770-4 “Algorithms to measure audio programme loudness and true-peak audio level” please reference the document [here](#).

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; including 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.
- Commissioned original content must be captured in HD using an approved camera from the [Corus Acceptable Camera List](#).
- Up-converted SD content is not acceptable. Exceptions will be made for stock footage of historical content.
- Aspect ratio must be noted and the Active Format Description (AFD) descriptor code should be left blank in the file.

## 2. FILE SPECIFICATIONS FOR UHD

Video	XAVC 300 Mbps in a MXF wrapper
Bit Rate	300 Mbps
File type	MPEG -4 compression
Resolution	3840 x 2160 (progressive)
Frame Rate	59.94 Hz (29.97 fps)
Aspect Ratio	16:9, 1.78:1
Timecode	Matching LTC & VITC, continuous, synchronous with video
Time Code Start	TCR 01:00:00;00
Closed Captioning	Scenarist Closed Caption: *.scc file, DF, plus embedded
Audio	Stereo pairs, 48 kHz, 24 bit PCM recorded as:
	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 Centre Ch 8 = 5.1 LFE Ch 9 = 5.1 Left Surround Ch 10 = 5.1 Right Surround Ch 11 = Dialogue Ch 12 = Effects

### SPECIFICATIONS FOR AUDIO

Audio reference levels: +4 dBu and/or -20 dBfs, as applicable

Peak levels: range between -18 dBfs and -7 dBfs

Audio levels must be mixed to -24 LKFS as per ATSC A/85 “Establishing and Maintaining Audio Loudness” standard. The official ATSC A/85 document can be found [here](#) (of key importance is section H.6.1 – Long Form Content). For information regarding ITU-R BS.1770-4 “Algorithms to measure audio programme loudness and true-peak audio level” please reference the document [here](#).

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; including 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.
- Commissioned original content must be captured in UHD using an approved camera from the [Corus Acceptable Camera List](#).
- Up-converted HD content is not acceptable. Exceptions will be made for stock footage of historical content.
- Aspect ratio must be noted and the Active Format Description (AFD) descriptor code should be left blank in the file.



### 3. ORDER OF EVENTS

#### FILE DELIVERY

All long form program content must be recorded in this exact order:

- 1) A slate lasting one (1) frame and conforming exactly to section SLATE below (ex. 00:59:58;00 - 00:59:58;01)
- 2) One (1) second and twenty-eight (28) frames of coherent black video with silent audio (ex. 00:59:58;01 - 00:59:59;29)
- 3) Program audio and video starts at 01:00:00;00
- 4) The following items are mandatory with delivery of commissioned original programming:
  - a. Minimum ten (10) seconds of black between program segments
  - b. Timing cue sheet
  - c. Commercial blacks (as noted above in part a.)
  - d. Thirty (30) seconds of coherent black video with silent audio following the last frame of program material
  - e. Textless elements (neutral background elements should be provided for all opening sequences, closing credits and all scenes in the program containing text)
  - f. A minimum of ten (10) seconds of coherent black video with silent audio following textless elements

#### CONTENT FORMATS

[Corus English Content Formats and Duration Guidelines](#) and [Format des programmes \(Historia et Sériés+\)](#) can be found here.

#### CORUS ENTERTAINMENT AND GLOBAL TELEVISION END CREDIT/LOGO

Check with your network executive for any questions regarding the “Produced in association with” end credit. If required, it can be accessed from the [Technical Specifications](#) page under Corus Credits.

#### SLATE

The visual slate should contain the following information and match the content:

- 1) Title of program/film
- 2) Episode title and number
- 3) Name of postproduction facility
- 4) Date of recording
- 5) Duration of content (excluding blacks)
- 6) Audio channel description

## 4. CLOSED CAPTIONING

### CONTACTS

For the Specialty Networks: Closed caption files can be provided via email to: [Corus-MediaServices@corusent.com](mailto:Corus-MediaServices@corusent.com)

For the Conventional Networks: Closed caption files can be provided via email to: [COAS@corusent.com](mailto:COAS@corusent.com) and [COACG@corusent.com](mailto:COACG@corusent.com)

### CLOSED CAPTIONING DELIVERABLES (in order of preference):

- 1) Scenarist Closed Caption \*.scc file, drop frame plus embedded in video
- 2) Embedded in video
- 3) Delivered as Scenarist Closed Caption \*.scc file, drop frame

### CLOSED CAPTIONING EMBEDDED IN CONTENT

- If the content supplier is providing closed captions, the embedded closed caption data should conform to EIA-708-B and the captions should be inserted in the VANC space in accordance with SMPTE 436M.
- The Caption Distribution Packet (CDP) will contain the caption service descriptor, EIA-708-B captions and EIA-608 caption data.

### CAB STYLE GUIDE

- All closed captioning provided to Corus must conform to the [Closed Captioning Standards and Protocol](#).
- All pre-recorded Canadian content needs to be created and encoded using pop-on captions.

### PLEASE NOTE:

- Captions should not have time code embedded within the caption metadata and must have an accurate frame rate matching the final video frame rate provided on the master.
- The closed caption header byte must not be inserted within the first 15 frames of the content.

## 5. FRENCH LANGUAGE AUDIO DUBBING SPECIFICATIONS – HISTORIA and SÉRIES+

### PRODUCTION OF FRENCH LANGUAGE CONTENT

In the case of a French-language production, please clearly identify the language of the program and comply with the technical points above.

### ENGLISH LANGUAGE PRODUCTION TO BE DUBBED IN FRENCH

These following sections apply if only an English audio mix is available:

- 1) In the case of an English language document intended for French audio dubbing, the assignment of the audio tracks must be clearly indicated
- 2) The audio signal must comply with the technical points above
- 3) To allow maximum flexibility and quality for dubbing, the maximum amount of available separated audio elements is required
- 4) The audio elements must be at the same frame rate as the delivered video
- 5) If the number of audio tracks being delivered is greater than the number of audio tracks available on the delivery support, the audio elements must be delivered separately as Broadcast Wave files

### AUDIO ELEMENTS FOR 5.1 CONTENT TO BE DUBBED IN FRENCH

When content is to be dubbed in 5.1 audio, the audio elements can be delivered as Broadcast Wave files.

The delivered audio elements must at least include:

- 1) 5.1 Full Mix
- 2) 5.1 Mix Minus Narration
- 3) 5.1 Stems – BG/Dialogue
- 4) 5.1 Stems – Music & Effects

The mix minus narration should be dipped.

To allow maximum flexibility and quality for dubbing, the maximum amount of available separated audio elements is required.

## **AUDIO ELEMENTS FOR STEREO CONTENT TO BE DUBBED IN FRENCH**

When content is to be dubbed in stereo audio, deliver the audio elements as Broadcast Wave files.

The delivered audio elements must at least include:

- 1) Full Stereo Mix
- 2) Stereo Mix Minus Narration
- 3) Stereo Stems – BG/Dialogue
- 4) Stereo Stems – Music & Effects

The mix minus narration should be dipped.

To allow maximum flexibility and quality for dubbing, the maximum amount of available separated audio elements is required.

## **PRODUCTIONS THAT REQUIRE DUBBING**

For all productions that require dubbing, please provide us with the following elements:

- 1) Final transcript of the original version, as produced script that includes the following:
  - a. Time code
  - b. Character name
  - c. Dialogue spoken
- 2) Supers Impression List (A.K.A. "chyrons" or "lower thirds")
- 3) End Credits
- 4) Eps, .psd or .ai format of the logo; if available, animated After Effects project with layers

Content Format can be found here: [Format des programmes \(Historia et Séries +\)](#)

For questions related to the delivery of these elements please contact:  
[CorusTVDoublageFrancais@corusent.com](mailto:CorusTVDoublageFrancais@corusent.com)

## 6. CAMERAS ACCEPTED FOR BROADCAST

[Corus Acceptable Camera List](#)

### **BROADCAST CAMCORDERS**

Acceptable Minimum Technical Specifications:

- 1) 1920 x 1080, 2/3" CCD sensor, 50 Mbit/s, 4:2:2 Chroma Subsampling
- 2) Supports LTC time code
- 3) Minimum two audio channels

### **UHD CAMCORDERS**

Acceptable Minimum Technical Specifications:

- 1) CCD: sensor 35mm
- 2) Horizontal Resolution: 4096 line
- 3) Dynamic Range: 12 stop
- 4) 12 Bit Depth

### **STILL CAMERAS and CINEMATOGRAPHY CAMERAS**

Acceptable Minimum Requirements:

- 1) 1 inch (25.4 mm) sensor
- 2) 4:2:2 Chroma Subsampling
- 3) 50 Mbit/s

\* Should be accompanied by slate for syncing

\* Footage should be recorded on external data recorder - See Data Recorder Specs

### **DATA RECORDERS**

Acceptable Minimum Requirements:

- 1) ProRes
- 2) 4:2:2 Chroma Subsampling
- 3) 100 Mbit/s
- 4) Supports LTC time code
- 5) Supports a minimum of two audio inputs

#### HDV, PROSUMER & MINIATURE FORMATS

- 1) A maximum of 30% of the final acquisition may be from material originating from cameras not meeting the minimum specs of Corus Acceptable Camera list.
- 2) Please contact [Corus Technology – SpecialtyOpsTeam](#) for cameras and data recorders not listed or meeting the minimum requirements. Material not acquired in one of the acceptable formats should be approved prior to the commencement of production.
- 3) Quay Media Services has studios, audio, video and lighting equipment available to assist with productions and all of our acquisition partners. For more information please contact [Production Management](#).

## 7. CONTACT INFORMATION FOR SPECIALTY BROADCAST

Corus Media Services - Toronto  
[Corus-MediaServices@corusent.com](mailto:Corus-MediaServices@corusent.com)

Specialty Operations - Toronto  
[SpecialtyOpsTeam@corusent.com](mailto:SpecialtyOpsTeam@corusent.com)

French Dubbing - Montreal  
[CorusTVDoublageFrancais@corusent.com](mailto:CorusTVDoublageFrancais@corusent.com)

Mailing Address:  
**Corus Entertainment Inc.**  
Attn. Media Services  
25 Dockside Drive  
Toronto, Ontario  
M5A 0B5  
Canada  
Tel: 416.479.0000

## 8. CONTACT INFORMATION FOR CONVENTIONAL BROADCAST

Conventional Coordination Group - Calgary  
[COACG@corusent.com](mailto:COACG@corusent.com)

Conventional On-Air Supervisors - Calgary  
[COAS@corusent.com](mailto:COAS@corusent.com)

Mailing Address:  
**Global Television Calgary**  
Attn. Conventional On-Air Coordination Group  
222 23<sup>rd</sup> Street NE  
Calgary Alberta  
T2E 7N2

## 9. APPENDICES

- 1) [Nelvana & Commissioned Technical Specifications](#)
- 2) [Corus Commercial Delivery Specifications](#)
- 3) [Corus English Content Formats and Duration Guidelines](#)
- 4) [Format des programmes \(Historia et Séries +\)](#)
- 5) [Corus Acceptable Camera List](#)
- 6) [Closed Captioning Standards and Protocol](#)
- 7) [ATSC A/85 Establishing and Maintaining Audio Loudness](#)
- 8) [ITU-R BS.1770-4 Audio Program Loudness](#)
- 9) [ITU-R BS.1770-4 Niveau sonore du programme audio](#)