TECHNICAL SPECIFICATIONS FOR PROGRAM DELIVERY

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Prepared by the CBC/Radio-Canada
Working Group on HD/SD standards

CBC Radio-Canada

Version 5.1 - Update Content

MODIFICATIONS	
Section 8.2	Include requirements for the 'Audio channel signal correlation'
Section 8.8	Loosen the tolerance of the dialog loudness
Section 8.9	Complete the section 'Audio subjective quality' by adding the sub-section 8.9.1
Section 8.10	Update the 'Surround Phase Shift' metadata parameter
Acknowledgments	Change the department names to reflect the current Corporation structure

Acknowledgments

This document was written with the collaboration of people from various departments within CBC/Radio-Canada. We acknowledge the contribution of the working group members of the following departments for their valuable input:

- English Services
- French Services
- Media Technology and Infrastructure Services

Questions?

Personnel from CBC/Radio-Canada may be reached by writing at one of the following addresses:

SUBJECT	CBC	RADIO-CANADA
Questions about the document	cbcprogramdelivery@cbc.ca	acquisitions.programmes@radio-canada.ca
Questions about Web Exclusives	media.streaming@cbc.ca	

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SUMMARY

CBC/Radio-Canada preferred media delivery method is file delivery. The following file package shall be provided for any program delivery.

QTY	DESCRIPTION	**CBC:** ACCEPTED FILE EXTENSIONS	**Radio-Canada:** ACCEPTED FILE EXTENSIONS
1	Video/Audio File - converted at 29.97i	[PGM ID].MXF or .MOV	[PGM ID].MXF or .MOV
1	Video/Audio File - original format	[PGM ID].MXF or .MOV	[PGM ID].MXF or .MOV
1	Closed Caption File	[PGM ID].SCC or .CAP	[PGM ID].SCC
1	Metadata File	[PGM ID].XML	[PGM ID].XML
1	Gallery	[PGM ID]_Gallery.JPEG	[PGM ID]_Gallery.JPEG
4	Still Images	[PGM ID]_Still_1.JPEG etc.	Not required

FILES – HD Video

ESSENCE	
Video - HD	1920 x 1080, 4:2:2 with 8/10-bit quantizing
	Color space in compliance with Rec. ITU-R BT.709
	29.97 frames/sec., constant, interlaced, upper field first
Frame Rate/ Scan Type	▪ Any production originally shot at a different frame rate and scan type than 29.97fps, interlaced, shall be delivered to CBC/Radio-Canada in its original format and also converted at 29.97i. ▪ Other frame rates and scan types accepted: 23.976p, 25i, 25p, 29.97p ▪ The frame rate shall remain constant from the beginning of the leader up to the end of the trailer.
Audio	PCM, 24bits, 48kHz,
	An audio mix ranging from 2 tracks (stereo) up 6 tracks (5.1) and a stereo mix for DV
	▪ CBC: 8 channels 1:L 2:R 3:C 4:LFE 5:Ls 6:Rs 7:DV-L 8:DV-R ▪ R-C: 10 channels 1:L 2:R 3:C 4:LFE 5:Ls 6:Rs 7:DV-L 8:DV-R 9:Lo 10:Ro
	▪ -2dBTP Max. ▪ Integrated program loudness: -24LKFS +/-2LU ▪ Dialog loudness: -24LKFS +/-2LU
Described Video	If no DV is available, a stereo mix of the program is required on tracks 7 and 8.
Time Code	Present, continuous (from start to end), for 29.97fps use the 'drop frame' mode.
AFD Value	Not required. The AFD value is inserted by CBC/Radio-Canada.

FILE WRAPPER	VIDEO CODING	AUDIO CODING	CLOSED CAPTION
.MXF	**XDCAM HD422 50Mbps (preferred format)**	Linear PCM	A CC file shall be provided separately. The CC must be formatted for a 29.97fps Drop Frame Time Code.
.MOV	Apple ProRes 422 (Standard or HQ)		
.MXF / .MOV	DNxHD 115 to 145, 175 to 220Mbps		

SUMMARY

FILES - SD Video

ESSENCE	
Video – SD	720x486 (4:3 or Anamorphic 16:9 SD), 4:2:2 with 8/10-bit quantizing
	Color space in compliance with Rec. ITU-R BT.601
	29.97 frames/sec., constant, interlaced, lower field first
Frame Rate/ Scan Type	▪ Any production originally shot at a different frame rate and scan type than 29.97fps, interlaced, shall be delivered to CBC/Radio-Canada in its original format and also converted at 29.97i. ▪ Other frame rates and scan types accepted: 23.976p, 25i, 25p, 29.97p ▪ The frame rate shall remain constant from the beginning of the leader up to the end of the trailer.
Audio	PCM, 24bits, 48kHz, -2dBTP Max.
	A stereo mix and a stereo mix for DV
	▪ Track Allocation 1:L 2:R 3:DV-L 4:DV-R
	Integrated Program loudness: -24LKFS +/-2LU & dialog loudness -24LKFS +/-2LU
Described Video	If no DV is available, a stereo mix of the program is required on tracks 3 and 4.
Time Code	Present, continuous (from start to end), for 29.97fps use the 'drop frame' mode.
AFD Value	Not required. The AFD value is inserted by CBC/Radio-Canada.

FILE WRAPPER	VIDEO CODING	AUDIO CODING	CLOSED CAPTION
MXF (.MXF)	**IMX 50Mbps (preferred)**	Linear PCM	A CC file shall be provided separately. The CC must be formatted for a 29.97fps Drop Frame Time Code.
QuickTime (.MOV)	Apple ProRes 422 (standard or HQ)		

WEB EXCLUSIVES

All HD and SD file specifications listed above apply except for the following items:

AUDIO/VIDEO CONTENT	
Media Delivery	Only file based delivery are accepted.
Frame Rate/ Scan Type	Content shall be delivered to CBC/R-C with its original frame rate and scan type. The frame rate shall remain constant from the beginning of the leader up to the end of the trailer.
	Accepted frame rates and scan types: 23.976p, 25i, 25p, 29.97p, 29.97i
SD content Image Display	4:3 content must be pillarboxed into a 16:9 frame.
Program Structure	▪ No leader, 1 sec of black/silence before and after the program ▪ The file shall contain 1 program segment per file
Audio	Track Allocation: 1:L 2:R (applies to HD and SD content)
Time Code	Present, continuous (from start to end), for 29.97fps use the 'drop frame' mode.

AUDIO CONTENT	
Audio	24bits, 48kHz, stereo (1:L 2:R) Integrated Program loudness: -24LKFS +/-2LU, -2dBTP max.
File Structure	No silence (leader), program, no silence (trailer)
File Format	▪ Linear PCM (.wav) or Broadcast Wave MPEG1 Layer II (.wav) @ 192 kbps/channel

1 Scope

The technical specifications defined in this document apply to programs delivered by file transfer or on tape, to the English and French networks of CBC/Radio-Canada for distribution on all delivery platforms. The delivery specifications for commercials are specified in a separate document. CBC/Radio-Canada reserves the right to reject any production that fails to meet the specifications described in this document.

2 File Delivery

This section describes the specifications that apply to content delivered as a file to CBC/R-C. This file may potentially be used on all CBC/Radio-Canada delivery platforms.

2.1 CONTENT DELIVERY – FILE PACKAGE TO PROVIDE

The following file package shall be provided for any program delivery.

QTY	DESCRIPTION	CBC: ACCEPTED FILE EXTENSIONS	R-C: ACCEPTED FILE EXTENSIONS	SPECIFICATIONS REFERENCE
1	A/V File - converted at 29.97i	[PGM ID].MXF or .MOV	[PGM ID].MXF or .MOV	See section 2
1	A/V File - original format	[PGM ID].MXF or .MOV	[PGM ID].MXF or .MOV	
1	Closed Caption File	[PGM ID].SCC or .CAP	[PGM ID].SCC	Always separate file See Section 3
1	Metadata File	[PGM ID].XML	[PGM ID].XML	See section 5
1	Gallery Image	[PGM ID]_Gallery.JPEG	[PGM ID]_Gallery.JPEG	See section 6
4	Still Images	[PGM ID]_Still_1.JPEG…	Not required	

2.2 DELIVERY PROCEDURE

Program providers shall contact CBC/Radio-Canada for information about the delivery method.

- For CBC: cbcprogramdelivery@cbc.ca
- For Radio-Canada: acquisitions.programmes@radio-canada.ca

2.3 FILE DELIVERY TEST

For new or small distributors, CBC/Radio-Canada is requesting that a file delivery test be done with a short representative sequence that lasts approximately 5 minutes to confirm that the file format is correct.

2.4 BACKUP DELIVERY PLAN

In case of problems with the file delivery, CBC/Radio-Canada has set up a backup file delivery method. Program providers shall contact CBC/Radio-Canada for additional information in this respect.

2.5 PROGRAM FILE NAMING CONVENTION

The file name shall clearly identify the program. The file name, noted as [PGM ID] in this document, shall include the following information:

ORDER	ELEMENT in [PGM ID]
1st	Program/Series Title
2nd	Season Number (if applicable)
3rd	Episode Number (if applicable)

Additionally:
- The elements in the file name shall be separated by an underscore symbol « _ ».
- The file name shall not contain any accent, special character or space.
- The maximum length of the complete file name shall not exceed 80 characters.

Ex: TheShowXYZ_S02_E04.mxf 'The Show XYZ', Season 2, Episode 4
[Pgm/Series Title]_ [Season#]_ [Episode#]

2.6 MXF WRAPPER – REQUIREMENTS

MXF (Material eXchange Format) is an open file format targeted at the exchange of audio-visual content with associated metadata. Due to the wide coverage of this standard, constraints are added to create a subset of this format and thus simplifying equipment interoperability.

CBC/R-C requires that any MXF file wrapper complies:
- With MXF OP1a, as defined in SMPTE ST 378:2004;
- With the constraints defined in AMWA AS-11's document, sections 6.1.1 to 6.1.8 (see table below).

AMWA AS-11 SECTION	DESCRIPTION
6.1.1 General	*'Files shall contain a single program comprised of video, audio and other ancillary data'*
6.1.2 Interleaving	*'Essence in container shall be frame-wrapped'*
6.1.3 Partitioning	*CBC/Radio-Canada accepts single or multiple partitions files.* *'It is recommended that new' body 'partition should be started each 1min. of program time. Partition should not be longer than 10min of program time, and new partition may be started to meet this requirement.* *The Header Partition shall be marked closed and complete.'*
6.1.4 Index Table	*'Files shall include full MXF Index Tables. The full Index Tables shall index every frame of every Track in the file.'*
6.1.5 Container	*'Files shall use the MXF Generic Container SMPTE ST 379-2:2010.'*
6.1.6 System Item	*NA/Optional*
6.1.7 RIP	*'Files shall contain a Random Index Pack per SMPTE ST 377-1:2011.'*
6.1.8 KAG Size	*'AS-11 Files shall employ the default KLV Alignment Grid of 1 unless this requirement conflicts with an underlying essence container specification. When a conflict exists, the value in that essence container specification shall be used.'*

Note: Most non-linear editing systems are capable of exporting files that comply with these specifications.

2.6.1 MXF FILE - TIME CODE

The time code can be inserted in several places in an MXF file. The equipment used at CBC/R-C typically reads the Time Code at the following locations:

- In the file header, where the Time Code is represented by Metadata, often referred to as Synthetic TC (as defined in SMPTE ST 377-1:2011);
- In the file body, where the time code values are inserted in the System Metadata pack (in compliance with SMPTE ST 385:2012 under 'user date/time').

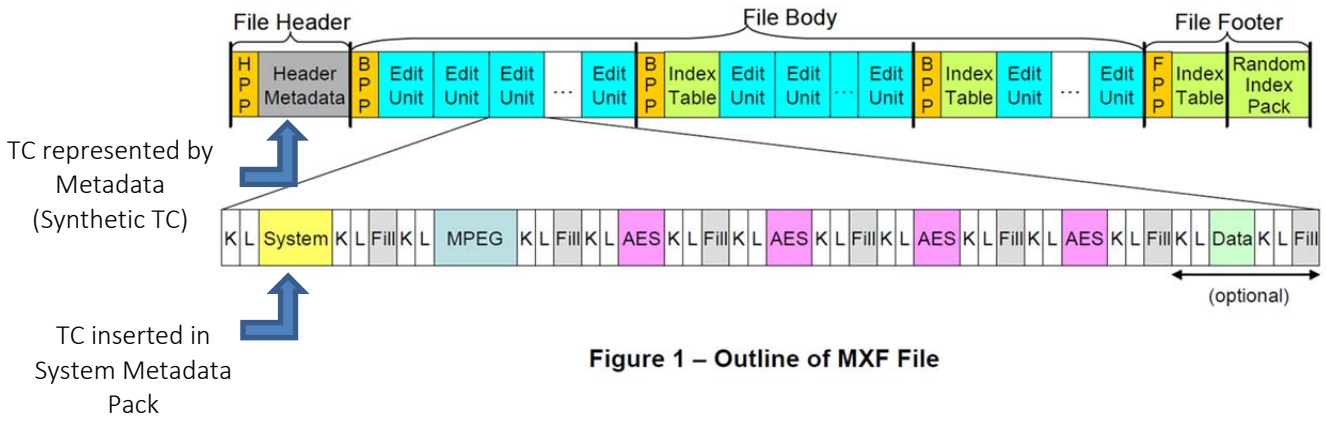


Figure 1 – Outline of MXF File

Reference:
Picture taken from SMPTE RDD9-2009

At all times, the time code shall remain coherent if it is inserted in more than one location in the file.

2.7 QUICKTIME WRAPPER - REQUIREMENTS

QuickTime is a proprietary multi-media technology developed by Apple. On rare occasions there could be equipment/software compatibility issues. CBC/R-C can provide, on request, the version numbers of the Apple tools in use internally (ex: Final Cut, Compressor,…).

2.8 FILES - HD CONTENT

The following HD file formats are accepted. Other file types shall be approved within the contractual agreement.

2.8.1 MXF WRAPPER– HD CONTENT

PARAMETER	SPECIFICATION
File Wrapper	MXF (.MXF) See section 2.6 for specifications.
Audio/Video Essence	See sections 7 and 8 for specifications.
Time Code	▪ Uninterrupted ascending time code as defined by the Time Code Track in the Material Package of the MXF file, in compliance with SMPTE ST 377-1:2011. Section 2.6.1 provides details on the locations where the Time Code can be inserted in an MXF file. ▪ See Section 9 for the general Time Code specifications.
Video Codec	XDCAM HD 422 @ 50 Mbps (An MXF wrapper with an XDCAM HD codec is the preferred HD content delivery format.)
	The following Avid DNxHD encoding formats are accepted: ▪ DNxHD 145 (the data rate varies from 115 to 145Mbps according to frame rate) ▪ DNxHD 220 (the data rate varies from 175 to 220Mbps according to frame rate)
Audio Codec	▪ Linear PCM, 48kHz, 24bits, ▪ Each audio channel must be contained within 1 MXF track, in compliance with SMPTE ST 382:2007.
Closed Caption	Shall be provided in a separate file (see section 3 for specifications).

2.8.2 QUICKTIME WRAPPER – HD CONTENT

PARAMETER	SPECIFICATION
File Wrapper	QuickTime (.MOV) Please contact CBC/Radio-Canada for recommended version.
Audio/Video Essence	See sections 7 and 8 for specifications.
Time Code	▪ A Time Code track shall be present within any QuickTime file and continuous from the beginning of the leader up to the end of the trailer. ▪ See Section 9 for the general Time Code specifications.
Video Codec	Apple ProRes 422 (standard or HQ)
	The following Avid DNxHD encoding formats are accepted: ▪ DNxHD 145 (the data rate varies from 115 to 145Mbps according to frame rate) ▪ DNxHD 220 (the data rate varies from 175 to 220Mbps according to frame rate)
Audio Codec	Linear PCM, 48kHz, 24bits
Closed Caption	Shall be provided in a separate file (see section 3 for specifications).

2.9 FILES - SD CONTENT

CBC/Radio-Canada will accept native Standard Definition (SD) content delivery in special cases; for example, legacy content or archival material. Any delivery of SD content shall be approved by CBC/Radio-Canada.

The following SD file formats are accepted. Other file types shall be approved within the contractual agreement.

2.9.1 MXF WRAPPER – SD CONTENT

PARAMETER	SPECIFICATION
File Wrapper	MXF (.MXF) See section 2.6 for specifications.
Audio/Video Essence	See section 10 for specifications.
Time Code	▪ Uninterrupted ascending time code (TC) as defined by the TC Track in the Material Package of the MXF file, in compliance with SMPTE ST 377-1:2011. Section 2.6.1 provides details on the time code possible locations within an MXF file. ▪ See Section 9 for the general Time Code specifications.
Video Codec	IMX @ 50 Mbps (An MXF wrapper with an IMX codec is the preferred SD content delivery format.)
Audio Codec	▪ Linear PCM, 24bits, 48kHz, ▪ Each audio channel must be contained within 1 MXF track, in compliance with SMPTE ST 382:2007.
Closed Caption	Shall be provided in a separate file (see section 3 for specifications).

2.9.2 QUICKTIME WRAPPER – SD CONTENT

PARAMETER	SPECIFICATION
Wrapper	QuickTime (.MOV) Please contact CBC/R-C for recommended version.
Audio/Video Essence	See section 10 for specifications
Time Code	▪ A Time Code track shall be present within any QuickTime file and continuous from the beginning of the leader up to the end of the trailer. ▪ See Section 9 for the general Time Code specifications.
Video Codec	Apple ProRes 422 (Standard or HQ)
Audio Codec	Linear PCM, 48kHz, 24bits
Closed Caption	Shall be provided in a separate file (see section 3 for specifications).

2.10 FILE - PROGRAM STRUCTURE

Programs delivered on file shall include leaders and trailers as described in the following table:

TIME CODE (at start)	DURATION (seconds)	AUDIO	VIDEO	FILE
09:59:30:00	5	Reference tones	Slate	Leader
09:59:35:00	20	Vocal Track ID/Pink Noise		
09:59:55:00	3	Silence	Black	
09:59:58:00	1 frame	1 kHz @ reference level (audio/video Synchro.)	Colour bars (audio/video Synchro.)	
09:59:58:01	2	Silence	Black	
10:00:00:00	----	Program Segment # 1	Program Segment # 1	----
----	1	Silence	Black	----
----	----	Program Segment # 2	Program Segment # 2	----
----	1	Silence	Black	Trailer

Reminder for Web Exclusives: Specifications differ for this element (see section 4 for details).

Reference Tones

- A reference tone shall be in phase and be on all audio channels used for the program, including described video and for the stereo mix on tracks 9 and 10 (for French Services).
- The reference tone level shall be consistent with the recorded program.
- Unused channels shall be silent.

Vocal Track Identification

- A vocal track identification shall be present on all audio channels used for the program, including described video and for the stereo mix on tracks 9 and 10 (for French Services).
- It shall be clear, precise and sequential, such that track allocation is easily identifiable.
- The Vocal ID shall be followed by a short pink noise burst at reference level on each channel.

Colour bars

HD colour bars shall comply with SMPTE RP219:2002 and SD colour bars shall comply with SMPTE EG1:1990.

Slate

See next page.

2.10 FILE – PROGRAM STRUCTURE (next)

Slate

The slate shall include the following information:

- Program title/Series name
- Season number, episode title/number
- Producer's name and contact
- Main program audio type (mono, stereo, multichannel)
- Audio track allocation (including DV)
- Integrated loudness value (in LKFS)
- Program length (H:M:S)
- Segment #1 start Time Code
- Segment #2 start Time Code, etc.
- Described video (Yes, No).
- Original aspect ratio (4:3 or 16:9)

3 Closed Caption

In all cases, a separate closed caption (cc) file shall be provided separately from the program file and the associated CC Time Code shall match the video Time Code. The closed caption must be formatted for a 29.97fps Drop Frame Time Code regardless of the video file's frame rate. The closed caption file types that will be accepted are:

MEDIA SERVICE	ACCEPTED FORMATS	ACCEPTED FILE EXTENSIONS
Radio-Canada	Scenarist Closed Caption	[PGM ID].SCC *
CBC	Scenarist Closed Caption Cheetah Caption files	[PGM ID].SCC [PGM ID].CAP

* [PGM ID] is defined in section 2.5

4 Web Exclusives - Specific Requirements

The contractual agreement may specify that the content is a Web Exclusive, i.e. the video or audio file is intended to be presented only on CBC/R-C's Web portal. The file delivery requirements for Web exclusives differ slightly from those for general content acquisition.

Web Exclusives - Audio/Video Files

The content shall comply with specifications listed in sections 2 to 10 except for the elements listed below.

PARAMETER	SPECIFICATION
Media Delivery	Only file based delivery is accepted.
Frame Rate/ Scan Type	▪ Content shall be delivered to CBC/R-C with its original frame rate and scan type. ▪ The frame rate shall remain constant from the beginning of the leader up to the end of the trailer. ▪ Accepted frame rates and scan types: 23.976p, 25i, 25p, 29.97p, 29.97i
SD content - Image Display	All 4:3 content must be pillarboxed into a 16:9 frame because the Web Media player has a 16:9 image aspect ratio.
Audio Track Allocation	Stereo, 1:L 2:R (applies to HD and SD content)
Time Code	Present, continuous (from start to end), for 29.97fps use the 'drop frame' mode.
Program Segment	The file shall contain 1 program segment per file.

The Audio/Video file shall meet the following structure:

TIME CODE (at start)	DURATION (seconds)	AUDIO	VIDEO
09:59:59:00	1	Silence	Black
10:00:00:00	----	Program	Program
----	1	Silence	Black

Web Exclusives - Audio only Files

PARAMETER	SPECIFICATION
Audio	24bits, 48kHz, stereo (1:L 2:R)
	Integrated Program loudness: -24LKFS +/-2LU, -2dBTP Max.
	File Structure: no silence (leader), program, no silence (trailer)
File Format / bit rate	▪ Linear PCM (.wav) uncompressed
	▪ Broadcast Wave MPEG1 Layer II (.wav), 192 kbps/channel

Note: For any questions about the Web Exclusives specifications, please contact:

- CBC: media.streaming@cbc.ca
- Radio-Canada: acquisitions.programmes@radio-canada.ca

5 Metadata

The program delivery file package shall include a file containing descriptive information (metadata) about the program. This information is used for media asset management and by editing systems. In the near future, CBC/Radio-Canada will provide a web interface for distributors to enter all metadata parameters. With this new tool, the metadata file will be generated automatically.

In the meantime, distributors shall enter the content metadata in an XML file. This data file shall have an .xml extension and comply with XML 1.0 Specification produced by the World Wide Web Consortium (W3C). The XML file shall contain the slate information described in section 2.10.

Both program and metadata files shall have the same name. An XML file example is given in section 12 - Annex.

6 Gallery and Still Images

Each video file shall be delivered with the following accompanying images. These images will be posted on CBC/Radio-Canada's Web portal to advertise the program.

QUANTITY	IMAGE CONTENT	DESCRIPTION	NOTE
1	Gallery	Artistic image representing the main character(s) and/or important elements of the movie.	
4	Still images	Selection of images extracted from the movie file presenting different moments of the story.	Required for CBC only

PARAMETER	GALLERY Image	STILL Images
File format	[PGM ID]_Gallery.JPEG *	[PGM ID]_Still_n.JPEG *
Width/Height	1920 x 1080 or higher	1920 x 1080 or higher (16:9 content) 1440 x1080 or higher (4:3 content)
Aspect Ratio	Perfect 16:9 ratio	Same as video source: 16:9(HD) or 4:3(SD)
Resolution	300ppi	300ppi
Color Mode	RGB Color (8 bits/ channel)	RGB Color (8 bits/ channel)

* [PGM ID] is defined in section 2.5 and 'n' refers to the picture number.

The images shall not:

- Depict scenes where drug, suicide, violence, horror, nudity or any troubling situations are more graphic;
- Contain weapons pointing at camera;
- Show program spoilers;
- Contain any text, legal lines, or logos.

Additionally:

- The image luminosity shall be sufficient.
- The image borders shall not present special effects.

7 HD - High Definition Video

7.1 CBC/R-C IN-HOUSE VIDEO FORMAT

All material delivered to CBC/Radio-Canada shall meet the following specifications. They are in compliance with SMPTE ST 274:2008. The video format corresponds to SMPTE ST 274 Table 1, line 5.

PARAMETER	SPECIFICATION
Image format	1920 x 1080 pixels
Sampling structure	▪ 4:2:2 with 8/10-bit quantizing ▪ These image specifications should be preserved as much as possible throughout the complete production process.
Scanning mode and frame Rate	29.97 frames per second, constant, interlaced
Field Dominance	▪ HD content shall be delivered with a field order where the upper field is dominant (upper field first). ▪ Cuts in material must happen on frame boundaries, i.e. between field 2 and field 1.
Color Space	In conformance with Rec. ITU-R BT.709 as indicated in SMPTE ST 274:2008.

7.2 REQUIREMENTS FOR CONTENT NOT ORIGINALLY SHOT AT 29.97i

Any production originally shot at a different frame rate and scan type than 29.97fps, interlaced, shall be delivered to CBC/R-C in its original format and also converted to 29.97i. The frame rate shall remain constant from the beginning of the leader up to the end of the trailer.

The frame rates and scan types that will be accepted are: 23.976p, 25i, 25p and 29.97p.

Reminder for Web Exclusives: Specifications differ for this element (see section 4 for details).

7.3 VIDEO FORMAT IDENTIFICATION

Whenever the video format identification is required (for example in the metadata file, the slate, etc.), the video format shall be identified using the following notation: **LLLL S FF**

Where: **LLLL** Number of active **l**ines per frame
S **S**can mode
FF **F**rame rate (not field rate)

Ex: 1080 i 29.97.

7.4 CONTENT CONVERSION REQUIREMENTS

Film-originated Material

When movies and other productions shot on film or using digital technologies equivalent to film are converted to HD and delivered to CBC/Radio-Canada for broadcast, the aspect ratio conversion shall preserve the complete original picture area. Therefore, **"**pan and scan**"** is not accepted.

The scanned area on 35mm film shall be in accordance with SMPTE ST 96:2004, Table 2. The appropriate aspect ratio conversion mode shall be selected according to the following table:

ORIGINAL FILM ASPECT RATIO	ASPECT RATIO CONVERSION MODE FOR 16:9
1.78 (16:9)	Equivalent
1.85	Letterbox
2.39	Letterbox

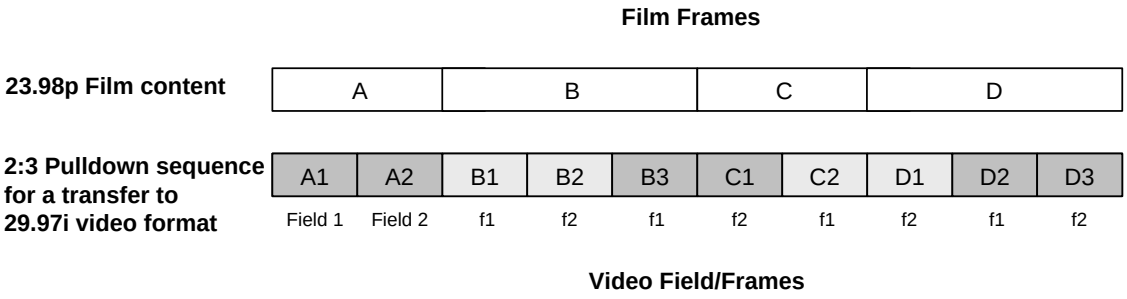
***** This production aspect ratio is often mislabeled "2.35".

In all cases, no alteration of the original horizontal/vertical proportions (geometric distortion) shall be tolerated.

2:3 Pulldown

The 2:3 pulldown (commonly referred to as 3:2 pulldown), used to convert 4 film frames into 5 video frames, shall be as described in SMPTE RP 197:2003.

If 4 film frames are represented as A, B, C, D, the pulldown sequence of the video fields generated from them shall be:



This 2:3 sequence shall be respected not only for film transfers but also for frame rate conversions performed with any other system (standard converters, non-linear editing systems, etc.). It will ensure a fluid perception of movements.

7.5 USE OF ORIGINAL SD MATERIAL IN AN HD PROGRAM

Use of native SD visual sequences, including NTSC, PAL or SECAM analog video, or ITU-R BT.601 digital video, is accepted only in special cases; for example, insertion of archival material. The producer shall inform CBC/Radio-Canada of, among other things, the total anticipated length of up-converted SD video material to be inserted into the HD program, and clearly justify its use. Any use of SD sequences in an HD program shall be approved by CBC/Radio-Canada.

When original 4:3 SD materials are converted to 16:9 HD for insertion in an HD program, an SD- to-HD converter with an appropriate performance must be used to ensure a clean resizing of the images is performed (no defect on all picture edges and no Closed Captions signal on top of active picture area).

In all cases of SD to HD up-conversion, no alteration of horizontal versus vertical proportions (geometric distortion) shall be tolerated.

For 4:3 SD Material

- Care must be taken to remove CEA-608 closed captioning signals from lines 21 and 284 of the SD frames before conversion.
- Care must be taken to ensure that the main elements of the original 4:3 composition (e.g., principal action, graphic) are preserved.
- The pillarbox aspect ratio conversion shall be used.
- Conversion by horizontal stretching is prohibited.

For 16:9 SD Material

- The aspect ratio conversion shall be such that the 16:9 SD image be enlarged to fill the 16:9 HD frame.
- When both anamorphic and letterboxed 16:9 SD materials are available, CBC/Radio-Canada recommends using the anamorphic material as the source for up-conversion in preference to letterbox.

7.6 SAFE ACTION AND TITLE AREAS

CBC/Radio-Canada recommends, in accordance with SMPTE ST 2046-1:2009, the following safe areas:

AREA	SPECIFICATION
Safe Action	The main action shall be framed inside a central zone of height 93% by width 93% of the full HD picture.
Safe Titles	All titles shall be framed inside a central zone of height 90% by width 90% of the full HD picture.

7.7 SUBJECTIVE QUALITY ASSESSMENT

The image quality of HD programs provided shall be evaluated according to the five-point scale suggested in the International Telecommunication Union ITU-R BT.500-13 standard:

RATING	IMPAIRMENTS	QUALITY
5	Imperceptible	Excellent
4	Perceptible but not annoying	Good
3	Slightly annoying	Fair
2	Annoying	Poor
1	Very annoying	Bad

Programs should meet the criteria for a 5 rating. Exceptionally, on program portions including, for example, archival material, the minimum acceptable quality shall be a 3 rating. This type of content shall be approved within the contractual agreement.

7.8 ACTIVE FORMAT DESCRIPTION (AFD)

Some TV programs are made of a mix of original 16:9 and up-converted legacy 4:3 aspect ratio materials. These programs are distributed through a TV channel to viewers equipped with 4:3 or 16:9 aspect ratio receivers. To ensure an optimum display of each picture on a given TV receiver, an Active Format Description (AFD) value, as described in SMPTE ST 2016-1:2009, is inserted by the broadcaster and carried with each program to the TV receiver that will automatically choose the right display format for each material.

The program display format presented on 4:3 TV receivers differs between the two networks:

- CBC inserts the AFD value in the program file such that the legacy 4:3 receivers will automatically select the letterbox display.
- Radio-Canada inserts the AFD values in the programs files such that the legacy 4:3 receivers will automatically select the letterbox display for original HD content and present a full screen 4:3 display for original SD content.

Reminder for Web Exclusives: Specifications differ for this element (see section 4 for details).

7.9 CREDITS

All credits shown in vertical scroll shall be produced in a way that makes them clearly readable when viewed at a frame rate of 29.97i and be free of judder or blur.

If it is not possible to meet this requirement, like it could happen for programs originally shot at other frame rates than 29.97i, the credit information shall be displayed on separate pages.

8 Audio

CBC/Radio-Canada reserves the right to reject productions that do not meet the criteria described herein.

8.1 PROGRAM VERSIONS

CBC/Radio-Canada recommends producing HD programs with 5.1 multichannel audio. If the producer cannot provide a 5.1 multichannel audio mix, any audio mix ranging from 2 tracks (stereo) up 6 tracks (5.1) will be accepted (ex: 3.0, Quad,…). Requirements for the two networks are different regarding program delivery. For each production, the following audio mixes shall be delivered:

ENGLISH SERVICES		FRENCH SERVICES	
1.	The main program mix (stereo up to 5.1)	1.	The main program mix (stereo up to 5.1)
2.	A described video mix	2.	A described video mix
		3.	A stereo mix (Lo/Ro), required for internal needs (will not be transmitted)

8.2 AUDIO FORMAT AND PROGRAM REFERENCE LEVEL

The audio format shall be compliant with the specifications listed below.

PARAMETER	SPECIFICATION
Format	Discrete audio, Linear PCM
Sampling	48kHz at all time
Resolution	File content: 24 bits Tape content: Provide best resolution available (16, 20 or 24 bits)
Transmittable Audio bandwidth	▪ 20Hz to 20kHz for all channels excluding the LFE channel. Exceptions may be made; examples include archive material or material gathered necessarily under adverse conditions. ▪ 20Hz to 120Hz for the LFE channel since it is band limited at the AC3 coding stage.
Program Reference Level:	-20dBFS, in compliance with SMPTE RP 155:2004. It corresponds to an alignment level of +4dBu.
Audio Channel Signal Correlation	Most receivers allow only an Lt/Rt downmix even if the metadata indicates 'Preferred downmix: Lo/Ro'. Consequently, the phase of the rear channels is affected by the downmix. CBC/R-C has decided to set the parameter 'Surround Phase Shift' at Enabled to avoid any phase cancellation due to the Lt/Rt downmix. It is strongly recommended to listen to content in a simulated domestic environment (downmix Lt/Rt) using the metadata values listed in section 8.10.

8.3 LFE CHANNEL

- For 5.1 programs, the LFE channel audio content shall be different from those of the main channels and limited to effects at very low frequencies to avoid any phase or cancellation problems during playback by the consumer devices.
- The LFE channel content shall not be constant and shall not be the reproduction of the main channels with a 120Hz low-pass filter.

8.4 AUDIO CHANNEL ALLOCATION

Programs shall be identified using one of the following audio format labels: Multi-channel, Stereo, Mono.
The audio track allocation shall be:

HD Content

For CBC

TRACK NUMBER	1	2	3	4	5	6	7	8
Main Program	L	R	C	LFE	Ls	Rs	DV-L	DV-R
Stereo Program	Lo	Ro	U	U	U	U	DV-L	DV-R

For RADIO-CANADA

TRACK NUMBER	1	2	3	4	5	6	7	8	9	10
Main Program	L	R	C	LFE	Ls	Rs	DV-L	DV-R	Lo*	Ro*
Stereo Program	Lo	Ro	U	U	U	U	DV-L	DV-R	Lo*	Ro*

*always required

SD Content

TRACK NUMBER	1	2	3	4
Program	L	R	DV-L	DV-R

Where: U = Unused/Unassigned DV = Described Video Lo/Ro = Stereo Signal, Left Only/ Right Only

Notes:
- Unused tracks shall be free of any signal.
- If no described video (DV) is available, a stereo program mix is required on the DV tracks 7 and 8 (HD content) or 3 and 4 (SD content).
- For French Services: At all times, a stereo version of the program is required on tracks 9 and 10. It is required for internal needs but will not be transmitted.
- Reminder for Web Exclusives: Specifications differ for this element (see section 4 for details).

8.5 STEREO AND MONO PROGRAM COMPATIBILITY

When producing a 5.1 program mix, it is very important to monitor its stereo downmix version for compatibility. The stereo signal will be generated by using the metadata (downmix coefficients) shown in section 8.10 of this document. Please note that the LFE channel is not included in the downmix.

Mono compatibility of programs shall be guaranteed at all times.

8.6 USE OF UPMIX CONTENT

Any use of stereo mix sequences up-converted to a 5.1 mix in a program shall be pre-approved by CBC/Radio-Canada.

8.7 DESCRIBED VIDEO

The Described Video (DV) 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 in section 8.8.

If no described video is available, a stereo program mix is required on tracks 7 and 8.

8.8 PROGRAM LOUDNESS AND MAXIMUM TRUE PEAK

The audio signal measured using a broadcast loudness meter[1] having the ITU-R BS.1770-3 compliant algorithm shall meet the following criteria:

MEASURE	DESCRIPTION
Dialog Loudness	The dialogue loudness level measured on all channels at representative sections of anchor element (typically dialogue level) shall be -24LKFS +/- 2LU.
Integrated Loudness	The integrated loudness measured on all channels for the complete program duration should not exceed -24LKFS +/-2LU.
Maximum True Peak	A maximum True Peak level of -2dBTP for all channels.

Additionally, the measurement difference between the integrated loudness of the 5.1 mix and its downmix (and/or DV mix) should remain acceptable.

Note: Some elements have a direct impact on the loudness difference between a 5.1 mix and its downmix like the correlation between the centre channel and the left and right channels, the relative loudness of the rear channels versus the front channels, the use or not of some channels, etc.

[1] The ITU-R BS.1771-1 recommendation describes the loudness meter requirements.

8.9 SUBJECTIVE QUALITY

The audio program shall be produced with reproduction in a domestic environment in mind.

- The entire audio program shall be of superior quality, free of all noise and interference (buzz, hum, distortion, excessive sibilance).
- The entire audio program shall have an acceptable dynamic range. A compression rate sufficiently high to adversely affect the sound quality shall not be accepted. Additionally, the program shall not contain dynamic excursions that could hamper listening comfort.
- The tone shall be natural and pleasant.
- Dialogue must remain intelligible throughout the entire audio program. No compromise shall be accepted.
- Audio-video synchronization shall be maintained throughout the program. The maximum tolerable misalignment of sound and picture shall be ± 16.6 ms (+ or - one field at 29.97 fps).

In addition to having to meet the criteria listed above, submitted programs shall be evaluated according to the five-point scale of the ITU-R BS.1284-1 standard as indicated in the following table:

RATING	IMPAIRMENTS	QUALITY
5	Imperceptible	Excellent
4	Perceptible but not annoying	Good
3	Slightly annoying	Fair
2	Annoying	Poor
1	Very annoying	Bad

Programs should meet the criteria for a 5 rating. The minimum acceptable quality for all program types shall be that of a 3 rating with rare exceptions, for example, in the case where program segments contain archival clips. This type of content shall be approved within the contractual agreement.

8.9.1 Audio subjective quality and loudness range

The ATSC A/85 (Appendix E) document presents the results of a subjective experiment that concludes that the listener will accept loudness changes within +2.5 to -5.4dB of the target loudness. Outside this comfort zone the listener will be more susceptible to being annoyed and could ultimately reach for the remote.

Based on the conclusion of this study and considering the fact that any broadcasted program is viewed on a bloc basis, any program that exceeds +5 to -6 SHORT TERM LU[2] with reference to -24LKFS for a period of 3 seconds and more could be refused.

Additionally, program blocs will be measured individually and could be refused if they exceed the loudness standard (-22 to -26LKFS).

The subjective audio quality control is performed in an environment calibrated at 70dB SPL using a pink noise per channel. To maintain a tolerable loudness range intended for domestic listening it is highly recommended to maintain the loudness range (LRA)[3] of the program within 10LU.

2 A loudness meter compliant with EBU R128 displays the short-term loudness using a 3 sec. time scale.
3 A loudness meter compliant with EBU R128 displays the content loudness range i.e. 'the variation of loudness on a macroscopic timescale' (EBU Tech 3341-2016).

8.10 METADATA PARAMETERS ENCODED FOR ON-AIR BROADCAST

CBC/Radio-Canada operates in a static metadata environment, i.e. the metadata parameters are programmed directly in the AC3 audio encoder, at the transmission stage. The audio mix shall therefore be produced taking into account that the following metadata parameters will be applied at the audio coding stage.

Notes:

- The Dialnorm 'Dialog Level' parameter corresponds to the integrated loudness value of the program.
- The downmix coefficients (Center and Surround Levels) should be used to monitor the stereo mix compatibility with the 5.1 mix from which it is generated (quality, loudness, etc.).

PARAMETER	PROFILE 5.1 FOR MAIN PROGRAM	PROFILE 2.0 FOR DESCRIBED VIDEO
Dialog Level (dialnorm)	–24 LKFS	–24 LKFS
Channel Mode	3/2	2/0
LFE Channel	Enable	Disable
Bitstream Mode	Main Complete	Main Complete
Line Mode Profile	Film Light	Film Light
RF Mode Profile	Film Standard	Film Standard
RF Overmodulation Protection	Disable	Disable
Center Downmix Lev	0.707 (-3dB)	N /A
Surround Downmix Lev	0.707 (-3dB)	N /A
Dolby Surround Mode	Not Dolby Surround	Not Dolby Surround
Audio Prod Info	No	No
Mix Level	N /A	N /A
Room type	N /A	N /A
Copyright	Yes	Yes
Original Bitstream	Yes	Yes
Preferred Stereo Downmix	Lo/Ro preferred	N /A
Lt/Rt Center Downmix Level	N/A	N /A
Lt/Rt Surround Downmix Level	N/A	N /A
Lo/Ro Center Downmix Level	0.707 (-3dB)	N /A
Lo/Ro Surround Downmix Level	0.707 (-3dB)	N /A
Dolby Surround EX Mode	Not Surround EX	N /A
A/D Converter type	Standard	Standard
DC Filter	Enable	Enable
Lowpass Filter	Enable	Enable
LFE Lowpass Filter	Enable	N /A
Surround 3 dB Attenuation	Disable	N /A
Surround Phase Shift	Enable	N /A

9 Time Code

The time code, in compliance with SMPTE standard ST 12-1:2008, shall be:

- Present and continuous from the beginning of the leader up to the end of the trailer;
- Have the value 10:00:00:00 (hh:mm:ss:ff) at the first frame of the program;
- At a frame rate of 29.97fps use the 'drop frame' mode to ensure that the time code remains synchronous with real time. It is important to pay particular attention to drop frame when a program is transferred from 23.98 or 24 frames/seconds (fps) to 29.97 fps.

Note: In order to move between the nominal 23.976 and 29.97 formats in a unique way, it is recommended that the video frames of the 23.976 fps material with the time code frame number zero be converted to an A frame, as described in SMPTE ST 12-1:2008. In addition, the SMPTE ST 318:1999 recommends that these A frames be aligned with the field identified by the Field 1 pulse of the 10 field sequence described in this SMPTE standard document.

10 SD - Standard Definition Content

CBC/Radio-Canada will accept native Standard Definition (SD) content delivery in special cases; for example, legacy content or archival material. This type of content shall be approved within the contractual agreement. SD content delivered to CBC/Radio-Canada shall be compliant with the specifications listed below.

GENERAL SPECIFICATIONS	
Video	720x486 (4:3 or Anamorphic 16:9 SD)
	4:2:2 with 8/10-bit quantizing,
	▪ 29.97 frames/sec., interlaced, constant, ▪ SD content shall be delivered with a field order where the lower field is dominant (lower field first).
	Color Space in conformance with Rec. ITU-R BT.601
Frame Rate/ Scan Type	▪ Any production originally shot at a different frame rate and scan type than 29.97fps, interlaced, shall be delivered to CBC/R-C in its original format and also converted to 29.97i. ▪ The frame rates and scan types that will be accepted are: 23.976p, 25i, 25p and 29.97p ▪ The frame rate shall remain constant from the beginning of the leader up to the end of the trailer. ▪ Reminder for Web Exclusives: Specifications differ for this element (see section 4).
Safe Action Zone	93% height and width of the full SD picture (per SMPTE ST 2046-1:2009)
Safe Title Zone	90% height and width of the full SD picture (per ST 2046-1:2009)
Audio	PCM, 48kHz, 24bits resolution (except for tapes, provide the best resolution available)
	▪ Track Allocation 1:L 2:R 3:DV-L 4:DV-R
	See Section 8 for the general audio specifications.
Described Video	If no DV is available, a stereo mix of the program is required on tracks 3 and 4.
Lip Sync	1 field maximum tolerable sound and picture misalignment
Time Code	▪ Present, continuous (from start to end), for 29.97fps use the 'drop frame' mode. ▪ See Section 9 for the general Time Code specifications.
Credits	▪ All credits shown in vertical scroll shall be produced in a way that makes them clearly readable when viewed at a frame rate of 29.97i and be free of judder or blur. ▪ If it is not possible to meet this requirement, like it could happen for programs originally shot at other frame rates than 29.97i, the credit information shall be displayed on separate pages.

11 Tape Delivery

CBC/Radio-Canada is phasing out tape delivery. If it is impossible to deliver files, tapes will be accepted during a transition period. Any tape content delivered to CBC/R-C shall be compliant with the specifications listed in the next sections.

Tapes will no longer be accepted after August 31st, 2015.

11.1 PROGRAM DELIVERY – TAPE AND FILE PACKAGE

The following files shall be delivered along with any program delivered on tape.

QTY	DESCRIPTION	CBC: ACCEPTED FILE EXTENSIONS	R-C: ACCEPTED FILE EXTENSIONS	SPECIFICATIONS REFERENCE
1+	Tape(s) – Video converted at 29.97i	n/a	n/a	▪ CC shall be included in VANC ▪ See section 7.2 for details.
1+	Tape(s) – Original video format	n/a	n/a	
1	Closed Caption File	[PGM ID].SCC or .CAP	[PGM ID].SCC	See Section 3
1	Metadata File	[PGM ID].XML	[PGM ID].XML	▪ [PGM ID] defined in section 2.5. ▪ See section 5
1	Gallery Image	[PGM ID]_Gallery.JPEG	[PGM ID]_Gallery.JPEG	See section 6
4	Still Images	[PGM ID]_Still_1.JPEG...	Not required	

11.2 CONTAINER/CASSETTE LABELLING

Both the container and cassette and labels shall include:

- The slate information described in section 11.5.
- The video format, using the following notation described in section 7.3 (Ex.: 1080 i 29.97)

11.3 TAPE - HD CONTENT

PARAMETER	SPECIFICATION
Tape Format	HDCAM SR
Video/Audio	See sections 7 and 8 for specifications.
Closed Caption (CC)	The closed caption data shall be present in the VANC area of the video signal recorded on tape and also be provided on a separate file.
	On tape: The CC shall be present and transmitted as CEA-608 type data encapsulated into CEA-708 type data into the VANC area of the digital video signal (as defined in SMPTE ST 334-1:2007) recorded on the tape. Line 9 shall be used to insert Closed Captions data.
	On file: A CC file shall be provided separately. The CC must be formatted for a 29.97fps Drop Frame Time Code.

TAPE – HD CONTENT (continuing)

PARAMETER	SPECIFICATION
Time Code (TC)	Both Longitudinal Time Codes (LTC) and Ancillary Time Codes (ATC) shall be recorded on tape, be identical during the whole recording, continuous (start to end). For 29.97fps use the 'drop frame' mode.
	Both ATC and LTC shall be inserted in the Vertical Ancillary Data Space (VANC), in compliance with as SMPTE ST 12-2:2008.
	The Ancillary TC is referred as VITC in the equipment compatible with the HDCAM SR format.
	Long programs delivered on multiple tapes shall use different time code for each part starting on the next whole hour (e.g. 11:00:00:00, 12:00:00:00, etc.).

11.4 TAPE - SD CONTENT

PARAMETER	SPECIFICATION
Tape Format	Betacam Digital or SX
Video/Audio	See section 10 for specifications.
Closed Caption	The closed caption data shall be present in the VANC area of the video signal recorded on tape and also be provided on a separate file.
	On tape: ▪ Shall be present and inserted on line 21. ▪ The cc data shall be present and transmitted as CEA-608 type data into the VANC area of the digital video signal recorded on the tape. ▪ Benchmark decoders for control: EEG EN270-600 (or +), EEG EN470, Evertz 8074.
	On file: A CC file shall be provided separately. The CC must be formatted for a 29.97fps Drop Frame Time Code.
Time Code	Both Longitudinal Time Codes (LTC) and Ancillary Time Codes (ATC) shall be recorded on tape, be identical during the whole recording, continuous (start to end), for 29.97fps use the 'drop frame' mode.
	Both ATC and LTC shall be inserted in the VANC (as defined in SMPTE ST 12-2:2008).
	Long programs delivered on multiple tapes shall use different time code for each part starting on the next whole hour (e.g. 11:00:00:00, 12:00:00:00, etc.).

11.5 TAPE - PROGRAM STRUCTURE

TIME CODE (at start)	DURATION (seconds)	AUDIO	VIDEO	TAPE
09:58:10:00	10	Silence	Black	
09:58:20:00	20	Vocal Track ID/Pink Noise	colour bars (for HD video: SMPTE RP219:2002) (for SD video: EG1:1990)	
09:58:40:00	50	Reference tones		
09:59:30:00	20	Silence	Slate	Leader
09:59:50:00	8		Black	
09:59:58:00	1 frame	1 kHz @ reference level (audio/video Synchro)	colour bars (audio/video Synchro)	
09:59:58:01	1	Silence	Black	
10:00:00:00	----	Program Segment # 1	Program Segment # 1	----
----	1	Silence	Black	----
----	----	Program Segment # 2	Program Segment # 2	----
----	20	Silence	Black	Trailer

Vocal Track Identification

- A vocal track identification shall be present on all audio channels used for the program, including described video and for the stereo mix on tracks 9 and 10 (HD content for French Services). It shall be clear, precise and sequential.
- The Vocal ID shall be followed by a short pink noise burst at reference level on each channel.

Reference Tones

- A reference tone shall be in phase and be on all audio channels used for the program, including described video and for the stereo mix on tracks 9 and 10 (HD content for French Services).
- The reference tone level shall be consistent with the recorded program. Unused channels shall be silent.

Slate

The slates shall include the following information:

- Program title, series name,
- Season number, episode title/number
- Producer's name and contact
- Original aspect ratio (4:3 or 16:9)
- Main program audio type (mono, stereo, multichannel)
- CC (English) or STC (French) closed caption (Yes, No)
- Program length (H:M:S)
- Segment #1 start Time Code
- Segment #2 start Time Code, etc.
- Integrated loudness value (in LKFS)
- Described video (Yes, No)
- Audio track allocation (including DV)

12 Annex - XML File Submission Example

Values indicated in the file below are examples. They shall always meet specifications described in this document. The file example below indicates the audio track allocation required for a content submitted to the English Services. Please refer to section 8.4 for additional details on the audio track allocation.

Note: Letters with accents such as é, è, ë, ö etc. must not be used.

```
<?xml version="1.0" encoding="utf-8" ?>
<SLATE_DATA>
<Program_title>Show name</Program_title>
<Series_name>xxxx</Series_name>
<Episode_title>title</Episode_title>
<Episode_season_number>season</Episode_season_number>
<Episode_number>number</Episode_number>
<Producer_name>name</Producer_name>
<Producer_contact>contact</Producer_contact>
<!-- Program length in H:M:S-->
<Program_length>00:00:00</Program_length>
<!-- Main program audio type (stereo, multichannel)-->
<Main_program_audio_type>multichannel</Main_program_audio_type>
<!-- Audio track allocation (including DV)-->
<Audio_track_allocation>
      <Audio_track_1>L</Audio_track_1>
      <Audio_track_2>R</Audio_track_2>
      <Audio_track_3>C</Audio_track_3>
      <Audio_track_4>LFE</Audio_track_4>
      <Audio_track_5>LS</Audio_track_5>
      <Audio_track_6>RS</Audio_track_6>
      <Audio_track_7>DV</Audio_track_7>
      <Audio_track_8>DV</Audio_track_8>
</Audio_track_allocation>
<!--Closed Captions presence (Yes, No)-->
<Closed_Captions>Yes</Closed_Captions>
<Segment_1_Time_Code>00:00:00:00</Segment_1_Time_Code>
<Segment_2_Time_Code>00:00:00:00</Segment_2_Time_Code>
<Segment_3_Time_Code>00:00:00:00</Segment_3_Time_Code>
<!-- Original aspect ratio (4:3 or 16:9)-->
<Original_aspect_ratio>4:3</Original_aspect_ratio>
<!-- Integrated loudness value (-26 to -22 LKFS)-->
<Integrated_loudness_value>-24</Integrated_loudness_value>
<!-- Described video (Yes, No)-->
<Described_video>Yes</Described_video>
</SLATE_DATA>
```

Both program and metadata files shall have the same name, as indicated in the example below.

DESCRIPTION	EXAMPLE	NOTE
Video/Audio File	TheShowXYZ_S02_E04.MXF	'The Show XYZ', Season 2, Episode 4 [Pgm/Series Title]_ [Season#]_ [Episode#]
Metadata File	TheShowXYZ_S02_E04.XML	