



Channel Four Advertising Sales

Technical delivery specification



Applies to : Channel 4 channels / UKTV channels /
BOX TV channels / PBS /
BT Sport 1, 2 & ESPN

Rev. May 2014

Channel 4 Sales offers commercial opportunities on all these channels



channel4sales.com / @Chanel4Sales

Contacts

For any queries relating to the specification and delivery of copy please contact:

Traffic		
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Introduction

- Commercial copy is delivered by **file** only.
- Channel Four does not ingest the commercial-copy files directly from advertising-copy producers, but via one of two agencies.

Adstream www.adstream.com **+44 (0)20 7539 8400**
IMD UK Ltd www.imdplc.com **+44 (0)20 7468 6868**

Delivery on Tape: Tape delivery to the above agencies is no longer permitted without prior agreement with them.

Adstream and IMD produce their own “White Papers” with delivery details.

- Once Adstream or IMD have cleared the copy, they deliver it to video servers based at RedBee for all channels listed - apart from ESPN, whose delivery is based at an Arqiva site.
- All commercials are currently delivered in STANDARD DEFINITION (SD) only to any clients of Channel Four Advertising Sales. This is despite the format of the original (i.e. A commercial may be produced in HD, but it will only be played-out in SD).
- Once submitted, files will not be retrievable, so it is highly recommended that the producer retains their own copy of the file.
- Commercials must conform to the current BCAP Television Advertising Standards Code. (Broadcast Committee of Advertising Practice).
- All commercials intended for transmission on any of the services listed on the front page of this document must be approved by **Clearcast**.
- All commercials delivered by file will be a single file per single item.
- An HD specification will be released via the Digital Production Partnership, when appropriate.

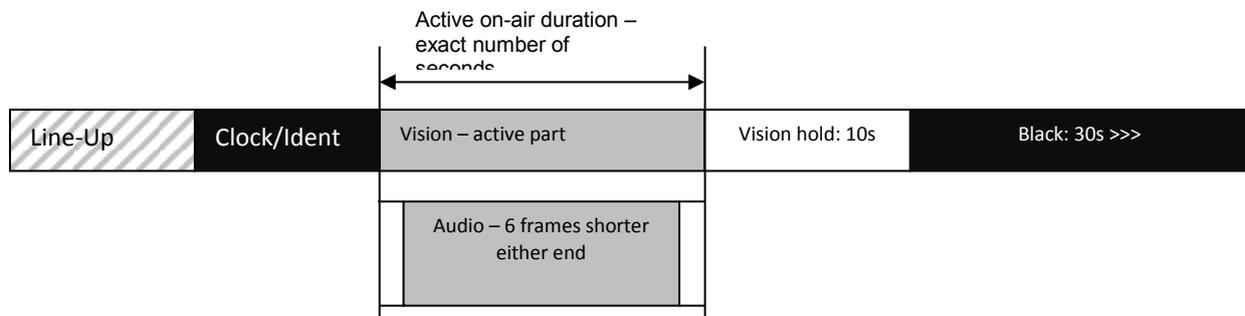
Construction of the Video Essence

The aspect ratio must be 16:9 full height anamorphic and protected for 14:9 transmission.
The delivered widescreen copy is produced to the **UK Broadcasters' specification for 16:9 shoot & protect 14:9** as outlined in Appendix B.

Construction of the Audio Essence

The copy should have the transmission audio on tracks 1 and 2, and be in synchronism with the vision.
Stereo sound is standard for Commercial transmissions on all Channel Four ad-sales services.
COMMERCIAL copy that is not stereo should be delivered with phase coherent mono sound on both audio tracks.

There should be 6 frames of audio silence at the start and end of the item and the duration should not exceed the stated length. At the end of the item there should be a 10 second hold on vision followed by 30 seconds of black. (No 'Living Freezes')



FILE DELIVERY FORMAT

FILE FORMAT - This is commonly known as the “IMX50” format.

Each standard definition programme must be delivered as a single MXF OP1a file which conforms to the **SMPTE ST 0356:2001 D-10** specification.

In all instances, please refer to this specification, but for ease of reference, key elements of this are included at the end of this document in Appendix A.

VIDEO CODEC

The video essence in the file must be encoded as MPEG2 at a nominal bitrate of 50Mbit/s, I-frame only, 4:2:2 colour sampling, following the specification. Please **refer to APPENDIX A**, and, overall, the full SMPTE specifications for clarification.

The video essence should be 25 frames per second, interlaced.

IMAGE FORMAT

The active width is 720 pixels. SD video files must be recorded with a picture area of 702 x 576 pixels, where the 702 pixel wide picture must be centred in the active 720 pixel wide line. The picture information may extend to the full width of the 720 pixel wide line, providing the image shape is not distorted. In either case there must be an additional 32 lines corresponding to a Vertical Blanking Interval (VBI) making a total of 720 x 608.

AUDIO ESSENCE

The audio must be frame-interleaved with the video. All audio tracks must be encoded as PCM in an AES-3 stream with a sample rate of 48kHz at a depth of 24bits/sample.

Subtitles (if provided) for the deaf and the hard of hearing should be recorded on television line 335 and conform to the “World System Teletext” standard. The clock should state “Teletext 888” if subtitles are present.

IDENTIFICATION:

Commercial copy is identified by unique clock numbers, obtained from the agencies and approved by Clearcast.

Without this number, the material will not be transmitted.

FILENAMES should follow the unique Clock Number assigned to it, in UPPERCASE, with the extension “.mxf” in lowercase. Allowable characters are ‘A-Z’, ‘0-9’, ‘-’ & ‘_’

The underscore is used where a forward-slash might be referred to.

Here is an example:

CTS/HXFA321/030

Becomes

CTS_HXFA321_030.mxf

TIMECODES, LINE-UP, & CLOCKS

TIMECODE

The item must be recorded such that the start of material is at timecode 10:00:00:00. If it is used, VITC must match the MXF timecode track.

Timecode must conform to the SMPTE 12-M standard and must be phase coherent with video, be continuous and contiguous, and must not pass through 00:00:00:00. If used, VITC must be on line 19 & 21 pairs in the VBI.

LINE-UP

The recording must start with a line-up signal consisting of at least 1 min of line-up reference comprising:

- Video: 100% colour bars
- Audio: reference tone on each track, comprising 400Hz or 1 kHz tone at 0dBu (-18 dBFS, PPM 4), phase coherent, on tracks 1 and 2.

CLOCKS:

For All Copy:

A clock is to precede each item for at least 20 seconds duration. The clock should identify:

- Product name
- Identifier/Agency copy number (clock number)
- COMMERCIAL item duration
- Stereo or mono audio
- Statement of 16:9 FH anamorphic aspect ratio
- 'Teletext 888' if subtitles are present. (Not applicable to files)

Black and silence should exist for 3 seconds between the clock and the first frame of picture.

Note: The start of message is measured from the first frame of active picture. Vision fade-ups are acceptable - in which case the first non-black frame is taken to be the start of message.

Line-up

The recording must start with a line-up signal consisting of at least 1 min of line-up reference comprising:

- Video: 100% colour bars
- Audio: reference tone on each track, comprising 400Hz or 1 kHz tone at 0dBu (-18 dBFS, PPM 4), phase coherent, on tracks 1 and 2.

Black and silence should exist for 3 seconds between the clock and the first frame of picture.

Note: The start of message is measured from the first frame of active picture. Vision fade-ups are acceptable - in which case the first non-black frame is taken to be the start of message.

Process, Compliance and Quality Control

Sound and vision quality should be equivalent to ITU-R broadcast scale grade 4 or 5. Any technical defect which is apparent in the file delivered copy will be referred to the agency or supplying company for correction and re-submission.

Any breach of Ofcom/ASA technical guidelines will similarly be referred for correction and re-supply.

Any overlaid text captions which are outside the designated 14:9 safe caption area, do not meet the Ofcom guideline requirements, or are otherwise illegible will not be accepted.

Audio Loudness Control

Channel Four policy and the BCAP code (rule 6.9) require that audio signal levels should have a consistency of perceived loudness such that the viewer does not need to adjust receiver volume between programmes, junctions and advertising breaks.

Audio loudness is to be measured using equipment operating with the ITU-R BS1770 characteristic. The reference level must be set to -20dBFS and the rolling integration window set to 3 seconds. Audio level measurement is a two stage process:

- 1) The audio level must be adjusted such that the maximum ITU loudness reading does not exceed 0dB.**
- 2) In addition, audio must be further limited, if necessary, such that a Peak Programme Meter type IIa does not register over PPM 6 at any point during the item. This may result in a reduced ITU loudness level in some circumstances.**

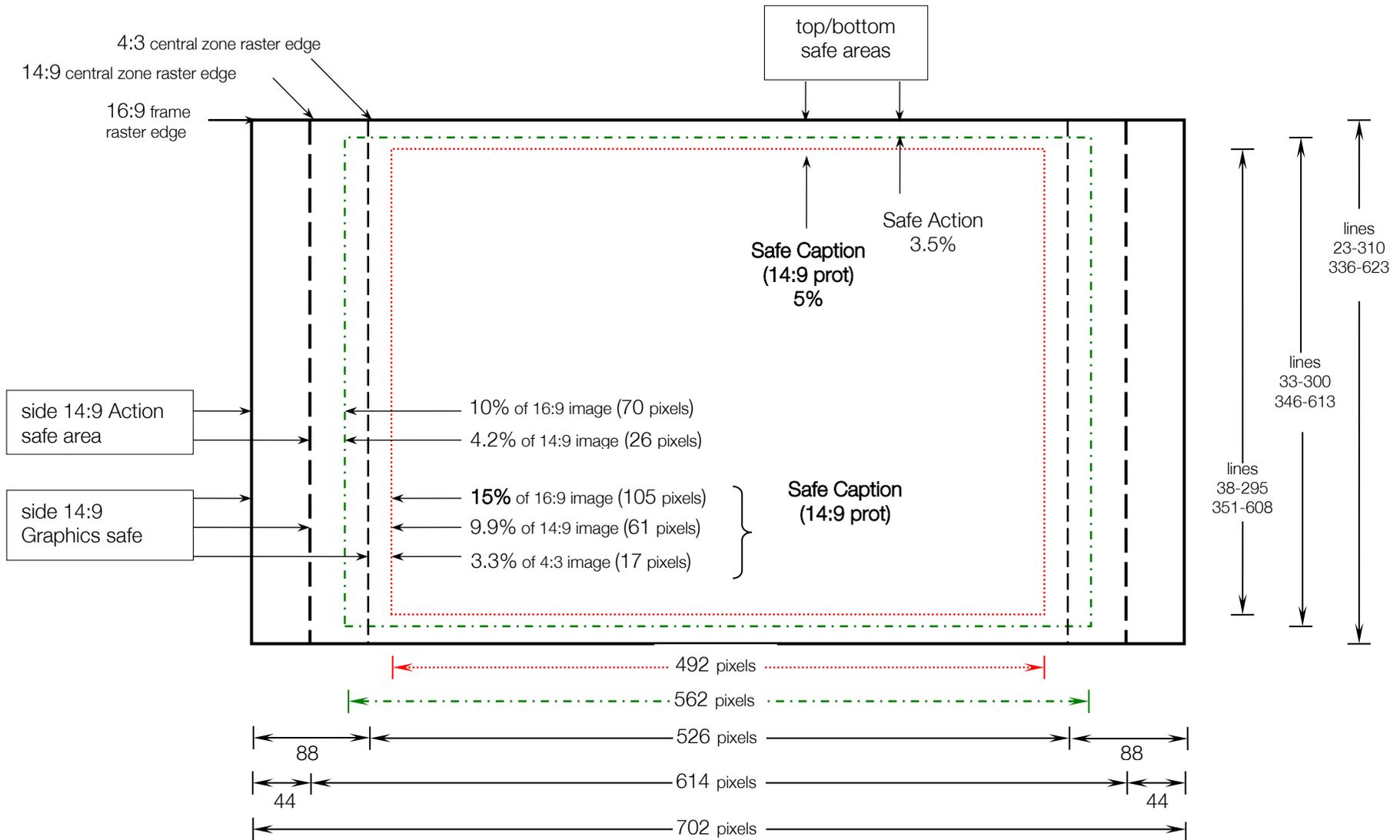
Channel Four and its agents reserve the right to make adjustments to the absolute signal level if necessary, or refer the copy to the supplier for correction.

A Statement on EBU R128 Audio Loudness

*It is the intention of the broadcaster to introduce R128 Loudness standards in 2013/14. This will initially apply to **programmes only**, but will eventually include commercials, sponsorships, promos, and teleshopping. Please watch out for further announcements in 2014 in this respect.*

APPENDIX A –File, Video, and Audio Characteristics

File wrapper	MXF (SMPTE 377M-2004 and additions)
Operational pattern	OP1a (SMPTE 378M-2004) (Single Item Single Package)
Essence mapping	D-10 essence data in MXF generic container (SMPTE 386M-2004)
Video essence type	Type D-10 MPEG-2 4:2:2P@ML (SMPTE 356M-2001) (commonly known as 'IMX 50')
Video elementary stream bitrate	50 Mbit/s
Video chroma sampling	4:2:2 (ITU-R BT.656)
Video GOP structure	I-frame only
Video bit rate mode	Constrained bytes per GOP - 50Mbit/s
Active video resolution (display width x height)	720 x 576 (SMPTE 386M-2004)
Video aspect ratio	16:9 Full Height Anamorphic
Audio tracks	Only 2 of the possible 8 channels are used
Audio coding	AES3 (SMPTE 331M), linear PCM
Audio sampling rate	48KHz
Audio quantization	24 bits
Audio wrapping	Interleaved within OP1a file (SMPTE 386M-2004)
Audio track utilisation Commercial Content	Tracks 1&2 = main stereo audio Tracks 3-8 = MUTE (not used for Commercial content)



Appendix B