

TECHNICAL SPECIFICATIONS

For delivery of TV commercials

September 2016



QUALITY

- / TV commercials must have the same high technical quality as the TV programs and must therefore meet the same relevant standards (EBU * SMPTE, etc.).
- / TV commercials which by TV 2's opinion do not meet these requirements will not be transmitted. Among the reasons for rejection of a TV commercial the following can be stated:
 - Incorrect audio or video levels
 - Poor sound or picture quality
 - Lack of synchronization between sound and image
 - Abrupt termination of audio and / or image
 - Unintelligible speech / text
- / TV 2 does not accept creative effects that can be confused with technical errors unless prior approval is obtained.

START, END AND DURATION

- / The file must contain only the active video and audio content and thus may not start as black or still image or have another kind of pre- and/or post-roll.
- / Duration is calculated from the file's first frame to the last frame and must be an even number of seconds in accordance with the purchased commercial slot.
- / A duration that falls short of, or exceeds the duration with one frame or more, will be rejected.
- / TV 2 only accepts commercials that have a duration which is divisible by 5 seconds. This also applies to split-commercials. Split-commercials of more than 2 splits require prior agreement with TV 2.

SYSTEM FORMAT

- / The system format is High Definition 1080i/25*
- / All TV commercials must be delivered in the file format specified on page 7. No other formats are accepted.
- / Content originated in other TV system formats may be converted to 1080i/25 by a very high quality standards converter before delivery. Content originated on Film must be scanned directly onto 1080i/25 (1080PsF/25).
- / Commercials delivered in SD format (before to 2013), will be up-converted to HD through TV2's playout system. TV 2 cannot be held responsible for any loss of quality during this conversion. New commercials can only be delivered in HD.

* 1080i/25
An interlaced video format defined as 50 half frames (known as fields) per second.
Each field having 540 lines and 1920 pixels per line

SOUND LEVELS

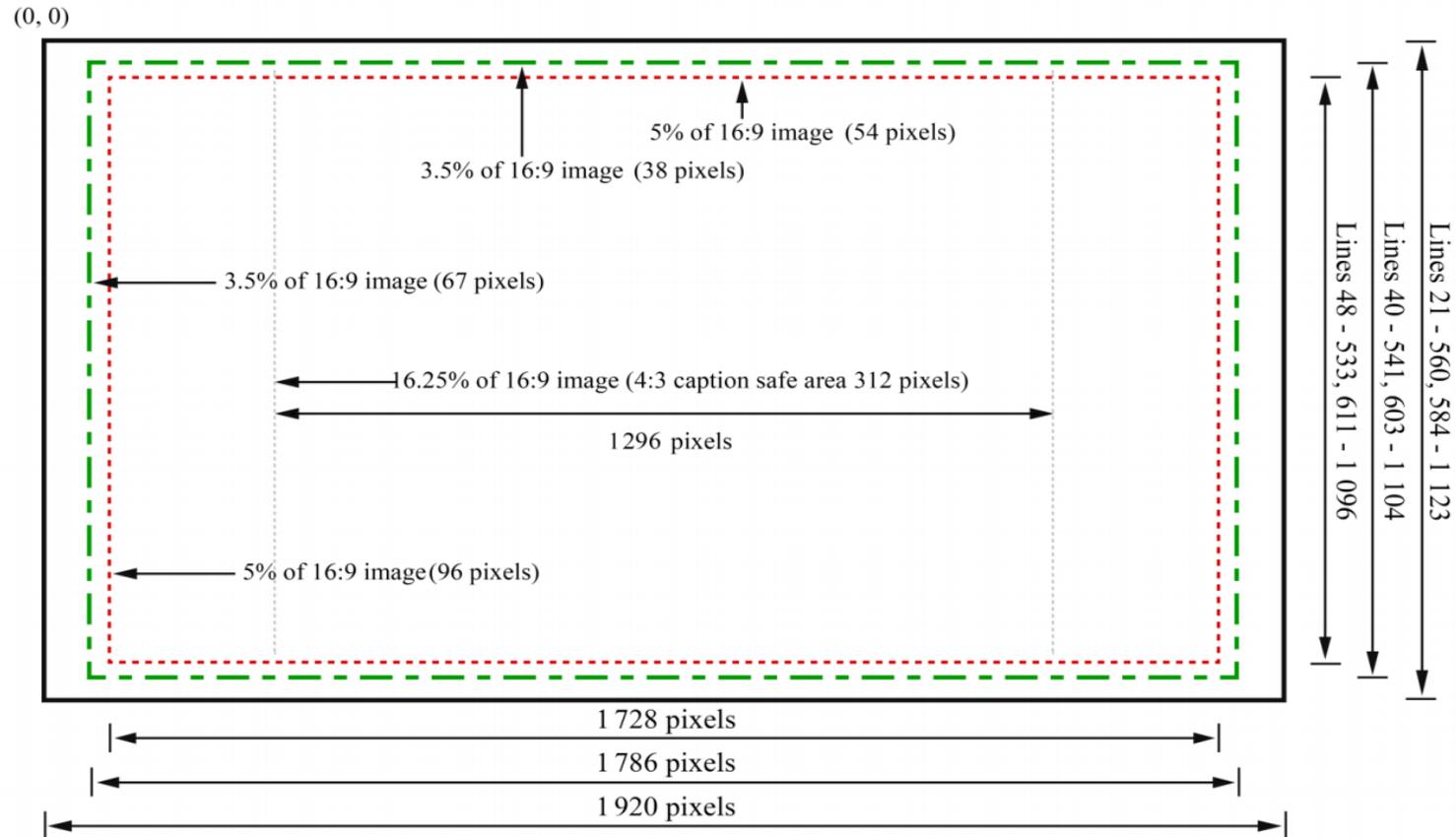
- / TV 2 wants to achieve a consistent sound level throughout the whole program schedule and therefore follows the EBU Recommendation R128 (loudness).

The following sound levels are acceptable:

Short-Form Content (*Adverts, promos, etc.*)

Description	Value	Notes
Program Loudness (IL)	0 LU (-23 LUFS)	measured over the entire program length
	± 0.5 LU	accepted tolerance
Maximum True Peak (Max TP)	-3 dBTP	measured at 4 times over sampling
Maximum Short-term Loudness	+5 LU (-18 LUFS)	

ACTION AND GRAPHICS SAFE AREA



- / Action safe: 3.5%
- / Title safe: 5%

DELIVERY FORMAT

File format

- / XDCAM HD 422 MXF OP1a (SMPTE 378M),

Video

- / Codec: MPEG-2 422P@HL Long GOP
- / Bit rate: 50 Mb/s (CBR)
- / Resolution: 1920 x 1080
- / Interlacing: Upper Field First
- / Frame rate: 25 fps (50i).

Audio

- / Track 1 (AES1) Stereo Left / Lt
- / Track 2 (AES1) Stereo right / Rt
- / Codec: Uncompressed (PCM)
- / Sample Rate: 48 kHz,
- / Sampling Size: 16 or 24 bit
- / AES 2-8 Not used

- / TV commercials must be delivered as media files through our portal <https://flex.tv2media.dk/> or via a direct integration to the TV 2 Flex platform.

DEADLINE AND CORRECTIONS

/ Deadline

TV commercials to be broadcasted on TV 2's channels must be in TV 2's possession four working days before the first broadcast date at the latest.

Subsequent delivery of the material requires prior agreement with TV 2 and may involve a fee for late delivery.

/ Corrections Performed by TV2

TV 2 can exceptionally assist with technical corrections for a fee of DKK 5,000.

TECHNICAL REFERENCES

SMPTE, EBU, etc.

- / ITU-R BT.709-6: Parameter values for the HDTV standards for production and international programme exchange
- / SMPTE 377M: Material Exchange Format (MXF) - File Format Specification
- / SMPTE 378M: Material Exchange Format (MXF) - Operational pattern 1A (Single Item, Single Package)
- / SMPTE 379M: Material Exchange Format (MXF) - MXF Generic Container
- / SMPTE 381M: Material Exchange Format (MXF) - Mapping MPEG Streams into the MXF Generic Container
- / SMPTE 386M: Material Exchange Format (MXF) - Mapping Type D-10 Essence Data to the MXF Generic Container
- / SMPTE 382M: Material Exchange Format - Mapping AES3 and Broadcast Wave Audio into the MXF Generic Container
- / EBU R 95: Safe area for 16:9 television production
- / EBU R122: Material Exchange Format Timecode Implementation
- / EBU R 128: Loudness normalization and permitted maximum level of audio signals
- / EBU Tech 3341: 'EBU Mode' metering to supplement EBU R 128 loudness normalisation
- / EBU Tech 3342: Loudness range: A measure to supplement EBU R 128 loudness normalisation
- / EBU Tech 3343: Practical guidelines for EBU R128 (Loudness)
- / EBU R 128S1: Loudness Parameters for Short-Form Content

- / General information about R128 loudness: <https://tech.ebu.ch/loudness>

Links

- / [EBU website](#)
- / [SMPTE website](#)
- / [ITU website](#)