

# Technical Specifications

## Commercial File Delivery

### 1. 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.

### 2. Start, End and Duration of TV Commercials

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 that fall short of, or exceeds a whole number of seconds with more than one frame, will be rejected.

TV 2 does not accept TVGs that are shorter than 5 sec. This also applies to split-commercials. Split-commercials of more than 2 splits require prior agreement with TV 2.

### 3. System Formats

#### HD (High Definition) \*\*

HD material must be delivered in 1080i/25\*\* according to the file format specified in section 4.

Material with an original format of 1080i/30\*\* or better, can be converted to 1080i/25 in a standard converter of highest quality. Material with an original format of 35 mm film or better must be scanned directly to 1080i/25.

During HD transmission, previously delivered SD commercials will be up-converted to HD though TV2's playoutsystem. TV 2 cannot be held responsible for any loss of quality during this conversion. Advertisers are welcome to deliver new commercials in HD for optimal quality in HD transmission.



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### 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:

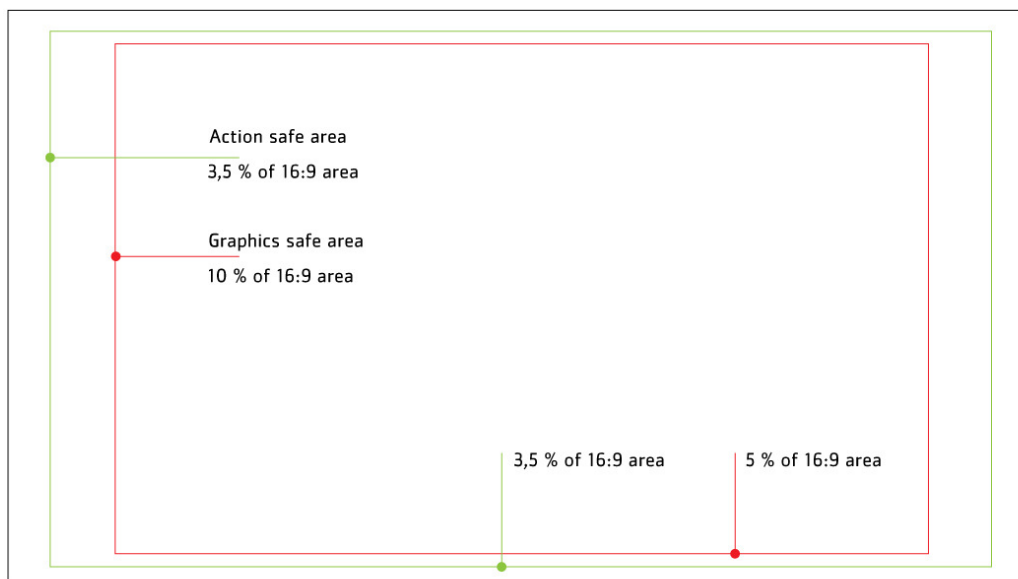
Program Loudness (IL)	0 LU -23 LUFS (measured over the entire commercial length)
Maximum True Peak (Max TP)	-3 dBFS (measured at 4 times over sampling).

Maximum Momentary (Max ML)	Is not used in commercials
Maximum Short-term (Max SL)	Is not used in commercials
Maximum Loudness range (Max LRA)	Is not used in commercials

At the moment there are no restrictions on Momentary, short-term loudness and loudness range in commercials. Our experience shows however that changes may occur.

### 16:9 Action and Graphics Safe Area:

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### 4. Delivery

Commercials can only be delivered as files through the site <https://mio.tv2.dk> or through a TV 2 approved integration of the TV 2 Mio platform.

### HD (High Definition)

#### File format:

MXF OP-1a (SMPTE 378M), XDCAM HD 422

#### Video (Single stream):

Codec:	MPEG-2 422P@HL Long GOP
Bit rate:	50 Mb/s (CBR)
GOP size:	12
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

### 5. 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.

### 6. Corrections Performed by TV2

TV 2 can exceptionally assist with necessary corrections on payment of a fee of DKK 5,000.

### 7. SMPTE documents

- SMPTE 377M-2010: "Material Exchange Format (MXF) – File Format Specification"
- SMPTE 378M-2004: "Material Exchange Format (MXF) – Operational pattern 1A (Single Item, Single Package)"
- SMPTE 379M-2010: "Material Exchange Format (MXF) – MXF Generic Container"
- SMPTE 381M-2005: Material Exchange Format (MXF) - Mapping MPEG Streams into the MXF Generic



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- Container
- SMPTE 386M-2004: “Material Exchange Format (MXF) – Mapping Type D-10 Essence Data to the MXF Generic Container”
- SMPTE 382M-2007: “Material Exchange Format – Mapping AES3 and Broadcast Wave Audio into the MXF Generic Container”
- ITU-R BT.709-5: Parameter values for the HDTV standards for production and international programme exchange
- EBU R128-2010: Loudness normalisation and permitted maximum level of audio signals
- EBU Tech 3341-2010: Loudness Metering: ‘EBU Mode’ metering to supplement loudness normalisation in accordance with EBU R 128.
- EBU Tech 3342-2010: Loudness Range: A descriptor to supplement loudness normalisation in accordance with EBU R 128
- EBU Tech 3343-2011: Practical guidelines for Production and Implementation in accordance with EBU R 128
- EBU R122-2007: Material Exchange Format Timecode Implementation

\* EBU standards on [www.ebu.ch](http://www.ebu.ch)  
Loudness R128: <http://tech.ebu.ch/docs/r/r128.pdf>

\*\* HD: defined as 1080 active (interlaced) lines and 25 whole images - (1080i/25) in a 50 fields / s interlaced TV system



Danmarks Største Fællesskab

