TECHNICAL SPECIFICATIONS FOR TELEVISION COMMERCIALS

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It is not difficult to get your television campaign broadcast at NPO, but of course, we want to get it right. That is why we have listed all the technical specifications for submitting a television commercial for you here.

Television commercials may be submitted to us digitally at our FTP server. The Television commercial should be submitted as an MXF-file accompanied by an XML-file with the commercials details.

1. SPECIFICATIONS MXF-FILE

The commercial may be submitted in SD and HD. For HD commercials the file must be submitted in MXF 1080i50 format in Operational Pattern 1a, with the Codec: XDCAM HD422, LongGOP 50, GOPsize 12, 50 Mbit/sec, 1920x1080. In addition the commercial must comply with the EBU R128 Loudness Standard.

Standard documents

The following standard documents apply to submitting television commercials:

- SMPTE 377M-2009 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 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.

Specific documents

These following documents provide extra information on submitting television commercials:

- SONY MPEGHDv120
  Mapping Type MPEG HD/ MPEG HD422 and AES3 Audio Essence to the MXF Generic Container.
- SONY XDCAM_MXF
  HD422_v080 MXF for XDCAM HD422.

The following additional conditions also apply:

- For SD: There where a distinction is made in the SMPTE-documents between 625/50 and 525/60, the 625/50 (interlaced) specification should be chosen.

- Open MXF-files are not permitted (see SMPTE 377M, section 5.2.4), they need to be 'Closed'. The partitions may both be 'Complete' and 'Incomplete'.
- The time code of the commercial is defined by the Time Code Track in the Material Package of the MXF-file.

2. SPECIFICATIONS VIDEO

The format

SD

The bandwidth for the video data is 30 Mb/s. The resolution for the active image should be 720 x 576 pixels with 32 VBI lines (720 x 608) added. Any information present including VITC in these lines will be ignored. The frame-rate should be 25 frames / 50 fields per second.

HD

The frame-rate should be 25 frames and 50 fields per second. The resolution is 1920x1080. The video codec is XDCAM HD422 Long GOP 50 in the 1080i50 format. The video bandwidth is set at 50 Mbit/sec and the GOP-size is 12.

Aspect ratio

The primary format of the commercial is 16F16. Sub-formats which fit within 16F16 without distortion are permitted. The aspect ratio should be identically marked both in MPEG-essence, MFX- metadata and in the XML-file.

Hidden signals

It is not permitted to add a (digital) watermark or other hidden signal in the sound, image or otherwise to the television commercial unless explicit permission has been requested and given. Any information present in the vertical blanking (including VITC) will be ignored.

Colours

The video parameters must adhere strictly to ITU-R BT.709-5. Television commercials which do not comply with this specification will be refused.

3. AUDIO SPECIFICATIONS

Format

The coding of the audio channels is PCM 24 bit@48 kHz.

Channel allocation

SD

MXF D10 defines 4 or 8 channels for audio. The operator uses channels 1 and 2 for the commercial audio track. Channels 3 and 4 should be delivered mute. The other channels, if any, should also be mute. The channel occupancy is as follows:

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* Stereo: Channel 1 = left, Channel 2 = right, Stereo image in phase
* Mono: Channel 1, Mono image in phase
* The coding of the audio file is PCM, 16 or 24 bit @ 48kHz HD

HD

The video format XDCAM defines 2, 4 or 8 channels for audio. Submitting television commercials should be done in one of the following forms:

- Stereo sound in a two channel allocation (1 AES-pair, two tracks):
  - 1= Left stereo (Lo/Lt)
  - 2= Right stereo (Ro/Rt)

- Stereo sound in a four channel allocation (2 AES-pairs, four tracks):
  - 1= Left stereo (Lo/Lt)
  - 2= Right stereo (Ro/Rt)
  - 3= Mute
  - 4= Mute

- Stereo in an eight channel allocation (4 AES-pairs, eight tracks):
  - 1= Left stereo (Lo/Lt)
  - 2= Right stereo (Ro/Rt)
  - 3= Mute
  - 4= Mute
  - 5= Mute
  - 6= Mute
  - 7= Mute
  - 8= Mute

- Stereo and multiple channel sound in an eight channel allocation (4 AES-pairs, eight 'tracks'):
  - 1= Left stereo (Lo/Lt)
  - 2= Right stereo (Ro/Rt)
  - 3= Left
  - 4= Right
  - 5= Centre
  - 6= Low-Frequency Effect channel
  - 7= Left surround
  - 8= Right surround

Note: Channels 1 and 2 comprise the stereo pair. In case of mono audit, the left channel must be completely identical to the right channel. With multi channel submission, channels 3 to 8 are applied discretely. Left and right of the stereo pair need to be in phase and may contain both an original stereo mix (Lo/Ro) and a mix compatible with Dolby ProLogic and similar systems (Lt/Rt). Multi channel audio must be compatible with a stereo mix by means of standard parameters (-3 dB for both 'centre' and 'surround').

The mix calibration must be identical for all channels, meaning that the 3 dB pre-correction for the rear channels for application in cinemas is not permitted. Material with multi-channel sound requires an extra parameter 'MULTICHANNEL AUDIO' in the metadata.

Loudness level

The loudness level of the programme material must be in accordance with the EBU R128 guideline, which includes the following specifications:

PARAMETER	METRE INDICATION	VALUE
Integrated Loudness	I	-23 LUFS
Maximum True Peak Level	dBTP	-1 dBTP
Maximum Momentary Loudness	M	+8 LU
Maximum Short Term Loudness	S	No restrictions
Loudness Range	LRA	No restrictions

It may occur that during a production conscious use is made of sound which is at a low level, for example in programme material consisting only of background noise. This is a creative choice, which should still be possible when submitting a commercial at equal loudness. To this end, an extra parameter 'LOW_LOUDNESS_LEVEL' has been defined in the XML-file (see paragraph 5). When that parameter is given the value 'TRUE', then the submission process will accept that the programme material has a lower loudness level than -23 LUFS.

4. OTHER CHARACTERISTICS OF THE COMMERCIAL

Time code

The file should have an uninterrupted, ascending time code defined in accordance with the 'Time Code Track' in the 'Material Package' of the MXF-file. The commercial should start at a time code of which the frames end on a nil-value and the seconds are increased in steps of 10 units. Any VITC present will be ignored. The time code referred to in the XML-file must also be equal to the time code in the 'Material Package'. The starting time code and end time code is indicated in the notation for the files, which means that a commercial with a length of 30 seconds may have 00:00:00:00 as starting time and an end time of 00:00:29:24. The actual length is therefore stated. The starting time of the commercial at 00:02:30:00 as generally used to date falls within this new definition.

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Starting and ending section

The length (in time) of the image and sound data must be equal to that of the television commercial and is identical to the length stated in the XML-file; there is therefore no starting or ending section with a colour bar, slate or black. Any other versions or 'reminders' of the television commercial must be submitted separately in a different submission with accompanying XML- file.

Specifications of the XML-file

The data for the television commercial (the metadata) should be placed in an XML-file. This file must meet the description and specifications as set out at http://www.w3.org/TR/2000/REC-xml-20001006#dt-doctype. The structure of the XML-file is expressed in the XML-schedule file "**com_xml_spec_v9.xsd**".

An example

```
<?xml version="1.0" encoding="UTF-8"?>
<COMMERCIAL_DETAILS>
<!—the title of the commercial -->
<TITLE>Mars Delight</TITLE>
<!— the name of the product -->
<PRODUCT>Mars</PRODUCT>
<!—the version of the commercial -->
<VERSION>2</VERSION>
<!—the name of the advertiser -->
<ADVERTISER>Proctor &amp;amp; Gamble</ADVERTISER>
<!—the length of the commercial in seconds -->
<LENGTH>30</LENGTH>
<!—the timecode of the beginning of the commercial (HH:MM:SS:FF) -->
<TC_IN>00:00:00:00</TC_IN>
<!—the timecode of the end of the commercial (HH:MM:SS:FF) -->
<TC_OUT>00:00:29:24</TC_OUT>
<!-- the aspect ratio of the commercial -->
<ASPECT_RATIO>16F16</ASPECT_RATIO>
<!—the name of the advertising agency -->
<AGENCY>Acme</AGENCY>
<!—the name of the post production company -->
<PRODUCTION_COMPANY>United</PRODUCTION_COMPANY>
<!—the original name of the first additional file -->
<ADDITIONAL_FILE_001>buma.pdf</ADDITIONAL_FILE_001>
<!—the original name of the second additional file -->
<ADDITIONAL_FILE_002>uitzendinstructie.doc</ADDITIONAL_FILE_002>
<!—the original name of the third additional file -->
<ADDITIONAL_FILE_003>commercialtekst.txt</ADDITIONAL_FILE_003>
<!—the original name of the fourth additional file -->
<ADDITIONAL_FILE_004></ADDITIONAL_FILE_004>
<!—the original name of the fifht additional file -->
```

<ADDITIONAL_FILE_005></ADDITIONAL_FILE_005>
<COMMENTS> Possibility to write any comments </COMMENTS>
<!—TRUE if it's a HD commercial, optional for SD, but then with the value FALSE -->
<HD>TRUE</HD>
<!-- TRUE In case of multi channel audio, optional for stereo, but then with the value FALSE -->
<MULTI_CHANNEL_AUDIO>FALSE</MULTI_CHANNEL_AUDIO>
<!-- TRUE In case of low loudness level, chosen by the upstream supplier -->
<LOW_LOUDNESS_LEVEL>FALSE</LOW_LOUDNESS_LEVEL >
</COMMERCIAL_DETAILS>

Note: The parameter 'HD' remains for compatibility with files that fulfilled previous norm for submitting.

File naming convention

The names of the MXF-file containing the television commercial, the accompanying XML-file containing the metadata and any extra files should be identical. The chosen file name must be unique and contain the product name, title, length (in full seconds), version and date (dd-mm-yyyy) of the submission, separated by an underscore (_).

The file names should comply with the UTF-8 character set whereby exclusively figures (0-9), capital letters (A-Z), lower case letters (a-z) and the hyphen (-) may be used. Letters with accent marks such as é, è, ë, ö, may not be used. Spaces in file names are not permitted and should be replaced by a hyphen (-). Texts are not case sensitive. The maximum length of the full file name is 100 characters. The (_) symbol is reserved as a separator.
The extension for the MXF-file with the television commercial should be 'mxf' and the extension for the accompanying XML-file with the commercial data should be 'xml'. Any extra computer files have the serial number as their extension, starting with 001. An extra computer file could for example contain BUMA-information. A maximum of 5 extra files may be enclosed. The original file names of the extra files must be listed in the XML-file in order to enable recognition.

An example

Product name: Mars
Title: Mars Delight
Length: 30 seconds
Version: 2
Date: 7 February 2011

The files are named as follows:
mars_mars-delight_30_version-2_07-02-2008_HD.mxf
mars_mars-delight_30_version-2_07-02-2008_HD.xml
mars_mars-delight_30_version-2_07-02-2008_HD.001
mars_mars-delight_30_version-2_07-02-2008_HD.002
mars_mars-delight_30_version-2_07-02-2008_HD.003

5. SUBMITTING THE COMMERCIAL

At Ster you submit your television commercials through our FTP-server. In order to upload your commercial(s) onto this server, you require an account. You may request an account at ftpaccountaanvragen@ster.nl. This is also the address for all your queries on logging in and uploading.

If you have no previous experience with working with FTP, we recommend the (free) programme FileZilla. This programme may be downloaded at filezilla-project.org, where you will also find an explanation on how it works. If you experience any problems or if you have any questions about using FTP, then please contact our helpdesk on 00 31 35 6725571. We are ready to take your call.

Submitting commercial(s) may be done up to one working day before the broadcast, before 12:00 hours. Any time sooner is of course welcome. Please take into account that the request for an FTP-account and checking your commercial(s) also take time.

Once we have received your commercial(s) we will send you a confirmation, which includes your Ster number(s). You require these for the broadcasting instructions, for example.

Submitting broadcasting instructions

The broadcasting instructions for the campaign may be submitted to the Traffic Team (at tvtraffic@ster.nl) up to one working day before the broadcast, before 12:00 hours. This is a (extra) check to ensure that we run the correct commercial at the correct time. A broadcasting instruction consists of:

- Your Ster number(s) + code(s)
- Campaign period
- Commercial title(s)
- In case of multiple commercials also state the relative division, so:
  - Commercial AA and AB may be run alternatingly
  - Commercial AA on channel X and Commercial AB on channel Y
  - Commercial AA (the main commercial) + AB (the tag on)

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6. QUICK REFERENCE FOR SUBMITTING TELEVISION COMMERCIALS

DESCRIPTION	VALUE	REFERENCE / COMMENT
Container	MXF	SMPTE 377M-2009 SMPTE 379M-2010
Pattern	OP1a	SMPTE 378M-2004
Codec HD	XDCAM HD422 Long GOP 50 GOPsize 12, 50 Mbit/sec, 1920x1080	SMPTE 381M-2005
Time code	Starting on XX:XX:XX:00	EBU R122-2007
Video requirements	HD 1080i50	ITU-R BT.709-5. Any illegal colours in the video signal are not permitted.
Audio format	PCM 24 bit@48 kHz	SMPTE 382M-2007
Stereo sound in a two-channel allocation (1 AES- pair, two tracks)	1 = Left stereo (Lo/Lt) 2 = Right stereo (Ro/Rt)	Channels 1 and 2 comprise the stereo pair. In case of mono audio, the left channel should be completely identical to the right channel.
Stereo sound in a four-channel allocation (2 AES-pairs, four tracks)	1 = Left stereo (Lo/Lt) 2 = Right stereo (Ro/Rt) 3 = Mute 4 = Mute	With multi-channel delivery, channels 3 up to and including 8 are applied discretely. Left and right of the stereo pair must be in phase and can contain both an original stereo mix (Lo/Ro) and a mix that is compatible with Dolby ProLogic and similar systems (Lt/Rt).
Stereo and multi-channel sound in an eight-channel allocation (4 AES-pairs, eight tracks)	1 = Left stereo (Lo/Lt) 2 = Right stereo (Ro/Rt) 3 = Left 4 = Right 5 = Centre 6 = LFE 7 = Left surround 8 = Right surround	Multi-channel audio must be compatible with a stereo mix by means of standard parameters (-3 dB for both 'centre' and 'surround'). The mix calibration must be equal for all channels,which means that the 3 dB pre-correction for the rear channels for application in cinemas is not permitted.
Programme loudness	-23 LUFS	EBU R128
Maximum audio signal level	-1 dBTP	EBU R128
Maximum momentary loudness	+8 LU	EBU Tech 3341-2010
Loudness	No restrictions apply for the time being	EBU Tech 3341-2010 EBU Tech 3342-2010 EBU Tech 3343-2011

7. CONTACT

If you have any questions about submitting your commercial(s) then please contact the Traffic team on + 31 35 672 55 00 or at tvtraffic@ster.nl.

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