

TECHNICAL REQUIREMENTS ELECTRONIC DELIVERY

RTL Nederland B.V. offers a new facility for delivering television commercials. This delivery will be executed by sending computer files through a network connection. RTL Nederland B.V.'s General Terms and Conditions also apply to this type of delivery.

1.1 Procedure

A television commercial will be packaged in a computer file as compressed image and sound data. The additional commercial information will be placed in a separate accompanying computer file. These computer files will be sent through the internet to RTL Nederland B.V.'s server, along with extra computer files, if any. An access account is required to gain access to RTL Nederland B.V.'s server.

2 Specifications of computer file containing image and sound data

The television commercial will be packaged in an MXF file containing the compressed image and sound data. The file must be delivered according to the MXF D10-30 norm in Operational Pattern 1a as established in the SMPTE documents below.

2.1 SMPTE documents

- SMPTE 377M-2004: "Material Exchange Format (MXF) – File Format Specification"
- SMPTE 378M-2004: "Material Exchange Format (MXF) – Operational pattern 1A (Single Item, Single Package)"
- SMPTE 379M-2004: "Material Exchange Format (MXF) – MXF Generic Container"
- SMPTE 386M-2004: "Material Exchange Format (MXF) – Mapping Type D-10 Essence Data to the MXF Generic Container"
- SMPTE 356M-2001: "Type D-10 Stream Specifications – MPEG-2 4:2:2P @ ML for 525/60 and 625/50"
- SMPTE 382M-2007: "Material Exchange Format – Mapping AES3 and Broadcast Wave Audio into the MXF Generic Container"

The following additional conditions also apply:

- In those instances where a distinction is made in the SMPTE documents between 625/50 and 525/60, the 625/50 (interlaced) process must be chosen.
- Open MXF files are not permitted and should be "Closed" (see SMPTE 377M, section 5.2.4). The partitions can be either "Complete" or "Incomplete".
- The time code on the commercial is defined by the Time Code Track in the Material Package of the MXF file.

2.2 Video

The bandwidth for video data is 30 Mb/s. The resolution must be 720 x 576 pixels for the active image with an additional 32 VBI lines (720 x 608). Any other information contained in these lines, including VITC, will be ignored. The frame rate must be 25 frames / 50 fields per second. To ensure that decoded files will play properly in a PAL environment (avoiding illegal colors), the PAL signal must comply with ITU-R BT.601-5 after decoding.

Adding a (digital) watermark or any other concealed signals to the sound, image or any other part of the television commercial is strictly prohibited unless express permission has been requested and granted.

2.3 Aspect ratio

The commercial's primary format is 16F16. Subformats fitting in 16F16 without distortion are allowed. The aspect ratio must be identically marked in both MPEG essence and MXF metadata as well as in the XML.

2.4 Audio

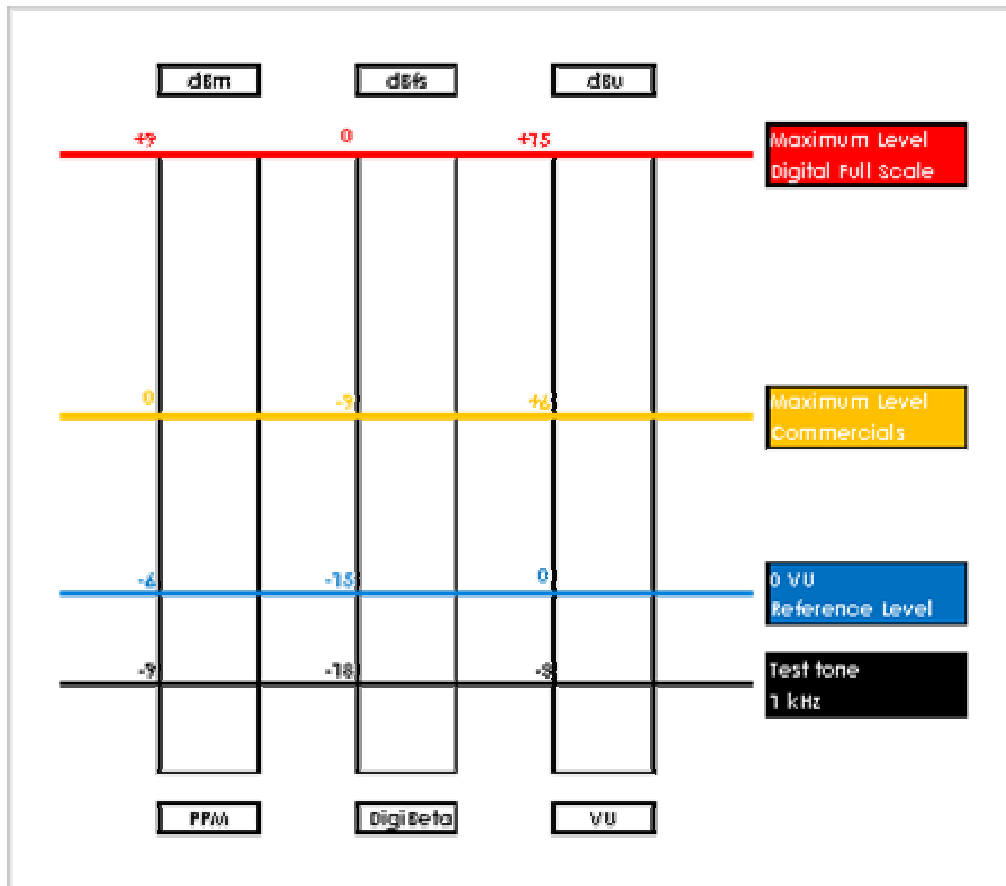
MXF D10 defines 4 or 8 channels for audio. Channels 1 and 2 are used by RTL Nederland B.V. for the commercial audio track. Channels 3 and 4 must be delivered mute. These channels are reserved for possible Dolby E use in the future. Other channels, if any, must be mute. Channel utilization is as follows:

- Stereo:
channel 1 = left, channel 2 = right, Stereo aspect in phase
- Mono:
channel 1 = channel 2, Mono aspect in phase
- Audio file coding is PCM, 16 or 24 bit @ 48kHz

Audio levels:

Since only the exact duration of the commercial is delivered, reference tones cannot be quoted. For this reason the program's sound will be judged on peaks, which must not exceed -9dBfs = 0dB PPM. This is measured after decoding with a program peak measuring device based on the IEC268 norm (attack time: 10ms). **Please note:** television commercials exceeding the maximum peak level of 0dB PPM = -9dBfs will not be accepted for broadcasting.

The next graph (see following page) illustrates the internal ratios of the various audio levels currently accepted in the analogue world.



2.5 Time code

The file is provided with an uninterrupted ascending time code as defined by the Time Code Track in the Material Package of the MXF file. In deviation of the Technical Requirements, the commercial should start at a time code whose frames have a zero value and the seconds ascend in units of 10 starting at 00:00:00:00. VITC, if present, will be ignored. In addition, the time code quoted in the XML should correspond with the time code in the Material Package. The file's start and end time codes will be indicated in the files notation, meaning a 30-second commercial can have a start time of 00:00:00:00 and an end time of 00:00:29:24. In this way the actual duration is registered. The start time now commonly used for commercials, 00:02:30:00, falls within this new definition.

2.6 Pre-run and post-run parts

Contrary to what is prescribed in the technical requirements for DigiBeta tapes, the computer file must only contain the image and sound data of the television commercial in question. The duration of the image and sound data must be equal to that of the television commercial and identical to the duration quoted in the XML. This means there is no pre-run or post-run with a color bar, slate or black screen. Other versions or reminders of the television commercial, if any, must be offered in a separate delivery with an accompanying XML.

3 Specifications of the computer file containing the commercial data

The commercial data accompanying the television commercial (the metadata) must be placed in an XML file. This XML file must comply with the description and specifications as stated on:

<http://www.w3.org/TR/2000/REC-xml-20001006#dt-doctype>.

The structure of the XML file is shown in the XML schematics file 'com_xml_spec_v1.xsd'.

4 File-naming conventions

The selected file names for the MXF file containing the television commercial, the accompanying XML file containing the metadata, and any other accompanying files must be the same, except for the file extension.

The selected file name must be unique and should include the product name, title, duration (in whole seconds), version (version-<number>) and delivery date (dd-mm-yyyy) separated by an underscore (_). The file names and the texts in the XML file should comply with the UTF-8 symbol set which only allows the use of numbers (0-9), capitals (A-Z), lower case letters (a-z) and a dash (-). Letters with accents such as é, è, ë, ö, etc. must not be used. Spaces in the descriptions are not permitted and should be replaced with a dash (-). Texts are not case sensitive. The maximum length of the entire file name is 100 symbols. The underscore symbol (_) is reserved as a separator.

The extension of the MXF file containing the television commercial should be .mxf – and the extension of the accompanying XML file containing the commercial data should be .xml. Additional computer files, if any, should have a sequence number as their extension, starting with 001. An additional computer file can include the BUMA (music copyright) information, for example. A maximum of five additional files may be attached. Their original file names must be included in the XML file to make them recognizable.

An example:

Product name:	Mars
Title:	Mars Delight
Duration:	thirty seconds
Version:	two
Date:	February 7, 2008

This becomes:

```
mars_mars-delight_30_version-2_07-02-2008.mxf
mars_mars-delight_30_version-2_07-02-2008.xml
mars_mars-delight_30_version-2_07-02-2008.001
mars_mars-delight_30_version-2_07-02-2008.002
mars_mars-delight_30_version-2_07-02-2008.003
```

Below is an example of an XML file containing television commercial data:

```
<?xml version="1.0" encoding="UTF-8"?>

<COMMERCIAL_DETAILS>

<!-- title of television commercial -->
<TITLE>Mars-Delight</TITLE>

<!-- product name -->
<PRODUCT>Mars</PRODUCT>

<!-- television commercial version -->
<VERSION>2</VERSION>

<!-- advertiser's name -->
<ADVERTISER>Acme-International</ADVERTISER>

<!-- commercial duration of television commercial in seconds -->
<LENGTH>30</LENGTH>

<!-- start time code of television commercial (HH:MM:SS:FF) -->
<TC_IN>00:00:00:00</TC_IN>

<!-- end time code of television commercial (HH:MM:SS:FF) -->
<TC_OUT>00:00:29:24</TC_OUT>

<!-- aspect ratio of television commercial -->
<ASPECT_RATIO>16F16</ASPECT_RATIO>

<!-- advertising agency's name -->
<AGENCY>Acme</AGENCY>

<!-- postproduction company's name -->
<PRODUCTION_COMPANY>United</PRODUCTION_COMPANY>

<!-- original file name of first additional file -->
<ADDITIONAL_FILE_001>buma.pdf</ADDITIONAL_FILE_001>

<!-- original file name of second additional file -->
<ADDITIONAL_FILE_002>uitzendinstructie.doc</ADDITIONAL_FILE_002>

<!-- original file name of third additional file -->
<ADDITIONAL_FILE_003>commercialtekst.txt</ADDITIONAL_FILE_003>
```

<!-- original file name of fourth additional file -->
<ADDITIONAL_FILE_004></ADDITIONAL_FILE_004>

<!-- original file name of fifth additional file -->
<ADDITIONAL_FILE_005></ADDITIONAL_FILE_005>

<COMMENTS>Your comments if necessary. </COMMENTS>

</COMMERCIAL_DETAILS>

5 Server

The computer files are delivered to a server which is accessible through the internet. The server's internet address will be supplied along with the access account information. The server supports the File Transfer Protocol (FTP) according to RFC 959. Comprehensive support of this protocol, accessibility and correct operation of the server cannot be guaranteed.

6 Access account application procedure

In order to gain access to RTL Nederland B.V.'s server, an access account must be applied for at avs@rtl.nl. The application should state the reason for applying, the company name and the applicant's name, email address and telephone number. A reply will be emailed to the applicant within three working days containing the access account information: username and password, the account's expiration date and the internet address of RTL Nederland B.V.'s server. The access account will expire automatically after six months. Applications for another access account should be submitted within six months.

7 Contact

Audio Visuele Services
Raymon van Lent
Tel: +3135-7113836 of +3135-7113882
Email: raymon.van.lent@rtl.nl

8 Rervations / Conditions

Should the above conditions not be complied with in their entirety, then RTL Nederland reserves the right to refuse to accept the production.

After receiving the digital files, they will be in possession of RTL Nederland and will be destroyed after a year of broadcasting

9 Quick Reference Guide

Quick Reference Guide to the Addendum Electronic Delivery of Television Commercials

Description	Value	Reference / Comment
Container	MXF	SMPTE 379M-2004: "Material Exchange Format (MXF) - MXF Generic Container" SMPTE 377M-2004: "Material Exchange Format (MXF) - File Format Specification"
Pattern	OP1a	SMPTE 378M-2004: "Material Exchange Format (MXF) - Operational Pattern 1a (Single Item, Single Package)"
Codec	D10 -30 Mb/s 625/50	SMPTE 356M-2001: "Type D10 Stream Specifications - MPEG-2 4:2:2P @ ML for 525/60 and 625/50" SMPTE 386M-2004: "Material Exchange Format (MXF) - Mapping Type D-10 Essence Data to the MXF Generic Container" See paragraph 2.2 of this document
Video	PAL	To ensure that decoded files will play properly in a PAL environment (avoiding illegal colors), the PAL signal must comply with ITU-R BT.601-5 after decoding.
Audio	PCM 16 or 24 bit @ 48 kHz	SMPTE 382M-2007: "Material Exchange Format (MXF) - Mapping AES3 and Broadcast Wave Audio into the MXF Generic Container"
Stereo	channel 1 = left channel 2 = right	Stereo aspect in phase, channels 3&4 mute
Mono	channel 1 = channel 2	Mono aspect in phase, channels 3&4 mute
Audio levels	maximum -9dBfs	Maximum peaks of -9dBfs, equaling 0 dB PPM in the analogue domain after decoding, measured with a program peak measuring device based on the IEC268 norm (attack time: 10ms).
Time code		The file is provided with an uninterrupted ascending time code as defined by the Time Code Track in the Material Package of the MXF file. The time code complies with EBU Recommendation R122.