sky media **Technical specifications and copy delivery**

1. Quick Specs

File container:	.mxf (MXF/OP1a)
Format/Codec:	XDCAM HD 4:2:2 (MPEG-2) 1080i – 50Mbit
Audio tracks:	8 CH Audiotracks (1+2, 3+4 PGM, 5-8 mute)
Bit depth / sampling rate:	24Bit / 48kHZ
Loudness:	according to EBU R-128 = **-23 LUFS**

Notes:

- **additionally 5 Black Frames** at the end of spot

- **NO** technical leader or closing credits

- Filename with **no special characters** or vowel mutation and **not more than 32 characters**

2. Overview

Channels:

Sky

NBCU (13th Street, SYFY, Universal TV)

Hearst Networks (Crime + Investigation, THE HISTORY CHANNEL)

Highview (Bergblick, DELUXE DANCE, DELUXE MUSIC, DELUXE RAP, Jukebox, Schlager Deluxe)

Mainstream Media (Heimatkanal, Romance TV)

Forerun: Delivery deadline

Delivery: Adstream, Adtoox, PeachVideo, ASPERA Connect

ASPERA: Initial setup of the account will be done by

CH_Linear@sky.de

After uploading, please inform the following about client, length, copyname, copynumber and music Information:

spotupload@sky.de CH_Linear@sky.de

Further information regarding ASPERA:

Aspera contentdelivery

3. Introduction

Every file must be quality checked and documented:
If defects already existed in the source material, which could not be repaired, please inform Sky immediately when delivered by email (ch_linear@sky.de) with the exact Timecode information.

The in-house format for HD is 1080i/25.

Note: In this document the nomenclature for image formats is used as defined in EBU Tech 3299 where the abbreviations consist of "activeLinesScanning/frame-rate", e.g., 1080i/25.

In contrary to this the ITU-R uses a different nomenclature, such as 'interlaced as "2:1"' or alternatively '1920 × 1080/50/I' where "50" corresponds to the field-rate (see ITU-R BT.1846), e.g., 1080/50/I.

The following profile is defined for file-based delivery and production:

Name	Type	Video	Audio
HD-1	MXF OP1a / XDCAM	MPEG-2, long GOP (ISO/IEC 13818-2)	8 (24bit) channels

The following chapters will describe this profile in more detail.

4. File-based profiles

4.1.   Naming guidelines for files

Only use abcdefghijklmnopqrstuvwxyzABCDEFGHIJKLMNOPQRSTUVWXYZ and

1234567890_- and no space, max. 32 letters

4.2.   Profile HD-1 (MXF OP1a / XDCAM)

Wrapper

Fileformat	MXF according to SMPTE 377-1
MXF structure	According to SMPTE RDD-9
Operational Pattern	OP1a according to SMPTE 378M
Essence Mapping	According to SMPTE 381M and SMPTE 382M
Generic Container	Frame-based mapping according to SMPTE 379-1

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Partition multiplex	1 Header Partition, 1-n Body Partitions, 1 Footer Partition
Random Index Pack	Present
Essence location	No Essence in Header Partition. Complete Essence distributed over multiple Body Partitions.
Index table location	Distributed over Body Partitions and Footer Partition according to SMPTE RDD-9
Descriptive Metadata	None
Tracks in Material Package	1 Timecode Track, 1 Video Track, 8 Audio Tracks
Tracks in Source Package	1 Timecode Track, 1 Video Track, 8 Audio Tracks
Body Partition Duration	Maximum duration of 10 seconds per Body Partition (Target: 240 frames in each Body Partition)
Material start/end	Picture to Picture First Frame of content (no bars, clocks, etc.) / Last Frame of content (no adverts, trails, textless material, etc.; that must be delivered separate)
Timecode Material Package	Start value: 00:00:00:00
Timecode Source Package	Start value: 00:00:00:00, no discontinuities

Bitstream

Video	
Format	MPEG-2 ES according to ISO 13818-2
Level/Profil	422Profile@HighLevel
GOP	Long GOP; N=12; M=3; pattern: IBBPBBPBBPBB
Chroma Sampling	4:2:2
Bit Rate	50 Mbit/s
Constant Bit Rate	Yes
Sequence Header	Before each GOP
Field Encoding	Top field first
Timecode in GOP header	Not in use
Audio	
Channel Count	8
Format	AES3 according to SMPTE 382M carrying uncompressed PCM
Samplerate	48 kHz
Resolution	24 Bit
Ancillary Data	Not in use
Subtitles	Branded in file

Baseband

Video	
Picture Size (active)	1920x1080
Aspect Ratio	16:9
Frame Rate	25i
Video signal compliance	ITU-R BT.709
Audio	
Channel Count	8
Channel Assignment	See chapter 3.2

5. ANNEX 1 – Audio

If less audio channels are available than designed in profiles, the remaining channels must be muted.

5.1. General Requirements

For short programme elements with interstitial, promotional or commercial   character:

- Integrated Loudness according to EBU R-128 = -23 LUFS
- Maximum True Peak = -1dBTp
- Maximum Short-Term Loudness = -17 LUFS (with reservations, can be adjusted in the future)
- Maximum Momentary Loudness = -14 LUFS (with reservations, can be adjusted in the future)

5.2. Channel Allocation - 8 Channel Profile

Channel	Essence	
1	German/original language, left	
2	German/original language, right	
3	German/original language, left	
4	German/original language, right	
5	MUTED	
6		
7	MUTED	
8		

6. ANNEX 3 – General Requirements

- Programs must always be delivered in one MXF file. Breaks or overlaps are not acceptable.
- Complete backgrounds (textless elements) have to be delivered in a separate file.
- If other titled scenes are present in a program, the textless elements for these should also be included (bumpers, computer screens etc.).
- Textless elements must cover the complete scene from cut to cut.
- The earliest available generation of material is required.
- The aspect ratio must be native and kept unchanged through all stages of postproduction. No aspect ratio switches during a movie are allowed.
- All postproduction processes must be executed in a way that the resolution is never affected. Up-converted Material will not be accepted.
- Only complete lines are accepted. (e.g., in 4x3 format Line 23 and 627 must be blanked)
- Letterbox material must be centered vertically.
- If original material was film, only retouched material will be accepted.
- Only colour grading for television will be accepted. No cinema colour grading is allowed.
- The luminance max level must be kept as high as possible but must not exceed 100% even on extreme highlights. Black level below 0 % is not acceptable.
- No crushed blacks, no clipped luminance level is permitted.
- Both effects cause an unacceptable loss of detail information in dark or light scenes independent of the absolute luminance level.
- Safe Area: Please place all relevant images, logos, and text not at the very edge, but at least at the following distance:
  - vertical: 54 px from the left and right edges
  - horizontal: 96 px from the top and bottom edges
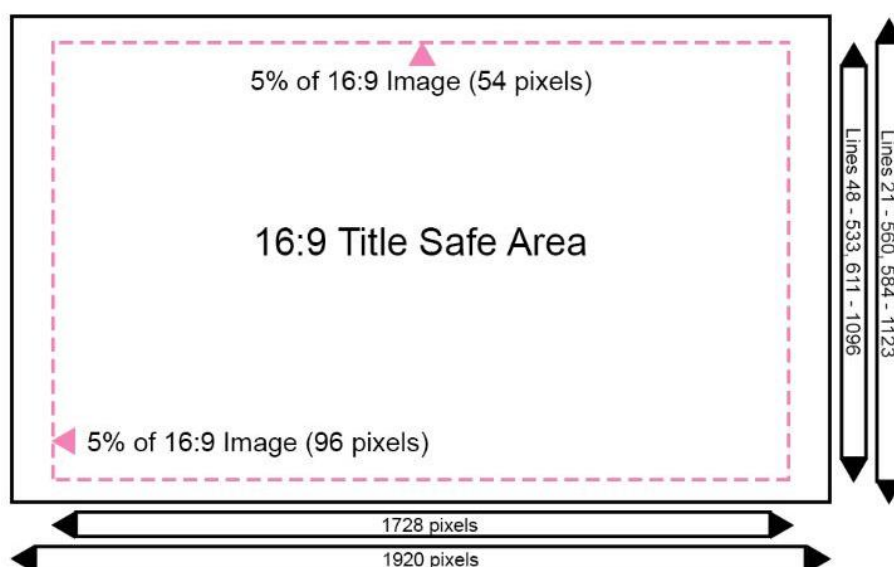
Overall, all material must fully comply to all specifications of this document. Material that does not comply will be rejected.

7. ANNEX 4 – Contact

For further information regarding technical issues, please contact:

Content Playout Delivery: CH_Linear@sky.de

For further information regarding content, please contact:

Air Time Planning: SkyDispo@sky.de