



# **ZDF Specifications for File-Based Deliveries**

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## 1. Overview

This document outlines the technical parameters to be complied with for the file-based delivery of video material to ZDF. These are intended to support the parameters defined within the “Technical Guidelines for the Production of Television Programs for ARD, ZDF and ORF” (TPRF).

This document distinguishes between three types of materials: “broadcasts,” “videoclips” and “raw footage.”

## 2. General Information

The delivering party is required, to a reasonable extent, to support ZDF in resolving potential interoperability issues. ZDF reserves the right to request relevant test files from the delivering party in order to resolve any interoperability issues.

File names may not contain special characters. Only numerals, lowercase letters, uppercase letters, dashes and underscores are allowed. These include the following: 0 to 9, a to z, A to Z, - and \_.

## 3. Data Storage Media / File-based deliveries via Faspex-Dropbox / Metadata Sheet

### Data Storage Media

Data storage media	HDD, SSD, USB-Stick
Interface	USB 3.0
File system	NTFS
USB stick requirements	Read speed of at least 200 Mbyte/second (200 MB/s)

**Table 1: Data Storage Media**

ZDF is responsible for deciding the type of data storage media (HDD, SSD, USB stick) to be used for delivery. Upon consultation with ZDF, a delivery can also be made without the use of a physical data storage media if an appropriate file transfer system can be substituted; if this is the case, the section “Data Storage Media” is not applicable. The decision as to whether or not a delivery can be made via file transfer lies with ZDF.

A delivery of several productions or episodes of a production may be included on a single data storage media. The productions to be delivered together in this way must be coordinated with ZDF before delivery.

In contrast to the data storage media listed above, the following specifications apply for the delivery of proxy files (see Section 4.4):

Data storage media	DVD-R, DVD+R, DVD-ROM
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**Table 2: Data Storage Media for Proxy Files**



## File-based deliveries via Faspex Dropbox

For file delivery e.g. via Faspex drop boxes, the following **title convention** must be followed **for the Faspex package name**:

### **PN\_SF\_(CF)\_(NTH)-n\_Title**

PN = ProductionID (always eight-digit)  
SF = Broadcast version  
CF = Clean feed  
NTH = Separate clean elements  
n = Numbering

**The structure of the title** should be chosen **according to the content of the package**. Only the characters "0 to 9", "a to z", "A to Z", "-" and "\_" are permitted for specifying the title in the file names. The use of umlauts and other special characters is not permitted. Spaces in the title must be replaced by hyphens.

### Examples:

*12345678\_SF\_CF-1\_Die-Schaetze-Afrikas*  
(with delivery of SF and CF of „Die Schätze Afrikas“ in one Faspex package)

*12345678\_SF\_CF\_NTH-2\_Das-Elbsandsteingebirge*  
(with delivery of SF, CF and NTH of „Das Elbsandsteingebirge“ in one Faspex package)

## Metadata Sheet

A completed metadata sheet (MBK) should always be delivered on the hard disk or via file transfer together with the corresponding video file. The current and valid version of MBK is version 1.10.



## 4. Broadcasts

Broadcasts include complete broadcast-ready programs, any and all associated supplemental materials (e.g., separate clean elements) and versions (e.g., clean feeds, raw cuts). This includes series, made-for-TV movies, feature films, documentary films and news reports, among others.

Broadcasts must always be delivered to ZDF in High Definition (HD). If commissioned by ZDF, versions in HD/HDR and/or UHD/HDR may also be delivered.

### 4.1. HD (High Definition)

#### 4.1.1. File Specification – Broadcast Version

<b>Identifier: ZDF-S01</b>	
Container	*.MXF - MXF OP1a according to the SMPTE 377 Standard (Single Item, Single Package)
Codec	AVCIntra100 (H.264 / MPEG-4 AVC High 422 Intra RP2027 Constrained Class 100)
Resolution	1920x1080
Frame Rate	25
Chroma Subsampling	4:2:2
Bit Depth	10 bit
Scan Type	Progressive (1080p/25) / Interlaced (1080i/25)
Audio	Up to 16-channel (only even-numbered multiples) 24 Bit 48KHz PCM (CHCOUNT=1) - Little Endian
	Note: The file must always contain a minimum of 8 and a maximum of 16 audio tracks. Audio tracks that are not used should be muted. Unused / muted audio tracks must be flagged in the metadata sheet accordingly. There is only an even number of audio tracks allowed (8, 10, 12, 14, 16).
Multichannel Audio	Dolby E
Audio Track Assignment	Audio 1: Main language full mix left
	Audio 2: Main language full mix right
	Audio 3: M&E left -or- Alternate language left
	Audio 4: M&E right -or- Alternate language right
	Audio 5: Audio description left
	Audio 5: Audio description right
	Audio 7: Dolby E
	Audio 8: Dolby E
	Audio 9: Multichannel – Main language L
	Audio 10: Multichannel – Main language R
	Audio 11: Multichannel – Main language C
	Audio 12: Multichannel – Main language LFE
	Audio 13: Multichannel – Main language LS
	Audio 14: Multichannel – Main language RS



	Audio 15: Mute / In agreement with ZDF Production Management
	Audio 16: Mute / In agreement with ZDF Production Management
Timecode	Start timecode (first frame): 10:00:00:00
File Naming Convention	"ProductionID"_SF-n_"Title".mxf  Example: 12345678_SF-1_Title.mxf Note: "n" in the file name (..._SF-n_...) should be used for numbering the broadcast file versions (1, 2, 3 etc.)  The code "SF" always indicates "Broadcast Version".

**Table 2: File Specification – Broadcast Version**

#### 4.1.2. File Specification – Separate Clean Elements

Separate clean elements are to be delivered in one file per production. For productions with multiple titled sequences (i.e., that go above and beyond credits and end credits), the delivery of a complete clean feed version is preferable to the delivery of separate clean elements. Additional audio tracks must always be delivered with the clean feed version.

<b>Identifier: ZDF-S02</b>	
Container	*.MXF - MXF OP1a according to the SMPTE 377 Standard (Single Item, Single Package)
Codec	AVCIntra (H.264 / MPEG-4 AVC High 422 Intra RP2027 Constrained Class 100)
Resolution	1920x1080
Frame Rate	25
Chroma Subsampling	4:2:2
Bit Depth	10 bit
Scan Type	Progressive (1080p/25) / Interlaced (1080i/25)
Audio	2-channel 24 Bit 48KHz PCM (CHCOUNT=1) - Little Endian
	Note: The separate clean elements file must always contain 2 audio tracks. Audio tracks should be muted.
Audio Track Assignment	Audio 1: Mute
	Audio 2: Mute
Timecode	Start timecode (first frame): 10:00:00:00
File Naming Convention	"ProductionID"_NTH-n_"Title".mxf  Example: 12345678_NTH-1_Title.mxf Note: "n" in the file name (..._NTH-n_...) should be used for numbering the separate clean elements (1, 2, 3 etc.) The code "NTH" always indicates "Separate Clean Elements".

**Table 3: File Specification – Separate Clean Elements**

#### 4.1.3. File Specification – Clean Feed

<b>Identifier: ZDF-S03</b>	
Container	*.MXF - MXF OP1a according to the SMPTE 377 Standard (Single Item, Single Package)
Codec	AVCIntra (H.264 / MPEG-4 AVC High 422 Intra RP2027 Constrained Class 100)



Resolution	1920x1080
Frame Rate	25
Chroma Subsampling	4:2:2
Bit Depth	10 bit
Scan Type	Progressive (1080p/25) / Interlaced (1080i/25)
Audio	Up to 16-channel (only even-numbered multiples) 24 Bit 48KHz PCM (CHCOUNT=1) - Little Endian
	Note: The content and audio track allocation must be agreed with the responsible ZDF production management. The audio tracks can be used for the delivery of discrete multi-channel sound, language versions, music, etc. There is only an even number of audio tracks allowed (2, 4, 6, 8, 10, 12, 14, 16).
Multichannel Audio	Dolby-E -or- discrete
Audio Track Assignment	Audio 1: In agreement with ZDF Production Management
	Audio 2: In agreement with ZDF Production Management
	Audio 3: In agreement with ZDF Production Management
	Audio 4: In agreement with ZDF Production Management
	Audio 5: In agreement with ZDF Production Management
	Audio 6: In agreement with ZDF Production Management
	Audio 7: In agreement with ZDF Production Management
	Audio 8: In agreement with ZDF Production Management
	Audio 9: In agreement with ZDF Production Management
	Audio 10: In agreement with ZDF Production Management
	Audio 11: In agreement with ZDF Production Management
	Audio 12: In agreement with ZDF Production Management
	Audio 13: In agreement with ZDF Production Management
	Audio 14: In agreement with ZDF Production Management
	Audio 15: In agreement with ZDF Production Management
	Audio 16: In agreement with ZDF Production Management
Timecode	Start timecode (first frame): 10:00:00:00
File Naming Convention	"ProductionID"_CF-n_"Title".mxf  Example: 12345678_CF-1_Title.mxf Note: "n" in the file name (..._CF-n_...) should be used for numbering the clean feed versions (1, 2, 3 etc.) The code "CF" always indicates "Clean Feed".

**Table 4: File Specification – Clean Feed**

#### **4.1.4. File Specification – Miscellaneous Additional Materials**

<b>Identifier: ZDF-S04</b>	
Container	*.MXF - MXF OP1a according to the SMPTE 377 Standard (Single Item, Single Package)
Codec	AVCIntra (H.264 / MPEG-4 AVC High 422 Intra RP2027 Constrained Class 100)
Resolution	1920x1080





Frame Rate	25
Chroma Subsampling	4:2:2
Bit Depth	10 bit
Scan Type	Progressive (1080p/25) / Interlaced (1080i/25)
Audio	Up to 16-channel (only even-numbered multiples) 24 Bit 48KHz PCM (CHCOUNT=1) - Little Endian
	Note: The content and audio track allocation must be agreed with the responsible ZDF production management. The audio tracks can be used for the delivery of discrete multi-channel sound, language versions, music, etc. Main language and M&E, if available, must always be on audio tracks 1/2 (main language full mix) and 3/4 (M&E). There is only an even number of audio tracks allowed (2, 4, 6, 8, 10, 12, 14, 16).
Multichannel Audio	Dolby E -or- discrete
Audio Track Assignment	Audio 1: Main language full mix left (if available) / In agreement with ZDF Production Management
	Audio 2: Main language full mix right (if available) / In agreement with ZDF Production Management
	Audio 3: M&E left (if available) / In agreement with ZDF Production Management
	Audio 4: M&E right (if available) / In agreement with ZDF Production Management
	Audio 5: In agreement with ZDF Production Management
	Audio 6: In agreement with ZDF Production Management
	Audio 7: In agreement with ZDF Production Management
	Audio 8: In agreement with ZDF Production Management
	Audio 9: In agreement with ZDF Production Management
	Audio 10: In agreement with ZDF Production Management
	Audio 11: In agreement with ZDF Production Management
	Audio 12: In agreement with ZDF Production Management
	Audio 13: In agreement with ZDF Production Management
	Audio 14: In agreement with ZDF Production Management
	Audio 15: In agreement with ZDF Production Management
	Audio 16: In agreement with ZDF Production Management
Timecode	Start timecode (first frame): 10:00:00:00
File Naming Convention	"ProductionID"_ZM-n_"Title".mxf  Example: 12345678_ZM-1_Title.mxf Note: "n" in the file name (...ZM-n...) should be used for numbering the additional materials (1, 2, 3 etc.) The code "ZM" always indicates "Miscellaneous Additional Materials".

**Table 6: File Specification – Miscellaneous Additional Materials**

#### **4.2. HD/HDR (High Definition / High Dynamic Range)**

Please note: The instructions and specifications for creating HD/HDR or UHD/HDR productions in the appendix must be observed!



#### 4.2.1. File Specification – Broadcast Version HD/HDR

<b>Identifier:</b> <b>ZDF-S01-HD-HDR</b>	
Container	*.MXF - MXF OP1a according to the SMPTE 377 Standard (Single Item, Single Package)
Codec	XAVC HD Intra Class 100
Resolution	1920x1080
Frame Rate	50
Chroma Subsampling	4:2:2
Bit Depth	10 bit
Scan Type	Progressive (1080p/50)
HDR Standard	Hybrid Log-Gamma (HLG) in accordance with ITU-R BT.2100
EOTF	HLG System Gamma: 1.2
Peak Luminance	1000 nits
Colour Space	ITU-R BT.2020
Audio	Up to 16-channel (only even-numbered multiples) 24 Bit 48KHz PCM (CHCOUNT=1) - Little Endian
	Note: The file must always contain a minimum of 8 and a maximum of 16 audio tracks. Audio tracks that are not used should be muted. Unused / muted audio tracks must be flagged in the metadata sheet accordingly. There is only an even number of audio tracks allowed (8, 10, 12, 14, 16).
Multichannel Audio	Dolby E
Audio Track Assignment	Audio 1: Main language full mix left
	Audio 2: Main language full mix right
	Audio 3: M&E left -or- Alternate language left
	Audio 4: M&E right -or- Alternate language right
	Audio 5: Audio description left
	Audio 5: Audio description right
	Audio 7: Dolby E
	Audio 8: Dolby E
	Audio 9: Multichannel – Main language L
	Audio 10: Multichannel – Main language R
	Audio 11: Multichannel – Main language C
	Audio 12: Multichannel – Main language LFE
	Audio 13: Multichannel – Main language LS
	Audio 14: Multichannel – Main language RS
	Audio 15: Mute / In agreement with ZDF Production Management
	Audio 16: Mute / In agreement with ZDF Production Management
Timecode	Start timecode (first frame): 10:00:00:00
File Naming Convention	"ProductionID"_SF-HD-HDR-n_"Title".mxf  Example: 12345678_SF-HD-HDR-1_Title.mxf



	Note: "n" in the file name (..._SF-HD-HDR-n_...) should be used for numbering the broadcast versions (1, 2, 3 etc.) The code "SF" always indicates "Broadcast Version".
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**Table 7: File Specification – Broadcast Version HD/HDR**

#### 4.2.2. File Specification – Separate Clean Elements HD/HDR

Separate clean elements are to be delivered in one file per production. For productions with multiple titled sequences (i.e., that go above and beyond credits and end credits), the delivery of a complete clean feed version is preferable to the delivery of separate clean elements. Additional audio tracks must always be delivered with the clean feed version.

<b>Identifier: ZDF-S02-HD-HDR</b>	
Container	*.MXF - MXF OP1a according to the SMPTE 377 Standard (Single Item, Single Package)
Codec	XAVC HD Intra Class 100
Resolution	1920x1080
Frame Rate	50
Chroma Subsampling	4:2:2
Bit Depth	10 bit
Scan Type	Progressive (1080p/50)
HDR Standard	Hybrid Log-Gamma (HLG) in accordance with ITU-R BT.2100
EOTF	HLG System Gamma: 1.2
Peak Luminance	1000 nits
Colour Space	ITU-R BT.2020
Audio	2-channel 24 Bit 48KHz PCM (CHCOUNT=1) - Little Endian
	Note: The separate clean elements file must always contain 2 audio tracks. Audio tracks should be muted.
Audio Track Assignment	Audio 1: mute
	Audio 2: mute
Timecode	Start timecode (first frame): 10:00:00:00
File Naming Convention	"ProductionID"_NTH-HD-HDR-n_"Title".mxf  Example: 12345678_NTH-HD-HDR-1_Title.mxf Note: "n" in the file name (..._NTH-HD-HDR-n_...) should be used for numbering the separate clean elements (1, 2, 3 etc.) The code "NTH" always indicates "Separate Clean Elements".

**Table 8: File Specification – Separate Clean Elements HD/HDR**

#### 4.2.3. File Specification – Clean Feed HD/HDR

<b>Identifier: ZDF-S03-HD-HDR</b>	
Container	*.MXF - MXF OP1a according to the SMPTE 377 Standard (Single Item, Single Package)
Codec	XAVC HD Intra Class 100
Resolution	1920x1080
Frame Rate	50



Chroma Subsampling	4:2:2
Bit Depth	10 bit
Scan Type	Progressive (1080p/50)
HDR Standard	Hybrid Log-Gamma (HLG) in accordance with ITU-R BT.2100
EOTF	HLG System Gamma: 1.2
Peak Luminance	1000 nits
Colour Space	ITU-R BT.2020
Audio	Up to 16-channel (only even-numbered multiples) 24 Bit 48KHz PCM (CHCOUNT=1) - Little Endian
	Note: The content and audio track allocation must be agreed with the responsible ZDF production management. The audio tracks can be used for the delivery of discrete multi-channel sound, language versions, music, etc. There is only an even number of audio tracks allowed (2, 4, 6, 8, 10, 12, 14, 16).
Multichannel Audio	Dolby-E -or- discrete
Audio Track Assignment	Audio 1: In agreement with ZDF Production Management
	Audio 2: In agreement with ZDF Production Management
	Audio 3: In agreement with ZDF Production Management
	Audio 4: In agreement with ZDF Production Management
	Audio 5: In agreement with ZDF Production Management
	Audio 6: In agreement with ZDF Production Management
	Audio 7: In agreement with ZDF Production Management
	Audio 8: In agreement with ZDF Production Management
	Audio 9: In agreement with ZDF Production Management
	Audio 10: In agreement with ZDF Production Management
	Audio 11: In agreement with ZDF Production Management
	Audio 12: In agreement with ZDF Production Management
	Audio 13: In agreement with ZDF Production Management
	Audio 14: In agreement with ZDF Production Management
	Audio 15: In agreement with ZDF Production Management
	Audio 16: In agreement with ZDF Production Management
Timecode	Start timecode (first frame): 10:00:00:00
File Naming Convention	"ProductionID"_CF-HD-HDR-n_"Title".mxf  Example: 12345678_CF-HD-HDR-1_Title.mxf Note: "n" in the file name (..._CF-HD-HDR-n_...) should be used for numbering the clean feed versions (1, 2, 3 etc.) The code "CF" always indicates "Clean Feed".

**Table 9: File Specification – Clean Feed HD/HDR**

#### 4.2.4. File Specification – Miscellaneous Additional Materials HD/HDR

<b>Identifier:</b> <b>ZDF-S04-HD-HDR</b>	
Container	*.MXF - MXF OP1a according to the SMPTE 377 Standard (Single



	Item, Single Package)
Codec	XAVC HD Intra Class 100
Resolution	1920x1080
Frame Rate	50
Chroma Subsampling	4:2:2
Bit Depth	10 bit
Scan Type	Progressive (1080p/50)
HDR Standard	Hybrid Log-Gamma (HLG) in accordance with ITU-R BT.2100
EOTF	HLG System Gamma: 1.2
Peak Luminance	1000 nits
Colour Space	ITU-R BT.2020
Audio	Up to 16-channel (only even-numbered multiples) 24 Bit 48KHz PCM (CHCOUNT=1) - Little Endian
	Note: The content and audio track allocation must be agreed with the responsible ZDF production management. The audio tracks can be used for the delivery of discrete multi-channel sound, language versions, music, etc. Main language and M&E, if available, must always be on audio tracks 1/2 (main language full mix) and 3/4 (M&E). There is only an even number of audio tracks allowed (2, 4, 6, 8, 10, 12, 14, 16).
Multichannel Audio	Dolby E -or- discrete
Audio Track Assignment	Audio 1: Main language full mix left (if available) / In agreement with ZDF Production Management
	Audio 2: Main language full mix right (if available) / In agreement with ZDF Production Management
	Audio 3: M&E left (if available) / In agreement with ZDF Production Management
	Audio 4: M&E right (if available) / In agreement with ZDF Production Management
	Audio 5: In agreement with ZDF Production Management
	Audio 6: In agreement with ZDF Production Management
	Audio 7: In agreement with ZDF Production Management
	Audio 8: In agreement with ZDF Production Management
	Audio 9: In agreement with ZDF Production Management
	Audio 10: In agreement with ZDF Production Management
	Audio 11: In agreement with ZDF Production Management
	Audio 12: In agreement with ZDF Production Management
	Audio 13: In agreement with ZDF Production Management
	Audio 14: In agreement with ZDF Production Management
	Audio 15: In agreement with ZDF Production Management
	Audio 16: In agreement with ZDF Production Management
Timecode	Start timecode (first frame): 10:00:00:00



File Naming Convention	"ProductionID"_ZM-HD-HDR-n_"Title".mxf  Example: 12345678_ZM-HD-HDR-1_Title.mxf Note: "n" in the file name (..._ZM-HD-HDR-n_...) should be used for numbering the additional materials (1, 2, 3 etc.) The code "ZM" always indicates "Miscellaneous Additional Materials".
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**Table 10: File Specification – Miscellaneous Additional Materials HD/HDR**

### 4.3. UHD/HDR (Ultra High Definition / High Dynamic Range)

Please note: The instructions and specifications for creating HD/HDR or UHD/HDR productions in the appendix must be observed!

#### 4.3.1. File Specification – Broadcast Version UHD/HDR

<b>Identifier:</b> <b>ZDF-S01-UHD-HDR</b>	
Container	*.MXF - MXF OP1a according to the SMPTE 377 Standard (Single Item, Single Package)
Codec	XAVC QFHD Intra Class 480 VBR or XAVC QFHD Intra Class 300 VBR
Resolution	3840x2160
Frame Rate	50
Chroma Subsampling	4:2:2
Bit Depth	10 bit
Scan Type	Progressive (2160p/50)
HDR Standard	Hybrid Log-Gamma (HLG) in accordance with ITU-R BT.2100
EOTF	HLG System Gamma: 1.2
Peak Luminance	1000 nits
Colour Space	ITU-R BT.2020
Audio	Up to 16-channel (only even-numbered multiples) 24 Bit 48KHz PCM (CHCOUNT=1) - Little Endian
	Note: The file must always contain a minimum of 8 and a maximum of 16 audio tracks. Audio tracks that are not used should be muted. Unused / muted audio tracks must be flagged in the metadata sheet accordingly. There is only an even number of audio tracks allowed (8, 10, 12, 14, 16).
Multichannel Audio	Dolby E
Audio Track Assignment	Audio 1: Main language full mix left
	Audio 2: Main language full mix right
	Audio 3: M&E left -or- Alternate language left
	Audio 4: M&E right -or- Alternate language right
	Audio 5: Audio description left
	Audio 5: Audio description right
	Audio 7: Dolby E
	Audio 8: Dolby E
	Audio 9: Multichannel – Main language L



	Audio 10: Multichannel – Main language R
	Audio 11: Multichannel – Main language C
	Audio 12: Multichannel – Main language LFE
	Audio 13: Multichannel – Main language LS
	Audio 14: Multichannel – Main language RS
	Audio 15: Mute / In agreement with ZDF Production Management
	Audio 16: Mute / In agreement with ZDF Production Management
Timecode	Start timecode (first frame): 10:00:00:00
File Naming Convention	"ProductionID"_SF-UHD-HDR-n_"Title".mxf  Example: 12345678_SF-UHD-HDR-1_Title.mxf Note: "n" in the file name (..._SF-UHD-HDR-n_...) should be used for numbering the broadcast versions (1, 2, 3 etc.) The code "SF" always indicates "Broadcast Version".

**Table 11: File Specification – Broadcast Version UHD/HDR**

#### 4.3.2. File Specification – Separate Clean Elements UHD/HDR

Separate clean elements are to be delivered in one file per production. For productions with multiple titled sequences (i.e., that go above and beyond credits and end credits), the delivery of a complete clean feed version is preferable to the delivery of separate clean elements. Additional audio tracks must always be delivered with the clean feed version.

<b>Identifier: ZDF-S02-UHD-HDR</b>	
Container	*.MXF - MXF OP1a according to the SMPTE 377 Standard (Single Item, Single Package)
Codec	XAVC QFHD Intra Class 480 VBR or XAVC QFHD Intra Class 300 VBR
Resolution	3840x2160
Frame Rate	50
Chroma Subsampling	4:2:2
Bit Depth	10 bit
Scan Type	Progressive (2160p/50)
HDR Standard	Hybrid Log-Gamma (HLG) in accordance with ITU-R BT.2100
EOTF	HLG System Gamma: 1.2
Peak Luminance	1000 nits
Colour Space	ITU-R BT.2020
Audio	2-channel 24 Bit 48KHz PCM (CHCOUNT=1) - Little Endian
	Note: The separate clean elements file must always contain 2 audio tracks. Audio tracks that are not used should be muted.
Audio Track Assignment	Audio 1: mute
	Audio 2: mute
Timecode	Start timecode (first frame): 10:00:00:00
File Naming Convention	"ProductionID"_NTH-UHD-HDR-n_"Title".mxf





	<p>Example: 12345678_NTH-UHD-HDR-1_Title.mxf</p> <p>Note: "n" in the file name (..._NTH-UHD-HDR-n_...) should be used for numbering the separate clean elements (1, 2, 3 etc.)</p> <p>The code "NTH" always indicates "Separate Clean Elements".</p>
--	--

**Table 12: File Specification – Separate Clean Elements UHD/HDR**

**4.3.3. File Specification – Clean Feed UHD/HDR**

<b>Identifier: ZDF-S03-UHD-HDR</b>	
Container	*.MXF - MXF OP1a according to the SMPTE 377 Standard (Single Item, Single Package)
Codec	XAVC QFHD Intra Class 480 VBR or XAVC QFHD Intra Class 300 VBR
Resolution	3840x2160
Frame Rate	50
Chroma Subsampling	4:2:2
Bit Depth	10 bit
Scan Type	Progressive (2160p/50)
HDR Standard	Hybrid Log-Gamma (HLG) in accordance with ITU-R BT.2100
EOTF	HLG System Gamma: 1.2
Peak Luminance	1000 nits
Colour Space	ITU-R BT.2020
Audio	Up to 16-channel (only even-numbered multiples) 24 Bit 48KHz PCM (CHCOUNT=1) - Little Endian
	Note: The content and audio track allocation must be agreed with the responsible ZDF production management. The audio tracks can be used for the delivery of discrete multi-channel sound, language versions, music, etc. There is only an even number of audio tracks allowed (2, 4, 6, 8, 10, 12, 14, 16).
Multichannel Audio	Dolby-E -or- discrete
Audio Track Assignment	Audio 1: In agreement with ZDF Production Management
	Audio 2: In agreement with ZDF Production Management
	Audio 3: In agreement with ZDF Production Management
	Audio 4: In agreement with ZDF Production Management
	Audio 5: In agreement with ZDF Production Management
	Audio 6: In agreement with ZDF Production Management
	Audio 7: In agreement with ZDF Production Management
	Audio 8: In agreement with ZDF Production Management
	Audio 9: In agreement with ZDF Production Management
	Audio 10: In agreement with ZDF Production Management
	Audio 11: In agreement with ZDF Production Management
	Audio 12: In agreement with ZDF Production Management
	Audio 13: In agreement with ZDF Production Management
	Audio 14: In agreement with ZDF Production Management
	Audio 15: In agreement with ZDF Production Management





	Audio 16: In agreement with ZDF Production Management
Timecode	Start timecode (first frame): 10:00:00:00
File Naming Convention	"ProductionID"_CF-UHD-HDR-n_"Title".mxf  Example: 12345678_CF-UHD-HDR-1_Title.mxf Note: "n" in the file name (..._CF-UHD-HDR-n_...) should be used for numbering the clean feed versions (1, 2, 3 etc.) The code "CF" always indicates "Clean Feed".

**Table 5: File Specification - Clean Feed UHD/HDR**

#### 4.3.4. File Specification – Miscellaneous Additional Materials UHD/HDR

<b>Identifier: ZDF-S04-UHD-HDR</b>	
Container	*.MXF - MXF OP1a according to the SMPTE 377 Standard (Single Item, Single Package)
Codec	XAVC QFHD Intra Class 480 VBR or XAVC QFHD Intra Class 300 VBR
Resolution	3840x2160
Frame Rate	50
Chroma Subsampling	4:2:2
Bit Depth	10 bit
Scan Type	Progressive (2160p/50)
HDR Standard	Hybrid Log-Gamma (HLG) in accordance with ITU-R BT.2100
EOTF	HLG System Gamma: 1.2
Peak Luminance	1000 nits
Colour Space	ITU-R BT.2020
Audio	Up to 16-channel (only even-numbered multiples) 24 Bit 48KHz PCM (CHCOUNT=1) - Little Endian
	Note: The content and audio track allocation must be agreed with the responsible ZDF production management. The audio tracks can be used for the delivery of discrete multi-channel sound, language versions, music, etc. Main language and M&E, if available, must always be on audio tracks 1/2 (main language full mix) and 3/4 (M&E). There is only an even number of audio tracks allowed (2, 4, 6, 8, 10, 12, 14, 16).
Multichannel Audio	Dolby E -or- discrete
Audio Track Assignment	Audio 1: Main language full mix left (if available) / In agreement with ZDF Production Management
	Audio 2: Main language full mix right (if available) / In agreement with ZDF Production Management
	Audio 3: M&E left (if available) / In agreement with ZDF Production Management
	Audio 4: M&E right (if available) / In agreement with ZDF Production Management
	Audio 5: In agreement with ZDF Production Management
	Audio 6: In agreement with ZDF Production Management
	Audio 7: In agreement with ZDF Production Management
	Audio 8: In agreement with ZDF Production Management



	Audio 9: In agreement with ZDF Production Management
	Audio 10: In agreement with ZDF Production Management
	Audio 11: In agreement with ZDF Production Management
	Audio 12: In agreement with ZDF Production Management
	Audio 13: In agreement with ZDF Production Management
	Audio 14: In agreement with ZDF Production Management
	Audio 15: In agreement with ZDF Production Management
	Audio 16: In agreement with ZDF Production Management
Timecode	Start timecode (first frame): 10:00:00:00
File Naming Convention	"ProductionID"_ZM-UHD-HDR-n_"Title".mxf  Example: 12345678_ZM-UHD-HDR-1_Title.mxf Note: "n" in the file name (..._ZM-UHD-HDR-n_...) should be used for the numbering of additional materials (1, 2, 3 etc.) The code "ZM" always indicates "Miscellaneous Additional Materials".

**Table 14: File Specification – Miscellaneous Additional Materials UHD/HDR**

#### 4.4. Proxy Files

Proxy files serve purely editorial viewing purposes on workstations and smart TVs, the support of subtitle or audio description creation (ZDF-S05) and, if necessary, promotion purposes.

##### 4.4.1. File Specification - MidRes LQ TC

<b>Identifier: ZDF-S05</b>	
Container	*.MP4
Codec / Datenrate	H.264/MPEG-4 AVC/Part 10 HighProfile@L4.0; 3 - 5 Mbit/s VBR (variable bitrate)
Resolution	1920x1080
Frame Rate	25
Chroma Subsampling	4:2:0
Bit Depth	8 bit
Scan Type	Progressive
Audio	2-channel 16Bit 48 KHz AAC 128 Kbit
	Note: The file must always contain 2 audio tracks (main language full mix left and right).
Audio Track Assignment	Audio 1: Main language full mix left
	Audio 2: Main language full mix right
Timecode	The broadcast version timecode must be burned in to the image (superimposed)
File Naming Convention	"ProductionID"_ MRLQ_TC_"Title".mp4  Example: 12345678_MRLQ_TC_Title.mp4

**Table 15: File Specification - MidRes LQ TC**



#### 4.4.2. File Specification - MidRes LQ

<b>Identifier: ZDF-S06</b>	
Container	*.MP4
Codec / Datenrate	H.264/MPEG-4 AVC/Part 10 HighProfile@L4.0; 3 - 5 Mbit/s VBR (variable bitrate)
Resolution	1920x1080
Frame Rate	25
Chroma Subsampling	4:2:0
Bit Depth	8 bit
Scan Type	Progressive
Audio	2-channel 16Bit 48 KHz AAC 128 Kbit
	Note: The file must always contain 2 audio tracks (main language full mix left and right).
Audio Track Assignment	Audio 1: Main language full mix left
	Audio 2: Main language full mix right
File Naming Convention	"ProductionID"_MRLQ_"Title".mp4  Example: 12345678_MRLQ_Title.mp4

**Table 16: File Specification - MidRes LQ**

#### 4.5. ZDF Metadata Sheet

Each delivered file must be accompanied by a separate ZDF Metadata Sheet (Code: MBK). A corresponding template in Excel (ZDF-Metadata Sheet\_V1.10\_eng.xlsx) will be provided by ZDF. Only separate clean elements and proxy files need not be accompanied by a Metadata Sheet.

<b>ZDF-Identifier</b>	<b>File Naming</b>
ZDF-S01	"ProductionID_SF-n_MBK_"Title".xlsx
ZDF-S02	<i>No Metadata Sheet / MBK</i>
ZDF-S03	"ProductionID"_CF-n_MBK_"Title".xlsx
ZDF-S04	"ProductionID"_ZM-n_MBK_"Title".xlsx
ZDF-S05	<i>No Metadata Sheet / MBK</i>
ZDF-S06	<i>No Metadata Sheet / MBK</i>
ZDF-S01-HD-HDR	"ProductionID"_SF-HD-HDR-n_MBK_"Title".xlsx
ZDF-S02-HD-HDR	<i>No Metadata Sheet / MBK</i>
ZDF-S03-HD-HDR	"ProductionID"_CF-HD-HDR-n_MBK_"Title".xlsx
ZDF-S04-HD-HDR	"ProductionID"_ZM-HD-HDR-n_MBK_"Title".xlsx
ZDF-S01-UHD-HDR	"Produktionsnummer"_SF-UHD-HDR-n_MBK_"Title".xlsx
ZDF-S02-UHD-HDR	<i>No Metadata Sheet / MBK</i>
ZDF-S03-UHD-HDR	"ProductionID"_CF-UHD-HDR-n_MBK_"Title".xlsx
ZDF-S04-UHD-HDR	"ProductionID"_ZM-UHD-HDR-n_MBK_"Title".xlsx

**Table 17: Metadata Sheet - Broadcasts**



## 5. Broadcasts Online-Only

Online-only program include complete broadcast-ready programs any and all associated supplemental materials (e.g., separate clean elements) and versions (e.g., clean feeds, raw cuts). Broadcasts online-only are aired exclusively online, i.e., non-linear media. This includes, for example, program for the online service funk.net/  
 Broadcasts online-only must always be delivered to ZDF in High Definition (HD). If commissioned by ZDF, versions in HD/HDR and/or UHD/HDR may also be delivered.

### 5.1. HD (High Definition)

#### 5.1.1. File Specification - Broadcast Version Online-Only

<b>Identifier:</b> <b>ZDF-ONL-S01</b>	
Container	*.MXF - MXF OP1a according to the SMPTE 377 Standard (Single Item, Single Package)
Codec	AVCIntra100(H.264 / MPEG-4 AVC High 422 Intra RP2027 Constrained Class 100)
Resolution	1920x1080
Frame Rate	25
Chroma Subsampling	4:2:2
Bit Depth	10 bit
Scan Type	Progressive (1080p/25) / Interlaced (1080i/25)
Audio	Up to 16-channel (only even-numbered multiples) 24 Bit 48KHz PCM (CHCOUNT=1) - Little Endian
	Note: The content and audio track allocation must be agreed with the responsible ZDF production management. The audio tracks can be used for the delivery of discrete multi-channel sound, language versions, music, etc. Main language and M&E, if available, must always be on audio tracks 1/2 (main language full mix) and 3/4 (M&E). There is only an even number of audio tracks allowed (2, 4, 6, 8, 10, 12, 14, 16).
Multichannel Audio	Dolby E -or- discrete
Audio Track Assignment	Audio 1: Main language full mix left
	Audio 2: Main language full mix right
	Audio 3: M&E left -or- Alternate language left (if available) / In agreement with ZDF Production Management
	Audio 4: M&E right -or- Alternate language right (if available) / In agreement with ZDF Production Management
	Audio 5: In agreement with ZDF Production Management
	Audio 6: In agreement with ZDF Production Management
	Audio 7: In agreement with ZDF Production Management
	Audio 8: In agreement with ZDF Production Management
	Audio 9: In agreement with ZDF Production Management
	Audio 10: In agreement with ZDF Production Management
	Audio 11: In agreement with ZDF Production Management



	Audio 12: In agreement with ZDF Production Management
	Audio 13: In agreement with ZDF Production Management
	Audio 14: In agreement with ZDF Production Management
	Audio 15: In agreement with ZDF Production Management
	Audio 16: In agreement with ZDF Production Management
Timecode	Start timecode (first frame): 10:00:00:00
File Naming Convention	"ProductionID"_ONL-SF-n_"Title".mxf  Example: 12345678_ONL-SF-1_Title.mxf Note: "n" in the file name (..._ONL-SF-n_...) should be used for numbering the online-only broadcast versions (1, 2, 3 etc.) The code "ONL" always indicates "Online-Only". The code "SF" always indicates "Broadcast Version".

**Table 18: File Specification - Broadcast Version Online-Only**

### 5.1.2. File Specification – Separate Clean Elements Online-Only

Separate clean elements are to be delivered in one file per production. For productions with multiple titled sequences (i.e., that go above and beyond credits and end credits), the delivery of a complete clean feed version is preferable to the delivery of separate clean elements. Additional audio tracks must always be delivered with the clean feed version.

<b>Identifier: ZDF-ONL-S02</b>	
Container	*.MXF - MXF OP1a according to the SMPTE 377 Standard (Single Item, Single Package)
Codec	AVCIntra (H.264 / MPEG-4 AVC High 422 Intra RP2027 Constrained Class 100)
Resolution	1920x1080
Frame Rate	25
Chroma Subsampling	4:2:2
Bit Depth	10 bit
Scan Type	Progressive (1080p/25) / Interlaced (1080i/25)
Audio	2-channel 24 Bit 48KHz PCM (CHCOUNT=1) - Little Endian
	Note: The separate clean elements file must always contain 2 audio tracks. Audio tracks that are not used should be muted.
Audio Track Assignment	Audio 1: Mute
	Audio 2: Mute
Timecode	Start timecode (first frame): 10:00:00:00
File Naming Convention	"ProductionID"_ONL-NTH-n_"Title".mxf  Example: 12345678_ONL-NTH-1_Title.mxf Note: "n" in the file name (..._ONL-NTH-n_...) should be used for numbering the separate clean elements (1, 2, 3 etc.) The code "ONL" always indicates "Online-Only". The code "NTH" always indicates "Separate Clean Elements".

**Table 19: File Specification – Separate Clean Elements Online-Only**



### 5.1.3. File Specification – Clean Feed Online-Only

<b>Identifier: ZDF-ONL-S03</b>	
Container	*.MXF - MXF OP1a according to the SMPTE 377 Standard (Single Item, Single Package)
Codec	AVCIntra (H.264 / MPEG-4 AVC High 422 Intra RP2027 Constrained Class 100)
Resolution	1920x1080
Frame Rate	25
Chroma Subsampling	4:2:2
Bit Depth	10 bit
Scan Type	Progressive (1080p/25) / Interlaced (1080i/25)
Audio	Up to 16-channel (only even-numbered multiples) 24 Bit 48KHz PCM (CHCOUNT=1) - Little Endian
	Note: The content and audio track allocation must be agreed with the responsible ZDF production management. The audio tracks can be used for the delivery of discrete multi-channel sound, language versions, music, etc. There is only an even number of audio tracks allowed (2, 4, 6, 8, 10, 12, 14, 16).
Multichannel Audio	Dolby-E -or- discrete
Audio Track Assignment	Audio 1: In agreement with ZDF Production Management
	Audio 2: In agreement with ZDF Production Management
	Audio 3: In agreement with ZDF Production Management
	Audio 4: In agreement with ZDF Production Management
	Audio 5: In agreement with ZDF Production Management
	Audio 6: In agreement with ZDF Production Management
	Audio 7: In agreement with ZDF Production Management
	Audio 8: In agreement with ZDF Production Management
	Audio 9: In agreement with ZDF Production Management
	Audio 10: In agreement with ZDF Production Management
	Audio 11: In agreement with ZDF Production Management
	Audio 12: In agreement with ZDF Production Management
	Audio 13: In agreement with ZDF Production Management
	Audio 14: In agreement with ZDF Production Management
	Audio 15: In agreement with ZDF Production Management
	Audio 16: In agreement with ZDF Production Management
Timecode	Start timecode (first frame): 10:00:00:00
File Naming Convention	"ProductionID"_ONL-CF-n_"Title".mxf  Example: 12345678_ONL-CF-1_Title.mxf Note: "n" in the file name (..._ONL-CF-n_...) should be used for numbering the clean feed versions (1, 2, 3 etc.) The code "ONL" always indicates "Online-Only". The code "CF" always indicates "Clean Feed".

**Table 20: File Specification – Clean Feed Online Only**



## 5.2. HD/HDR (High Definition / High Dynamic Range)

Please note: The instructions and specifications for creating HD/HDR or UHD/HDR productions in the appendix must be observed!

### 5.2.1. File Specification - Broadcast Version Online-Only HD/HDR

<b>Identifier: ZDF-ONL-S01- HD-HDR</b>	
Container	*.MXF - MXF OP1a according to the SMPTE 377 Standard (Single Item, Single Package)
Codec	XAVC HD Intra Class 100
Resolution	1920x1080
Frame Rate	50
Chroma Subsampling	4:2:2
Bit Depth	10 bit
Scan Type	Progressive (1080p/50)
HDR Standard	Hybrid Log-Gamma (HLG) in accordance with ITU-R BT.2100
EOTF	HLG System Gamma: 1.2
Peak Luminance	1000 nits
Colour Space	ITU-R BT.2020
Audio	Up to 16-channel (only even-numbered multiples) 24 Bit 48KHz PCM (CHCOUNT=1) - Little Endian
	Note: The content and audio track allocation must be agreed with the responsible ZDF production management. The audio tracks can be used for the delivery of discrete multi-channel sound, language versions, music, etc. Main language and M&E, if available, must always be on audio tracks 1/2 (main language full mix) and 3/4 (M&E). There is only an even number of audio tracks allowed (2, 4, 6, 8, 10, 12, 14, 16).
Multichannel Audio	Dolby E -or- discrete
Audio Track Assignment	Audio 1: Main language full mix left
	Audio 2: Main language full mix right
	Audio 3: M&E left -or- Alternate language left (if available) / In agreement with ZDF Production Management
	Audio 4: M&E right -or- Alternate language right (if available) / In agreement with ZDF Production Management
	Audio 5: In agreement with ZDF Production Management
	Audio 6: In agreement with ZDF Production Management
	Audio 7: In agreement with ZDF Production Management
	Audio 8: In agreement with ZDF Production Management
	Audio 9: In agreement with ZDF Production Management
	Audio 10: In agreement with ZDF Production Management
	Audio 11: In agreement with ZDF Production Management
	Audio 12: In agreement with ZDF Production Management
	Audio 13: In agreement with ZDF Production Management





	Audio 14: In agreement with ZDF Production Management
	Audio 15: In agreement with ZDF Production Management
	Audio 16: In agreement with ZDF Production Management
Timecode	Start timecode (first frame): 10:00:00:00
File Naming Convention	"ProductionID"_ONL-SF-HD-HDR-n_"Title".mxf  Example: 12345678_ONL-SF-HD-HDR-1_Title.mxf Note: "n" in the file name (..._ONL-SF-HD-HDR-n_...) should be used for numbering the online-only-HD/HDR broadcast versions (1, 2, 3 etc.) The code "ONL" always indicates "Online-Only". The code "SF" always indicates "Broadcast Version".

**Table 21: File Specification - Broadcast Version Online-Only HD/HDR**

### 5.2.2. File Specification – Separate Clean Elements Online-Only HD/HDR

Separate clean elements are to be delivered in one file per production. For productions with multiple titled sequences (i.e., that go above and beyond credits and end credits), the delivery of a complete clean feed version is preferable to the delivery of separate clean elements. Additional audio tracks must always be delivered with the clean feed version.

<b>Identifier: ZDF-ONL-S02- HD-HDR</b>	
Container	*.MXF - MXF OP1a according to the SMPTE 377 Standard (Single Item, Single Package)
Codec	XAVC HD Intra Class 100
Resolution	1920x1080
Frame Rate	50
Chroma Subsampling	4:2:2
Bit Depth	10 bit
Scan Type	Progressive (1080p/50)
HDR Standard	Hybrid Log-Gamma (HLG) in accordance with ITU-R BT.2100
EOTF	HLG System Gamma: 1.2
Peak Luminance	1000 nits
Colour Space	ITU-R BT.2020
Audio	2-channel 24 Bit 48KHz PCM (CHCOUNT=1) - Little Endian
	Note: The separate clean elements file must always contain 2 audio tracks. Audio tracks that are not used should be muted.
Audio Track Assignment	Audio 1: mute
	Audio 2: mute
Timecode	Start timecode (first frame): 10:00:00:00
File Naming Convention	"ProductionID"_ONL-NTH-HD-HDR-n_"Title".mxf  Example: 12345678_ONL-NTH-HD-HDR-1_Title.mxf Note: "n" in the file name (..._ONL-NTH-HD-HDR-n_...) should be used for numbering the separate clean elements (1, 2, 3 etc.)

**Table 22: File Specification – Separate Clean Elements Online-Only HD/HDR**





### 5.2.3. File Specification – Clean Feed Online-Only HD/HDR

<b>Identifier: ZDF-ONL-S03- HD-HDR</b>	
Container	*.MXF - MXF OP1a according to the SMPTE 377 Standard (Single Item, Single Package)
Codec	XAVC HD Intra Class 100
Resolution	1920x1080
Frame Rate	50
Chroma Subsampling	4:2:2
Bit Depth	10 bit
Scan Type	Progressive (1080p/50)
HDR Standard	Hybrid Log-Gamma (HLG) in accordance with ITU-R BT.2100
EOTF	HLG System Gamma: 1.2
Peak Luminance	1000 nits
Colour Space	ITU-R BT.2020
Audio	Up to 16-channel (only even-numbered multiples) 24 Bit 48KHz PCM (CHCOUNT=1) - Little Endian
	Note: The content and audio track allocation must be agreed with the responsible ZDF production management. The audio tracks can be used for the delivery of discrete multi-channel sound, language versions, music, etc. There is only an even number of audio tracks allowed (2, 4, 6, 8, 10, 12, 14, 16).
Multichannel Audio	Dolby-E -or- discrete
Audio Track Assignment	Audio 1: In agreement with ZDF Production Management
	Audio 2: In agreement with ZDF Production Management
	Audio 3: In agreement with ZDF Production Management
	Audio 4: In agreement with ZDF Production Management
	Audio 5: In agreement with ZDF Production Management
	Audio 6: In agreement with ZDF Production Management
	Audio 7: In agreement with ZDF Production Management
	Audio 8: In agreement with ZDF Production Management
	Audio 9: In agreement with ZDF Production Management
	Audio 10: In agreement with ZDF Production Management
	Audio 11: In agreement with ZDF Production Management
	Audio 12: In agreement with ZDF Production Management
	Audio 13: In agreement with ZDF Production Management
	Audio 14: In agreement with ZDF Production Management
	Audio 15: In agreement with ZDF Production Management
	Audio 16: In agreement with ZDF Production Management
Timecode	Start timecode (first frame): 10:00:00:00
File Naming Convention	"ProductionID"_ONL-CF-HD-HDR-n_"Title".mxf  Example: 12345678_ONL-CF-HD-HDR-1_Title.mxf



	Note: "n" in the file name (..._ONL-CF-HD-HDR-n...) should be used for numbering the clean feed versions (1, 2, 3 etc.) The code "ONL" always indicates "Online-Only". The code "CF" always indicates "Clean Feed".
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**Table 23: File Specification – Clean Feed Online-Only HD/HDR**

### 5.3. UHD/HDR (Ultra High Definition / High Dynamic Range)

Please note: The instructions and specifications for creating HD/HDR or UHD/HDR productions in the appendix must be observed!

#### 5.3.1. File Specification - Broadcast Version Online-Only UHD/HDR

<b>Identifier: ZDF-ONL-S01- UHD-HDR</b>	
Container	*.MXF - MXF OP1a according to the SMPTE 377 Standard (Single Item, Single Package)
Codec	XAVC QFHD Intra Class 480 VBR or XAVC QFHD Intra Class 300 VBR
Resolution	3840x2160
Frame Rate	50
Chroma Subsampling	4:2:2
Bit Depth	10 bit
Scan Type	Progressive (2160p/50)
HDR Standard	Hybrid Log-Gamma (HLG) in accordance with ITU-R BT.2100
EOTF	HLG System Gamma: 1.2
Peak Luminance	1000 nits
Colour Space	ITU-R BT.2020
Audio	Up to 16-channel (only even-numbered multiples) 24 Bit 48KHz PCM (CHCOUNT=1) - Little Endian
	Note: The file must always contain a minimum of 8 and a maximum of 16 audio tracks. Audio tracks that are not used should be muted. Unused / muted audio tracks must be flagged in the metadata sheet accordingly. There is only an even number of audio tracks allowed (8, 10, 12, 14, 16).
Multichannel Audio	Dolby E
Audio Track Assignment	Audio 1: Main language full mix left
	Audio 2: Main language full mix right
	Audio 3: M&E left -or- Alternate language left
	Audio 4: M&E right -or- Alternate language right
	Audio 5: Audio description left
	Audio 5: Audio description right
	Audio 7: Dolby E
	Audio 8: Dolby E
	Audio 9: Multichannel – Main language L
	Audio 10: Multichannel – Main language R
	Audio 11: Multichannel – Main language C



	Audio 12: Multichannel – Main language LFE
	Audio 13: Multichannel – Main language LS
	Audio 14: Multichannel – Main language RS
	Audio 15: Mute / In agreement with ZDF Production Management
	Audio 16: Mute / In agreement with ZDF Production Management
Timecode	Start timecode (first frame): 10:00:00:00
File Naming Convention	"ProductionID"_ONL-SF-UHD-HDR-n_"Title".mxf  Example: 12345678_ONL-SF-UHD-HDR-1_Title.mxf Note: "n" in the file name (..._ONL-SF-UHD-HDR-n_...) should be used for numbering the broadcast versions (1, 2, 3 etc.) The code "ONL" always indicates "Online-Only". The code "SF" always indicates "Broadcast Version".

**Table 24: File Specification - Broadcast Version Online-Only UHD/HDR**

### 5.3.2. File Specification – Separate Clean Elements Online-Only UHD/HDR

Separate clean elements are to be delivered in one file per production. For productions with multiple titled sequences (i.e., that go above and beyond credits and end credits), the delivery of a complete clean feed version is preferable to the delivery of separate clean elements. Additional audio tracks must always be delivered with the clean feed version.

<b>Identifier: ZDF-ONL-S02- UHD-HDR</b>	
Container	*.MXF - MXF OP1a according to the SMPTE 377 Standard (Single Item, Single Package)
Codec	XAVC QFHD Intra Class 480 VBR or XAVC QFHD Intra Class 300 VBR
Resolution	3840x2160
Frame Rate	50
Chroma Subsampling	4:2:2
Bit Depth	10 bit
Scan Type	Progressive (2160p/50)
HDR Standard	Hybrid Log-Gamma (HLG) in accordance with ITU-R BT.2100
EOTF	HLG System Gamma: 1.2
Peak Luminance	1000 nits
Colour Space	ITU-R BT.2020
Audio	2-channel 24 Bit 48KHz PCM (CHCOUNT=1) - Little Endian
	Note: The separate clean elements file must always contain 2 audio tracks. Audio tracks should be muted.
Audio Track Assignment	Audio 1: mute
	Audio 2: mute
Timecode	Start timecode (first frame): 10:00:00:00
File Naming Convention	"ProductionID"_ONL-NTH-UHD-HDR-n_"Title".mxf  Example: 12345678_ONL-NTH-UHD-HDR-1_Title.mxf Note: "n" in the file name (..._ONL-NTH-UHD-HDR-n_...) should be used for



	numbering the separate clean elements (1, 2, 3 etc.) The code "ONL" always indicates "Online-Only". The code "NTH" always indicates "Separate Clean Elements".
--	--

**Table 25: File Specification – Separate Clean Elements Online-Only UHD/HDR**

### 5.3.3. File Specification – Clean Feed Online-Only UHD/HDR

<b>Identifier: ZDF-ONL-S03- UHD-HDR</b>	
Container	*.MXF - MXF OP1a according to the SMPTE 377 Standard (Single Item, Single Package)
Codec	XAVC QFHD Intra Class 480 VBR or XAVC QFHD Intra Class 300 VBR
Resolution	3840x2160
Frame Rate	50
Chroma Subsampling	4:2:2
Bit Depth	10 bit
Scan Type	Progressive (2160p/50)
HDR Standard	Hybrid Log-Gamma (HLG) in accordance with ITU-R BT.2100
EOTF	HLG System Gamma: 1.2
Peak Luminance	1000 nits
Colour Space	ITU-R BT.2020
Audio	Up to 16-channel (only even-numbered multiples) 24 Bit 48KHz PCM (CHCOUNT=1) - Little Endian
	Note: The content and audio track allocation must be agreed with the responsible ZDF production management. The audio tracks can be used for the delivery of discrete multi-channel sound, language versions, music, etc. There is only an even number of audio tracks allowed (2, 4, 6, 8, 10, 12, 14, 16).
Multichannel Audio	Dolby-E -or- discrete
Audio Track Assignment	Audio 1: In agreement with ZDF Production Management
	Audio 2: In agreement with ZDF Production Management
	Audio 3: In agreement with ZDF Production Management
	Audio 4: In agreement with ZDF Production Management
	Audio 5: In agreement with ZDF Production Management
	Audio 6: In agreement with ZDF Production Management
	Audio 7: In agreement with ZDF Production Management
	Audio 8: In agreement with ZDF Production Management
	Audio 9: In agreement with ZDF Production Management
	Audio 10: In agreement with ZDF Production Management
	Audio 11: In agreement with ZDF Production Management
	Audio 12: In agreement with ZDF Production Management
	Audio 13: In agreement with ZDF Production Management
	Audio 14: In agreement with ZDF Production Management
	Audio 15: In agreement with ZDF Production Management



	Audio 16: In agreement with ZDF Production Management
Timecode	Start timecode (first frame): 10:00:00:00
File Naming Convention	"ProductionID"_ONL-CF-UHD-HDR-n_"Title".mxf  Example: 12345678_ONL-CF-UHD-HDR-1_Title.mxf Note: "n" in the file name (..._ONL-CF-UHD-HDR-n_...) should be used for numbering the clean feed versions (1, 2, 3 etc.) The code "ONL" always indicates "Online-Only". The code "CF" always indicates "Clean Feed".

**Table 26: File Specification - Clean Feed Online-Only UHD/HDR**

#### 5.4. ZDF Metadata Sheet

Each delivered file must be accompanied by a separate expanded ZDF Metadata Sheet (Code: MBK). A corresponding expanded template in Excel (ZDF-Metadata Sheet\_V1.10\_eng.xlsx) will be provided by ZDF. Only separate clean elements need not be accompanied by a Metadata Sheet.

The following file naming conventions are to be followed upon delivery:

ZDF-Identifier	File Naming
ZDF-ONL-S01	"ProductionID"_ONL-SF-n_MBK_"Title".xlsx
ZDF-ONL-S02	<i>No Metadata Sheet / MBK</i>
ZDF-ONL-S03	"ProductionID"_ONL-CF-n_MBK_"Title".xlsx
ZDF-ONL-S01-HD-HDR	"ProductionID"_ONL-SF-HD-HDR-n_MBK_"Title".xlsx
ZDF-ONL-S02-HD-HDR	<i>No Metadata Sheet / MBK</i>
ZDF-ONL-S03-HD-HDR	"ProductionID"_ONL-CF-HD-HDR-n_MBK_"Title".xlsx
ZDF-ONL-S01-UHD-HDR	"ProductionID"_ONL-SF-UHD-HDR-n_MBK_"Title".xlsx
ZDF-ONL-S02-UHD-HDR	<i>No Metadata Sheet / MBK</i>
ZDF-ONL-S03-UHD-HDR	"ProductionID"_ONL-CF-UHD-HDR-n_MBK_"Title".xlsx

**Table 27: Metadata Sheet - Broadcasts Online Only**



## 6. Broadcasts – Licensed Materials

In principle, the specifications outlined in Section 4 also apply for the delivery of licensed materials. If, in individual cases, it is not possible to deliver the desired codec or audio track assignment, the following alternative delivery specifications may be used instead. All other provisions (such as, for example, the requirement to submit accompanying Metadata Sheets) remain unchanged even when deliveries are made in accordance with the alternative specifications.

### 6.1. HD (High Definition)

#### 6.1.1. Alternative: File Specification – Broadcast Version

<b>Identifier: ZDF-S01-A</b>	
Container	*.MOV (Quicktime)
Codec	Apple ProRes 422 HQ
Resolution	1920x1080
Frame Rate	25
Chroma Subsampling	4:2:2
Bit Depth	10 bit
Scan Type	Progressive (1080p/25) / Interlaced (1080i/25)
Audio	Up to 16-channel (only even-numbered multiples) 24 Bit 48KHz PCM (CHCOUNT=1) - Little Endian
	Note: The content and audio track allocation must be agreed with ZDF Enterprises. The audio tracks can be used for the delivery of discrete multi-channel sound, language versions, music, etc. Main language and M&E, if available, must always be on audio tracks 1/2 (main language full mix) and 3/4 (M&E). There is only an even number of audio tracks allowed (2, 4, 6, 8, 10, 12, 14, 16).
Multichannel Audio	Dolby E -or- discrete
Audio Track Assignment	Audio 1: Main language full mix left
	Audio 2: Main language full mix right
	Audio 3: M&E left -or- Alternate language left (if available) / In agreement with ZDF Enterprises
	Audio 4: M&E right -or- Alternate language right (if available) / In agreement with ZDF Enterprises
	Audio 5: Audio description left / In agreement with ZDF Enterprises
	Audio 5: Audio description right / In agreement with ZDF Enterprises
	Audio 7: Dolby E / In agreement with ZDF Enterprises
	Audio 8: Dolby E / In agreement with ZDF Enterprises
	Audio 9: Multichannel – Main language L / In agreement with ZDF Enterprises
	Audio 10: Multichannel – Main language R / In agreement with ZDF Enterprises
	Audio 11: Multichannel – Main language C / In agreement with ZDF Enterprises



	Enterprises
	Audio 12: Multichannel – Main language LFE / In agreement with ZDF Enterprises
	Audio 13: Multichannel – Main language LS / In agreement with ZDF Enterprises
	Audio 14: Multichannel – Main language RS / In agreement with ZDF Enterprises
	Audio 15: Mute / In agreement with ZDF Enterprises
	Audio 16: Mute / In agreement with ZDF Enterprises
Timecode	Start timecode (first frame): 10:00:00:00
File Naming Convention	"ProductionID"_SF-A-n_"Title".mxf  Example: 12345678_SF-A-1_Title.mxf Note: "n" in the file name (..._SF-A-n_...) should be used for numbering the alternative broadcast versions (1, 2, 3 etc.) The code "SF" always indicates "Broadcast Version", "A" always indicates "Alternative".

**Table 28: Alternative: File Specification - Broadcast Version**

### 6.1.2. Alternative: File Specification - Separate Clean Elements

Separate clean elements are to be delivered in one file per production. For productions with multiple titled sequences (i.e., that go above and beyond credits and end credits), the delivery of a complete clean feed version is preferable to the delivery of separate clean elements. Additional audio tracks must always be delivered with the clean feed version.

<b>Identifier: ZDF-S02-A</b>	
Container	*.MOV (Quicktime)
Codec	Apple ProRes 422 HQ
Resolution	1920x1080
Frame Rate	25
Chroma Subsampling	4:2:2
Bit Depth	10 bit
Scan Type	Progressive (1080p/25) / Interlaced (1080i/25)
Audio	2-channel 24 Bit 48KHz PCM (CHCOUNT=1) - Little Endian
	Note: The separate clean elements file must always contain 2 audio tracks. Audio tracks should be muted.
Audio Track Assignment	Audio 1: mute
	Audio 2: mute
Timecode	Start timecode (first frame): 10:00:00:00
File Naming Convention	"ProductionID"_NTH-A-n_"Title".mxf  Example: 12345678_NTH-A-1_Title.mxf Note: "n" in the file name (..._NTH-A-n_...) should be used for numbering the separate clean elements (1, 2, 3 etc.) The code "NTH" always indicates "Separate Clean Elements", "A" always indicates "Alternative".

**Table 29: Alternative: File Specification - Separate Clean Elements**



### 6.1.3. Alternative: File Specification - Clean Feed

<b>Identifier: ZDF-S03-A</b>	
Container	*.MOV (Quicktime)
Codec	Apple ProRes 422 HQ
Resolution	1920x1080
Frame Rate	25
Chroma Subsampling	4:2:2
Bit Depth	10 bit
Scan Type	Progressive (1080p/25) / Interlaced (1080i/25)
Audio	Up to 16-channel (only even-numbered multiples) 24 Bit 48KHz PCM (CHCOUNT=1) - Little Endian
	Note: The content and audio track allocation must be agreed with ZDF Enterprises. The audio tracks can be used for the delivery of discrete multi-channel sound, language versions, music, etc. There is only an even number of audio tracks allowed (2, 4, 6, 8, 10, 12, 14, 16).
Multichannel Audio	Dolby E -or- discrete
Audio Track Assignment	Audio 1: In agreement with ZDF Enterprises
	Audio 2: In agreement with ZDF Enterprises
	Audio 3: In agreement with ZDF Enterprises
	Audio 4: In agreement with ZDF Enterprises
	Audio 5: In agreement with ZDF Enterprises
	Audio 6: In agreement with ZDF Enterprises
	Audio 7: In agreement with ZDF Enterprises
	Audio 8: In agreement with ZDF Enterprises
	Audio 9: In agreement with ZDF Enterprises
	Audio 10: In agreement with ZDF Enterprises
	Audio 11: In agreement with ZDF Enterprises
	Audio 12: In agreement with ZDF Enterprises
	Audio 13: In agreement with ZDF Enterprises
	Audio 14: In agreement with ZDF Enterprises
	Audio 15: In agreement with ZDF Enterprises
	Audio 16: In agreement with ZDF Enterprises
Timecode	Start timecode (first frame): 10:00:00:00
File Naming Convention	"ProductionID"_CF-A-n_"Title".mxf  Example: 12345678_CF-A-1_Title.mxf Note: "n" in the file name (..._CF-A-n_...) should be used for numbering the clean feed versions (1, 2, 3 etc.) The "CF" always indicates "Clean Feed", "A" always indicates "Alternative".

**Table 30: Alternative: File Specification - Clean-Feed-Fassung**





#### 6.1.4. Alternative: File Specification - Miscellaneous Additional Materials

<b>Identifier: ZDF-S04-A</b>	
Container	*.MOV (Quicktime)
Codec	Apple ProRes 422 HQ
Resolution	1920x1080
Frame Rate	25
Chroma Subsampling	4:2:2
Bit Depth	10 bit
Scan Type	Progressive (1080p/25) / Interlaced (1080i/25)
Audio	Up to 16-channel (only even-numbered multiples) 24 Bit 48KHz PCM (CHCOUNT=1) - Little Endian
	Note: The content and audio track allocation must be agreed with ZDF Enterprises. The audio tracks can be used for the delivery of discrete multi-channel sound, language versions, music, etc. Main language and M&E, if available, must always be on audio tracks 1/2 (main language full mix) and 3/4 (M&E). There is only an even number of audio tracks allowed (2, 4, 6, 8, 10, 12, 14, 16).
Multichannel Audio	Dolby E -or- discrete
Audio Track Assignment	Audio 1: Main language full mix left (if available) / In agreement with ZDF Enterprises
	Audio 2: Main language full mix right (if available) / In agreement with ZDF Enterprises
	Audio 3: M&E left (if available) / In agreement with ZDF Enterprises
	Audio 4: M&E right (if available) / In agreement with ZDF Enterprises
	Audio 5: In agreement with ZDF Enterprises
	Audio 6: In agreement with ZDF Enterprises
	Audio 7: In agreement with ZDF Enterprises
	Audio 8: In agreement with ZDF Enterprises
	Audio 9: In agreement with ZDF Enterprises
	Audio 10: In agreement with ZDF Enterprises
	Audio 11: In agreement with ZDF Enterprises
	Audio 12: In agreement with ZDF Enterprises
	Audio 13: In agreement with ZDF Enterprises
	Audio 14: In agreement with ZDF Enterprises
	Audio 15: In agreement with ZDF Enterprises
	Audio 16: In agreement with ZDF Enterprises
Timecode	Start timecode (first frame): 10:00:00:00
File Naming Convention	"ProductionID"_ZM-A-n_"Title".mxf  Example: 12345678_ZM-A-1_Title.mxf Note: "n" in the file name (..._ZM-A-n_...) should be used for numbering the additional materials (1, 2, 3 etc.) The "ZM" always indicates "Miscellaneous Additional Materials", "A" always indicates "Alternative".

**Table 31: Alternative: File Specification - Miscellaneous Additional Materials**



## 6.2. ZDF Metadata Sheet

Each delivered file must be accompanied by a separate ZDF Metadata Sheet (Code: MBK). A corresponding template in Excel (ZDF Metadata Sheet: Broadcasts / Online Only V. 1.10) will be provided by ZDF. Only separate clean elements and proxy files need not be accompanied by a Metadata Sheet.

The following file naming conventions are to be followed upon delivery:

ZDF-Identifier	File Naming
ZDF-S01-A	"ProductionID"_SF-A-n_MBK_"Title".xlsx
ZDF-S02-A	<i>No Metadata Sheet / MBK</i>
ZDF-S03-A	"ProductionID"_CF-A-n_MBK_"Title".xlsx
ZDF-S04-A	" ProductionID"_ZM-A-n_MBK_"Title".xlsx

**Table 32: Metadata Sheet – Alternative Licensed Materials**



## 7. Broadcasts ARTE

In contrast to the specifications outlined in Section 4, the following specifications apply for the delivery of ARTE broadcasts. If, in individual cases, it is not possible to deliver the desired codec, the alternative delivery specifications may be used if discussed in advance with ZDF. All other provisions (such as, for example, the requirement to submit accompanying Metadata Sheets) remain unchanged even when deliveries are made in accordance with the alternative specifications.

### 7.1. HD (High Definition)

#### 7.1.1. File Specification – Broadcast Version ARTE

<b>Identifier:</b> <b>ZDF-ARTE-S01</b>	
Container	*.MXF - MXF OP1a according to the SMPTE 377 Standard (Single Item, Single Package)
Codec	AVCIntra100 (H.264 / MPEG-4 AVC High 422 Intra RP2027 Constrained Class 100)
Resolution	1920x1080
Frame Rate	25
Chroma Subsampling	4:2:2
Bit Depth	10 bit
Scan Type	Progressive (1080p/25) / Interlaced (1080i/25)
Audio	Up to 16-channel (only even-numbered multiples) 24 Bit 48KHz PCM (CHCOUNT=1) - Little Endian
	Note: The file must always contain a minimum of 8 and a maximum of 16 audio tracks. Audio tracks that are not used should be muted. Unused / muted audio tracks must be flagged in the metadata sheet accordingly. There is only an even number of audio tracks allowed (8, 10, 12, 14, 16).
Multichannel Audio	Discrete
Audio Track Assignment	Audio 1: Main language full mix left
	Audio 2: Main language full mix right
	Audio 3: M&E left
	Audio 4: M&E right
	Audio 5: Original track left
	Audio 5: Original track right
	Audio 7: Alternate language left / Audio description left
	Audio 8: Alternate language right / Audio description right
	Audio 9: Multichannel – Main language L
	Audio 10: Multichannel – Main language R
	Audio 11: Multichannel – Main language C
	Audio 12: Multichannel – Main language LFE
	Audio 13: Multichannel – Main language LS
	Audio 14: Multichannel – Main language RS



	Audio 15: Mute / In agreement with ZDF Production Management
	Audio 16: Mute / In agreement with ZDF Production Management
Timecode	Start timecode (first frame): 10:00:00:00
File Naming Convention	"ProductionID"_SF-ARTE-n_"Title".mxf  Example: 12345678_SF-ARTE-1_Title.mxf Note: "n" in the file name (..._SF-ARTE-n_...) should be used for numbering the broadcast file versions (1, 2, 3 etc.) The code "SF" always indicates "Broadcast Version".

**Table 33: File Specification - Broadcast Version Arte**

### 7.1.2. Alternative: File Specification - Broadcast Version ARTE

<b>Identifier: ZDF-ARTE-S01-A</b>	
Container	*.MOV (Quicktime)
Codec	Apple ProRes 422 HQ
Resolution	1920x1080
Frame Rate	25
Chroma Subsampling	4:2:2
Bit Depth	10 bit
Scan Type	Progressive (1080p/25) / Interlaced (1080i/25)
Audio	Up to 16-channel (only even-numbered multiples) 24 Bit 48KHz PCM (CHCOUNT=1) - Little Endian
	Note: The file must always contain a minimum of 8 and a maximum of 16 audio tracks. Audio tracks that are not used should be muted. Unused / muted audio tracks must be flagged in the metadata sheet accordingly. There is only an even number of audio tracks allowed (8, 10, 12, 14, 16).
Multichannel Audio	Discrete
Audio Track Assignment	Audio 1: Main language full mix left
	Audio 2: Main language full mix right
	Audio 3: M&E left
	Audio 4: M&E right
	Audio 5: Original track left
	Audio 5: Original track right
	Audio 7: Alternate language left / Audio description left
	Audio 8: Alternate language right / Audio description right
	Audio 9: Multichannel – Main language L
	Audio 10: Multichannel – Main language R
	Audio 11: Multichannel – Main language C
	Audio 12: Multichannel – Main language LFE
	Audio 13: Multichannel – Main language LS
	Audio 14: Multichannel – Main language RS
	Audio 15: Mute / In agreement with ZDF Production Management
	Audio 16: Mute / In agreement with ZDF Production Management



Timecode	Start timecode (first frame): 10:00:00:00
File Naming Convention	"ProductionID"_SF-ARTE-A-n_"Title".mov  Example: 12345678_SF-ARTE-A-1_Title.mov Note: "n" in the file name (..._SF-ARTE-A-n_...) should be used for numbering the broadcast file versions (1, 2, 3 etc.) The code "SF" always indicates "Broadcast Version", "A" always indicates "Alternative".

**Table 34: Alternative: File Specification - Broadcast Version ARTE**

### 7.1.3. File Specification - Separate Clean Elements ARTE

Separate clean elements are to be delivered in one file per production. For productions with multiple titled sequences (i.e., that go above and beyond credits and end credits), the delivery of a complete clean feed version is preferable to the delivery of separate clean elements. Additional audio tracks must always be delivered with the clean feed version.

<b>Identifier: ZDF-ARTE-S02</b>	
Container	*.MXF - MXF OP1a according to the SMPTE 377 Standard (Single Item, Single Package)
Codec	AVCIntra (H.264 / MPEG-4 AVC High 422 Intra RP2027 Constrained Class 100)
Resolution	1920x1080
Frame Rate	25
Chroma Subsampling	4:2:2
Bit Depth	10 bit
Scan Type	Progressive (1080p/25) / Interlaced (1080i/25)
Audio	2-channel 24 Bit 48KHz PCM (CHCOUNT=1) - Little Endian
	Note: The separate clean elements file must always contain 2 audio tracks. Audio tracks should be muted.
Audio Track Assignment	Audio 1: mute
	Audio 2: mute
Timecode	Start timecode (first frame): 10:00:00:00
File Naming Convention	"ProductionID"_NTH-ARTE-n_"Title".mxf  Example: 12345678_NTH-ARTE-1_Title.mxf Note: "n" in the file name (..._NTH-ARTE-n_...) should be used for numbering the broadcast file versions (1, 2, 3 etc.) The code "NTH" always indicates "Separate Clean Elements".

**Table 35: File Specification - Separate Clean Elements ARTE**

### 7.1.4. Alternative: File Specification - Separate Clean Elements ARTE

<b>Identifier: ZDF-ARTE-S02-A</b>	
Container	*.MOV (Quicktime)
Codec	Apple ProRes 422 HQ
Resolution	1920x1080



Frame Rate	25
Chroma Subsampling	4:2:2
Bit Depth	10 bit
Scan Type	Progressive (1080p/25) / Interlaced (1080i/25)
Audio	2-channel 24 Bit 48KHz PCM (CHCOUNT=1) - Little Endian
	Note: The separate clean elements file must always contain 2 audio tracks. Audio tracks should be muted.
Audio Track Assignment	Audio 1: mute
	Audio 2: mute
Timecode	Start timecode (first frame): 10:00:00:00
File Naming Convention	"ProductionID"_NTH-ARTE-A-n_"Title".mxf  Example: 12345678_NTH-ARTE-A-1_Title.mxf Note: "n" in the file name (..._NTH-ARTE-A-n_...) should be used for numbering the broadcast file versions (1, 2, 3 etc.) The code "NTH" always indicates "Separate Clean Elements", "A" always indicates "Alternative".

**Table 36: Alternative: File Specification - Separate Clean Elements ARTE**

#### 7.1.5. File Specification - Clean Feed ARTE

<b>Identifier:</b> <b>ZDF-ARTE-S03</b>	
Container	*.MXF - MXF OP1a according to the SMPTE 377 Standard (Single Item, Single Package)
Codec	AVCIntra100 (H.264 / MPEG-4 AVC High 422 Intra RP2027 Constrained Class 100)
Resolution	1920x1080
Frame Rate	25
Chroma Subsampling	4:2:2
Bit Depth	10 bit
Scan Type	Progressive (1080p/25) / Interlaced (1080i/25)
Audio	Up to 16-channel (only even-numbered multiples) 24 Bit 48KHz PCM (CHCOUNT=1) - Little Endian
	Note: The content and audio track allocation must be agreed with the responsible ZDF Production management. The audio tracks can be used for the delivery of discrete multi-channel sound, language versions, music, etc. There is only an even number of audio tracks allowed (2, 4, 6, 8, 10, 12, 14, 16).
Multichannel Audio	Discrete
Audio Track Assignment	Audio 1: Foley left / In agreement with ZDF Production Management
	Audio 2: Foley right / In agreement with ZDF Production Management
	Audio 3: Music left / In agreement with ZDF Production Management
	Audio 4: Music right / In agreement with ZDF Production Management



	Audio 5: Original soundtrack left / In agreement with ZDF Production Management
	Audio 6: Original soundtrack right / In agreement with ZDF Production Management
	Audio 7: In agreement with ZDF Production Management
	Audio 8: In agreement with ZDF Production Management
	Audio 9: In agreement with ZDF Production Management
	Audio 10: In agreement with ZDF Production Management
	Audio 11: In agreement with ZDF Production Management
	Audio 12: In agreement with ZDF Production Management
	Audio 13: In agreement with ZDF Production Management
	Audio 14: In agreement with ZDF Production Management
	Audio 15: In agreement with ZDF Production Management
	Audio 16: In agreement with ZDF Production Management
Timecode	Start timecode (first frame): 10:00:00:00
File Naming Convention	"ProductionID"_CF-ARTE-n_"Title".mxf  Example: 12345678_CF-ARTE-1_Title.mxf Note: "n" in the file name (..._CF-ARTE-n_...) should be used for numbering the broadcast file versions (1, 2, 3 etc.) The code "CF" always indicates "Clean Feed".

**Table 37: File Specification – Clean Feed ARTE**

### 7.1.6. Alternative: File Specification Clean Feed ARTE

<b>Identifier: ZDF-ARTE-S03-A</b>	
Container	*.MOV (Quicktime)
Codec	Apple ProRes 422 HQ
Resolution	1920x1080
Frame Rate	25
Chroma Subsampling	4:2:2
Bit Depth	10 bit
Scan Type	Progressive (1080p/25) / Interlaced (1080i/25)
Audio	Up to 16-channel (only even-numbered multiples) 24 Bit 48KHz PCM (CHCOUNT=1) - Little Endian
	Note: The content and audio track allocation must be agreed with the responsible ZDF Production management. The audio tracks can be used for the delivery of discrete multi-channel sound, language versions, music, etc. There is only an even number of audio tracks allowed (2, 4, 6, 8, 10, 12, 14, 16).
Multichannel Audio	Discrete
Audio Track Assignment	Audio 1: Foley left / In agreement with ZDF Production Management
	Audio 2: Foley right / In agreement with ZDF Production Management
	Audio 3: Music left / In agreement with ZDF Production Management
	Audio 4: Music right / In agreement with ZDF Production Management



	Management
	Audio 5: Original soundtrack left / In agreement with ZDF Production Management
	Audio 6: Original soundtrack right / In agreement with ZDF Production Management
	Audio 7: In agreement with ZDF Production Management
	Audio 8: In agreement with ZDF Production Management
	Audio 9: In agreement with ZDF Production Management
	Audio 10: In agreement with ZDF Production Management
	Audio 11: In agreement with ZDF Production Management
	Audio 12: In agreement with ZDF Production Management
	Audio 13: In agreement with ZDF Production Management
	Audio 14: In agreement with ZDF Production Management
	Audio 15: In agreement with ZDF Production Management
	Audio 16: In agreement with ZDF Production Management
Timecode	Start timecode (first frame): 10:00:00:00
File Naming Convention	"ProductionID"_CF-ARTE-A-n_"Title".mov  Example: 12345678_CF-ARTE-A-1_Title.mov Note: "n" in the file name (..._CF-ARTE-A-n_...) should be used for numbering the broadcast file versions (1, 2, 3 etc.) The code "CF" always indicates "Clean Feed", "A" always indicates "Alternative".

**Table 38: Alternative: File Specification – Clean Feed ARTE**

### 7.1.7. File Specification - Miscellaneous Additional Materials ARTE

<b>Identifier: ZDF-ARTE-S04</b>	
Container	*.MXF - MXF OP1a according to the SMPTE 377 Standard (Single Item, Single Package)
Codec	AVCIntra100 (H.264 / MPEG-4 AVC High 422 Intra RP2027 Constrained Class 100)
Resolution	1920x1080
Frame Rate	25
Chroma Subsampling	4:2:2
Bit Depth	10 bit
Scan Type	Progressive (1080p/25) / Interlaced (1080i/25)
Audio	Up to 16-channel (only even-numbered multiples) 24 Bit 48KHz PCM (CHCOUNT=1) - Little Endian
	Note: The content and audio track allocation must be agreed with the responsible ZDF Production management. The audio tracks can be used for the delivery of discrete multi-channel sound, language versions, music, etc. There is only an even number of audio tracks allowed (2, 4, 6, 8, 10, 12, 14, 16).
Multichannel Audio	Discrete
Audio Track Assignment	Audio 1: In agreement with ZDF Production Management





	Audio 2: In agreement with ZDF Production Management
	Audio 3: In agreement with ZDF Production Management
	Audio 4: In agreement with ZDF Production Management
	Audio 5: In agreement with ZDF Production Management
	Audio 6: In agreement with ZDF Production Management
	Audio 7: In agreement with ZDF Production Management
	Audio 8: In agreement with ZDF Production Management
	Audio 9: In agreement with ZDF Production Management
	Audio 10: In agreement with ZDF Production Management
	Audio 11: In agreement with ZDF Production Management
	Audio 12: In agreement with ZDF Production Management
	Audio 13: In agreement with ZDF Production Management
	Audio 14: In agreement with ZDF Production Management
	Audio 15: In agreement with ZDF Production Management
	Audio 16: In agreement with ZDF Production Management
Timecode	Start timecode (first frame): 10:00:00:00
File Naming Convention	"ProductionID"_ZM-ARTE-n_"Title".mxf  Example: 12345678_CF-ARTE-1_Title.mxf Note: "n" in the file name (..._CF-ARTE-n_...) should be used for numbering the broadcast file versions (1, 2, 3 etc.) The code "CF" always indicates "Clean Feed", "A" always indicates "Alternative".

**Table 39: File Specification - Miscellaneous Additional Materials ARTE**

### 7.1.8. Alternative: File Specification - Miscellaneous Additional Materials ARTE

<b>Identifier: ZDF-ARTE-S04-A</b>	
Container	*.MOV (Quicktime)
Codec	Apple ProRes 422 HQ
Resolution	1920x1080
Frame Rate	25
Chroma Subsampling	4:2:2
Bit Depth	10 bit
Scan Type	Progressive (1080p/25) / Interlaced (1080i/25)
Audio	Up to 16-channel (only even-numbered multiples) 24 Bit 48KHz PCM (CHCOUNT=1) - Little Endian  Note: The content and audio track allocation must be agreed with the responsible ZDF production management. The audio tracks can be used for the delivery of discrete multi-channel sound, language versions, music, etc. There is only an even number of audio tracks allowed (2, 4, 6, 8, 10, 12, 14, 16).
Multichannel Audio	Discrete
Audio Track Assignment	Audio 1: In agreement with ZDF Production Management
	Audio 2: In agreement with ZDF Production Management



	Audio 3: In agreement with ZDF Production Management
	Audio 4: In agreement with ZDF Production Management
	Audio 5: In agreement with ZDF Production Management
	Audio 6: In agreement with ZDF Production Management
	Audio 7: In agreement with ZDF Production Management
	Audio 8: In agreement with ZDF Production Management
	Audio 9: In agreement with ZDF Production Management
	Audio 10: In agreement with ZDF Production Management
	Audio 11: In agreement with ZDF Production Management
	Audio 12: In agreement with ZDF Production Management
	Audio 13: In agreement with ZDF Production Management
	Audio 14: In agreement with ZDF Production Management
	Audio 15: In agreement with ZDF Production Management
	Audio 16: In agreement with ZDF Production Management
Timecode	Start timecode (first frame): 10:00:00:00
File Naming Convention	"ProductionID"_ZM-ARTE-A-n_"Title".mov  Example: 12345678_ZM-ARTE-A-1_Title.mov Note: "n" in the file name (..._ZM-ARTE-A-n_...) should be used for numbering the broadcast file versions (1, 2, 3 etc.) The code "ZM" always indicates "Miscellaneous Additional Materials", "A" always indicates "Alternative".

**Table 40: Alternative: File Specification - Miscellaneous Additional Materials ARTE**

## 7.2. ZDF Metadata Sheet

Each delivered file must be accompanied by a separate ZDF Metadata Sheet (Code: MBK). A corresponding template in Excel (ZDF-Metadata Sheet\_ V. 1.10\_eng.xlsx) will be provided by ZDF. Only separate clean elements and proxy files need not be accompanied by a Metadata Sheet.

The following file naming conventions are to be followed upon delivery:

ZDF-Identifier	File Naming
ZDF-ARTE-S01	"ProductionID"_SF-ARTE-n_MBK_"Title".xlsx
ZDF-ARTE-S02	<i>No Metadata Sheet / MBK</i>
ZDF-ARTE-S03	"ProductionID"_CF-ARTE-n_MBK_"Title".xlsx
ZDF-ARTE-S04	"ProductionID"_ZM-ARTE-n_MBK_"Title".xlsx
ZDF-ARTE-S01-A	"ProductionID"_SF-ARTE-A-n_MBK_"Title".xlsx
ZDF-ARTE-S02-A	<i>No Metadata Sheet / MBK</i>
ZDF-ARTE-S03-A	"ProductionID"_CF-ARTE-A-n_MBK_"Title".xlsx
ZDF-ARTE-S04-A	"ProductionID"_ZM-ARTE-A-n_MBK_"Title".xlsx

**Table 41: Metadata Sheet ARTE**



## 8. Videoclips

Videoclips are finalized individual components intended for use in a (live) broadcast. These can be delivered in different technical iterations, but in principle, the identifiers ZDF-B01 to ZDF-B04 (varies based on assignment by ZDF) should be used whenever possible. If this is not possible (e.g., in the case of low bandwidth for delivery via file transfer), the identifiers ZDF-B05 to ZDF-B08 or, in exceptional cases, the identifiers ZDF-B09 to ZDF-B12 may also be used in consultation with ZDF.

### 8.1. HD (High Definition)

#### 8.1.1. File Specification - Videoclip ST

ST = Broadcast-ready audio

<b>Identifier: ZDF-B01</b>	
Container	*.MXF - MXF OP1a according to the SMPTE 377 Standard (Single Item, Single Package)
Codec	AVCIntra100 (H.264 / MPEG-4 AVC High 422 Intra RP2027 Constrained Class 100)
Resolution	1920x1080
Frame Rate	25
Chroma Subsampling	4:2:2
Bit Depth	10 bit
Scan Type	Interlaced (1080i/25)
Audio	4-channel 24 Bit 48KHz PCM (CHCOUNT=1) - Little Endian
	Note: The file must always contain 4 audio tracks.
Audio Track Assignment	Audio 1: Main language full mix left
	Audio 2: Main language full mix right
	Audio 3: M&E left -or- Alternate language left
	Audio 4: M&E right -or- Alternate language right
Timecode	Start timecode (first frame): 10:00:00:00
File Naming Convention	"TitleNamingConvention-MINT-and-Edit".mxf
	Note: The title should be requested from ZDF Production Management

**Table 42: File Specification - Videoclip ST**

#### 8.1.2. File Specification - Videoclip IT

IT = Music and effects only

<b>Identifier: ZDF-B02</b>	
Container	*.MXF - MXF OP1a according to the SMPTE 377 Standard (Single Item, Single Package)
Codec	AVCIntra100(H.264 / MPEG-4 AVC High 422 Intra RP2027 Constrained Class 100)
Resolution	1920x1080
Frame Rate	25
Chroma Subsampling	4:2:2



Bit Depth	10 bit
Scan Type	Interlaced (1080i/25)
Audio	2-channel 24 Bit 48KHz PCM (CHCOUNT=1) - Little Endian
	Note: The file must always contain 2 audio tracks.
Audio Track Assignment	Audio 1: M&E left
	Audio 2: M&E right
Timecode	Start timecode (first frame): 10:00:00:00
File Naming Convention	"TitleNamingConvention-MINT-and-Edit".mxf
	Note: The title should be requested from ZDF Production Management

**Table 43: File Specification - Videoclip IT**

### 8.1.3. File Specification - Videoclip ST-I

ST-I = Broadcast-ready audio, with inserted image

<b>Identifier: ZDF-B03</b>	
Container	*.MXF - MXF OP1a according to the SMPTE 377 Standard (Single Item, Single Package)
Codec	AVCIntra100 (H.264 / MPEG-4 AVC High 422 Intra RP2027 Constrained Class 100)
Auflösung	1920x1080
Frame Rate	25
Chroma Subsampling	4:2:2
Bit Depth	10 bit
Scan Type	Interlaced (1080i/25)
Audio	4-channel 24 Bit 48KHz PCM (CHCOUNT=1) - Little Endian
	Note: The file must always contain 4 audio tracks.
Audio Track Assignment	Audio 1: Main language full mix left
	Audio 2: Main language full mix right
	Audio 3: M&E left -or- Alternate language left
	Audio 4: M&E right -or- Alternate language right
Timecode	Start timecode (first frame): 10:00:00:00
File Naming Convention	"TitleNamingConvention-MINT-and-Edit".mxf
	Note: The title should be requested from ZDF Production Management

**Table 44: File Specification – Videoclip ST-I**

### 8.1.4. File Specification - Videoclip IT-I

IT-I = Music and effects only, with inserted image

<b>Identifier: ZDF-B04</b>	
Container	*.MXF - MXF OP1a according to the SMPTE 377 Standard (Single Item, Single Package)
Codec	AVCIntra100 (H.264 / MPEG-4 AVC High 422 Intra RP2027



	Constrained Class 100)
Resolution	1920x1080
Frame Rate	25
Chroma Subsampling	4:2:2
Bit Depth	10 bit
Scan Type	Interlaced (1080i/25)
Audio	2-channel 24 Bit 48KHz PCM (CHCOUNT=1) - Little Endian
	Note: The file must always contain 2 audio tracks.
Audio Track Assignment	Audio 1: M&E left
	Audio 2: M&E right
Timecode	Start timecode (first frame): 10:00:00:00
File Naming Convention	"TitleNamingConvention-MINT-and-Edit".mxf
	Note: The title should be requested from ZDF Production Management

**Table 45: File Specification - Videoclip IT-I**

### 8.1.5. File Specification - Videoclip ST MidRes HQ

ST = Broadcast-ready audio

MidRes HQ: medium quality (16 Mbit/s)

<b>Identifier: ZDF-B05</b>	
Container	*.MP4
Codec	H.264/MPEG-4 AVC/Part 10 HighProfile@L4.0; 16 Mbit/s VBR (Variable Bit Rate)
Auflösung	1920x1080
Frame Rate	25
Chroma Subsampling	4:2:0
Bit Depth	8 bit
Scan Type	Interlaced (1080i/25)
Audio	4-channel 16Bit 48 KHz AAC 128 Kbit
	Note: The file must always contain 4 audio tracks.
Audio Track Assignment	Audio 1: Main language full mix left
	Audio 2: Main language full mix right
	Audio 3: M&E left -or- Alternate language left
	Audio 4: M&E right -or- Alternate language right
Timecode	Start timecode (first frame): 10:00:00:00
File Naming Convention	"TitleNamingConvention-MINT-and-Edit".mp4
	Note: The title should be requested from ZDF Production Management

**Table 46: File Specification - Videoclip ST MidRes HQ**



### 8.1.6. File Specification - Videoclip IT MidRes HQ

IT = Music and effects only

MidRes HQ: medium quality (16 Mbit/s)

<b>Identifier: ZDF-B06</b>	
Container	*.MP4
Codec	H.264/MPEG-4 AVC/Part 10 HighProfile@L4.0; 16 Mbit/s VBR (Variable Bit Rate)
Resolution	1920x1080
Frame Rate	25
Chroma Subsampling	4:2:0
Bit Depth	8 bit
Scan Type	Interlaced (1080i/25)
Audio	2-channel 16Bit 48 KHz AAC 128 Kbit
	Note: The file must always contain 2 audio tracks.
Audio Track Assignment	Audio 1: M&E left
	Audio 2: M&E right
File Naming Convention	"TitleNamingConvention-MINT-and-Edit".mp4
	Note: The title should be requested from ZDF Production Management

**Table 47: File Specification - Videoclip IT MidRes HQ**

### 8.1.7. File Specification - Videoclip ST-I MidRes HQ

ST-I = Broadcast-ready audio, with inserted image

MidRes HQ: medium quality (16 Mbit/s)

<b>Identifier: ZDF-B07</b>	
Container	*.MP4
Codec	H.264/MPEG-4 AVC/Part 10 HighProfile@L4.0; 16 Mbit/s VBR (Variable Bit Rate)
Resolution	1920x1080
Frame Rate	25
Chroma Subsampling	4:2:0
Bit Depth	8 bit
Scan Type	Interlaced (1080i/25)
Audio	4-channel 16Bit 48 KHz AAC 128 Kbit
	Note: The file must always contain 4 audio tracks.
Audio Track Assignment	Audio 1: Main language full mix left
	Audio 2: Main language full mix right
	Audio 3: M&E left -or- Alternate language left
	Audio 4: M&E right -or- Alternate language right
File Naming Convention	"TitleNamingConvention-MINT-and-Edit".mp4



	Note: The title should be requested from ZDF Production Management
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**Table 48: File Specification - Videoclip ST-I MidRes HQ**

### 8.1.8. File Specification - Videoclip IT-I MidRes HQ

IT-I = Music and effects only, with inserted image  
 MidRes HQ: medium quality (16 Mbit/s)

<b>Identifier: ZDF-B08</b>	
Container	*.MP4
Codec	H.264/MPEG-4 AVC/Part 10 HighProfile@L4.0; 16 Mbit/s VBR (Variable Bit Rate)
Resolution	1920x1080
Frame Rate	25
Chroma Subsampling	4:2:0
Bit Depth	8 bit
Scan Type	Interlaced (1080i/25)
Audio	2-channel 16Bit 48 KHz AAC 128 Kbit
	Note: The file must always contain 2 audio tracks.
Audio Track Assignment	Audio 1: M&E left
	Audio 2: M&E right
File Naming Convention	"TitleNamingConvention-MINT-and-Edit".mp4
	Note: The title should be requested from ZDF Production Management

**Table 49: File Specification - Videoclip IT-I MidRes HQ**

### 8.1.9. File Specification - Videoclip ST MidRes MQ

ST = Broadcast-ready audio  
 MidRes MQ: low quality (8 Mbit/s)

<b>Identifier: ZDF-B09</b>	
Container	*.MP4
Codec	H.264/MPEG-4 AVC/Part 10 HighProfile@L4.0; 8 Mbit/s VBR (Variable Bit Rate)
Resolution	1920x1080
Frame Rate	25
Chroma Subsampling	4:2:0
Bit Depth	8 bit
Scan Type	Interlaced (1080i/25)
Audio	4-channel 16Bit 48 KHz AAC 128 Kbit
	Note: The file must always contain 4 audio tracks.
Audio Track Assignment	Audio 1: Main language full mix left
	Audio 2: Main language full mix right



	Audio 3: M&E left <i>-or-</i> Alternate language left
	Audio 4: M&E right <i>-or-</i> Alternate language right
File Naming Convention	"TitleNamingConvention-MINT-and-Edit".mp4
	Note: The title should be requested from ZDF Production Management

**Table 50: File Specification - Videoclip ST MidRes MQ**

### 8.1.10. File Specification - Videoclip IT MidRes MQ

IT = Music and effects only

MidRes MQ: low quality (8 Mbit/s)

<b>Identifier: ZDF-B10</b>	
Container	*.MP4
Codec	H.264/MPEG-4 AVC/Part 10 HighProfile@L4.0; 8 Mbit/s VBR (Variable Bit Rate)
Resolution	1920x1080
Frame Rate	25
Chroma Subsampling	4:2:0
Bit Depth	8 bit
Scan Type	Interlaced (1080i/25)
Audio	2-channel 16Bit 48 KHz AAC 128 Kbit
	Note: The file must always contain 2 audio tracks.
Audio Track Assignment	Audio 1: M&E left
	Audio 2: M&E right
File Naming Convention	"TitleNamingConvention-MINT-and-Edit".mp4
	Note: The title should be requested from ZDF Production Management

**Table 51: File Specification - Videoclip IT MidRes MQ**

### 8.1.11. File Specification - Videoclip ST-I MidRes MQ

ST-I = Broadcast-ready audio, with inserted image

MidRes MQ: low quality (8 Mbit/s)

<b>Identifier: ZDF-B11</b>	
Container	*.MP4
Codec	H.264/MPEG-4 AVC/Part 10 HighProfile@L4.0; 8 Mbit/s VBR (Variable Bit Rate)
Resolution	1920x1080
Frame Rate	25
Chroma Subsampling	4:2:0
Bit Depth	8 bit
Scan Type	Interlaced (1080i/25)
Audio	4-channel 16Bit 48 KHz AAC 128 Kbit





	Note: The file must always contain 4 audio tracks.
Audio Track Assignment	Audio 1: Main language full mix left
	Audio 2: Main language full mix right
	Audio 3: M&E left -or- Alternate language left
	Audio 4: M&E right -or- Alternate language right
File Naming Convention	"TitleNamingConvention-MINT-and-Edit".mp4
	Note: The title should be requested from ZDF Production Management

**Table 52: File Specification - Videoclip ST-I MidRes MQ**

### 8.1.12. File Specification - Videoclip IT-I MidRes MQ

IT-I = Music and effects only, with inserted image

MidRes MQ: low quality (8 Mbit/s)

<b>Identifier: ZDF-B12</b>	
Container	*.MP4
Codec	H.264/MPEG-4 AVC/Part 10 HighProfile@L4.0; 8 Mbit/s VBR (Variable Bit Rate)
Resolution	1920x1080
Frame Rate	25
Chroma Subsampling	4:2:0
Bit Depth	8 bit
Scan Type	Interlaced (1080i/25)
Audio	2-channel 16Bit 48 KHz AAC 128 Kbit
	Note: The file must always contain 2 audio tracks.
Audio Track Assignment	Audio 1: M&E left
	Audio 2: M&E right
File Naming Convention	"TitleNamingConvention-MINT-and-Edit".mp4
	Note: The title should be requested from ZDF Production Management

**Table 53: File Specification - Videoclip IT-I MidRes MQ**



## 9. Raw Footage

Raw footage includes any unprocessed materials scheduled for delivery. They can be delivered in different technical iterations, but in principle, the identifier ZDF-R01 should be used whenever possible. If this is not possible (e.g., in the case of low bandwidth for delivery via file transfer), the identifiers ZDF-R02 or ZDF-R03 may also be used in consultation with ZDF. If delivery in one of the aforementioned formats is not possible due to technical reasons (e.g., delivery of film material from certain camera types), in exceptional cases, the delivery of alternative formats can be arranged upon consultation with the responsible ZDF department.

### 9.1. HD (High Definition)

#### 9.1.1. File Specification – Raw Footage

<b>Identifier: ZDF-R01</b>	
Container	*.MXF - MXF OP1a according to the SMPTE 377 Standard (Single Item, Single Package)
Codec	AVCIntra100 (H.264 / MPEG-4 AVC High 422 Intra RP2027 Constrained Class 100)
Resolution	1920x1080
Frame Rate	25
Chroma Subsampling	4:2:2
Bit Depth	10 bit
Scan Type	Interlaced (1080i/25)
Audio	4-channel 24 Bit 48KHz PCM (CHCOUNT=1) - Little Endian
	Note: If required and in agreement with the responsible ZDF production management, the content and audio track assignment can be customized. Audio tracks that are not used should be muted.
Audio Track Assignment	Audio 1: Main language full mix left
	Audio 2: Main language full mix right
	Audio 3: M&E left -or- Alternate language left
	Audio 4: M&E right -or- Alternate language right
Timecode	Start timecode (first frame): 10:00:00:00 / Alternatively - in agreement with ZDF Production Management, the footage timecode may be used
File Naming Convention	"TitleNamingConvention-MINT-and-Edit".mxf
	Note: The title should be requested from ZDF Production Management

**Table 54: File Specification Rohmaterial**

#### 9.1.2. File Specification Raw Footage MidRes HQ

MidRes HQ: medium quality (16 Mbit/s)

<b>Identifier: ZDF-R02</b>	
Container	*.MP4
Codec	H.264/MPEG-4 AVC/Part 10 HighProfile@L4.0; 16 Mbit/s VBR



	(Variable Bit Rate)
Resolution	1920x1080
Frame Rate	25
Chroma Subsampling	4:2:0
Bit Depth	8 bit
Scan Type	Interlaced (1080i/25)
Audio	4-channel 16Bit 48 KHz AAC 128 Kbit
	Note: If required and in agreement with the responsible ZDF production management, the content and audio track assignment can be customized. Audio tracks that are not used should be muted.
Audio Track Assignment	Audio 1: Main language full mix left
	Audio 2: Main language full mix right
	Audio 3: M&E left -or- Alternate language left
	Audio 4: M&E right -or- Alternate language right
Timecode	Start timecode (first frame): 10:00:00:00 / Alternatively - in agreement with ZDF Production Management, the footage timecode may be used.
File Naming Convention	"TitleNamingConvention-MINT-and-Edit".mp4
	Note: The title should be requested from ZDF Production Management

**Table 55: File Specification – Raw Footage MidRes HQ**

### 9.1.3. File Specification – Raw Footage MidRes MQ

MidRes MQ: low quality (8 Mbit/s)

<b>Identifier: ZDF-R03</b>	
Container	*.MP4
Codec	H.264/MPEG-4 AVC/Part 10 HighProfile@L4.0; 8 Mbit/s VBR (Variable Bit Rate)
Resolution	1920x1080
Frame Rate	25
Chroma Subsampling	4:2:0
Bit Depth	8 bit
Scan Type	Interlaced (1080i/25)
Audio	4-channel 16Bit 48 KHz AAC 128 Kbit
	Note: If required and in agreement with the responsible ZDF production management, the content and audio track assignment can be customized. Audio tracks that are not used should be muted.
Audio Track Assignment	Audio 1: Main language full mix left
	Audio 2: Main language full mix right
	Audio 3: M&E left -or- Alternate language left
	Audio 4: M&E right -or- Alternate language right



Timecode	Start timecode (first frame): 10:00:00:00 / Alternatively - in agreement with ZDF Production Management, the footage timecode may be used.
File Naming Convention	"TitleNamingConvention-MINT-and-Edit".mp4
	Note: The title should be requested from ZDF Production Management

**Table 56: File Specification – Raw Footage MidRes MQ**



## 10. Supplementary Material

Supplementary materials are materials that provide additional information to a broadcast file (e.g. subtitles or additional audio tracks) and which are delivered together with the broadcast file.

The following file formats are allowed for the supplement materials:

- Subtitles: .stl (EBU-STL-Format)
- Audio files: .wav
- Project data: .aaf
- Documents: .pdf
- Graphics: .mov (ProRes HQ 422 in MOV Container)

Supplements materials in different file formats will not be accepted (e.g. Word/Excel files). The only exception is the metadata sheet (MBK) in Excel format, which should still be delivered in this format.

The file names of the supplement material must be structured in the same way as the corresponding broadcast file (see default file names) and have appropriate file extensions depending on the type of supporting material. The code "BM" after the production number indicates supporting material. If there are several supplement materials for one broadcast file, please number them after the production ID:

File naming for supplement material:

"ProductionID"**\_BM-n\_title."File extension"**

Example:

12345678\_BM\_Title.stl  
12345678\_BM\_Title.wav

12345678\_BM-1\_Title.aaf  
12345678\_BM-2\_Title.aaf



## 11. Appendix

### 11.1. Grading HD/HDR and UHD/HDR Productions

The following instructions and specifications are mandatory when creating HD/HDR or UHD/HDR productions for ZDF. Regulations for grading HD/HDR and UHD/HDR productions in the current version have to be downloaded from the producers' portal:

<https://produzentenportal.zdf.de>

### 11.2. Delivery of HD and UHD material with high dynamic range (HDR)

The following technical specifications apply for the delivery of HD and UHD material with high dynamic range (HDR):

**Container:** MXF OP1a

**Codec:** XAVC Class 100 for HD, XAVC Class 480 or Class 300 for UHD

**Resolution:** 1920x1080 (HD) resp. 3840x2160 (UHD)

**Framerate:** 50p

**Chroma Subsampling:** 4:2:2

**Bit Depth:** 10bit

**HDR-System:** Hybrid Log-Gamma (HLG) in accordance with ITU-R BT.2100 / ITU-R BT.2390

**EOTF:** HLG Variable System Gamma 1.2 in accordance with ITU-R BT.2100

**Peak Luminance:** 1000 nits

**Colour Space:** ITU-R BT.2020