svt

Technical Specification for Deliveries of Video Packages at SVT

Specification 4:
File Delivery to MAM / Archive

(For Internal and External use)

VERSION 2.9 – 10th of October 2026

svt

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Version History

Version 2.9 – Improved information about International version, and added column to channel layout – 10th of October 2026

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Version 2.4 – Updated Large package and Synthetic Grain Section – 19th of December 2025

Version 2.3 – Changed Title slightly, clarified Spatial Audio, added new sections about Preferred Delivery Method and Synthetic Grain – 14th of October 2025

Version 2.2 – Changing the name of the specification, from "**Internal Deliveries of Video Packages**" to "**Deliveries of Video Packages**" – 3rd of October 2025

Version 2.1 – Minor regression with audio channels back to the old configuration, and back to DNxHD 185x to allow for incremental rollout – 25th of August 2025

Version 2.0 – **Second Major Version**, change from XAVC Class 100 to DNxHR HQX as the SDR house format – 25th of April 2025

Version 1.2 – Clarified the need for HDR metadata in Summaries – 4th of December 2024

Version 1.1 – Renamed the specification from 3 to 4 – 3rd of December 2024

Version 1.0 – Revisions from First Draft Proposal and **First Major Version** – 7th of June 2024

Version 0.9 – First Draft Proposal – 27th of May 2024

Version 0.3 - Second Draft Discussion – 16th of April 2024

Version 0.2 - First Draft Discussion – 2nd of April 2024

Version 0.1 - Initial Document – 18th of March 2024

About

This document serves to specify the technical requirements necessary to produce and deliver digital files for programme content at SVT. This refers to all content that is in some way pre-recorded, i.e. not live, and received and / or handled by SVT Post Production. It is deliberately condensed as much as possible, aiming to be informative enough to act as a complete reference without becoming bloated or inaccessible.

This document describes deliveries that corresponds to SVT's four video packages, as specified by the **Video Strat** working group (part of **Value Stream Video**) and how to structure them correctly. It does **not** however, make any recommendations as to which package is most suitable for any one particular piece of content. The specification refers to the technical details of all the requirements necessary to constitute an acceptable internal delivery.

Each requirement is described as a **MUST**. Whereas preference is described as a **SHOULD**. Finally, flexibility, optional choices and accepted additions are denoted with **CAN**.

While the document does **not** handle or describe processes regarding the subjectively perceived quality of the content, it is important to mention that SVT is subject to the provisions of the Radio Act to terms set out in the charter between SVT and the state. Hence, content creators are required to consider the needs of people with hearing or visual impairments. This is especially true regarding dialogue and voiceovers when mixing sound, or clarity when generating onscreen text, subtitles and graphics.

Finally, please note that the four video packages exhibit some technical overlap with each other, which means that their respective description will sometimes contain identical information, which in turn makes the document prone to repetition. Being this over-explicit is indeed intentional, as any one production should only ever have to adhere to, and thus be interested in, one package.

This document is aimed at internal and external delivery to MAM, thus it directly supersedes parts of the previous document:
Technical_Specification_for_the_Delivery_of_Television_Programmes_as_FILES_to_SVT_v5.1

The document is divided into two parts:

Part 1: Summary and Checklists

Part 2: Asset Specification

PART 1 – Summary

The following is a set of quick checklists and short requirement summaries for the different video packages, small, medium, medium+ and large. Please note that some details are omitted in these summaries, please refer to PART 2 for in depth requirements. Likewise digitised archival film copies are offered some leeway with regards to resolution and audio configuration, please refer to 2.5.4 for details.

Once again, each requirement is described as a **MUST**. Whereas preference is described as a **SHOULD**. Finally, flexibility, optional choices and accepted additions are denoted with **CAN**.

1.1 Video Package Small

The small video package is typically used for bulk content, such as news and sports clips, where speed and reliability is most important.

Technical Metadata	Small (SDR)
File Container	MXF OP1A
Video Codec	DNxHD 120 (SQ)
Pixel Raster (Resolution)	1920x1080
Frame Rate	25 or 50 fps
Colourimetry	BT.709 and BT.1886
Colour Coding	YCbCr 4:2:2
Pixel Bit Depth	8 bit (Limited Range)
Audio Codec	PCM 48 kHz / 24 bit
Channel Layout	Stereo
Audio Loudness Characteristics	-23 LUFS, LRA at 18 LU, -1 dBTP

Format Container
The content **MUST** be wrapped into a MXF OP1A Container

Video Codec
The video codec **MUST** be DNxHD with the profile variant 120 (SQ)

Pixel Raster (Resolution)
The pixel raster **MUST** be 1920x1080 (Full HD) and follow a display aspect ratio of 16:9.

Frame Rate
The frame rate **MUST** be 25 or 50 frames per second, with a Progressive Scan Frame Structure.

Colourimetry
The colourimetry **MUST** follow the standards ITU-R BT.709 and ITU-R BT.1886.

Colour Coding
The colour coding **MUST** use YCbCr 4:2:2.

Pixel Bit Depth
The pixel bit depth **MUST** be 8 bit and use a Broadcast Safe Narrow Range of 16-235 (i.e. EBU R 103 Legal Levels / Video Levels).

Audio Codec
The audio **MUST** be encoded as Uncompressed Linear PCM, with a sample rate of 48 kHz and a bit depth of 24 bits per sample.

Channel Layout
The audio channel layout **MUST** be Stereo

Audio Loudness Characteristics
Loudness across the whole duration **SHOULD** be -23 (+/- 1) LUFS, with a loudness range, LRA, of 18 LU and a maximum true peak of -1 dBTP. LRA for dialogue **SHOULD** be 6 LU.

1.2 Video Package Medium

The medium video package is aimed at general programmes, such as documentaries, drama and kids shows. The goal is to tell a story and create a good viewing experience.

Technical Metadata	Medium (SDR)
File Container	MXF OP1A
Video Codec	DNxHD 185x (HQX)
Pixel Raster (Resolution)	1920x1080
Frame Rate	25 or 50 fps
Colourimetry	BT.709 and BT.1886
Colour Coding	YCbCr 4:2:2
Pixel Bit Depth	10 bit (Limited Range)
Audio Codec	PCM 48 kHz / 24 bit
Channel Layout	Stereo or 5.1 or Dolby Atmos
Audio Loudness	-23 LUFS, LRA at 18 LU, -1 dBTP

Format Container
The content **MUST** be wrapped into a MXF OP1A Container.

Video Codec
The video codec **MUST** be DNxHD 185x (HQX).

Pixel Raster (Resolution)
The pixel raster **MUST** be 1920x1080 (Full HD) and follow a display aspect ratio of 16:9.

Frame Rate
The frame rate **MUST** be 25 or 50 frames per second, with a Progressive Scan Frame Structure.

Colourimetry
The colourimetry **MUST** adhere to standards ITU-R BT.709 and ITU-R BT.1886.

Colour Coding
The colour coding **MUST** use YCbCr 4:2:2 (See Section 2.5.1 for further details).

Pixel Bit Depth
The pixel bit depth **MUST** be 10 bit and use a Broadcast Safe Narrow Range of 64-940 (i.e. EBU R 103 Legal Levels / Video Levels).

Audio Codec
The audio **MUST** be encoded as Uncompressed Linear PCM, with a sample rate of 48 kHz and a bit depth of 24 bits per sample.

Channel Layout
The audio channel layout **MUST** have at least two tracks, but **CAN** adhere to any of the following configurations: Stereo or 5.1 or Dolby Atmos (see Part 2 for detailed channel layout).

Audio Loudness Characteristics
Loudness across the whole duration **MUST** be -23 (+/- 1) LUFS, with a loudness range, LRA, of 18 LU and a maximum true peak of -1 dBTP. LRA for dialogue **SHOULD** be 6 LU.

1.3 Video Package Medium+

The medium+ video package is also aimed at general programmes, but introduced Dolby Vision HDR in order to achieve a sweet spot between complexity and viewing experience.

Technical Metadata	Medium+ (FHD / HDR)
File Container	IMF
Video Codec	JPEG 2000
Pixel Raster (Resolution)	1920x1080
Frame Rate	25 or 50 fps
Colourimetry	P3D65 and SMPTE ST 2084 PQ with Dolby Vision metadata
Colour Coding	RGB 4:4:4
Pixel Bit Depth	12 bit (Full Range)
Audio Codec	PCM 48 kHz / 24 bit
Channel Layout	Stereo or 5.1 or Dolby Atmos
Audio Loudness	-23 LUFS, LRA at 18 LU, -1 dBTP

Format Container
The content **MUST** be part of an IMF package.

Video Codec
The video codec **MUST** be a Monoscopic JPEG 2000 with at least Main Level 4, Sublevel 2 (or Broadcast Level 4).

Pixel Raster (Resolution)
The pixel raster **MUST** be 1920x1080 (Full HD) and follow a display aspect ratio of 16:9.

Frame Rate
The frame rate **MUST** be 25 or 50 frames per second, with a Progressive Scan Frame Structure.

Colourimetry and Colour Volume Transform
The colourimetry **MUST** use P3D65 or ITU-R BT.2020 with SMPTE ST 2084 PQ. Furthermore, for HDR dynamic metadata **MUST** be present as interleaved Dolby Vision CM 2.9 or CM4.0

Colour Coding
The colour coding **MUST** use RGB 4:4:4.

Pixel Bit Depth
The pixel bit depth **MUST** be 12 bit and use Full Range.

Audio Codec
The audio **MUST** be encoded as Uncompressed Linear PCM, with a sample rate of 48 kHz and a bit depth of 24 bits per sample.

Channel Layout
The audio channel layout **MUST** have at least two tracks, but **CAN** adhere to any of the following configurations: Stereo or 5.1 or Dolby Atmos (see Part 2 for detailed channel layout).

Audio Loudness Characteristics
Loudness across the whole duration **MUST** be -23 (+/- 1) LUFS, with a loudness range, LRA, of 18 LU and a maximum true peak of -1 dBTP. LRA for dialogue **SHOULD** be 6 LU.

1.4 Video Package Large

The large video package is reserved for our premium content. These are often “Bumlingar” (e.g. flagship productions) where SVT is pushing the viewing experience to the best of its abilities.

Technical Metadata	Large (UHD / HDR)
File Container	IMF
Video Codec	JPEG 2000
Pixel Raster (Resolution)	3840x2160
Frame Rate	25 or 50 fps
Colourimetry	P3D65 and SMPTE ST 2084 PQ with Dolby Vision metadata
Colour Coding	RGB 4:4:4
Pixel Bit Depth	12 bit (Full Range)
Audio Codec	PCM 48 kHz / 24 bit
Channel Layout	5.1 or Dolby Atmos
Loudness Characteristics	-23 LUFS, LRA at 18 LU, -1 dBTP

Format Container
The content **MUST** be provided as an IMF Package.

Video Codec
The video codec **MUST** be a Monoscopic JPEG 2000 with at least Main Level 4, Sublevel 2 (or Broadcast Level 4) but **SHOULD** use Main Level 7, Sublevel 3 (*to allow for 1244 MSamples/s*).

Pixel Raster (Resolution)
The pixel raster **MUST** be at least 3840x2160 (QFHD).

Frame Rate
The frame rate **SHOULD** be 25 frames per second, but **CAN** use other frame rates such as 24 or 50 frames per second, always using a Progressive Scan Frame Structure.

Colourimetry and Colour Volume Transform
The colourimetry **MUST** use P3D65 or ITU-R BT.2020 with SMPTE ST 2084 PQ. Dynamic metadata **MUST** be present as interleaved Dolby Vision CM 2.9 or CM4.0

Colour Coding
The colour coding **MUST** use RGB 4:4:4.

Pixel Bit Depth
The pixel bit depth **MUST** be 12 bit and use Full Range.

Audio Codec
The audio **MUST** be encoded as Uncompressed Linear PCM, with a sample rate of 48 kHz and a bit depth of 24 bits per sample.

Channel Layout
The audio channel layout **MUST** have at least two tracks but **CAN** adhere to any of the following configurations: 5.1 or Dolby Atmos (see Part 2 for detailed channel layout).

Audio Loudness Characteristics
Loudness across the whole duration **MUST** be -23 (+/- 1) LUFS, with a loudness range, LRA, of 18 LU and a maximum true peak of -1 dBTP. LRA for dialogue **SHOULD** be 6 LU.

PART 2 – Asset Specification

2.1 Technical Details, Requirements and Limitations

The asset specification refers to the technical details of all the requirements necessary to constitute an acceptable internal delivery. Generally, requirements are expressed explicitly, details that are not mentioned in this document can be decided by the content creator.

Each requirement is described as a **MUST**. Whereas preference is described as a **SHOULD**. Finally, flexibility, optional choices and accepted additions are denoted with **CAN**.

It is important to emphasize that the specification of these deliveries refer to the files actually being uploaded to our MAM. The form its various constituting components take throughout the post-production chain, such as ingest, editorial, VFX and sound mixing, can vary greatly. Those processes however, are all handled in their respective specifications altogether.

2.2 Naming Convention

In order to deliver scheduled programme content at SVT internally, the official SVT naming convention **MUST** be used. The specific programme identifier information will be provided by SVT (project leader or producer) and will always adhere to the following rules:

A prefix identifying a programme for delivery to SVT (PG-), a programme-id (seven numbers, 0-9) identifying the programme (series), a hyphen, and an episode number (three numbers, 0-9) followed by a version-identifier (e.g. A), followed by a hyphen and the programme title in upper case (one or more characters, A-Z). Filename extensions must be in lowercase. Umlaut characters (e.g. Å, Ä and Ö) are not permitted.

Thus, the final specific programme identifier will look something like this:

PG-1234567-001A-PROGRAM.xxx

PG-1300828-006A-VARTIDARNU.mxf

2.3 Preferred Delivery Method

The preferred method for external deliveries to SVT is to use our Aspera Solution. This ensures that all the proper metadata fields are populated correctly. In order to get the specific delivery link for any one particular piece of content, please ask the project lead and / or one of SVT's Media Centres listed here:

- **MC News** – mcnews@svt.se
- **MC Gothenburg** – mc-goteborg@svt.se
- **MC Stockholm** – mc-stockholm@svt.se
- **MC Umeå** – mc-umea@svt.se
- **MC Malmö** – mc-malmo@svt.se

*Please note: If you experience a connection failure in the **Aspera Connect** client when uploading or downloading, you need to whitelist port 33001 against stoaspprodtransfer01.svt.se (194.15.212.92) in your firewall.*

2.4 File Formats and Containers

There are two accepted delivery formats, MXF and IMF. The former is the default format and used for most programmes, whereas the latter is used specifically for JPEG 2000 HDR deliveries.

2.4.1 MXF

For MXF deliveries the operational pattern 1A (MXF-OP1A,) as specified in SMPTE 378M-2004, **MUST** be used. As per OP1A, the content is delivered as a single package (i.e. the material package and the file package are identical)

The MXF container **MUST** contain a single video essence stream.

The MXF container **MUST** contain at least one audio essence stream, with at least two tracks. But the container **CAN** contain several audio essence streams, each containing 2-6 tracks.

The MXF container **MUST** contain a starting timecode based on SVT's house clock 10:00:00.0

There are no further requirements on the Header Metadata.

2.4.2 IMF

For IMF deliveries the package **MUST** conform to SMPTE ST 2067-21:2020, and if Dolby Atmos spatial audio is included the package **MUST** also conform to SMPTE ST 2067-201:2019.

The IMF package **MUST** contain one Asset Map.

The IMF package **MUST** contain one Packing List.

The IMF package **MUST** contain one or more Composition Playlist (CPL) files, representing a single audio language each, containing either Dolby Atmos or 5.1 Surround Sound.

The IMF package **MUST** contain all of the MXF Track Files referenced from the ingested CPL, that have not previously been delivered.

The IMF package **CAN** include Volume Index and Output Profile List files.

Currently, IMF supplementals are not supported. This will change once SVT has its One Asset Model in production.

2.5 Video Generally

SVT accepts both SDR and HDR video deliveries internally, however there are strict requirements to their respective composition depending on the video package.

2.5.1 SDR

The following requirements hold for SDR video in Small and Medium packages:

All SDR video **MUST** use the video codec DNxHD with either the profile variant 120 (SQ) or 185x (HQX).

All SDR video **MUST** be encoded with YCbCr colour coding. In the case of Video Package Medium the video **SHOULD** be chroma subsampled to 4:2:2 but it **CAN** in specific instances use full chroma of 4:4:4, provided that it is agreed upon by the content creator and SVT.

All SDR video **MUST** use square pixels.

The pixel raster width **MUST** be at least 1920 pixels.

The pixel raster height **MUST** be at least 1080 pixels.

All of the technical information in 2.4.1 **MUST** be present as technical metadata within the MXF itself.

2.5.2 HDR

The following requirements hold for HDR video allowed in Medium+ and Large packages:

All HDR video **MUST** be encoded with the codec Monoscopic JPEG 2000.

All HDR assets **MUST** be delivered as Dolby Vision graded content, with relevant CM 2.9 or CM 4.0 metadata interleaved in video track file MXF-container and present for every frame.

All HDR video **MUST** be encoded with a pixel depth of 12 bit at full range.

All HDR video **MUST** be encoded with RGB colour coding without subsampling, i.e. 4:4:4.

The content **SHOULD** be graded in a P3D65 context, within a BT.2020 Gamut.

2.5.3 Synthetic Film Grain

When adding synthetic Film Grain to a piece of content in the pursuit of achieving a particular look and / or creative intent, the following technical guidelines **SHOULD** be followed to ensure that the VoD transcoding pipeline works under optimal conditions to create an excellent subjective viewing quality for distribution:

The video **SHOULD** use the least amount of synthetic grain necessary to achieve the intended creative look.

When applicable the synthetic grain **SHOULD** not be applied to the representation of colour, but instead be applied as intensity (i.e. luma). If the synthetic grain is represented as intensity, it will primarily reside in the luma channel upon conversion from RGB to YCbCr, which in turn will decrease the negative impact of subsampling, and further improve the possibility for an encoder to distinguish between details and noise in VoD transcoding for distribution.

2.5.4 Archival Footage

Digitized archival footage, especially from 35 mm film, **SHOULD** be delivered as a QFHD (3840x2160) copy if at all possible. Since such footage is always considered SDR by SVT, and usually only carries dual mono audio, the technical combination of the delivery runs the risk of not conforming to any of the specified video packages. In order to handle this discrepancy, digitized archival footage is allowed to break the requirement on resolution and pixel raster, effectively leading to a Small Video Package with a pixel raster of 3840x2160. Thus, the following amendment is added to 2.7:

If the source video file is digitized archival footage, the pixel raster **CAN** be 3840x2160 (QFHD).

2.5.5 International Version

When delivering an international version (I-version), some special considerations must be adhered to for both video and audio elements.

For the Video, specifically the graphical and text-related elements of the content, an international version **MUST** strip all Swedish texts from signs, lower thirds and headings. These elements should instead be delivered as Textless-variants, allowing other localisations and language features to be added for distribution in different countries. Together with the I-version a complete delivery **SHOULD** also include a post production script / transcript in its original language, in order to further facilitate smooth usage of the I-version for other broadcasters / streaming companies.

For Audio components an international delivery **MUST** strictly adhere to the international audio variants in the Audio Layout Configuration (see 2.6.2).

2.6 Audio Generally

Audio deliveries allow for far less technical variability than video, emphasising adherence to predetermined channel layouts.

2.6.1 Audio Codec

All audio delivered as part of MXF and IMF files **MUST** be encoded as Uncompressed Linear PCM (.wav), with a sample rate of 48 kHz at a bit depth of 24 bits per sample.

For MXF files and non-immersive sound a single audio essence stream per track configuration **SHOULD** be used (i.e. an audio stream for STEREO tracks and another for STEREO M/E tracks). The same file **MUST** contain at least one audio stream with at least two tracks, but **CAN** use more.

Immersive Spatial Audio **MUST** be delivered as a Dolby Atmos audio stream, either as part of an IMF or as a stand-alone audio delivery. In the case of IMF deliveries, the Spatial Audio **SHOULD** be provided as an IAB. If the Spatial Audio is a stand-alone delivery, it **CAN** be provided either as a BWF (“BWAV”) ADM file (with a .wav extension) or an IAB file.

2.6.2 Audio Layout Configurations

The audio delivery of non-spatial audio **MUST** be configured as a discrete channel layout, corresponding to one of the columns in the matrix below. The rows range from channel 1 – 16, and illustrate the order of the tracks, regardless of audio stream.

Channel based discrete audio

	Stereo	**Stereo M/E**	**5.1**	**5.1 M/E**	**International Version**
Channel 1	Stereo (L)	Stereo (L)	5.1 (L)	5.1 (L)	Complete Mix (L)
Channel 2	Stereo (R)	Stereo (R)	5.1 (R)	5.1 (R)	Complete Mix (R)
Channel 3		Stereo M/E (L)	5.1 (C)	5.1 (C)	International (L)
Channel 4		Stereo M/E (R)	5.1 (Lfe)	5.1 (Lfe)	International (R)
Channel 5			5.1 (Ls)	5.1 (Ls)	Dialogue (L)
Channel 6			5.1 (Rs)	5.1 (Rs)	Dialogue (R)
Channel 7			Stereo (L)	Stereo (L)	Music (L)
Channel 8			Stereo (R)	Stereo (R)	Music (R)
Channel 9				5.1 M/E (L)	Effects (L)
Channel 10				5.1 M/E (R)	Effects (R)
Channel 11				5.1 M/E (C)	Voice Over (L)
Channel 12				5.1 M/E (Lfe)	Voice Over (R)
Channel 13				5.1 M/E (Ls)	
Channel 14				5.1 M/E (Rs)	
Channel 15				Stereo M/E (L)	
Channel 16				Stereo M/E (R)	

Note that 3.0-variants **MUST** be provided in a container with 5.1 channel configuration, with Lfe, Ls and Rs represented by digital silence.

Spatial Audio Layout Configurations

Spatial audio **MUST** be delivered as a Dolby Atmos file. While all bed configurations are acceptable, we recommend a final configuration of 7.1.4

2.6.3 Audio Loudness Characteristics

Programme Loudness refers to the measured loudness over the duration of the whole programme. The main unit is measured in Loudness Units (LU), which roughly equates to 1

dB perceived change in loudness, and the reference is Loudness Units relative to Full Scale (LUFS)

Programme Loudness follows EBU Tech 3341 and **MUST** be -23 LUFS (+/- 1 LU). The maximum value of the audio signal waveform **MUST** stay below a true peak of -1 dBTP. Please note that some content being produced as part of the Small Package is sometimes exempt from this requirement, however even Small **SHOULD** stay within -23 LUFS (+/- 1 LU).

The loudness range, referred to as LRA, **SHOULD** stay within 18 LU as per EBU Tech 3342 & 3 and the LRA for dialogue specifically **SHOULD** not exceed a range of 6 LU.

For Spatial audio, the loudness measurement **MUST** be made on a 5.1 fold-down render.

2.7 Video Package Small

The small video package represents the baseline requirements for an internal delivery of video content at SVT. As mentioned in the summary, it is typically used for bulk content, and used when speed and reliably is most important. This means that the small package allows for the least amount of variation, and thus is easiest to streamline. A special case amendment is allowed for digitized archival footage, for such deliveries please refer to 2.5.4.

2.7.1 Video Codec

Video Package Small only accepts one video codec, and even more specifically only one profile variant of that codec, encoded at two possible bitrates depending on frame rate. The video codec **MUST** be DNxHD and the profile variant **MUST** be 120 (SQ).

2.7.2 Pixel Raster and Aspect Ratio

Similarly to the video codec option, Video Package Small only accepts one fixed pixel raster, and is thus locked into one acceptable display aspect ratio (DAR). The pixel raster **MUST** have a width of 1920 pixels and a height of 1080 pixels (1920x1080 Full HD) and follow a display aspect ratio of 16:9. No blanking is permitted.

2.7.3 Frame Rate and Frame Structure

Two choices of frame rate are acceptable for Video Package Small. The frame rate **MUST** be 25 or 50 frames per second. In both cases a Progressive Scan Frame Structure must be used, interlaced material is not accepted.

2.7.4 Colourimetry and Colour Coding

The colourimetry for Video Package Small is straight forward as only one option is accepted.

The video signal **MUST** follow the standards ITU-R BT.709 and ITU-R BT.1886, using D65 as the white point and an electro-optical transfer function of 2.4 gamma. The video **MUST** be Colour Coded using YCbCr with a chroma subsampling of 4:2:2.

Furthermore, all video content **MUST** be encoded with a pixel bit depth of 8 bit. As recommended by EBU R 103 the signal levels for luma **SHOULD** stay within Broadcast Safe Narrow Range of 16-235, and they **MUST** stay within the preferred minimum and maximum of 5 - 246. Similarly, for the signal levels for chroma **MUST** stay within Broadcast Safe Narrow Range of 16-240.

2.7.5 Audio Channel Layouts

The acceptable audio channel layout is Stereo

2.8 Video Package Medium

The medium video package represents the standard programme level for internal delivery at SVT.

2.8.1 Video Codec

Video Package Medium only accepts one video codec, and it **MUST** be DNxHD/HR and the profile variant **MUST** be 10 bit HQX.

2.8.2 Pixel Raster and Aspect Ratio

Video Package Medium **SHOULD** use a fixed pixel raster of 1920 x 1080, but it allows for slight variations depending on the intended display aspect ratio (DAR).

The pixel raster **MUST** have a width of 1920 pixels and a height of 1080 pixels (i.e. 1920x1080 Full HD) and follow a display aspect ratio of 16:9. No blanking is permitted.

If the programme DAR is intended to be 2:1, the pixel raster **SHOULD** still be 1920x1080, with the content using letterboxing to create 2:1 aspect ratio within a 16:9 box. But the raster **CAN** use true 2:1, such as 2160x1080 or 2100x1050.

2.8.3 Frame Rate and Frame Structure

Two choices of frame rate are acceptable for Video Package Medium. The frame rate **MUST** be 25 or 50 frames per second. In both cases a Progressive Scan Frame Structure must be used, interlaced material is not accepted.

2.8.4 Colourimetry and Colour Coding

For Medium the video signal **MUST** follow the standards ITU-R BT.709 and ITU-R BT.1886, using D65 as the white point and an electro-optical transfer function of 2.4 gamma. The video **MUST** be Colour Coded using YCbCr with a chroma subsampling of 4:2:2. The pixel bit depth **MUST** be 10 bit, and the video levels for both luma and chroma **MUST** use a Broadcast Safe Narrow Range of 64-940.

2.8.5 Audio Channel Layouts

The acceptable audio channel layouts are: Stereo or 5.1 or Dolby Atmos.

2.9 Video Package Medium+

The medium+ video package represents a slight increase over the standard programme level, requiring HDR instead of SDR video.

2.9.1 Video Codec

Video Package Medium+ accepts one video codec, and it **MUST** be a Monoscopic JPEG 2000 with at least Main Level 4, Sublevel 2 (or Broadcast Level 4) and at maximum Main Level 7, Sublevel 3.

2.9.2 Pixel Raster and Aspect Ratio

Video Package Medium+ **SHOULD** use a fixed pixel raster of 1920 x 1080, but it allows for slight variations depending on the intended display aspect ratio (DAR).

The pixel raster **MUST** have a width of 1920 pixels and a height of 1080 pixels (i.e. 1920x1080 Full HD) and follow a display aspect ratio of 16:9. No blanking is permitted.

If the programme DAR is intended to be 2:1, the pixel raster **SHOULD** still be 1920x1080, with the content using letterboxing to create 2:1 aspect ratio within a 16:9 box. But the raster **CAN** use true 2:1, such as 2160x1080 or 2100x1050.

2.9.3 Frame Rate and Frame Structure

Two choices of frame rate are acceptable for Video Package Medium+. The frame rate **MUST** be 25 or 50 frames per second. In both cases a Progressive Scan Frame Structure must be used, interlaced material is not accepted.

2.9.4 Colourimetry and Colour Coding

The colourimetry for Video Package Medium+ accepts one option, the video signal **MUST** follow the standards P3D65 (or in upon explicit agreement ITU-R BT.2020) with SMPTE ST 2084 PQ. The content itself **MUST** be graded in Dolby Vision and **MUST** be Colour Coded using RGB 4:4:4, with a pixel bit depth of 12 bit at full range.

2.9.5 Audio Channel Layouts

The acceptable audio channel layouts are: Stereo or 5.1 or Dolby Atmos.

2.10 Video Package Large

The large video package is reserved for our premium content and highest degree of technical complexity. This package only allows HDR video with multichannel audio and is intended to push our limits in terms of creativity and technical excellence.

2.10.1 Video Codec

Video Package Large only accepts a Monoscopic JPEG 2000 with Main Level 7, Sublevel 3.

2.10.2 Pixel Raster and Aspect Ratio

The pixel raster **MUST** use UHD standards. For UHD the content **SHOULD** be 3840x2160 (QFHD) however cinematographic aspect ratios, such as 2:1 and 2.35:1 are allowed.

2.10.3 Frame Rate and Frame Structure

The frame rate **SHOULD** be 25 frames per second, but other frame rates are acceptable provided that they are integer based (e.g., 24, 25 and 50 but not 23.976). This allows for a higher degree of creative freedom. In all cases a Progressive Scan Frame Structure must be used, interlaced material is not accepted.

2.10.4 Colourimetry and Colour Coding

The colourimetry for Video Package Large only accepts HDR and WCG. The video signal **MUST** follow the standards P3D65 or ITU-R BT.2020 with SMPTE ST 2084 PQ. The content itself **MUST** be graded in Dolby Vision and **MUST** be Colour Coded using RGB 4:4:4, with a pixel bit depth of 12 bit at full range.

2.10.5 Audio Codec

The audio **MUST** be encoded as Uncompressed Linear PCM (.wav), with a sample rate of 48 kHz and a bit depth of 24 bits per sample.

2.10.6 Audio Channel Layouts

The audio channel layout **MUST** have at least two tracks, but **CAN** adhere to any of the following configurations: 5.1 or Dolby Atmos (see Section 2.6.2 for detailed channel layout).