

Technical specifications
For the delivery of TV programmes, TV sequences and films to DR
- TAPE-BASED MATERIAL -

In order to assure the correct registration of all TV programmes, a number of current technical standards and procedures shall be complied with so that the programmes in question can be edited and/or broadcast with the highest possible quality.

1.1 General conditions

All video and audio signals shall comply with the official technical texts of the **EBU** (European Broadcasting Union) **OFFICIAL TECHNICAL TEXTS**, including Technical Standards, Recommendations, Statements and Information. These publications can be found at: <http://tech.ebu.ch/publications>
Detailed specifications can also be found in Annex 1.

1.1.1 HD

Finished programmes and programme sequences shall be produced in 720p/50, 1080p/25 or 1080i/50 format and delivered to DR on HDcam or HDcamSR (not 4:4:4).

60 hz. HD material will only be accepted from countries where this is the standard format.

1.1.2 SD

Finished programmes and programme sequences shall be produced in PAL format and delivered to DR on Digital Betacam.

1.1.3 Image aspect ratio

DR broadcasts in the 16:9 aspect ratio. A copy of DR's 16:9 manual can be provided by the DR department who placed the order. Material in 14:9 and 4:3 letterbox aspect ratios will not be accepted.

1.1.4 Time code

For both programme sequences and finished programmes, a continuous and unbroken time code (LTC and VITC) shall be present. LTC and VITC shall be identical. Finished programmes ready for broadcast use the VITC code for the play out of subtitles, which is why the VITC time code shall always be present and intact.

1.1.5 Approval

In the event that the finished programme or programme footage does not meet the approval of DR with respect to the technical specifications and norms mentioned in this document, the product in question will be returned to the producer to allow for additional post production processing within the deadlines specified by DR and at no additional cost to DR. See also the terms of the production contract concerning DR's authority as regards approval.

1.2 Guidelines for sequences or programmes requiring further editing

The material will not be post-edited by DR and shall therefore adhere to current standards for sound and video tolerance levels (see paragraph 1.6).

See Annex 1 regarding:

Feature films
Documentaries
Series
Children's programming
Material for the production of spots/trailers

1.3 Recording log

Each tape shall be accompanied by a recording log. As a minimum, it should include the following:

<i>Title:</i>	The title of the programme (alternatively working title/episode no. etc)
<i>Tape no.:</i>	A number that identifies the tape
<i>Recorded by:</i>	Organization/name/date/telephone of the person responsible for the programme
<i>Aspect ratio:</i>	16:9 format (note any 4:3 content)
<i>Audio:</i>	Information about the audio on each track, mono/stereo/multi-channel audio (Dolby E), noise reduction etc.
<i>Time code:</i>	The initial and final time code of the programme/sequences
<i>Duration:</i>	The duration of the programme in hours, minutes, seconds and frames

For sequences, the log should also include notes on the sequence content and sequence number.

1.4 Labels on the tape and cassette box

The labels on the tape and the cassette box shall be identical in order to facilitate the matching of the two. To prevent confusion, there shall only be one label on the tape. As a minimum, the label shall contain the title of the contents and, where appropriate, the episode number.

1.5 Subtitles in Danish

DR handles the subtitling of the programme unless otherwise agreed with the producer/supplier.

Invision subtitles (those which form a part of the video signal) cannot be used, as the DVB-T standard must be followed.

In cases where there is an agreement that the producer is to deliver subtitles, these shall be provided in the Screen PU PAC-format or EBU STL-format. Files with subtitles should be sent to DR by e-mail at: DRtekst@dr.dk.

Unless otherwise specified in the contract, materials should be delivered 14 weekdays prior to broadcast.

1.6 Norms & tolerances for programmes & sequences submitted to DR

Lead in	90 sec. colour bar (EBU 100/75) and test tone (1 kHz - 0 dBu) at the start of the tape. <i>No changes in sync. within 10 seconds of the first and last frames of the programme.</i>
Test recording	Before the programme starts, the following shall be included: Colour bars and test tone duration: 00:01:50:00 Black/silent & optional programme ID duration: 00:00:07:00 Black/silent duration: 00:00:03:00 Programme start: 01:00:00:00 or 10:00:00:00
Programme video Video level Chrominance level Black level	Max. 102 % Max. 133 % over black and max. 43 % under black Tolerance: + 2 /- 0 %
Video tolerances Video white Video black Chrominance Test tone	Shall be within + 2 % and - 3 % Shall be within + 1 % and - 0 % Shall be within + /- 3° and + /- 5 % Shall be 0 dBu (775 mV) and within + /- 0,5 dB
Noise reduction:	None
Time code LTC VITC	EBU/SMPTE (LTC og VITC-code <u>must</u> be identical) Time code track Line 19 + 21 (332 + 334)
Programme audio: Mono Stereo IT-audio/non-deeped(100%) Multi-channel audio (HDcamSR) Multi-channel audio HDcam (Dolby E) Audio level	Same audio on tracks 1 + 2 Track 1 = Left, Track 2 = Right Track 3 + 4 Track 1 = Left (stereo) Track 2 = Right (stereo) Track 3 = Multi-channel audio left Track 4 = Multi-channel audio right Track 5 = Multi-channel audio centre Track 6 = Multi-channel audio LFE Track 7 = Multi-channel audio left surround Track 8 = Multi-channel audio right surround Track 1 = Left (stereo) Track 2 = Right (stereo) Track 3 = Multi-channel audio (Dolby E) Track 4 = Multi-channel audio (Dolby E) Max. + 6 dBu (for DolbyE up to 0dBfs) As of 2012, EBU Recommendation R128 (loudness) must be observed.
Safe area	EBU Recommendation R95 shall be observed.

Annex 1 – General guidelines for sequences or programmes requiring further editing

1 Feature films:

1.1 Video:

In general, DR wishes to broadcast programmes in their original aspect ratio without cropping.

DR prefers (in order of preference)	Aspect ratio	Acceptable	Not acceptable
1	2,35:1	16:9 Letterbox Anamorphic	Pan Scan Full Screen
2	1,85:1	16:9 FHA (Full Height Anamorphic)	Pan Scan
3	1,66:1	16:9 FHA (Full Height Anamorphic)	Pan Scan
4	1,33:1	4:3	

Invision subtitles (those which form a part of the video signal) are not acceptable. If these are found in the programme, footage without subtitles shall be provided so that the sequence or sequences in question can be replaced.

1.2 Audio:

Stereo, Prologic Surround or 5.1 surround sound.
Original mono is acceptable, track 1+2 dual mono final mix.

2 Documentaries:

2.1 Video:

DR prefers to translate and insert graphics itself (e.g. captions with the names of participants).

The bottom 1/3 of the screen is to be used for Danish subtitles and should therefore be kept free of other graphics.

DR prefers a version with graphics and captions (e.g. names of the participants) and footage without graphics and captions OR a version without graphics and captions but with credits.

Advertising breaks in programmes can be accepted if they can easily be edited out.

2.2 Audio:

Track 1+2 Stereo original final mix with no “voice over”/dubbing. DR does not accept one foreign language translated to another (e.g. spoken Japanese with English subtitles). In such cases, DR prefers to translate the spoken language directly in the Danish subtitles.

Track 3+4 Stereo original final mix with no “commentator/narrator”

Documentaries requiring a Danish narration will be dubbed by DR. These programmes may not contain audio level changes (“deeped” sequences).

3 Series:

3.1 Video:

16:9 FHA (Full Height Anamorphic)
4:3 Series originally produced in the 4:3 aspect ratio are acceptable.
14:9 letterbox is not acceptable.

Advertising breaks in programmes can be accepted if they can easily be edited out.

Invision subtitles (those which form a part of the video signal) are not acceptable. If these are found in the programme, footage without subtitles shall be provided so that the sequence or sequences in question can be replaced.

3.2 Audio:

Stereo, Prologic Surround or 5.1 surround sound.
Original mono is acceptable, track 1+2 dual mono final mix.

4 Children's programming:

4.1 Video:

16:9 FHA (Full Height Anamorphic)
4:3 Programmes originally produced in the 4:3 aspect ratio are acceptable.
14:9 letterbox is not acceptable.

Sequences without text are required, so that episode titles and credits can be translated into Danish.

Programmes with dubbing or lecturing in Danish shall be furnished with the necessary credits for the voices.

4.2 Audio:

Stereo, Prologic Surround or 5.1 surround sound.
Track 1+2 Final mix
Track 3+4 Music and sound effects (M&E)

Tracks with music and sound shall not be supplied with level changes ("deeped" sound) to accommodate narrations or commentaries.

The title melody and the like shall be furnished without vocals on the music and effects tracks.

5 Trailers & spots

5.1 Video:

16:9 FHA (Full Height Anamorphic)
4:3 Footage originally produced in the 4:3 aspect ratio is acceptable.
14:9 letterbox is not acceptable.

5.2 Audio:

DR prefers commentary/narration on tracks 1+2 (stereo) and music/sound effects on tracks 3+4. Alternatively, a stereo mix on tracks 1+2 is acceptable.

DR provides the narration for all trailers/spots.

DR does not accept any footage with narration or with changes in the sound levels ("deeped" sound) to accommodate narration.