



Discovery Channels Technical Specifications

For best audio and video performance please supply material that conforms to the following specifications:

	Digital Betacam	Beta SP
Alignment reference	Sony ZRP	Sony CR5 2BPS
Signal timing	625/50 (PAL)	
Output levels and timing	Aligned Sony DVW500P (or equivalent) should produce a CCIR 656 270Mbit/s signal which when converted to analogue produces PAL signal conforming to EBU specification.	According to EBU specification for component recording of PAL signals
Aspect ratio	4:3 or 16:9FHA	4:3 or 16:9FHA
Audio reference level	-18dB relative to max count (Headroom 18dB)	+4dBu, 5PPM
Audio alignment reference		Sony CR8 1BPS
Peak audio level	Reference +8dB, 6PPM	Not to exceed +8dBu, 6PPM (Dolby C noise reduction system)
Audio pre-emphasis	None	
Audio tracks	A1 & A3 left, A2 & A4 right Or Mono full mix	A1 & A3 left, A2 & A4 right or mono full mix

Format

- Audio should be supplied with Stereo Left (A1) and Right (A2) on Tracks 1 & 2. The stereo audio must be phase coherent.
- Dual Mono tracks are acceptable but both track 1 and track 2 must be identical and phase coherent.
- The audio recorded on the tape must be in sync with the video.

Reference Tone

- Audio tones to be used will be 1kHz at -18dBfs.
- This can be represented as "4" on a Peak Program Meter, "-18" on a digital bar graph or "-4" on a VU meter.
- For stereo promotions, track 2 (right) will be continuous, whereas track 1 (left) will have a break of 0.25 seconds in every 3 second period.
- Reference tone and promotion material must have been monitored using the same technical chain and monitoring equipment.

Peak Levels

- Peak audio throughout the promotion must not be in excess of -10dBfs ("6" on a Peak Program Meter, "-10" on a digital bar graph).

Time Code (SMPTE/EBU)

- Technical standards of timecode should conform to EBU specification N12-1994 (SMPTE 12M-1995).
- The time code should be 8-field (PAL) locked to video and should be continuous throughout the programme (including the header section)
- VITC is required on lines 19, 21, 332 and 334 only.
- The test signal should start at 09:58:30:00
- There should be a clock present 30 seconds before each spot.
- The first spot must start at 10:00:00:00.

Order of Recording

Recorded material must conform to the specifications outlined below:

Timecode	Duration	Video	Audio			
			Channel 1	Channel 2	Channel 3	Channel 4
09:58:30:00	60"	100% or 75% Colour Bars	1KHz	1KHz	1KHz	1KHz
09:59:30:00	27"	Clock or ident	Silence	Silence	Silence	Silence
09:59:57:00	3"	Black	Silence	Silence	Silence	Silence
10:00:00:00	Programme	Programme	Stereo L or Mono	Stereo R or Mono	As Ch.1	As Ch. 2
Prog. End	30"	Black	Silence	Silence	Silence	Silence

AUDIO: TECHNICAL INFORMATION

- The available Dolby noise reduction should be used at all times.
- No noise, static, dropout or extraneous distortion should be recorded onto the audio.
- Commentary and/or voiceovers should be checked for clarity ensuring they are free from sibilance, distortion or hiss.
- All audio tracks should be checked to ensure they are in sync with the video.
- Interstitial peak levels should not exceed +8dB above the nominal zero level which is - 18 DBFs (full scale decibels) or EBU 0 PPMs. Audio levels shouldn't peak at more than 6 PPMs or -12DBFs or +6 DBU (minimum peak 5.9 PPMs). Please try to keep the lower end of the volume (where sound is present) at a minimum of 2 PPMs if possible
- Audio levels should be consistent throughout the items and reflect the recorded line up.

VISION: TECHNICAL INFORMATION FOR QC – black/white level and luminance

- There should be no flashing image or repetitive patterns resulting in brightness changes affecting over 10% of the screen at a rate exceeding 3 flashes a second.

- Highly saturated red flashing is particularly dangerous.
- Vertical blanking should fall within EBU specifications (25 lines maximum)
- Horizontal blanking should fall within EBU specifications. $11.9\mu\text{s}$ or $-0.28\mu\text{s}$. The front and back porches should be $1.55\mu\text{s}$ and $5.8\mu\text{s}$ respectively.
- When encoded from the component master, composite video white level should not exceed 70mV , black level should not be below 0mV .
- Luminance levels should not be excessively clipped or crushed. Chroma levels should not exceed 770mV .
- All levels should bear reference to the recorded line up.