

# COMMERCIAL TECHNICAL DELIVERY SPECIFICATIONS AND REQUIREMENTS FOR NOVA TV.

Ver.1.0 November 2010.

## INTRODUCTION.

### Document Objectives

This document defines the technical standards for commercial materials that have been commissioned or contracted by NOVA TV for broadcasting.

The document is a compact reference for all those charged with delivering commercial materials - production staff, including technicians and producers, independent production companies and distributors providing commercial materials for NOVA TV. It set outs the technical requirements for delivery to ensure that delivered material is of a satisfactory standard.

### Technical Acceptance Procedures. QAR (Quality Assessment Review).

All materials delivered to Nova TV for transmission must be subject to a Quality Assessment Review prior to delivery.

As well, from Nova TV side, a Quality Control will be performed to every delivered material to ensure it meets the requirements set out in this document.

Nova TV retains the right to final acceptance or rejection of any materials delivered which does not pass the Quality Assessment Review, whether measured or subjectively assessed.

Any commercial failing to meet the required technical standards, will be referred back to the supplying production company.

Commercial must be delivered to Nova TV at least 48 hours prior its programed transmission in order to have enough time for rectification.

In case of issues about any commercial which does not fit the minimum acceptable technical requirement described in this document and there is not possibility to be fixed by the company-producer, then Nova's in-house team will try to fix the material. In this case additional charge of 100 euro /material would be applied to the company supplier.

If commercial is committed to be broadcasted by third part companies an additional requirement are described in appropriate appendix at the end of this document.

### Technical Liaison (Contacts):

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## GENERAL TECHNICAL REQUIREMENTS:

### Technical Quality Grading.

The ITU / CCIR 5 point grading scale is used to assess materials for quality for television transmission.

Overall quality of sound and vision shall be not less than Grade 4 of the ITU 5-point Quality Grading Scale:

**ITU-R Quality and Impairment Scale:**

Quality	Impairment
5 Excellent	5 Imperceptible
4 Good	4 Perceptible, but not annoying
3 Fair	3 Slightly annoying
2 Poor	2 Annoying
1 Bad	1 Very annoying

Grade 3 is a borderline pass where there are valid reasons for technical exemption, in which case details should be clearly stated on the recording report. Grades 1 and 2 are automatic fails.

### Delivery Formats:

Tape or file delivery are acceptable.

#### Tape Delivery Formats:

Digital Betacam and DVCAM are preferred tape formats.

Non-professional tape formats are not acceptable.

#### File Delivery Formats:

Material supplied as a broadcast video file should be of the format specified down-below .

The decoded file must play properly in PAL environment (avoiding illegal colors, white level clipping etc.) and conform fully to the video and audio technical specification as detailed in the Video and Audio sections in this document.

File format must be QuickTime (MOV), DV25, Selfcontained (embedded video and the 2 discrete audio channels relevant to the description in the audio section of the document).

**Video**

Resolution of 720 x 576

File Field Order -Lower Field First

Aspect Ratio 4:3

Frame Rate: 25fps

Codec: DV25

Bitrate: 25 Mb/s - Constant BR

**Audio** should be uncompressed

Sample rate 48 kHz

Format 16-bit integer Little Endian.

## Recording Reports

Every submitted material (tape or file) must be accompanied by a recording report, which must contain the following information:

Recording Report for video tape delivery:

- Title;
- Subtitle, version or additional info about the spot if relevant;
- Video and Color Standard (SD,PAL);
- Time Code Start;
- Duration;
- Audio Channels information
- Details of the commercial supplier and recording facility house (name; tel., email)

The Recording Report must be affixed to the top of the cassette as printed label version.

Recording Report for file delivery:

- Title;
- Subtitle, version or additional info about the spot if exist;
- Video and Color Standard (SD,PAL);
- File format (wrapper), Codec, bitrate;
- Duration (Start Of Message (SOM=first active frame of the spot) should be always 00:00:00:00) ;
- Audio Channels information;
- Details of the commercial supplier and recording facility house (name; tel., email)

The Recording Report must be a text file (.txt) in the same directory where the commercial spot is located.

If the material does not include a Recording Report it will automatically fail QAR.

### **Time Code:**

For tape delivered material, both longitudinal timecode (LTC) and vertical interval timecode (VITC on VBI lines pairs 19 and 21 and 332 and 334) must be recorded throughout the line-up and programme and comply with EBU specification. N12-1994

### **Tape Line-up Test signal and Leaders**

The tape recording should start by a countdown clock/line-up tone in the following format:

<b>Item</b>	<b>Time-code</b>	<b>Duration</b>
0 dB (PPM 4) 1 kHz tone [- 18dbfs for Digital tone]	09:58:40:00	00.01.00
Countdown clock / Slate	09:59:40:00	00.00.17
Black & Silence	09:59:57:00	00.00.03
1st Frame of Programme	10:00:00:00	

Nevertheless a commercial is delivered on tape or on file, the duration should be measured from the start of active video to the end of active video.

### **General Video Requirement:**

The picture is to be well lit and sharp unless specifically required otherwise to meet special artistic/production requirements. Skin tones should be natural with realistic color rendition, unless artistic considerations dictate otherwise.

Ensure the details in darker parts of the picture are visible.

The video signal shall be free of excessive black crushing and highlight compression. Transient response shall be such that ringing, smear and echoes are not noticeable. Moiré and other patterning shall not be visible. Hum, cross talk and other spurious signals should not be apparent.

All blanking, timings, amplitudes and bandwidths of video material shall not violate the relevant CCIR/ITU System specification.

If electronic titles are present, they must be placed within the picture "safe area" defined as 80% of the picture width and height to accommodate differences in picture areas displayed on domestic receivers compared to those on professional monitors.

The use of any video equipment, e.g. digital effects devices or overlay graphics must not introduce unintentional changes to neither luminance and chrominance levels nor cause perceptible timing shifts on entry levels or exit from the digital effect.

### **Technical Video Requirements:**

Although the bulk of materials generally is now produced and delivered digitally, the signals must still be compliant with analogue Video/Audio standards.

Nova TV accepts PAL, Standard Definition (SD), 625 lines, 25 frames/sec materials according to Recommendation ITU-R BT.601-5.

### **Aspect Ratio**

The Aspect Ratio format must be 4:3.

### **Safe Areas for Action and Captions:**

Action Safe Area – 90% of active width and 90% of height;

Caption Safe Area – 80% of active width and 80% of height;

### Video Level and Gamut (illegal signals)

Video levels including any line-up shall be received within the standard limits, so that the commercial material can be broadcasted without any additional adjustment and corrections.

Video levels/color signals must be legal in PAL and YUV domains meeting the PAL specifications. We require that signals meet the easier EBU Recommendation R103-2000:

Luminance limits: -1% and 103%

Chrominance 105% max - RGB values to not exceed limits -5% to +105%.

This means black shall lie no more than 1% below nominal black level.

Peak White shall lie no higher than 3% above nominal white level.

When decoded to RGB each component signal must not lie above 105% or below -5%

#### SMPTE/EBU N10 COMPONENT ANALOG VIDEO STANDARD (CAV) LEVEL SPECIFICATION FOR 100% COLOR BARS:

##### Luminance:

100%	700 mV
Max	700 mV
Min	0 mV
Range	700 mV

##### Chrominance:

Max	350 mV
Min	-350 mV
Range	700 mV
Sync Pulse Level:	-300 mV
P-P:	1 V

##### Composite Video Levels:

Luminance Level Max	700 mV
*Comb. Chroma & Luminance Max	934 mV
Sync Pulse level	300 mV
Set-Up	0 mV *

\*Please note that peak levels for combined chrominance and luminance are the maximum levels allowable per SMPTE/ EBU specifications and are intended only for spike peaks within program. Average program levels should remain near 800 mV.

### General Audio Requirements:

The audio shall be free of spurious signals such as noise, hum and cross talk. Sibilance and distortion wow and flutter shall not be apparent. The audio shall not show dynamic and frequency response artefacts as a result of the action of noise reduction or low bit rate-coding systems

No commercials with a dynamic range suited to Theatrical presentation (Cinema audio mix) will be accepted, as these are not suitable for the audio range required for broadcast. Audio signals must be suitable for reproduction in a domestic environment. Dynamic range should be restricted and changes in

loudness controlled so that the viewer has no need to adjust volume during or between commercials and programmes. All stereo recordings must provide good mono compatibility.

Stereo and Mono recordings must be recorded in correct phase.

Dynamic range shall not be excessive but at the same time excessive compression is strictly not acceptable. It shall be suitable for the whole range of domestic listening.

Normal speech should peak at around +4dBu (-14 dBFS; -5 DIN PPM), with shouting, loud music and/or effects peaking but not exceeding around +9dBu (-9 dBFS; 0 DIN PPM).

Many viewers still listen in mono. Commercial makers must check that the programme sound will be compatible with monophonic reception, particularly that the dialogue is fully comprehensible.

Care should be taken to ensure sufficient separation between dialogue and M&E (music and effects). Many listeners have hearing deficiencies that make dialogue difficult to follow if the level of M&E is too high.

The end of the commercial sound shall occur 0.5 seconds before the end of active video.

### Sound to Vision Synchronisation (Lip-synchronisation)

The relative timing of sound to vision shall not exhibit any perceptible error. As defined in ITU Rec. 562-3 (Ref: 6), audio shall not lead vision by more than 1 field (20ms) nor lag by more than 40ms. (40ms = 1 frame).

### Audio Levels - Reference Level (Line-up tone), Permitted Maximum Level, Measurement:

Audio levels, Line-up level and the Maximum Permitted Audio Level should conform to EBU R.68-2000, EBU Tech 3304, ITU-R BS.645-2 technical recommendations.

#### Measurement:

Audio Levels shall always be measured by Program Peak Meters (PPM).

Nova TV is using 2 types of– Type I DIN PPM scale (IEC 60268-10) and Digital PPM Scale (IEC 60268-18).

#### Reference Level:

Reference (Alignment, Line-up) Level is a 0dBu 1kHz tone signal placed on the headers of the recordings.

In digital domain, the Reference Level is defined as 18 dB below the digital peak (which is the maximum possible coding value (-18 dBFS) of the digital system, irrespective of the total number of bits available).

As different types of PPM scale are used, for your convenience, down below is shown the Ref Level reading on most popular PPM scales:

Digital Domain	Audio Domain		
Digital Scale IEC 60268-18	Type I (DIN PPM) IEC 60268-10	Type IIa (British PPM) IEC 60268-10	Type IIb (EBU scale) IEC 60268-10

0dBu, 1kHz, Ref. Tone Level	-18 dBFS	-9 dB	Mark 4	Test
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**Permitted Maximum Level:**

The permitted maximum of Peak Audio Level shall never exceed 9 dBu above the audio reference level. It means the commercial audio peaks should not exceed -9 dBFS on the Digital PPM Scale (=0dB on DIN PPM).

**Audio Channels:**

Commercials can be delivered in Mono or Stereo format on CH1/CH2.

Nevertheless the delivered commercial are on tape or on file, the audio tracks must conform to the following standard:

Stereo spots:

Track 1 (CH1) – Stereo Final Mix Left Channel;

Track 2 (CH2) – Stereo Final Mix Right Channel;

Mono spots:

Track 1 (CH1) – Mono Mix;

Track 2 (CH2) – Mono Mix ;

In case of mono delivered commercial, Track 2 must be in phase coherent with Track 1.

The recording report should state if the material is stereo or mono format.

Due to the rapid rate of technical development, use of specific equipment is constantly under review. This document will be subject to periodic updates to reflect this reality, but please consult your resource provider or persons given above for advice on specific issues.

Appendix 1:

## Commercial Delivery Requirement for Walt Disney channel:

Delivery format is broadcast video file.

Material supplied as a broadcast video file should be of the following format and conform fully to the video and audio technical specification as detailed in the Video and Audio sections in this document.

The file format must be:

### **QUICKTIME - .mov**

Self-contained QuickTime files IMX 30. Please export using the IMX 30 Codec(Mpeg 30i ).

### **Video**

Resolution of 720 x 576

Colour Levels 601/ 709

File Field Order Odd (Upper Field First)

Display Aspect Ratio Native Dimensions (if 4:3)

Frames 25fps

Millions of Colours

**Audio** should be uncompressed

Sample rate 48 kHz

Format 16-bit integer Little Endian.

### **Audio Track Layout:**

Track 1	Bulgarian Stereo L or Mono
Track 2	Bulgarian Stereo R or Mono
Track 3	M & E
Track 4	M & E

Copy submitted with mute tracks is not acceptable unless by prior agreement with Broadcast Operations at Disney

If materials are delivered without music & effects on the tracks 3&4 and the client is unable to furnish an acceptable music & effects track, Disney will place audio on the tracks with pre-cleared music of its own election. We will have to pass on (if any) costs incurred to the client for this service

### **LINE-UP SIGNALS**

Commercial audio signals must be accurately related to its associated line-up signal.

<b>Item</b>	<b>Time-code</b>	<b>Duration</b>
0 dB (PPM 4) 1 kHz tone [- 18dbfs for Digital tone]	09:58:40:00	00.01.00
Countdown clock / Slate	09:59:40:00	00.00.17
Black & Silence	09:59:57:00	00.00.03
1st Frame of Programme	10:00:00:00	

The leader clock or ident must show the Spot Title, subtitle, Aspect Ratio and duration.

10" picture freeze of the last active frame (without audio) must be cued at the end of the spot.