Technical Standards - High Definition (HD)

1. Scope

The standards defined in this document apply to all high definition programs, program Blocks and other high definition television content provided to the networks of JCC.These standards apply to **HD programs** delivered on Hard drives.

SUBJECTIVE IMAGE QUALITY
- For recent films, the images derived from a TV film must be free of scratches, dust, gelatine splashes, defects in the colorimetric correction trigger
- For older films, particular attention must be paid to dealing with defects in film and TV film copies
- As a general rule, the image must never have an excessive sound level, shiny defects, compression artefacts or faults due to the over-use of a noise-reduction process etc.
- The darkest scenes in the program must - in all cases – be viewable in an acceptable quality when they are screened on a "general public" television. Black areas must not be stuck or squashed and details must remain visible in dark areas.
- Credits at the end of the program must be legible on video (when applies)

2. JCC's Video standards

The broadcasted signal format is 1080i @ 50 fields as per EBU and ASBU Tech statement on High Definition (HD) image formats for TV productions. The HD video signal also conforms to the following normative references.

2.1 Digital Production & Recording Format:
The entire production process must be done using a Digital HD Camera and be recorded at a minimum bit rate of 100 Megabits/second. Material could be originated as progressive scan, but will be broadcasted as interlaced.

HDTV Video Modes	Aspect Ratio	Horizontal Resolution (Visible)	Vertical Resolution (Visible) (Horizontal lines)	Frame Rate(Hz)	Compression
1080i	16:9	1920	1080	50	4:2:2

3. Delivery Media (Files)

JCC requires that the HD material be provided on Windows formatted Hard drives (NTFS).

3.1 Wrapper/Codecs:
All content shall be delivered using QuickTime self-contained movie file, ".mov" extension.
Allowed codecs are :
QT ProRes 422, 422 (HQ)
DNxHD 120, 185, 185x

3.2 Audio tracks:

The movie file shall embed Original version tracks as per original production format (2.0 or 5.1)
The movie file shall embed M&E tracks as per original production format (2.0 or 5.1)

3.2.1 Audio/Video synchronization:
Video and audio signals must be in synch. The maximum permitted audio signal delay is ±20 ms.

3.2.2 Stereo Audio Tracks:
Stereo Channel and Music & Effect are mandatory and should be assigned as:

- Track 1: Full mix (Original or Arabic version)
- Track 2: Full mix (Original or Arabic version)
- Track 3: M&E (Music and Effects)
- Track 4: M&E (Music and Effects)

Nominal Level	Maximal Level	Maximum peak tolerance (short peak duration)	Differential Phase Left/Right	Audio Resolution	Sampling rate Sample\sec	Audio Class
+4dBu/-9PPM/ -18dBFS (0Vu)	+13dBu/0PPM/-9dBFS	+16dBu/3PPM/ -6dBFS	0 degree In-phase	24 bit	48 KHz	Stereo

3.2.3 [5+1] Audio Tracks:
Pending

3.3 Video format:
The movie file shall be delivered in its original frame size (pixels) and frame rate.

3.4 File name convention:
The file name shall include the program name. Other information may be added in the file name (i.e. codec, audio tracks format…) with a maximum of 64 characters. The file shall have ".mov" extension. "SPACE" is not allowed as a character in the file name. All "Space" shall be replaced by "_" (a.k.a. underscore)
I.e.: JCC_Program_ProRes_422.mov

3.5 TimeCode:
A continuous TimeCode track shall be embedded with the program file.
Line-up:
- 09:59:58:00 → 09:59:59:24 Black (@25 fps, otherwise one frame before 10:00:00:00)
- 10:00:00:00 first frame of the program

A 10 seconds black should follow the main program without audio

3.6 Ancillary folder:
An associated folder will be provided and will contains all the requested elements such as Textless, credits…
This folder will have the same name than the program file, without extension.
I.e.: JCC_Program_ProRes_422

3.7 Textless elements:
Textless elements shall be provided using the same specifications than the program file:
- Wrapper+codec
- Video resolution

- Frame rate
- TimeCode (accurate TimeCode synchronized with the program TimeCode)

Textless elements will be provided within the associated folder. Element naming convention:
"File_name"-VELxx.mov where 'xx' are 2 digits for the element number, with a maximum of 64 characters ('File_name' can be truncated) + extension.
I.e.: `JCC_Program_ProRes_422-VEL01.mov`

3.8 Audio elements:
In some cases, some audio elements may be required; for instance, when a song is part of the Original version and need to be translated. In that case, lyrics shall be provided within the "Credit" text document, and song (music tracks only) will be provided as a separate file, linear PCM format (WAV) 48kHz 24 bits (same as program audio tracks)

3.9 Credits:
A MS World document will be provided within the ancillary folder. This text document shall contains all original credits.
File name will be the same than the program file with ".docx" extension
I.e.: `JCC_Program_ProRes_422.docx`

3.10 MetaData:
All video and audio formats descriptors shall be accurate.
Others: PENDING

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