Delivery requirements for ITV Studios Global Partnerships Limited ("ITV Studios") Content

This document is a complete guide to the technical delivery requirements for producers submitting content to ITV Studios Global Partnerships for global distribution. Whether you are UK based or overseas, delivering a version for global distribution, a language version, or a home entertainment version, this document provides the technical delivery requirements, which you must fully comply with for each type of deliverable.

The document includes:

- Technical specifications, i.e. the technical production methods, which must be used and the parameters, which all content must meet to be accepted by ITV Studios.

- Picture and sound quality requirements, which also form a binding obligation on producers of content. Assessment of quality is by nature subjective, and is highly dependent on the nature of the content. Some of the quality requirements are expressed in relative terms ("reasonable", "not excessive" etc), and it will be necessary to make a judgement as to whether the quality expectations of the intended audience will be fulfilled.

- Delivery requirements, which specify the form and layout of the content.

Further technical guidance regarding compliance with this specification can be obtained from the following ITV Studios technical contacts:

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Emma Murphy Content Acquisitions Manager	emma.murphy@itv.com	(+44) 20 715 76128 (will divert to mobile)

This document outlines full details for global content delivery. The ITV Studios Global Content Operations team manage the delivery of programme assets for all content and are responsible for the acceptance of all master assets, ensuring all content has been delivered to the required technical standard. All content submitted for global distribution must satisfy a Quality Control process to the required standard. Content must be technically assessed by the production company prior to delivery which is a contractual obligation. Any assets found to be non compliant will be rejected at the point of delivery.

1 Video Technical Requirements

1.1 Video Formats

1.1.1 Ultra-High Definition (UHD)

Content delivered to this specification must be acquired, post-produced and delivered as follows:

3840 x 2160 pixels in an aspect ratio of 16:9[1].

The video frame rate should be as per the original source material. In all cases UHD content must be shot and delivered in progressive format.

Colour system must be YC_rC_b *only.*

Colour sub-sampled at a ratio of 4:4:4.

Colour space – ITU-R BT.2100[2]

Image dynamic range[3] parameters detailed in ITU-R BT.2100 must be agreed with the broadcaster before delivery.

The UHD format is fully specified in ITU-R BT.2100.

All UHD content should be acquired to allow delivery in HDR (see 1.2.2).

Note: The frame rate must be agreed with ITV Studios before shooting begins.

For images acquired at 50 frames, second vision mixer cuts and edits must occur so that the start of the first frame of the progressive video pair is aligned to the start of the first (upper) field of an interlaced video signal as defined by SMPTE ST2051.

For more details on UHD/HDR delivery see section 4.3.

1.1.2 High Definition (HD)

Content delivered to this specification must be acquired, post-produced and   delivered as follows:

1920 x 1080 pixels in an aspect ratio of 16:9 as defined in EBU Tech 3299 System 2. Please note 720p content is not acceptable as an HD format.

The video frame rate should be as per the source material. 23.98Psf, 24Psf, 25Psf, 29.97Psf, 50i and 59.94i are all permitted.

Colour sub-sampled at a ratio of 4:2:2.

Colour space – ITU-R BT.709.

The HD format is fully specified in ITU-R BT.709.

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[1] *Broadcasters may commission programmes in any of the three resolutions (7680 x 4320, 3840 x 2160, 1920 x 1080) defined in **ITU-R BT.2100**.*

[2] *Conventional reference primaries may be optionally used as described in **SMPTE 2036-1:2014** but this limits the images to a maximum of 60fps and does NOT permit HDR images. The reference primaries in SMPTE ST2036-1 are consistent with recommendation ITU-R BT.709 and their use MUST be agreed by the broadcaster BEFORE shooting commences.*

[3] *Details and an explanation of "image dynamic range" can be found in the ITU Report **ITU-R BT.2390**.*

1.2 Signal Parameters

In a video signal, each primary component should lie between 0 and 100% of the video range between black level and the peak level (R, G and B). Ideally, video levels should lie within the specified limits so that programmes can be distributed without adjustment.

When television signals are manipulated in YUV form, it is possible to produce "illegal" combinations that, when de-matrixed, would produce R, G or B signals outside the range 0% to 100%.

1.2.1 Video Level Tolerance

In practice it is difficult to avoid generating signals slightly out of range and it is   considered reasonable to allow a small tolerance. The RGB components and the corresponding Luminance (Y) signal should not normally exceed the "Preferred Minimum/Maximum" range of digital sample levels in the table below. Measuring equipment should indicate an "Out-of-Gamut" occurrence only after the error exceeds 1% of an integrated area of the active image.

For further details see the EBU Recommendation, EBU R103.

Any signals outside the "Preferred Minimum/Maximum" range are described as having a gamut error (or as being out of gamut). Signals cannot exceed the "Total Video Signal Range" and will therefore be clipped.

System	Range in Digital Sample (Code) Values		
System Bit Depth	Expected Video Range	Preferred Minimum/Maximum	Total Video Signal Range
10 bit (HD)	64 – 940	20 – 984	4 – 1019

Full range video levels must not be used for delivered HD content. Colour gamut "legalisers" should be used with caution as they may create artefacts that are more disturbing than the gamut errors they are attempting to correct. It is advisable not to "legalise" video signals before all signal processing has been carried out.

1.2.2 High Dynamic Range

ITV Studios GP HDR format is **Dolby Vision 4.0.2 (DV)** with associated metadata 'sidecar' file. Guidance for HDR programmes is detailed in section 4.3. ITV Studios GP must be consulted if you are not able to supply Dolby Vision.

The Recommendation ITU-R BT.2100 specifies two High Dynamic Range (HDR) methodologies: Hybrid Log Gamma (HLG) and Perceptual Quantisation (PQ).

Dolby Vision metadata analysis should be conducted on the rendered output from the grade e.g. DPX, TIFF sequence, not on the transcoded mezzanine file. This is due to compression artefacts potentially creating erroneous metadata results. Dolby metadata files must be validated using Dolby Vision Metafier before delivery.

DV utilises the full range bit depth. Although the DV specification allows for 10,000nits of luminosity, we require programmes limited to 1,000nits, therefore the video range is limited to 3068.

System	Range in Digital Sample (Code) Values		
System Bit Depth	Expected Video Range	Preferred Minimum/Maximum	Total Video Signal Range
12 Bit (Dolby Vision, 1000nits)	16 – 3068	N/A	16 – 4079

1.2.3 Blanking

Images must fill the active picture area. No 'blanking errors' are permitted on new, up-converted, or archive material.

A two-pixel tolerance is permitted during CG or complex overlay sequences where key signals, graphic overlays or other effects do not fully cover the background image. Where animated key signals or overlays cause moving highlights at the edge of the active image it is preferable to blank these pixels completely. A note of the timecodes and reasons for these errors should accompany the delivered programme.

1.2.4 Field Dominance

For HD programmes, cuts must happen on frame boundaries (i.e. between field 2 and field 1). Motion on PsF material must always occur between field 2 and field 1 (i.e. field 1 dominance).

If material is shot at 50 frames a second, the correct 2-frame marker phasing must be maintained when converting to 1080i/25 or 1080PsF/25.

1.3 HD Video Line-Up

HD content should conform to ITU-R BT.709 colour space and must use EBU 100% colour bars (100/0/100/0) that fill the 16:9 raster. SMPTE pattern bars are not acceptable. Programme video levels must be accurately related to their associated line-up signals.

1.4 UHD Video Line-up

UHD HDR content should conform to ITU-R BT.2100 colour space with PQ transfer function. ITV Dolby Vision UHD HDR bars should be used, please contact your ITV Studios Global Operations representative for further details.

1.5 Camera Specification

The EBU Recommendation EBU R118 is used to assess the suitability of cameras. Please contact the ITV Studios technical contacts named on the front of this document if there are any concerns about the suitability of a camera.

- Cameras for UHD programmes must be UHD Tier-1.
- UHD programmes can only be originated with progressive scan.
- Cameras for HD programmes must meet or exceed the parameters of HD Tier-2L.
- HD programmes may have originated with either interlaced or progressive scan (see Film Motion for additional guidance).
- Interlaced and progressive scan HD material may be mixed within a programme if it is required for editorial reasons or the nature of the programme requires content from a variety of sources. Please advise prior to delivery if this is the case.

The cameras used should be checked prior to production. The European Broadcasting Union (EBU) Recommendation EBU R118 has details of UHD cameras and acceptable sensor resolutions.

Please note all UHD content delivered to ITV Studios GP must adhere to the 3.8K UHD frame-size (3840x2160 pixels) and not 4K (4096x2160). A minimum of 8,294,400 photosites must be used to capture the image within the camera. All UHD content must have a wide colour gamut unless agreed in advance with ITV Studios GP.

Please ensure that you preserve the HDR picture information throughout the production and post-production process. You should shoot using a compatible file format (e.g. LOG/RAW). Post-production processes (e.g. editing, grading, VFX, etc) must also preserve the HDR picture information.

1.6 DSLR Cameras

DSLR cameras are acceptable for time-lapse sequences and stop-frame animation but are not currently suitable for use as video cameras unless they have a favourable EBU R118 test report. Exceptions can be made for covert shoots or dangerous locations at the discretion of ITV Studios who must agree to the use of DSLR cameras in advance of any shooting.

1.6.1 Drones & Remotely Operated Cameras

Cameras attached to these devices must meet the requirements in EBU R118 unless agreed in advance. Unless a drone or remote rig has adequate image stabilisers, it is recommended that the camera has a higher resolution than needed to allow electronic stabilisation to be carried out during post-production. Producers are required to ensure drones and other remote cameras are only controlled by fully trained and licenced operators bearing in mind the local and territorial restrictions and regulations.

Note: Broadcasters may have additional requirements for the use of drones and remote cameras as part of their editorial or health and safety guidelines.

1.7 Film for HD and UHD Acquisition

Super16 film is not considered to be HD or UHD no matter what processing or transfer systems are used.

The following 35mm film types and stock are acceptable for high definition acquisition:

- 3 perf - any exposure index although an exposure index of 250 or less is preferred.
- 2 perf - only if daylight stock with an exposure index of 250 or less is used.

To avoid causing problems with high definition transmission encoding, film should be well exposed and not forced more than one stop. 35mm stock (new or archive) scanned at UHD (or 4K and cropped to 3840) is usually acceptable for UHD production, but the entire capture, processing, scanning and post-production workflow must be agreed by ITV Studios in advance. Note: there are some circumstances where 35mm film is not suitable for UHD programme production.

1.8 Post Production

HD projects must be set to export progressively shot material as interlaced. Electronically generated moving graphics and effects (such as rollers, DVE moves, wipes, fades and dissolves) must be generated and added as interlaced to prevent unacceptable judder.

UHD projects are always progressive. Electronically generated moving graphics and effects (such as rollers, DVE moves, wipes, fades and dissolves) must be edited to prevent unacceptable judder. For 2160p/50 or higher frame rate deliverables, such effects must be edited at the full frame rate of the content. If content is intended to be delivered at 2160p/30 or lower frame rate, then this must be agreed with ITV Studios in advance.

1.8.1 Video Codecs used for Post Production

Post-production codecs used to edit HD programmes should be at least 160Mb/s. It is, however, acceptable to use the native camera codec provided the codec is constant throughout the production workflow.

1.8.2   Film Motion or Film Effect

It is *not* acceptable to shoot *1080i/25* and add a film motion effect in post-production. High Definition cameras can capture in either *1080i/25* or *1080p/25*. Where film motion is a requirement progressive capture is the only acceptable method.

Conversion from 50 progressive frames per second material to 25 progressive frames per second is permitted, provided that the frame conversion process does not produce excessive motion judder or image softening or visible frame blending, and that an appropriate shutter speed has been used. ITV Studios GP preference is always to take delivery of content in its native frame rate.

1.8.3   Frame Rate Conversion

To prevent image degradation, Motion Compensation standards conversion sometimes known as Motion Predictive or Motion Vector Conversion should normally be used.

Speed change is the preferred method of converting from 24fps (including 23.976fps) to 25fps. Due attention must be given to the audio.

Software standards conversion packages should also use Motion Compensation processing. It is not permitted to use simple "timeline" conversion. Contact ITV Studios GP for more information.

Below are the recommended processes for frame rate conversion.

- 24p and 24/1.001p to 25p - Speed change is the recommended conversion process.
- 24p and 24/1.001p to 50p - Speed change plus frame doubling.
- 30p and 30/1.001p to 25p - Motion compensation conversion required.
- 30p and 30/1.001p to 50p - Motion compensated conversion required.
- 60p and 60/1.001p to 25p - Not recommended, speak to the broadcaster if required.
- 60p and 60/1.001p to 50p - Motion compensated conversion required.
- HD 25PsF to UHD 25p - No conversion or de-interlacing required.
- HD 25PsF to UHD 50p - Frame doubling, no deinterlacing required.
- SD/HD 50i to UHD 25p - Use should be limited, deinterlacing.
- SD/HD 50i to UHD 50p - De-interlacing and frame doubling.

Deinterlacing processing should be carried out via a multi-field (five-field or greater) deinterlacer or a motion compensated deinterlacing.

Content acquired at 24 (24/1.001) fps which has been converted to 60 (60/1.001) interlaced or progressive via the "2:3 pulldown" process, should first have the repeated fields/frames removed to produce the original frame rate. The resulting video can then be replayed as above.

1.8.4   Use of Lower Resolution Images

To maintain a high standard and meet viewer expectations, the amount of content of a lower resolution is specified below. Lower resolution content must not be used for large uninterrupted sections of the programme, unless agreed by ITV Studios GP.

Programmes should conform to the following quotas:

Drama: 0-5% non Tier 1 UHD material.

Natural History: 25% non Tier 1 UHD material (target set across a series).

Documentaries: 25% non Tier 1 UHD material (no or limited use of archive sources).

Documentaries: 35% non Tier 1 UHD material (significant use of archive sources).

Percentages for other programme genres and any deviation requests from the above guide require prior approval from ITV Studios GP.

1.8.5 Non-UHD Material

Some UHD programmes will contain some content from standard definition and high definition originals and sources that do not meet the UHD requirements. This material is all called 'non-UHD' in this document. Non-UHD material includes content acquired using the following methods or formats:

- All SD and HD Formats.
- Cameras that do not meet the requirements of EBU R118 for UHD Tier 1.
- All codecs with bit rates below those specified in EBU R118 for UHD.
- Film that does not meet the required standard.

1.8.6 Non-HD Material

Some HD programmes will contain some material from standard definition originals, and sources that do not meet the HD requirements. This material is all called 'non-HD' in this document. Non-HD material includes and material acquired using the following methods or formats:

- HDV from all manufacturers.
- All codecs with bit rates below those specified in EBU R118 for HD Tier 2L.
- Cameras that do not meet the requirements of EBU R118 for HD Tier 2L.
- Material generated or processed on 720-line equipment.
- Film that does not meet the required standard.

1.8.7 Up Conversion to UHD

Archive or Lower Resolution (HD and SD) content will usually require de-interlacing and frame rate processing during up conversion to UHD.

It is usually best practice to convert SD or HD 60Hz standards to the equivalent SD/HD 50Hz standard before up conversion.

1.9 Picture Aspect Ratio

All programmes (except as below) must be delivered in full frame 16:9. This means that the active picture must fill a 16:9 screen vertically and horizontally without geometric distortion. ITV logos and branding are available in multiple aspect ratios and should match the programme content.

1.9.1 Non-Standard Aspect Ratios

If content is mastered in a widescreen aspect ratio (e.g. 1.85:1, 2:1, 2.35:1, 2.39:1), ITV Studios GP requires delivery of both the original master and an additional 16:9 full frame version. The picture within the original aspect ratio version should be delivered letterbox, the active image centred vertically between black bars in a 16:9 frame, filling the width of the frame, and with no geometric distortion.

1.9.2 Pillar Boxed or Mixed Aspect Ratios

Any pillar boxed or mixed aspect ratio material may be approved at the discretion of ITV Studios GP, notably for archive footage in non scripted content. Please contact your ITV Studios Global Operations representative to discuss.

Some 'pillar-boxed' material is acceptable at the discretion of ITV Studios GP where it has been acquired on a medium that has the capability to be transferred to a legitimate HD resolution, for example, 35mm film shot using 4 perf at an aspect ratio narrower than 16:9. The pictures must be centrally framed in a 16:9 raster with no geometrical distortion.

2   Safe Areas for On-Screen Text

All on screen text must be clear and legible and must be within the safe areas specified. All font sizes must be legible after down conversion.

16:9 is the safe area used by most UK broadcasters as defined in EBU R 95.

2.1   Text Size

Where burnt in UHD or HD text will be down converted, the minimum height of the text should be no less than:

- 40 HD lines/pixels (to be legible after down conversion).
- 80 UHD lines/pixels (to be legible after down conversion).

2.2   Subtitles for Non-English Original Language Assets

Programmes with non English dialogue should deliver clean video (without burnt-in subtitles), and a single burnt-in subtitled version for each episode, in the native aspect ratio (HD only).

ITV Studios GP also requires the subtitle to deliver as a separate subtitle file in an agreed format.

For further guidance on subtitles please see the ITV Studios Supplementary Delivery Specification

2.3   Safe Areas for UHD On Screen Text

Text Safe Area for 3840 x 2160 (Progressive)	Defined as percentage (%) of active picture	UHD pixels (inclusive) first pixel numbered 1	UHD Standards do not specify TV line numbers
16:9 Text Safe	90% of Width 90% of Height	192 – 3647 108 – 2052	- -
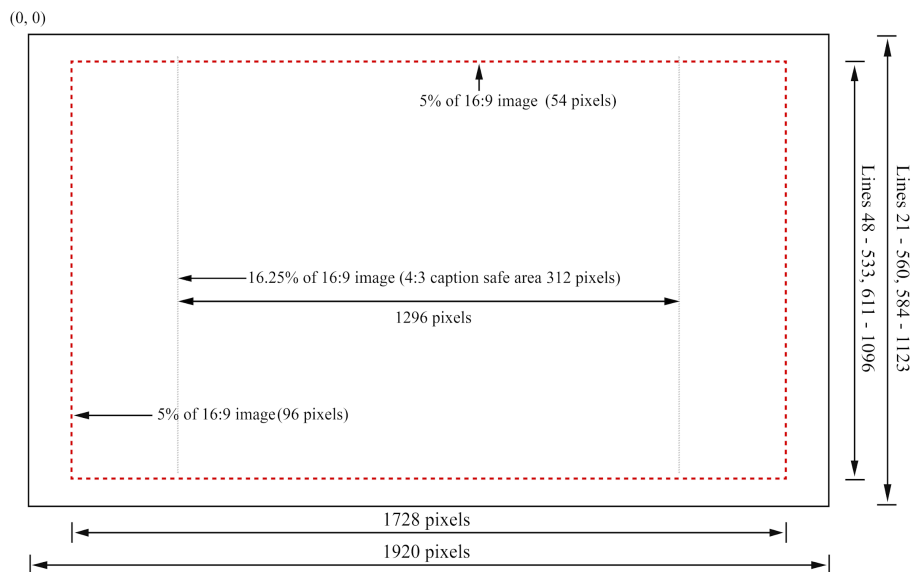
2.4   Safe Areas for HD On Screen Text

Text Safe Area for 1920 x 1080 (Interlaced)	Defined as percentage (%) of active picture	HD pixels (inclusive) first pixel numbered 1	TV line numbers (inclusive) line numbering as per "ITU-R BT.709"
16:9 Text Safe	90% of Width 90% of Height	96 – 1 823 54 – 1025	48 – 533 (F1) & 611 – 1096 (F2)
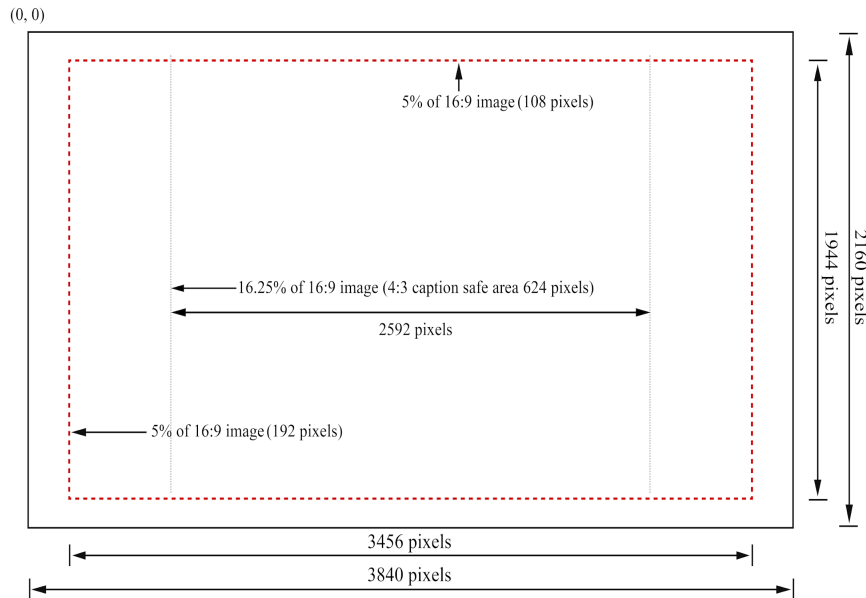
3   Audio Technical Requirements

3.1   Dialogue

There are many complaints about unclear dialogue. Remember that the audience has not seen the programme many times before and has not seen a script. The audience does not usually have "broadcast quality" audio reproduction equipment. It is the responsibility of the producer to ensure that dialogue is clear, easy to both hear and understand for a first time viewer who is using consumer equipment.

3.2   Loudness

All content must comply with the EBU Recommendation on Audio Loudness EBU R128 unless otherwise agreed. Content must have an average loudness range across the entire programme of -23LUFS ±0.5LU with a recommended true peak of -3dbTP. Peaks up to -1dbTP will be accepted. Content should not contain bleeps for offensive language as these will be added locally by each territory as required.

It is no longer acceptable to deliver new programmes which have been mixed to the old PPM6 specification. Programmes must be mixed to comply with EBU R128.

Although the target loudness is -23 LUFS, in exceptional circumstances, other target levels *may* be permitted by prior agreement. Other target levels must be agreed *before* the final mix.

3.2.1   Loudness Terms

R128 terms used in this document and how they are measured are listed on the following page.

Term	Description	Measurement	Reference
LU	Loudness Unit	1LU = 1dB change in loudness	EBU Tech 3343
LUFS	Loudness Unit relative to Full Scale	LUFS	EBU Tech 3343
LRA	Loudness Range	LU	EBU Tech 3343
Delivery Requirements			
Programme Loudness EBU Tech 3343	The loudness measured over the duration of the programme	LUFS	Non-live -23.0 LUFS ±0.5LU Live (including as-live) -23.0 LUFS ±1.0LU
Maximum True Peak EBU Tech 3343	The maximum value of the audio signal waveform	dBTP (True Peak)	Maximum true peak level should not exceed -1dBTP
Loudness Range is for Guidance Only			
Loudness Range EBU Tech 3342 & 3343	This describes the perceptual dynamic range measured over the duration of the programme	LU	Programmes should *aim* for an LRA of no more than 18LU
Loudness Range of Dialogue	Dialogue must be acquired and mixed so that it is clear and easy to understand	LU	Speech content in factual programmes should aim for an LRA of no more than 6LU A minimum separation of 4LU between dialogue and backgrou is recommended

3.2.2 Guidelines for True Peak Audio Levels

The following table is only for guidance on the true peak levels of different types of audio. At all times dialogue should be distinct and clear.

Material	Recommended Maximum Peaks
Uncompressed Music	-3 dBTP
Compressed Music (depending on degree of compression)	-10 dBTP
Heavy M & E (gunshots, warfare, aircraft, loud traffic, etc.)	-3 dBTP
Background M & E (office/street noise, light mood music, etc.)	-18 dBTP

3.3 Metering Requirements

Meters must comply with the specifications in EBU Tech 3341. Programmes must be measured using the EBU Integrated (I) mode and the measurement must be applied to the whole programme (EBU Tech 3343 Section 5). The optional LFE channel must be excluded from all measurements.

3.4 Stereo Audio Requirements

Stereo tracks must carry sound in the A/B (Left/Right) form.

If mono originated sound is used, it must be recorded as dual mono, so that it may be handled exactly as stereo, and flagged in advance to ITV Studios. It must meet all the stereo standards regarding levels, balance and phase.

3.4.1 Stereo Line-Up Tones

Each stereo audio pair must have EBU stereo line-up tone, this includes split tracks/stems. Tone must be 1kHz (2kHz is acceptable on M&E channels), sinusoidal, free of distortion and phase coherent between channels.

Digital Audio Reference level is defined as 18dB below the maximum coding value (-18dBFS).

3.4.2 Stereo Phase

Stereo programme audio must be capable of mixing down to mono without causing any noticeable phase cancellation.

3.5 Surround Sound Requirements

5.1 Surround sound should be delivered as discrete tracks. Content delivering surround sound must also carry a stereo mix meeting all requirements for stereo delivery.

In order for both the surround mix and stereo down-mix to comply with EBU R128 the down-mix should be normalised before layback.

Stereo and surround sound audio tracks must be synchronous.

If a Dolby Atmos mix is being produced, ITV Studios GP will take delivery, please contact your ITV Studios Global Operations representative.

3.5.1 Multichannel Audio Line-Up Tones

5.1 Channels should be identified using the BLITS tone sequence as defined in EBU Tech 3304.

3.5.2 AES Sample Timing

Very small timing differences between audio tracks in a surround programme will not be heard unless the stereo down-mix is monitored acoustically. An error of as little as one or two samples between the Left, Right and Centre channels can cause phasing and comb filtering for those listening in stereo.

Timing differences between audio channels must be no more than 0.2 samples (i.e. The timing between each channel of the six audio tracks of a surround sound signal).

3.5.3 Surround Sound Mixing Requirements

To help programme makers meet their responsibilities, it is important that both editorial and technical staff can easily and clearly monitor all transmitted audio during the production process.

In order to maintain a house style for certain programme types, or strands, ITV Studios may have particular requirements for the mixing mode as described below.

3.5.4 Dialogue in a Surround Mix

There are three modes for the placing of dialogue in a surround mix.

- *Mode 1* - All dialogue should be present in each of the three front channels – but this does not mean that the dialogue must be at equal level in each of the front channels. Mode 1 is generally more suited to the home listening environment.
- *Mode 2* - In-vision dialogue across the three front channels and out-of-vision dialogue in the centre channel only.

- *Mode 3* - All dialogue in the centre channel only. Mode 3 is similar to cinema mixing and as such may be the least suited to the home listening environment.

For details of the mode required for each programme type please discuss with ITV Studios Global Operations in advance of production.

3.6   M&E Audio Track Requirements

In order to effectively localise content, we will require the creation of Music & Effects tracks. Below are guidelines depending on the genre.

3.6.1   Guidance on the Provision of non-scripted M&E

- ITV accepts Final mix minus narration.
- No commentary, walla, extra readings or voice overs should appear on the music and effects tracks.
- For certain investments, ITV Studios may also require a fully filled Music & Effects track. Please check with your ITV Studios Global Operations contact.
- M&E tracks should be balanced (mixed) but the level should not be dipped for commentary, extra readings or voice overs (narration).

3.6.2   Guidance on the Provision of scripted M&E

- ITV only accepts fully filled music and effects.
- No partial M&Es, or M&Es containing only atmos will be accepted. This will be cause for technical rejection.
- M&E tracks should be balanced (mixed) but the level should not be dipped for dialogue or narration.
- Music split tracks should be supplied at a constant, unmixed and undipped level.
- Where characters perform songs on or off screen, please ensure this audio can be removed for dubbing purposes.

Please ensure that:

- Music and effects tracks are minus dialogue (including non English dialogue) walla, vocal and song performances.
- All singing must be provided as separate audio stems, unless commercial music by a recognised artist is used.
- All local language dialogue, i.e. languages other than that of the main show must be provided as a separate audio stem.
- Any overlapping dialogue such as when two different languages are spoken at the same time, or when dialogue is heard over a vocal song performance, must be provided split out and as a separate audio stem. If you have multiple languages, please check with your ITV Studios Global Operations contact.
- Separate stems must be free of any character/background voices, spoken either in the background or to camera.
- Footsteps and foley are supplied fully filled and include the atmospheric effects of crunching gravel, background atmos, etc.

3.6.3   Guidance on non-scripted M&E with scripted reconstruction

For programmes that contain both documentary and drama elements, please adhere to appropriate non-scripted and scripted guidelines above to create hybrid deliverables.

4   UHD/HD File Delivery Requirements

4.1   File Delivery Format

This section covers the requirements for delivery of UHD/HD files to ITV Studios GP. The delivery method used to upload programme files should be agreed in advance with your ITV Studios Global Operations contact. Each programme should be delivered as a single principal MOV file containing the audio and video. There must be one programme only on each file and each programme must be continuous unless otherwise agreed in advance.

4.2   File Delivery Upload Details

Your ITV Studios Global Operations contact will confirm the upload portal as part of the onboarding process. The Post Production facility name plus email address/es of the file uploader/s will need to be supplied in advance. QC documentation should be uploaded to the same portal. **Please upload all files individually, not in folders.**

If, at the point of upload you need a reminder of the upload portal, this can be sourced during normal business hours from **content.services@itv.com**.

Post Production facilities uploading files using Signiant will receive confirmation at the point of upload that their file has been successfully sent to ITV. It is the responsibility of the facility to inform production of successful upload.

In the unlikely event you experience issues uploading files to ITV, please email **content.services@itv.com**.

ITV Content Delivery Business Hours

Monday – Thursday 09:30 - 18:00

Friday - 09:30 - 17:00

4.3   UHD HDR

ITV Studios GP requires delivery of distribution assets at the highest quality. If a programme is being produced in UHD, the default expectation is delivery of UHD HDR master files. To allow ITV in-house creation of SDR servicing assets, we require the correct master file and metadata. e.g. ITV Studios GP can make UHD and HD SDR, when supplied with the correct master file and accompanying metadata.

Video Codec Profile	Apple ProRes 4444
Container	MOV (all files must have a .mov file extension)
Stream Type	QuickTime
Video Frame Rate	The video frame rate should be as per the original source material. 23.98, 24, 25, 29.97, 50, 59.94 and 60 frame rates are also all permitted.
Resolution	3840x2160
Scanning	Progressive
Bit Depth	Minimum of 10 bit, 12 Bit for Dolby Vision
Video Bitrate	Target bitrate of 1106Mb/s for 25p content
Video compression mode	*VBR
Video Colour Space	YUV (YCbCr)
Colour Gamut	ITU-R BT.2100 (same colour primaries as Rec.2020)
Mastering Display Colour Space	P3 D65
Mastering Display Calibration	1000 nits, SMPTE ST2084
HDR standard	Dolby Vision
Pixel Aspect Ratio	Square
Frame Structure	i-frame only
Intra Frame Distance	1
Chroma Sampling	4:4:4
Display Resolution	Display resolution must match original picture resolution within the MOV
Timecode & Colour Bars	Content should be delivered with a 10:00:00:00 timecode. Timecode should remain continuous and uninterrupted until the end of the recording. For native 23.98 or 29.97 content hour 01:00:00:00 timecode start is acceptable. ITV UHD HDR colour bars should be inserted at the header of the asset. Please check with your ITV Studios Global Operations contact for more details.

* If VBR encoding is not possible for any reason, please contact your ITV Studios Global Operations contact as soon as possible in advance of delivery.

4.3.1   Video Codec

The default video essence encoding is Apple ProRes 4444. Each UHD programme must be delivered as a single MOV file along with its associated XML metadata files.

4.3.2   HDR Format

The ITV Studios GP HDR format is Dolby Vision 4.0.2 (DV) with associated metadata 'sidecar' file. The DV dynamic metadata should be delivered as an .xml file and incorporate the SDR trim values PLUS the static (HDR10) metadata values stored as "Level 6" data. Please see 'Dolby Vision Metadata Levels' on the Dolby website. If the HDR-10 metadata cannot be delivered as part of a DV sidecar then it should be

delivered as a separate .xml, .txt or PDF file. See the example below. Ensure that the HDR-10 analysis is from first frame of programme to last frame of the main programme and does not include line up test patterns or clocks.

The static metadata report to include, but not limited to, the following parameters:
- Peak Luminance (determined by mastering display, limited to 1000nits)
- MaxCLL
- MaxFALL

```
<Outputs>
  <Output>
    <CompositionName>NAME OF PRODUCTION</CompositionName>
    <UniqueID>1d1fb5e8-e6b5-4dc8-ac2c-c6c1e439dd56</UniqueID>
    <NumberVideoTracks>1</NumberVideoTracks>
    <CanvasAspectRatio>1.77778</CanvasAspectRatio>          ──── Aspect Ratio e.g 16:9 raster with 2:1 letterboxed image
    <ImageAspectRatio>2</ImageAspectRatio>
    <Video>
      <Track>
        <TrackName>V1</TrackName>
        <UniqueID>c7ecd7a3-febe-4401-9747-6e883b5d9724</UniqueID>
        <EditRate>25 1</EditRate>
        <ColorEncoding>
          <Primaries>
            <Red>0.708 0.292</Red>
            <Green>0.17 0.797</Green>                       ──── Rec.2020 colour primaries
            <Blue>0.131 0.046</Blue>
          </Primaries>
          <WhitePoint>0.3127 0.329</WhitePoint>
          <PeakBrightness>10000</PeakBrightness>
          <MinimumBrightness>0</MinimumBrightness>
          <Encoding>pq</Encoding>
          <ColorSpace>rgb</ColorSpace>
          <SignalRange>computer</SignalRange>
        </ColorEncoding>
        <Level6 level="6">
          <MaxCLL>749.01</MaxCLL>                           ──── Level 6 HDR-10 metadata values
          <MaxFALL>194.48</MaxFALL>
        </Level6>
        <PluginNode>
          <DVGlobalData level="0">
            <MasteringDisplay>
              <ID>20</ID>
              <Name>1000-nit, P3, D65, ST.2084, Full</Name>
              <Primaries>
                <Red>0.68 0.32</Red>
                <Green>0.265 0.69</Green>
                <Blue>0.15 0.06</Blue>                      ──── Mastering Display P3, D65 values
              </Primaries>
              <WhitePoint>0.3127 0.329</WhitePoint>
              <PeakBrightness>1000</PeakBrightness>
              <MinimumBrightness>0.0001</MinimumBrightness>
              <DiagonalSize>42</DiagonalSize>
            </MasteringDisplay>
```

Care should be taken to ensure the MaxCLL, Colorspace and Gamut are correct and within the required specification. The correct aspect ratio (canvas and image) is also very important, e.g. 2:1, so that any letterboxing is ignored and does not skew the analysis. Brightness and Gamut tolerances should not be routinely adjusted, please inform your ITV Studios GP representative if this is required in order to pass.

Metadata files should be named to match their associated video file. Please see 5.3 for naming convention.

Dolby metadata files must be validated using [Dolby Metafier](#) before delivery.

Please take extra care that file header information on the ProRes master is correct - e.g. reads correct colour gamut. A Rec 2020 file with a header stating Rec 709 can cause incorrect file processing.

Any questions regarding Dolby Vision delivery, please talk to your ITV Studios Global Operations contact.

Regularly updated guidance on Dolby Vision metadata creation is available [here.](#)

4.4 High Definition Video Codec

The video essence encoding should be Apple ProRes 422 (HQ). Each high definition programme must be delivered as a single MOV file. HD video must be recorded with an active picture area of 1920x1080 pixels. When subsequently opened in QuickTime the display area should remain 1920x1080 pixels.

Video Codec Profile	Apple ProRes 422 (HQ)
Container	MOV (all files must have a .mov file extension)
Stream Type	
Video Frame Rate	50i or native frame rate if different to this. 23.98 PsF, 24PsF, 29.97PsF and 59.94i frame rates are all permitted. If your HD content has been progressively captured, then we would like to take delivery of the native progressive master rather than interlaced for downstream fulfilment.
Resolution	1920x1080
Scan Flag	As per source. Interlaced or Progressive. Mixed material may only be delivered with prior approval from ITV Studios GP. The file must be accompanied with a comprehensive schedule specifying the timecode of the relevant sections.
Bit Depth	10 bit
Video Bitrate	Typically 185Mb/s for 50i content (set by relevant encoding profile)
Video Compression Mode	*VBR
Video Colour Space	YUV (YCbCr)
Pixel Aspect Ratio	Square
Frame Structure	i-frame only
Intra Frame Distance	1
Chroma Sampling	4:2:2
Display Resolution	Display resolution must match original picture resolution within the MOV
Timecode	EBU timecode should be recorded on all materials. Timecode should remain continuous and uninterrupted until the end of the recording.

* If VBR encoding is not possible for any reason, please let your ITV Studios Global Operations contact know as soon as possible in advance of delivery.

- The file should be saved down at the full encoded resolution.
- The file should be saved down with the playhead at the start of the file.
- Edit Markers should not appear within the file.
- The file must not contain a Closed Caption track.
- The file must have the correct Pixel Aspect ratio values (pasp atom).
- The file must have the correct Color Parameter values (colr/nclc atoms).
- The file must have the correct Field Handling/Interlaced values (fiel atom).
- The file must not contain a value for the Aperture settings (clap atom).
- The file must not contain a value for the Gamma level (gamma atom).

4.5 Audio Codec

Audio must be delivered as uncompressed PCM within the QuickTime container. UHD programmes must be delivered with both stereo and surround sound (5.1) audio. 5.1 surround sound is the preferred audio configuration for HD content.

Audio Sound Format	Stereo and/or 5.1 Surround plus additional tracks as relevant
Sample Frequency	48khz
Audio Bit Depth	24 bit. Other bit depths by prior approval
Audio Codec	PCM (uncompressed) Big Endian or Little Endian
Audio Compression Mode	CBR
Audio Bitrate	1152 Kbps per channel (24 bit)
Audio Channel Configuration	Mono only

4.5.1 Audio Track Configuration

All audio channels must be stored as discrete tracks where each audio channel is stored as a discrete element within the .MOV container. ITV Studios GP mandates the delivery of 24 audio tracks. Any unused audio tracks must contain digital silence encoded as PCM audio. For programmes with stereo sound tracks only, Channels 5-16 must be encoded as digital silence and the additional audio elements specified on tracks 17-24 must be present. For 5.1 please follow the guidance outlined in the table below.

Each stereo audio pair must have EBU stereo line-up tone. Tone must be 1kHz (2kHz is acceptable on M&E channels), sinusoidal, free of distortion and phase coherent between channels. For programmes with stereo audio, stereo line up tone is required on tracks 1 to 4.

- **All** 24 audio tracks are mandatory and **must** be supplied (including 23 and 24).
- Any unused tracks **must** be encoded with digital silence.
- Each audio track must always contain the same content on the same channel.
- The content of channels 1 and 2 must be Final Mix Stereo Left and Final Mix Stereo Right.
- Where there is no narration, please discuss prior to delivery with your ITV Studios Global Operations contact. The preference (where there is no Optional Audio) is to place digital silence on channels 17 and 18, Dialogue L on channel 23 and Dialogue R on channel 24.
- Tracks **must** be laid out sequentially as documented below.

Channel		Configuration Name	QuickTime Audio Assignment
1	01	Main Stereo Left	Left
2	02	Main Stereo Right	Right
3	03	M&E or Mix Minus Narration Stereo Left	Left
4	04	M&E or Mix Minus Narration Stereo Right	Right
5	05	When 5.1 is Available Main Front Left	Left
6	06	Main Front Right	Right
7	07	Main Centre	Centre
8	08	Main LFE	LFE
9	09	Main Surround Left	Left Surround
10	10	Main Surround Right	Right Surround
11	11	M&E or Mix Minus Narration Left	Left
12	12	M&E or Mix Minus Narration Right	Right
13	13	M&E or Mix Minus Narration Centre	Centre
14	14	M&E or Mix Minus Narration LFE	LFE
15	15	M&E or Mix Minus Narration Left Surround	Left Surround
16	16	M&E or Mix Minus Narration Right Surround	Right Surround
17	17	Narration/Commentary	Mono
18	18	Dialogue (voices to camera)	Mono
19	19	Left Effects Only	Left
20	20	Right Effects Only	Right
21	21	Left Music Only	Left
22	22	Right Music Only	Right
23	23	Optional Audio*	Left / Mono
24	24	Optional Audio*	Right / Mono

*Contact ITV Studios Global Operations if you can provide optional audio tracks outlined in Section 3.6.2. e.g. songs.

5 Programme Master Layout

5.1 Textless elements, recaps and teasers

ITV Studios GP requires delivery of only Dual Purpose files (definition below).

Textless elements are required to localise effectively. Textless elements should contain ten frame handles and should be placed after ten seconds of black level following the main programme. Elements should be synchronous with those used in the actual programme.

Recaps and teasers should be delivered with the same audio configuration as the main programme. ITV Studios GP requires these to be delivered as additional elements at the end of the master following the main programme textless elements and not within the body of the programme. If this will not be editorially or creatively possible (eg. recaps are integrated) this must be pre-approved with ITV Studios GP. Please ensure these are not time specific (e.g. tomorrow, next week, etc). Textless elements for recaps and teasers must be supplied.

Textless elements must be fully VQC'd to ensure sync, picture grade and Dolby metadata values are correct.

Please ensure all texted elements are delivered and documented in the script(s) and music cue sheets.

Please flag if there are no recaps and/or teasers present for your programme.

Dual Purpose Definition

Fully texted programme, including:

Texted opening title sequence.

Texted main programme.

Texted end credit sequence.

Textless elements including opening titles, in-programme captions, closing credits, recaps and teasers.

5.2 ITV Studios GP File Naming Requirements

Production Numbers will need to be supplied by your ITV Studios Global Operations contact prior to delivery in order to generate file names and to add to the Clock. Any files received with incorrect numbering will be automatically rejected. Programme files delivered to ITV Studios GP must strictly follow the file naming convention laid out in section 5.3. Filenames must be in upper case, with filename extensions in lowercase.

5.3   File Naming Requirements – Programme Files

This specification allows for three potential deliverables for a programme under the same production number. Each deliverable must carry the appropriate two letter code at the end of the file name i.e. Dual Purpose (DP) as outlined below so the exact version can be clearly identified. Please ensure there are no spaces in the filename, using a hyphen where a space is required.

As outlined in section 1.9 of this specification, if a programme has been shot in a different aspect ratio other than 16:9 on creative grounds, then ITV Studios GP will require delivery of a 16:9 full height version for downstream fulfilment to other territories and platforms.

Given deliverables with different aspect ratios will be assigned the same ITV Production Number, we need to be able to clearly differentiate different aspect ratio content at the point of delivery. It is therefore extremely important you follow the file naming conventions detailed below.

Please note, if a programme file does not conform to the below file naming conventions the media will automatically be rejected and resupply will be required.

Please note the only place where slashes (/) should be replaced with dashes (-) is in the filename of your delivered programme file. Examples below:

    Production Number on Clock: x/xxxx/xxxx#xxx

Please note use of dash (-) not underscore (_) for all file names is mandatory as files will be rejected when using underscores.

 ITV Studios GP content should be delivered using the below file naming conventions.

UHD HDR Content File Naming Convention

UHD File Naming Convention for 16:9 Content	
Dual Purpose HDR Master	X-XXXX-XXXX-XXX-DP-UHD-HDR.mov
UHD File Naming Convention for 2.00:1 Content	
Dual Purpose HDR Master	X-XXXX-XXXX-XXX-21-DP-UHD-HDR.mov
UHD File Naming Convention for 2.35:1 Content	
Dual Purpose HDR Master	X-XXXX-XXXX-XXX-235-DP-UHD-HDR.mov

If delivering UHD SDR, please contact ITV Studios Global Operations.

HD Content File Naming Convention

File Naming Convention for 16:9 Content	
Dual Purpose HD Master	X-XXXX-XXXX-XXX-DP.mov
File Naming Convention for 2.00:1 Content	
Dual Purpose HD Master	X-XXXX-XXXX-XXX-21-DP.mov
File Naming Convention for 2.35:1 Content	
Dual Purpose HD Master	X-XXXX-XXXX-XXX-235-DP.mov

If delivering a V2 file (version 2), please use the original filename, adding -V2 to the end.
Example: X-XXXX-XXXX-XXX-DP-V2.mov

BWAV File Naming Convention

If ITV Studios GP has agreed to take delivery of .wav file/s, please use the following example:
X-XXXX-XXXX-XXX.wav

5.4   File Naming Requirements – QC Reports

The following QC Certificates must match the file name of the media asset which must include the appropriate suffix as outlined below with the PDF files electronically delivered via the same delivery method as the Master file/s as agreed with ITV Studios at on-boarding stage.

File Name as described in Section 5.3.

Automated QC Report:	FileName-AQC.pdf
Technical Assessment (Eyeball) Report	FileName-EYE.pdf

UHD HDR Content QC File Naming Convention

UHD File Naming Convention for 16:9 Content	
Dual Purpose HDR	X-XXXX-XXXX-XXX-DP-UHD-HDR-AQC.pdf
UHD File Naming Convention for 2.00:1 Content	
Dual Purpose HDR	X-XXXX-XXXX-XXX-21-DP-UHD-HDR-AQC.pdf
UHD File Naming Convention for 2.35:1 Content	
Dual Purpose HDR	X-XXXX-XXXX-XXX-235-DP-UHD-HDR-AQC.pdf

HD Content QC File Naming Convention

File Naming Convention for 16:9 Content	
Dual Purpose HD	X-XXXX-XXXX-XXX-DP-AQC.pdf X-XXXX-XXXX-XXX-DP-EYE.pdf
File Naming Convention for 2.00:1 Content	
Dual Purpose HD	X-XXXX-XXXX-XXX-21-DP-AQC.pdf X-XXXX-XXXX-XXX-21-DP-EYE.pdf
File Naming Convention for 2.35:1 Content	
Dual Purpose HD	X-XXXX-XXXX-XXX-235-DP-AQC.pdf X-XXXX-XXXX-XXX-235-DP-EYE.pdf

6 Programme Format

All content delivered on file must be laid out with elements in the following pattern relative to timecode. Content must be continuous without any commercial breaks or break bumpers unless otherwise agreed prior to delivery.

Timecode	Duration	Picture	Audio
09:59:30:00 •	20"	HD programmes must use 100% Bars (100/0/100/0)	Stereo Line-up tone 5.1 BLITS Line-up tone
		UHD HDR ITV Colour Bars	Stereo Line-up tone 5.1 BLITS Line-up tone
09:59:50:00*	At least 7"	Ident Clock or Slate	Silence
09:59:57:06 (optional)	*2fr*	*2 Frames minimum 50% white*	*1 Frame 1kHz tone (on first white frame)*
no later than 09:59:57:08	At least 2" 18fr	Black	Silence
10:00:00:00 *	-	Programme	Programme
xx:xx:xx:xx	7"	ITV Studios End Board (available to download here). Must be the same aspect ratio as the main programme.	Fade or cut to silence by the end of the programme
xx:xx:xx:xx	As required	Textless elements should begin 10 seconds after the End Board has faded to black.	Silence
xx:xx:xx:xx	As required	Recaps and/or Teasers should be placed 5 seconds after the textless elements and be supplied as shown in the Programme and as textless versions	Programme
* For native 23.98 or 29.97 content hour 01:00:00:00 timecode start is acceptable			

6.1 Clock or Static Slate

The clock may display telephone contact numbers for the post-production facility/production company, and may also include company branding.

The clock must provide a clear countdown of 10 seconds prior to start timecode including a hand moving in one second steps (i.e. not smooth motion) around a circular clock face.

Clocks that only have a digital countdown are not acceptable.

There must be no audio tone or Ident over the clock. The following must all be supplied:

- Programme Title and Number, Episode Title and Number (in original version language & any agreed English translation).
- Production Number.
- Duration: This must reflect the continuous version and is defined as the first frame of picture to the last frame of the ITV Studios animated end sequence.
- The VT clock or slate should cut to black and silence across all tracks at -3 seconds to programme start.
- Individual audio channel layout.

6.2 Graphic Packages

Clients will want to use all the graphic elements contained in the original programme to maintain high production values. As a result, ITV Studios GP may ask you to deliver additional graphics files. This requirement should be discussed in advance with your ITV Studios Global Operations contact.

Project Specifications

Ideally graphics files should be sent in Adobe After Effects® format. If you would like to send anything else, please discuss this with your ITV Studios Global Operations contact. After Effects® projects must be delivered in the native resolution, colour space, bit depth and frame rate. Square pixels must be used throughout. Project audio must have a sample rate of 48 KHz.

Rendered Output

After Effects® layers within projects must be split into two groups: editable text layers and background elements.

Editable text layers are any text that would ordinarily be expected to change during international language versioning. Editable text layers must be maintained as separate layers in the After Effects® project. Editable text layers may not have characteristics that are based on After Effects® 'Expression' functions.

Background elements are the underlying video, banners, and other elements that make up the backdrop for the editable text. All of these layers are required for the international language versioning process.

Two versions of each composition must be held within the project.

The first version must contain all the components required to create all the elements within the project. The second version must contain all background elements as pre-rendered video layers alongside all the editable text layers.

Please render all back plates, all elements that include third party plug-ins and any matte layers which would overlap an editable text layer.

Pre-renders must be rendered using Apple ProRes 4444®, ProRes HQ® or QuickTime® Animation codecs within a QuickTime® (.mov) wrapper. Pre-renders may be rendered as progressive video or as interlaced video with upper field first dominance.

Pre-renders must be rendered at native resolution.

Collecting After Effects® Projects

After Effects® projects must be 'collected' and pre-rendered prior to delivery. All files used in a project must be consolidated to the delivery directory using the After Effects® 'Collect Files' command. The 'Reduce Project' option must be selected.

The collection process gathers any media elements imported in the After Effects® project into a 'Footage' sub-folder. The collection report generated by After Effects® must also be included. This report must include a list of all third-party plug-ins used in the project. ITV Studios will reject graphics masters that have After Effects® projects without these elements.

Fonts

The collection report provided with the project must list all fonts that were used in the project. Please do not supply any fonts.

<u>Non After Effects® Graphics</u>

Graphics elements that contain moving video must be delivered as a single video layer. Multilayer elements must be flattened into a single layer, excluding any layers that contain text.

Native Resolution.

Field Dominance set to 'Upper' for files containing interlaced video Frame rate that matches the frame rate of the programme.

6.3   Censorship, Expletives and Bad Language

Please leave all audio and video free from bleeps, blurring and any other form of censoring. Most broadcasters prefer to locally edit nudity and language that may be considered to be offensive. This does not include bleeps and blurs that have been added for legal reasons. Please provide a documented time coded list of all instances of censorable material and upload alongside the other supplementary assets.

6.4   Subtitles / Closed captions

Where available, please supply subtitle / closed captioning files, which match the timecode of the master(s). Please advise of the format prior to delivery e.g. STL, DFXP, CAP, etc. For further guidance on subtitles please see the [ITV Studios Supplementary Delivery Specification](#)

6.5   Audio Description (Described Video)

Where available, please supply any available AD or DV audio. For format and specification please speak to your ITV Studios Global Operations contact.

7   Quality Control (QC)

Full QC requirements are outlined in [ITV STUDIOS GLOBAL PARTNERSHIPS QC REQUIREMENTS](#)

It is the responsibility of the production company to ensure programmes meet the technical and editorial requirements of the commission. ITV does not perform an eyeball QC on delivery. This responsibility includes ensuring the company carrying out the QC process has adequate industry recognised resources and standards.

7.1   General Quality

All programmes are expected to reach a high standard of video and audio quality. This does not mean low quality material cannot be used. Archive and specialist low quality material used in context is acceptable. If there is any doubt please contact ITV Studios Global Operations for advice.

7.2   Technical Assessment Of Programmes

Technical assessment requirements for UHD programmes must be conducted in accordance with the ITV Studios Global Partnerships 5 point grading specification. Please see [ITV Studios Global Partnerships QC Guidance document](#).

7.2.1 Tier One Full Technical Assessment to Include ITU 5 Point Grading Assessment

Tier One is ITV Studios highest level of technical assessment and is by definition a more rigorous level of technical assessment than tier two.

Asset	ITV Studios QC Requirements	Documentation
Dual Purpose File ProRes 422 (HQ) HD ProRes 4444 UHD / HDR	• Real time end-to-end eyeball technical assessment of sound and vision conducted in accordance with the requirements outlined in the ITU-R BT.500 5 Point Grading Recommendation. To include full check of stereo Left & Right audio tracks. • Full real time end-to-end check of M&E audio mix. • Check textless elements, recaps, teasers exist and are complete at the end of the asset if applicable. • AQC check to confirm pass in conformance with the parameters specified in the ITV Studios Global Partnerships QC Requirements specification. • Spot check of 5.1 audio tracks if applicable.	Visual QC Technical Assessment Report. AQC Report.

7.2.2 Tier Two Technical Assessment to Include ITU 5 Point Grading Assessment

The Tier Two category is defined as a broadcast quality technical assessment.

Asset	ITV Studios QC Requirement	Documentation
Dual Purpose File ProRes 422 (HQ) HD ProRes 4444 UHD / HDR	• Real time end-to-end eyeball technical assessment of sound and vision conducted in accordance with the requirements outlined in the ITU-R BT.500 5 Point Grading Recommendation. To include full check of stereo Left & Right audio tracks. • Spot Check of M&E Audio Mix Only. • Check textless elements, recaps, teasers exist and are complete at the end of the asset if applicable. • AQC check to confirm pass in conformance with the parameters specified in the ITV Studios Global Partnerships QC Requirements specification. • Spot check of 5.1 audio tracks if applicable.	Visual QC Technical Assessment Report. AQC Report.

Appendix A – Document Version Control

VERSION	DATE	SECTION	Reason for Update	OWNER
3.0	Sept 2018		First issue of document	Bill Brown
3.1	Jan 2019		Provided greater clarity around audio track labelling and configuration. Inserted file naming requirements for delivery of QC Reports. Inserted link to a separate document providing further guidance on GE AQC requirements. Consolidated GE QC ing requirements to provide greater clarity and removed references to PSE requirements in section 6.4.1	Bill Brown
3.2	Oct 2019		Provided greater clarity on video line-up in section 1.3. References to TVT removed and ITV Content Delivery inserted as the delivery destination for all GE files. References to multi-part programmes removed.	Bill Brown
3.3	May 2020		Document rebranded as ITV Studios. Delivery of one Dual Purpose master only, now mandated. Removed the requirement to deliver a texted & textless master. Change to file naming requirements. Removed requirement to assign/tag audio tracks. Removed BLITS tone requirement.	Bill Brown
3.4	Mar 2023	4 5.3 4.3.2 4.4 7 5.3 Throughout	UHD HDR10 preference replaced by UHD HDR Dolby Vision. UHD HDR file naming convention added. UHD HDR Video Codec and sample metadata report added. UHD HDR DV Bit Depth 12 Bit and Video Bitrate VBR specified. Updated QC guidelines link. V2 and .wav naming convention specified. Global Distribution rebranded to Global Partnerships.	Bill Brown
3.5	Oct 2024	4.2 6.1 Throughout 3.6 6 4.5.1	Supplier to not upload files in folders. Clock: Include series number / episode number and *all* specific audio channel contents. Updated all delivery guidance specifications documentation hyperlink. Clarity on levels not being dipped for commentary, extra readings or voice overs (narration). ITV Studios end board sequence must be the same aspect ratio as the programme. When a non scripted programme contains no narration/commentary, speak to ITV Studios Global Operations contact for audio channel guidance.	Justin Walton