



**Technical requirements for short form presentation and sponsorship items for S4C
March 2021.**

This document is a complete guide to the technical standards required for Short Form Broadcast items to S4C.

Specifically: Promotion Items, Break bumpers and Station Idents.

The Standards include:

- **Technical specifications**, i.e., the technical production methods which must be used, and the parameters which all material must meet to be acceptable by the broadcaster.
- **Picture and sound quality requirements**, which also form a binding obligation on producers of material. 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, and whether the broadcaster will feel that value for money has been achieved.
- **Delivery requirements**, which specify the form and layout of the material.

All content submitted for transmission must satisfy a quality control process specified by S4C. This applies equally to any promotional material or commercials supplied direct to S4C. Any content failing the QC process may be rejected and returned to the supplier for repair. Files must be delivered with a recognised auto QC report such as Baton or Vidchecker this must include or be accompanied by a PSE compliance report – this needs to be kept on file by the supplier and may be requested by S4C.

Technical responsibility and contacts:

General responsibility

S4C with its technical partners are required to ensure that content technical quality is maintained to a satisfactory and industry standard.

Any detailed technical queries should in the first instance be directed to the Chief Technical Officer at S4C via email – cto@s4c.cymru - all other enquiries please contact the Content Management Services Section, or visit the S4C production website:

<http://www.s4c.cymru/en/production/page/1154/guidelines/>

Technical liaison

The Media Control Team (MCT) can be contacted for technical enquiries affecting immediate delivery (defined as “on the day”) by email Wales-MCT@bbc.co.uk or telephone 02920119307 (they are available 0800 – 2200 weekday and 0800 – 2000 weekends and public holidays)

For all other enquiries please contact the Content Management Services Section, or visit the S4C production website: <http://www.s4c.cymru/en/production/page/1154/guidelines/>

File type requirements

Content files delivered to S4C for broadcast should be AS-11 DPP compliant unless by special agreement with the Broadcaster.

File Naming requirements

Files delivered to S4C for short form presentation or sponsorship items must be named thus.

Requested File Format	Example Filename	Notes
E.g. NAWXXXX	NAW1234	UID (Unique ID) will need to be requested from Anwen Thomas (Channel Supervisor).

File naming requirements – QC reports

The PSE

All report files will follow the same naming convention as the MXF media files with the report name as a further identifier after the underscore

The PSE Photo Sensitive Epilepsy Report= _PSE

The AQC Auto Quality Control Report = _AQC

The QC Eyeball Report = _EYE

Some AQC devices combine the PSE and AQC reports and others allow manual entry for comments from the Eyeball QC test. Broadcasters can accept all options as long as it is clear from the file name what is include

Quality Control (AQC, Eyeball QC and PSE) reports must be delivered as PDF reports and must have the same media ID and Version Number as the media file; as per below.

Requested Report Name Format	Example File Names	Notes
XXXXXXXX_PSE.pdf	NAW1234_PSE.pdf	PSE report. The Media ID (NAW1234) must be supplied by S4C
XXXXXXXX_PSE.pdf	NAW1234_PSE.pdf	AQC report. The Media ID (NAW1234) must be supplied by S4C
XXXXXXXX_EYE.pdf	NAW1234_EYE.pdf	EYE Report
XXXXXXXX_AQC_PSE.pdf Or XXXXXXXX_PSE_AQC.pdf	NAW1234_AQC_PSE.pdf	AQC a PSE report combined

Synopsis

The 256 character file synopsis should be in Welsh only.
Not mandatory for presentation or Sponsorship item.

All short form presentation and sponsorship content delivered on file must be laid out with elements in the following pattern relative to timecode:

Time-code	Duration	Picture	Sound
09.59.30.00	20"	EBU Bars (100/0/75/0 or 100/0/100/0)	Line-up tone
09.59.50.00	7"	Ident Clock	Silence
09.59.57.00 (optional)	2ffr	2 Frames peak white	1 Frame tone (on first video white frame)
09.59.57.00	3"	Black	Silence
10.00.00.00		Ident, Bumper or Sponsorship	Ident, Bumper or Sponsorship Silence by end
Freeze at end	5"	Freeze or 'living hold' after end	Silence

PLEASE NOTE THAT THE TIMINGS OF THE CONTENT HAS TO BE EXACTLY AS AGREED WITH S4C PRIOR TO DELIVERY – INCORRECT TIMINGS WILL BE REJECTED AND NOT TRANSMITTED.

S4C file delivery detail

We are unable to take delivery by tape – the preferred method is via Signiant however hard disk drives (HDD) can be accepted in certain circumstances but with prior written permission.

The media mxf and all the QC pdfs are normally delivered to S4C via the Signiant Programme delivery portal.

Signiant media shuttle accounts: -

You will require your own log-in to access the Signiant portal, all enquiries for a new account should be requested via at least 48hrs in advance via email to:- Signiant - S4C signiants4c@s4c.cymru (please note any old accounts linked to S4C Parc Ty Glas will not work).

Content

	Page
Technical responsibility and contacts	2
File type requirements	3
File naming requirements – QC reports	3
File layout (line up clocks etc)	4
File delivery details	4
1. GENERAL QUALITY REQUIREMENTS	6
1.1 Picture quality	6
1.2 Sound quality	6
1.3 Access for people with disabilities	7
2. TECHNICAL REQUIREMENTS – VIDEO	7
2.1 High definition format	7
Origination	7
Post-production	7
Film motion or film effect	7
Field dominance	7
2.2 Video line-up	8
2.3 Video levels and gamut (illegal signals)	8
Measuring signal levels	8
Tolerance of out of gamut signals	8
2.4 ‘Blanking’	8
2.5 Aspect ratio	8
2.6 ‘Cinemascope ratio’ letterbox	9
2.7 Photosensitive epilepsy (PSE)	9
Testing for flashes and patterning	9
PSE warnings	9
2.8 Safe areas for captions	9
16:9 Caption safe area	10
3. TECHNICAL REQUIREMENTS – AUDIO	11
Stereo audio requirements (r128)	11
Stereo line-up tones	11

1. General Quality Requirements

1.1 Picture quality

The picture must be well lit and reasonably but not artificially sharp.

The picture must be free of excessive noise, grain and digital compression artefacts.

The picture must be free of excessive flare, reflections, lens dirt, markings and obstructions (e.g. lens hood), and lens aberrations.

Movement must appear reasonably smooth and continuous, and must not give rise to distortions or break-up to moving objects, or cause large changes in resolution.

The picture must be free of excessive black crushing and highlight compression.

Hard clipping of highlights (e.g. by legalisers) must not cause visible artefacts on screen.

There must be no noticeable horizontal or vertical aliasing, i.e. jagged lines, field or frame rate fluctuations in fine detail.

Colour rendition, especially skin tones, must be consistent throughout, and a realistic representation of the scene portrayed unless it is altered as an editorially essential visual effect.

The picture must be stable and continuous - i.e. no jumps, movements, shifts in level or position.

There must be no visible contouring / artefacts caused by digital processing. Quantisation noise must not be apparent.

There must be no noticeable spurious signals or artefacts e.g. streaking, ringing, smear, echos, overshoots, moiré, hum, cross-talk etc.

1.2 Sound quality

Sound must be recorded with appropriately placed microphones, giving minimum background noise and without peak distortion.

The audio must be free of spurious signals such as clicks, noise, hum and any analogue distortion.

The audio must be reasonably continuous and smoothly mixed and edited.

Audio levels must be appropriate to the scene portrayed and dynamic range must not be excessive. They must be suitable for the whole range of domestic listening situations.

Stereo audio must be appropriately balanced and free from phase differences which cause audible cancellation in mono.

The audio must not show dynamic and/or frequency response artefacts as a result of the action of noise reduction or low bit rate coding systems.

3 Access for people with disabilities

The Equalities Act 2010 (formerly the Disability Discrimination Act) requires service providers to take positive steps to make their services accessible to people with disabilities. It states that where a service provider offers or provides services to members of the public, the provider will have to take such steps as is reasonable to make it easier for disabled people to make use of the service. Broadcasters are service providers and this therefore applies to them. (DCMS Guidance 2006).

Programme suppliers are therefore required to consider the needs of people with hearing or visual impairments while generating captions, subtitles and graphics, using voiceovers, and while mixing sound.

The Communications Act 2003 sets targets for broadcasters (monitored by Ofcom) to provide subtitling, sign language and audio description services, so suppliers may be asked to provide appropriate additional material.

For further information, please refer to the appropriate technical contact on the front page of this document.

2. Technical Requirements - Video

2.1 High definition format

All material delivered for UK HD TV transmission must be: 1920 x 1080 pixels in an aspect ratio of 16:9

25 frames per second (50 fields) interlaced – now known as 1080i/25. Colour sub-sampled at a ratio of 4:2:2

The HD format is fully specified in ITU-R BT.709-5 Part 2.

Origination

Material may be originated with either interlaced or progressive scan. Interlaced and progressive scan material may be mixed within a programme if it is required for editorial reasons or the nature of the programme requires material from varied sources.

Post-production

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.

Film motion or ‘film effect’

It is not acceptable to shoot in 1080i/25 and add a film motion effect in post production. Most 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.

Field dominance

Cuts in material 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).

Note – It is possible to shoot material at 1080p/50. If this is done, the correct 2-frame marker phasing must be maintained when down-converting to 1080i/25 or 1080psf/25.

2.2 Video line-up

Programme video levels must be accurately related to their associated line-up signals.

Video line-up must be colour bars of the type known as EBU 100% or 75% (100/0/100/0) or (100/0/75/0) and filling the 16:9 raster. SMPTE pattern bars are not acceptable.

2.3 Video levels and gamut (illegal signals)

High Definition digital signals will be assessed according to the recommendation ITU-R BT709-5 Part 2.

Measuring signal levels

Digital video levels are usually measured with a device which displays a trace like a traditional waveform monitor. This gives readings in mV (emulating an analogue signal), or as a percentage of the allowable levels.

The limits of signal levels are defined by reference to a nominal black level and a nominal white level. Black level comprises R, G and B all at zero (or 0% or 0mV) and white level is all three components at 100% or 700mV.

In a picture signal, each component is allowed to range between 0 and 100% (or 0mV and 700mV). This equates to digital sample levels 16 and 235 (8-bit systems) or 64 and 940 (10 bit systems).

Tolerance of out of gamut signals

In practice it is difficult to avoid generating signals slightly outside this range, and it is considered reasonable to allow a small tolerance, which has been defined as follows under EBU Rec103:

RGB components must be between -5% and 105% (-35 and 735mV)

Luminance (Y) must be between -1% and 103% (-7mV and 721mV)

Slight transient overshoots and undershoots may be filtered out before measuring, and an error will only be registered where the out of gamut signals total at least 1% of available area. Many monitoring devices do detect errors to this specification.

2.4 'Blanking'

HD images must fill the active Picture area (1920 x 1080 pixels). No 'blanking errors' are permitted on new, up-converted, or archive material.

However, a two pixel tolerance will be 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.

2.5 Aspect ratio

All high definition content must be delivered in 16:9 Widescreen. This means that the active picture must fill 16:9 screens.

26 Use of film for high-definition acquisition

Super16 film is not considered to be high definition 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.

27 Photosensitive epilepsy (PSE)

Flickering or intermittent lights and certain types of repetitive visual patterns can cause serious problems for viewers who are prone to photosensitive epilepsy. Children & teenagers are particularly vulnerable. All UK Television channels are subject to the Ofcom Broadcasting Code 2009 which states:

“Section 2: Harm and Offence:

2.12 Television broadcasters must take precautions to maintain a low level of risk to viewers who have photosensitive epilepsy. Where it is not reasonably practicable to follow the Ofcom guidance (see the Ofcom website), and where broadcasters can demonstrate that the broadcasting of flashing lights and/or patterns is editorially justified, viewers should be given an adequate verbal and also, if appropriate, text warning at the start of the programme or programme item.”

The Ofcom guidance is at:

https://www.ofcom.org.uk/__data/assets/pdf_file/0037/86788/section2- July15.pdf

Testing for flashes and patterning

All material delivery for TV broadcast must be tested using recognised file based PSE testing software for example Vidchecker or Baton. Any failure whatsoever will result in rejection of the material, and any affected sections must be repaired and re-tested before acceptance. Broadcasters will, at their discretion, either test the programme during the Quality Control process, or will require either indication of a Gordon pass, or a relevant Harding FPA pass certificate to be delivered with the tape.

PSE-broadcast warnings

Verbal or on-screen text warnings at start of programme may only be used in exceptional circumstances when:

The relevant content is completely integral and necessary to the context of the programme and, permission to use the relevant content has been cleared by the relevant broadcaster and documented in writing by those responsible for commissioning /editorial content.

Advance notification and planning requirements will vary by broadcaster.

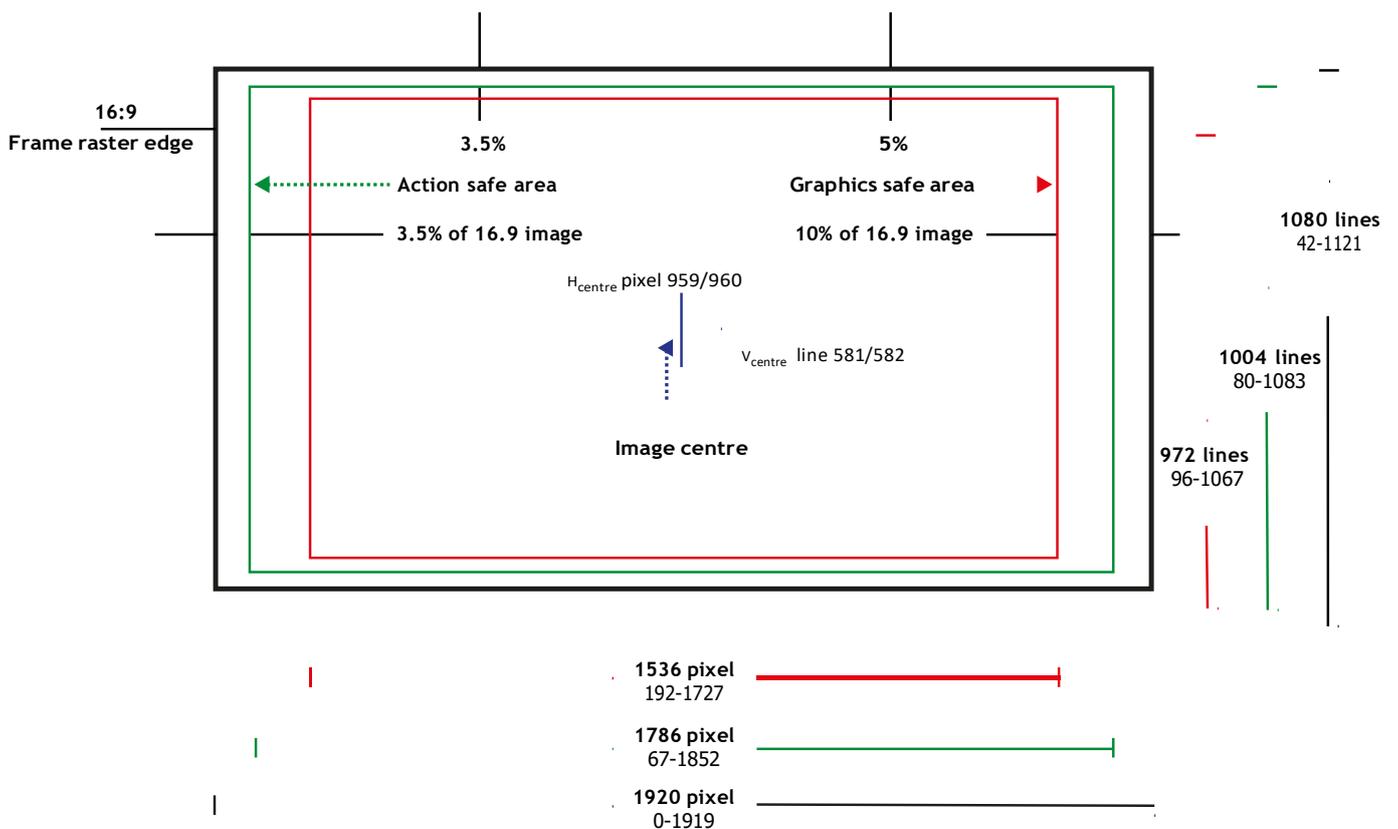
2.8 Safe areas for captions

Captions and credits must be clear and legible and must be within the safe areas specified. All font sizes must be legible as HD and also after down conversion for the SD viewer. To achieve this all-text characters must be a minimum height of 26 (HD) scan lines. There are three primary caption safe areas defined for 16:9 material for UK transmission:

16:9 suitable for digital-only transmission

Caption Safe Area	Defined as (%)	HD Pixel (inclusive) First pixel numbered	TV line numbers
* 16:9 Caption Safe	80% of Active Width 90% of Active Height	192 – 1727 55 – 1026	48 i 532 (F1) a 611 i 1095 (F2)

Safe caption and action 16:9



3. Technical Requirements - Audio

Stereo audio requirements

Currently all content must be delivered with Stereo audio.

If the content includes audio should conform to R128 for short form content Stereo tracks must carry sound in the A/B (Left/Right) form.

Stereo phase

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

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

Stereo line-up tones

All stereo tracks must use EBU 1KHz tone (left ident). All tones must be sinusoidal, free of distortion and phase coherent between channels.

Digital Audio Reference level is defined as 18dB below the maximum coding value (-18dBFS) as per EBU recommended practice R68.