S4C /

Technical Standards for Delivering Promotion and Presentation Items to S4C

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This document is a complete guide to the technical standards required for short form presentation broadcast items to S4C - specifically Promotion Items (also known as Promos or Trails), Sponsorship Stings, Break Bumpers and Station Idents.

<u>Please note:</u> for guidance on the delivery of commercials – please contact Axiom Media, S4C's airtime sales team. More information can be found on S4C's website: https://www.s4c.cymru/en/advertising-on-s4c.

The standards include:

Technical Specifications, i.e. the technical production standards which must be adhered to, and the parameters which all material must meet to be compliant with the standard for content delivery to S4C.

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 material. 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.

Technical Responsibility and Contacts

General Responsibility

S4C is required to ensure that technical quality of any delivered material is maintained to a satisfactory standard.

Any queries about presentation and sponsorship items, should, in the first instance, be directed to the Continuity & Presentation Lead. Contact details can be found on page 17.

Any queries about promotion items, should, in the first instance, be directed to the Promotional Content Coordinator. Contact details can be found on page 17.

Technical Liaison

Any detailed technical queries should, in the first instance, be directed to the Chief Technical Officer and Technical Manager via email – cto@s4c.cymru.

More information on delivery guidelines can be found by visiting the S4C production web site: http://www.s4c.cymru/en/production/page/1154/guidelines/

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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, echoes, overshoots, 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.

1.3 Access for People with Disabilities

There are two separate categories of obligations.

Firstly, the Equality Act 2010 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 under the Equality Act and this duty therefore applies to them, except in relation 'the provision of a content service'. In other words, editorial and scheduling matters are exempt.

Producers of promotion or presentation items 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.

Secondly, Ofcom's *Code on Television Access Services,* made pursuant to the Communications Act 2003, sets out requirements for broadcasters (monitored by Ofcom) to provide subtitling, sign language and audio description services, so suppliers may be asked to provide appropriate additional material.

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 as defined in EBU Tech 3299 S2
- 25 frames per second (50 fields) interlaced – known as 1080i/25, top field first.
- Colour sub-sampled at a ratio of 4:2:2
- Colour primaries should follow ITU-R BT.709

Origination

Material may be originated with either interlaced or progressive scan. Interlaced and progressive scan material may be mixed if it is required for editorial reasons, but this must be agreed with S4C in advance of delivery.

Post-production

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. Scan type should be the same across all footage.

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).

2.2 Video Line-up

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:

RGB components and the corresponding Luminance (Y) signals must be between -5% and 105% (-35 and 735mV).
This equates to digital sample levels 20 and 984 (10-bit systems).

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 Picture area. Many monitoring devices will detect errors to this specification.

For further details see EBU recommendation R103.

2.4 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 (December 2020). The full Ofcom guidance on Harm & Offence, including Photosensitive Epilepsy regulations, is available on Ofcom's website:

https://www.ofcom.org.uk/tv-radio-and-on-demand/broadcast-standards/section-two-harm-offence/

Testing for flashes and patterning

All presentation items, and all commissioned ('paid-for') promotion items, must be tested using any file-based PSE device that meets the guidance by Ofcom.

The DPP maintains a list of devices Broadcasters will, at their discretion, either test the material during the Quality Control process, or will require either indication of a pass, or a relevant FPA pass certificate to be delivered alongside the file.

A full list of compliant PSE testing devices can be found on the DPP website.

Company	Product Version	Algorithm
Interra	Baton v7.4 or later	ITU-R BVT.1702 2018
Cambridge Research Systems	Harding-FPA Desktop v3.5 or later	'Ofcom'
Vidcheck	Vidchecker v8 or later	Vidcheck PSE v5.1
Venera	Pulsar v4.3 or later	FPA v3.4

- PSE reports must be in pdf format and named according to the naming convention – set out on pages 12 & 13.
- The relevant PSE fields must be completed within the AS-11 file metadata.

PSE failures

Any failures within presentation items or commissioned promotion items must be repaired and re-tested before delivery. Presentation items or commissioned promotion items delivered with failures will be rejected.

Any failures in non-commissioned (sometimes known as 'ad-hoc') promotion items must be flagged to the Promotion Items Contacts on page 17.

2.5 Safe Areas

Captions 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 24 (HD) scan lines.
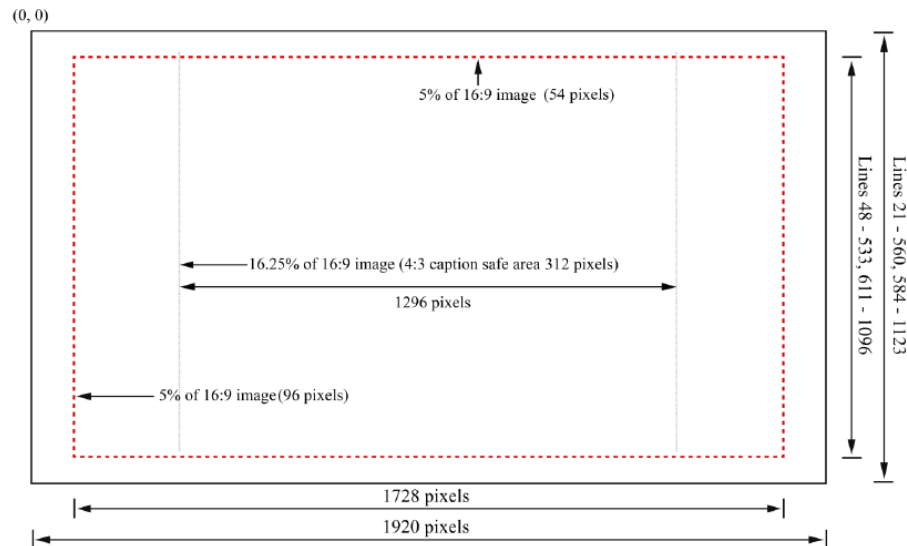
	Percentage (%) of active picture	HD pixels (inclusive)	TV line numbers (inclusive)
16:9 safe	90% of Width 90% of Height	96-1823 54-1025	48-533 (F1) & 611-1096 (F2)

Graphics on Promotion Items

S4C will internally embed a 'bug' (S4C logo in the top left-hand corner) throughout the item. The bug will sit within the 16:9 safe area listed above.

For certain promotion items, S4C will also internally embed a 'call to action' (containing information pertaining to the programme i.e. website information, TX slots etc) to the last 5 seconds of the promotion item.

An example of an S4C 'call to action' wipe and bug can be seen below.
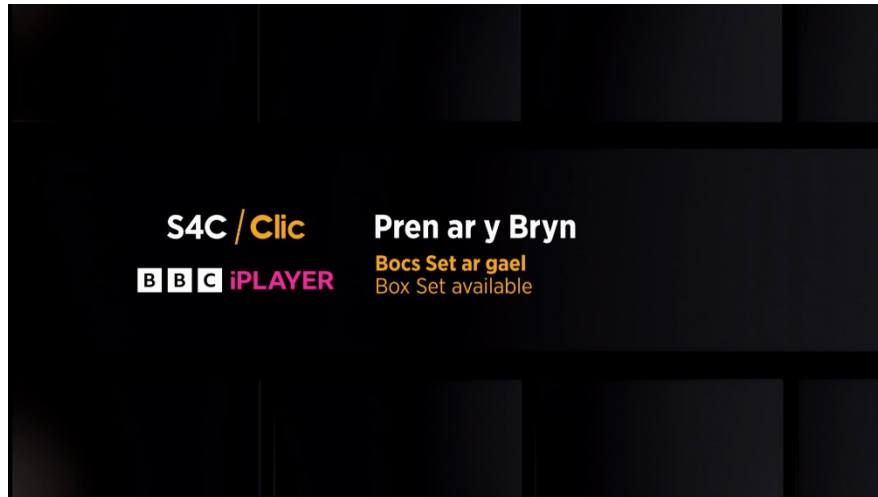
Please note that occasionally, the 'call to action' may be a full-screen graphic (i.e. highlighting availability on S4C's video-on-demand services).

Any voiceovers or music should continue to the very end of material whilst considering the last 5 seconds of vision will not be seen by the audience.

An example of a full-frame 'call to action' can be seen below.

3. Technical Requirements – Audio

It is no longer acceptable to deliver new presentation and promotion items mixed to the old PPM6 specifications. Items must be mixed to comply with EBU R128.

3.1 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. It must meet all the stereo standards regarding levels, balance and phase.

All promotion or presentation items must be compliant with the Material Loudness and Maximum True Peak requirements below. All promotion or presentation items must also be compliant with EBU recommendation on Loudness (EBU R128).

Our main aims are to ensure that dialogue is always clear and not compromised by music and effects, that all content seems to be the same volume and therefore the viewer does not have to keep adjusting their volume.

3.2 Material Loudness

The target loudness, measured over the duration of the material should be as follows:

- Non-live: -23.0 LUFS (±0.5LU)
- Live (& as-live): -23.0 LUFS (±1.0LU)

In exceptional circumstances other target levels may be permitted if agreed by S4C.

The Loudness-to-Dialogue ratio should not exceed 5 LU.

3.3 Maximum True Peaks

It is recommended that the maximum true peak level should not exceed -3dBTP.

The following table is guidance on the true peak levels of different types of audio:

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**

3.4 Stereo line-up tones

Each stereo audio pair must have either EBU stereo or GLITS line-up tone (not a mix of both). Tone must be 1kHz. 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).

3.5 Stereo phase

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

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).

3.6 Audio Channel allocations

HD files must contain 4 or 16 channels of audio. Every audio channel should be in a separate essence track.

The EBU R48 or R123 code must be included in the metadata.

Audio Track Numbers					
EBU Reference	Material Type	1	2	3	4
R48:2a	Stereo	Stereo Final Mix L	Stereo Final Mix R		
R123:4b	Stereo with M&E	Stereo Final Mix L	Stereo Final Mix R	Stereo M&E L	Stereo M&E R

Unused channels should contain digital silence.

3.7 Surround sound (5.1) audio

S4C does not currently accept promotion or presentation items with 5.1 audio.

4. Technical Requirements – File Delivery

All promotion and presentation items delivered to S4C should be AS-11 UK DPP HD compliant, following the UK standard set by the DPP, unless by agreement with S4C.

Please note: Exceptions and amendments to this specification apply for production companies supplying materials to S4C Editors for the creation of promotion items. Please read Section 4.7 (Delivery of Promotion Rushes) for more information.

Under the AS-11 UK DPP HD specification, promotion and presentation items are expected to be encoded as AVC Intra Class 100 – equating to an actual video essence data rate of approximately 113Mbits per second.

All audio tracks must be encoded as PCM with a sample rate of 48kHz at a depth of 24bits/sample.

Deliverables should be wrapped as MXF (Media eXchange Format) files.

Accompanying QC reports should be delivered as PDF files.

4.1 Naming Requirements

It should be noted that the DPP/AS-11 format specifies that every deliverable must have a unique production number in the metadata. It is important that this is adhered to.

The field for the AS-11 production number must follow the below format - depending on what type of material is being produced and delivered.

Type of Material	Production Number Format	Example Filename
Promotion Items	**YYWWXXXX**	25010101
Sponsorship Stings	**NAWXXXX**	NAW1234
Break Bumpers	**ADBKXXX**	ADBK123
Station Idents	**IDXXXX**	ID1234

All production numbers will be issued by S4C only. Please contact the Continuity and Presentation Lead for more information. Contact information can be found on page 17.

Promotion or Presentation Files

The Requested File Name is now the same as the AS-11 production number, conforming to the DPP/AS-11 standard;

Type of Material	Requested File Name Format	Example Filename
Promotion Items	**YYWWXXXX.mxf**	25010101.mxf
Sponsorship Stings	**NAWXXXX.mxf**	NAW1234.mxf
Break Bumpers	**ADBKXXX.mxf**	ADBK123.mxf
Station Idents	**IDXXXX.mxf**	ID1234.mxf

QC Reports

All reporting files will follow the same naming convention as the MXF deliverable, with the report name as a further identifier after the underscore.

- The Photosensitive Epilepsy (PSE) report = _PSE
- The AQC report = _AQC

Some AQC devices combine the PSE and AQC reports. S4C accepts all options, as long as it is clear from the file name what is included.

Quality Control (PSE and AQC) reports must be delivered as PDF reports and must state the same Production ID as the promotion or presentation file;

| Requested Report Name Format	Example Filename
XXXXXXXX_PSE.pdf	**NAW1234**_PSE.pdf
XXXXXXXX_AQC.pdf	**NAW1234**_AQC.pdf
XXXXXXXX_AQC_PSE.pdf	**NAW1234**_AQC_PSE.pdf

4.2 Timecode

All items delivered on file must be laid out with elements in the following pattern relative to timecode:

Timecode	Duration	Picture	Sound
09:59:30:00	20 secs	EBU bars (100/0/75/0 or 100/0/100/0)	Line-up tone
09:59:50:00	7 secs	Ident clock	Silence
09:59:57:00 *(optional)*	2 frames	2 frames peak white	1 frame tone (on first white video frame)
09:59:57:00	3 secs	Black	Silence
10:00:00:00	**Start of Material**		
End of material hold	5 secs (minimum)	Freeze or 'living hold'	Cut to silence

Please note: the timing of content must be exactly as agreed with S4C prior to delivery. Incorrect timings will be rejected and not transmitted.

When delivering promotion items to S4C, please confirm the exact duration of your promo with the Promotional Content Coordinator, and confirm whether bars and ident clock are required.

The start of material must be 10:00:00:00, and there must be at least 5 seconds of freeze/vision hold after the last frame of material. All promotion or presentation items should include 6 frames of **audio** silence at the start (10:00:00:00) and end of the 'essence' (intended transmission material).
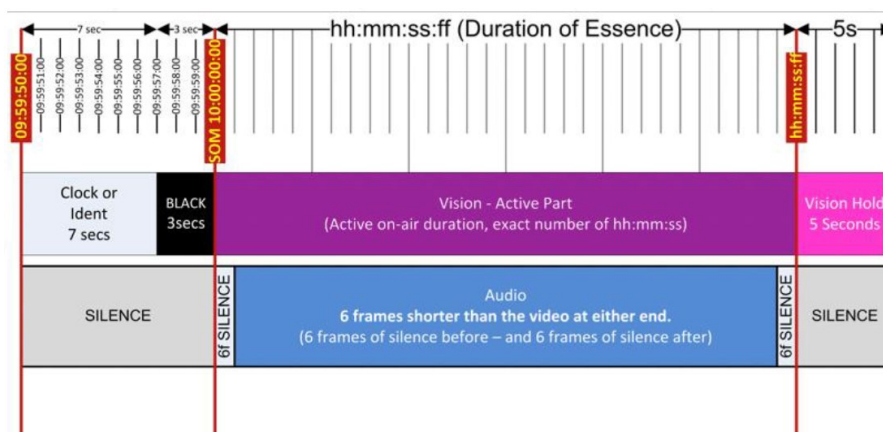
4.3 The Ident Clock

Unless agreed by S4C, a countdown clock clearly displaying the following information must precede the start of the promotion or presentation item:

- Production number (in full)
- Title of promotion or presentation item
- Duration

If re-delivering content, these details must be amended accordingly.

The clock must provide a clear countdown of at least 7 seconds, including a hand moving in 1 sec steps around a circular clock face.

There must be 3 seconds of black and silence between the ident clock and the material. Clocks with only digital countdown are not acceptable.

There must be no audio tone or ident over the clock. The clock may also display telephone contact numbers for the post-production facility and production company.

4.4 Uploading Material to S4C

The promotion or presentation MXF file, and all accompanying PDF files, are normally delivered to S4C via Signiant Media Shuttle. This service is currently managed by S4C's technical services provider, BBC Cymru Wales.

The MXF file and documentation should be uploaded to S4C's Signiant portal contained in a folder that is named following the applicable Production Number Format, i.e.:
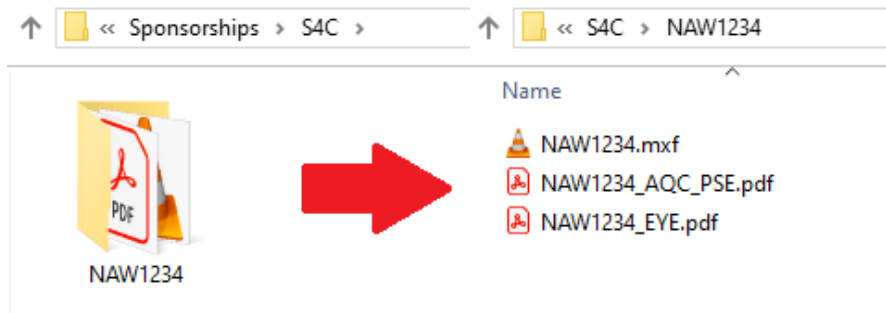
Companies will need to onboard onto the Signiant platform before delivering.

Please contact CSqFileDelivery@S4C.cymru for more information.

Please note: no promotion and presentation items, or corresponding material, cannot be delivered to the S4C Television Programme Signiant portal. You must ensure you are delivering to the correct portal.

If required, alternative arrangements for file delivery must be agreed and discussed with S4C in advance.

For presentation items, contact the Continuity and Presentation Lead.
For promotion items, contact the Promotional Content Coordinator.

All contact information can be found on page 17.

4.5 Intentionally Quiet Presentation Items

Presentation items delivered lower than the target level of -23LUFS should be regarded as the exception, and not the rule.

Content destined for playout at lower than the target level of -23LUFS requires special attention to ensure it passes through processes properly and unharmed.

Before delivering intentionally quiet presentation items, the Production Company should endeavour to alert S4C and any relevant third parties with as much notice as possible.

4.6 Access Services

For presentation items, the Producer should contact both the Continuity & Presentation Lead and Access Services Lead to inform them of the intention to deliver with subtitles/with audio description before the delivery of material to S4C.

For promotion items, the Producer should contact both the Promotional Content Coordinator and Access Services Lead to inform them of the intention to deliver with subtitles/with audio description before the delivery of material to S4C.

Subtitles and audio description must not be delivered 'burnt in'. Any access services elements should be delivered separately, as a sidecar/auxiliary file.

4.7 Delivery of Promotion Rushes

If S4C are compiling promotion items (i.e. 'promos' or 'trails') for a programme internally, as opposed to commissioning a promotion item from the production company, the Production Company may be asked to supply rushes or extra material to S4C Editors.

All content supplied to S4C should follow the AS-11 UK DPP standard:

- AVC-Intra Class 100 (approx. 113Mbps)
- MXF file wrapper
- 1920x1080 25fps interlaced
- Stereo PCM audio, 48khz 24-bit.

However, S4C may also accept commonly used broadcast quality formats (such as Apple ProRes 422) on request, if agreed in advance.

Please note: S4C does not accept delivery of project files/media bins/consolidated media from any non-linear editors (Avid, Premiere Pro etc).
All rushes or extra material must be exported as a video file before sending to S4C.

4.8 Live Promotion Items ('Trails')

Occasionally, S4C will request that a live promotional item – sometimes referred to as a 'trail' - is recorded and provided for a programme transmitting shortly afterwards.

All live promotions should follow the standards set in section 6 (Technical Requirements - Live Broadcasts) of the 'Technical Standards for Delivering Programmes to S4C' document. This document can be found on S4C's production website.

Where possible, an ident clock should be used and the material should be followed by 5 seconds of black to mark the end of the material – however, S4C accepts that this may not be practical in live broadcast situations.

Please confirm arrangements with the Promotional Content Coordinator ahead of delivery. Contact information can be found on page 17.

Contact Information

Broadcast and Distribution Contacts:

Anwen Thomas, Continuity and Presentation Lead
Anwen.Thomas@s4c.cymru **–** 07966 217992

Alessandro De Filippo, Technical Manager
Alessandro.DeFilippo@s4c.cymru **–** 07703 751653

Siwan Phillips, Head of Content Operations
Siwan.Phillips@s4c.cymru **–** 07786 702311

Steve Cowin, Chief Technical Officer
Steve.Cowin@s4c.cymru **–** 07788 448210

Promotional Items Contacts:

Glenwen Jones, Promotional Content Coordinator
Glenwen.Jones@s4c.cymru **–** 03305 880510

S4C Editors
GolygddionEditorsS4C@s4c.cymru

Access Services Contacts:

Meleri Wyn Flint, Access Services Lead
Meleri.Wyn.Flint@s4c.cymru **–** 07740 703589

For any information regarding font, placement of closing credits, copyright notices etc - please refer to the S4C Brand Guidelines on the Production website.

http://www.s4c.cymru/en/production/

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