

1. SCOPE

This Operational Practice recommends the format and quality of video and audio associated with the delivery of SDTV and HDTV commercials to the Australian Terrestrial Broadcast Industry. Its reference is to product of both film and video camera origin.

2. DEFINITIONS

2.1 Standard Definition

2.1.1 Standard Definition is a 625 line, 25 frames per second, 2:1 interlaced signal produced in agreement with the specifications of ITU-R Rec. BT 601 (as revised).¹ The aspect ratio shall be a full height 16: 9 image. An image aspect ratio of 4:3 may be accepted for "pillar boxed" archival type material.

The associated audio signal should be a Dolby Surround (Pro Logic II) encoded stereo pair with the centre and surround information encoded into the Lt and Rt signals. For archival material a stereo pair may be accepted.

2.2 High Definition

2.2.1 High Definition is a signal produced in agreement with the specifications of ITU-R BT. 709-4.²

2.2.2 The aspect ratio shall be a full height 16: 9 image. The preferred video format for the exchange of commercial material is:

1125 lines total per frame
1920 horizontal pixels by 1080 active lines
25 frames per second, 2:1 interlace

2.2.3 The associated audio signal should be 6 discrete channels representing Left / Centre / Right / Left Surround / Right Surround / Low Frequency effects.

These audio signals shall be carried on the video storage medium by means of an agreed audio multiplex.

The minimum audio requirement shall be a Dolby Surround (Pro Logic II) encoded stereo pair with the centre and surround information encoded into the Lt and Rt signals.

1 The companion signal interface document is ITU-R BT.656-4 *Interfaces for digital component video signals in 525-line and 625-line television systems operating at the 4:2:2 level of Recommendation ITU-R BT.601*

2 The companion signal interface document is ITU-R BT.1120-3 *Digital Interfaces for HDTV studio signals conforming to Recommendation ITU-R BT.709-4*

3. DELIVERY

3.1 Standard Definition

3.1.1 For Standard Definition product, commercials shall be supplied on a 625 line 25 frame per second 2:1 interlace component digital videotape system. The videotape system is to be mutually agreed upon by the commercial producer/production house and broadcaster.

3.2 High Definition

3.2.1 For High Definition product commercials shall be supplied in an 1125 line, 1080 active 25 frame per second 2:1 interlace format videotape system. The videotape system is to be mutually agreed upon by the commercial producer/production house and broadcaster.

3.2.2 By prior arrangement with the broadcaster, multiple commercials may be delivered on the one videotape provided that each item is clearly and uniquely identified with its own visual identification on the "clapper board", the tape box label and on a cue sheet.

3.2.3 When multiple commercials are supplied on the one videotape, each commercial item shall commence on an even integer minute.

3.3 Common Delivery Specifications

3.3.1 For transportation, videotapes must be properly protected by a manufacturer's purpose-designed videotape case.

3.3.2 The recorded data integrity of the tape shall be such that the digital machine's Channel Condition indicators do not deviate from the 'normal' indication. There shall be no dubbed-in data errors producing visible or audible errors.

4. VIDEO REQUIREMENTS

4.1 Common Video Requirements

With respect to image shape, television broadcasters are currently in a transitional period from 4:3 images and 4:3 displays to 16:9 images and 16:9 displays. To ensure that both displays can simultaneously produce satisfactory images, some steps are necessary at image capture and at post production. These steps will be necessary for the duration of the transitional period.

- 4.1.1 The commercial shall be produced in a full height 16:9 Aspect Ratio format - and shall be delivered to the broadcaster in that format. It shall also be produced so that there is meaningful and useful image content to the 16:9 image area limits³.
- 4.1.2 To enable transmission in the analogue 4:3 service, the original 16:9 product shall be shot and protected, including essential graphical content, such that a satisfactory centre cut 4:3 version may be extracted by the broadcaster.

Transmitted Video	Display on 4:3 Screen	Display on 16:9 Screen

- 4.1.3 If commercial producers observe the requirements of 4.1.1 and 4.1.2 then acceptable presentation will occur. Failure to observe these requirements will cause problematic presentation.
- 4.1.4 All titles and essential information must fall into the safe areas defined in Annex A and B. Refer to Annex C for Recommended Text Size.
- 4.1.5 Maximum video levels of commercial material with reference to line-up signals shall be 700 mV including an operational tolerance of + 25mV for luma (Y) and 700mV for each colour difference signal (P_r , P_b). Whatever the combination of luma and chrominance components the signal shall not produce an R.G.B. or PAL coded gamut error when measured by an appropriate instrument.

Black level shall not extend below blanking level (0mV luma).

³ For commercial producers who wish the 4:3 analogue service image to appear to be letterboxed [i.e. black bars at the top and bottom of the image] they should create a final 16:9 product where the black bars at the top and bottom of that image are each of no more than 36 lines in height [for standard definition]. This letterboxed image is then using 87% of the active lines available.

Transmitted Video	Display on 4:3 Screen	Display on 16:9 Screen

- 4.1.6 The line-up colour bar test signal shall replay at the correct levels at the VTR manufacturer's 'Preset' position. Video levels shall be consistent with line-up video levels.
- 4.1.7 The line up colour bar test signal shall replay at the correct chroma phase with the chroma phase control in the manufacturer's 'Preset' position.
- 4.1.8 If the commercial, or part thereof, comes from a non 50Hz source, then the following will apply:

If the commercial is captured on film then the supplied videotape shall be a true 625/25 or HD1125/25 frame transfer of that film product. In other words not a standards conversion. However, film product or other product mastered at 24 frames progressive shall be converted to 25 frame product by a VTR speed change.

If a commercial is originated on film but post-produced on videotape in the 525/60 or HD 1125/60⁴ domain, then the supplied videotape shall be a standards conversion via, in the case of 525/60, the TK3:2, DEFT or Image FIT systems. In the case of an HD1125/60 original, the supplied converted videotape shall be a standards conversion which ensures the elimination of temporal motion artefacts. Most recently in the HD domain this has become possible via 2 systems – either a 'motion vector compensated' standards conversion process, or, by means of a 'Reverse Telecine' process producing a 24 frame product which must then be converted to a 25 frame product.

If a commercial is originated using electronic cameras in the 525/60 or HD 1125/60 domain then the supplied videotape shall be a standards conversion via a 'Motion Vector Compensated' standards conversion system.

Again, the object is the elimination of temporal motion artefacts.

- 4.1.9 If a commercial is originated on film the horizontal and vertical instability of the image shall not be worse than 0.05% of picture height. The rate of any picture movement shall not be subjectively annoying.

The film elements shall be clean and free of both surface dirt and printed dirt and shall not have any emulsion or base side damage.

- 4.1.10 In all cases a commercial shall be of the highest quality suitable for television broadcast without further processing of the picture. Where a commercial is produced to Standard Definition 601, the quality shall be such that an acceptable upconversion to a HD resolution level can be made.

⁴ HDTV 1125/60 is a generic description of any non 50Hz production system other than 24 frame progressive.

4.2 Standard Definition

4.2.1 For Standard Definition the video signal shall be a 625 total lines, 576 active lines, 25 frames per second, 2:1 interlace signal produced in accordance with ITU-R Rec BT. 601.

4.2.2 Vertical and horizontal blanking shall be in accordance with ITU-R Rec. BT. 1379-1. The active digital picture line width is 720 pixels producing what is commonly called 'Narrow' blanking. For product produced purely in the digital domain this is the preferred blanking. Reference to Annex A of this Operational Practice indicates that only the central 720 pixels will normally reach the display.

The centre of the picture should retain its position throughout all production processes unless there are creative reasons to deliberately do otherwise. The horizontal centre of the image is located between pixels 359 and 360. The vertical centre of the image is located midway between line 167 of field 1 and line 479 of field 2.

4.2.3 Commercials shall be produced and post-produced entirely in the digital component domain. Where archival material was originated in the composite domain, care is necessary to ensure that any burst to chroma phase errors do not exceed 5° since these errors cannot be corrected on playback.

4.3 High Definition

4.3.1 For High Definition the video signal shall be an 1125 total lines, 1080 active lines by 1920 pixels horizontally, 25 frames per second, 2:1 interlace signal produced in accordance with ITU-R Rec. BT. 709-4.

5. SUBJECTIVE VIDEO QUALITY

5.1 Common Subjective Video Quality

5.1.1 Picture quality appreciation and production grading shall be made in a Review Room which meets SMPTE recommendations for that purpose, including a D6500 illuminant monitor surround (SMPTE RP 166⁵).

5.1.2 The picture black level shall appear to be subjectively correct with respect to content, free of any noticeable black crushing, compression or clipped dark areas.

5.1.3 Low key scenes shall have sufficient contrast and APL (average picture level) to appear acceptable under typical domestic viewing conditions.

5.1.4 Picture white areas where detail is required shall appear normal and free of noticeable highlight compression.

5 The viewing distance specified in SMPTE RP166 refers to Standard Definition.

- 5.1.5 The transient (edge) response shall be crisp and clean - free of any noticeable horizontal or vertical pre-shoot, overshoot, ringing, smear/streak, echoes or telecine afterglow errors.
- 5.1.6 Moire and fixed pattern noise shall not be visible.
- 5.1.7 The resulting subjective resolution shall meet the specification of the electro-optical production chain.
- 5.1.8 Any video noise shall be fine grained (i.e. high frequency) and not visible at normal viewing distances. However, the use of MPEG video data compression does require an image which is not only noise free but also free of artefacts such as film dirt or scratches or unwanted image movement.

Note: The excessive use of noise reduction will cause motion artefacts and a noticeable loss of resolution. The amount of noise reduction should only be sufficient to minimise noise.

- 5.1.9 The colour balance of the image shall be essentially neutral i.e. appears to be illuminated by light of 6500°K. The correct hue of skin tones shall be achieved with the chroma phase control of the VTR in the manufacturer's 'Preset' position and these skin tones shall be natural and characteristic in both hue and saturation, irrespective of what racial group is being portrayed. The above in no way prevents the use of colour variations for artistic purposes.

5.2 Standard Definition

- 5.2.1 Standard Definition images shall be viewed on a correctly calibrated grade 1 display, of at least 60cm diagonal and viewed at approximately 5 times picture height. The light emitters shall have EBU phosphor colorimetry. Display peak white brightness shall not exceed 30 foot lamberts⁶.
- 5.2.2 Standard Definition images must be judged critically with respect to their capacity for upconversion. A high quality 601 level product can produce acceptable HD level material. Equally, poor to average 601 level product will not produce acceptable HD level material.

5.3 High Definition

- 5.3.1 High Definition images shall be viewed on a correctly calibrated grade 1 display of at least 100cm⁷ diagonal and viewed at approximately 3 times picture height. The light emitters shall have ITU-R BT.709-4 (as revised) phosphor colorimetry. Display peak white brightness shall not exceed 30 foot lamberts.

⁶ EBU Recommendation R23 defines a peak white brightness of 25 foot lamberts. Whereas SMPTE RP166 defines a peak white brightness of 35 foot lamberts.

⁷ At the date of issue of this Operational Practice, only 60cm and 80cm high resolution 16:9 monitors are available. These will be the only practical choice for some time.

- 6.1.6 Correct lip synchronisation shall be maintained at all times.
- 6.1.7 The alignment level of the PCM audio signal (AES) shall be minus 20 db with respect to the onset of digital clipping i.e. minus 20dbFS (SMPTE RP.155)
- 6.1.8 The quasi peak recorded audio level⁹, as measured on a quasi peak reading instrument, shall not exceed 11dB above alignment level i.e. -9 dBFS.
- 6.1.9 Volume compression should, where used to provide consistent peak levels after the final mix, be restricted to a slope of 2:1 with an onset point of -12 dBFS.

Broadcasters reserve the right to reduce the level on transmission to ensure that the loudness of commercial sound will match that of programs.

6.2 High Definition

- 6.2.1 For the High Definition commercial the audio should consist of 6 discrete channels representing -Left/Centre/Right/Left Surround/Right Surround/Low Frequency effects.

The minimum audio requirement shall be a Dolby Surround (Pro Logic II) encoded stereo pair (Lt & Rt). The average level on the L_t and R_t shall have a combined loudness measuring -24LKFS across the duration of the commercial.

By agreement between the parties tracks 3 and 4 (AES2) may carry a Dolby E, or other agreed audio multiplex for the 5.1 multi-channel audio.

- 6.2.2 The videotape machine track assignment shall be:

Track 1	Stereo Lt	
Track 2	Stereo Rt	
Track 3	<table border="1"><tr><td>AES2</td></tr></table>	AES2
AES2		
Track 4	Audio Multiplex	

- 6.2.3 If multi-channel audio in the form of an audio multiplex is present on machine tracks 3 and 4 (AES2) then machine tracks 1 and 2 shall carry a suitably downmixed Lt/Rt version of the multi-channel signal.

For current HD videotape systems it is necessary that the video, audio track 1/2 and Dolby E signals be recorded such that they are in sync on tape. This requires that the Dolby E multi-channel audio elements, prior to encoding, shall be advanced with respect to the video by 1

⁹ *Quasi peak audio level* is defined as the value of the integrated sum of energy peaks measured in any 10 millisecond period. These quasi peak levels are typically measured using a Peak Program Meter. Instantaneous peaks of shorter duration cannot be measured on such meters.

frame.

- 6.2.4 The audio multiplex shall potentially carry 8 audio channels plus associated metadata.

If Dolby E is specified as the audio multiplex, then in this usage the minimum metadata to be included in the Dolby E signal shall be:

DYNRNG
DIALNORM (Audio level measured using Recommendation ITU-R BS.1770 algorithm on an appropriate loudness meter)
AUDIO CODING MODES

Broadcasters reserve the right to edit the metadata for presentation purposes.

- 6.2.5 Within the audio multiplex the track assignment shall be as per SMPTE 320M.

Track 1	Left
Track 2	Right
Track 3	Centre
Track 4	LFE ¹⁰
Track 5	Left Surround
Track 6	Right Surround
Track 7	Lt or Freely Assigned
Track 8	Rt or Freely Assigned

7. SUBJECTIVE AUDIO QUALITY

- 7.1 The overall quality shall be pleasing and free of any audible noise or spurious signals (e.g. hum, buzz, distortion, wow, flutter or excessive sibilance) when monitored in a noise free environment on an essentially flat wide-band speaker system.
- 7.2 The tonal balance, bass to mid range to treble shall be pleasing and natural.
- 7.3 Stereo and multi-channel material shall have the correct spatial relationships between audio and picture content (such as left-right or front-rear).
- 7.4 Program audio shall be in lip sync with the picture content.
- 7.5 Dynamic Range

Due to the differences in audio transmission requirements for Analog/PAL and Digital, broadcasters will seek the following for any given program or commercial:

- (i) That the analog PAL transmission audio and the MPEG standard definition audio is suitably processed to provide the limited dynamic range and consistent levels that this service requires.

¹⁰ Note on LFE use/misuse: The LFE channel should be used as intended; as an occasional low frequency special effects channel only, and not simply for bass that is filtered off from the main channels.

- (ii) That the digital transmission audio via Dolby Digital (AC-3) coding is not processed but that the appropriate metadata 'DYNRNG' and 'DIALNORM' is included so that the viewer can choose the nature of the reproduced audio.

Where metadata is not delivered with a commercial, the broadcaster reserves the right to author the appropriate metadata.

8. COMMERCIAL TIMING

- 8.1 The duration of commercial or promotional material should be measured from the start of active video to the end of active video.
- 8.2 Sound should commence 0.5 seconds after the commencement of active video. This provides time for the sound channel to be opened after the start of video without risk of sound clipping and provides aural separation between adjacent commercials and program material.
- 8.3 The end of the commercial sound including any sound tag shall occur 0.5 seconds before the end of active video.
- 8.4 For video tape delivery, accurate identification of first frame of active video on commercials should be provided. This shall be by the inclusion of a white marker on the colour black in the 2 second interval prior to the start of active video, top right of picture, outside picture safe, immediately before first frame of active video. The white marker should be a minimum picture height for SD of 12 lines and minimum width of 18 pixels. For HD, the white marker should be a minimum picture height of 24 lines and a minimum width of 36 pixels.

Timing of the commercial is referenced from the first frame of active video.

9. SEQUENCE OF ALIGNMENT SIGNALS

- 9.1 For commercials delivered on video tape cassette, there is no requirement for black and silence at the head of the tape.
- 9.2 Commercials delivered to the broadcaster on video tape cassette shall have minimum 15 seconds of alignment video signal at the start of the recording consisting of a colour bar signal of 100/0/100/0 content. This signal shall occupy at least half the picture height. 'Matrix' type alignment signals which meet the intent of the above are acceptable. The colour bar content shall uniquely represent the commercial in question.

Being digital, no alignment signals are necessary. To ensure the integrity of the commercial content, they have been specified.

- 9.3 Simultaneously with the video alignment signal, and alignment level (as specified by SMPTE RP155) audio tone of 1000Hz shall be recorded in phase on all tracks intended to carry audio content.
- 9.4 Following the alignment signal there shall be recorded for a minimum of 5 seconds a visual identification. Legibility of the visual identification is most important to end users. The selected font size shall be consistent with elements of 30 TV lines height in a 576 active line raster to produce a full

screen display of the visual identification. Full screen is such that the image is within the safe graphic area of the format in question. Should the identification be coloured there shall be a desirable level of separation between background and text information. The text luma level should be no less than 500 mV.

9.5 In a typical case, the identification should contain information on:

- (a) Client
- (b) Product
- (c) Title
- (d) Key Number
- (e) Duration
- (f) CAD Number
- (g) Classification
- (h) Loudness Compliance¹¹
- (i) Audio format (Stereo, Dolby Surround (Pro Logic), 5.1 Surround)
- (j) Aspect ratio / Protected state of product
- (k) Closed captions
- (l) Agency
- (m) Production Company
- (n) Date

9.6 A visual/aural countdown signal should be recorded following the Identification section.

The audio countdown signal, as described below, should be recorded on both audio tracks 1 and 2.

9.7 The audio countdown signal should consist of a series of reference level 400 Hz \pm 20 Hz bursts each of 1/5th second duration, occurring at 1 second intervals over the range from 5 seconds to 2 seconds ahead of active video start.

9.8 In addition, a steady component of the countdown audio tone should be recorded approximately 20db below the level of the tone bursts, starting with the first burst and ending with the last, leaving a 2 second silent interval before active video start.

9.9 A numerical visual countdown signal from 5 seconds to 2 seconds ahead of active video start should be recorded during the entire period of the steady component of the above described audio tone signal. Video black should be

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Producers will be required to certify that their commercials comply with OP 48 as a condition of acceptance for broadcast. This certification must be in the form of either:

- inclusion of an additional field in the Visual Identification, as specified in Free TV OPs 24, 29 and 36, between the alignment signal and the countdown indicating compliance with OP 48; or
- by prior arrangement with the broadcaster a written certification by the person submitting the commercial that the commercial complies with OP48.

Submission to CAD Pty Ltd constitutes a suitable "prior arrangement with the broadcaster".

recorded during the 2 second interval from the end of the tone bursts to active video start.

10. TIME AND CONTROL CODE

- 10.1 25 Hz Longitudinal Time and Control Code according to ITU-R Rec. BR.780-2 (2004) shall be recorded on the Time Code track. The time code shall be locked to the video.
- 10.2 24Hz Longitudinal Time and Control Code shall be according to ITU-R Rec. BR.780-2 (2004).
- 10.3 For Standard Definition, the Vertical Interval Time Code (VITC) shall appear on lines 18/331 and 20/333 of the 625/25 analog recording. A digital recording or interface shall carry the VITC on lines 19/332 as D-VITC.
- 10.4 For High Definition, the Vertical Interval Time Code (VITC) shall be according to a standard yet to be identified.
- 10.5 Both Longitudinal and Vertical Interval Time Codes shall Time code shall match and be continuous and ascending for the duration of the recording.
- 10.6 The Time Code shall not pass through 2400 hours for the duration of the recording.

11. CLOSED CAPTIONS – STANDARD DEFINITION

- 11.1 The Australian Standard for closed captioning is for the data to be carried on line 21/334 for a 625/25 signal. The data format is in accordance with the Australian Teletext System Standard. Caption data shall be distributed, transmitted and monitored according to the requirements of Free TV Australia Operational Practice OP42.
- 11.2 Identification of the presence of closed caption information is necessary on the videotape label.
- 11.3 A command to clear any existing caption shall be included in the first half (0.5) second of the commercial. Where closed caption data is included on the videotape, the caption information should commence no earlier than a half (0.5) second after the start of active video and a caption erase signal is required (last caption time code out) not later than a half (0.5) second before the end of active video. First caption time code in will be at an arbitrary point determined by content.

12. CLOSED CAPTIONS – HIGH DEFINITION

- 12.1 The specification for the carriage of closed caption data for High Definition is currently under consideration by Australian TV broadcasters.

Annex A.

1. SDTV - SAFE ACTION AND SAFE GRAPHIC AREAS

- 1.1 The recommended SDTV 'Safe Action' and 'Safe Graphic' areas are defined by the following three diagrams. These areas are defined for displays which are driven via some form of analog interface i.e. the existing PAL receiver population or the case of existing 4:3 or 16:9 displays driven by Set Top Boxes (STBs) tuned to a digital transmission.
- 1.2 The active video line length is defined as a nominal 720 pixels which represents normal digital active line length (refer to Clause 4.2.2).
- 1.3 The overscan of only CRT displays is assumed to be a maximum of 7% of overall picture width or height i.e. 3.5% at each edge but any one picture edge should not exceed 4% of total picture width or height. Full metric displays should not overscan a maximum value of 2% and should aim to have an overscan of 0% in the future

1.4 Diagram 1 - Widescreen shoot to protect the 16:9 full image

This indicates the safe areas of a 16:9 widescreen display where there is NO requirement to provide compatibility with a 4:3 display. This would not be a normal situation until such time that all displays are 16:9.

1.5 Diagram 2 – Widescreen shoot to protect the 4:3 central zone

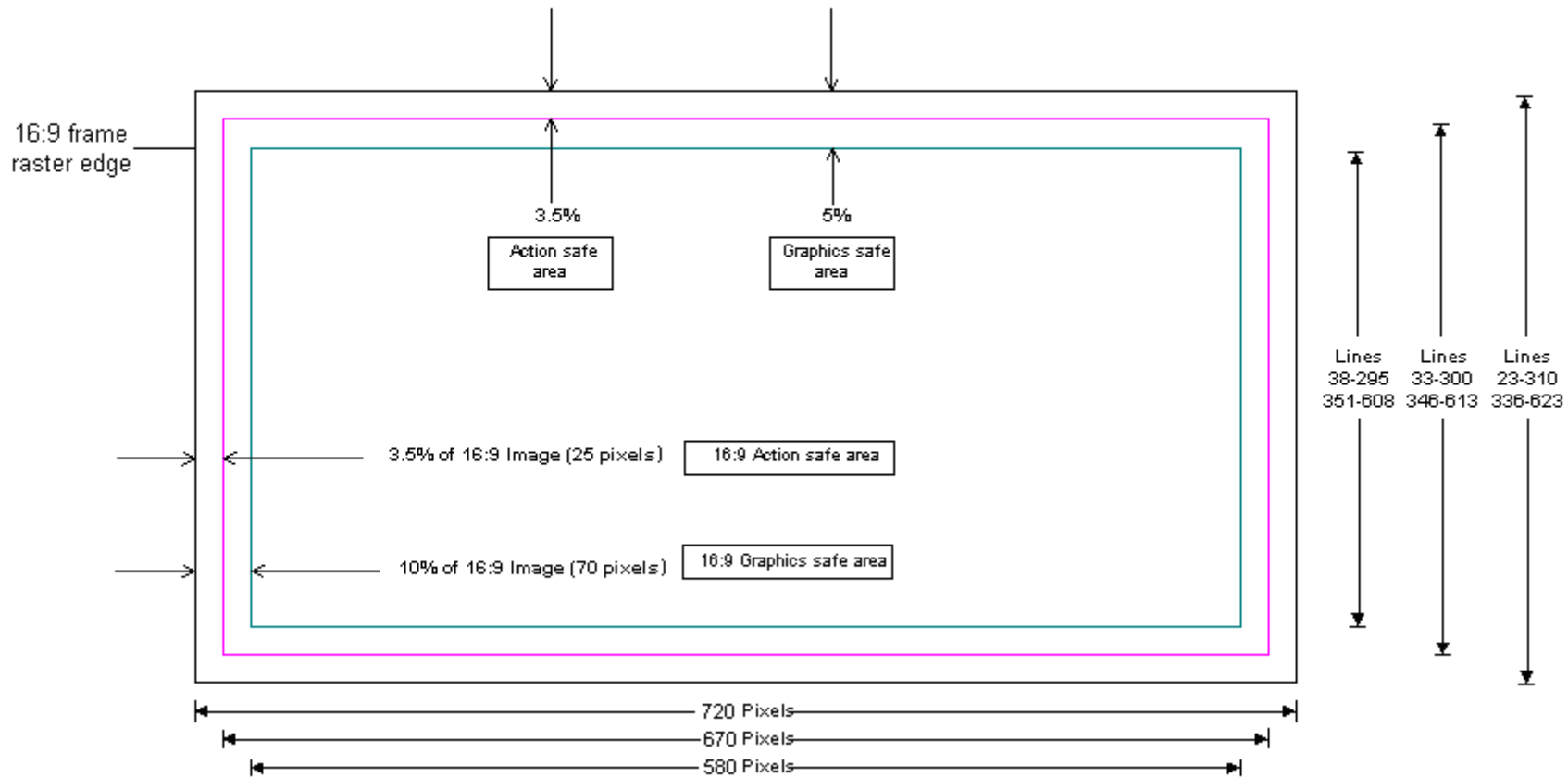
For some commercials there will be a need to fully protect the 4:3 central zone for action and graphics. However, the numbers in this diagram do involve a small compromise for the benefit of the 16:9 viewer.

1.6 Diagram 3 – Widescreen shoot to protect the 14:9 central zone

The 14:9 letterbox can be regarded as the compromise for the display of a 16:9 image on a 4:3 display.

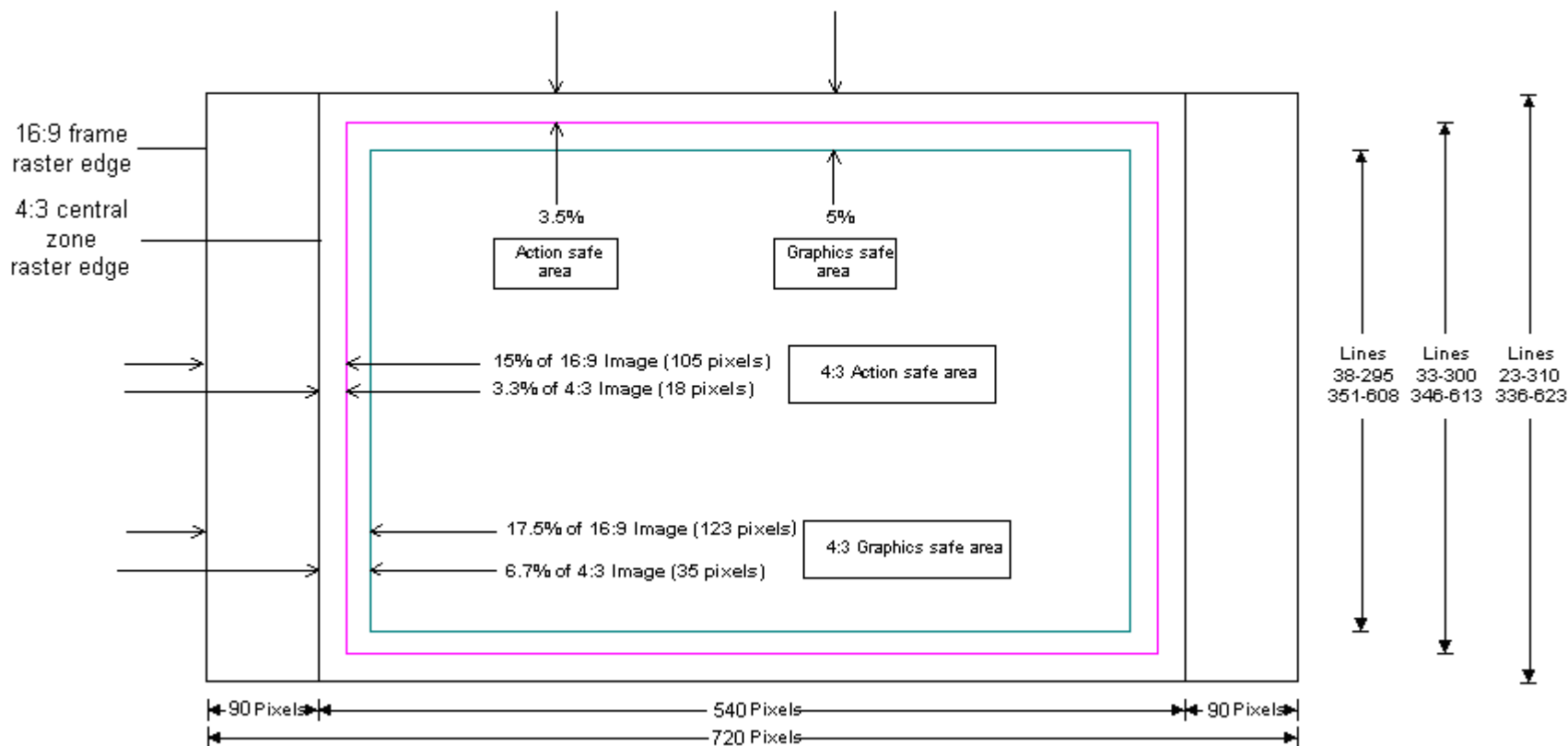
Note that the Safe Action area is 14:9 – but the Safe Graphics area has been retained as per the 4:3 central zone. This compromise is necessary to ensure that graphics within a 16:9 widescreen commercial are protected when viewed via a Set Top Box which is producing a 4:3 centre cut out in conjunction with a 4:3 display.

Diagram 1: 16:9 Full Image, defining Action and Graphics Safe Areas (SDTV)



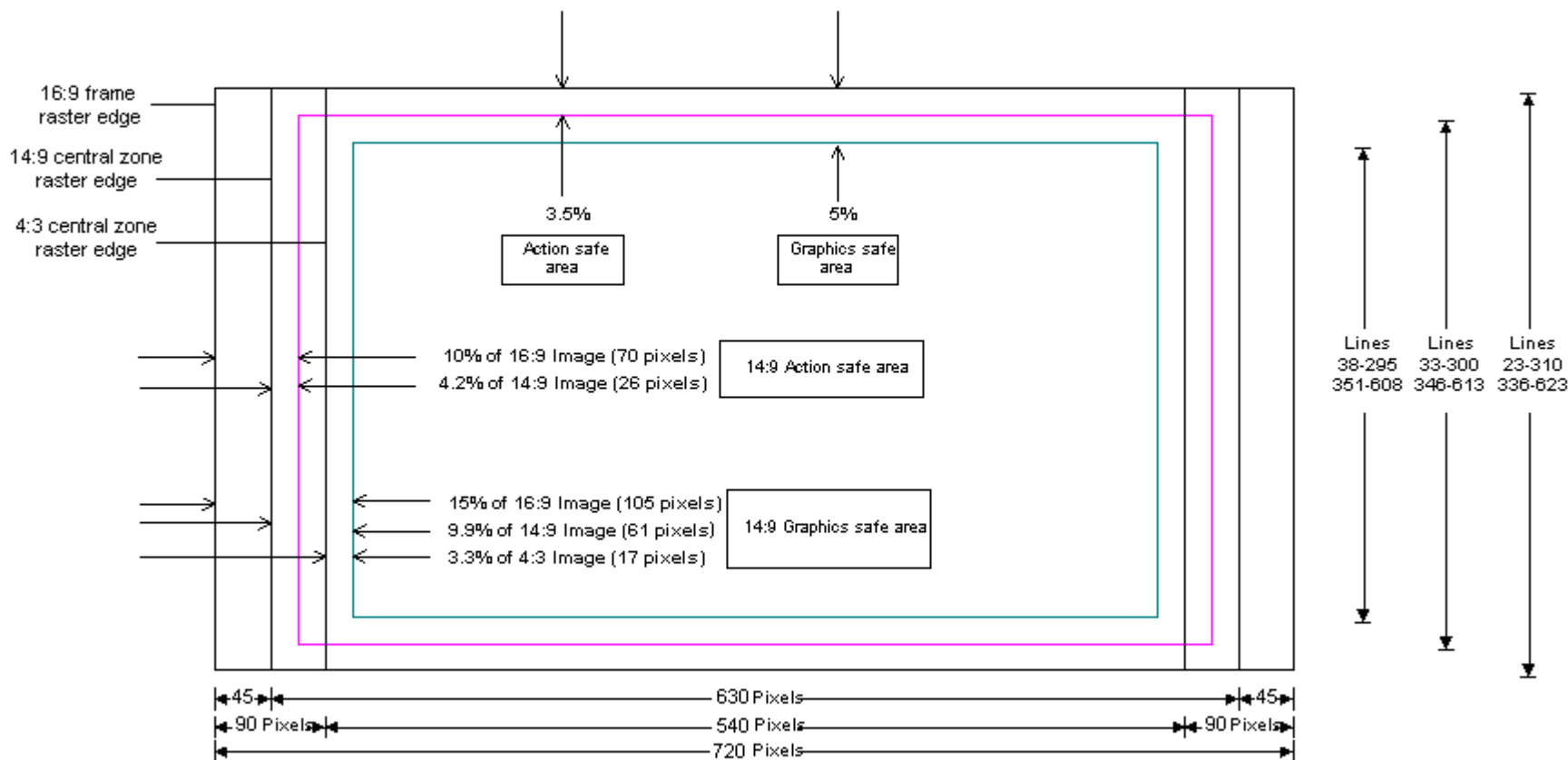
(Subject to standardisation)

Diagram 2: 16:9 Shoot and Protect 4:3, defining Action and Graphics Safe Areas (SDTV)



(Subject to standardisation)

Diagram 3: 16:9 Shoot and Protect 14:9, defining Action and Graphics Safe Areas (SDTV)



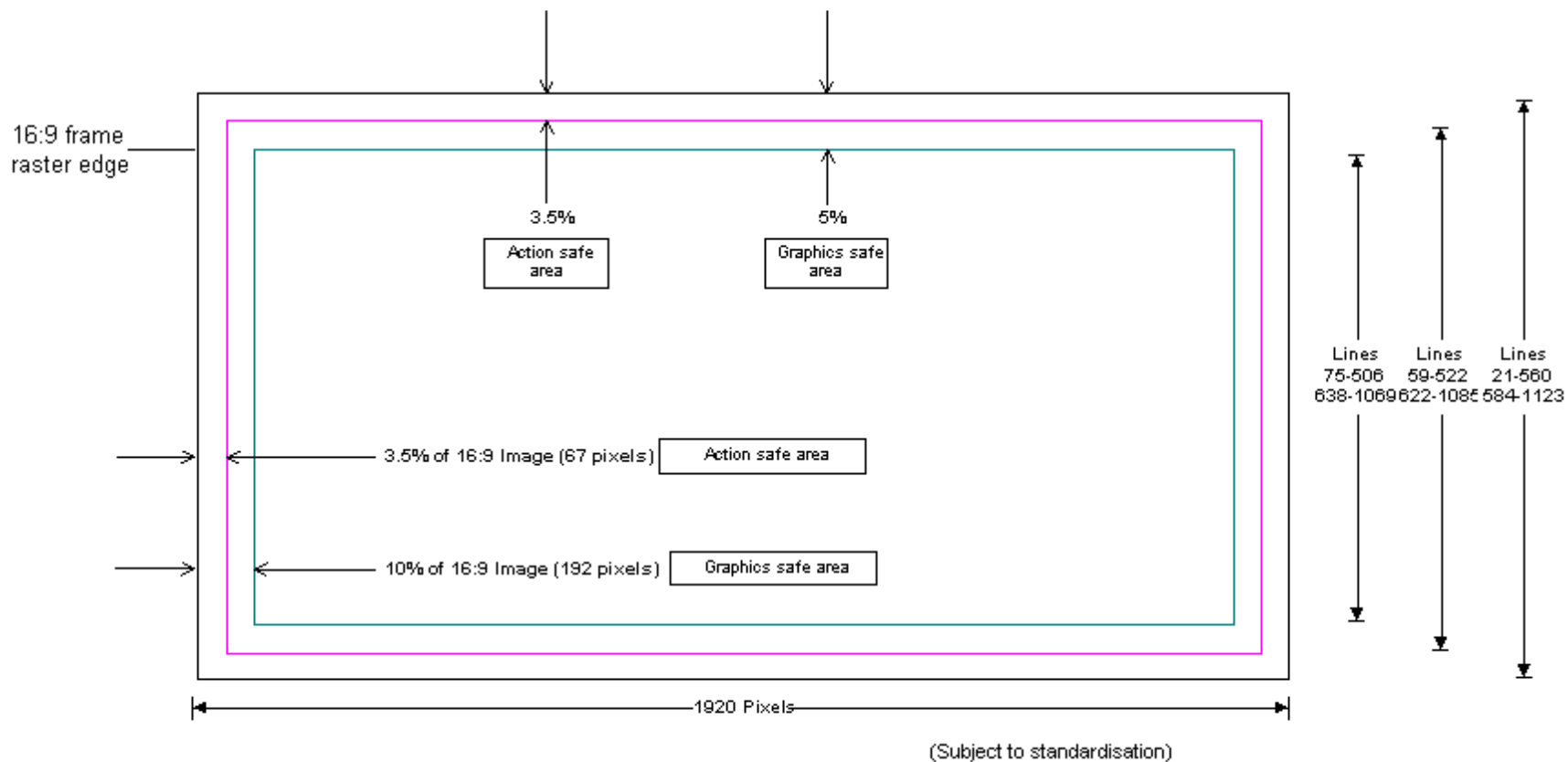
(Subject to standardisation)

Annex B.

1. HDTV – SAFE ACTION AND SAFE GRAPHIC AREAS

- 1.1 The recommended HDTV 'Safe Action' and 'Safe Graphic' areas are defined by the following three diagrams.
- 1.2 Diagram 1 is the HD transmission situation, 16:9 Shoot Protect 16:9, with a line length of 1920 pixels. The safe areas are calculated to this base. This will not be the normal situation for some time to come.
- 1.3 Diagrams 2 and 3 represent the situation where the HD signal has been down-converted to SD for a 4:3 simulcast service. The SD 4:3 service will involve some form of analog interface where the wide line blanking used produces an active line of 720 pixels. This means that in the HD signal only the central 1920 pixels would be effectively used in the down-converted signal.
- 1.4 Diagram 2 is 16:9 Shoot Protect 4:3. The line length base for calculating Safe Areas is 1920 pixels
- 1.5 Diagram 3 is 16:9 Shoot Protect 14:9. The line base for calculating Safe Area is 1920 pixels. The Safe Action Area is 14:9 but the Safe Graphics Area has been retained as per the 4:3 central zone. This is to accommodate STBs which may produce a 4:3 centre cut when driving a 4:3 display.
- 1.6 The overscan of only CRT displays is assumed to be 7% of overall picture width or height (i.e. 3.5% at each edge) but any one picture edge should not exceed 4% of total picture width or height. Full metric displays should not overscan a maximum value of 2% and should aim to have an overscan of 0% in the future.

**Diagram 1: 16:9 Full Image, defining Action and Graphics Safe Areas (HDTV)
[1920x1080 Raster]**



**Diagram 2: 16:9 Shoot and Protect 4:3, defining Action and Graphics Safe Areas (HDTV)
 [1920x1080 Raster]**

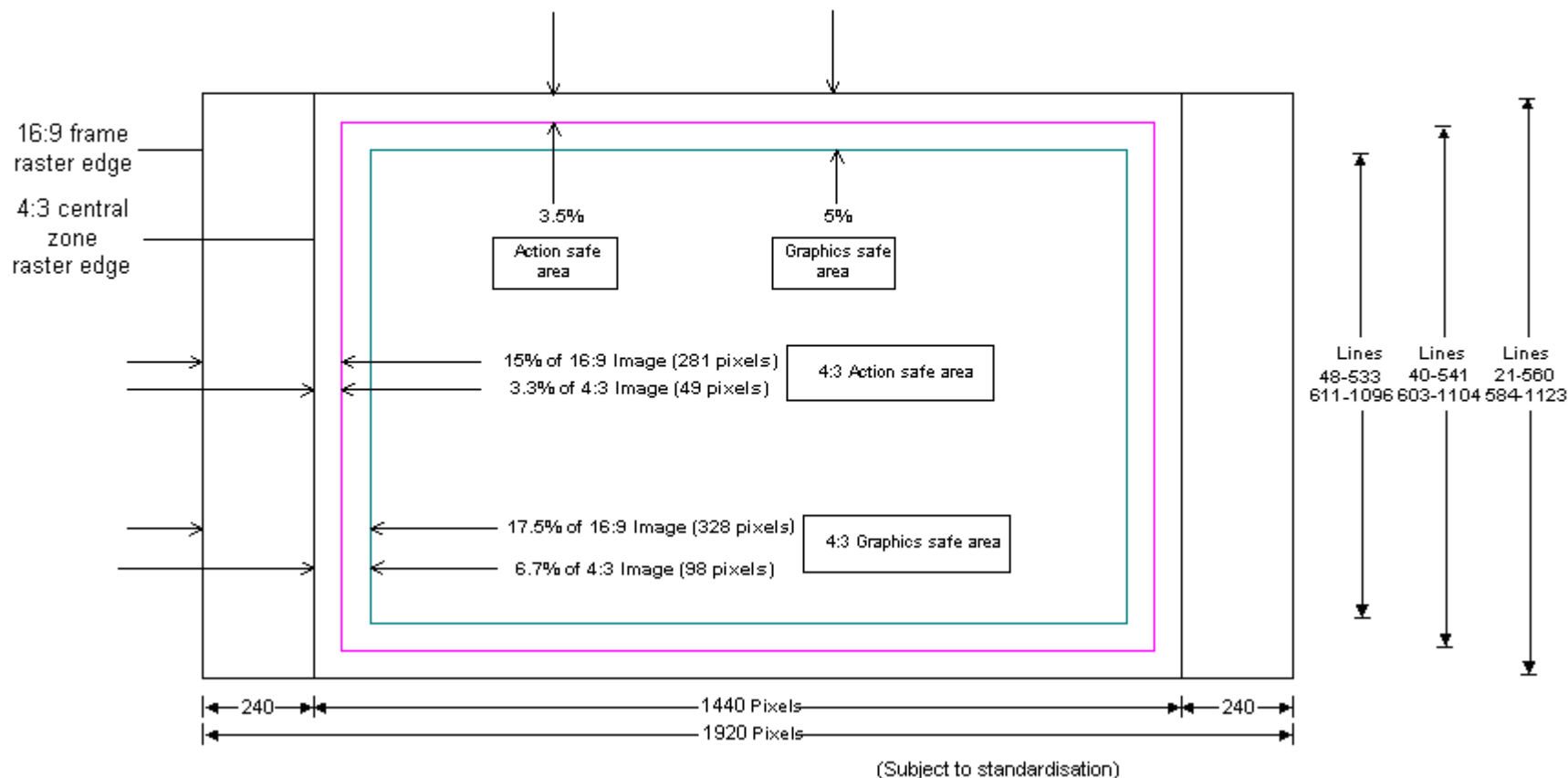
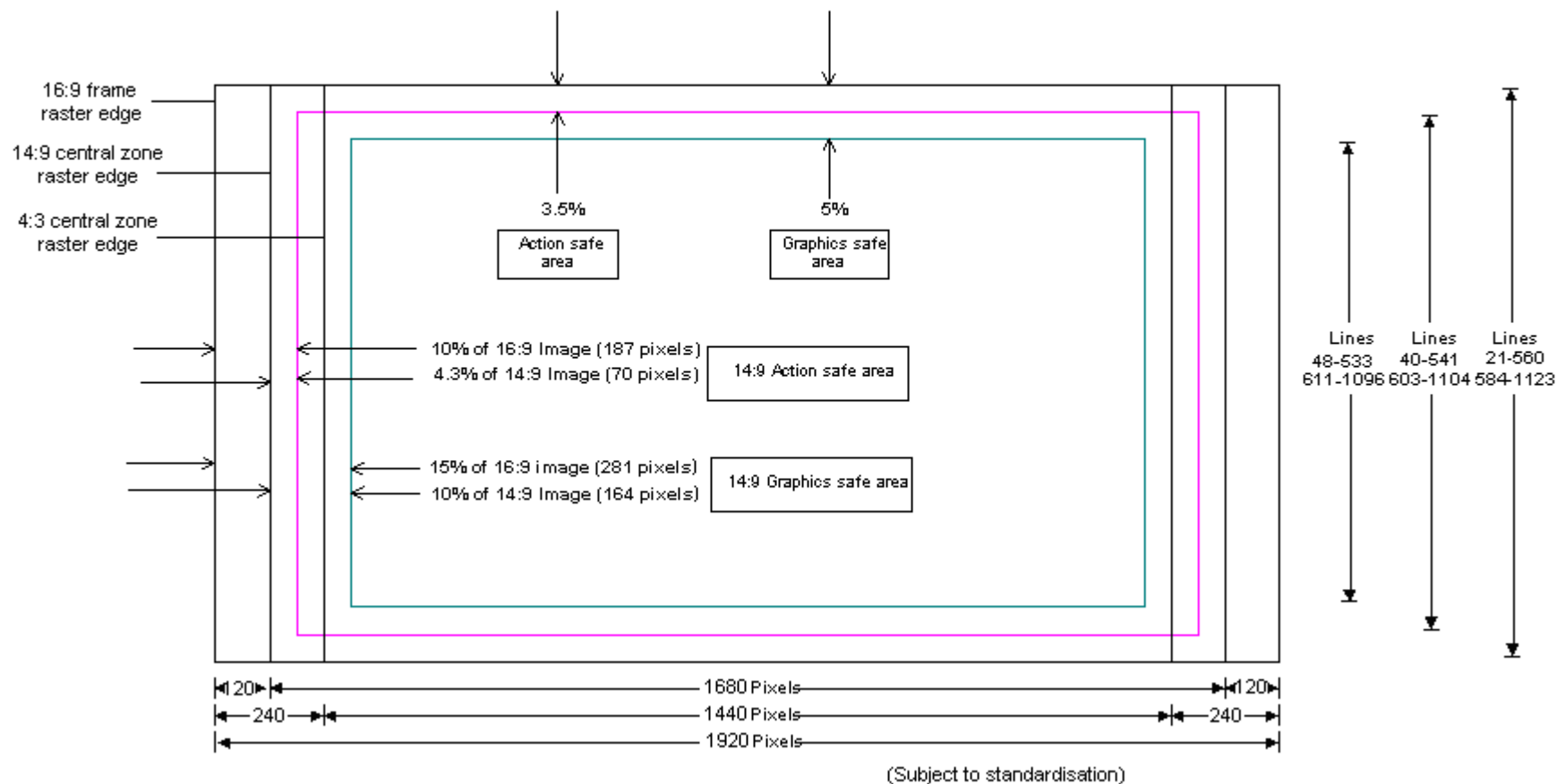


Diagram 3: 16:9 Shoot and Protect 14:9, defining Action and Graphics Safe Areas (HDTV)
[1920x1080 Raster]



Annex C.

1. Recommended Text Size.

- 1.1 Considering that both commercial product and programs are being originated in the widescreen 16:9 format.
- 1.2 Considering that it is desirable that text be readable under normal display and viewing conditions and that additionally in certain circumstances there may be a legal requirement for the text to be readable.
- 1.3 Considering that in certain transmission modes and also in certain reception modes the effective height of the image is reduced.
 - (a) For the transmission of a 16:9 original in the 4:3 analogue service, the broadcaster may letterbox the product, thus reducing the effective height of the image.
 - (b) In the reception of the digital 16:9 service the viewers Set Top Box [receiver] may letterbox the product for a 4:3 display, thus reducing the effective height of the image.

The following is recommended:

For standard definition images, the minimum height of the text lower case elements be 15 pixels [15 lines] in a 576 line raster.

For high definition images, the minimum height of the text lower case elements should be 28 pixels [28 lines] in a 1080 line raster.

Annex D.

1. Audio Levels and Loudness.

This annex provides advice on the relationship of this OP and Free TV Australia OP48 *Audio Levels and Loudness*.¹²

The elements of an advertising soundtrack, namely dialogue, music and effects are subject to various processes during production. Where these elements sit in the final sound track, with respect to audio levels and loudness, is the result of a final mix and effectively it is here that the loudness of the soundtrack will be principally influenced.

Most advertisement sound track pre-final mix elements are passed through devices such as *equalisers* and *compressors*, which are designed to enhance their *presence* i.e. to make them sound “up close” or brighter or more immediate. This is referred to as “processing”.

Material that has been compressed will sound louder, even though there is no increase in volume. This is because compression of a sound track raises the energy content of the sound by reducing the dynamic range (i.e. the difference between the loudest and softest levels of the sound) thereby making it more dense.

Many modern processors are not calibrated in dB, have constantly varying compression ratios and are likely to be multi-band devices which apply different amounts of compression in different frequency bands. This makes it difficult for sound track producers to accurately measure and quantify how much compression is applied to a soundtrack. However, prior to the final mix it is recommended that every effort should be made to ensure that the nature of any compression or equalisation used is such that the end result does not produce a sound track with a loudness characteristic which is incompatible with program material.

Broadcasters provide the following advice and recommendations for definition of a compression profile related to any processing applied AFTER the final mix. Figure 1 provides a diagrammatic representation of this simple profile. In all cases the loudness of the final mix should be measured using a ITU-R BS-1770 compliant loudness meter to ensure conformance to the -24LKFs loudness level.

If any further peak limiting were to be necessary, it would be provided automatically by the transmission processor.

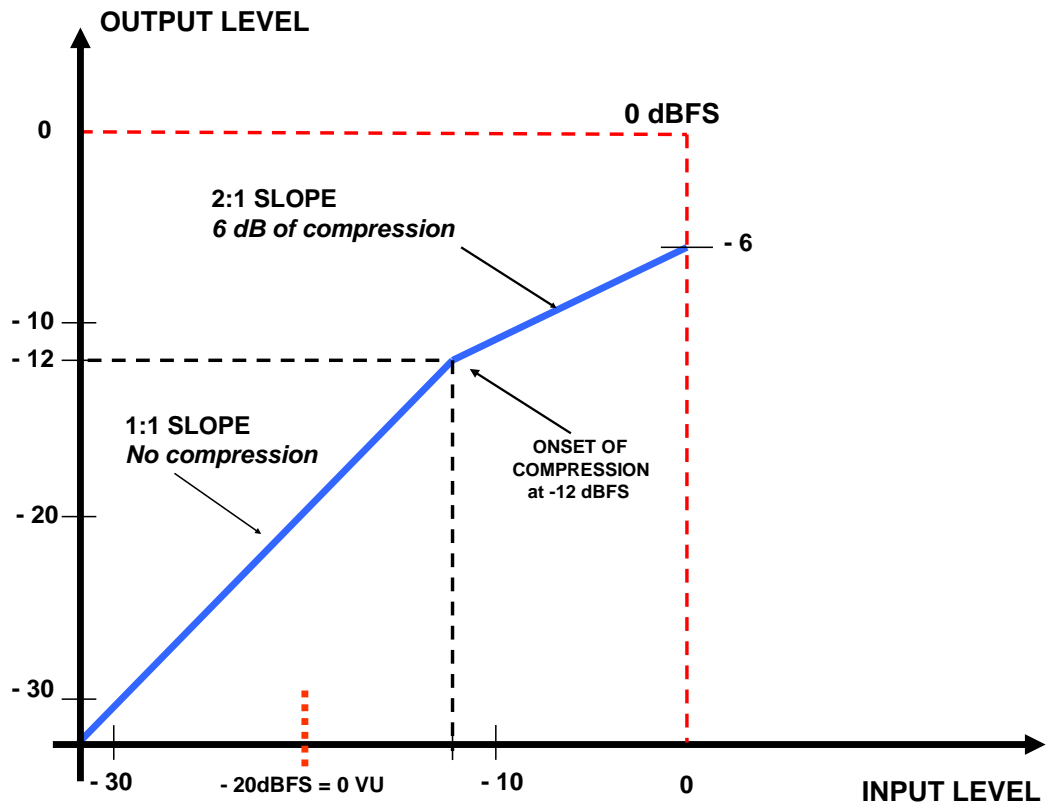


Figure 1