

1. SCOPE

This Operational Practice provides a recommendation for files distributed to Australian broadcasters for evaluation and assessment; not for broadcast. It provides specifications for coding broadcast content down for assessment quality, video, audio and subtitle display.

A file produced to these specifications will be an encoded MPEG-2 Program Stream or AVC/H.264 bitstream created by a software application (or perhaps a specialised hardware encoder) but not by a DVD recorder which would produce DVD-Video files. If the editing equipment/software used to produce the audio/visual material is not able to create a file that complies with OP53, then third party utilities that do are commonly available. The MPEG-2 files produced are expected to have an "mpg" or "mpeg" extension, while AVC/H.264 files are expected to have "mp4" extensions.

For the DVD-Video application, refer to OP55. Files produced to OP53 specifications do not contain an application layer and will not replay on DVD players, but need a software application to replay.

After coding the video to the OP53 specification (refer Clause 8) it is recommended that it is previewed to verify that the aspect ratio has been correctly indicated. Experience has shown that while vision may be 16:9 native video there has been some difficulty in setting the aspect ratio indicator that is carried within the encoded signal. Previewing the completed preview copy with a commonly available media player and verifying the displayed aspect ratio should check the correct setting of the aspect ratio indicator as required in Clause 6 as well as checking that there is sufficient resolution for assessment of the audio visual content.

2. REFERENCES

AS/NZS 13818.1:2002 *Information technology – Generic coding of moving pictures and associated audio information. Part 1: Systems*

AS/NZS 13818.2:2002 *Information technology – Generic coding of moving pictures and associated audio information. Part 2: Video*

AS/NZS 13818.3:2002 *Information technology – Generic coding of moving pictures and associated audio information. Part 3: Audio*

AS ISO/IEC 14496.10-2006 *Information technology – Coding of audio-visual objects. Part 10: Advanced Video Coding*

DVD *Specifications for Read-Only Disc, Part 2: File System Specifications* Ver 1.05

DVD *Specifications for Read-Only Disc, Part 3: Video Specifications* Ver 1.13

DVD *Specifications for Read-Only Disc, Part 4: Audio Specifications* Ver 1.21

Recommendation ITU-R BT.601 *Studio encoding parameters of digital television for standard 4:3 and wide-screen 16:9 aspect ratios*

Recommendation ITU-R BS.1196 *Audio coding for digital terrestrial television broadcasting*

Recommendation ITU-T H.264 *Advanced video coding for generic audiovisual services*

AES3-2003 *AES standard for digital audio — Digital input-output interfacing — Serial transmission format for two-channel linearly represented digital audio data*

3. DEFINITIONS

3.1 Source

The organisation responsible for delivering the files to the destination.

3.2 Destination

The broadcaster or organisation receiving the files.

4. DISTRIBUTION MEDIUM

4.1 Distribution Method

The distribution method used for the delivery as a file shall be agreed by all parties (Source and Destination). This may be an electronic, non-physical means or a physical data storage medium such as a DVD disc carrying a file.

If distribution is by an electronic means then the delivery shall be to the Destination's server in a file size, video / audio quality suitable for assessment.

If the distribution is on a physical medium and a DVD or CD disc is used, it should be DVD-R or CD that shall be transported in a suitable purpose built case with discs and cases clearly labelled by suitable means. Also for a physical medium, the bitrate specifications detailed in Clause 8 are minimum specifications.

4.2 Number of Television Commercials Delivered on Physical Medium

In the case of encoding television commercials / advertisements for delivery via a physical medium e.g. DVD, the maximum number of commercials delivered on a single unit of media should be agreed by all parties (Source and Destination). Additionally, there must be clear, easy identification of each individual television commercial file. Files shall be identified by a suitable name such as the name / title of the commercial and the Key Number.

5. CONTENTS OF FILE

Prior to the commercial that is to be assessed, there shall be a minimum of 2 seconds of 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. The text of the visual identification should be within the safe graphic area of the selected format. Should the identification text be colourised, there shall be a desirable level of luminance separation between background and text information.

In a typical case, the text of the visual identification should contain information on:-

- (a) Client
- (b) Product
- (c) Title
- (d) Key Number
- (e) Duration
- (f) Classification
- (g) Audio format
- (h) Aspect ratio / Protected state of product
- (i) Closed captions
- (j) Agency
- (k) Production Company
- (l) Date

Accurate identification of first frame of active video on commercials should be provided. This shall be by the inclusion of a white marker on colour black in the 2 second interval following the visual identification signal, top right of picture, outside picture safe on the frame immediately before first frame of active video. The white marker should be a minimum picture height of 12 lines and minimum width of 18 pixels.

6. VIDEO

The following specifications are required for delivery of video material to broadcasters for evaluation and assessment (not for broadcast):

Resolution	720 x 576
Aspect ratio	16:9
Frame rate	50 field/s, 25 frame/s

An image aspect ratio of 4:3 "pillar boxed" may be acceptable.

All these specifications should be identified in the file header. If legacy 4:3 material is used, this shall be identified in the file header.

7. AUDIO

The following specifications are recommended for delivery of program and commercial soundtracks to broadcasters for evaluation and assessment:

Format	PCM audio (not including AC-3)
Sampling rate	48kHz
Stereo	Lt Rt
Where Dolby Digital (DD) derived	mixed down Rt Lt

For Stereo recordings:

Track 1 shall carry the left channel
Track 2 shall carry the right channel

8. CODING

All the following specifications apply to files distributed by non-physical medium. For files distributed on physical medium, such as DVD, then the bitrates specified are minimum limits only.

The specification for the file format of commercial shall be a Program Stream encoded as either:

MPEG-2 Main Profile @ Main Level	
Video bitrate	Average 2 Mbit/s
Audio encoding	MPEG Layer 2
Audio Data rate	64 kbps
GOP structure	Sequence header must be outputted for every GOP
Maximum frames per GOP	15
Code rate to achieve resultant file size	~ 16 Mbytes per minute

OR

AVC/H.264 Main Profile @ Level 3.0	
Video bitrate	Average 1 Mbit/s

Audio encoding	AAC
Audio Data rate	64kbit/s
Code rate to achieve resultant file size	~ 8 Mbytes per minute

For example, a 30 second commercial will create files approximately 8MB for MPEG2 coding and 4 MB for AVC/H.264 coding.

Other coding schemes may be used by agreement between all parties.

9. CLOSED CAPTIONING

Closed captioning (where required)	Teletext "burnt into video" using the intended broadcast position.
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Variation to closed captioning display shall be by agreement with all parties (Source and Destination).

10. RECOMMENDED TEXT SIZE

Considering that both television commercials / advertisements and programs are being originated in the widescreen 16:9 format, it is desirable that text is readable under normal display and viewing conditions and that additionally in certain circumstances there may be a legal requirement for all text to be readable and in certain television transmission formats and also in certain reception modes the effective height of the image is reduced, for example when:

- (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, and
- (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.

N.B. However if, in the case of television commercials, the recommendation above is met, and the text is unreadable on screen, Commercials Advice may seek another copy of the commercial / advertisement at a higher encoded bit rate that increases the on screen resolution of the text.
