

## EBU Technical Recommendation R48-1998 Allocation of audio tracks on digital television recorders

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Most digital television tape recording formats incorporate four high quality digital channels that are independently editable and erasable, and are all equally protected. On some formats or some models only two such tracks are provided.

To avoid operational confusion during the international exchange of programmes, the audio channels should be allocated unequivocally to particular audio signals.

The EBU *recommends*

that, for the international exchange of programmes, the audio channels within recording formats with two and four channels are allocated as shown in *Table 1*.

This recommended allocation does not preclude further uses of the unrecorded tracks for in-house applications of the receiving organization

**Table 1 - Audio channel allocations in television recording formats with two or four audio channels**

### Recordings with complete programmes

Case	Programme type	Number of Tracks	Audio track Number			
			1	2	3	4
1a	Mono-ponic programme	2	Complete monophonic mix	International sound (if any)		
1b	Mono-ponic programme	4	Complete monophonic mix	Mute (notes 1, 2)	International sound (if any)	Mute
2a	Stereo-ponic programme	2	Complete mix, left	Complete mix, right		
2b	Stereo-ponic programme	4	Complete mix, left	Complete mix, right	International sound, left	International sound, right
3	Two complete stereo-ponic programmes	4	First programme complete mix, left	First programme complete mix, right	Second programme complete mix, left	Second programme complete mix, right

### Recordings with separate commentaries

Case	Programme type	Number of Tracks	Audio track Number			
			1	2	3	4
4a	Mono-ponic	2	Commentary (if any)	International sound (if any)		
4b	Mono-ponic	4	Commentary	Mute (note 2)	International sound	Mute
5	Stereo-ponic international sound	4	First commentary	Second commentary	International sound, left	International sound, right
6	Stereo-ponic	4	Commentary left	Commentary right	International sound, left	International sound, right
7	Non-mixed mono-ponic programme	4	Speech (commentary)	Music	Effects 1	Effects 2
8	Stereo-ponic programme and SAP*	4	Complete mix, left	Complete mix, right	SAP	Blank

SAP = second audio programme.

Notes 1 See Note 1 to Case 1  
2 See Note 2 to Case 1

### **Case 1: Single monophonic programme content**

In this case a single monophonic sound accompanies the video content of programme. In such a case, the monophonic programme content represents the complete programme sound mix but, for the purpose of international exchange, it can be accompanied by the so-called "international sound" - the complete monophonic mix of music, effects, etc., lacking only the speech which can be added in the dubbing process in order to obtain a complete monophonic programme sound mix in a language different from the original one.

*Note 1:* The internal practice of some EBU Members is to record identical monophonic sound signals on tracks 1 and 2.

*Note 2:* Some organizations prefer that the audio track allocation of 2 track recordings is also used for 4 track recordings, so that the same replay equipment can be used to replay more than one format without the need to re-route the audio signals. In these circumstances, the international sound can be recorded on track 2 as well as, or instead of, on track 3. If such a recording is used for international exchange, this should be clearly shown on the labels and recording report.

### **Case 2: Single stereophonic programme content**

This case is similar to case 1, i.e. a single complete stereophonic programme sound accompanies the video content of the programme. In this case, as in case 1, the stereophonic programme sound represents the complete programme sound mix and it can be accompanied by a complete stereophonic mix of music and all effects - a stereophonic international sound - which may be used by the receiving organisation for dubbing.

### **Case 3: Two complete stereophonic programme contents**

In this case, the video content of the recorded television programme is accompanied by two somewhat different complete stereophonic programme mix sounds. The difference may be the language or any other component.

*Note:* In the case where two different stereophonic programme sounds are recorded with the same video programme content, the sending organisation should provide written information on the nature of each of the two sounds.

### **Case 4: Monophonic programme with separate commentary**

When original news or documentary recordings with monophonic sound are exchanged, it is always expected to have the possibility to dub them in a different language. These recordings should therefore contain a complete international sound, i.e. the sound recorded on the spot with all ambience, original speech, etc. which can be mixed later, by the receiving organisation, with a new commentary in its own language.

*Note:* See note 2 Case 1.

### **Case 5 and Case 6: Stereophonic programme with separate commentary**

These cases are similar to case 4 but, since we are dealing here with stereophonic sound, all channels are used and the sound dubbing has to be done onto a copy of the original recording. On this recording again, the complete stereophonic mix can be recorded on channels 1 and 2, or the stereophonic commentary in the new language and the stereophonic international sound can be recorded on channels 1, 2, and 3, 4 respectively.

### **Case 7: Single monophonic programme content non-mixed**

In this case, the video content of the programme is accompanied by a non-mixed monophonic programme sound; i.e. the speech or commentary, the music and the effects are not mixed together.

Such a configuration permits mixing at a later stage during the re-recording of dubbing of that particular tape. In general, such a case may appear when unfinished programmes, or programme segments, are exchanged (for example: one broadcasting organisation may collect inserts from different sources in order to assemble a combined programme).

## Case 8: Stereophonic programme and second audio programme (SAP)

This case, which is mainly of interest in the USA, has been included in the table for completeness.

A complete stereophonic programme is accompanied by a monophonic second audio programme (SAP). Under the circumstances of use of SAP, the transmitted quality is of a lower quality than normal programme sound.

### Longitudinal cue audio channel

In all the cases described above, the cue audio channel, if present, should preferably contain a complete monophonic programme mix or, if this is not practicable, the content of audio channel 1.

### Application

The allocations in Table 1 should be used on all digital recording formats, including:

- D1 format [1][2]
  - D2 format [3]
  - D3 format [4]
  - D5 format [5]
  - Digital Betacam
  - D7 DVCPRO (2-track allocations) [6]
  - Betacam SX
  - D9 format (Digital-S)
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The allocation of audio channels on analogue television tape recording formats is given in EBU Recommendation R38-1992 [7].

## Bibliography

- [1] EBU document Tech. 3252 (1986): **Standard for recording digital television signals on magnetic tape in cassettes**
  - [2] IEC Publication 61016: **Helical-scan digital component video cassette recording system using 19-mm magnetic tape (format D-1)**
  - [3] IEC Publication 61179: **Helical-scan digital composite video cassette recording system using 19-mm magnetic tape, format D-2 (NTSC, PAL, PAL-M)**
  - [4] IEC Publication 61327: **Helical-scan digital composite video cassette recording system using 12,65 mm (0,5 in) magnetic tape - Format D-3**
  - [5] IEC Publication 61835 in preparation: **Helican-scan digital component video cassette recording system using 12,65 mm (0,5 in) magnetic tape - Format D-5**
  - [6] IEC Publication 62071 in preparation: **Helican-scan compressed digital video cassette recording system using 6,35 mm magnetic tape, format D-7**
  - [7] EBU Technical Recommendation R38-1992: **Allocation of audio channels in analogue tape recording formats for international exchange of programmes**
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