

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Audio, video and multimedia systems – General channel assignment of multichannel audio

Systèmes audio, vidéo et multimédia – Affectation générale des voies des systèmes audio à voies multiples

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

AUDIO, VIDEO AND MULTIMEDIA SYSTEMS – GENERAL CHANNEL ASSIGNMENT OF MULTICHANNEL AUDIO

FOREWORD

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The text of this standard is based on the following documents:

CDV	Report on voting
100/1706/CDV	100/1773/RVC

Full information on the voting for the approval of this technical specification can be found in the report on voting indicated in the above table.

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INTRODUCTION

There are many multichannel audio formats and there will be new formats. These formats have a specific channel assignment such as a channel mapping and channel labels, but the basic channel assignments are not so different from each other. These can be unified to one common channel assignment as the general channel assignment. This general channel assignment provides audio devices and digital audio interfaces with the usage of unified channel assignments for any multichannel audio formats.

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AUDIO, VIDEO AND MULTIMEDIA SYSTEMS – GENERAL CHANNEL ASSIGNMENT OF MULTICHANNEL AUDIO

1 Scope

This International Standard specifies the general channel assignment for multichannel audio formats. The general channel assignment as a channel mapping and labeling provides the unified usage of channel assignments for source devices, digital audio interfaces and sink devices. This standard excludes the specification of the exact position of each loudspeaker. It is aimed at consumer applications, but is not targeted for theatrical environments. Up to 32 labels for loudspeaker positions are specified, which can be used for all current multichannel formats.

2 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

NOTE The general sequence of position labels is used: height, front/back, left/centre/right. Absence of a height letter indicates the middle layer. The other two planes are always indicated. See also Table 1.

2.1

top layer

top (highest) layer of three loudspeaker-layers located at the top of the screen, alternatively at the top of the room; loudspeaker channels of the top layer are annotated with the letters Tp

2.2

middle layer

middle layer of three loudspeaker-layers located at the vertical centre of the TV screen, alternatively at the same height as the height of viewer's ear

2.3

bottom layer

bottom (lowest) layer of three loudspeaker-layers located at the bottom of the TV screen, alternatively at floor level of the room; loudspeaker channels of the bottom layer are annotated with the letters Bt

2.4

front left

FL

loudspeaker position located at far left and centred vertically of the middle layer

2.5

front right

FR

loudspeaker position located at far right and centred vertically of the middle layer

2.6

front centre

FC

loudspeaker position located in the middle layer corresponding to the centre of the TV screen, as viewed from the seating area

2.7**low frequency effects****LFE**

carry only sound effects in low frequency band, generally below 120 Hz; the LFE channel is not used as a subwoofer channel to compensate for low frequency band of each loudspeaker

2.8**low frequency effects 1****LFE1**

LFE loudspeaker position located at the bottom layer

NOTE When mono LFE is used, it is conveyed in the LFE1 channel and the LFE1 loudspeaker position at the bottom layer is not defined. When LFE2 is also used, the LFE1 loudspeaker position is normally located far left front at the bottom layer.

2.9**back left****BL**

loudspeaker position located at far left back of the middle layer

2.10**back right****BR**

loudspeaker position located at far right back of the middle layer

2.11**front left centre****FLc**

loudspeaker position located mid-way between the front centre and front left of the middle layer

2.12**front right centre****FRc**

loudspeaker position located mid-way between the front centre and front right of the middle layer

2.13**back centre****BC**

loudspeaker position located at centre back of the middle layer

2.14**low frequency effects 2****LFE2**

LFE loudspeaker position located at the bottom layer and normally far right front, when LFE1 is used

2.15**side left****SiL**

loudspeaker position located on the left of the middle layer

2.16**side right****SiR**

loudspeaker position located on the right of the middle layer

2.17

top front left

TpFL

loudspeaker position located at far left front of the top layer

2.18

top front right

TpFR

loudspeaker position located at far right front of the top layer

2.19

top front centre

TpFC

loudspeaker position located at centre front of the top layer

2.20

top centre

TpC

loudspeaker position located at the centre of the top layer directly above the seating area

2.21

top back left

TpBL

loudspeaker position located at far left back of the top layer

2.22

top back right

TpBR

loudspeaker position located at far right back of the top layer

2.23

top side left

TpSiL

loudspeaker position located on the left of the top layer

2.24

top side right

TpSiR

loudspeaker position located on the right of the top layer

2.25

top back centre

TpBC

loudspeaker position located at centre back of the top layer

2.26

bottom front centre

BtFC

loudspeaker position located at centre front of the bottom layer

2.27

bottom front left

BtFL

loudspeaker position located at far left front of the bottom layer

2.28**bottom front right****BtFR**

loudspeaker position located at far right front of the bottom layer

2.29**front left wide****FLw**

loudspeaker position located at front left end in the room in the middle layer

2.30**front right wide****FRw**

loudspeaker position located at front right end in the room in the middle layer

2.31**left surround****LS**

array of loudspeakers positioned along the left side of the middle layer starting approximately 1/3 of the distance from the screen to the back wall

2.32**right surround****RS**

array of loudspeakers positioned along the right side of the middle layer starting approximately 1/3 of the distance from the screen to the back wall

2.33**left surround direct****LSd**

loudspeaker position located on the left wall of the middle layer for localized directionality as opposed to the diffuse array

2.34**right surround direct****RSd**

loudspeaker position located on the right wall of the middle layer for localized directionality as opposed to the diffuse array

2.35**top left surround****TpLS**

array of loudspeakers positioned along the right side of the top layer starting approximately 1/3 of the distance from the screen to the back wall

2.36**top right surround****TpRS**

array of loudspeakers positioned along the right side of the top layer starting approximately 1/3 of the distance from the screen to the back wall

3 General channel assignment

3.1 General

The channel assignment specifies the channels of multichannel audio, the loudspeaker assignment is the loudspeaker position of its channels.

3.2 Model

Figure 1 shows the model of channel assignment spaces with the three layers, and a listener is located in the centre of the bottom layer. The middle layer is located at the vertical centre of the picture screen or, alternatively, at the same height as the height of a listener's ear.

This model specifies the general channel assignments in these three layers, which are the top layer, the middle layer and the bottom layer. Each layer specifies channels in its layer.

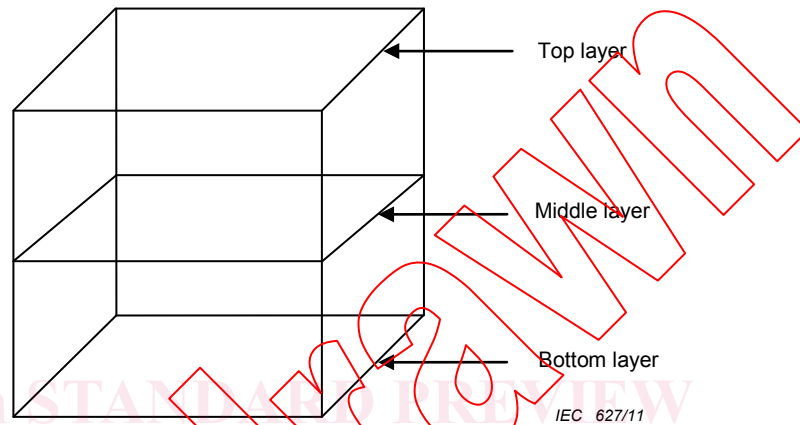


Figure 1 – Model of channel spaces

Figure 2 shows the top layer with its channel assignments, Figure 3 shows the middle layer with its channel assignments, and Figure 4 shows the bottom layer with its channel assignments.