

# CONSOLIDATED VERSION

## VERSION CONSOLIDÉE



**Audio reproduction method for normalized loudness level**

**Méthode de reproduction audio pour niveau d'isosonie normalisé**



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**VERSION REDLINE**



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## CONTENTS

|                                                                               |    |
|-------------------------------------------------------------------------------|----|
| FOREWORD.....                                                                 | 4  |
| INTRODUCTION.....                                                             | 6  |
| INTRODUCTION to Amendment 1 .....                                             | 6  |
| 1 Scope.....                                                                  | 7  |
| 2 Normative references .....                                                  | 7  |
| 3 Terms, definitions and abbreviations .....                                  | 7  |
| 3.1 Terms and definitions.....                                                | 7  |
| 3.2 Abbreviations.....                                                        | 8  |
| 4 Loudness normalisation.....                                                 | 8  |
| 4.1 General.....                                                              | 8  |
| 4.2 System model.....                                                         | 8  |
| 4.3 Control method.....                                                       | 9  |
| 4.3.1 Principal control.....                                                  | 9  |
| 4.3.2 Optional control.....                                                   | 9  |
| 5 Channel mode .....                                                          | 10 |
| 5.1 General.....                                                              | 10 |
| 5.2 Input source.....                                                         | 10 |
| 5.3 1 channel mode .....                                                      | 11 |
| 5.4 2 channel mode .....                                                      | 12 |
| 5.5 5.1 multichannel stereophonic.....                                        | 14 |
| 5.6 More than 5.1 channels.....                                               | 14 |
| 6 Loudness level diagram.....                                                 | 15 |
| 6.1 General.....                                                              | 15 |
| 6.2 Reproduction level .....                                                  | 15 |
| Annex A (informative) Loudness unit.....                                      | 17 |
| A.1 General.....                                                              | 17 |
| A.2 Loudness quantity and unit .....                                          | 17 |
| Annex B (informative) Terms related to audio reproduction .....               | 20 |
| Annex C (informative) Loudness metadata.....                                  | 22 |
| Annex D (informative) Exception to loudness level diagram .....               | 23 |
| Annex E (informative) Example of case 6.....                                  | 24 |
| Bibliography.....                                                             | 25 |
| Figure 1 – System model .....                                                 | 9  |
| Figure 2 – Input sources .....                                                | 11 |
| Figure 3 – 1 channel mode of reproduction .....                               | 11 |
| Figure 4 – 2 channel mode of reproduction .....                               | 13 |
| Figure 5 – 5.1 channel mode of reproduction .....                             | 14 |
| Figure 6 – 22.2 channel mode for reproduction .....                           | 15 |
| Figure E.1 – Reproduction level with respect to reference loudness level..... | 24 |
| Table 1 – Reproduction level .....                                            | 16 |
| Table A.1 – Loudness quantity and unit .....                                  | 18 |

|                                             |    |
|---------------------------------------------|----|
| Table D.1 – Reproduction level .....        | 23 |
| Table E.1 – Loudness level of samples ..... | 24 |

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**This Consolidated version of IEC 62760 bears the edition number 1.1. It consists of the first edition (2016-02) [documents 100/2591/FDIS and 100/2635/RVD] and its amendment 1 (2019-07) [documents 100/3184/CDV and 100/3241/RVC]. The technical content is identical to the base edition and its amendment.**

**In this Redline version, a vertical line in the margin shows where the technical content is modified by amendment 1. Additions are in green text, deletions are in strikethrough red text. A separate Final version with all changes accepted is available in this publication.**

International Standard IEC 62760 has been prepared by technical area 11: Quality for audio, video and multimedia systems, of IEC technical committee 100: Audio, video and multimedia systems and equipment.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

The committee has decided that the contents of the base publication and its amendment will remain unchanged until the stability date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

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## INTRODUCTION

The loudness level of audio reproduction varies according to the level of the input source and whether it is mono, stereo or multichannel. Without a suitable form of automatic control, users are forced to adjust the volume level of equipment to obtain an appropriate loudness level when the user selects another audio source or audio mode such as mono, stereo or downmix. There are some specific adjustment methods applied to consumer equipment but these methods are not standardized. For broadcast audio, broadcasting studios apply loudness level measurements and settle a reference level for their audio content depending on ITU-R BS.1770 and ITU-R BS.1864, the first standardisation work for loudness level in broadcasting. The audio loudness levels of other services are also expected to be standardized.

Broadcast audio with regulated loudness levels can be reproduced correctly with appropriately-configured reproduction systems and equipment. This International Standard specifies the method for reproduction with channel mode level setting and other level settings, and provides improved quality of listening for users. This method is also applicable for various audio content other than broadcasting audio. This International Standard is applicable to electrical signal levels and excludes acoustic audio levels from loudspeakers.

### INTRODUCTION to Amendment 1

The revision of IEC 62670:2016 is necessary in order to revise the informative information of Annex C for the use of loudness metadata.

## AUDIO REPRODUCTION METHOD FOR NORMALIZED LOUDNESS LEVEL

### 1 Scope

This International Standard specifies the audio reproduction method for normalized loudness level of audio sources for consumer equipment and systems.

### 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 62574, *Audio, video and multimedia systems – General channel assignment of multichannel audio*

~~ITU-R BS.1770-3:08/2012, *Algorithms to measure audio programme loudness and true-peak audio level*~~

ITU-R BS.1770-4:10/2015, *Algorithms to measure audio programme loudness and true-peak audio level*

### 3 Terms, definitions and abbreviations

#### 3.1 Terms and definitions

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

##### 3.1.1 loudness

subjective notion describing the magnitude of the perception of the sound by the human sense of hearing

Note 1 to entry: The magnitude of the auditory sensation mainly depends on sound pressure, it differs with frequency and sustain time of sound (see ISO 226:2003).

Note 2 to entry: The loudness is based on a sound that is pure tone of 40 dB sound pressure level and 1 kHz frequency, whose level is defined as 1 sone. Its symbol is  $N$ .

##### 3.1.2 loudness level

level of a sound equal to the sound pressure level of 1 kHz sine wave

Note 1 to entry: The loudness level is sensed by humans as equal to the subjective sound level. The reference is 1 kHz sine wave and 40 dB sound pressure level, its loudness level is 40 phon.

Note 2 to entry: The symbol for loudness level is  $L_N$  and its unit is phon.

##### 3.1.3 gated loudness

numerical value of loudness measured according to ITU-R BS.1770-3

Note 1 to entry: Gated loudness is measured in LKFS.