IEC TR 63079

Edition 1.0 2020-04

TECHNICAL REPORT

AMENDMENT 2

Code of practice for hearing-loop systems (HLS)

IEC TR 63079:2017-04/AMD2:2020-04(en)

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INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

ICS 17.140.50

ISBN 978-2-8322-7991-5

FOREWORD

This amendment has been prepared by IEC technical committee 29: Electroacoustics.

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

Draft TR	Report on voting
29/1037/DTR	29/1046/RVDTR

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

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

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

10.3 Basic theory

Add, after the existing 10.3.21, the following new subclause:

10.3.22 Time-differences between related information streams

If the same speech signal is presented to a recipient in two different forms together, such as acoustically and via an HLS, there may be time differences between the signals, which can be destructive of intelligibility. A similar issue can arise between the speech signal and the image of the talker in a visual display (lip-sync').

These issues are addressed in Annex K (informative).

Add, after the existing Annex J, added by Amendment 1, the following new annex:

Annex K
(informative)

Control of time-differences between information presented to a recipient via two transmission channels or media

K.1 General

Related information presented to a recipient via two channels with timing differences can be difficult or impossible to interpret. With smaller time differences, interpretation can be possible but stressful.

Examples of sources of time differences include:

- processing time in digital communication systems and video equipment;
- digital signal processing in hearing-loop amplifiers;
- propagation of sound from a source at a distance.

Because such situations can arise in very different ways, and involve different communication technologies, some of which are not yet exploited, it is appropriate to give recommendations regarding timing differences, without a very long and complicated discussion of how they can arise and how to change them.

K.2 Audible speech signals

It is recommended that the time difference between audible speech signals of similar sound level should, if possible, be 30 ms or less, with a limit of acceptability of 40 ms.

NOTE Music can also be affected, but the acceptable time difference varies with the type of music, and data on this are not readily accessible.

K.3 Audible speech signal and video display of the talker

In order to achieve acceptable lip-synch, the timing difference should be less than 50 ms, especially if the video signal lags the audible signal. This value is deduced from EBU Recommendation R37-2007.

K.4 Priority

In most cases, if both of the recommendations stated in Clauses K.2 and K.3 cannot be met simultaneously, priority should be given to speech signals.

Bibliography

Add the following new reference:

EBU Recommendation R37-2007, *The relative timing of the sound and vision components of a television signal*, European Broadcasting Union Geneva, 2007

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