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Multimedia quality – Method of assessment of synchronization of audio and video

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

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CONTENTS

FOREWORD.....	3
INTRODUCTION.....	5
1 Scope.....	6
2 Normative reference.....	6
3 Terms and definitions.....	6
4 Overview of methods of assessment.....	7
5 Subjective assessment of lip sync.....	7
5.1 Items to be assessed.....	7
5.2 Preparation of test video clips and test video sequence.....	8
5.2.1 Selection of content of a test video clip.....	8
5.2.2 Creation of a test video sequence.....	8
5.3 Procedures and condition for assessment of lip sync at the section 3.3'.....	9
5.4 Reporting of the result of assessment.....	9
6 Data processing.....	10
6.1 Items to be assessed.....	10
6.2 Method of assessment.....	10
6.3 Reporting of the result of estimation.....	11
Bibliography.....	12
Figure 1 – Overview.....	7
Figure 2 – Preparation of test video clips with time shifted audio.....	8
Figure 3 – An example of subjective assessment of lip sync.....	10
Figure 4 – Normalized response for gradings impairment caused by lip sync mismatch.....	11
Table 1 – Five-grade impairment scale and explanation of subjective opinion score.....	9

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**MULTIMEDIA QUALITY –
METHOD OF ASSESSMENT OF
SYNCHRONIZATION OF AUDIO AND VIDEO**

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International Standard IEC 62503 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.

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

CDV	Report on voting
100/1277/CDV	100/1358/RVC

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

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

The committee has decided that the contents of this publication will remain unchanged until the maintenance result 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

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- withdrawn,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

A bilingual version of this publication may be issued at a later date.

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INTRODUCTION

Contemporary multimedia systems are realized by digital technology. Depending on what digital processing is being applied, time delays differ among medium channels for reproduction as perceptible stimulus for a human audience. An example is video delay against audio, which is identified by such terms as lip sync or AV-sync. Video delay against audio will be inevitable for large sized displays, because necessary time for rendering and visualization will be proportional to the number of picture elements.

There should also be additional factors to be considered. They include synchronization problem during medium gathering, production, post-production, processing in various aspects to combine these multiple media and to be sent out or recorded as “multimedia”.

There is a need for international standards to provide the following three related methodologies:

- a) an objective method of measurement for difference of delays between reproduced audio and video (lip sync) by multimedia systems and equipment,
- b) a subjective (or perceptible) and statistical method of assessment of overall difference of delays between a real world and a reproduced scene and sound,
- c) a method of estimation of implied difference of delays inherent in multimedia received, recorded or under reproduction.

This International Standard addresses the item b) using typical multimedia content such as bust shots of news casters because of easiness in defining synchronization of audio and video. Since a range of perceptibly allowable miss-synchronization and sensitivity of human audience for lead and delayed audio against accompanied video depends on human sensation and the conditions for assessment, a clearly defined method of assessment of such characteristics should be standardised.

This International Standard is intended to supplement Recommendation ITU-R BT.1359-1, [1]¹, as well as partly answer the request of ITU-R to IEC that has been stated in Recommendation ITU-R BT.1377 [2].

Technical contents are based on a study in Faculty of Engineering, Chiba University in Japan, conducted in April 2006.

¹ Numbers in square brackets refer to the Bibliography.

MULTIMEDIA QUALITY – METHOD OF ASSESSMENT OF SYNCHRONIZATION OF AUDIO AND VIDEO

1 Scope

This International Standard provides a subjective (or perceptible) and statistical method of assessment of overall, or end-to-end, difference of delays between real world and reproduced scenes in terms of video and accompanying audio recoded in a medium.

This International Standard does not specify limiting values for those results obtained by the application of the provisions in this standard. It excludes applications to professional broadcast systems.

2 Normative reference

The following referenced document is indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ITU-R BT.500-11:2002, *Methodology for the subjective assessment of the quality of television pictures*