International Telecommunication Union

# ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

# P.835

**Corrigendum 1**

(01/2011)

SERIES P: TERMINALS AND SUBJECTIVE AND OBJECTIVE ASSESSMENT METHODS

Methods for objective and subjective assessment of speech quality

---

## Subjective test methodology for evaluating speech communication systems that include noise suppression algorithm

## Corrigendum 1

Recommendation ITU-T P.835 (2003) – Corrigendum 1

ITU-T P-SERIES RECOMMENDATIONS

**TERMINALS AND SUBJECTIVE AND OBJECTIVE ASSESSMENT METHODS**

| | | |
|---|---|---|
| Vocabulary and effects of transmission parameters on customer opinion of transmission quality | Series | P.10 |
| Voice terminal characteristics | Series | P.30 |
| | | P.300 |
| Reference systems | Series | P.40 |
| Objective measuring apparatus | Series | P.50 |
| | | P.500 |
| Objective electro-acoustical measurements | Series | P.60 |
| Measurements related to speech loudness | Series | P.70 |
| **Methods for objective and subjective assessment of speech quality** | **Series** | **P.80** |
| | | **P.800** |
| Audiovisual quality in multimedia services | Series | P.900 |
| Transmission performance and QoS aspects of IP end-points | Series | P.1000 |
| Communications involving vehicles | Series | P.1100 |

*For further details, please refer to the list of ITU-T Recommendations.*

# Recommendation ITU-T P.835

## Subjective test methodology for evaluating speech communication systems that include noise suppression algorithm

## Corrigendum 1

**History**

| Edition | Recommendation | Approval | Study Group |
|---|---|---|---|
| 1.0 | ITU-T P.835 | 2003-11-13 | 12 |
| 1.1 | ITU-T P.835 (2003) Amend. 1 | 2007-10-11 | 12 |
| 1.2 | ITU-T P.835 (2003) Cor. 1 | 2011-01-27 | 12 |

## FOREWORD

The International Telecommunication Union (ITU) is the United Nations specialized agency in the field of telecommunications, information and communication technologies (ICTs). The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of ITU. ITU-T is responsible for studying technical, operating and tariff questions and issuing Recommendations on them with a view to standardizing telecommunications on a worldwide basis.

The World Telecommunication Standardization Assembly (WTSA), which meets every four years, establishes the topics for study by the ITU-T study groups which, in turn, produce Recommendations on these topics.

The approval of ITU-T Recommendations is covered by the procedure laid down in WTSA Resolution 1.

In some areas of information technology which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC.

## NOTE

In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

Compliance with this Recommendation is voluntary. However, the Recommendation may contain certain mandatory provisions (to ensure, e.g., interoperability or applicability) and compliance with the Recommendation is achieved when all of these mandatory provisions are met. The words "shall" or some other obligatory language such as "must" and the negative equivalents are used to express requirements. The use of such words does not suggest that compliance with the Recommendation is required of any party.

## INTELLECTUAL PROPERTY RIGHTS

ITU draws attention to the possibility that the practice or implementation of this Recommendation may involve the use of a claimed Intellectual Property Right. ITU takes no position concerning the evidence, validity or applicability of claimed Intellectual Property Rights, whether asserted by ITU members or others outside of the Recommendation development process.

As of the date of approval of this Recommendation, ITU had not received notice of intellectual property, protected by patents, which may be required to implement this Recommendation. However, implementers are cautioned that this may not represent the latest information and are therefore strongly urged to consult the TSB patent database at http://www.itu.int/ITU-T/ipr/.

# Recommendation ITU-T P.835

## Subjective test methodology for evaluating speech communication systems that include noise suppression algorithm

## Corrigendum 1

Clause 5.1.3 of Recommendation ITU-T P.835 includes a description of Figures 1 and 2. Those descriptions are reversed – the description for Figure 1 applies to Figure 2 and the description for Figure 2 applies to Figure 1. The two paragraphs describing the figures should be revised as shown below:

### 5.1.3 Reference conditions

The reference conditions shall be selected to independently vary the signal and background ratings through their entire range of scale values. For example, speech in background noise should be varied along two dimensions, Speech-to-Noise Ratio (SNR) for varying the background ratings and MNRU for varying the signal ratings.

Figure 1 illustrates the relative independence of the ~~signal~~ background score and the correlation of the overall score to the ~~background~~ signal score when MNRU is varied while keeping SNR constant.

Figure 2 illustrates the relative independence of the ~~background~~ signal score and the correlation of the overall score to the ~~signal~~ background score when SNR is varied while keeping MNRU constant.

Figure 3 shows that the introduction of these combined reference conditions provide a full context within this two-dimensional perceptual space (signal/background).

## SERIES OF ITU-T RECOMMENDATIONS

| | |
|---|---|
| Series A | Organization of the work of ITU-T |
| Series D | General tariff principles |
| Series E | Overall network operation, telephone service, service operation and human factors |
| Series F | Non-telephone telecommunication services |
| Series G | Transmission systems and media, digital systems and networks |
| Series H | Audiovisual and multimedia systems |
| Series I | Integrated services digital network |
| Series J | Cable networks and transmission of television, sound programme and other multimedia signals |
| Series K | Protection against interference |
| Series L | Construction, installation and protection of cables and other elements of outside plant |
| Series M | Telecommunication management, including TMN and network maintenance |
| Series N | Maintenance: international sound programme and television transmission circuits |
| Series O | Specifications of measuring equipment |
| **Series P** | **Terminals and subjective and objective assessment methods** |
| Series Q | Switching and signalling |
| Series R | Telegraph transmission |
| Series S | Telegraph services terminal equipment |
| Series T | Terminals for telematic services |
| Series U | Telegraph switching |
| Series V | Data communication over the telephone network |
| Series X | Data networks, open system communications and security |
| Series Y | Global information infrastructure, Internet protocol aspects and next-generation networks |
| Series Z | Languages and general software aspects for telecommunication systems |

Printed in Switzerland
Geneva, 2011