

**ITU-T**

TELECOMMUNICATION  
STANDARDIZATION SECTOR  
OF ITU

**P.501**  
**Amendment 3**  
(06/2015)

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OBJECTIVE ASSESSMENT METHODS

Objective measuring apparatus

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Test signals for use in telephony

**Amendment 3: New Annex D – Speech files with  
male/female sentences prepared for use with  
perceptual based objective speech quality  
prediction**

Recommendation ITU-T P.501 (2012) – Amendment 3

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# Recommendation ITU-T P.501

## Test signals for use in telephony

### Amendment 3

#### New Annex D – Speech files with male/female sentences prepared for use with perceptual based objective speech quality prediction

#### Summary

Amendment 3 to Recommendation ITU-T P.501 (2012) introduces Annex D and updates the References clause to accommodate new entries cited. It includes a set of test speech signals based on Annex B, which are composed of 6 s female-male combinations. The signals are especially prepared for use in conjunction with ITU-T P.800-based applications and perceptual based objective models using ITU-T P.800-conformant speech samples.

#### History

Edition	Recommendation	Approval	Study Group	Unique ID*
1.0	ITU-T P.501	1996-08-30	12	<a href="http://handle.itu.int/11.1002/1000/3635">11.1002/1000/3635</a>
2.0	ITU-T P.501	2000-05-18	12	<a href="http://handle.itu.int/11.1002/1000/5080">11.1002/1000/5080</a>
2.1	ITU-T P.501 (2000) Amd. 1	2004-05-14	12	<a href="http://handle.itu.int/11.1002/1000/7411">11.1002/1000/7411</a>
3.0	ITU-T P.501	2007-06-29	12	<a href="http://handle.itu.int/11.1002/1000/9065">11.1002/1000/9065</a>
4.0	ITU-T P.501	2009-12-14	12	<a href="http://handle.itu.int/11.1002/1000/10657">11.1002/1000/10657</a>
5.0	ITU-T P.501	2012-01-13	12	<a href="http://handle.itu.int/11.1002/1000/11459">11.1002/1000/11459</a>
5.1	ITU-T P.501 (2012) Amd. 1	2012-07-14	12	<a href="http://handle.itu.int/11.1002/1000/11686">11.1002/1000/11686</a>
5.2	ITU-T P.501 (2012) Amd. 2	2014-10-29	12	<a href="http://handle.itu.int/11.1002/1000/12330">11.1002/1000/12330</a>
5.3	ITU-T P.501 (2012) Amd. 3	2015-06-29	12	<a href="http://handle.itu.int/11.1002/1000/12515">11.1002/1000/12515</a>

\* To access the Recommendation, type the URL <http://handle.itu.int/> in the address field of your web browser, followed by the Recommendation's unique ID. For example, <http://handle.itu.int/11.1002/1000/11830-en>.

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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.

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As of the date of approval of this Recommendation, ITU had 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/>.

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# Recommendation ITU-T P.501

## Test signals for use in telephony

### Amendment 3

#### **New Annex D – Speech files with male/female sentences prepared for use with perceptual based objective speech quality prediction<sup>1</sup>**

##### 1) References

*Add the following entries in alphanumeric order.*

- [ITU-T P.862] Recommendation ITU-T P.862 (2001), *Perceptual evaluation of speech quality (PESQ): An objective method for end-to-end speech quality assessment of narrow-band telephone networks and speech codecs.*
- [ITU-T P.862.3] Recommendation ITU-T P.862.3 (2007), *Application guide for objective quality measurement based on Recommendations P.862, P.862.1 and P.862.2.*
- [ITU-T P.863] Recommendation ITU-T P.863 (2014), *Perceptual objective listening quality assessment.*
- [ITU-T P.863.1] Recommendation ITU-T P.863.1 (2014), *Application guide for Recommendation ITU-T P.863.*

##### 2) Annex D

*Introduce the following Annex D after Annex C.*

### Annex D

#### **Speech files with male/female sentences prepared for use with perceptual based objective speech quality prediction**

(This annex forms an integral part of this Recommendation.)

##### D.1 General

Annex B provides 32 sentences spoken in eight languages by two male and two female talkers. These 32 sentences follow the technical specifications given in [ITU-T P.863.1] and [ITU-T P.862.3]. Subjective and objective scores obtained for a given scenario depend also on the speech sample, and more on the talker and gender. This leads to systematic differences in quality scoring depending on the speech sample used.

To minimize gender dependency, speech samples can be composed of male and female sentences. In particular, for mobile field testing, sentence pairs consisting of one male and one female sentence are commonly used in practice. This annex provides a set of composed sentence pairs in different languages, which are based on the fullband speech samples in Annex B. These sentences are targeted at applications where many scores have to be obtained in a minimum time in order to track fast

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<sup>1</sup> This amendment includes an electronic attachment containing the speech samples for Annex D.

changes or instabilities e.g., in mobile networks. For other applications, longer sequences of sentences as found in Annex B and described in [ITU-T P.863.1] and [ITU-T P.862.3] should be used.

NOTE – The sample provided in British English is not based on speech material in this Recommendation, rather composed of speech material used in the evaluation of [ITU-T P.863].

A composed speech sample is provided for the following languages:

- Dutch
- British English
- German
- Finnish
- French
- Italian

Each of these male/female composed samples balances the systematic bias between male and female voices as known for [ITU-T P.862] and [ITU-T P.863]. Additionally, the sentences and talkers have been selected to match mean opinion score (MOS) predictions for typical codec conditions that can be observed as averages over larger sets of speech samples. The processing procedure and presentation scheme follow [ITU-T P.863.1] exactly.

Each sample is 6 s in length, it has a leading and a trailing pause as well as a pause in between the two sentences that meet the requirements of [ITU-T P.863.1] and [ITU-T P.862.3]. The noise floor in the speech pauses is  $< -85$  dBO<sub>v</sub> (A) r.m.s., but not digital silence.

All sequences are stored as \*.wav files, no calibration for the individual signals is provided. All signals are calibrated to the same level. In general, users of the test signals have to find a suitable digital amplification in order to achieve the required signal level for their applications – for the test sentences, as well as for the noise sequences. General guidance on speech signal levels can be found in [ITU-T P.800] and [ITU-T P.79]; further guidance and tools for speech processing can be found in [ITU-T G.191].

## **D.2 Test sentences**

All speech samples are processed so that the levels measured using a speech level voltmeter according to [ITU-T P.56] are equal. The signals are available with 8 kHz and 48 kHz sampling rates.

Naming convention:

Amendment 3 xyz\_fm\_flat\_08k.wav

Amendment 3 xyz\_fm\_flat\_48k.wav

### **D.2.1 Dutch**

Zijn auto was alweer kapot. (*Female 2*)

Zij kunnen de besluiten nemen. (*Male 1*)

### **D.2.2 English**

The glow deepened in the eyes of the sweet girl. (*Female*)

The lamp shone with a steady green flame. (*Male*)

### **D.2.3 Finnish**

Ne eivät koskaan jäädy. (*Female 1*)

On opittava kärsimään voidakseen elää. (*Male 2*)

#### **D.2.4 French**

On entend les gazouillis d'un oiseau dans le jardin. (*Female 1*)

Ma mère et moi faisons de courtes promenades. (*Male 2*)

#### **D.2.5 German**

Im Fernsehen wurde alles gezeigt. (*Female 1*)

Sekunden entscheiden über Leben. (*Male 2*)

#### **D.2.6 Italian**

Non ricordo più dove ho messo quella bella foto. (*Female 1*)

Tu non conosci ancora gli uomini. (*Male 1*)





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