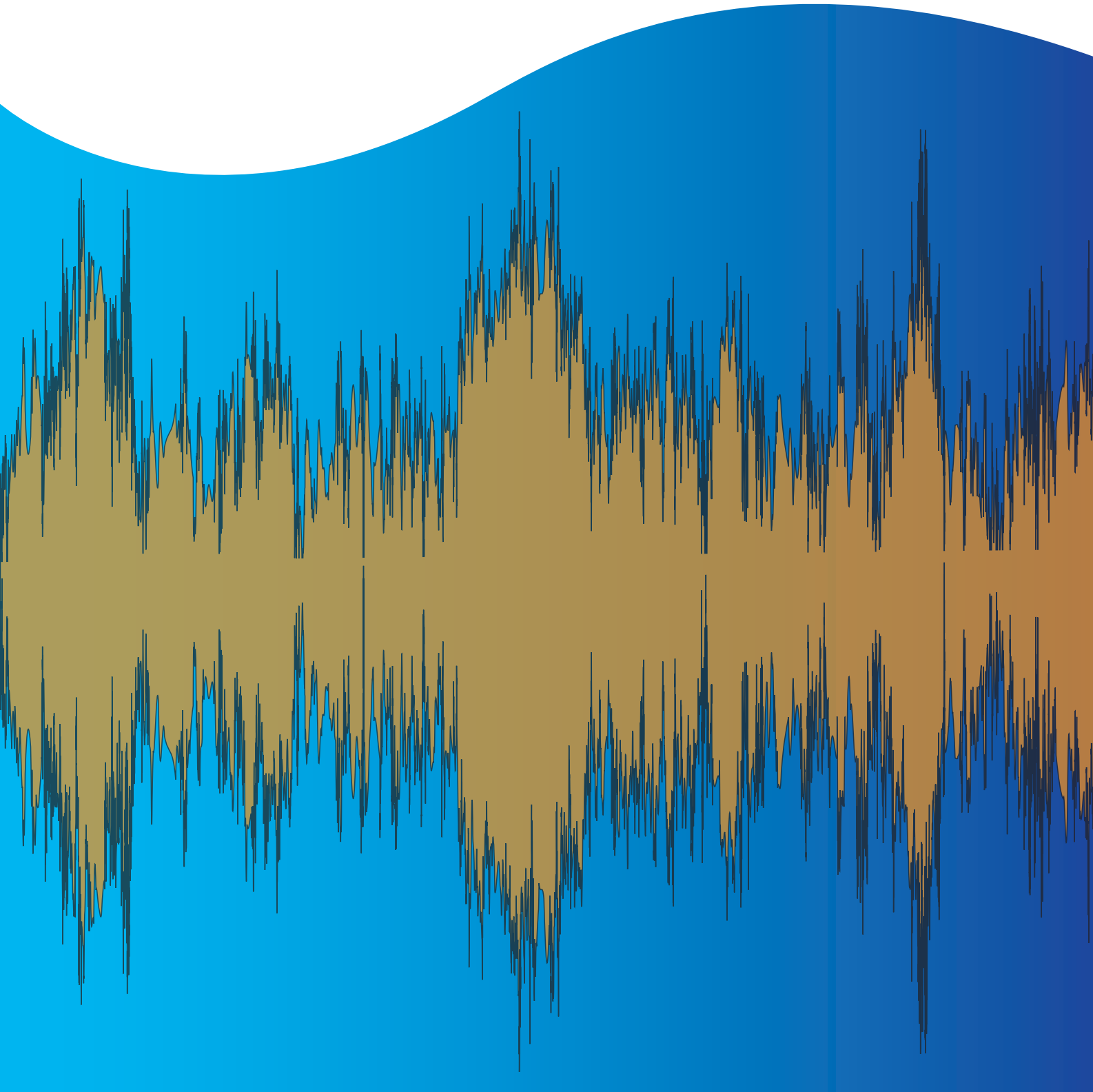


# MT8855A-032

PESQ Measurement Option for the MT8855A



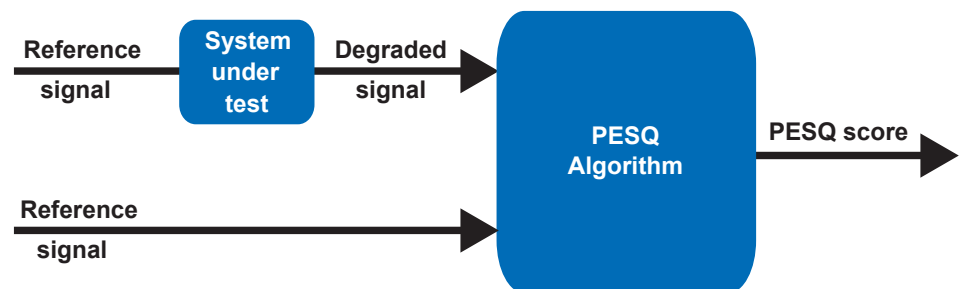
# Introducing PESQ

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PESQ (Perceptual Evaluation of Speech Quality) is an objective measurement of voice quality used in telecommunications systems.

PESQ has been used in traditional telephone networks, VoIP, and cellular phone systems for many years and has now been adopted by Anritsu as a solution for Bluetooth audio applications.

As illustrated below, a reference audio signal is passed through the system under test and the degradation in the audio signal is measured by an algorithm.



The PESQ algorithm was developed by KPN Research (Netherlands) and British Telecommunications (UK). It was approved by the ITU in 2001 and adopted as ITU-T recommendation P862.

PESQ measurements have largely replaced Mean Opinion Score (MOS) measurements that were based on subjective scores given by a panel of listeners. A PESQ score can be converted to a MOS score using a formula supplied by the ITU.

## Reference audio signals

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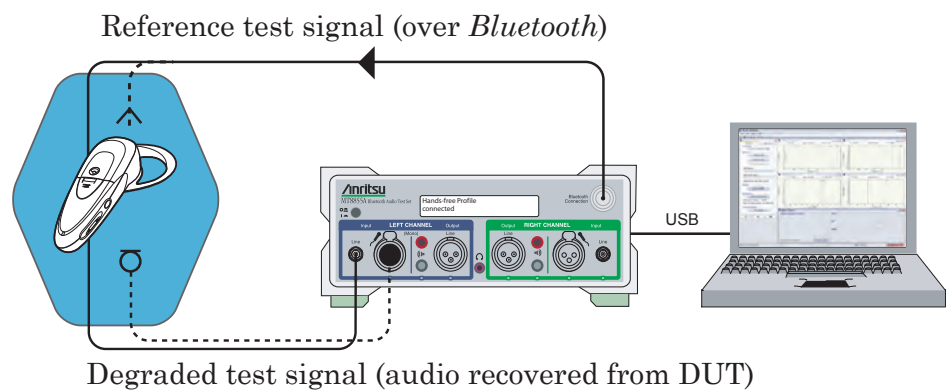
All PESQ measurements require the use of reference audio signals. Audio signals can be acquired in three ways.

- Anritsu offer optimized ASTS (Artificial Speech-like Test Stimulus) files that provide a full range of phonic sounds in British and American English. Use of ASTS files is the best way to perform optimized testing in the shortest possible time.
- Reference audio signals can be downloaded in English, Spanish, and French from the ITU website at <http://www.itu.int/rec/T-REC-P.862-200102-I/en>
- Reference audio signals can be created by sufficiently experienced users. All files created must comply with strict guidelines on speech /silent periods, audio levels, phonic range, and total signal time.

## Typical test setup

When testing a headset module, the *Bluetooth* and audio signals are routed to and from the module using RF and audio cables. This gives the best possible PESQ result because the audio signal is not distorted by acoustic transducers such as microphones and speakers.

When testing fully assembled products, the measurement results include distortions from the microphones and speakers of both the test system and the device. In this case, PESQ is best used to compare the performance of the device under test against a 'Golden Sample'.



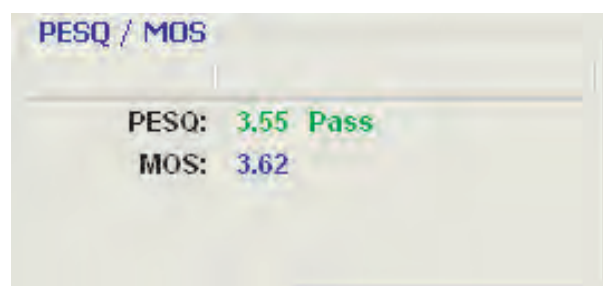
PESQ scores are output between -0.5 (worst) and 4.5 (best). A GSM network (13 kbps), for example, would typically score about 3.5; an ISDN network may score as high as 4.3.

## Performing PESQ with the MT8855A

The PESQ measurement option for the MT8855A can be ordered at the time of initial purchase or added afterwards. With the option installed, PESQ measurements are available when the MT8855A role is set to Audio Gateway (in Headset, or Hands-free profile), and also when a SCO/eSCO connection is established with the DUT. PESQ is not suitable for testing music fidelity using the A2DP profile.

PESQ Measurements can be performed manually with other numeric tests, or run as part of an automatic test plan.

Pass/Fail limits can be set by the user and the results display as PESQ and equivalent MOS scores.



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## Ordering information:

Part number	Item
MT8855A	Bluetooth Audio Test Set
MT8855A-032	PESQ/MOS measurement option
MT8855A-033	Artificial Speech-like Test Stimulus (ASTS) wav file option

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