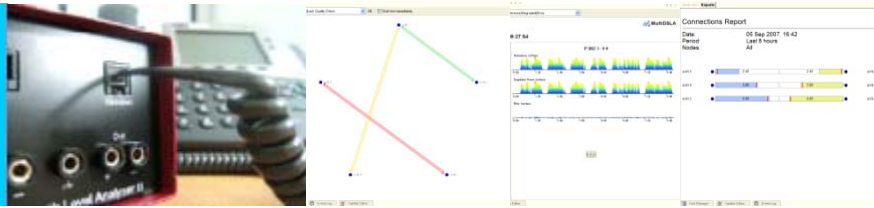


# MultiDSL A Telephone Tester

A software option for the popular MultiDSL speech performance test system, Telephone Tester automates the use of MultiDSL in measuring transmission characteristics of telephone handsets to ITU Rec. P.310 & P.311.

**Malden Electronics**



**MultiDSL predicts end-to-end user experience**

## OVERVIEW

MultiDSL is a professional test system which measures the end-to-end *user experience* for any telephone system.

The **Telephone Tester** option adds a range of electro-acoustic measurements to MultiDSL, and effectively upgrades existing analogue acoustic test installations to create an economical and complete test bed for VoIP telephones and other terminals.

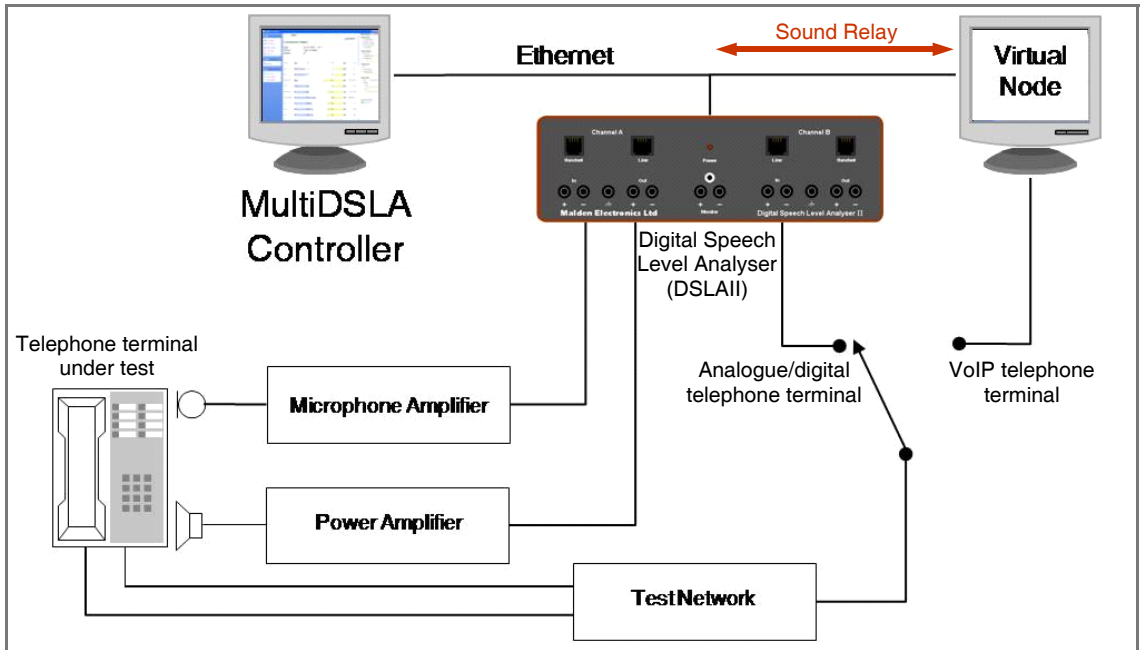
## BENEFITS

MultiDSL Controller with Telephone Tester offers a host of features for test design, test automation, ease of use, results analysis and reporting.

An economical upgrade to legacy test systems for VoIP.

'Sound Relay' routes audio between DSLAI and Virtual Node for interface to other signal sources and instruments.

Full support for narrowband and wideband measurements.



## MultiDSL Telephone Tester

Telephone Tester automates the use of MultiDSL in measuring the transmission characteristics of telephone handsets to ITU Recommendations P.310 and P.311.

Telephone Tester integrates with MultiDSL version 3 or later to test all types of telephones - analogue, digital, VoIP and wireless. It upgrades existing analogue acoustic test installations to handle Voice-over-IP and IP phone testing, making Telephone Tester an economical solution with excellent performance.

Special in-line instructions guide the user when changes are required to the test bed. This unique feature means that users can be trained quickly without compromising measurement integrity.

The figure above shows the configuration for the telephone tester for both 'conventional' telephone sets -

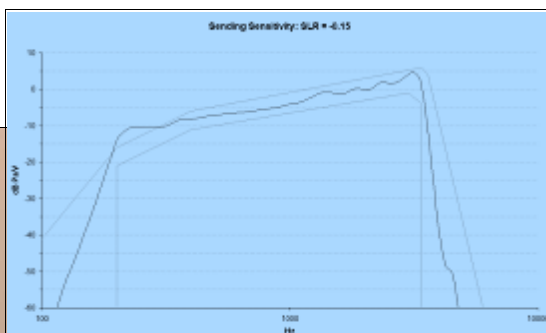
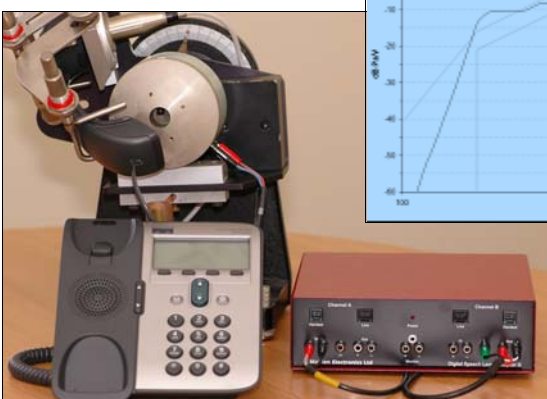
analogue and digital - and VoIP. The Virtual Node application is a reference SIP/H.323 entity with multiple narrowband and wideband codec support. The 'Test Network' is, for example, an exchange line simulator or a LAN, as appropriate to the unit under test.

The electrical side of the telephone is connected via the network or network simulator to a Digital Speech Level Analyser (DSLAI) instrument, or via an IP network to a Virtual Node.

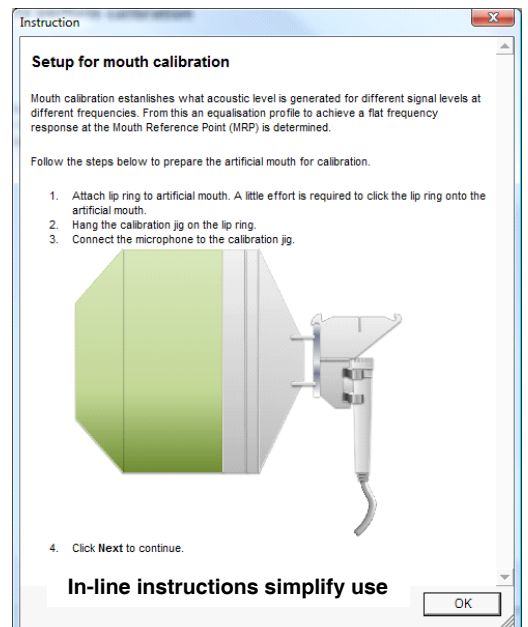
## Results Exporter

The results of the tests can be seen in the MultiDSL Results Analysis Viewer or can be exported to Excel and displayed within user definable masks.

## Typical set-up for IP telephone with artificial mouth and ear



Automatic graphing of SLR, RLR and other results to Excel, using preset or user-defined masks



## MultiDSL Applications

MultiDSL is used in all branches of voice communications. These are just some application examples:

Terminal development

Network element development

VoIP, cellular, TDM, analogue: all transmission technologies

Regression testing

### Telephone test bed

Conference bridge testing

Wireless handset comparison

UMA performance and handover analysis

Speech quality optimisation in all speech networks

Vendor selection

Enterprise SLA validation

Speech quality/load evaluation

Echo simulation and cancellation analysis

Drive test GSM

Competitive comparison of cellular networks or terminals

Drive test PMR/Tetra

Train communications

Codec evaluation

DSP performance measurement

## Main Features

- Automated Calibration of Ear and Mouth
- Artificial Mouth equalisation
- P.310 Tasklists for narrowband
- P.311 Tasklists for wideband
- Programmable in-line instructions for user when manual intervention is required
- Advanced 'Sound Relay' routes audio between Virtual Node (VoIP) and DSLAll (analogue) for interface to other signal sources and instruments
- Special Tasklist Events
  - Octave Tone Event
  - Noise Event
  - Octave Analysis Event
  - Frequency Response Event
  - Level Seeker Event
  - Power Event
  - Band Power Event
  - Loudness Rating Event
  - Terminal Coupling Loss Event
  - User Instruction Event
- Result Exporter
- These tests function for both 8k (narrowband) and 16k (wideband) sample rates.

## Supported Standards

- IEC 1260 (1995-08) – Octave-band and fractional-octave-band filters
- ITU-T Recommendation P.310 (2003-03) – Transmission Characteristics for telephone band (300-3400 Hz) digital telephones
- ITU-T Recommendation P.311 (2005-06) – Transmission characteristics for wideband (150-7000 Hz) digital handset telephones
- ITU-T Recommendation P.64 (1993-03) – Determination of Sensitivity/Frequency Characteristics of local telephone systems
- ITU-T Recommendation P.79 (1999-09) – Calculation of loudness ratings for telephone sets
- ITU-T Recommendation P.501 (2000-05) – Test signals for use in telephony
- ITU-T Recommendation P.57 (2005-11) – Artificial ears
- ITU-T Recommendation P.58 (1996-08) – Head and torso simulator for telephony
- ITU-T Recommendation P.51 (1996-08) – Artificial mouth
- ITU-T Recommendation O.41 (1994-10) – Psophometer for use on telephone-type circuits
- ITU-T Recommendation G.122 (1993-03) – Influence of national systems on stability and talker echo in international connections
- ITU-T Recommendation P.48 (1988-11) – Specification for intermediate reference system.



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