

## Unbalanced attenuation measurements

*Manual test setup to measure TCL, TCTL and ELTCTL*



*Fixture for U/UTP, F/UTP and SF/UTP cables*



*Fixture for U/FTP, F/FTP and S/FTP cables*

**Test setup for: TCL, TCTL, ELTCTL, LCL, LCTL and ELLCTL**

### DESCRIPTION

Transverse **C**onversion **L**oss (TCL) is the ratio (in dB) of a common-mode returned voltage measured on a wire pair relative to a differential-mode voltage applied to the same end of the pair. The TCL value shows how well the impedance of the pair's conductors is balanced.

This parameter and its derivatives, also called Unbalanced Attenuation measurements, are required by all major standardisation bodies like ANSI/TIA, IEC or YD/T. AESA provides corresponding test fixtures for 4 or 25 pairs.

To measure unbalanced parameters, 2 coaxial 50 Ohm ports are required. Our software option will guide you through the calibration and measurement procedure which is semi-automatic. For measurements, any mid- to high-end VNA can be used. Please check with AESA if a driver is already available.

The test frame consists of 2 baluns including common mode ports to measure unbalance parameters. If requested, also differential transmission and reflection parameters can be measured.

In case of shielded cables, the screen has to be well connected to the ground. Specific precautions common to high frequency measurements must be taken.

### KEY FEATURES

- Semi-automatic measurements
- Used with 50 Ohm ports of AESA ATE's or with an additional VNA
- Simple and easy software-guided calibration and measurement procedures
- Cost effective solution for sporadic measurements of unbalanced attenuation



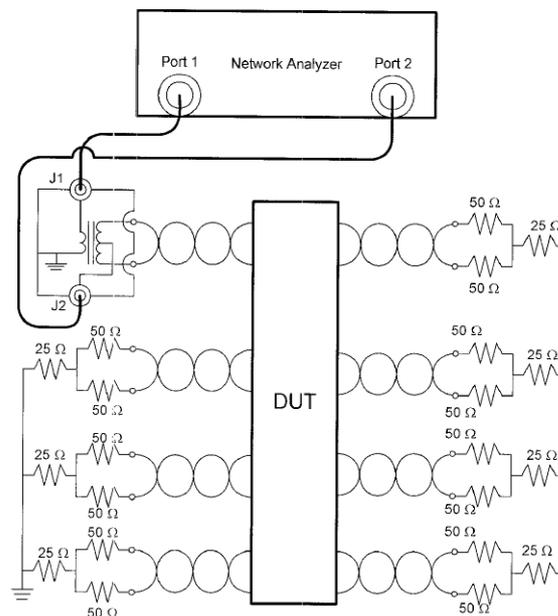
AESA Cortailod

### TECHNICAL SPECIFICATIONS

Sweep type	Linear or logarithmic (2 separate calibrations needed)			
Frequency Range	Depending on balun frequency range. 3 versions available: a. From 100kHz to 100MHz b. From 1MHz to 650MHz c. From 1MHz to 1.3GHz			
Calibration	3 steps, simple and easy software guided			
Components	This option consists of: <ul style="list-style-type: none"> <li>• Fixture for 4 or 25 pairs with 2 baluns</li> <li>• Mechanical adapter for calibration</li> <li>• Connecting cables</li> <li>• AESA OptiTest measurement software</li> </ul>			
Standards	Performs unbalanced attenuation measurements on cables according to: <ul style="list-style-type: none"> <li>• ANSI/TIA-568-C.2 for Category 3, 5e, 6 and 6A</li> <li>• ANSI/TIA-568-C.2-1 for Category 8</li> <li>• IEC 61156 series for Category 5e, 6, 6A, 7, 7A, 8.1, 8.2 and 1200MHz</li> <li>• YD/T 838.2-2016</li> </ul>			
Versions	U/UTP, F/UTP and SF/UTP cables		U/FTP, F/FTP and S/FTP cables	
	4 pairs setup	25 pairs setup	4 pairs setup	25 pairs setup
Article Nb.	51.0001.0024.0	51.0001.0032.0	51.0001.0089.0	On request

### MEASUREMENT

#### PRINCIPLE (shows TCL)



### REQUIRED COMPONENTS

The system must be completed with:

- Vector Network Analyzer (VNA), which can be provided by AESA or by customer;  
or
- AESA's Scorpius 1 DT, fully integrated system with embedded VNA, PC and software;  
or
- Use it as optional device on an existing AESA automated test equipment (ATE).