

Simplifying Copper Pair Quality Testing

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Every technician arriving on a job site runs an initial pair quality test to verify the copper circuit quality. This is done to establish the suitability of the copper pair for the installation of a new broadband DSL or voice service. The quality test is also performed to investigate customer complaints concerning the quality and delivery of existing services. One of the main challenges of testing pair quality is that the technician needs to change the state of the circuit at the far end of the line to **complete all the basic pair quality tests**.



EXFO MaxTester 600

The basic set of traditional pair quality tests varies slightly between operators and their established methods and procedures. Most typical tests may include voltage, resistance (shorts), capacitance (opens), and balance measurements. For each of these four tests, the technician is required to change the circuit state at the far end of the line to properly perform a basic pair quality assessment. This means that once on the site, the technician must walk or drive to and from the customer location and the end of the copper pair multiple times. For example, a proper **capacitance test** requires the far end to be **open** while a resistance **test** requires the far end to be **shorted**. Costs for the extra time and the extra gas quickly add up considering that the same applies for all technicians assessing copper pair quality over time.

A more cost-effective solution is to make use of the TS125 Far End Device (FED) to remotely change the state at the far end of the circuit for the technician, speeding up test completion times while cutting down preventable costs. Coupled with the EXFO MaxTester 600 series, the TS125 FED changes the state of the line to perfectly match the specific test being run to assess the pair quality.



Teletech TS125 FED

The MaxTester 600 and TS125 FED integrated solution can be used for manual, standalone tests or for **complete automated test scripts** in order to get the desired measurement results in the timeliest fashion. Connect the MaxTester and the FED to the line under test using the T/A, R/B, and G/E connections. From the MaxTester 600, select your desired manual or autotest script and start the test.



You will be able to rapidly conclude your initial pair quality tests using the MaxTester's evaluation of the results against user-definable pass/fail criteria. Users can also review each of the measurements in more detail, especially if the test indicates a fail.

Result:	Test	Test Status	P/F
	Voltage	Completed	✓
	Resistance	Completed	✓
	Resistive Balance	Completed	✓
	Isolation	Completed	✓
	Opens	Completed	✓
	VF Balance (Active)	Completed	✓

Test Status: Ready

Result:	Test	Test Status	P/F
	Voltage	Completed	✓
	Resistance	Completed	✓
	Resistive Balance	Completed	✓
	Isolation	Completed	✗
	Opens	Resistance detected	✗
	VF Balance (Active)	Completed	✗

Test Status: Ready

The integrated MaxTester 600/TS125 FED solution can also be used for more in-depth close-out tests. Add PSD noise, impulse noise, and TDR measurements to your close-out tests to truly understand the impact from both physical faults (bridge taps, bad splices) and noise factors (AM radio, crosstalk, electrical motors, and so forth).

Result:	Test	Test Status	P/F
	Voltage	Completed	✓
	Resistance	Completed	✓
	Resistive Balance	Completed	✓
	Isolation	Completed	✓
	Opens	Completed	✓
	WB PSD Noise	Completed	✓
	WB Impulse Noise	Completed	✓
	VF Balance (Active)	Completed	✓
	TDR Test	Completed	✓

Test Status: Ready



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