

525 Product Family

Smart Cable Acceptance Testing



The 525 family is a rugged and dependable line of smart cable acceptance testing instruments designed for telecom and datacom high count cable acceptance testing. The 525 delivers link loss testing the smarter way, creating the easiest means for testing fiber optic cable in the field.



- Automated bi-directional testing
- Optical return loss measurements
- Dual wavelength insertion loss measurements
- Multi-mode and Single-mode models user settable PASS/FAIL thresholds
- Communications between units via messaging
- Wide dynamic range optical power meter
- Test record storage and data management software
- Rugged outside plant instrument package
- Universal connector interface

The 525 Product Family

- **525-30-PCX**
850/1300nm Automated Insertion Loss - PC Connectors
- **525-60-PCX**
1310/1550nm Automated Insertion Loss - PC Connectors
- **525-60-APC**
1310/1550nm Automated Insertion Loss - APC Connectors
- **525-60RL-APC**
1310/1550nm Automated Insertion/Return Loss - APC Connectors

The 525 family of products provides an accurate, fast and easy to use method to measure insertion and return loss on multi-mode and single-mode fiber optic cables. And, the one button AUTOTEST ensures the user is guided through the measurement to obtain dual wavelength (850/1300nm or 1310/1550nm) bi-directional insertion loss measurements. Plus, the 525 single-mode family of products has a return loss measurement mode.

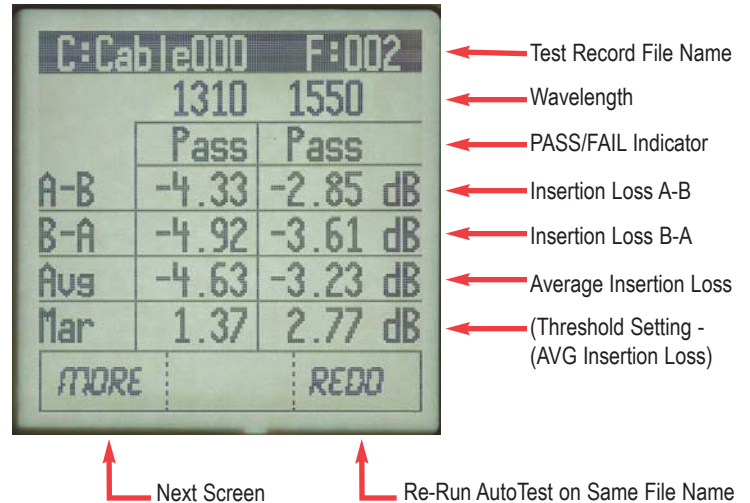
With a rugged and conveniently sized design, the 525 may be used in the demanding and severe environment of the outside plant. The large backlit display and sealed membrane panel allows for use in the harshest of locations. The 525 can store up to 1500 measurement records to be downloaded to a database manager that can then organize and print certification reports.

Internal rechargeable batteries power the 525. When fully charged, the 525 provide 8 hours of continuous operation.



Automated Insertion Loss Measurement

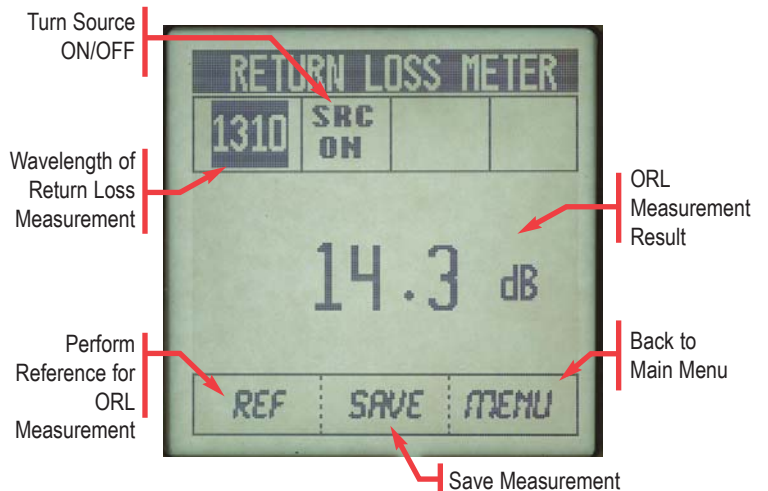
The AutoTest button executes a bi-directional insertion loss test and displays an event table of measurement results in a matter of seconds. It informs the user of the PASS/FAIL condition of fibers tested based on user-set thresholds, and then automatically assigns a fiber ID and saves the test record to internal memory. This simple process helps to ultimately lower the cost of automated cable acceptance testing.



Optical Return Loss Measurement

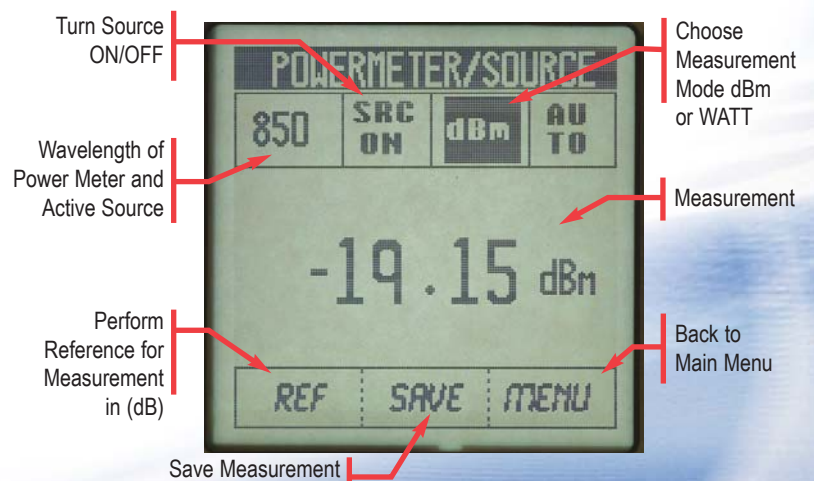
A return loss measurement characterizes the strength of reflections produced by variations in the refractive index along a fiber link, known as back reflection or Fresnel reflection. Quantified in decibel (dB) units, return loss is a logarithmic expression of the ratio of reflected power over the incident power. That is, the intensity of light reflected back to the return loss meter over the intensity of light injected into the fiber, expressed as a positive number.

A common source of back reflections is the junction where two fiber optic connectors are mated. Because of this, a connector with a high return loss, which sends very weak reflections back to the transmitter, is superior to a connector with a high return loss that sends back strong reflections. When measuring connectors, extremely low return loss values indicate a defect, such as core misalignment, poor fiber end face contact, scratches, breaks, or end face contamination.



Optical Power Meter

The 525 incorporates an optical power meter calibrated at 850, 1300, 1310, 1550nm with a dynamic measurement range of +10dBm to -70dBm. The optical power meter interface utilizes the Tempo snap-on-connectors (SOC) enabling the user to configure the power meter for all industry standard optical connector interfaces.



Smart Cable Acceptance Testing As Easy As 1...2...3...

Step 1: Instrument Set-up

- Set-up Script requires 3 settings

1



User has the ability to select 1310, 1550nm or 1310 and 1550nm testing.

2



User has the ability to automatically save test result to internal memory.

3



User has the ability to set PASS/FAIL threshold settings. These settings can be fixed numbers or based on various industry standards.

Step 2: Referencing

- User selects reference method



Side by side reference is selected when both units are together and referencing can be accomplished. This method is more accurate due to cross calibration of units.



Loop back referencing method is chosen when the units are separated and it is not convenient to co-locate instruments.

Step 3: Running AutoTest



Instrument automatically assigns file name. User may select base name in start # and increment amount.

All instructions for running AutoTest given.



Instrument displays PASS/FAIL and detailed test results.

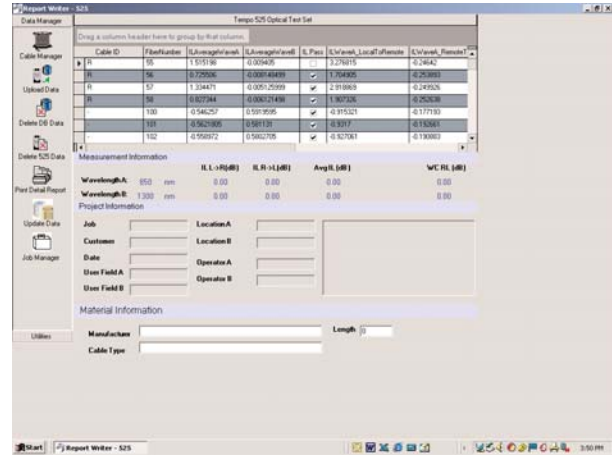
User can perform as many AutoTests as required to test entire cable. Instrument will return to the AutoTest Start screen and increment fiber count automatically. All test records are automatically saved.

Documenting Acceptance Tests

Downloading Tests to Report Writer™



Download Test Records to Report Writer™ Software via RS-232 port on instrument.



- Report Writer™ is a database to manage your measurement records.
- Generate detailed single fiber reports.
- Generate entire cable reports detailing all fiber measurements contained within a cable.

Report Writer™ Cable Acceptance Report

The 525 Report Writer™ is a database that manages measurement records. It details single fiber reports, and can also generate entire cable reports detailing all fiber measurements contained within a cable. The efficient Report Writer™ splits the report into four sections: Customer Information, Cable Information, Site Information, and Measurement Results. The user can also place customized graphics in the upper right corner.

Job ID: v045.rTR
Customer: [blank]
Date: 5/19/2002
Definable: [blank]

LINK LOSS SUMMARY REPORT
 Cable ID: 1010254

Cable Information

Cable ID: 1010254 Site A: Closet 32
 Manufacturer: Lucette Site B: Closet 33
 Connector Type: SC Operator A: [blank]
 Length: 754 meters Operator B: Santosh
 Definable: [blank]

Site Information

Reference Data	1310nm				1550nm				PASS/FAIL
	Loss A-B (dB)	Loss B-A (dB)	Loss Average (dB)	ORL A-B (dB)	Loss A-B (dB)	Loss B-A (dB)	Loss Average (dB)	ORL A-B (dB)	
Fiber ID 1	10.12	10.18	10.15	55.24	10.12	10.18	10.15	55.56	PASS
2	10.07	10.18	10.15	55.24	10.12	10.18	10.15	55.56	PASS
3	10.12	10.18	10.15	55.24	10.12	10.18	10.15	55.56	PASS
4	10.12	10.18	10.15	55.24	10.12	10.18	10.15	55.56	PASS
5	10.12	10.18	10.15	55.24	10.12	10.18	10.15	55.56	PASS
6	10.07	10.18	10.15	55.24	10.12	10.18	10.15	55.56	PASS
7	10.12	10.18	10.15	55.24	10.12	10.18	10.15	55.56	PASS
8	10.12	10.18	10.15	55.24	10.12	10.18	10.15	55.56	PASS
9	10.12	10.18	10.15	55.24	10.12	10.18	10.15	55.56	PASS
10	10.07	10.18	10.15	55.24	10.12	10.18	10.15	55.56	PASS
11	10.12	10.18	10.15	55.24	10.12	10.18	10.15	55.56	PASS
12	10.12	10.18	10.15	55.24	10.12	10.18	10.15	55.56	PASS
13	10.12	10.18	10.15	55.24	10.12	10.18	10.15	55.56	PASS
14	10.12	10.18	10.15	55.24	10.12	10.18	10.15	55.56	PASS
15	10.07	10.18	10.15	55.24	10.12	10.18	10.15	55.56	PASS
16	10.12	10.18	10.15	55.24	10.12	10.18	10.15	55.56	PASS
17	10.12	10.18	10.15	55.24	10.12	10.18	10.15	55.56	PASS
18	10.12	10.18	10.15	55.24	10.12	10.18	10.15	55.56	PASS
19	10.07	10.18	10.15	55.24	10.12	10.18	10.15	55.56	PASS
20	10.12	10.18	10.15	55.24	10.12	10.18	10.15	55.56	PASS
21	10.12	10.18	10.15	55.24	10.12	10.18	10.15	55.56	PASS
22	10.12	10.18	10.15	55.24	10.12	10.18	10.15	55.56	PASS
23	10.07	10.18	10.15	55.24	10.12	10.18	10.15	55.56	PASS
24	x	x	x	x	x	x	x	x	PASS

Measurement Thresholds

Link Loss @1300nm: 15 dB Return Loss: 50 dB
 @1550nm: 12 dB

Equipment Information

Serial Number of Tester @ Site A: [blank]
 Serial Number of Tester @ Site B: [blank]
 Firmware Version: [blank]

Cable Header Information

Graphical Representation of Cable System

Detailed Measurement Results

Measurement Threshold Settings

Instrument Information and Serial Number

SPECIFICATIONS

Instrument Type Interface Connector AUTOTEST measurements	525-30-PCX		525-60-PCX		525-60-APC		525-60RL-APC	
	Multimode Smart Loss Test Set		Singlemode Smart Loss Test Set		Singlemode Smart Loss Test Set		Singlemode Smart Loss Test Set	
	PC Connector Interface		PC Connector Interface		APC Connector Interface		APC Connector Interface	
	AUTOTEST performs Insertion Loss Test		AUTOTEST performs Insertion Loss Test and Manual Return Loss		AUTOTEST performs Insertion Loss Test and Manual Return Loss		AUTOTEST performs Insertion and Return Loss in one Test	
Power Meter Specifications								
Detector Type	InGaAs		InGaAs		InGaAs		InGaAs	
Display Range	+10dBm to 70dBm		+10dBm to 70dBm		+10dBm to 70dBm		+10dBm to 70dBm	
Calibrated Wavelengths	850, 980, 1300, 1310, 1550, 1480, 1625		850, 980, 1300, 1310, 1550, 1480, 1625		850, 980, 1300, 1310, 1550, 1480, 1625		850, 980, 1300, 1310, 1550, 1480, 1625	
Absolute Accuracy	±0.25dB		±0.25dB		±0.25dB		±0.25dB	
Resolution	0.01dB		0.01dB		0.01dB		0.01dB	
Measurement Units	dBm, dB, W		dBm, dB, W		dBm, dB, W		dBm, dB, W	
Connector Type	UCI-UPC flat polish adapter 62.5/125SM		UCI-UPC flat polish adapter 9/125SM		UCI-APC polish adapter 9/125 SM		UCI-APC polish adapter 9/125 SM	
Source Specifications								
Center Wavelength	850nm ±30nm	1300nm ±30nm	1310nm ±30nm	1550nm ±30nm	1310nm ±30nm	1550nm ±30nm	1310nm ±30nm	1550nm ±30nm
Spectral Width	<170	<170	<5	<5	<5	<5	<5	<5
Output Power	>21 dBm	>21 dBm	>10 dBm	>10 dBm	>10 dBm	>10 dBm	>10 dBm	>10 dBm
Output Stability	±0.10dB/ 8 hours	±0.10dB/ 8 hours	±0.15dB/ 8 hours	±0.15dB 8 hours	±0.15dB/ 8 hours	±0.15dB 8 hours	±0.15dB/ 8 hours	±0.15dB 8 hours
Coupled Power Ratio (CPR)	25dB to 29dB ±1dB	21dB to 22dB ±1dB						
HOMP		0.30dB to 0.80dB						
Autotest Insertion Loss Specifications								
Test Port Measurement Range	25dB		40dB		40dB		40dB	
Calibrated Wavelengths	850, 1300nm		1310, 1550nm		1310, 1550nm		1310, 1550nm	
Return Loss Specifications								
Measurement Range	n/a		10 to 45dB		10 to 65dB		10 to 65dB	
Accuracy	n/a		.5dB		.5dB		.5dB	
General Descriptions								
Display Type	Graphics Liquid Crystal with Backlight		Graphics Liquid Crystal with Backlight		Graphics Liquid Crystal with Backlight		Graphics Liquid Crystal with Backlight	
Fiber Type	Multimode 62.5/125 um		Singlemode 9/125 um		Singlemode 9/125 um		Singlemode 9/125 um	
Standard Connector Type	FC, SC, ST other connector options available		FC, SC, ST other connector options available		FC, SC, ST other connector options available		FC, SC, ST other connector options available	
Laser Classification	Class 1 CFR 1040		Class 1 CFR 1040		Class 1 CFR 1040		Class 1 CFR 1040	
Operating Temperature	0°C to +50°C		0°C to +50°C		0°C to +50°C		0°C to +50°C	
Storage Temperature	-20°C to +60°C		-20°C to +60°C		-20°C to +60°C		-20°C to +60°C	
Relative Humidity	0 to 95% RH non-condensing		0 to 95% RH non-condensing		0 to 95% RH non-condensing		0 to 95% RH non-condensing	
Size	19.3 x 10.9 x 5.8 cm (7.6 x 4.3 x 2.3 in)		19.3 x 10.9 x 5.8 cm (7.6 x 4.3 x 2.3 in)		19.3 x 10.9 x 5.8 cm (7.6 x 4.3 x 2.3 in)		19.3 x 10.9 x 5.8 cm (7.6 x 4.3 x 2.3 in)	
Weight	1.0kg (2.2 lbs)		1.0kg (2.2 lbs)		1.0kg (2.2 lbs)		1.0kg (2.2 lbs)	
Power	Internal rechargeable NiMH		Internal rechargeable NiMH		Internal rechargeable NiMH		Internal rechargeable NiMH	
Battery Life	>8 hours		>8 hours		>8 hours		>8 hours	

ORDERING INFORMATION

The 525 is a Smart Optical Loss Test Set. The user will require two units (one at the near end and one at the far end of the fiber under test) to perform automated optical loss testing. Each kit is configured with all the accessories required to perform testing.

Each Kit includes the following items:



Smart Loss Test Sets

Part Number	Description
525-30-PCX	Multimode Smart Loss Test Set with PC connector
525-60-PCX	Singlemode Smart Loss Test Set with PC Connector
525-60-APC	Singlemode Smart Loss Test Set with APC Connector (AUTOTEST performs dual wavelength insertional loss measurement)
525-60RL-APC	Singlemode Smart Loss Test Set with APC Connector (AUTOTEST performs dual wavelength insertion and return loss measurement)

UCI Universal Connector Interface⁽¹⁾

Part Number	Description
AD-108	Universal Connector Adapter, DIN 47256 (LSA)
AE2-10	Universal Connector Adapter, E2000 (LSH)
APC-108	Universal Connector Adapter, FC
ASC-108	Universal Connector Adapter, SC
ATS-108	Universal Connector Adapter, ST

SOC Adapter Interface⁽²⁾

Part Number	Description
1010	Snap-On Connector Adapter, DIN 47256
1020	Snap-On Connector Adapter, FC
1030	Snap-On Connector Adapter, ST
1062	Snap-On Connector Adapter, SC
1089	Snap-On Connector Adapter, D4
10EO	Snap-On Connector Adapter, EC
10E2	Snap-On Connector Adapter, E2000

Accessories

Part Number	Description
2K3K-101-01	FC/PC to FC/PC Single mode (9/125) patch cord
6K6K-101-01	SC/PC to SC/PC Single mode (9/125) patch cord
2K2K-101-01	ST/PC to ST/PC Single mode (9/125) patch cord
2K2K-106-01	FC/PC to FC/PC Multi-mode (62.5/125) patch cord
6K6K-106-01	SC/PC to SC/PC Multi-mode (62.5/125) patch cord
3K3K-106-01	ST/PC to ST/PC Multi-mode (62.5/125) patch cord
945	All in One Cleaning Tool