TFN

150L/150H Series

Handheld Antenna & Feeder Tester

Supports multiple measurement formats/base station test analysis expert

Dynamic range: 2MHZ-4.4GHZ/6GHZ

The 150 series is TFN's third generation integrated handheld antenna and feeder tester. It is a value-for-money product that is field-optimized, reliable, durable and easy to operate. In the antenna feeder system, the operating status of the base station's RF/optical transmission and antenna system can be quickly evaluated, improving the efficiency of base station installation and maintenance. The 150 series is a trusted, reliable and preferred antenna and feeder tester for wireless communication operators and wireless signal coverage installation and maintenance engineering contractors, scientific research, teaching, and production.

MAIN FUNCTION

Frequency domain testing

- Standing wave ratio
- Return loss
- SMITH chart
- Phase
- Cable loss

Fault location test

- DTF standing wave ratio
- DTF return loss

Power test

- Optical power test
- Optical fiber fault location

Built-in

- Electronic calibration kit
- Terminal power meter
- WIFI module

WIFI module

- GPS antenna module
- USB type fiber optic magnifying glass
- Pass-through power meter

FEATURES

8'

Battery life
More than 8 hours

E-CAL

Built-in E-CAL electronic calibration module

Fast automatic calibration with one connection
One calibration applies to the entire frequency band

4.4GHz

Terminal power meter

External GPS

Optical power meter

Built-in optical power meter

Visual fault locator (Red light source), WIFI

USB type fiber optic magnifying glass

Anti-RF interference capability

Backlight
Backlit keys

Rong
Durable and reliable

Small and light

Handheld Antenna Feeder Tester

Shock proof
Dust and splash proof

Convenient

Comes with soft backpack
Convenient and easy to carry

TEST FUNCTION

• POWER TEST

Built-in terminal power meter (Figure 1) The USB-powered external high-power through-type power meter (optional) helps you complete base station power testing. No additional power supply is required. (Figure 2)

• Built-in optical module (optional)

The built-in optical module can test optical fiber links. Optical power meter (Figure 3) and Visual fault locator (Figure 4) are used to test optical communications.

Figure 1
Terminal power meter

Figure 2
Pass-through high power test

Figure 3
Optical power test

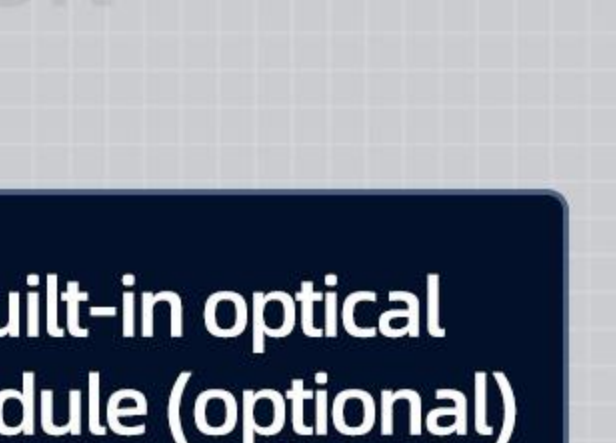


Figure 4
Visible light fault location

• External GPS module option

The external GPS module option helps you confirm the precise measurement location and the correct location for measurement (longitude, latitude, altitude), and each test curve can be marked with location information. (Picture 5)

• Dual channel display

The dual-channel display allows the user to view two tests on one screen. Through the independent upper and lower dual-channel display, the user can independently set the mark and pass limit on each channel. This greatly saves time since no two measurements are required. (Figure 6) The top channel measures VSWR, and the bottom channel measures DTF-VSWR to find the fault point.

• Distance to Fault (DTF)

Distance to faults (DTF) in terms of standing wave ratio and return loss can accurately identify and locate damaged cables, components and connectors. Up to 2065 data points provide you with better frequency resolution when measuring, or can be used to extend the DTF measurement distance range without reducing distance resolution. (Figure 7)

• USB type fiber optic magnifying glass

Before connecting the fiber optic connector, the fiber optic connector ferrule must be inspected and cleaned. Inspection of optical fiber end faces is the key to reducing maintenance costs, improving troubleshooting efficiency, and ensuring transmission quality. (Figure 8)

Figure 5
GPS geographical information

Figure 6
Dual-channel test

Figure 7
Data collection points are as high as 2065

Figure 8
USB type fiber optic magnifying glass

Automatic PASS/FAIL analysis

After setting pass limits you can perform automatic pass/fail analysis using red and green markers. (Figure 9) Users can edit 20 pass limits including upper and lower limits on the test screen.

Return loss/ standing wave ratio

Poor return loss/standing wave ratio indicators can damage the transmitter, reduce the base station coverage area, increase the call drop rate and call blocking, and reduce the data service rate. (Figure 10)

Cable Loss Bit (DTF)

Cable loss measurement is very important. Excessive loss will reduce the coverage area of the base station, mask return loss problems, and produce false measurement results that appear to be good. (Figure 11)

Figure 9
Automatic PASS/ FAIL analysis

Figure 10
Return loss test

Figure 11
Cable loss test

Efficient data management

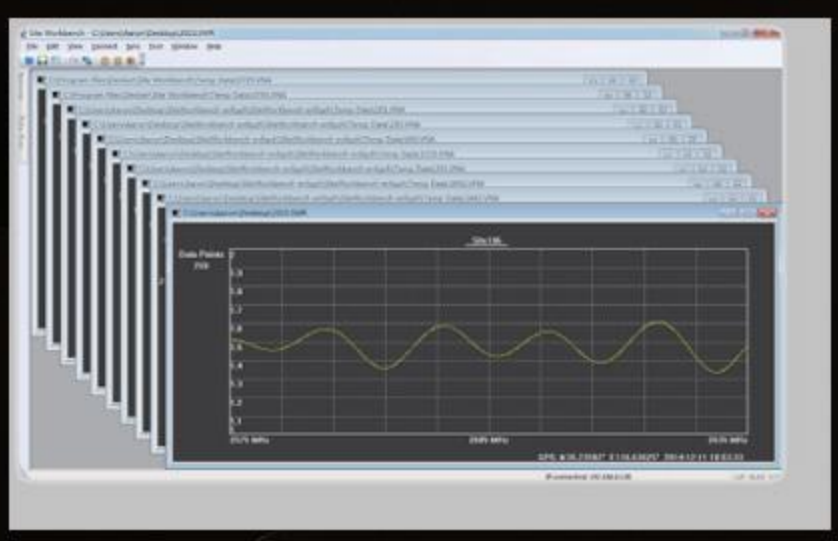
Data analysis

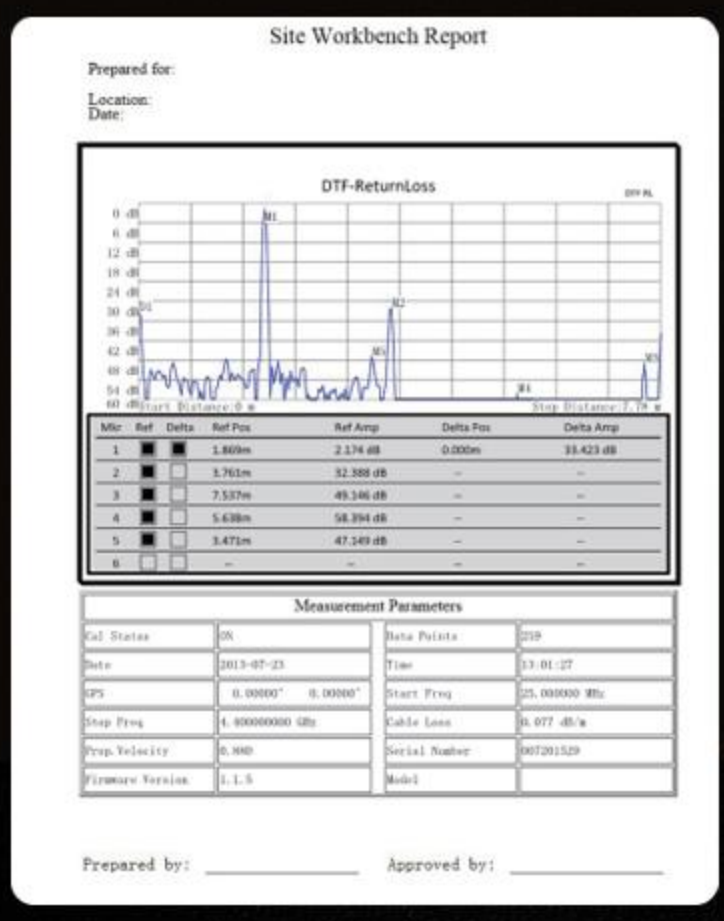
SITE WORKBENCH is a PC-based post-processing software that will help technicians improve efficiency in data analysis and test automation work. SITE WORKBENCH helps improve productivity for workers who process many days of feeder test results every day. The presets of frequency markers and qualified lines allow frequency markers and qualified lines to be quickly applied to similar traces.

In the process of making field measurement data into reports, RENAMING GRID makes renaming files, trace main, and subtitles faster and less error-prone than manual input. For antenna and feeder analysis, quick naming can be achieved through customized common file names, and a file name including measurement location, sector, measurement type, terminal and frequency can be saved in less than five seconds. The report generator can create report charts with company logo, GPS information, calibration status and instrument serial number. (Figure 12)

Remote access

Built-in WIFI remote access tools allow staff to view and operate instruments remotely via the Internet.




Site Workbench Report

Prepared for:

Location:
Date:

DTF-ReturnLoss

Mkr	Ref	Delta	Ref Pos	Ref Amp	Delta Pos	Delta Amp
1	■	■	1.869m	2.174 dB	0.000m	33.423 dB
2	■	□	3.761m	32.388 dB	--	--
3	■	□	7.537m	49.146 dB	--	--
4	■	□	5.638m	58.394 dB	--	--
5	■	□	3.471m	47.149 dB	--	--
6	□	□	--	--	--	--

Measurement Parameters

Cal Status	ON	Data Points	259
Date	2013-07-23	Time	13:01:27
GPS	0.00000° 0.00000°	Start Freq	25.000000 MHz
Stop Freq	4.000000000 GHz	Cable Loss	0.077 dB/m
Prop.Velocity	0.660	Serial Number	007201529
Firmware Version	1.1.5	Model	

Prepared by: _____ Approved by: _____

Figure 12
Data analysis and reporting chart

TECHNICAL PARAMETERS

Frequency Range	2MHz ~ 4400MHz
Frequency resolution	0.5kHz
Frequency accuracy	±2 ppm
Output level	≥0dBm
Scan speed	1mS/point (return loss) 1.2mS/point (fault location)
Number of data points	130,259,517,1033,2065
Interference suppression	+10dBm (within ±10KHz) +25dBm (bias>1.0MHz)
Directionality	≤42dB (after mechanical calibration) ≤38dB (after electronic calibration)

Return loss

Range	0.00-60.00dB
Resolution	0.01dB

Standing wave ratio

Range	1-65
Resolution	0.01

Cable loss

Range	0.00-30.00dB
Resolution	0.01dB

Fault location

Fault location	0.00-60dB
Standing wave ratio range	1-65
Distance range	0--(Points-1)/(Bandwidth x2) x Vp (speed factor of the cable) x C (speed of light)
Resolution(M)	=Vp (speed factor of the cable) x C (speed of light) / (bandwidth x 2)
Number of data points	130,259,517,1033,2065

Terminal power meter

Frequency range	20MHz ~ 4400MHz
Amplitude	Maximum, minimum, offset, offset switch, automatic amplitude
Amplitude	Average, Max Hold, Run/Pause, Average Mode, Continuous/Single
Amplitude limit	Amplitude limit switch, upper/lower limit
Display range	-100 dBm ~ +100 dBm
Measuring range	-33 dBm ~ +20 dBm
Offset range	Max ±100 dB， User configurable

Standing wave ratio	1.4:1 Typical value
Maximum input power	+27 dBm, ±50 VDC (Greater than this value will damage the instrument)
Connector	Type N(m), 50 Ω
Accuracy	± 0.5 dB (23 °C ±3 °C)
Frequency response and line speed	± 0.8 dB (±0.5 dB Typical value)
Temperature effect	± 0.02 dB/1 °C (Typical value)

Fiber optic microscope

Gain	400x
Test resolution	0.75μm
Output format	PAL/NTSC
Weight	155g
Working/storage temperature	20°C ~ +50°C / -30°C ~ +60°C

Optical power meter

Accuracy	±0.17dB(±3%)
Detector type	InGaAs Φ300μm

Weight & Size

Size	245mm × 190mm × 75mm
Weight	2KG