3681B/BU

Cable and Antenna Analyzer

(300 kHz to 9 GHz）)

3681B

3681BU

Ceyear Technologies Co., Ltd

Product Overview

Ceyear 3681B/BU cable and antenna analyzer covers a frequency range of 300kHz to 9GHz and tests parameters such as cable loss, standing wave ratio (SWR), and return loss. It can also provide distance-to-fault for RF cables in many applications, such as broadcasting, 3G/4G/5G cellular communications, GPS, PCS/GSM, 3G, ISM, WLAN, and WLL systems.

3681B handheld cable and antenna analyzer is compact and lightweight, making it easy to carry and use in confined test spaces. Its 10.1-inch LCD touchscreen offers simple operation and a user-friendly interface, improving field testing efficiency.

3681BU modular cable and antenna analyzer uses USB 3.0 bus communication. It is compact, efficient, and flexible. It can be used in applications such as communication system testing and RF component testing that require high mobility, portability, and reliability of the test system. It can also be used in applications that require high automation and test efficiency.

Main Characteristics

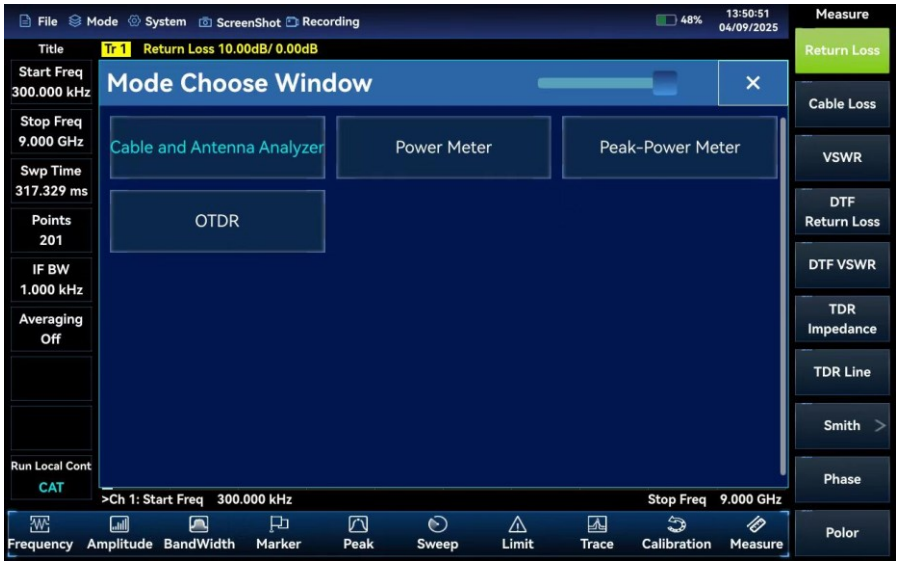
- **Practical cable and antenna analysis**
  - Features return loss and one-port cable loss testing
  - Detach-to-Fault (DTF) functionality
  - Supports TDR cable analysis, enabling fault location and nature (short, open, etc.)
- **Supports built-in embedded calibration**
  - One-touch calibration is available without external calibration components, effectively improving test efficiency.
- **Flexible optical time domain reflectometer and optical power meter.**
  - The optical time domain reflectometer uses G.652 single-mode 9/125 fiber, with measurement wavelengths of 1310 nm ± 20 nm and 1550 nm ± 20 nm, and a typical dynamic range of 38 dB.
  - The optical power meter is calibrated at wavelengths of 850/ 980/ 1270/ 1300/ 1310/ 1490/ 1550/ 1577/ 1625/ 1650 nm, with a typical measurement range of -50 dBm to +20 dBm (shares a single optical port with the OTDR).
- **Convenient user experience**
  - 10.1-inch LCD and capacitive touch screen, support for marker dragging
  - 8 independent cursors, 4 display windows, 8 trace displays
- **Excellent field performance**
  - Operating temperature: -10°C to 55°C; storage temperature: -40°C to 70°C
  - 3681B weighs approximately 1.3kg (excluding battery); 3681BU weighs approximately 0.4kg
  - Supports three display modes: default, outdoor, and night vision.
  - Built-in high-capacity lithium-ion battery, with a typical battery duration of 4 hours

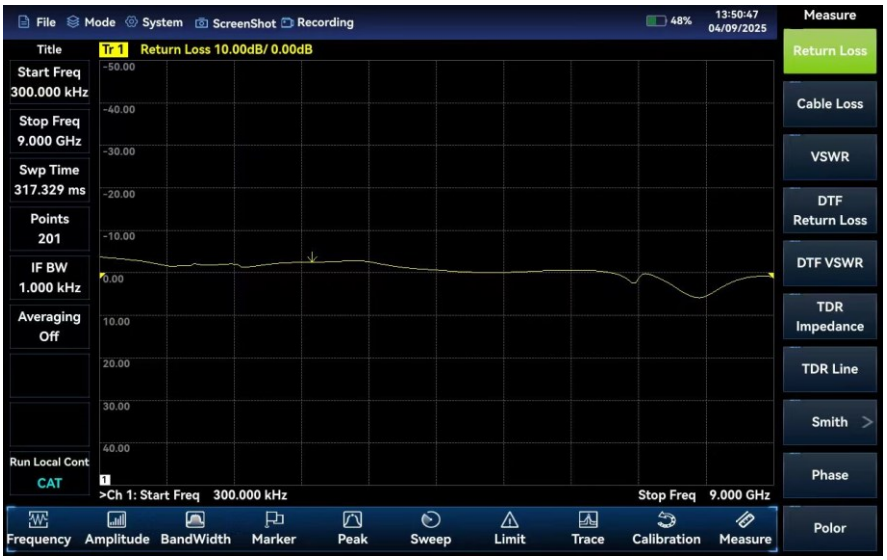
Rich Measurement Modes and Options

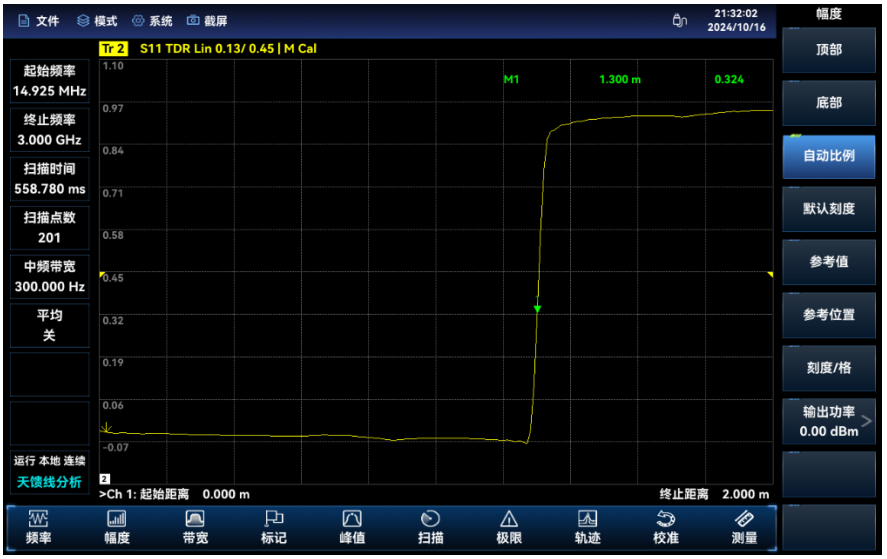
Antenna and Cable Analysis

3681 series Cable and Antenna Analyzer can measure return loss, VSWR, impedance, cable loss, and distance-to-fault on cables, cables, and other DUTs. Return loss and distance-to-fault measurements help you identify the specific cause of performance degradation in antenna and cable systems.

The antenna and cable analysis function supports TDR testing, enabling analysis of cable fault types. Furthermore, the instrument includes built-in common cable and cable parameters for ease of use.





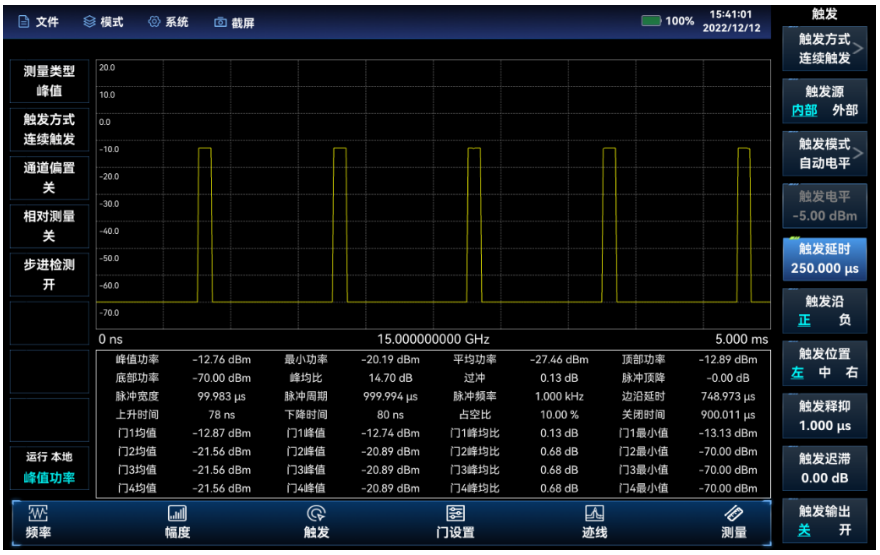


USB Power Measurement (Option):

3681B antenna and cable analyzer can measure continuous wave signal power up to 67 GHz by connecting an external 87233C/D/E/F/L USB continuous wave power probe and an 87235B/C/D/F/FA/H/L USB average power probe.

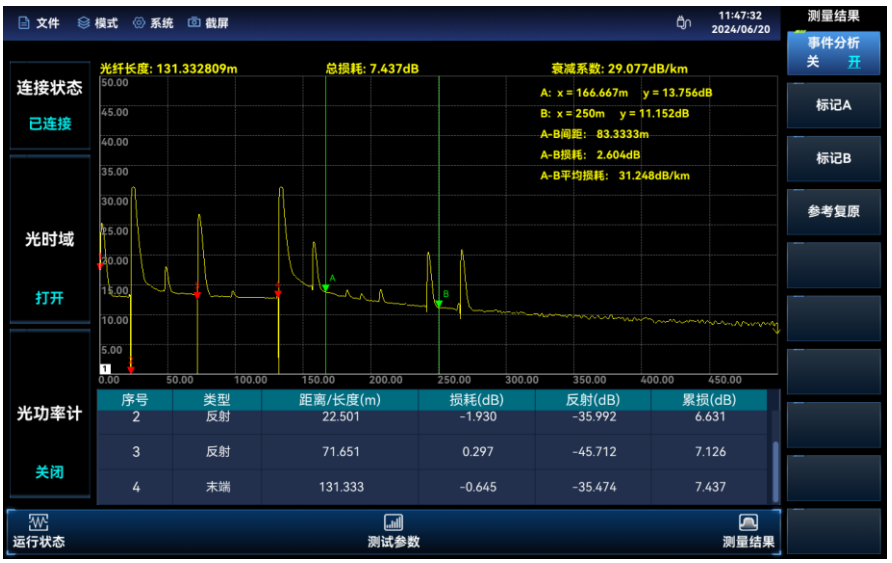
USB Peak Power Measurement (Option)

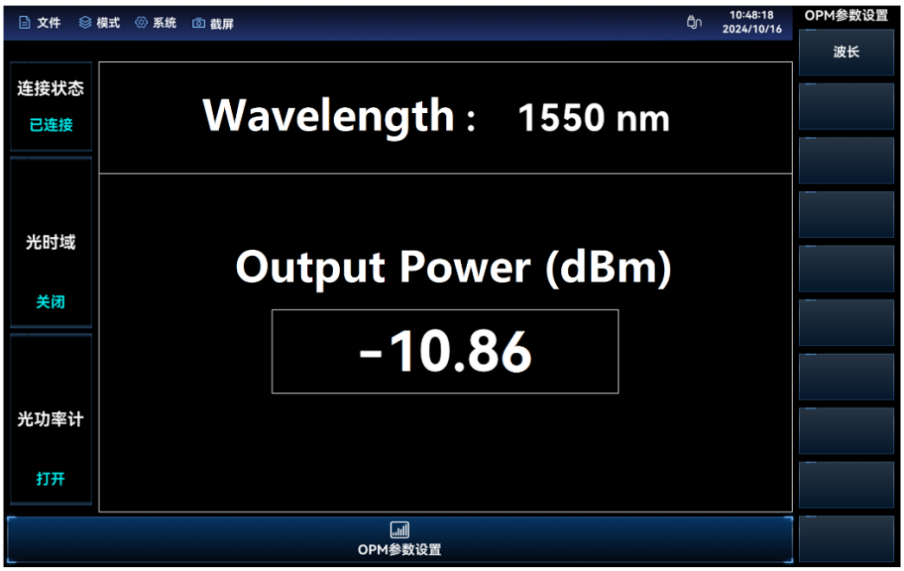
3681B Antenna and Cable Analyzer can connect to the 87234D/E/F/L and 87236D/E/F/L USB Peak Power Probes from Densitometer via the USB port. This allows testing of RF/microwave signals up to 67 GHz, enabling pulse power measurements over a wide dynamic range.



Optical Time Domain Reflectometer (Optical):

The 3681B cable and antenna analyzer's optical time domain reflectometer function, connected to an external USB optical time domain reflectometer, enables fiber optic fault location and analysis, as well as optical power measurement.





Typical Application

On-site comprehensive performance evaluation of electronic equipment.

3681B antenna and cable analyzer offers multiple advantages, including high performance, fast scanning speed, and easy operation. Its handheld design is compact, lightweight, and highly adaptable to environmental conditions. It can be battery-powered and is suitable for on-site installation, commissioning, and maintenance of various electronic equipment.

Cable TV, wireless communications, and other fields use

3681 series antenna and cable analyzers to perform integrated on-site testing of antenna and cable contact performance, component S parameters, and feedthrough power.

Setting Up a Multi-Channel S11 Parameter Test System

3681BU cable and antenna analyzer is a USB bus module product. Compact and efficient, it can be used to set up a multi-channel S11 parameter test system on a production line, providing users with a low-cost integrated S11 parameter test system solution.

Technical Specifications

Model and Frequency	3681B: 300kHz ~ 9GHz 3681BU: 300kHz ~ 9GHz
Frequency Accuracy	±1.0ppm
IF Bandwidth	3Hz, 10Hz, 30Hz, 100Hz, 300Hz, 1kHz, 3kHz, 10kHz, 30kHz, 100kHz
Reflection Tracking	±0.08dB (300kHz≤f≤9GHz)
Effective Directivity	≥42dB (300kHz≤f≤6GHz) ≥36dB (6GHz < f≤9GHz)
Effective Source Match	≥31dB (300kHz≤f≤9GHz)
Dimension	3681B: Size（W×H×D） （258.3±2.5）mm×（179.4±2.5）mm×（37.0±1.5）mm （excluding connectors and side-belt） 3681BU: Size（W×H×D： （167±1.2）mm×（75±0.8）mm×（24.5±0.5）mm
Weight	3681B：≤ 1.3kg（exclude the battery） 3681BU：≤ 0.4kg
Working Temperature	-10 ℃ ~ +55 ℃
Storage Temperature	-40 ℃ ~ +70 ℃
EMC standards	China GJB 3947A-2009, item 3.9.1
Power Supply	3681B: AC/DC Adaptor：Input: 100V to 240V AC, 50Hz/60Hz; Output: 15V DC, 1.5A Built-in lithium-ion battery: Nominal voltage 7.2V 3681BU: AC/DC Adaptor：Input: 100V to 240V AC, 50Hz/60Hz; Output: 5V DC, 2.0A
Battery Life	Typical 4 hours
Test Port	3681B/BU：Type N (female)
Other Interfaces	3681B: GPS antenna: SMA (female) (Option) 3681BU: Trigger Input：MMCX Trigger Output：MMCX
Communication and related interfaces	3681B: USB interface: 1 USB port, Type C Storage Card: Micro SD 3681BU: USB interface: 2 USB ports, Type C

Ordering information

Main Unit

Model	Name	Frequency Range
3681B	Cable and Antenna Analyzer	300kHz ~ 9GHz
3681BU	Cable and Antenna Analyzer	300kHz ~ 9GHz

Standard Configuration

- 3681B Cable and Antenna Analyzer

No.	Name	Quantity	Description
1	Power Supply Cord	1	
2	Li Battery Pack	1	
3	Power Adaptor	1	
4	Quick Start Guide	1	
5	Quality Certificate	1	

- 3681BU Cable and Antenna Analyzer

No.	Name	Quantity	Description
1	USB cable	2	
2	Quick Start Guide	1	
3	Quality Certificate	1	

Options

- 3681B Cable and Antenna Analyzer

No	Option	Option Name	Descriptions
1	3681-01	English version	English appearance, software and labels.
2	3681-02	Chinese User Manual	
3	3681-03	English User Manual	
4	3681-04	Chinese Programming Manual	
5	3681-05	English Programming Manual	
6	3681-S01	USB Power Measurement	Average Power measurement using external USB power sensors of 87233C /D/E/F/L and 87235B/C /D/F/FA/H/L.
7	3681-S02	USB Peak Power Measurement	Peak Power measurement using external USB peak power sensors of 87234D/E/F/L.
8	3681-S32	Time domain reflectometer (TDR)	Used to analyze the location of the cable faults.
9	3681-S34	Optical Time Domain Reflectometer	Provides optical time domain reflectometer and optical power meter functions.
10	3681-S38	Embedded electronic calibration kit	Built-in E-cal.

No	Option	Option Name	Descriptions
11	3681-H01	GPS/Beidou	An external antenna enables GPS or Beidou functions.
12	3681-H02	WiFi communication	Enables wireless data transmission and communication with external devices using WiFi.
13	3681-H06	Power adaptor	AC/DC power supply adaptor
14	3681-H07	Rechargeable lithium-ion battery	Backup battery pack, nominal voltage 7.2V, battery capacity 9900mAh.
15	3681-H11	Storage card	Mrico SD card, capacity 128G byte
16	3681-H12	Type C 10 in 1 extender	To expand communication interface
17	3681-H14	Type-C to USB adaptor	USB-C (male) to USB-A (female) adaptor. For 3681B, if USB power sensor or external OTDR is selected, this adaptor has to be chosen.
18	87233C	USB CW Power Sensor	8kHz ~ 8GHz, N(m)
19	87233D	USB CW Power Sensor	10MHz ~ 18GHz, N(m)
20	87233E	USB CW Power Sensor	50MHz ~ 26.5GHz, 3.5mm（m）
21	87233F	USB CW Power Sensor	50MHz ~ 40GHz, 2.4mm(m)
22	87233L	USB CW Power Sensor	50MHz ~ 67GHz, 1.85mm(m)
23	87235B	USB Average Power Sensor	8kHz ~ 8GHz, N(m)
24	87235C	USB Average Power Sensor	10MHz ~ 8GHz, N(m)
25	87235D	USB Average Power Sensor	10MHz ~ 18GHz, N(m)
26	87235F	USB Average Power Sensor	10MHz ~ 33GHz, 3.5mm(m)
27	87235FA	USB Average Power Sensor	10MHz ~ 40GHz, 2.92mm(m)
28	87235H	USB Average Power Sensor	10MHz ~ 50GHz, 2.4mm(m)
29	87235L	USB Average Power Sensor	50MHz ~ 67GHz, 1.85mm
30	87234D	USB Peak/Average Power Sensor	50MHz ~ 18GHz, N(m)
31	87234E	USB Peak/Average Power Sensor	50MHz ~ 26.5GHz, 3.5mm(m)。
32	87234F	USB Peak/Average Power Sensor	50MHz ~ 40GHz, 2.4mm(m)
33	87234L	USB Peak/Average Power Sensor	500MHz ~ 67GHz, 1.85mm(m)
34	31101A	Type N(male) calibration kit	DC ~ 18GHz, T-shaped.
35	31101B	Type N(female) calibration kit	DC ~ 18GHz, T-shaped.
36	20201A	Type N(male) calibration kit	DC ~ 9GHz, T-shaped.
37	20201B	Type N(female) calibration kit	DC ~ 9GHz, T-shaped.
38	20201AE	Type N(male) economical calibration kit	DC ~ 9GHz, T-shaped.
39	20201BE	Type N(female) economical calibration kit	DC ~ 9GHz, T-shaped.
40	87302AZ	Test cable	Type N (male) -Type N(male) RF cable, 0.6m long.
41	87302BA	Test cable	Type N (male) -Type N(female) RF cable, 0.6m long.
42	3681-H67	USB OTDR	USB OTDR and power measurement
43	3681B-JL	Metrology service	Metrology service and metrology report. Only for 3681B
44	3681B-EWT1	Extend 1 year warranty	Extend 1 year warranty after 3 years standard warranty. For 3681B

- 3681BU Cable and Antenna Analyzer

No	Option	Option Name	Descriptions
1	3681U-01	English version	English appearance, software and labels.
2	3681U-02	Chinese User Manual	
3	3681U-03	English User Manual	
4	3681U-04	Chinese Programming Manual	
5	3681U-05	English Programming Manual	
6	3681-S32	Time domain reflectometer (TDR)	Time domain reflectometer (TDR)
7	3681-S38	Used to analyze the location of the cable faults.	Used to analyze the location of the cable faults.
8	3681U-H13	USB3.0 Hub	USB3.0 Hub, with 10 ports
9	31101A	Type N(male) calibration kit	DC ~ 18GHz, T-shaped.
10	31101B	Type N(female) calibration kit	DC ~ 18GHz, T-shaped.
11	20201A	Type N(male) calibration kit	DC ~ 9GHz, T-shaped.
12	20201B	Type N(female) calibration kit	DC ~ 9GHz, T-shaped.
13	20201AE	Type N(male) economical calibration kit	DC ~ 9GHz, T-shaped.
14	20201BE	Type N(female) economical calibration kit	DC ~ 9GHz, T-shaped.
15	87302AZ	Test cable	Type N (male) -Type N(male) RF cable, 0.6m long.
16	87302BA	Test cable	Type N (male) -Type N(female) RF cable, 0.6m long.
17	3681BU-JL	USB OTDR	USB OTDR and power measurement
18	3681BU-EWT1	Metrology service	Metrology service and metrology report. Only for 3681B

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