3680A/B Cable & Antenna Analyzer

(1MHz~4GHz/8GHz)



Product Overview

Adopting advanced techniques such as hybrid integration design of RF circuit and digital circuit, wideband fundamental-wave mixing, digital IF processing, intelligent power management, 3680A/B Cable & Antenna Analyzer has advantages of high-speed, high-accuracy, compact, lightweight, battery-powered, touch screen operation, automatic adjustment of backlight brightness. Besides testing VSWR, return loss, characteristic impedance, and phase, it can precisely locate the fault points as well.

3680A/B Cable & Antenna Analyzer is developed for on-site test, which is mainly used for the test of cable & antenna system in various communication base stations, include trunking, GSM, PCS/DCS, CDMA, GPRS, WCDMA, CDMA2000, TD-SCDMA, LTE and paging system.

During the installation, calibration and routine maintenance of cable & antenna system, the cable& antenna analyzer can help users to quickly estimate the status of the transmission line and antenna system, improve the maintenance efficiency of the running base stations and speed up the installation and calibration of new base stations. Besides, it can also be used for the reflection parameter test of RF devices and components in scientific research, teaching and manufacturing.

Main Characteristics

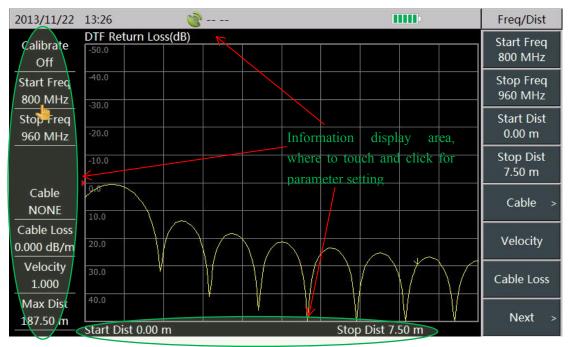
Support multiple measurements

It supports 7 measurements: return loss, VSWR, cable loss, DTF return loss, DTF VSWR, Smith

chart, phase. And it can conduct comprehensive measurement and fault diagnosis on cable and antenna system.

Touch screen operation

The instrument has a 7-inch LCD touch screen. Besides menu operation, users can also set the parameters by clicking all the displayed information on the touch screen.



Touch & click for parameter setting

The 7 measurement types can be switched by finger sliding, no need of menu operation.



Finger sliding to switch measurement types

Double window display

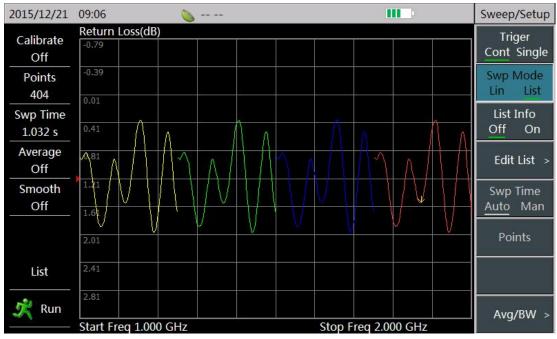
Each window can display different measurement types, with its independent maker function.

2013/11/22	13:27		3						p		Ma	rker
C-libt-	Cable L	oss(dB)									Ma	rker
Calibrate	-50.0					M1	862.4	100 MHz	0.2	04 dB		456
Off	-40.0			8							125	4 5 0
Start Freq	-30.0										Ma	rker
	-20.0			- I		_					Off	On
800 MHz	-10.0			1								
Stop Freq	0.0	9		5 	5.	<u>.</u>		g 19	3		De	lta
960 MHz	20.0	2		2	2	6		s			Off	On
300 WIT12	30.0				-	-		· · · · ·				
	40.0											36
	Start Fr	eg 800	000 MH	7		(Stop Fre	eq 960.000) MHz		Pe	ak
C 11	DTF Re			12			nop in	-q	111112		<u> </u>	
Cable	-50.0		S(UD)			M1		0.53 m	o t	09 dB	Va	lley
NONE	-40.0					IVI I		0.53 m	0.5	09 dB	v a	iey
Cable Loss	-30.0	M1		<u></u>		5						
	-20.0	0.53	m	8	22	S		8 - 8	-			rker
0.000 dB/m	-10.0										Opt	ions 🥤
Velocity	0.0	~		5								
te transferance 🖓	10.0		\sim	J.							All	Off
1.000	20.0	\sim			Λ		\sim		~			
Max Dist	30.0	· · · · ·		V	γ	\downarrow		()		$\backslash \land$	D	44
187.50 m	40.0				¥.	V V	V	l V		\vee		ag
107.50 111	Start Di	st 0.00	m				Stop	Dist 7.50	m		Off	On

Double window display

List sweep

The instrument supports list sweep function. Multiple frequency segments can be simultaneously measured, and each sweep segment can be set with different points and frequency rang. The list edit is convenient: directly click the parameters to be edited. Each segment can be opened or closed through "On/Off" setting.



List sweep

2013/11/22	13:28				111:	Edit List
Calibrate Off	Return Lo	art Freq				Seg ID
Points	-8.0 1	GHz				Add Seg
404	Seg ID	Start Freq	Stop Freq	Points	On/Off	
Swp Time	1	890.000 MHz	960.000 MHz	201	Off	Del Seg
1.032 s	2	1.000 GHz	1.200 GHz	101	On	
Average Off	3	890.000 MHz	960.002 MHz	101	Off	Clear List
Smooth	4	2.000 GHz	2.300 GHz	101	On	
Off	5	1.000 GHz	2.000 GHz	101	On	Start Freq
	6	1.000 GHz	2.000 GHz	101	On	
						Stop Freq
List						Points
📌 Run						< Back
	Start Free	1.000 GHz	St	op Freq 2.000) GHz	

Edit list

Measurement wizard

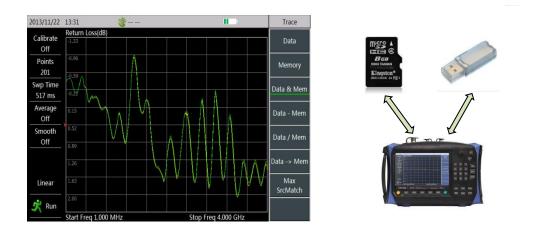
The measurement wizard illustrates the operation steps of typical measurements to guide users to finish the measurement and helps them to rapidly get familiar with the instrument operation.

2013/11/22	13:35 🦉		System2/2
Calibrate Off	Wizard - Typical Measurement Return Loss Cable Loss	ance	Info
Start Freq 800 MHz	Distance To Fault(DTF) reveals the p		Self Test
Stop Freq 960 MHz	of components in the transmission I also used to measure the cable leng DTF Return Loss(dB)		Freq Ref Int Ext
	-50.0 -40.0		Ref Out Off On
Cable NONE	-30.0		Wizard
Cable Loss 0.000 dB/m	-10.0		Error Log >
Velocity 1.000	20.0		
Max Dist 187.50 m	40.0 V V Start Dist 0.00 m	Stop Dist 7.50 m	< Back

Measurement wizard

Data Save/Recall

To save measurement traces or state, FLASH memory inside the instrument, SD card, and USB device are all available to choose.



Embedded electronic calibration

3680A/B has embedded electronic calibration kit to realize "one-click" operation, without any external connection.

2013/11/22	09:42	🧆			I	Calibrate
Calibrate Off	Return Loss	(dB)				Correction Off On
Points 201	-40.0		Doing E Cal			Cal Kit AV20201A
Swp Time 517 ms	-30.0 -20.0					M Cal >
Average Off	-10.0					E Cal
Smooth Off	0.0				~	
	20.0	9				
Linear	30.0	S				
Kun	40.0					Resume >
	Start Freq 1	.000 MHz		Stop Freq 4.00	0 GHz	

Embedded electronic calibration

Power measurement

Power measurement option is provided, which can realize accurate power measurement along with external power sensor options.



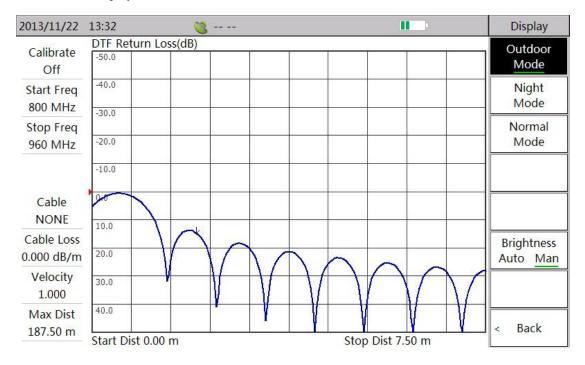
Power measurement

Resistant to wind & sand

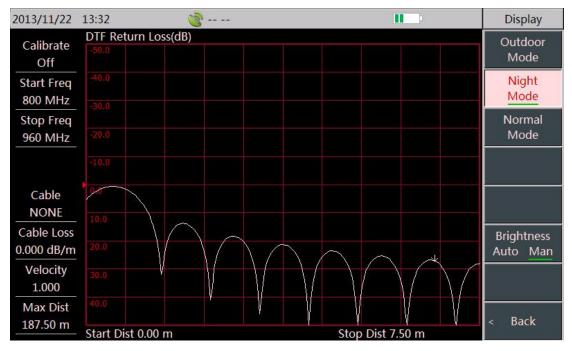
The instrument is suitable for field operation with its resistance to sand, dust, impact and vibration.

Multiple display modes

The instrument has multiple display modes and function of screen brightness adjustment, which can offer the best display result in different environments.



Outdoor mode



Night mode

2013/11/22	13:32	<u>@</u>			Display
Calibrate Off	DTF Return	Loss(dB)			Outdoor Mode
Start Freq 800 MHz	-40.0				Night Mode
Stop Freq 960 MHz	-20.0		_		Normal Mode
	-10.0				
Cable NONE	10.0				
Cable Loss 0.000 dB/m	20.0				Brightness Auto Man
Velocity 1.000	30.0				
Max Dist 187.50 m	40.0 Start Dist 0.0)0 m	Stop	Dist 7.50 m	< Back

Normal mode

GPS location

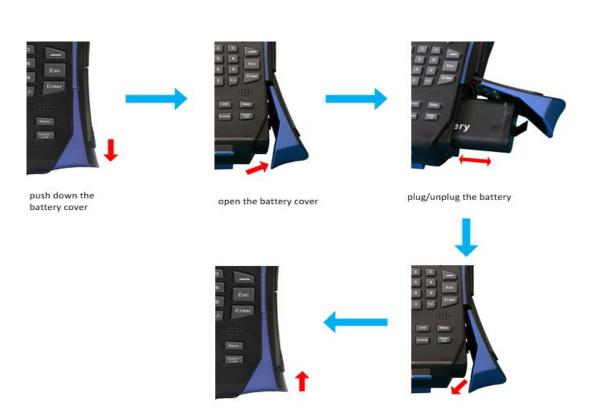
The instrument has built-in GPS receiver, with which users can get the current location information through external-added GPS antenna.

2013/11/22		GPS
Calibrate Off	Return Loss(dB) -50.0	GPS Off <mark>On</mark>
Points 201	-40.0 GPSGPS Info	GPS Info
Swp Time 517 ms	-20.0 GPS ON CON CONCEPTION ON CONCEPTION OF	
Average Off	Satellite 6 -10.0 Longitude 120°10'11.40" E Longitude 35°58'11.54" N 1000 C	
Smooth Off	0.0 Latitude 35 58 11.54 N Height 41.10 M 10.0 Time 11/22/2013 13:17:56	
	20.0	
Linear	30.0 OK	
📌 Run	40.0 Stop Freq 4.000 GHz	< Back
	GPS location	

GPS location

High-capacity battery

The built-in high-capacity lithium-ion rechargeable battery can support 3680A to operate 8 hours and 3680B to operate 4 hours. The battery replacement is easy and convenient.



push up the battery cover

close the battery cover

Battery replacement

Remote operation & tool software

The instrument can be connected to PC via USB or network interface to realize remote operation. Tool software is also provided for data analysis, real-time data acquisition, and curve Save & Recall. By trace dragging and comparison, traces from different windows can be moved to the same window for math operations.

•			3680AToo	ls - Tracel.tra				
	Trace Analyze File Transfer	Vindov						
d Save Auto as Ce File	Ref Pos 5.00 Ref Val 0.00 Scale 10.00 Ruler Zoon Reset Zoon Reset Zoon	te Schlatch Trace Math						
			Tracel. tra				- = ×	
	Return Loss						Points : 201	
	~50,00							
: 10.00dB	~40.00							
	-30.00							
	-20,00							
	-10.00							
	0.00			\sim	\sim		7	
	10.00							
	20.00							-
	30.00							nts : 201
Math Trace	40.00							
	40.00							
	Start Fq : 1 MHz						itop Fq : 4 GHz	
		-20.00						
		-10.00						
		Dates		min				
		10.00	www					
		20.00						
		30.00						
		51.00						
ay 1		40.00						Dis

Trace math operations

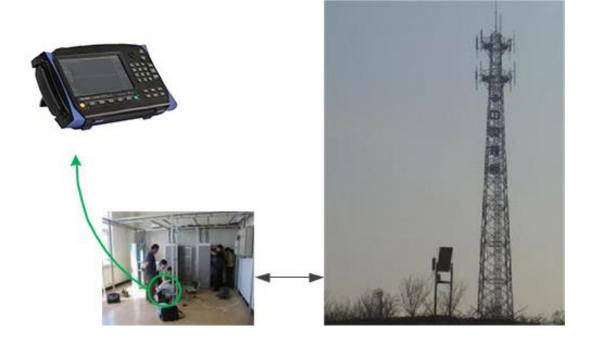
Remote Ctrl T	race Analyze File	Transfer Bindow		3680ATools	- [Trace Capt)	ire]			-
		G Start Fg 1	WHY - PA	AVE AVE Fac	tor 🚺	Co n			
Discon USBPN	Stop Save Print	Set Stop Fg 4	MHz - Co 201	Set Smooth Aner	ture Foraat	Setting V Off			
unicate Reas Nod	Screen Trace Capture	Frequency	Point	Set Smooth Aper Avg/Smoot	h Neas Fat	DTF Calibrate			
	Return Loss								Points : 20
s : 5.00 lue : 0.00dB	-50.00								
: 10.00dB									
	~40.00								
	-30.00								
	-20.00								
	-10.00								
	D 0.00				~		~~~~~	$\sim \sim$	
	10.00								
	20.00								
	30,00								
	40.00								
	Start Fq : 1 MHz								Stop Fq : 4 G

Data acquisition

Typical Applications

Performance measurement and maintenance of cable & antenna system

3680A/B Cable & Antenna Analyzer is developed for the daily measurement & maintenance of cable & antenna system, which can realize the measurement of VSWR, return loss, cable loss etc. It has unique FDR technique, and with functions of Distance-to-Fault (DTF) VSWR and Distance-to-Fault (DTF) return loss, it can precisely locate even tiny problems, and thus eliminate potential risks. During the installation, calibration and routine maintenance of the cable & antenna system, 3680A/B Cable & Antenna Analyzer can help users to quickly estimate the status of the transmission and feed line system, which can improve the maintenance efficiency of running base stations and speed up the installation and calibration of new base stations.



Cable & antenna performance measurement

3680A/B Cable & Antenna Analyzer offers multiple measurement modes to measure the cable loss, return loss, and VSWR of the cables.



Cable loss measurement



Antenna return loss/VSWR measurement

Technical Specifications

Model	3680A	3680B			
Frequency Range	1MHz~4GHz	1MHz~8GHz			
Initial Frequency Error	±2×10 ⁻⁶ (23°C)	±2.5×10 ⁻⁶ (23°C)			
Frequency Temperature Stability	±1×10 ⁻⁶ /10°C (23°C)	±1×10 ⁻⁶ /10°C (23°C)			
Frequency Resolution	1kHz	1kHz			
Directivity	≥42dB (Mechanical Calibration) ≥35dB(Embedded Electronic Calibration)	$\geq 42 dB (1 MHz \sim 6 GHz, Mechanical Calibration) \\ \geq 36 dB (6 GHz \sim 8 GHz, Mechanical Calibration) \\ \geq 31 dB (1 MHz \sim 6 GHz, Embedded Electronic Calibration) \\ \geq 26 dB (6 GHz \sim 8 GHz, Embedded Electronic Calibration) \\ \geq 26 dB (6 GHz \sim 8 GHz, Embedded Electronic Calibration) \\ \leq 100 + 100$			
Source Match	≥31dB (Mechanical calibration)	≥31dB (Mechanical calibration)			
Reflection Track	±0.08dB (Mechanical calibration)	±0.08dB (Mechanical calibration)			
Battery Capacity	8h (Without embedded calibration option, 70% brightness)6h (With embedded calibration option)	4h			
Power Consumption	≤15W (No battery charging) ≤54W (Battery charging)	≤18W (No battery charging) ≤54W (Battery charging)			
Sweep Time	1ms/Frequency point (10kHz IF band	lwidth)			
Power Adapter	AC Power: 110V (1±10%) or 220V (1±10%), 50)Hz (1±5%)			
Size	295mm (W)×205mm (H)×70mm (D)				
Weight	2.5kg (With battery)				
Operating Temperature	-10°C~+50°C				
Storage Temperature	-40°C~+70°C				
Electromagnetic Compatibility	Conforms to Regulations of GJB3947A-2009 3.9.1				
Test Port	Type N, Female				
10MHz Input/output Port	BNC				

GPS Antenna Interface BNC

Ordering Information

Main Unit: 3680ACable & Antenna Analyzer (1MHz~4GHz)

3680BCable & Antenna Analyzer (1MHz~8GHz)

Standard Package

No.	Description	Remarks
1	Power Cord	Standard tri-prong power cord
2	Power Adapter	-
3	Quick Start Guide	1 pc
4	PC Tool Software CD	-
5	USB Cable	-
6	Built-in Rechargeable Lithium-Ion Battery	-
7	Charger on Vehicle	-
8	Certificate of Conformity	-

Options

Serial No.	Description	Function	Remarks
3680A-001	English Options	-	Only for 3680A
3680A-002	User Manual (in English)	-	-
3680A-003	User Manual (in Simplified Chinese)	-	-
3680A-004	Programming Manual (in Simplified Chinese)	-	-
3680A-005	Programming Manual (in English)	-	-
3680A-006	USB Power Measurement	Power Measurement	-
3680A-007	87230 USB CW Power Sensor	$9 \mathrm{kHz} \sim 6 \mathrm{GHz}$ Power Sensor	-
3680A-008	87231 USB CW Power Sensor	$10 \mathrm{MHz} \sim 18 \mathrm{GHz}$ Power Sensor	0
3680A-009	87232 USB CW Power Sensor	50MHz ~ 26.5GHz Power Sensor	-
3680A-010	87233 USB CW Power Sensor	$50 \mathrm{MHz} \sim 40 \mathrm{GHz}$ Power Sensor	-

3680A-011	Rechargeable Lithium-Ion Battery	Spare Battery	HY-2040 10.4V Lithium fon Battery
3680A-012	Type N Male Calibration Kit 31101A	DC \sim 18GHz Calibration Kit	+
3680A-013	Type N Female Calibration Kit 31101B	$DC \sim 18GHz$ Calibration Kit	-
3680A-014	Type N Male Calibration Kit 20201A	DC \sim 9GHz Calibration Kit	-
3680A-015	Type N Female Calibration Kit 20201B	DC \sim 9GHz Calibration Kit	-
3680A-016	Functional Bag	-	
3680A-017	Carrying Backpack	-	
3680A-018	Transit Case	-	-
3680A-019	N-DIN Adapter L29/N-KJ-T	N-DIN Adapter	Con 11
3680A-020	N-DIN AdapterL29/N-JJ-T	N-DIN Adapter	-
3680A-021	GPS Antenna	GPS External Antenna	Ø
3680A-022	Low-Loss Cable N-JK (80cm)	Test Port Extending Cable	
3680A-023	Low-Loss Cable N-JJ (80cm)	Test Port Extending Cable	
3680A-024	Cat5e cable (2m)	Point-to-Point Cable	Q
3680A-025	MicroSD Class4	8G	Cones

3680A-026	Power Adapter	Power adapter	
3680A-027	Embedded Electronic Calibration Kit	Built-in	Only for 3680A
3680A-028	Economical Calibration Kits (Male) 20201AE	DC \sim 9GHz Calibration Kit	-
3680A-029	Economical Calibration Kits (Female) 20201BE	DC \sim 9GHz Calibration Kit	-
3680A-030	English Options		Only for 3680B
3680A-031	Embedded Electronic Calibration Kit	Built-in	Only for 3680B

3680A/B Cable & Antenna Analyzer Options



3680A/B Main Options



3680A-007/008/009/010 USB CW Power Sensor



3680A-011HY-2040 Rechargeable Lithium-Ion Battery



3680A-012 31101A Type-N Male Calibration Kit



3680A-016 Functional Bag



3680A-017 Carrying Backpack



3680A-019L29/N-KJ-T N-DIN Adapter



3680A-021GPS Antenna



3680A-022 Low-Loss Cable N-JK(80cm)



3680A/B-023 Low-Loss Cable N-JJ(80cm)



3680A-024 Cat5e Cable (2m)



3680A-025 MicroSD Class4 (8G)



3680A-026 Power Adapter



Focus on measurement Explore the future

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