

CAA-100A

Cable & Antenna Analyzer + Spectrum Analyzer

ShinewayTech[®] CAA-100A cable & antenna analyzer with spectrum analyzer can test DTF/Frequency Return Loss, VSWR, Cable Loss, RF Power and Spectrum. CAA-100A integrates two functions: cable and antenna measurements and spectrum analysis. Cable and antenna analyzer with frequency range 1MHz – 6GHz and 60dB dynamic range is suitable for 2G/3G/4G/5G/WLAN/WiFi/WiMAX systems etc. The spectrum analysis module supports frequency of 300MHz-4GHz and 100dB dynamic range. CAA-100A series is an essential measuring instrument for testing new generations of wireless network and indoor signal distribution.

Features

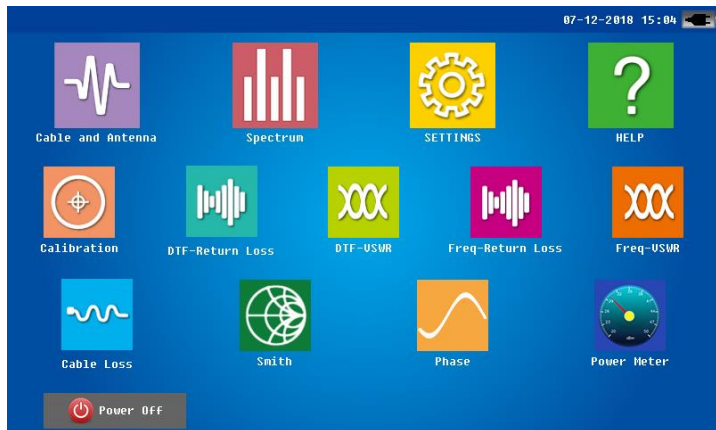
- Cable and Antenna analyzer, Spectrum Analyzer, Terminal RF Power Meter and RF In-Line Digital Power Meter Function
- Cable and Antenna analyzer function: Frequency range:1MHz to 6GHz, Dynamic Rang up to 60dB
- Spectrum Analyzer function: Frequency range:300MHz to 4GHz, Dynamic Rang up to 100dB
- Cable and Antenna analyzer function and Spectrum Analyzer function share port test
- Suitable for 2G/3G/4G/5G/WLAN/WiFi/WiMAX system etc.
- Intelligent limit /marker /curve calculations
- More than 8 hours long battery life
- 7-inch color LCD touch screen
- Optimized batch file management: edit/delete/filter
- Excellent Man-Machine interface for easy operation



Functions

1. Multiple Standard measurement mode

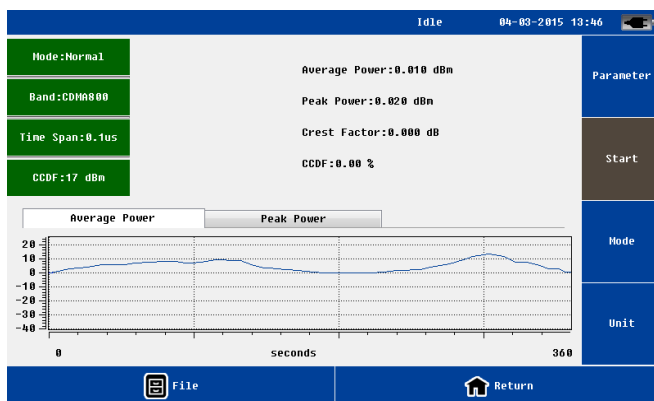
Spectrum, Power Meter, Distance-To-Fault (DTF) Return Loss, DTF Voltage Standing Wave Ratio (VSWR), Frequency Return Loss, Frequency VSWR, Smith, Phase and Cable Loss testing. Main interface designs beautifully, user operation is convenient.



2. Optional Power Meter

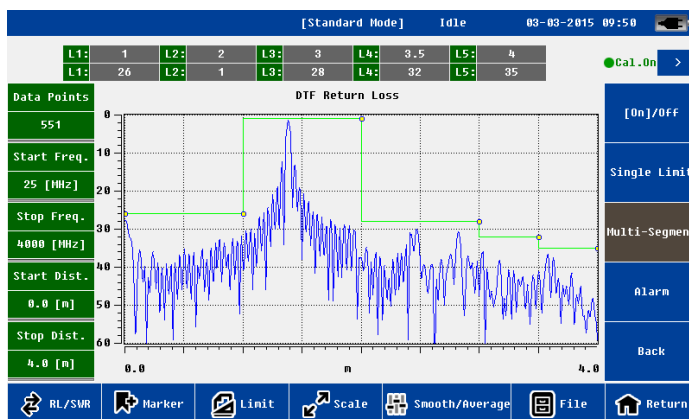
USB high-precision power meter probe not only can connect the instrument to test and display the power, but also can connect the PC to analyze the result, which is very useful for user.

Terminating Power Meter and In Line Digital Power Meter can test a variety of signals, which can meet the demand of different level users.



3. Intelligent analysis and judgment of the trace

CAA-100A series can analyze single or multi-segment limit lines, markers and the curve calculation accurately.



4. Convenient and precise calibrator: 1-port “T-type” Calibration Kit & ECAL

Electronic calibrator

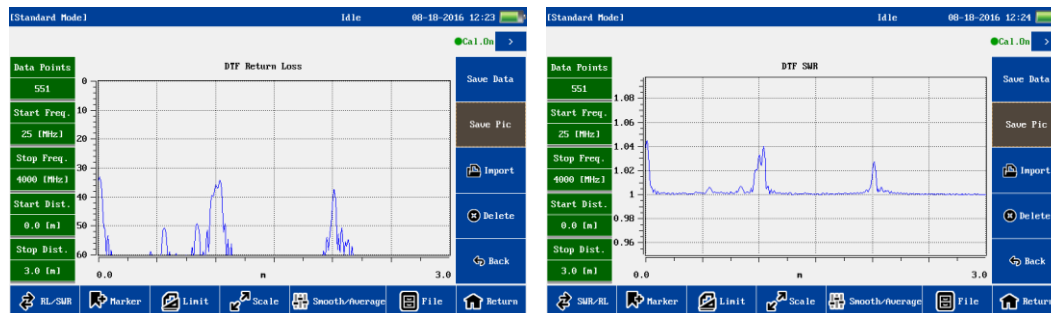
It can calibrate precisely and conveniently. When the calibrated data points decrease, it is no need to recalibrate, which will increase the service efficiency.

Electronic calibrator ECAL provides consistent calibration results, and removes the possible error of manual calibration.



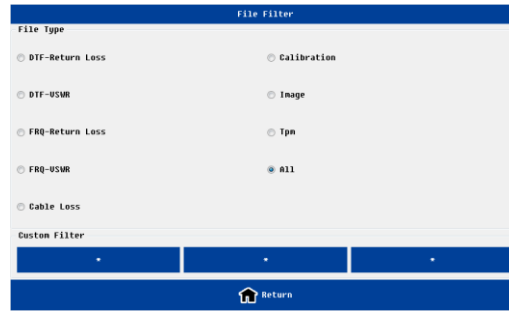
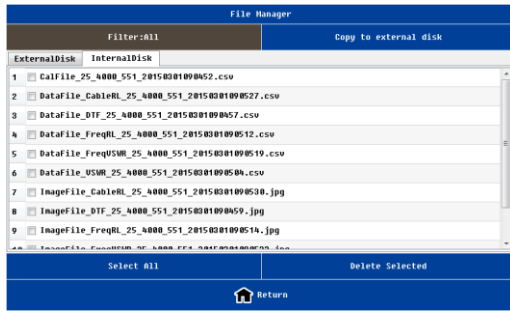
5. Instant switching the Return Loss and VSWR

CAA-100A Cable and Antenna analyzer’s function can test the return loss and VSWR simultaneously and switch the result instantly.



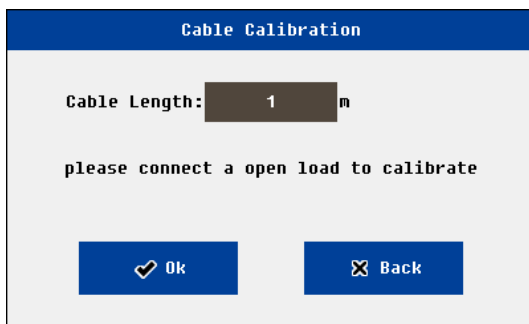
6. Optimized batch file management function

CAA-100A series file filter function is easy to implement batch editing and analyzes the results.



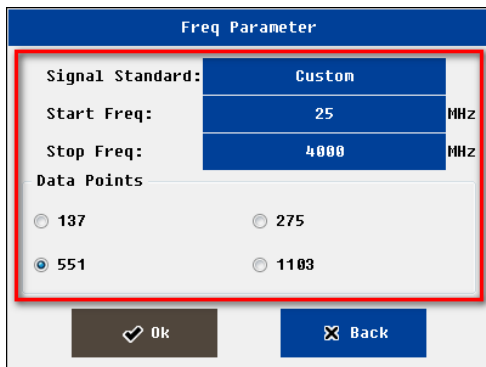
7. Field calibration cable and obtaining the parameters

CAA-100A series can supply user input the cable parameters (propagation velocity, cable loss) or choose a known cable type. If user knows nothing about the cable parameters, he can make a field calibration by the equipment cable Calibration tool to get the accurate cable parameters.

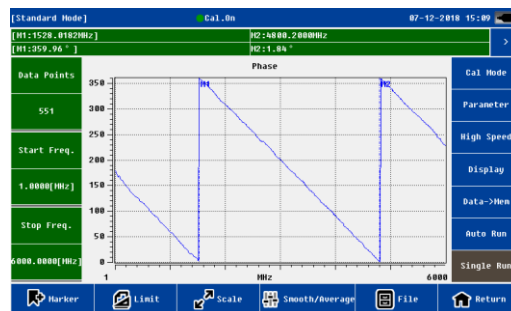
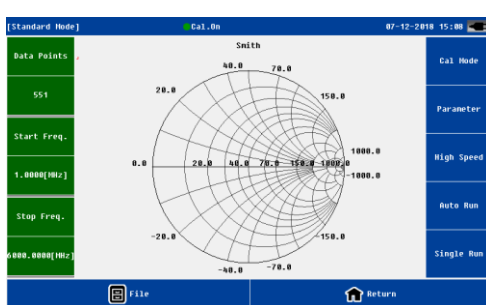


8. Manually set frequency or select the preset frequency

According to the demand, it is convenient for user to manually set or select the preset frequency.



9. Smith Phase Testing



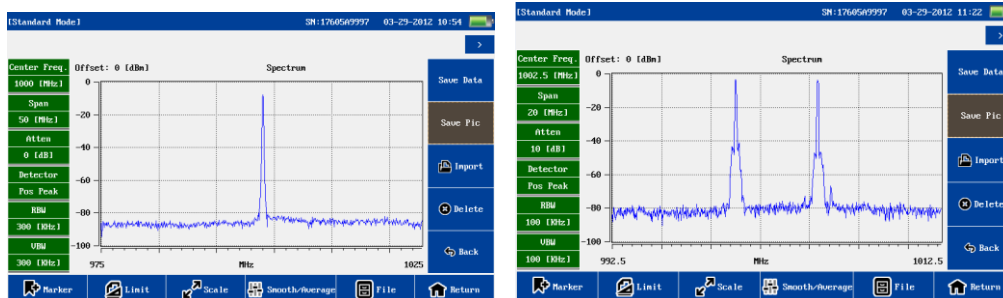
10. Energy saving, environmental protection, and human interface design

CAA-100 series is low-power designing, has a high-capacity rechargeable lithium battery and AC adapter dual power supply with more than 8 hours of continuous battery operation. The shortcut keys can set up four display modes: normal, black and white, highlight and night vision for different ambient.

11. Spectrum analysis module

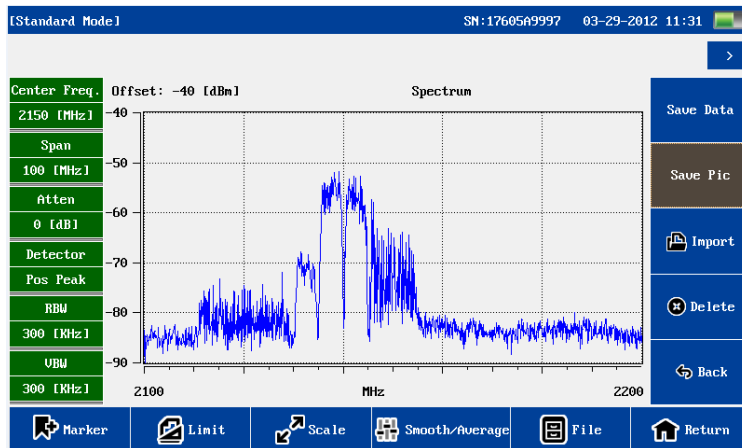
The spectrum analysis module is covered 300MHz-4GHz, 100 dB dynamic range, -130dBm/Hz DNAL. It can supply the spectrum measurement, field strength analysis, interference, and other testing.

(1) Spectrum Test Function

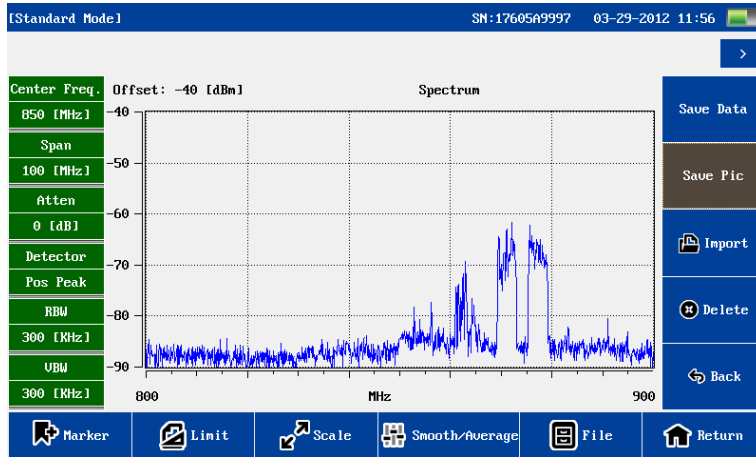


(2) Antenna Test Function

WCDMA



CDMA

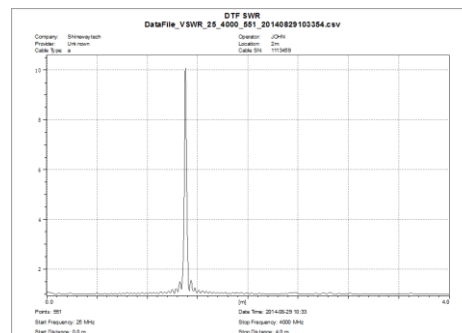


12.CAA Workbench PC software

(1) Data Management Function

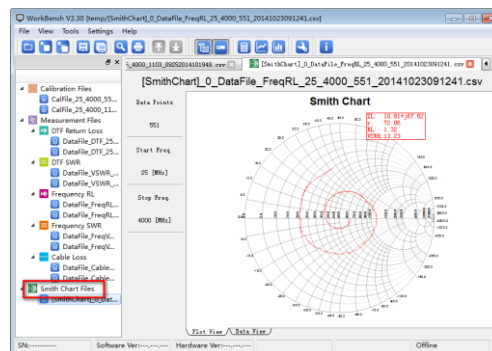
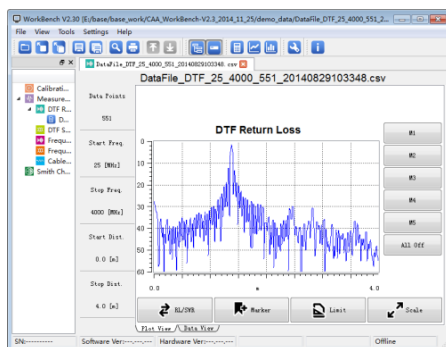
- Uploading and downloading files between the CAA-100a host and PC
- Interact files with PC, including open the local file and save the file to the local
- Support report print preview and print. Fully display the information such as company name, test parameters and measuring time etc.

Name	Type	F1 [MHz]	F2 [MHz]	Points	D1 [m]	D2 [m]
1 CalibrationData/CalFile_25_40...	Calibration	25	4000	551	.....	.....
2 CalibrationData/CalFile_25_40...	Calibration	25	4000	551	.....	.....
3 MeasureData/DataFile_FreqRL...	FreqRL	25	4000	551	.....	.....
4 MeasureData/DataFile_FreqRL...	FreqRL	25	4000	551	.....	.....
5 MeasureData/DataFile_FreqRL...	FreqRL	25	4000	551	.....	.....
6 MeasureData/DataFile_FreqRL...	FreqRL	25	4000	551	.....	.....



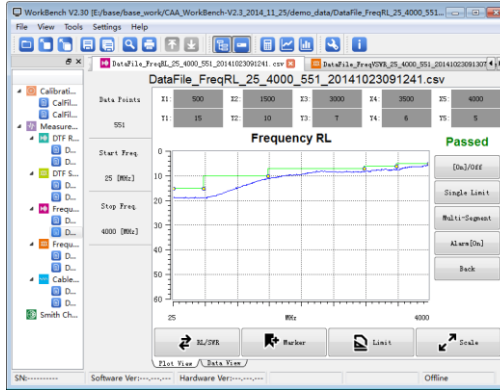
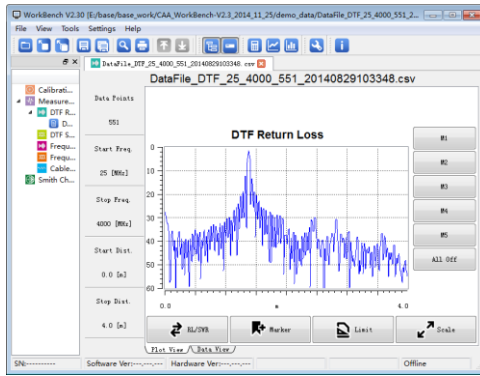
(2) Application Tools Function

- Distance-To-Fault
- Transform into Smith Chart
- Calculator
- Edit Signal Standard
- Edit Cable Parameter



(3) Data Analysis

- Marker
- Limit line
- Scale
- Switching the Return Loss and VSWR



Specifications

Model	CAA-100A
Cable & Antenna Analyzer Function	
Frequency Range	1-6000MHz
Frequency Resolution	1kHz
Frequency Accuracy	±2.5ppm
Output Power	0dBm (typ.)
Measurement Speed	2ms/pt
Data Points	137,275,551,1103, 2207,3310
Directivity	42dB (after calibration)
Anti-jamming Capability	17dBm@ Channel, -5dBm@ Frequency
Frequency	
Return Loss Range	0-60dB
Return Loss Resolution	0.01dB
VSWR Range	1-65
VSWR Resolution	0.01
Cable Loss Range	0-30dB
Cable Loss Resolution	0.01dB
Distance-to-Fault	
Distance-to-Fault Return loss Range	0-60dB

Distance-to-Fault VSWR Range	1-65dB
Measuring Range	1500 m
Resolution Ratio	$1.5 \times 10^8 \times V_p / (F_2 - F_1)$ Vp: the cable's relative propagation velocity; F1/F2: start/stop frequency
Spectrum Analyzer Function	
Frequency	
Frequency Range	300-4000MHz
Frequency Resolution	1kHz
Frequency Accuracy	± 2.5 ppm
Frequency span	1-3700MHz
Resolution Bandwidth (RBW)	1k-300kHz(1,3,10 step)
Video Bandwidth (VBW)	1k-300kHz(1,3,10 step)
RBW/VBW	1,3,10
Amplitude	
Attenuator Range	30dB
Attenuator Step	5dB
Max. Continuous Input	+26dBm
Third-Order Intercept	>+15dBm (typ.)
Second harmonic distortion	<-70dBc
Displayed Average Noise Level (DANL)	<-130dBm/Hz
Measurement Accuracy	± 1.5 dB@25 $\pm 5^\circ$ C (typ.)
SSB Phase Noise @1GHz	-85dBc/Hz @ 10kHz offset -120dBc/Hz @ 1MHz offset
Residual Spurious	<-85dBm
Display	
Dynamic Range	≤ 100 dB
Measurement Range	DANL to 20dBm
Reference Level Range	-80dBm - 30dBm
Amplitude Units	Logarithmically (dBm,dBv,dBmv,dBuv)
Detection	Sample, Peak, Negative, RMS, Standard
Triggers	Free Run, Video,
VSWR	2.2:1(typ.)
General Information	
Connector Type	N - Type female
Input Impedance	50 Ohm
Display	7 inch resistor touch screen, resolution 800 \times 480

Data Interface	1 ↑ USB Host Port, 1 ↑ USB Device Port, 1 ↑ 10M/100M Adaptive LAN Port
Memory Space	>2000 traces
Language	Chinese, English, Spanish
Internal Battery	11.1V 7800 mAh Rechargeable Lithium Battery
External Adapter	110 - 240V, 50 - 60Hz, AC input; 16V, 3.75A, DC output
Operating Temp. Range	-10°C - 50°C
Storage Temp. Range	-40°C - 70°C
Humidity	0 - 85% (Non-Condensing)
Weight	2.5kg
Dimensions (L x W x H)	290×175×75 mm

TPM Module (Optional)--RF Terminal Power Meter	
Frequency Range	50 - 4000MHz
Power Range	-40 - 20 dBm
Maximum Power	<23 dBm
Measure Uncertainty	$\leq \pm 0.3\text{db}$ (15 - 35°C); $\leq \pm 0.5\text{dB}$ (0 - 50°C)
Input VSWR	<1.2
Burst Width	1μs - 60ms
Min Repetition Period	15Hz
Video Band	5MHz
Minimum Pulse Width	200ns
Time Resolution	0.1μs, 1μs, 15μs, 150μs
Peak Average Ratio	<12dB
CCDF Range	0.1% - 100%
CCDF Uncertainty	±3%
Duty cycle	0.1% - 100%
Power Supply	USB
Operating Temp. Range	0°C - 50°C
Storage Temp. Range	-20°C - 70°C
Humidity	0 - 85% (Non-Condensing)
Weight	0.3kg
Dimensions (L x W x H)	125×45×35mm

DPM Module (Optional)--RF In Line Digital Power Meter	
Average Power Measurement	
Frequency Range	300-4200MHz
Power Range	100mW-200W

Dynamic Range	≥33 dB
Insertion Loss	≤0.1 dB
VSWR	1.05 to 99.9
Directivity	≥30 (<3GHz); ≥28 (>3GHz)
Accuracy	±4% (0°C - +15°C or +35°C - +50°C increase 3%)
Impedance	50Ω
Connector	N (Female)
Data Interface	USB
Peak Power Measurement	
Peak Power Range	100mW to 500W
Peak Power Accuracy	Burst width >200us: ±7%; 1us<Burst width< 200us: ±10%; 0.5us<Burst width< 1us: ±15%; Burst width< 0.5us: ±20%;
Peak Average Ratio	0 to 12dB
CCDF	
Measurement Range	0.1 to 100%
Measurement Accuracy	±3%
Threshold Measurement Range	0.05W to 500W
Burst Power	
Burst Power Range	100mW to 200W
Burst Width	1us to 60ms
Min. Measurement Frequency	15Hz
Measurement Accuracy	±6%
Duty Cycle	0.0001 to 1
General Specifications	
Power Supply	USB
Operating Temperature	-10°C to 50°C
Storage Temperature	-20°C to 70°C
Relative Humidity	0 to 85% (Non-condensing)
Weight	0.48kg
Dimensions (H×W×T)	130××124×34mm

* Specifications subject to change without notice

Order Information

Standard Package:

Instrument, Lithium Battery, AC Adapter, CD(PC Software, User Manual), Carrying Case, T-type Calibration Kits, Cable (1.5m DC to 6GHz, N(m)-N(f), 50 Ω), Adapter (N(m)-N(m), DC to 6GHz, 50 Ω)

Optional:

- TPM Module (Optional)--RF Terminal Power Meter
- DPM Module(Optional)—RF In Line Digital Power Meter
- ECAL-- Electronic Calibrator

Test Cables

- 1.5m, N(m)-N(f), DC to 6GHz, 50 Ohm
- 1.5m, N(m)-N(m), DC to 6GHz, 50 Ohm
- 1.5m, N(m)-7/16 DIN(f), DC to 6GHz, 50 Ohm
- 1.5m, N(m)-7/16 DIN(m), DC to 6GHz, 50 Ohm
- 3m, N(m)-N(f), DC to 6GHz, 50 Ohm
- 3m, N(m)-N(m), DC to 6GHz, 50 Ohm

Adapters

- SMA(m)-N(m), DC to 6GHz, 50 Ohm
- SMA(f)-N(m), DC to 6GHz, 50 Ohm
- SMA(m)-N(f), DC to 6GHz, 50 Ohm
- SMA(f)-N(f), DC to 6GHz, 50 Ohm
- BNC(f)-N(m), DC to 6GHz, 50 Ohm
- 7/16 DIN(f)-N(m), DC to 6GHz, 50 Ohm
- 7/16 DIN(f)-N(f), DC to 6GHz, 50 Ohm
- 7/16 DIN(m)-N(m), DC to 6GHz, 50 Ohm
- 7/16 DIN(m)-N(f), DC to 6GHz, 50 Ohm
- 7/16 DIN(m)-7/16DIN(m), DC to 6GHz, 50 Ohm
- 7/16 DIN(f)-7/16DIN(f), DC to 6GHz, 50 Ohm
- N(m)-N(m), DC to 6GHz, 50 Ohm
- N(f)-N(f), DC to 6GHz, 50 Ohm
- N(m) 50Ohm – N(f) 75Ohm, DC to 3GHz
- N(f) 50Ohm – N(m) 75Ohm, DC to 3GHz

Calibrators

- ECAL calibrator, N(m), 1MHz to 4GHz, 50 Ohm

Antenna

- 880 MHz -- 960 MHz, N(m), 13 dBi, Yagi
- 1710 MHz -- 1990 MHz, N(m), 13 dBi, Yagi
- 1920 MHz -- 2170 MHz, N(m), 13 dBi, Yagi
- 2400 MHz -- 2500 MHz, N(m), 13 dBi, Yagi
- 890MHz-960MHz, 1710MHz--1990MHz, N(m), 3dBi, 50 Ω , Rod
- 1920 MHz -- 2170 MHz, N(m), 50 Ω , 3dBi,Rod
- 2400 MHz -- 2483 MHz, N(m), 50 Ω , 5dBi, Rod
- 890MHz-960MHz, 1710MHz-1990Mhz, 50 Ω , N(m), 3.5dBi,Sucker
- 890MHz-960MHz, 1710MHz-1990Mhz, 50 Ω , N(m), 3dBi, Sucker
- 2400MHz-2483MHz, 50 Ω , N(m), 7dBi, Sucker
- 890MHz-960MHz, 50 Ω , N(m), 6dBi, FRP
- 2400MHz-2483MHz, 50 Ω , N(m), 10dBi, FRP

- 700 MHz -2.5 GHz, 50 Ω , N(m), 4dBi, Logarithm
- 700 MHz - 4 GHz, 50 Ω , N(m), 4dBi, Logarithm