ATS3505B

Antenna and Cable Vector Analyzer

Instruction(2012 versions)
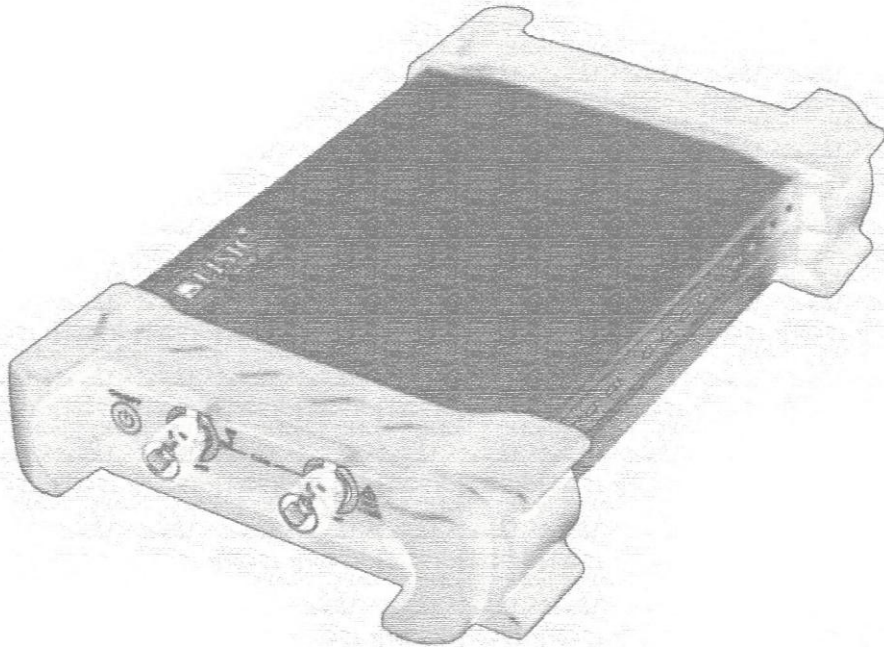
www.LISICtech.com   Emal:Adam@LISICtech.com

Specification

Dimension (mm):200(L)x100(W)x35(H)

Weight:0.9Kg(2Lb)

RF interface: BNC(50ohm)

Communication interface: USB Slave-12mmX10mm and Bluetooth2.0

Software platform: Windows XP/Windows7/Windows8/Android2.0-5.0

Function

(CAT)Analysis function of antenna and cable

Measure the reflection of antenna; Voltage standing wave ratio (VSWR) ;Impedance

Measurement cable loss

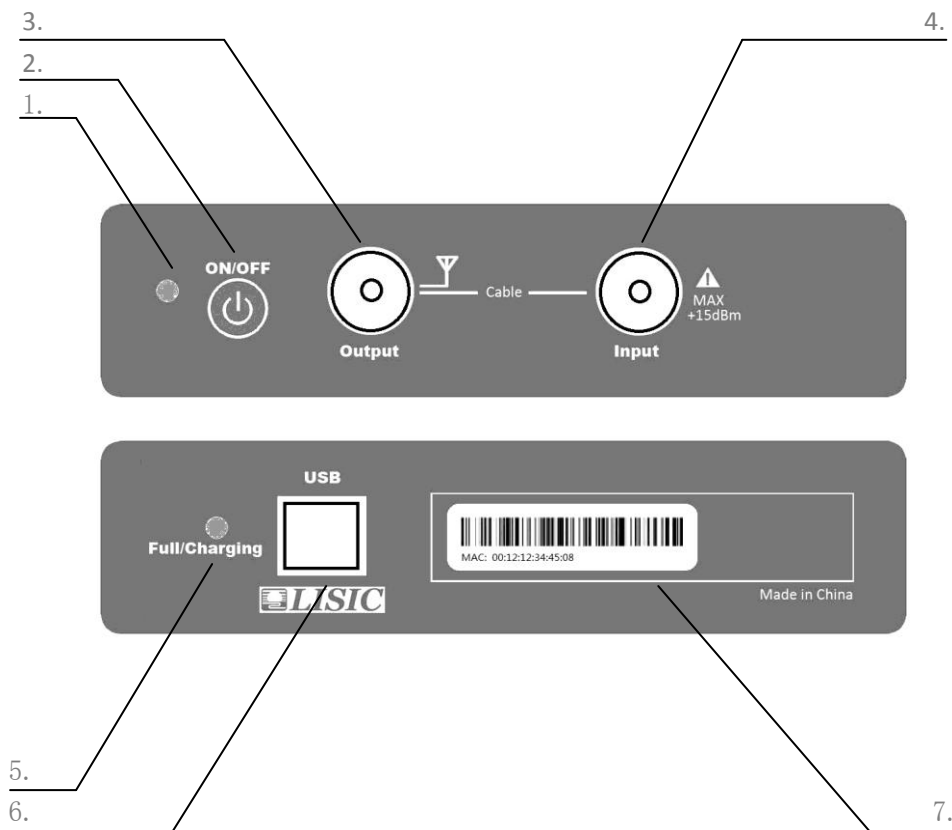(VNA) Two-Port network S11 phased and magnitude,S21 Gain

Measure filter or amplifier's input return loss, input impedance

Measure filter or amplifier amplitude-frequency response

(VVM)RF Dynamometer

Measurement of the input signal power

Connector

1. Power supply and communication Indicator, if the power on the LED will be active ,

in the USB or bluetooth communication the LED will be blinking.

2. Power Switch, Open or close the power supply, combine the buzzing indicate.

3. RF output port. This port output the signal for your test, In the antenna analysis connect to antenna, and in cable analysis connect to cable end.

4. RF input port. It's a test signal input port, No Connection for a antenna analysis produce, and in cable analysis connect to cable end point .This port can be independent as micro power meter.

5. Charging status indicator, green means charging and red means charging complete.

6. USB2.0 slave port connect with PC

7. Bluetooth Device MAC Address, this address is used to connect with smart phone.

Technical parameters

Output frequency range:1-33MHz(HF)

Micro Power Meter input signal frequency range:0.1 - 500MHz

RF Output power:2dBm<Po<3dBm

RF Input power range: -75dBm to +15dBm

Frequency stability :5ppm

Impedance test accuracy: Smith Chart 1/3 radius   +/-10%

Smith Chart 1/3-2/3 radius   +/-35%

Smith Chart 2/3 Outside radius qualitative analysis area

Standing wave ratio measurement precision: +/-5%

Power measurement accuracy: +/-3dB at 3dBm to 15dBm

+/-1dB at -20dBm to 0dBm

+/-6dB at -40dBm to -90dBm

Gain measurement precision: +/-1.1dB at 0dB

Battery time: >24 hour

Battery capacity:>3000mAh

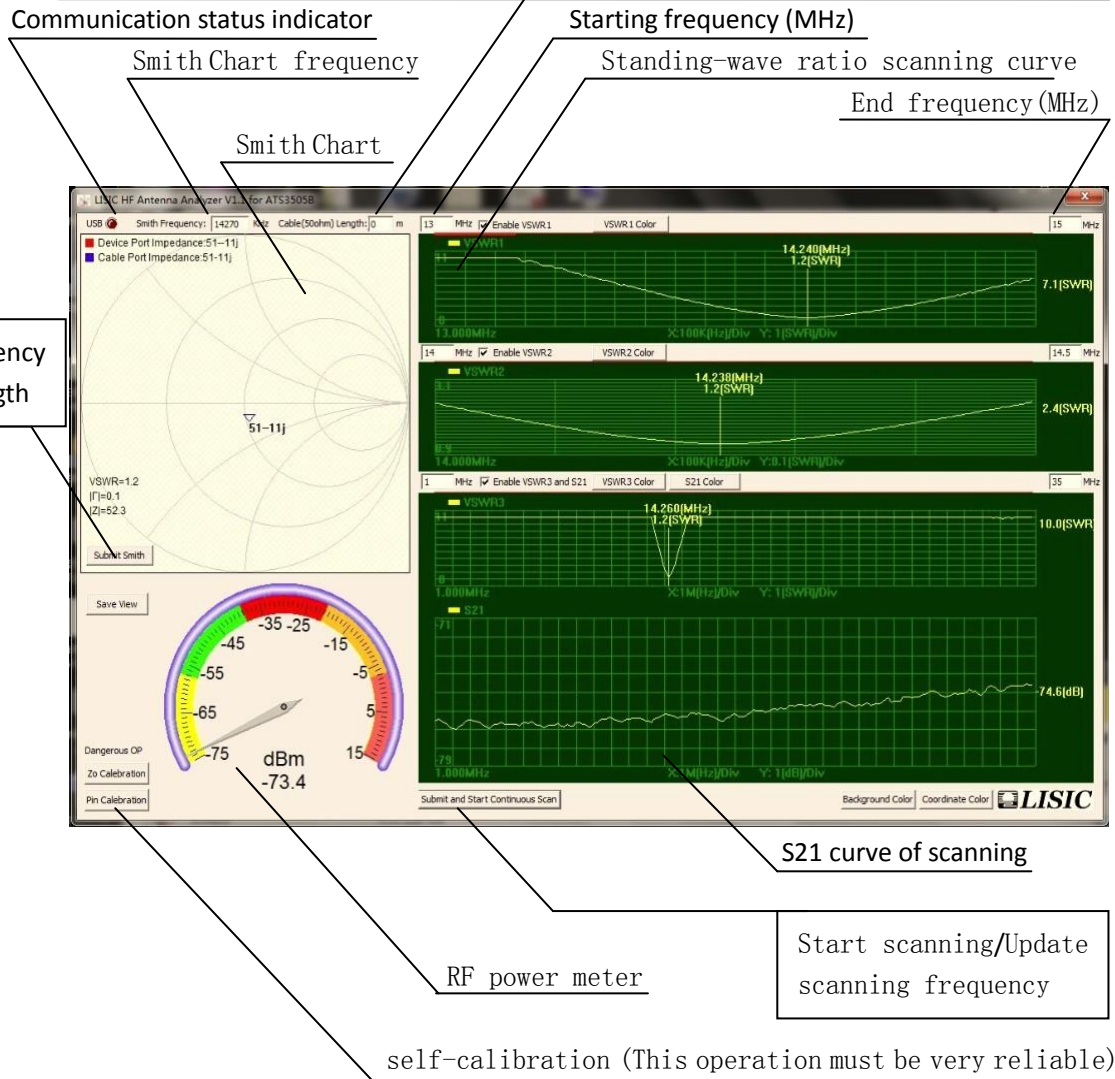Antivibration design: Affordable 3 shaft vibration magnitude 6g

Temperature range: -5 to 45℃

Low temperature start:<0℃

Resistance to temperature shock:>5℃/s

PC software illustrate

Cable length from the instrument to the antenna(To calculate the impedance of the antenna)

Communication status indicator

Starting frequency (MHz)

Smith Chart frequency

Standing-wave ratio scanning curve

End frequency(MHz)

Smith Chart

Submit Frequency and Cable Length

S21 curve of scanning

Start scanning/Update scanning frequency

RF power meter

self-calibration (This operation must be very reliable)

Start this equipment, then connect pc by USB(insure the device driver of ATS3505B has been setup to Windows successfully),and then started ANTSYS V1.2,now the communication instructions will start blanking, represent the communication has started, if it connect fail, pull out the USB cable and inset again (USB cable is susceptible to electrical surge effect caused by equipment from the PC removed, if the communication interrupt, please to plug a USB cable can to bootstrap equipment), If two devices at the same time connected to a PC, the software will automatically choose one of the work equipment.
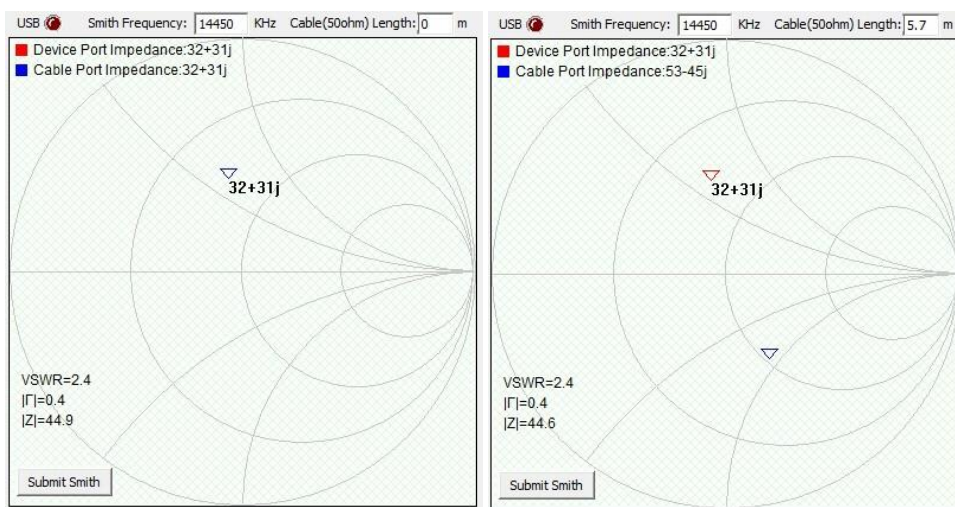
When the software started, the user can reading impedance information through the chart, at the same time power meter has also started to measurement.
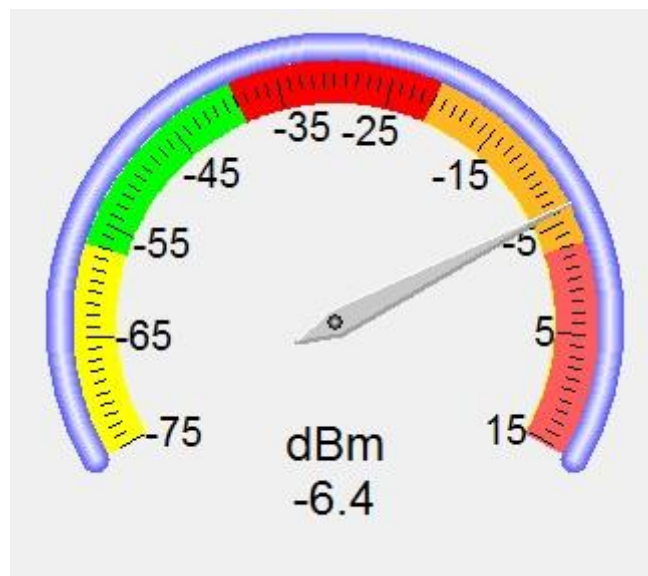

The user can analysis antenna through the modified chart frequency. If the antenna go through the cable connected with ATS3505B, The antenna analyzer port impedance is not antenna impedance. If you want to calculate antenna impedance,

cable far-end (antenna input impedance) need to input the length of feeder cable, and smith chart will show two different impedance.

Caution: If the antenna connect more than 1/50 wavelength cable, the cable end input impedance and the antenna input impedance will appear obvious difference. Now, users need to enter cable length to calculate two input impedance, If you don't need to calculate the input impedance of the antenna, or only need to measure the cable input impedance , you will enter zero length data. The length of the data do not have any relations with all other functions.
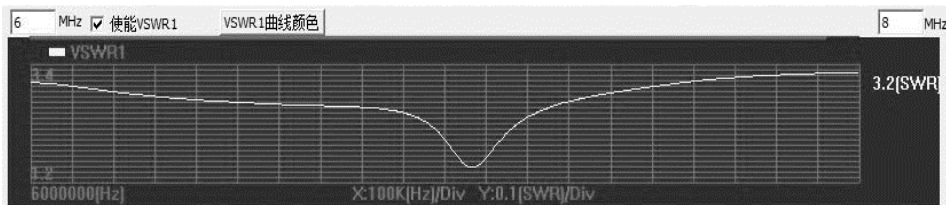
In software scanning view there are three independent of each other standing wave ratio scan area. User can through the check box enable the scanning area, through the starting frequency and end frequency to define three irrelevant scan area, three frequency range can be arbitrary overlapping or interval. This feature is more suitable for multiband antenna synchronous trim and scanning. The end of each view shows the end point of VSWR numerical. All coordinates are automatic range change, the user can through the best proportion to observe the curve.
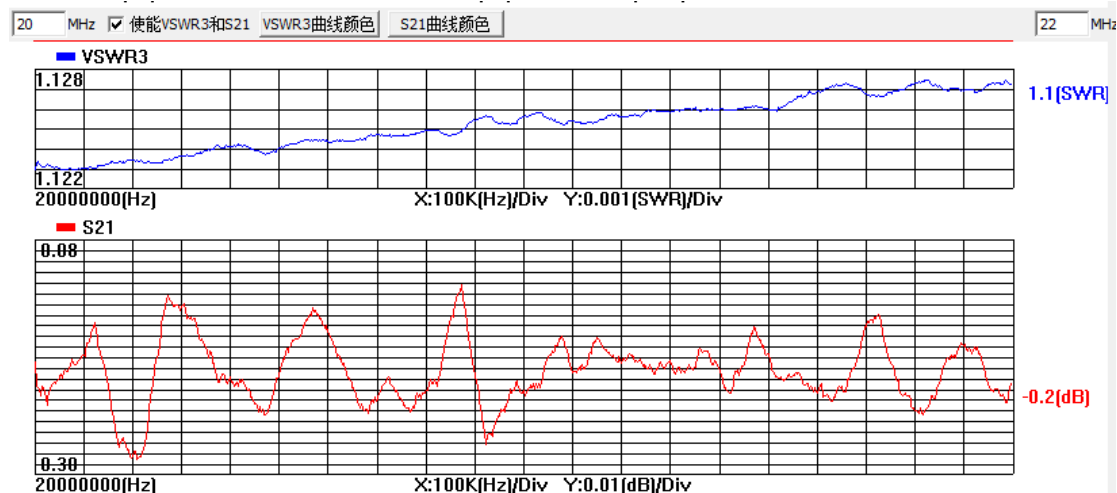

The third scan area add the S21 amplitude curve instructions ,compared with the other two scanning view, the curve can be used to measure the cable attenuation, filter frequency response curve, amplifier gain and frequency response curve, balance to imbalance converter attenuation and frequency response curve.

Android phone software instructions

The user can through the network electronic market or from LISIC CD-ROM setup ATS3505B.APK.Before running the software ,you must ensure the bluetooth function has been enabled. Otherwise, the software can't establish a bluetooth connection. Search equipment can be seen after called HC-07 device, Then click the item and pair with the equipment, Input pairing code "1234", until the

matching success。At this time the equipment will be displayed "Paired but not connected".Now you can run the software.
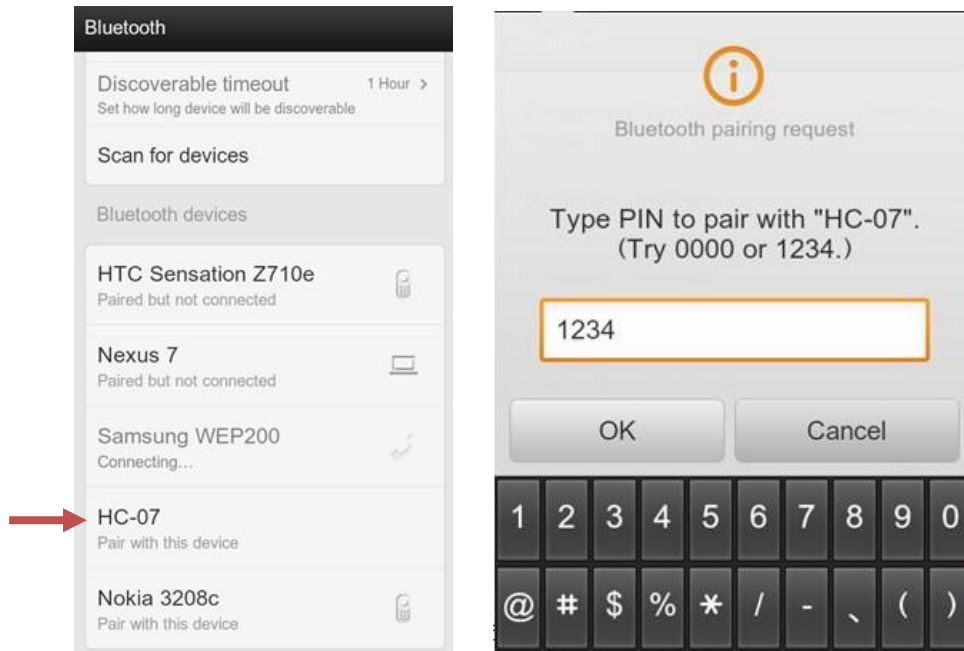
User need to input bluetooth MAC address in software begin page. The address is unique for every bluetooth device, the software also through this address to distinguish different ATS3505B equipment, if the address input error will not be able to establish a connection.

Please Enter the Bluetooth MAC Address

If unable to establish a connection, please click "connect" button again, because bluetooth connection setup will be affected by many factors, and the system has certain authority operation, Therefore sometimes require multiple tries to connect to building a successful. If bluetooth connection build successfully, the program will enter measuring view, all scanning and measuring function began running.
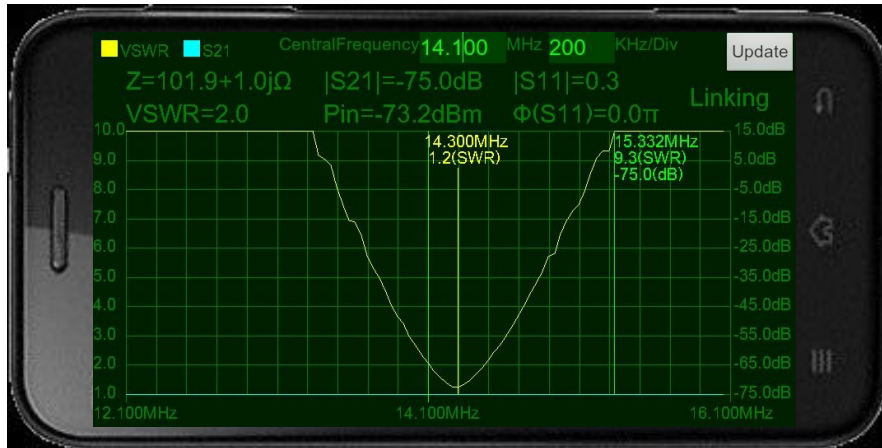
The view have twenty horizontal divided grid, and vertical nine grid, Horizontal shaft for frequency(MHz), Vertical shaft for VSWR and S21 Shared。 The user can set the center frequency and each level div frequency values (KHz), and then click "Update" button, modify the scanning range. On the top display various parameters of the center frequency, including: complex impedance Z, voltage standing wave ratio VSWR, the gain of the S21 (gain or decay), the input power Pin, S11 amplitude (reflection coefficient), S11 phase.

If the communication distance is far from ATS3505B equipment (usually in 10m radius).Communication may appear unstable situation, the user can through the top right hand corner of the communication instructions to judge, if shows "Linking" and with flash to indicate the communication normal, if not flicker, means communication suspended, if shows "Link Error," means communication has been completely cut off. In this case user need to open software again to establish a new bluetooth connection.

Examples of application

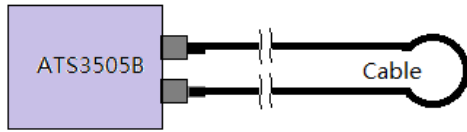Scanning antenna standing wave ratio curve and measurement input impedance in Smith Chart frequency.
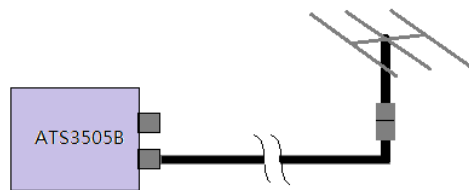
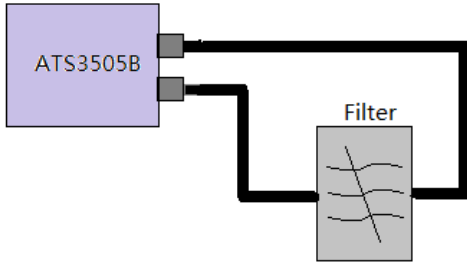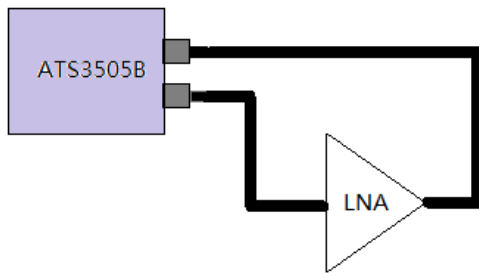Through the micro power meter measuring antenna
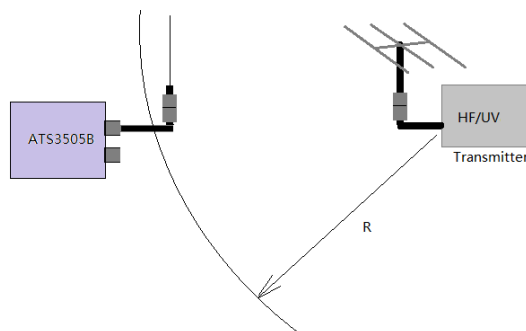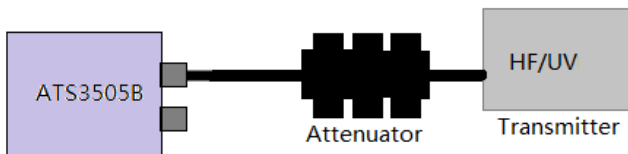
Measurement cable attenuation
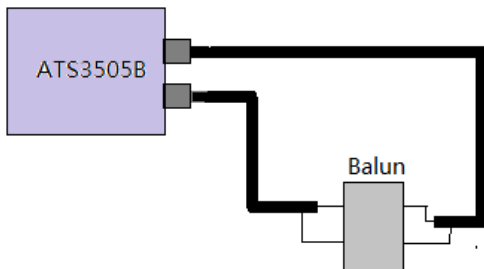
Measuring filter frequency response curve

Measuring LNA amplifier gain and frequency response curve

Measuring RF signal power

Measuring balun frequency response and standing wave ratio

Problems and Attention

1. RF micro power measurement maximum input value is +15dBm, If more than this value may cause damage to the equipment。

2. Full charge the battery when you don't want to used it in a long time. At last charging one times during 6 months. Keep in a cool, ventilated dry environment

3. If the battery to completely discharge, The equipment will be in charge of the first few minutes could not be opened until charging to normal voltage.

4. Equipment power will automatically shut down with no any software communication connection in 20 minutes

5. This equipment is designed for antenna analysis and cable analysis, And can't serve as LCR tester, because the antenna analysis for have wider dynamic range than LCR, and equipment internal use logarithm measurement and consideration, The measurement in the center part of the Smith Chart is accurate, but left circle center will produce a large error (less than 6.0 standing wave ratio and the antenna impedance, caused standing wave ratio within 2.0 has high accuracy of measurement, and the other part can only be used as RF design, with only logarithm numerical accuracy).

6. Bluetooth connection may not be stable due to other equipment interference caused by communication, please try to connect again.

7. This equipment belong to low output power equipment, fit more national radio management regulations, adopting the corresponding processing technology, so in low power measurement conditions will not affect the measurement precision. And it has strong anti-interference characteristics, completely can measure complex electromagnetic environment in the receiving antenna system.

8. Battery can work for 2 years in normal use, user can buy a new battery in our market channel and change it by yourself, or send the equipment to our company and pay for the battery and artificial.

9. Don't put into the fire or placed in high temperature environment, or it can cause battery explosion and fire, the company don't bear any legal responsibility.

10. All the software user can download the new version in LISIC web site , please pay attention to our software update, in order to avoid unnecessary loss by the software defect.

11. LISIC provides all the procedures and hardware all possible results of the use of unpredictable, in certain circumstances can also cause casualties and property losses, which the company does not undertake any joint legal responsibility.
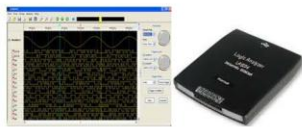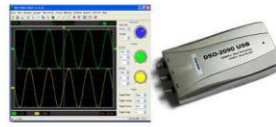
Handheld Oscilloscope/ Multimeter

Digital Storage Oscilloscope
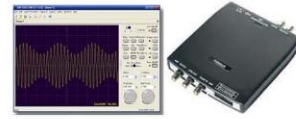
Function/Arbitrary Waveform

Logic Analyzer

Pc Usb Digital Oscilloscopes

Programmable DC Power Supply