Product specification acknowledgment.

Shenzhen   Maya   antenna   lab

R&D   center   in   ShenZhen

The mobilecommunication terminal antenna

PRODUCT NAME：   **S80**

CUSTOMER NAME：   雅为

account party	Development party		
Customer acknowledges	Quality Department	R&D Department	approved by
		ME: RF:	
DATE :	DATE：		

Shenzhen Maya communication equipment Co., LTD

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1. aim

For the Production from shenzhen maya communication equipment co., LTD. That mobile communication terminal antenna product specifications and test methods for specification, avoid the test conditions, the error caused by different methods

2.Antenna debug design requirement frequency band.

frequency range	Type of antenna
GPS	GPS
BT	BT

3.Product Watch

Product Watch

4. electrical

4.1 Test method description and data.

Device name	use
Vector Network Analyzer	S11/Impedance/ Passive Test
Agilent 8960 SP6010 R&S CMU200	**GSM, GPRS, EDGE, CDMA2000, 1xev-do, td-scdma, WCDMA, HSDPA mobile phone mobile communication equipment test.**
R&S CMW500 MT8820C	**Including td-scdma, WCDMA, HSDPA, LTE, WIFI, GPS mobile phone mobile communication equipment test.**
Agilent E4438C	**Test active GPS**
MVG Chamber	**Passive Test / OTA active Test / Efficiency/Gain**

4.2   Passive Test Report

Test equipment: network analyzer.

Test method: with a 50 ohm CABLE CABLE from the instrument test port is derived, using the calibration after a calibration mechanism of SMA connector, connecting hand records related to the frequency points corresponding return loss and standing wave ratio data.
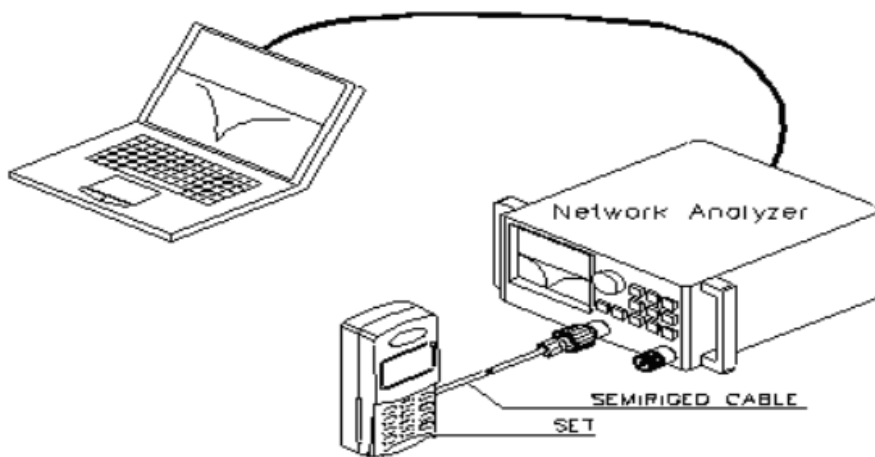
测试示意图

4.3 Active Test Report

TRP/TIS

From testing tools, measuring, network analyzer, full waves far field ETS, French MVG SG24LT (Satmio) near field 3 d microwave dark room, the high precision positioning system and its controller and the computer with automatic test procedure test environment: the temperature of 22 ℃ + 3 ℃, humidity 60% plus or minus 60% test methods: Using EST or 24 lt Satimo system software Test method and calculation of TRP when tested TRP, DUT (Device Under Test) is in a state of maximum transmitted power, including three to choose channel Test, by positioning system control the location of the DUT, with 15 degrees for step length, measuring three dimensional space, the effective radiated power (EIRP) at various points through the average of the integral sphere, computation formula is as follows
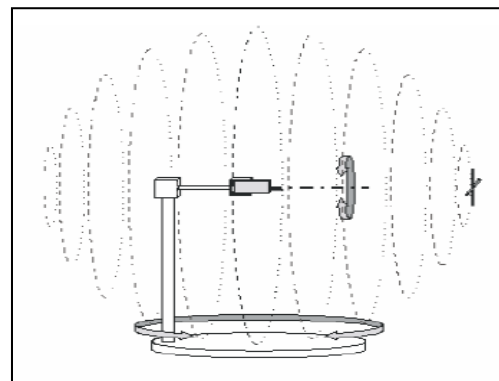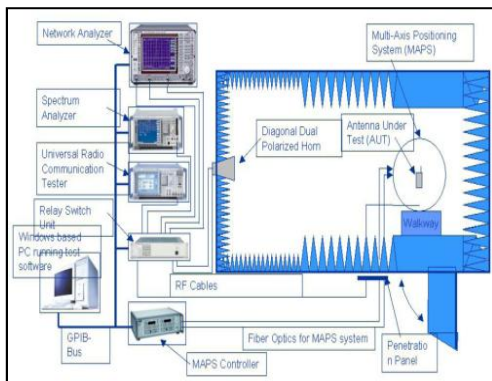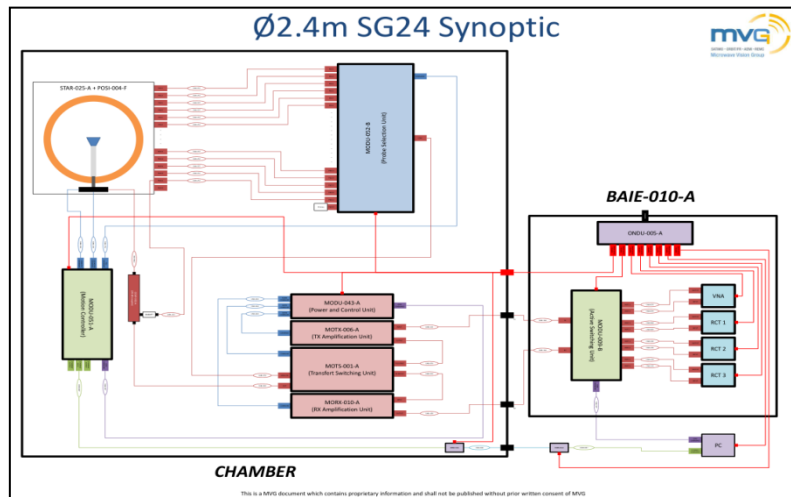
$$TRP \cong \frac{\pi}{2NM} \sum_{i=1}^{N-1} \sum_{j=0}^{M-1} \left[EiRP_{\theta}(\theta_i, \phi_j) + EiRP(\theta_i, \phi_j) \right] \sin(\theta_i)$$

In TIS test, the DUT at the maximum `transmission power of the state, including three to choose channel test, by controlling` the location of the DUT, at 30 degrees for the step length, measuring the three dimensional space each point receiving sensitivity, the average of the sphere by integral calculation, calculation formula is as follows:
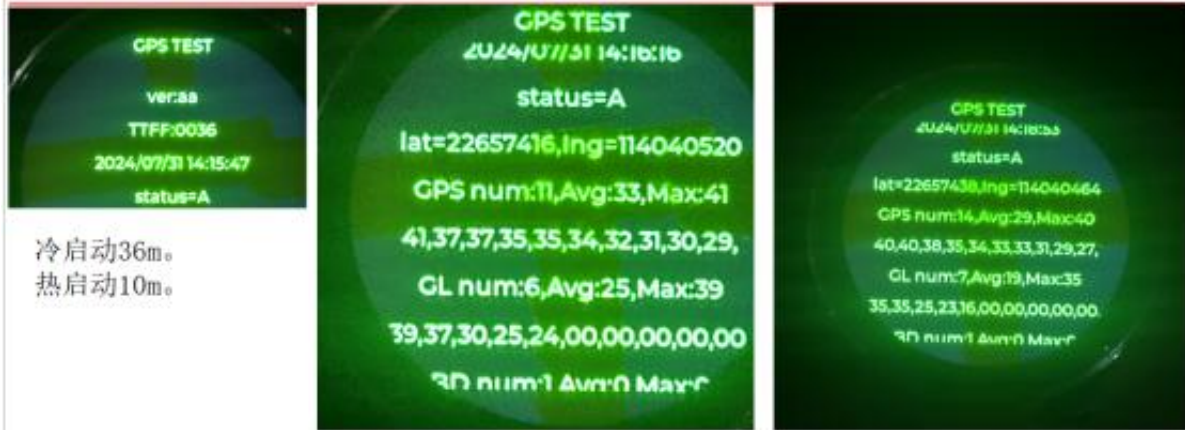
$$TIS \cong \frac{2NM}{\pi \sum_{i=1}^{N-1} \sum_{j=0}^{M-1} \left[\frac{1}{EIS_\theta(\theta_i, \phi_j)} + \frac{1}{EIS_\phi(\theta_i, \phi_j)} \right] \sin(\theta_i)}$$

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4.4 Actual measurement data

GPS

冷启动36m。
热启动10m。

带手上

4.5   Passive efficiency gain of hand model

Frequency	Efficiency	Efficiency , dB		Frequency	Gain , dB
1500000000	6%	-12.2082		1500000000	-6.72735
1510000000	6%	-11.9762		1510000000	-6.35701
1520000000	7%	-11.5173		1520000000	-5.76372
1530000000	7%	-11.3634		1530000000	-5.72806
1540000000	7%	-11.3127		1540000000	-5.7154
1550000000	8%	-11.2001		1550000000	-5.53705
1560000000	8%	-10.9622		1560000000	-5.393
1570000000	8%	-10.9679		1570000000	-5.44917
1580000000	8%	-11.0047		1580000000	-5.70778
1590000000	8%	-11.0553		1590000000	-5.53683
1600000000	8%	-11.1628		1600000000	-5.73036
1610000000	8%	-11.195		1610000000	-5.70951
1620000000	7%	-11.3759		1620000000	-6.04242
1630000000	7%	-11.5088		1630000000	-6.30516
1640000000	7%	-11.8013		1640000000	-6.71816
1650000000	6%	-11.9178		1650000000	-6.96695
1660000000	6%	-12.1129		1660000000	-7.16122
1670000000	6%	-12.3718		1670000000	-7.71447
1680000000	5%	-12.6722		1680000000	-8.23472
1690000000	5%	-12.6977		1690000000	-8.07092
1700000000	5%	-12.7123		1700000000	-7.96708

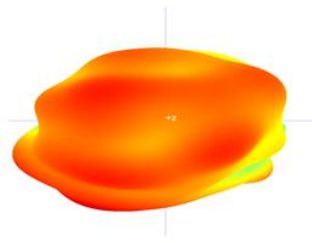# 5. Standing wave diagram
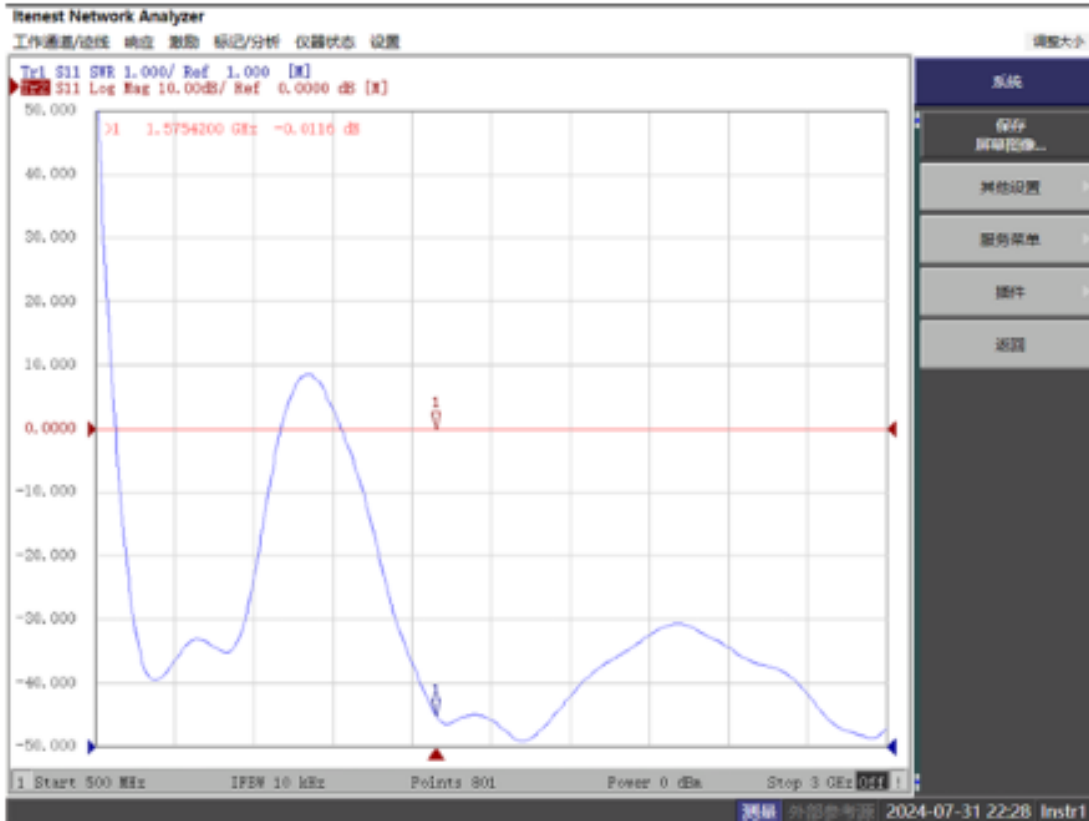
6. BT assembly drawing
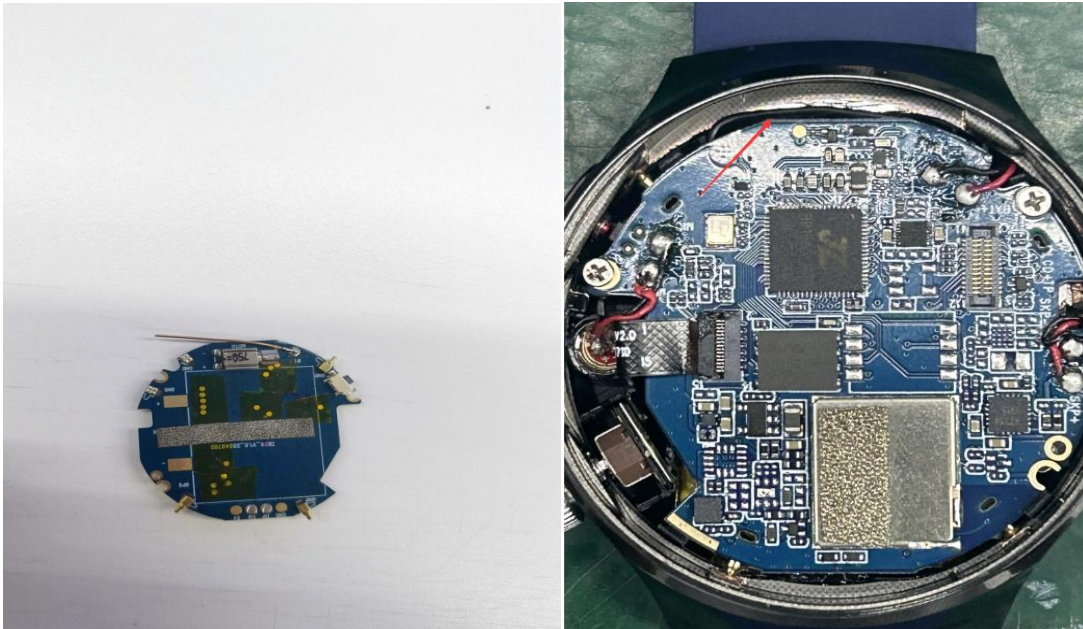
Bluetooth cable 25mm

Frequency	Efficiency	Efficiency . dB	Gain. dB
2400	12%	9.01	-2.10
2410	12%	9.10	-1.94
2420	12%	9.17	-1.93
2430	12%	9.21	-1.82
2440	12%	9.11	-1.73
2450	12%	8.93	-1.69
2460	13%	8.83	-1.54
2470	14%	8.24	-1.43
2480	15%	8.04	-1.47
2490	16%	7.43	-1.31
2500	16%	7.15	-1.22
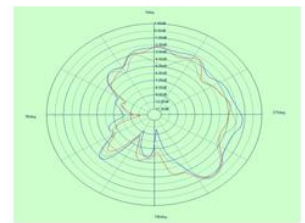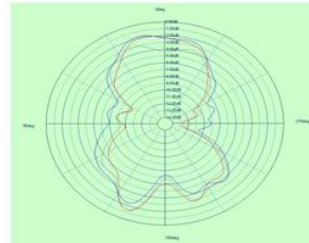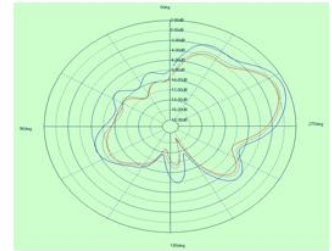
7.Matching Circuit Description