

# SPECIFICATION

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Unimaxcomm

## RC2451L Antenna FCC ID: 2ABGH-RC2451L

Product approval sheet

Customer	Orbic	Band	GSM: 850/1900; UMTS: B2/B4/B5; LTE: B2/4/5/12/13/66; BT/WIFI 2.4G
Project	RC2451L	Colour	Black

Customer check:

Reach requirement of customer: OK    NG

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# 1 General description

## 1.1 information of DUT

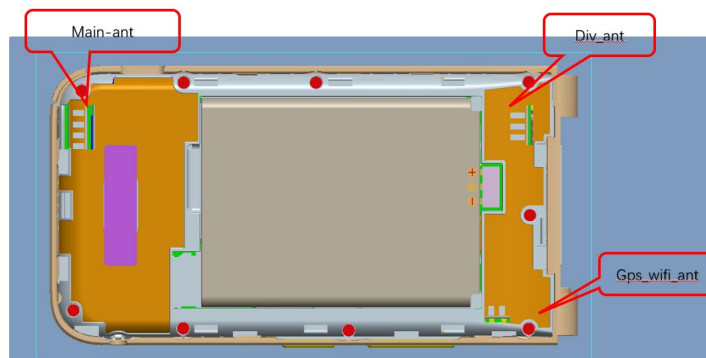
Set Type	Flip phone
Dimension	108.1*57.3*18.8mm
Band	GSM: 850/1900 UMTS: B2/B4/B5 LTE: B2/4/5/12/13/66 WIFI 2.4G BT 4.2 GPS
Antenna Material	FPC

## 1.2 Photo of DUT

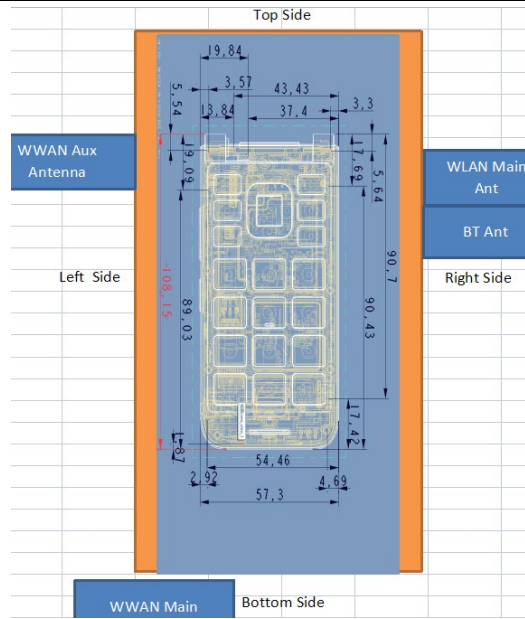


LCD:2.8" & 1.44" Size:108.1x57.3x18.8mm

### EUT appearing diagram



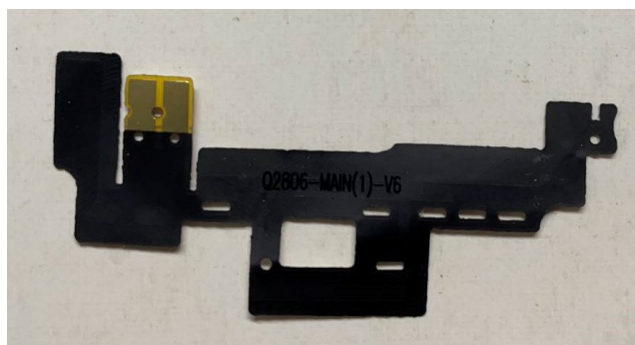
## Confidential Information



Antenna location

Antenna Location	Support Function	Top Side (mm)	Bottom Side (mm)	Left Side (mm)	Right Side (mm)
WWAN Main Antenna	TX/RX	90.7	1.87	2.92	4.69
WWAN Aux Antenna	DRX	5.64	90.43	19.84	3.3
WLAN Main Antenna	TX/RX	5.54	89.03	3.57	43.43
WLAN Aux Antenna	TX/RX				
BT Antenna	follow WLAN Main ANT				
Feature Length				108.15	
Feature Width				57.3	

### 1.3 Antenna appearing diagram



Main antenna



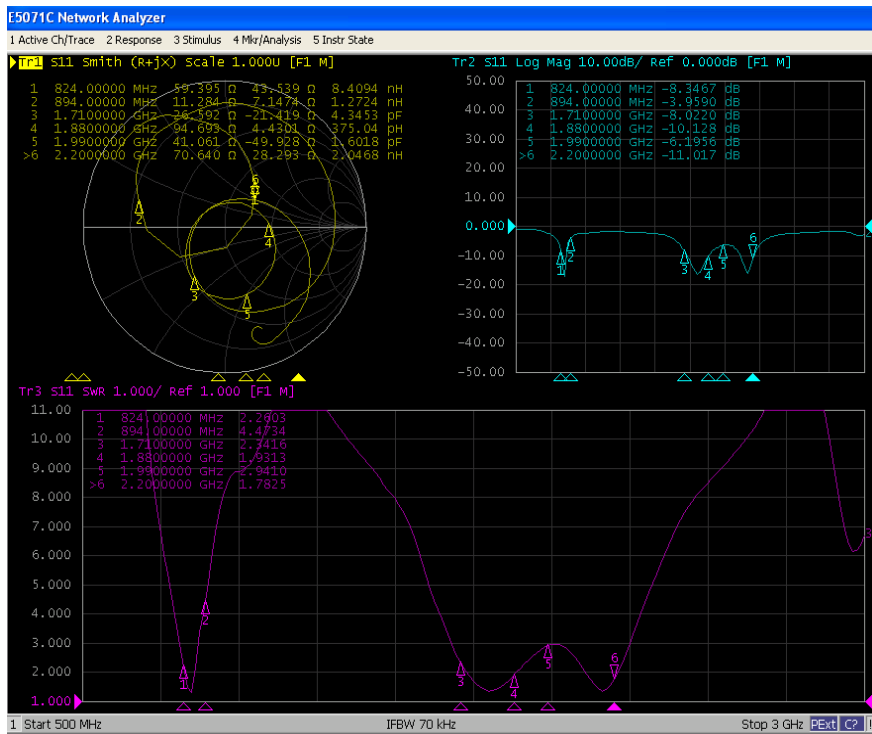
Diversity antenna and WIFI/BT/GPS antenna

## 2 Electrical performance

### 2.1 Passive result

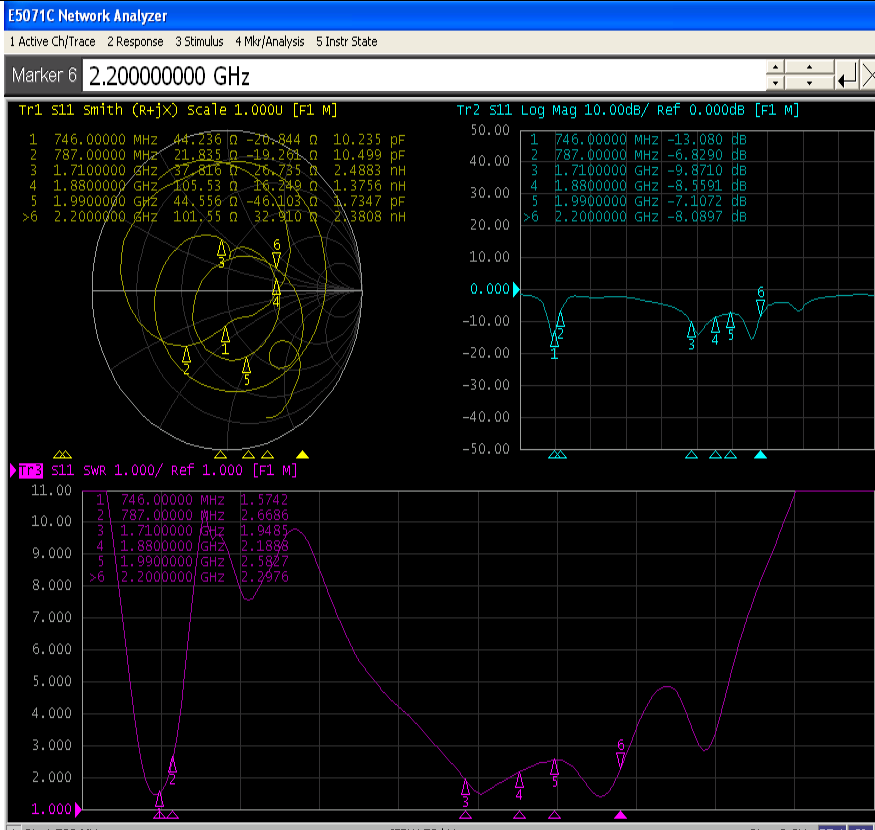
#### 2.1.1 VSWR&Return Loss-Main antenna

VSWR&Return Loss test connector: R&S ZVL network analyzer→Cable→JIG

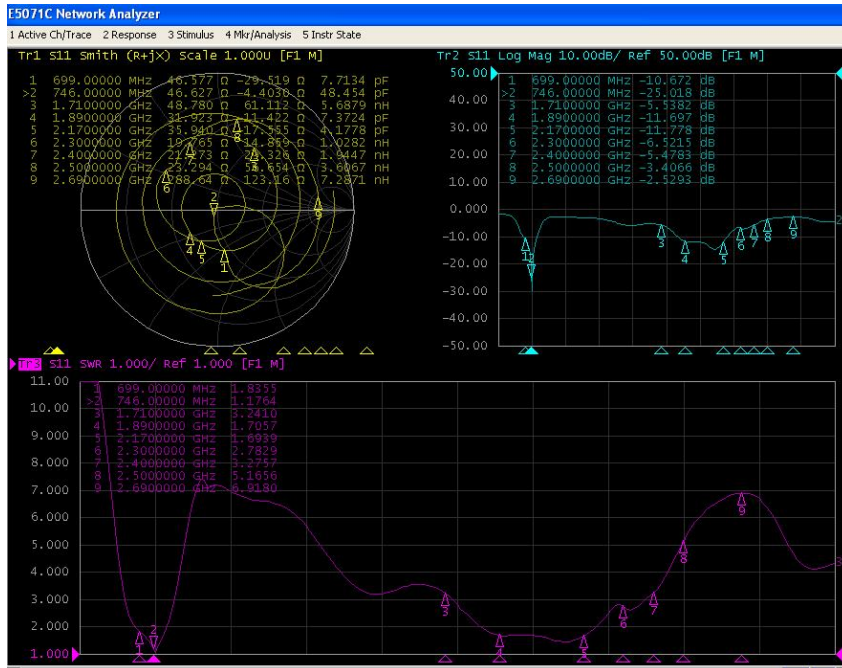


VSWR &Return Loss (GSM2/3/5/8 LTE B2/4/5/66 WCDMA 2/4/5)

Confidential Information

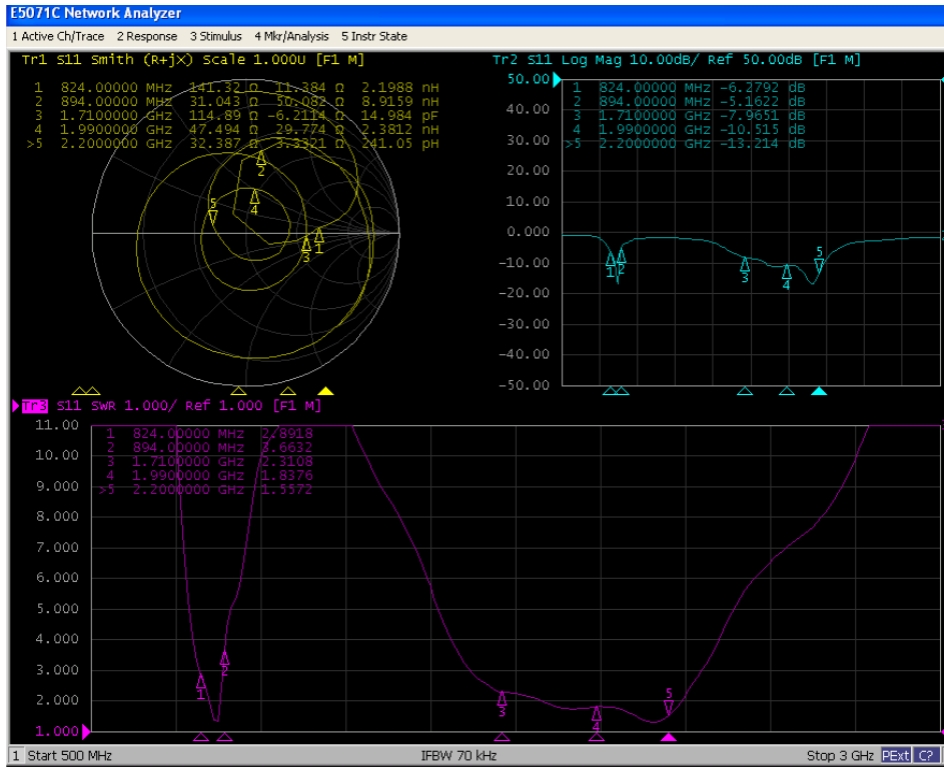


VSWR & Return Loss ( LTE B13)

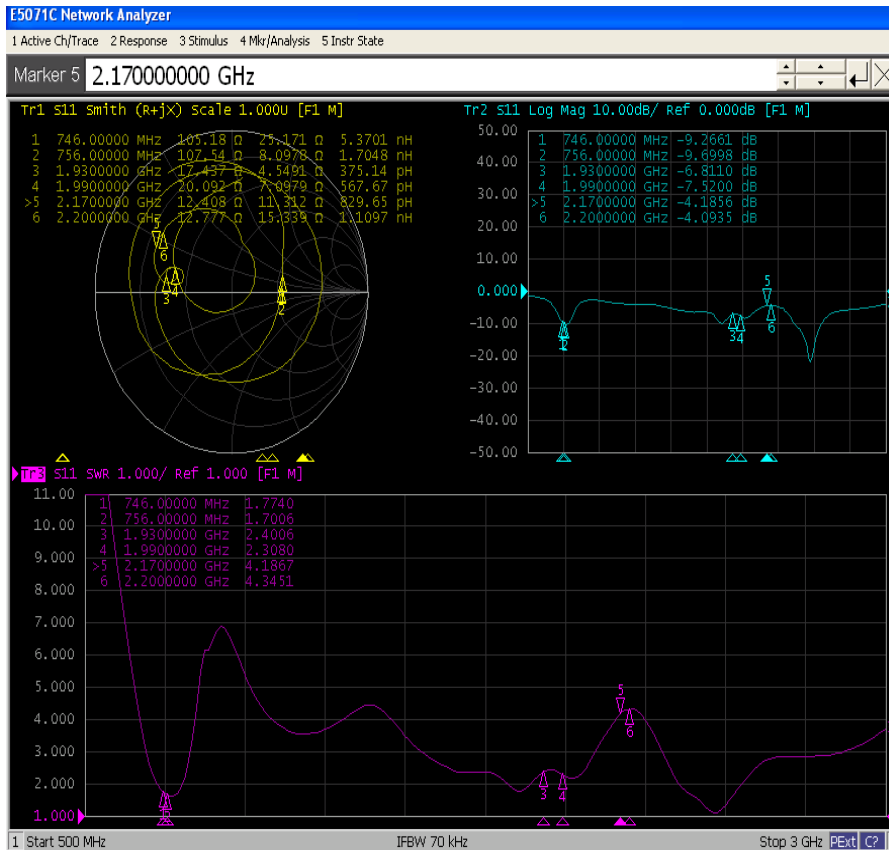


VSWR & Return Loss ( LTE B12)

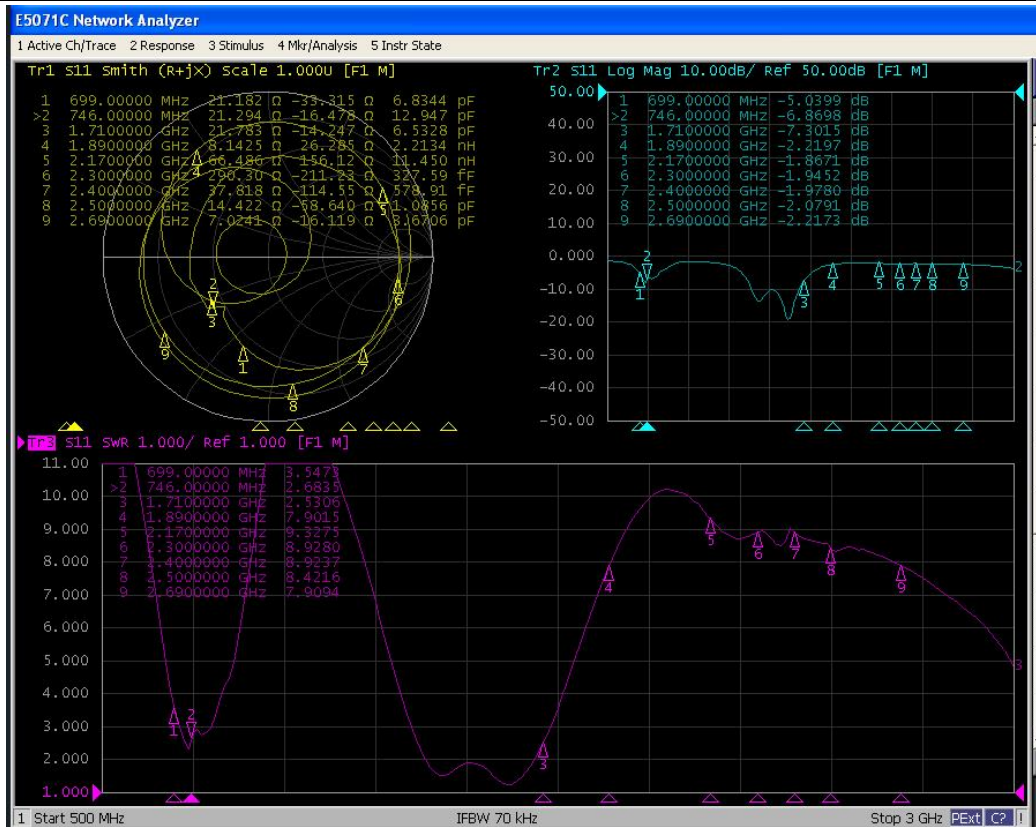
## 2.12 VSWR & Return Loss - Diversity antenna



VSWR & Return Loss (GSM2/3/5/8 LTE B2/4/5/66 WCDMA 2/4/5)

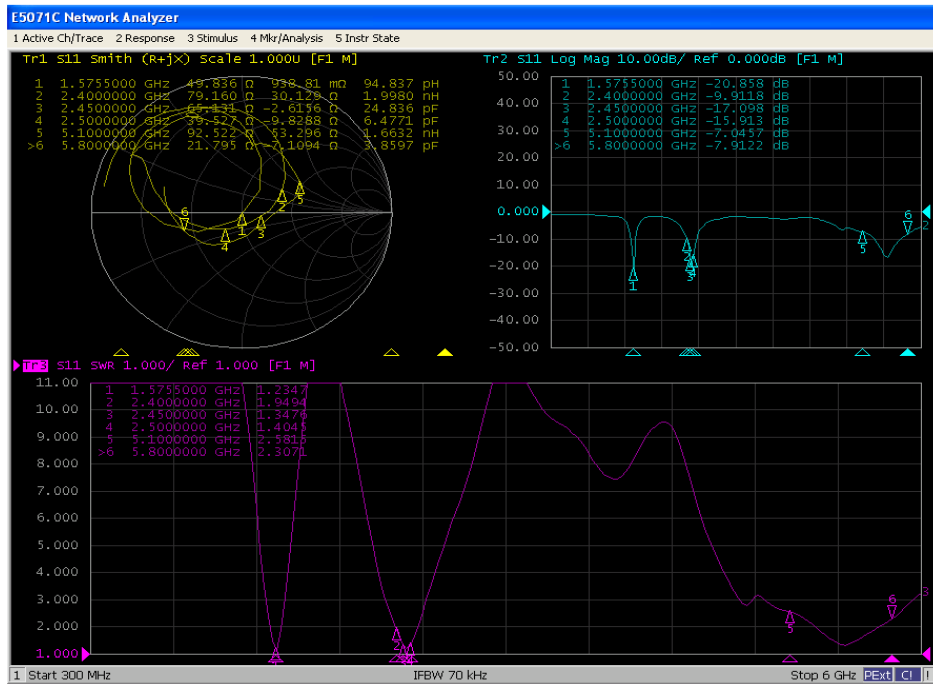


VSWR & Return Loss (LTE B13)



VSWR & Return Loss ( LTE B12)

### 2.13 VSWR & Return Loss -3 in 1 (WIFI&BT&GPS) antenna





## 2.14 Gain test

	Band	Gain	TYPE
<b>GSM/UMTS Band(s)</b>	GSM1900 / FDD II (1850-1910 MHz)	1.26 dBi	Fixed Internal/IFA
	GSM850 / FDD V (824-849 MHz)	-1.22 dBi	Fixed Internal/IFA
<b>LTE</b>	FDD 2: US(1850 -1910)	1.26 dBi	Fixed Internal/IFA
	FDD 4: US (T-Mobile)(1710-1755MHz)	1.31 dBi	Fixed Internal/IFA
	FDD 5: US(824-849)	-1.22 dBi	Fixed Internal/IFA
	FDD 12: US(699-716MHz)	-2.50 dBi	Fixed Internal/IFA
	FDD 13: US (Verizon)(777-787MHz)	-2.34 dBi	Fixed Internal/IFA
	FDD 66: US (1710-1780MHz)	1.31 dBi	Fixed Internal/IFA
<b>2.4G BT</b>	2.4~2.4835GHz	1.49 dBi	Fixed Internal/IFA
<b>2.4G WLAN</b>	2.4~2.4835GHz	1.49 dBi	Fixed Internal/IFA

## 2.2 Active result

### 2.21 Test equipment

Equipment information:

GTS 2800 3D Chamber test system

Base Station Emulator CMW-500

Quad-Ridge Horn Antenna

Agilent8960 E5515C

### 2.22 OTA test data

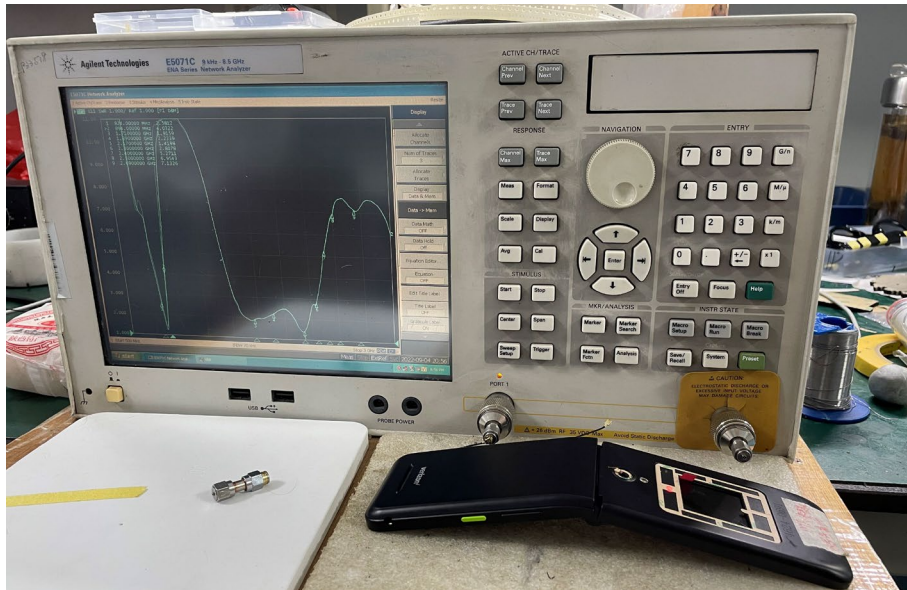
Band	Channel	TRP(dBm)	TIS(dBm)	Band	Channel	TRP(dBm)	TIS(dBm)
WCDMA B2	9262	20.08	-106.9	WCDMA B5	4132	19.43	-105.89
	9400	20.13	-107.31		4183	19.89	-106.26
	9538	20.27	-107.13		4233	19.72	-106.06
WCDMA B4	1537	20.12	-106.66				
	1638	20.16	-106.34				
	1738	19.91	-105.89				
Band	Channel	TRP(dBm)	TIS(dBm)	Band	Channel	TRP(dBm)	TIS(dBm)
LTE B2	18650	20.26	-95.21	LTE B4	20000	21.42	-97.82
	18900	19.85	-95.49		20175	21.35	-97.43
	19150	19.47	-95.43		20350	21.54	-97.24
LTE B5	20450	18.27	-94.32	LTE B12	23060	19.33	-93.78
	20525	19.20	-94.02		23095	19.51	-93.94
	20600	19.66	-94.24		23130	19.89	-93.98
LTE B66	132022	21.22	-97.95	LTE B13	23230	19.93	-93.89
	132322	21.84	-97.31		23230	20.01	-94.06
	132622	21.27	-97.25		23230	19.97	-94.48

## 3 Overview of test sample

### 3.1 VSWR&Smith chart test

Test progress:

- 1、 Use ‘start’ key and ‘stop’ key to set up frequency range
- 2、 Calibrate test port of the instrument
- 3、 Connect EUT and instrument with RF cable, and finish VSWR&Return Loss&Smith chart
- 4、 Export and save test result.



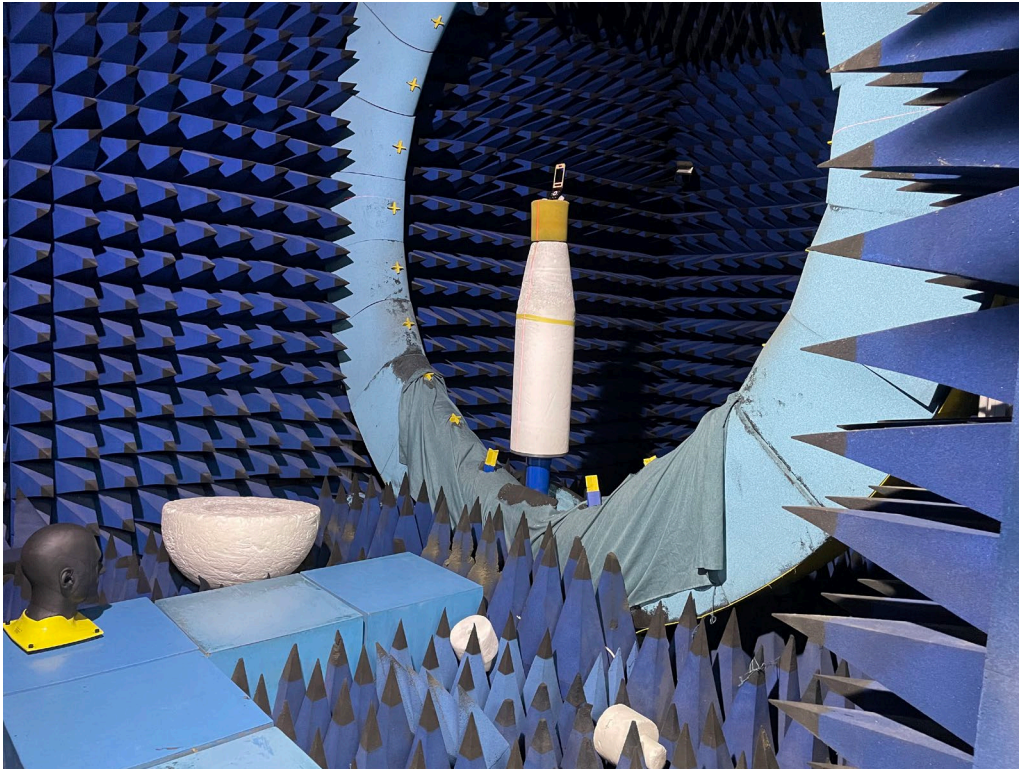
Overview of EUT

### 3.2 Gain test

Test progress:

## Confidential Information

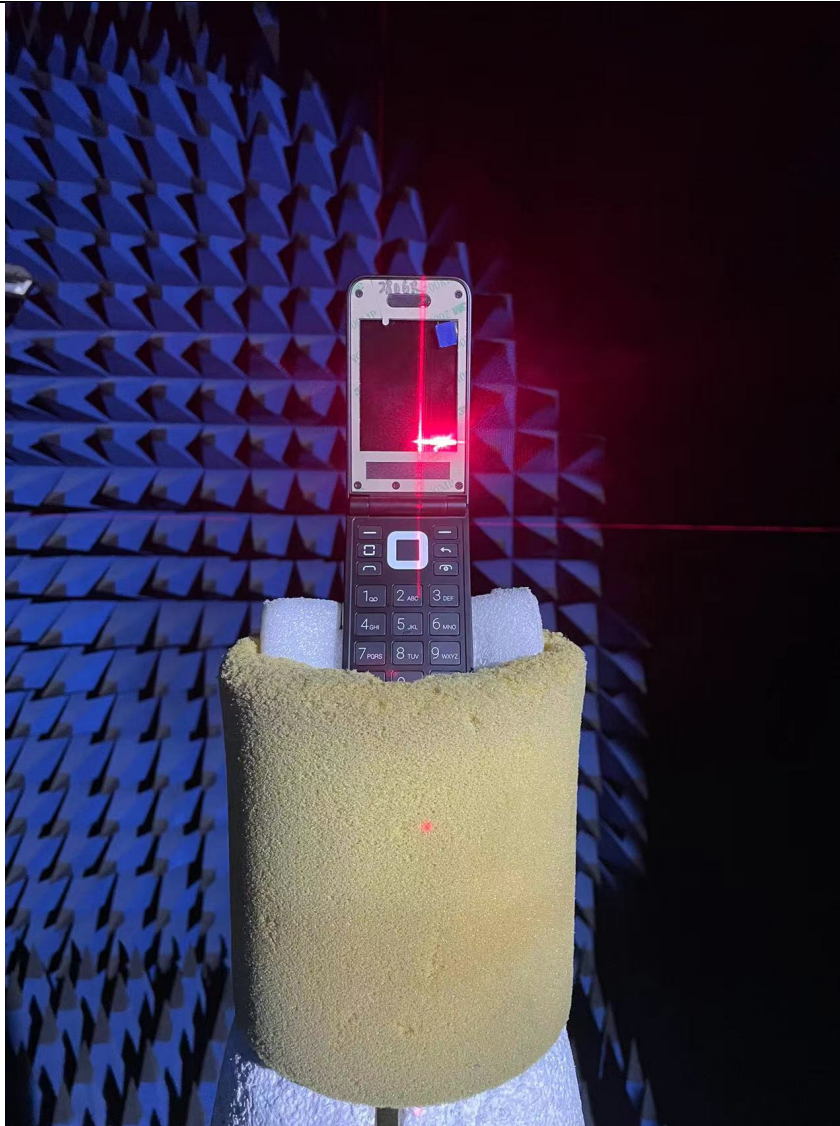
- 1、 Open computer and instrument ,choose passive test include Gain by program-controlled computer
- 2、 Put EUT on turntable and connect EUT with RF cable
- 3、 Set up frequency point by 10MHz step
- 4、 Control computer desk and finish test
- 5、 Export and save test result



Overview of EUT

### 3.3 Active test

- 1、 Open computer and instrument ,chosed active test include TRP and TIS by program-controlled computer
- 2、 Place on top of the Styrofoam mast in a holding fixture
- 3、 Logon and start EUT with instrument by program-controlled computer
- 4、 Export and save test result



Overview of EUT

## 4 Reliability Testing Report

深圳市大显科技有限公司

## 盐水喷雾试验记录表

编号: QR/QC-WI09-01 版本 B

试验时间: 2022 年 8 月 26 日 15:00 至 8 月 28 日 15:00 共计 48 小时

(喷雾时间) 试验若有中断, 其原因为:

□ 盐水试验法: 试验室温度 35°C, 饱和空气桶温度 47°C

1. 氯化钠品质	<b>99.50%</b>	2. 纯净水品质	<b>纯净水</b>
3. 喷雾采取 PH 值	<b>雾化前 6.5~7.2</b>	4. 试验液 PH 值	<b>6.0</b>
5. 压力表	<b>1.0</b> Kg f/cm2	6. 试验室相对湿度	<b>30%</b>
7. 试验室温度	<b>35</b> °C	8. 压力桶温度	<b>47 °C</b>
9. 盐水浓度	<b>5±0.1</b> %	10. 其他	

判定: 依 GB6461-2002 标准判定

结果: 合格

备注: 试验结束后, 如果试样状态允许, 可不经清洗进行检查。如果污垢和盐类沉积物等掩盖了缺陷而使检查难以进行时, 宜用蘸有中性肥皂液的海绵对表面进行擦拭, 然后用水漂洗。但在此过程中不应施加压力, 以免洗掉腐蚀产物而造成评级偏高。清洗液不应覆盖层产生任何破坏。中途或定期检查时不允试清洗试样, 否则影响测试结果