

Antenna Report

1. Test Laboratory

1.1 Test facility

GTS Rayzone 2800 Microwave Anechoic Chamber : testing frequency ranges from 600MHz to 6GHz .

1.2 Laboratory Environment

Temperature	Min.= 19℃, Max.=25℃	
Relative humidity	Min.=40%, Max.=72%	
Shield effect	0.6-7GHz	>100dB
Ground resistance	<0.5 Ω	

2. General Description of Equipment Under Test

2.1 Applicant and Product information

Applicant Name	SHENZHEN HENGXIANGTONG ANTENNA TECHNOLOGY CO., LTD.
Applicant address	606, Building E, Enterprise Aviation Technology Innovation Research and Development Industrial Park, No. 1008, Songbai Road, Sunshine Community, Xili Street, Nanshan District, Shenzhen
Product Description	LTE Rugged device
Model Name	G601-M

2.2 General Description of Equipment

2.3 Applied Standards

According to the specifications of the manufacturer,it must comply with the requirements of the following standards:

Test Method:ANSI/IEEE Std 149-2008

3. Test Conditions

3.1 Test Configuration

The method is used to measure the antenna 3D GAIN of EUT in OTA qualified anechoic chamber. Equipment Under Test(EUT) geometry centre vertical projection at the centre of platform, the distance from EUT to measurement antenna is 1m.

3.2 Test Measurement

Spherical coordinate system

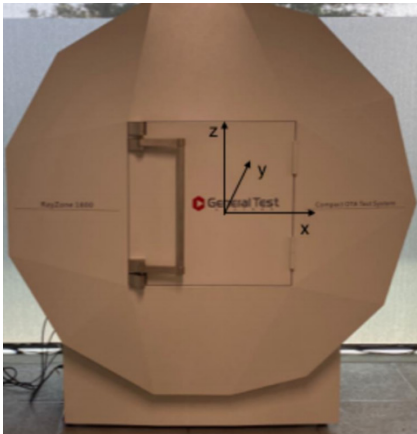


Figure 1 Test coordinate system

Note: Theta is from 0-180degree.Phi is from EUT and record the Date, the step of rotation is 15 degree.

Test Setup

EUT Description	
Product Name	RayZone2800
Model	GTS-ANT D-H
HW Version	RayZone2800 V1.0
SW Version	MaxSign 100
Antenna Type	PIFA
Antenna Manufacturer	Shenzhen General Test System Co., Ltd Room 301-303, Building 1399, Hengnan Road, Minhang District, Shanghai
Test Frequency	700MHz-6GHz

4. Test Results

4.1 Gain and Efficiency

Technical Specification							
Band		Mode	Name	Frequency	Antenna Type	Antenna Max Gain	
				(MHz)			
GSM Band	☒ Band-5 GSM 850			824-894	PIFA	-5.16	dBi
	☒ Band-8 GSM 900			880-960		-4.93	
	☒ Band-3 DCS 1800			1710-1880		1.27	
	☒ Band-2 PCS 1900			1850-1990		1.04	
UMTS Band	☒ Band-1 2100		IMT	1920-2170	PIFA	0.1	dBi
	☒ Band-2 1900	FDD	PCS	1850-1990		1.04	
	☒ Band-4 1710	FDD	PCS	1710-2170		-0.19	
	☒ Band-5 850		CLR	824-894		-5.16	
	☒ Band-8 900		E-GSM	880-960		-4.93	
LTE Band	☒ Band-1 2100	FDD	IMT	1920-2170	PIFA	0.1	dBi
	☒ Band-2 1900	FDD	PCS	1880-1990		1.04	
	☒ Band-3 1800	FDD	DCS	1710-1880		1.27	
	☒ Band-4 1710	FDD	PCS	1710-2170		-0.19	
	☒ Band-5 850	FDD	CLR	824-894		-5.16	
	☒ Band-7 2600	FDD	IMT-E	2500-2690		-0.88	
	☒ Band-12 700	FDD	APT	698-803		-7.18	
	☒ Band-13 700	FDD	APT	703-803		-5.37	
	☒ Band-14 700	FDD	APT	703-803		-6.8	
	☒ Band-25 2170	FDD	PCS	1710-2170		1.27	
	☒ Band-26 850	FDD	ECLR	814-894		-5.07	
	☒ Band-28 700	FDD	APT	703-803		-6.8	
	☒ Band-30 2170	FDD	PCS	1710-2170		1.27	
	☒ Band-66 2170	FDD	PCS	1710-2170		0.84	
	☒ Band-71 600	FDD	APT	600-700		-5.81	
	☒ Band-38 2600	TDD	IMT-E	2570-2620		-0.77	
	☒ Band-40 2300	TDD	S-Band	2300-2400		-1.51	
	☒ Band-41 2500	TDD	BRS	2496-2690		-0.77	
WiFi	☒ 802.11b/g/n	2.4GHz	Wi-Fi 4	2401-2495	PIFA	0.34	dBi
	☒ 802.11a/n/ac	5GHz	Wi-Fi 5	4910-5895		B1: -2.18 B4: -5.67	

HXT OTA Test Report

BT	☒ Bluetooth			2400-2500	PIFA	0.34	dBi
GPS	☒ Gps L1 Band			1575.42	PIFA	-1.28	dBi

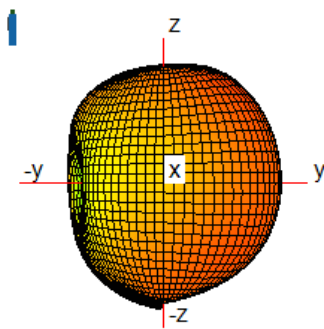
5. Equipment List

Type of Equipment	Manufacture	Model Number
Network Analyzer	Key sight	E5071C
Switch control System	GTS	RayZone2800
Software	GTS	MaxSign 100Patten Measurement software

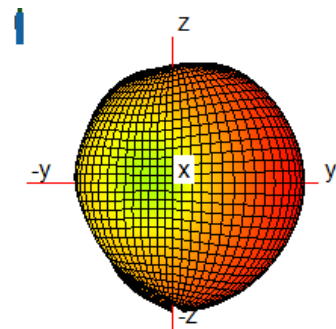
3D Patten Plots

Main:

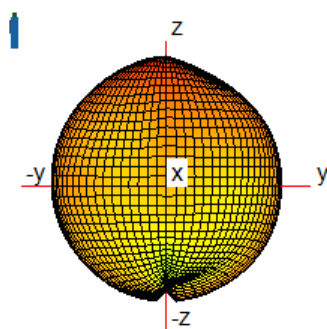
680MHz



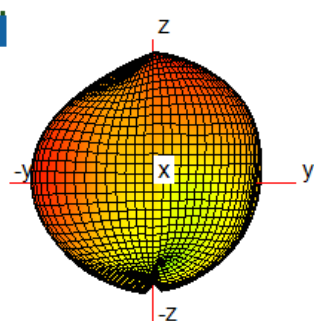
770 MHz



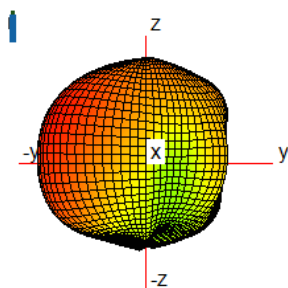
930 MHz



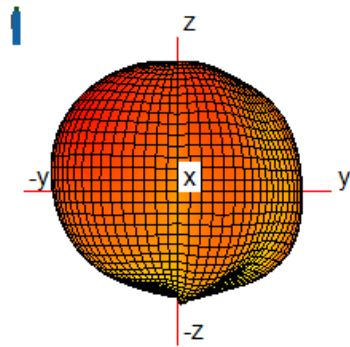
1820 MHz



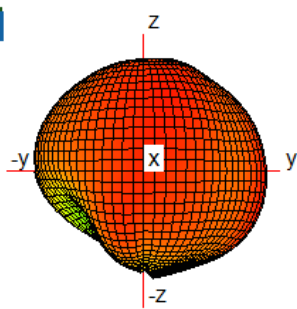
1960 MHz



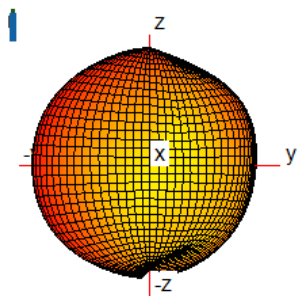
2140 MHz



2360 MHz

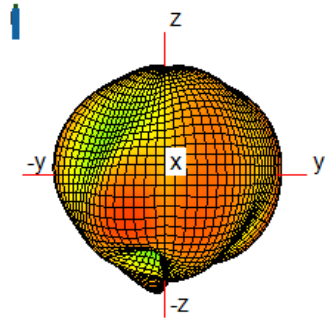


2600 MHz

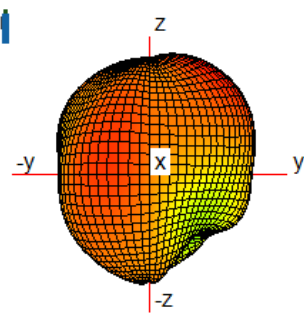


G/W/B:

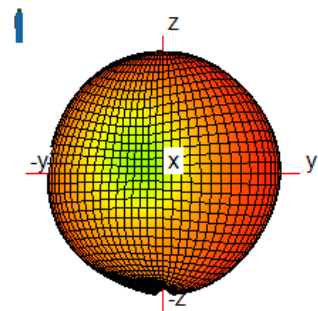
1575 MHz



2450 MHz

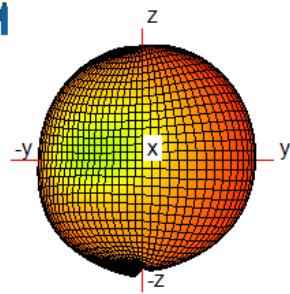


5300 MHz

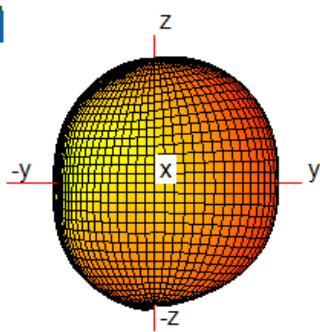


AUX:

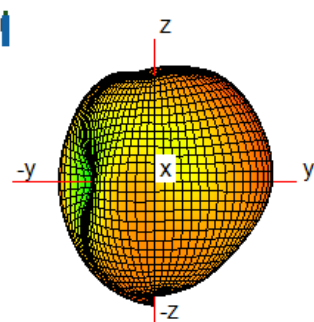
680 MHz



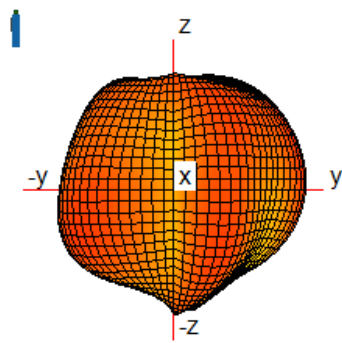
770 MHz



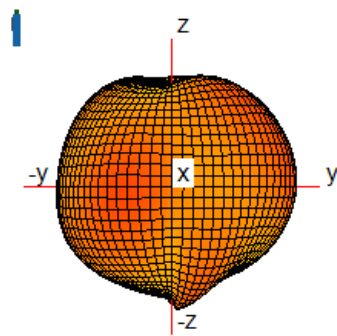
830 MHz



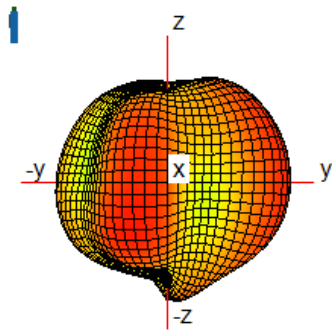
930 MHz



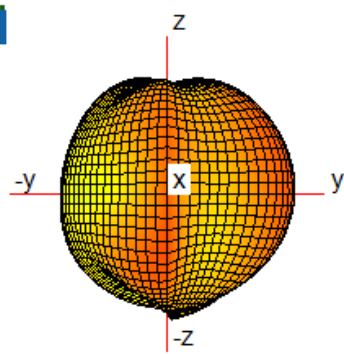
1820 MHz



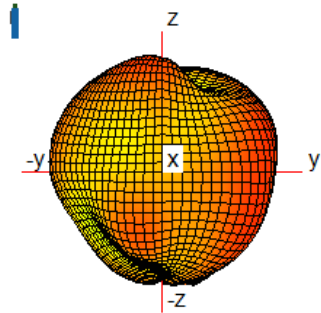
1960 MHz



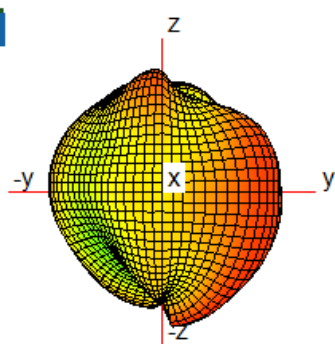
2140 MHz



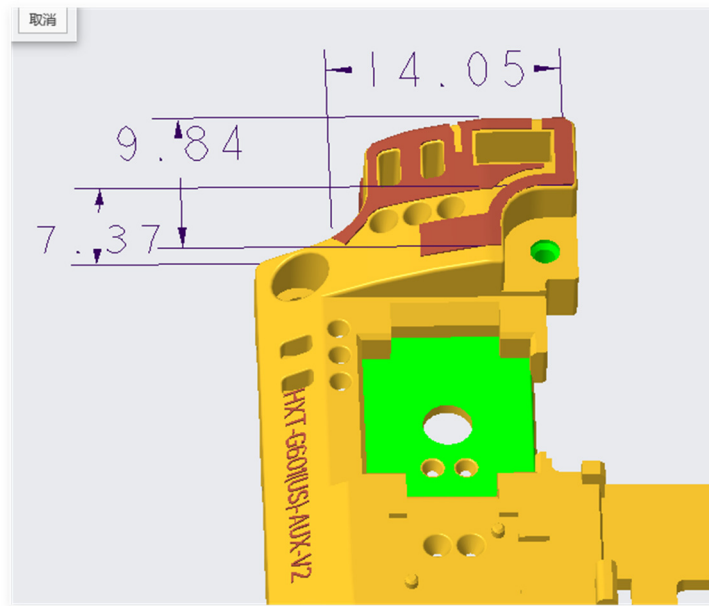
2360 MHz



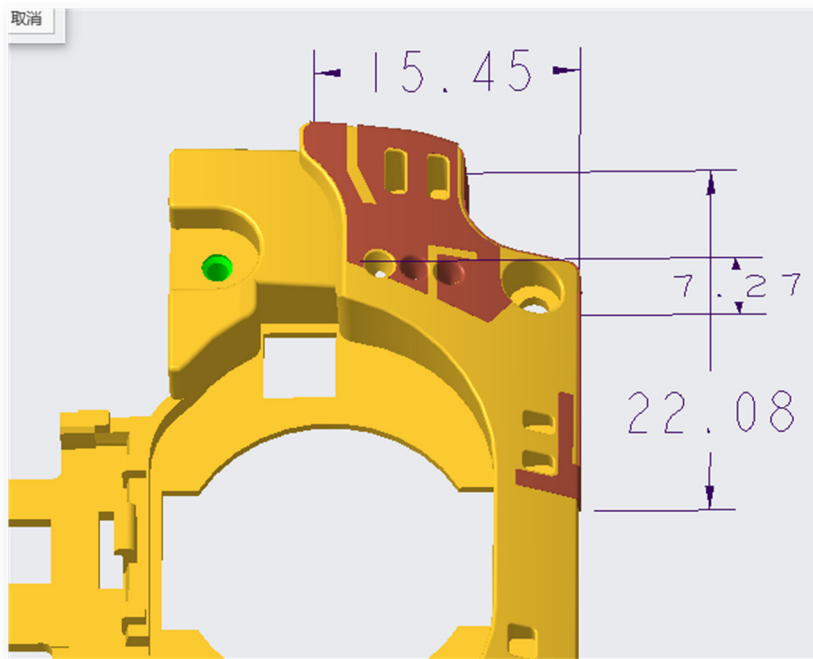
2600 MHz



GPS/WIFI/BT Antenna(Unit: mm)



AUX Antenna(Unit: mm)



Main Antenna(Unit: mm)

