

Antenna Specifications

CUSTOMER		乐目	
CS P/N		C2	
HX P/N		<u>A37-069-C2</u>	
Checked by(RF)	Checked by(ME)	Checked by(QA)	Approval led by
Customer Approval			

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1. General Description

This document provides the antenna specifications on electric, mechanic and reliability. The testing conditions and related pictures are also included.

1.1 Print Acceptance

Samples and Antenna Specifications are to be sent to customer. When they are approved, the approval form should be completed, signed, and sent back to HX before further mass production batches can be delivered.

1.2 Coordinate System

The coordinate system for the phone is defined as follows:

- Origin in center of gravity.
- Positive X axis is perpendicular to, and directed from, front plane.
- Positive Y axis is perpendicular to, and directed from, right side plane (as seen from front).
- Positive Z axis is perpendicular to, and directed from, top plane.

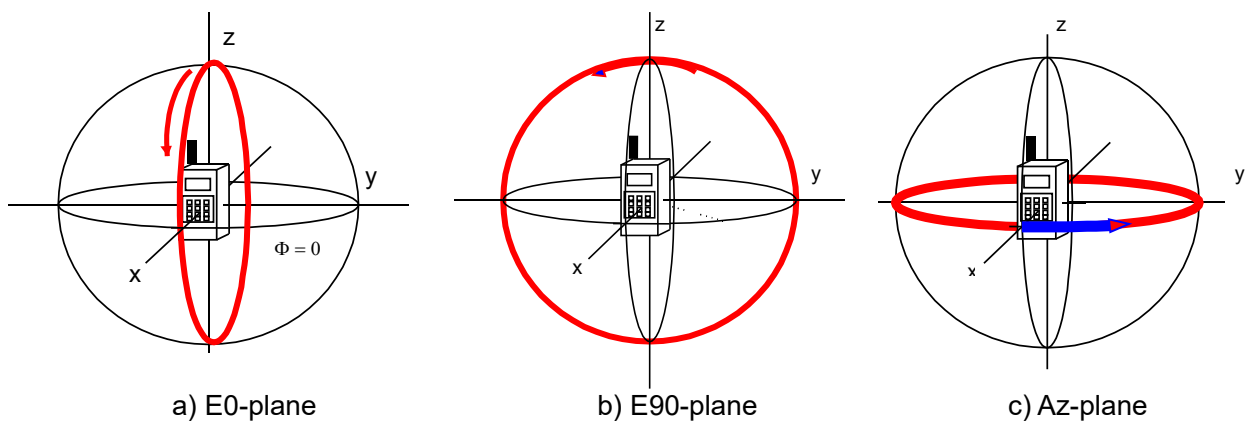


Figure 1-1 The coordinate system for the phone



Antenna Specifications

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2. Specifications

This report mainly provides the testing conditions of various electric and structural performance parameters for cell phone antenna ----C2 Figure 2-1 shows the antenna designed by HXT & The fixturing of C2



Figure 2-1 The antenna designed by HXT & The fixturing of C2

2.1 Frequency Band

天线类型	Frequency Band	Tx(MHz)/Rx(MHz)
Main	G850/900/1800/1900 W1/2/4/5/8/FDD B2/4/5/7/12/13/17/25/26/ TDD B41	700~960, 1710~2690
GPS/WIFI	GPS L1/2.4G WIFI/BT	1575.54,2400~2500
DIV	FDD B2/4/7/25/TDD B41	1710~2170,2500~2690

2.2 Impedance

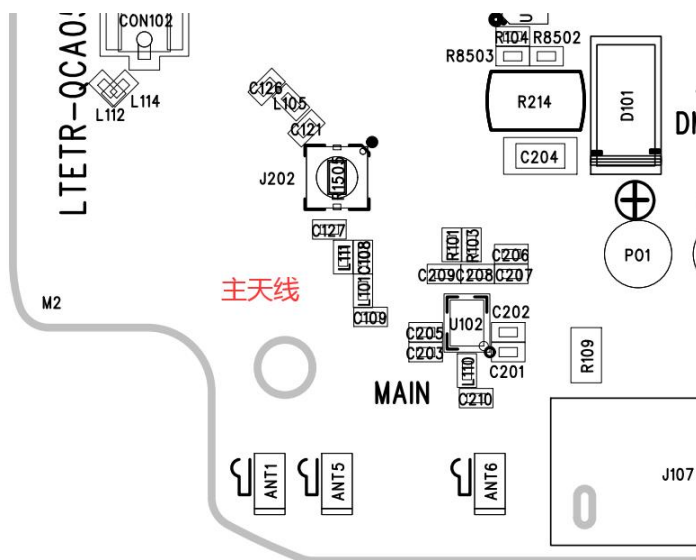
2.2.1 Nominal

Nominal Impedance(including matching circuit) : 50 ohms

2.2.2 Matching Circuit

The matching circuit is as Figure 2-2.

Main



MAIN	位号	匹配
主路	C109	0.5pF
	L101	3.3nH
	C108	10nH
	L111	0 Ω
	C127	NC
开关	C201	15pF
	C202	0 Ω
	C203	NC
	C205	22nH
	L110	0 Ω
	C210	12nH

我司提供开关逻辑	
RF1	GSM2/3/8/W1/2/4/8/4G2/4/7/25/41
RF2	GSM 5/W5/4G5/26
RF3	4G 12/17
RF4	4G 13

	位号	匹配
GPS（无改动）	C7238	NC
	R7200	0 Ω
	C7218	NC
DIV	C124	1PF
	L102	3.3nH
	C125	NC

Figure 2-2: Matching circuit



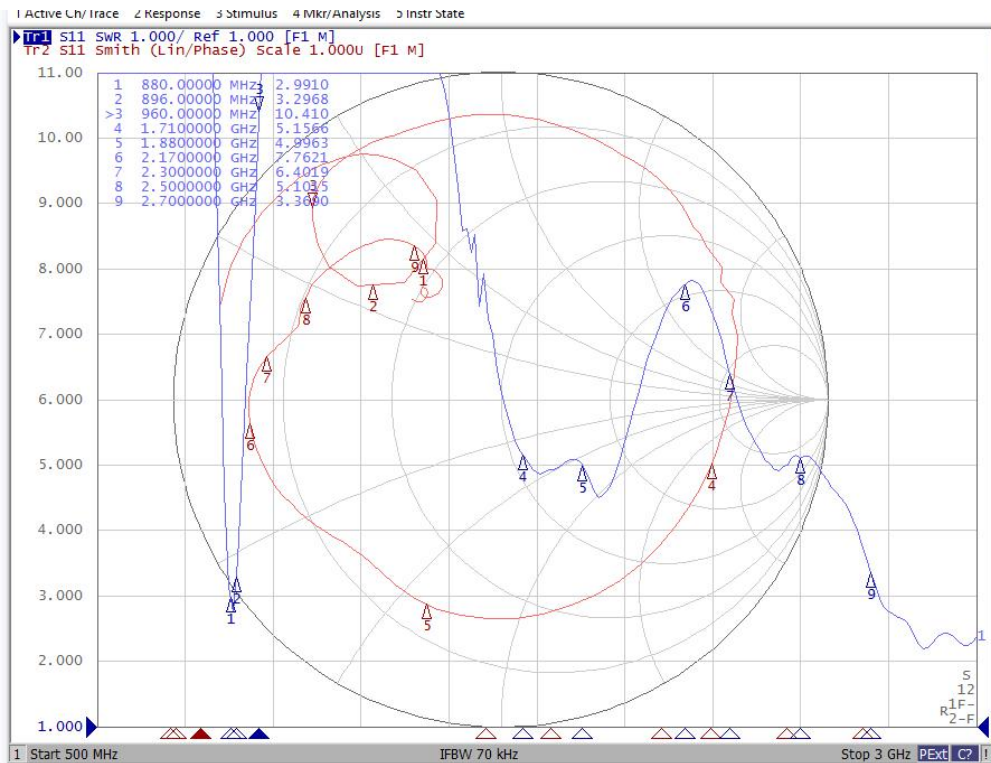
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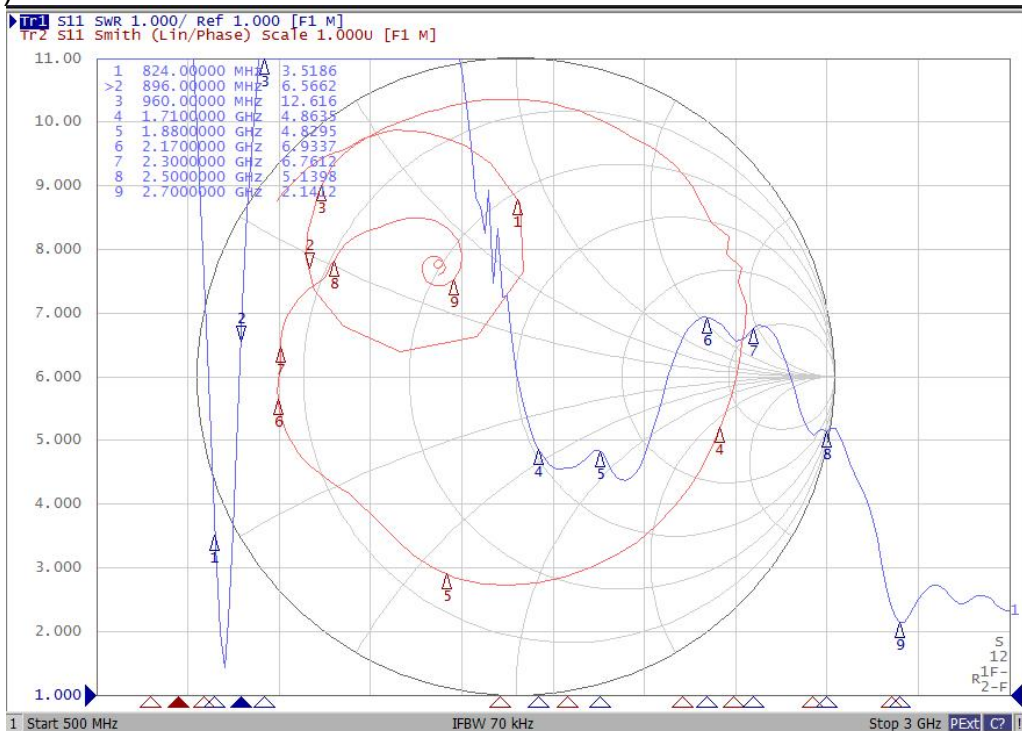
2.3 Passive Measurements

2.3.1 S11 of the Typical Sample

Main(RF1)

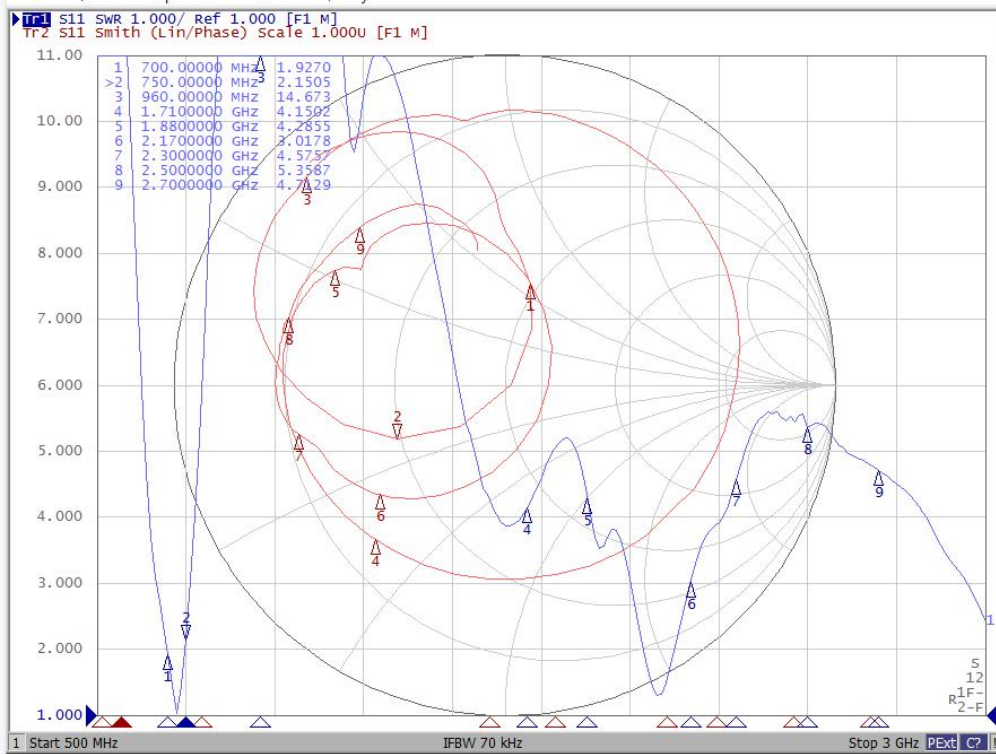


Main(RF2)

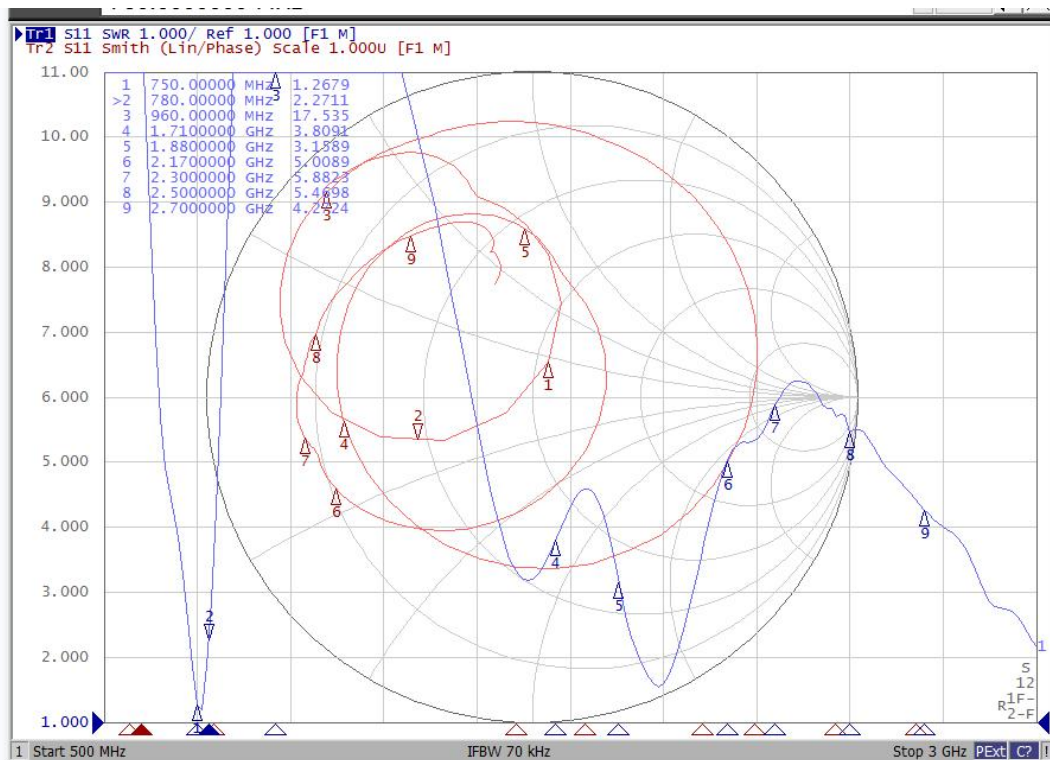


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Main(RF3)

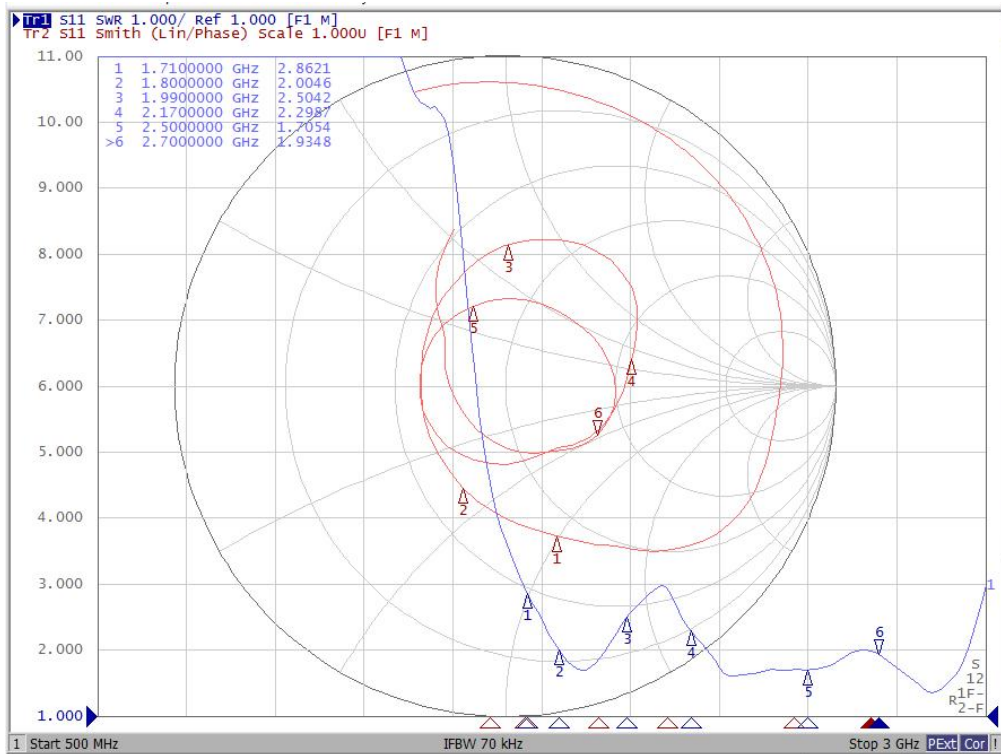


Main(RF4)

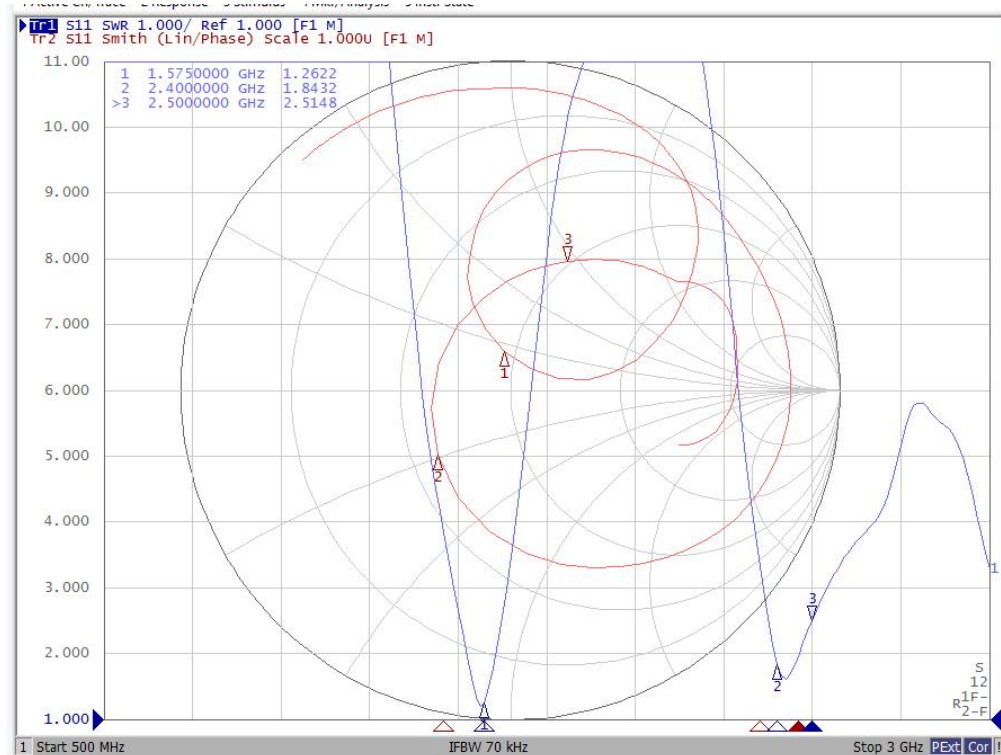


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DIV



GPS/WIFI



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2.3.2 Effi& Gain Specifications Main

RF1 (B1/2/3/4/7/8/25/41)				RF2 (B5/26)			
(MHz)	Effi (dB)	Effi (dBi)	Effi (%)	(MHz)	Effi (dB)	Effi (dBi)	Effi (%)
880	-8.89	-5.19	12.91	820	-7.82	-3.33	16.5
890	-7.11	-3.29	19.47	830	-6.72	-2.19	21.29
900	-5.7	-2.08	26.89	840	-5.8	-1.21	26.28
910	-5.44	-1.76	28.61	850	-5.29	-0.64	29.58
920	-6.38	-2.84	23.03	860	-5.72	-0.98	26.8
930	-7.68	-4.35	17.08	870	-6.27	-1.48	23.59
940	-9.25	-6.14	11.89	880	-7.5	-2.67	17.78
950	-10.53	-7.44	8.86	890	-8.69	-3.89	13.54
960	-11.66	-8.72	6.83	900	-9.66	-4.85	10.82
1700	-8.41	-4.2	14.43				
1720	-8.47	-4.13	14.23				
1740	-8.2	-3.95	15.15	RF3 (B12/17)			
1760	-8.24	-3.57	15	(MHz)	Effi (dB)	Effi (dBi)	Effi (%)
1780	-8.62	-3.82	13.76	700	-11.77	-7.59	6.66
1800	-8.59	-4.11	13.83	710	-10.71	-6.41	8.49
1820	-8.33	-4.36	14.7	720	-9.66	-5.36	10.82
1840	-8.38	-4.69	14.53	730	-9.12	-4.65	12.25
1860	-8.29	-4.28	14.83	740	-8.97	-4.43	12.68
1880	-8.3	-4.34	14.78	750	-8.79	-4.23	13.21
1900	-7.75	-4.55	16.79	760	-9.01	-4.42	12.55
1920	-7.1	-4.67	19.49	770	-9.26	-4.69	11.87
1940	-6.53	-4.13	22.24	780	-9.73	-5.22	10.64
1960	-6.35	-3.69	23.18				
1980	-6.21	-3.56	23.92				
2000	-6.31	-3.52	23.38	RF4 (B13)			
2020	-6.42	-3.27	22.78	(MHz)	Effi (dB)	Effi (dBi)	Effi (%)
2040	-6.36	-3.1	23.15	740	-7.65	-3.62	17.19
2060	-6.62	-3.13	21.8	750	-7.08	-2.99	19.6
2080	-6.98	-3.65	20.04	760	-6.78	-2.55	20.97
2100	-7.31	-3.78	18.6	770	-6.67	-2.39	21.55
2120	-7.67	-4.25	17.09	780	-6.75	-2.49	21.12
2140	-7.95	-4.67	16.02	790	-7.15	-2.87	19.28
2160	-8.16	-5.04	15.27	800	-7.43	-3.16	18.06
2180	-8.42	-5.34	14.4				
2500	-7.51	-2.95	17.74				
2520	-8.29	-2.98	14.82				
2540	-8.24	-3.06	14.98				
2560	-7.86	-2.9	16.35				
2580	-7.57	-2.55	17.5				
2600	-7.32	-2.12	18.55				
2620	-6.9	-1.61	20.44				
2640	-7	-1.48	19.96				
2660	-6.92	-1.23	20.34				
2680	-6.54	-0.73	22.16				
2700	-6.13	-0.31	24.38				

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(MHz)	Effi (dB)	Effi (dBi)	Effi (%)	(MHz)	Effi (dB)	Effi (dBi)	Effi (%)
1710	-5.93	-2.88	25.51	2490	-2.92	2.59	51.04
1730	-6.06	-2.86	24.79	2500	-2.93	2.66	50.92
1750	-5.88	-2.4	25.84	2520	-3.01	2.7	49.98
1770	-4.98	-1.43	31.8	2540	-3.25	2.61	47.36
1790	-4.17	-0.62	38.25	2560	-3.43	2.51	45.41
1810	-3.68	-0.08	42.83	2580	-3.59	2.41	43.78
1830	-3.2	0.45	47.89	2600	-3.68	2.4	42.9
1850	-2.99	0.76	50.22	2620	-3.8	2.35	41.71
1870	-3.01	0.82	49.95	2640	-4.01	2.14	39.75
1890	-3	0.84	50.11	2660	-4.2	1.82	38.01
1910	-2.58	1.34	55.2	2680	-4.3	1.41	37.14
1930	-2.5	1.63	56.29	2700	-4.31	0.98	37.08
1950	-2.4	1.76	57.55	2720	-4.37	0.55	36.59
1970	-2.34	1.77	58.35				
1990	-2.38	1.72	57.85				
2010	-2.46	1.68	56.8				
2030	-2.54	1.62	55.72				
2050	-2.72	1.53	53.45				
2070	-2.99	1.39	50.24				
2090	-3.22	1.33	47.67				
2110	-3.28	1.44	46.96				
2130	-3.5	1.36	44.65				
2150	-3.85	1.17	41.24				
2170	-4.08	1.01	39.07				
2190	-4.22	0.96	37.84				
2210	-4.06	1.21	39.23				

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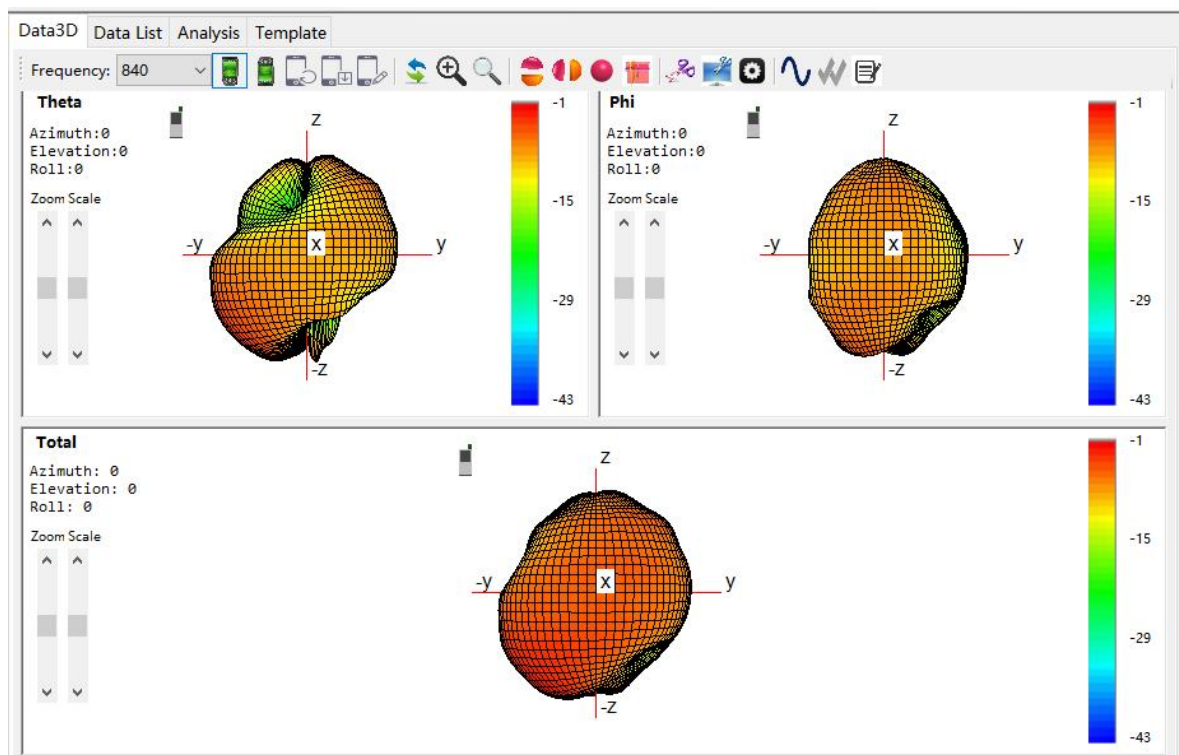
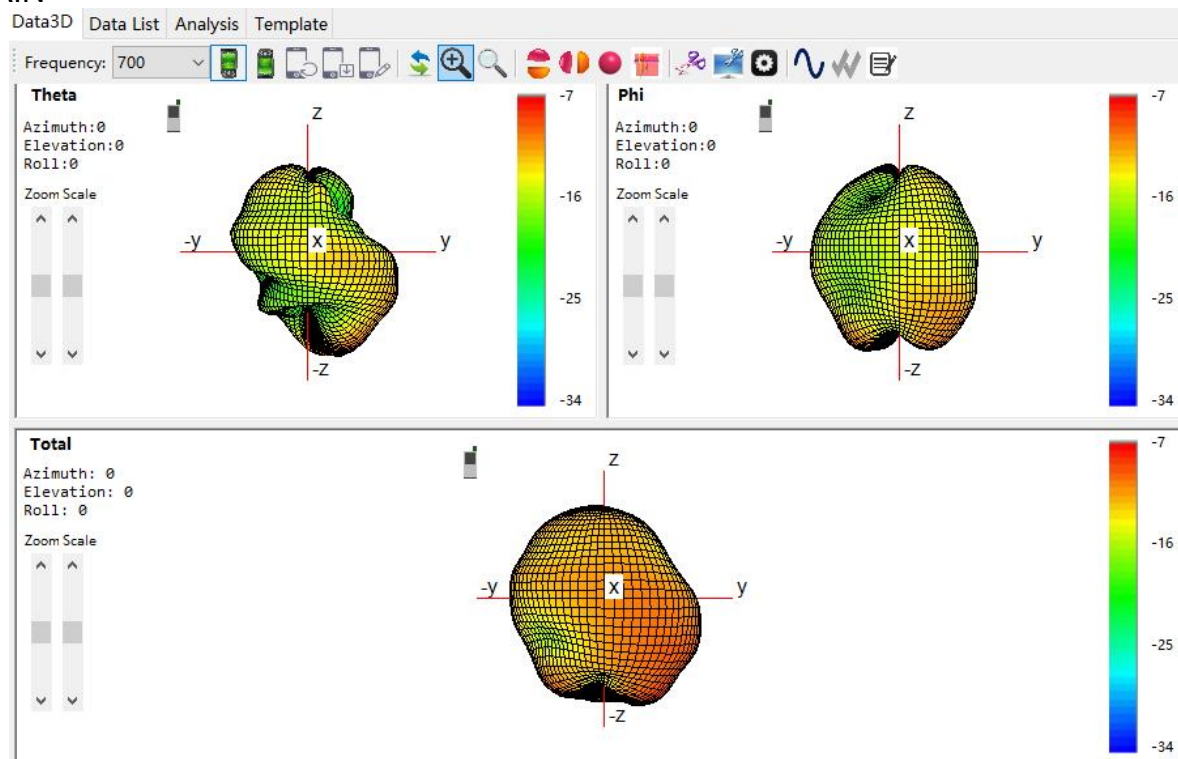
GPS/WIFI/BT

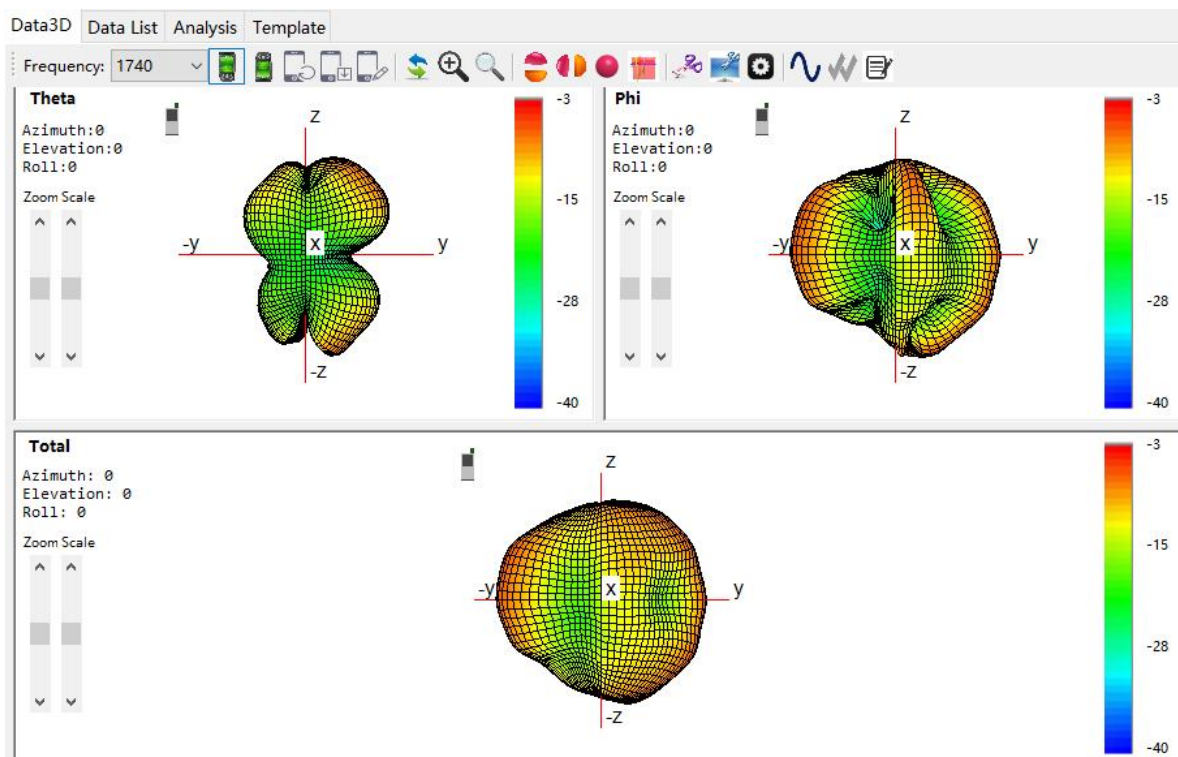
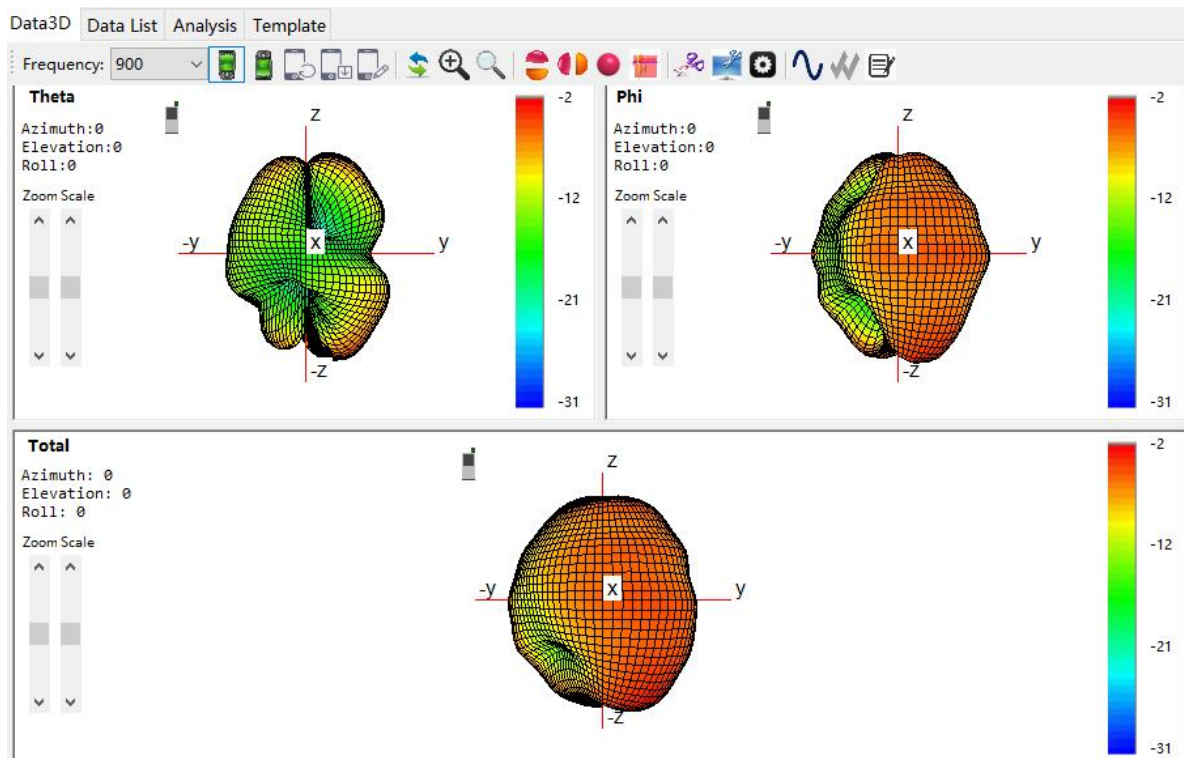
(MHz)	Effi	Effi	Effi
	(dB)	(dBi)	(%)
1545	-2.06	0.97	62.21
1550	-2.03	1.05	62.61
1555	-1.97	1.01	63.49
1560	-2.03	0.93	62.73
1565	-2.04	0.95	62.53
1570	-2.02	1.13	62.83
1575	-2.01	1.12	62.98
1580	-2.08	0.93	61.95
1585	-2.14	0.99	61.12
1590	-2.17	0.93	60.69
1595	-2.16	0.92	60.8
1600	-2.2	0.83	60.3
1605	-2.17	0.88	60.72
1610	-2.24	0.72	59.64
1615	-2.36	0.55	58.02
1545	-2.06	0.97	62.21
2400	-5.27	-1.52	29.74
2410	-5	-1.21	31.6
2420	-4.64	-0.85	34.35
2430	-4.22	-0.37	37.81
2440	-3.96	0.11	40.18
2450	-3.49	0.65	44.74
2460	-3.34	0.92	46.34
2470	-3.21	1.16	47.78
2480	-3.1	1.33	49.01
2490	-2.98	1.63	50.37
2500	-2.95	1.71	50.74
2400	-5.27	-1.52	29.74

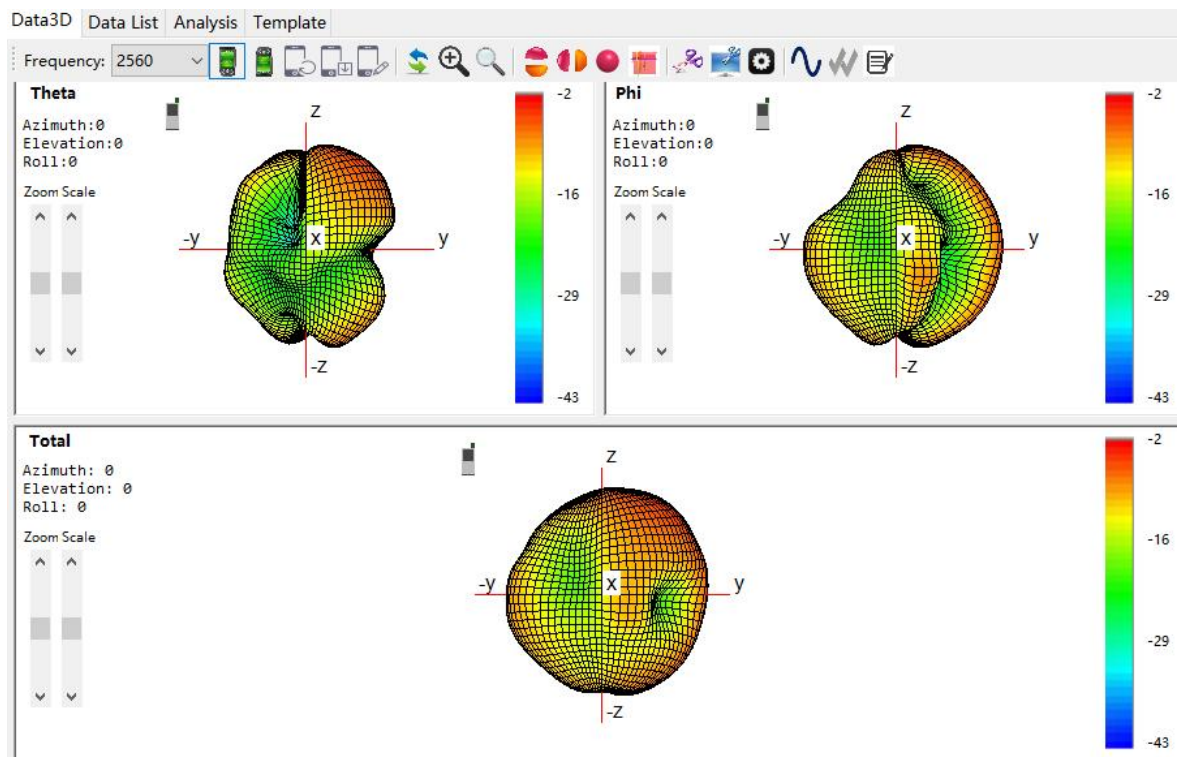
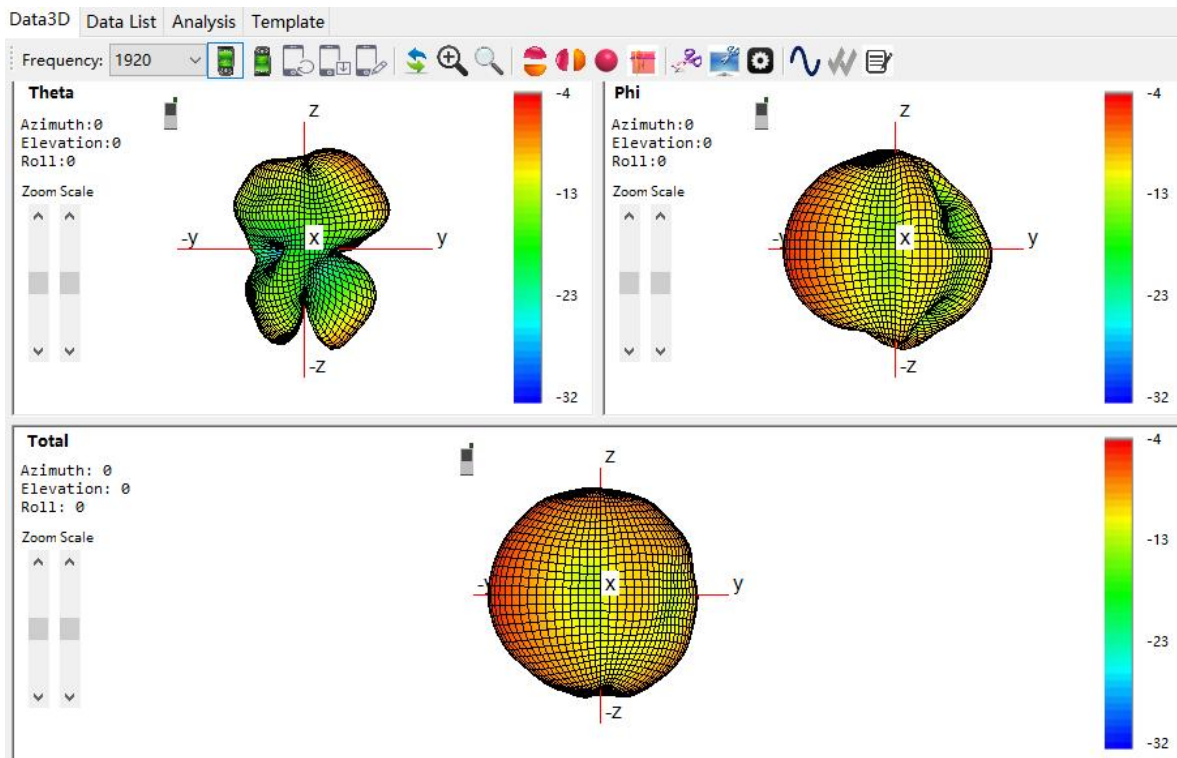
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2.3.3 antenna radiation patter

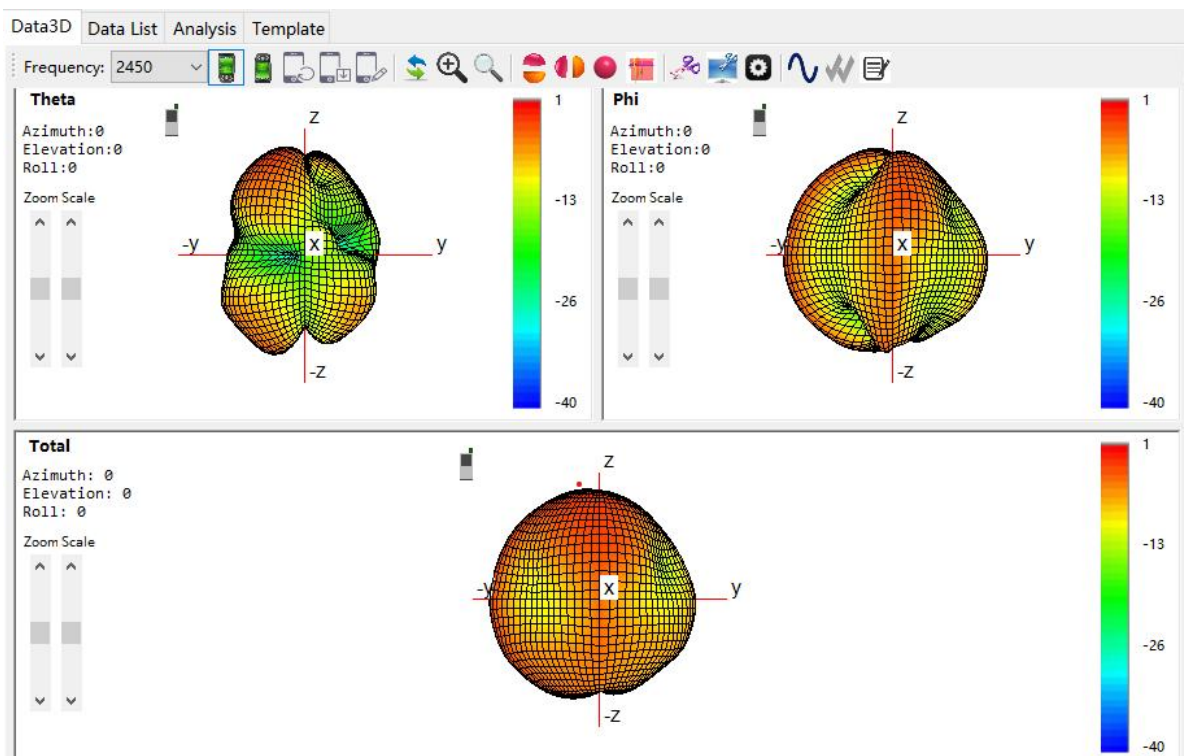
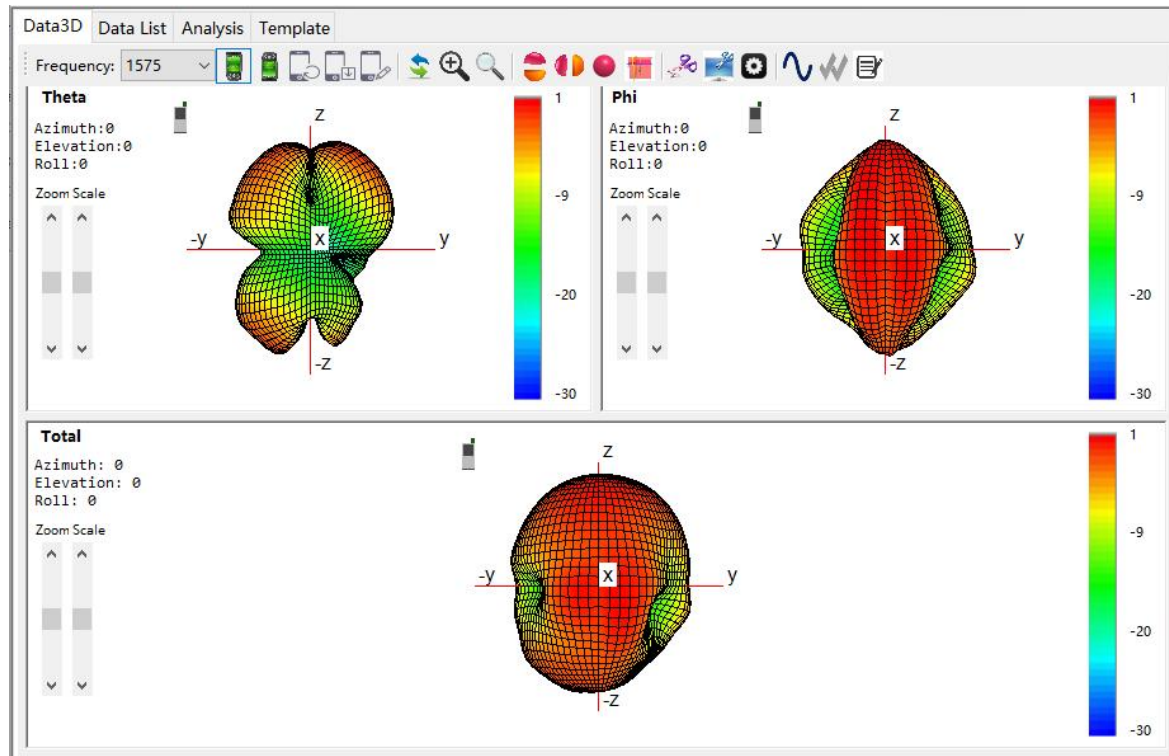
MAIN







GPS/WIFI



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2.4 Active Measurements

2.4.1 Active Measurements Data

Total Radiated Power (TRP) and Total Isotropic Sensitivity (TIS) of the handsets with antenna are tested in the antenna chambers .

Chamber Test Data

2G	CH	TRP	TIS
GSM850	128	24.37	-98.75
	190	26.16	
	251	26.98	-96.79
EGSM900	1	25.5	
	62	25.52	
	124	23.24	-95.24
PCS1900	512	19.8	-99.29
	661	21.44	
	810	22.8	-98.74
3G	CH	TRP	TIS
WCDMA1	9612	14.26	
	9750	14.46	
	9888	14.31	-100.45
WCDMA2	9262	14.4	
	9400	15.34	
	9538	15.86	-100.65
WCDMA4	1312	13.37	
	1450	12.7	
	1513	12.97	-98.69
WCDMA5	4132	16.03	
	4183	17.03	
	4233	16.89	-101.97
WCDMA8	2712	15.5	
	2787	15.12	
	2863	14.19	-97.37

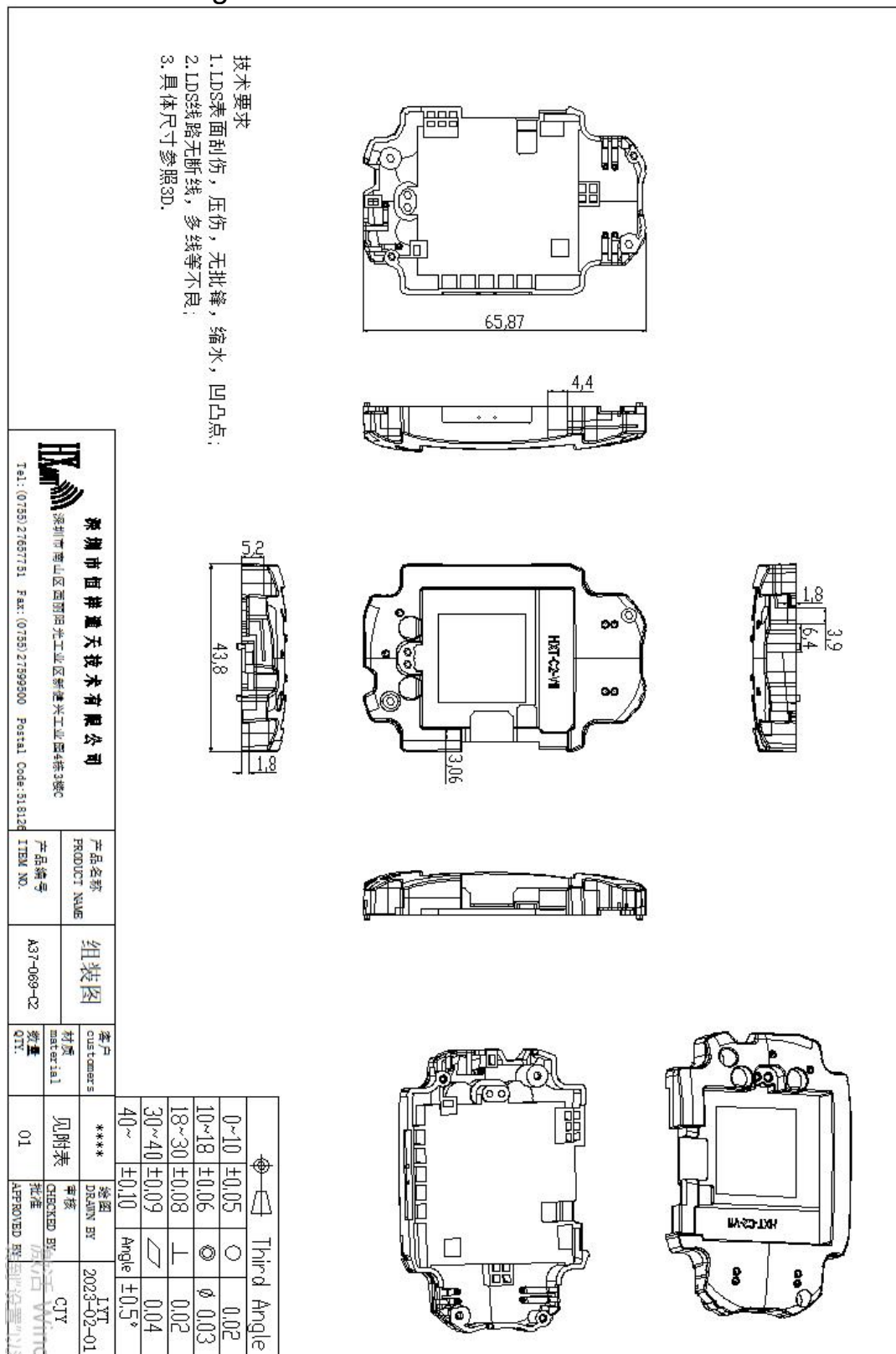


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4G	CH	TRP	TIS
FDD-B2	18650	15.56	
	18900	15.85	
	19150	15.53	-94.2
FDD-B4	19250	14.69	
	19900	14.74	
	18550	14.04	-94.73
FDD-B5	20450	15.8	
	20525	17.59	
	20600	17.22	-86.44
FDD-B7	20800	15.33	
	21100	16.2	
	21400	15.93	-92.58
FDD-B12	23060	9.89	
	23095	10.51	
	23130	11.4	-84.28
FDD-B13(10M)	23205		
	23230	12.86	-84.64
	23255		
FDD-B17	23780	9.95	
	23790	10.97	
	23800	11.08	-85.25
FDD-B25	26090	15.47	
	26365	15.87	
	26640	13.97	-94.92
FDD-B26	26740	13.23	
	26865	15.78	
	26990	15.7	-87.18
TDD-B41	40340	15.77	
	40620	15.64	
	41140	15.43	-90.64

3 Mechanical Properties Specifications Drawings



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4. Environmental Characteristic

Test Item	Test description
1. Low Temperature	Temp.: -20 °C Time: 24 hours
2. High Temperature	Temp.: 80℃ Time: 24 hours
3. Salt Fog	5±0.1% Nad salt fog PH Value: 6.5-7.2 Temp: 35±1℃ Time:24 hours