

Antenna Specifications

CUSTOMER		Trackimo ChinaVC01	
CS P/N		VC01	
HX P/N		A53-047-VC01	
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.

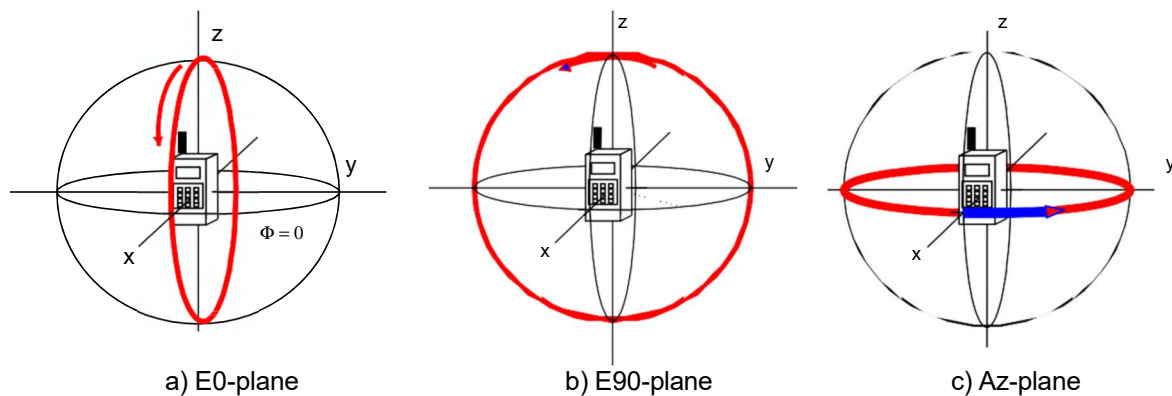


Figure 1-1 The coordinate system for the phone

2. Specifications

This report mainly provides the testing conditions of various electric and structural performance parameters for cell phone antenna ---VC01 Figure 2-1 shows the antenna designed by HX & The fixturing of VC01



Figure 2-1 The antenna designed by HX & The fixturing of VC01

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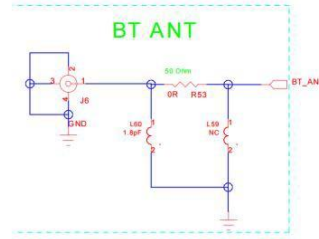
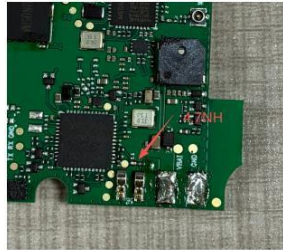
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GPSAntenna Matching

No changes

BT Antenna Matching

BT Antenna	
Tag No	Matching value
L60	NC
R53	4.7MH
L59	NC



WIFI Antenna Matching

WIFI Antenna	
Tag No	Matching value
C302	NC
L2	OR
C340	NC

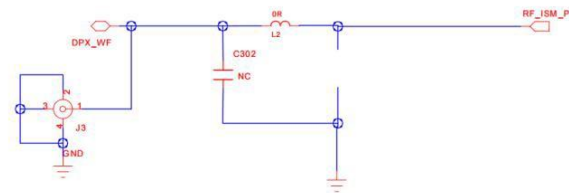
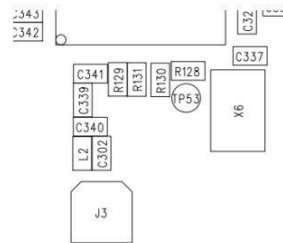


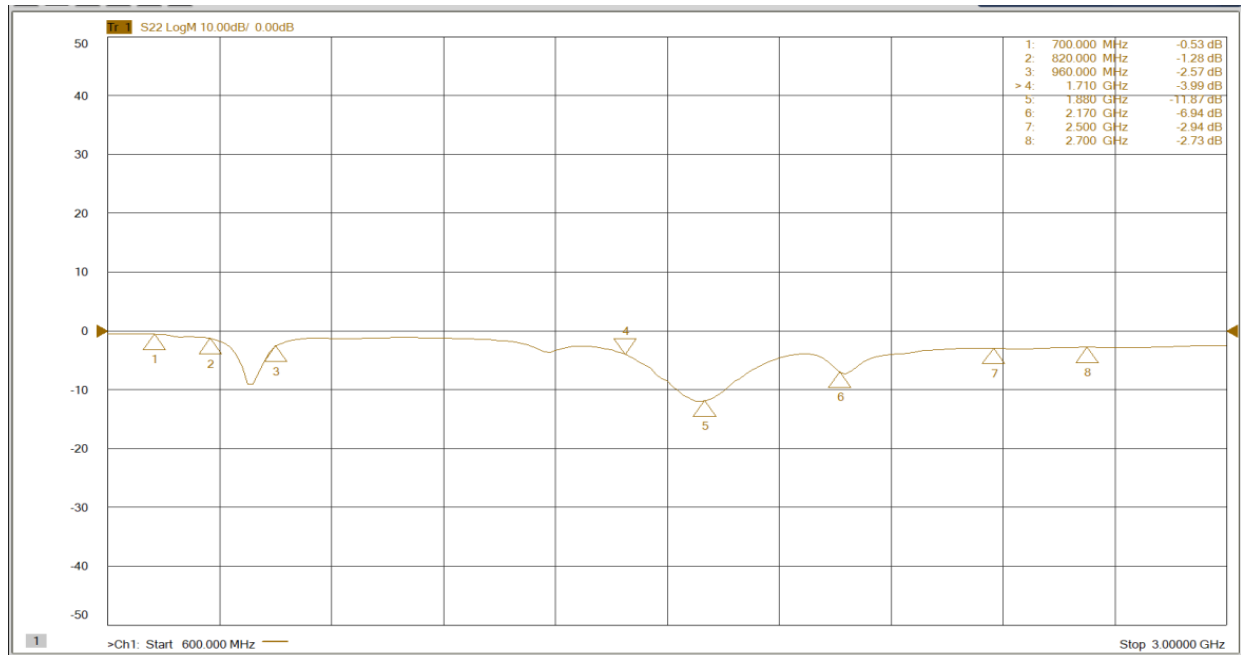
Figure 2-2: Matching circuit

2.3 Passive Measurements

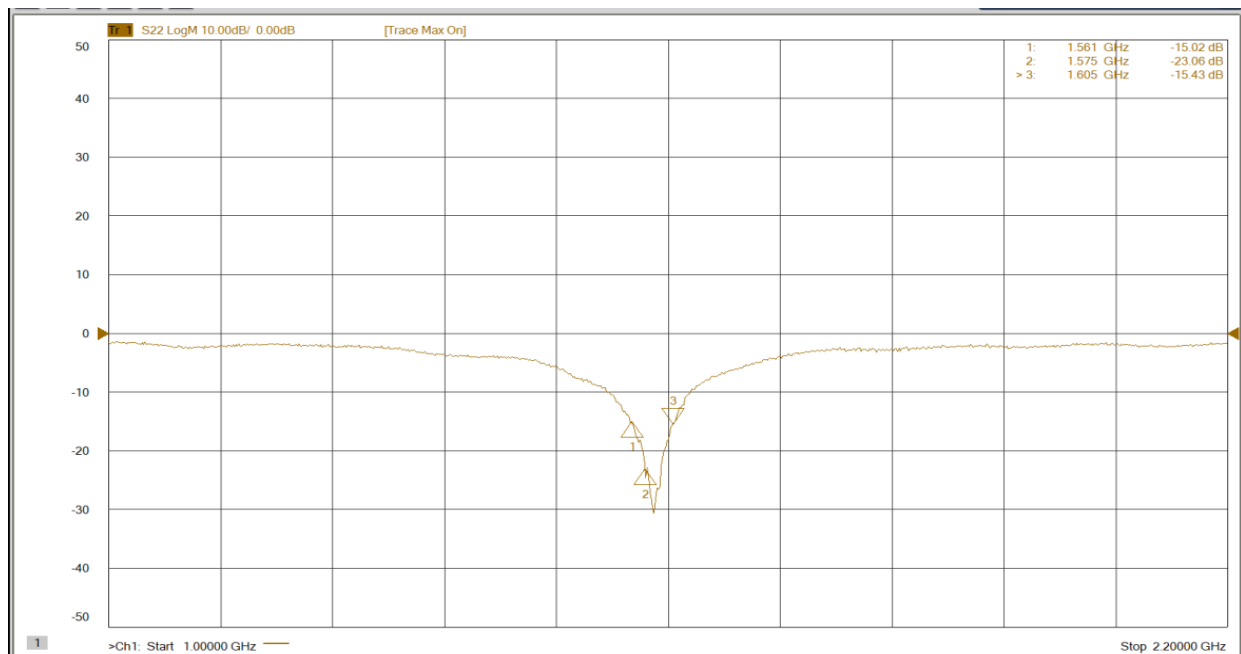
2.3.1 S11 of the Typical Sample

Main antenna

LTE:



GPS:

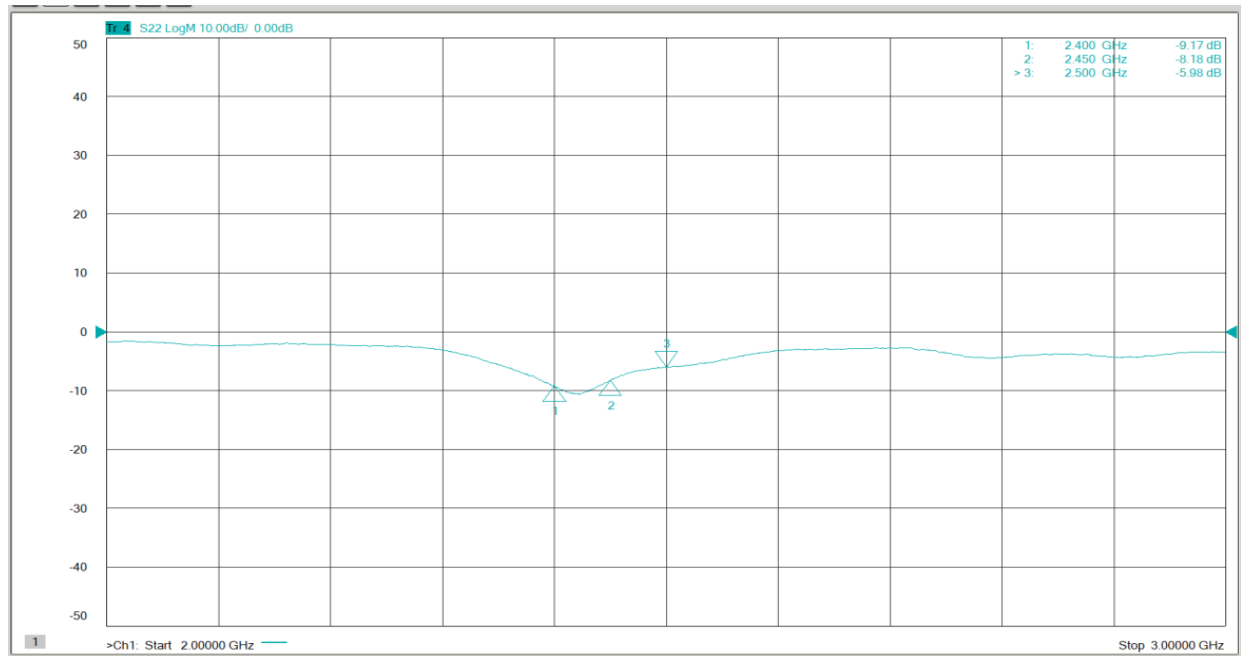


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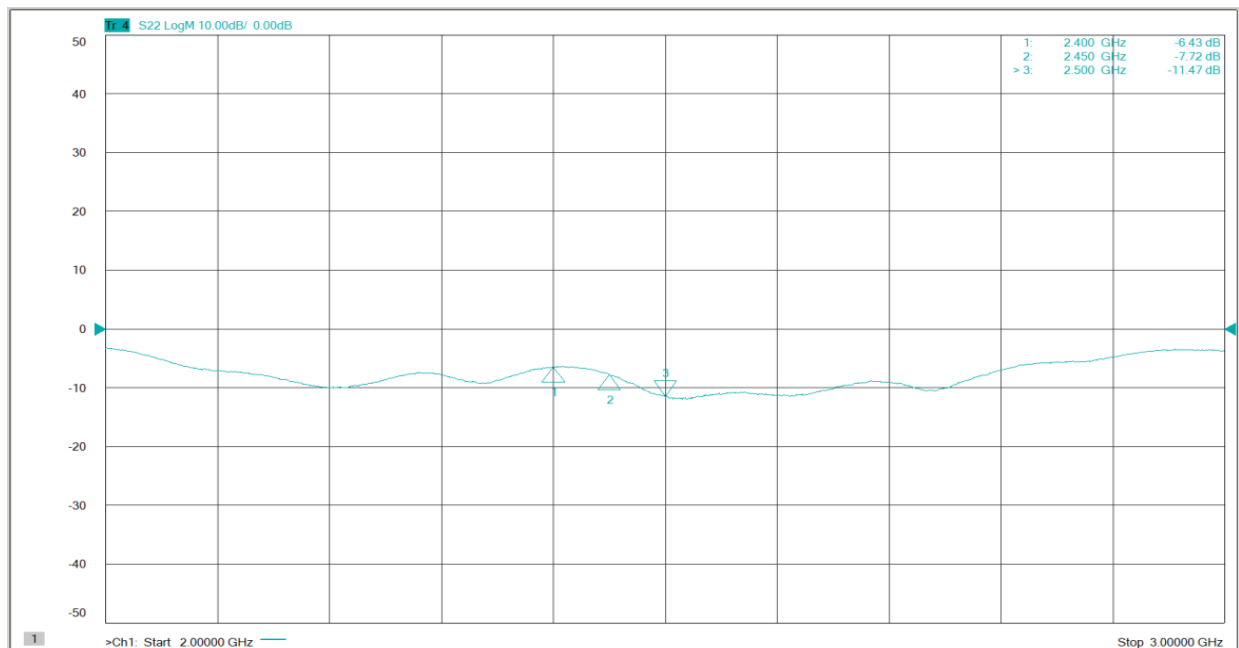
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BT:



WIFI:



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2.3.2 Passive efficiency of antenna

Main antenna

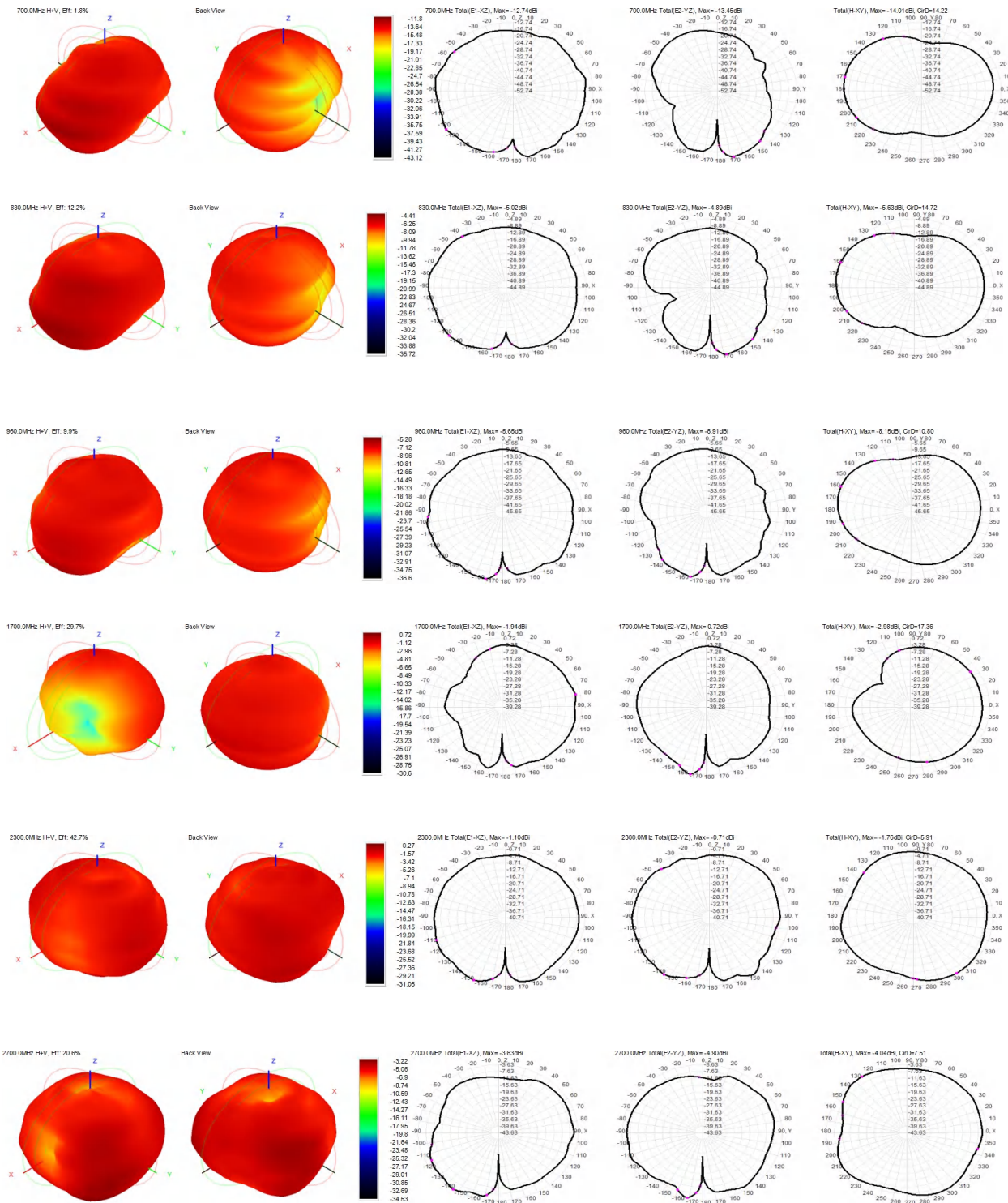
LTE:

Frequency (MHz)	Gain (dBi)	Efficiency (%)	Frequency (MHz)	Gain (dBi)	Efficiency (%)
700	-11.80	1.83	1700	0.72	29.65
710	-10.97	2.15	1750	3.17	43.16
720	-10.91	2.59	1800	2.17	48.95
730	-10.44	3.10	1850	0.99	57.92
740	-9.23	3.73	1900	0.57	54.08
750	-8.09	4.44	1950	-0.83	41.25
760	-8.43	4.86	2000	-1.92	31.34
770	-8.00	5.33	2050	-2.19	25.10
780	-7.09	6.06	2100	-0.74	31.51
790	-6.12	6.85	2150	1.03	48.12
800	-5.35	7.81	2200	1.66	54.15
810	-5.65	9.12	2250	0.98	49.00
820	-5.19	10.75	2300	0.27	42.67
830	-4.41	12.20	2350	-0.55	35.33
840	-3.49	14.02	2400	-0.81	32.94
850	-2.52	15.59	2450	-2.23	26.83
860	-2.07	16.83	2500	-2.23	25.32
870	-2.20	17.75	2550	-2.93	22.60
880	-1.86	17.96	2600	-3.45	21.56
890	-2.29	18.03	2650	-3.32	19.91
900	-2.45	18.11	2700	-3.22	20.60
910	-2.11	18.73			
920	-1.88	18.69			
930	-1.73	17.66			
940	-2.83	15.34			
950	-4.50	12.35			
960	-5.28	9.90			

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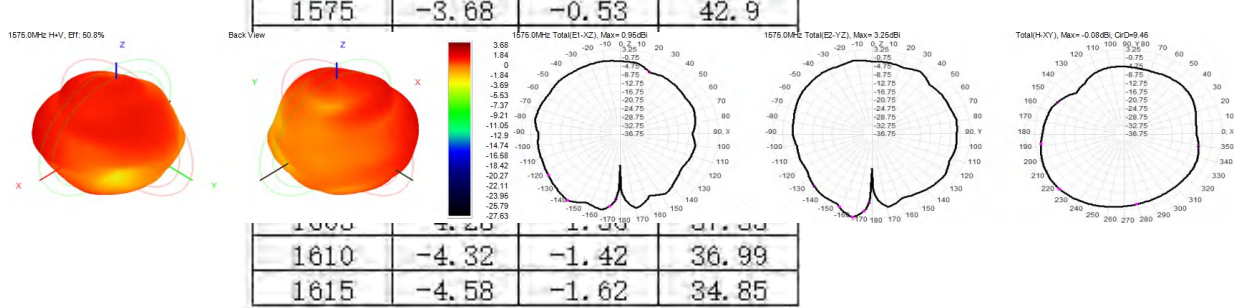
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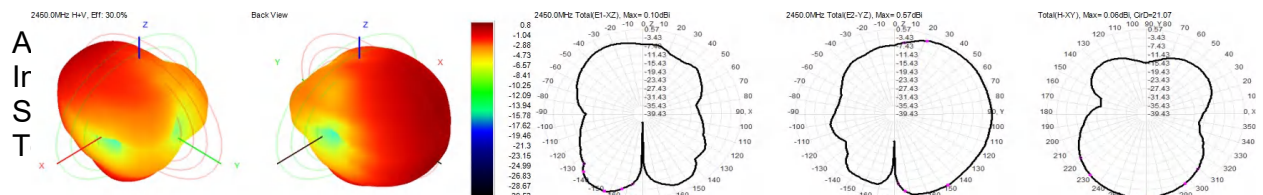
GPS:

Frequency (MHz)	1550.0	1555.0	1560.0	1565.0	1570.0	1575.0	1580.0
Gain (dBi)	3.21	3.25	3.34	3.46	3.54	3.68	3.76
Efficiency (%)	50.76	50.31	50.15	50.10	50.10	50.79	51.05



BT:

Frequency (MHz)	2400.0	2410.0	2420.0	2430.0	2440.0	2450.0	2460.0	2470.0	2480.0	2490.0	2500.0
Gain (dBi)	1.25	1.20	1.21	1.24	1.16	0.80	0.68	0.62	0.48	0.42	0.75
Efficiency (%)	31.13	31.41	31.73	31.55	31.29	29.96	27.92	26.52	24.80	22.90	21.68

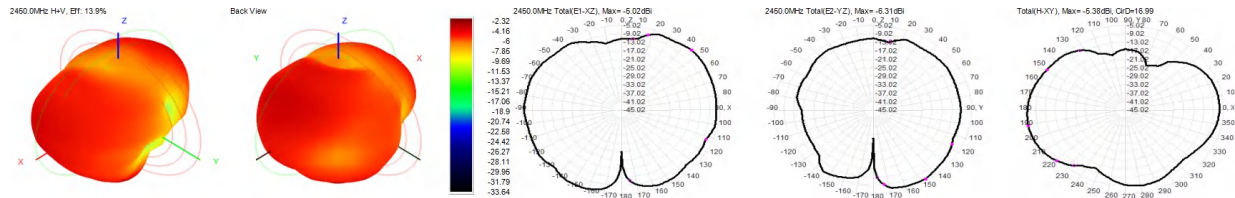


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WIFI:

Frequency (MHz)	2400.0	2410.0	2420.0	2430.0	2440.0	2450.0	2460.0	2470.0	2480.0	2490.0	2500.0
Gain (dBi)	-2.51	-2.22	-2.01	-2.05	-2.28	-2.32	-2.10	-1.39	-0.80	-0.50	-0.23
Efficiency (%)	18.99	17.19	15.96	14.95	14.39	13.90	13.76	14.16	14.48	15.17	15.85



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2.4 Active Measurement

2.4.1 OTA data of LTE antenna

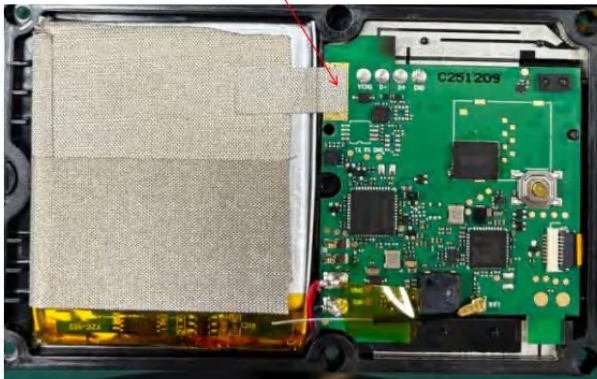
频段	信道	频率	TRP	TIS	频段	信道	频率	TRP	TIS
LTE1	18050	1925	18.34		LTE18	23900	820	9.16	
	18300	1950	19.68			23925	822.5	10.21	
	18550	1975	19.49	-91.03		23950	825	10.41	-87.89
LTE2	18650	1855	19.31		LTE19	24050	835	9.33	
	18900	1880	17.22			24075	837.5	10.34	
	19150	1905	18.78	-90.46		24100	840	10.22	-88.64
LTE3	19250	1715	19.24		LTE20	24200	837	11.13	-86.45
	19575	1747.5	19.31			24300	847	12.11	
	19900	1780	16.85	-92.44		24400	857	13.34	
LTE4	20000	1715	17.27		LTE25	26090	1855	17.65	
	20175	1732.5	19.42			26365	1882.5	16.27	
	20350	1750	16.37	-96.41		26640	1910	16.53	-90.63
LTE5	20450	829	10.23		LTE26	26740	819	9.32	
	20525	836.5	10.64			26865	831.5	10.1	
	20600	844	12.3	-91.66		26990	844	10.21	-91.18
LTE7	20800	2505	17.76		LTE28	27260	708	8.33	
	21100	2535	15.23			27435	725.5	8.26	
	21400	2565	16.42	-88.43		27610	743	8.8	-81.12
LTE8	21500	885	15.49		LTE38	37850	2580	18.47	
	21625	897.5	15.15			38000	2595	18.52	
	21750	910	14.26	-83.27		38150	2610	19.39	-83.68
LTE12	23060	703	7.15		LTE40	38750	2310	15.63	
	23095	706.5	9.44			39150	2350	15.16	
	23130	710	8.68	-81.26		39550	2390	13.37	-85.36
LTE17	23780	709	9.1		LTE41	40240	2555	17.47	
	23790	710	8.41			40740	2605	18.39	
	23800	711	9.16	-85.78		41240	2655	18.64	-82.66

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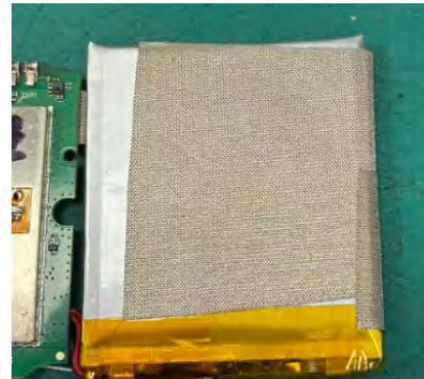
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3. Environmental treatment of the whole machine

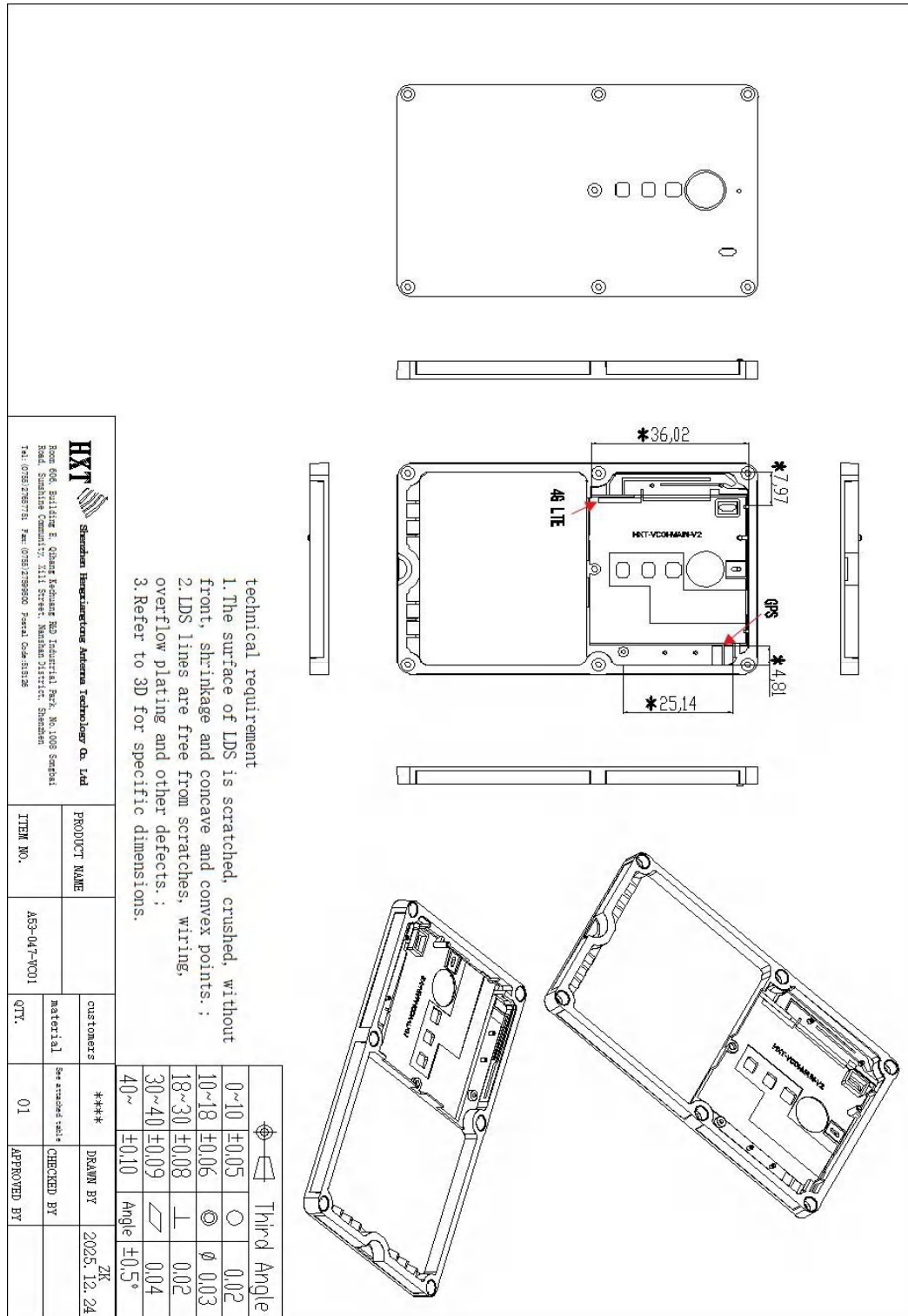
It is better to use conductive cloth for the battery pack, and connect it to the exposed copper area on the main board.



Back of the battery



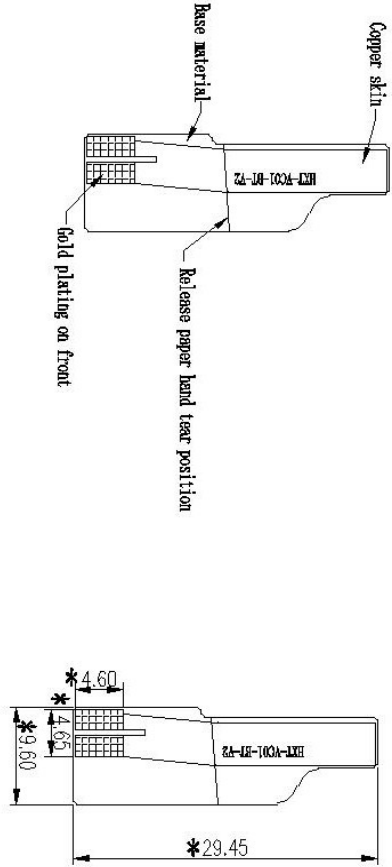
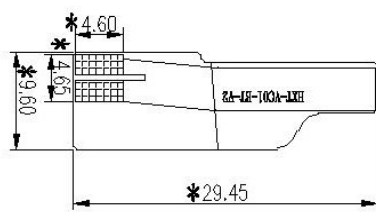
4. Specifications Drawings



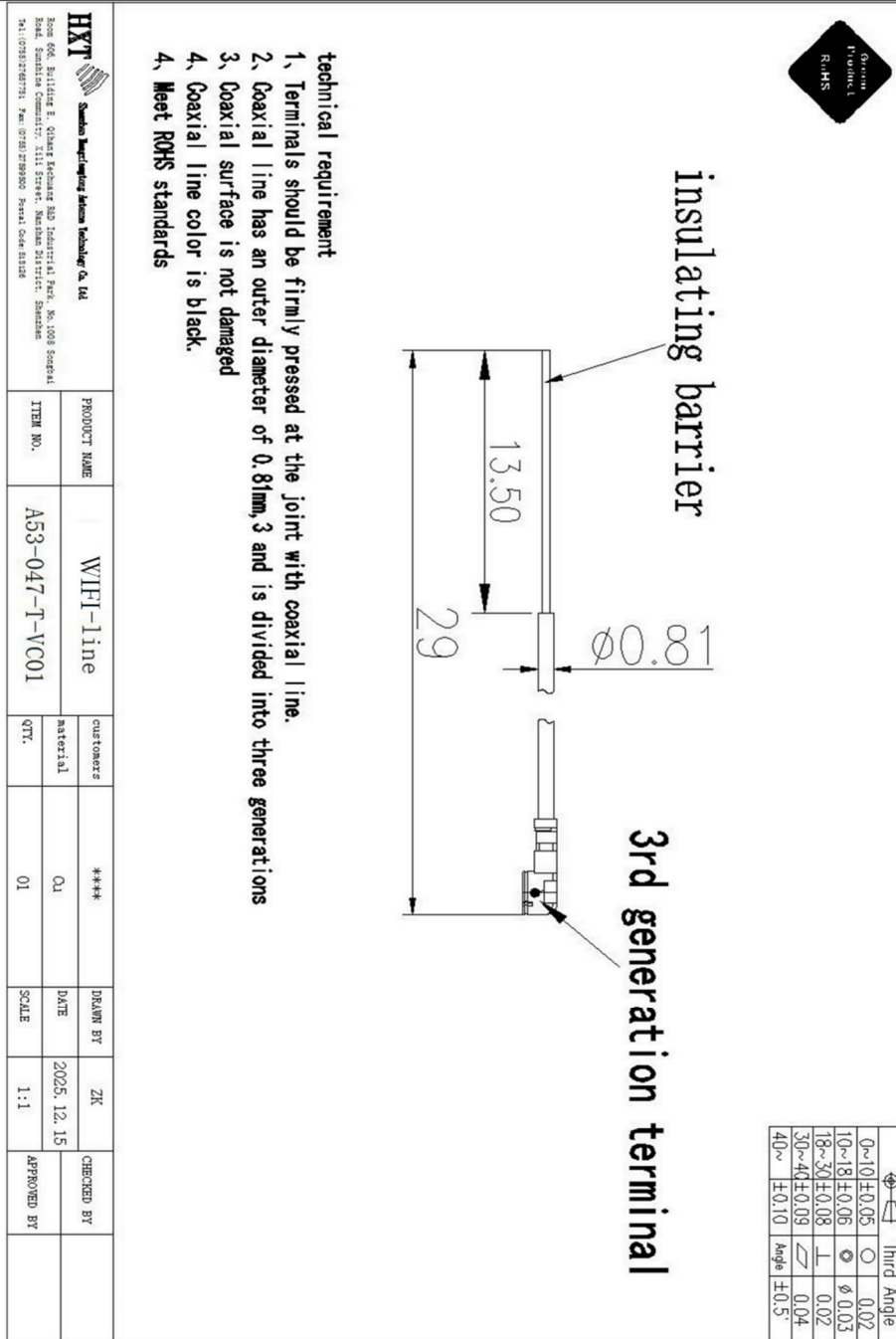
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 Shenzhen Hengxiangtong Antenna Technology Co., Ltd				 Third Angle			
Rev		Description		Date		Remark	
1		New drawings					
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5. Environmental Characteristic

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