

Antenna Specifications

CUSTOMER		Topicon HK Limited	
CS P/N		MDT665	
HX P/N		<u>A20-047-F-661</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.

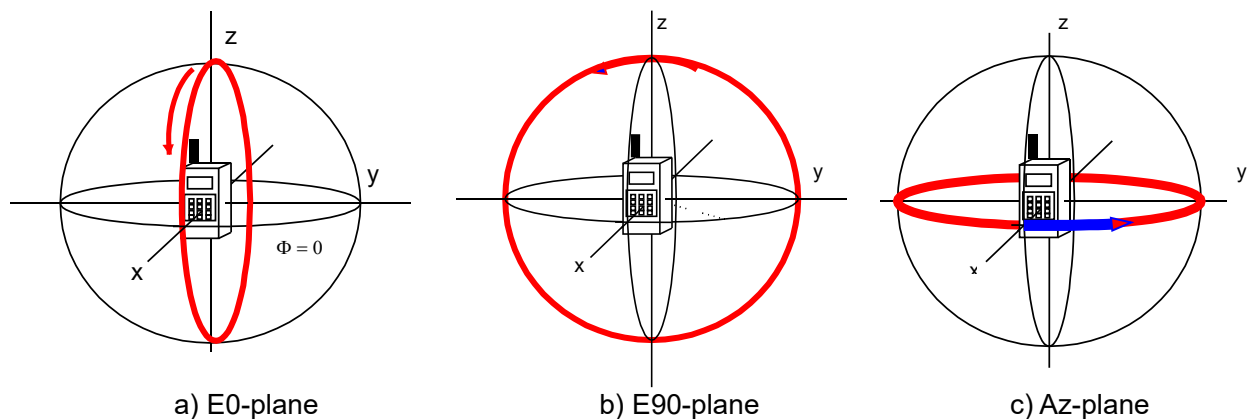


Figure 1-1 The coordinate system for the phone

2. Specifications

This report mainly provides the testing conditions of various electric and structural performance parameters for cell phone antenna ----MDT665 Figure 2-1 shows the antenna designed by HXT & The fixturing of MDT665

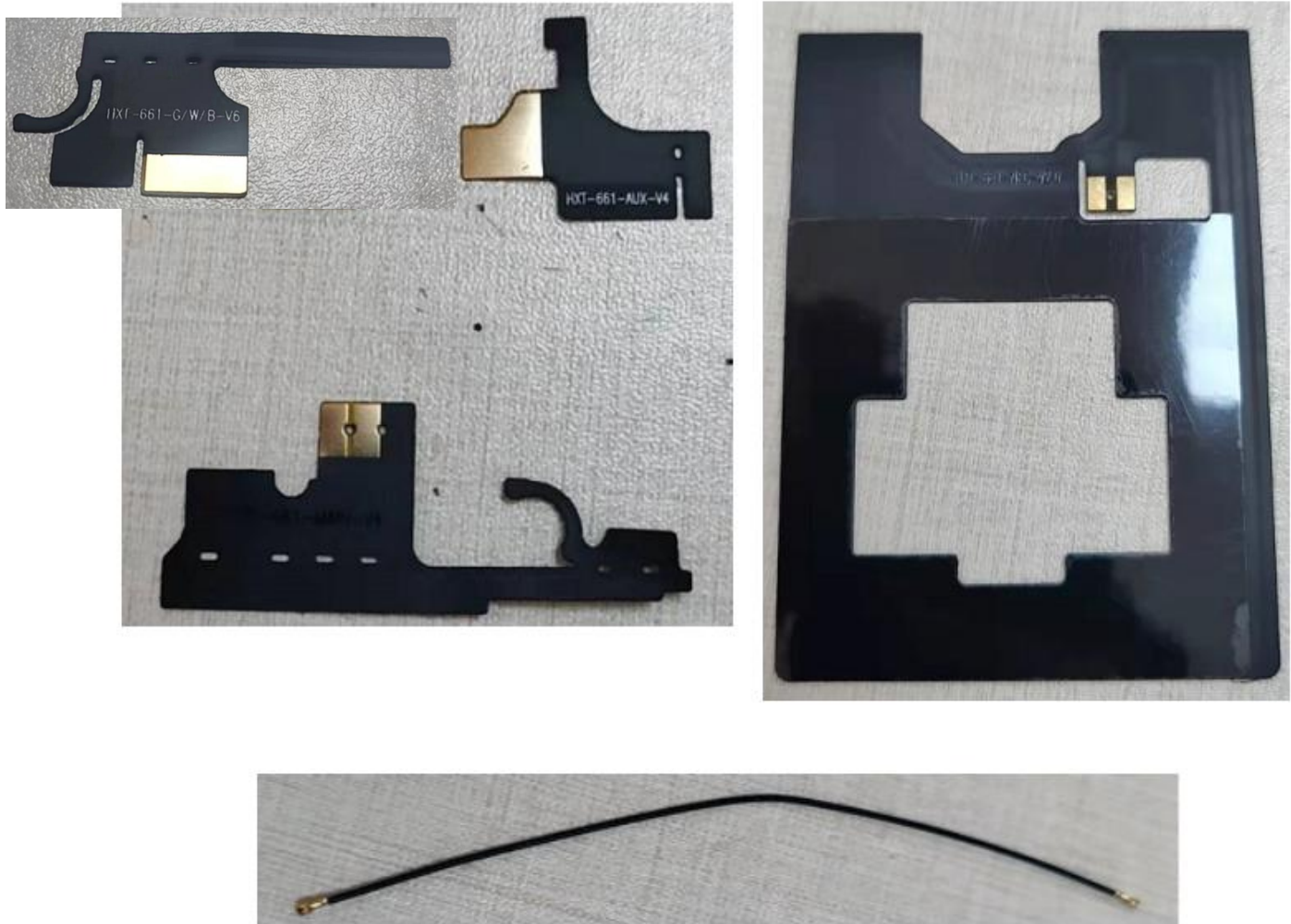


Figure 2-1 The antenna designed by HXT & The fixturing of MDT665

HXT Antenna Specifications

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2.1 Frequency Band

Antenna type	Frequency Band	Tx(MHz)/Rx(MHz)
Main	G850/900/1800/1900 W1/2/4/5/8/FDD B1/2/3/4/5/7/8/12/17/20/28/66/TDD38/40/41	700~960, 1710~2690
WIFI	2.4G WIFI/BT/5G WIFI	2400~2500,5185~5825
DIV	FDD B1/2/3/4/7/66/TDD38/40/41	1710~2170,2500~2690

2.2 Impedance

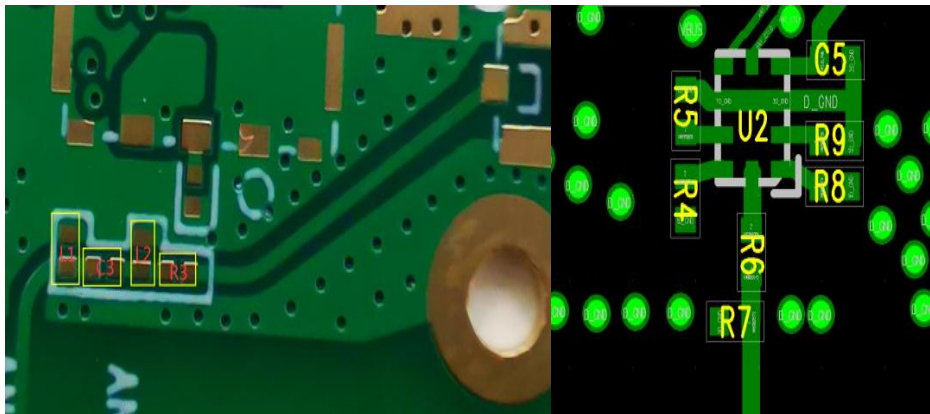
2.2.1 Nominal

Nominal Impedance(including matching circuit) : 50 ohms

2.2.2 Matching Circuit

The matching circuit is as Figure 2-2.

Main



位号	匹配
L1	0.75pF
C3	3.3nH
L2	12nH
R3	0 Ω
R4	NC
R5	10nh
R6	0 Ω
R7	15nH
R8	0 Ω
R9	6.8nH

switching logic	Frequency band
RF1	GSM 2/3/8/WCDMA 1/2/4/8/4G1/2/3/4/7/8/66/38/40/41
RF2	GSM 5/WCDMA 5/4G 5
RF3	4G 12/17/28
RF4	4G 20

WiFi/div

	Tag Number	mate
GPS (No changes made)	No changes made	
DIV		

Figure 2-2: Matching circuit

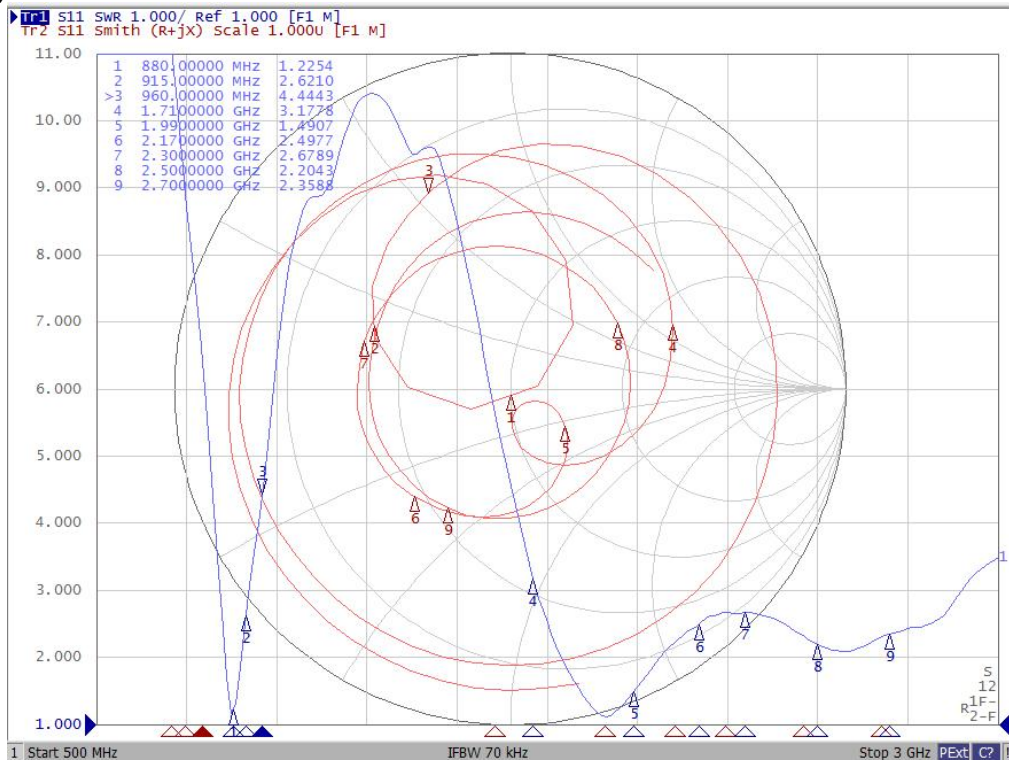
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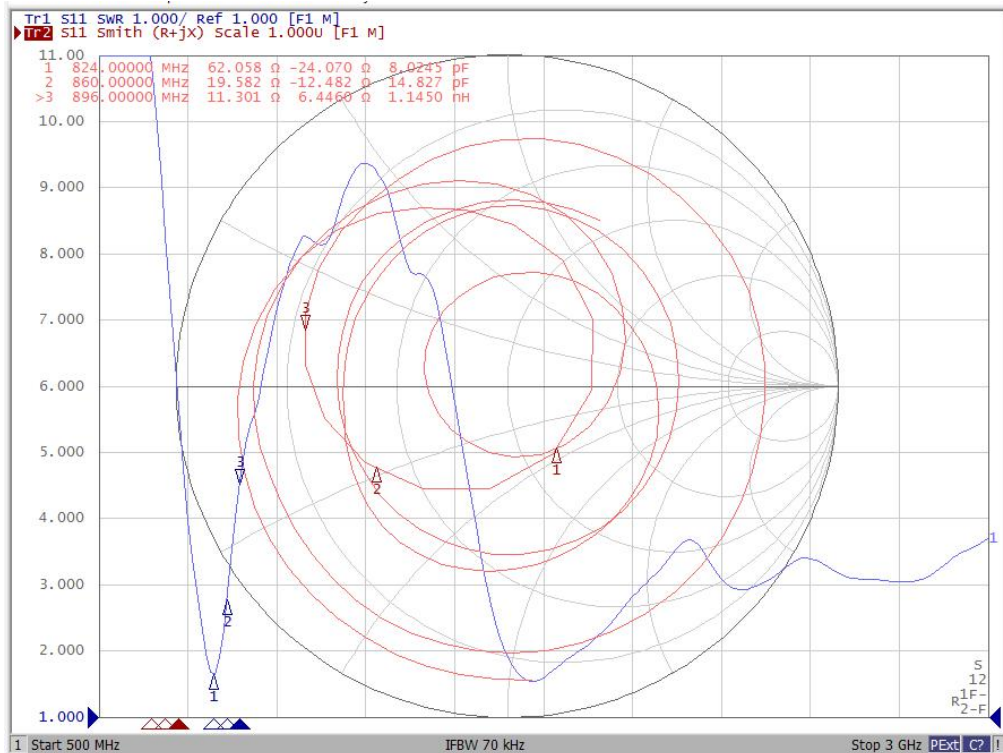
2.3 Passive Measurements

2.3.1 S11 of the Typical Sample

Main(RF1)



Main(RF2)

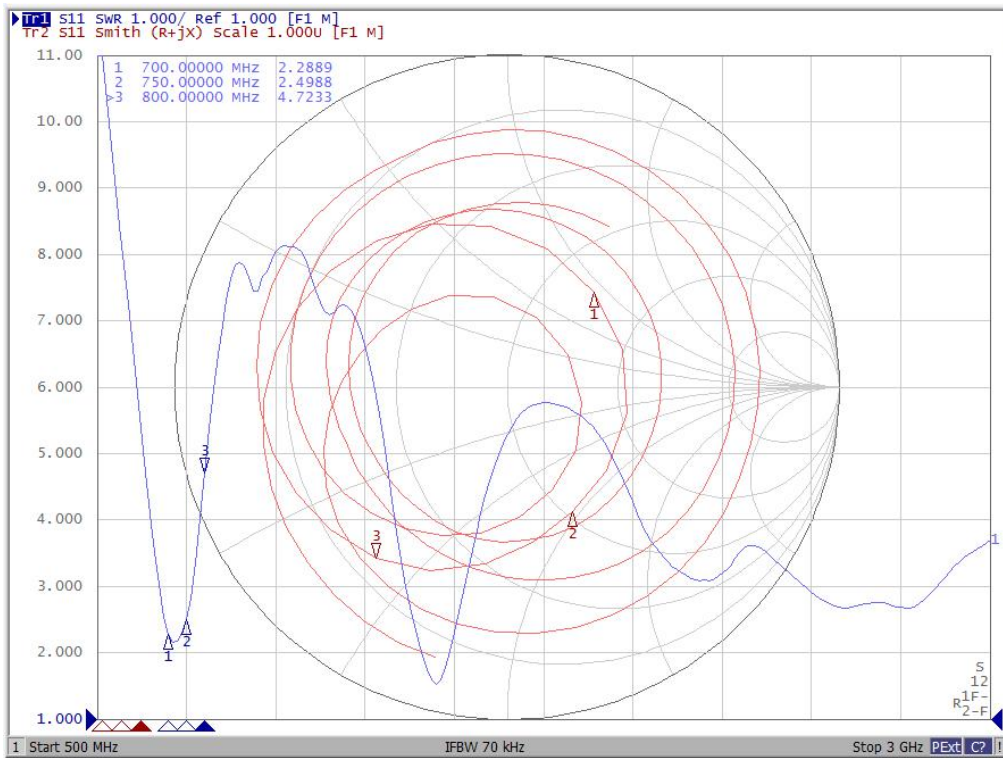


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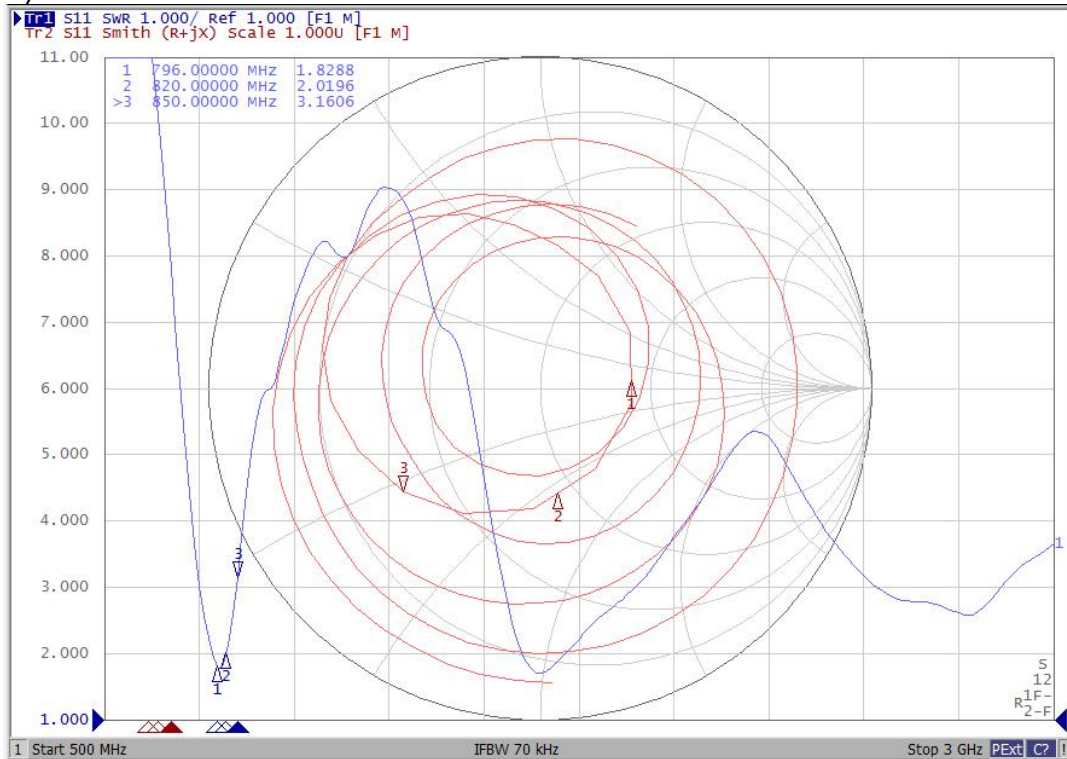
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Main(RF3)



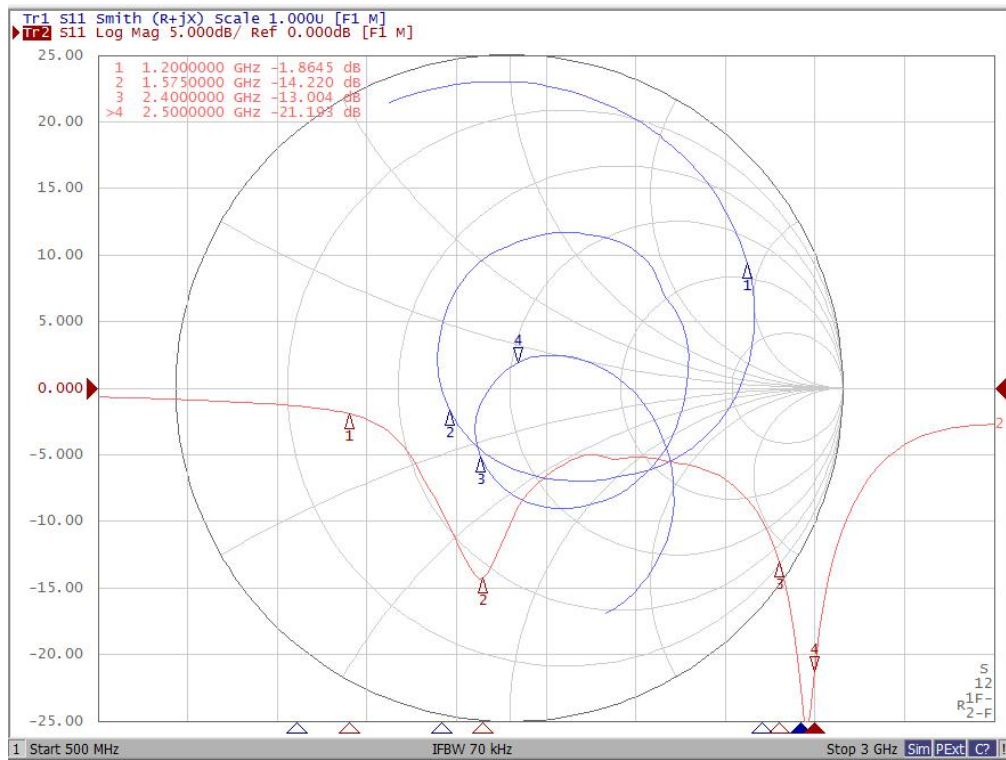
Main(RF4)



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GPS/WIFI/bt



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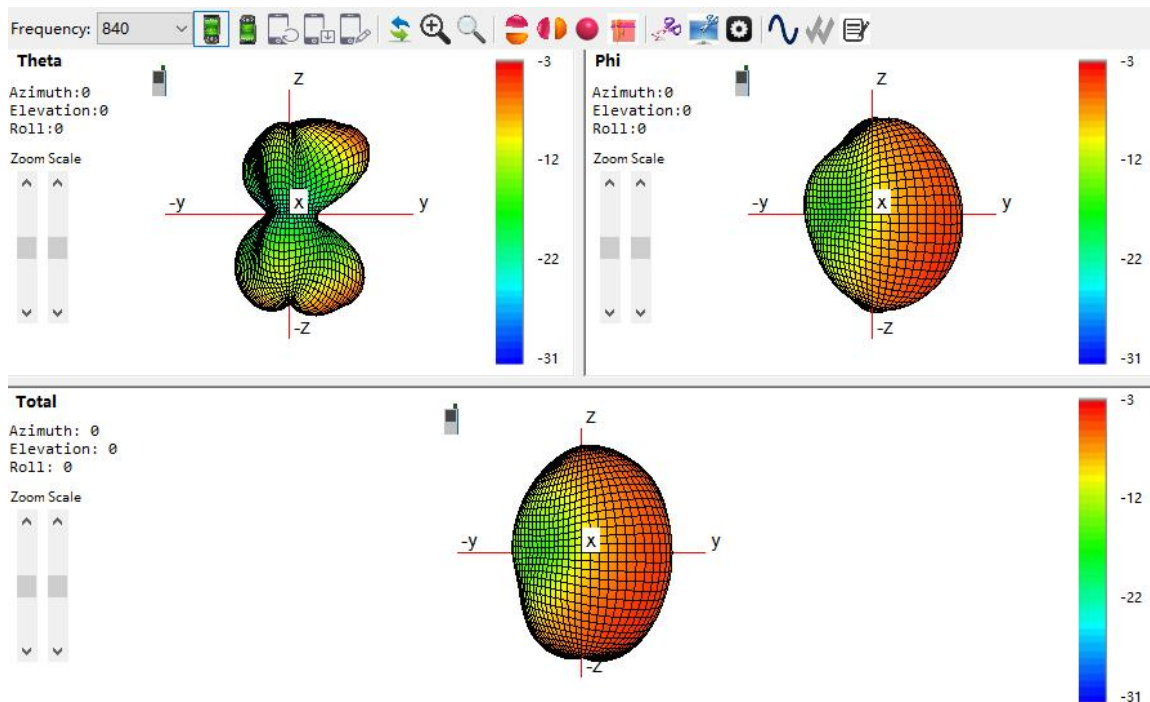
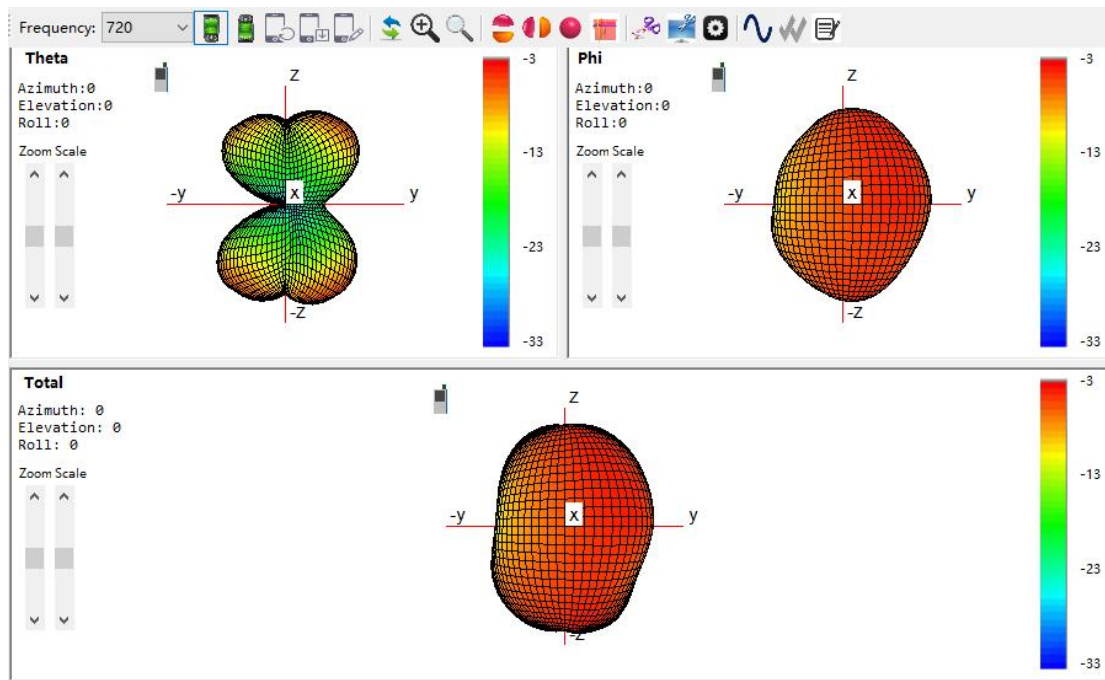
2.3.2 Effi& Gain Specifications
Main

Technical Specification			
	Antenna Gain(dBi)		Antenna Gain(dBi)
GMS B2	0.8	FDD B1	0.6
GMS B3	0.5	FDD B2	0.8
GMS B5	-1.2	FDD B3	0.5
GMS B8	-0.8	FDD B4	0.5
WCDMA B1	0.6	FDD B5	-1.2
WCDMA B2	0.8	FDD B7	0.9
WCDMA B4	0.5	FDD B8	-0.8
WCDMA B5	-1.2	FDD B12	-2.6
WCDMA B8	-0.8	FDD B17	-2.6
		FDD B20	-1.3
		FDD B66	0.5
		TDD B38	0.9
		TDD B40	1.2
		TDD B41	0.9

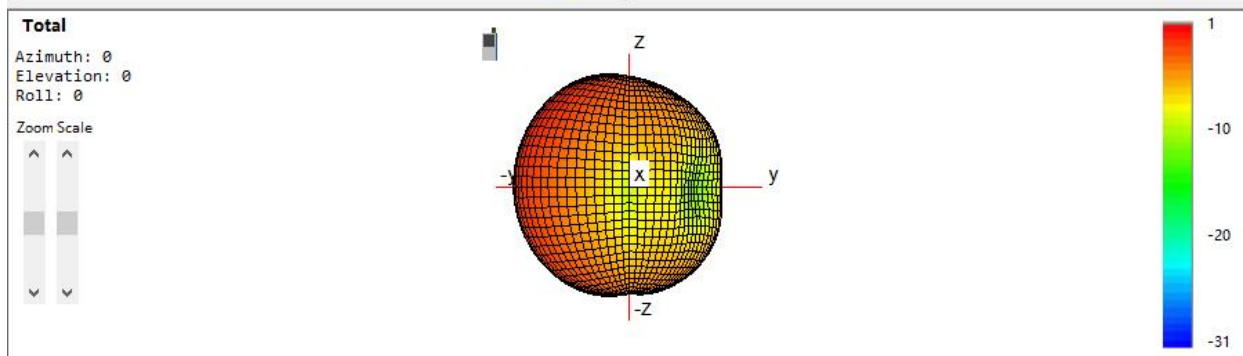
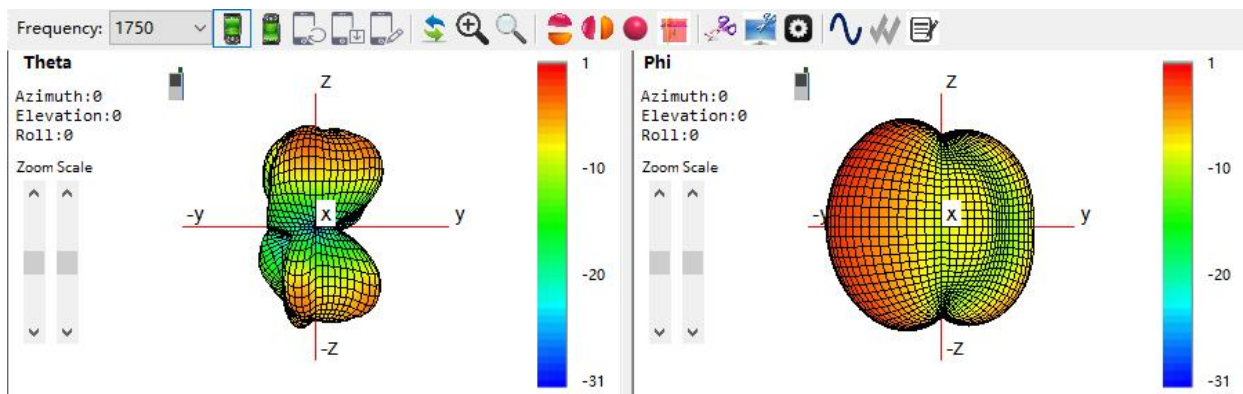
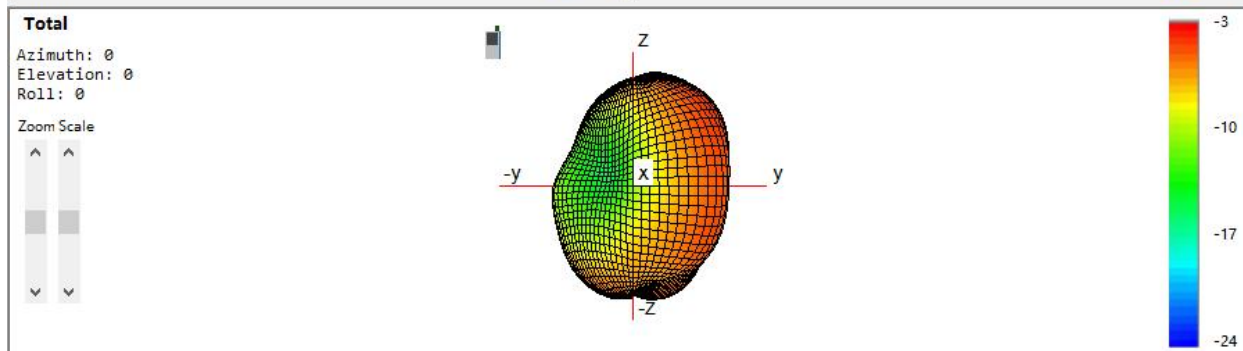
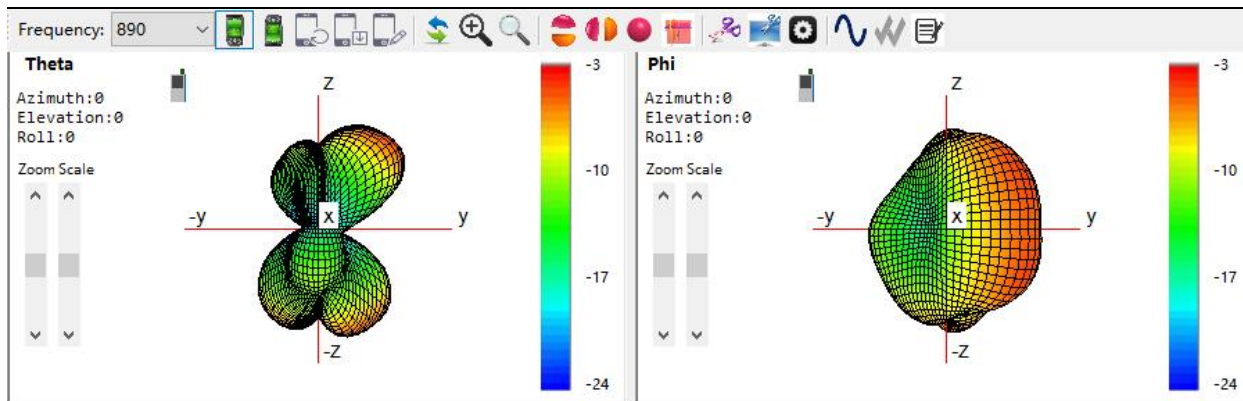
GPS/WIFI/BT

Technical Specification	
	Antenna Gain(dBi)
GPS	-1.2
Bluetooth	1.3
WIFI	1.3

2.3.3 antenna radiation patter MAIN

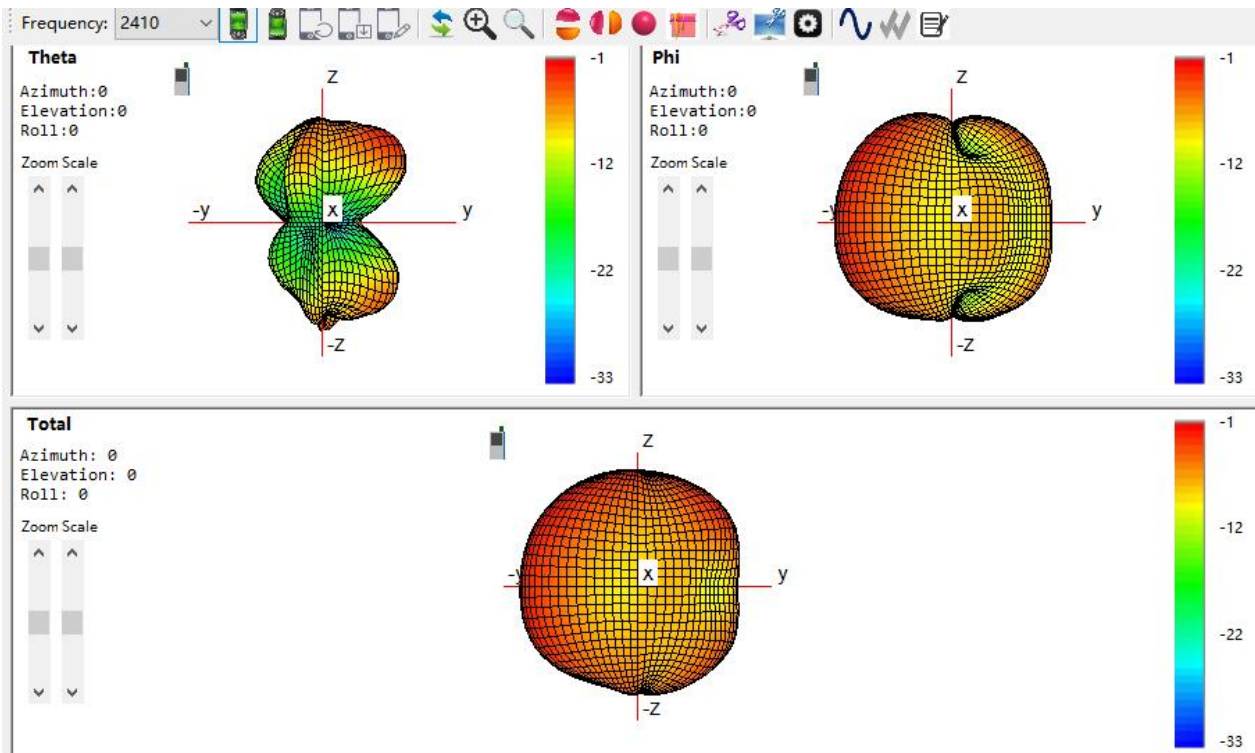
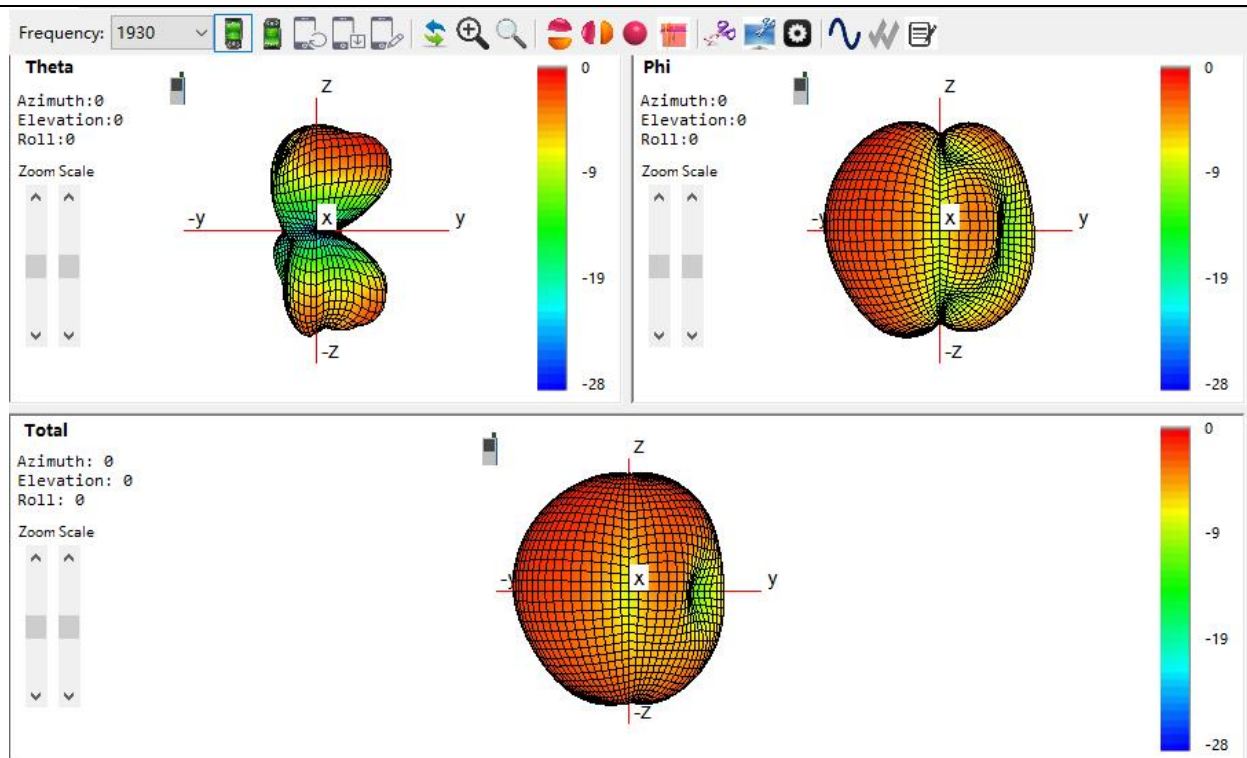


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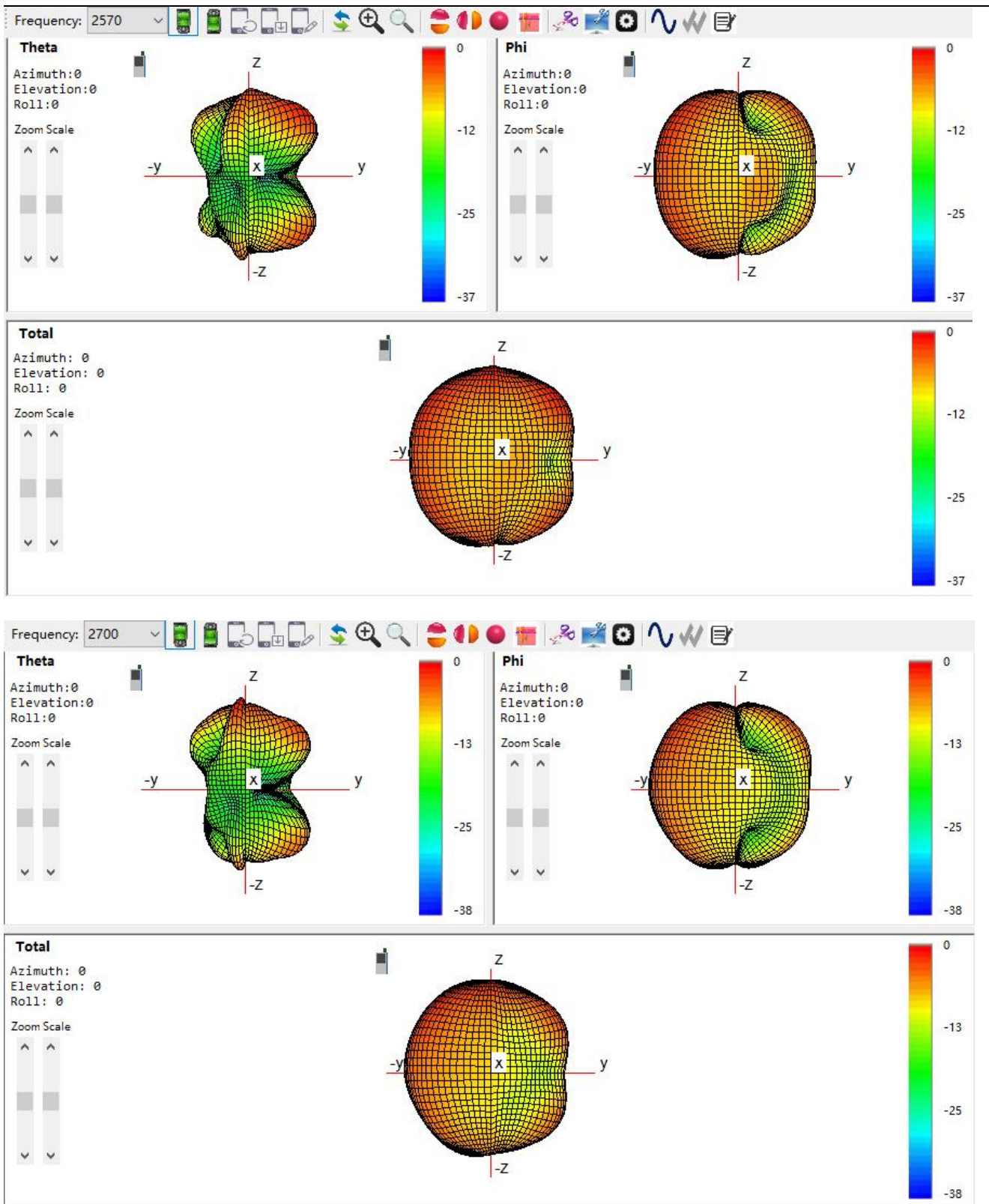
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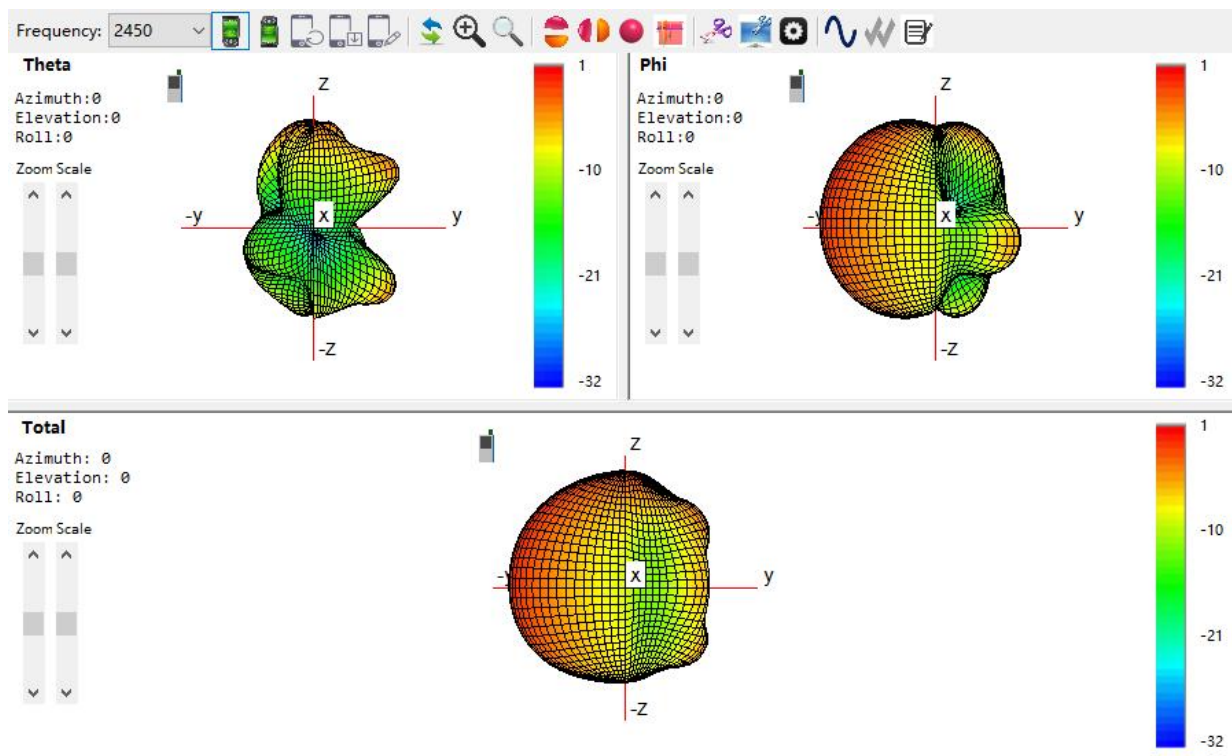
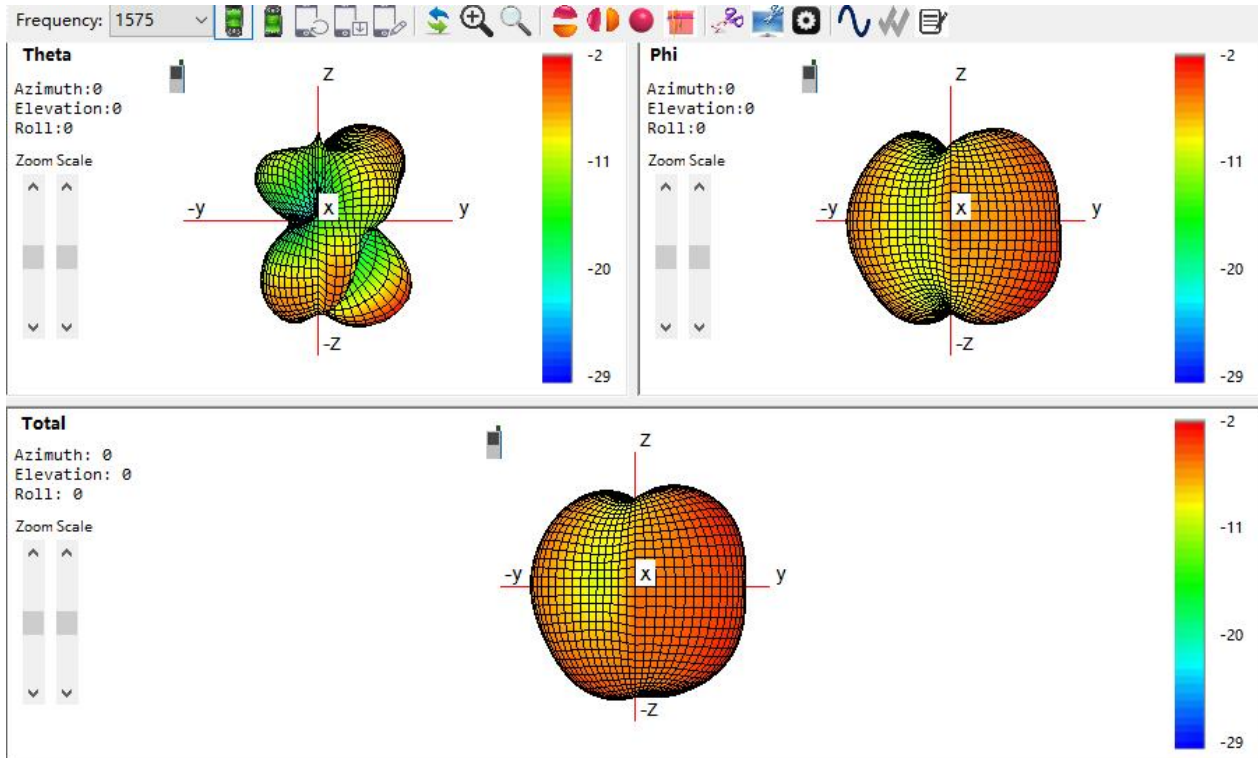


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2.4 Active Measurements

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

Main

2G	CH	TRP	TIS(灭)
GSM850	128	27.19	-102.22
	190	26.58	
	251	26.21	-101.21
EGSM900	1	27.31	-103.7
	62	27.9	
	124	28.74	-103.18
DCS1800	512	25.51	-106.45
	698	25.84	
	885	26.17	-106.75
PCS1900	512	26.38	-105.62
	661	26.55	
	810	26.63	-104.7
3G	CH	TRP	TIS(灭)
WCDMA1	9612	20	
	9750	19.61	
	9888	19.59	-105.9
WCDMA2	9662	19.51	
	9800	19.62	
	9938	19.79	-104.38
WCDMA4	1537	18.67	
	1637	19.46	
	1737	19.78	-105.06
WCDMA5	4132	17.2	
	4183	16.5	
	4233	15.77	-103.82
WCDMA8	2712	16.9	
	2787	17.25	
	2863	17.81	-103.76

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4G	CH	TRP	TIS(天)
FDD-B1(10M)	18050	19.18	
	18300	19.49	
	18550	19.8	-92.05
FDD-B2(10M)	18650	19.13	
	18900	20.2	
	19150	19.46	-93.21
FDD-B3(10M)	19250	19.25	
	19900	19.92	
	18550	19.67	-96.48
FDD-B4(10M)	2000	20.03	
	20175	20.59	
	20350	20.25	-93.87
FDD-B5(10M)	20450	17.9	
	20525	16.45	
	20600	16.02	-91.32
FDD-B7(10M)	20800	18.1	
	21100	17.04	
	21400	16.45	-89.39
FDD-B8(10M)	21500	17.23	
	21625	18.15	
	21750	18.2	-88.92
FDD-B12(10M)	23060	15.7	
	23095	15.8	
	23130	15.66	-87.41

4G	CH	TRP	TIS(天)
FDD-B17(10M)	23780	15.48	
	23790	15.78	
	23800	15.61	-87.16
FDD-B20(10M)	24200	16.84	
	24300	15.76	
	24400	16.73	-90.96
FDD-B28(10M)	27260	16.03	
	27435	15.63	
	27610	14.61	-89.48
FDD-B66(10M)	132022	18.74	
	132322	19.5	
	132622	19.59	-91.24
TDD-B38(20M)	37850	16.75	
	38000	16.43	
	38150	15.6	-89.27
TDD-B40(20M)	38750	19.47	
	39150	19.97	
	39550	19.82	-91.18
TDD-B41(20M)	40340	17.1	
	40620	15.69	
	41140	15.8	-89.05

Test bandwidth	channel	TRP	TIS
2.4G 11b : 11Mbps	1	12.26	-82.18
	6	12.62	-82.57
	13	13.83	-82.34

GPS active testing
CN value
37.68

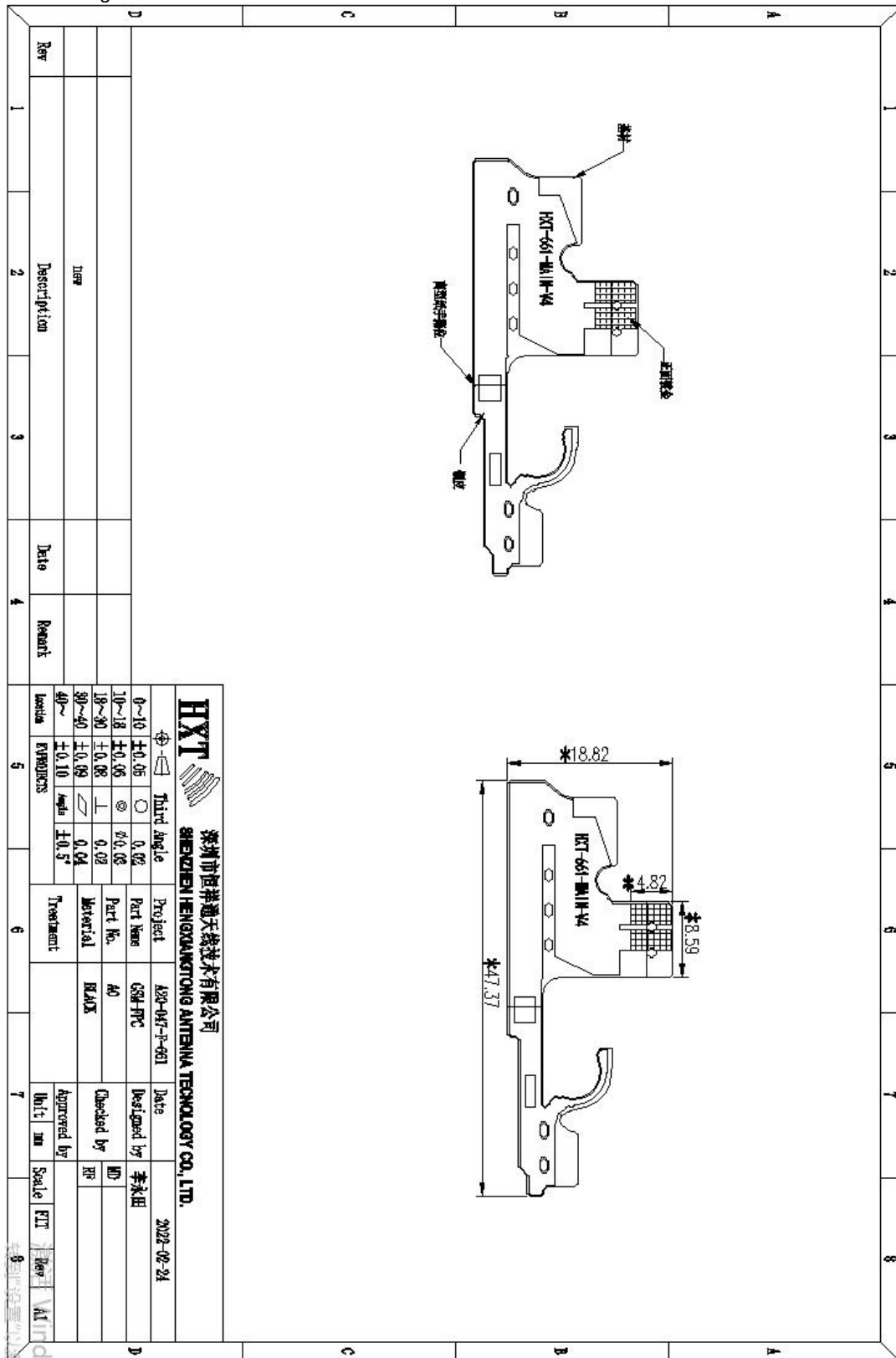
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3 Mechanical Properties

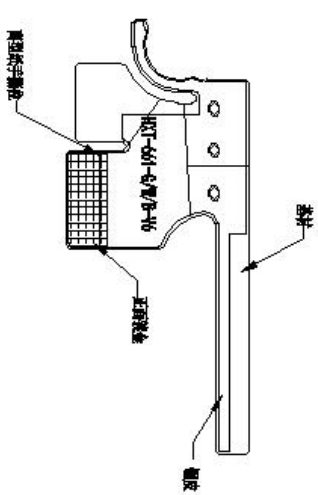
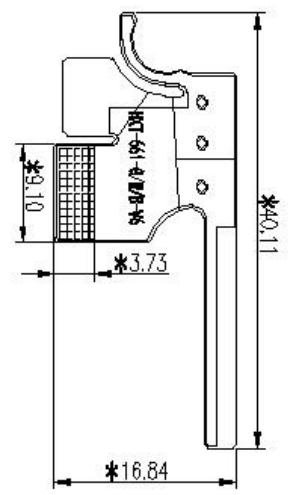
Specifications Drawings



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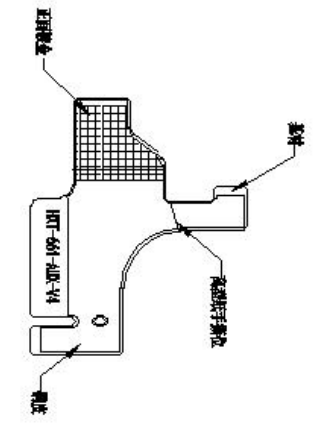
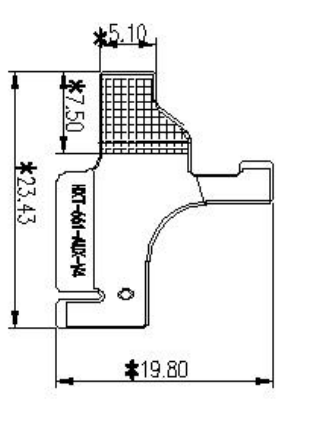
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 深圳市恒祥通天线技术有限公司 SHENZHEN HENGXIANGTONG ANTENNA TECHNOLOGY CO., LTD.				Project: A20-047-GF-661 Date: 2022-02-24 Part Name: Q234WTV+HJ-PTC Designed by: 李永田 Part No. A0 Checked by: 田 Material: DLA-X Treatment:			
0~10 ±0.05 0.02 10~18 ±0.06 0.03 18~30 ±0.08 0.02 30~40 ±0.09 0.04 40~ ±0.10 Angle ±0.5°				0~10 ±0.05 0.02 10~18 ±0.06 0.03 18~30 ±0.08 0.02 30~40 ±0.09 0.04 40~ ±0.10 Angle ±0.5°			
Key Description Date Remark				1 2 3 4 5 6 7 8			

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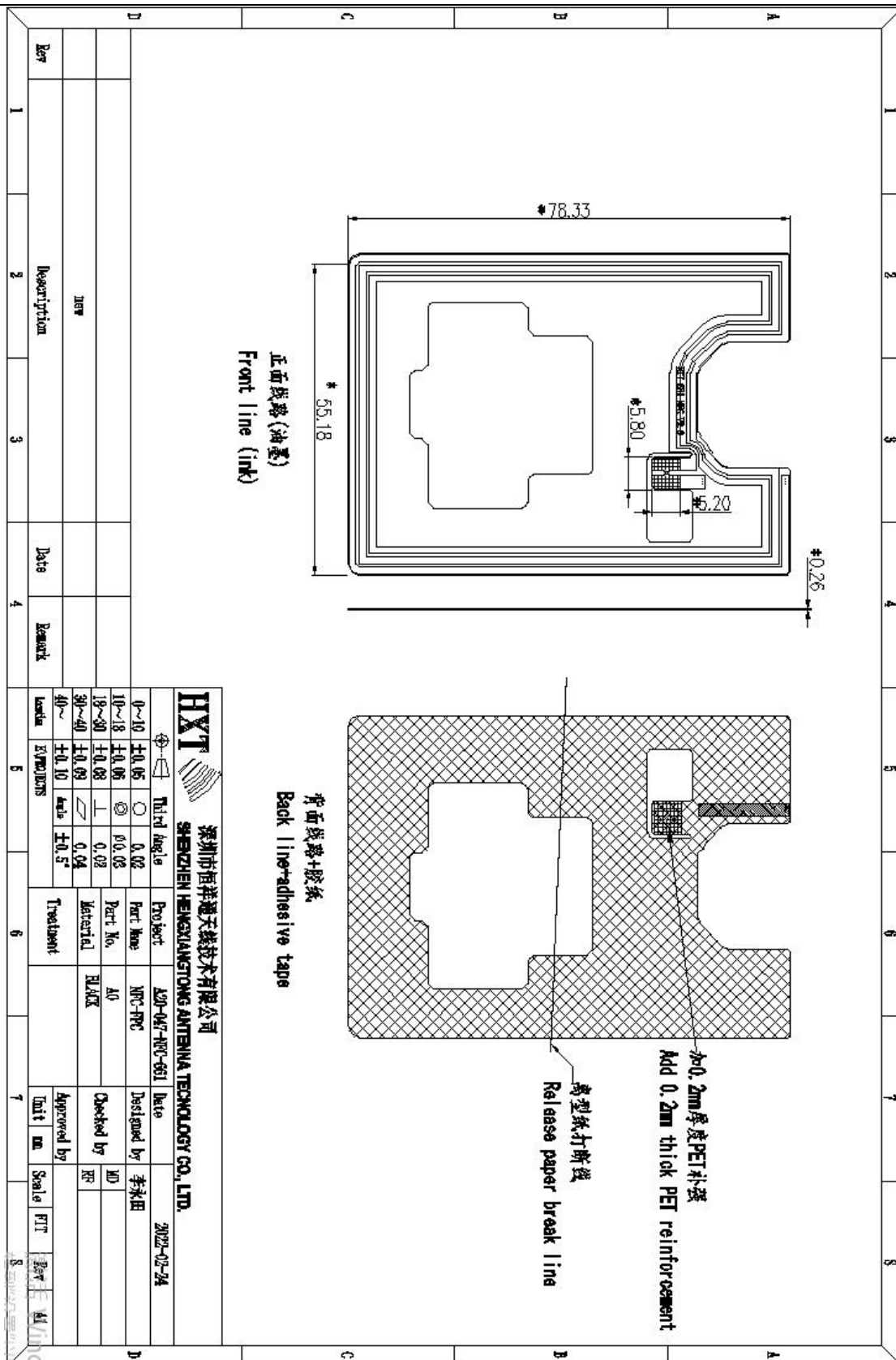
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Third angle	Project	Date																																	
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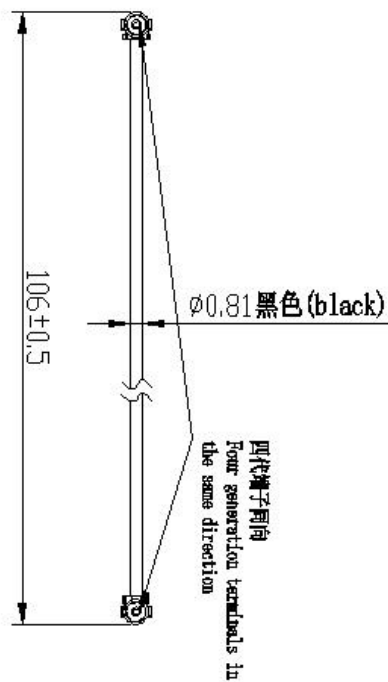
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		ITEM NO.	A20-047-T	customer's material	
		QTY.			
				CHECKED BY	
		APPROVED BY		到“设备”以	

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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°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