规格承认书

Approval Sheet

客户名称 VK

(Customer Name）

产品名称 RKF1RQ (GSM /GPS+WIFI+BT/LTE)

(Specification)

客户料号

(Customer P/N)

产品料号

(O/I)

送样日期 2024-12-05

（Date）

Frequency band	2G：2.3.5.8 / 3G：1.2.4.5.8 4G：1.2.3.4.5.7.8.12.17.25.26.28A.28B.38.40.41.66		
Version	A		
RF	Yao Long	Confirm	
Structural Engineer	Yang Xue Zhong		
Customer confirmation			
Date			

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Dosking MicroElectronics Co.,Ltd
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Catalogue

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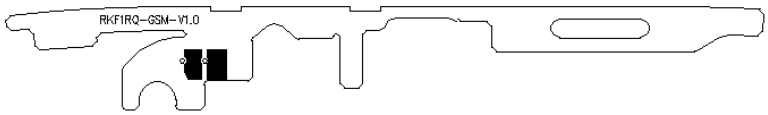
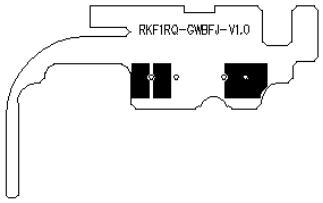
1.Project image (for reference only)



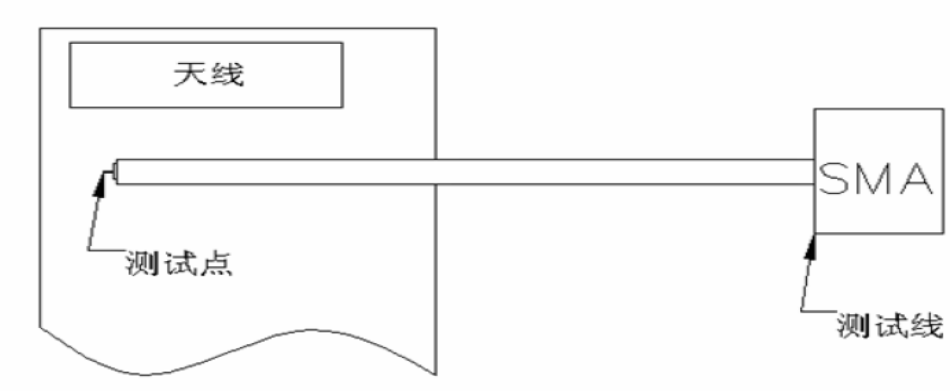


GSM Antenna GPS/WIFI+BT/DIV Antenna

2. Passive Test

Purpose: To test the passive parameters of the antenna as accurately as possible.

Method: This fixture uses a 50 ohm coaxial cable, with one end connected to the test point at the back end of the matching circuit (RF test hole front section) of the mobile phone motherboard, and the other end connected to the SMA connector. As shown in the following figure:



The following table shows the performance test indicators for S7TQ-4Gmass-produced antennas：:

S7TQ				
	Frequency (MHz)	VSWR	Frequency (MHz)	VSWR
Frequency band	Transmitting end		Receiving end	
GSM850	824-849	≤3.5	869-894	≤3.0
GSM900	880-915	≤3.5	925-960	≤3.5
DCS1800	1710-1785	≤3.0	1805-1880	≤2.5
PCS1900	1850-1910	≤2.8	1930-1990	≤3.2
WCDMA-850	824-849	≤3.5	869-894	≤3.5
WCDMA-1700	1710-1755	≤3.5	2110-2155	≤3.5
WCDMA-1900	1850-1910	≤2.8	1930-1990	≤3.2
WCDMA-2100	1710-1755	≤3.5	2110-2155	≤3.5
WCDMA-900	880-915	≤3.5	925-960	≤3.5
LTE-FDD-B1	1920-1980	≤2.0	2110-2170	≤2.0
LTE-FDD-B2	1850-1910	≤2.8	1930-1990	≤3.2
LTE-TDD-B3	1710-1785	≤2.5	1805-1880	≤2.5
LTE-TDD-B5	824-849	≤3.5	869-894	≤3.0
LTE-TDD-B7	2505-2565	≤2.0	2625-2685	≤2.0
LTE-FDD-B8	880-913	≤2.0	930-955	≤2.0
LTE-FDD-B12	703-710	≤2.5	733-740	≤3.5
LTE-FDD-B17	709-711	≤3.0	739-741	≤3.0
LTE-FDD-B20	837-857	≤3.5	796-816	≤3.0
LTE-FDD-B28	708-743	≤2.0	763-798	≤2.0
LTE-TDD-B38	2570-2620	≤2.0	2570-2620	≤2.0
LTE-TDD-B39	1880-1920	≤2.5	1880-1920	≤2.5
LTE-TDD-B40	2310-2390	≤2.0	2310-2390	≤2.0
LTE-TDD-B41	2550-2660	≤2.0	2550-2660	≤2.0

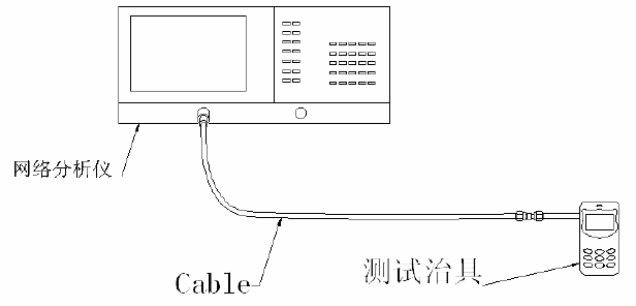
3.Matching circuit

4. S11Test

4.1 S11Test Method Description Specification Standards

VSWR The testing devices are sequentially connected as follows: E5071BNetwork analyzer→50Ω Coaxial line→120mm Copper tube→Test fixture。

Treatment of testing fixture: Use a hard cable to lead out the SMA-J connector from the 50 ohm test point of the antenna on the mobile phone PCB, connect it to a copper pipe with a choke ring, and then connect other devices in sequence.



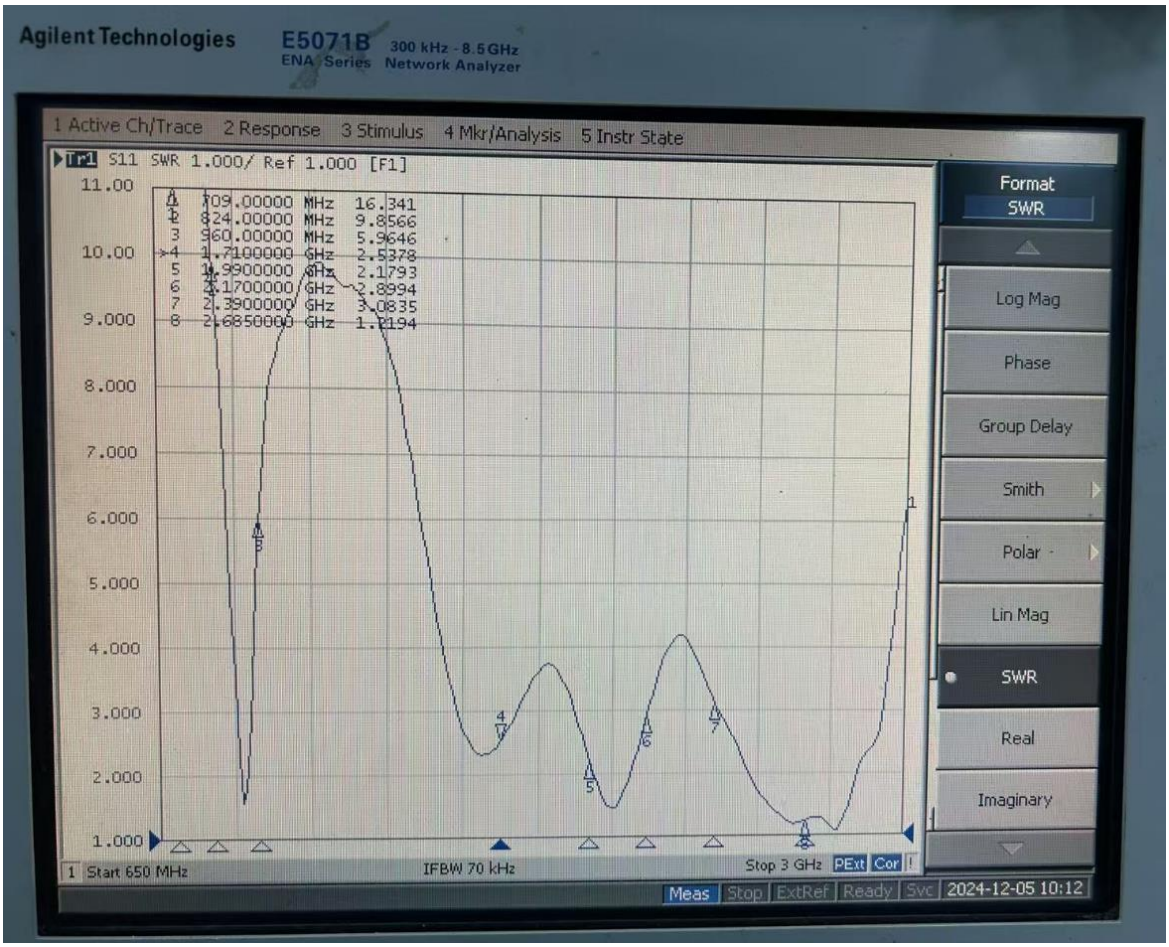
测试示意图

4.2 S11Parameter

The following table shows the standing wave ratio values at the edge frequency points of the ME61 antenna operating frequency band. The waveform diagrams of Return Loss and VSWR obtained from the test are shown in the attachment.

	RKF1RQAntenna				
Frequency(MHz)	700	900	1710	1990	2680
Free space	4.1	2.2	6.0	5.7	3.6

4.3 S11


Agilent Technologies
E5071B 300 kHz - 8.5 GHz
ENA Series Network Analyzer
1 Active Ch/Trace 2 Response 3 Stimulus 4 Mkr/Analysis 5 Instr State
Tr1 S11 SWR 1.000/ Ref 1.000 [F1]
1 709.00000 MHz 16.341
2 824.00000 MHz 9.8566
3 960.00000 MHz 5.9646
4 1.7100000 GHz 2.5378
5 1.9900000 GHz 2.1793
6 2.1700000 GHz 2.8994
7 2.3900000 GHz 3.0835
8 2.6850000 GHz 1.8194
11.00
10.00
9.000
8.000
7.000
6.000
5.000
4.000
3.000
2.000
1.000
1 Start 650 MHz
IFBW 70 kHz
Stop 3 GHz
PExt Cor
Meas Stop ExtRef Ready Svc
2024-12-05 10:12
Format
SWR
Log Mag
Phase
Group Delay
Smith
Polar
Lin Mag
SWR
Real
Imaginary

VSWR

5. Power and sensitivity testing

5.1 Test data

Band	GSM850			GSM900		
	CH128	CH192	CH251	CH1	CH62	CH124
TRP	25.31	25.78	26.50	26.91	27.38	26.56
TIS			-101.15			-100.50
Band	DCS1800			PCS1900		
	CH512	CH698	CH885	CH512	CH661	CH810
TRP	24.75	24.01	23.9	23.09	24.95	25.19
TIS			-102.66			-105.12

Band	WCDMA-2100			WCDMA-1900		
	CH10562	CH10730	CH10838	CH9662	CH9800	CH9938
TRP	19.01	19.26	18.56	15.51	17.03	18.33
TIS			-101.38			-104.31
Band	WCDMA-1700			WCDMA-850		
	CH1537	CH1638	CH1738	CH4357	CH4408	CH4458
TRP	15.4	15.31	15.76	16.99	17.45	18.17
TIS			-102			-100.72
Band	WCDMA-900			LTE-FDD-B1		
	CH2937	CH3013	CH3088	CH18050	CH18300	CH18550
TRP	17.75	17.21	15.79	18.66	19.28	18.71
TIS			-100.15			-91.05
Band	LTE-FDD-B2			LTE-FDD-B3		
	CH18650	CH18900	CH19150	CH19250	CH19575	CH19900
TRP	17.05	17.6	18.85	15.28	15.45	15.57
TIS			-91.98			-90.49
Band	LTE-FDD-B4			LTE-FDD-B5		
	CH20000	CH20175	CH20350	CH20450	CH20525	CH20600
TRP	16.08	15.52	15.85	17.33	18.5	18.71
TIS			-91.38			-90.65

Band	LTE-FDD-B7			LTE-FDD-B8		
	CH20800	CH21100	CH21400	CH21500	CH21625	CH21750
TRP	17.22	16.39	16.22	17.55	16.87	15.53
TIS			-91.25			-87.37
Band	LTE-FDD-B12			LTE-FDD-B17		
	CH23060	CH23095	CH23130	CH23780	CH23790	CH23800
TRP	17.81	17.69	17.92	17.22	17.19	17.26
TIS			-85.08			-85.25
Band	LTE-FDD-B25			LTE-FDD-B26		
	CH26090	CH26365	CH26640	CH26740	CH26865	CH26990
TRP	16.8	17.75	18.81	17.35	18.31	18.39
TIS			-92.75			-91.26
Band	LTE-FDD-B28A			LTE-FDD-B28B		
	CH27300	CH27370	CH27430	CH27590	CH27600	CH27610
TRP	17.35	17.81	17.09	16.69	17.53	17.38
TIS			-84.51			-84.55

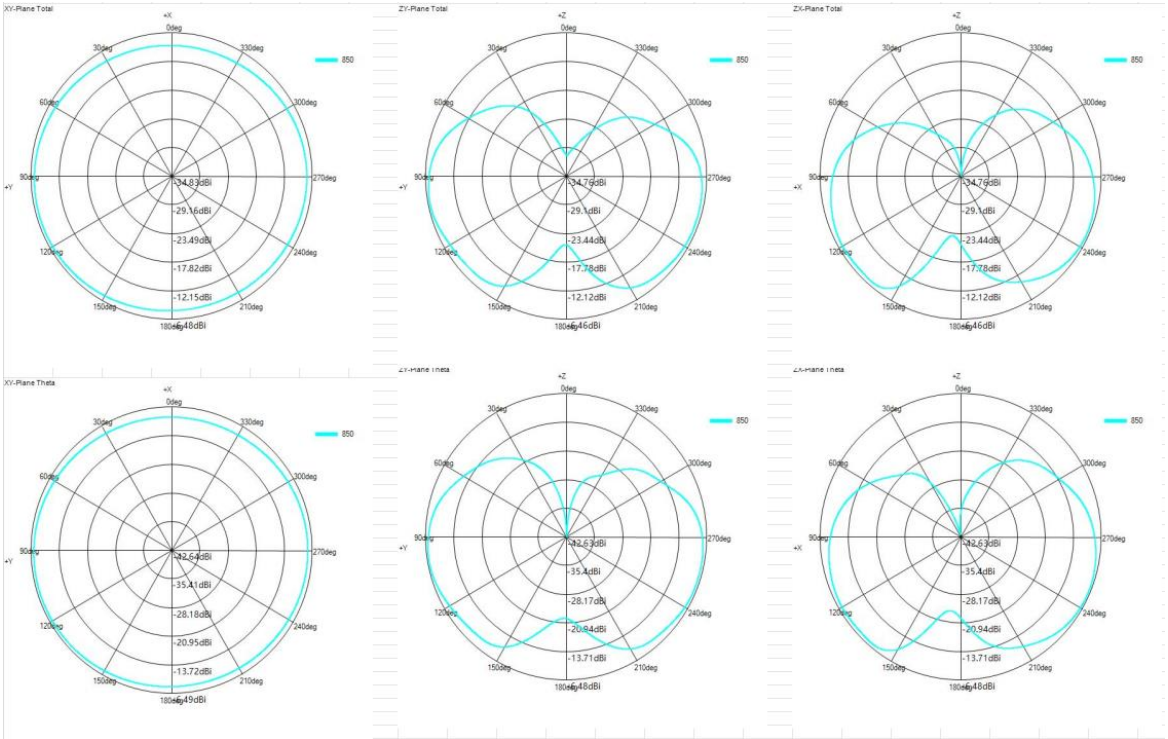
Band	LTE-TDD-B38			LTE-TDD-B40		
	CH37850	CH38000	CH38150	CH38750	CH39150	CH39550
TRP	16.62	17.35	18.11	17.59	18.58	18.55
TIS			-91.39			-90.57
Band	LTE-TDD-B41			LTE-FDD-B66		
	CH40340	CH40620	CH41140	CH132022	CH132322	CH132622
TRP	16.98	17.52	16.82	15.11	15.1	15.55
TIS			-90.15			-91.38

5.2 Antenna gain

Band	Gain(dBi)	Band	Gain(dBi)
GSM850	-1.09	LTE-B17	-1.62
EGSM900	-1.31	LTE-B20	-1.12
DCS1800	0.36	LTE-B25	0.35
PCS1900	0.33	LTE-B26	-1.13

W-Band1	0.65	LTE-B34	0.37
W-Band2	0.37	LTE-B38	0.69
W-Band4	0.31	LTE-B39	0.71
W-Band5	-1.09	LTE-B40	0.63
W-Band8	-1.31	LTE-B41	0.72
LTE-B1	0.65	LTE-B28A/B	-1.71
LTE-B2	0.37	LTE-B66	0.33
LTE-B3	0.33		
LTE-B4	0.31		
LTE-B5	-1.09		
LTE-B7	0.71		
LTE-B8	-1.31		
LTE-B12	-1.65		

5.3 Direction diagram



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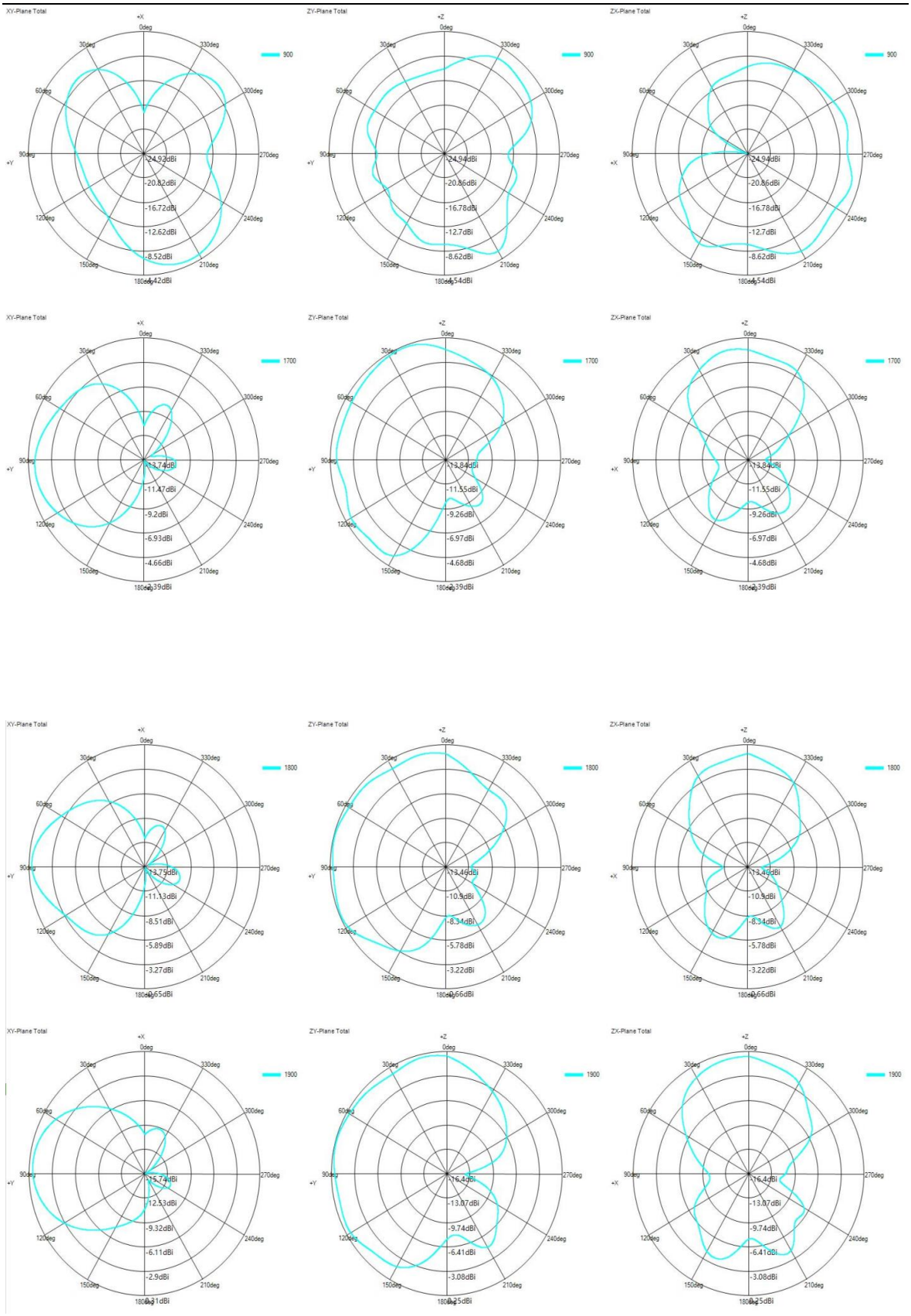
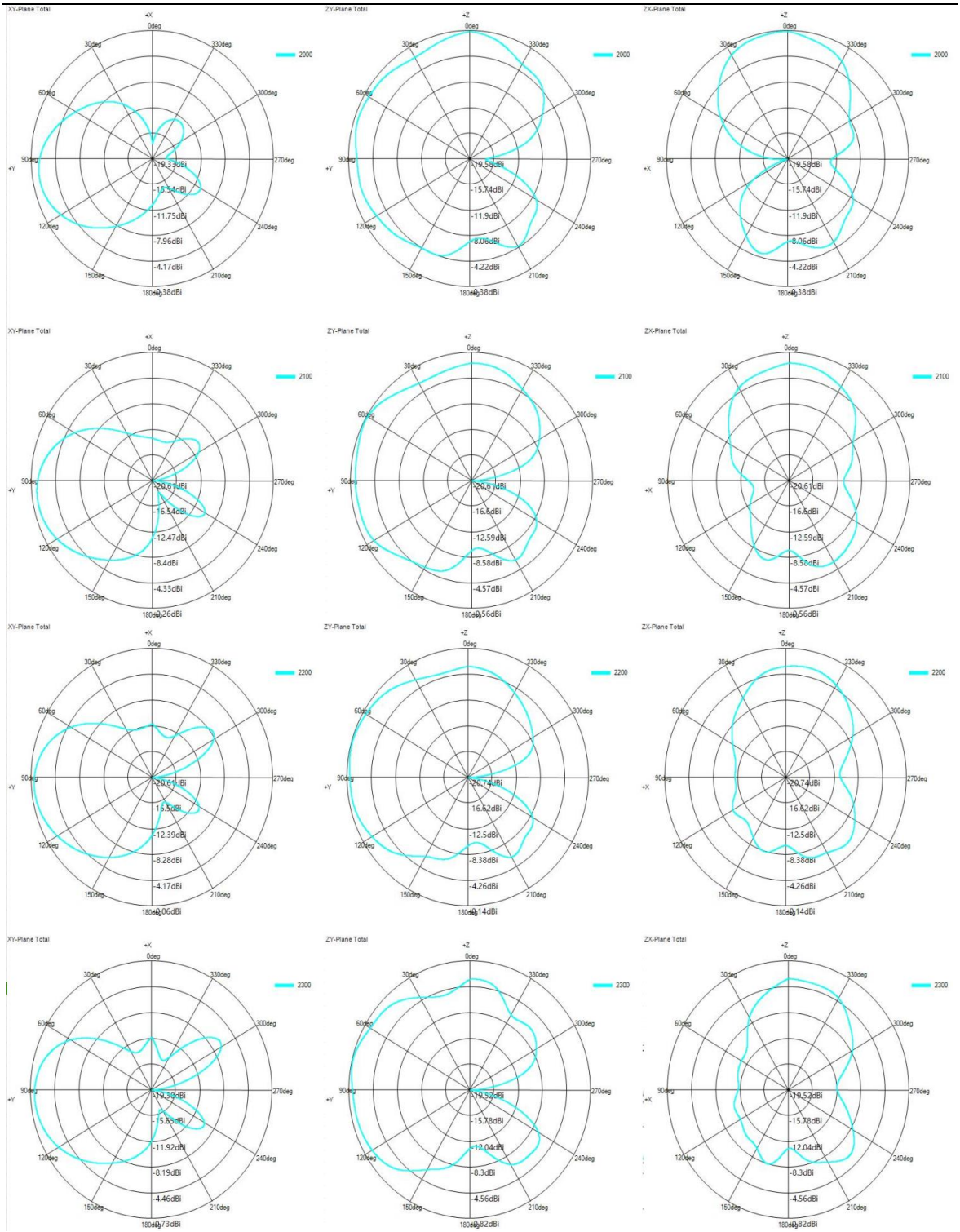

XY-Plane Total
ZY-Plane Total
ZX-Plane Total
900
1700
1800
1900



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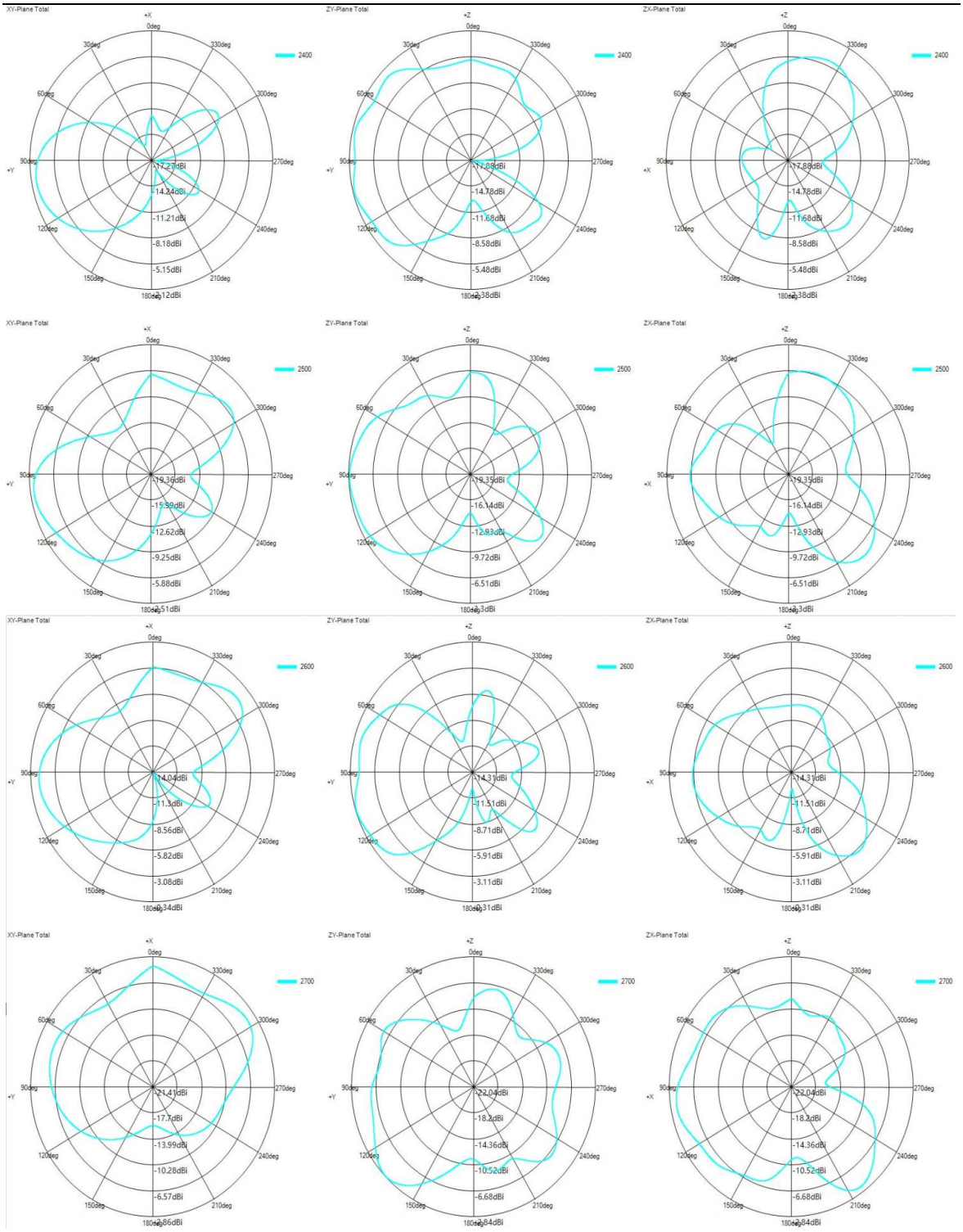

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5.4 GPS/WIFI+BT Antenna Test

WIFI-2400-2500MHz			GPS-1575MHz		
Freq	Effi	Gain	Freq	Effi	Gain
(MHz)	(%)	(dBi)	(MHz)	(%)	(dBi)
2400	21.16	-1.81	1555	40	0.90
2420	21.85	-1.75	1565	41.58	1.15
2440	21.45	-1.77	1575	43.50	1.29
2460	20.57	-1.95	1585	43.11	1.22
2480	20.32	-1.99	1595	43	1.31
2500	20.45	-1.97			

<table>
<tr><td rowspan="6">GPS/WIFI/BT
注:</td><td rowspan="2">GPS</td><td>Maximum signal strength</td><td>Number of received stars</td><td>Average positioning time (s)</td><td>Weather conditions</td></tr>
<tr><td>41</td><td>10</td><td>90-120</td><td>晴</td></tr>
<tr><td rowspan="2">WIFI</td><td colspan="2">Normal internet distance（m）</td><td colspan="2">Smooth distance for online browsing（m）</td></tr>
<tr><td colspan="2">10-12</td><td colspan="2">10-12</td></tr>
<tr><td rowspan="2">BT</td><td colspan="4">Clear call distance（m）</td></tr>
<tr><td colspan="4">10</td></tr>
</table>

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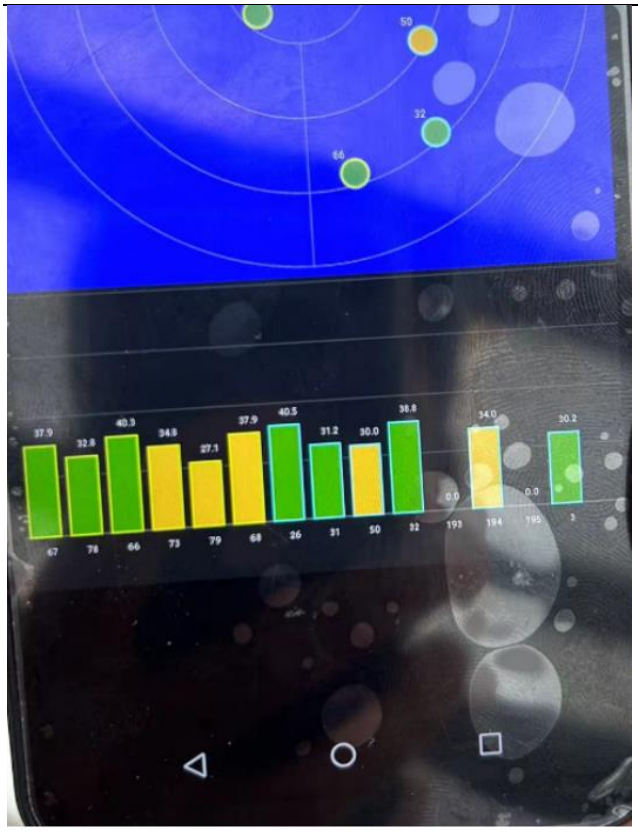
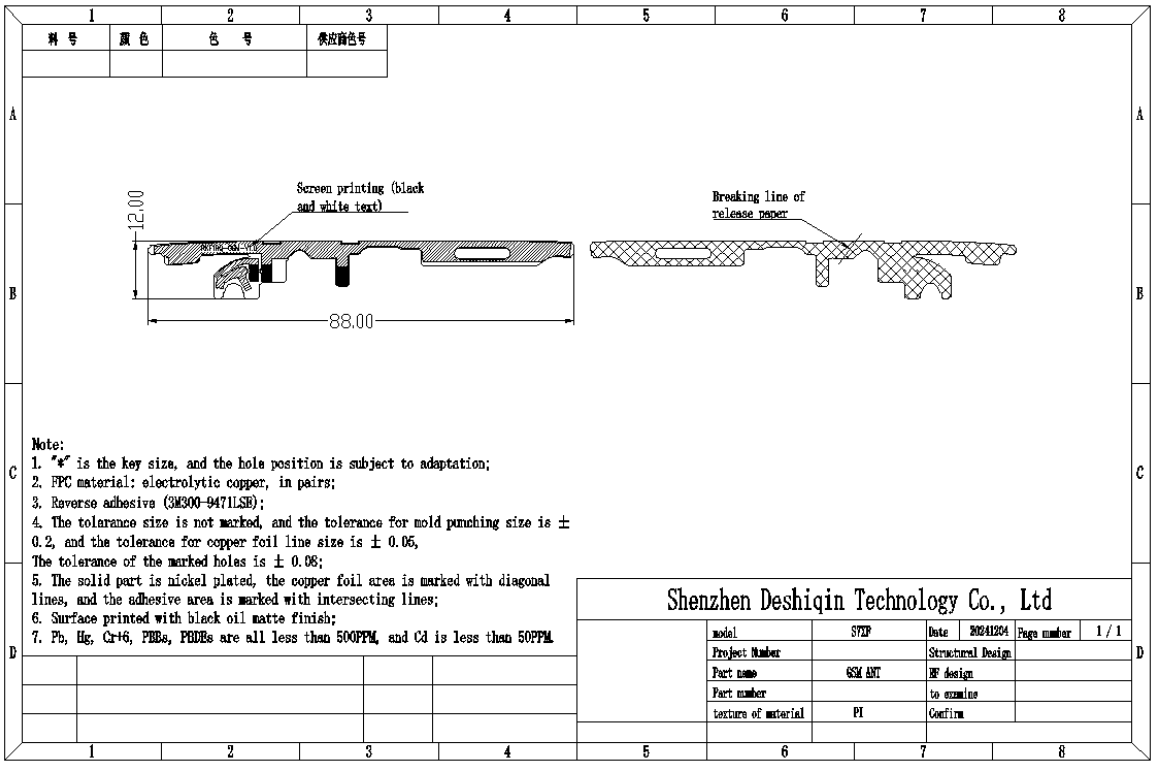


6.Structural drawings



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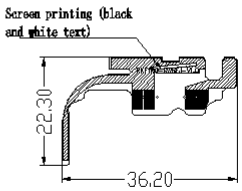
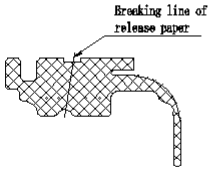
料 号	颜 色	色 号	供应商色号





Note:
1. "*" is the key size, and the hole position is subject to adaptation;
2. FPC material: electrolytic copper, in pairs;
3. Reverse adhesive (3MS00-9471LSE);
4. The tolerance size is not marked, and the tolerance for mold punching size is ± 0.2, and the tolerance for copper foil line size is ± 0.05,
The tolerance of the marked holes is ± 0.08;
5. The solid part is nickel plated, the copper foil area is marked with diagonal lines, and the adhesive area is marked with intersecting lines;
6. Surface printed with black oil matte finish;
7. Pb, Hg, Cr+6, PBBs, PBDEs are all less than 500PPM, and Cd is less than 50PPM.

Shenzhen Deshiqin Technology Co., Ltd

model	STKF	Date	20241204	Page number
Project Number		Structural Design		
Part name	GSM ANT	RF design		
Part number		to examine		
texture of material	PI	Confirm		

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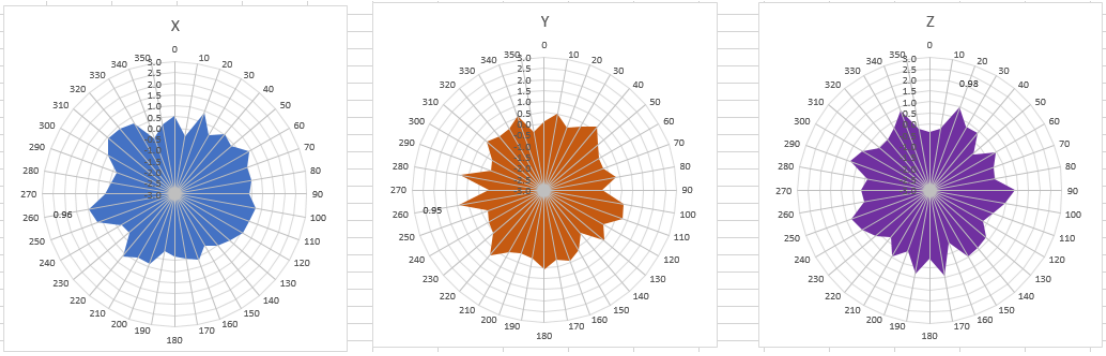
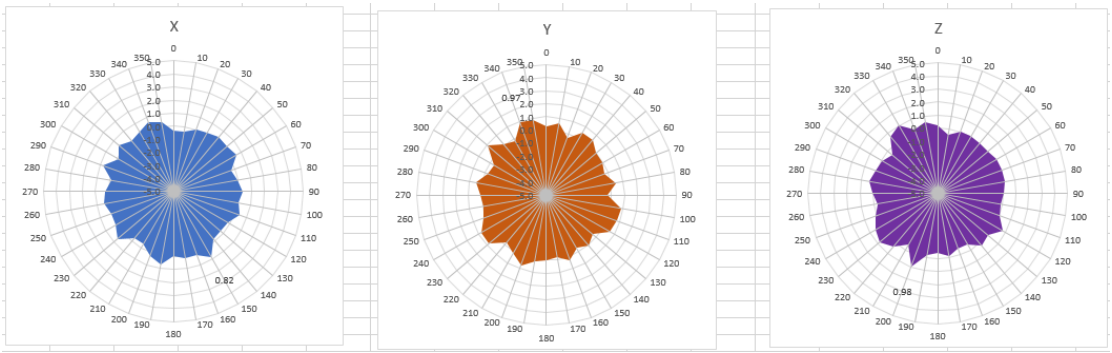
WIFI-5180-5240MHz:

Gain: 0.98dBi

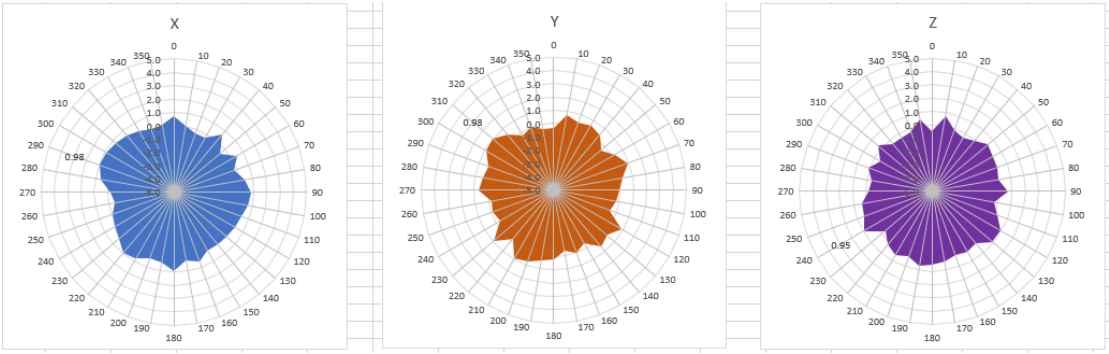
5180MHz



5220MHz



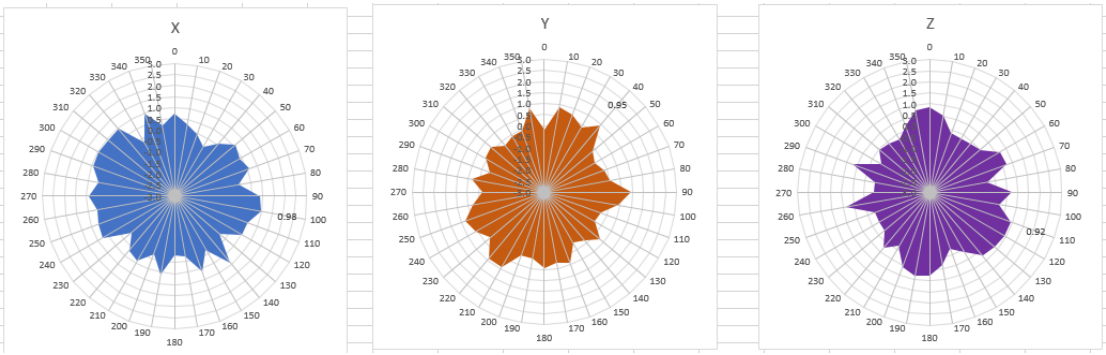
5240MHz



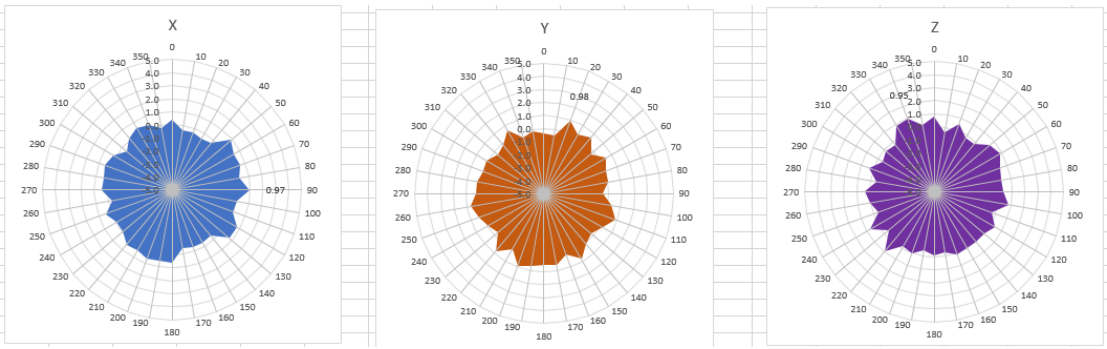
WIFI-5745-5825MHz:

Gain: 0.98dBi

5745MHz



5785MHz



5825MHz