

Antenna Testing Report

Customer: apical Technology

Project Name: KX316

Report Number: SZ23578IB75/SZ21131IA54

Manufacturer: Sunnyway Technology(CHINA)

Address: Floor 6, Building 5, Nam Tai Inno Park, Guangming District, Shenzhen

Report version: Sept. 20, 2024

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Version	Report date	Remark
A0	2024.9.20	Latest test data
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A2		
A3		
A4		
A5		
A6		
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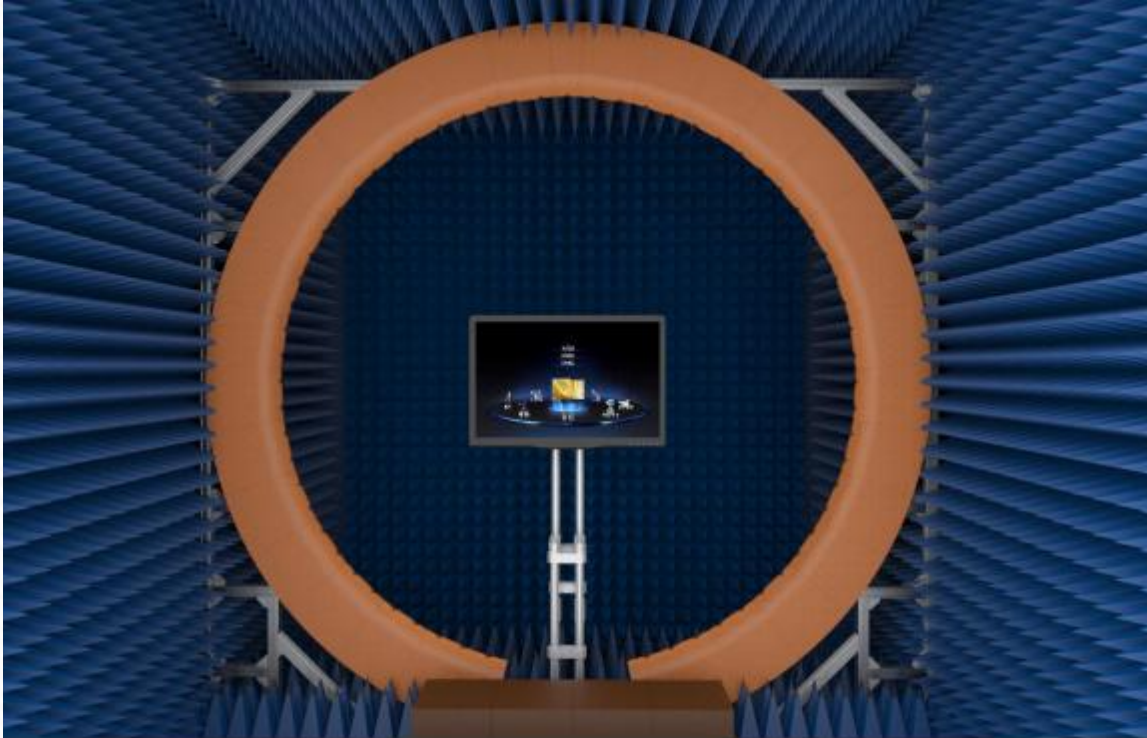
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Prototype status	Debugging machine
Device type	car recorder
Number of antennas	WIFI antenna
Frequency band	802.11B/G/N
Structural style	FPC+Ceramic
Environment adjustment	No change
Matching modification	No change



The industry's top 64 sensors OTA chamber

Frequency range: 400MHz-11GHz

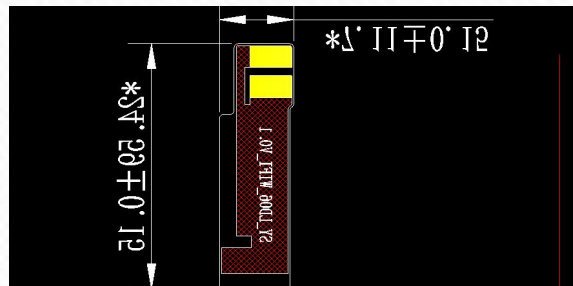
Device Llimitation: 2M

Load-bearing limitation:100KG

Equipments Items	Total Quantity	Quantity for Shanghai R&D	Quantity for Shenzhen R&D	Quantity for ChongQing R&D
OTA chamber	10	4	5	1
5G Tester (SP9500-CTS)	3	1	1	1
R&S Tester (high configuration CMW500)	6	3	2	1
Japan Anritsu Tester (Dual Channel 8820)	4	2	2	--
NB-IoT Tester (SP8315)	3	1	1	1
Agilent Tester (8960)	9	4	4	--
Agilent Network Analyzer (E5062A)	7	3	3	1
Agilent Network Analyzer (E5071C 8.5GHZ)	11	5	5	1
Agilent Network Analyzer (E5071B 8.5GHZ)	7	3	3	1
R&S Network Analyzer (ZND)	9	4	4	1
R&S Network Analyzer (ZVB)	3	1	1	1
OTA head hand / ear hand / arm hand	5	2	2	1
GPS/WIFI active test equipment	5	2	2	1



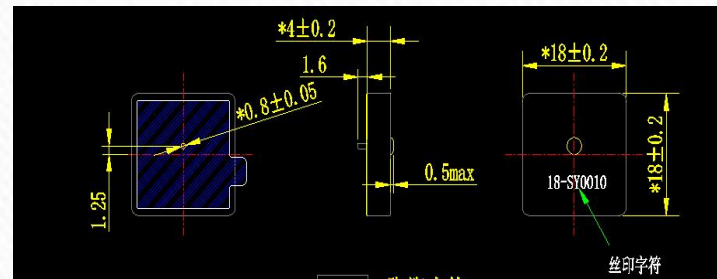
WIFI antenna/Antenna size



WIFI Antenna type: FPC antenna

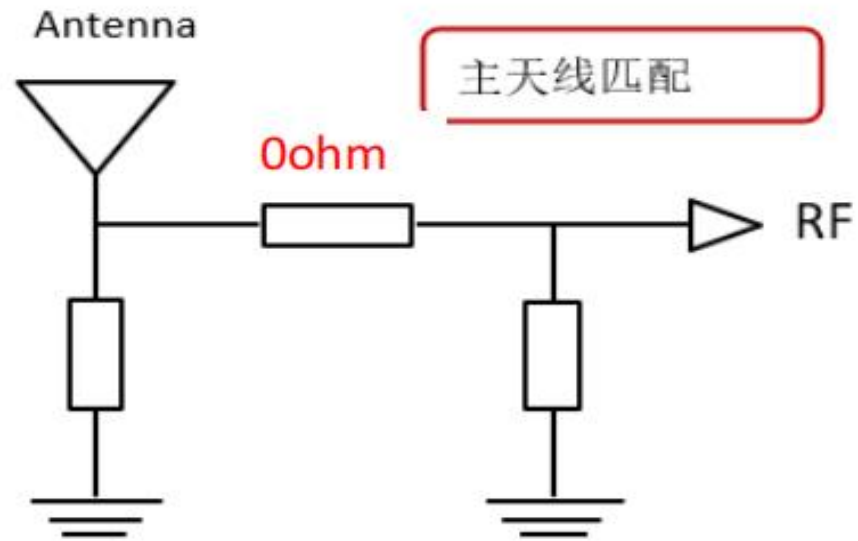
WIFI Antenna model: **SZ23578IB75**

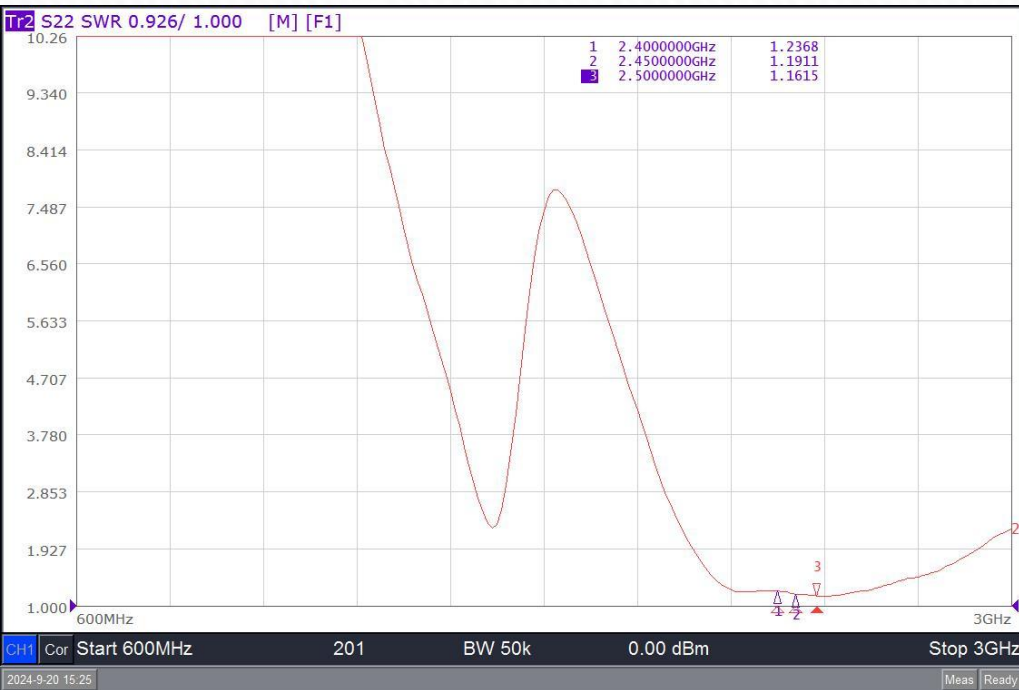
GPS antenna/Antenna size



GPS Antenna type: Ceramic antenna

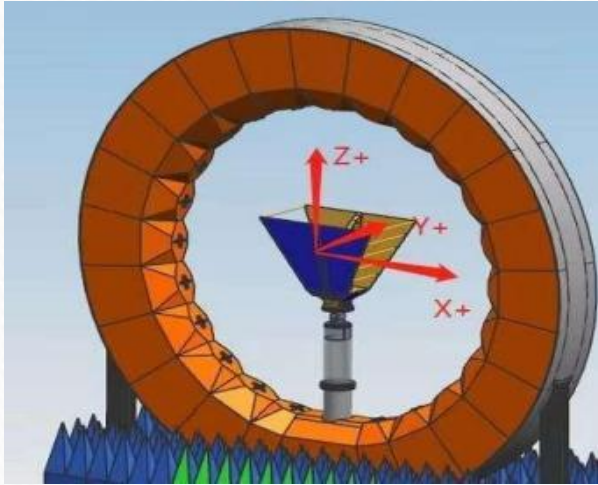
GPS Antenna model: **SZ21131IA54**



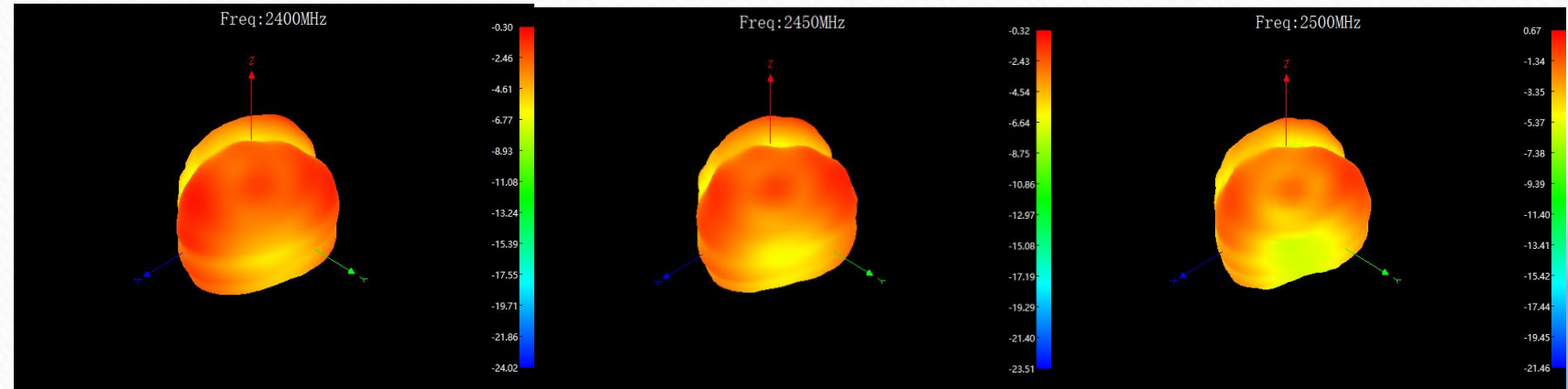


Frequency/Mhz	Efficiency / %	MaxGain/dBi
2400	41.31	-0.3
2410	40.24	-0.42
2420	40.32	-0.36
2430	39.36	-0.49
2440	39.75	-0.36
2450	40.24	-0.32
2460	39.99	-0.37
2470	41.48	-0.1
2480	42.58	0.18
2490	42.93	0.28
2500	43.55	0.67

Machine placement picture

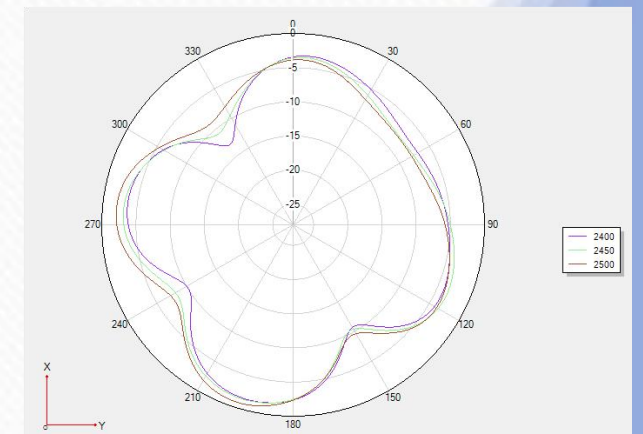
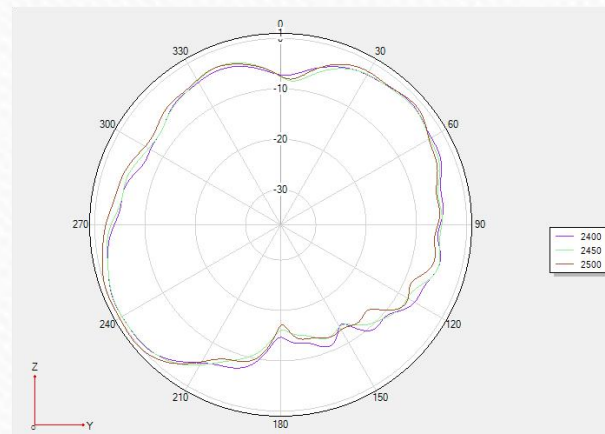
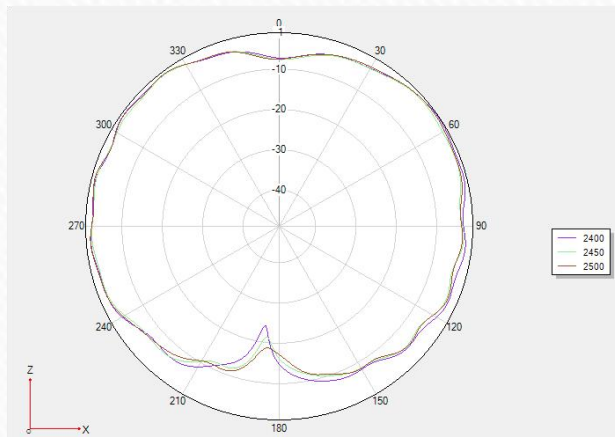


3D



Directional diagram

2D

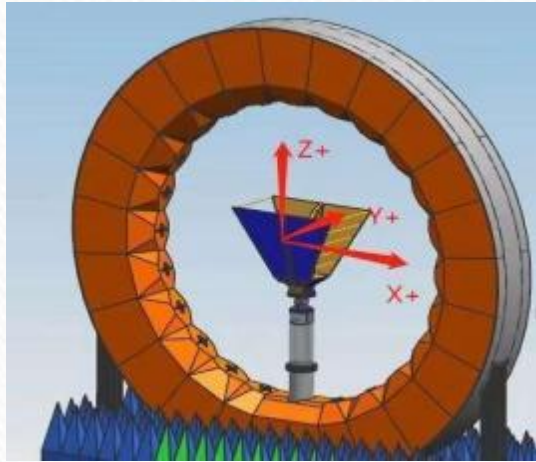


			1#	2#
Measurement	Band	Channel	Total	Total
TRP	WIFI_B (1M)	1	10.74	11.58
TRP	WIFI_B (1M)	7	12.1	12.92
TRP	WIFI_B (1M)	11	11.87	11.07
TIS(EIRP)	WIFI_B (11M)	11	-82.95	-82.56
TRP	WIFI_G (6M)	1	11.34	11.22
TRP	WIFI_G (6M)	7	12.73	12.48
TRP	WIFI_G (6M)	11	12.85	11.53
TIS(EIRP)	WIFI_G (54M)	11	-65.51	-64.96
TRP	WIFI_N_ISM (6.5M)	1	11.05	10.95
TRP	WIFI_N_ISM (6.5M)	7	10.97	10.84
TRP	WIFI_N_ISM (6.5M)	11	12.13	10.72
TIS(EIRP)	WIFI_N_ISM (65M)	11	-63.83	-63.09

无源效率与增益

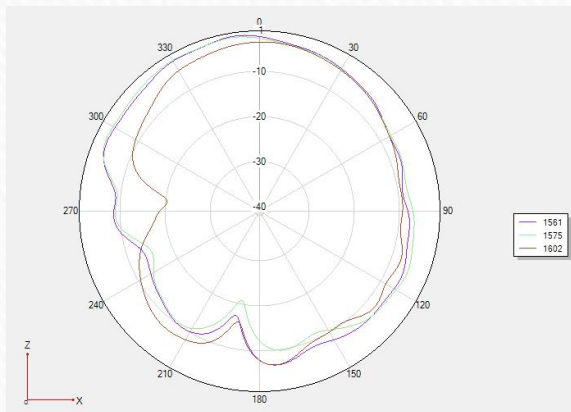
Frequency/Mhz	Efficiency / %	MaxGain/dBi	Frequency/Mhz	Efficiency / %	MaxGain/dBi
1560	30.59	-1.83	1586	29.43	-2.52
1561	32.35	-1.53	1587	29.77	-2.47
1562	34.04	-1.28	1588	30	-2.42
1563	35.55	-1.08	1589	30.23	-2.37
1564	36.84	-0.93	1590	30.29	-2.34
1565	37.89	-0.82	1591	30.41	-2.34
1566	38.81	-0.74	1592	30.41	-2.35
1567	39.2	-0.71	1593	30.29	-2.41
1568	38.96	-0.74	1594	30.18	-2.47
1569	38.19	-0.84	1595	30.06	-2.54
1570	36.99	-1	1596	29.43	-2.66
1571	35.97	-1.17	1597	28.93	-2.77
1572	34.92	-1.35	1598	28.55	-2.83
1573	33.97	-1.53	1599	28.28	-2.88
1574	33.31	-1.69	1600	28.12	-2.94
1575	32.93	-1.8	1601	27.54	-3.03
1576	32.23	-1.94	1602	26.83	-3.16
1577	31.67	-2.06	1603	26.04	-3.32
1578	31.24	-2.15	1604	25.04	-3.5
1579	30.88	-2.22	1605	23.88	-3.68
1580	30.47	-2.3	1606	22.95	-3.94
1581	30.12	-2.36	1607	21.87	-4.2
1582	29.77	-2.42	1608	20.74	-4.44
1583	29.49	-2.47	1609	19.62	-4.71
1584	29.32	-2.53	1610	18.58	-5
1585	29.15	-2.56			

Machine placement picture

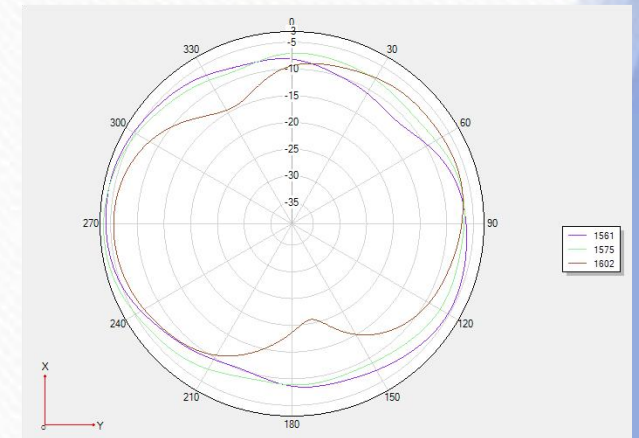
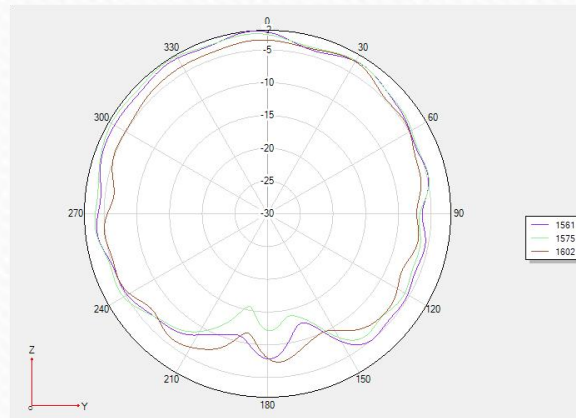
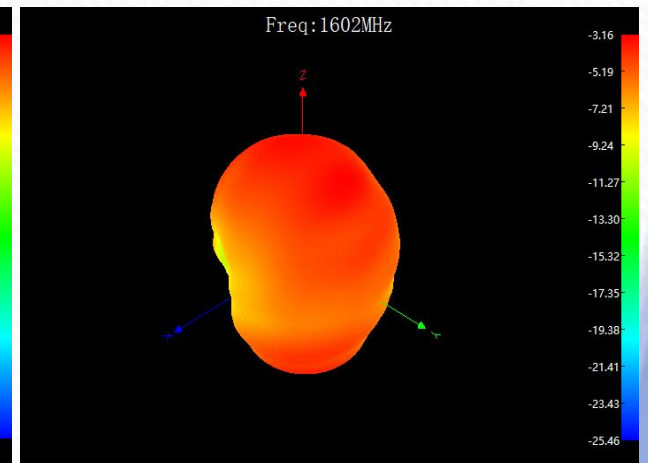
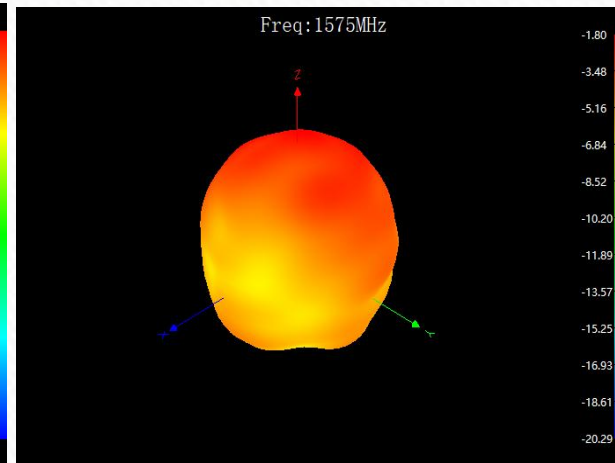
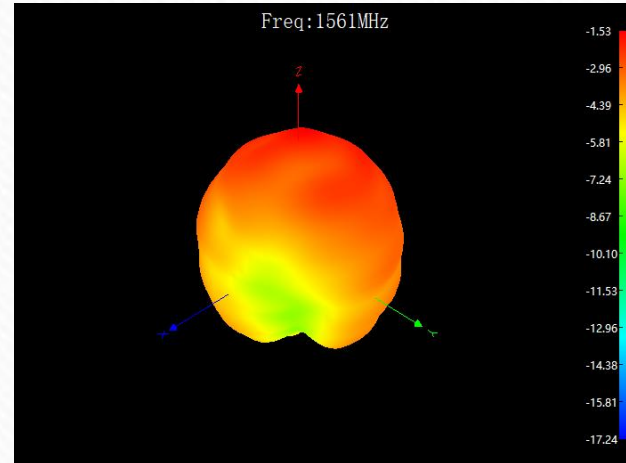


Directional diagram

2D



3D



The above is the latest validation test data.

Thank You

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