

Archer IS antenna test report

2023.9.21

1.Manufacturer: Shenzhen ZTX Communication Technology Co., Ltd

ADD: NO.34 ShilongRoad,Bao'anDistrict,Shenzhen,Guangdong
Province,China

2. Antenna Model: S431506000001

3. Test software : Satimo.Spm

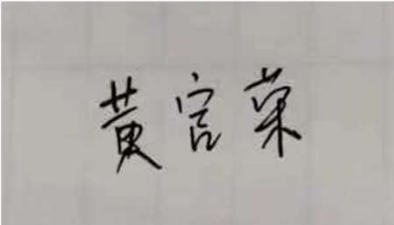
4.Antenna Lab: ZTX Lab

test instrument : Satimo 4X4X4m darkroom+KEYSIGHT E5071C

Cal Data:2023-4-29

5. Test engineer : Huang guan rong (黄官荣)

6. Antenna type:BT/Wlan: PIFA, GNSS: Patch antenna



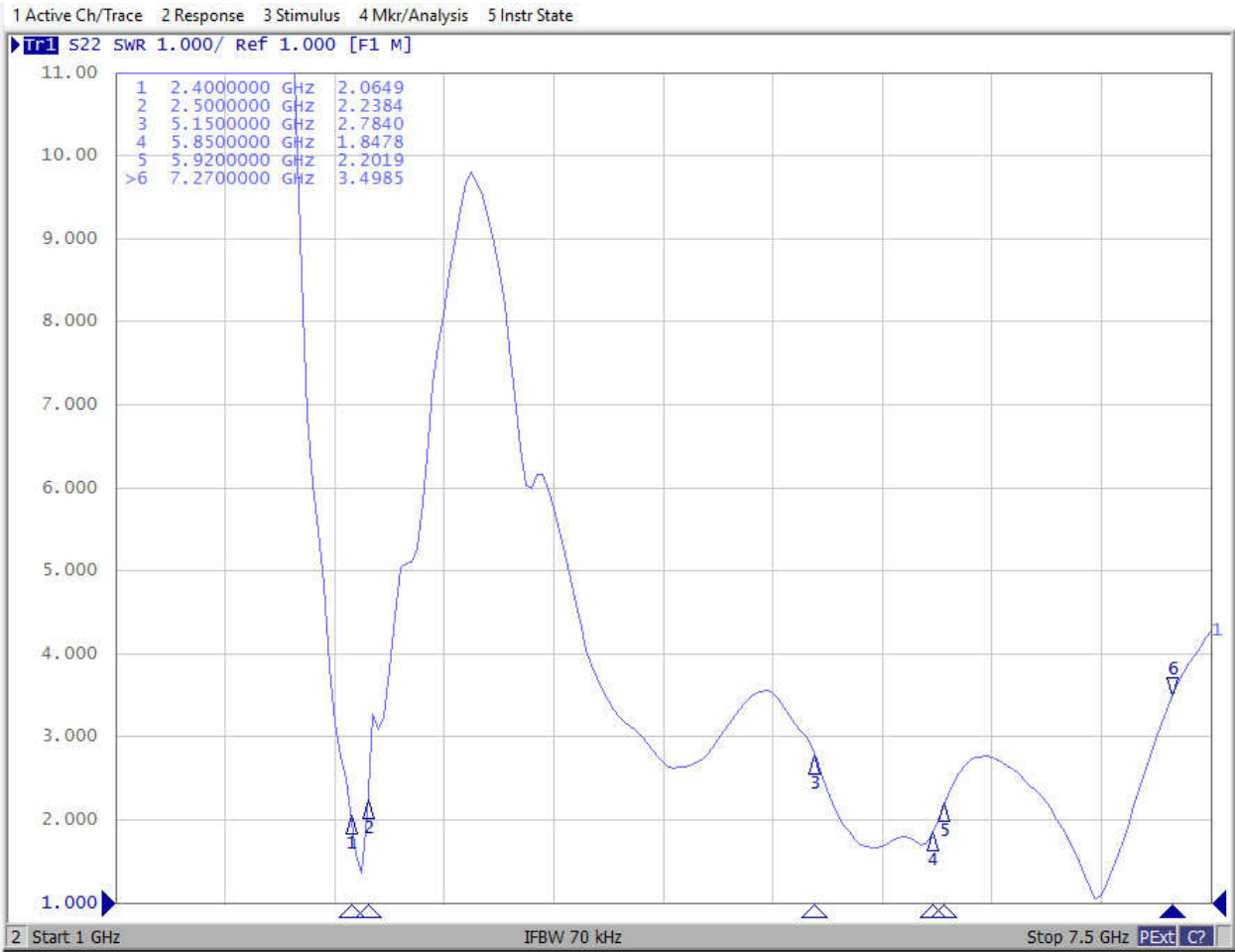
Catalogue

- ☐ Project requirement analysis
- ☐ Overall scheme design
- ☐ Test data

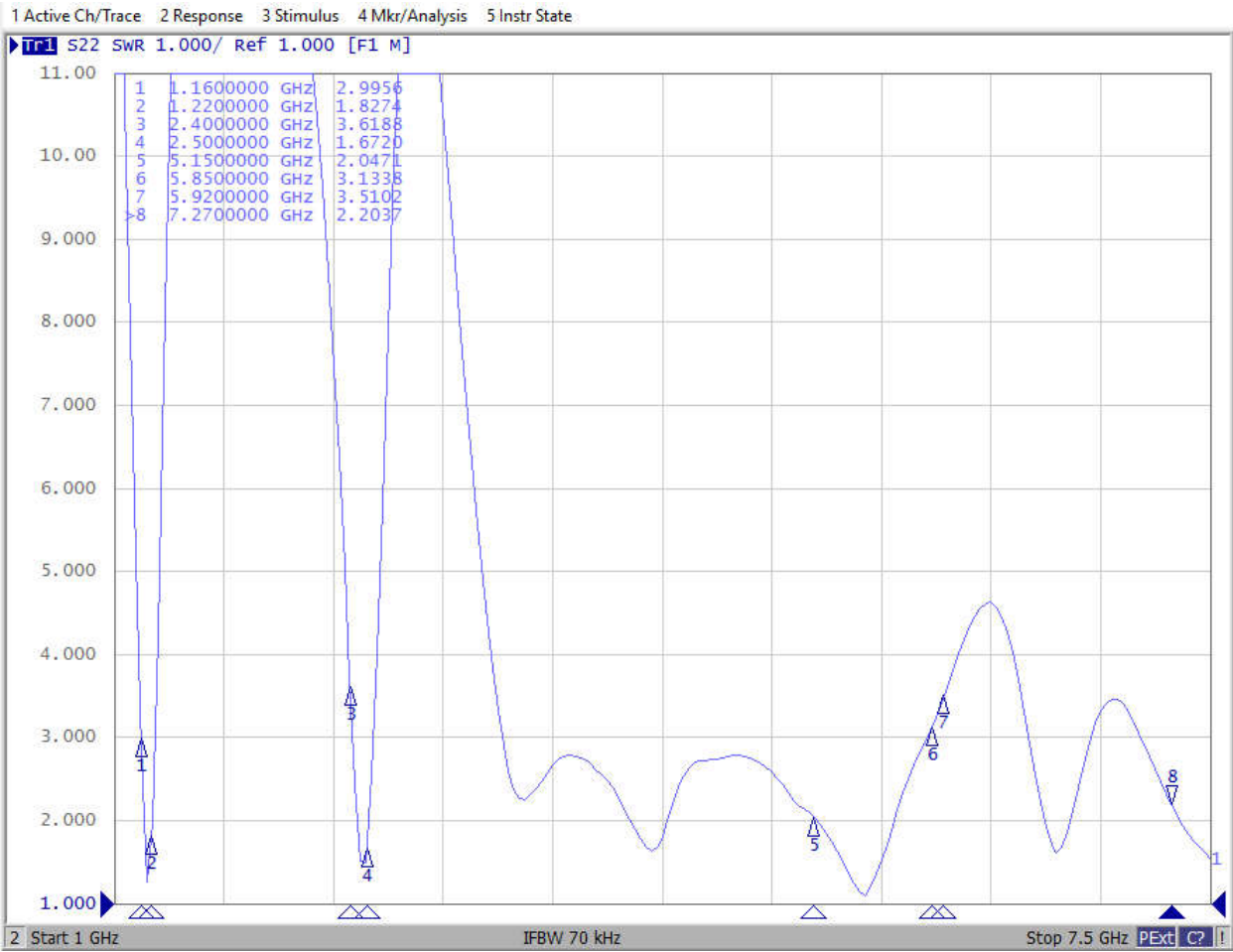
Project requirement

- WIFI A/B/G/N TRP/TIS test data
- GPS Ceramic parameters, measured data

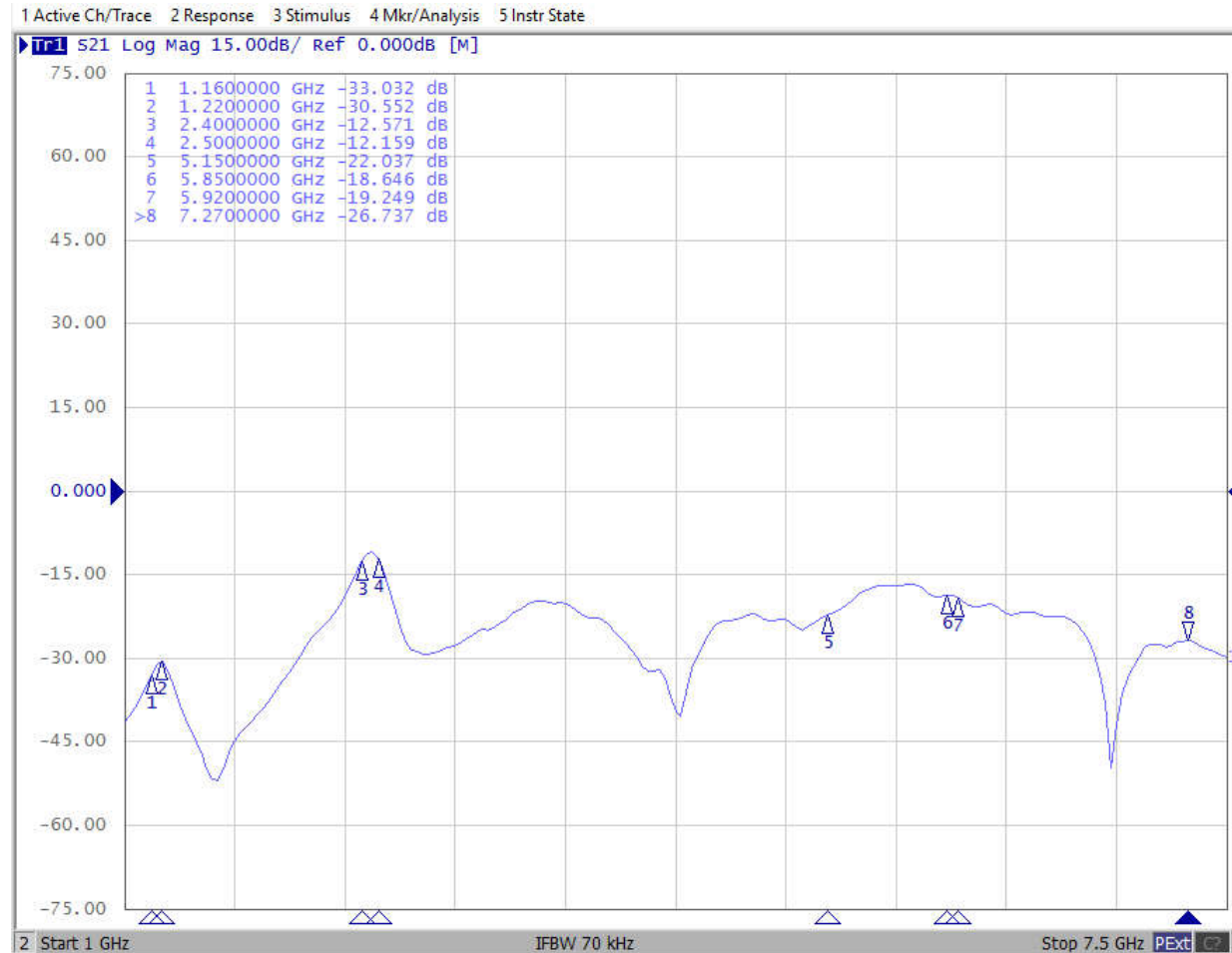
ANT1(WIFI0/BT)Passive VSWR



ANT2(WIFI1+L5) Passive VSWR



ANT1(WIFI 0/BT) & ANT2(WIFI1+L5) ISOLATION



ANT1(WIFI0/BT) Passive Efficiency, Gain (Free) 中天迅

Frequency	Efficiency	Gain . dB	Frequency	Efficiency	Gain . dB	Frequency	Efficiency	Gain . dB
2400	40%	2.64	5500	43%	3.95	6420	37%	3.52
2410	41%	2.67	5550	45%	3.58	6470	35%	3.52
2420	42%	2.66	5600	44%	3.42	6520	37%	3.91
2430	42%	2.70	5650	41%	3.36	6570	37%	3.91
2440	43%	2.69	5700	39%	2.88	6620	35%	3.62
2450	42%	2.40	5750	41%	3.25	6670	38%	3.64
2460	41%	2.06	5800	40%	3.18	6720	37%	3.24
2470	40%	2.86	5850	45%	3.44	6770	33%	2.95
2480	38%	2.04	5920	39%	3.24	6820	37%	3.61
2490	36%	1.05	5970	38%	3.05	6870	36%	3.52
2500	34%	0.79	6020	34%	3.17	6920	37%	3.42
5150	38%	2.32	6070	37%	2.66	6970	38%	3.28
5200	39%	2.55	6120	37%	2.20	7020	35%	2.97
5250	40%	3.42	6170	36%	2.03	7070	32%	2.79
5300	40%	3.74	6220	37%	2.21	7120	34%	2.88
5350	39%	3.61	6270	35%	2.30	7170	33%	2.52
5400	39%	3.77	6320	37%	2.90	7220	35%	2.12
5450	40%	3.43	6370	35%	3.17	7270	33%	2.94

ANT2(WIFI1+L5) Passive Efficiency, Gain (Free)

Frequency	Efficiency	Gain . dB	Frequency	Efficiency	Gain . dB	Frequency	Efficiency	Gain . dB
1160	16%	-4.80	5250	39%	2.12	6270	27%	2.78
1170	20%	-3.12	5300	42%	2.14	6320	30%	3.02
1180	23%	-1.86	5350	42%	2.15	6370	31%	2.80
1190	29%	-0.42	5400	37%	2.05	6420	31%	2.79
1200	35%	0.66	5450	36%	2.29	6470	29%	2.32
1210	37%	0.62	5500	38%	2.94	6520	35%	1.65
1220	35%	0.26	5550	41%	2.93	6570	34%	2.73
2400	32%	1.43	5600	34%	2.60	6620	36%	3.20
2410	36%	1.78	5650	34%	2.54	6670	34%	3.65
2420	38%	1.85	5700	33%	2.37	6720	32%	3.16
2430	38%	2.11	5750	34%	2.87	6770	34%	2.04
2440	40%	2.35	5800	31%	2.74	6820	32%	1.57
2450	40%	2.39	5850	34%	2.90	6870	34%	1.57
2460	40%	2.54	5920	31%	2.93	6920	30%	1.66
2470	40%	2.18	5970	31%	2.28	6970	33%	2.16
2480	40%	1.71	6020	31%	2.34	7020	30%	2.10
2490	36%	0.52	6070	29%	2.66	7070	31%	2.48
2500	31%	-0.77	6120	27%	2.91	7120	33%	2.34
5150	36%	2.50	6170	26%	2.95	7170	31%	2.19
5200	36%	2.22	6220	27%	3.05	7220	31%	2.74
						7270	31%	2.59

ANT1+ANT2 WIFI 6G MIMO Total Gain (Free)



Frequency	Directional			Gain . dB
	ph0	ph90	th90	MAX
5920	4.056694	4.957013	4.955368	4.957013
5970	4.264429	5.209156	5.064918	5.209156
6020	4.245416	4.448652	4.634403	4.634403
6070	4.125302	3.92362	4.083085	4.125302
6120	3.948563	3.970678	4.096288	4.096288
6170	3.889504	3.445366	3.851094	3.889504
6220	3.859	3.378042	3.870783	3.870783
6270	3.766539	2.817232	3.700026	3.766539
6320	3.918192	2.923241	3.881107	3.918192
6370	3.853051	2.848816	3.963499	3.963499
6420	4.07343	3.086046	4.215257	4.215257
6470	3.910456	3.269468	4.211871	4.211871
6520	3.71712	4.070818	4.338035	4.338035
6570	3.522506	4.569151	4.598741	4.598741
6620	3.754904	4.720573	4.632221	4.720573
6670	3.866479	4.813251	4.827378	4.827378
6720	4.29252	4.774975	4.69463	4.774975
6770	4.595606	4.003376	4.082466	4.595606
6820	4.49898	4.02496	4.382146	4.49898
6870	4.735025	4.067855	4.748771	4.748771
6920	4.450305	3.737725	4.980361	4.980361
6970	4.045183	3.183301	4.824865	4.824865
7020	3.823535	2.839469	4.47307	4.47307
7070	3.313122	2.44426	4.422182	4.422182
7120	3.182408	2.379687	4.134476	4.134476
7170	3.285123	1.942898	3.908262	3.908262
7220	3.392387	1.996751	4.252939	4.252939
7270	3.62844	2.334626	4.482022	4.482022



Data&Direction
al Diagram

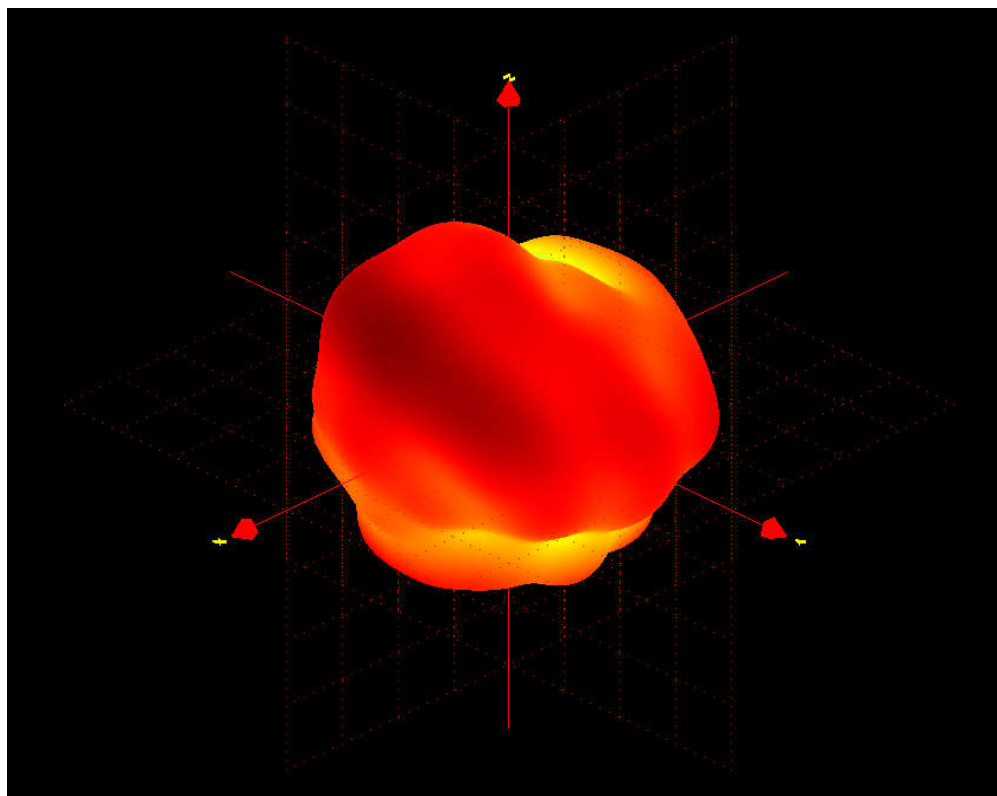
OTA Test Data



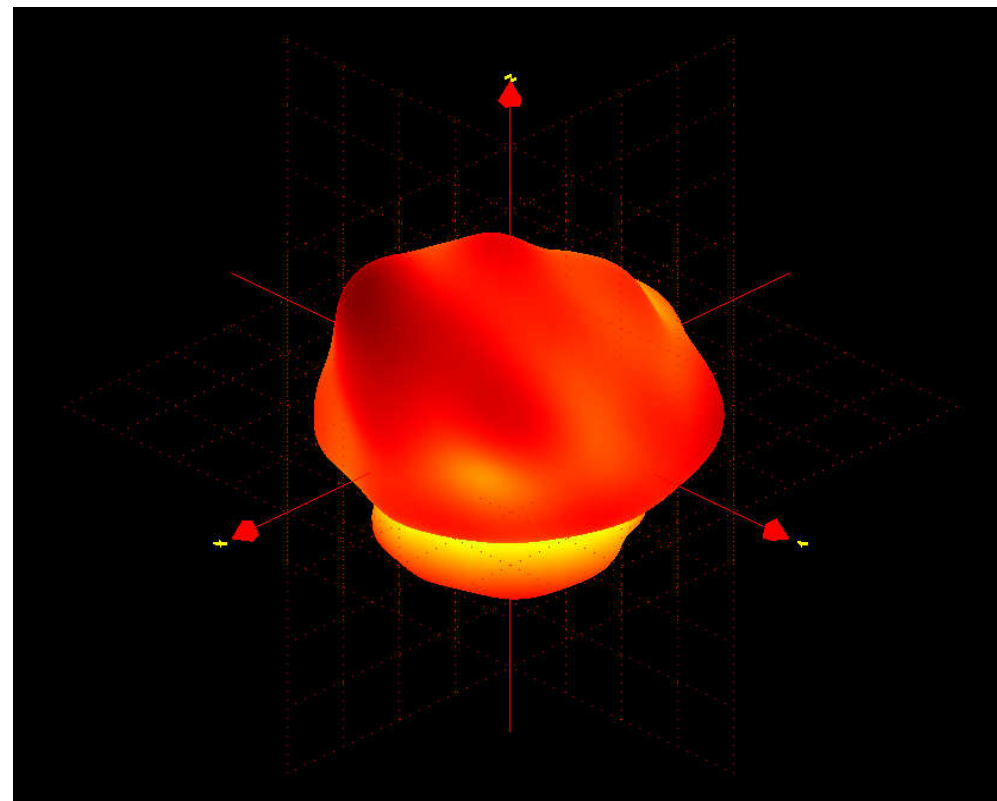
1#			
	Channel	TRP Data(dBm)	TIS Data(dBm)
802.11b (11Mbps)	1	14.45	-83.82
	6	13.83	-83.88
	11	13.64	-83.23
802.11g (54Mbps)	1	13.33	-73.16
	6	13.71	-72.91
	11	13.35	-72.4
802.11n (MCS7)	1	12.6	-68.78
	6	13.43	-68
	11	13.08	-67.77
802.11a (54Mbps)	36	13.85	无法测试
	149	13.96	
	165	12.52	

2#			
	Channel	TRP Data(dBm)	TIS Data(dBm)
802.11b (11Mbps)	1	14.53	-83.56
	6	14.02	-83.33
	11	13.87	-82.28
802.11g (54Mbps)	1	12.94	-72.4
	6	13.21	-72.39
	11	13.22	-72.09
802.11n (MCS7)	1	12.39	-68.21
	6	13.25	-68.83
	11	13.14	-67.17
802.11a (54Mbps)	36	14.05	无法测试
	149	13.47	
	165	12.86	

ANT1(WIFI0/BT) 3D Directional Diagram (Free) 中天迅

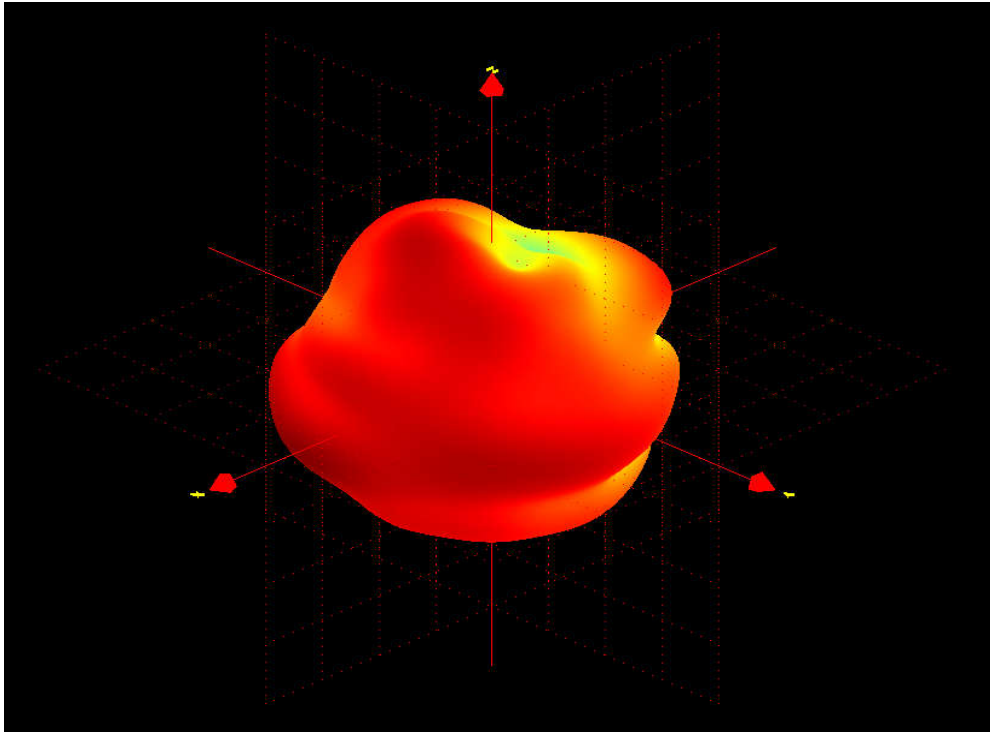


2400MHz

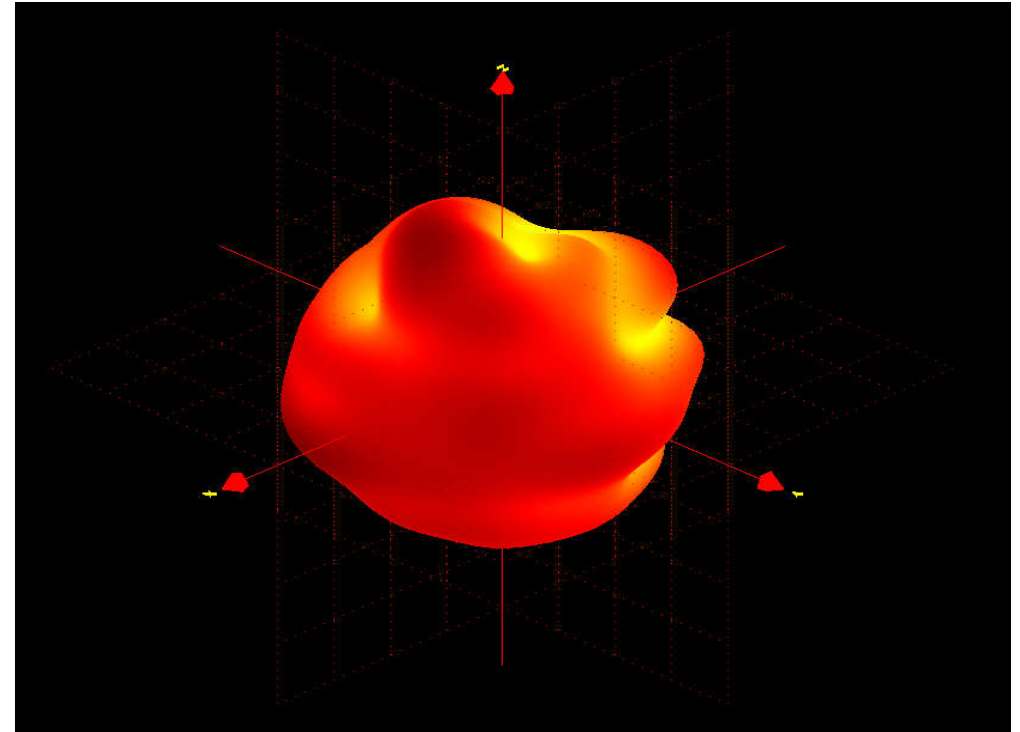


2500MHz

ANT1(WIFI0) 3D Directional Diagram (Free) ZTX 中天迅

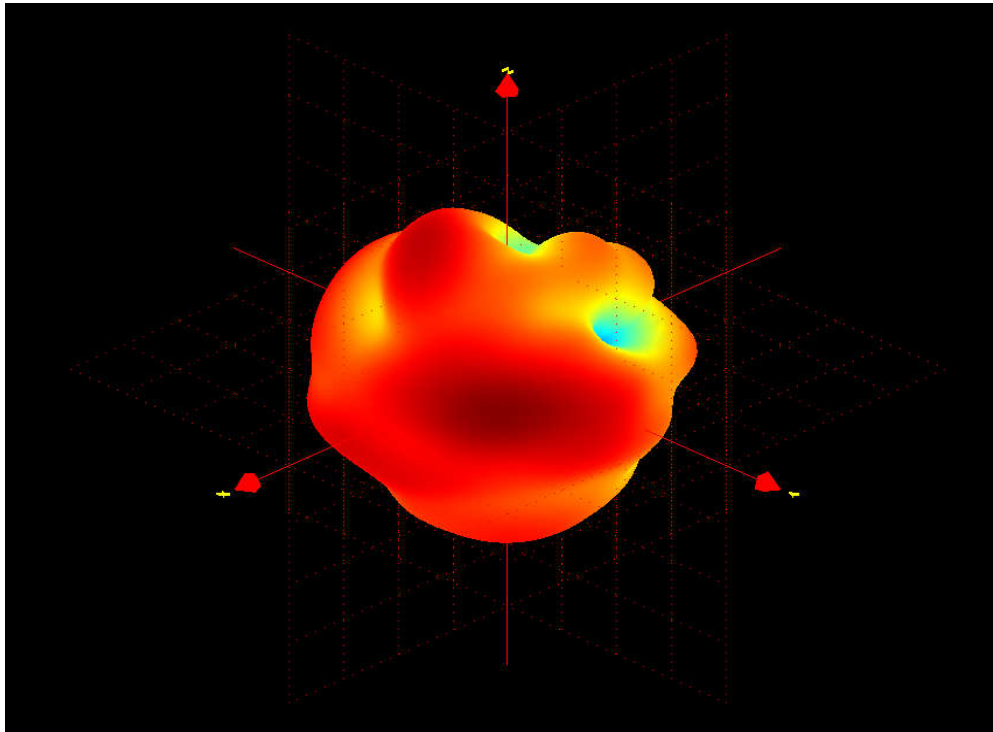


5150MHz

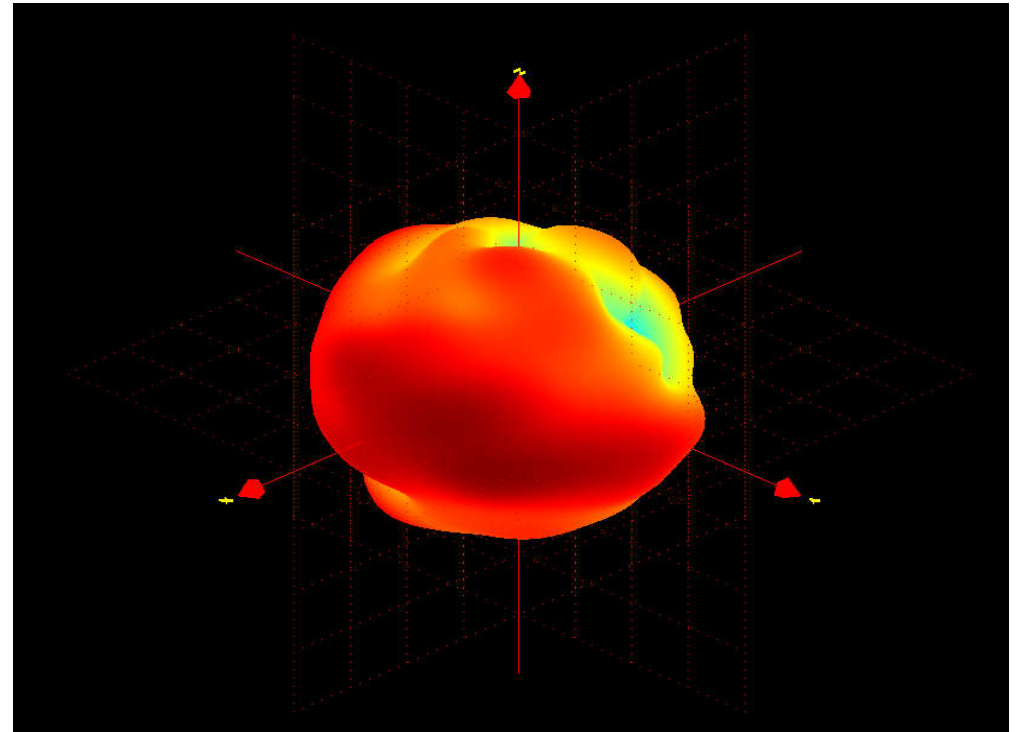


5300MHz

ANT1(WIFI0) Directional Diagram (Free)

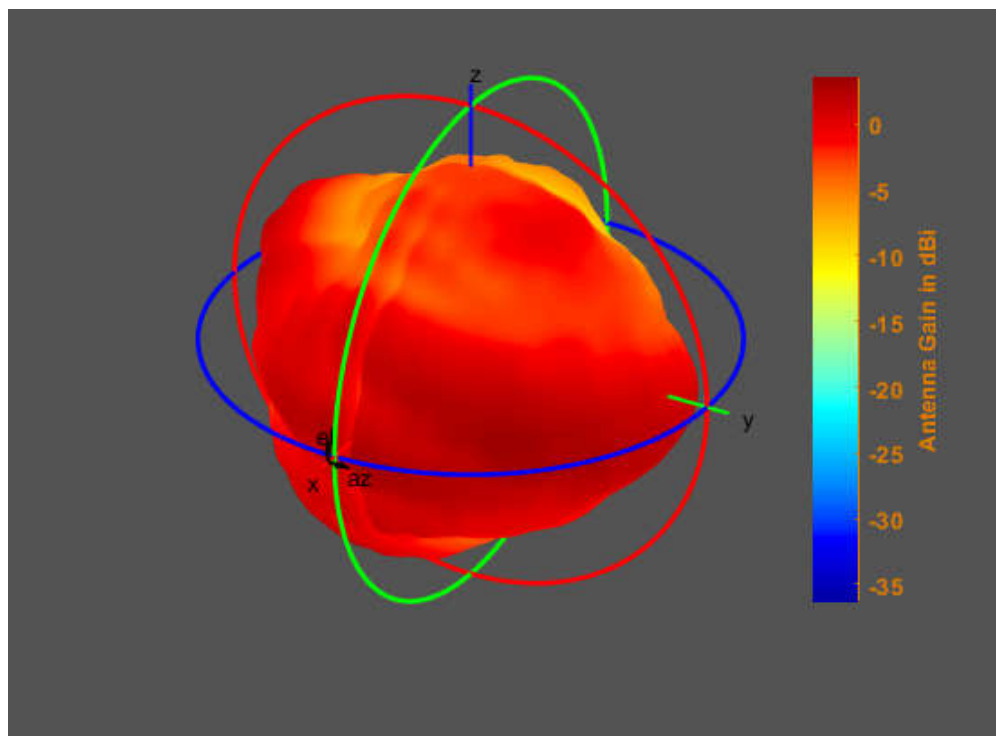


5500MHz

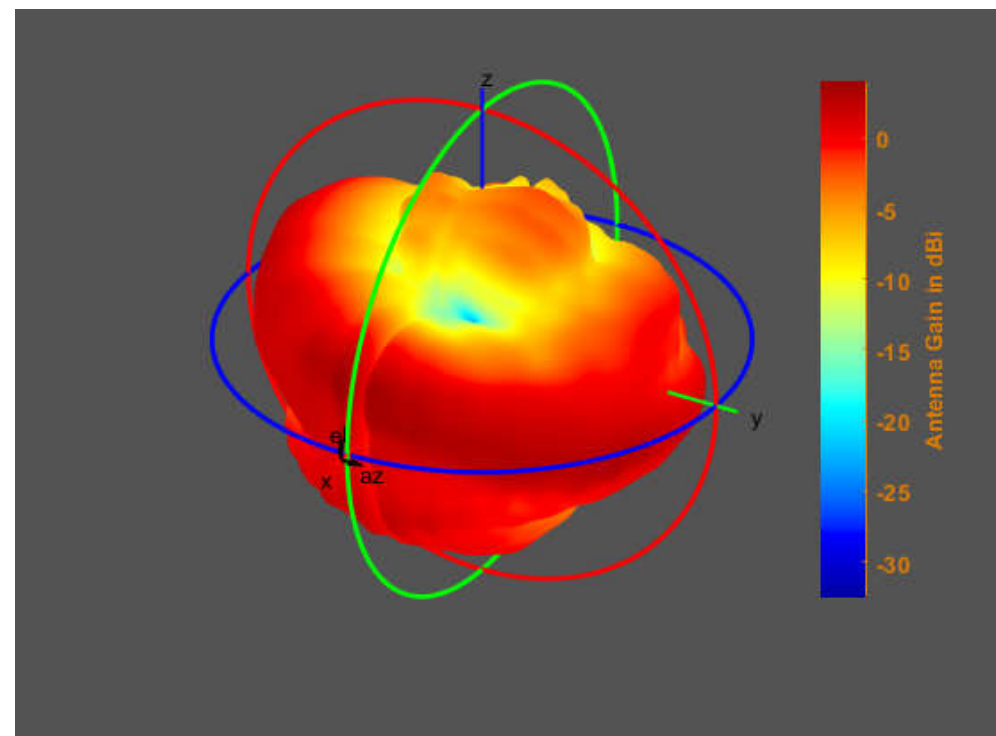


5850MHz

ANT1(WIFI0) Directional Diagram (Free)

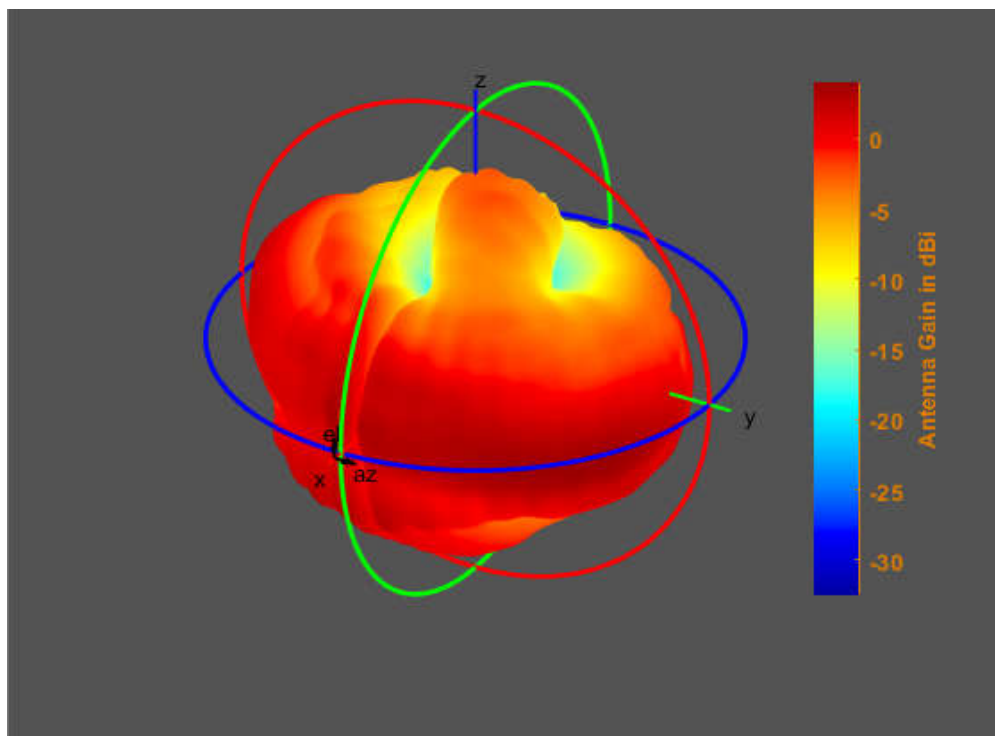


5920MHz

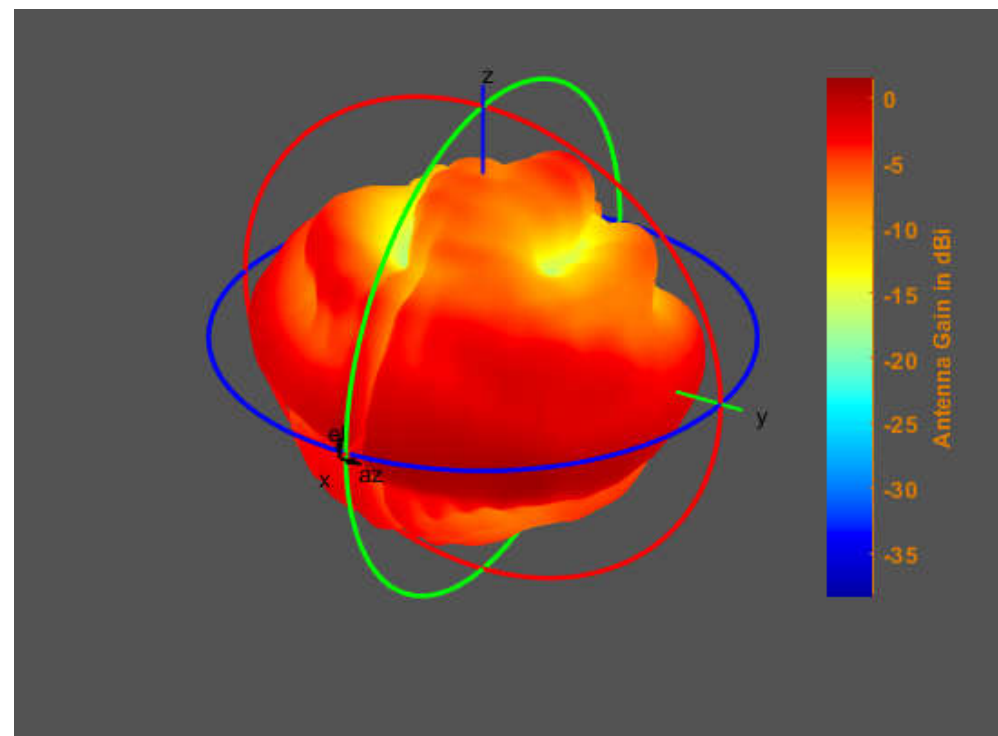


6520MHz

ANT1(WIFI0) Directional Diagram (Free)

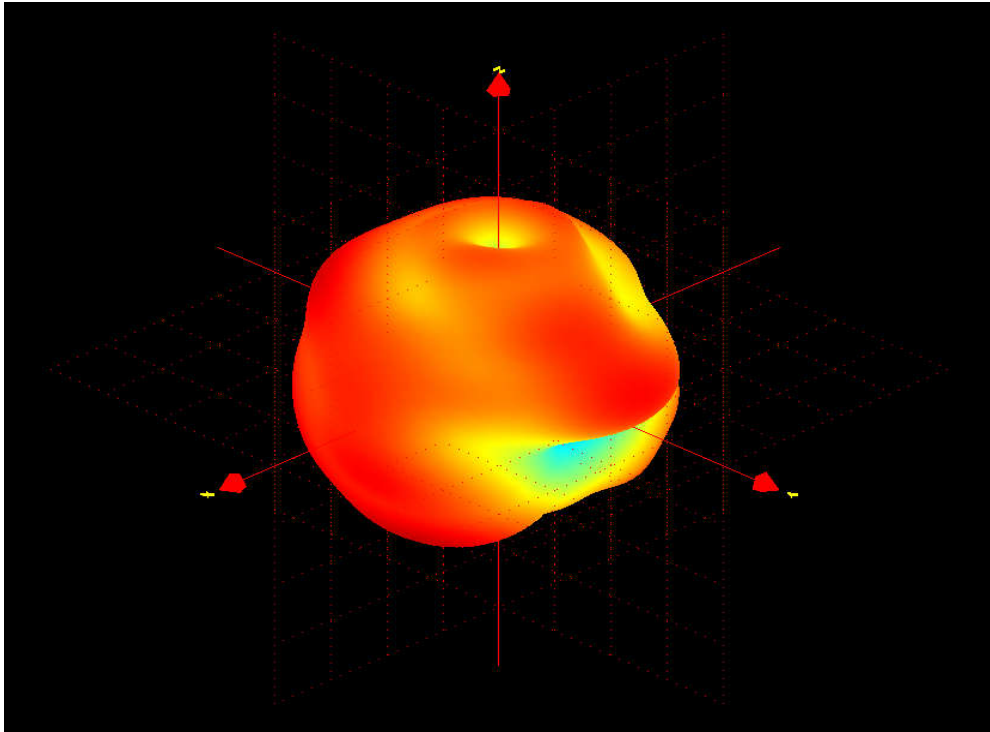


6870MHz

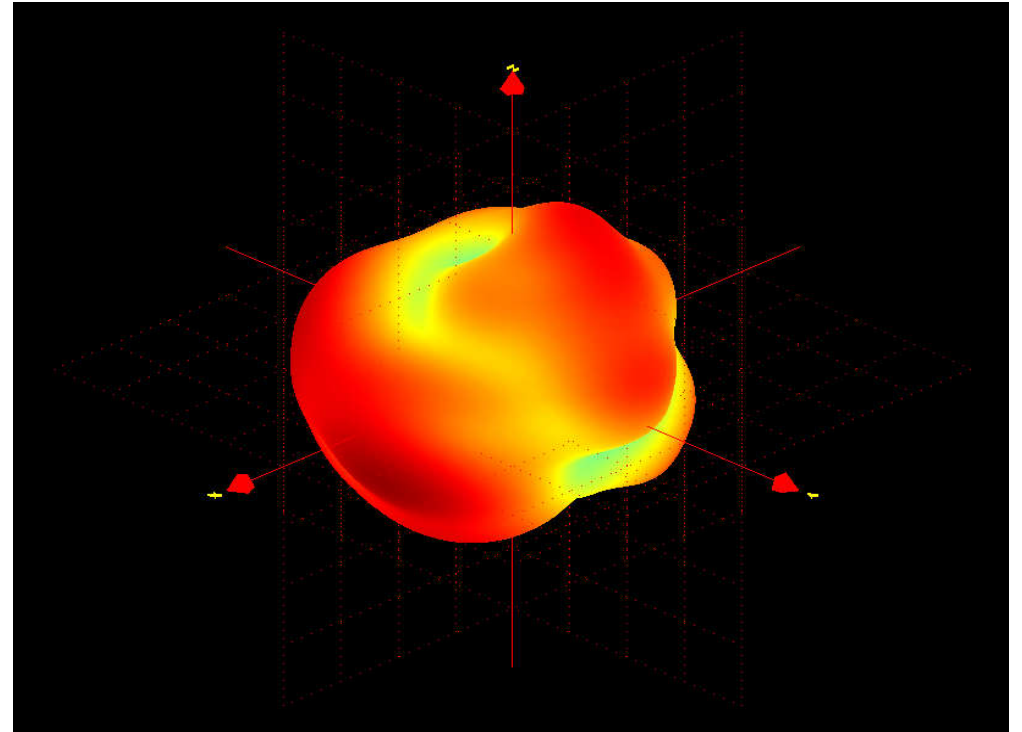


7270MHz

ANT2(WIFI1+L5) 3D Directional Diagram (Free)

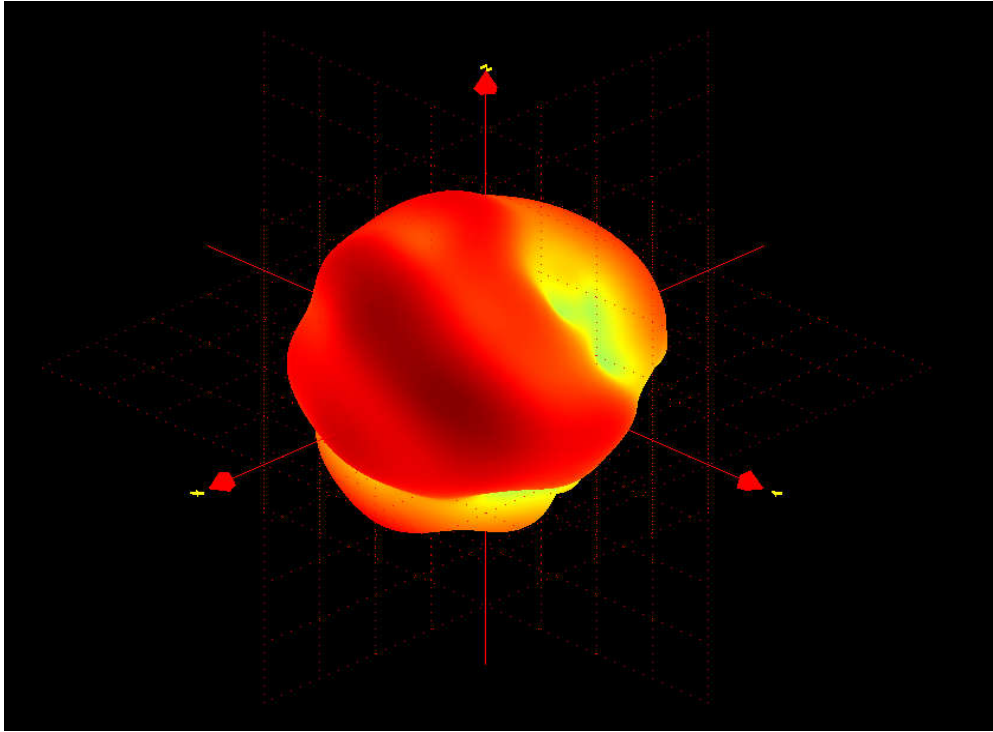


1160MHz

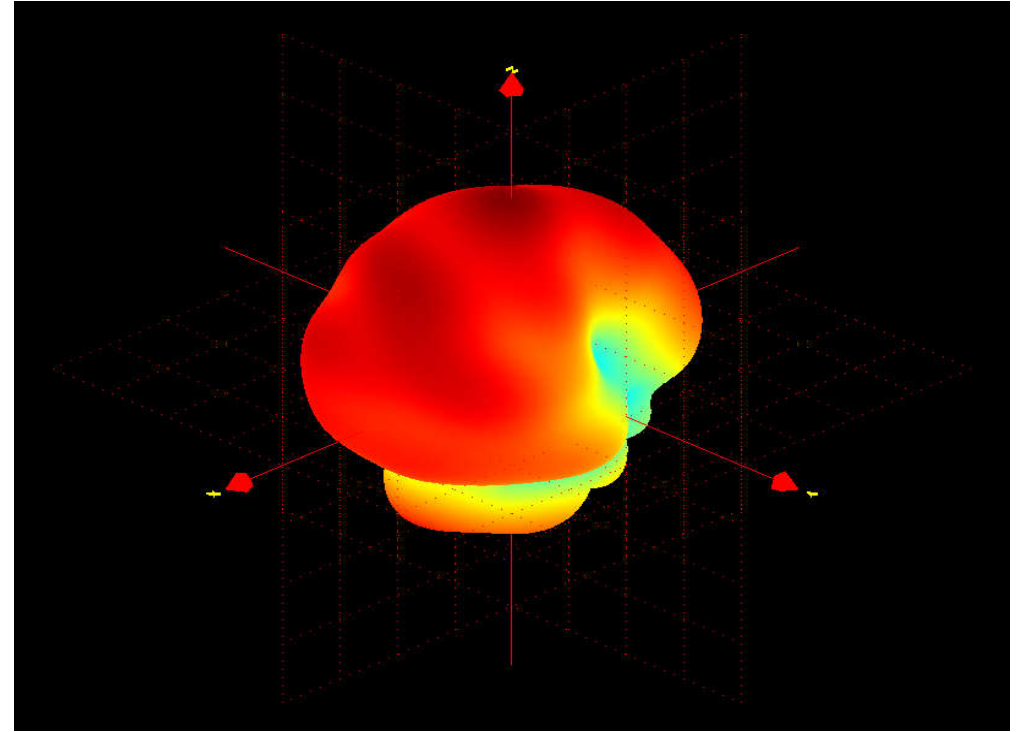


1220MHz

ANT2(WIFI1+L5) 3D Directional Diagram (Free)

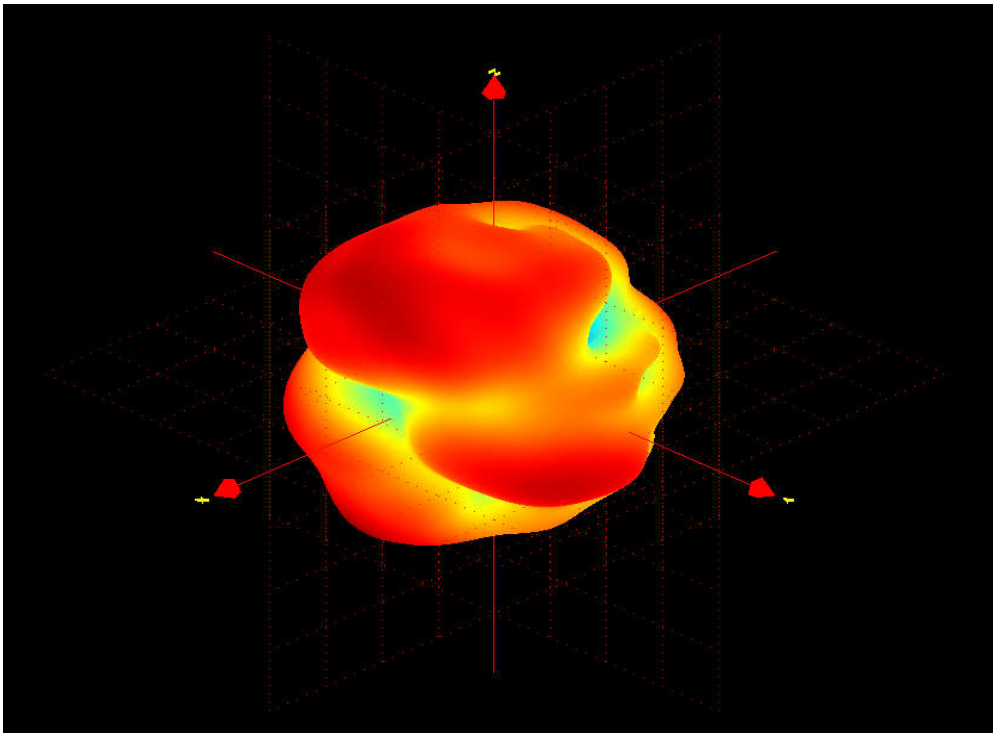


2400MHz

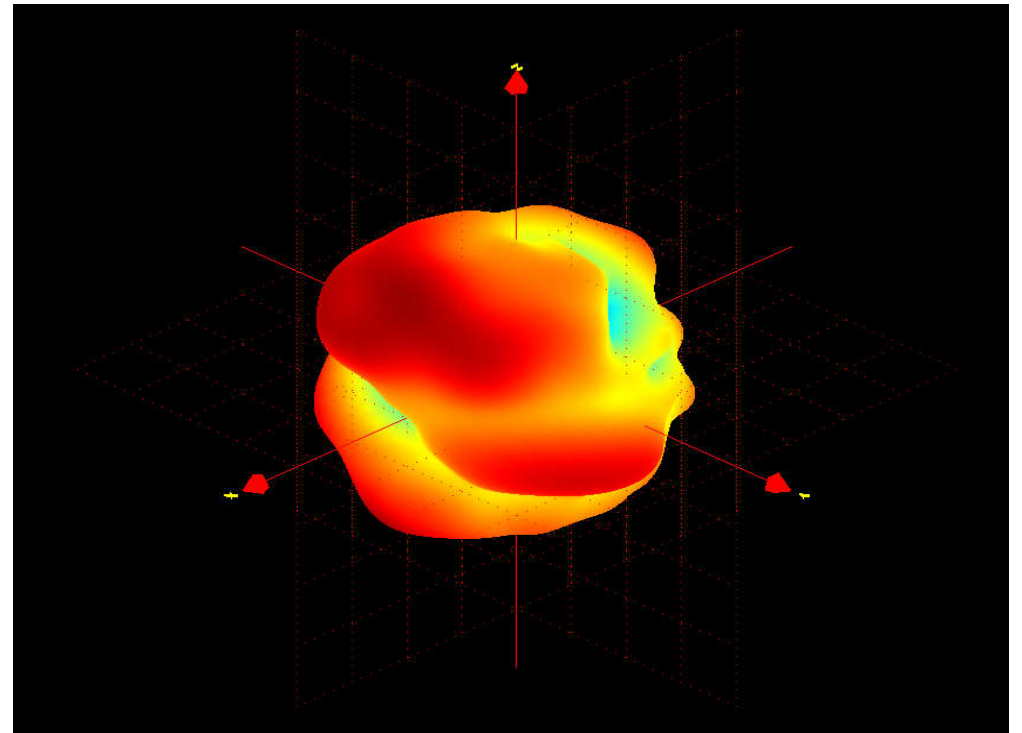


2500MHz

ANT2(WIFI1+L5) 3D Directional Diagram (Free)

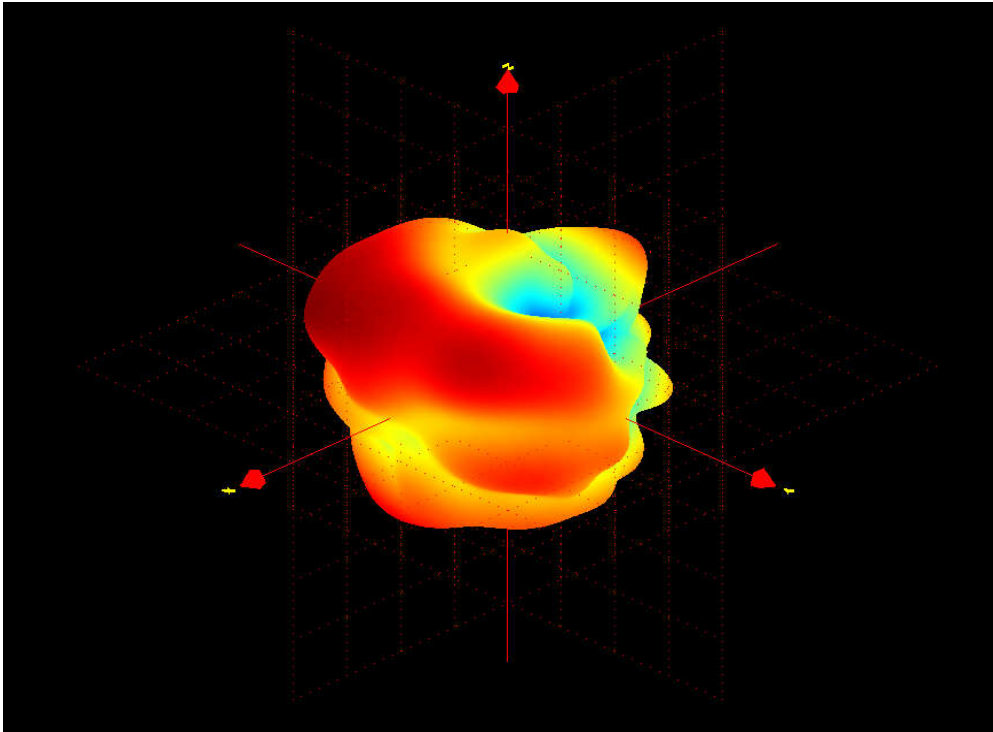


5150MHz

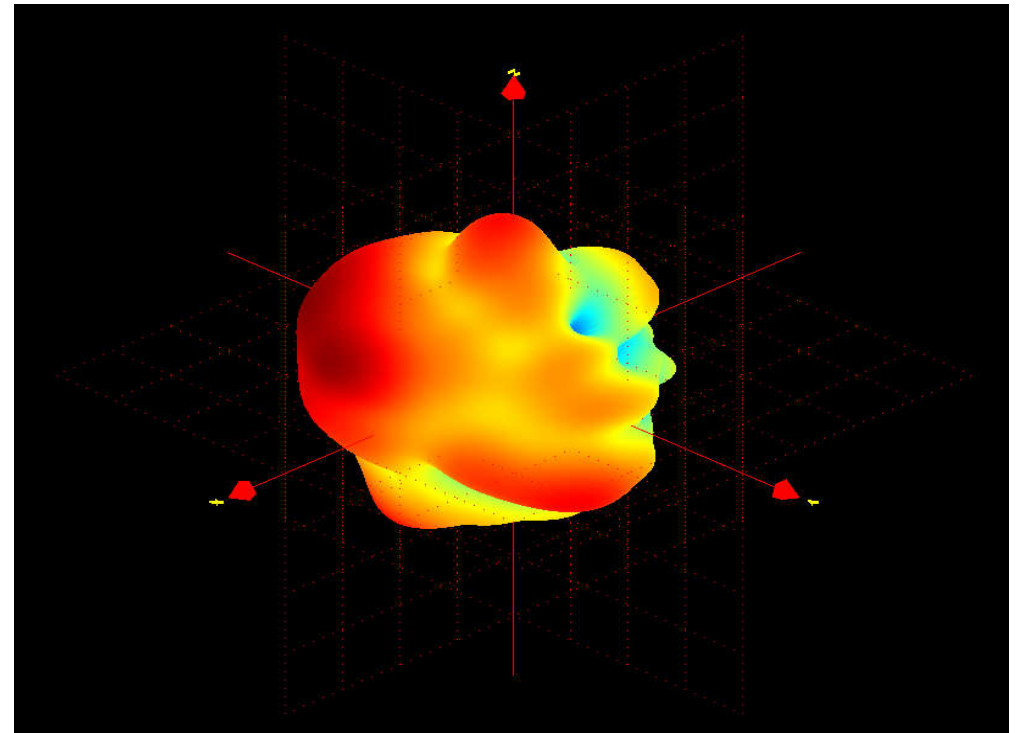


5300MHz

ANT2(WIFI1+L5) 3D Directional Diagram (Free) 中天迅

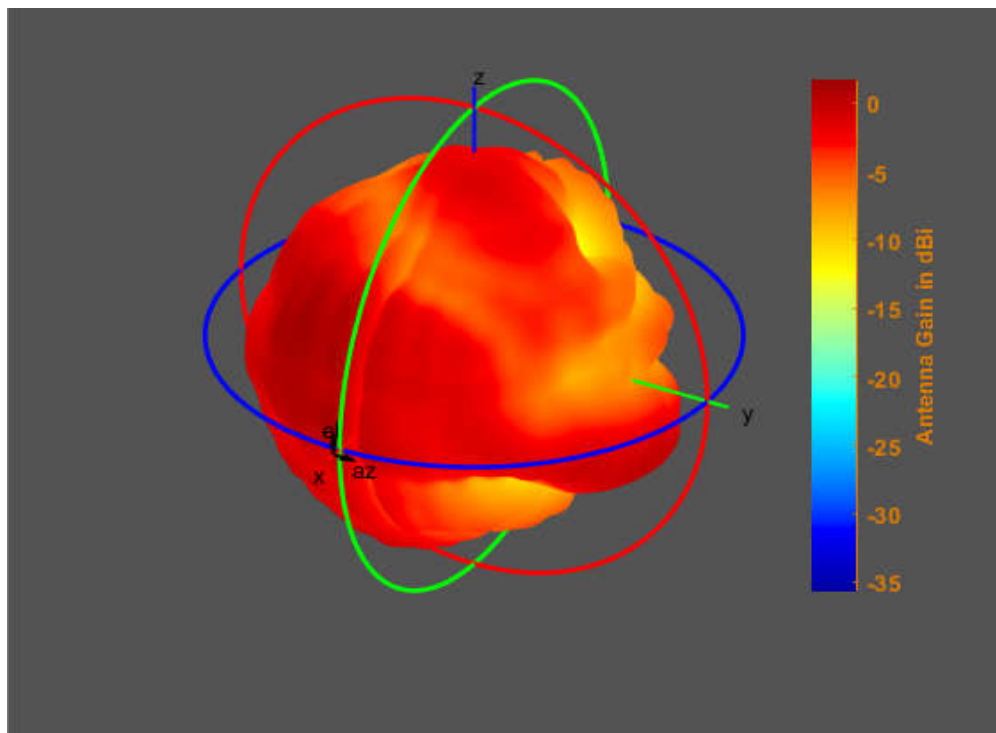


5500MHz

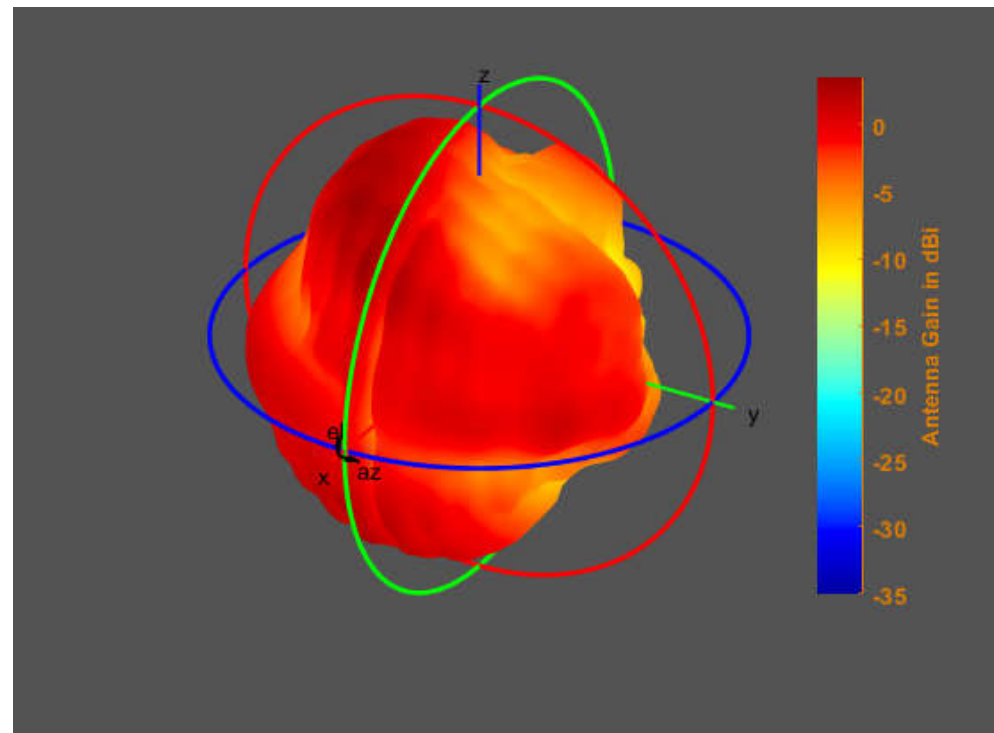


5850MHz

ANT2(WIFI1+L5) 3D Directional Diagram (Free) 中天迅

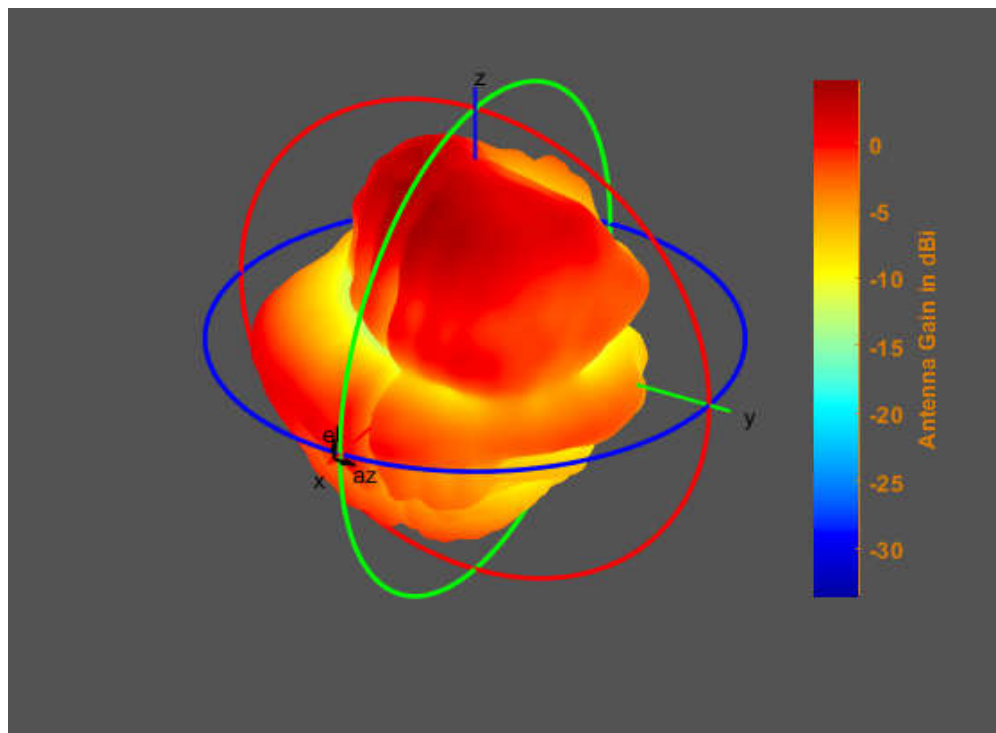


5920MHz

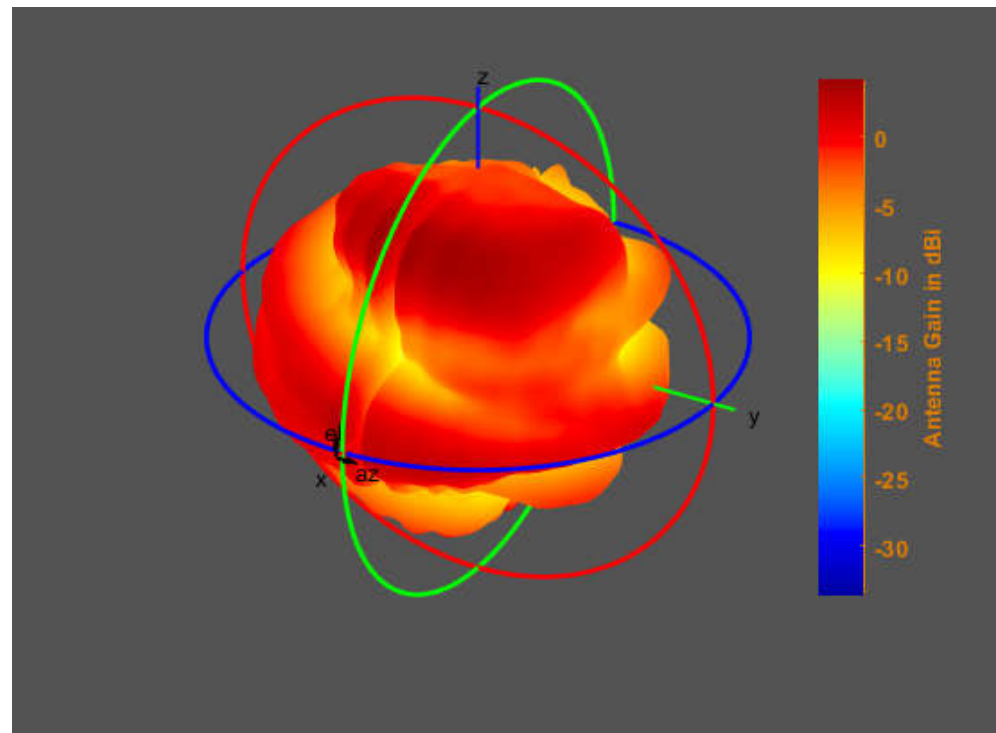


6520MHz

ANT2(WIFI1+L5) 3D Directional Diagram (Free) 中天迅

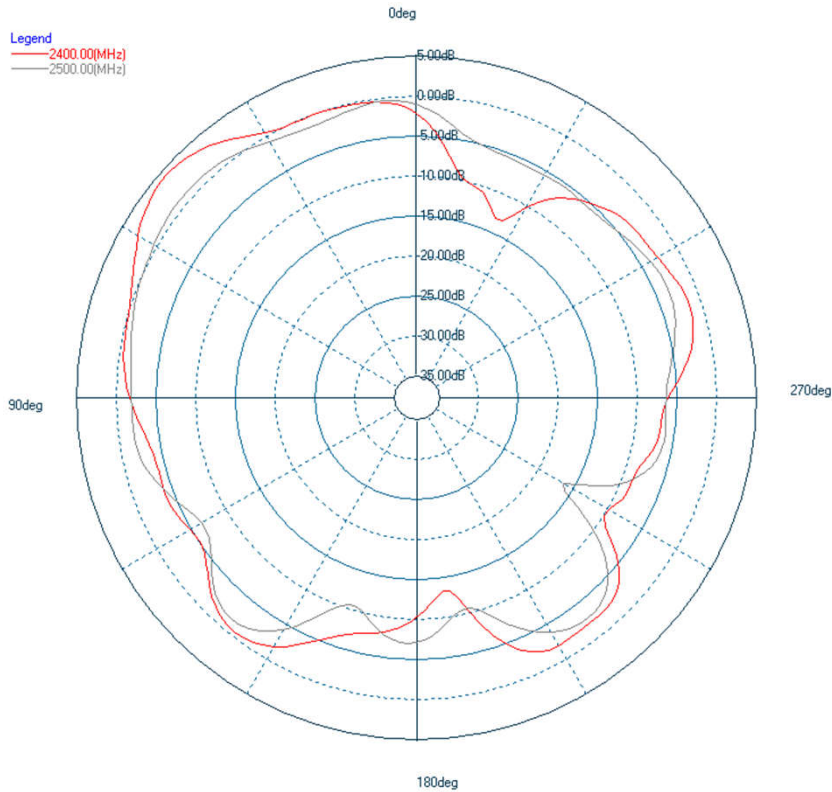


6870MHz

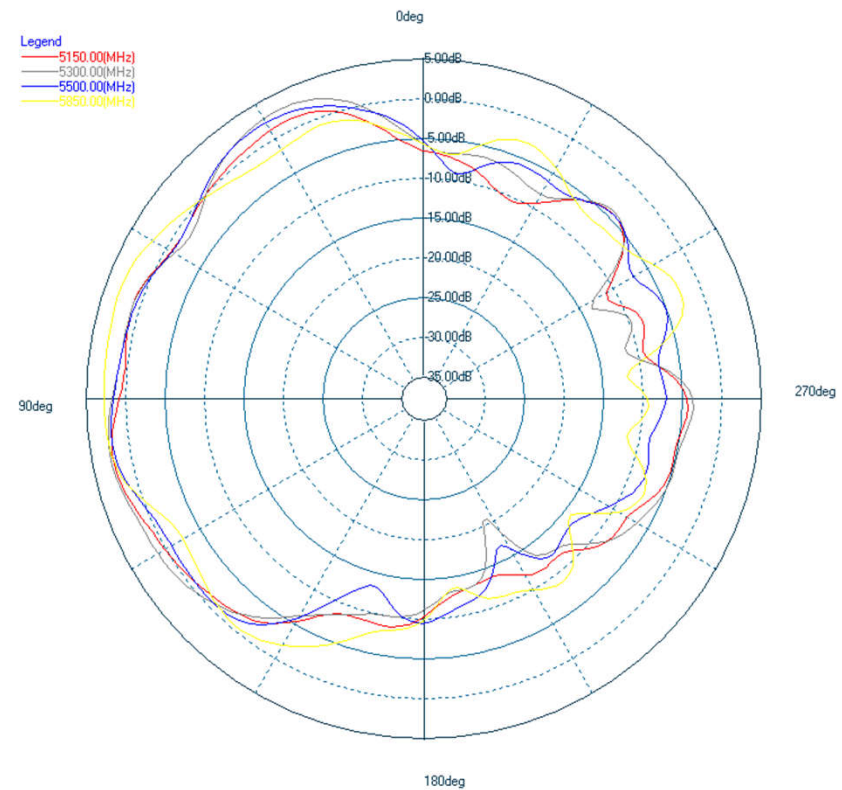


7270MHz

ANT1(WIFI0/BT) Directional Diagram PHI=0° (Free)

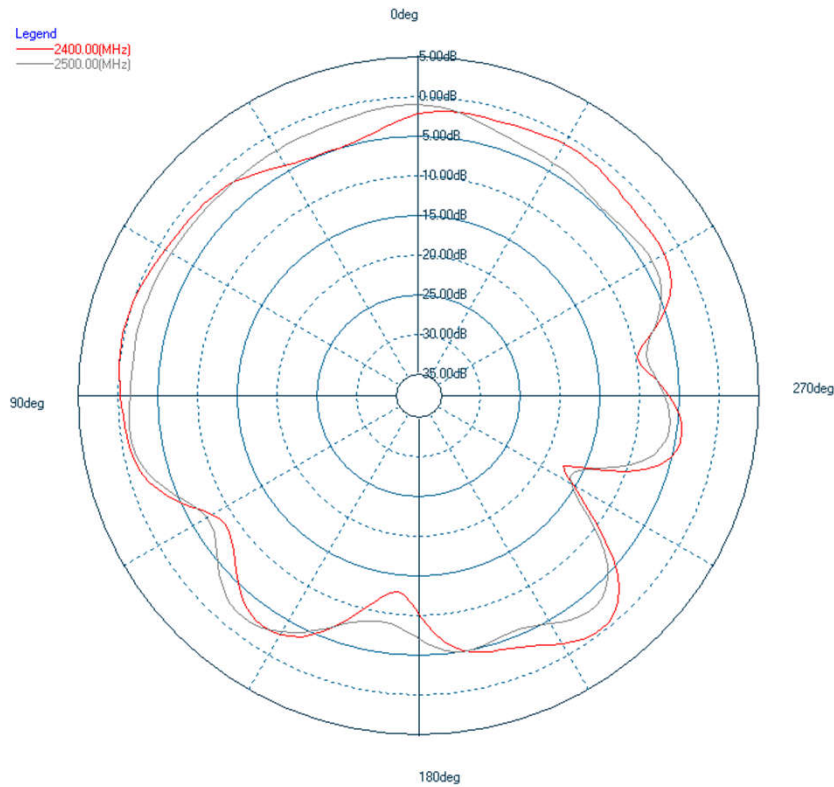


2400/2500MHz

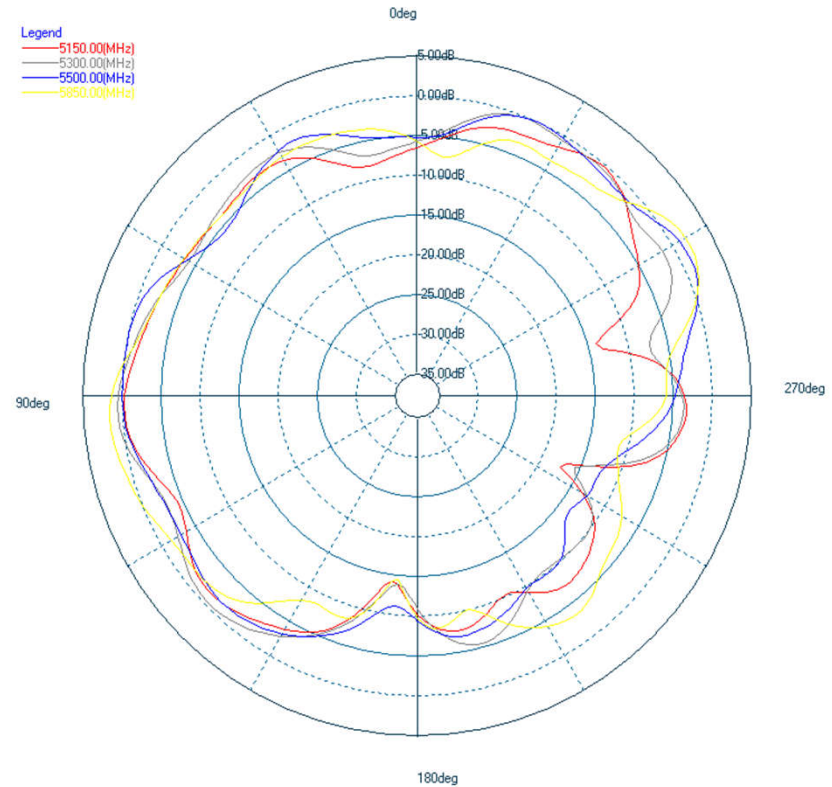


5150/5300/
5500/5850MHz

ANT1(WIFI0/BT) Directional Diagram PHI=90° ZTX (Free)

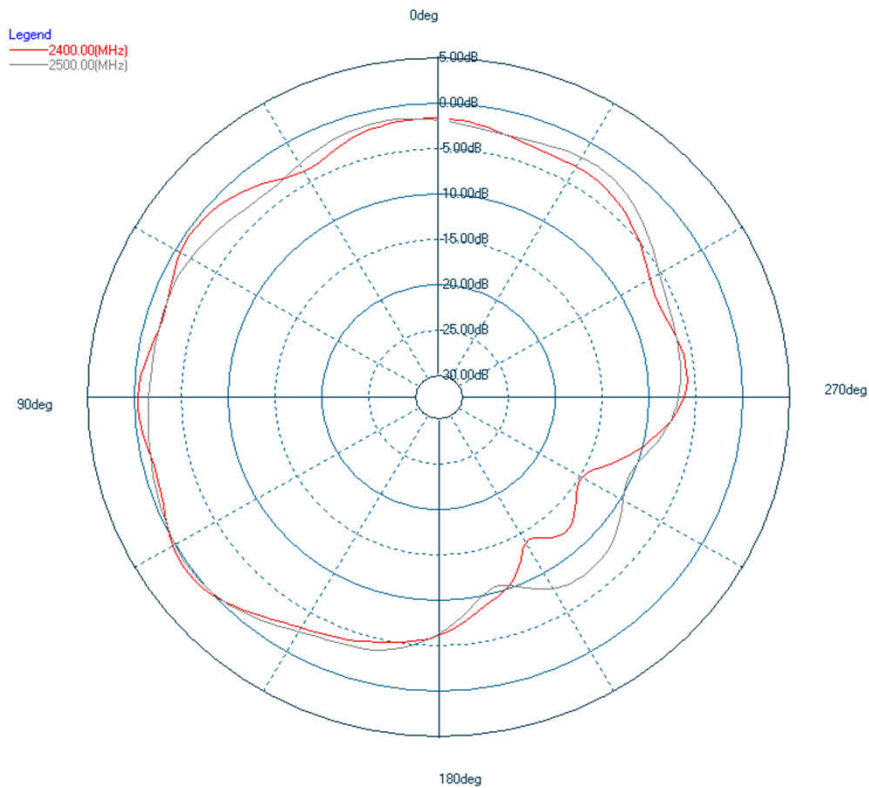


2400/2500MHz

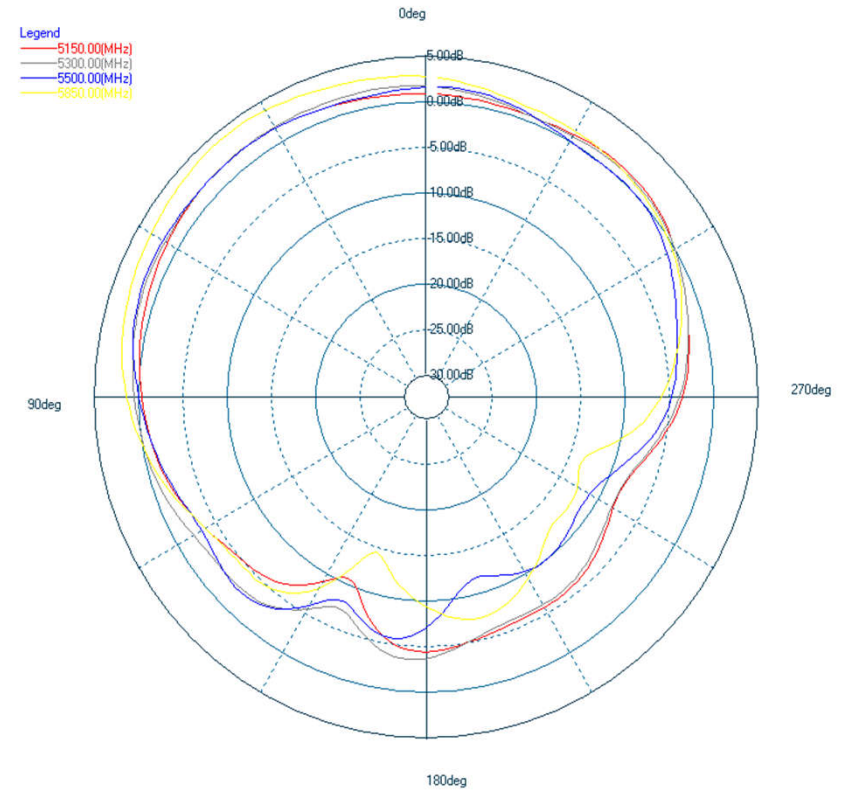


5150/5300/
5500/5850MHz

ANT1(WIFI0/BT) Directional Diagram Theta=90° (Free)

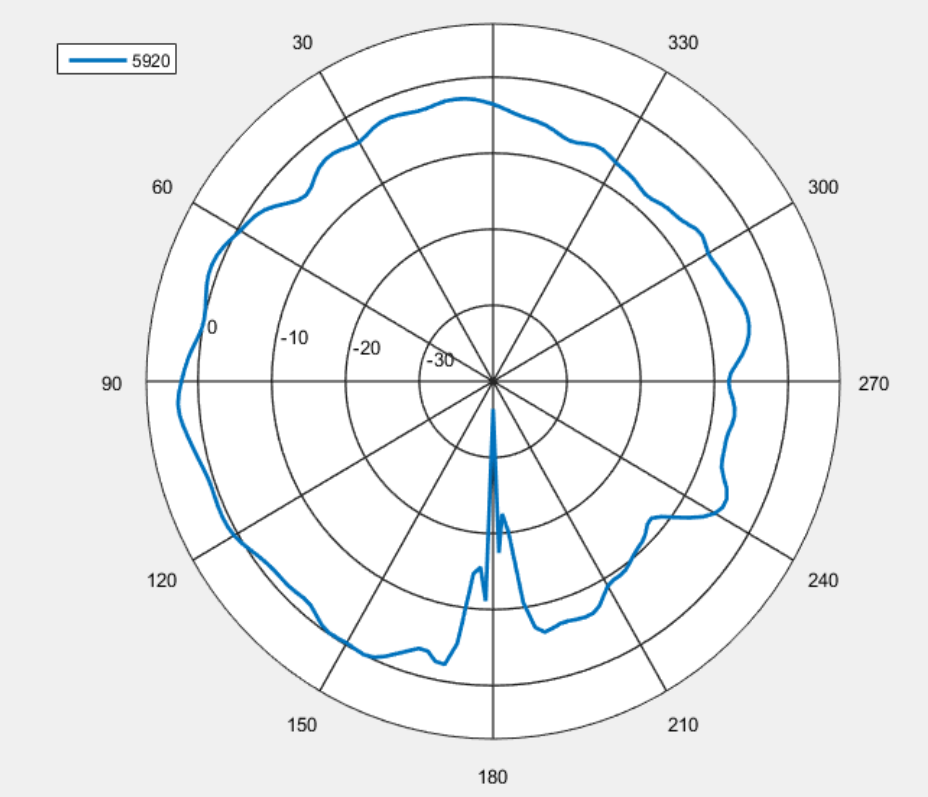


2400/2500MHz

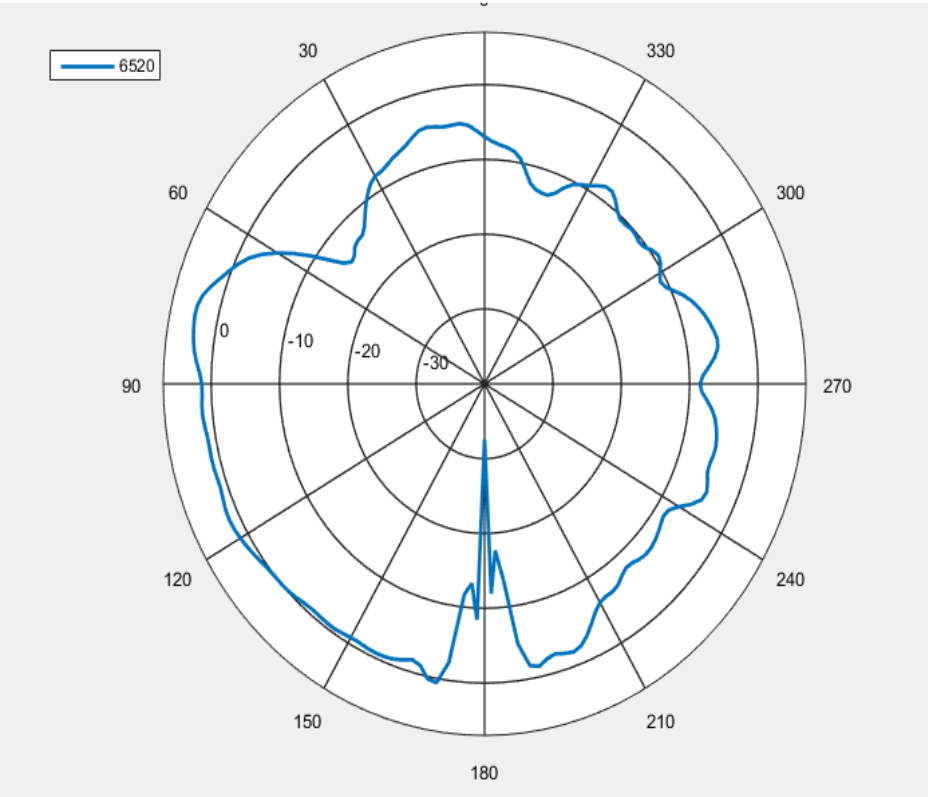


5150/5300/
5500/5850MHz

ANT1(WIFI0) Directional Diagram PHI=0° (Free) 中天迅

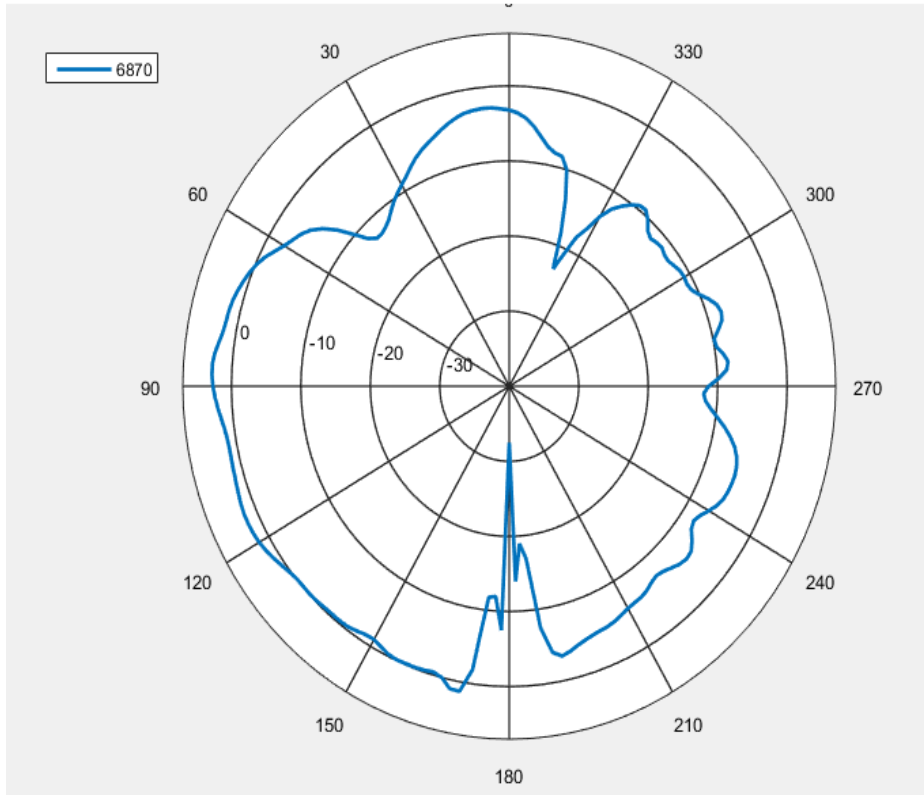


5920MHz

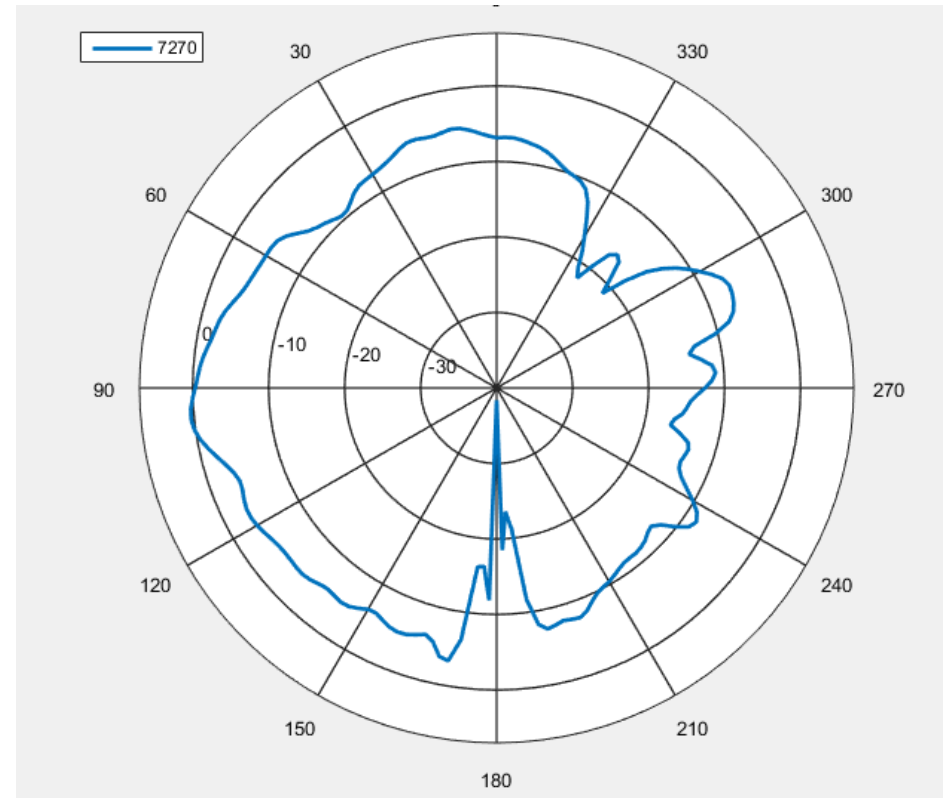


6520MHz

ANT1(WIFI0) Directional Diagram PHI=0° (Free) 中天迅

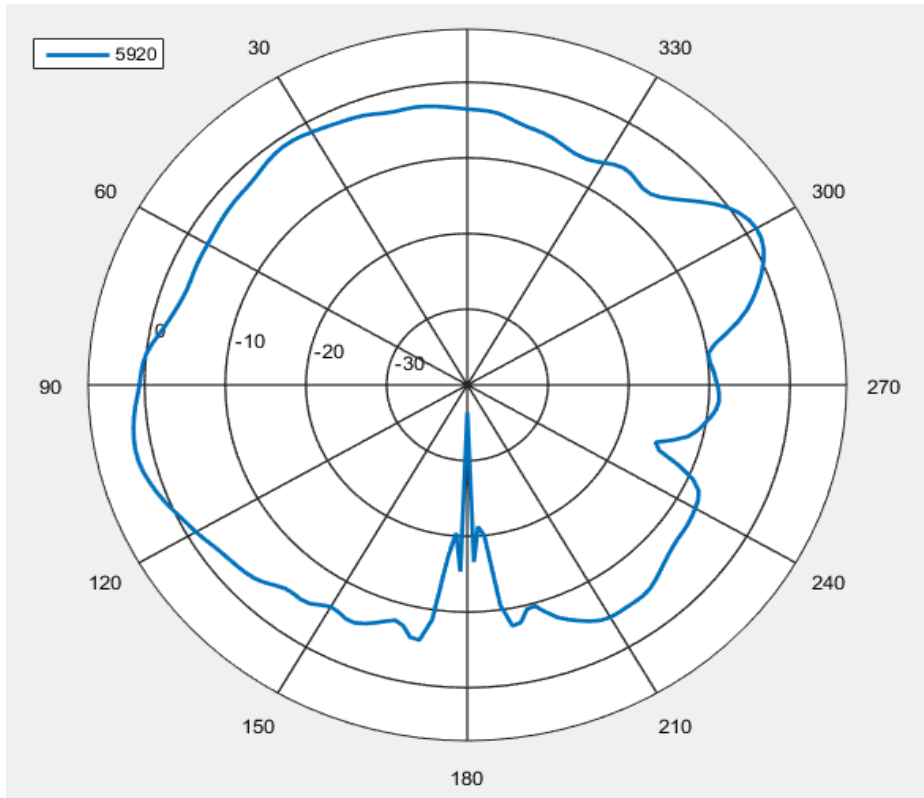


6870MHz

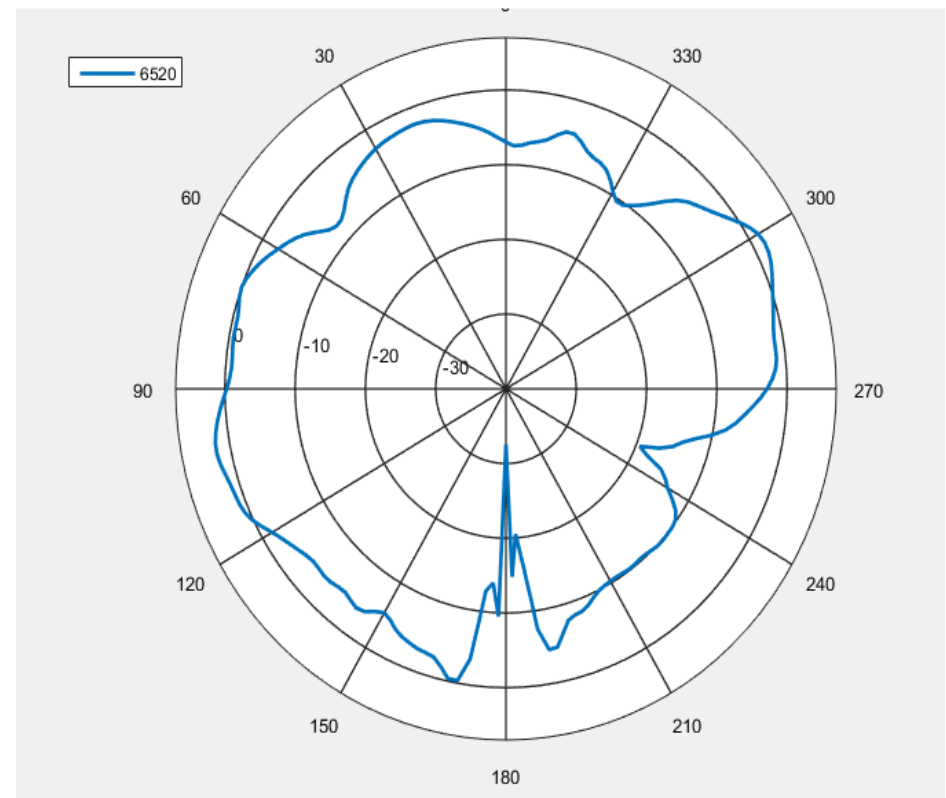


7270MHz

ANT1(WIFI0) Directional Diagram PHI=90° (Free) 中天迅

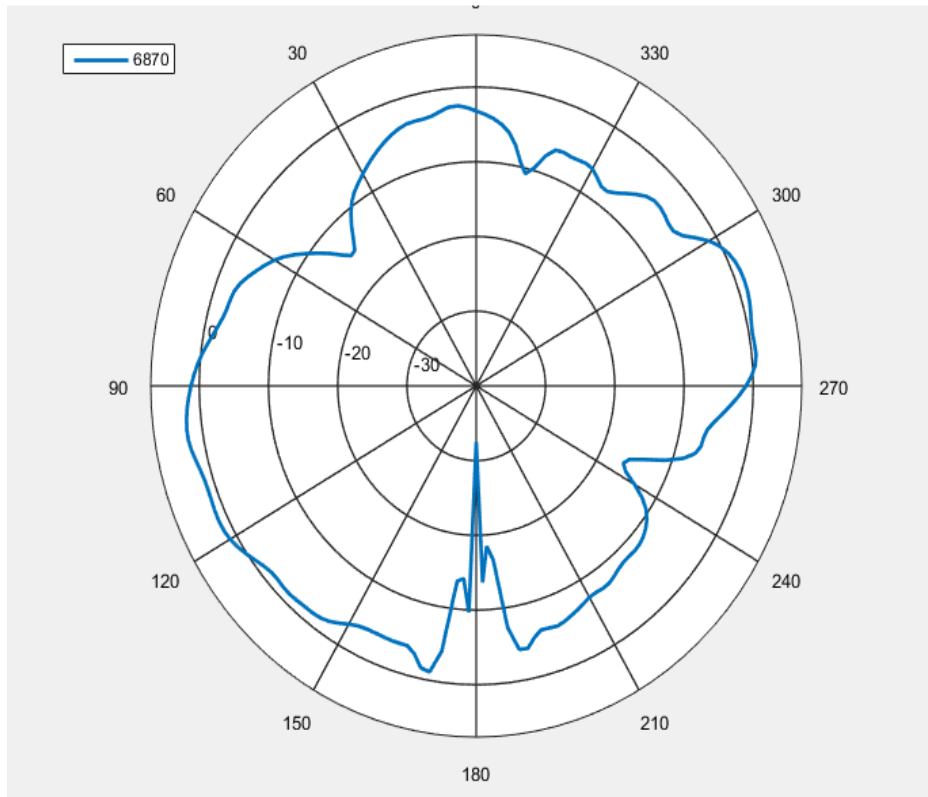


5920MHz

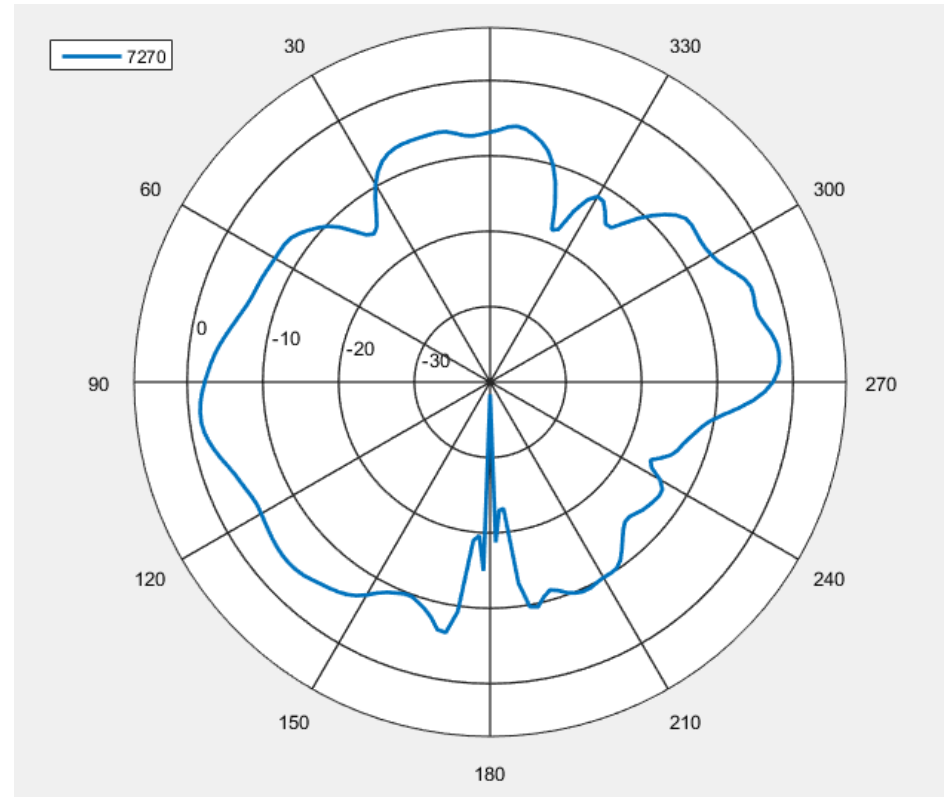


6520MHz

ANT1(WIFI0) Directional Diagram PHI=90° (Free) 中天迅

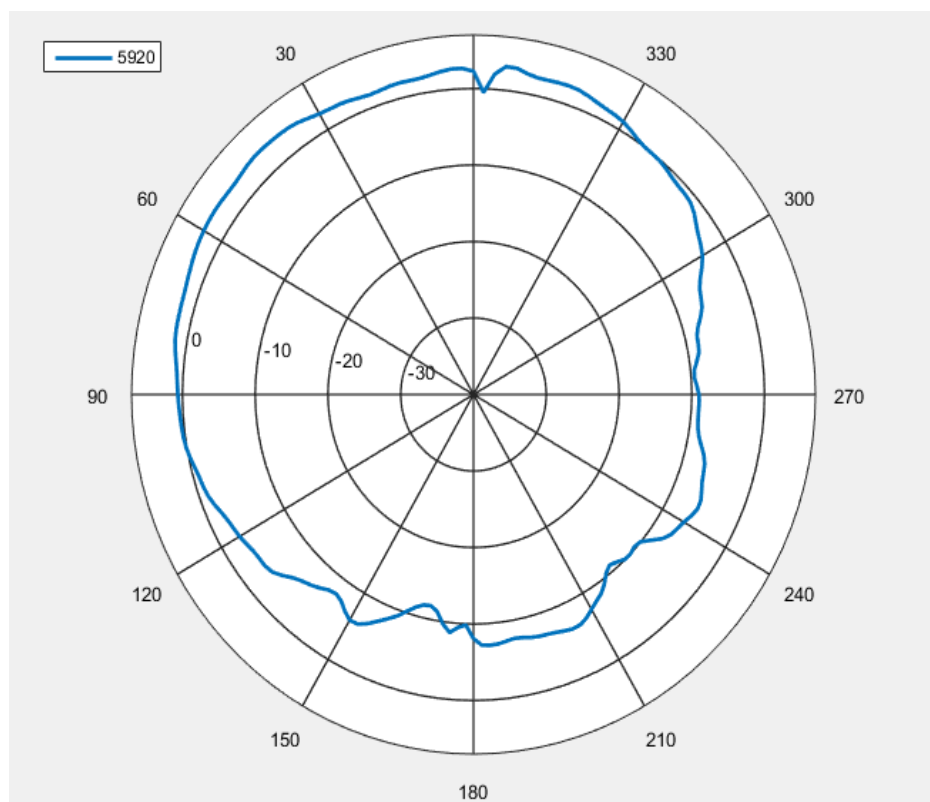


6870MHz

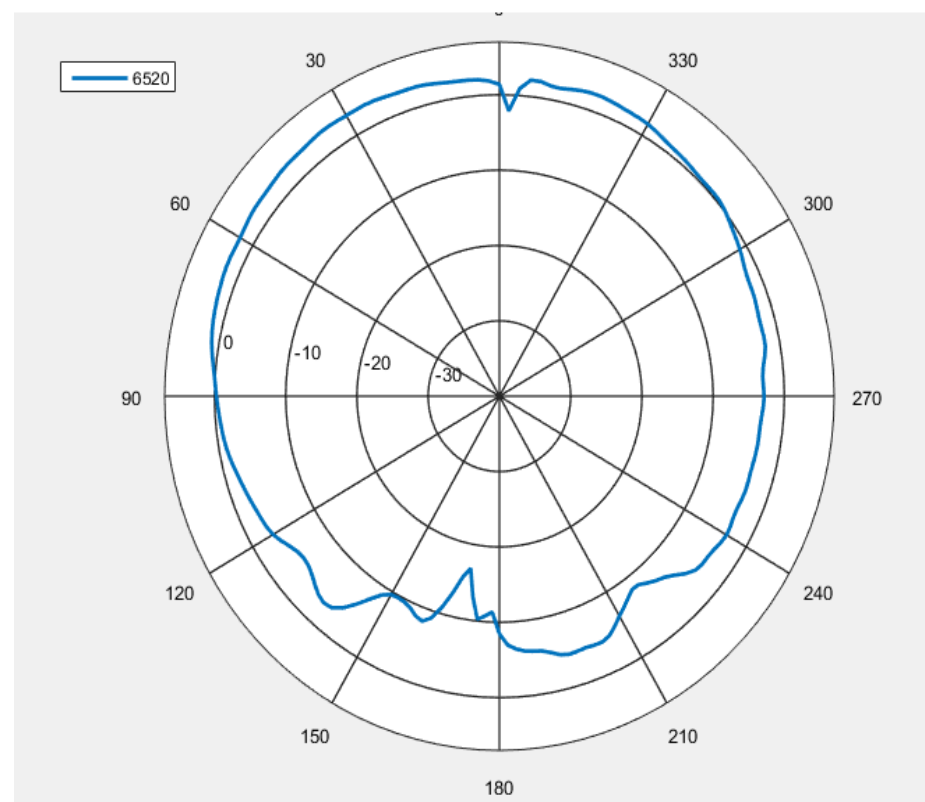


7270MHz

ANT1(WIFI0) Directional Diagram Theta=90° (Free)

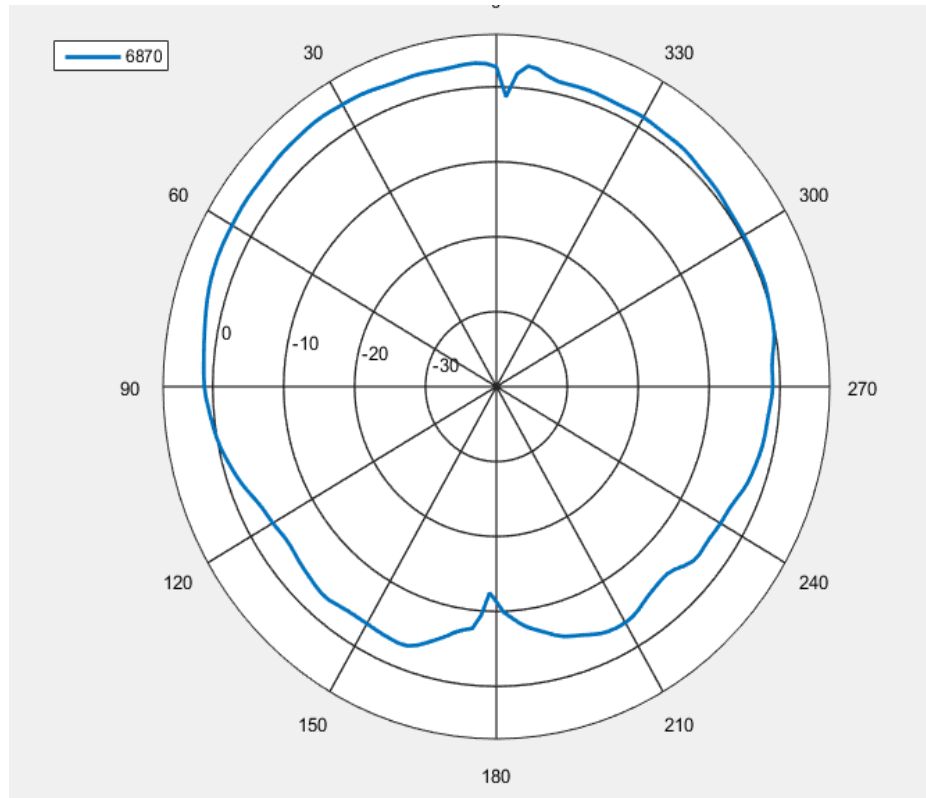


5920MHz

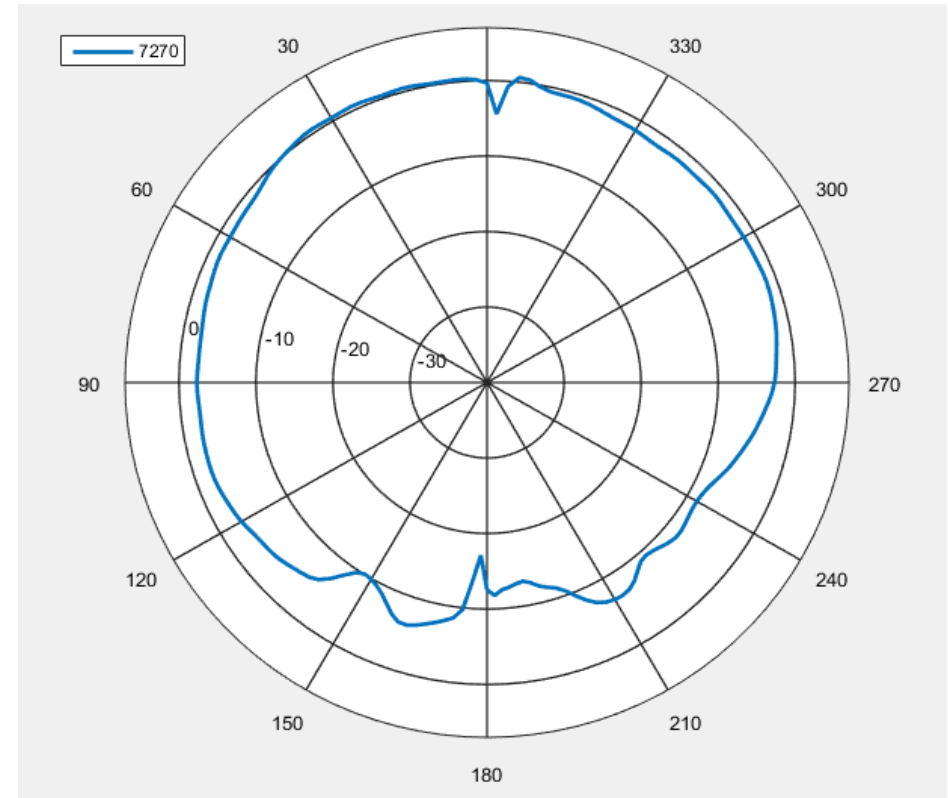


6520MHz

ANT1(WIFI0) Directional Diagram Theta=90° (Free)

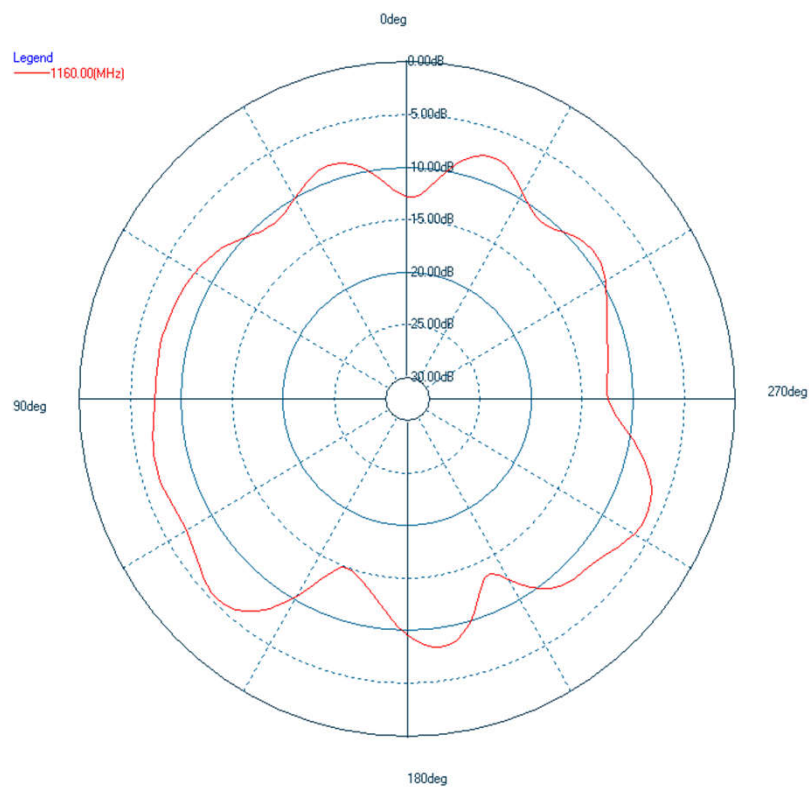


6870MHz

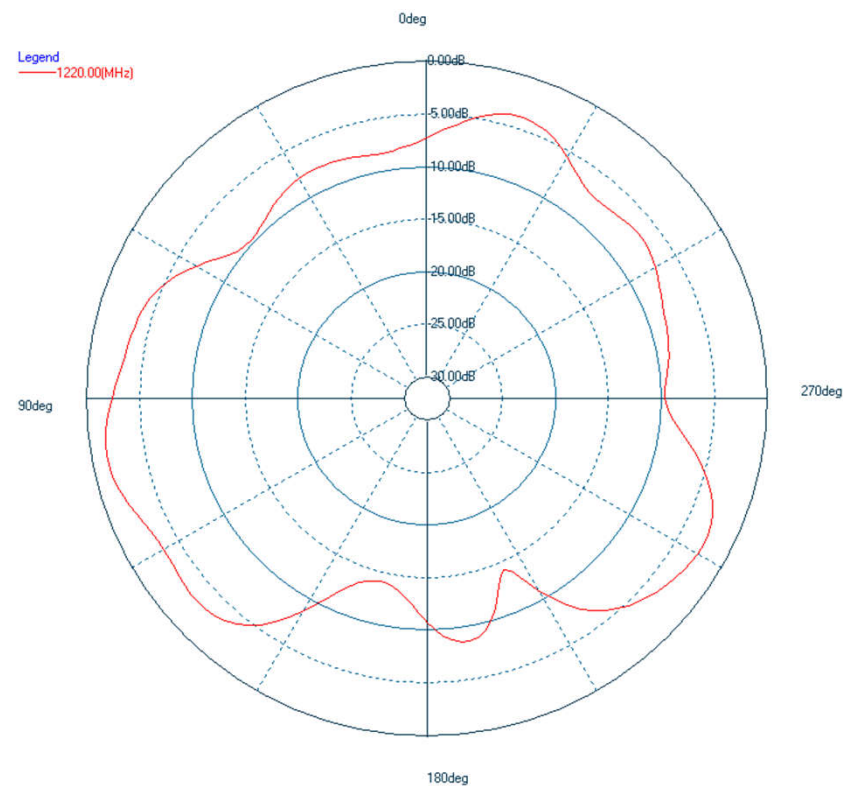


7270MHz

ANT2(WIFI1+L5) Directional Diagram PHI=0° (Free)

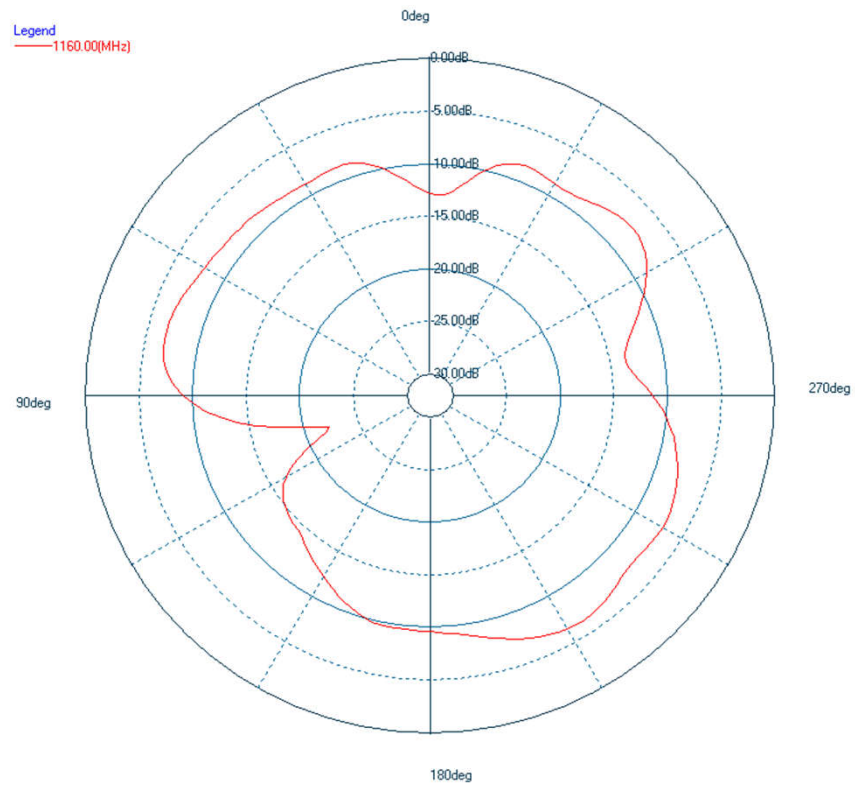


1160MHz

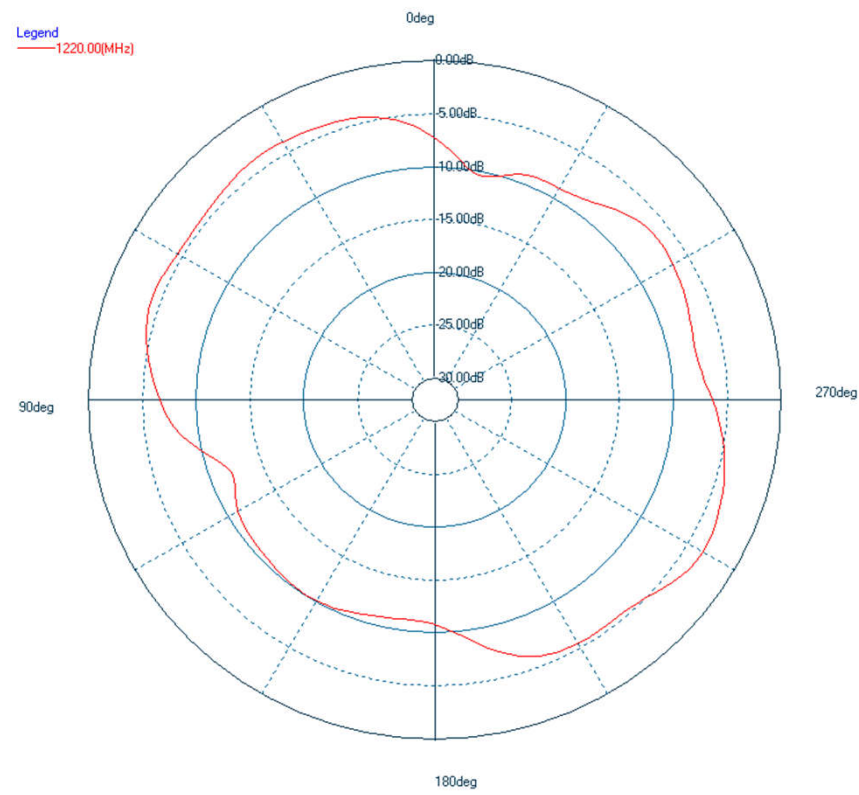


1220MHz

ANT2(WIFI1+L5) Directional Diagram PHI=90° (Free)

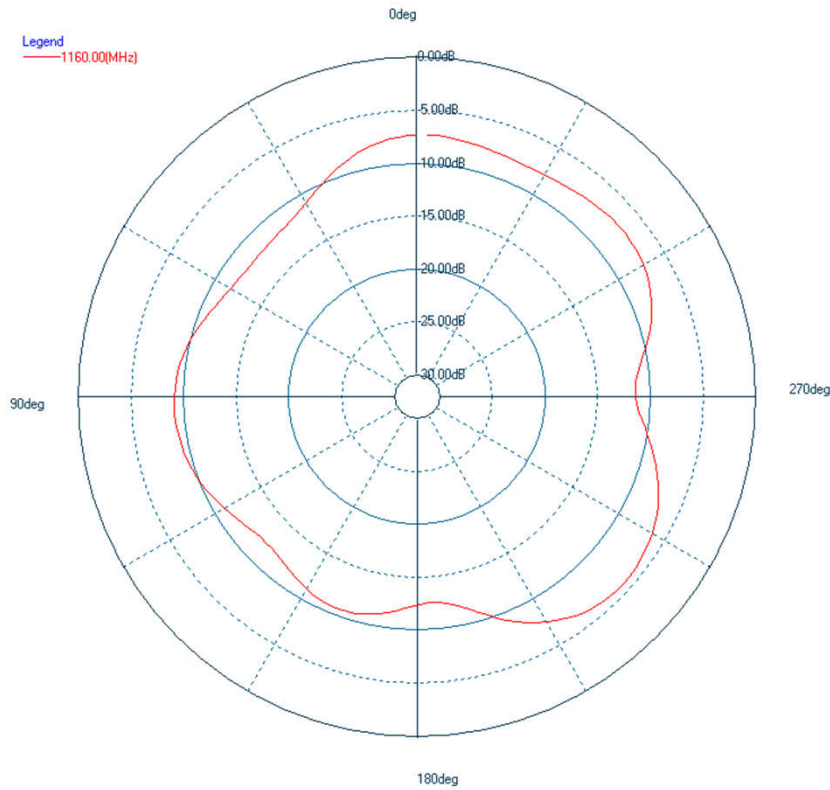


1160MHz

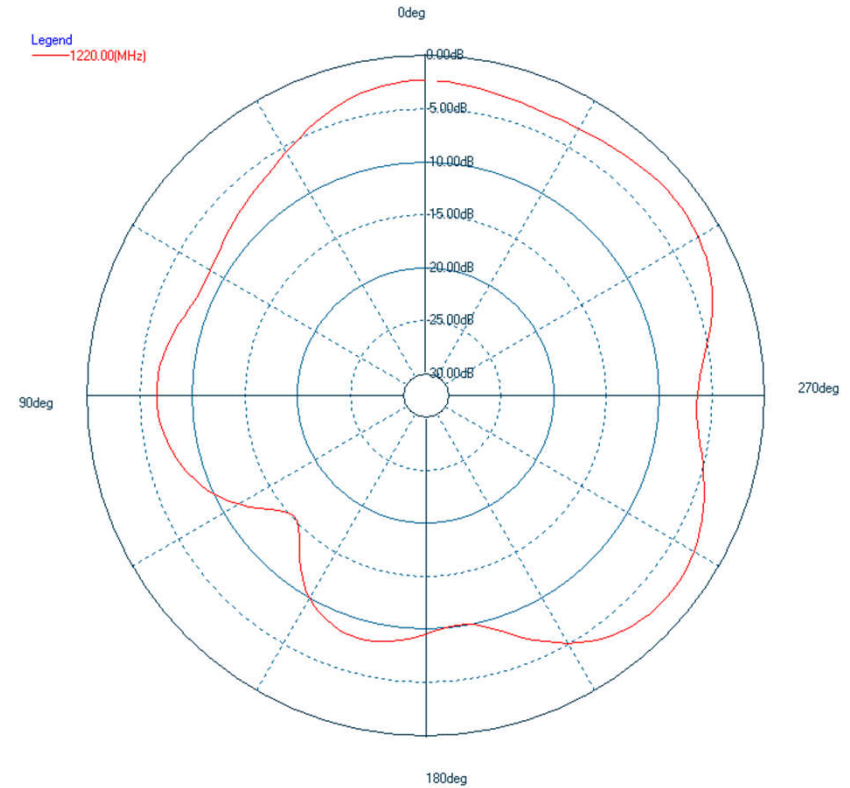


1220MHz

ANT2(WIFI1+L5) Directional Diagram Theta=90° (Free)

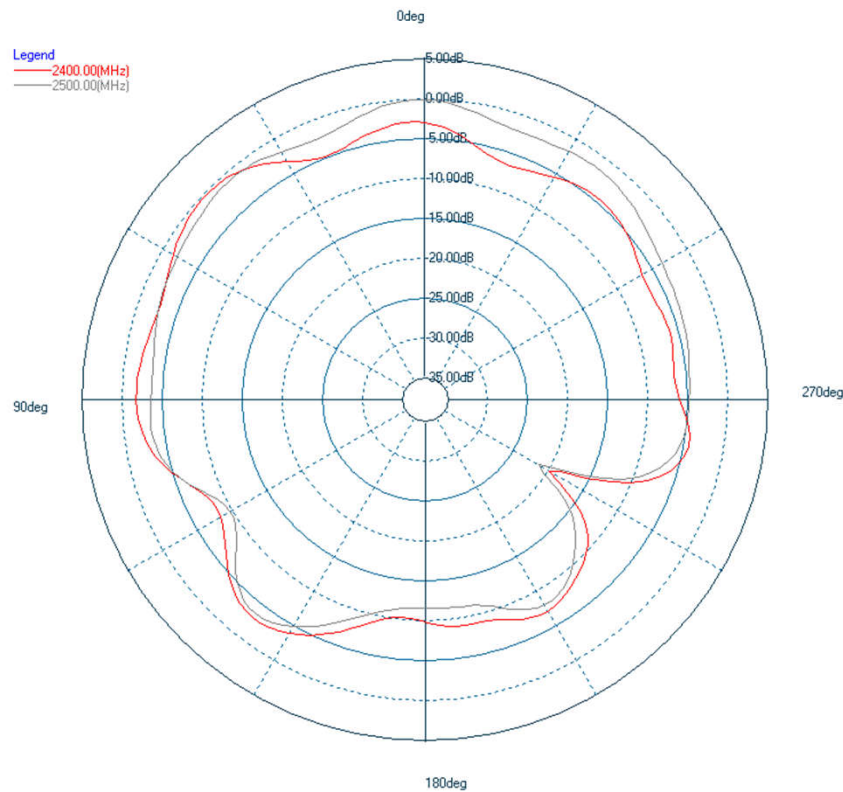


1160MHz

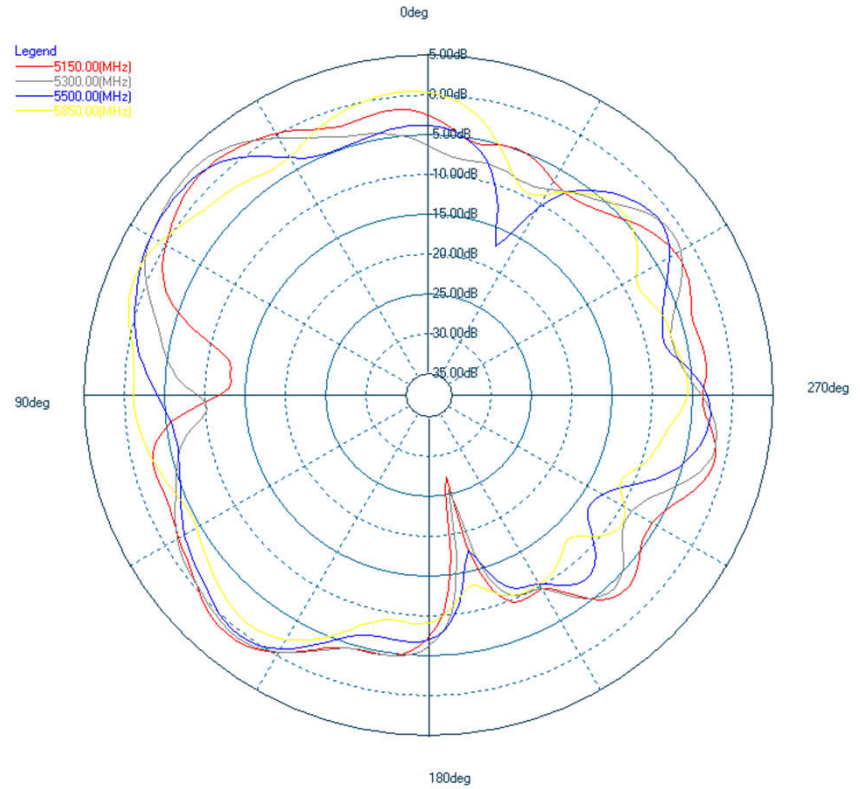


1220MHz

ANT2(WIFI1+L5) Directional Diagram PHI=0° (Free)

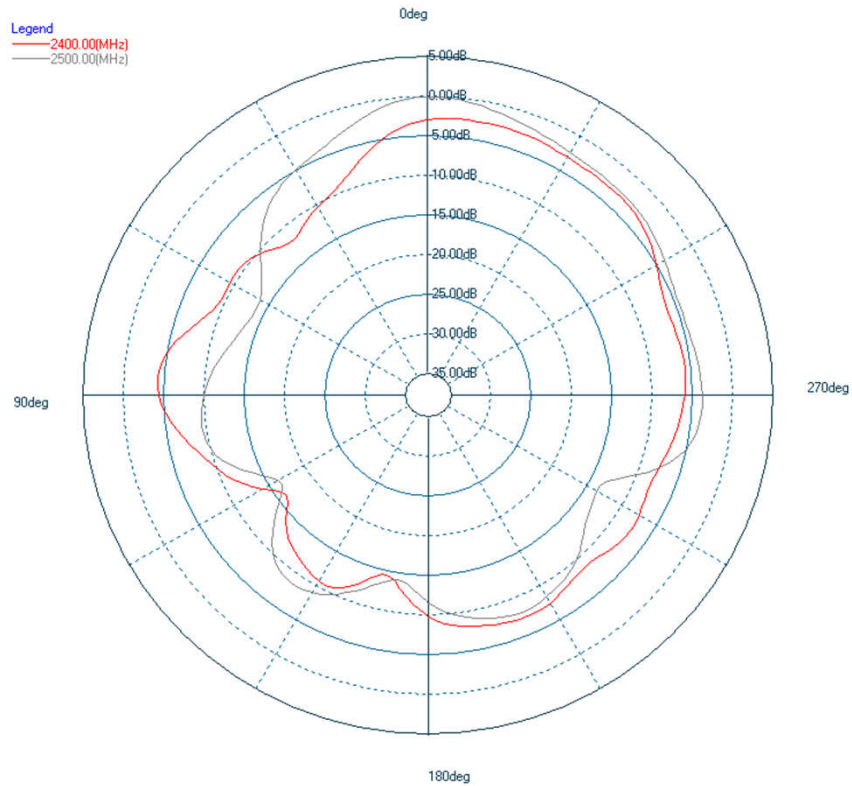


2400/2500MHz

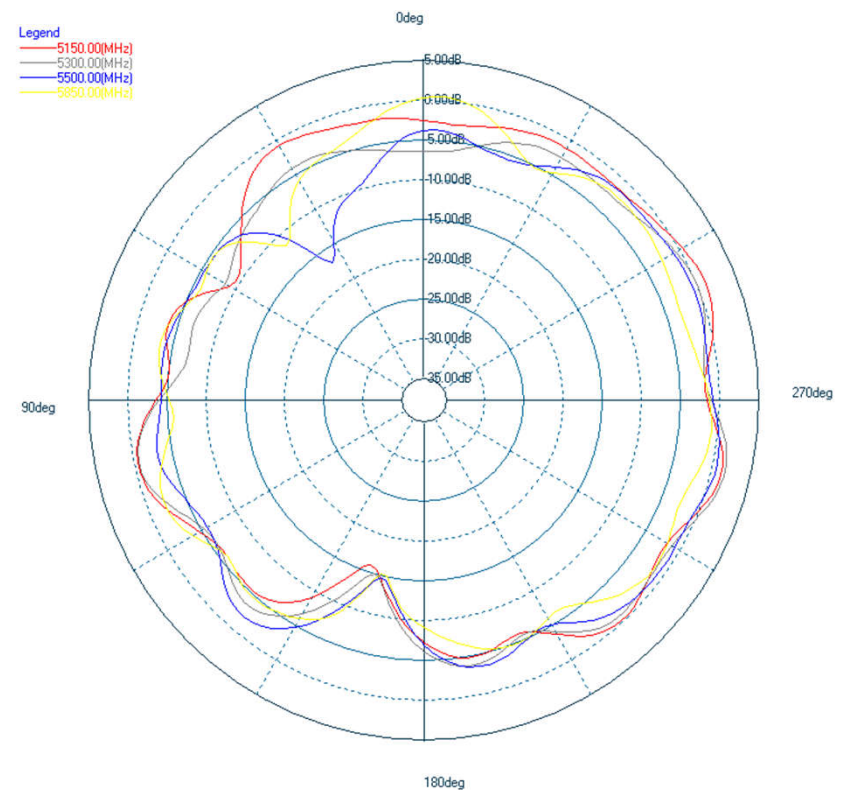


5150/5300/
5500/5850MHz

ANT2(WIFI1+L5) Directional Diagram PHI=90° (Free)

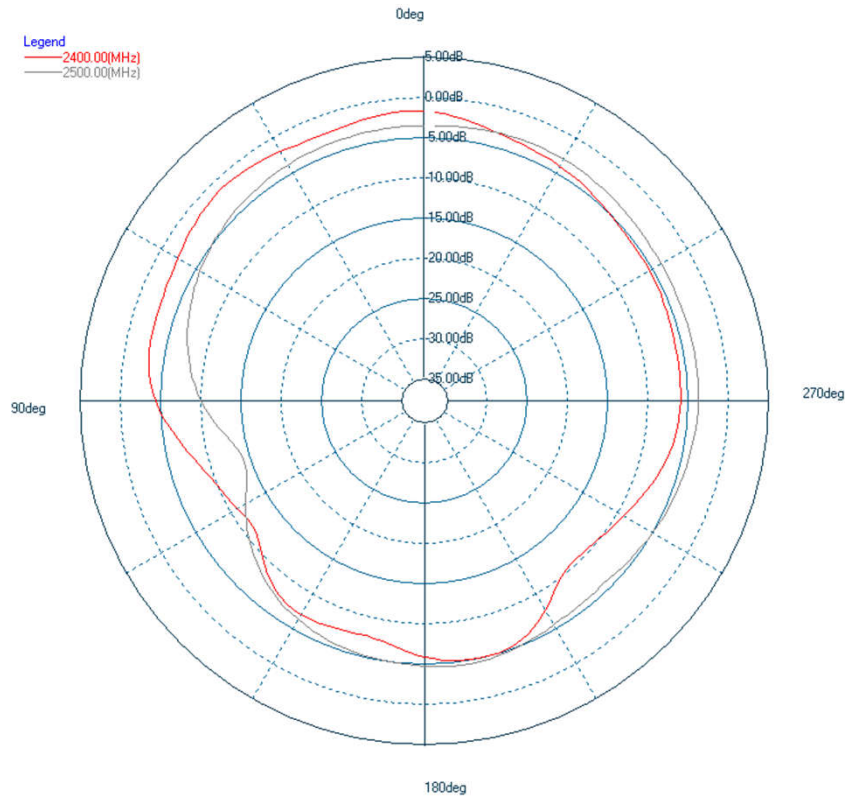


2400/2500MHz

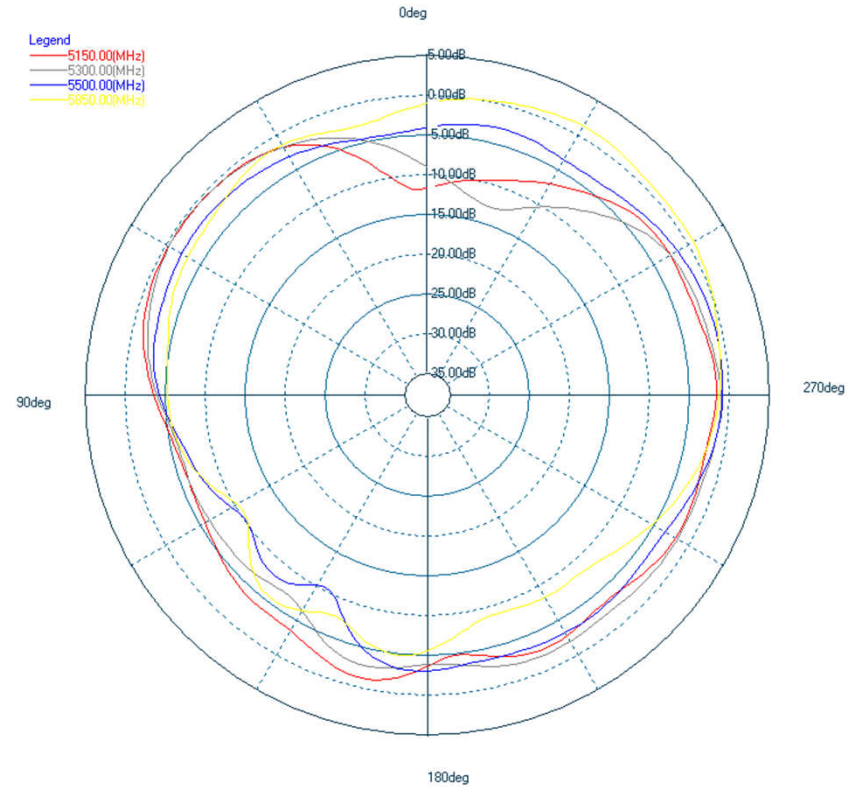


5150/5300/
5500/5850MHz

ANT2(WIFI1+L5) Directional Diagram Theta=90° (Free)

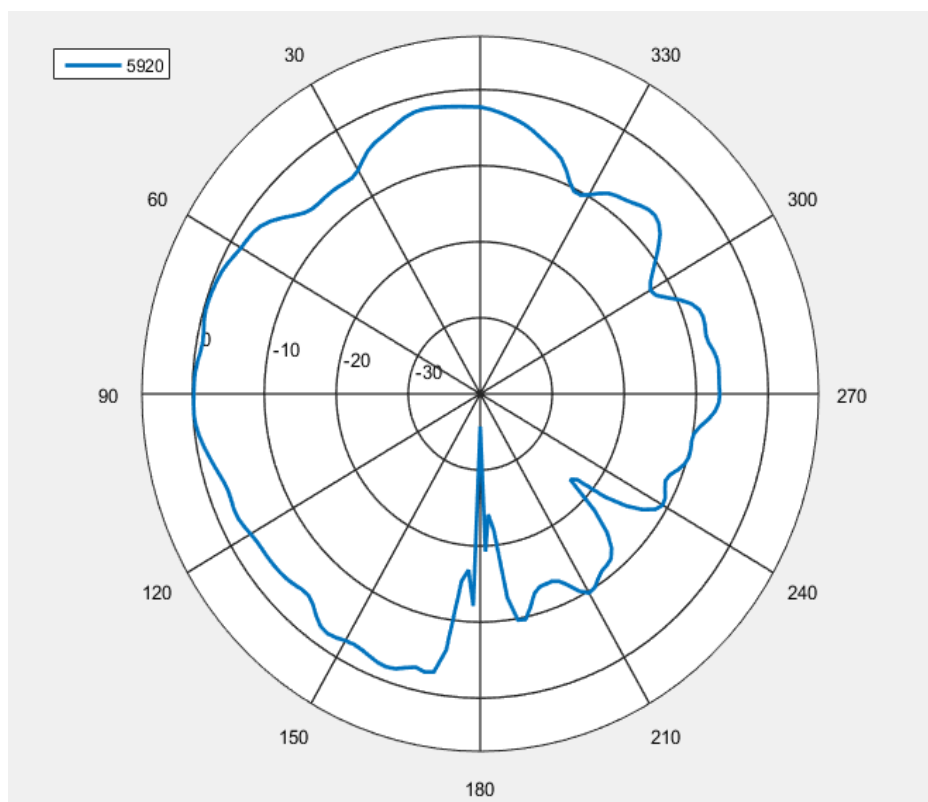


2400/2500MHz

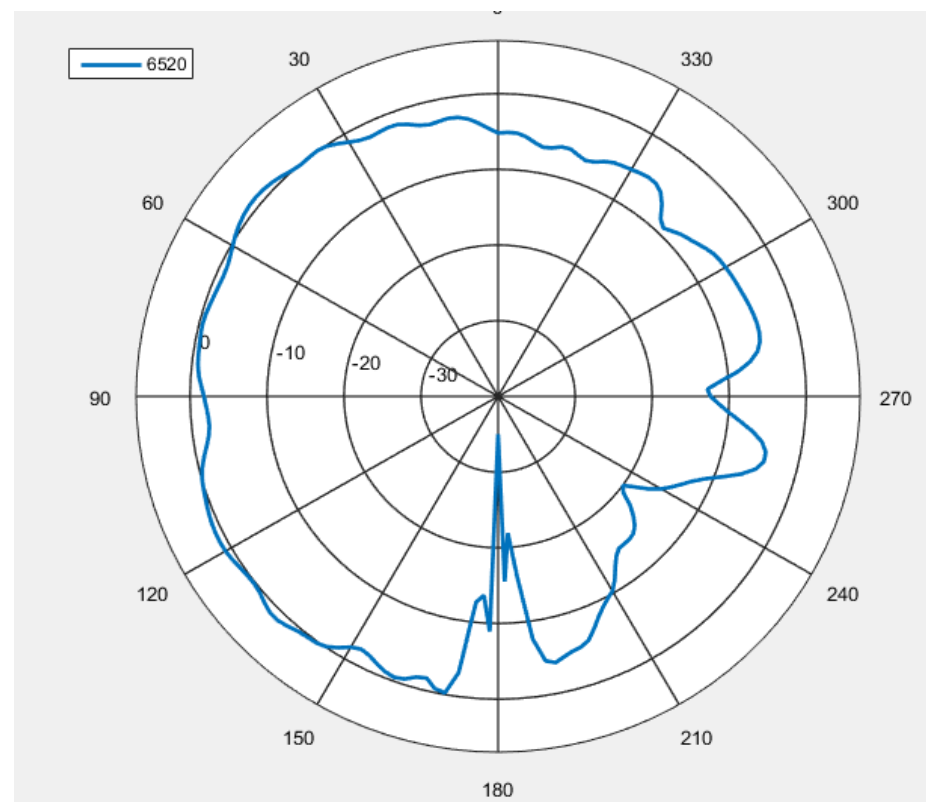


5150/5300/
5500/5850MHz

ANT2(WIFI1+L5) Directional Diagram PHI=0° ZTX (Free)

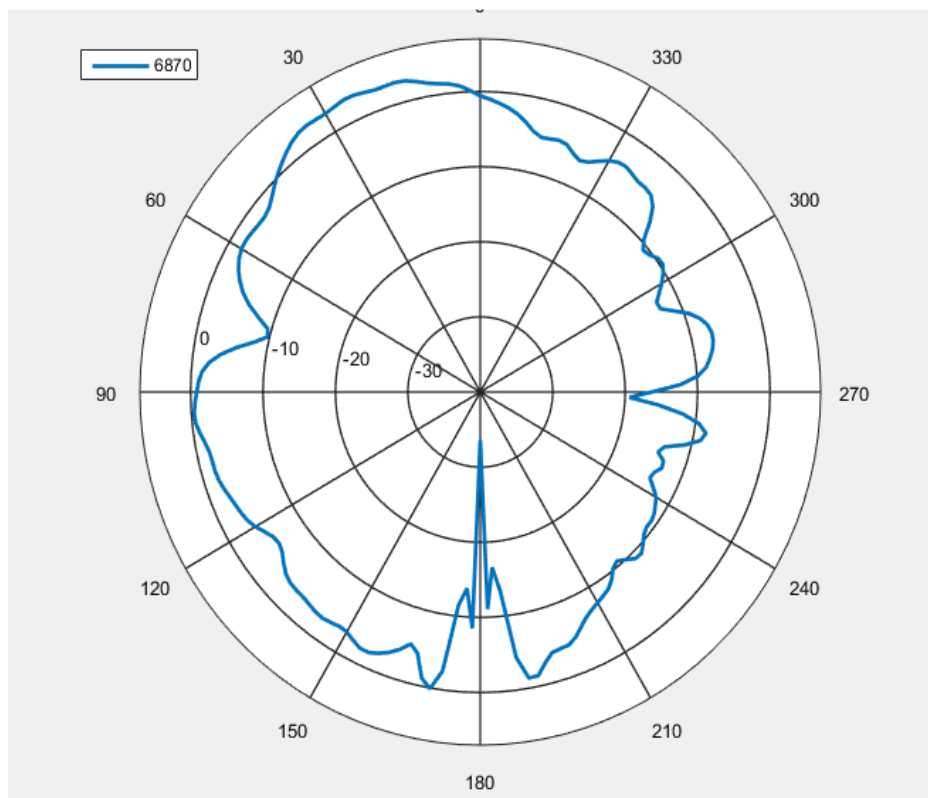


5920MHz

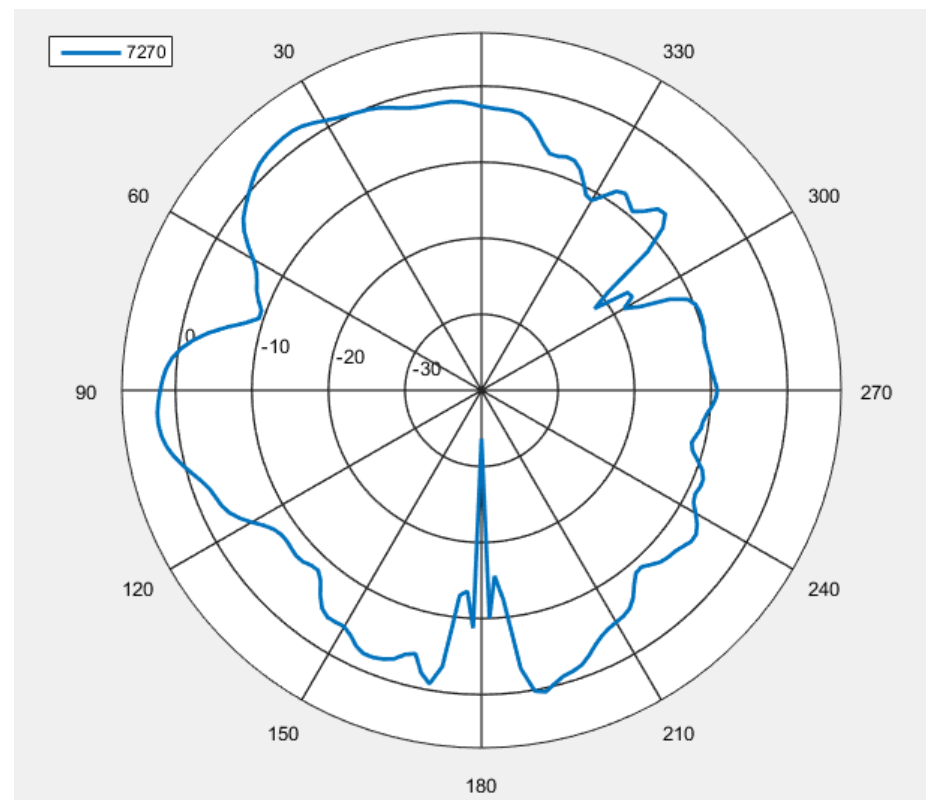


6520MHz

ANT2(WIFI1+L5) Directional Diagram PHI=0° ZTX (Free)

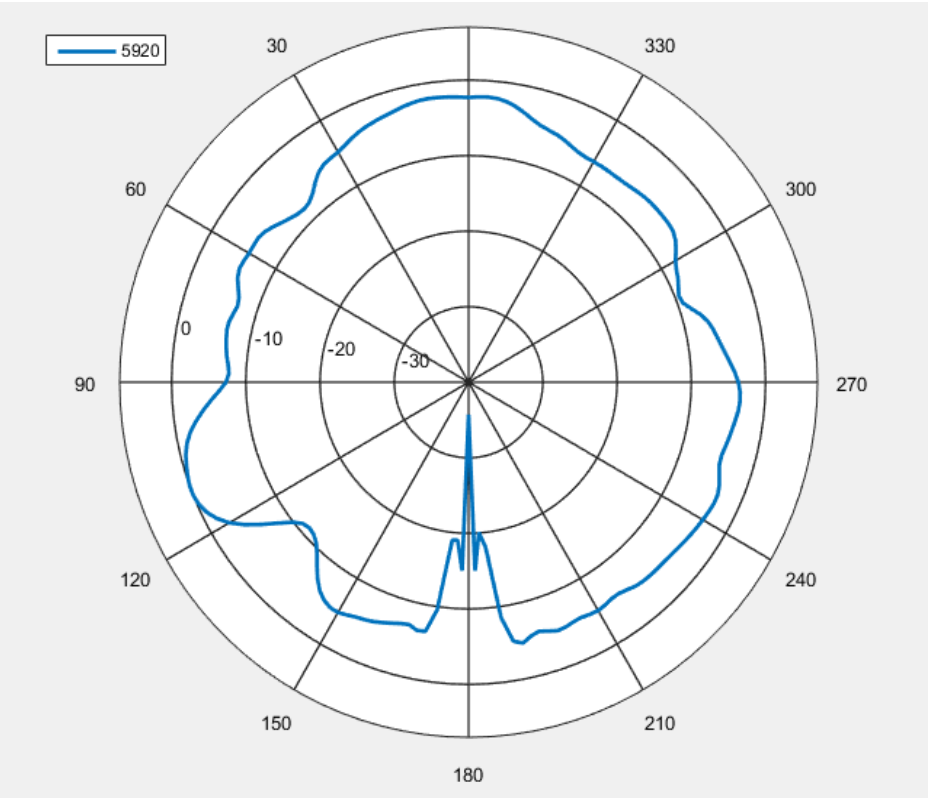


6870MHz

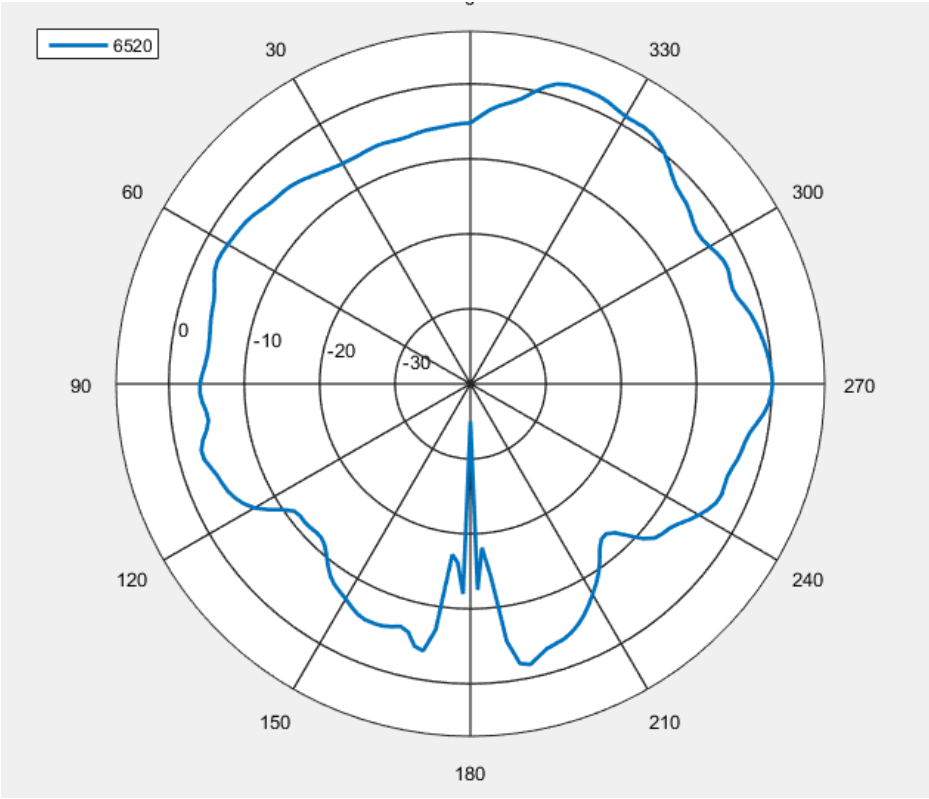


7270MHz

ANT2(WIFI1+L5) Directional Diagram PHI=90° (Free)

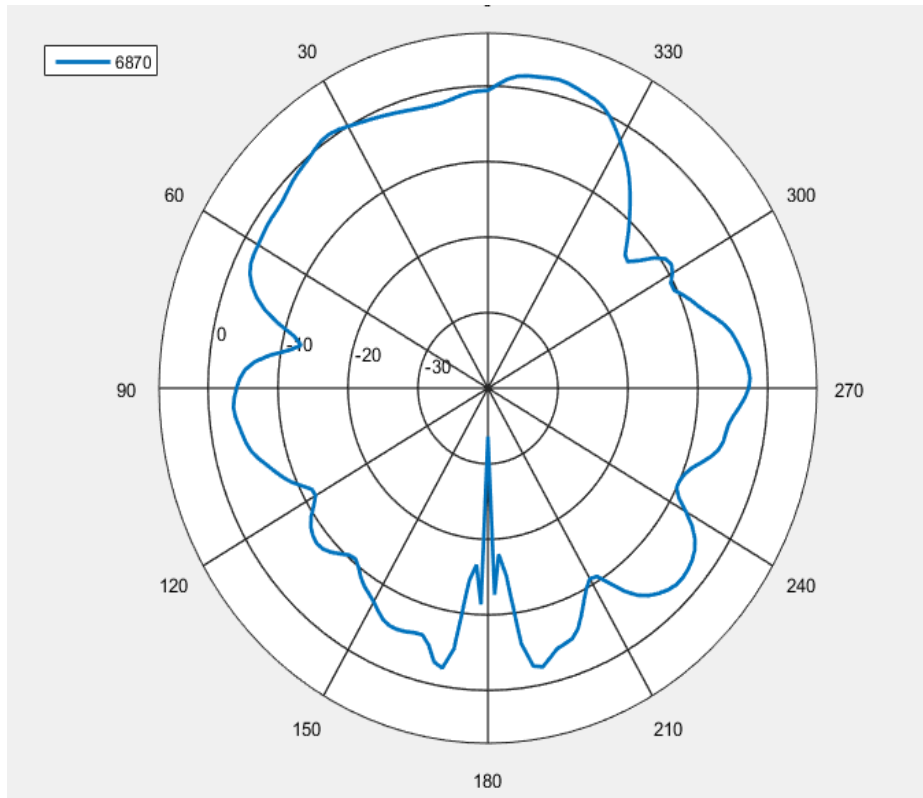


5920MHz

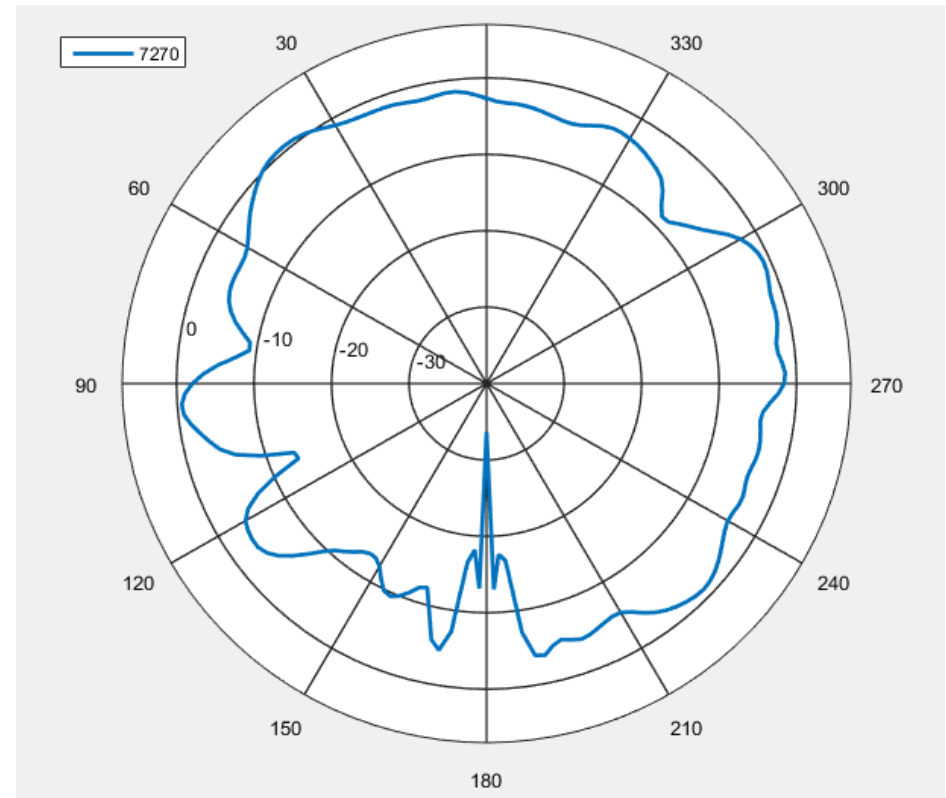


6520MHz

ANT2(WIFI1+L5) Directional Diagram PHI=90° (Free)

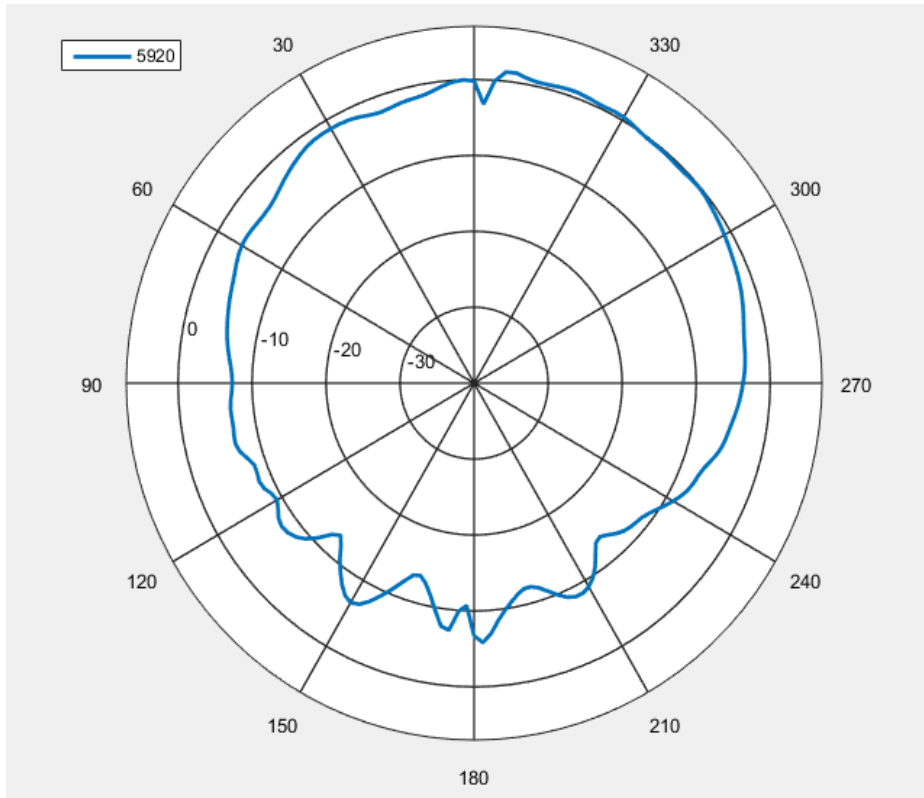


6870MHz

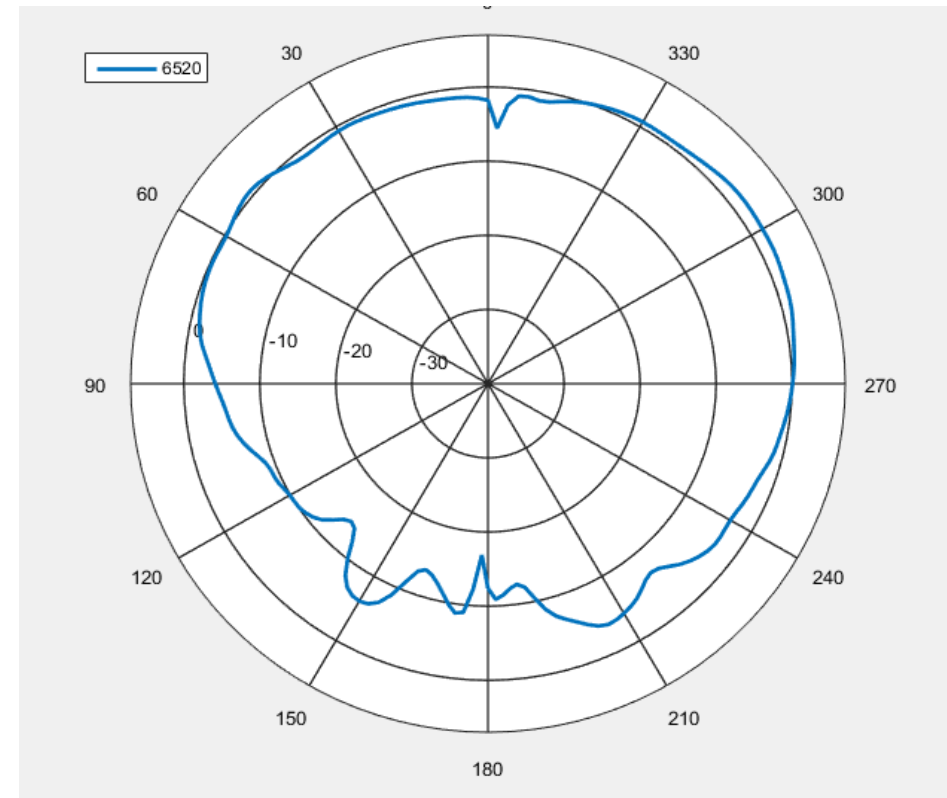


7270MHz

ANT2(WIFI1+L5) Directional Diagram Theta=90° (Free)

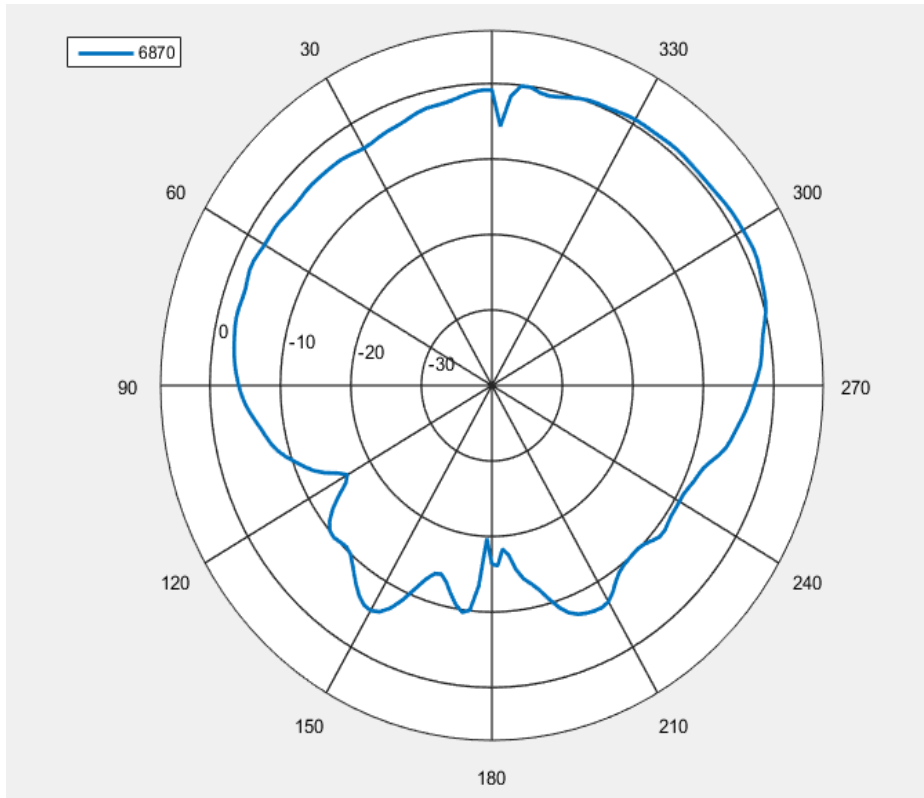


5920MHz

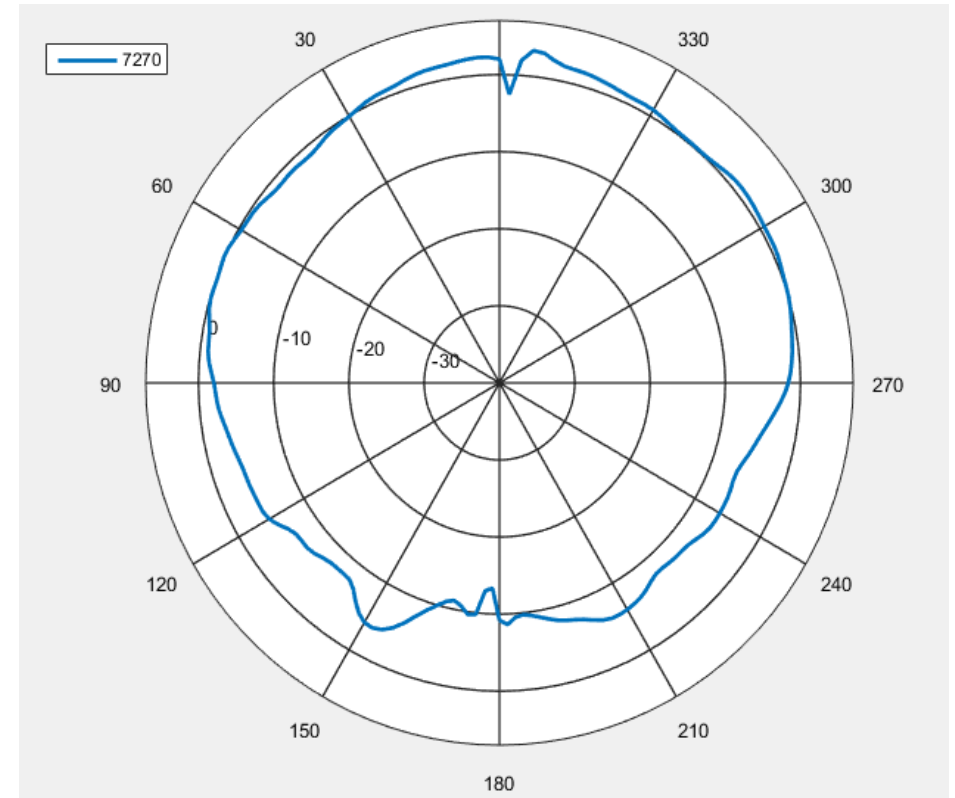


6520MHz

ANT2(WIFI1+L5) Directional Diagram Theta=90° (Free)

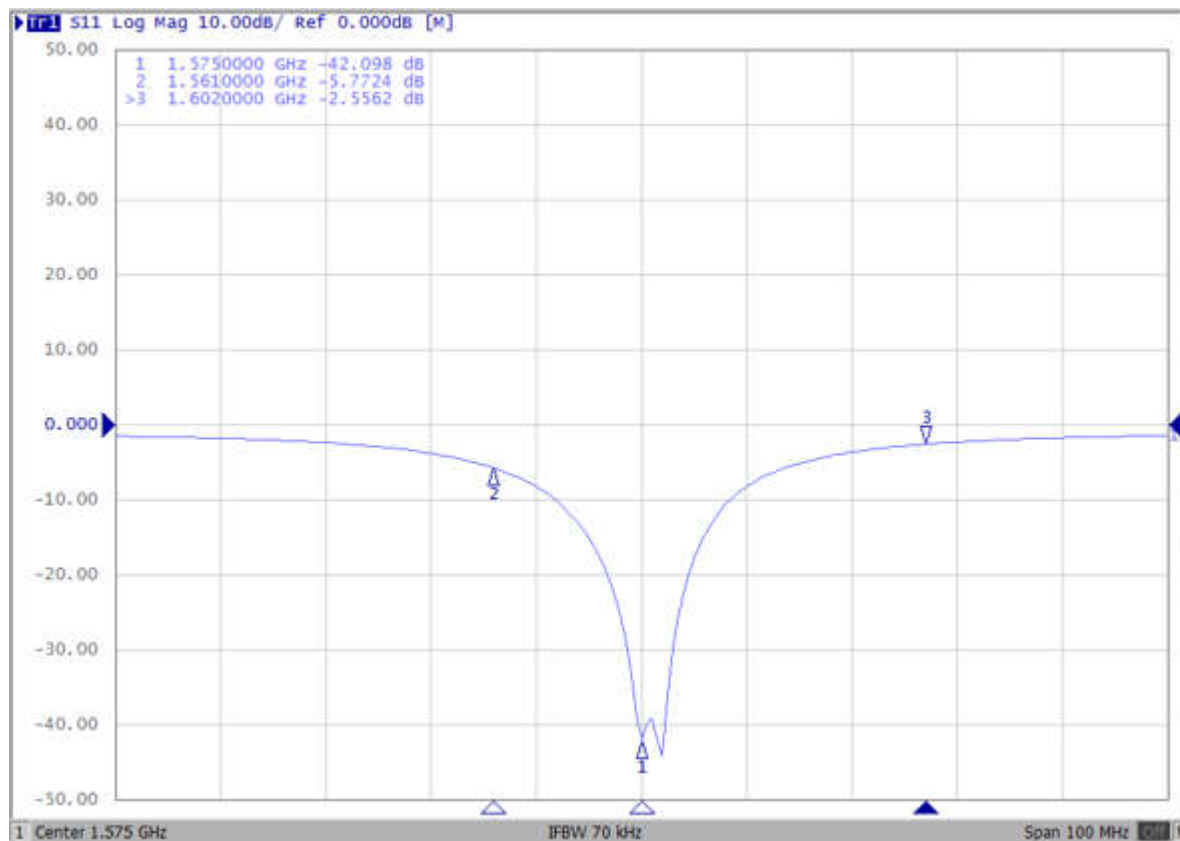


6870MHz



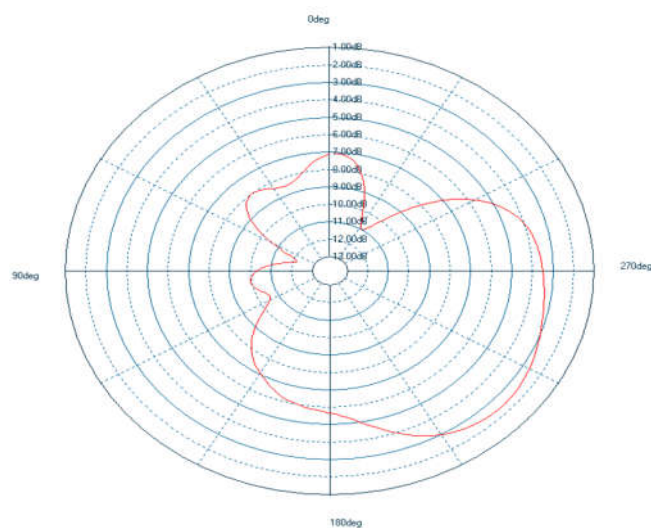
7270MHz

GPS-VSWR

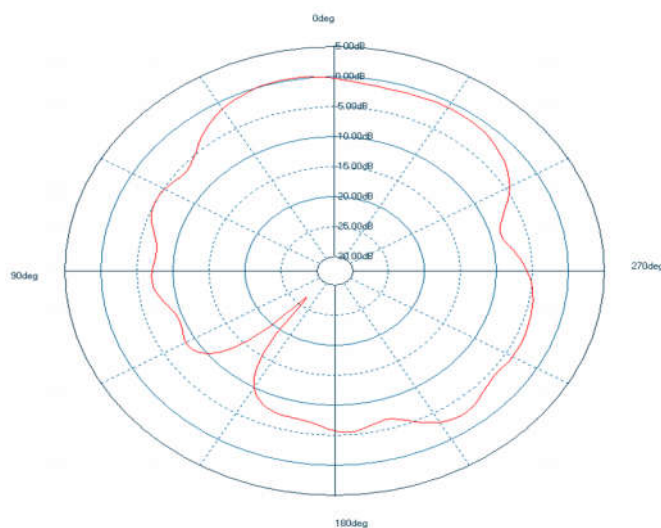


GPS-2D Directional Diagram

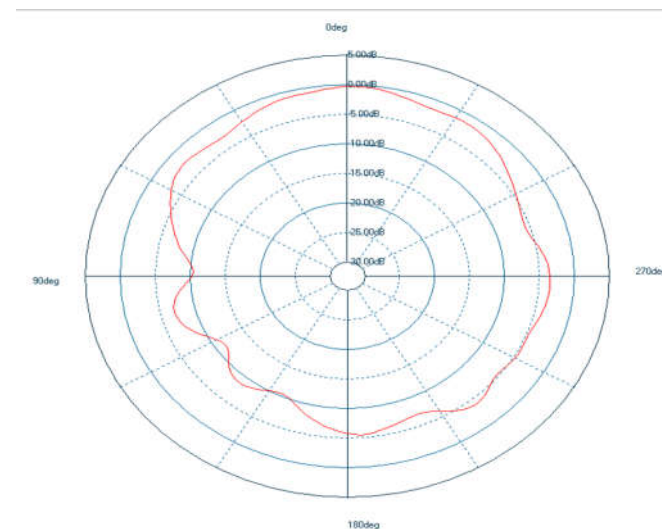
Legend
— 1575.00(MHz)



Theta=90deg

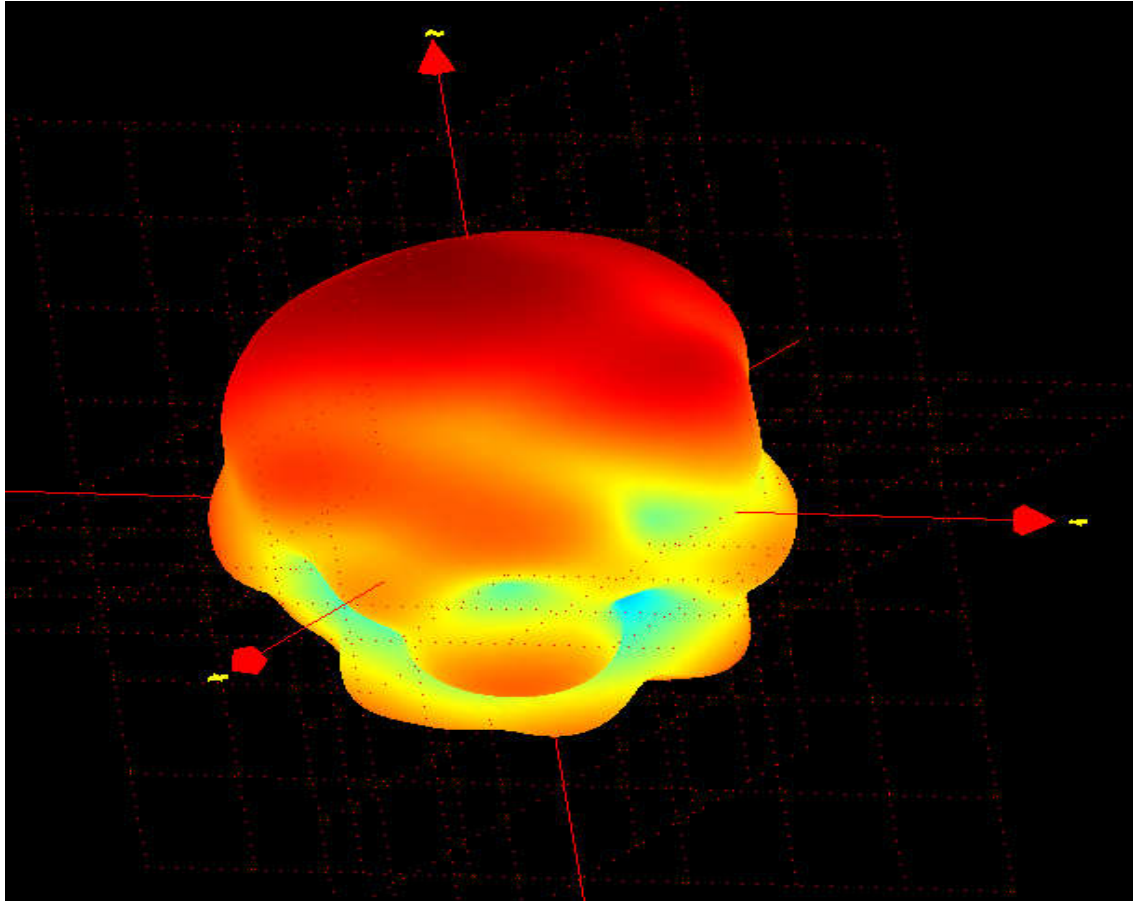


Phi=0deg



Phi=90deg

GPS-3D Directional Diagram



GPS Passive Efficiency, Gain

Frequency	Efficiency	Efficiency . dB	Gain . dB	Polar RC . Amp dB	Frequency	Efficiency	Efficiency . dB	Gain . dB	Polar RC . Amp dB
1555000000	13%	-8.89	-4.64	-5.57	1578000000	34%	-4.62	0.18	-0.82
1556000000	14%	-8.49	-4.34	-5.24	1579000000	34%	-4.64	0.15	-0.86
1557000000	15%	-8.12	-3.98	-4.94	1580000000	34%	-4.70	0.10	-0.94
1558000000	17%	-7.78	-3.59	-4.68	1581000000	33%	-4.77	0.02	-1.05
1559000000	18%	-7.47	-3.23	-4.42	1582000000	32%	-4.89	-0.11	-1.22
1560000000	19%	-7.17	-2.88	-4.08	1583000000	31%	-5.05	-0.30	-1.47
1561000000	20%	-6.90	-2.57	-3.72	1584000000	30%	-5.24	-0.56	-1.78
1562000000	22%	-6.64	-2.26	-3.39	1585000000	28%	-5.46	-0.96	-1.87
1563000000	23%	-6.37	-1.95	-3.07	1586000000	27%	-5.75	-1.16	-2.11
1564000000	25%	-6.10	-1.64	-2.75	1587000000	25%	-6.09	-1.44	-2.41
1565000000	26%	-5.86	-1.36	-2.44	1588000000	22%	-6.49	-1.83	-2.79
1566000000	27%	-5.62	-1.07	-2.14	1589000000	20%	-6.97	-2.28	-3.23
1567000000	29%	-5.41	-0.80	-1.86	1590000000	18%	-7.50	-2.86	-3.81
1568000000	30%	-5.22	-0.55	-1.59	1591000000	16%	-8.09	-3.49	-4.46
1569000000	31%	-5.08	-0.34	-1.36	1592000000	13%	-8.72	-4.12	-5.14
1570000000	32%	-4.97	-0.15	-1.16	1593000000	12%	-9.35	-4.75	-5.82
1571000000	33%	-4.87	0.01	-0.99	1594000000	10%	-9.98	-5.35	-6.46
1572000000	33%	-4.80	0.13	-0.86	1595000000	9%	-10.59	-5.95	-7.09
1573000000	34%	-4.75	0.21	-0.78	1596000000	8%	-11.14	-6.42	-7.63
1574000000	34%	-4.71	0.26	-0.74	1597000000	7%	-11.66	-6.85	-8.13
1575000000	34%	-4.67	0.18	-0.80	1598000000	6%	-12.14	-7.26	-8.61
1576000000	34%	-4.64	0.19	-0.79	1599000000	5%	-12.60	-7.66	-9.09
1577000000	34%	-4.63	0.19	-0.80	1600000000	5%	-13.03	-8.06	-9.55

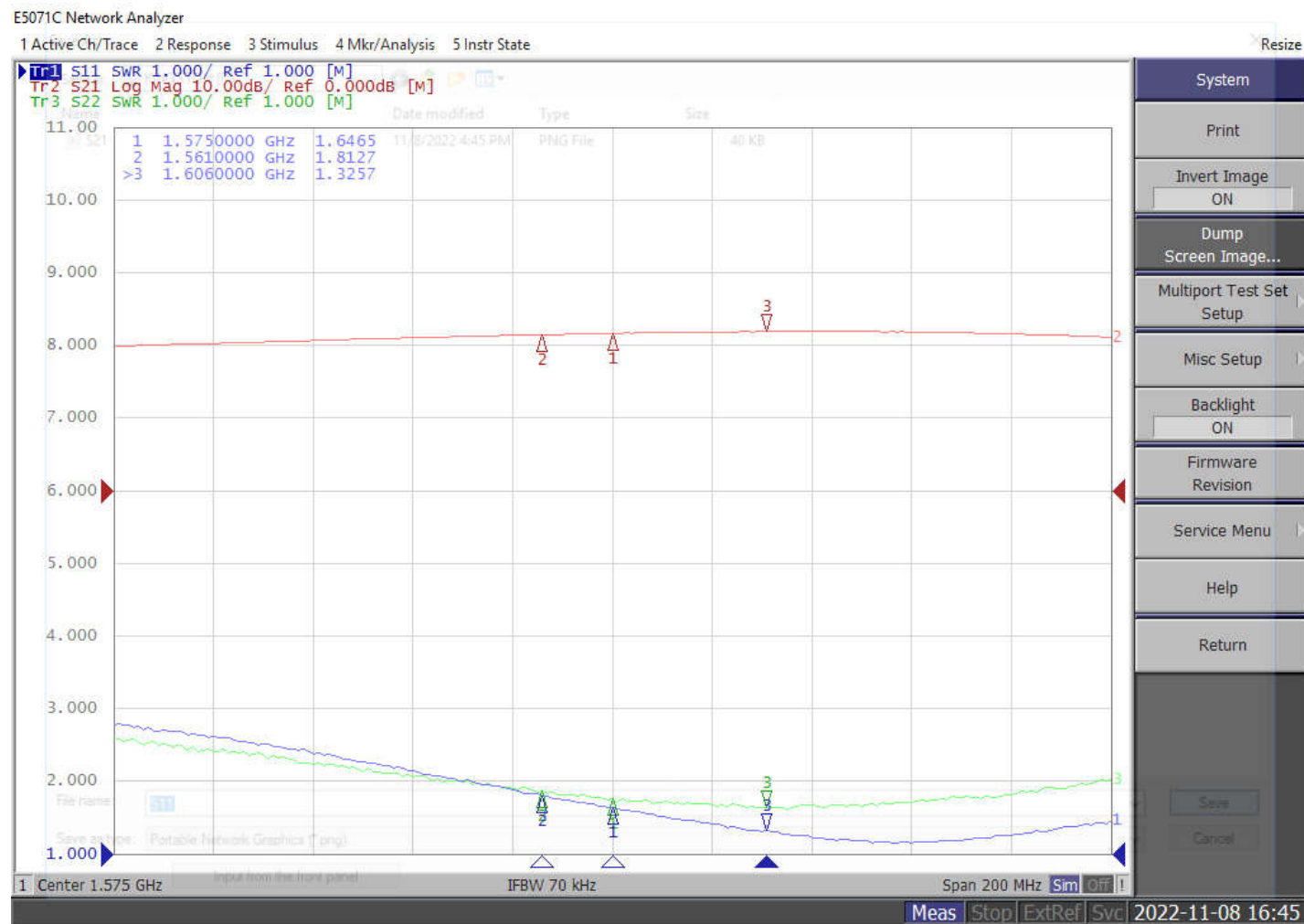
GPS-LNA: S11



GPS-LNA: S21



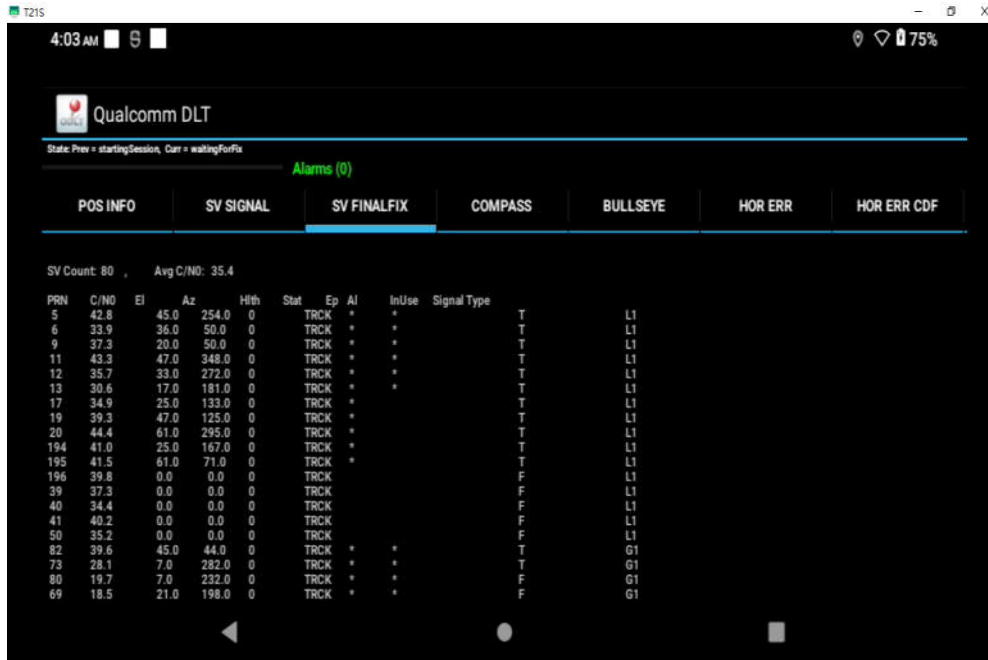
GPS-LNA: S22



GPS Position Field Test



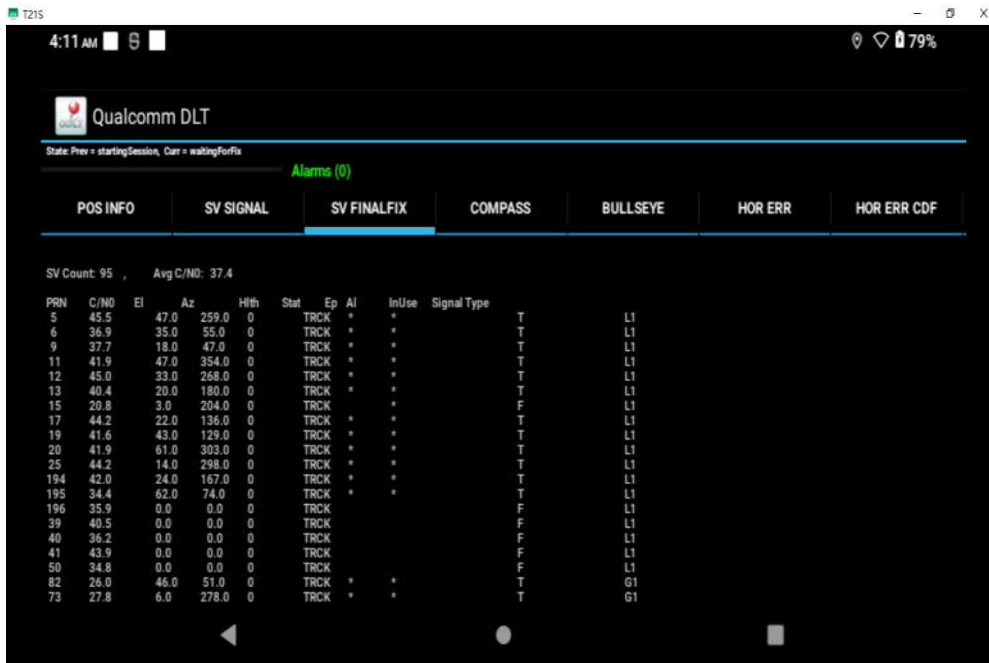
- Weather : cloudy sky
- testing environment : Roof, half shielded



Free

GPS Position Field Test

- Weather : cloudy sky
- testing environment : Roof, half shielded



Head

Thank You

