



晟天科技



Sunsky Technology Co., Ltd

## Antenna Test Report

Customer	RuiDe	Working Frequency	LTE/WIFI/GPS
<b>Radio Engineer</b>	Lin Guofu	Mechanical Engineer	Huang Hao
Date		Antenna structure	LTE&WIFI:FPC&RF cable GPS:Secondary Amplification Ceramic&RF cable

## Test Equipments

**E5071C Network Analyzer**

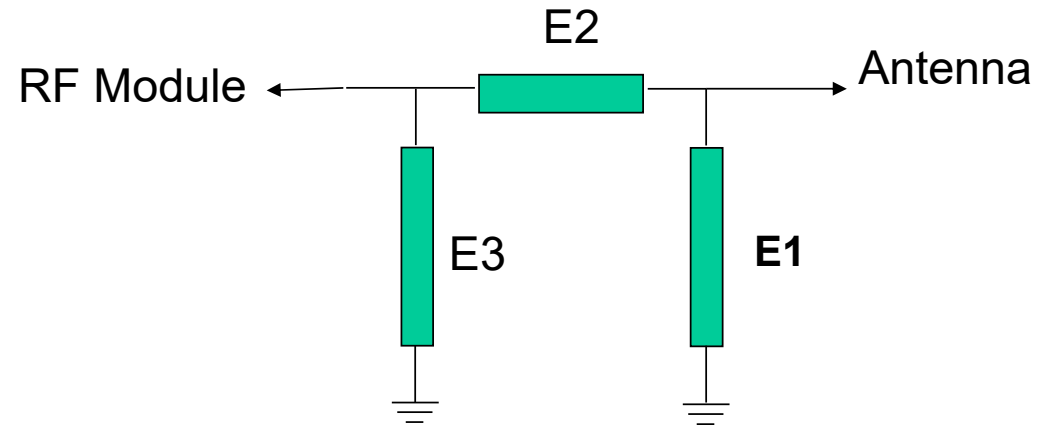


**7m\*4m\*3m Anechoic Chamber**

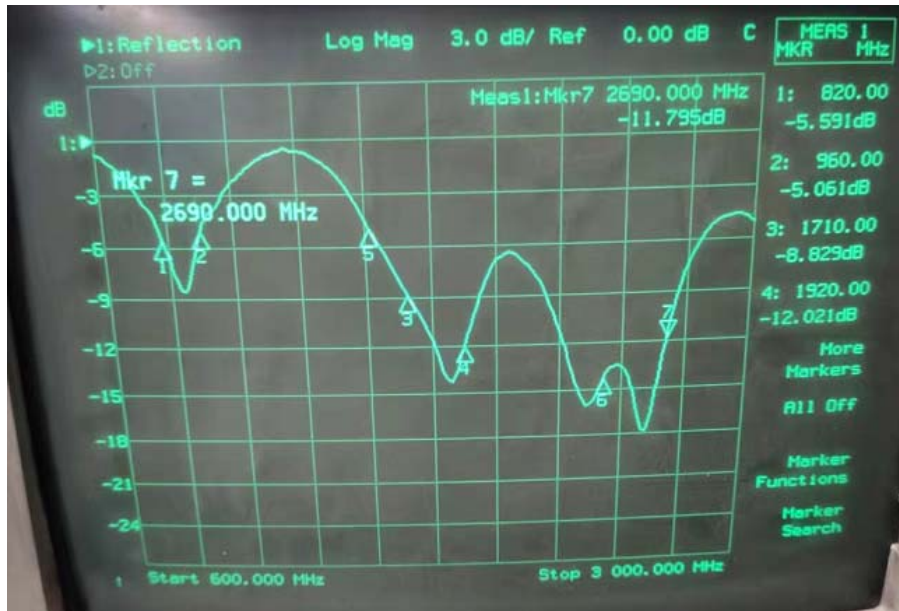


## Antenna Matching Circuits

Element	E1(0402)	E2(0402)	E3(0402)
Value	NONE	0 ohm	NONE

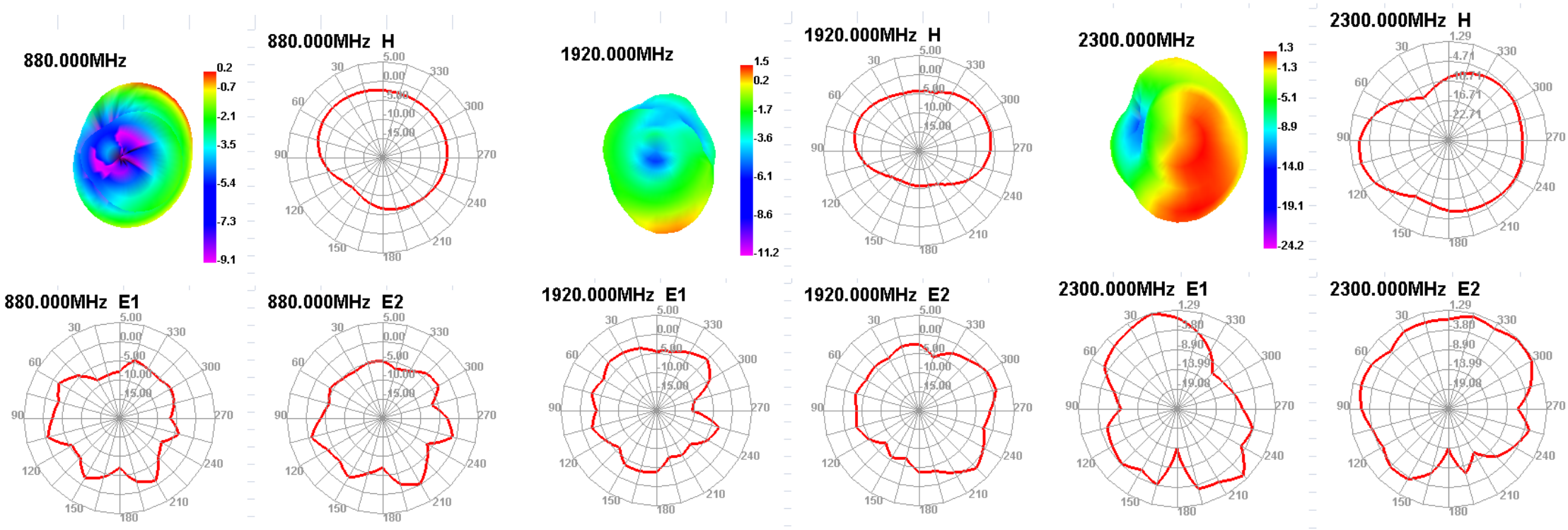


## Return Loss and Passive Efficiency of Main LTE Antenna



Freq (MHz)	Effi (%)	Gain (dBi)	Freq (MHz)	Effi (%)	Gain (dBi)	Freq (MHz)	Effi (%)	Gain (dBi)
800	33.5	-0.03	1700	47.26	2.83	2300	43.47	1.29
810	35.04	-0.2	1720	53.57	3.51	2320	47.41	2.34
820	36.44	-0.67	1740	55.71	3.56	2340	50.29	2.66
830	39.02	-0.88	1760	58.6	3.48	2360	46.97	1.94
840	39.01	-1.19	1780	62.21	3.58	2380	46.47	1.71
850	40.91	-0.8	1800	59.53	3.34	2400	41.94	1.24
860	40.79	-0.51	1820	59.75	3.21	2420	41.16	0.99
870	40.62	-0.25	1840	52.75	2.64	2440	42.19	1.03
880	41.87	0.23	1860	54.13	2.83	2460	44.35	1.28
890	42.32	0.6	1880	52.19	2.68	2480	42.99	1.25
900	43.09	0.96	1900	49.78	2.14	2500	47.4	1.74
910	40.96	0.88	1920	49.49	1.51	2520	41.81	1.03
920	40.78	0.91	1940	50.14	1.3	2540	43.73	1.05
930	34.38	0.04	1960	49.56	1.26	2560	39.26	0.51
940	30.1	-0.72	1980	47.25	0.98	2580	43.25	0.85
950	27.37	-1.38	2000	47.84	1.26	2600	43.62	0.88
960	24.66	-1.86	2020	48.26	1.43	2620	45.66	1.18
			2040	47.59	1.55	2640	43.5	0.92
			2060	50.67	2.02	2660	45.99	0.99
			2080	55.62	2.77	2680	48.3	1.4
			2100	55.24	3.13	2700	45.7	1.39
			2120	49.12	2.52			
			2140	45.9	2.16			
			2160	47.14	2.5			
			2180	45.91	2.54			

## 2D/3D Radiation Pattern of LTE Main Antenna



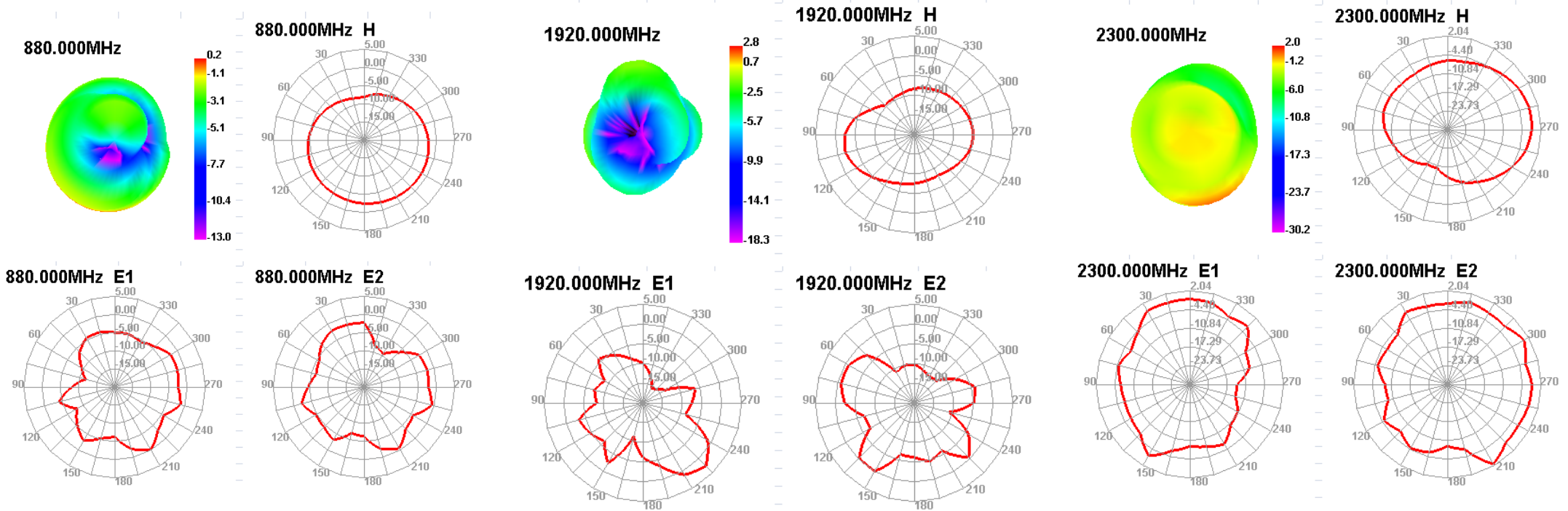
## Return Loss and Passive Efficiency of Diversity LTE Antenna



Freq (MHz)	Effi (%)	Gain (dBi)
800	26.19	-3.7
810	27.63	-3.29
820	28.34	-3.03
830	29.97	-2.74
840	32.31	-2.13
850	32.56	-1.63
860	36.79	-0.73
870	37.7	-0.39
880	42.46	0.2
890	44.82	0.44
900	46.72	0.61
910	48.26	0.72
920	47.23	0.41
930	44.19	0.03
940	39.37	-0.2
950	35.27	-0.54
960	30.25	-1.2

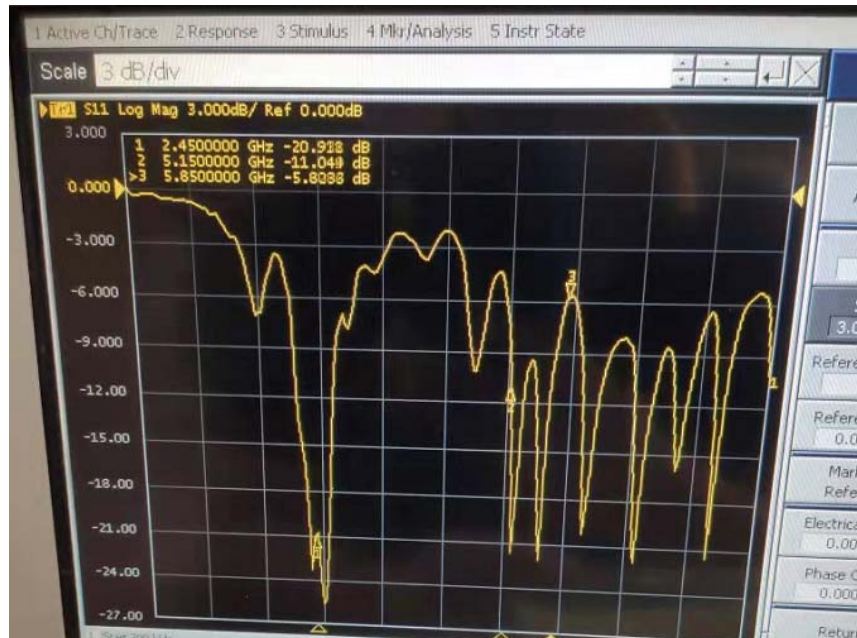
Freq (MHz)	Effi (%)	Gain (dBi)	Freq (MHz)	Effi (%)	Gain (dBi)
1700	46.28	1.78	2300	37	2.04
1720	43.91	1.5	2320	38.68	2.36
1740	38.32	1.29	2340	37.45	2.35
1760	36.38	1.64	2360	36.15	2.02
1780	33.39	1.18	2380	35.61	1.79
1800	31.31	0.49	2400	32.62	1.57
1820	32.09	0.68	2420	36.52	2.14
1840	30.78	1.08	2440	37.2	2.22
1860	33.2	1.51	2460	40.3	2.72
1880	32.53	1.37	2480	40.81	2.97
1900	34.8	2.17	2500	44.81	3.31
1920	35.99	2.76	2520	40.46	2.76
1940	39.4	2.98	2540	39.58	2.76
1960	41.78	3.1	2560	34.03	1.97
1980	39.38	3.14	2580	34.33	1.69
2000	39.4	3.31	2600	31.01	0.88
2020	39.42	3.31	2620	30.25	0.55
2040	38.47	3.24	2640	26.59	-0.67
2060	38.73	3.17	2660	27.1	-0.84
2080	41.3	3.46	2680	27.95	0.19
2100	39.47	3.48	2700	26.76	0.46
2120	31.44	2.26			
2140	30.28	1.74			
2160	30.26	1.69			
2180	29.99	1.15			

## 2D/3D Radiation Pattern of LTE Diversity Antenna





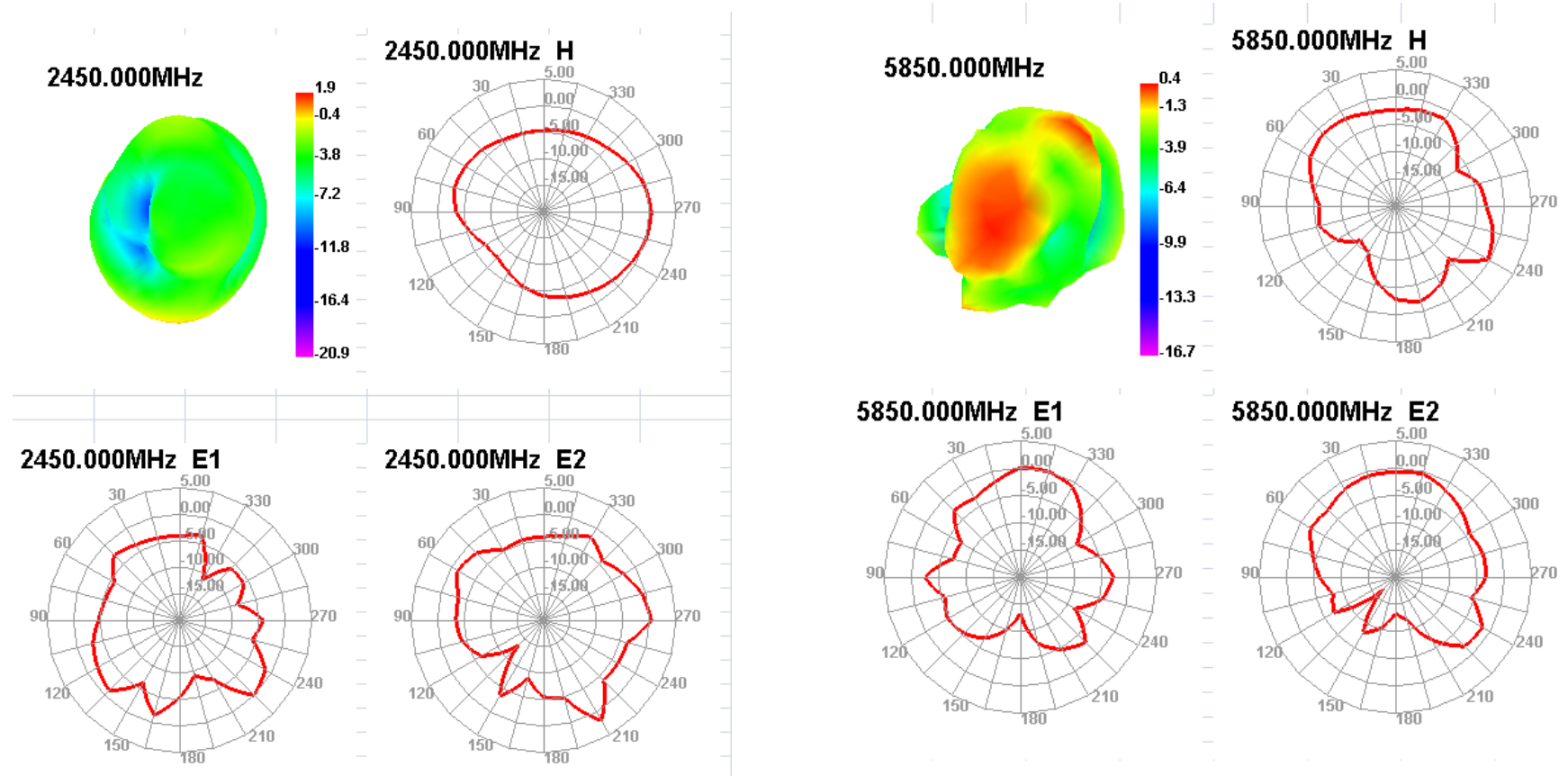
## Return Loss and Passive Efficiency of WIFI Antenna



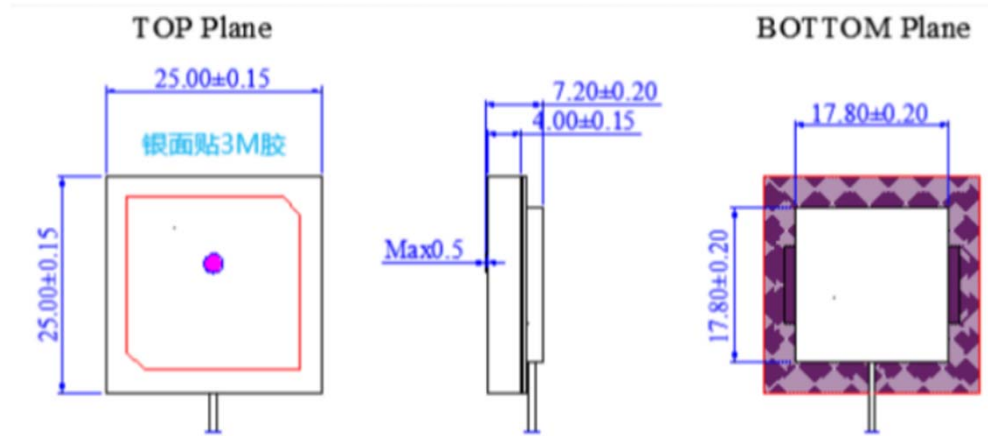
Freq (MHz)	Effi (%)	Gain (dBi)
2400	36.24	1.51
2410	41.22	1.96
2420	39.6	1.74
2430	40.85	1.84
2440	41.16	1.78
2450	43.59	1.92
2460	44.81	1.94
2470	42.6	1.71
2480	43.38	1.65
2490	44.71	1.6
2500	46.39	1.62

Freq (MHz)	Effi (%)	Gain (dBi)
5150	43.87	0.61
5170	41.14	0.71
5190	40.46	0.97
5210	39.79	0.87
5230	42.72	1.11
5250	38.57	0.91
5270	40.23	0.97
5290	41.67	0.92
5310	43.7	1.19
5330	49.47	1.69
5350	48.58	1.38
5370	53.47	1.82
5390	50.8	1.58
5410	53.13	2.08
5430	52.75	2.25
5450	48.69	2.06
5470	46.84	1.8
5490	48.1	1.74
5510	45.69	1.36
5530	43.55	1.28
5550	44.92	1.36
5570	42.22	1
5590	41.19	0.64
5610	40.63	0.4
5630	41.58	0.54
5650	40.51	0.51
5670	42.01	0.66
5690	40.99	0.54
5710	41.2	0.45
5730	44.11	0.72
5750	40.04	0.28
5770	40.93	0.3
5790	37.83	0.12
5810	39.7	0.32
5830	38.93	0.11
5850	41.41	0.42

## 2D/3D Radiation Pattern of WIFI Antenna

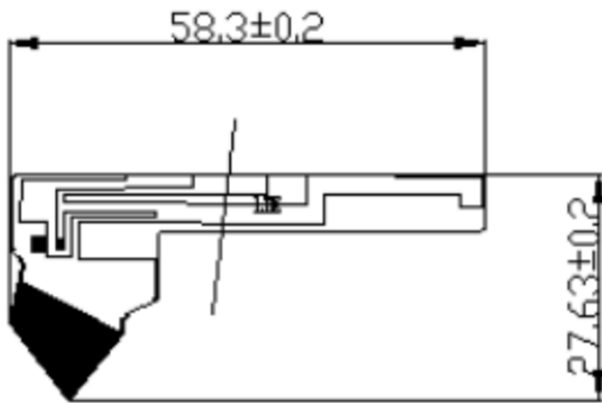


## GPS Antenna Dimension

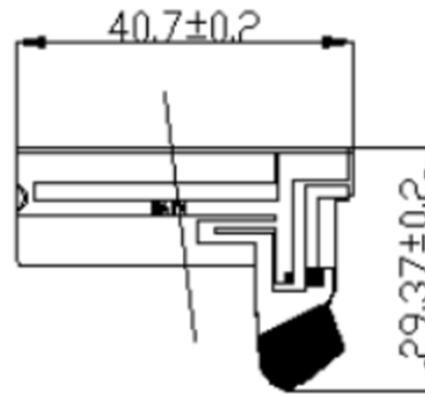


LNA	
Characteristics	Specification
Gain	$20 \pm 2\text{dB}$ (DC=3.0V)
NoiseFigure	0.65dBtyp (DC=3.0V)
OutputV. S. W. R	2.0 max (DC=3.0V)
Voltage	1.8-3.8V
Current ( DC= $3.0 \pm 0.1\text{V}$ )	$4.0 \pm 1\text{mA}$

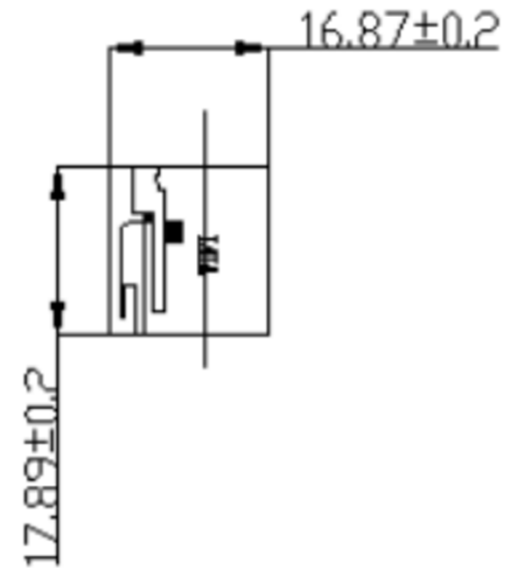
## LTE&WIFI Antenna Dimension



LTE Main Antenna



LTE Diversity Antenna



WIFI Antenna



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