

Antenna Specification

- Technical parameters

WWAN: 2G/3G/4G/5G

Antenna company: Huaxin Micro Communication Technology Co.,
Ltd.

Antenna form: PIFA

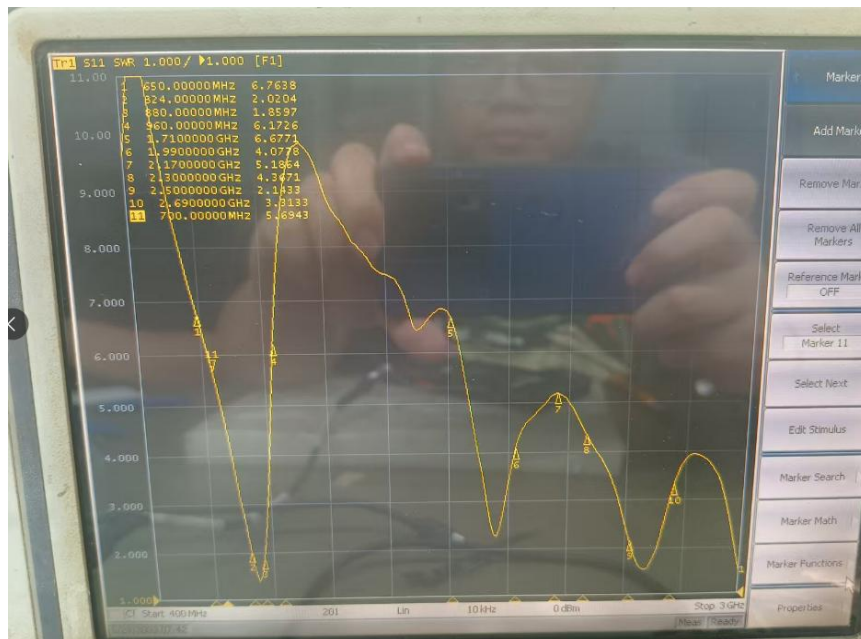
Frequency: 700MHz~2690MHz

- S11

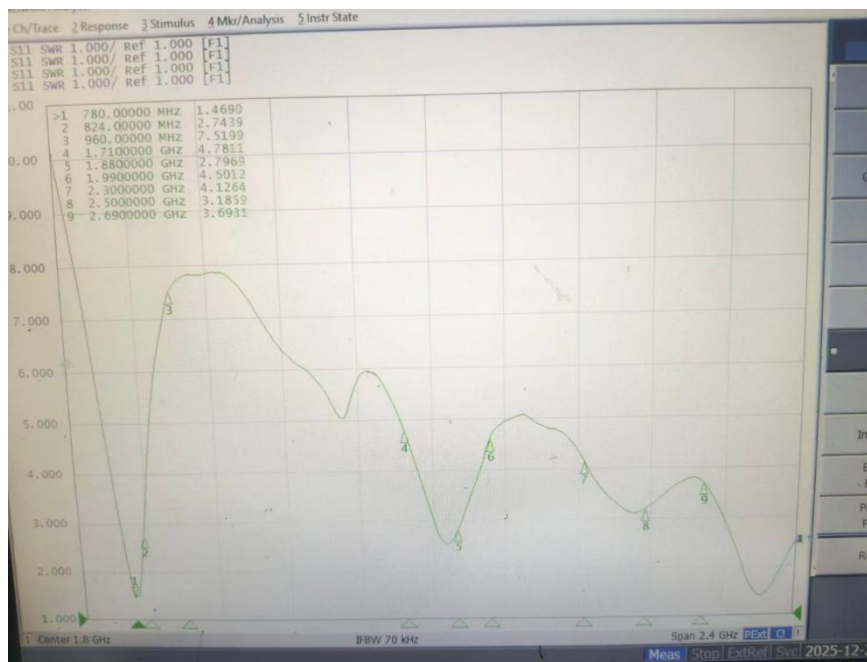
- RF1



- RF2



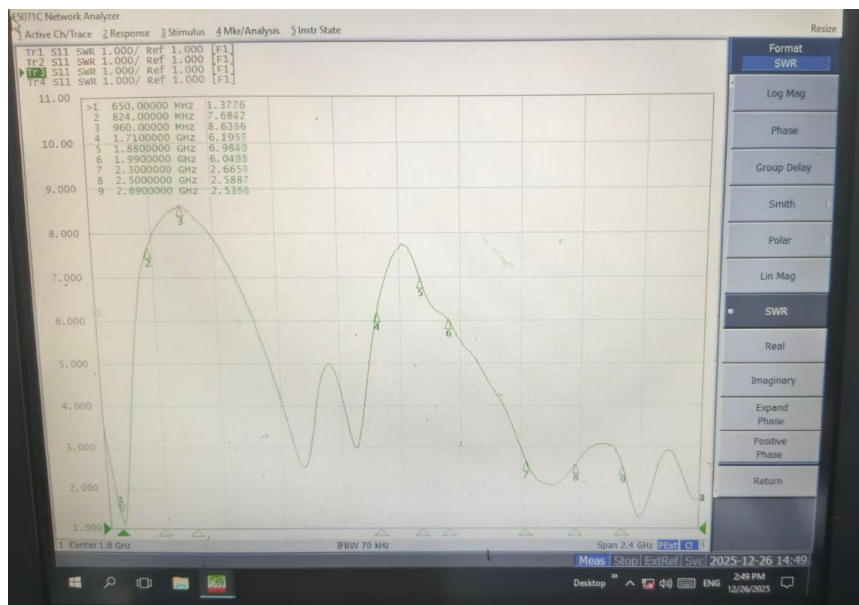
● RF3



● RF4



● RF5



- Efficiency and gain

- RF1

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
810	2.64	-11.7	-7.7
820	3.94	-10.98	-7.14
830	5.56	-10.3	-6.24
840	7.77	-9.43	-5.17
850	9.28	-8.93	-4.67
860	12.13	-8.06	-4.09
870	14.46	-7.55	-3.58
880	15.16	-7.42	-3.11
890	21.43	-6.45	-2.11
900	28.52	-5.93	-1.18
910	28.75	-5.92	-0.67
920	28.6	-5.81	-0.57
930	28.43	-5.58	-1.28
940	23.53	-6.17	-1.56
950	15.56	-7.39	-2.41
960	11.78	-8.17	-3.02
970	7.57	-8.97	-3.61
980	6.89	-9.28	-3.74
1700	8.55	-10.68	-4.8
1720	6.98	-11.56	-5.76
1740	7.71	-11.13	-5.42
1760	8.88	-10.51	-4.82
1780	7.35	-11.34	-5.49
1800	5.84	-12.34	-6.71
1820	7.15	-11.46	-5.89
1840	11.41	-9.43	-4.02
1860	9.78	-10.1	-4.74
1880	7.38	-11.32	-5.87
1900	8.16	-10.88	-5.05
1920	22.02	-6.49	-0.19
1940	26.65	-5.72	0.62
1960	27.79	-5.55	0.6
1980	28.4	-5.46	0.52
2000	28.21	-5.49	0.01
2020	29	-5.37	-0.51
2040	27.54	-5.59	-1.44
2060	26.2	-5.79	-2.14

2080	21.95	-6.51	-2.85
2100	17.43	-7.43	-3.79
2120	18.2	-7.48	-5.63
2140	14.59	-9.05	-7.18
2160	13.41	-8.73	-3.25
2180	10.76	-9.68	-4.36
2200	9.82	-10.08	-5.26
2220	8.6	-10.65	-6.08
2240	7.49	-11.25	-6.68
2260	6.51	-11.87	-7.04
2280	6.02	-12.2	-7.49
2300	4.75	-13.23	-8.7
2320	4.17	-13.8	-9.49
2340	3.83	-14.16	-9.86
2360	3.94	-14.04	-9.61
2380	3.71	-14.31	-9.87
2400	3.75	-14.26	-9.43
2420	3.43	-14.65	-9.92
2440	3.34	-14.76	-10.32
2460	2.51	-16.01	-12.14
2480	2	-17	-13.09
2500	1.99	-17.01	-13.25
2520	1.63	-17.87	-14.16
2540	1.68	-17.74	-13.83
2560	1.56	-18.08	-14
2580	1.54	-18.14	-13.98
2600	1.59	-17.99	-14.69
2620	1.75	-17.56	-13.6
2640	1.89	-17.25	-14.11
2660	1.57	-18.05	-14.96
2680	1.55	-18.1	-14.64
2700	1.54	-18.14	-14.38

● RF2

Freq (MHz)	Effi (%)	Effi (dB)	Gain
			(dBi)
810	25.34	-5.89	-1.82
820	27.17	-5.65	-1.28
830	27.78	-5.61	-12.18
840	25.45	-5.94	-1.11
850	21.78	-6.57	-1.29
860	18.89	-7.39	-3.92
870	14.12	-8.43	-4.83

880	11.63	-9.3	-5.37
890	9.28	-10.28	-6.26
900	8.08	-10.9	-6.73
910	7.89	-11.32	-7.37
920	7.98	-11.45	-7.48
930	7.13	-11.43	-7.72
940	7.23	-11.38	-7.94
950	6.78	-11.76	-7.94
960	6	-12.2	-8.02
970	5.09	-12.98	-8.65
980	4.19	-13.78	-9.31

● RF3(B13)

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
650	9.91	-10.04	-7.37
660	9.36	-10.29	-7.47
670	9.25	-10.34	-7.51
680	9.54	-10.21	-6.59
690	10.55	-9.77	-6.03
700	11.38	-9.44	-5.45
710	11.95	-9.23	-4.7
720	14.36	-8.43	-3.71
730	17.25	-7.63	-3.12
740	19.81	-7.03	-2.86
750	21.16	-6.75	-2.85
760	23.27	-6.33	-1.42
770	20.21	-6.34	-2.45
780	15.8	-8.01	-4.5
790	13.53	-8.69	-5.27
800	10.84	-9.65	-6.75

● RF4

Freq (MHz)	Effi (%)	Effi (dB)	Gain
			(dBi)
650	6.47	-11.88	-9.12
660	8.29	-10.78	-8.2
670	11.76	-9.44	-6.8
680	13.31	-8.71	-6.06
690	25.78	-5.83	-3.5
700	24.75	-5.87	-2.45
710	25.54	-5.71	-1.62
720	20.87	-6.75	-1.68

730	16.78	-7.76	-1.98
740	11.79	-9.27	-6.9
750	8.45	-10.7	-8.03
760	6.90	-12.16	-9.31
770	4.7	-13.28	-10.38
780	3.87	-14.14	-11.42
790	3.27	-14.87	-11.88
800	2.95	-15.34	-12.27

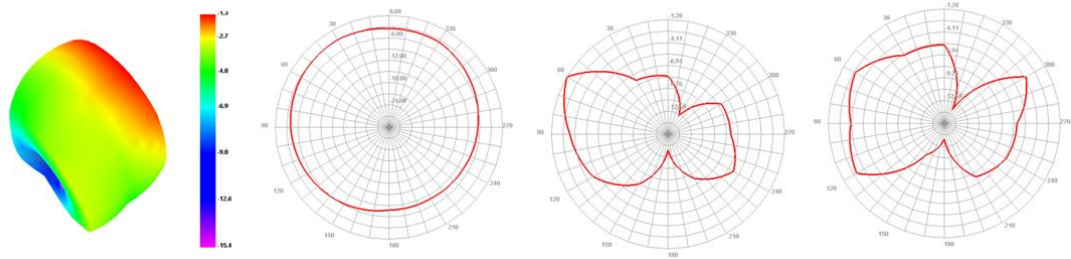
● RF5

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
650	14.39	-8.4	-4.61
660	15.38	-8.12	-4.11
670	15.32	-8.13	-4.44
680	19.05	-7.19	-4.53
690	23.59	-6.26	-1.8
700	23.44	-6.28	-2.65
710	22.66	-6.43	-2.52
720	18.43	-7.33	-3.29
730	16.76	-7.74	-3.67
740	14.72	-8.31	-4.28
750	13.16	-8.79	-6.08
760	9.09	-10.4	-6.3
770	10.2	-9.9	-5.85
780	8.94	-10.48	-6.64
790	8.37	-10.76	-7.23
800	9.62	-10.16	-6.73

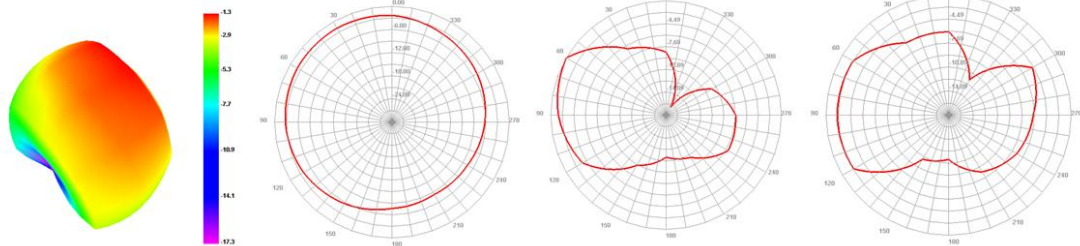
●

● Radiation pattern

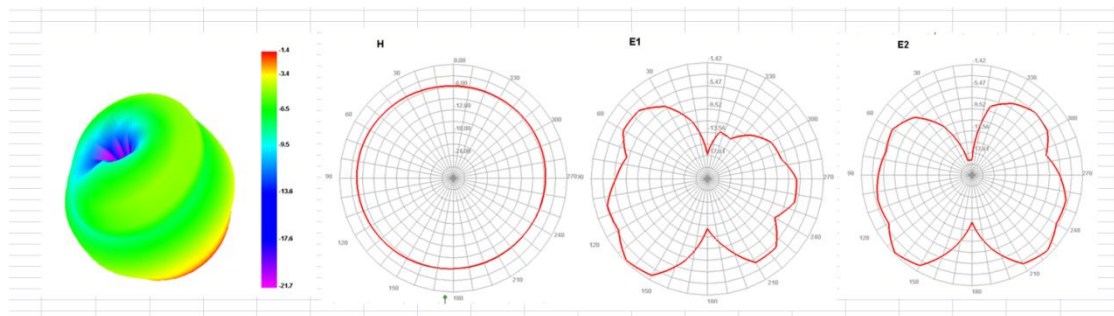
RF1 930MHZ



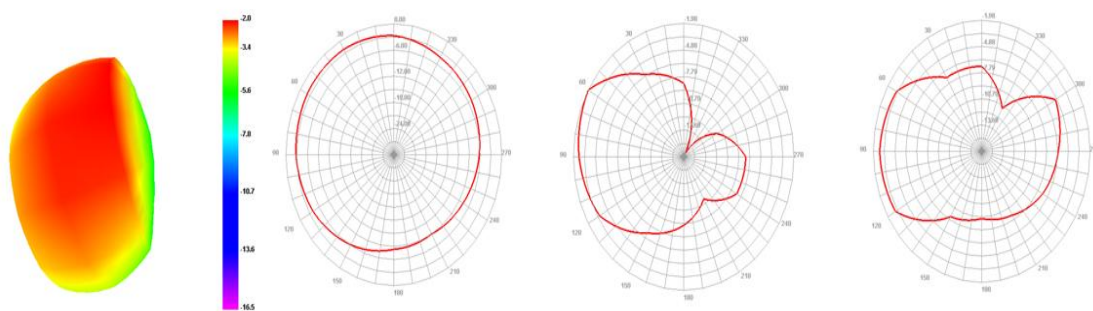
RF2 860MHZ



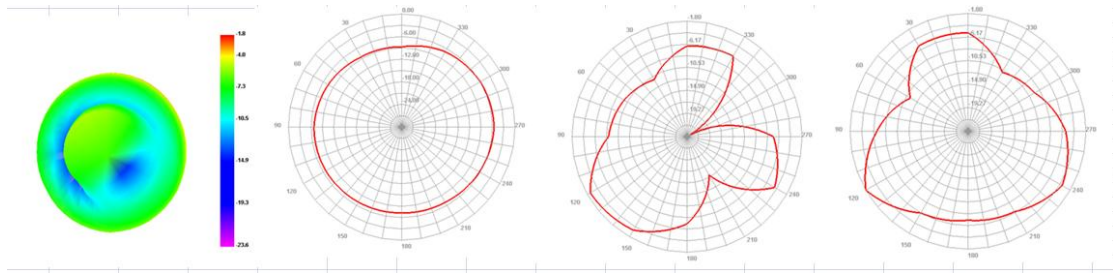
RF3



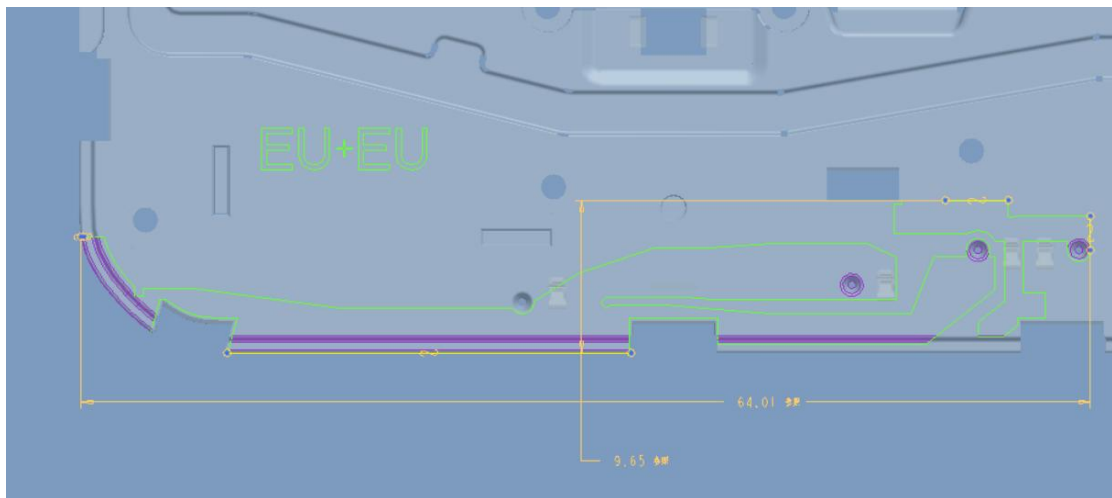
RF4



RF5



- Structure size:



- Technical parameters

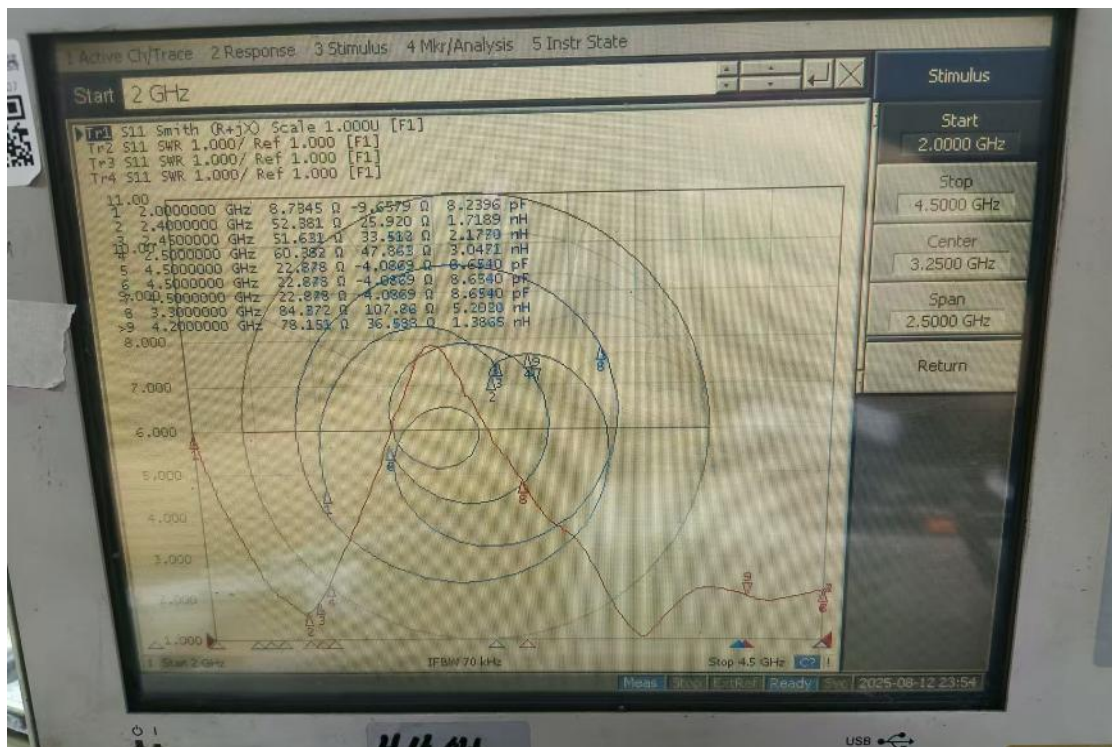
WWAN: 4G/5G

Antenna company: Huaxin Micro Communication Technology Co., Ltd.

Antenna form: PIFA

Frequency: 2200MHz~5000MHz

- S11



- Efficiency and gain

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
2300	25.71	-6.07	-0.24
2310	29.05	-5.56	0.28
2320	30.75	-5.32	0.58
2330	32.41	-5.09	0.79
2340	33.17	-4.99	0.84
2350	34.04	-4.88	0.99

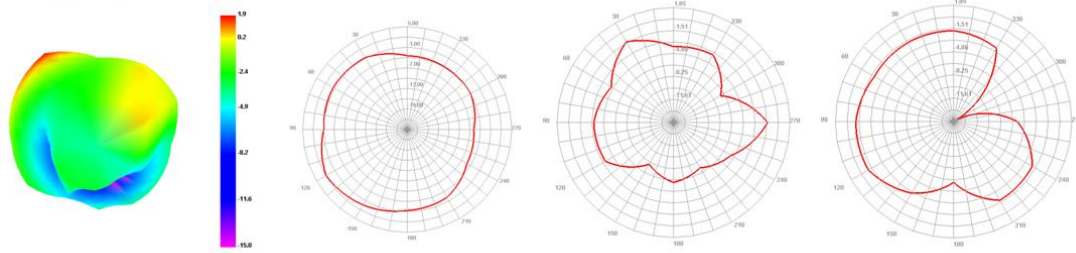
2360	33.34	-4.97	0.82
2370	34.51	-4.82	0.93
2380	36.16	-4.63	1.14
2390	39.29	-4.27	1.44
2400	41.04	-4.09	1.85
2410	40.09	-4.19	1.65
2420	40.22	-4.17	1.75
2430	41.81	-4.01	1.91
2440	42	-3.99	1.96
2450	41.44	-4.04	1.83
2460	40.28	-4.17	1.77
2470	40.42	-4.15	1.66
2480	37.47	-4.47	1
2490	35.01	-4.76	0.1
2500	32.5	-5.08	-0.43
2510	32.08	-5.14	-0.83
2520	32.55	-5.07	-0.91
2530	33.2	-4.99	-0.78
2540	34.11	-4.87	-0.79
2550	32.37	-5.1	-0.89
2560	29.88	-5.44	-1.08
2570	27.69	-5.76	-1.37
2580	27.88	-5.73	-1.23
2590	28.68	-5.61	-1.11
2600	29.75	-5.46	-1.04
2610	27.61	-5.77	-1.26
2620	29.52	-5.49	-1.05
2630	31.47	-5.22	-0.73
2640	31.42	-5.22	-0.73
2650	31.35	-5.23	-0.62
2660	32.38	-5.1	-0.5
2670	32.24	-5.11	-0.29
2680	30.5	-5.35	-0.61
2690	29.36	-5.51	-0.8
2700	30.5	-5.35	-0.73
3300	25.24	-6.22	0.07
3310	26.96	-5.94	0.23
3320	28.55	-5.69	0.44
3330	26.95	-5.94	0.11
3340	27.26	-5.89	0.21
3350	25.52	-6.17	0.15
3360	29.14	-5.6	0.76
3370	29.43	-5.56	0.65

3380	30.52	-5.4	0.67
3390	28.7	-5.67	0.04
3400	28.78	-5.66	-0.19
3410	27.76	-5.81	-0.24
3420	27.06	-5.92	-0.41
3430	27.64	-5.83	-0.53
3440	28.49	-5.7	-0.78
3450	28.79	-5.65	-0.62
3460	29.51	-5.55	-0.48
3470	29.69	-5.52	-0.74
3480	29.43	-5.56	-0.74
3490	32.8	-5.09	0.25
3500	33.12	-5.05	1.2
3510	36.59	-4.62	1.41
3520	39.06	-4.34	1.7
3530	39.18	-4.33	1.17
3540	39.41	-4.3	0.78
3550	34.92	-4.82	0.96
3560	34.44	-4.88	0.65
3570	33.27	-5.03	0.42
3580	32.83	-5.09	0.26
3590	30.68	-5.38	-0.4
3600	32.65	-5.11	-0.03
3610	33.4	-5.02	0.04
3620	31.6	-5.25	-0.25
3630	32.46	-5.14	-0.53
3640	33.37	-5.02	-0.38
3650	31.9	-5.21	-0.66
3660	33.33	-5.02	0.04
3670	35.21	-4.79	0.39
3680	34.77	-4.84	0.34
3690	35.53	-4.75	0.4
3700	35.61	-4.74	0.67
3710	36.63	-4.62	0.49
3720	35.24	-4.78	-0.01
3730	34.19	-4.91	-0.07
3740	34.29	-4.9	-0.06
3750	34.51	-4.87	0.21
3760	33.89	-4.95	0.06
3770	32.66	-5.11	0.28
3780	35.1	-4.8	0.39
3790	33.54	-5	0.47
3800	33.19	-5.04	0.14

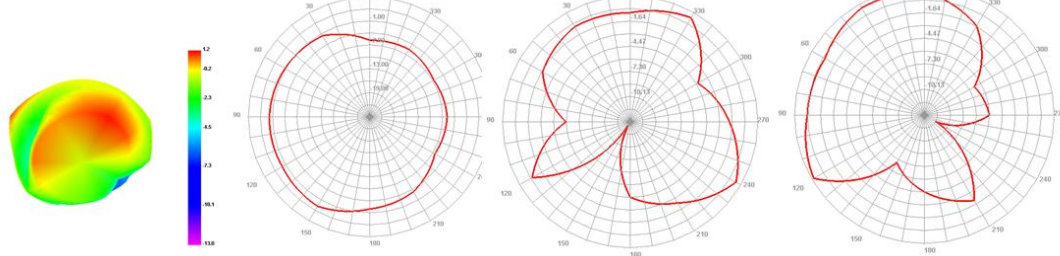
3810	31.23	-5.3	-0.19
3820	31.73	-5.24	-0.48
3830	31.55	-5.26	-0.46
3840	31.53	-5.26	-0.39
3850	35.89	-4.71	-0.16
3860	36	-4.69	-0.09
3870	37.58	-4.51	0.48
3880	37.92	-4.47	0.3
3890	36.88	-4.59	0.46
3900	35.79	-4.72	-0.1
3910	32.7	-5.13	-0.18
3920	33.11	-5.08	-0.2
3930	34.19	-4.95	-0.37
3940	32.95	-5.1	-0.29
3950	32.56	-5.14	-0.18
3960	30.64	-5.38	-0.7
3970	29.4	-5.55	-0.73
3980	30.06	-5.46	-0.56
3990	30.86	-5.36	-0.93
4000	31.01	-5.34	-0.56
4010	27.64	-5.79	-0.75
4020	26.29	-5.98	-0.92
4030	26.55	-5.94	-1.27
4040	27.39	-5.82	-0.88
4050	26.56	-5.94	-1.2
4060	25.98	-6.03	-1.02
4070	23.23	-6.45	-1.59
4080	23.04	-6.48	-1.78
4090	21.66	-6.72	-2.09
4100	21.82	-6.69	-1.8
4110	20.71	-6.89	-2.4
4120	19.6	-7.09	-2.72
4130	18.35	-7.34	-3.21
4140	16.87	-7.64	-3.41
4150	17.4	-7.53	-2.89
4160	13.15	-8.38	-3.39
4170	13.42	-8.31	-2.92
4180	16.09	-7.67	-1.6
4190	17.34	-7.4	-1.97
4200	16.46	-7.59	-1.97

● Radiation pattern

2400MHZ



3500MHZ



● Structure size:



- Technical parameters

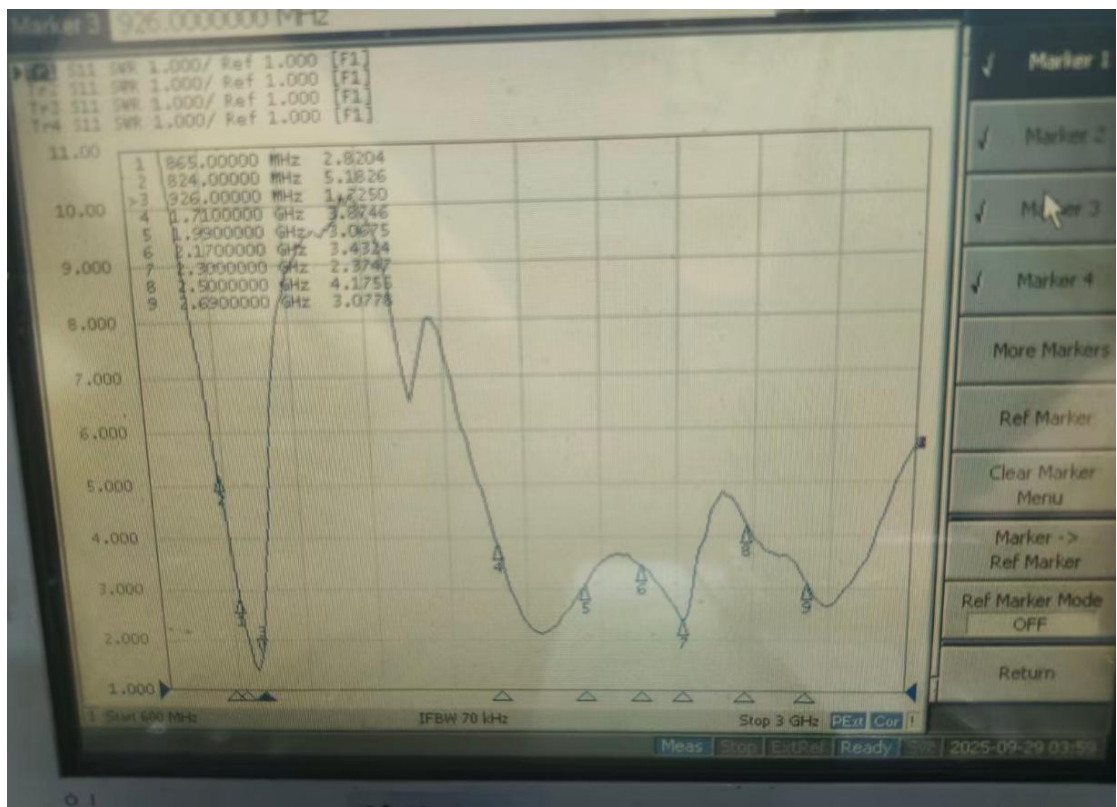
RFID&WWAN: 2G/3G/4G/5G

Antenna company: Huaxin Micro Communication Technology Co.,
Ltd.

Antenna form: PIFA

Frequency: 600-2700MHZ

- S11



Efficiency and gain

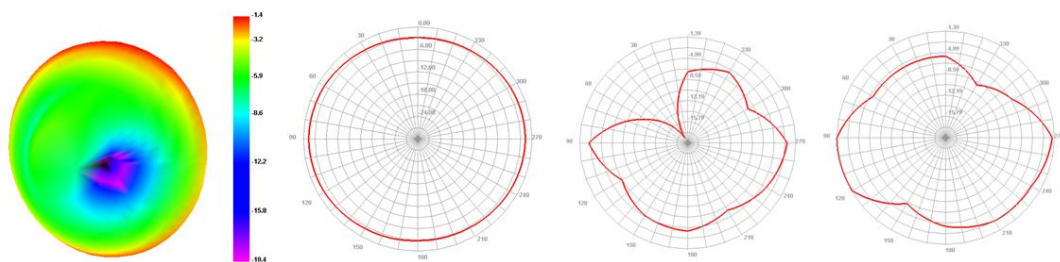
810	6.02	-12.84	-8.77
820	6.64	-12.34	-8.47
830	7.22	-11.92	-8.04
840	7.76	-11.56	-7.66
850	8.08	-11.36	-7.27
860	8.89	-10.9	-6.8

870	9.77	-10.44	-6.45
880	11.83	-9.52	-5.87
890	19.87	-7.48	-5.51
900	27.21	-5.69	-1.5
910	30.78	-5.14	-1.39
920	32.44	-5.09	-1.01
930	30.37	-5.2	-1.44
940	25.06	-6.06	-2.43
950	22.13	-6.62	-2.97
960	19.34	-7.24	-3.57
970	16.09	-8.08	-4.75
980	13.49	-8.91	-5.44
1740	26.77	-6.66	0.21
1760	30.86	-5.92	0.76
1780	31.55	-5.81	0.54
1800	31.69	-5.79	-0.35
1820	31.57	-5.81	-0.69
1840	32.24	-5.7	0.31
1860	32	-5.74	0.09
1880	32.18	-5.71	-0.37
1900	42.87	-4.07	1.27
1920	40.61	-4.56	1.23
1940	38.8	-4.78	0.7
1960	36.93	-5.02	0.56
1980	34.34	-5.38	0.52
2000	32.24	-5.7	0.31
2020	31.55	-5.81	0.54
2040	31.69	-5.79	-0.35
2060	31.57	-5.81	-0.69
2080	32.84	-5.61	0.04
2010	31.24	-5.86	0.23
2160	31.21	-5.87	0.46
2140	29.12	-6.22	0.12
2440	27.81	-6.46	0.11
2460	22.88	-7.49	-0.74
2480	22.02	-7.7	-1.3
2500	24.59	-7.1	-1.14
2520	27	-6.61	-0.99
2540	27.88	-6.6	-0.73
2560	31.56	-6.07	-0.21
2580	32.3	-5.97	0.17
2600	34.23	-5.73	0.72

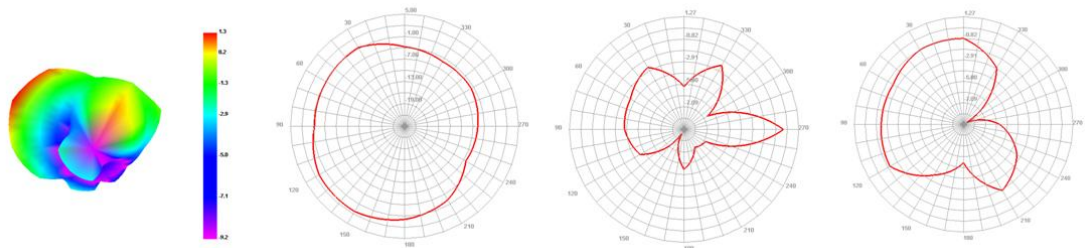
2620	31.46	-6.09	0.49
2640	29.28	-6.39	0.13
2660	27.18	-6.71	0.31
2680	27.9	-6.6	0.41
2700	29.52	-6.36	0.04

● Radiation pattern

910MHZ



1900MHZ



● Structure size



- Technical parameters

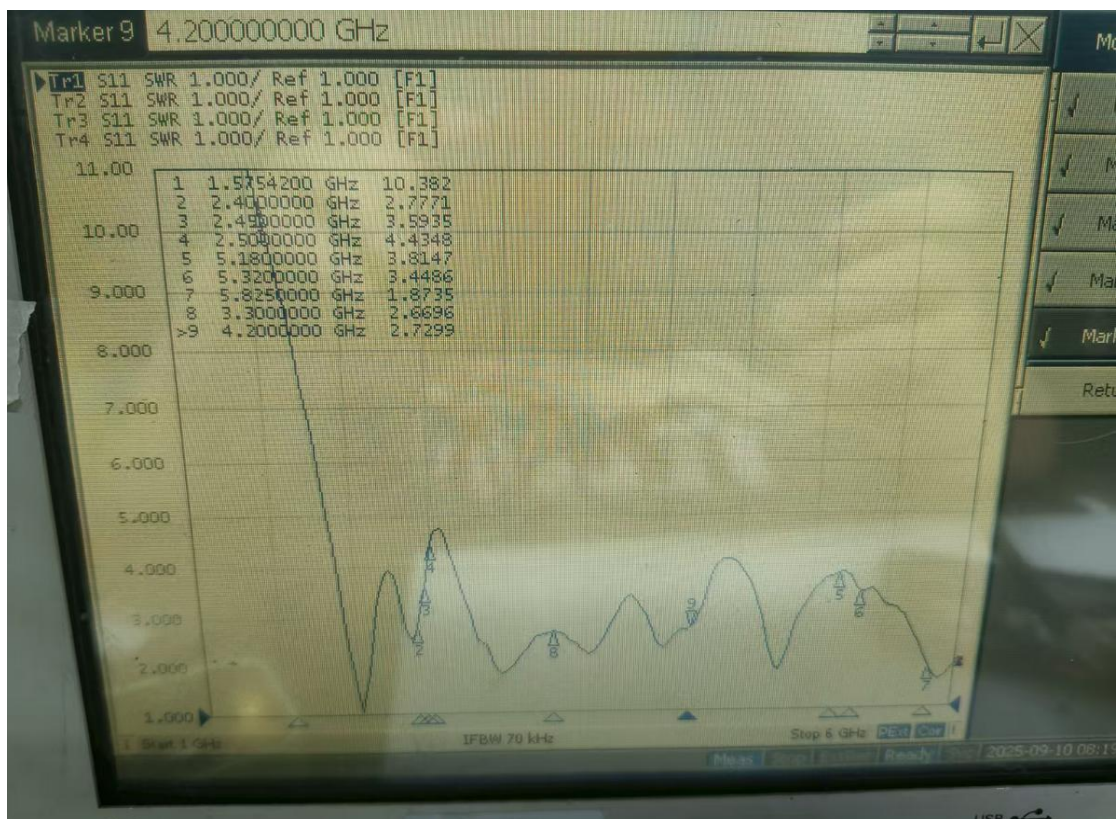
WWAN: 2G/3G/4G/5G

Antenna company: Huaxin Micro Communication Technology Co.,
Ltd.

Antenna form: PIFA

Frequency: 1700-2200MHZ 3300-4200MHZ

- S11



- Efficiency and gain

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
1700	31.99	-5.28	0.21
1710	34.06	-4.98	0.56
1720	34.17	-4.96	1.33
1730	33.62	-5.04	0.93

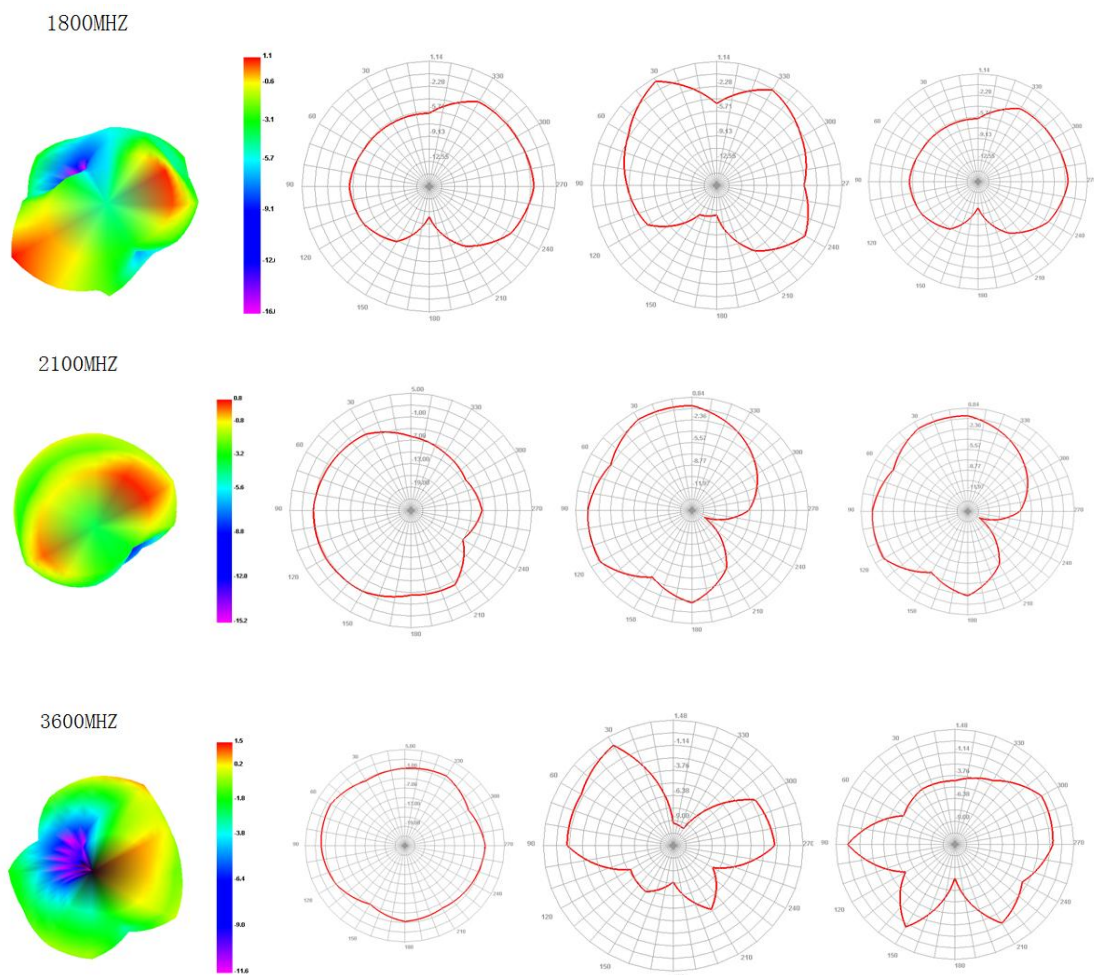
1740	29.45	-5.67	-0.42
1750	33.73	-5.02	0.67
1760	34.72	-4.88	1.11
1770	31.42	-5.36	-0.02
1780	26.6	-6.17	-1.04
1790	28.18	-5.89	0
1800	33.6	-5.04	1.14
1810	32.35	-5.22	-0.09
1820	30.33	-5.53	-0.1
1830	32.25	-5.24	0.49
1840	31.18	-5.4	0.8
1850	30.07	-5.57	0.26
1860	27.36	-6.03	-0.78
1870	31.69	-5.02	-0.18
1880	29.44	-5.28	-0.21
1890	32.96	-5.13	-0.83
1900	33.16	-4.72	-1.52
1910	35.34	-4.47	-1.04
1920	37.51	-4.22	-0.81
1930	35.02	-4.76	-0.42
1940	35.37	-4.54	0.11
1950	35.21	-4.2	0.63
1960	34.84	-4.06	0.39
1970	40.84	-3.98	0.96
1980	39.73	-4.07	1.02
1990	38.02	-4.21	1.22
2000	35.26	-4.46	0.94
2010	34.25	-4.55	0.89
2020	33.62	-4.61	0.75
2030	34.44	-4.53	0.79
2040	36.08	-4.38	0.63
2050	38.31	-4.19	0.88
2060	39.17	-4.12	0.7
2070	36.91	-4.31	0.4
2080	35.25	-4.46	0.3
2090	33.27	-4.64	0.05
2100	32.03	-4.76	0.84
2110	29.79	-4.99	-0.31
2120	27.68	-5.21	-0.41
2130	26.08	-5.38	-0.54
2140	23.83	-5.64	-0.57
2150	31.4	-4.94	-0.81
2160	27.35	-5.49	-1.19

2170	24.36	-5.95	-1.33
2180	21.92	-6.36	-1.61
2190	20.1	-6.7	-1.85
2200	19.82	-6.75	-1.84
2210	19.68	-6.78	-1.7
2220	18.83	-6.95	-1.91
3300	29.38	-5.38	-1.19
3310	31.89	-5.06	-1.03
3320	33.58	-4.86	-1.11
3330	34.33	-4.78	-0.85
3340	35.3	-4.67	-0.61
3350	30.59	-5.22	-0.93
3360	32.33	-5.01	-0.71
3370	30.23	-5.27	-0.63
3380	32.38	-5	-0.42
3390	30.34	-5.26	-0.75
3400	33.63	-4.86	-1.09
3410	35.01	-4.7	-0.95
3420	34.85	-4.72	-0.56
3430	30.75	-5.2	-0.99
3440	29.82	-5.32	-1.02
3450	29.07	-5.42	-1.08
3460	31.28	-5.14	-0.47
3470	30.28	-5.26	-0.98
3480	29.9	-5.31	-1.24
3490	30.39	-5.25	-0.71
3500	32.58	-4.98	-0.17
3510	33.18	-4.91	0.1
3520	33.2	-4.91	-0.38
3530	31.2	-5.15	-0.16
3540	31.73	-5.08	-0.05
3550	30.13	-5.28	-0.5
3560	30.23	-5.27	-0.49
3570	30.04	-5.29	-0.35
3580	31.84	-5.07	0.47
3590	31.38	-5.13	0.9
3600	29.61	-5.35	1.48
3610	28.82	-5.45	0.67
3620	30.3	-5.26	0.72
3630	30.01	-5.3	0.56
3640	27.53	-5.63	-0.05
3650	30.96	-5.18	0.7
3660	30.38	-5.25	0.97

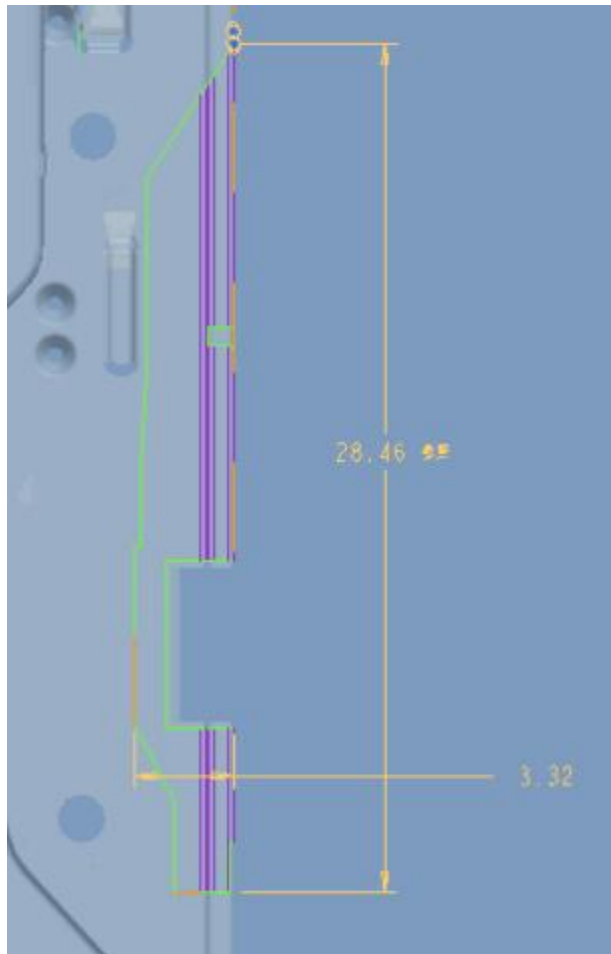
3670	34.58	-4.75	1.59
3680	33.72	-4.85	1.83
3690	32.65	-4.97	1.59
3700	32.08	-5.04	1.53
3710	30.88	-5.19	1.17
3720	32.29	-5.02	0.9
3730	34.2	-4.79	0.87
3740	31.9	-5.06	0.81
3750	31.49	-5.11	0.56
3760	29.48	-5.37	1.23
3770	30.91	-5.18	1.36
3780	33.95	-4.82	1.71
3790	34.56	-4.75	1.54
3800	34.16	-4.8	1.39
3810	33.5	-4.87	0.91
3820	33.46	-4.88	0.76
3830	32.16	-5.03	0.48
3840	33.4	-4.88	0.76
3850	33.54	-4.87	0.86
3860	36.96	-4.49	1.62
3870	36.09	-4.58	1.9
3880	31.83	-5.07	1.27
3890	31.82	-5.07	1.09
3900	35.66	-4.63	1.51
3910	35.9	-4.6	1.93
3920	31.01	-5.17	1.06
3930	30.93	-5.18	0.49
3940	31.91	-5.06	1.05
3950	29.82	-5.32	0.86
3960	25.19	-5.97	-0.27
3970	27.26	-5.67	0.08
3980	27.37	-5.65	0.85
3990	26.82	-5.73	0.45
4000	22.65	-6.36	-0.9
4010	26.93	-5.71	0.19
4020	27.92	-5.57	0.63
4030	24.62	-6.05	-0.5
4040	19.8	-6.86	-1.52
4050	21.38	-6.58	-0.48
4060	26.8	-5.73	0.25
4070	26.35	-5.8	0.01
4080	25.55	-5.91	-0.57
4090	23.53	-6.22	-0.58

4100	25.45	-5.93	0.01
4110	24.38	-6.09	0.32
4120	23.27	-6.26	-0.22
4130	20.56	-6.72	-1.26
4140	18.86	-7.04	-1.45
4150	18.39	-7.13	-0.87
4160	16.63	-7.48	-0.89
4170	15.6	-7.71	-0.92
4180	14.44	-7.98	-2.67
4190	13.73	-8.15	-2.71
4200	16.54	-7.5	-1.88

Radiation pattern



- Structure size



- Technical parameters

WWAN: 5G

Antenna company: Huaxin Micro Communication Technology Co., Ltd.

Antenna form: PIFA

Frequency: 3300-4200MHZ

- S11



- Efficiency and gain

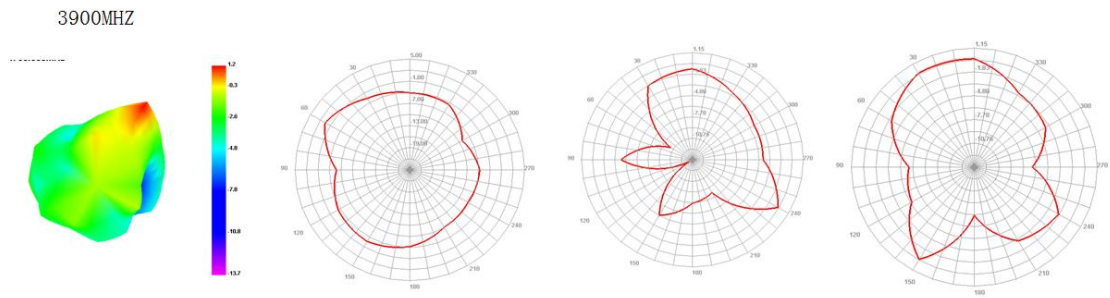
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
3300	45.27	-3.95	0.15
3310	43.96	-4.07	0.26
3320	44.48	-4.02	0.51

3330	43.41	-4.13	0.68
3340	45.46	-3.93	0.88
3350	45.88	-3.89	0.81
3360	46.99	-3.79	1.02
3370	44.9	-3.98	1.08
3380	45.7	-3.91	1.43
3390	41.54	-4.32	1.01
3400	43.89	-4.08	0.92
3410	44.54	-4.02	1.24
3420	44.28	-4.04	1.18
3430	39.16	-4.57	0.85
3440	39.78	-4.5	0.84
3450	38.45	-4.65	0.47
3460	38.17	-4.68	0.27
3470	33.73	-5.21	-0.15
3480	33.7	-5.21	0.15
3490	32.6	-5.35	-0.69
3500	34.21	-5.15	-0.27
3510	31.63	-5.48	-0.8
3520	32.02	-5.43	-0.57
3530	29.84	-5.73	-0.74
3540	30.32	-5.66	-1.51
3550	28.96	-5.86	-1.8
3560	29.58	-5.77	-1.73
3570	31.14	-5.55	-1.69
3580	30.61	-5.62	-1.59
3590	31.37	-5.52	-1.55
3600	32.97	-5.31	1.01
3610	30.68	-5.61	-1.63
3620	30.4	-5.65	-2.05
3630	31.45	-5.51	-2.07
3640	33.2	-5.28	-1.57
3650	32.64	-5.35	-1.63
3660	32.01	-5.43	-0.84
3670	32.78	-5.33	-0.86
3680	33.66	-5.22	-0.6
3690	34.48	-5.11	-0.54
3700	35.03	-5.05	-0.73
3710	32.55	-5.36	-0.97
3720	33.68	-5.21	-0.79
3730	35.01	-5.05	-0.06
3740	35.8	-4.95	-0.08
3750	34.84	-5.07	-0.86

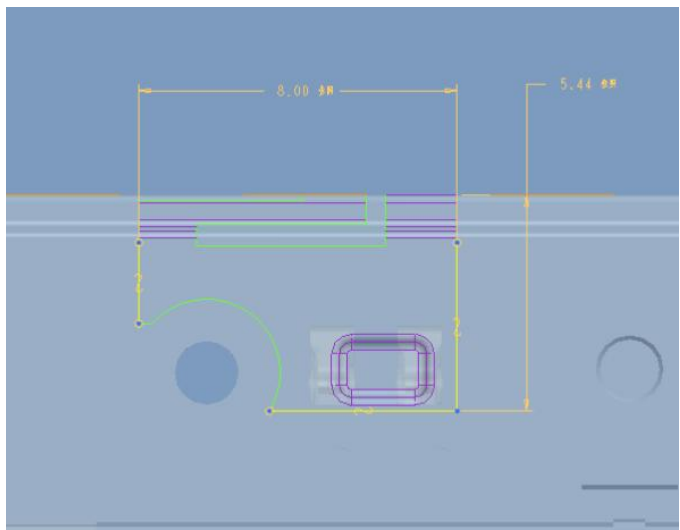
3760	34.34	-5.13	-0.75
3770	34.61	-5.1	-0.65
3780	35.12	-5.04	-0.88
3790	35.97	-4.93	-0.56
3800	36.01	-4.93	-0.39
3810	34.38	-5.13	-0.82
3820	36.43	-4.88	-0.33
3830	37.09	-4.8	-0.09
3840	37.99	-4.7	0.15
3850	37.85	-4.72	-0.12
3860	38.59	-4.63	0.27
3870	40.01	-4.48	0.42
3880	40.58	-4.42	0.98
3890	40.08	-4.47	1.09
3900	39.72	-4.51	1.15
3910	39.39	-4.55	0.31
3920	39.61	-4.52	0.63
3930	38.36	-4.66	0.42
3940	36.82	-4.83	-0.07
3950	38.45	-4.65	-0.42
3960	38.81	-4.61	-0.58
3970	40.48	-4.43	-0.15
3980	40.54	-4.42	0.02
3990	41.31	-4.34	-0.81
4000	43.64	-4.11	-0.05
4010	42.96	-4.17	-0.07
4020	39.32	-4.55	-0.08
4030	40.7	-4.41	-0.02
4040	42.23	-4.25	-0.33
4050	44.13	-4.06	-0.15
4060	44.24	-4.05	0.15
4070	45.29	-3.95	1.6
4080	44.54	-4.02	0.42
4090	44.53	-4.02	0.82
4100	42.18	-4.25	-0.28
4110	37.54	-4.75	0.11
4120	35.95	-4.94	-0.23
4130	35.35	-5.01	-0.59
4140	34.37	-5.13	-1.12
4150	35.29	-5.02	-0.87
4160	33.29	-5.26	-1.16
4170	32.57	-5.36	-1.12
4180	33.11	-5.29	-1.17

4190	38.14	-4.68	0.6
4200	36.99	-4.81	0.3

● Radiation pattern



● Structure size



- Technical parameters

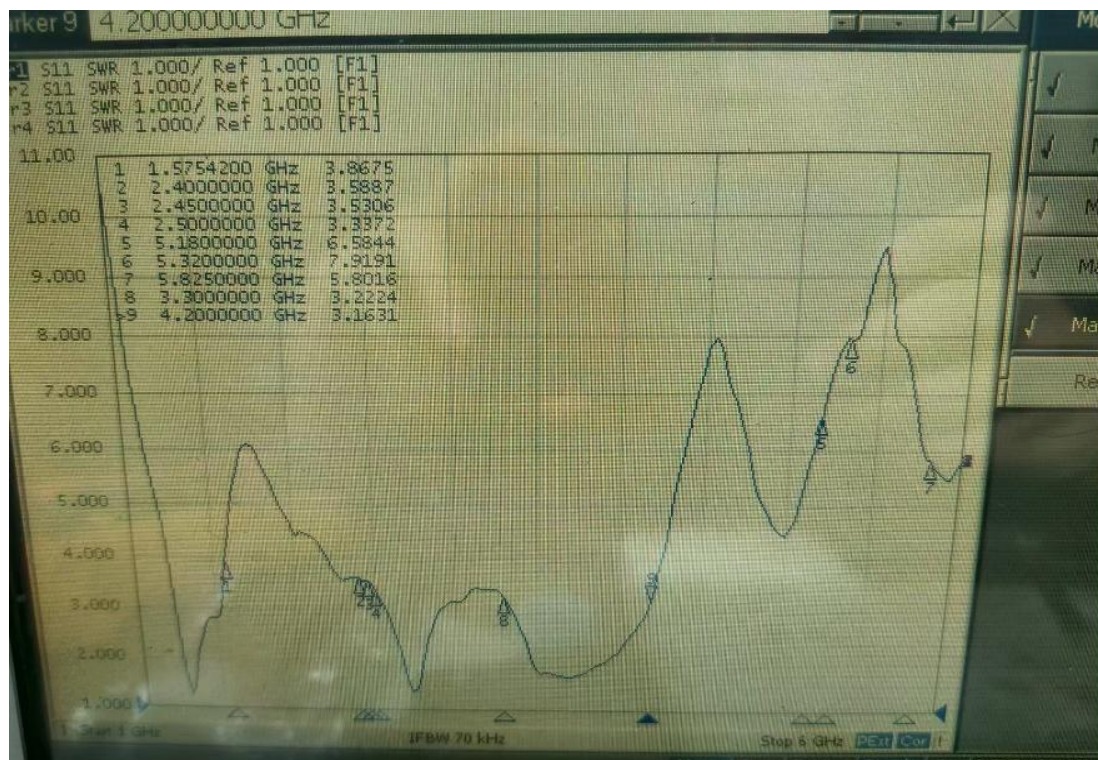
WWAN: 2G/3G/4G/5G

Antenna company: Huaxin Micro Communication Technology Co., Ltd.

Antenna form: PIFA

Frequency: 1700-2700MHZ 3300-4200MHZ

- S11



- Efficiency and gain

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
1740	13.03	-9.4	-5.34
1760	13.84	-9.15	-5.2
1780	13.79	-9.17	-5.33
1800	14.34	-9.01	-5.56
1820	15.56	-8.67	-5.4

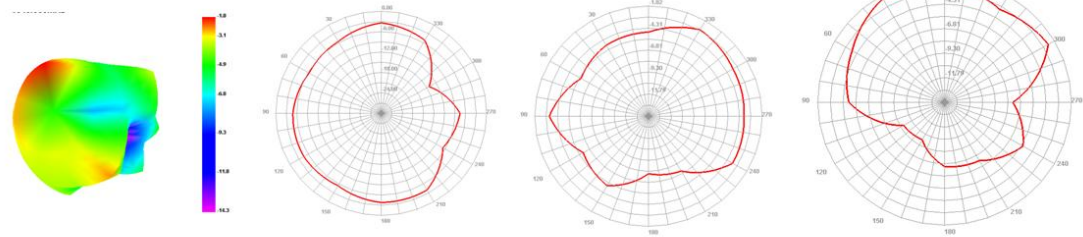
1840	16.08	-8.53	-4.9
1860	15.7	-8.63	-4.71
1880	16.26	-8.49	-4.21
1900	18.63	-7.92	-3.65
1920	22.41	-7.15	-2.68
1940	25.53	-6.6	-2.2
1960	25.79	-6.56	-2.77
1980	28.32	-6.17	-2.82
2000	30.29	-5.88	-2.74
2020	29.4	-6.01	-2.79
2040	29.46	-6	-2.8
2060	28.85	-6.09	-2.86
2080	26.01	-6.53	-3.73
2010	22.76	-7.09	-4.23
2160	22.09	-7.21	-4.2
2140	24.32	-6.81	-3.73
2440	25.67	-6.58	-3.64
2460	25.12	-6.67	-3.3
2480	26.25	-6.49	-2.58
2500	27.37	-6.31	-2.21
2520	26.16	-6.5	-2.26
2540	27.21	-6.34	-2.36
2560	27.64	-6.27	-2.71
2580	28.52	-6.14	-2.94
2600	29.31	-6.02	-2.44
2620	32.08	-5.64	-1.81
2640	29.51	-5.51	-0.11
2660	27.41	-5.83	0.07
2680	28.13	-5.72	0.17
2700	29.75	-5.48	-0.2
Freq	Effi	Effi	Gain
(MHz)	(%)	(dB)	(dBi)
3300	12.87	-10	-5.42
3310	13.4	-9.77	-4.31
3320	14.19	-9.46	-3.8
3330	14.23	-9.45	-4.18
3340	16.24	-8.75	-3.99
3350	16.21	-8.76	-3.42
3360	18.3	-8.13	-2.79
3370	16.97	-8.52	-3.52
3380	17.43	-8.38	-3.23
3390	16.89	-8.54	-4

3400	18.53	-8.07	-3.08
3410	18.46	-8.09	-2.72
3420	20.55	-7.54	-2.62
3430	19.75	-7.74	-2.85
3440	20.45	-7.57	-2.34
3450	21.25	-7.38	-2.04
3460	23.65	-6.85	-1.52
3470	23.4	-6.9	-1.33
3480	23.58	-6.86	-1.69
3490	24.49	-6.67	-1.41
3500	27.37	-6.13	0.33
3510	27.11	-6.18	0.13
3520	27.4	-6.13	0.03
3530	28.38	-5.96	0.22
3540	28.82	-5.89	0.17
3550	30.06	-5.69	-0.02
3560	31.17	-5.51	-0.02
3570	32.13	-5.37	0.04
3580	31.93	-5.4	0.34
3590	31.38	-5.48	-0.03
3600	30.3	-5.65	0.14
3610	30.75	-5.58	0.39
3620	31.67	-5.44	0.87
3630	33.39	-5.19	0.74
3640	33.23	-5.21	-0.01
3650	36.67	-4.74	0.25
3660	35.81	-4.86	0.09
3670	38.98	-4.46	0.24
3680	35.71	-4.87	-0.38
3690	33.73	-5.14	-0.46
3700	31.97	-5.39	-1.29
3710	29.1	-5.84	-1.15
3720	26.24	-6.34	-2
3730	24.09	-6.76	-2.8
3740	20.93	-7.45	-2.88
3750	17.94	-8.23	-3.82
3760	15.07	-9.14	-4.88
3770	13.79	-9.62	-5.24
3780	12.74	-10.05	-6.3
3790	11.8	-10.48	-6.24
3800	12.26	-10.26	-5.28

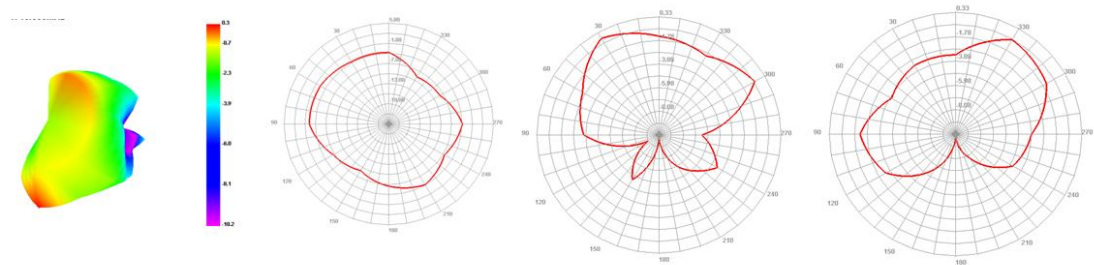
3810	11.3	-10.72	-5.38
3820	11.33	-10.71	-6.19
3830	10.95	-10.91	-6.04
3840	12.53	-10.14	-4.76
3850	14.32	-9.41	-3.76
3860	15.93	-8.85	-3.78
3870	15.66	-8.94	-3.93
3880	18.01	-8.21	-3.55
3890	20.81	-7.48	-1.8
3900	21.86	-7.24	-1.4
3910	23.08	-6.97	-0.84
3920	24.86	-6.6	-0.78
3930	27.65	-6.09	-0.39
3940	27.11	-6.18	-0.61
3950	27.98	-6.03	-0.13
3960	29.45	-5.78	-0.09
3970	31.55	-5.45	-0.25
3980	30.12	-5.68	0.37
3990	29.68	-5.75	0.23
4000	29.79	-5.73	0.26
4010	31.73	-5.43	0.09
4020	31.18	-5.51	0.76
4030	30.2	-5.66	0.78
4040	27.25	-6.16	-0.37
4050	26.52	-6.29	-1.51
4060	28.94	-5.87	-1.23
4070	28.85	-5.88	-1.27
4080	29.36	-5.8	-0.91
4090	29.68	-5.75	-1.25
4100	29.47	-5.78	-2.32
4110	26.66	-6.26	-2.14
4120	26.92	-6.22	-2.01
4130	28.09	-6.01	-1.6
4140	25.89	-6.41	-2.12
4150	23.92	-6.79	-3.31
4160	20.19	-7.63	-3.48
4170	21.15	-7.4	-3.44
4180	24.53	-6.67	-3.3
4190	25.15	-6.55	-3.09
4200	24.33	-6.71	-2.31

- Radiation pattern

2000MHZ



3500MHZ



- Structure size



- Technical parameters

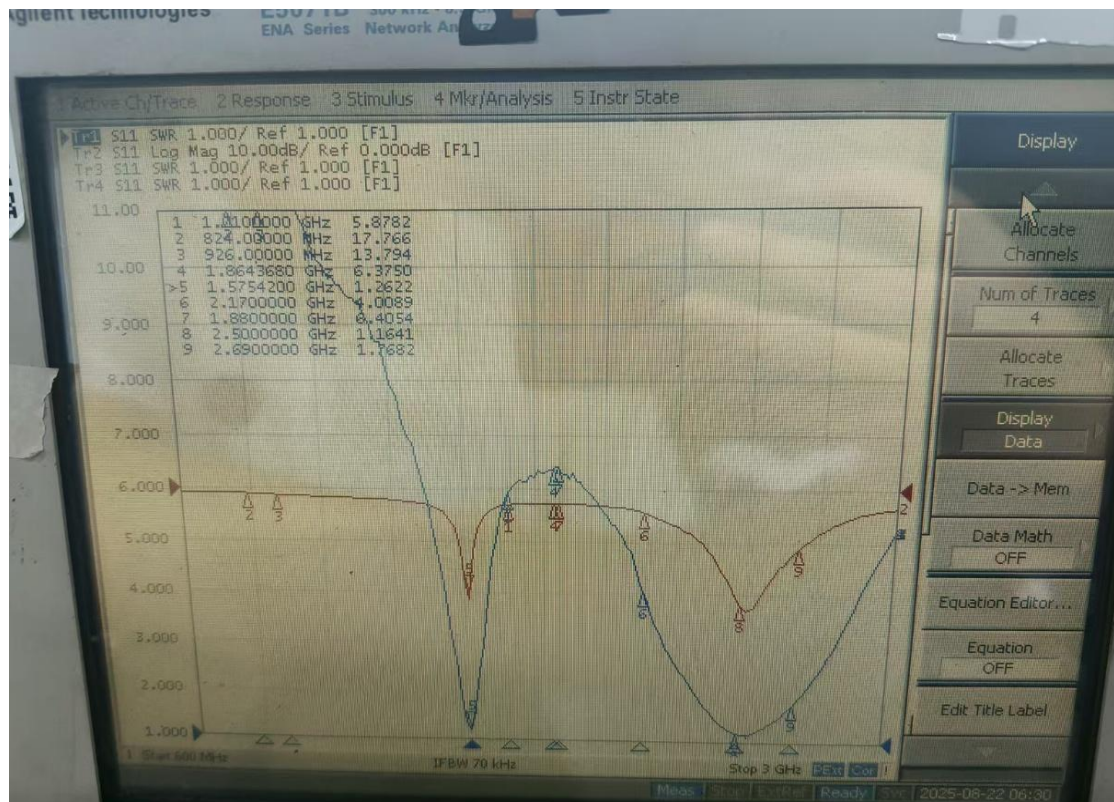
WLAN: GPS&2.4GWIFI

Antenna company: Huaxin Micro Communication Technology Co., Ltd.

Antenna form: PIFA

Frequency: 1575MHZ 2400-2500MHZ

- S11



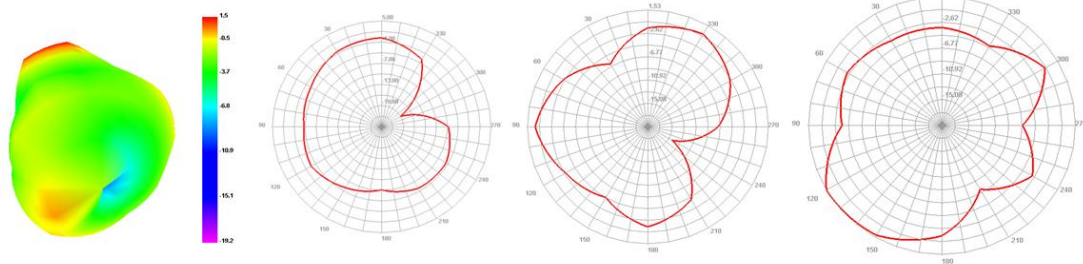
- Efficiency and gain

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
1568.25	43.93	-3.99	2.59
1570.04	42.69	-4.1	2.48
1571.82	40.99	-4.26	2.31
1573.6	40.64	-4.29	2.23
1575.39	39.25	-4.42	1.53

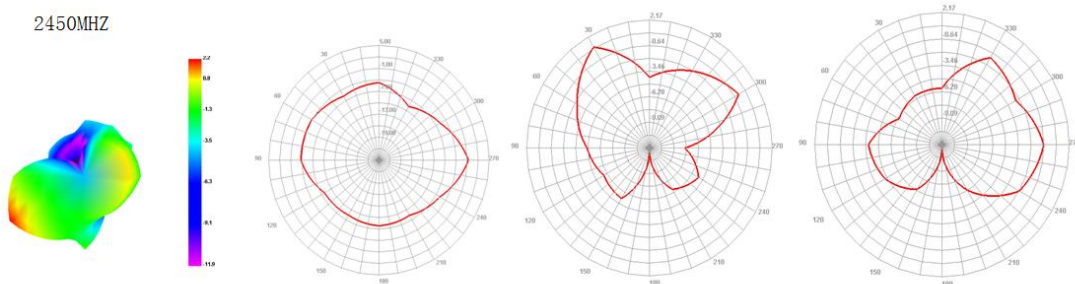
1577.18	37.88	-4.56	1.78
1578.96	36.39	-4.71	1.54
1580.74	34.28	-4.94	1.3
1582.53	32.52	-5.14	1.13
1584.31	30.71	-5.36	0.84
1586.1	28.41	-5.65	0.59
1587.89	26.8	-5.86	0.45
1589.67	25.54	-6.04	0.21
Freq	Effi	Effi	Gain
(MHz)	(%)	(dB)	(dBi)
2400	46.98	-3.58	2.07
2410	45.97	-3.68	1.96
2420	45.02	-3.77	1.93
2430	44.59	-3.81	1.86
2440	43.87	-3.88	1.67
2450	43.04	-3.96	2.17
2460	43.39	-3.93	1.82
2470	41.94	-4.07	1.72
2480	40.5	-4.22	1.66
2490	38.52	-4.44	1.4
2500	37.01	-4.62	1.37

● Radiation pattern

1575.39MHZ



2450MHZ



● Structure size



- Technical parameters

WLAN: L5&5GWIFI

Antenna company: Huaxin Micro Communication Technology Co., Ltd.

Antenna form: PIFA

Frequency: 1176MHZ 5.18-7.1GHZ

- S11



- Efficiency and gain

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
1100	3.45	-14.62	-9.75
1105	3.47	-14.6	-9.75
1110	3.93	-14.05	-9.25
1115	4.59	-13.38	-8.62
1120	4.88	-13.11	-8.42

1125	5.52	-12.58	-7.92
1130	6.72	-11.72	-7.06
1135	7.63	-11.18	-6.51
1140	8.46	-10.73	-5.95
1145	10.28	-9.88	-4.97
1150	12.05	-9.19	-4.1
1155	13.1	-8.83	-3.58
1160	15.14	-8.2	-2.86
1165	17.32	-7.61	-2.11
1170	17.99	-7.45	-1.91
1175	19.83	-7.03	-2.3
1180	22.31	-6.51	-0.98
1185	20.61	-6.86	-1.3
1190	21.15	-6.75	-1.37
1195	22.3	-6.52	-1.11
1200	19.86	-7.02	-1.66
Freq	Effi	Effi	Gain
(MHz)	(%)	(dB)	(dBi)
5000	31.88	-4.83	0.77
5040	29.5	-5.17	0.32
5080	28.99	-5.24	0.46
5120	29.51	-5.16	1.29
5160	28.75	-5.28	0.59
5200	27.48	-5.47	0.22
5240	27.67	-5.44	0.02
5280	23.99	-6.07	0.21
5320	28.84	-5.26	0.29
5360	27.59	-5.46	1.06
5400	43.05	-3.52	2.86
5440	34.98	-4.42	1.22
5480	40.18	-3.82	1.97
5520	42.51	-3.57	2.17
5560	42.85	-3.54	2.71
5600	38.24	-4.03	1.39
5640	37.61	-4.11	2.3
5680	35.32	-4.38	2.28
5720	38.21	-4.04	2.55
5760	35.06	-4.41	1.23
5800	35.92	-4.31	1.51

● Radiation pattern

- Technical parameters

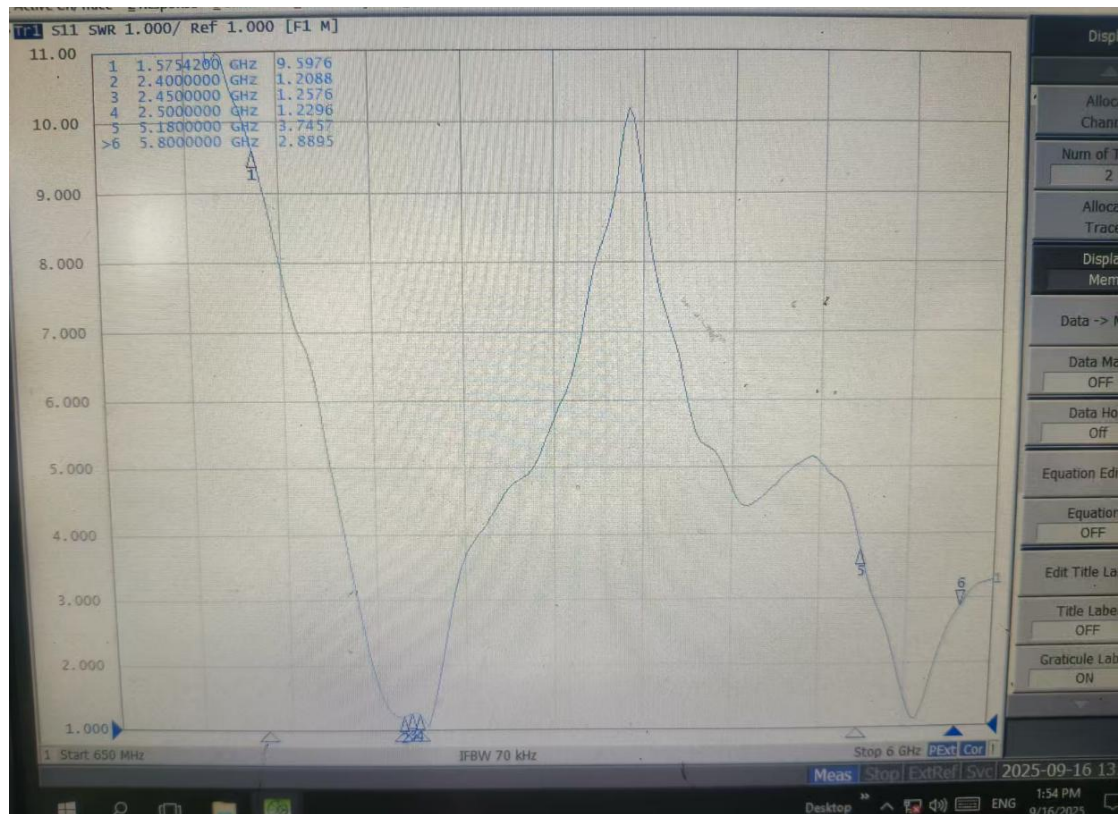
WLAN: 2.4GWIFI&5GWIFI

Antenna company: Huaxin Micro Communication Technology Co., Ltd.

Antenna form: PIFA

Frequency: 2400-2500MHZ 5.18-7.125MHZ

- S11



- Efficiency and gain

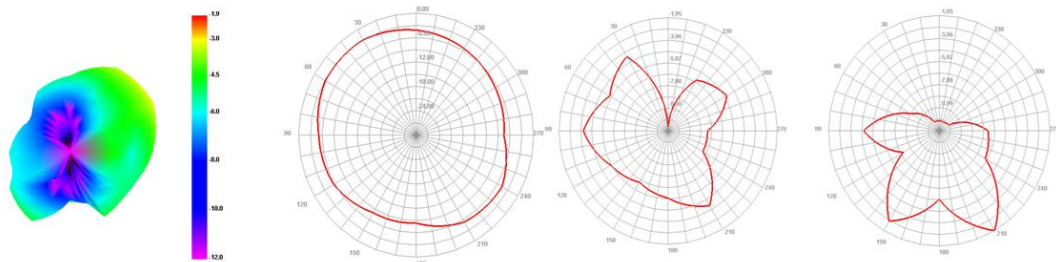
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
2400	41.47	-3.82	-1.11
2410	42.97	-3.67	-0.83
2420	43.83	-3.58	-1.06
2430	43.97	-3.57	-0.93
2440	43.22	-3.64	-0.86

2450	41.18	-3.85	-1.95
2460	39.03	-4.09	-0.74
2470	36.48	-4.38	-0.6
2480	36.51	-4.42	-0.86
2490	36.78	-4.54	-0.97
2500	35.56	-4.61	-0.96
Freq	Effi	Effi	Gain
(MHz)	(%)	(dB)	(dBi)
5000	23.74	-6.41	-3.81
5020	23.74	-6.41	-1.85
5040	26.68	-5.83	-2.47
5060	25.85	-5.98	-2.63
5080	27.75	-5.64	-1.39
5100	25.99	-5.96	-2.95
5120	24.61	-6.23	-1.94
5140	24.88	-6.17	-2.91
5160	25.81	-5.99	-1.46
5180	26.59	-5.85	-1.7
5200	26.57	-5.85	-0.51
5220	28.49	-5.51	-1.23
5240	31.69	-4.99	-1.33
5260	30.87	-5.12	0.19
5280	30.55	-5.17	-0.99
5300	32.79	-4.83	-0.99
5320	33.43	-4.73	-0.95
5340	31.12	-5.08	-1.86
5360	31.77	-4.98	-1.09
5380	32.15	-4.92	-0.7
5400	32.66	-4.85	-0.83
5420	32.78	-4.83	0.46
5440	32.51	-4.88	0.23
5460	32.59	-4.87	0.62
5480	33.97	-4.69	-0.2
5500	31.61	-5	-0.67
5520	35.4	-4.51	-0.08
5540	34.09	-4.67	-0.03
5560	35.31	-4.52	0.58
5580	36.11	-4.42	0.82
5600	37.1	-4.31	0.67
5620	34.81	-4.58	0.85
5640	36.62	-4.36	1.54
5660	32.45	-4.89	0.21

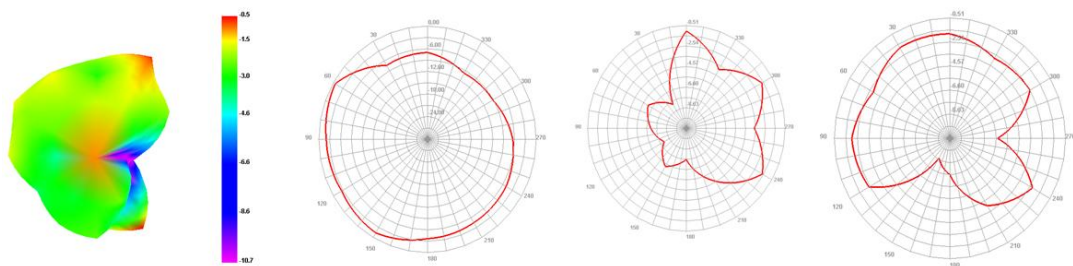
5680	29.61	-5.29	-0.14
5700	28.9	-5.37	0.32
5720	26.9	-5.7	0.1
5740	26.87	-5.41	-0.71
5760	26.63	-5.45	-0.35
5780	25.54	-5.87	0.23
5800	21.89	-5.8	0.49

● Radiation pattern

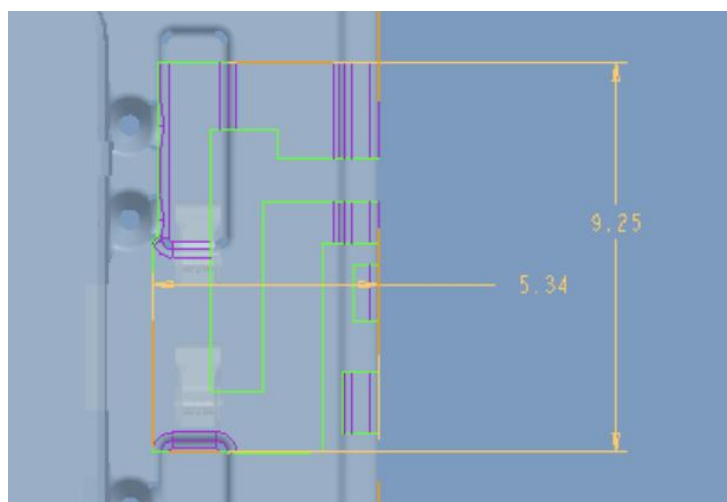
2450MHZ



5200MHZ



● Structure size



8、NFC ANT

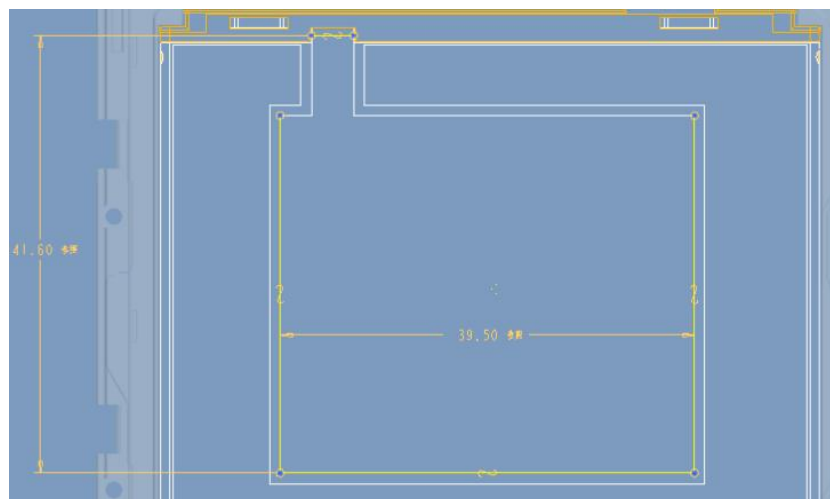
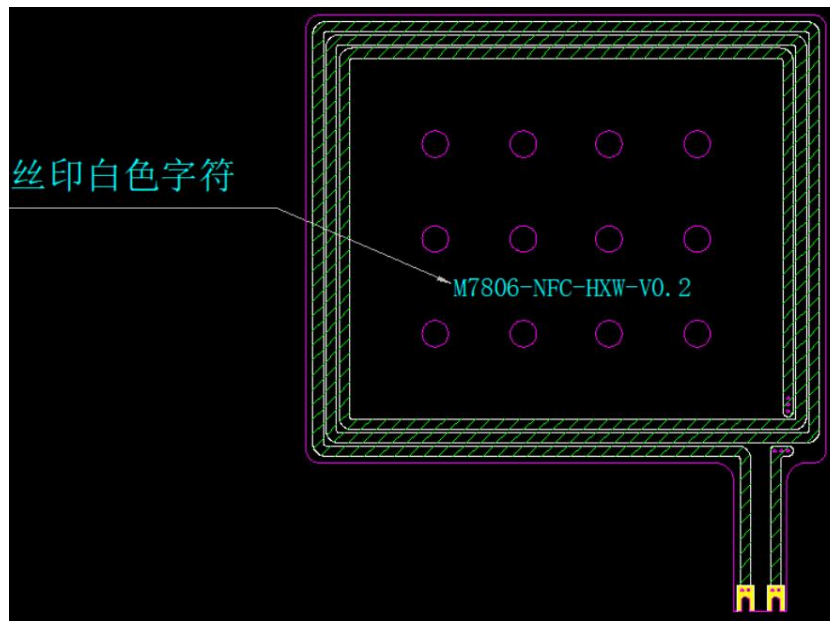
- Technical parameters

Antenna company: Huaxin Micro Communication Technology Co., Ltd.

Antenna form: coil

Frequency: 13.5MHz

- Structure size



Antenna Location

