



Shenzhen XingtongWieress Technology Co .,Ltd

深圳市星通无线技术有限公司

For

Shenzhen HPYJ Technology Co., Ltd

客户料号/Part No. :

产品型号/STYLE:POC-2-LTE

规格书编号/Specification No. :20251229-1

Project:POC-2		Author: HUANG	File Name: POC-2-APP-RA
Date: 2025-12-29			
TEST:	Language:	Check: XIE	
A	English		
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1 Technical Summary

This report summarizes the electrical results of the proposed antenna to support the POC-2-LTE program. We test the antenna with the latest version handset. And it seems to be acceptable.

2 General Description

2.1 Components/Part revisions

VSWR: Voltage Standing Wave Rate.

3 Mechanical Description



4 Electrical Performance

4.1 Set-up

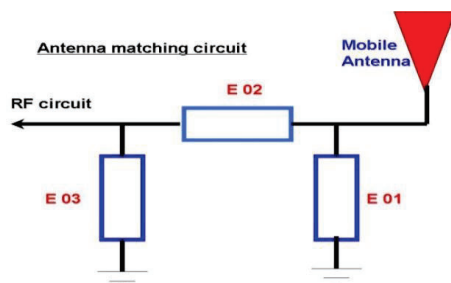
4.1.1 VSWR

VSWR measurements (S21) were performed using an Agilent 8753D Network Analyzer and the previously described test fixture. Coaxial chokes were used to mitigate surface currents on the outside of the cabling. The testing was performed in free space.

4.1.2 Gain & Radiation Patterns

The gain of the antenna was measured in the XingTong's anechoic chamber. Coaxial chokes on the feed cable were used to mitigate surface currents. The chamber provides less than -30 dB reflectivity from 680 MHz through 3 GHz and an 18" diameter spherical quiet zone. The measurement results are calibrated using both dipole and leaky wave horn standards.

4.1.3 Matching Circuit Description



LTE Antenna	
Element	Value
E1	0.5PF
E2	2.7nH
E3	EMPTY

4.2 Measurement Data

Antenna-2D-OTA

4.2.1 680-960MHz:

Frequency ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
Frequency (MHz)	680.0	690.0	700.0	710.0	720.0	730.0	740.0	750.0	760.0	770.0	780.0	790.0	800.0	810.0	820.0	830.0	840.0	850.0	860.0	870.0	880.0	890.0	900.0	910.0	920.0	930.0	940.0	950.0	960.0
Efficiency (dB)	-8.07	-6.87	-6.00	-5.15	-3.68	-5.93	-5.63	-4.77	-4.03	-3.49	-3.00	-2.92	-2.99	-2.85	-2.77	-2.79	-2.77	-2.72	-2.98	-2.88	-2.93	-3.04	-3.07	-3.16	-3.41	-3.80	-4.00	-4.39	-4.53
Gain (dB)	-5.11	-4.27	-3.79	-3.64	-3.51	-3.72	-3.26	-2.43	-1.98	-1.22	-0.61	-0.35	-0.41	-0.37	-0.45	-0.51	-0.46	-0.31	-0.49	-0.29	-0.27	-0.40	-0.43	-0.51	-0.77	-1.01	-0.78	-0.65	-0.50
Efficiency (%)	15.60	20.55	25.15	26.03	27.04	25.51	27.37	33.31	39.55	44.75	49.15	51.04	50.20	51.91	52.88	52.64	52.88	53.51	50.31	51.55	50.92	49.64	49.34	47.04	43.53	41.66	39.84	36.98	35.08
Directivity (dB)	2.95	2.60	2.20	2.21	2.17	2.21	2.37	2.34	2.07	2.27	2.47	2.58	2.58	2.48	2.31	2.27	2.31	2.40	2.49	2.59	2.66	2.64	2.64	2.76	2.85	2.79	3.22	3.67	4.05
Peak Gain Position (Theta)	90.00	90.00	90.00	105.00	105.00	90.00	135.00	135.00	105.00	105.00	105.00	105.00	105.00	105.00	105.00	105.00	105.00	105.00	105.00	105.00	105.00	105.00	105.00	135.00	135.00	135.00	150.00	150.00	150.00
Peak Gain Position (Phi)	155.00	180.00	180.00	0.00	0.00	330.00	60.00	60.00	45.00	45.00	180.00	180.00	45.00	45.00	45.00	270.00	270.00	270.00	270.00	285.00	285.00	285.00	60.00	60.00	60.00	60.00	240.00	255.00	255.00
Efficiency ThetaPol (%)	14.67	19.61	24.11	24.93	25.76	24.03	25.56	31.03	36.85	41.70	45.72	47.30	46.29	47.68	48.51	48.43	48.83	49.43	46.41	47.52	46.89	45.49	44.70	41.90	37.98	35.60	33.47	30.58	28.50
Efficiency PhiPol (%)	0.93	0.93	1.03	1.10	1.28	1.49	1.81	2.28	2.71	3.06	3.43	3.73	3.92	4.23	4.27	4.22	4.05	4.08	3.90	4.03	4.03	4.15	4.54	5.14	5.55	6.06	6.37	6.40	6.58
Upper Hem. Efficiency (%)	6.34	8.33	10.27	10.72	11.15	10.34	10.80	12.96	15.44	17.78	19.90	20.91	20.52	20.90	20.86	20.36	20.27	20.49	19.14	19.26	18.73	18.32	18.46	17.66	16.10	15.03	14.04	12.73	11.72
Lower Hem. Efficiency (%)	9.26	12.22	14.88	15.31	15.90	15.17	16.57	20.35	24.11	26.97	29.24	30.13	29.68	31.01	32.02	32.28	32.61	33.02	31.17	32.29	32.19	31.32	30.88	29.38	27.43	26.62	25.80	24.25	23.36

4.2.2 1700-2180MHz:

Frequency ID	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59
Frequency (MHz)	1700.0	1710.0	1720.0	1730.0	1740.0	1750.0	1760.0	1770.0	1780.0	1790.0	1800.0	1810.0	1820.0	1830.0	1840.0	1850.0	1860.0	1870.0	1880.0	1890.0	1900.0	1910.0	1920.0	1930.0	1940.0	1950.0	1960.0	1970.0	1980.0	1990.0
Efficiency (dB)	-4.05	-3.86	-3.73	-3.44	-3.31	-3.44	-3.52	-3.77	-3.55	-3.57	-3.65	-3.65	-3.72	-3.87	-3.87	-3.45	-3.21	-3.25	-3.12	-3.21	-3.53	-3.47	-3.40	-3.61	-3.38	-3.38	-3.44	-3.34	-3.37	-3.59
Gain (dB)	0.26	-0.10	-0.01	0.23	0.34	0.20	0.26	0.16	-0.13	0.33	0.42	0.19	-0.04	-0.07	-0.02	0.41	0.71	0.70	0.82	0.73	0.42	0.43	0.51	0.22	0.29	0.04	-0.32	-0.57	-0.57	-0.83
Efficiency (%)	39.32	41.09	42.36	45.29	46.67	45.26	45.31	44.51	42.00	44.18	43.96	43.11	43.20	42.48	41.04	45.18	47.70	47.31	48.72	47.75	44.39	44.93	45.69	43.58	45.91	45.94	45.29	46.30	45.98	43.71
Directivity (dB)	3.79	3.78	3.73	3.67	3.65	3.64	3.70	3.69	3.64	3.87	3.99	3.85	3.61	3.64	3.85	3.87	3.92	3.96	3.94	3.94	3.95	3.91	3.91	3.83	3.67	3.42	3.12	2.77	2.81	2.76
Peak Gain Position (Theta)	45.00	45.00	45.00	135.00	135.00	135.00	135.00	165.00	165.00	165.00	165.00	165.00	165.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	165.00	165.00	
Peak Gain Position (Phi)	255.00	255.00	255.00	30.00	30.00	30.00	30.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	255.00	255.00	270.00	270.00	270.00	270.00	255.00	255.00	270.00	270.00	270.00	285.00	285.00	285.00	105.00	105.00
Efficiency ThetaPol (%)	30.84	32.50	33.78	36.39	37.66	36.78	37.25	37.04	35.42	37.74	37.94	37.45	37.50	36.93	35.63	39.38	41.79	41.60	43.03	42.25	39.20	39.65	40.41	38.67	40.80	40.93	40.42	41.21	40.74	38.47
Efficiency PhiPol (%)	8.48	8.59	8.59	8.90	8.48	8.06	7.48	6.59	6.44	6.02	5.68	5.64	5.55	5.41	5.80	5.91	5.71	5.69	5.50	5.18	5.28	5.27	4.91	5.11	5.01	4.87	5.09	5.24	5.24	
Upper Hem. Efficiency (%)	21.08	21.94	22.46	23.87	24.49	23.72	23.59	22.95	21.36	21.87	21.40	21.08	21.53	21.71	21.29	23.35	24.37	23.93	24.52	23.94	22.08	21.95	21.98	20.91	22.26	22.61	22.59	23.38	23.34	22.17
Lower Hem. Efficiency (%)	18.24	19.16	19.90	21.42	22.18	21.53	21.72	21.50	20.65	22.20	22.47	22.03	21.67	20.77	19.79	21.83	23.33	23.37	24.20	23.79	22.31	22.98	23.70	22.67	23.64	23.33	22.70	22.92	22.64	21.53

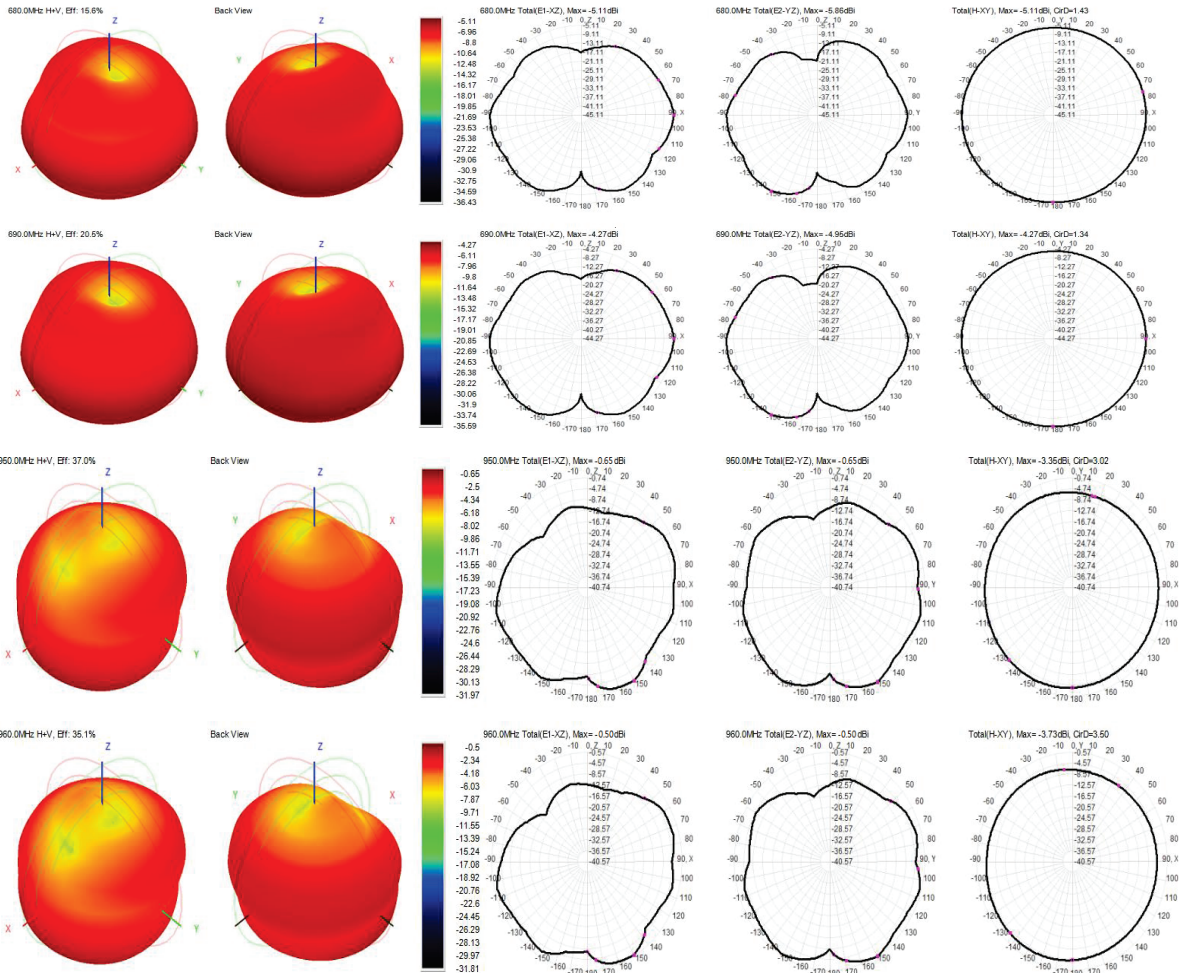
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Frequency (MHz)	2000.0	2010.0	2020.0	2030.0	2040.0	2050.0	2060.0	2070.0	2080.0	2090.0	2100.0	2110.0	2120.0	2130.0	2140.0	2150.0	2160.0	2170.0	2180.0
Efficiency (dB)	-3.40	-3.29	-3.32	-3.16	-3.30	-3.52	-3.42	-3.27	-3.42	-3.12	-3.36	-3.79	-3.79	-3.77	-3.23	-3.07	-3.37	-3.36	-3.36
Gain (dB)	-0.68	-0.51	-0.46	-0.28	-0.21	-0.28	-0.12	0.09	-0.15	0.10	-0.31	-0.85	-0.93	-0.73	-0.49	-0.19	-0.93	-0.84	-0.90
Efficiency (%)	45.66	46.93	46.51	48.34	46.75	44.43	45.47	47.06	45.54	48.75	46.18	41.79	40.86	42.10	41.94	47.53	49.30	46.08	46.12
Directivity (dB)	2.72	2.77	2.67	2.86	2.88	3.15	3.31	3.36	3.36	3.15	3.81	3.90	3.63	3.93	3.67	3.10	3.58	3.58	3.62
Peak Gain Position (Theta)	75.00	75.00	75.00	75.00	75.00	165.00	165.00	165.00	165.00	165.00	165.00	165.00	165.00	165.00	165.00	15.00	15.00	15.00	15.00
Peak Gain Position (Phi)	255.00	255.00	255.00	255.00	255.00	105.00	105.00	105.00	105.00	105.00	105.00	105.00	105.00	105.00	105.00	45.00	75.00	75.00	75.00
Efficiency ThetaPol (%)	39.09	40.06	40.49	41.87	40.21	38.04	38.76	40.02	38.59	41.05	38.23	33.86	32.26	32.72	32.14	38.04	38.69	33.26	32.11
Efficiency PhiPol (%)	5.67	5.98	6.02	6.47	6.34	6.39	6.70	7.04	6.95	7.70	7.95	7.93	8.39	8.47	8.80	11.49	12.61	12.81	14.01
Upper Hem. Efficiency (%)	22.81	23.13	23.06	24.70	23.57	22.19	22.14	22.24	21.23	23.01	22.44	20.87	20.44	21.25	21.03	23.99	25.44	24.38	24.91
Lower Hem. Efficiency (%)	22.85	23.80	23.53	24.14	23.18	22.24	23.33	24.82	24.31	25.74	23.75	20.92	20.22	20.95	20.91	23.54	23.87	21.69	21.21

4.2.3 2310-2690MHz:

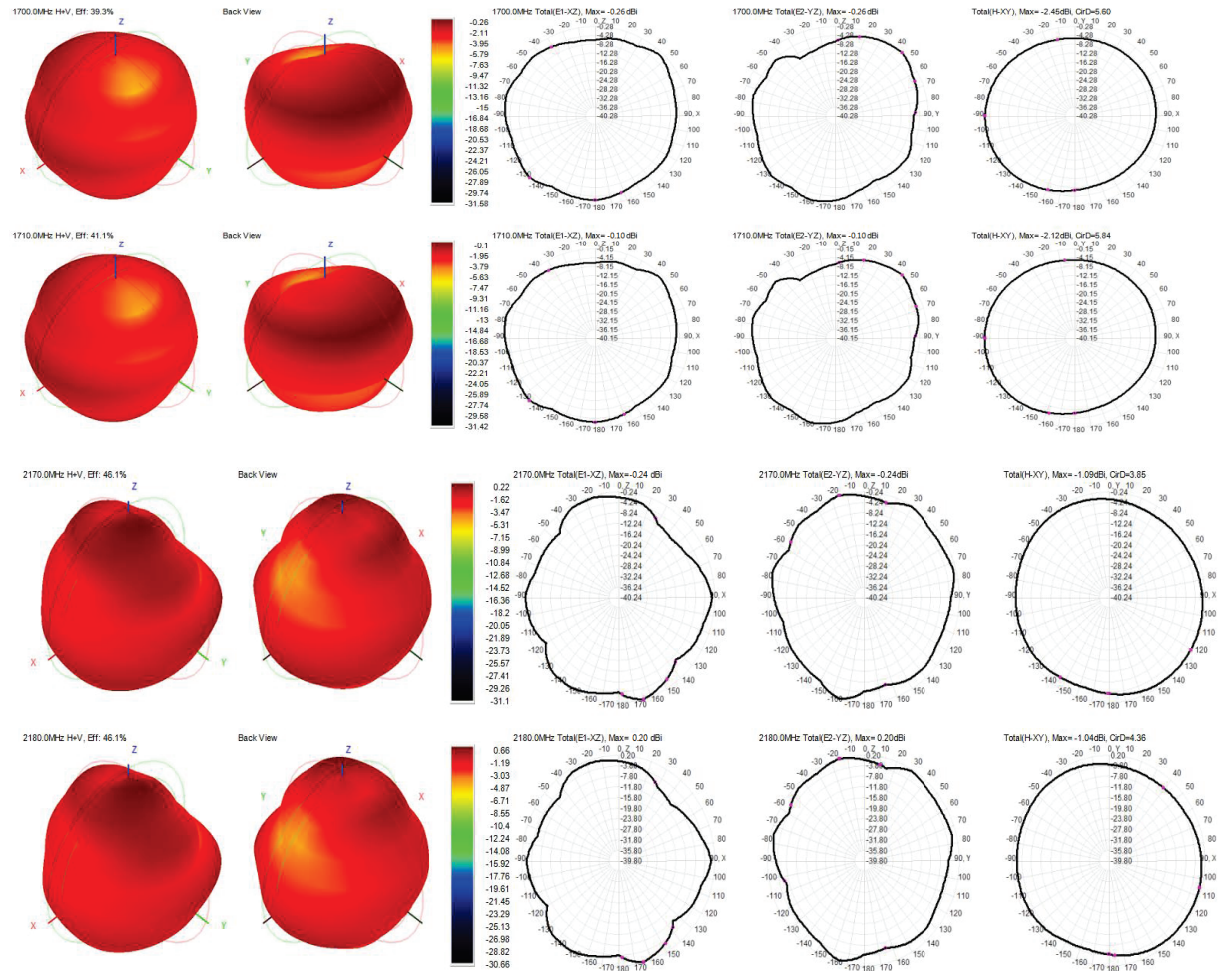
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Frequency (MHz)	2310.0	2320.0	2330.0	2340.0	2350.0	2360.0	2370.0	2380.0	2390.0	2400.0	2500.0	2510.0	2520.0	2530.0	2540.0	2550.0	2560.0	2570.0	2580.0	2590.0	2600.0	2610.0	2620.0	2630.0	2640.0	2650.0	2660.0	2670.0	2680.0	2690.0
Efficiency (dB)	-3.68	-3.85	-3.68	-3.99	-4.23	-4.05	-4.18	-4.61	-4.37	-4.78	-5.19	-4.95	-4.81	-5.05	-4.59	-4.69	-4.80	-4.64	-4.72	-4.57	-4.73	-4.91	-5.07	-4.69	-4.86	-4.90	-4.74	-4.87	-4.95	-4.43
Gain (dB)	2.32	1.99	2.17	1.83	1.61	1.78	1.54	0.95	0.91	0.36	-0.05	0.22	0.27	0.11	0.63	0.52	0.27	0.33	0.11	-0.11	0.16	0.06	-0.15	0.24	0.06	0.07	0.34	0.22	0.23	0.74
Efficiency (%)	42.83	41.19	42.82	39.89	37.78	39.36	38.19	34.58	36.54	33.23	30.24	31.95	33.00	31.24	34.79	33.96	33.10	34.32	33.76	31.86	33.65	32.26	31.09	33.99	32.65	32.38	33.58	32.57	32.00	36.04
Directivity (dB)	6.00	5.84	5.85	5.82	5.84	5.83	5.72	5.56	5.45	5.39	5.14	5.18	5.09	5.17	5.22	5.21	5.07	4.98	4.83	4.86	4.89	4.97	4.92	4.92	4.93	4.97	5.08	5.09	5.18	5.17
Peak Gain Position (Theta)	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00
Peak Gain Position (Phi)	90.00	90.00	90.00	90.00	90.00	90.00	105.00	105.00	105.00	105.00	105.00	180.00	180.00	180.00	180.00	180.00	180.00	180.00	180.00	210.00	195.00	210.00	195.00	210.00	105.00	120.00	105.00	105.00	105.00	105.00
Efficiency ThetaPol (%)	17.23	16.61	17.24	16.23	15.45	16.14	15.84	14.71	16.01	14.90	14.38	15.64	16.25	15.29	17.07	16.83	16.46	17.09	16.92	16.03	16.81	16.09	15.55	16.89	16.06	15.79	16.28	15.77	15.55	17.52
Efficiency PhiPol (%)	17.23	16.61	17.24	16.23	15.45	16.14	15.84	14.71	16.01	14.90	14.38	15.64	16.25	15.29	17.07	16.83	16.46	17.09	16.92	16.03	16.81	16.09	15.55	16.89	16.06	15.79	16.28	15.77	15.55	17.52
Upper Item Efficiency (%)	28.51	27.21	28.07	25.92	24.29	24.95	24.76	21.16	22.05	19.83	16.22	18.68	17.29	16.35	18.20	17.80	17.36	18.19	17.80	18.89	18.16	17.50	17.05	18.87	18.37	18.44	18.10	19.88	18.88	21.45
Lower Item Efficiency (%)	14.33	13.99	14.75	13.97	13.20	14.51	14.73	14.42	14.39	14.41	14.02	15.07	15.71	14.85	16.18	16.14	16.14	16.23	16.96	14.97	15.65	14.76	14.04	15.12	14.28	13.94	14.18	13.60	13.14	14.45

Antenna directional map

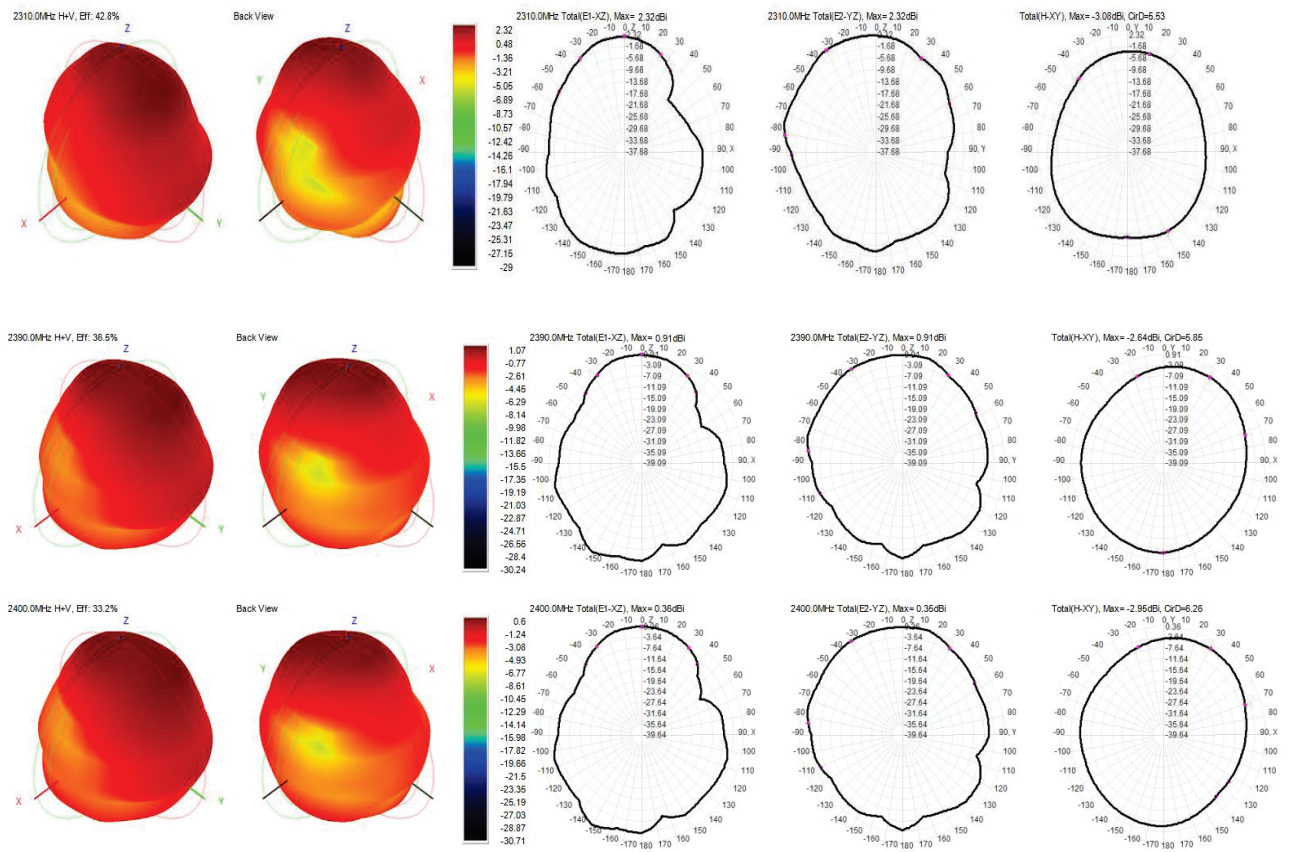
680-960MHz-3D



1700-2180MHz-3D

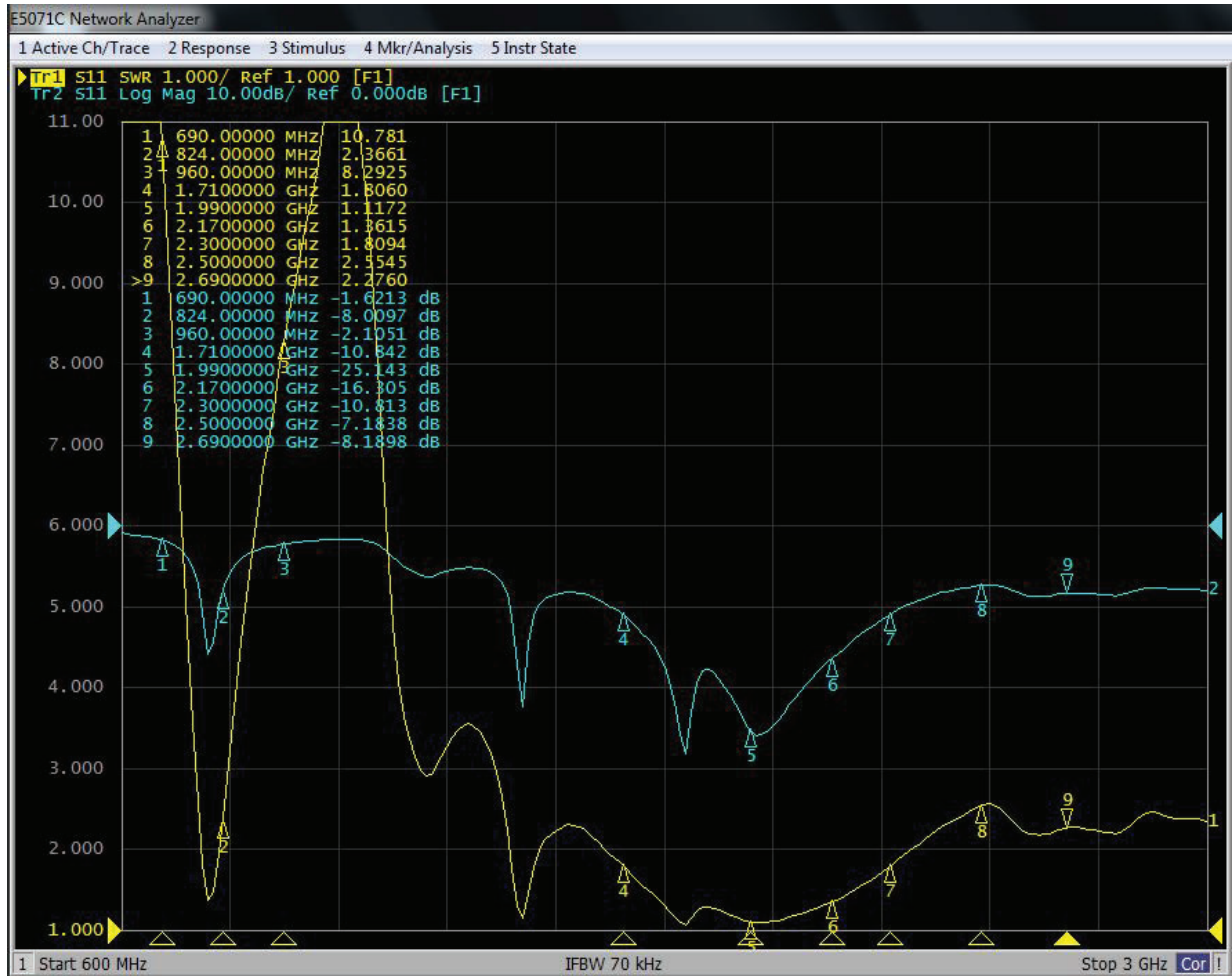


2310-2690MHz -3D



5 Plots

5.1 Lobe pattern/LOG MAG



6 Reliability tests

6.1 Test content

No	Test items	test method	defining principle
1	Salt water spray test	Spray the solution with salt concentration of 5% for 48HR	There should be no defects such as discoloration, deformation, or detachment, and the corrosion area should not be too large
2	Operational Temperature	-40℃~+65℃	
3	Storage Temperature	-50℃~+85℃	
4	Humidity	40%~95%	

6.2 Test results

NO	Number of samples	Test time	experimental result	notes
1	50	24 hour	OK	Technical level is level 9 Corrosion<0.4mm
2	50	24 hour	OK	Technical level is level 9 Corrosion<0.4mm

7 Conclusion

Note: The environmental treatment of the entire machine is based on the antenna report as the final decision.