

Antenna Test Report

Applicant: Shanghai Zhiyuan New Innovation Technology Co., Ltd

8/F, Building 29, No.2555 Xiupu Road, Pudong New Area, 200120 Shanghai P.R. China



Outline Summary

- **Purpose**

Antenna Study for WIFI antenna . Result as following.

- **Agenda**

- Test Environment and Equipment

- Test Data of Antenna:

- Test Result : VSWR Parameter

- Test Result : Efficiency & Peak Gain

- Test Result : 2D Radiation Pattern

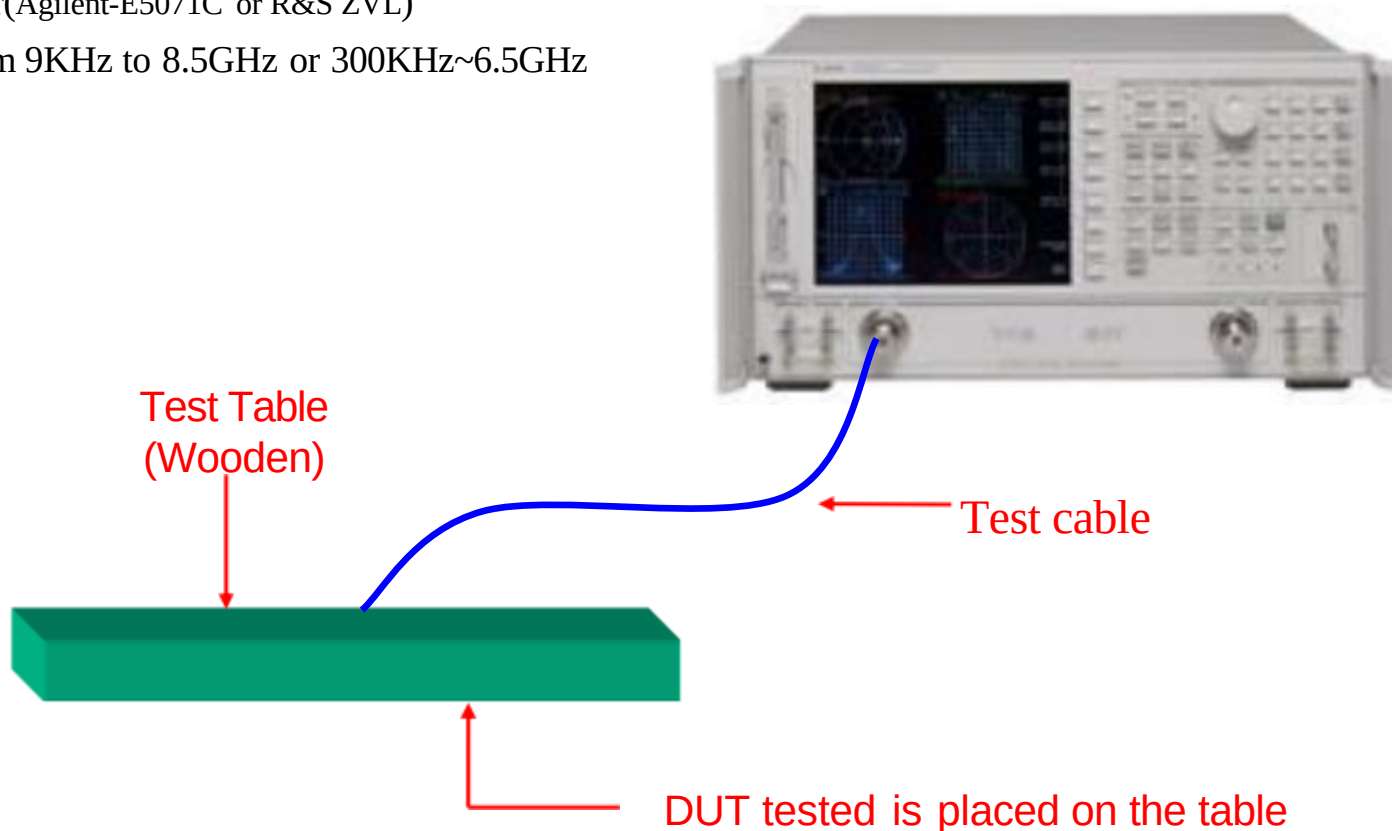
- Conclusions & Suggestions



Test Environment and Equipments

S-Parameter test

- Network Analyzer(Agilent-E5071C or R&S ZVL)
- Testing range from 9KHz to 8.5GHz or 300KHz~6.5GHz





铭众科技
Exclusive Connectek

Test Environment and Equipments

3D Chamber Structure

- ETS-Lindgren AMS-8000 Series System Components
- Chambers
- EMQuest EMQ-100 Software
- Positioning Systems
- Chamber Room Size: $L*W*H=7.3*3.7*3.7$ M

- **Network Analyzer**

Agilent E5071C

- **Spectrum Analyzer**

R&S FSP13

- **Universal Radio Communication Tester**

R&S CMU200

- **Switch**

Agilent 3499B

- **PC and Software**

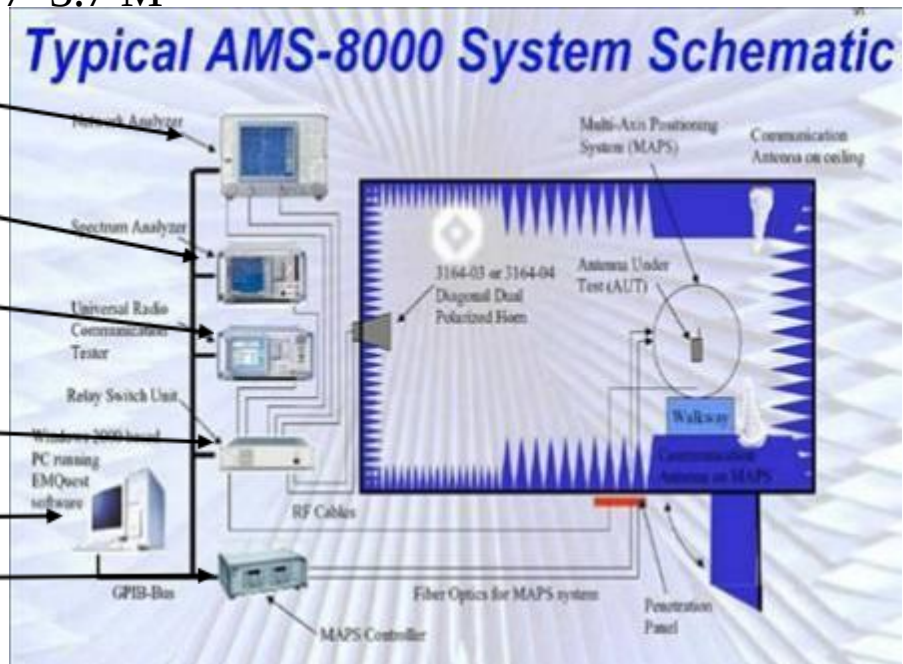
- **Rotate Controller**

ETS-Lindgren 2090

VSWR were performed using an Agilent S-parameter Network Analyzer.



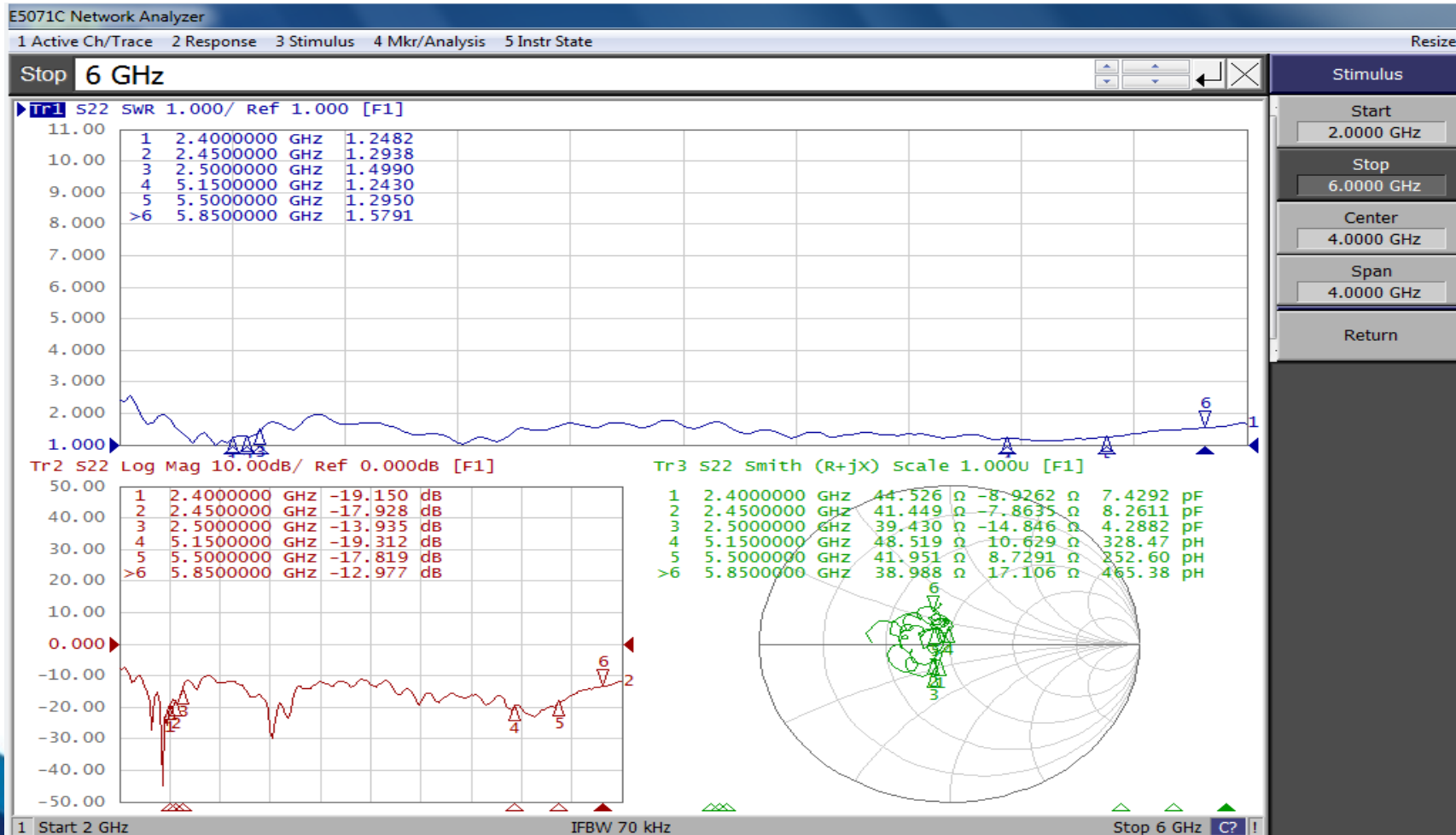
NA E5071C





铭众科技
Exclusive Connectek

Test Result : VSWR



文件编号: EC-YF-001a



Test Result : Efficiency & Peak Gain

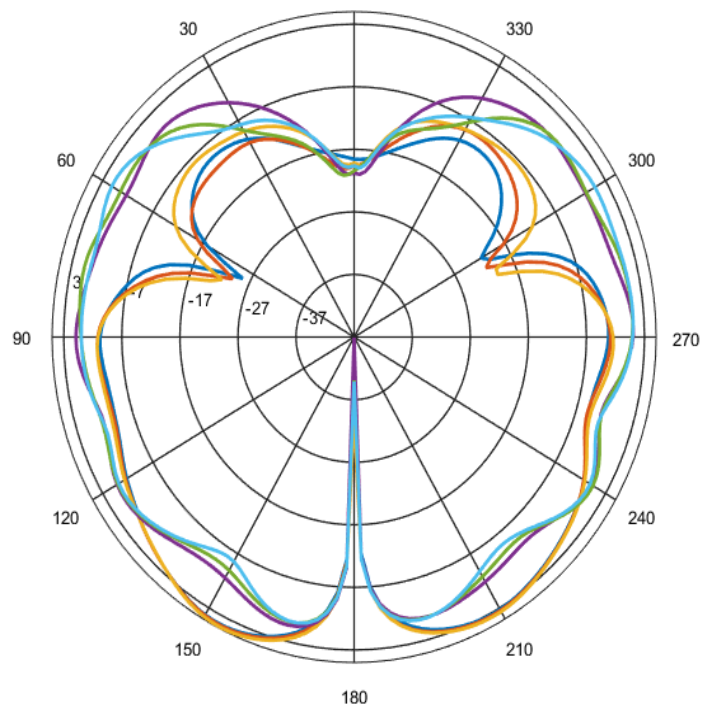
Frequency (MHz)	Directivity(dB)	Gain(dB)	Efficiency(dB)	Efficiency(%)
2400	7.1859	4.7947	-2.3912	57.6602
2410	7.1814	4.7841	-2.3973	57.5803
2420	7.159	4.7793	-2.3796	57.8146
2430	7.1652	4.8614	-2.3038	58.8324
2440	7.1458	4.7301	-2.4157	57.3366
2450	7.1192	4.8484	-2.2708	59.2819
2460	7.1124	4.9109	-2.2015	60.2357
2470	7.0608	4.9131	-2.1478	60.985
2480	7.0486	4.7888	-2.2597	59.4328
2490	7.1225	4.9584	-2.1641	60.7558
2500	7.1018	5.0936	-2.0082	62.9767
5150	2.6036	1.5558	-1.0478	78.5626
5200	2.6031	1.4747	-1.1283	77.1199
5250	2.8643	1.6243	-1.24	75.1626
5300	2.6206	1.4171	-1.2035	75.796
5350	2.5964	1.4801	-1.1163	77.3337
5400	2.4907	1.3243	-1.1664	76.4473
5450	2.6532	1.6555	-0.9976	79.4765
5500	2.5722	1.5042	-1.0681	78.1971
5550	2.3052	1.2442	-1.061	78.325
5600	2.2607	1.2566	-1.0041	79.3583
5650	2.3896	1.4627	-0.927	80.7799
5700	2.4449	1.5201	-0.9248	80.8196
5750	2.5196	1.5861	-0.9335	80.6582
5800	2.6525	1.756	-0.8965	81.3483
5850	2.7762	1.7736	-1.0026	79.3858



铭众科技
Exclusive Connectek

Antenna 2D&3D Radiation Pattern

Phi=0°

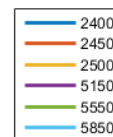
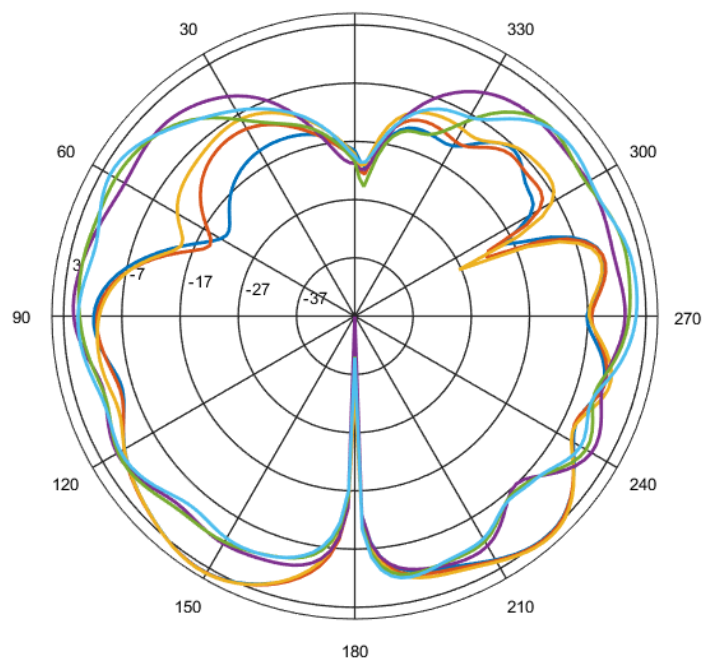


Frequency (MHz)	Max (dB)	Max@deg	Min (dB)	Min@ deg	Max-Min (dB)	Roundness (dB)	BW_3dB (deg)	BW_center (deg)	BW_10dB (deg)	F2E_0 (dB)	F2E_30 (dB)	F2E_XPD_30 (dB)	F2E_60 (dB)	XPD_0 (dB)
2400	4.3627	152.0000	-34.0702	180	38.4328	19.2164	33.4234	151.0871	94.5764	15.4615	14.6033	14.6033	7.6769	10.3693
2450	4.4906	154	-34.1455	180	38.6361	19.3180	33.3062	151.5789	93.6953	14.0067	12.9906	12.9906	7.7954	10.4973
2500	4.7825	154	-34.9469	-180	39.7294	19.8647	31.9795	152.5386	92.7950	13.9687	12.3812	12.3812	7.9481	10.0457
5150	1.1013	-88	-46.9203	-180	48.0216	24.0108	67.2381	-67.8146	159.0468	0.2575	0.1959	0.1959	0.1959	25.3383
5550	1.0542	-86	-40.0962	-180	41.1504	20.5752	62.3267	-35.4459	150.0358	1.3040	0.2723	0.2723	0.2723	31.8547
5850	1.1828	60	-39.9058	-180	41.0886	20.5443	63.2874	38.9361	152.5502	1.2550	0.2243	0.2243	0.0483	23.4914

文件编号: EC-YF-001a

Antenna 2D&3D Radiation Pattern

Phi=90°



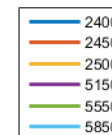
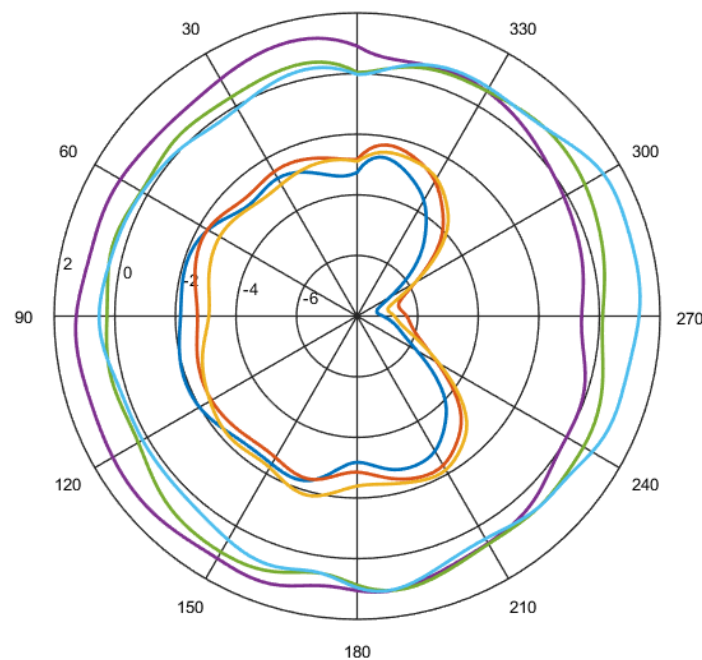
Frequency (MHz)	Max (dB)	Max@deg	Min (dB)	Min@ deg	Max-Min (dB)	Roundness (dB)	BW_3dB (deg)	BW_center (deg)	BW_10dB (deg)	F2E_0 (dB)	F2E_30 (dB)	F2E_XPD_30 (dB)	F2E_60 (dB)	XPD_0 (dB)
2400	3.9290	148	-34.0702	-180	37.9992	18.9996	33.5488	146.1694	94.7277	16.4977	11.4442	11.4442	7.0707	30.1499
2450	3.9708	148	-34.1455	-180	38.1163	19.0581	34.4723	146.1925	93.6147	16.3611	12.3797	12.3797	6.9887	30.7541
2500	4.0461	148	-34.9469	-180	38.9930	19.4965	32.9329	146.2562	92.3429	14.1963	10.0137	10.0137	7.7059	34.3617
5150	1.3610	88	-46.9204	-180	48.2814	24.1407	66.1588	69.8131	156.1768	2.0720	1.4050	1.4050	1.4050	27.0235
5550	0.7703	-76.0000	-40.0963	-180	40.8666	20.4333	62.6599	-35.0150	148.4939	2.4173	0.1271	0.1271	0.1271	28.4365
5850	1.6112	-82	-39.9059	-180	41.5171	20.7586	58.9336	-36.2797	154.0572	1.5315	1.0799	1.0799	0.0863	29.7216



铭众科技
Exclusive Connectek

Antenna 2D&3D Radiation Pattern

Theta=90°

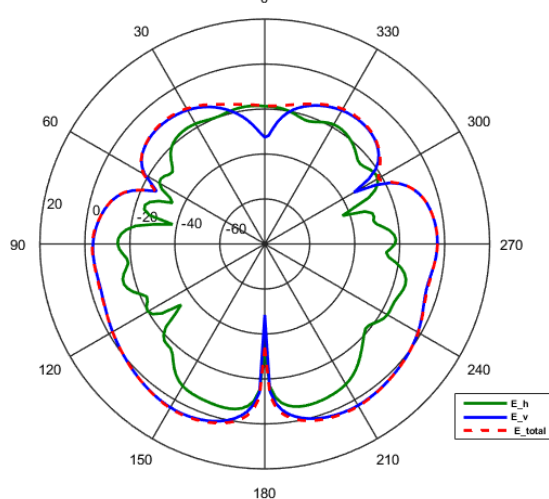


Frequency (MHz)	Max (dB)	Max@deg	Min (dB)	Min@ deg	Max-Min (dB)	Roundness (dB)	Avg_Gain (dB)	BW_3dB (deg)	BW_center (deg)	BW_10dB (deg)	F2B_0 (dB)	F2B_30 (dB)	F2B_XPD_30 (dB)	F2B_60 (dB)
2400	-1.9293	112	-7.3371	-78.0000	5.4079	2.7039	-3.3406	278.1999	94.7735	NaN	5.2790	2.3788	2.3788	0.7629
2450	-2.2638	-154	-6.5892	-76.0000	4.3254	2.1627	-3.1489	298.5956	-266.3193	NaN	0.2220	0.0996	0.0996	0.0053
2500	-1.8646	164	-6.9606	-78.0000	5.0960	2.5480	-3.1641	293.5777	93.1603	NaN	0.6417	0.6320	0.6320	0.6320
5150	1.3676	130	-0.5878	-90	1.9554	0.9777	0.7414	NaN	NaN	NaN	1.2842	0.7417	0.7417	0.0743
5550	1.1279	-170	0.0403	0	1.0876	0.5438	0.5414	NaN	NaN	NaN	0.6283	0.6100	0.6100	0.3423
5850	1.4302	-64	-0.1497	36	1.5799	0.7899	0.6132	NaN	NaN	NaN	1.2628	0.9110	0.9110	0.7075

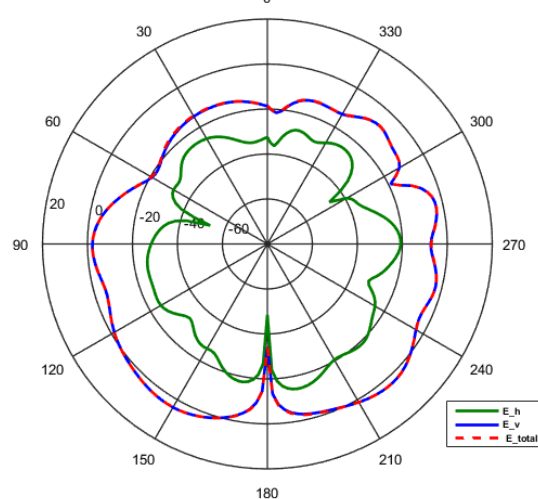
Antenna 2D&3D Radiation Pattern

2400MHz

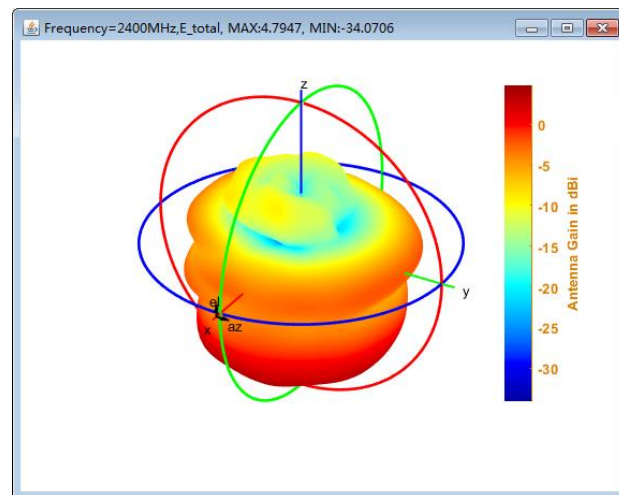
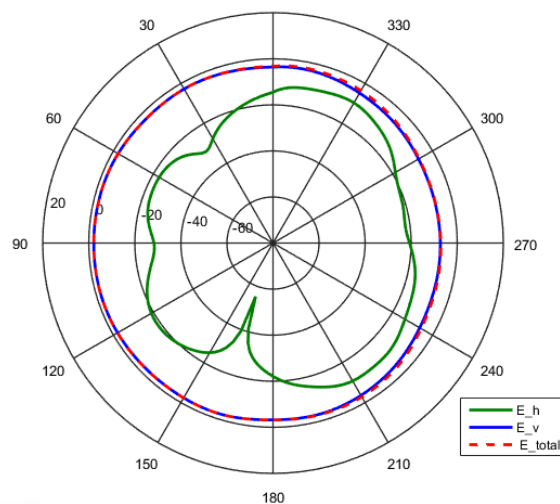
E_h, E_v, and E_{total}: Theta Cut @ Phi=0 Degree
(frequency=2400MHz)



E_h, E_v, and E_{total}: Theta Cut @ Phi=90 Degree
(frequency=2400MHz)



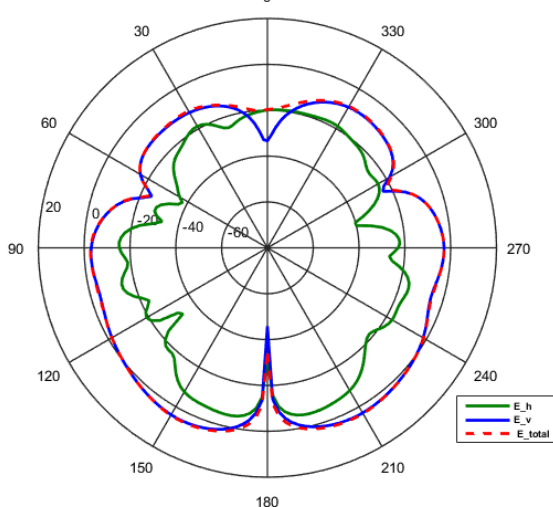
E_h, E_v, and E_{total}: Phi Cut @ Theta=90 Degree
(frequency=2400MHz)



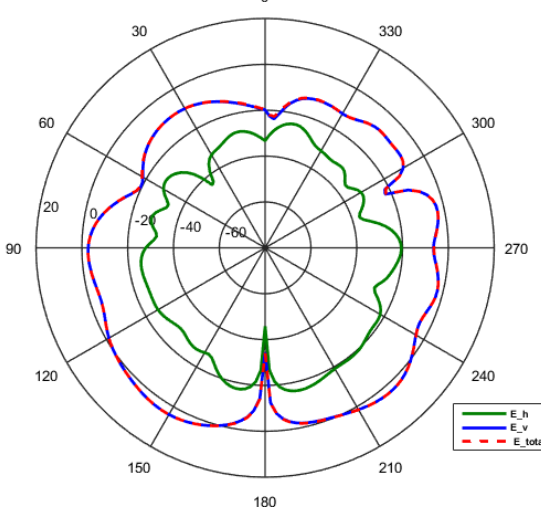
Antenna 2D&3D Radiation Pattern

2450MHz

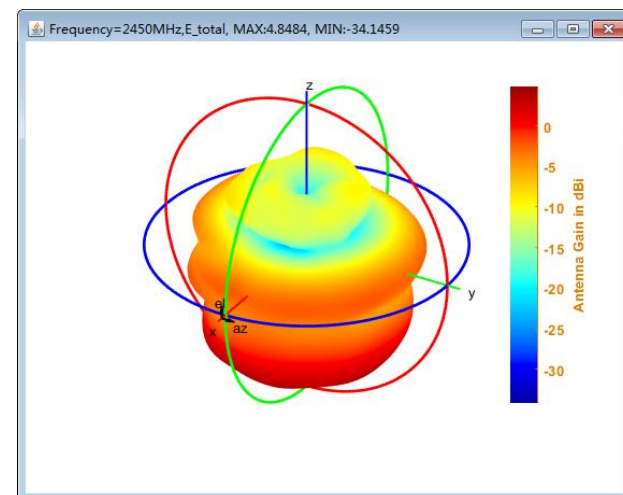
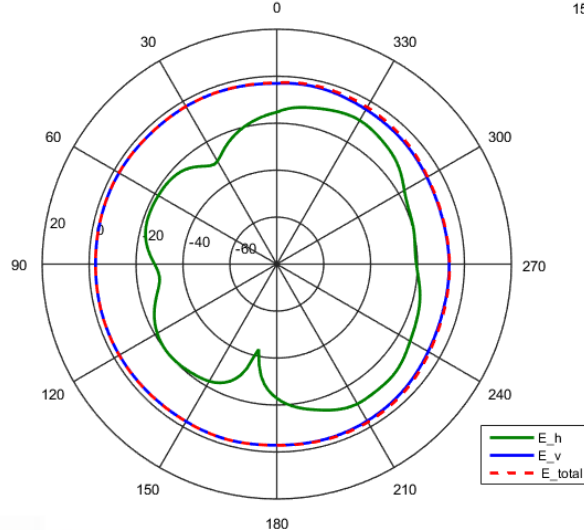
E_h, E_v, and E_{total}: Theta Cut @ Phi=0 Degree
(frequency=2450MHz)



E_h, E_v, and E_{total}: Theta Cut @ Phi=90 Degree
(frequency=2450MHz)



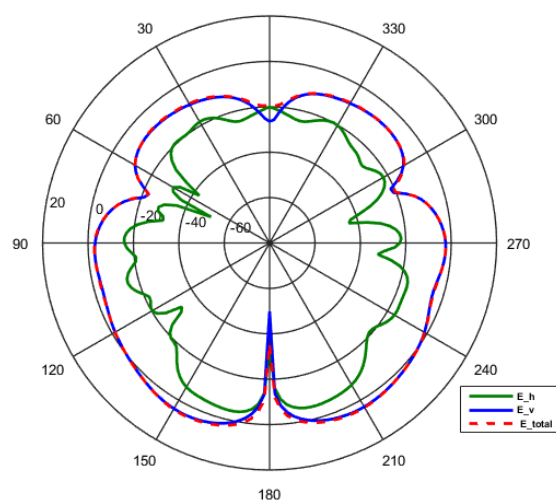
E_h, E_v, and E_{total}: Phi Cut @ Theta=90 Degree
(frequency=2450MHz)



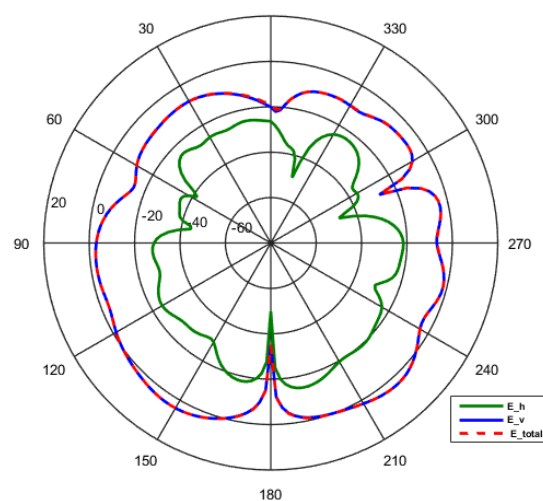
Antenna 2D&3D Radiation Pattern

2500MHz

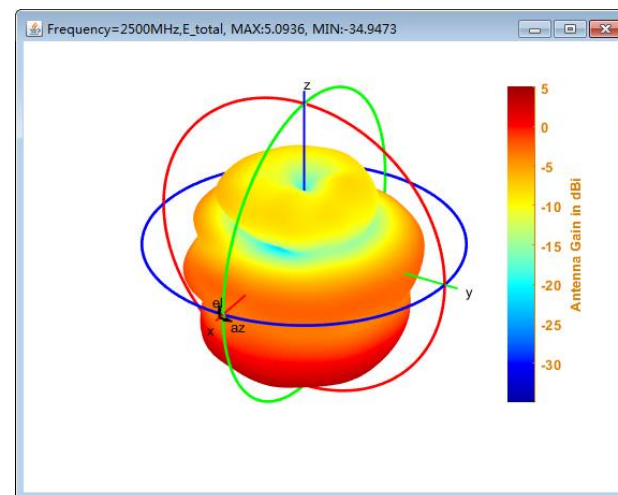
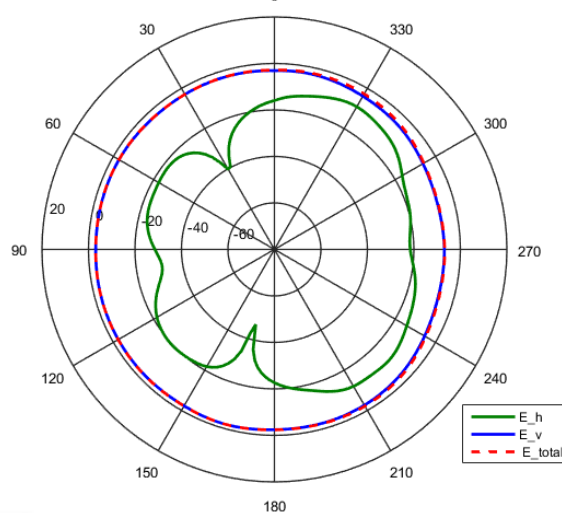
E_h, E_v, and E_{total}: Theta Cut @ Phi=0 Degree
(frequency=2500MHz)



E_h, E_v, and E_{total}: Theta Cut @ Phi=90 Degree
(frequency=2500MHz)



E_h, E_v, and E_{total}: Phi Cut @ Theta=90 Degree
(frequency=2500MHz)

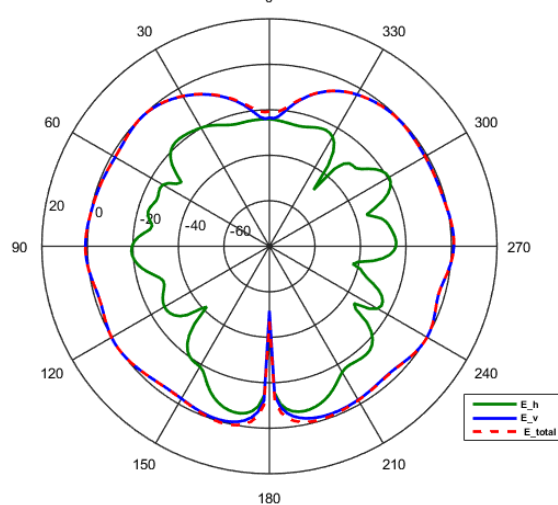




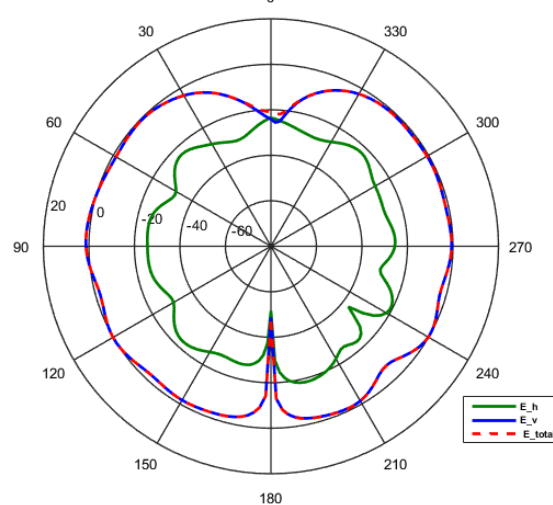
铭众科技
Exclusive Connectek

Antenna 2D&3D Radiation Pattern

E_h, E_v, and E_{total}: Theta Cut @ Phi=0 Degree
(frequency=5150MHz)

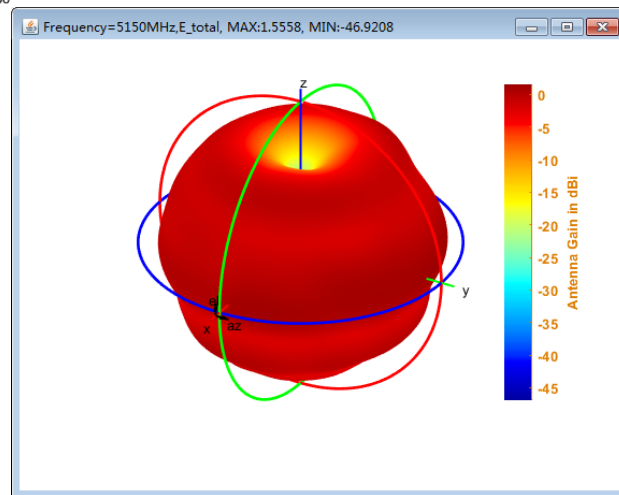
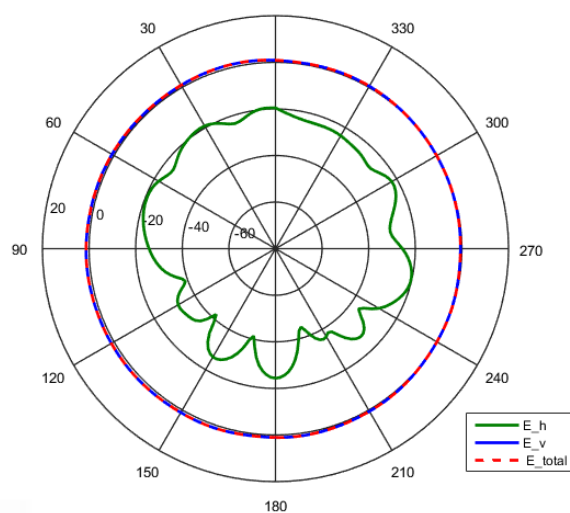


E_h, E_v, and E_{total}: Theta Cut @ Phi=90 Degree
(frequency=5150MHz)



5150MHz

E_h, E_v, and E_{total}: Phi Cut @ Theta=90 Degree
(frequency=5150MHz)

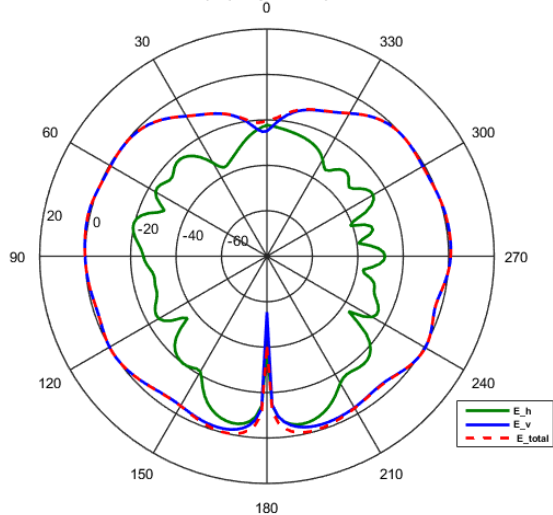


文件编号: EC-YF-001a

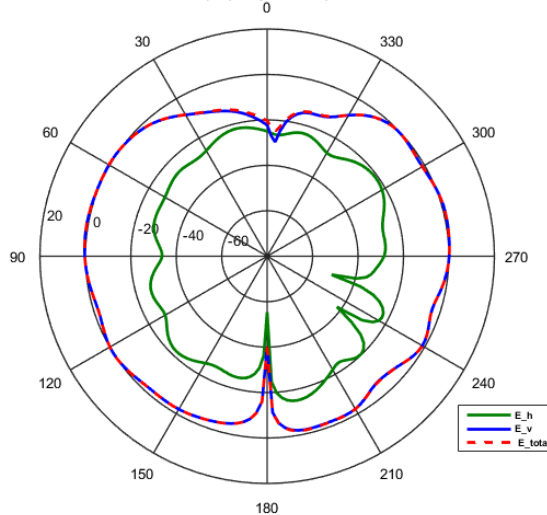
Antenna 2D&3D Radiation Pattern

5550MHz

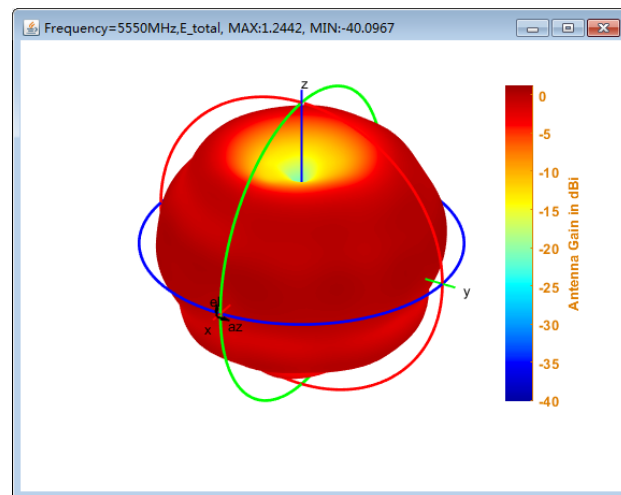
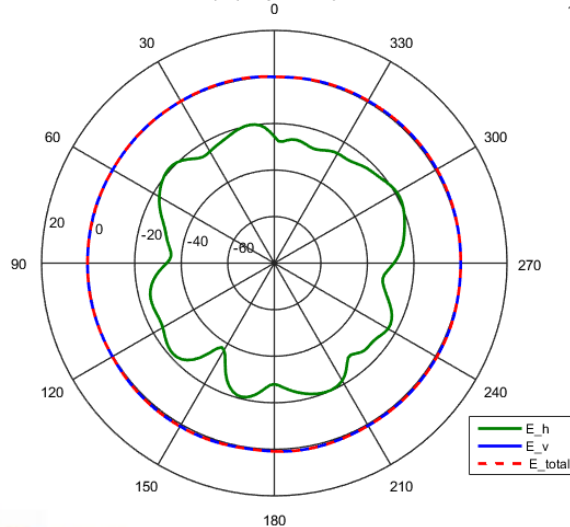
E_h, E_v, and E_total: Theta Cut @ Phi=0 Degree
(frequency=5550MHz)



E_h, E_v, and E_total: Theta Cut @ Phi=90 Degree
(frequency=5550MHz)

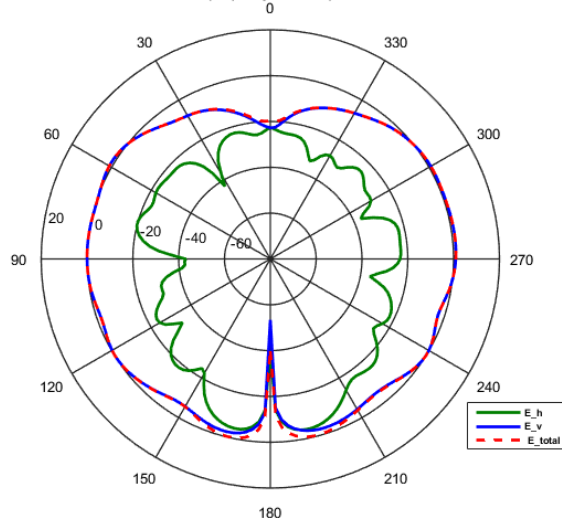


E_h, E_v, and E_total: Phi Cut @ Theta=90 Degree
(frequency=5550MHz)

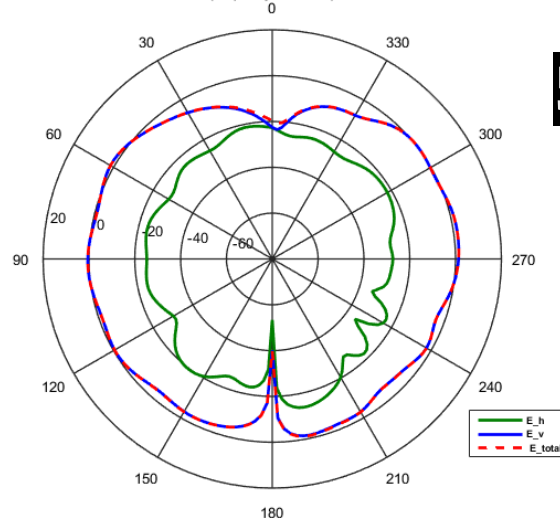


Antenna 2D&3D Radiation Pattern

E_h, E_v, and E_{total}: Theta Cut @ Phi=0 Degree
(frequency=5850MHz)



E_h, E_v, and E_{total}: Theta Cut @ Phi=90 Degree
(frequency=5850MHz)



5850MHz

E_h, E_v, and E_{total}: Phi Cut @ Theta=90 Degree
(frequency=5850MHz)

