

STPFA157540NNA001 Specification

2.4GHz 3dBi PIFA Antenna

1. Feature

- * External type PIFA antenna
- * 2.4GHz of frequency
- * RoHS compliance

2. Application

- * 2.4GHz Wireless Communication
- * WLAN device, WLAN Router, e.g., AP, PIC Wireless Card

3. Description

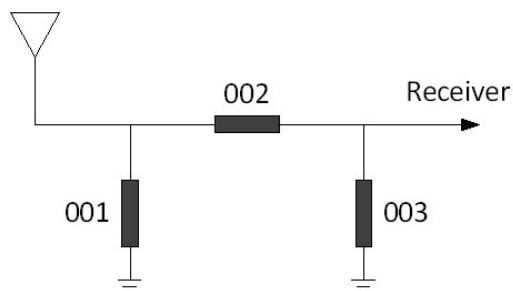
Using Suzhou Soant communication Equipent Co.,Ltd, this miniature antenna is designed for 2.4GHz applications and can be easily built-in portable devices with DIP processes. It has excellent stability and sensitivity to consistently provide high signal reception efficiency.

4. General Data

Product Name	2.4GHz 3dBi PIFA Antenna
Part No.	STPFA157540NNA001
Frequency	2.4~2.5GHz
V.S.W.R	≤ 2.0
Gain (dBi)	2.4GHz@4.0dBi
Polarization	Linear,Vertical
Storage Temp	-10℃~+70℃
Operating Temperature	-10℃~+60℃
Impedance with Matching	50 Ω
Weight	0.47g
Antenna Type	DIP=9.05
Dimension	L15.9 X H7.5X W3.7(mm)

5. Typical Electrical Characteristics

- Recommend Matching Circuit



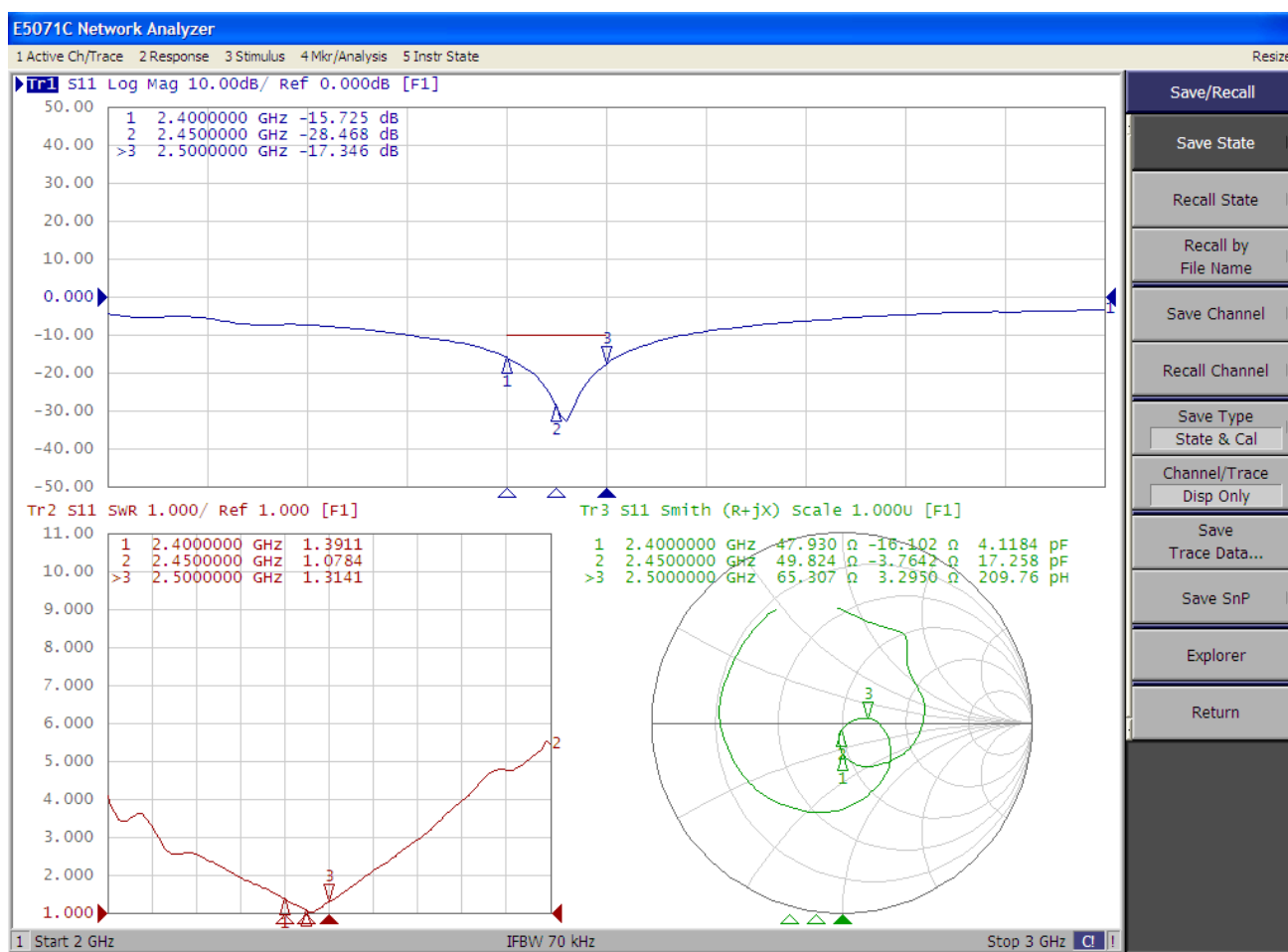
Reference:

001=(N/A)

002=0Ω

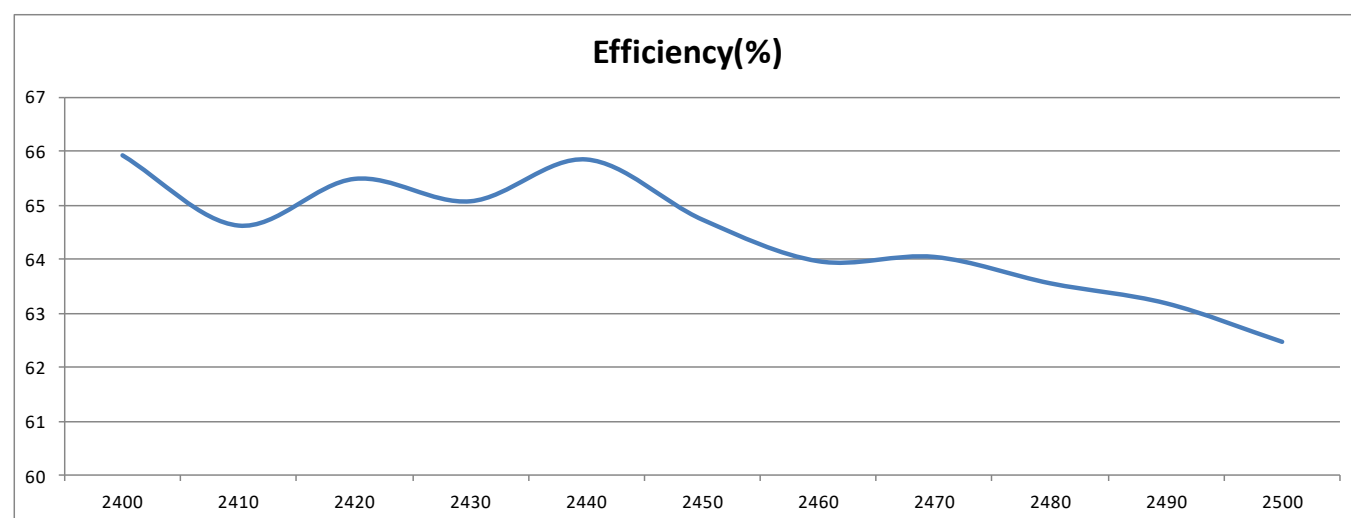
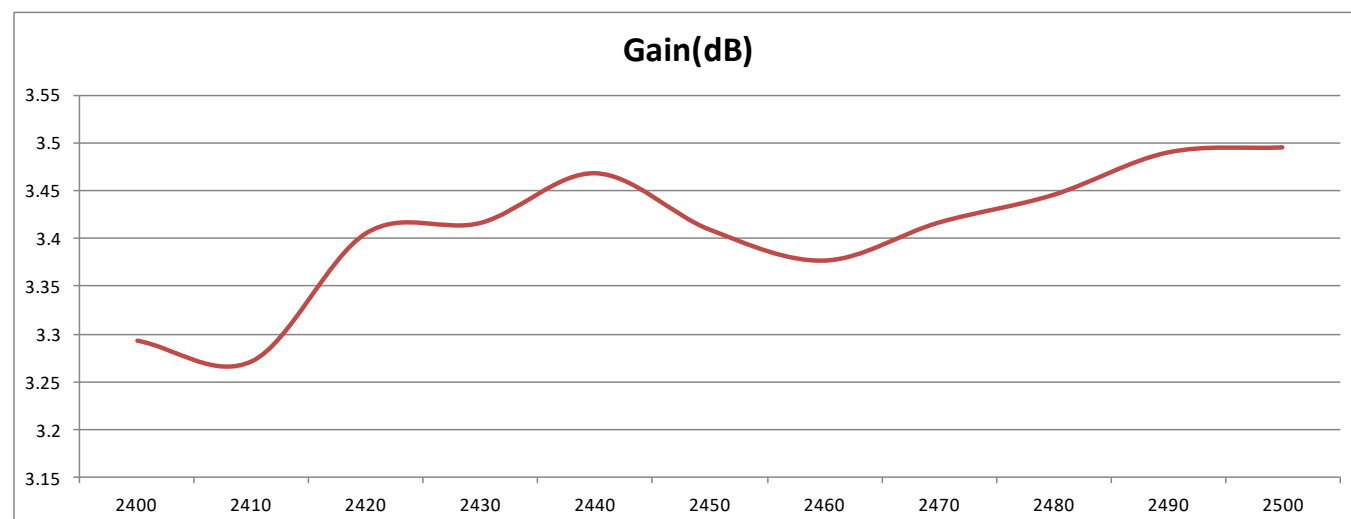
003=(N/A)

- Return loss、VSWR& Smith chart

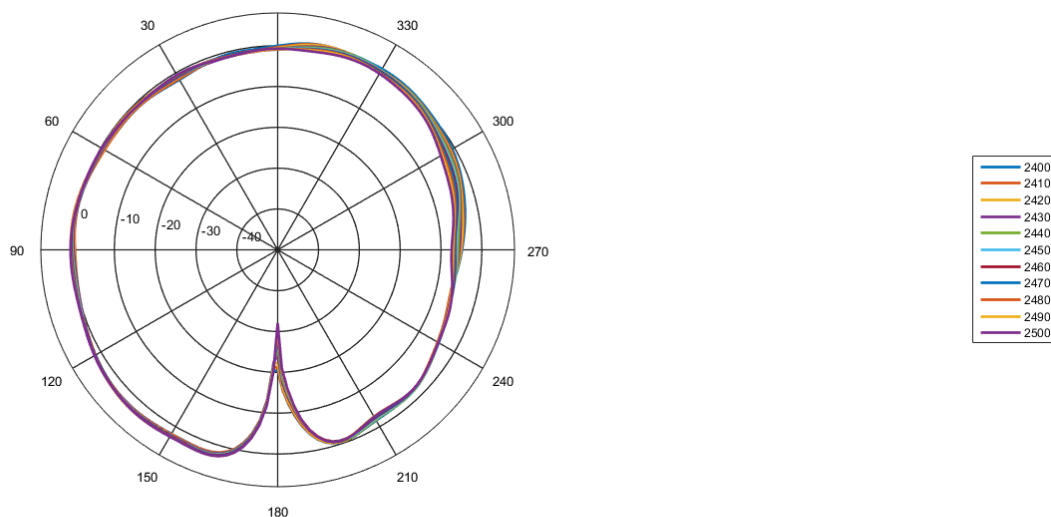


6.3D Total Date

Frequency (MHz)	2400	2410	2420	2430	2440	2450	2460	2470	2480	2490	2500
Directivity(dB)	5.1033	5.1682	5.2444	5.2825	5.283	5.298	5.3176	5.3519	5.4139	5.4835	5.538
Gain(dB)	3.2928	3.2714	3.4051	3.4158	3.4675	3.4086	3.3764	3.4161	3.4449	3.4892	3.4945
Efficiency(dB)	-1.8105	-1.8968	-1.8392	-1.8667	-1.8155	-1.8894	-1.9412	-1.9358	-1.969	-1.9943	-2.0435
Efficiency(%)	65.9102	64.6136	65.4751	65.0619	65.8336	64.7234	63.9561	64.0351	63.548	63.1785	62.4676
BW@Phi=0	99.7434	72.7439	68.15	69.8071	98.9231	98.4837	98.2051	98.3378	98.4019	97.7536	96.6908
BW@phi=90	43.0123	41.212	37.9727	35.1003	33.9532	34.0324	34.8478	35.5669	35.2798	34.0381	32.5075
BW@theta=90	81.5925	81.3704	80.9396	79.685	78.4131	77.2666	76.5253	75.8392	75.2877	74.7992	74.3279
Roundness@Theta=30	8.1117	7.6042	7.1917	6.9811	6.8942	6.7387	6.4389	6.0267	5.7319	5.6954	5.7543
Roundness@Theta=60	12.6439	12.4875	12.369	12.5332	12.8883	13.4887	14.2823	14.9929	15.4397	15.2955	14.8925
Roundness@Theta=90	10.0714	10.2789	10.31	10.2603	10.2254	10.3722	10.5582	10.7799	11.1029	11.3016	11.3001
Peak Gain@Phi(deg)	40	40	38	40	40	40	40	40	40	40	42
Peak Gain@Theta(deg)	126	126	126	128	128	130	130	130	132	132	134
Null@Phi(deg)	148	150	148	142	136	132	18	18	152	148	142
Null@Theta(deg)	-178	-178	-178	-178	-178	-178	180	180	-180	-180	-180
upper spherical efficiency(dB)	-5.1974	-5.354	-5.3422	-5.4035	-5.3879	-5.5047	-5.6077	-5.6637	-5.7711	-5.8803	-6.0087
upper spherical efficiency(%)	30.2173	29.1475	29.227	28.8174	28.9207	28.1532	27.4938	27.1413	26.4783	25.8209	25.0684
lower spherical efficiency(dB)	-4.4742	-4.5019	-4.4071	-4.4076	-4.3282	-4.3687	-4.3816	-4.3305	-4.3098	-4.2762	-4.2714
lower spherical efficiency(%)	35.6929	35.4661	36.2481	36.2445	36.9129	36.5701	36.4623	36.8938	37.0697	37.3576	37.3992
Efficiency LHCP(dB)	-4.5315	-4.6464	-4.6045	-4.639	-4.5915	-4.6697	-4.731	-4.75	-4.8294	-4.9153	-5.0225
Efficiency LHCP(%)	35.2247	34.3055	34.6374	34.364	34.7419	34.122	33.6431	33.4962	32.8895	32.2459	31.4591
Efficiency RHCP(dB)	-5.1307	-5.1844	-5.1092	-5.1289	-5.0736	-5.1426	-5.1837	-5.1515	-5.1345	-5.0958	-5.0852
Efficiency RHCP(%)	30.6855	30.3082	30.8377	30.6979	31.0917	30.6014	30.313	30.5389	30.6585	30.9326	31.0085
Gain LHCP(dB)	1.6443	1.3348	1.2754	1.1796	1.1454	0.9606	0.8362	0.7835	0.6755	0.5156	0.3327
Gain RHCP(dB)	0.8412	0.7427	0.7711	0.7534	0.9052	0.8632	0.8724	0.9305	0.9696	1.0597	1.1475
AR	7.0918	6.1803	4.8558	3.903	3.3967	3.0781	2.7426	2.3897	2.1337	2.0109	1.991
AR dB	17.0151	15.8202	13.7253	11.828	10.6213	9.7656	8.7632	7.5669	6.5825	6.068	5.9814
功率占比 (%)	22.3946	21.9746	21.7655	21.6371	21.4687	21.2426	20.9907	20.7207	20.3782	19.9744	19.5848

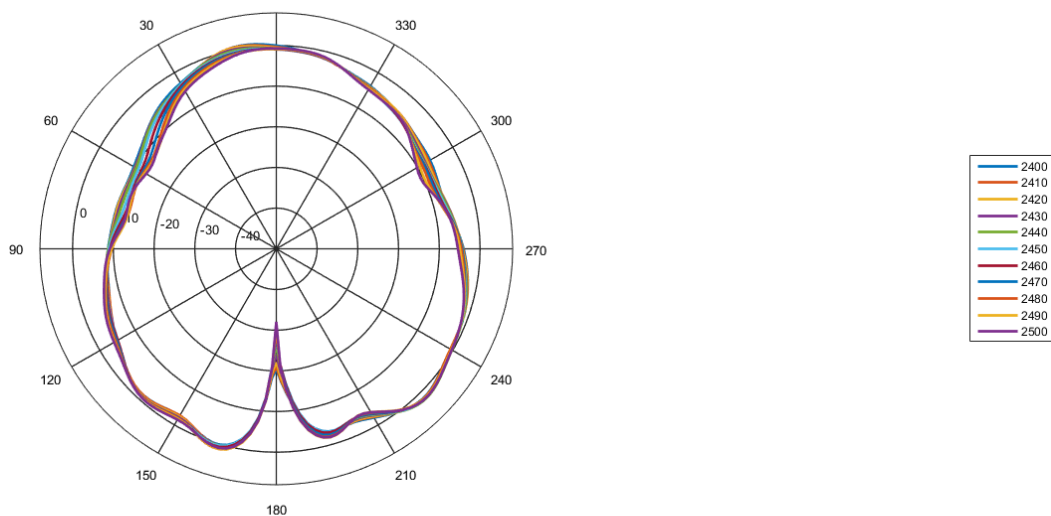


➤ **phi 0°**



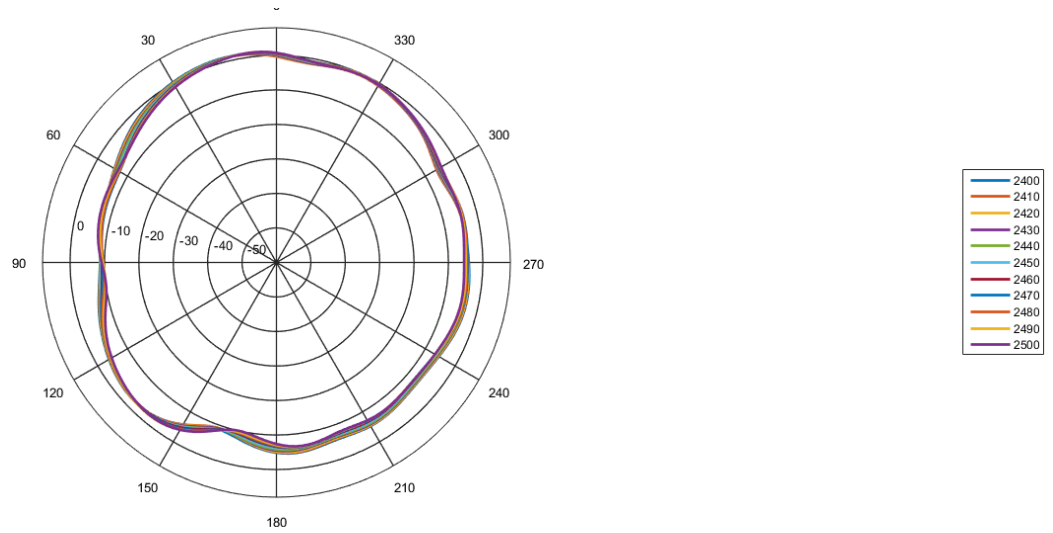
Frequency (MHz)	Max (dB)	Maxθdeg	Min (dB)	Minθ deg	Max-Min (dB)	Roundness (dB)	BW_3dB (deg)	BW_center (deg)	BW_10dB (deg)	F2B_0 (dB)	F2B_30 (dB)	F2B_XPD_30 (dB)	F2B_60 (dB)	XPD_0 (dB)
2400	2.5159	136	-20.4973	180	23.0132	11.5066	99.7434	118.3653	346.7760	2.0424	1.1907	1.1907	1.1907	5.4452
2410	2.5640	136	-21.4501	178	24.0140	12.0070	72.7439	131.7928	346.5015	2.4245	1.2537	1.2537	1.2537	5.4173
2420	2.6912	136	-22.3994	178	25.0906	12.5453	68.1500	134.0384	346.1020	2.6561	1.4059	1.4059	1.4059	5.3142
2430	2.7035	138	-24.1506	180	26.8541	13.4271	69.8071	133.3214	345.7507	2.6030	1.5968	1.5968	1.5968	5.4652
2440	2.8138	138	-26.3325	180	29.1464	14.5732	98.9231	118.9735	345.5480	2.7327	1.7721	1.7721	1.7721	5.4101
2450	2.8495	138	-27.8516	180	30.7011	15.3508	98.4837	119.3254	345.4191	2.9263	1.9994	1.9994	1.9994	5.3523
2460	2.9504	138	-28.4467	180	31.3971	15.6986	98.2051	119.5190	345.3667	3.1885	2.2986	2.2986	2.2986	5.3182
2470	3.0870	138	-28.8518	180	31.9389	15.9694	98.3378	119.4933	345.3994	3.4725	2.5818	2.5818	2.5818	5.3006
2480	3.1280	138	-29.8568	180	32.9848	16.4924	98.4019	119.5166	262.6040	3.7169	2.7831	2.7831	2.7831	5.2534
2490	3.1418	140	-31.2023	180	34.3441	17.1721	97.7536	119.8638	260.1580	3.7944	2.9575	2.9575	2.9575	5.3114
2500	3.0978	140	-32.0568	180	35.1546	17.5773	96.6908	120.4301	258.6251	3.9712	3.0640	3.0640	3.0640	5.3402

➤ **phi 90°**



Frequency (MHz)	Max (dB)	Maxθdeg	Min (dB)	Minθ deg	Max-Min (dB)	Roundness (dB)	BW_3dB (deg)	BW_center (deg)	BW_10dB (deg)	F2B_0 (dB)	F2B_30 (dB)	F2B_XPD_30 (dB)	F2B_60 (dB)	XPD_0 (dB)
2400	1.4727	-136	-20.4973	180	21.9700	10.9850	43.0123	-126.7244	225.1308	7.4867	1.0155	1.0155	0.7752	0.3692
2410	1.5640	-136	-21.0553	180	22.6194	11.3097	41.2120	-126.7911	223.6690	7.7886	1.0840	1.0840	0.9587	0.4231
2420	1.8110	-134	-22.1962	180	24.0071	12.0036	37.9727	-127.5481	222.9279	8.5130	1.6305	1.6305	1.3263	1.1250
2430	1.9116	-134	-24.1506	180	26.0622	13.0311	35.1003	-128.3781	222.3307	8.6438	2.0320	2.0320	1.7965	1.1737
2440	2.0026	-134	-26.3325	180	28.3352	14.1676	33.9532	-128.6533	107.1904	8.9126	2.4308	2.4308	2.2109	1.0258
2450	1.8816	-134	-27.8516	180	29.7332	14.8666	34.0324	-128.6011	219.3746	9.3647	2.6853	2.6853	2.4228	0.7186
2460	1.7131	-134	-28.4467	180	30.1597	15.0799	34.8478	-128.3157	217.4156	10.0796	2.7753	2.7753	2.4533	0.3857
2470	1.6382	-134	-28.8518	180	30.4900	15.2450	35.5669	-127.8689	100.3727	11.0128	2.8659	2.8659	2.4480	0.2002
2480	1.6379	-134	-29.8568	180	31.4947	15.7474	35.2798	-127.6285	98.6481	11.9971	3.1446	3.1446	2.4971	0.1915
2490	1.7534	-134	-31.2023	180	32.9557	16.4779	34.0381	-127.9030	98.4046	12.7104	3.5767	3.5767	2.5509	0.2420
2500	1.8816	-134	-32.0568	180	33.9384	16.9692	32.5075	-128.6012	98.2753	12.8299	4.0146	4.0146	2.5794	0.1954

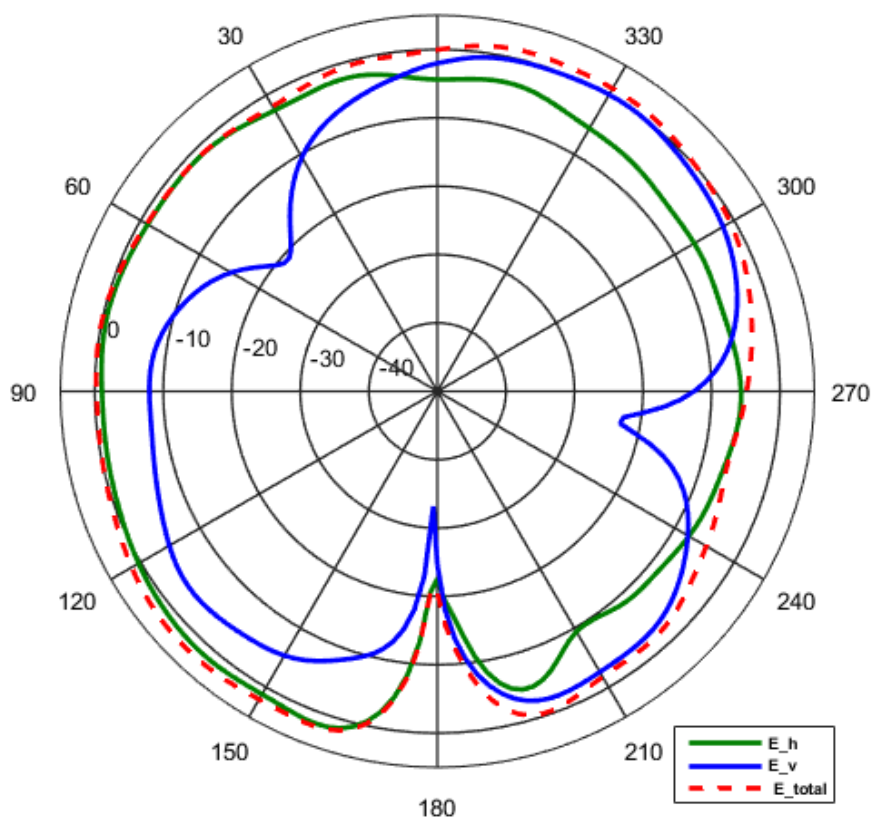
➤ **theta90°**



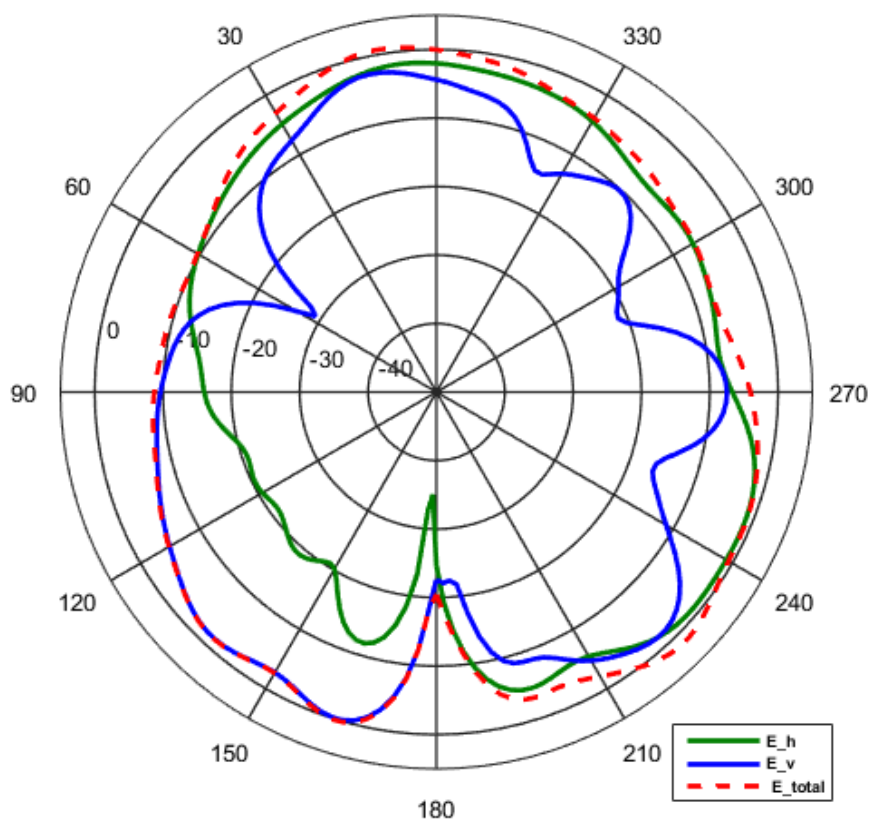
Frequency (MHz)	Max(dB)	MaxBdeg	Min(dB)	MinB deg	Max-Min(dB)	Roundness (dB)	Avg_Gain(dB)	BW_3dB(deg)	BW_center(deg)	BW_10dB(deg)	F2B_0 (dB)	F2B_30 (dB)	F2B_IPD_30 (dB)	F2B_60 (dB)
2400	1.2262	14	-8.8452	160	10.0714	5.0357	-3.3362	81.5925	2.5409	356.9923	6.5506	5.7545	5.7545	3.5874
2410	1.0805	14	-9.1984	162	10.2789	5.1394	-3.4772	81.3704	2.1557	354.2940	6.6332	5.7720	5.7720	3.4932
2420	1.0810	14	-9.2290	162	10.3100	5.1550	-3.4933	80.9396	1.2701	354.3036	6.8575	5.9425	5.9425	3.4619
2430	1.0919	12	-9.1685	162	10.2603	5.1302	-3.5647	79.6850	0.2355	354.6818	6.9672	6.3382	6.3382	3.5862
2440	1.2210	10	-9.0045	162	10.2254	5.1127	-3.5178	78.4131	-0.7216	354.5371	7.0899	6.7866	6.7866	3.7317
2450	1.2145	10	-9.1577	164	10.3722	5.1861	-3.5823	77.2666	-1.6124	280.3458	7.3182	7.1043	7.1043	3.8251
2460	1.2081	10	-9.3501	164	10.5582	5.2791	-3.6191	76.5253	-2.4440	275.2471	7.4102	7.2562	7.2562	3.8131
2470	1.2563	8	-9.5236	92	10.7799	5.3900	-3.6108	75.8392	-3.1357	271.7044	7.3869	7.3752	7.3752	3.7088
2480	1.2716	8	-9.8313	94	11.1029	5.5515	-3.6427	75.2877	-3.7352	271.1112	7.4839	7.4839	7.4839	3.6097
2490	1.2813	8	-10.0204	96	11.3016	5.6508	-3.6810	74.7992	-4.2170	272.1149	7.5240	7.5240	7.5240	3.5830
2500	1.2491	6	-10.0510	96	11.3001	5.6501	-3.7674	74.3279	-4.5611	273.3600	7.6840	7.5738	7.5738	3.6594

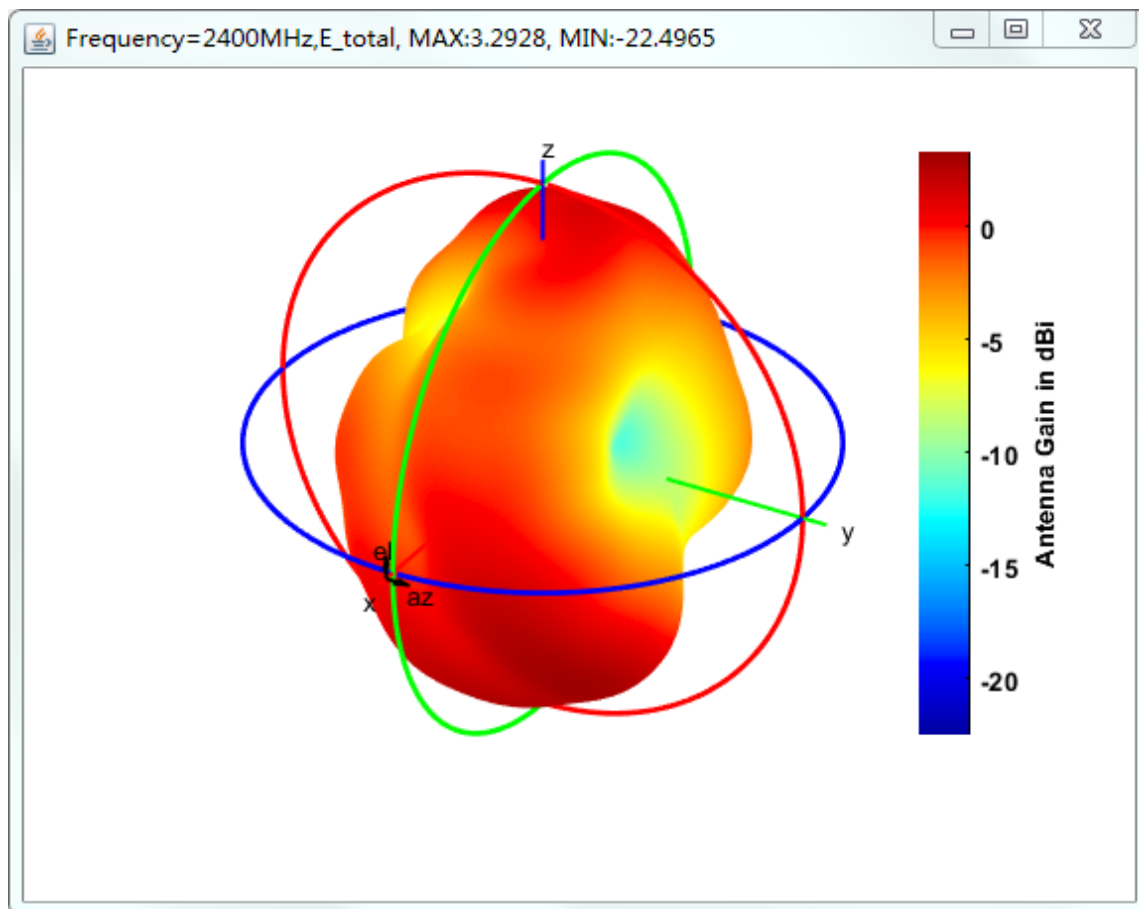
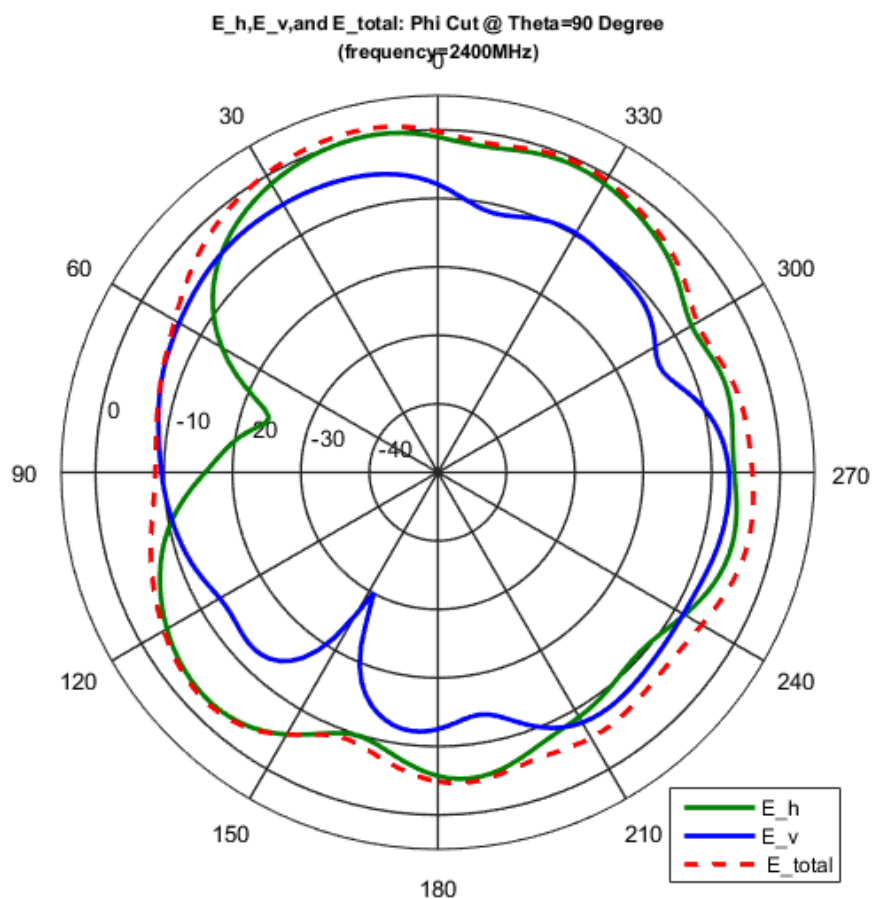
➤ 2400MHz

E_h, E_v, and E_total: Theta Cut @ Phi=0 Degree
(frequency=2400MHz)



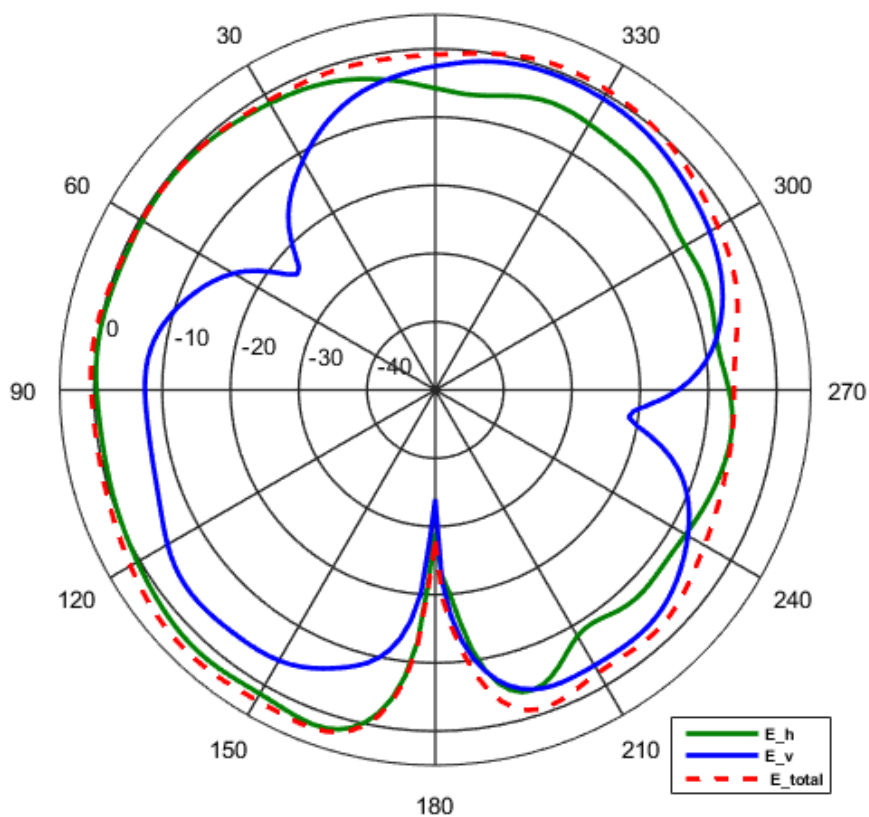
E_h, E_v, and E_total: Theta Cut @ Phi=90 Degree
(frequency=2400MHz)



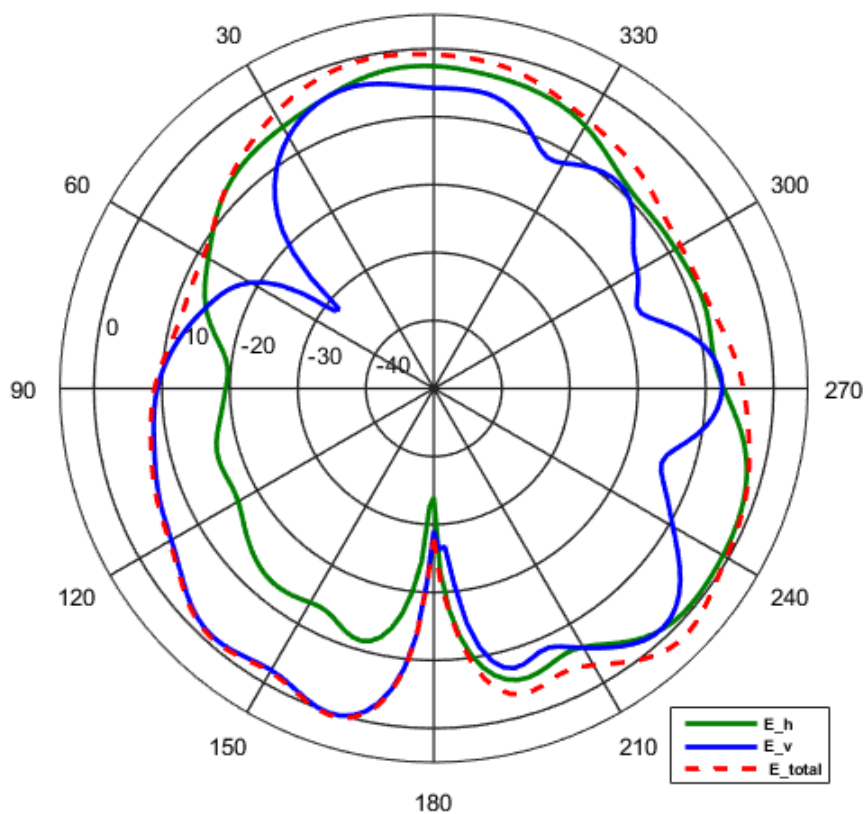


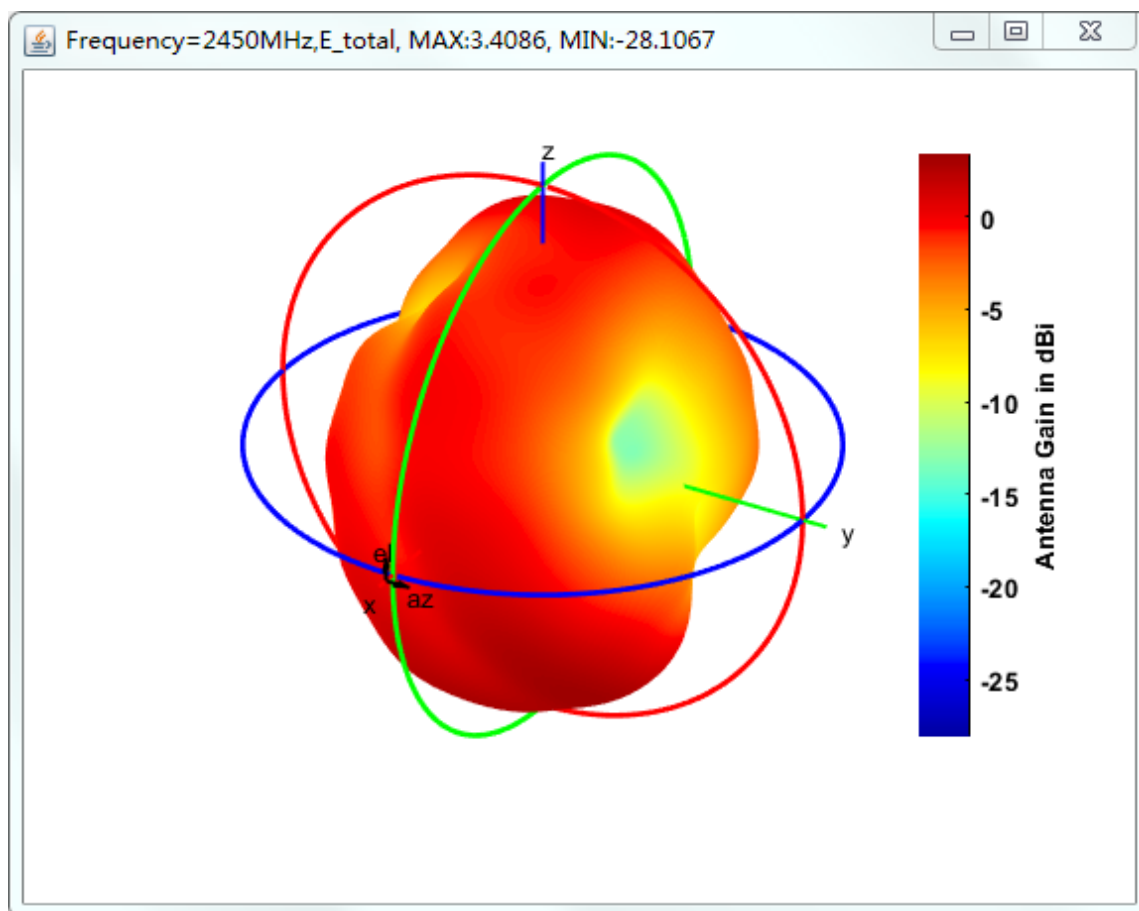
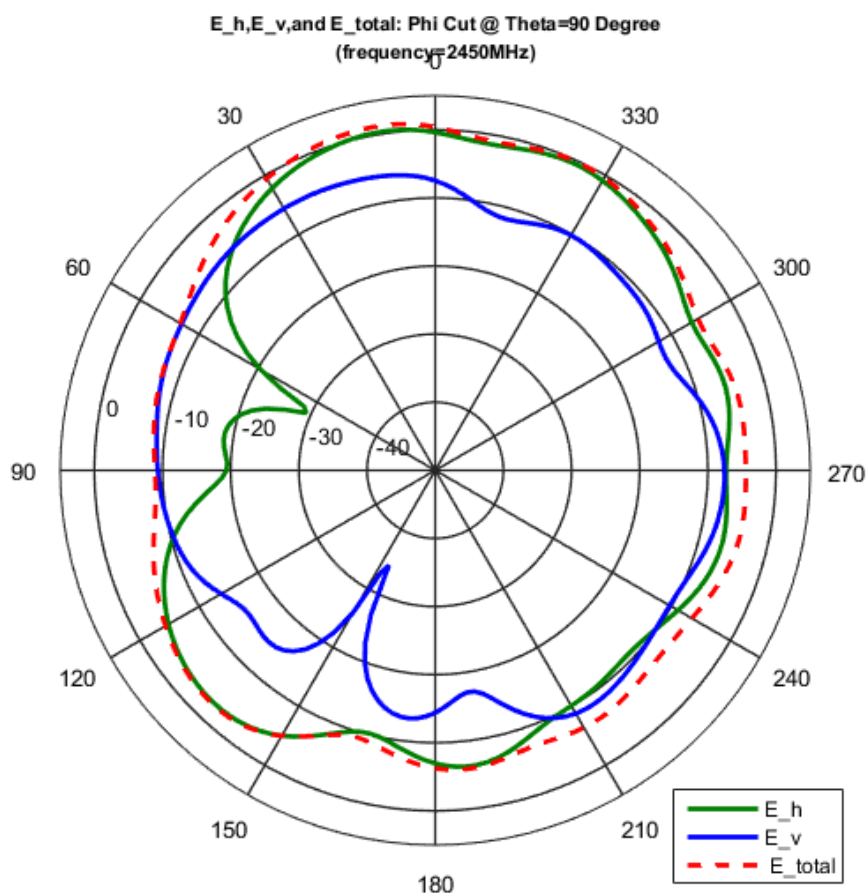
➤ 2450MHz

E_h, E_v, and E_total: Theta Cut @ Phi=0 Degree
(frequency=2450MHz)



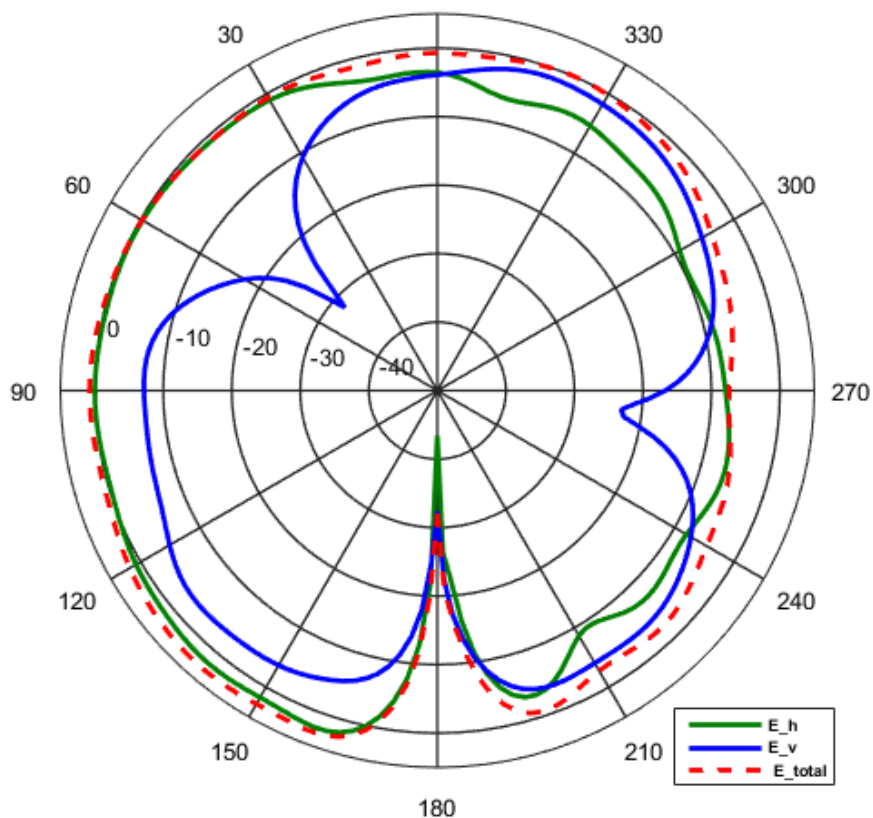
E_h, E_v, and E_total: Theta Cut @ Phi=90 Degree
(frequency=2450MHz)



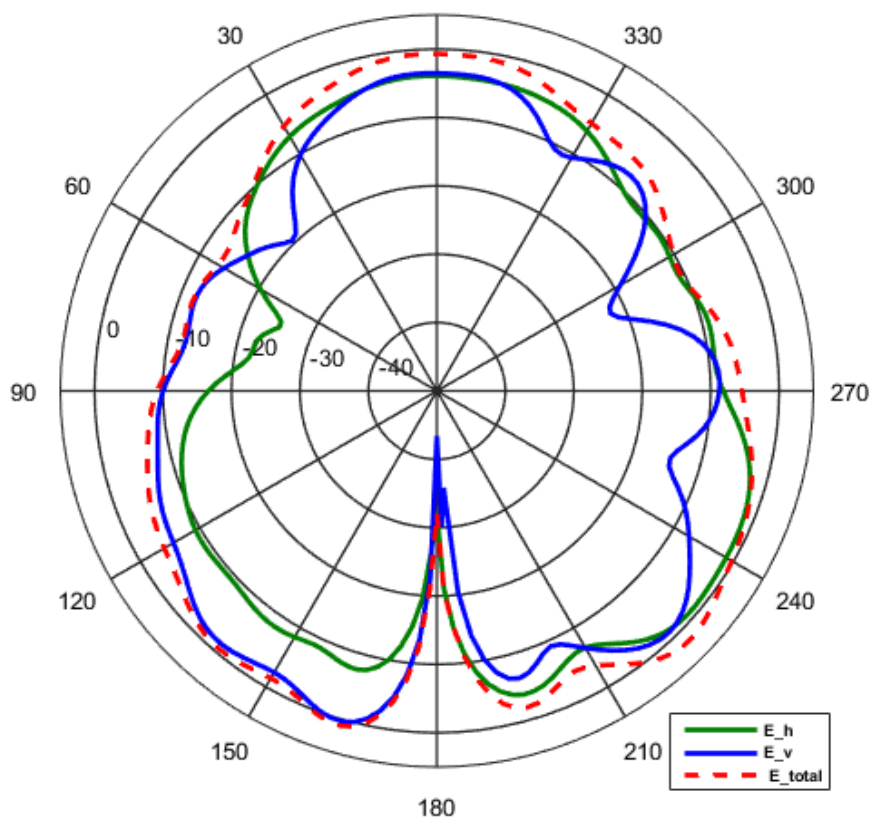


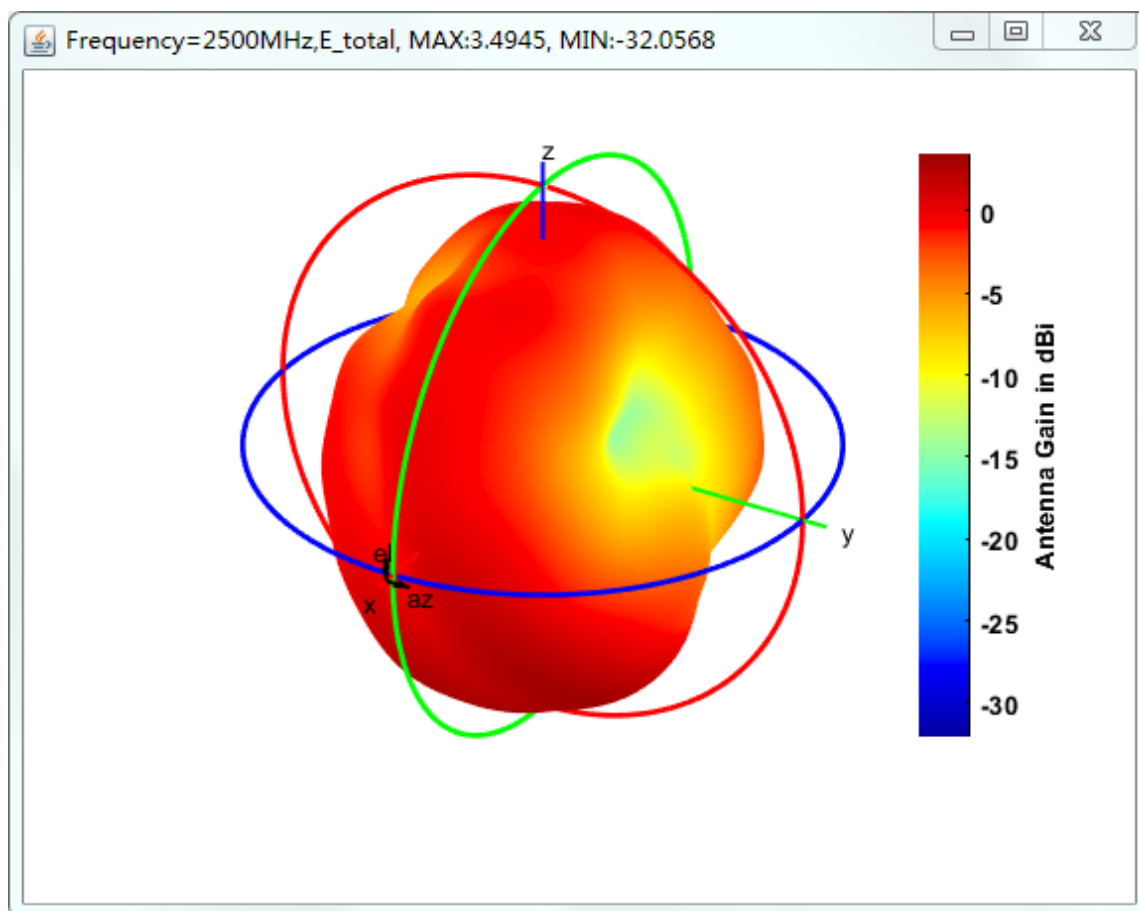
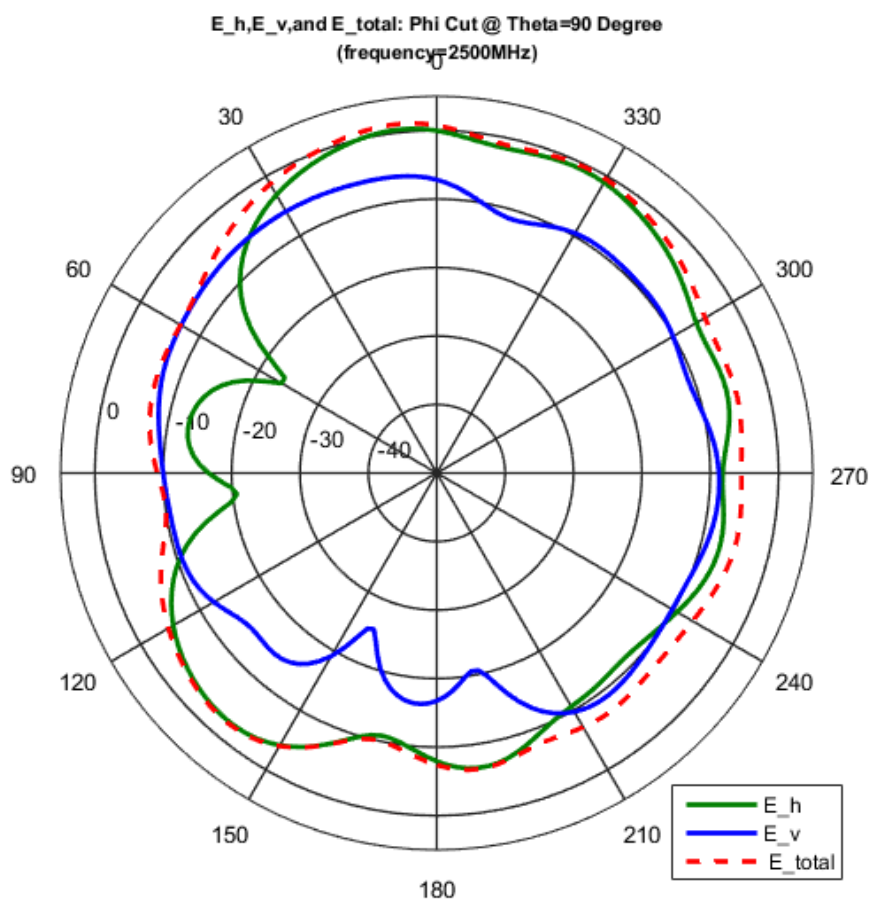
➤ 2500MHz

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)





7. Dimension

