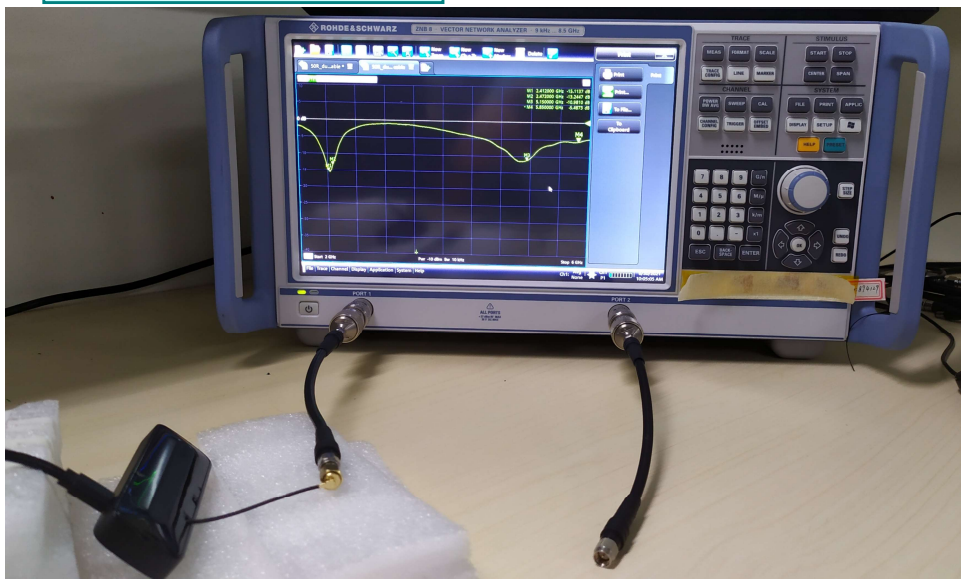
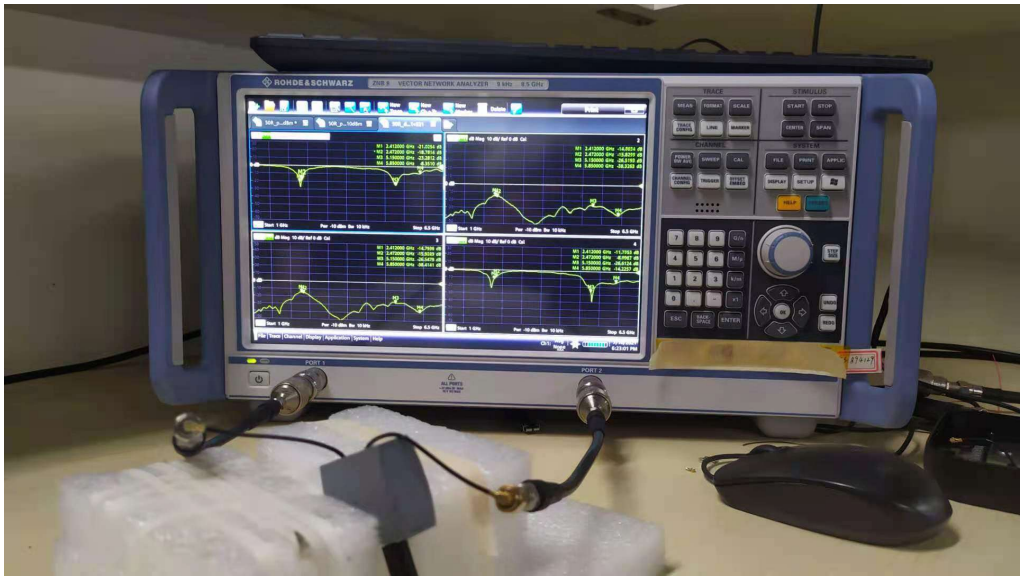
天线规格

HP46D 天线OTA无源测试

无源S参数测试环境：





说明：

1. 此次测试使用最新设计优化后的PCB，测试使用RF Cable长度为7cm；根据实际使用场景带USB Cable；
2. ANT0为PCB底部的天线，ANT1为PCB左侧（Micro USB端口侧）的天线；

测试结论：

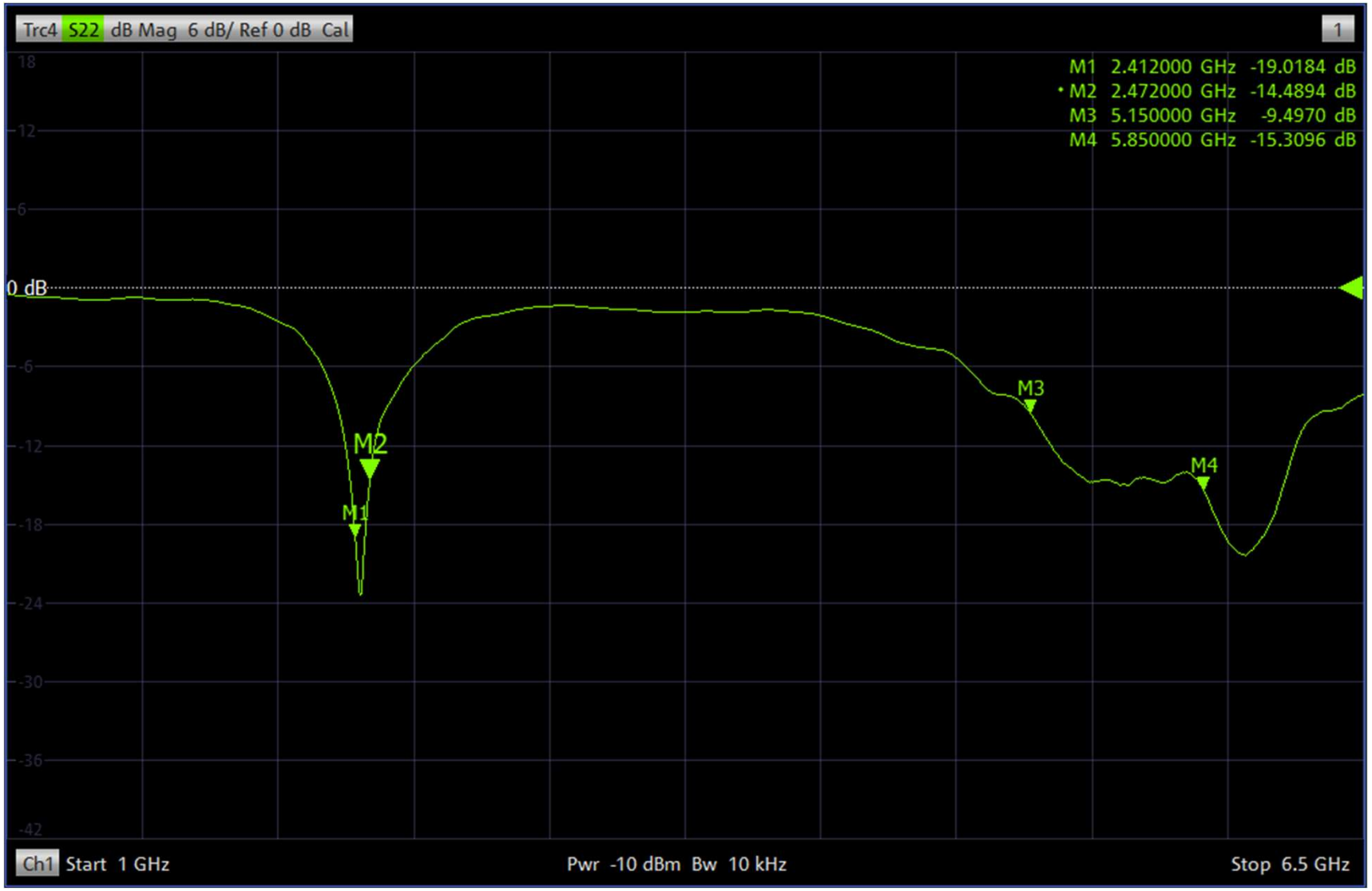
1. ANT0的回波损耗（S11）的2.4GHz Band小于-14.5dB, 5GHz bands小于-9.5dB；
2. ANT1的回波损耗（S11）的2.4GHz Band小于-19.8dB, 5GHz bands小于-6.6dB；
3. ANT0 和 ANT1的隔离度(S21)在2.4GHz Band优于-15.0dB, 5GHz bands优于-25.5dB；
4. ANT0效率在2.4GHz Band大约为53%，在5GHz Bands大于58%,
5. ANT1效率在2.4GHz Band介于56%~61%之间, 在5150GHz~5650GHz 大于51%，平均60%以上，在5700GHz~5850GHz高频段效率为38%~43%之间。

天线OTA无源测试

OTA测试环境：

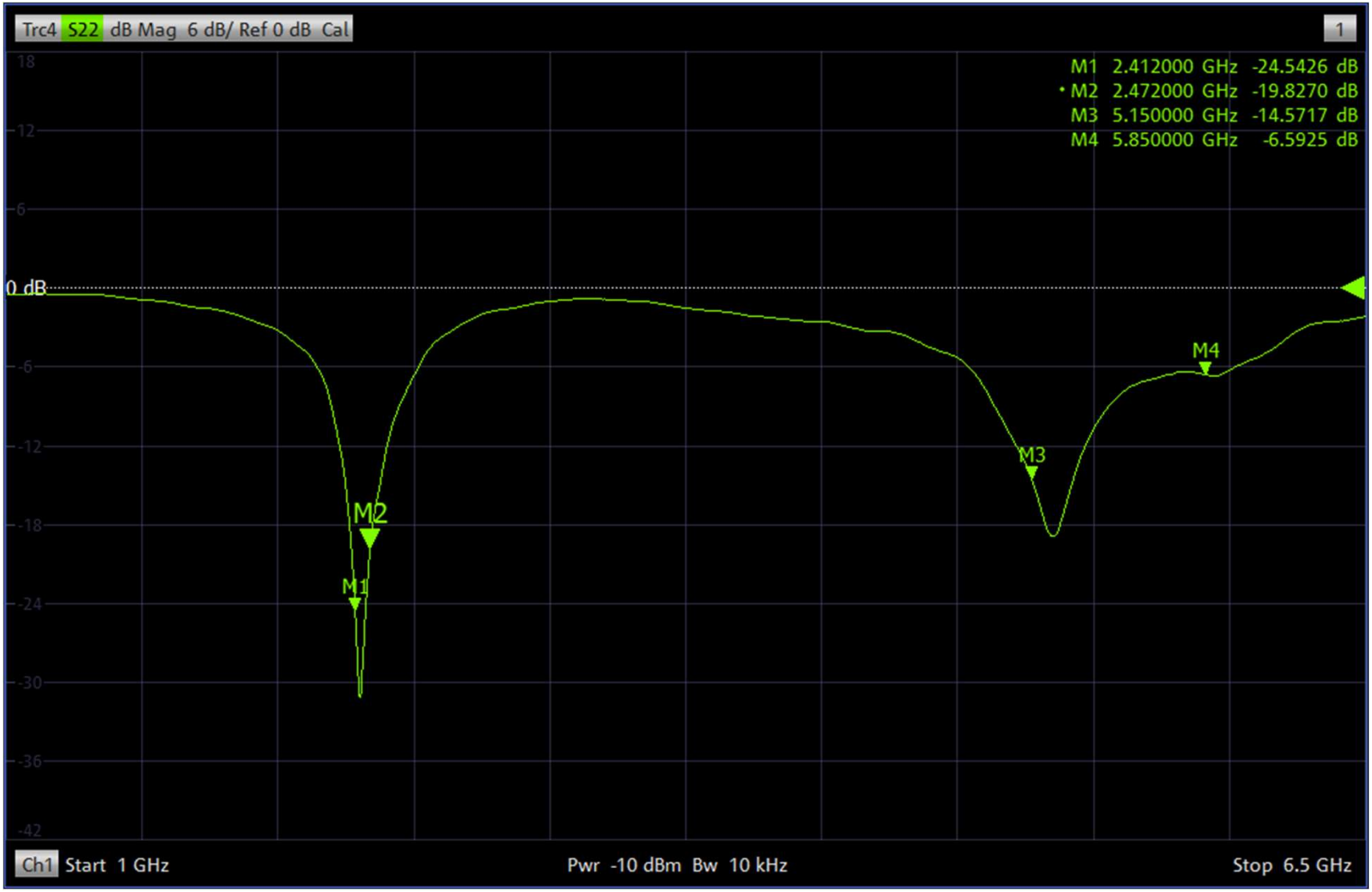
天线OTA无源测试

S11回损参数_ANT0：2.4GHz and 5GHz Bands



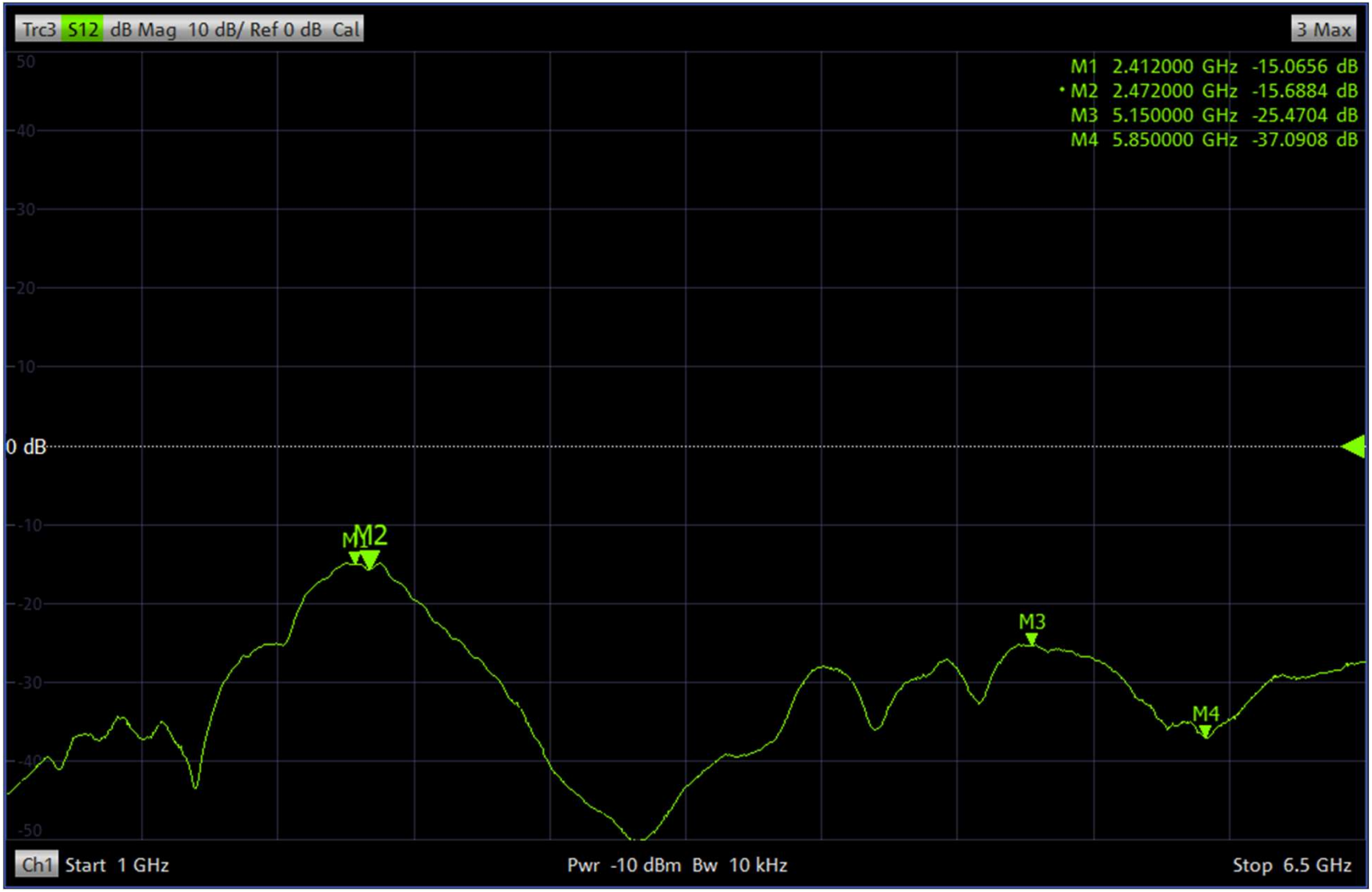
天线OTA无源测试

S11回损参数_ANT1：2.4GHz and 5GHz Bands



天线OTA无源测试

隔离度Isolation S12 or S21回损参数_ANT0 & ANT1：2.4GHz and 5GHz Bands



天线OTA无源参数对比（效率、增益、方向图）

效率、增益： 2.4GHz Band ANT0

Point Values	Ant. Port Input Pwr. [dBm]	Tot. Rad. Pwr. [dBm]	Peak EIRP [dBm]	Directivity [dBi]	Efficiency [dB]	Efficiency [%]	Gain [dBi]
Frequency (MHz)							
2400	0	-2.69327	1.94148	4.63476	-2.69327	53.7864	1.94148
2410	0	-2.61561	1.93843	4.55404	-2.61561	54.7569	1.93843
2420	0	-2.70935	1.60925	4.3186	-2.70935	53.5877	1.60925
2430	0	-2.74516	1.22867	3.97382	-2.74516	53.1477	1.22867
2440	0	-2.76578	1.15158	3.91736	-2.76578	52.8959	1.15158
2450	0	-2.797	1.07441	3.87141	-2.797	52.517	1.07441
2460	0	-2.73079	1.30215	4.03294	-2.73079	53.3237	1.30215
2470	0	-2.73238	1.81068	4.54306	-2.73238	53.3043	1.81068
2480	0	-2.69293	2.02696	4.71989	-2.69293	53.7907	2.02696
2490	0	-2.688	2.35329	5.04129	-2.688	53.8517	2.35329

天线OTA无源参数对比（效率、增益、方向图）

效率、增益： 5GHz Bands ANT0

Point Values	Ant. Port Input Pwr. (dBm)	Tot. Rad. Pwr. (dBm)	Peak EIRP (dBm)	Directivity (dBi)	Efficiency (dB)	Efficiency (%)	Gain (dBi)
Frequency (MHz)							
5000	0	-2.64169	3.61933	6.26102	-2.64169	54.4291	3.61933
5050	0	-2.09213	4.00277	6.09491	-2.09213	61.7713	4.00277
5100	0	-2.06636	3.8102	5.87656	-2.06636	62.139	3.8102
5150	0	-2.37043	3.39393	5.76436	-2.37043	57.9372	3.39393
5200	0	-2.21457	3.52259	5.73716	-2.21457	60.0541	3.52259
5250	0	-1.65278	3.9811	5.63388	-1.65278	68.3474	3.9811
5300	0	-1.50479	4.33101	5.8358	-1.50479	70.7165	4.33101
5350	0	-1.21828	4.56157	5.77985	-1.21828	75.5391	4.56157
5400	0	-1.0094	5.00191	6.01131	-1.0094	79.261	5.00191
5450	0	-0.67006	5.11467	5.78473	-0.67006	85.7026	5.11467
5500	0	-0.569711	5.06482	5.63453	-0.569711	87.7059	5.06482
5550	0	-0.605597	5.07861	5.68421	-0.605597	86.9842	5.07861
5600	0	-0.293799	5.49645	5.79025	-0.293799	93.4588	5.49645
5650	0	-0.420287	5.46734	5.88763	-0.420287	90.776	5.46734
5700	0	-0.840678	5.33788	6.17856	-0.840678	82.4009	5.33788
5750	0	-1.21286	5.21751	6.43037	-1.21286	75.6334	5.21751
5800	0	-1.18981	5.38299	6.5728	-1.18981	76.036	5.38299
5850	0	-1.00164	5.80534	6.80698	-1.00164	79.4028	5.80534
5900	0	-1.30881	5.4216	6.73041	-1.30881	73.9807	5.4216

天线OTA无源参数对比（效率、增益、方向图）

效率、增益： 2.4GHz Band ANT1

Point Values	Ant. Port Input Pwr. (dBm)	Tot. Rad. Pwr. (dBm)	Peak EIRP (dBm)	Directivity (dBi)	Efficiency (dB)	Efficiency (%)	Gain (dBi)
Frequency (MHz)							
2400	0	-2.48865	4.34557	6.83422	-2.48865	56.3813	4.34557
2410	0	-2.42178	4.27912	6.7009	-2.42178	57.2562	4.27912
2420	0	-2.39941	4.3508	6.7502	-2.39941	57.5518	4.3508
2430	0	-2.30645	4.38367	6.69013	-2.30645	58.7969	4.38367
2440	0	-2.19739	4.62513	6.82252	-2.19739	60.2922	4.62513
2450	0	-2.1688	4.67342	6.84222	-2.1688	60.6904	4.67342
2460	0	-2.10454	4.77275	6.8773	-2.10454	61.595	4.77275
2470	0	-2.10109	4.83372	6.93481	-2.10109	61.644	4.83372
2480	0	-2.12974	4.79969	6.92943	-2.12974	61.2387	4.79969
2490	0	-2.17376	4.70949	6.88325	-2.17376	60.6211	4.70949
2500	0	-2.21869	4.56778	6.78646	-2.21869	59.9973	4.56778

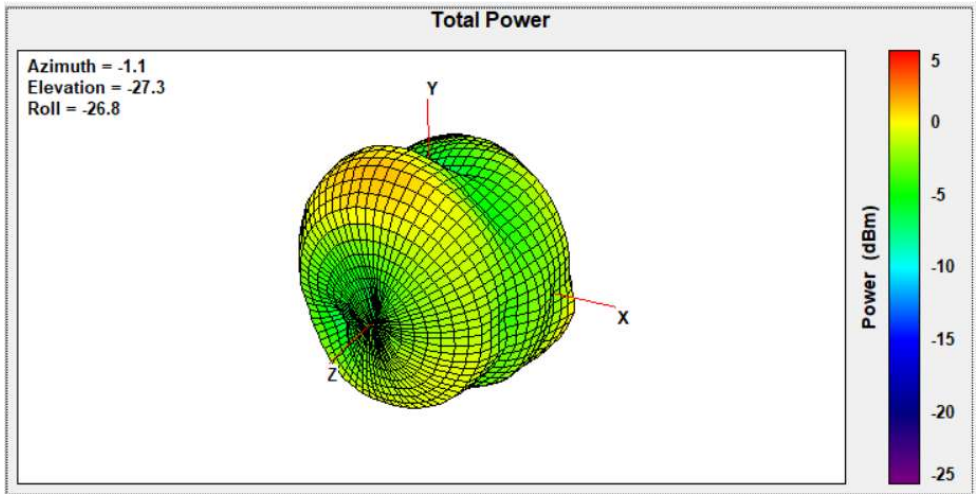
天线OTA无源参数对比（效率、增益、方向图）

效率、增益： 5GHz Bands ANT1

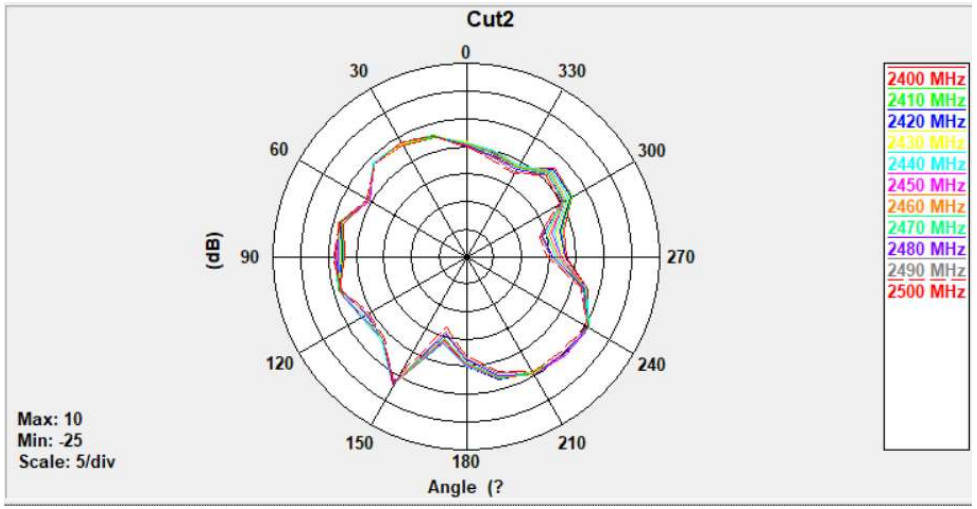
Point Values	Ant. Port Input Pwr. (dBm)	Tot. Rad. Pwr. (dBm)	Peak EIRP (dBm)	Directivity (dBi)	Efficiency (dB)	Efficiency (%)	Gain (dBi)
Frequency (MHz)							
5000	0	-2.57879	3.11085	5.68964	-2.57879	55.2231	3.11085
5050	0	-2.00309	3.8253	5.82839	-2.00309	63.0509	3.8253
5100	0	-2.06962	3.41106	5.48068	-2.06962	62.0924	3.41106
5150	0	-2.49035	2.92005	5.4104	-2.49035	56.3593	2.92005
5200	0	-2.46185	3.2306	5.69246	-2.46185	56.7303	3.2306
5250	0	-2.07385	3.76621	5.84006	-2.07385	62.0319	3.76621
5300	0	-2.09615	3.9249	6.02105	-2.09615	61.7142	3.9249
5350	0	-1.97335	4.06707	6.04043	-1.97335	63.484	4.06707
5400	0	-1.88124	4.33178	6.21302	-1.88124	64.8449	4.33178
5450	0	-1.71942	4.38197	6.10139	-1.71942	67.3066	4.38197
5500	0	-1.89078	4.14737	6.03815	-1.89078	64.7026	4.14737
5550	0	-2.34336	3.59149	5.93485	-2.34336	58.2994	3.59149
5600	0	-2.43774	3.21185	5.64959	-2.43774	57.0461	3.21185
5650	0	-2.9255	2.60396	5.52945	-2.9255	50.9859	2.60396
5700	0	-3.66366	2.36763	6.03129	-3.66366	43.0164	2.36763
5750	0	-4.18255	2.21245	6.395	-4.18255	38.172	2.21245
5800	0	-4.19256	2.44362	6.63618	-4.19256	38.0841	2.44362
5850	0	-4.12293	2.63281	6.75574	-4.12293	38.6996	2.63281
5900	0	-4.54717	2.29816	6.84533	-4.54717	35.098	2.29816

天线OTA无源参数对比（效率、增益、方向图）

方向图： 2.4GHz Band ANT0



3D



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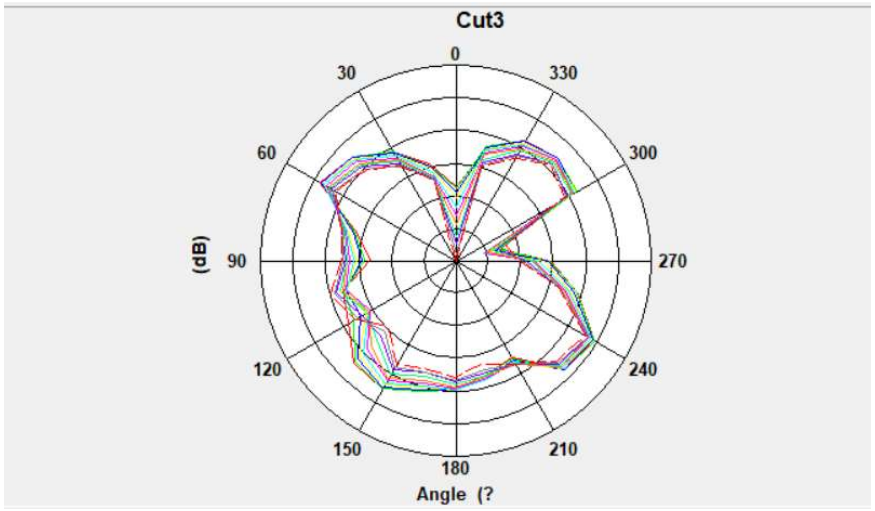
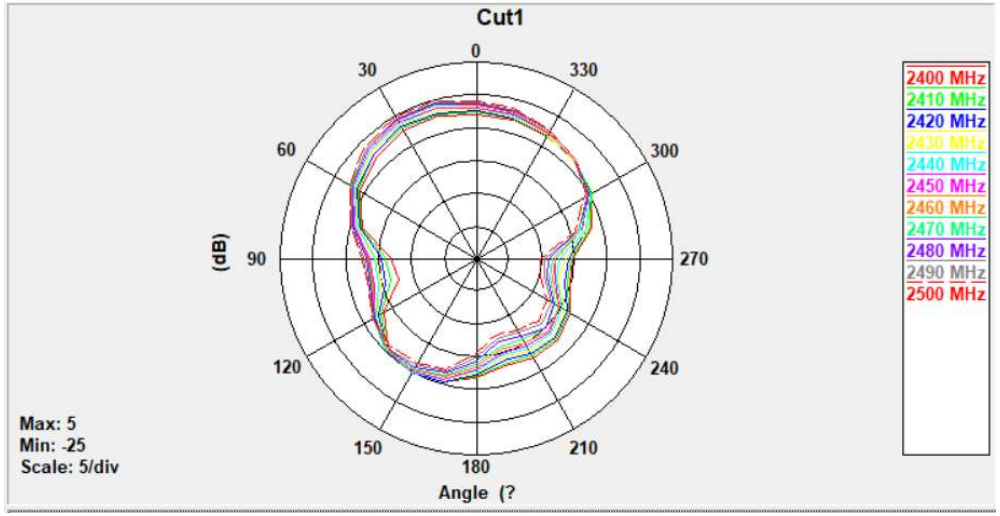


E2



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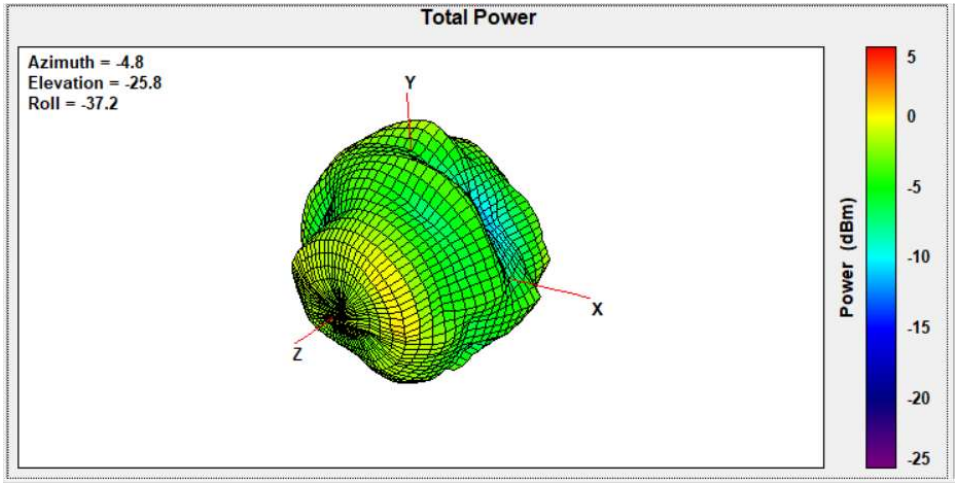
天线OTA无源参数对比（效率、增益、方向图）

方向图： 5GHz Bands ANT0



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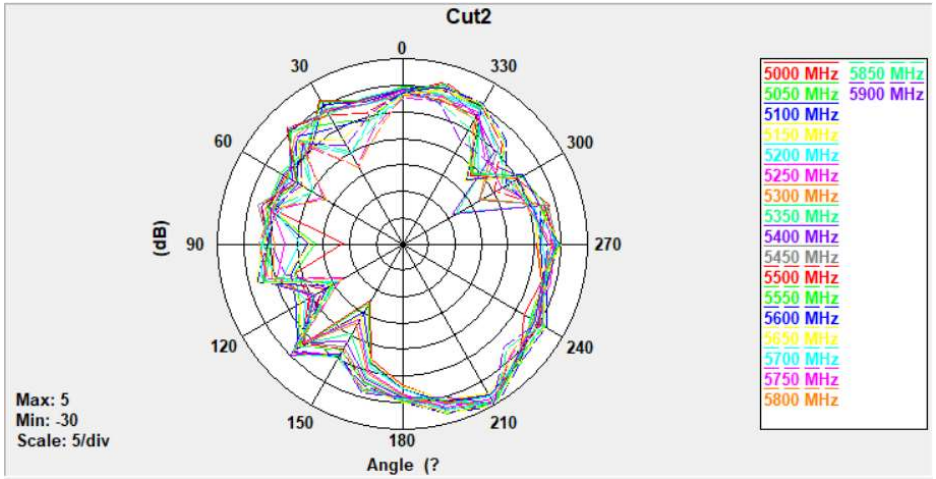
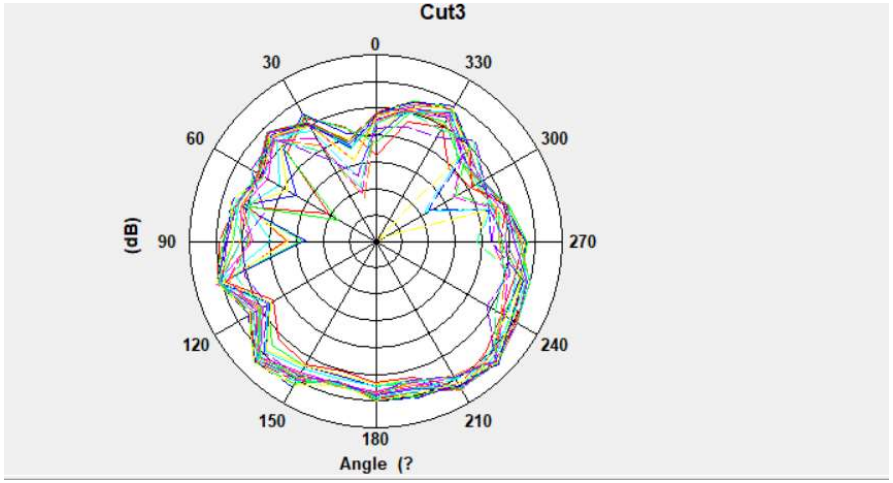


E1



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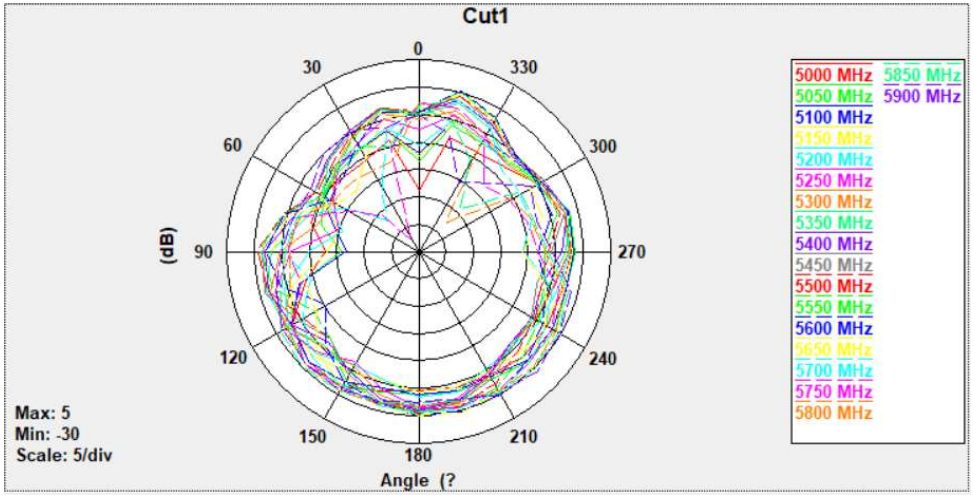

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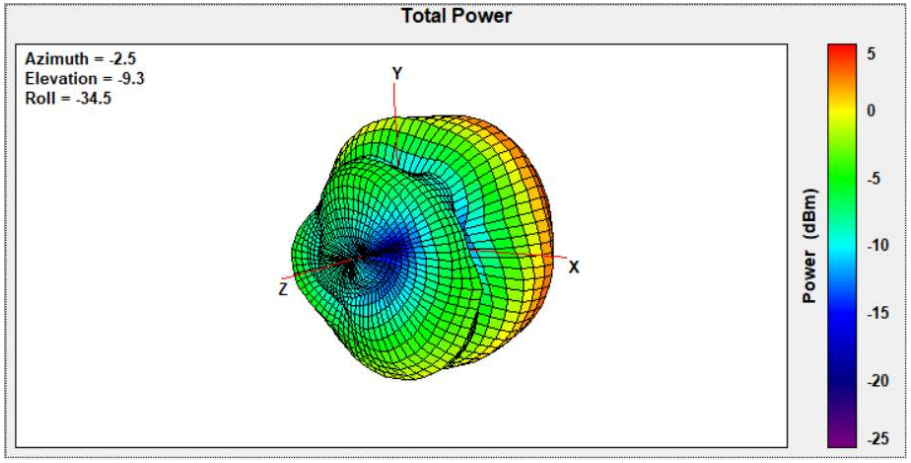
天线OTA无源参数对比（效率、增益、方向图）

方向图： 2.4GHz Band ANT1



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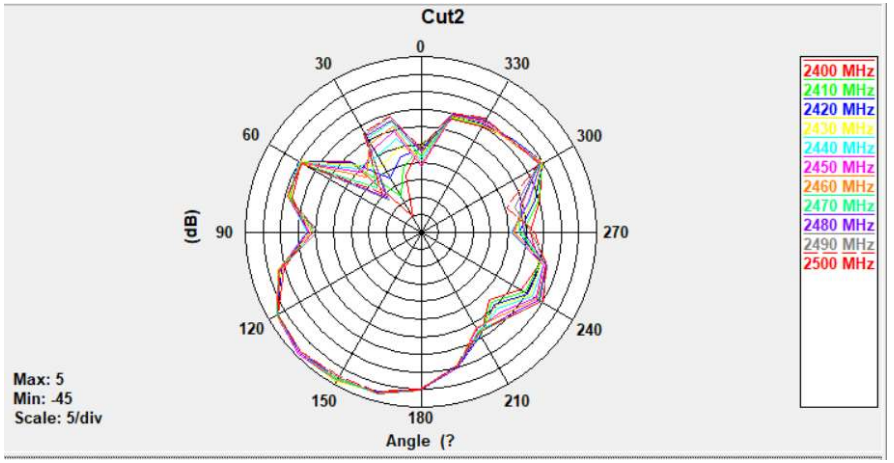
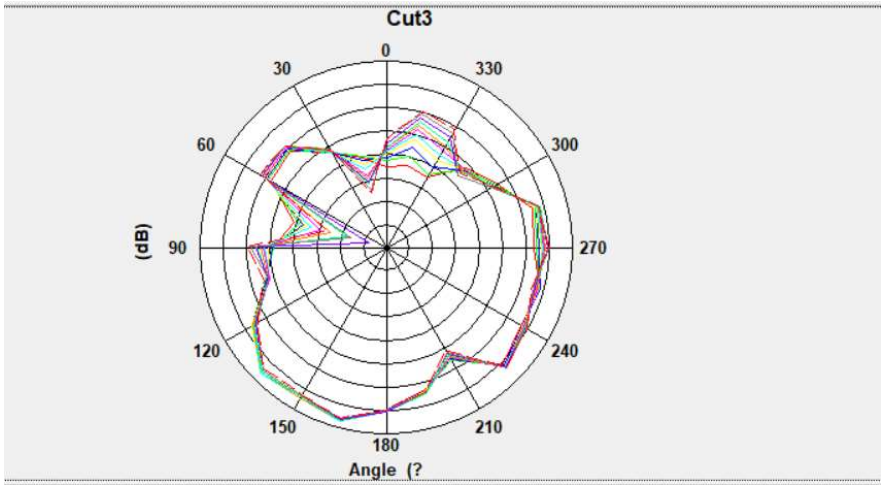


E1



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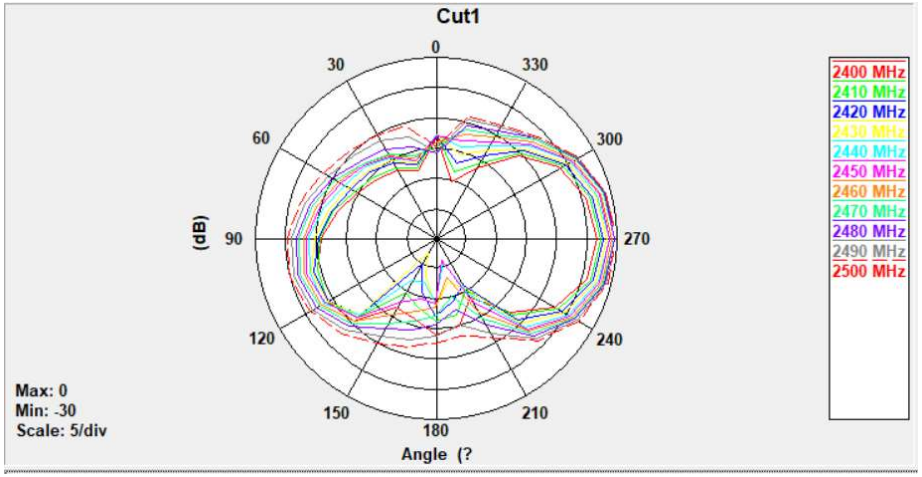

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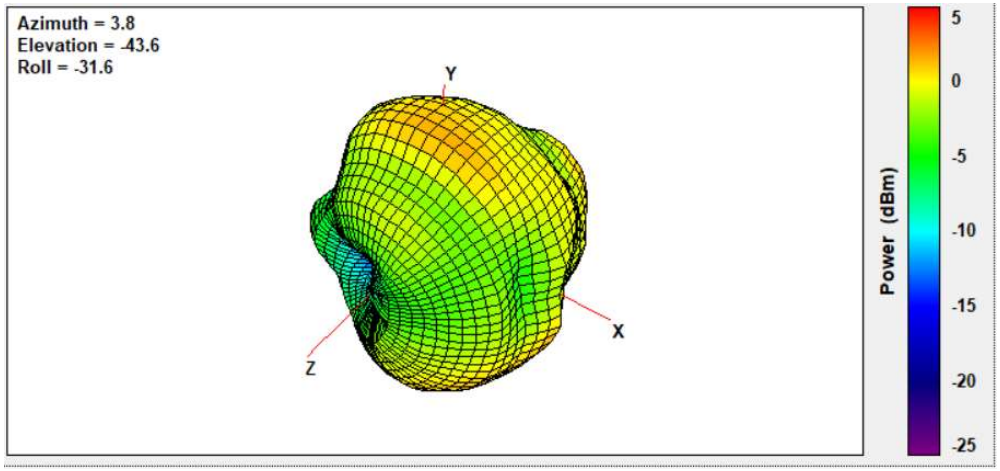
天线OTA无源参数对比（效率、增益、方向图）

方向图： 5GHz Bands ANT1



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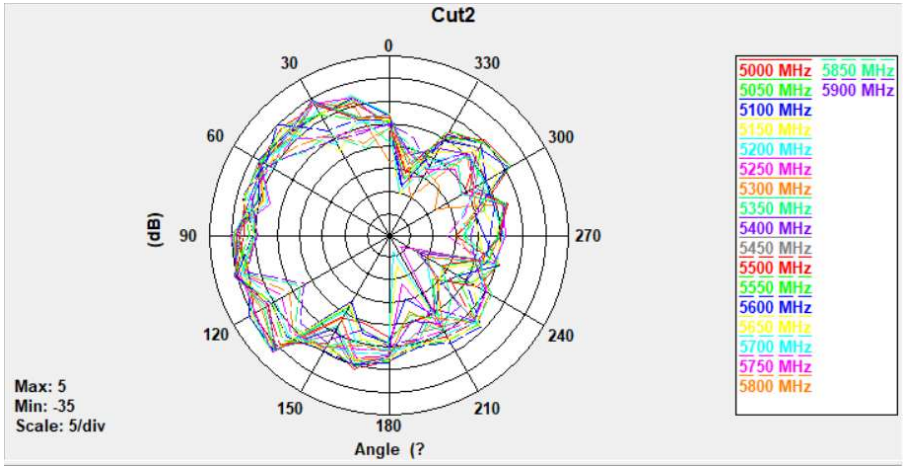
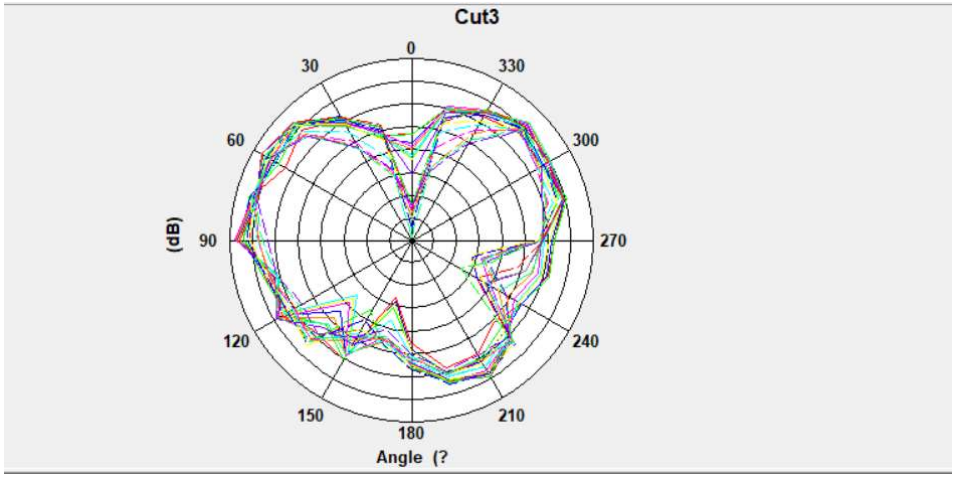
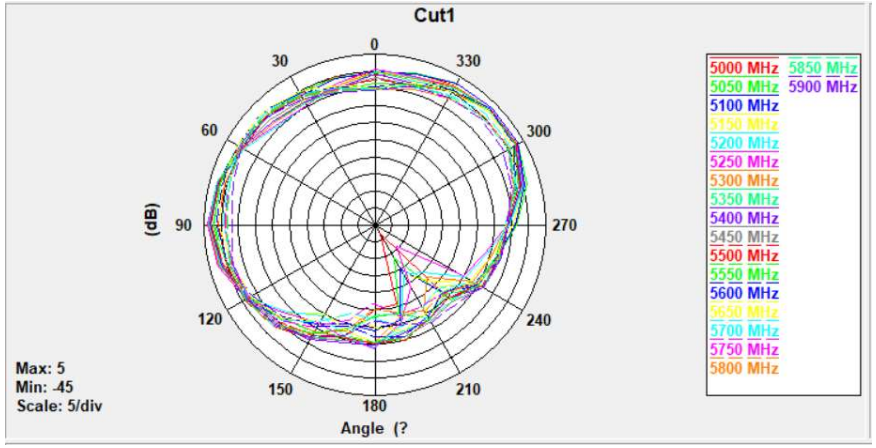


E1



E2



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