

深圳市凯普深通讯科技有限公司

Shenzhen Kaipushen Communication Technology Co., Ltd

Address: 2nd Floor, Yulong Office Building, Longcheng Industrial Zone, No. 440, Longguan Avenue,
Dalang Street, Longhua District, Shenzhen

产品承认书

SPECIFICATION FOR APPROVED

客户

CUSTOMER: _____

产品名称

PRODUCTS: _____ 主天线/分集天线/三合一天线

客户料号

PART NO: _____

产品型号

Spec. : _____ HT09B1

日期

Data: _____ 2025-05-21

备注：承认盖章后请回复一份承认书（或复印件）给我司，其余由贵公司存档

REMARK: Please send us one(or copy) of this approval with stamp after accepting, other copies filed by the customer.

XXXX

ANTENNA SPECIFICATION

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ANTENNA SPECIFICATION

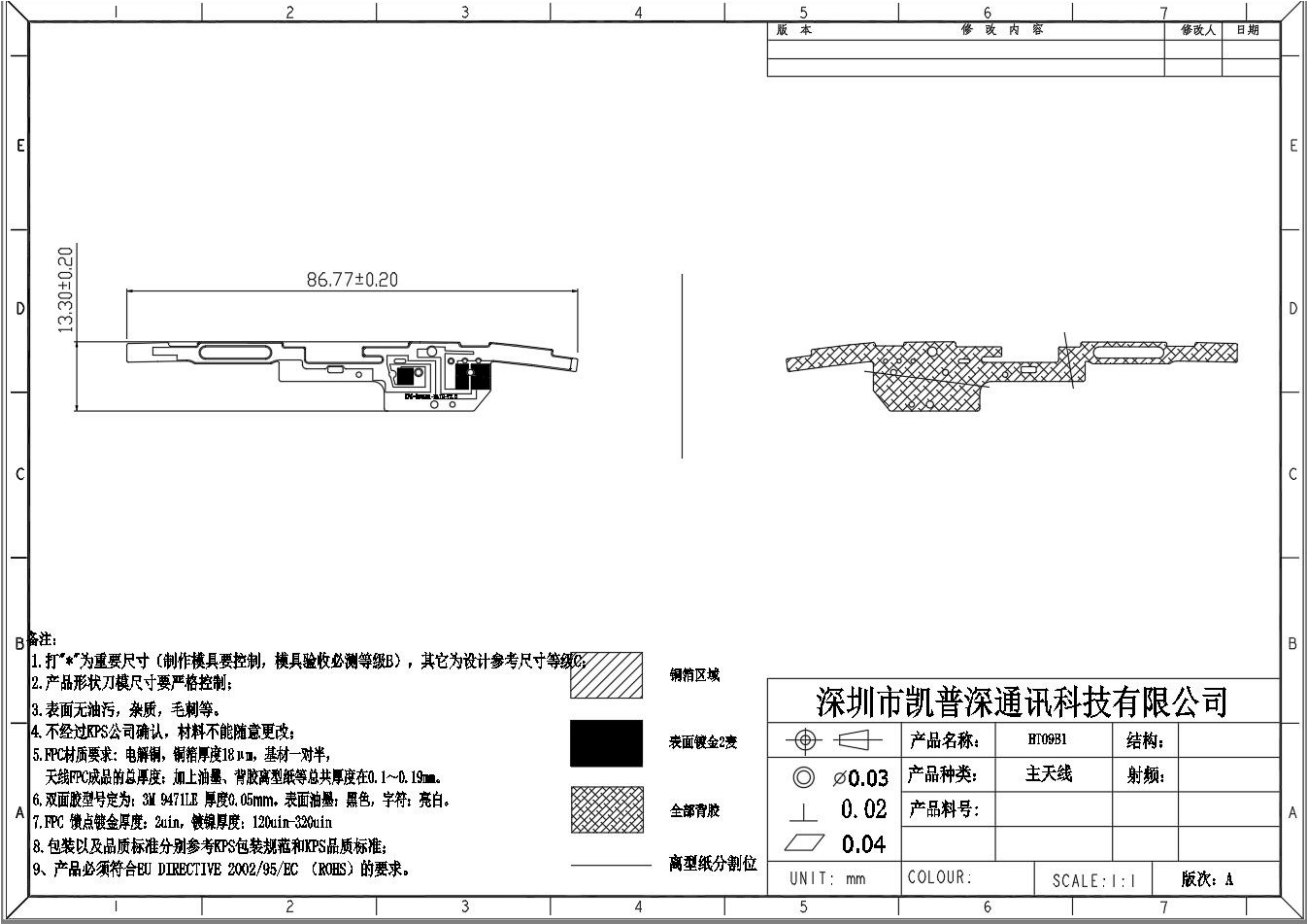
Revision history

版本	日期	状态
A1	2025-05-21	首版

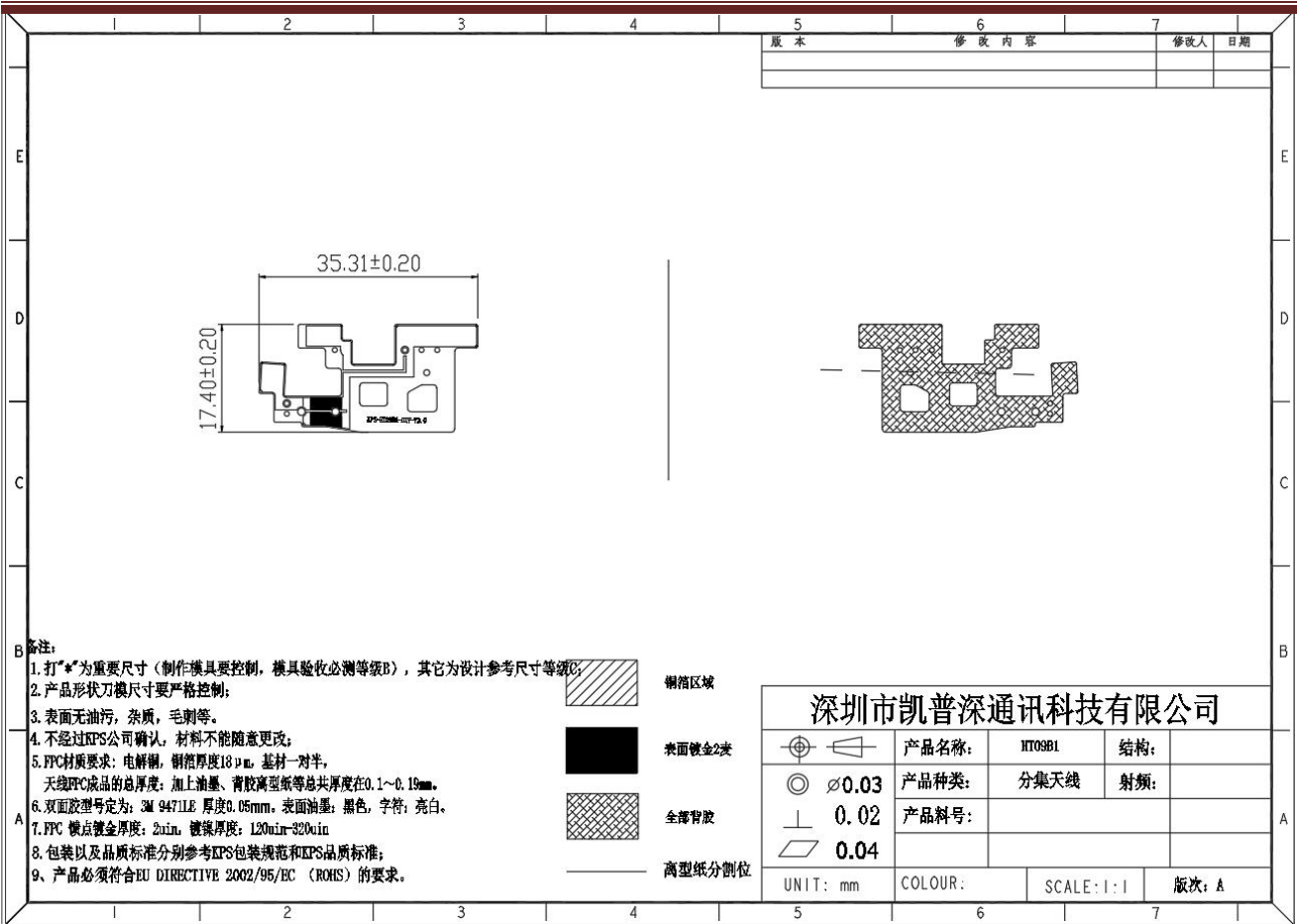
ANTENNA SPECIFICATION

1. 项目信息 Project Information

1.1.外观尺寸 Appearance and Dimensions



ANTENNA SPECIFICATION



	1	2	3	4	5	6	7
	版本					修改内容	修改人 日期

备注:

- 打“*”为重要尺寸（制作模具要控制，模具验收必测等级B），其它为设计参考尺寸等领；
- 产品形状刀模尺寸要严格控制；
- 表面无油污，杂质，毛刺等。
- 不经过KPS公司确认，材料不能随意更改；
- FPC材质要求：电解铜，铜箔厚度18um，基材一对半，
天线FPC成品的总厚度：加上油墨、背胶离型纸等总厚度在0.1~0.19mm。
- 双面胶型号定为：3M 9471LE 厚度0.06mm。表面油墨：黑色，字符：亮白。
- FPC 镀点镀金厚度：2uin，镀镍厚度：120uin~320uin
- 包装以及品质标准分别参考KPS包装规范和KPS品质标准；
- 产品必须符合EU DIRECTIVE 2002/95/EC（ROHS）的要求。

	铜箔区域
	表面镀金2度
	全部背胶
	离型纸分割位

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	产品名称: HT09B1	结构:
	产品种类: 三合一天线	射频:
	产品料号:	

	尺寸: $\varnothing 0.03$	公差:
	尺寸: 0.02	公差:
	尺寸: 0.04	公差:

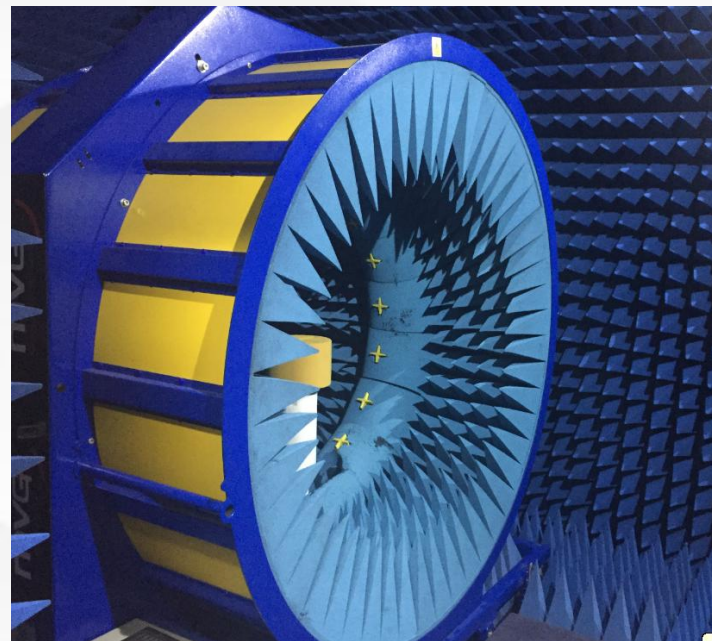
UNIT: mm

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实验室测试环境及设备



测试项目	测试设备
S11、S12、VSWR、LOSS	网络分析仪E5071B、E5062A
Efficiency、Gain 3D Radiation Pattern	Satimo SG16暗室、GP7*4*3暗室、E5071B
TRP、TIS	Satimo SG16暗室、GP7*4*3暗室、8960、 CMW500、MT8820C、E4438C、



项目调试简介

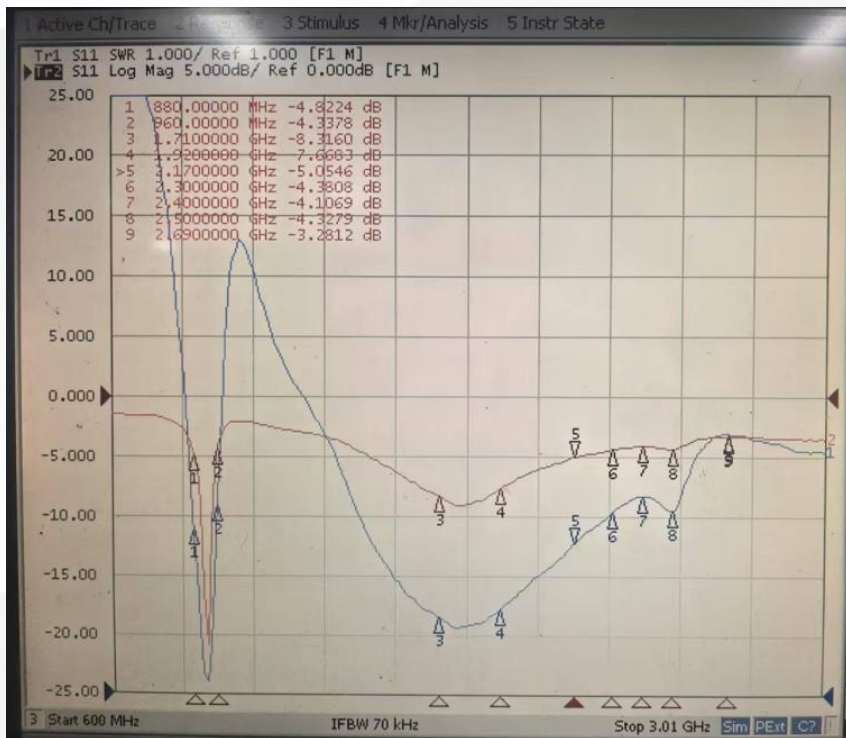
整机类型	4G智能机		
		频段信息	匹配改动
天线种类及频段信息	主天线	GSM:850/900/1800/1900 WCDMA:B1/2/4/5/8 LTE:B1/2/3/4/5/7/12/17/28AB/66 TDD:B40	PIFA
	副天线	WIFI+BT+GPS	PIFA
	分集	700M-2710MHZ	PIFA
天线材质	FPC		



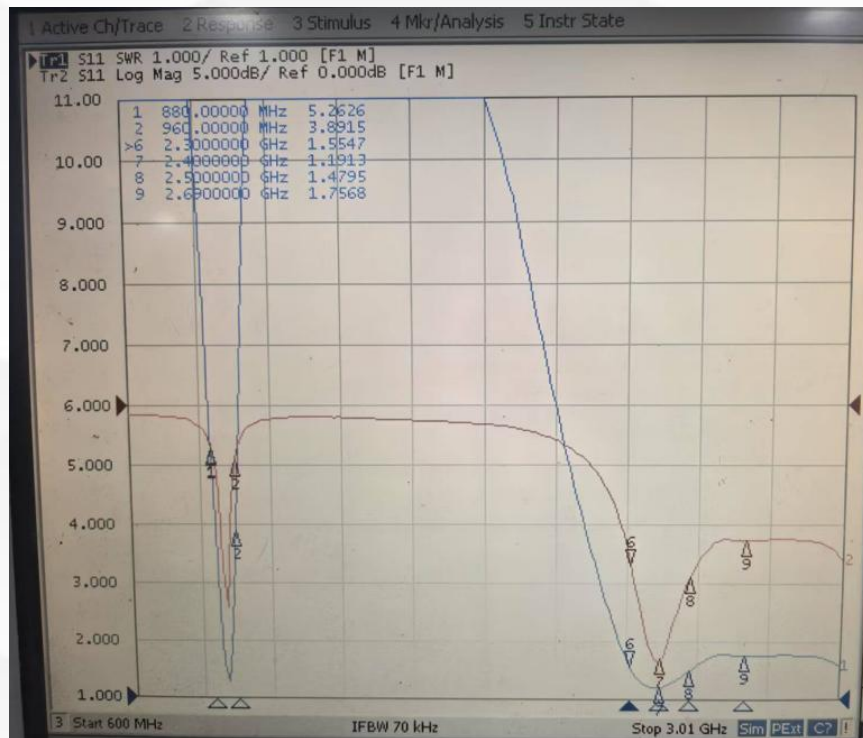
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GSM天线无源参数

主集天线驻波比及回波损耗



分集天线驻波比及回波损耗





GSM天线无源参数

低频(B5/12/17/28/ W5/W8/850/900)

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
700	19.41	-7.12	-5.92
720	20.94	-6.79	-5.78
740	21.17	-6.74	-5.56
760	23.58	-6.27	-5.38
780	23.19	-6.35	-5.03
800	21.65	-6.65	-4.65
820	22.39	-6.50	-4.16
840	23.18	-6.35	-4.23
860	21.7	-6.64	-3.17
880	21.81	-6.61	-2.53
900	25.93	-5.86	-2.21
920	31.09	-5.07	-1.77
940	28.2	-5.50	-1.91
960	22.8	-6.42	-2.34

中频(B1/2/3/4/66/ W1/W2/W4/1800/1900)

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
1700	23.49	-7.33	-1.36
1750	25.4	-6.9	-0.72
1800	27.51	-6.48	-0.5
1850	27.24	-6.53	-0.19
1900	30.61	-5.92	0.45
1950	31.56	-5.76	0.03
2000	28.51	-6.29	-0.42
2050	31.96	-5.69	-0.86
2100	28.71	-6.25	-1.1
2150	26.46	-6.68	-1.69
2200	28.88	-6.22	-1.85

高频(B7/40)

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
2300	29.19	-5.35	-0.92
2400	29.56	-5.29	-0.93
2450	31.5	-5.02	-0.44
2500	30.57	-5.15	-0.03
2520	32.56	-4.87	0.05
2540	30.78	-5.12	-0.29
2560	30.57	-5.15	-0.18
2580	29.56	-5.29	-0.28
2600	32.28	-4.91	-0.13
2620	30.55	-5.15	0.19
2640	33.18	-4.79	0.24
2660	30.69	-5.13	-0.34
2680	31.57	-5.01	-0.28
2700	30.78	-5.12	-0.68

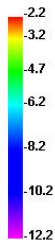
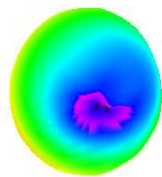


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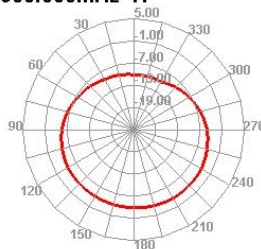
GSM天线3D方向图

低频

900.000MHz

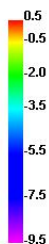
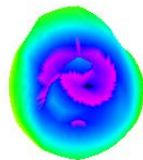


900.000MHz H

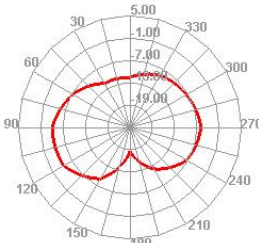


中频

1900.000MHz

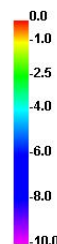
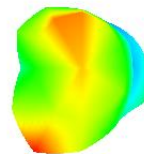


1900.000MHz H

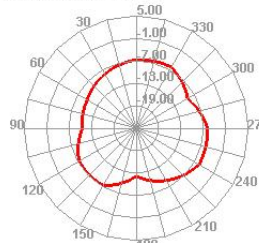


高频

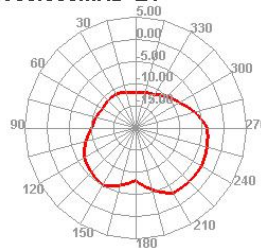
2500.000MHz



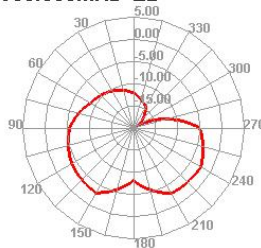
2500.000MHz H



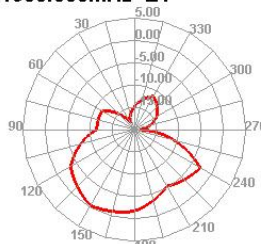
900.000MHz E1



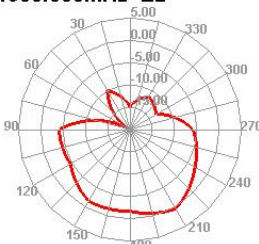
900.000MHz E2



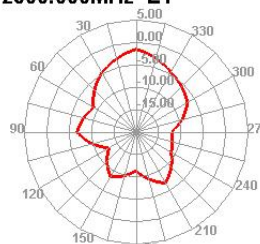
1900.000MHz E1



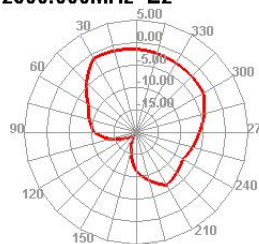
1900.000MHz E2



2500.000MHz E1



2500.000MHz E2



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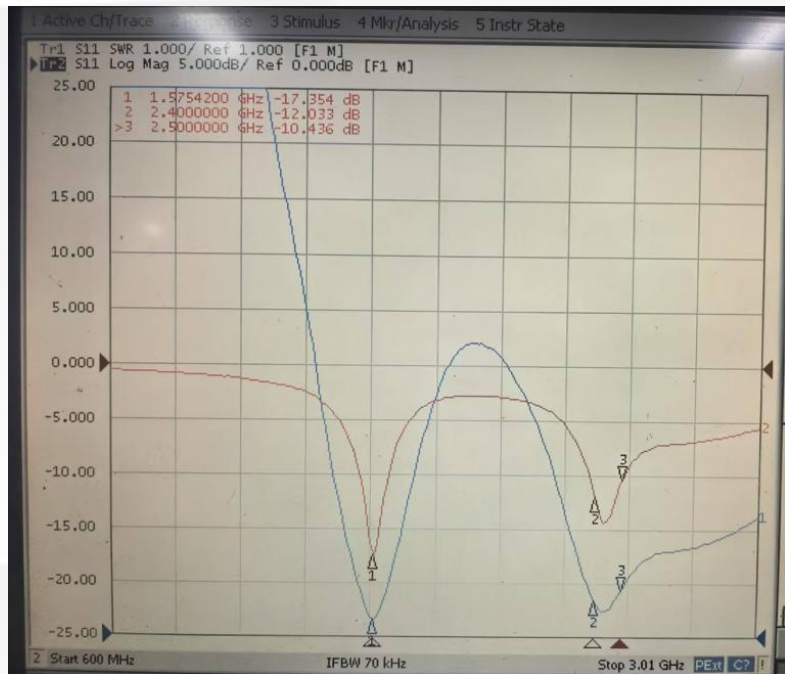


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三合一天线无源参数

天线驻波比及回波损耗

GPS+2.4G-WIFI



5G-WIFI





三合一天线无源参数

GPS

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
1550	30.2	-5.20	0.3
1555	30.35	-5.18	0.17
1560	31.72	-4.99	0.12
1565	32.29	-4.91	0.16
1570	33.81	-4.71	-0.03
1575	34.64	-4.60	-0.18
1580	35.19	-4.54	-0.18
1585	35.09	-4.55	-0.01
1590	34.35	-4.64	0.05
1595	33.61	-4.74	-0.07
1600	34.16	-4.66	-0.07

2.4G-WIFI

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
2400	25.21	-5.98	-1.3
2410	25.7	-5.90	-1.14
2420	27.22	-5.65	-0.89
2430	27.22	-5.65	-1.11
2440	28.41	-5.47	-0.94
2450	28.88	-5.39	-0.74
2460	28.4	-5.47	-0.82
2470	29.68	-5.28	-0.48
2480	29.4	-5.32	-0.34
2490	33.1	-4.80	-0.4
2500	32.31	-4.91	-0.55

5G-WIFI

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
5000	26.66	-5.74	-0.01
5050	28.52	-5.45	0.01
5100	29.3	-5.33	0.11
5150	27.46	-5.61	-0.37
5200	28.74	-5.41	-0.34
5250	30.89	-5.1	0.22
5300	28.43	-5.46	-0.43
5350	30.06	-5.22	-0.48
5400	28.35	-5.47	-0.68
5450	29.02	-5.37	-0.55
5500	29.25	-5.34	-0.54
5550	29.74	-5.27	-0.66
5600	29.56	-5.29	-0.67
5650	30.75	-5.12	-0.49
5700	31.09	-5.07	-0.43
5750	30.58	-5.15	-0.46
5800	31.38	-5.03	-0.43
5850	31.85	-4.97	-0.16
5900	30.73	-5.12	-0.39
5950	31.24	-5.05	-0.25
6000	29.27	-5.34	-0.6

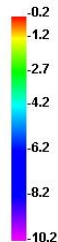
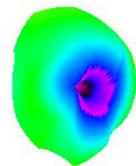


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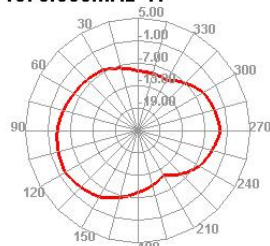
三合一天线3D方向图

GPS

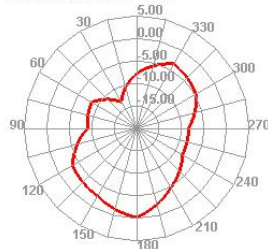
1575.000MHz



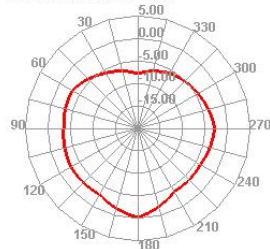
1575.000MHz H



1575.000MHz E1

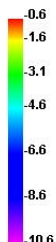
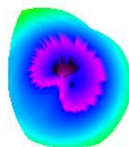


1575.000MHz E2

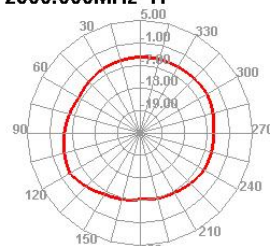


2.4G-WIFI

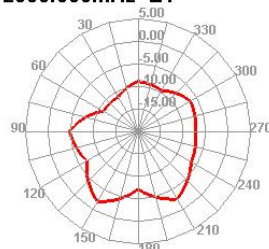
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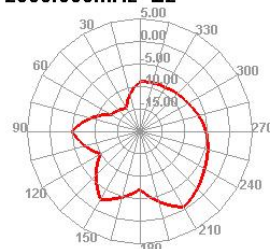
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2500.000MHz E1

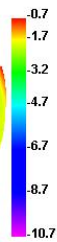
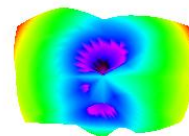


2500.000MHz E2

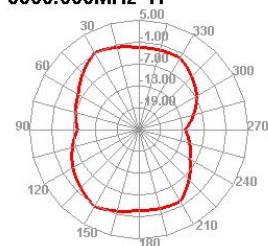


5G-WIFI

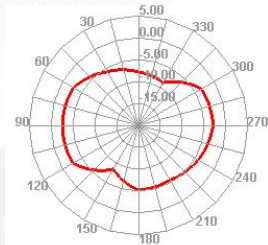
5500.000MHz



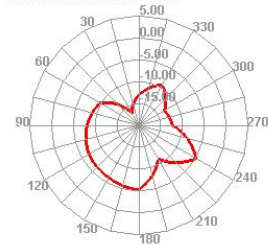
5500.000MHz H



5500.000MHz E1



5500.000MHz E2



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