



SPECIFICATION FOR APPROVAL/产品承认书

Customer Name

客户名称: 深圳华一精品科技有限公司

Customer P/N.

客户料号:

Product Description

产品描述: ML1047H 4G MAIN/4G DIV/WIFI

BGS P/N

博格斯料号: HYS-011D/E/E (RA版)

Manufacturer

制造商: 深圳市博格斯通信技术有限公司

Approve Date

承认日期: 2023年9月5日

BGS Sign and Seal/供应商签章	Customer Sign and Seal/客户签章

Change the content/变更内容	Version/版本	Date/日期
First Release/初版	RA	2023/9/5

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Antenna Test Report/天线测试报告								
Active test data/有源测试数据								
模块传导					天线测试数据			
Band	Channel	功率	灵敏度		Band	Channel	TRP	TIS
LTE2 (10M)	Low	22.55			LTE2 (10M)	Low	16.21	
	Mid	22.43				Mid	16.48	
	High	22.61	-97			High	15.29	-88.11
LTE4 (10M)	Low	22.71			LTE4 (10M)	Low	16.03	
	Mid	22.51				Mid	15.64	
	High	22.45	-98			High	16.78	-90.29
LTE5 (10M)	Low	22.57			LTE5 (10M)	Low	11.11	
	Mid	22.75				Mid	11.45	
	High	22.66	-97			High	12.73	-79.58
LTE12 (10M)	Low	23.15			LTE12 (5M)	Low	11.32	
	Mid	23.35				Mid	13.22	
	High	22.97	-100			High	12.24	-81.5
LTE17 (10M)	Low	22.12			LTE17 (10M)	Low	12.23	
	Mid	22.35				Mid	13.17	
	High	22.3	-99			High	12.93	-76.4
LTE25 (10M)	Low	22.6			LTE25 (10M)	Low	15.79	
	Mid	22.55				Mid	15.46	
	High	22.15	-99			High	15	-86.42
LTE26 (10M)	Low	22.45			LTE26 (10M)	Low	11.75	
	Mid	22.58				Mid	12.03	
	High	22.19	-99			High	12.65	-76.66
LTE66 (10M)	Low	22.45			LTE66 (10M)	Low	16.11	
	Mid	22.7				Mid	16.71	
	High	22.34	-98			High	17.36	-90.52
LTE71 (10M)	Low	22.58			LTE71 (10M)	Low	9.11	
	Mid	22.19				Mid	10.01	
	High	22.33	-98			High	10.07	-76.35
LTE41 (20M)	Low	21.71			LTE41 (20M)	Low	16	
	Mid	21.78				Mid	16.33	
	High	21.69	-93			High	16.79	-85.27
WiFi 传导				WiFi OTA:				
Band	Channel	功率	灵敏度	Band	Channel	TRP	TIS	
		11g/6M	11g/54M			11g/6M	11g/54M	
2.4G	Low	15.78	-73	2.4G	Low	10.58	-66.31	
	Mid	15.82	-73		Mid	11.48	-62.1	
	High	16.21	-73		High	11.78	-66.51	
		11a/6M	11a/54M			11a/6M	11a/54M	
5G	Low	10.18	-73	5G	Low	6.55	-63.65	
	Mid	10.29	-74		Mid	9.5	-66.9	
	High	10.16	-74		High	8.61	-62.03	

Antenna efficiency and gain/天线效率与增益

MAIN					
Freq	Effi	Gain	Freq	Effi	Gain
(MHz)	(%)	(dBi)	(MHz)	(%)	(dBi)
600	2.06	-13.67	1700	23.29	-0.15
610	3.14	-11.76	1720	21.64	-0.37
620	4.63	-9.99	1740	20.73	-0.1
630	5.76	-9.11	1760	21.73	0.02
640	5.63	-8.64	1780	24.52	0.37
650	6.72	-7.81	1800	21.16	-0.41
660	8.36	-7.11	1820	21.28	-1.12
670	10.74	-6.37	1840	22.69	-1.6
680	13.37	-4.95	1860	21.98	-1.06
690	14.52	-4.82	1880	22.92	-2.14
700	9.28	-7.63	1900	22.22	-2.96
710	7.26	-6.56	1920	19.87	-4.14
720	9.94	-5.45	1940	19.92	-4.07
730	12.54	-4.48	1960	20.25	-3.33
740	14.89	-4.08	1980	22.71	-1.98
750	17.49	-4.29	2000	22.14	-0.84
760	18.41	-5.07	2020	21.59	-0.97
770	16.07	-4.75	2040	19.99	-1.58
780	15.82	-4.98	2060	22.54	-1.71
790	14.01	-5.54	2080	22.53	1.14
800	11.82	-6.59	2100	23.35	1.49
810	10.85	-7.16	2120	25.45	1.82
820	8.98	-8.47	2140	28.25	2.05
830	8.6	-8.63	2160	30.19	2.02
840	9.92	-7.64	2180	30.19	1.71
850	11.52	-6.67	2300	28	-0.34
860	12.46	-6.14	2320	29.16	-0.14
870	12.36	-5.94	2340	26.72	-0.45
880	12.54	-5.65	2360	24.14	-1.27
890	12.83	-5.35	2380	21.15	-1.75
900	12.36	-5.3	2400	21.01	-1.73
910	12.81	-4.79	2500	21.96	-0.36
920	14.07	-4.05	2520	20.94	-1.18
930	14.99	-3.54	2540	19.52	-2.65
940	15.14	-3.44	2560	19.15	-3.31
950	14.82	-3.57	2580	21.46	-3.04
960	13.81	-3.93	2600	23.64	-2.7
			2620	25.32	-2.29
			2640	26.01	-1.96
			2660	26.95	-1.46
			2680	26.77	-1.44
			2700	27.24	-1.16

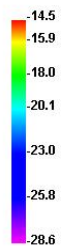
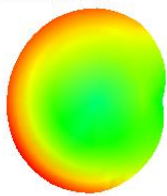
WiFi		
Freq	Effi	Gain
(MHz)	(%)	(dBi)
2400	30.13	0.05
2410	33.76	0.46
2420	36.12	0.67
2430	36.5	0.76
2440	37.74	0.89
2450	37.18	0.74
2460	37.23	0.61
2470	37.53	0.51
2480	37.25	0.34
2490	36.1	0.05
2500	32.31	-0.53
5100	20.67	-0.26
5120	24.81	-1.09
5140	23.94	-1.35
5160	23.01	-1.54
5180	23.86	-0.95
5200	23.93	-0.68
5220	22.67	-1
5240	23.03	-0.48
5260	23.34	-0.29
5280	22.14	-0.86
5300	21.62	-1.43
5320	20.69	-1.91
5340	20.79	-2.17
5360	20.96	-2.09
5380	22.22	-1.56
5400	23.92	-0.64
5420	25.18	-0.06
5440	26.07	0.09
5460	26.19	-0.11
5480	28.21	0.09
5500	27.18	-0.33
5520	26.04	-0.6
5540	25.58	-0.91
5560	26.45	-0.9
5580	27.11	-0.59
5600	28.89	-0.42
5620	29.27	-0.51
5640	28.07	-0.71
5660	26.44	-0.81
5680	25.18	-0.97
5700	22.14	-1.45
5720	19.68	-1.54
5740	18.17	-1.5
5760	19.32	-1.26
5780	20.83	-1.23
5800	18.53	-2.03
5820	18.17	-2.25
5840	19.11	-1.76

DIV		
Freq	Effi	Gain
(MHz)	(%)	(dBi)
1700	9.89	-4.74
1720	10.52	-4.16
1740	11.58	-3.84
1760	13.59	-3.38
1780	15.96	-2.41
1800	15.22	-1.92
1820	16.41	-1.68
1840	17.5	-2.15
1860	17.94	-2.66
1880	18.02	-2.91
1900	17.71	-3.09
1920	15.9	-4.17
1940	14.82	-4.76
1960	11.84	-5.26
1980	9.9	-5.49
2000	8.7	-5.5
2020	9.17	-6.06
2040	10.37	-5.57
2060	11.56	-4.64
2080	6.75	-6.39
2100	3.62	-9.79
2120	3.1	-10.02
2140	3.41	-9.95
2160	4.05	-9.47
2180	5.24	-7.49
2300	16.29	-1.65
2320	16.89	-1.62
2340	16.17	-2.32
2360	17.63	-1.82
2380	18.35	-1.76
2400	20.61	-2.08
2500	20.98	-1.55
2520	22.27	-1.08
2540	25.61	-0.25
2560	23.31	-0.72
2580	21.02	-1.11
2600	18.83	-1.91
2620	15.03	-3.53
2640	10.47	-5.48
2660	7.82	-5.93
2680	6.07	-6.88
2700	5.51	-7.7

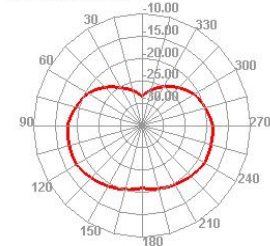
Directional pattern/方向图

MAIN

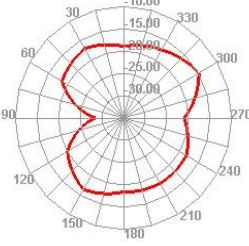
600.000MHz



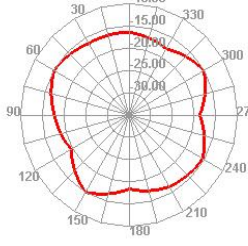
600.000MHz H



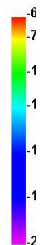
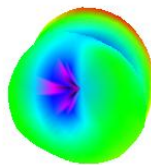
600.000MHz E1



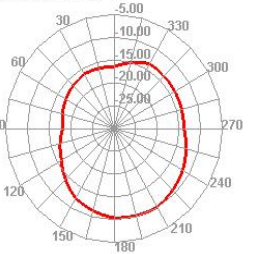
600.000MHz E2



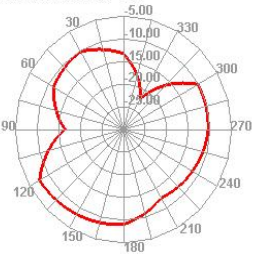
820.000MHz



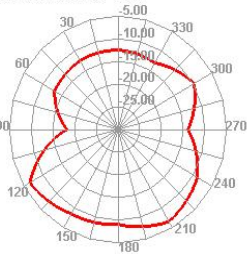
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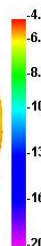
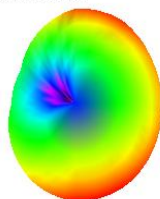
820.000MHz E1



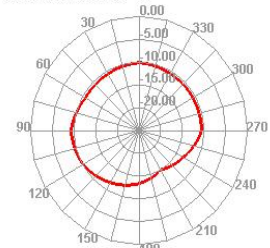
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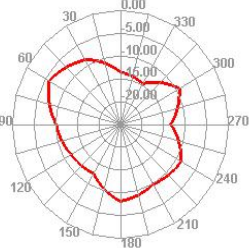
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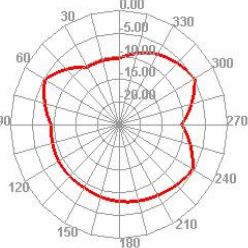
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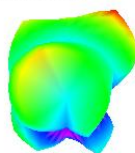
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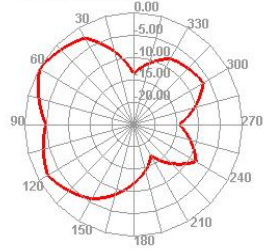
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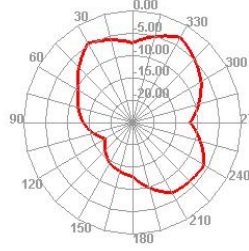
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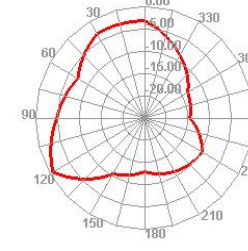
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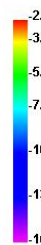
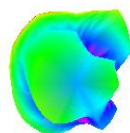
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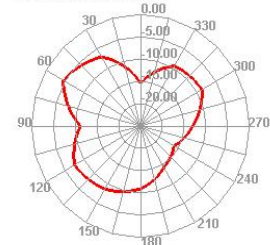
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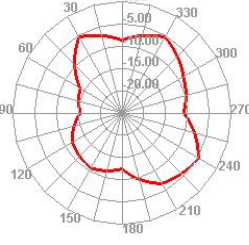
1880.000MHz



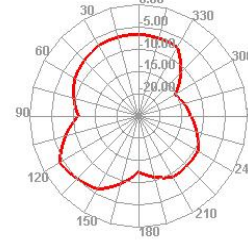
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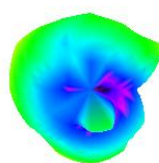
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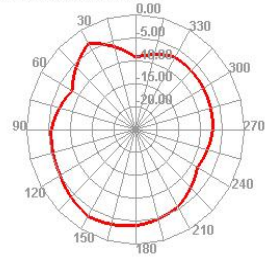
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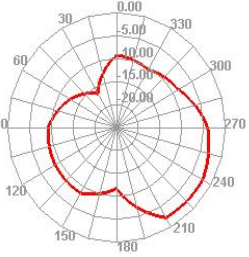
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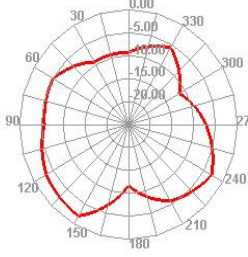
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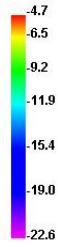
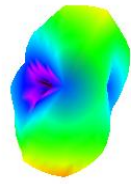
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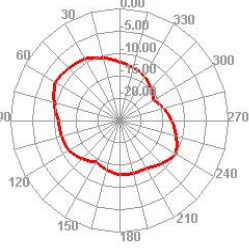
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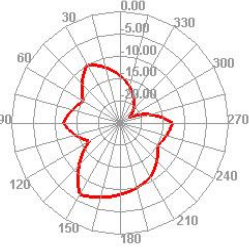
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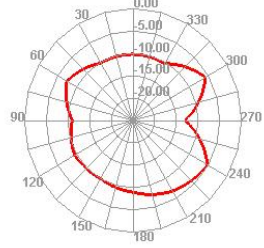
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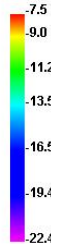
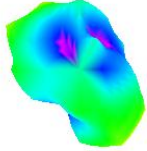
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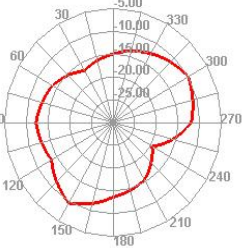
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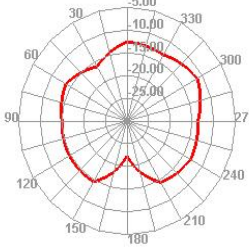
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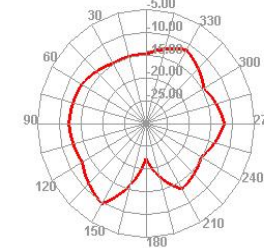
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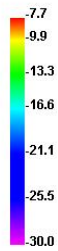
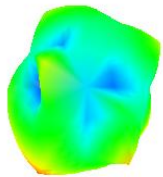
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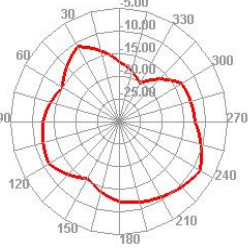
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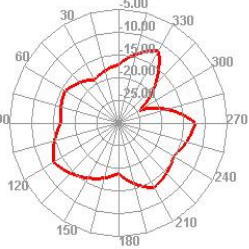
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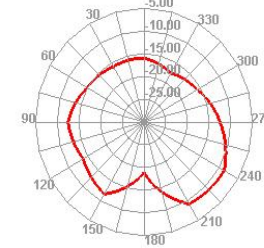
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2700.000MHz E1

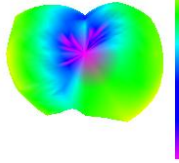


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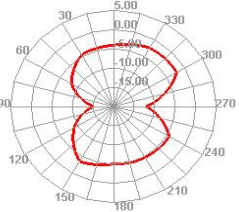


WIFI

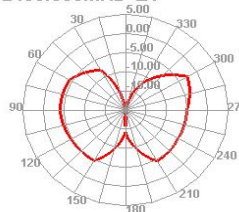
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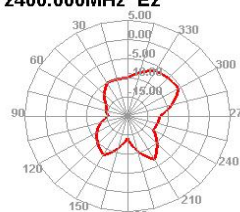
2400.000MHz H



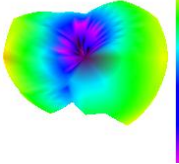
2400.000MHz E1



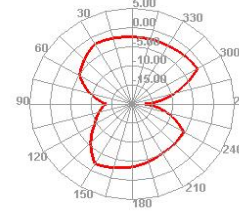
2400.000MHz E2



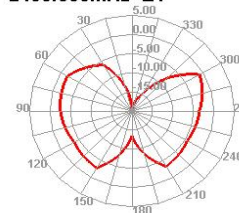
2450.000MHz



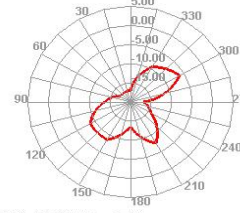
2450.000MHz H



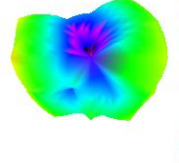
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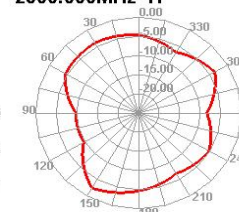
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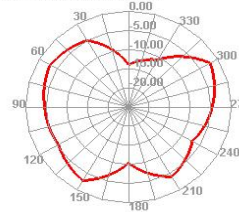
2500.000MHz



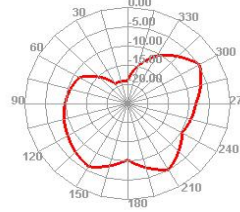
2500.000MHz H



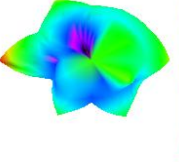
2500.000MHz E1



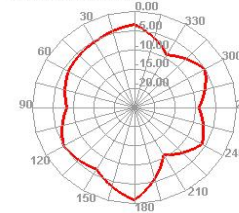
2500.000MHz E2



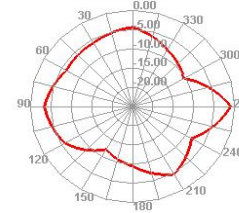
5180.000MHz



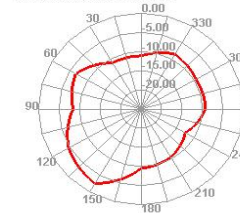
5180.000MHz H



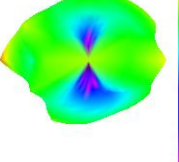
5180.000MHz E1



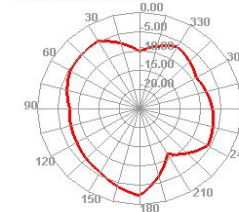
5180.000MHz E2



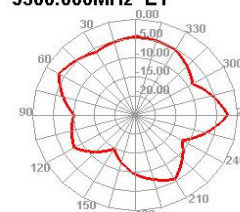
5300.000MHz



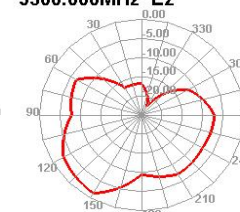
5300.000MHz H



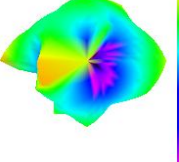
5300.000MHz E1



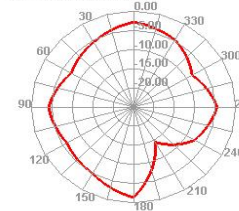
5300.000MHz E2



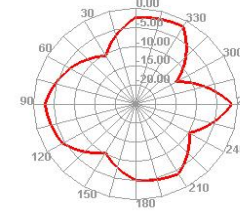
5500.000MHz



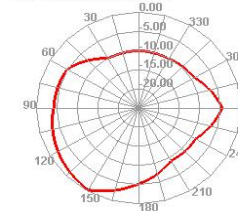
5500.000MHz H



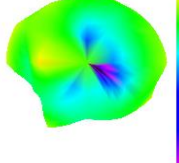
5500.000MHz E1



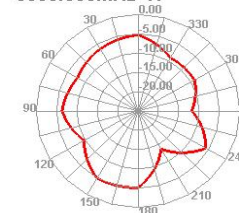
5500.000MHz E2



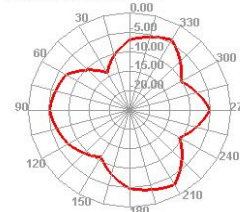
5800.000MHz



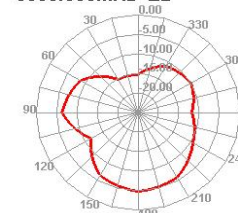
5800.000MHz H



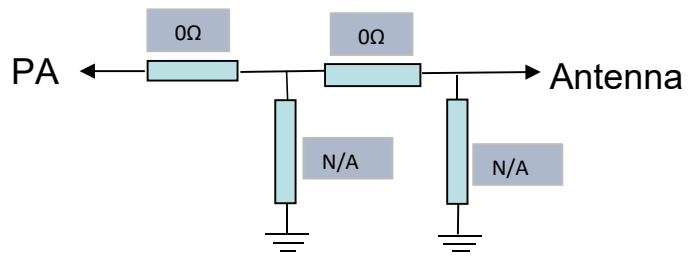
5800.000MHz E1



5800.000MHz E2

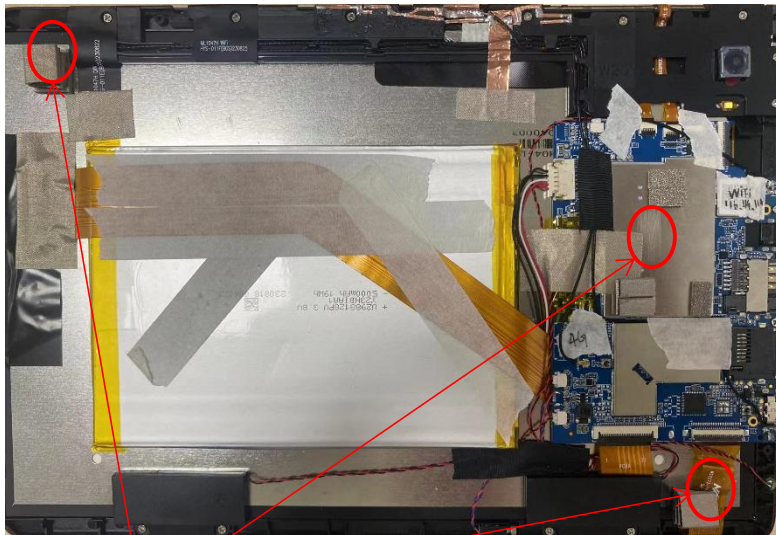


The matching circuits/匹配电路

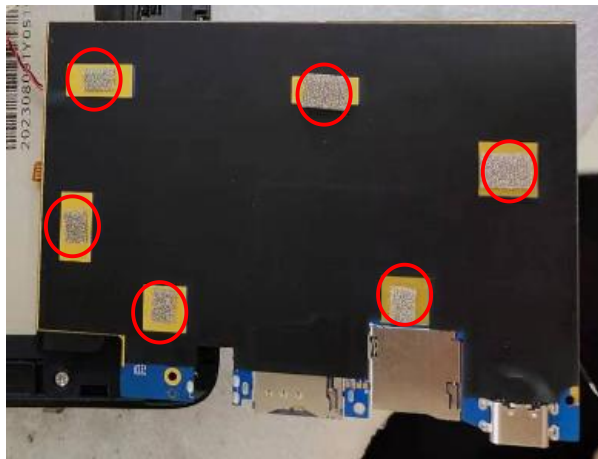


所有天线匹配未改

Environmental treatment/环境处理

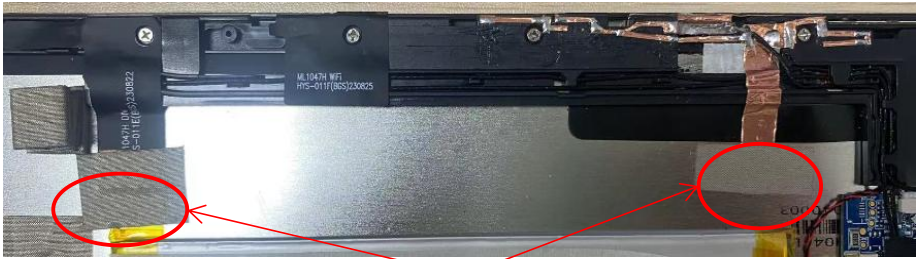


三处与金属后盖接地



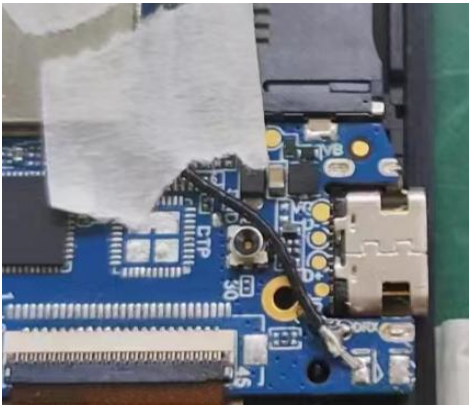
主板接地

Antenna Picture/天线图片



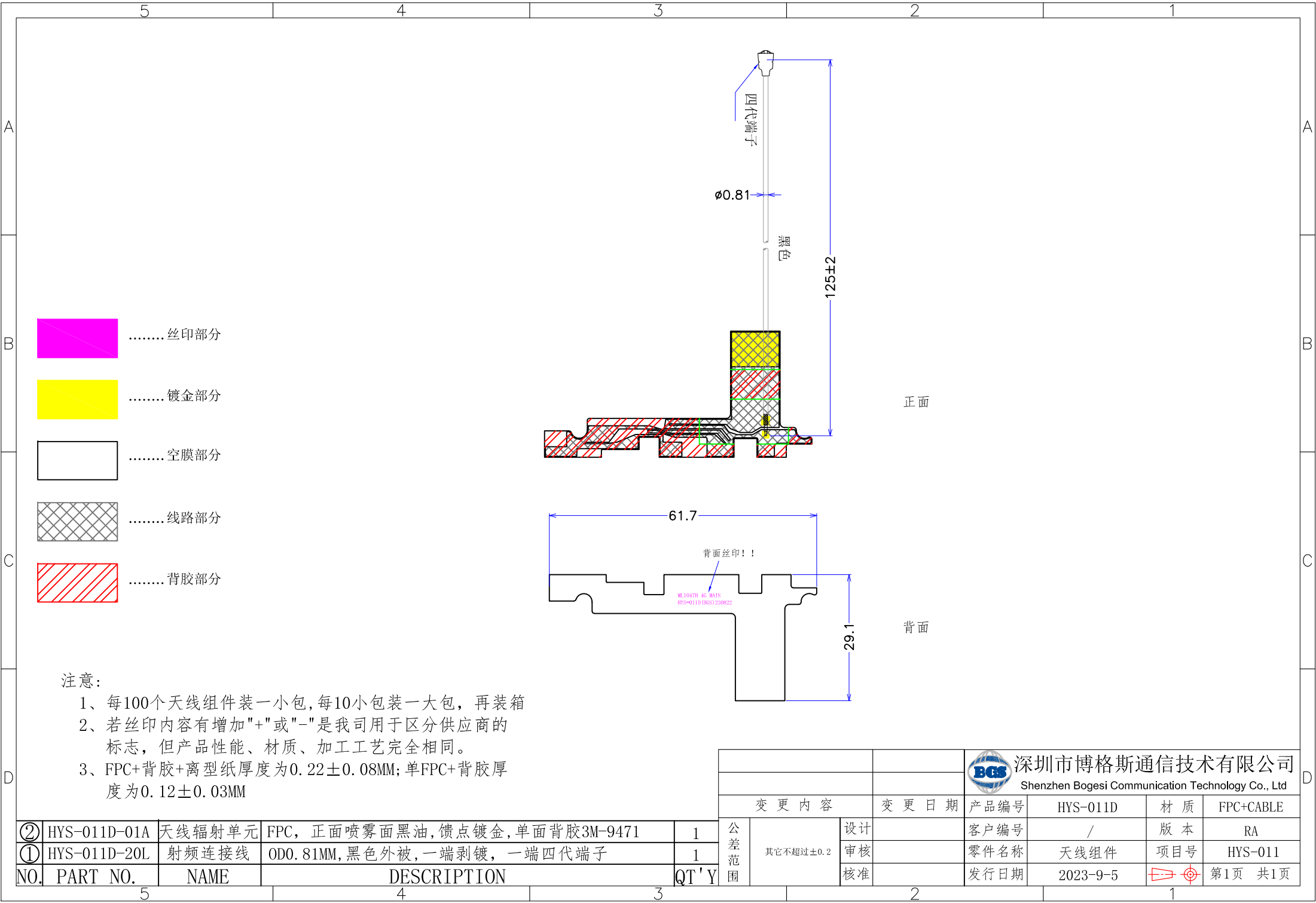
天线接地（天线接地处需要折到上面）

Installation Instructions/安装说明



Summary/小结

4G天线高频数据良好，低频因环境较差导致较低。
WiFi 5G传导TPR偏低，天线数据良好。



A

B

C

D

A

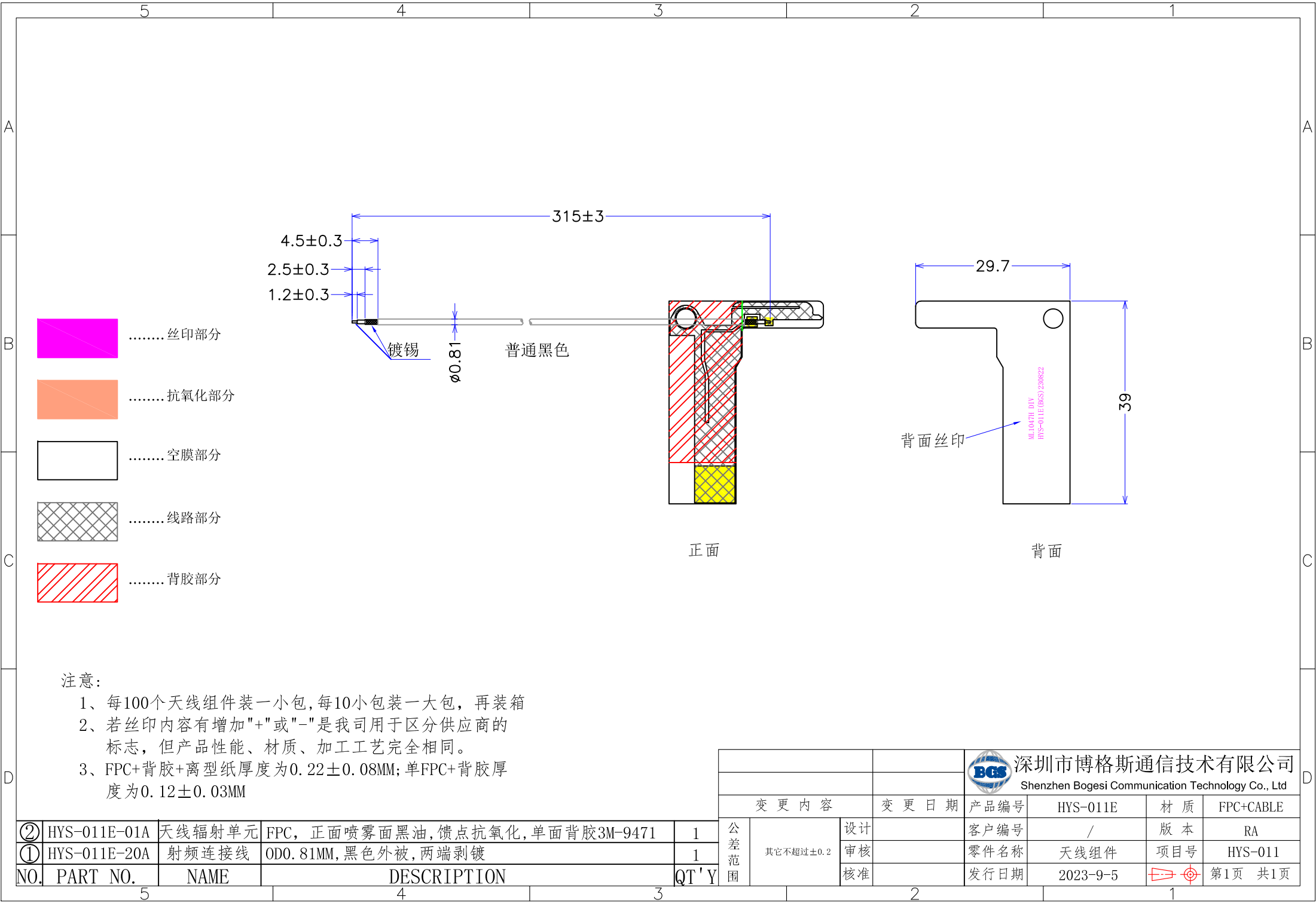
B

C

D

②	HYS-011D-01A	天线辐射单元	FPC, 正面喷雾面黑油, 镀点镀金, 单面背胶3M-9471	1
①	HYS-011D-20L	射频连接线	OD0.81MM, 黑色外被, 一端剥镀, 一端四代端子	1
NO.	PART NO.	NAME	DESCRIPTION	QT'Y

				深圳市博格斯通信技术有限公司	
				Shenzhen Bogesi Communication Technology Co., Ltd	
变更内容		变更日期	产品编号	HYS-011D	材质
其它不超过±0.2		设计	客户编号	/	版本
		审核	零件名称	天线组件	项目号
		核准	发行日期	2023-9-5	第1页 共1页



注意:

1、每100个天线组件装一小包,每10小包装一大包,再装箱

2、若丝印内容有增加"+"或"-"是我司用于区分供应商的标志,但产品性能、材质、加工工艺完全相同。

3、FPC+背胶+离型纸厚度为0.22±0.08MM;单FPC+背胶厚度为0.12±0.03MM

②	HYS-011E-01A	天线辐射单元	FPC, 正面喷雾面黑油, 镀点抗氧化, 单面背胶3M-9471	1
①	HYS-011E-20A	射频连接线	OD0.81MM, 黑色外被, 两端剥镀	1
NO.	PART NO.	NAME	DESCRIPTION	QT'Y

			 深圳市博格斯通信技术有限公司				
			Shenzhen Bogesi Communication Technology Co., Ltd				
变 更 内 容			变 更 日 期	产品编号	HYS-011E	材 质	FPC+CABLE
公差 范围	其它不超过±0.2	设计	客户编号	/	版 本	RA	
		审核	零件名称	天线组件	项目号	HYS-011	
		核准	发行日期	2023-9-5		第1页 共1页	

