深圳市勤新科技有限公司

SHEN ZHEN SHI QIN XIN TECHNOLOGY CO.,LTD

天线承认书

ANTENNA APPROVAL SHEET

深圳市勤新科技有限公司	SHENZHEN QIN XIN INDUSTRY CO.,LTD
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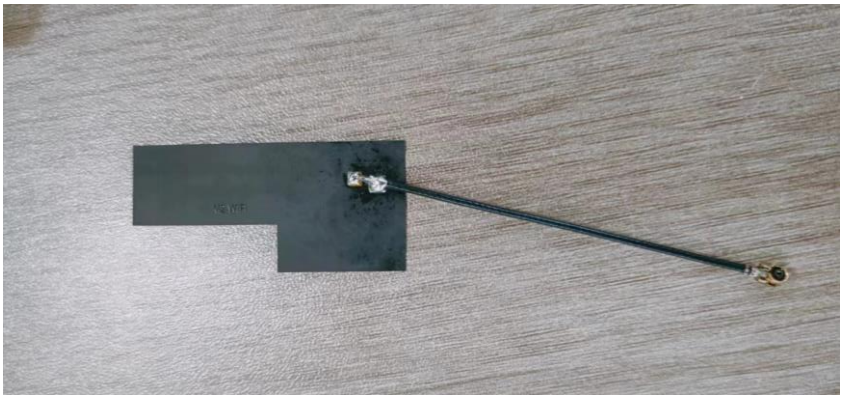
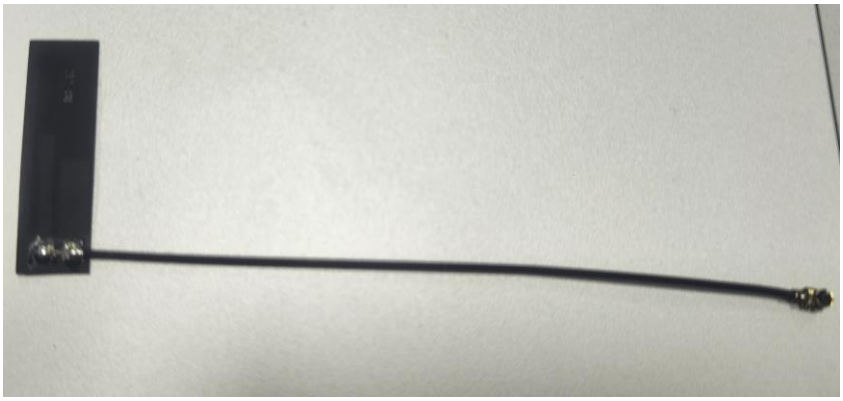
1.1 Antenna Sample





2 Antenna test environment

2.1 External test environment

Table 2-2. Main test devices

serial number	devicename	Equipment picture	measurement index
1	**Agilent 8960 comprehensive tester**		**Active performance**
2	Microwave darkroom		
3	**ADVANTEST R3765BH network analyzer**		**Passive performance**

2.1.1 Passive test

The test device is connected successively as follows: network analyzer → test line → test fixture.

2.1.2 Active Test

The main performance index of active test: total radiated power (TRP), omnidirectional sensitivity (TIS).

Test site

Microwave darkroom: the frequency range is 700MHz-6GHz, the static zone is 50cm circle, and the reflectivity is less than -50 dB.

Instrument for testing

Network analyzer, CMW500, standard horn antenna, GTS1800 test system, printer, etc.

3. Antenna performance

3.1 Matching Circuit

Antenna matching has not changed

3.2 Test Results

Antenna working band in WiFi :2400Mhz~2500Mhz, 5150Mhz~5825Mhz, BT:2400Mhz~2500Mhz Our design and mass production antenna electrical performance indicators

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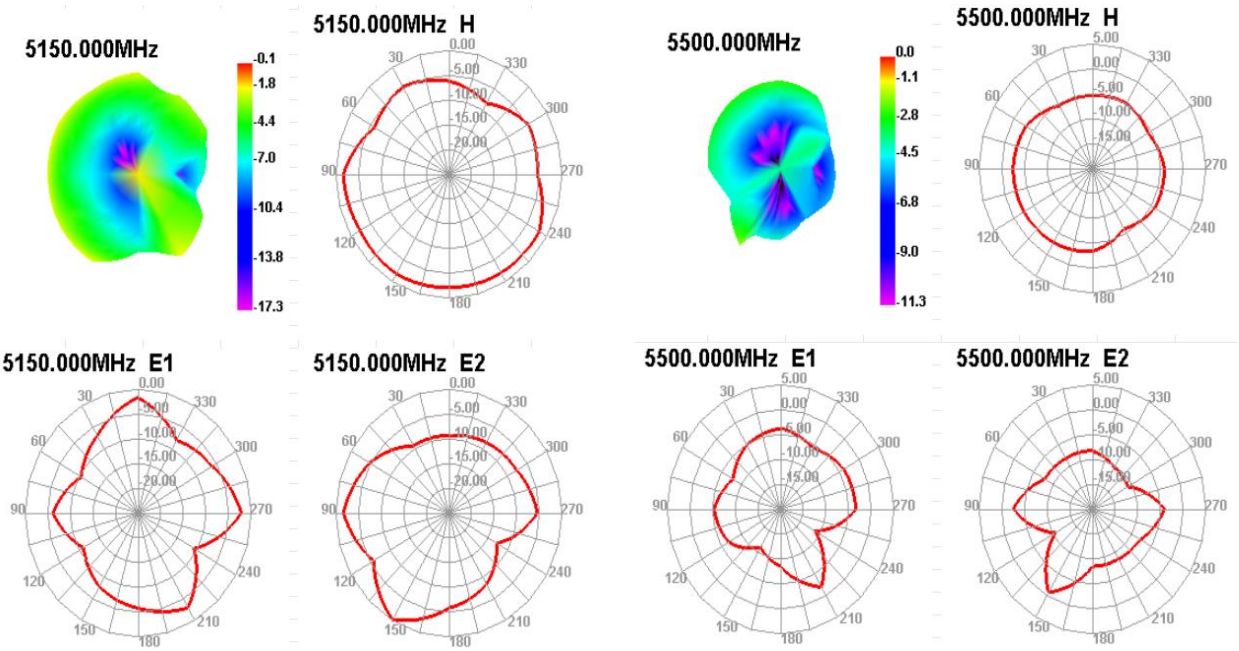
The values of TRP and TIS are shown in the table below:

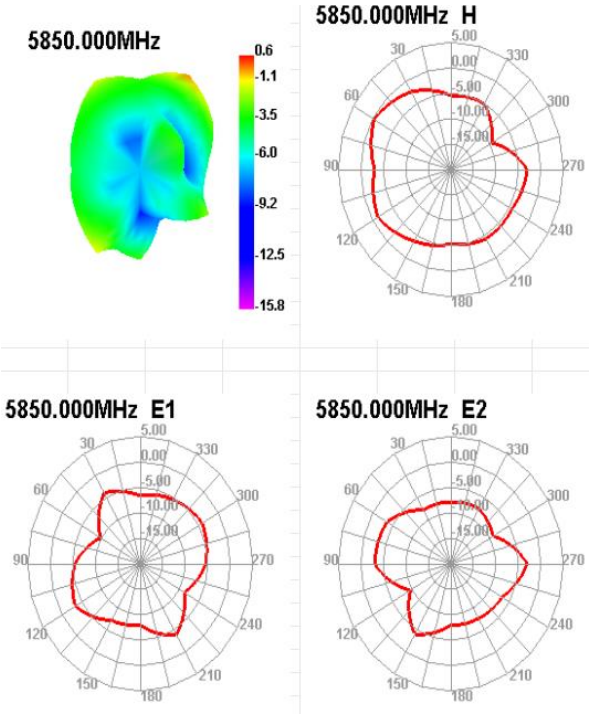
Channel	WIFI 2.4G			WIFI 5.8G		
	1	6	11	36	149	165
TRP	13.03	13.16	13.81	10.92	9.72	10.77
TIS	-74.50	-73.47	-74.66	-69.66	-69.19	-70.12

WIFI efficiency

Freq (MHz)	Effi (%)	Gain (dBi)	Freq (MHz)	Effi (%)	Gain (dBi)	Freq (MHz)	Effi (%)	Gain (dBi)	Freq (MHz)	Effi (%)	Gain (dBi)
2300	34.1	2.59	5150	37.4	-0.11	5400	36.05	-0.05	5650	38.6	0.85
2310	34.54	2.71	5160	36.5	-0.11	5410	38.53	0.33	5660	36.99	0.72
2320	36.47	2.97	5170	36.93	-0.07	5420	38.52	0.44	5670	39.55	1.03
2330	39.14	3.29	5180	38.01	0.42	5430	35.74	0.17	5680	36.42	0.75
2340	38.37	3.21	5190	35.8	0.23	5440	34.99	0.07	5690	35.05	0.52
2350	38.22	3.13	5200	35.13	0.16	5450	35.49	0.16	5700	35.69	0.9
2360	37.91	2.98	5210	35.24	0.34	5460	36.61	0.27	5710	34.84	0.71
2370	36.76	2.8	5220	34.27	0.24	5470	37.85	0.45	5720	36.53	0.89
2380	37.01	2.8	5230	36.52	0.51	5480	37.17	0.42	5730	36.01	0.94
2390	37.26	2.88	5240	36.81	0.61	5490	37.54	0.41	5740	33.15	0.66
2400	37.09	2.93	5250	35.17	0.39	5500	35.64	0.02	5750	36.52	0.57
2410	37.21	2.98	5260	37.18	0.27	5510	36.14	0.05	5760	35.03	0.43
2420	38.63	3.14	5270	34.81	-0.02	5520	37.16	0.23	5770	37.04	0.79
2430	38.97	3.18	5280	35.2	0	5530	36.8	0.22	5780	39.45	0.88
2440	38.63	3.32	5290	37.49	0.37	5540	36.9	0.2	5790	36.49	0.44
2450	39.07	3.39	5300	36.01	0.12	5550	37.54	0.25	5800	38.04	0.62
2460	38.32	3.37	5310	35.71	-0.03	5560	36.29	0.2	5810	35.85	0.24
2470	39.59	3.5	5320	34.85	-0.21	5570	38.48	0.42	5820	35.81	0.27
2480	41.18	3.65	5330	33.41	-0.53	5580	37.6	0.29	5830	38.11	0.77
2490	43.91	3.85	5340	35.71	-0.2	5590	37.33	0.15	5840	40.13	0.93
2500	42.82	3.72	5350	37.97	0.07	5600	37.88	0.62	5850	41.82	0.55
			5360	36.41	-0.36	5610	37.04	0.64			
			5370	36.2	-0.31	5620	37.78	0.55			
			5380	33.73	-0.77	5630	36.89	0.65			
			5390	34.04	-0.83	5640	37.93	0.67			

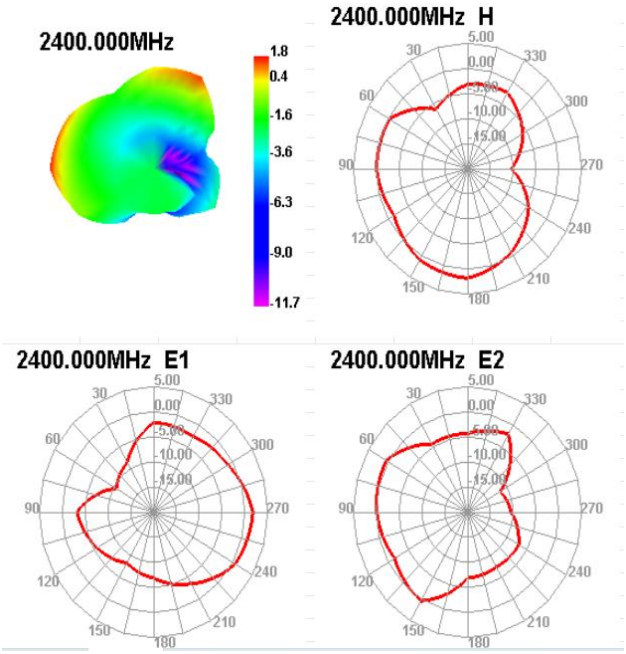
WIFI map

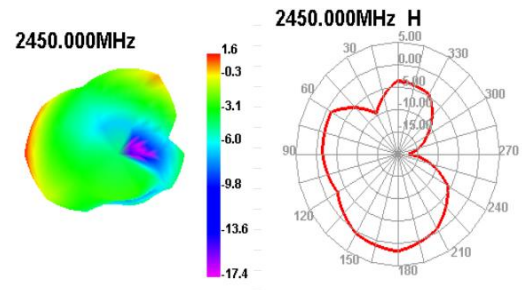




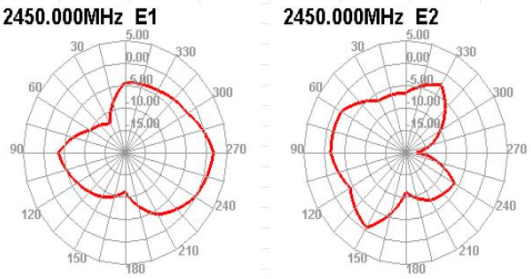
BT Efficiency chart/direction chart

Freq (MHz)	Effi (%)	Gain (dBi)
2300	35.29	1.58
2310	38.55	1.73
2320	40	2.05
2330	38.83	2.22
2340	38.77	2.66
2350	37.82	2.65
2360	39.07	2.84
2370	36.06	2.61
2380	38.04	2.44
2390	38.85	2.66
2400	40.85	2.95
2410	39.6	3
2420	39.44	2.75
2430	37.41	2.62
2440	36.28	2.32
2450	37.9	2.6
2460	38.45	2.69
2470	35.43	2.3
2480	37.08	2.49
2490	35.03	2.36
2500	35.78	2.46

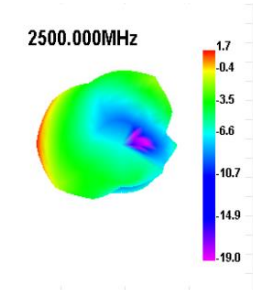


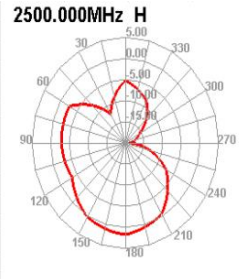

2450.000MHz
1.6
-0.3
-3.1
-6.0
-9.8
-13.6
-17.4

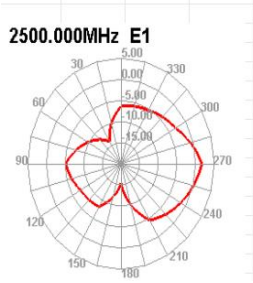
2450.000MHz H

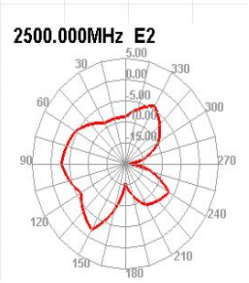

2450.000MHz E1

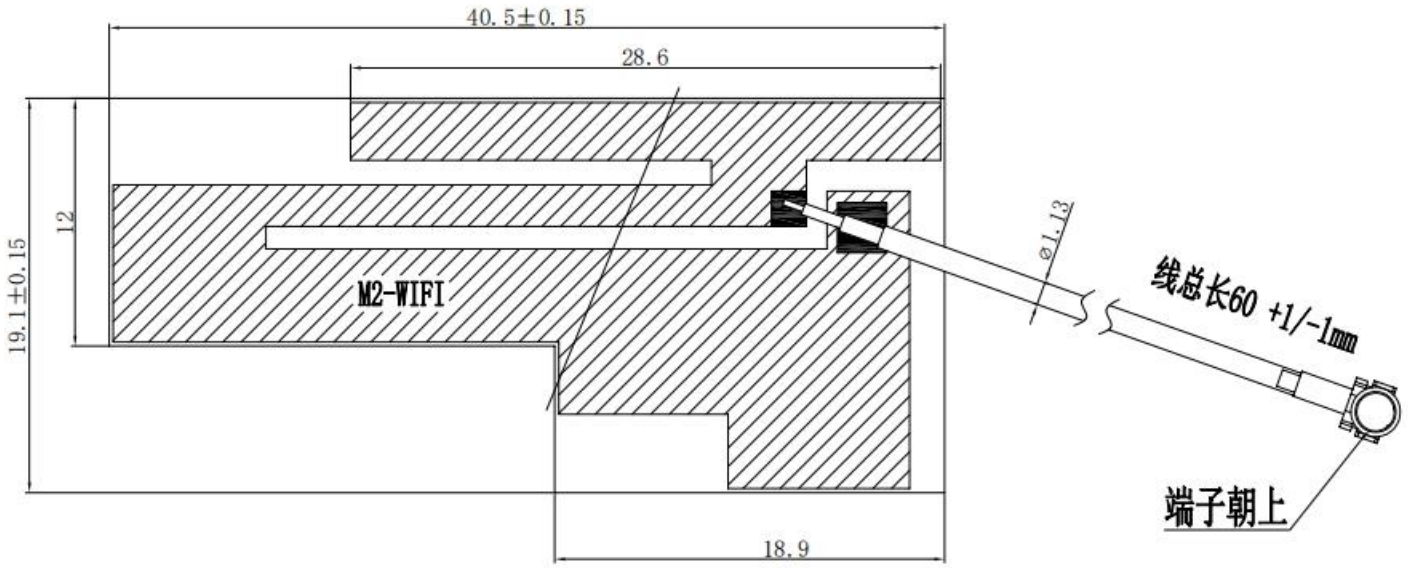
2450.000MHz E2


2500.000MHz
1.7
-0.4
-3.5
-6.6
-10.7
-14.9
-19.0


2500.000MHz H


2500.000MHz E1


2500.000MHz E2



注:

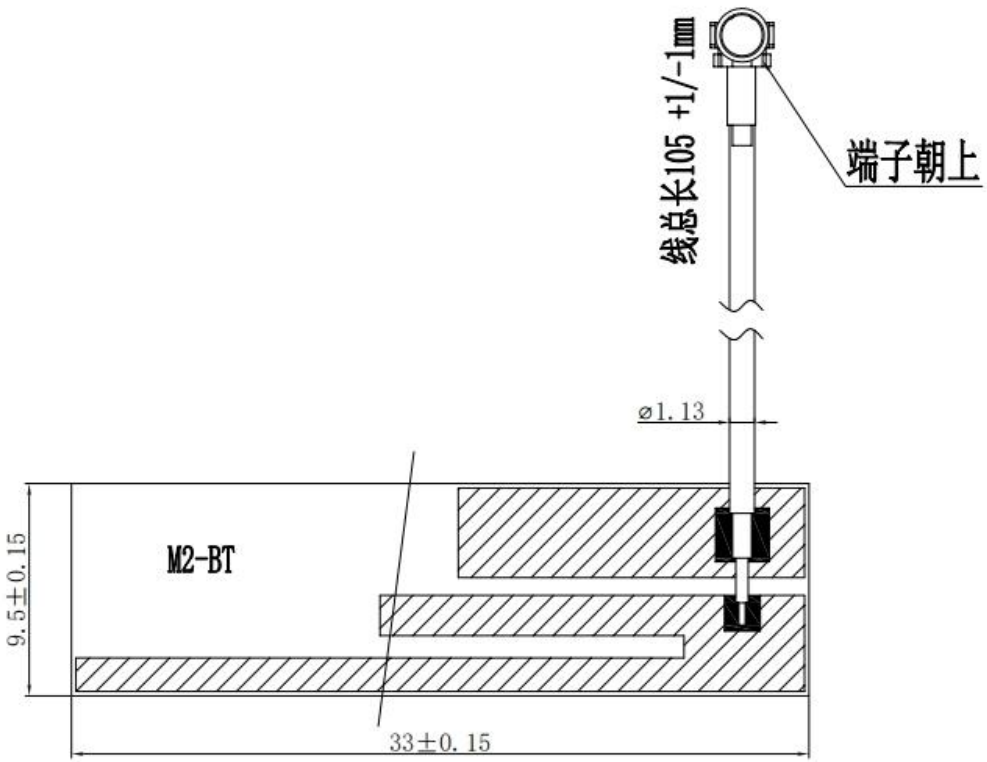
1. 材料:FPC.基材:18/25,表面颜色为哑光黑，丝印黑色亮油。
2. 反面整体背胶类型:3M-9471LE,总厚度T<0.12MM。
3. 表面不可以有污染物、擦伤、黑点。
4. 镀镍厚度为2~6um，不可有镀镍后易断裂及脱落，导通不良，电路部分断缺等不良现象。
5. 背胶需要够热冲击实验；实验条件：-40~+85摄氏度 16个周期（一周期为30分钟）。
6. 该图为原尺寸比例图,*为重点管控尺寸

注：所有孔均为通孔,红色线为打断线。

GENERAL TOLERANCE TABLE			
LINEAR(MM)		ANGULAR	
DIVISION	TOLERANCE	DIVISION	TOLERANCE
0~~10	±0.05	0~~30度	±1°
10~24	±0.07	30~90度	±2°
24~50	+/-0.10		
50~80	+/-0.13		
OVER 80	+/-0.20		

深圳市勤新科技有限公司

THE MATERIAL COMPANY		DATA	2025/01/10
PRODUCT NAME	WIFI天线总装图	DESIGN	叶俊平
PRODUCT NO	[illegible]	VERIFY	刘若辉
MATERIAL	PI& 电解铜	APPROVE	颜碧伟
SCALE 1:1 mm	SIZE A4	SHEET 1 of 1	



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THE MATERIAL			DATA	2025/01/10	
PRODUCT NAME	BT天线总装图		DESIGN	叶晓平	
PRODUCT NO	M-BT-00		VERIFY	刘若晖	
MATERIAL	PI&电解铜		APPROVE	郝君伟	
SCALE	1:1	mm	SIZE	A4	SHEET 1 of 1