

深圳市云希科技有限公司

ShenZhen Yunxi Technology Co.,Ltd.

Antenna test Report

Customer: 启鹏天辰

Project Name: S21

RF Engineer: 向工

Testing Date: 2024-10-07

Operating band: WiFi/GPS/BT GSM W1/2/4/5/8
FDD:1/2/3/4/5/7/8 /12/17/18/19/20/26/66 TDD:34/38/39/40/41

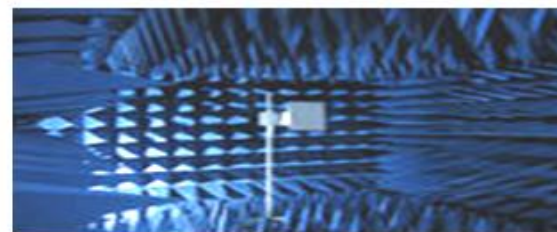
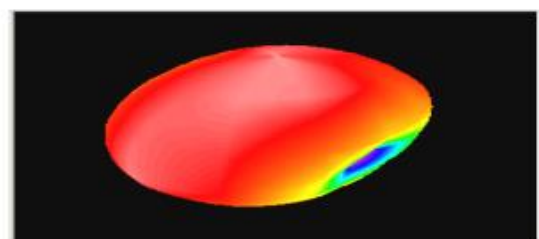
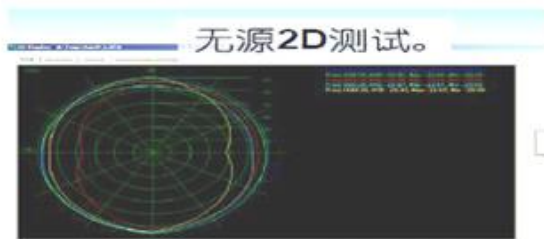


Project brief

NO.	ITEMS	DETAILS
1	工作频段 Operating band	WiFi/GPS/BT GSM W1/2/4/5/8 FDD:1/2/3/4/5/7/8 /12/17/18/19/20/26/66 TDD:34/38/39/40/41
2	频率范围 Frequency range	(1575MHz)(2400~2500MHz)(5150~5850MHz)(700~960MHz) (1710~2690MHz)
3	天线类型 Antenna Type	PIFA
4	天线材质及实现形式	天线采用 FPC 贴在壳侧面
5	天线料号 Antenna part number	主: G1921A-1L24B-115-A 副: G1924A-1R24B-110-A WiFi/GPS/BT :T953A-1R24B-032-A
6	输入阻抗 Input Impedance	50 (Ω)
7	增益 Gain	
8	RF	向工
9	ME	邹工

Test system and equipment

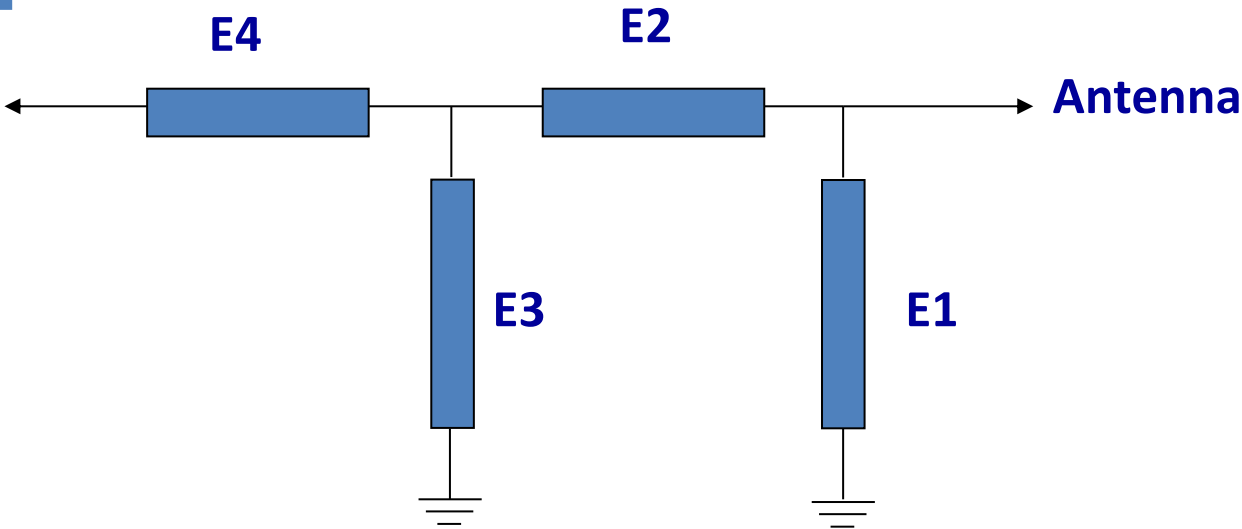
	测试项目	设备
1. S参数	1. 回波损耗 2. 驻波比	网络分析仪: HP E5071C/Agilent8753D
2. 耦合功率测试	1. 发射功率 2. 接收灵敏度	GSM 测试仪: Agilent 8960 LTE 测试仪: CMW500
3. 辐射模式与增益	1. 辐射模式 2. 天线增益	1. 暗室: 7x4x3 m (ETS-3D) 2. 网络分析仪: HP Agilent8753ES



Matching Circuits

天线匹配

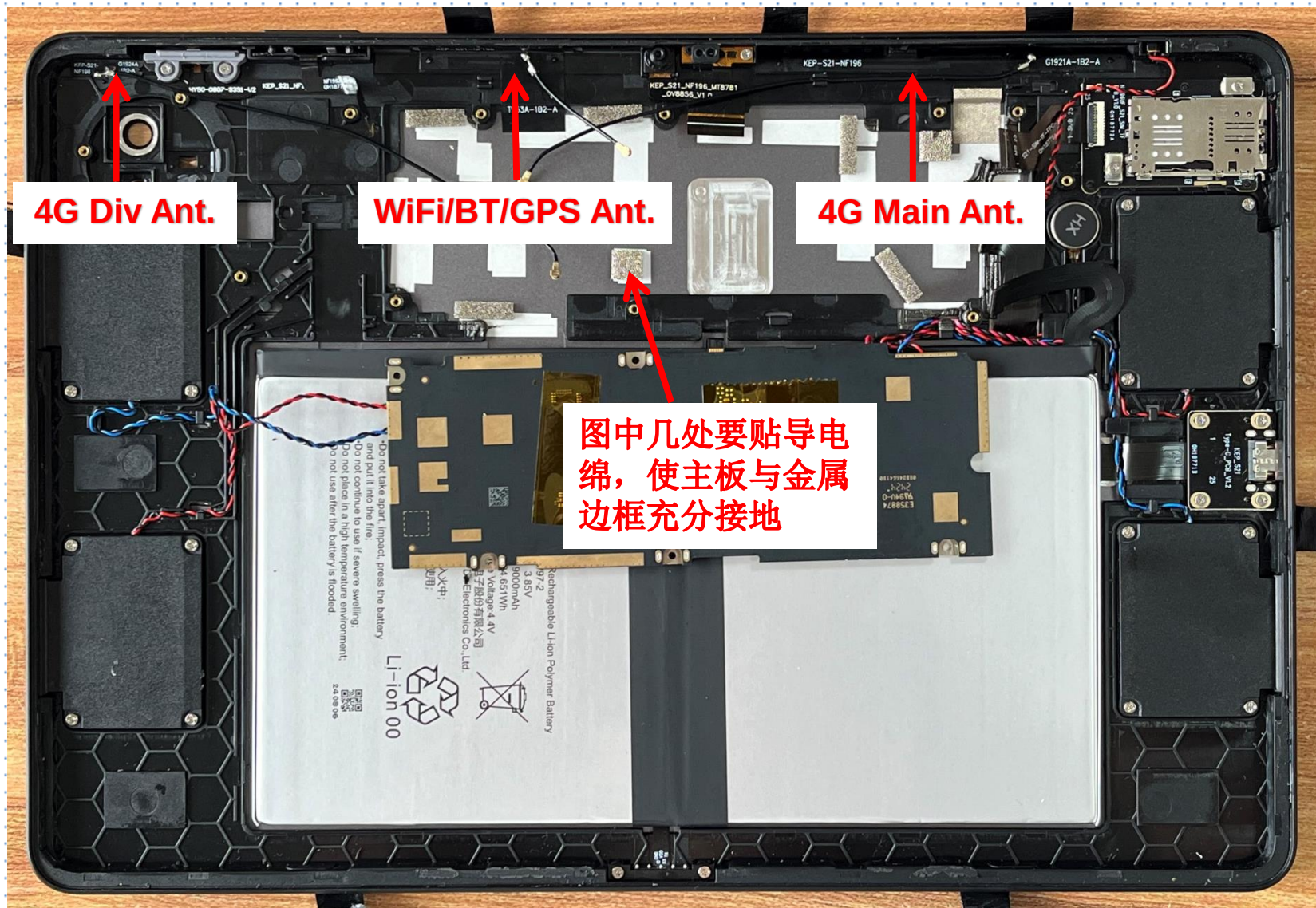
RF Module

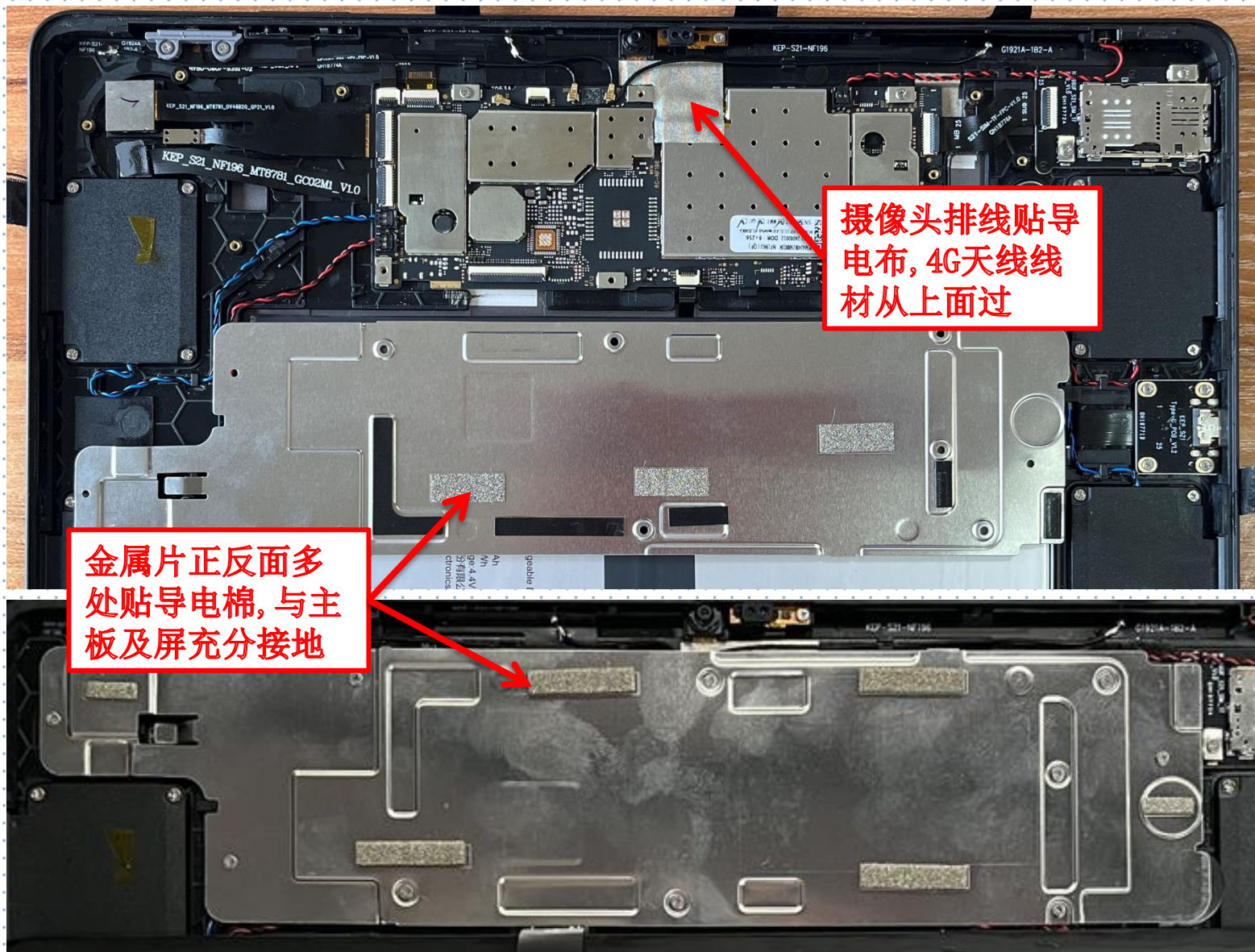


Element	Value	Vender
E1(0402)		
E2(0402)		
E3(0402)		
E4(0402)		

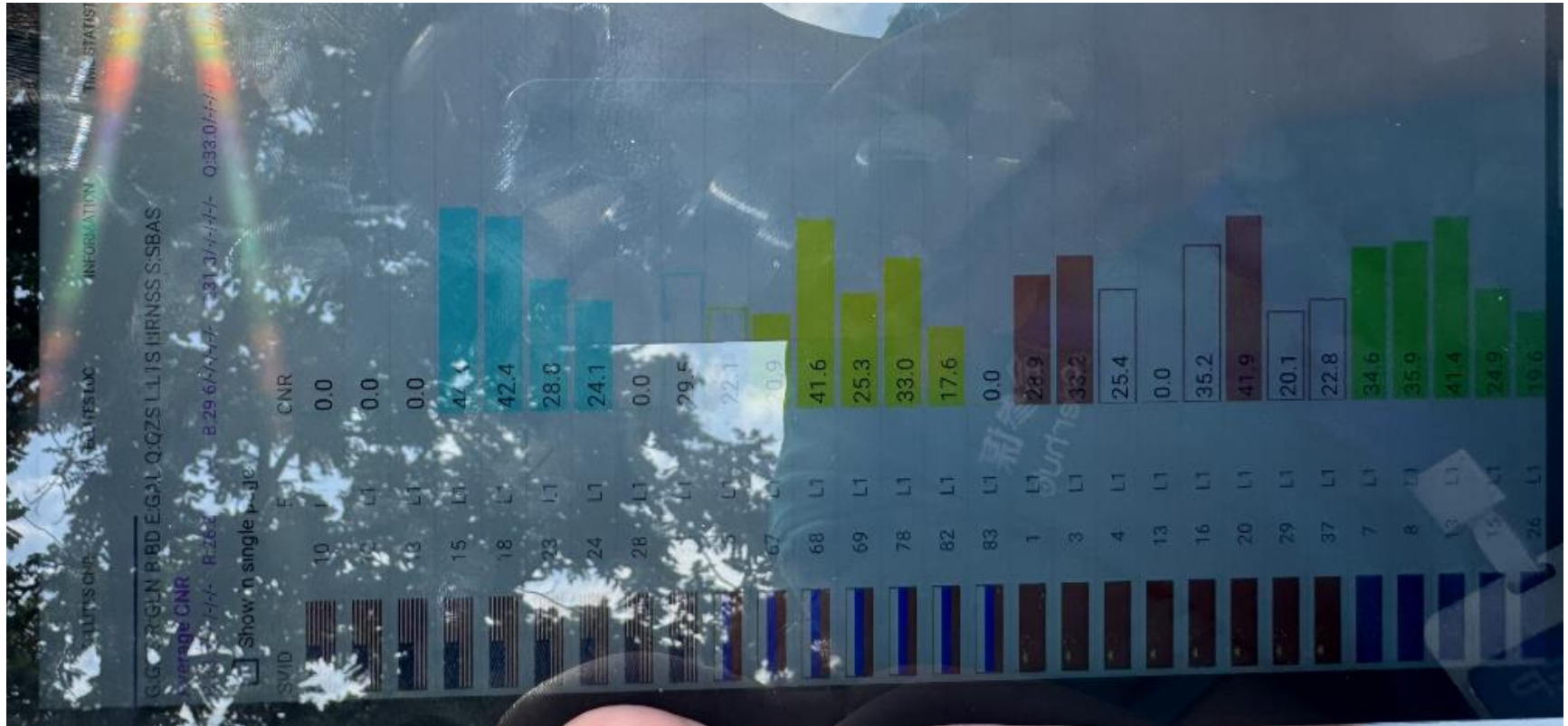
原匹配电路无修改

Antenna assembly environment processing diagram





Measured effect diagram of the whole antenna



3D.TRP & TIS in free-space

LTE

Standard	FDD Band 1			FDD Band 2			FDD Band 3			FDD Band 4		
Channel	18050 /50	18300 /300	18550 /550	18650 /650	18900 /900	19150 /1150	19300 /1300	19575 /1575	19875 /1875	20000 /2000	20175 /2175	20350 /2350
TRP (dBm)	18.6	17.4	16.8	18.4	19.7	18.9	19.0	18.3	18.0	19.1	19.3	18.8
TIS (dBm)			-91.0			-88.2			-92.2			-89.0
Standard	FDD Band 5			FDD Band 7			FDD Band 8			FDD Band 12		
Channel	20450 /2450	20525 /2525	20600 /2600	20800 /2800	21100 /3100	21400 /3400	21500 /3500	21625 /3625	21750/ 3750	23060 /5060	23095 /5095	23130 /5130
TRP (dBm)	17.2	17.8	17.7	19.2	18.8	19.2	17.1	16.7	15.8	12.1	12.6	13.4
TIS (dBm)			-86.1			-91.4			-85.5			-83.5
Standard	FDD Band 17			FDD Band 18			FDD Band 19			FDD Band20		
Channel	23780 /5780	23790 /5790	23800 /5800	23900 /5900	23925 /5925	23950 /5950	24050 /6050	24075 /6075	24100 /6100	24200 /6200	24300/ 6300	24400 /6400
TRP (dBm)	13.1	13.3	13.5	16.5	16.7	16.9	17.5	17.7	17.6	17.7	18.1	17.8
TIS (dBm)			-83.5			-86.8			-85.9			-87.3

WIFI					
Band	Channel	Data Rate	TRP	Data Rate	TIS
WIFI2.4G 802.11b	1	11Mbps	12.2	11Mbps	
	7		11.8		
	13		12.0		-82.6
WIFI5.8G 802.11a	36	54Mbps	12.3	54Mbps	
	149		11.2		-71.3
	165		11.7		

Antenna Passive Test

Passive Test For LTE			
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
700	13.8	-8.6	-5.6
720	16.2	-7.9	-3.5
740	18.9	-7.2	-3.1
760	20.6	-6.9	-2.0
780	22.7	-6.4	-2.8
800	24.9	-6.0	-2.4
820	27.4	-5.6	-2.5
840	29.1	-5.4	-2.5
860	30.9	-5.1	-2.9
880	28.9	-5.4	-3.2
900	27.8	-5.6	-3.9
920	26.1	-5.8	-4.2
940	24.7	-6.1	-5.0
960	21.5	-6.7	-5.4

Passive Test For LTE			
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
1700	25.1	-6.0	2.1
1740	27.6	-5.6	2.1
1780	32.4	-4.9	2.8
1820	36.4	-4.4	2.5
1860	38.8	-4.1	2.4
1900	36.1	-4.4	2.0
1940	39.6	-4.0	2.2
1980	45.4	-3.4	2.7
2020	47.3	-3.3	2.6
2060	45.9	-3.4	2.1
2100	47.4	-3.2	2.1
2140	36.6	-4.4	0.8
2180	32.6	-4.9	0.8

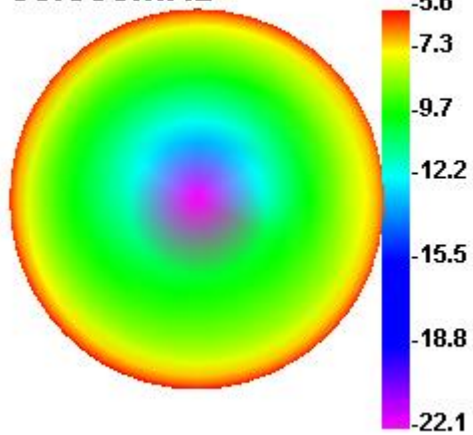
Passive Test For LTE			
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
2300	25.7	-5.9	0.5
2340	28.8	-5.4	1.1
2380	26.3	-5.8	0.7
2420	24.9	-6.0	0.7
2460	25.5	-5.9	1.0
2500	34.8	-4.6	2.5
2540	37.9	-4.2	2.7
2580	34.6	-4.6	2.4
2620	31.4	-5.0	1.9
2660	36.7	-4.4	2.7
2700	40.0	-4.0	3.0

Passive Test For GPS			
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
1550	31.8	-5.0	-0.3
1555	32.5	-4.9	-0.3
1560	33.7	-4.7	-0.4
1565	33.4	-4.8	-0.4
1570	34.4	-4.6	-0.7
1575	35.7	-4.5	-0.8
1580	35.1	-4.5	-0.8
1585	33.8	-4.7	-1.0
1590	32.2	-4.9	-1.0
1595	31.6	-5.0	-1.0
1600	30.8	-5.1	-1.2
1605	30.4	-5.2	-1.0
1610	28.1	-5.5	-1.2

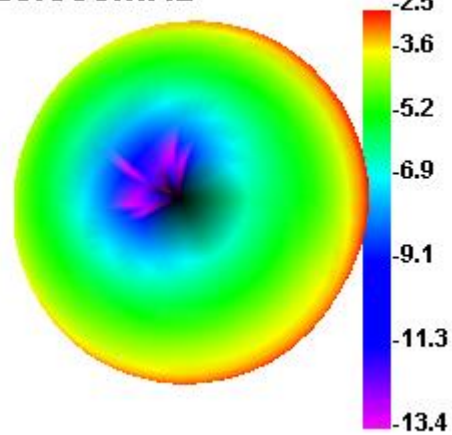
Passive Test For WIFI			
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
2400	33.1	-4.8	-1.3
2410	35.0	-4.6	-1.0
2420	35.2	-4.5	-0.5
2430	36.5	-4.4	-0.4
2440	37.0	-4.3	0.0
2450	37.9	-4.2	0.3
2460	37.6	-4.2	0.5
2470	35.5	-4.5	0.2
2480	35.8	-4.5	0.3
2490	35.0	-4.6	0.1
2500	33.4	-4.8	0.0
5150	54.5	-2.6	2.2
5200	53.6	-2.7	2.6
5250	55.7	-2.5	2.9
5300	61.3	-2.1	3.0
5350	62.1	-2.1	3.2
5400	63.8	-2.0	4.4
5450	57.2	-2.4	3.8
5500	48.9	-3.1	3.1
5550	52.3	-2.8	3.6
5600	55.4	-2.6	3.7
5650	55.5	-2.6	3.4
5700	55.1	-2.6	3.4
5750	53.8	-2.7	3.5
5800	52.5	-2.8	3.7
5850	59.9	-2.2	4.3

Antenna Pattern

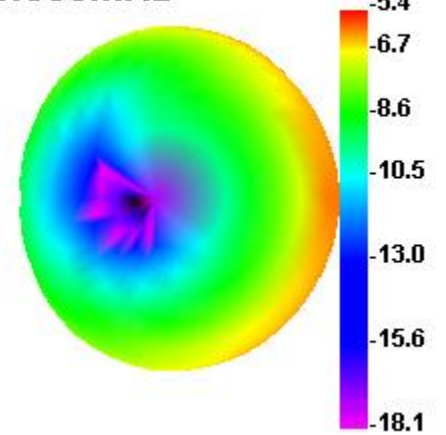
700.000MHz



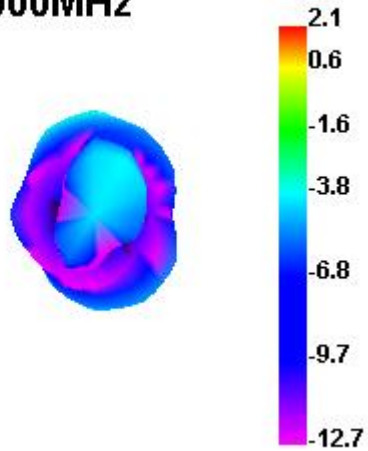
820.000MHz



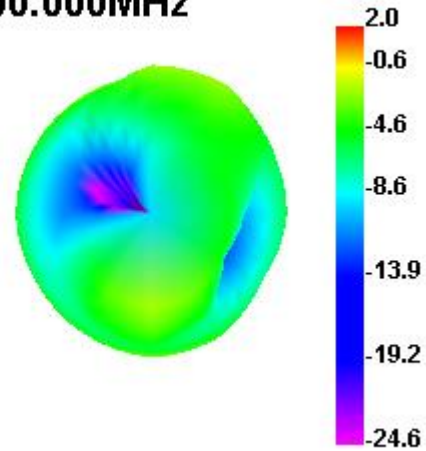
960.000MHz



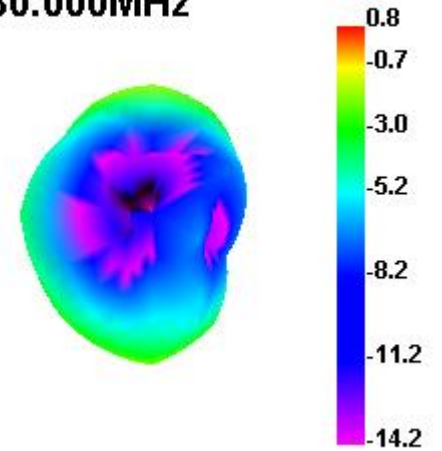
1700.000MHz



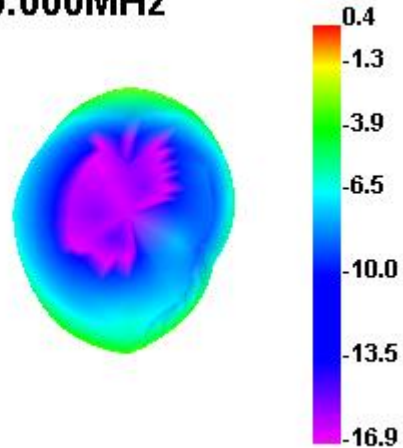
1900.000MHz



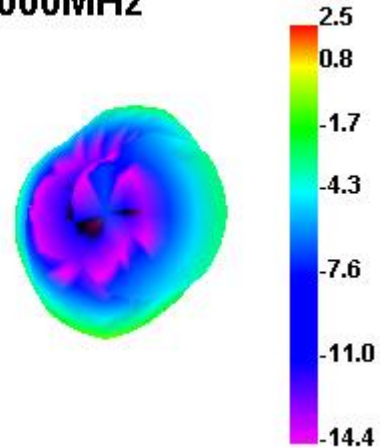
2180.000MHz



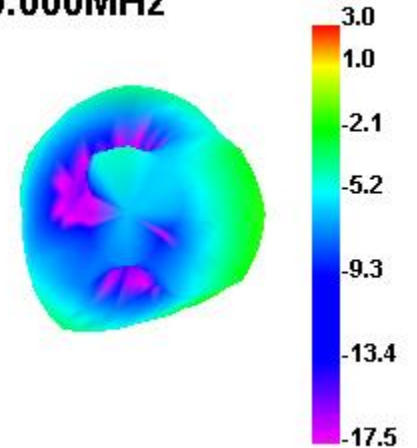
2300.000MHz



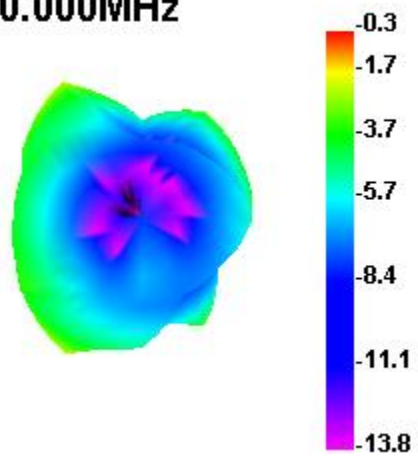
2500.000MHz



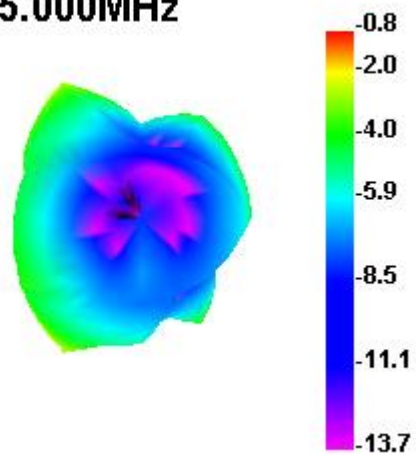
2700.000MHz



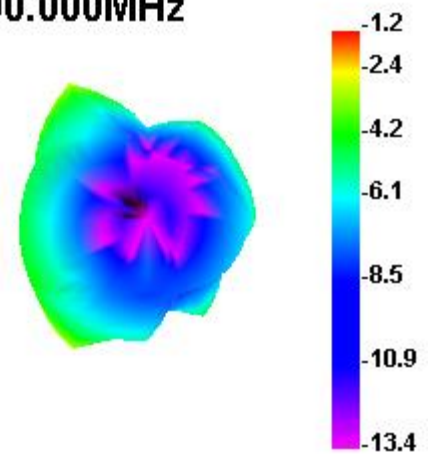
1560.000MHz



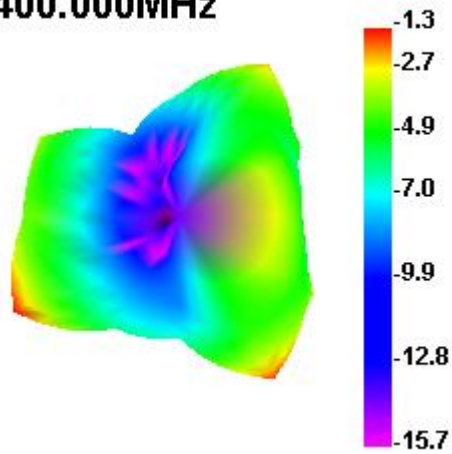
1575.000MHz



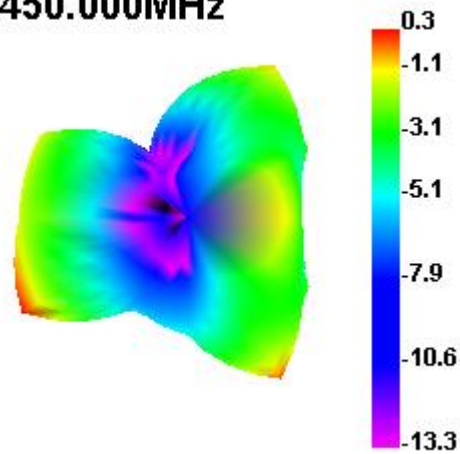
1600.000MHz



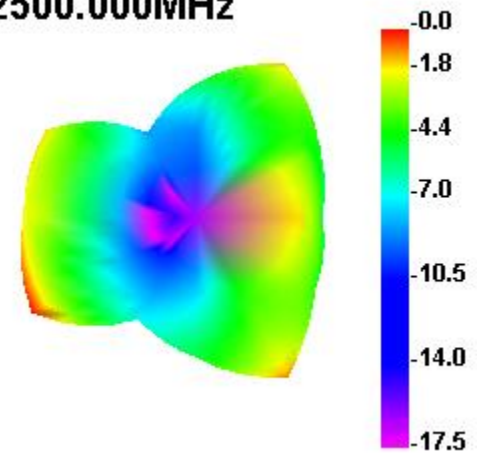
2400.000MHz



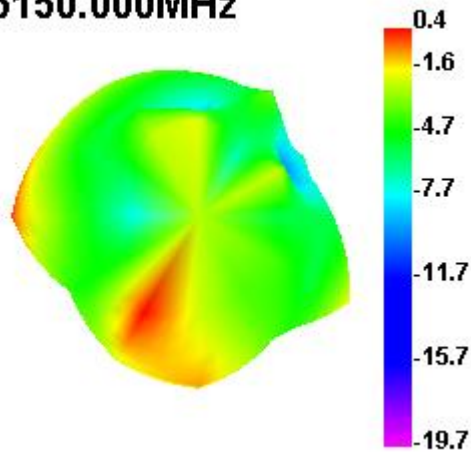
2450.000MHz



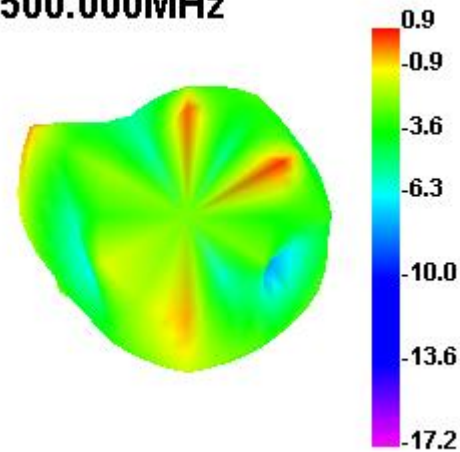
2500.000MHz



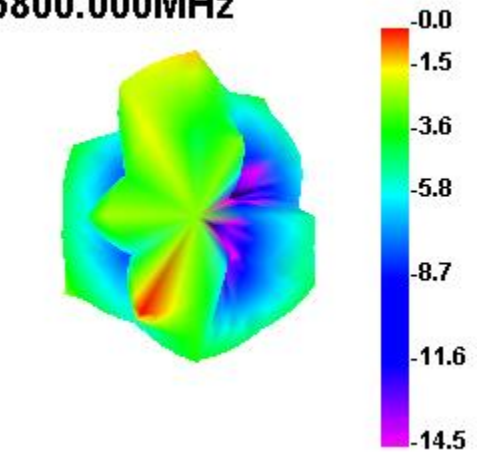
5150.000MHz



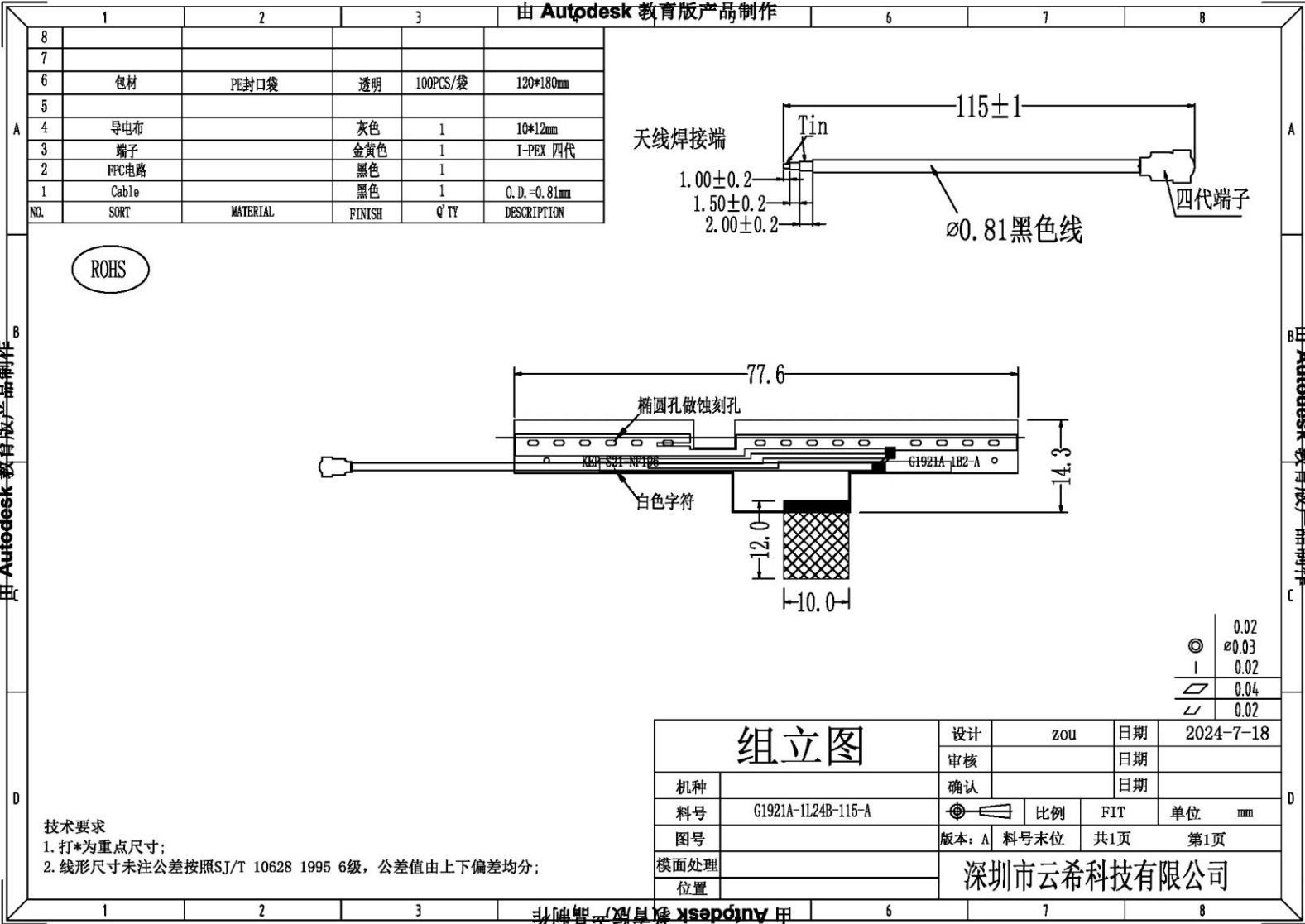
5500.000MHz

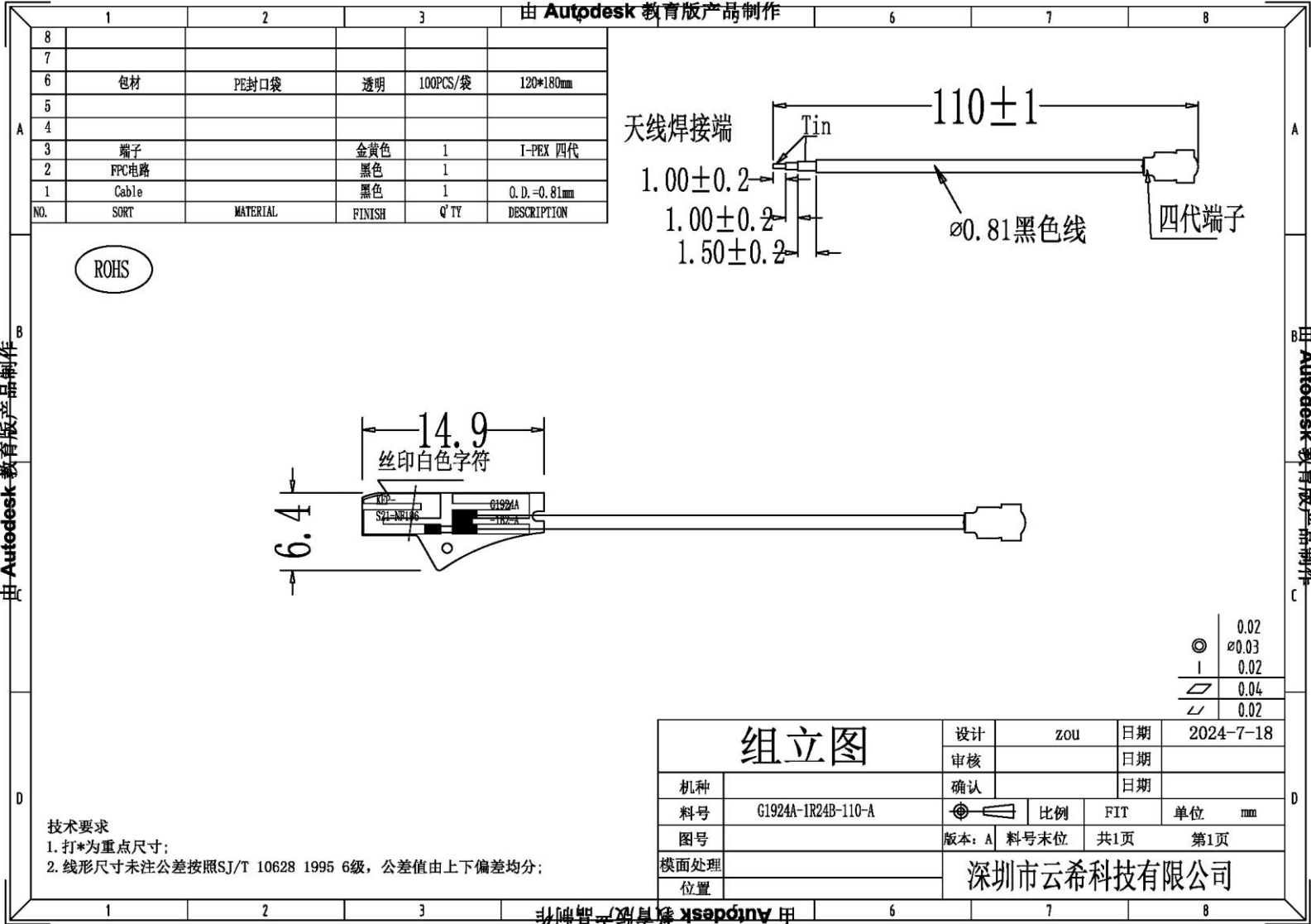


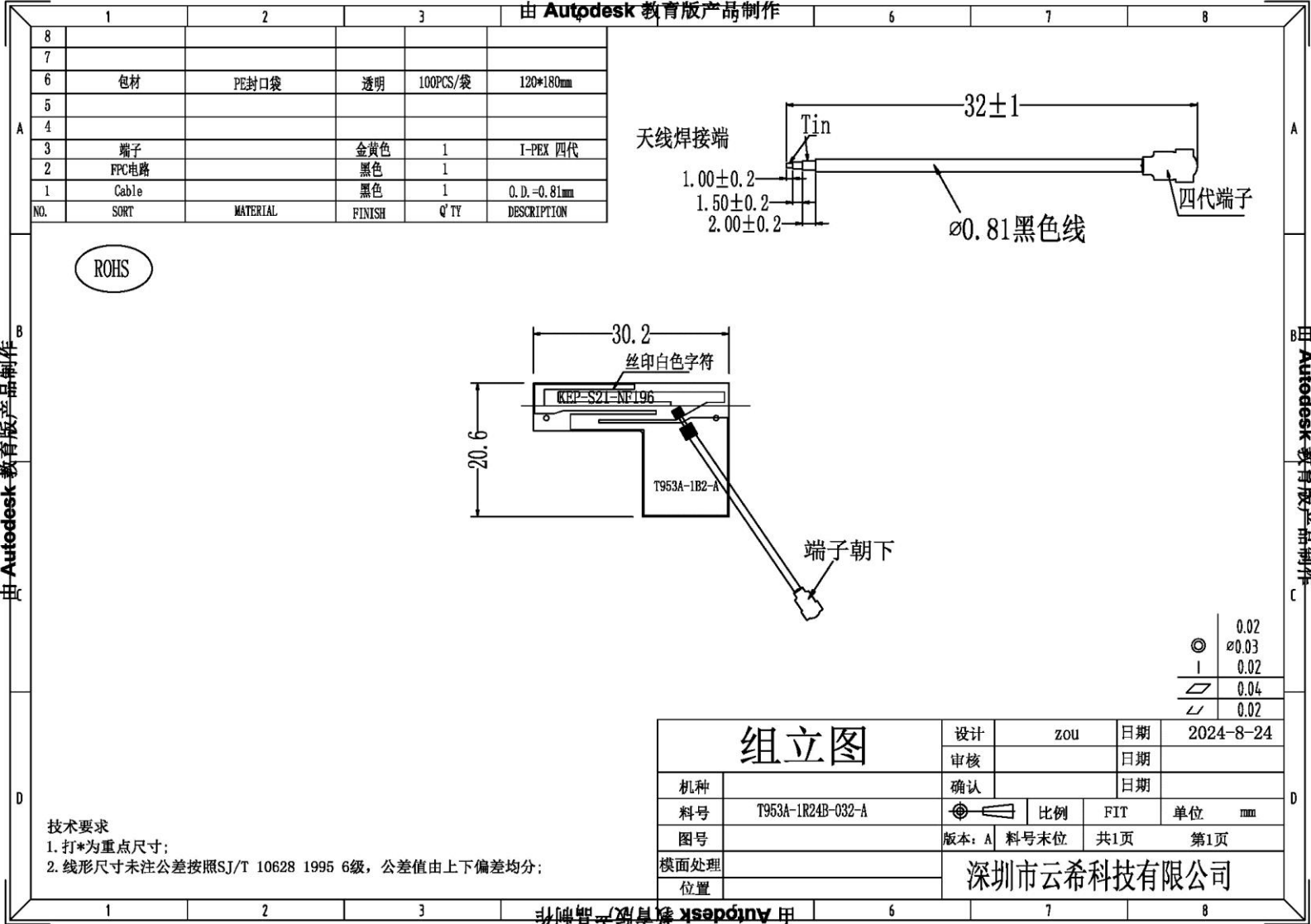
5800.000MHz



Dimension figure







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Note: If there are any unclear or questionable locations regarding this project, please contact me promptly

