

Shenzhen Qianmu Communication Technology Co., Ltd

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Antenna acknowledgement

Applicable model	H106T		
Customer	Shenzhen zhiteng Yongsheng technology co., ltd		
Specification description			
	Product content	Specification	Customer material code
Specification description	4G antenna	FPC/Black/Character QM-H106T-MAIN + Fourth generation terminal ϕ 0.81*95mm + conductive cloth	
	Three-in-one antenna	FPC/Black/Character QM-H106T-W/G/B + Fourth generation terminal ϕ 0.81*132mm + conductive cloth	
Change resume			
Serial number	Date	Version	Brief introduction of changes
1	2022-11-24	V1.0	New project
2			
3			

Supplier sample confirmation					
R&D	Structure	Audit	Judge		
			PASS <input checked="" type="checkbox"/> FAIL <input type="checkbox"/>		
Customer sample confirmation					
Electron	Structure	Project	Procurement	Quality	Audit
Reasons for rejection or other precautions:					

1. Electrical performance test report of main antenna

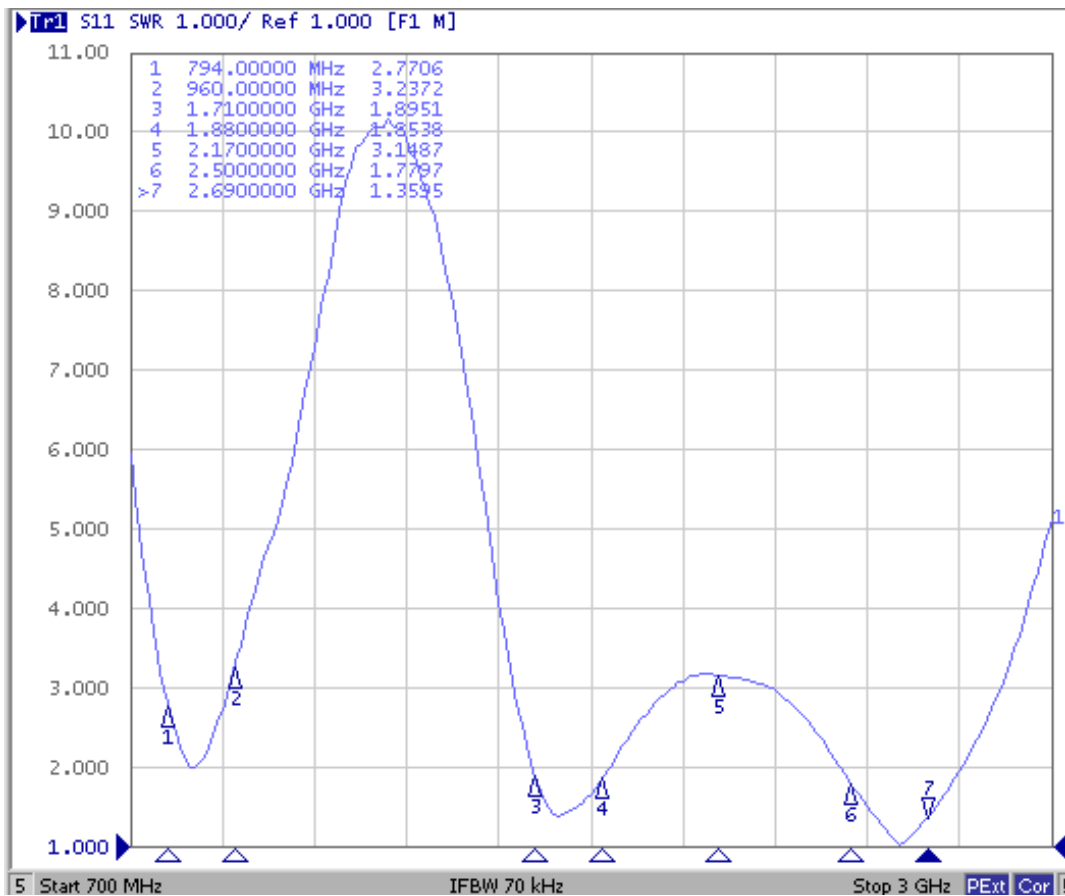
1.1 Test items and equipment

	Test item	Equipment
Passive test	①. VSWR parameter ②. Return loss parameter	Network Analyzer: HP8753D Antenna Test System (ETS Test System, Network Analyzer, Comprehensive Tester)
Active test	1. Transmit power 2. Receive level 3. Receive sensitivity	Comprehensive tester: Agilent E5515C3D darkroom antenna test system (ETS test system, comprehensive tester)

1.2 GSM Passive Test Report

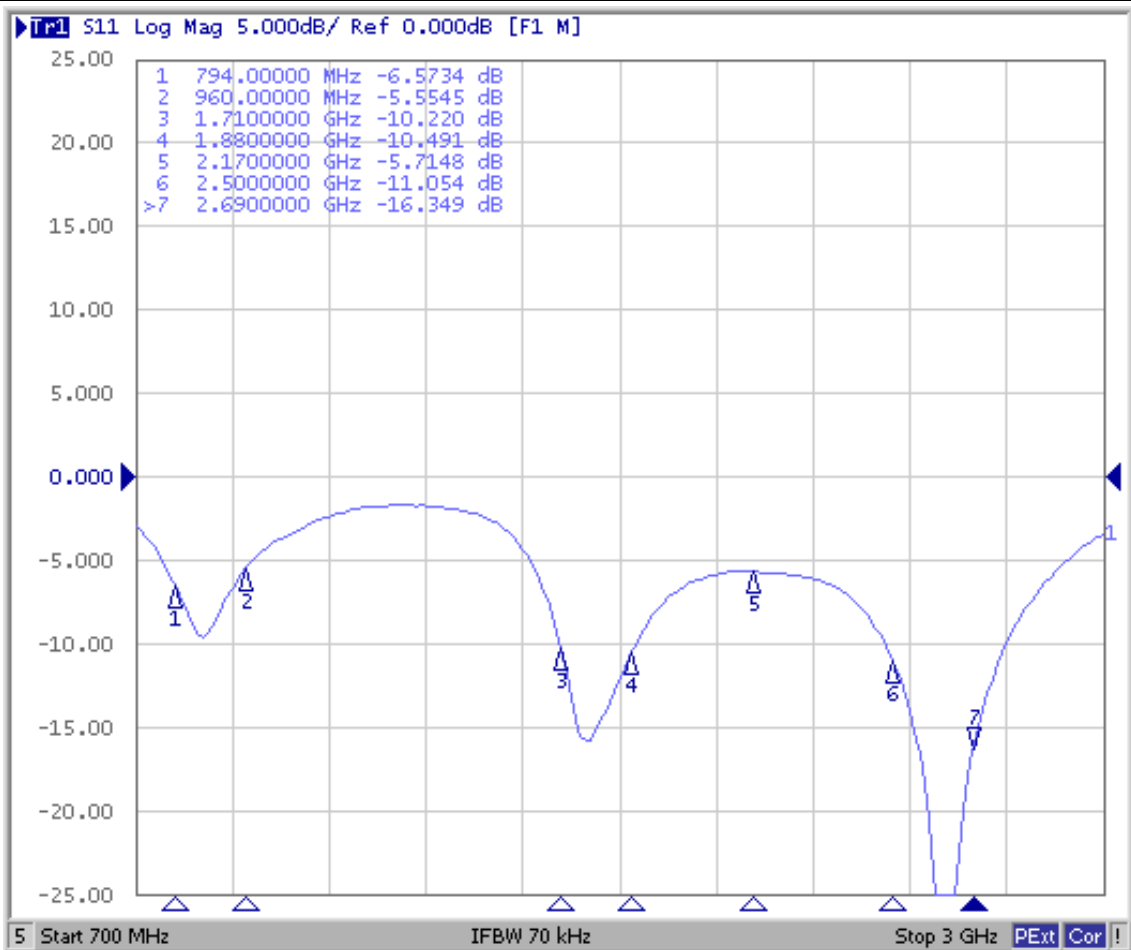
VSWR parameter value

Frequency (MHZ)	794	960	1710	1880	2170	2500	2690
RL	2.7	1.71	1.8	1.8	3.1	1.7	1.3



Return loss parameter value

Frequency (MHZ)	794	960	1710	1880	2170	2500	2690
RL	-6.5	-5.5	-10.2	-10.4	-5.7	-11	-16.3



2、Description of matching circuit

According to your original matching circuit, no changes have been made.

3、Test report

	GSM900			DCS1800		
Channel	1	62	124	512	698	885
Max Power	20.23	20.41	20.67			
TRP	17.03	17.14	17.21			
Min Sensitivity			-100.34			
TIS			-96.23			
	GSM850			PCS1900		
Channel	128	190	251	512	661	810
Max Power	27.84	27.52	27.41	29.04	29.81	29.38
TRP	23.67	23.41	23.28	25.14	25.56	25.74
Min Sensitivity			-100.13			-105.38
TIS			-96.17			-101.59

	W850			W900		
Channel	4357	4408	4458	2937	3013	3088
Max Power	18.23	18.14	18.06	15.14	15.53	16.12
TRP	15.54	15.36	15.18	13.03	13.67	13.83
Min Sensitivity			-100.23			-100.14
TIS			-97.14			-96.87
	W1900			W2100		
Channel	9662	9800	9938	10562	10700	10838
Max Power	23.12	23.43	23.67	23.26	22.57	22.16
TRP	19.02	19.26	19.55	19.18	18.67	18.29
Min Sensitivity			-108.19			-108.05
TIS			-104.03			-103.84

	B1			B2		
Channel	18050	18300	18550	18650	18900	19150
Max Power	20.23	19.76	19.54	22.36	22.17	21.28
TRP	16.72	15.8	15.36	18.49	18.23	17.19
Min Sensitivity			-94.03			-90.14
TIS			-90.24			-86.32
	B4			B5		
Channel	20000	20175	20350	20450	20525	20600
Max Power	22.76	22.34	21.48	17.53	17.36	17.12
TRP	18.82	18.26	17.57	14.56	14.27	14.03
Min Sensitivity			-93.92			-88.24
TIS			-90.01			-84.56

	B7			B12		
Channel	20800	21100	21400	23060	23095	23130
Max Power	20.47	20.03	20.36	14.03	14.27	14.46
TRP	16.3	15.6	16.27	11.01	11.36	11.58
Min Sensitivity			-95.58			-86.73
TIS			-92.06			-83.54
	B17			B34		
Channel	23780	23790	23800	36250	36275	36300
Max Power	13.14	13.37	13.56	17.28	18.36	18.04
TRP	10.02	10.14	10.38	13.59	14.48	14.17
Min Sensitivity			-85.23			-91.05
TIS			-82.27			-87.4

	B38			B39		
Channel	37850	38000	38150	38350	38450	38550
Max Power	17.03	16.68	16.47	21.46	21.09	19.27
TRP	13.23	12.7	12.27	17.68	17.11	15.89
Min Sensitivity			-92.08			-89.88
TIS			-87.55			-85.61
	B40			B41		
Channel	38750	39150	39550	40340	40740	41140
Max Power	21.87	21.53	19.26	17.53	17.41	17.33
TRP	17.62	17.28	15.55	13.88	13.69	13.55
Min Sensitivity			-91.89			-90.06
TIS			-87.44			-86.29

4. Active data of WIFI antenna

	WiFi 2400 ~ 2500Mz 802.11 b 11Mbps		
Channel	1	6	11
TRP	11.04	9.02	12.17
TIS	-80.99	-81.25	-75.06

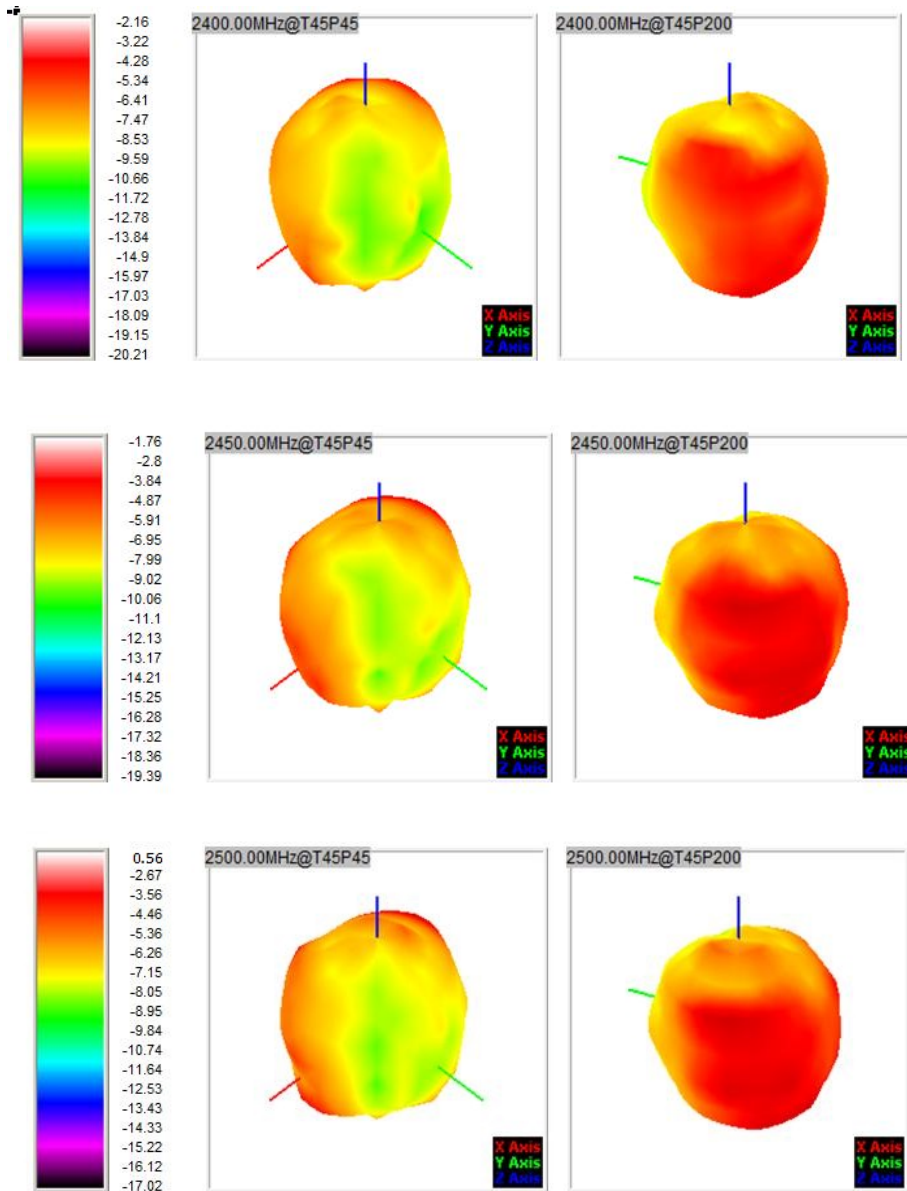
	WIFI5000 ~ 5800Mz 802.11 a 54Mbps		
Channel	36	161	165
TRP	9.34	5.16	6.17
TIS	-63.99	-64.73	-65.39

5. WIFI passive benefit and gain diagram

2.4 G-2. 5G

FEITUKEJI											
Frequency ID	1	2	3	4	5	6	7	8	9	10	11
Frequency (MHz)	2400.0	2410.0	2420.0	2430.0	2440.0	2450.0	2460.0	2470.0	2480.0	2490.0	2500.0
Point Values											
Ant. Port Input Pwr. (dBm)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tot. Rad. Pwr. (dBm)	-6.41	-6.42	-6.39	-6.17	-6.14	-5.87	-5.99	-6.21	-6.18	-6.01	-5.88
Peak EIRP (dBm)	-2.16	-2.22	-2.16	-1.90	-1.88	-1.76	-2.02	-2.13	-2.18	-2.02	-1.77
Directivity (dBi)	4.25	4.21	4.23	4.27	4.26	4.10	3.98	4.08	4.00	3.99	4.10
Efficiency (dB)	-6.41	-6.42	-6.39	-6.17	-6.14	-5.87	-5.99	-6.21	-6.18	-6.01	-5.88
Efficiency (%)	22.80	22.80	23.00	24.20	24.30	25.90	25.20	24.00	24.10	25.10	25.90
Gain (dBi)	-2.16	-2.22	-2.16	-1.90	-1.88	-1.76	0.56	-2.13	-2.18	-2.02	-1.77
NHPRP $\pm\pi/4$ (dBm)	-7.78	-7.76	-7.71	-7.47	-7.43	-7.15	-7.26	-7.47	-7.43	-7.25	-7.10
NHPRP $\pm\pi/6$ (dBm)	-9.24	-9.21	-9.14	-8.88	-8.84	-8.55	-8.68	-8.89	-8.86	-8.66	-8.50
NHPRP $\pm\pi/8$ (dBm)	-10.27	-10.24	-10.16	-9.90	-9.85	-9.57	-9.70	-9.92	-9.89	-9.69	-9.51
Upper Hem. PRP (dBm)	-9.04	-9.04	-8.99	-8.74	-8.71	-8.42	-8.55	-8.77	-8.77	-8.62	-8.50
Lower Hem. PRP (dBm)	-9.84	-9.86	-9.86	-9.66	-9.64	-9.38	-9.50	-9.71	-9.67	-9.46	-9.30
Upper Hem. PRP (%)	12.47	12.46	12.63	13.36	13.46	14.38	13.95	13.26	13.28	13.73	14.12
Lower Hem. PRP (%)	10.37	10.32	10.32	10.82	10.87	11.53	11.21	10.70	10.80	11.33	11.74

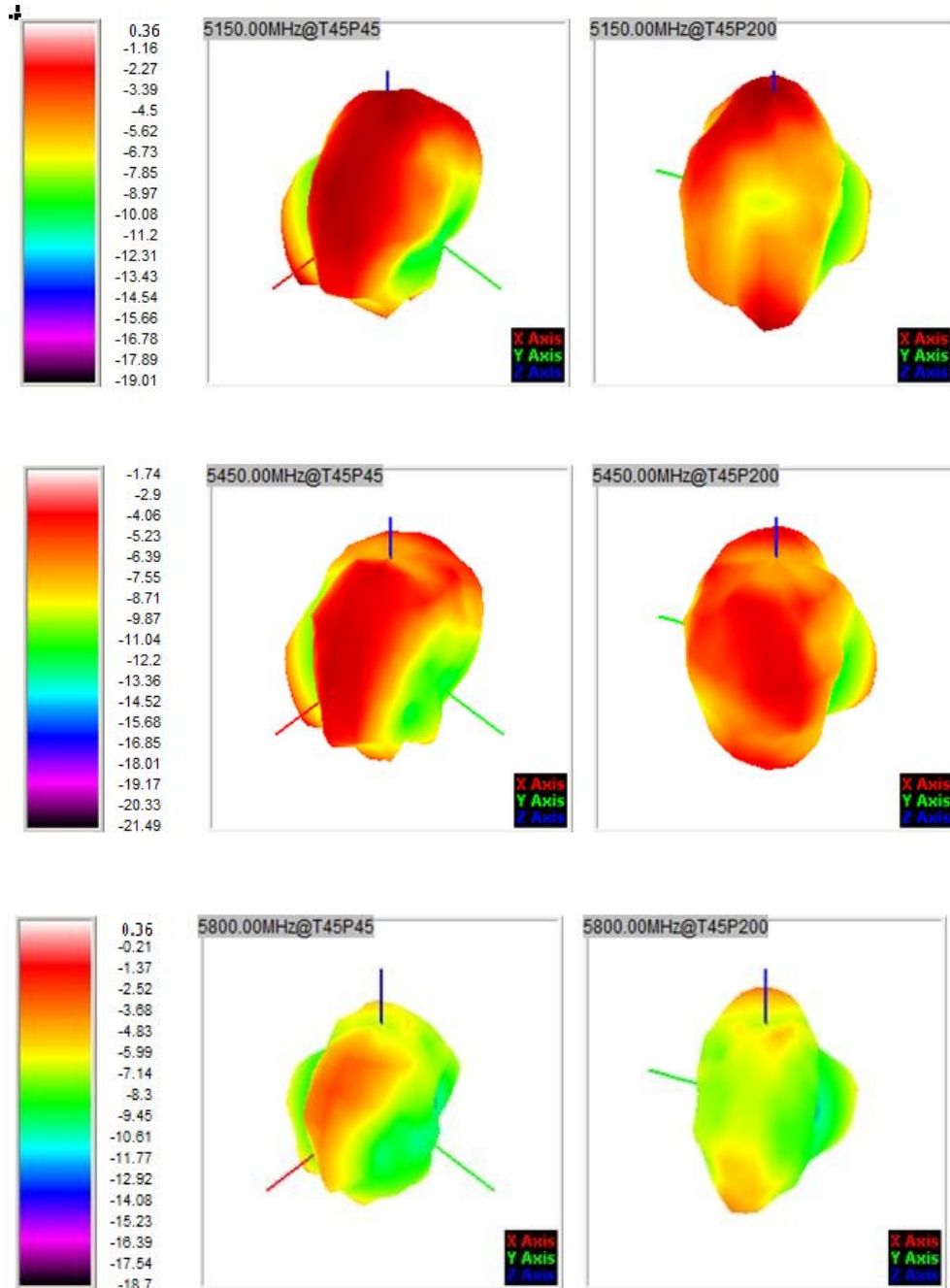
Efficiency (%)



5G-5. 8G

FEITUKEJI															
Frequency ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Frequency (MHz)	5150.0	5200.0	5250.0	5300.0	5350.0	5400.0	5450.0	5500.0	5550.0	5600.0	5650.0	5700.0	5750.0	5800.0	5850.0
Point Values															
Ant. Port Input Pwr. (dBm)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tot. Rad. Pwr. (dBm)	-5.71	-5.97	-6.10	-6.22	-6.22	-6.00	-6.03	-6.15	-5.79	-5.28	-5.52	-5.30	-5.00	-4.94	-4.87
Peak EIRP (dBm)	-0.04	-0.22	-0.56	-0.92	-0.56	-0.62	-1.74	-0.81	0.17	0.19	0.68	0.76	0.53	0.94	0.93
Directivity (dBi)	5.67	5.76	5.55	5.25	5.66	5.38	4.29	5.34	5.96	5.48	5.20	6.05	5.53	5.88	5.79
Efficiency (dB)	-5.71	-5.97	-6.10	-6.22	-6.22	-6.00	-6.03	-6.15	-5.79	-5.28	-5.52	-5.30	-5.00	-4.94	-4.87
Efficiency (%)	26.90	25.30	24.50	23.90	23.90	25.10	24.90	24.30	26.40	29.60	28.00	29.50	31.60	32.10	32.60
Gain (dBi)	-0.04	-0.22	0.36	-0.92	-0.56	-0.62	-1.74	-0.81	0.17	0.19	-0.58	0.36	-0.53	-0.94	-0.93
MHPRP \pm Pi/4 (dBm)	-7.65	-7.92	-8.10	-8.10	-8.09	-7.97	-7.83	-7.95	-7.59	-6.97	-7.26	-7.08	-6.77	-6.80	-6.70
MHPRP \pm Pi/6 (dBm)	-9.33	-5.64	-9.90	-9.93	-9.99	-9.91	-9.62	-9.75	-9.36	-8.62	-8.97	-8.82	-8.45	-8.53	-8.42
MHPRP \pm Pi/8 (dBm)	-10.65	-10.94	-11.29	-11.35	-11.48	-11.39	-10.96	-11.05	-10.60	-9.75	-10.16	-10.04	-9.60	-9.71	-9.62
Upper Hem. PRP (dBm)	-8.50	-8.64	-8.67	-8.88	-8.80	-8.47	-8.64	-8.65	-8.37	-8.13	-8.32	-8.21	-8.02	-7.79	-7.83
Lower Hem. PRP (dBm)	-8.95	-5.36	-9.60	-9.51	-9.71	-9.62	-9.48	-9.72	-9.28	-8.46	-8.76	-8.41	-8.01	-8.11	-7.93
Upper Hem. PRP (%)	14.11	13.69	13.57	12.94	13.20	14.21	13.68	13.61	14.56	15.37	14.72	15.11	15.79	16.62	16.48
Lower Hem. PRP (%)	12.74	11.59	10.96	10.95	10.69	10.91	11.26	10.65	11.80	14.26	13.31	14.44	15.81	15.47	16.12

Efficiency (%)



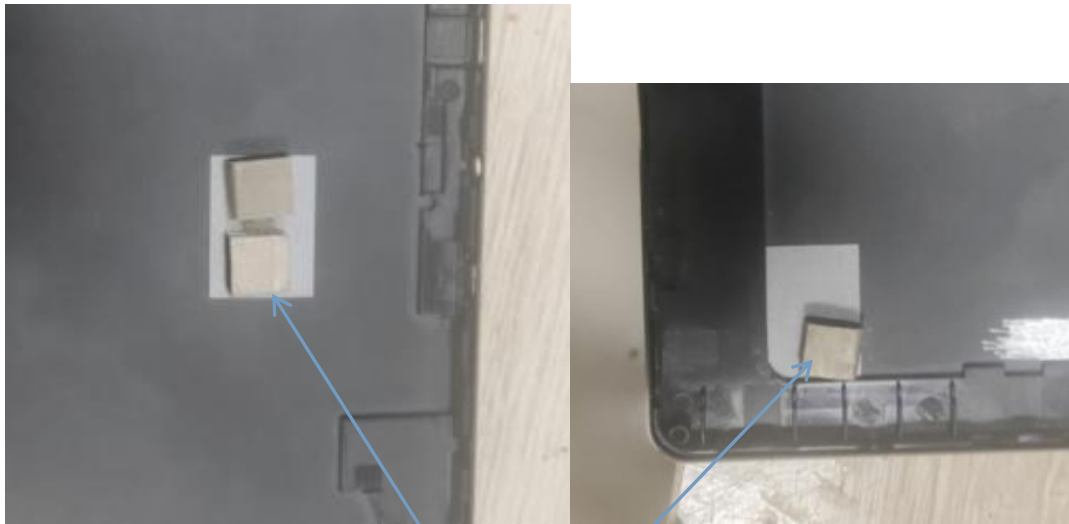
4、 Environmental treatment and antenna placement



Main antenna position
Conductive cloth is attached to the copper leakage area of antenna and the screen is grounded

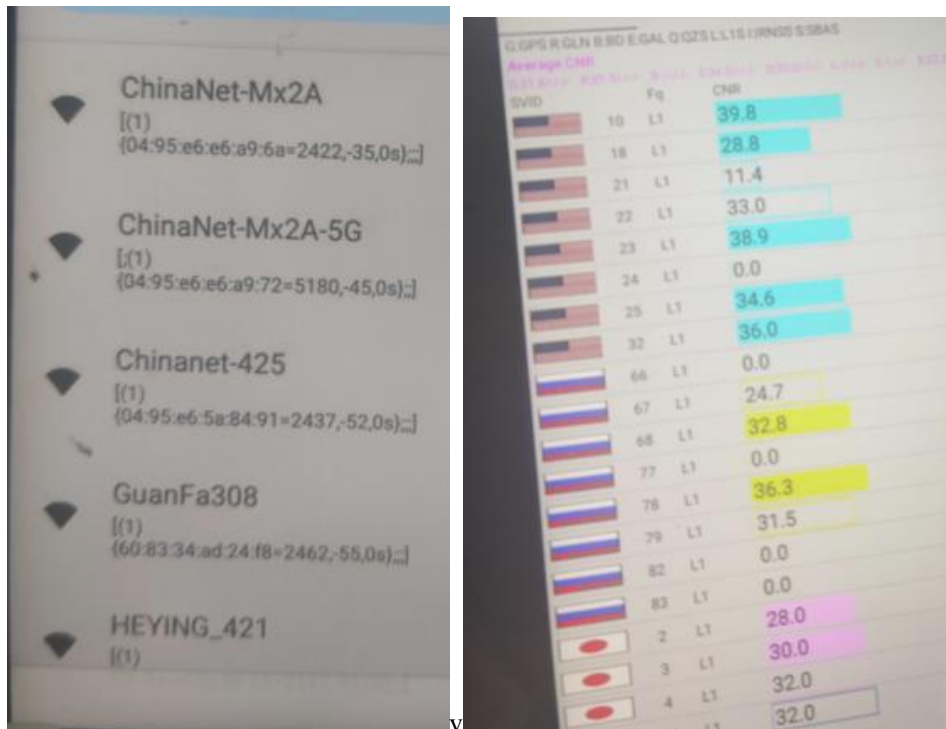


GWB Antenna Position
Conductive cloth is attached to the copper leakage area of antenna and the screen is grounded

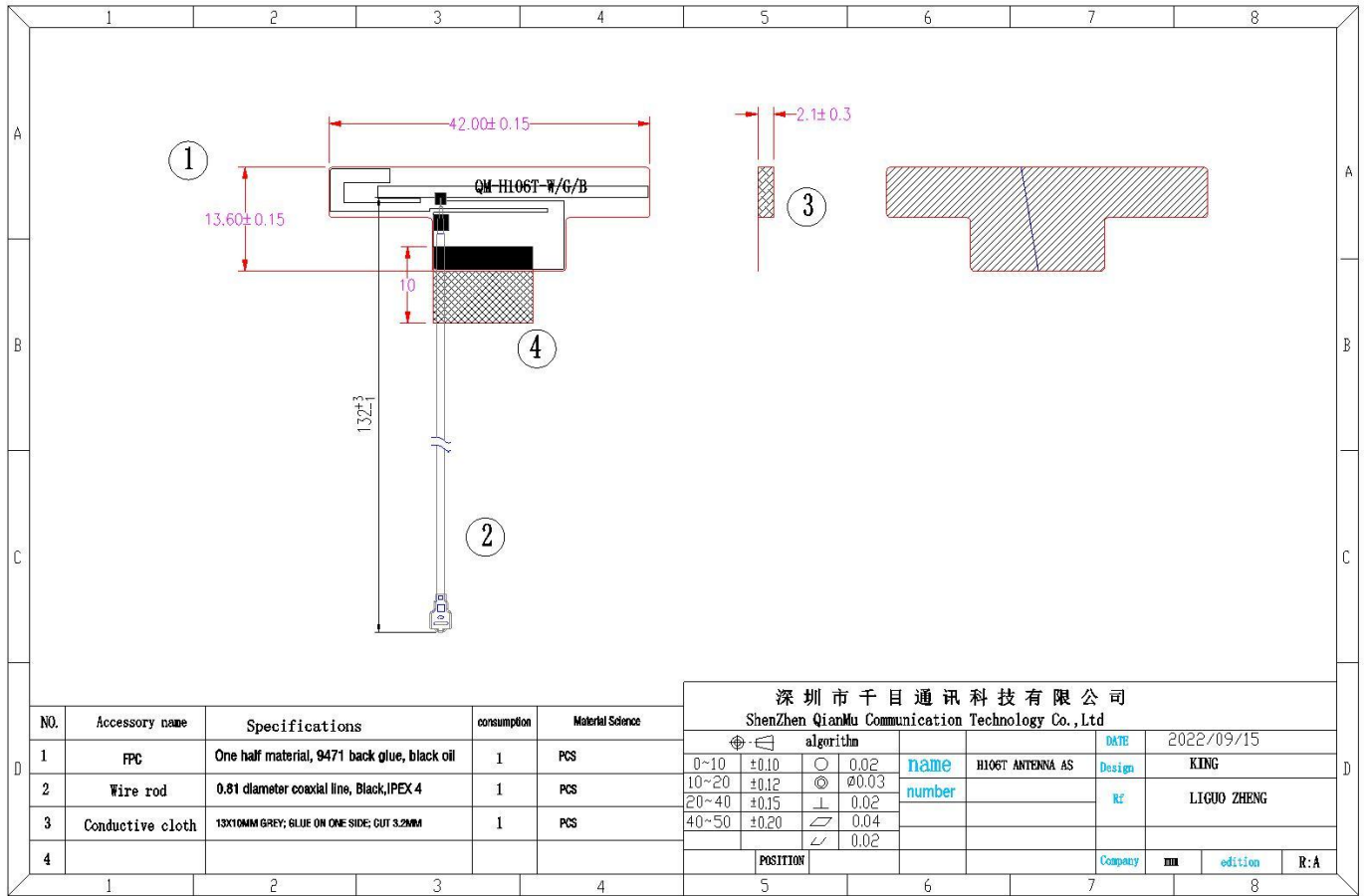


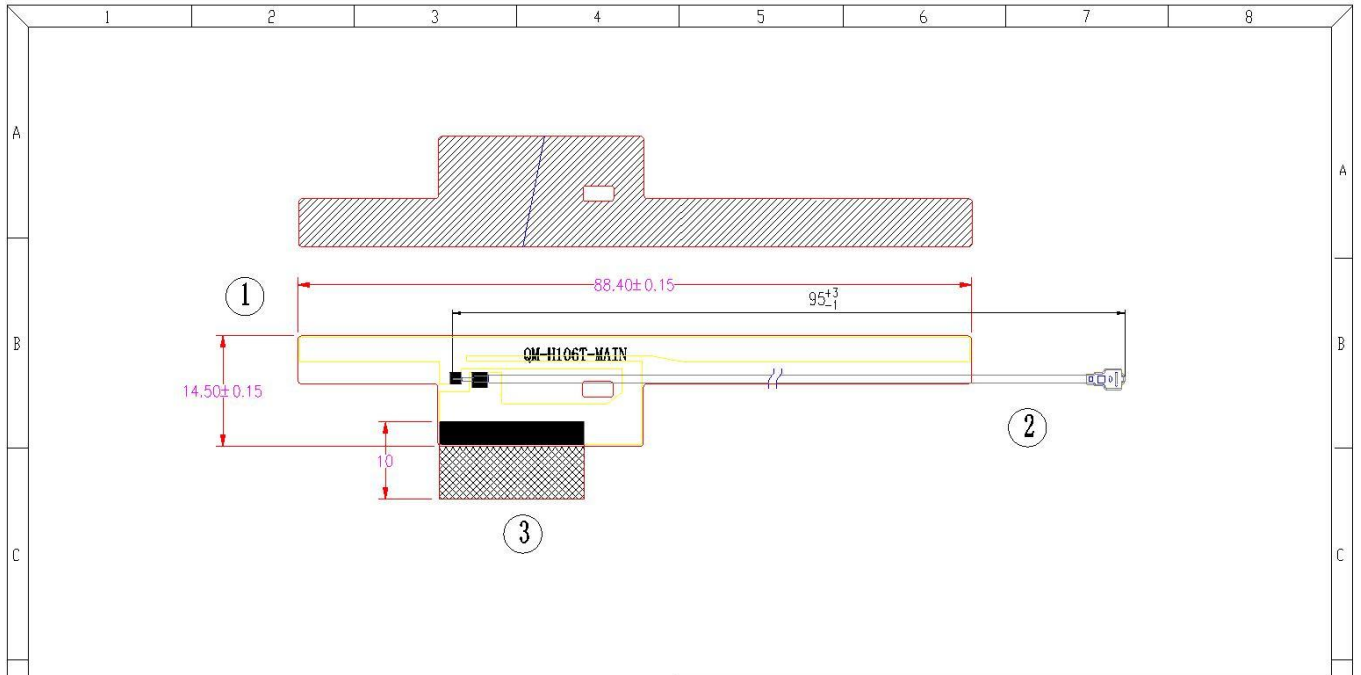
The laser engraving area of shell material is attached with conductive foam heel screen and grounding of main board

5、GPS and WIFI measurement



6、Structural drawing





					深圳市千目通讯科技有限公司 ShenZhen QianMu Communication Technology Co.,Ltd				
					algorithm	name	DATE	2022/09/15	
1	FPC	One half material, 9471 back glue, black oil	1	PCS	0~10 ±0.10	○ 0.02	H106T ANTENNA AS	Design	KING
2	Wire rod	0.81 diameter coaxial line, Black,IPEX 4	1	PCS	10~20 ±0.12	◎ φ0.03		Dr	LIGUO ZHENG
3	Conductive cloth	18X10MM GREY; GLUE ON ONE SIDE; CUT 3.2MM	1	PCS	20~40 ±0.15	⊥ 0.02			
4					40~50 ±0.20	∕ 0.04			
					POSITION		Company	mm	edition
1	2	3	4	5	6	7	8	R:A	