
Acknowledgement

SPECIFICATION FOR APPROVAL

Name : BT 2.4GHz antenna

ItemNo:PCB antenna Customer Name:She-
nzhen Lianhongxin Industrial Co., Ltd. Company
stamp: _____

drawing			Customer approve
MADE	CHECKED	APPROVED	
QIU			
DATE:	2026.3.05		DATE

1 Specifications

The report primarily provides test results for the electrical performance parameters of the BT-V 2.0 antenna. Antenna: BT 2.4/GHz surface-mounted antenna (as shown in Figure 1 below).

Figure 1 External View of the PCB Antenna

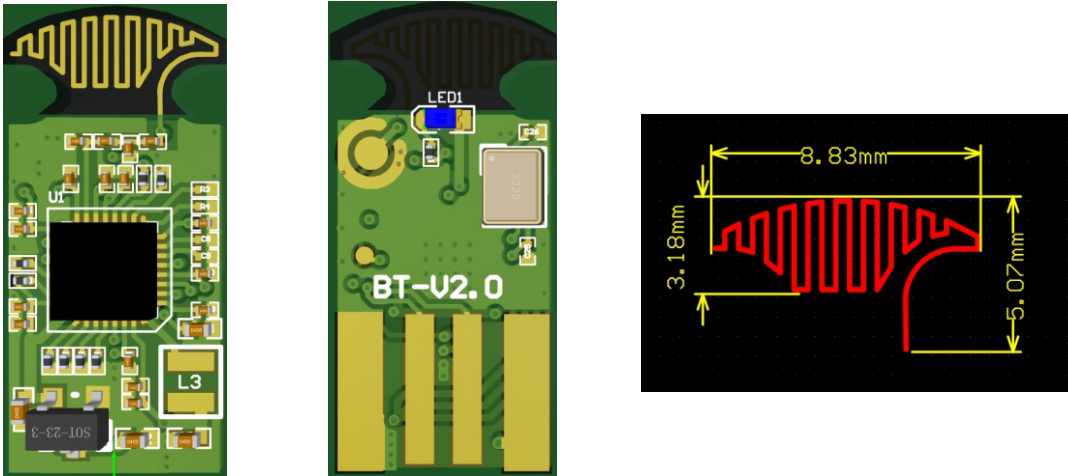


Figure 2 BT Standing Wave Ratio/SMITH Figure

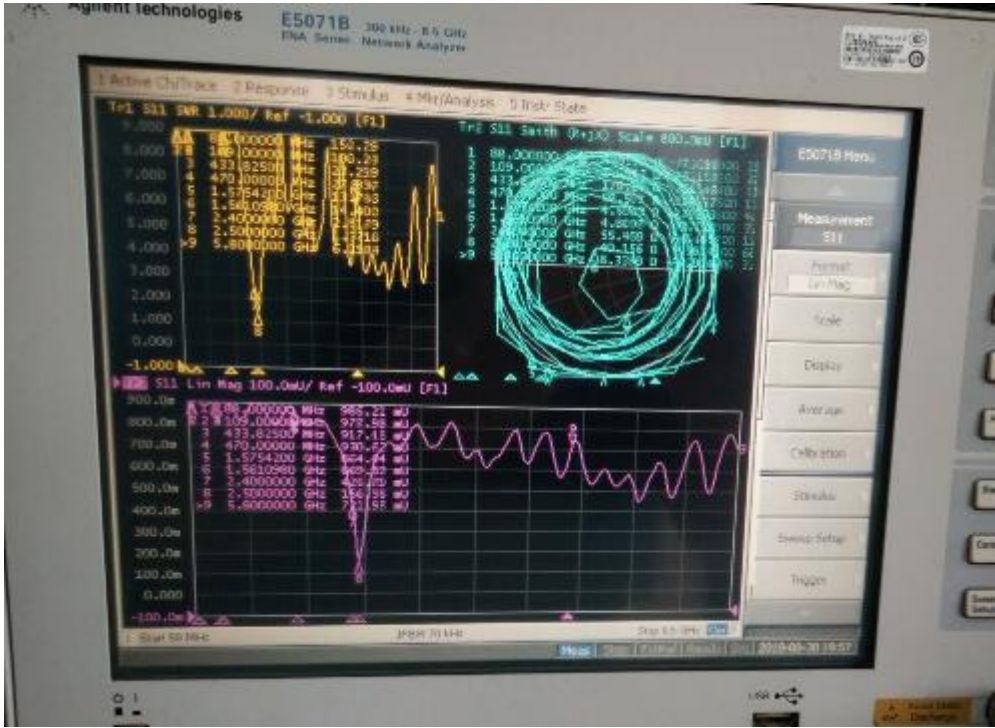


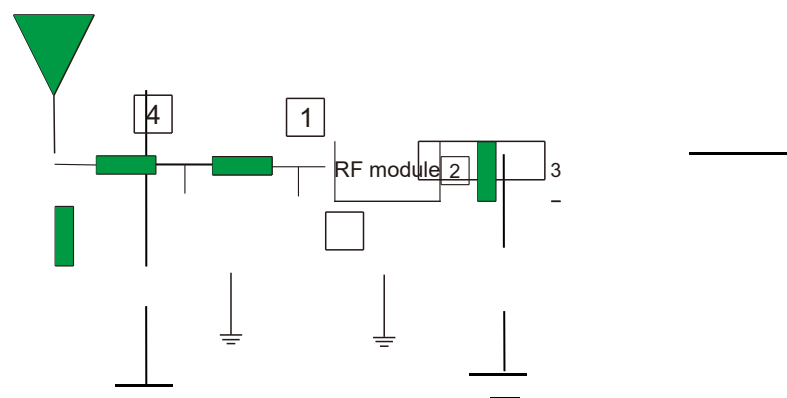
Figure 6: BT Standing Wave Ratio

Frequency (MHz)	2400	2500			
V SWR	1.1	1.7			

2. Electrical Performance

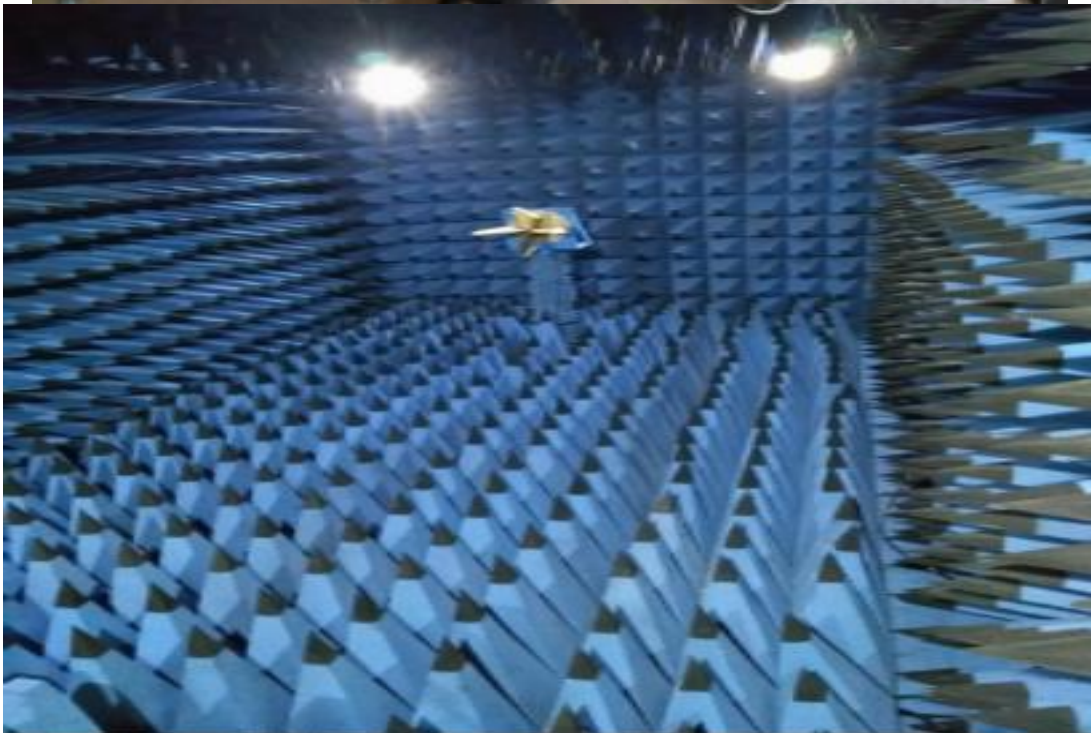
2.1 The matching circuit for the BT antenna

The matching circuit for this project is provided by the customer.



Item Number	1	2	3		4	
BT the best	3NH	NC	1.5	PF	0R	
Line impedance	50 Euro Set					

Figure 3 OTA Microwave Anechoic Chamber



2.3 Test of the Standing Wave Ratio (VSWR)

2.3.1. Test Settings

The sequential connections for the SWR test setup are as follows: an Agilent E5071B Network Analyzer®, a 50-ohm coaxial cable, and a 120-meter cable.

Copper Tube® Testing Jig

Treatment of the test fixture: A rigid cable connects the SMA-J connector from the 50-ohm test point on the flat PCB antenna to the sleeve.

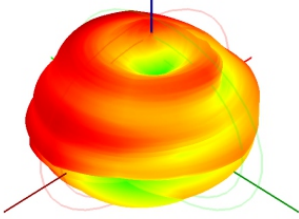
The copper tube of the choke coil is connected, followed by sequential connections to other components.

Figure 4: 3D Effect Gain Map

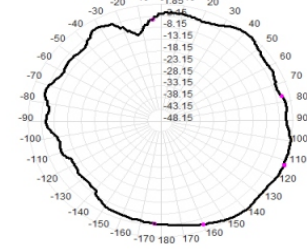
FEITUKEJI											
Frequency ID	1	2	3	4	5	6	7	8	9	10	11
Frequency (MHz)	2400.0	2410.0	2420.0	2430.0	2440.0	2450.0	2460.0	2470.0	2480.0	2490.0	2500.0
Efficiency (dBi)	-2.16	-2.00	-1.91	-1.63	-1.73	-1.69	-1.55	-1.27	-1.54	-1.72	-1.83
Gain (dBi)	1.92	2.20	2.38	3.11	2.97	3.13	3.23	3.29	2.56	2.22	2.38
Efficiency (%)	60.79	63.03	64.48	68.74	67.12	67.72	70.06	74.67	70.12	67.23	65.55
Directivity (dB)	4.08	4.20	4.29	4.74	4.70	4.82	4.78	4.56	4.10	3.95	4.21
Peak Gain Position (Theta)	79.00	79.00	40.00	44.00	44.00	139.00	137.00	83.00	140.00	140.00	140.00
Peak Gain Position (Phi)	330.00	330.00	30.00	30.00	30.00	30.00	30.00	330.00	360.00	360.00	360.00
Efficiency ThetaPol (%)	46.42	47.51	48.72	51.70	50.50	51.25	52.44	55.54	52.09	49.87	48.68
Efficiency PhiPol (%)	14.37	15.52	15.76	17.04	16.62	16.48	17.62	19.13	18.03	17.36	16.87
Upper Hem. Efficiency (%)	31.95	32.81	33.10	34.94	34.05	34.58	36.33	39.45	37.43	35.90	34.75
Lower Hem. Efficiency (%)	28.83	30.22	31.38	33.80	33.07	33.14	33.73	35.22	32.69	31.33	30.80

FEITUKEJI				
Frequency ID	1	5	9	#
Frequency (MHz)	2402.0	2441.0	2480.0	#
Efficiency (dBi)	-2.16	-1.73	-1.54	#
Gain (dBi)	1.92	2.97	2.56	#
Efficiency (%)	60.79	67.12	70.12	#
Directivity (dB)	4.08	4.70	4.10	#
Peak Gain Position (Theta)	79.00	44.00	140.00	#
Peak Gain Position (Phi)	330.00	30.00	360.00	#
Efficiency ThetaPol (%)	46.42	50.50	52.09	#
Efficiency PhiPol (%)	14.37	16.62	18.03	#
Upper Hem. Efficiency (%)	31.95	34.05	37.43	#
Lower Hem. Efficiency (%)	28.83	33.07	32.69	#

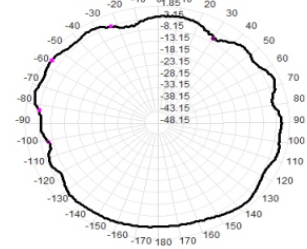
2400.0MHz H+V, Eff: 60.8%



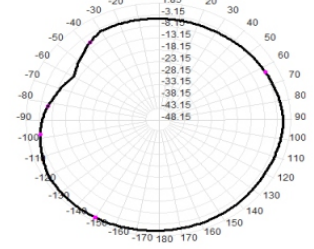
2400.0MHz Total(E1), Max= 1.85dBi



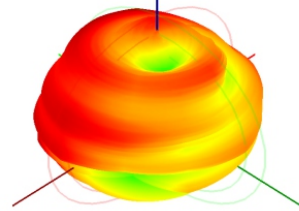
2400.0MHz Total(E2), Max=-0.09dBi



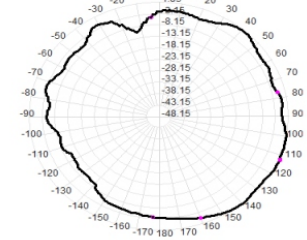
2400.0MHz Total(H), Max=-0.06dBi



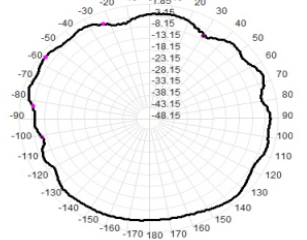
2402.0MHz H+V, Eff: 60.8%



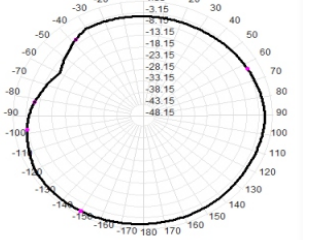
2402.0MHz Total(E1), Max= 1.85dBi



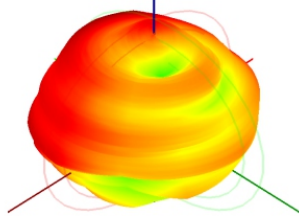
2402.0MHz Total(E2), Max=-0.09dBi



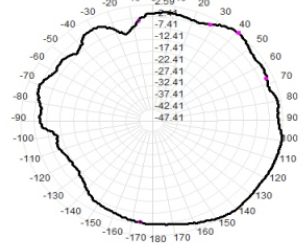
2402.0MHz Total(H), Max=-0.06dBi



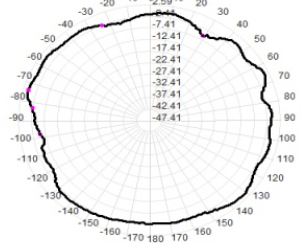
2441.0MHz H+V, Eff: 60.8%



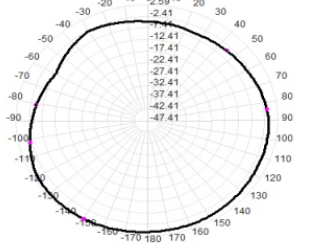
2441.0MHz Total(E1), Max= 1.85dBi



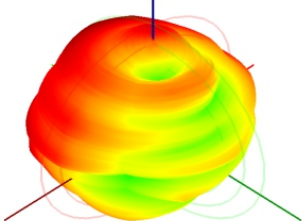
2441.0MHz Total(E2), Max=-0.09dBi



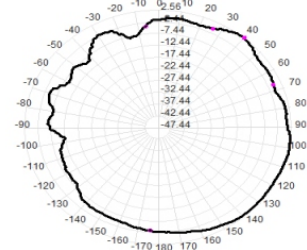
2441.0MHz Total(H), Max=-0.06dBi



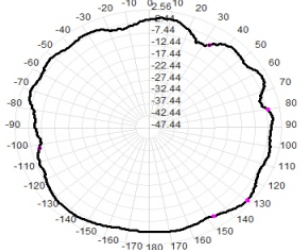
2470.0MHz H+V, Eff: 74.7%



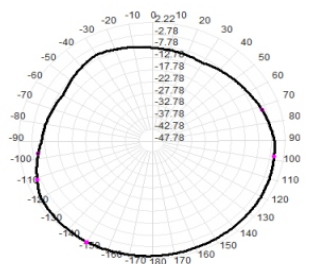
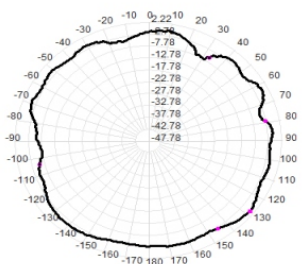
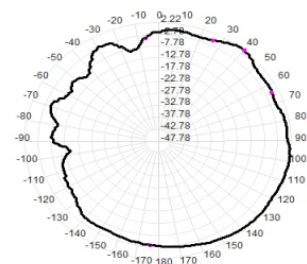
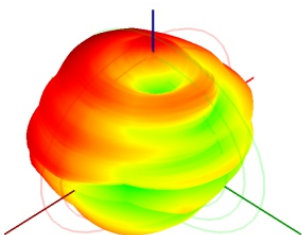
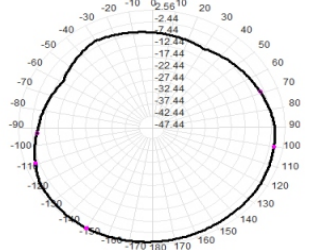
2470.0MHz Total(E1), Max= 3.07dBi



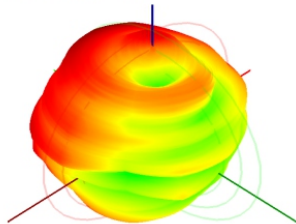
2470.0MHz Total(E2), Max= 1.15dBi



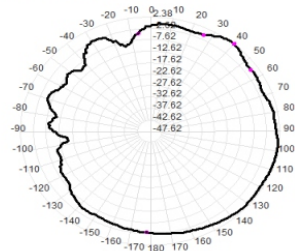
2470.0MHz Total(H), Max= 2.41dBi



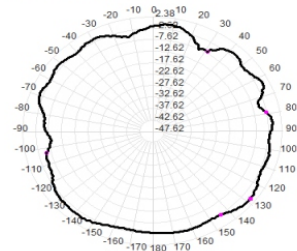
2480.0MHz H+V, Eff: 74.7%



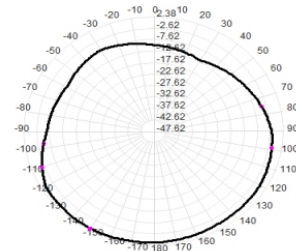
2480.0MHz Total(E1), Max= 3.07dBi



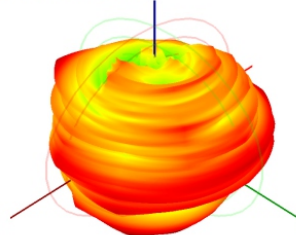
2480.0MHz Total(E2), Max= 1.15dBi



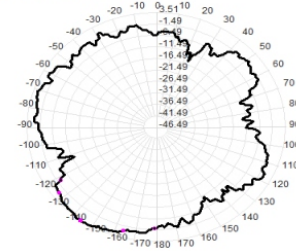
2480.0MHz Total(H), Max= 2.41dBi



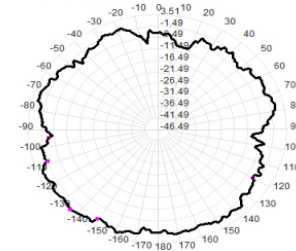
5740.0MHz H+V, Eff: 65.4%



5740.0MHz Total(E1), Max= 3.55dBi



5740.0MHz Total(E2), Max= 1.34dBi



5740.0MHz Total(H), Max= -0.21dBi

