Acknowledgement

SPECIFICATIONFORAPPROVAL

Name: BT 2.4 GHz antenna

ItemNo: PCB board antenna

Manufacturer: ShenzhenLianhongxinIndustrialCo.,LTD

Add.:Floor 5, buildin C, B8 Indust al Park Baihua community, Guangming Street, Shenzhen, Guangdong, China

drawing			Customer approve
MADE	CHECKED	APPROVED	
QIU			
DATE: 2024.5.20			DATE

1 specification

The report mainly provides the test of various electrical performance parameters of BT04-V1.0 antenna. Antenna: BT2.4/ GHz board antenna (as shown in Figure 1 below)

Figure 1 Appearance of PCB antenna

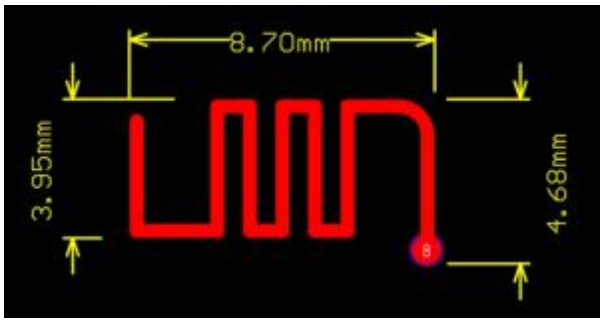


Figure 2 BT standing wave ratio / SMITH diagram

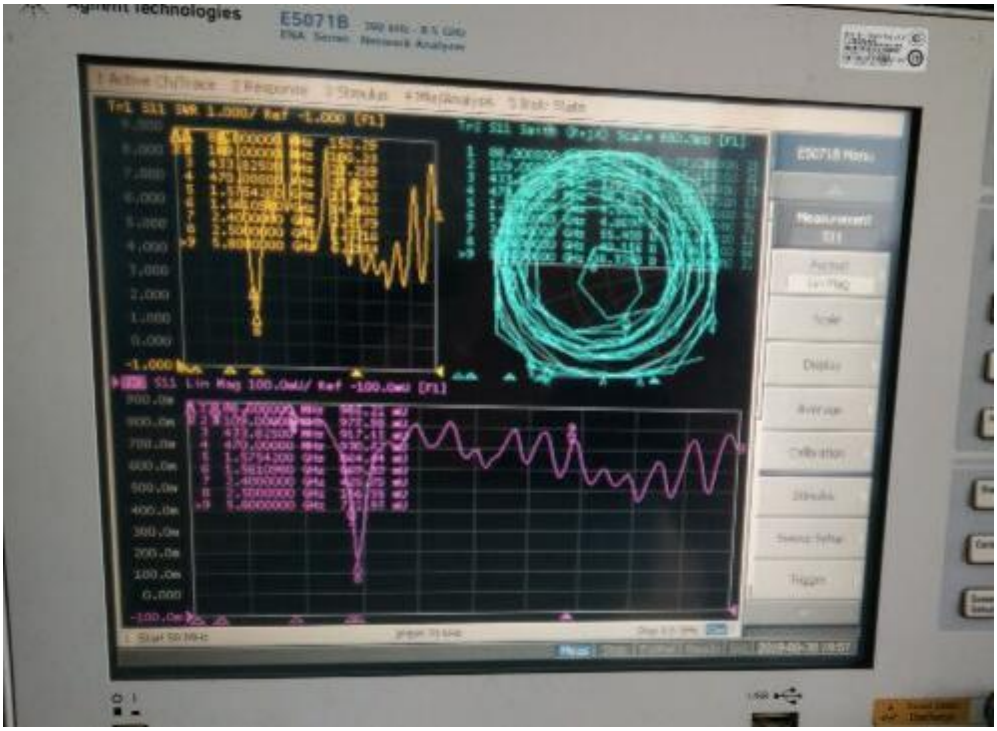


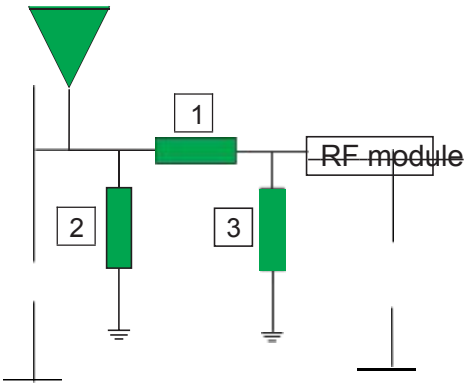
Figure 6 BT wave ratio

frequency (MHz)	2400	2500			
V SWR	1.1	1.7			

2. Electrical performance

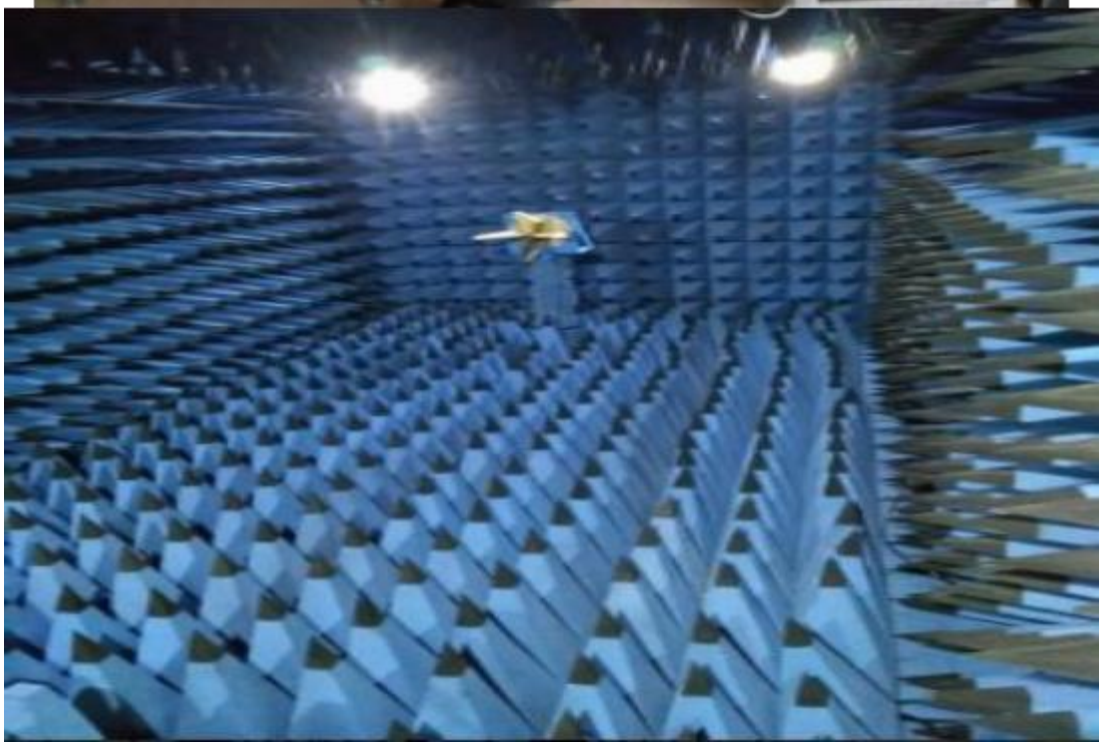
2.1 Matching circuit of BT antenna

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



Component number	1	2	3			
BT the best	3 NH	NC	2.5 PF			
line impedance	50 ohm match					

Figure 3 OTA microwave dark room



2.3 Test of standing wave ratio (VSWR)

2.3.1. Test setup

The V SWR test device is connected in sequence as follows:

AgilentE5071 B network analyzer ® coaxial Cable with 50 ohm impedance ® 120mm long

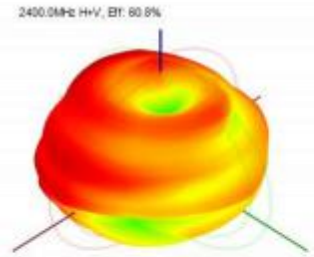
Copper tube ® test fixture

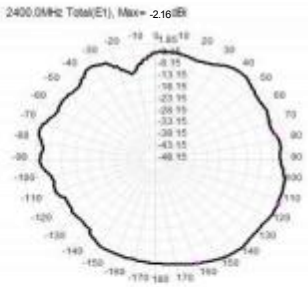
Handling of the test fixture: A rigid cable is used to lead the SMA-J connector from the 50 ohm test point on the antenna of the flat PC B to the sleeve

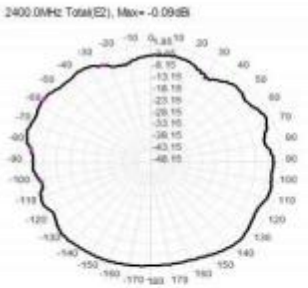
The copper tube of the choke is connected, and then other devices are connected in turn.

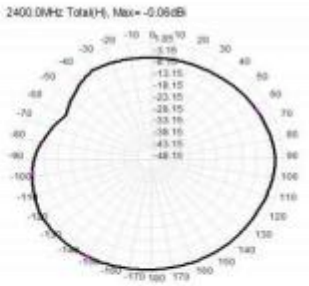
Figure 4 Three-dimensional effect gain chart

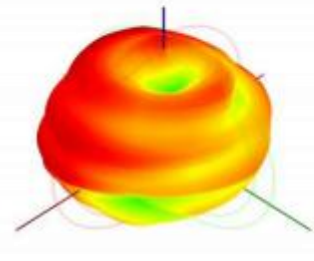
Frequency ID	1	2	3	4	5	6	7	8	9	10	11
Frequency (MHz)	2400.0	2410.0	2420.0	2430.0	2440.0	2450.0	2460.0	2470.0	2480.0	2490.0	2500.0
Efficiency (dBi)	-2.16	-2.00	-1.91	-1.63	-1.73	-1.69	-1.55	-1.27	-1.54	-1.72	-1.83
Gain (dBi)	1.92	2.20	2.38	3.11	2.97	3.13	3.23	3.29	2.56	2.22	2.38
Efficiency (%)	60.79	63.03	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

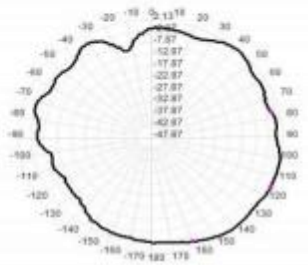

2400.0MHz H+V, Eff: 60.8%

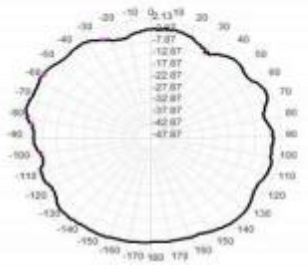

2400.0MHz Total(E1), Max= -2.16dBi

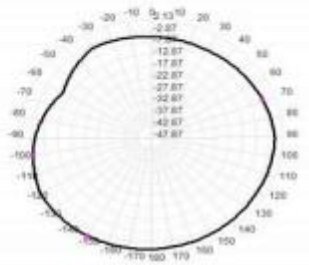

2400.0MHz Total(E2), Max= -0.09dBi

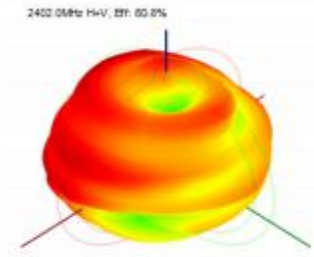

2400.0MHz Total(H), Max= -0.06dBi

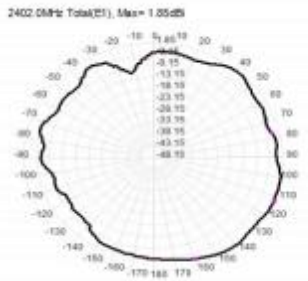


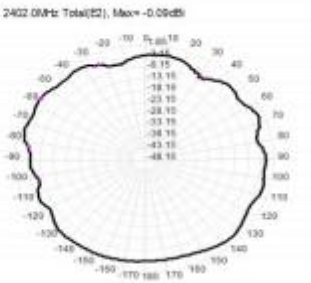


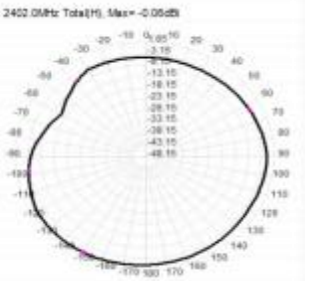


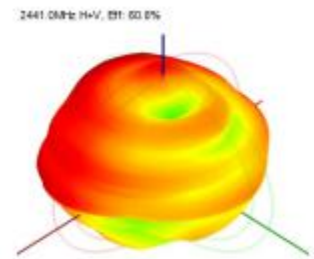


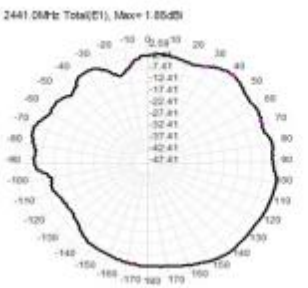

2402.0MHz H+V, Eff: 60.8%

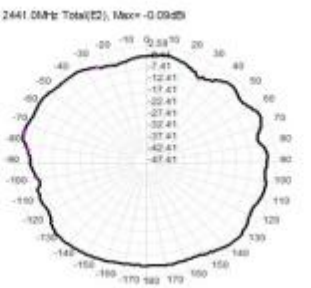

2402.0MHz Total(E1), Max= 1.85dBi

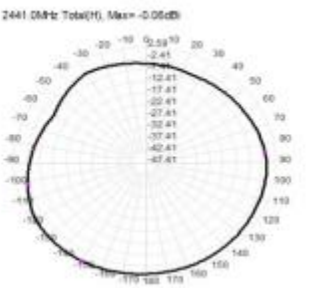

2402.0MHz Total(E2), Max= -0.09dBi

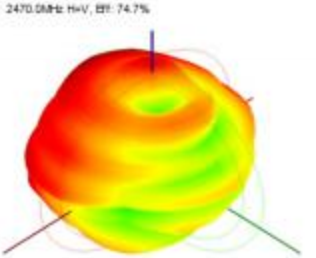

2402.0MHz Total(H), Max= -0.06dBi

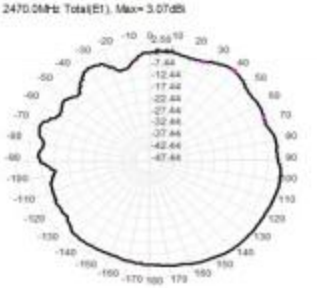

2441.0MHz H+V, Eff: 60.8%

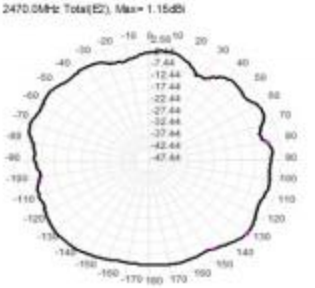

2441.0MHz Total(E1), Max= 1.85dBi

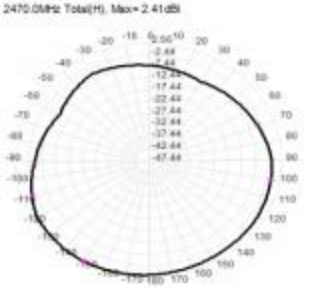

2441.0MHz Total(E2), Max= -0.09dBi

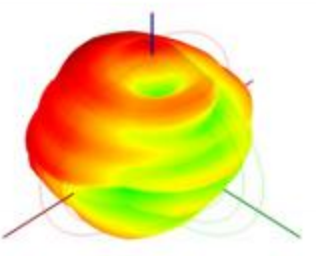

2441.0MHz Total(H), Max= -0.06dBi

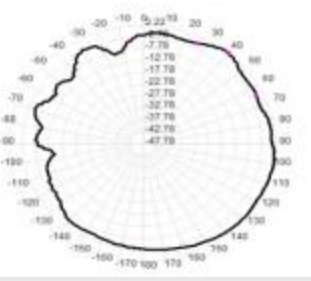

2470.0MHz H+V, Eff: 74.7%

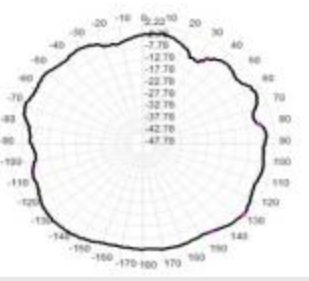

2470.0MHz Total(E1), Max= 3.07dBi

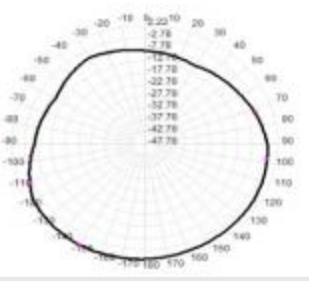

2470.0MHz Total(E2), Max= 1.15dBi

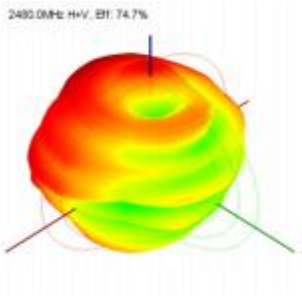

2470.0MHz Total(H), Max= 2.41dBi

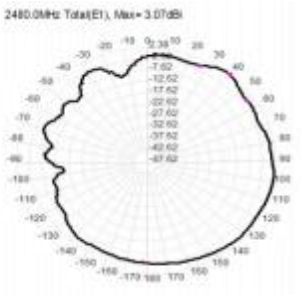


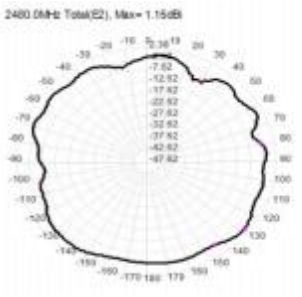


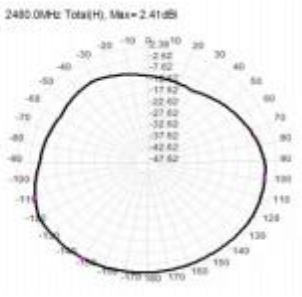





2480.0MHz H+V, Eff: 74.7%


2480.0MHz Total(E1), Max= 3.07dBi


2480.0MHz Total(E2), Max= 1.15dBi


2480.0MHz Total(H), Max= 2.41dBi