

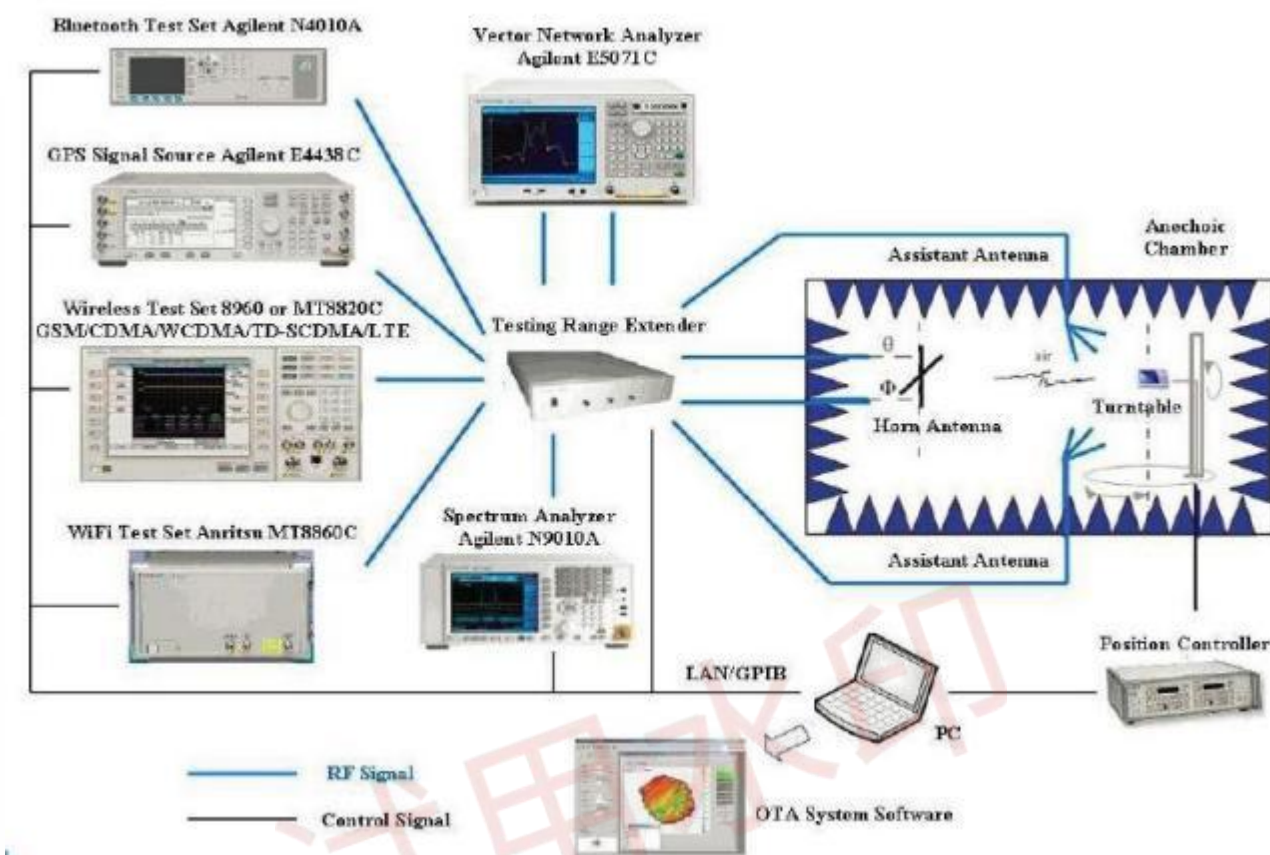
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1. Supported Equipment & Testable Antenna Types



Antenna Type	Frequency Range	Test Instruments	Test Methods	Test Standards
2G Antenna (GSM)	824MHz~960MHz, 1710MHz~1990MHz	5071B, 8960, OTA Chamber	Active Test, Passive Test	Soward Standard, Customer Requirements
3G Antenna (WCDMA/TD-SCDMA/CDMA-EVDO/2000)	824MHz~960MHz, 1710MHz~2170MHz	5071B, 8960, OTA Chamber	Active Test, Passive Test	Soward Standard, Customer Requirements
4G Antenna (LTE-FDD/LTE-TDD)	2.4GHz~2.48GHz, 5.15GHz~5.35GHz, 5.725GHz~5.825GHz	5071B, CMW500, SP8011, OTA Chamber	Active Test, Passive Test	Soward Standard, Customer Requirements
WiFi Antenna	2.4GHz~2.48GHz, 5.15GHz~5.35GHz, 5.725GHz~5.825GHz	5071B, CMW500, OTA Chamber, Router, PC	Active Test, Passive Test, APK Field Test, Throughput Test	Soward Standard, Customer Requirements
BT Antenna	2.4GHz~2.48GHz	5071B, OTA Chamber	Passive Test, Field Test (with Bluetooth speaker)	Soward Standard, Customer Requirements
GNSS Antenna (GPS, GLONASS, BeiDou, Galileo)	GPS: 1575.42MHz±10MHz; GLONASS: 1602MHz±0.5625MHz; BeiDou: 1561MHz±2.046MHz	5071B, OTA Chamber, APK	Passive Test, Field Test	Soward Standard, Customer Requirements
NFC Antenna	13.56MHz	5071B, Dedicated Test Fixture, OTA Chamber, APK	Passive Test, Field Test	Soward Standard, Customer Requirements
Remote Control Antenna	433MHz	5071B, OTA Chamber	Passive Test, Field Test	Soward Standard, Customer Requirements

II: Overview

(1)Antenna performance

1.This approval sheet supports for MID project. PBC antennas include in this project. This report is for the performance of BT antenna.

2.Antenna shape size: Meet the requirement of MID

3.Antenna band: 2400MHz~2500MHz

4.Antenna material: Antenna material meet the requirement of MID

5.Adhesive performance: Adhesive performance meet the requirement of MID

6.Antenna performance meet the spec be low:

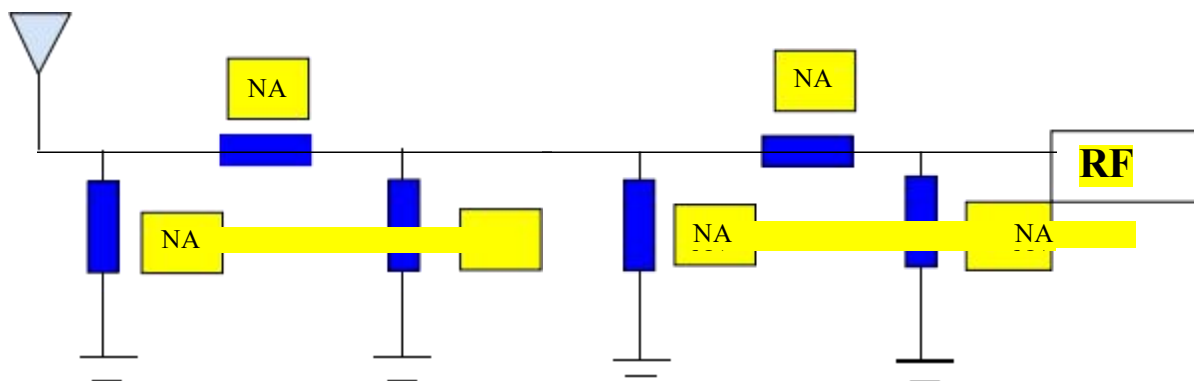
Description	BT2.4	Units
VSWR	≤3.0	
Antenna Gain	1.07	dBi
Antenna Efficiency	≥30	%
Feed Impedance	50 ohms	
Operating Temperature	-40 to +85 deg C	
Polar ization / Azimuth	Linear / Omni-directional	

(2)Mechanical Information

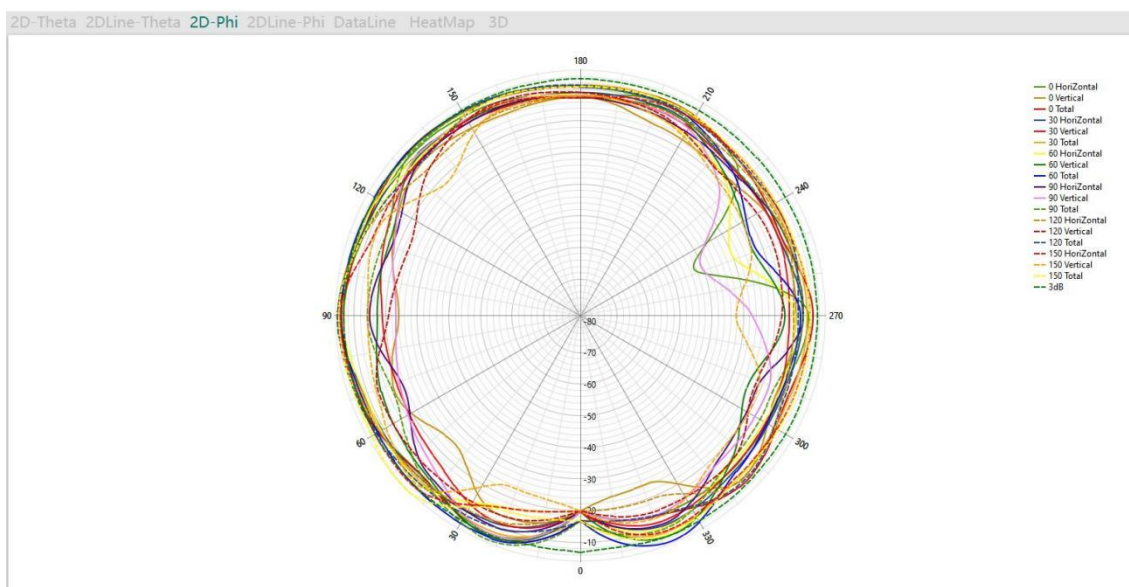
Mechanical Dimension	
Cable Length	NA
Description	BT2.4
Material	PBC
Size	1.0 * 0.7mm
Environmental	
Operation Temperature	-40 to +85 deg C
Storage Temperature	-40 to +85 deg C

Three: Match the circuit diagram, machine image, and antenna 3D image

(1) Matching Circuit



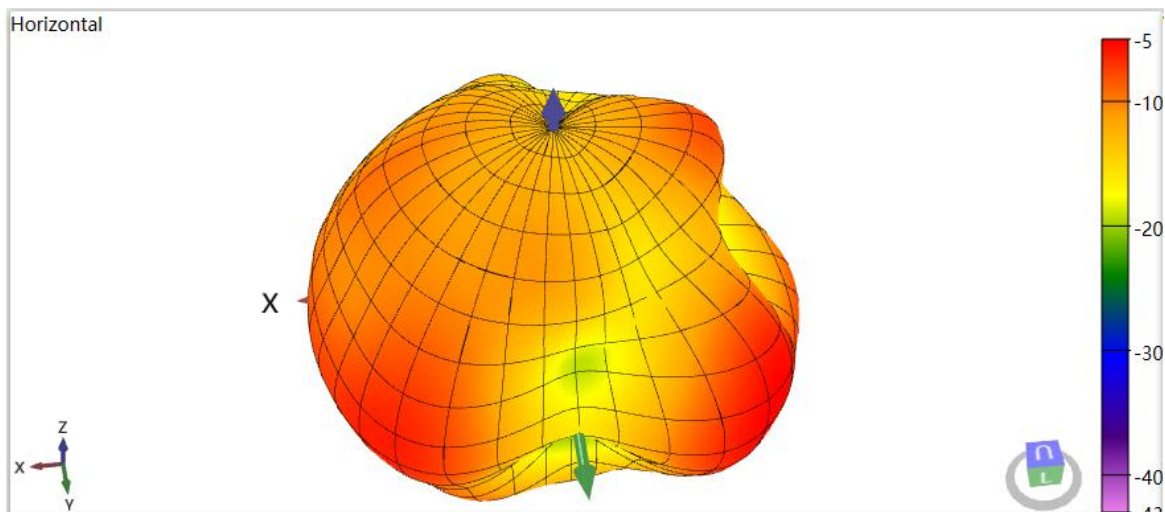
(2) Machine image & Antenna 2D image



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Three: Match the circuit diagram, machine image, and antenna 3D image

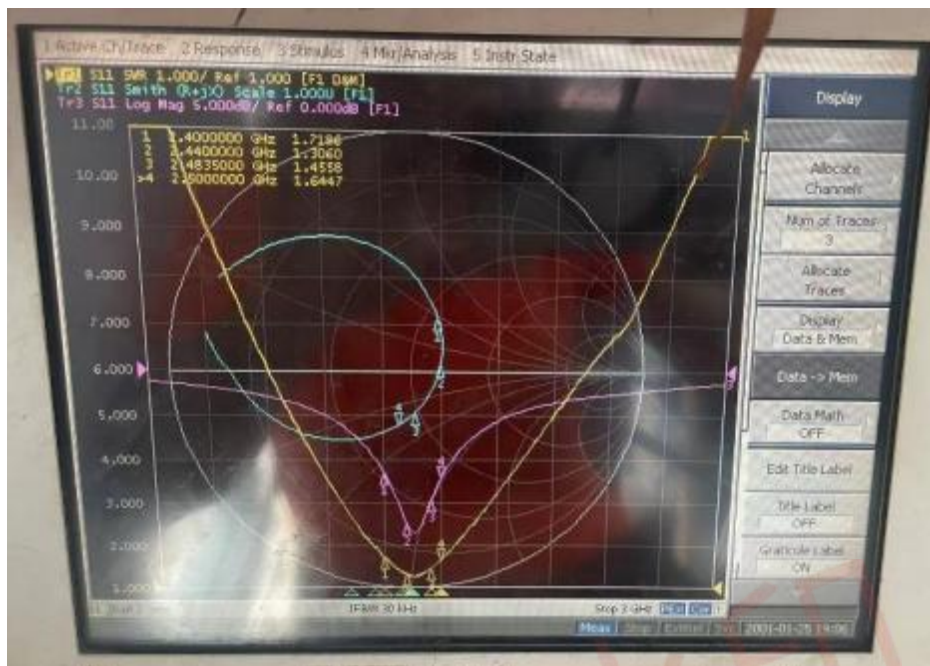


1: Gold-finished surface; 3: Black matte ink coating; 4: Complies with latest environmental standards (RoHS & REACH);

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IV: BT 2.40G–2.48G (VSWR)



Frequency (MHz)	VSWR
2400	1.7
2440	1.3
2480	1.4

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)
2400	30	-5.23	-1.23	-3.38
2410	31.81	-4.97	-0.96	-3.11
2420	28.81	-5.4	-1.27	-3.42
2430	36.76	-4.35	-0.16	-2.31
2440	32.05	-4.94	-0.72	-2.87
2450	38.96	-4.09	0.16	-1.99
2460	38.35	-4.16	0.14	-2.01
2470	34.05	-4.68	-0.25	-2.4
2480	44.24	-3.54	1.07	-1.08
2490	35.85	-4.46	0.25	-1.9
2500	37.39	-4.27	0.48	-1.67