

Date of Issue: 2025-8-12

dipole antenna

Page (1) of (11)

i-Top Drawing # 20250812

Revision #: Initial
Release: V1.1

Specification Approval Sheet

Vender Name	Bluetooth headset (for calls)
Project Name	311-5203000-001
Part Name	S5203_QCC3072 earphone PCBA
Part Number	AP.S5203BTA01 (iP.00696)
Part Version	V1.1
Part Spec.	S5203_QCC3072_Main_M_01_01_0423_P

The materials meet the following environmental requirements:

Banned and Monitored Substances Control Standard(Latest Edition)
 Halogen-free technical standard

Vender Confirm (Stamp)	Prepared by	Checked by	Approved by

Customer Approved (Stamp)	Sourcing	DQ	RD	Approved by

Address: 7th Floor, No. 11, Factory 2, Daqian Industrial Zone, Area 67, Xindong Community, Xin'an Street, Bao'an District, Shenzhen

顶设科技 i-Top	5203-Motherboard	 RoHS Compliant
Date of Issue: 2025-8-12		dipole antenna
<i>Page (2) of (11)</i>	i-Top Drawing # 20250812	Revision #: Initial Release: V1.1

Change history

顶设科技 i-Top	5203-Motherboard	 RoHS Compliant
Date of Issue: 2025-8-12		dipole antenna
<i>Page (3) of (11)</i>	i-Top Drawing # 20250812	Revision #: Initial Release: V1.1

The basic parameters

A. Electrical Characteristics		
Frequency		2400MHZ~2500MHZ
VSWR		< 2
Avg Efficiency		>20%
Impedance		50 ± 25 Ohm
Polarization		Linear
Peak Gain		2.4G:0.19dBi
B. Material & Mechanical Characteristics		
Material of Radiator	PCB	black
Cable Type		
Connector Type		
Dimension		
C. Environmental		
Operation Temperature	- 20 °C ~ + 60 °C	
Storage Temperature	- 30 °C ~ + 70 °C	

顶设科技 i-Top	5203-Motherboard	 RoHS Compliant
Date of Issue: 2025-8-12		dipole antenna
<i>Page (4) of (11)</i>	i-Top Drawing # 20250812	Revision #: Initial Release: V1.1

Introduction:

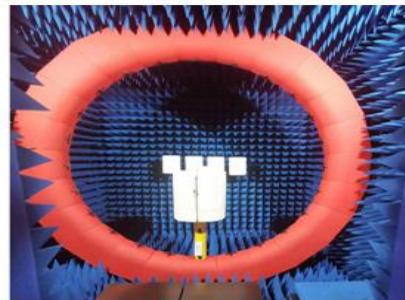
Microwave darkroom and no reflection chamber, absorbing short wave darkroom dark room. Microwave darkroom by electromagnetic shielding room, filtering and isolation, grounding device, the ventilation duct, indoor distribution system, monitoring system, ceiling wave material part. It is based on the wave absorbing material as the lining of the shield room, it can absorb the most of the electromagnetic energy into the six wall is a better simulation of the free space conditions.

The main working principle of microwave anechoic chamber is according to the electromagnetic wave in the medium from the low magnetic guide magnetic direction of propagation rules, absorbing materials to guide the electromagnetic wave using high permeability, through resonance, a substantial absorption of electromagnetic wave radiation energy, by coupling the electromagnetic energy into heat energy.

main performance :

Frequency range:400MHz ~ 6GHz ceiling reflected wave loss materials: 400MHz ~ 6GHz is equal to or more than 15dB (microwave absorbing material by composite wave absorbing materials, namely tapered containing carbon sponge suction wave material paste in ferrite)

顶设科技 i-Top	5203-Motherboard	 RoHS Compliant
Date of Issue: 2025-8-12		dipole antenna
<i>Page (5) of (11)</i>	i-Top Drawing # 20250812	Revision #: Initial Release: V1.1



Test Report

Those specifications were specially defined for 5203 model.

1. Machine pictures and antenna assembly



VSWR

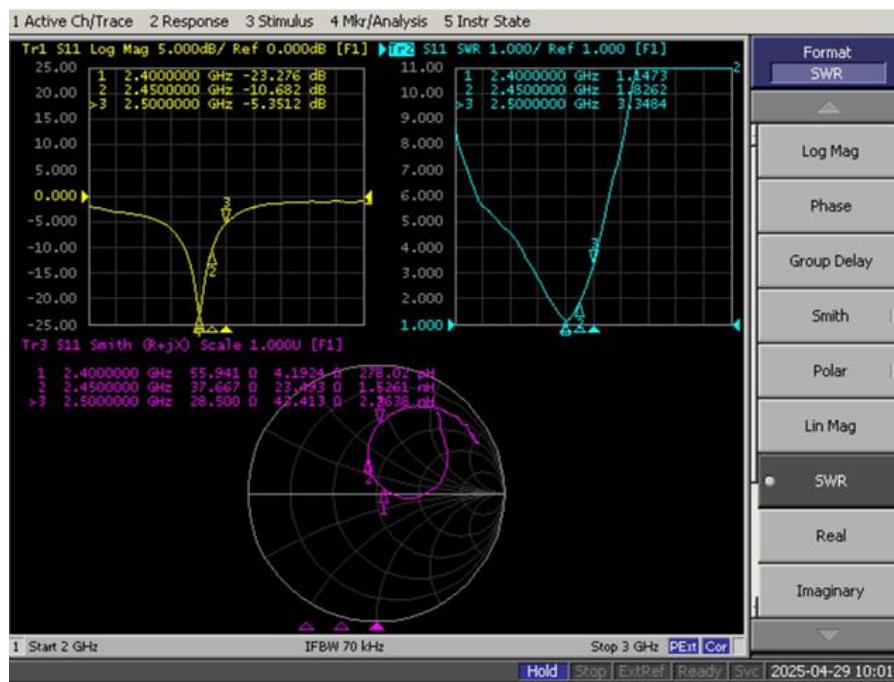
2. Measuring Method

顶设科技 i-Top	5203-Motherboard	 RoHS Compliant
Date of Issue: 2025-8-12		dipole antenna
Page (6) of (11)	i-Top Drawing # 20250812	Revision #: Initial Release: V1.1

1.A 50 Ω coaxial cable is connected to the antenna. Then this cable is connected to a network analyzer to measure the VSWR

2.Keeping this jig away from metal at least 20cm

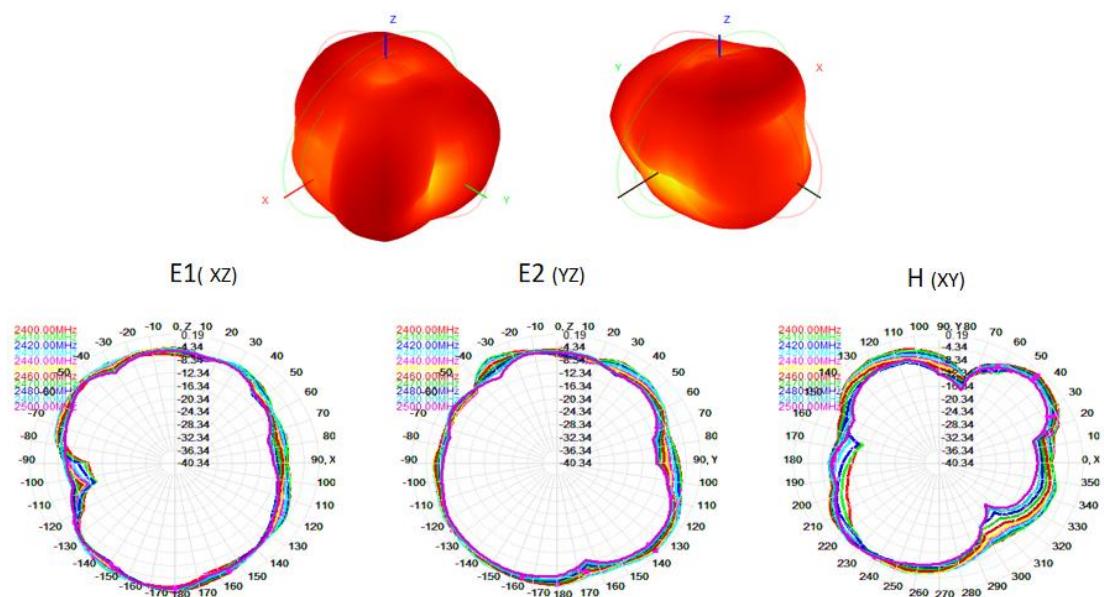
3.Measurement frequency points and VSWR value



4.Gain table of Antenna:

Passive field pattern diagram-R

顶设科技 i-Top	5203-Motherboard	 RoHS Compliant
Date of Issue: 2025-8-12		dipole antenna
Page (7) of (11)	i-Top Drawing # 20250812	Revision #: Initial Release: V1.1

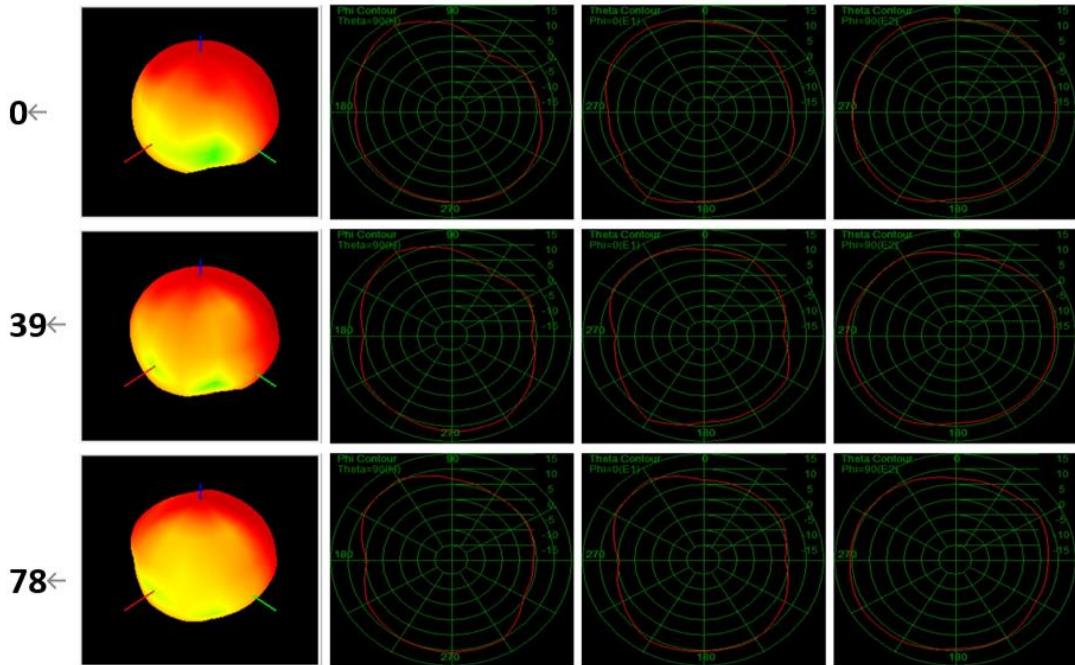


Passive efficiency gain-R

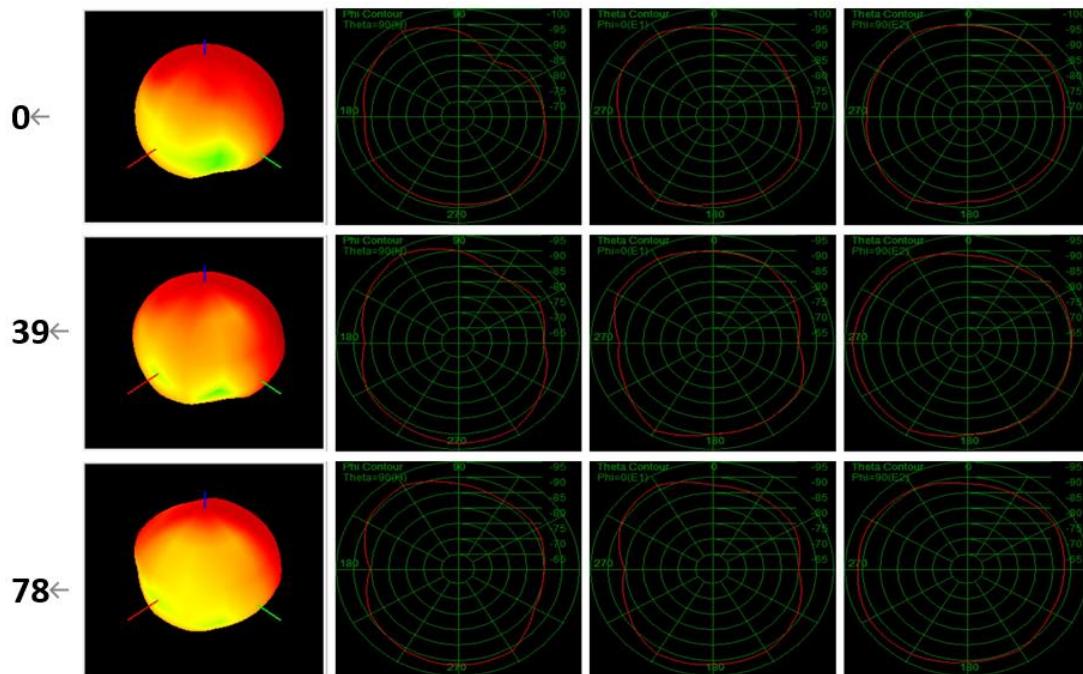
2400MHZ-2500MHZ		
Freq (MHz)	Effi (%)	Gain (dBi)
2400	30.04	-0.88
2410	31.14	-0.45
2420	30.54	-0.29
2430	30.34	0.04
2440	28.79	0.13
2450	27.47	0.19
2460	25.75	0.16
2470	24.44	-0.05
2480	22.91	-0.47
2490	22.34	-0.73
2500	21.44	-1.07

Active free space field pattern diagram -R - TRP

顶设科技 i-Top	5203-Motherboard	 RoHS Compliant
Date of Issue: 2025-8-12		dipole antenna
<i>Page (8) of (11)</i>	i-Top Drawing # 20250812	Revision #: Initial Release: V1.1

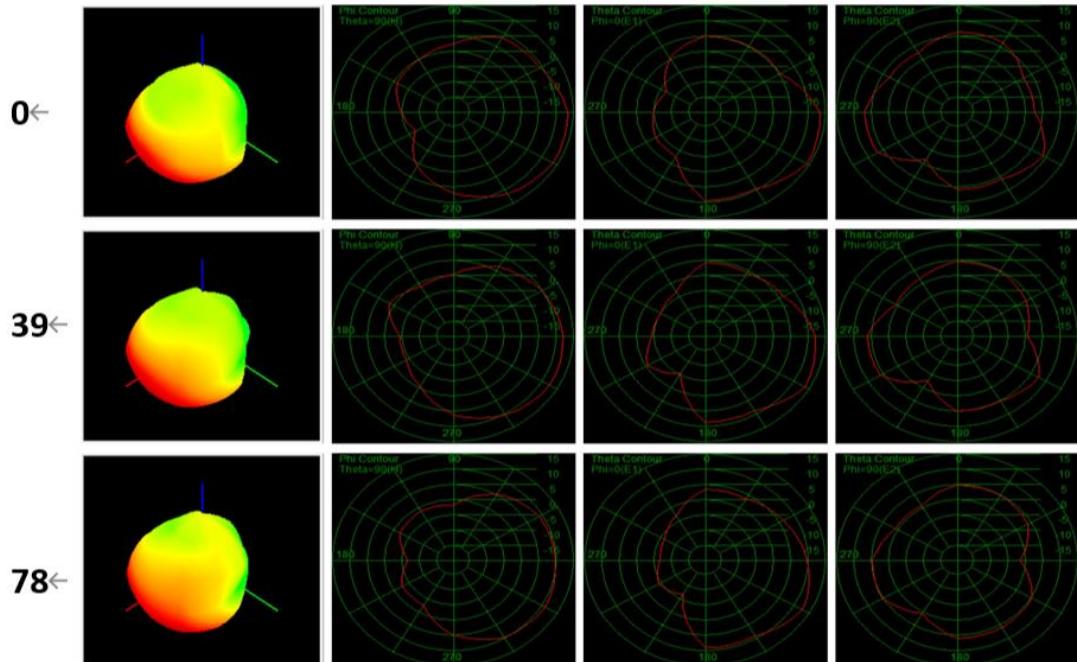


Active free space field pattern diagram -R - TIS



顶设科技 i-Top	5203-Motherboard	 RoHS Compliant
Date of Issue: 2025-8-12		dipole antenna
<i>Page (9) of (11)</i>	i-Top Drawing # 20250812	Revision #: Initial Release: V1.1

Source field pattern diagram -R - TRP

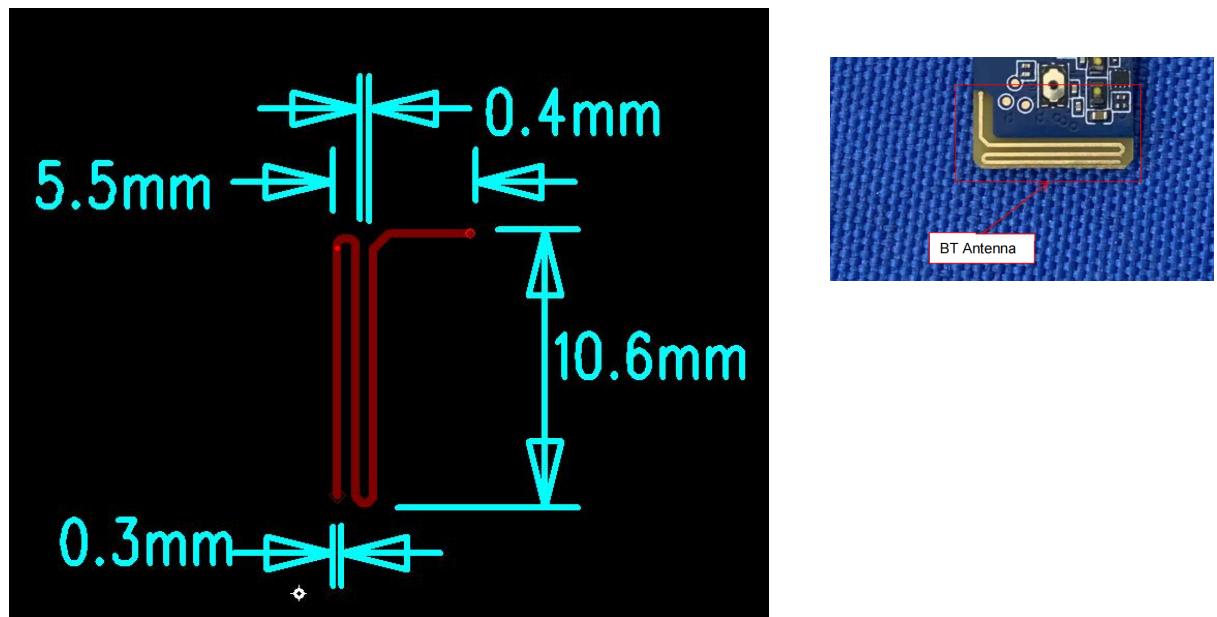


顶设科技 i-Top	5203-Motherboard	 RoHS Compliant
Date of Issue: 2025-8-12		dipole antenna
Page (10) of (11)	i-Top Drawing # 20250812	Revision #: Initial Release: V1.1

5.OTA:

5203					
自由空间			头模		
BAND	TRP (dBm)	TIS (dBm)	BAND	TRP (dBm)	TIS (dBm)
0	10.06 ^{±0.5}	-94.16 ^{±0.5}	0	7.04 ^{±0.5}	-91.59 ^{±0.5}
39	9.38 ^{±0.5}	-90.61 ^{±0.5}	39	6.19 ^{±0.5}	-87.50 ^{±0.5}
78	9.02 ^{±0.5}	-89.98 ^{±0.5}	78	5.44 ^{±0.5}	-86.28 ^{±0.5}

Dimensional drawing:



ROHS

顶设科技 i-Top	5203-Motherboard	 RoHS Compliant
Date of Issue: 2025-8-12		dipole antenna
<i>Page (II) of (II)</i>	i-Top Drawing # 20250812	Revision #: Initial Release: V1.1

Antenna 5203

meets ROHS requirements See electronic file for details.

Product packaging instructions

- A. packing should meet the moisture-proof, vibration, pressure and mildew proof, etc.
- B. the smallest packing unit logo must have the manufacturer trademarks, product model, name, code and quantity.
- C. in the attached packing list, certificate of approval, and the factory inspection report.

*****END*****