

SPECIFICATION FOR APPROVAL

Customer	
Part Name	2.4G Built-in Antenna with 1.13 Cable L180 Gen1
Zhaohe Part No.	132200-2009-00180
Customer Part No.	

Customer Confirmation

Confirmation	Checked	Approved

Manufacturer Recognition

Sales	Drafted By	Checked By	Approved By
He Chao	Xiao Yuehong	Pu Qinghai	Lin Weidong

Thank you for giving us the opportunity to submit samples for approval. If approved, please kindly sign and return this document to us

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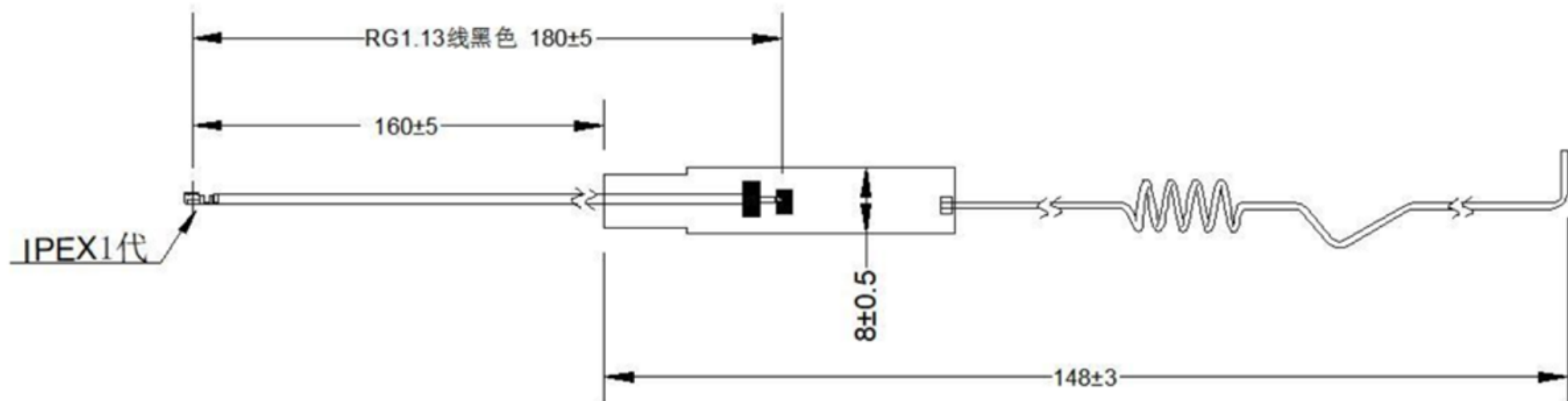
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Revision Record

Version	Date	Engineer	Revision Content
A1	2026-03-03	LID	Initial release

3. Engineering Drawing

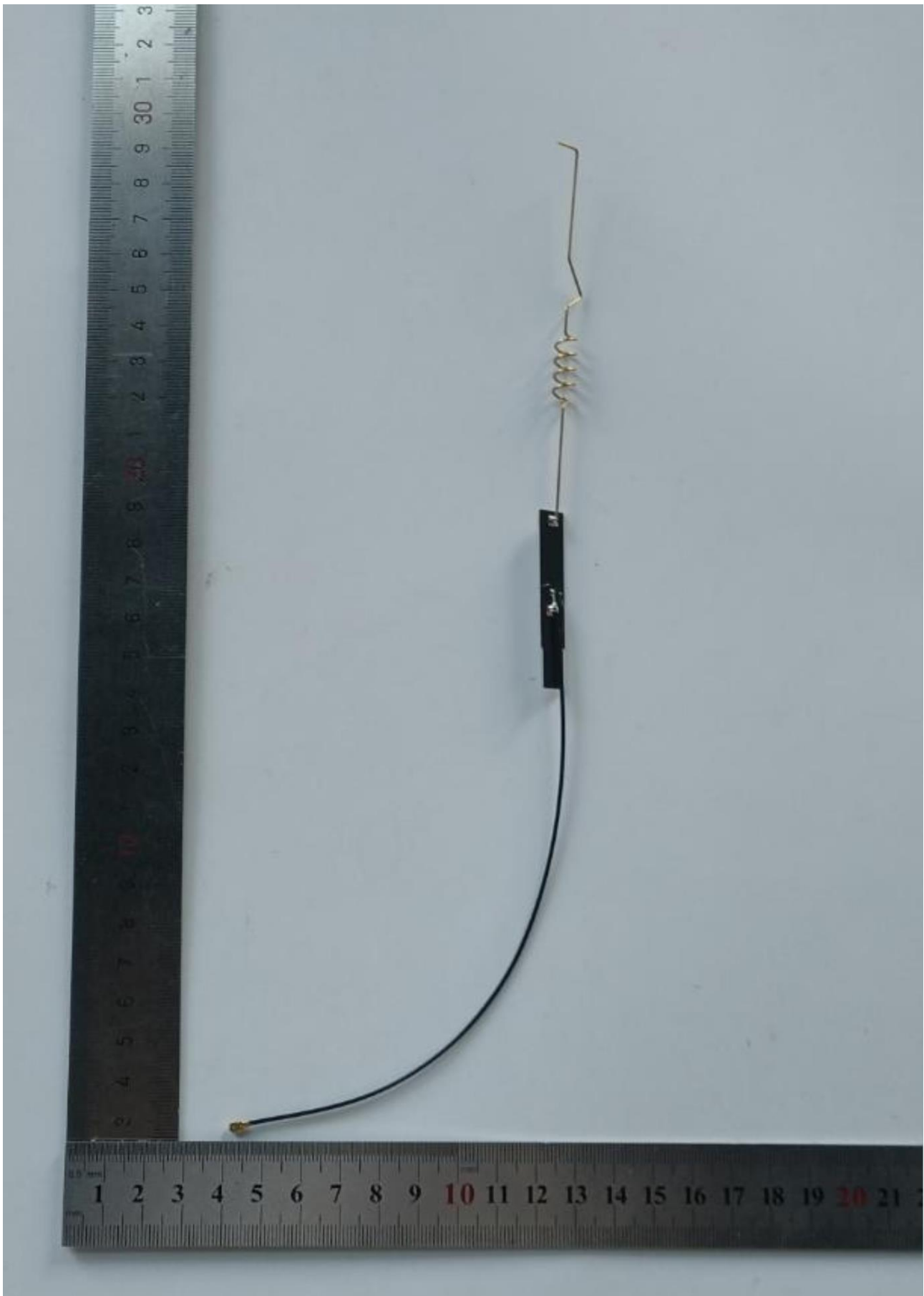


4. Product Specifications

1. Product Technical Parameters

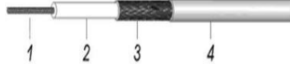
Model			
RF Parameters			
Frequency Range (MHz)	2400-2500	Bandwidth (MHz)	100
VSWR			
Gain (dBi)	Max 2.93	Max Input Power (W)	50
Input Impedance (ohm)			
Mechanical Parameters			
Antenna Size (mm)			
Environmental Parameters			
Operating Temperature	-40 to +70	Storage Temperature	-45 to +75

5. PCB Product View



6. Cable Specifications

1.13 Cable Structure Diagram



Structural Parameters		
Item	Material	Diameter (mm)
1. Inner Conductor	Tinned copper wire	7/0.08 +- 0.02
2. Insulator	Solid polyethylene (PE)	0.66 +- 0.02
3. Outer Conductor	Tinned copper wire	0.88 +- 0.05
4. Jacket	FEP	1.13 +- 0.05

Electrical Parameters	
Capacitance (pF/m)	96 +- 3
Impedance (ohm)	50
Velocity (%)	66
Bending Radius (mm)	<= 7
Max Working Voltage (VMS)	1000
Max Working Frequency (MHz)	6000
Operating Temperature Range (C)	-40 to +80

Attenuation (Typical Value)	
Frequency (MHz)	Attenuation (<= dB/m)
100	0.42
400	0.58
1000	2.20
2000	3.40
3000	4.20
4000	4.50
5000	5.20
6000	5.60

7. Environmental Tests

7.1 High / Low Temperature and Constant Humidity Test

Part No.	132200-2009-00180	Product	Built-in PCB
Test Item	High temperature, low temperature, constant humidity	Quantity	5 PCS

Acceptance Criteria:

Acceptance: no plating peeling, cracks, wrinkles, discoloration, deformation, or adhesive failure. Routine inspection is required after recovery at room temperature.

Test Name	Conditions	Method	Result
High Temperature	80 +/- 3 C; soak 1 h; duration 2 h; recovery 1 h	Place sample in chamber, hold at temperature, recover 1 h, then inspect.	PASS
Low Temperature	-40 +/- 3 C; soak 1 h; duration 2 h; recovery 1 h	Place sample in chamber, hold at temperature, recover 1 h, then inspect.	PASS
Constant Humidity	+40 +/- 3 C; RH 90-95%; duration 21 h; recovery 1 h	Place sample in chamber, hold temperature and humidity, recover 1 h, then inspect.	PASS

7.2 Free Drop Test

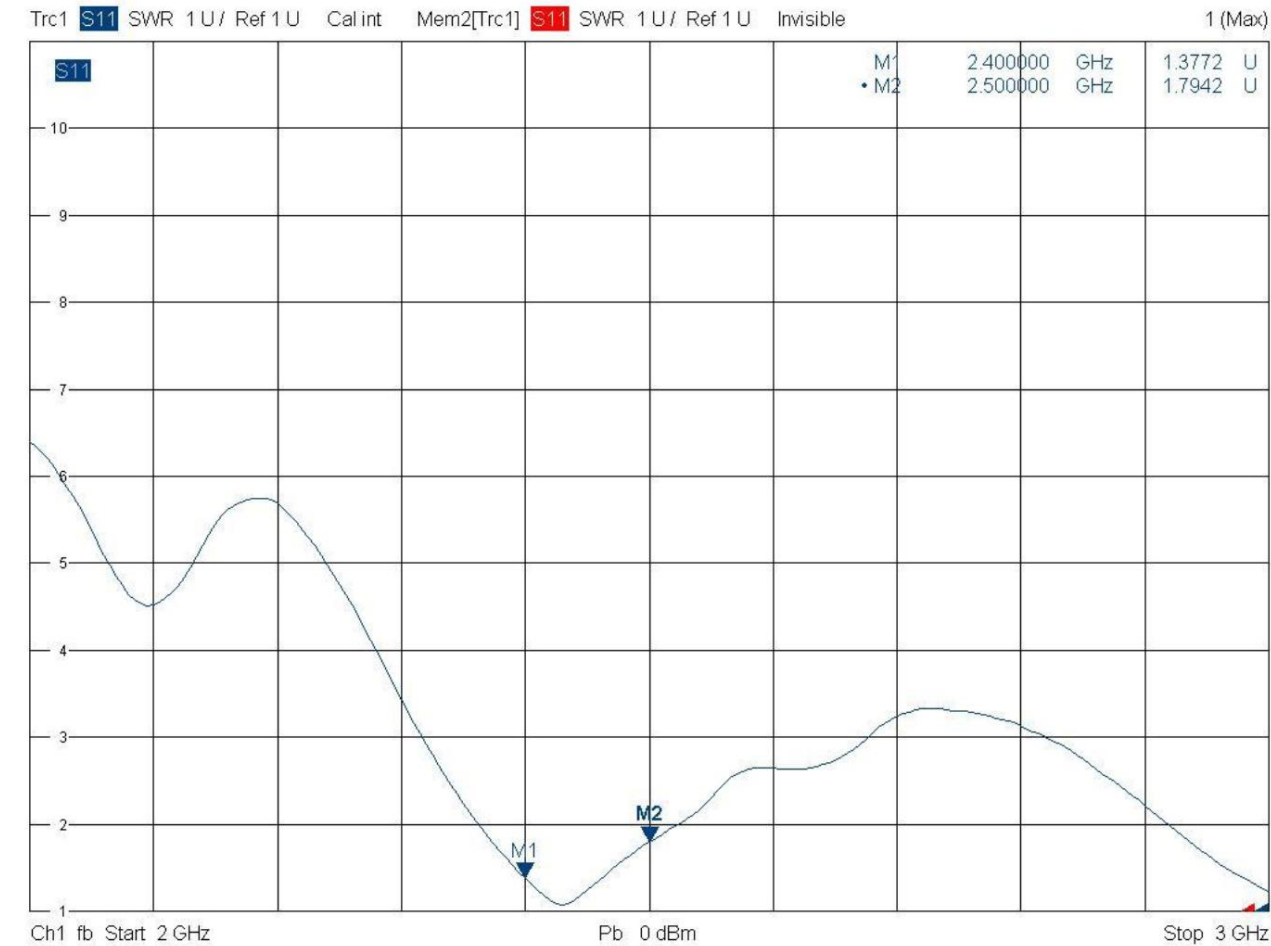
Part No.	132200-2009-00180	Product	Built-in PCB
Test Item	Free drop test	Quantity	5 PCS
Acceptance	No falling parts, cracks, or visible deformation after a 1 m drop.		
Drop Height	1000 mm	Method	Front and back side drop, 2 times
Procedure	Drop the sample from 1000 mm, then perform routine inspection.	Result	PASS

7.3 Salt Spray Test

Part No.	132200-2009-00180	Product	Built-in PCB
Test Item	Salt spray test	Quantity	5 PCS
Acceptance	No plating peeling, rust, corrosion, or oxidation after test.		
NaCl Concentration	40-60 g / 1 kg	Air Pressure	1.0 +/- 0.01 kgf/cm2
pH Value	6.5-7.2	Spray Volume	1.0-2.0 ml / 80 cm2 / h
Chamber Temp.	35 +/- 1 C	Pressure Barrel Temp.	47 +/- 1 C
Test Duration	24 h	Result	PASS

Procedure: set the salt spray tester to the specified conditions, place samples for 24 hours, rinse with clean water after test, visually inspect, then carry out routine inspection.

8. VSWR Test Graph

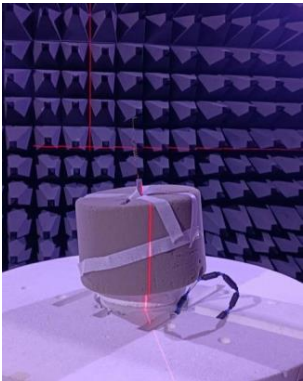


9. OTA Test Graphs

9.1 Chamber Test Setup



9.2 Chamber Instrument Photo

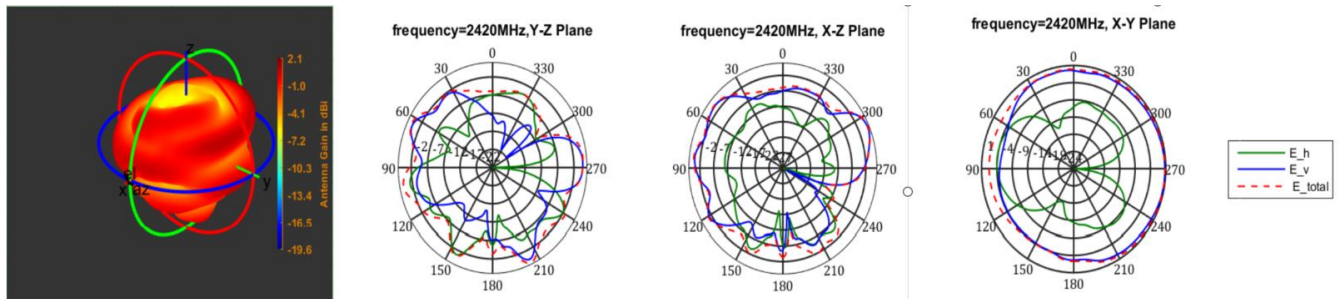


9.3 OTA Chamber Passive Data

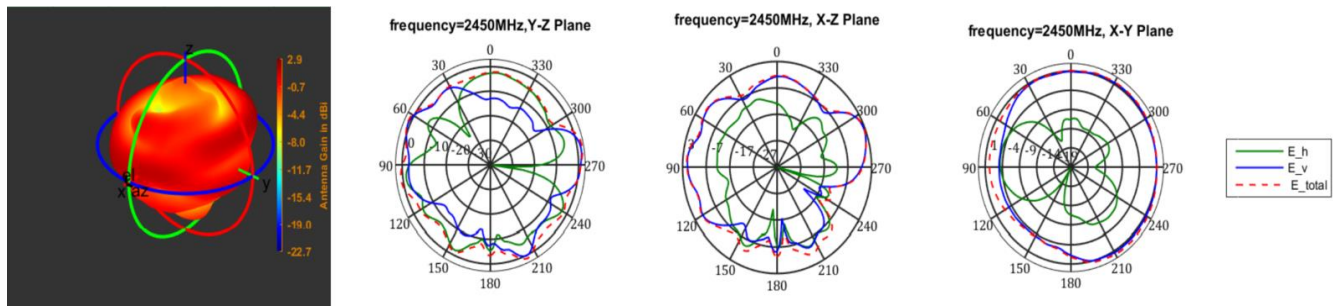
Frequency (MHz)	Directivity (dB)	Gain (dB)	Efficiency (%)
2400	4.533	1.9941	55.7328
2410	3.8616	1.6831	60.5551
2420	4.177	2.0945	61.9097
2430	3.9925	2.3489	68.493
2440	4.3605	2.6864	68.0125
2450	4.4548	2.9318	70.4204
2460	4.4228	2.7636	68.2465
2470	4.3356	2.7622	69.6074
2480	4.4398	2.6655	66.4615
2490	4.6381	2.9864	68.3638
2500	5.2809	3.9154	73.0212

9.4 Chamber Test Graph

2420MHZ



2450MHZ



2480MHZ

