DONGGUAN HUANGJIE COMMUNICATION TECHNOLOGY CO., LTD.

SPECFICATION FOR APPROVAL

CUSTOMER	
CUS. CODE	
CUS. MODEL	
HJ-Tech CODE	3K0503BK14-002
PRO. NAME	RF ANTENNA COMPONENT
SPECIFICATION DESCRIPTION	WIFI Antenna Black, 1. 13 Black Cable+MHF-1, Exposed Cable Length L=110mm
DATE	2026/8/24

SUPPLIER		
PREPARER	CHECKER	APPROVER
S.He	XIU HE	LFY

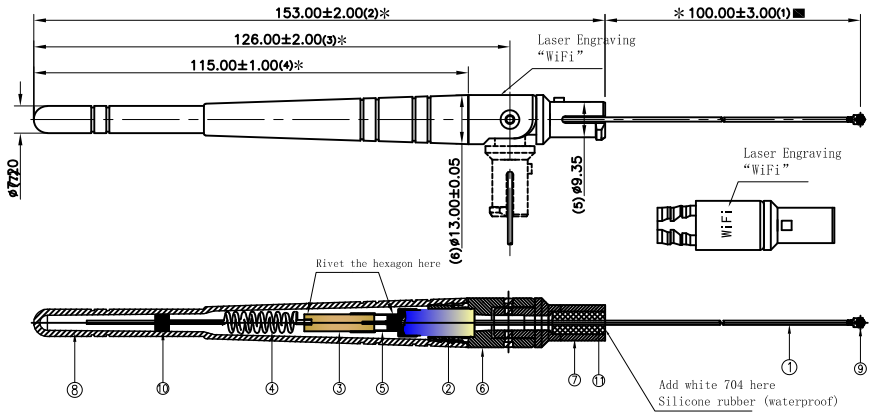
CUSTOMER		
TRANSCTOR	CHECKER	APPROVER

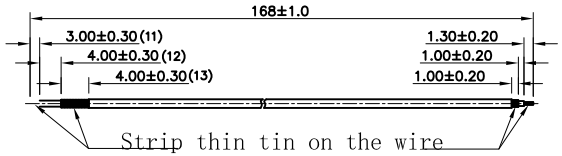
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H377	REV.	RELEASE AND CHANGE SUMMARY	DATE
	AO	FIRST RELEASE	17.04.21





No.	PART NUMBER	PART NAME AND DESCRIPTION	Q'TY
11	2FZ3001	White 704 silicone rubber	1
10	2MH011	Ø 5.5 * H4.5mm Black EVA	1
9	2LM10P113210	MHF-1-PLUG FOR OD1.13 CABLE	1
8	2SBKG0500	Ø13.00*Ø7.1*L115 ABS, Black	1
7	2SBKD41N3	CD17 antenna lower fixed seat PC+PBT Black	1
6	2SBKU31N8	CD384 antenna fixed seat, PC+PBT, Black	1
5	2TA070BK1-025	Ø7.00*L25.00mm Black	1
4	2YT006	Ø 4.30 * Ø 0.80 * L59.00, Made of brass	1
3	2YG016	Ø 4.50 * L18.50, Made of zinc alloy material	1
2	2YG025	Ø 6.80 * Ø 1.10 * L23.00, Made of zinc alloy with edges	1
1	2C5M11311BK1	OD1.13 silver tin wire Black	1

BOM

Technical Requirements:
1 Assembly Requirement: Terminals are not directional.
2 Electrical Characteristics: 100% testing using a vector network analyzer.
Characteristic impedance: 50Ω; Operating frequency band: 2.4GHz - 2.5GHz; Standing wave ratio: 2.0 MAX.
3. Cable retention force: Pull-out force between the cable and MHF: Minimum 1.3 kgf.
Dimension Inspection: [F], First Article Inspection; [I], Key Patrol Inspection; [O], Shipment Inspection; [Cpk], [SPC], Statistical Control Items.
4 Visual Inspection: Conduct a full visual inspection. No scratches, damages, or stains are allowed; hardware components must not show oxidation. Refer to SIP requirements for details.
5 Packaging Specifications:
6 Environmental Requirements: All materials used in the production process and finished products must comply with the EU RoHS and REACH directives.

GENERAL TOLERANCE:
UNLESS OTHERWISE SPECIFIED
LINEAR:
0.5≤ L ≤6 ±0.05
6< L ≤30 ±0.10
30< L ≤120 ±0.20
ANGULAR:
0< L ≤10 ±1°30'
10< L ≤50 ±1°00'
50< L ≤120 ±0°30'

FILE TYPE: Product Image
DRA./DATE: Xiu He 19.11.18
CHE./DATE:
APP./DATE:
FILE FORM:

Dongguan HUANGJIE Communication Technology Co., Ltd.
东莞市皇捷通讯科技有限公司

TITLE: RF antenna component
Wire fed antenna, black, copper tube+copper pillar+spring, 1.13 black+MHF, Exposed wire length L=100mm

CODE: 3K0503BK14-002

SIZE: A4 | UNIT: mm | PRO.: 3rd | SCALE: 1:1 | PAGE: 1/1

THIS DRAWING CONTAINS INFORMATION THAT IS PROPRIETARY TO HUANGJIE AND SHOULDN'T BE USED WITHOUT WRITTEN PERMISSION.

WiFi Wire-fed Antenna

1 SCOPE

1.1 CONTENTS

This Product Specification covers the mechanical, electrical and environmental performances specification for WiFi Wire-fed Antenna.

1.2 QUALIFICATION

When tests are performed the specification shall be used. All inspections shall be performed using the applicable inspection plan and product drawing.

2 APPLICABLE DOCUMENTS AND FORMS

The associated product documents and forms constitute a part of this specification to the extent specified herein. Unless otherwise indicated, the latest edition of the document applies. In the event of conflict between the requirements of this specification and the product drawing, the product drawing shall take precedence. In the event of conflict between the requirements of the specification and the reference documents, this specification shall take precedence.

3 TEST AND ACCEPTANCE REQUIREMENTS

3.1 GENERAL

3.1.1 Dimensional Characteristics

Part construction shall conform to the dimensions, shape, and detail attributes specified on the latest revision of the applicable part drawing(s).

3.1.2 Material Characteristics

All material used in each test sample shall conform to the material specifications shown on the latest revision of the applicable part drawing(s).

3.2 RATING

Frequency Range	Nominal Impedance	VSWR	Peak Gain	Operating Temperature
2.4~2.5G	50Ω	2.0MAX.	3dBi	-40℃ ~ +85℃

3.3 TEST CONDITION

Unless otherwise specified, all tests and measurements shall be performed under the following conditions.

Temperature	Atmospheric Pressure	Relative Humidity
+15℃ ~ +35℃	866hPa ~ 1066hPa	45% ~ 75%

3.4 Electrical Performance

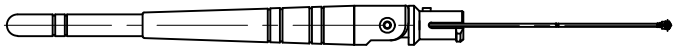
No.	Items	Test Condition	Specifications
		GENERAL	
1	Contact Resistance	Solder the receptacle connector to the test board and mate the plug connector together, then measure the contact resistance as shown in figure 1 by the four terminal method. Open circuit voltage: 20mV MAX Circuit current: 10mA MAX	Inner contact: Initial: 20mΩ MAX After: 25mΩ MAX Ground contact: Initial: 20mΩ MAX After: 25mΩ MAX
2	Insulation Resistance	Mate the plug and receptacle connector Together,and then, apply DC 200 V Voltage between the inner contact and the ground contact in accordance with EIA 364-21F	Initial: 500 MΩ MIN After: 100 MΩ MIN
3	Dielectric Withstanding Voltage	Mate the plug and receptacle connector together, and then apply AC 200 V between the inner contact and the ground contact in accordance with EIA 364-20F	No flashover, No sparkover, No excess leakage, No breakdown
4	V.S.W.R	Measure V.S.W.R with a network analyzer from 0 to 6GHz(Install in plastic housing and test)	2.0MAX.
		MECHANICAL	
5	Un-mating Force	Solder the receptacle to the test board and mate the plug into it. Test the withdrawal force with an insertion-extraction force tester at a rate of 25 ± 3 mm/min	1.Initial:4N MIN 2.After 30 Cycle:2N MIN

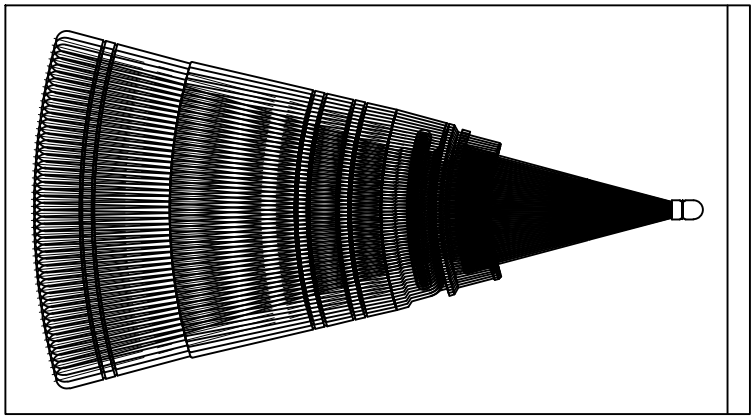
6	Durability	Solder the receptacle onto the test board, interlock the male and female connectors using a mating tester for 30 cycles, and then test the parameters.	Appearance: No AbnormalityContact Resistance: Shall meet 3.4.1/2/3/4
7	Cable retention	1 It is considered qualified if a 1.30 kg weight is lifted vertically from the table along the central axis of the cable at a speed of approximately 25 ± 3 mm/min.	No detachment or looseness at the crimp joint between the wire and the connector. Shall meet 3.4.1/2/3/4
ENVIRONMENTAL			
8	Humidity	Apply the following environment to themating connector in accordance with EIA364-31 Method III Test Condition B Temperature:25~65℃ Humidity : 90~95% R.H Duration: 96 hours	Appearance: No damage Contact Resistance: Shall meet 3.4.1 Insulation Resistance: Shall meet 3.4.2 Dielectric Withstanding Voltage: Shall meet 3.4.3
9	High Tempera-ture Test	Apply the following environment to themating connector Temperature : 90±2℃ Duration : 96 hours	Appearance: No damage Contact Resistance: Shall meet 3.4.1 Insulation Resistance: Shall meet 3.4.2 Dielectric Withstanding Voltage: Shall meet 3.4.3
10	Thermal Shock	Perform the following test conditions on mated connectors in accordance with Test Method III, Condition B of EIA-364-32: Temperature: -55°C to 85°C Transfer time: 5 min max. Number of cycles: 5	Appearance: No damage Contact Resistance: Shall meet 3.4.1 Insulation Resistance: Shall meet 3.4.2 Dielectric Withstanding Voltage: Shall meet 3.4.3
11	Salt Spray	EIA 364-26 Test Condition A Apply the following environment to the mating connector Temperature : 35±2℃ Relative Humidity : 90~98%R.H Salt water density: 5±1% Duration : 24 hours	Appearance: No damage Contact Resistance: Shall meet 3.4.1

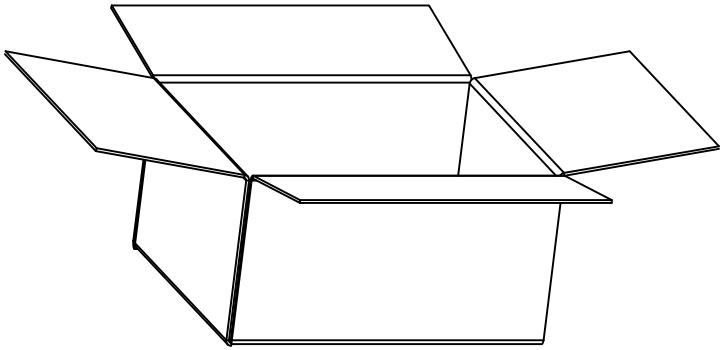
3.5 CHANGE LOG

Revision	Release and Change Summary	Date	Tabulator	Checker	Approver
A		2026.08.24	S.He	XIU HE	LFY

REV.	ECN NO.	LOCAS.	DESCRIPTION	DATE	DESIGN
A3			Modify the cut length	2017.09.29	SQL
A4			Standardize part numbers	2018.12.26	Mark
A5			Revise the part number to the rivet structure	2019.06.25	Mark
A6			Adopt a rivet-free structure	2019.12.17	Mark







Packaging Specification:

1. 50 pcs/tie: Bundle the terminals using EPE foam and rubber bands.
2. 1 tie/bag: Place 1 tie into a PE bag and seal it.
3. Labeling: A material label must be affixed to the top of each PE bag.
4. Partition board: 2 pcs/carton. Place one partition board at the bottom of the carton before loading, and place the other one before sealing the carton.
5. 1,000 pcs/carton: Select the appropriate carton size based on the dimensions and quantity of the materials.
6. Sealing method: Use the "H-tape" sealing method (identical on both the top and bottom).
7. Void fill: If the carton is not completely filled with materials, use appropriate filler materials to fill the empty space.
8. Labels: Material labels and month labels shall be applied in accordance with the customer's specification requirements.

DIM	TOL	DIM	TOL
X.	±0.30	X°.	±4.0°
X.X	±0.20	X.X°	±3.0°
X.XX	±0.10	X.XX°	±2.0°
X.XXX	±0.05	X.XXX°	±1.0°

HJ-Tech 东莞市皇捷通讯科技有限公司

DRAW NO.		DATE
DESIGN:	SQL	2017.04.21
CHECK:		
APPROVED:		

DRAW NAME: Dipole Antenna
WIFI Antenna Black, 1.13 Black Cable+MHF-1, Exposed Cable Length L=100mm

FILE:

MODEL:

P/N NO. 3K0503BK14-002

REV. A0 | SCALE N/A | UNIT: mm | SHEET: N/A

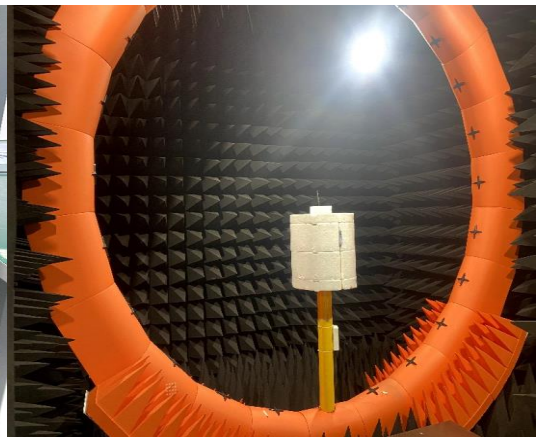
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Antenna Electrical Characteristic Test Report

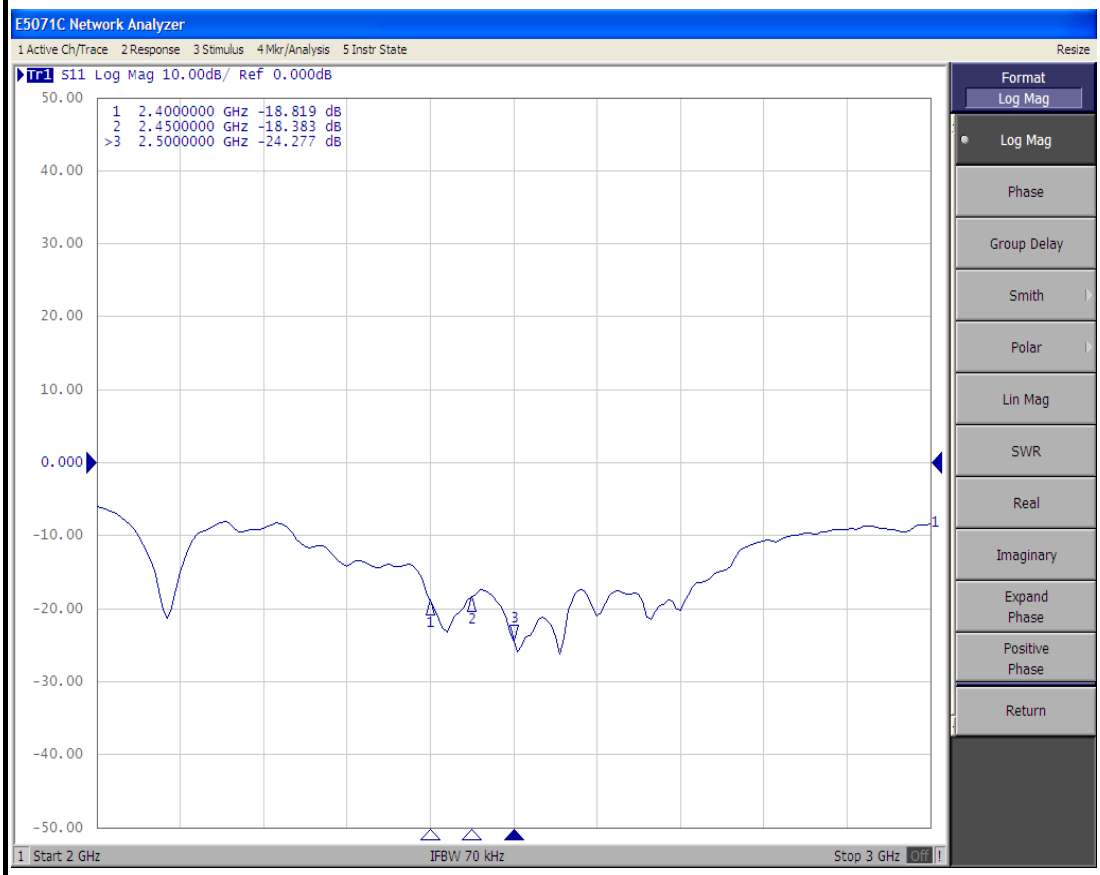
DOC NO.:HJ-QR-Q-22 Rev:A0

Part Number:	3K0503BK14-002	Item	Spec	Judge
Part Name:	WIFI Antenna Black, 1. 13 Black Cable+MHF-1,Exposed Cable Length L=100mm	VSWR	2. 0MAX.	pass
Test Equipment	Agilent E5071C/OTA Chamber	Characteristic impedance	50Ω	pass
Quantity	5pcs			
Test Date	2026/8/24			





1 RETURN LOSS



Checker: XIU HE **Tester: S.He**

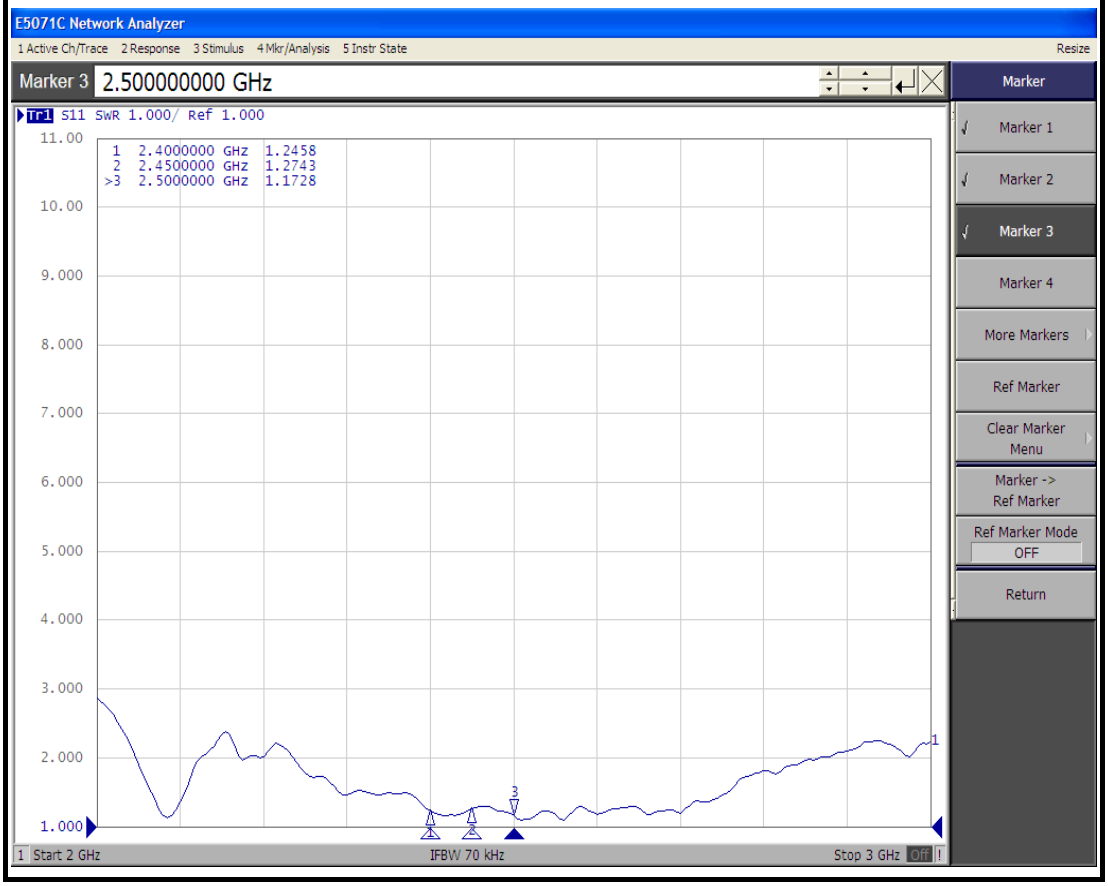
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Antenna Electrical Characteristic Test Report

DOC NO.:HJ-QR-Q-22 Rev:A0

Part Number:	3K0503BK14-002	Item	Spec	Judge
Part Name:	WIFI Antenna Black, 1. 13 Black Cable+MHF-1,Exposed Cable Length L=100mm	VSWR	2. 0MAX.	pass
Test Equipment	Agilent E5071C/OTA Chamber	Characteristic impedance	50Ω	pass
Quantity	5pcs			
Test Date	2026/8/24			

2 VSWR



Checker: XIU HE **Tester: S.He**

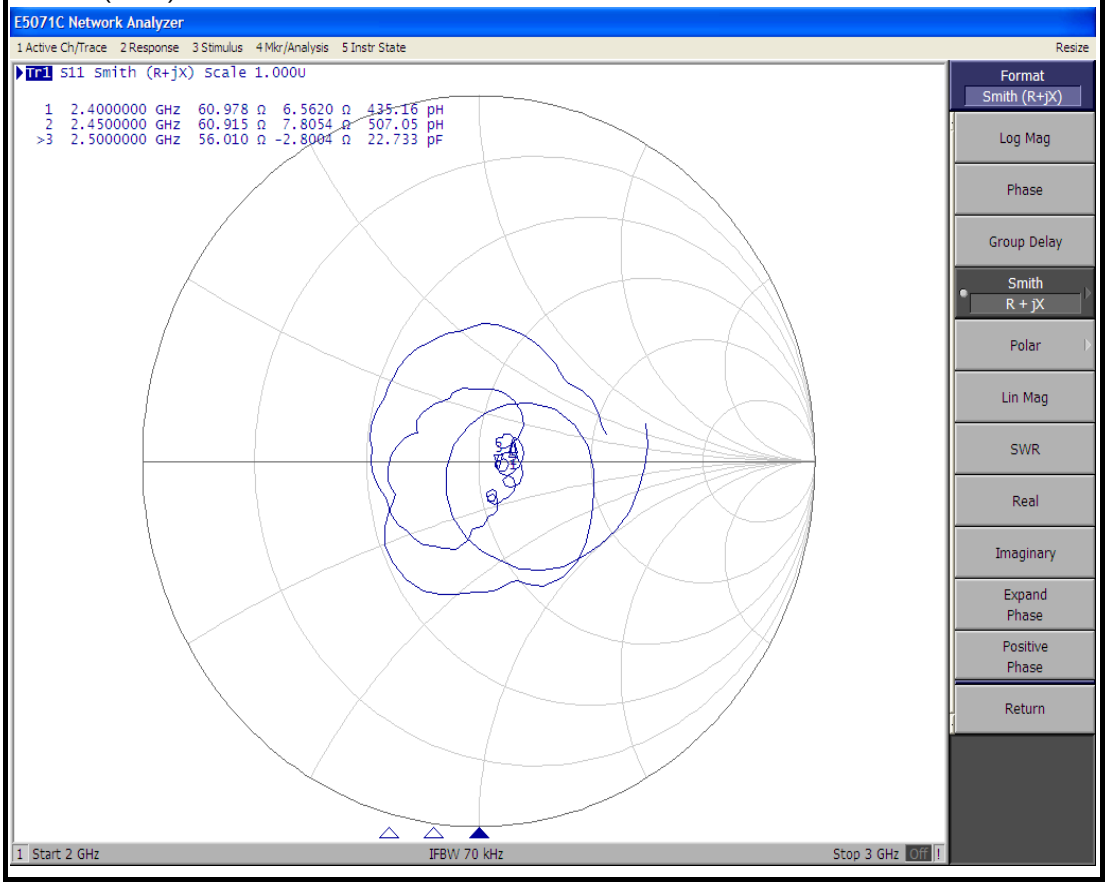
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Antenna Electrical Characteristic Test Report

DOC NO.:HJ-QR-Q-22 Rev:A0

Part Number:	3K0503BK14-002	Item	Spec	Judge
Part Name:	WIFI Antenna Black, 1. 13 Black Cable+MHF-1,Exposed Cable Length L=100mm	VSWR	2. 0MAX.	pass
Test Equipment	Agilent E5071C/OTA Chamber	Characteristic impedance	50Ω	pass
Quantity	5pcs			
Test Date	2026/8/24			

3 SMITH(R+JX)



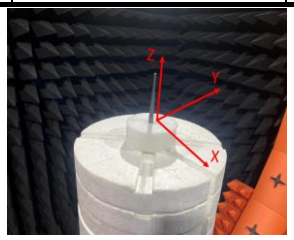
Checker: XIU HE **Tester: S.He**

Antenna Electrical Characteristic Test Report

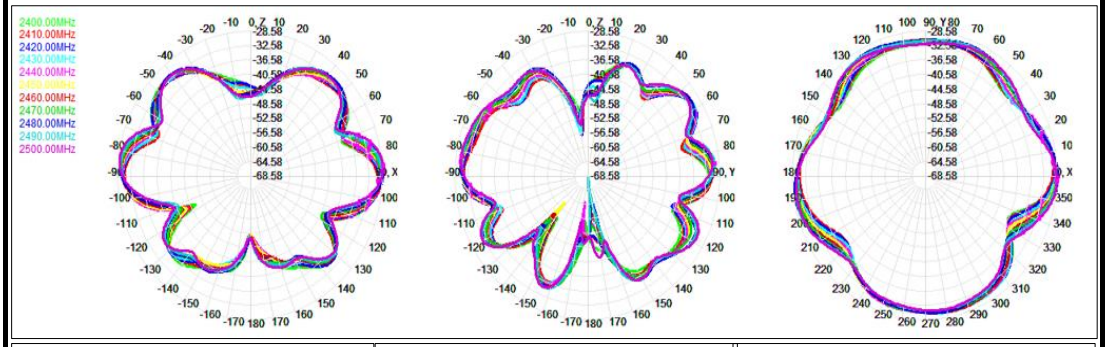
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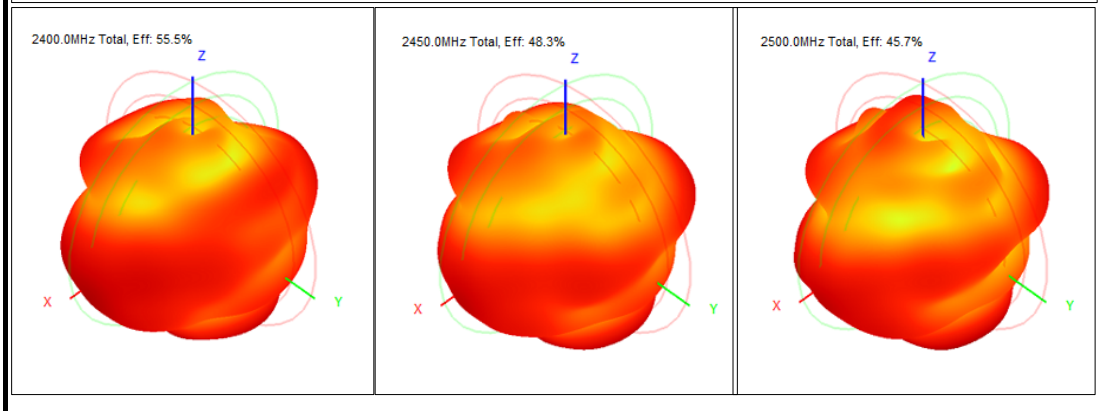
Part Number:	3K0503BK14-002	Item	Spec	Judge
Part Name:	WIFI Antenna Black, 1. 13 Black Cable+MHF-1,Exposed Cable Length L=100mm	Gain	3dBi.	pass
Test Equipment	Agilent E5071C/OTA Chamber	Characteristic impedance	50Ω	pass
Quantity	5pcs			
Test Date	2026/8/24			

4 2D/3D RADIATION PATTERN



Serial number	1	2	3	4	5	6	7	8	9	10	11
Frequency	2400.0	2410.0	2420.0	2430.0	2440.0	2450.0	2460.0	2470.0	2480.0	2490.0	2500.0
Ffficiency	-2.55	-2.74	-2.83	-2.87	-3.14	-3.16	-3.02	-3.22	-3.05	-3.28	-3.40
Gain(dBi)	3.09	3.09	3.16	3.11	3.19	3.09	3.11	3.03	3.00	2.93	2.88
Efficiency (%)	55.53	53.18	52.17	51.68	48.53	48.31	49.94	47.67	49.60	46.94	45.74
Directionality(dB)	5.64	5.83	5.99	5.98	6.33	6.25	6.13	6.25	6.05	6.22	6.27





Checker: XIU HE **Tester: S.He**