DONGGUAN HUANGJIE COMMUNICATION TECHNOLOGY CO., LTD.

SPECFICATION FOR APPROVAL

CUSTOMER	
CUS. CODE	
CUS. MODEL	
HJ-Tech CODE	3E0702BK-011
PRO. NAME	RF ANTENNA COMPONENT
SPECIFICATION DESCRIPTION	1.88~1.93GHz FRP ANTENNA,141 SEMI FLEXIBLE COAXIAL CABLE,OD20.00*L254mm
DATE	2026/8/24

SUPPLIER		
PREPARER	CHECKER	APPROVER
S.He	XIU HE	LFY

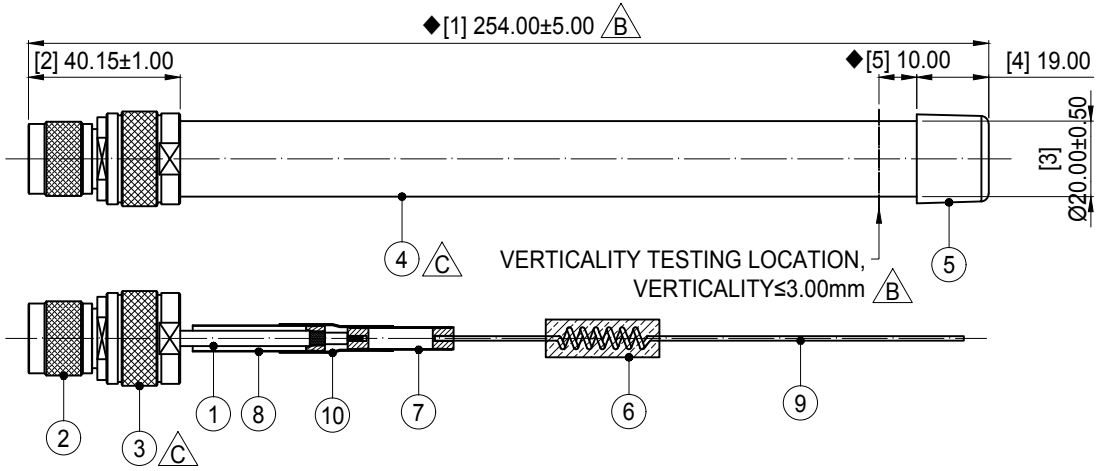
CUSTOMER		
TRANSCTOR	CHECKER	APPROVER

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H431	REV.	RELEASE AND CHANGE SUMMARY	DATE
	A	FIRST ISSUE	2024.01.12
	B	INCREASE VERTICALITY REQUIREMENTS AND LENGTH TOLERANCES	2024.05.31
	C	CHANGE COPPER SLEEVE AND FIBERGLASS PIPE TO THREADED LOCKING	2024.06.13



No.	PART NUMBER	PART NAME AND DESCRIPTION	Q'TY
10	2TA070BK1-030	HEAT SHRINKABLE SLEEVE：Ø7.00*L30.00,125H2,BLACK	1
9	2YT105	SPRING：Ø1.20*[L32.50+Ø5.80*P3.5*T6.0+L83.00],BRASS	1
8	2YG237	COPPER TUBE：L32.00*Ø7.00*T0.20,BRASS	1
7	2YG117	COPPER TUBE：L28.00*Ø6.00,BRASS	1
6	2MH077	SPONGE：L50.00*W30.00*T5.00,BLACK	1
5	2SBKG5300	RUBBER CAP：Ø23.50*L19.00,POM,BLACK	1
4	2MG006	FRP：Ø20.00*L218.00,ID16.30,MATTE BLACK	1
3	2LC16P603	COPPER TUBE：Ø25.00*L19.50,BRASS, NICKEL PLATED	1
2	2LC16PF901	RP-N PLUG：Ø20.00*L35.00,BRASS, NICKEL PLATED	1
1	2C5M14219BU1-68	SEMI FLEXIBLE COAXIAL CABLE：141,50Ω,BLUE	1

C C B B

TECHNICAL REQUIREMENTS:
ASSEMBLY REQUIREMENTS: WHEN ASSEMBLING FIBERGLASS PIPES WITH COPPER CAR PIPES AND RUBBER CAPS, AB GLUE SHOULD ALSO BE APPLIED INSIDE THE COPPER CAR PIPES AND RUBBER CAPS,
APPLY A CIRCLE OF AB ADHESIVE AT THE EXTERNAL GAP ON BOTH ENDS OF THE FIBERGLASS PIPE.
2 ELECTRICAL CHARACTERISTICS: 100% TESTED USING A VECTOR NETWORK ANALYZER. CHARACTERISTIC IMPEDANCE: 50 OHMS; OPERATING FREQUENCY RANGE: 1.88~1.93GHZ, STANDING WAVE RATIO: 2.0 MAX., GAIN: 4DBI.
3. DIMENSIONAL INSPECTION: [*], FAI FIRST PIECE PROCESS INSPECTION ITEM; ◆ QIP KEY INSPECTION ITEMS; ★ CPK PROCESS CONTROL PROJECT.
4. APPEARANCE INSPECTION: VISUAL INSPECTION. THE SURFACE OF THE PRODUCT MUST NOT HAVE SCRATCHES, DAMAGES, OR DIRT; THE COATING SHOULD HAVE A BRIGHT AND UNIFORM COLOR, WITHOUT OXIDATION.
5 PACKAGING SPECIFICATIONS: 1PCS/BUBBLE BAG, 4PCS/ZIP (4PCS PRODUCT TOTAL LENGTH TOLERANCE WITHIN ± 2.00).
6 ENVIRONMENTAL REQUIREMENTS: ALL MATERIALS USED IN PRODUCTS AND PRODUCTION PROCESSES MUST MEET THE REQUIREMENTS OF THE EU ROHS DIRECTIVE.

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 DRAWING
DRA./DATE: S.He 24.01.12
CHE./DATE:
APP./DATE:
FILE FORM: HJ-QR-E-03 22.09.01

Dongguan HUANGJIE Communication Technology Co., Ltd.
东莞市皇捷通讯科技有限公司
TITLE: FRP ANTENNA
1.88~1.93GHz FRP ANTENNA,
141 SEMI FLEXIBLE COAXIAL CABLE,OD20.00*L254mm
CODE: 3E0702BK-011
SIZE: A4 | UNIT: mm | PRO.: 3rd | SCALE: 1:2 | PAGE: 1/1

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

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1.88~1.93GHz Antenna

1 SCOPE

1.1 CONTENTS

This Product Specification covers the mechanical, electrical and environmental performances specification for 1.88~1.93GHz 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
1.88~1.93GHz	50Ω	2.0MAX.	4.5dBi	-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

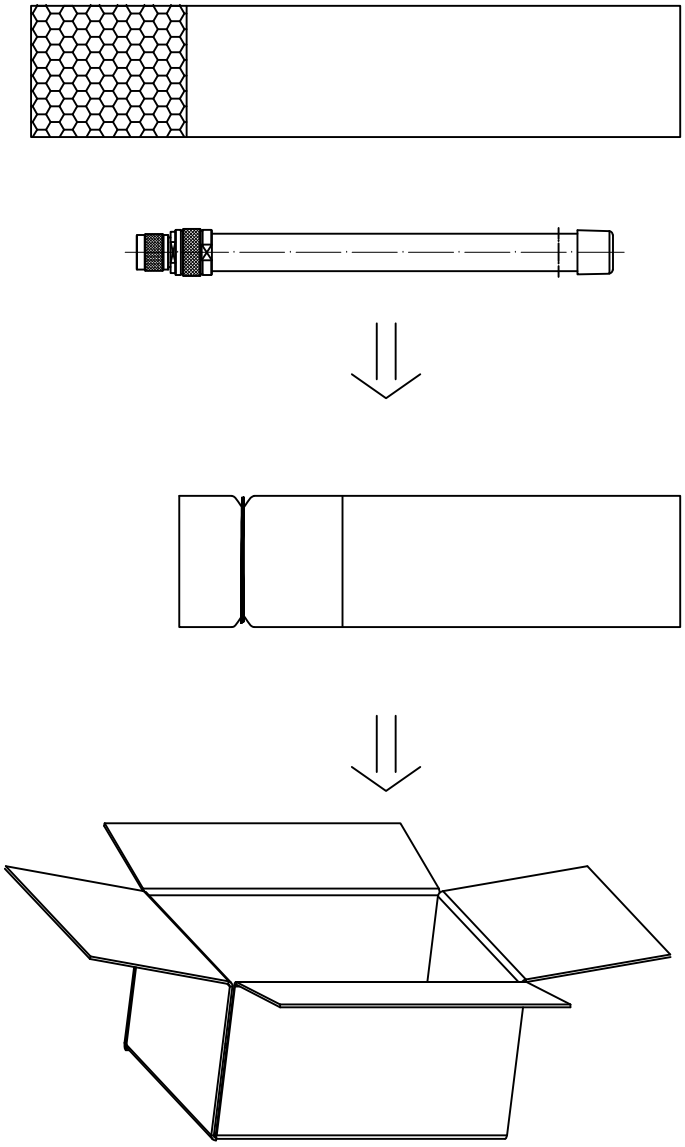
6	Durability	Solder the receptacle onto the test board, interlock the male and female connectors using a mating tester for 30 cycles, and then test the parameters.	Appearance: No AbnormalityContact Resistance: Shall meet 3.4.1/2/3/4
7	Cable retention	1 It is considered qualified if a 1.30 kg weight is 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

H431

REV.	RELEASE AND CHANGE SUMMARY	DATE
A	FIRST ISSUE	2024.01.12



Packaging specifications:
1 piece per bag, packed with bubble wrap and rubber bands.
2. 60 pieces/box, carton specifications: 290*280*240, carton dimensions can be adjusted according to material size and quantity.
3. Paper separator: 2 pieces per carton. Place one paper separator at the bottom of the carton before packing, and another before sealing.
4. The sealing method adopts an "I"-shaped design, with identical upper and lower sections.
5. The material is insufficient to fill the carton, requiring the use of filler material.
6. Material card labels and month labels shall comply with the specifications as per customer requirements.

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: //
DRA./DATE: S.He 26.06.13
CHE./DATE:
APP./DATE:
FILE FORM: HJ-QR-E-03 22.09.01

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

TITLE: Packaging Specification

CODE: 3E0702BK-011

SIZE:	UNIT:	PRO.:	SCALE:	PAGE:
A4	mm	3rd	1:2	1/1

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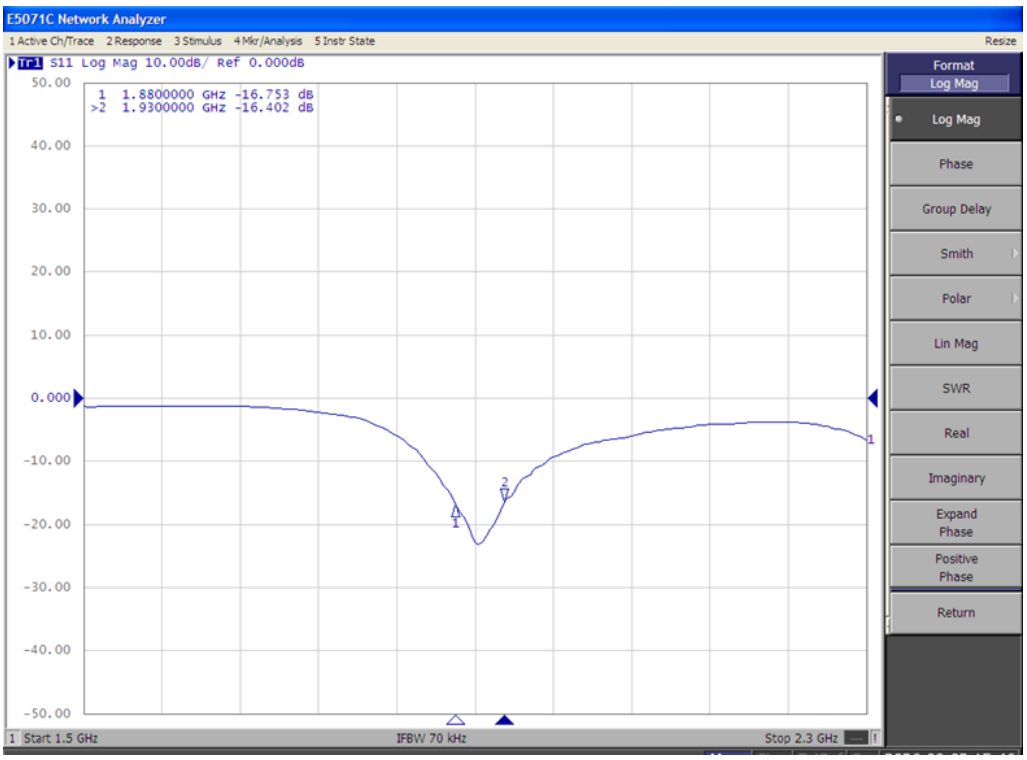
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Antenna Electrical Characteristic Test Report

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

Part Number:	3E0702BK-011	Item	Spec	Judge
Part Name:	1.88~1.93GHz FRP ANTENNA,141 SEMI FLEXIBLE COAXIAL CABLE,OD20.00*L254mm	VSWR	2.0MAX.	pass
Test Equipment	Agilent E5071C/OTA Chamber	Characteristic impedance	50Ω	pass
Quantity	5pcs			
Test Date	2026/8/11			

1 RETURN LOSS



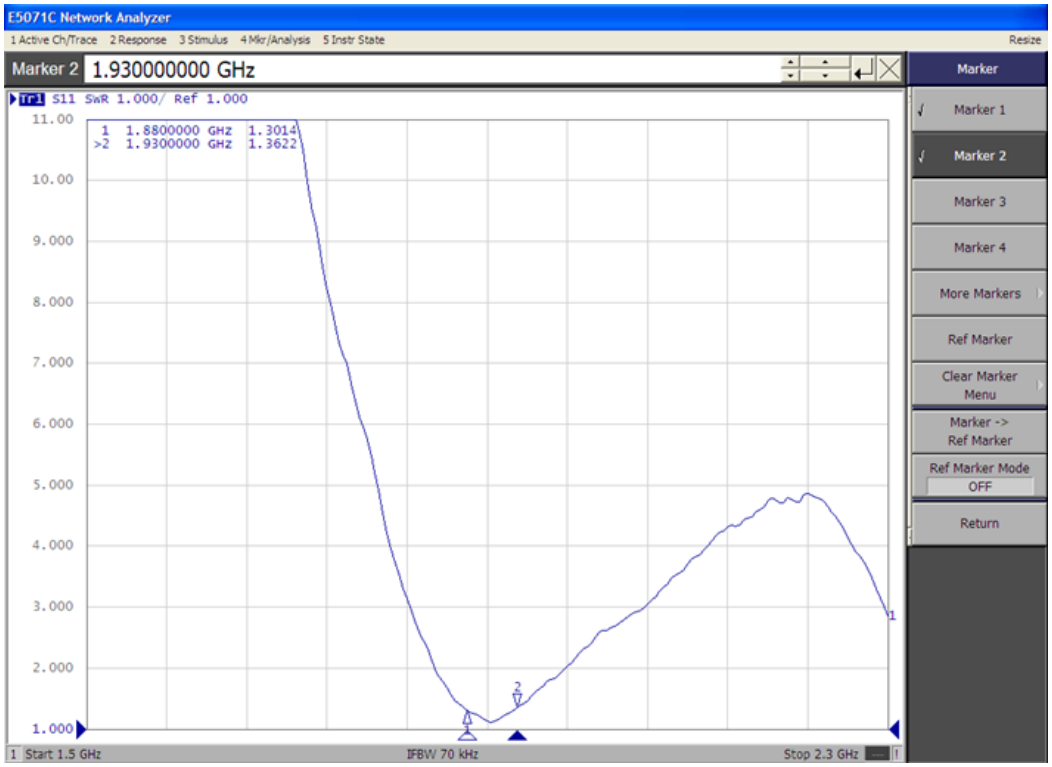
Checker: XIU HE **Tester: S.He**

Antenna Electrical Characteristic Test Report

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

Part Number:	3E0702BK-011	Item	Spec	Judge
Part Name:	1.88~1.93GHz FRP ANTENNA,141 SEMI FLEXIBLE COAXIAL CABLE,OD20.00*L254mm	VSWR	2.0MAX.	pass
Test Equipment	Agilent E5071C/OTA Chamber	Characteristic impedance	50Ω	pass
Quantity	5pcs			
Test Date	2026/8/24			

2 VSWR



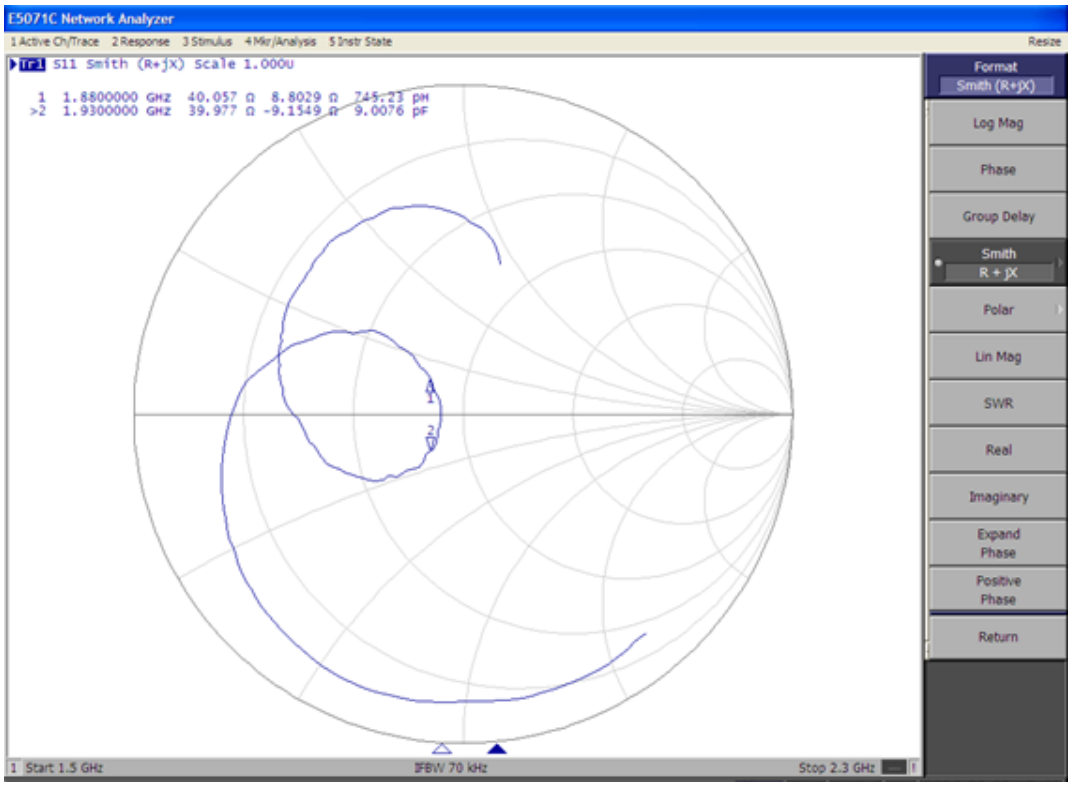
Checker: XIU HE **Tester: S.He**

Antenna Electrical Characteristic Test Report

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

Part Number:	3E0702BK-011	Item	Spec	Judge
Part Name:	1.88~1.93GHz FRP ANTENNA,141 SEMI FLEXIBLE COAXIAL CABLE,OD20.00*L254mm1165mm	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

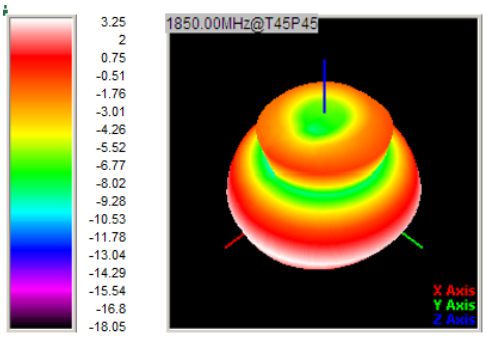
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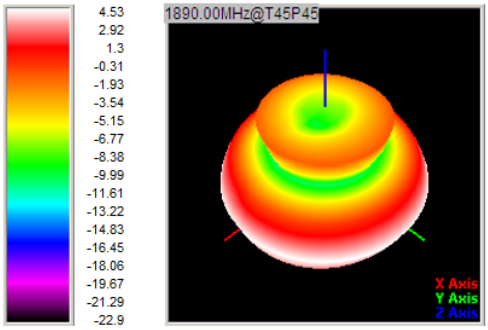
Part Number:	3E0702BK-011	Item	Spec	Judge
Part Name:	1.88~1.93GHz FRP ANTENNA,141 SEMI FLEXIBLE COAXIAL CABLE,OD20.00*L254mm	Gain	4. 5dBi	pass
Test Equipment	Agilent E5071C/OTA Chamber	Characteristic impedance	50Ω	pass
Quantity	5pcs			
Test Date	2026/8/24			

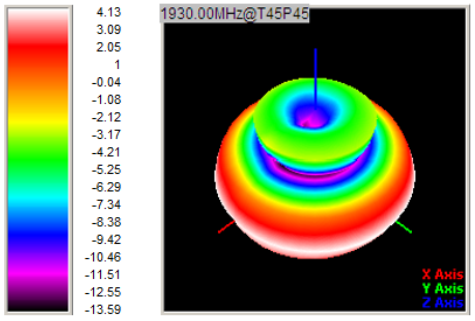
4 2D/3D RADIATION PATTERN

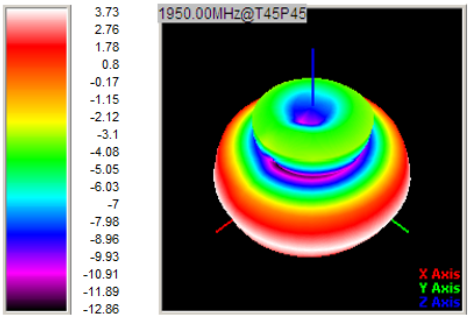
FEITUKEJI

Frequency ID	1	2	3	4	5	6	7	8	9	10	11
Frequency (MHz)	1850.0	1860.0	1870.0	1880.0	1890.0	1900.0	1910.0	1920.0	1930.0	1940.0	1950.0
Point Values											
Ant. Port Input Pwr. (dBm)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tot. Rad. Pwr. (dBm)	-2.09	-1.55	-1.16	-1.04	-0.85	-0.83	-0.89	-0.87	-0.95	-0.92	-1.09
Peak EIRP (dBm)	3.25	3.86	4.25	4.36	4.53	4.53	4.43	4.36	4.13	4.02	3.73
Directivity (dBi)	5.34	5.41	5.41	5.40	5.38	5.36	5.31	5.23	5.08	4.94	4.83
Efficiency (dB)	-2.09	-1.55	-1.16	-1.04	-0.85	-0.83	-0.89	-0.87	-0.95	-0.92	-1.09
Efficiency (%)	61.90	69.90	76.60	78.70	82.20	82.60	81.50	81.80	80.40	81.00	77.70
Gain (dBi)	3.25	3.86	4.25	4.36	4.53	4.53	4.43	4.36	4.13	4.02	3.73









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