



惠州硕贝德无线科技股份有限公司

Huizhou Speed Wireless Technology Co.,Ltd

Specifications For Main Antenna of Project Infrared Sphere 10

Customer/ Project	Infrared sphere 10	Frequency Band	700-960MHz 1710-2690MHz		
SCT P/N	F-0Y-31-0166-001-K0	Version	V1.1		
Date	2024.1.3				
SPEED					
Checked by	RF	TXJ	Designed by	RF	LXD
	ME	Nick		ME	Nick
	QC		Remark		
Customer					
Date					
Confirmed by	RF				
	ME				
Remark					

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Revised Records

Date	Revision version	Change Description	Author
20230717	V1.0	Initial version	LXD
20240103	V1.1	Update version	M Z

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1 Project Overview

This document is the specifications of the Infrared Sphere with Main antenna. The supported frequency band is 700-960MHz, 1710-2690Mhz.

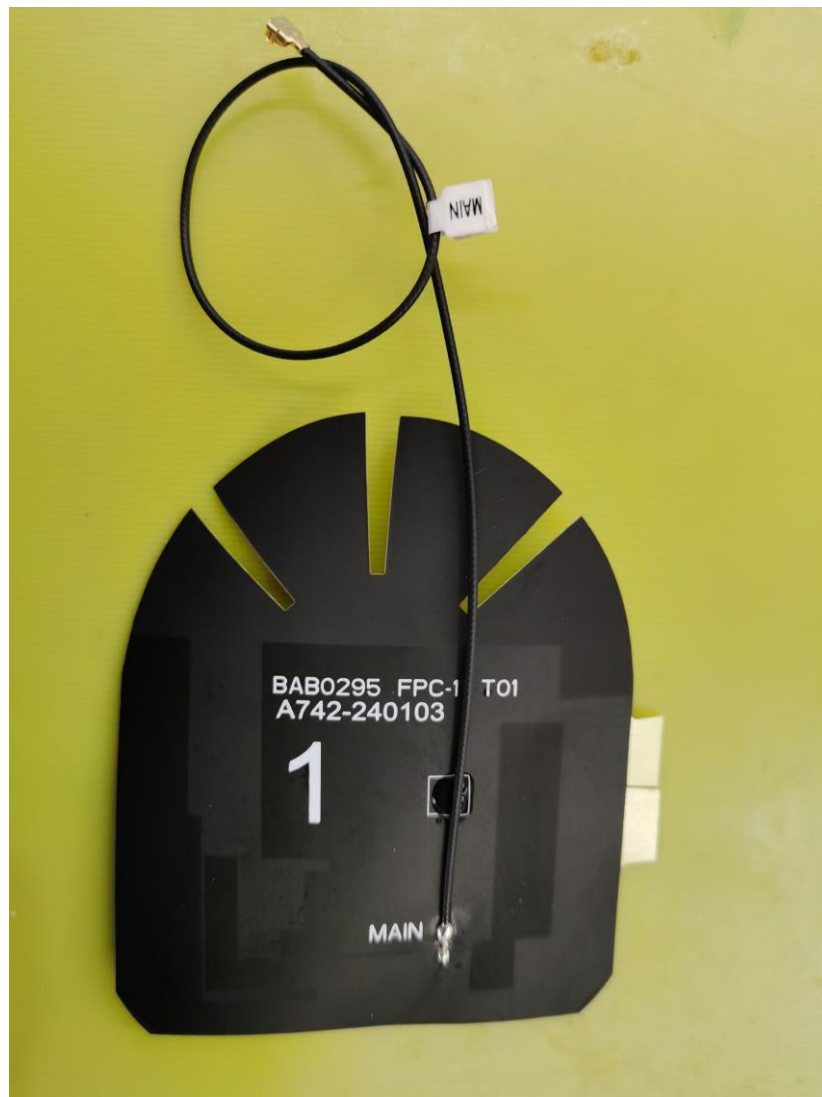


Figure1 Antenna picture

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2 Antenna Specification

Antenna Form	FPC+CABLE+LABEL
Working Bands	700-960MHz 1710-2690MHz
Peak Gain	<4dBi
Efficiency	25%-71%
VSWR	<4
Impedance	50ohm
Polarization	Linear polarization
A/R	N/A
Radiation Pattern	Omnidirectional
Feed Mode	Cable
Power capacity	33dBm
Size(L*W*H)	79*65mm
Weight	N/A
Operating temperature	-30 °C to +80 °C
Storage temperature	-30 °C to +80 °C

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3 Test Environment

The measuring equipment for antenna return loss, voltage standing wave ratio and isolation is Keysight E5071C vector network analyzer. As shown below:



Figure 2 Keysight E5071C vector network analyzer

The efficiency, gain, and pattern of the antenna are all tested in a dark room at Satimo, France. The darkroom uses 64 probes to electronically scan the antenna's radiation performance, collect data, and then analyze and organize it through a computer, which can provide antenna testing in the 400MHz to 8.5GHz frequency.



Figure3 Satimo Darkroom

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4 Test Results

4.1 Return Loss

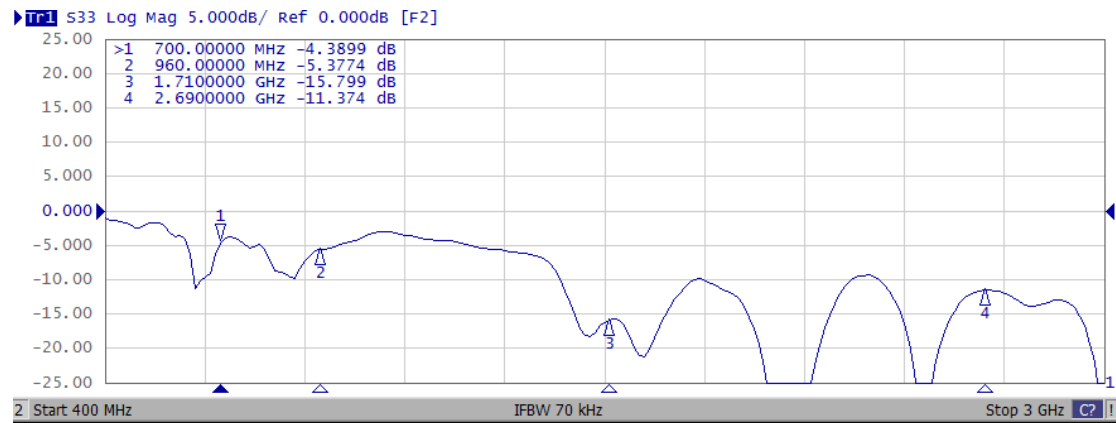


图 5 天线驻波图

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4.2 Passive Efficiency and Gain

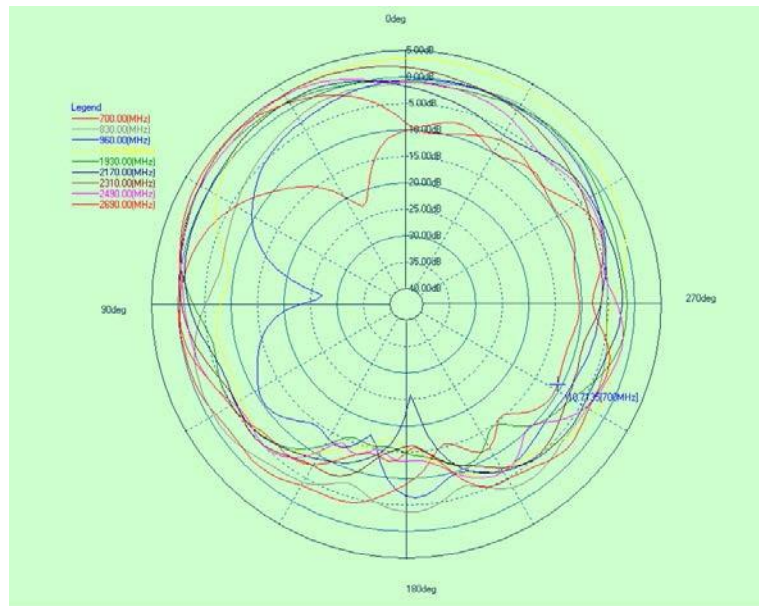
Fre	Effi.	Gain	Fre	Effi.	Gain	Fre	Effi.	Gain
700	31%	-0.05	1710	53%	3.55	2210	67%	4.62
710	28%	-0.02	1730	52%	3.60	2230	71%	4.66
720	26%	-0.10	1750	52%	3.26	2250	70%	4.46
730	26%	-0.02	1770	53%	3.18	2270	66%	4.05
740	28%	0.25	1790	53%	3.36	2290	63%	3.90
750	29%	0.19	1810	53%	3.51	2310	64%	4.00
760	31%	-0.50	1830	52%	3.39	2330	64%	4.09
770	34%	-0.63	1850	50%	3.42	2350	64%	4.26
780	39%	0.20	1870	50%	3.75	2370	61%	4.01
790	44%	0.70	1890	46%	3.44	2390	58%	3.87
800	42%	0.33	1910	42%	2.77	2410	58%	4.17
810	38%	-0.06	1930	39%	1.90	2430	62%	4.70
820	36%	-0.31	1950	40%	1.81	2450	65%	4.81
830	38%	0.69	1970	43%	1.98	2470	66%	4.73
840	38%	1.19	1990	48%	2.22	2490	67%	4.76
850	40%	1.55	2010	50%	2.47	2510	65%	4.67
860	40%	1.91	2030	47%	2.24	2530	63%	4.55
870	37%	1.95	2050	45%	2.23	2550	62%	4.55
880	36%	1.64	2070	45%	2.62	2570	62%	4.71
890	35%	1.33	2090	50%	3.54	2590	61%	4.44
900	32%	1.02	2110	54%	3.88	2610	58%	4.14
910	29%	0.77	2130	57%	3.94	2630	55%	3.85
920	27%	0.37	2150	58%	3.89	2650	54%	3.81
930	26%	0.07	2170	59%	3.85	2670	54%	3.92
940	25%	-0.07	2190	62%	4.28	2690	56%	4.49
950	25%	-0.15						
960	25%	-0.36						

Band	TRP	Band	TRP
FDD_B8	18.3	FDD_B2	19.84
	17.98		19.23
	17.96		18.3
FDD_B5	18.4	FDD_B4	19.35
	18.81		18.91
	18.76		19.86
FDD_B12	15.03	FDD_B7	19.56
	16.98		19.62
	16.56		19.42
FDD_B17	16.6	FDD_B1	19.49
	16.84		17.97
	16.54		19.03
FDD_B28	14.72	FDD_B3	19.49
	15.41		19.69
	14.63		20

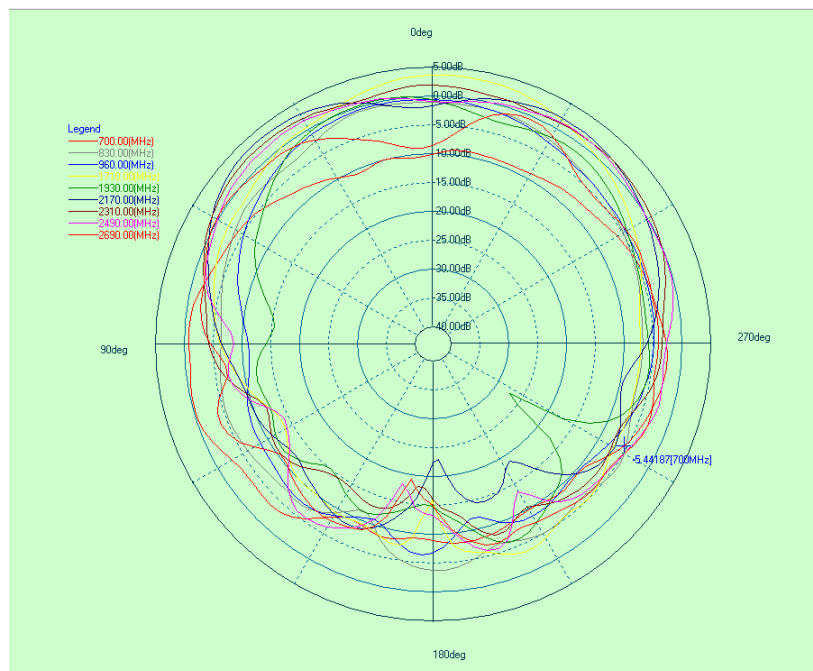
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4.3 Pattern



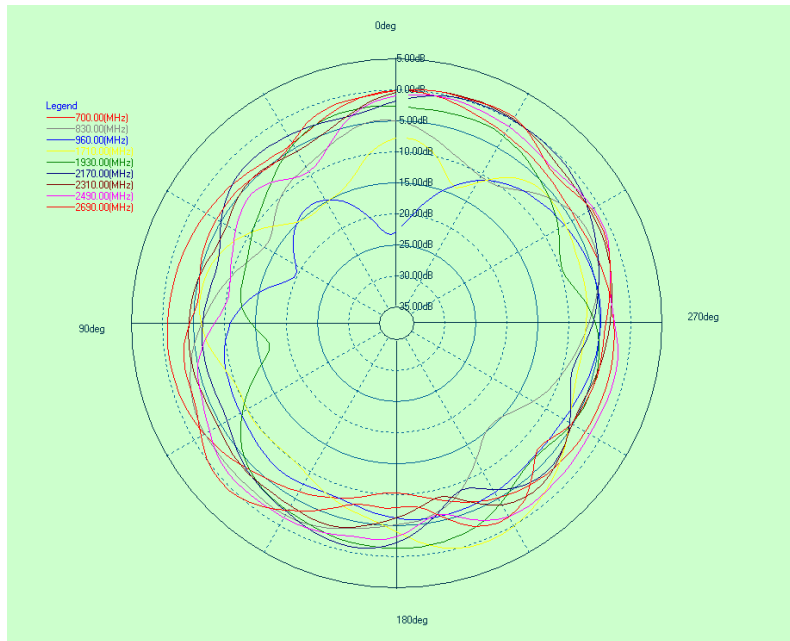
$\Phi = 0^\circ$



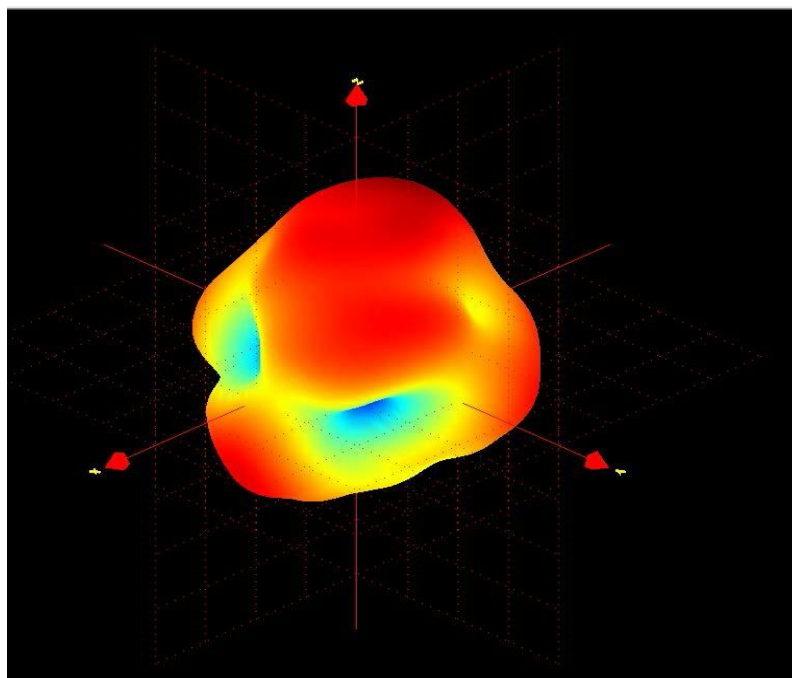
$\Phi = 90^\circ$

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Theta=90°

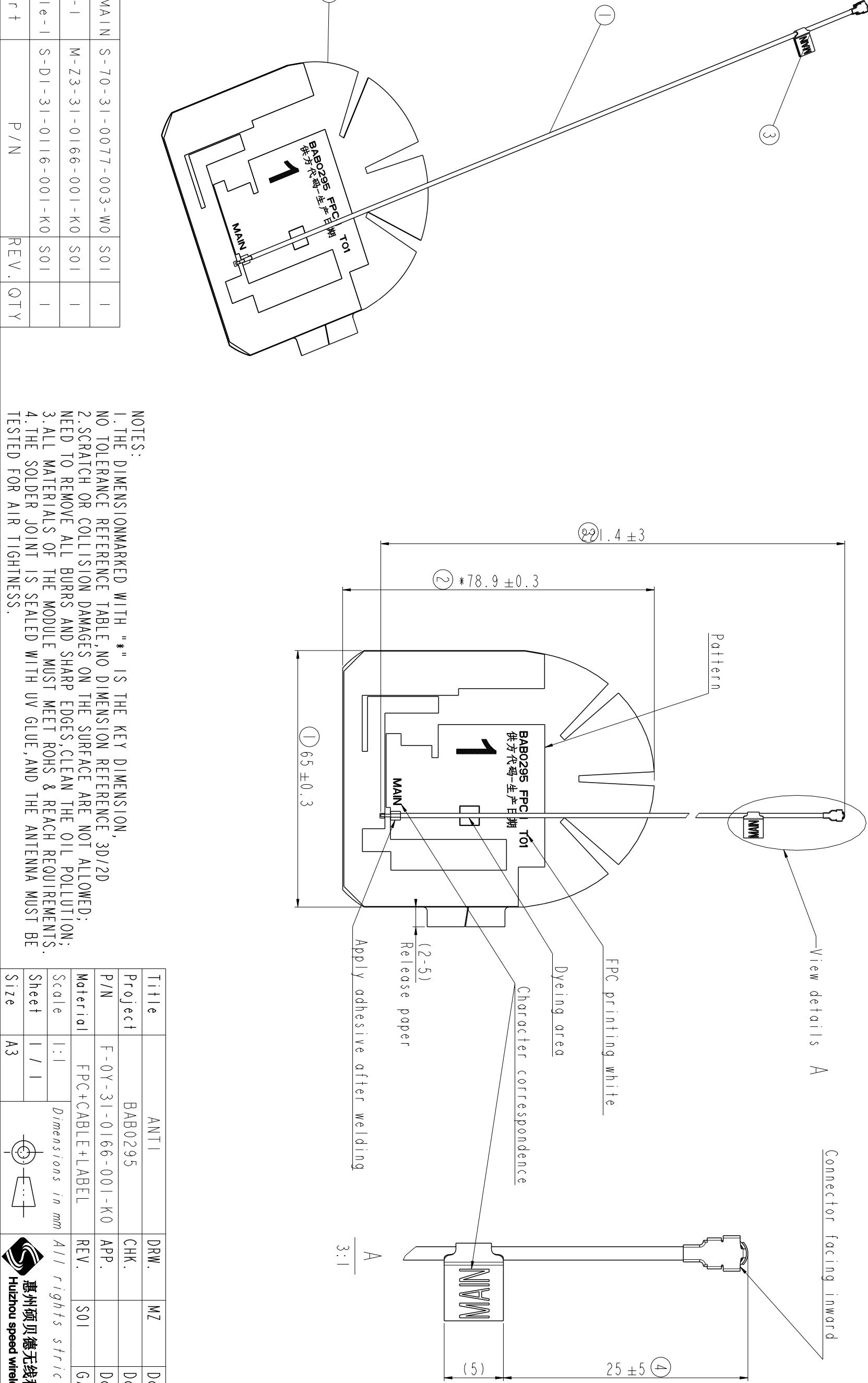


3D pattern

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REVISION RECORD Please refer to sheet1 for details)				
Marks	QTY	Description	Name	Date



NOTES:
1. THE DIMENSION MARKED WITH "*" IS THE KEY DIMENSION, NO TOLERANCE REFERENCE TABLE, NO DIMENSION REFERENCE 3D/2D
2. SCRATCH OR COLLISION DAMAGES ON THE SURFACE ARE NOT ALLOWED; NEED TO REMOVE ALL BURRS AND SHARP EDGES, CLEAN THE OIL POLLUTION;
3. ALL MATERIALS OF THE MODULE MUST MEET ROHS & REACH REQUIREMENTS.
4. THE SOLDER JOINT IS SEALED WITH UV GLUE, AND THE ANTENNA MUST BE TESTED FOR AIR TIGHTNESS.

Title	ANTI	DRW.	MZ	Date	25/2/28
Project	BAB0295	CHK.		Date	
P/N	F-0Y-31-0166-001-K0	APP.		Date	
Material	FPC+CABLE+LABEL	REV.	S01	G/W	2 g
Scale	1:1	Dimensions in mm			
Sheet	1 / 1				
Size	A3				

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Recommended: SCT/QRF 7.3-48/A.2