

Environmental protection:
RoHS2.0/REACH
Version: A / 0

SPECIFICATION FOR APPROVAL

Customer : Jiahe Intelligent Technology Co., LTD

- Product : antenna-R

Part No.: 300116190269D00

Customer (business) confirmation and reply:

Signature :

PASSED

REJECTED

PRODUCT INFORMATION

Product : FPC antenna

Part No.: CE-2231B

Samples No.:

Drawing No.:

Date: 2025-9-18

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DATE:	DATE:	DATE:

Innovation INNOVATION Trust RELIABILITY satisfaction SATISFACTION



Shenzhen Yusheng Communication Equipment Co., LTD

SHENZHEN YUSHENG COMMUNICATION EQUIPMENT CO., LTD

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Form Number: CO-ENG-031B

CE-2231B Antenna specifications

Customer name: Jiahe Intelligent Technology Co., LTD

Customer name: CE-2231B

Product name: antenna-R


Size of product: Please see the BOM table list for more details

Material code: 300116190269D00

Change Content CV:

order number	edition	state	availability date	person liable	page number	remarks
1	R:A	editio princeps	2025.09.18	Li Jieyi	12	

The Supplier acknowledges the signature of the following part:

Responsible person / date		IQC/ date	Review / Date	Approval / Date
MD	Bi Yezhi	Su Guanfeng	Zeng Xiang good	
RF	Jiang Mningfei			

The Demander acknowledges the signature (please send it back after confirmation):

The demander the result: <input type="checkbox"/> qualified <input type="checkbox"/> unqualified			
Development & Design Engineer / Date	SQE Engineer / Date	Purchasing Leader / Date	Development Manager approval / date

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1. Overview

1.1 Scope of application

This requirement applies to CE-2231B Antenna type selection, test, and acceptance.

1.2 Project basic information

Antenna name:	<u>CE-2231B</u>
Antenna frequency:	BT: 2402-2484MHZ
Antenna material:	FPC antenna

2. Technical index requirements

2.1 Introduction of test items and equipment

inventor y	test item	equipment
Active test	TRP, TIS	Integrated tester, microwave darkroom

2.2 Active Reporting

2.2.1 Test instructions

Test tools: Agilent8960 instrument, R & S CMW500, full wave far field ETS dark room, high precision positioning system and its controller and computer with automatic test program

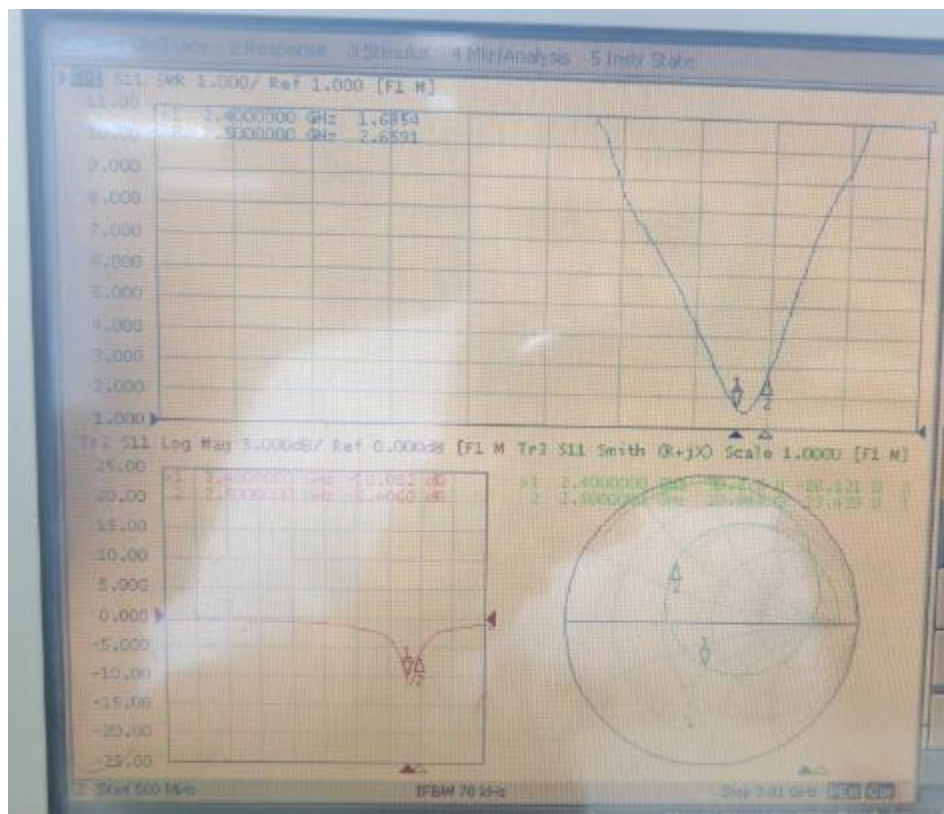
Test environment: temperature $22^{\circ}\text{C} \pm 3^{\circ}\text{C}$, humidity $50\% \pm 15\%$

Test method: DUT is fixed in the center of the turntable with H plane, on the same horizontal line as the center of the horn antenna.

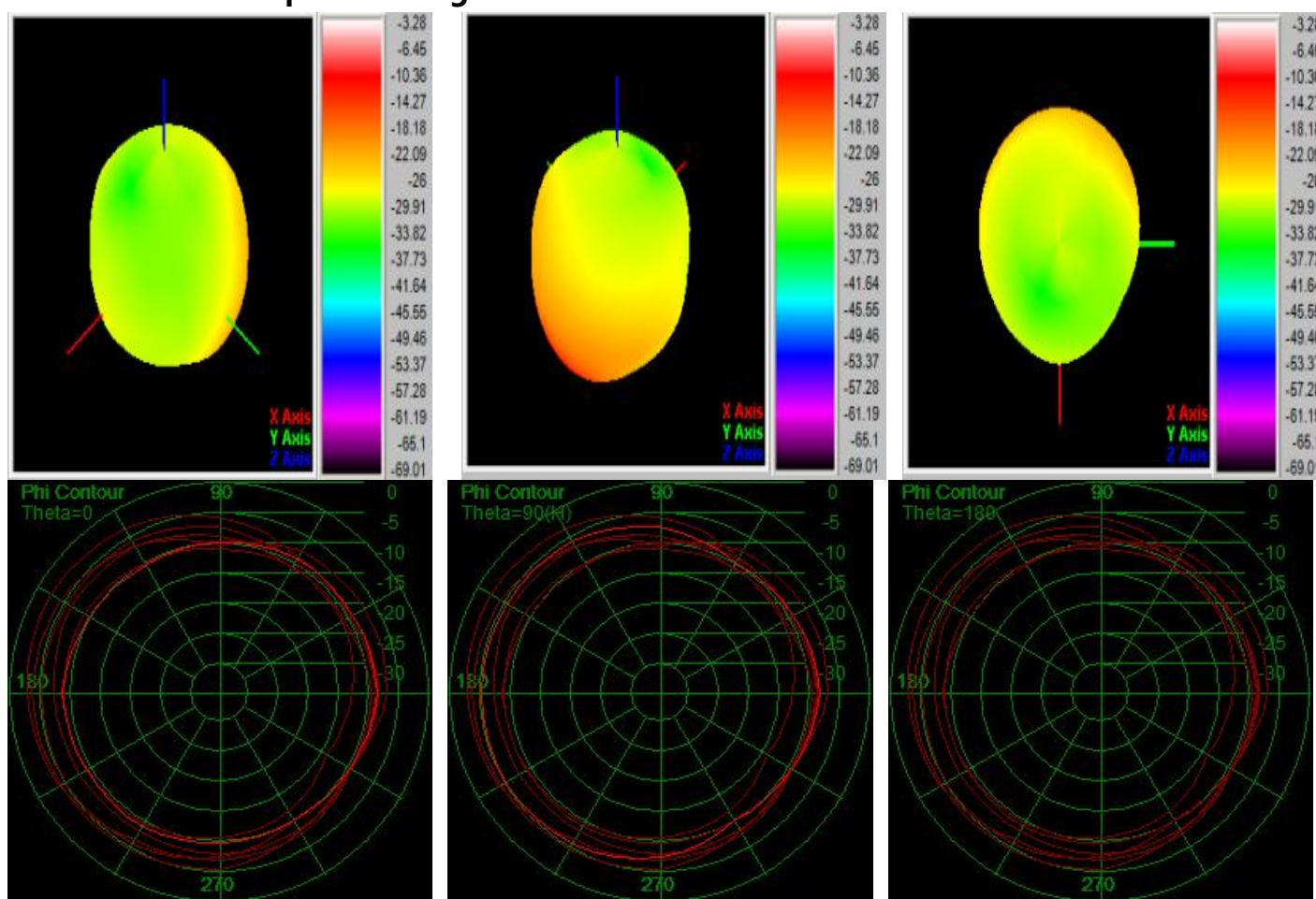
The positioning system enables the DUT to rotate in the whole sphere to satisfy the high-precision 3 D positioning. Each RF instrument and turntable controller communicate with the PC with automatic test software through the GPIB interface

2.2.2 Antenna has no power

Freq	productive ness (%)	Productiveness (dB)	gain(dBi)
2400.0	18.2%	-7.4	-4.34
2410.0	18.8%	-7.3	-4.12
2420.0	19.1%	-7.2	-3.97
2430.0	19.3%	-7.1	-3.65
2440.0	19.6%	-7.1	-3.55
2450.0	20.2%	-6.9	-3.28
2460.0	20.5%	-6.9	-3.57
2470.0	19.9%	-7.0	-3.66
2480.0	19.6%	-7.1	-3.82
2490.0	18.7%	-7.3	-4.11
2500.0	18.5%	-7.3	-4.15



2.2.3 R-2450MHZ-passive diagram of the antenna direction

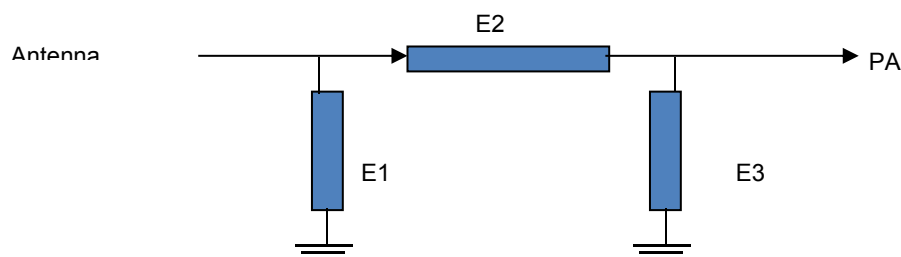


2.2.4 Active antenna parameters

Channel No.	R/Free space test data	
	TRP (dBm)	TIS (dBm)
0	1.36	-86.34
39	3.45	-87.42
78	2.32	-87.45

Channel No.	R/Head/Ear test data	
	TRP (dBm)	TIS (dBm)
0	-1.58	-83.59
39	-0.15	-84.7
78	-0.32	-84.12

2.2.5 Match changed



Element	Value
E1(0201)	NC
E2(0201)	0Ω
E3(0201)	NC

2.2.6 Antenna measured data

test method:	1. Distance Test: Connect the phone to a Bluetooth headset and place it on a non-metallic stand 60cm high. The tester wears the headset and walks backward while rotating 360 degrees. Measure the maximum distance where call and music playback remain uninterrupted within the headset.	
	2. Proximity test: The tester carries a mobile phone (preferably in the back pocket of the pants with the main ear of the Bluetooth headset) to test whether there is any jamming or breaking during human rotation.	
	3. Hand covering test: The tester wears headphones and connects with the mobile phone to play music. Two states are tested: 1) Test with fingertips facing up to check whether there is any jamming of music; 2) Test with fingertips facing back to check whether there is any jamming of music.	
Test site :	In the open area outside our building (see test environment)	
testing facility :	Samsung S8	
test result :	listen to music	1. When the left and right ears are mutually the main ears, there is no sticking phenomenon in the pull distance test within 15M.
		2. Proximity has not been tested yet.
		3. Cover your ears with both hands and wait for testing.

test method:	1. Distance Test: Connect the phone to a Bluetooth headset and place it on a non-metallic stand 60cm high. The tester wears the headset and walks backward while rotating 360 degrees. Measure the maximum distance where call and music playback remain uninterrupted within the headset.	
	2. Proximity test: The tester carries a mobile phone (preferably in the back pocket of the pants with the main ear of the Bluetooth headset) to test whether there is any jamming or breaking during human rotation.	
	3. Hand covering test: The tester wears headphones and connects with the mobile phone to play music. Two states are tested: 1) Test with fingertips facing up to check whether there is any jamming of music; 2) Test with fingertips facing back to check whether there is any jamming of music.	
Test site :	In the open area outside our building (see test environment)	
testing facility :	iphone 6	
test result :	listen to music	1. When the left and right ears are mutually the main ears, there is no sticking phenomenon in the pull distance test within 25M.
		2. Proximity has not been tested yet.
		3. Cover your ears with both hands and wait for testing.

3. Structural drawings

R antenna

1	2	3	4	5	6	7	8
A				A			
B				B			
skills requirements:				skills requirements:			
1. PC substrate specifications:				PC substrate: 1.0 mm			
2. Electroplating specifications:				Electrolytic copper: 0.5mm			
3. Surface ink requirements:				Double-sided tape: 3M 4711SE			
4. Reliability requirements:				Nickel plating: 3mm			
5. Tolerance requirements:				All: 0.05mm			
6. Key control size:				Surface ink color: Medical grade White Black Ink			
7. Environmental requirements:				Printing font color: White			
8. Packaging requirements:				Printing font height: According to drawings			
DATE				1			
Modify the content				2			
Version				3			
Revise				4			
The dimensions marked with numbers are regarded as important dimensions, and the others refer to 2D drawings				The dimensions marked with numbers are regarded as important dimensions, and the others refer to 2D drawings			
1. Shape tolerance ±0.15;				1. Shape tolerance ±0.15;			
2. Copper foil circuit tolerance ±0.05;				2. Copper foil circuit tolerance ±0.05;			
3. The position of the copper foil to the shape is ±0.15;				3. The position of the copper foil to the shape is ±0.15;			
4. Burrs shall not exceed ±0.10; hole-to-hole position tolerance ±0.15;				4. Burrs shall not exceed ±0.10; hole-to-hole position tolerance ±0.15;			
5. The size tolerance of gold finger is ±0.20				5. The size tolerance of gold finger is ±0.20			
6. For other unmarked dimensions, refer to 2D drawings				6. For other unmarked dimensions, refer to 2D drawings			
Shenzhen Yu Sheng Communication Equipment Co., Ltd.				Shenzhen Yu Sheng Communication Equipment Co., Ltd.			
Model				Model			
Name				Name			
Part NO				Part NO			
Material quality				Material quality			
Roll surface treatment				Roll surface treatment			
Appearance treatment				Appearance treatment			
DATE				DATE			
Design				Design			
Review				Review			
MD				MD			
BYZ				BYZ			
CRH				CRH			
confirm				confirm			
UNIT				UNIT			
mm				mm			
proportion				proportion			
FIT				FIT			
Revise				Revise			
R.A				R.A			
1				1			
2				2			
3				3			
4				4			
5				5			
6				6			
7				7			
8				8			

*7.06±0.15

*17.23±0.15

*0.12±0.03

Release Paper-Free

2231B R-V0.9

Gold plated Area



Shenzhen Yusheng Communication Equipment Co., LTD

4. List of materials



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095029 (CE-2231B) BOM

Edition : T:A

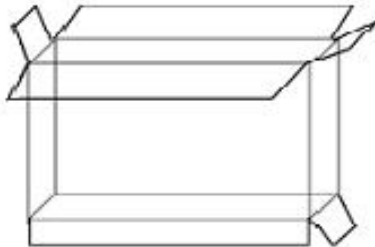
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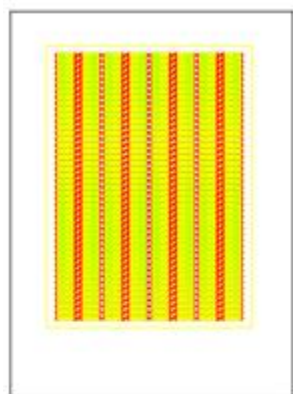
Set a date : 2025/5/6

Item number	*Material code	*Material name	name	*Machine type	Specification and model	colour	*UNIT.	dosage	remark
2	095029 -IB-TA	R antenna		CE-2231B	Black R-Style FPC with 1-Side Half-Half ETP Copper & Selective Gold Plating,17.23*7.06*0.12MM	black	PCS	1	
2.1	095029 -IB-01-TA	R-FPC		CE-2231B	Black R-Style FPC with 1-Side Half-Half ETP Copper & Selective Gold Plating,17.23*7.06*0.12MM	black	PCS	1	
verify :			examine :			manufacture : BYZ			

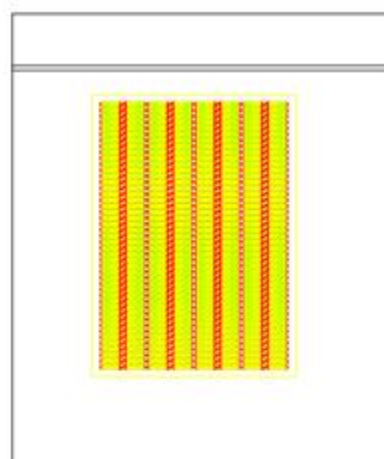
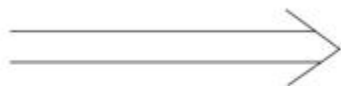
5. Package schematic diagram

Packaging method diagram		
product name	antenna	
Project model	CE-2231B	
File details	Carton Size 1: 270*260*200MM Carton Size 2: 260*200*200MM Carton Size 3: Depending on the order quantity / volume	
	Boating method	The minimum package of 100 bags, in turn with waterproof bags, a waterproof bag with up to 1000 materials
	Total number of binning	Packaging by order quantity
labeling requirement	Tag Size 1: Universal use 100 * 100mm Tag Size 2: According to customer requirements	
matters need attention		
1. Due to the limitation of order quantity, the packing method of each material is the size of the box according to the total quantity of the order or the physical volume		
2. Storage temperature: room temperature		
3. Storage conditions: store them in a cool and dry place		

1、小包装

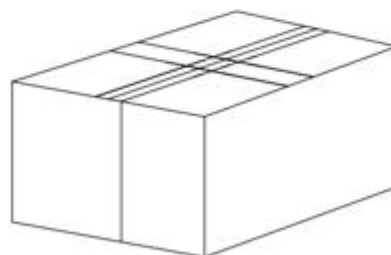
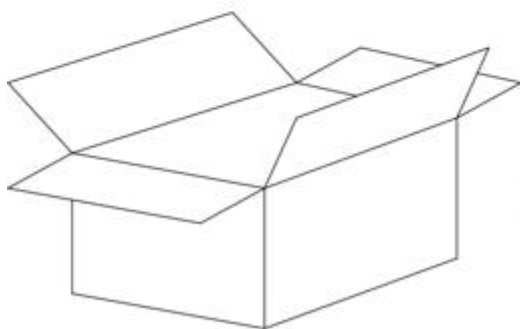


FPC antenna (full plate half cut shipment): 250*198



PE bag 5000PCS antenna

2、大包装



One box of 1-16 bags | 5000-80000pcs antenna |

3. Note :FPC products are manufactured by micromucous membrane.

Quantity of small package :5000PCS/ bag;

Large package quantity :5000-80000PCS/ box.

4. Precautions

4.1 The storage of products should ensure that the ambient temperature is $-10^{\circ}\text{C}\sim+24^{\circ}\text{C}$, the humidity is less than 90%, there is no rain leakage in the warehouse, the ground should be moisture-proof, and the acid fog and salt spray around the warehouse should be avoided Corrosion. The shelf life of the product is 180 days;

4.2 The product can be transported by land, water or air, and should be rainproof during transportation;

4.3 Stacking requirements :XXX;

(Other examples: It is strictly prohibited to throw, throw, etc... Require)