



intelligent Communications(shenzhen)CO.,Ltd  
ATWE intelligent Communications(shenzhen)CO.,Ltd  
number: ATW-GC-003 A/0

## Antenna Acknowledgement

### Internal Antenna

**Material code:** ATWE-01-0263-010

**Product name:** TBN001-BT antenna

**Date of issue:** 2022-09-01

### Manufacturer recognition column:

Preparation	to examine	approval
WeiSuni	YangHua	ChenJiaJia

### Customer recognition column:

confirm	to examine	approval



intelligent Communications(shenzhen)CO.,Ltd

# catalogue

Acknowledgement Cover.....
List of Contents.....
Change record.....
1. Purpose of Acknowledgment.....
2. Product materials.....
3. Antenna test data.....
4. Reliability test report.....
5. Packaging method.....
6. Structural drawings.....





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## Preparation/revision of change resume



## Objective:

Through the description of product characteristics and inspection standards in this letter, we can better communicate with customers, Reach an agreement to avoid product quality disputes caused by insufficient communication.

2. When our products need to be used in your outsourcing factory, please contact your outsourcing company with the contents of this letter of acknowledgment.

3. Precautions for use environment:

The FPC antenna is designed according to the general use environment (0~25 °C, 30%~70% normal pressure). Please note that the quality of the product will be reduced if it is used for a long time in the following situations:

- 3. 1. Reducing gas (C12, H2S, NH3, etc.).
- 3. 2. Volatile/olefinic gas environment.
- 3. 3. Places in direct contact with water or with high humidity and condensation.
- 3. 4. Places for oil, liquid medicine and organic solution.
- 3. 5. A place of vibration.
- 3. 6. Places with direct sunlight.

4. Storage and use

In order to prevent discoloration, weldability degradation and abnormal foaming during assembly, the following storage conditions shall be observed.

4.1. High temperature and humidity environment will cause discoloration of products, so it is recommended to manage and keep them in a constant temperature and humidity environment.

4.2. The PI film of FPC is very easy to absorb moisture. In the moisture absorption state, if the temperature changes sharply, foaming will occur,

It is recommended to prepare and bake according to the conditions before assembly (SMT, etc.). Please try to use the baked products in 2HR.

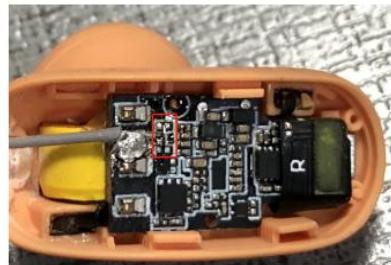
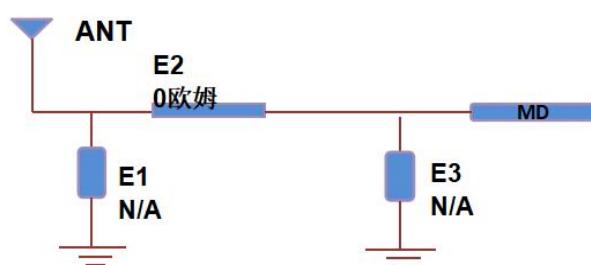
## Product materials:

FPC base material	Copper foil/18um base material/25um
3M Gummed paper	3M9471
surface treatment	Silk screen matte black oil/dumb white characters

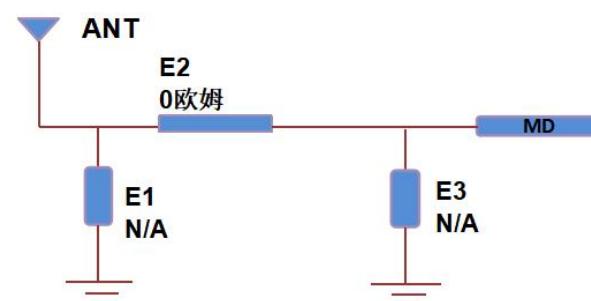


Antenna test data

## 3.1 Antenna matching circuit

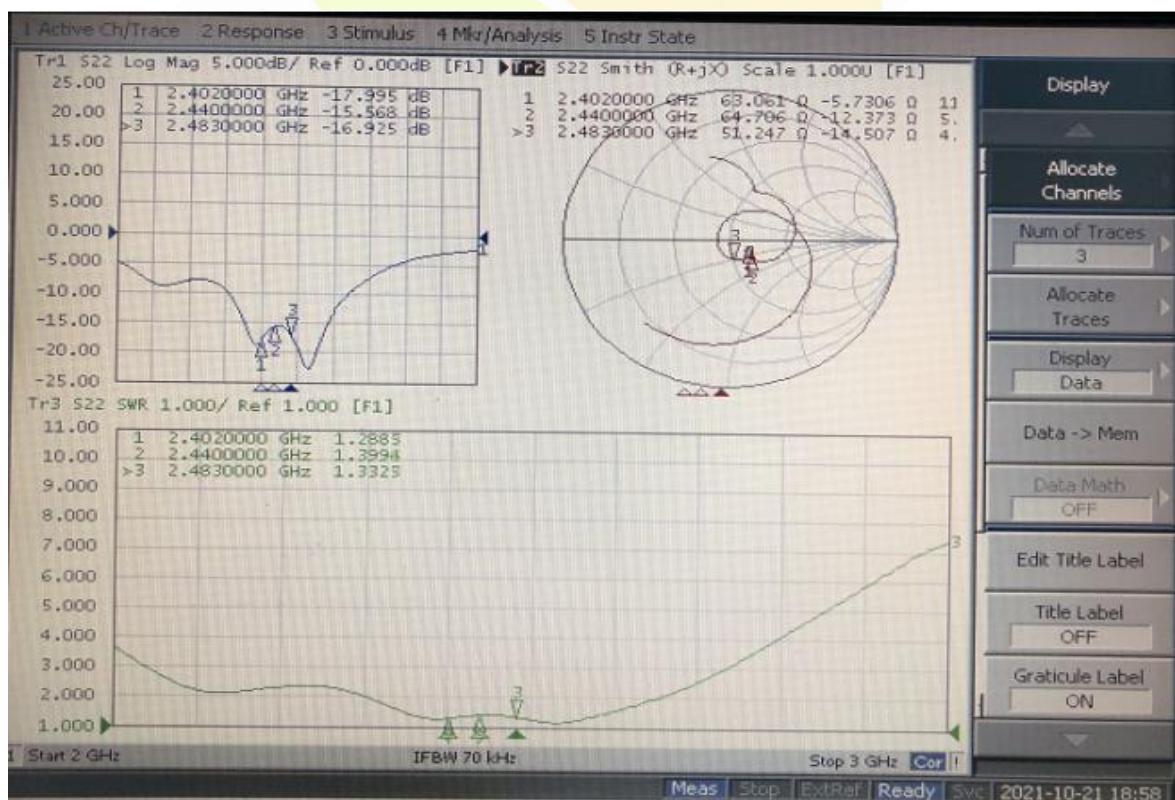


PIFA	
L	
E1-(0201)	N/A
E2-(0201)	0欧姆
E3-(0201)	N/A

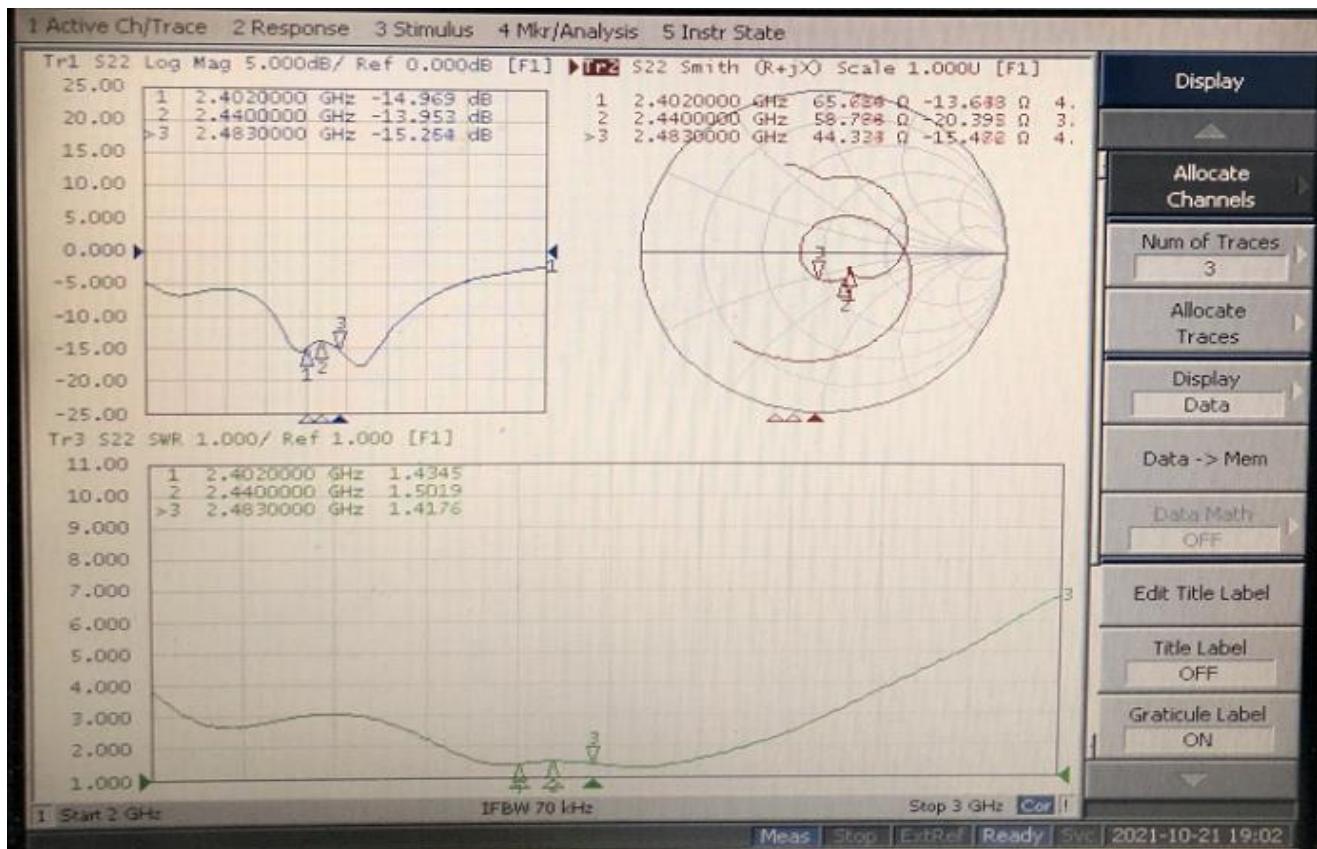


PIFA	
R	
E1-(0201)	N/A
E2-(0201)	0欧姆
E3-(0201)	N/A

## 3.2 Passive data (Return Loss)



### 3.3 Passive data (return loss/R)

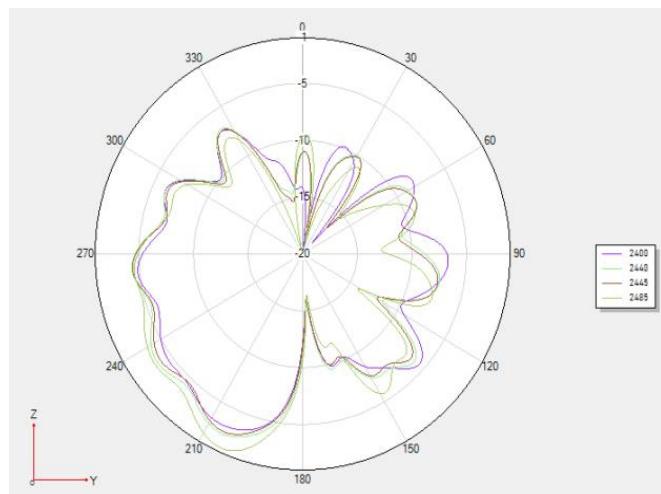


### 3.4 Passive efficiency

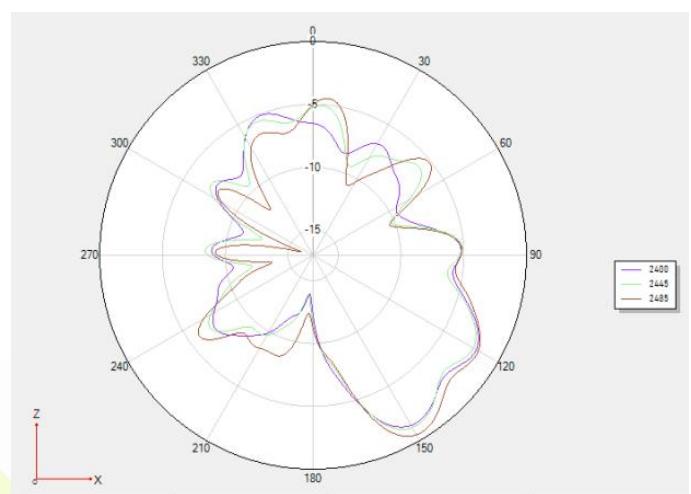
L			R		
BT			BT		
Frequency / MH	Gain/ dBi	Efficiency / %	Frequency / MH	Gain/ dBi	Efficiency / %
2400	0.27	28.84	2400	-0.12	29.99
2410	0.44	30.76	2410	0.23	30.06
2430	0.4	30.48	2430	0.53	29.85
2450	0.01	29.51	2450	0.45	31.05
2460	-0.23	29.72	2460	0.41	31.62
2470	-0.21	29.58	2470	0.47	30.27
2480	0.11	30.76	2480	0.45	30.06
2490	0.5	30.83	2490	0.53	31.48

### 3.5 2D Pattern

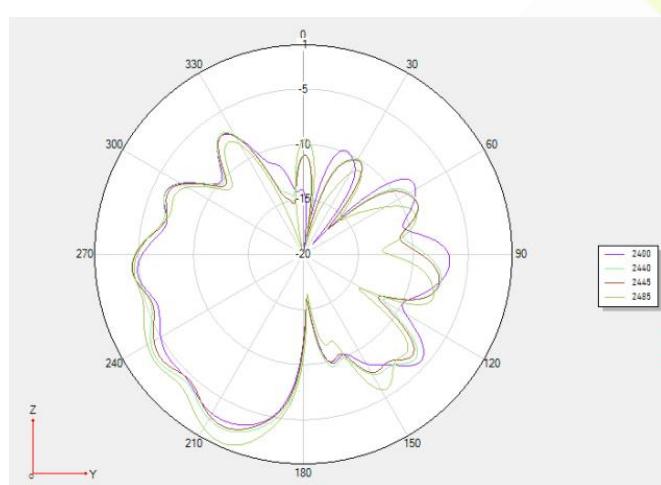
Phi 0



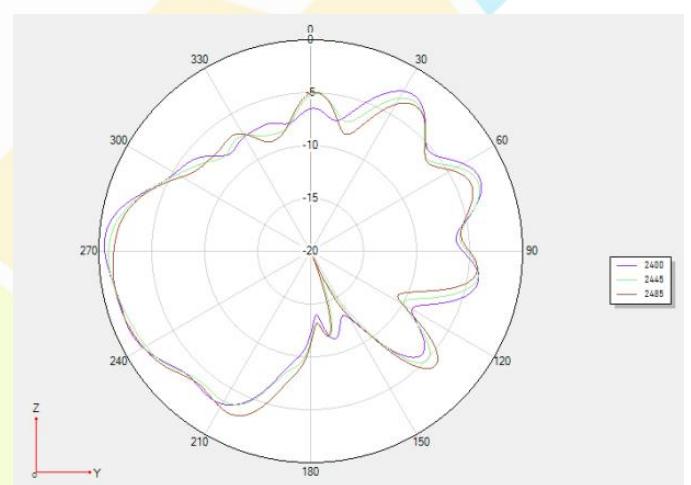
Phi 0



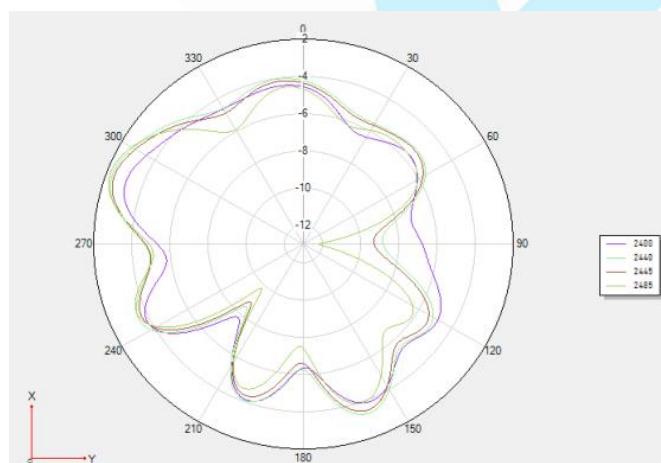
Phi 90



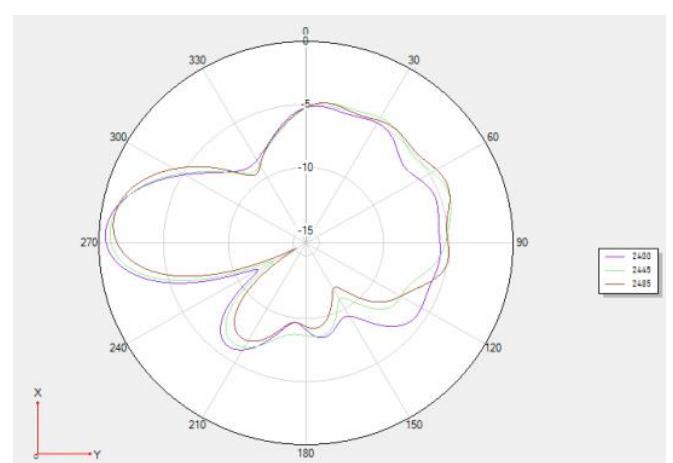
Phi 90



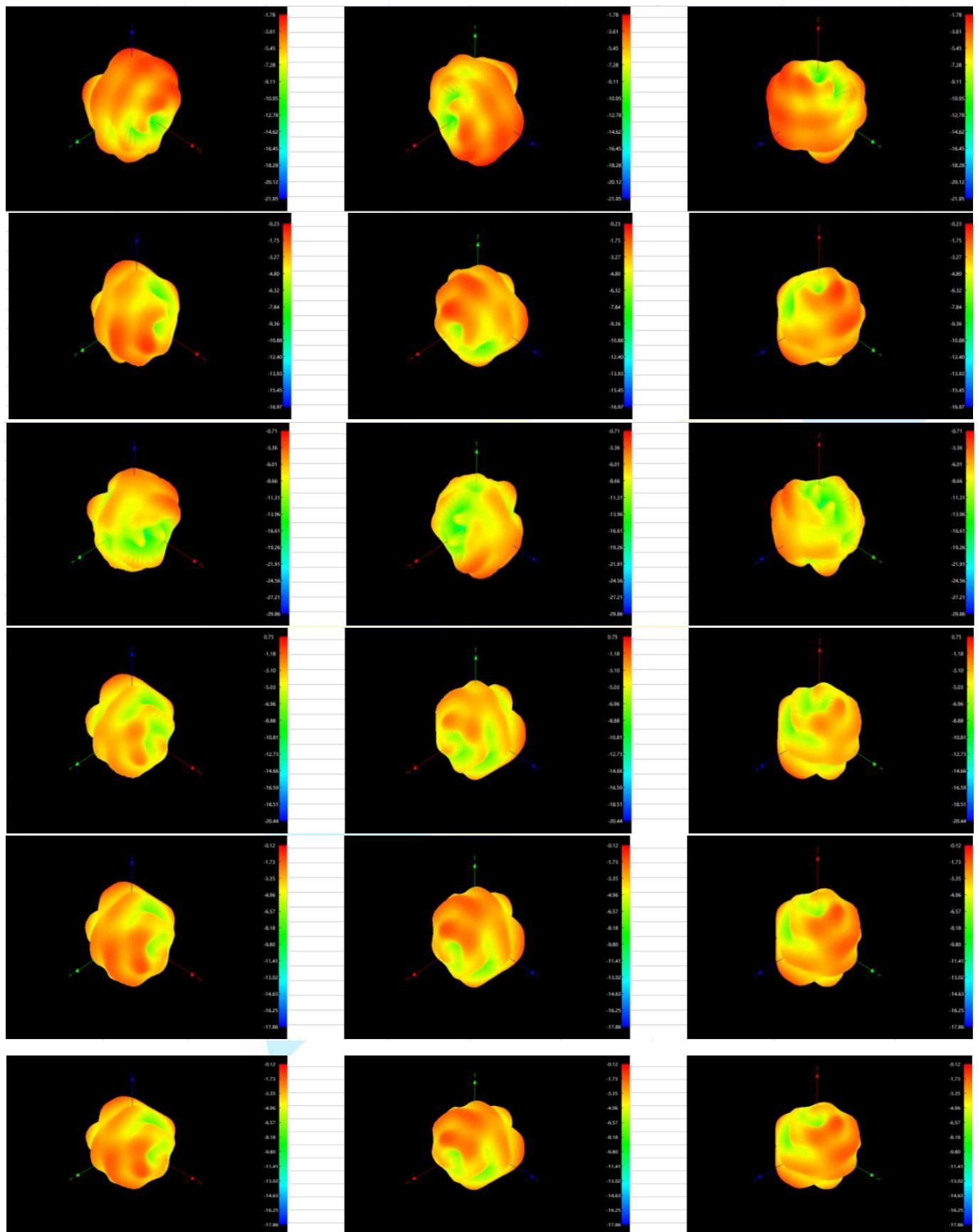
Theta 90



Theta 90



### 3.6 3D Pattern



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## Reliability test report

Test items	TBN001-BT-FPC		
	test method	Criteria	determine
Coating adhesion test	3M600 Tape test coating	No shedding OK, otherwise NG	OK
Thermal stress test	Thermal stress test: pre bake at 120 °C, raise the temperature to 280 °C, take out and dry	Stratification, bubble NG	OK
	40X Body mirror observation	Through hole copper layer fracture and delamination NG	OK
Solderability test	Put the product into solder resistance flux for pre dipping, and put it into 235 °C ± 5 °C tin furnace for tin dipping for 10 seconds	Discoloration, delamination and bubble NG of conductor	OK
	40X Body mirror observation	More than 95% of the upper solder pad is OK, otherwise NG	OK
Welding resistance test	Put the product into solder resistance flux for pre dipping, and put it into 235 °C ± 5 °C tin furnace for tin dipping for 10 seconds	Tin on the bonding pad is OK, otherwise NG	OK
Test with 3M tape	Test with 3M tape	The thermosetting adhesive (reinforcing plate) shall not fall off or delaminate when tested with 3M adhesive tape.	OK
		When tested with 3M adhesive tape, the pressure sensitive adhesive (reinforcing plate) has no peeling and delamination.	OK
		The base material shall be free of peeling and delamination when tested with 3M adhesive tape.	OK
		The protective film shall not fall off or delaminate when tested with 3M adhesive tape.	OK
Bending test	Take 5PCS from the product, hold one end of the sample, make it bend 180 degrees 15 times in one direction around a 1mm needle gauge, with the bending area of the sample as the axis	The surface is seriously wrinkled, and the electrical performance is not affected. OK	OK
	40X Body mirror observation	No fracture on copper surface OK	OK

Test : WeiJiangRui

to examine: ChenZongLai

**Result determination: qualified**



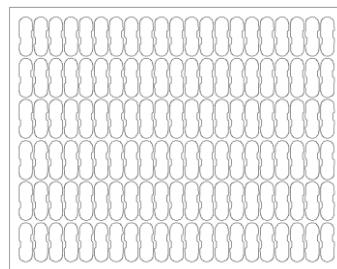
Packaging method

ATWE Product packaging specification

Product name: TBN001-BT antenna

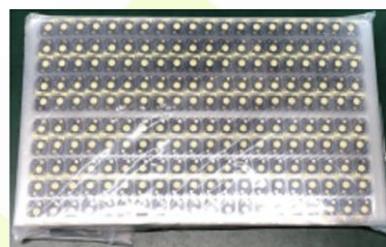
edition: V0

一、 Micro mucosa genuine shipping (250\*198=126PCS) 。



(Sketch Map)

二、 Put the whole page into PE sealed pocket for packaging --- the quantity shall be subject to the actual order 。

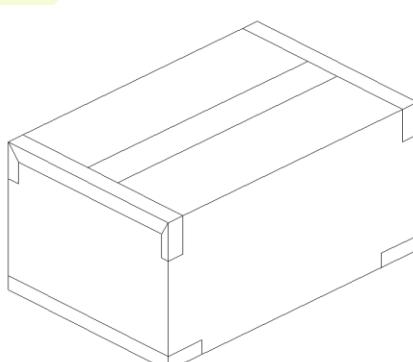
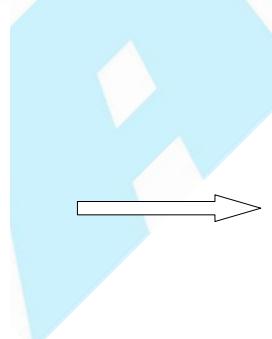
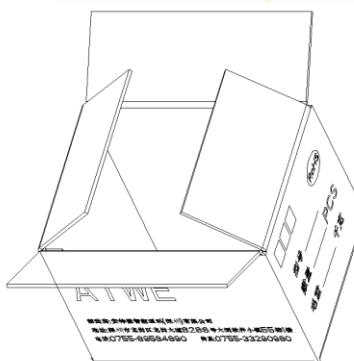


(Reference drawing)

三、 Large box loading. (The quantity is subject to the actual order and packaging quantity)

四、 Box sealing,

The outer box is labeled with our production label and ROHS label



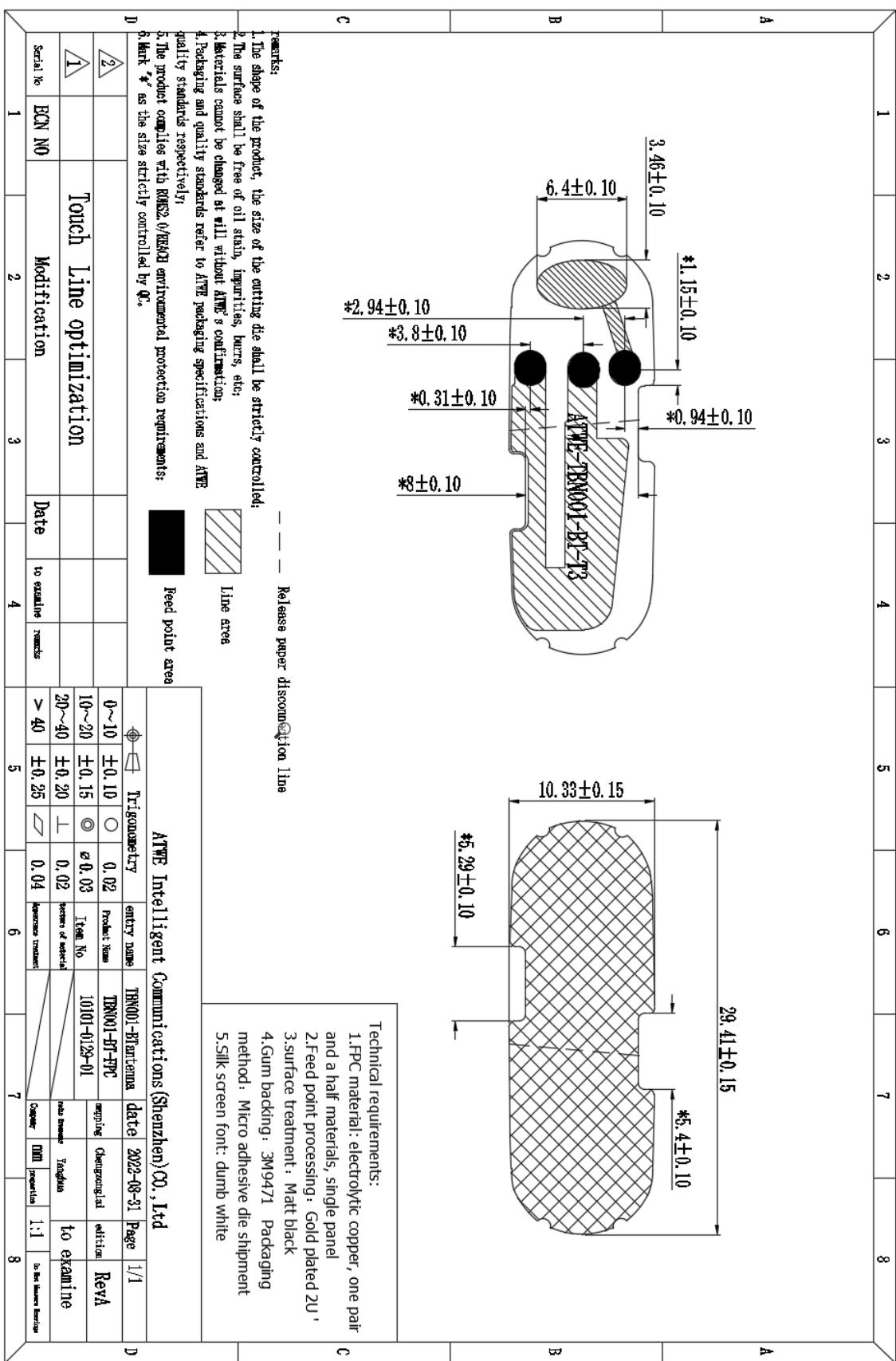
notes:

As there is no trial production or formal mass production for this project, the above packaging methods are for reference only, and the specific packaging is subject to the trial production order or formal mass production!



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Structural dimension drawing



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