

# SUNNYWAY TECHNOLOGY(CHINA)

## ANTENNA SPEC

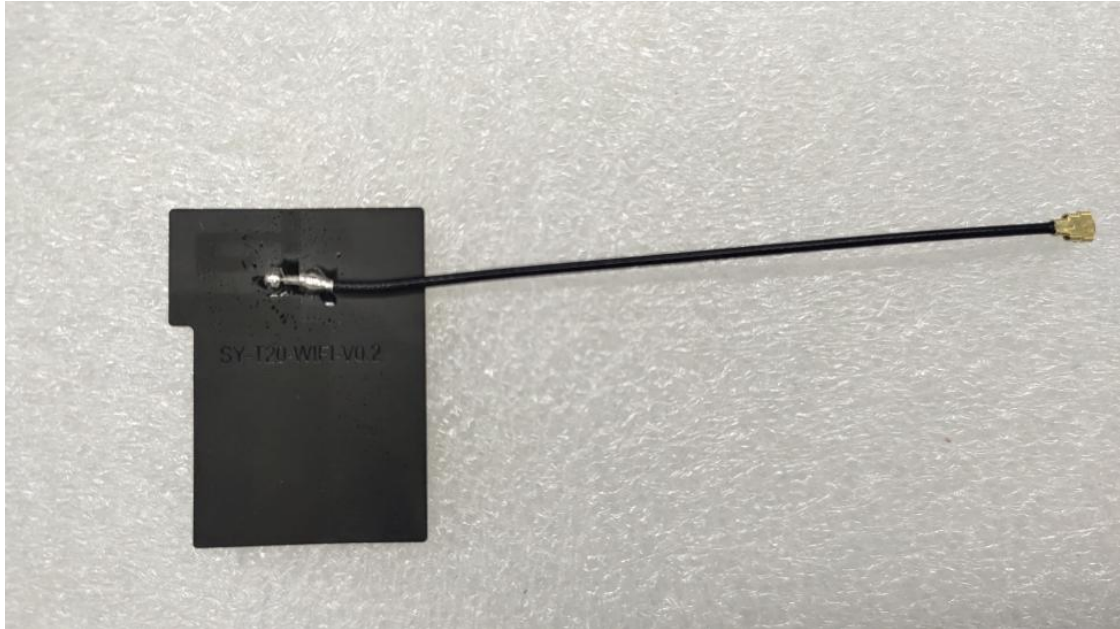
Company name : Tianbo (Shenzhen) Co., Ltd		Entry name : T20
Working band: WiFi(2.4G/5G)		
Motherboard version :		
<b>Sunnyway Material specification</b>		
Specification type	Sunnyway number	Customer number
WIFI Antenna	SZ22060IB77-3	

Revision history			
Date of preparation/change	Change content	Altered person	Edition
2023.06.08	New issue	Chen min	A

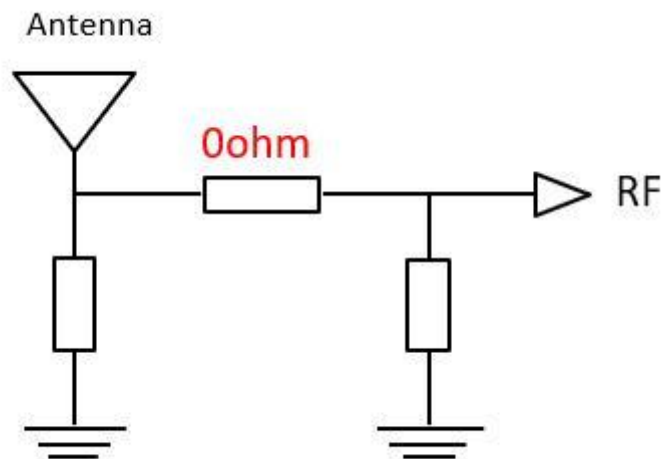
Sunnyway Countersign column				
R&D	ME :	To examine :	QE :	Approval :
	RF :	To examine :		
Customer will sign the column				
Electronic Engineer	Project manager	Structural Engineer	Quality Engineer	

## 1. Project information

*Antenna product picture*



## 2. Matching circuit



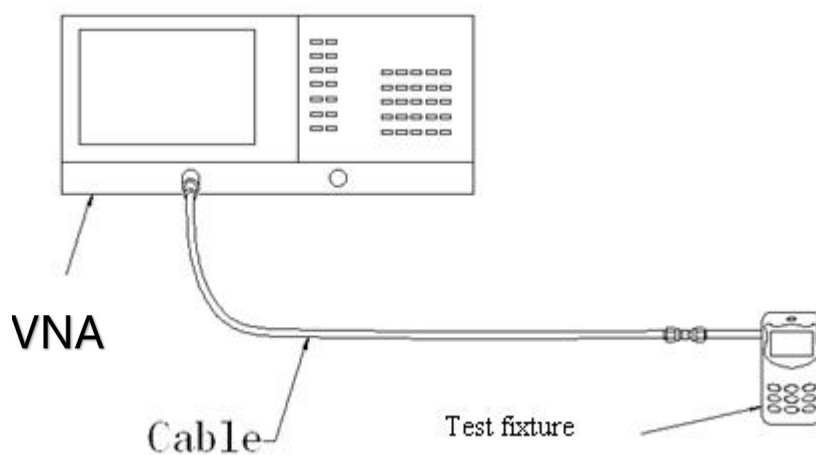
## 3. Antenna passive testing data

### 3.1 S11 Description of the test method

Test the equipment : Vector network analyzer (Agilent E5071C)

Test methodology : Use a 50 ohm CABLE cable to export from the instrument test port, use the calibration piece to calibrate and connect the SMA connector of the test fixture, and record the return loss and standing wave ratio corresponding to the relevant frequency point.

Below is a schematic picture of the test :



Test schematic diagram

### 3.2 S11 Test parameters

(Freq.) MHz	2400	2450	2500	5150	5850
VSWR	1.8	1.7	1.6	1.9	1.6

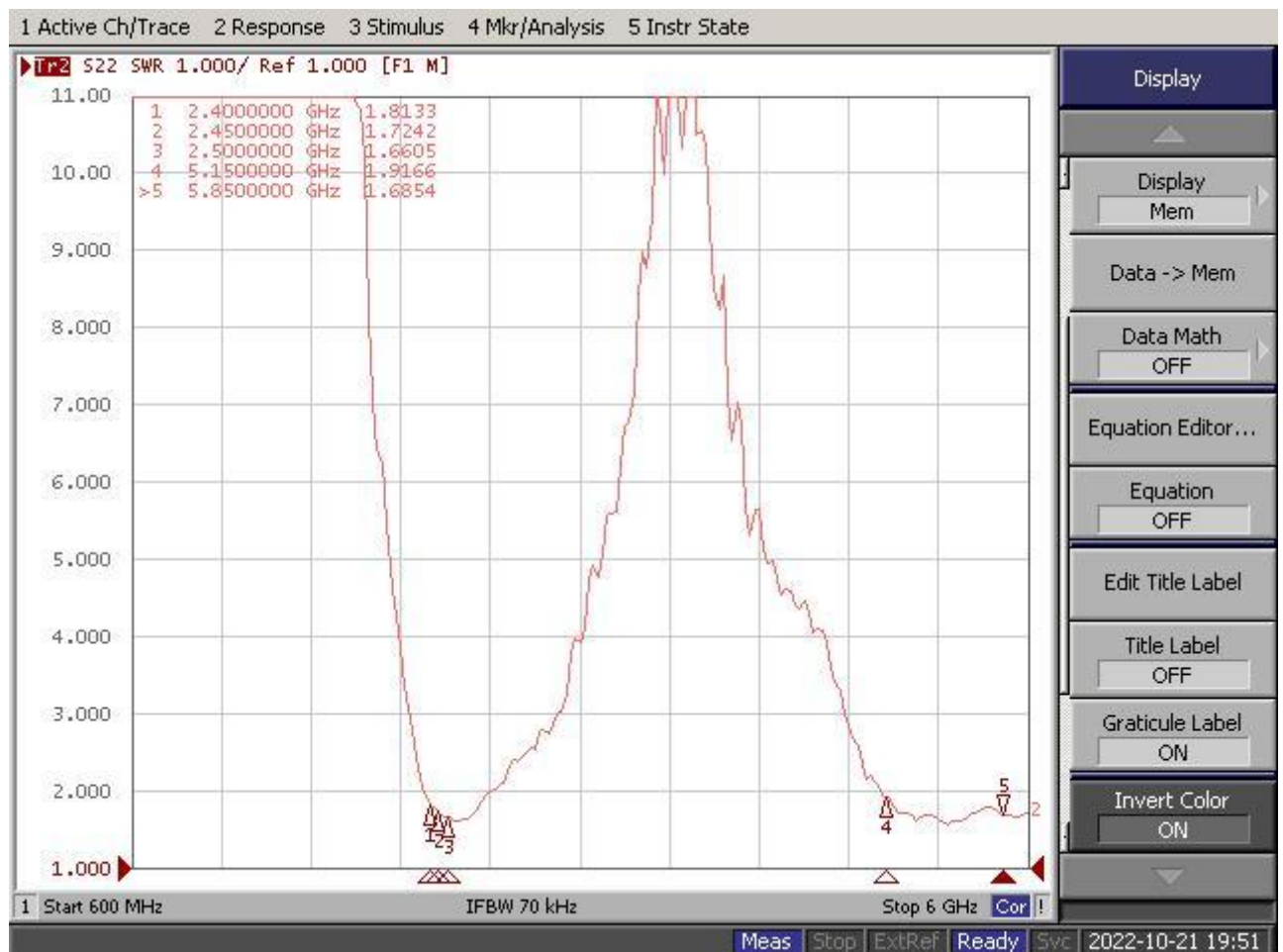
VSWR

### 3.3 Antenna

efficiency

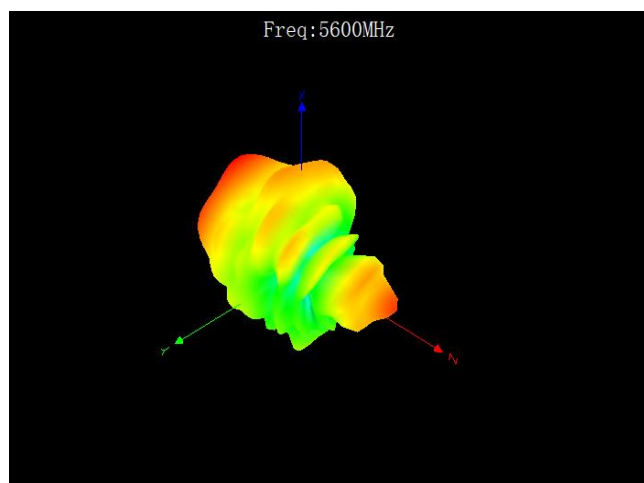
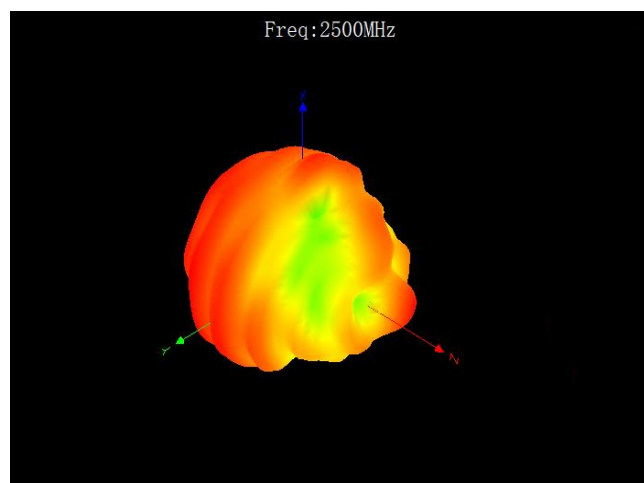
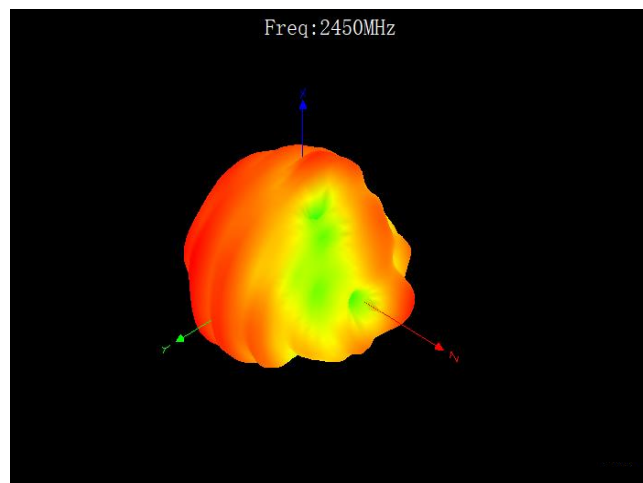
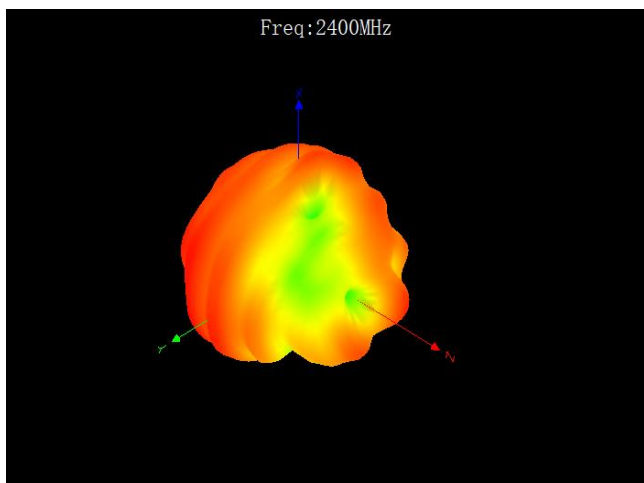
and

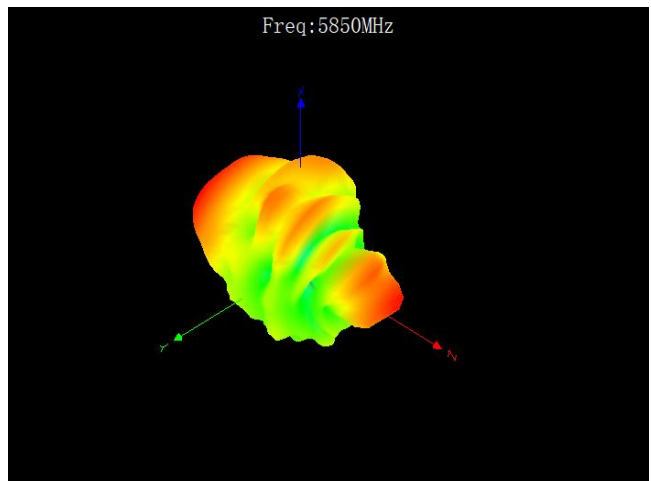
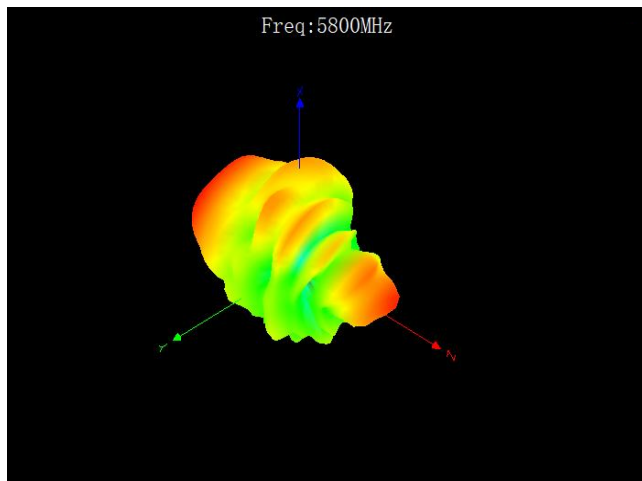
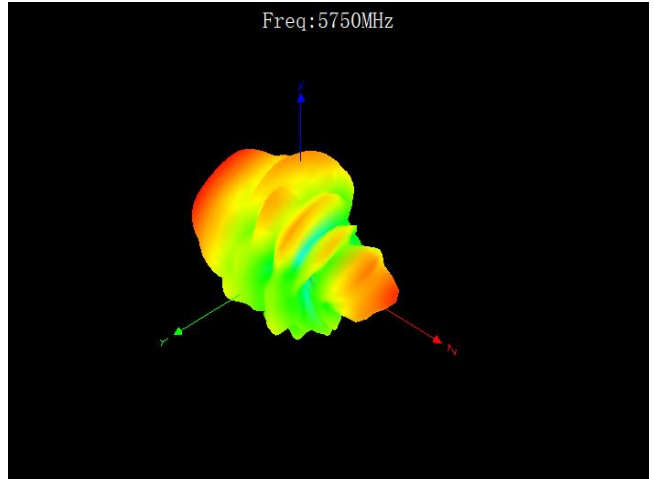
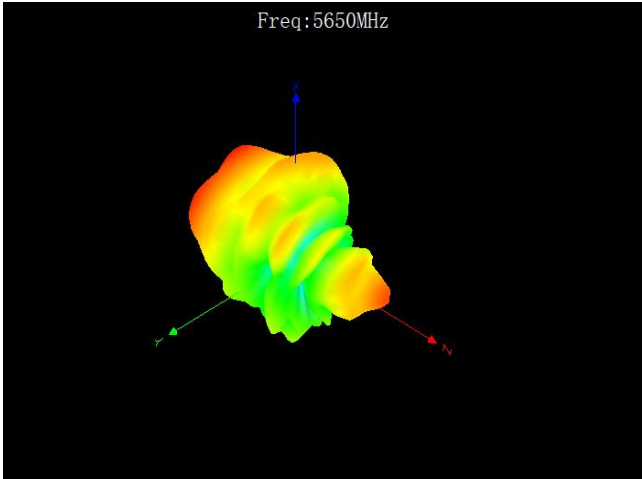
gain



#### 3.3.1 Antenna efficiency

Frequency/MHz	Max Gain/dBi
2400-2500	2.8
5150-5850	2.6





## 4. Antenna active testing data

### 4.1 Test the environment

Test the system : Multi-probe OTA measurement system ( XH-IoT )

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

Test the equipment : When testing passive data, use the network analyzer R&S ZND/ Agilent

E5071C

When testing active data, use the Agilent 8960/CMW500/SP9500E/SP8315



### 4.2 OTA Active testing data

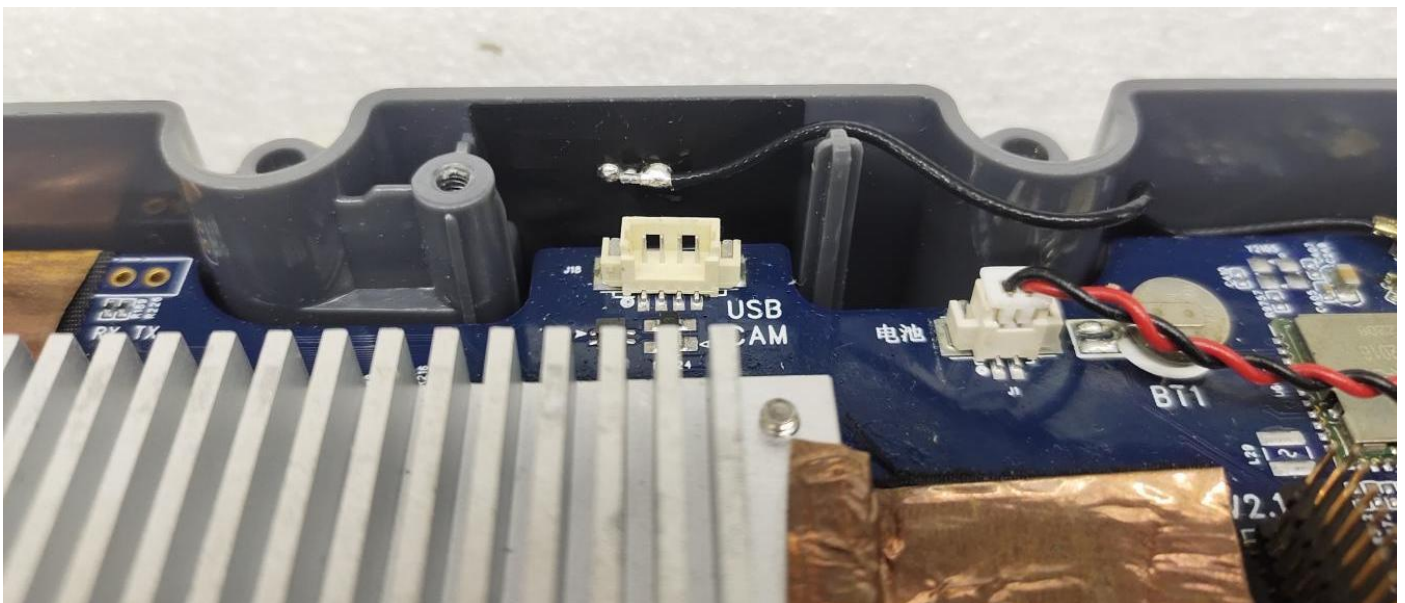


### 4.2.1 WIFI Testing data

Standard	Band	Channel	Total
WIFI (AP)	WIFI_B (11M)	1	14.3
WIFI (AP)	WIFI_B (11M)	6	15.43
WIFI (AP)	WIFI_B (11M)	11	15.73
WIFI (AP)	WIFI_B (11M)	11	-85.26
WIFI (AP)	WIFI_G (54M)	1	13.32
WIFI (AP)	WIFI_G (54M)	6	13.96
WIFI (AP)	WIFI_G (54M)	11	13.69
WIFI (AP)	WIFI_G (54M)	11	-72.35
WIFI (AP)	WIFI_N_ISM (65M)	1	11.66
WIFI (AP)	WIFI_N_ISM (65M)	6	12.2
WIFI (AP)	WIFI_N_ISM (65M)	11	11.5
WIFI (AP)	WIFI_N_ISM (65M)	11	-67.27

Standard	Band	Channel	Total
WIFI (AP)	WIFI_A (54M)	36	12.77
WIFI (AP)	WIFI_A (54M)	149	12.93
WIFI (AP)	WIFI_A (54M)	165	13.63
WIFI (AP)	WIFI_A (54M)	165	-70.95
WIFI (AP)	WIFI_N_UNII (65M)	36	10.35
WIFI (AP)	WIFI_N_UNII (65M)	149	11.53
WIFI (AP)	WIFI_N_UNII (65M)	165	11.15
WIFI (AP)	WIFI_N_UNII (65M)	165	-65.54

## 5. Environmental treatment methods



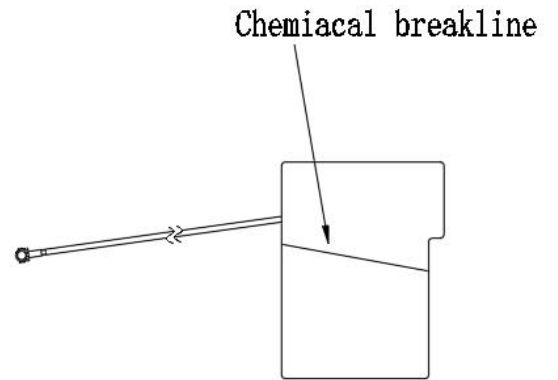
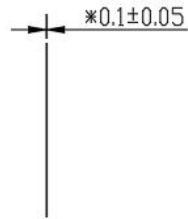
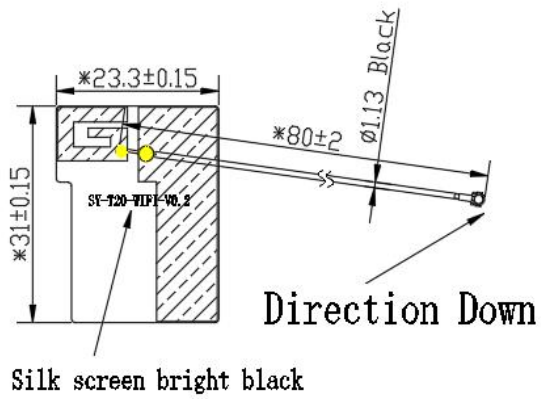
## 6. Standard for mass production antennas

When the antenna is mass-produced, the VSWR is used as the mass production test standard.

According to the differences in the project itself, the following criteria are given:

Freq. (MHz)	Mass production standards
1575.42±1.023	$VSWR(\text{Production performance}) < VSWR(\text{Confirmed performance}) + 0.5$
2400-2500	$VSWR(\text{Production performance}) < VSWR(\text{Confirmed performance}) + 0.5$
5150-5850	$VSWR(\text{Production performance}) < VSWR(\text{Confirmed performance}) + 0.5$

## 7. Engineering drawings



- Gold plating area
- Line area