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1. Project information

1.1 Mockup picture



2. Matching circuit

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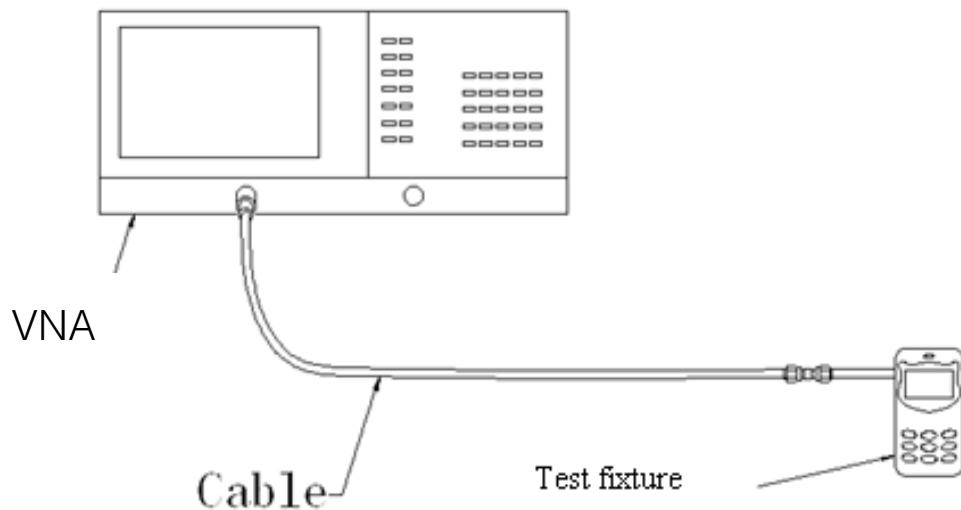
3. Antenna passive testing data

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:

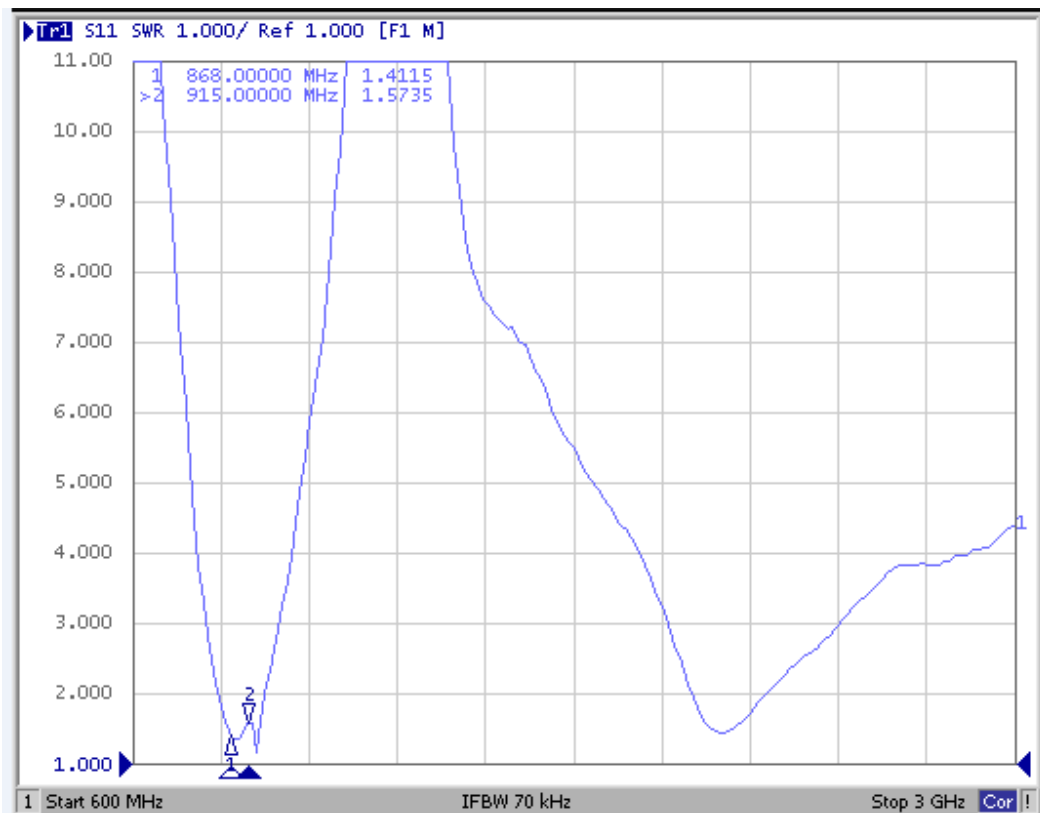


Test schematic diagram

3.2 S11 Test parameters

(Freq.) MHz	868	915
VSWR	1.41	1.57

VSWR



3.3 Antenna efficiency and gain

Freq (MHz)	Effi (%)	Gain (dBi)
865	47.15	-0.93
870	51.55	-0.56
875	56.36	0.93
880	48.42	-0.12
885	52.6	0.18
890	55.08	0.77
895	61.52	1
900	50.93	-0.11
905	57.15	0.59

910	55.34	0.36
915	58.61	0.59
920	52	-0.07
925	58.21	0.61
930	51.64	0.09

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

OTA Lab



test instrument



SP9500-CTS-5G

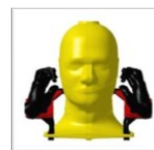


CMW500



SP8315 NB-IoT
/eMTC

other equipment



OTA head hand

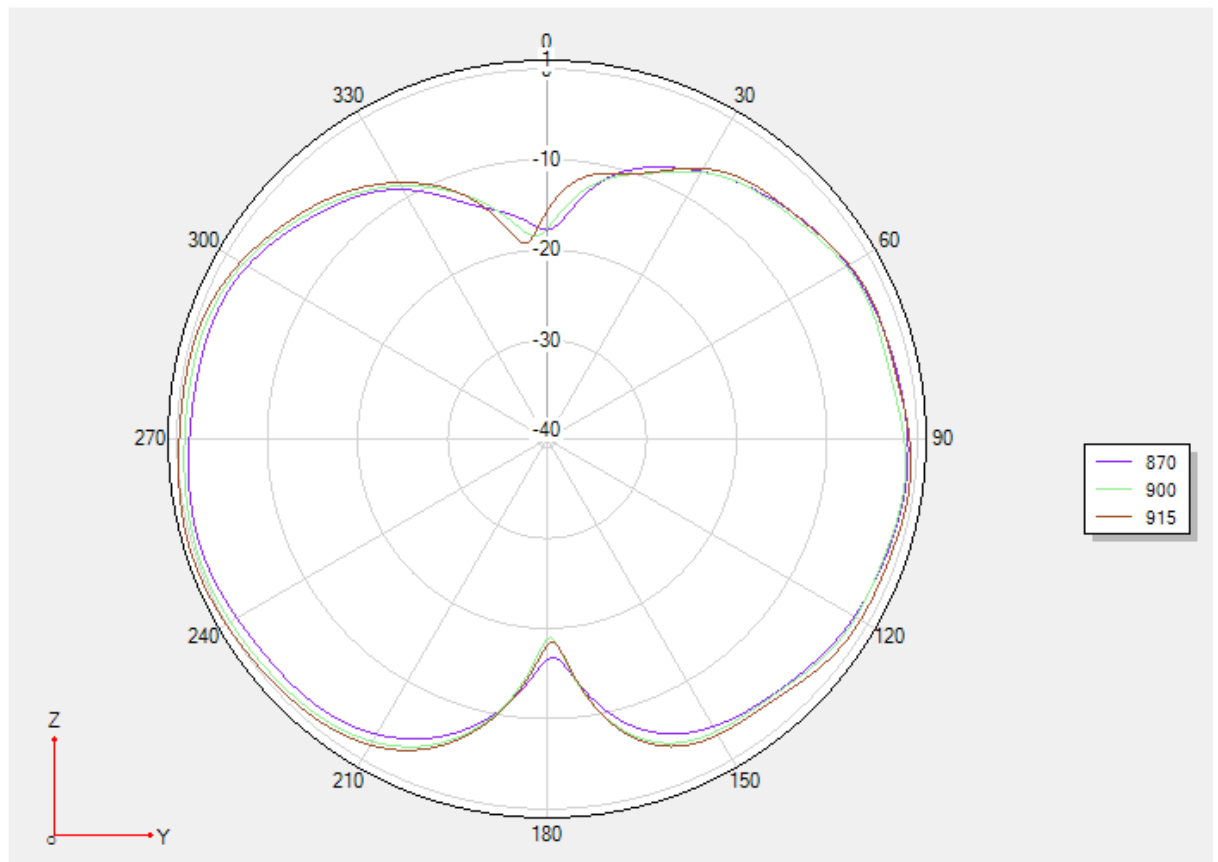
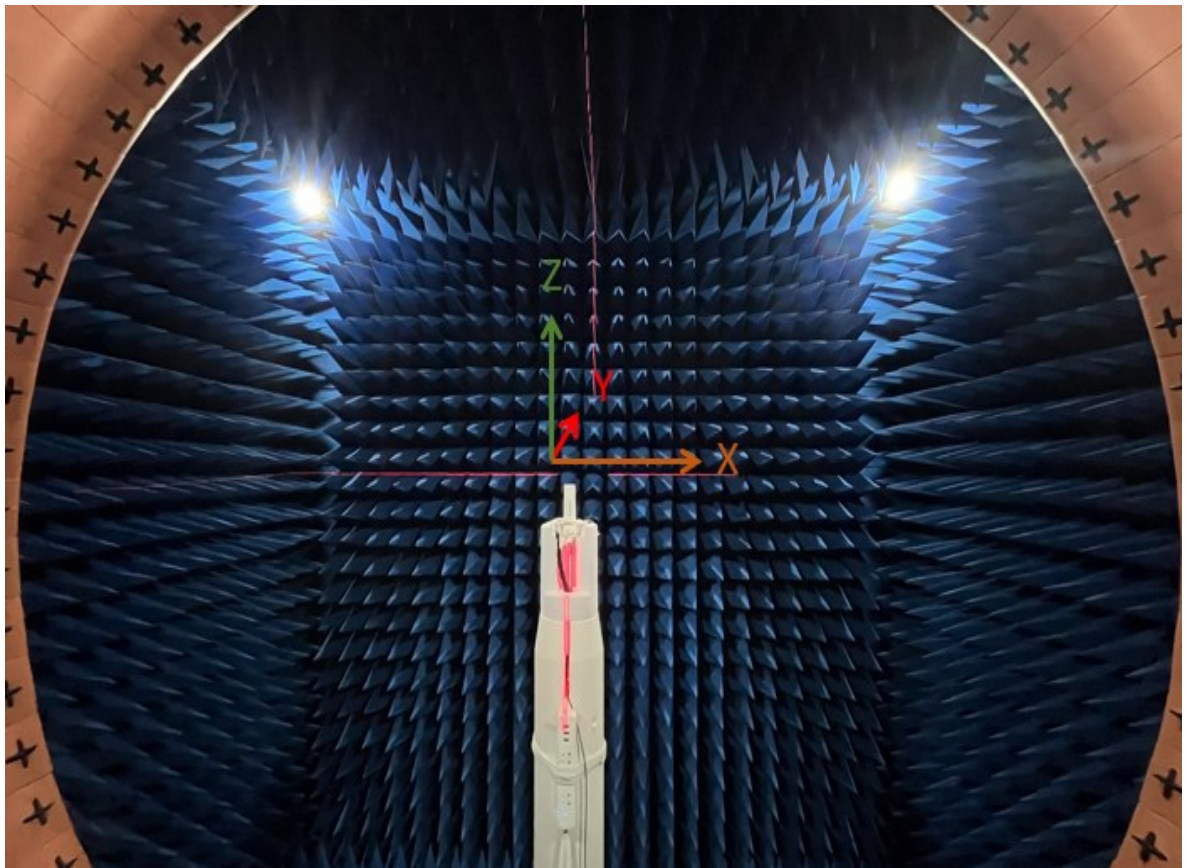


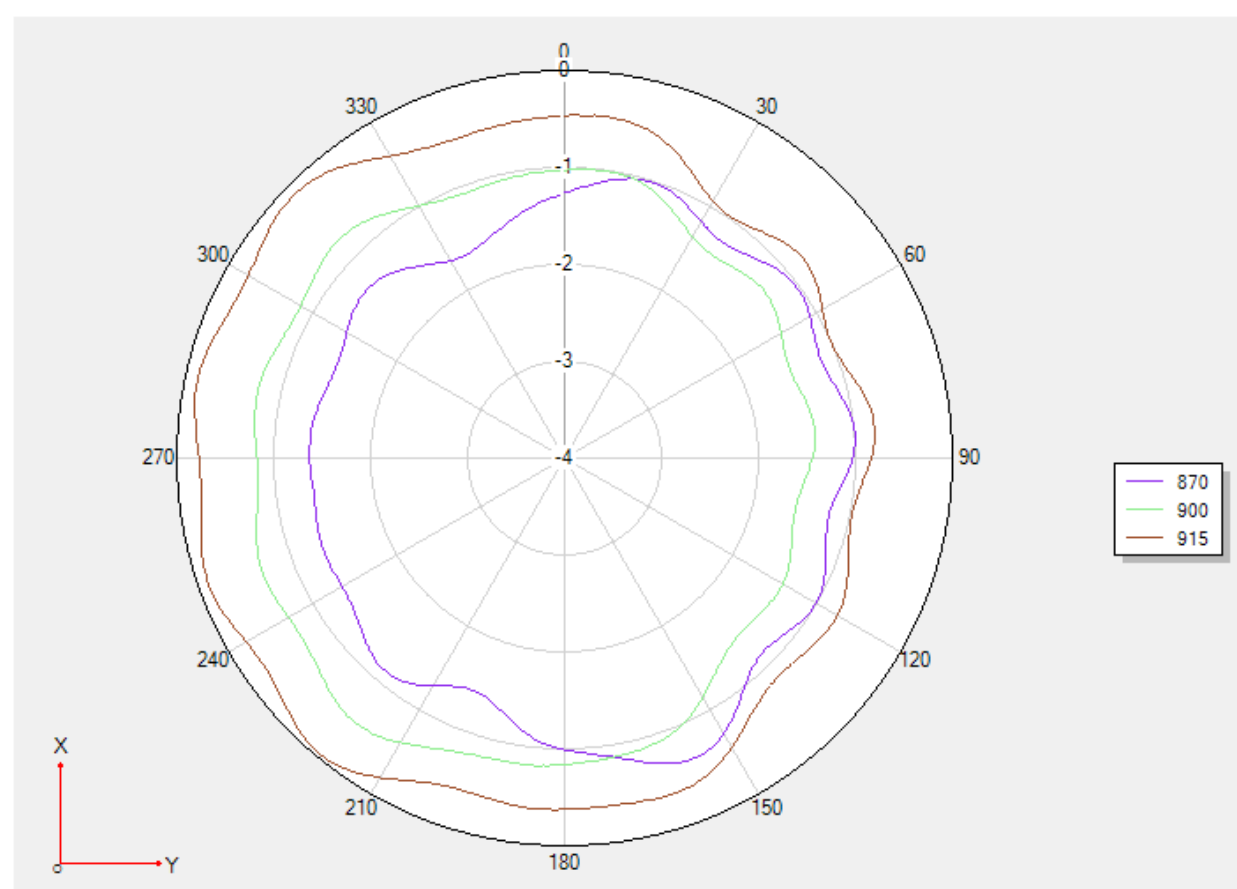
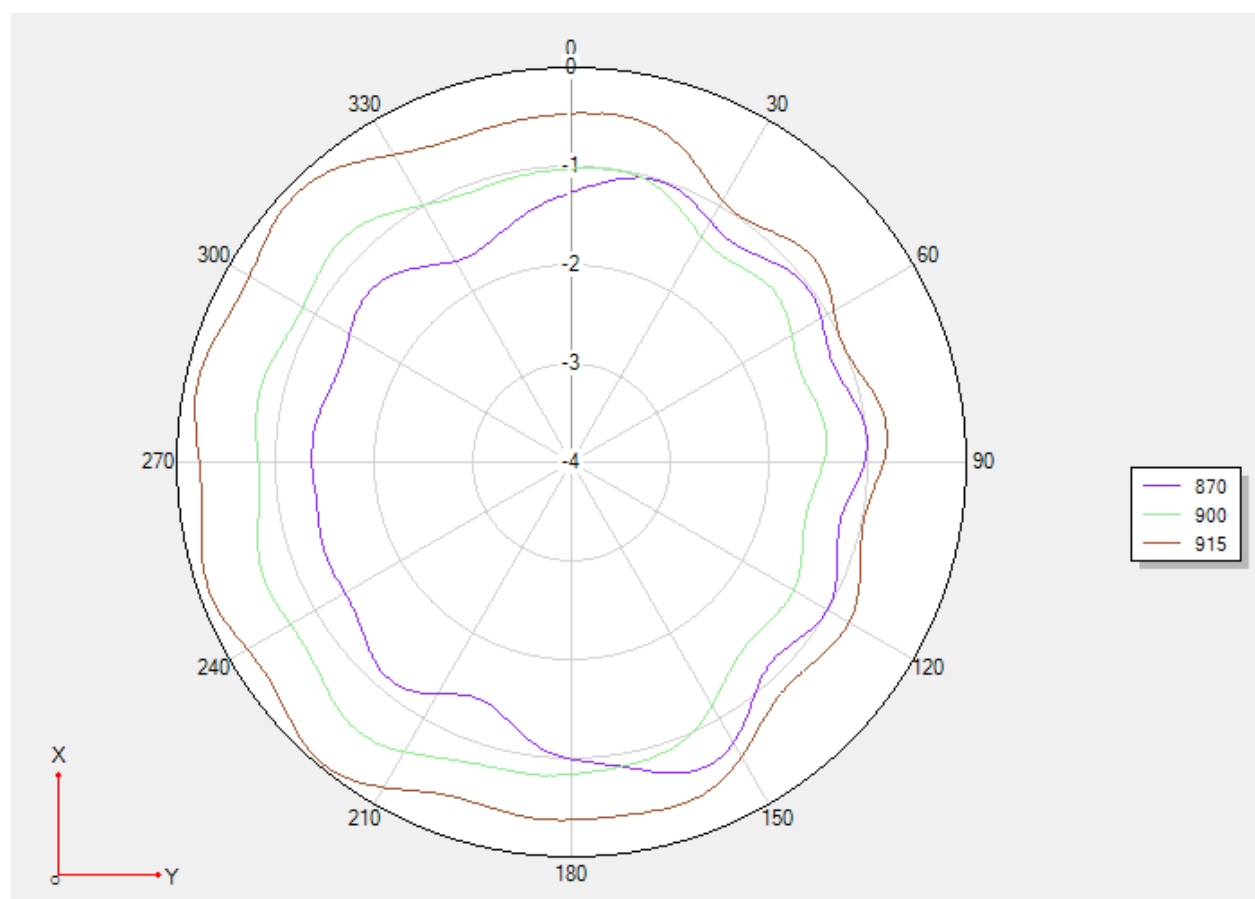
OTA ear hand

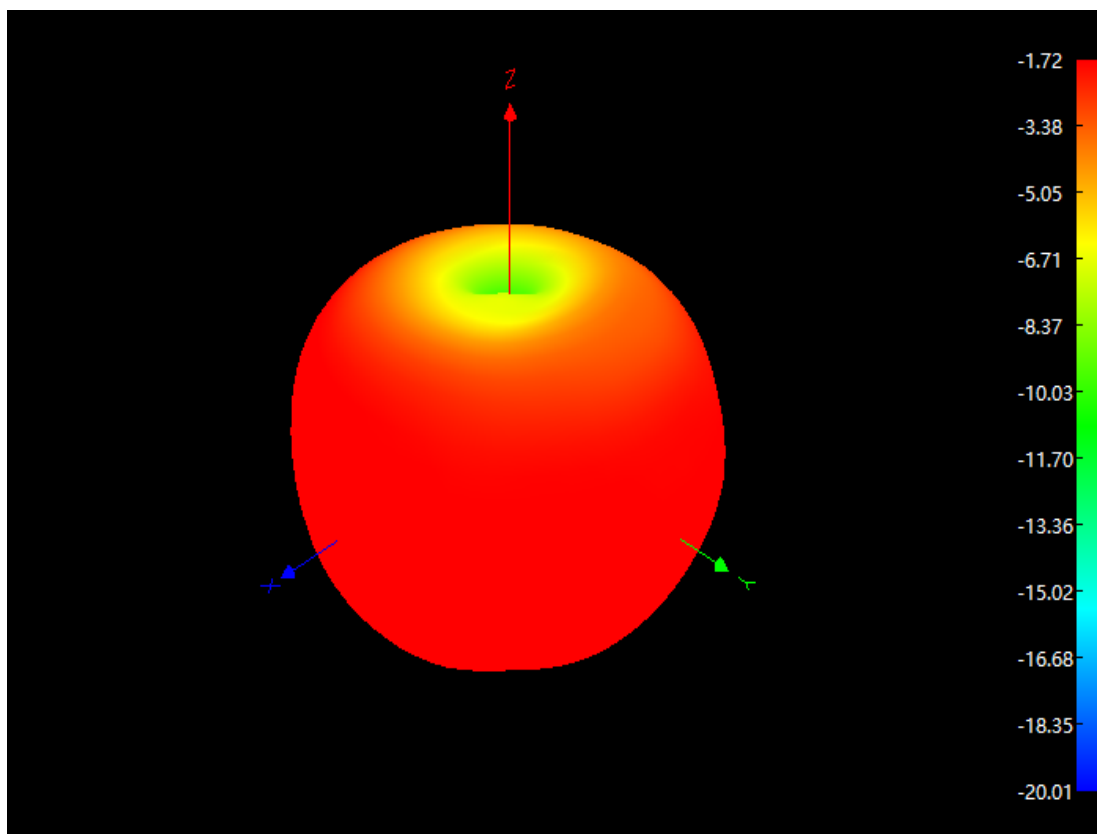


OTA arm hand

4.2 OTA Active test data







5. Electrical performance

Frequency range (MHz)	868-915MHz
VSWR	< 2.0 (in-device)
efficiency (%)	50%-65%
Peak gain (dbi)	1
Polarization mode	Linear
Radiation field pattern	Omni-Directional

6. Mechanical properties

welding	welding
Joint type	/
Wire specification	/
Antenna size (mm)	26.05*22.5*3.05mm
material	Stainless steel

Operating temperature (°C)	- 30 °C ~ + 65 °C
Storage temperature (°C)	- 30 °C ~ + 65 °C

7. Environmental treatment methods

Unchanged

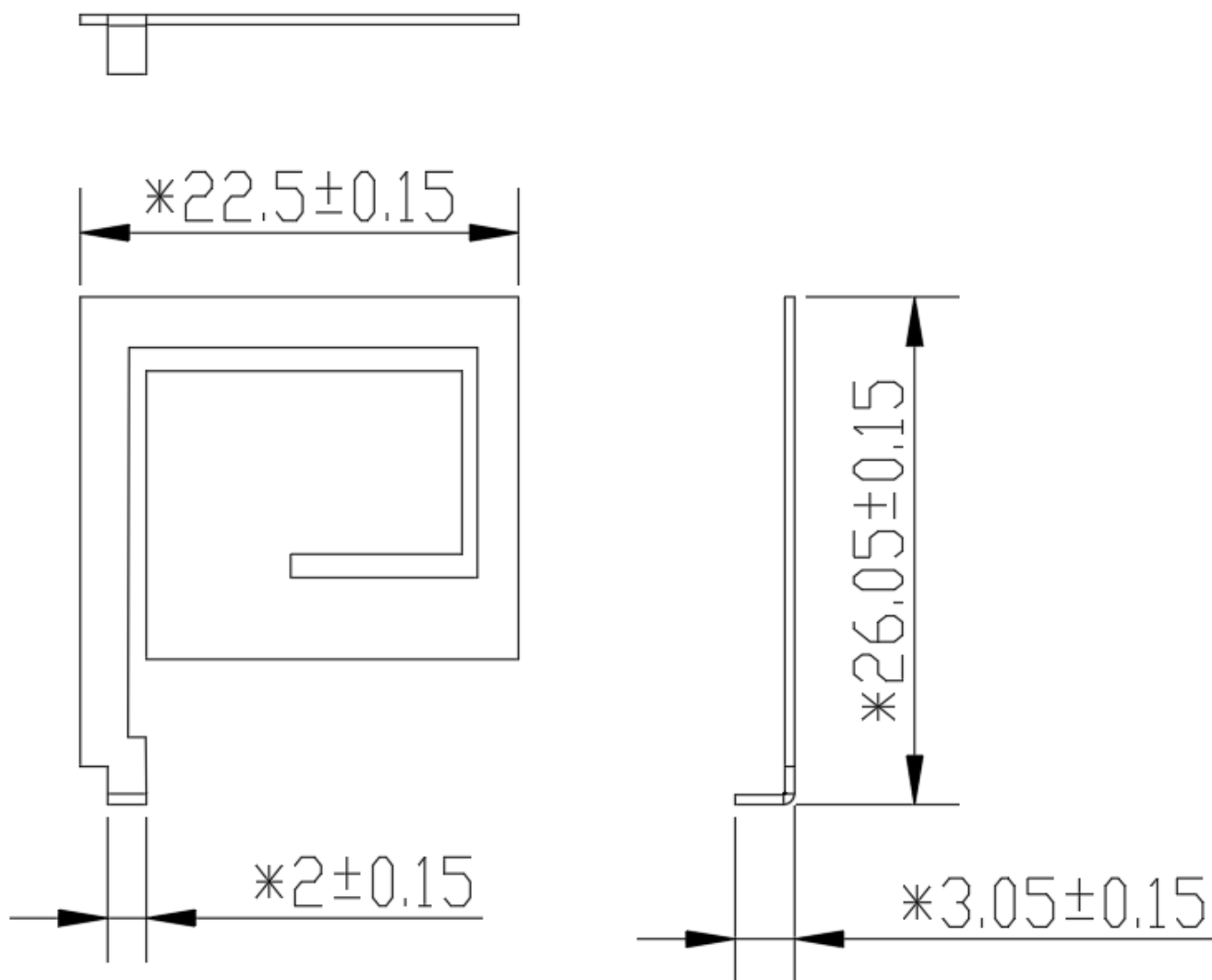
8. Standard for mass production antennas

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
868-915	$VSWR(\text{Production performance}) < VSWR(\text{Confirmed performance}) + 0.3$

9. Engineering drawings



SUS 304 plate with nickel
 $H=0.5\text{mm}$