



# SPECIFICATION

## APPLICATION FOR APPROVAL

PART NAME : PCB Antenna  
PART NO : ANTFP2-CC0620B5  
DATE : 2025/05/15

Release : Full release

Customer Approval	
Program Manager	R & D director
Supplier Approval	
Program Manager	R & D director
Jingqiang Hao	GaoHe Sun

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## NTS

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## REVISION

REV. NO.	DATE	DESCRIPTION
A	2025/05/15	APPROVAL



## 0. DEFINITIONS

dBi	Decibel relative isotropic antenna
Tx	Transmit frequency
Rx	Receive frequency
VSWR	Voltage Standing Wave Ratio
GSM	Global Service for Mobile communication
DCS	Digital Communication System
PCS	Personal Communication System
CDMA	Code Division Multiple Access
WCDMA	Wideband Code Division Multiple Access
PHS	Personal Handly-phone System
SAR	Specific Absorption Rate
PCB	Printed Circuit Board
TBD	To Be Defined
P	Parallel connection
S	Series connection

## 1. ELECTRICAL SPECIFICATIONS

### 1-1 FREQUENCY BAND

Freq. Band	Freq. (MHz)
WiFi	2400-2500/5150-5850

### 1-2 IMPEDANCE

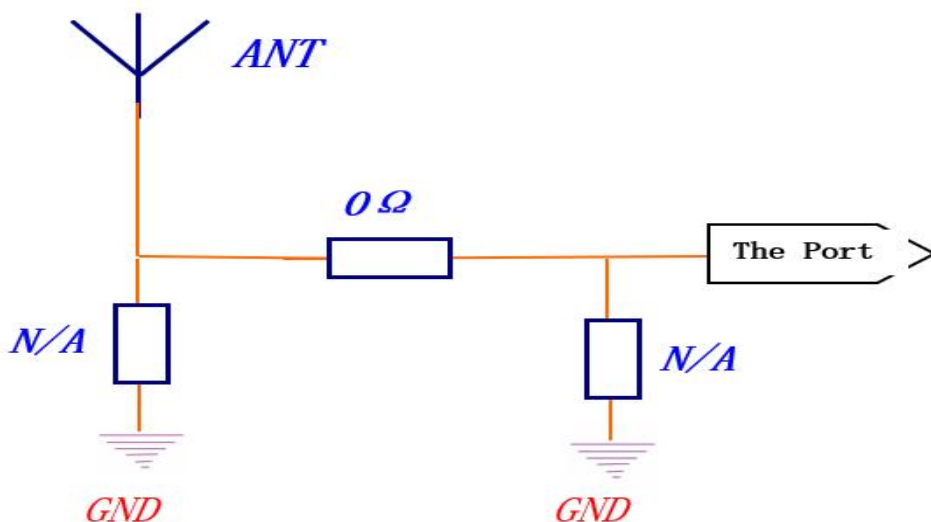
Nominal Impedance(including matching circuit) : 50 ohms



### 1-3 MATCHING REQUIREMENTS

The matching circuit on the PCB of the handset is according to Figure 1-3. Optimum matching circuit is highly dependent on the handset and thus.

Final matching circuit layout and values will be defined when handset is available



### 1-4 VSWR

#### FREE SPAC

Freq. Band	spec
2400-2500/5150-5850MHz	VSWR<2

※Measuring a 50Ω test jig is connected to a network analyzer to measure the VSWR.

※※All test value is done in customer approval fixture.



## 2. MECHANICAL SPECIFICATIONS

### 2-1 MECHANICAL CONFIGURATION

The appearance of the antenna is according to Figure 2-1

## 3. ENVIRONMENTAL CHARACTERISTICS

NO.	ITEM	TEST CONDITION	SPECIFICATION
3-1	Low Temperature Test	1. Temperature: $-40\pm 2^{\circ}\text{C}$ 2. Time: 48hrs	No material deformation is allowed.
3-2	High Temperature Test	1. Temperature: $+85^{\circ}\text{C} \pm 2^{\circ}\text{C}$ 2. Time: 48hrs	
3-3	High Temperature/Humidity Storage Test (non operating)	1. Temperature: $+60 \pm 2^{\circ}\text{C}$ 2. Humidity: $93\% \pm 2\% \text{RH}$ 3. Time: 48hrss	
3-4	Salt-Spray Test	35°C, 85%RH, 48Hours (According to MIL-STD-810E) The salt-spray is generated from a 5% salt (NaCl) solution.,	NO appear rusting phenomenon is allowed

## 4. PACKAGING

Antenna to be packed in a PE bag. Each 100 pcs per bag.

## 5. APPENDIX

All of the specifications are shown as the attached files.

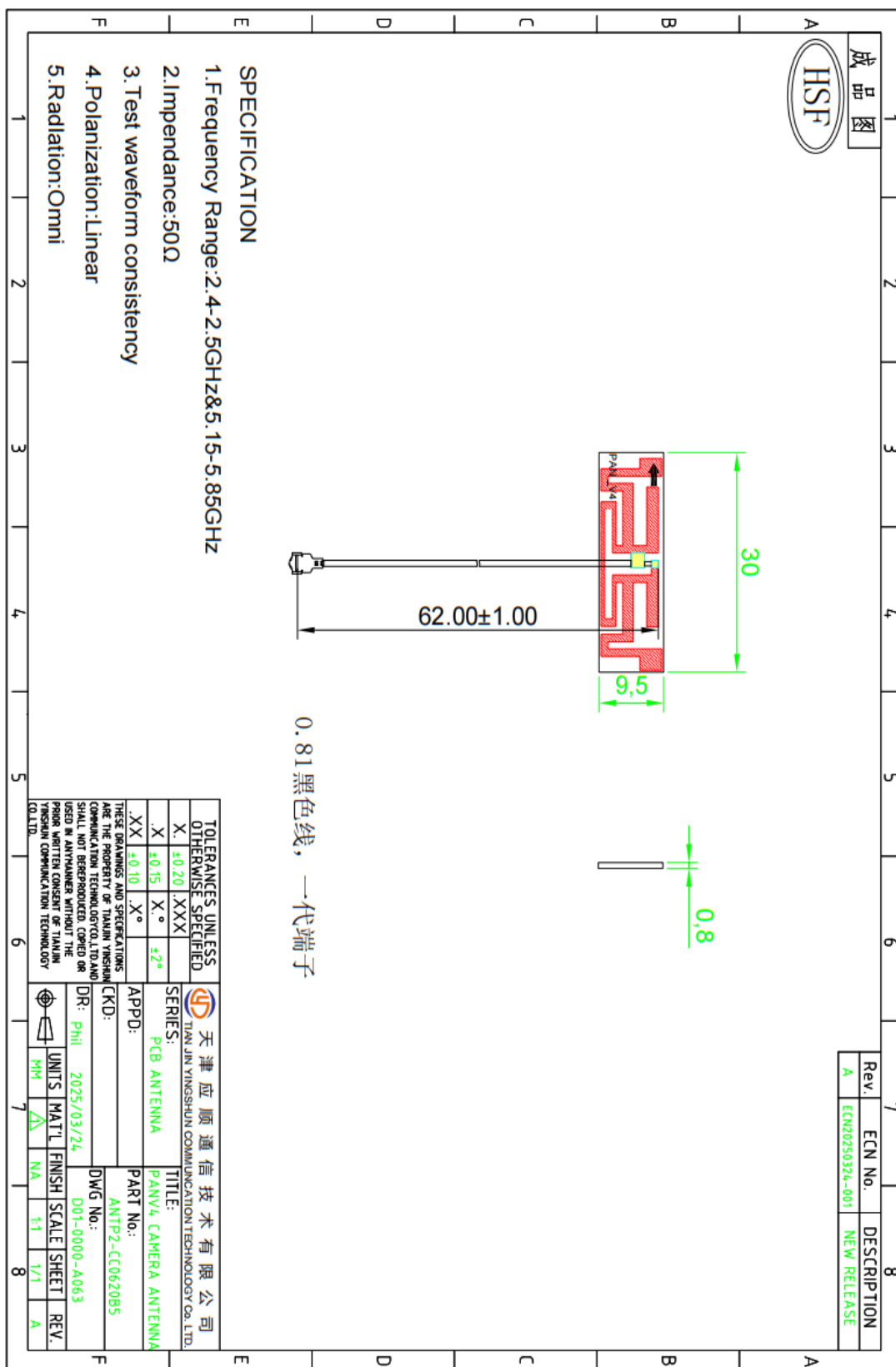
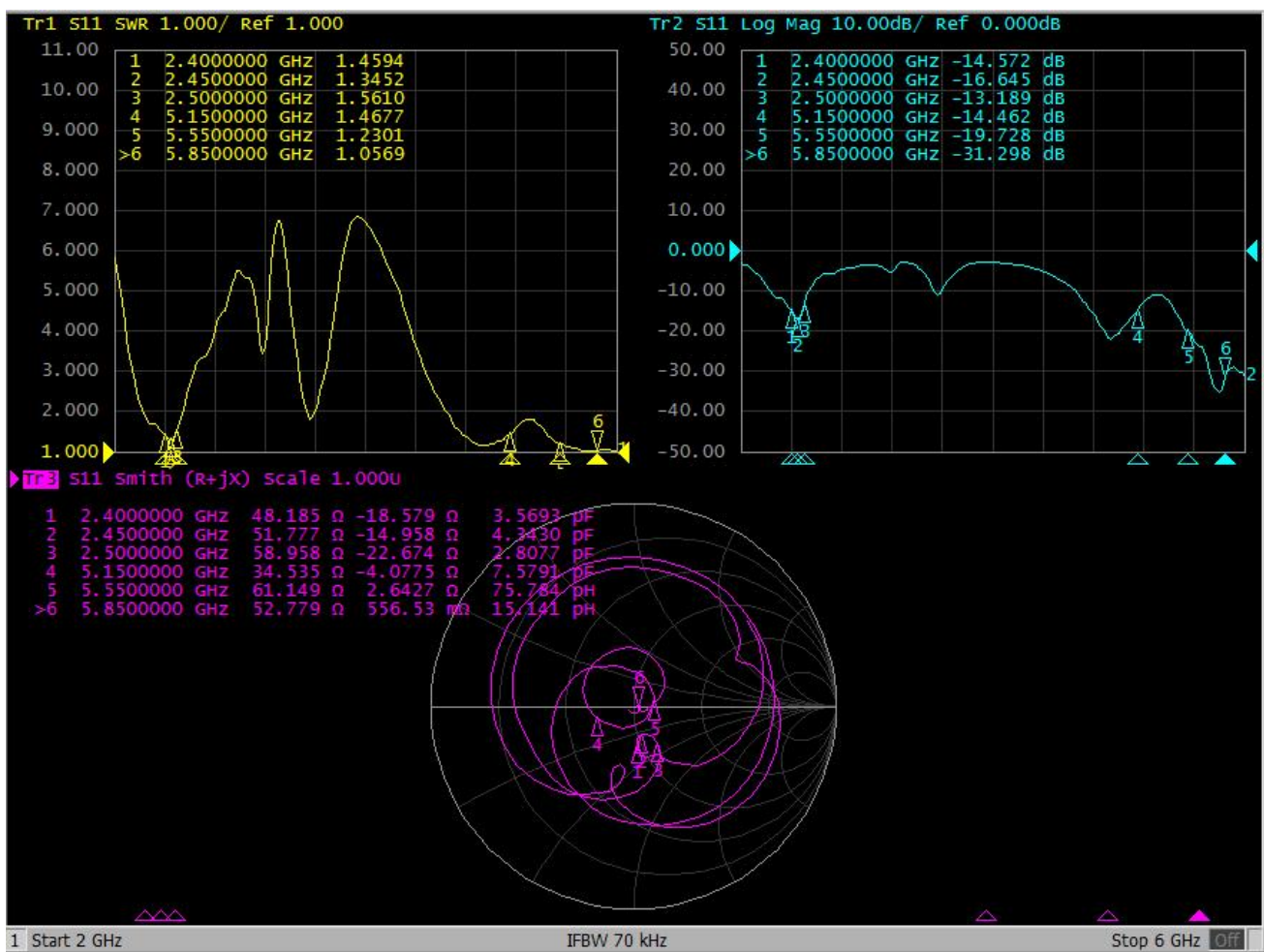


Figure 2-1



Customer No: HuaLai Tec.	File: 2025/05/15
Supplier NO:	Note: VSWR/RL/Smith Chart
Sample No:	
Test Condition:  FREE SPACE	
	Matching:  N/A
Confirmation: Jing Qiang Hao	Engineer: Gaohe Sun





## Antenna Test Data

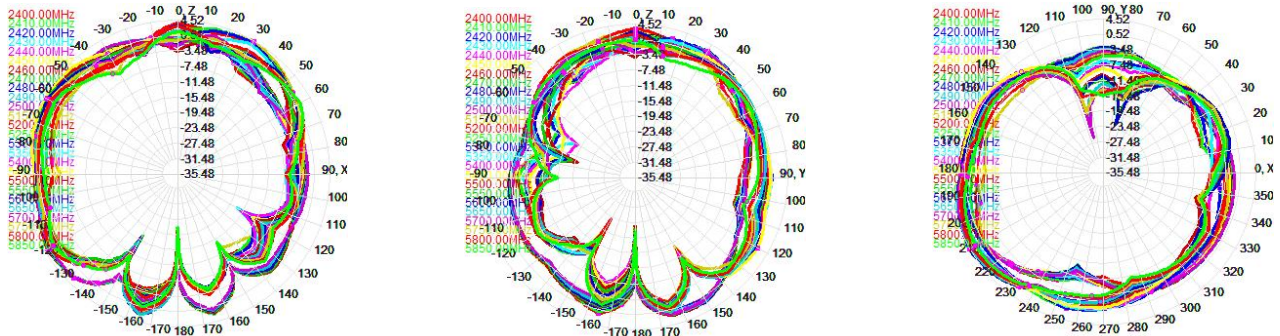
一: Antenna Efficiency&PeakGain

Freq (MHz)	Effi (%)	Gain (dBi)
2400	<b>63.49</b>	3.47
2410	<b>65.49</b>	3.61
2420	<b>64.57</b>	3.51
2430	<b>67.85</b>	3.67
2440	<b>69.85</b>	3.68
2450	<b>74.08</b>	3.84
2460	<b>77.81</b>	3.95
2470	<b>76.44</b>	3.80
2480	<b>75.76</b>	3.68
2490	<b>74.06</b>	3.49
2500	<b>72.57</b>	3.21
5150	<b>57.98</b>	4.46
5200	<b>60.23</b>	3.82
5250	<b>64.06</b>	3.63
5300	<b>65.16</b>	3.93
5350	<b>65.24</b>	3.36
5400	<b>64.11</b>	3.73
5450	<b>74.77</b>	4.35
5500	<b>62.84</b>	3.77
5550	<b>66.66</b>	4.25
5600	<b>69.72</b>	4.52
5650	<b>67.78</b>	4.16
5700	<b>63.98</b>	3.77
5750	<b>66.04</b>	3.62
5800	<b>65.22</b>	3.67
5850	<b>54.40</b>	2.74

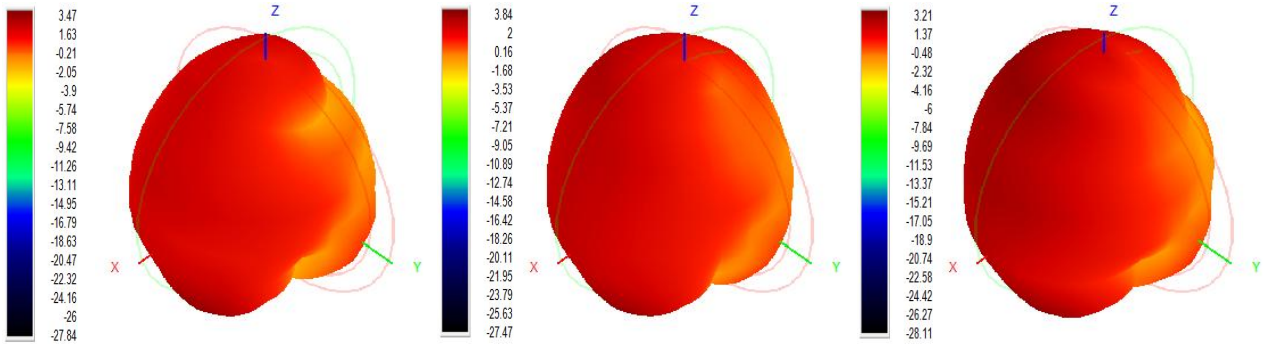




### 三: Antenna 2D



### 四: Antenna 3D-2400/2450/2500MHz



### Antenna 3D-5150/5500/5850MHz

