



SWD025

PN: SH21280IA70

Features:



- Status 1: clearance area
- Status 2: no clearance area
- Frequency bands from 2400~ 2500MHz .
- SMD Compliant.
- Impedance 50 Ohm.
- Antenna for 2.4G applications including MIMO systems

Applications:

- Application of 2.4G equipment.
- WiFi 2.4G, Bluetooth.
- Portable Devices.
- Remote monitoring.
- Network Devices.
- Wearable devices.
- Autonomous/UAVs
- Smart Metering
- Payment Terminals

Sunnyway Technology

Add: Building 65-302, No.421 Hongcao Road, Xuhui District, Shanghai
Tel: +86-021-6484 2326 Fax: +86-021-6484 2328
Email: sales@sunny-way.com Web: www.sunny-way.com

1. Electrical Specifications

Cable 1 Parameters

Status 1: clearance area

Standards	2.4G		
Frequency range (MHz)	2400	2450	2500
Peak Gain (dBi)	2.9	1.8	0.7
Average Gain (dB)	-2.9	-3.5	-4.1
VSWR	1.8	2.2	2.6
Return Loss(dB)	-10.3	-8.2	-6.9
Efficiency (%)	50.2	43.9	38.3
Polarization mode	Linear		
Radiation pattern	Omni-Directional		
Output impedance (Ω)	50		
Max. Input Power(W)	5		

Status 2: no clearance area

Standards	2.4G		
Frequency range (MHz)	2400	2450	2500
Peak Gain (dBi)	0.5	0.8	0.9
Average Gain (dB)	-2.9	-3.1	-3.5
VSWR	1.7	1.5	1.7
Return Loss(dB)	-11.9	-13.2	-11.2
Efficiency (%)	50.6	48.3	44.6
Polarization mode	Linear		
Radiation pattern	Omni-Directional		
Output impedance (Ω)	50		
Max. Input Power(W)	5		

2. Mechanical and Environmental Specification

Mounting Type	SMD
Antenna size(mm)	13.75*5.23*3.53
Material	Stainless steel 304 nickel plating
Operating Temperature (°C)	- 40 °C ~ + 85 °C
Storage Temperature(°C)	- 40 °C ~ + 85 °C

3. Antenna parameters

2.4G(Board length 80mm)

3.1 General Data

Status 1:

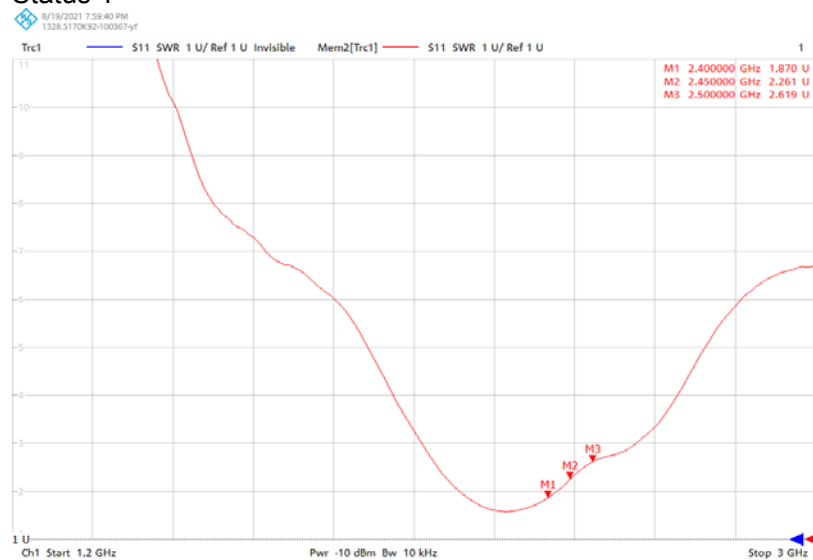
FRE (MHz)	2400	2450	2500
VSWR	1.8	2.2	2.6
Return Loss	-10.3	-8.2	-6.9
Eff (%)	50.2	43.9	38.3
Average Gain (dB)	-2.9	-3.6	-4.1

Status 2:

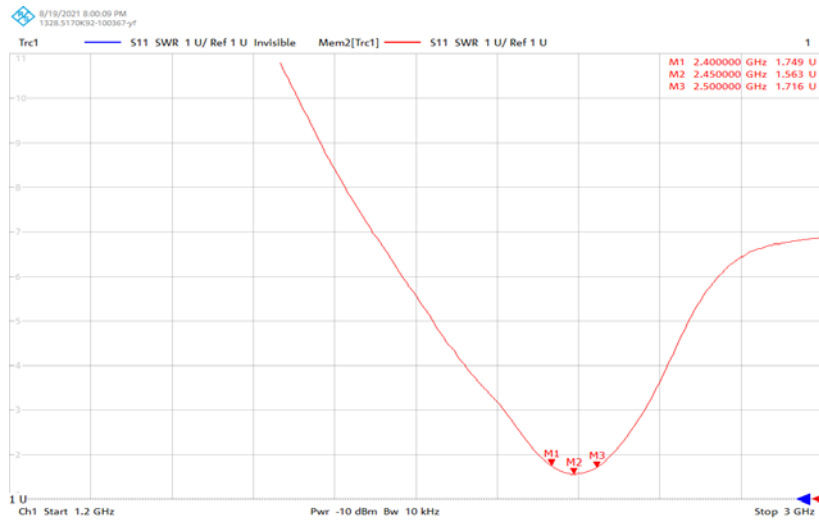
FRE (MHz)	2400	2450	2500
VSWR	1.7	1.5	1.7
Return Loss	-11.9	-13.2	-11.2
Eff (%)	50.6	48.3	44.6
Average Gain (dB)	-2.9	-3.2	-3.5

3.2 VSWR

Status 1

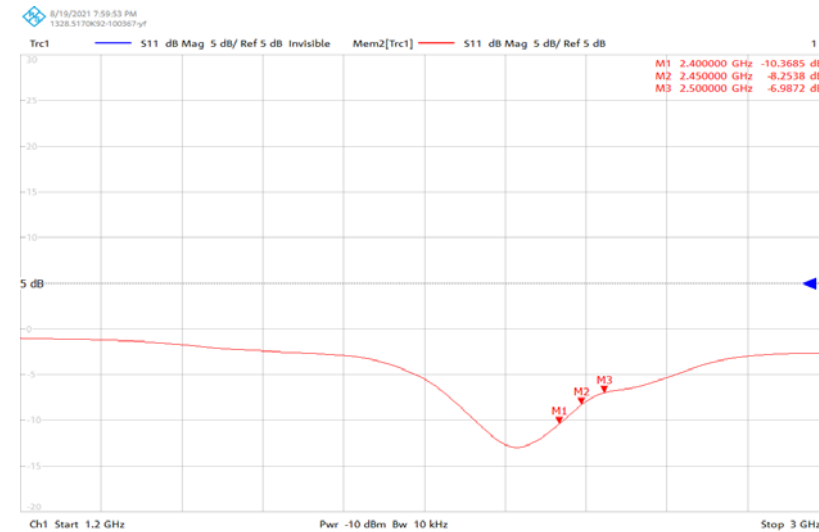


Status 2

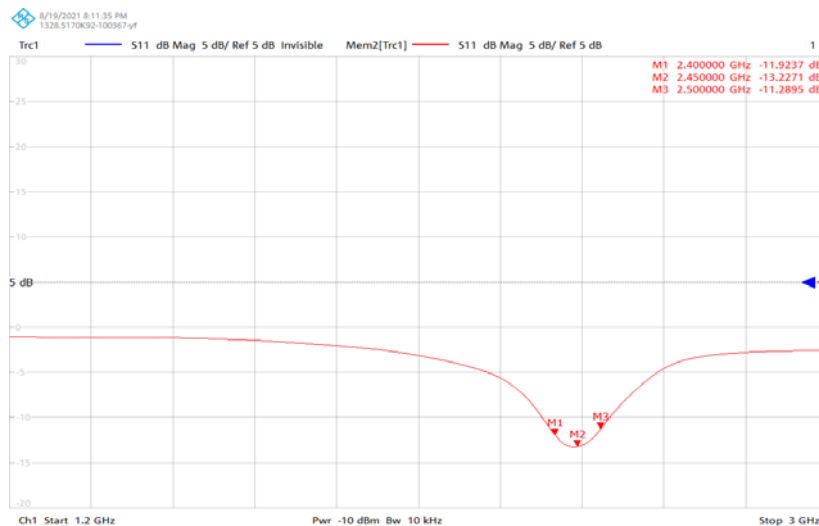


3.3 Return Loss

Status 1

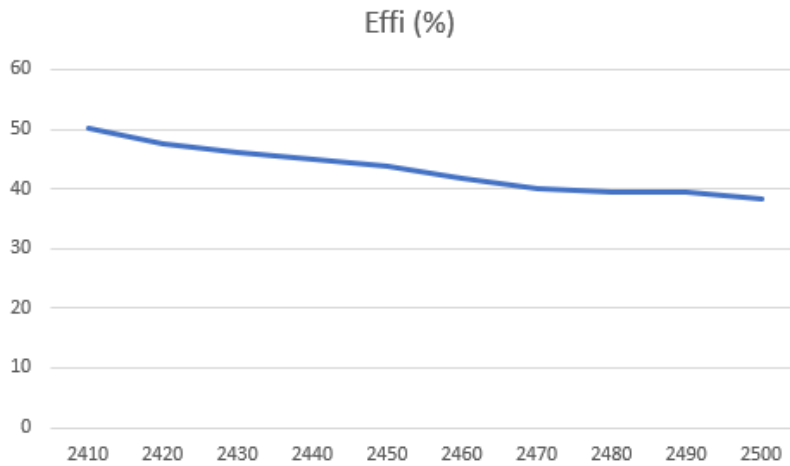


Status 2

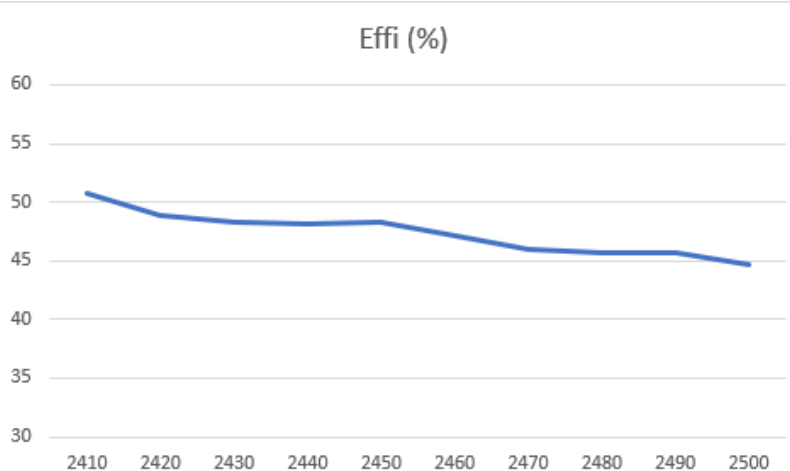


3.4 Efficiency

Status 1

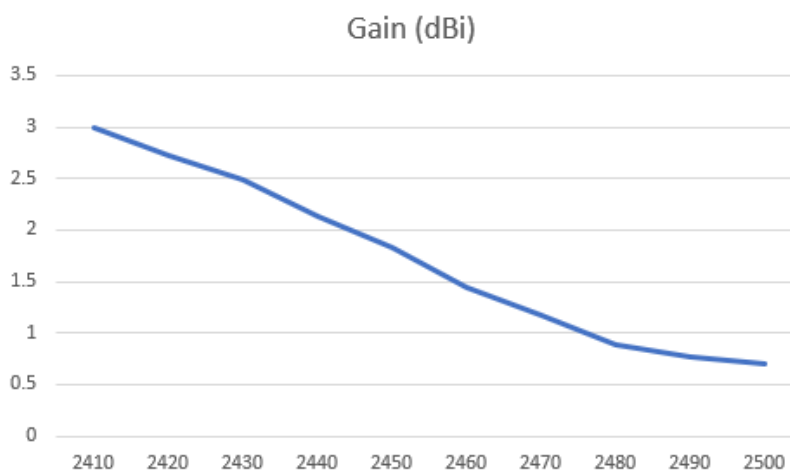


Status 2

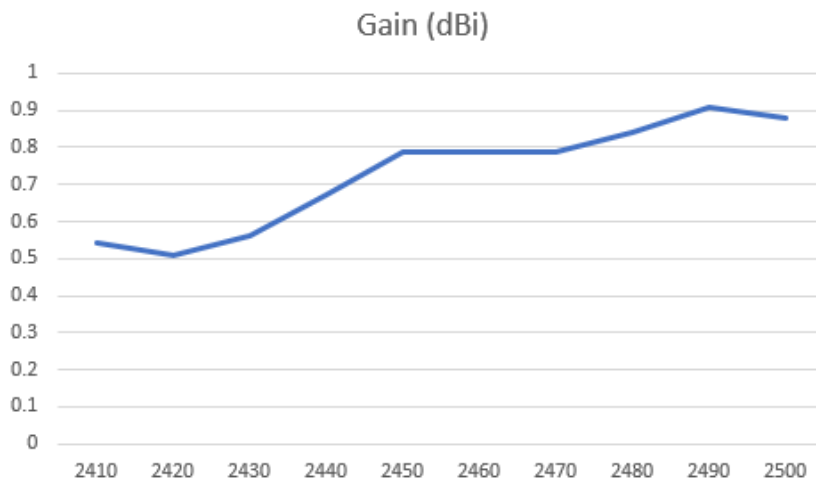


3.5 Gain

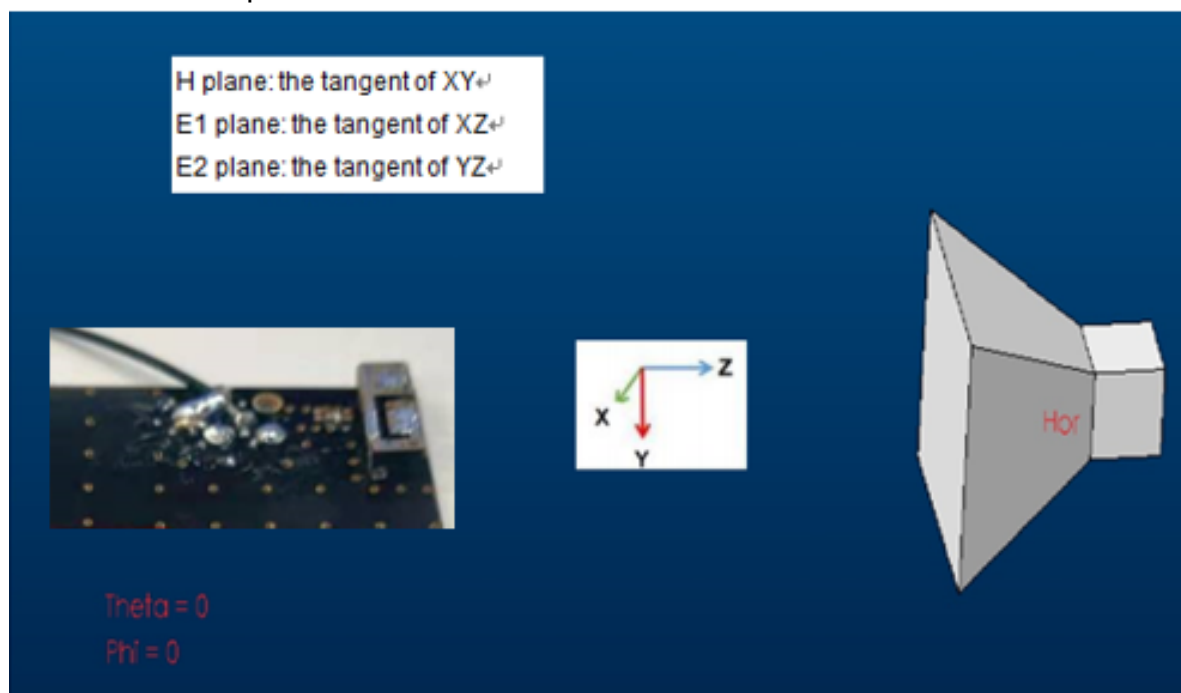
Status 1



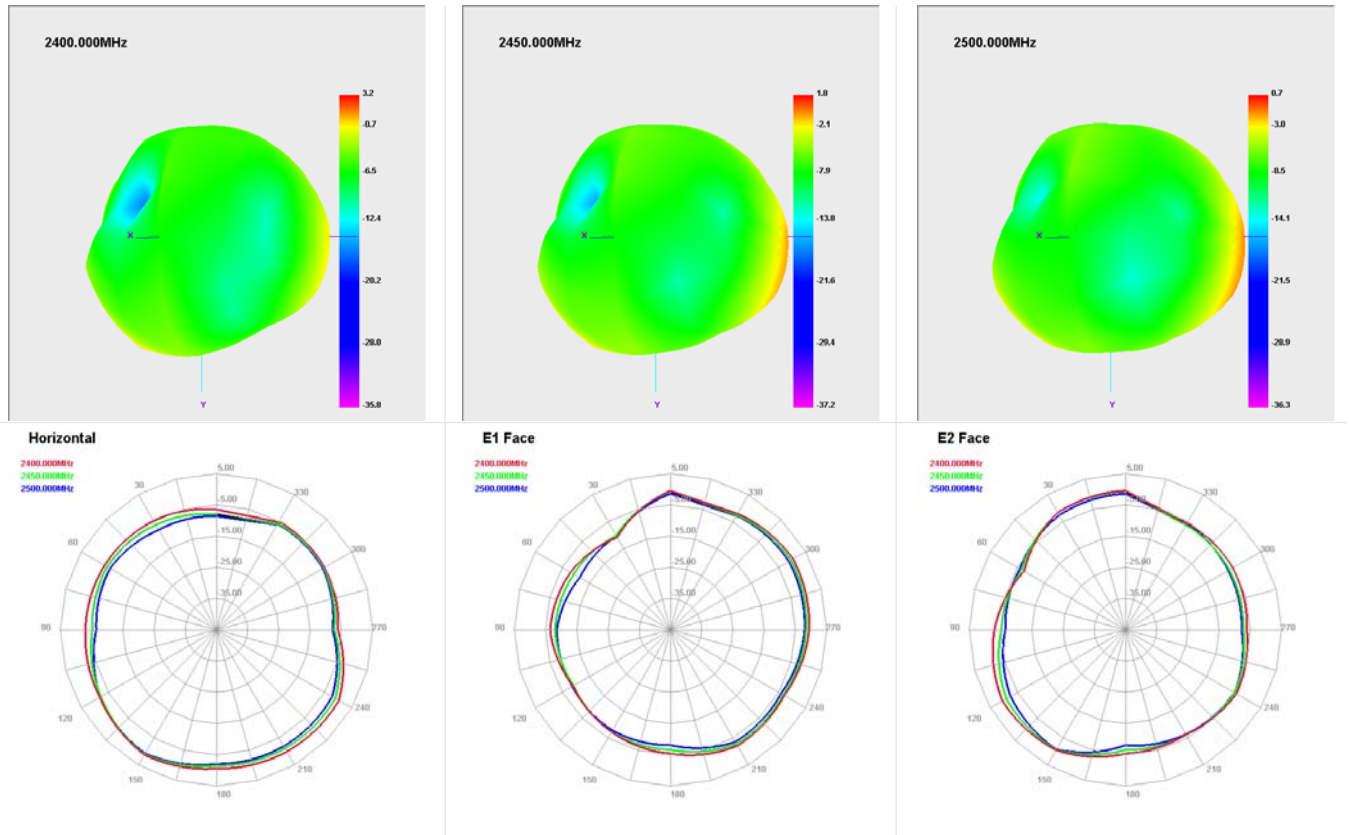
Status 2



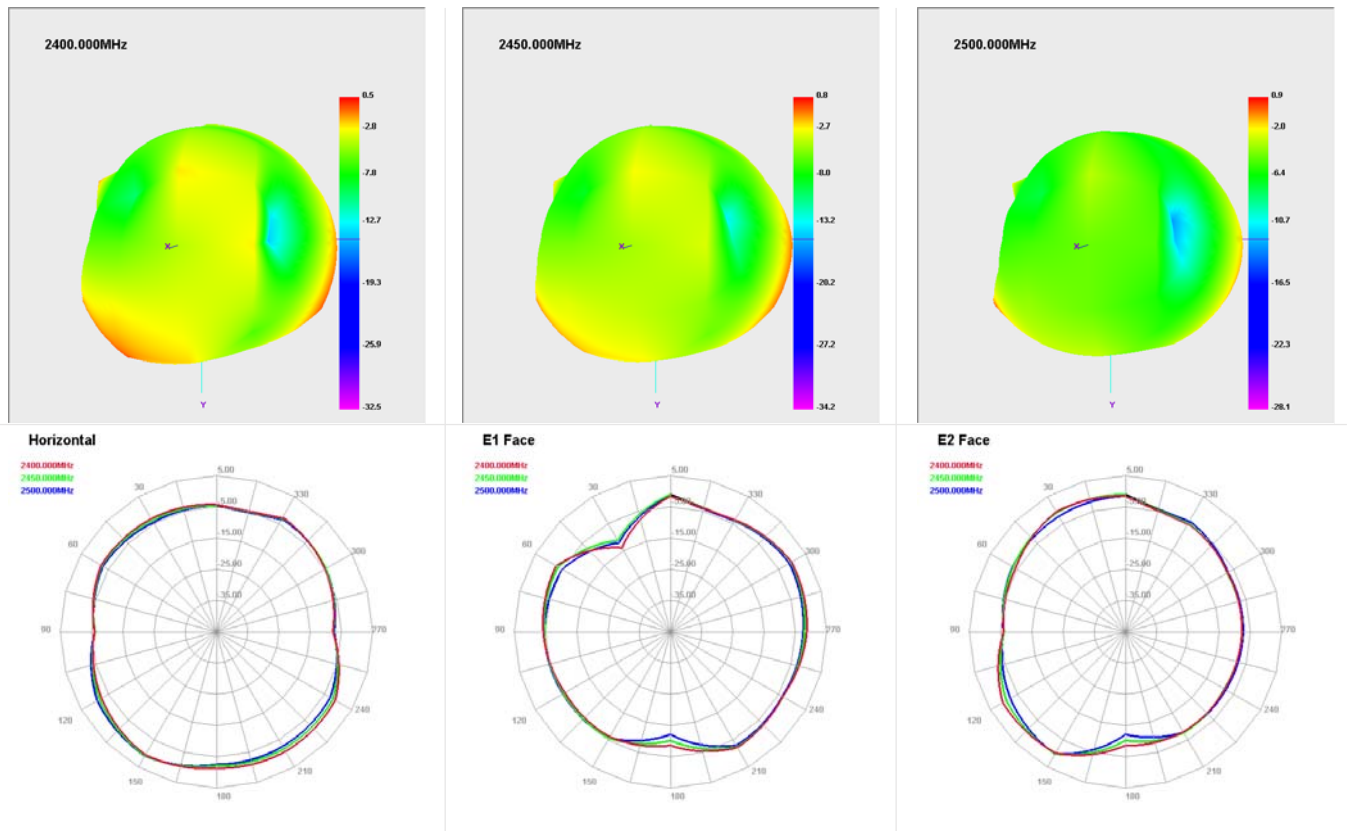
3.6 Directional pattern



Status 1



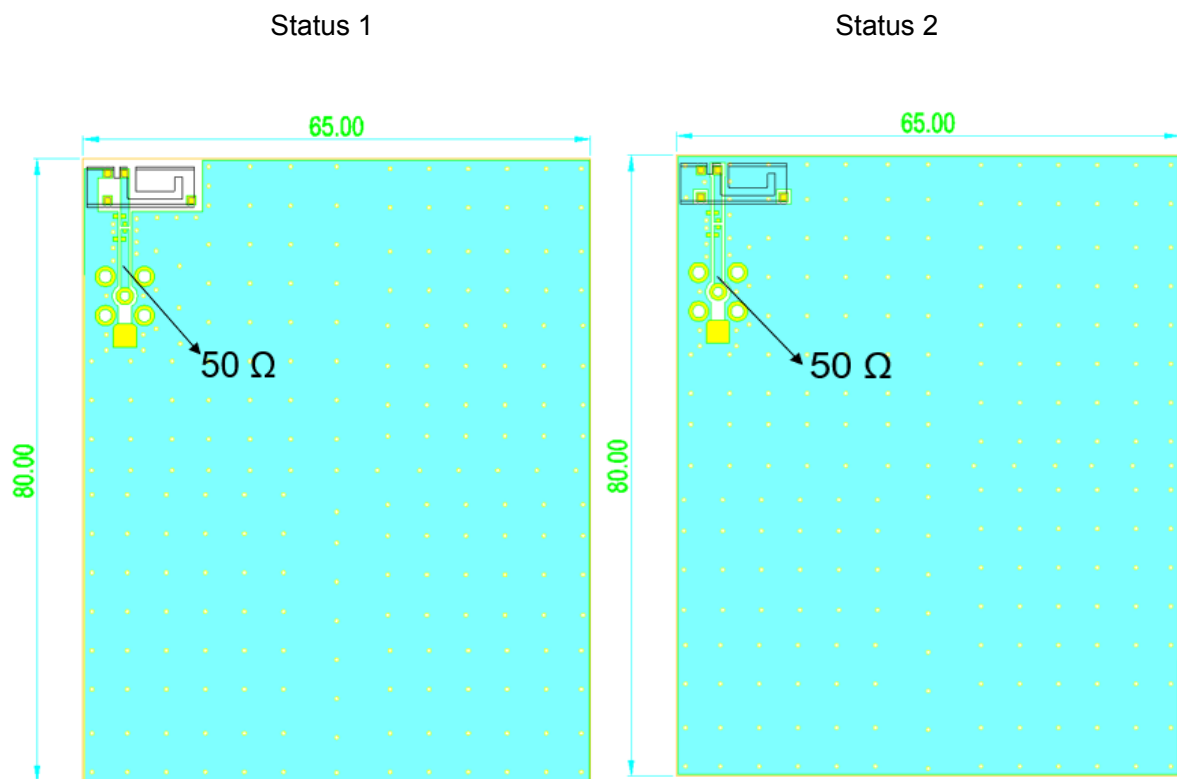
Status 2



4. Transmission Line

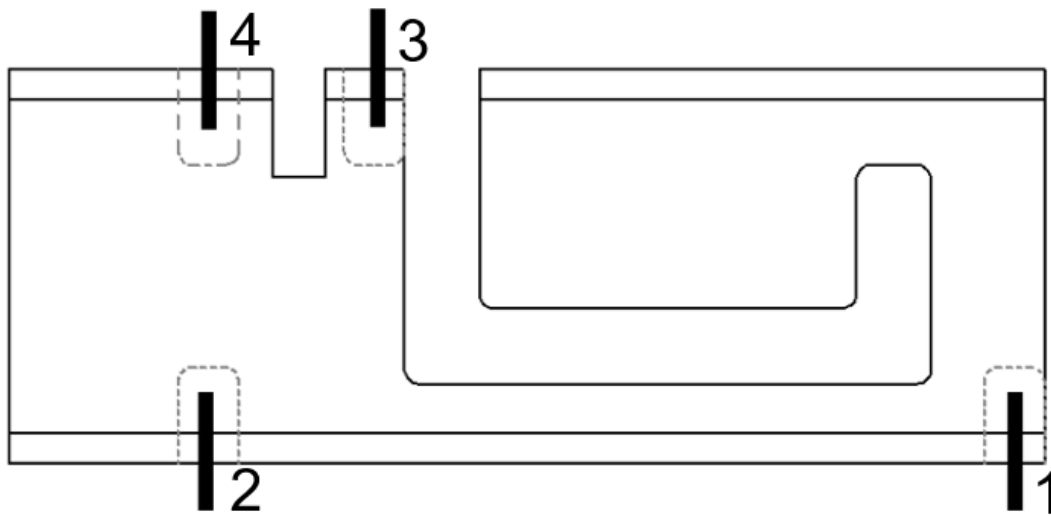
The characteristic impedance of all transmission lines shall be designed as 50 Ω .

- The length of the transmission lines should be kept to as short as possible.
- Any other part of the RF system, such as transceiver, power amplifiers, etc., shall also be designed with an impedance of 50 Ω .



5. Schematic symbol and Pin definition

The pin assignment for the SH21280IA70 antenna are as follows. The antenna has 4 pins and only two work. All other pins are designed for mechanical strength.

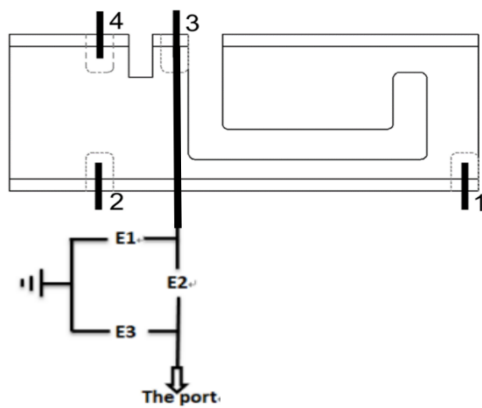


Pin No.	Description
3	Feed
1/2	Not used
	(Mechanical only)
4	Ground

6. Matching circuit

The antenna requires a matching circuit that must be optimized for each product. The matching circuit will require up to three components and the following circuit should be designed into the host PCB. Not all components may be required but should be included as a precaution.

The matching network must be placed close to the antenna feed to ensure it is more effective in tuning the antenna.



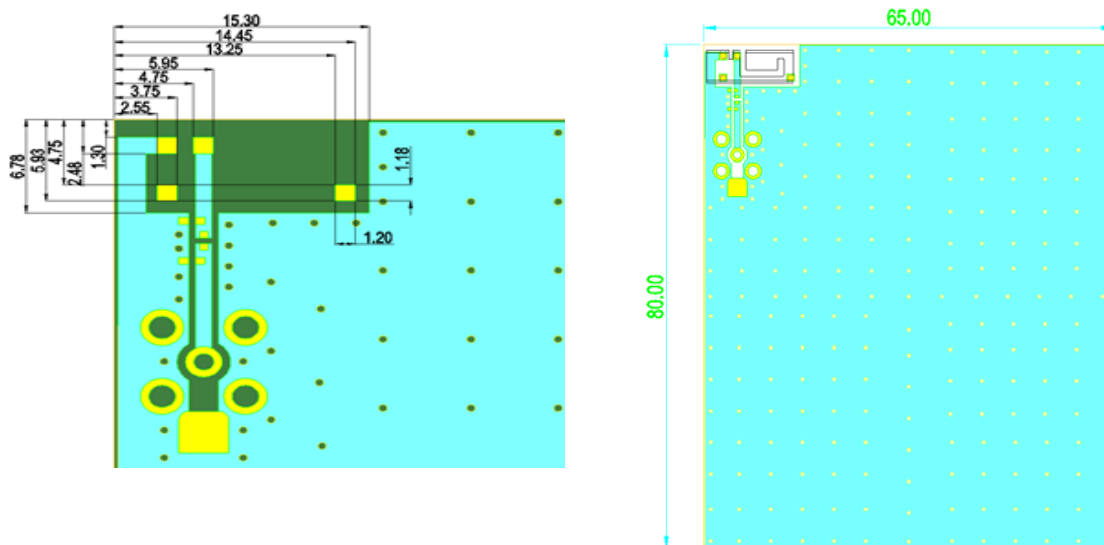
Pin No.	Type	Value
E1	Inductor	0Ω
E2	Capacitor	0Ω
E3	N/A	N/A

7. PCB design

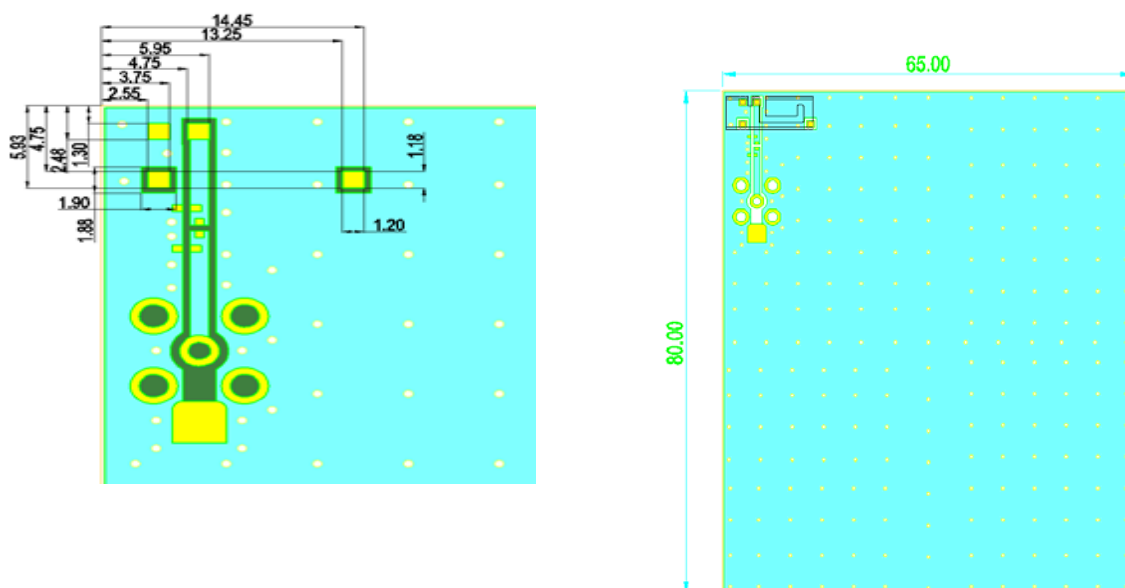
There are two schemes in PCB design . One is clearance area, the other is no clearance area .

The following are schematic diagrams of two PCB schemes.

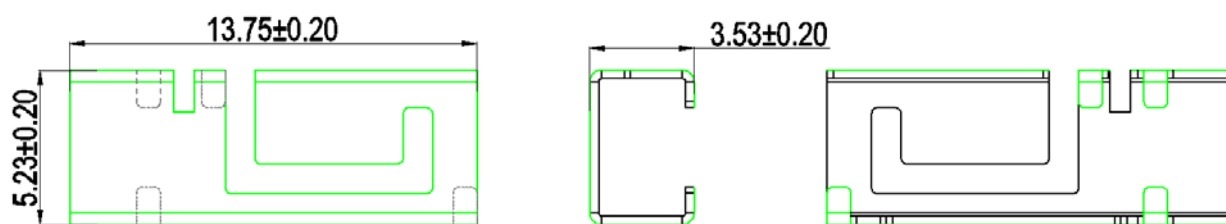
Status 1:



Status 2:



8. Antenna Drawings



Status 1

Status 2

