



**上海增信电子有限公司**  
Signal Plus Technology Co., Ltd.

**规格承认书**  
SPECIFICATION FOR APPROVAL

日期  
DATE: 2022.10.12

版本  
REV.: B

客 户  
CUSTOMER: 德明通讯(上海)有限公司

客 户 料 号  
CUSTOMER P/N: TX0555T003

品 名  
PART NAME: 内置wifi天线 支架+钢片 for NG21

供 方 料 号  
SUPPLIER P/N: 6001F00291

送样日期Date: 送样数量Q'TY: Pcs

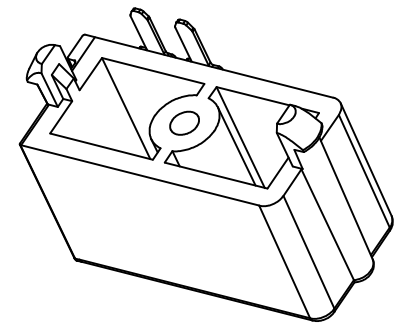
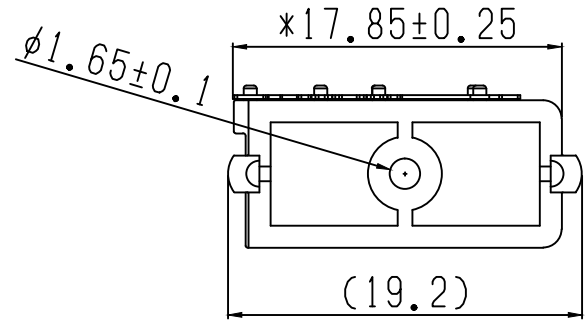
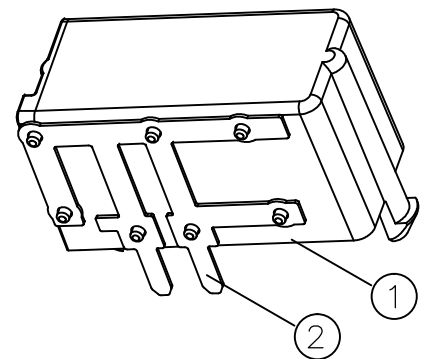
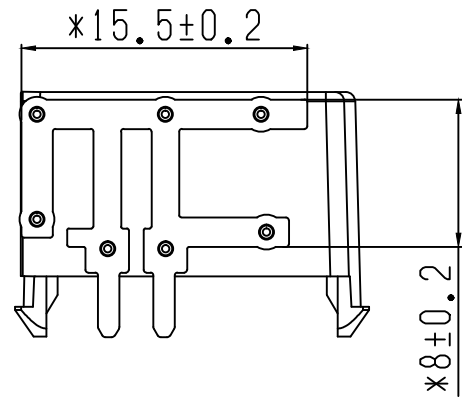
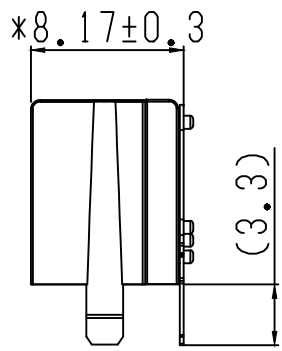
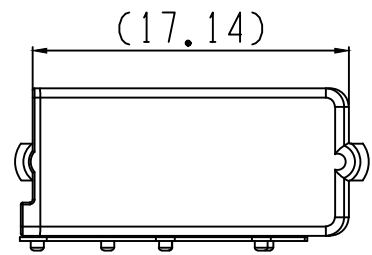
客户确认CUSTOMER APPROVED BY		
核准 Approved by	审核 Checked by	拟制 Prepared by

供方确认SUPPLIER SIGNATURE		
核准 Approved by	审核 Checked by	拟制 Prepared by
Jack		andy

ZX-QT-RD-0011-A1

Add:上海市徐汇区桂箐路69号30栋603室 Tel:021-54266190 Fax:021-54266191

REV	DATE	DESCRIPTION
X1	08/20-2020	New Issue
X2	09/23-2020	Update support dimensions
A	10/27-2020	X2-A
X3	09/30-2022	Change the support material
X4	10/12-2022	Change the project name

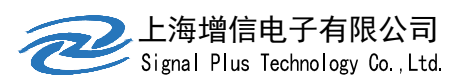


Description:

- The parts are well assembled;
- The height of columns should be  $\leq 0.30$ mm, after hot-melted;
- there is no warping, deformation and other defects on the antenna;
- For antenna support's requirement:  
Material:Sabic PC 940  
Recycling material shall be not used.
- The parts compliance with RoHS2.0 requirements;
- Strict size is marked with "x", and ()size is for reference.

NO	DESCRIPTION	Q'TY	REMARK
2	WIFI-ANT	SUS304, Pre-nickel plated, T=0.2mm	1 404-1-0110-X2
1	WIFI Support	Sabic PC 940, UL94 V-0, Color:Black	1 302-1-0061-X3

CUSTOMER'S SINGATURE	XXX. ±2.0	APPROVED	CUSTOMER:		
	XX. ±1.0		PART NO: TX0555T003		
	X. ±0.5	CHECKED	PART NAME: WIFI ANTENNA FOR NG21		
	.X ±0.3		Z&X P/NO: 6001F00291		
	.XX ±0.2	DRAWING	REV	UNIT	FILE:
	⊕		X4	mm	SHEET: 1/1





## Antenna Test Report

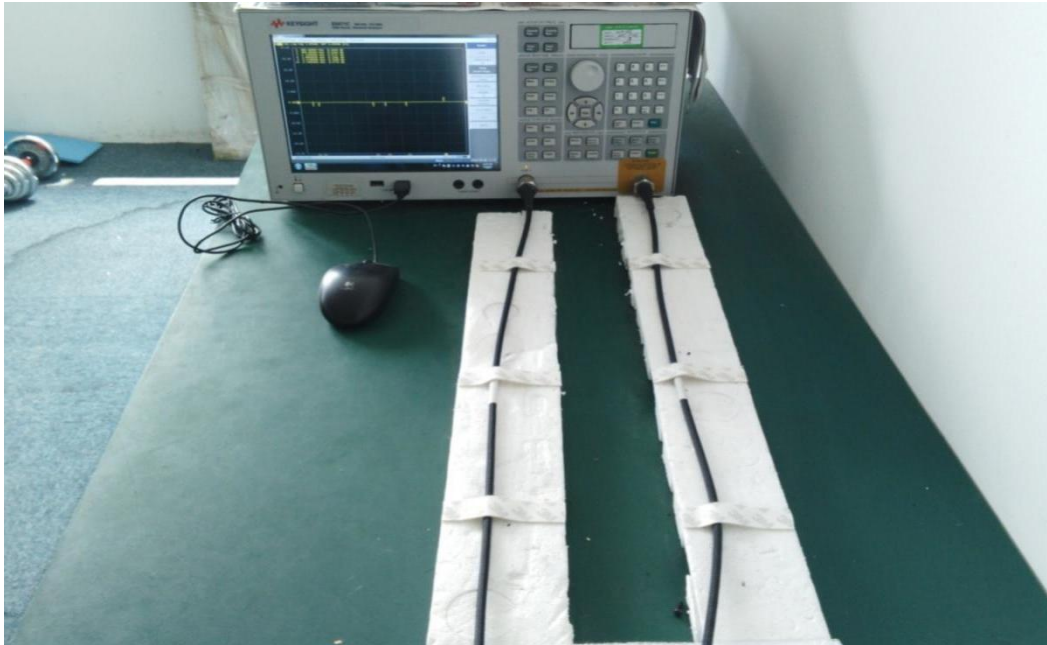
( NG21-WIFI)

# 1. RF Fixture Experiment

## 1.1 Test Setup

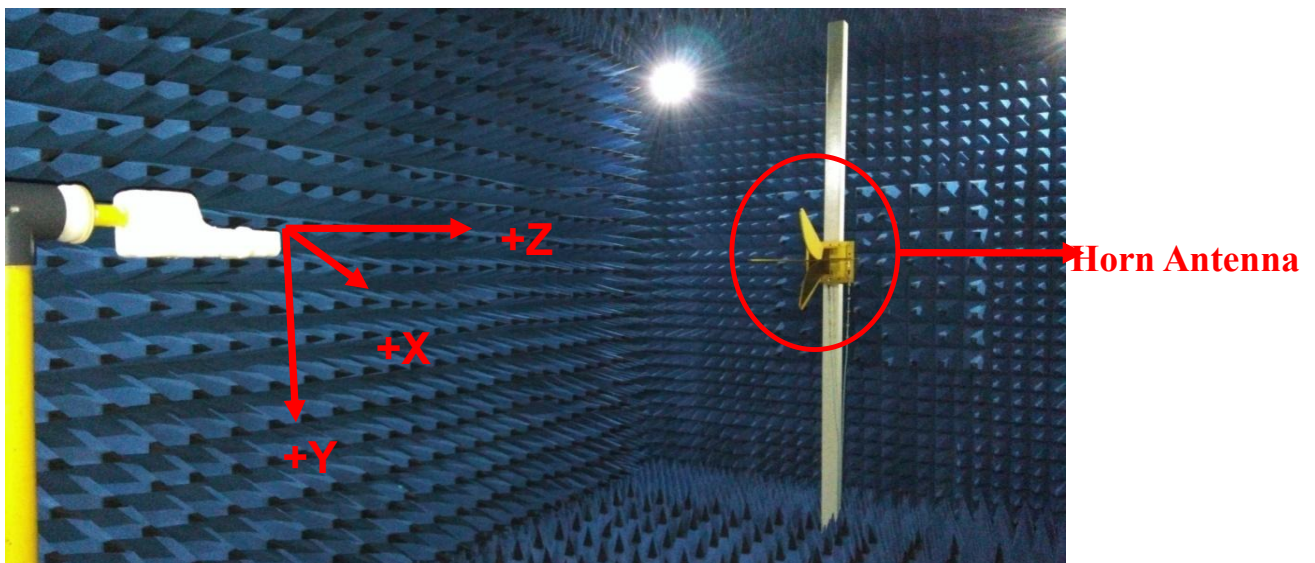
### 1.1.1 VNA Test Setup

VSWR and Return Loss measurements ( $S_{11}$ ) were performed using an Keysight E5071C Network Analyzer. The isolation between antennas is also tested. The testing was performed with apparatus in free space.

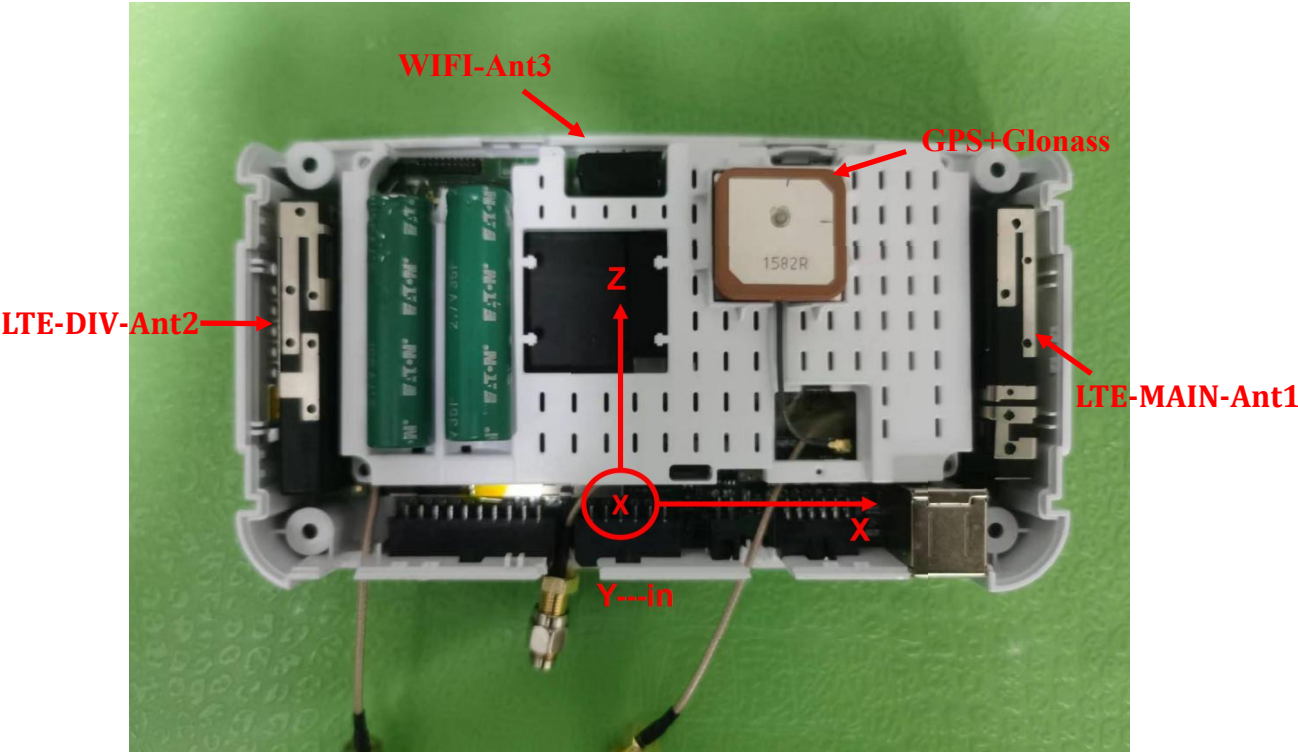


### 1.1.2 Anechoic Chamber Test Setup

The gain of the antenna was measured in the anechoic chamber. The chamber provides less than  $-30$  dB reflectivity from 400 MHz through 6 GHz. The chamber size is: 7m\*4m\*3m. The measurement results are calibrated using a leaky wave horn standard. We can measure the antenna gain and efficiency accurately.



2. Antenna Solution



## Data Preview

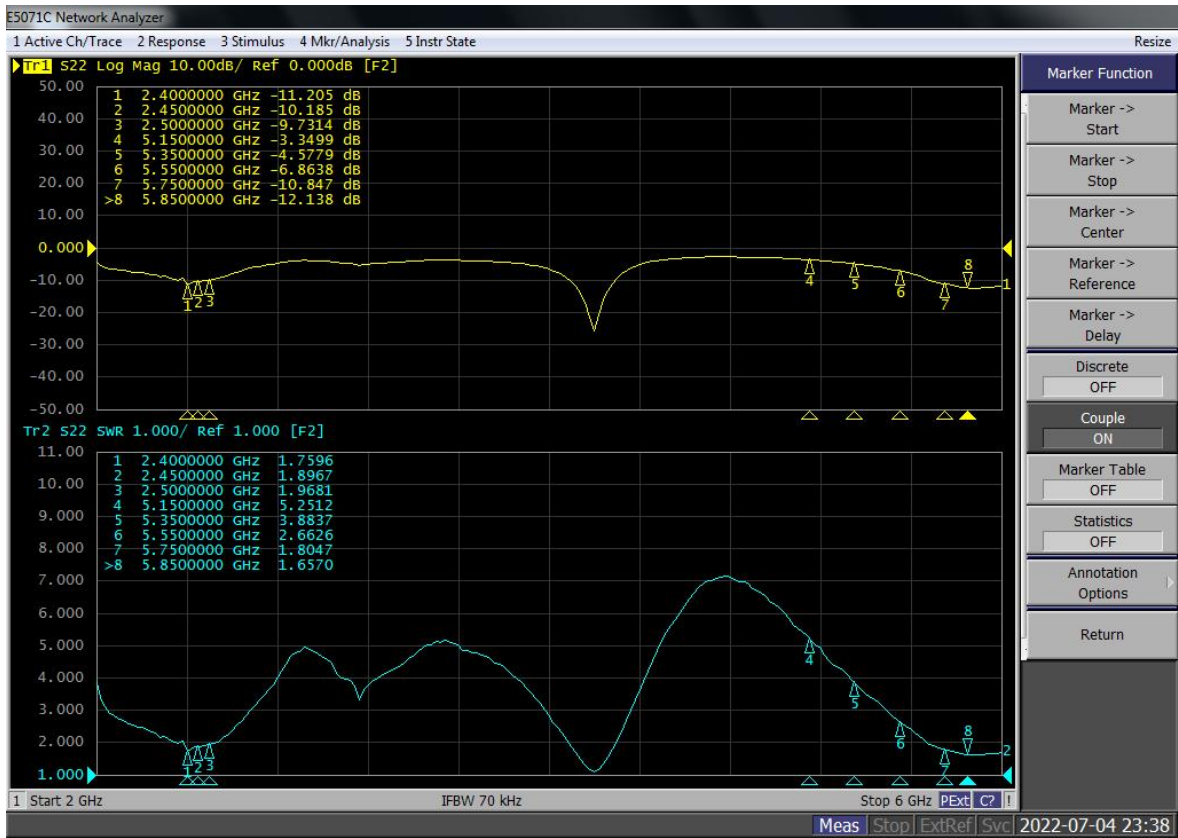
WIFI-Ant3:

<b>Freq.(MHz)</b>	<b>2400</b>	<b>2450</b>	<b>2500</b>	<b>5150</b>	<b>5350</b>	<b>5550</b>	<b>5750</b>	<b>5850</b>
VSWR	1.75	1.89	1.96	5.25	3.88	2.66	1.80	1.65
Gain(dBi)	3	3	3	4	4	4	4	4
Eff.	63.4%	65.5%	61.2%	28.3%	33.0%	52.8%	54.7%	60.1%

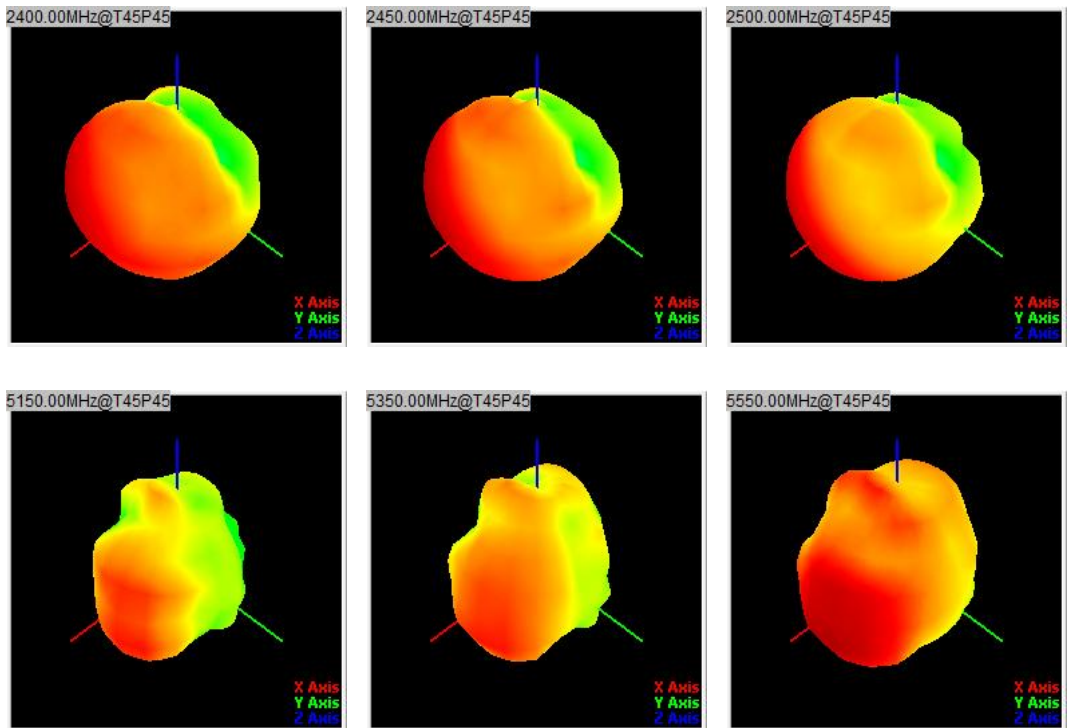
Active test data:

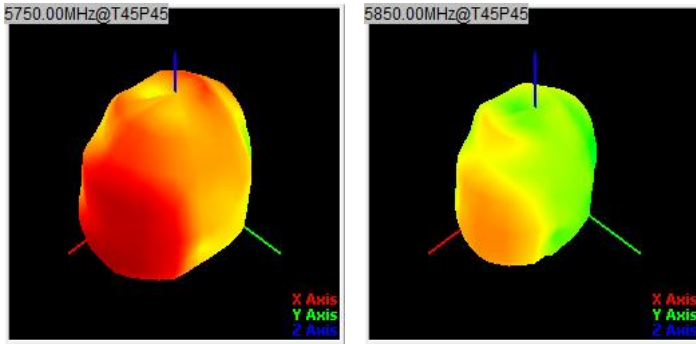
<b>802.11b (11M)</b>	<b>Freq (MHz)</b>	<b>TRP</b>	<b>TIS</b>
1	2412	13.36	-83.52
6	2437	13.12	-83.49
11	2462	12.89	-82.83
<b>802.11a (54M)</b>	<b>Freq (MHz)</b>	<b>TRP</b>	<b>TIS</b>
40	5200	11.05	-67.21
161	5805	11.77	-67.62

# S11(WIFI-Ant3):



# Radiation patterns:3D

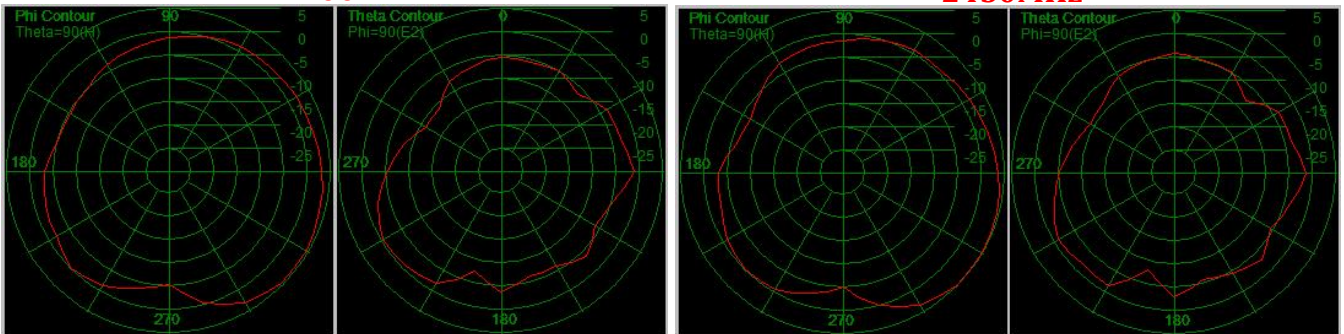




Radiation patterns:2D

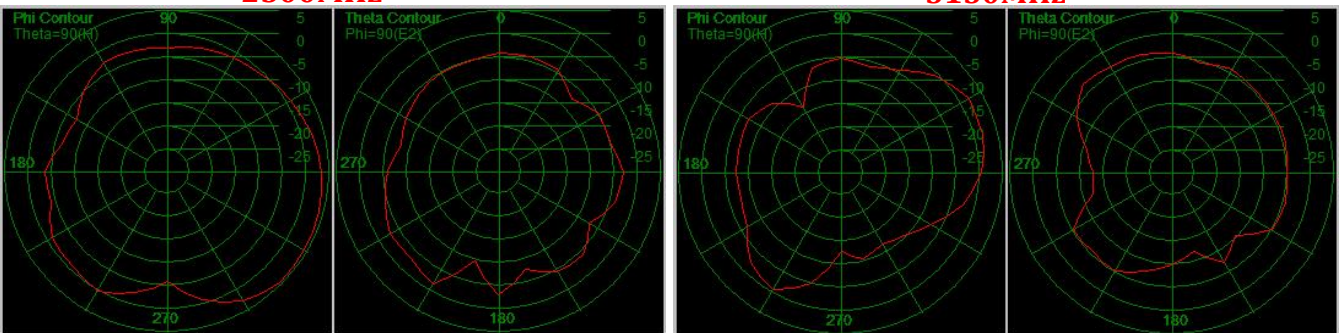
**2400MHz**

**2450MHz**



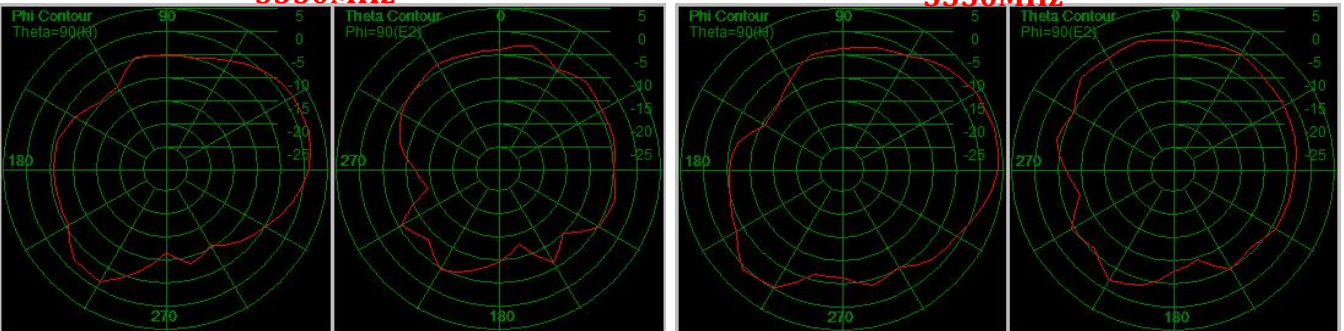
**2500MHz**

**5150MHz**



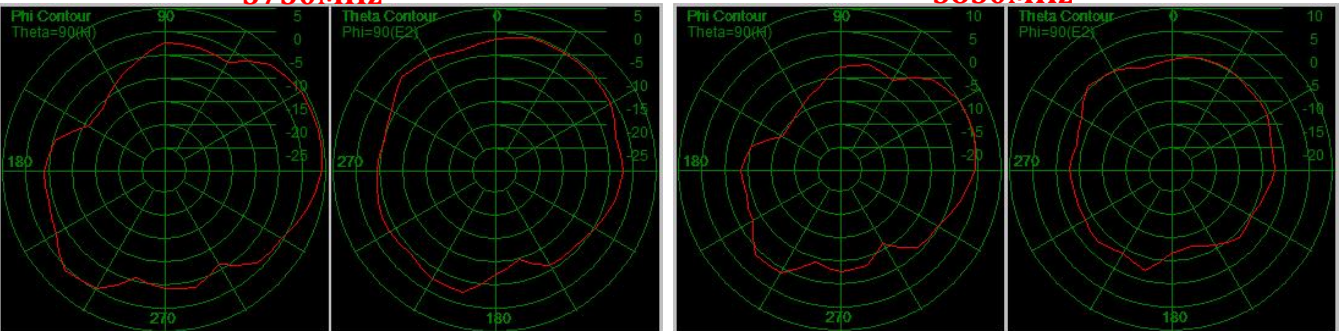
**5350MHz**

**5550MHz**



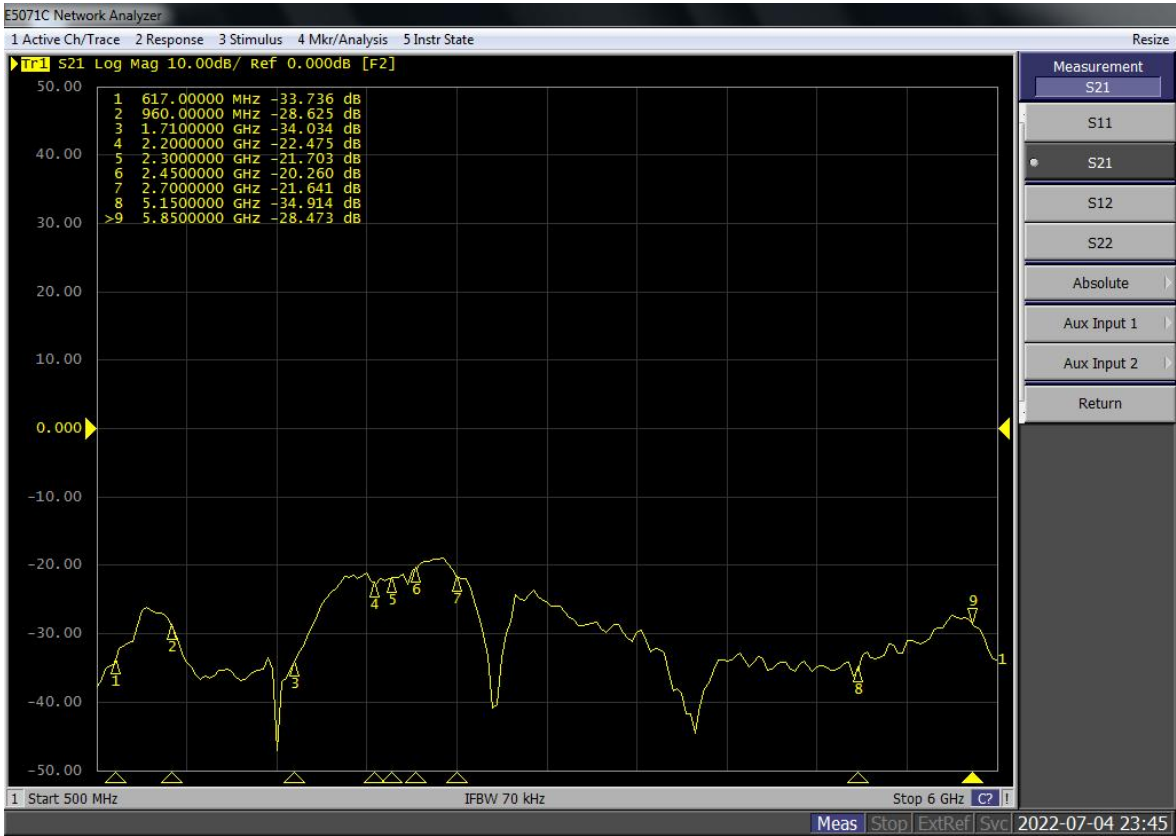
**5750MHz**

**5850MHz**

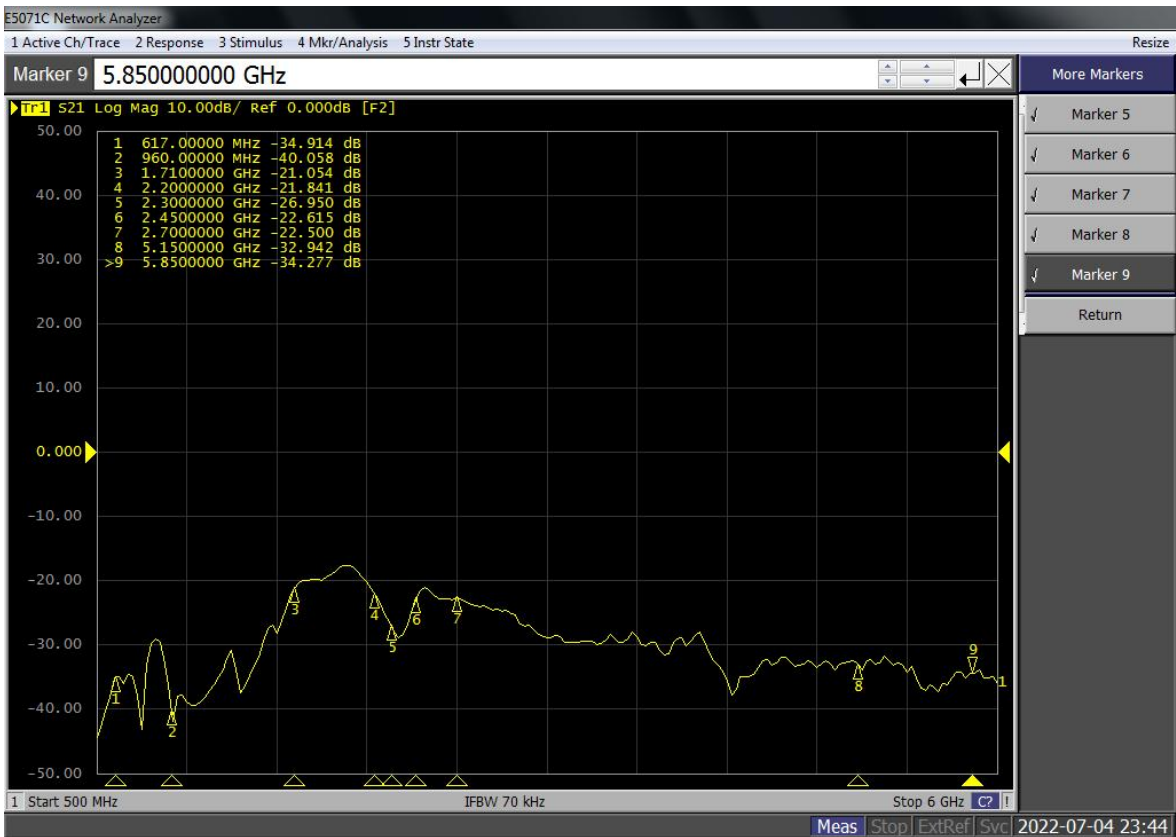




## S21(Ant1&Ant3)



## S21(Ant2&Ant3)



# S21(Ant3&GPS+Glonass)

