



WHA YU INDUSTRIAL CO., LTD.(HEAD OFFICE)

DONGGUAN AEON TECH CO.,LTD.(CHINA)

SPECIFICATION FOR APPROVAL

CUSTOMER: 康全

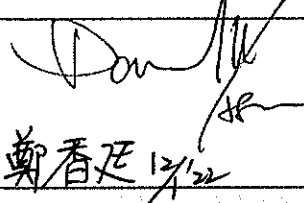
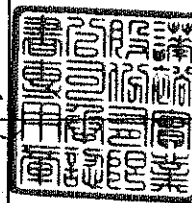
PART NAME: RF Antenna Assembly

PART NO.:

REVISION:

W. Y. P/NO.: C1881-510019-A(SRF20221862)

REV.: X2

| | MANUFACTURER SIGNATURE | CUSTOMER SIGNATURE |
|------------------|---|--|
| APPROVED BY : |  鄭香廷 12/22 |  |
| DATE : | | |

WHA YU GROUP

WHA YU INDUSTRIAL CO., LTD.(HEAD OFFICE)

譚裕實業股份有限公司

Address: No. 326, Sec. 2, Kung Tao 5 Road, Hsin Chu City, Taiwan, R.O.C.

Tel:+886-3-5714225(REP.)

Fax:+ 886-3-5713853 · + 886-3-5723600

DONGGUAN AEON TECH CO.,LTD.(CHINA)

東莞台霖電子通訊有限公司

Address:Hupan Industrial District,Tai Ling Shan Town,Dong Guan City,Guangdong,China

Tel:+86-769-85655858

Fax:+86-769-85655258

RF Antenna Assembly

Specification

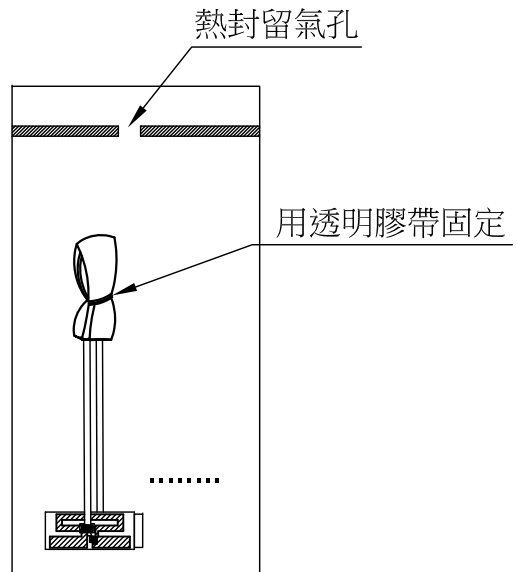
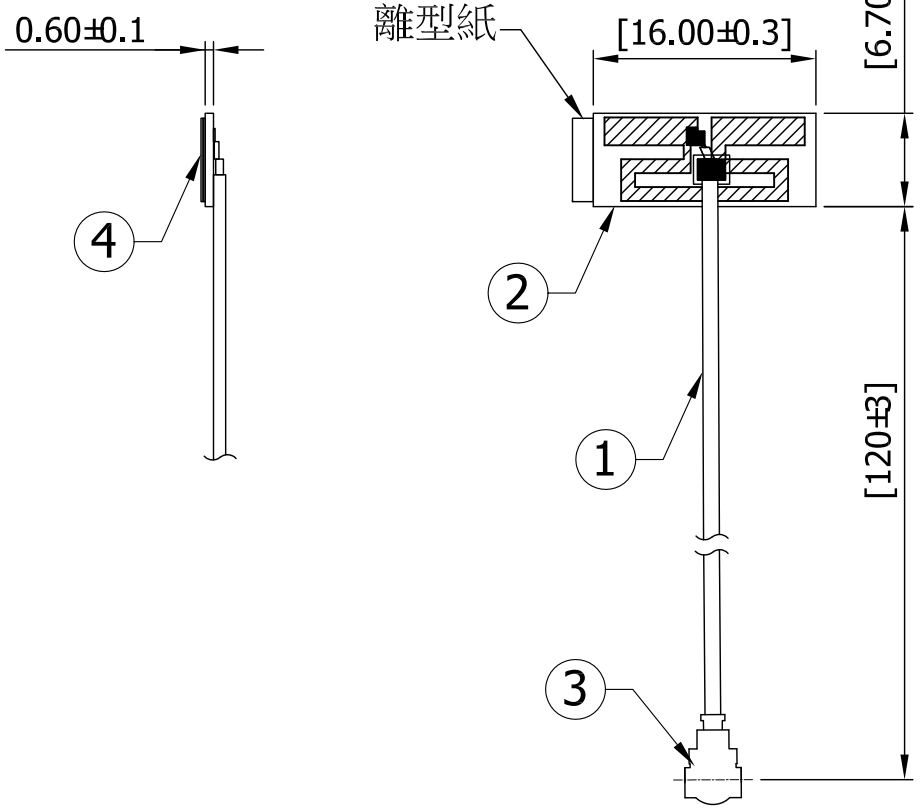
1. Electrical Properties : With housing/With Cable loss(Ant.6)

- 1.1 Frequency Range..... 5.925~7.125 GHz
- 1.2 Impedance 50Ω Nominal
- 1.3 VSWR 1.72 : 1 Max.
- 1.4 Return Loss..... 11.5 dB Min.
- 1.5 Radiation Omni-directional
- 1.6 Peak Gain..... 5.05 dBi Max.
- 1.7 Cable Loss..... 0.47 dB Max.
- 1.8 Polarization..... Linear
- 1.9 Cable..... 1.37mm Low Loss Coaxial Cable (White)
- 1.10 Connector..... I-PEX MHF Connector

2. Physical Properties :

- 2.1 Operating Temp. -10°C ~ +60°C
- 2.2 Storage Temp. -10°C ~ +70°C

| REV | DATE | DESCRIPTION |
|-----|------------|---------------------|
| X1 | 11/01-2022 | New Issue |
| X2 | 11/08-2022 | Modify Cable Length |



Packing : 25 pcs/bag

| 4 | 雙面背膠 | 3M 9448A | 1 | T=0.15mm |
|----|-------------|---|------|----------|
| 3 | Connector | I-Pex MHF Connector | 1 | |
| 2 | PCB | FR4 , 24mil , 1/2 Oz | 1 | |
| 1 | Cable | ∅1.37mm Low Loss Coaxial Cable; 白色White | 1 | |
| NO | DESCRIPTION | | Q'TY | REMARK |

| | | | | | | |
|----------------------|------|------|--------------------|--------------------------------|-------------|--------------------|
| CUSTOMER'S SINGATURE | XXX. | ±5.0 | APPROVED Spring | CUSTOMER: 康全 | | |
| | XX. | ±3.0 | | PART NO : | | |
| | X. | ±1.0 | CHECKED | PART NAME: RF Antenna Assembly | | |
| | .X | ±0.5 | | W.Y P/NO : C1881-510019-A | | |
| | .XX | ±0.2 | DRAWING 葉雁麗 | REV | UNIT | FILE : SRF20221862 |
| | | | X2 | mm | SHEET : 1/1 | |

M.gear Wha Yu Group

THIS DRAWING, AND IT'S INHERANT DESIGN CONCEPTS, ARE THE PROPERTY OF WHA YU AND AS SUCH MAY NOT BE COPIED, REPRODUCED, OR GIVEN TO THIRD PARTIES WITHOUT THE WRITTEN CONSENT OF WHA YU.

Specification

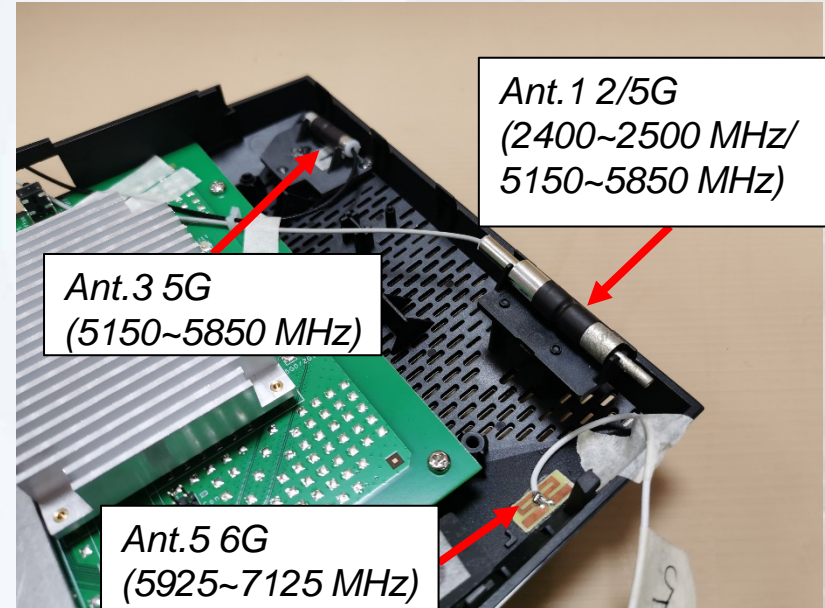
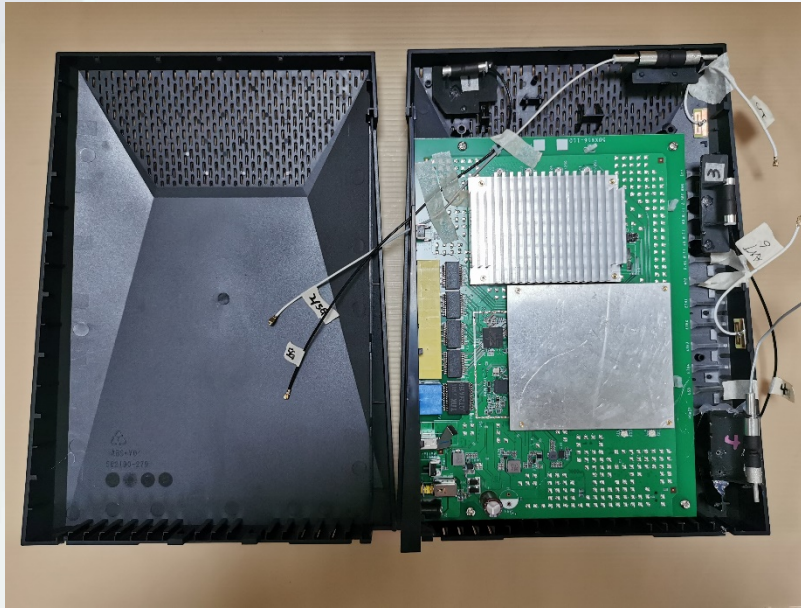
Requirements of Antenna Design

| RF Function | Number of ANT | Frequency Band | Remark |
|-------------|---------------|-------------------------------|------------|
| WiFi 2/5G | 2 | 2400-2500 MHz / 5150-5850 MHz | Metal Tube |
| WiFi 5G | 2 | 5150-5850 MHz | Metal Tube |
| WiFi 6G | 2 | 5925-7125 MHz | PCB |

Requirements of Measurement

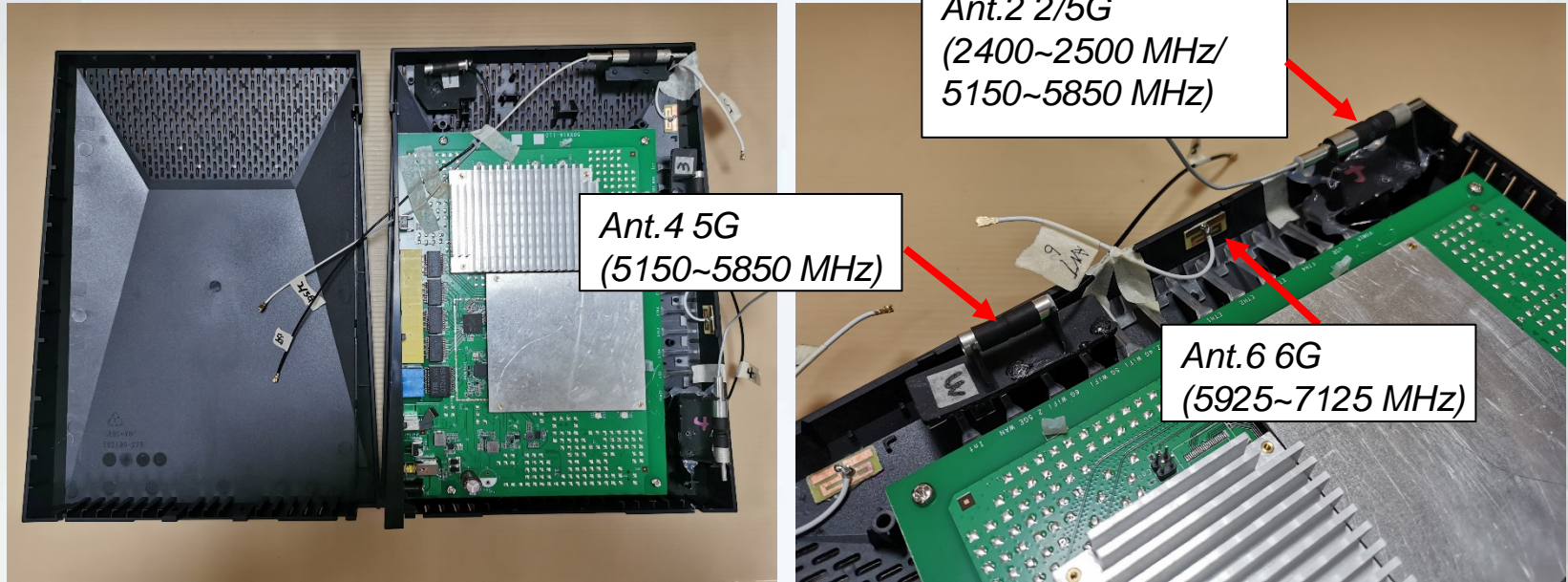
| Test Item | Specification | Remark |
|-------------------|---|--------|
| Return Loss | > 11.5 dB | |
| Isolation | > 25 dB | |
| Peak gain | < 6dBi | |
| Efficiency | >65% | |
| Radiation pattern | Scale:+10~-40dBi, Angle step size: 2 degree | |

Antenna Placement & Solution



| Antenna | ANT Type | Size (L * W * H* T) | Cable Length (mm) | Cable Type |
|---------|--------------|---------------------|-----------------------|---------------------|
| Ant.1 | Metal Dipole | NA | 107.5mm (Extend 75mm) | Φ=1.37mm(LL Gray) |
| Ant.3 | Metal Dipole | NA | 90mm (Extend 75mm) | Φ=1.37mm(LL Black) |
| Ant.5 | PCB Dipole | 16mm*6.7mm*0.6mm | 231mm (Extend 225mm) | Φ=1.37mm (LL White) |

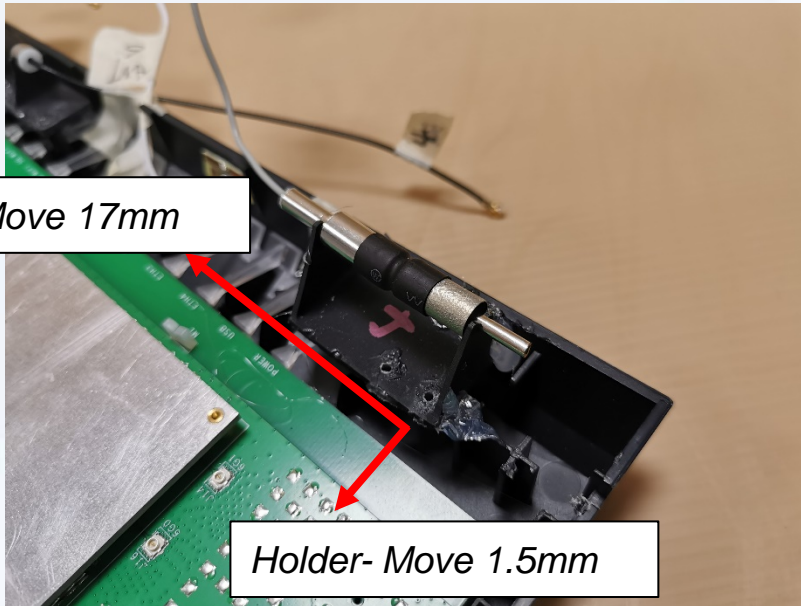
Antenna Placement & Solution









| Antenna | ANT Type | Size (L * W * H) | Cable Length (mm) | Cable Type |
|---------|--------------|------------------|------------------------|---------------------|
| Ant.2 | Metal Dipole | NA | 222.5mm (Extend 190mm) | Φ=1.37mm(LL Gray) |
| Ant.4 | Metal Dipole | NA | 160mm (Extend 150mm) | Φ=1.37mm(LL Black) |
| Ant.6 | PCB Dipole | 16mm*6.7mm*0.6mm | 126mm (Extend 120mm) | Φ=1.37mm (LL White) |

Antenna Placement & Solution

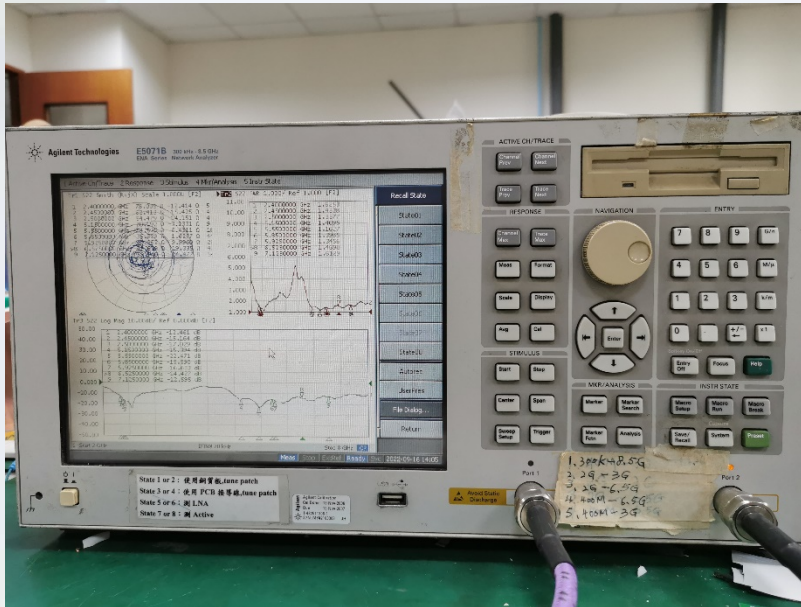
Move Ant.2 Holder



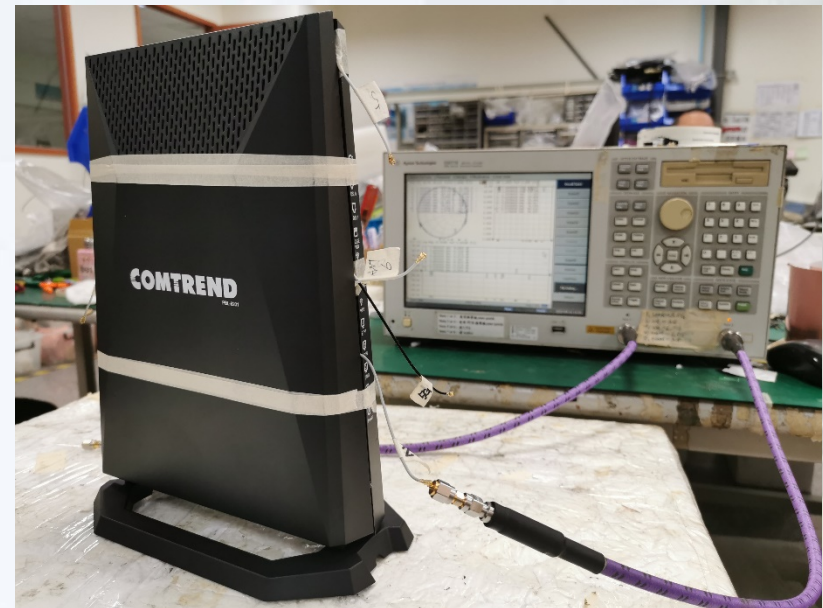
Antenna Placement & Solution

| Antenna | Previous Version | Current Version |
|--|---|---|
| Ant.1-2/5G Ant.2-2/5G | Ant.1/Ant.2_2/5G_v1.05  | Ant.1/Ant.2_2/5G_v1.06  |
| Ant.3-5G Ant.4-5G | Ant.3/Ant.4_5G_v1.05  | Ant.3/Ant.4_5G_v1.06  |
| Ant.5-6G Ant.6-6G | Ant.5/Ant.6_6G_v1.05  | Ant.5/Ant.6_6G_v1.06  |

Test Setup for S-parameter Measurement

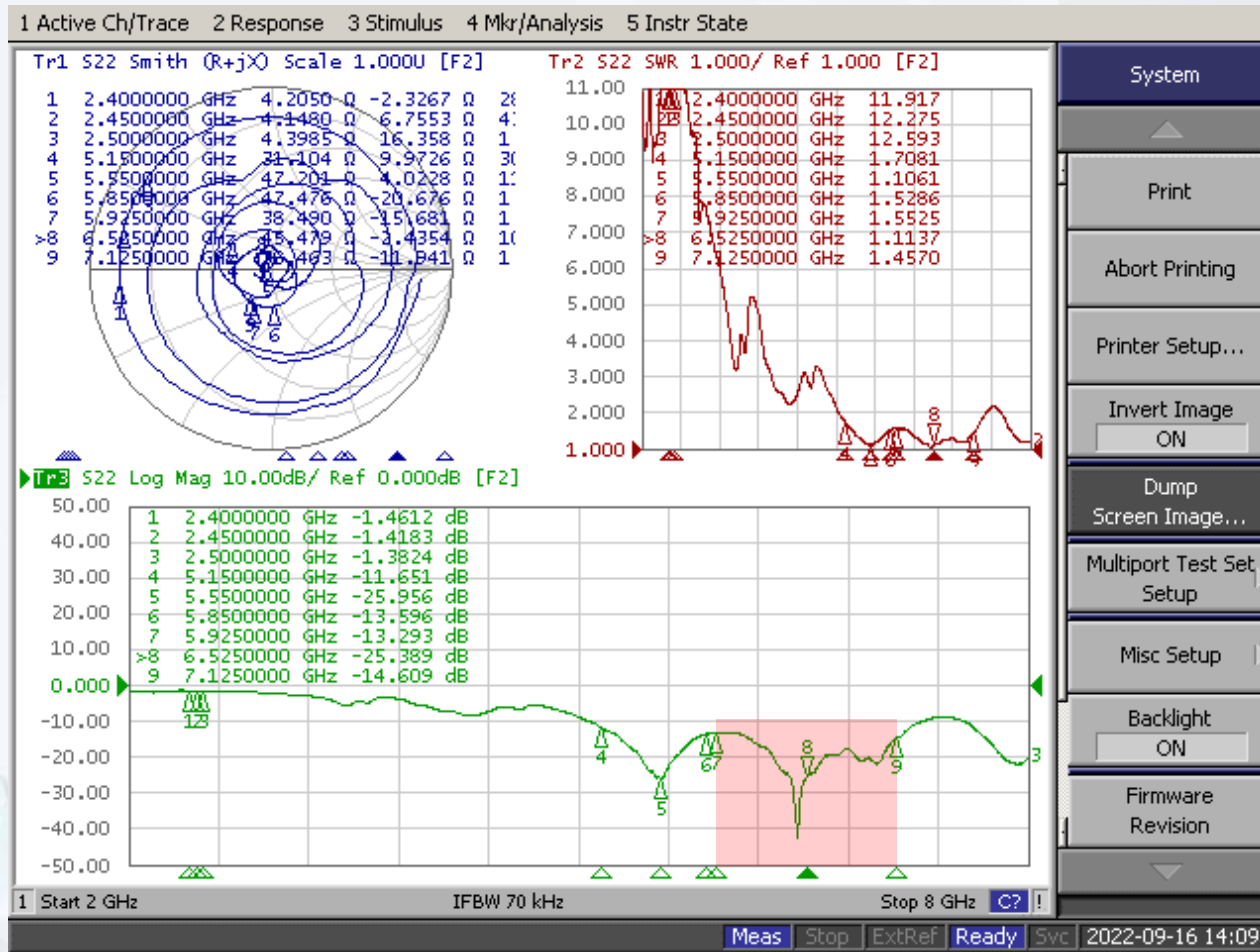


| Equipment | Brand | Model | S/N |
|------------------|----------|--------|------------|
| Network Analyzer | Keysight | E5071B | MY42100388 |

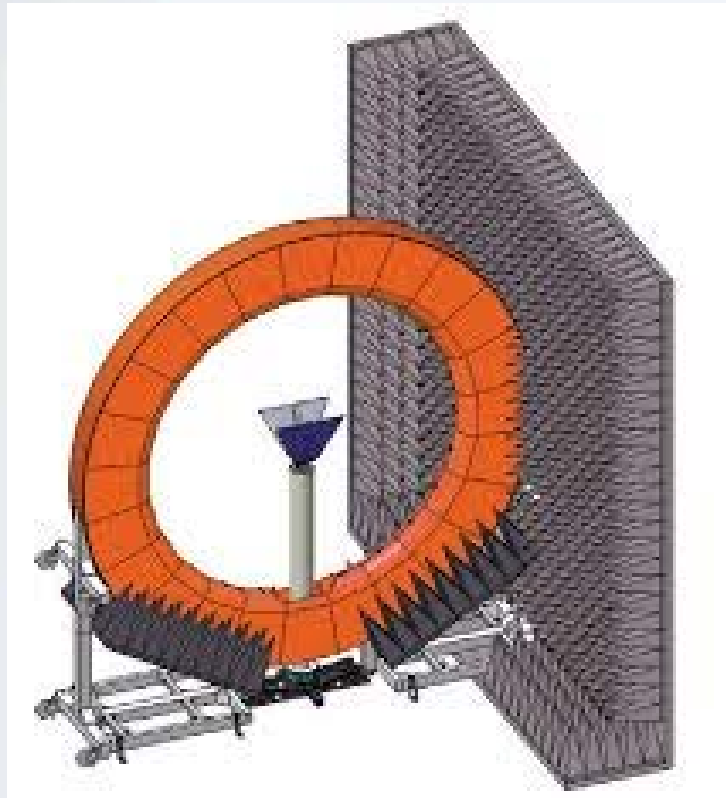


Return Loss Results

Ant.6 (5925-7125MHz) (Criterion:>11.5 dB)



Test Setup for Radiation Pattern Measurement

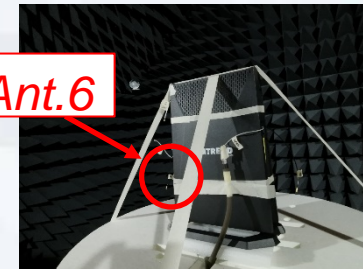


- **SATIMO SG-24L Multi-Probe Antenna Measurement System**
 - Frequency range: 400 MHz – 9 GHz
 - Chamber Room Size: 5m L x 5m W x 5m H

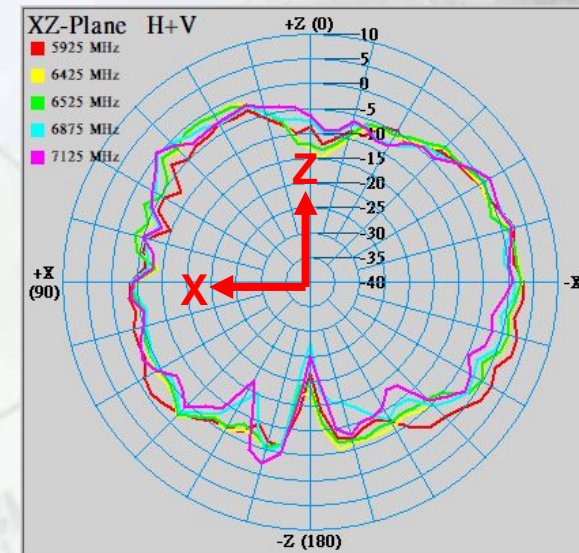
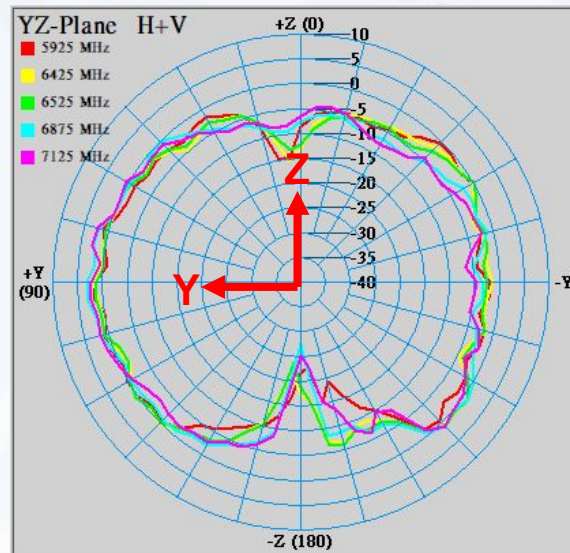
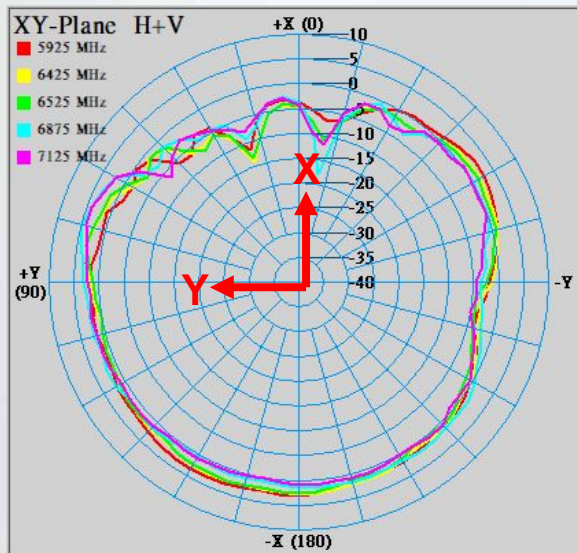
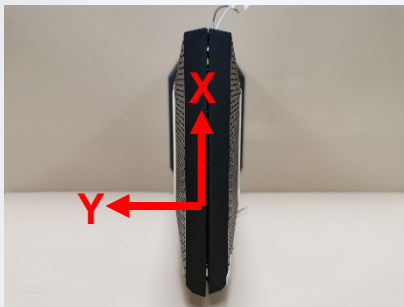
| Chamber | Brand | Model | Location |
|---------|--------|-------|-------------------|
| SATIMO | SATIMO | SG-24 | Taiwan HsinChu |

2D Radiation Pattern Results

Ant.6



Ant.6-6G



Results Summary

Peak gain & Efficiency – Ant.6 (Criterion: Efficiency >65%)

| Frequency (MHz) | Peak Gain (dBi) | Efficiency (%) |
|-----------------|-----------------|----------------|
| 5925 | 4.64 | 75 |
| 6425 | 4.70 | 69 |
| 6525 | 4.07 | 67 |
| 6875 | 5.05 | 68 |
| 7125 | 4.89 | 69 |