

# G1NRR

## Antenna Test Report

Jan. 22, 2024

Carl Hung

Antenna Design Department

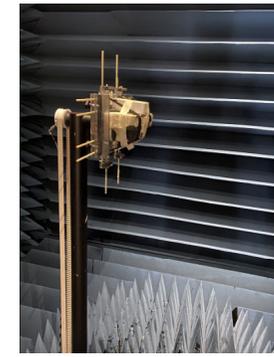
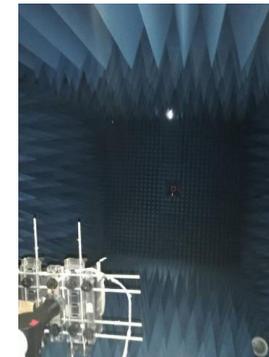
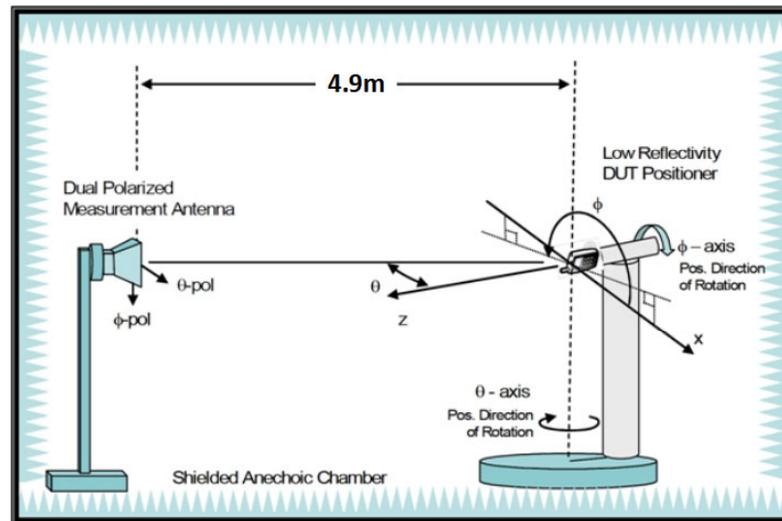


## Test Information

Item	Description
Equipment	G1NRR
Test Location	8F, No. 3-1, YuanQu St. Taipei, Taiwan 115 R.O.C.
Test Condition	Radiation
Test Engineer	Carl Hung
Temperature	24.5 <sup>0</sup> C ~ 26.5 <sup>0</sup> C
Humidity	45 % ~ 55 %
Test Environment	ETS-Lindgren AMS-8500 Antenna Measurement Chamber
Test Date	Jan. 6, 2025 ~ Jan. 10, 2025

## Test Configuration

ETS-Lindgren AMS-8500 antenna measurement system with a size of 7.32(L) × 3.66(W) × 3.66(H) m<sup>3</sup> is used for antenna performance test, which is based on the great-circle test method defined by CTIA. The multi-axis positioning system (MAPS) rotates the DUT around two orthogonal axes for full spherical coverage.



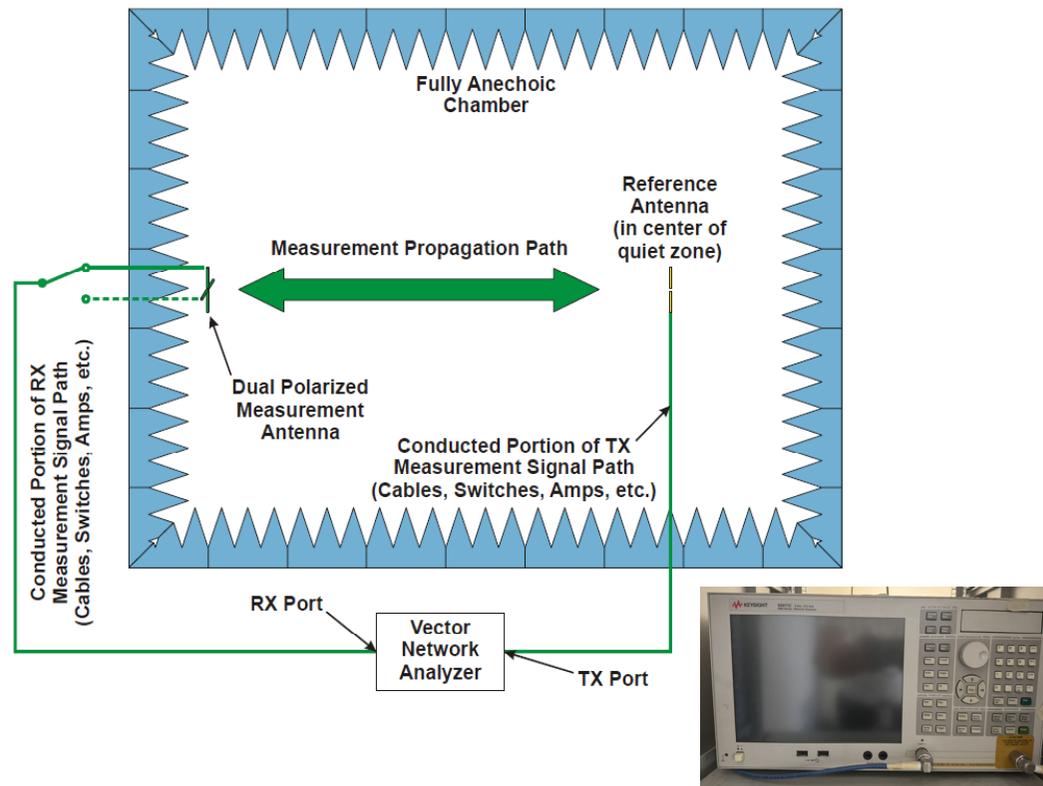
## Test Setup & Procedure

1. Fix the DUT on the dielectric support structure and connect the feeding cable to the antenna used for test
2. Set measurement parameters such as frequency range and sampling angle
3. Perform test and then get far-field data (radiation pattern, gain, efficiency)
4. Repeat test procedure for other antennas



## Test Equipment & Calibration

Network analyzer and reference antennas are used for calibration. Path loss and cable loss for different frequency bands can be checked and calculated.



## Test Equipment & Calibration

Instrument	Brand	Characteristics	Model No.	Serial No.	Calibration Due Date
Precision Sleeve Dipole	ETS-Lindgren	700 MHz ~ 900 MHz	3126-700	00169715	May 21, 2025
Precision Sleeve Dipole	ETS-Lindgren	900 MHz ~ 1000 MHz	3126-900	00169592	May 21, 2025
Precision Sleeve Dipole	ETS-Lindgren	1400 MHz ~ 1700 MHz	3126-1550	00164599	May 21, 2025
Precision Sleeve Dipole	ETS-Lindgren	1700 MHz ~ 2000 MHz	3126-1850	00169588	May 21, 2025
Precision Sleeve Dipole	ETS-Lindgren	2000 MHz ~ 2300 MHz	3126-2150	00169593	May 21, 2025
Precision Sleeve Dipole	ETS-Lindgren	2300 MHz ~ 2700 MHz	3126-2500	00169597	May 21, 2025
Precision Sleeve Dipole	ETS-Lindgren	5000 MHz ~ 6000 MHz	3126-5500	00169728	May 21, 2025
Horn Antenna	SCHWARZBECK	1 GHz ~ 18 GHz	BBHA 9120D	BBHA 9120D-1294	May 21, 2025
EMQuest Antenna Measurement Software	ETS-Lindgren	Control chamber system	EMQ-100	1437	Non-Calibration Required



## Antenna Information

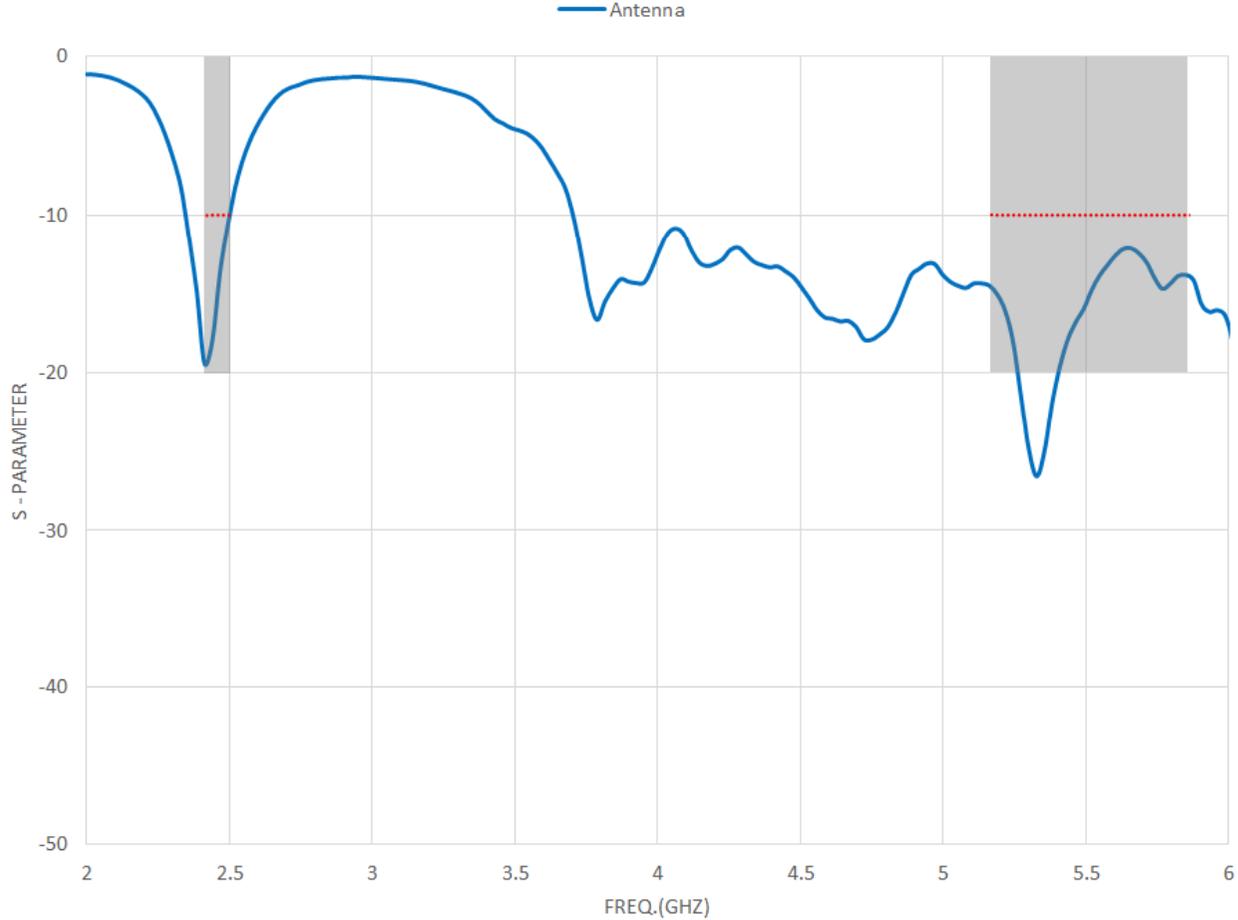
Ant No.	Operating Band	Type	Material	Feeding	Polarization	Dimension
WiFi ANT	2400 MHz ~ 2500 MHz 5150 MHz ~ 5850 MHz	PIFA	PCB	Cable	Linear	27mm(L)*15mm(W)*0.15mm(T)

## Outline

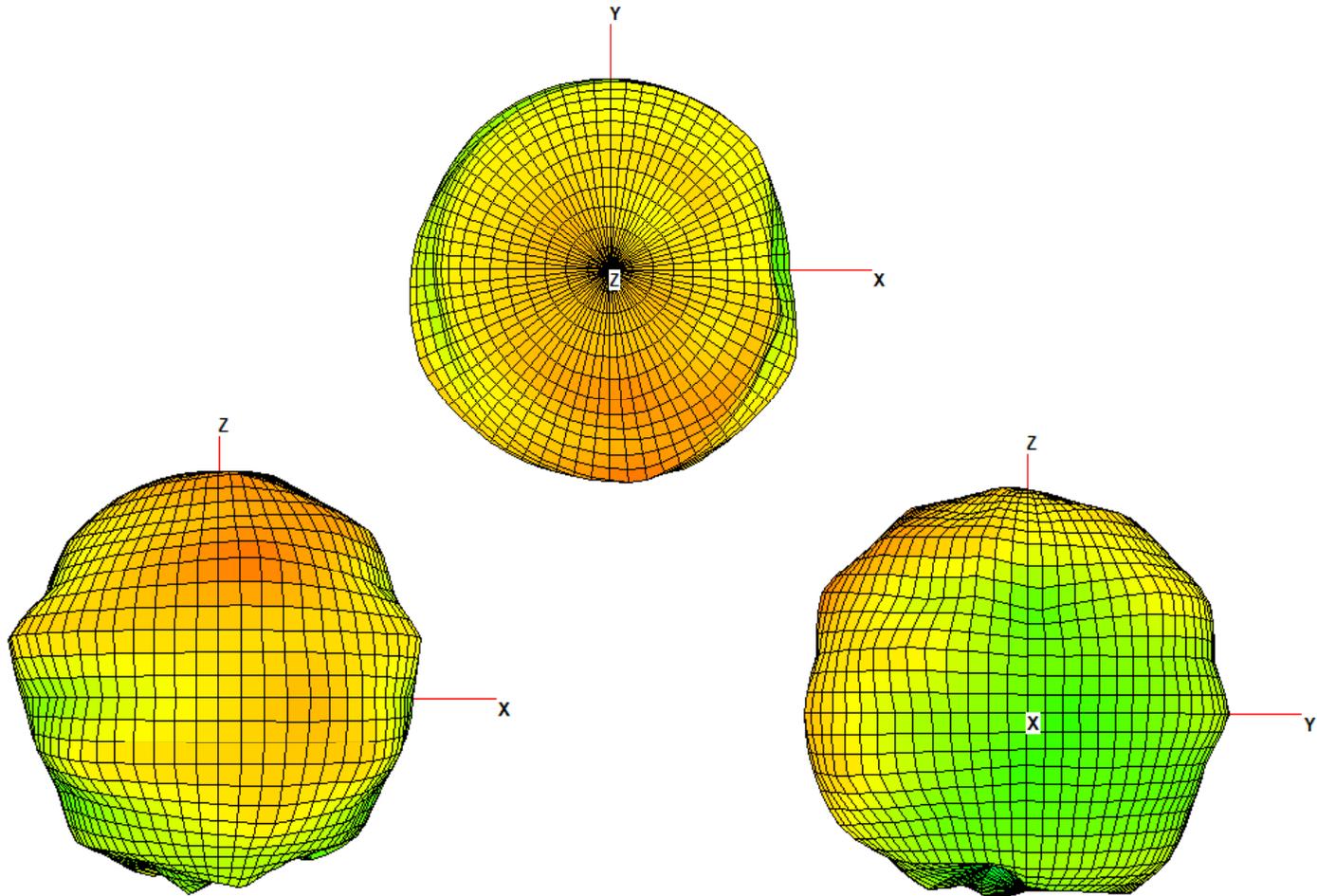
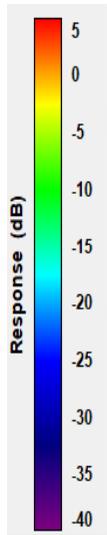
- Return Loss & Isolation
- Radiation Pattern
- Peak Gain & Efficiency



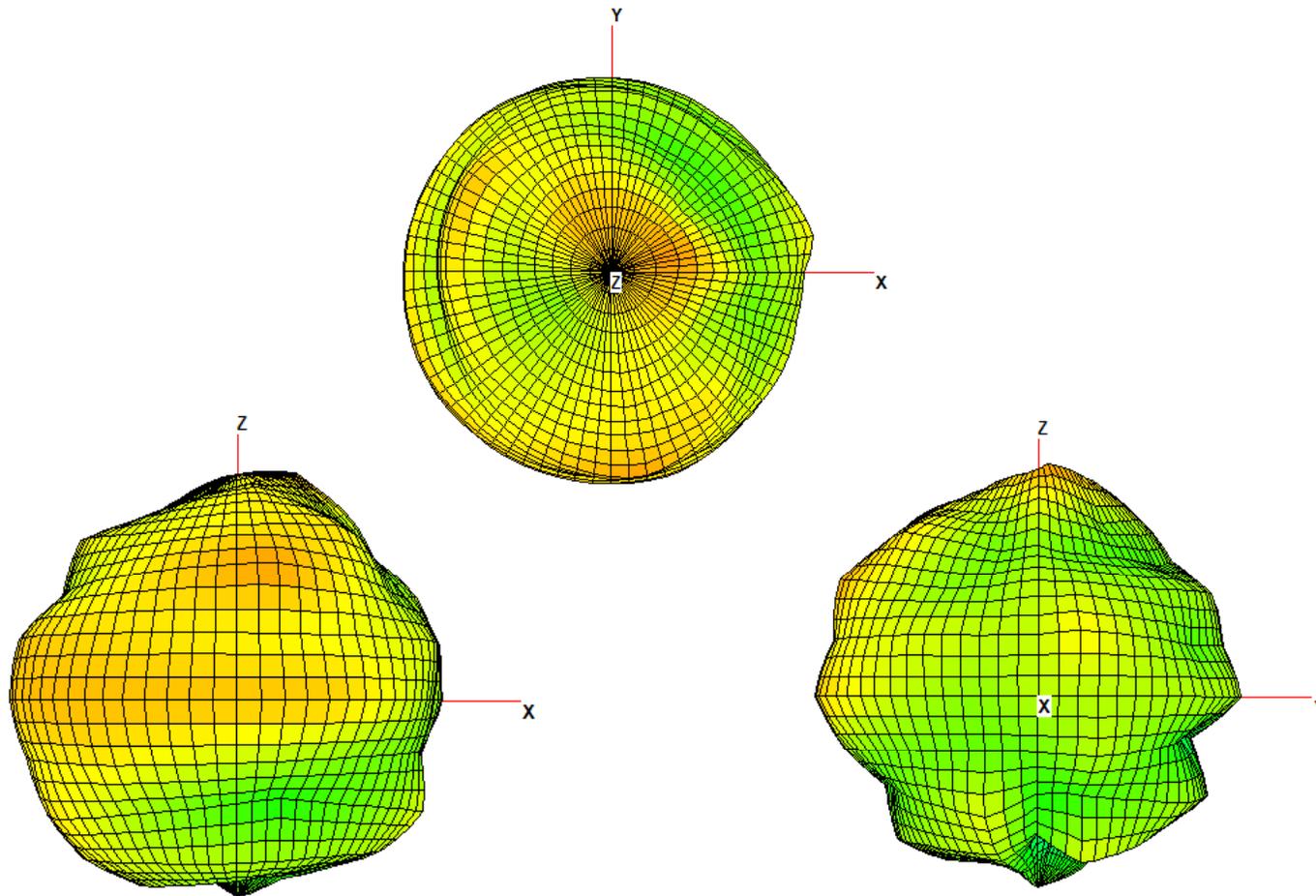
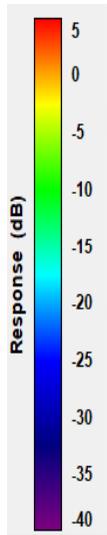
# Return Loss



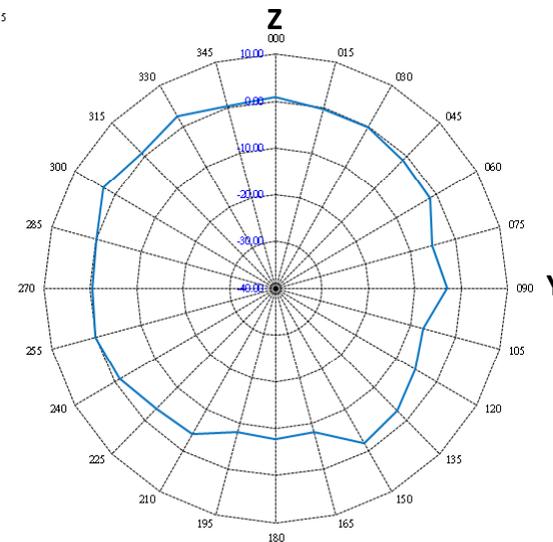
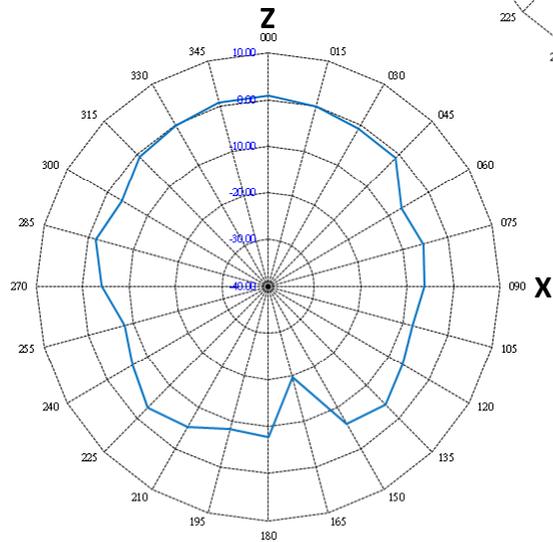
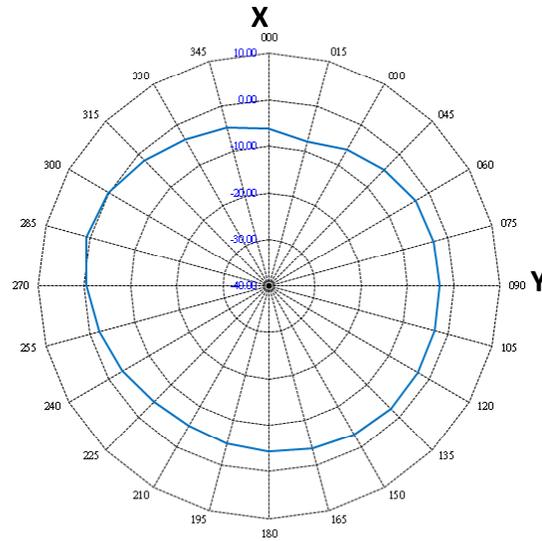
# Radiation Pattern \_ Ant-1 @ 2450 MHz



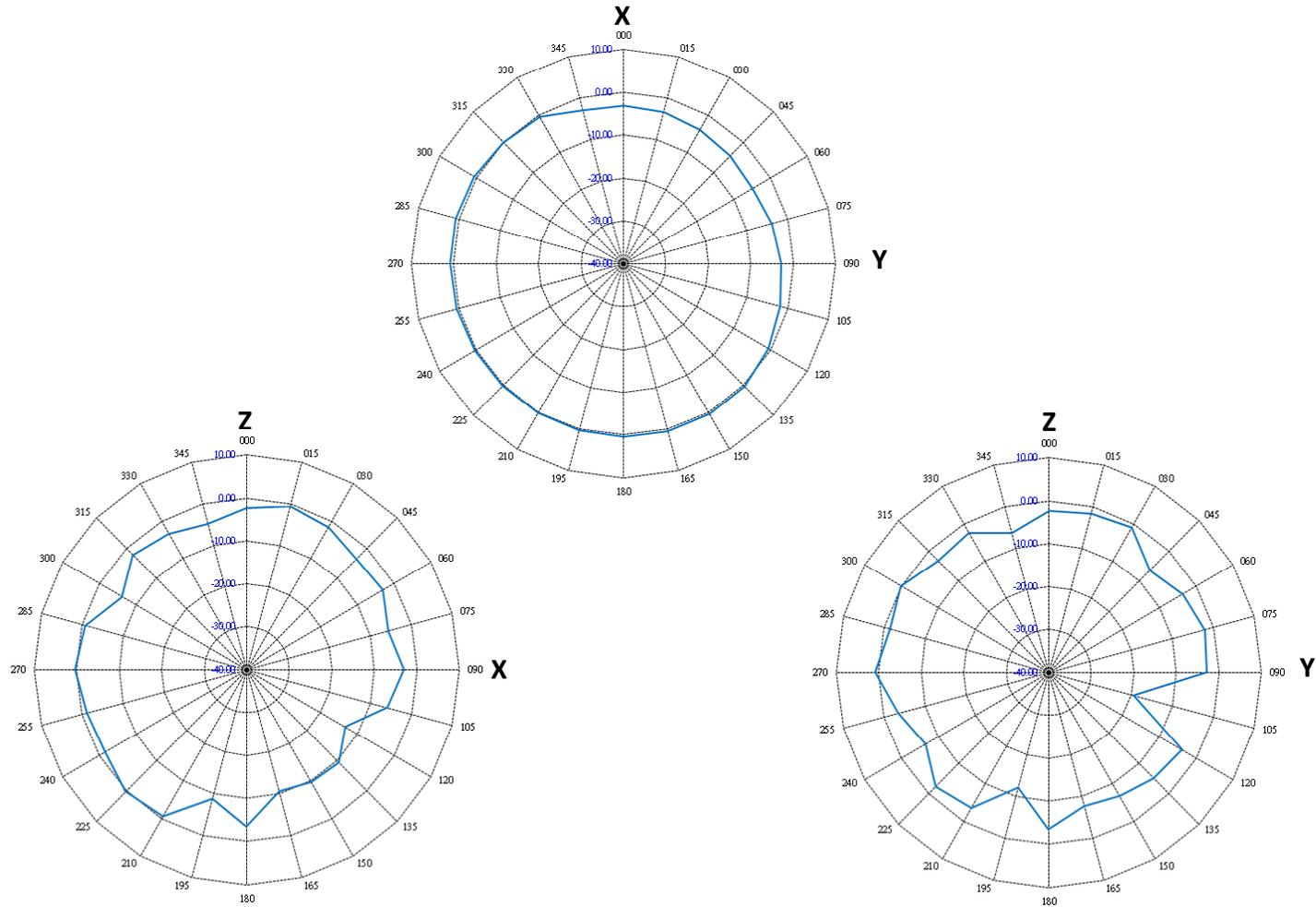
# Radiation Pattern \_ Ant-1 @ 5500 MHz



# Radiation Pattern \_ Ant-1 @ 2450 MHz



# Radiation Pattern \_ Ant-1 @ 5500 MHz



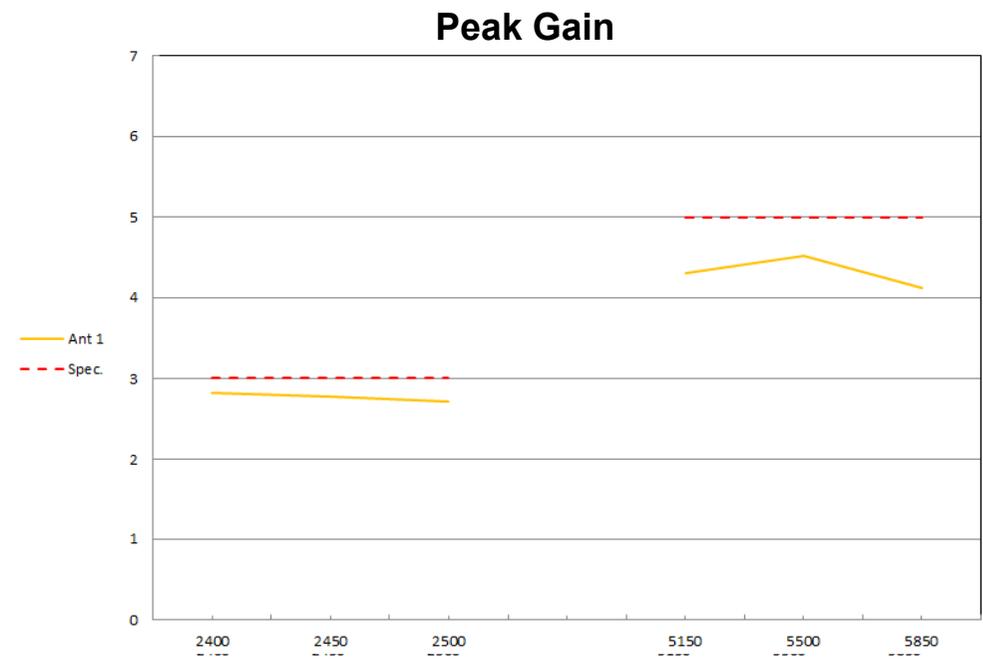
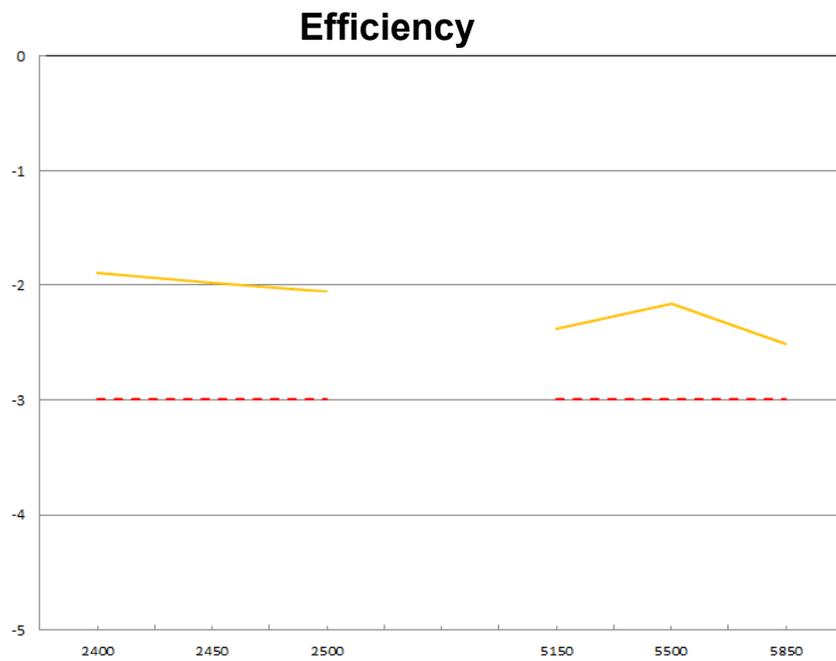
## Peak Gain & Efficiency

	Antenna	
Frequency (MHz)	Efficiency (dB)	Peak Gain (dBi)
2400	-1.89	2.83
2450	-1.98	2.77
2500	-2.06	2.72
5150	-2.38	4.31
5500	-2.17	4.52
5850	-2.51	4.12

Test Engineer :

*Carl Hung*

## P2.1\_Original Performance : Peak Gain & Efficiency



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