**WHA YU INDUSTRIAL CO., LTD.(HEAD OFFICE)**
**DONGGUAN AEON TECH CO.,LTD.(CHINA)**
**SUZHOU AEON TECH CO.,LTD.(CHINA)**
**AEON TECH (SHANGHAI) CO.,LTD(CHINA)**
**DONGGUAN PARNER TECH CO.,LTD.(CHINA)**

# SPECIFICATION FOR APPROVAL

***CUSTOMER:*** ***ASUS***

***PART NAME:*** ***RF Antenna Assembly***

***PART NO:*** ***REVISION:***

***W. Y. P/NO:*** ***C660-510456-A*** ***REV: X1***

| | MANUFACTURER SIGNATURE | CUSTOMER SIGNATURE |
|---|---|---|
| APPROVED BY : | Dicky | |
| DATE : | 2018.12.18. | |


## WHA YU GROUP

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# RF Antenna Assembly

## Specification (Free Space)

1. Electrical Properties :

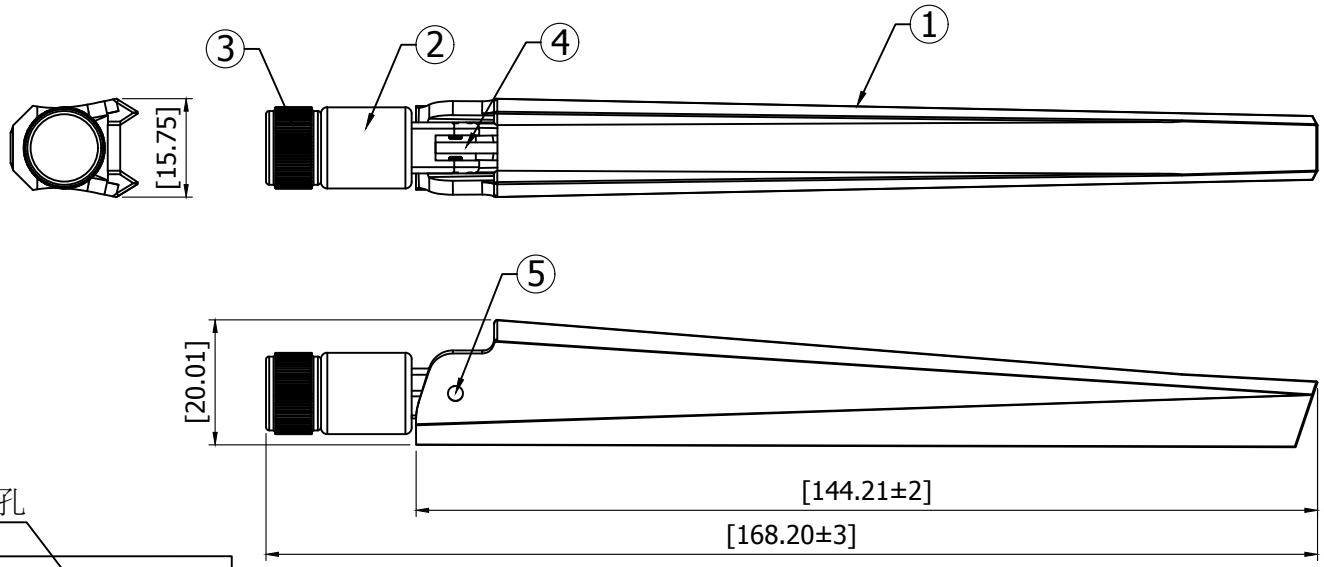
1.1 Frequency Range…… 2.412GHz ~ 2.472GHz / 5.180GHz~5.825GHz
1.2 Impedance …… 50Ω Nominal
1.3 VSWR ……(1.92:1Max)
1.4 Return Loss……(-10 dB Max)
1.5 Radiation …… Omni-directional
1.6 Gain(2D)…….…… 2.4GHz (1.25dBi) / 5GHz(1.58dBi)
1.7 Polarization……Linear ; Vertical
1.8 Admitted Power……1W
1.9 Cable…… RG-178
1.10 Connector…...……SMA

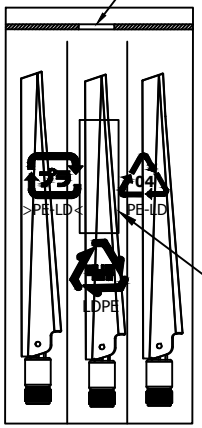
2. Physical Properties :

2.1 Operating Temp. …… -10℃ ~ +60℃
2.2 Storage Temp. ……-10℃ ~ +70℃

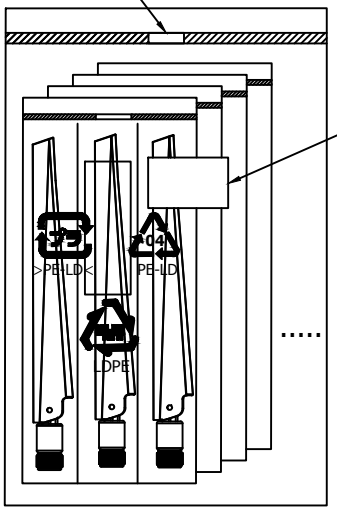
CG-

| REV | DATE | DESCRIPTION |
|---|---|---|
| X1 | 12/17-2018 | New Issue |




Packing：3pcs/彈夾袋




Packing：30pcs/bag

| NO | DESCRIPTION | | Q'TY | REMARK |
|---|---|---|---|---|
| 5 | Rivet | POM ; Black | 2 | |
| 4 | Cable | RG-178 Cable ; Black | 1 | |
| 3 | Connector | SMA Plug Reverse | 1 | |
| 2 | Antenna Base | (CD-13)PC+PBT ; Color : Black | 1 | |
| 1 | Antenna Cap | (CD-1504)ABS ; Color:Black | 1 | |

CUSTOMER'S SINGATURE

| | | |
|---|---|---|
| XX. | ± 3.0 | APPROVED |
| X. | ± 2.0 | |
| .X | ± 1.0 | CHECKED |
| .XX | ± 0.5 | |
| .XXX | ± 0.1 | DRAWING |

CUSTOMER: ASUS

PART NO :

PARTNAME: RF Antenna Cable Assembly

W.Y P/NO : C660-510456-A

| REV | UNIT | FILE : SRF20181489 |
|---|---|---|
| X1 | m/m | SHEET : 1/1 |

M.gear Wha Yu Group

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# NE3-18086
# Antenna
# Test Report

*Version:* ***V 1.01***
*Released Date:* ***2018/12/06***
*Prepared By: Cathy*
*Reviewed By:* ***Sky Lo***

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E-mail : market@whayu.com

# Contents


- Revised History
- Conclusion & Comments
- Specification
- Antenna Placement & Solution
- Test Setup for S-parameter Measurement
- Return Loss Results
- Isolation Results
- Test Setup for Radiation Pattern Measurement
- 2D Radiation Pattern Results
- Results Summary (return loss, isolation, peak gain, efficiency )

# Revision History

| Released Date | Version | Record |
|---|---|---|
| 2018/11/19 | 1.0 | Antenna Testing Report NEW Design |
| 2018/12/03 | 1.01 | Antenna NEW Design |
| 2018/12/06 | 1.02 | Antenna NEW Design |
| | | |
| | | |
| | | |
| | | |

# Revision History

| Released Date | Version | Record |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

# Specification

## Requirements of Antenna Design

| RF Function | Number of ANT | Frequency Band | Remark |
|---|---|---|---|
| WiFi | 1 | 2.412G ~2.472GHz / 5.180~5.825GHz | |

## Requirements of Measurement

| Test Item | Specification | Remark |
|---|---|---|
| Return Loss | > 10dB | |
| Isolation | NA | |
| Efficiency | 2.4G> 80% / 5G>70% | |
| Radiation pattern | Scale: +10 ~ -40dBi, Angle step size: 5 degree | |

# Antenna Placement & Solution

| Antenna | ANT Type | Size (L * W * H) | Cable Length (mm) | Cable Type |
|---|---|---|---|---|
| ANT1 | Metal Dipole | | | RG-178 |

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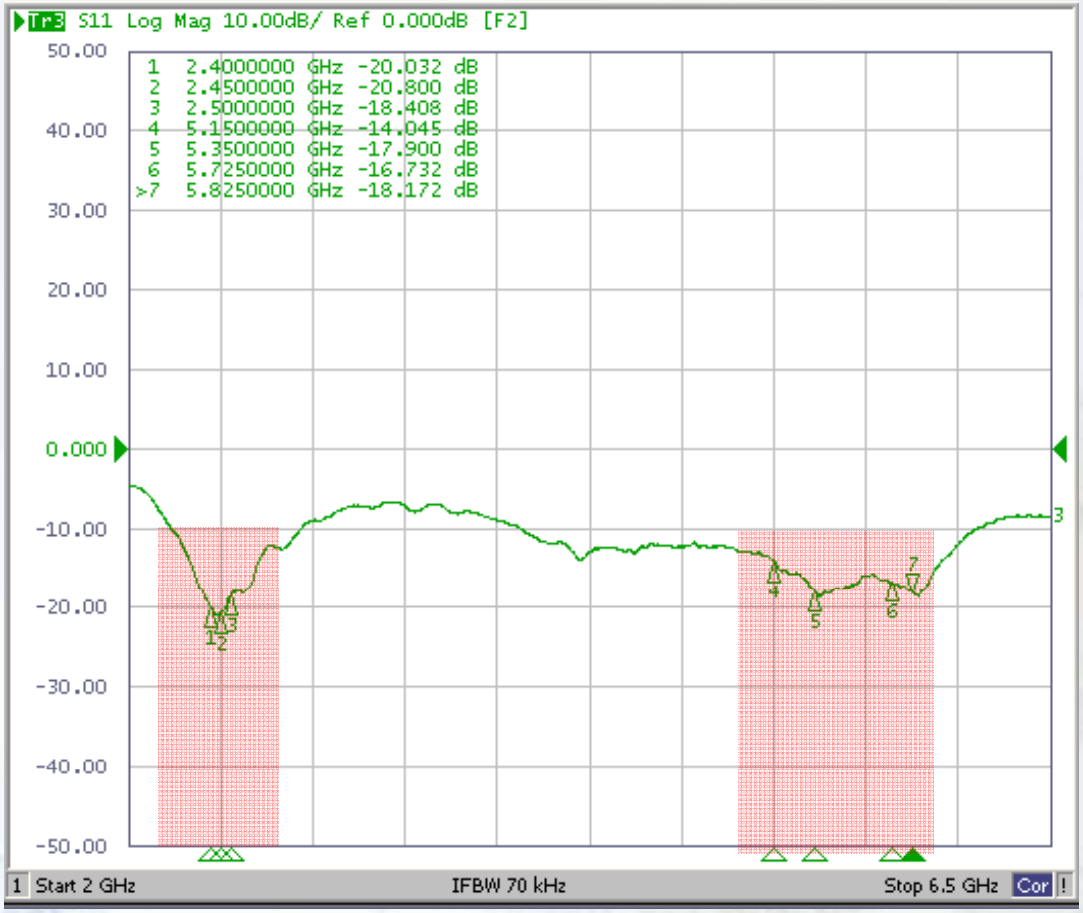
# Antenna Placement & Solution

| Antenna | Previous Version | Current Version |
|---|---|---|
| **ANT1** | ANT1_v1.00 | |

# Return Loss Results

**ANT1 (2400MH~2500MHz / 5150MHz~5825MHz) (Criterion:>10 dB)**





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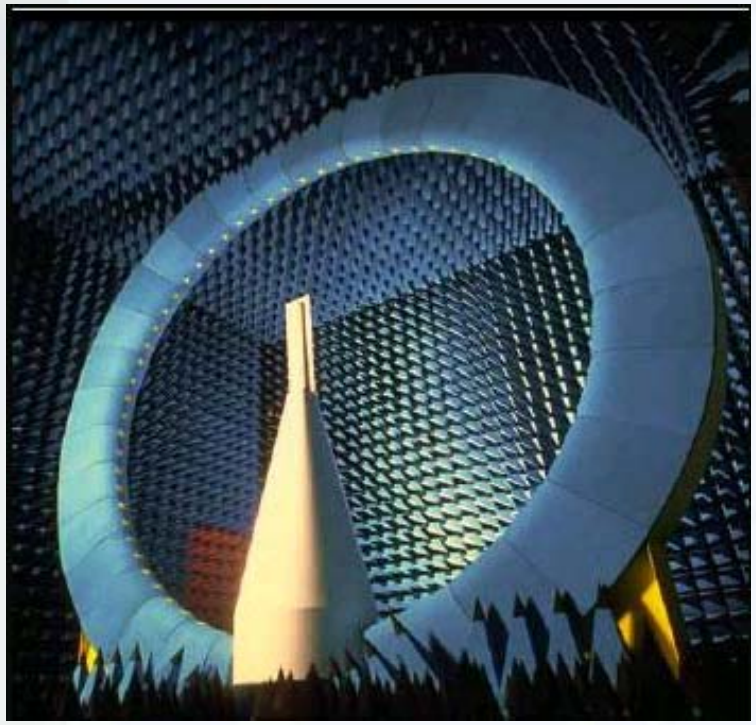
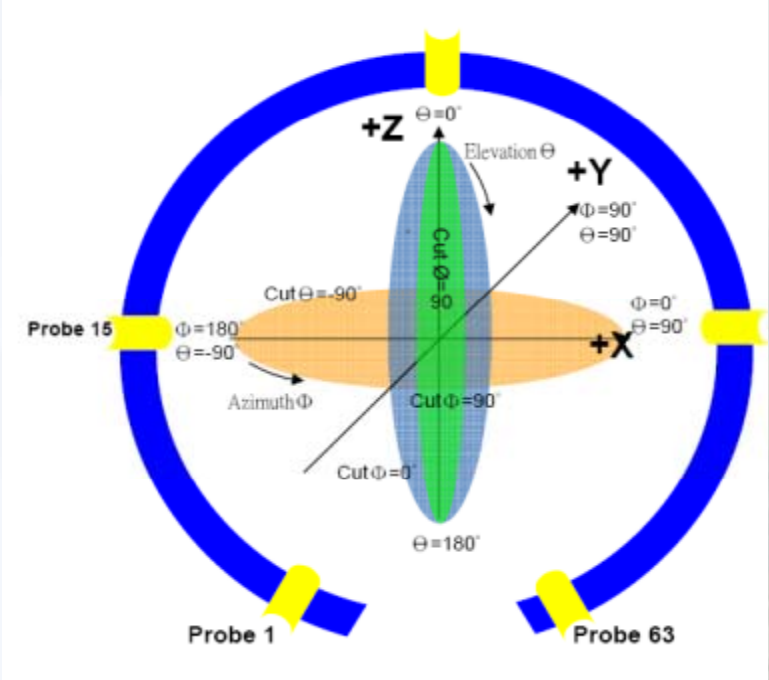
# Chamber Information

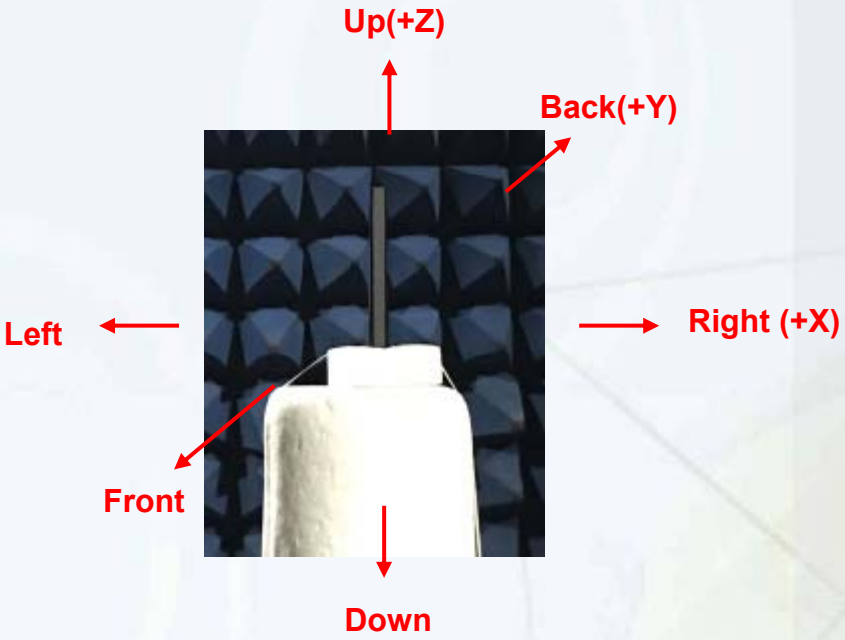





| Chamber | Brand | Model | Location |
|---|---|---|---|
| SATIMO | SATIMO | SG-64 | Taiwan HsinChu |

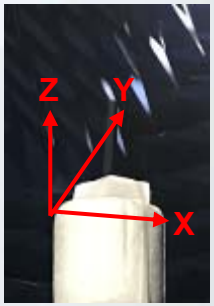
| | θ | φ |
|---|---|---|
| Total angle | 175° | 360° |
| How many angle scan one point | 5° | 5° |
| Total scan point | 36 | 73 |

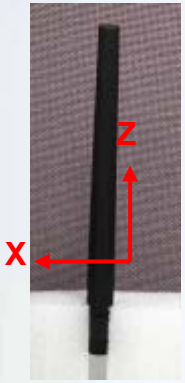
# Test Setup for Radiation Pattern Measurement

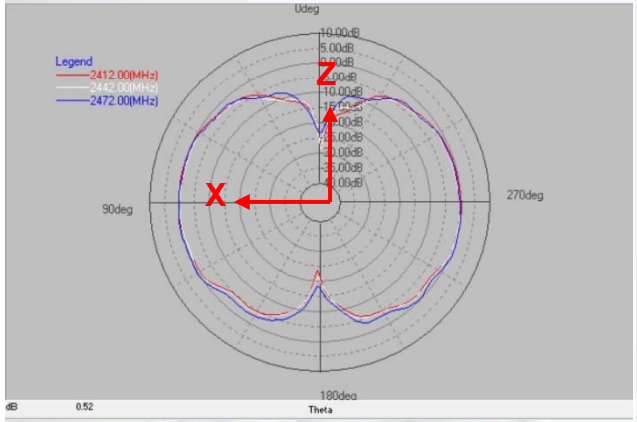


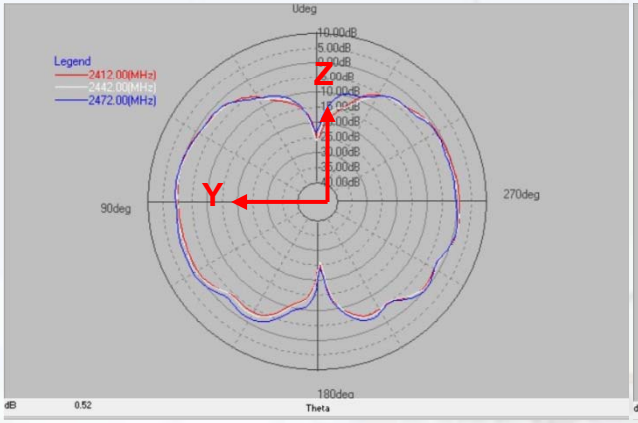
# 2D Radiation Pattern Results

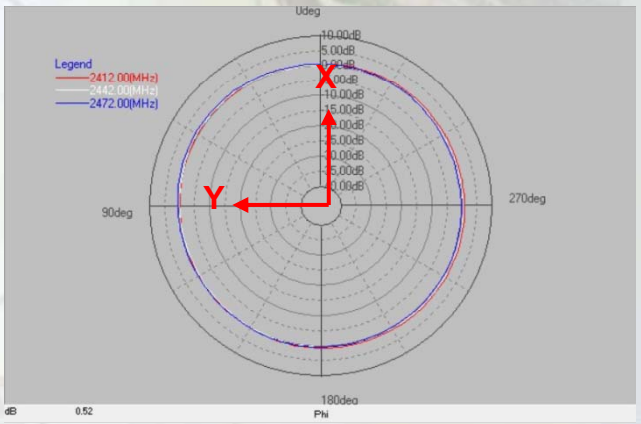
## Dipole(2G)_ANT1



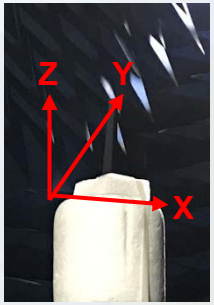


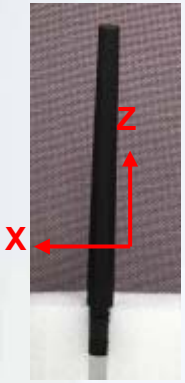



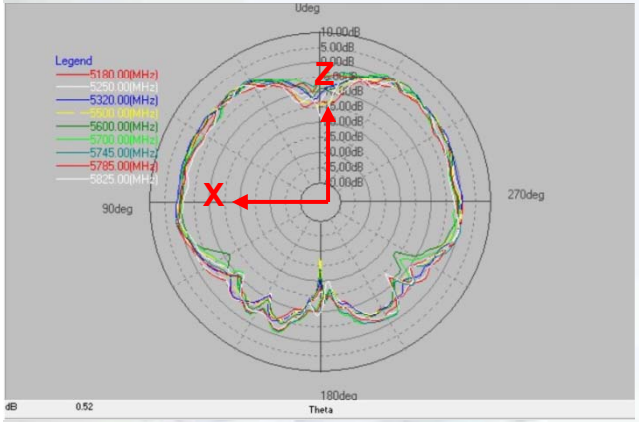



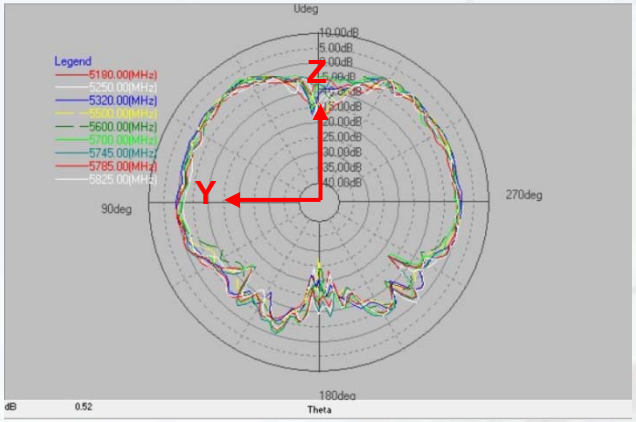
# 2D Radiation Pattern Results

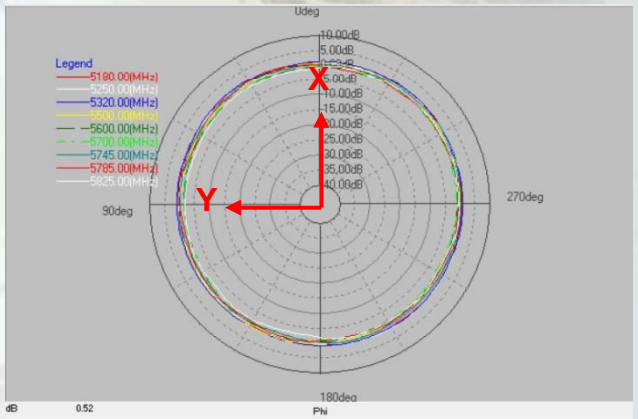
## Dipole(5G)_ANT1





# Results Summary

## Return Loss (Criterion: >10dB)

| Frequency (MHz) | ANT1 |
|---|---|
| 2400MHz | 20 |
| 2450MHz | 20 |
| 2500MHz | 18 |
| 5150MHz | 14 |
| 5350MHz | 17 |
| 5725MHz | 16 |
| 5825MHz | 18 |

# Results Summary

## 2D gain

| Frequency (MHz) | 2D Gain Ant1 dB | | |
|---|---|---|---|
| | X-Z | Y-Z | X-Y |
| 2412MHz | 0.51 | 1.25 | 1.07 |
| 2442MHz | 0.22 | 1.18 | 0.72 |
| 2472MHz | 0.78 | 1.07 | 1.04 |
| 5180MHz | 1.48 | 0.87 | 1.10 |
| 5250MHz | 1.49 | 1.20 | 0.92 |
| 5320MHz | 1.37 | 1.03 | 0.99 |
| 5500MHz | 0.91 | 0.96 | 0.53 |
| 5600MHz | 1.40 | 1.14 | -0.42 |
| 5700MHz | 0.94 | 1.58 | -0.55 |
| 5745MHz | 1.51 | 0.97 | 0.96 |
| 5785MHz | 1.02 | 0.71 | 0.91 |
| 5825MHz | 0.37 | 0.65 | -0.11 |

# Results Summary

## Efficiency

| Frequency (MHz) | Ant1 |
|---|---|
| | Efficiency (%) |
| 2412MHz | 84 |
| 2442MHz | 85 |
| 2472MHz | 84 |
| 5180MHz | 74 |
| 5250MHz | 74 |
| 5320MHz | 75 |
| 5500MHz | 74 |
| 5600MHz | 76 |
| 5700MHz | 76 |
| 5745MHz | 77 |
| 5785MHz | 76 |
| 5825MHz | 75 |