



# 喬暘

## SV510XW-0906

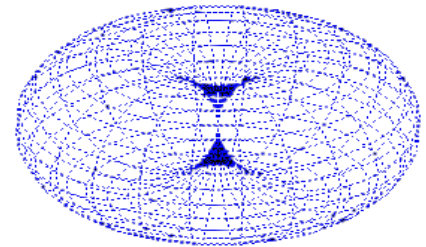
Engineer : Aiden

Report date : 2025/04/18 REV.04



# Executive Summary

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# Revision History

| Revision | Date       | Engineer | Description                                                 |
|----------|------------|----------|-------------------------------------------------------------|
| 01       | 2024/11/15 | Aiden    | New Release                                                 |
| 02       | 2024/11/19 | Aiden    | Change ANT1 Cable Length to 400 mm                          |
| 03       | 2025/01/14 | Aiden    | Check antennas performance for DUT                          |
| 04       | 2025/04/18 | Aiden    | Check antenna performance of the new cable routing for ANT1 |

# Antenna Specification

| Item                     | ANT1           | ANT2           |
|--------------------------|----------------|----------------|
| Operating Frequency(MHz) | 2400-2500      | 2400-2500      |
| Bandwidth                | 100 MHz (Min.) | 100 MHz (Min.) |
| Return Loss              | 10 dB (Min.)   | 10 dB (Min.)   |
| Peak Gain                | 2.58 dBi (Max) | 2.74 dBi (Max) |
| Impedance                | 50Ω            | 50Ω            |
| Material                 | FPC            | FPC            |
| Maximum Power            | 1W             | 1W             |
| V.S.W.R                  | 2 : 1          | 2 : 1          |
| Efficiency               | 53 %(Max.)     | 65 %(Max.)     |

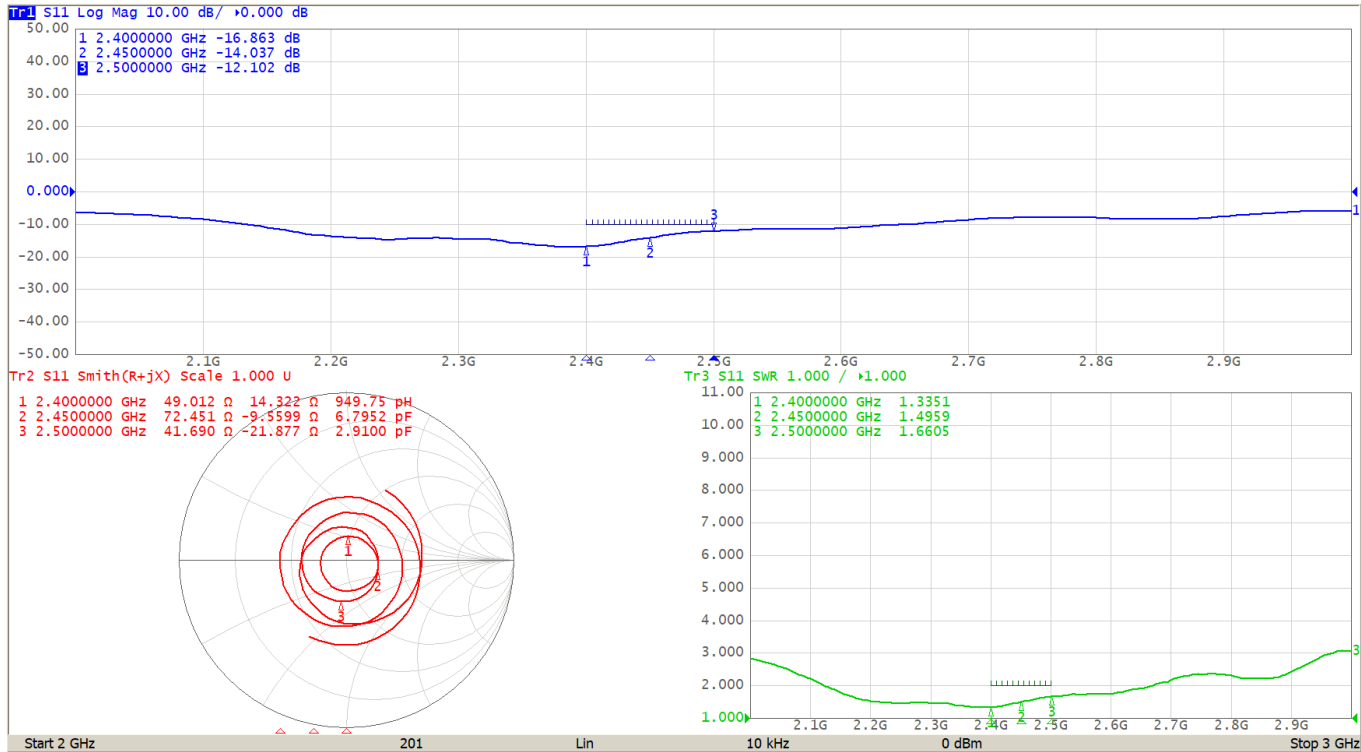
# S-Parameter Result

| Return Loss(dB)  |      |      |      |
|------------------|------|------|------|
| ANT \ Freq.(MHz) | 2400 | 2450 | 2500 |
| ANT1             | 16.8 | 14.0 | 12.1 |
| ANT2             | 22.4 | 19.6 | 14.9 |

| Isolation(dB)    |      |      |      |
|------------------|------|------|------|
| ANT \ Freq.(MHz) | 2400 | 2450 | 2500 |
| ANT1&ANT2        | 51.9 | 51.1 | 51.5 |

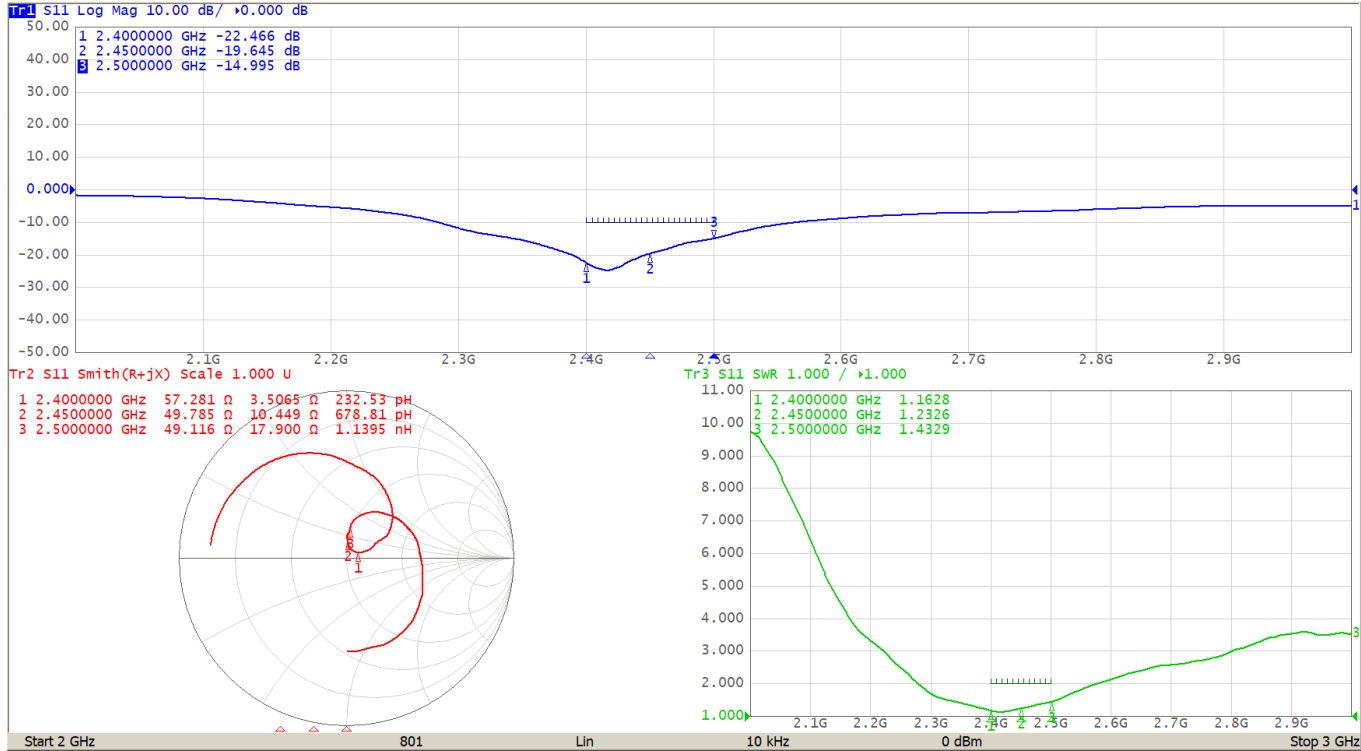
# S-Parameter Result

ANT1

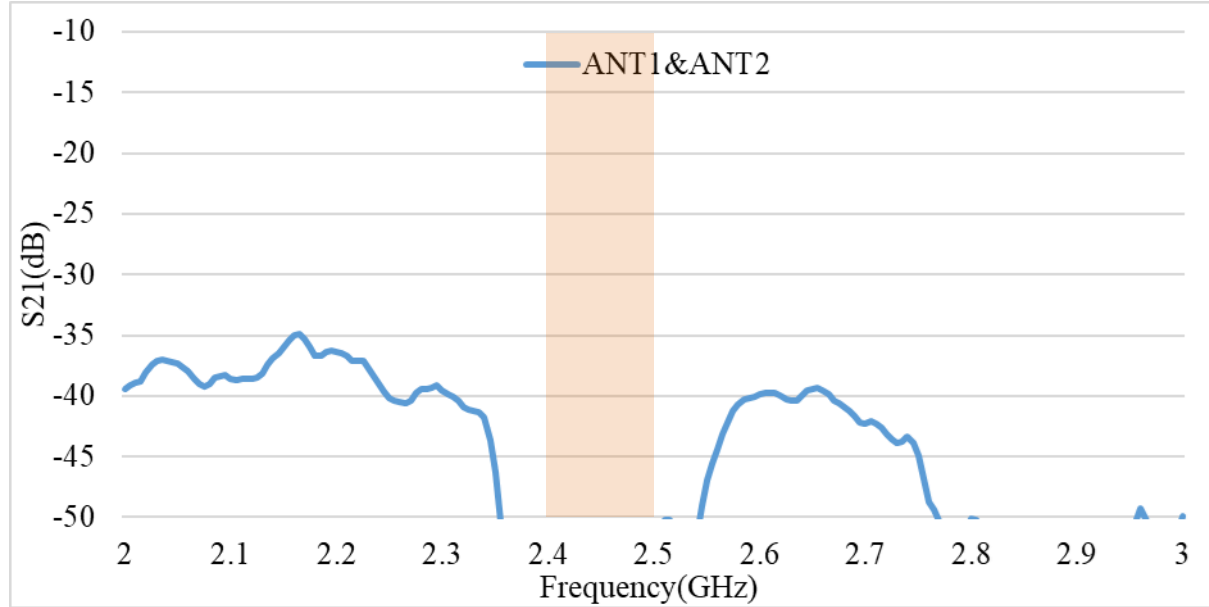


# S-Parameter Result

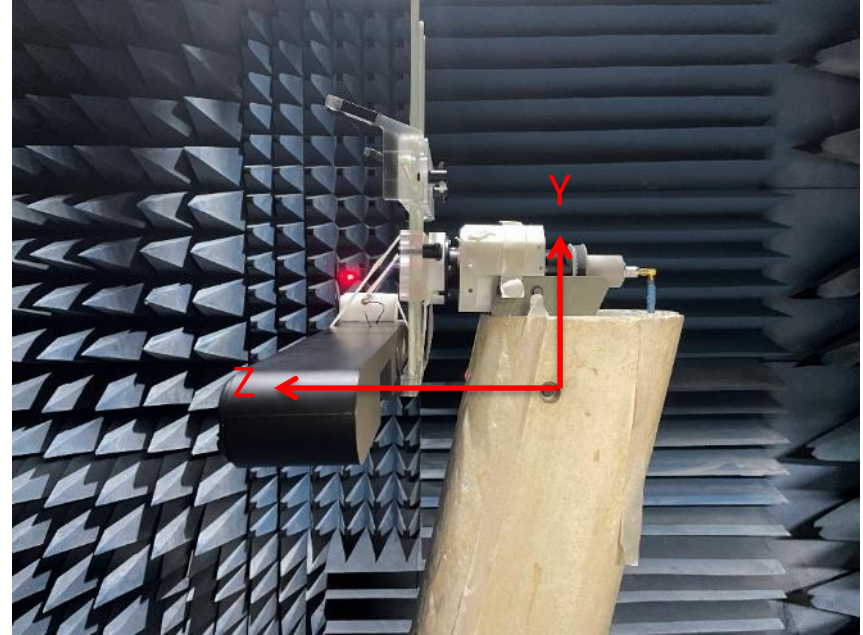
ANT2



# Isolation Result



# Chamber Measurement Photo



# Peak Gain 、 Efficiency Result

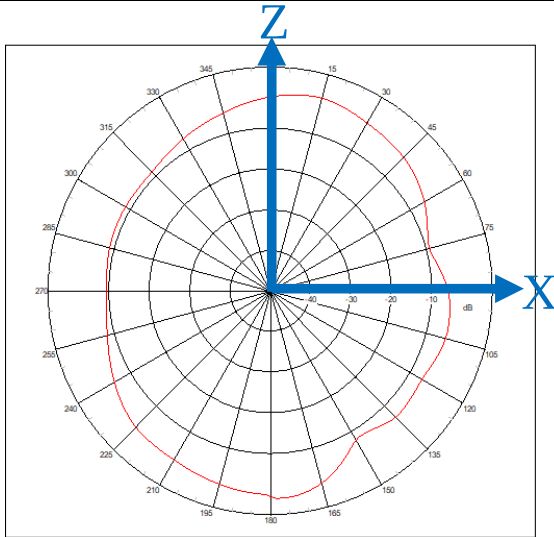
| Frequency(GHz) | ANT1            |                | ANT2            |                |
|----------------|-----------------|----------------|-----------------|----------------|
|                | Peak Gain (dBi) | Efficiency (%) | Peak Gain (dBi) | Efficiency (%) |
| 2.4            | 2.19            | 48             | 2.32            | 62             |
| 2.41           | 2.16            | 49             | 2.47            | 63             |
| 2.42           | 2.31            | 50             | 2.55            | 64             |
| 2.43           | 2.46            | 51             | 2.74            | 65             |
| 2.44           | 2.56            | 52             | 2.64            | 64             |
| 2.45           | 2.58            | 53             | 2.41            | 63             |
| 2.46           | 2.42            | 51             | 2.44            | 63             |
| 2.47           | 2.29            | 50             | 2.51            | 63             |
| 2.48           | 2.29            | 49             | 2.31            | 62             |
| 2.49           | 2.16            | 48             | 2.2             | 61             |
| 2.5            | 1.97            | 47             | 2.13            | 60             |

# 2D Antenna Pattern

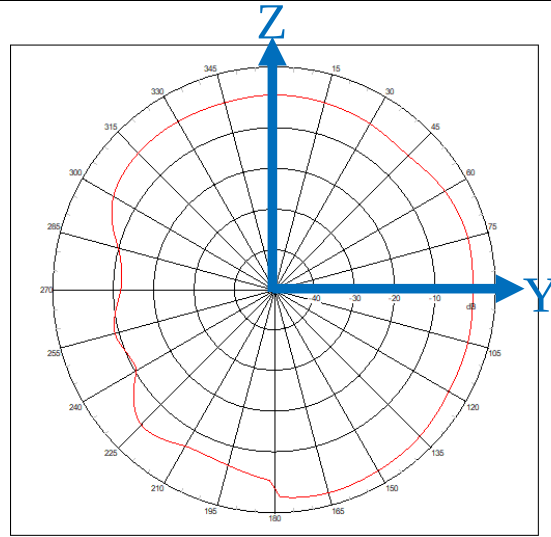
ANT1

Frequency : 2450 MHz

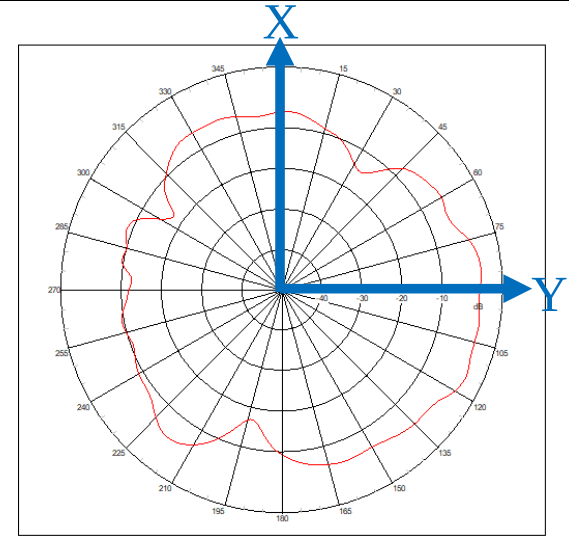
XZ-plane



YZ-plane



XY-plane



Far-field amplitude limits:

Max: 5dB

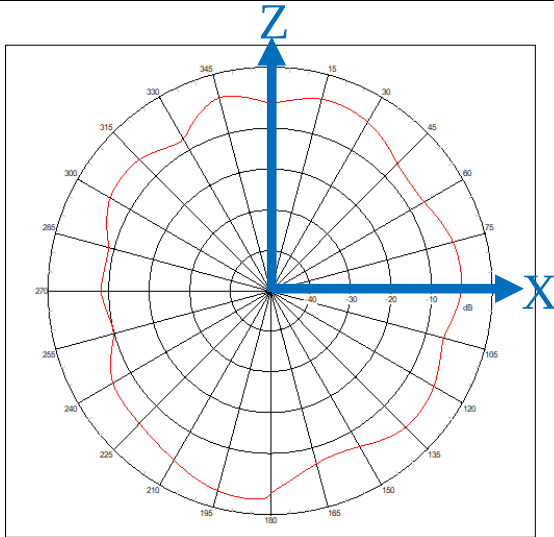
min: -50dB

# 2D Antenna Pattern

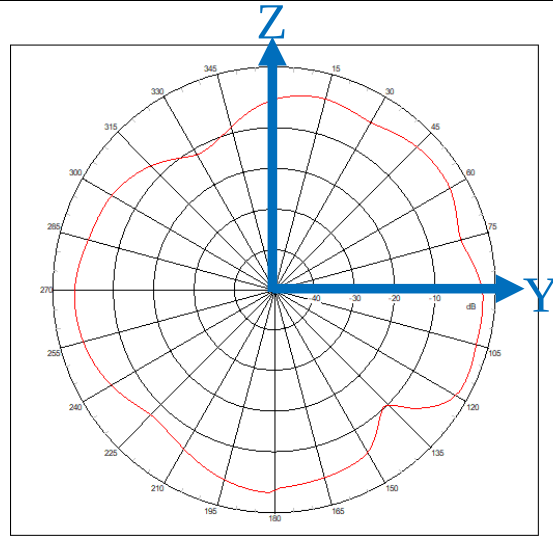
ANT2

Frequency : 2450 MHz

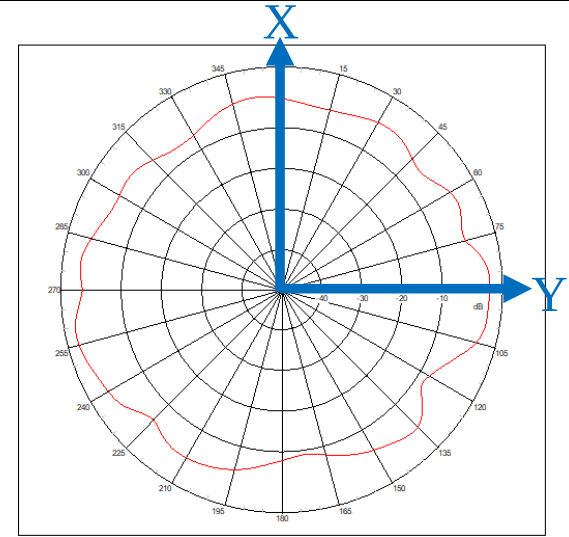
XZ-plane



YZ-plane



XY-plane



Far-field amplitude limits:

Max: 5dB

min: -50dB

# Conclusion & Recommendations

- The antenna performance is as follows :

| 喬暘_SV510XW-0906 Result    |                 |                |
|---------------------------|-----------------|----------------|
| Item                      | ANT1            | ANT2           |
| Operating Frequency (MHz) | 2400-2500       | 2400-2500      |
| Return Loss               | 10 dB           | 10 dB          |
| Isolation                 | 2400-2500>50 dB |                |
| Peak Gain                 | 2.58 dBi (Max)  | 2.74 dBi (Max) |
| Efficiency                | 53 %(Max.)      | 65 %(Max.)     |



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MAKING THE PERFECT CONNECTION

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