



Samsara_MCO

Antenna Testing Report

- DVT2

2025.09.23

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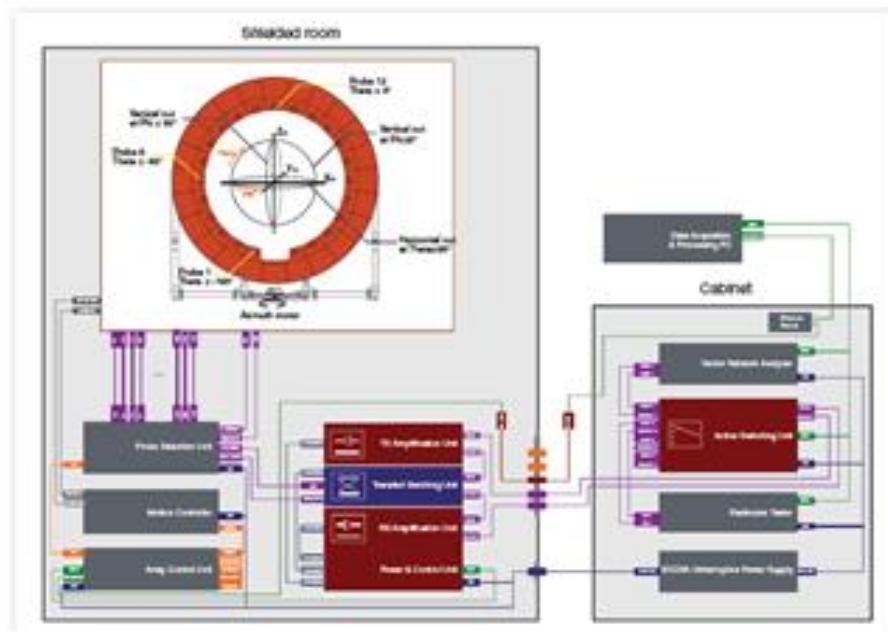
Antenna Performance Summary

| ANT | Type | Polarization | VSWR | Isolation | Efficiency | Peak Gain | Radiation Pattern | model |
|-----|-----------|--------------|-------|-----------|------------|------------|-------------------|----------------|
| BLE | PCB Trace | Linear | < 2.0 | > 15 dB | 63~73 % | < 3.82 dBi | OMNI | CFR_0000002308 |
| UWB | PCB Trace | Linear | < 2.0 | > 18 dB | 54~61 % | < 4.4 dBi | OMNI | CFR_0000002483 |

✓ *Top cover, bottom cover and batteries are all included during the test.*

Test Chamber General Information

- Antenna Vendor : WNC
- Test Date : Dec. 2024
- Test Engineer : Joe
- Measurement System : SATIMO SG24
- Software Name : Wave Studio
- Software Version : 22.5.6



Antenna Measurement System Information

- Measurement System: SATIMO SG24 Chamber

Measurement setup:

- pattern & gain measurement

1.satimo chamber (SG24)

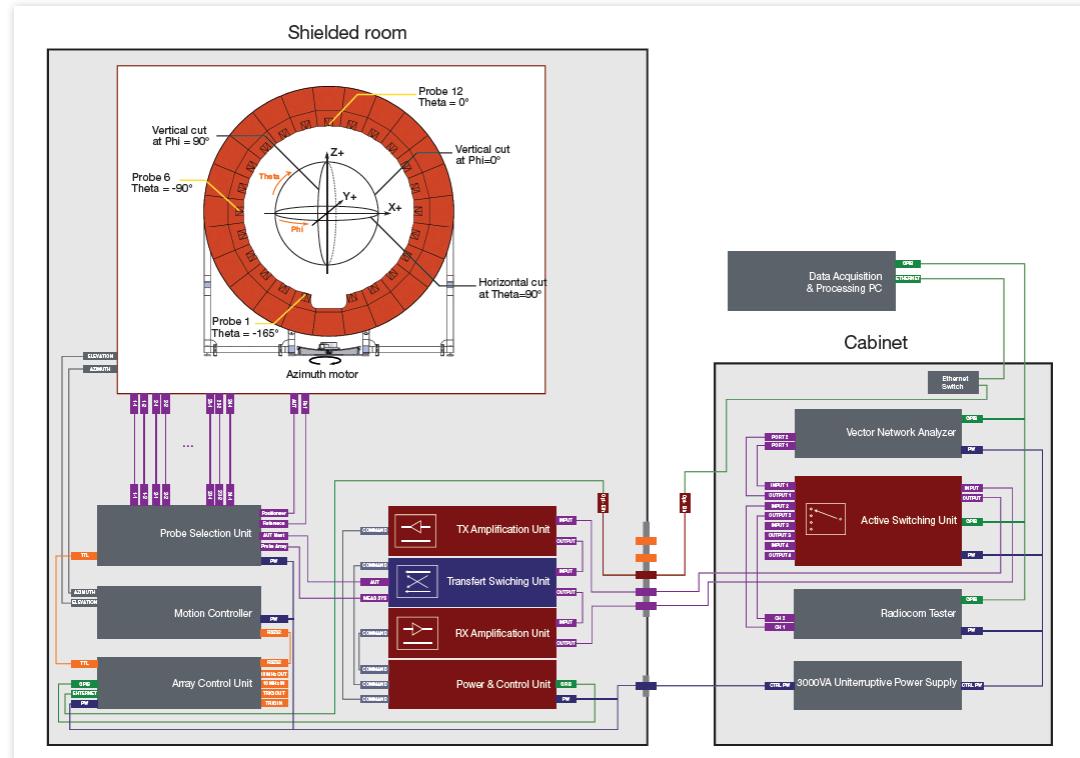
2.satimo program (wave studio)

3.system overview :

- test item

1.antenna passive test 400MHz~9GHz

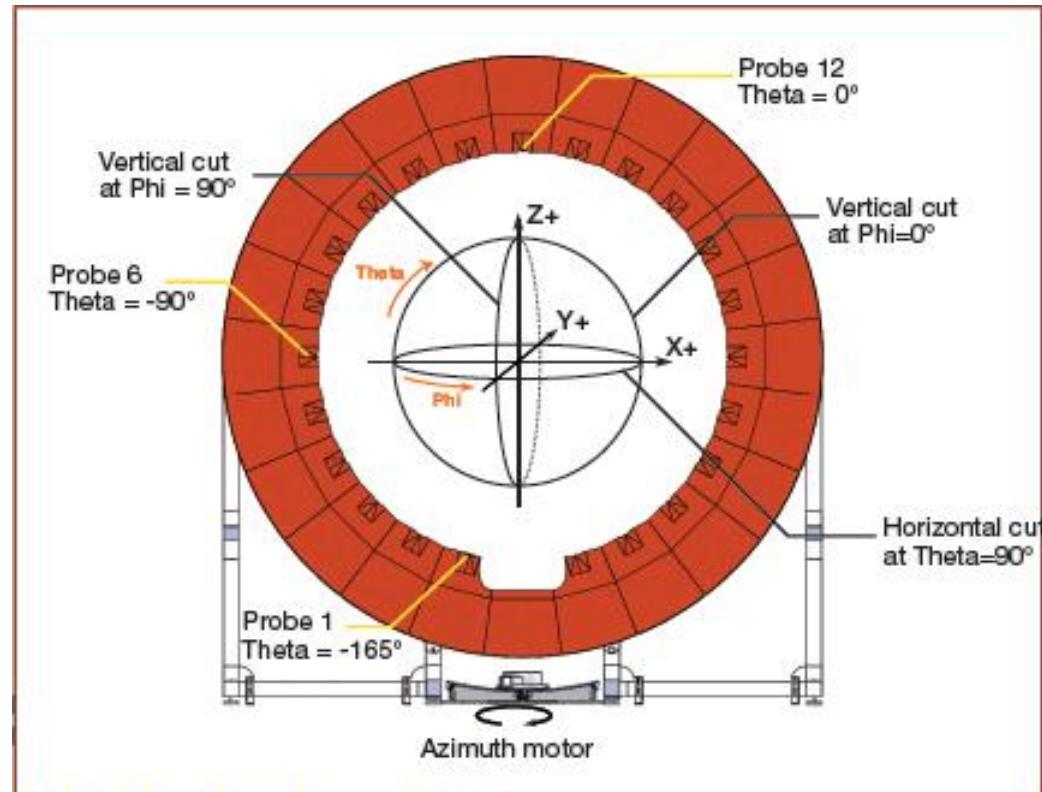
- Calibration Information



| Device | Type / Model | Serial # | Manufacture | Cal. Date |
|----------------------------|-----------------|------------|-------------|-----------|
| Antenna Measurement System | SG24-L | HKG1669S | MVG-SATIMO | 2024-11 |
| Network Analyzer | Keysight E5080B | MY59203136 | Keysight | 2024-11 |

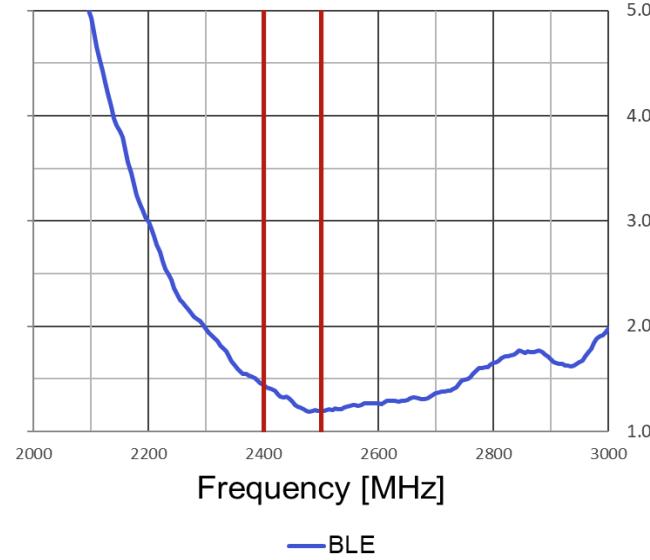
Test Procedure

1. Place the device to be tested on the fixture and align it with the center of the chamber.
2. Connect the antenna cable to the RF connector of the chamber.
3. Use the SW to configure parameters (antenna name, frequency points, measurement angles, antenna dimension), and then run the test SW (wave studio).
4. By phi from 0° to 360° and theta from 0° to 180° with a step size of 2 degrees, get the 3D data, including efficiency, peak gain, 2D and 3D radiation patterns.
5. This is far field test for antenna verification.
6. This is passive measurement, which means the device is off and not in any operating mode.

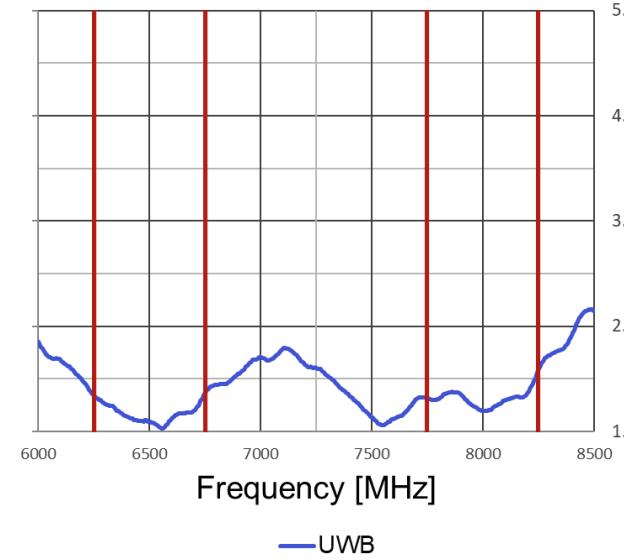


VSWR & Isolation

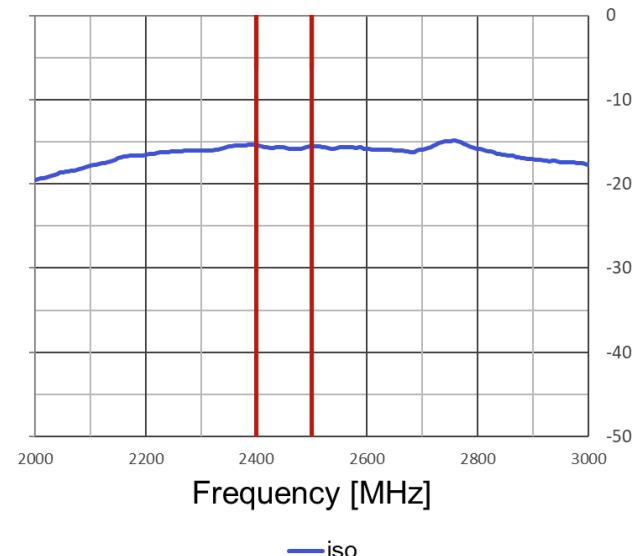
VSWR_BLE



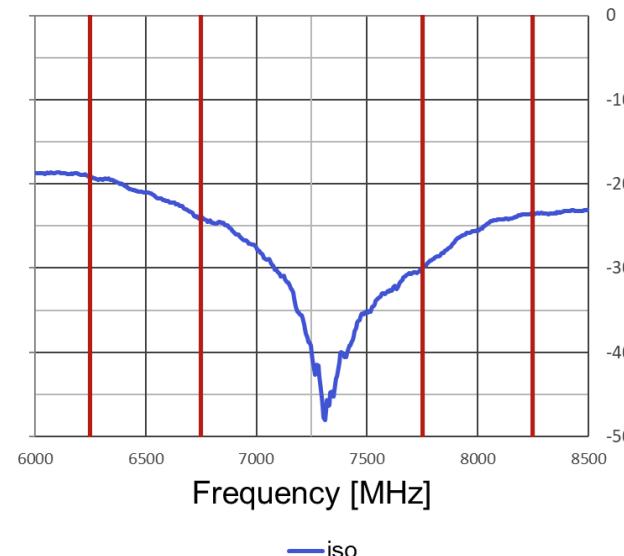
VSWR_UWB



Isolation @2.4G



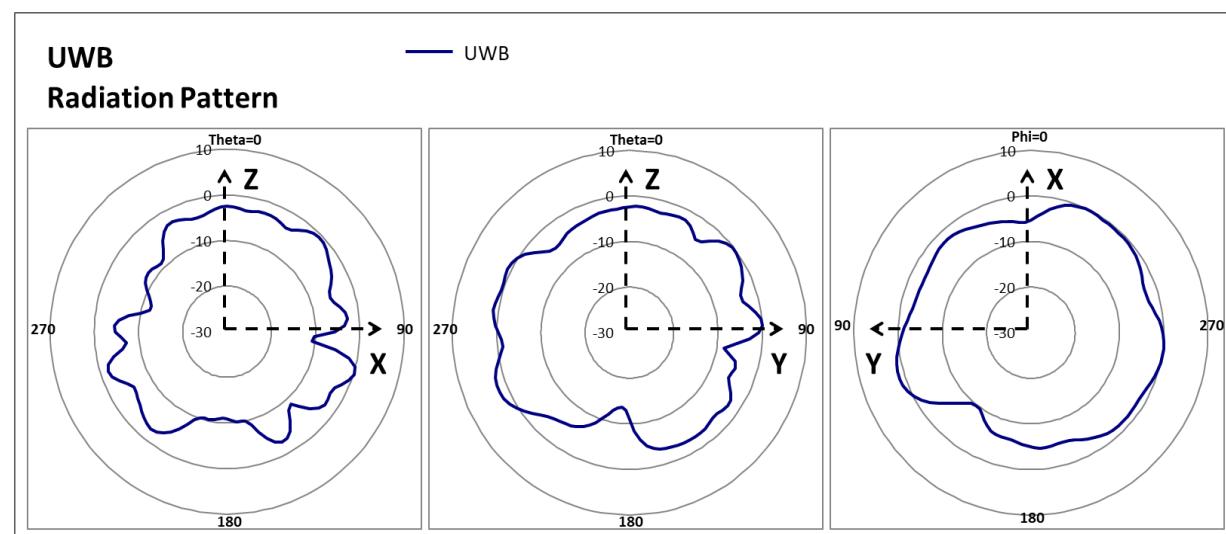
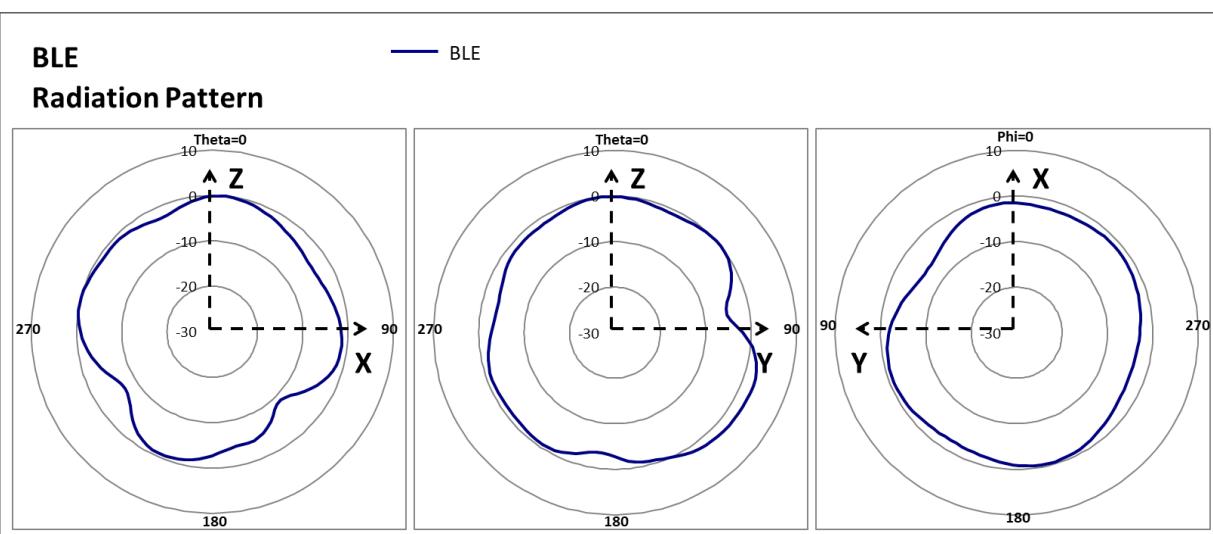
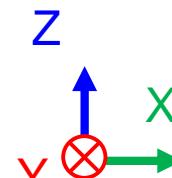
Isolation @6.5G/8G



Efficiency/Peak Gain & Radiation Pattern

| | Frequency | 2400 | 2450 | 2500 | Avg. |
|-----|--------------|-------|-------|-------|------|
| BLE | Efficiency | 63% | 65% | 73% | 67% |
| | Average Gain | -1.97 | -1.87 | -1.35 | |
| | Peak Gain | 2.90 | 2.78 | 3.82 | |

| | Frequency | 6000 | 6250 | 6500 | 7750 | 8000 | 8250 | Avg. |
|-----|--------------|-------|-------|-------|-------|-------|-------|------|
| UWB | Efficiency | 56% | 61% | 56% | 59% | 59% | 54% | 57% |
| | Average Gain | -2.48 | -2.18 | -2.55 | -2.31 | -2.32 | -2.66 | |
| | Peak Gain | 4.40 | 4.4 | 4.40 | 4.08 | 3.88 | 3.04 | |





Thank You!