

IE420 RF Radiated data

Prepared by	Checked by	Approved by
 SJ KIM	 YS LEE	 TH KIM

2025.06.23.

Table of Contents

1. Frequency Band	3
1-1. Measurement Engineer	3
1-2. VSWR	4
1-3. Efficiency & Gain	4
1-4. 3D Radiated Pattern	5
2. TEST METHOD	5
2-1. Measurement information	5
2-2. 3D Chamber.....	6
3. Antenna Dimension	7

1. Frequency Band

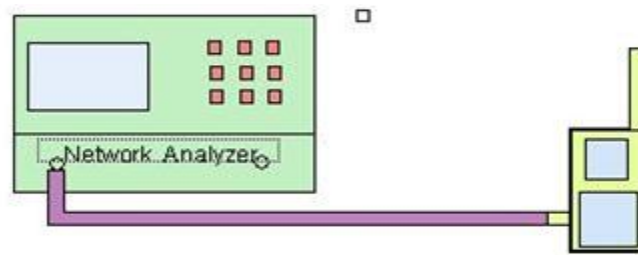
Mode	Frequency Band (MHz)
Zigbee	2,400 ~ 2,500

-

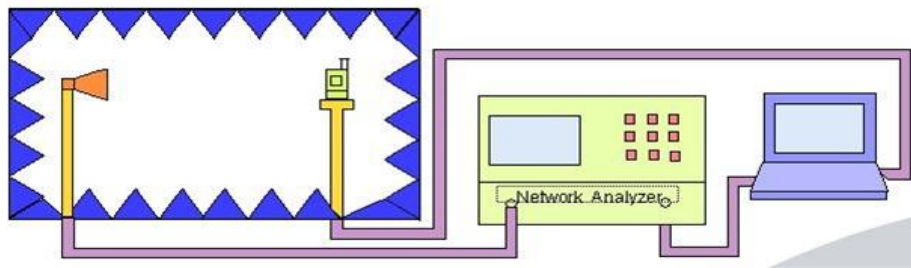
1-1. Measurement Engineer

- Connect the device under test and required test equipment (Network analyzer). Measuring VSWR and frequency. Measurements include the magnitude and phase of both the vertical and horizontal components of the 3-D antenna pattern of actual hardware in an anechoic chamber (Partron). all measurements are made with antennas installed.

- Frequency, VSWR measurement



- Gain measurement



- Co-Polarization, Cross-Polarization Meaning

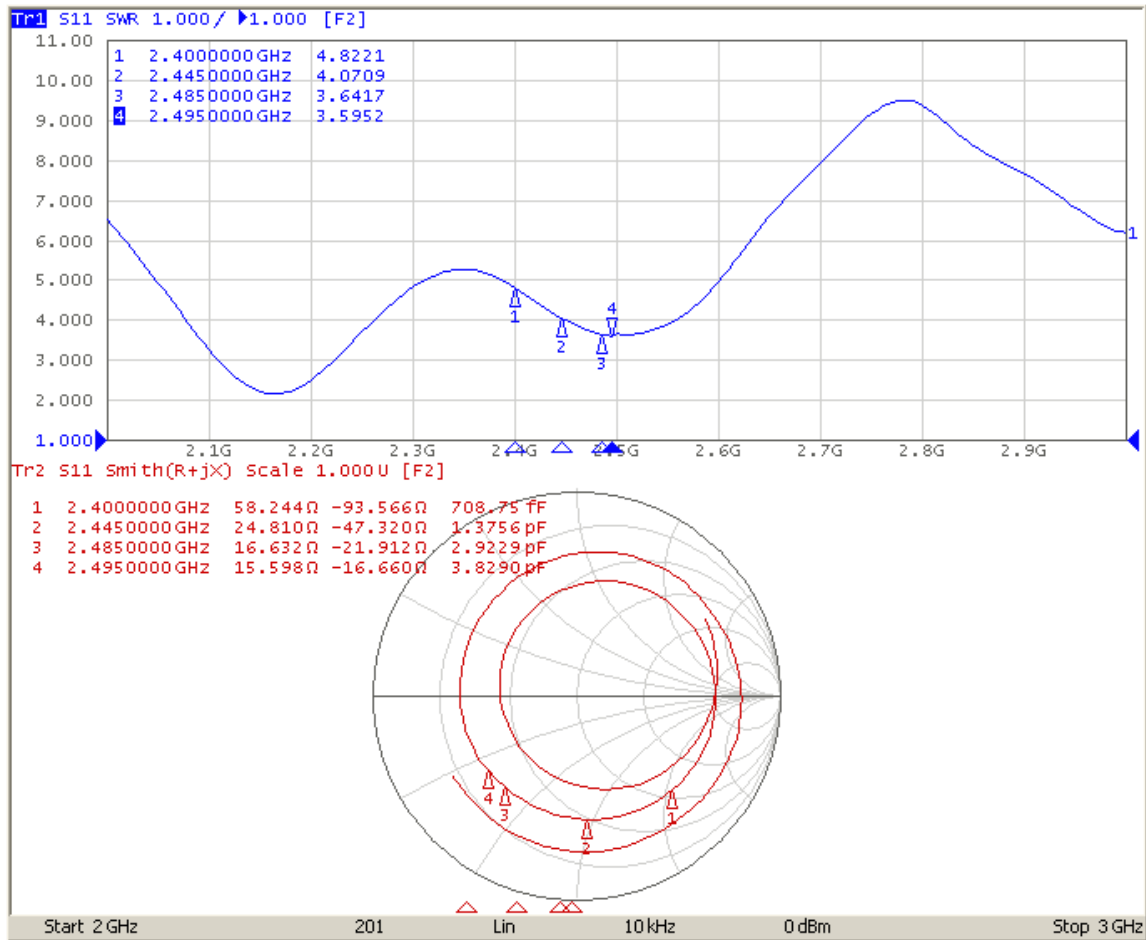
- Co-Polarization : When Radiated Vertical and Horizontal Polarization in Source Ant.

Co-Polarization is Higher Polarization that is Ave. Gain Value

- Cross-Polarization : When Radiated Vertical and Horizontal Polarization in Source Ant.

Co-Polarization is Lower Polarization that is Ave. Gain Value

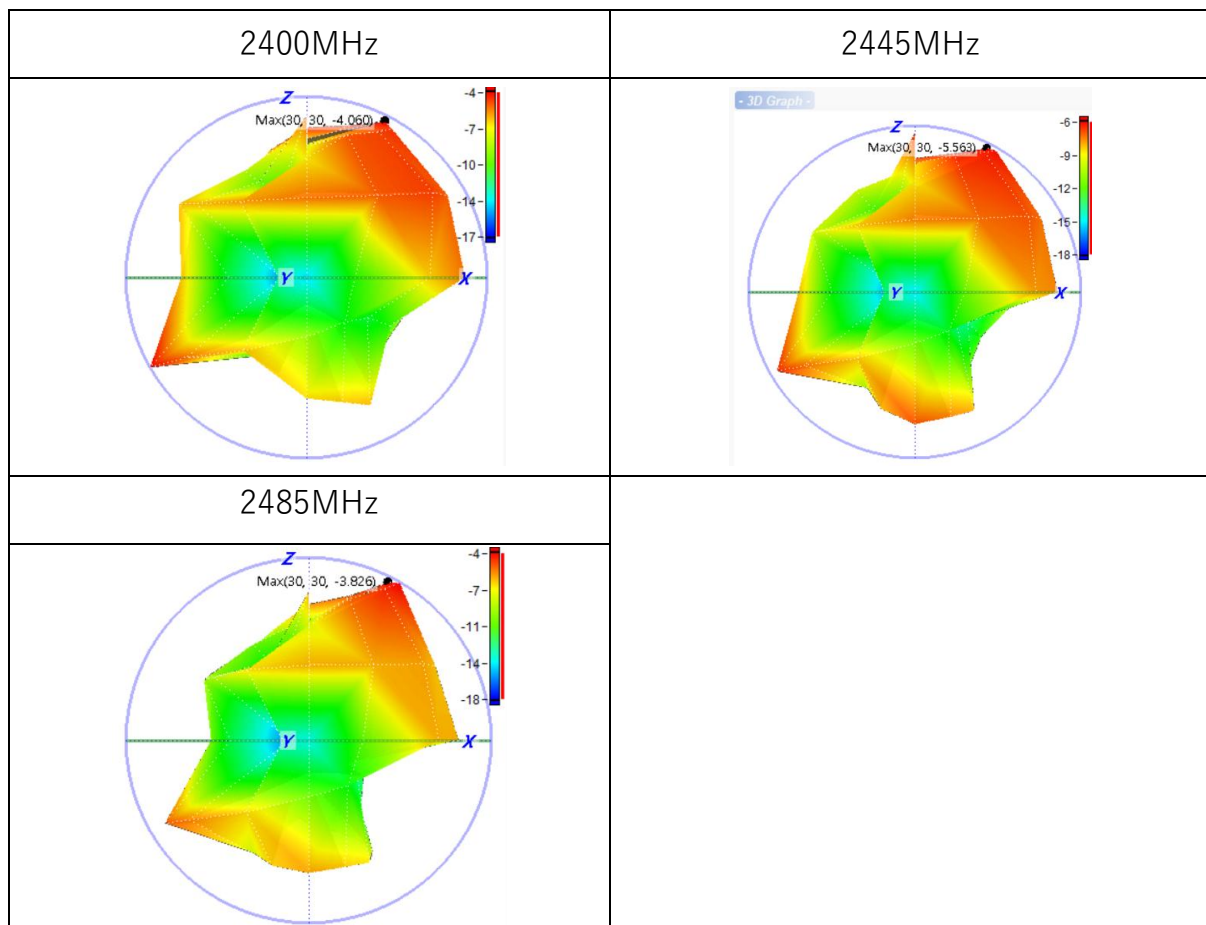
1-2. VSWR



1-3. Efficiency & Gain

Frequency	Max Gain			Min Gain			Average Gain	Efficiency
[MHz]	θ[Deg]	Φ[Deg]	Gain[dBi]	θ[Deg]	Φ[Deg]	Gain[dBi]	Gain[dBi]	[%]
2,400.00	30	30	-4.06	180	0	-16.912	-7.296	18.637
2,415.00	30	30	-3.874	180	0	-16.602	-7.151	19.271
2,430.00	30	30	-7.063	180	0	-19.835	-10.25	9.44
2,445.00	30	30	-5.563	180	0	-18.319	-8.833	13.082
2,460.00	30	30	-3.459	180	240	-17.021	-7.171	19.184
2,465.00	30	30	-3.918	180	240	-17.211	-7.566	17.516
2,480.00	30	30	-4.651	180	240	-18.468	-8.771	13.27
2,485.00	30	30	-3.826	180	240	-17.626	-8.053	15.657
2,490.00	30	0	-4.066	180	240	-18.101	-8.504	14.113
2,500.00	30	0	-4.957	180	240	-18.618	-9.455	11.337

1-4. 3D Radiated Pattern



2. TEST METHOD

2-1. Measurement information

Description	Manufacturer	Model
Network Analyzer	Anritsu	ME7848A

2-2. 3D Chamber

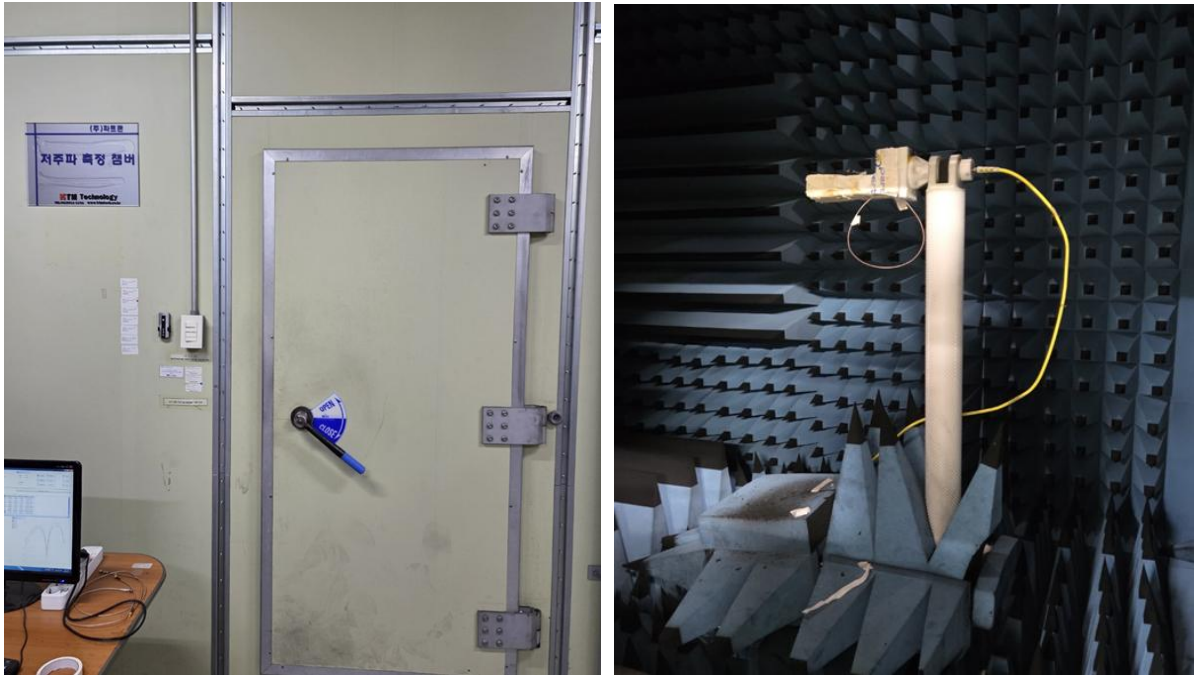
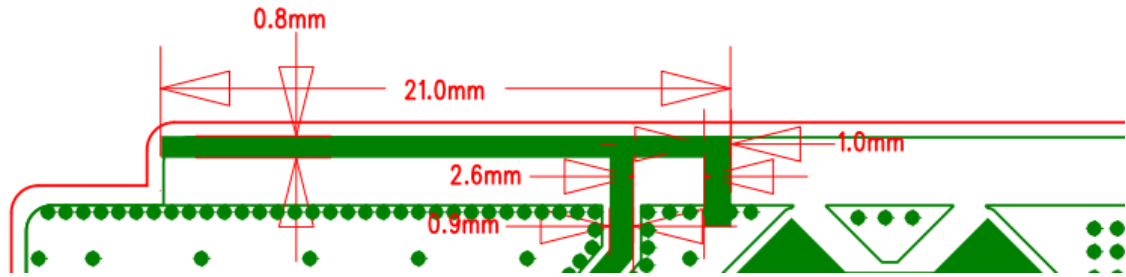


Figure 1: Testing with RF Chamber

Measurement facility: Partron ESL, 3D Chamber

3. Antenna Dimension



Manufacturer : Partron ESL

Address : 829-836, 42, Changeop-ro, Sujeong-gu, Seongnam-si, Gyeonggi-do, South Korea