

S310 LS RF Radiated data

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

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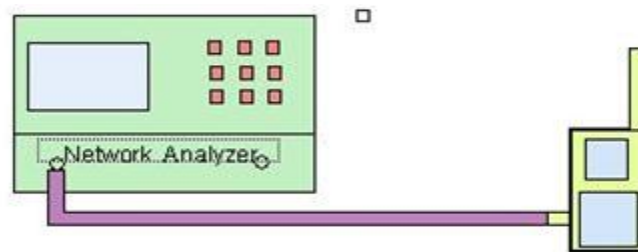
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1. Frequency Band

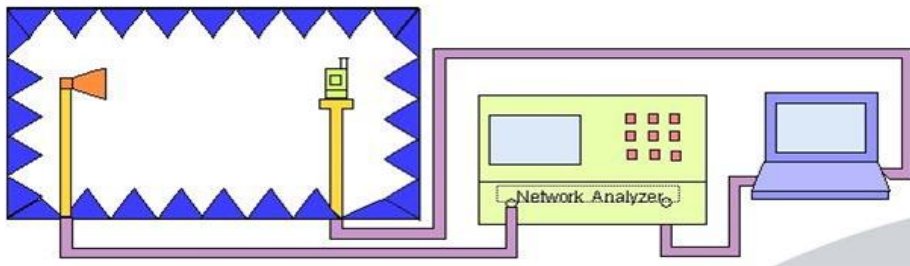
Mode	Frequency Band (MHz)
Zigbee	2,400 ~ 2,500

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



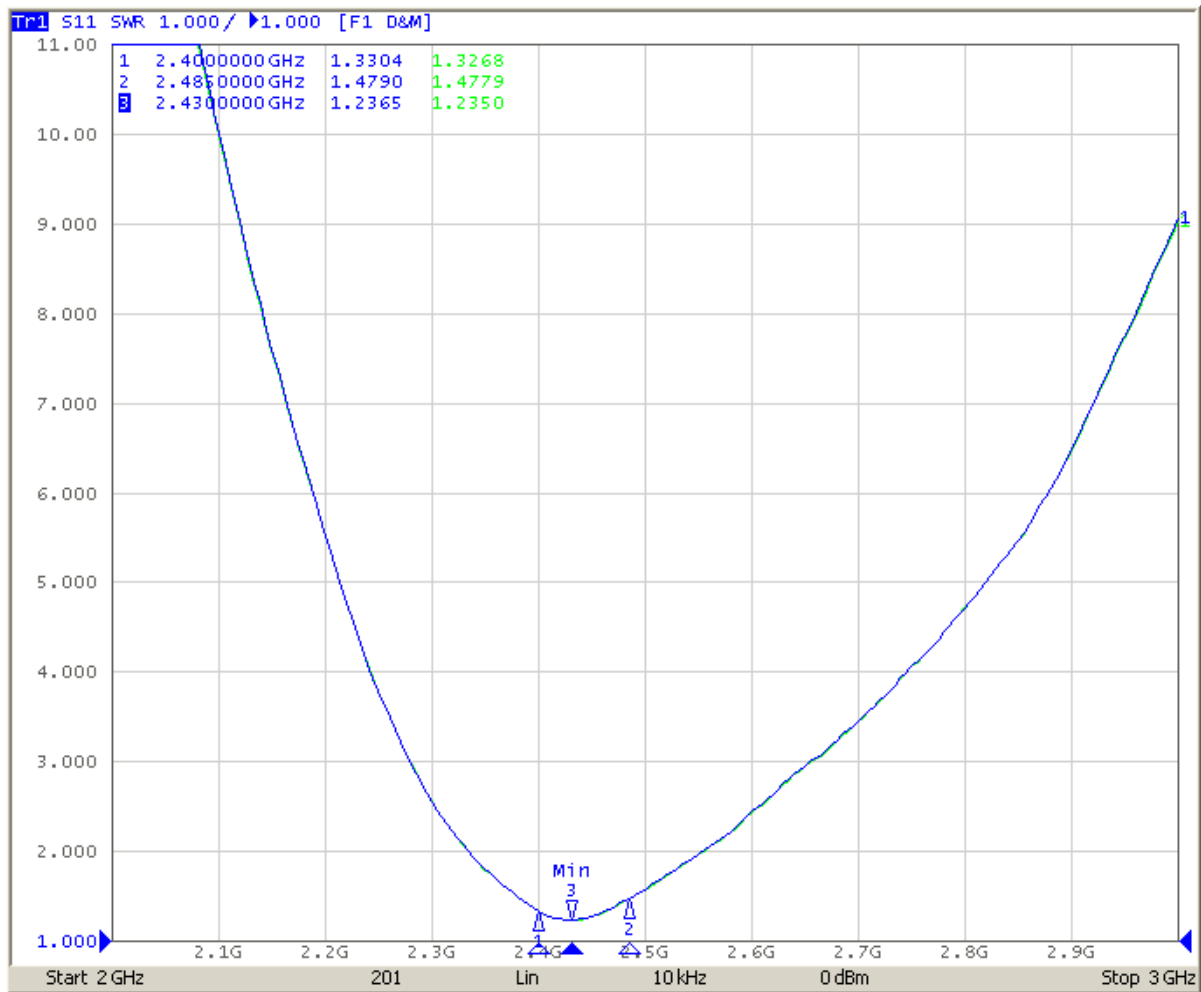
- Co-Polarization, Cross-Polarization Meaning
- Co-Polarization : When Radiated Vertical and Horizontal Polarization in Source Ant.
- Cross-Polarization : When Radiated Vertical and Horizontal Polarization in Source Ant.

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

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

Antenna gain measurements were performed in a full anechoic chamber. The EUT was placed on a turntable of the chamber. During the test, the EUT was rotated through 360° and the measurement antenna height and polarization were varied to maximize the received emission level. The chamber walls, ceiling, and floor were lined with RF absorbing material to minimize reflections and simulate free-space conditions.

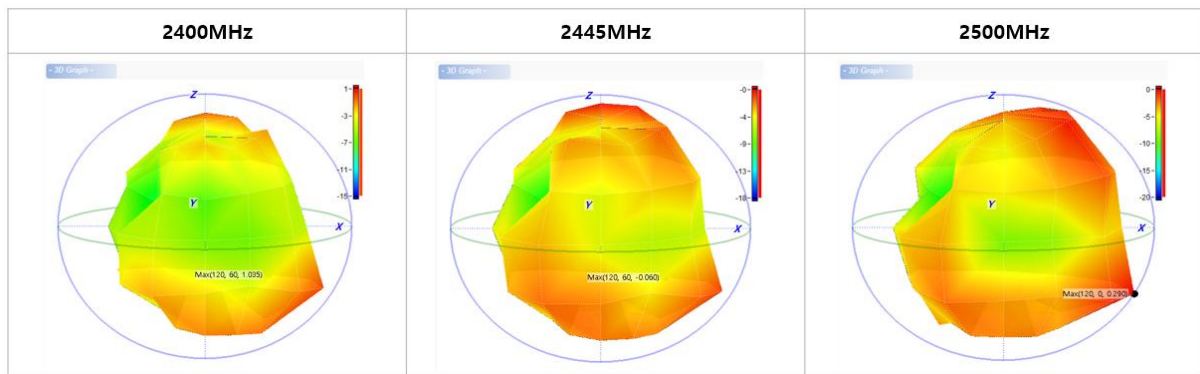
2- VSWR



3- Efficiency & Gain

Frequency	Peak Value		Minimum Value		Avg. Gain	Efficiency
[MHz]	Value[dBi]	Degree	Value[dBi]	Degree	[dBi]	[%]
2400	1.03	120 / 60	-14.62	180 / 270	-3.25	47.24
2415	1.74	120 / 60	-14.34	180 / 270	-3.02	49.86
2425	0.09	120 / 60	-16.59	180 / 270	-2.85	51.84
2435	0.51	120 / 60	-16.84	180 / 270	-2.90	51.24
2445	-0.06	120 / 60	-17.80	180 / 270	-2.84	51.92
2455	1.40	120 / 60	-17.12	180 / 270	-3.03	49.70
2465	-0.45	120 / 60	-18.81	180 / 270	-3.14	48.49
2475	1.21	120 / 60	-17.46	180 / 270	-3.50	44.62
2485	0.10	120 / 60	-18.87	180 / 270	-3.28	46.98
2500	0.29	120 / 0	-19.96	180 / 300	-3.28	46.94

4- 3D Radiated Pattern



2. TEST METHOD

2- Measurement information

Description	Manufacturer	Model	Calibration date
Network Analyzer	Anritsu	ME7848A	25.09.20
Horn Antenna	SCHWARZBECK	BBHA 9120 LF	25.07.21

3- Return Loss & VSWR Test

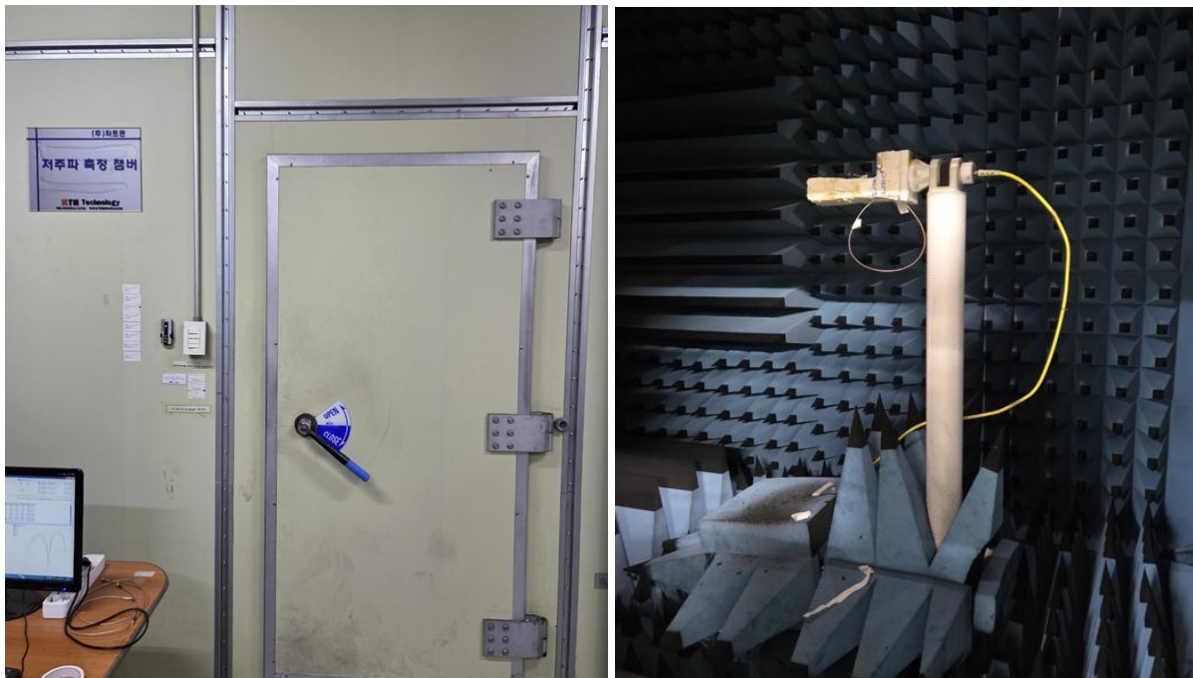
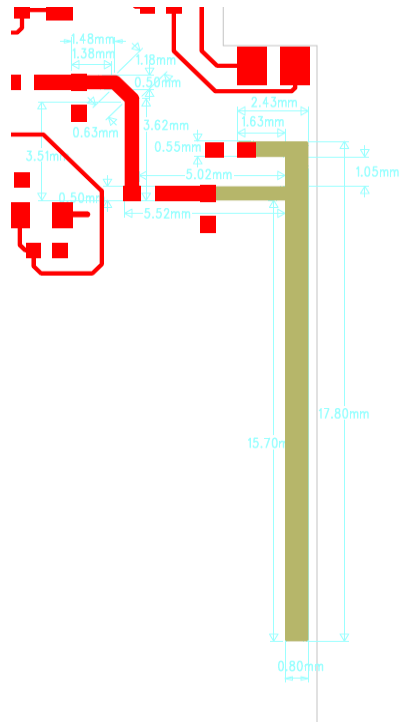


Figure 1: Testing with RF Chamber

Measurement facility: Partron, 3D Chamber

3. Antenna Dimension



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