2.4GHz antenna report

Brand: FSA

Model: RD-Antenna

Type: Copper Foil Sticker Antenna

Test Company:BS-MOVA

Test site：5F-6, No.18, Taiyuan St., Zhubei City, Hsinchu County 302, Taiwan (R.O.C.)

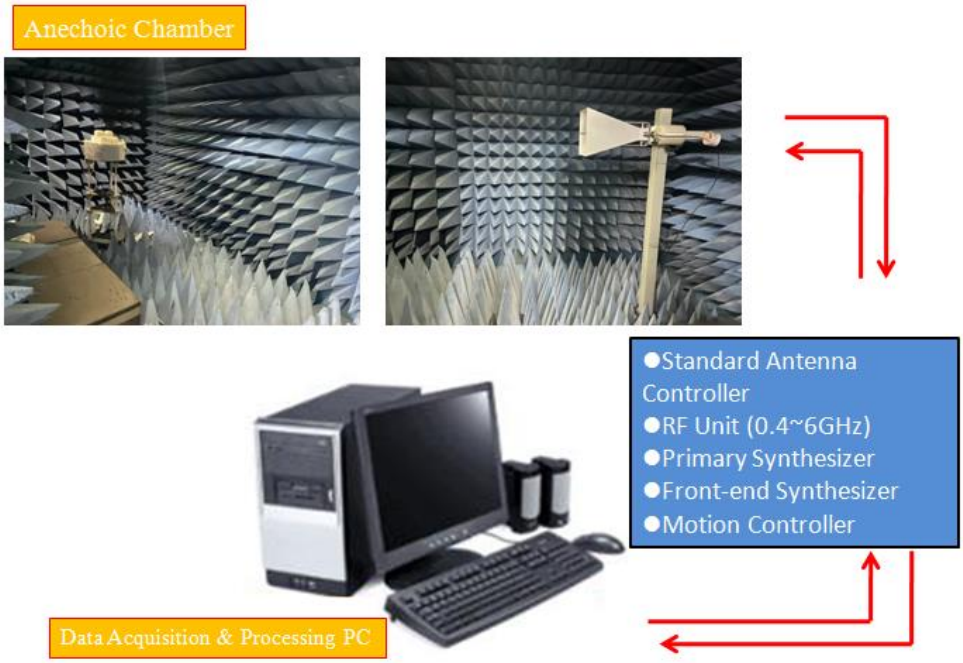
Test person:Jeffrey

Test date:2022/02/24

I. Applicable test methods

EIRP measurement is based on industry-standard method described in CTIA OTA Test Plan (current version 3.9.4).

The radiation pattern of antenna is measured in both horizontal polarization and vertical polarization. The radiation pattern measurements are performed in the three-dimensional anechoic chamber. The chamber provides less than –30dB reflectivity from 800MHz through 6GHz. The chamber is calibrated using horn antenna. The Gain here is expressed as dBi that standardizes the isotropic antenna. The Gain measurements and antenna radiation pattern are also performed in the same chamber described previously.



II. Test & System Description

A. Test setup

1. Frequency Range

2400~2500MHz, for WLAN application.

2. Antenna Configuration

The antenna basically has two parts; the stamping and the cable assembly with the connector on one side. The detailed drawing is attached.

3. VSWR

The VSWR is measured with network analyzer that support up to 8.5GHz. All the measurements are performed
with the customer provided fixture. Figure 1 shows the typical schematic diagram for measuring VSWR.

Figure 1. The schematic diagram for measuring VSWR

B. Equipment list

Test Equipment

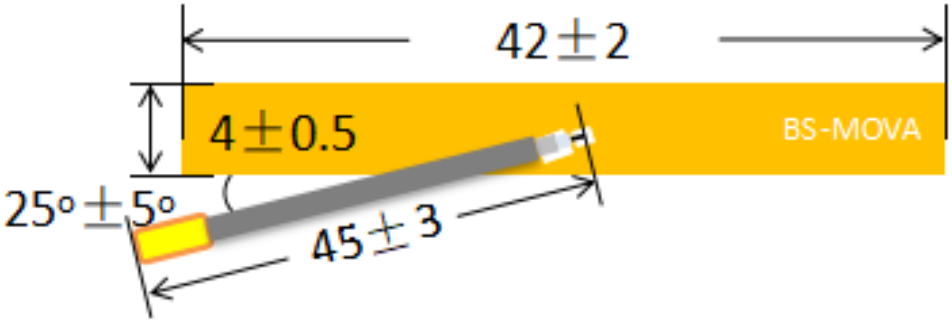
The equipment for the antenna measurement we used is as follows:

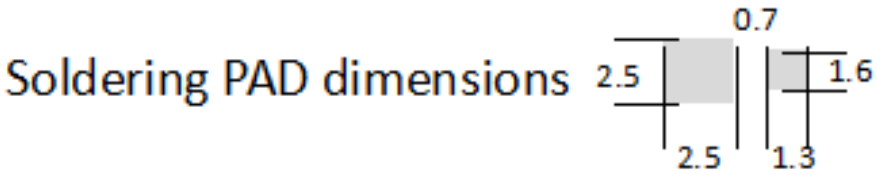
a. Network Analyzer, support up to 6GHz, to measure the VSWR and input impedance of antenna.
b. Two-dimensional anechoic chamber to measure antenna gain and radiation pattern(Standard horn antenna was used to calibrate the chamber)
c. Digital caliper to measure the dimensions.

item	Device	Cal. Date	Cal. Due Date
1	Anechoic Chamber	2021/12/13	2022/12/13
2	Test Software:GP7.exe	N/A	N/A
3	Turn Table	N/A	N/A
4	Measurement SW	N/A	N/A
5	Vector Network Analyzer	2021/12/13	2022/12/13
6	MAPS^{TM} Controller	N/A	N/A
7	Horn antenna	2021/12/13	2022/12/13
8	Cable 0.5m - 700MHz~6GHz	2021/12/13	2022/12/13

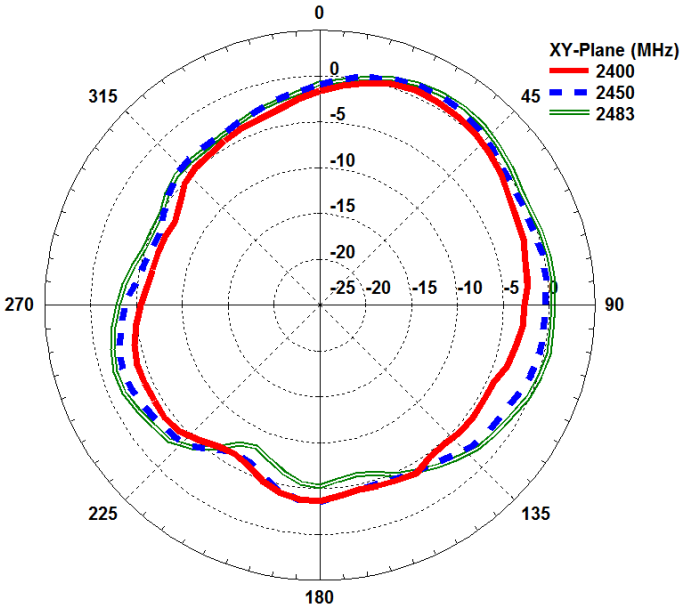
III. Setup photo

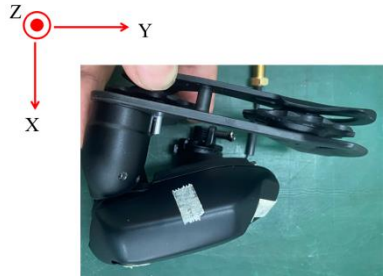
IV. Dimensioned Photos and Drawings of Antennas





V. Radiation characteristics of antenna R&L





Frequency (MHz)	Gain(dBi)		
	Max	Min	Avg.
2400	0.72	-6.75	-3.06
2450	1.34	-6.41	-1.96
2483	1.68	-8.08	-1.67

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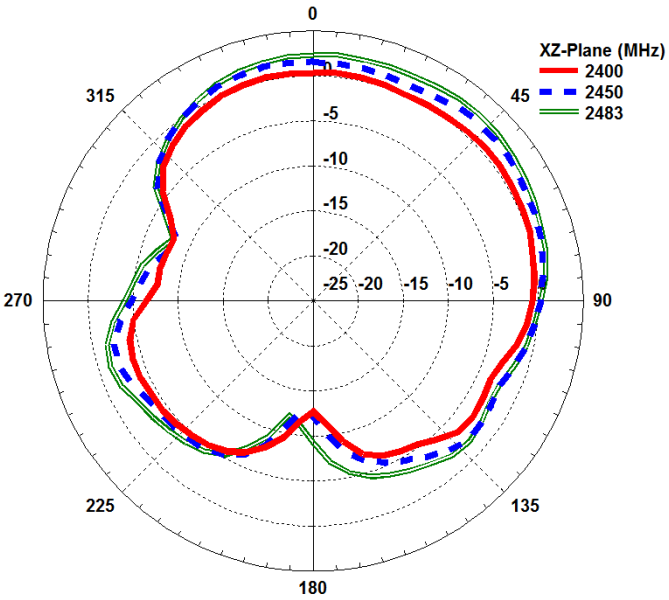
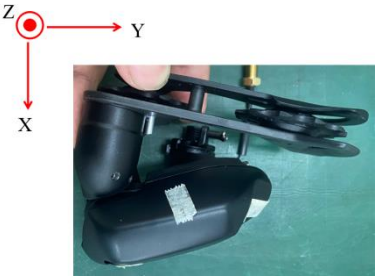
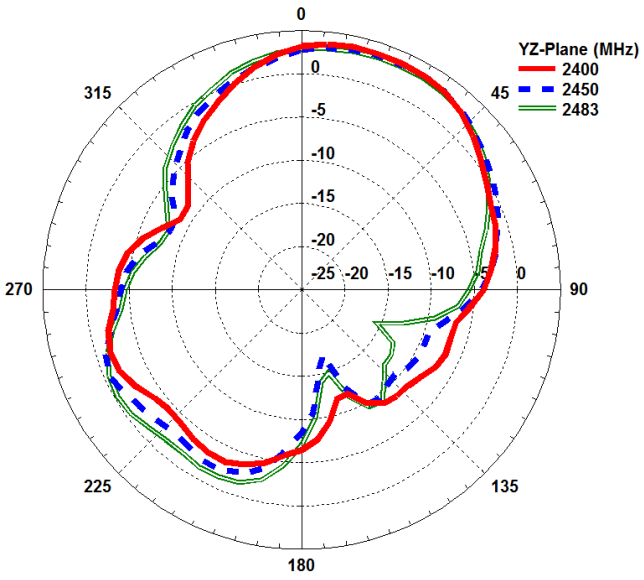
Radiation pattern and gain in the θ=90° with housing

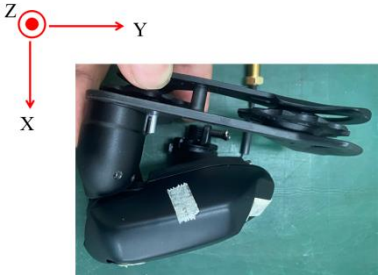




Frequency (MHz)	Gain(dBi)		
	Max	Min	Avg.
2400	0.64	-12.72	-2.27
2450	2.11	-12.70	-1.11
2483	2.75	-12.04	-0.58

Radiation pattern and gain in the Φ=0° with housing





Frequency (MHz)	Gain(dBi)		
	Max	Min	Avg.
2400	3.76	-11.85	-1.44
2450	3.62	-17.12	-1.31
2483	3.30	-15.41	-1.26

Radiation pattern and gain in the Φ=90° with housing