
Chime

Antenna Passive Test Report

Customer	Vivint
Test Date	2023-5-18
Model name	Vivint Chime Extender SP01
Build stage	<input checked="" type="checkbox"/> HVT <input type="checkbox"/> DVT <input type="checkbox"/> PVT <input type="checkbox"/> MP
Report Version	HVT-1.0
Test Engineer	Ouyanglongji
Protocol	Wi-Fi
Antenna Frequency	2400 ~ 2500 MHz
Antenna Type	IFA PCB antenna
PCB Version	Y1
Antenna picture	Refer to Antenna photo
Antenna Manufacturer	LEEDARSON LIGHTING CO., LTD.
Test System	SY-16 OTA System

Summary of test results

Test method	Items	Result	Limit	Judgment
VNA measurement	VSWR	≤ 1.45	/	/
OTA measurement	Antenna efficiency	$\geq 69.0\%$	50%	PASS
OTA measurement	Antenna gain	$\leq 3.0\text{dBi}$	/	/

Test Method

The following diagram contain 3 devices: a DUT, a RF Choke, a VNA.

When a testing cable is attached to the pigtail of a fixture, some residual current will flow on the surface of the cable. The RF Choke is used to mitigate the current on the surface of the cable.

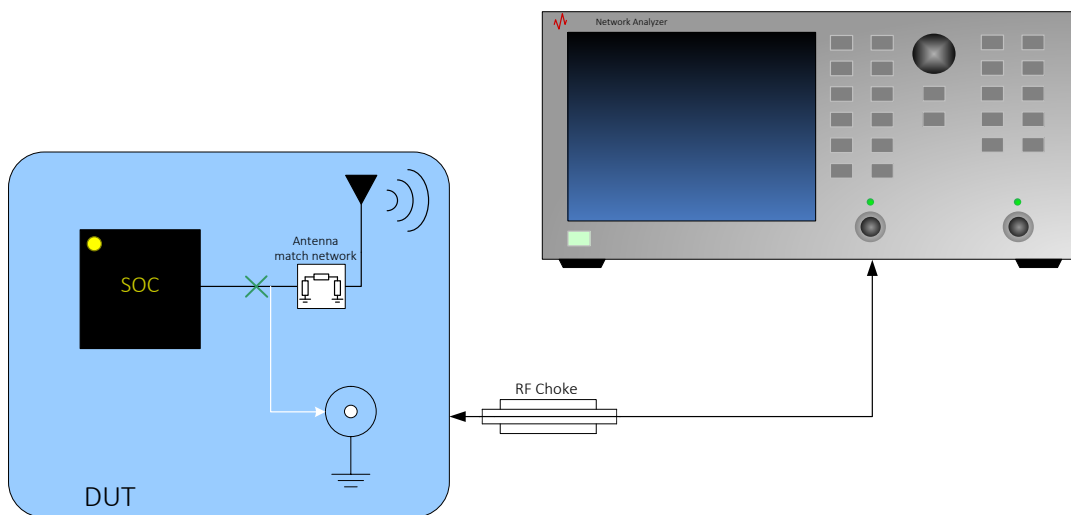


Figure 1 VNA Test topology

Instruments List:

Kind of Equipment	Manufacturer	Type No.	Last Cal.	Due Date
Network Analyzer	R&S	ZND	2023.7.8	2024.7.7
RF Choke	LEEDARSON RF LAB.	/	2023.9.1	2024.8.30

Test Software: EMQuest

OTA measurement

Test System

The SY-16 OTA system is an anechoic chamber, which can measure antenna passive data such as antenna efficiency, antenna gain, and 2D&3D pattern. The coordinates and topology are shown as follows:

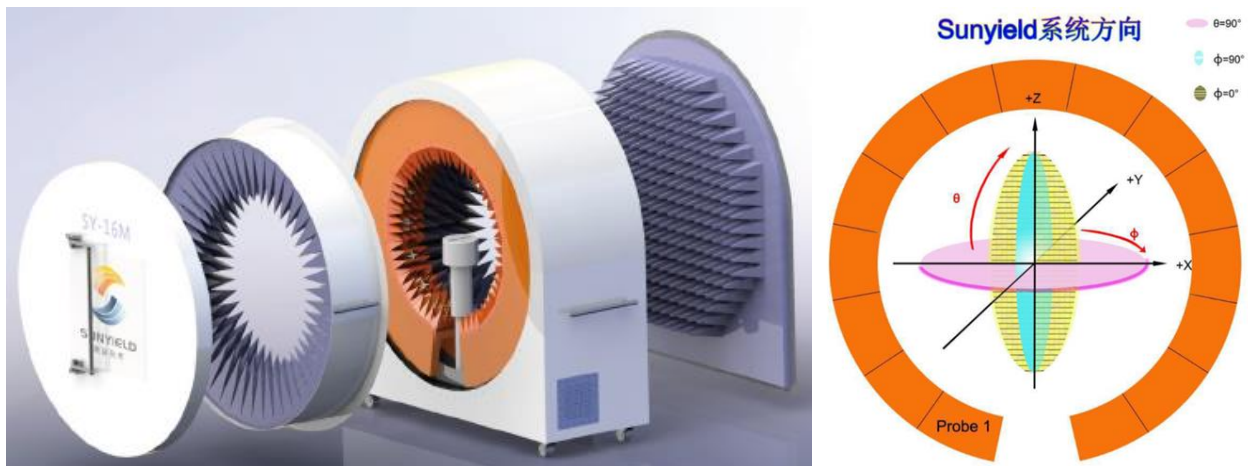


Figure 2 SY-16 OTA system

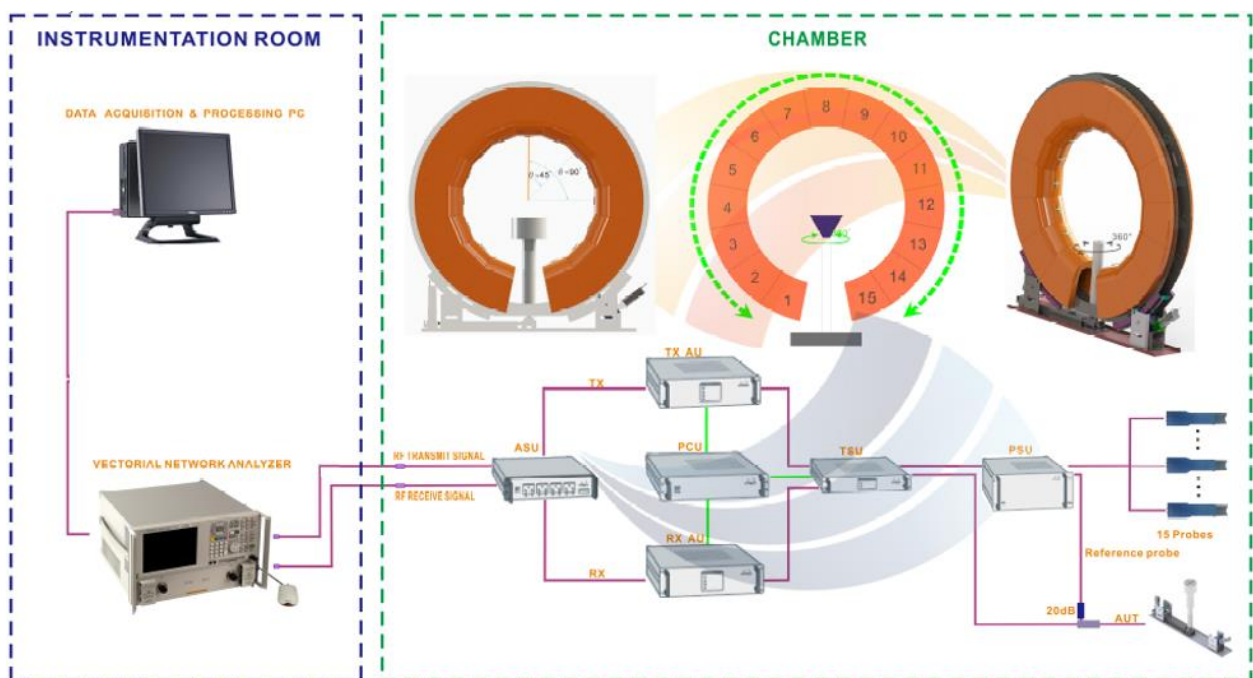


Figure 3 OTA measurement topology

Test Result

Efficiency and Gain

Table 1 Antenna Efficiency and Gain

Frequency (MHz)	Gain (dBi)	Efficiency (dB)	Efficiency (%)
2400	2.1	-1.6	69.0
2410	2.4	-1.5	71.5
2420	2.6	-1.4	72.7
2430	2.5	-1.4	72.2
2440	2.6	-1.4	73.1
2450	2.8	-1.3	73.8
2460	3.0	-1.3	74.0
2470	2.8	-1.4	71.9
2480	2.9	-1.4	72.2
2490	2.9	-1.4	72.3
2500	2.7	-1.6	68.6
Min. Value	2.1	-1.6	69.0
Max. Value	3.0	-1.3	74.0

Radiation Pattern

Table 2 Product coordinates

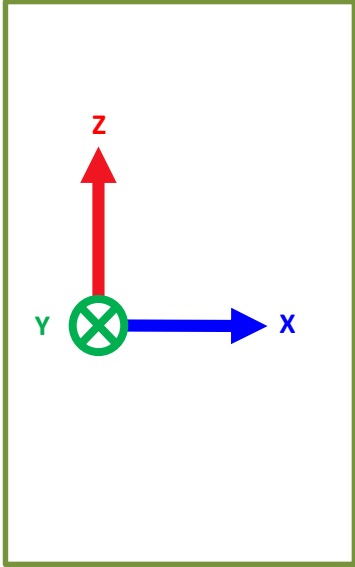
Product Coordinates	
Test setup photo please refer to antenna photo	EUT 

Table 3 3D radiation pattern

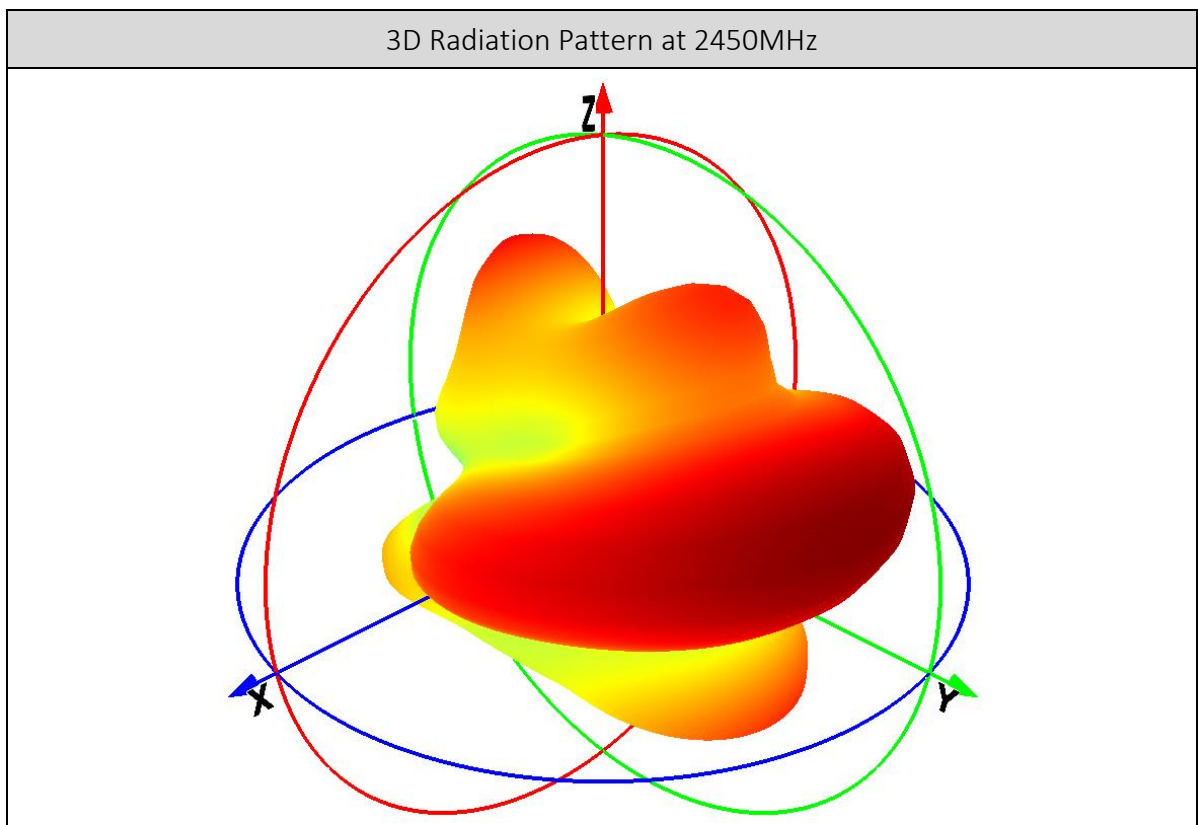


Table 4 Radiation pattern in XY Plane

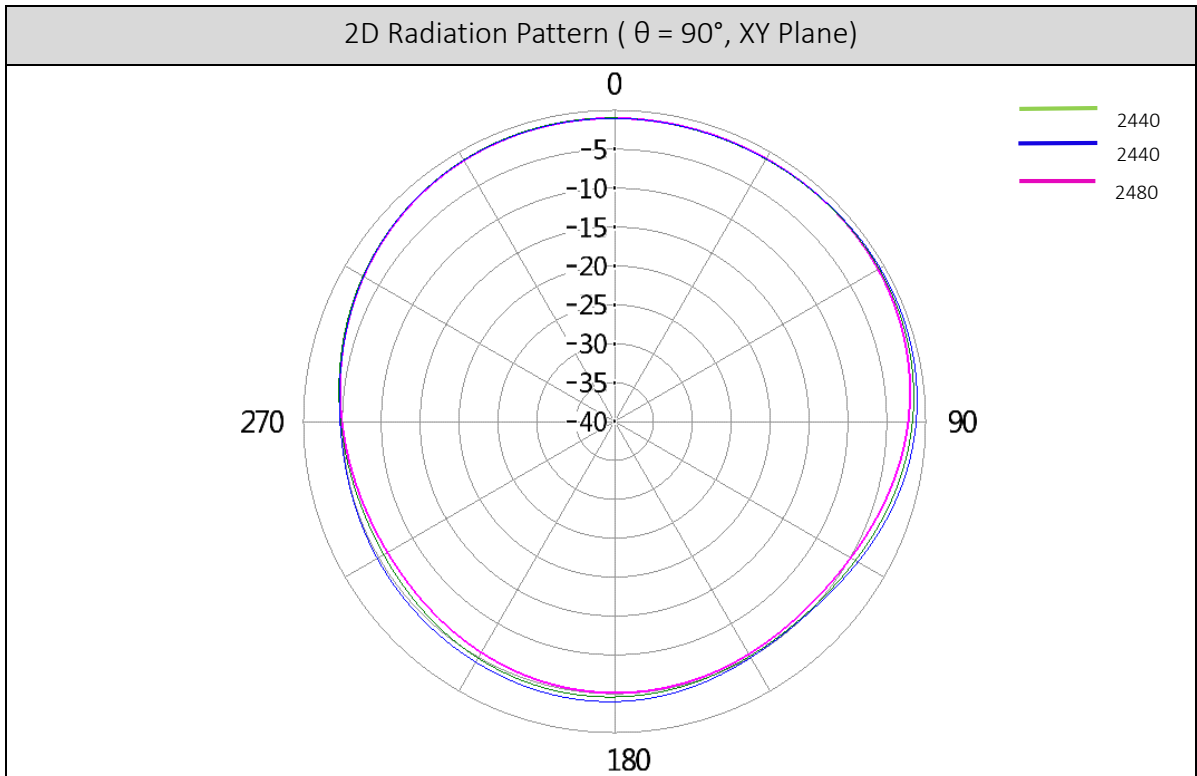


Table 5 Radiation pattern in XZ Plane

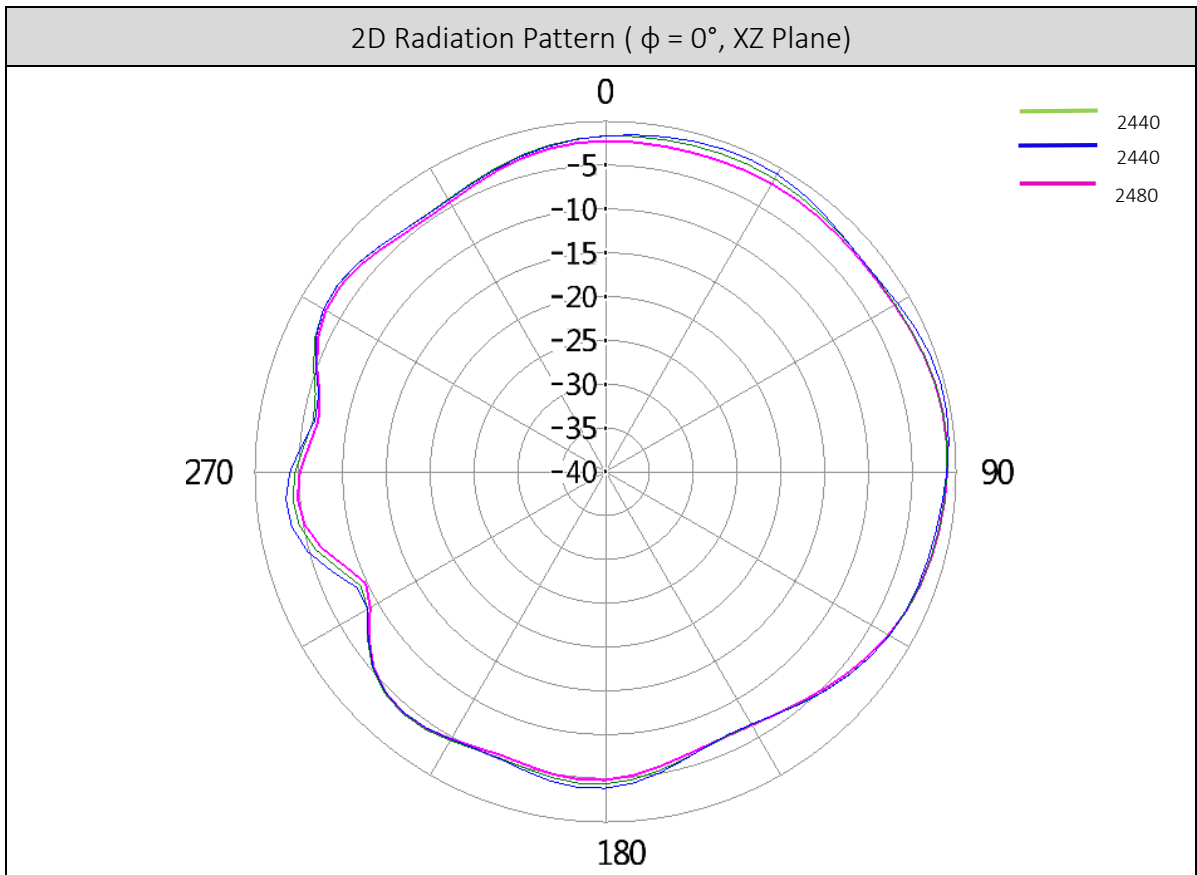


Table 6 Radiation pattern in YZ Plane

