



# Antenna Report



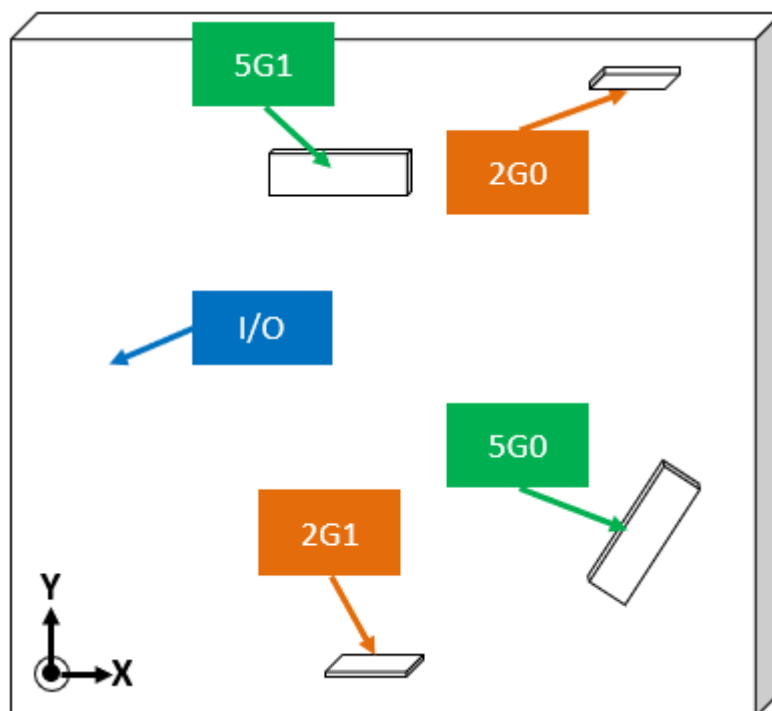
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## Table of Contents

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1. Antenna Information.....	3
1.1. Antenna Mode and Brand .....	3
2. Measurement setup info. & test method, Test Procedure.....	4
2.1. Antenna Configuration.....	4
2.2. Test equipment list.....	4
2.3. Test Method .....	4
3. Test Result .....	5
3.1. VSWR & ISO .....	5
3.2. Antenna gain.....	8
3.3. Radiation Pattern.....	9

## 1. Antenna Information



Designator	HB PN	Frequency Range (MHz)	Antenna Type	Cable Length (mm)
2G0	290-50304	2400 -2500	PCB ANTENNA	194
2G1	290-50305	2400 -2500	PCB ANTENNA	160
5G0	290-50302	5150 - 5850	Metal ANTENNA	103
5G1	290-50303	5150 - 5850	Metal ANTENNA	165

### 1.1. Antenna Mode and Brand

Ant.	Band	Brand	Mode Name	Antenna Type	Connector
2G0	WLAN 2G	HB	290-50304	Dipole	I-PEX
2G1	WLAN 2G	HB	290-50305	Dipole	I-PEX
5G0	WLAN 5G	HB	290-50302	PIFA	I-PEX
5G1	WLAN 5G	HB	290-50303	PIFA	I-PEX

**Antenna Brand and address:** Hong-Bo , No.120, Sec.2, Fuxing 3rd Rd., Zhubei City, Hsinchu County 30273, Taiwan

## 2. Measurement setup info. & test method, Test Procedure

### 2.1. Antenna Configuration

**Model Name:** LCS5

**Address:** No.120, Sec.2, Fuxing 3rd Rd., Zhubei City, Hsinchu County 30273, Taiwan

**Test personal name:** Jack Huang

**Test equipment:** MVG SG24 chamber

**Test software:** Wave Studio 22.5.6

**Test description:** DUT place in SG24 chamber, and run the antenna passive measurement

### 2.2. Test equipment list

Instrument	Brand	Model No.	Characteristics	Calibration Date	Next Calibration Date
SATIMO OTA chamber	Microwave Vision Group	SG24 chamber	400 MHz - 8500 MHz	Dec.23 ,2023	Jan.23 ,2024
Measurement software	Microwave Vision Group	Wave Studio 22.5.6	N/A	N/A	N/A

### 2.3. Test Method

#### Test Environment & Equipment



- SATIMO SG 24 Multi-Probe Antenna Measurement System
- Angle between probes: 15°
- Frequency range: 400 MHz – 8.5 GHz
- Chamber Room Size: 4.0 m L x 4.0 m W x 4.0 m H



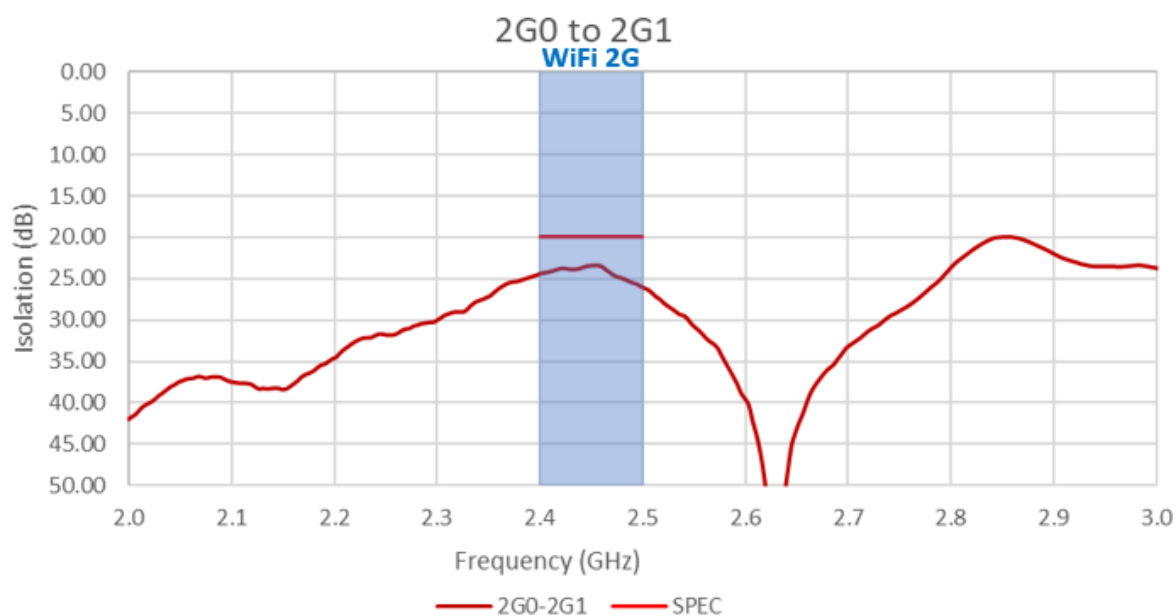
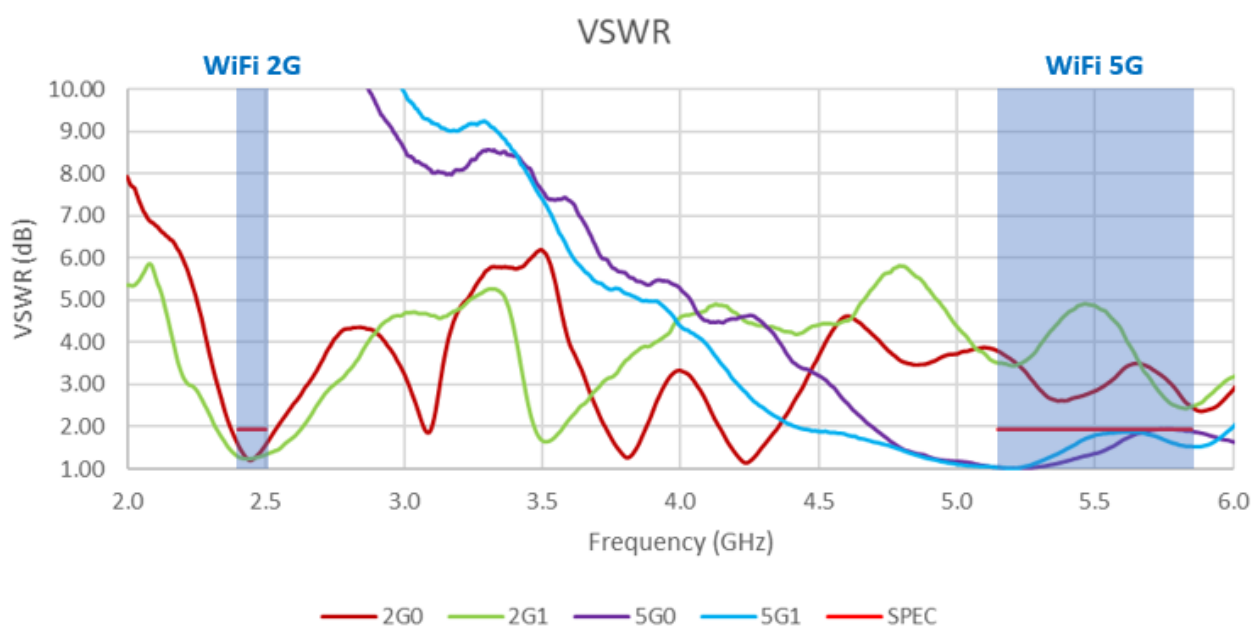
- Agilent and Keysight Vector Network Analyzer
- Frequency range: 100KHz – 8.5GHz
- Ports numbers: 2 ports

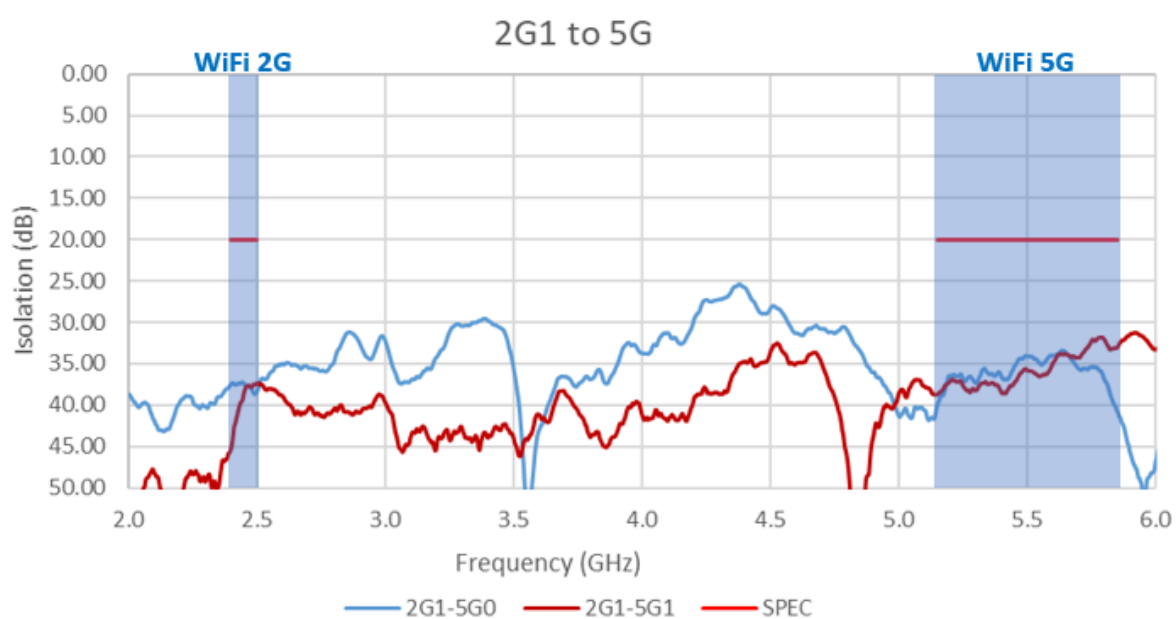
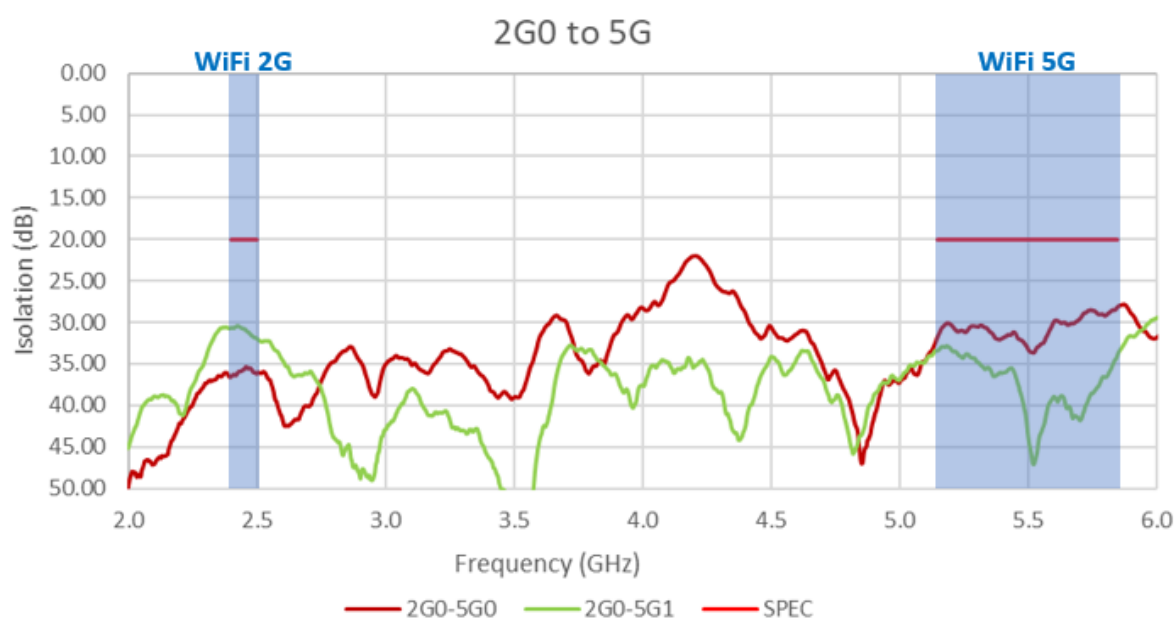
- ETS-Lindgren AMS-8500 Antenna Measurement System
- EM Quest EMQ-100 Software
- Model 3164-04 Diagonal Dual Polarized Horn antenna
- Frequency range: 700 MHz - 6 GHz
- Positioning Systems
- Chamber Room Size: 7.32 m L x 3.66 m W x 3.66 m H

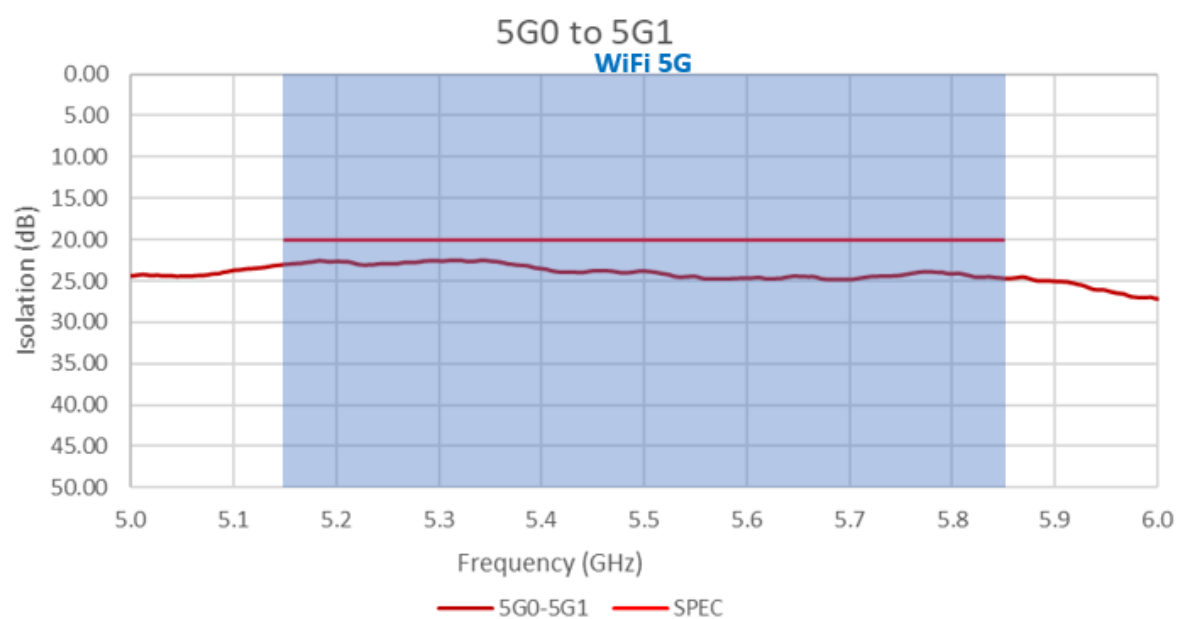


### 3. Test Result

#### 3.1. VSWR & ISO







### 3.2. Antenna gain

Ant	item	2400-2500 MHz
2G0	Peak Gain	1.7
	Peak Gain @	Theta= 57 ; Phi= 87
2G1	Peak Gain	2.9
	Peak Gain @	Theta= -78 ; Phi= 99

Ant	item	Band1 (5150-5250MHz)	Band2 (5250-5350MHz)	Band3 (5470-5725MHz)	Band4 (5725-5850MHz)
5G0	Peak Gain	2.5	2.9	4.0	3.6
	Peak Gain @	Theta= 72 ; Phi= 81	Theta= 66 ; Phi= 138	Theta= 63 ; Phi= 141	Theta= 81 ; Phi= 84
5G1	Peak Gain	3.3	4.0	4.4	4.9
	Peak Gain @	Theta= -60 ; Phi= 111	Theta= -63 ; Phi= 111	Theta= -57 ; Phi= 93	Theta= -57 ; Phi= 99

Above Peak Gain= on board antenna peak gain-path loss+  
Chamber's receiving RX peak gain.



### 3.3. Radiation Pattern

