

MT7921(LGSWNAX61)_WN9122BTBAX 1-HF-19 Antenna Passive Test Report Ver 1.3

12th Aug , 2025

Test date : 05th July, 2025

R&D Antenna Engineer

Test Personnel : Dixon Luo



- **Test site/Equipment calibration Date/Method**
- **Test Setup Description**
- **Antenna Definition**
- **Antenna Features**
- **Antenna V.S.W.R & Isolation**
- **Antenna 3D radiation pattern /Antenna Efficiency**
- **Antenna Drawing**

Test site, equipment, test method

Site: No.8, Sec 2, Guangfu Rd., Hsinchu City, Taiwan, R.O.C

Arcadyan Technology Corporation ETS.LINDGREN AMS-8923 Antenna Measurement System

23 dual-polarized antennas

Experiment software: ETS passive measurement.prm

Table of experimental equipment

Test equipment	Manufacture	Type
Network analyzer	Keysight	E5080B
Antenna test system	ETS.LINDGREN	AMS-8923

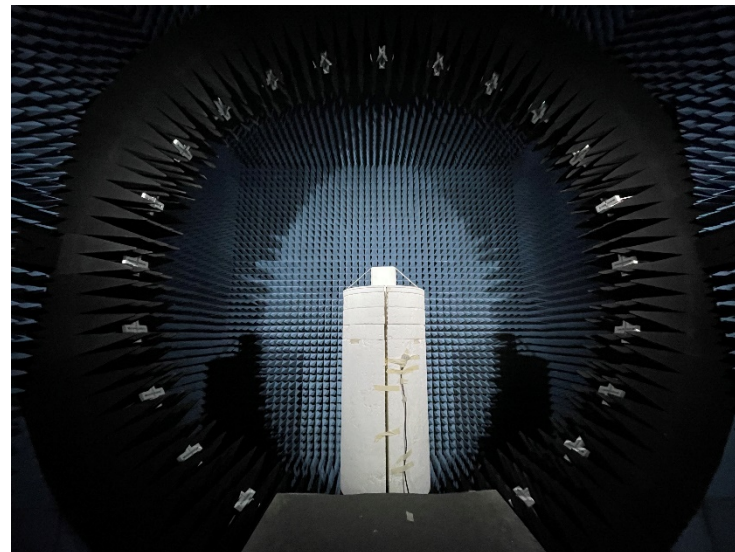
Antenna test equipment calibration Date

- Keysight E5080B ENA Vector Network Analyzer



regular calibration on 15th/April./2025

- ETS LINDGREN OTA Chamber (AMS-8923-195-G)

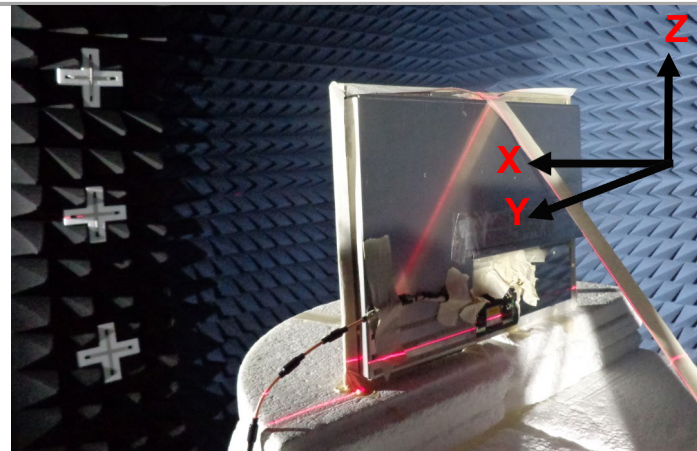


regular calibration on 15th/April./2025

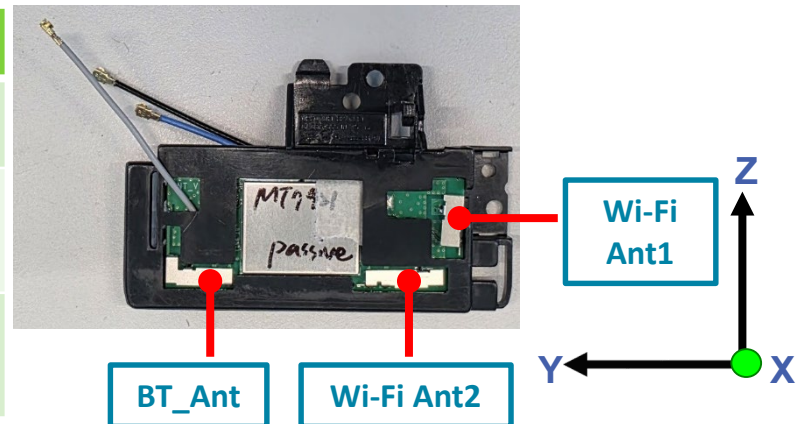
- Place the device at the center of the chamber.
- Connect the antenna cable to RF cable of the chamber
- Run IETS-Lindgren SW test measurement
- Get 3D data in 2.8125 degree step from phi 0° ~ 360° and theta -90° ~ $+90^{\circ}$, including efficiency, peak gain, 2D & 3D radiation pattern.

Antenna Definition

	2.4GHz	5GHz	6GHz
Wi-Fi Ant1	V	V	V
Wi-Fi Ant2	V	V	V
Ant BT	V		



Location	Description	Manufacturer/ PN
ANT1 (Wi-Fi)	13.6mmx4.5mmx3.9mm T:0.3mm	MASTER WAVE TECHNOLOGY 120800094700J
ANT2 (Wi-Fi)	19.5mmx4.2mmx4.0mm T:0.3mm	Huizhou Speed Wireless Technology 120800165300J
BT_ANT (BT)	15mmx6.5mmx4.0mm T:0.3mm	Huizhou Speed Wireless Technology 120800165500J



Antenna Features

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■ Antenna Features

- Dual Bands Wi-Fi & BT ANT
- Main Frequency: 2.45GHz, 5.5GHz
- Frequency range : From 2.40 to 2.50GHz, 5GHz~6GHz, 6GHz~7.2GHz
- Operating temperature range: -35 to +95°C (typ.)
- Wi-Fi ANT Material : Metal press
- BT ANT material : Metal press

■ Antenna Characteristics

Wi-Fi Ant1

Antenna Performance				
Parameter	Min	Typ	Max	Unit
Frequency Range	2400	2450	2500	MHz
	5000	5500	5875	MHz
	6000	6600	7200	MHz
Directivity	-	Omni	-	-
Full Bands Average Gain	-	-3.06	-	dBi
Full Bands Peak Gain		-	2.65	
V.S.W.R	3.6:1	-	-	
Isolation			-8.5	dB under
Impedance		50		Ohm
Radiation Material		Metal		

Wi-Fi Ant2

Antenna Performance				
Parameter	Min	Typ	Max	Unit
Frequency Range	2400	2450	2500	MHz
	5000	5500	5875	MHz
	6000	6600	7200	MHz
Directivity	-	Omni	-	-
Full Bands Average Gain	-	-2.34	-	dBi
Full Bands Peak Gain		-	3.40	
V.S.W.R	3.4:1	-	-	
Isolation			-8.5	dB under
Impedance		50		Ohm
Radiation Material		Metal		

■ Antenna Characteristics

BT Ant

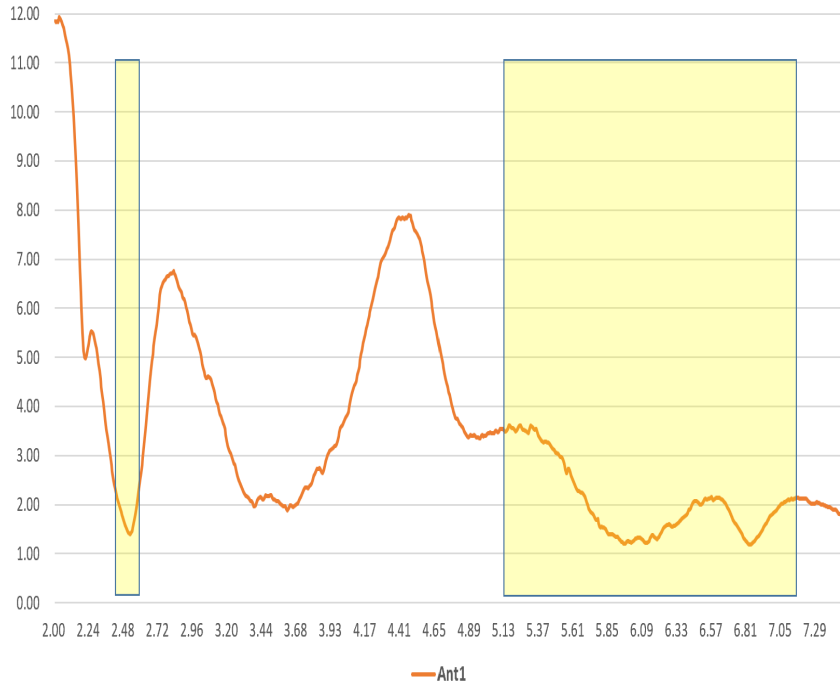
Antenna Performance				
Parameter	Min	Typ	Max	Unit
Frequency Range	2400	2450	2500	MHz
Directivity	-	Omni	-	-
Full Bands Average Gain	-	-6.59	-	dBi
Full Bands Peak Gain		-	-2.20	
V.S.W.R	2.8:1	-	-	
Isolation			-15	dB under
Impedance		50		Ohm
Radiation Material		Metal		

Antenna Return Loss(V.S.W.R) & Isolation

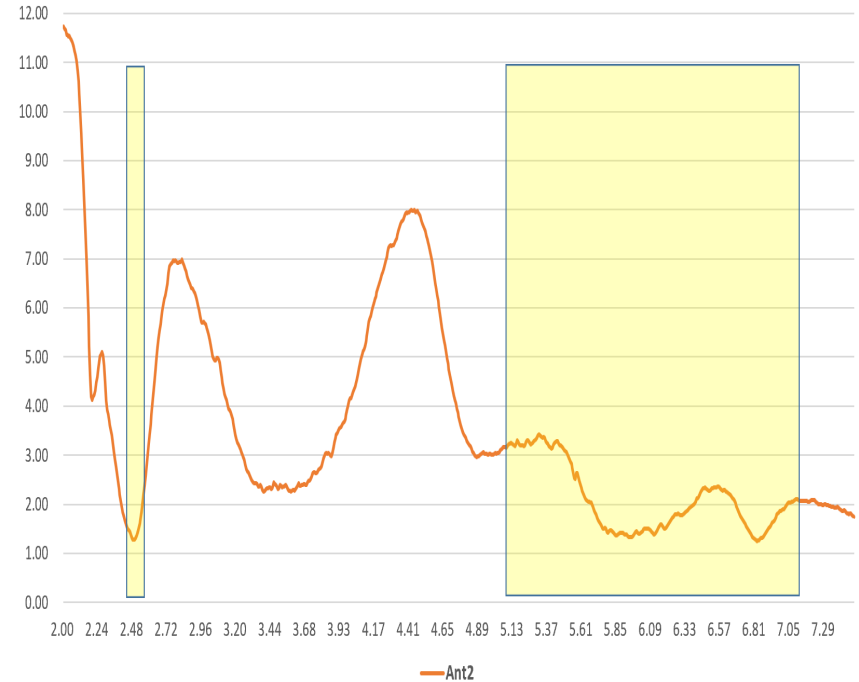


- The VSWR of these antennas.

Wi-Fi Ant1

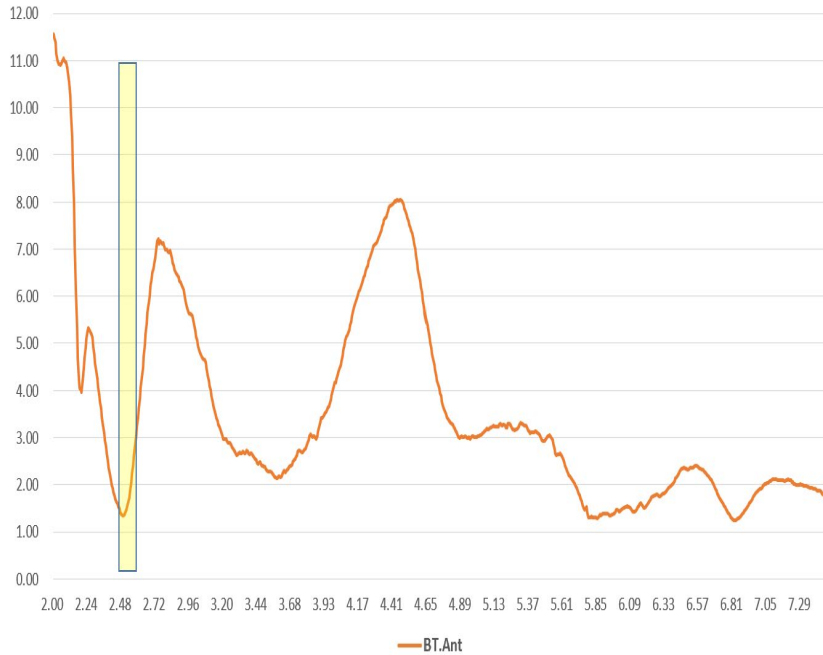


Wi-Fi Ant2



- The VSWR of these antennas.

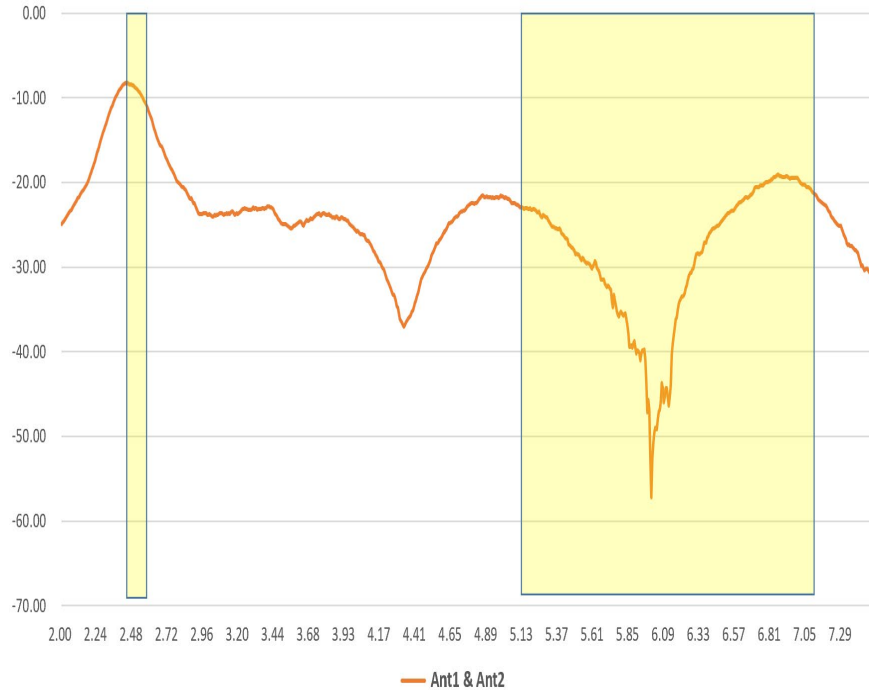
BT Ant



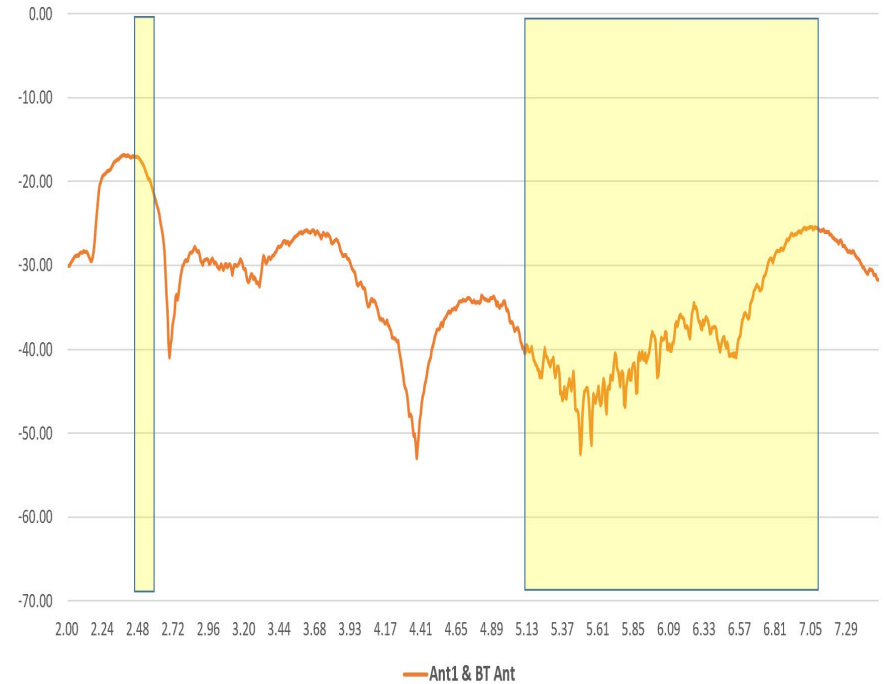
Antenna Isolation

- The isolation of these antennas.

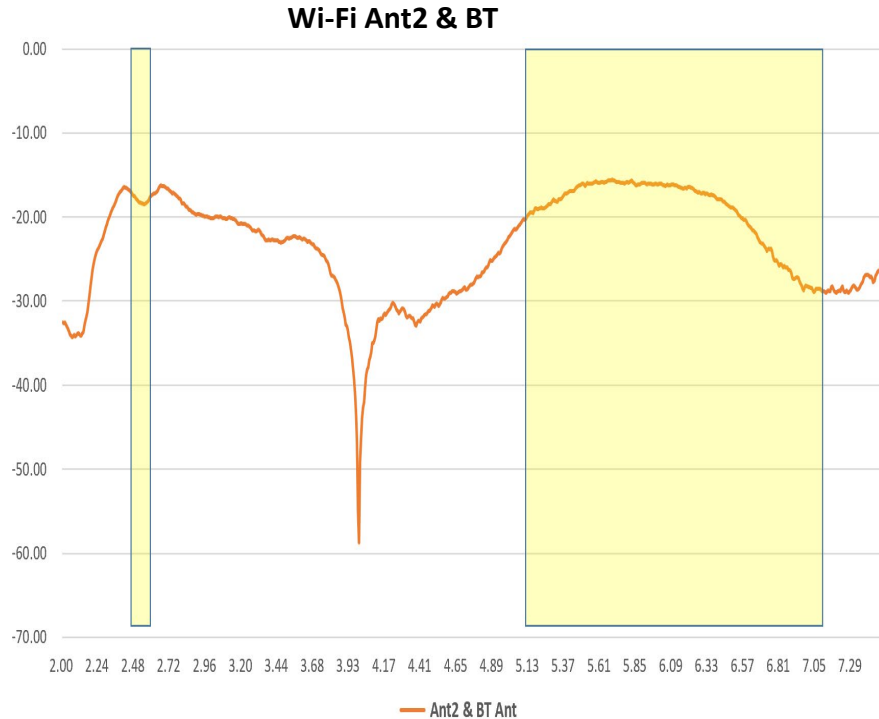
Wi-Fi Ant1 & Ant2



Wi-Fi Ant1 & BT Ant



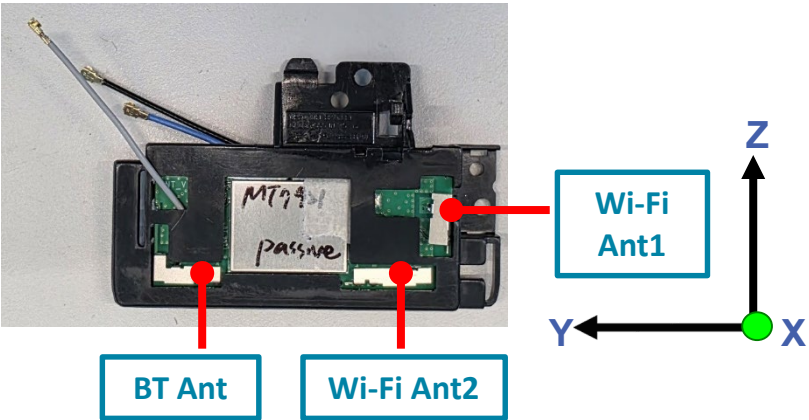
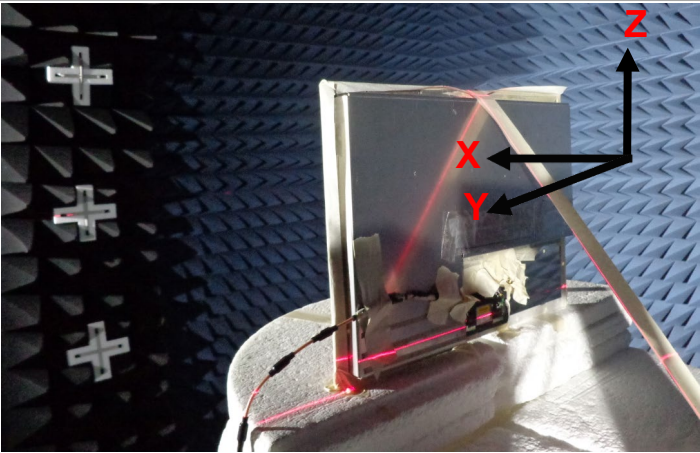
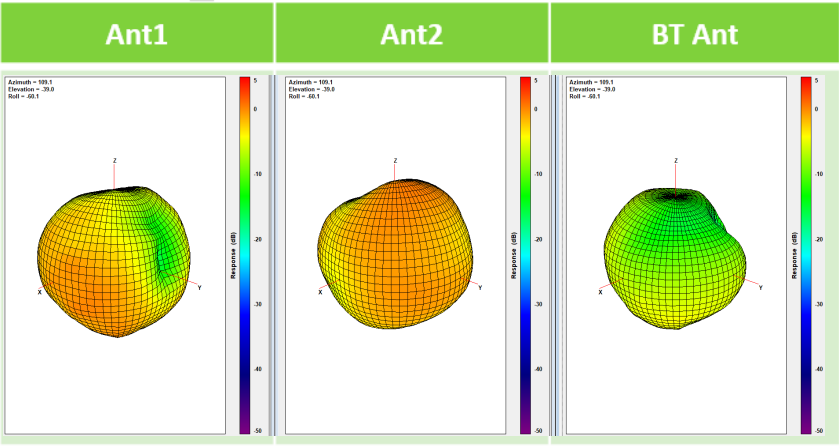
- The isolation of these antennas.



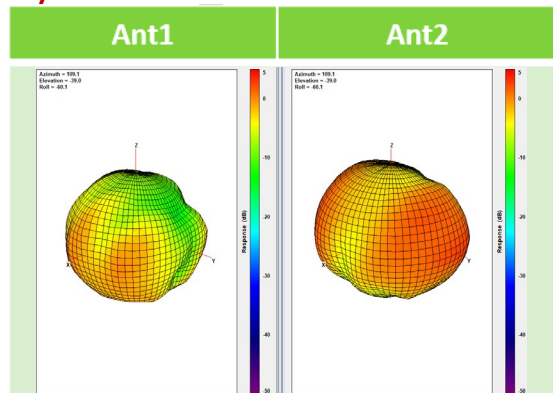
Antenna 3D Radiation Pattern & Antenna Efficiency

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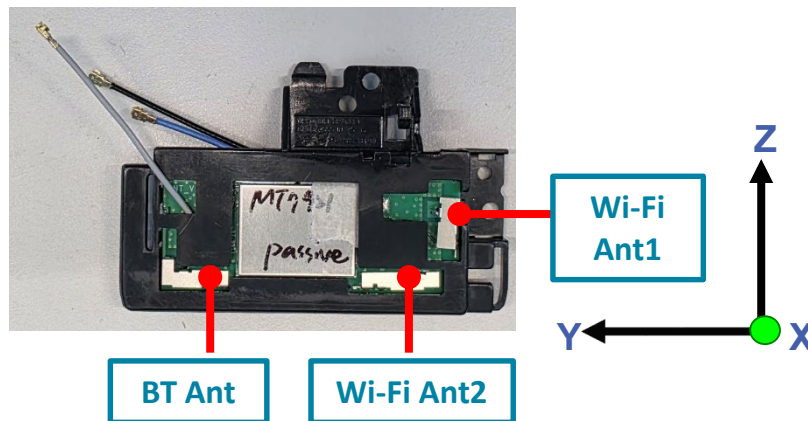
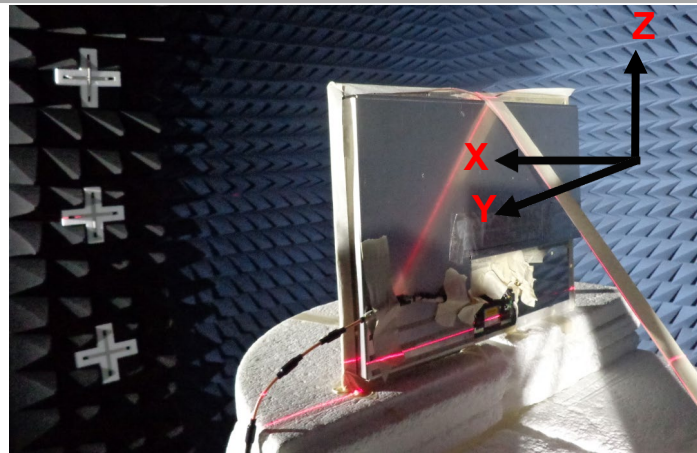
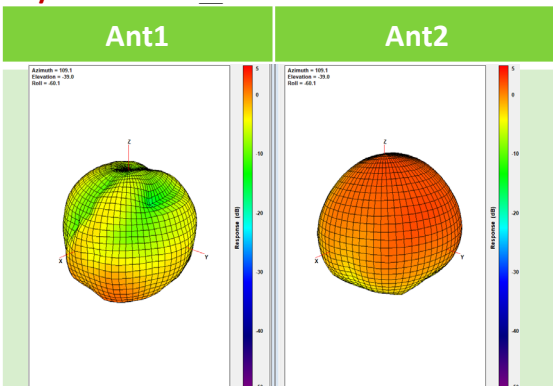
■ 2/G Band 2442 MHz



■ 5/G Band 5500 MHz



■ 6/G Band 6535 MHz



■ Efficiency List:

Frequency (MHz)		2412	2442	2450	2472	2484
Wi-Fi Ant1	Peak Gain	0.33	0.49	0.48	0.08	0.08
	Average Gain	-3.61	-3.12	-3.01	-3.19	-3.21
	Efficiency (%)	43.54	48.73	49.96	48.00	47.71

Frequency (MHz)		5180	5250	5350	5470	5500	5745	5850	5955	5985	6135	6275	6415	6535	6635	6735	6875	6985	7125
Wi-Fi Ant1	Peak Gain	0.34	0.23	0.51	0.68	0.68	1.77	2.25	2.53	2.58	2.33	2.65	2.39	2.17	1.75	1.24	0.84	0.52	0.65
	Average Gain	-3.76	-3.86	-3.76	-3.34	-3.30	-2.67	-2.27	-1.87	-1.87	-2.00	-2.24	-3.05	-3.36	-3.32	-3.26	-3.03	-3.21	-4.04
	Efficiency (%)	42.11	41.16	42.05	46.30	46.78	54.07	59.30	64.95	64.99	63.11	59.76	49.56	46.16	46.51	47.16	49.77	47.75	39.43

Frequency (MHz)		2412	2442	2450	2472	2484
Wi-Fi Ant2	Peak Gain	-0.11	0.69	0.45	0.23	0.24
	Average Gain	-3.09	-2.64	-2.64	-2.91	-2.93
	Efficiency (%)	49.04	54.45	54.41	51.11	50.88

Frequency (MHz)		5180	5250	5350	5470	5500	5745	5850	5955	5985	6135	6275	6415	6535	6635	6735	6875	6985	7125
Wi-Fi Ant2	Peak Gain	2.72	2.93	3.11	2.97	2.99	3.10	2.93	2.63	2.41	2.36	2.38	2.37	2.69	3.04	3.40	3.30	3.40	2.11
	Average Gain	-2.13	-1.92	-1.58	-1.27	-1.23	-1.78	-1.97	-1.94	-2.19	-2.17	-2.22	-2.39	-2.10	-2.35	-2.09	-2.91	-3.09	-4.36
	Efficiency (%)	61.29	64.22	69.49	74.61	75.37	66.32	63.46	63.97	60.37	60.71	60.00	57.73	61.59	58.19	61.74	51.15	49.10	36.64

Frequency (MHz)		2412	2442	2450	2472	2484
BT Ant	Peak Gain	-3.70	-3.23	-3.00	-2.73	-2.20
	Average Gain	-7.30	-6.75	-6.57	-6.37	-5.94
	Efficiency (%)	18.63	21.14	22.05	23.04	25.45

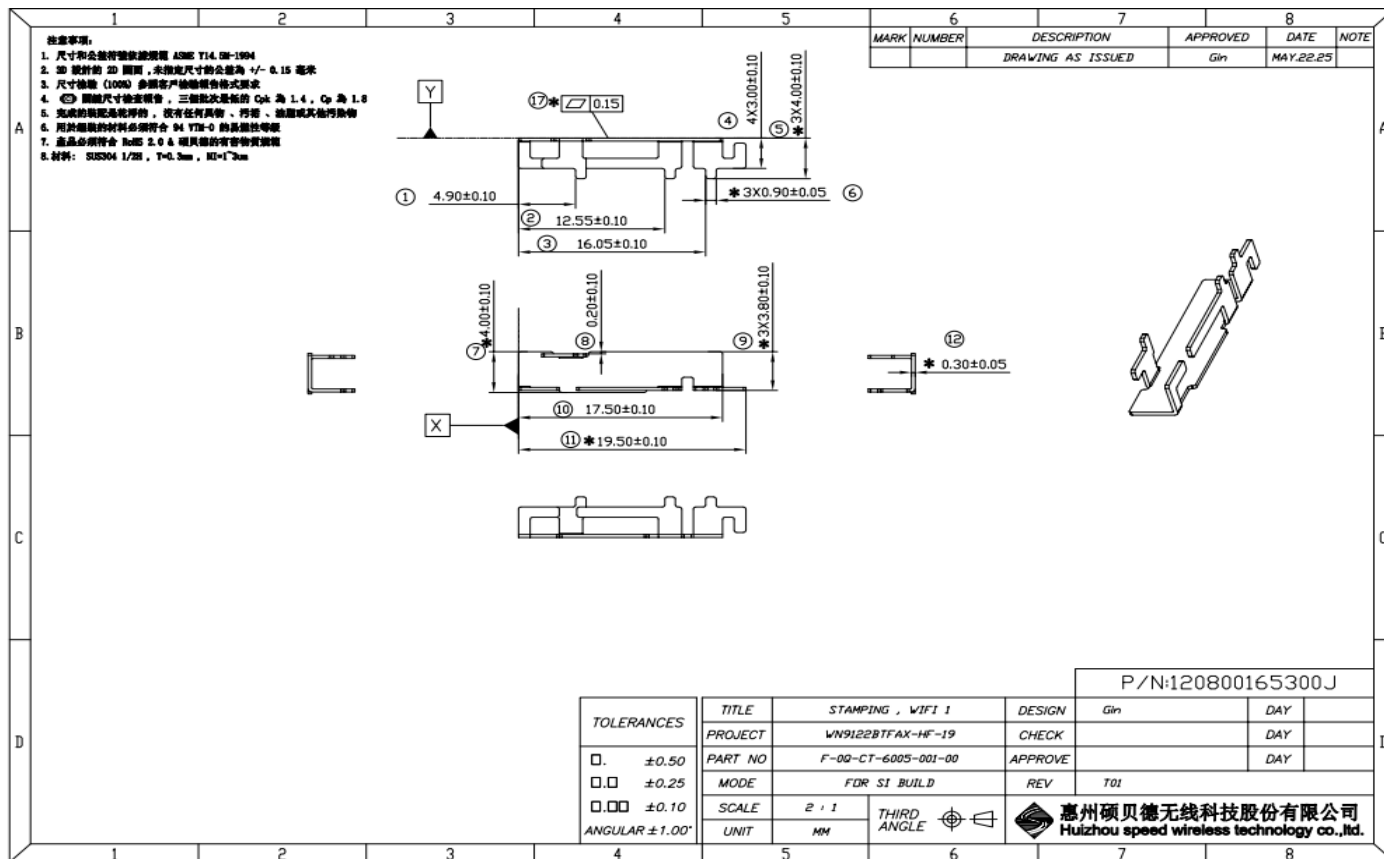
Antenna Drawing

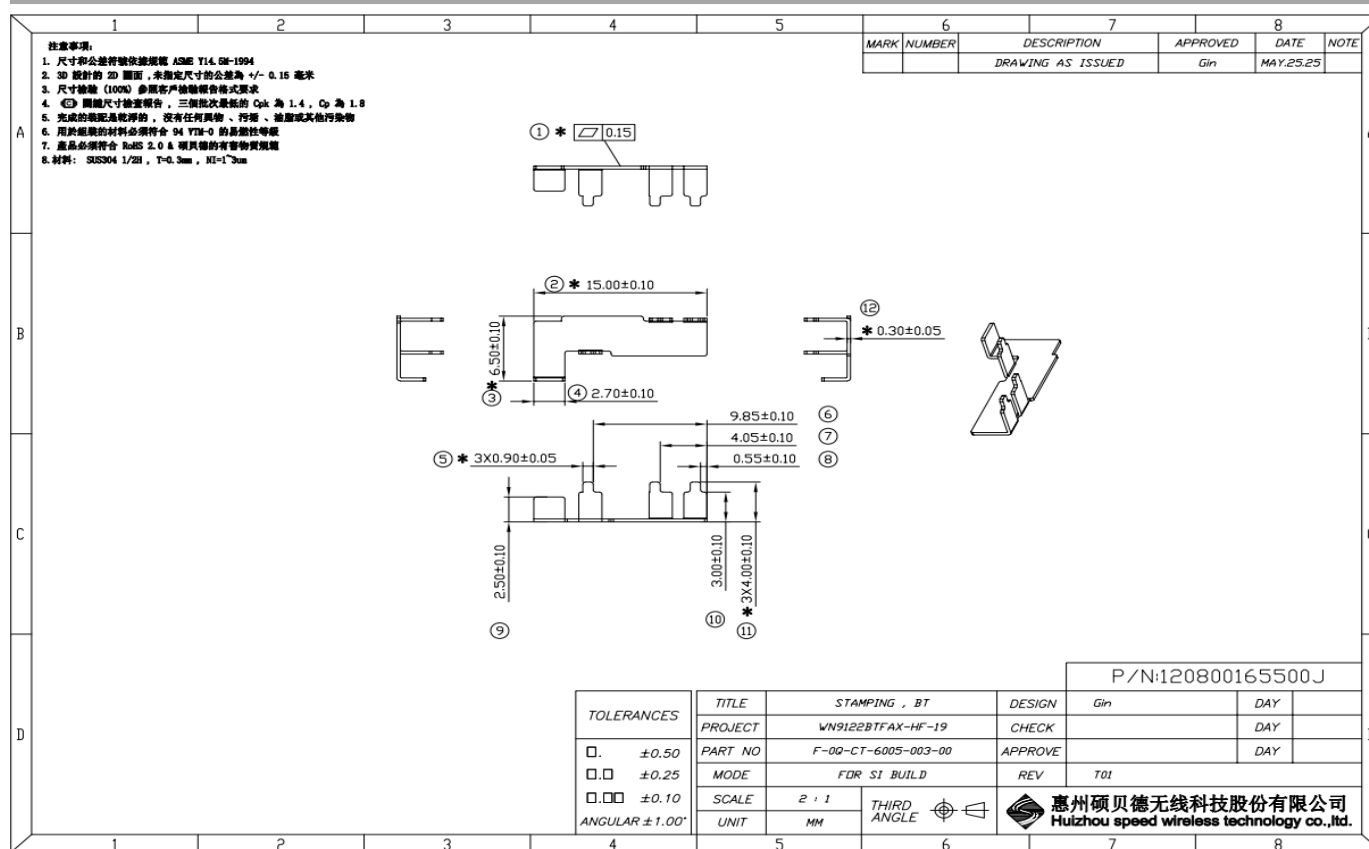
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arcadyan



Wi-Fi Ant2 Antenna







Broadband • Multimedia • Wireless

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