

ANTENNA INFORMATION

Antenna manufacturer	Company name	AWAN
	Address	5F, No.225, Sec. 3, Bei-Hsin Rd., Xindian Dist., New Taipei City, 231, Taiwan
Test location	Company name	AWAN
	Address	5F, No. 225, Sec. 3, Bei-Hsin Rd., Xindian Dist., New Taipei City, 231, Taiwan
Test Personnel	Name(Full name)	Yilum.Zeng
	E-mail	Yilum.zeng@awan-ant.com
	Tel/Mobile	+886-2-8913-1939
Testing date		2024/12/20

Antenna Part number	Main	025.902K4.0001
	Aux	N/A
Antenna type (ex: PIFA, Dipole...etc)		PIFA

Antenna Peak gain w/ cable loss (dBi)*										
	2.4GHz 2400-2483.5 MHz	5.2GHz 5150-5250MHz	5.3GHz 5250-5350MHz	5.6GHz 5470-5725MHz	5.8GHz 5725-5850MHz	5.9GHz 5850-5895MHz	6.2GHz 5925-6425MHz	6.5GHz 6425-6525MHz	6.7GHz 6525-6875MHz	7.0 GHz 6875-7125MHz
Main	1.19	1.86	2.31	3.00	3.04	3.04	4.01	2.99	2.05	1.47
Aux	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Cable Assembly Part Number and Information					
	Cable PN	Cable length(mm)	Cable diameter(mm)	Impedance(ohm)	Connector type
Main	SY113L/50-105	50	1.13	50	MHF-B13L-N-01
Aux	N/A	N/A	N/A	N/A	N/A

* 3D Antenna Peak Gain required being test in system basis.

Table of Contents

Cover page..... 1

1. Document Revision History..... 3

2. Test & System Description

 2.1 Measurement Method and System..... 4

 2.2 Test setup..... 4

 2.3 Equipment list..... 5

3. Radiation characteristics of antenna loaded in Host Platform..... 6

Annex A. Photographs

 A.1 Setup Photo..... 16

 A.2 Test sample..... 17

Annex B. Antenna Location

 B.1 Antenna Host Platform Location Information.....19

1. Document Revision History

Revision #	Revision Details	Issued Date
Rev. 00	First Issue	2025/4/24 5

2. Test & System Description

3.1 Measurement Method and System

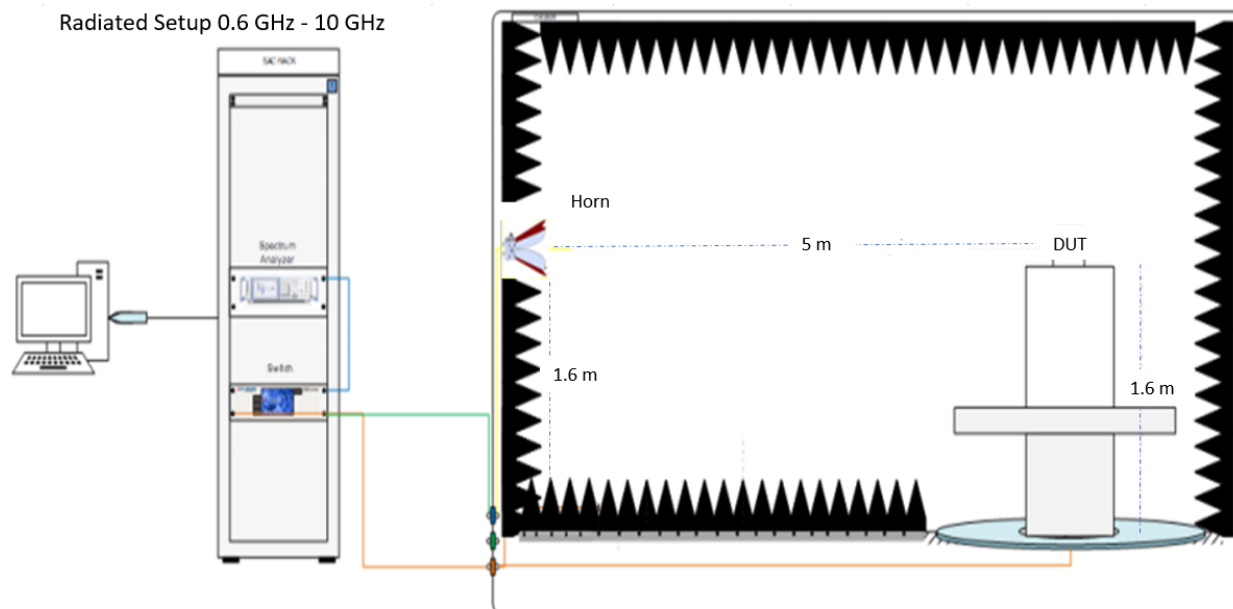
The gain measurement shall follow by following conditions:

- It is required that all the antenna gain to be measured spherically and computed by spatial average be computed of the resultant gain.
- During gain measurement, all other antennas not under test should be terminated by 50 Ohm load in end of cable.
- Space points of 3D gain measurement are increase by specific steps from Theta 0~180 degrees, and Phi, 0~360 degrees, as figure below. The increments steps are different steps are different by antenna functions.

Theta Start	0 degree	Phi Start	0 degree
Theta Stop	180 degree	Phi Stop	360 degree
Theta Increment	30 degree	Phi Increment	30 degree

3.2 Test setup

- 4 The testing of antenna gain should be made at a ETS qualified lab with an RF anechoic chamber with at least 5-meter separation from the receive antenna to the antenna under test. The antenna gain report from unqualified lab can't be referenced a passing. Besides, all test equipment including horn antennas, adapters, cables, network analyzers, and receivers shall be calibrated per manufacturer's minimum calibration requirements.



3.3 Equipment list

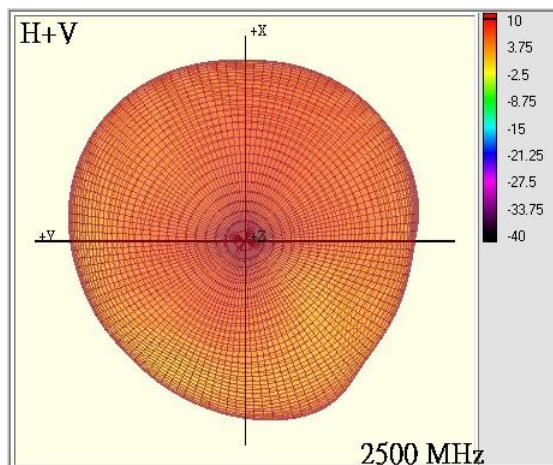
Device	Type/Module	Serial#	Manufacturer	Cal. Date	Cal. Due Date
Anechoic Chamber	AMS-8500	1047	ETS-Lindgren	2024/2/21	2025/8/21
Turn Table	ETS	-	ETS-Lindgren	N/A	N/A
Rotate controller	2090	SN 00035073	ETS-Lindgren	N/A	N/A
Horn Antenna	HAD-0710	111025-02	Bwant	2023/3/16	2025/3/16
Vector Network Analyzer	E5071C	MY46733781	Keysight	2022/1/21	2025/1/21
Cable 40cm 18 GHz	201EH012010400	201EH012010400#1	Jmtt	2024/1/22	2025/1/27
Cable 6m 18 GHz	201EH012016000	201EH012016000#3	Jmtt	2024/1/22	2025/1/22
Cable 6m 18 GHz	201EH012016000	201EH012016000#5	Jmtt	2024/1/22	2025/1/22
Cable 3.5m 18 GHz	201EH012013500	201EH012013500#3	Jmtt	2024/1/22	2025/1/22
Cable 1.5m 18 GHz	201EH012011500	201EH012011500#2	Jmtt	2024/1/22	2025/1/22

3. Radiation characteristics of antenna loaded in Host Platform

Main Antenna

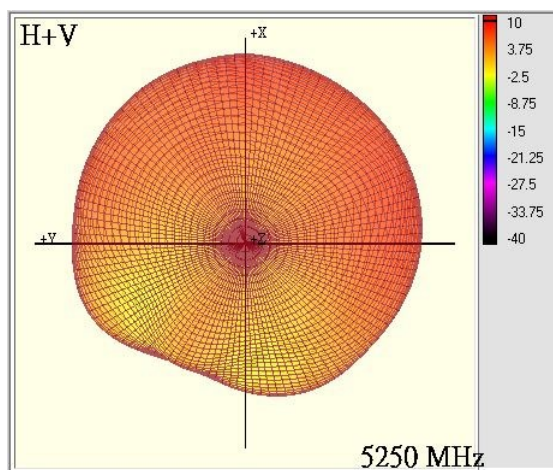
Max Antenna 3D Radiation Pattern 2400 – 2483.5 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
2400-2483.5	1.19



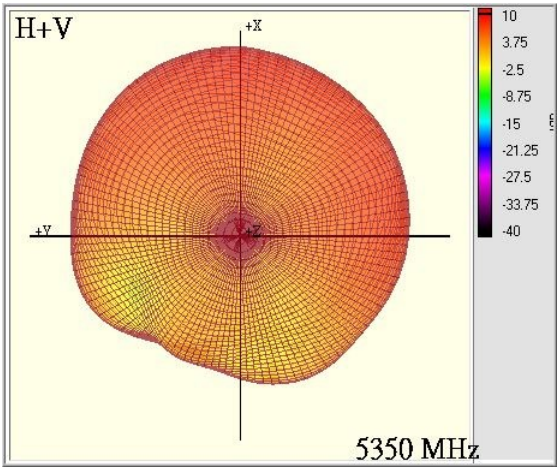
Max Antenna 3D Radiation Pattern 5150-5250 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5150-5250	1.86



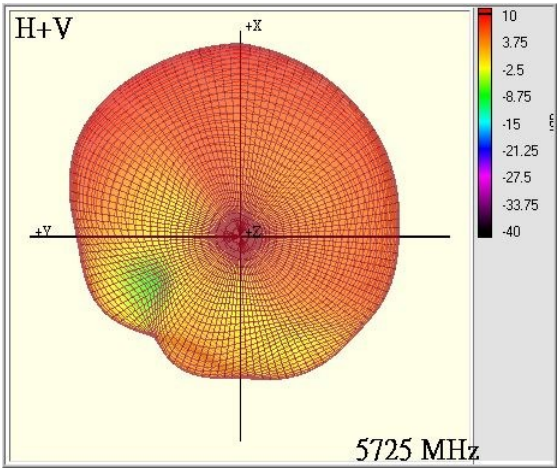
Max Antenna 3D Radiation Pattern 5250-5350 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5250-5350	2.31



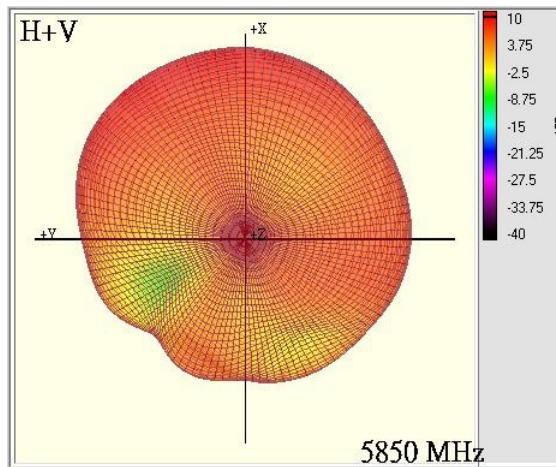
Max Antenna 3D Radiation Pattern 5470-5725 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5470-5725	3.00



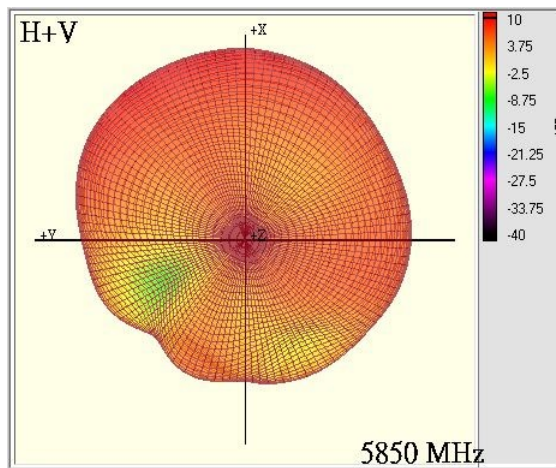
Max Antenna 3D Radiation Pattern 5725-5850 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5725-5850	3.04



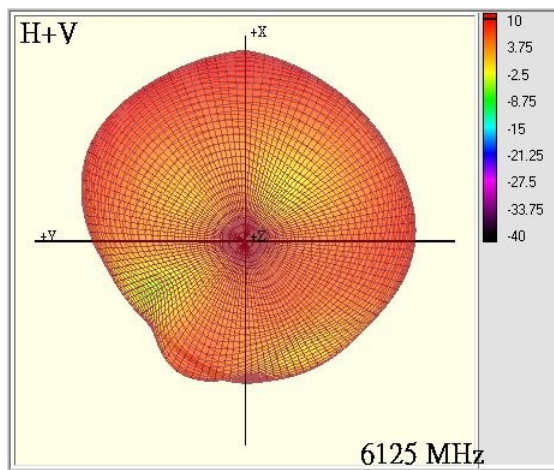
Max Antenna 3D Radiation Pattern 5850-5895 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5850-5895	3.04



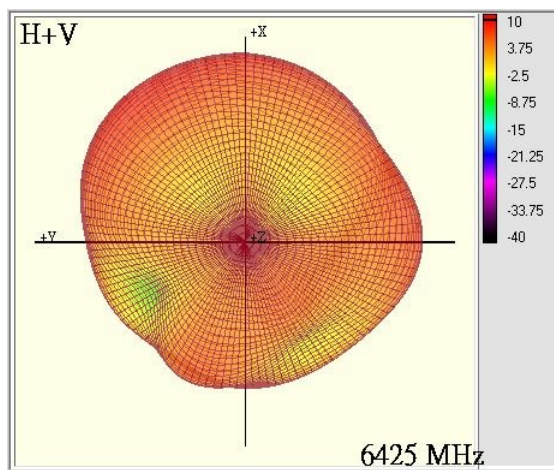
Max Antenna 3D Radiation Pattern 5925-6425 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5925-6425	4.01



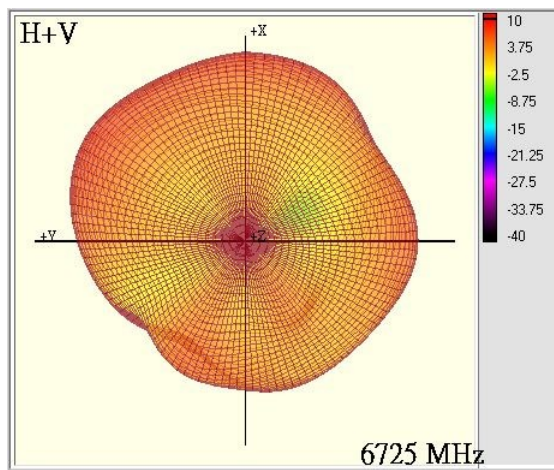
Max Antenna 3D Radiation Pattern 6425-6525 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
6425-6525	2.99



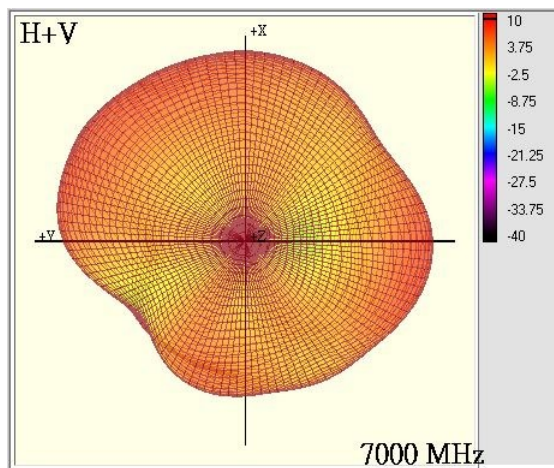
Max Antenna 3D Radiation Pattern 6525-6875 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
6525-6875	2.05



Max Antenna 3D Radiation Pattern 6875-7125 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
6875-7125	1.47



Annex B. Antenna Location

B.1 Antenna Host Platform Location Information

Include a dimensioned photo(s) or dimensioned drawing(s) of Main and Aux antenna placements (measurements are not required for receive-only antenna).

Any antenna that transmits must show dimensions to bottom of laptop. Provide a description of the materials that are used for supporting or surrounding transmit antennas; for example, non-conductive plastics vs. conductive coated plastic or metallic materials.

