

ANTENNA INFORMATION

| | | | |
|-----------------------------------------------------------|--------------------------------------------------|-----|--|
| OEM | Lenovo | | |
| ODM | Wistron | | |
| Platform model name | Lenovo 300w Yoga Gen 4; Lenovo 300w 2-in-1 Gen 5 | | |
| Intel platform (ex: Yes, No or NA) | Yes | | |
| Platform type (ex: regular NB, convertible PC, AIO...etc) | Convertible NB | | |
| SAR minimum separation (mm) | FCC (1g) | 3 | |
| | ISED (1g) | 3 | |
| | ISED (10g) | N/A | |

| | | | | |
|----------------------|-----------------|--------------------------------------------------------------------------------|--|--|
| 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) | Kanni Ke | | |
| | E-mail | Kanni.ke@awan-ant.com | | |
| | Tel/Mobile | +886-2-8913-1939 | | |
| Testing date | 2024/08/05 | | | |

| | | |
|---------------------------------------|------|----------------|
| Antenna Part number | Main | 025.90274.0011 |
| | Aux | 025.90275.0011 |
| 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 | 2.41 | 1.65 | 1.16 | 2.24 | 2.06 | 2.72 | 1.67 | 1.05 | 1.19 | 1.47 |
| Aux | -0.52 | -1.12 | -0.43 | 1.02 | 2.35 | 2.52 | 1.97 | 0.82 | 0.86 | 0.15 |

| Cable Assembly Part Number and Information | | | | | |
|--------------------------------------------|---------------|------------------|--------------------|----------------|------------------------------|
| | Cable PN | Cable length(mm) | Cable diameter(mm) | Impedance(ohm) | Connector type |
| Main | SY081L/50-003 | 351 | 0.81 | 50 | I-pex NGFF: 20572-001R-08 |
| Aux | SY081L/50-004 | 502 | 0.81 | 50 | I-pex NGFF: 20572-001R-08 |

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

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1. Intel Reference Gain and Type

| Antenna Peak gain w/ cable loss (dBi) | | | | | | | | | | | |
|---------------------------------------|-------------------------|---------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|-------------------------|
| Band/Frequency | | 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 |
| Design | EU/UK | 3.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| PIFA | For WiFi 6E and earlier | 3.24 | 3.64 | 3.73 | 4.77 | 4.97 | 4.72 | 4.83 | 4.30 | 5.37 | 5.59 |
| | From WiFi 7 | 2.95 | 5.11 | 4.55 | 5.15 | 5.13 | 4.45 | 5.02 | 5.02 | 4.96 | 4.96 |
| Dipole | For WiFi 6E and earlier | 2.89 | 2.92 | 3.19 | 4.41 | 4.22 | 4.22 | 4.83 | 4.30 | 4.49 | 5.34 |
| | From WiFi 7 | 2.95 | 4.03 | 4.11 | 5.15 | 5.13 | 4.45 | 5.02 | 4.71 | 4.49 | 4.96 |
| Monopole | From WiFi 7 | 2.83 | 4.57 | 4.44 | 4.95 | 4.95 | 4.43 | 4.87 | 4.91 | 4.91 | 4.79 |

3D Peak Antenna gain should be equal or greater than -2 dBi

If a host integrator plans to use a lower gain antenna of the same type, additional CBP(FCC)/EDT(EU) testing need to be performed while the module is installed in the host.

2. Document Revision History

| Revision # | Revision Details | Issued Date |
|------------|-------------------------|-------------|
| Rev. 00 | First Issue | 2024.08.13 |
| Rev. 01 | Correct model name typo | 2024.09.24 |

3. Test & System Description

3.1 Measurement Method and System

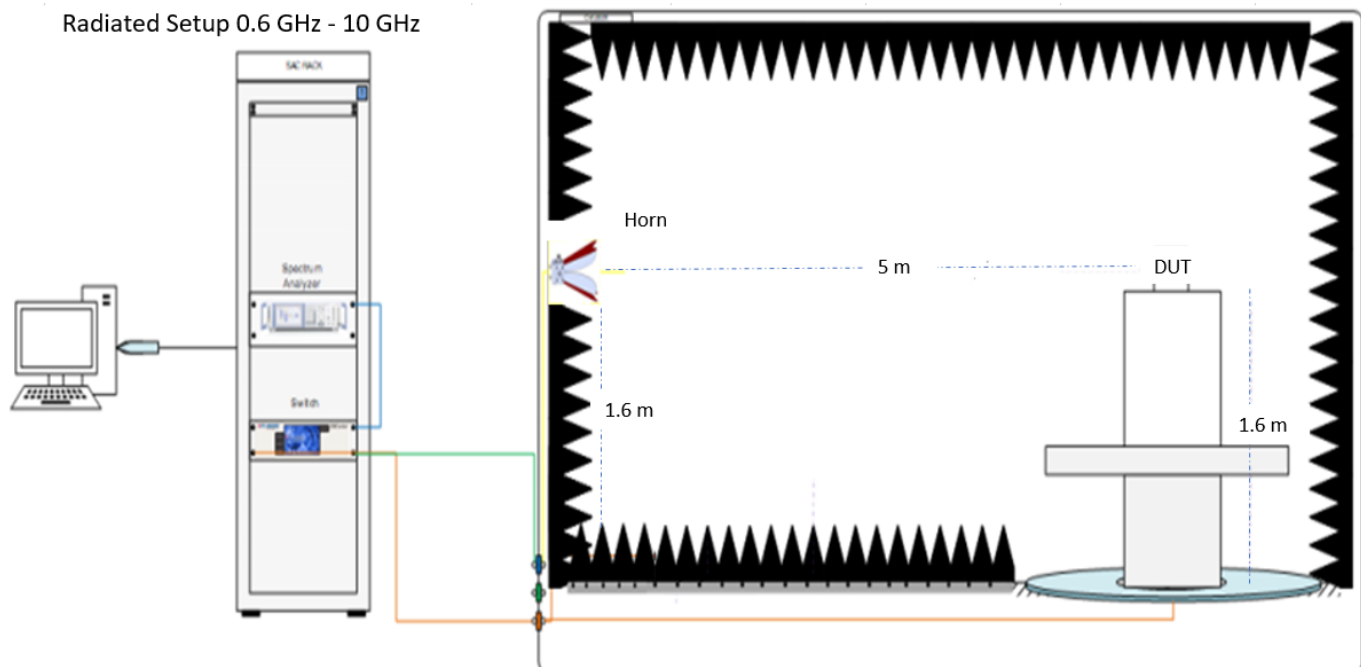
The gain measurement shall follow by following conditions:

- 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

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 |