

ANTENNA INFORMATION

OEM	Lenovo	
ODM	Wistron	
Platform model name	ThinkPad USB4 Smart Dock; LDC-U4	
Intel platform (ex: Yes, No or NA)	N/A	
Platform type (ex: regular NB, convertible PC, AIO...etc)	Dock (contains IoT module)	
SAR minimum separation (mm)	FCC (1g)	N/A
	ISED (1g)	N/A
	ISED (10g)	N/A

Antenna manufacturer	Company name	SPEEDWIRE
	Address	No. 138, Hi-tech District East-river, Huizhou, Guangdong, China
Test location	Company name	SPEEDWIRE
	Address	No. 138, Hi-tech District East-river, Huizhou, Guangdong, China
Test Personnel	Name(Full name)	Jason1_fang
	E-mail	Jason1_fang @speed-hz.com
	Tel/Mobile	+886-3-3253361 ext 227
Testing date	2024/12/16	

Antenna Part number	Main	025.902K5.0001
	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					
Main	1.98	2.31	2.63	2.51	2.39					
Aux	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	KB113/50-130	50	1.13	50	C87P115 or equivalent
	N/A	N/A	N/A	N/A	N/A

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

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1. Document Revision History

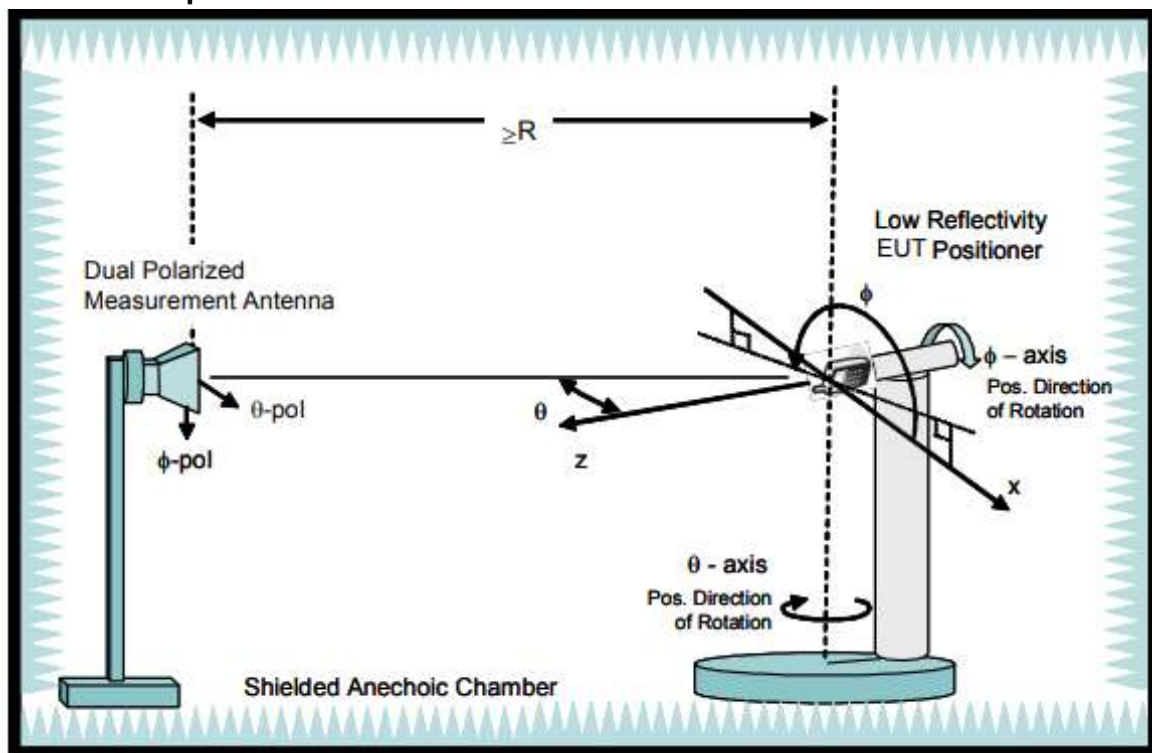
Revision #	Revision Details	Issued Date
Rev. 00	First Issue	2024/12/24

2. Test & System Description

3.1 Measurement Method and System

The testing of antenna gain should be made at a CTIA qualified lab with an RF anechoic chamber with at least 3-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.

3.2 Test setup



3.3 Equipment list

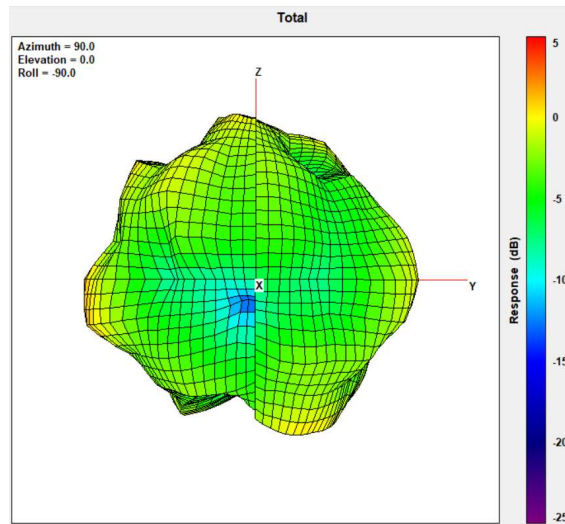
Device	Type/Model	Serial #	Manufacturer	Cal. Date	Cal. Due Date
Anechoic Chamber	AMS8500	-	ETS-Lindgren	22-Jun-23	10-Jul-25
Turn Table	2117-7200	SN00231447	ETS-Lindgren	22-Jun-23	10-Jul-25
Switch & Positioning systems	EMCenter	SN00242606	ETS-Lindgren	22-Jun-23	10-Jul-25
Measurement SW	EMQuest V1.15 build 27347	SN1802	ETS-Lindgren	22-Jun-23	10-Jul-25
Horn antenna	3164-10	SN00246202	ETS-Lindgren	22-Jun-23	10-Jul-25
Vector Network Analyzer	E5071C	PN5188-4462	Keysight	30-May-23	30-Nov-25
Cable 7.5m 400MHz to 18GHz(H-pol)	SS402	00100A1F5A1XXS	WOKEN	22-Jun-23	10-Nov-25
Cable 7.5m 400MHz to 18GHz(V-pol)	SS402	00100A1F5A1XXS	WOKEN	22-Jun-23	10-Nov-25
Cable 14m 400MHz to 18GHz	SS402	00100A1F5A1XXS	WOKEN	22-Jun-23	10-Nov-25
Temp & Humidity Logger	830	SN84972	PROVA	16-Jul-23	10-Jul-25

3. Radiation characteristics of antenna loaded in Host Platform

Main Antenna

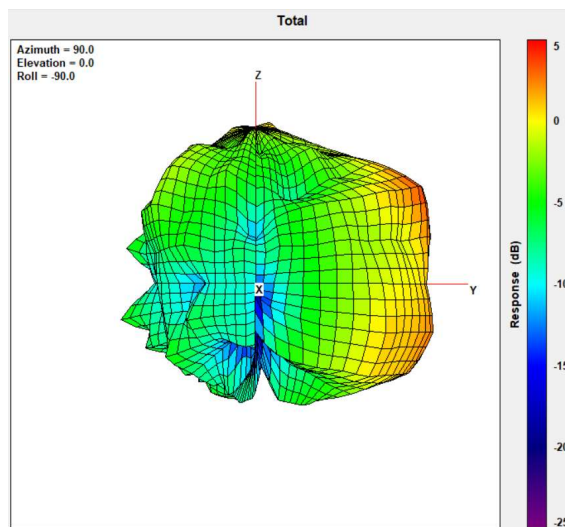
Max Antenna 3D Radiation Pattern 2400 – 2483.5 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
2400-2483.5	1.98



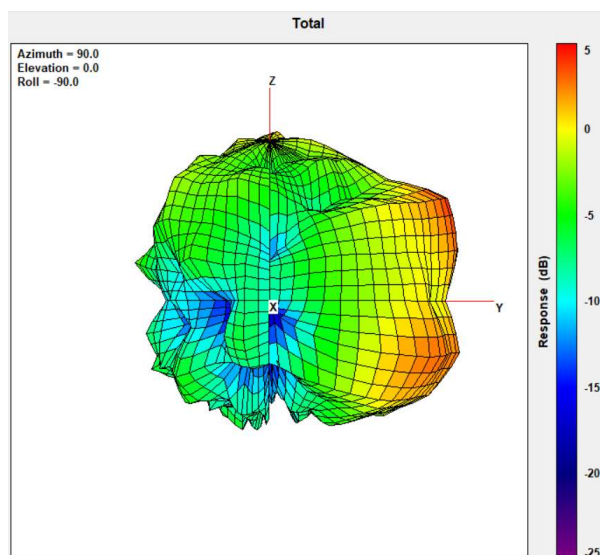
Max Antenna 3D Radiation Pattern 5150-5250 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5150-5250	2.31



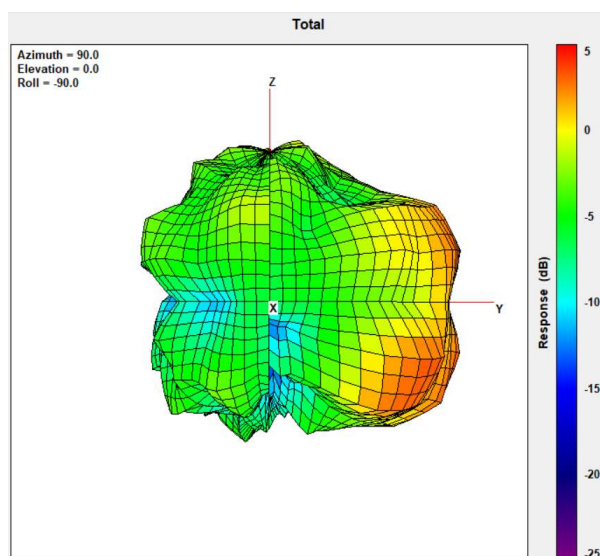
Max Antenna 3D Radiation Pattern 5250-5350 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5250-5350	2.63



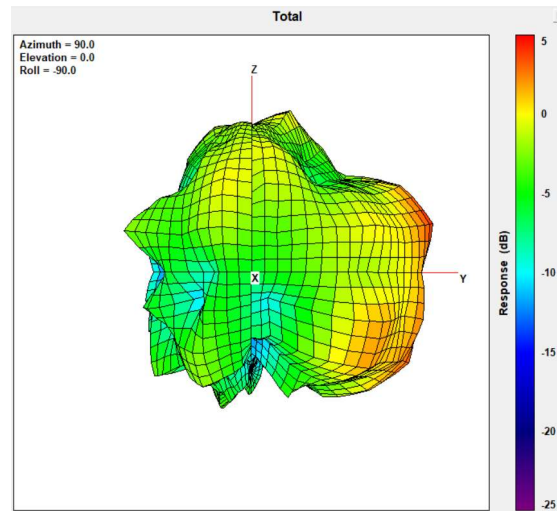
Max Antenna 3D Radiation Pattern 5470-5725 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5470-5725	2.51



Max Antenna 3D Radiation Pattern 5725-5850 MHz

Frequency (MHz)	Peak Gain w/ Cable Loss (dBi)
5725-5850	2.39



Annex A. Photographs

A.1 Setup Photo

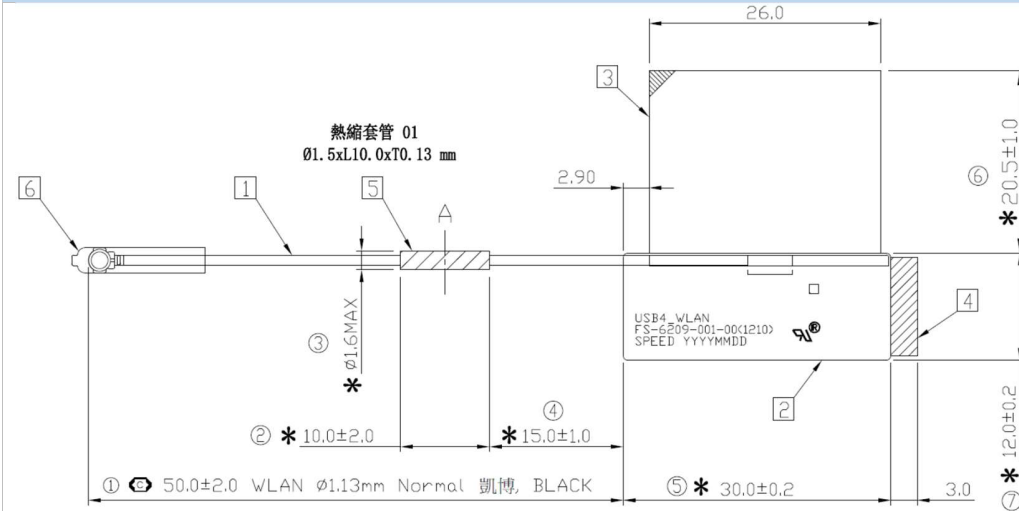
Test Conditions
NB under test placed on a non-conductive structure at sufficient height to be in the 'quiet zone' of the chamber
The NB under test must be fully populated with a power, motherboard, hard drive, disk drives, etc... The purpose is to characterize the antennas on a fully populated customer deliverable unit.
NB's panel should be parallel with XY-plane and face to Y-axle, see diagram below.



A.2 Test sample

Main Antenna

Antenna Drawing

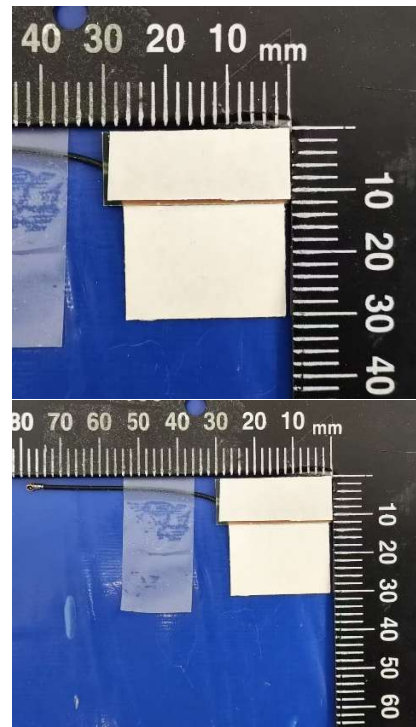


Antenna Photo

Front



Back



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.

