TEST REPORT

EUT Description	**Convertible PC**
Brand Name	**Lenovo**
Model Name	**ThinkBook 14 2-in-1 G4 IML**
FCC ID	**PD9AX203NG**
ISED ID	**1000M-AX203NG**
Date of Test Start/End	**2024-02-19 / 2024-02-20**
Features	**IEEE 802.11a/b/g/n/ac/ax**

Applicant	**Intel Corporation SAS**
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Test Report identification	**231213-02.TR01**
Revision Control	**Rev. 00** **This test report replaces any previous versions of this test report** (see Section 8)

The test results relate only to the samples tested.

Reviewed by

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1. Standards, reference documents and applicable test methods

a. KDB 388624 D02 Pre-Approval Guidance List v18, PRE-APPROVAL GUIDANCE LIST

b. FCC Presentations TCB Workshop November 2019, RF exposure procedures.

2. General conditions, competences and guarantees

- ✓ Intel WRF Lab only provides testing services and is committed to providing reliable, unbiased test results and interpretations.
- ✓ Intel WRF Lab is liable to the client for the maintenance of the confidentiality of all information related to the item under test and the results of the test.
- ✓ Intel WRF Lab has developed calibration and proficiency programs for its measurement equipment to ensure correlated and reliable results to its customers.
- ✓ This report is only referred to the item that has undergone the test.
- ✓ This report does not imply an approval of the product by the Certification Bodies or competent Authorities.

3. Environmental Conditions

✓ At the site where the measurements were performed the following limits were not exceeded during the tests:

Temperature	21.9ºC ± 2ºC
Humidity	43.1% ± 5%

4. Test Sample

Sample	ID #	Description	Model	Serial #	Note
#1	231213-01.S03	Convertible PC	ThinkBook 14 2-in-1 G4 IML	481.0UR01.0008	AX203NGW module swapped from sample 231213-02.S01

5. EUT Features

The herein information is provided by the customer.
Intel WRF Lab declines any responsibility for the accuracy of the stated customer provided information, especially if it has any impact on the correctness of test results presented in this report.

Brand Name	Lenovo
Model Name	ThinkBook 14 2-in-1 G4 IML
Prototype / Production	Pre-Production
Host Identification	Convertible PC

6. Remarks and comments

1. The test report is validation of the G sensor functionality

7. Test Results summary

7.1. WLAN Tx Power Table Summary

Device Mode	Lid Angle range	2.4GHz - CH6 - 802.11b - 1Mbps				5GHz - CH120 - 802.11a - 6Mbps			
		Target Power (dBm)		Measured Power (dBm)		Target Power (dBm)		Measured Power (dBm)	
		Antenna AUX(1)	Antenna MAIN(2)	Antenna AUX(1)	Antenna MAIN(2)	Antenna AUX(1)	Antenna MAIN(2)	Antenna AUX(1)	Antenna MAIN(2)
Lid close	**0°**	15.0	15.0	14.7	14.8	13.5	12.0	12.3	11.9
Notebook	**0° < - ≤ 200°**	15.0	15.0	14.7	14.8	13.5	12.0	12.3	11.9
Tablet	**200° ≤ - ≤ 360°**	15.0	15.0	14.5	14.8	11.0	9.0	10.1	8.9

8. Document Revision History

Revision #	Modified by	Revision Details
Rev.00	Cheiel I	First Issue

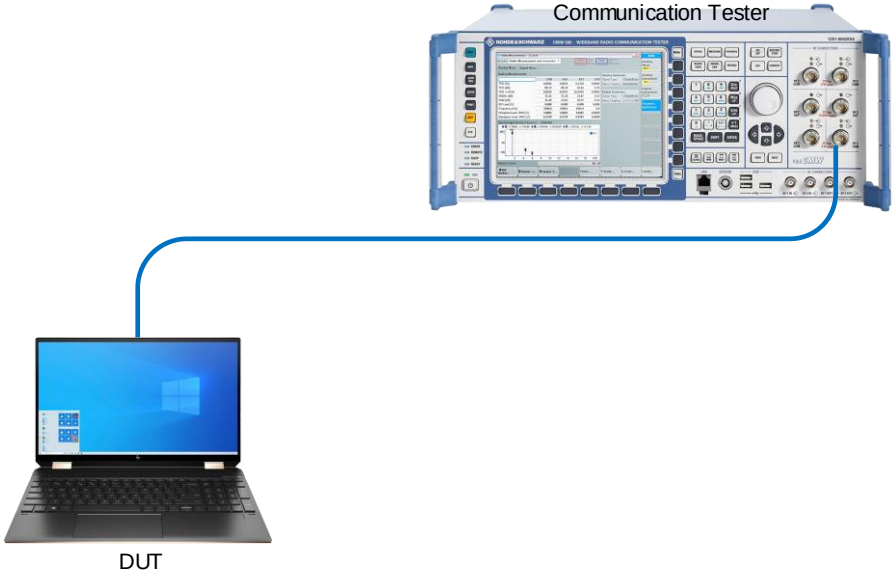
Annex A. Test & System description

A.1 Test setup

The conducted power measurement test setup is described in the following and illustrated in Figure 1.

- The DUT is convertible PC from *Lenovo* model *ThinkBook 14 2-in-1 G4 IML.* An *AX203NGW* connectivity module is installed inside
- A control PC is used to configure the call box as an access point to manage the uplink and downlink data traffic.
- Uplink signal power is measured with the Call Box.
- Path loss in the power measurement setup from the wireless module antenna port to the Call Box.

Figure.1 – Power measurement test setup.



A.2 Procedure

The following additional guidance applies only to convertible laptops whose screen rotates around one axis, from 0 degrees to 360 degrees, in a clamshell style, i.e., from closed mode to open mode, to “tent” mode, and finally, to tablet mode. This process must be followed to determine the lid angle where a power reduction occurs, by taking power measurements at each step, as indicated in the step listed here below:

1. From the lid in closed mode (0 degrees), open the screen in 10-degree steps until laptop mode is obtained
2. Lower the screen by 5 degrees increments to verify that the “closed mode” is triggered
3. From the position of the previous step, open the screen in 1-degree increments until laptop mode is triggered again
4. Continue opening the screen in 1-degree increments until at least 5 degrees past where “laptop mode” was obtained, then continue opening the screen in 10-degree steps until the device switches to tablet mode
5. Reverse the previous procedure to go from tablet mode back down to closed mode

A.3 Test Equipment List

Equipment and accessories used for the conducted power measurement test setup are listed below. The Test Platform (DUT), test setup and associated equipment are shown in A.1.3.

ID#	Device	Type/Model	Serial #	Manufacturer	Cal. Date	Cal. Due Date
125-000	Communication Tester	CMW500	129337	Rohde & Schwartz	2023-04-20	2025-04-20
022-003 022-004	RF path (RF cable + Adapters)	-	-	-	RF path loss was verified before usage	

A.4 Measurement Uncertainty Evaluation

The system uncertainty evaluation is shown in the table below with a coverage factor of k = 2 to indicate a 95% level of confidence:

Measurement type	Uncertainty	Unit
Power level	±1	dB

Annex B. Test Results

B.1 Trigger lid angle detection and power verification 2.4GHz

B.1.1 The lid is rotating from 0° to 360°

Mode	Angle (degrees)	Measured Power 2.4GHz - Ch6 (dBm)	
		AUX (1)	MAIN (2)
Lid close	0	14.7	14.8
Notebook	10	14.7	14.8
	20	14.7	14.8
	30	14.7	14.8
	40	14.7	14.8
	50	14.7	14.8
	60	14.7	14.8
	70	14.7	14.8
	80	14.7	14.8
	90	14.7	14.8
	100	14.7	14.8
	110	14.7	14.8
	120	14.7	14.8
	130	14.7	14.8
	140	14.7	14.8
	150	14.7	14.8
	160	14.7	14.8
	170	14.7	14.8
	180	14.7	14.8
	190	14.7	14.8
	200	14.7	14.8
Tablet	210	14.5	14.8
	205	14.5	14.8
Notebook	200	14.7	14.8

Mode	Angle (degrees)	Measured Power 2.4GHz - Ch6 (dBm)	
		AUX (1)	MAIN (2)
Notebook	201	14.7	14.8
	202	14.7	14.8
	203	14.7	14.8
	204	14.7	14.8
Tablet	205	14.5	14.8
	206	14.5	14.8
	207	14.5	14.8
	208	14.5	14.8
	209	14.5	14.8
	210	14.5	14.8
	220	14.5	14.8
	230	14.5	14.8
	240	14.5	14.8
	250	14.5	14.8
	260	14.5	14.8
	270	14.5	14.8
	280	14.5	14.8
	290	14.5	14.8
	300	14.5	14.8
	310	14.5	14.8
	320	14.5	14.8
	330	14.5	14.8
	340	14.5	14.8
	350	14.5	14.8
	360	14.5	14.8

B.1.2 The lid is rotating from 360° to 0°

Mode	Angle (degrees)	Measured Power 2.4GHz - Ch6 (dBm)	
		AUX (1)	MAIN (2)
Tablet	360	14.5	14.8
	350	14.5	14.8
	340	14.5	14.8
	330	14.5	14.8
	320	14.5	14.8
	310	14.5	14.8
	300	14.5	14.8
	290	14.5	14.8
	280	14.5	14.8
	270	14.5	14.8
	260	14.5	14.8
	250	14.5	14.8
	240	14.5	14.8
	230	14.5	14.8
	220	14.5	14.8
	210	14.5	14.8
	200	14.5	14.8
Notebook	190	14.7	14.8
	195	14.7	14.8
Tablet	200	14.5	14.8
	199	14.5	14.8
	198	14.5	14.8
	197	14.5	14.8
	196	14.5	14.8
	195	14.5	14.8

Mode	Angle (degrees)	Measured Power 2.4GHz - Ch6 (dBm)	
		AUX (1)	MAIN (2)
Tablet	195	14.5	14.8
Notebook	194	14.7	14.8
	193	14.7	14.8
	192	14.7	14.8
	191	14.7	14.8
	190	14.7	14.8
	180	14.7	14.8
	170	14.7	14.8
	160	14.7	14.8
	150	14.7	14.8
	140	14.7	14.8
	130	14.7	14.8
	120	14.7	14.8
	110	14.7	14.8
	100	14.7	14.8
	90	14.7	14.8
	80	14.7	14.8
	70	14.7	14.8
	60	14.7	14.8
	50	14.7	14.8
	40	14.7	14.8
	30	14.7	14.8
	20	14.7	14.8
	10	14.7	14.8
Lid close	0	14.7	14.8

B.2 Trigger lid angle detection and power verification 5GHz

B.2.1 The lid is rotating from 0° to 360°

Mode	Angle (degrees)	Measured Power 5.0GHz – Ch120 (dBm)	
		AUX (1)	MAIN (2)
Lid close	0	12.3	11.9
Notebook	10	12.3	11.9
	20	12.3	11.9
	30	12.3	11.9
	40	12.3	11.9
	50	12.3	11.9
	60	12.3	11.9
	70	12.3	11.9
	80	12.3	11.9
	90	12.3	11.9
	100	12.3	11.9
	110	12.3	11.9
	120	12.3	11.9
	130	12.3	11.9
	140	12.3	11.9
	150	12.3	11.9
	160	12.3	11.9
	170	12.3	11.9
	180	12.3	11.9
	190	12.3	11.9
	200	12.3	11.9
Tablet	210	10.1	8.9
	205	10.1	8.9
Notebook	200	12.3	11.9

Mode	Angle (degrees)	Measured Power 5.0GHz – Ch120 (dBm)	
		AUX (1)	MAIN (2)
Notebook	201	12.3	11.9
	202	12.3	11.9
	203	12.3	11.9
	204	12.3	11.9
Tablet	205	10.1	8.9
	206	10.1	8.9
	207	10.1	8.9
	208	10.1	8.9
	209	10.1	8.9
	210	10.1	8.9
	220	10.1	8.9
	230	10.1	8.9
	240	10.1	8.9
	250	10.1	8.9
	260	10.1	8.9
	270	10.1	8.9
	280	10.1	8.9
	290	10.1	8.9
	300	10.1	8.9
	310	10.1	8.9
	320	10.1	8.9
	330	10.1	8.9
	340	10.1	8.9
	350	10.1	8.9
	360	10.1	8.9

B.2.2 The lid is rotating from 360° to 0°

Mode	Angle (degrees)	Measured Power 5.0GHz – Ch120 (dBm)	
		AUX (1)	MAIN (2)
Tablet	360	10.1	8.9
	350	10.1	8.9
	340	10.1	8.9
	330	10.1	8.9
	320	10.1	8.9
	310	10.1	8.9
	300	10.1	8.9
	290	10.1	8.9
	280	10.1	8.9
	270	10.1	8.9
	260	10.1	8.9
	250	10.1	8.9
	240	10.1	8.9
	230	10.1	8.9
	220	10.1	8.9
	210	10.1	8.9
	200	10.1	8.9
Notebook	190	12.3	11.9
	195	12.3	11.9
Tablet	200	10.1	8.9
	199	10.1	8.9
	198	10.1	8.9
	197	10.1	8.9
	196	10.1	8.9
	195	10.1	8.9

Mode	Angle (degrees)	Measured Power 5.0GHz – Ch120 (dBm)	
		AUX (1)	MAIN (2)
Tablet	195	10.1	8.9
Notebook	194	12.3	11.9
	193	12.3	11.9
	192	12.3	11.9
	191	12.3	11.9
	190	12.3	11.9
	180	12.3	11.9
	170	12.3	11.9
	160	12.3	11.9
	150	12.3	11.9
	140	12.3	11.9
	130	12.3	11.9
	120	12.3	11.9
	110	12.3	11.9
	100	12.3	11.9
	90	12.3	11.9
	80	12.3	11.9
	70	12.3	11.9
	60	12.3	11.9
	50	12.3	11.9
	40	12.3	11.9
	30	12.3	11.9
	20	12.3	11.9
	10	12.3	11.9
Lid close	0	12.3	11.9