



TEST REPORT

EUT Description	Convertible PC
Brand Name	Lenovo
Model Name	Yoga 9 13IRU8
FCC ID	PD9AX211D2
ISED ID	1000M-AX211D2
Date of Test Start/End	2023-03-20 / 2023-03-20
Features	IEEE 802.11a/b/g/n/ac/ax

Applicant	Intel Mobile Communications
Address	100 Center Point Circle, Suite 200 Columbia, South Carolina 29210 USA
Contact Person	Steven Hackett
Telephone/Fax/ Email	steven.c.hackett@intel.com

Test Report identification	230210-01.TR01
Revision Control	Rev. 00 This test report replaces any previous versions of this test report (see Section 7)

The test results relate only to the samples tested.

Reviewed by _____

Intel Corporation S.A.S – WRF Lab
425 rue de Goa – Le Cargo B6 - 06600, Antibes, France
Tel. +33493001400 / Fax +33493001401

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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	22.3°C ± 1°C
Humidity	25.5% ± 2%

4. Test Sample

Sample	ID #	Description	Model	Serial #	Note
#01	230210-01.S06	Convertible PC	Yoga 9 13IRU8	1782155500073	-

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	Yoga 9 13IRU8
Prototype / Production	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	LCD Direction	2.4GHz-CH6				5GHz-CH120			
			Target Power (dBm)		Measured Power (dBm)		Target Power (dBm)		Measured Power (dBm)	
			Antenna AUX	Antenna MAIN	Antenna AUX	Antenna MAIN	Antenna AUX	Antenna MAIN	Antenna AUX	Antenna MAIN
Lid Close	0°	0°	17.5	17.5	16.75	16.55	17.0	16.0	16.53	15.71
Notebook	0° - 359°	0°	17.5	17.5	16.75	16.55	17.0	16.0	16.53	15.71
Tablet	360°	0°	12.5	13.5	11.96	12.90	13.0	13.0	12.45	12.34

8. Document Revision History

Revision #	Date	Modified by	Revision Details
Rev.00	2023-03-20	Axel A.G	First Issue

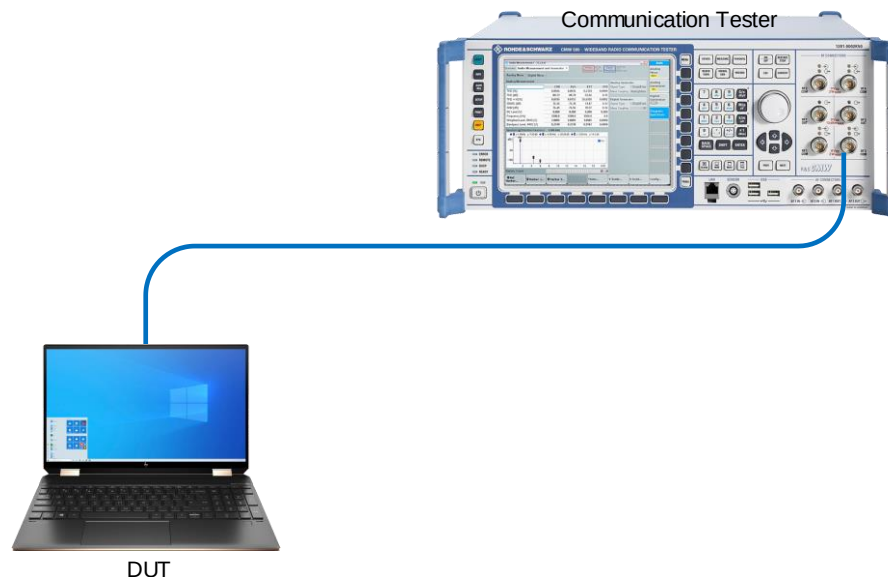
Annex A. Test & System description

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 *Yoga 9 13IRU8*. An *AX211D2W* 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	2021-04-12	2023-04-12
022-003 022-004	RF path (RF cable + Adapters)	-	-	-	RF path loss was verified before usage	

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 (degree)	Measured Power 2.4GHz-Ch6 (dBm)	
		AUX	MAIN
Lid close	0	16.75	16.55
Notebook	10	16.75	16.55
	5	16.75	16.55
Lid close	0	16.75	16.55
Notebook	1	16.75	16.55
	2	16.75	16.55
	3	16.75	16.55
	4	16.75	16.55
	5	16.75	16.55
	10	16.75	16.55
	20	16.75	16.55
	30	16.75	16.55
	40	16.75	16.55
	50	16.75	16.55
	60	16.75	16.55
	70	16.75	16.55
	80	16.75	16.55
	90	16.75	16.55
	100	16.75	16.55
	110	16.75	16.55
	120	16.75	16.55
	130	16.75	16.55
	140	16.75	16.55
	150	16.75	16.55
	160	16.75	16.55
	170	16.75	16.55
	180	16.75	16.55
	190	16.75	16.55
	200	16.75	16.55
	210	16.75	16.55
	220	16.75	16.55

Mode	Angle (degree)	Power measured 2.4GHz-Ch6 (dBm)	
		AUX	MAIN
Notebook	230	16.75	16.55
	240	16.75	16.55
	250	16.75	16.55
	260	16.75	16.55
	270	16.75	16.55
	280	16.75	16.55
	290	16.75	16.55
	300	16.75	16.55
	310	16.75	16.55
	320	16.75	16.55
	330	16.75	16.55
	340	16.75	16.55
Tablet	360	11.96	12.90
Notebook	355	16.75	16.55
	356	16.75	16.55
	357	16.75	16.55
	358	16.75	16.55
	359	16.75	16.55
Tablet	360	11.96	12.90

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

Mode	Angle (degree)	Power measured 2.4GHz-Ch6 (dBm)	
		AUX	MAIN
Tablet	360	11.96	12.90
Notebook	350	16.75	16.55
	355	16.75	16.55
Tablet	360	11.96	12.90
Notebook	359	16.75	16.55
	358	16.75	16.55
	357	16.75	16.55
	356	16.75	16.55
	355	16.75	16.55
	350	16.75	16.55
	340	16.75	16.55
	330	16.75	16.55
	320	16.75	16.55
	310	16.75	16.55
	300	16.75	16.55
	290	16.75	16.55
	280	16.75	16.55
	270	16.75	16.55
	260	16.75	16.55
	250	16.75	16.55
	240	16.75	16.55
	230	16.75	16.55

Mode	Angle (degree)	Power measured 2.4GHz-Ch6 (dBm)	
		AUX	MAIN
Notebook	220	16.75	16.55
	210	16.75	16.55
	200	16.75	16.55
	190	16.75	16.55
	180	16.75	16.55
	170	16.75	16.55
	160	16.75	16.55
	150	16.75	16.55
	140	16.75	16.55
	130	16.75	16.55
	120	16.75	16.55
	110	16.75	16.55
	100	16.75	16.55
	90	16.75	16.55
	80	16.75	16.55
	70	16.75	16.55
	60	16.75	16.55
	50	16.75	16.55
	40	16.75	16.55
	30	16.75	16.55
	20	16.75	16.55
	10	16.75	16.55
Lid close	0	16.75	16.55
Notebook	5	16.75	16.55
	4	16.75	16.55
	3	16.75	16.55
	2	16.75	16.55
	1	16.75	16.55
Lid close	0	16.75	16.55

B.2 Trigger lid angle detection and power verification 5GHz**B.2.1 The lid is rotating from 0° to 360°**

Mode	Angle (degree)	Measured Power 5GHz-Ch120 (dBm)	
		AUX	MAIN
Lid Close	0	16.53	15.71
Notebook	10	16.53	15.71
	5	16.53	15.71
Lid Close	0	16.53	15.71
Notebook	1	16.53	15.71
	2	16.53	15.71
	3	16.53	15.71
	4	16.53	15.71
	5	16.53	15.71
	10	16.53	15.71
	20	16.53	15.71
	30	16.53	15.71
	40	16.53	15.71
	50	16.53	15.71
	60	16.53	15.71
	70	16.53	15.71
	80	16.53	15.71
	90	16.53	15.71
	100	16.53	15.71
	110	16.53	15.71
	120	16.53	15.71
	130	16.53	15.71
	140	16.53	15.71
	150	16.53	15.71
	160	16.53	15.71
	170	16.53	15.71
	180	16.53	15.71
	190	16.53	15.71
	200	16.53	15.71
	210	16.53	15.71
	220	16.53	15.71

Mode	Angle (degree)	Power measured 5GHz-Ch120 (dBm)	
		AUX	MAIN
Notebook	230	16.53	15.71
	240	16.53	15.71
	250	16.53	15.71
	260	16.53	15.71
	270	16.53	15.71
	280	16.53	15.71
	290	16.53	15.71
	300	16.53	15.71
	310	16.53	15.71
	320	16.53	15.71
	330	16.53	15.71
	340	16.53	15.71
Tablet	360	12.45	12.34
Notebook	355	16.53	15.71
	356	16.53	15.71
	357	16.53	15.71
	358	16.53	15.71
Tablet	360	12.45	12.34

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

Mode	Angle (degrees)	Measured Power 5GHz-Ch120 (dBm)	
		AUX	MAIN
Tablet	360	12.45	12.34
Notebook	350	16.53	15.71
	355	16.53	15.71
Tablet	360	12.45	12.34
Notebook	359	16.53	15.71
	358	16.53	15.71
	357	16.53	15.71
	356	16.53	15.71
	355	16.53	15.71
	350	16.53	15.71
	340	16.53	15.71
	330	16.53	15.71
	320	16.53	15.71
	310	16.53	15.71
	300	16.53	15.71
	290	16.53	15.71
	280	16.53	15.71
	270	16.53	15.71
	260	16.53	15.71
	250	16.53	15.71
	240	16.53	15.71
	230	16.53	15.71

Mode	Angle (degrees)	Measured Power 5GHz-Ch120 (dBm)	
		AUX	MAIN
Notebook	220	16.53	15.71
	210	16.53	15.71
	200	16.53	15.71
	190	16.53	15.71
	180	16.53	15.71
	170	16.53	15.71
	160	16.53	15.71
	150	16.53	15.71
	140	16.53	15.71
	130	16.53	15.71
	120	16.53	15.71
	110	16.53	15.71
	100	16.53	15.71
	90	16.53	15.71
	80	16.53	15.71
	70	16.53	15.71
	60	16.53	15.71
	50	16.53	15.71
	40	16.53	15.71
	30	16.53	15.71
	20	16.53	15.71
	10	16.53	15.71
Lid Close	0	16.53	15.71
Notebook	5	16.53	15.71
	4	16.53	15.71
	3	16.53	15.71
	2	16.53	15.71
	1	16.53	15.71
Lid Close	0	16.53	15.71