

TEST REPORT

EUT Description	Convertible PC
Brand Name	HP
Model Name	HSN-I46C
FCC ID	B94HNI46CKLU
ISED ID	21374-FM350GL16
Date of Test Start/End	2023-12-13 / 2023-12-13
Features	WWAN 2G, 3G, 4G, NR IEEE 802.11a/b/g/n/ac/ax

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Test Report identification	231006-01.TR07
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 _____

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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	21.9°C ± 1°C
Humidity	44.4% ± 5%

4. Test Sample

Sample	ID #	Description	Model	Serial #	Note
#1	231006-03.S08	Convertible PC	HSN-I46C	16003770978	-

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	HP
Model Name	HSN-I46C
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. WWAN Tx Power Table Summary

Device Mode	Lid Angle range	LCD Direction	LTE Band 7 – 20MHz – QPSK 1RB-1	
			Target Power (dBm)	Measured Power (dBm)
			Antenna ANT5 (Main)	
Lid Close	0° ≤ - <30°	-	Standby	Standby
Notebook	30° ≤ - <130°	0°	24.0	23.6
Tent	200° ≤ - <340°	180°	14.0	13.4
Stand	200° ≤ - <340°	0°	24.0	23.6
Tablet	130° ≤ - <200° 200° ≤ - <340° 340° ≤ - <360°	0° 90° or 270°	14.0	13.4
Book	30° ≤ - <200°	90°; 270°	14.0	13.4



8. Document Revision History

Revision #	Modified by	Revision Details
Rev.00	Cheiel In	Initial release

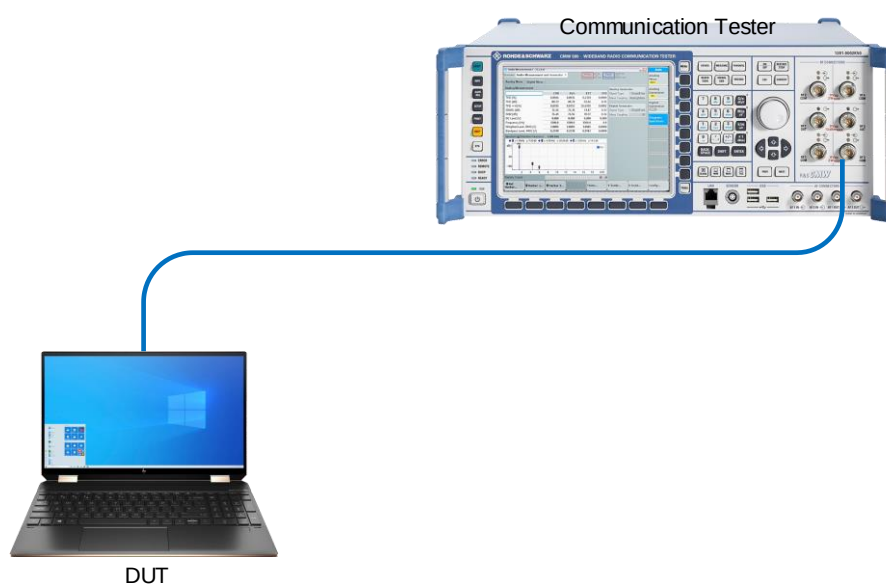
Annex A. Test & System description

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 HP model HSN-I46C. An FM350GL-16 cellular 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.

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 LTE B7

B.1.1 LCD direction 0°

The lid is rotating from 0 to 360. The screen is vertical, LCD direction is 0 degree.

Mode	Angle	Measured Power
	(degree)	LTE Band 7 – 20MHz – QPSK 1RB-1
		ANT5 (Main)
Lid close	0	Standby
	10	Standby
	20	Standby
Notebook	30	23.6
Lid close	25	Standby
	26	Standby
	27	Standby
	28	Standby
Notebook	29	Standby
	30	23.6
	31	23.6
	32	23.6
	33	23.6
	34	23.6
	35	23.6
	40	23.6
	50	23.6
	60	23.6
	70	23.6
	80	23.6
	90	23.6
	100	23.6
	110	23.6
	120	23.6
	130	23.6
Tablet	140	13.4
Notebook	135	23.6
Tablet	136	13.4
	137	13.4
	138	13.4
	139	13.4
	140	13.4
	150	13.4
	160	13.4
	170	13.4
	180	13.4
	190	13.4
Stand	200	13.4
Tablet	210	23.6
Stand	205	13.4
	206	23.6
	207	23.6
	208	23.6
	209	23.6
	210	23.6
	220	23.6
	230	23.6

Mode	Angle	Measured Power
	(degree)	LTE Band 7 – 20MHz – QPSK 1RB-1
		ANT5 (Main)
Stand	240	23.6
	250	23.6
	260	23.6
	270	23.6
	280	23.6
	290	23.6
	300	23.6
	310	23.6
	320	23.6
	330	23.6
	340	23.6
Tablet	350	13.4
Stand	345	23.6
Tablet	346	13.4
	347	13.4
	348	13.4
	349	13.4
	350	13.4
	351	13.4
	360	13.4

The lid is rotating from 360 degrees to 0 degree. The screen is vertical, LCD direction to 0 degree.

Mode	Angle	Measured Power
	(degree)	LTE Band 7 – 20MHz – QPSK 1RB-1
		ANT5 (Main)
Tablet	360	13.4
	350	13.4
	340	13.4
Stand	330	23.6
Tablet	335	13.4
Stand	334	23.6
	333	23.6
	332	23.6
	331	23.6
	330	23.6
	329	23.6
	320	23.6
	310	23.6
	300	23.6
	290	23.6
	280	23.6
	270	23.6
	260	23.6
	250	23.6
	240	23.6
	230	23.6
	220	23.6
	210	23.6
	200	23.6
Tablet	190	13.4
Stand	195	23.6
Tablet	194	13.4
	193	13.4
	192	13.4
	191	13.4
	190	13.4
	180	13.4
	170	13.4
	160	13.4
	150	13.4
	140	13.4
	130	13.4
Notebook	120	23.6
Tablet	125	13.4
Notebook	124	23.6
	123	23.6
	122	23.6
	121	23.6
	120	23.6

Mode	Angle	Measured Power
	(degree)	LTE Band 7 – 20MHz – QPSK 1RB-1
		ANT5 (Main)
Notebook	110	23.6
	100	23.6
	90	23.6
	80	23.6
	70	23.6
	60	23.6
	50	23.6
	40	23.6
	30	23.6
Lid close	20	Standby
Notebook	25	23.6
Lid close	24	Standby
	23	Standby
	22	Standby
	21	Standby
	20	Standby
	10	Standby
	0	Standby

B.1.2 LCD direction 90/270°

The lid is rotating from 0 to 360 degrees. The screen is vertical, LCD direction to 90 degrees.

Mode	Angle	Measured Power
	(degree)	LTE Band 7 – 20MHz – QPSK 1RB-1
		ANT5 (Main)
Lid close	0	Standby
	10	Standby
	20	Standby
Book	30	13.4
Lid close	25	Standby
	26	Standby
	27	Standby
	28	Standby
	29	Standby
Book	30	13.4
	31	13.4
	32	13.4
	33	13.4
	34	13.4
	35	13.4
	40	13.4
	50	13.4
	60	13.4
	70	13.4
	80	13.4
	90	13.4
	100	13.4
	110	13.4
	120	13.4
	130	13.4
	140	13.4
	150	13.4
	160	13.4
	170	13.4
	180	13.4
	190	13.4
	200	13.4
Tablet	210	13.4
Book	205	13.4
Tablet	206	13.4
	207	13.4
	208	13.4
	209	13.4
	210	13.4
	220	13.4
	230	13.4
	240	13.4
	250	13.4
	260	13.4
	270	13.4
	280	13.4
	290	13.4
	300	13.4
	310	13.4
	320	13.4
	330	13.4
	340	13.4
	350	13.4
	360	13.4

The lid is rotating from 360 to 0 degree. The screen is vertical, LCD direction to 90 or 270 degrees.

Mode	Angle (degree)	Measured Power
		LTE Band 7 – 20MHz – QPSK 1RB-1
		ANT5 (Main)
Tablet	360	13.4
	350	13.4
	340	13.4
	330	13.4
	320	13.4
	310	13.4
	300	13.4
	290	13.4
	280	13.4
	270	13.4
	260	13.4
	250	13.4
	240	13.4
	230	13.4
	220	13.4
	210	13.4
	200	13.4
Book	190	13.4
Tablet	195	13.4
Book	194	13.4
	193	13.4
	192	13.4
	191	13.4
	190	13.4
	180	13.4
	170	13.4
	160	13.4
	150	13.4
	140	13.4
	130	13.4
	120	13.4
	110	13.4
	100	13.4
	90	13.4
	80	13.4
	70	13.4
	60	13.4
	50	13.4
	40	13.4
	30	13.4
Lid close	20	Standby
Book	25	13.4
Lid close	24	Standby
	23	Standby
	22	Standby
	21	Standby
	20	Standby
	10	Standby
	0	Standby

B.1.3 LCD direction 180°

The lid is rotating from 360 degrees to 180 degrees. The screen is vertical, LCD direction to 180 degrees.
 Note: The LCD direction switch to 0 degrees for low angle.

Mode	Angle (degree)	Measured Power LTE Band 7 – 20MHz – QPSK 1RB-1 ANT5 (Main)
Tablet	360	13.4
	350	13.4
	340	13.4
Tent	330	13.4
Tablet	335	13.4
Tent	334	13.4
	333	13.4
	332	13.4
	331	13.4
	330	13.4
	320	13.4
	310	13.4
	300	13.4
	290	13.4
	280	13.4
	270	13.4
	260	13.4
	250	13.4
	240	13.4
	230	13.4
	220	13.4
	210	13.4
	200	13.4
Tablet	190	13.4
Tent	195	13.4
Tablet	194	13.4
	193	13.4
	192	13.4
	191	13.4
	190	13.4
	180	13.4

The lid is rotating from 180 degrees to 360 degrees. The screen is vertical, LCD direction to 180 degrees.
 Note: The LCD direction switch to 0 degrees for low angle.

Mode	Angle (degree)	Measured Power LTE Band 7 – 20MHz – QPSK 1RB-1 ANT5 (Main)
Tablet	180	13.4
	190	13.4
Tent	200	13.4
Tablet	195	13.4
Tent	196	13.4
	197	13.4
	198	13.4
	199	13.4
	200	13.4
	210	13.4
	220	13.4
	230	13.4
	240	13.4
	250	13.4
	260	13.4
	270	13.4
	280	13.4
	290	13.4
	300	13.4
	310	13.4
	320	13.4
	330	13.4
Tablet	340	13.4
Tent	335	13.4
	336	13.4
	337	13.4
	338	13.4
	339	13.4
Tablet	340	13.4
	350	13.4
	360	13.4