TEST REPORT

COMPLIANCE TEST REPORT

EUT Description	**Wireless Module Installed in Notebook Computer**
Brand Name	**HP**
Model Name	**TPN-C162**
FCC ID	**PD9AX211D2**
Date of Test Start/End	**2023-04-12 / 2023-04-12**
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**
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Test Report identification	**230214-03.TR06**
Revision Control	**Rev. 01** **This test report replaces any previous versions of this test report** (see Section 1)

The test results relate only to the samples tested.

Reviewed by

Digitally signed by Adel LOUNES
Date: 2023.04.20 06:27:42 +02'00'

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(Test Lead Engineer)

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1. 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.

2. Environmental Conditions

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

Temperature	21.3ºC ± 1.2ºC
Humidity	40.2% ± 2.2%

3. Test Sample

Sample	ID #	Description	Model	Serial #	Note
#1	230214-03.S05	Wireless Module Installed in Notebook Computer	TPN-C162	7455036800049	-

4. 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	Intel® Wireless-AX211	
Model Name	AX211D2W	
Software Version	DRTU-02999.22.180.0	
Driver Version	WLAN 22.180.0.4, BT 22.180.2.0	
Prototype / Production	Production	
Host Identification	TPN-C162	
Supported Radios	802.11b/g/n/ax	2.4GHz (2400.0 – 2483.5 MHz)
	802.11a/n/ac/ax	5.2GHz (5150.0 – 5250.0 MHz) 5.3GHz (5250.0 – 5350.0 MHz) 5.6GHz (5470.0 – 5725.0 MHz) 5.8GHz (5725.0 – 5850.0 MHz) 5.9GHz (5850.0 – 5895.0 MHz)
	802.11ax	6.0GHz (5925.0 – 7125.0 MHz)
	Bluetooth	2.4GHz (2400.0 – 2483.5 MHz)

5. Remarks and comments

1. The test report is a validation of the FCC TAS algorithm

6. Document Revision History

Revision #	Date	Modified by	Revision Details
Rev.00	2023-04-14	Y HADDAD	First Issue
Rev.01	2023-04-20	A.LOUNES	EUT description in front page updated upon customer request

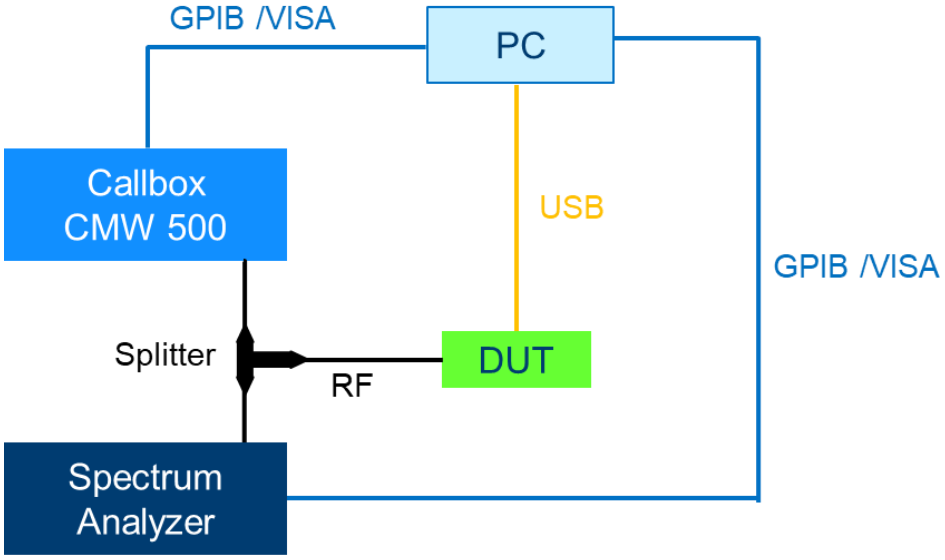
Annex A. Test & System description

A.1 Test Setup

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

- The DUT which AX211D2W WiFi module is installed inside Notebook Computer from HP model TPN-C162.
- 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 spectrum analyzer and recorded by the PC with a maximum time resolution of 0.3333 msec.
- Uplink signal from the module is fed through a 3 dB power splitter, which delivers an equal amount of signal to the spectrum analyzer and the call box. The splitter has high isolation between the spectrum analyzer and the call box.

Figure.1 – Validation using conducted power measurement test setup.



A.2 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
025-005	Communication Tester	CMW500	161493	Rohde & Schwarz	N/A	N/A
271-000	Spectrum Analyzer	FSV40	103307	Rohde & Schwarz	2022-04-25	2024-04-25
455-001	RF Cable	-	-	-	2023-02-23	2024-02-23
455-002	RF Cable	-	-	-	2023-02-23	2024-02-23
455-003	RF Splitter	-	-	-	2023-02-23	2024-02-23

Annex B. Test Results

B.1 SAR Tune-Up Power as per SAR assessment

Chain A		Chain B	
IEEE 802.11g CH6	**IEEE 802.11a CH120**	**IEEE 802.11g CH6**	**IEEE 802.11a CH120**
15.5	12.5	15.5	12.5

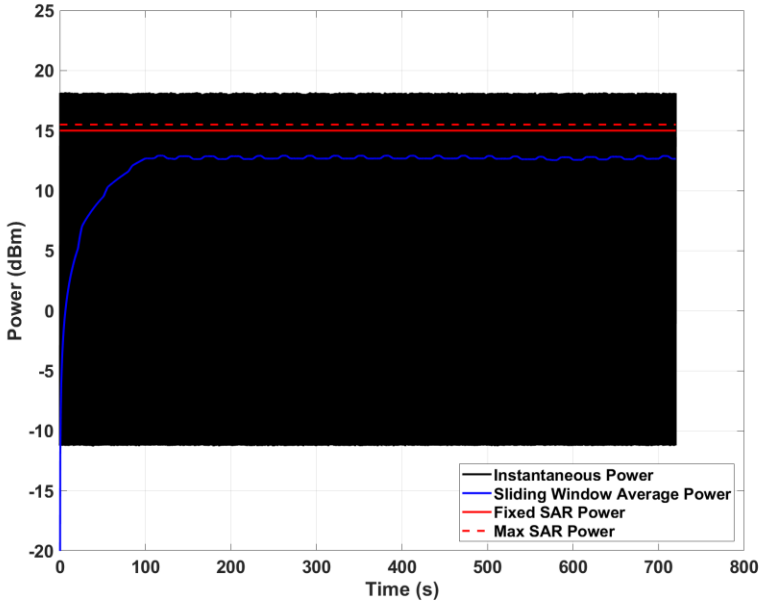
B.2 TAS Validation for 2.4 GHz Band on Channel 6

Table B1 – Test Cases for 2.4 GHz Channel 6

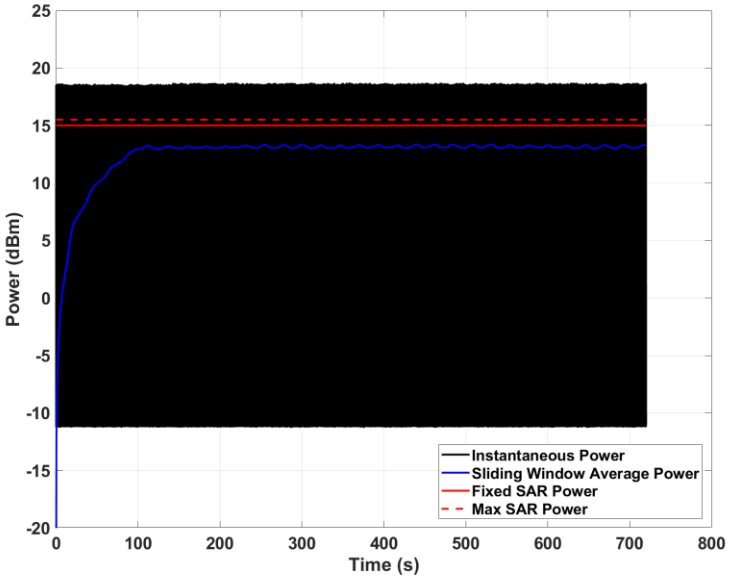
Test Case #	*Channel*	*Chain*	*Channel Bandwidth*	*Measurement Averaging Period*	*Measurement Time Resolution*	*Max Tune-Up Power [dBm]*	*SAR Power in Bios Table [dBm]*
1	6	A	20 MHz	100 sec	0.3333 msec	20.0	15.5
2	6	B	20 MHz	100 sec	0.3333 msec	20.0	15.5

Results of test cases in Table B1 are shown in the following plots.

Case #1: 2.4 GHz– Ch 6 – Chain A – BW 20 MHz – Rate 12 Mbps Averaging Period 100 sec – Tmax 720 sec	
Max Tune Up Power [dBm]	***SAR Power in Bios Table*** [dBm]
20.0	15.5



Case #2: 2.4 GHz– Ch 6 – Chain B – BW 20 MHz – Rate 12 Mbps Average Period 100 sec – Tmax 720 sec	
Max Tune Up Power [dBm]	***SAR Power in Bios Table*** [dBm]
20.0	15.5



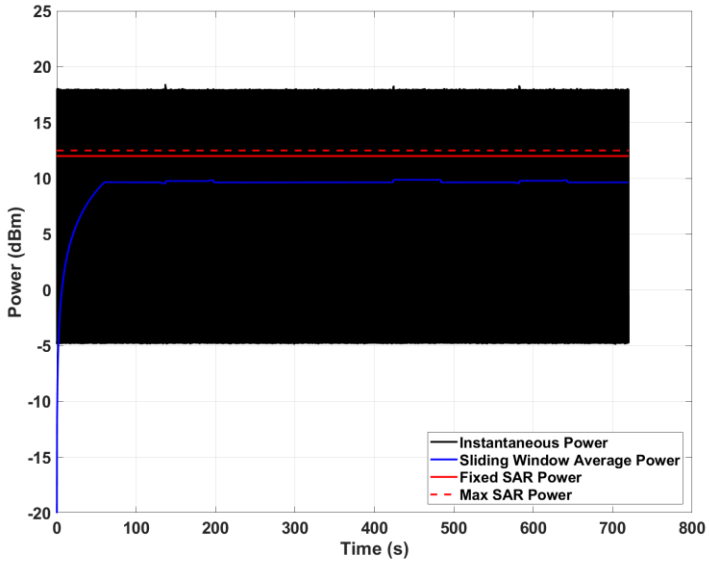
B.3 TAS Validation for 5 GHz Band on Channel 120

Table B2 – Test Cases for 5 GHz Channel 120

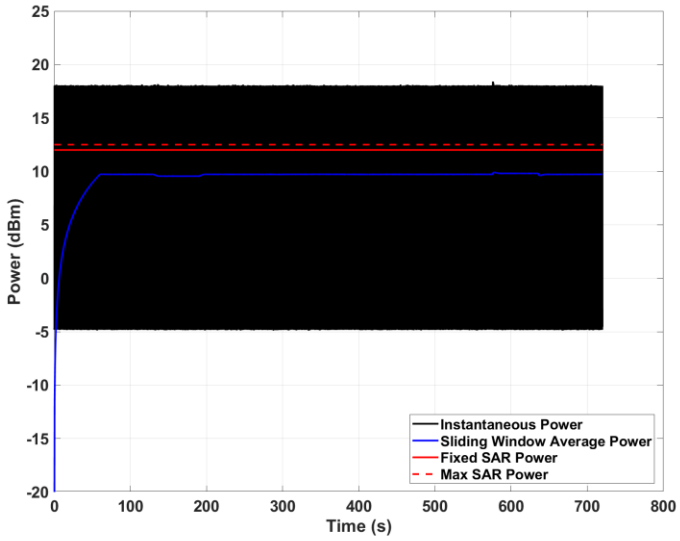
Test Case #	Channel	Chain	Channel Bandwidth	Measurement Averaging Period	Measurement Time Resolution	Max Tune-Up Power [dBm]	SAR Power in Bios Table [dBm]
1	120	A	20 MHz	60 sec	0.3333 msec	20.0	12.5
2	120	B	20 MHz	60 sec	0.3333 msec	20.0	12.5

Results of test cases in Table B2 are shown in the following plots.

Case #1: 5 GHz– Ch 120 – Chain A– BW 20 MHz – Rate 12 Mbps Averaging Period 60 sec – Tmax 720 sec	
Max Tune-Up Power [dBm]	***SAR Power in Bios Table*** [dBm]
20.0	12.5



Case #2: 5 GHz– Ch 120 – Chain B – BW 20 MHz – Rate 12 Mbps Average Period 60 sec – Tmax 720 sec	
Max Tune-Up Power [dBm]	***SAR Power in Bios Table*** [dBm]
20.0	12.5



End of the report

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