

Test Report

FCC TAS COMPLIANCE

Product Name : Notebook PC
Brand Name : ASUS
Model No. : GZ301V
FCC ID : MSQAX211D2

Applicant : ASUSTeK COMPUTER INC.
Address : 1F., No. 15, Lide Rd., Beitou Dist., Taipei City 112, Taiwan

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Revision History

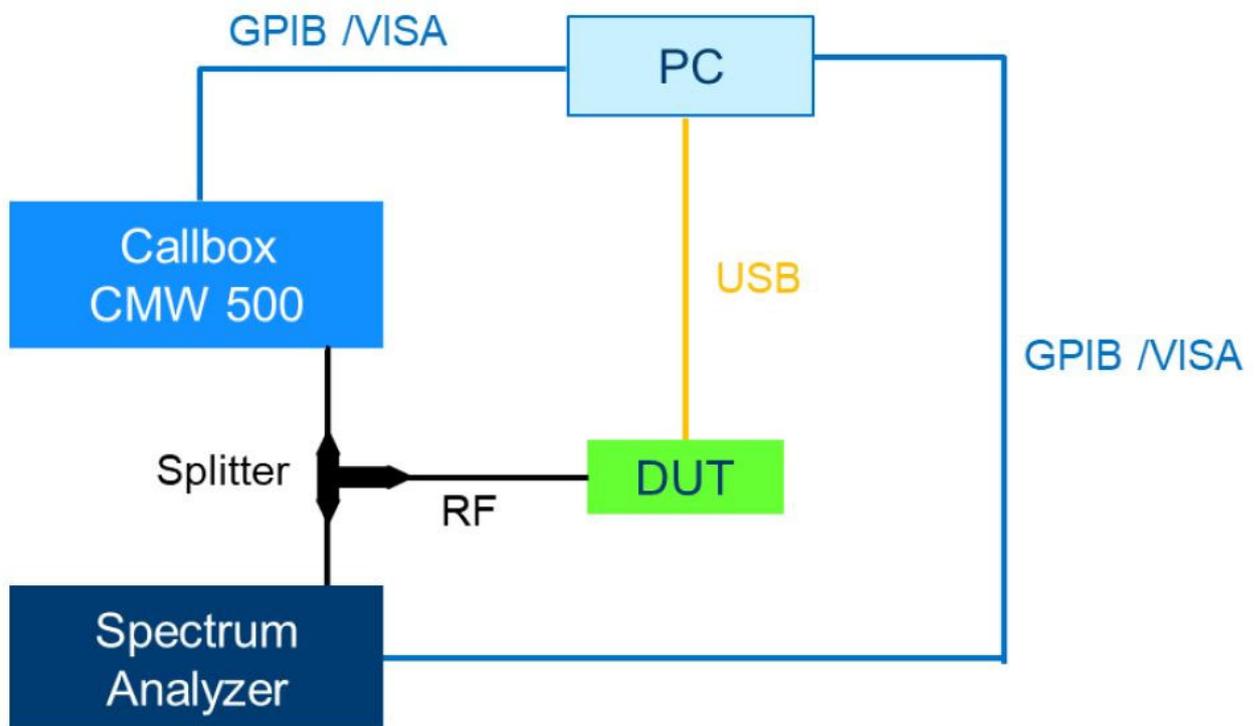
Report No.	Version	Description	Issued Date
22A0311R-SANAOTHV04-1	V1.0	Initial issue of report	2023/03/10

1. Test Setup

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

- The DUT which AX211 WiFi module is installed inside Notebook PC from ASUS model GZ301V.
- 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 record 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.



2. Test Equipment List

Instrument	Manufacturer	Model No.	Serial No.	Last Calibration	Next Calibration
Universal Radio Communication	R&S	CMW500	157304	N/A	N/A
Spectrum Analyzer	FSV30	103464	R&S	2022/04/27	2023/04/26

3. Test Results

3.1. SAR Power in Bios Table as per SAR assessment

Notebook Mode

Chain A		Chain B	
IEEE 802.11g CH6	IEEE 802.11a CH120	IEEE 802.11g CH6	IEEE 802.11a CH120
20	20	20	20

Tablet Mode

Chain A		Chain B	
IEEE 802.11g CH6	IEEE 802.11a CH120	IEEE 802.11g CH6	IEEE 802.11a CH120
16	8.5	14.5	7.5

3.2. TAS Validation for 2.4 GHz Band on Channel 6 (Notebook Mode)

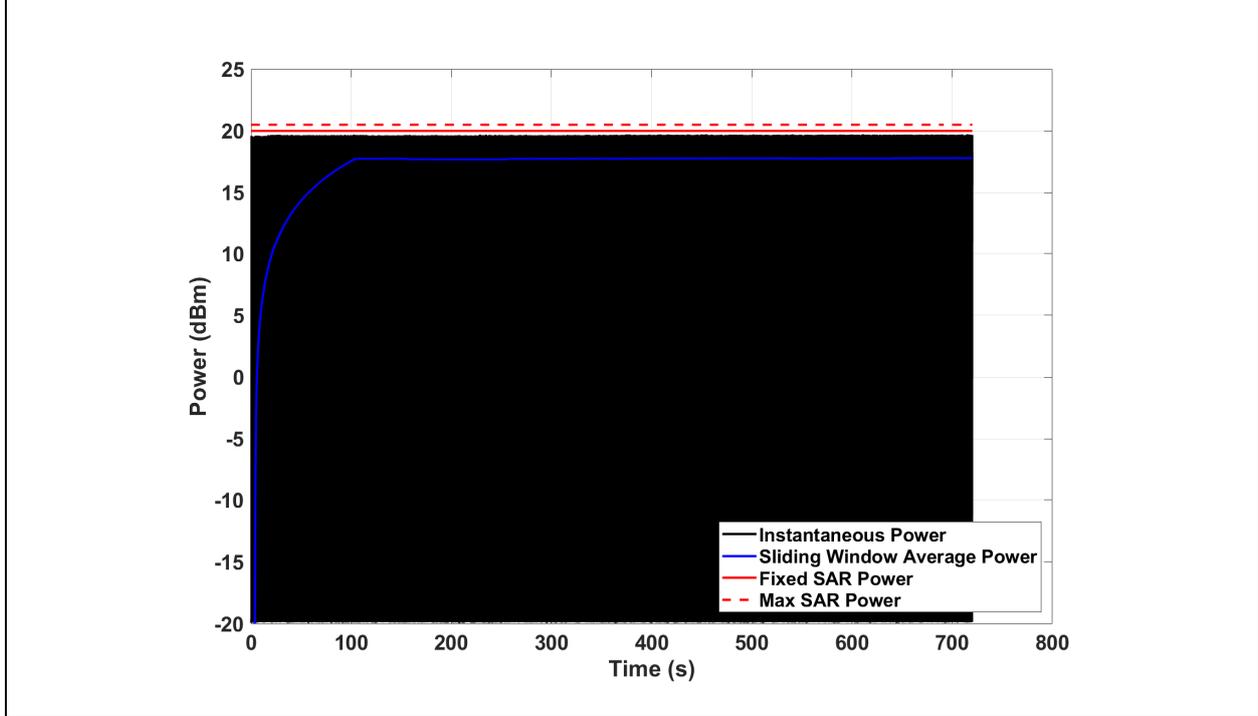
Table 1 – Test Cases for 2.4 GHz Channel 6

Test Case #	Channel	Chain	Channel Bandwidth	Measurement Averaging Period	Measurement Time Resolution	Max Power Tune Up [dBm]	SAR Power in Bios Table [dBm]
1	6	A	20 MHz	100 sec	0.3333 msec	21.0	20
2		B	20 MHz	100 sec	0.3333 msec	21.0	20

Results of test cases in Table 1 are shown in the following plots.

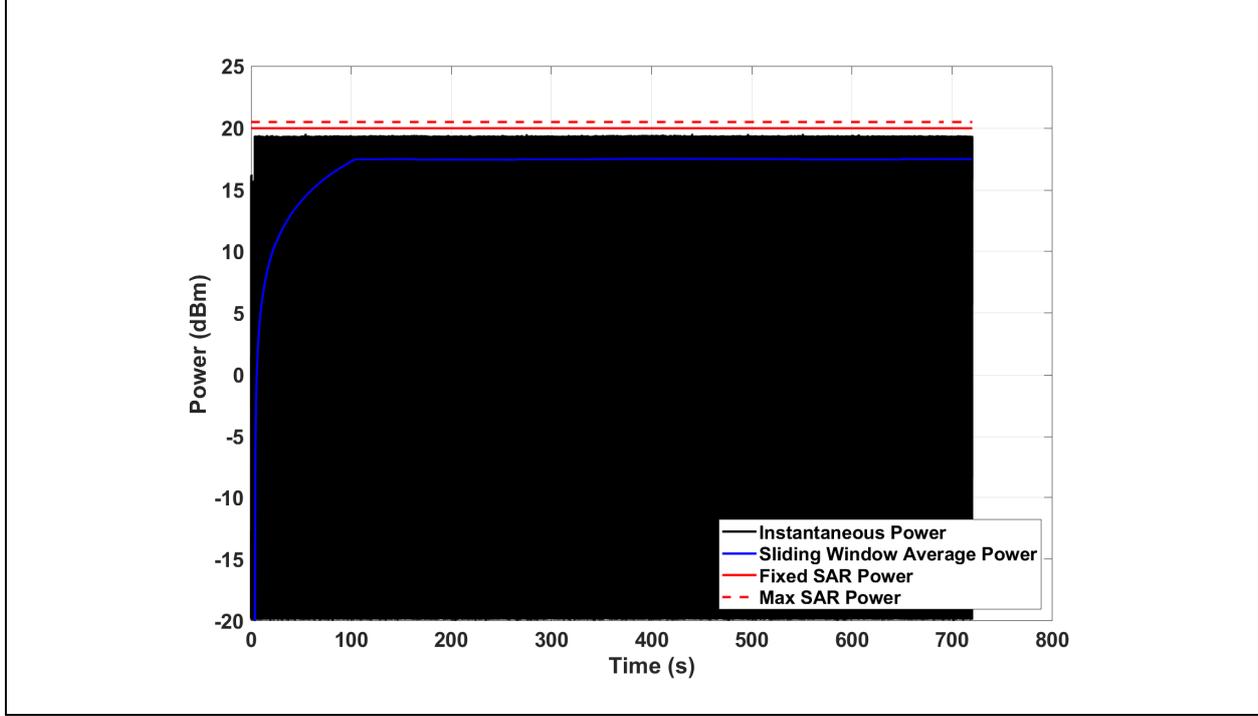
Case #1: 2.4 GHz- Ch 6 – Chain A – BW 20 MHz – Rate 12 Mbps – Averaging Period 100 sec – Tmax 720 sec

Max Power Tune Up [dBm]	SAR Power in Bios Table [dBm]
21.0	20



Case #2: 2.4 GHz- Ch 6 – Chain B – BW 20 MHz – Rate 12 Mbps – Average Period 100 sec – Tmax 720 sec

Max Power Tune Up [dBm]	SAR Power in Bios Table [dBm]
21.0	20



3.3. TAS Validation for 2.4 GHz Band on Channel 6 (Tablet Mode)

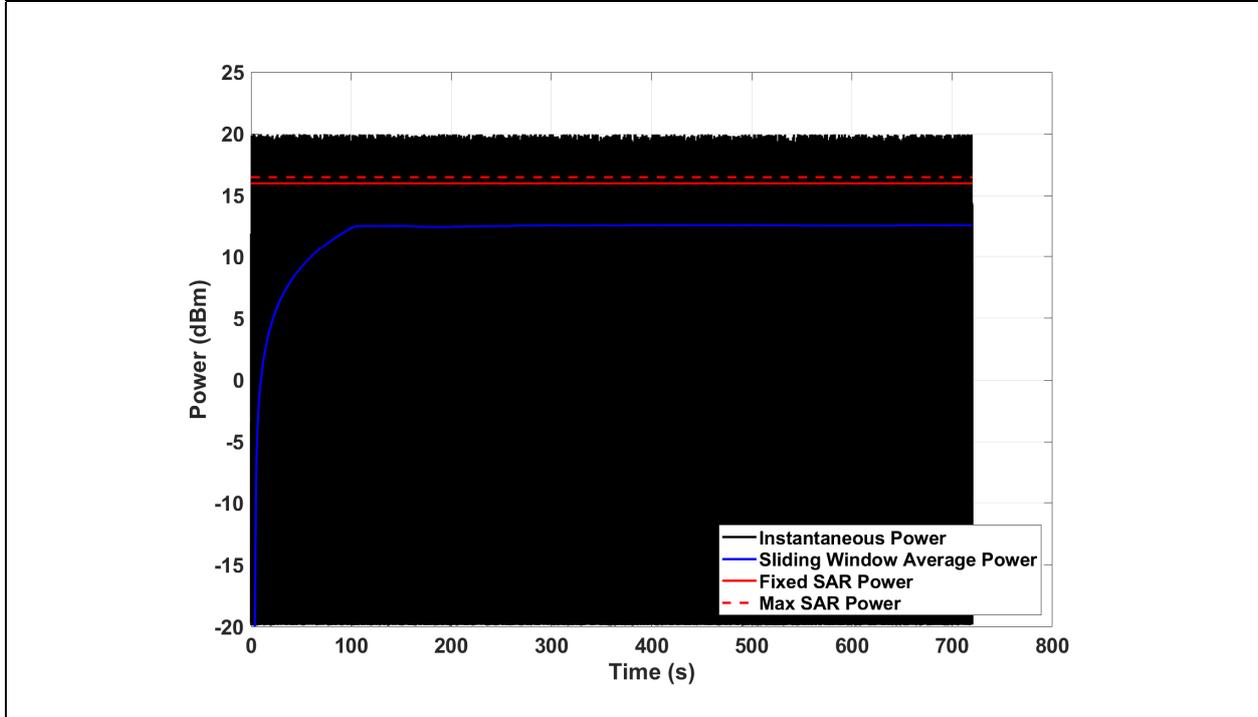
Table 2 – Test Cases for 2.4 GHz Channel 6

Test Case #	Channel	Chain	Channel Bandwidth	Measurement Averaging Period	Measurement Time Resolution	Max Power Tune Up [dBm]	SAR Power in Bios Table [dBm]
1	6	A	20 MHz	100 sec	0.3333 msec	21.0	16
2		B	20 MHz	100 sec	0.3333 msec	21.0	14.5

Results of test cases in Table 2 are shown in the following plots.

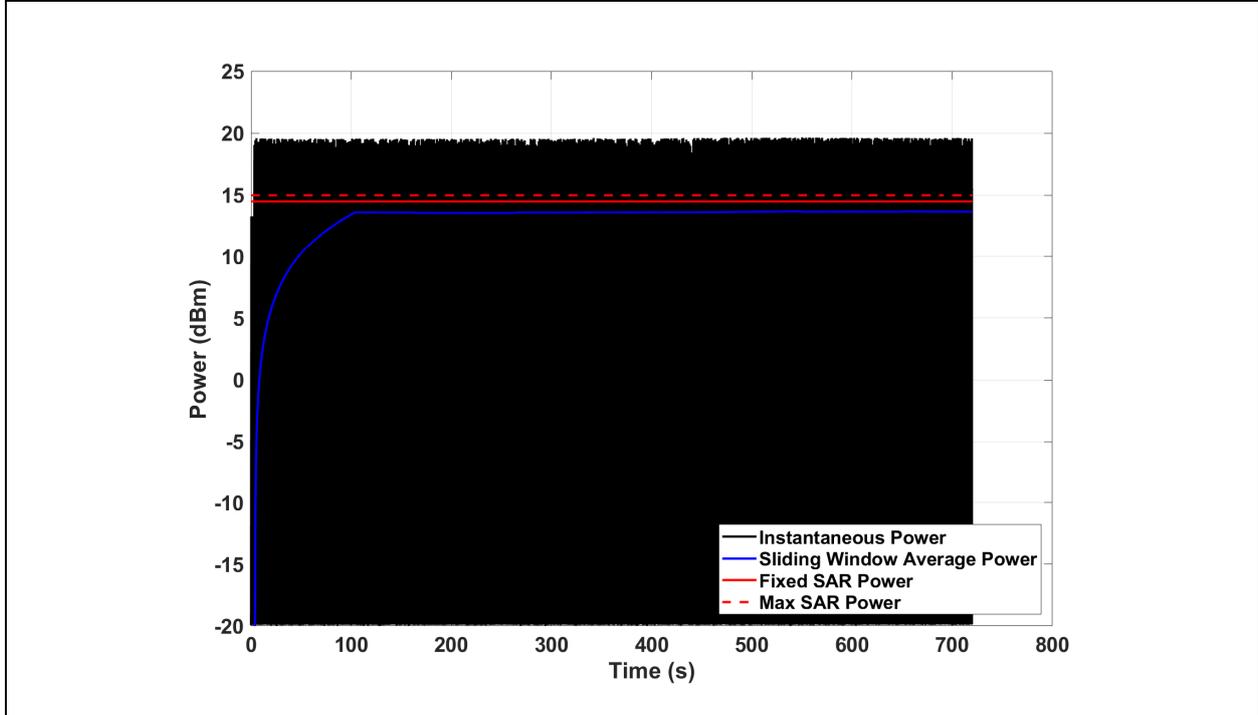
Case #1: 2.4 GHz- Ch 6 – Chain A – BW 20 MHz – Rate 12 Mbps – Averaging Period 100 sec – Tmax 720 sec

Max Power Tune Up [dBm]	SAR Power in Bios Table [dBm]
21.0	16



Case #2: 2.4 GHz- Ch 6 – Chain B – BW 20 MHz – Rate 12 Mbps – Average Period 100 sec – Tmax 720 sec

Max Power Tune Up [dBm]	SAR Power in Bios Table [dBm]
21.0	14.5



3.4. TAS Validation for 5 GHz Band on Channel 120 (Notebook Mode)

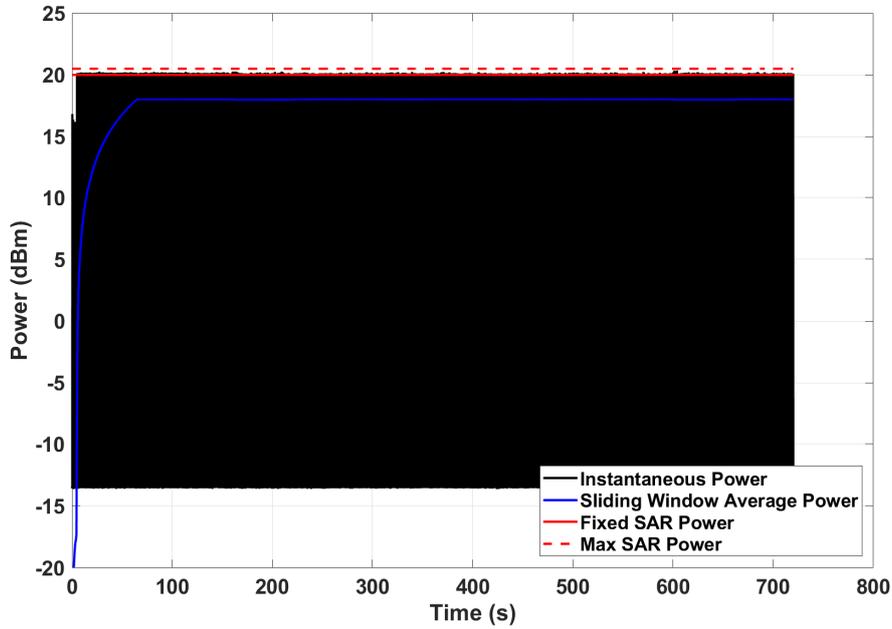
Table 3 – Test Cases for 5 GHz Channel 120

Test Case #	Channel	Chain	Channel Bandwidth	Measurement Averaging Period	Measurement Time Resolution	Max Power Tune Up [dBm]	SAR Power in Bios Table [dBm]
1	120	A	20 MHz	60 sec	0.3333 msec	21.0	20
2		B	20 MHz	60 sec	0.3333 msec	21.0	20

Results of test cases in Table 3 are shown in the following plots.

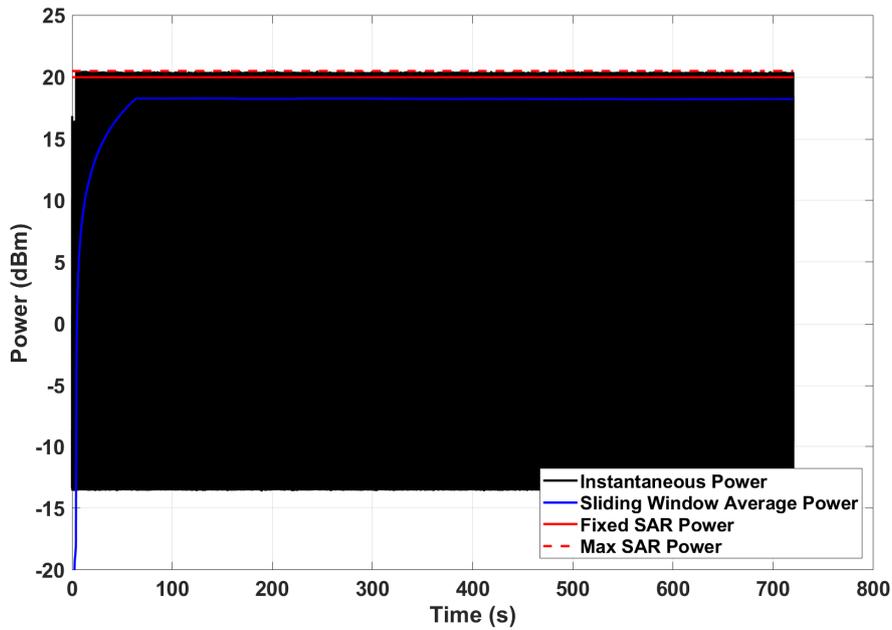
Case #1: 5 GHz- Ch 120 – Chain A – BW 20 MHz – Rate 12 Mbps – Averaging Period 60 sec – Tmax 720 sec

Max Power Tune Up [dBm]	SAR Power in Bios Table [dBm]
21.0	20



Case #2: 5 GHz- Ch 120 – Chain B – BW 20 MHz – Rate 12 Mbps – Average Period 60 sec – Tmax 720 sec

Max Power Tune Up [dBm]	SAR Power in Bios Table [dBm]
21.0	20



3.5. TAS Validation for 5 GHz Band on Channel 120 (Tablet Mode)

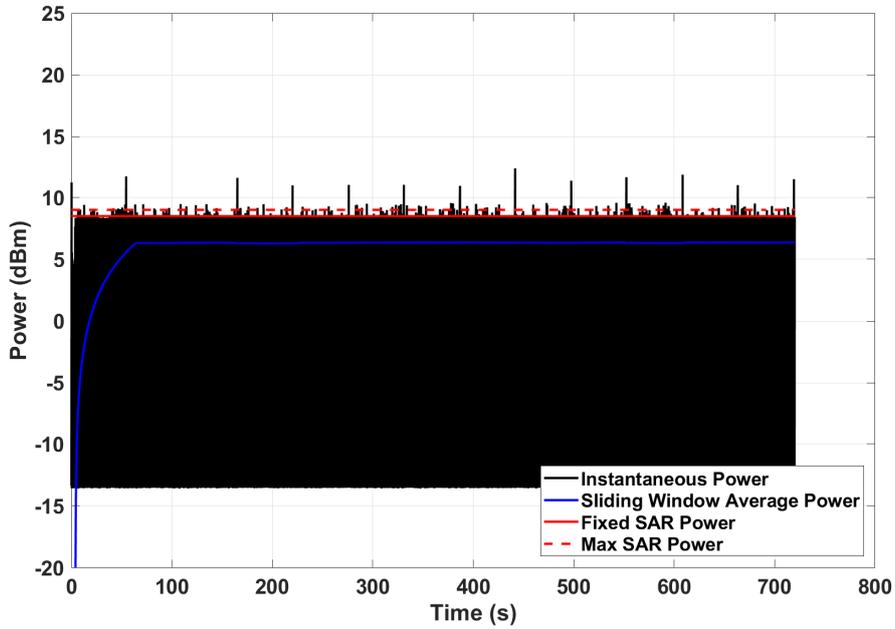
Table 4 – Test Cases for 5 GHz Channel 120

Test Case #	Channel	Chain	Channel Bandwidth	Measurement Averaging Period	Measurement Time Resolution	Max Power Tune Up [dBm]	SAR Power in Bios Table [dBm]
1	120	A	20 MHz	60 sec	0.3333 msec	21.0	8.5
2		B	20 MHz	60 sec	0.3333 msec	21.0	7.5

Results of test cases in Table 4 are shown in the following plots.

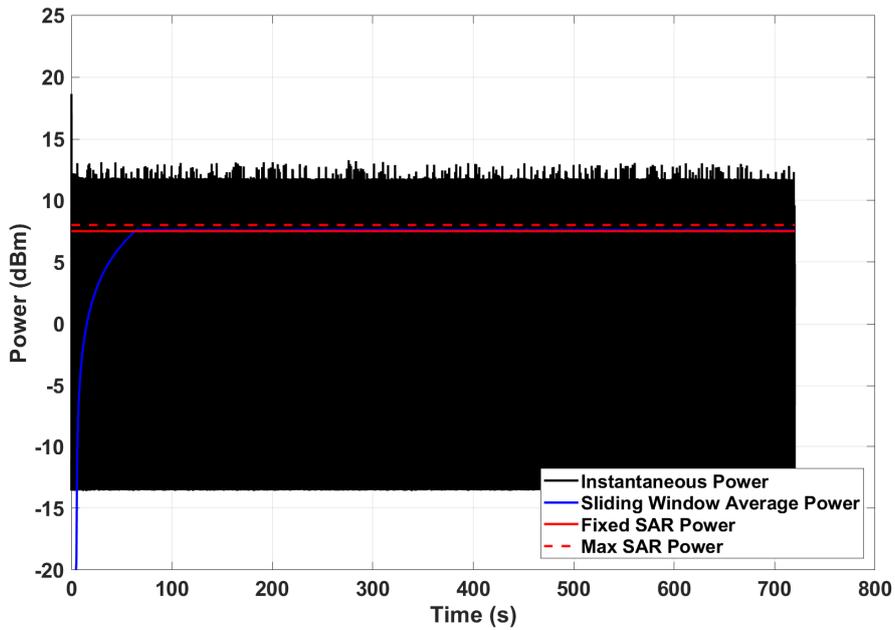
Case #1: 5 GHz- Ch 120 – Chain A – BW 20 MHz – Rate 12 Mbps – Averaging Period 60 sec – Tmax 720 sec

Max Power Tune Up [dBm]	SAR Power in Bios Table [dBm]
21.0	8.5



Case #2: 5 GHz- Ch 120 – Chain B – BW 20 MHz – Rate 12 Mbps – Average Period 60 sec – Tmax 720 sec

Max Power Tune Up [dBm]	SAR Power in Bios Table [dBm]
21.0	7.5



4. Conclusion

The TAS Intel Algorithm functionality of AX211 WiFi Module Integrated inside ASUS GZ301V is tested. All test cases are compliant with SAR limit.