

# FCC Test Report

## (Class II Permissive Change)

Product Name	Intel® Wi-Fi 6 AX200
Model No.	AX200NGW
FCC ID.	PD9AX200NG

Applicant	Intel Corporation
Address	100 Center Point Circle Suite 200 Columbia, South Carolina 29210, United States

Date of Receipt	Mar. 25, 2019
Issued Date	Jun. 25, 2019
Report No.	1930393R-RFUSP23V00-A
Report Version	V1.0



The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration report of the equipment and evaluated measurement uncertainty herein.

This report must not be used to claim product endorsement by TAF or any agency of the government.

The test report shall not be reproduced without the written approval of DEKRA Testing and Certification Co., Ltd.

## Test Report

Issued Date: Jun. 25, 2019

Report No.: 1930393R-RFUSP23V00-A



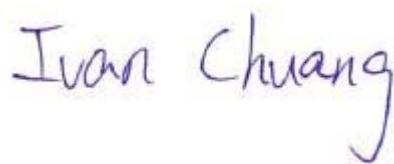
Product Name	Intel® Wi-Fi 6 AX200
Applicant	Intel Corporation
Address	100 Center Point Circle Suite 200 Columbia, South Carolina 29210, United States
Manufacturer	INTEL MOBILE COMMUNICATIONS
Model No.	AX200NGW
FCC ID.	PD9AX200NG
EUT Rated Voltage	DC 3.3V
EUT Test Voltage	DC 3.3V (Power By Test Fixture)
Trade Name	Intel
Applicable Standard	FCC CFR Title 47 Part 15 Subpart C: 2018 ANSI C63.4: 2014, ANSI C63.10: 2013 KDB 558074 D01 15.247 Meas Guidance v05
Test Result	Complied

Documented By :



( Senior Adm. Specialist / Joanne Lin )

Tested By :



( Senior Engineer / Ivan Chuang )

Approved By :



( Director / Vincent Lin )

## TABLE OF CONTENTS

Description	Page
<b>1. GENERAL INFORMATION .....</b>	<b>4</b>
1.1. EUT Description.....	4
1.2. Operational Description.....	6
1.3. Tested System Details.....	7
1.4. Configuration of Tested System .....	7
1.5. EUT Exercise Software .....	7
1.6. Test Facility .....	8
1.7. List of Test Equipment.....	9
<b>2. PEAK POWER OUTPUT .....</b>	<b>10</b>
2.1. Test Setup .....	10
2.2. Limit .....	10
2.3. Test Procedure .....	10
2.4. Uncertainty .....	10
2.5. Test Result of Peak Power Output .....	11
<b>3. RADIATED EMISSION .....</b>	<b>12</b>
3.1. Test Setup .....	12
3.2. Limits.....	13
3.3. Test Procedure .....	14
3.4. Uncertainty .....	15
3.5. Test Result of Radiated Emission .....	16
<b>4. BAND EDGE .....</b>	<b>24</b>
4.1. Test Setup .....	24
4.2. Limit .....	25
4.3. Test Procedure .....	25
4.4. Uncertainty .....	26
4.5. Test Result of Band Edge .....	27
<b>5. DUTY CYCLE.....</b>	<b>35</b>
5.1. Test Setup .....	35
5.2. Test Procedure .....	35
5.3. Uncertainty .....	35
5.4. Test Result of Duty Cycle.....	36
<b>6. EMI REDUCTION METHOD DURING COMPLIANCE TESTING .....</b>	<b>37</b>

Attachment 1: EUT Test Photographs

Attachment 2: EUT Detailed Photographs

## 1. GENERAL INFORMATION

### 1.1. EUT Description

Product Name	Intel® Wi-Fi 6 AX200
Trade Name	Intel
Model No.	AX200NGW
FCC ID.	PD9AX200NG
Frequency Range	2402 – 2480MHz
Channel Number	V5.0: 40CH
Type of Modulation	V5.0: GFSK(2Mbps)
Antenna Type	Dipole Antenna
Channel Control	Auto
Antenna Gain	Refer to the table “Antenna List”

#### Antenna List

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	WIESON Technologies co.,Ltd.	GY121HT0321-003-H / GY121C888-001-H	Dipole Antenna	2.89dBi for 2.4GHz

Note: The antenna of EUT is conforming to FCC 15.203.

## Center Frequency of Each Channel: (For V5.0)

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 00:	2402 MHz	Channel 01:	2404 MHz	Channel 02:	2406 MHz	Channel 03:	2408 MHz
Channel 04:	2410 MHz	Channel 05:	2412 MHz	Channel 06:	2414 MHz	Channel 07:	2416 MHz
Channel 08:	2418 MHz	Channel 09:	2420 MHz	Channel 10:	2422 MHz	Channel 11:	2424 MHz
Channel 12:	2426 MHz	Channel 13:	2428 MHz	Channel 14:	2430 MHz	Channel 15:	2432 MHz
Channel 16:	2434 MHz	Channel 17:	2436 MHz	Channel 18:	2438 MHz	Channel 19:	2440 MHz
Channel 20:	2442 MHz	Channel 21:	2444 MHz	Channel 22:	2446 MHz	Channel 23:	2448 MHz
Channel 24:	2450 MHz	Channel 25:	2452 MHz	Channel 26:	2454 MHz	Channel 27:	2456 MHz
Channel 28:	2458 MHz	Channel 29:	2460 MHz	Channel 30:	2462 MHz	Channel 31:	2464 MHz
Channel 32:	2466 MHz	Channel 33:	2468 MHz	Channel 34:	2470 MHz	Channel 35:	2472 MHz
Channel 36:	2474 MHz	Channel 37:	2476 MHz	Channel 38:	2478 MHz	Channel 39:	2480 MHz

## Note:

1. The EUT is a Intel® Wi-Fi 6 AX200 with built-in WLAN (802.11a/b/g/n/ac/ax) with Bluetooth (5.0 and V3.0+HS, V2.1+EDR) transceiver, this report for Bluetooth V5.0.
2. These tests were conducted on a sample for the purpose of demonstrating compliance of transmitter with Part 15 Subpart C Paragraph 15.247 for spread spectrum devices.
3. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.
4. This is to request a Class II permissive change for FCC ID: PD9AX200NG, originally granted on 03/05/2019.

The major change filed under this application is:

Change #1: Addition an Dipole Antenna, the antenna type is different with the original application.

Change #2: Reduce the Output Power through firmware, All other hardware is identical with original granted.

Test Mode	Mode 1: Transmit - BLE
-----------	------------------------

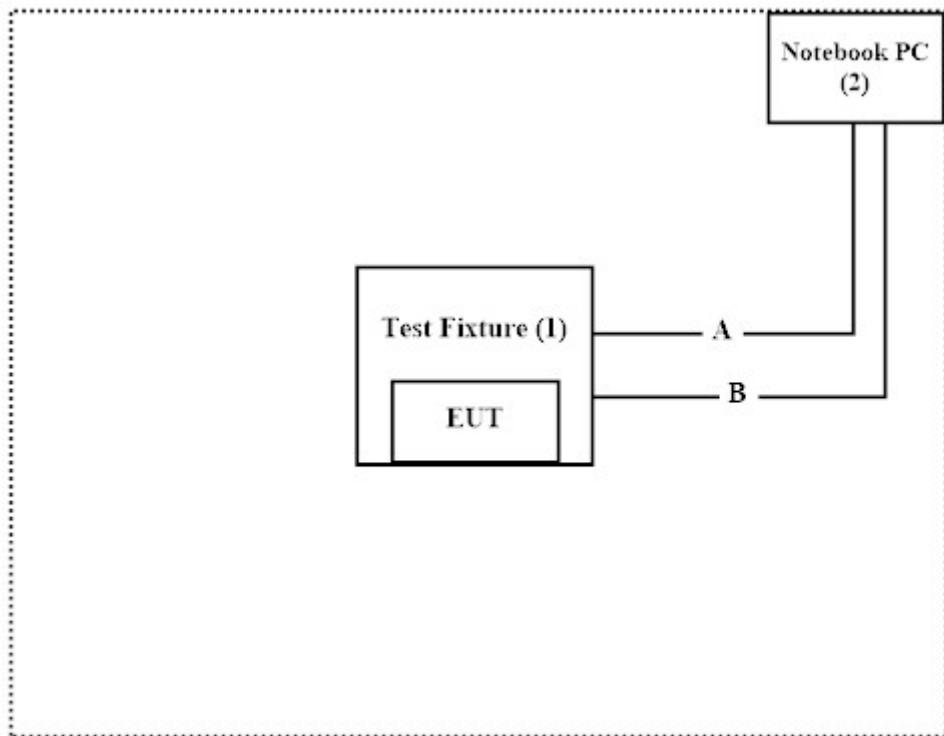
### 1.3. Tested System Details

The types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

Product	Manufacturer	Model No.	Serial No.	Power Cord
1 Test Fixture	Intel	N/A	N/A	N/A
2 Notebook PC	DELL	P44G	9T8YN32	N/A

Signal Cable Type	Signal cable Description
A USB Cable	Non-shielded, 1.2m
B Signal Cable	Non-shielded, 1m

### 1.4. Configuration of Tested System



### 1.5. EUT Exercise Software

- (1) Setup the EUT as shown in Section 1.4.
- (2) Execute software “DRTU (Ver 11.1850.0-08900)” on the Notebook PC.
- (3) Configure the test mode, the test channel, and the data rate.
- (4) Press “OK” to start the continuous Transmit.
- (5) Verify that the EUT works properly.

## 1.6. Test Facility

Ambient conditions in the laboratory:

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	20-35
Humidity (%RH)	25-75	50-65
Barometric pressure (mbar)	860-1060	950-1000

The related certificate for our laboratories about the test site and management system can be downloaded from DEKRA Testing and Certification Co., Ltd. Web Site:

<http://www.dekra.com.tw/english/about/certificates.aspx?bval=5>

The address and introduction of DEKRA Testing and Certification Co., Ltd. laboratories can be founded in our Web site: [http://www.dekra.com.tw/index\\_en](http://www.dekra.com.tw/index_en)

Site Description: Accredited by TAF  
Accredited Number: 3023

Site Name: DEKRA Testing and Certification Co., Ltd.  
Site Address: No.159, Sec. 2, Wenhua 1st Rd., Linkou Dist.,  
New Taipei City 24457, Taiwan.  
TEL: 886-2-2602-7968 / FAX : 866-2-2602-3286  
E-Mail : [info.tw@dekra.com](mailto:info.tw@dekra.com)

FCC Accreditation Number: TW0023

## 1.7. List of Test Equipment

### For Conducted measurements /ASR2

	Equipment	Manufacturer	Model No.	Serial No.	Cali. Data	Due. Data
X	Spectrum Analyzer	R&S	FSV30	103464	2019.01.25	2020.01.24
X	Power Meter	Anritsu	ML2496A	1548003	2018.12.19	2019.12.18
X	Power Sensor	Anritsu	MA2411B	1531024	2018.12.19	2019.12.18
X	Power Sensor	Anritsu	MA2411B	1531025	2018.12.19	2019.12.18
	Bluetooth Tester	R&S	CBT	101238	2019.01.21	2020.01.20

Note:

1. All equipments are calibrated every one year.
2. The test instruments marked with "X" are used to measure the final test results.
3. Test Software version : DEKRA Conduction Test System V9.0.1

### For Radiated measurements /ACB1

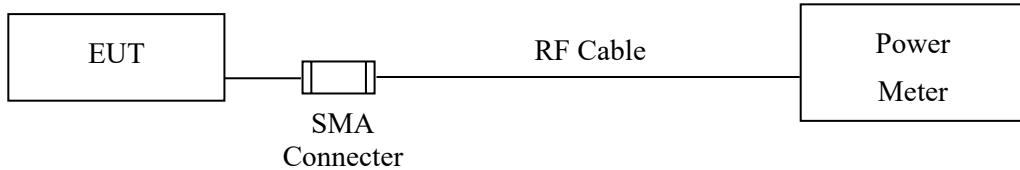
	Equipment	Manufacturer	Model No.	Serial No.	Cali. Data	Due. Data
X	Loop Antenna	AMETEK	HLA6121	49611	2019.02.22	2020.02.21
X	Bi-Log Antenna	SCHWARZBECK	VULB9168	9168-674	2019.04.23	2020.04.22
X	Horn Antenna	ETS-Lindgren	3117	00203800	2018.12.11	2019.12.10
X	Horn Antenna	Com-Power	AH-840	101087	2019.05.30	2020.05.29
X	Pre-Amplifier	EMCI	EMC001330	980316	2019.06.14	2020.06.13
X	Pre-Amplifier	EMCI	EMC051835SE	980311	2019.06.13	2020.06.12
X	Pre-Amplifier	EMCI	EMC05820SE	980285	2019.06.06	2020.06.05
X	Pre-Amplifier	EMCI	EMC184045SE	980314	2019.05.28	2020.05.27
X	Filter	MICRO TRONICS	BRM50702	G251	2018.09.04	2019.09.03
	Filter	MICRO TRONICS	BRM50716	G188	2018.09.04	2019.09.03
X	EMI Test Receiver	R&S	ESR7	101602	2018.12.17	2019.12.16
X	Spectrum Analyzer	R&S	FSV40	101148	2019.02.20	2020.02.19
X	Coaxial Cable	SUHNER	SUCOFLEX 106	RF002	2019.05.25	2020.05.24
X	Mircoflex Cable	HUBER SUHNER	SUCOFLEX 102	MY3381/2	2019.05.28	2020.05.27

Note:

1. All equipments are calibrated every one year.
2. The test instruments marked with "X" are used to measure the final test results.
3. Test Software version : QuieTek EMI 2.0 V2.1.113

## 2. Peak Power Output

### 2.1. Test Setup



### 2.2. Limit

The maximum peak power shall be less 1Watt.

### 2.3. Test Procedure

Tested according to DTS test procedure of KDB 558074 for compliance to FCC 47CFR 15.247 requirements. The maximum peak conducted output power using KDB 558074 section 8.3.1.3 PKPM1 Peak power meter method.

### 2.4. Uncertainty

±0.86 dB

## 2.5. Test Result of Peak Power Output

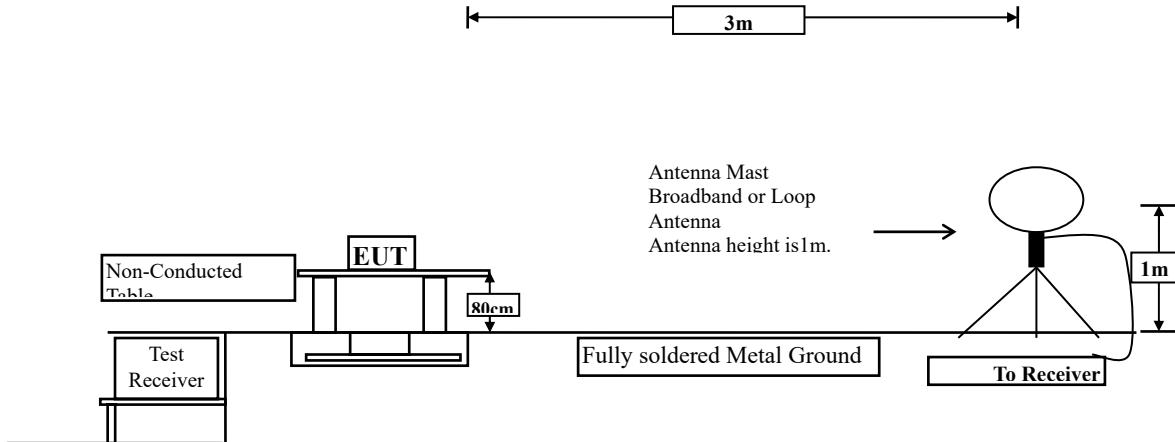
Product : Intel® Wi-Fi 6 AX200  
Test Item : Peak Power Output  
Test Mode : Mode 1: Transmit - BLE  
Test Date : 2019/06/24

Channel No.	Frequency (MHz)	Measurement (dBm)	Required Limit	Result
Channel 00	2402.00	8.63	1 Watt= 30 dBm	Pass
Channel 19	2440.00	8.72	1 Watt= 30 dBm	Pass
Channel 39	2480.00	8.85	1 Watt= 30 dBm	Pass

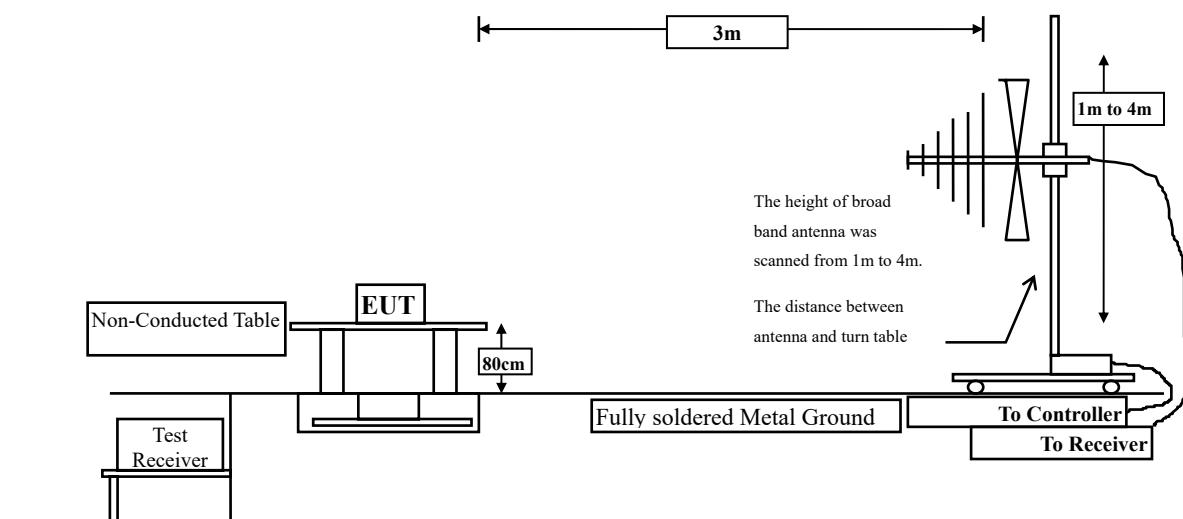
### 3. Radiated Emission

#### 3.1. Test Setup

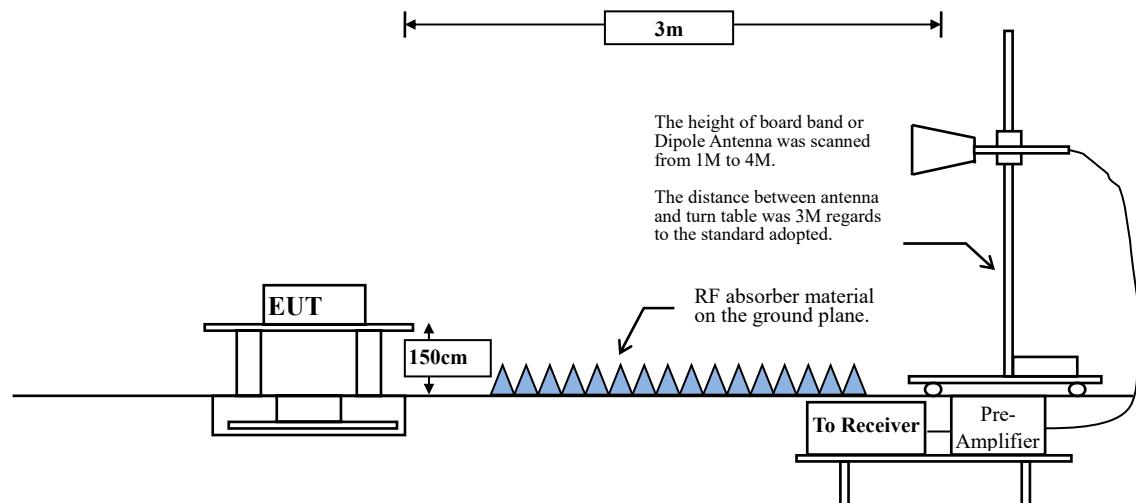
Radiated Emission Under 30MHz



Radiated Emission Below 1GHz



Radiated Emission Above 1GHz



### 3.2. Limits

#### ➤ General Radiated Emission Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 20dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

FCC Part 15 Subpart C Paragraph 15.209 Limits		
Frequency MHz	Field strength (microvolts/meter)	Measurement distance (meter)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Remarks:

1. RF Voltage (dBuV) = 20 log RF Voltage (uV)
2. In the Above Table, the tighter limit applies at the band edges.
3. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

### 3.3. Test Procedure

The EUT was setup according to ANSI C63.10: 2013 and tested according to DTS test procedure of KDB558074 for compliance to FCC 47CFR 15.247 requirements.

Measuring the frequency range below 1GHz, the EUT is placed on a turn table which is 0.8 meter above ground, when measuring the frequency range above 1GHz, the EUT is placed on a turn table which is 1.5 meter above ground.

The turn table is rotated 360 degrees to determine the position of the maximum emission level.

The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna is scanned between 1 meter and 4 meters to find out the maximum emission level.

This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10: 2013 on radiated measurement.

The resolution bandwidth below 30MHz setting on the field strength meter is 9kHz and

30MHz~1GHz is 120kHz and above 1GHz is 1MHz.

Radiated emission measurements below 30MHz are made using Loop Antenna and 30MHz~1GHz are made using broadband Bilog antenna and above 1GHz are made using Horn Antennas.

The measurement is divided into the Preliminary Measurement and the Final Measurement.

The suspected frequencies are searched for in Preliminary Measurement with the measurement antenna kept pointed at the source of the emission both in azimuth and elevation, with the polarization of the antenna oriented for maximum response. The antenna is pointed at an angle towards the source of the emission, and the EUT is rotated in both height and polarization to maximize the measured emission. The emission is kept within the illumination area of the 3 dB bandwidth of the antenna.

The measurement frequency range from 9kHz - 10th Harmonic of fundamental was investigated.

**RBW and VBW Parameter setting:**

According to KDB 558074 Peak power measurement procedure

RBW = as specified in Table 1.

VBW  $\geq 3 \times$  RBW.

**Table 1 —RBW as a function of frequency**

Frequency	RBW
9-150 kHz	200-300 Hz
0.15-30 MHz	9-10 kHz
30-1000 MHz	100-120 kHz
> 1000 MHz	1 MHz

According to KDB 558074 Average power measurement procedure

RBW = 1MHz.

VBW = 10Hz, when duty cycle  $\geq 98\%$

VBW  $\geq 1/T$ , when duty cycle  $< 98\%$

( T refers to the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.)

2.4GHz band	Duty Cycle (%)	T (ms)	1/T (Hz)	VBW (Hz)
BLE	85.55	2.1449	466	500

Note: Duty Cycle Refer to Section 5

### 3.4. Uncertainty

Horizontal polarization :

30-300MHz:  $\pm 4.08\text{dB}$  ; 300M-1GHz:  $\pm 3.86\text{dB}$  ; 1-18GHz:  $\pm 3.77\text{dB}$  ; 18-40GHz:  $\pm 3.98\text{dB}$

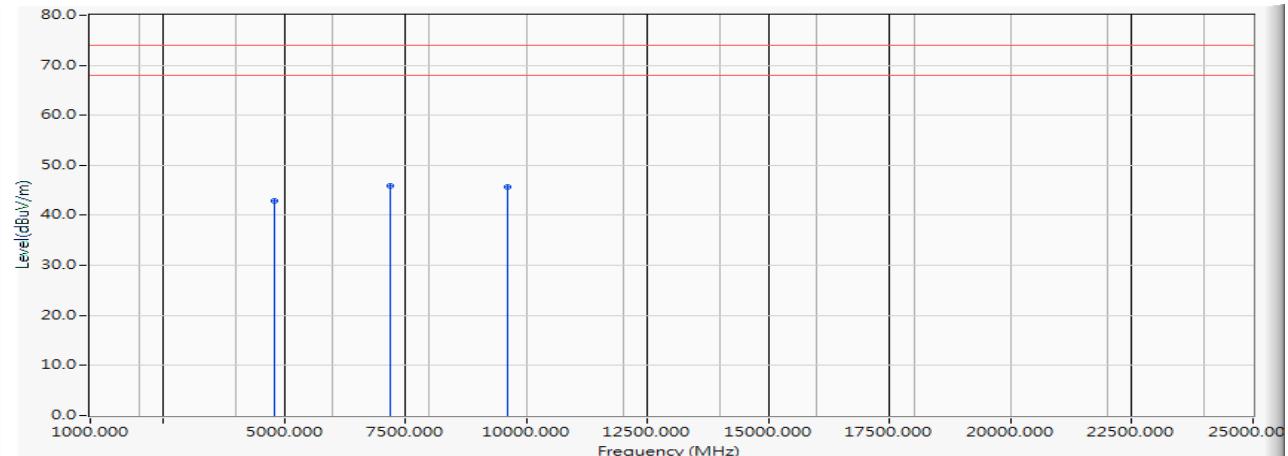
Vertical polarization :

30-300MHz:  $\pm 4.81\text{dB}$  ; 300M-1GHz:  $\pm 3.87\text{dB}$  ; 1-18GHz :  $\pm 3.83\text{dB}$  ; 18-40GHz:  $\pm 3.98\text{dB}$

### 3.5. Test Result of Radiated Emission

Product : Intel® Wi-Fi 6 AX200  
 Test Item : Harmonic Radiated Emission  
 Test Mode : Mode 1: Transmit - BLE (2402MHz)  
 Test Date : 2019/06/22

#### Horizontal



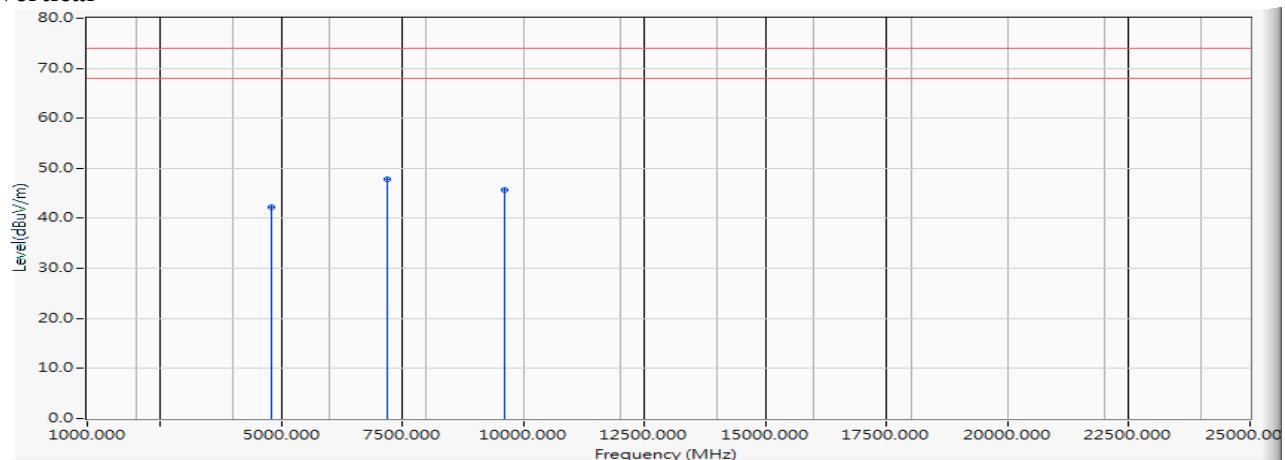
	Frequency (MHz)	Correct Factor (dB)	Reading Level (dB $\mu$ V)	Measure Level (dB $\mu$ V/m)	Margin (dB)	Limit (dB $\mu$ V/m)	Detector Type
1	4804.000	-6.081	48.910	42.829	-31.171	74.000	PEAK
2	* 7206.000	-3.033	48.890	45.857	-28.143	74.000	PEAK
3	9608.000	-0.774	46.450	45.677	-28.323	74.000	PEAK

#### Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss -Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Intel® Wi-Fi 6 AX200  
 Test Item : Harmonic Radiated Emission  
 Test Mode : Mode 1: Transmit - BLE (2402MHz)  
 Test Date : 2019/06/22

### Vertical



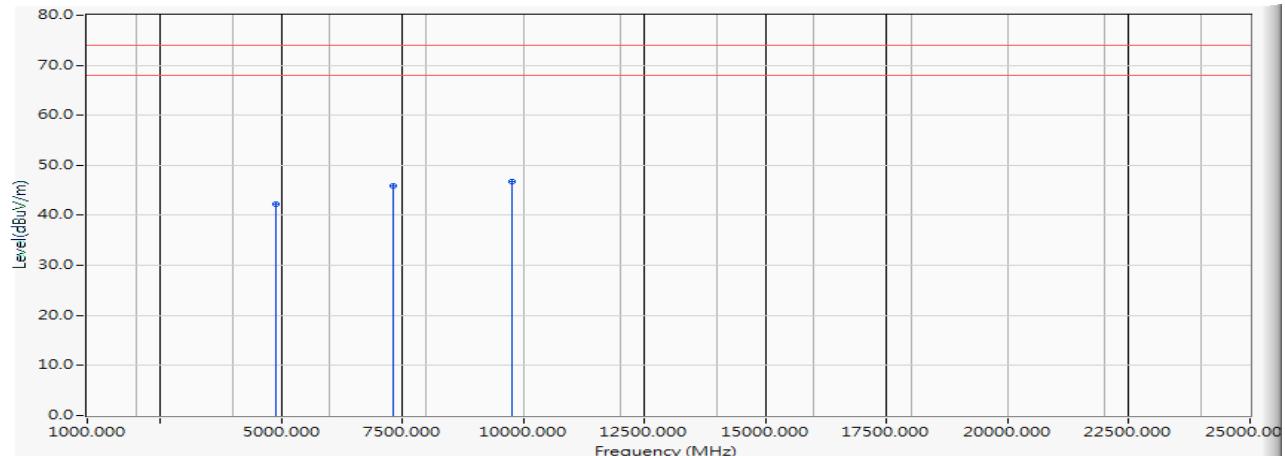
	Frequency (MHz)	Correct Factor (dB)	Reading Level (dB $\mu$ V)	Measure Level (dB $\mu$ V/m)	Margin (dB)	Limit (dB $\mu$ V/m)	Detector Type
1	4804.000	-6.081	48.230	42.149	-31.851	74.000	PEAK
2 *	7206.000	-3.033	50.770	47.737	-26.263	74.000	PEAK
3	9608.000	-0.774	46.360	45.587	-28.413	74.000	PEAK

### Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Intel® Wi-Fi 6 AX200  
 Test Item : Harmonic Radiated Emission  
 Test Mode : Mode 1: Transmit - BLE (2440MHz)  
 Test Date : 2019/06/22

### Horizontal



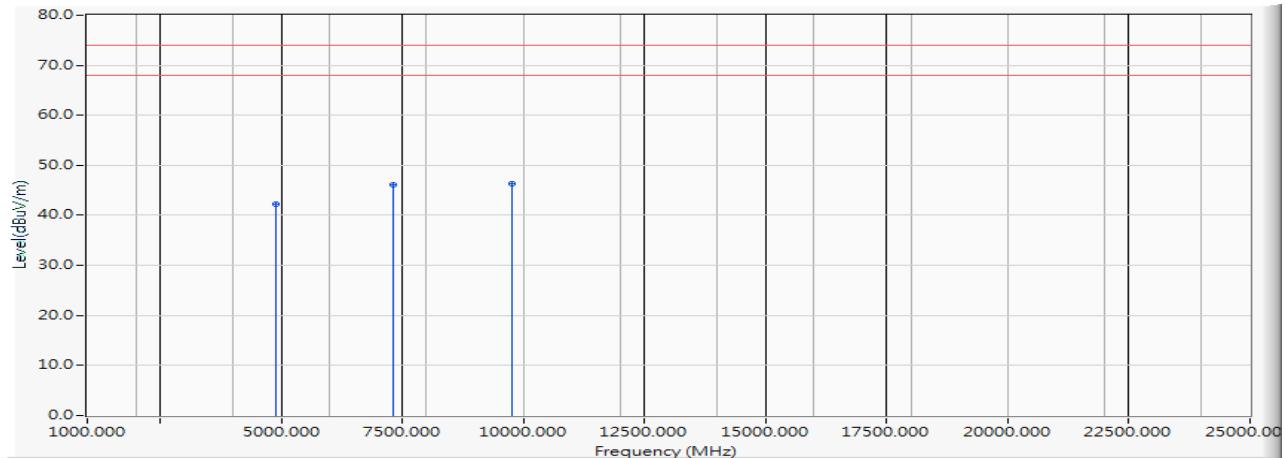
	Frequency (MHz)	Correct Factor (dB)	Reading Level (dB $\mu$ V)	Measure Level (dB $\mu$ V/m)	Margin (dB)	Limit (dB $\mu$ V/m)	Detector Type
1	4880.000	-6.045	48.240	42.195	-31.805	74.000	PEAK
2	7320.000	-2.959	48.910	45.951	-28.049	74.000	PEAK
3	*	-0.492	47.240	46.748	-27.252	74.000	PEAK

### Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss -Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Intel® Wi-Fi 6 AX200  
 Test Item : Harmonic Radiated Emission  
 Test Mode : Mode 1: Transmit - BLE (2440MHz)  
 Test Date : 2019/06/22

### Vertical



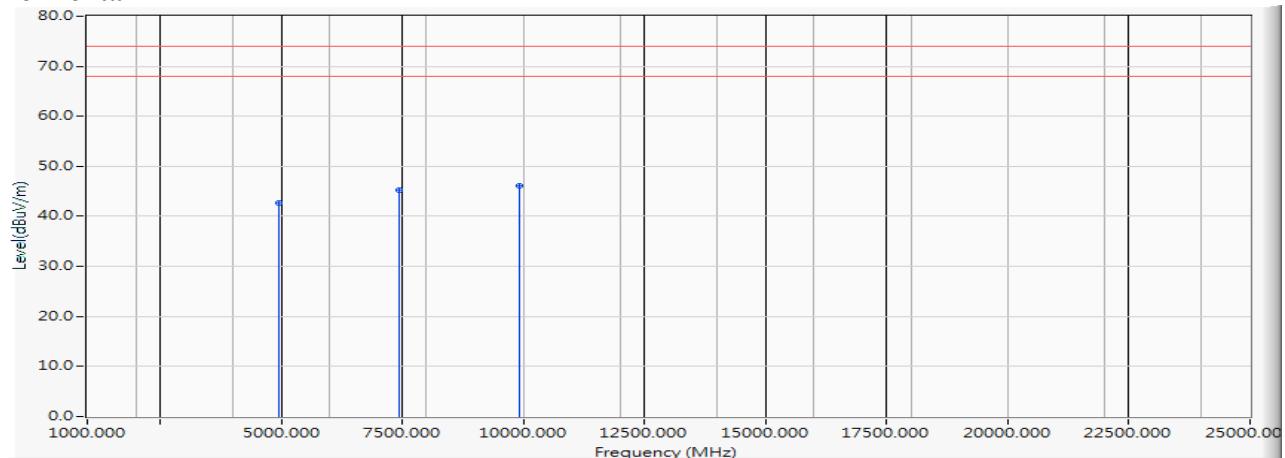
	Frequency (MHz)	Correct Factor (dB)	Reading Level (dB $\mu$ V)	Measure Level (dB $\mu$ V/m)	Margin (dB)	Limit (dB $\mu$ V/m)	Detector Type	
1	4880.000	-6.045	48.220	42.175	-31.825	74.000	PEAK	
2	7320.000	-2.959	49.050	46.091	-27.909	74.000	PEAK	
3	*	9760.000	-0.492	46.810	46.318	-27.682	74.000	PEAK

### Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss -Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Intel® Wi-Fi 6 AX200  
 Test Item : Harmonic Radiated Emission  
 Test Mode : Mode 1: Transmit - BLE (2480MHz)  
 Test Date : 2019/06/22

### Horizontal



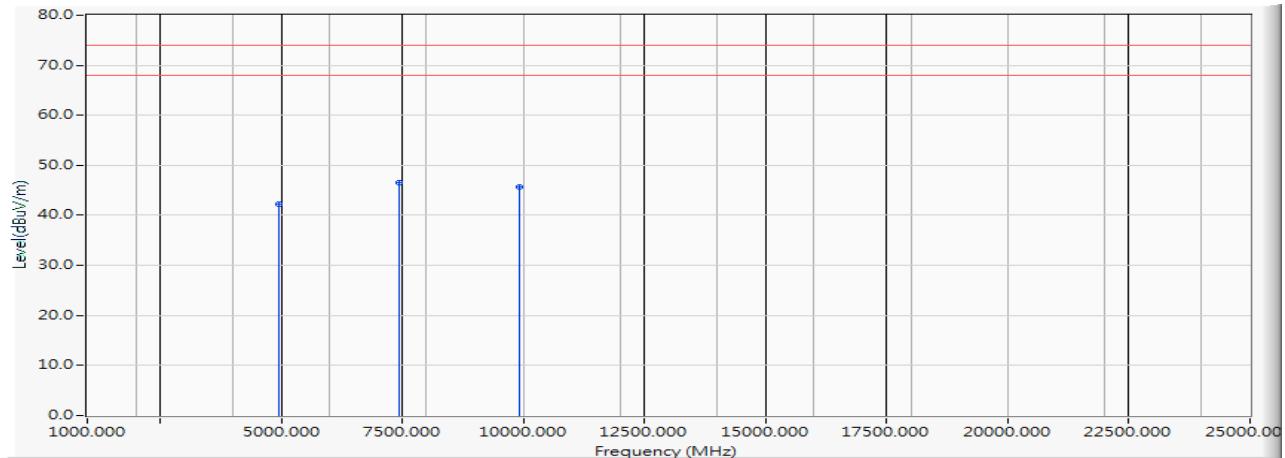
	Frequency (MHz)	Correct Factor (dB)	Reading Level (dB $\mu$ V)	Measure Level (dB $\mu$ V/m)	Margin (dB)	Limit (dB $\mu$ V/m)	Detector Type
1	4960.000	-6.041	48.710	42.669	-31.331	74.000	PEAK
2	7440.000	-2.805	48.070	45.265	-28.735	74.000	PEAK
3 *	9920.000	-0.260	46.400	46.140	-27.860	74.000	PEAK

### Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss -Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Intel® Wi-Fi 6 AX200  
 Test Item : Harmonic Radiated Emission  
 Test Mode : Mode 1: Transmit - BLE (2480MHz)  
 Test Date : 2019/06/22

### Vertical



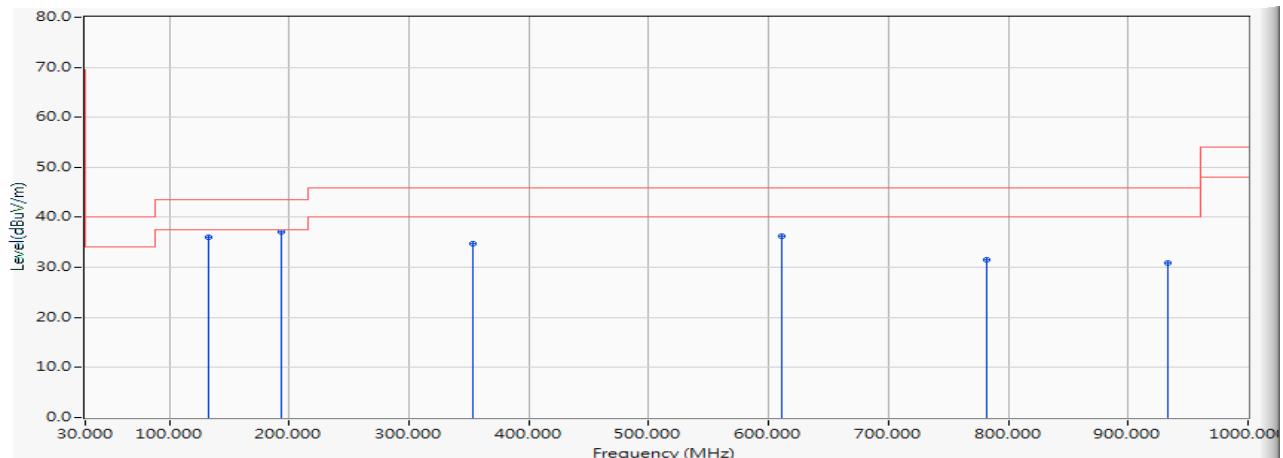
	Frequency (MHz)	Correct Factor (dB)	Reading Level (dB $\mu$ V)	Measure Level (dB $\mu$ V/m)	Margin (dB)	Limit (dB $\mu$ V/m)	Detector Type
1	4960.000	-6.041	48.380	42.339	-31.661	74.000	PEAK
2 *	7440.000	-2.805	49.410	46.605	-27.395	74.000	PEAK
3	9920.000	-0.260	45.930	45.670	-28.330	74.000	PEAK

### Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss -Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Intel® Wi-Fi 6 AX200  
 Test Item : General Radiated Emission  
 Test Mode : Mode 1: Transmit - BLE (2440MHz)  
 Test Date : 2019/06/22

### Horizontal



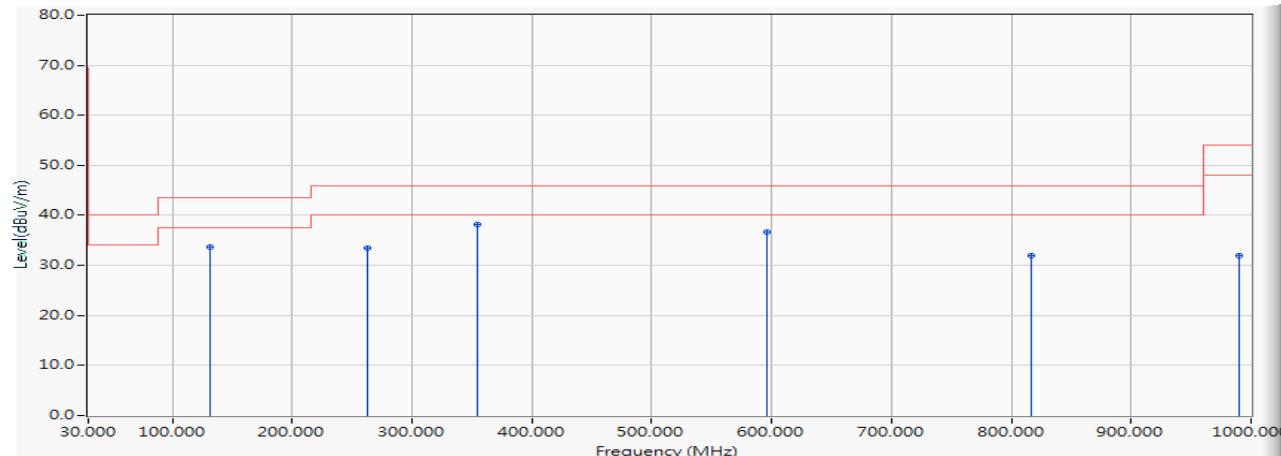
	Frequency (MHz)	Correct Factor (dB)	Reading Level (dB $\mu$ V)	Measure Level (dB $\mu$ V/m)	Margin (dB)	Limit (dB $\mu$ V/m)	Detector Type
1	132.623	-12.132	48.224	36.092	-7.408	43.500	QUASIPEAK
2	* 193.072	-13.624	50.822	37.198	-6.302	43.500	QUASIPEAK
3	353.333	-9.103	43.891	34.789	-11.211	46.000	QUASIPEAK
4	610.594	-3.940	40.138	36.198	-9.802	46.000	QUASIPEAK
5	782.101	-1.793	33.293	31.500	-14.500	46.000	QUASIPEAK
6	932.522	0.158	30.704	30.863	-15.137	46.000	QUASIPEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss -Amplifier gain.
4. The emission levels of other frequencies are very lower than the limit and not show in test report.
5. No emission found between lowest internal used/generated frequency to 30MHz.

Product : Intel® Wi-Fi 6 AX200  
 Test Item : General Radiated Emission  
 Test Mode : Mode 1: Transmit - BLE (2440MHz)  
 Test Date : 2019/06/22

### Vertical



	Frequency (MHz)	Correct Factor (dB)	Reading Level (dB $\mu$ V)	Measure Level (dB $\mu$ V/m)	Margin (dB)	Limit (dB $\mu$ V/m)	Detector Type
1	131.217	-12.265	45.971	33.706	-9.794	43.500	QUASIPEAK
2	263.362	-11.738	45.150	33.411	-12.589	46.000	QUASIPEAK
3 *	354.739	-9.070	47.265	38.195	-7.805	46.000	QUASIPEAK
4	596.536	-4.086	40.720	36.634	-9.366	46.000	QUASIPEAK
5	817.246	-1.389	33.372	31.984	-14.016	46.000	QUASIPEAK
6	990.159	0.879	31.146	32.025	-21.975	54.000	QUASIPEAK

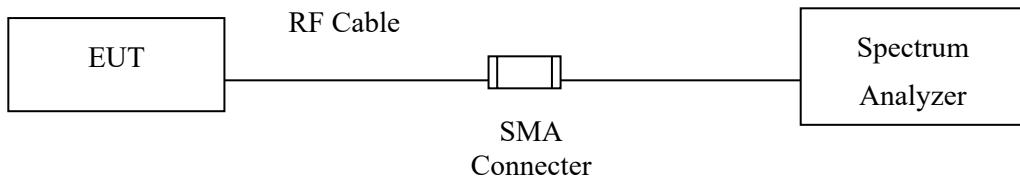
### Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss -Amplifier gain.
4. The emission levels of other frequencies are very lower than the limit and not show in test report.
5. No emission found between lowest internal used/generated frequency to 30MHz.

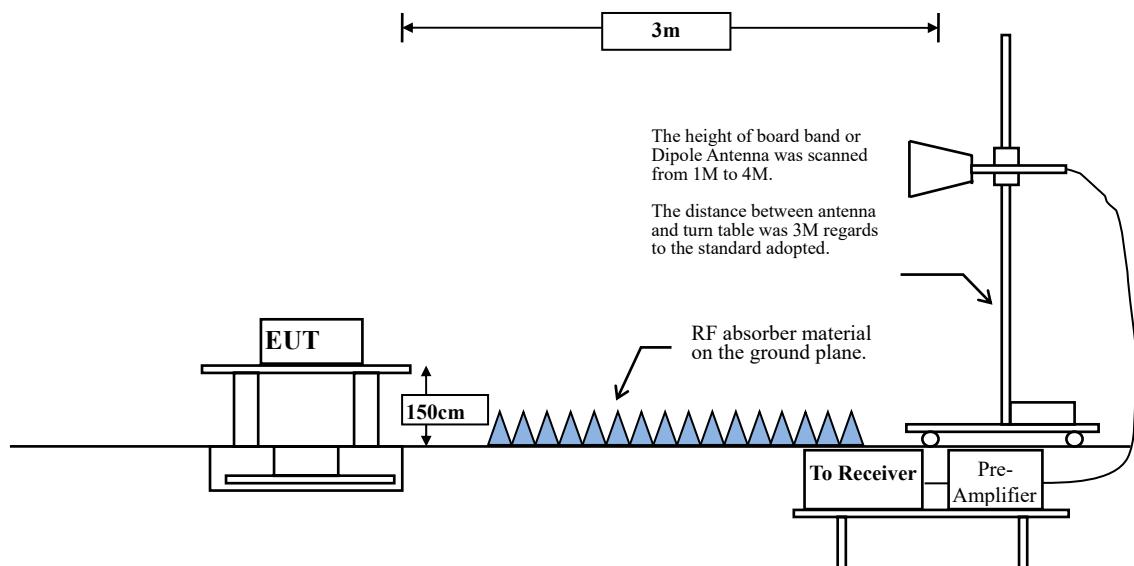
## 4. Band Edge

### 4.1. Test Setup

#### RF Conducted Measurement



#### RF Radiated Measurement:



#### 4.2. Limit

According to FCC Section 15.247(d). In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

#### 4.3. Test Procedure

The EUT was setup according to ANSI C63.10, 2013 and tested according to DTS test procedure of KDB558074 for compliance to FCC 47CFR 15.247 requirements.

The EUT is placed on a turn table which is 1.5 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10:2013 on radiated measurement.

**RBW and VBW Parameter setting:**

According to KDB 558074 Peak power measurement procedure

RBW = as specified in Table 1.

VBW  $\geq 3 \times$  RBW.

**Table 1 —RBW as a function of frequency**

Frequency	RBW
9-150 kHz	200-300 Hz
0.15-30 MHz	9-10 kHz
30-1000 MHz	100-120 kHz
> 1000 MHz	1 MHz

According to KDB 558074 Average power measurement procedure

RBW = 1MHz.

VBW = 10Hz, when duty cycle  $\geq 98\%$

VBW  $\geq 1/T$ , when duty cycle  $< 98\%$

( T refers to the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.)

2.4GHz band	Duty Cycle (%)	T (ms)	1/T (Hz)	VBW (Hz)
BLE	85.55	2.1449	466	500

Note: Duty Cycle Refer to Section 5

#### 4.4. Uncertainty

Conducted:  $\pm 1.23$ dB

Radiated:

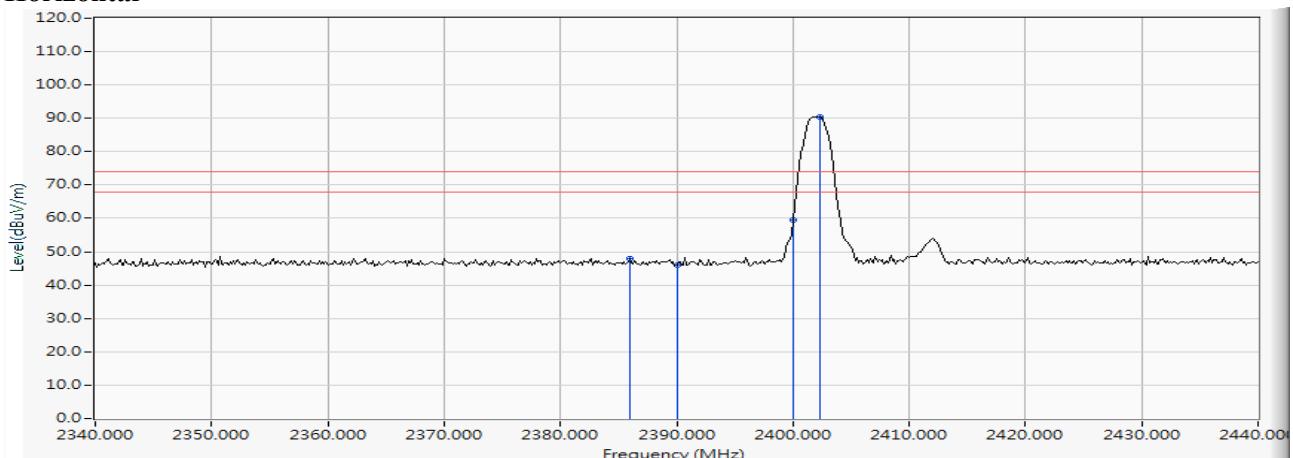
Horizontal polarization : 1-18GHz:  $\pm 3.77$ dB

Vertical polarization : 1-18GHz :  $\pm 3.83$ dB

#### 4.5. Test Result of Band Edge

Product : Intel® Wi-Fi 6 AX200  
 Test Item : Band Edge  
 Test Mode : Mode 1: Transmit - BLE (2402MHz)  
 Test Date : 2019/06/24

##### Horizontal



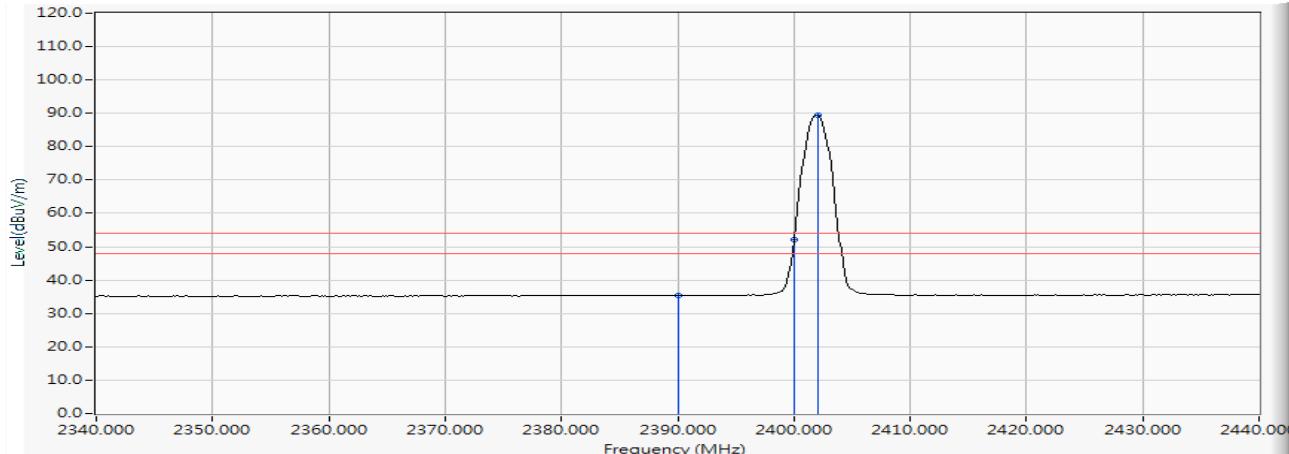
	Frequency (MHz)	Correct Factor (dB)	Reading Level (dB $\mu$ V)	Measure Level (dB $\mu$ V/m)	Margin (dB)	Limit (dB $\mu$ V/m)	Detector Type
1	2385.942	10.245	37.554	47.799	-26.201	74.000	PEAK
2	2390.000	10.262	35.732	45.994	-28.006	74.000	PEAK
3	2400.000	10.304	49.241	59.544	--	--	PEAK
4	*	2402.319	10.312	80.194	90.507	--	PEAK

##### Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Intel® Wi-Fi 6 AX200  
 Test Item : Band Edge  
 Test Mode : Mode 1: Transmit - BLE (2402MHz)  
 Test Date : 2019/06/24

### Horizontal



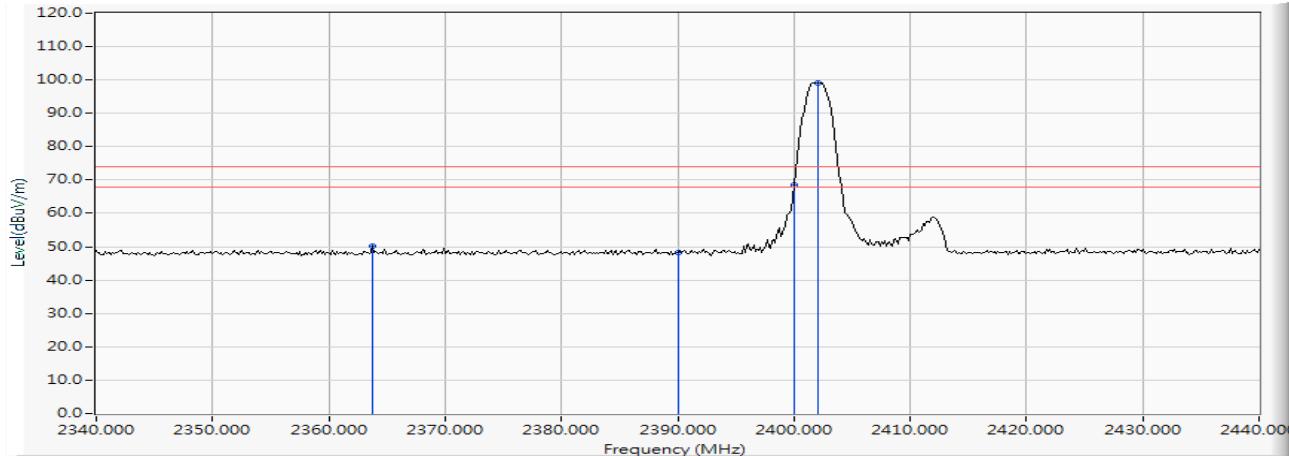
	Frequency (MHz)	Correct Factor (dB)	Reading Level (dB $\mu$ V)	Measure Level (dB $\mu$ V/m)	Margin (dB)	Limit (dB $\mu$ V/m)	Detector Type
1	2390.000	10.262	25.088	35.350	-18.650	54.000	AVERAGE
2	2400.000	10.304	41.945	52.248	--	--	AVERAGE
3 *	2402.029	10.312	79.168	89.480	--	--	AVERAGE

### Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Intel® Wi-Fi 6 AX200  
 Test Item : Band Edge  
 Test Mode : Mode 1: Transmit - BLE (2402MHz)  
 Test Date : 2019/06/24

### Vertical



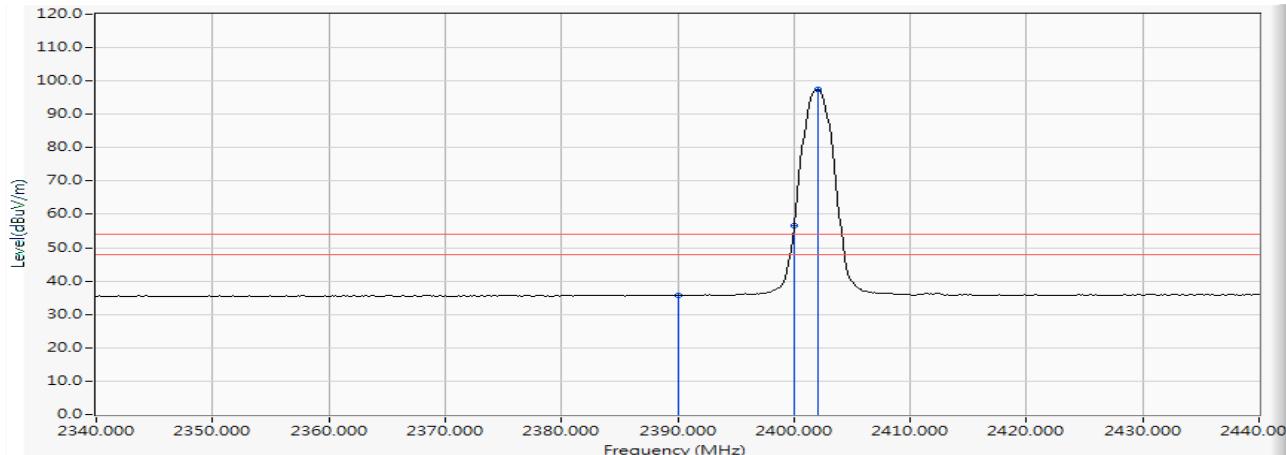
	Frequency (MHz)	Correct Factor (dB)	Reading Level (dB $\mu$ V)	Measure Level (dB $\mu$ V/m)	Margin (dB)	Limit (dB $\mu$ V/m)	Detector Type
1	2363.768	10.157	40.035	50.192	-23.808	74.000	PEAK
2	2390.000	10.262	38.035	48.297	-25.703	74.000	PEAK
3	2400.000	10.304	58.188	68.491	--	--	PEAK
4	*	2402.029	10.312	88.916	99.228	--	PEAK

### Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Intel® Wi-Fi 6 AX200  
 Test Item : Band Edge  
 Test Mode : Mode 1: Transmit - BLE (2402MHz)  
 Test Date : 2019/06/24

### Vertical



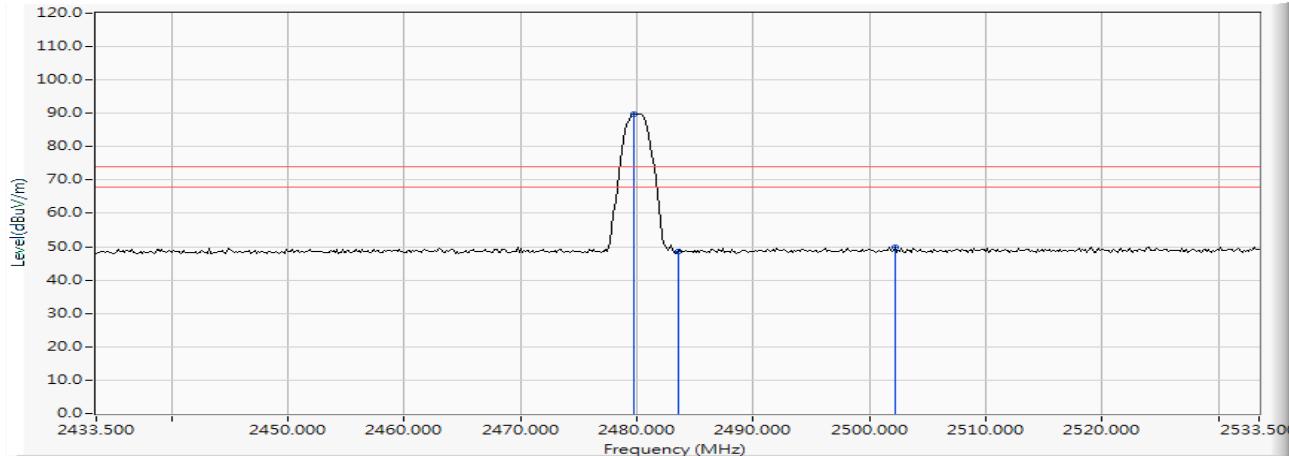
	Frequency (MHz)	Correct Factor (dB)	Reading Level (dB $\mu$ V)	Measure Level (dB $\mu$ V/m)	Margin (dB)	Limit (dB $\mu$ V/m)	Detector Type
1	2390.000	10.262	25.362	35.624	-18.376	54.000	AVERAGE
2	2400.000	10.304	46.400	56.703	--	--	AVERAGE
3	*	2402.029	10.312	87.073	97.385	--	AVERAGE

### Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Intel® Wi-Fi 6 AX200  
 Test Item : Band Edge  
 Test Mode : Mode 1: Transmit - BLE (2480MHz)  
 Test Date : 2019/06/24

### Horizontal



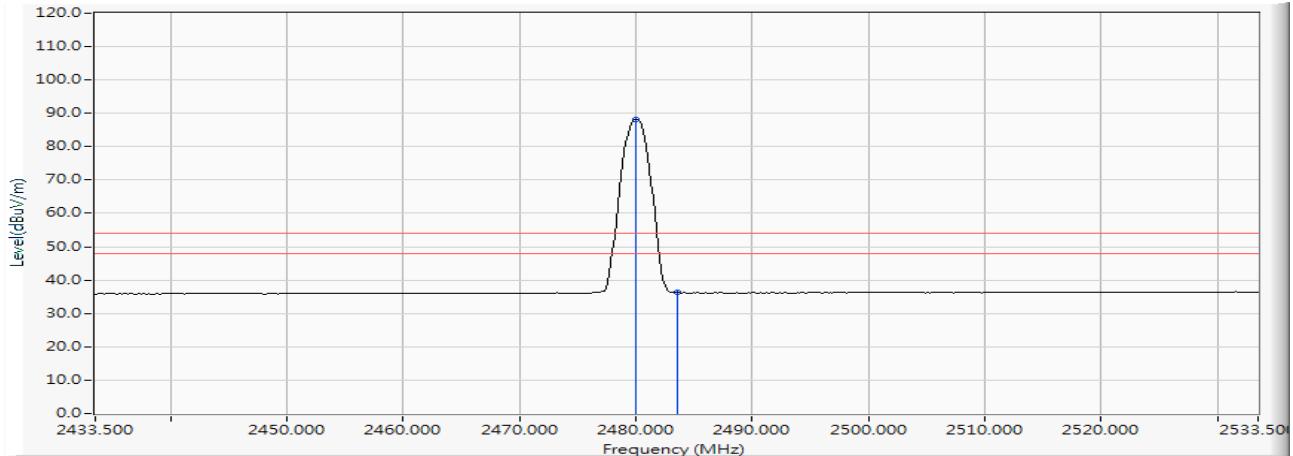
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dB $\mu$ V)	Measure Level (dB $\mu$ V/m)	Margin (dB)	Limit (dB $\mu$ V/m)	Detector Type
1	*	2479.732	10.627	79.056	89.683	--	--	PEAK
2		2483.500	10.640	38.006	48.647	-25.353	74.000	PEAK
3		2502.196	10.701	39.210	49.911	-24.089	74.000	PEAK

### Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Intel® Wi-Fi 6 AX200  
 Test Item : Band Edge  
 Test Mode : Mode 1: Transmit - BLE (2480MHz)  
 Test Date : 2019/06/24

### Horizontal



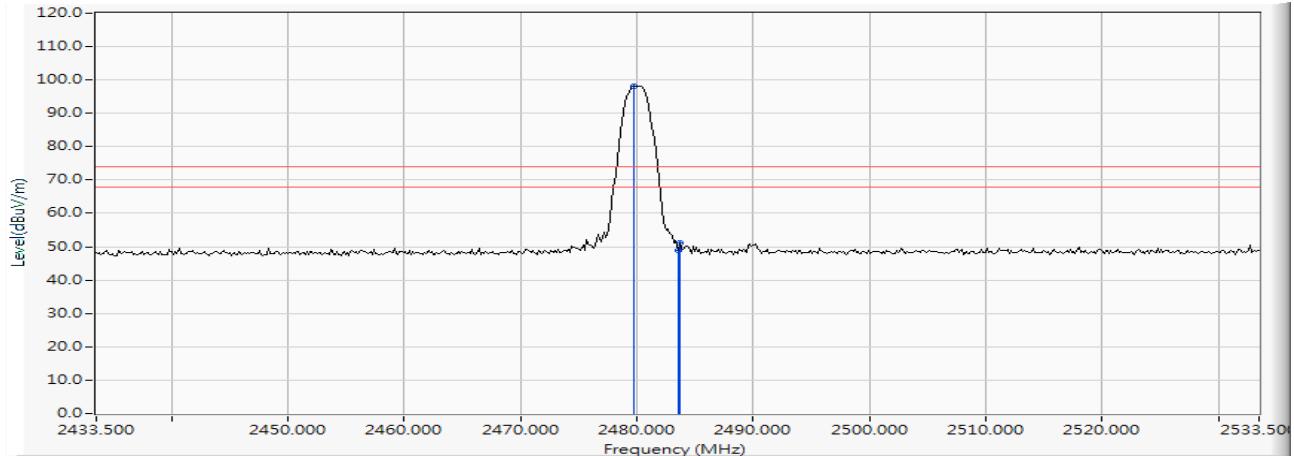
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dB $\mu$ V)	Measure Level (dB $\mu$ V/m)	Margin (dB)	Limit (dB $\mu$ V/m)	Detector Type
1	*	2480.022	10.628	77.645	88.273	--	--	AVERAGE
2		2483.500	10.640	25.600	36.241	-17.759	54.000	AVERAGE

### Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Intel® Wi-Fi 6 AX200  
 Test Item : Band Edge  
 Test Mode : Mode 1: Transmit - BLE (2480MHz)  
 Test Date : 2019/06/24

### Vertical



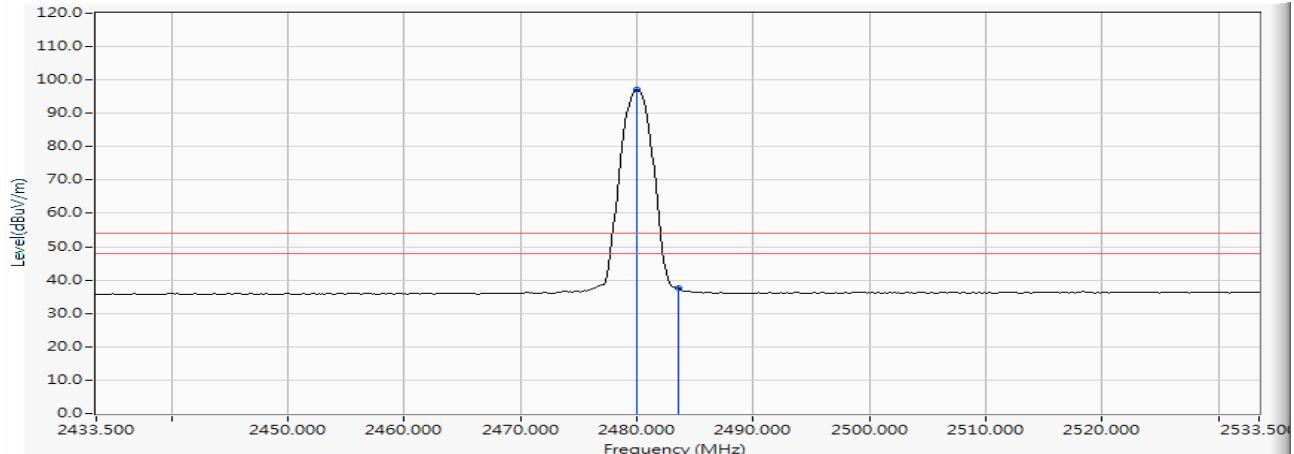
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dB $\mu$ V)	Measure Level (dB $\mu$ V/m)	Margin (dB)	Limit (dB $\mu$ V/m)	Detector Type
1	*	2479.732	10.627	87.537	98.164	--	--	PEAK
2		2483.500	10.640	38.362	49.003	-24.997	74.000	PEAK
3		2483.645	10.642	40.630	51.272	-22.728	74.000	PEAK

### Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Intel® Wi-Fi 6 AX200  
 Test Item : Band Edge  
 Test Mode : Mode 1: Transmit - BLE (2480MHz)  
 Test Date : 2019/06/24

### Vertical



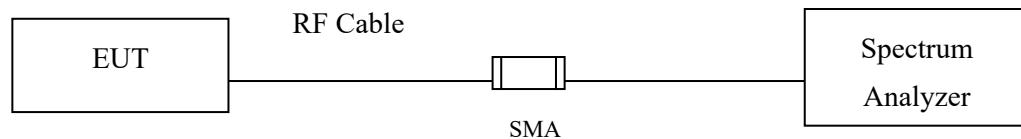
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dB $\mu$ V)	Measure Level (dB $\mu$ V/m)	Margin (dB)	Limit (dB $\mu$ V/m)	Detector Type
1	*	2480.022	10.628	86.379	97.007	--	--	AVERAGE
2		2483.500	10.640	26.985	37.626	-16.374	54.000	AVERAGE

### Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

## 5. Duty Cycle

### 5.1. Test Setup



### 5.2. Test Procedure

The EUT was setup according to ANSI C63.10 2013; tested according to DTS test procedure of KDB558074 for compliance to FCC 47CFR 15.247 requirements.

### 5.3. Uncertainty

± 2.31msec

## 5.4. Test Result of Duty Cycle

Product : Intel® Wi-Fi 6 AX200  
 Test Item : Duty Cycle  
 Test Mode : Mode 1: Transmit - BLE

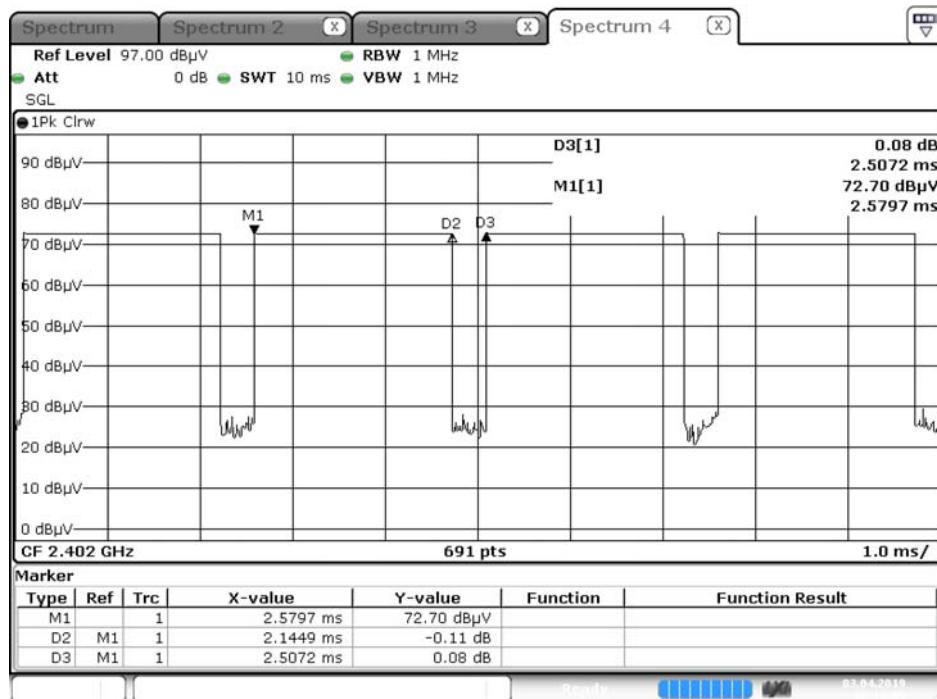
Duty Cycle Formula:

$$\text{Duty Cycle} = \text{Ton} / (\text{Ton} + \text{Toff})$$

$$\text{Duty Factor} = 10 \log (1/\text{Duty Cycle})$$

Results:

2.4GHz band	Ton (ms)	Ton + Toff (ms)	Duty Cycle (%)	Duty Factor (dB)
BLE	2.1449	2.5072	85.55	0.68



Date: 3.APR.2019 20:19:05

## **6. EMI Reduction Method During Compliance Testing**

No modification was made during testing.