

FCC Test Report

(Class II Permissive Change)

Product Name	Intel® Wireless-AC 9461
Model No.	9461D2W
FCC ID.	PD99461D2

Applicant	Intel Mobile Communications
Address	100 Center Point Circle, Suite 200 Columbia, South Carolina 29210 USA

Date of Receipt	Sep. 21, 2017
Issued Date	Jan. 24, 2018
Report No.	1790287R-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 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: Jan. 24, 2018

Report No.: 1790287R-RFUSP23V00-A



Product Name	Intel® Wireless-AC 9461
Applicant	Intel Mobile Communications
Address	100 Center Point Circle, Suite 200 Columbia, South Carolina 29210 USA
Manufacturer	Intel Mobile Communications
Model No.	9461D2W
FCC ID.	PD99461D2
EUT Rated Voltage	DC 3.3V
EUT Test Voltage	AC110/60Hz
Trade Name	Intel
Applicable Standard	FCC CFR Title 47 Part 15 Subpart C: 2015 ANSI C63.4: 2014, ANSI C63.10: 2013 KDB 558074 D01 DTS Meas Guidance v04
Test Result	Complied

Documented By :



(Senior Adm. Specialist / Jinn Chen)

Tested By :



(Engineer / Bill Lin)

Approved By :



(Director / Vincent Lin)

TABLE OF CONTENTS

Description	Page
1. GENERAL INFORMATION	4
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
2. PEAK POWER OUTPUT	10
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
3. RADIATED EMISSION	12
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
4. BAND EDGE	20
4.1. Test Setup	20
4.2. Limit	21
4.3. Test Procedure	21
4.4. Uncertainty	22
4.5. Test Result of Band Edge	23
5. DUTY CYCLE	27
5.1. Test Setup	27
5.2. Test Procedure	27
5.3. Uncertainty	27
5.4. Test Result of Duty Cycle.....	28
Attachment 1: EUT Test Photographs	
Attachment 2: EUT Detailed Photographs	

1. GENERAL INFORMATION

1.1. EUT Description

Product Name	Intel® Wireless-AC 9461
Trade Name	Intel
Model No.	9461D2W
FCC ID.	PD99461D2
Frequency Range	2402 – 2480MHz
Channel Number	V5.0: 40CH
Type of Modulation	V5.0: GFSK
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 (External)	Dipole	2.89dBi for 2.4 GHz

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 an Intel® Wireless-AC 9461 with a built-in 802.11 a/b/g/n/ac Wireless LAN + BDR/EDR 2.1 + BLE 5.0 transceiver, this report for Bluetooth V5.0.
2. These tests were conducted on a sample for the purpose of demonstrating compliance of Bluetooth 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: PD99461D2, originally granted on 10/06/2017.
The major change filed under this application is:
Change #1:
Addition of new dipole type antenna is different from originally antenna type.
Manufacturer. WIESON, Part no. GY121HT0321-003-H (External)
Change #2:
Reduce the Output Power through firmware and SAR measurement were evaluated.

Test Mode	Mode 1: Transmit - BLE (5.0)
-----------	------------------------------

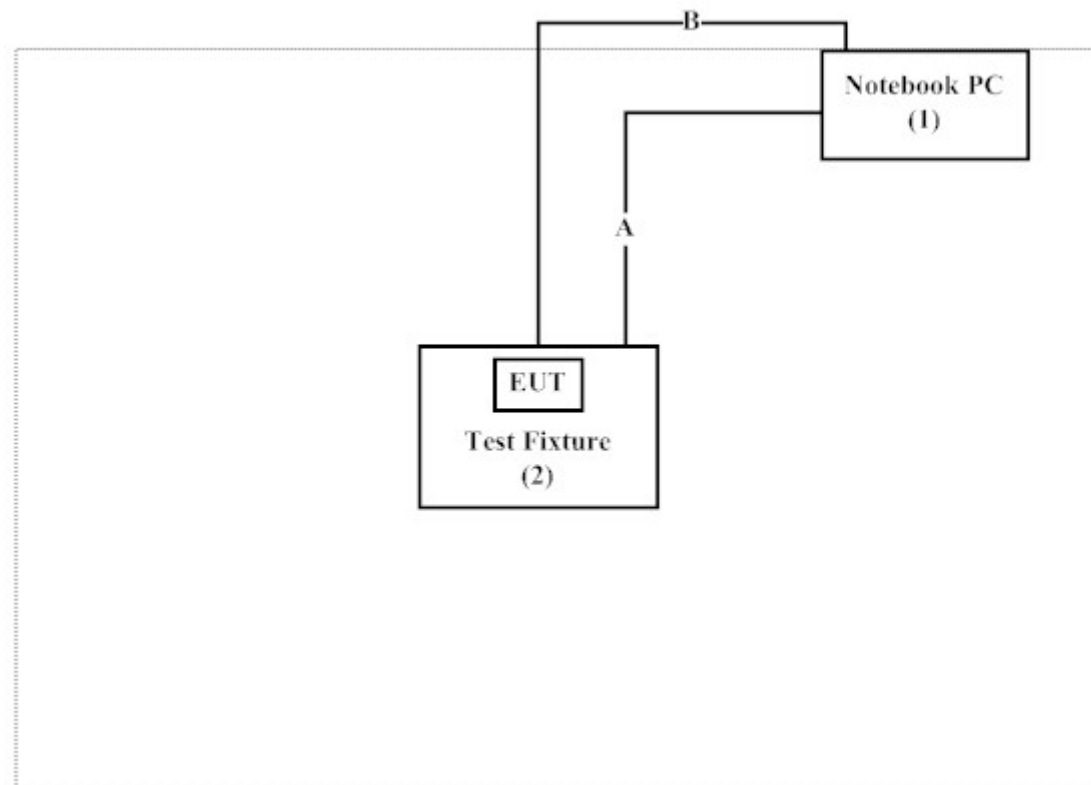
1.3. Tested System Details

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	Notebook PC	DELL	P62G	9TSGJC2	Non-Shielded, 1.8m
2	Test Fixture	Intel	N/A	N/A	N/A

Signal Cable Type		Signal cable Description
A	USB Cable	Shielded, 1.8m
B	Single Cable	Non-Shielded, 1.0m

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 10.1742.0-06126)" 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.aspx

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

FCC Accreditation Number: TW3023

1.7. List of Test Equipment

For Conducted measurements /ASR4

	Equipment	Manufacturer	Model No.	Serial No.	Cali. Data	Due. Data
X	Spectrum Analyzer	R&S	FSV30	103464	2017.01.24	2018.01.23
X	Power Meter	Anritsu	ML2496A	1548003	2017.12.11	2018.12.10
X	Power Sensor	Anritsu	MA2411B	1531024	2017.12.11	2018.12.10
X	Power Sensor	Anritsu	MA2411B	1531025	2017.12.11	2018.12.10
	Bluetooth Tester	R&S	CBT	101238	2018.01.18	2019.01.17

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 Conduction Test System V8.0.110

For Radiated measurements /ACB1

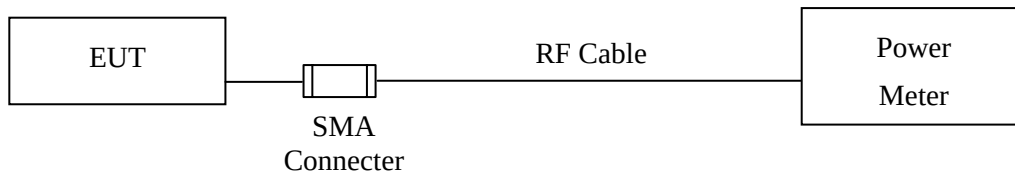
	Equipment	Manufacturer	Model No.	Serial No.	Cali. Data	Due. Data
X	Loop Antenna	TESEQ	HLA6121	37133	2016.03.18	2018.03.17
X	Bi-Log Antenna	SCHWARZBECK	VULB9168	9168-674	2017.02.13	2018.02.12
X	Horn Antenna	ETS-Lindgren	3117	00203800	2017.11.10	2018.11.09
X	Horn Antenna	Com-Power	AH-840	101087	2017.05.24	2018.05.23
X	Pre-Amplifier	EMCI	EMC001330	980316	2017.05.16	2018.05.15
X	Pre-Amplifier	EMCI	EMC051835SE	980311	2017.05.17	2018.05.16
X	Pre-Amplifier	EMCI	EMC05820SE	980310	2017.05.17	2018.05.16
X	Pre-Amplifier	EMCI	EMC184045SE	980314	2017.05.17	2018.05.16
X	Filter	MICRO TRONICS	BRM50702	G251	2017.08.30	2018.08.29
	Filter	MICRO TRONICS	BRM50716	G188	2017.08.30	2018.08.29
X	EMI Test Receiver	R&S	ESR7	101602	2017.12.11	2018.12.10
X	Spectrum Analyzer	R&S	FSV40	101148	2018.01.11	2019.01.10
X	Coaxial Cable	SUHNER	SUCOFLEX 106	RF002	2017.05.25	2018.05.24
X	Mircoflex Cable	HUBER SUHNER	SUCOFLEX 102	MY3381/2	2017.08.11	2018.08.10

Note:

1. Loop Antenna is calibrated every two year, the other 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 9.1.3 PKPM1 Peak power meter method.

2.4. Uncertainty

± 0.86 dB

2.5. Test Result of Peak Power Output

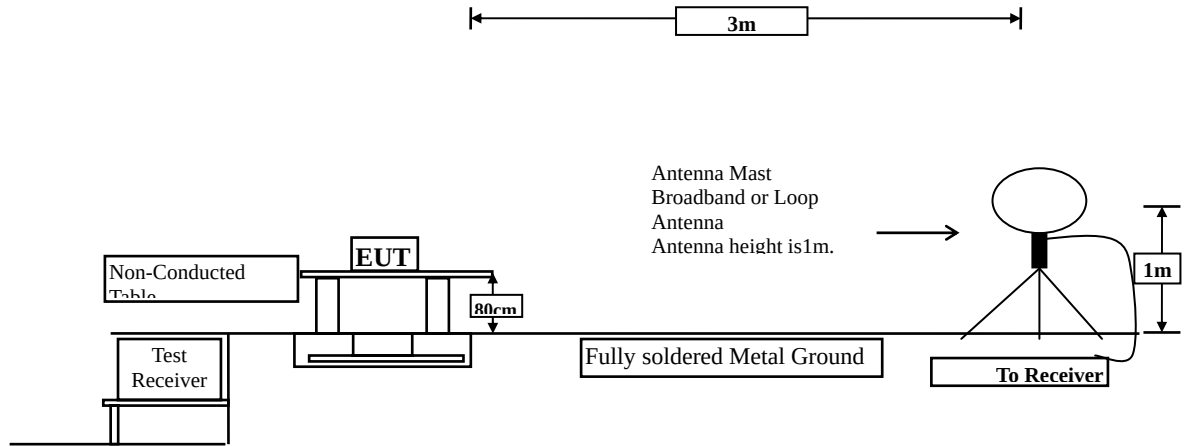
Product : Intel® Wireless-AC 9461
Test Item : Peak Power Output
Test date : 2018/01/16
Test Mode : Mode 1: Transmit - BLE (5.0)

Channel No.	Frequency (MHz)	Measurement (dBm)	Required Limit	Result
Channel 00	2402.00	8.64	1 Watt= 30 dBm	Pass
Channel 19	2440.00	8.93	1 Watt= 30 dBm	Pass
Channel 39	2480.00	9.04	1 Watt= 30 dBm	Pass

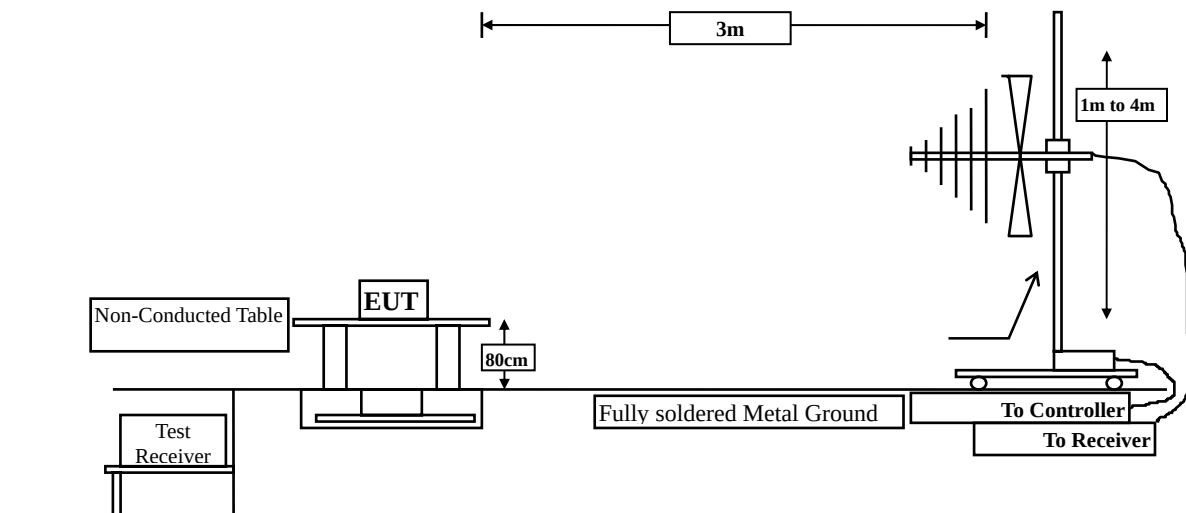
3. Radiated Emission

3.1. Test Setup

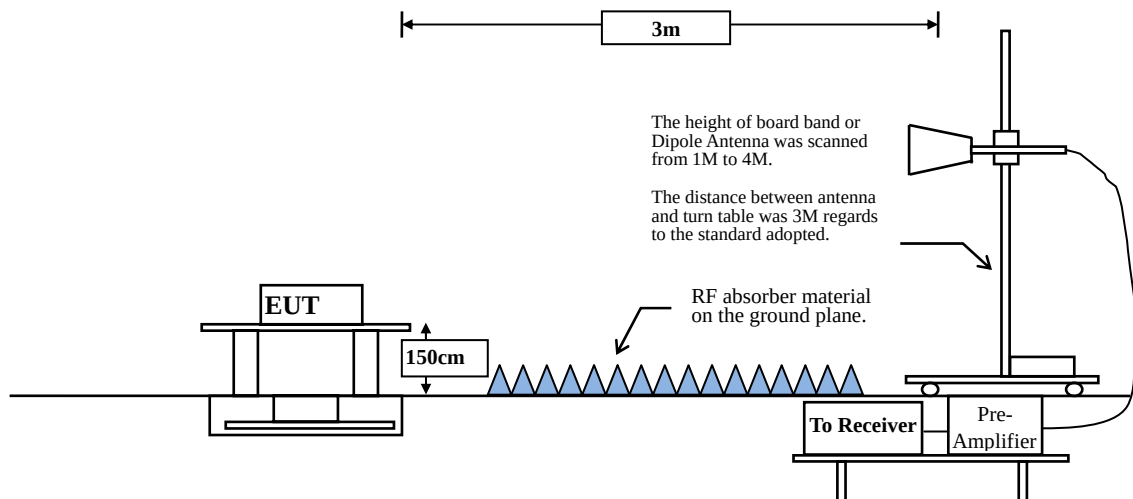
Radiated Emission Under 30MHz



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 (dBμV) = 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 worst radiated emission is measured in the Open Area Test Site on the Final Measurement.

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

RBW and VBW Parameter setting:

According to KDB 558074 section 12.2.4. 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 section 12.2.5. 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	57.53	1.0797	926	1k

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® Wireless-AC 9461
 Test Item : Harmonic Radiated Emission
 Test date : 2018/01/17
 Test Mode : Mode 1: Transmit - BLE (5.0) (2402MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level	dB	dB μ V/m
	dB	dB μ V	dB μ V/m		
Horizontal					
Peak Detector:					
4804.000	-2.875	49.920	47.046	-26.954	74.000
7206.000	0.384	44.510	44.894	-29.106	74.000
9608.000	2.338	43.770	46.108	-27.892	74.000
Average					
Detector:					
--					
Vertical					
Peak Detector:					
4804.000	-2.875	54.730	51.856	-22.144	74.000
7206.000	0.384	44.840	45.224	-28.776	74.000
9608.000	2.338	43.470	45.808	-28.192	74.000
Average					
Detector:					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Intel® Wireless-AC 9461
 Test Item : Harmonic Radiated Emission
 Test date : 2018/01/17
 Test Mode : Mode 1: Transmit - BLE (5.0) (2440MHz)

Frequency MHz	Correct Factor dB	Reading Level dBμV	Measurement Level dBμV/m	Margin dB	Limit dBμV/m
Horizontal					
Peak Detector:					
4880.000	-2.817	48.700	45.882	-28.118	74.000
7320.000	0.464	44.920	45.384	-28.616	74.000
9760.000	2.608	44.120	46.727	-27.273	74.000
Average					
Detector:					
--					
Vertical					
Peak Detector:					
4880.000	-2.817	53.280	50.462	-23.538	74.000
7320.000	0.464	46.470	46.934	-27.066	74.000
9760.000	2.608	44.110	46.717	-27.283	74.000
Average					
Detector:					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Intel® Wireless-AC 9461
 Test Item : Harmonic Radiated Emission
 Test date : 2018/01/17
 Test Mode : Mode 1: Transmit - BLE (5.0) (2480MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dB μ V	dB μ V/m	dB	dB μ V/m
Horizontal					
Peak Detector:					
4960.000	-2.791	48.600	45.809	-28.191	74.000
7440.000	0.499	45.260	45.759	-28.241	74.000
9920.000	2.917	43.610	46.527	-27.473	74.000
Average					
Detector:					
--					
Vertical					
Peak Detector:					
4960.000	-2.791	52.660	49.869	-24.131	74.000
7440.000	0.499	47.070	47.569	-26.431	74.000
9920.000	2.917	43.760	46.677	-27.323	74.000
Average					
Detector:					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Intel® Wireless-AC 9461
 Test Item : General Radiated Emission
 Test date : 2017/12/19
 Test Mode : Mode 1: Transmit - BLE (5.0) (2440MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
98.884	-16.030	53.263	37.233	-6.267	43.500
264.768	-11.147	37.672	26.525	-19.475	46.000
437.681	-6.466	38.705	32.239	-13.761	46.000
600.754	-3.062	33.359	30.297	-15.703	46.000
797.565	-0.353	33.259	32.905	-13.095	46.000
938.145	1.309	29.791	31.101	-14.899	46.000
Vertical					
171.986	-11.127	37.395	26.268	-17.232	43.500
360.362	-8.467	33.428	24.962	-21.038	46.000
499.536	-5.312	36.735	31.423	-14.577	46.000
648.551	-2.643	30.046	27.403	-18.597	46.000
798.971	-0.336	32.755	32.418	-13.582	46.000
950.797	1.444	29.575	31.019	-14.981	46.000

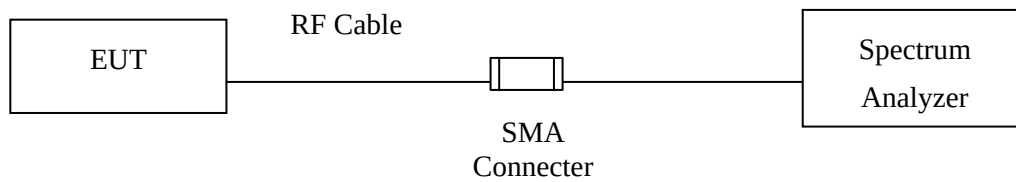
Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.
8. No emission found between lowest internal used/generated frequency to 30MHz.

4. Band Edge

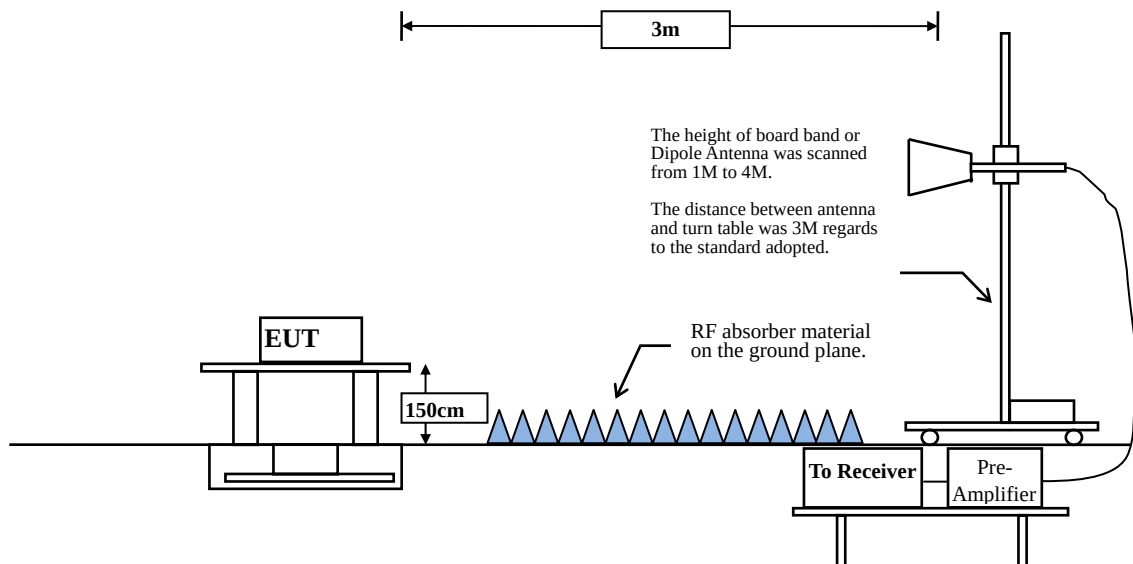
4.1. Test Setup

RF Conducted Measurement



RF Radiated Measurement:

Above 1GHz



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 section 12.2.4. 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 section 12.2.5. 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	57.53	1.0797	926	1k

Note: Duty Cycle Refer to Section 5

4.4. Uncertainty

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

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

4.5. Test Result of Band Edge

Product : Intel® Wireless-AC 9461
 Test Item : Band Edge
 Test date : 2018/01/15
 Test Mode : Mode 1: Transmit - BLE (5.0)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
00 (Peak)	2384.058	12.131	38.171	50.302	74.000	54.000	Pass
00 (Peak)	2390.000	12.148	35.575	47.723	74.000	54.000	Pass
00 (Peak)	2400.000	12.176	64.482	76.658	--	--	--
00 (Peak)	2402.029	12.182	85.046	97.227	--	--	--
00 (Average)	2363.478	12.073	24.951	37.024	74.000	54.000	Pass
00 (Average)	2390.000	12.148	24.225	36.373	74.000	54.000	Pass
00 (Average)	2400.000	12.176	55.517	67.693	--	--	--
00 (Average)	2402.029	12.182	83.334	95.515	--	--	--

Figure Channel 00:

Horizontal (Peak)

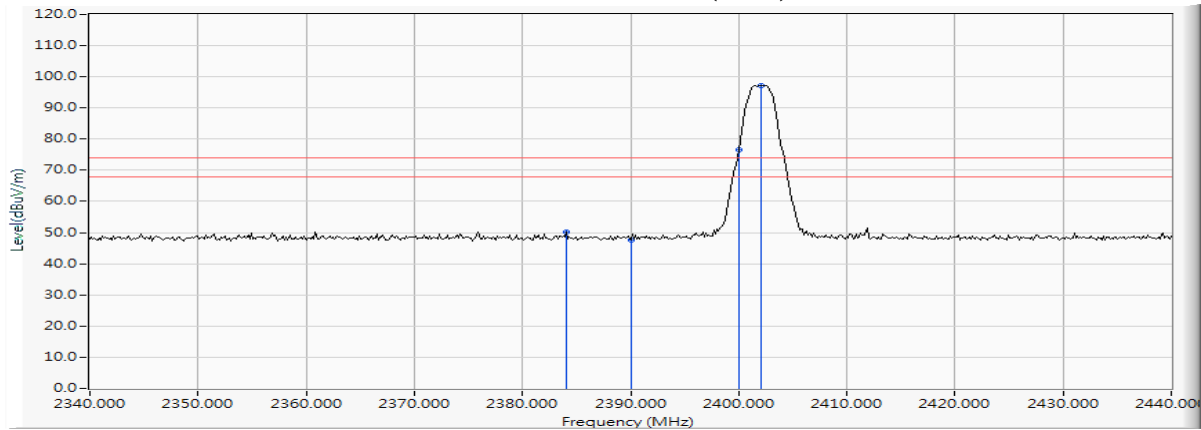
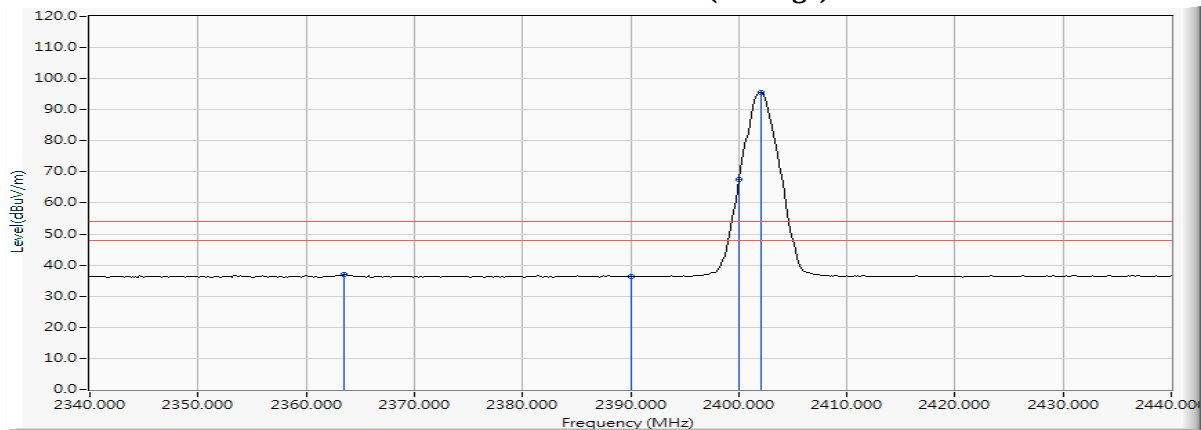


Figure Channel 00:

Horizontal (Average)



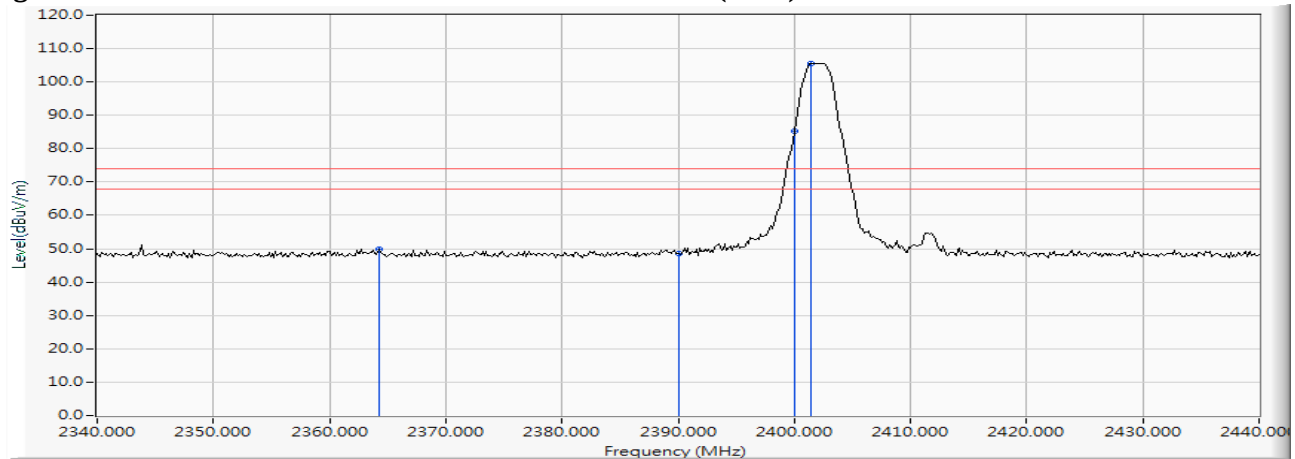
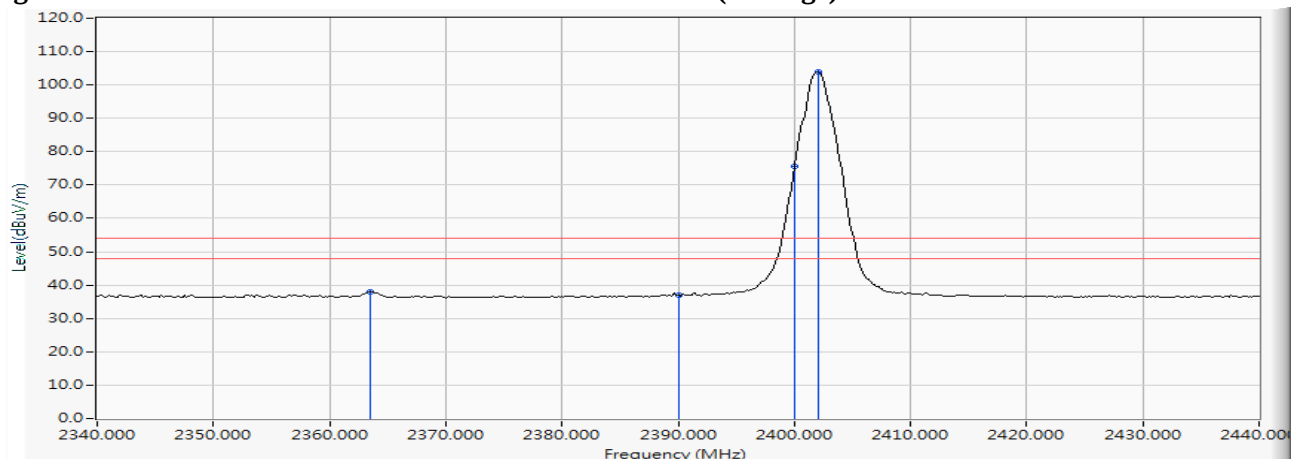
Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Intel® Wireless-AC 9461
 Test Item : Band Edge
 Test date : 2018/01/15
 Test Mode : Mode 1: Transmit - BLE (5.0)

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
00 (Peak)	2364.203	12.075	37.823	49.898	74.000	54.000	Pass
00 (Peak)	2390.000	12.148	36.296	48.444	74.000	54.000	Pass
00 (Peak)	2400.000	12.176	73.048	85.224	--	--	--
00 (Peak)	2401.449	12.179	93.442	105.622	--	--	--
00 (Average)	2363.478	12.073	25.908	37.981	74.000	54.000	Pass
00 (Average)	2390.000	12.148	24.826	36.974	74.000	54.000	Pass
00 (Average)	2400.000	12.176	63.500	75.676	--	--	--
00 (Average)	2402.029	12.182	91.665	103.846	--	--	--

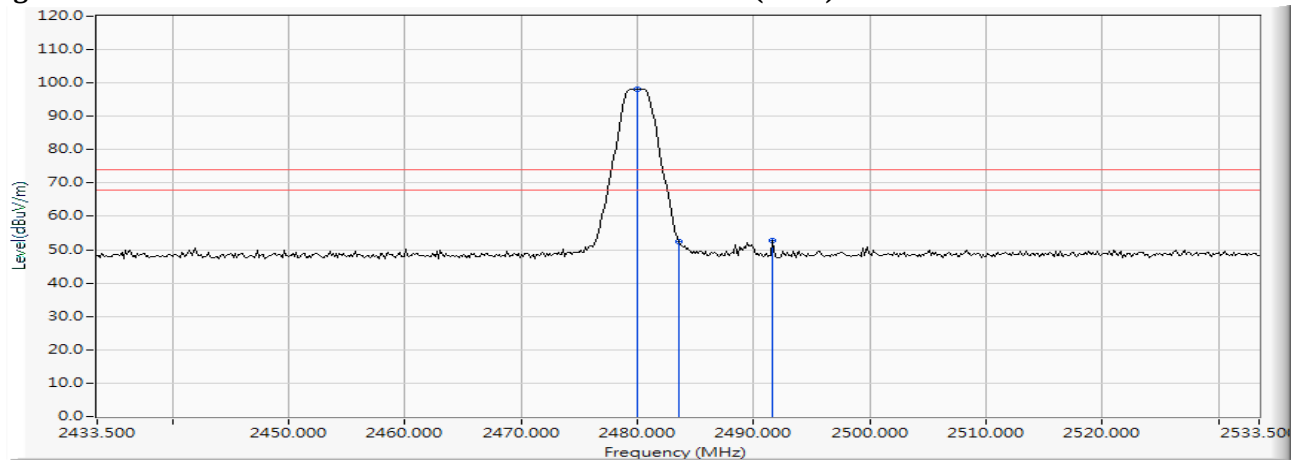
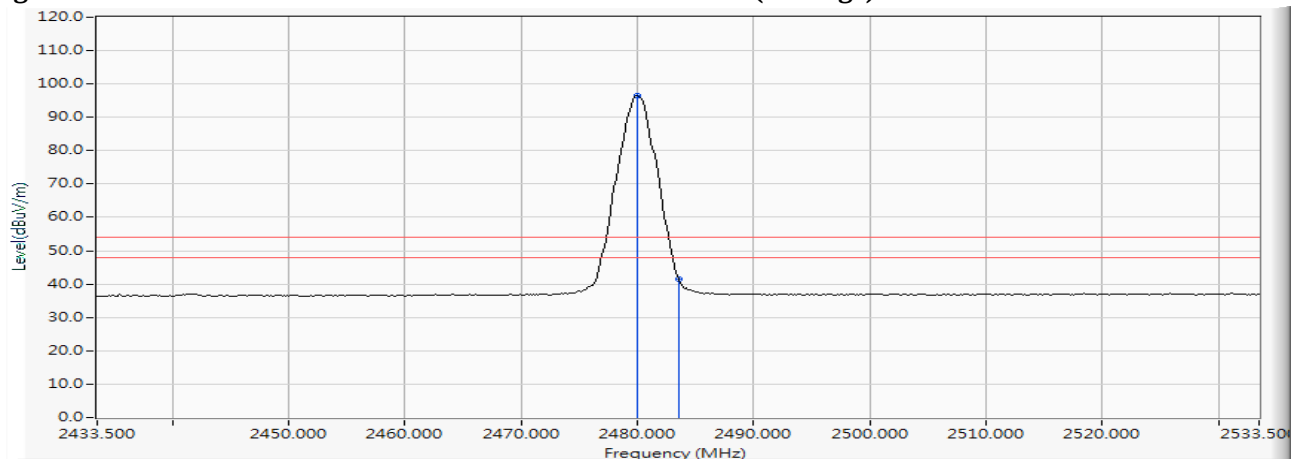
Figure Channel 00:
Vertical (Peak)

Figure Channel 00:
Vertical (Average)

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Intel® Wireless-AC 9461
 Test Item : Band Edge
 Test date : 2018/01/15
 Test Mode : Mode 1: Transmit - BLE (5.0)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
39 (Peak)	2480.022	12.393	85.814	98.207	--	--	--
39 (Peak)	2483.500	12.403	40.142	52.545	74.000	54.000	Pass
39 (Peak)	2491.616	12.425	40.222	52.647	74.000	54.000	Pass
39 (Average)	2480.022	12.393	84.043	96.436	--	--	--
39 (Average)	2483.500	12.403	29.090	41.493	74.000	54.000	Pass

Figure Channel 39:
Horizontal (Peak)

Figure Channel 39:
Horizontal (Average)


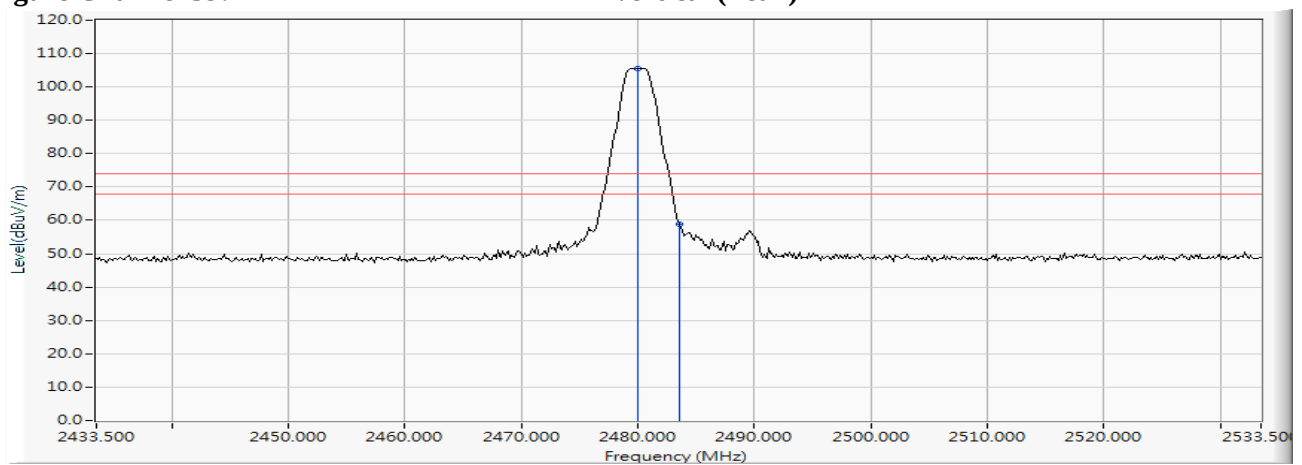
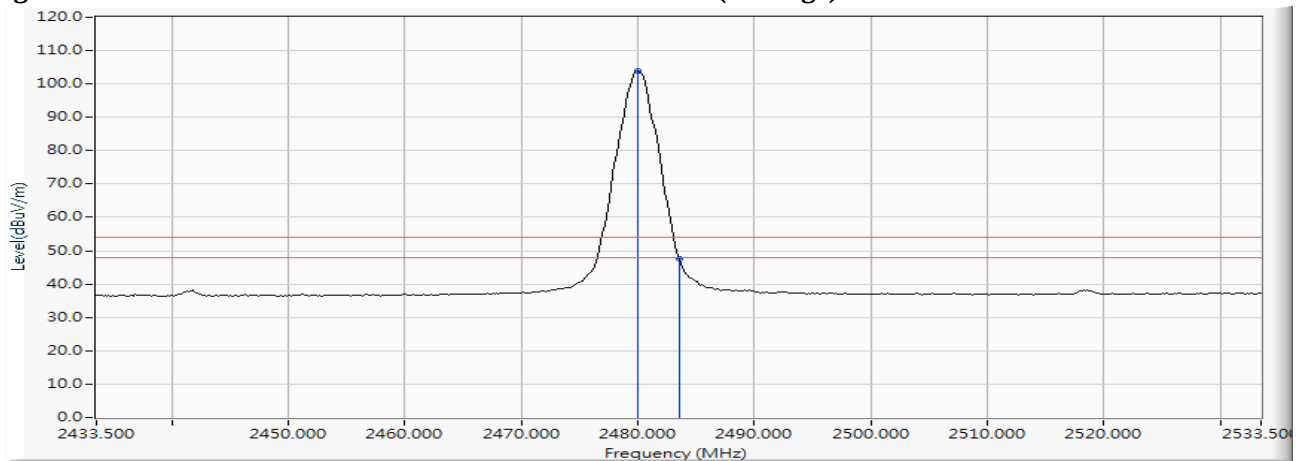
Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Intel® Wireless-AC 9461
 Test Item : Band Edge
 Test date : 2018/01/15
 Test Mode : Mode 1: Transmit - BLE (5.0)

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
39 (Peak)	2480.022	12.393	93.251	105.644	--	--	--
39 (Peak)	2483.500	12.403	46.616	59.019	74.000	54.000	Pass
39 (Average)	2480.022	12.393	91.483	103.876	--	--	--
39 (Average)	2483.500	12.403	35.096	47.499	74.000	54.000	Pass

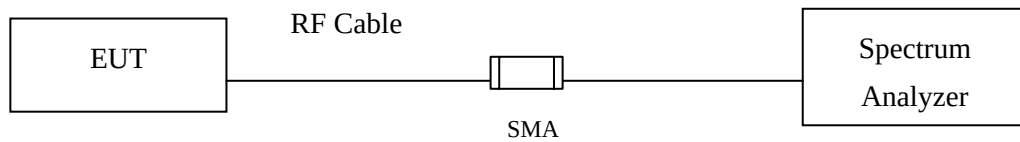
Figure Channel 39:
Vertical (Peak)

Figure Channel 39:
Vertical (Average)


Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. 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

$\pm 2.31\text{msec}$

5.4. Test Result of Duty Cycle

Product : Intel® Wireless-AC 9461
 Test Item : Duty Cycle
 Test Mode : Mode 1: Transmit - BLE (5.0)

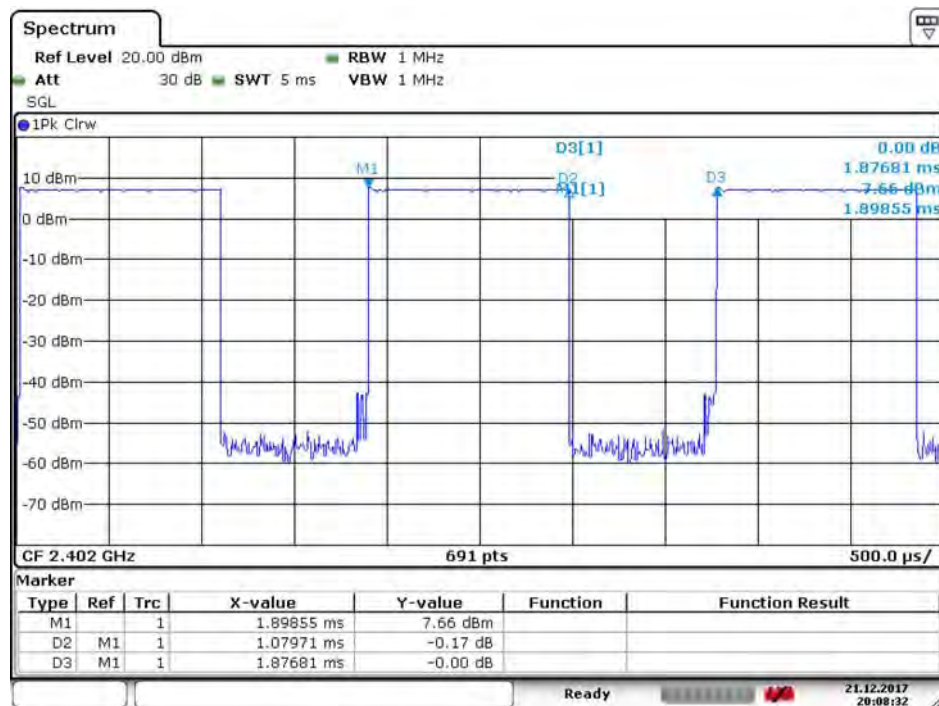
Duty Cycle Formula:

Duty Cycle = Ton / (Ton + Toff)

Duty Factor = 10 Log (1/Duty Cycle)

Results:

2.4GHz band	Ton (ms)	Ton + Toff (ms)	Duty Cycle (%)	Duty Factor (dB)
BLE	1.0797	1.8768	57.53	2.40



Date: 21.DEC.2017 20:08:32