

FCC Test Report

(Class II Permissive Change)

Product Name	Intel® Wireless-AC 9462
Model No.	9462NGW
FCC ID.	PD99462NG

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

Date of Receipt	Feb. 22, 2018
Issued Date	Mar. 28, 2018
Report No.	1820196R-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: Mar. 28, 2018

Report No.: 1820196R-RFUSP23V00-A



Product Name	Intel® Wireless-AC 9462
Applicant	Intel Mobile Communications
Address	100 Center Point Circle, Suite 200 Columbia, South Carolina 29210 USA
Manufacturer	Intel Mobile Communications
Model No.	9462NGW
FCC ID.	PD99462NG
EUT Rated Voltage	DC 3.3V (via Mini-PCI Express slot)
EUT Test Voltage	DC 3.3V (via Mini-PCI Express slot)
Trade Name	Intel
Applicable Standard	FCC CFR Title 47 Part 15 Subpart C: 2017 ANSI C63.4: 2014, ANSI C63.10: 2013 KDB 558074 D01 DTS Meas Guidance v04
Test Result	Complied

Documented By :



(Senior Adm. Specialist / Rita Huang)

Tested By :



(Engineer / Jason Tuan)

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 Item and 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.....	24
4.1. Test Setup.....	24
4.2. Limit	25
4.3. Test Procedure	25
4.4. Uncertainty.....	25
4.5. Test Result of Band Edge.....	26
5. DUTY CYCLE.....	34
5.1. Test Setup.....	34
5.2. Test Procedure	34
5.3. Uncertainty.....	34
5.4. Test Result of Duty Cycle	35
6. EMI REDUCTION METHOD DURING COMPLIANCE TESTING.....	36
Attachment 1: EUT Test Photographs	
Attachment 2: EUT Detailed Photographs	

1. GENERAL INFORMATION

1.1. EUT Description

Product Name	Intel® Wireless-AC 9462
Trade Name	Intel
Model No.	9462NGW
FCC ID.	PD99462NG
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 / GY121C888-001-H(Main) 、 GY121HT0321-003-H / GY121C888-001-H(Aux)	Dipole	2.89dBi for 2.4 GHz

Note: The antenna of EUT is conform to FCC 15.203

Center Frequency of Each Channel:

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 9462 with a built-in WLAN 、Bluetooth 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: PD99462NG, originally granted on 12/11/2017.
The major change filed under this application is:
Change #1: Addition an new antenna, antenna type is different with the original application.
(Antenna type: Dipole Antenna)
#2: Reduce the Output Power through firmware, All other hardware is identical with original granted.

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

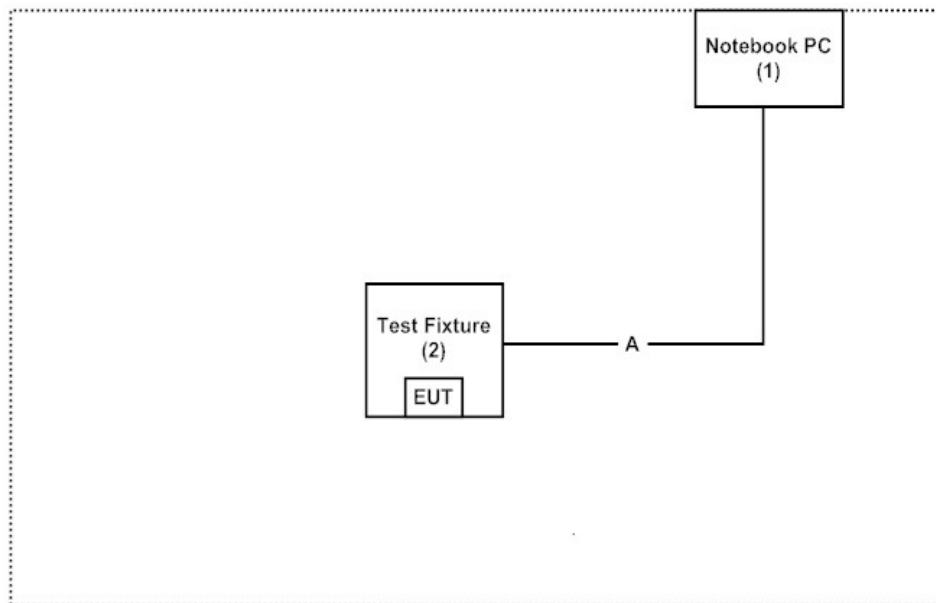
1.3. Tested System Details

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	N/A	N/A
2	Test Fixture	Intel	N/A	N/A

Signal Cable Type	Signal cable Description
A	Test Fixture Line

1.4. Configuration of Tested System



1.5. EUT Exercise Software

- (1) Setup the EUT as shown on 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) Start the continuous transmission.
- (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/chinese/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](http://www.dekra.com.tw)

Site Description: Accredited by TAF
Accredited Number: 3023

Site Name: DEKRA Testing and Certification Co., Ltd
Site Address: No.5-22, Ruishukeng, Linkou Dist., New Taipei City 24451,
Taiwan, R.O.C.
TEL : 886-2-8601-3788 / FAX : 886-2-8601-3789
E-Mail : info.tw@dekra.com

FCC Accreditation Number: TW3023

1.7. List of Test Item and Equipment

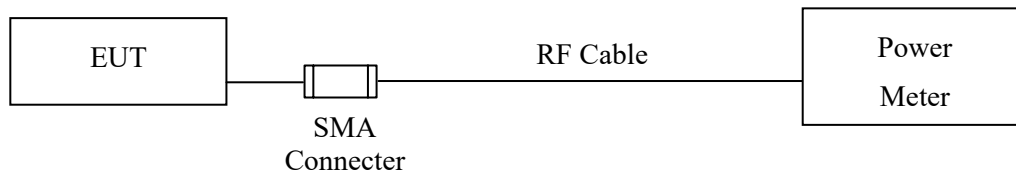
	Equipment	Manufacturer	Model No.	Serial No.	Cali. Data	Due. Data
X	Power Meter	Keysight	8990B	MY51000410	2017/8/16	2018/8/15
X	Wideband power sensor	Keysight	N1923A	MY5608003	2017/8/16	2018/8/15
X	Spectrum Analyzer	R&S	FSP40	100170	2018/1/5	2019/1/3
	Loop Antenna	TESEQ	HLA6121	37133	2018/3/18	2019/3/17
X	Bi-Log Antenna	Schaffner Chase	CBL6112B	2707	2017/6/11	2018/6/10
X	Horn Antenna	ETS-Lindgren	3117	00203761	2017/10/15	2018/10/13
	Horn Antenna	Schwarzbeck	BBHA9170	209	2017/4/14	2018/4/13
X	Pre-Amplifier	QuieTek	QTK-LK-E-I-AMP4	N/A	2017/6/16	2018/6/15
X	Pre-Amplifier	EMCI	EMC012630SE	980210	2018/1/26	2019/1/24
	Pre-Amplifier	NARDA WE	DBL-1840N506	013	2017/8/6	2018/8/4
X	Filter	MicroTRON	BRM50701	019	2017/10/20	2018/10/18
	Filter	Microwave Circuits	N0257881	36681	2017/12/7	2018/12/5
X	Coaxial Cable	QTK(Arnist)	SUCOFLEX 106	L1606-015C	2017/6/23	2018/6/22
X	EMI Test Receiver	R&S	ESCS 30	838251/001	2017/7/21	2018/7/20
X	Coaxial Cable	QTK(Arnist)	RG 214	LC003-RG	2017/6/16	2018/6/15
X	Coaxial signal switch	Anritsu	MP59B	6201415889	2017/6/16	2018/6/15

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 9.1.3 PKPM1 Peak power meter method.

2.4. Uncertainty

± 1.27 dB

2.5. Test Result of Peak Power Output

Product : Intel® Wireless-AC 9462
Test Item : Peak Power Output
Test Site : No.3 OATS
Test date : 2018/03/13
Test Mode : Mode 1: Transmit - BLE (GFSK)

Chain A

Channel No.	Frequency (MHz)	Measurement (dBm)	Required Limit	Result
Channel 00	2402.00	7.86	1 Watt= 30 dBm	Pass
Channel 19	2440.00	8.01	1 Watt= 30 dBm	Pass
Channel 39	2480.00	7.62	1 Watt= 30 dBm	Pass

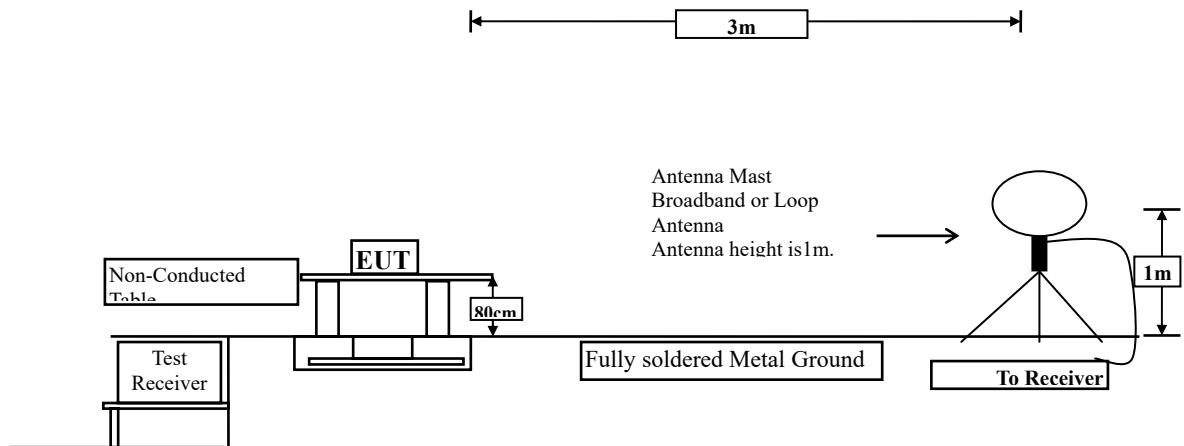
Chain B

Channel No.	Frequency (MHz)	Measurement (dBm)	Required Limit	Result
Channel 00	2402.00	7.98	1 Watt= 30 dBm	Pass
Channel 19	2440.00	8.37	1 Watt= 30 dBm	Pass
Channel 39	2480.00	8.45	1 Watt= 30 dBm	Pass

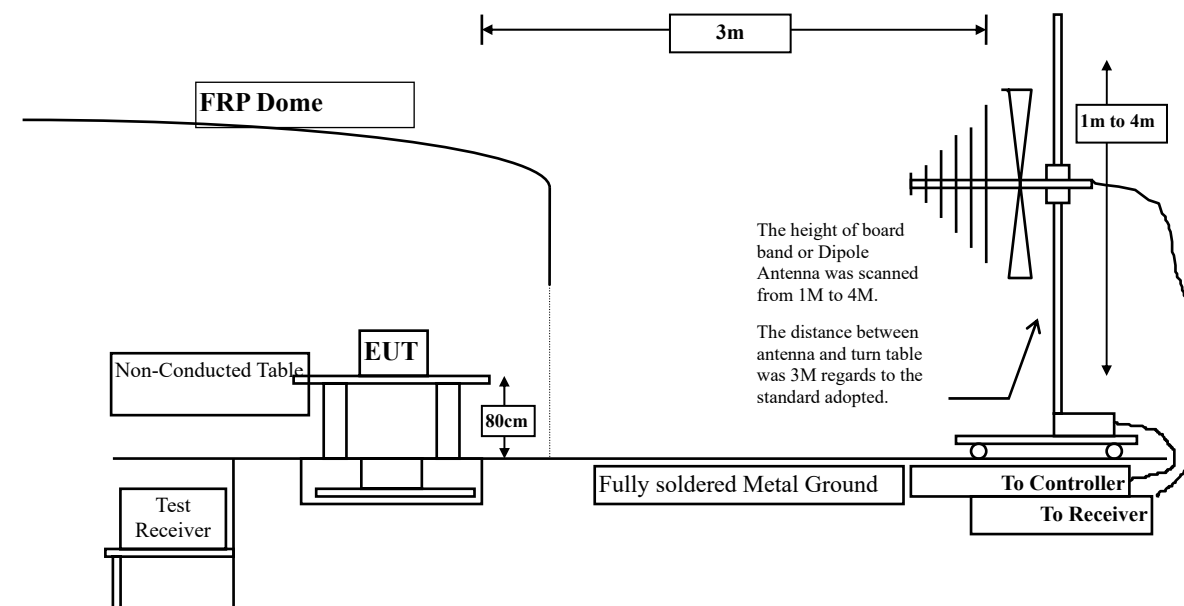
3. Radiated Emission

3.1. Test Setup

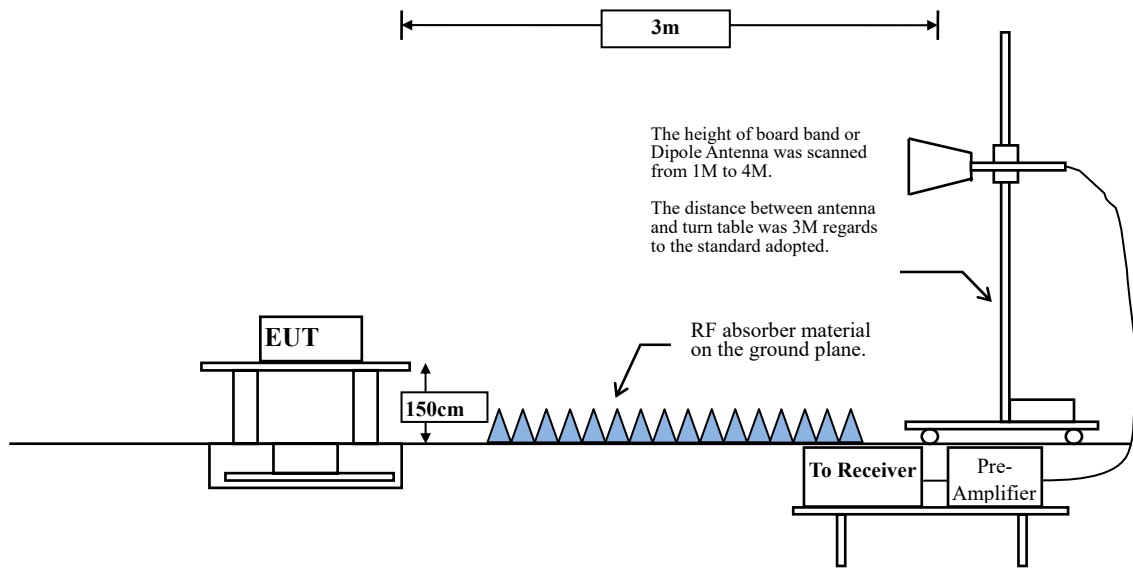
Under 30MHz



Below 1GHz



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 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.

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	57.69	1.087	0.9199	1000

Note: Duty Cycle Refer to Section 5

3.4. Uncertainty

± 4.08 dB above 1GHz

± 4.22 dB below 1GHz

3.5. Test Result of Radiated Emission

Product : Intel® Wireless-AC 9462
 Test Item : Harmonic Radiated Emission
 Test Site : No.3 OATS
 Test date : 2018/03/14
 Test Mode : Mode 1: Transmit - BLE (GFSK)(2402MHz) - Chain A

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
4804.000	-9.896	46.620	36.724	-37.276	74.000
7206.000	-5.013	48.920	43.907	-30.093	74.000
9608.000	-1.472	44.260	42.789	-31.211	74.000
Average					
Detector:					
--	--	--	--	--	54.000
Vertical					
Peak Detector:					
4804.000	-6.585	50.030	43.445	-30.555	74.000
7206.000	-4.144	49.600	45.456	-28.544	74.000
9608.000	-1.075	45.660	44.586	-29.414	74.000
Average					
Detector:					
--	--	--	--	--	54.000

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® Wireless-AC 9462
 Test Item : Harmonic Radiated Emission
 Test Site : No.3 OATS
 Test date : 2018/03/14
 Test Mode : Mode 1: Transmit - BLE (GFSK) (2440MHz) - Chain A

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4880.000	-10.307	46.330	36.023	-37.977	74.000
7320.000	-3.857	48.210	44.353	-29.647	74.000
9760.000	-2.579	43.020	40.442	-33.558	74.000
Average					
Detector:					
--	--	--	--	--	54.000
Vertical					
Peak Detector:					
4880.000	-7.579	49.570	41.991	-32.009	74.000
7320.000	-2.987	49.100	46.113	-27.887	74.000
9760.000	-2.107	44.110	42.003	-31.997	74.000
Average					
Detector:					
--	--	--	--	--	54.000

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® Wireless-AC 9462
 Test Item : Harmonic Radiated Emission
 Test Site : No.3 OATS
 Test date : 2018/03/14
 Test Mode : Mode 1: Transmit - BLE (GFSK) (2480MHz) - Chain A

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
4960.000	-10.666	45.690	35.025	-38.975	74.000
7440.000	-3.631	44.270	40.639	-33.361	74.000
9920.000	-2.397	45.430	43.033	-30.967	74.000
Average					
Detector:					
--	--	--	--	--	54.000
Vertical					
Peak Detector:					
4960.000	-7.869	49.410	41.542	-32.458	74.000
7440.000	-2.772	44.530	41.758	-32.242	74.000
9920.000	-1.895	44.540	42.645	-31.355	74.000
Average					
Detector:					
--	--	--	--	--	54.000

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® Wireless-AC 9462
 Test Item : Harmonic Radiated Emission
 Test Site : No.3 OATS
 Test date : 2018/03/13
 Test Mode : Mode 1: Transmit - BLE (GFSK)(2402MHz) - Chain B

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
4804.000	-9.896	50.170	40.274	-33.726	74.000
7206.000	-5.013	49.680	44.667	-29.333	74.000
9608.000	-1.472	44.360	42.889	-31.111	74.000
Average					
Detector:					
--	--	--	--	--	54.000
Vertical					
Peak Detector:					
4804.000	-6.585	49.800	43.215	-30.785	74.000
7206.000	-4.144	49.620	45.476	-28.524	74.000
9608.000	-1.075	45.970	44.896	-29.104	74.000
Average					
Detector:					
--	--	--	--	--	54.000

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® Wireless-AC 9462
 Test Item : Harmonic Radiated Emission
 Test Site : No.3 OATS
 Test date : 2018/03/14
 Test Mode : Mode 1: Transmit - BLE (GFSK) (2440MHz) - Chain B

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4880.000	-10.307	46.610	36.303	-37.697	74.000
7320.000	-3.857	47.760	43.903	-30.097	74.000
9760.000	-2.579	43.270	40.692	-33.308	74.000
Average					
Detector:					
--	--	--	--	--	54.000
Vertical					
Peak Detector:					
4880.000	-7.579	49.680	42.101	-31.899	74.000
7320.000	-2.987	49.570	46.583	-27.417	74.000
9760.000	-2.107	44.860	42.753	-31.247	74.000
Average					
Detector:					
--	--	--	--	--	54.000

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® Wireless-AC 9462
 Test Item : Harmonic Radiated Emission
 Test Site : No.3 OATS
 Test date : 2018/03/14
 Test Mode : Mode 1: Transmit - BLE (GFSK) (2480MHz) - Chain B

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
4960.000	-10.666	46.090	35.425	-38.575	74.000
7440.000	-3.631	44.940	41.309	-32.691	74.000
9920.000	-2.397	45.400	43.003	-30.997	74.000
Average					
Detector:					
--	--	--	--	--	54.000
Vertical					
Peak Detector:					
4960.000	-7.869	49.010	41.142	-32.858	74.000
7440.000	-2.772	46.340	43.568	-30.432	74.000
9920.000	-1.895	46.180	44.285	-29.715	74.000
Average					
Detector:					
--	--	--	--	--	54.000

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® Wireless-AC 9462
 Test Item : General Radiated Emission
 Test Site : No.3 OATS
 Test date : 2018/03/16
 Test Mode : Mode 1: Transmit - BLE (GFSK) (2440MHz) - Chain A

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
30.970	-0.328	39.000	38.672	-1.328	40.000
106.630	-7.622	44.325	36.703	-6.797	43.500
191.990	-9.887	47.757	37.870	-5.630	43.500
369.500	0.787	33.713	34.500	-11.500	46.000
532.460	3.099	26.686	29.785	-16.215	46.000
829.280	7.376	23.197	30.573	-15.427	46.000
Vertical					
106.630	-4.302	42.941	38.639	-4.861	43.500
191.990	-5.637	40.181	34.544	-8.956	43.500
382.110	0.521	27.907	28.427	-17.573	46.000
531.490	1.197	30.500	31.696	-14.304	46.000
798.240	2.629	24.519	27.147	-18.853	46.000
944.710	3.340	24.371	27.711	-18.289	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.

Product : Intel® Wireless-AC 9462
 Test Item : General Radiated Emission
 Test Site : No.3 OATS
 Test date : 2018/03/16
 Test Mode : Mode 1: Transmit - BLE (GFSK) (2440MHz) - Chain B

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
30.000	-0.150	37.346	37.196	-2.804	40.000
106.630	-7.622	43.919	36.297	-7.203	43.500
191.990	-9.887	43.646	33.759	-9.741	43.500
401.510	0.924	31.221	32.145	-13.855	46.000
532.460	3.099	30.753	33.852	-12.148	46.000
853.530	7.278	22.938	30.216	-15.784	46.000
Vertical					
106.630	-4.302	42.987	38.685	-4.815	43.500
215.270	-5.945	45.614	39.669	-3.831	43.500
389.870	-0.732	29.585	28.852	-17.148	46.000
533.430	1.220	36.043	37.263	-8.737	46.000
628.490	-0.677	30.234	29.557	-16.443	46.000
796.300	2.639	24.531	27.170	-18.830	46.000

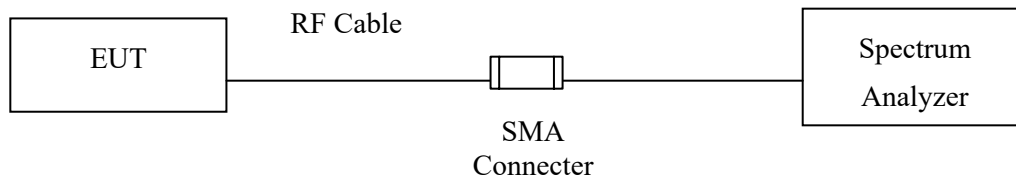
Note:

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

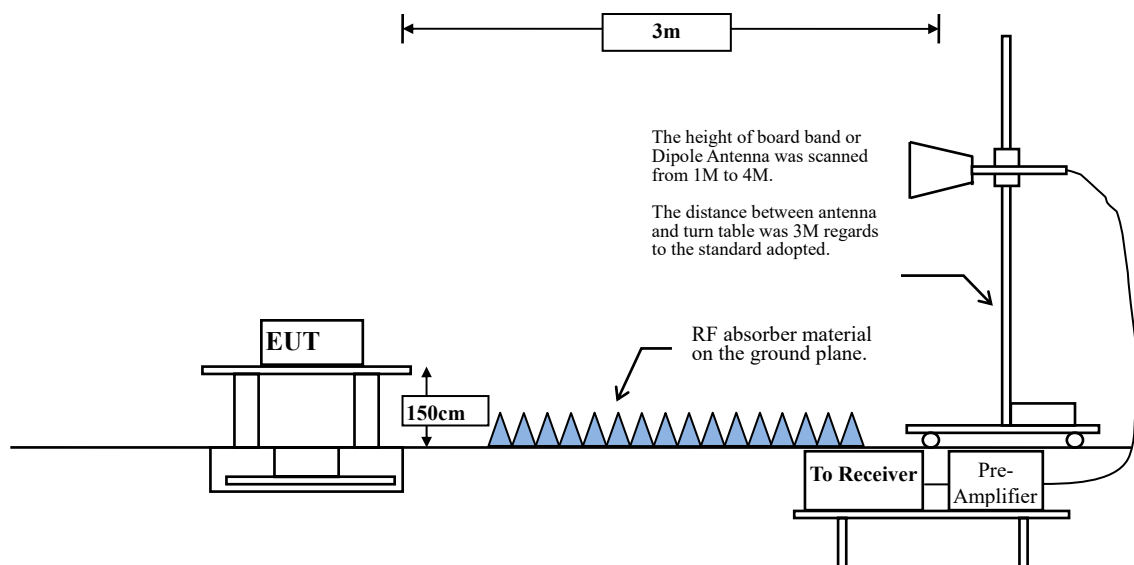
4.1. Test Setup

RF Conducted Measurement



RF Radiated Measurement:

Above 1GHz



4.2. Limit

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum 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 a radiated measurement. 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.

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	57.69	1.087	0.9199	1000

Note: Duty Cycle Refer to Section 5

4.4. Uncertainty

± 4.08 dB above 1GHz

± 4.22 dB below 1GHz

4.5. Test Result of Band Edge

Product : Intel® Wireless-AC 9462
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test date : 2018/03/02
 Test Mode : Mode 1: Transmit - BLE (GFSK) (2402MHz) - Chain A

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)	2357.536	6.330	42.524	48.854	74.000	54.000	Pass
00 (Peak)	2390.000	6.474	40.982	47.457	74.000	54.000	Pass
00 (Peak)	2400.000	6.528	65.789	72.317	--	--	--
00 (Peak)	2402.609	6.544	86.667	93.211	--	--	--
00 (Average)	2363.623	6.357	25.748	32.105	74.000	54.000	Pass
00 (Average)	2390.000	6.474	23.289	29.764	74.000	54.000	Pass
00 (Average)	2400.000	6.528	56.374	62.902	--	--	--
00 (Average)	2402.029	6.540	85.351	91.891	--	--	--

Figure Channel 00:

Horizontal (Peak)

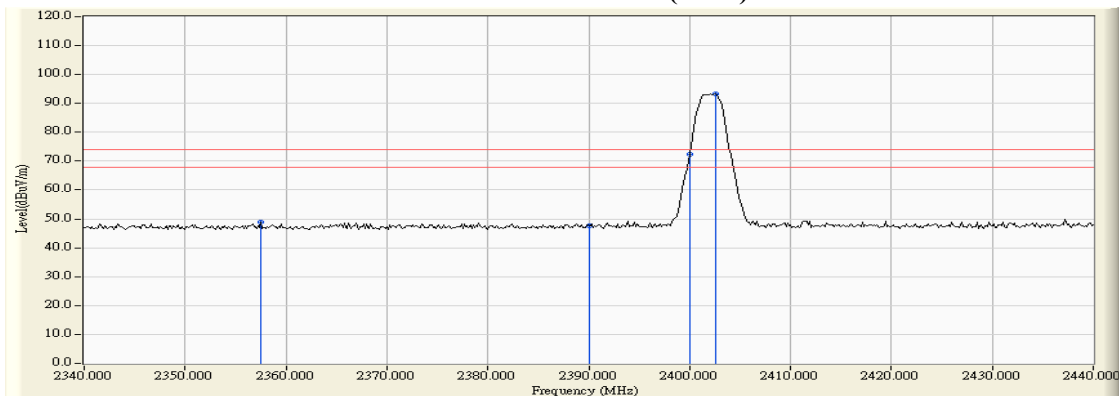
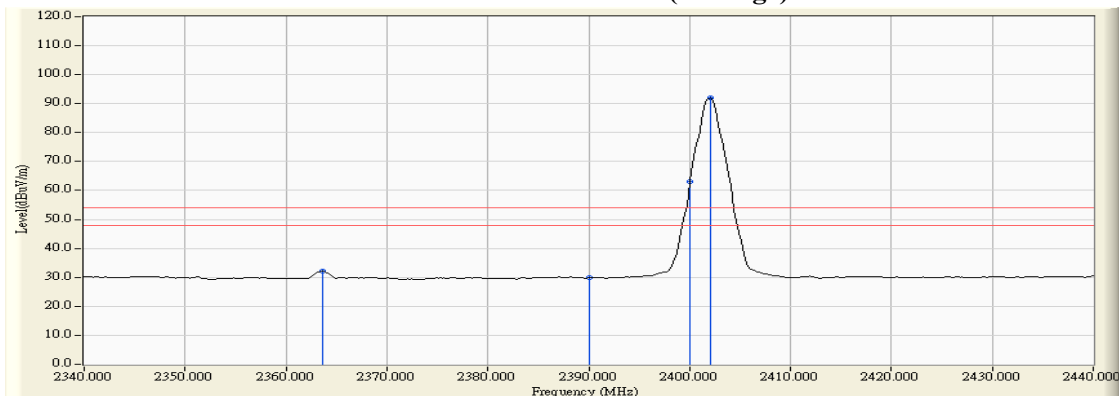


Figure Channel 00:

Horizontal (Average)



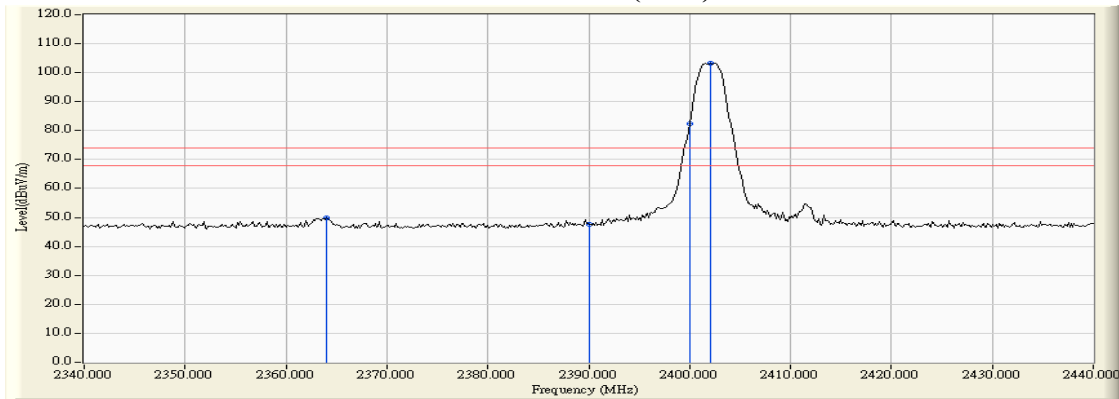
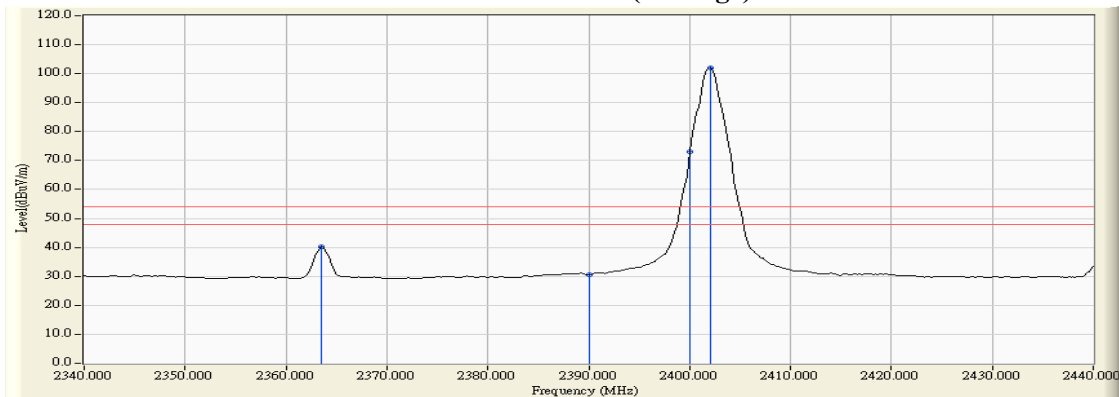
Note:

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

Product : Intel® Wireless-AC 9462
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test date : 2018/03/02
 Test Mode : Mode 1: Transmit - BLE (GFSK) (2402MHz) - Chain A

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)	2364.058	5.987	43.910	49.897	74.000	54.000	Pass
00 (Peak)	2390.000	5.880	41.852	47.733	74.000	54.000	Pass
00 (Peak)	2400.000	5.879	76.603	82.482	--	--	--
00 (Peak)	2402.029	5.884	97.268	103.152	--	--	--
00 (Average)	2363.478	5.989	34.273	40.262	74.000	54.000	Pass
00 (Average)	2390.000	5.880	24.755	30.636	74.000	54.000	Pass
00 (Average)	2400.000	5.879	67.205	73.084	--	--	--
00 (Average)	2402.029	5.884	96.073	101.957	--	--	--

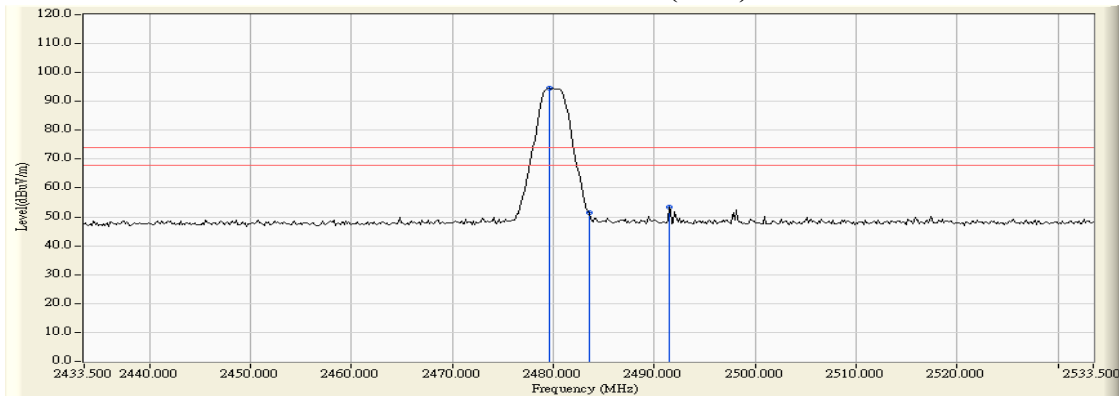
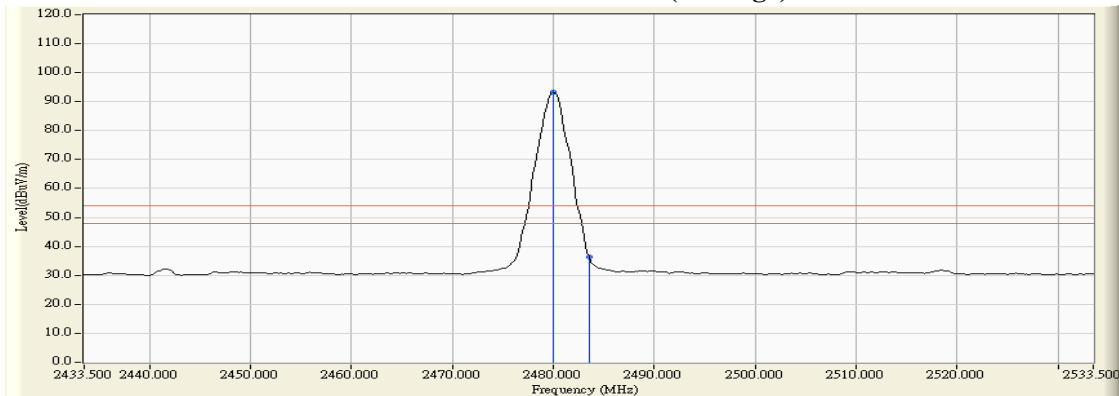
Figure Channel 00:**Vertical (Peak)****Figure Channel 00:****Vertical (Average)****Note:**

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

Product : Intel® Wireless-AC 9462
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test date : 2018/03/02
 Test Mode : Mode 1: Transmit - BLE (GFSK) (2480MHz) - Chain A

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)	2479.587	7.082	87.660	94.742	--	--	--
39 (Peak)	2483.500	7.110	44.235	51.345	74.000	54.000	Pass
39 (Peak)	2491.471	7.167	46.128	53.294	74.000	54.000	Pass
39 (Average)	2480.022	7.086	86.248	93.333	--	--	--
39 (Average)	2483.500	7.110	29.096	36.206	74.000	54.000	Pass

Figure Channel 39: Horizontal (Peak)

Figure Channel 39: Horizontal (Average)


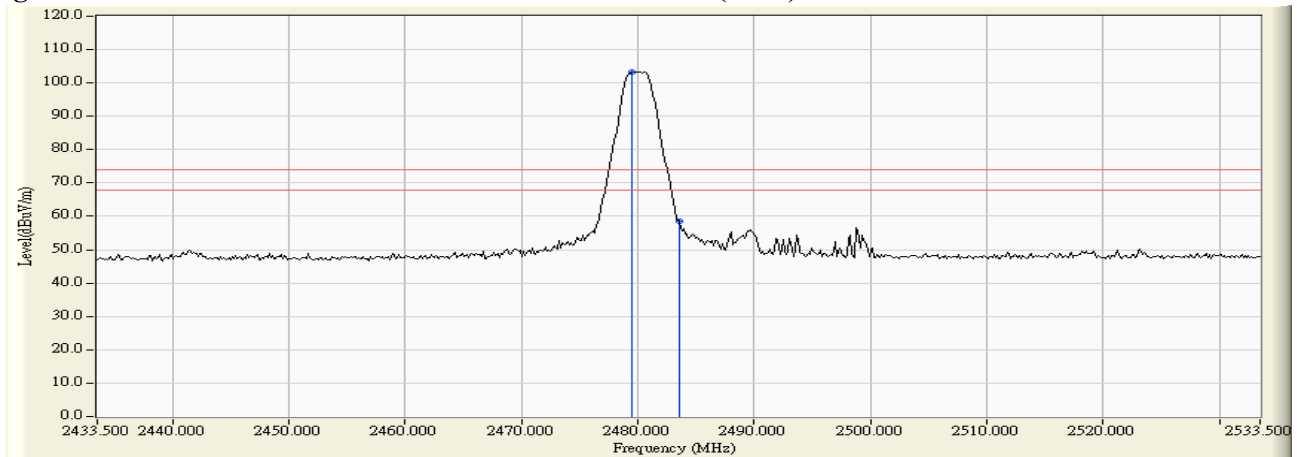
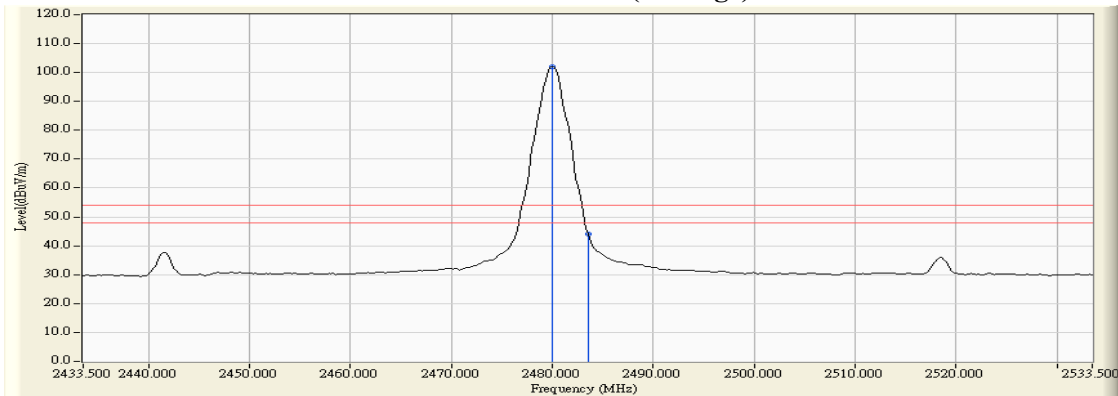
Note:

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

Product : Intel® Wireless-AC 9462
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test date : 2018/03/02
 Test Mode : Mode 1: Transmit - BLE (GFSK) (2480MHz) - Chain A

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)	2479.442	6.337	96.960	103.298	--	--	--
39 (Peak)	2483.500	6.363	52.293	58.656	74.000	54.000	Pass
39 (Average)	2480.022	6.342	95.724	102.066	--	--	--
39 (Average)	2483.500	6.363	37.660	44.023	74.000	54.000	Pass

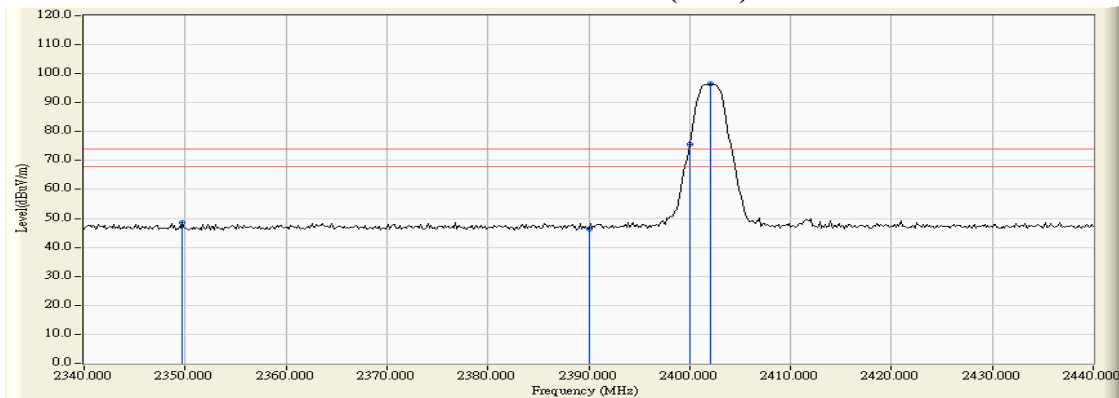
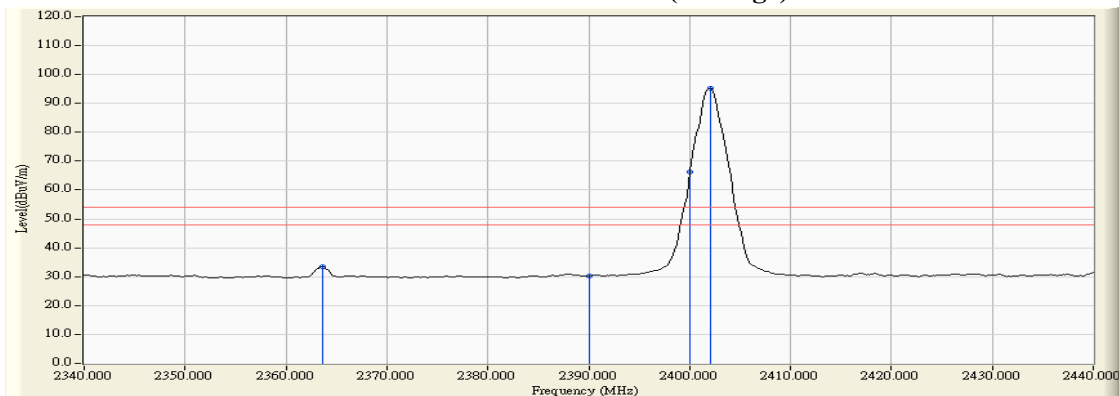
Figure Channel 39:**Vertical (Peak)****Figure Channel 39:****Vertical (Average)****Note:**

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

Product : Intel® Wireless-AC 9462
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test date : 2018/03/02
 Test Mode : Mode 1: Transmit - BLE (GFSK) (2402MHz) - Chain B

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)	2349.710	6.296	42.341	48.637	74.000	54.000	Pass
00 (Peak)	2390.000	6.474	39.839	46.314	74.000	54.000	Pass
00 (Peak)	2400.000	6.528	68.918	75.446	--	--	--
00 (Peak)	2402.029	6.540	89.822	96.362	--	--	--
00 (Average)	2363.623	6.357	27.218	33.575	74.000	54.000	Pass
00 (Average)	2390.000	6.474	23.645	30.120	74.000	54.000	Pass
00 (Average)	2400.000	6.528	59.780	66.308	--	--	--
00 (Average)	2402.029	6.540	88.675	95.215	--	--	--

Figure Channel 00:**Horizontal (Peak)****Figure Channel 00:****Horizontal (Average)**

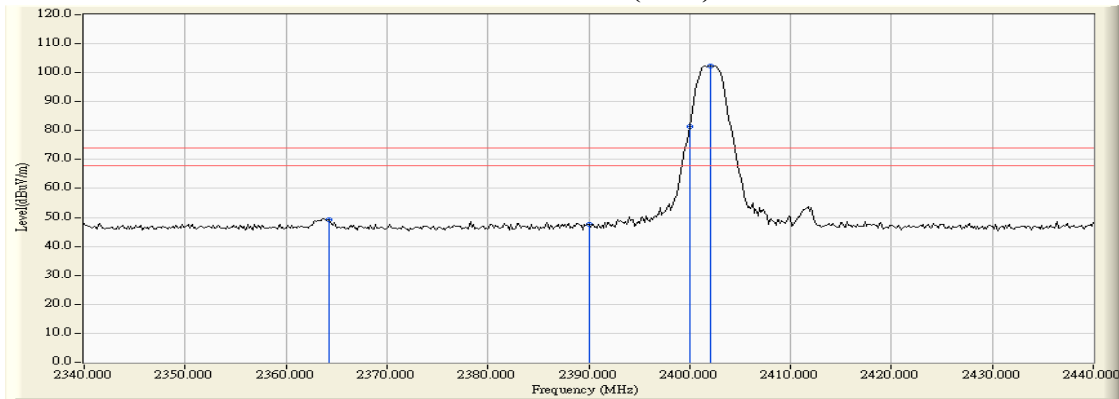
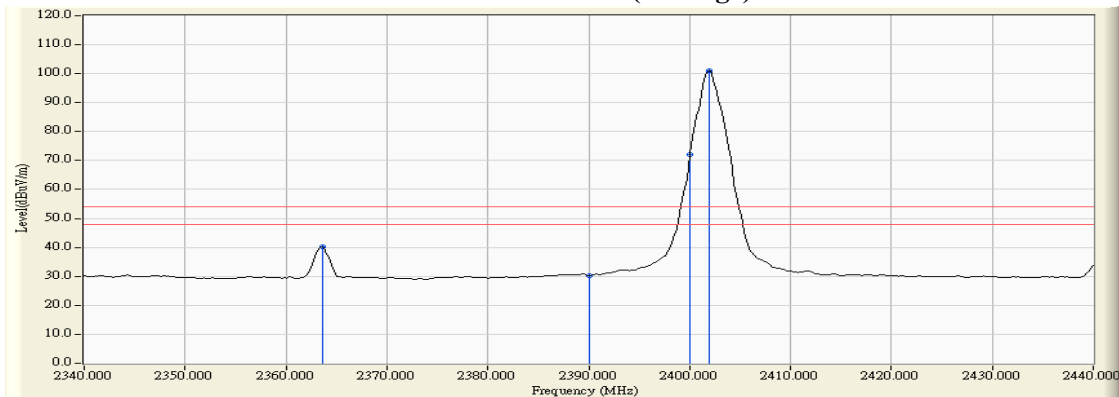
Note:

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

Product : Intel® Wireless-AC 9462
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test date : 2018/03/02
 Test Mode : Mode 1: Transmit - BLE (GFSK) (2402MHz) - Chain B

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	5.986	43.365	49.351	74.000	54.000	Pass
00 (Peak)	2390.000	5.880	41.683	47.564	74.000	54.000	Pass
00 (Peak)	2400.000	5.879	75.513	81.392	--	--	--
00 (Peak)	2402.029	5.884	96.397	102.281	--	--	--
00 (Average)	2363.623	5.989	34.265	40.254	74.000	54.000	Pass
00 (Average)	2390.000	5.880	24.256	30.137	74.000	54.000	Pass
00 (Average)	2400.000	5.879	66.108	71.987	--	--	--
00 (Average)	2401.884	5.884	95.099	100.983	--	--	--

Figure Channel 00:
Vertical (Peak)

Figure Channel 00:
Vertical (Average)


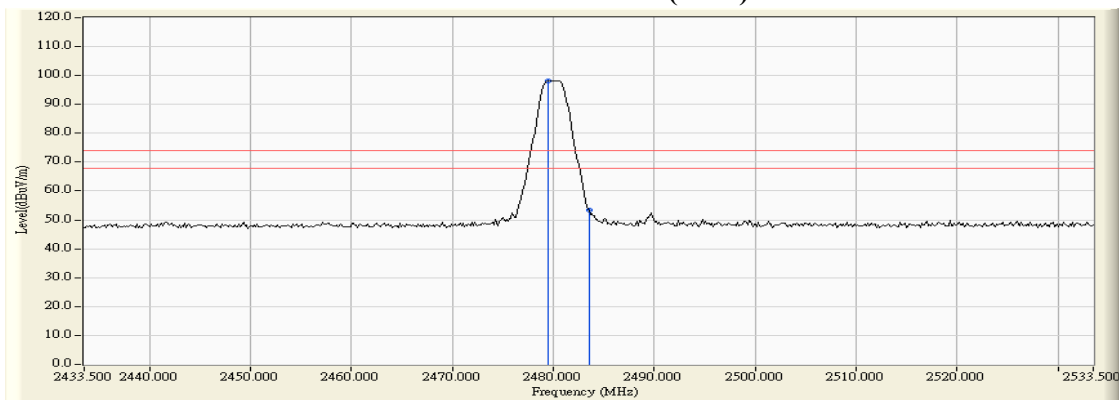
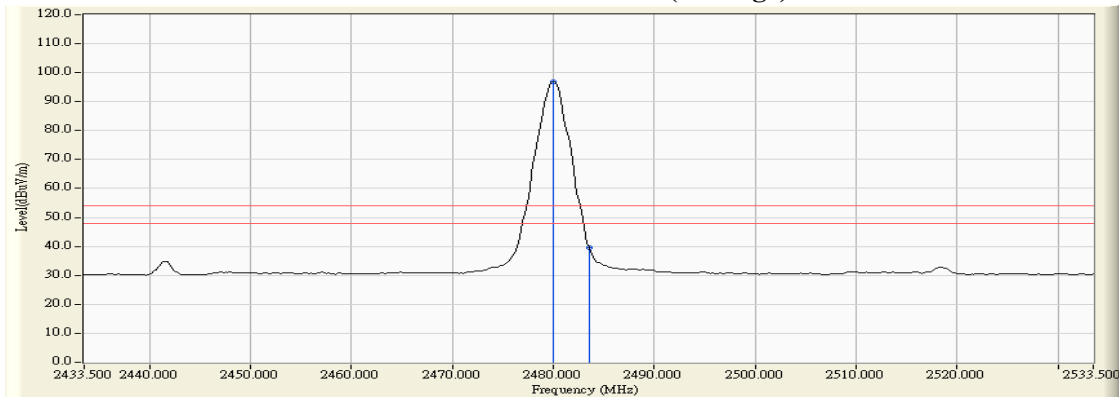
Note:

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

Product : Intel® Wireless-AC 9462
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test date : 2018/03/02
 Test Mode : Mode 1: Transmit - BLE (GFSK) (2480MHz) - Chain B

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)	2479.442	7.081	91.139	98.220	--	--	--
39 (Peak)	2483.500	7.110	46.400	53.510	74.000	54.000	Pass
39 (Average)	2480.022	7.086	89.891	96.976	--	--	--
39 (Average)	2483.500	7.110	32.361	39.471	74.000	54.000	Pass

Figure Channel 39: Horizontal (Peak)

Figure Channel 39: Horizontal (Average)


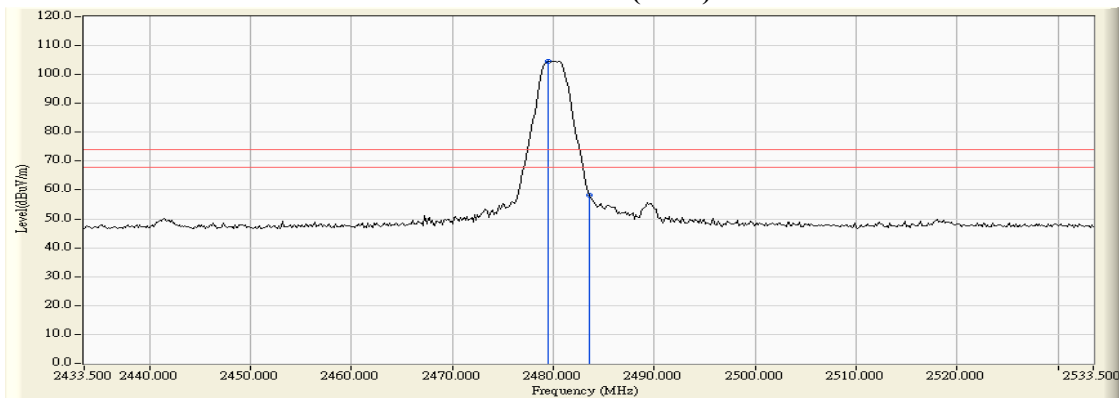
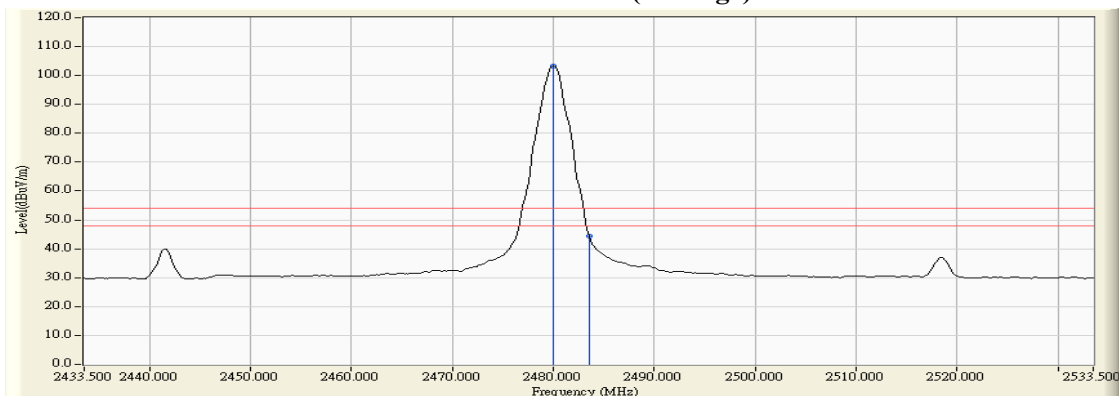
Note:

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

Product : Intel® Wireless-AC 9462
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test date : 2018/03/02
 Test Mode : Mode 1: Transmit - BLE (GFSK) (2480MHz) - Chain B

RF Radiated Measurement (Vertical):

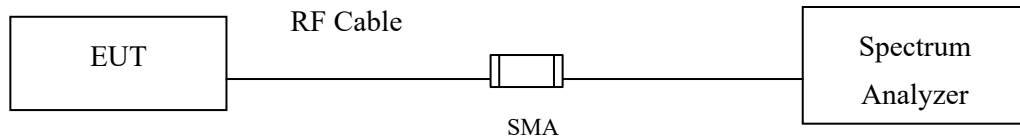
Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
39 (Peak)	2479.442	6.337	98.287	104.625	--	--	--
39 (Peak)	2483.500	6.363	51.981	58.344	74.000	54.000	Pass
39 (Average)	2480.022	6.342	97.038	103.380	--	--	--
39 (Average)	2483.500	6.363	37.963	44.326	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. “ * ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. 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 9462
 Test Item : Duty Cycle
 Test Mode : Mode 1: Transmit - BLE (GFSK)

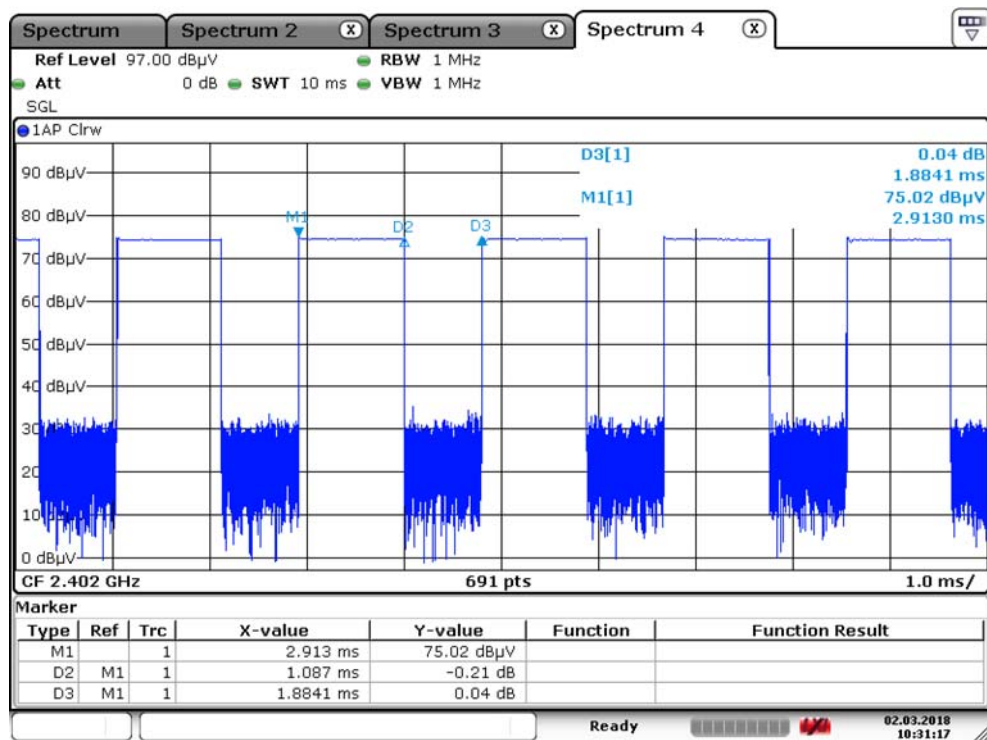
Duty Cycle Formula:

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	1.0870	1.8841	57.69	2.388744



Date: 2.MAR.2018 10:31:17

6. EMI Reduction Method During Compliance Testing

No modification was made during testing.