

FCC Test Report

(Class II Permissive Change)

Product Name	Intel® Wireless-AC 9560
Model No.	9560NGW
FCC ID.	2AKHF9560NG

Applicant	TONGFANG HONGKONG (SUZHOU) LIMITED
Address	NO. 83 Wu Lane, Suzhou Industrial Park, Suzhou City, Jiangsu Province, 215000 China

Date of Receipt	Dec. 12, 2018
Issued Date	Jan. 15, 2019
Report No.	18C0176R-RFUSP11V00-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.

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Test Report

Issued Date: Jan. 15, 2019

Report No.: 18C0176R-RFUSP11V00-A



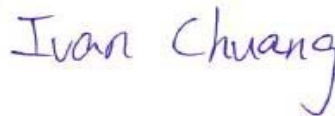
Product Name	Intel® Wireless-AC 9560
Applicant	TONGFANG HONGKONG (SUZHOU) LIMITED
Address	NO. 83 Wu Lane, Suzhou Industrial Park, Suzhou City, Jiangsu Province, 215000 China
Manufacturer	Intel Mobile Communications
Model No.	9560NGW
FCC ID.	2AKHF9560NG
EUT Rated Voltage	AC 100-240V / 50-60Hz
EUT Test Voltage	AC 120V / 60Hz
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 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)

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1. GENERAL INFORMATION

1.1. EUT Description

Product Name	Intel® Wireless-AC 9560
Trade Name	Intel
Model No.	9560NGW
FCC ID.	2AKHF9560NG
Frequency Range	2402 – 2480MHz
Channel Number	V5.0: 40CH
Type of Modulation	V5.0: GFSK
Antenna Type	Slot Antenna
Channel Control	Auto
Antenna Gain	Refer to the table “Antenna List”
Test Platform	Product name: Notebook PC Brand: TONGFANG Model number: GK7CP7S, GK7CP0S, GK7CQ8S
Power Adapter	MFR: Chicony, M/N: A17-230P1A Input: AC 100-240V, 50-60Hz, 3.5A Output: DC 19.5V, 11.8A Cable Out: Non-Shielded, 1.2m with two ferrite cores bonded.

Antenna List

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	WGT	ANTRG7S119-0301(Aux)	Slot Antenna	0.42dBi 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 an Intel® Wireless-AC 9560 with built-in WLAN (802.11a/b/g/n/ac) 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: 2AKHF9560NG, originally granted on 03/16/2018.

The major change filed under this application is:

Change #1: Additional Chassis is added, Product name: Notebook PC, Brand: TONGFANG,

Model number: GK7CP7S, GK7CP0S, GK7CQ8S.

All models are listed as below:

Brand	Model	GPU (NVIDIA)	Difference
TONGFANG	GK7CP0S (Main test sample)	GTX2060, N18E-G1	All models are electrically identical and different model names are used to distinguish between different GPU specifications.
	GK7CP7S	GTX2070, N18E-G2	
	GK7CQ8S	GTX2080, N18E-G3	

#2: Reduce the Output Power through firmware, and SAR measurement were evaluated.

#3: Addition an antenna, the antenna type is different from the original application and the antenna gain is lower than the original application.

Test Mode	Mode 1: Transmit - BLE
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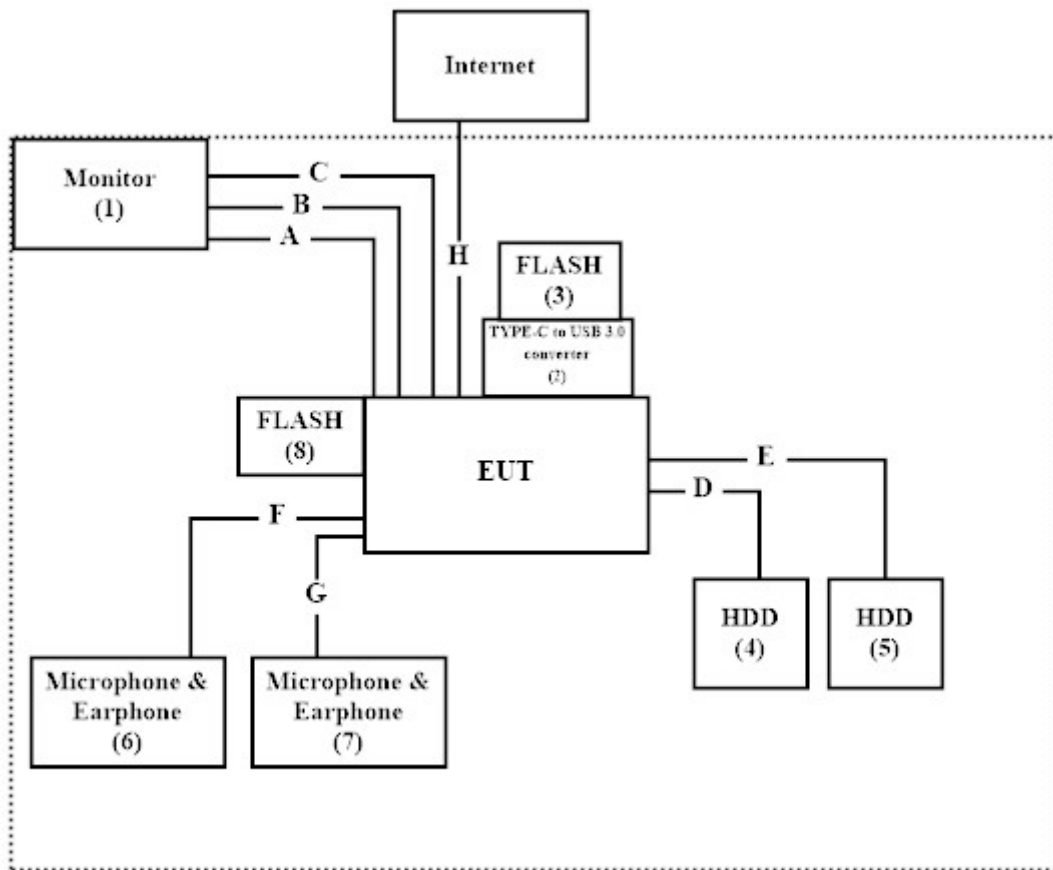
1.3. Tested System Details

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 Monitor	DELL	U2415	CN-01RMGX-74261-63H-09UL-A02	Non-Shielded, 1.8m
2 TYPE-C to USB 3.0 converter	Hawk	N/A	N/A	N/A
3 FLASH	Transcend	USB 3.0	N/A	N/A
4 HDD	WD	WDBUZG0010BBK-PESN	WXR1AC5F5J73	N/A
5 HDD	WD	WDBUZG0010BBK-PESN	WX11A166S2Y3	N/A
6 Microphone & Earphone	Verbatim	N/A	N/A	N/A
7 Microphone & Earphone	Verbatim	N/A	N/A	N/A
8 FLASH	Kingston	DT100G3/8GB	N/A	N/A

Signal Cable Type	Signal cable Description
A HDMI Cable	Shielded, 1.8m
B DP Cable	Shielded, 1.8m
C DP Cable	Shielded, 1.8m
D USB Cable	Shielded, 0.5m
E USB Cable	Shielded, 0.8m
F Audio Cable	Non-shielded, 1.2m
G Audio Cable	Non-shielded, 1.2m
H LAN Cable	Non-shielded, 3m

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 10.1748.0-06430” on the EUT.
- (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

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: 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	2018.01.23	2019.01.22
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	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 : DEKRA Conduction Test System V9.0.1

For Radiated measurements /ACB1

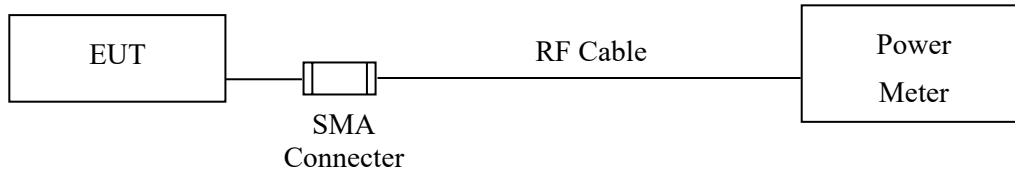
	Equipment	Manufacturer	Model No.	Serial No.	Cali. Data	Due. Data
X	Loop Antenna	AMETEK	HLA6121	49611	2018.01.26	2019.01.25
X	Bi-Log Antenna	SCHWARZBECK	VULB9168	9168-674	2018.04.02	2019.04.01
X	Horn Antenna	ETS-Lindgren	3117	00203800	2018.12.11	2019.12.10
X	Horn Antenna	Com-Power	AH-840	101087	2018.06.01	2019.05.31
X	Pre-Amplifier	EMCI	EMC001330	980316	2018.06.01	2019.05.31
X	Pre-Amplifier	EMCI	EMC051835SE	980311	2018.06.04	2019.06.03
X	Pre-Amplifier	EMCI	EMC05820SE	980310	2018.06.04	2019.06.03
X	Pre-Amplifier	EMCI	EMC184045SE	980314	2018.05.16	2019.05.15
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	2018.02.08	2019.02.07
X	Coaxial Cable	SUHNER	SUCOFLEX 106	RF002	2018.05.25	2019.05.24
X	Mircoflex Cable	HUBER SUHNER	SUCOFLEX 102	MY3381/2	2018.05.16	2019.05.15

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 8.3.1.3 PKPM1 Peak power meter method. The maximum average conducted output power using KDB 558074 section 8.3.2.3 Method (Measurement using a gated RF average-reading power meter)

2.4. Uncertainty

± 0.86 dB

2.5. Test Result of Peak Power Output

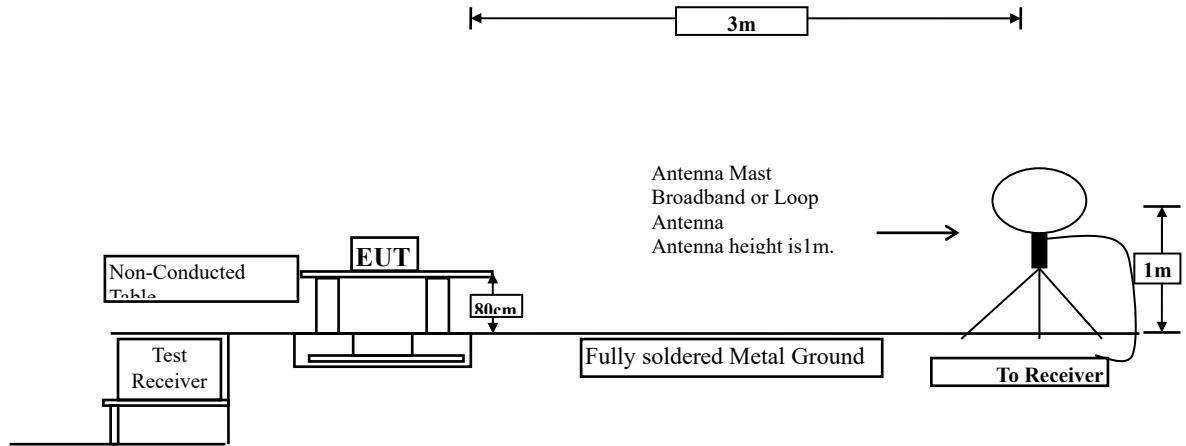
Product : Intel® Wireless-AC 9560
Test Item : Peak Power Output
Test Mode : Mode 1: Transmit - BLE
Test Date : 2018/12/28

Channel No.	Frequency (MHz)	Measurement (dBm)	Required Limit	Result
Channel 00	2402.00	7.47	1 Watt= 30 dBm	Pass
Channel 19	2440.00	7.74	1 Watt= 30 dBm	Pass
Channel 39	2480.00	7.87	1 Watt= 30 dBm	Pass

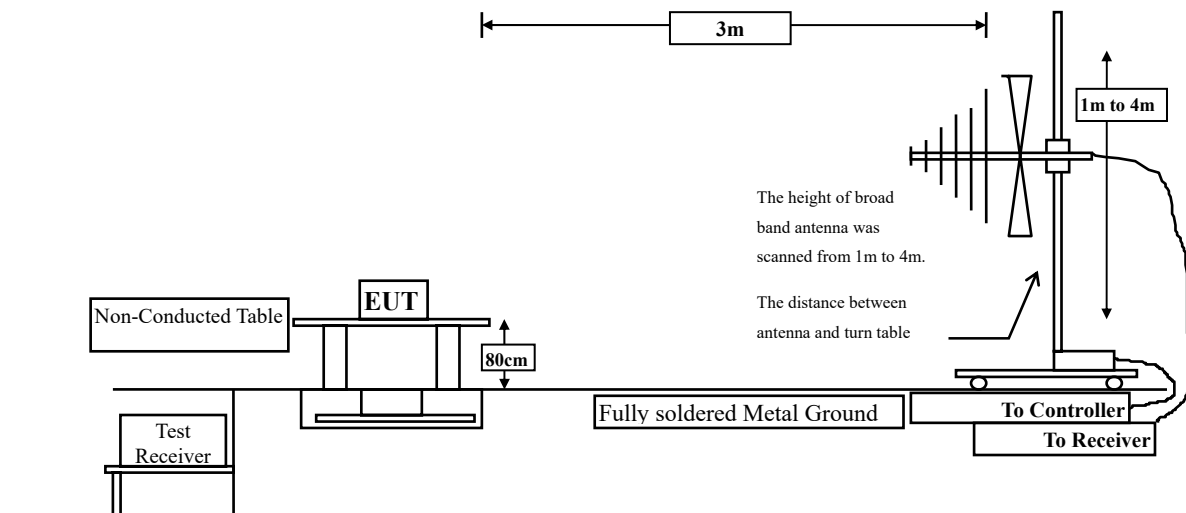
3. Radiated Emission

3.1. Test Setup

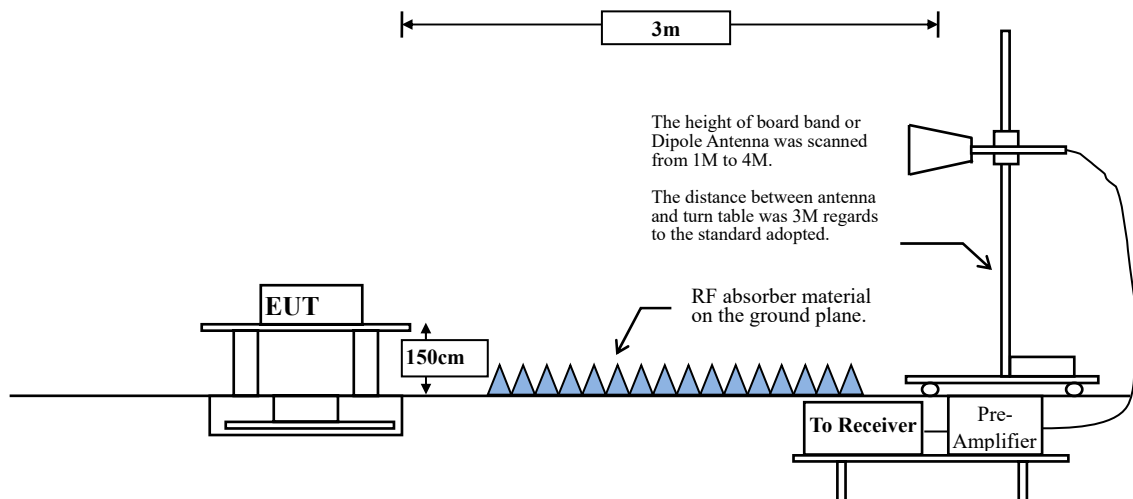
Radiated Emission Under 30MHz



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 (dB μ V) = 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.

$VBW = 10\text{Hz}$, 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	61.87	1.1600	862	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: $\pm 3.98\text{dB}$

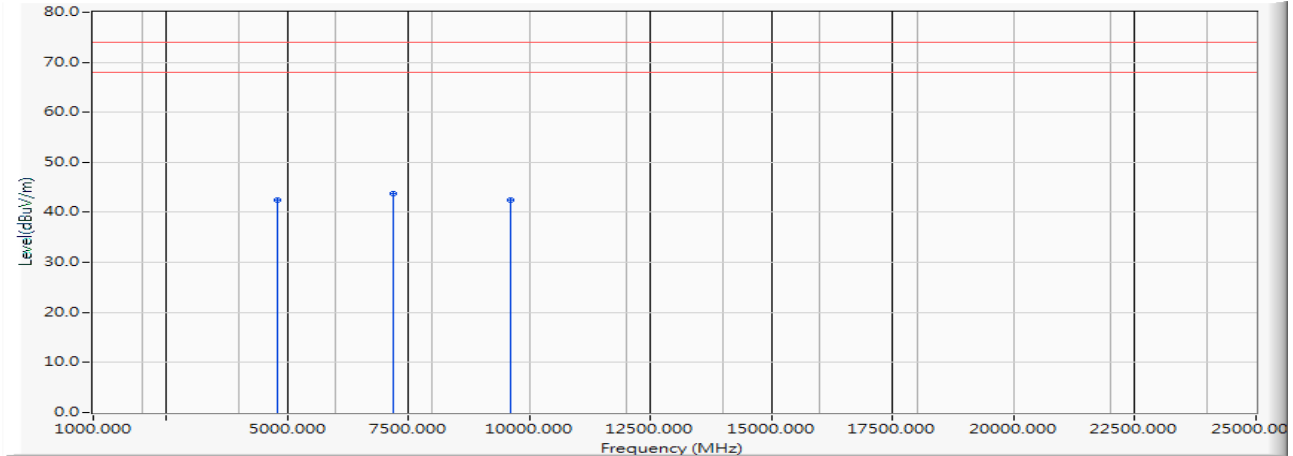
Vertical polarization :

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 9560
 Test Item : Harmonic Radiated Emission
 Test Mode : Mode 1: Transmit - BLE (2402MHz)
 Test Date : 2018/12/25

Horizontal



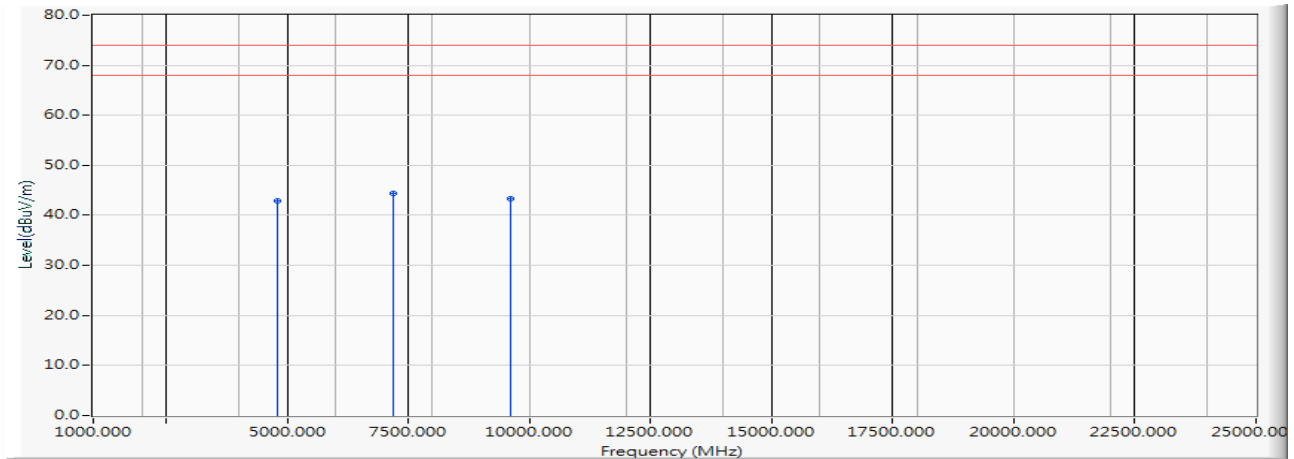
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Measure Level (dBμV/m)	Margin (dB)	Limit (dBμV/m)	Detector Type
1		4804.000	-6.081	48.630	42.549	-31.451	74.000	PEAK
2	*	7206.000	-3.033	46.850	43.817	-30.183	74.000	PEAK
3		9608.000	-0.774	43.250	42.477	-31.523	74.000	PEAK

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® Wireless-AC 9560
 Test Item : Harmonic Radiated Emission
 Test Mode : Mode 1: Transmit - BLE (2402MHz)
 Test Date : 2018/12/25

Vertical



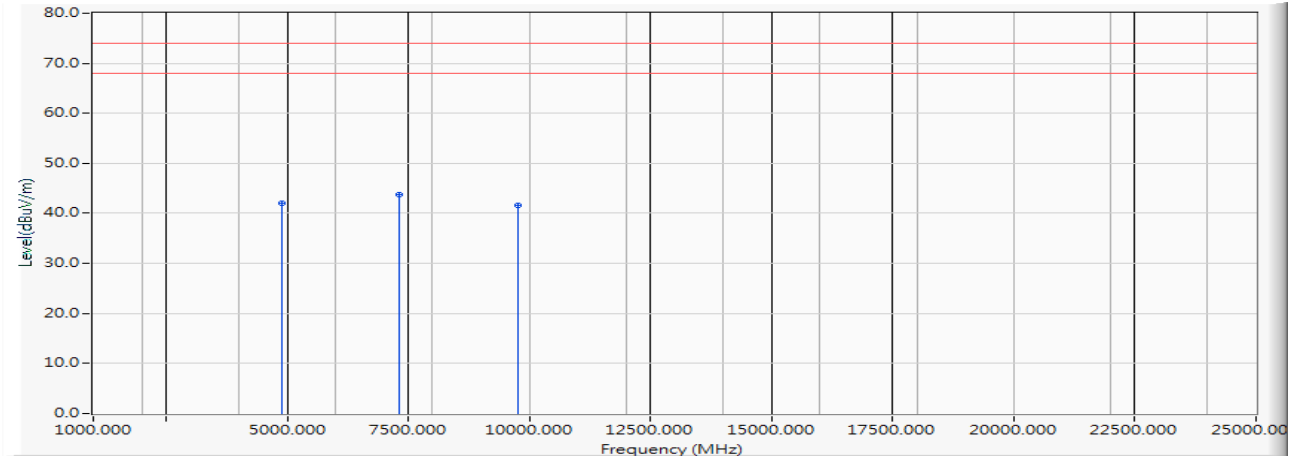
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Measure Level (dBμV/m)	Margin (dB)	Limit (dBμV/m)	Detector Type
1		4804.000	-6.081	48.920	42.839	-31.161	74.000	PEAK
2	*	7206.000	-3.033	47.510	44.477	-29.523	74.000	PEAK
3		9608.000	-0.774	44.150	43.377	-30.623	74.000	PEAK

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® Wireless-AC 9560
 Test Item : Harmonic Radiated Emission
 Test Mode : Mode 1: Transmit - BLE (2440MHz)
 Test Date : 2018/12/25

Horizontal



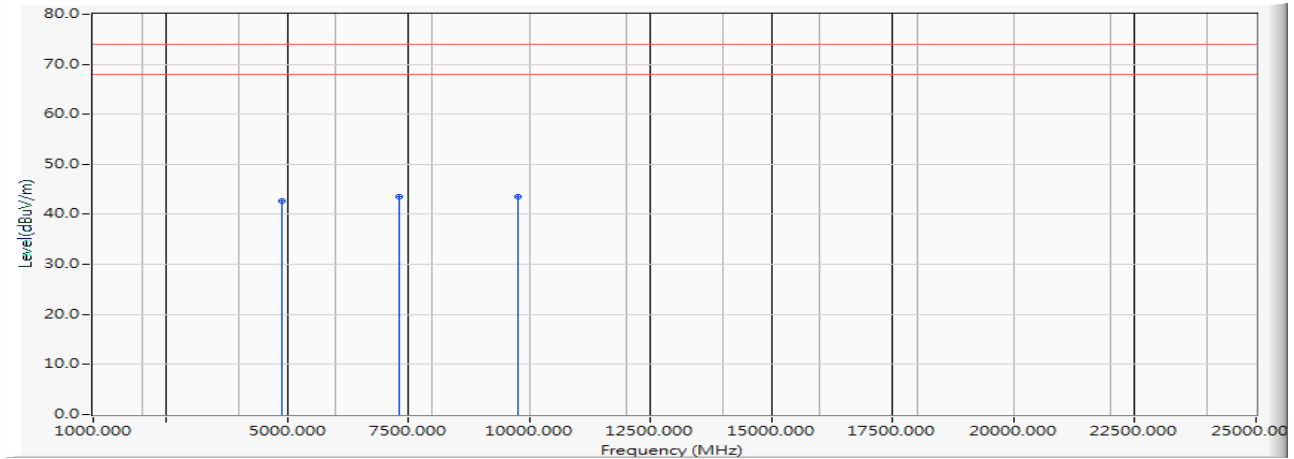
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Measure Level (dBμV/m)	Margin (dB)	Limit (dBμV/m)	Detector Type
1		4880.000	-6.045	48.020	41.975	-32.025	74.000	PEAK
2	*	7320.000	-2.959	46.630	43.671	-30.329	74.000	PEAK
3		9760.000	-0.492	42.020	41.528	-32.472	74.000	PEAK

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® Wireless-AC 9560
 Test Item : Harmonic Radiated Emission
 Test Mode : Mode 1: Transmit - BLE (2440MHz)
 Test Date : 2018/12/25

Vertical

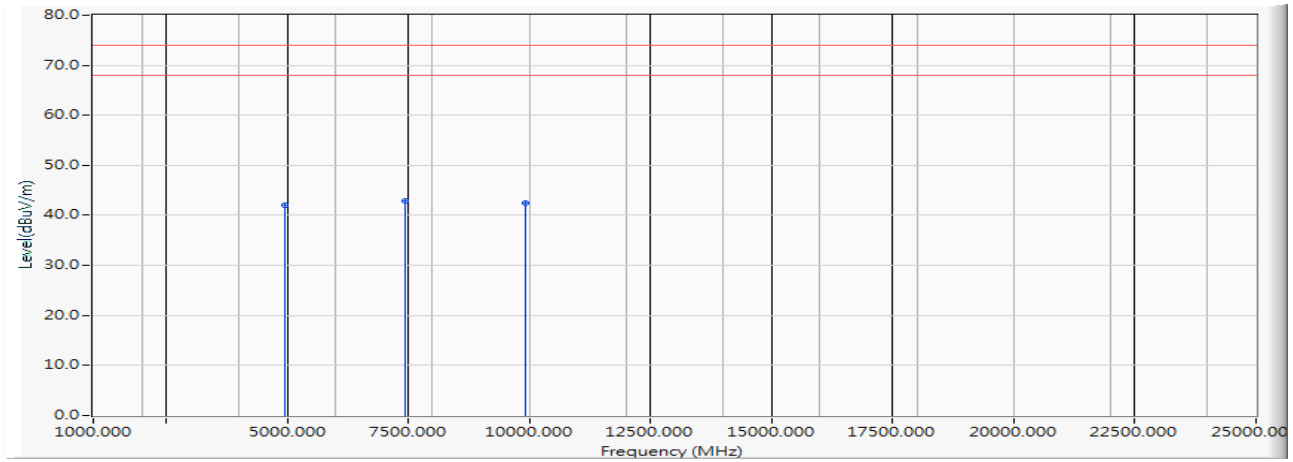


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Measure Level (dBμV/m)	Margin (dB)	Limit (dBμV/m)	Detector Type
1		4880.000	-6.045	48.720	42.675	-31.325	74.000	PEAK
2		7320.000	-2.959	46.540	43.581	-30.419	74.000	PEAK
3	*	9760.000	-0.492	44.110	43.618	-30.382	74.000	PEAK

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® Wireless-AC 9560
 Test Item : Harmonic Radiated Emission
 Test Mode : Mode 1: Transmit - BLE (2480MHz)
 Test Date : 2018/12/25

Horizontal

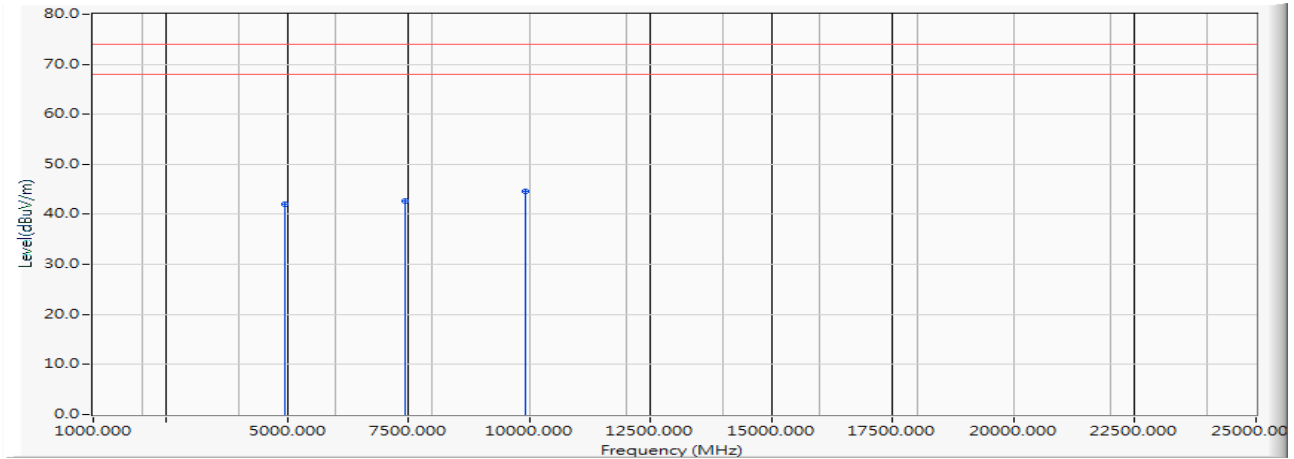
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Measure Level (dBμV/m)	Margin (dB)	Limit (dBμV/m)	Detector Type
1		4960.000	-6.041	48.180	42.139	-31.861	74.000	PEAK
2	*	7440.000	-2.805	45.640	42.835	-31.165	74.000	PEAK
3		9920.000	-0.260	42.810	42.550	-31.450	74.000	PEAK

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® Wireless-AC 9560
 Test Item : Harmonic Radiated Emission
 Test Mode : Mode 1: Transmit - BLE (2480MHz)
 Test Date : 2018/12/25

Vertical



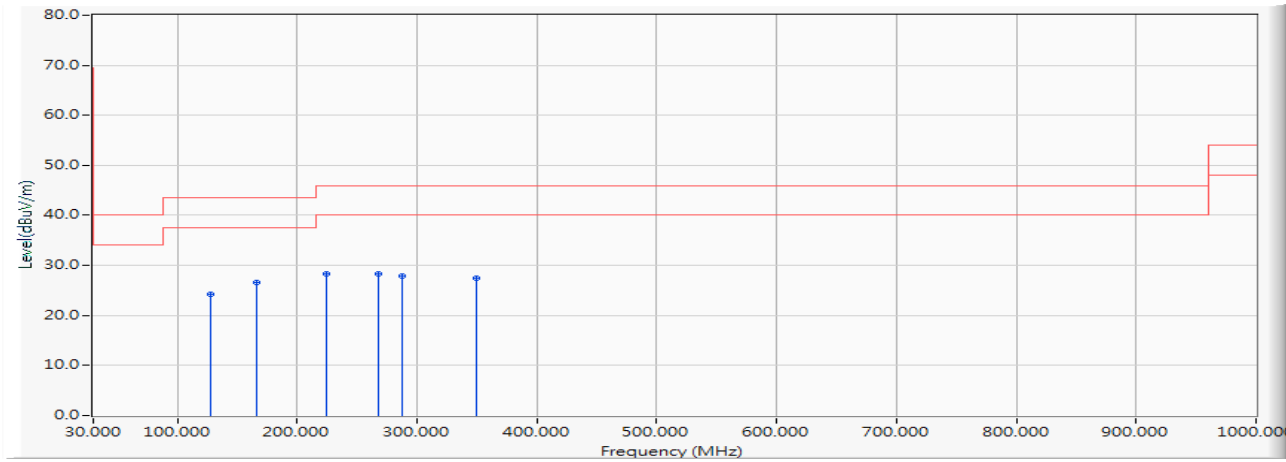
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Measure Level (dBμV/m)	Margin (dB)	Limit (dBμV/m)	Detector Type
1		4960.000	-6.041	48.090	42.049	-31.951	74.000	PEAK
2		7440.000	-2.805	45.590	42.785	-31.215	74.000	PEAK
3	*	9920.000	-0.260	44.910	44.650	-29.350	74.000	PEAK

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® Wireless-AC 9560
 Test Item : General Radiated Emission
 Test Mode : Mode 1: Transmit - BLE (2440MHz)
 Test Date : 2018/12/27

Horizontal

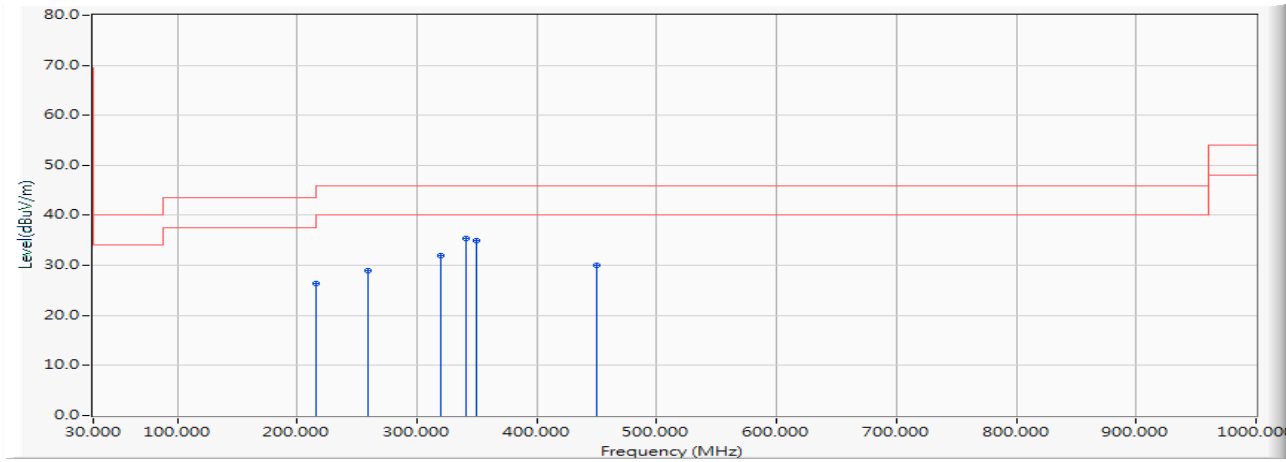


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Measure Level (dBμV/m)	Margin (dB)	Limit (dBμV/m)	Detector Type
1		128.406	-12.547	36.862	24.314	-19.186	43.500	QUASIPeAK
2	*	166.362	-11.051	37.646	26.595	-16.905	43.500	QUASIPeAK
3		224.000	-13.137	41.402	28.265	-17.735	46.000	QUASIPeAK
4		267.580	-11.472	39.687	28.214	-17.786	46.000	QUASIPeAK
5		287.261	-10.727	38.626	27.899	-18.101	46.000	QUASIPeAK
6		349.116	-9.199	36.722	27.522	-18.478	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® Wireless-AC 9560
 Test Item : General Radiated Emission
 Test Mode : Mode 1: Transmit - BLE (2440MHz)
 Test Date : 2018/12/27

Vertical

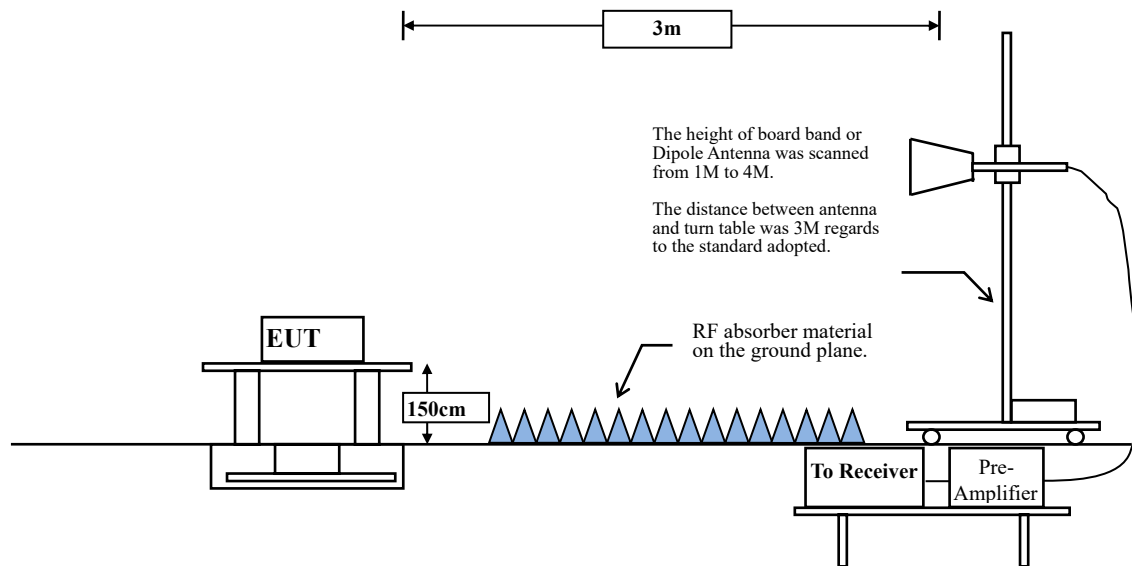
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Measure Level (dBμV/m)	Margin (dB)	Limit (dBμV/m)	Detector Type
1		215.565	-13.372	39.793	26.421	-17.079	43.500	QUASIPeAK
2		259.145	-11.962	40.936	28.974	-17.026	46.000	QUASIPeAK
3		319.594	-9.880	41.923	32.043	-13.957	46.000	QUASIPeAK
4	*	340.681	-9.396	44.890	35.495	-10.505	46.000	QUASIPeAK
5		349.116	-9.199	44.119	34.919	-11.081	46.000	QUASIPeAK
6		450.333	-6.789	36.851	30.061	-15.939	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.

4. Band Edge

4.1. Test Setup



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	61.87	1.1600	862	1k

Note: Duty Cycle Refer to Section 5

4.4. Uncertainty

Horizontal polarization : 1-18GHz: ± 3.77 dB

Vertical polarization : 1-18GHz : ± 3.83 dB

4.5. Test Result of Band Edge

Product : Intel® Wireless-AC 9560
 Test Item : Band Edge
 Test Mode : Mode 1: Transmit - BLE (2402MHz)
 Test Date : 2018/12/22

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
00 (Peak)	2384.203	10.237	39.094	49.332	74.00	54.00	Pass
00 (Peak)	2390.000	10.262	36.312	46.574	74.00	54.00	Pass
00 (Peak)	2400.000	10.304	66.479	76.782	--	--	Pass
00 (Peak)	2401.449	10.310	86.895	97.204	--	--	--
00 (Average)	2363.333	10.155	19.576	29.731	74.00	54.00	Pass
00 (Average)	2390.000	10.262	18.504	28.766	74.00	54.00	Pass
00 (Average)	2400.000	10.304	56.740	67.043	--	--	Pass
00 (Average)	2402.029	10.312	84.915	95.227	--	--	--

Figure Channel 00: Horizontal (Peak)

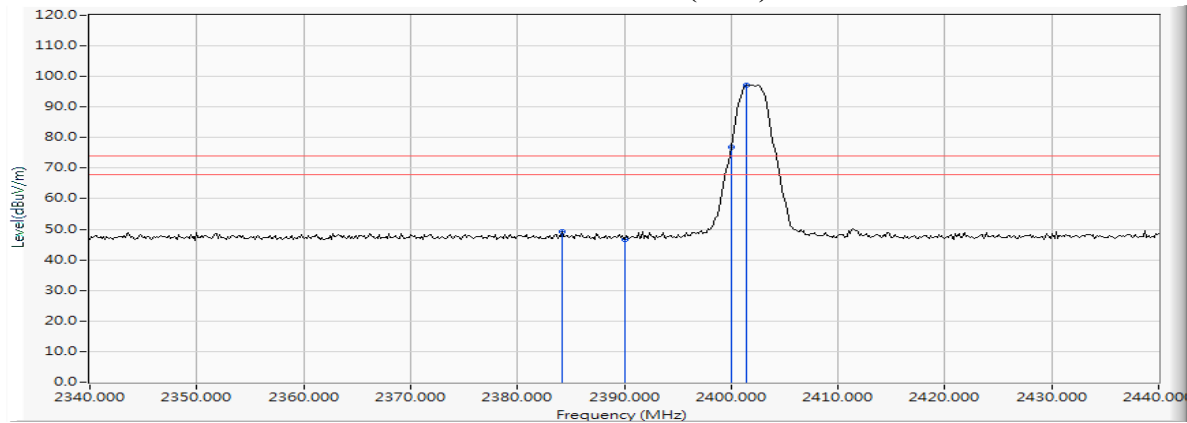
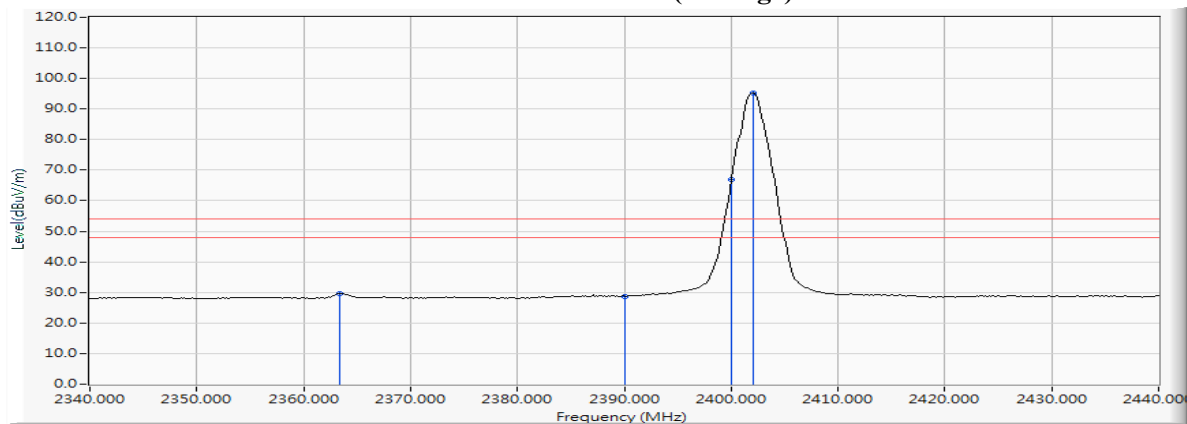


Figure Channel 00: Horizontal (Average)



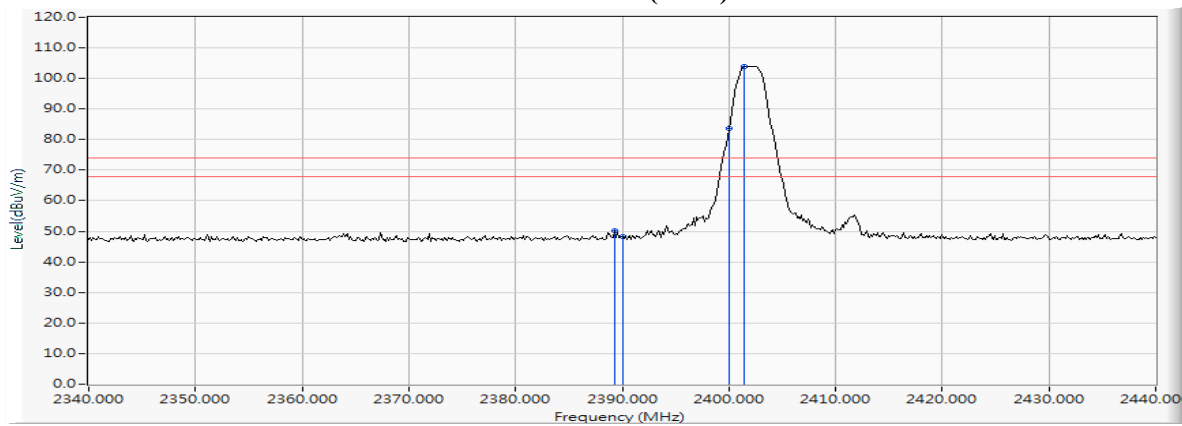
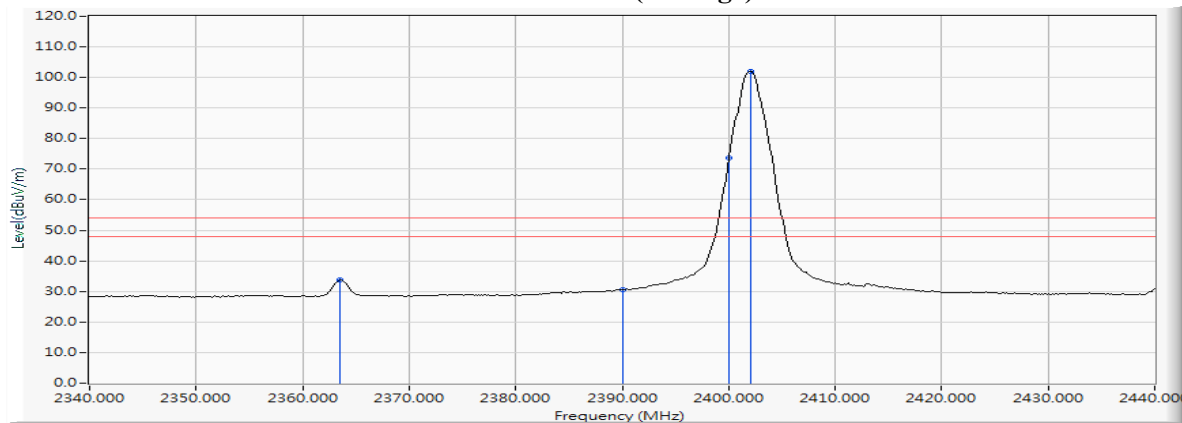
Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. 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® Wireless-AC 9560
 Test Item : Band Edge
 Test Mode : Mode 1: Transmit - BLE (2402MHz)
 Test Date : 2018/12/22

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
00 (Peak)	2389.275	10.260	39.820	50.079	74.00	54.00	Pass
00 (Peak)	2390.000	10.262	37.921	48.183	74.00	54.00	Pass
00 (Peak)	2400.000	10.304	73.224	83.527	--	--	Pass
00 (Peak)	2401.449	10.310	93.673	103.982	--	--	--
00 (Average)	2363.478	10.155	23.599	33.754	74.00	54.00	Pass
00 (Average)	2390.000	10.262	20.265	30.527	74.00	54.00	Pass
00 (Average)	2400.000	10.304	63.386	73.689	--	--	Pass
00 (Average)	2402.029	10.312	91.704	102.016	--	--	--

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

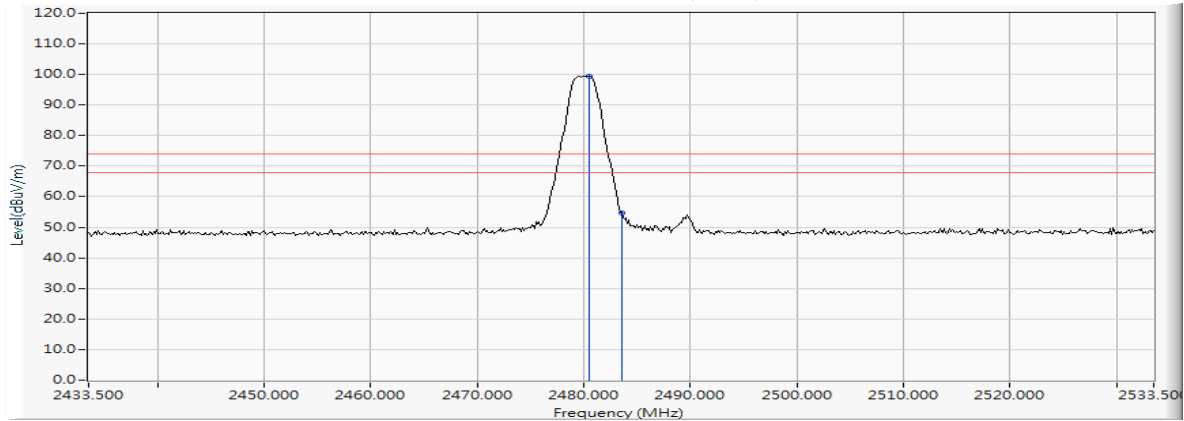
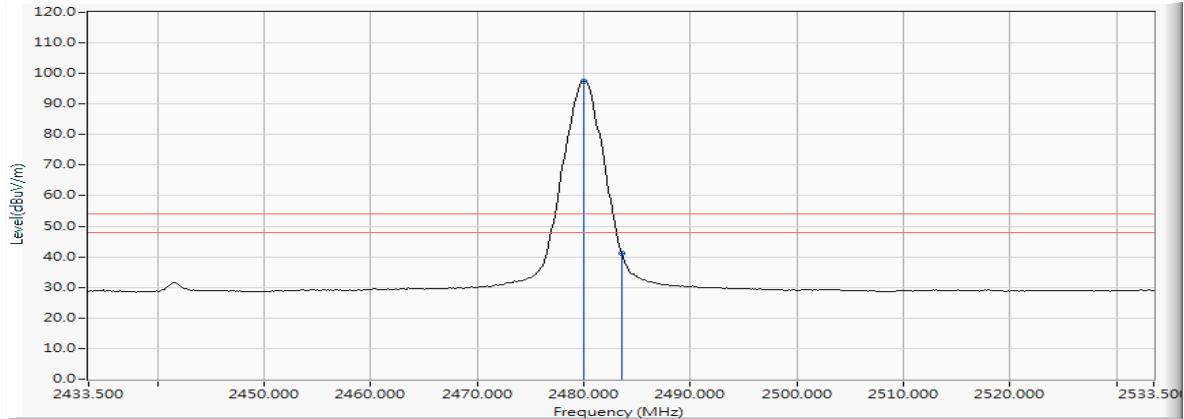
Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. 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® Wireless-AC 9560
 Test Item : Band Edge
 Test Mode : Mode 1: Transmit - BLE (2480MHz)
 Test Date : 2018/08/20

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dB μ V)	Emission Level (dB μ V/m)	Peak Limit (dB μ V/m)	Average Limit (dB μ V/m)	Result
39 (Peak)	2480.457	10.630	88.870	99.500	--	--	--
39 (Peak)	2483.500	10.640	43.900	54.541	74.00	54.00	Pass
39 (Average)	2480.022	10.628	86.813	97.441	--	--	--
39 (Average)	2483.500	10.640	30.696	41.337	74.00	54.00	Pass

Figure Channel 39: Horizontal (Peak)**Figure Channel 39: Horizontal (Average)**

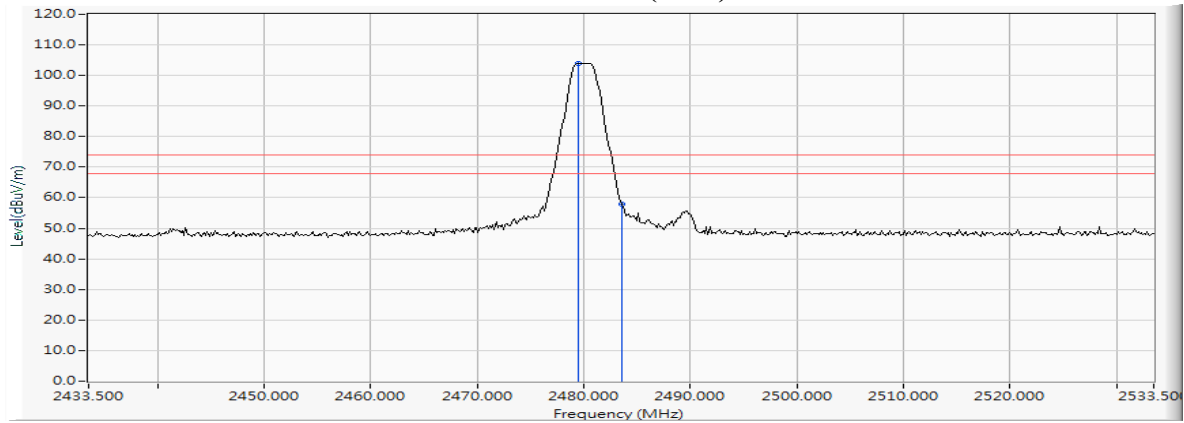
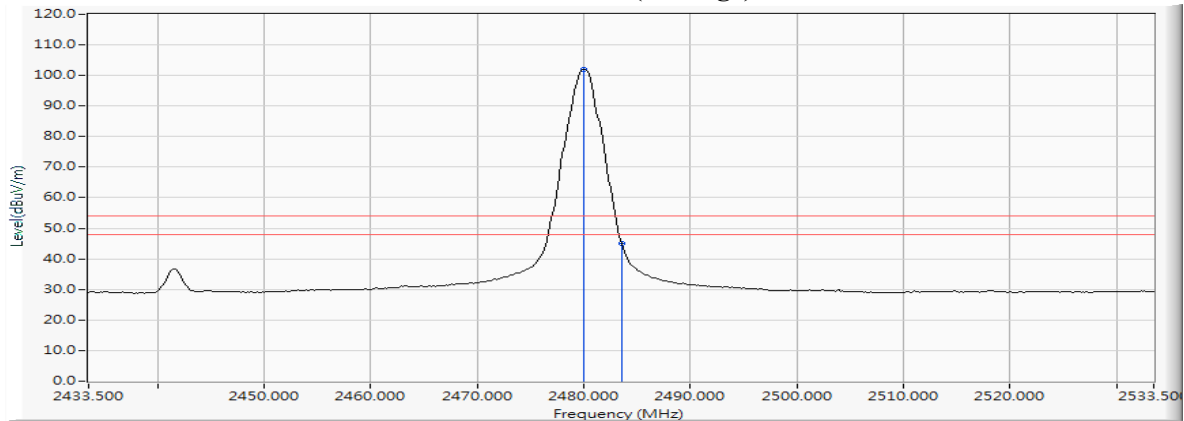
Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. 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® Wireless-AC 9560
 Test Item : Band Edge
 Test Mode : Mode 1: Transmit - BLE (2480MHz)
 Test Date : 2018/08/20

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
39 (Peak)	2479.442	10.625	93.448	104.074	--	--	--
39 (Peak)	2483.500	10.640	47.280	57.921	74.00	54.00	Pass
39 (Average)	2480.022	10.628	91.425	102.053	--	--	--
39 (Average)	2483.500	10.640	34.531	45.172	74.00	54.00	Pass

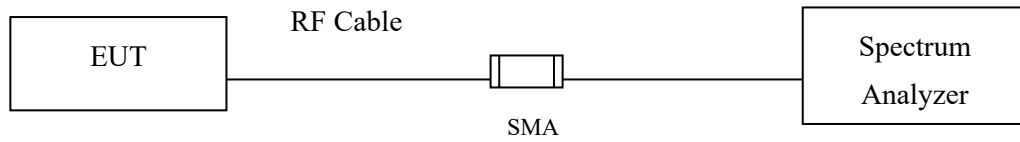
Figure Channel 39: Vertical (Peak)

Figure Channel 39: Vertical (Average)


Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. 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

$\pm 2.31\text{msec}$

5.4. Test Result of Duty Cycle

Product : Intel® Wireless-AC 9560
 Test Item : Duty Cycle
 Test Mode : Mode 1: Transmit - BLE

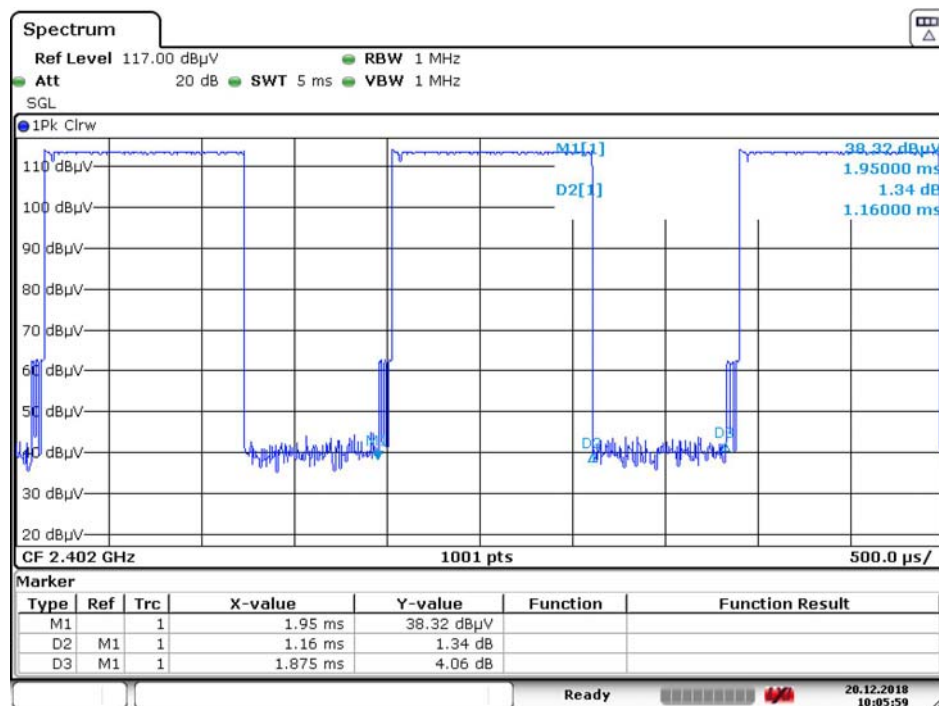
Duty Cycle Formula:

Duty Cycle = $T_{on} / (T_{on} + T_{off})$

Duty Factor = 10 Log (1/Duty Cycle)

Results:

2.4GHz band	Ton (ms)	Ton + Toff (ms)	Duty Cycle (%)	Duty Factor (dB)
BLE	1.1600	1.8750	61.87	2.09



Date: 20.DEC.2018 10:05:59

6. EMI Reduction Method During Compliance Testing

No modification was made during testing.