



Test Report No.:
FCC2023-0014-RF1

TEST REPORT

FCC ID : P53-EMC3290
Applicant : Shanghai MXCHIP Information
Technology Co., Ltd
Product Name : Embedded Wi-Fi/BLE Module
Model No. : EMC3290-S, EMC3290-D

CVC Testing Technology Co., Ltd.




Applicant		Name: Shanghai MXCHIP Information Technology Co., Ltd	
		Address: 9th Floor, No.5, Lane2145, JinshaJiang Road, PutuoDistrict, Shanghai(200333)	
Manufacturer		Name: Shanghai MXCHIP Information Technology Co., Ltd	
		Address: 9th Floor, No.5, Lane2145, JinshaJiang Road, PutuoDistrict, Shanghai(200333)	
Equipment Under Test		Product Name : Embedded Wi-Fi/BLE Module	
		Model No. : EMC3290-S, EMC3290-D	
		Trade mark : MXCHIP [®]	
		Serial no. : —	
		Sampling : 2-1, 2-2	
Date of Receipt.	2023.3.24	Date of Testing	2023.6.13
Test Specification		Test Result	
FCC CFR47 Part 15C Radio Frequency Devices ANSI C63.10-2020 KDB 558074 D01 15.247 Meas Guidance v05r02		PASS	
Evaluation of Test Result		The equipment under test was found to comply with the requirements of the standards applied. <div style="text-align: right;"> Seal of CVC Issue Date: 2023.7.12 </div>	
Approved by: Chen HuaWen 		Reviewed by: Xu Zhenfei 	
		Tested by: Lu Weiji 	
Other Aspects: NONE.			
Abbreviations:OK, Pass= passed Fail = failed N/A= not applicable EUT= equipment, sample(s) under tested			
This test report relates only to the EUT, and shall not be reproduced except in full, without written approval of CVC .			

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1. General Product Information

1.1 General information

Product Name	Embedded Wi-Fi/BLE Module
Model No.	EMC3290-S
Additional model	EMC3290-D
Power Supply	DC 3.3V
Serial Number(SN)	849DC28C6725, B0F893018639
HVIN	EMC3290-S, EMC3290-D
firmware	v1.0
software	0000.0000.A245
specific power settings	Bluetooth(Low Energy): Default IEEE 802.11b: 94 IEEE 802.11g: 70 IEEE 802.11n(20MHz): 70 IEEE 802.11n(40MHz): 70
Antenna Type	External Antenna
Antenna Connector	A detachable antenna
Antenna Gain	-0.19 dBi (provided by client)
Beamforming gain	Unsupported (provided by client)
Frequency Range	Bluetooth(Low Energy): 2402~2480MHz IEEE 802.11b/g/n (20MHz): 2412~2462MHz IEEE 802.11n (40MHz): 2422~2452MHz
Channel Number	Bluetooth(Low Energy):40 Channels IEEE 802.11b/g/n (20MHz): 11 Channels IEEE 802.11n (40MHz): 7 Channels
Type of Modulation	Bluetooth(Low Energy):GFSK IEEE 802.11b: DSSS (CCK,DQPSK,DBPSK); IEEE 802.11g: OFDM (64QAM, 16QAM, QPSK, BPSK); IEEE 802.11n(HT20 and HT40) : OFDM (64QAM, 16QAM,QPSK,BPSK);
Max. Conducted Power	Bluetooth(Low Energy): 6.25 dBm IEEE 802.11b: 17.21 dBm IEEE 802.11g: 19.16 dBm IEEE 802.11n(20MHz): 19.16 dBm IEEE 802.11n(40MHz): 19.11 dBm
Operate Temp.Range	-20 ~ 85°C

Note:

1. The information of the EUT is declared by the manufacturer.
2. The laboratory is not responsible for the product technical specification provided by the client.
3. The product models of this application are: EMC3290-S, EMC3290-D. The material difference between the parts and the parts in the product model for inspection is shown in the table below:

No	Model	Antenna type	Difference	Remarks
1	EMC3290-S	External Antenna	They are share with the same PCB board, same schematic, same PCB layout, but only different is antenna type	Inspection model
2	EMC3290-D	PCB Antenna		Coverage model

All the tests carried out on model EMC3290-S, only the antenna type is different, so EMC3290-D only adds Radiated Emissions.

2. Test Sites

2.1 Test Facilities

The tests and measurements refer to this report were performed by RF testing Lab. of CVC Testing Technology Co., Ltd.

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FCC(Test firm designation number: CN1282)

IC(Test firm CAB identifier number: CN0103)

2.2 Description of Non-standard Method and Deviations

The testing and measurement methods used in this report are applied by all standard methods. Not any non-standard method or deviation from the used standards was used.

2.3 List of Test and Measurement Instruments

Refer to **Appendix A**.

3. Test Configuration

3.1 Test Mode

The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application.

Test Mode	Antenna Delivery	Test Channel
Bluetooth(LE 1M)	1TX / 1RX	0,19,39
Bluetooth(LE 2M)	1TX / 1RX	0,19,39
IEEE 802.11b	1TX / 1RX	1,6,11
IEEE 802.11g	1TX / 1RX	1,6,11
IEEE 802.11n 20 SISO	1TX / 1RX	1,6,11
IEEE 802.11n 40 SISO	1TX / 1RX	3,6,9

The radiated emission was measured in the following position: EUT stand-up position (Z axis), lie-down position (X, Y axis). The worst emission was found in lie-down position (X axis) and the worst case was recorded.

In order to find the worst case condition, Pre-tests are needed at the presence of different data rate and different channels. Preliminary tests have been done on all the configurations for confirming worst case. Data rate below means worst-case rate of each test item.

Worst-case data rates and channels are shown as following table.

Test Mode	Data Rate		
	Antenna 1	Antenna 2	MIMO
Bluetooth(Low Energy)	2	/	/
IEEE 802.11b	1	/	/
IEEE 802.11g	6	/	/
IEEE 802.11n 2.4GHz 20MHz	MCS 0	/	/
IEEE 802.11n 2.4GHz 40MHz	MCS 0	/	/

Test Items	Test Antennas	Test Modes	Test Channels
Radiated Emissions	Antenna 1	IEEE 802.11n 20/ Bluetooth(LE_2M)	1/ 0
Radiated Emissions (Band Edge)	Antenna 1	IEEE 802.11n 20/ Bluetooth(LE_2M)	1,11/ 0,39
Maximum conducted output power	Antenna 1	Bluetooth(Low Energy)/ IEEE 802.11b/ IEEE 802.11g/ IEEE 802.11n 20/ IEEE 802.11n 40	0,19,39/ 1,6,11/ 1,6,11/ 1,6,11/ 3,6,9
Minimum 6 dB bandwidth	Antenna 1	Bluetooth(Low Energy)/ IEEE 802.11b/ IEEE 802.11g/ IEEE 802.11n 20/ IEEE 802.11n 40	0,19,39/ 1,6,11/ 1,6,11/ 1,6,11/ 3,6,9
Occupied Channel Bandwidth	Antenna 1	Bluetooth(Low Energy)/ IEEE 802.11b/ IEEE 802.11g/ IEEE 802.11n 20/ IEEE 802.11n 40	0,19,39/ 1,6,11/ 1,6,11/ 1,6,11/ 3,6,9
Band Edge Measurement	Antenna 1	Bluetooth(Low Energy)/ IEEE 802.11b/ IEEE 802.11g/ IEEE 802.11n 20/ IEEE 802.11n 40	0,39/ 1,11/ 1,11/ 1,11/ 3,9
Maximum Power spectral density	Antenna 1	Bluetooth(Low Energy)/ IEEE 802.11b/ IEEE 802.11g/ IEEE 802.11n 20/ IEEE 802.11n 40	0,19,39/ 1,6,11/ 1,6,11/ 1,6,11/ 3,6,9
Spurious RF Conducted Emissions	Antenna 1	Bluetooth(Low Energy)/ IEEE 802.11b/ IEEE 802.11g/ IEEE 802.11n 20/ IEEE 802.11n 40	0,19,39/ 1,6,11/ 1,6,11/ 1,6,11/ 3,6,9

3.2 Duty cycle

TestMode	Antenna	Channel	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	Limit	Verdict
11B	Ant1	2412	7.00	7.00	100.00	---	---
		2437	2.00	2.00	100.00	---	---
		2462	2.00	2.00	100.00	---	---
11G	Ant1	2412	2.07	2.20	94.09	---	---
		2437	2.06	2.19	94.06	---	---
		2462	2.06	2.19	94.06	---	---
11N20SISO	Ant1	2412	1.92	2.05	93.66	---	---
		2437	1.92	2.05	93.66	---	---
		2462	1.92	2.05	93.66	---	---
11N40SISO	Ant1	2422	0.95	1.08	87.96	---	---
		2437	0.94	1.07	87.85	---	---
		2452	0.95	1.08	87.96	---	---
BLE_1M	Ant1	2402	0.39	0.62	62.90	---	---
		2440	0.39	0.62	62.90	---	---
		2480	0.39	0.62	62.90	---	---
BLE_2M	Ant1	2402	0.21	0.62	33.87	---	---
		2440	0.21	0.62	33.87	---	---
		2480	0.21	0.62	33.87	---	---

4. Summary of measurement results

Summary of measurements of results	Clause in FCC rules	Verdict	Note
Conducted Emissions	15.207	N/A	See Note1
Radiated Emissions	15.247(d),15.205,15.209	PASS	/
Maximum conducted output power	15.247(b)(3)	PASS	Appendix D of FCC-2023-0014-2.4GWIFI-1 And Appendix D of FCC-2023-0014-LE
Minimum 6 dB bandwidth	15.247(a)(2)	PASS	Appendix B of FCC-2023-0014-2.4GWIFI-1 And Appendix B of FCC-2023-0014-LE
Occupied Channel Bandwidth	15.247(a)(2)	PASS	Appendix C of FCC-2023-0014-2.4GWIFI-1 And Appendix C of FCC-2023-0014-LE
Band Edge Measurement	15.247(d)	PASS	Appendix F of FCC-2023-0014-2.4GWIFI-2 And Appendix F of FCC-2023-0014-LE
Maximum Power spectral density	15.247(e)	PASS	Appendix E of FCC-2023-0014-2.4GWIFI-1 And Appendix E of FCC-2023-0014-LE
Spurious RF Conducted Emissions	15.247(d)	PASS	Appendix G of FCC-2023-0014-2.4GWIFI-2 And Appendix G of FCC-2023-0014-LE
Antenna Requirement	15.203	PASS	See note 2

Note1: The device is not connected to the AC power line, there are no testing requirements.

Note2: According to 15.203, it is considered sufficient to comply with the provisions of this section.

5. Measurement procedure

5.1 Conducted Emission

Ambient condition:

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.3kPa

Method of Measurement:

The EUT was setup according to ANSI C63.10, 2013 for compliance to FCC 47CFR 15.247 requirements. The EUT was placed on a platform of nominal size, 1 m by 1.5 m, raised 80 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 80 cm from any other grounded conducting surface. The EUT and simulators are connected to the main power through a line impedance stabilization network (LISN). The LISN provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN. (Please refer to the block diagram of the test setup and photographs) Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor, was individually connected through a LISN to the input power source.

The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length.

Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz.

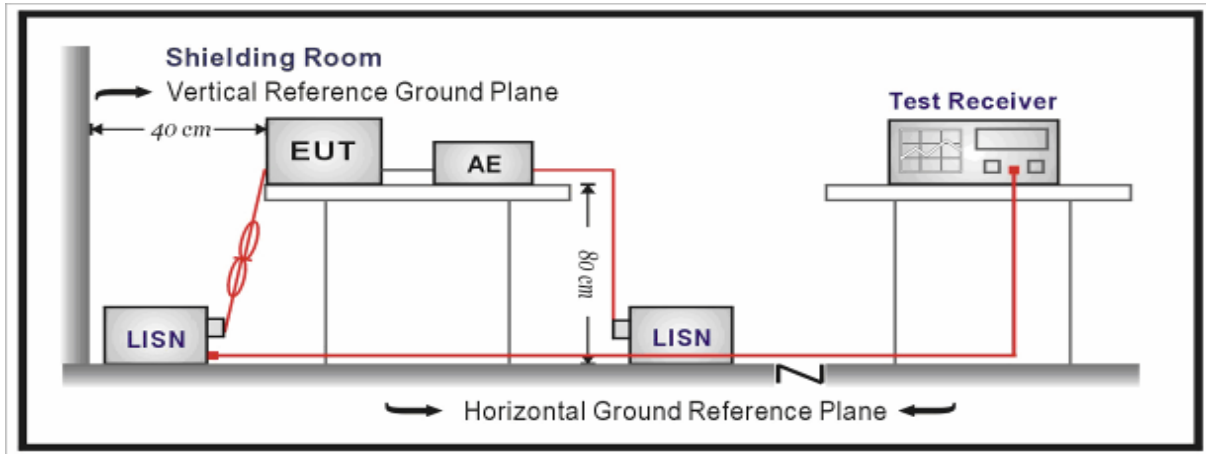
Limits:

Frequency (MHz)	Conducted Limits(dBµV)	
	Quasi-peak	Average
0.15 - 0.5	66 to 56 *	56 to 46*
0.5 - 5	56	46
5 - 30	60	50

Note 1: The lower limit shall apply at the transition frequencies.

Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

Test Setup:



Measurement Data

An initial pre-scan was performed on the live and neutral lines with peak detector. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.

Notes:

1. The following Quasi-Peak and Average measurements were performed on the EUT:
2. Final Level = Reading + Factor.

Measurement Uncertainty:

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 1.96$. $U = 3.12$ dB.

Test Results:

Conducted Emission applies to an intentional radiator that is designed to be connected to the public utility (AC) power line. Measurements to demonstrate compliance with the conducted limits are not required for devices which only employ battery power for operation and which do not operate from the AC power lines or contain provisions for operation while connected to the AC power lines.

5.2 Radiated Emission

Ambient condition:

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.3kPa

Method of Measurement:

The EUT was setup and tested according to ANSI C63.10, 2013.

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.

The resolution bandwidth below 1GHz setting on the field strength meter is 120 kHz and above 1GHz is 1MHz.

The frequency range from 30MHz to 10th harmonic is checked.

Note: When doing emission measurement above 1GHz, the horn Antenna will be bended down a little (as horn Antenna has the narrow beamwidth) in order to keeping the Antenna in the “cone of radiation” of EUT. The 3dB beamwidth is 10~60 degrees for H-plane and 10~90 degrees for E-plane.

Limits:

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a) of FCC part 15, must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

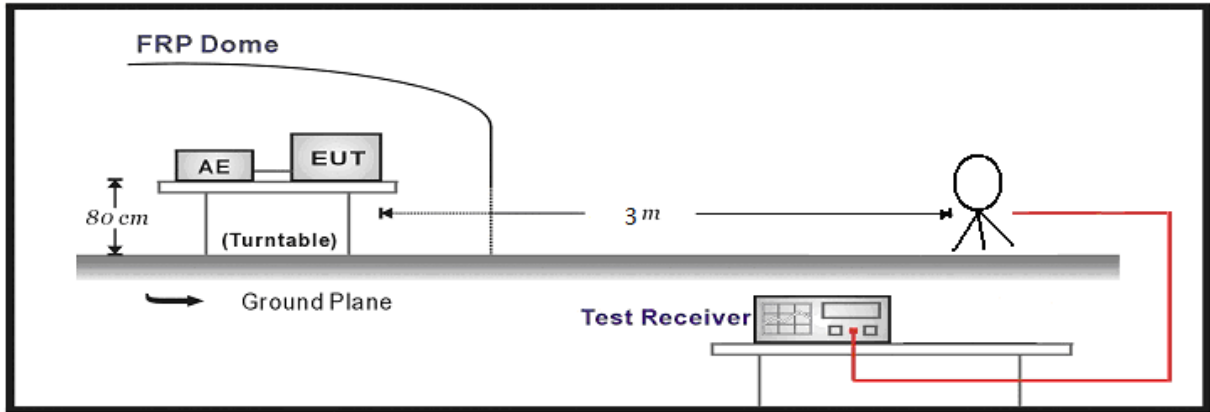
Frequency	Limit (µV/m)	Limit (dBµV/m @3m)	Remark
0.009MHz-0.490MHz	2400/F(kHz)@300m	20lg(240000/F(kHz))	Quasi-peak Level
0.490MHz~1.705MHz	24000/F(kHz)@30m	20lg(240000/F(kHz))	Quasi-peak Level
1.705MHz~30.0MHz	30@30m	49.54	Quasi-peak Level
30MHz-88MHz	100@3m	40.0	Quasi-peak Level
88MHz-216MHz	150@3m	43.5	Quasi-peak Level
216MHz-960MHz	200@3m	46.0	Quasi-peak Level
960MHz-1GHz	500@3m	54.0	Quasi-peak Level
Above 1GHz	500@3m	54.0	Average Level
	5000@3m	74.0	Peak Level

Spurious Radiated Emissions are permitted in any of the frequency bands listed below:

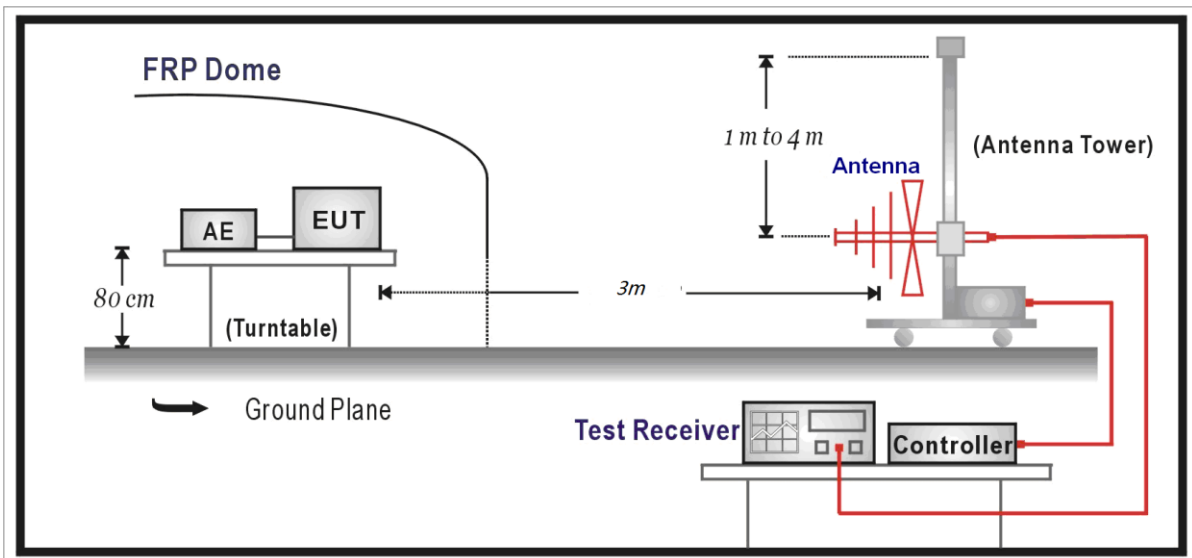
MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.
12.57675-12.57725	322-335.4	3600-4400	/
13.36-13.41	/	/	/

Test Setup:

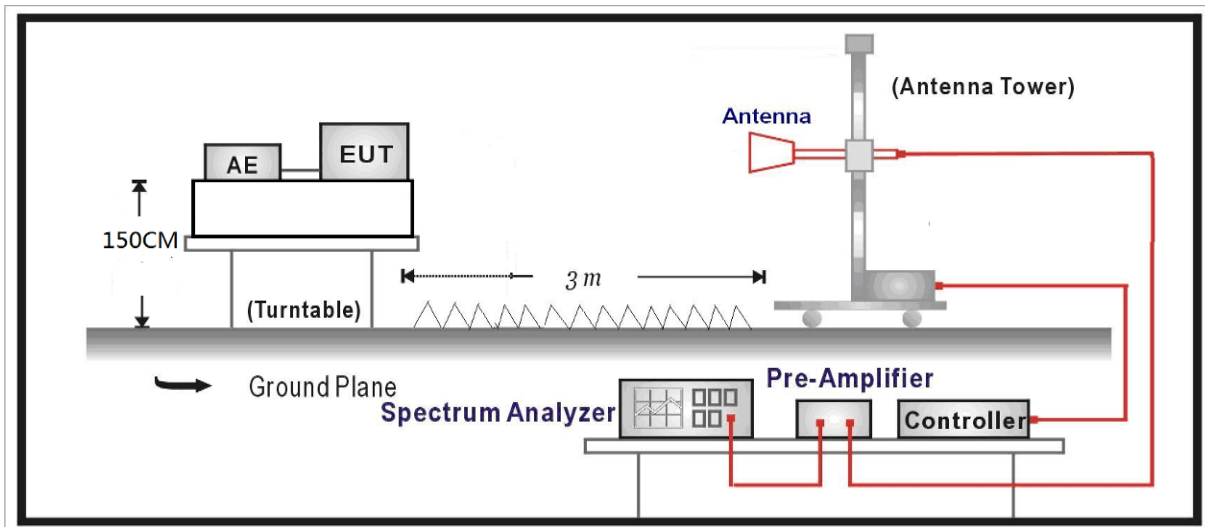
Below 30MHz Test Setup:



Below 1GHz Test Setup:



Above 1GHz Test Setup:



Measurement Data:

The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Level = Reading - Factor

Factor = Preamplifier Factor – Antenna Factor–Cable Loss

Measurement Uncertainty:

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 1.96$.

Frequency	Uncertainty
9KHz-30MHz	3.55 dB
30MHz-200MHz	4.19 dB
200MHz-1GHz	3.63 dB
Above 1GHz	3.68 dB

Test Results:

Model: EMC3290-S

SPURIOUS EMISSIONS:

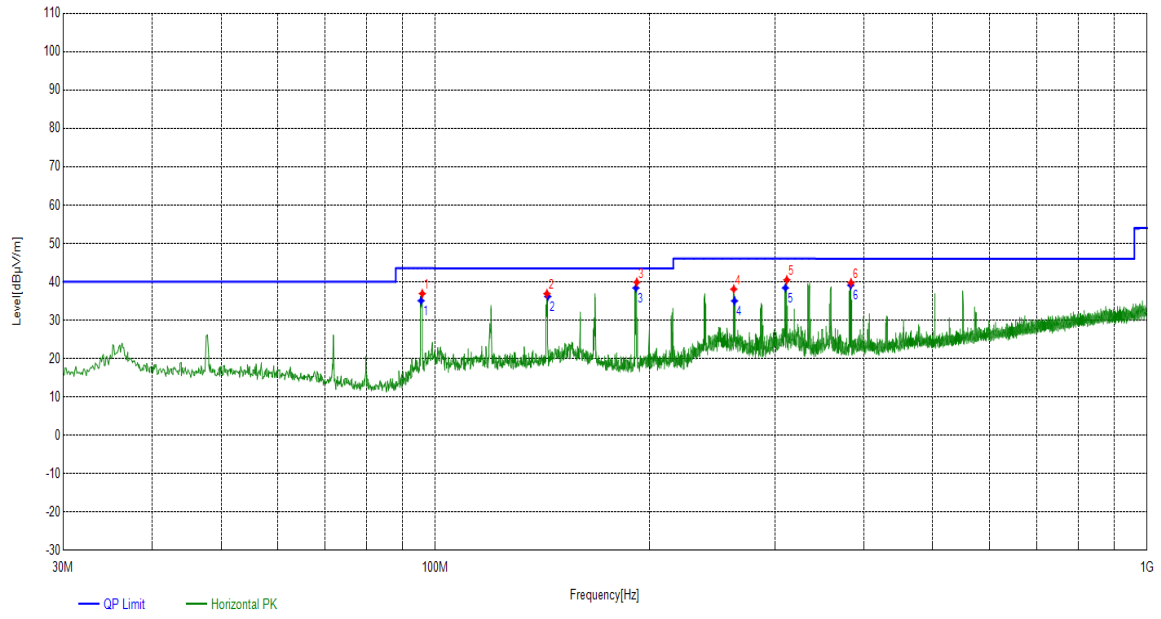
WIFI:

During the test, the Radiates Emission from 9kHz to 40GHz was performed in WIFI all modes with all channels and all antennas. 802.11n20, Channel 1, Antenna 1 are selected as the worst condition. The test data of the worst-case condition was recorded in this report.

Radiates Emission		9kHz~1GHz							
Test channel		Worst-Case							
Polarity		Horizontal							
Suspected List									
Frequency [MHz]	Factor [dB]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Detector	Height [cm]	Angle deg	Pass/Fail
95.8696	15.45	21.47	36.92	43.52	6.60	PK	100	184	PASS
143.5014	20.30	16.61	36.91	43.51	6.60	PK	100	158	PASS
191.9092	17.76	22.13	39.89	43.50	3.61	PK	100	158	PASS
262.6293	19.90	18.19	38.09	46.02	7.93	PK	100	164	PASS
311.8132	21.71	18.79	40.50	46.02	5.52	PK	100	73	PASS
383.7944	23.54	16.23	39.77	46.01	6.24	PK	100	73	PASS

Note: 9kHz~30MHz have been test and test data more than 20dB margin.

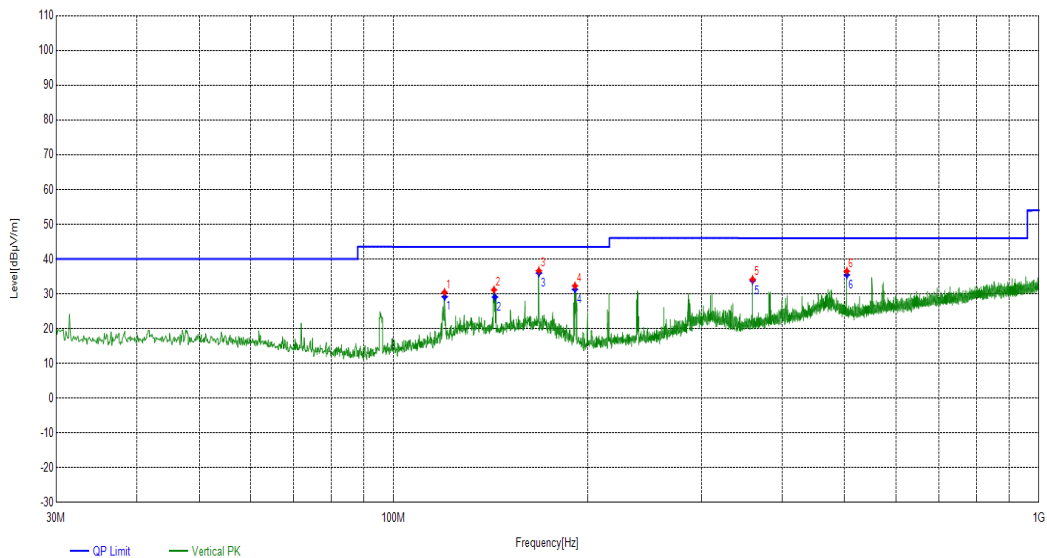
Final Data List							
Frequency [MHz]	Factor [dB]	QP Value [dBµV/m]	QP Limit [dBµV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Pass/Fail
95.5089	15.45	35.07	43.52	8.45	240	184	PASS
143.8981	20.30	36.16	43.51	7.35	330	158	PASS
191.3649	17.76	38.39	43.50	5.11	130	158	PASS
263.2489	19.90	35.02	46.02	11.00	360	164	PASS
310.3601	21.71	38.41	46.02	7.61	370	73	PASS
383.4445	23.54	39.09	46.01	6.92	180	73	PASS



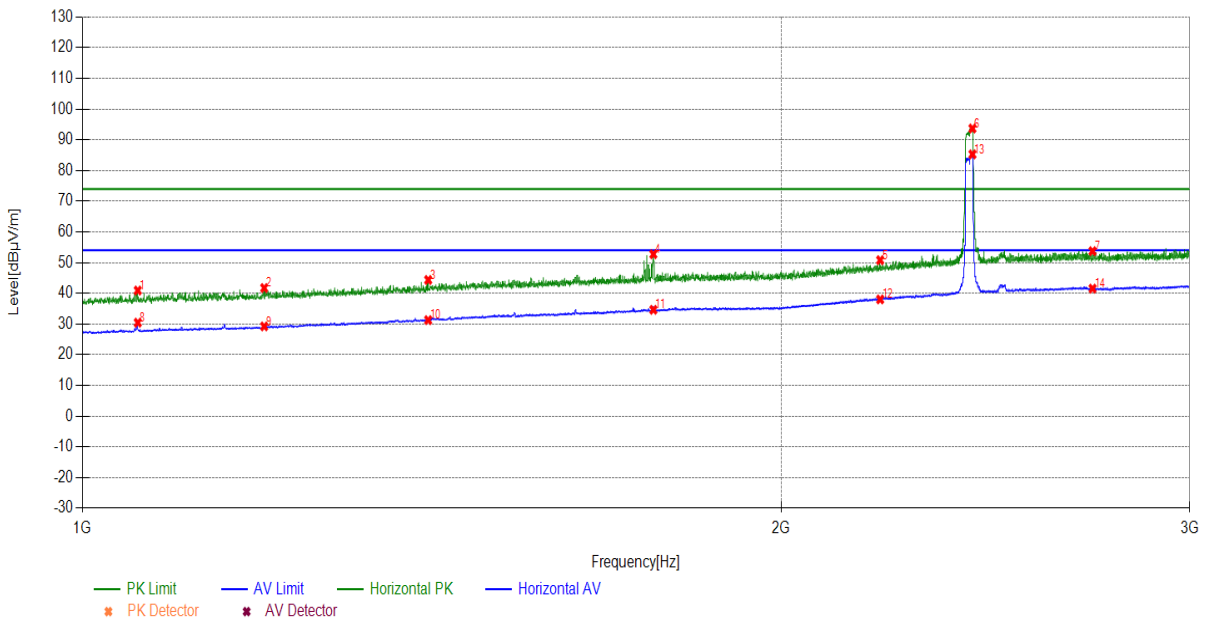
Radiates Emission		9kHz~1GHz							
Test channel		Worst-Case							
Polarity		Vertical							
Suspected List									
Frequency [MHz]	Factor [dB]	Reading [dBμV/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Height [cm]	Angle deg	Pass/Fail
119.928	18.35	12.09	30.44	43.51	13.07	PK	100	86	PASS
143.1133	20.28	10.85	31.13	43.51	12.38	PK	100	270	PASS
167.9478	20.58	16.05	36.63	43.51	6.88	PK	100	153	PASS
191.0361	17.81	14.48	32.29	43.50	11.21	PK	100	1	PASS
360.027	22.94	11.23	34.17	46.01	11.84	PK	100	53	PASS
503.9894	26.72	9.79	36.51	46.01	9.50	PK	100	172	PASS

Note: 9kHz~30MHz have been test and test data more than 20dB margin.

Final Data List							
Frequency [MHz]	Factor [dB]	QP Value [dBμV/m]	QP Limit [dBμV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Pass/Fail
120.0044	18.35	29.14	43.51	14.37	340	86	PASS
143.5917	20.28	29.07	43.51	14.44	290	270	PASS
167.9867	20.58	35.96	43.51	7.55	190	153	PASS
191.014	17.81	31.26	43.50	12.24	240	1	PASS
360.001	22.94	33.79	46.01	12.22	290	53	PASS
503.9894	26.72	35.44	46.01	10.57	120	172	PASS

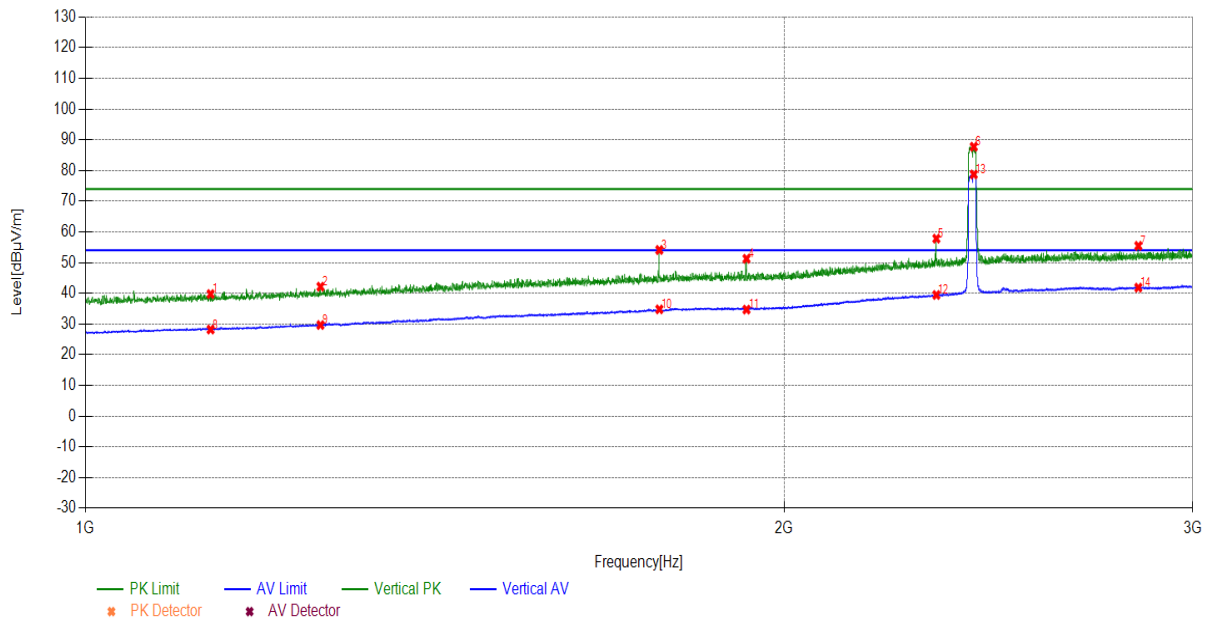


Radiates Emission		1G~3G							
Test channel		Worst-Case							
polarization		Horizontal							
Suspected List									
Frequency [MHz]	Factor [dB]	Reading [dBμV/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detect or	Height [cm]	Angle deg	Pass/Fail
1056.4056	26.65	14.27	40.92	74.00	33.08	PK	150	48	PASS
1197.6198	27.89	13.84	41.73	74.00	32.27	PK	150	357	PASS
1409.2409	29.92	14.43	44.35	74.00	29.65	PK	150	119	PASS
1762.0762	32.74	20.00	52.74	74.00	21.26	PK	150	191	PASS
2206.7207	35.61	15.19	50.80	74.00	23.20	PK	150	177	PASS
2418.3418	37.42	56.29	93.71	74.00	-19.71	PK	150	276	---
2724.3724	38.56	15.18	53.74	74.00	20.26	PK	150	148	PASS
1056.4056	26.65	3.79	30.44	54.00	23.56	AV	150	34	PASS
1197.6198	27.89	1.33	29.22	54.00	24.78	AV	150	20	PASS
1409.2409	29.92	1.36	31.28	54.00	22.72	AV	150	48	PASS
1762.0762	32.74	1.90	34.64	54.00	19.36	AV	150	177	PASS
2206.7207	35.61	2.42	38.03	54.00	15.97	AV	150	247	PASS
2418.3418	37.42	47.87	85.29	54.00	-31.29	AV	150	261	---
2724.3724	38.56	2.97	41.53	54.00	12.47	AV	150	91	PASS



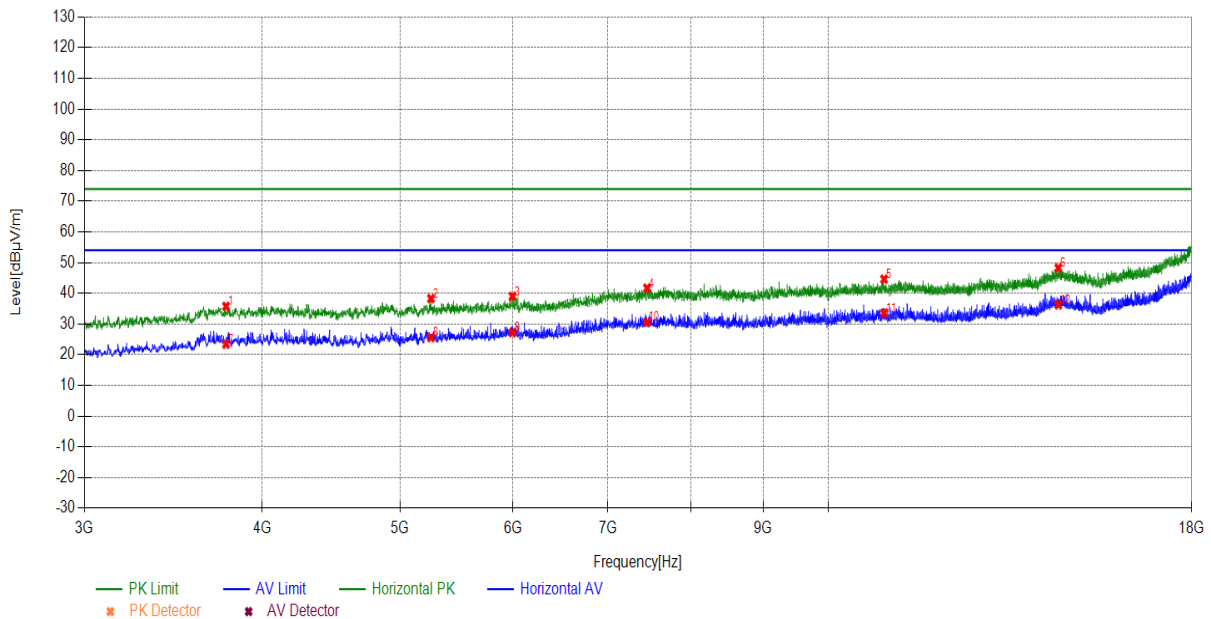
Note: The signal beyond the limit is carrier

Radiates Emission	1G~3G								
Test channel	Worst-Case								
polarization	Vertical								
Suspected List									
Frequency[MHz]	Factor [dB]	Reading [dB μ V/m]	Level [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]	Detect or	Height [cm]	Angle deg	Pass/Fail
1132.2132	27.32	12.46	39.78	74.00	34.22	PK	150	353	PASS
1262.6263	28.51	13.66	42.17	74.00	31.83	PK	150	114	PASS
1767.2767	32.78	21.35	54.13	74.00	19.87	PK	150	353	PASS
1926.8927	33.07	18.19	51.26	74.00	22.74	PK	150	3	PASS
2326.3326	36.67	21.14	57.81	74.00	16.19	PK	150	128	PASS
2414.3414	37.40	50.34	87.74	74.00	-13.74	PK	150	360	---
2842.5843	38.93	16.54	55.47	74.00	18.53	PK	150	142	PASS
1132.2132	27.32	0.88	28.20	54.00	25.80	AV	150	142	PASS
1262.6263	28.51	1.18	29.69	54.00	24.31	AV	150	3	PASS
1767.2767	32.78	2.01	34.79	54.00	19.21	AV	150	341	PASS
1926.8927	33.07	1.64	34.71	54.00	19.29	AV	150	14	PASS
2326.3326	36.67	2.79	39.46	54.00	14.54	AV	150	171	PASS
2414.3414	37.40	41.32	78.72	54.00	-24.72	AV	150	360	---
2842.5843	38.93	2.93	41.86	54.00	12.14	AV	150	360	PASS

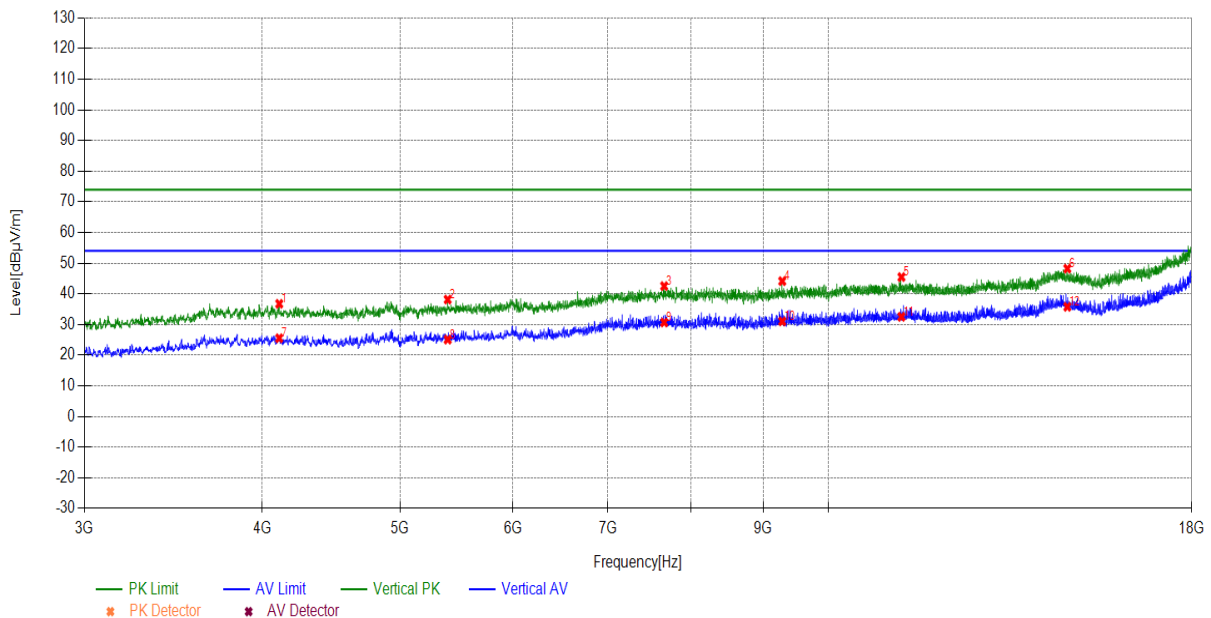


Note: The signal beyond the limit is carrier

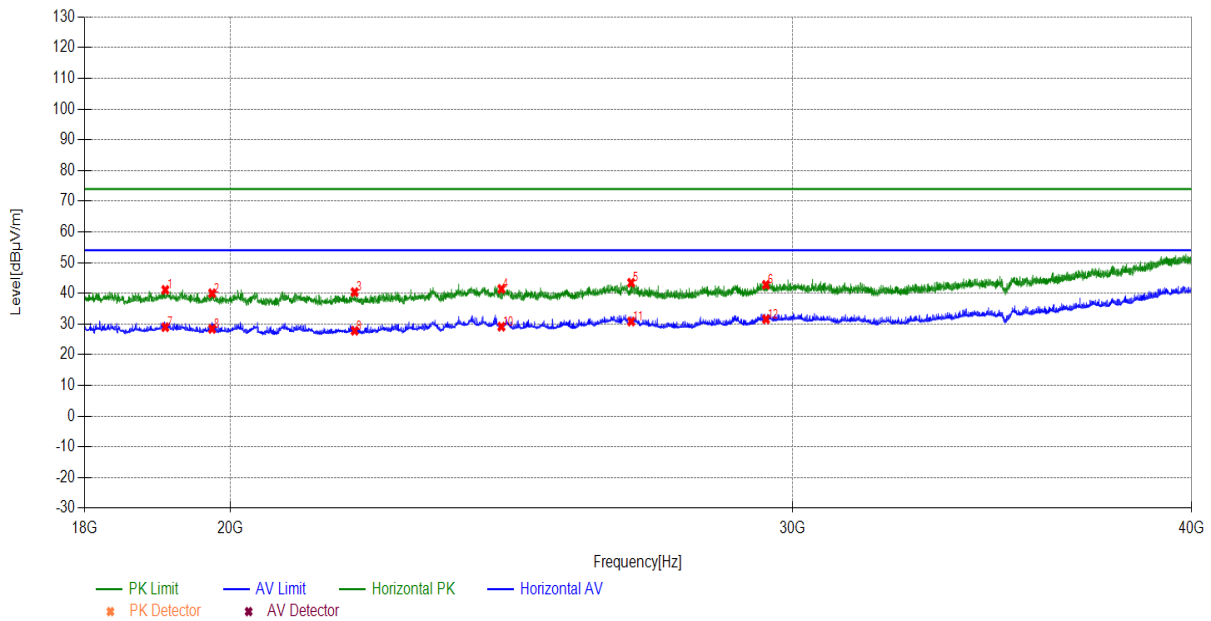
Radiates Emission	3G~18G								
Test channel	Worst-Case								
polarization	Horizontal								
Suspected List									
Frequency[MHz]	Factor [dB]	Reading [dBμV/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detect or	Height [cm]	Angle deg	Pass/Fail
3772.5773	-0.58	36.34	35.76	74.00	38.24	PK	150	340	PASS
5256.2256	2.21	36.09	38.30	74.00	35.70	PK	150	130	PASS
5997.2997	4.95	34.06	39.01	74.00	34.99	PK	150	350	PASS
7456.9457	8.29	33.41	41.70	74.00	32.30	PK	150	320	PASS
10941.7942	11.69	32.94	44.63	74.00	29.37	PK	150	70	PASS
14506.1506	17.39	30.87	48.26	74.00	25.74	PK	150	20	PASS
3772.5773	-0.58	24.02	23.44	54.00	30.56	AV	150	260	PASS
5256.2256	2.21	23.38	25.59	54.00	28.41	AV	150	110	PASS
5997.2997	4.95	22.25	27.20	54.00	26.80	AV	150	140	PASS
7456.9457	8.29	22.29	30.58	54.00	23.42	AV	150	30	PASS
10941.7942	11.69	21.85	33.54	54.00	20.46	AV	150	10	PASS
14506.1506	17.39	18.88	36.27	54.00	17.73	AV	150	30	PASS



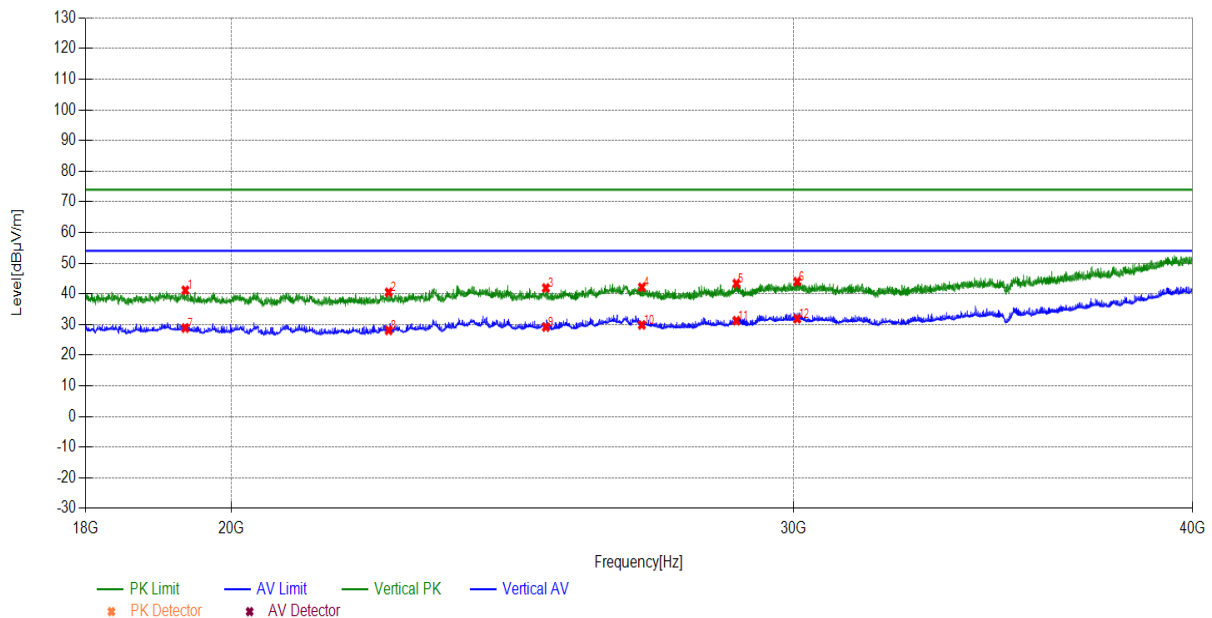
Radiates Emission		3G~18G							
Test channel		Worst-Case							
polarization		Vertical							
Suspected List									
Frequency[MHz]	Factor [dB]	Reading [dBμV/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detect or	Height [cm]	Angle deg	Pass/Fail
4111.6112	-0.26	37.01	36.75	74.00	37.25	PK	150	20	PASS
5400.24	2.50	35.65	38.15	74.00	35.85	PK	150	160	PASS
7665.4665	8.37	34.17	42.54	74.00	31.46	PK	150	360	PASS
9279.628	10.59	33.55	44.14	74.00	29.86	PK	150	350	PASS
11253.8254	11.48	33.99	45.47	74.00	28.53	PK	150	90	PASS
14719.1719	17.00	31.23	48.23	74.00	25.77	PK	150	30	PASS
4111.6112	-0.26	25.79	25.53	54.00	28.47	AV	150	10	PASS
5400.24	2.50	22.58	25.08	54.00	28.92	AV	150	360	PASS
7665.4665	8.37	22.28	30.65	54.00	23.35	AV	150	20	PASS
9279.628	10.59	20.42	31.01	54.00	22.99	AV	150	210	PASS
11253.8254	11.48	21.03	32.51	54.00	21.49	AV	150	130	PASS
14719.1719	17.00	18.77	35.77	54.00	18.23	AV	150	250	PASS



Radiates Emission		18G~40G							
Test channel		Worst-Case							
polarization		Horizontal							
Suspected List									
Frequency [MHz]	Factor [dB]	Reading [dB μ V/m]	Level [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]	Detect or	Height [cm]	Angle deg	Pass/Fail
19080.308	1.35	39.77	41.12	74.00	32.88	PK	150	10	PASS
19735.9736	1.31	38.71	40.02	74.00	33.98	PK	150	240	PASS
21872.3872	1.87	38.52	40.39	74.00	33.61	PK	150	330	PASS
24314.6315	3.83	37.61	41.44	74.00	32.56	PK	150	130	PASS
26699.67	4.78	38.66	43.44	74.00	30.56	PK	150	290	PASS
29425.7426	6.30	36.48	42.78	74.00	31.22	PK	150	70	PASS
19080.308	1.35	27.62	28.97	54.00	25.03	AV	150	260	PASS
19735.9736	1.31	27.11	28.42	54.00	25.58	AV	150	80	PASS
21872.3872	1.87	25.94	27.81	54.00	26.19	AV	150	340	PASS
24314.6315	3.83	25.31	29.14	54.00	24.86	AV	150	160	PASS
26699.67	4.78	26.05	30.83	54.00	23.17	AV	150	20	PASS
29425.7426	6.30	25.26	31.56	54.00	22.44	AV	150	310	PASS



Radiates Emission	18G~40G								
Test channel	Worst-Case								
polarization	Vertical								
Suspected List									
Frequency[MHz]	Factor [dB]	Reading [dB μ V/m]	Level [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]	Detect or	Height [cm]	Angle deg	Pass/Fail
19344.3344	1.33	39.84	41.17	74.00	32.83	PK	150	70	PASS
22400.44	2.30	38.22	40.52	74.00	33.48	PK	150	220	PASS
25089.1089	4.14	37.77	41.91	74.00	32.09	PK	150	180	PASS
26886.6887	4.85	37.30	42.15	74.00	31.85	PK	150	110	PASS
28783.2783	5.87	37.49	43.36	74.00	30.64	PK	150	90	PASS
30074.8075	6.67	37.33	44.00	74.00	30.00	PK	150	90	PASS
19344.3344	1.33	27.52	28.85	54.00	25.15	AV	150	150	PASS
22400.44	2.30	25.80	28.10	54.00	25.90	AV	150	220	PASS
25089.1089	4.14	25.04	29.18	54.00	24.82	AV	150	240	PASS
26886.6887	4.85	25.01	29.86	54.00	24.14	AV	150	130	PASS
28783.2783	5.87	25.37	31.24	54.00	22.76	AV	150	300	PASS
30074.8075	6.67	25.22	31.89	54.00	22.11	AV	150	10	PASS



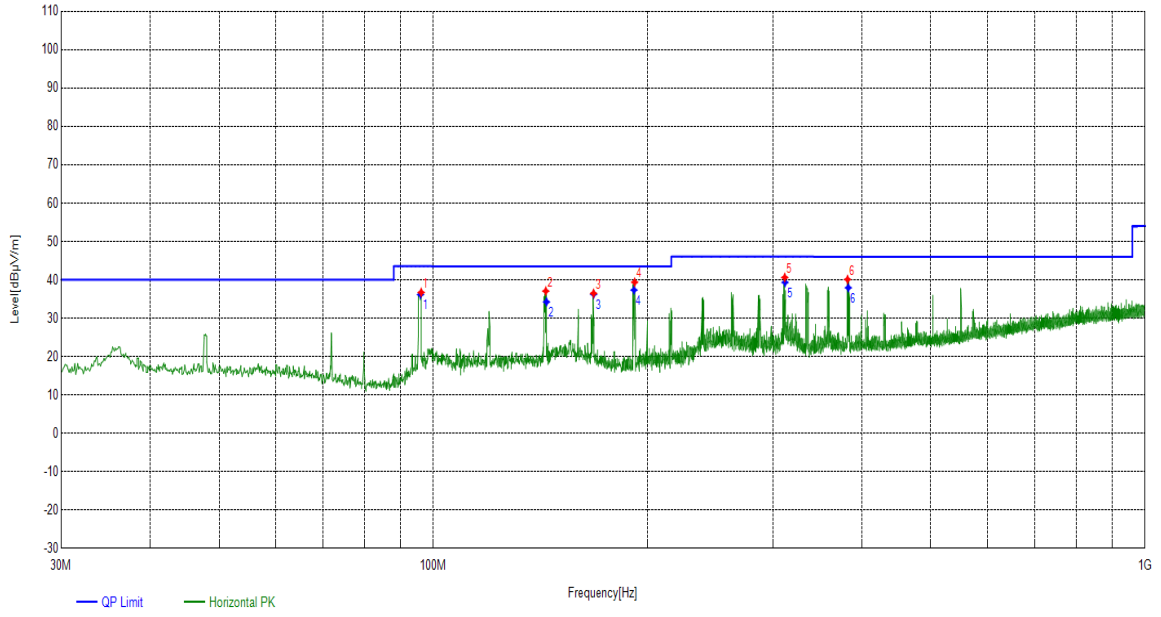
Bluetooth(Low Energy):

During the test, the Radiates Emission from 9kHz to 40GHz was performed in Bluetooth(Low Energy) all modes with all channels and all antennas. BLE(2Mbps), channel 0, antenna 1 are selected as the worst condition. The test data of the worst-case condition was recorded in this report.

Radiates Emission		9kHz~1GHz							
Test channel		Worst-Case							
Polarity		Horizontal							
Suspected List									
Frequency [MHz]	Factor [dB]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Detector	Height [cm]	Angle deg	Pass/Fail
96.1606	15.48	21.24	36.72	43.52	6.80	PK	100	185	PASS
143.8894	20.33	16.73	37.06	43.51	6.45	PK	100	151	PASS
167.9478	20.58	15.89	36.47	43.51	7.04	PK	100	205	PASS
191.8122	17.76	21.60	39.36	43.50	4.14	PK	100	172	PASS
311.7162	21.71	18.90	40.61	46.02	5.41	PK	100	72	PASS
381.9512	23.49	16.60	40.09	46.01	5.92	PK	100	79	PASS

Note: 9kHz~30MHz have been test and test data more than 20dB margin.

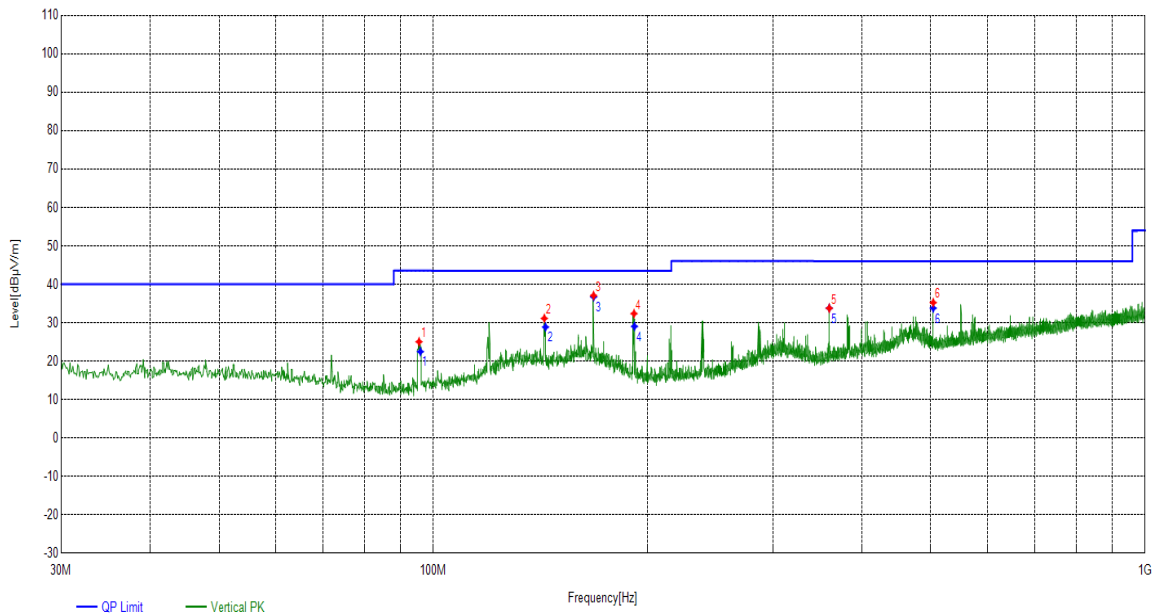
Final Data List							
Frequency [MHz]	Factor [dB]	QP Value [dBµV/m]	QP Limit [dBµV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Pass/Fail
95.924	15.48	36.14	43.52	7.38	130	185	PASS
144.2143	20.33	34.24	43.51	9.27	380	151	PASS
167.994	20.58	36.24	43.51	7.27	300	205	PASS
191.4291	17.76	37.34	43.50	6.16	170	172	PASS
312.0094	21.71	39.31	46.02	6.71	190	72	PASS
382.9019	23.49	37.93	46.01	8.08	340	79	PASS



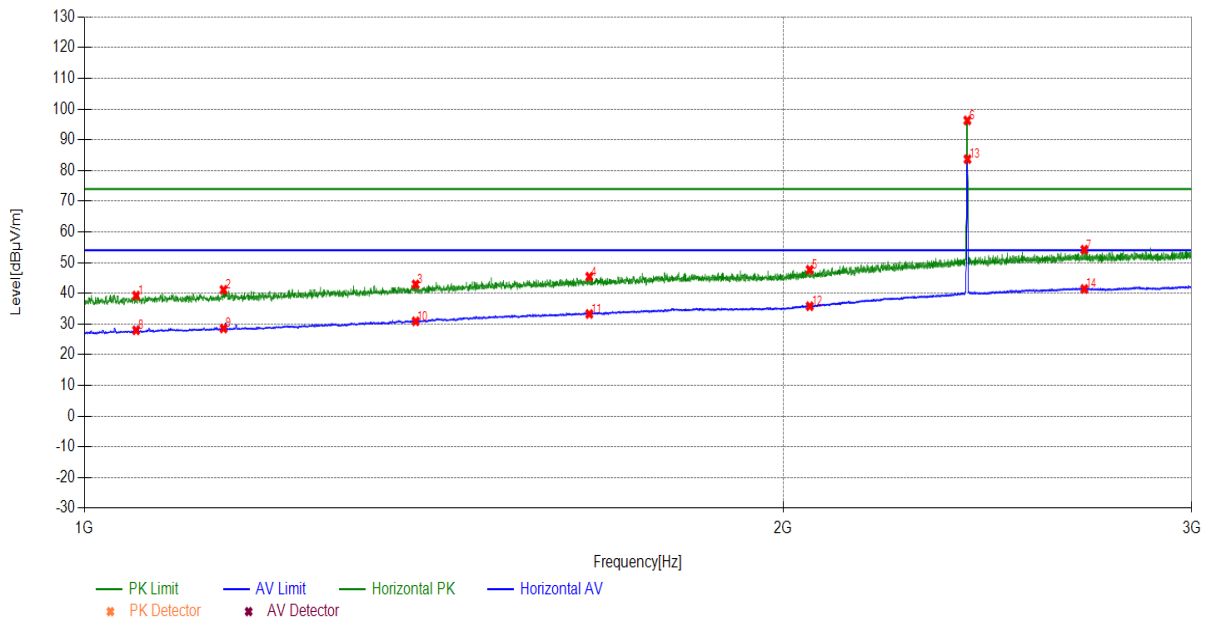
Radiates Emission		9kHz~1GHz							
Test channel		Worst-Case							
Polarity		Vertical							
Suspected List									
Frequency [MHz]	Factor [dB]	Reading [dBμV/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Height [cm]	Angle deg	Pass/Fail
95.4815	15.39	9.64	25.03	43.52	18.49	PK	100	204	PASS
143.2103	20.29	10.83	31.12	43.51	12.39	PK	100	217	PASS
167.9478	20.58	16.48	37.06	43.51	6.45	PK	100	99	PASS
191.4241	17.79	14.57	32.36	43.50	11.14	PK	100	353	PASS
360.027	22.94	10.82	33.76	46.01	12.25	PK	100	47	PASS
503.9894	26.72	8.50	35.22	46.01	10.79	PK	100	184	PASS

Note: 9kHz~30MHz have been test and test data more than 20dB margin.

Final Data List							
Frequency [MHz]	Factor [dB]	QP Value [dBμV/m]	QP Limit [dBμV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Pass/Fail
95.9126	15.39	22.47	43.52	21.05	290	204	PASS
143.7698	20.29	28.86	43.51	14.65	110	217	PASS
168.0037	20.58	36.71	43.51	6.80	370	99	PASS
191.7011	17.79	29.04	43.50	14.46	220	353	PASS
360.0114	22.94	33.79	46.01	12.22	310	47	PASS
503.9822	26.72	33.79	46.01	12.22	400	184	PASS

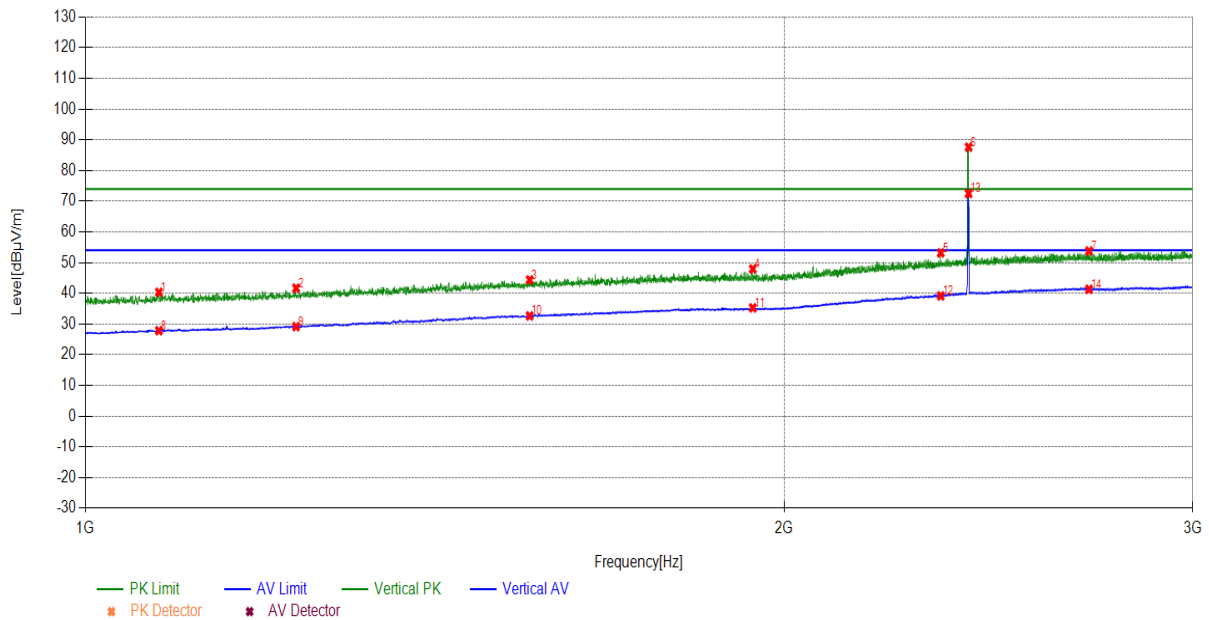


Radiates Emission	1G~3G								
Test channel	Worst-Case								
polarization	Horizontal								
Suspected List									
Frequency[MHz]	Factor [dB]	Reading [dBμV/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detect or	Height [cm]	Angle deg	Pass/Fail
1052.6053	26.62	12.65	39.27	74.00	34.73	PK	150	357	PASS
1148.0148	27.46	13.68	41.14	74.00	32.86	PK	150	38	PASS
1389.0389	29.71	13.20	42.91	74.00	31.09	PK	150	357	PASS
1650.265	31.88	13.53	45.41	74.00	28.59	PK	150	357	PASS
2053.7054	33.76	13.90	47.66	74.00	26.34	PK	150	108	PASS
2401.3401	37.34	58.98	96.32	74.00	-22.32	PK	150	348	---
2696.9697	38.48	15.74	54.22	74.00	19.78	PK	150	348	PASS
1052.6053	26.62	1.32	27.94	54.00	26.06	AV	150	357	PASS
1148.0148	27.46	1.09	28.55	54.00	25.45	AV	150	136	PASS
1389.0389	29.71	1.18	30.89	54.00	23.11	AV	150	333	PASS
1650.265	31.88	1.38	33.26	54.00	20.74	AV	150	357	PASS
2053.7054	33.76	2.04	35.80	54.00	18.20	AV	150	108	PASS
2401.7402	37.34	46.35	83.69	54.00	-29.69	AV	150	1	---
2696.9697	38.48	2.94	41.42	54.00	12.58	AV	150	192	PASS



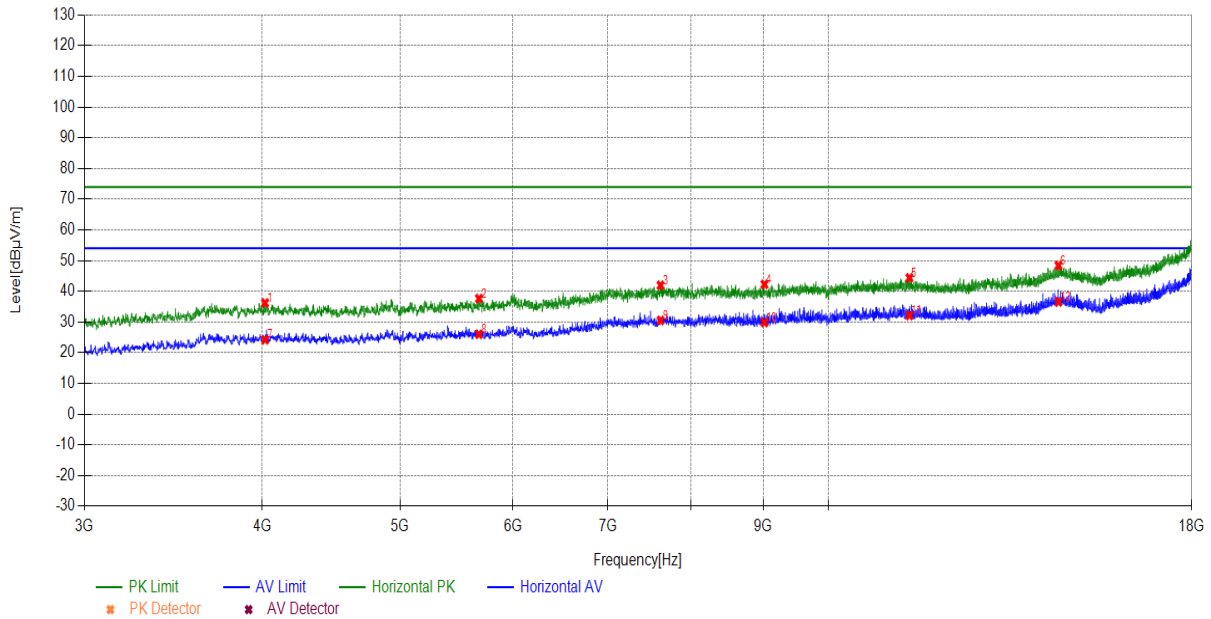
Note: The signal beyond the limit is carrier

Radiates Emission	1G~3G								
Test channel	Worst-Case								
polarization	Vertical								
Suspected List									
Frequency[MHz]	Factor [dB]	Reading [dBμV/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detect or	Height [cm]	Angle deg	Pass/Fail
1075.6076	26.82	13.50	40.32	74.00	33.68	PK	150	293	PASS
1232.4232	28.22	13.47	41.69	74.00	32.31	PK	150	24	PASS
1553.8554	31.24	13.12	44.36	74.00	29.64	PK	150	359	PASS
1938.8939	33.08	14.87	47.95	74.00	26.05	PK	150	350	PASS
2336.5337	36.77	16.39	53.16	74.00	20.84	PK	150	67	PASS
2401.9402	37.34	50.26	87.60	74.00	-13.60	PK	150	350	---
2706.7707	38.51	15.26	53.77	74.00	20.23	PK	150	350	PASS
1075.6076	26.82	1.00	27.82	54.00	26.18	AV	150	359	PASS
1232.4232	28.22	0.94	29.16	54.00	24.84	AV	150	222	PASS
1553.8554	31.24	1.41	32.65	54.00	21.35	AV	150	236	PASS
1938.8939	33.08	2.17	35.25	54.00	18.75	AV	150	350	PASS
2336.5337	36.77	2.39	39.16	54.00	14.84	AV	150	293	PASS
2401.9402	37.34	35.16	72.50	54.00	-18.50	AV	150	350	---
2706.7707	38.51	2.82	41.33	54.00	12.67	AV	150	53	PASS

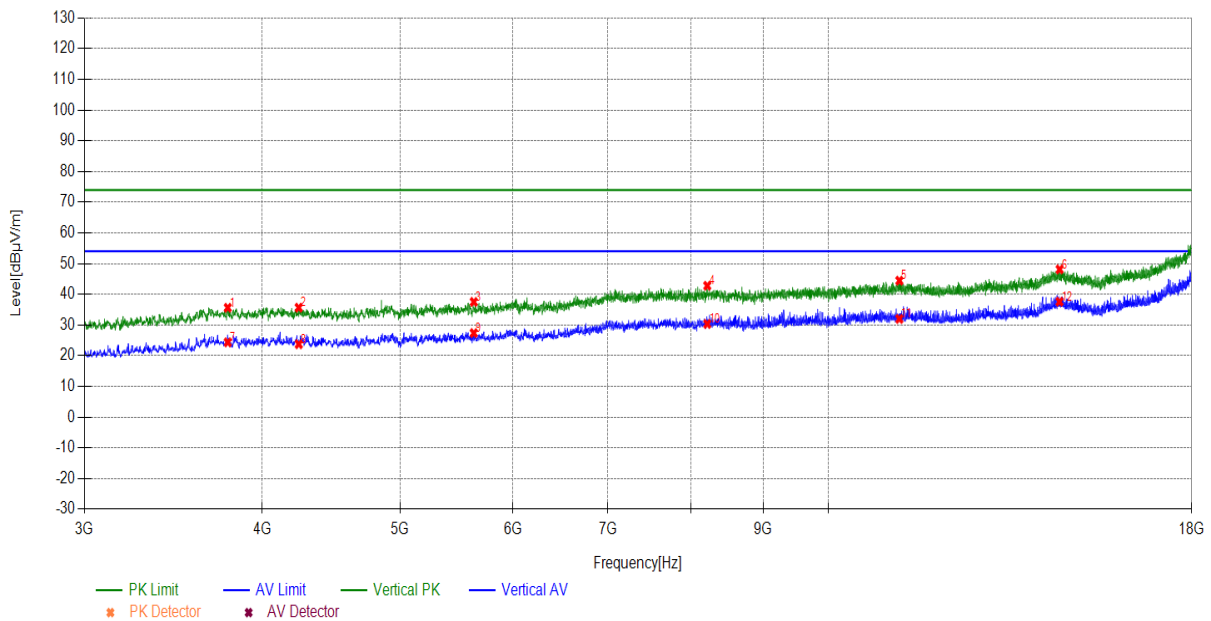


Note: The signal beyond the limit is carrier

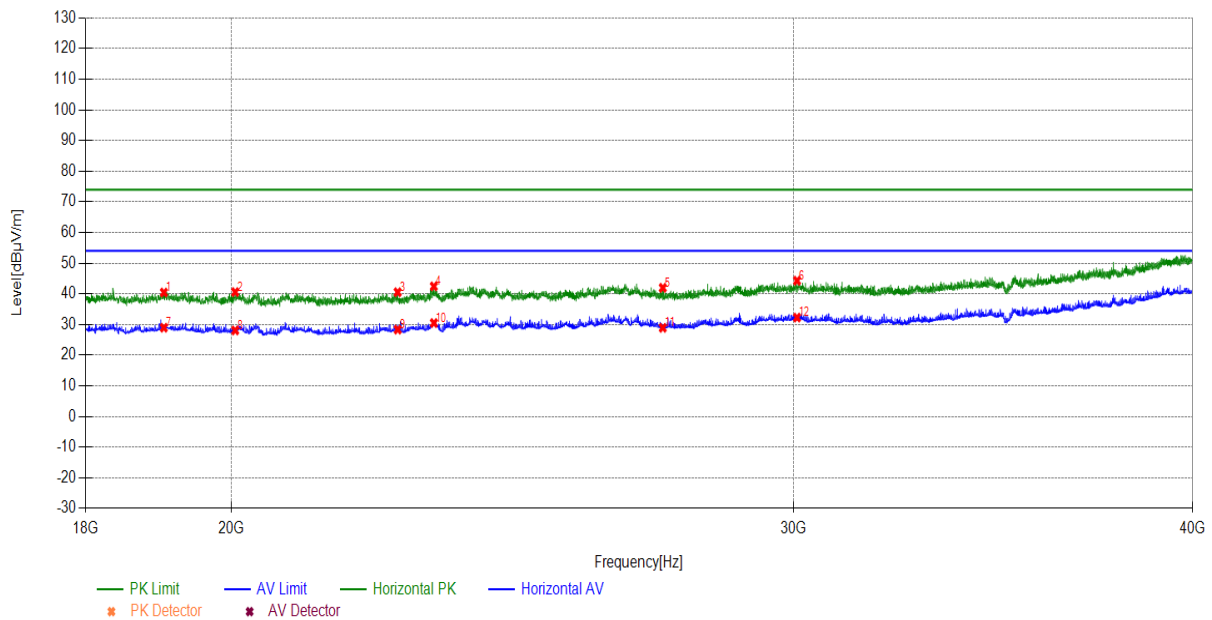
Radiates Emission	3G~18G								
Test channel	Worst-Case								
polarization	Horizontal								
Suspected List									
Frequency[MHz]	Factor [dB]	Reading [dB μ V/m]	Level [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]	Detect or	Height [cm]	Angle deg	Pass/Fail
4018.6019	-0.15	36.36	36.21	74.00	37.79	PK	150	130	PASS
5680.7681	3.56	34.10	37.66	74.00	36.34	PK	150	90	PASS
7620.462	8.36	33.61	41.97	74.00	32.03	PK	150	170	PASS
9015.6016	9.60	32.67	42.27	74.00	31.73	PK	150	350	PASS
11400.8401	11.32	33.09	44.41	74.00	29.59	PK	150	330	PASS
14509.1509	17.38	31.02	48.40	74.00	25.60	PK	150	260	PASS
4018.6019	-0.15	24.37	24.22	54.00	29.78	AV	150	120	PASS
5680.7681	3.56	22.45	26.01	54.00	27.99	AV	150	40	PASS
7620.462	8.36	22.16	30.52	54.00	23.48	AV	150	40	PASS
9015.6016	9.60	20.24	29.84	54.00	24.16	AV	150	60	PASS
11400.8401	11.32	20.79	32.11	54.00	21.89	AV	150	40	PASS
14509.1509	17.38	19.16	36.54	54.00	17.46	AV	150	40	PASS



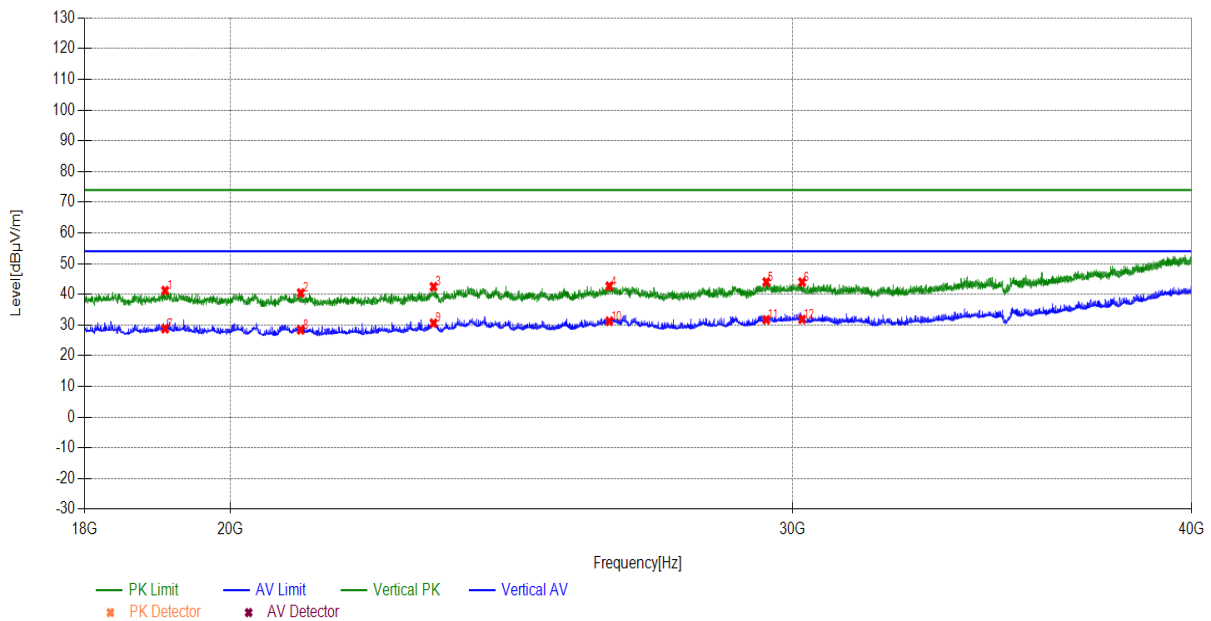
Radiates Emission	3G~18G								
Test channel	Worst-Case								
polarization	Vertical								
Suspected List									
Frequency[MHz]	Factor [dB]	Reading [dB μ V/m]	Level [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]	Detect or	Height [cm]	Angle deg	Pass/Fail
3783.0783	-0.57	36.18	35.61	74.00	38.39	PK	150	20	PASS
4243.6244	-0.40	36.05	35.65	74.00	38.35	PK	150	190	PASS
5632.7633	3.35	34.17	37.52	74.00	36.48	PK	150	210	PASS
8219.0219	8.79	34.00	42.79	74.00	31.21	PK	150	290	PASS
11216.3216	11.52	32.93	44.45	74.00	29.55	PK	150	310	PASS
14536.1536	17.30	30.82	48.12	74.00	25.88	PK	150	330	PASS
3783.0783	-0.57	24.93	24.36	54.00	29.64	AV	150	30	PASS
4243.6244	-0.40	24.15	23.75	54.00	30.25	AV	150	30	PASS
5632.7633	3.35	24.03	27.38	54.00	26.62	AV	150	10	PASS
8219.0219	8.79	21.56	30.35	54.00	23.65	AV	150	90	PASS
11216.3216	11.52	20.46	31.98	54.00	22.02	AV	150	30	PASS
14536.1536	17.30	20.30	37.60	54.00	16.40	AV	150	20	PASS



Radiates Emission	18G~40G								
Test channel	Worst-Case								
polarization	Horizontal								
Suspected List									
Frequency[MHz]	Factor [dB]	Reading [dB μ V/m]	Level [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]	Detect or	Height [cm]	Angle deg	Pass/Fail
19047.3047	1.35	39.10	40.45	74.00	33.55	PK	150	270	PASS
20052.8053	1.32	39.26	40.58	74.00	33.42	PK	150	110	PASS
22545.6546	2.45	38.08	40.53	74.00	33.47	PK	150	300	PASS
23141.9142	3.01	39.42	42.43	74.00	31.57	PK	150	120	PASS
27295.9296	5.05	36.92	41.97	74.00	32.03	PK	150	40	PASS
30070.407	6.67	37.63	44.30	74.00	29.70	PK	150	230	PASS
19047.3047	1.35	27.59	28.94	54.00	25.06	AV	150	360	PASS
20052.8053	1.32	26.74	28.06	54.00	25.94	AV	150	340	PASS
22545.6546	2.45	25.89	28.34	54.00	25.66	AV	150	260	PASS
23141.9142	3.01	27.47	30.48	54.00	23.52	AV	150	40	PASS
27295.9296	5.05	23.86	28.91	54.00	25.09	AV	150	250	PASS
30070.407	6.67	25.60	32.27	54.00	21.73	AV	150	10	PASS



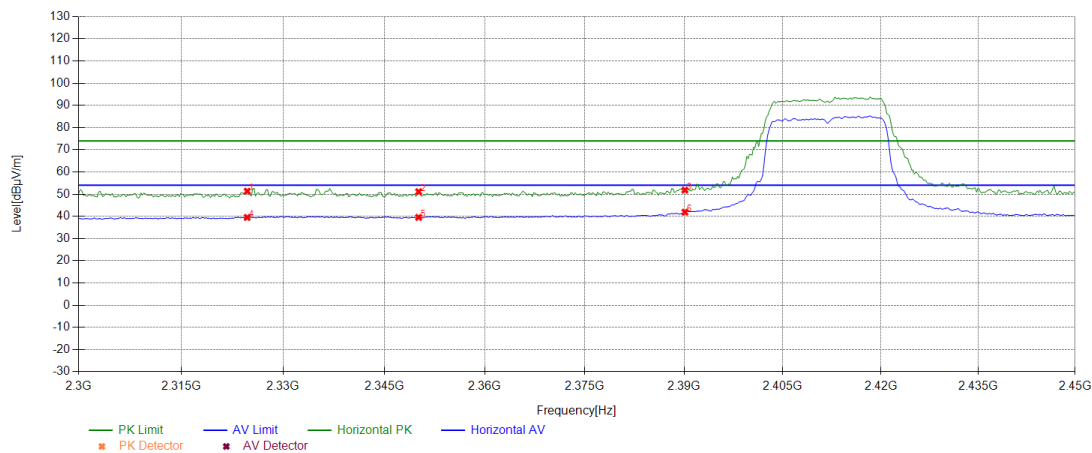
Radiates Emission	18G~40G								
Test channel	Worst-Case								
polarization	Vertical								
Suspected List									
Frequency[MHz]	Factor [dB]	Reading [dBμV/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detect or	Height [cm]	Angle deg	Pass/Fail
19078.1078	1.35	39.87	41.22	74.00	32.78	PK	150	280	PASS
21038.5038	1.66	38.79	40.45	74.00	33.55	PK	150	140	PASS
23152.9153	3.02	39.48	42.50	74.00	31.50	PK	150	20	PASS
26281.6282	4.61	38.04	42.65	74.00	31.35	PK	150	320	PASS
29432.3432	6.30	37.75	44.05	74.00	29.95	PK	150	200	PASS
30202.4202	6.61	37.36	43.97	74.00	30.03	PK	150	330	PASS
19078.1078	1.35	27.43	28.78	54.00	25.22	AV	150	360	PASS
21038.5038	1.66	26.75	28.41	54.00	25.59	AV	150	10	PASS
23152.9153	3.02	27.59	30.61	54.00	23.39	AV	150	200	PASS
26281.6282	4.61	26.62	31.23	54.00	22.77	AV	150	170	PASS
29432.3432	6.30	25.41	31.71	54.00	22.29	AV	150	190	PASS
30202.4202	6.61	25.22	31.83	54.00	22.17	AV	150	280	PASS



Band Edge:

During the test, the Band Edge was performed in WIFI all modes with all channels and all antennas. 802.11n20, Antenna1 are selected as the worst condition. The test data of the worst-case condition was recorded in this report.

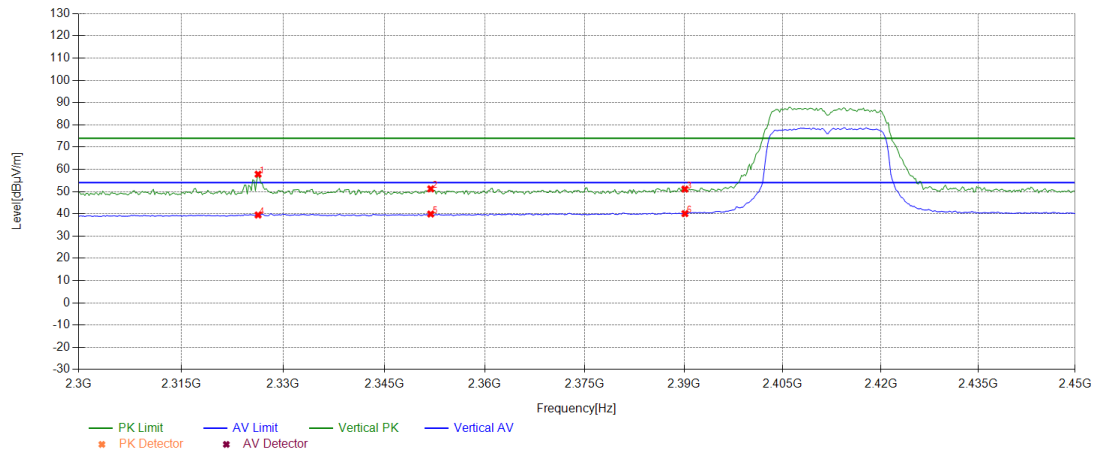
Test mode	802.11n20								
Test channel	Lowest channel								
polarization	Horizontal								
Suspected List									
Frequency [MHz]	Factor [dB]	Reading [dB μ V/m]	Level [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]	Detector	Height [cm]	Angle deg	Pass/Fail
2324.7325	36.66	14.67	51.33	74.00	22.67	PK	150	119	PASS
2350.135	36.89	14.22	51.11	74.00	22.89	PK	150	62	PASS
2390.139	37.24	14.58	51.82	74.00	22.18	PK	150	332	PASS
2324.7325	36.66	2.87	39.53	54.00	14.47	AV	150	261	PASS
2350.135	36.89	2.66	39.55	54.00	14.45	AV	150	133	PASS
2390.139	37.24	4.64	41.88	54.00	12.12	AV	150	261	PASS



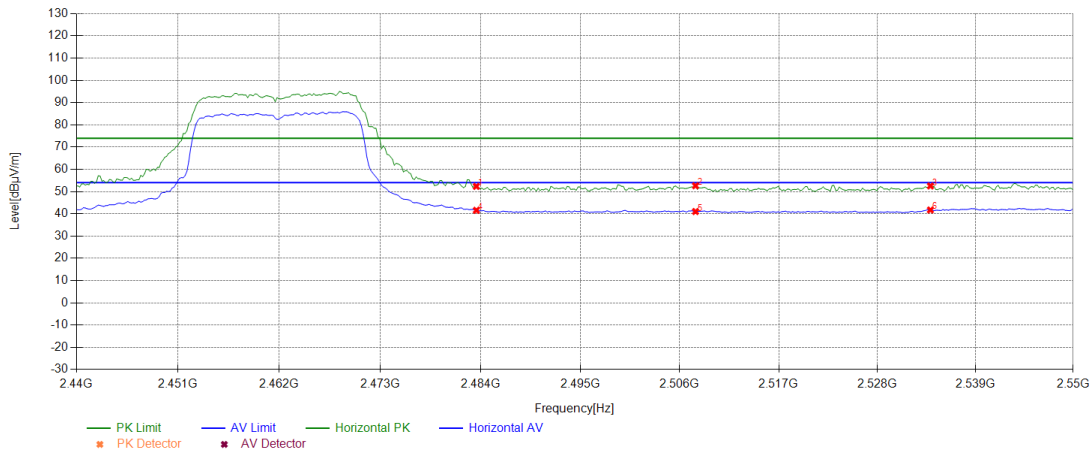
Test mode	802.11n20
Test channel	Lowest channel
polarization	Vertical

Suspected List

Frequency [MHz]	Factor [dB]	Reading [dBμV/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Height [cm]	Angle deg	Pass/Fail
2326.3326	36.67	21.14	57.81	74.00	16.19	PK	150	128	PASS
2351.9352	36.90	14.33	51.23	74.00	22.77	PK	150	57	PASS
2390.139	37.24	13.88	51.12	74.00	22.88	PK	150	185	PASS
2326.3326	36.67	2.79	39.46	54.00	14.54	AV	150	171	PASS
2351.9352	36.90	3.00	39.90	54.00	14.10	AV	150	71	PASS
2390.139	37.24	2.85	40.09	54.00	13.91	AV	150	199	PASS



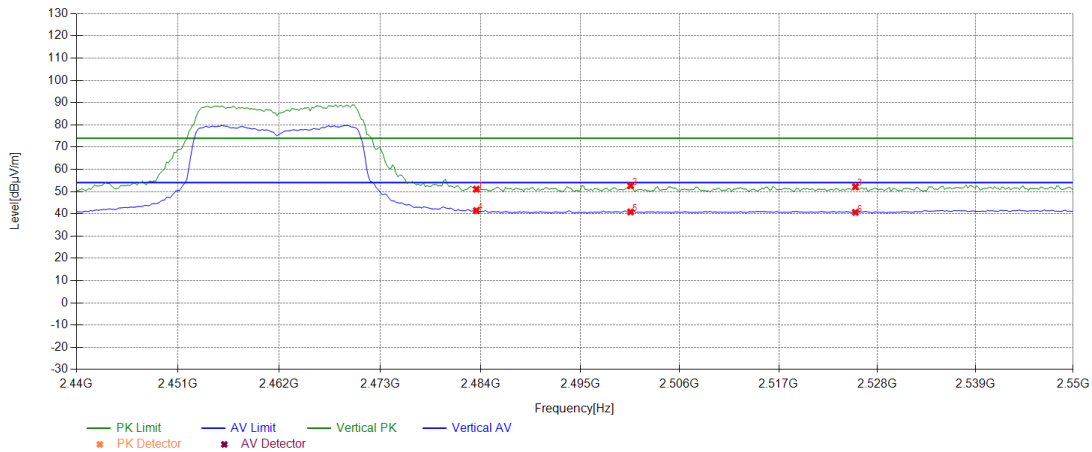
Test mode	802.11n20								
Test channel	Highest channel								
polarization	Horizontal								
Suspected List									
Frequency [MHz]	Factor [dB]	Reading [dBμV/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Height [cm]	Angle deg	Pass/Fail
2483.5484	37.72	14.63	52.35	74.00	21.65	PK	150	67	PASS
2507.7508	37.83	14.79	52.62	74.00	21.38	PK	150	39	PASS
2533.9534	37.93	14.59	52.52	74.00	21.48	PK	150	309	PASS
2483.5484	37.72	3.86	41.58	54.00	12.42	AV	150	295	PASS
2507.7508	37.83	3.21	41.04	54.00	12.96	AV	150	359	PASS
2533.9534	37.93	3.80	41.73	54.00	12.27	AV	150	323	PASS



Test mode	802.11n20
Test channel	Highest channel
polarization	Vertical

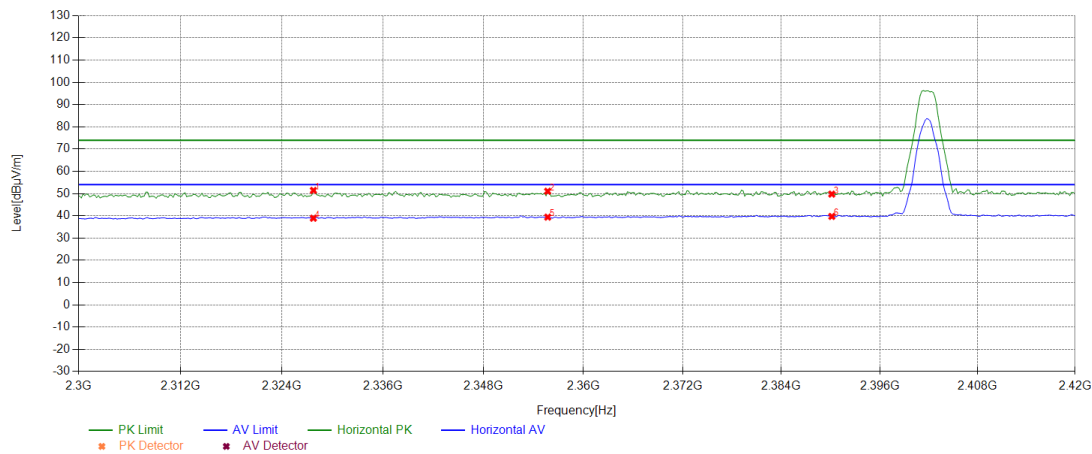
Suspected List

Frequency [MHz]	Factor [dB]	Reading [dBμV/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Height [cm]	Angle deg	Pass/Fail
2483.5484	37.72	13.38	51.10	74.00	22.90	PK	150	357	PASS
2500.5501	37.80	14.81	52.61	74.00	21.39	PK	150	192	PASS
2525.5526	37.90	14.30	52.20	74.00	21.80	PK	150	290	PASS
2483.5484	37.72	3.74	41.46	54.00	12.54	AV	150	347	PASS
2500.5501	37.80	3.05	40.85	54.00	13.15	AV	150	22	PASS
2525.5526	37.90	2.77	40.67	54.00	13.33	AV	150	192	PASS

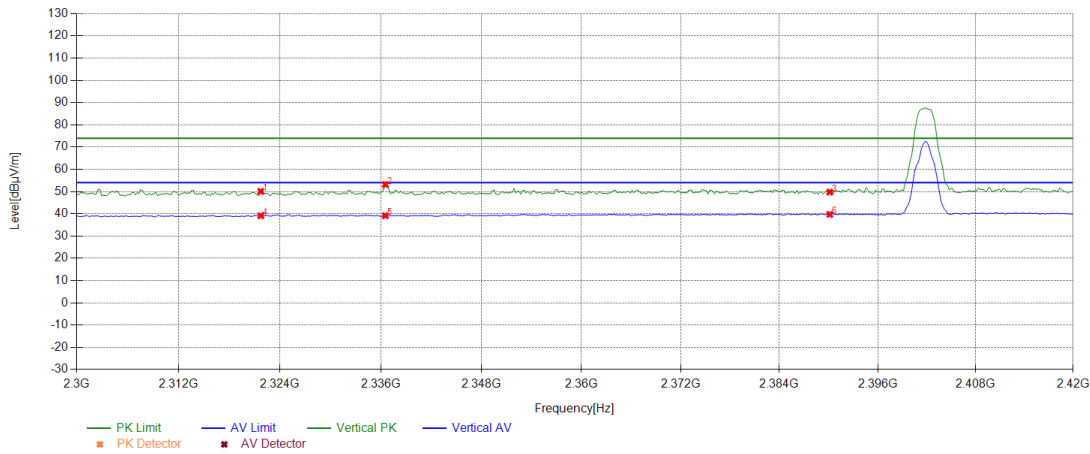


During the test, the Band Edge was performed in Bluetooth(Low Energy) all modes with all channels and all antenna. BLE(2Mbps), Antenna 1 are selected as the worst condition. The test data of the worst-case condition was recorded in this report.

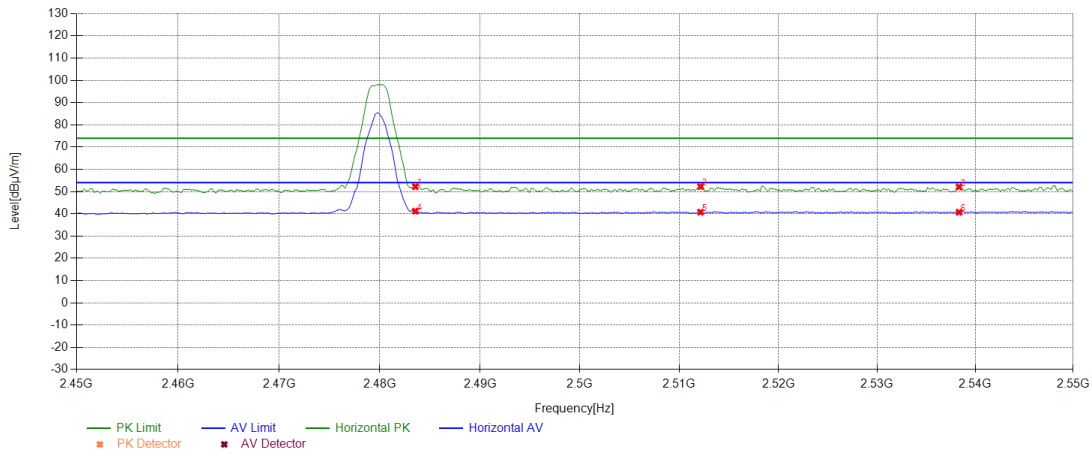
Test mode	BLE(2Mbps)								
Test channel	Lowest channel								
polarization	Horizontal								
Suspected List									
Frequency [MHz]	Factor [dB]	Reading [dBμV/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detect or	Height [cm]	Angle deg	Pass/Fail
2327.7328	36.69	14.73	51.42	74.00	22.58	PK	150	305	PASS
2355.7356	36.94	14.11	51.05	74.00	22.95	PK	150	24	PASS
2390.139	37.24	12.52	49.76	74.00	24.24	PK	150	220	PASS
2327.7328	36.69	2.25	38.94	54.00	15.06	AV	150	357	PASS
2355.7356	36.94	2.47	39.41	54.00	14.59	AV	150	249	PASS
2390.139	37.24	2.49	39.73	54.00	14.27	AV	150	1	PASS



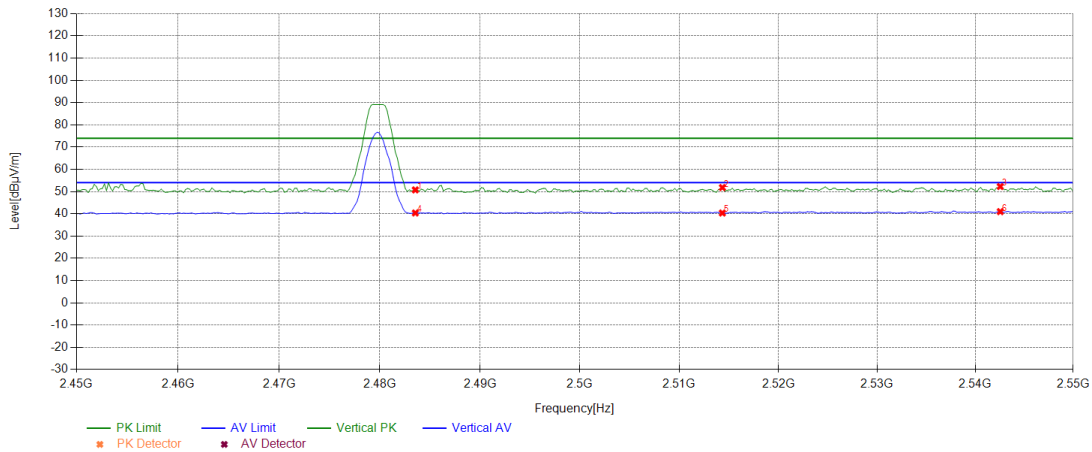
Test mode	BLE(2Mbps)								
Test channel	Lowest channel								
polarization	Vertical								
Suspected List									
Frequency [MHz]	Factor [dB]	Reading [dBμV/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Height [cm]	Angle deg	Pass/Fail
2321.7322	36.63	13.43	50.06	74.00	23.94	PK	150	96	PASS
2336.5337	36.77	16.39	53.16	74.00	20.84	PK	150	67	PASS
2390.139	37.24	12.53	49.77	74.00	24.23	PK	150	350	PASS
2321.7322	36.63	2.49	39.12	54.00	14.88	AV	150	38	PASS
2336.5337	36.77	2.39	39.16	54.00	14.84	AV	150	293	PASS
2390.139	37.24	2.50	39.74	54.00	14.26	AV	150	38	PASS



Test mode	BLE(2Mbps)								
Test channel	Highest channel								
polarization	Horizontal								
Suspected List									
Frequency [MHz]	Factor [dB]	Reading [dBμV/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Height [cm]	Angle deg	Pass/Fail
2483.5484	37.72	14.50	52.22	74.00	21.78	PK	150	27	PASS
2512.1512	37.84	14.42	52.26	74.00	21.74	PK	150	211	PASS
2538.3538	37.95	14.15	52.10	74.00	21.90	PK	150	41	PASS
2483.5484	37.72	3.47	41.19	54.00	12.81	AV	150	27	PASS
2512.1512	37.84	2.91	40.75	54.00	13.25	AV	150	225	PASS
2538.3538	37.95	2.77	40.72	54.00	13.28	AV	150	55	PASS



Test mode	BLE(2Mbps)								
Test channel	Highest channel								
polarization	Vertical								
Suspected List									
Frequency [MHz]	Factor [dB]	Reading [dBμV/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Height [cm]	Angle deg	Pass/Fail
2483.5484	37.72	13.03	50.75	74.00	23.25	PK	150	346	PASS
2514.3514	37.85	13.97	51.82	74.00	22.18	PK	150	190	PASS
2542.5543	37.96	14.32	52.28	74.00	21.72	PK	150	190	PASS
2483.5484	37.72	2.66	40.38	54.00	13.62	AV	150	19	PASS
2514.3514	37.85	2.53	40.38	54.00	13.62	AV	150	233	PASS
2542.5543	37.96	3.03	40.99	54.00	13.01	AV	150	105	PASS



Model: EMC3290-D

SPURIOUS EMISSIONS:

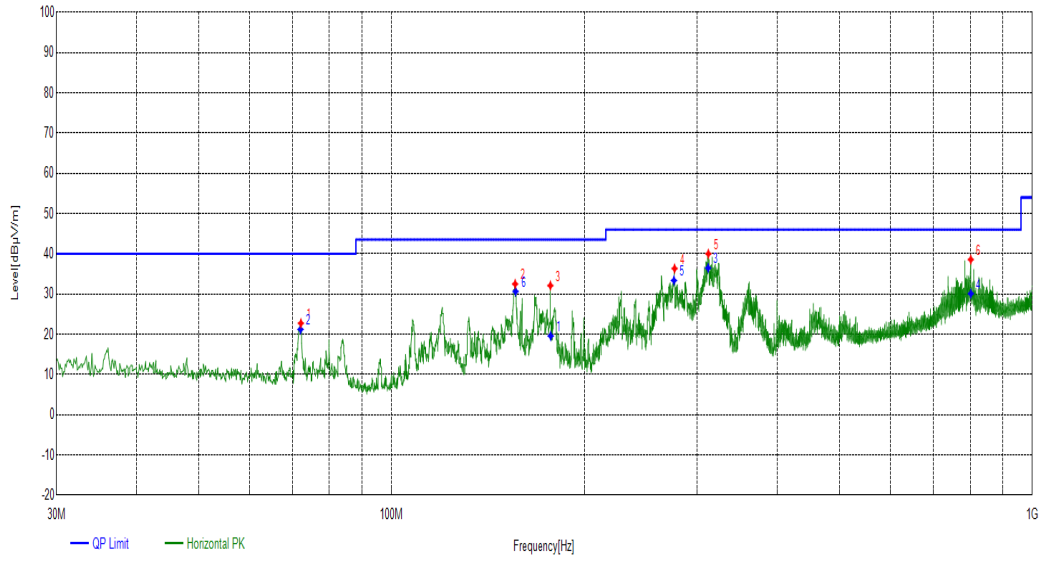
WIFI:

During the test, the Radiates Emission from 30MHz to 40GHz was performed in WIFI all modes with all channels and all antennas. 802.11n20, Channel 1, Antenna 1 are selected as the worst condition. The test data of the worst-case condition was recorded in this report.

Radiates Emission		9kHz~30MHz							
Test channel		Worst-Case							
Polarity		Horizontal							
Suspected List									
Frequency [MHz]	Factor [dB]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Detector	Height [cm]	Angle deg	Pass/Fail
72.1992	11.13	11.60	22.73	40.00	17.27	PK	100	40	PASS
155.9186	14.71	17.78	32.49	43.51	11.02	PK	100	171	PASS
176.9697	12.99	19.11	32.10	43.50	11.40	PK	100	4	PASS
276.5017	14.19	22.14	36.33	46.02	9.69	PK	100	137	PASS
312.2012	15.36	24.63	39.99	46.02	6.03	PK	100	40	PASS
801.6152	26.79	11.77	38.56	46.00	7.44	PK	100	98	PASS

Note: 9kHz~30MHz have been test and test data more than 20dB margin.

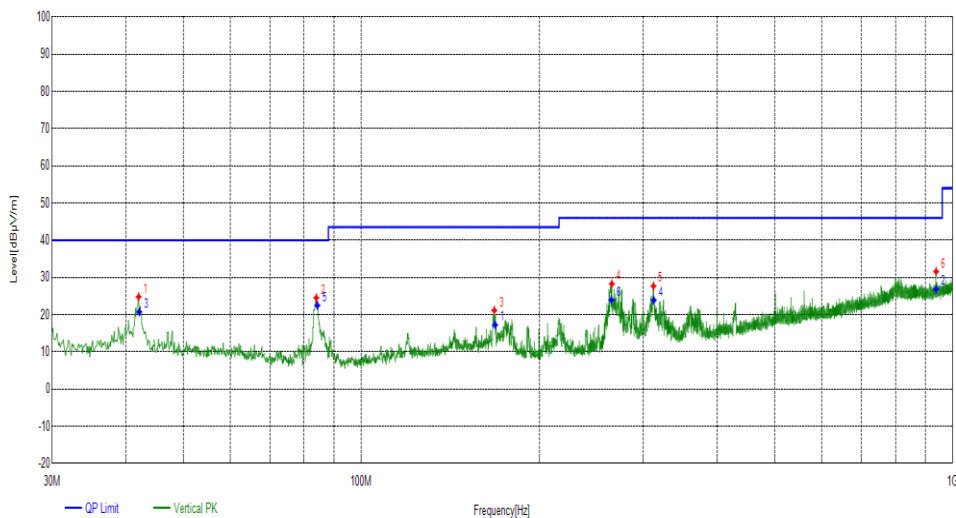
Final Data List							
Frequency [MHz]	Factor [dB]	QP Value [dBµV/m]	QP Limit [dBµV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Pass/Fail
177.1618	12.99	19.58	43.50	23.92	140	4	PASS
72.1062	11.13	21.21	40.00	18.79	220	40	PASS
311.9572	15.37	36.46	46.02	9.56	190	40	PASS
801.7311	26.79	30.10	46.00	15.90	230	98	PASS
275.8895	14.19	33.37	46.02	12.65	280	137	PASS
156.1758	14.71	30.65	43.51	12.86	290	171	PASS



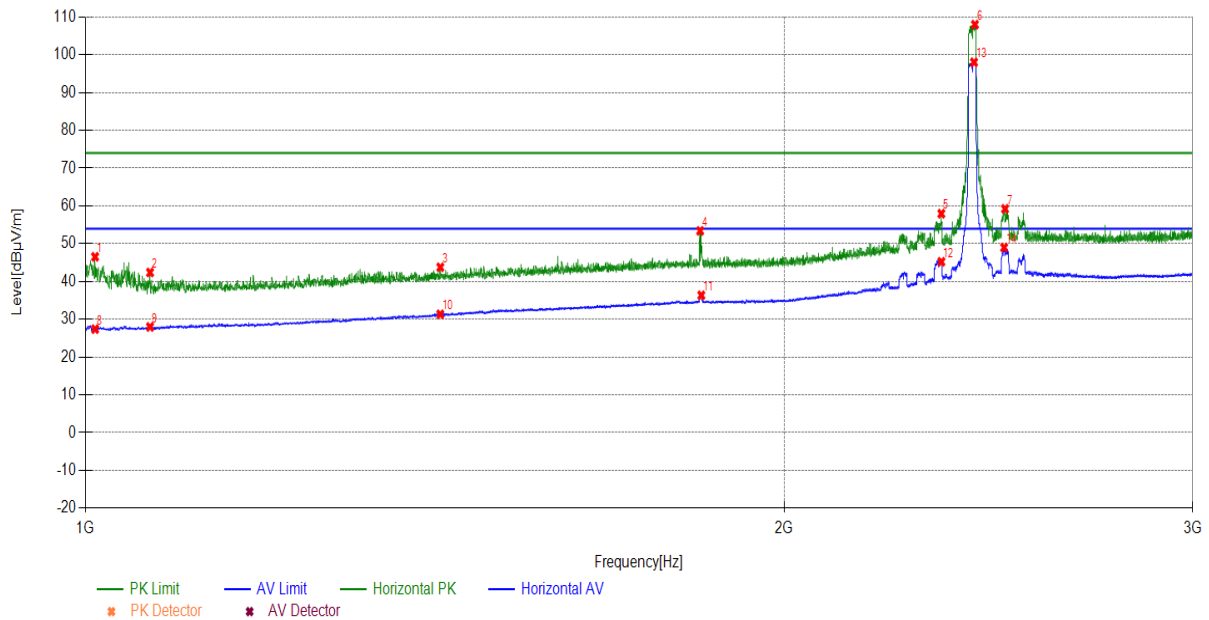
Radiates Emission		9kHz~30MHz							
Test channel		Worst-Case							
Polarity		Vertical							
Suspected List									
Frequency [MHz]	Factor [dB]	Reading [dB μ V/m]	Level [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]	Detector	Height [cm]	Angle deg	Pass/Fail
42.0292	14.63	10.16	24.79	40.00	15.21	PK	100	118	PASS
83.9374	9.81	14.71	24.52	40.00	15.48	PK	100	79	PASS
167.8508	14.26	6.88	21.14	43.51	22.37	PK	100	326	PASS
265.2485	13.79	14.48	28.27	46.02	17.75	PK	100	79	PASS
311.9102	15.35	12.33	27.68	46.02	18.34	PK	100	92	PASS
937.5258	28.05	3.54	31.59	46.00	14.41	PK	100	170	PASS

Note: 9kHz~30MHz have been test and test data more than 20dB margin.

Final Data List							
Frequency [MHz]	Factor [dB]	QP Value [dB μ V/m]	QP Limit [dB μ V/m]	QP Margin [dB]	Height [cm]	Angle [°]	Pass/Fail
168.3609	14.26	17.24	43.51	26.27	210	326	PASS
937.5392	28.05	26.84	46.00	19.16	360	170	PASS
42.1259	14.63	20.76	40.00	19.24	200	118	PASS
312.3841	15.36	23.88	46.02	22.14	260	92	PASS
84.2884	9.81	22.48	40.00	17.52	190	79	PASS
264.8071	13.79	23.93	46.02	22.09	190	79	PASS

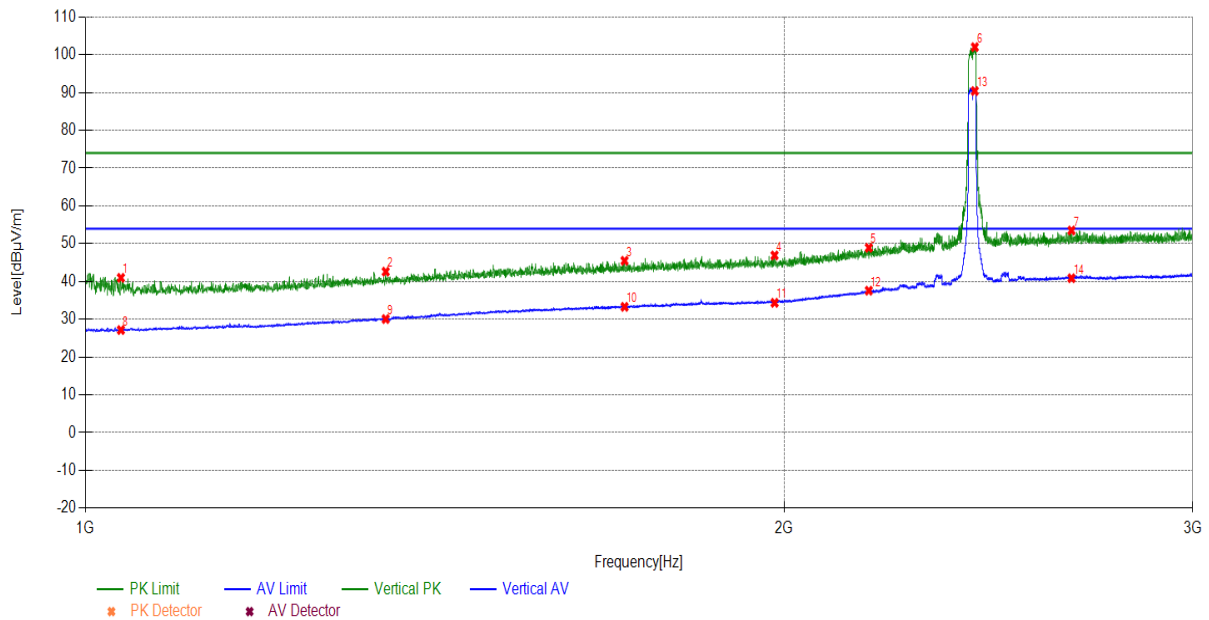


Radiates Emission	1G~3G								
Test channel	Worst-Case								
polarization	Horizontal								
Suspected List									
Frequency [MHz]	Factor [dB]	Reading [dBμV/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detect or	Height [cm]	Angle deg	Pass/Fail
1009.601	26.24	20.30	46.54	74.00	27.46	PK	150	354	PASS
1066.2066	26.74	15.66	42.40	74.00	31.60	PK	150	143	PASS
1422.0422	30.07	13.69	43.76	74.00	30.24	PK	150	58	PASS
1840.284	33.04	20.37	53.41	74.00	20.59	PK	150	58	PASS
2337.9338	36.78	21.18	57.96	74.00	16.04	PK	150	72	PASS
2417.1417	37.41	70.57	107.98	74.00	-33.98	PK	150	72	---
2490.349	37.75	21.48	59.23	74.00	14.77	PK	150	100	PASS
1009.601	26.24	1.16	27.40	54.00	26.60	AV	150	86	PASS
1066.2066	26.74	1.23	27.97	54.00	26.03	AV	150	143	PASS
1422.0422	30.07	1.25	31.32	54.00	22.68	AV	150	30	PASS
1842.4842	33.04	3.33	36.37	54.00	17.63	AV	150	58	PASS
2337.9338	36.78	8.44	45.22	54.00	8.78	AV	150	115	PASS
2414.9415	37.40	60.62	98.02	54.00	-44.02	AV	150	100	---
2488.1488	37.74	11.24	48.98	54.00	5.02	AV	150	100	PASS



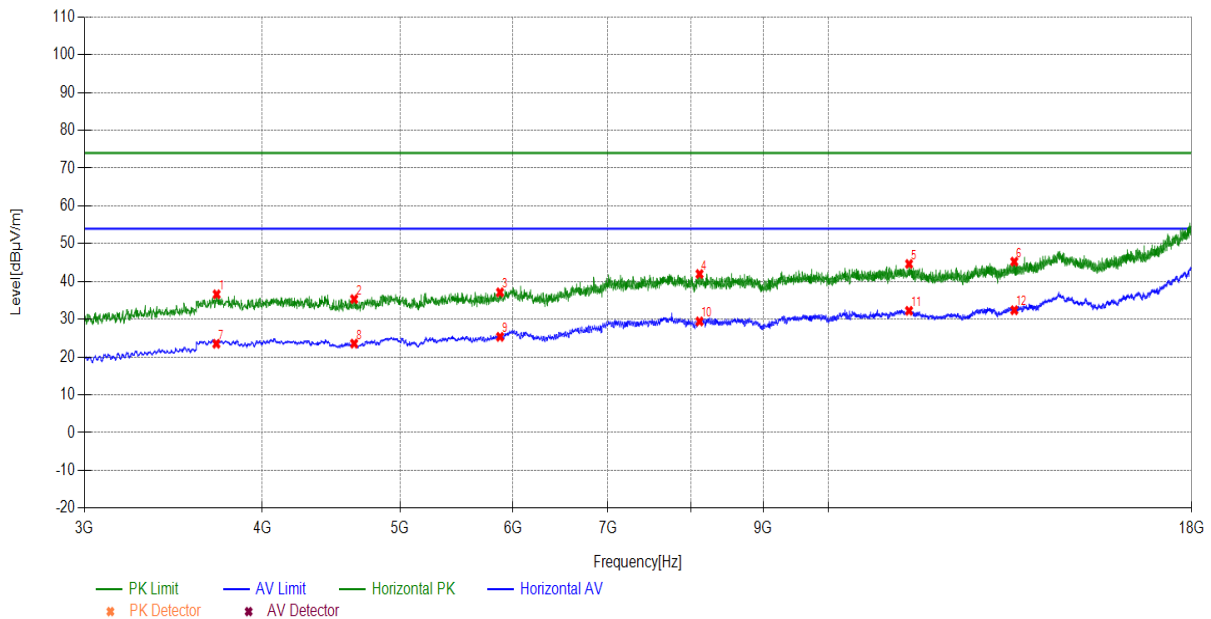
Note: The signal beyond the limit is carrier

Radiates Emission	1G~3G								
Test channel	Worst-Case								
polarization	Vertical								
Suspected List									
Frequency[MHz]	Factor [dB]	Reading [dB μ V/m]	Level [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]	Detect or	Height [cm]	Angle deg	Pass/Fail
1035.8036	26.27	14.72	40.99	74.00	33.01	PK	150	139	PASS
1347.0347	29.14	13.46	42.60	74.00	31.40	PK	150	96	PASS
1707.2707	31.98	13.52	45.50	74.00	28.50	PK	150	39	PASS
1981.2981	32.91	14.00	46.91	74.00	27.09	PK	150	12	PASS
2175.5176	35.05	13.88	48.93	74.00	25.07	PK	150	2	PASS
2416.7417	37.24	64.78	102.02	74.00	-28.02	PK	150	154	---
2660.166	38.18	15.33	53.51	74.00	20.49	PK	150	25	PASS
1035.8036	26.27	0.88	27.15	54.00	26.85	AV	150	238	PASS
1347.0347	29.14	0.93	30.07	54.00	23.93	AV	150	154	PASS
1707.2707	31.98	1.32	33.30	54.00	20.70	AV	150	96	PASS
1981.2981	32.91	1.46	34.37	54.00	19.63	AV	150	39	PASS
2175.5176	35.05	2.52	37.57	54.00	16.43	AV	150	82	PASS
2416.7417	37.24	53.17	90.41	54.00	-36.41	AV	150	154	---
2660.166	38.18	2.70	40.88	54.00	13.12	AV	150	224	PASS

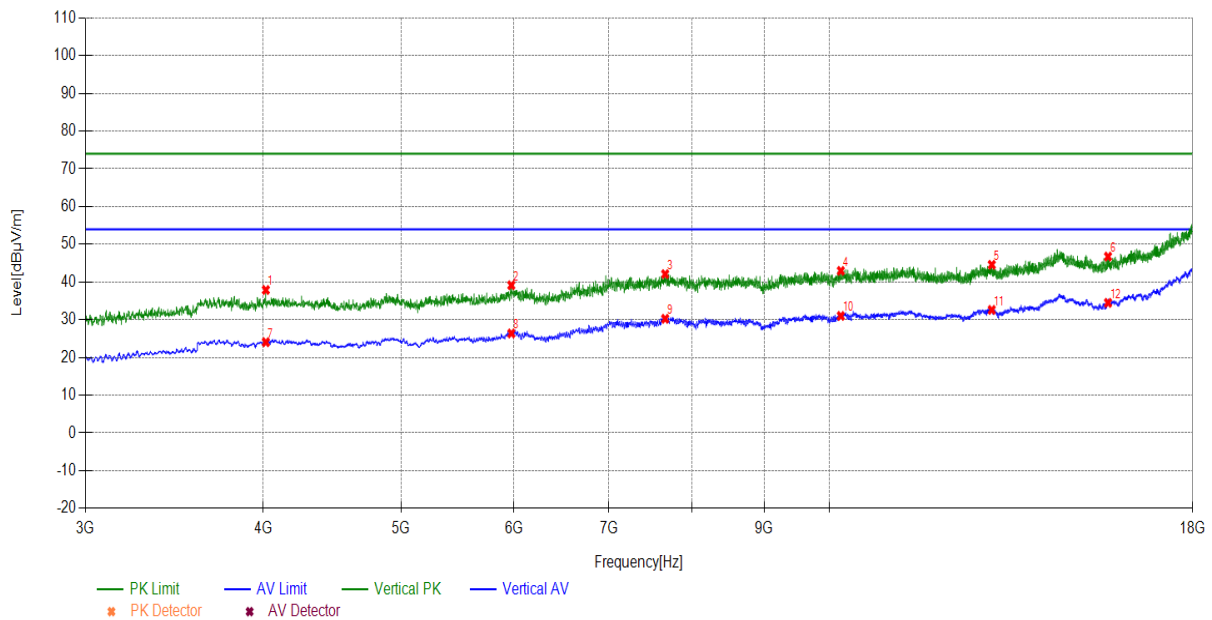


Note: The signal beyond the limit is carrier

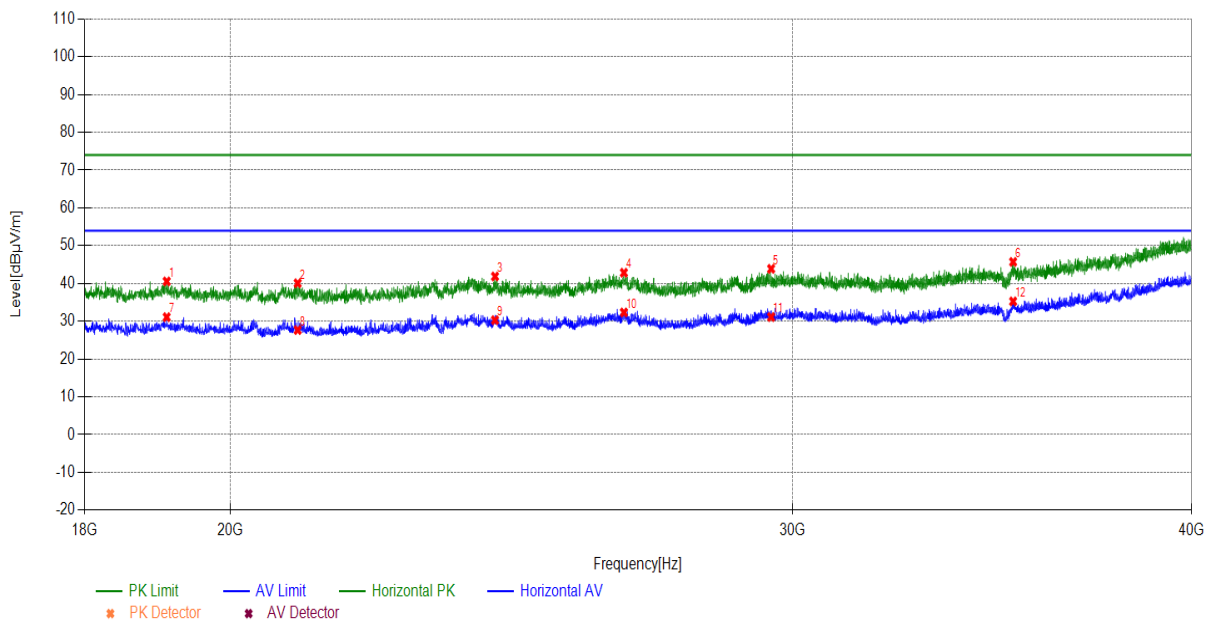
Radiates Emission	3G~18G								
Test channel	Worst-Case								
polarization	Horizontal								
Suspected List									
Frequency[MHz]	Factor [dB]	Reading [dBμV/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detect or	Height [cm]	Angle deg	Pass/Fail
3715.5716	-0.67	37.28	36.61	74.00	37.39	PK	150	109	PASS
4641.1641	-0.05	35.39	35.34	74.00	38.66	PK	150	85	PASS
5877.2877	4.44	32.69	37.13	74.00	36.87	PK	150	180	PASS
8117.0117	8.65	33.33	41.98	74.00	32.02	PK	150	252	PASS
11393.3393	11.33	33.32	44.65	74.00	29.35	PK	150	49	PASS
13508.5509	13.50	31.76	45.26	74.00	28.74	PK	150	252	PASS
3714.0714	-0.67	24.19	23.52	54.00	30.48	AV	150	4	PASS
4641.1641	-0.05	23.61	23.56	54.00	30.44	AV	150	287	PASS
5877.2877	4.44	20.92	25.36	54.00	28.64	AV	150	4	PASS
8117.0117	8.65	20.79	29.44	54.00	24.56	AV	150	4	PASS
11393.3393	11.33	20.92	32.25	54.00	21.75	AV	150	13	PASS
13508.5509	13.50	18.90	32.40	54.00	21.60	AV	150	97	PASS



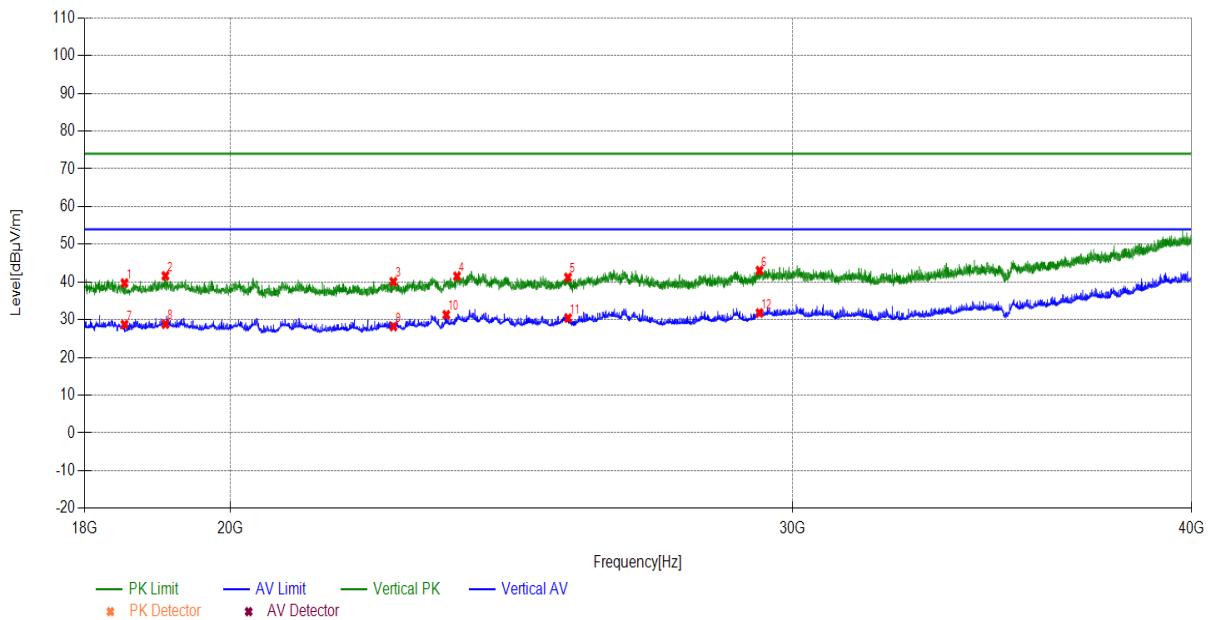
Radiates Emission	3G~18G								
Test channel	Worst-Case								
polarization	Vertical								
Suspected List									
Frequency[MHz]	Factor [dB]	Reading [dBμV/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detect or	Height [cm]	Angle deg	Pass/Fail
4017.1017	-0.15	38.04	37.89	74.00	36.11	PK	150	349	PASS
5976.2976	4.86	34.30	39.16	74.00	34.84	PK	150	123	PASS
7665.4665	8.37	33.73	42.10	74.00	31.90	PK	150	112	PASS
10185.7186	11.76	31.20	42.96	74.00	31.04	PK	150	254	PASS
13004.5004	13.30	31.27	44.57	74.00	29.43	PK	150	289	PASS
15695.7696	15.68	31.08	46.76	74.00	27.24	PK	150	112	PASS
4017.1017	-0.15	24.21	24.06	54.00	29.94	AV	150	52	PASS
5976.2976	4.86	21.52	26.38	54.00	27.62	AV	150	1	PASS
7665.4665	8.37	21.89	30.26	54.00	23.74	AV	150	28	PASS
10185.7186	11.76	19.27	31.03	54.00	22.97	AV	150	76	PASS
13004.5004	13.30	19.32	32.62	54.00	21.38	AV	150	230	PASS
15695.7696	15.68	18.81	34.49	54.00	19.51	AV	150	349	PASS



Radiates Emission		18G~40G							
Test channel		Worst-Case							
polarization		Horizontal							
Suspected List									
Frequency[MHz]	Factor [dB]	Reading [dB μ V/m]	Level [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]	Detect or	Height [cm]	Angle deg	Pass/ Fail
19100.11	1.34	39.22	40.56	74.00	33.44	PK	150	10	PASS
20992.2992	1.65	38.43	40.08	74.00	33.92	PK	150	20	PASS
24202.4202	3.78	38.09	41.87	74.00	32.13	PK	150	20	PASS
26561.0561	4.72	38.14	42.86	74.00	31.14	PK	150	50	PASS
29535.7536	6.38	37.50	43.88	74.00	30.12	PK	150	50	PASS
35166.1166	6.93	38.79	45.72	74.00	28.28	PK	150	30	PASS
19100.11	1.34	29.76	31.10	54.00	22.90	AV	150	10	PASS
20992.2992	1.65	26.04	27.69	54.00	26.31	AV	150	60	PASS
24202.4202	3.78	26.51	30.29	54.00	23.71	AV	150	20	PASS
26561.0561	4.72	27.61	32.33	54.00	21.67	AV	150	10	PASS
29535.7536	6.38	24.75	31.13	54.00	22.87	AV	150	60	PASS
35166.1166	6.93	28.34	35.27	54.00	18.73	AV	150	10	PASS



Radiates Emission	18G~40G								
Test channel	Worst-Case								
polarization	Vertical								
Suspected List									
Frequency[MHz]	Factor [dB]	Reading [dB μ V/m]	Level [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]	Detect or	Height [cm]	Angle deg	Pass/Fail
18528.0528	1.23	38.54	39.77	74.00	34.23	PK	150	20	PASS
19082.5083	1.35	40.31	41.66	74.00	32.34	PK	150	60	PASS
22492.8493	2.39	37.70	40.09	74.00	33.91	PK	150	250	PASS
23548.9549	3.34	38.21	41.55	74.00	32.45	PK	150	50	PASS
25511.5512	4.30	36.95	41.25	74.00	32.75	PK	150	110	PASS
29289.3289	6.20	36.84	43.04	74.00	30.96	PK	150	180	PASS
18528.0528	1.23	27.52	28.75	54.00	25.25	AV	150	10	PASS
19082.5083	1.35	27.50	28.85	54.00	25.15	AV	150	260	PASS
22492.8493	2.39	25.80	28.19	54.00	25.81	AV	150	100	PASS
23366.3366	3.19	28.15	31.34	54.00	22.66	AV	150	10	PASS
25511.5512	4.30	26.15	30.45	54.00	23.55	AV	150	10	PASS
29289.3289	6.20	25.58	31.78	54.00	22.22	AV	150	10	PASS



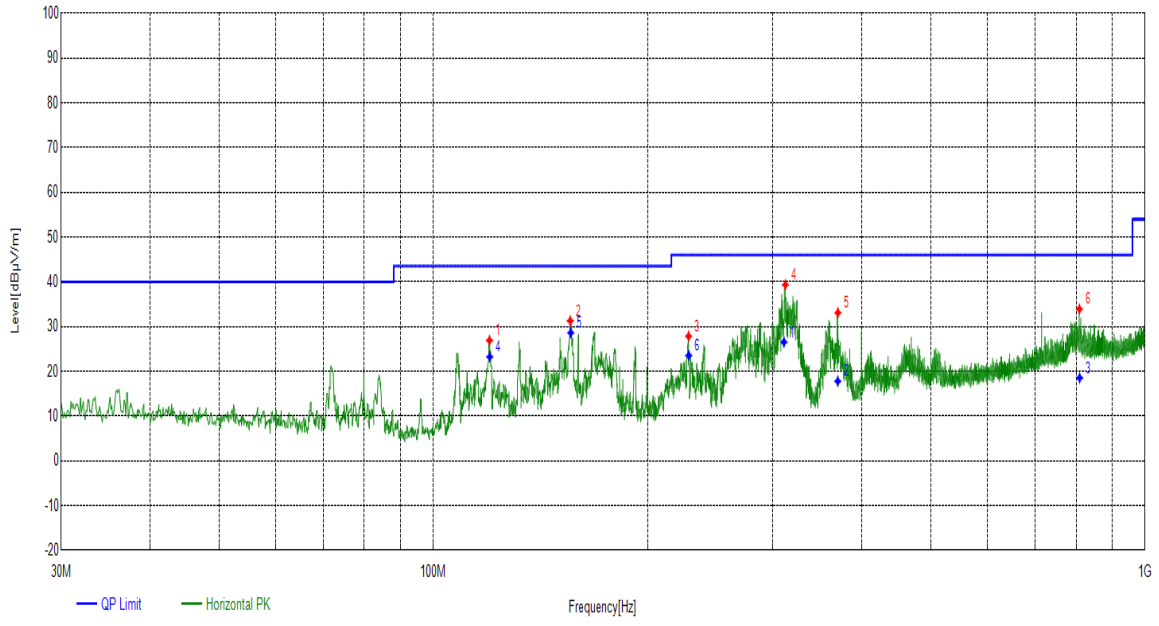
Bluetooth(Low Energy):

During the test, the Radiates Emission from 30MHz to 40GHz was performed in Bluetooth(Low Energy) all modes with all channels and all antennas. BLE(2Mbps), channel 0, antenna 1 are selected as the worst condition. The test data of the worst-case condition was recorded in this report.

Radiates Emission		9kHz~30MHz							
Test channel		Worst-Case							
Polarity		Horizontal							
Suspected List									
Frequency [MHz]	Factor [dB]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Detector	Height [cm]	Angle deg	Pass/Fail
119.9280	12.37	14.53	26.90	43.51	16.61	PK	100	80	PASS
155.7246	14.71	16.56	31.27	43.51	12.24	PK	100	80	PASS
228.3848	12.49	15.36	27.85	46.02	18.17	PK	100	260	PASS
312.3952	15.37	23.95	39.32	46.02	6.70	PK	100	10	PASS
370.2130	17.03	16.06	33.09	46.01	12.92	PK	100	30	PASS
808.5999	26.85	7.06	33.91	46.00	12.09	PK	100	40	PASS

Note: 9kHz~30MHz have been test and test data more than 20dB margin.

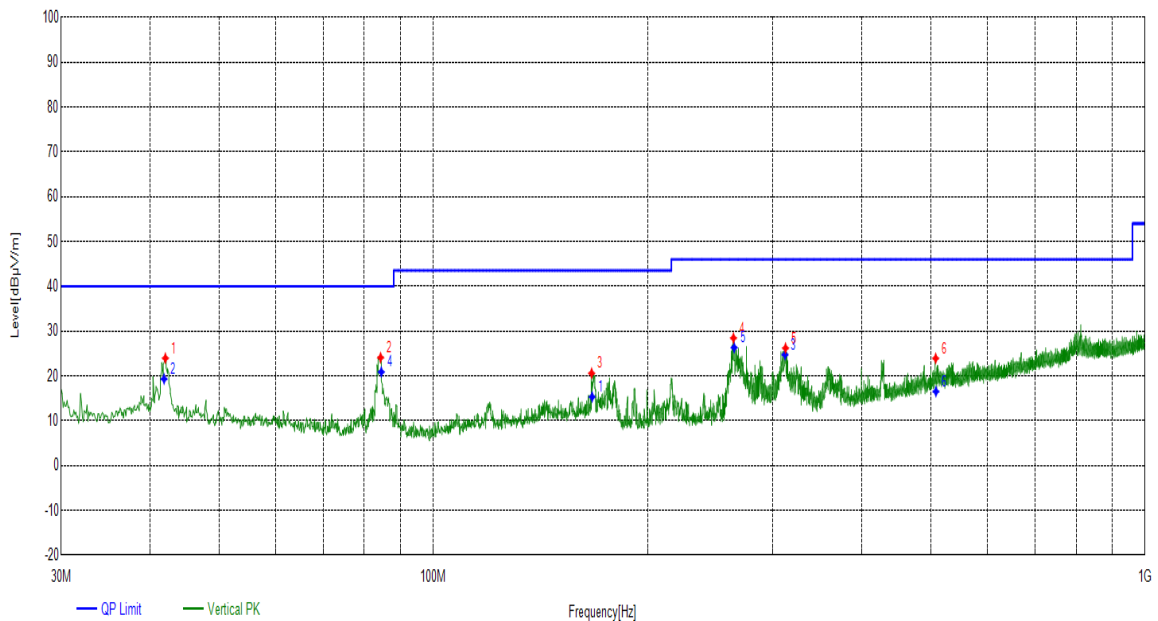
Final Data List							
Frequency [MHz]	Factor [dB]	QP Value [dBµV/m]	QP Limit [dBµV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Pass/Fail
310.9394	15.37	26.53	46.02	19.49	310	10	PASS
370.0844	17.04	17.79	46.01	28.22	270	30	PASS
809.1729	26.84	18.53	46.00	27.47	360	40	PASS
120.0148	12.37	23.23	43.51	20.28	330	80	PASS
155.9996	14.71	28.61	43.51	14.90	350	80	PASS
228.5071	12.49	23.54	46.02	22.48	260	260	PASS



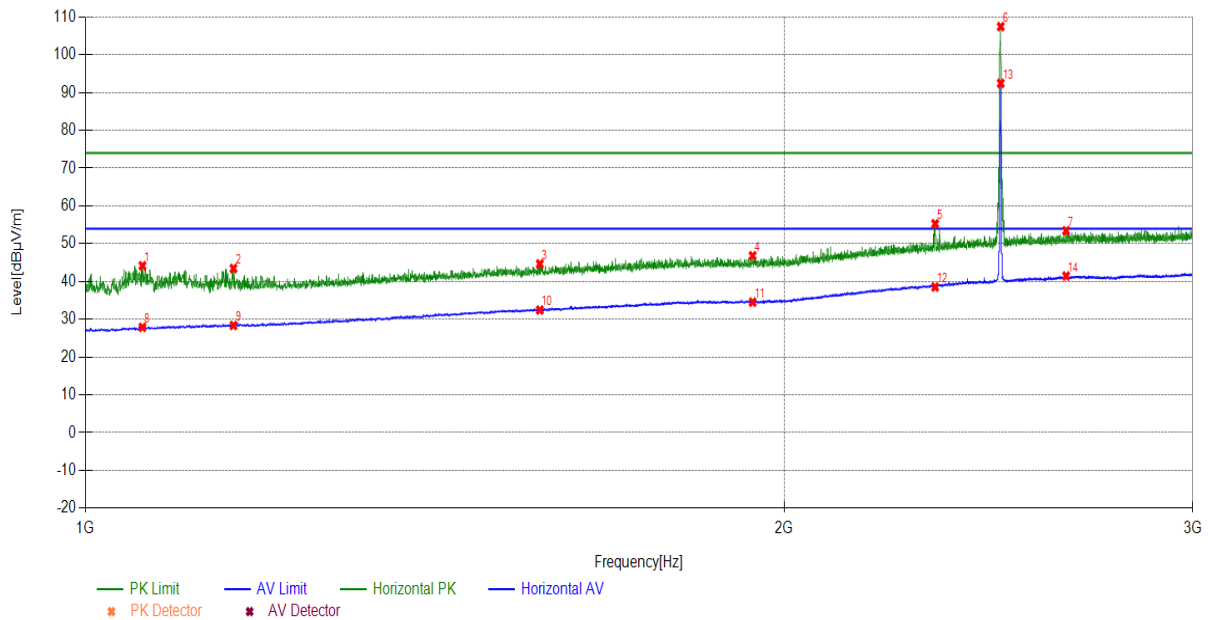
Radiates Emission		9kHz~30MHz							
Test channel		Worst-Case							
Polarity		Vertical							
Suspected List									
Frequency [MHz]	Factor [dB]	Reading [dBμV/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Height [cm]	Angle deg	Pass/Fail
42.0292	14.63	9.32	23.95	40.00	16.05	PK	100	265	PASS
84.3254	9.83	14.26	24.09	40.00	15.91	PK	100	72	PASS
166.8807	14.31	6.29	20.60	43.51	22.91	PK	100	337	PASS
264.0844	13.75	14.70	28.45	46.02	17.57	PK	100	59	PASS
312.4922	15.37	10.84	26.21	46.02	19.81	PK	100	78	PASS
507.9668	20.28	3.64	23.92	46.01	22.09	PK	100	39	PASS

Note: 9kHz~30MHz have been test and test data more than 20dB margin.

Final Data List							
Frequency [MHz]	Factor [dB]	QP Value [dBμV/m]	QP Limit [dBμV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Pass/Fail
167.1609	14.31	15.33	43.51	28.18	200	337	PASS
41.8504	14.63	19.33	40.00	20.67	110	265	PASS
311.9585	15.37	24.74	46.02	21.28	390	78	PASS
84.5085	9.82	20.88	40.00	19.12	210	72	PASS
264.6424	13.76	26.32	46.02	19.70	270	59	PASS
508.4153	20.28	16.52	46.01	29.49	380	39	PASS

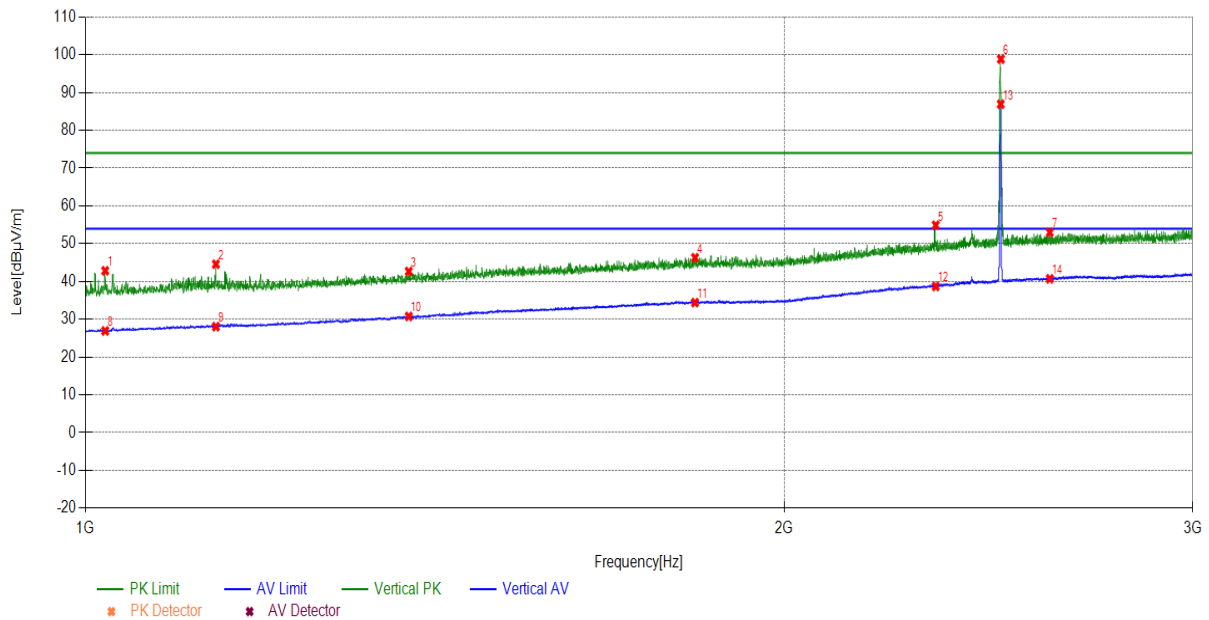


Radiates Emission	1G~3G								
Test channel	Worst-Case								
polarization	Horizontal								
Suspected List									
Frequency[MHz]	Factor [dB]	Reading [dB μ V/m]	Level [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]	Detect or	Height [cm]	Angle deg	Pass/Fail
1058.2058	26.67	17.50	44.17	74.00	29.83	PK	150	142	PASS
1158.2158	27.55	15.92	43.47	74.00	30.53	PK	150	170	PASS
1569.657	31.33	13.32	44.65	74.00	29.35	PK	150	113	PASS
1938.6939	33.08	13.73	46.81	74.00	27.19	PK	150	342	PASS
2323.5324	36.65	18.63	55.28	74.00	18.72	PK	150	85	PASS
2479.748	37.70	69.76	107.46	74.00	-33.46	PK	150	113	---
2645.9646	38.33	15.11	53.44	74.00	20.56	PK	150	156	PASS
1058.2058	26.67	1.20	27.87	54.00	26.13	AV	150	156	PASS
1158.2158	27.55	0.83	28.38	54.00	25.62	AV	150	354	PASS
1569.657	31.33	1.11	32.44	54.00	21.56	AV	150	14	PASS
1938.6939	33.08	1.47	34.55	54.00	19.45	AV	150	354	PASS
2323.5324	36.65	1.88	38.53	54.00	15.47	AV	150	354	PASS
2479.748	37.70	54.74	92.44	54.00	-38.44	AV	150	113	---
2645.9646	38.33	3.11	41.44	54.00	12.56	AV	150	28	PASS



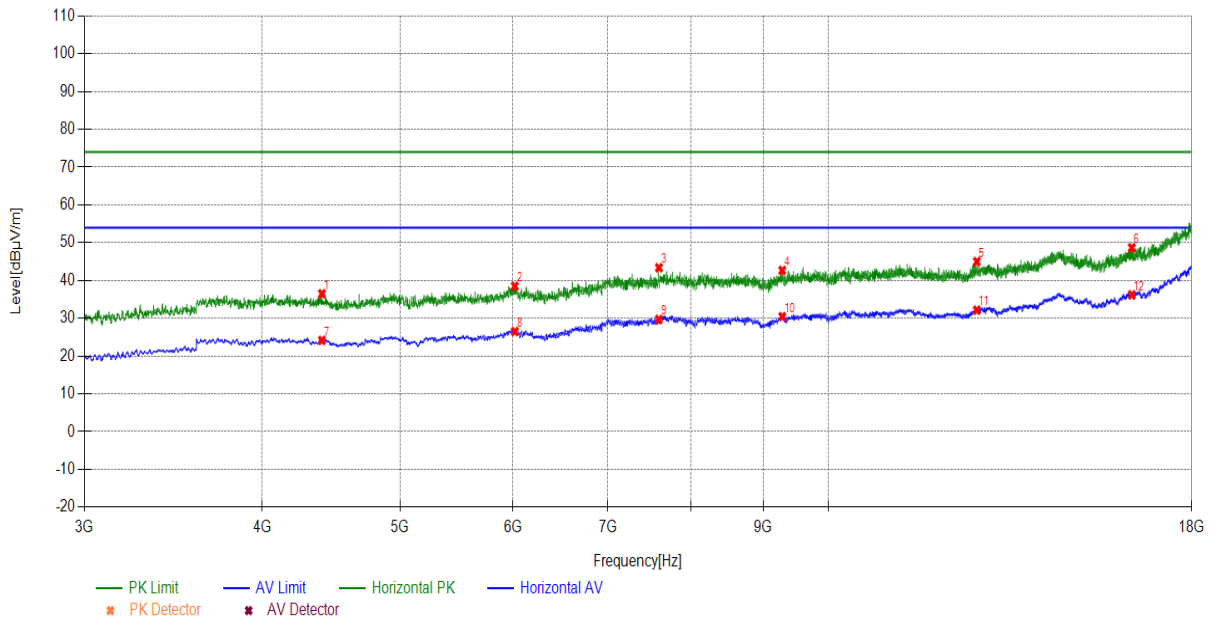
Note: The signal beyond the limit is carrier

Radiates Emission	1G~3G								
Test channel	Worst-Case								
polarization	Vertical								
Suspected List									
Frequency[MHz]	Factor [dB]	Reading [dB μ V/m]	Level [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]	Detect or	Height [cm]	Angle deg	Pass/Fail
1019.802	26.33	16.51	42.84	74.00	31.16	PK	150	228	PASS
1138.2138	27.37	17.22	44.59	74.00	29.41	PK	150	113	PASS
1378.2378	29.61	13.06	42.67	74.00	31.33	PK	150	198	PASS
1830.8831	33.04	13.26	46.30	74.00	27.70	PK	150	300	PASS
2324.9325	36.66	18.24	54.90	74.00	19.10	PK	150	127	PASS
2480.148	37.70	61.16	98.86	74.00	-24.86	PK	150	84	---
2603.5604	38.20	14.79	52.99	74.00	21.01	PK	150	360	PASS
1019.802	26.33	0.60	26.93	54.00	27.07	AV	150	213	PASS
1138.2138	27.37	0.69	28.06	54.00	25.94	AV	150	184	PASS
1378.2378	29.61	1.15	30.76	54.00	23.24	AV	150	257	PASS
1830.8831	33.04	1.39	34.43	54.00	19.57	AV	150	170	PASS
2324.9325	36.66	2.05	38.71	54.00	15.29	AV	150	300	PASS
2479.748	37.70	49.23	86.93	54.00	-32.93	AV	150	84	---
2603.5604	38.20	2.51	40.71	54.00	13.29	AV	150	141	PASS

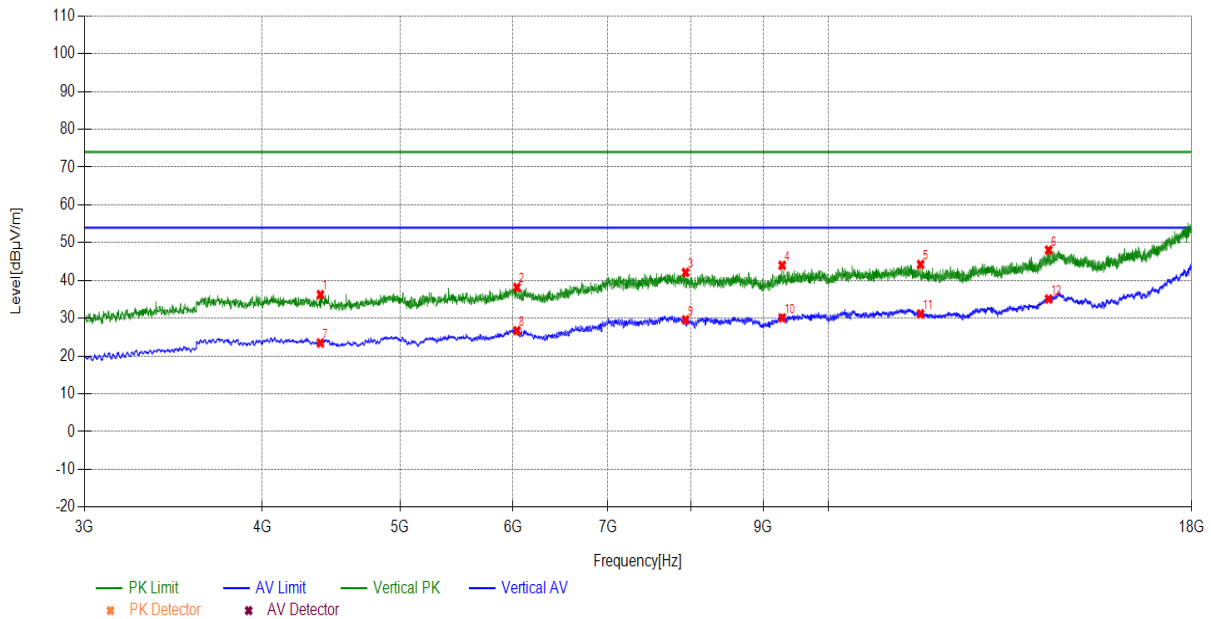


Note: The signal beyond the limit is carrier

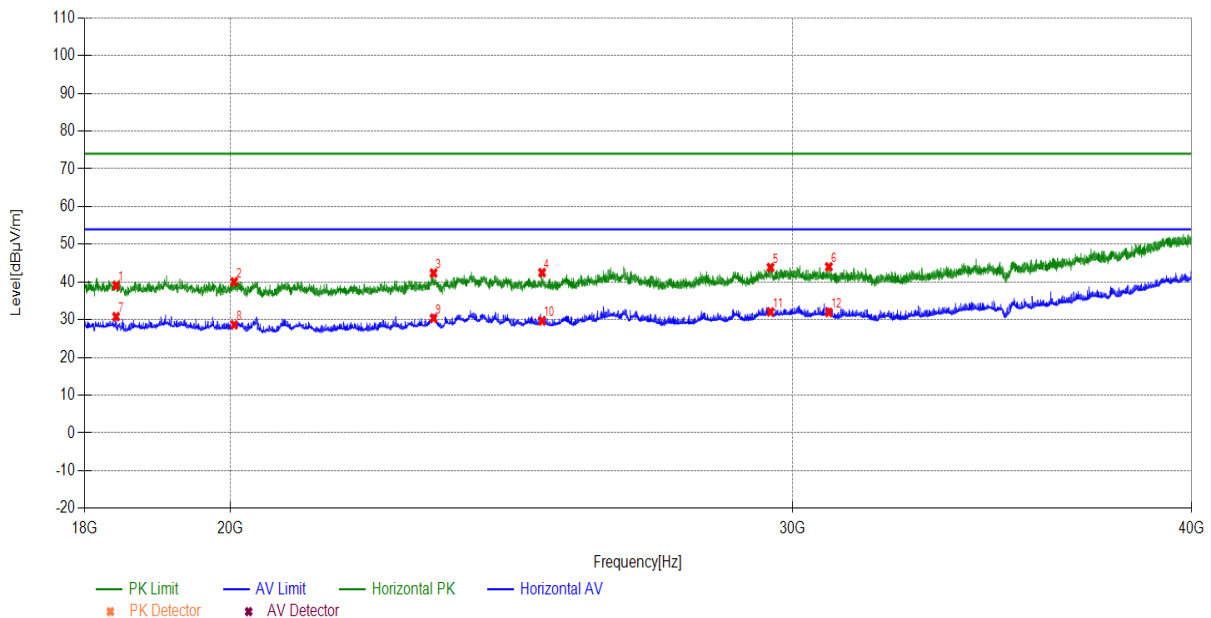
Radiates Emission	3G~18G								
Test channel	Worst-Case								
polarization	Horizontal								
Suspected List									
Frequency[MHz]	Factor [dB]	Reading [dBμV/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detect or	Height [cm]	Angle deg	Pass/Fail
4405.6406	-0.57	37.07	36.50	74.00	37.50	PK	150	355	PASS
6019.802	4.97	33.50	38.47	74.00	35.53	PK	150	167	PASS
7600.9601	8.35	35.03	43.38	74.00	30.62	PK	150	250	PASS
9279.628	10.59	32.09	42.68	74.00	31.32	PK	150	108	PASS
12713.4713	12.52	32.47	44.99	74.00	29.01	PK	150	4	PASS
16337.8338	17.31	31.36	48.67	74.00	25.33	PK	150	131	PASS
4405.6406	-0.57	24.73	24.16	54.00	29.84	AV	150	13	PASS
6019.802	4.97	21.54	26.51	54.00	27.49	AV	150	346	PASS
7600.9601	8.35	21.36	29.71	54.00	24.29	AV	150	322	PASS
9279.628	10.59	19.85	30.44	54.00	23.56	AV	150	334	PASS
12713.4713	12.52	19.63	32.15	54.00	21.85	AV	150	96	PASS
16337.8338	17.31	18.88	36.19	54.00	17.81	AV	150	334	PASS



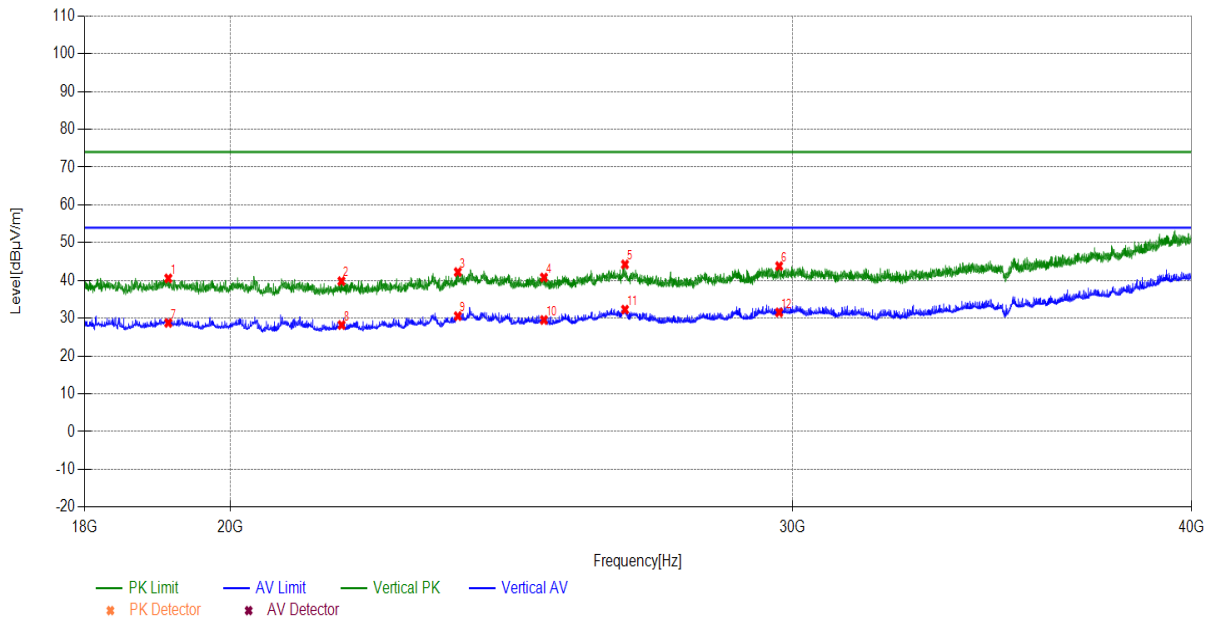
Radiates Emission	3G~18G								
Test channel	Worst-Case								
polarization	Vertical								
Suspected List									
Frequency[MHz]	Factor [dB]	Reading [dBμV/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detect or	Height [cm]	Angle deg	Pass/Fail
4395.1395	-0.56	36.83	36.27	74.00	37.73	PK	150	73	PASS
6040.8041	4.99	33.19	38.18	74.00	35.82	PK	150	61	PASS
7935.4935	8.46	33.69	42.15	74.00	31.85	PK	150	252	PASS
9278.1278	10.59	33.44	44.03	74.00	29.97	PK	150	26	PASS
11607.8608	11.09	33.15	44.24	74.00	29.76	PK	150	216	PASS
14281.1281	16.24	31.80	48.04	74.00	25.96	PK	150	311	PASS
4395.1395	-0.56	24.02	23.46	54.00	30.54	AV	150	133	PASS
6040.8041	4.99	21.75	26.74	54.00	27.26	AV	150	50	PASS
7935.4935	8.46	21.11	29.57	54.00	24.43	AV	150	347	PASS
9278.1278	10.59	19.52	30.11	54.00	23.89	AV	150	192	PASS
11607.8608	11.09	20.08	31.17	54.00	22.83	AV	150	311	PASS
14281.1281	16.24	18.85	35.09	54.00	18.91	AV	150	311	PASS



Radiates Emission	18G~40G								
Test channel	Worst-Case								
polarization	Horizontal								
Suspected List									
Frequency[MHz]	Factor [dB]	Reading [dB μ V/m]	Level [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]	Detect or	Height [cm]	Angle deg	Pass/Fail
18415.8416	1.20	37.87	39.07	74.00	34.93	PK	150	40	PASS
20052.8053	1.32	38.74	40.06	74.00	33.94	PK	150	170	PASS
23152.9153	3.02	39.36	42.38	74.00	31.62	PK	150	280	PASS
25038.5038	4.12	38.37	42.49	74.00	31.51	PK	150	140	PASS
29522.5523	6.37	37.49	43.86	74.00	30.14	PK	150	20	PASS
30789.879	6.34	37.69	44.03	74.00	29.97	PK	150	330	PASS
18415.8416	1.20	29.62	30.82	54.00	23.18	AV	150	10	PASS
20052.8053	1.32	27.34	28.66	54.00	25.34	AV	150	20	PASS
23152.9153	3.02	27.37	30.39	54.00	23.61	AV	150	300	PASS
25038.5038	4.12	25.58	29.70	54.00	24.30	AV	150	100	PASS
29522.5523	6.37	25.71	32.08	54.00	21.92	AV	150	10	PASS
30789.879	6.34	25.64	31.98	54.00	22.02	AV	150	10	PASS



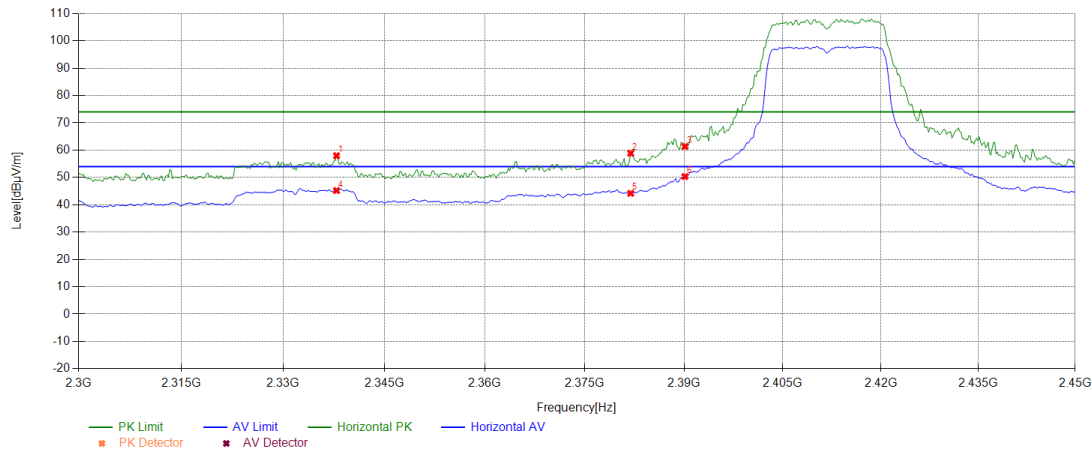
Radiates Emission	18G~40G								
Test channel	Worst-Case								
polarization	Vertical								
Suspected List									
Frequency[MHz]	Factor [dB]	Reading [dBμV/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detect or	Height [cm]	Angle deg	Pass/Fail
19122.1122	1.34	39.23	40.57	74.00	33.43	PK	150	330	PASS
21665.5666	1.82	38.01	39.83	74.00	34.17	PK	150	160	PASS
23562.1562	3.35	38.89	42.24	74.00	31.76	PK	150	130	PASS
25071.5072	4.13	36.67	40.80	74.00	33.20	PK	150	260	PASS
26580.8581	4.73	39.53	44.26	74.00	29.74	PK	150	130	PASS
29707.3707	6.50	37.32	43.82	74.00	30.18	PK	150	210	PASS
19122.1122	1.34	27.43	28.77	54.00	25.23	AV	150	320	PASS
21667.7668	1.82	26.40	28.22	54.00	25.78	AV	150	10	PASS
23562.1562	3.35	27.22	30.57	54.00	23.43	AV	150	260	PASS
25071.5072	4.13	25.43	29.56	54.00	24.44	AV	150	10	PASS
26580.8581	4.73	27.58	32.31	54.00	21.69	AV	150	10	PASS
29707.3707	6.50	25.07	31.57	54.00	22.43	AV	150	10	PASS



Band Edge:

During the test, the Band Edge was performed in WIFI all modes with all channels and all antennas. 802.11n20, Antenna1 are selected as the worst condition. The test data of the worst-case condition was recorded in this report.

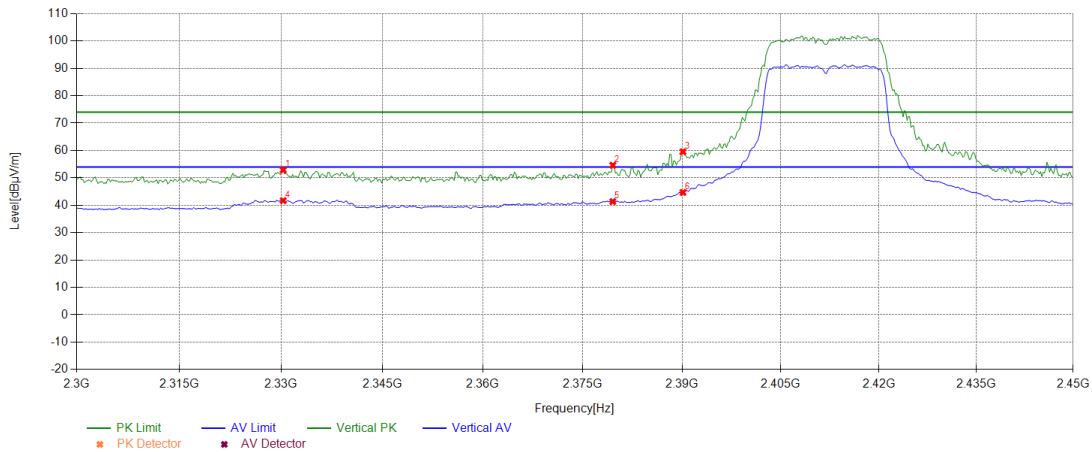
Test mode	802.11n20								
Test channel	Lowest channel								
polarization	Horizontal								
Suspected List									
Frequency [MHz]	Factor [dB]	Reading [dBμV/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Height [cm]	Angle deg	Pass/Fail
2337.9338	36.78	21.18	57.96	74.00	16.04	PK	150	72	PASS
2381.9382	37.17	21.69	58.86	74.00	15.14	PK	150	72	PASS
2390.139	37.24	24.10	61.34	74.00	12.66	PK	150	115	PASS
2337.9338	36.78	8.44	45.22	54.00	8.78	AV	150	115	PASS
2381.9382	37.17	7.03	44.20	54.00	9.80	AV	150	115	PASS
2390.139	37.24	13.08	50.32	54.00	3.68	AV	150	115	PASS



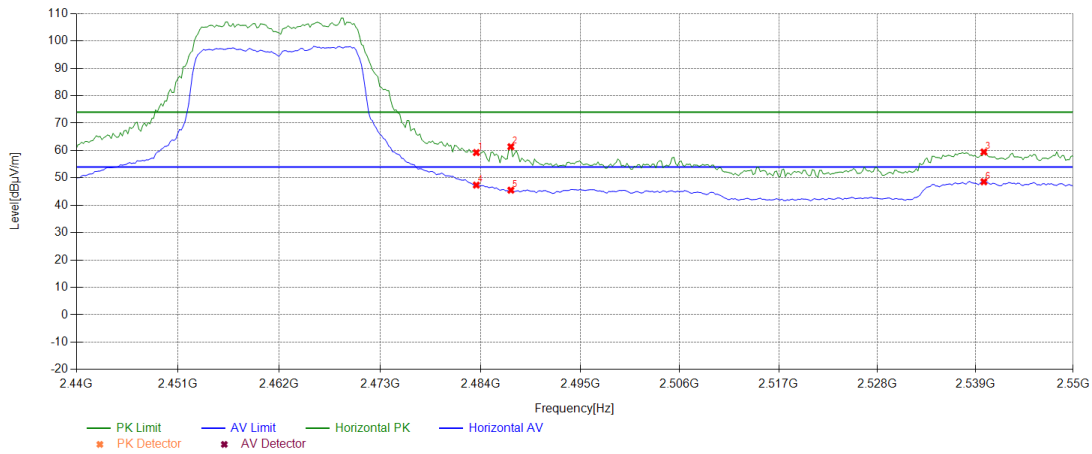
Test mode	802.11n20
Test channel	Lowest channel
polarization	Vertical

Suspected List

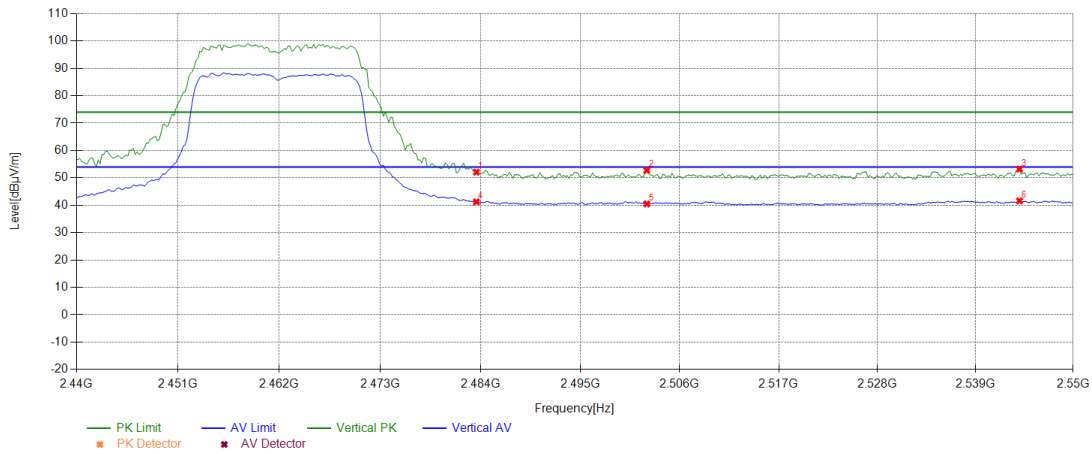
Frequency [MHz]	Factor [dB]	Reading [dBμV/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Height [cm]	Angle deg	Pass/Fail
2330.333	36.53	16.34	52.87	74.00	21.13	PK	150	154	PASS
2379.538	36.98	17.63	54.61	74.00	19.39	PK	150	111	PASS
2390.139	37.07	22.48	59.55	74.00	14.45	PK	150	96	PASS
2330.333	36.53	5.15	41.68	54.00	12.32	AV	150	111	PASS
2379.538	36.98	4.37	41.35	54.00	12.65	AV	150	96	PASS
2390.139	37.07	7.60	44.67	54.00	9.33	AV	150	154	PASS



Test mode	802.11n20								
Test channel	Highest channel								
polarization	Horizontal								
Suspected List									
Frequency [MHz]	Factor [dB]	Reading [dB μ V/m]	Level [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]	Detector	Height [cm]	Angle deg	Pass/Fail
2483.5484	37.72	21.53	59.25	74.00	14.75	PK	150	99	PASS
2487.3487	37.74	23.66	61.40	74.00	12.60	PK	150	99	PASS
2539.954	37.95	21.51	59.46	74.00	14.54	PK	150	99	PASS
2483.5484	37.72	9.64	47.36	54.00	6.64	AV	150	70	PASS
2487.3487	37.74	7.77	45.51	54.00	8.49	AV	150	85	PASS
2539.954	37.95	10.63	48.58	54.00	5.42	AV	150	85	PASS

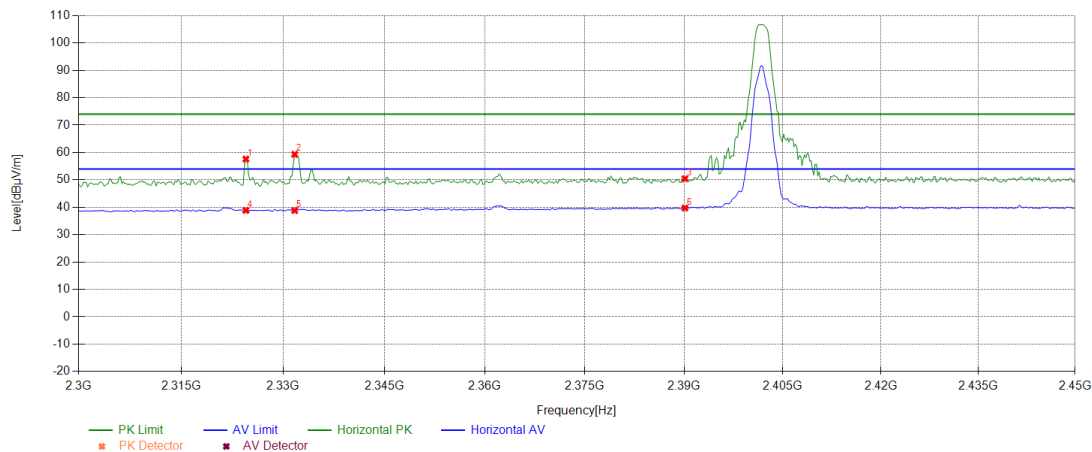


Test mode	802.11n20								
Test channel	Highest channel								
polarization	Vertical								
Suspected List									
Frequency [MHz]	Factor [dB]	Reading [dB μ V/m]	Level [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]	Detector	Height [cm]	Angle deg	Pass/Fail
2483.5484	37.54	14.57	52.11	74.00	21.89	PK	150	151	PASS
2502.3502	37.62	15.13	52.75	74.00	21.25	PK	150	9	PASS
2543.9544	37.78	15.43	53.21	74.00	20.79	PK	150	136	PASS
2483.5484	37.54	3.70	41.24	54.00	12.76	AV	150	136	PASS
2502.3502	37.62	2.88	40.50	54.00	13.50	AV	150	136	PASS
2543.9544	37.78	3.84	41.62	54.00	12.38	AV	150	136	PASS



During the test, the Band Edge was performed in Bluetooth(Low Energy) all modes with all channels and all antenna. BLE(2Mbps), Antenna 1 are selected as the worst condition. The test data of the worst-case condition was recorded in this report.

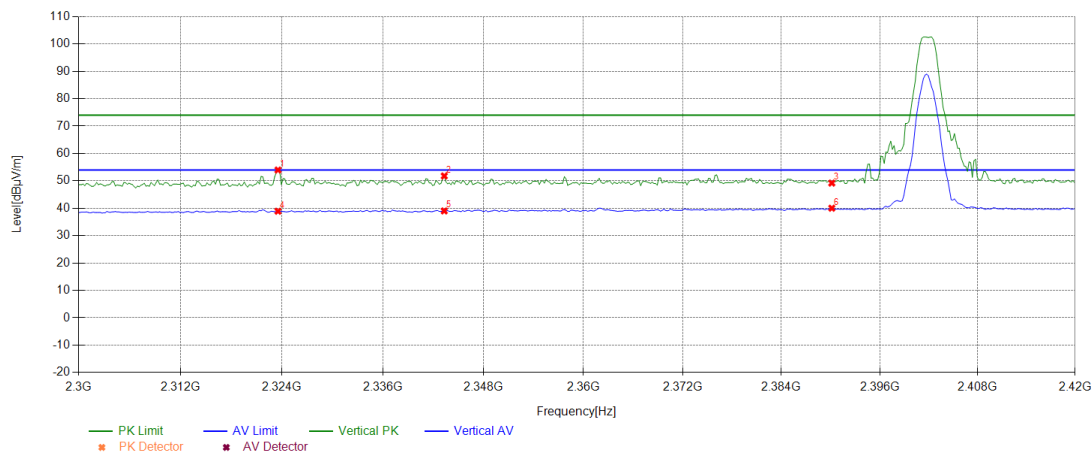
Test mode	BLE(2Mbps)								
Test channel	Lowest channel								
polarization	Horizontal								
Suspected List									
Frequency [MHz]	Factor [dB]	Reading [dBμV/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detect or	Height [cm]	Angle deg	Pass/Fail
2324.5325	36.66	20.93	57.59	74.00	16.41	PK	150	301	PASS
2331.7332	36.72	22.60	59.32	74.00	14.68	PK	150	356	PASS
2390.139	37.24	13.18	50.42	74.00	23.58	PK	150	215	PASS
2324.5325	36.66	2.19	38.85	54.00	15.15	AV	150	301	PASS
2331.7332	36.72	2.08	38.80	54.00	15.20	AV	150	187	PASS
2390.139	37.24	2.47	39.71	54.00	14.29	AV	150	0	PASS



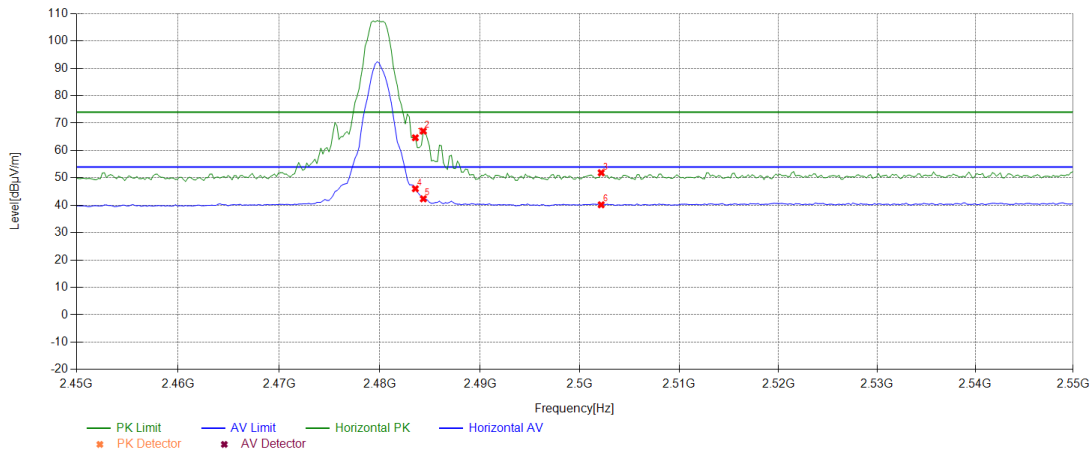
Test mode	BLE(2Mbps)
Test channel	Lowest channel
polarization	Vertical

Suspected List

Frequency [MHz]	Factor [dB]	Reading [dBμV/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Height [cm]	Angle deg	Pass/Fail
2323.5324	36.65	17.32	53.97	74.00	20.03	PK	150	102	PASS
2343.3343	36.83	14.97	51.80	74.00	22.20	PK	150	74	PASS
2390.139	37.24	11.96	49.20	74.00	24.80	PK	150	356	PASS
2323.5324	36.65	2.28	38.93	54.00	15.07	AV	150	131	PASS
2343.3343	36.83	2.19	39.02	54.00	14.98	AV	150	231	PASS
2390.139	37.24	2.79	40.03	54.00	13.97	AV	150	259	PASS



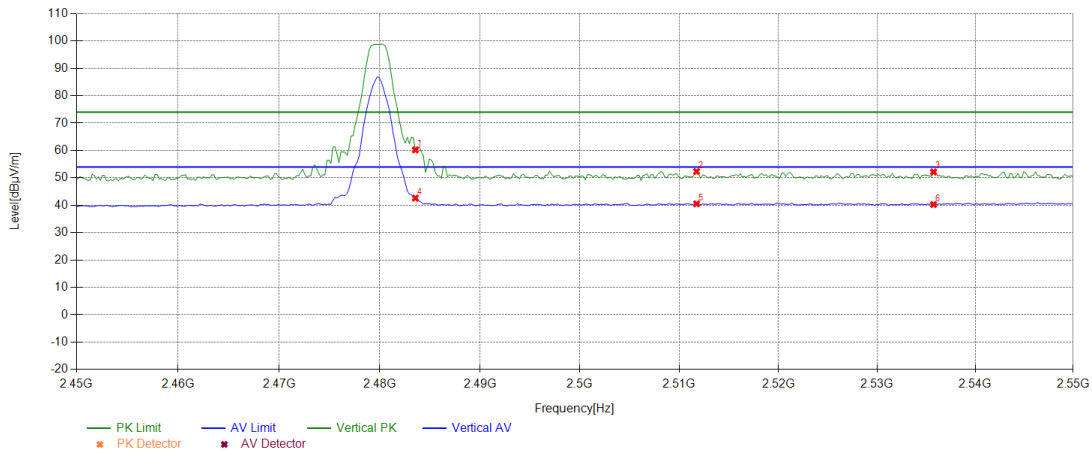
Test mode	BLE(2Mbps)								
Test channel	Highest channel								
polarization	Horizontal								
Suspected List									
Frequency [MHz]	Factor [dB]	Reading [dB μ V/m]	Level [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]	Detector	Height [cm]	Angle deg	Pass/Fail
2483.5484	37.72	26.94	64.66	74.00	9.34	PK	150	71	PASS
2484.3484	37.72	29.37	67.09	74.00	6.91	PK	150	128	PASS
2502.1502	37.80	14.07	51.87	74.00	22.13	PK	150	113	PASS
2483.5484	37.72	8.32	46.04	54.00	7.96	AV	150	113	PASS
2484.3484	37.72	4.64	42.36	54.00	11.64	AV	150	113	PASS
2502.1502	37.80	2.38	40.18	54.00	13.82	AV	150	228	PASS



Test mode	BLE(2Mbps)
Test channel	Highest channel
polarization	Vertical

Suspected List

Frequency [MHz]	Factor [dB]	Reading [dBμV/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Height [cm]	Angle deg	Pass/Fail
2483.5484	37.72	22.51	60.23	74.00	13.77	PK	150	113	PASS
2511.7512	37.84	14.48	52.32	74.00	21.68	PK	150	42	PASS
2535.7536	37.94	14.22	52.16	74.00	21.84	PK	150	2	PASS
2483.5484	37.72	4.90	42.62	54.00	11.38	AV	150	98	PASS
2511.7512	37.84	2.69	40.53	54.00	13.47	AV	150	198	PASS
2535.7536	37.94	2.34	40.28	54.00	13.72	AV	150	155	PASS



5.3 Maximum conducted output power

Ambient condition:

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.3kPa

Method of Measurement:

The EUT was tested according to DTS test procedure of ANSI C63.10 for compliance to FCC 47CFR 15.247 requirements. The maximum conducted output power using ANSI C63.10 section 11.9.2.3 AVGP Average power meter method.

1. Power meter and sensor’s minimum video bandwidth is 50MHz, larger than 802.11n(40MHz) bandwidth;
2. Fast responding diode sensors respond immediately to changes in power level to reduce total test time.
3. Use average detector to test.

During the process of the testing, The EUT was connected to Spectrum Analyzer with a known loss. The EUT is max power transmission with proper modulation. The Average detector is used. We use Maximum Average Conducted Output Power Level Method AVGSA-2 in KDB 558074 D01 /KDB662911 D01 for this test.

The conducted Power is measured at each antenna port. The measured results at the various antenna ports are then summed mathematically.

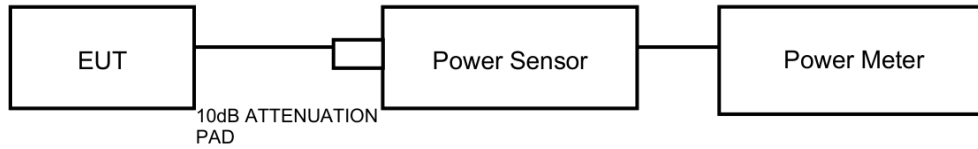
Limits:

Average Output Power	≤ 1W (30dBm)
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Note: the conducted output power limit specified above is based on the use the antennas with directional gains that do not exceed 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated Levels above, as appropriate, by the amount in dB that the directional gain of antenna exceeds 6 dBi.

Systems operating in the 2400-2483.5 MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

Test Setup:



Measurement Uncertainty:

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 2$, $U = 0.44$ dB.

Test Results:

TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
11B	Ant1	2412	17.01	≤ 30	PASS
	Ant1	2437	16.87	≤ 30	PASS
	Ant1	2462	17.21	≤ 30	PASS
11G	Ant1	2412	19.16	≤ 30	PASS
	Ant1	2437	18.78	≤ 30	PASS
	Ant1	2462	18.87	≤ 30	PASS
11N20SISO	Ant1	2412	19.16	≤ 30	PASS
	Ant1	2437	17.97	≤ 30	PASS
	Ant1	2462	18.88	≤ 30	PASS
11N40SISO	Ant1	2422	19.11	≤ 30	PASS
	Ant1	2437	18.97	≤ 30	PASS
	Ant1	2452	19.00	≤ 30	PASS
BLE_1M	Ant1	2402	6.25	≤ 30	PASS
	Ant1	2440	5.54	≤ 30	PASS
	Ant1	2480	5.87	≤ 30	PASS
BLE_2M	Ant1	2402	5.93	≤ 30	PASS
	Ant1	2440	5.21	≤ 30	PASS
	Ant1	2480	5.45	≤ 30	PASS

5.4 Minimum 6 dB Bandwidth

Ambient condition:

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.3kPa

Method of Measurement:

The EUT was connected to the spectrum analyzer through an external attenuator (20dB) and a known loss cable. RBW is set to 100 kHz; VBW is set to 300 kHz on spectrum analyzer.

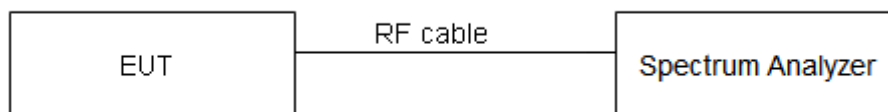
Detector=Peak, Trace mode=Max hold.

Limits:

Rule Part 15.247 (a) (2) specifies that “Systems using digital modulation techniques may operate in the 902–928 MHz, 2400–2483.5 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.”

Minimum 6dB Bandwidth	≥ 500 kHz
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Test Setup:



Measurement Uncertainty:

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 2$, $U = 936$ Hz.

Test Results:

TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	10.04	2406.96	2417.00	≥0.5	PASS
		2437	10.04	2431.96	2442.00	≥0.5	PASS
		2462	10.04	2456.96	2467.00	≥0.5	PASS
11G	Ant1	2412	16.36	2403.80	2420.16	≥0.5	PASS
		2437	16.36	2428.80	2445.16	≥0.5	PASS
		2462	16.32	2453.84	2470.16	≥0.5	PASS
11N20SISO	Ant1	2412	17.56	2403.20	2420.76	≥0.5	PASS
		2437	17.56	2428.20	2445.76	≥0.5	PASS
		2462	17.52	2453.24	2470.76	≥0.5	PASS
11N40SISO	Ant1	2422	35.12	2404.48	2439.60	≥0.5	PASS
		2437	35.36	2419.40	2454.76	≥0.5	PASS
		2452	35.12	2434.48	2469.60	≥0.5	PASS
BLE_1M	Ant1	2402	0.66	2401.66	2402.32	≥0.5	PASS
		2440	0.65	2439.66	2440.32	≥0.5	PASS
		2480	0.65	2479.66	2480.31	≥0.5	PASS
BLE_2M	Ant1	2402	1.12	2401.44	2402.55	≥0.5	PASS
		2440	1.12	2439.44	2440.56	≥0.5	PASS
		2480	1.12	2479.44	2480.56	≥0.5	PASS

5.5 Occupied Channel Bandwidth

Ambient condition:

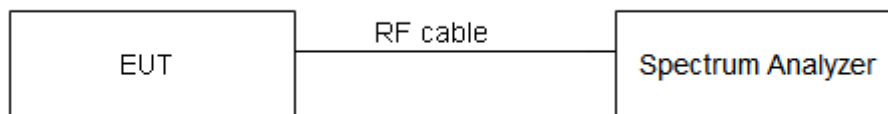
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.3kPa

Method of Measurement:

The EUT was connected to the spectrum analyzer through an external attenuator (20dB) and a known loss cable. RBW is set to 50 kHz; VBW is set to 200 kHz on spectrum analyzer.

Detector=Peak, Trace mode=Max hold.

Test Setup:



Measurement Uncertainty:

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 2$, $U = 936$ Hz.

Test Results:

TestMode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	14.865	2404.567	2419.433	---	---
		2437	14.785	2429.607	2444.393	---	---
		2462	14.785	2454.647	2469.433	---	---
11G	Ant1	2412	17.423	2403.209	2420.631	---	---
		2437	17.303	2428.329	2445.631	---	---
		2462	17.423	2453.289	2470.711	---	---
11N20SISO	Ant1	2412	18.342	2402.849	2421.191	---	---
		2437	18.342	2427.809	2446.151	---	---
		2462	18.342	2452.849	2471.191	---	---
11N40SISO	Ant1	2422	35.964	2404.018	2439.982	---	---
		2437	36.044	2419.018	2455.062	---	---
		2452	35.964	2434.018	2469.982	---	---
BLE_1M	Ant1	2402	1.031	2401.481	2402.512	---	---
		2440	1.027	2439.481	2440.508	---	---
		2480	1.023	2479.485	2480.508	---	---
BLE_2M	Ant1	2402	2.054	2400.985	2403.039	---	---
		2440	2.046	2438.985	2441.031	---	---
		2480	2.05	2478.981	2481.031	---	---

5.6 Band Edge Measurement

Ambient condition:

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.3kPa

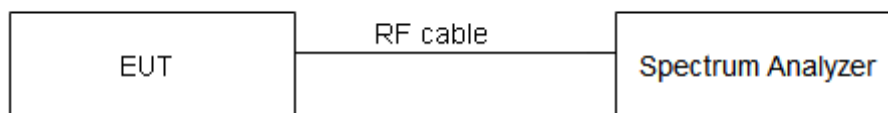
Method of Measurement:

The EUT was connected to the spectrum analyzer through an external attenuator (20dB) and a known loss cable the band edge of the lowest and highest channels were measured. The peak detector is used and RBW is set to 100 kHz and VBW is set to 300 kHz on spectrum analyzer.

Limits:

Rule Part 15.247(d) specifies that “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 a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits.

Test Setup:



Measurement Uncertainty:

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 1.96$, $U = 936 \text{ Hz}$, $2 \text{ GHz} - 3 \text{ GHz} = 1.407 \text{ dB}$.

Test Results:

TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
11B	Ant1	Low	2412	5.30	-40.39	≤-14.7	PASS
		High	2462	5.77	-45.95	≤-14.23	PASS
11G	Ant1	Low	2412	-0.48	-34.93	≤-20.48	PASS
		High	2462	-0.53	-47.44	≤-20.53	PASS
11N20SISO	Ant1	Low	2412	-0.15	-35.3	≤-20.15	PASS
		High	2462	-0.69	-47.42	≤-20.69	PASS
11N40SISO	Ant1	Low	2422	-2.97	-40.87	≤-22.97	PASS
		High	2452	-3.13	-45.4	≤-23.13	PASS
BLE_1M	Ant1	Low	2402	5.55	-44.15	≤-14.45	PASS
		High	2480	5.62	-45.64	≤-14.38	PASS
BLE_2M	Ant1	Low	2402	4.84	-27.65	≤-15.16	PASS
		High	2480	5.16	-45.54	≤-14.84	PASS

5.7 Maximum Power Spectral Density

Ambient condition:

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.3kPa

Method of Measurement:

During the process of the testing, The EUT was connected to Spectrum Analyzer with a known loss. The EUT is max power transmission with proper modulation. The Average detector is used. We use Method AVGPSD-2 in KDB 558074 D01 for this test.

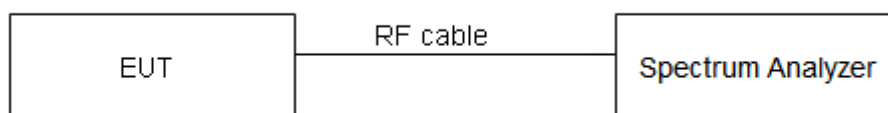
The conducted Power is measured at each antenna port. The measured results at the various antenna ports are then summed mathematically.

Limits:

Rule Part 15.247(e) specifies that" For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

Maximum Power Spectral Density	$\leq 8 \text{ dBm} / 3\text{kHz}$
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Test Setup:



Measurement Uncertainty:

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 2$, $U = 0.75\text{dB}$.

Test Results:

TestMode	Antenna	Channel	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
11B	Ant1	2412	-7.64	≤8	PASS
		2437	-7.67	≤8	PASS
		2462	-7.7	≤8	PASS
11G	Ant1	2412	-13.61	≤8	PASS
		2437	-13.84	≤8	PASS
		2462	-14.53	≤8	PASS
11N20SISO	Ant1	2412	-14.06	≤8	PASS
		2437	-15.63	≤8	PASS
		2462	-14.83	≤8	PASS
11N40SISO	Ant1	2422	-16.93	≤8	PASS
		2437	-17.56	≤8	PASS
		2452	-17.26	≤8	PASS
BLE_1M	Ant1	2402	-9.94	≤8	PASS
		2440	-9.36	≤8	PASS
		2480	-10.17	≤8	PASS
BLE_2M	Ant1	2402	-13.47	≤8	PASS
		2440	-13.37	≤8	PASS
		2480	-13.72	≤8	PASS

5.8 Spurious RF Conducted Emissions

Ambient condition:

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.3kPa

Method of Measurement:

The EUT was connected to the spectrum analyzer with a known loss. The spectrum analyzer scans from 30MHz to the 10th harmonic of the carrier. The peak detector is used. Set RBW to 100kHz and VBW to 300 kHz, Sweep is set to AUTO. The test is in transmitting mode.

Limits:

Rule Part 15.247(d) specifies that "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."

Test Setup:



Measurement Uncertainty:

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 1.96$.

Frequency	Uncertainty
100kHz-2GHz	0.684 dB
2GHz-26GHz	1.407 dB

Test Results:

TestMode	Antenna	Channel	FreqRange [Mhz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
11B	Ant1	2412	Reference	5.43	5.43	---	PASS
			30~1000	5.43	-59.54	≤-14.57	PASS
			1000~26500	5.43	-48.43	≤-14.57	PASS
		2437	Reference	5.07	5.07	---	PASS
			30~1000	5.07	-60.45	≤-14.93	PASS
			1000~26500	5.07	-49.06	≤-14.93	PASS
		2462	Reference	5.53	5.53	---	PASS
			30~1000	5.53	-59.67	≤-14.47	PASS
			1000~26500	5.53	-48.91	≤-14.47	PASS
11G	Ant1	2412	Reference	-0.30	-0.30	---	PASS
			30~1000	-0.30	-58.28	≤-20.3	PASS
			1000~26500	-0.30	-48.19	≤-20.3	PASS
		2437	Reference	-0.96	-0.96	---	PASS
			30~1000	-0.96	-58.47	≤-20.96	PASS
			1000~26500	-0.96	-49.59	≤-20.96	PASS
		2462	Reference	-0.63	-0.63	---	PASS
			30~1000	-0.63	-58.64	≤-20.63	PASS
			1000~26500	-0.63	-48.76	≤-20.63	PASS
11N20SISO	Ant1	2412	Reference	-0.30	-0.30	---	PASS
			30~1000	-0.30	-58.02	≤-20.3	PASS
			1000~26500	-0.30	-48.76	≤-20.3	PASS
		2437	Reference	-1.49	-1.49	---	PASS
			30~1000	-1.49	-58.12	≤-21.49	PASS
			1000~26500	-1.49	-49.28	≤-21.49	PASS
		2462	Reference	-0.47	-0.47	---	PASS
			30~1000	-0.47	-57.5	≤-20.47	PASS
			1000~26500	-0.47	-49.37	≤-20.47	PASS
11N40SISO	Ant1	2422	Reference	-3.07	-3.07	---	PASS
			30~1000	-3.07	-57.66	≤-23.07	PASS
			1000~26500	-3.07	-48.61	≤-23.07	PASS
		2437	Reference	-3.24	-3.24	---	PASS
			30~1000	-3.24	-57.94	≤-23.24	PASS
			1000~26500	-3.24	-49.47	≤-23.24	PASS
		2452	Reference	-3.18	-3.18	---	PASS
			30~1000	-3.18	-57.12	≤-23.18	PASS
			1000~26500	-3.18	-48.92	≤-23.18	PASS

TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	5.49	5.49	---	PASS
			30~1000	5.49	-60.02	≤-14.51	PASS
			1000~26500	5.49	-49.21	≤-14.51	PASS
		2440	Reference	5.26	5.26	---	PASS
			30~1000	5.26	-59.38	≤-14.74	PASS
			1000~26500	5.26	-49.71	≤-14.74	PASS
		2480	Reference	5.11	5.11	---	PASS
			30~1000	5.11	-58.43	≤-14.89	PASS
			1000~26500	5.11	-49.51	≤-14.89	PASS
BLE_2M	Ant1	2402	Reference	4.89	4.89	---	PASS
			30~1000	4.89	-59.74	≤-15.11	PASS
			1000~26500	4.89	-49.08	≤-15.11	PASS
		2440	Reference	4.86	4.86	---	PASS
			30~1000	4.86	-60.08	≤-15.14	PASS
			1000~26500	4.86	-49	≤-15.14	PASS
		2480	Reference	5.11	5.11	---	PASS
			30~1000	5.11	-59.26	≤-14.89	PASS
			1000~26500	5.11	-48.16	≤-14.89	PASS

6. Appendix A

Test Equipment	Type/Mode	SERIAL NO.	Equipment No.	Manufacturer	Cal. Due
Spectrum Analyzer	FSV40	101580	DZ-000238-3	R&S	2024/04/22
Comprehensive Test Instrument	CMW270	100304	DZ-000240-1	R&S	2023/12/06
Analog Signal Generator	SMB100A	181858	DZ-000238-2	R&S	2024/05/29
Vector Signal Generator	SGT100A	111661	DZ-000238-1	R&S	2024/05/29
RF Radio Frequency Switch	JS0806-2	19H9080187	DZ-000241	Tonscend	2024/05/29
Programmable DC Power Supply	E3644A	MY58036222	DZ-000178	KEYSIGHT	2024/04/12
3m Semi-Anechoic Chamber	FACT-4	ST08035	WKNA-0024	ETS	2024/12/12
5m Semi-Anechoic Chamber	SAC-5	SAC-5-2.0	EM-000557	COMTEST	2024/11/02
Spectrum Analyzer	N9010B	MY57470323	DZ-000174	KEYSIGHT	2024/02/22
EMI Test Receiver	N9038A-508	MY532290079	EM-000397	Agilent	2024/02/22
EMI Test Receiver	ESR7	102235	VGDY-0956	R&S	2024/02/22
loop antenna	HLA 6121	540046	EM-000546	TESEQ	2024/06/05
Broadband Antenna	VULB 9168	01537	EM-000736-1	SCHWARZBECK	2024/04/24
Broadband Antenna	VULB 9163	9163-530	EM-000342	SCHWARZBECK	2024/06/10
Waveguide Horn Antenna	HF906	360306/008	EM-000093	R&S	2024/02/24
Waveguide Horn Antenna	BBHA9170	00949	EM-000383	SCHWARZBECK	2023/08/26
Bandstop Filters	SW-BSF-2400-100-7-A1	/	EM-000495	/	2023/08/30
5G Bandstop Filters	WRCJV12-4900-5100-5900-6100-50EE	1	DZ-000186	WI	2023/12/06
Preamplifier	BBV 9721	9721-050	DZ-000209-1	SCHWARZBECK	2024/06/04
EMI Test Receiver	ESR3	102394	VGDY-0705	R&S	2024/04/22
LISN	NSLK 8127	8127644	VGDY-0150	SCHWARZBECK	2023/09/03
Plus Limiter (#2)	VTSD 9561	9561-F017	VGDY-0152	SCHWARZBECK	2024/09/03
Shielding Room(#2)	GP1A	001	WKNF-0006	LEINING	2024/08/07

The End