

FCC Test Report (Class II Permissive Change)

Product Name	WiFi abgn module
Model No	RF-WRN
FCC ID	VTV-RFWRN

Applicant	TSC Auto ID Technology Co., Ltd.
Address	No.35, Sec.2, Ligong 1st Rd., Wujie Town, I-Lan County 26841, Taiwan

Date of Receipt	June 23, 2016
Issued Date	Nov. 07, 2016
Report No.	1660496R-RFUSP69V00
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.
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Test Report

Issued Date: Nov. 07, 2016

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Product Name	WiFi abgn module
Applicant	TSC Auto ID Technology Co., Ltd.
Address	No.35, Sec.2, Ligong 1st Rd., Wujie Town, I-Lan County 26841, Taiwan
Manufacturer	TSC Auto ID Technology Co., Ltd.
Model No.	RF-WRN
FCC ID.	VTV-RFWRN
EUT Rated Voltage	AC 100-240V, 50/60Hz
EUT Test Voltage	AC 120V/60Hz
Trade Name	TSC
Applicable Standard	FCC CFR Title 47 Part 15 Subpart E: 2015 ANSI C63.4: 2014, ANSI C63.10: 2013 789033 D02 General UNII Test Procedures New Rules v01r02
Test Result	Complied

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Tested By :

Anson Lu

(Engineer / Anson Lu)

Approved By :

Vincent Lin

(Director / Vincent Lin)

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Attachment 1: EUT Test Photographs

Attachment 2: EUT Detailed Photographs

1. GENERAL INFORMATION

1.1. EUT Description

Product Name	WiFi abgn module
Trade Name	TSC
FCC ID.	VTV-RFWRN
Model No.	RF-WRN
Frequency Range	802.11a/n-20MHz: 5180-5250MHz, 5745-5825MHz
Number of Channels	802.11a/n-20MHz: 9
Data Rate	802.11a: 6 - 54Mbps 802.11n: up to 150Mbps
Channel Control	Auto
Type of Modulation	802.11a/n: OFDM, BPSK, QPSK, 16QAM, 64QAM
Antenna type	PIFA Antenna
Antenna Gain	Refer to the table "Antenna List"
Power Adapter (1)	MFR: CWT, M/N: 2AAJ012F US Input: AC 100-240V~50/60Hz, 0.35A Output: 12.0V $\overline{=}$ 1.0A Cable Out: Non-Shielded, 1.15m
Power Adapter (2)	MFR: BILLION, M/N: BA018-120100CXX Input: AC 100-240V~50/60Hz, 0.5A Output: 12.0V $\overline{=}$ 1.0A Cable Out: Non-Shielded, 1.60m
Power Adapter (3)	MFR: BILLION, M/N: BA018-120100AXU Input: AC 100-240V~50/60Hz, 0.5A Output: 12.0V $\overline{=}$ 1.0A Cable Out: Non-Shielded, 1.60m
Power Adapter (4)	MFR: Atech OEM Inc, M/N: C20C-1220AD0-S0 Input: AC 36-60V Output: 12V $\overline{=}$ 2A Cable In: Non-Shielded, 1.05m Cable Out: Non-Shielded, 1.80m

Antenna List

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	M.gear	C1721-510007-A(SRF2016788)	PIFA	2.92dBi for 5.180~5.250GHz 2.92dBi for 5.725~5.825GHz

Note: 1. The antenna of EUT is conform to FCC 15.203.

802.11a/n-20MHz Center Working Frequency of Each Channel:

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 36:	5180 MHz	Channel 40:	5200 MHz	Channel 44:	5220 MHz	Channel 48:	5240 MHz
Channel 149:	5745 MHz	Channel 153:	5765 MHz	Channel 157:	5785 MHz	Channel 161:	5805 MHz
Channel 165:	5825 MHz						

Note:

1. This device is an WiFi abgn module with a built-in 2.4GHz and 5GHz WLAN transceiver, this report for 5GHz WLAN.
2. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.
3. At result of pretests, module supports dual-channel transmission, only the worst case is shown in the report.
4. Lowest and highest data rates are tested in each mode. Only worst case is shown in the report. (802.11a is 6Mbps 、802.11n-20BW is 14.4Mbps)
5. The radiation measurements are performed in X, Y, Z axis positioning. Only the worst case is shown in the report.
6. This is to request a Class II permissive change for FCC ID: VTV-RFWRN, originally granted on 09/23/2016

The major change filed under this application is:

Change #1: Implementation in new platform

The platform is including six Model number.

The difference of each model for Barcode Printer is shown as below:

Part no.	Configuration
PR20, GR20, CN-20, BP-20, TSC-20	non-TSC logo
Alpha-2R	w-TSC logo
Product name: Barcode Printer	

Change #2: Change the layout of SPI & UART interface board, RF circuit and layout are the same as original.

7. These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with Part 15 Subpart E for Unlicensed National Information Infrastructure devices.

Test Mode	Mode 1: Transmit (802.11a-6Mbps) Mode 2: Transmit (802.11n-20BW 7.2Mbps)
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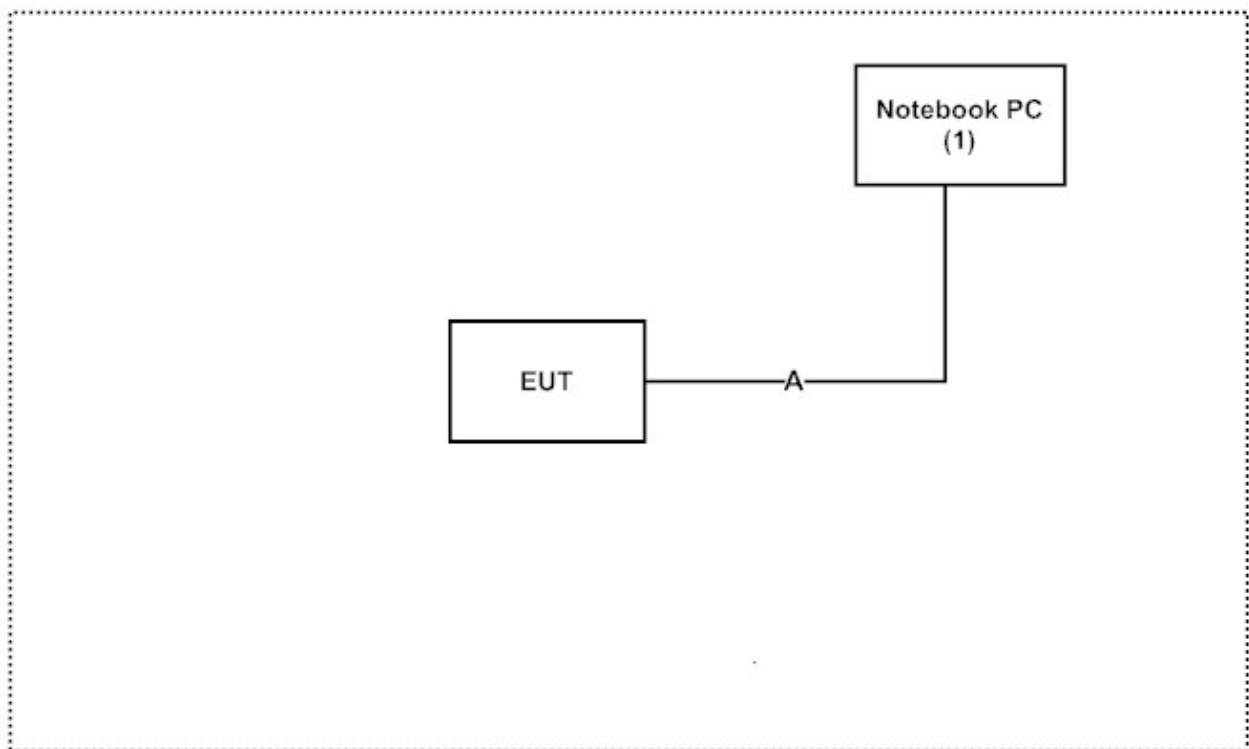
1.3. Tested System Details

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	Notebook PC	DELL	Latitude E5440	74BTK32	Non-Shielded, 0.8m

Signal Cable Type	Signal cable Description	
A	USB Cable	Shielded, 1.10m, with one ferrite core bonded.

1.4. Configuration of tested System



1.5. EUT Exercise Software

1. Setup the EUT as shown in Section 1.4.
2. Execute software “Diagnostic V1.63” 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 Quietek Corporation's Web Site: <http://www.quietek.com/chinese/about/certificates.aspx?bval=5>

The address and introduction of Quietek Corporation's laboratories can be founded in our Web site:

<http://www.quietek.com/>

Site Description: File on
Federal Communications Commission
FCC Engineering Laboratory
7435 Oakland Mills Road
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Site Name: Quietek Corporation
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Linkou Dist. New Taipei City 24451,
Taiwan, R.O.C.
TEL: 886-2-8601-3788 / FAX : 886-2-8601-3789
E-Mail : service@quietek.com

FCC Accreditation Number: TW1014

1.7. List of Test Equipment

For Conducted measurements /CB3/SR8

	Equipment	Manufacturer	Model No.	Serial No.	Cali. Data	Due. Data
X	Spectrum Analyzer	Agilent	N9010A	MY48030495	2016/7/22	2017/7/21
X	Power Meter	Anritsu	ML2495A	6K00003357	2016/6/23	2017/6/22
X	EMI Test Receiver	R&S	ESCS 30	100369	2016/10/13	2017/10/12
X	LISN	R&S	ESH3-Z5	836679/017	2016/1/7	2017/1/6
X	LISN	R&S	ENV216	100097	2016/1/7	2017/1/6
X	Coaxial Cable	QTK(Arnist)	RG 400	LC018-RG	2016/6/25	2017/6/24

For Radiated measurements /Site3/CB8

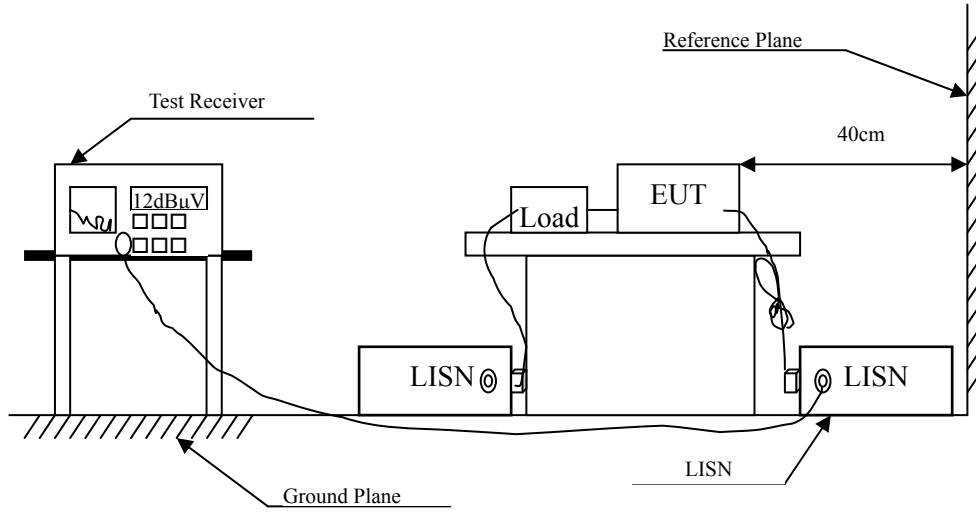
	Equipment	Manufacturer	Model No.	Serial No.	Cali. Data	Due. Data
X	Spectrum Analyzer	R&S	FSP40	100170	2016/1/5	2017/1/4
	Loop Antenna	Teseq	HLA6121	37133	2016/3/18	2017/3/17
X	Bi-Log Antenna	Schaffner Chase	CBL6112B	2707	2016/9/10	2017/9/9
X	Horn Antenna	ETS-Lindgren	3117	00135205	2016/4/6	2017/4/5
X	Horn Antenna	Schwarzbeck	BBHA9170	9170430	2016/1/11	2017/1/10
X	Pre-Amplifier	QTK	AP/0100A	CHM/0901069	2016/6/28	2017/6/27
X	Pre-Amplifier	EMCI	EMC012630SE	980210	2016/1/27	2017/1/26
X	Pre-Amplifier	NARDA WE	DBL-1840N506	013	2016/9/30	2017/9/29
X	Filter	MicroTRON	BRM50701	019	2015/10/20	2016/10/19
X	Filter	Microwave Circuits	N0257881	36681	2015/12/7	2016/12/6
X	EMI Test Receiver	R&S	ESR26	101385	2016/9/29	2017/9/28
X	Coaxial Cable	QTK(Arnist)	SUCOFLEX 106	L1606-015C	2016/6/25	2017/6/24
X	EMI Test Receiver	R&S	ESCS 30	838251/001	2016/7/21	2017/7/20
X	Coaxial Cable	QTK(Arnist)	RG 214	LC003-RG	2016/6/21	2017/6/20
X	Coaxial signal switch	Anritsu	MP59B	6201415889	2016/6/16	2017/6/15

Note:

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

2. Conducted Emission

2.1. Test Setup



2.2. Limits

FCC Part 15 Subpart C Paragraph 15.207 (dBµV) Limit		
Frequency MHz	Limits	
	QP	AV
0.15 - 0.50	66-56	56-46
0.50-5.0	56	46
5.0 - 30	60	50

Remarks : In the above table, the tighter limit applies at the band edges.

2.3. Test Procedure

The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm /50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs.)

Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10:2013 on conducted measurement.

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

The EUT was setup to ANSI C63.10, 2014; tested to UNII test procedure of FCC KDB-789033 for compliance to FCC 47CFR Subpart E requirements.

2.4. Uncertainty

± 2.26 dB

2.5. Test Result of Conducted Emission

Product : WiFi abgn module
 Test Item : Conducted Emission Test
 Power Line : Line 1
 Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) (5180MHz)
 - CWT / 2AAJ012F US
 Test Date : 2016/10/28

Frequency MHz	Correct Factor dB	Reading Level dBμV	Measurement Level dBμV	Margin dB	Limit dBμV
LINE 1					
Quasi-Peak					
0.170	9.681	36.820	46.502	-18.927	65.429
0.384	9.672	33.500	43.172	-16.142	59.314
0.588	9.678	22.670	32.348	-23.652	56.000
1.041	9.703	21.320	31.023	-24.977	56.000
1.931	9.741	20.660	30.401	-25.599	56.000
11.666	9.916	17.620	27.536	-32.464	60.000
Average					
0.170	9.681	26.060	35.742	-19.687	55.429
0.384	9.672	21.720	31.392	-17.922	49.314
0.588	9.678	20.270	29.948	-16.052	46.000
1.041	9.703	12.630	22.333	-23.667	46.000
1.931	9.741	14.640	24.381	-21.619	46.000
11.666	9.916	10.430	20.346	-29.654	50.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. “” means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : WiFi abgn module
 Test Item : Conducted Emission Test
 Power Line : Line 2
 Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) (5180MHz)
 - CWT / 2AAJ012F US
 Test Date : 2016/10/28

Frequency MHz	Correct Factor dB	Reading Level dB μ V	Measurement Level dB μ V	Margin dB	Limit dB μ V
LINE 2					
Quasi-Peak					
0.173	9.735	37.480	47.215	-18.128	65.343
0.263	9.738	26.110	35.848	-26.923	62.771
0.377	9.742	28.920	38.662	-20.852	59.514
0.752	9.754	15.380	25.134	-30.866	56.000
2.443	9.812	11.790	21.602	-34.398	56.000
12.865	10.047	12.400	22.447	-37.553	60.000
Average					
0.173	9.735	11.310	21.045	-34.298	55.343
0.263	9.738	15.170	24.908	-27.863	52.771
0.377	9.742	19.150	28.892	-20.622	49.514
0.752	9.754	8.550	18.304	-27.696	46.000
2.443	9.812	3.970	13.782	-32.218	46.000
12.865	10.047	6.270	16.317	-33.683	50.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. "█" means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : WiFi abgn module
 Test Item : Conducted Emission Test
 Power Line : Line 1
 Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) (5825MHz)
 - CWT / 2AAJ012F US
 Test Date : 2016/10/28

Frequency MHz	Correct Factor dB	Reading Level dBμV	Measurement Level dBμV	Margin dB	Limit dBμV
LINE 1					
Quasi-Peak					
0.158	9.685	38.390	48.075	-17.696	65.771
0.228	9.677	29.070	38.747	-25.024	63.771
0.388	9.672	33.220	42.892	-16.308	59.200
0.779	9.694	20.820	30.514	-25.486	56.000
3.084	9.768	19.800	29.568	-26.432	56.000
11.939	9.918	17.750	27.668	-32.332	60.000
Average					
0.158	9.685	25.330	35.015	-20.756	55.771
0.228	9.677	13.170	22.847	-30.924	53.771
0.388	9.672	26.460	36.132	-13.068	49.200
0.779	9.694	16.150	25.844	-20.156	46.000
3.084	9.768	14.100	23.868	-22.132	46.000
11.939	9.918	10.910	20.828	-29.172	50.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. "■" means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : WiFi abgn module
 Test Item : Conducted Emission Test
 Power Line : Line 2
 Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) (5825MHz)
 - CWT / 2AAJ012F US
 Test Date : 2016/10/28

Frequency MHz	Correct Factor dB	Reading Level dB μ V	Measurement Level dB μ V	Margin dB	Limit dB μ V
LINE 2					
Quasi-Peak					
0.150	9.734	39.570	49.304	-16.696	66.000
0.373	9.742	30.600	40.342	-19.287	59.629
0.552	9.747	18.750	28.497	-27.503	56.000
0.806	9.755	15.260	25.015	-30.985	56.000
1.744	9.795	13.110	22.905	-33.095	56.000
12.197	10.031	12.720	22.751	-37.249	60.000
Average					
0.150	9.734	12.400	22.134	-33.866	56.000
0.373	9.742	24.040	33.782	-15.847	49.629
0.552	9.747	5.850	15.597	-30.403	46.000
0.806	9.755	6.960	16.715	-29.285	46.000
1.744	9.795	0.390	10.185	-35.815	46.000
12.197	10.031	3.380	13.411	-36.589	50.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. "█" means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : WiFi abgn module
 Test Item : Conducted Emission Test
 Power Line : Line 1
 Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) (5200MHz)
 - BILLION / BA018-120100CXX
 Test Date : 2016/10/28

Frequency MHz	Correct Factor dB	Reading Level dBμV	Measurement Level dBμV	Margin dB	Limit dBμV
LINE 1					
Quasi-Peak					
0.341	9.671	18.090	27.761	-32.782	60.543
0.466	9.675	32.120	41.795	-15.176	56.971
0.568	9.678	13.890	23.568	-32.432	56.000
0.873	9.697	11.640	21.337	-34.663	56.000
6.377	9.827	12.540	22.367	-37.633	60.000
19.939	10.031	4.280	14.311	-45.689	60.000
Average					
0.341	9.671	8.200	17.871	-32.672	50.543
0.466	9.675	24.780	34.455	-12.516	46.971
0.568	9.678	6.230	15.908	-30.092	46.000
0.873	9.697	6.470	16.167	-29.833	46.000
6.377	9.827	4.050	13.877	-36.123	50.000
19.939	10.031	0.700	10.731	-39.269	50.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. "█" means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : WiFi abgn module
 Test Item : Conducted Emission Test
 Power Line : Line 2
 Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) (5200MHz)
 - BILLION / BA018-120100CXX
 Test Date : 2016/10/28

Frequency MHz	Correct Factor dB	Reading Level dBμV	Measurement Level dBμV	Margin dB	Limit dBμV
LINE 2					
Quasi-Peak					
0.412	9.743	19.420	29.163	-29.351	58.514
0.463	9.744	27.480	37.224	-19.833	57.057
0.947	9.760	13.970	23.730	-32.270	56.000
1.502	9.785	12.870	22.655	-33.345	56.000
7.505	9.932	11.740	21.672	-38.328	60.000
19.705	10.208	5.760	15.968	-44.032	60.000
Average					
0.412	9.743	15.750	25.493	-23.021	48.514
0.463	9.744	20.800	30.544	-16.513	47.057
0.947	9.760	6.050	15.810	-30.190	46.000
1.502	9.785	6.150	15.935	-30.065	46.000
7.505	9.932	4.950	14.882	-35.118	50.000
19.705	10.208	1.560	11.768	-38.232	50.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. "█" means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : WiFi abgn module
 Test Item : Conducted Emission Test
 Power Line : Line 1
 Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) (5785MHz)
 - BILLION / BA018-120100CXX
 Test Date : 2016/10/28

Frequency MHz	Correct Factor dB	Reading Level dBμV	Measurement Level dBμV	Margin dB	Limit dBμV
LINE 1					
Quasi-Peak					
0.244	9.677	15.690	25.367	-37.947	63.314
0.295	9.674	19.560	29.234	-32.623	61.857
0.412	9.673	19.980	29.653	-28.861	58.514
0.474	9.675	31.080	40.755	-15.988	56.743
0.556	9.677	16.760	26.437	-29.563	56.000
6.646	9.831	11.170	21.001	-38.999	60.000
Average					
0.244	9.677	8.630	18.307	-35.007	53.314
0.295	9.674	9.840	19.514	-32.343	51.857
0.412	9.673	12.510	22.183	-26.331	48.514
0.474	9.675	21.110	30.785	-15.958	46.743
0.556	9.677	6.670	16.347	-29.653	46.000
6.646	9.831	3.370	13.201	-36.799	50.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. "█" means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : WiFi abgn module
 Test Item : Conducted Emission Test
 Power Line : Line 2
 Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) (5785MHz)
 - BILLION / BA018-120100CXX
 Test Date : 2016/10/28

Frequency MHz	Correct Factor dB	Reading Level dB μ V	Measurement Level dB μ V	Margin dB	Limit dB μ V
LINE 2					
Quasi-Peak					
0.150	9.734	23.640	33.374	-32.626	66.000
0.466	9.745	26.130	35.875	-21.096	56.971
0.642	9.750	13.530	23.280	-32.720	56.000
1.259	9.770	13.210	22.980	-33.020	56.000
7.810	9.936	9.230	19.166	-40.834	60.000
8.951	9.962	8.120	18.082	-41.918	60.000
Average					
0.150	9.734	20.320	30.054	-25.946	56.000
0.466	9.745	19.220	28.965	-18.006	46.971
0.642	9.750	7.300	17.050	-28.950	46.000
1.259	9.770	9.120	18.890	-27.110	46.000
7.810	9.936	4.150	14.086	-35.914	50.000
8.951	9.962	3.260	13.222	-36.778	50.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. "█" means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : WiFi abgn module
 Test Item : Conducted Emission Test
 Power Line : Line 1
 Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) (5200MHz)
 - BILLION / BA018-120100AXU
 Test Date : 2016/10/28

Frequency MHz	Correct Factor dB	Reading Level dB μ V	Measurement Level dB μ V	Margin dB	Limit dB μ V
LINE 1					
Quasi-Peak					
0.177	9.679	21.330	31.009	-34.220	65.229
0.201	9.676	18.740	28.416	-36.127	64.543
0.384	9.672	21.240	30.912	-28.402	59.314
0.455	9.674	29.370	39.044	-18.242	57.286
0.521	9.676	20.500	30.176	-25.824	56.000
6.713	9.831	17.190	27.021	-32.979	60.000
Average					
0.177	9.679	10.730	20.409	-34.820	55.229
0.201	9.676	10.510	20.186	-34.357	54.543
0.384	9.672	16.200	25.872	-23.442	49.314
0.455	9.674	24.360	34.034	-13.252	47.286
0.521	9.676	11.260	20.936	-25.064	46.000
6.713	9.831	7.950	17.781	-32.219	50.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. "█" means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : WiFi abgn module
 Test Item : Conducted Emission Test
 Power Line : Line 2
 Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) (5200MHz)
 - BILLION / BA018-120100AXU
 Test Date : 2016/10/28

Frequency MHz	Correct Factor dB	Reading Level dBμV	Measurement Level dBμV	Margin dB	Limit dBμV
LINE 2					
Quasi-Peak					
0.216	9.737	17.490	27.227	-36.887	64.114
0.455	9.744	28.140	37.884	-19.402	57.286
0.580	9.748	16.900	26.648	-29.352	56.000
1.005	9.762	12.000	21.762	-34.238	56.000
7.041	9.916	11.920	21.836	-38.164	60.000
19.002	10.185	7.590	17.775	-42.225	60.000
Average					
0.216	9.737	7.770	17.507	-36.607	54.114
0.455	9.744	23.840	33.584	-13.702	47.286
0.580	9.748	10.640	20.388	-25.612	46.000
1.005	9.762	7.080	16.842	-29.158	46.000
7.041	9.916	4.690	14.606	-35.394	50.000
19.002	10.185	2.470	12.655	-37.345	50.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. "█" means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : WiFi abgn module
 Test Item : Conducted Emission Test
 Power Line : Line 1
 Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) (5785MHz)
 - BILLION / BA018-120100AXU
 Test Date : 2016/10/28

Frequency MHz	Correct Factor dB	Reading Level dBμV	Measurement Level dBμV	Margin dB	Limit dBμV
LINE 1					
Quasi-Peak					
0.361	9.671	21.260	30.931	-29.040	59.971
0.455	9.674	29.210	38.884	-18.402	57.286
0.525	9.676	19.070	28.746	-27.254	56.000
0.658	9.681	12.480	22.161	-33.839	56.000
6.517	9.829	17.410	27.239	-32.761	60.000
18.572	10.008	6.150	16.158	-43.842	60.000
Average					
0.361	9.671	15.570	25.241	-24.730	49.971
0.455	9.674	24.200	33.874	-13.412	47.286
0.525	9.676	11.920	21.596	-24.404	46.000
0.658	9.681	6.310	15.991	-30.009	46.000
6.517	9.829	7.290	17.119	-32.881	50.000
18.572	10.008	1.730	11.738	-38.262	50.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. "█" means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : WiFi abgn module
 Test Item : Conducted Emission Test
 Power Line : Line 2
 Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) (5785MHz)
 - BILLION / BA018-120100AXU
 Test Date : 2016/10/28

Frequency MHz	Correct Factor dB	Reading Level dB μ V	Measurement Level dB μ V	Margin dB	Limit dB μ V
LINE 2					
Quasi-Peak					
0.173	9.735	17.820	27.555	-37.788	65.343
0.459	9.744	29.150	38.894	-18.277	57.171
0.615	9.749	17.060	26.809	-29.191	56.000
1.002	9.762	12.690	22.452	-33.548	56.000
7.552	9.933	9.950	19.883	-40.117	60.000
20.502	10.213	5.880	16.093	-43.907	60.000
Average					
0.173	9.735	7.630	17.365	-37.978	55.343
0.459	9.744	23.500	33.244	-13.927	47.171
0.615	9.749	10.520	20.269	-25.731	46.000
1.002	9.762	6.730	16.492	-29.508	46.000
7.552	9.933	4.090	14.023	-35.977	50.000
20.502	10.213	1.780	11.993	-38.007	50.000

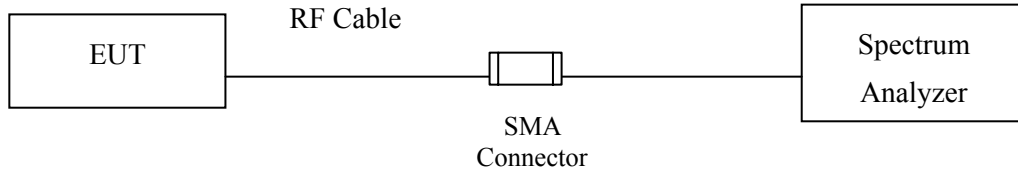
Note:

1. All Reading Levels are Quasi-Peak and average value.
2. "█" means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

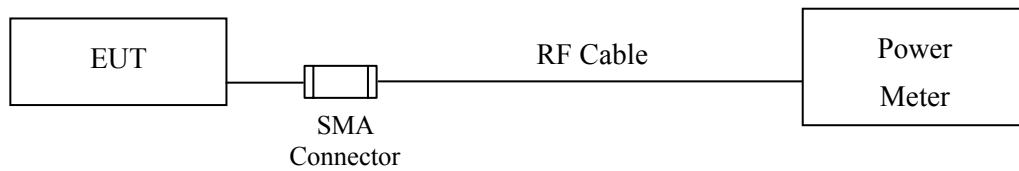
3. Maximun conducted output power

3.1. Test Setup

99% Occupied Bandwidth



Conduction Power Measurement (for 802.11a)



3.2. Limits

3.2.1. For the band 5.15-5.25 GHz,

(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W, provided the maximum antenna gain does not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, if transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, if transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

3.2.2. For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$, where B is the 26 dB emission bandwidth in megahertz. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

3.2.3. For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, if transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point UNII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any

corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

3.3. Test Procedure

As an alternative to FCC KDB-789033, the EUT maximum conducted output power was measured with an average power meter employing a video bandwidth greater the 6dB BW of the emission under test. Maximum conducted output power was read directly from the meter across all data rates, and across three channels within each sub-band. Special care was used to make sure that the EUT was transmitting in continuous mode. This method exceeds the limitations of FCC KDB-789033, and provides more accurate measurements.

802.11an (BW \leq 40MHz) Maximum conducted output power using KDB 789033 section E)3)b) Method PM-G (Measurement using a gated RF average power meter)

Note: the power meter have a video bandwidth that is greater than or equal to the measurement bandwidth, (Anritsu/ MA2411B video bandwidth: 65MHz)

802.11ac (BW=80MHz) Maximum conducted output power using KDB 789033 section E)2)b) Method SA-1 (trace averaging with the EUT transmitting at full power throughout each sweep).

When transmitted signals consist of two or more non-contiguous spectrum segments (e.g., 80+80 MHz mode) or when a single spectrum segment of a transmission crosses the boundary between two adjacent U-NII bands, KDB 644545 D01 section F) procedure is used for measurements.

3.4. Uncertainty

\pm 1.62 dB

3.5. Test Result of Maximum conducted output power

Product : WiFi abgn module
 Test Item : Maximum conducted output power
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11a-6Mbps)
 Test Date : 2016/10/28

Cable loss=1dB		Maximum conducted output power							
Channel No.	Frequency (MHz)	Data Rate (Mbps)							
		6	9	12	18	24	36	48	54
		Measurement Level (dBm)							
36	5180	11.43	--	--	--	--	--	--	--
40	5200	12.07	11.82	11.56	11.23	10.97	10.72	10.47	10.22
48	5240	4.58	--	--	--	--	--	--	--
149	5745	7.78	--	--	--	--	--	--	--
157	5785	10.73	10.52	10.24	10.02	9.76	9.54	9.26	8.93
165	5825	10.62	--	--	--	--	--	--	--

Note: Maximum conducted output power Value =Reading value on average power meter + cable loss

Maximum conducted output power Measurement:

Channel No	Frequency Range (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Output Power Limit	
				(dBm)	dBm+10log(BW)
36	5180	--	11.43	30	--
40	5200	--	12.07	30	--
48	5240	--	4.58	30	--
149	5745	--	7.78	30	--
157	5785	--	10.73	30	--
165	5825	--	10.62	30	--

Note: Power Output Value =Reading value on average power meter + cable loss

Product : WiFi abgn module
 Test Item : Maximum conducted output power
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps)
 Test Date : 2016/10/28

Cable loss=1dB		Maximum conducted output power							
Channel No.	Frequency (MHz)	Data Rate (Mbps)							
		7.2	14.4	21.7	28.9	43.3	57.8	65	72.2
		Measurement Level (dBm)							
36	5180	11.08	--	--	--	--	--	--	--
40	5200	11.21	10.97	10.72	10.47	10.21	10.02	9.73	9.43
48	5240	3.88	--	--	--	--	--	--	--
149	5745	7.25	--	--	--	--	--	--	--
157	5785	10.72	10.66	10.58	10.47	10.22	9.98	9.75	9.47
165	5825	7.18	--	--	--	--	--	--	--

Note: Maximum conducted output power Value =Reading value on average power meter + cable loss

Maximum conducted output power Measurement:

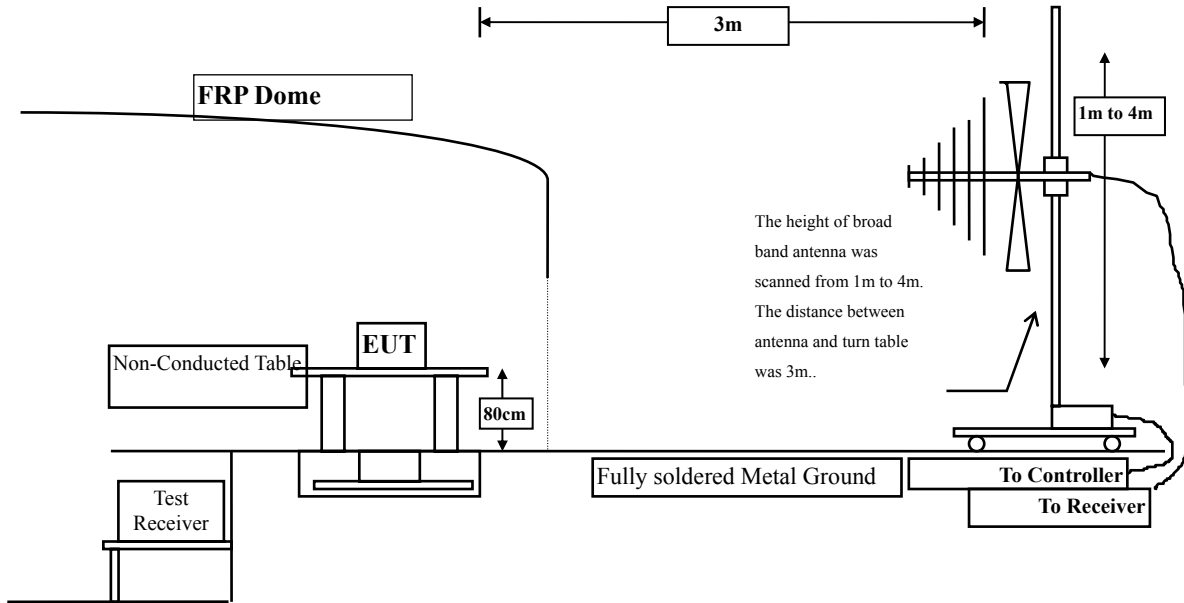
Channel No	Frequency Range (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Output Power Limit	
				(dBm)	dBm+10log(BW)
36	5180	--	11.08	30	--
40	5200	--	11.21	30	--
48	5240	--	3.88	30	--
149	5745	--	7.25	30	--
157	5785	--	10.72	30	--
165	5825	--	7.18	30	--

Note: Power Output Value =Reading value on average power meter + cable loss

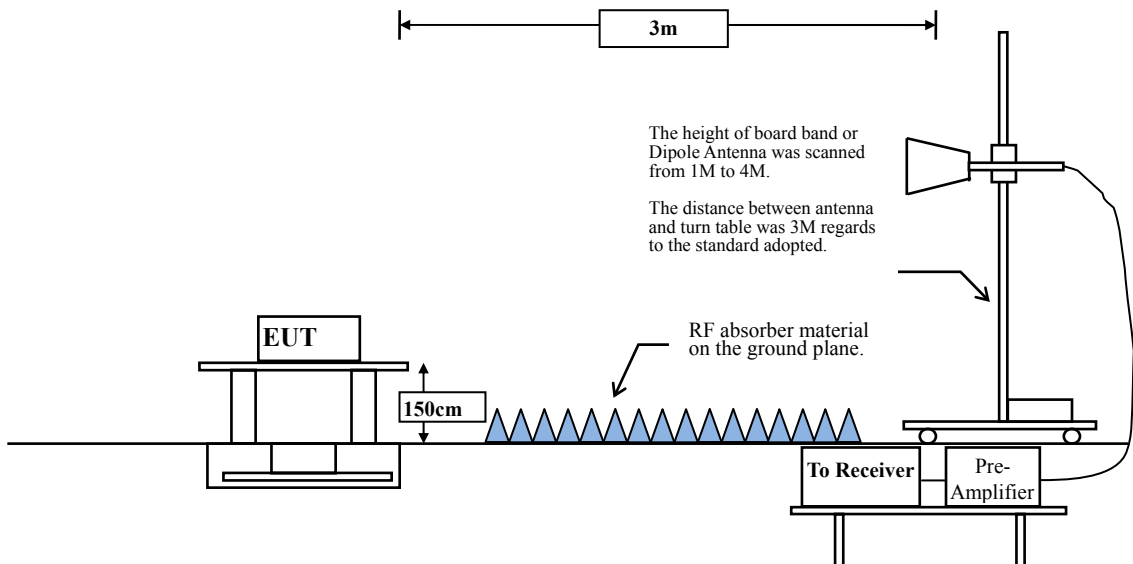
4. Radiated Emission

4.1. Test Setup

Radiated Emission Below 1GHz



Radiated Emission Above 1GHz



4.2. 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(a) 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: E field strength (dB μ V/m) = 20 log E field strength (uV/m)

4.3. Test Procedure

The EUT was setup according to ANSI C63.10, 2013 and tested according to FCC KDB-789033 test procedure for compliance to FCC 47CFR 15. 407 requirements.

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

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

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

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

The resolution bandwidth below 30MHz setting on the field strength meter is 9kHz and 30MHz~1GHz is 120kHz and above 1GHz is 1MHz.

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

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

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

The worst radiated emission is measured in the Open Area Test Site on the Final Measurement.

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

4.4. Uncertainty

± 4.08 dB above 1GHz

± 4.22 dB below 1GHz

4.5. Test Result of Radiated Emission

Product : WiFi abgn module
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11a-6Mbps) (5180MHz) - CWT / 2AAJ012F US
 Test Date : 2016/10/27

Frequency MHz	Correct Factor dB	Reading Level dBμV	Measurement Level dBμV/m	Margin dB	Limit dBμV/m
Horizontal					
Peak Detector:					
10360.000	8.414	43.680	52.094	-21.906	74.000
15540.000	*	*	*	*	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
31080.000	*	*	*	*	74.000
36260.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*
Vertical					
Peak Detector:					
10360.000	9.918	42.640	52.557	-21.443	74.000
15540.000	*	*	*	*	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
31080.000	*	*	*	*	74.000
36260.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*

Note:

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

Product : WiFi abgn module
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11a-6Mbps) (5220MHz) - CWT / 2AAJ012F US
 Test Date : 2016/10/27

Frequency MHz	Correct Factor dB	Reading Level dBμV	Measurement Level dBμV/m	Margin dB	Limit dBμV/m
Horizontal					
Peak Detector:					
10400.000	7.904	40.950	48.854	-25.146	74.000
15660.000	*	*	*	*	74.000
20880.000	*	*	*	*	74.000
26100.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*
Vertical					
Peak Detector:					
10400.000	9.531	40.880	50.411	-23.589	74.000
15660.000	*	*	*	*	74.000
20880.000	*	*	*	*	74.000
26100.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*

Note:

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

Product : WiFi abgn module
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11a-6Mbps) (5240MHz) - CWT / 2AAJ012F US
 Test Date : 2016/10/27

Frequency MHz	Correct Factor dB	Reading Level dBμV	Measurement Level dBμV/m	Margin dB	Limit dBμV/m
Horizontal					
Peak Detector:					
10480.000	7.974	40.260	48.234	-25.766	74.000
15720.000	*	*	*	*	74.000
20960.000	*	*	*	*	74.000
26200.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*
Vertical					
Peak Detector:					
10480.000	9.909	40.530	50.440	-23.560	74.000
15720.000	*	*	*	*	74.000
20960.000	*	*	*	*	74.000
26200.000	*	*	*	*	74.000
Average Detector:					
--					

Note:

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

Product : WiFi abgn module
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11a-6Mbps) (5745MHz) - CWT / 2AAJ012F US
 Test Date : 2016/10/27

Frequency MHz	Correct Factor dB	Reading Level dB μ V	Measurement Level dB μ V/m	Margin dB	Limit dB μ V/m
Horizontal					
Peak Detector:					
11490.000	11.332	39.920	51.251	-22.749	74.000
17235.000	*	*	*	*	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
31080.000	*	*	*	*	74.000
36260.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*
Vertical					
Peak Detector:					
11490.000	12.848	39.230	52.077	-21.923	74.000
17235.000	*	*	*	*	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
31080.000	*	*	*	*	74.000
36260.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*

Note:

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

Product : WiFi abgn module
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11a-6Mbps) (5785MHz) - CWT / 2AAJ012F US
 Test Date : 2016/10/27

Frequency MHz	Correct Factor dB	Reading Level dB μ V	Measurement Level dB μ V/m	Margin dB	Limit dB μ V/m
Horizontal					
Peak Detector:					
11570.000	11.624	39.990	51.614	-22.386	74.000
17355.000	*	*	*	*	74.000
20800.000	*	*	*	*	74.000
26000.000	*	*	*	*	74.000
31200.000	*	*	*	*	74.000
36400.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*
Vertical					
Peak Detector:					
11570.000	12.990	39.780	52.769	-21.231	74.000
17355.000	*	*	*	*	74.000
20800.000	*	*	*	*	74.000
26000.000	*	*	*	*	74.000
31200.000	*	*	*	*	74.000
36400.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*

Note:

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

Product : WiFi abgn module
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11a-6Mbps) (5825MHz) - CWT / 2AAJ012F US
 Test Date : 2016/10/27

Frequency MHz	Correct Factor dB	Reading Level dB μ V	Measurement Level dB μ V/m	Margin dB	Limit dB μ V/m
Horizontal					
Peak Detector:					
11650.000	10.756	38.070	48.826	-25.174	74.000
17475.000	*	*	*	*	74.000
20960.000	*	*	*	*	74.000
26200.000	*	*	*	*	74.000
31440000	*	*	*	*	74.000
*	*	*	*	*	*
Average Detector:					
11650.000	*	*	*	*	54.000
Vertical					
Peak Detector:					
11650.000	12.211	38.500	50.711	-23.289	74.000
17475.000	*	*	*	*	74.000
20960.000	*	*	*	*	74.000
26200.000	*	*	*	*	74.000
31440000	*	*	*	*	74.000
36680.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*

Note:

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

Product : WiFi abgn module
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) (5180MHz) - CWT / 2AAJ012F US
 Test Date : 2016/10/27

Frequency MHz	Correct Factor dB	Reading Level dBμV	Measurement Level dBμV/m	Margin dB	Limit dBμV/m
Horizontal					
Peak Detector:					
10360.000	8.414	42.580	50.994	-23.006	74.000
15540.000	*	*	*	*	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*
Vertical					
Peak Detector:					
10360.000	9.918	41.810	51.727	-22.273	74.000
15540.000	*	*	*	*	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*

Note:

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

Product : WiFi abgn module
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) (5220MHz) - CWT / 2AAJ012F US
 Test Date : 2016/10/27

Frequency MHz	Correct Factor dB	Reading Level dB μ V	Measurement Level dB μ V/m	Margin dB	Limit dB μ V/m
Horizontal					
Peak Detector:					
10440.000	7.516	43.680	51.195	-22.805	74.000
15660.000	*	*	*	*	74.000
20880.000	*	*	*	*	74.000
26100.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*
Vertical					
Peak Detector:					
10440.000	9.296	43.680	52.976	-21.024	74.000
15660.000	*	*	*	*	74.000
20880.000	*	*	*	*	74.000
26100.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*

Note:

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

Product : WiFi abgn module
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) (5240MHz) - CWT / 2AAJ012F US
 Test Date : 2016/10/27

Frequency MHz	Correct Factor dB	Reading Level dB μ V	Measurement Level dB μ V/m	Margin dB	Limit dB μ V/m
Horizontal					
Peak Detector:					
10480.000	7.974	40.360	48.334	-25.666	74.000
15720.000	*	*	*	*	74.000
20960.000	*	*	*	*	74.000
26200.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*
Vertical					
Peak Detector:					
10480.000	9.909	40.500	50.410	-23.590	74.000
15720.000	*	*	*	*	74.000
20960.000	*	*	*	*	74.000
26200.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*

Note:

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

Product : WiFi abgn module
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) (5745MHz) - CWT / 2AAJ012F US
 Test Date : 2016/10/27

Frequency MHz	Correct Factor dB	Reading Level dB μ V	Measurement Level dB μ V/m	Margin dB	Limit dB μ V/m
Horizontal					
Peak Detector:					
11490.000	11.332	39.070	50.401	-23.599	74.000
17235.000	*	*	*	*	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
31080.000	*	*	*	*	74.000
36260.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*
Vertical					
Peak Detector:					
11490.000	11.332	39.070	50.401	-23.599	74.000
17235.000	*	*	*	*	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
31080.000	*	*	*	*	74.000
36260.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*

Note:

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

Product : WiFi abgn module
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) (5785MHz) - CWT / 2AAJ012F US
 Test Date : 2016/10/27

Frequency MHz	Correct Factor dB	Reading Level dB μ V	Measurement Level dB μ V/m	Margin dB	Limit dB μ V/m
Horizontal					
Peak Detector:					
11570.000	11.624	39.990	51.614	-22.386	74.000
17355.000	*	*	*	*	74.000
20880.000	*	*	*	*	74.000
26100.000	*	*	*	*	74.000
31320.000	*	*	*	*	74.000
36540.000	*	*	*	*	74.000
Average					
Detector:					
*	*	*	*	*	*
Vertical					
Peak Detector:					
11570.000	12.990	40.670	53.659	-20.341	74.000
17355.000	*	*	*	*	74.000
20880.000	*	*	*	*	74.000
26100.000	*	*	*	*	74.000
31320.000	*	*	*	*	74.000
36540.000	*	*	*	*	74.000
Average					
Detector:					
*	*	*	*	*	*

Note:

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

Product : WiFi abgn module
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) (5825MHz) - CWT / 2AAJ012F US
 Test Date : 2016/10/27

Frequency MHz	Correct Factor dB	Reading Level dB μ V	Measurement Level dB μ V/m	Margin dB	Limit dB μ V/m
Horizontal					
Peak Detector:					
11650.000	10.756	38.520	49.276	-24.724	74.000
17475.000	*	*	*	*	74.000
20960.000	*	*	*	*	74.000
26200.000	*	*	*	*	74.000
31440.000	*	*	*	*	74.000
36680.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*
Vertical					
Peak Detector:					
11650.000	12.211	38.600	50.811	-23.189	74.000
17475.000	*	*	*	*	74.000
20960.000	*	*	*	*	74.000
26200.000	*	*	*	*	74.000
31440.000	*	*	*	*	74.000
36680.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*

Note:

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

Product : WiFi abgn module
 Test Item : General Radiated Emission
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11a-6Mbps) (5220MHz) - CWT / 2AAJ012F US
 Test Date : 2016/10/27

Frequency MHz	Correct Factor dB	Reading Level dB μ V	Measurement Level dB μ V/m	Margin dB	Limit dB μ V/m
Horizontal					
Peak Detector					
266.680	-5.510	48.144	42.634	-3.366	46.000
361.740	-0.006	34.901	34.894	-11.106	46.000
400.540	0.942	35.097	36.039	-9.961	46.000
666.320	1.879	29.281	31.160	-14.840	46.000
800.180	6.417	30.274	36.691	-9.309	46.000
934.040	6.956	27.655	34.611	-11.389	46.000
Vertical					
Peak Detector					
266.680	-5.600	41.650	36.050	-9.950	46.000
375.320	0.388	28.540	28.928	-17.072	46.000
534.400	1.272	25.641	26.913	-19.087	46.000
755.560	2.829	26.056	28.885	-17.115	46.000
802.120	2.966	27.067	30.033	-15.967	46.000
934.040	2.986	28.667	31.653	-14.347	46.000

Note:

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

Product : WiFi abgn module
 Test Item : General Radiated Emission
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11a-6Mbps) (5785MHz) - CWT / 2AAJ012F US
 Test Date : 2016/10/27

Frequency MHz	Correct Factor dB	Reading Level dBµV	Measurement Level dBµV/m	Margin dB	Limit dBµV/m
Horizontal					
Peak Detector					
266.680	-5.510	48.061	42.551	-3.449	46.000
400.540	0.942	36.229	37.171	-8.829	46.000
532.460	3.099	26.749	29.848	-16.152	46.000
666.320	1.879	27.956	29.835	-16.165	46.000
802.120	6.356	31.542	37.898	-8.102	46.000
934.040	6.956	27.114	34.070	-11.930	46.000
Vertical					
Peak Detector					
266.680	-5.600	42.069	36.469	-9.531	46.000
377.260	0.647	28.264	28.911	-17.089	46.000
534.400	1.272	27.000	28.272	-17.728	46.000
687.660	2.292	23.544	25.836	-20.164	46.000
802.120	2.966	26.828	29.794	-16.206	46.000
934.040	2.986	29.274	32.260	-13.740	46.000

Note:

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

Product : WiFi abgn module
 Test Item : General Radiated Emission
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) (5220MHz)
 - CWT / 2AAJ012F US
 Test Date : 2016/10/27

Frequency MHz	Correct Factor dB	Reading Level dBµV	Measurement Level dBµV/m	Margin dB	Limit dBµV/m
Horizontal					
Peak Detector					
266.680	-5.510	48.353	42.843	-3.157	46.000
373.380	0.873	34.136	35.009	-10.991	46.000
534.400	3.162	27.597	30.759	-15.241	46.000
666.320	1.879	29.916	31.795	-14.205	46.000
800.180	6.417	30.479	36.896	-9.104	46.000
934.040	6.956	27.237	34.193	-11.807	46.000
Vertical					
Peak Detector					
266.680	-5.600	41.750	36.150	-9.850	46.000
381.140	0.816	26.837	27.653	-18.347	46.000
534.400	1.272	28.639	29.911	-16.089	46.000
610.060	2.087	25.461	27.548	-18.452	46.000
802.120	2.966	27.552	30.518	-15.482	46.000
934.040	2.986	29.602	32.588	-13.412	46.000

Note:

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

Product : WiFi abgn module
 Test Item : General Radiated Emission
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) (5785MHz)
 - CWT / 2AAJ012F US
 Test Date : 2016/10/27

Frequency MHz	Correct Factor dB	Reading Level dBμV	Measurement Level dBμV/m	Margin dB	Limit dBμV/m
Horizontal					
Peak Detector					
266.680	-5.510	48.245	42.735	-3.265	46.000
379.200	1.301	34.517	35.818	-10.182	46.000
400.540	0.942	32.829	33.771	-12.229	46.000
532.460	3.099	28.012	31.111	-14.889	46.000
800.180	6.417	29.799	36.216	-9.784	46.000
934.040	6.956	27.040	33.996	-12.004	46.000
Vertical					
Peak Detector					
266.680	-5.600	41.779	36.179	-9.821	46.000
381.140	0.816	30.814	31.630	-14.370	46.000
534.400	1.272	27.713	28.985	-17.015	46.000
610.060	2.087	28.071	30.158	-15.842	46.000
802.120	2.966	27.379	30.345	-15.655	46.000
934.040	2.986	29.259	32.245	-13.755	46.000

Note:

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

Product : WiFi abgn module
 Test Item : General Radiated Emission
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11a-6Mbps) (5220MHz)
 - BILLION / BA018-120100CXX
 Test Date : 2016/10/29

Frequency MHz	Correct Factor dB	Reading Level dB μ V	Measurement Level dB μ V/m	Margin dB	Limit dB μ V/m
Horizontal					
Peak Detector					
37.760	-2.539	33.022	30.484	-9.516	40.000
123.120	-7.320	34.079	26.759	-16.741	43.500
266.680	-5.510	41.293	35.783	-10.217	46.000
460.680	4.030	29.660	33.690	-12.310	46.000
608.120	3.925	30.010	33.935	-12.065	46.000
761.380	5.145	30.096	35.240	-10.760	46.000
Vertical					
Peak Detector					
266.680	-5.600	40.110	34.510	-11.490	46.000
390.840	-0.768	29.045	28.277	-17.723	46.000
534.400	1.272	30.944	32.216	-13.784	46.000
687.660	2.292	29.045	31.337	-14.663	46.000
802.120	2.966	30.519	33.485	-12.515	46.000
941.800	3.460	29.385	32.845	-13.155	46.000

Note:

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

Product : WiFi abgn module
 Test Item : General Radiated Emission
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11a-6Mbps) (5785MHz)
 - BILLION / BA018-120100CXX
 Test Date : 2016/10/29

Frequency MHz	Correct Factor dB	Reading Level dB μ V	Measurement Level dB μ V/m	Margin dB	Limit dB μ V/m
Horizontal					
Peak Detector					
123.120	-7.320	33.565	26.245	-17.255	43.500
266.680	-5.510	40.631	35.121	-10.879	46.000
388.900	1.034	30.222	31.256	-14.744	46.000
524.700	3.140	29.745	32.885	-13.115	46.000
800.180	6.417	30.072	36.489	-9.511	46.000
984.480	8.098	29.082	37.180	-16.820	54.000
Vertical					
Peak Detector					
177.440	-1.248	29.354	28.106	-15.394	43.500
266.680	-5.600	40.234	34.634	-11.366	46.000
400.540	-2.868	31.190	28.322	-17.678	46.000
602.300	1.704	29.059	30.763	-15.237	46.000
755.560	2.829	29.059	31.888	-14.112	46.000
949.560	3.156	30.456	33.612	-12.388	46.000

Note:

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

Product : WiFi abgn module
 Test Item : General Radiated Emission
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) (5220MHz)
 - BILLION / BA018-120100CXX
 Test Date : 2016/10/29

Frequency MHz	Correct Factor dB	Reading Level dBμV	Measurement Level dBμV/m	Margin dB	Limit dBμV/m
Horizontal					
Peak Detector					
123.120	-7.320	33.750	26.430	-17.070	43.500
266.680	-5.510	40.797	35.287	-10.713	46.000
416.060	-0.221	29.045	28.824	-17.176	46.000
544.100	4.373	31.237	35.610	-10.390	46.000
800.180	6.417	32.164	38.581	-7.419	46.000
945.680	6.910	29.282	36.192	-9.808	46.000
Vertical					
Peak Detector					
266.680	-5.600	39.814	34.214	-11.786	46.000
377.260	0.647	30.429	31.076	-14.924	46.000
511.120	0.783	29.469	30.252	-15.748	46.000
687.660	2.292	29.923	32.215	-13.785	46.000
823.460	3.081	30.885	33.966	-12.034	46.000
965.080	3.832	28.717	32.549	-21.451	54.000

Note:

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

Product : WiFi abgn module
 Test Item : General Radiated Emission
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) (5785MHz)
 - BILLION / BA018-120100CXX
 Test Date : 2016/10/29

Frequency MHz	Correct Factor dB	Reading Level dBμV	Measurement Level dBμV/m	Margin dB	Limit dBμV/m
Horizontal					
Peak Detector					
35.820	-1.445	31.011	29.566	-10.434	40.000
121.180	-7.289	33.923	26.634	-16.866	43.500
266.680	-5.510	41.205	35.695	-10.305	46.000
470.380	3.550	29.420	32.970	-13.030	46.000
676.020	2.841	29.468	32.310	-13.690	46.000
829.280	7.376	30.405	37.781	-8.219	46.000
Vertical					
Peak Detector					
78.500	-5.604	33.680	28.076	-11.924	40.000
266.680	-5.600	39.135	33.535	-12.465	46.000
379.200	0.881	29.068	29.949	-16.051	46.000
604.240	2.199	29.590	31.790	-14.210	46.000
802.120	2.966	31.368	34.334	-11.666	46.000
968.960	3.936	30.149	34.085	-19.915	54.000

Note:

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

Product : WiFi abgn module
 Test Item : General Radiated Emission
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11a-6Mbps) (5220MHz)
 - BILLION / BA018-120100AXU
 Test Date : 2016/10/29

Frequency MHz	Correct Factor dB	Reading Level dBµV	Measurement Level dBµV/m	Margin dB	Limit dBµV/m
Horizontal					
Peak Detector					
266.680	-5.510	43.936	38.426	-7.574	46.000
468.440	3.544	29.434	32.978	-13.022	46.000
596.480	3.587	29.591	33.178	-12.822	46.000
763.320	5.113	29.745	34.858	-11.142	46.000
891.360	6.265	30.274	36.539	-9.461	46.000
957.320	6.615	31.505	38.120	-7.880	46.000
Vertical					
Peak Detector					
266.680	-5.600	41.370	35.770	-10.230	46.000
377.260	0.647	29.746	30.393	-15.607	46.000
534.400	1.272	29.943	31.215	-14.785	46.000
685.720	2.254	29.045	31.299	-14.701	46.000
840.920	2.284	30.346	32.630	-13.370	46.000
934.040	2.986	30.116	33.102	-12.898	46.000

Note:

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

Product : WiFi abgn module
 Test Item : General Radiated Emission
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11a-6Mbps) (5785MHz)
 - BILLION / BA018-120100AXU
 Test Date : 2016/10/29

Frequency MHz	Correct Factor dB	Reading Level dB μ V	Measurement Level dB μ V/m	Margin dB	Limit dB μ V/m
Horizontal					
Peak Detector					
266.680	-5.510	43.025	37.515	-8.485	46.000
367.560	0.592	30.757	31.348	-14.652	46.000
516.940	3.200	29.468	32.668	-13.332	46.000
687.660	3.302	31.077	34.379	-11.621	46.000
854.500	7.380	29.433	36.813	-9.187	46.000
949.560	7.036	29.318	36.354	-9.646	46.000
Vertical					
Peak Detector					
266.680	-5.600	41.895	36.295	-9.705	46.000
400.540	-2.868	30.837	27.969	-18.031	46.000
542.160	1.855	29.069	30.924	-15.076	46.000
689.600	2.302	29.008	31.310	-14.690	46.000
802.120	2.966	30.855	33.821	-12.179	46.000
949.560	3.156	29.490	32.646	-13.354	46.000

Note:

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

Product : WiFi abgn module
 Test Item : General Radiated Emission
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) (5220MHz)
 - BILLION / BA018-120100AXU
 Test Date : 2016/10/29

Frequency MHz	Correct Factor dB	Reading Level dBμV	Measurement Level dBμV/m	Margin dB	Limit dBμV/m
Horizontal					
Peak Detector					
266.680	-5.510	43.094	37.584	-8.416	46.000
381.140	1.386	32.964	34.350	-11.650	46.000
546.040	4.386	29.604	33.990	-12.010	46.000
765.260	5.091	31.106	36.197	-9.803	46.000
829.280	7.376	29.246	36.622	-9.378	46.000
978.660	7.163	30.358	37.521	-16.479	54.000
Vertical					
Peak Detector					
266.680	-5.600	39.873	34.273	-11.727	46.000
377.260	0.647	29.548	30.195	-15.805	46.000
542.160	1.855	28.864	30.719	-15.281	46.000
687.660	2.292	29.604	31.896	-14.104	46.000
821.520	3.036	30.018	33.054	-12.946	46.000
939.860	3.400	30.589	33.989	-12.011	46.000

Note:

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

Product : WiFi abgn module
 Test Item : General Radiated Emission
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) (5785MHz)
 - BILLION / BA018-120100AXU
 Test Date : 2016/10/29

Frequency MHz	Correct Factor dB	Reading Level dBμV	Measurement Level dBμV/m	Margin dB	Limit dBμV/m
Horizontal					
Peak Detector					
266.680	-5.510	42.941	37.431	-8.569	46.000
460.680	4.030	28.654	32.684	-13.316	46.000
596.480	3.587	30.125	33.712	-12.288	46.000
798.240	6.409	30.117	36.525	-9.475	46.000
854.500	7.380	29.758	37.138	-8.862	46.000
986.420	8.189	29.826	38.015	-15.985	54.000
Vertical					
Peak Detector					
179.380	-0.824	30.222	29.398	-14.102	43.500
266.680	-5.600	41.381	35.781	-10.219	46.000
377.260	0.647	29.956	30.603	-15.397	46.000
542.160	1.855	29.385	31.240	-14.760	46.000
685.720	2.254	28.793	31.047	-14.953	46.000
802.120	2.966	30.866	33.832	-12.168	46.000

Note:

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

Product : WiFi abgn module
 Test Item : General Radiated Emission
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11a-6Mbps) (5220MHz)
 - Atech OEM Inc / C20C-1220AD0-S0
 Test Date : 2016/11/05

Frequency MHz	Correct Factor dB	Reading Level dBμV	Measurement Level dBμV/m	Margin dB	Limit dBμV/m
Horizontal					
Peak Detector					
123.120	-7.320	32.782	25.462	-18.038	43.500
231.760	-8.217	39.075	30.858	-15.142	46.000
340.400	-3.237	35.749	32.512	-13.488	46.000
532.460	3.099	27.325	30.424	-15.576	46.000
720.640	3.826	30.830	34.656	-11.344	46.000
934.040	6.956	26.659	33.615	-12.385	46.000
Vertical					
Peak Detector					
169.680	-4.326	33.104	28.778	-14.722	43.500
266.680	-5.600	39.618	34.018	-11.982	46.000
361.740	-0.646	32.151	31.504	-14.496	46.000
534.400	1.272	27.015	28.287	-17.713	46.000
685.720	2.254	26.189	28.443	-17.557	46.000
817.640	2.966	28.126	31.092	-14.908	46.000

Note:

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

Product : WiFi abgn module
 Test Item : General Radiated Emission
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11a-6Mbps) (5785MHz)
 - Atech OEM Inc / C20C-1220AD0-S0
 Test Date : 2016/11/05

Frequency MHz	Correct Factor dB	Reading Level dB μ V	Measurement Level dB μ V/m	Margin dB	Limit dB μ V/m
Horizontal					
Peak Detector					
266.680	-5.510	39.791	34.281	-11.719	46.000
340.400	-3.237	35.749	32.512	-13.488	46.000
532.460	3.099	27.325	30.424	-15.576	46.000
720.640	3.826	30.830	34.656	-11.344	46.000
934.040	6.956	26.659	33.615	-12.385	46.000
1000.000	9.564	25.140	34.704	-19.296	54.000
Vertical					
Peak Detector					
125.060	-3.725	31.899	28.174	-15.326	43.500
266.680	-5.600	39.618	34.018	-11.982	46.000
377.260	0.647	30.035	30.682	-15.318	46.000
534.400	1.272	27.015	28.287	-17.713	46.000
685.720	2.254	26.189	28.443	-17.557	46.000
935.980	2.820	29.463	32.283	-13.717	46.000

Note:

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

Product : WiFi abgn module
 Test Item : General Radiated Emission
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) (5220MHz)
 - Atech OEM Inc / C20C-1220AD0-S0
 Test Date : 2016/11/01

Frequency MHz	Correct Factor dB	Reading Level dB μ V	Measurement Level dB μ V/m	Margin dB	Limit dB μ V/m
Horizontal					
Peak Detector					
266.680	-5.510	39.791	34.281	-11.719	46.000
340.400	-3.237	35.749	32.512	-13.488	46.000
468.440	3.544	26.247	29.791	-16.209	46.000
705.120	2.774	31.589	34.363	-11.637	46.000
848.680	6.579	26.105	32.684	-13.316	46.000
982.540	7.679	24.413	32.092	-21.908	54.000
Vertical					
Peak Detector					
119.240	-3.571	31.640	28.070	-15.430	43.500
266.680	-5.600	39.618	34.018	-11.982	46.000
338.460	-1.640	34.519	32.878	-13.122	46.000
532.460	1.209	27.223	28.432	-17.568	46.000
751.680	2.372	26.396	28.768	-17.232	46.000
935.980	2.820	29.463	32.283	-13.717	46.000

Note:

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

Product : WiFi abgn module
 Test Item : General Radiated Emission
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) (5785MHz)
 - Atech OEM Inc / C20C-1220AD0-S0
 Test Date : 2016/11/01

Frequency MHz	Correct Factor dB	Reading Level dBμV	Measurement Level dBμV/m	Margin dB	Limit dBμV/m
Horizontal					
Peak Detector					
39.700	-3.625	35.652	32.027	-7.973	40.000
192.960	-10.095	34.274	24.179	-19.321	43.500
340.400	-3.237	35.749	32.512	-13.488	46.000
534.400	3.162	27.264	30.426	-15.574	46.000
687.660	3.302	30.843	34.145	-11.855	46.000
854.500	7.380	25.759	33.139	-12.861	46.000
Vertical					
Peak Detector					
84.320	-4.204	31.431	27.227	-12.773	40.000
338.460	-1.640	34.519	32.878	-13.122	46.000
540.220	2.169	24.741	26.910	-19.090	46.000
681.840	1.622	26.380	28.002	-17.998	46.000
844.800	2.462	25.312	27.774	-18.226	46.000
935.980	2.820	29.463	32.283	-13.717	46.000

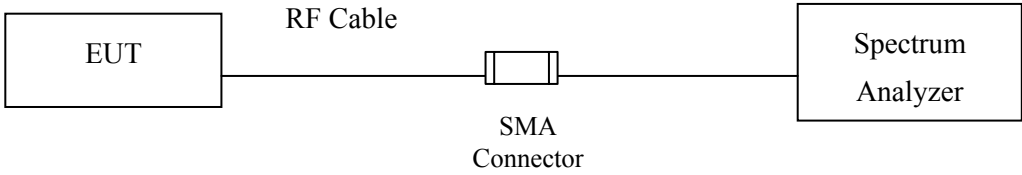
Note:

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

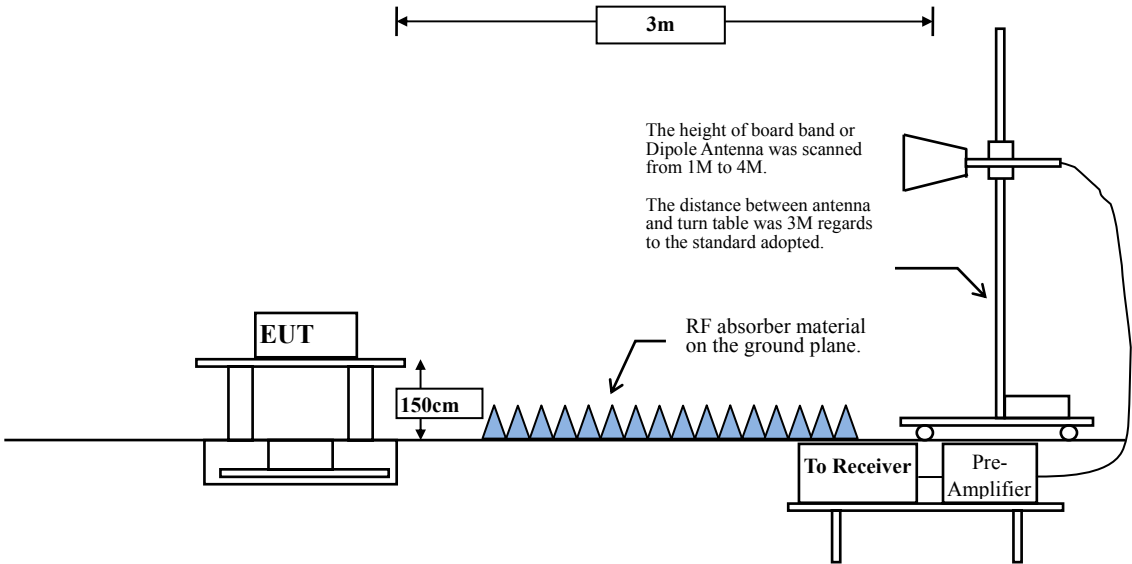
5. Band Edge

5.1. Test Setup

RF Conducted Measurement:



RF Radiated Measurement:



5.2. Limits

The provisions of Section 15.205 of this part apply to intentional radiators operating under this section.

Radiated emissions which fall in the restricted bands, as defined in Section 15.205, must also comply with the radiated emission limits specified in Section 15.209:

FCC Part 15 Subpart C Paragraph 15.209 Limits		
Frequency MHz	uV/m @3m	dBµV/m@3m
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

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

5.3. Test Procedure

The EUT is placed on a turn table which is 1.5 meter above ground. The turn table can rotate 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 can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.10:2013 on radiated measurement.

The bandwidth below 1GHz setting on the field strength meter is 120 kHz, above 1GHz are 1 MHz. The EUT was setup to ANSI C63.10, 2013; tested to UNII test procedure of FCC KDB-789033 for compliance to FCC 47CFR Subpart E requirements.

5.4. Uncertainty

± 4.08 dB above 1GHz

± 4.22 dB below 1GHz

5.5. Test Result of Band Edge

Product : WiFi abgn module
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11a-6Mbps) (5180MHz)
 Test Date : 2016/10/27

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
36 (Peak)	5148.000	1.907	68.161	70.068	74.00	54.00	Pass
36 (Peak)	5150.000	1.886	66.315	68.202	74.00	54.00	Pass
36 (Peak)	5178.200	1.601	102.606	104.208	--	--	--
36 (Average)	5150.000	1.886	43.059	44.946	74.00	54.00	Pass
36 (Average)	5181.800	1.637	92.285	93.921	--	--	--

Figure Channel 36: Horizontal (Peak)

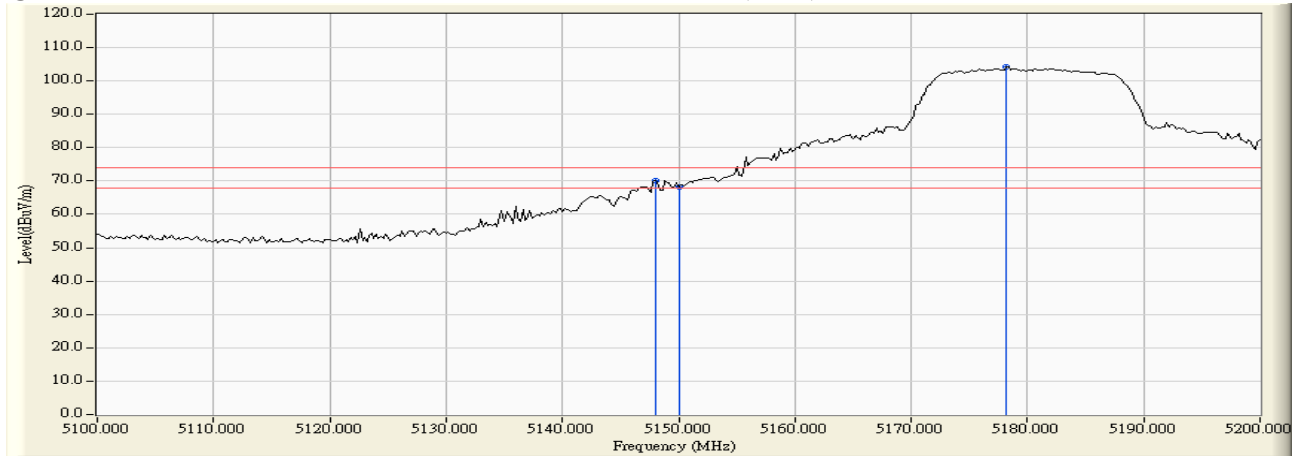
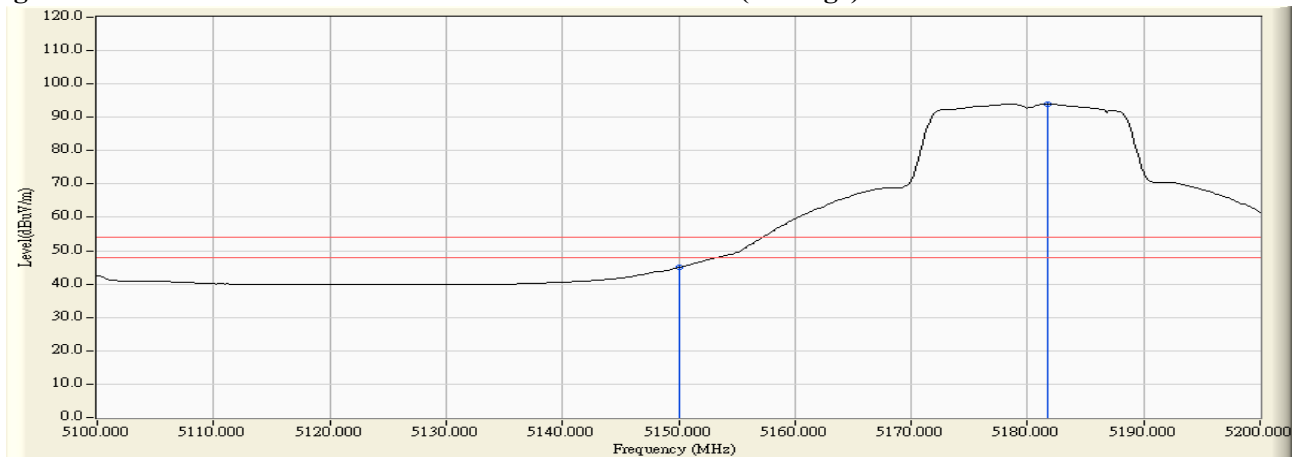


Figure Channel 36: Horizontal (Average)



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

Product : WiFi abgn module
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11a-6Mbps) (5180MHz)
 Test Date : 2016/10/27

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
36 (Peak)	5150.000	2.421	61.099	63.521	74.00	54.00	Pass
36 (Peak)	5177.200	2.366	96.264	98.630	--	--	--
36 (Average)	5150.000	2.421	39.651	42.073	74.00	54.00	Pass
36 (Average)	5181.800	2.428	86.576	89.004	--	--	--

Figure Channel 36: Vertical (Peak)

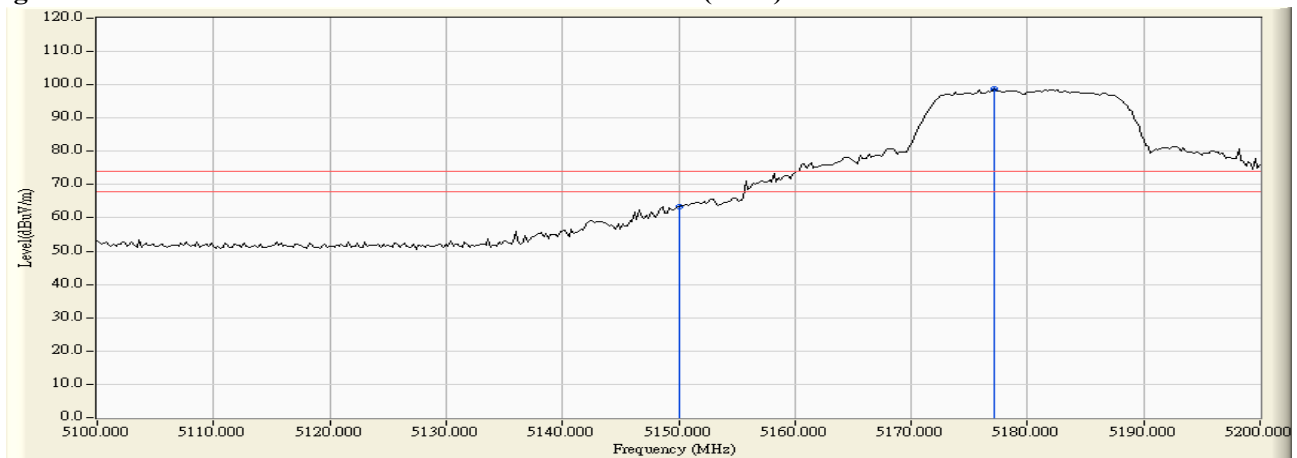
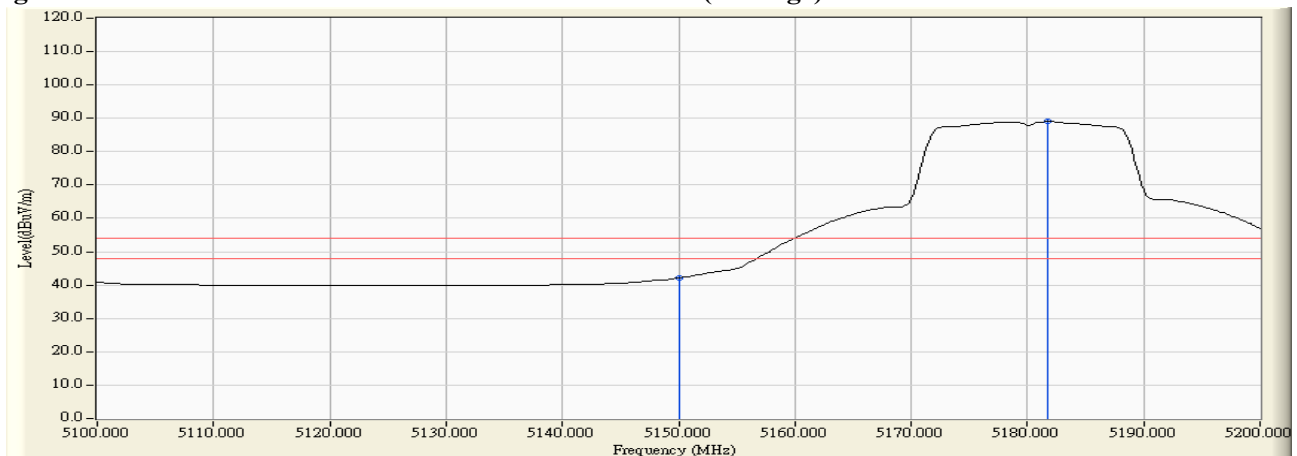


Figure Channel 36: Vertical (Average)



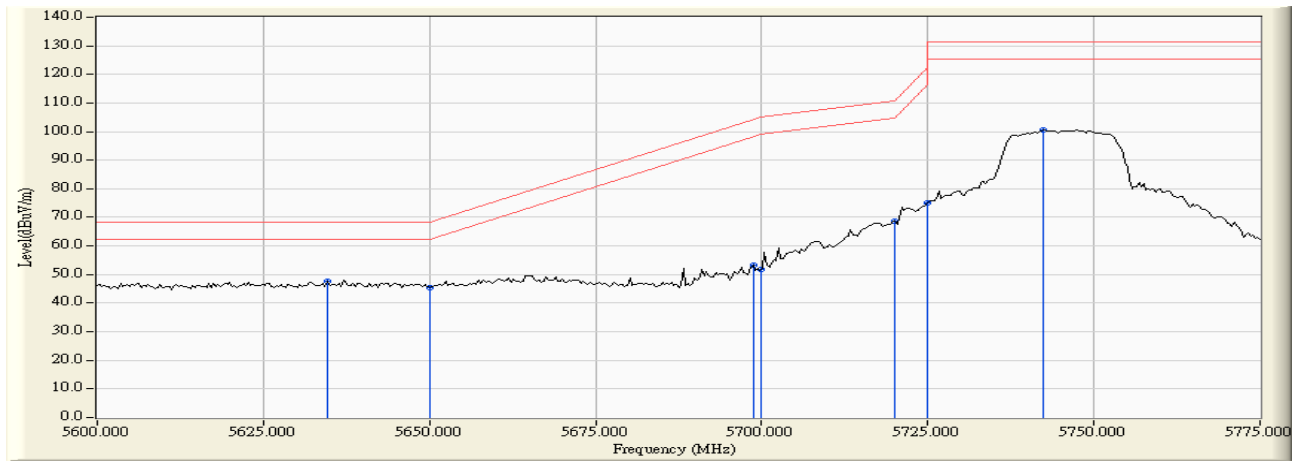
Note:

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

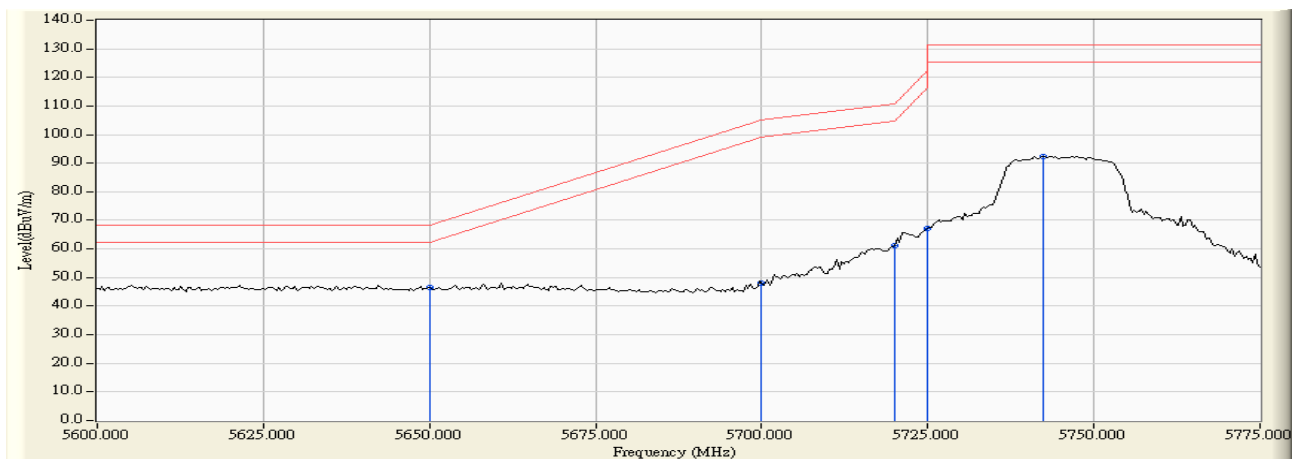
Product : WiFi abgn module
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11a-6Mbps) (5745MHz)
 Test Date : 2016/10/27

RF Radiated Measurement:

	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBm)	Measure Level (dBm/m)	Margin (dB)	Limit (dBm/m)	Result
Horizontal	5634.650	1.739	45.809	47.548	-20.672	68.220	Pass
Horizontal	5650.000	1.820	43.734	45.555	-22.665	68.220	Pass
Horizontal	5698.700	1.774	51.363	53.137	-51.102	104.239	Pass
Horizontal	5700.000	1.780	50.182	51.962	-53.238	105.200	Pass
Horizontal	5720.000	1.939	66.829	68.768	-42.032	110.800	Pass
Horizontal	5725.000	1.999	73.071	75.070	-47.130	122.200	Pass
Horizontal	5742.450	2.205	98.380	100.585	-30.615	131.200	Pass



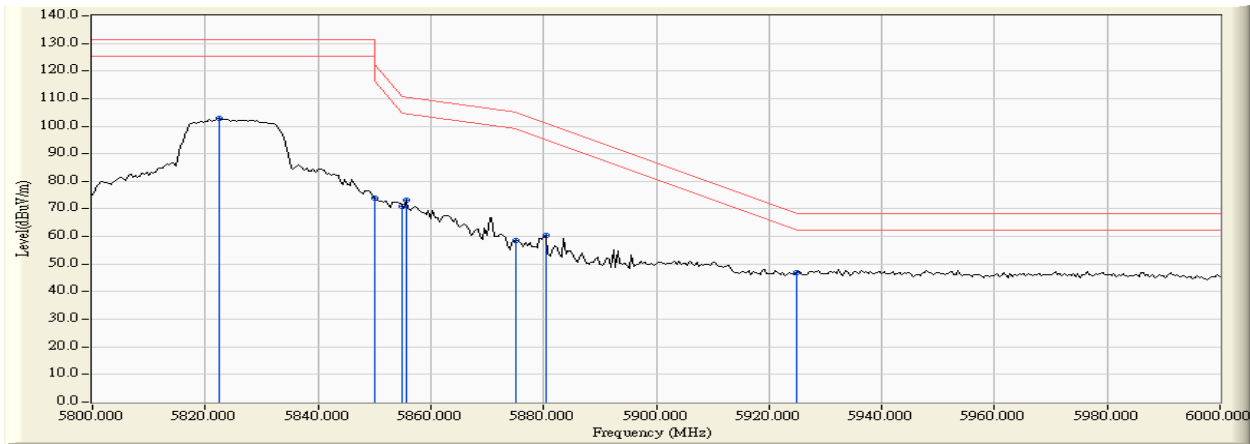
	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBm)	Measure Level (dBm/m)	Margin (dB)	Limit (dBm/m)	Result
Vertical	5650.000	1.417	45.125	46.543	-21.677	68.220	Pass
Vertical	5700.000	0.954	47.052	48.006	-57.194	105.200	Pass
Vertical	5720.000	1.056	60.122	61.178	-49.622	110.800	Pass
Vertical	5725.000	1.110	66.183	67.293	-54.907	122.200	Pass
Vertical	5742.450	1.295	91.120	92.416	-38.784	131.200	Pass



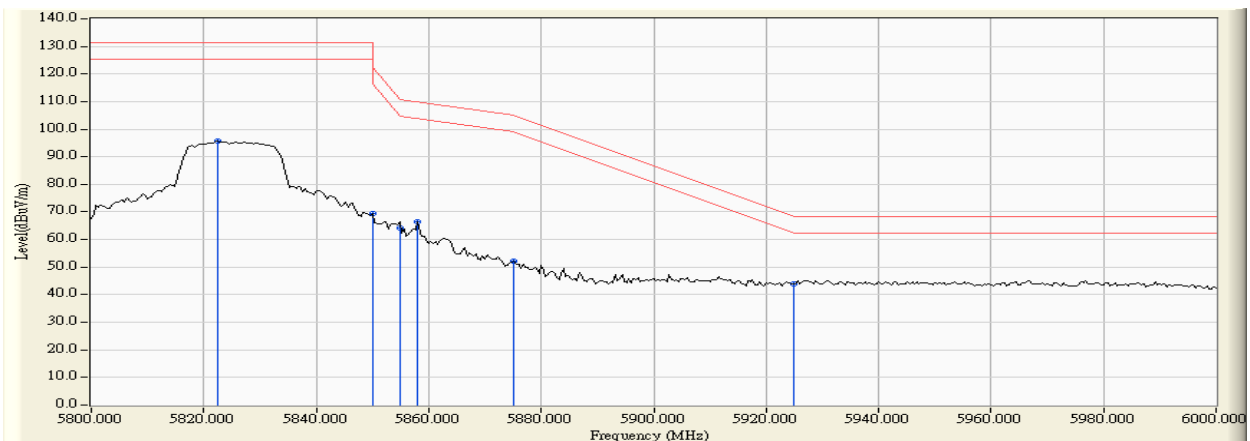
Product : WiFi abgn module
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11a-6Mbps) (5825MHz)
 Test Date : 2016/10/27

RF Radiated Measurement:

	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBm)	Measure Level (dBm/m)	Margin (dB)	Limit (dBm/m)	Result
Horizontal	5822.400	2.533	100.138	102.671	-28.529	131.200	Pass
Horizontal	5850.000	2.743	71.171	73.914	-48.286	122.200	Pass
Horizontal	5855.000	2.774	68.234	71.007	-39.793	110.800	Pass
Horizontal	5855.600	2.777	70.535	73.312	-37.320	110.632	Pass
Horizontal	5875.000	2.907	55.553	58.461	-46.739	105.200	Pass
Horizontal	5880.400	2.946	57.571	60.517	-40.687	101.204	Pass
Horizontal	5925.000	2.920	44.091	47.011	-21.189	68.200	Pass



	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBm)	Measure Level (dBm/m)	Margin (dB)	Limit (dBm/m)	Result
Vertical	5822.400	1.312	94.352	95.664	-35.536	131.200	Pass
Vertical	5850.000	1.222	68.259	69.482	-52.718	122.200	Pass
Vertical	5855.000	1.198	63.105	64.303	-46.497	110.800	Pass
Vertical	5858.000	1.183	65.068	66.251	-43.709	109.960	Pass
Vertical	5875.000	1.113	50.871	51.984	-53.216	105.200	Pass
Vertical	5925.000	0.945	42.961	43.905	-24.295	68.200	Pass



Product : WiFi abgn module
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) (5180MHz)
 Test Date : 2016/10/27

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
36 (Peak)	5149.400	1.893	67.618	69.511	74.00	54.00	Pass
36 (Peak)	5150.000	1.886	66.028	67.915	74.00	54.00	Pass
36 (Peak)	5177.000	1.614	101.485	103.099	--	--	--
36 (Average)	5150.000	1.886	41.394	43.281	74.00	54.00	Pass
36 (Average)	5181.800	1.637	91.180	92.816	--	--	--

Figure Channel 36: Horizontal (Peak)

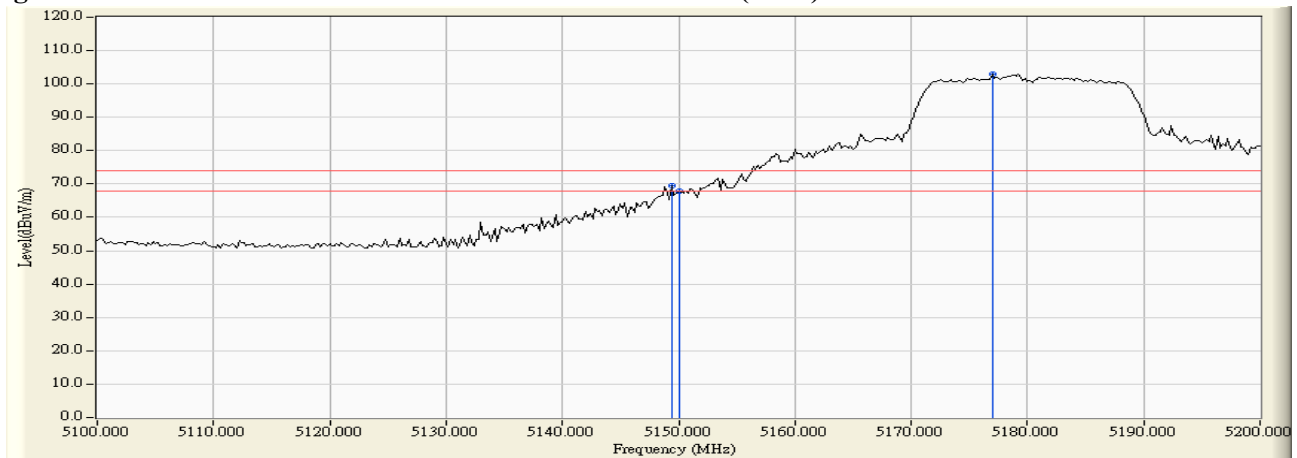
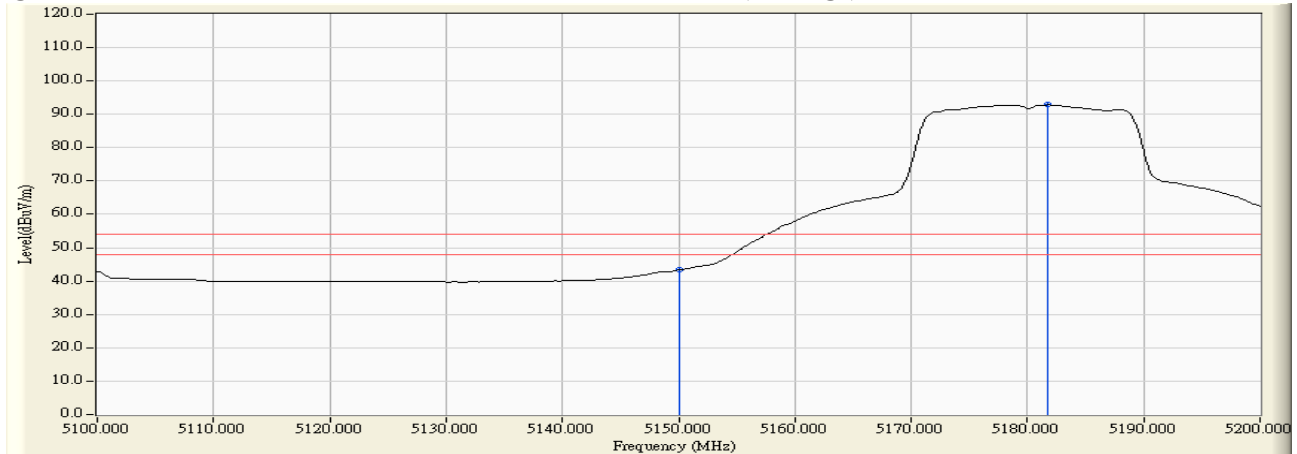


Figure Channel 36: Horizontal (Average)



Note:

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

Product : WiFi abgn module
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) (5180MHz)
 Test Date : 2016/10/27

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
36 (Peak)	5149.400	2.423	62.356	64.779	74.00	54.00	Pass
36 (Peak)	5150.000	2.421	62.053	64.475	74.00	54.00	Pass
36 (Peak)	5178.600	2.364	96.226	98.589	--	--	--
36 (Average)	5150.000	2.421	39.689	42.111	74.00	54.00	Pass
36 (Average)	5181.800	2.428	85.751	88.179	--	--	--

Figure Channel 36: Vertical (Peak)

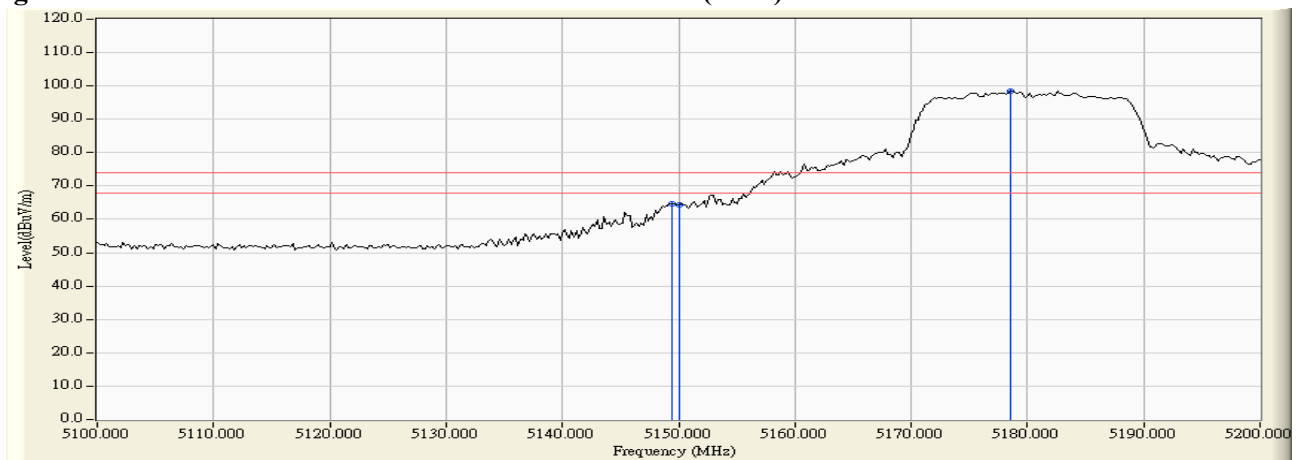
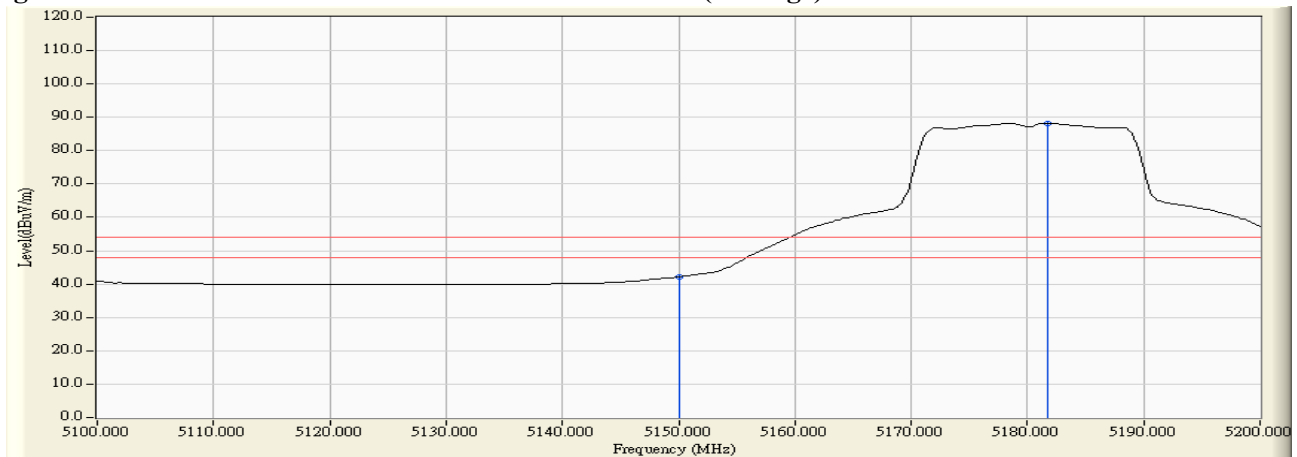


Figure Channel 36: Vertical (Average)



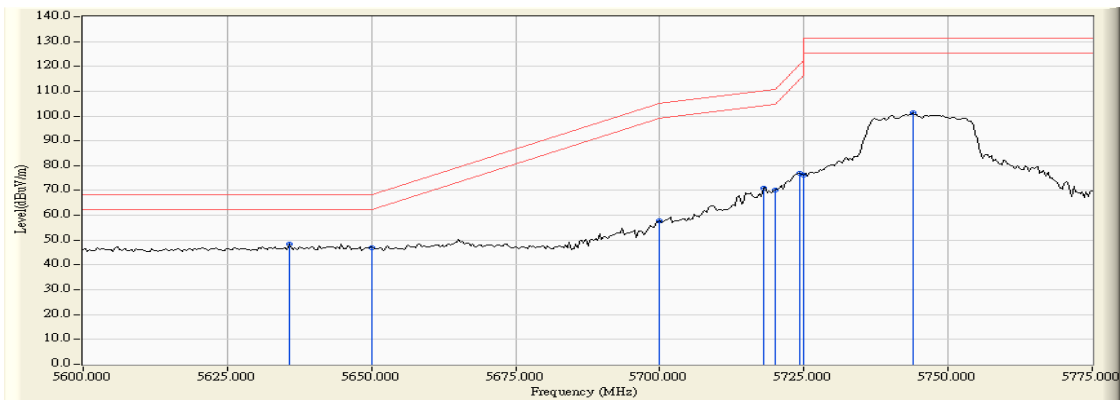
Note:

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

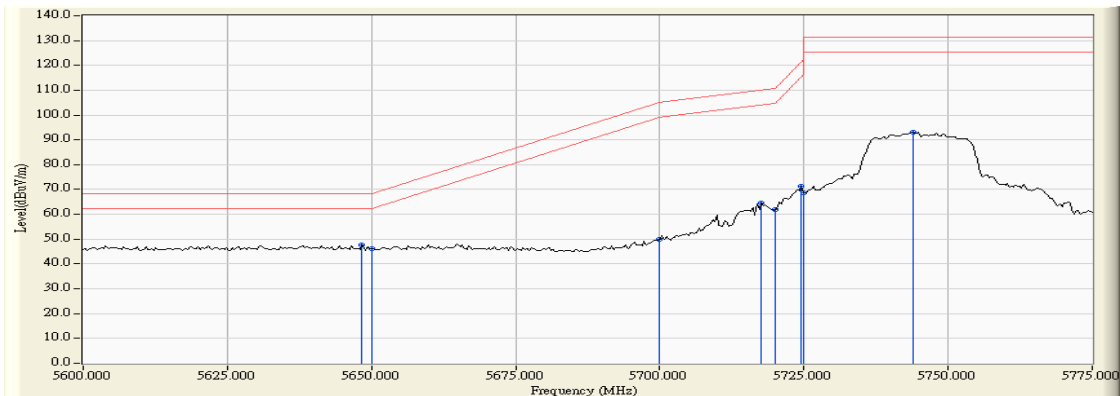
Product : WiFi abgn module
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) (5745MHz)
 Test Date : 2016/10/27

RF Radiated Measurement:

	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBm)	Measure Level (dBm/m)	Margin (dB)	Limit (dBm/m)	Result
Horizontal	5635.700	1.749	46.851	48.599	-19.621	68.220	Pass
Horizontal	5650.000	1.820	45.248	47.069	-21.151	68.220	Pass
Horizontal	5700.000	1.780	55.869	57.649	-47.551	105.200	Pass
Horizontal	5717.950	1.914	69.171	71.085	-39.141	110.226	Pass
Horizontal	5720.000	1.939	68.318	70.257	-40.543	110.800	Pass
Horizontal	5724.250	1.990	75.069	77.059	-43.431	120.490	Pass
Horizontal	5725.000	1.999	74.215	76.214	-45.986	122.200	Pass
Horizontal	5743.850	2.221	98.950	101.171	-30.029	131.200	Pass



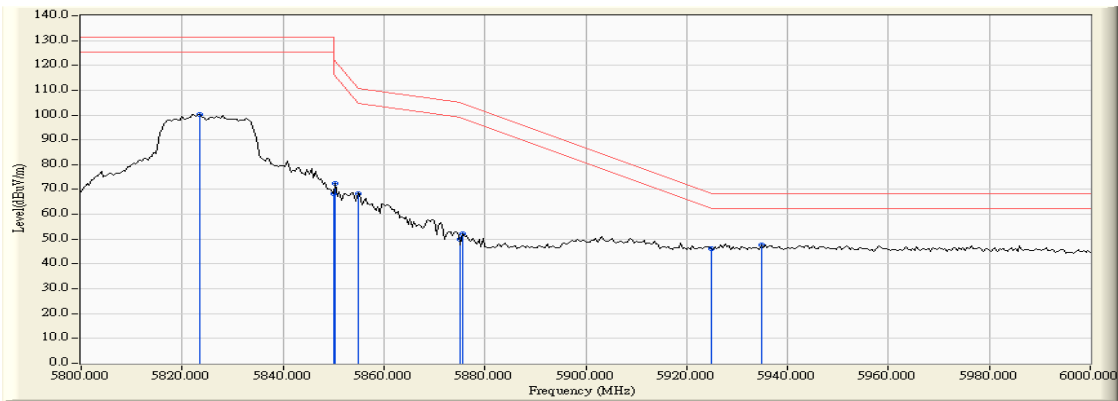
	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBm)	Measure Level (dBm/m)	Margin (dB)	Limit (dBm/m)	Result
Vertical	5648.300	1.428	46.269	47.697	-20.523	68.220	Pass
Vertical	5650.000	1.417	44.816	46.234	-21.986	68.220	Pass
Vertical	5700.000	0.954	48.799	49.753	-55.447	105.200	Pass
Vertical	5717.600	1.030	63.572	64.602	-45.526	110.128	Pass
Vertical	5720.000	1.056	60.712	61.768	-49.032	110.800	Pass
Vertical	5724.600	1.105	70.084	71.190	-50.098	121.288	Pass
Vertical	5725.000	1.110	67.521	68.631	-53.569	122.200	Pass
Vertical	5743.850	1.310	91.751	93.061	-38.139	131.200	Pass



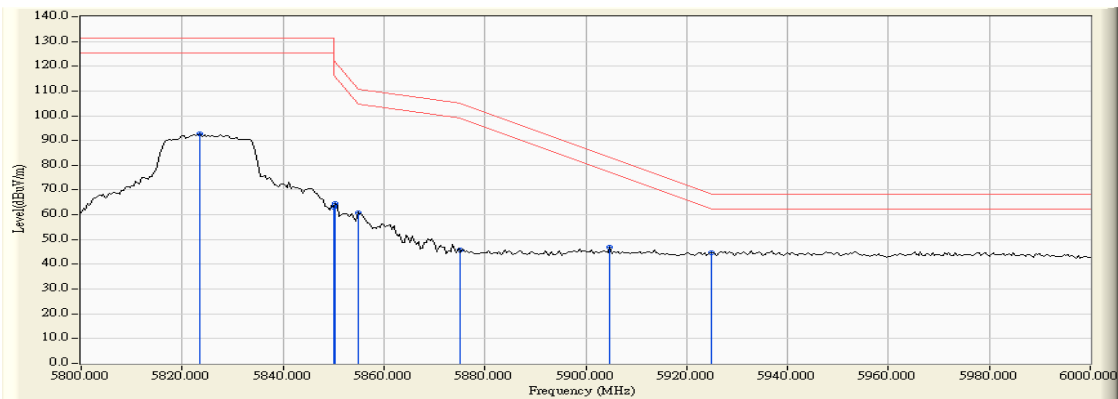
Product : WiFi abgn module
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps) (5825MHz)
 Test Date : 2016/10/27

RF Radiated Measurement:

	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBm)	Measure Level (dBm/m)	Margin (dB)	Limit (dBm/m)	Result
Horizontal	5823.600	2.542	97.804	100.346	-30.854	131.200	Pass
Horizontal	5850.000	2.743	65.437	68.180	-54.020	122.200	Pass
Horizontal	5850.400	2.746	69.762	72.508	-48.780	121.288	Pass
Horizontal	5855.000	2.774	65.686	68.459	-42.341	110.800	Pass
Horizontal	5875.000	2.907	46.834	49.742	-55.458	105.200	Pass
Horizontal	5875.600	2.912	49.148	52.060	-52.696	104.756	Pass
Horizontal	5925.000	2.920	43.099	46.019	-22.181	68.200	Pass
Horizontal	5934.800	2.879	44.702	47.581	-20.619	68.200	Pass



	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBm)	Measure Level (dBm/m)	Margin (dB)	Limit (dBm/m)	Result
Vertical	5823.600	1.308	91.523	92.832	-38.368	131.200	Pass
Vertical	5850.000	1.222	61.950	63.173	-59.027	122.200	Pass
Vertical	5850.400	1.221	63.348	64.569	-56.719	121.288	Pass
Vertical	5855.000	1.198	59.649	60.847	-49.953	110.800	Pass
Vertical	5875.000	1.113	44.512	45.625	-59.575	105.200	Pass
Vertical	5904.800	0.969	45.793	46.762	-36.386	83.148	Pass
Vertical	5925.000	0.945	43.754	44.698	-23.502	68.200	Pass



6. EMI Reduction Method During Compliance Testing

No modification was made during testing.

Attachment 1: EUT Test Photographs

Attachment 2: EUT Detailed Photographs