



FCC/ IC TEST REPORT

According to

FCC CFR Title 47 Part 15 Subpart E (15.407) & RSS-247 Issue 1

Applicant	:	Qualcomm Atheros, Inc.
Address	:	1700 Technology Drive, San Jose, CA 95110
Manufacturer	:	Qualcomm Atheros, Inc.
Address	:	1700 Technology Drive, San Jose, CA 95110
Equipment	:	Single Stream 802.11a/b/g/n/ac + BT 4.1 M.2 Type Card
Brand	:	Qualcomm Atheros
Model No.	:	QCNFA435
FCC ID	:	PPD-QCNFA435
IC ID	:	4104A-QCNFA435

■ The test result refers exclusively to the test presented test model / sample.,

■ Without written approval of **Cerpass Technology (Suzhou) Co., Ltd.** the test report shall not be reproduced except in full.

■ The test was carried out on Apr.16,2017~ Apr.21,2017 at **Cerpass Technology(Suzhou) Corp.**

I HEREBY CERTIFY THAT:

The measurements shown in this test report were made in accordance with the procedures given in **ANSI C63.10**. The equipment was **passed** the test performed according to **FCC Rules and Regulations Part 15 Subpart E (15.407) and RSS-247 Issue 1**.

Prepared By:

Kerry Zhou

Approved by:

Miro Chueh (EMC/RF Manager)

Laboratory Accreditation:

Cerpass Technology Corporation Test Laboratory



NVLAP LAB Code:	200954-0
TAF LAB Code:	1439

Cerpass Technology (SuZhou) Co., Ltd.



NVLAP LAB Code:	200814-0
CNAS LAB Code:	L5515



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History of this test report

Report No.	Version	Issue Date	Description
SEDL1703328	Rev.01	2017-04-21	Initial release



1. Test Configuration of Equipment under Test

1.1 Feature of Equipment under Test

WLAN Module	QCNFA435
Frequency Range	802.11a/n/ac(20MHz): 5180~5320MHz, 5500~5720MHz,5725~5850MHz 802.11n/ac(40MHz): 5190~5310MHz, 5510~5710,5755~5795MHz 802.11ac(80MHz): 5210MHz,5290MHz,5530MHz,5610MHz,5690MHz,5775MHz
Type of Modulation	802.11a/g/n/ac: OFDM
Data Rate	802.11a: 6/9/12/18/24/36/48/54 Mbps 802.11ac: up to 433.3 Mbps
Channel Control	Auto
Antenna Delivery	1*Tx + 1*Rx for 5GHz

Host Details,

Host Manufacture	Host Type	Host Model
Lenovo	Notebook Computer	Lenovo ideapad 720S-13IKB, Lenovo ideapad 720S Touch-13IKB, Lenovo ideapad 720S-13ARR



1.2 Antenna Construction and Directional Gain

Antenna	Manufacturer	Ant Type	Ant Part number	Peak Gain
Main(chain 0)	Amphenol	PIFA	AM149000C10	-2.45dBi for 2.40~2.50GHz band
				-1.57dBi for 5.15~5.35GHz band
				-2.69dBi for 5.47~5.725GHz band
				-1.68dBi for 5.725~5.85GHz band
Aux(chain 1)	Amphenol	PIFA	AM149000C10	-1.32dBi for 2.40~2.50GHz band
				-0.79dBi for 5.15~5.35GHz band
				-1.14dBi for 5.47~5.725GHz band
				-1.14dBi for 5.725~5.85GHz band
Main(chain 0)	LUXSHARE-ICT	PIFA	AM149000C00	-3.65dBi for 2.40~2.50GHz band
				-1.23dBi for 5.15~5.35GHz band
				-0.75dBi for 5.47~5.725GHz band
				-2.22dBi for 5.725~5.85GHz band
Aux(chain 1)	LUXSHARE-ICT	PIFA	AM149000C00	0.70dBi for 2.40~2.50GHz band
				-0.94dBi for 5.15~5.35GHz band
				-1.18dBi for 5.47~5.725GHz band
				-1.18dBi for 5.725~5.85GHz band

Note: The EUT will collocation two kinds of antenna, we choose one of the high peak gain antenna (blue mark) for all RF testing.



1.3 Channels

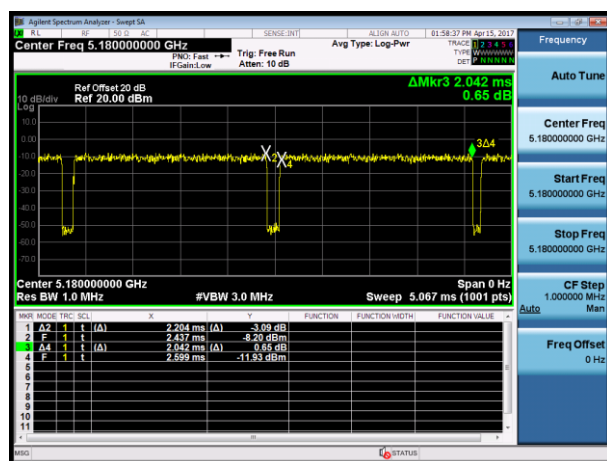
802.11a/n/ac(20MHz) Working Frequency of Each Channel:							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
36	5180 MHz	40	5200 MHz	44	5220 MHz	48	5240 MHz
52	5260 MHz	56	5280 MHz	60	5300 MHz	64	5320 MHz
100	5500 MHz	104	5520 MHz	108	5540 MHz	112	5560 MHz
116	5580 MHz	120	5600 MHz	124	5620 MHz	128	5640 MHz
132	5660 MHz	136	5680 MHz	140	5700 MHz	144	5720 MHz
149	5745 MHz	153	5765 MHz	157	5785 MHz	161	5805 MHz
165	5825 MHz	N/A	N/A	N/A	N/A	N/A	N/A
802.11n/ac(40MHz) Working Frequency of Each Channel:							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
38	5190 MHz	46	5230 MHz	54	5270 MHz	62	5310 MHz
102	5510 MHz	110	5550 MHz	118	5590 MHz	126	5630 MHz
134	5670 MHz	142	5710 MHz	151	5755 MHz	159	5795 MHz
802.11ac(80MHz) Working Frequency of Each Channel:							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
42	5210 MHz	58	5290 MHz	106	5530 MHz	122	5610 MHz
138	5690 MHz	155	5775 MHz	N/A	N/A	N/A	N/A



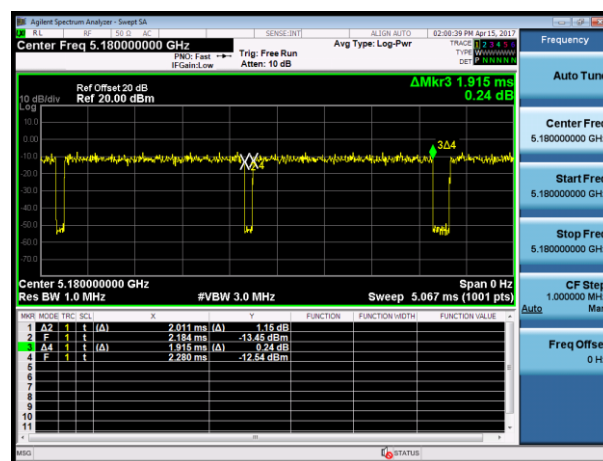
1.4 Duty Cycle

Test Mode	Frequency (MHz)	Duty Cycle
802.11a	5180	92.60%
802.11n(20MHz)	5180	95.20%
802.11n(40MHz)	5190	84.20%
802.11ac(80MHz)	5210	77.30%

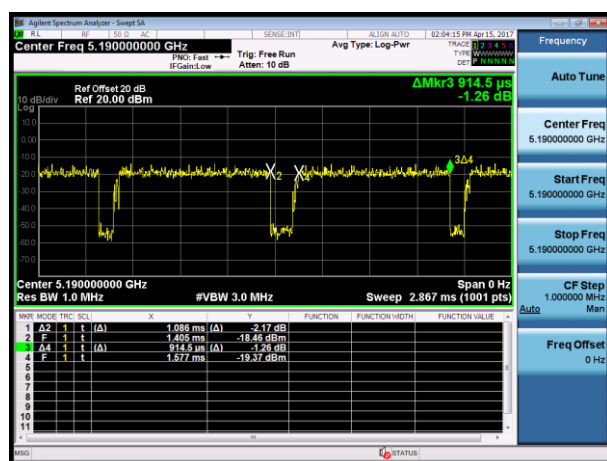
Transmit at 5180MHz by 802.11a



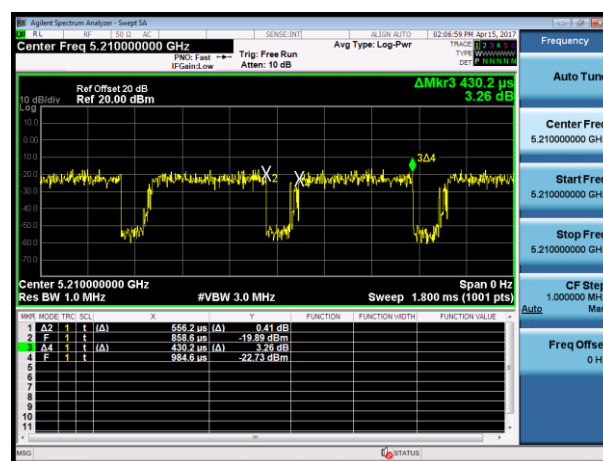
Transmit at 5180MHz by 802.11 n(20MHz)



Transmit at 5190MHz by 802.11 n(40MHz)



Transmit at 5210MHz by 802.11 ac(80MHz)





1.5 Test Manner

Test Manner	
a	During testing, the interface cables and equipment positions were varied according to ANSI C63.10
b	Adjust the EUT at the test mode and the test channel. Then test.

Test Mode
Mode 1: Transmit by 802.11a
Mode 2: Transmit by 802.11n(20MHz)
Mode 3: Transmit by 802.11n(40MHz)
Mode 4: Transmit by 802.11ac(80MHz)

Note: Regards to the frequency band operation: the lowest, middle and highest frequency of channel were selected to perform the test, then shown on this report.

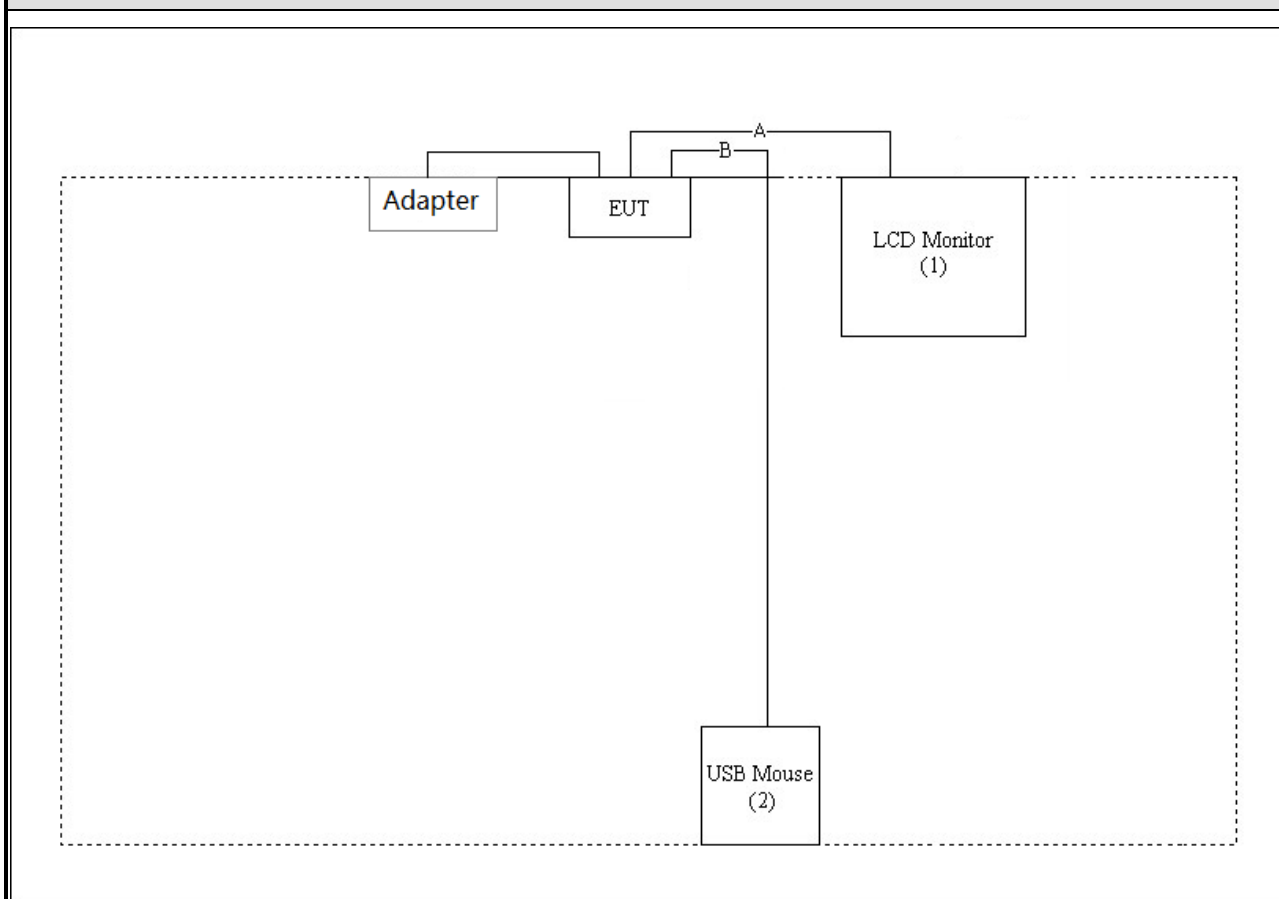
**1.6 Description of Test System**

Product		Manufacturer	Model No.	Power Cord
1	LCD Monitor	DELL	U2713HMt	Non-Shielded, 1.8m
2	USB Mouse	LENOVO	M-U0025-O	Power by Notebook



1.7 Configuration of Tested System

Connection Diagram



Signal Cable Type		Signal cable Description
A	HDMI Cable	Shielded, 1.8m
B	USB Mouse Cable	Shielded, 1.8m



2. Technical Test

2.1 Summary of Test Result

☒ No deviations from the test standards

☐ Deviations from the test standards as below description:

RSS-247, Issue 1 Section(s)	Test Description	Test Result	Reference
FCC 15.407(h)(1) RSS-247 Issue 1 May 2015 Section 6.2.1.1& 6.2.2.1&6.2.3.1&6.2.4.1	Maximum Conducted Output Power	Pass	Section 7.4
FCC 15.407(b)(1), (2), (3), (4)	Undesirable Emissions	Pass	Section 7.8 & 7.9
FCC 15.205, 15.209 15.407(b)(5), (6), (7) RSS-247 Issue 1 May 2015 Section 6.2.1.2& 6.2.2.2&6.2.3.2&6.2.4.2	General Field Strength Limits (Restricted Bands and Radiated Emission Limits)	Pass	Section 7.8 & 7.9

ANSI C63.10: 2013; RSS-247 Issue 1; RSS-Gen issue 4

IC Rule	. Description of Test	Result
Item 6	. Spurious Emission(Radiated)	Pass
Item 6	. Maximum Peak Output Power	Pass



2.2 General Information of Test

Test Site	Cerpass Technology (Suzhou) Co.,Ltd
Test Site Location	No.66,Tangzhuang Road, Suzhou Industrial Park, Jiangsu 215006, China
NVLAP LAB Code	200814-0
FCC Registration Number	916572, 331395
IC Registration Number	7290A-1, 7290A-2
VCCI Registration Number	T-1945 for Telecommunication Test C-2919 for Conducted emission test R-2670 for Radiated emission test below 1GHz G-227 for Radiated emission test above 1GHz
Frequency Range Investigated	Conducted: from 150kHz to 30MHz Radiation: from 30MHz to 40000MHz
Test Distance	The test distance of radiated emission from antenna to EUT is 3 M.

2.3 Measurement Uncertainty

Measurement Item	Measurement Frequency	Polarization	Uncertainty
Radiated Emission	30 MHz ~ 40GHz	Vertical	±4.11 dB
		Horizontal	±4.10 dB
Maximum Peak Output Power	---	---	±1.4 dB
Conducted Band Edges	---	---	±2.2 dB

2.4 Measuring Equipment

RF Conducted Measuring Equipment-AC104					
Instrument/Ancillary	Manufacturer	Model No.	Serial No.	Calibration Date	Valid Date.
Peak Power Sensor	Booton	55006	9778	2016.06.08	2017.06.07
Series Power Meter	ANRITSU	ML2495A	1224005	2017.03.27	2018.03.26
Spectrum Analyzer	N9010A	Agilent	MY53400169	2016.11.11	2017.11.11
Spectrum Analyzer	E4407B	Agilent	MY44211883	2016.10.15	2017.10.14
Temperature/Humidity Meter	Zhicheng	ZC1-11	CEP-TH-003	2017.03.31	2018.03.30



Radiated Measuring Equipment-AC102					
Instrument/Ancillary	Manufacturer	Model No.	Serial No.	Calibration Date	Valid Date.
Loop Antenna	R&S	HFH2-Z2	100150	2017.08.31	2018.08.30
Bilog Antenna	Sunol Science	JB1	A072414-1	2017.04.16	2018.04.15
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	9120D-619	2016.07.16	2017.07.15
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	9170-348	2016.05.07	2017.05.06
Preamplifier	HP	8447F	3113A05582	2017.03.26	2018.03.25
Preamplifier	EMCI	EMC-051835	980085	2016.09.06	2017.09.05
Preamplifier	COM-POWER	PA-840	711885	2017.03.26	2018.03.25
EMI Test Receiver	R&S	ESCI-3	101183	2016.06.29	2017.06.28
Spectrum Analyzer	N9010A	Agilent	MY53400169	2016.11.11	2017.11.11
Spectrum Analyzer	R&S	FS040	100324	2017.03.26	2018.03.25
Temperature/ Humidity Meter	Zhicheng	ZC1-11	CEP-TH-002	2017.03.31	2018.03.30



3. Test of Radiated Emission

3.1 Test Limit

3.1.1 Limits of radiated emission

According to §15.209(a), except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Distance Meters	Radiated (μ V / M)	Radiated (dB μ V/ M)
30-88	3	100	40.0
88-216	3	150	43.5
216-960	3	200	46.0
Above 960	3	500	54.0

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. For frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB.

3.1.2 Limits of unwanted emission out of the restricted bands

LIMIT	
Field strength at 3M (dB μ V/ M)	
PK	AV
74	54



3.2 Test Procedures

KDB 789033 D02v01r03– Section II.G.4 (Procedure for Unwanted Emissions Measurements below 1000 MHz)

KDB 789033 D02v01r03 – Section II.G.5 (Procedure for Unwanted Maximum Emissions Measurements above 1000 MHz)

KDB 789033 D02v01r03 – Section II.G.6 (Procedures for Average Unwanted Emissions Measurements above 1000 MHz)



3.3 Test Setting

Quasi-Peak Measurements below 1GHz

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. Span was set greater than 1MHz
3. RBW = 120 kHz
4. Detector = CISPR quasi-peak
5. Sweep time = auto couple
6. Trace was allowed to stabilize

Average Measurements above 1GHz (Method AD)

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = power average (RMS)
5. Number of measurement points = 1001 (Number of points must be $> 2 \times \text{span}/\text{RBW}$)
6. Sweep time = auto
7. Trace was averaged over at 100 sweeps

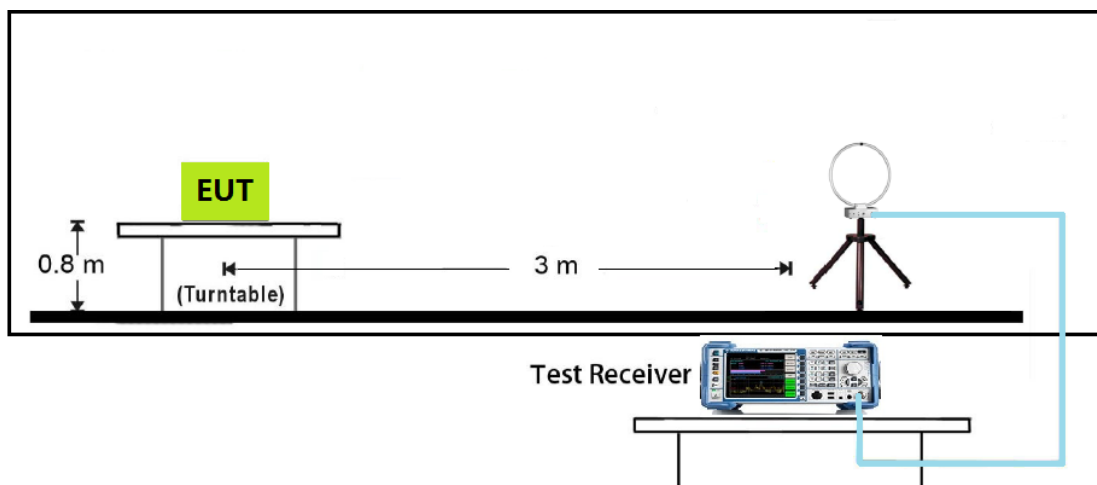
Peak Measurements above 1GHz

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize



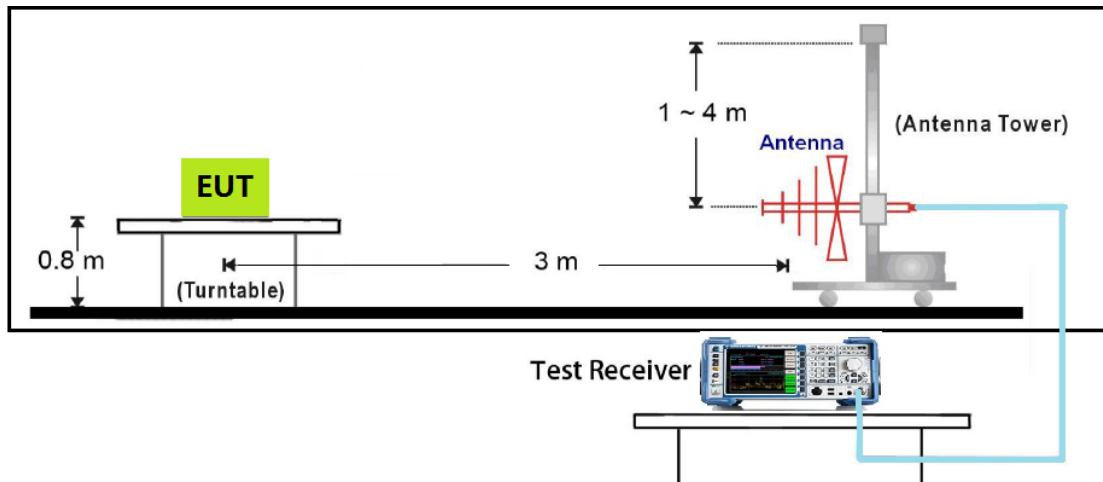
3.4 Typical Test Setup

9kHz~30MHz Test Setup

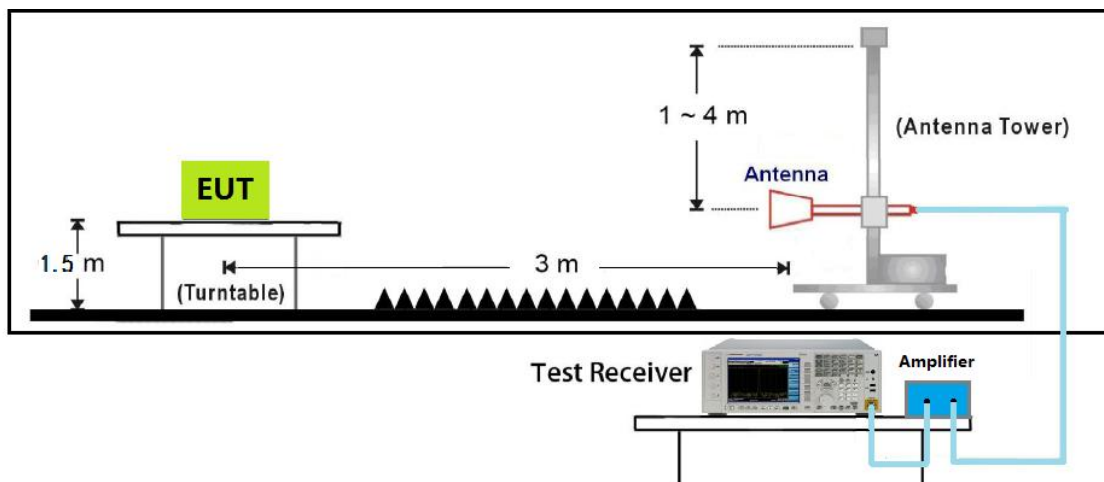




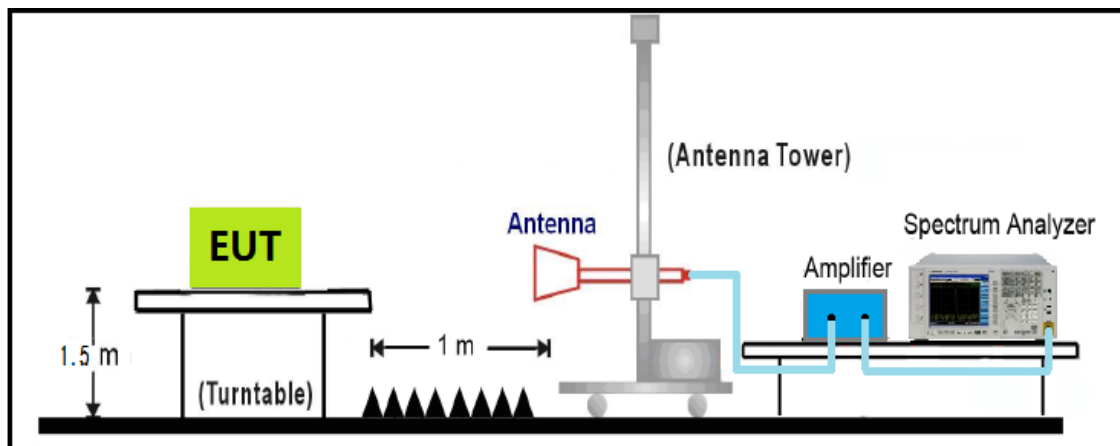
Below 1GHz Test Setup



1GHz~18GHz Test Setup



18GHz~40GHz Test Setup





3.5 Test Result and Data

The worst case of Radiated Emission below 1GHz:

Engineer :Ternence	
Site : EMC Lab AC 102	Time : 2017-04-18
Limit : FCC_CLASS_B_03M_QP	Margin : 6
EUT :Notebook computer	Probe : VERTICAL/ HORIZONTAL
Power : AC 120V/60Hz	Note : Normal Link

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	AntPol. H/V
1	155.1297	-12.57	34.37	21.80	43.50	-21.70	QP	H
2	426.7300	-3.99	29.91	25.92	46.00	-20.08	QP	H
3	540.2199	-4.01	31.98	27.97	46.00	-18.03	QP	H
4	622.6698	-1.41	31.55	30.14	46.00	-15.86	QP	H
5	667.2898	-1.94	32.66	30.72	46.00	-15.28	QP	H
6	733.2500	1.55	30.07	31.62	46.00	-14.38	QP	H

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	AntPol. H/V
1	323.9100	-6.31	31.77	25.46	46.00	-20.54	QP	V
2	362.7099	-6.87	32.71	25.84	46.00	-20.16	QP	V
3	413.1499	-4.12	31.74	27.62	46.00	-18.38	QP	V
4	433.5199	-4.72	32.31	27.59	46.00	-18.41	QP	V
5	630.4298	-1.66	30.91	29.25	46.00	-16.75	QP	V
6	718.7000	1.37	28.22	29.59	46.00	-16.41	QP	V

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or AVG measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor



Above 1G:

Engineer : Ternence	
Site : EMC Lab AC 102	Time : 2017-04-18
Limit : FCC_15_03M_PK	Margin : 6
EUT : Notebook computer	Probe : VERTICAL/ HORIZONTAL
Power : AC 120V/60Hz	Note : Transmit by 802.11 a

Frequency (MHz)	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna
5180	7186.5	36.5	13.2	49.7	68.2(Note 6)	-18.5	Peak	H
	7917.6	35.0	16.2	51.2	68.2(Note 6)	-17.0	Peak	H
	8432.0	35.5	15.2	50.7	74	-23.3	Peak	H
	9382.7	33.5	14.4	47.9	74	-26.1	Peak	H
	7189.6	37.7	14.3	52.0	68.2(Note 6)	-16.2	Peak	V
	7826.7	35.5	16.1	51.6	68.2(Note 6)	-16.6	Peak	V
	8274.8	33.5	14.0	47.5	74	-26.5	Peak	V
	9348.0	33.4	15.4	48.8	74	-25.2	Peak	V

Frequency (MHz)	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna
5220	7154.2	35.1	11.7	46.8	68.2(Note 6)	-21.4	Peak	H
	7894.3	34.8	16.1	50.9	68.2(Note 6)	-17.3	Peak	H
	8436.0	34.9	13.2	48.1	74	-25.9	Peak	H
	9158.8	35.4	13.9	49.3	74	-24.7	Peak	H
	7186.9	37.1	12.7	49.8	68.2(Note 6)	-18.4	Peak	V
	7876.7	33.6	16.4	50.0	68.2(Note 6)	-18.2	Peak	V
	8405.6	33.6	13.1	46.7	74	-27.3	Peak	V
	9077.2	34.4	15.9	50.3	74	-23.7	Peak	V



Frequency (MHz)	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna
5240	7143.5	35.0	12.8	47.8	68.2(Note 6)	-20.4	Peak	H
	7793.2	33.7	15.4	49.1	68.2(Note 6)	-19.1	Peak	H
	8302.7	34.0	16.1	50.1	74	-23.9	Peak	H
	9099.5	34.4	14.8	49.2	74	-24.8	Peak	H
	7088.6	35.3	13.9	49.2	68.2(Note 6)	-19.0	Peak	V
	7781.9	33.0	15.5	48.5	68.2(Note 6)	-19.7	Peak	V
	8354.6	33.4	13.1	46.5	74	-27.5	Peak	V
	9043.6	34.3	15.1	49.4	74	-24.6	Peak	V

Frequency (MHz)	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna
5260	7118.6	35.0	14.4	49.4	68.2(Note 6)	-18.8	Peak	H
	7841.1	35.0	15.8	50.8	68.2(Note 6)	-17.4	Peak	H
	8250.2	33.3	13.7	47.0	74	-27.0	Peak	H
	9392.1	34.2	13.7	47.9	74	-26.1	Peak	H
	7242.5	36.2	14.3	50.5	68.2(Note 6)	-17.7	Peak	V
	7782.3	34.1	15.1	49.2	68.2(Note 6)	-19.0	Peak	V
	8457.0	33.2	13.6	46.8	74	-27.2	Peak	V
	9109.5	34.9	12.8	47.7	74	-26.3	Peak	V

Frequency (MHz)	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna
5300	7224.4	35.8	14.1	49.9	68.2(Note 6)	-18.3	Peak	H
	7867.0	32.8	13.8	46.6	68.2(Note 6)	-21.6	Peak	H
	8465.0	32.9	14.7	47.6	74	-26.4	Peak	H
	9133.2	34.5	15.3	49.8	74	-24.2	Peak	H
	7187.7	36.5	12.3	48.8	68.2(Note 6)	-19.4	Peak	V
	7886.1	33.4	13.4	46.8	68.2(Note 6)	-21.4	Peak	V
	8309.2	34.5	13.8	48.3	74	-25.7	Peak	V
	9032.6	35.0	13.3	48.3	74	-25.7	Peak	V



Frequency (MHz)	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna
5320	7157.7	35.7	14.0	49.7	68.2(Note 6)	-18.5	Peak	H
	7970.6	33.7	15.6	49.3	68.2(Note 6)	-18.9	Peak	H
	8384.6	34.7	13.0	47.7	74	-26.3	Peak	H
	9017.0	34.6	13.4	48.0	74	-26.0	Peak	H
	7155.9	37.1	13.3	50.4	68.2(Note 6)	-17.8	Peak	V
	7706.3	34.6	16.2	50.8	68.2(Note 6)	-17.4	Peak	V
	8353.5	34.0	13.2	47.2	74	-26.8	Peak	V
	9397.5	34.6	15.4	50.0	74	-24.0	Peak	V

Frequency (MHz)	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna
5500	7194.5	36.8	15.3	52.1	68.2(Note 6)	-16.1	Peak	H
	7763.4	35.4	13.8	49.2	68.2(Note 6)	-19.0	Peak	H
	8440.0	35.1	14.9	50.0	74	-24.0	Peak	H
	9464.1	34.4	13.8	48.2	74	-25.8	Peak	H
	7237.8	36.6	12.3	48.9	68.2(Note 6)	-19.3	Peak	V
	7988.7	33.4	14.9	48.3	68.2(Note 6)	-19.9	Peak	V
	8372.2	33.9	14.7	48.6	74	-25.4	Peak	V
	9142.4	35.0	14.3	49.3	74	-24.7	Peak	V

Frequency (MHz)	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna
5600	7231.5	36.5	13.7	50.2	68.2(Note 6)	-18.0	Peak	H
	7988.1	33.1	13.4	46.5	68.2(Note 6)	-21.7	Peak	H
	8464.7	34.3	16.1	50.4	74	-23.6	Peak	H
	9465.9	35.0	15.9	50.9	74	-23.1	Peak	H
	7220.5	36.1	12.5	48.6	68.2(Note 6)	-19.6	Peak	V
	7876.8	33.9	15.1	49.0	68.2(Note 6)	-19.2	Peak	V
	8401.6	33.9	15.3	49.2	74	-24.8	Peak	V
	9039.1	35.5	14.5	50.0	74	-24.0	Peak	V



Frequency (MHz)	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna
5700	7194.6	36.5	15.2	51.7	68.2(Note 6)	-16.5	Peak	H
	7848.6	34.7	14.4	49.1	68.2(Note 6)	-19.1	Peak	H
	8278.2	34.7	14.1	48.8	74	-25.2	Peak	H
	9094.0	34.6	14.3	48.9	74	-25.1	Peak	H
	7223.1	36.8	14.5	51.3	68.2(Note 6)	-16.9	Peak	V
	7841.7	33.6	14.5	48.1	68.2(Note 6)	-20.1	Peak	V
	8470.5	34.5	15.6	50.1	74	-23.9	Peak	V
	9134.9	35.2	13.5	48.7	74	-25.3	Peak	V

Engineer : Ternence	
Site : EMC Lab AC 102	Time : 2017-04-18
Limit : FCC_15_03M_PK	Margin : 6
EUT :Notebook computer	Probe : VERTICAL/ HORIZONTAL
Power : AC 120V/60Hz	Note : Transmit by 802.11 a

Frequency (MHz)	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna
5720	7246.7	37.5	15.6	53.1	68.2(Note 6)	-15.1	Peak	H
	7806.7	33.9	16.3	50.2	68.2(Note 6)	-18.0	Peak	H
	8387.7	34.0	15.6	49.6	74	-24.4	Peak	H
	9040.9	35.6	12.5	48.1	74	-25.9	Peak	H
	7178.3	37.3	12.1	49.4	68.2(Note 6)	-18.8	Peak	V
	7773.1	33.7	15.3	49.0	68.2(Note 6)	-19.2	Peak	V
	8384.9	33.7	15.8	49.5	74	-24.5	Peak	V
	9093.3	34.9	15.5	50.4	74	-23.6	Peak	V



Frequency (MHz)	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna
5745	7127.5	35.7	12.6	48.3	68.2(Note 6)	-19.9	Peak	H
	7849.1	34.5	15.9	50.4	68.2(Note 6)	-17.8	Peak	H
	8353.2	34.4	14.7	49.1	74	-24.9	Peak	H
	9089.6	35.0	13.5	48.5	74	-25.5	Peak	H
	7188.9	36.3	14.2	50.5	68.2(Note 6)	-17.7	Peak	V
	7850.8	34.6	17.0	51.6	68.2(Note 6)	-16.6	Peak	V
	8310.9	33.1	15.0	48.1	74	-25.9	Peak	V
	9150.1	35.3	17.0	52.3	74	-21.7	Peak	V

Frequency (MHz)	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna
5785	7182.6	35.9	13.2	49.1	68.2(Note 6)	-19.1	Peak	H
	7842.5	33.9	14.4	48.3	68.2(Note 6)	-19.9	Peak	H
	8176.2	34.3	16.1	50.4	74	-23.6	Peak	H
	9090.5	34.9	16.1	51.0	74	-23.0	Peak	H
	7178.1	35.8	13.8	49.6	68.2(Note 6)	-18.6	Peak	V
	7773.5	33.2	14.8	48.0	68.2(Note 6)	-20.2	Peak	V
	8369.1	34.4	14.9	49.3	74	-24.7	Peak	V
	9100.5	34.3	14.7	49.0	74	-25.0	Peak	V

Frequency (MHz)	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna
5825	7119.6	35.9	14.8	50.7	68.2(Note 6)	-17.5	Peak	H
	7907.8	33.5	14.7	48.2	68.2(Note 6)	-20.0	Peak	H
	8245.2	34.4	13.3	47.7	74	-26.3	Peak	H
	9049.3	35.7	13.0	48.7	74	-25.3	Peak	H
	7194.2	36.9	12.2	49.1	68.2(Note 6)	-19.1	Peak	V
	7845.3	34.3	13.7	48.0	68.2(Note 6)	-20.2	Peak	V
	8311.0	35.0	12.6	47.6	74	-26.4	Peak	V
	9055.8	35.5	15.8	51.3	74	-22.7	Peak	V



Engineer : Ternence	
Site : EMC Lab AC 102	Time : 2017-04-18
Limit : FCC_15_03M_PK	Margin : 6
EUT :Notebook computer	Probe : VERTICAL/ HORIZONTAL
Power : AC 120V/60Hz	Note : Transmit by 802.11 n20

Frequency (MHz)	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna
5180	7191.2	38.0	13.2	51.2	68.2(Note 6)	-17.0	Peak	H
	7806.1	35.3	16.4	51.7	68.2(Note 6)	-16.5	Peak	H
	8222.8	34.8	15.5	50.3	74	-23.7	Peak	H
	9338.8	34.4	17.0	51.4	74	-22.6	Peak	H
	7143.9	35.1	13.0	48.1	68.2(Note 6)	-20.1	Peak	V
	7956.4	33.8	16.0	49.8	68.2(Note 6)	-18.4	Peak	V
	8480.3	35.3	16.2	51.5	74	-22.5	Peak	V
	9339.8	33.8	14.7	48.5	74	-25.5	Peak	V

Frequency (MHz)	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna
5220	7191.1	37.0	13.5	50.5	68.2(Note 6)	-17.7	Peak	H
	7971.0	33.1	14.4	47.5	68.2(Note 6)	-20.7	Peak	H
	8277.9	34.6	13.4	48.0	74	-26.0	Peak	H
	9307.2	34.9	14.5	49.4	74	-24.6	Peak	H
	7041.5	34.9	11.1	46.0	68.2(Note 6)	-22.2	Peak	V
	7806.3	33.7	13.3	47.0	68.2(Note 6)	-21.2	Peak	V
	8216.3	34.1	13.2	47.3	74	-26.7	Peak	V
	9322.4	35.0	16.1	51.1	74	-22.9	Peak	V



Frequency (MHz)	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna
5240	7128.7	34.5	13.7	48.2	68.2(Note 6)	-20.0	Peak	H
	7920.5	34.1	16.0	50.1	68.2(Note 6)	-18.1	Peak	H
	8171.4	35.0	13.7	48.7	74	-25.3	Peak	H
	9030.1	34.3	16.3	50.6	74	-23.4	Peak	H
	7186.8	36.4	13.6	50.0	68.2(Note 6)	-18.2	Peak	V
	7850.2	34.0	15.3	49.3	68.2(Note 6)	-18.9	Peak	V
	8175.5	34.9	14.1	49.0	74	-25.0	Peak	V
	9132.9	33.2	16.6	49.8	74	-24.2	Peak	V

Frequency (MHz)	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna
5260	7231.8	36.2	14.2	50.4	68.2(Note 6)	-17.8	Peak	H
	7954.7	33.8	16.3	50.1	68.2(Note 6)	-18.1	Peak	H
	8287.6	35.0	12.8	47.8	74	-26.2	Peak	H
	9391.1	34.6	14.5	49.1	74	-24.9	Peak	H
	7149.0	36.3	14.4	50.7	68.2(Note 6)	-17.5	Peak	V
	7841.0	34.2	16.8	51.0	68.2(Note 6)	-17.2	Peak	V
	8319.3	34.5	12.5	47.0	74	-27.0	Peak	V
	9101.2	33.9	13.4	47.3	74	-26.7	Peak	V

Frequency (MHz)	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna
5300	7009.4	36.5	14.6	51.1	68.2(Note 6)	-17.1	Peak	H
	7810.9	34.3	16.7	51.0	68.2(Note 6)	-17.2	Peak	H
	8131.8	34.2	14.5	48.7	74	-25.3	Peak	H
	9414.1	34.6	16.3	50.9	74	-23.1	Peak	H
	7180.3	35.2	15.1	50.3	68.2(Note 6)	-17.9	Peak	V
	7827.5	33.3	15.7	49.0	68.2(Note 6)	-19.2	Peak	V
	8285.0	34.5	13.8	48.3	74	-25.7	Peak	V
	9057.5	34.7	15.5	50.2	74	-23.8	Peak	V



Frequency (MHz)	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna
5320	7137.4	35.3	15.2	50.5	68.2(Note 6)	-17.7	Peak	H
	7846.2	33.9	15.7	49.6	68.2(Note 6)	-18.6	Peak	H
	8133.0	34.5	17.0	51.5	74	-22.5	Peak	H
	9152.5	36.2	16.0	52.2	74	-21.8	Peak	H
	7216.0	36.1	14.7	50.8	68.2(Note 6)	-17.4	Peak	V
	7849.5	34.3	14.8	49.1	68.2(Note 6)	-19.1	Peak	V
	8176.8	35.3	14.6	49.9	74	-24.1	Peak	V
	9041.4	36.7	13.3	50.0	74	-24.0	Peak	V

Frequency (MHz)	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna
5500	7128.7	35.7	11.6	47.3	68.2(Note 6)	-20.9	Peak	H
	7853.2	33.9	15.3	49.2	68.2(Note 6)	-19.0	Peak	H
	9050.2	34.6	13.1	47.7	74	-26.3	Peak	H
	9452.5	34.8	13.7	48.5	74	-25.5	Peak	H
	7169.0	35.1	13.1	48.2	68.2(Note 6)	-20.0	Peak	V
	7807.4	34.4	16.5	50.9	68.2(Note 6)	-17.3	Peak	V
	8202.7	34.8	15.1	49.9	74	-24.1	Peak	V
	9303.7	35.1	14.2	49.3	74	-24.7	Peak	V

Frequency (MHz)	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna
5600	7195.4	37.4	15.2	52.6	68.2(Note 6)	-15.6	Peak	H
	7884.5	34.2	14.0	48.2	68.2(Note 6)	-20.0	Peak	H
	8413.8	35.0	15.8	50.8	74	-23.2	Peak	H
	9107.8	35.8	14.4	50.2	74	-23.8	Peak	H
	7180.7	35.3	14.9	50.2	68.2(Note 6)	-18.0	Peak	V
	7840.4	35.0	15.8	50.8	68.2(Note 6)	-17.4	Peak	V
	8168.1	34.7	14.8	49.5	74	-24.5	Peak	V
	9089.8	35.9	15.3	51.2	74	-22.8	Peak	V



Frequency (MHz)	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna
5700	7148.1	35.9	13.3	49.2	68.2(Note 6)	-19.0	Peak	H
	7839.8	33.9	16.5	50.4	68.2(Note 6)	-17.8	Peak	H
	8370.1	34.5	14.0	48.5	74	-25.5	Peak	H
	9424.5	34.6	16.0	50.6	74	-23.4	Peak	H
	7200.0	36.3	12.9	49.2	68.2(Note 6)	-19.0	Peak	V
	7808.0	34.4	14.4	48.8	68.2(Note 6)	-19.4	Peak	V
	8128.9	35.2	15.8	51.0	74	-23.0	Peak	V
	9163.5	35.2	13.7	48.9	74	-25.1	Peak	V

Frequency (MHz)	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna
5720	7113.2	35.6	14.1	49.7	68.2(Note 6)	-18.5	Peak	H
	7809.5	34.1	13.3	47.4	68.2(Note 6)	-20.8	Peak	H
	8090.3	34.7	14.0	48.7	74	-25.3	Peak	H
	9133.8	34.1	16.4	50.5	74	-23.5	Peak	H
	7114.1	35.4	14.8	50.2	68.2(Note 6)	-18.0	Peak	V
	7896.5	34.7	14.2	48.9	68.2(Note 6)	-19.3	Peak	V
	8431.8	34.7	14.4	49.1	74	-24.9	Peak	V
	9152.9	35.3	14.7	50.0	74	-24.0	Peak	V

Frequency (MHz)	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna
5745	7136.2	35.4	14.8	50.2	68.2(Note 6)	-18.0	Peak	H
	7844.7	34.7	13.6	48.3	68.2(Note 6)	-19.9	Peak	H
	8078.5	35.3	16.0	51.3	74	-22.7	Peak	H
	8249.5	35.4	16.3	51.7	74	-22.3	Peak	H
	7190.5	36.4	14.2	50.6	68.2(Note 6)	-17.6	Peak	V
	7987.5	34.2	15.0	49.2	68.2(Note 6)	-19.0	Peak	V
	8274.9	34.1	13.8	47.9	74	-26.1	Peak	V
	9489.8	34.6	14.9	49.5	74	-24.5	Peak	V



Frequency (MHz)	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna
5785	7225.0	37.1	13.6	50.7	68.2(Note 6)	-17.5	Peak	H
	7755.6	34.5	15.4	49.9	68.2(Note 6)	-18.3	Peak	H
	8405.8	34.0	14.6	48.6	74	-25.4	Peak	H
	9067.9	35.3	12.9	48.2	74	-25.8	Peak	H
	7188.7	35.8	14.6	50.4	68.2(Note 6)	-17.8	Peak	V
	7954.1	35.0	16.0	51.0	68.2(Note 6)	-17.2	Peak	V
	8318.7	34.8	13.2	48.0	74	-26.0	Peak	V
	9136.4	33.8	15.7	49.5	74	-24.5	Peak	V

Frequency (MHz)	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna
5825	7199.5	36.2	13.9	50.1	68.2(Note 6)	-18.1	Peak	H
	7774.1	34.6	15.0	49.6	68.2(Note 6)	-18.6	Peak	H
	8480.7	34.7	15.7	50.4	74	-23.6	Peak	H
	9188.8	34.8	14.2	49.0	74	-25.0	Peak	H
	7206.6	37.1	11.9	49.0	68.2(Note 6)	-19.2	Peak	V
	7808.4	33.7	15.2	48.9	68.2(Note 6)	-19.3	Peak	V
	8184.1	35.9	16.4	52.3	74	-21.7	Peak	V
	9102.3	35.1	15.7	50.8	74	-23.2	Peak	V



Engineer : Ternence	
Site : EMC Lab AC 102	Time : 2017-04-18
Limit : FCC_15_03M_PK	Margin : 6
EUT :Notebook computer	Probe : VERTICAL/ HORIZONTAL
Power : AC 120V/60Hz	Note : Transmit by 802.11 n40

Frequency (MHz)	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna
5190	7137.8	35.4	14.7	50.1	68.2(Note 6)	-18.1	Peak	H
	7878.3	33.2	14.2	47.4	68.2(Note 6)	-20.8	Peak	H
	8386.0	34.8	15.3	50.1	74	-23.9	Peak	H
	9177.7	35.4	16.7	52.1	74	-21.9	Peak	H
	7139.8	35.3	14.7	50.0	68.2(Note 6)	-18.2	Peak	V
	7797.8	34.0	14.9	48.9	68.2(Note 6)	-19.3	Peak	V
	8260.7	34.4	13.6	48.0	74	-26.0	Peak	V
	9151.1	35.1	17.0	52.1	74	-21.9	Peak	V

Frequency (MHz)	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna
5230	7143.8	36.0	14.3	50.3	68.2(Note 6)	-17.9	Peak	H
	7772.7	34.0	15.7	49.7	68.2(Note 6)	-18.5	Peak	H
	8428.7	34.7	12.9	47.6	74	-26.4	Peak	H
	9049.9	34.8	15.7	50.5	74	-23.5	Peak	H
	7231.4	36.5	14.7	51.2	68.2(Note 6)	-17.0	Peak	V
	7876.9	32.9	15.6	48.5	68.2(Note 6)	-19.7	Peak	V
	8430.0	33.9	12.9	46.8	74	-27.2	Peak	V
	9142.8	34.5	15.8	50.3	74	-23.7	Peak	V



Frequency (MHz)	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna
5270	7144.0	36.3	14.3	50.6	68.2(Note 6)	-17.6	Peak	H
	7879.4	33.1	15.3	48.4	68.2(Note 6)	-19.8	Peak	H
	8132.9	34.3	16.8	51.1	74	-22.9	Peak	H
	9067.3	34.6	16.4	51.0	74	-23.0	Peak	H
	7228.3	36.0	12.7	48.7	68.2(Note 6)	-19.5	Peak	V
	7902.3	34.1	16.3	50.4	68.2(Note 6)	-17.8	Peak	V
	8431.7	34.4	13.2	47.6	74	-26.4	Peak	V
	9026.0	33.9	13.9	47.8	74	-26.2	Peak	V

Frequency (MHz)	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna
5310	7180.9	35.6	13.2	48.8	68.2(Note 6)	-19.4	Peak	H
	7903.2	34.3	14.0	48.3	68.2(Note 6)	-19.9	Peak	H
	8471.2	34.0	15.8	49.8	74	-24.2	Peak	H
	9017.5	34.5	13.7	48.2	74	-25.8	Peak	H
	7148.5	35.9	12.2	48.1	68.2(Note 6)	-20.1	Peak	V
	7905.0	34.0	14.8	48.8	68.2(Note 6)	-19.4	Peak	V
	8277.7	33.3	15.1	48.4	74	-25.6	Peak	V
	9353.4	33.0	14.2	47.2	74	-26.8	Peak	V

Frequency (MHz)	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna
5510	7144.7	36.6	12.7	49.3	68.2(Note 6)	-18.9	Peak	H
	7884.6	34.2	14.5	48.7	68.2(Note 6)	-19.5	Peak	H
	8239.7	35.1	13.3	48.4	74	-25.6	Peak	H
	9089.3	35.1	15.5	50.6	74	-23.4	Peak	H
	7170.1	35.9	13.2	49.1	68.2(Note 6)	-19.1	Peak	V
	7841.7	33.9	16.1	50.0	68.2(Note 6)	-18.2	Peak	V
	8164.2	34.9	14.2	49.1	74	-24.9	Peak	V
	9467.7	35.0	16.3	51.3	74	-22.7	Peak	V



Frequency (MHz)	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna
5590	7119.2	34.4	13.5	47.9	68.2(Note 6)	-20.3	Peak	H
	7946.2	35.0	14.5	49.5	68.2(Note 6)	-18.7	Peak	H
	8436.1	34.1	14.4	48.5	74	-25.5	Peak	H
	9134.1	34.1	16.3	50.4	74	-23.6	Peak	H
	7186.2	36.7	13.4	50.1	68.2(Note 6)	-18.1	Peak	V
	7959.9	32.8	14.8	47.6	68.2(Note 6)	-20.6	Peak	V
	8395.6	33.5	14.6	48.1	74	-25.9	Peak	V
	9303.7	35.5	16.9	52.4	74	-21.6	Peak	V

Frequency (MHz)	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna
5670	7186.5	35.4	11.7	47.1	68.2(Note 6)	-21.1	Peak	H
	7810.7	34.1	14.9	49.0	68.2(Note 6)	-19.2	Peak	H
	8352.4	32.0	15.4	47.4	74	-26.6	Peak	H
	9303.9	34.2	14.2	48.4	74	-25.6	Peak	H
	7169.6	35.0	11.7	46.7	68.2(Note 6)	-21.5	Peak	V
	7785.6	33.4	13.5	46.9	68.2(Note 6)	-21.3	Peak	V
	8461.8	32.8	14.6	47.4	74	-26.6	Peak	V
	9350.0	33.3	14.9	48.2	74	-25.8	Peak	V



Frequency (MHz)	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna
5710	7178.1	36.0	13.7	49.7	68.2(Note 6)	-18.5	Peak	H
	7883.0	33.8	14.7	48.5	68.2(Note 6)	-19.7	Peak	H
	8440.9	33.9	15.3	49.2	74	-24.8	Peak	H
	9025.7	34.9	15.1	50.0	74	-24.0	Peak	H
	7245.6	36.1	12.2	48.3	68.2(Note 6)	-19.9	Peak	V
	7811.3	34.0	16.7	50.7	68.2(Note 6)	-17.5	Peak	V
	8320.1	33.7	15.3	49.0	74	-25.0	Peak	V
	9185.9	34.9	16.2	51.1	74	-22.9	Peak	V

Frequency (MHz)	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna
5755	7224.1	37.2	12.3	49.5	68.2(Note 6)	-18.7	Peak	H
	7798.6	33.7	13.4	47.1	68.2(Note 6)	-21.1	Peak	H
	8325.2	33.6	16.1	49.7	74	-24.3	Peak	H
	9025.4	35.1	15.2	50.3	74	-23.7	Peak	H
	7205.5	35.2	14.6	49.8	68.2(Note 6)	-18.4	Peak	V
	7799.4	34.5	16.9	51.4	68.2(Note 6)	-16.8	Peak	V
	8244.5	33.8	16.0	49.8	74	-24.2	Peak	V
	9137.4	34.7	15.2	49.9	74	-24.1	Peak	V



Frequency (MHz)	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna
5795	7203.8	36.0	14.5	50.5	68.2(Note 6)	-17.7	Peak	H
	7882.6	33.4	13.2	46.6	68.2(Note 6)	-21.6	Peak	H
	9022.1	35.0	15.0	50.0	74	-24.0	Peak	H
	9426.7	36.3	13.8	50.1	74	-23.9	Peak	H
	7143.9	34.9	13.5	48.4	68.2(Note 6)	-19.8	Peak	V
	7867.2	33.3	14.9	48.2	68.2(Note 6)	-20.0	Peak	V
	8284.6	33.3	14.3	47.6	74	-26.4	Peak	V
	9429.5	34.3	15.4	49.7	74	-24.3	Peak	V

Engineer : Ternence	
Site : EMC Lab AC 102	Time : 2017-04-18
Limit : FCC_15_03M_PK	Margin : 6
EUT :Notebook computer	Probe : VERTICAL/ HORIZONTAL
Power : AC 120V/60Hz	Note : Transmit by 802.11 ac80

Frequency (MHz)	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna
5210	7147.8	35.7	13.5	49.2	68.2(Note 6)	-19.0	Peak	H
	7837.4	35.1	15.4	50.5	68.2(Note 6)	-17.7	Peak	H
	8430.1	33.9	12.9	46.8	74	-27.2	Peak	H
	9435.0	34.0	15.9	49.9	74	-24.1	Peak	H
	7237.2	37.2	12.6	49.8	68.2(Note 6)	-18.4	Peak	V
	7908.5	34.2	15.1	49.3	68.2(Note 6)	-18.9	Peak	V
	8317.9	34.7	16.2	50.9	74	-23.1	Peak	V
	9362.5	33.2	14.6	47.8	74	-26.2	Peak	V



Frequency (MHz)	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna
5290	7109.5	35.4	13.3	48.7	68.2(Note 6)	-19.5	Peak	H
	7997.8	34.3	16.2	50.5	68.2(Note 6)	-17.7	Peak	H
	8445.6	32.7	12.9	45.6	74	-28.4	Peak	H
	9341.4	33.9	14.8	48.7	74	-25.3	Peak	H
	7154.5	36.1	12.1	48.2	68.2(Note 6)	-20.0	Peak	V
	7875.8	33.6	13.4	47.0	68.2(Note 6)	-21.2	Peak	V
	8239.7	34.5	14.8	49.3	74	-24.7	Peak	V
	9304.8	34.0	15.5	49.5	74	-24.5	Peak	V

Frequency (MHz)	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna
5530	7145.0	36.1	14.0	50.1	68.2(Note 6)	-18.1	Peak	H
	7842.6	34.9	13.9	48.8	68.2(Note 6)	-19.4	Peak	H
	8432.1	35.0	16.4	51.4	74	-22.6	Peak	H
	9015.4	36.7	13.2	49.9	74	-24.1	Peak	H
	7231.7	35.8	13.9	49.7	68.2(Note 6)	-18.5	Peak	V
	7841.5	35.3	16.0	51.3	68.2(Note 6)	-16.9	Peak	V
	8487.9	35.5	13.0	48.5	74	-25.5	Peak	V
	9174.6	35.6	14.5	50.1	74	-23.9	Peak	V



Frequency (MHz)	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna
5610	7009.7	36.5	12.4	48.9	68.2(Note 6)	-19.3	Peak	H
	7809.6	34.3	15.4	49.7	68.2(Note 6)	-18.5	Peak	H
	8130.4	34.2	14.0	48.2	74	-25.8	Peak	H
	9417.7	34.6	15.4	50.0	74	-24.0	Peak	H
	7179.1	35.2	13.7	48.9	68.2(Note 6)	-19.3	Peak	V
	7825.0	33.3	14.2	47.5	68.2(Note 6)	-20.7	Peak	V
	8287.1	34.5	14.8	49.3	74	-24.7	Peak	V
	9059.6	34.7	14.2	48.9	74	-25.1	Peak	V

Frequency (MHz)	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna
5690	7138.0	35.3	11.8	47.1	68.2(Note 6)	-21.1	Peak	H
	7842.3	33.9	16.9	50.8	68.2(Note 6)	-17.4	Peak	H
	8134.5	34.5	14.4	48.9	74	-25.1	Peak	H
	9150.3	36.2	15.6	51.8	74	-22.2	Peak	H
	7212.2	36.1	15.7	51.8	68.2(Note 6)	-16.4	Peak	V
	7851.7	34.3	13.6	47.9	68.2(Note 6)	-20.3	Peak	V
	8171.7	35.3	14.7	50.0	74	-24.0	Peak	V
	9040.7	36.7	14.4	51.1	74	-22.9	Peak	V



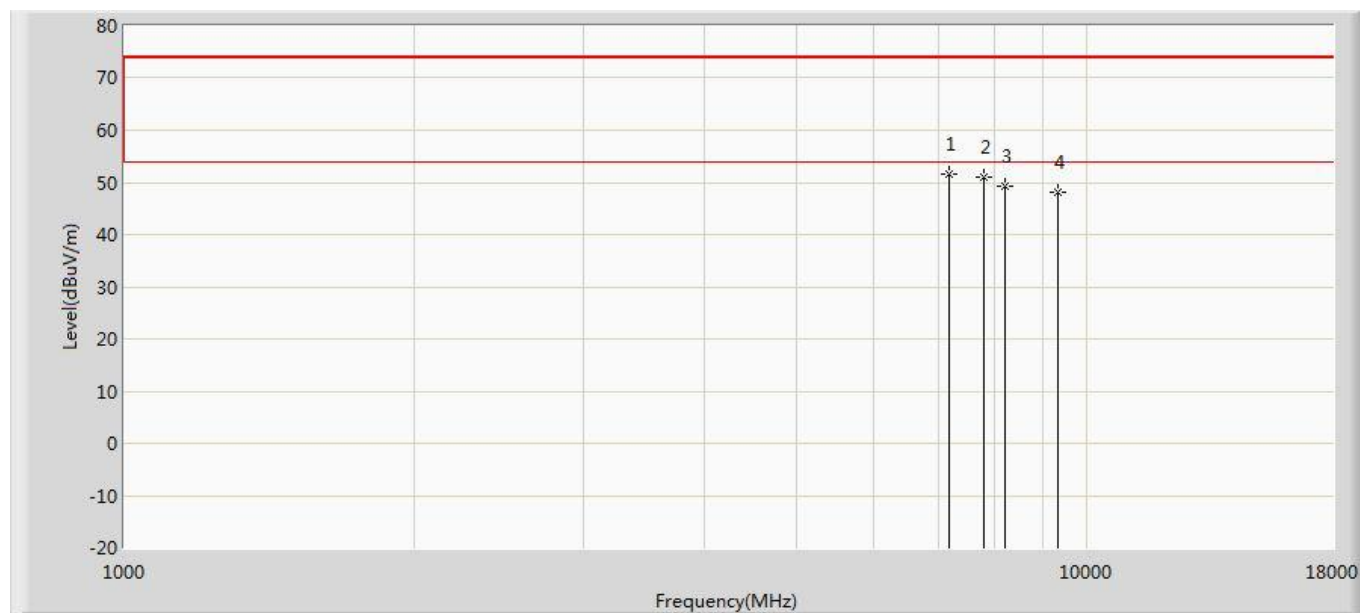
Frequency (MHz)	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna
5775	7196.8	37.4	11.9	49.3	68.2(Note 6)	-18.9	Peak	H
	7884.6	34.2	16.7	50.9	68.2(Note 6)	-17.3	Peak	H
	8413.1	35.0	15.5	50.5	74	-23.5	Peak	H
	9108.3	35.8	15.6	51.4	74	-22.6	Peak	H
	7179.8	35.3	11.8	47.1	68.2(Note 6)	-21.1	Peak	V
	7843.6	35.0	16.4	51.4	68.2(Note 6)	-16.8	Peak	V
	8163.1	34.7	14.3	49.0	74	-25.0	Peak	V
	9094.8	35.9	14.9	50.8	74	-23.2	Peak	V

Note:

1. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.
6. Is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBuV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the PK limit for out of band spurious emissions of 68.2dBuV/m.
7. The data above is worst case.
8. The test trace is same as the ambient noise (the test frequency range 18GHz~40GHz), therefore no data appear in the report.

**The worst case of Radiated Emission 1~18GHz:**

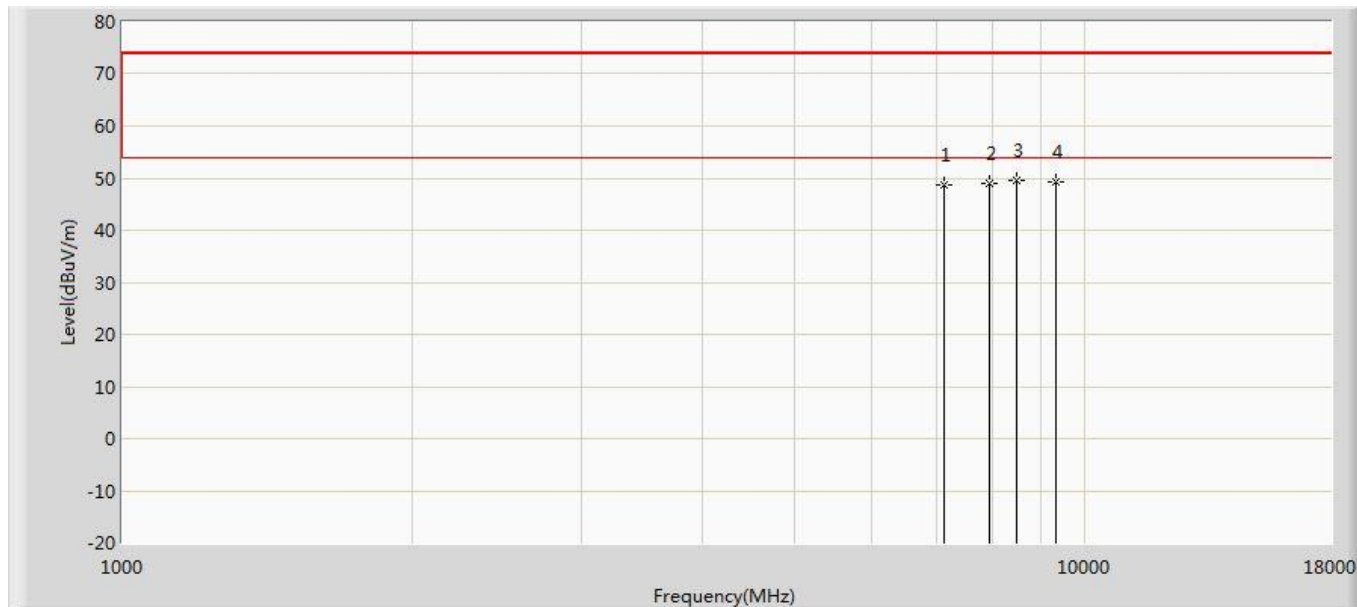
Engineer: Ternence	
Site: AC102	Time: 2017/04/18
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D(1-18GHz)	Polarity: Horizontal
EUT: QCNFA435	Power: 120V/60HZ
Note: Transmit by 802.11a at 5720MHz	



No	Mark	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Type
1	*	7246.7	37.5	15.6	53.1	68.2(Note 6)	-15.1	PK
2		7806.7	33.9	16.3	50.2	68.2(Note 6)	-18.0	PK
3		8387.7	34.0	15.6	49.6	74	-24.4	PK
4		9040.9	35.6	12.5	48.1	74	-25.9	PK



Engineer: Ternence	
Site: AC102	Time: 2017/04/18
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D(1-18GHz)	Polarity: Vertical
EUT: QCNFA435	Power: 120V/60HZ
Note: Transmit by 802.11a at 5720MHz	



No	Mark	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Type
1		7178.3	37.3	12.1	49.4	68.2(Note 6)	-18.8	PK
2		7773.1	33.7	15.3	49.0	68.2(Note 6)	-19.2	PK
3	*	8384.9	33.7	15.8	49.5	74	-24.5	PK
4		9093.3	34.9	15.5	50.4	74	-23.6	PK

Note:

1. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.
6. Is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBuV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the PK limit for out of band spurious emissions of 68.2dBuV/m.
7. The data above is worst case.

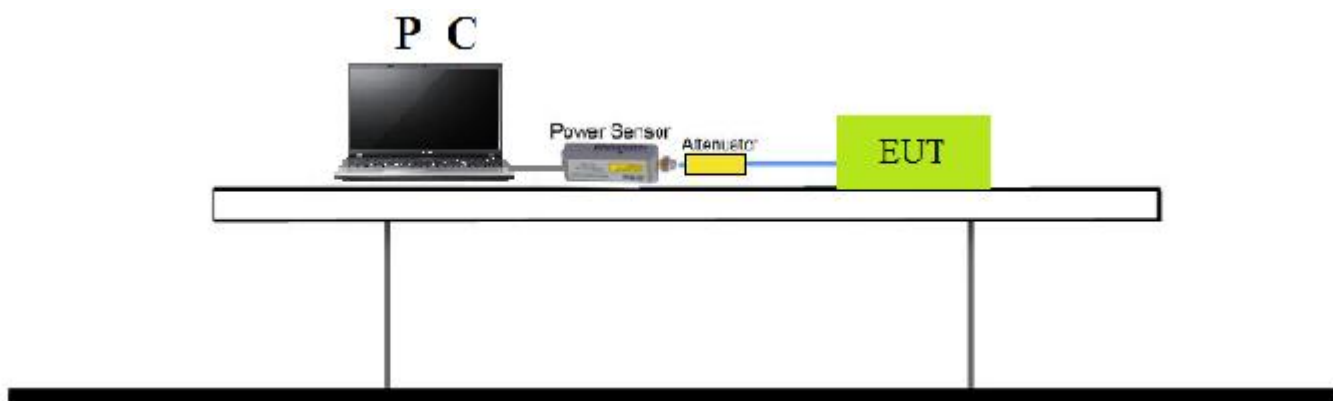


8. The test trace is same as the ambient noise (the test frequency range 18GHz~40GHz), therefore no data appear in the report.



4. Power Output

4.1 Test Setup



4.2 Limit

For FCC 15.407 Power Limit:

- 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, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. 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, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi..



- For the band 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 dBm + 10log B, where B is the 26 dB emission bandwidth in megahertz. If transmitting antenna of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that directional gain of the antenna exceeds 6 dBi.
- For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W (30dBm).

For RSS-247 Power Limit:

Frequency Band 5150-5250 MHz: The maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log₁₀B, dBm, whichever power is less. B is the 99% emission bandwidth in megahertz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

Frequency Band 5250-5350 MHz: The maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 log₁₀B, dBm, whichever is less. B is the 99% emission bandwidth in megahertz. Note that devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

Frequency Bands 5470-5600 MHz and 5650-5725 MHz: The maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 log₁₀B, dBm, whichever is less. B is the 99% emission bandwidth in megahertz. Note that devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

Frequency Band 5725-5850 MHz: The maximum conducted output power shall not exceed 1 W. The power spectral density shall not exceed 30 dBm in any 500 kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point 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-multipoint³ systems, omnidirectional applications and multiple collocated transmitters transmitting the same information.

4.3 Test Procedure

The EUT was tested according to KDB 789033 D02v01r03 Section E.3.b) for compliance to FCC 47CFR 15.407 requirements.

Use the wideband power meter to test RMS power and record the result.

Refer to RSS-247 Clause 6.



4.4 Test Result

Power output test was verified over all data rates of each mode shown as below, and then choose the maximum power output (yellow marker) for final test of each channel.

MCS Index for 802.11n	Spatial Streams	Data Rate (Mbps)				
		802.11a	20MHz Bandwidth		40MHz Bandwidth	
			800ns GI	400ns GI	800ns GI	400ns GI
0	1	6	6.5	7.2	13.5	15.0
1	1	9	13.0	14.4	27.0	30.0
2	1	12	19.5	21.7	40.5	45.0
3	1	18	26.0	28.9	54.0	60.0
4	1	24	39.0	43.3	81.0	90.0
5	1	36	52.0	57.8	108.0	120.0
6	1	48	58.5	65.0	121.5	135.0
7	1	54	65.0	72.2	135.0	150.0
8	2	---	13.0	14.4	27.0	30.0
9	2	---	26.0	28.9	54.0	60.0
10	2	---	39.0	43.3	81.0	90.0
11	2	---	52.0	57.8	108.0	120.0
12	2	---	78.0	86.7	162.0	180.0
13	2	---	104.0	115.6	216.0	240.0
14	2	---	117.0	130.0	243.0	270.0
15	2	---	130.0	144.0	270.0	300.0

Spatial Streams	MCS Index	Modulation type	Coding rate	Data Rate(Mb/s)					
				20MHz		40MHz		80MHz	
				Guard Interval		Guard Interval		Guard Interval	
				800ns	400ns	800ns	400ns	800ns	400ns
1	0	BPSK	1/2	6.5	7.2	13.5	15	29.3	32.5
	1	QPSK	1/2	13	14.4	27	30	58.5	65
	2	QPSK	3/4	19.5	21.7	40.5	45	87.8	97.5
	3	16-QAM	1/2	26	28.9	54	60	117	130
	4	16-QAM	3/4	39	43.3	81	90	175.5	195
	5	64-QAM	2/3	52	57.8	108	120	234	260



	6	64-QAM	3/4	58.5	65	121.5	135	263.3	292.5
	7	64-QAM	5/6	65	72.2	135	150	292.5	325
	8	256-QAM	3/4	78	86.7	162	180	351	390
	9	256-QAM	5/6	N/A	N/A	180	200	390	433.3

Power output at various data rates

Test Mode	Bandwidth	Frequency (MHz)	Channel	Data Rate	Average Power (dBm)
802.11a	20	5180	36	6	15.14
				24	14.92
				54	14.83
802.11n(20MHz)	20	5180	36	MCS0	14.94
				MCS5	14.79
				MCS7	14.63
802.11n(40MHz)	40	5190	38	MCS0	11.25
				MCS5	11.06
				MCS7	10.89
802.11ac(80MHz)	80	5210	42	MCS0NSS1	13.22
				MCS5NSS1	12.96
				MCS9NSS1	12.85



Configurations	Mode			
	Channel / Frequency (MHz)			
5.2GHz WLAN Average Power	802.11a			
	36/5180	40/5200	44/5220	48/5240
	15.14	16.62	16.50	16.86
	802.11n(HT20)			
	36/5180	40/5200	44/5220	48/5240
	14.94	16.60	16.86	16.60
	802.11ac(VHT20)			
	36/5180	40/5200	44/5220	48/5240
	15.01	16.76	16.84	16.29
	802.11n(HT40)			
	38/5190		46/5230	
	11.25		15.65	
	802.11ac(VHT40)			
	38/5190		38/5230	
	11.53		15.56	
	802.11ac(VHT80)			
	42/5210			
	13.22			

Configurations	Mode			
	Channel / Frequency (MHz)			
5.3GHz WLAN Average Power	802.11a			
	52/5260	56/5280	60/5300	64/5320
	16.79	16.77	16.95	15.78
	802.11n(HT20)			
	52/5260	56/5280	60/5300	64/5320
	16.59	15.80	16.65	14.63
	802.11ac(VHT20)			
	52/5260	56/5280	60/5300	64/5320
	16.28	15.18	16.19	14.56
	802.11n(HT40)			



	54/5270				62/5310			
	15.15				11.08			
	802.11ac(VHT40)							
	54/5270				62/5310			
	15.16				12.29			
	802.11ac(VHT80)							
	58/5290							
	10.99							
5.6GHz WLAN Average Power	802.11a							
	100/5500	112/5560	116/5580	128/5640	132/5660	136/5680	140/5700	144/5720
	14.34	16.73	16.90	16.81	16.78	16.93	13.82	16.60
	802.11n(HT20)							
	100/5500	112/5560	116/5580	128/5640	132/5660	136/5680	140/5700	144/5720
	14.47	16.46	16.53	16.87	16.83	16.69	14.37	16.63
	802.11ac(VHT20)							
	100/5500	112/5560	116/5580	128/5640	132/5660	136/5680	140/5700	144/5720
	13.81	16.48	16.56	16.81	16.73	16.74	14.35	16.67
	802.11n(HT40)							
	102/5510	110/5550	118/5590	126/5630	134/5670	142/5710		
	12.15	15.66	15.56	15.51	14.88	15.80		
	802.11ac(VHT40)							
	102/5510	110/5550	118/5590	126/5630	134/5670	142/5710		
	12.13	15.78	15.86	15.75	14.99	15.78		
	802.11ac(VHT80)							
	106/5530			122/5610			138/5690	
	11.04			15.04			15.25	

Configurations	Mode				
	Channel / Frequency (MHz)				
5.8GHz WLAN Average Power	802.11a				
	149/5745	153/5765	157/5785	161/5805	165/5825
	16.69	16.71	16.80	16.73	16.71
	802.11n(HT20)				
	149/5745	153/5765	157/5785	161/5805	165/5825
	16.55	16.69	16.41	16.58	16.50



	802.11ac(VHT20)				
	149/5745	153/5765	157/5785	161/5805	165/5825
	16.59	16.74	16.54	16.57	16.59
	802.11n(HT40)				
	151/5755			159/5795	
	14.27			14.89	
	802.11ac(VHT40)				
	151/5755			159/5795	
	14.43			14.99	
	802.11ac(VHT80)				
	155/5775				
	13.47				

Result	PASS
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5. Band Edges Measurement

5.1 Test Limit

For 15.205 requirement:

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).

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
¹ 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 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	(²)

**For 15.407(b) requirement:**

For transmitters operating in the 5.15-5.25 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm/MHz.

Operating Frequency Band (MHz)	EIRP Limit (dBm/MHz)	Equivalent Field Strength at 3m (dBuV/m)
5150 - 5350	-27	68.2
5470 - 5725	-27	68.2

For transmitters operating in the 5.725-5.85 GHz band:

All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

Note:

1. Refer to KDB 789033 D02v01r03 G2)c), as specified in § 15.407(b)(1)-(3) specifies that emissions outside of the respective U-NII bands are subject to a maximum emission limit of -27 dBm/MHz. § 15.407(b)(4) provides two requirement options for devices that operate in the 5.725 – 5.85 GHz band. If the option specified in § 15.407(b)(4)(ii) is exercised, then the procedures specified in Clause 11.11 of ANSI C63.10-2013 and/or in Section 11.0 of KDB Publication 558074 shall be utilized. In general, an out-of-band emission that complies with both the peak and average power limits of § 15.209 is not required to also satisfy the -27 dBm/MHz or -17 dBm/MHz maximum emission limit.

2. All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47 CFR must not exceed the limits shown in Table per Section 15.209.

FCC Part 15 Subpart C Paragraph 15.209		
Frequency [MHz]	Field Strength [V/m]	Measured Distance [Meters]
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	200	3
216 - 960	200	3
Above 960	500	3



5.2 Test Setting

Peak Measurements above 1GHz

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

Average Measurements above 1GHz

- (i) Set span to encompass the entire emission bandwidth (EBW) of the signal.
- (ii) Set sweep trigger to "free run."
- (iii) Set RBW = 1 MHz.
- (iv) Set $VBW \geq 1/T$, where T is defined in section II.B.1.a).

Note: For a mode $VBW=510\text{Hz}$; For n(20MHz) mode $VBW=560\text{Hz}$; For n(40MHz) mode $VBW=1.1\text{KHz}$; For ac(80MHz) mode $VBW=2.4\text{KHz}$.

- (v) Number of points in sweep $\geq 2 \times \text{span} / \text{RBW}$. (This ensures that bin-to-bin spacing is $\leq \text{RBW}/2$, so that narrowband signals are not lost between frequency bins.)

- (vi) Sweep time = auto.

- (vii) Detector = peak.

(viii) Video filtering shall be applied to a voltage-squared or power signal (rms), if possible. Otherwise, it shall be set to operate on a linear voltage signal (which may require use of linear display mode). Log mode must not be used.

- The preferred voltage-squared (i.e., power or rms) mode is selected on some analyzers by setting the "Average-VBW Type" to power or rms.
- ☐ If power averaging (rms) mode is not available, linear voltage mode is selected on some analyzers by setting the display mode to linear. Other analyzers have a setting for "Average-VBW Type" that can be set to "Voltage" regardless of the display mode.

- (ix) Trace mode = max hold.

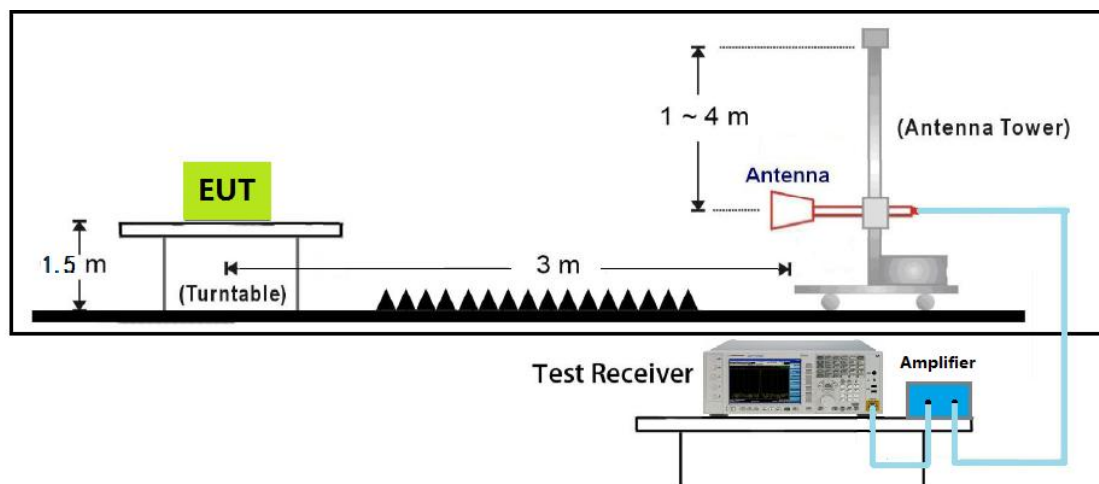
- (x) Allow max hold to run for at least 60 seconds, or longer as needed to allow the trace to stabilize.

(xi) Compute power by integrating the spectrum across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal using the instrument's band power measurement function with band limits set equal to the EBW (or occupied bandwidth) band edges. If the instrument does not have a band power function, sum the spectrum levels (in power units) at 1 MHz intervals extending across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the spectrum.

- (xii) If linear mode was used in step (viii), add 1 dB to the final result to compensate for the difference between linear averaging and power averaging.



5.3 Test Setup Layout





5.4 Measurement Data

802.11a 5180

No.	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type	Antenna Pole (V/H)
1	5150.000	65.713	69.162	-8.287	74.000	-3.449	PK	H
2	5150.000	48.836	52.285	-5.164	54.000	-3.449	AV	H
3	5150.000	66.794	70.243	-7.206	74.000	-3.449	PK	V
4	5150.000	49.592	53.041	-4.408	54.000	-3.449	AV	V

802.11a 5320

No.	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type	Antenna Pole (V/H)
1	5350.000	66.102	69.123	-7.898	74.000	-3.021	PK	H
2	5350.000	50.087	53.108	-3.913	54.000	-3.021	AV	H
3	5350.000	68.459	71.480	-5.541	74.000	-3.021	PK	V
4	5350.000	51.788	54.809	-2.212	54.000	-3.021	AV	V

802.11a 5500

No.	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type	Antenna Pole (V/H)
1	5460.000	62.681	65.466	-11.319	74.000	-2.785	PK	H
2	5470.000	64.930	67.694	-9.070	74.000	-2.764	PK	H
3	5460.000	36.833	39.618	-17.167	54.000	-2.785	AV	V
4	5470.000	41.295	44.059	-12.705	54.000	-2.764	AV	V
5	5460.000	63.997	66.782	-10.003	74.000	-2.785	PK	H
6	5470.000	65.446	68.210	-8.554	74.000	-2.764	PK	H
7	5460.000	37.625	40.410	-16.375	54.000	-2.785	AV	V
8	5470.000	42.453	45.217	-11.547	54.000	-2.764	AV	V



802.11a 5700

No	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type	Antenna Pole (V/H)
1	5725.000	68.336	63.043	-5.664	74.000	5.293	PK	H
2	5725.000	47.335	42.042	-6.665	54.000	5.293	AV	H
3	5725.000	69.428	64.135	-4.572	74.000	5.293	PK	V
4	5725.000	48.785	43.492	-5.215	54.000	5.293	AV	V

802.11a 5745

No	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type	Antenna Pole (V/H)
1	5650.000	65.951	60.688	-8.049	74.000	5.263	PK	H
2	5700.000	65.869	60.585	-39.331	105.200	5.284	PK	H
3	5720.000	66.695	61.402	-44.105	110.800	5.293	PK	H
4	5725.000	72.749	67.454	-49.451	122.200	5.295	PK	H
5	5650.000	65.428	60.165	-8.572	74.000	5.263	PK	V
6	5700.000	66.046	60.762	-39.154	105.200	5.284	PK	V
7	5720.000	67.836	62.543	-42.964	110.800	5.293	PK	V
8	5725.000	74.000	68.705	-48.200	122.200	5.295	PK	V

802.11a 5825

No	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type	Antenna Pole (V/H)
1	5850.000	69.692	64.345	-52.508	122.200	5.347	PK	H
2	5855.000	68.946	63.597	-41.854	110.800	5.349	PK	H
3	5875.000	66.201	60.844	-38.999	105.200	5.357	PK	H
4	5925.000	65.324	59.945	-8.676	74.000	5.379	PK	H
5	5850.000	68.302	62.955	-53.898	122.200	5.347	PK	V
6	5855.000	68.410	63.061	-42.390	110.800	5.349	PK	V
7	5875.000	66.857	61.500	-38.343	105.200	5.357	PK	V
8	5925.000	66.795	61.416	-7.205	74.000	5.379	PK	V



802.11 n20 5180

No	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type	Antenna Pole (V/H)
1	5150.000	64.454	67.903	-9.546	74.000	-3.449	PK	H
2	5150.000	46.053	49.502	-7.947	54.000	-3.449	AV	H
3	5150.000	65.956	69.405	-8.044	74.000	-3.449	PK	V
4	5150.000	46.744	50.193	-7.256	54.000	-3.449	AV	V

802.11n20 5320

No	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type	Antenna Pole (V/H)
1	5350.000	64.305	67.326	-9.695	74.000	-3.021	PK	H
2	5350.000	48.980	52.001	-5.020	54.000	-3.021	AV	H
3	5350.000	66.288	69.309	-7.712	74.000	-3.021	PK	V
4	5350.000	49.550	52.571	-4.450	54.000	-3.021	AV	V

802.11 n20 5500

No	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type	Antenna Pole (V/H)
1	5460.000	62.337	65.122	-11.663	74.000	-2.785	PK	H
2	5470.000	66.776	69.540	-7.224	74.000	-2.764	PK	H
3	5460.000	37.602	40.387	-16.398	54.000	-2.785	AV	V
4	5470.000	41.068	43.832	-12.932	54.000	-2.764	AV	V
5	5460.000	63.210	65.995	-10.790	74.000	-2.785	PK	H
6	5470.000	67.005	69.769	-6.995	74.000	-2.764	PK	H
7	5460.000	37.998	40.783	-16.002	54.000	-2.785	AV	V
8	5470.000	42.216	44.980	-11.784	54.000	-2.764	AV	V



802.11 n20 5700

No	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type	Antenna Pole (V/H)
1	5725.000	66.358	61.065	-7.642	74.000	5.293	PK	H
2	5725.000	46.901	41.608	-7.099	54.000	5.293	AV	H
3	5725.000	67.251	61.958	-6.749	74.000	5.293	PK	V
4	5725.000	48.302	43.009	-5.698	54.000	5.293	AV	V

802.11 n20 5745

No	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type	Antenna Pole (V/H)
1	5650.000	66.073	60.810	-7.927	74.000	5.263	PK	H
2	5700.000	65.275	59.991	-39.925	105.200	5.284	PK	H
3	5720.000	68.653	63.360	-42.147	110.800	5.293	PK	H
4	5725.000	74.723	69.428	-47.477	122.200	5.295	PK	H
5	5650.000	65.583	60.320	-8.417	74.000	5.263	PK	V
6	5700.000	65.470	60.186	-39.730	105.200	5.284	PK	V
7	5720.000	68.373	63.080	-42.427	110.800	5.293	PK	V
8	5725.000	72.440	67.145	-49.760	122.200	5.295	PK	V

802.11 n20 5825

No	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type	Antenna Pole (V/H)
1	5850.000	75.133	69.786	-47.067	122.200	5.347	PK	H
2	5855.000	70.126	64.777	-40.674	110.800	5.349	PK	H
3	5875.000	66.635	61.278	-38.565	105.200	5.357	PK	H
4	5925.000	65.482	60.103	-8.518	74.000	5.379	PK	H
5	5850.000	71.223	65.876	-50.977	122.200	5.347	PK	V
6	5855.000	69.919	64.570	-40.881	110.800	5.349	PK	V
7	5875.000	68.303	62.946	-36.897	105.200	5.357	PK	V
8	5925.000	66.313	60.934	-7.687	74.000	5.379	PK	V



802.11 n40 5190

No	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type	Antenna Pole (V/H)
1	5150.000	64.749	68.198	-9.251	74.000	-3.449	PK	H
2	5150.000	48.401	51.850	-5.599	54.000	-3.449	AV	H
3	5150.000	65.906	69.355	-8.094	74.000	-3.449	PK	V
4	5150.000	49.219	52.668	-4.781	54.000	-3.449	AV	V

802.11n40 5310

No	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type	Antenna Pole (V/H)
1	5350.000	67.711	70.732	-6.289	74.000	-3.021	PK	H
2	5350.000	49.373	52.394	-4.627	54.000	-3.021	AV	H
3	5350.000	68.238	71.259	-5.762	74.000	-3.021	PK	V
4	5350.000	50.124	53.145	-3.876	54.000	-3.021	AV	V

802.11 n40 5510

No	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type	Antenna Pole (V/H)
1	5460.000	59.962	62.747	-14.038	74.000	-2.785	PK	H
2	5470.000	65.499	68.263	-8.501	74.000	-2.764	PK	H
3	5460.000	38.993	41.778	-15.007	54.000	-2.785	AV	V
4	5470.000	45.652	48.416	-8.348	54.000	-2.764	AV	V
5	5460.000	60.317	63.102	-13.683	74.000	-2.785	PK	H
6	5470.000	66.348	69.112	-7.652	74.000	-2.764	PK	H
7	5460.000	39.308	42.093	-14.692	54.000	-2.785	AV	V
8	5470.000	46.429	49.193	-7.571	54.000	-2.764	AV	V



802.11 n40 5670

No	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type	Antenna Pole (V/H)
1	5725.000	65.750	60.457	-8.250	74.000	5.293	PK	H
2	5725.000	46.496	41.203	-7.504	54.000	5.293	AV	H
3	5725.000	66.251	60.958	-7.749	74.000	5.293	PK	V
4	5725.000	48.384	43.091	-5.616	54.000	5.293	AV	V

802.11 n40 5755

No	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type	Antenna Pole (V/H)
1	5650.000	65.699	60.436	-8.301	74.000	5.263	PK	H
2	5700.000	66.270	60.986	-38.930	105.200	5.284	PK	H
3	5720.000	70.622	65.329	-40.178	110.800	5.293	PK	H
4	5725.000	74.657	69.362	-47.543	122.200	5.295	PK	H
5	5650.000	65.440	60.177	-8.560	74.000	5.263	PK	V
6	5700.000	65.507	60.223	-39.693	105.200	5.284	PK	V
7	5720.000	73.409	68.116	-37.391	110.800	5.293	PK	V
8	5725.000	74.925	69.630	-47.275	122.200	5.295	PK	V

802.11 n40 5795

No	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type	Antenna Pole (V/H)
1	5850.000	70.671	65.324	-51.529	122.200	5.347	PK	H
2	5855.000	69.490	64.141	-41.310	110.800	5.349	PK	H
3	5875.000	67.001	61.644	-38.199	105.200	5.357	PK	H
4	5925.000	65.223	59.844	-8.777	74.000	5.379	PK	H
5	5850.000	68.601	63.254	-53.599	122.200	5.347	PK	V
6	5855.000	68.901	63.552	-41.899	110.800	5.349	PK	V
7	5875.000	67.212	61.855	-37.988	105.200	5.357	PK	V
8	5925.000	66.987	61.608	-7.013	74.000	5.379	PK	V



802.11 ac80 5210

No.	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type	Antenna Pole (V/H)
1	5150.000	70.336	73.785	-3.664	74.000	-3.449	PK	H
2	5150.000	49.240	52.689	-4.760	54.000	-3.449	AV	H
3	5150.000	71.974	75.423	-2.026	74.000	-3.449	PK	V
4	5150.000	49.876	53.325	-4.124	54.000	-3.449	AV	V

802.11 ac80 5290

No.	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type	Antenna Pole (V/H)
1	5350.000	66.889	69.910	-7.111	74.000	-3.021	PK	H
2	5350.000	47.190	50.211	-6.810	54.000	-3.021	AV	H
3	5350.000	67.031	70.052	-6.969	74.000	-3.021	PK	V
4	5350.000	48.016	51.037	-5.984	54.000	-3.021	AV	V

802.11 ac80 5530

No.	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type	Antenna Pole (V/H)
1	5460.000	62.551	65.336	-11.449	74.000	-2.785	PK	H
2	5470.000	62.864	65.628	-11.136	74.000	-2.764	PK	H
3	5460.000	44.122	46.907	-9.878	54.000	-2.785	AV	V
4	5470.000	44.650	47.414	-9.350	54.000	-2.764	AV	V
5	5460.000	63.391	66.176	-10.609	74.000	-2.785	PK	H
6	5470.000	63.830	66.594	-10.170	74.000	-2.764	PK	H
7	5460.000	44.684	47.469	-9.316	54.000	-2.785	AV	V
8	5470.000	45.472	48.236	-8.528	54.000	-2.764	AV	V



802.11 ac80 5775

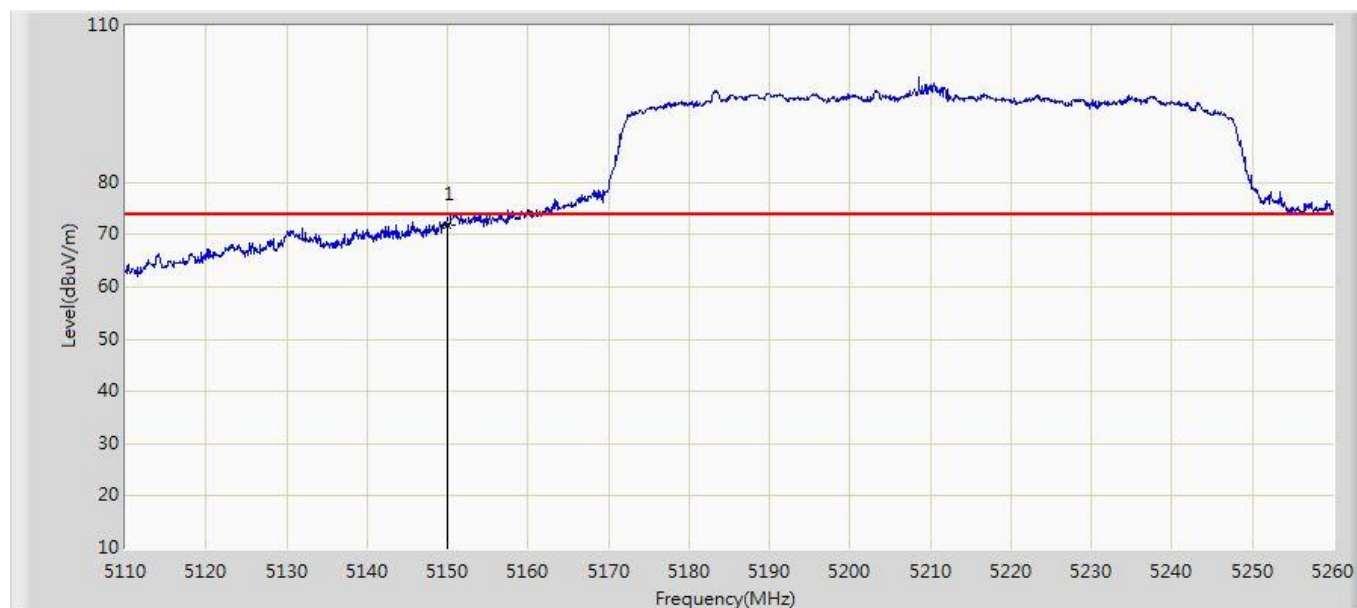
No	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type	Antenna Pole (V/H)
1	5650.000	66.455	61.192	-7.545	74.000	5.263	PK	H
2	5700.000	69.437	64.153	-35.763	105.200	5.284	PK	H
3	5720.000	71.349	66.056	-39.451	110.800	5.293	PK	H
4	5725.000	73.926	68.631	-48.274	122.200	5.295	PK	H
5	5850.000	72.530	67.183	-49.670	122.200	5.347	PK	H
6	5855.000	69.723	64.374	-41.077	110.800	5.349	PK	H
7	5875.000	66.271	60.914	-38.929	105.200	5.357	PK	H
8	5925.000	65.931	60.552	-8.069	74.000	5.379	PK	H
9	5650.000	66.156	60.893	-7.844	74.000	5.263	PK	V
10	5700.000	70.399	65.115	-34.801	105.200	5.284	PK	V
11	5720.000	72.701	67.408	-38.099	110.800	5.293	PK	V
12	5725.000	73.465	68.170	-48.735	122.200	5.295	PK	V
13	5850.000	68.556	63.209	-53.644	122.200	5.347	PK	V
14	5855.000	68.636	63.287	-42.164	110.800	5.349	PK	V
15	5875.000	65.982	60.625	-39.218	105.200	5.357	PK	V
16	5925.000	67.606	62.227	-6.394	74.000	5.379	PK	V

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or AVG measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor
3. The test trace is same as the ambient noise (the test frequency range: 9kHz~30MHz, 18GHz~40GHz), therefore no data appear in the report.

**The worst-case plots of bandedge for each mode in each operating band:**

Site: AC102	Time: 2017/04/16
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D(1-18GHz)	Polarity: Vertical
EUT: QCNFA435	Power: AC 120V/60Hz
Note: Mode1: Transmit at 5210MHz by 802.11ac80	



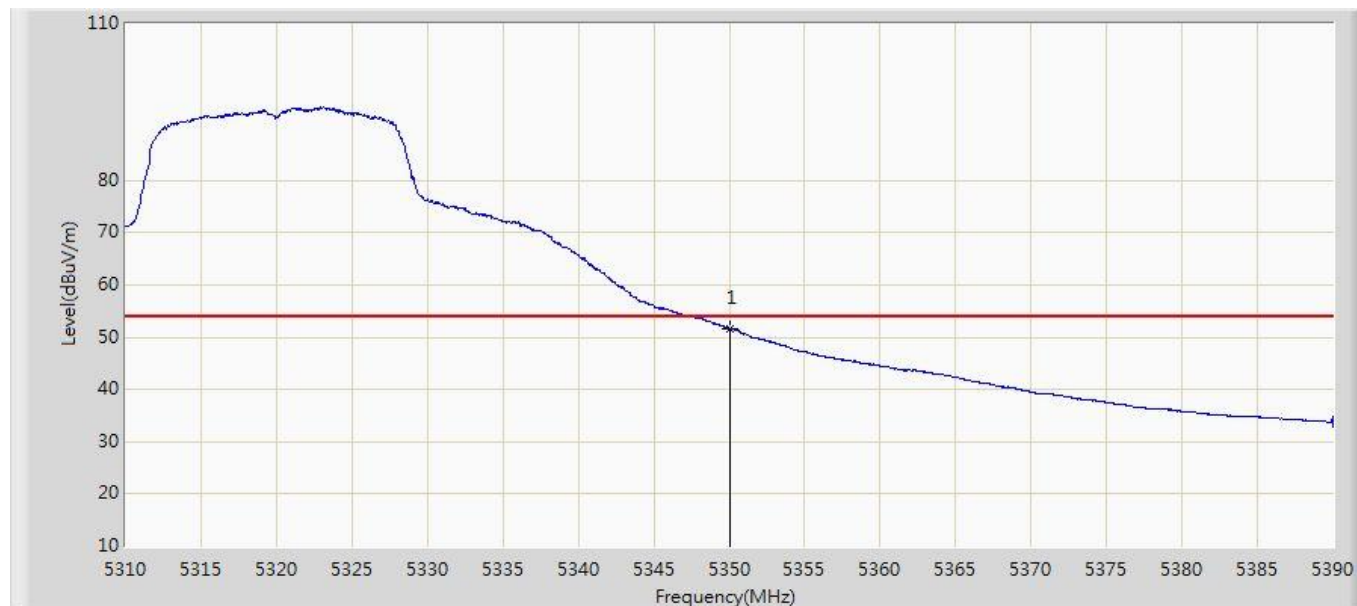
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5150.000	71.974	75.423	-2.026	74.000	-3.449	PK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or AVG measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor
3. The test trace is same as the ambient noise (the test frequency range: 9kHz~30MHz, 18GHz~40GHz), therefore no data appear in the report.



Site: AC102	Time: 2017/04/16
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D(1-18GHz)	Polarity: Vertical
EUT: QCNFA435	Power: AC 120V/60Hz
Note: Mode1: Transmit at 5320MHz by 802.11a	



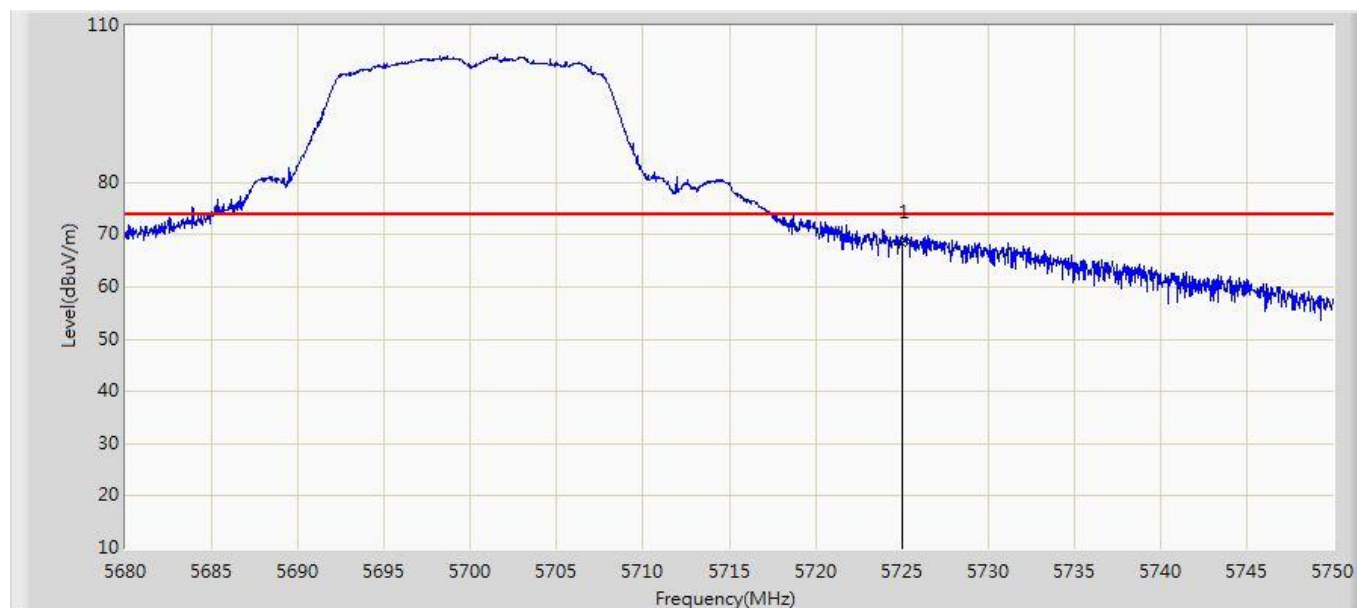
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5350.000	51.788	54.809	-2.212	54.000	-3.021	AV

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or AVG measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor
3. The test trace is same as the ambient noise (the test frequency range: 9kHz~30MHz, 18GHz~40GHz), therefore no data appear in the report.



Site: AC102	Time: 2017/04/16
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA9120D(1-18GHz)	Polarity: Vertical
EUT: QCNFA435	Power: AC 120V/60Hz
Note: Mode1: Transmit at 5700MHz by 802.11a	



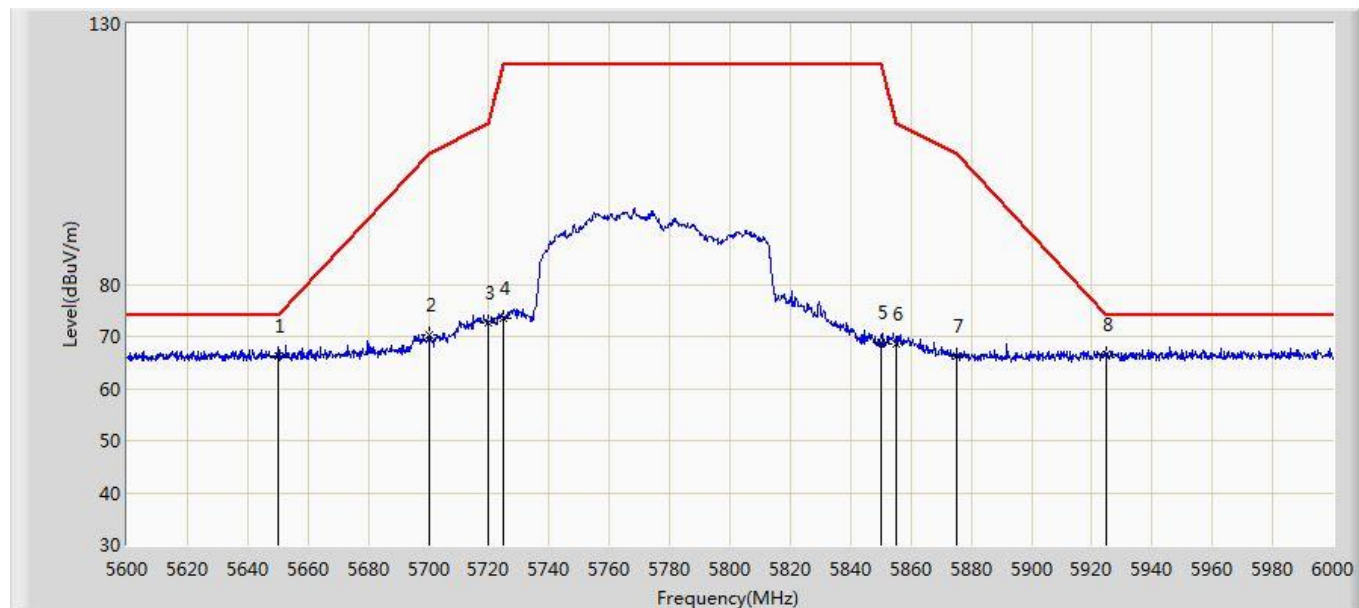
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5725.000	69.428	64.135	-4.572	74.000	5.293	PK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or AVG measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor
3. The test trace is same as the ambient noise (the test frequency range: 9kHz~30MHz, 18GHz~40GHz), therefore no data appear in the report.



Site: AC102	Time: 2017/04/16
Limit: Bandedge-Band3	Margin: 0
Probe: BBHA9120D(1-18GHz)	Polarity: Vertical
EUT: QCNFA435	Power: AC 120V/60Hz
Note: Mode1: Transmit at 5775MHz by 802.11ac80	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5650.000	66.156	60.893	-7.844	74.000	5.263	PK
2		5700.000	70.399	65.115	-34.801	105.200	5.284	PK
3		5720.000	72.701	67.408	-38.099	110.800	5.293	PK
4		5725.000	73.465	68.170	-48.735	122.200	5.295	PK
5		5850.000	68.556	63.209	-53.644	122.200	5.347	PK
6		5855.000	68.636	63.287	-42.164	110.800	5.349	PK
7		5875.000	65.982	60.625	-39.218	105.200	5.357	PK
8	*	5925.000	67.606	62.227	-6.394	74.000	5.379	PK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or AVG measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor
3. The test trace is same as the ambient noise (the test frequency range: 9kHz~30MHz, 18GHz~40GHz), therefore no data appear in the report.

--End--