



FCC RF Test Report

APPLICANT : Ubiquiti Networks, Inc.
EQUIPMENT : Front Row Camera
BRAND NAME : ULABS
MODEL NAME : FR
FCC ID : SWX-FR
STANDARD : FCC Part 15 Subpart E §15.407
CLASSIFICATION : (NII) Unlicensed National Information Infrastructure

The product was received on Mar. 21, 2017 and testing was completed on Apr. 10, 2017. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

Reviewed by: Joseph Lin / Supervisor

Approved by: Jones Tsai / Manager



SPORTON INTERNATIONAL INC.

No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan District, Tao Yuan City, Taiwan, R.O.C.

SPORTON INTERNATIONAL INC.

TEL : 886-3-327-3456

FAX : 886-3-328-4978

FCC ID : SWX-FR

Page Number : 1 of 28

Report Issued Date : Apr. 26, 2017

Report Version : Rev. 01

Report Template No.: BU5-FR15EWLB4 AC Version 2.0



TABLE OF CONTENTS

REVISION HISTORY.....3

SUMMARY OF TEST RESULT4

1 GENERAL DESCRIPTION5

 1.1 Applicant5

 1.2 Manufacturer5

 1.3 Product Feature of Equipment Under Test.....5

 1.4 Modification of EUT5

 1.5 Testing Location6

 1.6 Applicable Standards.....6

2 TEST CONFIGURATION OF EQUIPMENT UNDER TEST7

 2.1 Carrier Frequency and Channel7

 2.2 Test Mode8

 2.3 Connection Diagram of Test System9

 2.4 Support Unit used in test configuration and system9

 2.5 EUT Operation Test Setup10

 2.6 Measurement Results Explanation Example.....10

3 TEST RESULT11

 3.1 6dB and 26dB and 99% Occupied Bandwidth Measurement11

 3.2 Maximum Conducted Output Power Measurement14

 3.3 Power Spectral Density Measurement15

 3.4 Unwanted Emissions Measurement17

 3.5 AC Conducted Emission Measurement.....22

 3.6 Frequency Stability Measurement24

 3.7 Automatically Discontinue Transmission25

 3.8 Antenna Requirements26

4 LIST OF MEASURING EQUIPMENT27

5 UNCERTAINTY OF EVALUATION28

APPENDIX A. CONDUCTED TEST RESULTS

APPENDIX B. AC CONDUCTED EMISSION TEST RESULT

APPENDIX C. RADIATED SPURIOUS EMISSION

APPENDIX D. RADIATED SPURIOUS EMISSION PLOTS

APPENDIX E. DUTY CYCLE PLOTS

APPENDIX F. SETUP PHOTOGRAPHS



REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR741250E	Rev. 01	Initial issue of report	Apr. 26, 2017



SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	15.403(i)	6dB, 26dB and 99% Occupied Bandwidth	> 500kHz	Pass	-
3.2	15.407(a)	Maximum Conducted Output Power	≤ 30 dBm	Pass	-
3.3	15.407(a)	Power Spectral Density	≤ 30 dBm/500kHz	Pass	-
3.4	15.407(b)	Unwanted Emissions	15.407(b)(4)(i) & 15.209(a)	Pass	Under limit 3.16 dB at 11650.000 MHz
3.5	15.207	AC Conducted Emission	15.207(a)	Pass	Under limit 11.50 dB at 0.190 MHz
3.6	15.407(g)	Frequency Stability	Within Operation Band	Pass	-
3.7	15.407(c)	Automatically Discontinue Transmission	Discontinue Transmission	Pass	-
3.8	15.203 & 15.407(a)	Antenna Requirement	N/A	Pass	-



1 General Description

1.1 Applicant

Ubiquiti Networks, Inc.
2580 Orchard Parkway San Jose, CA 95131

1.2 Manufacturer

Ubiquiti Networks, Inc.
2580 Orchard Parkway San Jose, CA 95131

1.3 Product Feature of Equipment Under Test

Bluetooth, Wi-Fi 2.4GHz 802.11b/g/n, Wi-Fi 5GHz 802.11a/n/ac

Product Specification subjective to this standard	
Antenna Type	WLAN: Internal Antenna Bluetooth: Internal Antenna

1.4 Modification of EUT

No modifications are made to the EUT during all test items.



1.5 Testing Location

Sporton Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code : 1190) and the FCC designation No. TW0007 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC Test.

Test Site	SPORTON INTERNATIONAL INC.	
Test Site Location	No. 52, Hwa Ya 1 st Rd., Hwa Ya Technology Park, Kwei-Shan District, Tao Yuan City, Taiwan, R.O.C. TEL: +886-3-327-3456 FAX: +886-3-328-4978	
Test Site No.	Sporton Site No.	
	TH05-HY	CO05-HY

Note: The test site complies with ANSI C63.4 2014 requirement.

Test Site	SPORTON INTERNATIONAL INC.	
Test Site Location	No.58, Aly. 75, Ln. 564, Wenhua 3rd Rd. Guishan Dist, Taoyuan City, Taiwan (R.O.C.) TEL: +886-3-327-0868 FAX: +886-3-327-0855	
Test Site No.	Sporton Site No.	
	03CH13-HY	

Note: The test site complies with ANSI C63.4 2014 requirement.

1.6 Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ FCC Part 15 Subpart E
- ♦ FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r03.
- ♦ FCC KDB 644545 D03 Guidance for IEEE 802 11ac New Rules v01
- ♦ ANSI C63.10-2013

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.



2 Test Configuration of Equipment Under Test

- a. The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conduction emission (150 kHz to 30 MHz), radiation emission (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower). For radiated measurement, pre-scanned in three orthogonal panels, X, Y, Z. The worst cases (Y plane) were recorded in this report.

- b. AC power line Conducted Emission was tested under maximum output power.

2.1 Carrier Frequency and Channel

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
5725-5850 MHz Band 4 (U-NII-3)	149	5745	157	5785
	151*	5755	159*	5795
	153	5765	161	5805
	155#	5775	165	5825

Note:

- 1. The above Frequency and Channel in "*" were 802.11n HT40 and 802.11ac VHT40.
- 2. The above Frequency and Channel in "#" were 802.11ac VHT80.



2.2 Test Mode

Final test mode of conducted test items and radiated spurious emissions are considering the modulation and worse data rates as below table.

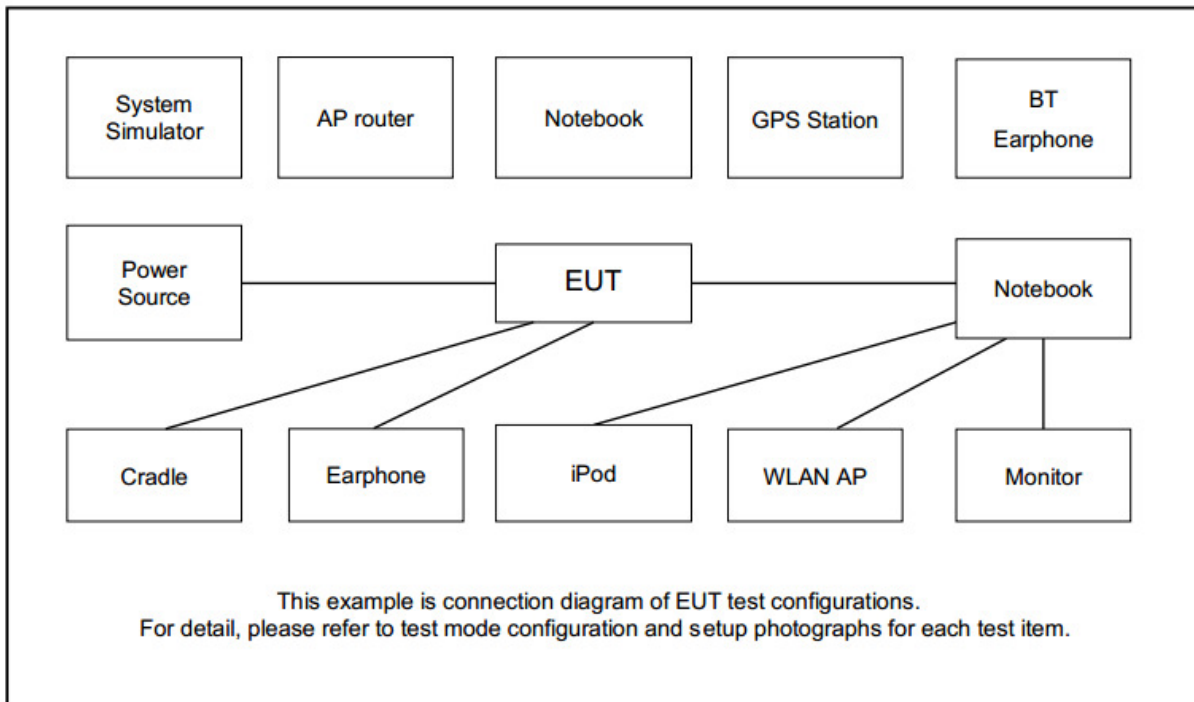
Modulation	Data Rate
802.11a	6 Mbps
802.11n HT20	MCS0
802.11n HT40	MCS0
802.11ac VHT20	MCS0
802.11ac VHT40	MCS0
802.11ac VHT80	MCS0

Test Cases	
AC Conducted Emission	Mode 1 : Bluetooth Link + WLAN (5GHz) Link + Camera (Front) + USB Cable (Data Link with Notebook)

Ch. #		Band IV : 5725-5850 MHz		
		802.11a	802.11n HT20	802.11n HT40
L	Low	149	149	151
M	Middle	157	157	-
H	High	165	165	159

Ch. #		Band IV : 5725-5850 MHz		
		802.11ac VHT20	802.11ac VHT40	802.11ac VHT80
L	Low	149	151	-
M	Middle	157	-	155
H	High	165	159	-

2.3 Connection Diagram of Test System



2.4 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	Bluetooth Earphone	Sony Ericsson	MW600	PY7DDA-2029	N/A	N/A
2.	WLAN AP	ASUS	RT-AC66U	MSQ-RTAC66U	N/A	Unshielded, 1.8 m
3.	iPod	Apple	A1285	FCC DoC	Shielded, 1.0 m	N/A
4.	Notebook	DELL	Latitude E6320	FCC DoC/ Contains FCC ID: QDS-BRCM1054	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m



2.5 EUT Operation Test Setup

The RF test items, programmed RF utility, “QRCT” installed in the notebook make the EUT provide functions like channel selection and power level for continuous transmitting and receiving signals.

2.6 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator factor between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

Example :

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

Offset = RF cable loss + attenuator factor.

Following shows an offset computation example with cable loss 4.2 dB and 10dB attenuator.

$$\begin{aligned} \text{Offset(dB)} &= \text{RF cable loss(dB)} + \text{attenuator factor(dB)}. \\ &= 4.2 + 10 = 14.2 \text{ (dB)} \end{aligned}$$

3 Test Result

3.1 6dB and 26dB and 99% Occupied Bandwidth Measurement

3.1.1 Description of 6dB and 26dB and 99% Occupied Bandwidth

The minimum 6 dB bandwidth shall be at least 500 kHz.

26dB and 99% Occupied bandwidth are reporting only.

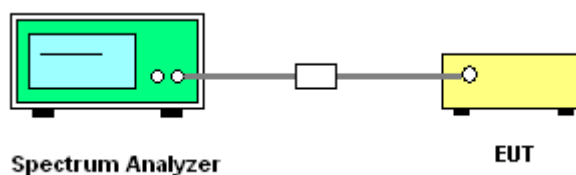
3.1.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.1.3 Test Procedures

1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r03.
Section C) Emission bandwidth for the band 5.725-5.85GHz
2. Set RBW = 100kHz.
3. Set the VBW $\geq 3 \times$ RBW.
4. Detector = Peak.
5. Trace mode = max hold
6. Measure the maximum width of the emission that is 6 dB down from the peak of the emission.
7. Measure and record the results in the test report.

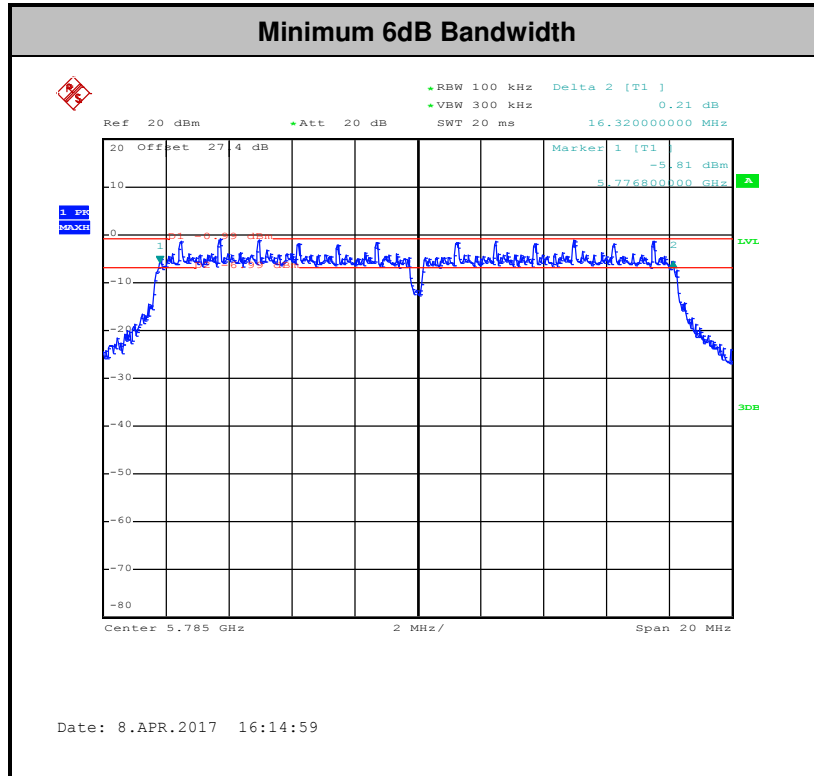
3.1.4 Test Setup

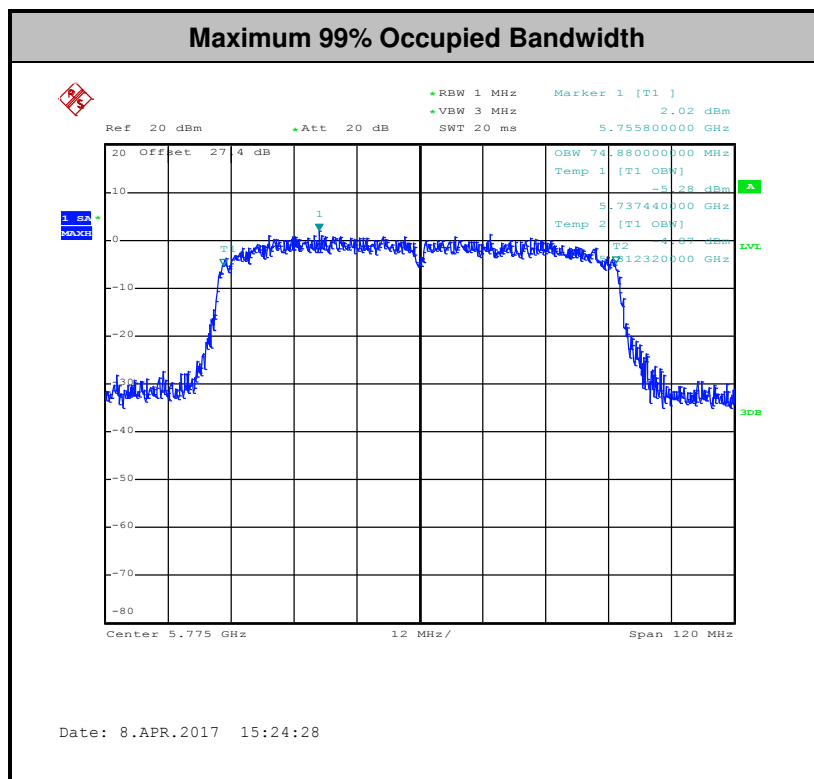
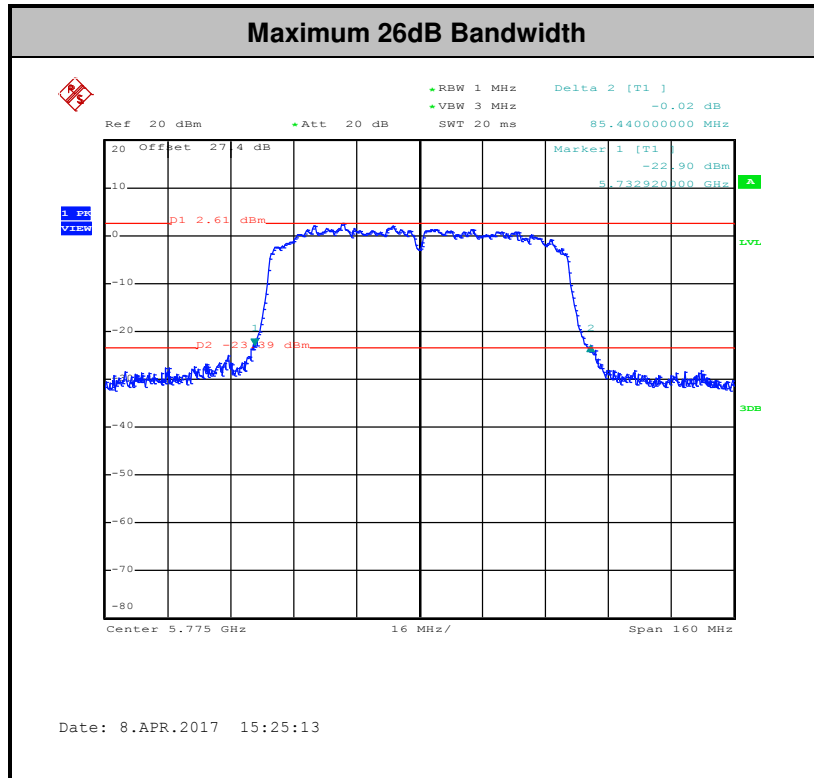




3.1.5 Test Result of 6dB Bandwidth

Please refer to Appendix A.





Note: The occupied channel bandwidth is maintained within the band of operation for all of the modulations.

3.2 Maximum Conducted Output Power Measurement

3.2.1 Limit of Maximum Conducted Output Power

For the band 5.725–5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W.

If transmitting antennas of directional gain greater than 6 dBi are used, the peak output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

3.2.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

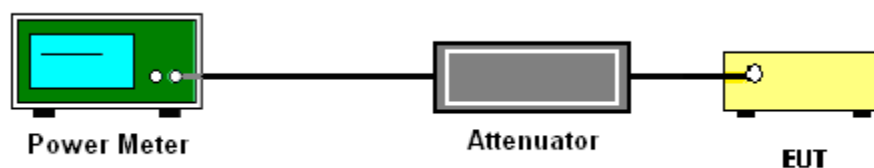
3.2.3 Test Procedures

The testing follows Method PM of FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r03.

Method PM (Measurement using an RF average power meter):

1. Measurement is performed using a wideband RF power meter.
2. The EUT is configured to transmit continuously with a consistent duty cycle at its maximum power control level.
3. Measure the average power of the transmitter, and the average power is corrected with duty factor, $10 \log(1/x)$, where x is the duty cycle.

3.2.4 Test Setup



3.2.5 Test Result of Maximum Conducted Output Power

Please refer to Appendix A.



3.3 Power Spectral Density Measurement

3.3.1 Limit of Power Spectral Density

For the band 5.725–5.85 GHz, the maximum 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, the peak output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

3.3.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.3.3 Test Procedures

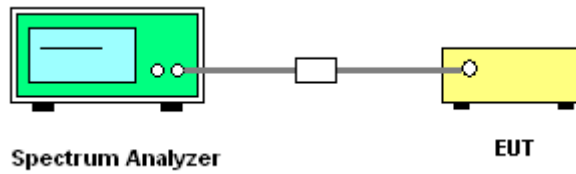
The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r03. Section F) Maximum power spectral density.

Method SA-2

(trace averaging across on and off times of the EUT transmissions, followed by duty cycle correction).

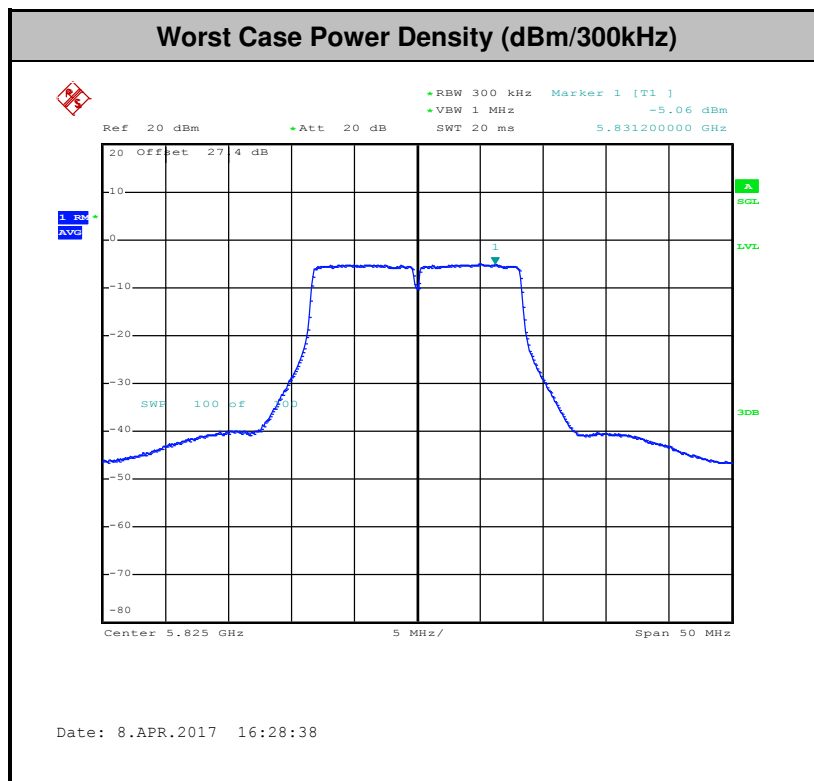
- Measure the duty cycle.
 - Set span to encompass the entire emission bandwidth (EBW) of the signal.
 - Set RBW = 300 kHz.
 - Set VBW \geq 1 MHz.
 - Number of points in sweep \geq 2 Span / RBW.
 - Sweep time = auto.
 - Detector = RMS
 - Trace average at least 100 traces in power averaging mode.
 - Add $10 \log(500\text{kHz}/\text{RBW})$ to the test result.
 - Add $10 \log(1/x)$, where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times. For example, add $10 \log(1/0.25) = 6$ dB if the duty cycle is 25 percent.
1. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.
 2. Each plot has already offset with cable loss, and attenuator loss. Measure the PPSD and record it.

3.3.4 Test Setup



3.3.5 Test Result of Power Spectral Density

Please refer to Appendix A.





3.4 Unwanted Emissions Measurement

This section is to measure unwanted emissions through radiated measurement for band edge spurious emissions and out of band emissions measurement.

3.4.1 Limit of Unwanted Emissions

- (1) For transmitters operating in the 5.725-5.85 GHz band:
15.407(b)(4)(i) 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.
- (2) Unwanted spurious emissions fallen in restricted bands per FCC Part15.205 shall comply with the general field strength limits set forth in § 15.209 as below table,

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30.0	30	30
30 – 88	100	3
88 – 216	150	3
216 - 960	200	3
Above 960	500	3

Note: The following formula is used to convert the EIRP to field strength.

$$E = \frac{1000000\sqrt{30P}}{3} \mu\text{V/m, where P is the eirp (Watts)}$$

EIRP (dBm)	Field Strength at 3m (dBμV/m)
-17	78.3
- 27	68.3



(3) KDB789033 D02 v01r03 G)2)c)

- (i) Section 15.407(b)(1-3) specifies the unwanted emissions limit for the U-NII-1 and 2 bands. As specified, emissions above 1000 MHz that are outside of the restricted bands are subject to a peak emission limit of -27 dBm/MHz. However, an out-of-band emission that complies with both the average and peak limits of Section 15.209 is not required to satisfy the -27 dBm/MHz dBm/MHz peak emission limit.
- (ii) Section 15.407(b)(4) specifies the unwanted emissions limit for the U-NII-3 band. A band emissions mask is specified in Section 15.407(b)(4)(i). An alternative to the band emissions mask is specified in Section 15.407(b)(4)(ii). The alternative limits are based on the highest antenna gain specified in the filing. There are also marketing and importation restrictions for the alternative limit.

3.4.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.4.3 Test Procedures

1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r03.

Section G) Unwanted emissions measurement.

(1) Procedure for Unwanted Emissions Measurements Below 1000MHz

- RBW = 120 kHz
- VBW = 300 kHz
- Detector = Peak
- Trace mode = max hold

(2) Procedure for Peak Unwanted Emissions Measurements Above 1000 MHz

- RBW = 1 MHz
- VBW \geq 3 MHz
- Detector = Peak
- Sweep time = auto
- Trace mode = max hold

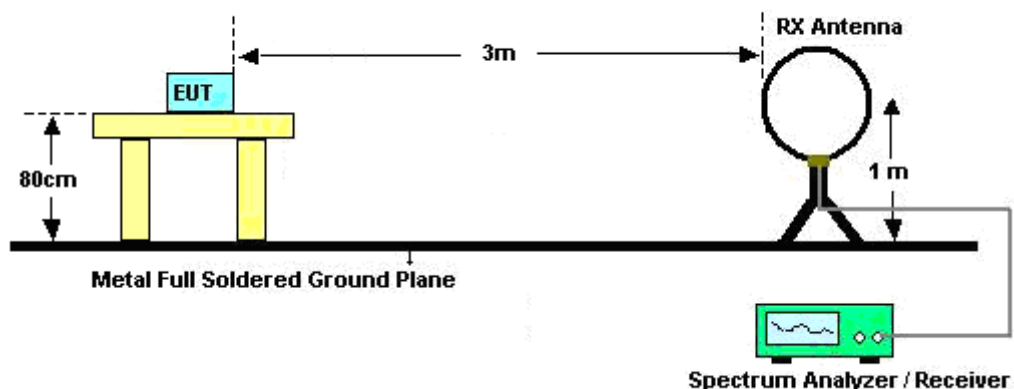
(3) Procedures for Average Unwanted Emissions Measurements Above 1000MHz

- RBW = 1 MHz
- VBW = 10 Hz, when duty cycle is no less than 98 percent.
- VBW \geq 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

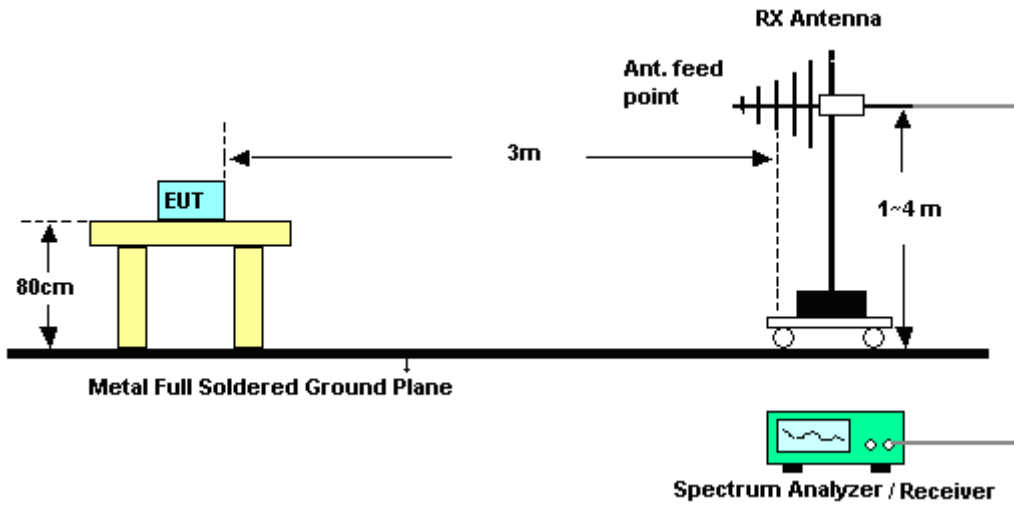
2. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
3. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
4. The antenna is a broadband antenna and its height is adjusted between one meter and four meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.
5. For each suspected emission, the EUT was arranged to its worst case and then adjust the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading.
6. For testing below 1GHz, if the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then peak values of EUT will be reported, otherwise, the emissions will be repeated one by one using the CISPR quasi-peak method and reported.
7. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in average mode also complies with the limit in average mode), then peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

3.4.4 Test Setup

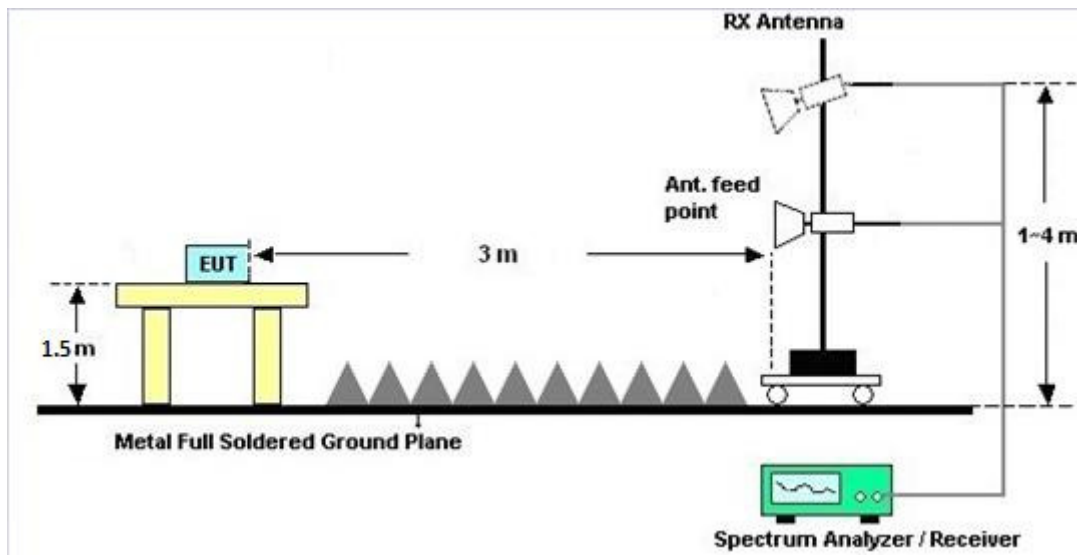
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz





3.4.5 Test Results of Radiated Spurious Emissions (9 kHz ~ 30 MHz)

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line was not reported.

3.4.6 Test Result of Radiated Spurious at Band Edges

Please refer to Appendix C and D.

3.4.7 Duty Cycle

Please refer to Appendix E.

3.4.8 Test Result of Radiated Spurious Emissions (30MHz ~ 10th Harmonic)

Please refer to Appendix C and D.



3.5 AC Conducted Emission Measurement

3.5.1 Limit of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

Frequency of emission (MHz)	Conducted limit (dB μ V)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

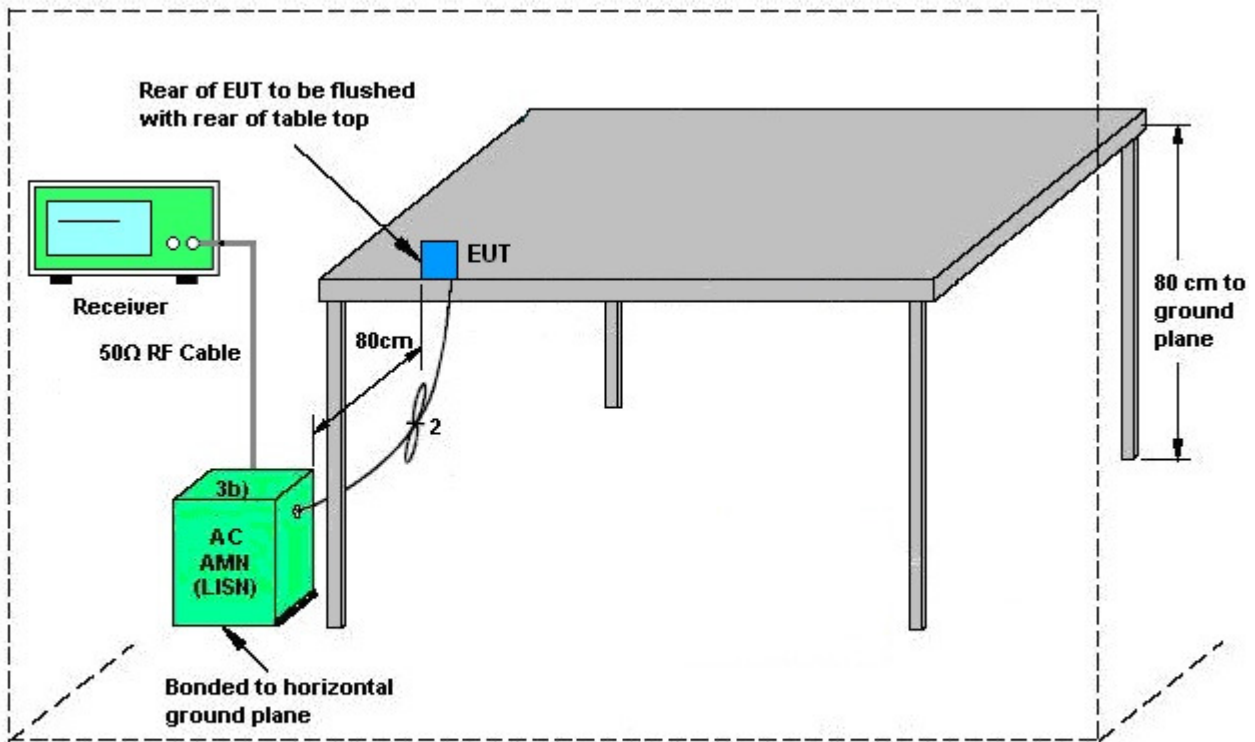
3.5.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.5.3 Test Procedures

1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
6. Both sides of AC line were checked for maximum conducted interference.
7. The frequency range from 150 kHz to 30 MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.

3.5.4 Test Setup



AMN = Artificial mains network (LISN)
AE = Associated equipment
EUT = Equipment under test
ISN = Impedance stabilization network

3.5.5 Test Result of AC Conducted Emission

Please refer to Appendix B.

3.6 Frequency Stability Measurement

3.6.1 Limit of Frequency Stability

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

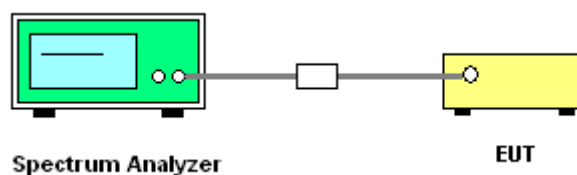
3.6.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.6.3 Test Procedures

1. To ensure emission at the band edge is maintained within the authorized band, those values shall be measured by radiation emissions at upper and lower frequency points, and finally compensated by frequency deviation as procedures below.
2. The EUT was operated at the maximum output power, and connected to the spectrum analyzer, which is set to maximum hold function and peak detector. The peak value of the power envelope was measured and noted. The upper and lower frequency points were respectively measured relatively 10dB lower than the measured peak value.
3. The frequency deviation was calculated by adding the upper frequency point and the lower frequency point divided by two. Those detailed values of frequency deviation are provided in table below.

3.6.4 Test Setup



3.6.5 Test Result of Frequency Stability

Please refer to Appendix A.



3.7 Automatically Discontinue Transmission

3.7.1 Limit of Automatically Discontinue Transmission

The device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure. These provisions are not intended to preclude the transmission of control or signaling information or the use of repetitive codes used by certain digital technologies to complete frame or burst intervals. Applicants shall include in their application for equipment authorization to describe how this requirement is met.

3.7.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.7.3 Test Result of Automatically Discontinue Transmission

While the EUT is not transmitting any information, the EUT can automatically discontinue transmission and become standby mode for power saving. The EUT can detect the controlling signal of ACK message transmitting from remote device and verify whether it shall resend or discontinue transmission.



3.8 Antenna Requirements

3.8.1 Standard Applicable

If transmitting antenna directional gain is greater than 6 dBi, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

3.8.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

3.8.3 Antenna Gain

The antenna peak gain of EUT is less than 6 dBi. Therefore, it is not necessary to reduce maximum peak output power limit.



4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Power Meter	Anritsu	ML2495A	0932001	300MHz~40GHz	Sep. 29, 2016	Apr. 05, 2017 ~ Apr. 10, 2017	Sep. 28, 2017	Conducted (TH05-HY)
Power Sensor	Anritsu	MA2411B	0846202	300MHz~40GHz	Sep. 29, 2016	Apr. 05, 2017 ~ Apr. 10, 2017	Sep. 28, 2017	Conducted (TH05-HY)
Spectrum Analyzer	Rohde & Schwarz	FSP40	100055	9kHz-40GHz	Jul. 17, 2016	Apr. 05, 2017 ~ Apr. 10, 2017	Jul. 16, 2017	Conducted (TH05-HY)
Temperature Chamber	ESPEC	SH-641	92013720	-40°C ~90°C	Sep. 01, 2016	Apr. 05, 2017 ~ Apr. 10, 2017	Aug. 31, 2017	Conducted (TH05-HY)
Programmable Power Supply	GW Instek	PSS-2005	EL890094	1V~20V 0.5A~5A	Oct. 11, 2016	Apr. 05, 2017 ~ Apr. 10, 2017	Oct. 10, 2017	Conducted (TH05-HY)
AC Power Source	ChainTek	APC-1000W	N/A	N/A	N/A	Mar. 30, 2017	N/A	Conduction (CO05-HY)
EMI Test Receiver	Rohde & Schwarz	ESCI 7	100724	9kHz~7GHz	Aug. 30, 2016	Mar. 30, 2017	Aug. 29, 2017	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100080	9kHz~30MHz	Nov. 29, 2016	Mar. 30, 2017	Nov. 28, 2017	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100081	9kHz~30MHz	Dec. 06, 2016	Mar. 30, 2017	Dec. 05, 2017	Conduction (CO05-HY)
Amplifier	Sonoma-Instrument	310 N	187282	9KHz~1GHz	Dec. 21, 2016	Mar. 21, 2017 ~ Apr. 01, 2017	Dec. 20, 2017	Radiation (03CH13-HY)
Bilog Antenna	TESEQ	CBL 6111D&00800 N1D01N-06	40103&04	30MHz to 1GHz	Jan. 07, 2017	Mar. 21, 2017 ~ Apr. 01, 2017	Jan. 06, 2018	Radiation (03CH13-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-1241	1GHz ~ 18GHz	Apr. 25, 2016	Mar. 21, 2017 ~ Apr. 01, 2017	Apr. 24, 2017	Radiation (03CH13-HY)
Preamplifier	Keysight	83017A	MY53270147	1GHz~26.5GHz	Jan. 09, 2017	Mar. 21, 2017 ~ Apr. 01, 2017	Jan. 08, 2018	Radiation (03CH13-HY)
Spectrum Analyzer	Keysight	N9010A	MY55370526	N/A	Mar. 15, 2017	Mar. 21, 2017 ~ Apr. 01, 2017	Mar. 14, 2018	Radiation (03CH13-HY)
Antenna Mast	EMEC	AM-BS-4500-B	N/A	1m~4m	N/A	Mar. 21, 2017 ~ Apr. 01, 2017	N/A	Radiation (03CH13-HY)
Turn Table	EMEC	TT2000	N/A	0~360 Degree	N/A	Mar. 21, 2017 ~ Apr. 01, 2017	N/A	Radiation (03CH13-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA917025 1	18GHz- 40GHz	Nov. 08, 2016	Mar. 21, 2017 ~ Apr. 01, 2017	Nov. 07, 2017	Radiation (03CH13-HY)
EMI Test Receiver	Keysight	N9038A(MXE)	MY55420170	N/A	Mar. 03, 2017	Mar. 21, 2017 ~ Apr. 01, 2017	Mar. 02, 2018	Radiation (03CH13-HY)
Preamplifier	MITEQ	AMF-7D-0010 1800	2025787	1GHZ~18GHZ	Feb. 13, 2017	Mar. 21, 2017 ~ Apr. 01, 2017	Feb. 12, 2018	Radiation (03CH13-HY)
Preamplifier	MITEQ	JS44-1800400 0-33-8P	1840917	18GHz ~40GHz	Jun. 14, 2016	Mar. 21, 2017 ~ Apr. 01, 2017	Jun. 13, 2017	Radiation (03CH13-HY)



5 Uncertainty of Evaluation

Uncertainty of Conducted Emission Measurement (150kHz ~ 30MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	2.70
---	------

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	4.90
---	------

Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.40
---	------

Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	4.30
---	------

Appendix A. Test Result of Conducted Test Items

Test Engineer:	Kai Liao	Temperature:	21~25	°C
Test Date:	2017/04/05 ~ 2017/04/10	Relative Humidity:	51~54	%

TEST RESULTS DATA
6dB and 26dB EBW and 99% OBW

Band IV									
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	99% Bandwidth (MHz)	26 dB Bandwidth (MHz)	6 dB Bandwidth (MHz)	6dB Bandwidth min. Limit (MHz)	Pass/Fail
11a	6M bps	1	149	5745	18.4	28.95	16.36	0.5	Pass
11a	6Mbps	1	157	5785	18.45	39.3	16.32	0.5	Pass
11a	6Mbps	1	165	5825	18.5	28	16.36	0.5	Pass
HT20	MCS 0	1	149	5745	19	31	17.56	0.5	Pass
HT20	MCS 0	1	157	5785	19.15	31	17.56	0.5	Pass
HT20	MCS 0	1	165	5825	19.2	29.1	17.56	0.5	Pass
HT40	MCS 0	1	151	5755	36.5	50.15	35.12	0.5	Pass
HT40	MCS 0	1	159	5795	36.6	50.82	35.12	0.5	Pass
VHT80	MCS 0	1	155	5775	74.88	85.44	75.15	0.5	Pass

TEST RESULTS DATA
Average Power Table

Band IV										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)	Average Conducted Power (dBm)	FCC Conducted Power Limit (dBm)	DG (dBi)		Pass/Fail
11a	6M bps	1	149	5745	0.05	11.45	30.00	2.00		Pass
11a	6Mbps	1	157	5785	0.05	11.09	30.00	2.00		Pass
11a	6Mbps	1	165	5825	0.05	11.49	30.00	2.00		Pass
HT20	MCS 0	1	149	5745	0.04	11.48	30.00	2.00		Pass
HT20	MCS 0	1	157	5785	0.04	11.11	30.00	2.00		Pass
HT20	MCS 0	1	165	5825	0.04	11.49	30.00	2.00		Pass
HT40	MCS 0	1	151	5755	0.08	11.49	30.00	2.00		Pass
HT40	MCS 0	1	159	5795	0.08	11.11	30.00	2.00		Pass
VHT20	MCS 0	1	149	5745	0.05	11.47	30.00	2.00		Pass
VHT20	MCS 0	1	157	5785	0.05	11.09	30.00	2.00		Pass
VHT20	MCS 0	1	165	5825	0.05	11.48	30.00	2.00		Pass
VHT40	MCS 0	1	151	5755	0.11	11.48	30.00	2.00		Pass
VHT40	MCS 0	1	159	5795	0.11	11.06	30.00	2.00		Pass
VHT80	MCS 0	1	155	5775	0.28	11.28	30.00	2.00		Pass

TEST RESULTS DATA
Power Spectral Density

Band IV										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)	10log (500kHz /RBW) Factor (dB)	Average Power Density (dBm/500kHz)	Average PSD Limit (dBm/500kHz)	DG (dBi)	Pass/Fail
11a	6M bps	1	149	5745	0.05	2.22	-3.33	30.00	2.00	Pass
11a	6Mbps	1	157	5785	0.05	2.22	-3.60	30.00	2.00	Pass
11a	6Mbps	1	165	5825	0.05	2.22	-2.79	30.00	2.00	Pass
HT20	MCS 0	1	149	5745	0.04	2.22	-2.90	30.00	2.00	Pass
HT20	MCS 0	1	157	5785	0.04	2.22	-3.70	30.00	2.00	Pass
HT20	MCS 0	1	165	5825	0.04	2.22	-3.07	30.00	2.00	Pass
HT40	MCS 0	1	151	5755	0.08	2.22	-5.86	30.00	2.00	Pass
HT40	MCS 0	1	159	5795	0.08	2.22	-6.71	30.00	2.00	Pass
VHT80	MCS 0	1	155	5775	0.28	2.22	-4.49	30.00	2.00	Pass

TEST RESULTS DATA
Frequency Stability

Band IV										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Center Frequency (MHz)	Frequency Deviation (MHz)	Frequency Stability (ppm)	Temperature (°C)	Voltage (V)	Note
11a	6M bps	1	149	5745	5744.950	-0.050	-8.70	50	5	
11a	6M bps	1	149	5745	5745.050	0.050	8.70	-30	5	
11a	6M bps	1	149	5745	5744.950	-0.050	-8.70	20	5	
11a	6M bps	1	149	5745	5744.975	-0.025	-4.35	20	5	
11a	6M bps	1	149	5745	5745.000	0.000	0.00	20	5	



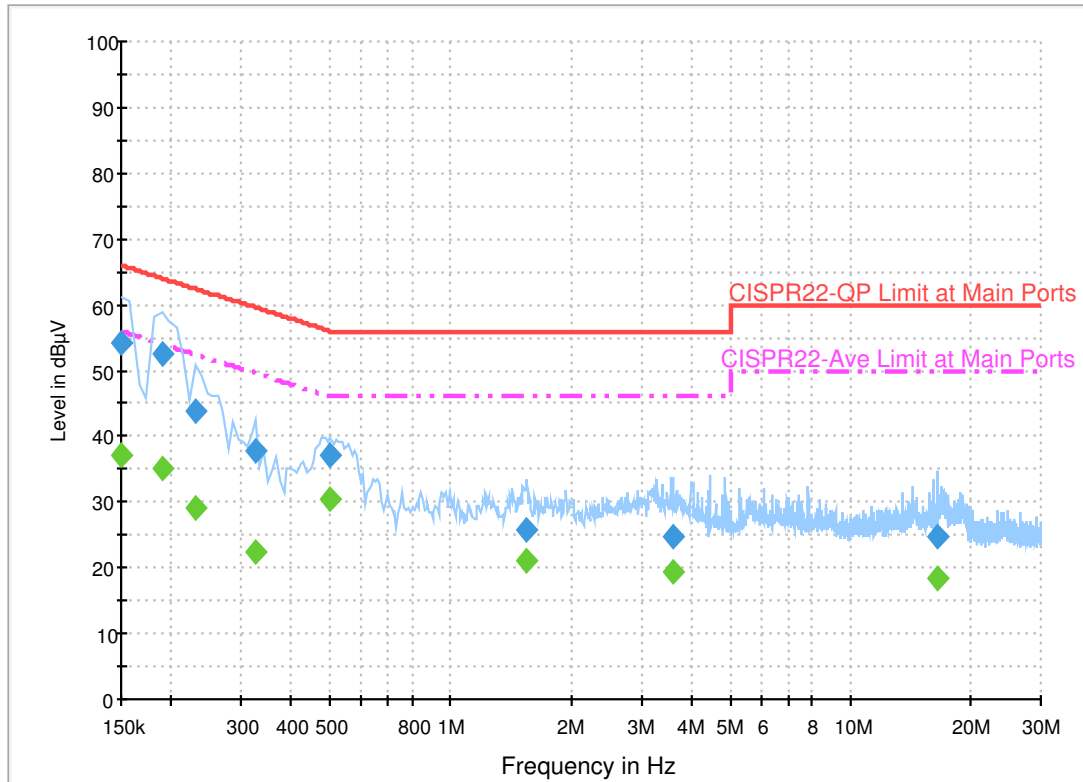
Appendix B. AC Conducted Emission Test Results

Test Engineer : Kai-Chun Chu	Temperature :	21~24°C
	Relative Humidity :	51~53%

EUT Information

Report NO : 741250
 Test Mode : Mode 1
 Test Voltage : Power Form System
 Phase : Line

ENV216 Auto Test-L



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	54.2	Off	L1	19.6	11.8	66.0
0.190000	52.5	Off	L1	19.5	11.5	64.0
0.230000	43.8	Off	L1	19.5	18.6	62.4
0.326000	37.8	Off	L1	19.5	21.8	59.6
0.502000	37.1	Off	L1	19.5	18.9	56.0
1.550000	25.8	Off	L1	19.5	30.2	56.0
3.598000	24.9	Off	L1	19.6	31.1	56.0
16.574000	24.9	Off	L1	19.7	35.1	60.0

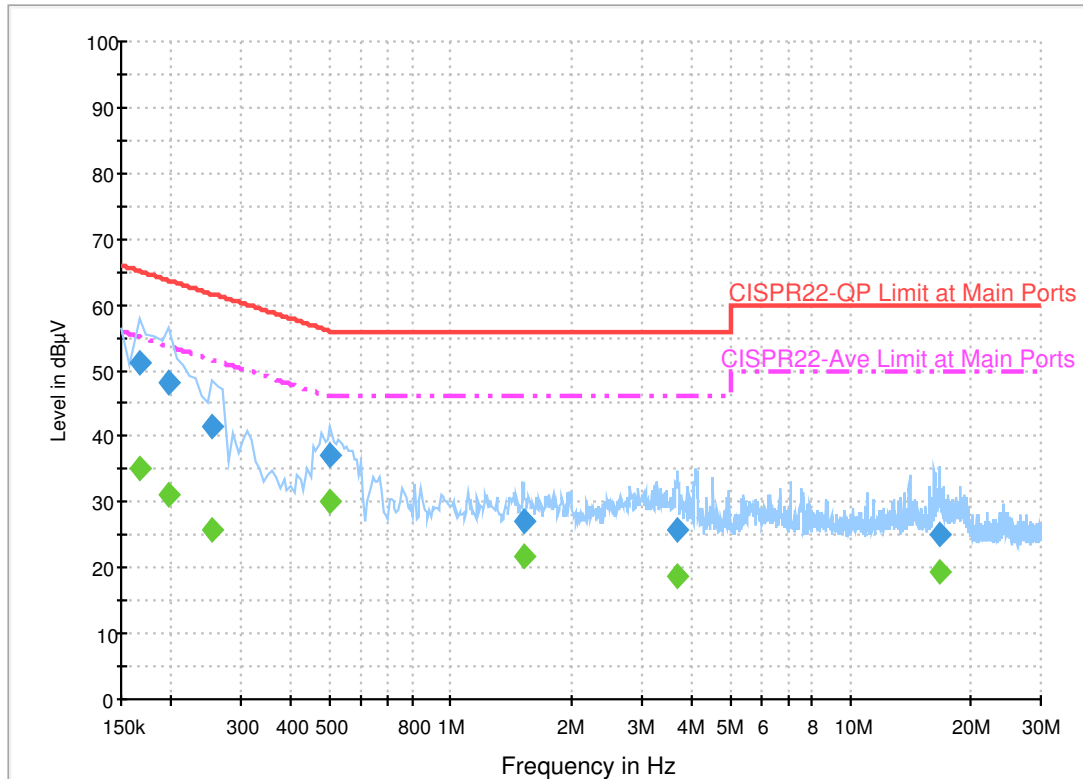
Final Result 2

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	37.0	Off	L1	19.6	19.0	56.0
0.190000	35.1	Off	L1	19.5	18.9	54.0
0.230000	29.0	Off	L1	19.5	23.4	52.4
0.326000	22.4	Off	L1	19.5	27.2	49.6
0.502000	30.5	Off	L1	19.5	15.5	46.0
1.550000	21.1	Off	L1	19.5	24.9	46.0
3.598000	19.2	Off	L1	19.6	26.8	46.0
16.574000	18.5	Off	L1	19.7	31.5	50.0

EUT Information

Report NO : 741250
 Test Mode : Mode 1
 Test Voltage : Power Form System
 Phase : Neutral

ENV216 Auto Test-N



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.166000	51.2	Off	N	19.5	14.0	65.2
0.198000	48.2	Off	N	19.5	15.5	63.7
0.254000	41.5	Off	N	19.5	20.1	61.6
0.502000	37.2	Off	N	19.5	18.8	56.0
1.526000	27.0	Off	N	19.5	29.0	56.0
3.694000	25.7	Off	N	19.6	30.3	56.0
16.686000	24.9	Off	N	19.8	35.1	60.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.166000	35.1	Off	N	19.5	20.1	55.2
0.198000	31.3	Off	N	19.5	22.4	53.7
0.254000	25.8	Off	N	19.5	25.8	51.6
0.502000	30.0	Off	N	19.5	16.0	46.0
1.526000	21.8	Off	N	19.5	24.2	46.0
3.694000	18.8	Off	N	19.6	27.2	46.0
16.686000	19.3	Off	N	19.8	30.7	50.0



Appendix C. Radiated Spurious Emission

Test Engineer :	Alex Jeng, Bill Chang, and Wilson Wu	Temperature :	24~25°C
		Relative Humidity :	48~50%

Band 4 - 5725~5850MHz

WIFI 802.11a (Band Edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.	
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.		
1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)	
802.11a CH 149 5745MHz		5648.2	52.14	-16.06	68.2	39.79	32.09	10.94	30.68	205	8	P	H	
		5698.4	57.18	-46.84	104.02	44.69	32.17	11.02	30.7	205	8	P	H	
		5720	74.84	-35.96	110.8	62.27	32.21	11.07	30.71	205	8	P	H	
		5723.2	82.97	-35.13	118.1	70.4	32.21	11.07	30.71	205	8	P	H	
	*	5745	111.97	-	-	99.36	32.24	11.1	30.73	205	8	P	H	
	*	5745	104.02	-	-	91.41	32.24	11.1	30.73	205	8	A	H	
														H
														H
			5647	51.56	-16.64	68.2	39.21	32.09	10.94	30.68	233	1	P	V
			5693	53.45	-46.59	100.04	40.96	32.17	11.02	30.7	233	1	P	V
			5719.4	68.61	-42.02	110.63	56.04	32.21	11.07	30.71	233	1	P	V
			5725	76.92	-45.28	122.2	64.35	32.21	11.07	30.71	233	1	P	V
	*		5745	106.91	-	-	94.3	32.24	11.1	30.73	233	1	P	V
	*		5745	99.05	-	-	86.44	32.24	11.1	30.73	233	1	A	V
													V	
													V	



WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
		5619	51.7	-16.5	68.2	39.38	32.07	10.92	30.67	212	6	P	H
		5682.4	53.94	-38.27	92.21	41.49	32.14	11	30.69	212	6	P	H
		5718.6	52.57	-57.84	110.41	40	32.21	11.07	30.71	212	6	P	H
		5722.6	52.62	-64.11	116.73	40.05	32.21	11.07	30.71	212	6	P	H
	*	5785	111.9	-	-	99.2	32.29	11.15	30.74	212	6	P	H
	*	5785	104.05	-	-	91.35	32.29	11.15	30.74	212	6	A	H
		5853	51.32	-64.04	115.36	38.44	32.38	11.27	30.77	212	6	P	H
		5872.2	51.61	-54.37	105.98	38.63	32.43	11.33	30.78	212	6	P	H
		5886.8	52.19	-44.25	96.44	39.21	32.43	11.33	30.78	212	6	P	H
		5936.8	51.41	-16.79	68.2	38.31	32.5	11.41	30.81	212	6	P	H
													H
													H
802.11a													
CH 157													
5785MHz		5613.8	49.8	-18.4	68.2	37.54	32.04	10.89	30.67	242	0	P	V
		5686.8	50.27	-45.19	95.46	37.77	32.17	11.02	30.69	242	0	P	V
		5712	51.04	-57.52	108.56	38.5	32.19	11.05	30.7	242	0	P	V
		5724.6	50.03	-71.26	121.29	37.46	32.21	11.07	30.71	242	0	P	V
	*	5785	106.12	-	-	93.42	32.29	11.15	30.74	242	0	P	V
	*	5785	99.25	-	-	86.55	32.29	11.15	30.74	242	0	A	V
		5855	50.67	-60.13	110.8	37.73	32.41	11.3	30.77	242	0	P	V
		5872	52.9	-53.14	106.04	39.92	32.43	11.33	30.78	242	0	P	V
		5888.6	51.89	-43.21	95.1	38.87	32.46	11.35	30.79	242	0	P	V
		5934.8	51.09	-17.11	68.2	37.99	32.5	11.41	30.81	242	0	P	V
													V
													V



WiFi Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)	
802.11a CH 165 5825MHz	*	5825	110.97	-	-	98.13	32.36	11.24	30.76	210	1	P	H	
	*	5825	103.5	-	-	90.66	32.36	11.24	30.76	210	1	A	H	
		5852.6	74.9	-41.37	116.27	62.02	32.38	11.27	30.77	210	1	P	H	
		5855	70.23	-40.57	110.8	57.29	32.41	11.3	30.77	210	1	P	H	
		5877.6	54.85	-48.42	103.27	41.87	32.43	11.33	30.78	210	1	P	H	
		5927.2	50.51	-17.69	68.2	37.41	32.5	11.41	30.81	210	1	P	H	
														H
														H
	*	5825	105.35	-	-	92.51	32.36	11.24	30.76	239	0	P	V	
	*	5825	98.98	-	-	86.14	32.36	11.24	30.76	239	0	A	V	
		5851.4	70.78	-48.23	119.01	57.9	32.38	11.27	30.77	239	0	P	V	
		5856	66.36	-44.16	110.52	53.42	32.41	11.3	30.77	239	0	P	V	
		5878.8	53.1	-49.28	102.38	40.12	32.43	11.33	30.78	239	0	P	V	
		5930.8	51.19	-17.01	68.2	38.09	32.5	11.41	30.81	239	0	P	V	
														V
														V
													V	
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.													



Band 4 5725~5850MHz

WIFI 802.11a (Harmonic @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11a CH 149 5745MHz		11490	47.42	-26.58	74	57.31	40.3	15.2	65.39	100	0	P	H
		17235	46.81	-21.39	68.2	50.47	41.09	19.52	64.27	100	0	P	H
													H
													H
		11490	46.97	-27.03	74	56.86	40.3	15.2	65.39	100	0	P	V
		17235	45.68	-22.52	68.2	49.34	41.09	19.52	64.27	100	0	P	V
													V
													V
802.11a CH 157 5785MHz		11570	48.05	-25.95	74	58.08	40.12	15.22	65.37	100	0	P	H
		17355	46.66	-21.54	68.2	49.62	41.53	19.62	64.11	100	0	P	H
													H
													H
		11570	48.44	-25.56	74	58.47	40.12	15.22	65.37	100	0	P	V
		17355	45.3	-22.9	68.2	48.26	41.53	19.62	64.11	100	0	P	V
													V
													V
802.11a CH 165 5825MHz		11650	49.29	-24.71	74	59.46	39.94	15.23	65.34	100	0	P	H
		17475	45.52	-22.68	68.2	47.79	41.97	19.71	63.95	100	0	P	H
													H
													H
		11650	49.67	-24.33	74	59.84	39.94	15.23	65.34	100	0	P	V
		17475	44.25	-23.95	68.2	46.52	41.97	19.71	63.95	100	0	P	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 4 5725~5850MHz

WIFI 802.11n HT20 (Band Edge @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)	
802.11n HT20 CH 149 5745MHz		5649.2	53.21	-14.99	68.2	40.86	32.09	10.94	30.68	211	286	P	H	
		5689.4	57.14	-40.24	97.38	44.65	32.17	11.02	30.7	211	286	P	H	
		5718.4	72.42	-37.93	110.35	59.85	32.21	11.07	30.71	211	286	P	H	
		5724.6	83	-38.29	121.29	70.43	32.21	11.07	30.71	211	286	P	H	
	*	5745	110.55	-	-	97.94	32.24	11.1	30.73	211	286	P	H	
	*	5745	102.82	-	-	90.21	32.24	11.1	30.73	211	286	P	H	
														H
														H
			5601.6	50.83	-17.37	68.2	38.56	32.04	10.89	30.66	399	0	P	V
			5700	53.28	-51.92	105.2	40.79	32.17	11.02	30.7	399	0	P	V
			5720	67.64	-43.16	110.8	55.07	32.21	11.07	30.71	399	0	P	V
			5724.8	79.18	-42.56	121.74	66.61	32.21	11.07	30.71	399	0	P	V
		*	5745	106.15	-	-	93.54	32.24	11.1	30.73	399	0	P	V
		*	5745	98.28	-	-	85.67	32.24	11.1	30.73	399	0	A	V
													V	
													V	



WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
		5600	53.16	-15.04	68.2	40.89	32.04	10.89	30.66	222	292	P	H
		5694.2	54.82	-46.1	100.92	42.33	32.17	11.02	30.7	222	292	P	H
		5715	52.01	-57.39	109.4	39.48	32.19	11.05	30.71	222	292	P	H
		5722.2	51.49	-64.33	115.82	38.92	32.21	11.07	30.71	222	292	P	H
	*	5785	110.34	-	-	97.64	32.29	11.15	30.74	222	292	P	H
	*	5785	102.62	-	-	89.92	32.29	11.15	30.74	222	292	A	H
		5851.6	52.63	-65.92	118.55	39.75	32.38	11.27	30.77	222	292	P	H
		5863	52.13	-56.43	108.56	39.2	32.41	11.3	30.78	222	292	P	H
		5879.2	52.28	-49.8	102.08	39.3	32.43	11.33	30.78	222	292	P	H
		5931.2	51.35	-16.85	68.2	38.25	32.5	11.41	30.81	222	292	P	H
802.11n													H
HT20													H
CH 157		5648.2	51.4	-16.8	68.2	39.05	32.09	10.94	30.68	394	0	P	V
5785MHz		5685.8	51.93	-42.79	94.72	39.43	32.17	11.02	30.69	394	0	P	V
		5706	51.13	-55.75	106.88	38.59	32.19	11.05	30.7	394	0	P	V
		5723.2	50.7	-67.4	118.1	38.13	32.21	11.07	30.71	394	0	P	V
	*	5785	106.19	-	-	93.49	32.29	11.15	30.74	394	0	P	V
	*	5785	98.4	-	-	85.7	32.29	11.15	30.74	394	0	A	V
		5854.4	50.64	-61.53	112.17	37.7	32.41	11.3	30.77	394	0	P	V
		5866.6	52.55	-55	107.55	39.62	32.41	11.3	30.78	394	0	P	V
		5890.6	52.96	-40.66	93.62	39.94	32.46	11.35	30.79	394	0	P	V
		5929.8	52.22	-15.98	68.2	39.12	32.5	11.41	30.81	394	0	P	V
													V
													V



WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)	
802.11n HT20 CH 165 5825MHz	*	5825	110.11	-	-	97.27	32.36	11.24	30.76	221	293	P	H	
	*	5825	102.34	-	-	89.5	32.36	11.24	30.76	221	293	A	H	
		5850.2	77.69	-44.05	121.74	64.81	32.38	11.27	30.77	221	293	P	H	
		5856	71.25	-39.27	110.52	58.31	32.41	11.3	30.77	221	293	P	H	
		5922.8	54.57	-15.25	69.82	41.47	32.5	11.41	30.81	221	293	P	H	
		5933.2	51.25	-16.95	68.2	38.15	32.5	11.41	30.81	221	293	P	H	
														H
														H
	*	5825	105.92	-	-	93.08	32.36	11.24	30.76	386	0	P	V	
	*	5825	97.95	-	-	85.11	32.36	11.24	30.76	386	0	A	V	
		5850	73.65	-48.55	122.2	60.77	32.38	11.27	30.77	386	0	P	V	
		5859.2	66.02	-43.6	109.62	53.08	32.41	11.3	30.77	386	0	P	V	
		5892.2	51.8	-40.64	92.44	38.78	32.46	11.35	30.79	386	0	P	V	
		5937.6	50.71	-17.49	68.2	37.62	32.5	11.41	30.82	386	0	P	V	
														V
														V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.													



Band 4 5725~5850MHz

WIFI 802.11n HT20 (Harmonic @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20 CH 149 5745MHz		11490	47.32	-26.68	74	57.21	40.3	15.2	65.39	100	0	P	H
		17235	46.66	-21.54	68.2	50.32	41.09	19.52	64.27	100	0	P	H
													H
													H
		11490	47.89	-26.11	74	57.78	40.3	15.2	65.39	100	0	P	V
		17235	45.97	-22.23	68.2	49.63	41.09	19.52	64.27	100	0	P	V
													V
802.11n HT20 CH 157 5785MHz		11570	48.15	-25.85	74	58.18	40.12	15.22	65.37	100	0	P	H
		17355	46.42	-21.78	68.2	49.38	41.53	19.62	64.11	100	0	P	H
													H
													H
		11570	48.16	-25.84	74	58.19	40.12	15.22	65.37	100	0	P	V
		17355	44.87	-23.33	68.2	47.83	41.53	19.62	64.11	100	0	P	V
													V
802.11n HT20 CH 165 5825MHz		11650	49.8	-24.2	74	59.97	39.94	15.23	65.34	100	0	P	H
		17475	44.7	-23.5	68.2	46.97	41.97	19.71	63.95	100	0	P	H
													H
													H
		11650	53.39	-20.61	74	63.56	39.94	15.23	65.34	174	326	P	V
		11650	50.84	-3.16	54	61.01	39.94	15.23	65.34	174	326	A	V
		17475	44.37	-23.83	68.2	46.64	41.97	19.71	63.95	100	0	P	V
												V	
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 4 5725~5850MHz

WIFI 802.11n HT40 (Band Edge @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
		5649.8	54.04	-14.16	68.2	41.63	32.12	10.97	30.68	222	293	P	H
		5699.8	69.05	-36	105.05	56.56	32.17	11.02	30.7	222	293	P	H
		5719.2	84.89	-25.69	110.58	72.32	32.21	11.07	30.71	222	293	P	H
		5725	86.41	-35.79	122.2	73.84	32.21	11.07	30.71	222	293	P	H
	*	5755	107.56	-	-	94.9	32.26	11.13	30.73	222	293	P	H
	*	5755	99.81	-	-	87.15	32.26	11.13	30.73	222	293	A	H
		5853.2	52.78	-62.12	114.9	39.9	32.38	11.27	30.77	222	293	P	H
		5857.2	55.23	-54.95	110.18	42.29	32.41	11.3	30.77	222	293	P	H
		5899	51.74	-35.66	87.4	38.72	32.46	11.35	30.79	222	293	P	H
		5941.4	52.36	-15.84	68.2	39.21	32.53	11.44	30.82	222	293	P	H
802.11n													H
HT40													H
CH 151		5643.4	52.19	-16.01	68.2	39.84	32.09	10.94	30.68	396	0	P	V
5755MHz		5699.8	59.52	-45.53	105.05	47.03	32.17	11.02	30.7	396	0	P	V
		5719.4	77.11	-33.52	110.63	64.54	32.21	11.07	30.71	396	0	P	V
		5724.6	77.64	-43.65	121.29	65.07	32.21	11.07	30.71	396	0	P	V
	*	5755	103.58	-	-	90.92	32.26	11.13	30.73	396	0	P	V
	*	5755	95.67	-	-	83.01	32.26	11.13	30.73	396	0	A	V
		5854.2	51.51	-61.11	112.62	38.57	32.41	11.3	30.77	396	0	P	V
		5858.8	52.4	-57.33	109.73	39.46	32.41	11.3	30.77	396	0	P	V
		5889	52.24	-42.57	94.81	39.22	32.46	11.35	30.79	396	0	P	V
		5929.6	51.26	-16.94	68.2	38.16	32.5	11.41	30.81	396	0	P	V
													V
													V



WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
		5637.2	52.68	-15.52	68.2	40.32	32.09	10.94	30.67	221	294	P	H
		5699.8	56.15	-48.9	105.05	43.66	32.17	11.02	30.7	221	294	P	H
		5717.2	60.76	-49.26	110.02	48.23	32.19	11.05	30.71	221	294	P	H
		5725	61.06	-61.14	122.2	48.49	32.21	11.07	30.71	221	294	P	H
	*	5795	107.76	-	-	95.02	32.31	11.18	30.75	221	294	P	H
	*	5795	99.75	-	-	87.01	32.31	11.18	30.75	221	294	A	H
		5850	68.06	-54.14	122.2	55.18	32.38	11.27	30.77	221	294	P	H
		5858.4	63.72	-46.13	109.85	50.78	32.41	11.3	30.77	221	294	P	H
		5875.2	57.89	-47.16	105.05	44.91	32.43	11.33	30.78	221	294	P	H
		5935.4	51.54	-16.66	68.2	38.44	32.5	11.41	30.81	221	294	P	H
802.11n													H
HT40													H
CH 159		5616.2	51.46	-16.74	68.2	39.14	32.07	10.92	30.67	394	0	P	V
5795MHz		5697.4	51.52	-51.76	103.28	39.03	32.17	11.02	30.7	394	0	P	V
		5719.6	54.75	-55.94	110.69	42.18	32.21	11.07	30.71	394	0	P	V
		5723.4	54.9	-63.65	118.55	42.33	32.21	11.07	30.71	394	0	P	V
	*	5795	103.31	-	-	90.57	32.31	11.18	30.75	394	0	P	V
	*	5795	95.48	-	-	82.74	32.31	11.18	30.75	394	0	A	V
		5852	57.64	-60	117.64	44.76	32.38	11.27	30.77	394	0	P	V
		5855.8	55.73	-54.85	110.58	42.79	32.41	11.3	30.77	394	0	P	V
		5877.4	53.03	-50.39	103.42	40.05	32.43	11.33	30.78	394	0	P	V
		5926	51.31	-16.89	68.2	38.21	32.5	11.41	30.81	394	0	P	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 4 5725~5850MHz

WIFI 802.11n HT40 (Harmonic @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT40 CH 151 5755MHz		11510	48.49	-25.51	74	58.38	40.3	15.21	65.4	100	0	P	H
		17265	46.28	-21.92	68.2	49.75	41.21	19.55	64.23	100	0	P	H
													H
													H
		11510	48.73	-25.27	74	58.62	40.3	15.21	65.4	100	0	P	V
		17265	46.67	-21.53	68.2	50.14	41.21	19.55	64.23	100	0	P	V
													V
													V
802.11n HT40 CH 159 5795MHz		11590	48.89	-25.11	74	58.96	40.08	15.22	65.37	100	0	P	H
		17385	46.9	-21.3	68.2	49.66	41.66	19.64	64.06	100	0	P	H
													H
													H
		11590	49.39	-24.61	74	59.46	40.08	15.22	65.37	100	0	P	V
		17385	47.08	-21.12	68.2	49.84	41.66	19.64	64.06	100	0	P	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 4 5725~5850MHz

WIFI 802.11ac VHT80 (Band Edge @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
		5649.8	61.67	-6.53	68.2	49.26	32.12	10.97	30.68	226	286	P	H
		5698.6	77.41	-26.76	104.17	64.92	32.17	11.02	30.7	226	286	P	H
		5718.4	81.47	-28.88	110.35	68.9	32.21	11.07	30.71	226	286	P	H
		5722.6	81.1	-35.63	116.73	68.53	32.21	11.07	30.71	226	286	P	H
	*	5775	105.2	-	-	92.5	32.29	11.15	30.74	226	286	P	H
	*	5775	97.53	-	-	84.83	32.29	11.15	30.74	226	286	A	H
		5854.2	76.14	-36.48	112.62	63.2	32.41	11.3	30.77	226	286	P	H
		5862.2	73.82	-34.96	108.78	60.88	32.41	11.3	30.77	226	286	P	H
		5875	63.45	-41.75	105.2	50.47	32.43	11.33	30.78	226	286	P	H
		5933.4	52.43	-15.77	68.2	39.33	32.5	11.41	30.81	226	286	P	H
802.11ac													H
VHT80													H
CH 155		5650	57.11	-11.09	68.2	44.7	32.12	10.97	30.68	397	0	P	V
5775MHz		5693.8	70.53	-30.1	100.63	58.04	32.17	11.02	30.7	397	0	P	V
		5719.6	74.23	-36.46	110.69	61.66	32.21	11.07	30.71	397	0	P	V
		5725	74.8	-47.4	122.2	62.23	32.21	11.07	30.71	397	0	P	V
	*	5775	101.03	-	-	88.33	32.29	11.15	30.74	397	0	P	V
	*	5775	93.57	-	-	80.87	32.29	11.15	30.74	397	0	A	V
		5850.2	67.14	-54.6	121.74	54.26	32.38	11.27	30.77	397	0	P	V
		5860.6	67.82	-41.41	109.23	54.88	32.41	11.3	30.77	397	0	P	V
		5875.2	60.37	-44.68	105.05	47.39	32.43	11.33	30.78	397	0	P	V
		5942.4	51.07	-17.13	68.2	37.92	32.53	11.44	30.82	397	0	P	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 4 5725~5850MHz

WIFI 802.11ac VHT80 (Harmonic @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)	
802.11ac VHT80 CH 155 5775MHz		11550	47.99	-26.01	74	57.99	40.17	15.21	65.38	100	0	P	H	
		17325	46.9	-21.3	68.2	50.07	41.4	19.59	64.16	100	0	P	H	
													H	
													H	
			11550	49.42	-24.58	74	59.42	40.17	15.21	65.38	100	0	P	V
			17325	46.48	-21.72	68.2	49.65	41.4	19.59	64.16	100	0	P	V
														V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.													



Emission below 1GHz

5GHz WIFI 802.11ac(80) (LF @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.	
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.		
1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)	
5GHz 802.11ac(80) LF		104.79	29.82	-13.68	43.5	47.01	14.05	1.05	32.29	-	-	P	H	
		187.68	30.75	-12.75	43.5	49.93	11.64	1.45	32.27	100	0	P	H	
		228.72	31.44	-14.56	46	49.42	12.62	1.63	32.23	-	-	P	H	
		321.7	26.71	-19.29	46	40.75	16.19	1.9	32.13	-	-	P	H	
		783	27.73	-18.27	46	31.19	25.34	3.22	32.02	-	-	P	H	
		969.9	30.67	-23.33	54	29.83	28.22	3.49	30.87	-	-	P	H	
													P	H
													P	H
													P	H
													P	H
													P	H
													P	H
													P	H
			53.76	27.3	-12.7	40	48.46	10.36	0.8	32.32	100	10	P	V
			78.33	25.57	-14.43	40	46.53	10.43	0.91	32.3	-	-	P	V
			188.49	26.26	-17.24	43.5	45.44	11.64	1.45	32.27	-	-	P	V
			336.4	23.01	-22.99	46	36.38	16.82	1.95	32.14	-	-	P	V
			783	26.92	-19.08	46	30.38	25.34	3.22	32.02	-	-	P	V
			957.3	30.15	-15.85	46	29.29	28.39	3.46	30.99	-	-	P	V
													P	V
												P	V	
												P	V	
												P	V	
												P	V	
Remark	1. No other spurious found. 2. All results are PASS against limit line.													



Note symbol

*	Fundamental Frequency which can be ignored. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency.
!	Test result is over limit line.
P/A	Peak or Average
H/V	Horizontal or Vertical



A calculation example for radiated spurious emission is shown as below:

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
CH 01													
2412MHz		2390	43.54	-10.46	54	42.6	32.22	4.58	35.86	103	308	A	H

- Level(dBμV/m) =
Antenna Factor(dB/m) + Cable Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)
- Over Limit(dB) = Level(dBμV/m) – Limit Line(dBμV/m)

For Peak Limit @ 2390MHz:

- Level(dBμV/m)
= Antenna Factor(dB/m) + Cable Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)
= 32.22(dB/m) + 4.58(dB) + 54.51(dBμV) – 35.86 (dB)
= 55.45 (dBμV/m)
- Over Limit(dB)
= Level(dBμV/m) – Limit Line(dBμV/m)
= 55.45(dBμV/m) – 74(dBμV/m)
= -18.55(dB)

For Average Limit @ 2390MHz:

- Level(dBμV/m)
= Antenna Factor(dB/m) + Cable Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)
= 32.22(dB/m) + 4.58(dB) + 42.6(dBμV) – 35.86 (dB)
= 43.54 (dBμV/m)
- Over Limit(dB)
= Level(dBμV/m) – Limit Line(dBμV/m)
= 43.54(dBμV/m) – 54(dBμV/m)
= -10.46(dB)

Both peak and average measured complies with the limit line, so test result is “PASS”.



Appendix D. Radiated Spurious Emission Plots

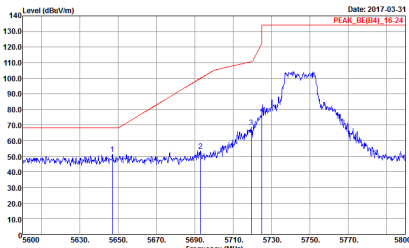
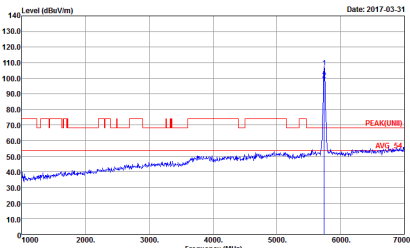
Test Engineer :	Alex Jeng, Bill Chang, and Wilson Wu	Temperature :	24~25°C
		Relative Humidity :	48~50%

Band 4 - 5725~5850MHz

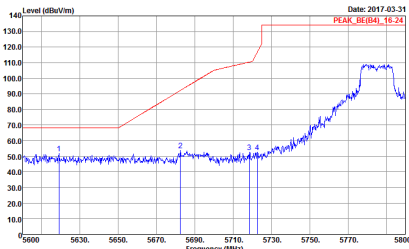
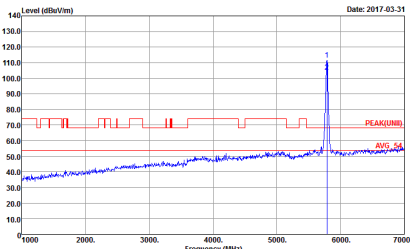
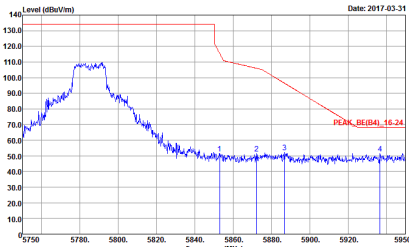
WIFI 802.11a (Band Edge @ 3m)

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH149 5745MHz	
1	Horizontal	Fundamental
Peak	<p>Site : 03CH13-HY Condition : PEAK_BE(B4)_16-24 3m HORN_9120D_1241 HORIZONTAL Detector : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	<p>Site : 03CH13-HY Condition : PEAK(UNIT) 3m HORN_9120D_1241 HORIZONTAL Detector : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>

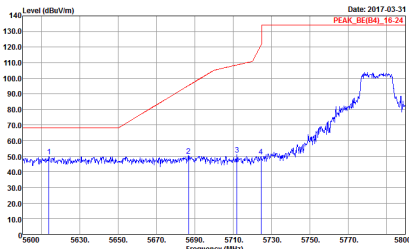
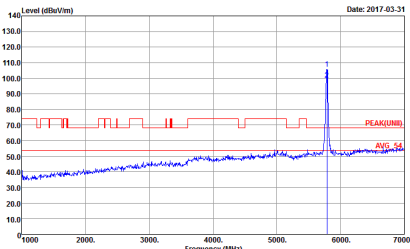
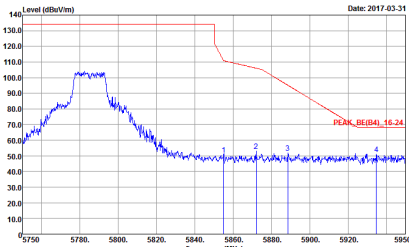


WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH149 5745MHz	
1	Vertical	Fundamental
Peak	 <p>Site : 03CH13-HY Condition : PEAK_BE(B4)_16-24 3m HORN_9120D_1241 VERTICAL Detector : Peak</p>	 <p>Site : 03CH13-HY Condition : PEAK(UNII) 3m HORN_9120D_1241 VERTICAL Detector : Peak</p>

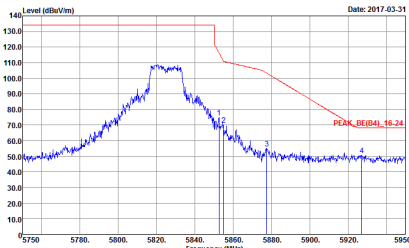
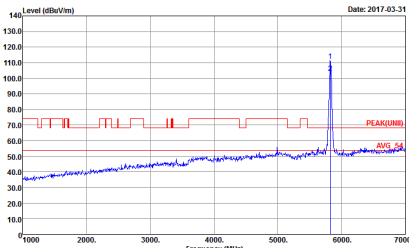


WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH157 5785MHz	
1	Horizontal	Fundamental
<p>Peak</p>	 <p>Site : 03CH13-HY Condition : PEAK_BE(B4)_16-24 3m HORN_9120D_1241 HORIZONTAL Detector : Peak</p>	 <p>Site : 03CH13-HY Condition : PEAK(UNI) 3m HORN_9120D_1241 HORIZONTAL Detector : Peak</p>
<p>Peak</p>	 <p>Site : 03CH13-HY Condition : PEAK_BE(B4)_16-24 3m HORN_9120D_1241 HORIZONTAL Detector : Peak</p>	<p>Left blank</p>



WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH157 5785MHz	
1	Vertical	Fundamental
<p>Peak</p>	 <p>Site : 03CH13-HY Condition : PEAK_BE(B4)_16-24 3m HORN_9120D_1241 VERTICAL Detector : Peak</p>	 <p>Site : 03CH13-HY Condition : PEAK(U11) 3m HORN_9120D_1241 VERTICAL Detector : Peak</p>
<p>Peak</p>	 <p>Site : 03CH13-HY Condition : PEAK_BE(B4)_16-24 3m HORN_9120D_1241 VERTICAL Detector : Peak</p>	<p>Left blank</p>



WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH165 5825MHz	
1	Horizontal	Fundamental
Peak	 <p>Date: 2017-03-31</p> <p>Site : 03CH13-HY Condition : PEAK_BE(B4)_16-24 3m HORN_9120D_1241 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak</p>	 <p>Date: 2017-03-31</p> <p>Site : 03CH13-HY Condition : PEAK(UNII) 3m HORN_9120D_1241 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak</p>



WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH165 5825MHz	
1	Vertical	Fundamental
Peak	<p>Site : 03CH13-HY Condition : PEAK_BE(B4)_16-24 3m HORN_9120D_1241 VERTICAL Detector : Peak</p>	<p>Site : 03CH13-HY Condition : PEAK(LINII) 3m HORN_9120D_1241 VERTICAL Detector : Peak</p>



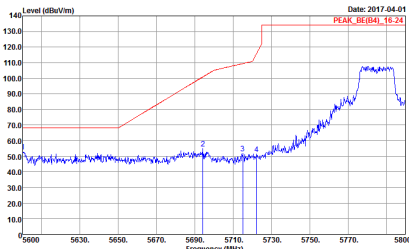
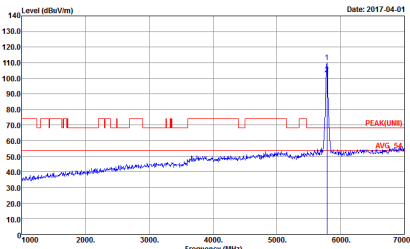
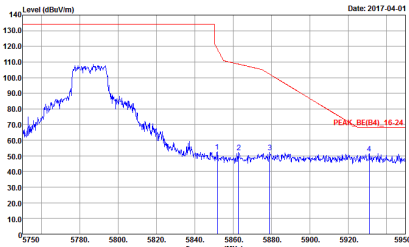
Band 4 5725~5850MHz
WIFI 802.11n HT20 (Band Edge @ 3m)

Table with 2 columns: WIFI (Band 4 5725~5850MHz Band Edge @ 3m) and ANT (802.11n HT20 CH149 5745MHz). Row 1: 1 Horizontal Fundamental. Includes two spectral plots and technical details like Site, Condition, and Detector.



WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH149 5745MHz	
1	Vertical	Fundamental
Peak	<p>Site : 03CH13-HY Condition : PEAK_BE(B4)_16-24 3m HORN_9120D_1241 VERTICAL Detector : Peak</p>	<p>Site : 03CH13-HY Condition : PEAK(UNII)_3m HORN_9120D_1241 VERTICAL Detector : Peak</p>

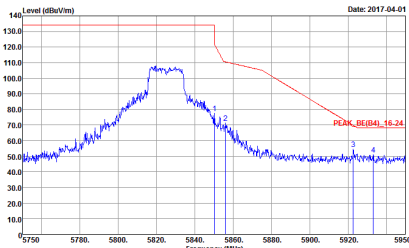
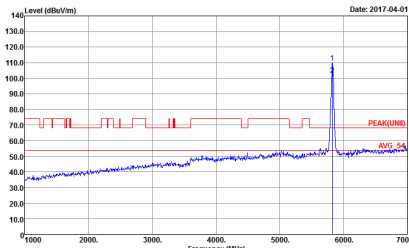


WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH157 5785MHz	
1	Horizontal	Fundamental
<p>Peak</p>	 <p>Site : 03CH13-HY Condition : PEAK_BE(B4)_16-24 3m HORN_9120D_1241 HORIZONTAL Detector : Peak</p>	 <p>Site : 03CH13-HY Condition : PEAK(UNII) 3m HORN_9120D_1241 HORIZONTAL Detector : Peak</p>
<p>Peak</p>	 <p>Site : 03CH13-HY Condition : PEAK_BE(B4)_16-24 3m HORN_9120D_1241 HORIZONTAL Detector : Peak</p>	<p>Left blank</p>



WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH157 5785MHz	
1	Vertical	Fundamental
Peak	<p>Date: 2017-04-01 PEAK_BE(B4)_16-24</p> <p>Site : 03CH13-HY Condition : PEAK_BE(B4)_16-24 3m HORN_9120D_1241 VERTICAL Detector : Peak RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	<p>Date: 2017-04-01 PEAK(UNII)_16-24</p> <p>Site : 03CH13-HY Condition : PEAK(UNII)_16-24 3m HORN_9120D_1241 VERTICAL Detector : Peak RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>
Peak	<p>Date: 2017-04-01 PEAK_BE(B4)_16-24</p> <p>Site : 03CH13-HY Condition : PEAK_BE(B4)_16-24 3m HORN_9120D_1241 VERTICAL Detector : Peak RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	Left blank



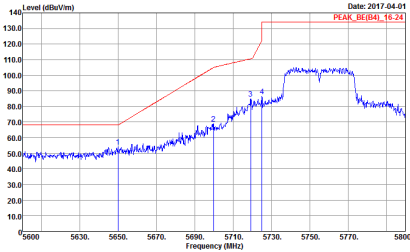
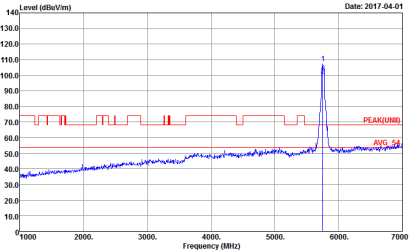
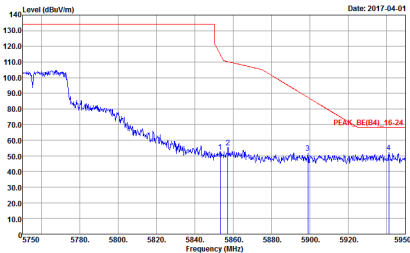
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH165 5825MHz	
1	Horizontal	Fundamental
Peak	 <p>Date: 2017-04-01</p> <p>Site : 03CH13-HY Condition : PEAK_BE(B4)_16-24 3m HORN_9120D_1241 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak</p>	 <p>Date: 2017-04-01</p> <p>Site : 03CH13-HY Condition : PEAK(U11) 3m HORN_9120D_1241 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak</p>



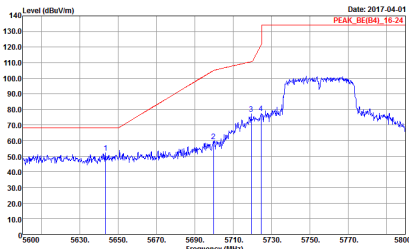
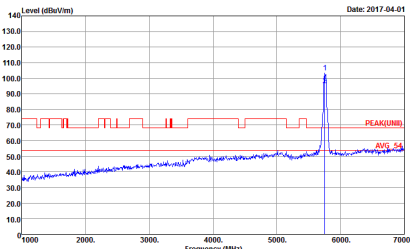
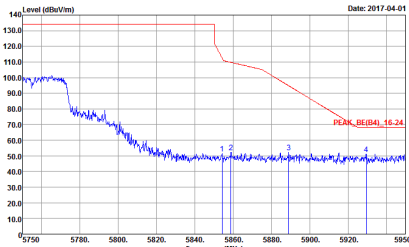
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH165 5825MHz	
1	Vertical	Fundamental
Peak	<p>Site : 03CH13-HY Condition : PEAK_BE(B4)_16-24 3m HORN_9120D_1241 VERTICAL Detector : Peak</p>	<p>Site : 03CH13-HY Condition : PEAK(U11) 3m HORN_9120D_1241 VERTICAL Detector : Peak</p>



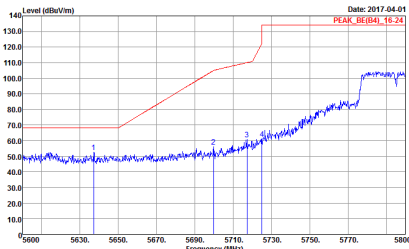
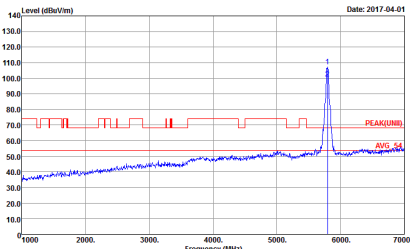
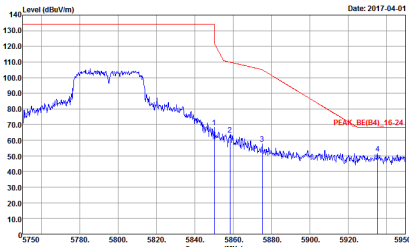
Band 4 5725~5850MHz
WIFI 802.11n HT40 (Band Edge @ 3m)

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT40 CH151 5755MHz	
1	Horizontal	Fundamental
Peak	 <p>Site : 03CH13-HY Condition : PEAK_BE(B4)_16-24 3m HORN_9120D_1241 HORIZONTAL Detector : Peak</p>	 <p>Site : 03CH13-HY Condition : PEAK(LINE) 3m HORN_9120D_1241 HORIZONTAL Detector : Peak</p>
Peak	 <p>Site : 03CH13-HY Condition : PEAK_BE(B4)_16-24 3m HORN_9120D_1241 HORIZONTAL Detector : Peak</p>	Left blank

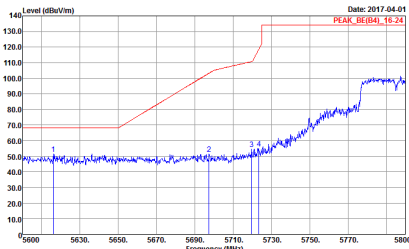
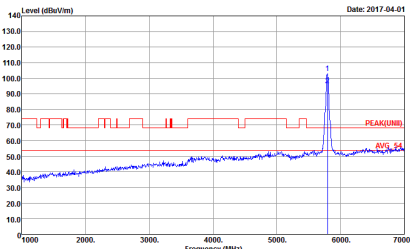
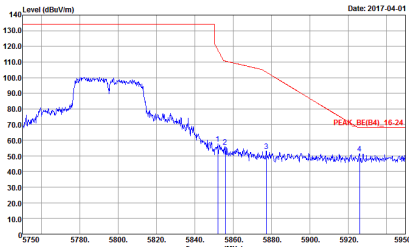


WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT40 CH151 5755MHz	
1	Vertical	Fundamental
<p>Peak</p>	 <p>Date: 2017-04-01</p> <p>Site : 03CH13-HY Condition : PEAK_BE(B4)_16-24 3m HORN_9120D_1241 VERTICAL Detector : Peak</p>	 <p>Date: 2017-04-01</p> <p>Site : 03CH13-HY Condition : PEAK(U11) 3m HORN_9120D_1241 VERTICAL Detector : Peak</p>
<p>Peak</p>	 <p>Date: 2017-04-01</p> <p>Site : 03CH13-HY Condition : PEAK_BE(B4)_16-24 3m HORN_9120D_1241 VERTICAL Detector : Peak</p>	<p>Left blank</p>



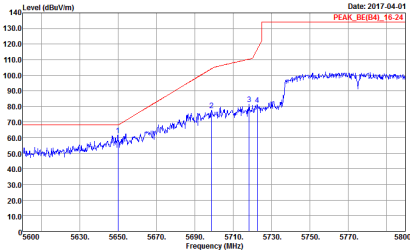
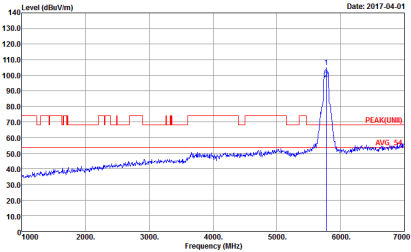
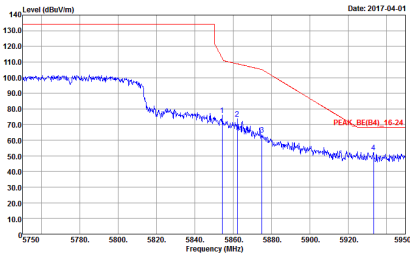
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT40 CH159 5795MHz	
1	Horizontal	Fundamental
<p>Peak</p>	 <p>Date: 2017-04-01</p> <p>Site : 03CH13-HY Condition : PEAK_BE(B4)_16-24 3m HORN_9120D_1241 HORIZONTAL Detector : Peak</p>	 <p>Date: 2017-04-01</p> <p>Site : 03CH13-HY Condition : PEAK(UNI) 3m HORN_9120D_1241 HORIZONTAL Detector : Peak</p>
<p>Peak</p>	 <p>Date: 2017-04-01</p> <p>Site : 03CH13-HY Condition : PEAK_BE(B4)_16-24 3m HORN_9120D_1241 HORIZONTAL Detector : Peak</p>	<p>Left blank</p>



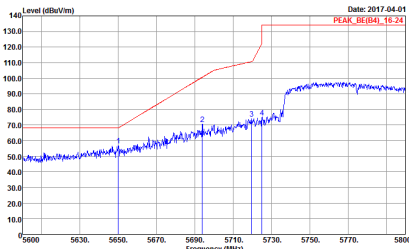
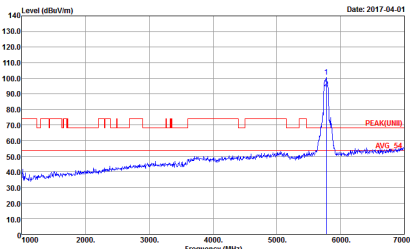
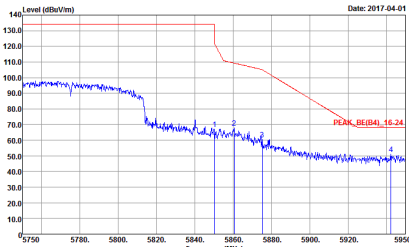
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT40 CH159 5795MHz	
1	Vertical	Fundamental
Peak	 <p>Date: 2017-04-01</p> <p>Site : 03CH13-HY Condition : PEAK_BE(B4)_16-24 3m HORN_9120D_1241 VERTICAL Detector : Peak</p>	 <p>Date: 2017-04-01</p> <p>Site : 03CH13-HY Condition : PEAK(UNI) 3m HORN_9120D_1241 VERTICAL Detector : Peak</p>
Peak	 <p>Date: 2017-04-01</p> <p>Site : 03CH13-HY Condition : PEAK_BE(B4)_16-24 3m HORN_9120D_1241 VERTICAL Detector : Peak</p>	Left blank



Band 4 5725~5850MHz
WIFI 802.11ac VHT80 (Band Edge @ 3m)

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT80 CH155 5775MHz	
1	Horizontal	Fundamental
Peak	 <p>Site : 03CH13-HY Condition : PEAK_BE(B4)_16-24 3m HORN_9120D_1241 HORIZONTAL Detector : Peak</p>	 <p>Site : 03CH13-HY Condition : PEAK(LMB) 3m HORN_9120D_1241 HORIZONTAL Detector : Peak</p>
Peak	 <p>Site : 03CH13-HY Condition : PEAK_BE(B4)_16-24 3m HORN_9120D_1241 HORIZONTAL Detector : Peak</p>	Left blank

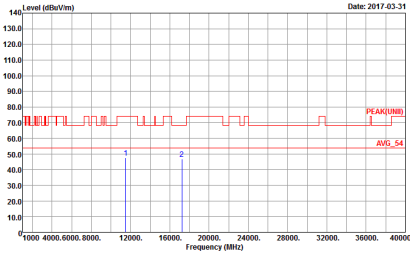
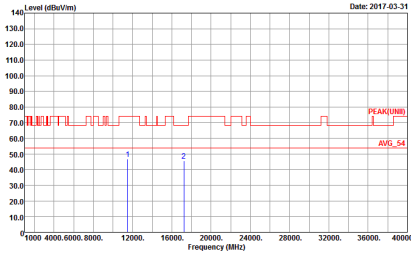


WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT80 CH155 5775MHz	
1	Vertical	Fundamental
<p>Peak</p>	 <p>Site : 03CH13-HY Condition : PEAK_BE(B4)_16-24 3m HORN_9120D_1241 VERTICAL Detector : Peak</p>	 <p>Site : 03CH13-HY Condition : PEAK(UNI) 3m HORN_9120D_1241 VERTICAL Detector : Peak</p>
<p>Peak</p>	 <p>Site : 03CH13-HY Condition : PEAK_BE(B4)_16-24 3m HORN_9120D_1241 VERTICAL Detector : Peak</p>	<p>Left blank</p>

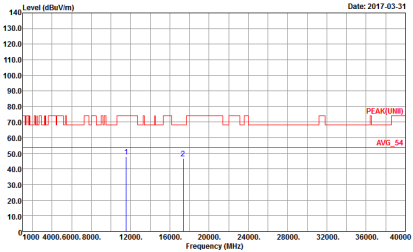
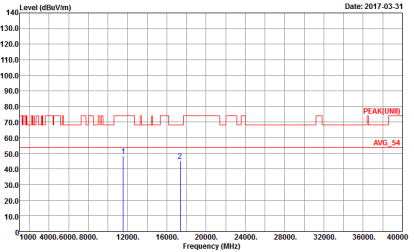


Band 4 - 5725~5850MHz

WIFI 802.11a (Harmonic @ 3m)

WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11a CH149 5745MHz	
1	Horizontal	Vertical
<p>Peak</p> <p>Avg.</p>	 <p>Site : 03CH13-HY Condition : PEAK(UNII) 3m SHF_HORN_584 HORIZONTAL Detector : Peak</p>	 <p>Site : 03CH13-HY Condition : PEAK(UNII) 3m SHF_HORN_584 VERTICAL Detector : Peak</p>



WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11a CH157 5785MHz	
1	Horizontal	Vertical
Peak Avg.	 <p>Site : 03CH13-HY Condition : PEAK(UNIT) 3m SHF_HORN_584 HORIZONTAL Detector : Peak</p>	 <p>Site : 03CH13-HY Condition : PEAK(UNIT) 3m SHF_HORN_584 VERTICAL Detector : Peak</p>



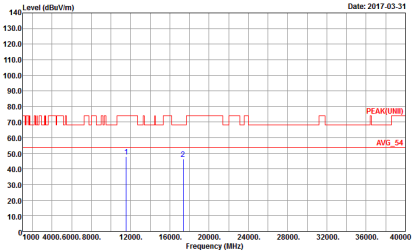
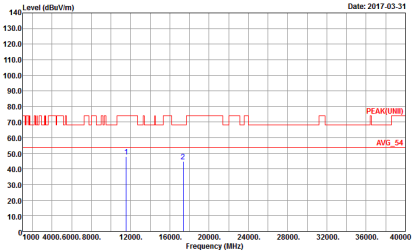
WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11a CH165 5825MHz	
1	Horizontal	Vertical
Peak Avg.	<p>Site : 03CH13-HY Condition : PEAK(UNIT) 3m SHF_HORN_584 HORIZONTAL Detector : Peak</p>	<p>Site : 03CH13-HY Condition : PEAK(UNIT) 3m SHF_HORN_584 VERTICAL Detector : Peak</p>



Band 4 5725~5850MHz
WIFI 802.11n HT20 (Harmonic @ 3m)

WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11n HT20 CH149 5745MHz	
1	Horizontal	Vertical
Peak Avg.	<p>Site : 03CH13-4Y Condition : PEAK(LINE1) 3m SHF_HORN_584 HORIZONTAL Detector : Peak</p>	<p>Site : 03CH13-4Y Condition : PEAK(LINE1) 3m SHF_HORN_584 VERTICAL Detector : Peak</p>



WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11n HT20 CH157 5785MHz	
1	Horizontal	Vertical
<p>Peak</p> <p>Avg.</p>	 <p>Site : 03CH13-HY Condition : PEAK(UNIT) 3m SHF_HORN_584 HORIZONTAL Detector : Peak</p>	 <p>Site : 03CH13-HY Condition : PEAK(UNIT) 3m SHF_HORN_584 VERTICAL Detector : Peak</p>



WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11n HT20 CH165 5825MHz	
1	Horizontal	Vertical
Peak Avg.	<p>Site : 03CH13-HY Condition : PEAK(UNIT) 3m SHF_HORN_584 HORIZONTAL Detector : Peak</p>	<p>Site : 03CH13-HY Condition : PEAK(UNIT) 3m SHF_HORN_584 VERTICAL Detector : Peak</p>



Band 4 5725~5850MHz
WIFI 802.11n HT40 (Harmonic @ 3m)

Table with 3 columns: WIFI, ANT, and measurement results for Horizontal and Vertical orientations. Includes two graphs showing Level (dBuV/m) vs Frequency (MHz) with peak and average values.



WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11n HT40 CH159 5795MHz	
1	Horizontal	Vertical
Peak Avg.	<p>Site : 03CH13-HY Condition : PEAK(UNIT) 3m SHF_HORN_584 HORIZONTAL Detector : Peak</p>	<p>Site : 03CH13-HY Condition : PEAK(UNIT) 3m SHF_HORN_584 VERTICAL Detector : Peak</p>



Band 4 5725~5850MHz
WIFI 802.11ac VHT80 (Harmonic @ 3m)

Table with 3 columns: WIFI, ANT, and 1. It contains two spectral plots: Horizontal and Vertical. Each plot shows Level (dBuV/m) vs Frequency (MHz) with a peak at approximately 12.5 MHz. The plots include labels for 'PEAK(UNB)' and 'AVG_54'. Below each plot is a metadata block with fields for Site, Condition, and Detector.



Emission below 1GHz
5GHz WIFI 802.11ac VHT80 (LF)

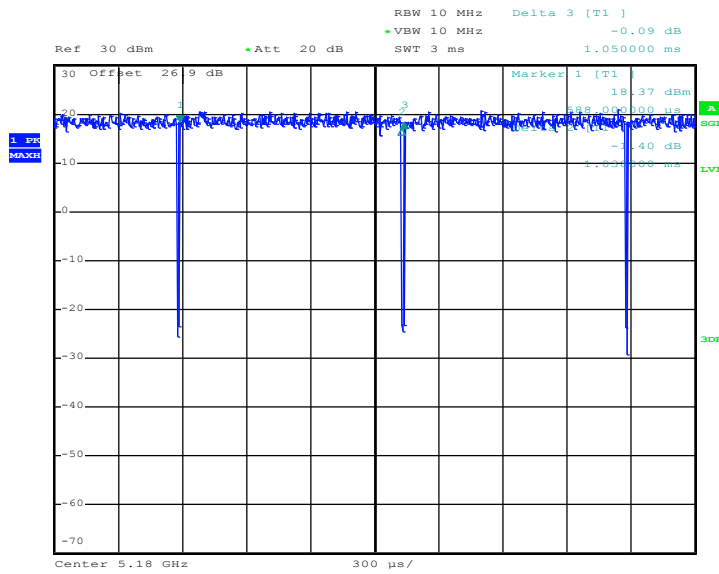
WIFI	5GHz 5725~5850MHz	
ANT	802.11ac VHT80 LF	
1	Horizontal	Vertical
QP / Peak	<p>Site : 03CH13-HY Condition : QP 3m BIL06_40103 HORIZONTAL Detector : Peak</p>	<p>Site : 03CH13-HY Condition : QP 3m BIL06_40103 VERTICAL Detector : Peak</p>



Appendix E. Duty Cycle Plots

Band	Duty Cycle(%)	T(us)	1/T(kHz)	VBW Setting
802.11a	98.86	-	-	10Hz
5GHz 802.11n HT20	99.07	-	-	10Hz
5GHz 802.11n HT40	98.13	-	-	10Hz
5GHz 802.11ac VHT20	98.78	-	-	10Hz
5GHz 802.11ac VHT40	97.59	486	2.06	3kHz
5GHz 802.11ac VHT80	93.85	244	4.10	10kHz

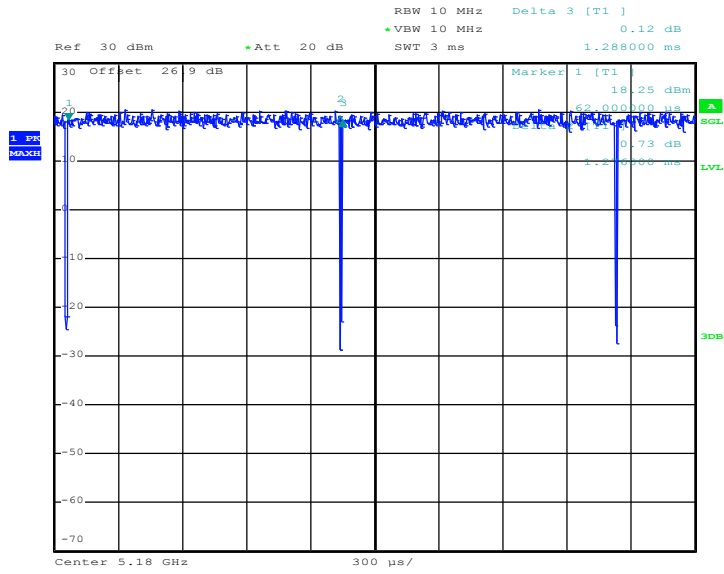
802.11a



Date: 23.MAR.2017 10:24:51

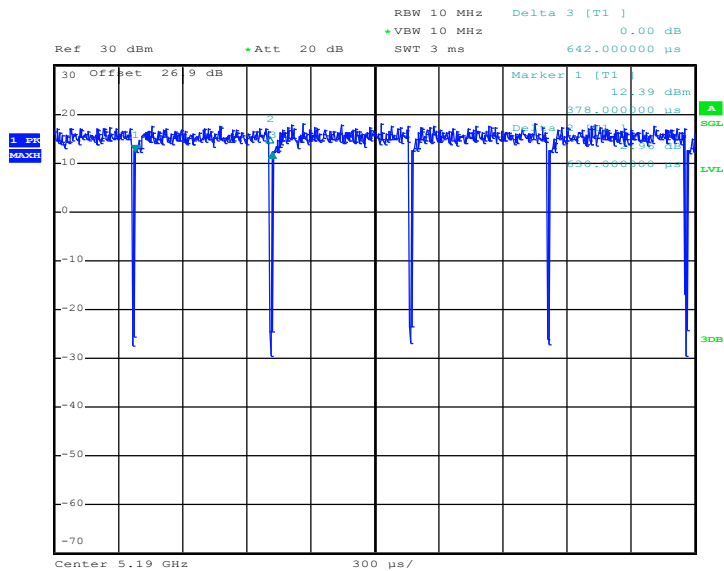


802.11n HT20



Date: 23.MAR.2017 10:17:46

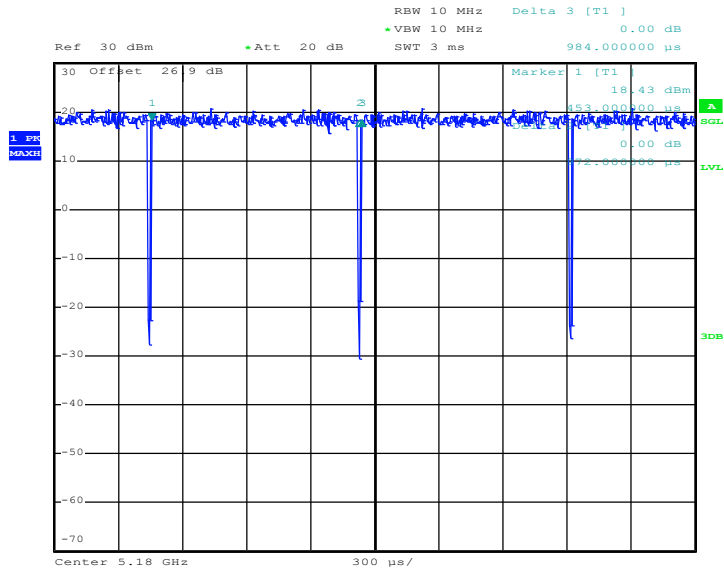
802.11n HT40



Date: 23.MAR.2017 10:19:08

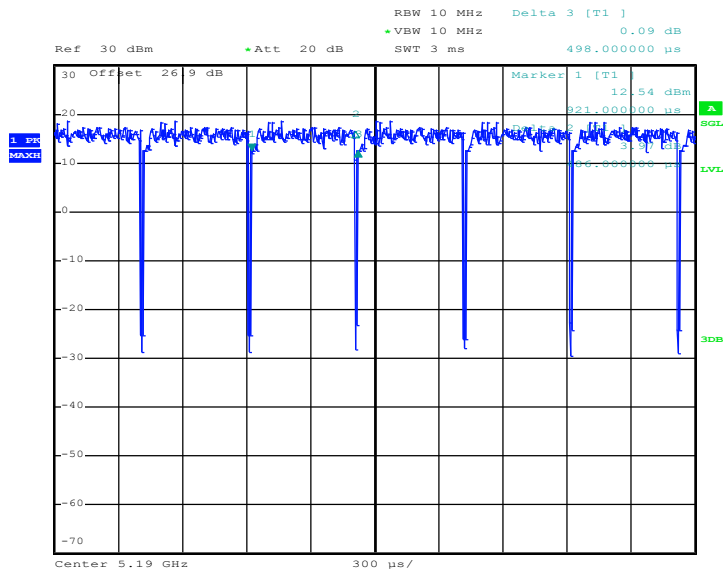


802.11ac VHT20



Date: 23.MAR.2017 10:20:44

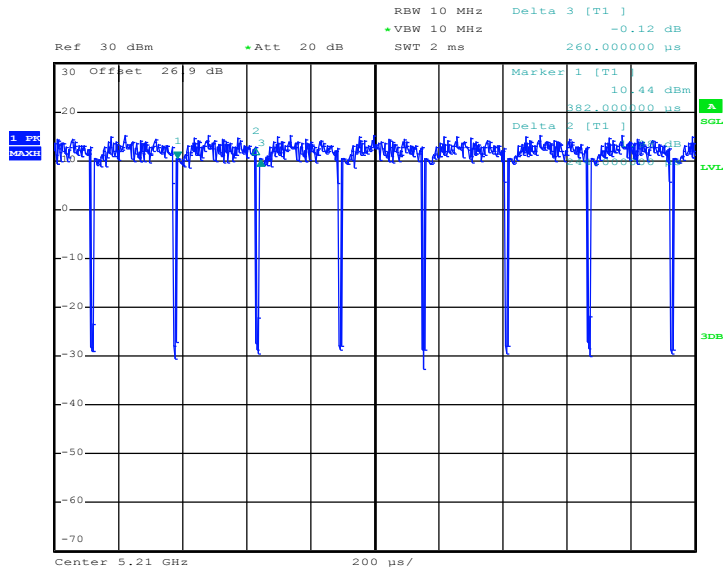
802.11ac VHT40



Date: 23.MAR.2017 10:22:01



802.11ac VHT80



Date: 23.MAR.2017 10:23:30