FCC RADIO TEST REPORT

FCC ID	:	**2AJZB-0308**
Equipment	:	**Digital Media Streaming Device**
Model Name	:	**EX69VW**
Applicant	:	**Verdegrass LLC** **233 South 13th Street, Suite 1100, Lincoln, Nebraska 68508**
Standard	:	**FCC Part 15 Subpart E §15.407**

The product was completed on Aug. 21, 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 report must not be used by the client to claim product certification, approval, or endorsement by TAF or any agency of government.

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

Approved by: Jones Tsai

SPORTON INTERTIONAL INC. EMC & Wireless Communications Laboratory
No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)

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History of this test report

Report No.	Version	Description	Issued Date
FR742534-04B	01	Initial issue of report	May 18, 2018

Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)
3.1	15.403 (i)	6dB & 26dB Bandwidth	Pass
3.1	2.1049	99% Occupied Bandwidth	Reporting only
3.2	15.407 (a)	Maximum Conducted Output Power	Pass
3.3	15.407 (a)	Power Spectral Density	Pass
3.4	15.407(b)	Unwanted Emissions	Pass
3.5	15.207	AC Conducted Emission	Pass
3.6	15.407 (c)	Automatically Discontinue Transmission	Pass
3.7	15.203 & 15.407 (a)	Antenna Requirement	Pass

Reviewed by: Louis Wu

Report Producer: Wii Chang

1 General Description

1.1 Manufacturer

Product Feature	
Equipment	Digital Media Streaming Device
Model Name	EX69VW
FCC ID	2AJZB-0308
EUT supports Radios application	WLAN 11a/b/g/n HT20 HT40 WLAN 11ac VHT20/VHT40/VHT80 Bluetooth BR/EDR/LE

1.2 Product Feature of Equipment Under Test

Standards-related Product Specification	
Tx/Rx Channel Frequency Range	5745 MHz ~ 5825 MHz
Maximum Output Power	**MIMO <Ant. 1+2>** 802.11a : 19.74 dBm / 0.0942 W 802.11n HT20 : 19.60 dBm / 0.0912 W 802.11n HT40 : 20.59 dBm / 0.1146 W 802.11ac VHT20: 19.58 dBm / 0.0908 W 802.11ac VHT40: 20.55 dBm / 0.1135 W 802.11ac VHT80: 17.56 dBm / 0.0570 W
99% Occupied Bandwidth	**MIMO <Ant. 1>** 802.11a : 19.05 MHz 802.11n HT20 : 19.75 MHz 802.11n HT40 : 45.60 MHz 802.11ac VHT80 : 75.72 MHz **MIMO <Ant. 2>** 802.11a : 19.55 MHz 802.11n HT20 : 19.90 MHz 802.11n HT40 : 37.90 MHz 802.11ac VHT80 : 75.84 MHz
Type of Modulation	802.11a/n : OFDM (BPSK / QPSK / 16QAM / 64QAM) 802.11ac : OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM)
Antenna Type / Gain	**<Ant. 1>** Fixed internal Antenna with gain 3.00 dBi **<Ant. 2>** Fixed internal Antenna with gain 5.15 dBi
Antenna Function Description	<table><tr><td></td><td>Ant. 1</td><td>Ant. 2</td></tr><tr><td>802.11 a/n/ac MIMO</td><td>V</td><td>V</td></tr></table>

Note: MIMO Ant. 1+2 is a calculated result from sum of the power MIMO Ant. 1 and MIMO Ant. 2.

1.3 Modification of EUT

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

1.4 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, Huaya 1st Rd., Guishan Dist., Taoyuan 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: +886-3-327-3456 FAX: +886-3-328-4978
Test Site No.	**Sporton Site No.**
	03CH13-HY

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

1.5 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 v02r01.
- FCC KDB 662911 D01 Multiple Transmitter Output v02r01.
- ANSI C63.10-2013

Remark: All test items were verified and recorded according to the standards and without any deviation during the test.

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, all the possible configuration was pre-scanned with power adaptor and peripherals (HDMI, USB and IR connector). It was determined that the worst configuration was EUT with adaptor but no peripherals. The final radiated testing was performed with EUT with adaptor but no peripherals.

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.

MIMO Antenna

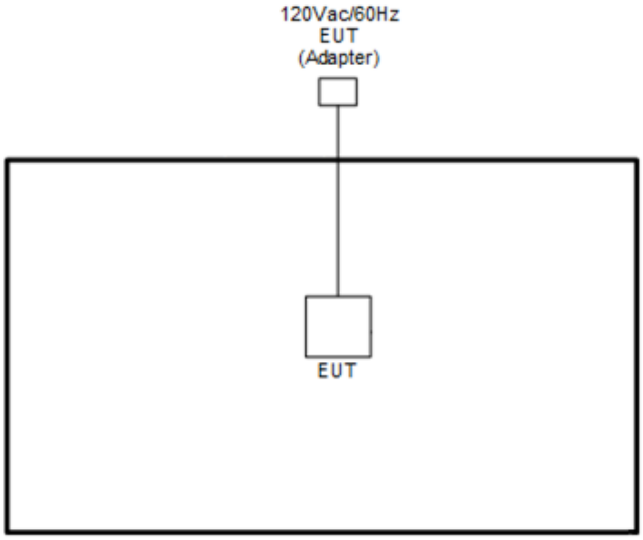
Modulation	Data Rate
802.11a	6 Mbps
802.11n HT20	MCS0
802.11n HT40	MCS0
802.11ac VHT20	MCS0
802.11ac VHT40	MCS0
802.11ac VHT80	MCS0

Test Cases	
AC Conducted Emission	Mode 1 : WLAN (5GHz) Link + Bluetooth Link + LED on + MPEG4 (Maximum Resolution) + IR on + Adapter

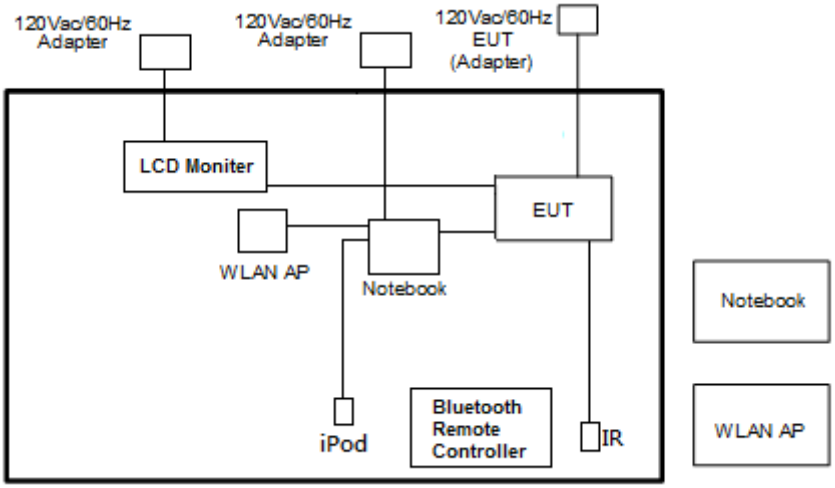
Ch. #		Band IV：5725-5850 MHz			
		802.11a	802.11n HT20	802.11n HT40	802.11ac VHT80
L	Low	149	149	151	-
M	Middle	157	157	-	155
H	High	165	165	159	-

2.3 Connection Diagram of Test System

<WLAN Tx Mode>



<AC Conducted Emission Mode>



2.4 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	WLAN AP	ASUS	RT-AC66U	MSQ-RTAC66U	N/A	Unshielded, 1.8 m
2.	iPod	Apple	A1285	DoC	Shielded, 1.0 m	N/A
3.	NOTE BOOK	DELL	E5570	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
4.	NOTE BOOK	DELL	Latitude E6320	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
5.	LCD MONITOR	SONY	KD-55X850D	FCC DoC	Shielded, 1.6 m	Unshielded, 1.8 m

2.5 EUT Operation Test Setup

The RF test items, programmed RF utility, “CMD” 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.

Offset(dB) = RF cable loss(dB) + attenuator factor(dB).

= 4.2 + 10 = 14.2 (dB)

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.

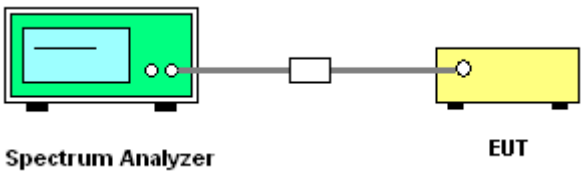
3.1.2 Measuring Instruments

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 v02r01. Section C) Emission bandwidth for the band 5.725-5.85GHz
2. Set RBW = 100kHz.
3. Set the VBW ≥ 3 x 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.

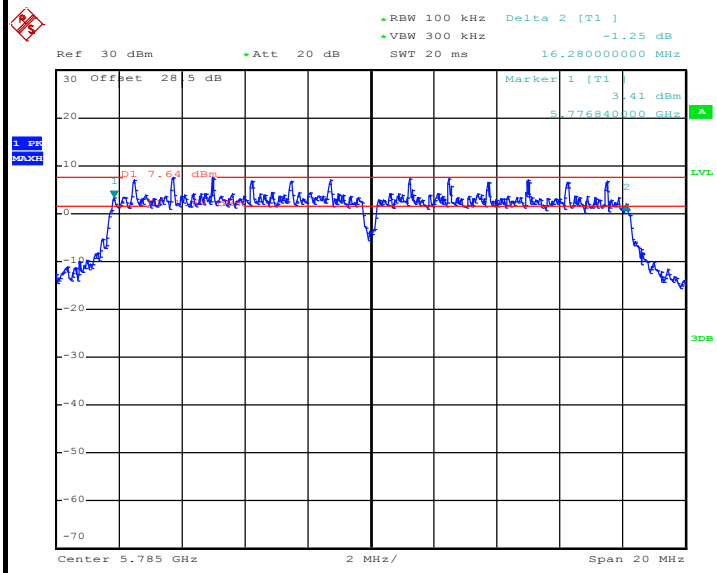
3.1.4 Test Setup



3.1.5 Test Result of 6dB Bandwidth

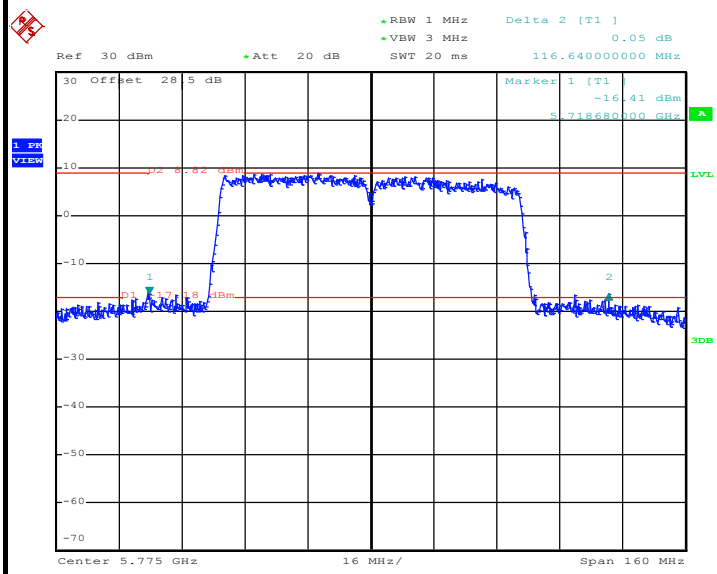
Please refer to Appendix A.

Minimum 6dB Bandwidth



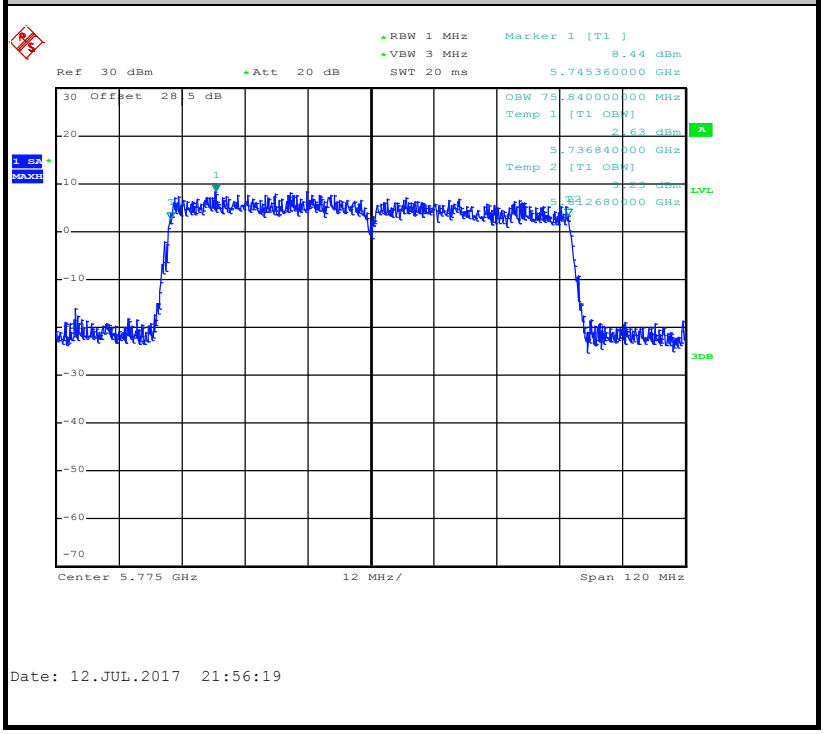
Date: 12.JUL.2017 20:59:06

Maximum 26dB Bandwidth



Date: 12.JUL.2017 21:57:26

Maximum 99% Occupied Bandwidth



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.

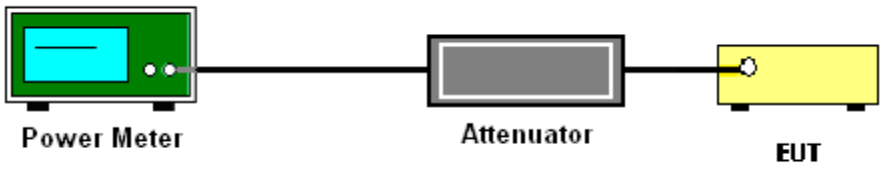
3.2.3 Test Procedures

The testing follows Method PM of FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.

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 v02r01. 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).

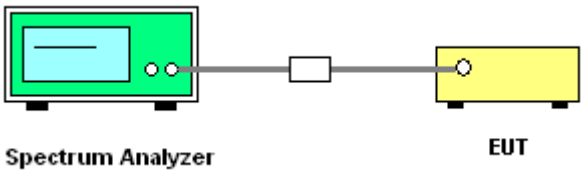
- Measure the duty cycle.
- Set span to encompass the entire emission bandwidth (EBW) of the signal.
- Set RBW = 300 kHz.
- Set VBW ≥ 1 MHz.
- Number of points in sweep ≥ 2 Span / RBW.
- Sweep time = auto.
- Detector = RMS
- Trace average at least 100 traces in power averaging mode.
- Add 10 log(500kHz/RBW) 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. For MIMO mode, calculation method follows FCC KDB 662911 D01 Multiple Transmitter Output v02r01.

   Method (c): Measure and add 10 log(N_{ANT}) dB.

   With this technique, spectrum measurements are performed at each output of the device, but rather than summing the spectra or the spectral peaks across the outputs, the quantity 10 log(N_{ANT}) dB is added to each spectrum value before comparing to the emission limit. The addition of 10 log(N_{ANT}) dB serves to apportion the emission limit among the N_{ANT} outputs so that each output is permitted to contribute no more than $1/N_{ANT}$ th of the PSD limit.

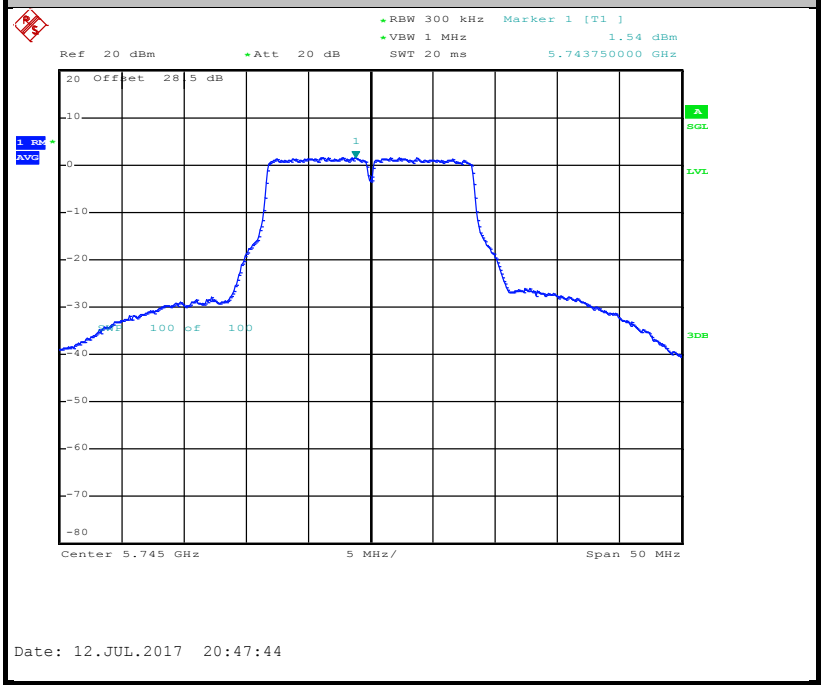
3.3.4 Test Setup



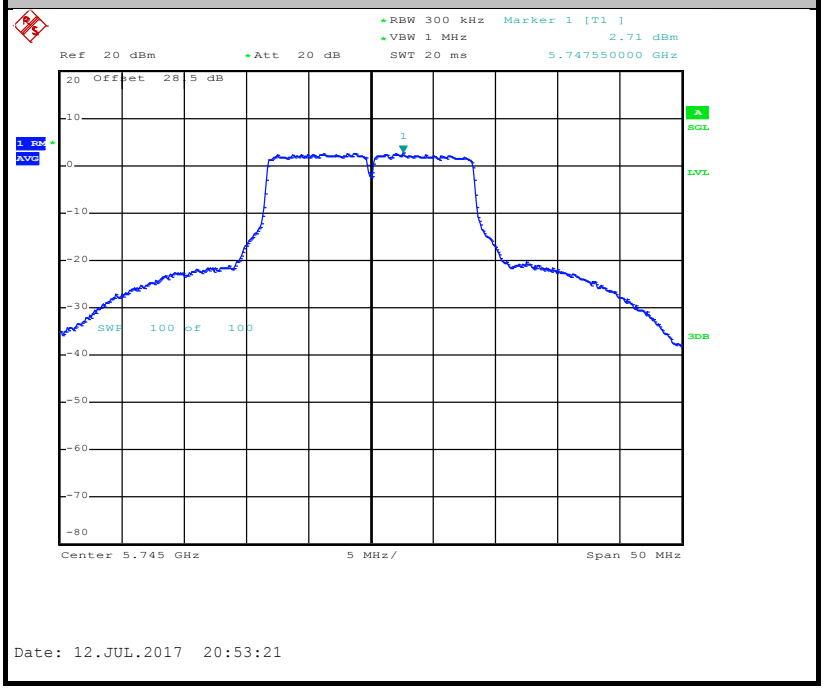
3.3.5 Test Result of Power Spectral Density

Please refer to Appendix A.

Worst Case Power Density (dBm/300kHz) for MIMO Ant. 1



Worst Case Power Density (dBm/300kHz) for MIMO Ant. 2



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 shall comply with the general field strength limits set 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.

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

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

(1) KDB789033 D02 v02r01 G)2)c)

(i) Section 15.407(b)(1) to (b)(3) specify the unwanted emission limits for the U-NII-1 and U-NII-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.3

(ii) Section 15.407(b)(4) specifies the unwanted emission limit for the U-NII-3 band. A band emissions mask is specified in Section 15.407(b)(4)(i). The emission limits are in terms of a Peak detector. 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 devices using the alternative limit.[4]

Note 3: 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 peak emission limit.

Note 4: Only devices with antenna gains of 10 dBi or less may be approved using the emission limits specified in Section 15.247(d) till March 2, 2018; all other devices operating in this band must use the mask specified in Section 15.407(b)(4)(i).

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 v02r01. 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 ≥ 3 MHz
   - Detector = Peak
   - Sweep time = auto
   - Trace mode = max hold

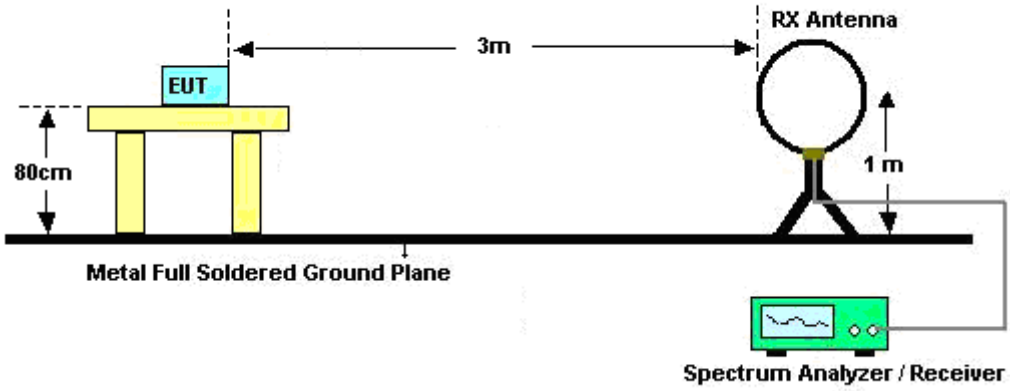
   (3) Procedures for Average Unwanted Emissions Measurements Above 1000MHz

   - RBW = 1 MHz
   - VBW = 10 Hz, when duty cycle is no less than 98 percent.
   - VBW ≥ 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.

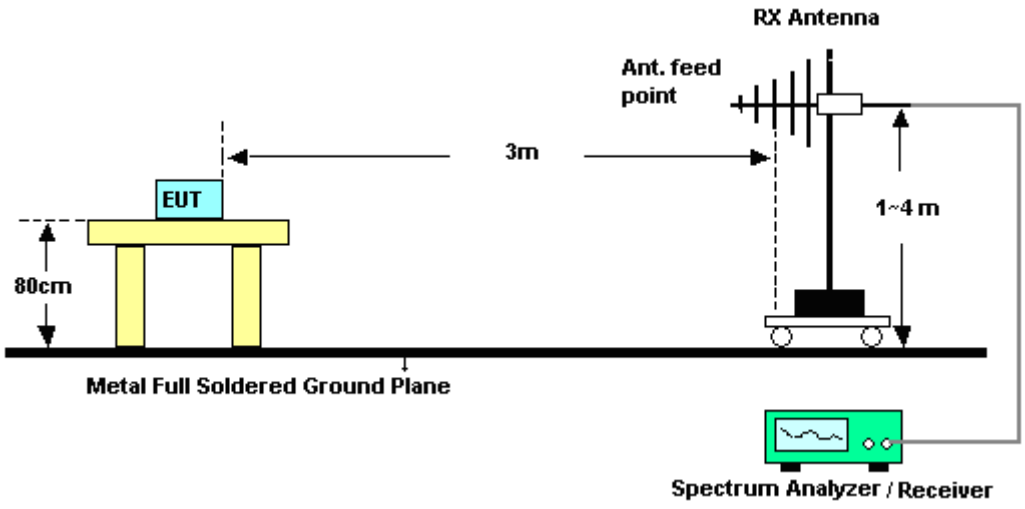
2. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
3. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
4. The antenna is a broadband 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

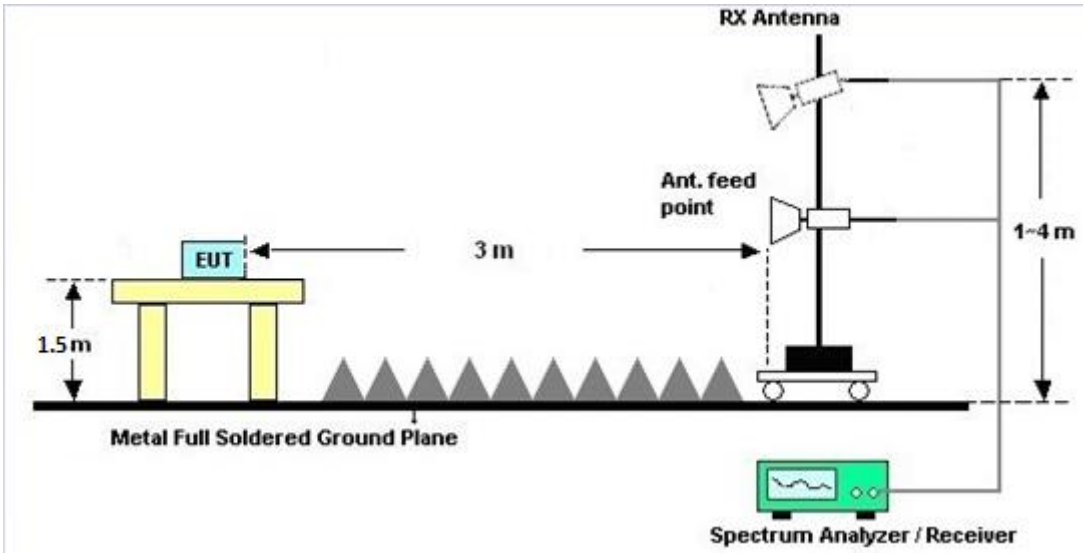
For radiated emissions below 30MHz



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.

There is a comparison data of both open-field test site and semi-Anechoic chamber, and the result came out very similar.

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 (dBμV)	
	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.

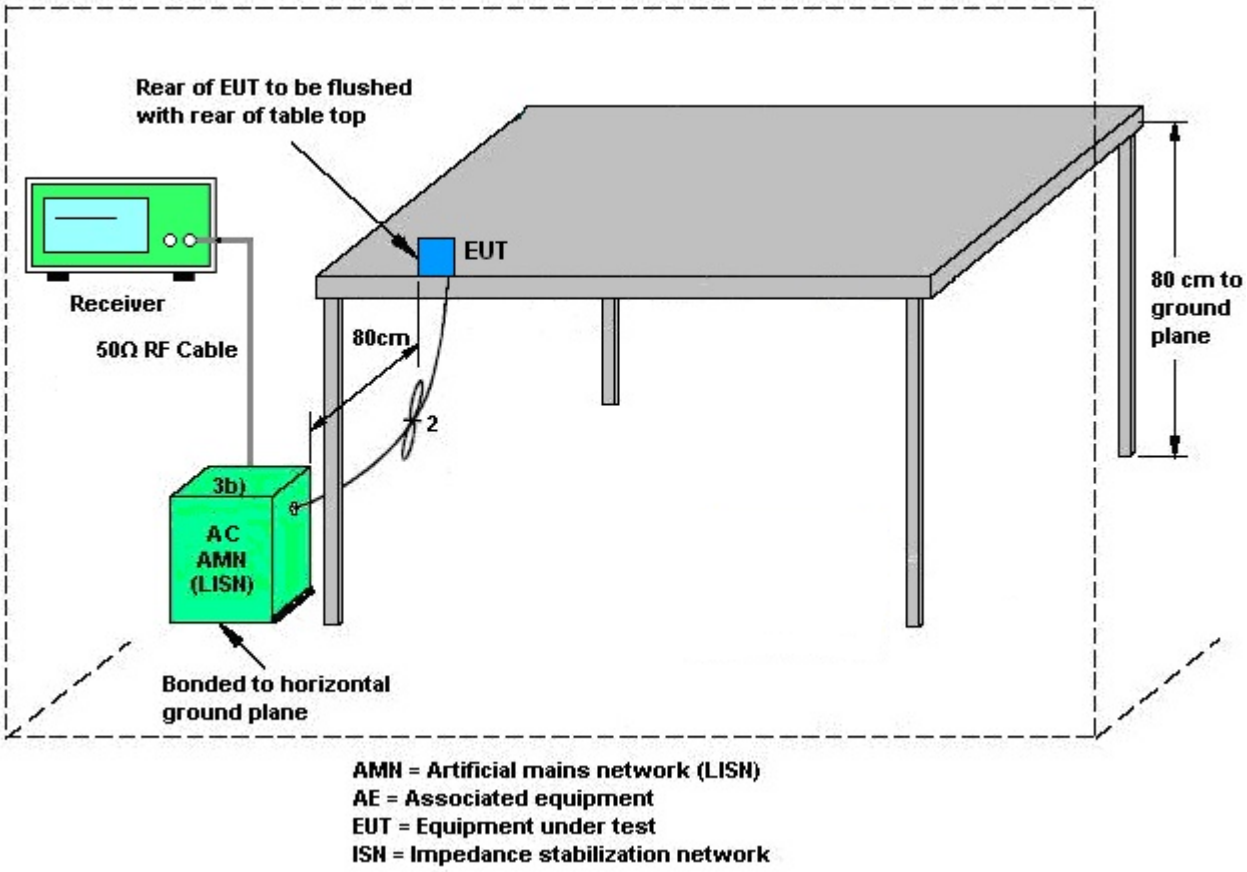
3.5.2 Measuring Instruments

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



3.5.5 Test Result of AC Conducted Emission

Please refer to Appendix B.

3.6 Automatically Discontinue Transmission

3.6.1 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.

3.6.2 Measuring Instruments

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

3.6.3 Test Result of Automatically Discontinue Transmission

EUT is verified this characteristic during the function check of normal sample associated with an access point:

A. Information start: make EUT supply information to the access point.

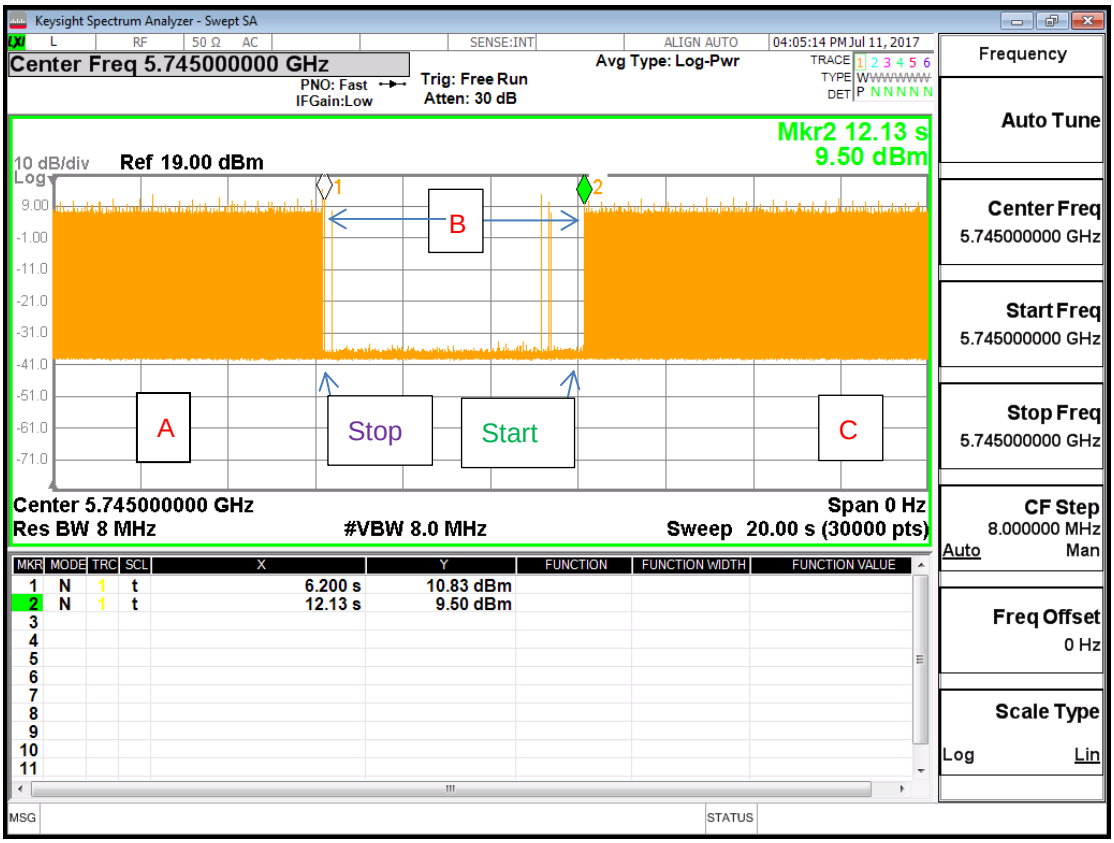
B. Information stop: stop supplying information to the access point.

While the EUT is not transmitting any information, the EUT can automatically discontinue transmission and become standby mode for power saving.

C. Information start: make EUT supply information to the access point again.

The EUT can detect the controlling signal of ACK message transmitting from remote device and verify whether it shall resend or discontinue transmissio

5745MHz



Note: The control / signalling information during the period B is precluded.

3.7 Antenna Requirements

3.7.1 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.

3.7.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

3.7.3 Antenna Gain

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

For CDD transmissions, directional gain is calculated as

Directional gain = G_{ANT} + Array Gain, where Array Gain is as follows.

For power spectral density (PSD) measurements on all devices,

Array Gain = 10 log(N_{ANT}/N_{SS}=1) dB.

For power measurements on IEEE 802.11 devices,

Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$.

Directional gain may be calculated by using the formulas applicable to equal gain antennas with G_{ANT} set equal to the gain of the antenna having the highest gain;

The EUT supports CDD mode.

For power, the directional gain G_{ANT} is set equal to the antenna having the highest gain, i.e., F)2)f)i).

For PSD, the directional gain calculation is following F)2)f)ii) of KDB 662911 D01 v02r01.

The power and PSD limit should be modified if the directional gain of EUT is over 6 dBi,

The directional gain “DG” is calculated as following table.

	Ant 1 (dBi)	Ant 2 (dBi)	DG for Power (dBi)	DG for PSD (dBi)	Power Limit Reduction (dB)	PSD Limit Reduction (dB)
Band IV	3.00	5.15	5.15	7.15	0.00	1.15

Power limit reduction = Composite gain – 6dBi, (min = 0)

PSD limit reduction = Composite gain + PSD Array gain – 6dBi, (min = 0)

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	Jul. 05, 2017~ Aug. 21, 2017	Sep. 28, 2017	Conducted (TH05-HY)
Power Sensor	Anritsu	MA2411B	0846202	300MHz~40GHz	Sep. 29, 2016	Jul. 05, 2017~ Aug. 21, 2017	Sep. 28, 2017	Conducted (TH05-HY)
Spectrum Analyzer	Rohde & Schwarz	FSP40	100057	9kHz-40GHz	Nov. 25, 2016	Jul. 05, 2017~ Aug. 21, 2017	Nov. 24, 2017	Conducted (TH05-HY)
Temperature Chamber	ESPEC	SH-641	92013720	-40℃ ~90℃	Sep. 01, 2016	Jul. 05, 2017~ Aug. 21, 2017	Aug. 31, 2017	Conducted (TH05-HY)
Programmable Power Supply	GW Instek	PSS-2005	EL890094	1V~20V 0.5A~5A	Oct. 11, 2016	Jul. 05, 2017~ Aug. 21, 2017	Oct. 10, 2017	Conducted (TH05-HY)
AC Power Source	AC POWER	AFC-500W	F104070011	50Hz~60Hz	Dec. 01, 2016	Jul. 05, 2017~ Aug. 21, 2017	Nov. 30, 2017	Conducted (TH05-HY)
AC Power Source	ChainTek	APC-1000W	N/A	N/A	N/A	Jul. 07, 2017	N/A	Conduction (CO05-HY)
EMI Test Receiver	Rohde & Schwarz	ESCI 7	100724	9kHz~7GHz	Aug. 30, 2016	Jul. 07, 2017	Aug. 29, 2017	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100080	9kHz~30MHz	Nov. 29, 2016	Jul. 07, 2017	Nov. 28, 2017	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100081	9kHz~30MHz	Dec. 06, 2016	Jul. 07, 2017	Dec. 05, 2017	Conduction (CO05-HY)
Spectrum Analyzer	Keysight	N9010A	MY55370526	N/A	Mar. 15, 2017	Jul. 07, 2017 ~ Jul. 30, 2017	Mar. 14, 2018	Radiation (03CH13-HY)
EMI Test Receiver	Agilent	N9038A(MXE)	MY53290053	20Hz to 26.5GHz	Jan. 12, 2017	Jul. 07, 2017 ~ Jul. 30, 2017	Jan. 11, 2018	Radiation (03CH13-HY)
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100315	9 kHz~30 MHz	May 15, 2017	Jul. 07, 2017 ~ Jul. 30, 2017	May 14, 2019	Radiation (03CH13-HY)
Bilog Antenna	TESEQ	CBL 6111D&00800 N1D01N-06	40103&04	30MHz to 1GHz	Jan. 07, 2017	Jul. 07, 2017 ~ Jul. 30, 2017	Jan. 06, 2018	Radiation (03CH13-HY)
Horn Antenna	SCHWARZBE CK	BBHA 9120 D	9120D-1241	1GHz ~ 18GHz	May 02, 2017	Jul. 07, 2017 ~ Jul. 30, 2017	May 01, 2018	Radiation (03CH13-HY)
SHF-EHF Horn Antenna	SCHWARZBE CK	BBHA 9170	BBHA917058 4	18GHz- 40GHz	Nov. 08, 2016	Jul. 07, 2017 ~ Jul. 30, 2017	Nov. 07, 2017	Radiation (03CH13-HY)
Amplifier	Sonoma-Instru ment	310 N	187282	9KHz~1GHz	Dec. 21, 2016	Jul. 07, 2017 ~ Jul. 30, 2017	Dec. 20, 2017	Radiation (03CH13-HY)
Preamplifier	Keysight	83017A	MY53270147	1GHz~26.5GHz	Jan. 09, 2017	Jul. 07, 2017 ~ Jul. 30, 2017	Jan. 08, 2018	Radiation (03CH13-HY)
Preamplifier	MITEQ	AMF-7D-0010 1800-30-10P	1590074	1GHz~18GHz	May 22, 2017	Jul. 07, 2017 ~ Jul. 30, 2017	May 21, 2018	Radiation (03CH13-HY)
Preamplifier	MITEQ	TTA 1840-35-HG	1887435	18GHz ~ 40GHz	Oct. 13, 2016	Jul. 07, 2017 ~ Jul. 30, 2017	Oct. 12, 2017	Radiation (03CH13-HY)
Antenna Mast	EMEC	AM-BS-4500-B	N/A	1m~4m	N/A	Jul. 07, 2017 ~ Jul. 30, 2017	N/A	Radiation (03CH13-HY)
Turn Table	EMEC	TT2000	N/A	0~360 Degree	N/A	Jul. 07, 2017 ~ Jul. 30, 2017	N/A	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:	Aking chang	Temperature:	21~25	°C
Test Date:	2017/07/05~2017/08/21	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)		26dB Bandwidth (MHz)		6 dB Bandwidth (MHz)		6 dB Bandwidth Min. Limit (MHz)		Pass/Fail
					Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	
11a	6Mbps	2	149	5745	18.15	19.55	32.65	39.90	16.30	16.32	0.5		Pass
11a	6Mbps	2	157	5785	19.05	18.70	37.10	38.40	16.28	16.34	0.5		Pass
11a	6Mbps	2	165	5825	18.20	18.55	23.20	34.70	16.32	16.32	0.5		Pass
HT20	MCS0	2	149	5745	19.30	19.90	29.20	45.80	17.56	17.54	0.5		Pass
HT20	MCS0	2	157	5785	19.25	19.40	29.05	42.30	17.58	17.54	0.5		Pass
HT20	MCS0	2	165	5825	19.75	19.60	42.35	42.15	17.52	17.54	0.5		Pass
HT40	MCS0	2	151	5755	37.90	37.90	96.36	89.76	36.08	36.32	0.5		Pass
HT40	MCS0	2	159	5795	45.60	37.40	92.64	88.56	36.28	36.32	0.5		Pass
VHT80	MCS0	2	155	5775	75.72	75.84	82.56	116.64	75.76	75.36	0.5		Pass

Report Number : FR742534-04B

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
					Ant 1	Ant 2	Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2		
11a	6Mbps	2	149	5745	0.32	0.32	16.27	17.15	19.74	30.00		5.15			Pass
11a	6Mbps	2	157	5785	0.32	0.32	15.94	16.92	19.47	30.00		5.15			Pass
11a	6Mbps	2	165	5825	0.32	0.32	14.99	15.58	18.31	30.00		5.15			Pass
HT20	MCS0	2	149	5745	0.34	0.34	16.02	17.09	19.60	30.00		5.15			Pass
HT20	MCS0	2	157	5785	0.34	0.34	15.64	16.84	19.29	30.00		5.15			Pass
HT20	MCS0	2	165	5825	0.34	0.34	14.86	15.54	18.23	30.00		5.15			Pass
HT40	MCS0	2	151	5755	0.67	0.67	16.95	18.12	20.59	30.00		5.15			Pass
HT40	MCS0	2	159	5795	0.67	0.67	17.40	17.47	20.45	30.00		5.15			Pass
VHT20	MCS0	2	149	5745	0.34	0.31	16.02	17.06	19.58	30.00		5.15			Pass
VHT20	MCS0	2	157	5785	0.34	0.31	15.64	16.79	19.26	30.00		5.15			Pass
VHT20	MCS0	2	165	5825	0.34	0.31	14.86	15.49	18.20	30.00		5.15			Pass
VHT40	MCS0	2	151	5755	0.60	0.66	16.88	18.11	20.55	30.00		5.15			Pass
VHT40	MCS0	2	159	5795	0.60	0.66	17.33	17.46	20.41	30.00		5.15			Pass
VHT80	MCS0	2	155	5775	1.20	1.14	13.93	15.09	17.56	30.00		5.15			Pass

TEST RESULTS DATA
Power Spectral Density

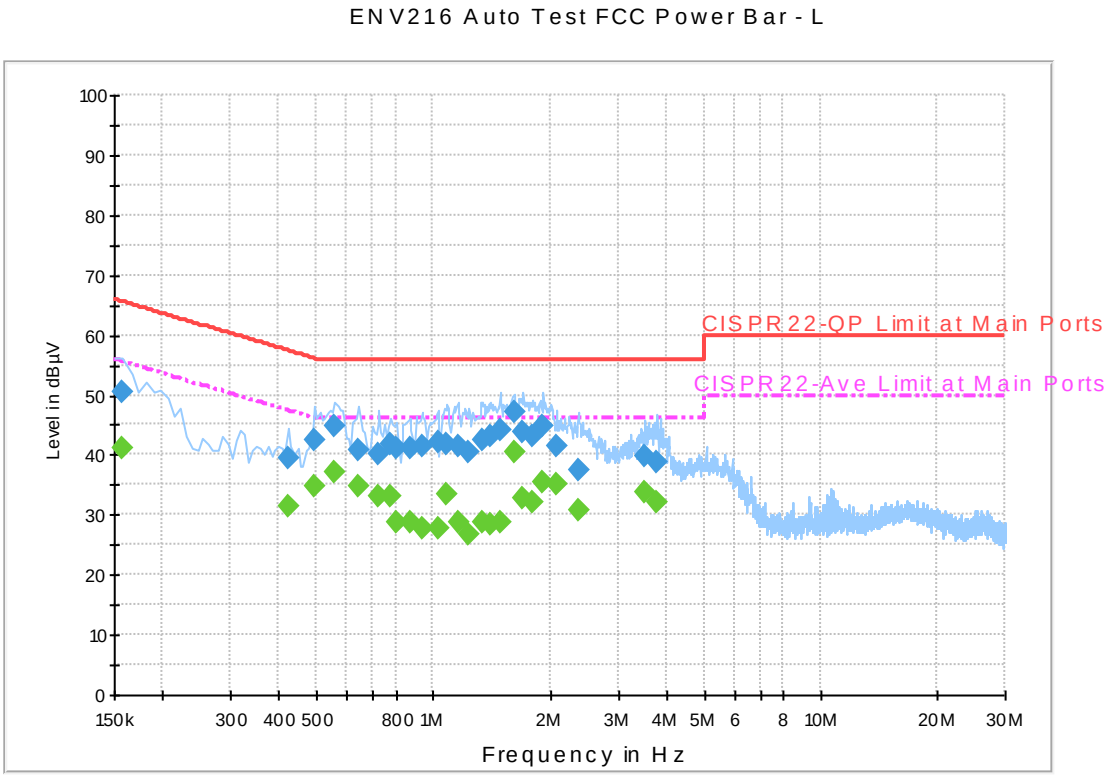
Band IV																	
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)		10log (500kHz /RBW) Factor (dB)		Average Power Density (dBm/500kHz)			Average PSD Limit (dBm/500kHz)		DG (dBi)		Pass /Fail
					Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2	
11a	6Mbps	2	149	5745	0.32	0.32	2.22				8.26	28.85		7.15		Pass
11a	6Mbps	2	157	5785	0.32	0.32	2.22				7.38	28.85		7.15		Pass
11a	6Mbps	2	165	5825	0.32	0.32	2.22				6.17	28.85		7.15		Pass
HT20	MCS0	2	149	5745	0.34	0.34	2.22				8.07	28.85		7.15		Pass
HT20	MCS0	2	157	5785	0.34	0.34	2.22				6.59	28.85		7.15		Pass
HT20	MCS0	2	165	5825	0.34	0.34	2.22				6.87	28.85		7.15		Pass
HT40	MCS0	2	151	5755	0.67	0.67	2.22				5.01	28.85		7.15		Pass
HT40	MCS0	2	159	5795	0.67	0.67	2.22				5.15	28.85		7.15		Pass
VHT80	MCS0	2	155	5775	1.20	1.14	2.22				0.28	28.85		7.15		Pass

Appendix B. AC Conducted Emission Test Results

Test Engineer :	Eric Jeng	**Temperature :**	22~24℃
		Relative Humidity :	51~53%

EUT Information

Test Mode :	Mode 1
Test Voltage :	120Vac/60Hz
Phase :	Line



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.158000	50.6	Off	L1	19.6	15.0	65.6
0.422000	39.6	Off	L1	19.6	17.8	57.4
0.494000	42.3	Off	L1	19.6	13.8	56.1
0.558000	44.9	Off	L1	19.6	11.1	56.0
0.638000	40.7	Off	L1	19.6	15.3	56.0
0.726000	40.1	Off	L1	19.6	15.9	56.0
0.774000	41.8	Off	L1	19.6	14.2	56.0
0.806000	41.3	Off	L1	19.6	14.7	56.0
0.870000	41.3	Off	L1	19.6	14.7	56.0
0.934000	41.5	Off	L1	19.6	14.5	56.0
1.030000	42.0	Off	L1	19.6	14.0	56.0
1.086000	41.8	Off	L1	19.6	14.2	56.0
1.158000	41.5	Off	L1	19.6	14.5	56.0
1.238000	40.4	Off	L1	19.6	15.6	56.0
1.334000	42.5	Off	L1	19.6	13.5	56.0
1.406000	43.1	Off	L1	19.6	12.9	56.0
1.486000	44.3	Off	L1	19.6	11.7	56.0
1.614000	47.1	Off	L1	19.6	8.9	56.0
1.710000	43.8	Off	L1	19.6	12.2	56.0
1.806000	43.2	Off	L1	19.6	12.8	56.0
1.926000	44.8	Off	L1	19.6	11.2	56.0
2.086000	41.5	Off	L1	18.0	14.5	56.0
2.366000	37.4	Off	L1	19.0	18.6	56.0
3.510000	39.7	Off	L1	19.7	16.3	56.0
3.798000	38.7	Off	L1	19.7	17.3	56.0

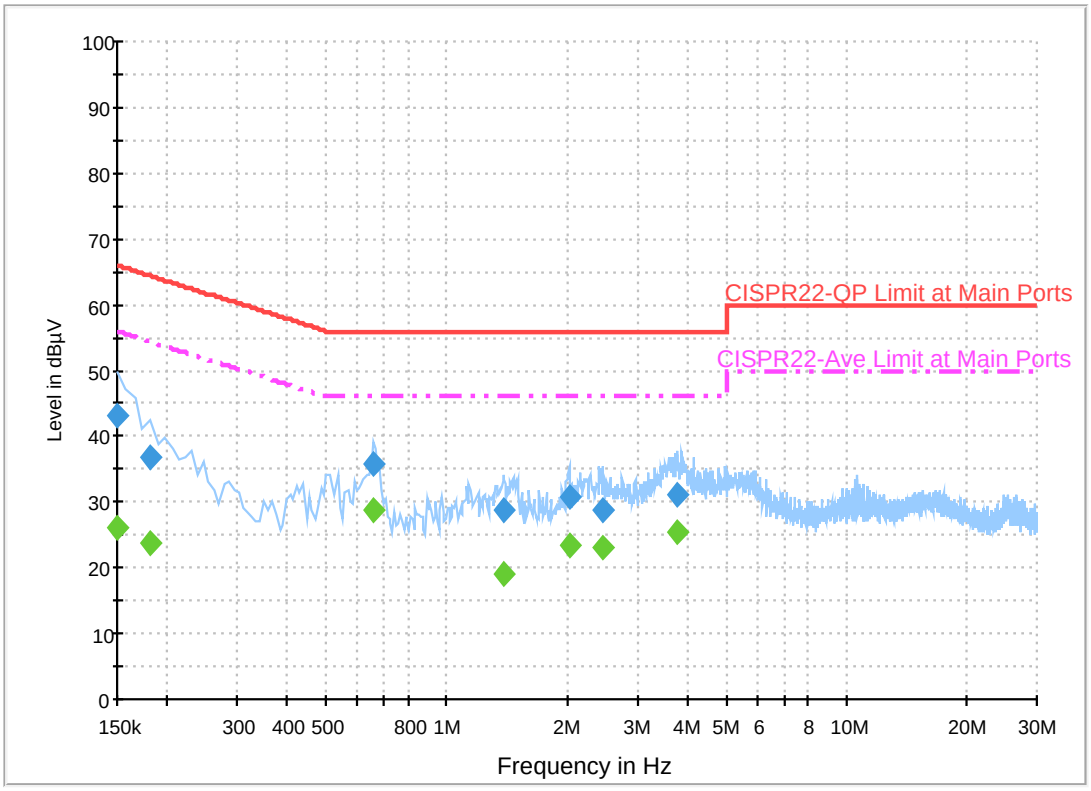
Final Result 2

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.158000	41.2	Off	L1	19.6	14.4	55.6
0.422000	31.4	Off	L1	19.6	16.0	47.4
0.494000	34.8	Off	L1	19.6	11.3	46.1
0.558000	37.0	Off	L1	19.6	9.0	46.0
0.638000	34.9	Off	L1	19.6	11.1	46.0
0.726000	33.1	Off	L1	19.6	12.9	46.0
0.774000	33.1	Off	L1	19.6	12.9	46.0
0.806000	28.6	Off	L1	19.6	17.4	46.0
0.870000	28.7	Off	L1	19.6	17.3	46.0
0.934000	27.8	Off	L1	19.6	18.2	46.0
1.030000	27.7	Off	L1	19.6	18.3	46.0
1.086000	33.6	Off	L1	19.6	12.4	46.0
1.158000	28.8	Off	L1	19.6	17.2	46.0
1.238000	26.8	Off	L1	19.6	19.2	46.0
1.334000	28.7	Off	L1	19.6	17.3	46.0
1.406000	28.3	Off	L1	19.6	17.7	46.0
1.486000	28.7	Off	L1	19.6	17.3	46.0
1.614000	40.4	Off	L1	19.6	5.6	46.0
1.710000	32.7	Off	L1	19.6	13.3	46.0
1.806000	32.1	Off	L1	19.6	13.9	46.0
1.926000	35.6	Off	L1	19.6	10.4	46.0
2.086000	35.2	Off	L1	18.0	10.8	46.0
2.366000	30.7	Off	L1	19.0	15.3	46.0
3.510000	33.7	Off	L1	19.7	12.3	46.0
3.798000	32.0	Off	L1	19.7	14.0	46.0

EUT Information

Test Mode :	Mode 1
Test Voltage :	120Vac/60Hz
Phase :	Neutral

ENV216 Auto Test FCC Power Bar - N



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	43.0	Off	N	19.5	23.0	66.0
0.182000	36.7	Off	N	19.5	27.7	64.4
0.654000	35.9	Off	N	19.6	20.1	56.0
1.390000	28.9	Off	N	19.6	27.1	56.0
2.030000	30.7	Off	N	19.6	25.3	56.0
2.462000	28.8	Off	N	19.2	27.2	56.0
3.774000	31.2	Off	N	19.7	24.8	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	26.0	Off	N	19.5	30.0	56.0
0.182000	23.8	Off	N	19.5	30.6	54.4
0.654000	28.7	Off	N	19.6	17.3	46.0
1.390000	19.0	Off	N	19.6	27.0	46.0
2.030000	23.3	Off	N	19.6	22.7	46.0
2.462000	23.0	Off	N	19.2	23.0	46.0
3.774000	25.4	Off	N	19.7	20.6	46.0

Appendix C. Radiated Spurious Emission

Test Engineer :	Alex Jheng, Bill Chang and Wilson Wu	Temperature :	24.0~24.3℃
		Relative Humidity :	50~52%

Band 4 - 5725~5850MHz

WIFI 802.11a (Band Edge @ 3m)

WIFI Ant. 1+2	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		5338	56.19	-12.01	68.2	46.7	32.63	7.45	30.59	233	180	P	H
		5668	60.53	-7.67	68.2	50.6	32.87	7.75	30.69	233	180	P	H
		5825	115.06	46.86	68.2	105.11	32.83	7.88	30.76	233	180	P	H
		5825	107.52	53.52	54	97.57	32.83	7.88	30.76	233	180	A	H
		5986	55.55	-12.65	68.2	45.69	32.8	7.89	30.83	233	180	P	H
		6064	54.63	-13.57	68.2	44.53	33.11	7.87	30.88	233	180	P	H
		5852	62.5	-55.14	117.64	52.56	32.83	7.88	30.77	233	180	P	H
	*	5855.8	57.08	-	-	47.14	32.83	7.88	30.77	233	180	A	H
	*	5879.8	54.65	-	-	44.73	32.82	7.88	30.78	233	180	P	H
		5942.4	51.56	-16.64	68.2	41.68	32.81	7.89	30.82	233	180	P	H
		5825	108.63	40.43	68.2	98.68	32.83	7.88	30.76	395	277	P	V
		5825	100.73	46.73	54	90.78	32.83	7.88	30.76	395	277	P	V
		5852	58.78	-58.86	117.64	48.84	32.83	7.88	30.77	395	277	P	V
		5868.8	53.29	-53.64	106.93	43.36	32.83	7.88	30.78	395	277	P	V
	*	5877.6	52.03	-51.24	103.27	42.11	32.82	7.88	30.78	395	277	P	V
	*	5937.6	50.13	-18.07	68.2	40.25	32.81	7.89	30.82	395	277	P	V

WIFI Ant. 1+2	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 157 5785MHz		5625.4	59.9	-8.3	68.2	49.99	32.88	7.7	30.67	231	182	P	H
		5657.8	55.36	-18.63	73.99	45.44	32.87	7.73	30.68	231	182	P	H
		5703.4	56.55	-49.6	106.15	46.6	32.86	7.79	30.7	231	182	P	H
		5724	57.89	-62.03	119.92	47.93	32.86	7.81	30.71	231	182	P	H
		5302	56.14	-12.06	68.2	46.71	32.58	7.43	30.58	231	182	P	H
		5785	116.93	48.73	68.2	106.97	32.84	7.86	30.74	231	182	P	H
	*	5785	109.6	-	-	99.64	32.84	7.86	30.74	231	182	A	H
	*	6034	55.9	-	-	45.92	32.95	7.88	30.85	231	182	P	H
		5851.4	52.64	-66.37	119.01	42.7	32.83	7.88	30.77	231	182	P	H
		5866.6	53.64	-53.91	107.55	43.71	32.83	7.88	30.78	231	182	P	H
		5900.2	51.13	-35.38	86.51	41.21	32.82	7.89	30.79	231	182	P	H
		5950	55.13	-13.07	68.2	45.25	32.81	7.89	30.82	231	182	P	H
		5625.4	59.9	-8.3	68.2	49.99	32.88	7.7	30.67	231	182	P	H
		5619	53.97	-14.23	68.2	44.06	32.88	7.7	30.67	382	274	P	V
		5656.2	50.29	-22.52	72.81	40.37	32.87	7.73	30.68	382	274	P	V
		5704	52.48	-53.84	106.32	42.53	32.86	7.79	30.7	382	274	P	V
		5723.8	50.23	-69.23	119.46	40.27	32.86	7.81	30.71	382	274	P	V
	*	5785	109.5	41.3	68.2	99.54	32.84	7.86	30.74	382	274	P	V
	*	5785	101.94	47.94	54	91.98	32.84	7.86	30.74	382	274	A	V
		5850.8	51.41	-68.97	120.38	41.47	32.83	7.88	30.77	382	274	P	V
		5866.6	51.06	-56.49	107.55	41.13	32.83	7.88	30.78	382	274	P	V
		5902.8	51.41	-33.18	84.59	41.49	32.82	7.89	30.79	382	274	P	V

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant. 1+2		(MHz)	(dBμV/m)	Limit (dB)	Line (dBμV/m)	Level (dBμV)	Factor (dB/m)	Loss (dB)	Factor (dB)	Pos (cm)	Pos (deg)	Avg. (P/A)	(H/V)
802.11a CH 165 5825MHz		5340	61.27	-6.93	68.2	51.78	32.63	7.45	30.59	229	186	P	H
		5584	61.41	-6.79	68.2	51.51	32.88	7.66	30.64	221	185	P	H
		5664	63.7	-4.5	68.2	53.77	32.87	7.75	30.69	213	172	P	H
	*	5825	117.24	-	-	107.29	32.83	7.88	30.76	221	179	P	H
	*	5825	109.99	-	-	100.04	32.83	7.88	30.76	221	179	A	H
		6068	60.81	-7.39	68.2	50.71	33.11	7.87	30.88	221	192	P	H
		5850.4	71.86	-49.43	121.29	61.92	32.83	7.88	30.77	221	179	P	H
		5855.4	64.93	-45.76	110.69	54.99	32.83	7.88	30.77	221	179	P	H
		5876.4	56.13	-48.03	104.16	46.21	32.82	7.88	30.78	221	179	P	H
		5941.8	51.82	-16.38	68.2	41.94	32.81	7.89	30.82	221	179	P	H
	*	5825	110.47	-	-	100.52	32.83	7.88	30.76	400	275	P	V
	*	5825	103.06	-	-	93.11	32.83	7.88	30.76	400	275	A	V
		5851.6	62.81	-55.74	118.55	52.87	32.83	7.88	30.77	400	275	P	V
		5857	58.05	-52.19	110.24	48.11	32.83	7.88	30.77	400	275	P	V
		5882.2	51.84	-48.01	99.85	41.92	32.82	7.88	30.78	400	275	P	V
		5937.8	49.22	-18.98	68.2	39.34	32.81	7.89	30.82	400	275	P	V
		5825	110.47	42.27	68.2	100.52	32.83	7.88	30.76	400	275	P	V

Band 4 5725~5850MHz

WIFI 802.11a (Harmonic @ 3m)

WIFI Ant.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
1+2		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11a CH 149 5745MHz		11490	59.68	-14.32	74	63.9	40.38	11.3	56.41	182	163	P	H
		11490	51.36	-2.64	54	55.58	40.38	11.3	56.41	182	163	A	H
		17235	55.6	-12.6	68.2	55.39	42.4	13.44	56.27	100	0	P	H
		11490	55.08	-18.92	74	59.3	40.38	11.3	56.41	100	289	P	V
		11490	47.31	-6.69	54	51.53	40.38	11.3	56.41	100	289	A	V
		17238	55.04	-13.16	68.2	54.82	42.4	13.45	56.27	100	0	P	V
802.11a CH 157 5785MHz		11570	61.71	-12.29	74	66.04	40.29	11.31	56.44	177	167	P	H
		11570	50.83	-3.17	54	55.16	40.29	11.31	56.44	177	167	A	H
		17355	55.08	-13.12	68.2	54.99	42.4	13.52	56.46	100	0	P	H
		11570	56.7	-17.3	74	61.03	40.29	11.31	56.44	100	290	P	V
		11570	47.47	-6.53	54	51.8	40.29	11.31	56.44	100	290	A	V
		17355	55.37	-12.83	68.2	55.28	42.4	13.52	56.46	100	0	P	V
802.11a CH 165 5825MHz		11650	60.62	-13.38	74	65.07	40.18	11.34	56.48	185	179	P	H
		11650	51.7	-2.3	54	56.15	40.18	11.34	56.48	185	179	A	H
		17475	54.74	-13.46	68.2	54.78	42.4	13.59	56.65	100	0	P	H
		11650	54.35	-19.65	74	58.8	40.18	11.34	56.48	100	295	P	V
		11650	45.51	-8.49	54	49.96	40.18	11.34	56.48	100	295	A	V
		17475	53.47	-14.73	68.2	53.51	42.4	13.59	56.65	100	0	P	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+2	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		5646	54.79	-13.41	68.2	44.87	32.87	7.73	30.68	233	184	P	H
		5697.2	59.45	-43.69	103.14	49.52	32.86	7.77	30.7	233	184	P	H
		5717.6	69.97	-40.16	110.13	60.01	32.86	7.81	30.71	233	184	P	H
		5724.8	75.98	-45.76	121.74	66.02	32.86	7.81	30.71	233	184	P	H
		5320	58.04	-10.16	68.2	48.58	32.61	7.44	30.59	233	184	P	H
		5584	58.54	-9.66	68.2	48.64	32.88	7.66	30.64	233	184	P	H
		5745	116.08	47.88	68.2	106.13	32.85	7.83	30.73	233	184	P	H
	*	5745	108.18	-	-	98.23	32.85	7.83	30.73	233	184	P	H
	*	5956	56.03	-	-	46.15	32.81	7.89	30.82	233	184	A	H
		5627	51.55	-16.65	68.2	41.64	32.88	7.7	30.67	374	96	P	V
		5700	57.66	-47.54	105.2	47.71	32.86	7.79	30.7	374	96	P	V
		5719.8	71.72	-39.02	110.74	61.76	32.86	7.81	30.71	374	96	P	V
		5723	78.52	-39.12	117.64	68.56	32.86	7.81	30.71	374	96	P	V
	*	5745	109.42	-	-	99.47	32.85	7.83	30.73	374	96	P	V
	*	5745	101.83	-	-	91.88	32.85	7.83	30.73	374	96	A	V

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+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11n HT20 CH 157 5785MHz		5624	60.58	-7.62	68.2	50.67	32.88	7.7	30.67	234	179	P	H
		5673	54.94	-30.32	85.26	45.01	32.87	7.75	30.69	234	179	P	H
		5715.8	56.11	-53.52	109.63	46.17	32.86	7.79	30.71	234	179	P	H
		5723.8	58.64	-60.82	119.46	48.68	32.86	7.81	30.71	234	179	P	H
		5296	57.11	-11.09	68.2	47.68	32.58	7.43	30.58	234	179	P	H
	*	5785	116.01	-	-	106.05	32.84	7.86	30.74	234	179	P	H
	*	5785	108.15	-	-	98.19	32.84	7.86	30.74	234	179	A	H
		5854.4	53.91	-58.26	112.17	43.97	32.83	7.88	30.77	234	179	P	H
		5860	56.19	-53.21	109.4	46.25	32.83	7.88	30.77	234	179	P	H
		5877.4	51.89	-51.53	103.42	41.97	32.82	7.88	30.78	234	179	P	H
		5943.6	53.27	-14.93	68.2	43.39	32.81	7.89	30.82	234	179	P	H
		5623.2	53.32	-14.88	68.2	43.41	32.88	7.7	30.67	326	271	P	V
		5658.4	51.63	-22.81	74.44	41.71	32.87	7.73	30.68	326	271	P	V
		5715.4	51.97	-57.54	109.51	42.03	32.86	7.79	30.71	326	271	P	V
		5723.4	51.96	-66.59	118.55	42	32.86	7.81	30.71	326	271	P	V
	*	5785	108.58	-	-	98.62	32.84	7.86	30.74	326	271	P	V
	*	5785	100.83	-	-	90.87	32.84	7.86	30.74	326	271	A	V
		5850.8	50.31	-70.07	120.38	40.37	32.83	7.88	30.77	326	271	P	V
		5862	50.55	-58.29	108.84	40.61	32.83	7.88	30.77	326	271	P	V
		5911.8	49.24	-28.7	77.94	39.32	32.82	7.89	30.79	326	271	P	V
		5941.6	52.06	-16.14	68.2	42.18	32.81	7.89	30.82	326	271	P	V

WIFI Ant. 1+2	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		5332	55.28	-12.92	68.2	45.79	32.63	7.45	30.59	234	176	P	H
		5668	59.62	-8.58	68.2	49.69	32.87	7.75	30.69	234	176	P	H
	*	5825	114.63	-	-	104.68	32.83	7.88	30.76	234	176	P	H
	*	5825	106.34	-	-	96.39	32.83	7.88	30.76	234	176	A	H
		5853.6	64.88	-49.11	113.99	54.94	32.83	7.88	30.77	234	176	P	H
		5858.2	58.15	-51.75	109.9	48.21	32.83	7.88	30.77	234	176	P	H
		5875.6	54.56	-50.19	104.75	44.64	32.82	7.88	30.78	234	176	P	H
		5950	50.73	-17.47	68.2	40.85	32.81	7.89	30.82	234	176	P	H
	*	5825	107.97	-	-	98.02	32.83	7.88	30.76	342	274	P	V
	*	5825	99.83	-	-	89.88	32.83	7.88	30.76	342	274	A	V
		5854.8	56.72	-54.54	111.26	46.78	32.83	7.88	30.77	342	274	P	V
		5856.8	52.58	-57.72	110.3	42.64	32.83	7.88	30.77	342	274	P	V
		5913	50.38	-26.67	77.05	40.48	32.82	7.89	30.81	342	274	P	V
		5931.4	49.37	-18.83	68.2	39.48	32.81	7.89	30.81	342	274	P	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.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
1+2		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11n HT20 CH 149 5745MHz		11490	58.27	-15.73	74	62.49	40.38	11.3	56.41	250	167	P	H
		11490	47.96	-6.04	54	52.18	40.38	11.3	56.41	250	167	A	H
		17235	58.34	-9.86	68.2	58.13	42.4	13.44	56.27	100	0	P	H
		11490	47.41	-26.59	74	51.63	40.38	11.3	56.41	100	0	P	V
		17235	58.27	-9.93	68.2	58.06	42.4	13.44	56.27	100	0	A	V
802.11n HT20 CH 157 5785MHz		11570	57.18	-16.82	74	61.51	40.29	11.31	56.44	254	173	P	H
		11570	48.25	-5.75	54	52.58	40.29	11.31	56.44	254	173	A	H
		17355	57.28	-10.92	68.2	57.19	42.4	13.52	56.46	100	0	P	H
		11570	48.81	-25.19	74	53.14	40.29	11.31	56.44	100	0	P	V
		17355	57.47	-10.73	68.2	57.38	42.4	13.52	56.46	100	0	P	V
802.11n HT20 CH 165 5825MHz		11650	55.82	-18.18	74	60.27	40.18	11.34	56.48	245	178	P	H
		11650	46.95	-7.05	54	51.4	40.18	11.34	56.48	245	178	A	H
		17475	55.51	-12.69	68.2	55.55	42.4	13.59	56.65	100	0	P	H
		11650	47.8	-26.2	74	52.25	40.18	11.34	56.48	100	0	P	V
		17475	55.11	-13.09	68.2	55.15	42.4	13.59	56.65	100	0	P	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+2	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		5648.8	61.13	-7.07	68.2	51.21	32.87	7.73	30.68	251	182	P	H
		5697.2	73.82	-29.32	103.14	63.89	32.86	7.77	30.7	251	182	P	H
		5717.4	86.03	-24.04	110.07	76.09	32.86	7.79	30.71	251	182	P	H
		5720.4	85.01	-26.7	111.71	75.05	32.86	7.81	30.71	251	182	P	H
		5755	113.78	-	-	103.82	32.85	7.84	30.73	251	182	P	H
	*	5755	106.24	-	-	96.28	32.85	7.84	30.73	251	182	P	H
	*	5854.4	58.17	-54	112.17	48.23	32.83	7.88	30.77	251	182	A	H
		5857.2	57.16	-53.02	110.18	47.22	32.83	7.88	30.77	251	182	P	H
		5875.4	53.53	-51.37	104.9	43.61	32.82	7.88	30.78	251	182	P	H
		5932	51.56	-16.64	68.2	41.67	32.81	7.89	30.81	251	182	P	H
		5648.8	61.13	-7.07	68.2	51.21	32.87	7.73	30.68	251	182	P	H
		5649	55.14	-13.06	68.2	45.22	32.87	7.73	30.68	349	273	P	V
		5695.4	65.15	-36.66	101.81	55.22	32.86	7.77	30.7	349	273	P	V
		5718.8	78.53	-31.93	110.46	68.57	32.86	7.81	30.71	349	273	P	V
		5723.8	78.03	-41.43	119.46	68.07	32.86	7.81	30.71	349	273	P	V
	*	5755	106.01	-	-	96.05	32.85	7.84	30.73	349	273	P	V
	*	5755	99.13	-	-	89.17	32.85	7.84	30.73	349	273	A	V
		5850.6	54.71	-66.12	120.83	44.77	32.83	7.88	30.77	349	273	P	V
		5865.4	53.56	-54.33	107.89	43.63	32.83	7.88	30.78	349	273	P	V
		5882.2	51.45	-48.4	99.85	41.53	32.82	7.88	30.78	349	273	P	V
		5931.8	49.73	-18.47	68.2	39.84	32.81	7.89	30.81	349	273	P	V

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+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11n HT40 CH 159 5795MHz		5647.4	59.2	-9	68.2	49.28	32.87	7.73	30.68	228	182	P	H
		5695.4	65.72	-36.09	101.81	55.79	32.86	7.77	30.7	228	182	P	H
		5719.4	69.06	-41.57	110.63	59.1	32.86	7.81	30.71	228	182	P	H
		5724.8	70.32	-51.42	121.74	60.36	32.86	7.81	30.71	228	182	P	H
	*	5795	113.83	-	-	103.86	32.84	7.88	30.75	228	182	P	H
	*	5795	106.96	-	-	96.99	32.84	7.88	30.75	228	182	A	H
		5853.4	67.82	-46.63	114.45	57.88	32.83	7.88	30.77	228	182	P	H
		5855.6	66.17	-44.46	110.63	56.23	32.83	7.88	30.77	228	182	P	H
		5884.2	61.9	-36.47	98.37	51.98	32.82	7.88	30.78	228	182	P	H
		5927.4	54.9	-13.3	68.2	45.01	32.81	7.89	30.81	228	182	P	H
		5646.8	53.94	-14.26	68.2	44.02	32.87	7.73	30.68	344	279	P	V
		5700	57.42	-47.78	105.2	47.47	32.86	7.79	30.7	344	279	P	V
		5716	60.65	-49.03	109.68	50.71	32.86	7.79	30.71	344	279	P	V
		5720.8	59.41	-53.21	112.62	49.45	32.86	7.81	30.71	344	279	P	V
	*	5795	107.05	-	-	97.08	32.84	7.88	30.75	344	279	P	V
	*	5795	99.78	-	-	89.81	32.84	7.88	30.75	344	279	A	V
		5852.4	64.46	-52.27	116.73	54.52	32.83	7.88	30.77	344	279	P	V
		5863.6	62.44	-45.95	108.39	52.51	32.83	7.88	30.78	344	279	P	V
		5875.2	58.1	-46.95	105.05	48.18	32.82	7.88	30.78	344	279	P	V
		5943.8	51.88	-16.32	68.2	42	32.81	7.89	30.82	344	279	P	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.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
1+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11n HT40 CH 151 5755MHz		11510	55.95	-18.05	74	60.14	40.4	11.3	56.4	253	167	P	H
		11510	47.36	-6.64	54	51.55	40.4	11.3	56.4	253	167	A	H
		17265	57.62	-10.58	68.2	57.45	42.4	13.46	56.33	100	0	P	H
		11510	47.27	-26.73	74	51.46	40.4	11.3	56.4	100	0	P	V
		17265	57.44	-10.76	68.2	57.27	42.4	13.46	56.33	100	0	A	V
802.11n HT40 CH 159 5795MHz		11590	57.06	-16.94	74	61.42	40.26	11.32	56.45	245	170	P	H
		11590	48.53	-5.47	54	52.89	40.26	11.32	56.45	245	170	A	H
		17385	58.5	-9.7	68.2	58.44	42.4	13.54	56.51	100	0	P	H
		11590	51.29	-22.71	74	55.65	40.26	11.32	56.45	102	291	P	V
		11590	43.12	-10.88	54	47.48	40.26	11.32	56.45	102	291	A	V
		17385	56.93	-11.27	68.2	56.87	42.4	13.54	56.51	100	0	P	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+2	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		5644	62.32	-5.88	68.2	52.41	32.87	7.72	30.68	247	176	P	H
		5698.2	70.73	-33.14	103.87	60.8	32.86	7.77	30.7	247	176	P	H
		5710.6	72.7	-35.47	108.17	62.75	32.86	7.79	30.7	247	176	P	H
		5720.6	72.68	-39.49	112.17	62.72	32.86	7.81	30.71	247	176	P	H
	*	5775	107.62	-	-	97.66	32.84	7.86	30.74	247	176	P	H
	*	5775	101.45	-	-	91.49	32.84	7.86	30.74	247	176	A	H
		5851.2	64.66	-54.8	119.46	54.72	32.83	7.88	30.77	247	176	P	H
		5871	65.83	-40.49	106.32	55.91	32.82	7.88	30.78	247	176	P	H
		5878.2	60.37	-42.45	102.82	50.45	32.82	7.88	30.78	247	176	P	H
		5649.8	56.21	-11.99	68.2	46.29	32.87	7.73	30.68	331	280	P	V
		5681.8	61.81	-29.96	91.77	51.86	32.87	7.77	30.69	331	280	P	V
		5711.2	63.85	-44.49	108.34	53.9	32.86	7.79	30.7	331	280	P	V
		5722	62.47	-52.89	115.36	52.51	32.86	7.81	30.71	331	280	P	V
	*	5775	100.06	-	-	90.1	32.84	7.86	30.74	331	280	P	V
	*	5775	93.68	-	-	83.72	32.84	7.86	30.74	331	280	A	V
		5853	59.57	-55.79	115.36	49.63	32.83	7.88	30.77	331	280	P	V
		5858.8	59.65	-50.08	109.73	49.71	32.83	7.88	30.77	331	280	P	V
		5876	54.99	-49.47	104.46	45.07	32.82	7.88	30.78	331	280	P	V
		5945	50.63	-17.57	68.2	40.75	32.81	7.89	30.82	331	280	P	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	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant. 1+2		(MHz)	(dBµV/m)	Limit (dB)	Line (dBµV/m)	Level (dBµV)	Factor (dB/m)	Loss (dB)	Factor (dB)	Pos (cm)	Pos (deg)	Avg. (P/A)	(H/V)
802.11ac		11550	45.31	-28.69	74	49.6	40.32	11.31	56.43	100	0	P	H
VHT80		17325	48.39	-19.81	68.2	48.27	42.4	13.5	56.41	100	0	P	H
CH 155		11550	43.98	-30.02	74	48.27	40.32	11.31	56.43	100	0	P	V
5775MHz		17325	48.23	-19.97	68.2	48.11	42.4	13.5	56.41	100	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Emission below 1GHz

5GHz WIFI 802.11a (LF @ 3m)

WIFI Ant.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
1+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
5GHz 802.11a LF		93.18	33.2	-10.3	43.5	53.85	10.52	1	32.29	-	-	P	H
		133.95	34.14	-9.36	43.5	51.41	13.77	1.19	32.28	-	-	P	H
		282.45	34.72	-11.28	46	49.68	15.45	1.68	32.16	-	-	P	H
		671	42.9	-3.1	46	49.04	23.36	2.57	32.18	100	0	P	H
		704.6	42.88	-3.12	46	48.56	23.74	2.64	32.16	-	-	P	H
		764.1	41.46	-4.54	46	45.43	25.26	2.71	32.05	-	-	P	H
		78.33	33.03	-6.97	40	53.86	10.43	0.95	32.3	-	-	P	V
		108.03	31.86	-11.64	43.5	48.71	14.33	1	32.29	-	-	P	V
		282.99	30.44	-15.56	46	45.38	15.46	1.68	32.15	-	-	P	V
		500.2	38.26	-7.74	46	47.26	20.92	2.2	32.2	-	-	P	V
		657.7	39.47	-6.53	46	45.67	23.36	2.51	32.19	-	-	P	V
		709.5	41.18	-4.82	46	46.61	23.98	2.64	32.15	100	0	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	**P**eak or **A**verage
H/V	**H**orizontal or **V**ertical

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+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b CH 01 2412MHz		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
		2390	43.54	-10.46	54	42.6	32.22	4.58	35.86	103	308	A	H

1. Level(dBμV/m) =

Antenna Factor(dB/m) + Cable Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)

2. Over Limit(dB) = Level(dBμV/m) – Limit Line(dBμV/m)

For Peak Limit @ 2390MHz:

1. 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)

2. Over Limit(dB)

= Level(dBμV/m) – Limit Line(dBμV/m)

= 55.45(dBμV/m) – 74(dBμV/m)

= -18.55(dB)

For Average Limit @ 2390MHz:

1. 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)

2. Over Limit(dB)

= Level(dBμV/m) – Limit Line(dBμV/m)

= 43.54(dBμV/m) – 54(dBμV/m)

= -10.46(dB)

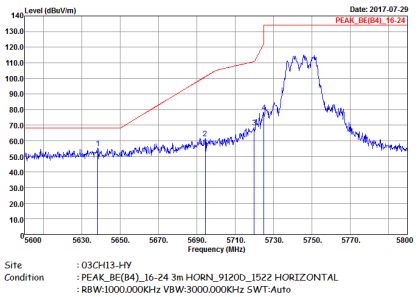
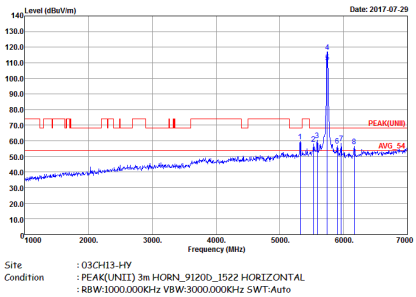
Both peak and average measured complies with the limit line, so test result is “PASS”.

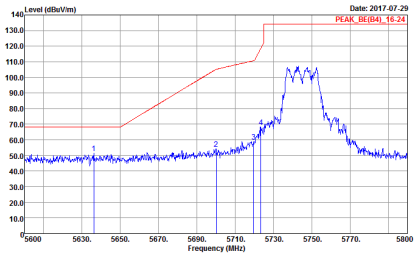
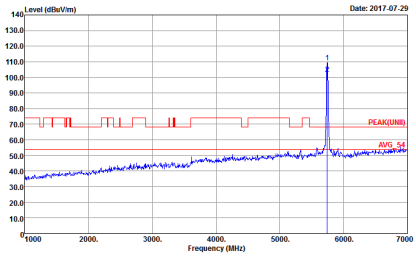
Appendix D. Radiated Spurious Emission Plots

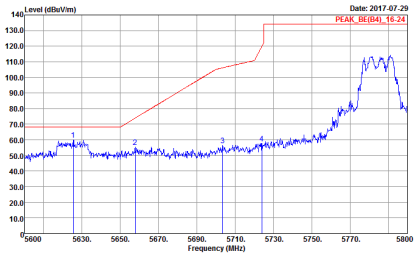
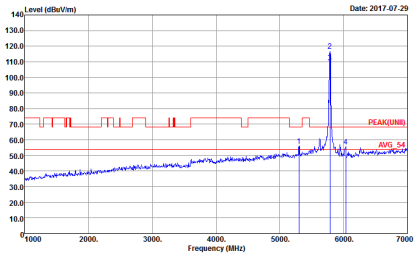
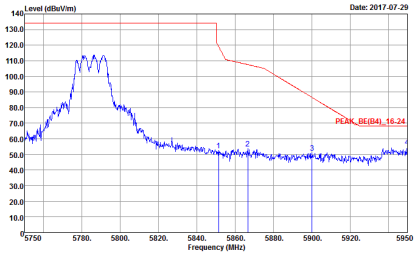
Test Engineer :	Alex Jheng, Bill Chang and Wilson Wu	Temperature :	24.0~24.3℃
		Relative Humidity :	50~52%

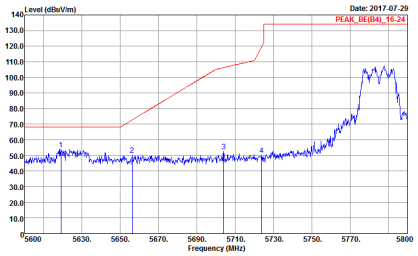
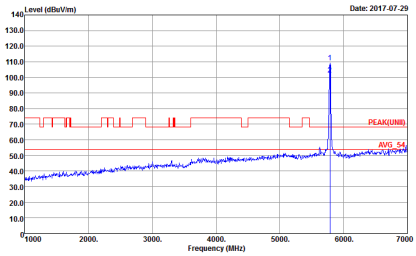
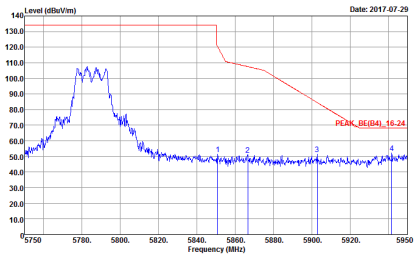
Band 4 - 5725~5850MHz

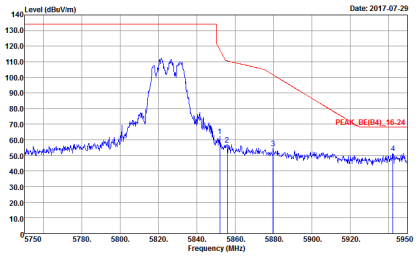
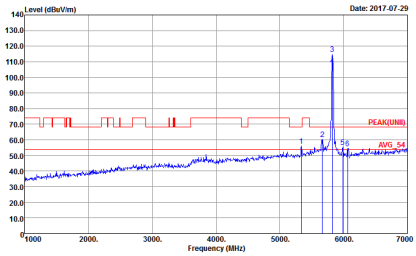
WIFI 802.11a (Band Edge @ 3m)

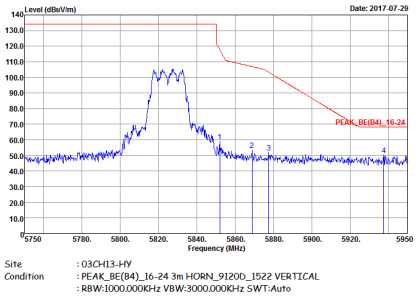
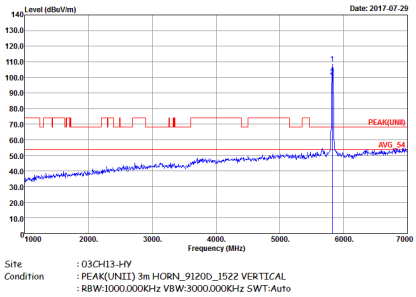
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH149 5745MHz	
1+2	Horizontal	Fundamental
Peak		

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH149 5745MHz	
1+2	Vertical	Fundamental
Peak		

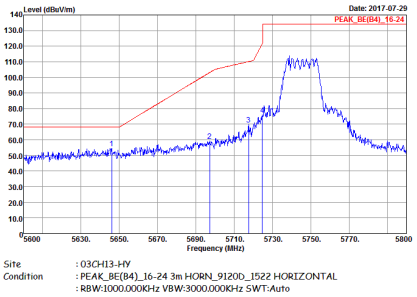
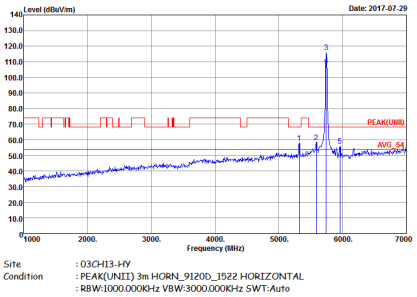
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH157 5785MHz	
1+2	Horizontal	Fundamental
Peak	 Site : 03CH13-HY Condition : PEAK_BE(B4)_16-24 3m HORN_9120D_1522 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH13-HY Condition : PEAK(UNII) 3m HORN_9120D_1522 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Peak	 Site : 03CH13-HY Condition : PEAK_BE(B4)_16-24 3m HORN_9120D_1522 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	Left blank

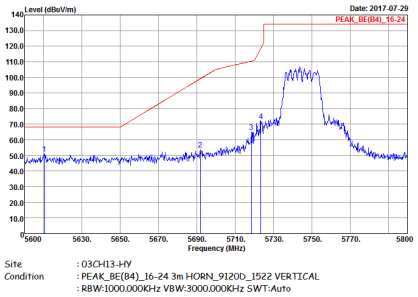
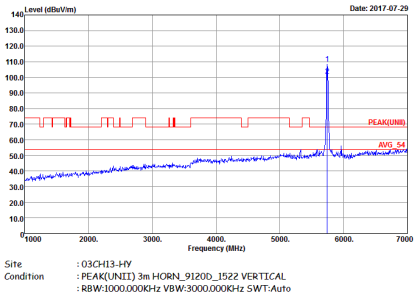
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH157 5785MHz	
1+2	Vertical	Fundamental
Peak		
Peak		Left blank

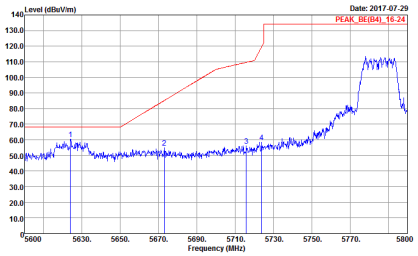
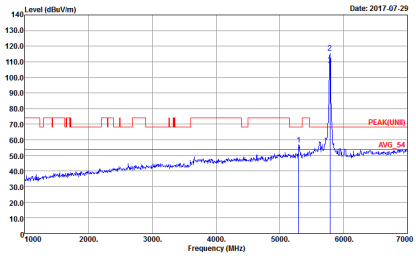
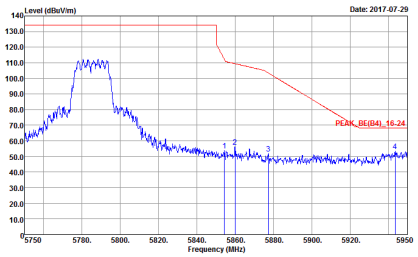
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH165 5825MHz	
1+2	Horizontal	Fundamental
Peak	 Site : 03CH13-HY Condition : PEAK_BE(B4)_16-24 3m HORN_9120D_1522 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH13-HY Condition : PEAK(UNII) 3m HORN_9120D_1522 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto

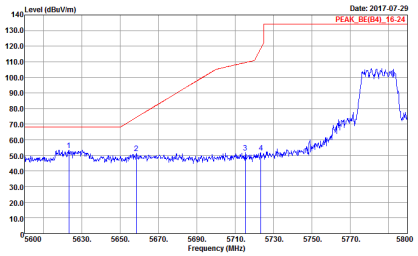
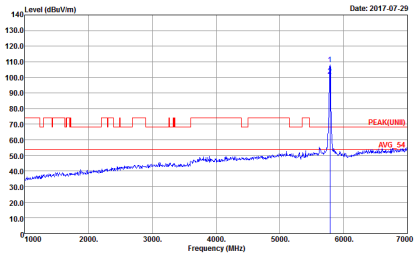
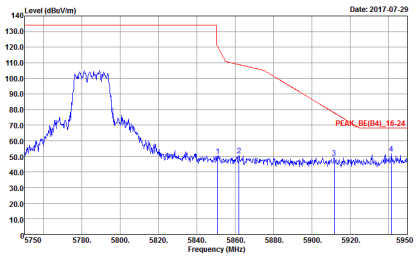
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH165 5825MHz	
1+2	Vertical	Fundamental
Peak		

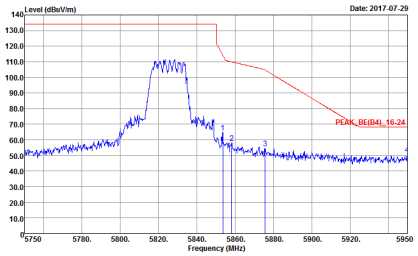
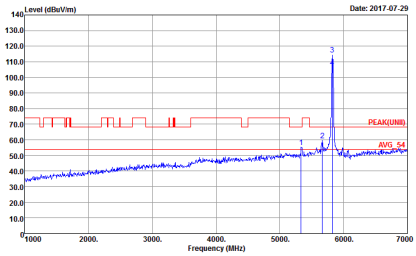
Band 4 5725~5850MHz
WIFI 802.11n HT20 (Band Edge @ 3m)

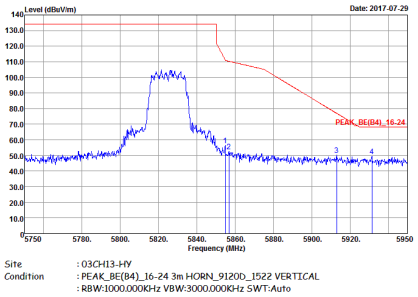
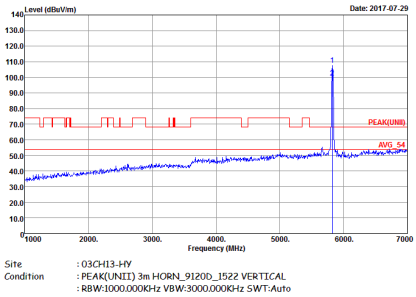
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH149 5745MHz	
1+2	Horizontal	Fundamental
Peak		

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH149 5745MHz	
1+2	Vertical	Fundamental
Peak		

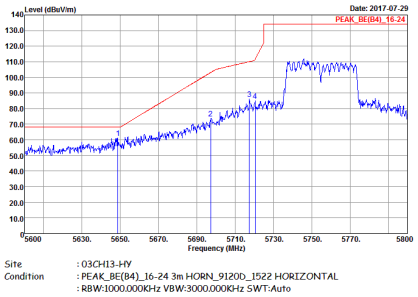
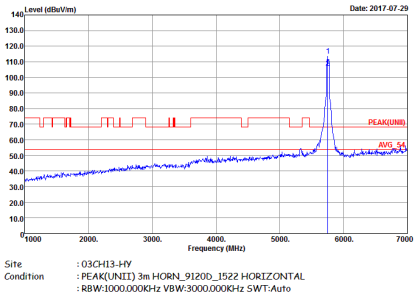
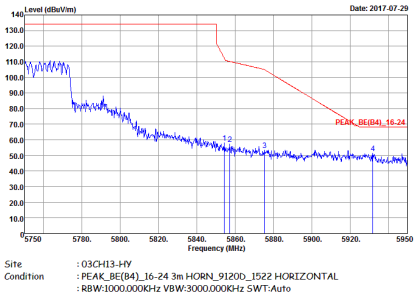
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH157 5785MHz	
1+2	Horizontal	Fundamental
Peak		
Peak		Left blank

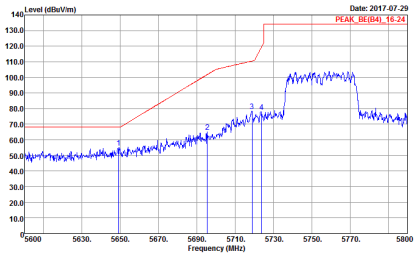
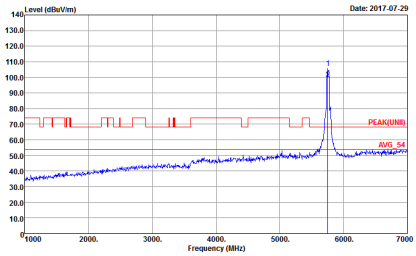
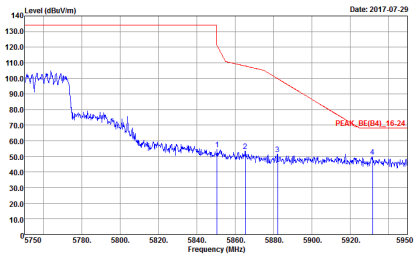
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH157 5785MHz	
1+2	Vertical	Fundamental
Peak		
Peak		Left blank

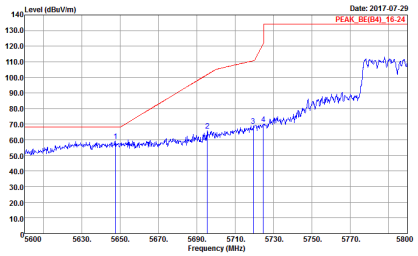
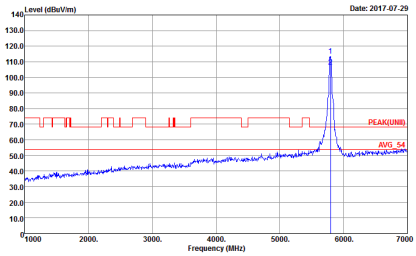
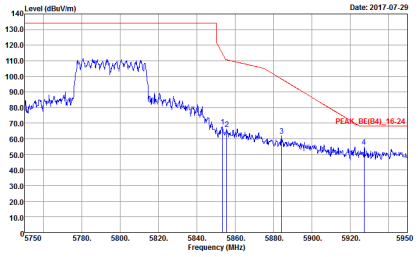
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH165 5825MHz	
1+2	Horizontal	Fundamental
Peak		

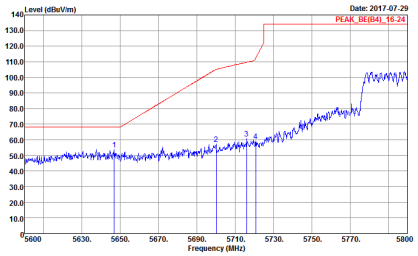
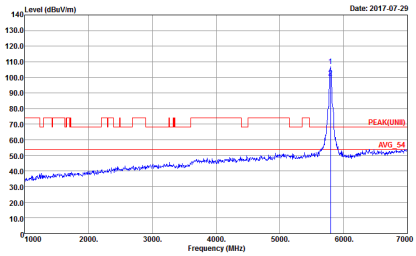
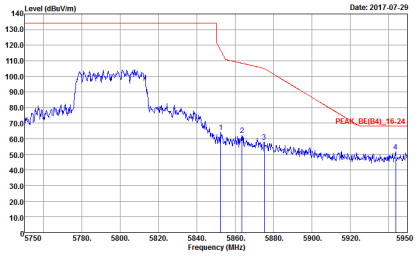
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH165 5825MHz	
1+2	Vertical	Fundamental
Peak		

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

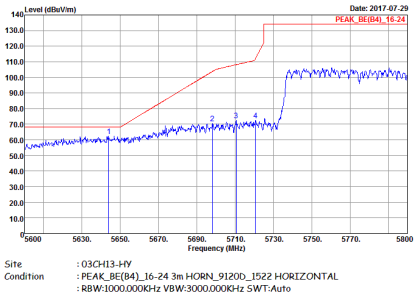
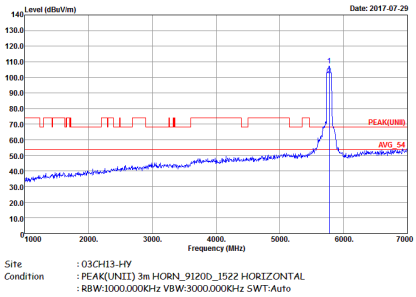
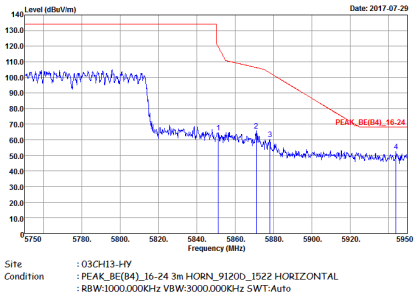
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT40 CH151 5755MHz	
1+2	Horizontal	Fundamental
Peak		
Peak		Left blank

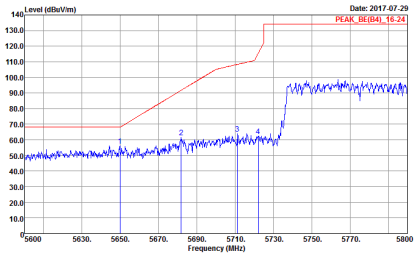
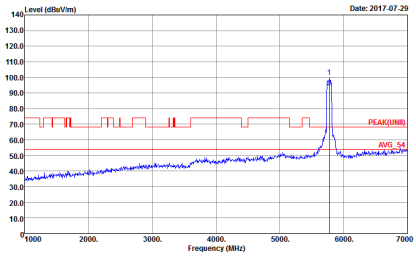
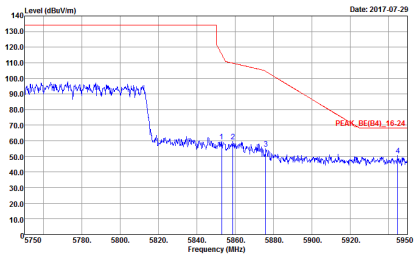
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT40 CH151 5755MHz	
1+2	Vertical	Fundamental
Peak		
Peak		Left blank

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT40 CH159 5795MHz	
1+2	Horizontal	Fundamental
Peak	 Site : 03CH13-HY Condition : PEAK_BE(B4)_16-24 3m HORN_9120D_1522 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH13-HY Condition : PEAK(UNII) 3m HORN_9120D_1522 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Peak	 Site : 03CH13-HY Condition : PEAK_BE(B4)_16-24 3m HORN_9120D_1522 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	Left blank

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT40 CH159 5795MHz	
1+2	Vertical	Fundamental
Peak		
Peak		Left blank

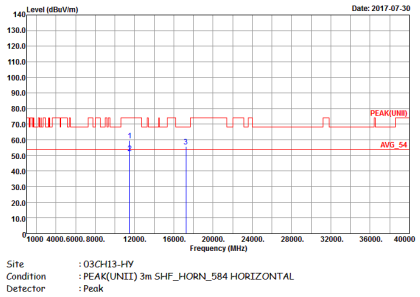
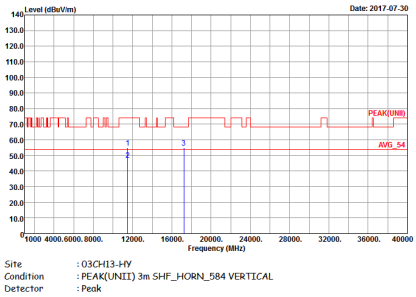
Band 4 5725~5850MHz
WIFI 802.11ac VHT80 (Band Edge @ 3m)

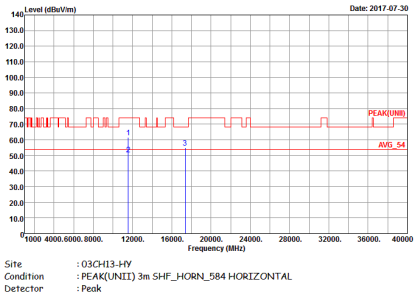
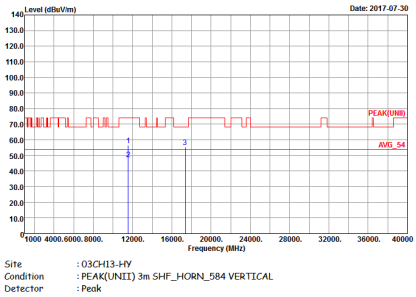
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT80 CH155 5775MHz	
1+2	Horizontal	Fundamental
Peak		
Peak		Left blank

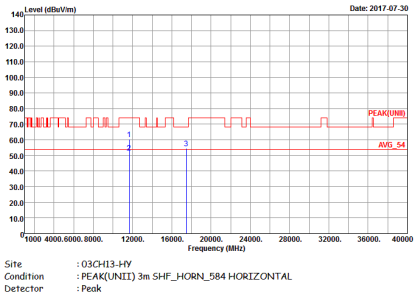
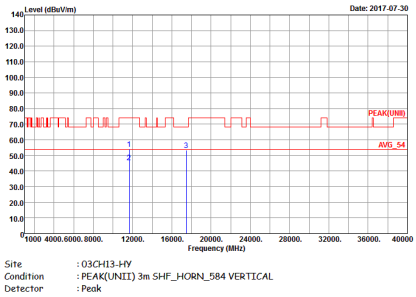
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT80 CH155 5775MHz	
1+2	Vertical	Fundamental
Peak		
Peak		Left blank

Band 4 - 5725~5850MHz

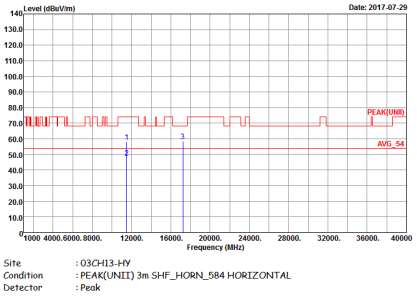
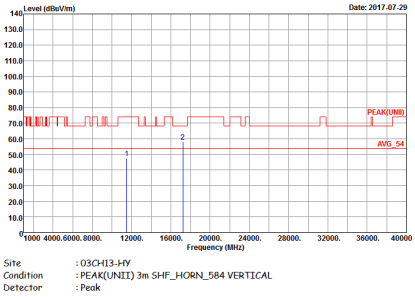
WIFI 802.11a (Harmonic @ 3m)

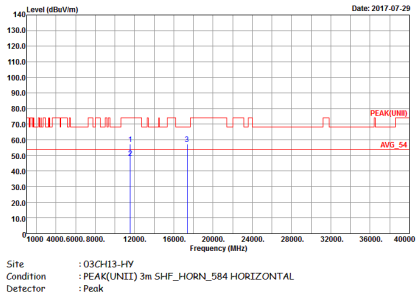
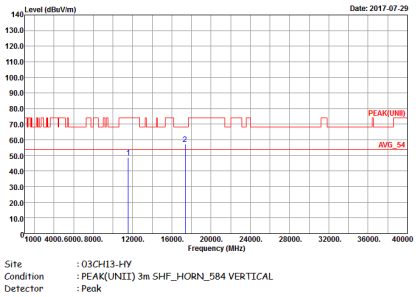
WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11a CH149 5745MHz	
1+2	Horizontal	Vertical
Peak Avg.		

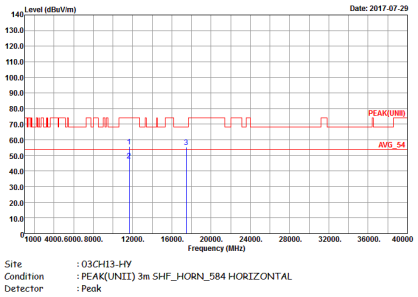
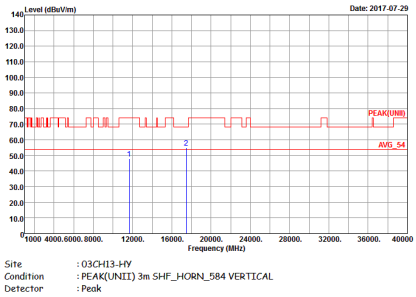
WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11a CH157 5785MHz	
1+2	Horizontal	Vertical
Peak Avg.		

WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11a CH165 5825MHz	
1+2	Horizontal	Vertical
Peak Avg.		

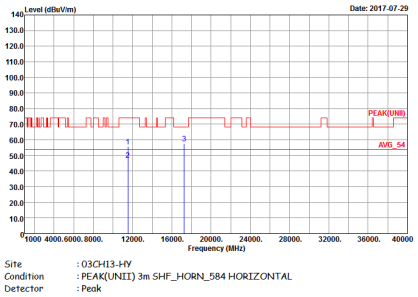
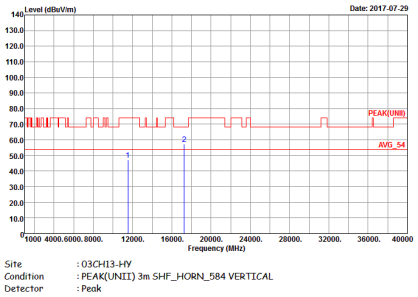
Band 4 5725~5850MHz
WIFI 802.11n HT20 (Harmonic @ 3m)

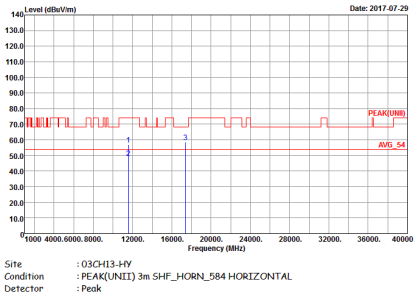
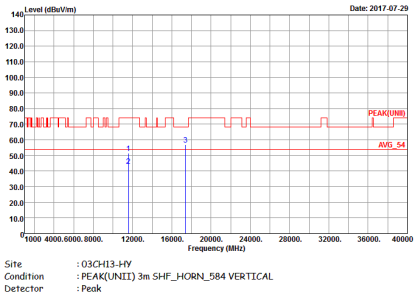
WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11n HT20 CH149 5745MHz	
1+2	Horizontal	Vertical
Peak Avg.		

WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11n HT20 CH157 5785MHz	
1+2	Horizontal	Vertical
Peak Avg.		

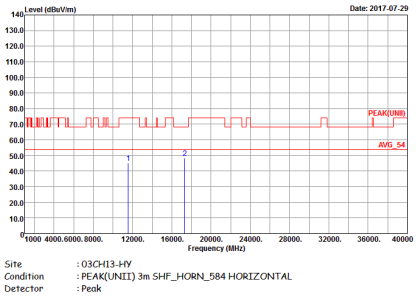
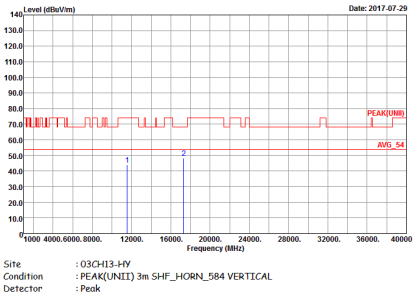
WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11n HT20 CH165 5825MHz	
1+2	Horizontal	Vertical
Peak Avg.	 	

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

WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11n HT40 CH151 5755MHz	
1+2	Horizontal	Vertical
Peak Avg.		

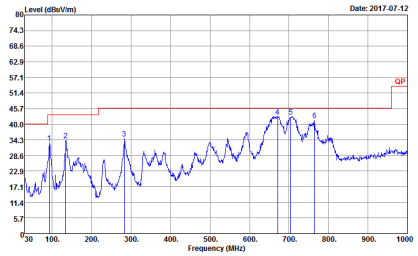
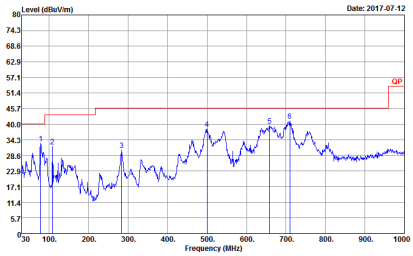
WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11n HT40 CH159 5795MHz	
1+2	Horizontal	Vertical
Peak Avg.		

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

WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11ac VHT80 CH155 5775MHz	
1+2	Horizontal	Vertical
Peak Avg.		

Emission below 1GHz

5GHz WIFI 802.11a (LF)

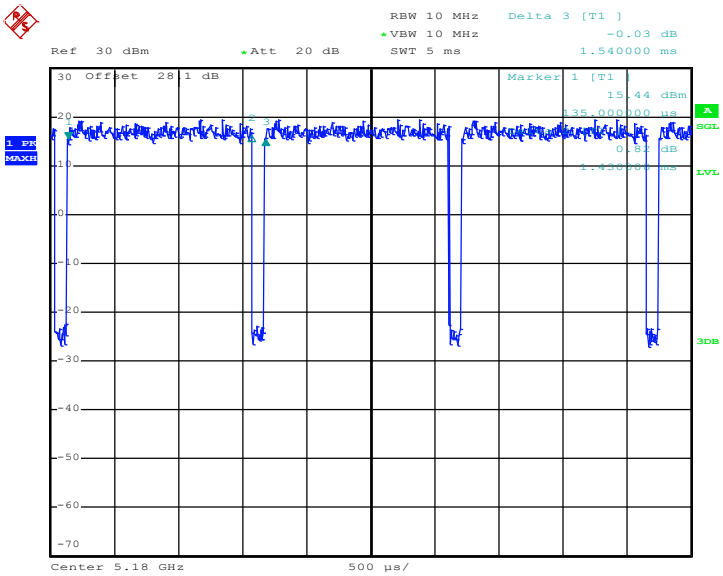
WIFI	5GHz 5725~5850MHz	
ANT	802.11a LF	
1+2	Horizontal	Vertical
QP / Peak	 Site : 03CH13-HY Condition : QP 3m BILOG_40103 HORIZONTAL Detector : Peak	 Site : 03CH13-HY Condition : QP 3m BILOG_40103 VERTICAL Detector : Peak

Appendix F. Duty Cycle Plots

Antenna	Band	Duty Cycle(%)	T(us)	1/T(kHz)	VBW Setting
1 + 2	802.11a for Ant. 1	92.86	1430	0.70	1kHz
1 + 2	802.11a for Ant. 2	92.86	1430	0.70	1kHz
1 + 2	5GHz 802.11n HT20 for Ant. 1	92.41	1340	0.75	1kHz
1 + 2	5GHz 802.11n HT20 for Ant. 2	92.41	1340	0.75	1kHz
1 + 2	5GHz 802.11n HT40 for Ant. 1	85.62	655	1.53	3kHz
1 + 2	5GHz 802.11n HT40 for Ant. 2	85.71	660	1.52	3kHz
1 + 2	5GHz 802.11ac VHT20 for Ant. 1	92.47	1350	0.74	1kHz
1 + 2	5GHz 802.11ac VHT20 for Ant. 2	93.10	1350	0.74	1kHz
1 + 2	5GHz 802.11ac VHT40 for Ant. 1	87.01	670	1.49	3kHz
1 + 2	5GHz 802.11ac VHT40 for Ant. 2	85.90	670	1.49	3kHz
1 + 2	5GHz 802.11ac VHT80 for Ant. 1	75.93	328	3.05	10kHz
1 + 2	5GHz 802.11ac VHT80 for Ant. 2	76.85	332	3.01	10kHz

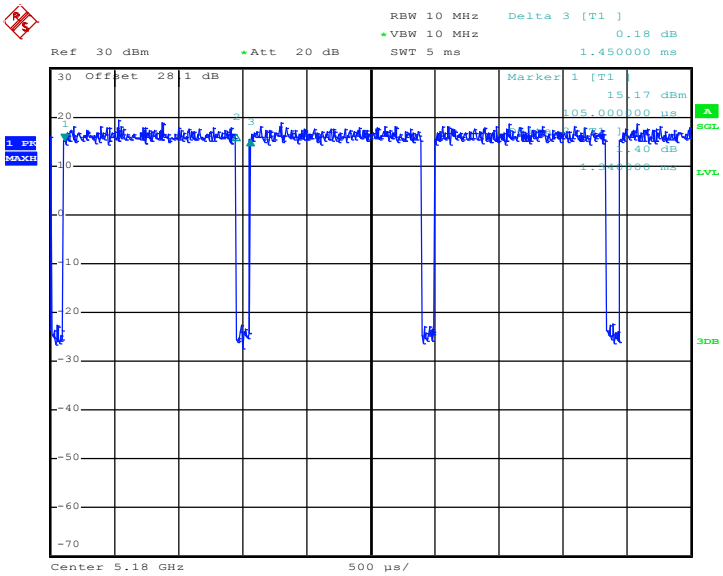
MIMO <Ant. 1>

802.11a



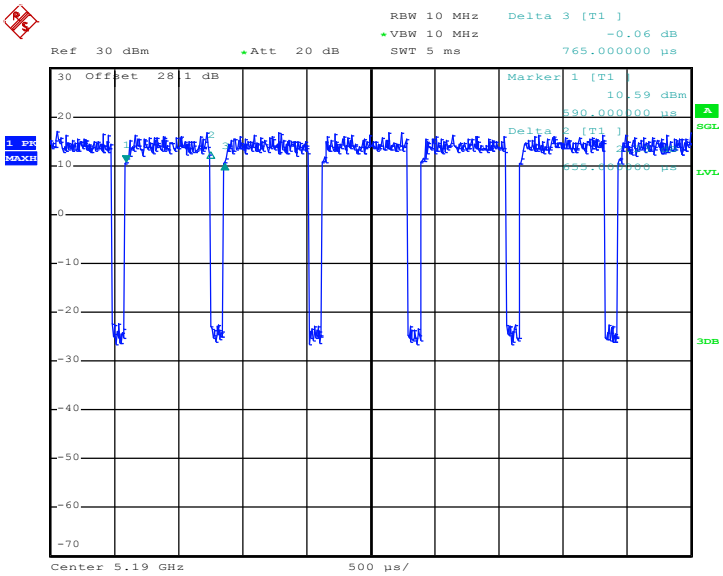
Date: 5.JUL.2017 23:46:58

802.11n HT20



Date: 5.JUL.2017 23:50:54

802.11n HT40



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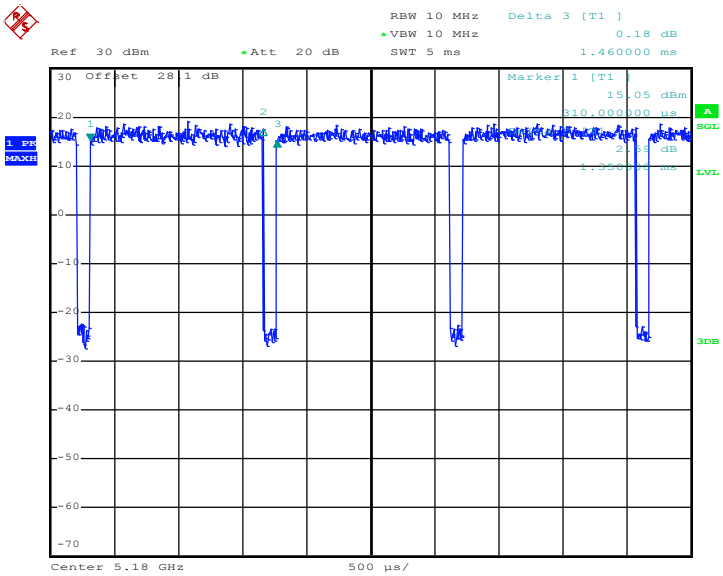
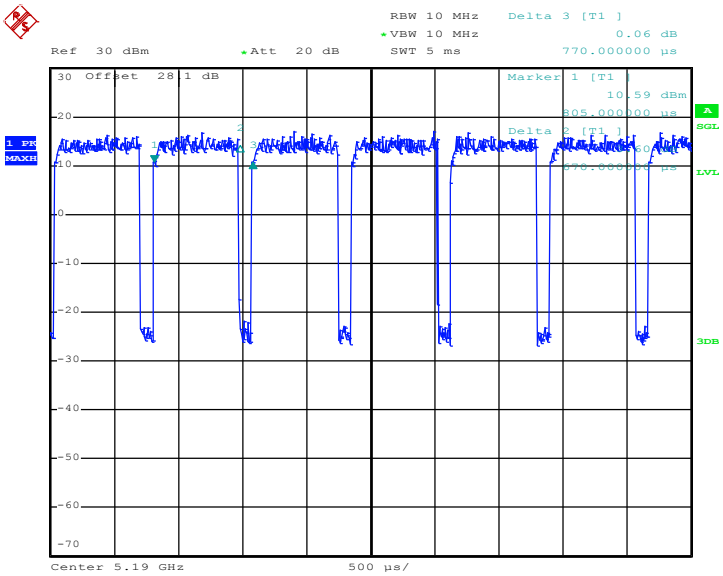
802.11ac VHT20



Date: 5.JUL.2017 23:55:28

802.11ac VHT40



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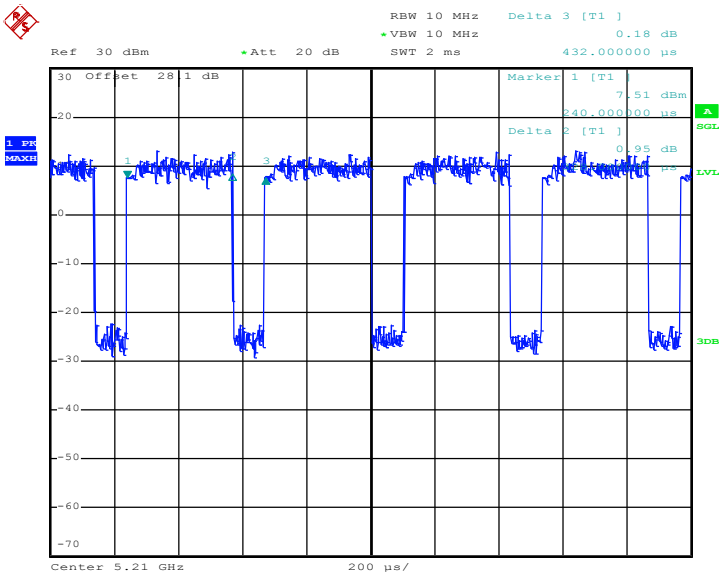
802.11ac VHT80



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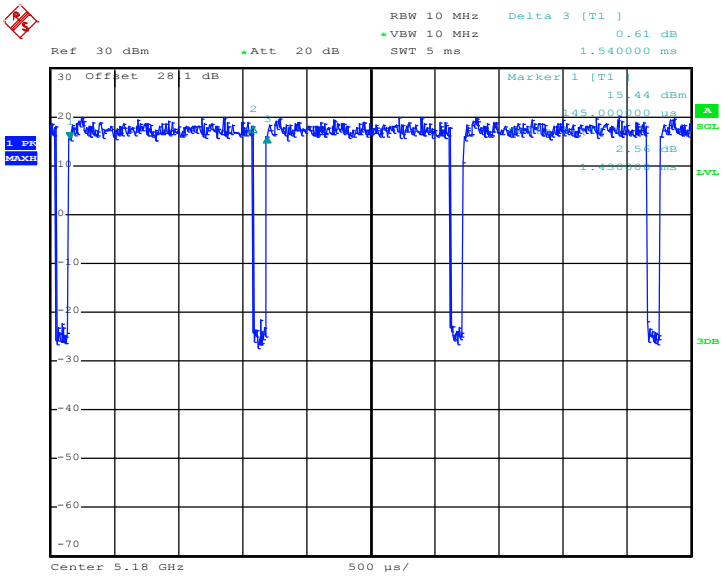
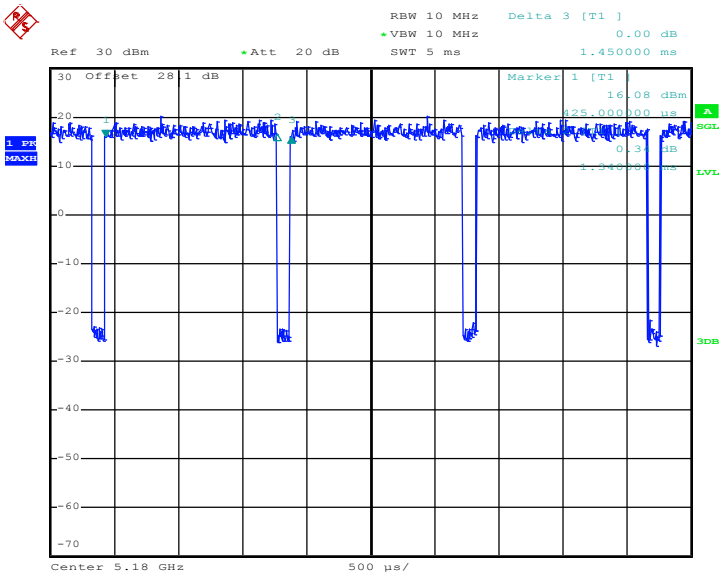
MIMO <Ant. 2>

802.11a



Date: 5.JUL.2017 23:47:47

802.11n HT20



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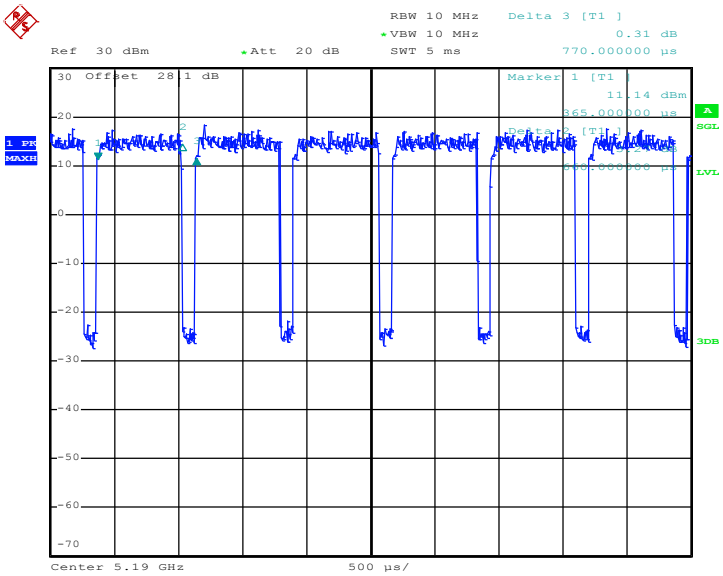
802.11n HT40



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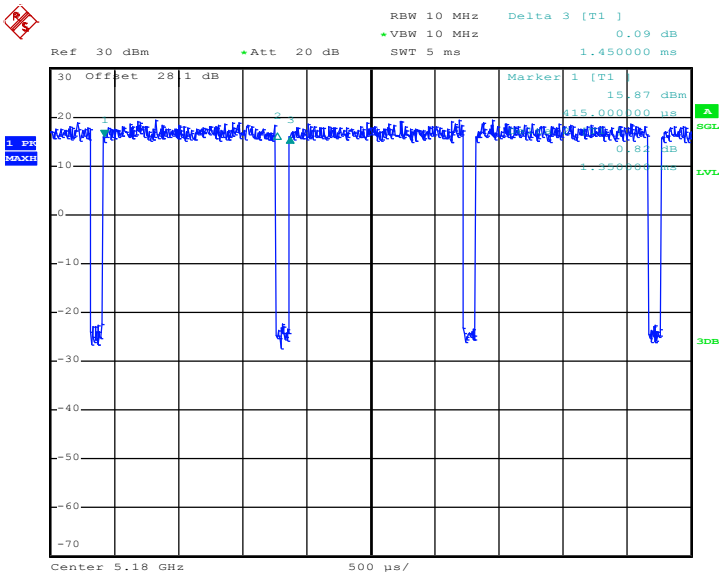

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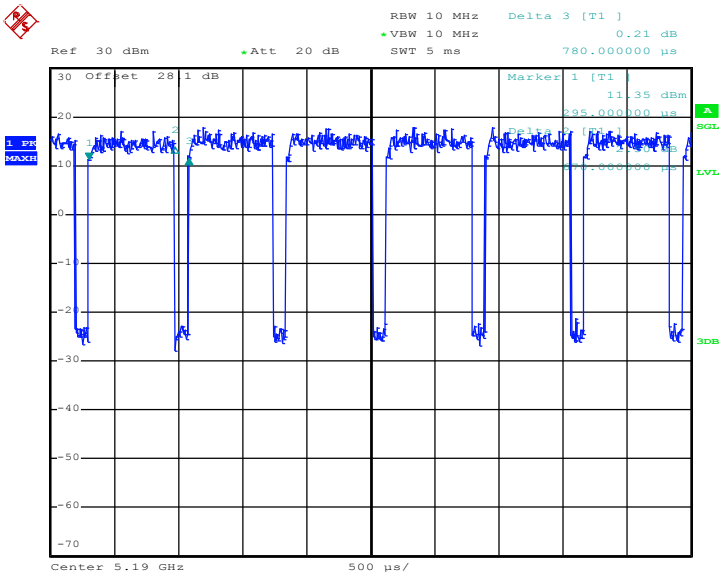

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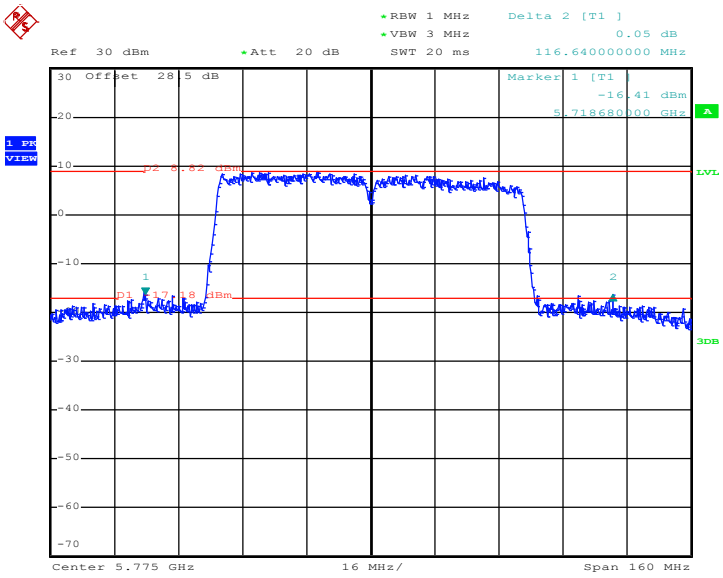

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