



FCC RF Test Report

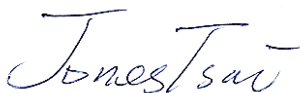
APPLICANT : Elo Touch Solutions, Inc.
EQUIPMENT : POS
BRAND NAME : ELO or 
MODEL NAME : PayPoint
FCC ID : RBWPAYPOINT
STANDARD : FCC Part 15 Subpart E §15.407
CLASSIFICATION : (NII) Unlicensed National Information Infrastructure

The product was received on Mar. 30, 2017 and testing was completed on May 19, 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.



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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR733048E	Rev. 01	Initial issue of report	Jun. 28, 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) 15.209(a)	Pass	Under limit 3.97 dB at 122.150 MHz
3.5	15.207	AC Conducted Emission	15.207(a)	Pass	Under limit 12.49 dB at 13.620 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

Elo Touch Solutions, Inc.

670 N. McCarthy Blvd., Suite 100, Milpitas, CA95035

1.2 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: PIFA Antenna Bluetooth: PIFA Antenna

1.3 Modification of EUT

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

1.4 Testing Location

Test Site	SPORTON INTERNATIONAL (SHENZHEN) INC.		
Test Site Location	1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan District, Shenzhen City, Guangdong Province, China TEL: +86-755-8637-9589 FAX: +86-755-8637-9595		
Test Site No.	Sporton Site No.		
	CO01-SZ		

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

Test Site	SPORTON INTERNATIONAL (KUNSHAN) INC.		
Test Site Location	No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P.R.C. TEL: +86-0512-5790-0158 FAX: +86-0512-5790-0958		
Test Site No.	Sporton Site No.		FCC Registration No.
	TH01-KS	03CH03-KS	306251

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 v01r04.
- ♦ FCC KDB 644545 D03 Guidance for IEEE 802 11ac New Rules v01.
- ♦ 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).
- 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.

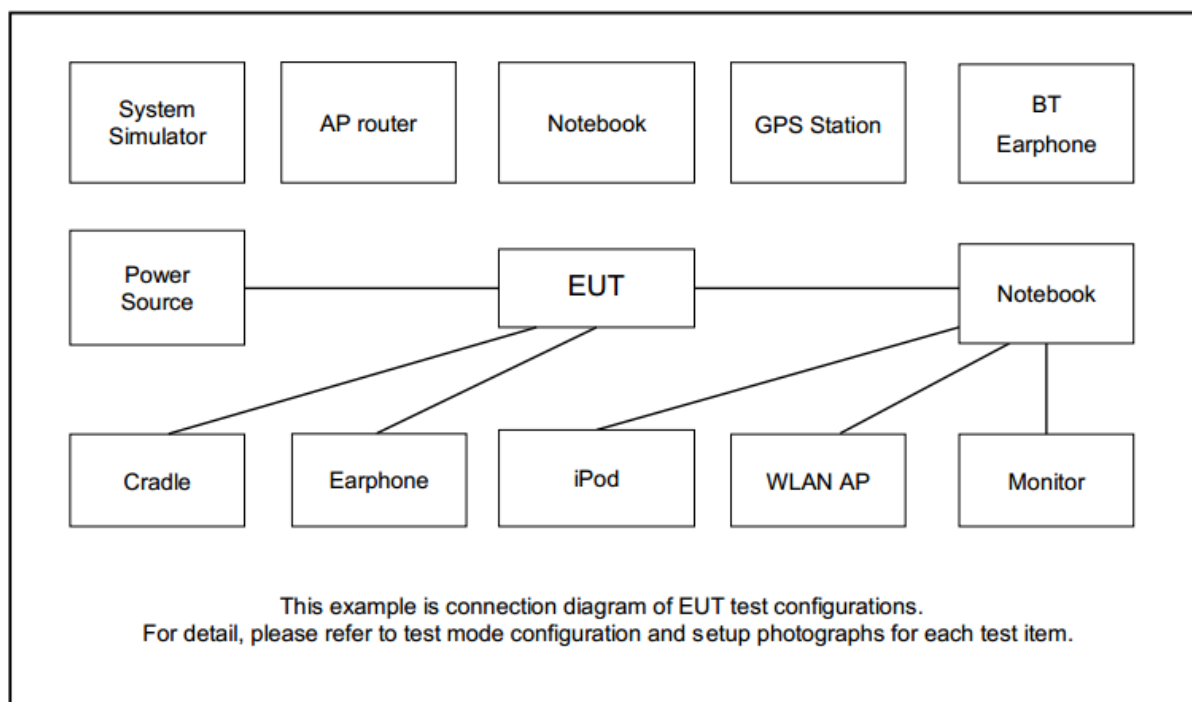
Modulation	Data Rate
802.11a	6 Mbps
802.11n HT20	MCS0
802.11n HT40	MCS0
802.11ac VHT20	MCS0
802.11ac VHT40	MCS0
802.11ac VHT80	MCS0

Test Cases	
AC Conducted Emission	Mode 1 : Bluetooth Link + WLAN Link (5GHz) + Adapter + Earphone

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

Ch. #		Band IV : 5725-5850 MHz	
		802.11n HT40	802.11ac VHT80
L	Low	151	-
M	Middle	-	155
H	High	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.	WLAN AP	Dlink	DIR-820L	KA2IR820LA1	N/A	Unshielded,1.8m
2.	Bluetooth Earphone	Nokia	BH-108	PYAHS-107W	N/A	N/A
3.	USB2.0 Disk 8G	Kingston	DT101	FCC DoC	N/A	N/A
4.	NOTE BOOK	Lenovo	E540	FCC DoC	AC I/P : Unshielded, 1.2m DC O/P : Shielded, 1.8m	N/A
5.	SD Card	SanDisk	4G class 4	FCC DoC	N/A	N/A
6.	iPod nano 8GB	Apple	MC690ZP/A	FCC DoC	Shielded, 1.2m	N/A
7.	Monitor	Dell	P2715Qt	FCC DoC	N/A	Unshielded,1.8m



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.

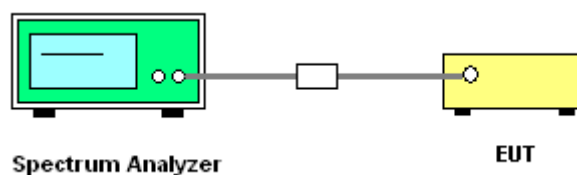
3.1.2 Measuring Instruments

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 v01r04.
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.

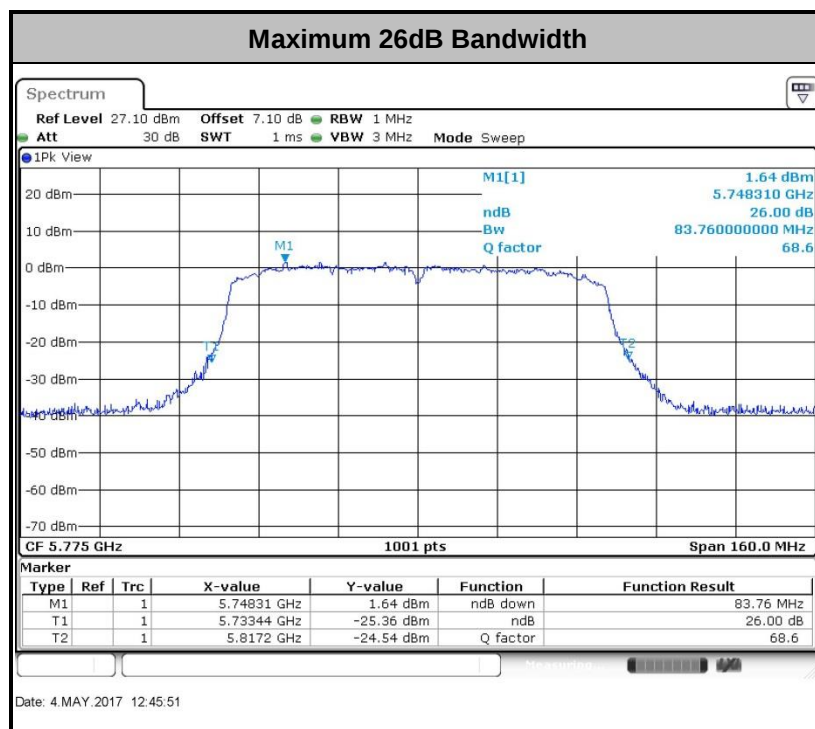
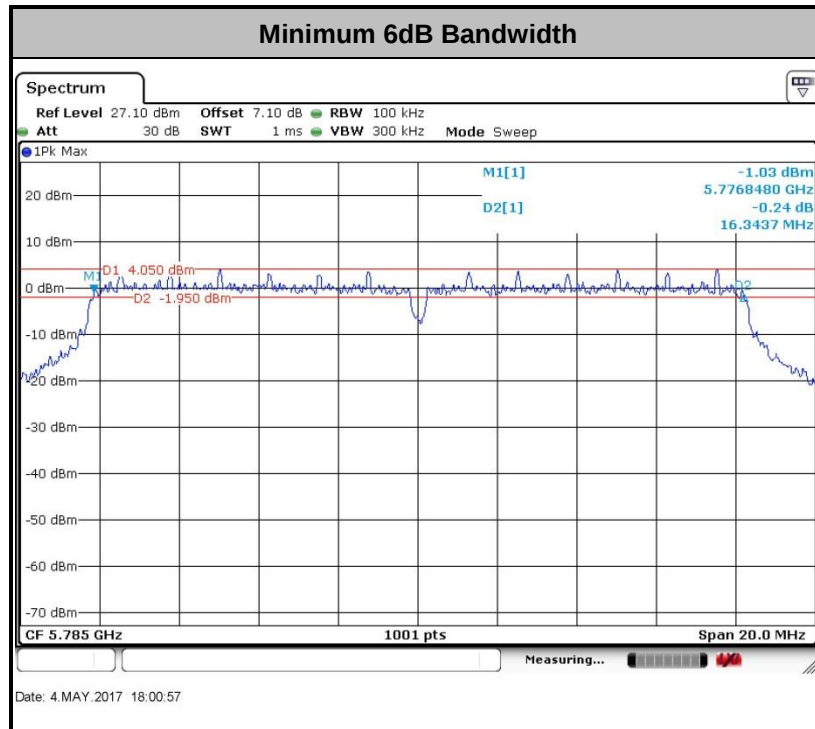
3.1.4 Test Setup

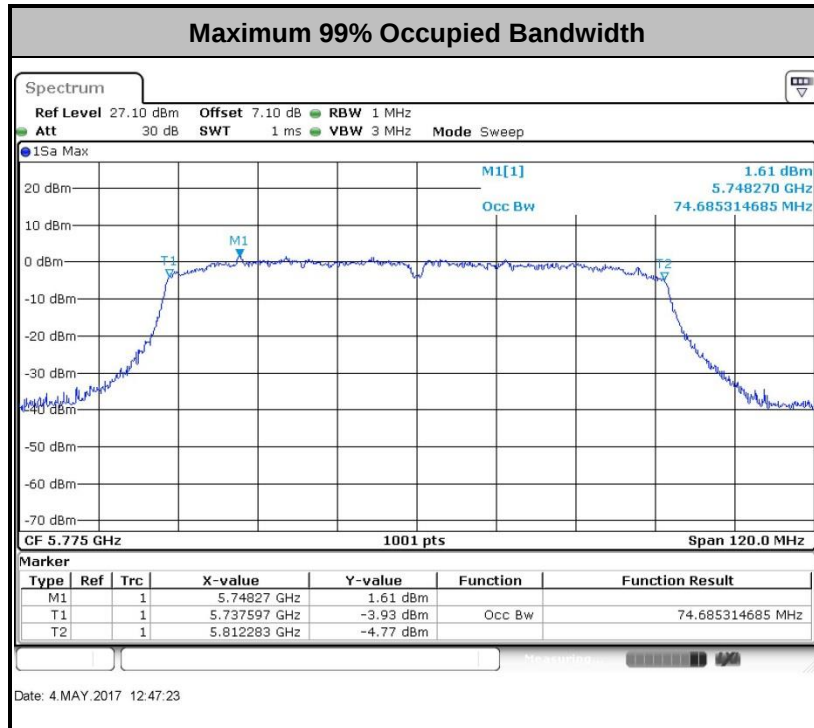




3.1.5 Test Result of 6dB Bandwidth

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.

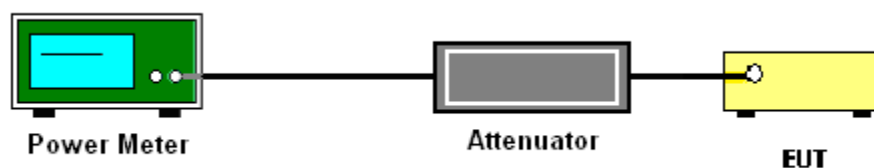
3.2.3 Test Procedures

The testing follows Method PM of FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r04.

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

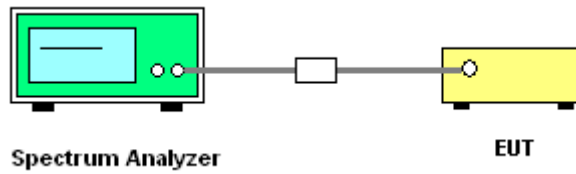
The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r04.
Section F) Maximum power spectral density.

Method SA-2

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

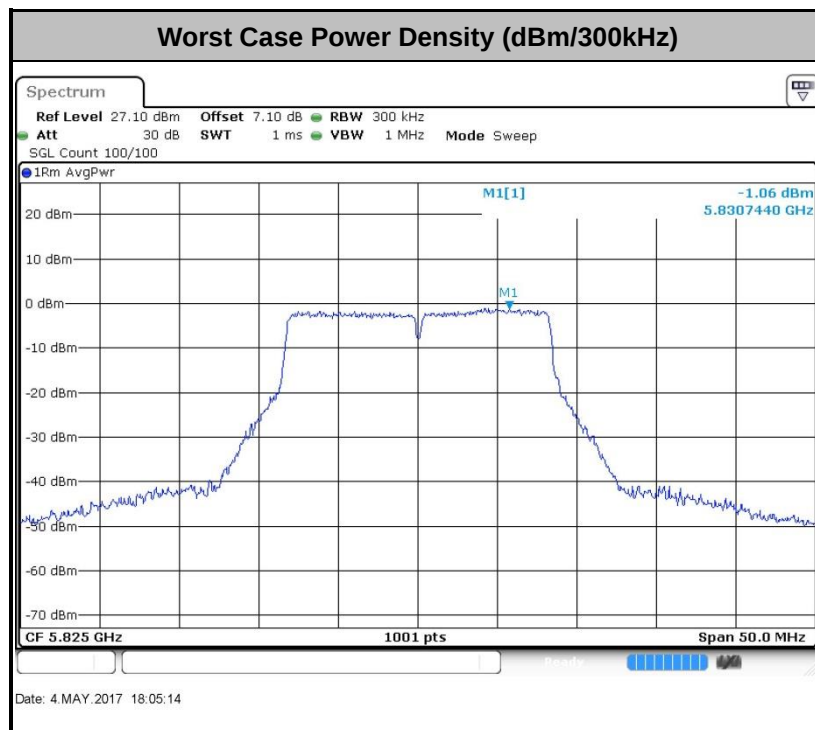
- Measure the duty cycle.
 - Set span to encompass the entire emission bandwidth (EBW) of the signal.
 - Set RBW = 300 kHz.
 - Set VBW $\geq$ 1 MHz.
 - Number of points in sweep $\geq$ 2 Span / RBW.
 - Sweep time = auto.
 - Detector = RMS
 - Trace average at least 100 traces in power averaging mode.
 - 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 as specified in FCC Part 15.407(b) is to measure unwanted emissions through radiated measurement for band edge spurious emissions and out of band emissions measurement. The unwanted emissions shall comply with 15.407(b)(1) to (6), and restricted bands per FCC Part 15.205.

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 Part 15.205 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.

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



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

(3) KDB789033 D02 v01r04 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 v01r04.
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

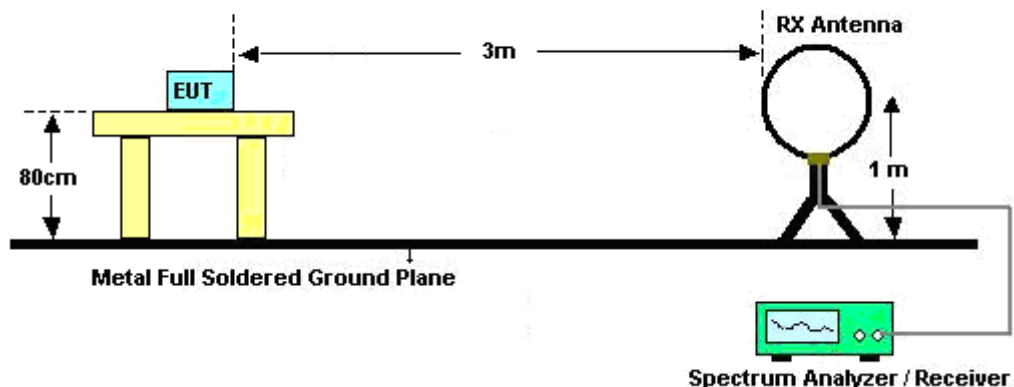
(3) Procedures for Average Unwanted Emissions Measurements Above 1000MHz

- 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.

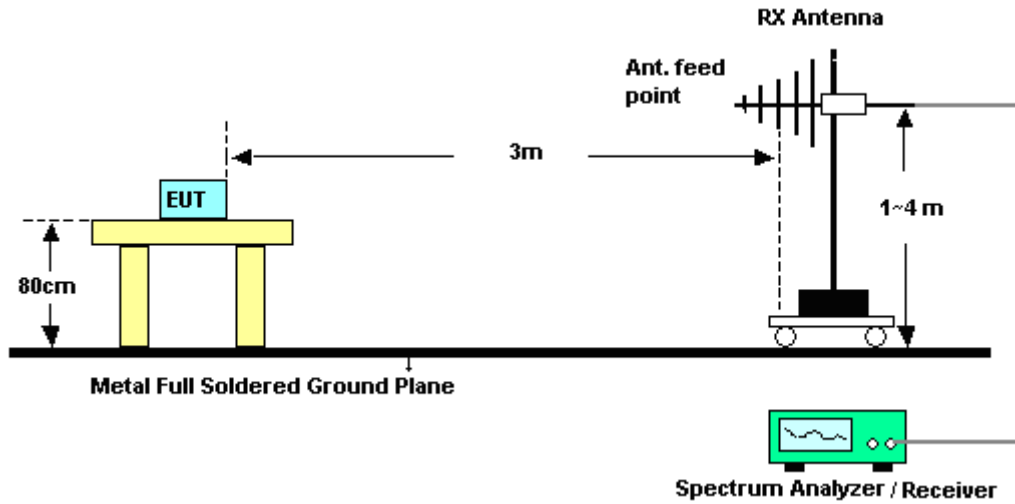
2. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
3. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
4. The antenna is a broadband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

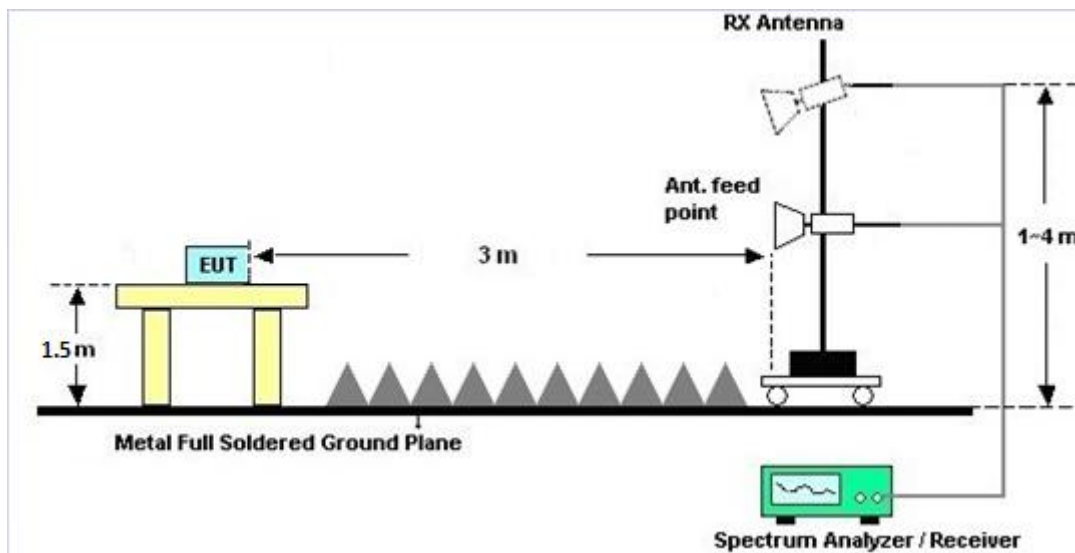
For radiated emissions below 30MHz



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 per 15.31(o) 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.

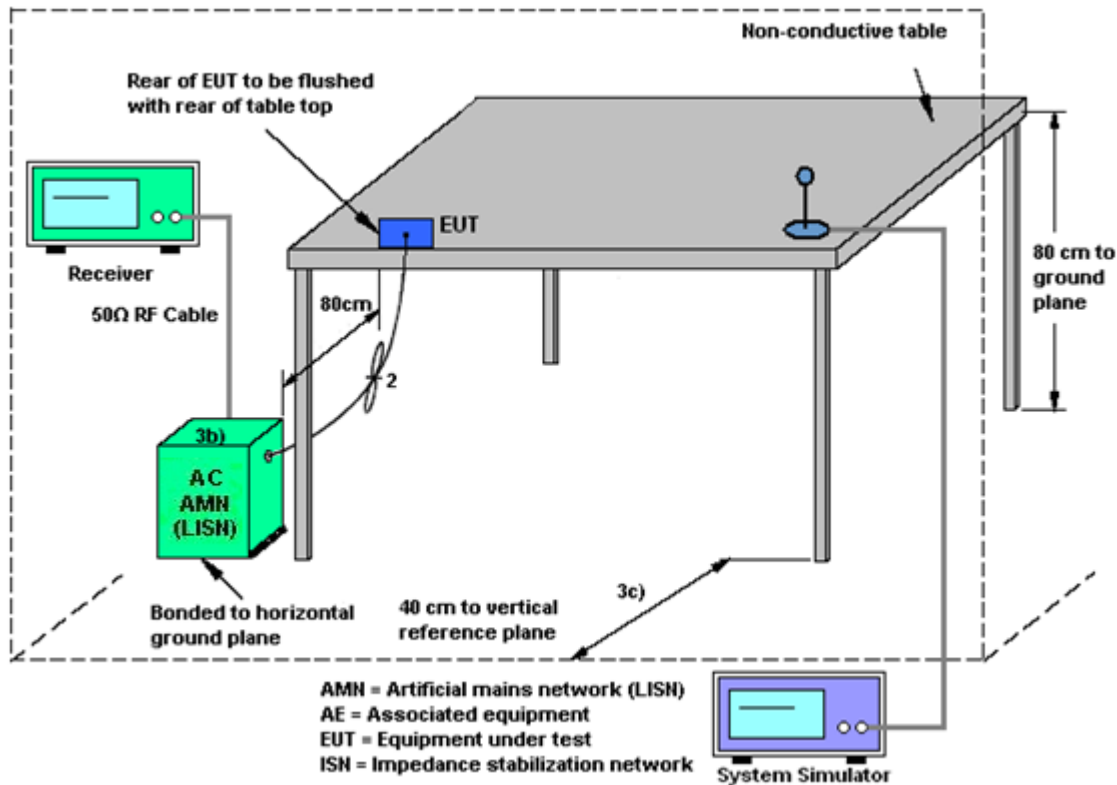
3.5.2 Measuring Instruments

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



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.

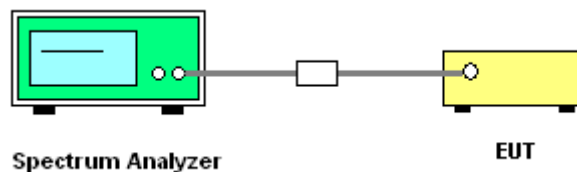
3.6.2 Measuring Instruments

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 gain 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
Spectrum Analyzer	R&S	FSV40	101040	10Hz~40GHz	Aug. 09, 2016	May 04, 2017	Aug. 08, 2017	Conducted (TH01-KS)
Pulse Power Sensor	Anritsu	MA2411B	0917070	300MHz~40GHz	Jan. 19, 2017	May 04, 2017	Jan. 19, 2018	Conducted (TH01-KS)
Power Meter	Anritsu	ML2495A	1005002	50MHz Bandwidth	Jan. 19, 2017	May 04, 2017	Jan. 19, 2018	Conducted (TH01-KS)
Pulse Power Sensor	Anritsu	MA2411B	1339163	300MHz~40GHz	Jan. 19, 2017	May 04, 2017	Jan. 19, 2018	Conducted (TH01-KS)
Power Meter	Anritsu	ML2495A	1435004	50MHz Bandwidth	Jan. 19, 2017	May 04, 2017	Jan. 19, 2018	Conducted (TH01-KS)
Thermal Chamber	HongZhan	LP-150U	HZ014011440	-40~+150°C 20%~95%RH	Apr. 18, 2017	May 04, 2017	Apr. 17, 2018	Conducted (TH01-KS)
EMI Receiver	R&S	ESR7	101630	9kHz~7GHz;	Jan. 06, 2017	May 19, 2017	Jan. 05, 2018	Conduction (CO01-SZ)
AC LISN	EMCO	3816/2SH	00103912	9kHz~30MHz	Jan. 05, 2017	May 19, 2017	Jan. 04, 2018	Conduction (CO01-SZ)
AC Power Source	Chroma	61602	616020000891	100Vac~250Vac	Jul. 16, 2016	May 19, 2017	Jul. 15, 2017	Conduction (CO01-SZ)
EMI Test Receiver	Keysight	N9038A	MY56400004	3Hz~8.5GHz;Ma x 30dBm	Oct. 22, 2016	May 10, 2017	Oct. 21, 2017	Radiation (03CH03-KS)
EXA Spectrum Analyzer	Keysight	N9010A	MY55150244	10Hz~44GHz	Apr. 18, 2017	May 10, 2017	Apr. 17, 2018	Radiation (03CH03-KS)
Loop Antenna	R&S	HFH2-Z2	100321	9kHz~30MHz	Nov. 23, 2016	May 10, 2017	Nov. 22, 2017	Radiation (03CH03-KS)
Bilog Antenna	TeseQ	CBL6112D	35406	25MHz~2GHz	Apr. 22, 2017	May 10, 2017	Apr. 21, 2018	Radiation (03CH03-KS)
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-1356	1GHz~18GHz	Apr. 22, 2017	May 10, 2017	Apr. 21, 2018	Radiation (03CH03-KS)
SHF-EHF Horn	com-power	AH-840	101070	18GHz ~40GHz	Oct. 19, 2016	May 10, 2017	Oct. 18, 2017	Radiation (03CH03-KS)
Amplifier	com-power	PA-103A	161069	1MHz ~1000MHz / 32 dB	Apr. 18, 2017	May 10, 2017	Apr. 17, 2018	Radiation (03CH03-KS)
Amplifier	MITEQ	TTA1840-35-H G	1887435	18~40GHz	Oct. 13, 2016	May 10, 2017	Oct. 12, 2017	Radiation (03CH03-KS)
Amplifier	Agilent	8449B	3008A02370	1GHz~26.5GHz	Oct. 13, 2016	May 10, 2017	Oct. 12, 2017	Radiation (03CH03-KS)
AC Power Source	Chroma	61601	F104090004	N/A	NCR	May 10, 2017	NCR	Radiation (03CH03-KS)
Turn Table	ChamPro	EM 1000-T	060762-T	0~360 degree	NCR	May 10, 2017	NCR	Radiation (03CH03-KS)
Antenna Mast	ChamPro	EM 1000-A	060762-A	1 m~4 m	NCR	May 10, 2017	NCR	Radiation (03CH03-KS)

5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	2.50
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Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	4.6
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Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	4.5
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Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	4.5
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Appendix A. Conducted Test Results

Report Number : FR733048E

Test Engineer:	Hirem Shen	Temperature:	21~25	°C
Test Date:	2017/5/4	Relative Humidity:	51~54	%

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

Band IV									
Mod.	Data Rate	N _{Tx}	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	18.63	23.826	16.3636	0.5	Pass
11a	6Mbps	1	157	5785	18.78	23.676	16.3437	0.5	Pass
11a	6Mbps	1	165	5825	18.43	23.626	16.3437	0.5	Pass
HT20	MCS 0	1	149	5745	19.28	23.976	17.5824	0.5	Pass
HT20	MCS 0	1	157	5785	19.18	23.526	17.582	0.5	Pass
HT20	MCS 0	1	165	5825	19.13	23.776	17.582	0.5	Pass
HT40	MCS 0	1	151	5755	36.86	45.045	35.325	0.5	Pass
HT40	MCS 0	1	159	5795	36.76	45.584	35.325	0.5	Pass
VHT80	MCS 0	1	155	5775	74.69	83.76	78.045	0.5	Pass

TEST RESULTS DATA
Average Power Table

Band IV										
Mod.	Data Rate	N _{TX}	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	0.58	14.80	30.00	2.54		Pass
11a	6Mbps	1	157	5785	0.58	14.96	30.00	2.54		Pass
11a	6Mbps	1	165	5825	0.58	14.71	30.00	2.54		Pass
HT20	MCS 0	1	149	5745	0.62	12.21	30.00	2.54		Pass
HT20	MCS 0	1	157	5785	0.62	12.39	30.00	2.54		Pass
HT20	MCS 0	1	165	5825	0.62	12.26	30.00	2.54		Pass
HT40	MCS 0	1	151	5755	0.67	12.59	30.00	2.54		Pass
HT40	MCS 0	1	159	5795	0.67	12.82	30.00	2.54		Pass
VHT20	MCS 0	1	149	5745	0.79	9.98	30.00	2.54		Pass
VHT20	MCS 0	1	157	5785	0.79	10.06	30.00	2.54		Pass
VHT20	MCS 0	1	165	5825	0.79	9.74	30.00	2.54		Pass
VHT40	MCS 0	1	151	5755	1.48	9.92	30.00	2.54		Pass
VHT40	MCS 0	1	159	5795	1.48	9.84	30.00	2.54		Pass
VHT80	MCS 0	1	155	5775	2.57	9.92	30.00	2.54		Pass

TEST RESULTS DATA
Power Spectral Density

Band IV										
Mod.	Data Rate	N _{TX}	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	0.58	2.22	1.25	30.00	2.54	Pass
11a	6Mbps	1	157	5785	0.58	2.22	1.38	30.00	2.54	Pass
11a	6Mbps	1	165	5825	0.58	2.22	1.74	30.00	2.54	Pass
HT20	MCS 0	1	149	5745	0.62	2.22	-1.75	30.00	2.54	Pass
HT20	MCS 0	1	157	5785	0.62	2.22	-1.03	30.00	2.54	Pass
HT20	MCS 0	1	165	5825	0.62	2.22	-1.39	30.00	2.54	Pass
HT40	MCS 0	1	151	5755	0.67	2.22	-4.00	30.00	2.54	Pass
HT40	MCS 0	1	159	5795	0.67	2.22	-3.84	30.00	2.54	Pass
VHT80	MCS 0	1	155	5775	2.57	2.22	-9.03	30.00	2.54	Pass

TEST RESULTS DATA
Frequency Stability

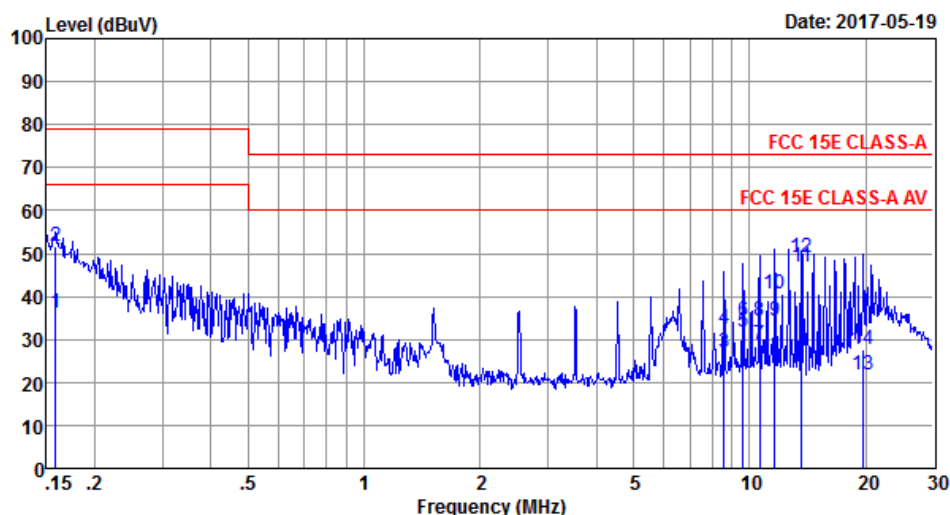
Band IV										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Center Frequency (MHz)	Frequency Deviation (MHz)	Frequency Stability (ppm)	Temperature (°C)	Voltage (V)	Note
11a	6M bps	1	149	5745	5745.025	0.025	4.35	50	220	
11a	6M bps	1	149	5745	5745.050	0.050	8.70	-30	220	
11a	6M bps	1	149	5745	5745.025	0.025	4.35	25	240	
11a	6M bps	1	149	5745	5745.025	0.025	4.35	25	100	
11a	6M bps	1	149	5745	5745.025	0.025	4.35	25	220	



Appendix B. AC Conducted Emission Test Results

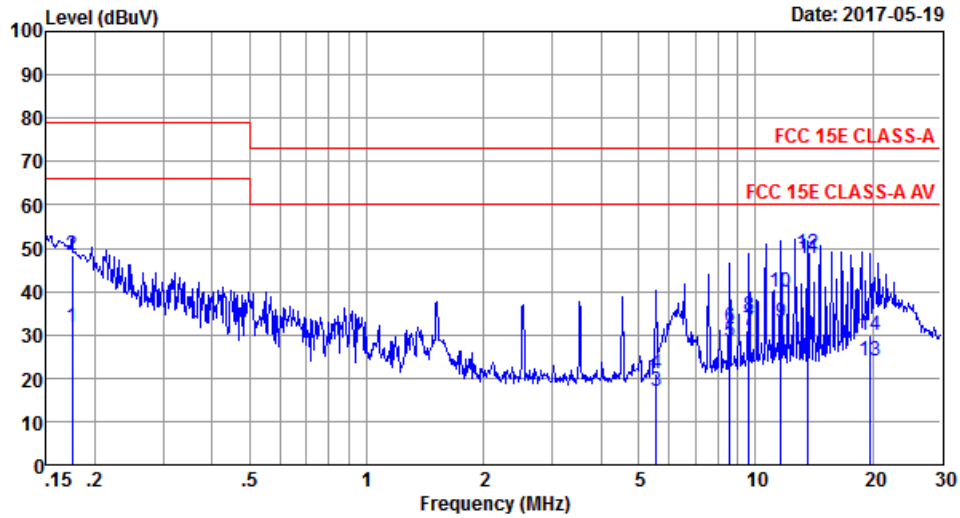
Test Engineer :	Tao Cheng	Temperature :	21~23°C
		Relative Humidity :	41~42%

Data: 2



Site : C001-SZ
Condition: FCC 15E CLASS-A LISN_20170301_L LINE
Project : (FD)733008
Mode : Mode 1
IMEI :

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.16	36.10	-29.90	66.00	25.70	0.03	10.37	Average
2	0.16	51.50	-27.50	79.00	41.10	0.03	10.37	QP
3	8.59	26.75	-33.25	60.00	16.10	0.30	10.35	Average
4	8.59	32.55	-40.45	73.00	21.90	0.30	10.35	QP
5	9.60	31.71	-28.29	60.00	21.00	0.35	10.36	Average
6	9.60	34.21	-38.79	73.00	23.50	0.35	10.36	QP
7	10.62	28.64	-31.36	60.00	17.90	0.38	10.36	Average
8	10.62	34.34	-38.66	73.00	23.60	0.38	10.36	QP
9	11.62	34.36	-25.64	60.00	23.60	0.41	10.35	Average
10	11.62	40.66	-32.34	73.00	29.90	0.41	10.35	QP
11 *	13.62	46.80	-13.20	60.00	36.01	0.47	10.32	Average
12	13.62	49.00	-24.00	73.00	38.21	0.47	10.32	QP
13	19.74	21.90	-38.10	60.00	10.00	1.26	10.64	Average
14	19.74	27.80	-45.20	73.00	15.90	1.26	10.64	QP



Site : CO01-SZ
Condition: FCC 15E CLASS-A LISN_20170301_N NEUTRAL
Project : (FD)733008
Mode : Mode 1
IMEI :

	Freq	Level	Over	Limit	Read	LISN	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.17	31.74	-34.26	66.00	21.40	0.03	10.31	Average
2	0.17	48.34	-30.66	79.00	38.00	0.03	10.31	QP
3	5.56	16.96	-43.04	60.00	6.60	0.07	10.29	Average
4	5.56	21.06	-51.94	73.00	10.70	0.07	10.29	QP
5	8.59	28.57	-31.43	60.00	18.10	0.12	10.35	Average
6	8.59	31.67	-41.33	73.00	21.20	0.12	10.35	QP
7	9.60	31.11	-28.89	60.00	20.60	0.15	10.36	Average
8	9.60	34.41	-38.59	73.00	23.90	0.15	10.36	QP
9	11.62	32.97	-27.03	60.00	22.40	0.22	10.35	Average
10	11.62	39.67	-33.33	73.00	29.10	0.22	10.35	QP
11 *	13.62	47.51	-12.49	60.00	36.90	0.29	10.32	Average
12	13.62	48.71	-24.29	73.00	38.10	0.29	10.32	QP
13	19.74	24.10	-35.90	60.00	12.89	0.57	10.64	Average
14	19.74	29.90	-43.10	73.00	18.69	0.57	10.64	QP



Appendix C. Radiated Spurious Emission

Test Engineer :	Dream Lee	Temperature :	21~23°C
		Relative Humidity :	41~43%

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		5645.2	45.6	-22.7	68.3	42.53	31.2	8.16	36.29	328	31	P	H
		5692.4	48.95	-50.75	99.7	45.56	31.43	8.25	36.29	328	31	P	H
		5718.4	65.02	-45.43	110.45	61.41	31.58	8.31	36.28	328	31	P	H
		5724.8	63.06	-58.78	121.84	59.45	31.58	8.31	36.28	328	31	P	H
		5748	99.84	-	-	96.12	31.66	8.34	36.28	328	31	P	H
		5748	92.81	-	-	89.09	31.66	8.34	36.28	328	31	A	H
													H
													H
		5623.2	45.23	-23.07	68.3	42.19	31.21	8.13	36.3	303	60	P	V
		5693.2	46.22	-54.07	100.29	42.83	31.43	8.25	36.29	303	60	P	V
		5718.8	55.82	-54.74	110.56	52.21	31.58	8.31	36.28	303	60	P	V
		5724	58.39	-61.63	120.02	54.78	31.58	8.31	36.28	303	60	P	V
		5750	95.18	-	-	91.46	31.66	8.34	36.28	303	60	P	V
		5750	88.61	-	-	84.89	31.66	8.34	36.28	303	60	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)
802.11a CH 157 5785MHz		5646.8	45.23	-23.07	68.3	42.16	31.2	8.16	36.29	292	57	P	H
		5692.4	46.74	-52.96	99.7	43.35	31.43	8.25	36.29	292	57	P	H
		5718	45.28	-65.06	110.34	41.67	31.58	8.31	36.28	292	57	P	H
		5720.01	44.27	-66.65	110.92	40.66	31.58	8.31	36.28	292	57	P	H
		5780	100.8	-	-	96.86	31.82	8.4	36.28	292	57	P	H
		5780	92.88	-	-	88.94	31.82	8.4	36.28	292	57	A	H
		5853.6	45.89	-68.2	114.09	41.45	32.2	8.51	36.27	292	57	P	H
		5872	45.74	-60.4	106.14	41.25	32.24	8.53	36.28	292	57	P	H
		5911.2	45.74	-32.74	78.48	41.14	32.33	8.57	36.3	292	57	P	H
		5949.6	45.88	-22.42	68.3	41.18	32.41	8.61	36.32	292	57	P	H
													H
													H
		5648.4	44.97	-23.33	68.3	41.9	31.2	8.16	36.29	380	62	P	V
		5695.2	45.99	-55.77	101.76	42.6	31.43	8.25	36.29	380	62	P	V
		5717.2	44.3	-65.82	110.12	40.79	31.51	8.28	36.28	380	62	P	V
		5724.4	43.63	-77.3	120.93	40.02	31.58	8.31	36.28	380	62	P	V
		5780	97.58	-	-	93.64	31.82	8.4	36.28	380	62	P	V
		5780	90.32	-	-	86.38	31.82	8.4	36.28	380	62	A	V
		5854.8	44.72	-66.64	111.36	40.28	32.2	8.51	36.27	380	62	P	V
		5864.4	45.48	-62.79	108.27	41.04	32.2	8.51	36.27	380	62	P	V
		5916.8	45.93	-28.42	74.35	41.33	32.33	8.57	36.3	380	62	P	V
		5965.6	46.16	-22.14	68.3	41.4	32.46	8.63	36.33	380	62	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		5828	100.73	-	-	96.48	32.05	8.47	36.27	348	59	P	H
		5828	93.49	-	-	89.24	32.05	8.47	36.27	348	59	A	H
		5852.8	58.66	-57.26	115.92	54.32	32.12	8.49	36.27	348	59	P	H
		5856.4	55.97	-54.54	110.51	51.53	32.2	8.51	36.27	348	59	P	H
		5875.6	47.71	-57.14	104.85	43.22	32.24	8.53	36.28	348	59	P	H
		5925.2	45.98	-22.32	68.3	41.33	32.37	8.59	36.31	348	59	P	H
													H
													H
		5830	95.34	-	-	91.09	32.05	8.47	36.27	373	87	P	V
		5830	87.73	-	-	83.48	32.05	8.47	36.27	373	87	A	V
		5850.4	54.81	-66.58	121.39	50.47	32.12	8.49	36.27	373	87	P	V
		5861.2	53.61	-55.55	109.16	49.17	32.2	8.51	36.27	373	87	P	V
		5877.6	47.2	-56.17	103.37	42.71	32.24	8.53	36.28	373	87	P	V
		5966	45.47	-22.83	68.3	40.71	32.46	8.63	36.33	373	87	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	60.7	-13.3	74	74.85	38.63	12.57	65.35	100	317	P	H
	!	11490	48.4	-5.6	54	62.55	38.63	12.57	65.35	100	317	A	H
													H
													H
		11490	56.43	-17.57	74	70.58	38.63	12.57	65.35	100	56	P	V
		11490	45.45	-8.55	54	59.6	38.63	12.57	65.35	100	56	A	V
													V
													V
802.11a CH 157 5785MHz		11570	63.1	-10.9	74	77.44	38.47	12.63	65.44	270	313	P	H
	!	11570	49.64	-4.36	54	63.98	38.47	12.63	65.44	270	313	A	H
													H
													H
		11575	58.81	-15.19	74	73.15	38.47	12.63	65.44	100	60	P	V
		11575	45.9	-8.1	54	60.24	38.47	12.63	65.44	100	60	A	V
													V
													V
802.11a CH 165 5825MHz		11650	64.6	-9.4	74	79.12	38.35	12.67	65.54	100	314	P	H
	!	11650	49.62	-4.38	54	64.14	38.35	12.67	65.54	100	314	A	H
													H
													H
		11650	56.12	-17.88	74	70.64	38.35	12.67	65.54	100	76	P	V
		11650	45.76	-8.24	54	60.28	38.35	12.67	65.54	100	76	A	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		5640.4	44.47	-23.83	68.3	41.4	31.2	8.16	36.29	114	13	P	H
		5693.2	46.82	-53.47	100.29	43.43	31.43	8.25	36.29	114	13	P	H
		5720	55.86	-55.04	110.9	52.25	31.58	8.31	36.28	114	13	P	H
		5723.6	58.52	-60.59	119.11	54.91	31.58	8.31	36.28	114	13	P	H
		5748	99.21	-	-	95.49	31.66	8.34	36.28	114	13	P	H
		5748	91.55	-	-	87.83	31.66	8.34	36.28	114	13	A	H
													H
													H
		5643.6	45.39	-22.91	68.3	42.32	31.2	8.16	36.29	321	92	P	V
		5693.2	46.19	-54.1	100.29	42.8	31.43	8.25	36.29	321	92	P	V
		5719.2	53.65	-57.03	110.68	50.04	31.58	8.31	36.28	321	92	P	V
		5724.4	58.24	-62.69	120.93	54.63	31.58	8.31	36.28	321	92	P	V
		5744	95.3	-	-	91.58	31.66	8.34	36.28	321	92	P	V
		5744	87.75	-	-	84.03	31.66	8.34	36.28	321	92	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)
802.11n HT20 CH 157 5785MHz		5628.4	45.12	-23.18	68.3	42.08	31.21	8.13	36.3	100	13	P	H
		5685.6	47.14	-47.54	94.68	43.75	31.43	8.25	36.29	100	13	P	H
		5718	45.26	-65.08	110.34	41.65	31.58	8.31	36.28	100	13	P	H
		5721.6	43.67	-70.88	114.55	40.06	31.58	8.31	36.28	100	13	P	H
		5784	99.93	-	-	95.99	31.82	8.4	36.28	100	13	P	H
		5784	92.7	-	-	88.76	31.82	8.4	36.28	100	13	A	H
		5850.01	44.97	-77.31	122.28	40.63	32.12	8.49	36.27	100	13	P	H
		5872.8	45.86	-60.06	105.92	41.37	32.24	8.53	36.28	100	13	P	H
		5907.6	45.77	-35.37	81.14	41.17	32.33	8.57	36.3	100	13	P	H
		5952	45.92	-22.38	68.3	41.22	32.41	8.61	36.32	100	13	P	H
													H
													H
		5641.2	44.69	-23.61	68.3	41.62	31.2	8.16	36.29	100	171	P	V
		5696.4	45.27	-57.38	102.65	41.88	31.43	8.25	36.29	100	171	P	V
		5704.8	44.09	-62.56	106.65	40.58	31.51	8.28	36.28	100	171	P	V
		5720.01	44.04	-66.88	110.92	40.43	31.58	8.31	36.28	100	171	P	V
		5782	93.36	-	-	89.42	31.82	8.4	36.28	100	171	P	V
		5782	85.95	-	-	82.01	31.82	8.4	36.28	100	171	A	V
		5853.6	45.33	-68.76	114.09	40.89	32.2	8.51	36.27	100	171	P	V
		5871.6	45.44	-60.81	106.25	40.95	32.24	8.53	36.28	100	171	P	V
		5908	45.91	-34.93	80.84	41.31	32.33	8.57	36.3	100	171	P	V
		5957.2	46.5	-21.8	68.3	41.74	32.46	8.63	36.33	100	171	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		5818	100.19	-	-	96.04	31.97	8.45	36.27	100	13	P	H
		5818	93.61	-	-	89.46	31.97	8.45	36.27	100	13	A	H
		5850.8	58.35	-62.13	120.48	54.01	32.12	8.49	36.27	100	13	P	H
		5855.01	49.71	-61.19	110.9	45.27	32.2	8.51	36.27	100	13	P	H
		5878	46.82	-56.25	103.07	42.33	32.24	8.53	36.28	100	13	P	H
		5951.6	46.67	-21.63	68.3	41.97	32.41	8.61	36.32	100	13	P	H
													H
													H
		5818	91.67	-	-	87.52	31.97	8.45	36.27	322	148	P	V
		5818	83.77	-	-	79.62	31.97	8.45	36.27	322	148	A	V
		5854.8	51.35	-60.01	111.36	46.91	32.2	8.51	36.27	322	148	P	V
		5855.1	51.35	-59.52	110.87	46.91	32.2	8.51	36.27	322	148	P	V
		5915.2	45.92	-29.61	75.53	41.32	32.33	8.57	36.3	322	148	P	V
		5961.6	45.75	-22.55	68.3	40.99	32.46	8.63	36.33	322	148	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		11495	53.27	-20.73	74	67.42	38.63	12.57	65.35	120	325	P	H
		11495	44.26	-9.74	54	58.41	38.63	12.57	65.35	120	325	A	H
													H
													H
		11485	50	-24	74	64.15	38.63	12.57	65.35	100	360	P	V
													V
													V
													V
802.11n HT20 CH 157 5785MHz		11565	52.94	-21.06	74	67.24	38.5	12.62	65.42	125	320	P	H
		11565	44.96	-9.04	54	59.26	38.5	12.62	65.42	125	320	A	H
													H
													H
		11570	50.8	-23.2	74	65.14	38.47	12.63	65.44	100	360	P	V
													V
													V
													V
802.11n HT20 CH 165 5825MHz		11650	51.77	-22.23	74	66.29	38.35	12.67	65.54	121	332	P	H
		11650	44.72	-9.28	54	59.24	38.35	12.67	65.54	121	332	A	H
													H
													H
		11650	56.28	-17.72	74	70.8	38.35	12.67	65.54	102	133	P	V
		11650	47.16	-6.84	54	61.68	38.35	12.67	65.54	102	133	A	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 (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 HT40 CH 151 5755MHz		5649.6	47.48	-20.82	68.3	44.3	31.28	8.19	36.29	317	15	P	H
		5699.6	54.3	-50.71	105.01	50.91	31.43	8.25	36.29	317	15	P	H
		5719.2	62.36	-48.32	110.68	58.75	31.58	8.31	36.28	317	15	P	H
		5722	61.57	-53.89	115.46	57.96	31.58	8.31	36.28	317	15	P	H
		5750	98.32	-	-	94.6	31.66	8.34	36.28	317	15	P	H
		5750	91.17	-	-	87.45	31.66	8.34	36.28	317	15	A	H
		5850.01	46.15	-76.13	122.28	41.81	32.12	8.49	36.27	317	15	P	H
		5862	45.51	-63.43	108.94	41.07	32.2	8.51	36.27	317	15	P	H
		5924.4	46.45	-22.29	68.74	41.8	32.37	8.59	36.31	317	15	P	H
		5934.8	45.5	-22.8	68.3	40.85	32.37	8.59	36.31	317	15	P	H
													H
													H
		5648.8	44.44	-23.86	68.3	41.37	31.2	8.16	36.29	300	177	P	V
		5699.2	50.41	-54.3	104.71	47.02	31.43	8.25	36.29	300	177	P	V
		5716.4	55.45	-54.44	109.89	51.94	31.51	8.28	36.28	300	177	P	V
		5724.4	56.14	-64.79	120.93	52.53	31.58	8.31	36.28	300	177	P	V
		5742	91.75	-	-	88.03	31.66	8.34	36.28	300	177	P	V
		5742	84.27	-	-	80.55	31.66	8.34	36.28	300	177	A	V
		5854.8	44.13	-67.23	111.36	39.69	32.2	8.51	36.27	300	177	P	V
		5865.2	44.89	-63.15	108.04	40.45	32.2	8.51	36.27	300	177	P	V
		5912.8	46.05	-31.25	77.3	41.45	32.33	8.57	36.3	300	177	P	V
		5979.2	46.08	-22.22	68.3	41.27	32.5	8.65	36.34	300	177	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 HT40 CH 159 5795MHz		5635.2	45.47	-22.83	68.3	42.4	31.2	8.16	36.29	276	13	P	H
		5689.2	47.57	-49.77	97.34	44.18	31.43	8.25	36.29	276	13	P	H
		5705.6	46.99	-59.88	106.87	43.48	31.51	8.28	36.28	276	13	P	H
		5722	46.28	-69.18	115.46	42.67	31.58	8.31	36.28	276	13	P	H
		5786	98.24	-	-	94.2	31.89	8.43	36.28	276	13	P	H
		5786	90.84	-	-	86.8	31.89	8.43	36.28	276	13	A	H
		5854.8	51.76	-59.6	111.36	47.32	32.2	8.51	36.27	276	13	P	H
		5855.2	51.95	-58.89	110.84	47.51	32.2	8.51	36.27	276	13	P	H
		5897.6	46.03	-42.51	88.54	41.48	32.29	8.55	36.29	276	13	P	H
		5925.6	46.24	-22.06	68.3	41.59	32.37	8.59	36.31	276	13	P	H
													H
													H
		5609.2	45.28	-23.02	68.3	42.28	31.21	8.1	36.31	290	178	P	V
		5693.6	45.13	-55.45	100.58	41.74	31.43	8.25	36.29	290	178	P	V
		5717.6	44.68	-65.55	110.23	41.07	31.58	8.31	36.28	290	178	P	V
		5721.2	44.22	-69.42	113.64	40.61	31.58	8.31	36.28	290	178	P	V
		5806	91.4	-	-	87.25	31.97	8.45	36.27	290	178	P	V
		5806	83.93	-	-	79.78	31.97	8.45	36.27	290	178	A	V
		5850.8	47.77	-72.71	120.48	43.43	32.12	8.49	36.27	290	178	P	V
		5872.8	45.66	-60.26	105.92	41.17	32.24	8.53	36.28	290	178	P	V
		5921.2	45.54	-25.56	71.1	40.94	32.33	8.57	36.3	290	178	P	V
		5938	46.7	-21.6	68.3	42.05	32.37	8.59	36.31	290	178	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	49.88	-24.12	74	64.04	38.6	12.58	65.34	300	360	P	H
													H
													H
													H
		11510	50.15	-23.85	74	64.31	38.6	12.58	65.34	300	0	P	V
													V
													V
													V
802.11n HT40 CH 159 5795MHz		11590	48.98	-25.02	74	63.37	38.44	12.64	65.47	300	0	P	H
													H
													H
													H
		11590	49.34	-24.66	74	63.73	38.44	12.64	65.47	300	360	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 802.11ac 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)
802.11ac VHT80 CH 155 5775MHz		5627.2	53.12	-15.18	68.3	50.08	31.21	8.13	36.3	298	11	P	H
		5686	54.37	-40.6	94.97	50.98	31.43	8.25	36.29	298	11	P	H
		5718	59.86	-50.48	110.34	56.25	31.58	8.31	36.28	298	11	P	H
		5724	58.15	-61.87	120.02	54.54	31.58	8.31	36.28	298	11	P	H
		5756	92.4	-	-	88.57	31.74	8.37	36.28	298	11	P	H
		5756	85.12	-	-	81.29	31.74	8.37	36.28	298	11	A	H
		5853.6	51.83	-62.26	114.09	47.39	32.2	8.51	36.27	298	11	P	H
		5855.2	52.13	-58.71	110.84	47.69	32.2	8.51	36.27	298	11	P	H
		5878.8	52.14	-50.34	102.48	47.65	32.24	8.53	36.28	298	11	P	H
		5951.2	53.09	-15.21	68.3	48.39	32.41	8.61	36.32	298	11	P	H
													H
													H
		5611.6	52.41	-15.89	68.3	49.41	31.21	8.1	36.31	296	173	P	V
		5695.6	52.77	-49.29	102.06	49.38	31.43	8.25	36.29	296	173	P	V
		5718.4	52.91	-57.54	110.45	49.3	31.58	8.31	36.28	296	173	P	V
		5724.8	53.89	-67.95	121.84	50.28	31.58	8.31	36.28	296	173	P	V
		5752	85.06	-	-	81.23	31.74	8.37	36.28	296	173	P	V
		5752	78.66	-	-	74.83	31.74	8.37	36.28	296	173	A	V
		5850.01	52.5	-69.78	122.28	48.16	32.12	8.49	36.27	296	173	P	V
		5867.6	52.23	-55.14	107.37	47.79	32.2	8.51	36.27	296	173	P	V
		5889.2	52.51	-42.25	94.76	47.96	32.29	8.55	36.29	296	173	P	V
		5959.6	52.88	-15.42	68.3	48.12	32.46	8.63	36.33	296	173	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	44.77	-29.23	74	59.07	38.5	12.62	65.42	300	360	P	H
													H
													H
													H
		11550	47.27	-26.73	74	61.57	38.5	12.62	65.42	300	0	P	V
													V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Emission below 1GHz

5GHz WIFI 802.11a (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 802.11a LF		33.88	28.53	-11.47	40	33.44	25.84	0.58	31.33	-	-	P	H
	!	127	38.51	-4.99	43.5	50.4	18.35	1.26	31.5	100	25	P	H
		154.16	36.48	-7.02	43.5	48.86	17.74	1.43	31.55	-	-	P	H
		166.77	36.09	-7.41	43.5	48.96	17.2	1.46	31.53	-	-	P	H
		312.27	37.56	-8.44	46	47.4	19.59	1.9	31.33	-	-	P	H
		359.8	38.06	-7.94	46	45.66	21.67	1.95	31.22	-	-	P	H
													H
													H
													H
													H
													H
													H
		60.07	33.62	-6.38	40	51.25	13	0.8	31.43	-	-	P	V
	!	78.5	34.47	-5.53	40	49.71	15.3	0.94	31.48	-	-	P	V
	!	110.51	38.61	-4.89	43.5	49.85	18.68	1.54	31.46	-	-	P	V
	!	122.15	39.53	-3.97	43.5	51.37	18.45	1.2	31.49	200	41	P	V
	!	163.86	38.9	-4.6	43.5	51.67	17.32	1.45	31.54	-	-	P	V
		486.87	39.16	-6.84	46	44.06	23.86	2.49	31.25	-	-	P	V
													V
													V
												V	
												V	
												V	
												V	
												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.	
2		(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

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”.

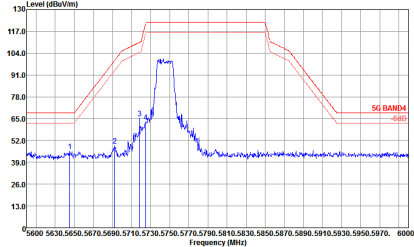
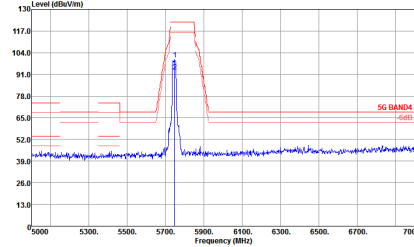


Appendix D. Radiated Spurious Emission Plots

Test Engineer :	Dream Lee	Temperature :	21~23°C
		Relative Humidity :	41~43%

Band 4 - 5725~5850MHz

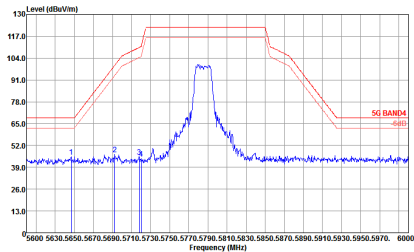
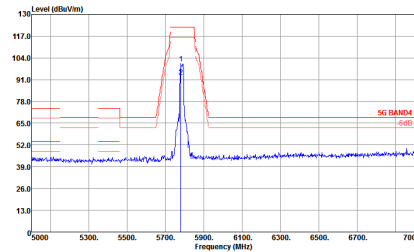
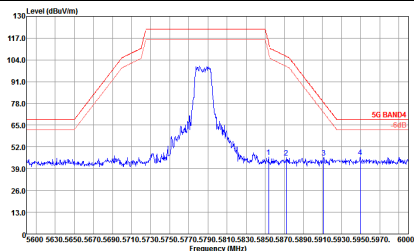
WIFI 802.11a (Band Edge @ 3m)

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH149 5745MHz	
1	Horizontal	Fundamental
Peak	 Site Condition : 83CH83-KS : SG BAND4 3m HP ANT 28150416-9129 HORIZONTAL : RBW:1000, 8000Hz VSW:1.000, 8000Hz SWT:Auto	 Site Condition : 83CH83-KS : SG BAND4 3m HP ANT 28150416-9129 HORIZONTAL : RBW:1000, 8000Hz VSW:1.000, 8000Hz SWT:Auto



WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH149 5745MHz	
1	Vertical	Fundamental
Peak	Site : 83CH03-KS Condition : 5G BAND4 3m HF ANT-2016M416-9120 VERTICAL : RBW:1000.000KHz VSW:3000.000KHz SWT:Auto	Site : 83CH03-KS Condition : 5G BAND4 3m HF ANT-2016M416-9120 VERTICAL : RBW:1000.000KHz VSW:3000.000KHz SWT:Auto



WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH157 5785MHz	
1	Horizontal	Fundamental
Peak	 Site Condition : 83CH03-KS : 5G BAND4 3m HF ANT-20160416-9120 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SMT:Auto	 Site Condition : 83CH03-KS : 5G BAND4 3m HF ANT-20160416-9120 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SMT:Auto
Peak	 Site Condition : 83CH03-KS : 5G BAND4 3m HF ANT-20160416-9120 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SMT:Auto	Left blank

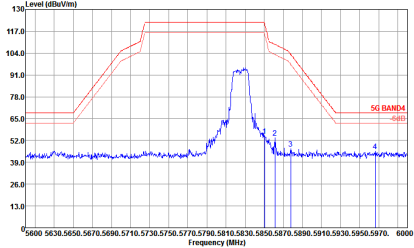
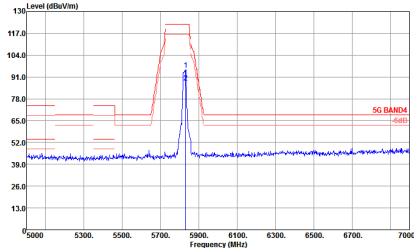


WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH157 5785MHz	
1	Vertical	Fundamental
Peak	Site Condition : 83CH83-KS : 5G BAND4 3m HF ANT-2016M416-9120 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SMT:Auto	Site Condition : 83CH83-KS : 5G BAND4 3m HF ANT-2016M416-9120 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SMT:Auto
	Site Condition : 83CH83-KS : 5G BAND4 3m HF ANT-2016M416-9120 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SMT:Auto	Left blank



WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH165 5825MHz	
1	Horizontal	Fundamental
Peak	Site Condition : 83CH03-KS : 5G BAND4 3m HF ANT-2016M416-9120 HORIZONTAL : RBW:10000.000KHz VBW:30000.000KHz SFT:Auto	Site Condition : 83CH03-KS : 5G BAND4 3m HF ANT-2016M416-9120 HORIZONTAL : RBW:10000.000KHz VBW:30000.000KHz SFT:Auto



WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH165 5825MHz	
1	Vertical	Fundamental
Peak	C  Site Condition : 03CH03-KS : 5G BAND4 3m HF ANT-20160416-9120 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SMT:Auto	 Site Condition : 03CH03-KS : 5G BAND4 3m HF ANT-20160416-9120 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SMT:Auto

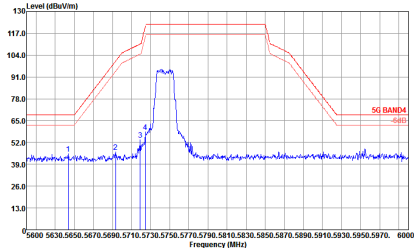
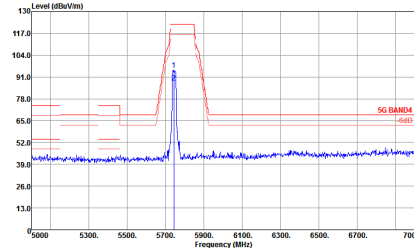


Band 4 5725~5850MHz

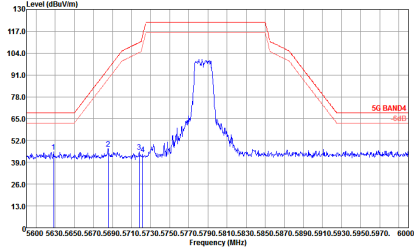
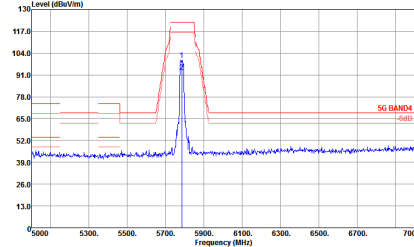
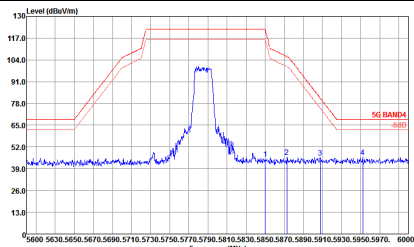
WIFI 802.11n HT20 (Band Edge @ 3m)

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH149 5745MHz	
1	Horizontal	Fundamental
Peak	Site : 03CH03-KS Condition : SG BAND4 3m HP ANT-20160416-9120 HORIZONTAL : RBW:3000.000KHz VBW:3000.000KHz SMT:Auto	Site : 03CH03-KS Condition : SG BAND4 3m HP ANT-20160416-9120 HORIZONTAL : RBW:3000.000KHz VBW:3000.000KHz SMT:Auto

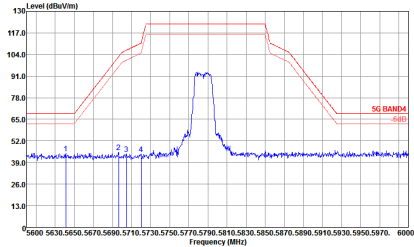
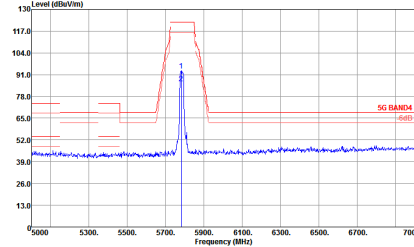
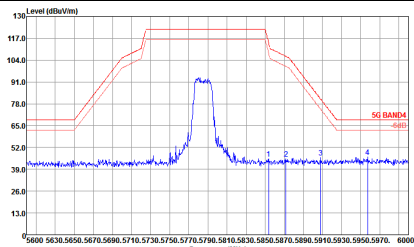


WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH149 5745MHz	
1	Vertical	Fundamental
Peak	 Site : 03CH03-KS Condition : 5G BAND4 3m HF ANT-20160416-9120 VERTICAL : RBW:1000.000KHz VSW:3000.000KHz SWT:Auto	 Site : 03CH03-KS Condition : 5G BAND4 3m HF ANT-20160416-9120 VERTICAL : RBW:1000.000KHz VSW:3000.000KHz SWT:Auto

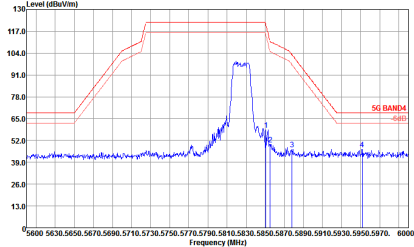
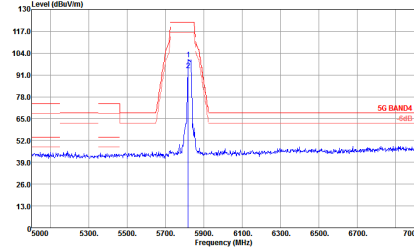


WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH157 5785MHz	
1	Horizontal	Fundamental
Peak	 Site Condition : 83CH03-KS : 5G BAND4 3m HF ANT-20160416-9120 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site Condition : 83CH03-KS : 5G BAND4 3m HF ANT-20160416-9120 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
	 Site Condition : 83CH03-KS : 5G BAND4 3m HF ANT-20160416-9120 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	Left blank



WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH157 5785MHz	
1	Vertical	Fundamental
Peak	 Site Condition : 83CH03-KS : 5G BAND4 3m HF ANT-2016M416-9120 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SMT:Auto	 Site Condition : 83CH03-KS : 5G BAND4 3m HF ANT-2016M416-9120 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SMT:Auto
	 Site Condition : 83CH03-KS : 5G BAND4 3m HF ANT-2016M416-9120 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SMT:Auto	Left blank



WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH165 5825MHz	
1	Horizontal	Fundamental
Peak	 Site Condition : 83CH03-KS : 5G BAND4 3m HF ANT-20160416-9120 HORIZONTAL : RBW:1000.000KHz VSW:3.000.000KHz SWT:Auto	 Site Condition : 83CH03-KS : 5G BAND4 3m HF ANT-20160416-9120 HORIZONTAL : RBW:1000.000KHz VSW:3.000.000KHz SWT:Auto

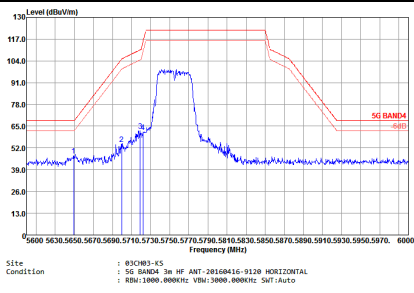
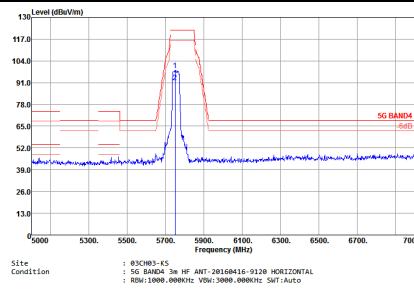
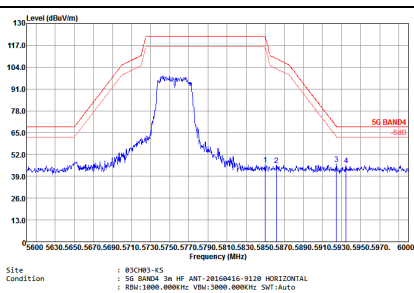


WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH165 5825MHz	
1	Vertical	Fundamental
Peak	Site : 03CH03-KS Condition : 5G BAND4 3m HF ANT-20160416-9120 VERTICAL RBW:1000.000KHz VSW:3000.000KHz SWT:Auto	Site : 03CH03-KS Condition : 5G BAND4 3m HF ANT-20160416-9120 VERTICAL RBW:1000.000KHz VSW:3000.000KHz SWT:Auto

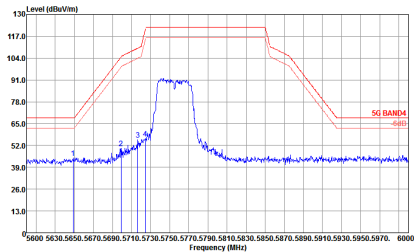
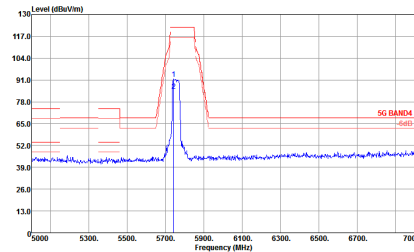
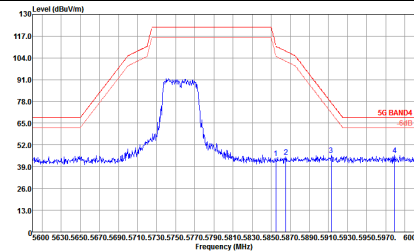


Band 4 5725~5850MHz

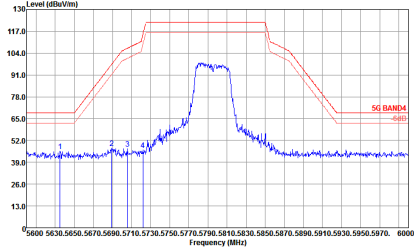
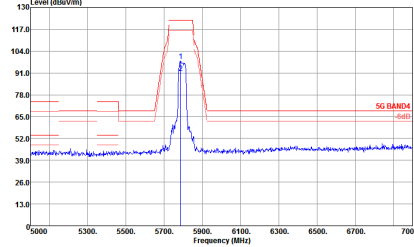
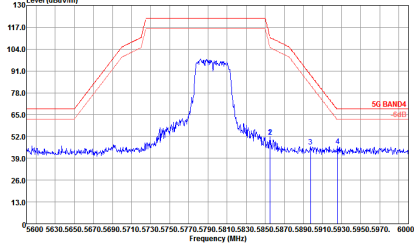
WIFI 802.11n HT40 (Band Edge @ 3m)

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT40 CH151 5755MHz	
1	Horizontal	Fundamental
Peak	 Site : 03CMB3-K5 Condition : 5G BAND4 3m HP ANT-20160416-9120 HORIZONTAL : RBW:10000.000KHz VBW:30000.000KHz SMT:Auto	 Site : 03CMB3-K5 Condition : 5G BAND4 3m HP ANT-20160416-9120 HORIZONTAL : RBW:10000.000KHz VBW:30000.000KHz SMT:Auto
Peak	 Site : 03CMB3-K5 Condition : 5G BAND4 3m HP ANT-20160416-9120 HORIZONTAL : RBW:10000.000KHz VBW:30000.000KHz SMT:Auto	Left blank



WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT40 CH151 5755MHz	
1	Vertical	Fundamental
Peak	 Site Condition : 83CH03-KS : 5G BAND4 3m HF ANT-20160416-9120 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site Condition : 83CH03-KS : 5G BAND4 3m HF ANT-20160416-9120 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Peak	 C Site Condition : 83CH03-KS : 5G BAND4 3m HF ANT-20160416-9120 VERTICAL : 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	Horizontal	Fundamental
Peak	 Site Condition : 83CMB3-KS : 5G BAND4 3m HF ANT-20160416-9120 HORIZONTAL : RBW:10000.000KHz VBW:3000.000KHz SMT:Auto	 Site Condition : 83CMB3-KS : 5G BAND4 3m HF ANT-20160416-9120 HORIZONTAL : RBW:10000.000KHz VBW:3000.000KHz SMT:Auto
Peak	 Site Condition : 83CMB3-KS : 5G BAND4 3m HF ANT-20160416-9120 HORIZONTAL : RBW:10000.000KHz VBW:3000.000KHz SMT:Auto	Left blank

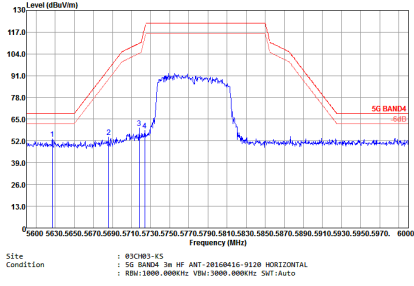
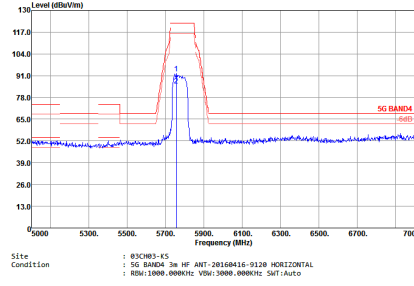
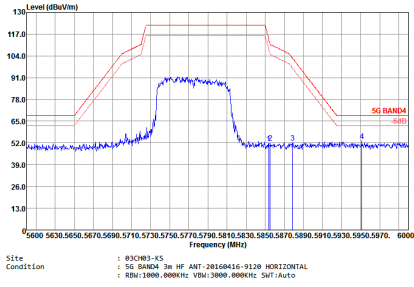


WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT40 CH159 5795MHz	
1	Vertical	Fundamental
Peak	Site Condition : 83CMB3-K5 : 5G BAND4 3m HF ANT-20160416-9120 VERTICAL : RBW:10000.000KHz VBW:30000.000KHz SMT:Auto	Site Condition : 83CMB3-K5 : 5G BAND4 3m HF ANT-20160416-9120 VERTICAL : RBW:10000.000KHz VBW:30000.000KHz SMT:Auto
	Site Condition : 83CMB3-K5 : 5G BAND4 3m HF ANT-20160416-9120 VERTICAL : RBW:10000.000KHz VBW:30000.000KHz SMT:Auto	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	 Site : 03CWB3-KS Condition : 5G BAND4 3m HP ANT-20160416-9120 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SMT:Auto	 Site : 03CWB3-KS Condition : 5G BAND4 3m HP ANT-20160416-9120 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SMT:Auto
Peak	 Site : 03CWB3-KS Condition : 5G BAND4 3m HP ANT-20160416-9120 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SMT:Auto	Left blank

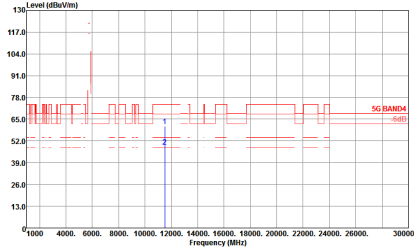
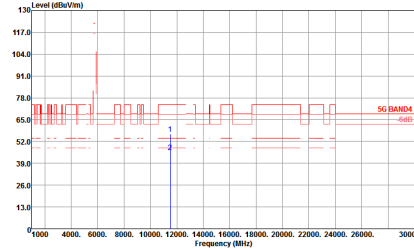


WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT80 CH155 5775MHz	
1	Vertical	Fundamental
Peak	Site Condition : 03CH3-KS : 5G BAND4 3m HF ANT-20160416-9120 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	Site Condition : 03CH3-KS : 5G BAND4 3m HF ANT-20160416-9120 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
	Site Condition : 03CH3-KS : 5G BAND4 3m HF ANT-20160416-9120 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	Left blank

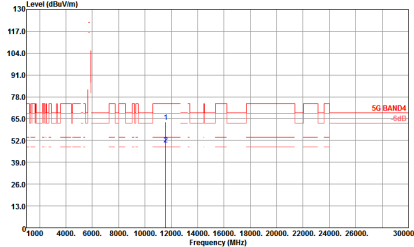
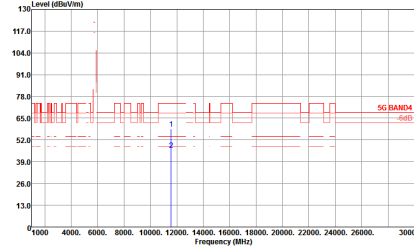


Band 4 - 5725~5850MHz

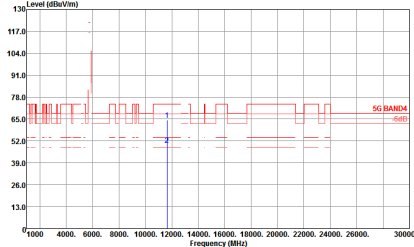
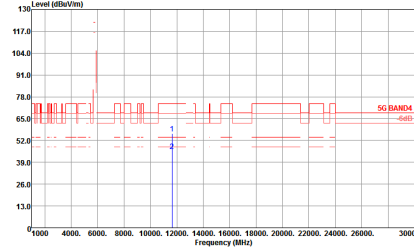
WIFI 802.11a (Harmonic @ 3m)

WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11a CH149 5745MHz	
1	Horizontal	Vertical
Peak Avg.	 Site Condition : 83CH03-KS : SG BAND4 3m HF ANT-20160416-9120 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SMT:Auto	 Site Condition : 83CH03-KS : SG BAND4 3m HF ANT-20160416-9120 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SMT:Auto



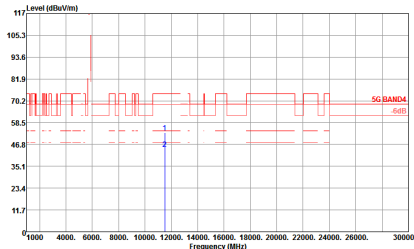
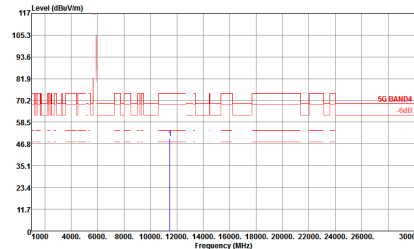
WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11a CH157 5785MHz	
1	Horizontal	Vertical
Peak Avg.	 Site Condition : 83CH03-KS : 5G BAND4 3m HF ANT-2016M416-9120 HORIZONTAL : RBW:1000.000KHz VSW:3000.000KHz SWT:Auto	 Site Condition : 83CH03-KS : 5G BAND4 3m HF ANT-2016M416-9120 VERTICAL : RBW:1000.000KHz VSW:3000.000KHz SWT:Auto



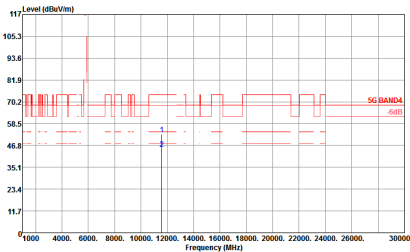
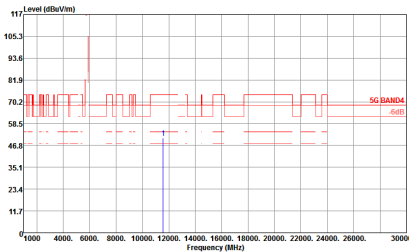
WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11a CH165 5825MHz	
1	Horizontal	Vertical
Peak Avg.	 Site Condition : 802.11a-ES : 5G BAND4 3m HF ANT-20160416-9120 HORIZONTAL : RSW:1000.000KHz VSW:3000.000KHz SW:Auto	 Site Condition : 802.11a-ES : 5G BAND4 3m HF ANT-20160416-9120 VERTICAL : RSW:1000.000KHz VSW:3000.000KHz SW:Auto



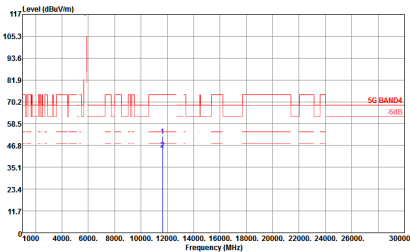
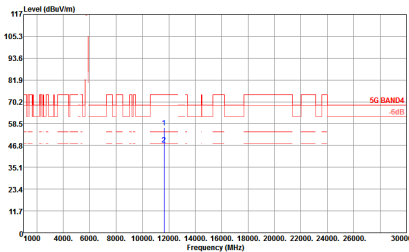
Band 4 5725~5850MHz
WIFI 802.11n HT20 (Harmonic @ 3m)

WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11n HT20 CH149 5745MHz	
1	Horizontal	Vertical
Peak Avg.	 Site Condition : 802.11n HT20 CH149 5745MHz : SG BAND4 3m HP ANT-20160416-0120 HORIZONTAL : RBW:1000.000kHz VBW:3000.000kHz SMT:Auto	 Site Condition : 802.11n HT20 CH149 5745MHz : SG BAND4 3m HP ANT-20160416-0120 VERTICAL : RBW:1000.000kHz VBW:3000.000kHz SMT:Auto



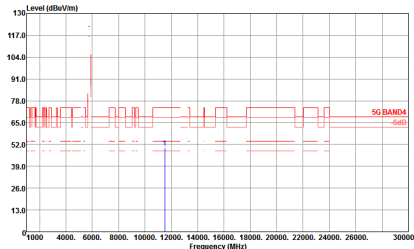
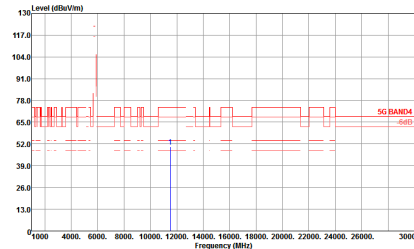
WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11n HT20 CH157 5785MHz	
1	Horizontal	Vertical
Peak Avg.	 Site Condition : 83CH03-KS : 5G BAND4 3m HF ANT-20160416-9120 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWF:Auto	 Site Condition : 83CH03-KS : 5G BAND4 3m HF ANT-20160416-9120 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWF:Auto



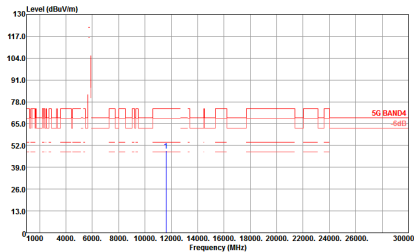
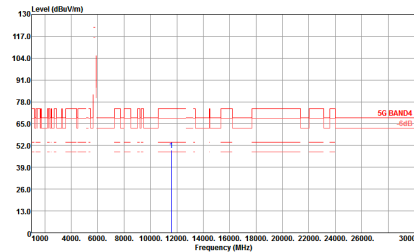
WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11n HT20 CH165 5825MHz	
1	Horizontal	Vertical
Peak Avg.	 Site Condition : 83CH03-KS : 5G BAND4 3m HF ANT-20160416-9120 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWF:Auto	 Site Condition : 83CH03-KS : 5G BAND4 3m HF ANT-20160416-9120 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWF:Auto



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

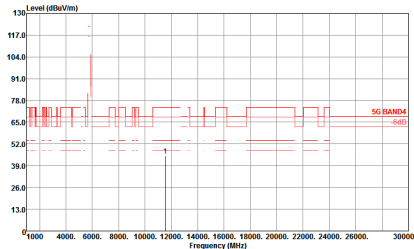
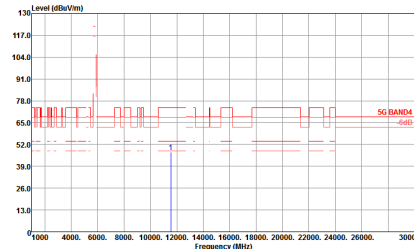
WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11n HT40 CH151 5755MHz	
1	Horizontal	Vertical
Peak Avg.	 Site : 83CH83-K5 Condition : SG BAND4 3m HF ANT-20160416-0120 HORIZONTAL : RBW:10000.000KHz VSW:3000.000KHz SMT:Auto	 Site : 83CH83-K5 Condition : SG BAND4 3m HF ANT-20160416-0120 VERTICAL : RBW:10000.000KHz VSW:3000.000KHz SMT:Auto



WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11n HT40 CH159 5795MHz	
1	Horizontal	Vertical
Peak Avg.	 Site Condition : 83CH03-KS : 5G BAND4 3m HF ANT-20160416-9120 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWF:Auto	 Site Condition : 83CH03-KS : 5G BAND4 3m HF ANT-20160416-9120 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWF:Auto



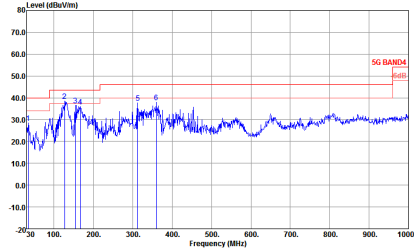
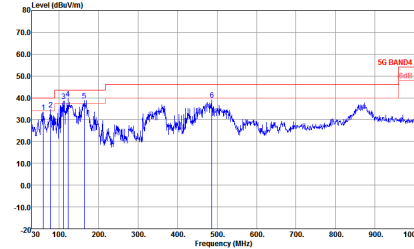
Band 4 5725~5850MHz
WIFI 802.11ac VHT80 (Harmonic @ 3m)

WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11ac VHT80 CH155 5775MHz	
1	Horizontal	Vertical
Peak Avg.	 Site : 802.11ac VHT80 CH155 5775MHz Condition : 5G BAND4 3m HP ANT-20160416-9120 HORIZONTAL : RBW:10000.000kHz VBW:3000.000kHz SMT:Auto	 Site : 802.11ac VHT80 CH155 5775MHz Condition : 5G BAND4 3m HP ANT-20160416-9120 VERTICAL : RBW:10000.000kHz VBW:3000.000kHz SMT:Auto



Emission below 1GHz

5GHz WIFI 802.11a (LF)

WIFI	5GHz 5725~5850MHz	
ANT	802.11a LF	
1	Horizontal	Vertical
QP / Peak	 Site : 83CH03-KS Condition : 5G BAND4 3m LF ANT 60B HORIZONTAL : RBW:100.000KHz VBW:300.000KHz SMT:Auto	 Site : 83CH03-KS Condition : 5G BAND4 3m LF ANT 60B VERTICAL : RBW:100.000KHz VBW:300.000KHz SMT:Auto

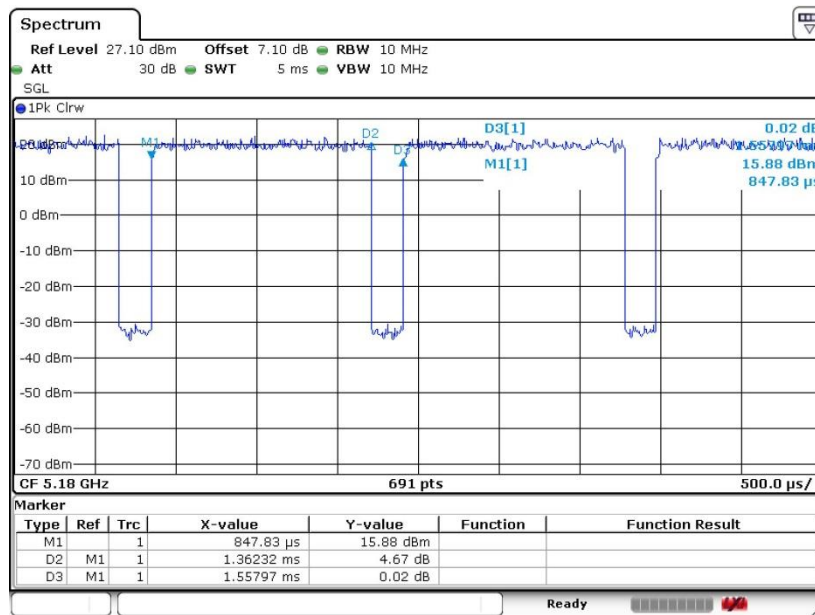


Appendix E. Duty Cycle Plots

Band	Duty Cycle(%)	T(us)	1/T(kHz)	VBW Setting
802.11a	87.44	1.36	0.73	1KHz
802.11n HT20	86.70	1.28	0.78	1KHz
802.11n HT40	85.79	1.22	0.82	1KHz
802.11ac VHT80	55.34	0.25	4.04	10KHz

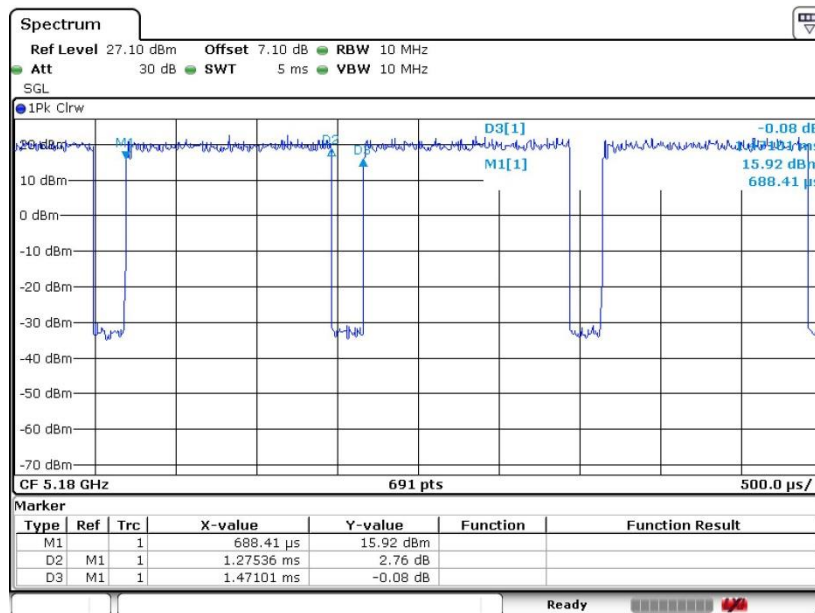


802.11a



Date: 26.APR.2017 22:24:35

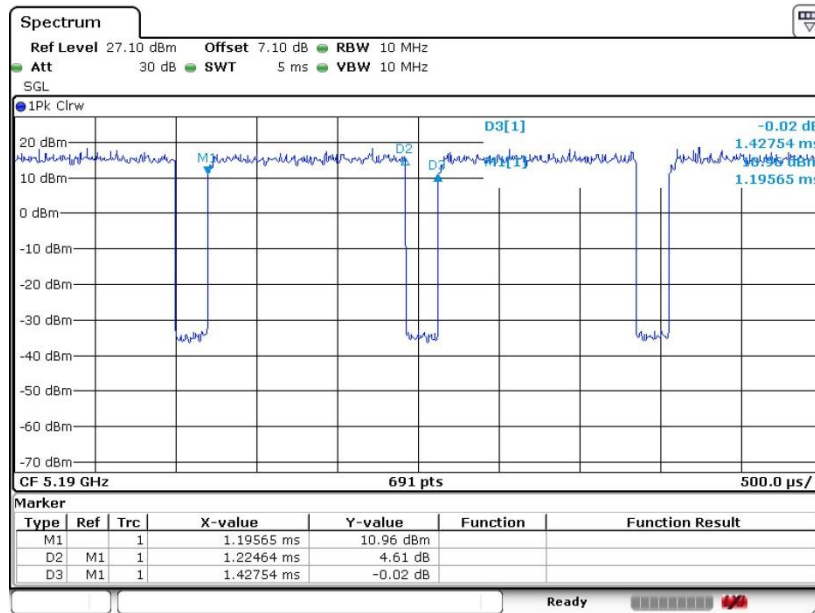
802.11n HT20



Date: 26.APR.2017 22:31:47

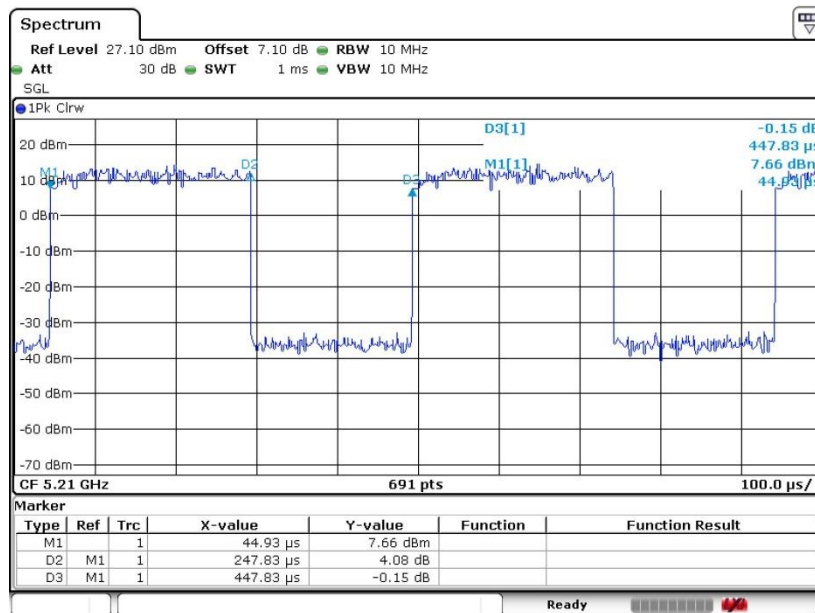


802.11n HT40



Date: 26.APR.2017 22:32:46

802.11ac VHT80



Date: 26.APR.2017 22:39:32