



FCC RF Test Report

APPLICANT : HTC Corporation
EQUIPMENT : VIVE Headset
MODEL NAME : 2Q27200
FCC ID : NM82Q27200
STANDARD : FCC Part 15 Subpart E §15.407
CLASSIFICATION : (NII) Unlicensed National Information Infrastructure

The product was received on Feb. 12, 2018 and testing was completed on Apr. 04, 2018. 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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Approved by: Jones Tsai / Manager



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FCC ID: NM82Q27200

Page Number : 1 of 30

Report Issued Date : Apr. 13, 2018

Report Version : Rev. 02

Report Template No.: BU5-FR15EWLB4 AC MA Version 1.4



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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR821216E	Rev. 01	Initial issue of report	Apr. 12, 2018
FR821216E	Rev. 02	Revising applicant address and manufacturer address	Apr. 13, 2018



SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	15.403(i)	6dB, 26dB and 99% Occupied Bandwidth	> 500kHz	Pass	-
3.2	15.407(a)	Maximum Conducted Output Power	≤ 30 dBm	Pass	-
3.3	15.407(a)	Power Spectral Density	≤ 30 dBm/500kHz	Pass	-
3.4	15.407(b)	Unwanted Emissions	15.407(b)(4)(i) & 15.209(a)	Pass	Under limit 4.23 dB at 265.980 MHz
3.5	15.207	AC Conducted Emission	15.207(a)	Pass	Under limit 13.63 dB at 2.148 MHz
3.6	15.407(c)	Automatically Discontinue Transmission	Discontinue Transmission	Pass	-
3.7	15.203 & 15.407(a)	Antenna Requirement	N/A	Pass	-



1 General Description

1.1 Applicant

HTC Corporation

NO. 88, Section 3, Zhongxing Rd., Xindian Dist, New Taipei City, Taiwan 231

1.2 Manufacturer

HTC Corporation

NO. 88, Section 3, Zhongxing Rd., Xindian Dist, New Taipei City, Taiwan 231

1.3 Product Feature of Equipment Under Test

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

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

1.4 Modification of EUT

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



1.5 Testing Location

Sporton Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code : 1190) and the FCC designation No. TW1190 and TW0007 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC Test.

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

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

Test Site	SPORTON INTERNATIONAL INC.	
Test Site Location	No.58, Aly. 75, Ln. 564, Wenhua 3rd Rd. Guishan Dist, Taoyuan City, Taiwan (R.O.C.) TEL: +886-3-327-0868 FAX: +886-3-327-0855	
Test Site No.	Sporton Site No.	
	03CH10-HY	

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

1.6 Applicable Standards

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

- FCC Part 15 Subpart E
- FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.
- FCC KDB 662911 D01 Multiple Transmitter Output v02r01.
- ANSI C63.10-2013

Remark:

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



2 Test Configuration of Equipment Under Test

- a. The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conduction emission (150 kHz to 30 MHz), radiation emission (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower). For radiated measurement, pre-scanned in three orthogonal panels, X, Y, Z. The worst cases (X plane for Ant. 2 and Ant. 1+2, Y plane for Ant. 1) were recorded in this report.
- b. AC power line Conducted Emission was tested under maximum output power.

2.1 Carrier Frequency and Channel

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

Note:

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



2.2 Test Mode

Final test modes are considering the modulation and worse data rates as below table.

Single Mode

Modulation	Data Rate
802.11a	6 Mbps

MIMO Mode

Modulation	Data Rate
802.11n HT20	MCS0
802.11n HT40	MCS0
802.11ac VHT20 (Covered by HT20)	MCS0
802.11ac VHT40 (Covered by HT40)	MCS0
802.11ac VHT80	MCS0

AC Conducted Emission	Mode 1 : Bluetooth Link + WLAN (5GHz) Link + USB Cable 1 (Charging from Adapter 2) + Earphone
------------------------------	---

<For Ant. 1 and Ant. 2>

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

<For Ant. 1+2>

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

2.3 Connection Diagram of Test System



2.4 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	WLAN AP	ASUS	RT-AC66U	MSQ-RTAC66U	N/A	Unshielded,1.8m
2.	Notebook	DELL	Latitude E6320	FCC DoC/ Contains FCC ID: QDS-BRCM1054	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
3.	SD Card	SanDisk	MicroSD HC	FCC DoC	N/A	N/A
4.	iPod	Apple	A1285	FCC DoC	Shielded, 1.0 m	N/A
5.	iPod Earphone	Aibo	IP-E1	N/A	N/A	N/A



2.5 EUT Operation Test Setup

The RF test items, utility “QRCT” was installed in Notebook which was programmed in order to make the EUT get into the engineering modes to provide channel selection, power level, data rate and the application type and for continuous transmitting 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

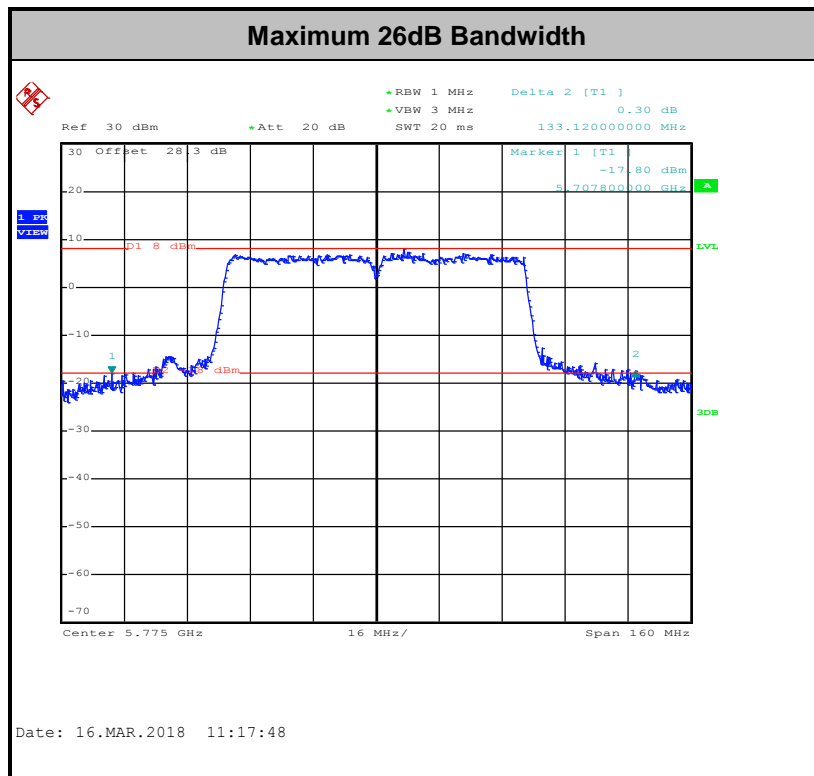
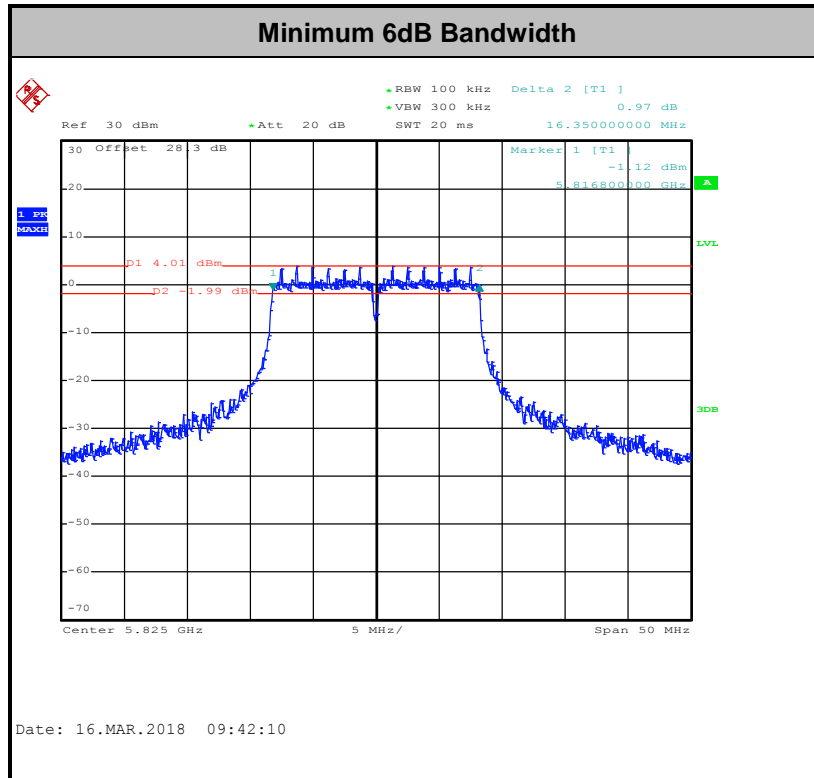
1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01. Section C) Emission bandwidth for the band 5.725-5.85GHz
2. Set RBW = 100kHz.
3. Set the VBW $\geq 3 \times$ RBW.
4. Detector = Peak.
5. Trace mode = max hold
6. Measure the maximum width of the emission that is 6 dB down from the peak of the emission.
7. Measure and record the results in the test report.

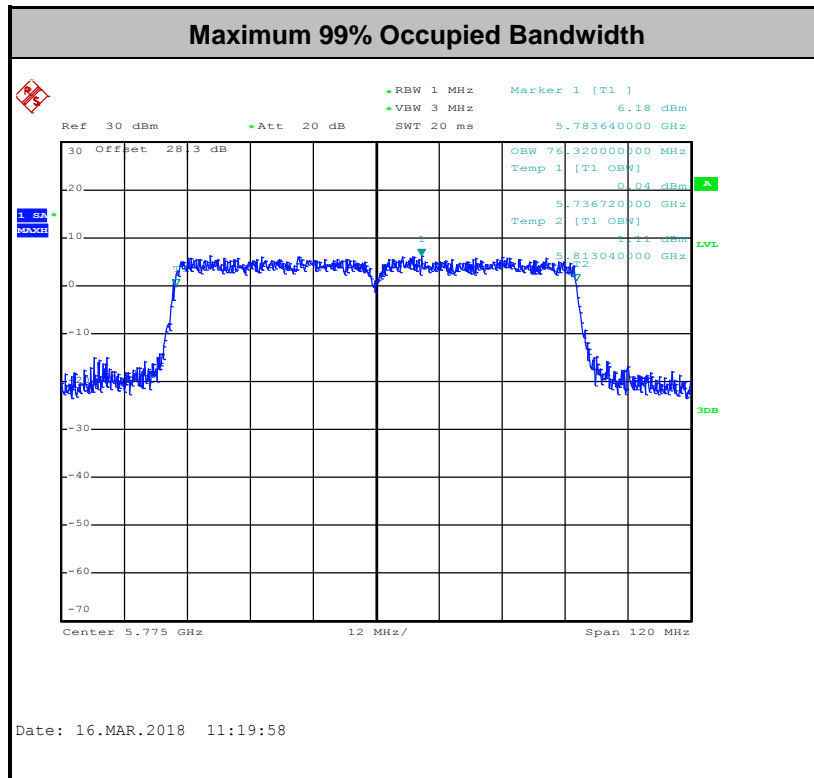
3.1.4 Test Setup



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.

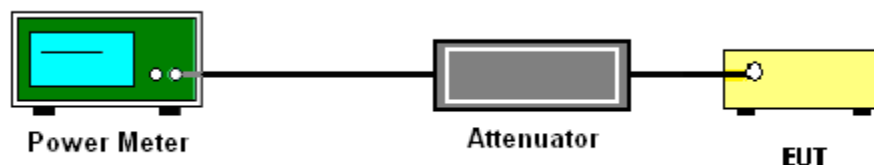
3.2.3 Test Procedures

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

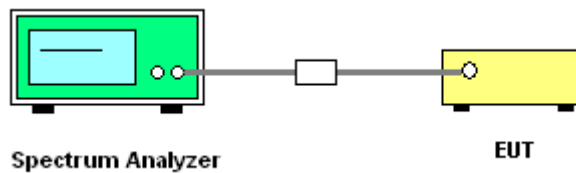
- Measure the duty cycle.
- Set span to encompass the entire emission bandwidth (EBW) of the signal.
- Set RBW = 300 kHz.
- Set VBW \geq 1 MHz.
- Number of points in sweep \geq 2 Span / RBW.
- Sweep time = auto.
- Detector = RMS
- Trace average at least 100 traces in power averaging mode.
- Add $10 \log(500\text{kHz}/\text{RBW})$ 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. 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 $1/N_{ANT}^{\text{th}}$ of the PSD limit.

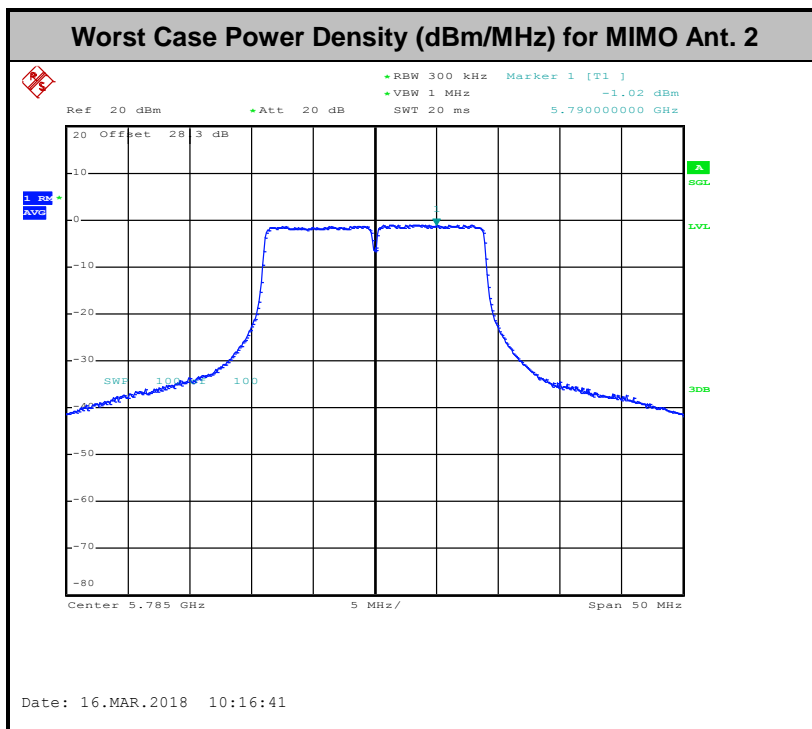
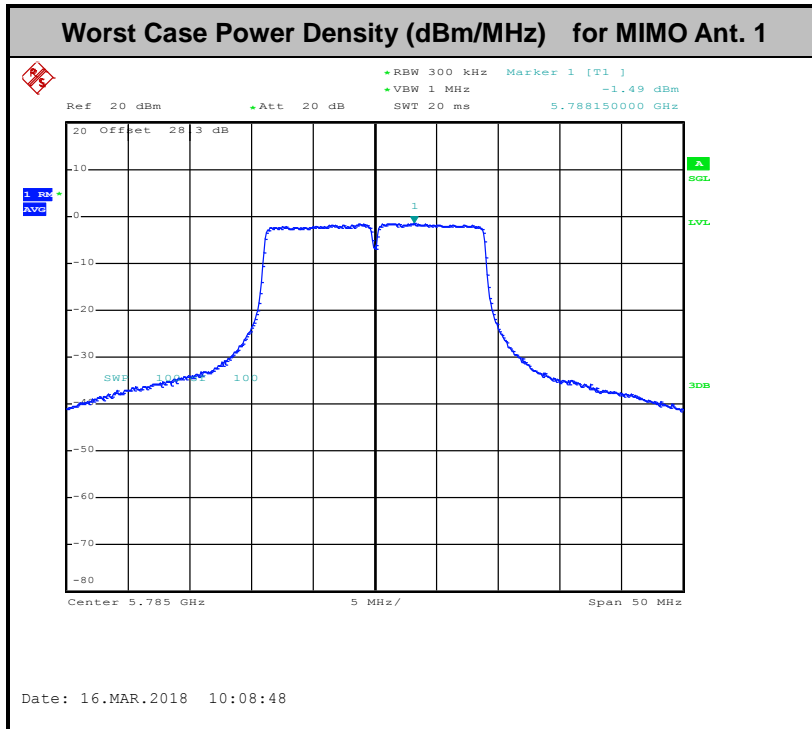
3.3.4 Test Setup





3.3.5 Test Result of Power Spectral Density

Please refer to Appendix A.





3.4 Unwanted Emissions Measurement

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

3.4.1 Limit of Unwanted Emissions

- (1) For transmitters operating in the 5.725-5.85 GHz band:
 15.407(b)(4)(i) All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.
- (2) Unwanted spurious emissions fallen in restricted bands shall comply with the general field strength limits as below table,

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

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

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



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

(3) KDB789033 D02 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 \geq 3 MHz
- Detector = Peak
- Sweep time = auto
- Trace mode = max hold

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

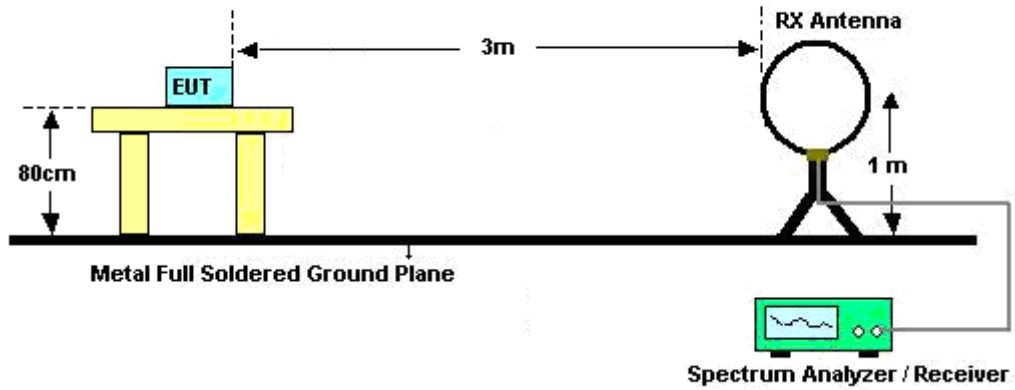
- RBW = 1 MHz
- VBW = 10 Hz, when duty cycle is no less than 98 percent.
- VBW \geq 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.



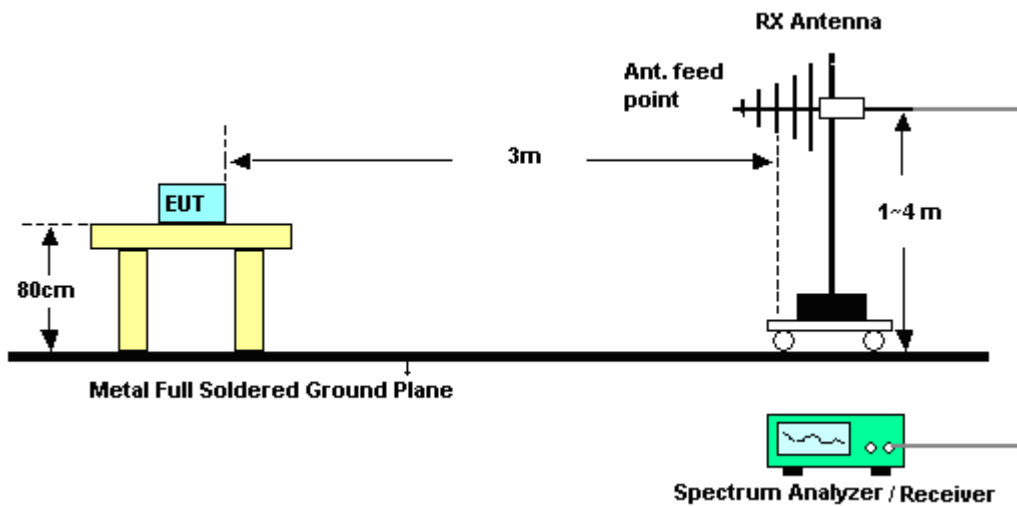
2. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
3. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
4. The antenna is a broadband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

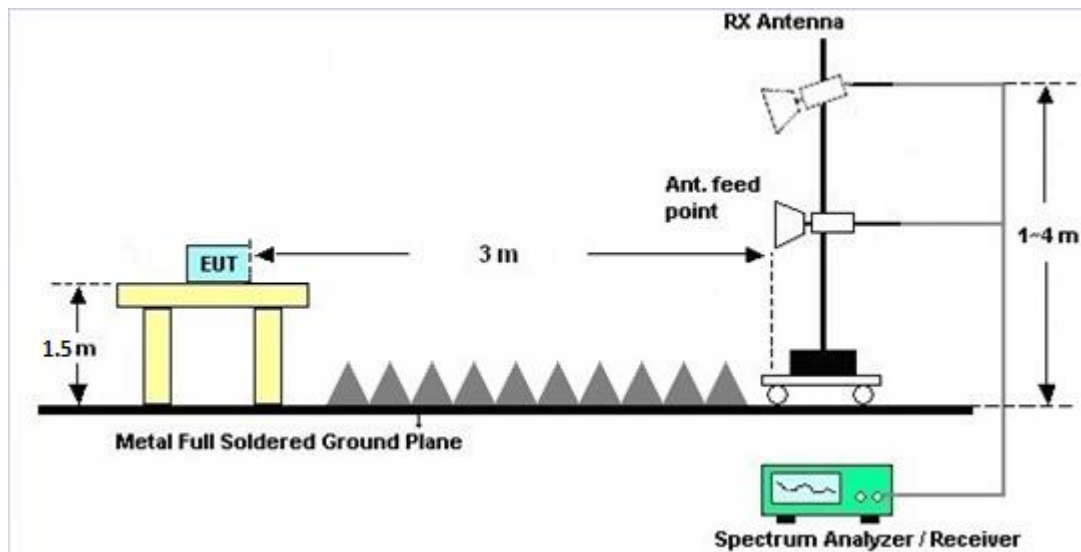
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



3.4.5 Test Results of Radiated 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 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 Unwanted Radiated Emission (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.

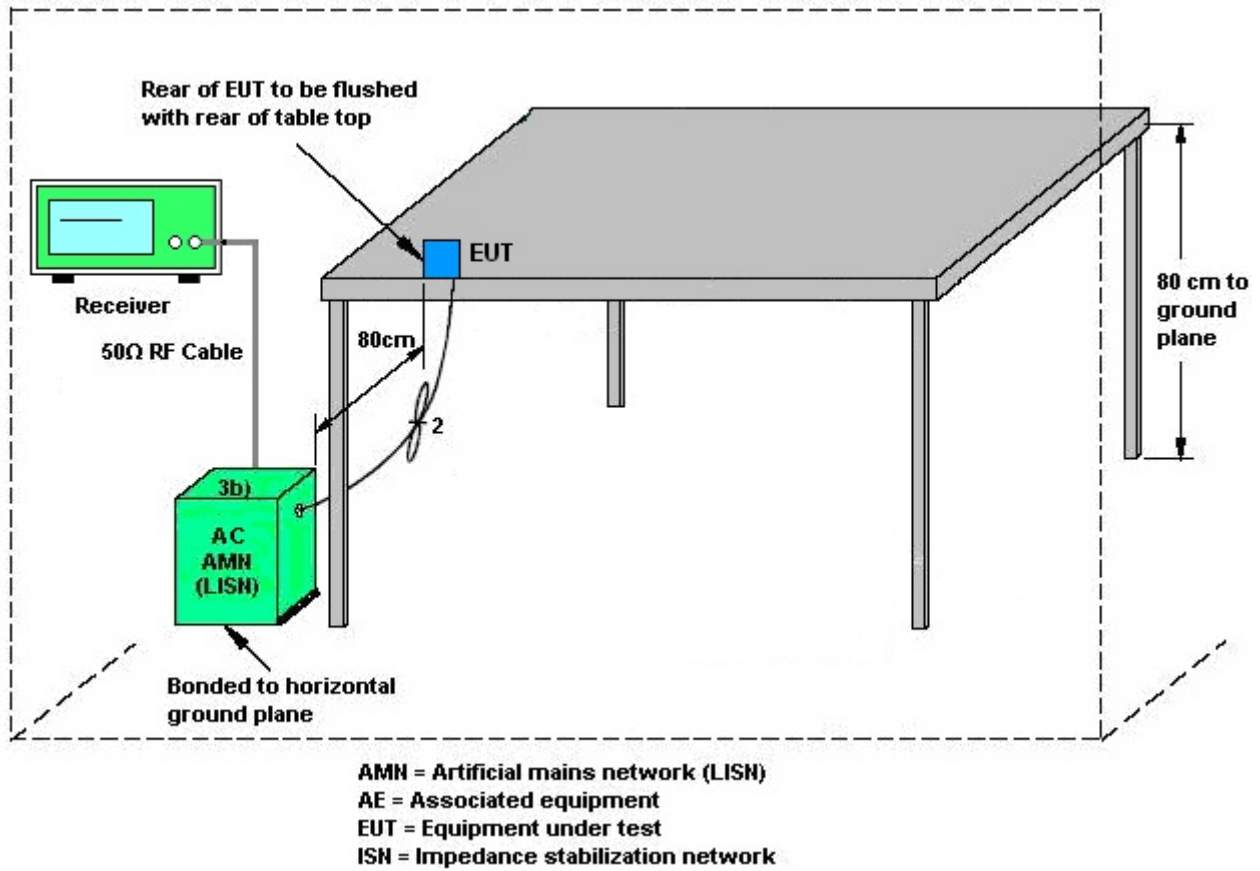
3.5.2 Measuring Instruments

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

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.



3.7 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

<CDD Modes >

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

For CDD transmissions, directional gain is calculated as

Directional gain = GANT + Array Gain, where Array Gain is as follows.

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

Array Gain = 10 log(NANT/NSS=1) dB.

For power measurements on IEEE 802.11 devices,

Array Gain = 0 dB (i.e., no array gain) for NANT ≤ 4.

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

The EUT supports CDD mode.

For power, the directional gain GANT 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.

<CDD Modes>			DG	DG	Power	PSD
	Ant. 1	Ant. 2	for	for	Limit	Limit
	(dBi)	(dBi)	Power	PSD	Reduction	Reduction
			(dBi)	(dBi)	(dB)	(dB)
Band IV	-3.00	-3.00	-3.00	0.01	0.00	0.00

Power Limit Reduction = DG(Power) – 6dBi, (min = 0)

PSD Limit Reduction = DG(PSD) – 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	1218006	N/A	Oct. 06, 2017	Feb. 26, 2018~ Apr. 04, 2018	Oct. 05, 2018	Conducted (TH05-HY)
Power Sensor	Anritsu	MA2411B	1207363	300MHz~40GHz	Oct. 06, 2017	Feb. 26, 2018~ Apr. 04, 2018	Oct. 05, 2018	Conducted (TH05-HY)
Spectrum Analyzer	Rohde & Schwarz	FSP40	100057	9kHz-40GHz	Nov. 21, 2017	Feb. 26, 2018~ Apr. 04, 2018	Nov. 20, 2018	Conducted (TH05-HY)
Programmable Power Supply	GW Instek	PSS-2005	EL890094	1V~20V 0.5A~5A	Oct. 16, 2017	Feb. 26, 2018~ Apr. 04, 2018	Oct. 15, 2018	Conducted (TH05-HY)
AC Power Source	ChainTek	APC-1000W	N/A	N/A	N/A	Feb. 23, 2018	N/A	Conduction (CO05-HY)
EMI Test Receiver	Rohde & Schwarz	ESR3	102388	3.6GHz	Dec. 08, 2017	Feb. 23, 2018	Dec. 07, 2018	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100080	9kHz~30MHz	Nov. 30, 2017	Feb. 23, 2018	Nov. 29, 2018	Conduction (CO05-HY)
Software	Rohde & Schwarz	EMC32 V8.4	N/A	N/A	N/A	Feb. 23, 2018	N/A	Conduction (CO05-HY)
LF Cable	HUBER + SUHNER	RG-214/U	LF01	N/A	Jan. 03, 2018	Feb. 23, 2018	Jan. 02, 2019	Conduction (CO05-HY)
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100851	N/A	Jan. 03, 2018	Feb. 23, 2018	Jan. 02, 2019	Conduction (CO05-HY)



Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Amplifier	SONOMA	310N	187311	9kHz~1GHz	Oct. 19, 2017	Apr. 01, 2018	Oct. 18, 2018	Radiation (03CH10-HY)
Amplifier	MITEQ	TTA1840-35-HG	1871923	18GHz~40GHz, VSWR : 2.5:1 max	Jul. 18, 2017	Apr. 01, 2018	Jul. 17, 2018	Radiation (03CH10-HY)
Bilog Antenna	TESEQ	CBL 6111D&00800 N1D01N-06	35413&02	30MHz~1GHz	Dec. 18, 2017	Apr. 01, 2018	Dec. 17, 2018	Radiation (03CH10-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-1325	1GHz ~ 18GHz	Sep. 27, 2017	Apr. 01, 2018	Sep. 26, 2018	Radiation (03CH10-HY)
Preamplifier	Keysight	83017A	MY53270078	1GHz~26.5GHz	Oct. 25, 2017	Apr. 01, 2018	Oct. 24, 2018	Radiation (03CH10-HY)
Preamplifier	Jet-Power	JAP00101800-30-10P	160118550004	1GHz~18GHz	Apr. 13, 2017	Apr. 01, 2018	Apr. 12, 2018	Radiation (03CH10-HY)
Spectrum Analyzer	Keysight	N9010A	MY54200485	10Hz ~ 44GHz	Oct. 31, 2017	Apr. 01, 2018	Oct. 30, 2018	Radiation (03CH10-HY)
Antenna Mast	EMEC	AM-BS-4500-B	N/A	1~4m	N/A	Apr. 01, 2018	N/A	Radiation (03CH10-HY)
Turn Table	EMEC	TT 2200	N/A	0~360 Degree	N/A	Apr. 01, 2018	N/A	Radiation (03CH10-HY)
Software	Audix	E3 6.2009-8-24	RK-001042	N/A	N/A	Apr. 01, 2018	N/A	Radiation (03CH10-HY)
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100488	9 kHz~30 MHz	Nov. 23, 2017	Apr. 01, 2018	Nov. 22, 2018	Radiation (03CH10-HY)
Filter	Woken	WHKX8-5872.5-6750-18000-40ST	SN3	6.75G High Pass	Sep. 18, 2017	Apr. 01, 2018	Sep. 17, 2018	Radiation (03CH10-HY)
Filter	Wainwright	WLKS1200-12SS	SN2	1.2G Low Pass	Jul. 17, 2017	Apr. 01, 2018	Jul. 16, 2018	Radiation (03CH10-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY24971/4,MY28655/4	9K-30M	Jan. 2, 2018	Apr. 1, 2018	Jan. 1, 2019	Radiation (03CH10-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104 / 102	MY11692/4PE, MY11693/4PE, MY2855/2	30M-1G	Nov. 14, 2017	Apr. 1, 2018	Nov. 13, 2018	Radiation (03CH10-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104 / 102	MY11692/4PE, MY11693/4PE, MY2855/2	1G-18G	Nov. 14, 2017	Apr. 1, 2018	Nov. 13, 2018	Radiation (03CH10-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	800740/2	30M~40G	Oct. 17, 2017	Apr. 1, 2018	Oct. 16, 2018	Radiation (03CH10-HY)
EMI Test Receiver	Agilent	N9038A (MXE)	MY53290053	20Hz to 26.5GHz	Jan. 16, 2018	Apr. 01, 2018	Jan. 15, 2019	Radiation (03CH10-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170584	18GHz- 40GHz	Nov. 27, 2017	Apr. 01, 2018	Nov. 26, 2018	Radiation (03CH10-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
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Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.60
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Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.90
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Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.20
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Appendix A. Test Result of Conducted Test Items

Test Engineer:	Kai Liao / Reece Lin	Temperature:	21~25	°C
Test Date:	2018/02/26 ~ 2018/04/04	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	1	149	5745	18.25	17.95	32.85	29.40	16.35	16.35	0.5	0.5	Pass
11a	6Mbps	1	157	5785	18.10	18.00	33.20	29.10	16.35	16.36	0.5	0.5	Pass
11a	6Mbps	1	165	5825	18.15	18.05	34.10	26.00	16.35	16.35	0.5	0.5	Pass
HT20	MCS0	2	149	5745	19.15	19.05	44.30	43.70	17.60	17.60	0.5		Pass
HT20	MCS0	2	157	5785	19.20	19.15	44.97	44.15	17.57	17.60	0.5		Pass
HT20	MCS0	2	165	5825	19.20	19.30	44.77	44.75	17.55	17.55	0.5		Pass
HT40	MCS0	2	151	5755	37.40	37.40	79.94	68.59	36.27	36.36	0.5		Pass
HT40	MCS0	2	159	5795	37.70	37.60	72.90	83.37	36.27	36.36	0.5		Pass
VHT80	MCS0	2	155	5775	76.20	76.32	105.93	133.12	75.92	76.48	0.5		Pass

TEST RESULTS DATA
Average Power Table

Band IV														
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)		Average Conducted Power (dBm)			FCC Conducted Power Limit (dBm)		DG (dBi)		Pass/Fail
					Ant 1	Ant 2	Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2	
11a	6Mbps	1	149	5745	0.12	0.08	16.64	16.62		30.00	30.00	-3.00	-3.00	Pass
11a	6Mbps	1	157	5785	0.12	0.08	16.54	16.61		30.00	30.00	-3.00	-3.00	Pass
11a	6Mbps	1	165	5825	0.12	0.08	16.51	16.62		30.00	30.00	-3.00	-3.00	Pass
HT20	MCS0	1	149	5745	0.09	0.00	16.66	16.81		30.00	30.00	-3.00	-3.00	Pass
HT20	MCS0	1	157	5785	0.09	0.00	16.58	16.69		30.00	30.00	-3.00	-3.00	Pass
HT20	MCS0	1	165	5825	0.09	0.00	16.54	16.76		30.00	30.00	-3.00	-3.00	Pass
HT40	MCS0	1	151	5755	0.18	0.18	16.70	16.88		30.00	30.00	-3.00	-3.00	Pass
HT40	MCS0	1	159	5795	0.18	0.18	16.84	16.71		30.00	30.00	-3.00	-3.00	Pass
VHT20	MCS0	1	149	5745	0.13	0.13	16.65	16.63		30.00	30.00	-3.00	-3.00	Pass
VHT20	MCS0	1	157	5785	0.13	0.13	16.56	16.66		30.00	30.00	-3.00	-3.00	Pass
VHT20	MCS0	1	165	5825	0.13	0.13	16.52	16.69		30.00	30.00	-3.00	-3.00	Pass
VHT40	MCS0	1	151	5755	0.18	0.18	16.50	16.80		30.00	30.00	-3.00	-3.00	Pass
VHT40	MCS0	1	159	5795	0.18	0.18	16.60	16.61		30.00	30.00	-3.00	-3.00	Pass
VHT80	MCS0	1	155	5775	0.38	0.38	16.60	16.75		30.00	30.00	-3.00	-3.00	Pass
HT20	MCS0	2	149	5745	0.09	0.04	16.68	16.87	19.79	30.00		-3.00		Pass
HT20	MCS0	2	157	5785	0.09	0.04	16.65	17.09	19.89	30.00		-3.00		Pass
HT20	MCS0	2	165	5825	0.09	0.04	16.56	17.09	19.85	30.00		-3.00		Pass
HT40	MCS0	2	151	5755	0.20	0.23	16.60	16.93	19.78	30.00		-3.00		Pass
HT40	MCS0	2	159	5795	0.20	0.23	16.78	17.14	19.97	30.00		-3.00		Pass
VHT20	MCS0	2	149	5745	0.09	0.09	16.60	16.86	19.74	30.00		-3.00		Pass
VHT20	MCS0	2	157	5785	0.09	0.09	16.60	17.09	19.86	30.00		-3.00		Pass
VHT20	MCS0	2	165	5825	0.09	0.09	16.52	17.05	19.80	30.00		-3.00		Pass
VHT40	MCS0	2	151	5755	0.18	0.22	16.56	16.86	19.72	30.00		-3.00		Pass
VHT40	MCS0	2	159	5795	0.18	0.22	16.69	17.04	19.88	30.00		-3.00		Pass
VHT80	MCS0	2	155	5775	0.38	0.38	16.65	17.04	19.86	30.00		-3.00		Pass

TEST RESULTS DATA
Power Spectral Density

Band IV																
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)		10log (500kHz /RBW) Factor (dB)		Average Power Density (dBm/500kHz)			Average PSD Limit (dBm/500kHz)		DG (dBi)		Pass /Fail
					Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2	
11a	6Mbps	1	149	5745	0.12	0.08	2.22	2.22	1.10	1.41		30.00	30.00	-3.00	-3.00	Pass
11a	6Mbps	1	157	5785	0.12	0.08	2.22	2.22	1.02	0.87		30.00	30.00	-3.00	-3.00	Pass
11a	6Mbps	1	165	5825	0.12	0.08	2.22	2.22	0.75	0.67		30.00	30.00	-3.00	-3.00	Pass
HT20	MCS0	2	149	5745	0.09	0.04	2.22		0.85	-1.20	4.03	30.00		0.01		Pass
HT20	MCS0	2	157	5785	0.09	0.04	2.22		0.82	-0.98	4.25	30.00		0.01		Pass
HT20	MCS0	2	165	5825	0.09	0.04	2.22		0.50	-1.32	3.91	30.00		0.01		Pass
HT40	MCS0	2	151	5755	0.20	0.23	2.22		-2.31	-3.93	1.30	30.00		0.01		Pass
HT40	MCS0	2	159	5795	0.20	0.23	2.22		-1.34	-3.17	2.06	30.00		0.01		Pass
VHT80	MCS0	2	155	5775	0.38	0.38	2.22		-4.62	-6.42	-1.19	30.00		0.01		Pass

Note: PSD Sum = Max PSD(Ant. 1, Ant. 2) + 10 log (n)



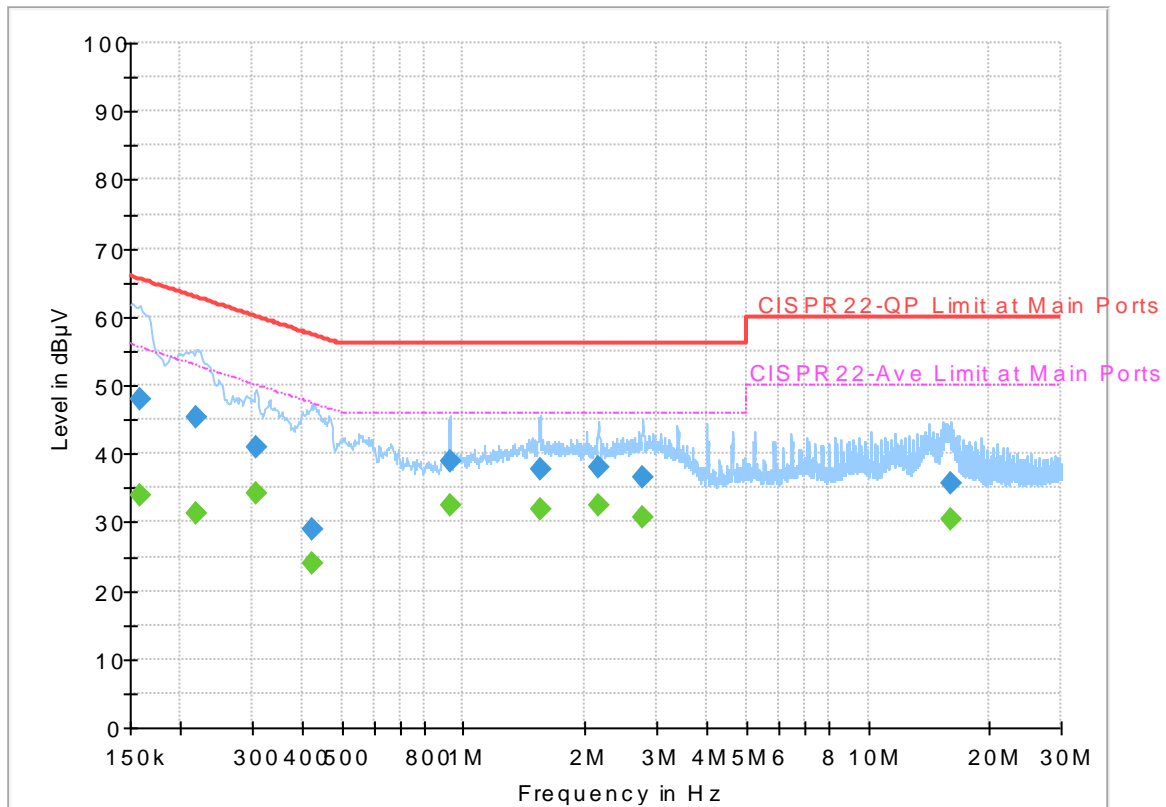
Appendix B. AC Conducted Emission Test Results

Test Engineer :	Blue Lan	Temperature :	24~25°C
		Relative Humidity :	51~53%

EUT Information

Report NO : 821216
 Test Mode : Mode 1
 Test Voltage : 120Vac/60Hz
 Phase : Line

Full Spectrum



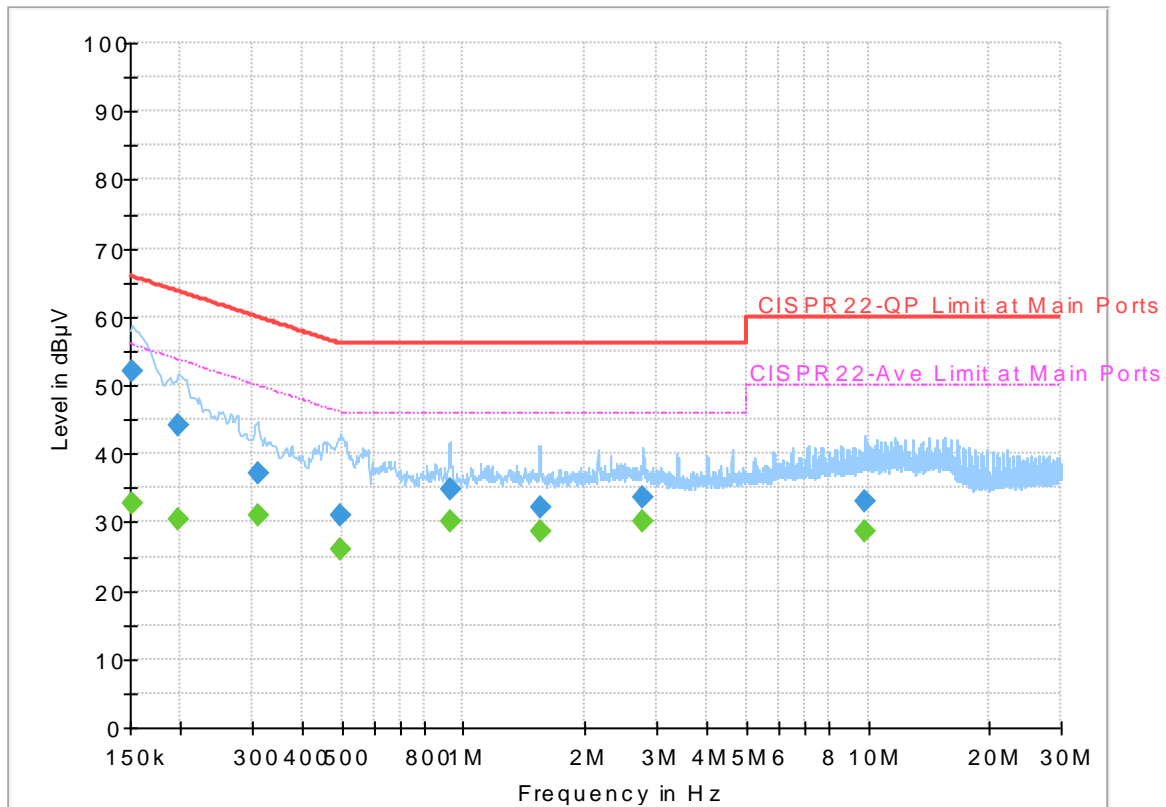
Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.159000	---	33.77	55.52	21.75	L1	OFF	19.5
0.159000	47.90	---	65.52	17.62	L1	OFF	19.5
0.217500	---	31.33	52.91	21.58	L1	OFF	19.5
0.217500	45.43	---	62.91	17.48	L1	OFF	19.5
0.307500	---	34.10	50.04	15.94	L1	OFF	19.5
0.307500	40.99	---	60.04	19.05	L1	OFF	19.5
0.422250	---	23.85	47.40	23.55	L1	OFF	19.5
0.422250	28.81	---	57.40	28.59	L1	OFF	19.5
0.924000	---	32.32	46.00	13.68	L1	OFF	19.5
0.924000	38.88	---	56.00	17.12	L1	OFF	19.5
1.545000	---	32.01	46.00	13.99	L1	OFF	19.6
1.545000	37.63	---	56.00	18.37	L1	OFF	19.6
2.148000	---	32.37	46.00	13.63	L1	OFF	19.4
2.148000	37.93	---	56.00	18.07	L1	OFF	19.4
2.782500	---	30.73	46.00	15.27	L1	OFF	19.6
2.782500	36.51	---	56.00	19.49	L1	OFF	19.6
15.960750	---	30.34	50.00	19.66	L1	OFF	19.8
15.960750	35.68	---	60.00	24.32	L1	OFF	19.8

EUT Information

Report NO : 821216
 Test Mode : Mode 1
 Test Voltage : 120Vac/60Hz
 Phase : Neutral

Full Spectrum



Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.152250	---	32.88	55.88	23.00	N	OFF	19.5
0.152250	52.12	---	65.88	13.76	N	OFF	19.5
0.197250	---	30.29	53.73	23.44	N	OFF	19.5
0.197250	44.14	---	63.73	19.59	N	OFF	19.5
0.309750	---	30.93	49.98	19.05	N	OFF	19.5
0.309750	37.02	---	59.98	22.96	N	OFF	19.5
0.498750	---	26.08	46.02	19.94	N	OFF	19.5
0.498750	30.86	---	56.02	25.16	N	OFF	19.5
0.924000	---	30.20	46.00	15.80	N	OFF	19.5
0.924000	34.80	---	56.00	21.20	N	OFF	19.5
1.542750	---	28.76	46.00	17.24	N	OFF	19.6
1.542750	32.28	---	56.00	23.72	N	OFF	19.6
2.780250	---	30.14	46.00	15.86	N	OFF	19.5
2.780250	33.67	---	56.00	22.33	N	OFF	19.5
9.825000	---	28.76	50.00	21.24	N	OFF	19.7
9.825000	33.01	---	60.00	26.99	N	OFF	19.7



Appendix C. Radiated Spurious Emission

Test Engineer :	JC Liang	Temperature :	23~25°C
		Relative Humidity :	57~62%

<Antenna 1>

Band 4 - 5725~5850MHz
WIFI 802.11a (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)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)	
802.11a CH 149 5745MHz		5629.2	47.56	-20.64	68.2	39.19	32.22	8.7	32.55	199	218	P	H	
		5675	49.37	-37.37	86.74	40.83	32.27	8.83	32.56	199	218	P	H	
		5714.8	49.95	-59.4	109.35	41.27	32.31	8.95	32.58	199	218	P	H	
		5723.2	54.24	-63.86	118.1	45.49	32.32	9.01	32.58	199	218	P	H	
	*	5745	108.01	-	-	99.19	32.34	9.07	32.59	199	218	P	H	
	*	5745	100.86	-	-	92.04	32.34	9.07	32.59	199	218	A	H	
														H
														H
			5638.2	47.77	-20.43	68.2	39.38	32.24	8.7	32.55	201	186	P	V
			5688	48.93	-47.42	96.35	40.32	32.29	8.89	32.57	201	186	P	V
			5713.8	50.59	-58.48	109.07	41.91	32.31	8.95	32.58	201	186	P	V
			5723.4	56.04	-62.51	118.55	47.29	32.32	9.01	32.58	201	186	P	V
	*	5745	109.37	-	-	100.55	32.34	9.07	32.59	201	186	P	V	
	*	5745	101.94	-	-	93.12	32.34	9.07	32.59	201	186	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)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
		5601.2	47.74	-20.46	68.2	39.5	32.2	8.58	32.54	192	220	P	H
		5691.8	49.13	-50.02	99.15	40.52	32.29	8.89	32.57	192	220	P	H
		5703.6	47.56	-58.65	106.21	38.87	32.31	8.95	32.57	192	220	P	H
		5723.4	47.55	-71	118.55	38.8	32.32	9.01	32.58	192	220	P	H
	*	5785	107.68	-	-	98.71	32.38	9.2	32.61	192	220	P	H
	*	5785	98.99	-	-	90.02	32.38	9.2	32.61	192	220	A	H
		5851.8	47.58	-70.52	118.1	38.61	32.44	9.16	32.63	192	220	P	H
		5862.6	48.54	-60.13	108.67	39.59	32.46	9.13	32.64	192	220	P	H
		5910.8	49.07	-29.61	78.68	40.14	32.51	9.07	32.65	192	220	P	H
		5928.6	48.17	-20.03	68.2	39.25	32.53	9.04	32.65	192	220	P	H
													H
													H
802.11a													
CH 157													
5785MHz		5610.4	48.06	-20.14	68.2	39.76	32.2	8.64	32.54	188	191	P	V
		5664.4	50.23	-28.66	78.89	41.7	32.26	8.83	32.56	188	191	P	V
		5712.6	49.45	-59.28	108.73	40.77	32.31	8.95	32.58	188	191	P	V
		5723	50.42	-67.22	117.64	41.67	32.32	9.01	32.58	188	191	P	V
	*	5785	109.09	-	-	100.12	32.38	9.2	32.61	188	191	P	V
	*	5785	101.08	-	-	92.11	32.38	9.2	32.61	188	191	A	V
		5853.8	49.56	-63.98	113.54	40.57	32.46	9.16	32.63	188	191	P	V
		5867.4	49.57	-57.76	107.33	40.62	32.46	9.13	32.64	188	191	P	V
		5877.8	49.74	-53.38	103.12	40.77	32.48	9.13	32.64	188	191	P	V
		5938.6	48.23	-19.97	68.2	39.33	32.55	9.01	32.66	188	191	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)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)	
802.11a CH 165 5825MHz	*	5825	106.84	-	-	97.8	32.43	9.23	32.62	191	222	P	H	
	*	5825	99.28	-	-	90.24	32.43	9.23	32.62	191	222	A	H	
		5850.8	50.24	-70.14	120.38	41.27	32.44	9.16	32.63	191	222	P	H	
		5860.4	52.07	-57.22	109.29	43.09	32.46	9.16	32.64	191	222	P	H	
		5885.6	50.1	-47.23	97.33	41.16	32.48	9.1	32.64	191	222	P	H	
		5925.6	48.05	-20.15	68.2	39.13	32.53	9.04	32.65	191	222	P	H	
														H
														H
														V
	*	5825	109.44	-	-	100.4	32.43	9.23	32.62	198	183	P	V	
	*	5825	101.06	-	-	92.02	32.43	9.23	32.62	198	183	A	V	
		5851.8	51.22	-66.88	118.1	42.25	32.44	9.16	32.63	198	183	P	V	
		5871.8	51.41	-54.68	106.09	42.44	32.48	9.13	32.64	198	183	P	V	
		5885.6	51.45	-45.88	97.33	42.51	32.48	9.1	32.64	198	183	P	V	
		5940.6	48.43	-19.77	68.2	39.53	32.55	9.01	32.66	198	183	P	V	
														V
														V
	Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



<Antenna 2>

Band 4 - 5725~5850MHz
WIFI 802.11a (Band Edge @ 3m)

WIFI Ant.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Path Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.	
2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)	
802.11a CH 149 5745MHz		5623.6	47.28	-20.92	68.2	38.96	32.22	8.64	32.54	100	246	P	H	
		5675.6	48.09	-39.09	87.18	39.55	32.27	8.83	32.56	100	246	P	H	
		5717.6	50.62	-59.51	110.13	41.87	32.32	9.01	32.58	100	246	P	H	
		5724.8	57.14	-64.6	121.74	48.39	32.32	9.01	32.58	100	246	P	H	
	*	5745	106.88	-	-	98.06	32.34	9.07	32.59	100	246	P	H	
	*	5745	99.54	-	-	90.72	32.34	9.07	32.59	100	246	A	H	
														H
														H
			5616.4	49.5	-18.7	68.2	41.18	32.22	8.64	32.54	115	80	P	V
			5696.4	51.82	-50.73	102.55	43.21	32.29	8.89	32.57	115	80	P	V
			5720	55.18	-55.62	110.8	46.43	32.32	9.01	32.58	115	80	P	V
			5725	61.9	-60.3	122.2	53.15	32.32	9.01	32.58	115	80	P	V
	*		5745	112.41	-	-	103.59	32.34	9.07	32.59	115	80	P	V
	*		5745	105.07	-	-	96.25	32.34	9.07	32.59	115	80	A	V
														V
													V	



WIFI Ant. 2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
		5611.4	48.72	-19.48	68.2	40.42	32.2	8.64	32.54	100	244	P	H
		5670.4	47.24	-36.1	83.34	38.7	32.27	8.83	32.56	100	244	P	H
		5712.2	47.44	-61.18	108.62	38.76	32.31	8.95	32.58	100	244	P	H
		5722.8	48.08	-69.1	117.18	39.33	32.32	9.01	32.58	100	244	P	H
	*	5785	106.51	-	-	97.54	32.38	9.2	32.61	100	244	P	H
	*	5785	98.21	-	-	89.24	32.38	9.2	32.61	100	244	A	H
		5852.6	46.63	-69.64	116.27	37.66	32.44	9.16	32.63	100	244	P	H
		5859.4	49.19	-60.38	109.57	40.21	32.46	9.16	32.64	100	244	P	H
		5892.8	48.04	-43.95	91.99	39.08	32.5	9.1	32.64	100	244	P	H
		5933.4	48.36	-19.84	68.2	39.47	32.53	9.01	32.65	100	244	P	H
													H
													H
802.11a													
CH 157													
5785MHz		5637.2	47.28	-20.92	68.2	38.89	32.24	8.7	32.55	108	80	P	V
		5669	49.64	-32.66	82.3	41.1	32.27	8.83	32.56	108	80	P	V
		5709.2	51.19	-56.59	107.78	42.51	32.31	8.95	32.58	108	80	P	V
		5723.6	50.01	-69	119.01	41.26	32.32	9.01	32.58	108	80	P	V
	*	5785	111.9	-	-	102.93	32.38	9.2	32.61	108	80	P	V
	*	5785	103.01	-	-	94.04	32.38	9.2	32.61	108	80	A	V
		5852.2	48.51	-68.67	117.18	39.54	32.44	9.16	32.63	108	80	P	V
		5861.2	49.37	-59.69	109.06	40.39	32.46	9.16	32.64	108	80	P	V
		5877.2	49.96	-53.61	103.57	40.99	32.48	9.13	32.64	108	80	P	V
		5930.6	48.42	-19.78	68.2	39.5	32.53	9.04	32.65	108	80	P	V
													V
													V



WIFI Ant. 2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)	
802.11a CH 165 5825MHz	*	5825	105.11	-	-	96.07	32.43	9.23	32.62	100	243	P	H	
	*	5825	96.9	-	-	87.86	32.43	9.23	32.62	100	243	A	H	
		5853	48.75	-66.61	115.36	39.78	32.44	9.16	32.63	100	243	P	H	
		5861.8	50.38	-58.51	108.89	41.43	32.46	9.13	32.64	100	243	P	H	
		5880.8	48.93	-51.96	100.89	39.99	32.48	9.1	32.64	100	243	P	H	
		5930.8	48.75	-19.45	68.2	39.83	32.53	9.04	32.65	100	243	P	H	
														H
														H
														V
	*	5825	110.22	-	-	101.18	32.43	9.23	32.62	107	81	P	V	
	*	5825	102.7	-	-	93.66	32.43	9.23	32.62	107	81	A	V	
		5851	52.69	-67.23	119.92	43.72	32.44	9.16	32.63	107	81	P	V	
		5870.8	52.96	-53.41	106.37	43.99	32.48	9.13	32.64	107	81	P	V	
		5881.6	50.57	-49.73	100.3	41.63	32.48	9.1	32.64	107	81	P	V	
		5949.8	48.79	-19.41	68.2	39.89	32.55	9.01	32.66	107	81	P	V	
														V
														V
	Remark	<p>3. No other spurious found.</p> <p>4. All results are PASS against Peak and Average limit line.</p>												



<Antenna 1+2>

Band 4 - 5725~5850MHz

WIFI 802.11n HT20 (Band Edge @ 3m)

WIFI Ant.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Path 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		5637.2	48.89	-19.31	68.2	40.5	32.24	8.7	32.55	100	241	P	H	
		5652.2	48.81	-21.03	69.84	40.33	32.26	8.77	32.55	100	241	P	H	
		5719.8	56.62	-54.12	110.74	47.87	32.32	9.01	32.58	100	241	P	H	
		5723.4	59.13	-59.42	118.55	50.38	32.32	9.01	32.58	100	241	P	H	
	*	5745	109.65	-	-	100.83	32.34	9.07	32.59	100	241	P	H	
	*	5745	101.55	-	-	92.73	32.34	9.07	32.59	100	241	A	H	
														H
														H
			5628.4	48.41	-19.79	68.2	40.04	32.22	8.7	32.55	101	86	P	V
			5699.2	49.63	-54.98	104.61	41.02	32.29	8.89	32.57	101	86	P	V
			5720	53.9	-56.9	110.8	45.15	32.32	9.01	32.58	101	86	P	V
			5724.4	63.44	-57.39	120.83	54.69	32.32	9.01	32.58	101	86	P	V
		*	5745	112.57	-	-	103.75	32.34	9.07	32.59	101	86	P	V
		*	5745	104.38	-	-	95.56	32.34	9.07	32.59	101	86	A	V
													V	
													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)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
		5609.8	47.65	-20.55	68.2	39.35	32.2	8.64	32.54	100	244	P	H
		5690.8	48.08	-50.34	98.42	39.47	32.29	8.89	32.57	100	244	P	H
		5717.8	48.34	-61.84	110.18	39.59	32.32	9.01	32.58	100	244	P	H
		5721.6	48.45	-66	114.45	39.7	32.32	9.01	32.58	100	244	P	H
	*	5785	108.33	-	-	99.36	32.38	9.2	32.61	100	244	P	H
	*	5785	100.97	-	-	92	32.38	9.2	32.61	100	244	A	H
		5850.2	47.37	-74.37	121.74	38.4	32.44	9.16	32.63	100	244	P	H
		5861.4	49.12	-59.89	109.01	40.17	32.46	9.13	32.64	100	244	P	H
		5884.6	49.17	-48.9	98.07	40.23	32.48	9.1	32.64	100	244	P	H
		5928.2	48.84	-19.36	68.2	39.92	32.53	9.04	32.65	100	244	P	H
802.11n													H
HT20													H
CH 157		5649	48.13	-20.07	68.2	39.67	32.24	8.77	32.55	111	80	P	V
5785MHz		5682.8	48.01	-44.5	92.51	39.42	32.27	8.89	32.57	111	80	P	V
		5719.2	50.12	-60.46	110.58	41.37	32.32	9.01	32.58	111	80	P	V
		5721.8	47.97	-66.93	114.9	39.22	32.32	9.01	32.58	111	80	P	V
	*	5785	112.59	-	-	103.62	32.38	9.2	32.61	111	80	P	V
	*	5785	103.53	-	-	94.56	32.38	9.2	32.61	111	80	A	V
		5850.6	48.8	-72.03	120.83	39.83	32.44	9.16	32.63	111	80	P	V
		5861.2	49.01	-60.05	109.06	40.03	32.46	9.16	32.64	111	80	P	V
		5901.6	49.39	-36.09	85.48	40.46	32.5	9.07	32.64	111	80	P	V
		5934.2	50.08	-18.12	68.2	41.19	32.53	9.01	32.65	111	80	P	V
													V
													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)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)	
802.11n HT20 CH 165 5825MHz	*	5825	108.72	-	-	99.68	32.43	9.23	32.62	100	242	P	H	
	*	5825	100.52	-	-	91.48	32.43	9.23	32.62	100	242	A	H	
		5854	51.49	-61.59	113.08	42.5	32.46	9.16	32.63	100	242	P	H	
		5855.4	49.93	-60.76	110.69	40.94	32.46	9.16	32.63	100	242	P	H	
		5913.4	49.34	-27.42	76.76	40.41	32.51	9.07	32.65	100	242	P	H	
		5942	49.36	-18.84	68.2	40.46	32.55	9.01	32.66	100	242	P	H	
														H
														H
	*	5825	111.22	-	-	102.18	32.43	9.23	32.62	117	82		V	
	*	5825	102.98	-	-	93.94	32.43	9.23	32.62	117	82	P	V	
		5851	53.42	-66.5	119.92	44.45	32.44	9.16	32.63	117	82	A	V	
		5855	52.29	-58.51	110.8	43.3	32.46	9.16	32.63	117	82	P	V	
		5875.6	49.5	-55.25	104.75	40.53	32.48	9.13	32.64	117	82	P	V	
		5927.6	49.15	-19.05	68.2	40.23	32.53	9.04	32.65	117	82	P	V	
													P	V
													V	
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.													



Band 4 5725~5850MHz
WIFI 802.11n HT20 (Harmonic @ 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)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)	
802.11n HT20 CH 149 5745MHz		11490	43.15	-30.85	74	56.53	39.81	13.02	66.21	100	0	P	H	
		17235	43.46	-24.74	68.2	51.34	41.02	17.12	66.02	100	0	P	H	
													H	
													H	
			11490	42.83	-31.17	74	56.21	39.81	13.02	66.21	100	0	P	V
			17235	44.47	-23.73	68.2	52.35	41.02	17.12	66.02	100	0	P	V
														V
802.11n HT20 CH 157 5785MHz		11570	42.96	-31.04	74	56.38	39.69	13.08	66.19	100	0	P	H	
		17355	43.35	-24.85	68.2	50.42	41.58	17.23	65.88	100	0	P	H	
													H	
													H	
			11570	42.96	-31.04	74	56.38	39.69	13.08	66.19	100	0	P	V
			17355	44.62	-23.58	68.2	51.69	41.58	17.23	65.88	100	0	P	V
														V
802.11n HT20 CH 165 5825MHz		11650	43.95	-30.05	74	57.39	39.58	13.15	66.17	100	0	P	H	
		17475	43.74	-24.46	68.2	50	42.14	17.34	65.74	100	0	P	H	
													H	
													H	
			11650	43.94	-30.06	74	57.38	39.58	13.15	66.17	100	0	P	V
			17475	44.3	-23.9	68.2	50.56	42.14	17.34	65.74	100	0	P	V
														V
Remark	1. No other spurious found.													
	2. All results are PASS against Peak and Average limit line.													



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

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
		5616.4	49.75	-18.45	68.2	41.43	32.22	8.64	32.54	214	83	P	H
		5696.8	53.12	-49.72	102.84	44.51	32.29	8.89	32.57	214	83	P	H
		5716.6	65.48	-44.37	109.85	56.8	32.31	8.95	32.58	214	83	P	H
		5721.8	64.03	-50.87	114.9	55.28	32.32	9.01	32.58	214	83	P	H
	*	5755	110.56	-	-	101.65	32.36	9.14	32.59	214	83	P	H
	*	5755	105.52	-	-	96.61	32.36	9.14	32.59	214	83	A	H
		5851.8	50.6	-67.5	118.1	41.63	32.44	9.16	32.63	214	83	P	H
		5867.8	49.37	-57.84	107.21	40.42	32.46	9.13	32.64	214	83	P	H
		5883.2	49.68	-49.43	99.11	40.74	32.48	9.1	32.64	214	83	P	H
		5931.4	48.38	-19.82	68.2	39.46	32.53	9.04	32.65	214	83	P	H
802.11n													H
HT40													H
CH 151		5625.8	48.16	-20.04	68.2	39.84	32.22	8.64	32.54	114	354	P	V
5755MHz		5697.6	54.96	-48.47	103.43	46.35	32.29	8.89	32.57	114	354	P	V
		5717.8	66.72	-43.46	110.18	57.97	32.32	9.01	32.58	114	354	P	V
		5722.4	64.91	-51.36	116.27	56.16	32.32	9.01	32.58	114	354	P	V
	*	5755	109.29	-	-	100.38	32.36	9.14	32.59	114	354	P	V
	*	5755	102.43	-	-	93.52	32.36	9.14	32.59	114	354	A	V
		5853.4	48.72	-65.73	114.45	39.75	32.44	9.16	32.63	114	354	P	V
		5856.8	48.41	-61.89	110.3	39.42	32.46	9.16	32.63	114	354	P	V
		5883.2	48.98	-50.13	99.11	40.04	32.48	9.1	32.64	114	354	P	V
		5934.8	48.78	-19.42	68.2	39.9	32.53	9.01	32.66	114	354	P	V
													V
													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)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
		5618	48.12	-20.08	68.2	39.8	32.22	8.64	32.54	207	87	P	H
		5692	48.27	-51.03	99.3	39.66	32.29	8.89	32.57	207	87	P	H
		5717.2	48.89	-61.13	110.02	40.21	32.31	8.95	32.58	207	87	P	H
		5723.2	51.07	-67.03	118.1	42.32	32.32	9.01	32.58	207	87	P	H
	*	5795	110.83	-	-	101.79	32.39	9.26	32.61	207	87	P	H
	*	5795	102.69	-	-	93.65	32.39	9.26	32.61	207	87	A	H
		5852	51.92	-65.72	117.64	42.95	32.44	9.16	32.63	207	87	P	H
		5856	52.64	-57.88	110.52	43.65	32.46	9.16	32.63	207	87	P	H
		5876.2	50.95	-53.36	104.31	41.98	32.48	9.13	32.64	207	87	P	H
		5934.6	48.31	-19.89	68.2	39.43	32.53	9.01	32.66	207	87	P	H
802.11n													H
HT40													H
CH 159		5636.2	48.11	-20.09	68.2	39.72	32.24	8.7	32.55	100	355	P	V
5795MHz		5697.2	48.78	-54.36	103.14	40.17	32.29	8.89	32.57	100	355	P	V
		5719.8	50.1	-60.64	110.74	41.35	32.32	9.01	32.58	100	355	P	V
		5721.6	49.2	-65.25	114.45	40.45	32.32	9.01	32.58	100	355	P	V
	*	5795	110.76	-	-	101.72	32.39	9.26	32.61	100	355	P	V
	*	5795	102.59	-	-	93.55	32.39	9.26	32.61	100	355	A	V
		5854.6	52.35	-59.36	111.71	43.36	32.46	9.16	32.63	100	355	P	V
		5855.2	53.01	-57.73	110.74	44.02	32.46	9.16	32.63	100	355	P	V
		5875.4	50.78	-54.12	104.9	41.81	32.48	9.13	32.64	100	355	P	V
		5940.2	49.04	-19.16	68.2	40.14	32.55	9.01	32.66	100	355	P	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



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

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)	
		5613.6	49.24	-18.96	68.2	40.94	32.2	8.64	32.54	211	83	P	H	
		5699	63.57	-40.89	104.46	54.96	32.29	8.89	32.57	211	83	P	H	
		5715.4	66.66	-42.85	109.51	57.98	32.31	8.95	32.58	211	83	P	H	
		5724.2	62.82	-57.56	120.38	54.07	32.32	9.01	32.58	211	83	P	H	
	*	5775	106.8	-	-	97.82	32.38	9.2	32.6	211	83	P	H	
	*	5775	99.21	-	-	90.23	32.38	9.2	32.6	211	83	A	H	
		5854.6	57.19	-54.52	111.71	48.2	32.46	9.16	32.63	211	83	P	H	
		5860	59.44	-49.96	109.4	50.46	32.46	9.16	32.64	211	83	P	H	
		5876.6	54.35	-49.66	104.01	45.38	32.48	9.13	32.64	211	83	P	H	
		5928.6	49.49	-18.71	68.2	40.57	32.53	9.04	32.65	211	83	P	H	
802.11ac VHT80 CH 155 5775MHz													H	
													H	
			5639	49.54	-18.66	68.2	41.15	32.24	8.7	32.55	100	357	P	V
			5695.6	65.87	-36.09	101.96	57.26	32.29	8.89	32.57	100	357	P	V
			5720	70.44	-40.36	110.8	61.69	32.32	9.01	32.58	100	357	P	V
			5721.8	70.41	-44.49	114.9	61.66	32.32	9.01	32.58	100	357	P	V
		*	5775	107.39	-	-	98.41	32.38	9.2	32.6	100	357	P	V
		*	5775	99.22	-	-	90.24	32.38	9.2	32.6	100	357	A	V
			5851.4	59.1	-59.91	119.01	50.13	32.44	9.16	32.63	100	357	P	V
			5858.4	58.87	-50.98	109.85	49.89	32.46	9.16	32.64	100	357	P	V
			5878.2	53.04	-49.78	102.82	44.07	32.48	9.13	32.64	100	357	P	V
			5931.6	48.44	-19.76	68.2	39.52	32.53	9.04	32.65	100	357	P	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 802.11n HT20 (LF @ 3m)

WIFI Ant.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Path 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)
		30.81	22.41	-17.59	40	30.43	24.07	0.68	32.77	-	-	P	H
		215.76	37.8	-5.7	43.5	53.28	15.21	1.94	32.63	-	-	P	H
		265.98	41.77	-4.23	46	52.8	19.45	2.13	32.61	100	69	QP	H
		300	39.77	-6.23	46	51.01	19.13	2.22	32.59	-	-	P	H
		833.4	34.67	-11.33	46	34.84	28.56	3.74	32.47	-	-	P	H
		932.8	35.56	-10.44	46	33.35	29.89	4.04	31.72	-	-	P	H
													H
													H
													H
													H
													H
													H
													H
5GHz													H
802.11n													H
HT20		41.61	28.46	-11.54	40	41.91	18.42	0.9	32.77	-	-	P	V
LF		194.43	31.95	-11.55	43.5	47.82	14.89	1.88	32.64	-	-	P	V
		267.06	38.88	-7.12	46	49.96	19.4	2.13	32.61	100	0	P	V
		316.1	30.3	-15.7	46	41.2	19.41	2.28	32.59	-	-	P	V
		780.2	32.86	-13.14	46	33.53	28.42	3.59	32.68	-	-	P	V
		954.5	33.26	-12.74	46	29.79	30.85	4.1	31.48	-	-	P	V
													V
													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	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
CH 01													
2412MHz		2390	43.54	-10.46	54	42.6	32.22	4.58	35.86	103	308	A	H

1. Path Loss(dB) = Cable loss(dB) + Filter loss(dB) + Attenuator loss(dB)
2. Level(dBμV/m) = Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)
3. Over Limit(dB) = Level(dBμV/m) – Limit Line(dBμV/m)

For Peak Limit @ 2390MHz:

1. Level(dBμV/m)
= Antenna Factor(dB/m) + Path 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) + Path 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	JC Liang	Temperature :	23~25°C
Engineer :		Relative Humidity :	57~62%

Note symbol

-L	Low channel location
-R	High channel location

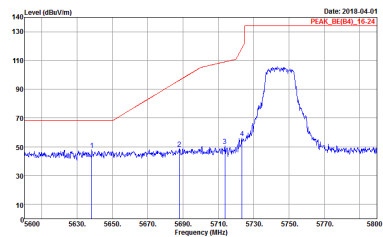
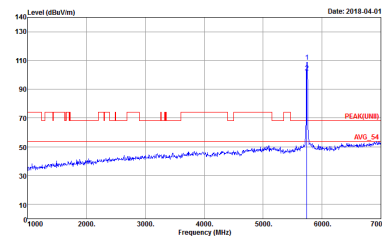


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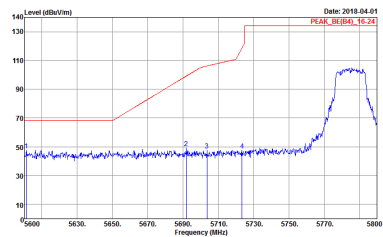
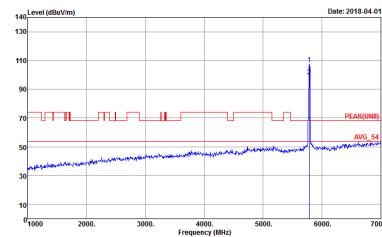
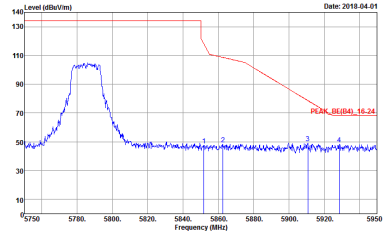
Band 4 - 5725~5850MHz
WIFI 802.11a (Band Edge @ 3m)

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH149 5745MHz	
1	Horizontal	Fundamental
Peak	<p>Site : 03CH10-HY Condition : PEAK_8E(84)_16-24 3m HORN 9120D-HF HORIZONTAL Detector : Peak Project : 821216</p>	<p>Site : 03CH10-HY Condition : PEAK(LINE) 3m HORN 9120D-HF HORIZONTAL Detector : Peak Project : 821216</p>



WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH149 5745MHz	
1	Vertical	Fundamental
<p>Peak</p>	 <p>Site : 03CH10-11Y Condition : PEAK_BE(B4)_16-24 3m HORN 9120D-HF VERTICAL Detector : Peak Project : 821216</p>	 <p>Site : 03CH10-11Y Condition : PEAK(UNII) 3m HORN 9120D-HF VERTICAL Detector : Peak Project : 821216</p>

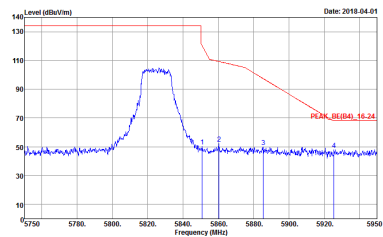
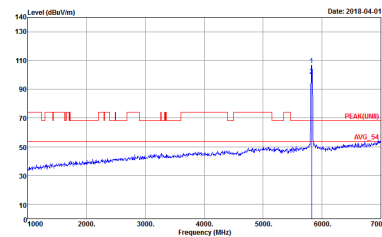


WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH157 5785MHz	
1	Horizontal	Fundamental
<p>Peak</p>	 <p>Site : 03CH10-HY Condition : PEAK_BE(B4)_16-24 3m HORN 9120D-HF HORIZONTAL Detector : Peak Project : 821216</p>	 <p>Site : 03CH10-HY Condition : PEAK(UNII) 3m HORN 9120D-HF HORIZONTAL Detector : Peak Project : 821216</p>
<p>Peak</p>	 <p>Site : 03CH10-HY Condition : PEAK_BE(B4)_16-24 3m HORN 9120D-HF HORIZONTAL Detector : Peak Project : 821216</p>	<p>Left blank</p>

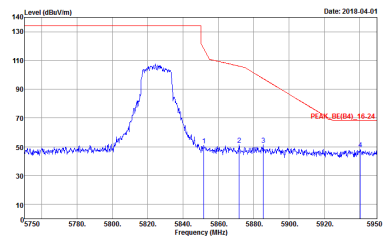
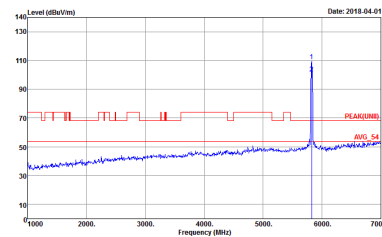


WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH157 5785MHz	
1	Vertical	Fundamental
Peak	<p>Site : 03CH10-HY Condition : PEAK_BE(B4)_16-24 3m HORN 9120D-HF VERTICAL Detector : Peak Project : 821216</p>	<p>Site : 03CH10-HY Condition : PEAK(LINII) 3m HORN 9120D-HF VERTICAL Detector : Peak Project : 821216</p>
	<p>Site : 03CH10-HY Condition : PEAK_BE(B4)_16-24 3m HORN 9120D-HF VERTICAL Detector : Peak Project : 821216</p>	Left blank



WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH165 5825MHz	
1	Horizontal	Fundamental
<p>Peak</p>	 <p>Site : 03CH10-11Y Condition : PEAK_BE(B4)_16-24 3m HORN 9120D-HF HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 821216</p>	 <p>Site : 03CH10-11Y Condition : PEAK(UNII) 3m HORN 9120D-HF HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 821216</p>



WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH165 5825MHz	
1	Vertical	Fundamental
Peak	 <p>Site : 03CH10-11Y Condition : PEAK_BE(B4)_16-24 3m HORN 9120D-HF VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 821216</p>	 <p>Site : 03CH10-11Y Condition : PEAK(UNII) 3m HORN 9120D-HF VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 821216</p>



<Antenna 2>

Band 4 - 5725~5850MHz
WIFI 802.11a (Band Edge @ 3m)

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH149 5745MHz	
2	Horizontal	Fundamental
Peak	<p>Date: 2018-04-01 PEAK_RE[84], 16-24</p> <p>Site : 03CH10-HY Condition : PEAK_RE[84], 16-24 3m HORN 9120D-HF HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 821216</p>	<p>Date: 2018-04-01 PEAK_LIN[8], AVG_54</p> <p>Site : 03CH10-HY Condition : PEAK_LIN[8], 3m HORN 9120D-HF HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 821216</p>



WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH149 5745MHz	
1	Vertical	Fundamental
Peak	<p>Site : 03CH10-11Y Condition : PEAK_BE(B4)_16-24 3m HORN 9120D-HF VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 821216</p>	<p>Site : 03CH10-11Y Condition : PEAK(LNB) 3m HORN 9120D-HF VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 821216</p>

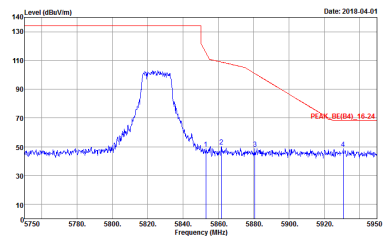
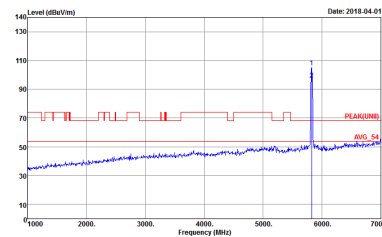


WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH157 5785MHz	
1	Horizontal	Fundamental
<p>Peak</p>	<p>Site : 03CH10-HY Condition : PEAK_BE(B4)_16-24 3m HORN 9120D-HF HORIZONTAL Detector : Peak Project : 821216</p>	<p>Site : 03CH10-HY Condition : PEAK(LINII) 3m HORN 9120D-HF HORIZONTAL Detector : Peak Project : 821216</p>
<p>Peak</p>	<p>Site : 03CH10-HY Condition : PEAK_BE(B4)_16-24 3m HORN 9120D-HF HORIZONTAL Detector : Peak Project : 821216</p>	<p>Left blank</p>



WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH157 5785MHz	
1	Vertical	Fundamental
Peak	<p>Site : 03CH10-HY Condition : PEAK_BE(B4)_16-24 3m HORN 9120D-HF VERTICAL Detector : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Project : 821216</p>	<p>Site : 03CH10-HY Condition : PEAK(LINII) 3m HORN 9120D-HF VERTICAL Detector : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Project : 821216</p>
	<p>Site : 03CH10-HY Condition : PEAK_BE(B4)_16-24 3m HORN 9120D-HF VERTICAL Detector : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Project : 821216</p>	Left blank



WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH165 5825MHz	
1	Horizontal	Fundamental
Peak	 <p>Site : 03CH10-11Y Condition : PEAK_BE(B4)_16-24 3m HORN 9120D-HF HORIZONTAL Detector : Peak Project : 821216</p>	 <p>Site : 03CH10-11Y Condition : PEAK(UNII) 3m HORN 9120D-HF HORIZONTAL Detector : Peak Project : 821216</p>



WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH165 5825MHz	
1	Vertical	Fundamental
Peak	<p>Site : 03CH10-11Y Condition : PEAK_BE(B4)_16-24 3m HORN 9120D-HF VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 821216</p>	<p>Site : 03CH10-11Y Condition : PEAK(LINII) 3m HORN 9120D-HF VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 821216</p>



<Antenna 1+2>

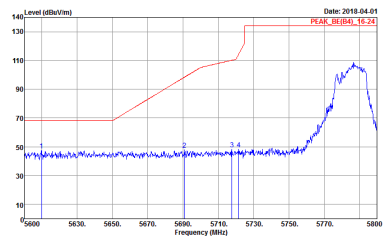
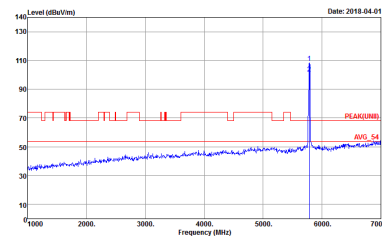
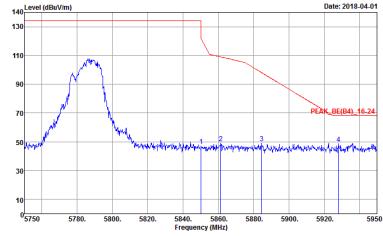
Band 4 - 5725~5850MHz
WIFI 802.11n HT20 (Band Edge @ 3m)

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH149 5745MHz	
1+2	Horizontal	Fundamental
Peak	<p> Date: 2018-04-01 PEAK_RE[84]_16-24 Site : 03CH10-HY Condition : PEAK_RE[84]_16-24 3m HORN 9120D-HF HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 821216 </p>	<p> Date: 2018-04-01 PEAK_LIN[8]_AVG_51 Site : 03CH10-HY Condition : PEAK_LIN[8]_3m HORN 9120D-HF HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 821216 </p>

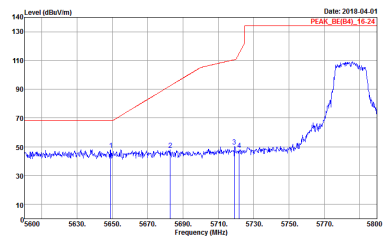
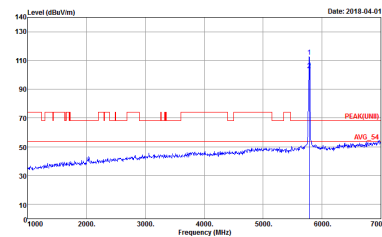
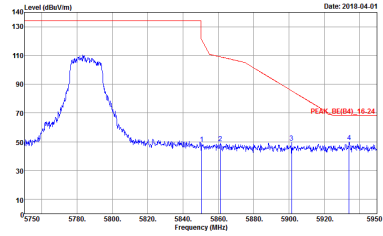


WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH149 5745MHz	
1+2	Vertical	Fundamental
Peak	<p>Site : 03CH10-11Y Condition : PEAK_BE[04]_16-24 3m HORN 9120D-HF VERTICAL Detector : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Project : 821216</p>	<p>Site : 03CH10-11Y Condition : PEAK[UNII] 3m HORN 9120D-HF VERTICAL Detector : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Project : 821216</p>

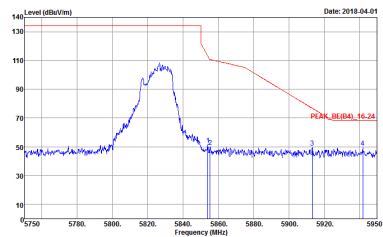
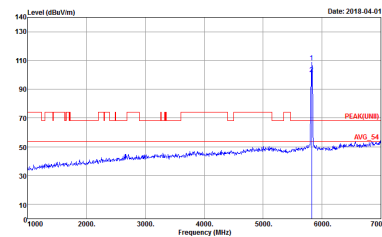


WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH157 5785MHz	
1+2	Horizontal	Fundamental
<p>Peak</p>	 <p>Site : 03CH10-HY Condition : PEAK_BE(B4)_16-24 3m HORN 9120D-HF HORIZONTAL Detector : Peak Project : 821216</p>	 <p>Site : 03CH10-HY Condition : PEAK(LINII) 3m HORN 9120D-HF HORIZONTAL Detector : Peak Project : 821216</p>
<p>Peak</p>	 <p>Site : 03CH10-HY Condition : PEAK_BE(B4)_16-24 3m HORN 9120D-HF HORIZONTAL Detector : Peak Project : 821216</p>	<p>Left blank</p>



WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH157 5785MHz	
1+2	Vertical	Fundamental
<p>Peak</p>	 <p>Site : 03CH10-HY Condition : PEAK_BE(B4)_16-24 3m HORN 9120D-HF VERTICAL Detector : Peak Project : 821216</p>	 <p>Site : 03CH10-HY Condition : PEAK(LINII) 3m HORN 9120D-HF VERTICAL Detector : Peak Project : 821216</p>
<p>Peak</p>	 <p>Site : 03CH10-HY Condition : PEAK_BE(B4)_16-24 3m HORN 9120D-HF VERTICAL Detector : Peak Project : 821216</p>	<p>Left blank</p>



WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH165 5825MHz	
1+2	Horizontal	Fundamental
Peak	 <p>Site : 03CH10-11Y Condition : PEAK_BE(B4)_16-24 3m HORN 9120D-HF HORIZONTAL Detector : Peak Project : 821216</p>	 <p>Site : 03CH10-11Y Condition : PEAK(UNII) 3m HORN 9120D-HF HORIZONTAL Detector : Peak Project : 821216</p>



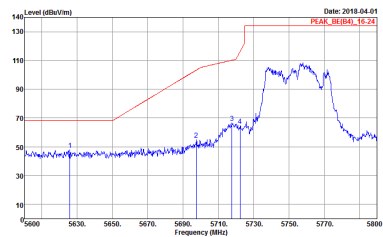
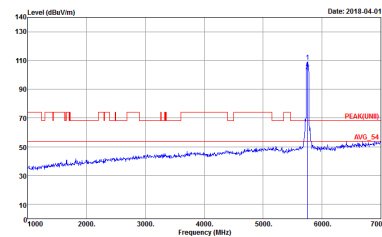
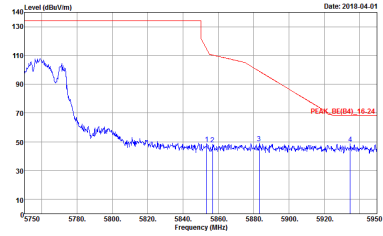
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT20 CH165 5825MHz	
1+2	Vertical	Fundamental
Peak	<p>Site : 03CH10-11Y Condition : PEAK_BE(B4)_16-24 3m HORN 9120D-HF VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 821216</p>	<p>Site : 03CH10-11Y Condition : PEAK(UNII) 3m HORN 9120D-HF VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 821216</p>



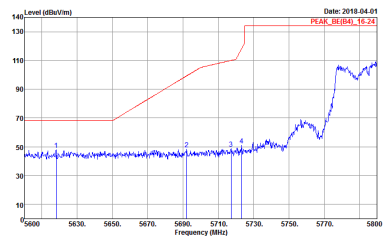
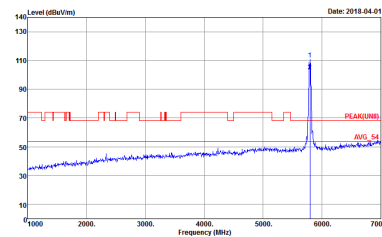
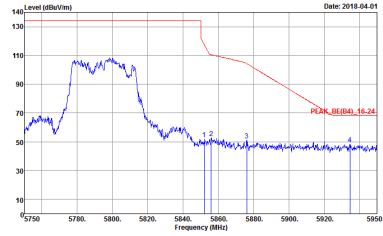
**Band 4 5725~5850MHz
WIFI 802.11n HT40 (Band Edge @ 3m)**

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT40 CH151 5755MHz	
1+2	Horizontal	Fundamental
Peak	<p>Site : 03CH10-HY Condition : PEAK_BE(B4)_16-24 3m HORN 9120D-HF HORIZONTAL Detector : Peak Project : 821216</p>	<p>Site : 03CH10-HY Condition : PEAK(UNIT) 3m HORN 9120D-HF HORIZONTAL Detector : Peak Project : 821216</p>
Peak	<p>Site : 03CH10-HY Condition : PEAK_BE(B4)_16-24 3m HORN 9120D-HF HORIZONTAL Detector : Peak Project : 821216</p>	Left blank

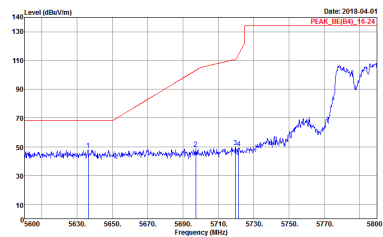
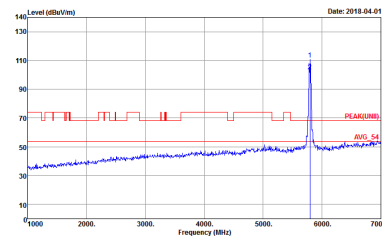
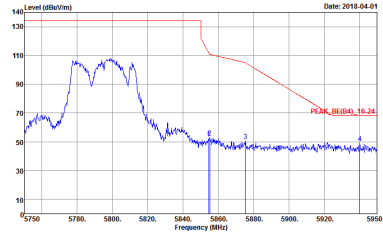


WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT40 CH151 5755MHz	
1+2	Vertical	Fundamental
<p>Peak</p>	 <p>Site : 03CH10-HY Condition : PEAK_BE(B4)_16-24 3m HORN 9120D-HF VERTICAL Detector : Peak Project : 821216</p>	 <p>Site : 03CH10-HY Condition : PEAK(LINII) 3m HORN 9120D-HF VERTICAL Detector : Peak Project : 821216</p>
<p>Peak</p>	 <p>Site : 03CH10-HY Condition : PEAK_BE(B4)_16-24 3m HORN 9120D-HF VERTICAL Detector : Peak Project : 821216</p>	<p>Left blank</p>



WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT40 CH159 5795MHz	
1+2	Horizontal	Fundamental
<p>Peak</p>	 <p>Site : 03CH10-HY Condition : PEAK_BE(B4)_16-24 3m HORN 9120D-HF HORIZONTAL Detector : Peak Project : 821216</p>	 <p>Site : 03CH10-HY Condition : PEAK(LINII) 3m HORN 9120D-HF HORIZONTAL Detector : Peak Project : 821216</p>
<p>Peak</p>	 <p>Site : 03CH10-HY Condition : PEAK_BE(B4)_16-24 3m HORN 9120D-HF HORIZONTAL Detector : Peak Project : 821216</p>	<p>Left blank</p>



WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11n HT40 CH159 5795MHz	
1+2	Vertical	Fundamental
<p>Peak</p>	 <p>Site : 03CH10-HY Condition : PEAK_BE(B4)_16-24 3m HORN 9120D-HF VERTICAL Detector : Peak Project : 821216</p>	 <p>Site : 03CH10-HY Condition : PEAK(LINII) 3m HORN 9120D-HF VERTICAL Detector : Peak Project : 821216</p>
<p>Peak</p>	 <p>Site : 03CH10-HY Condition : PEAK_BE(B4)_16-24 3m HORN 9120D-HF VERTICAL Detector : Peak Project : 821216</p>	<p>Left blank</p>



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	<p>Site : 03CH10-HY Condition : PEAK_BE(B4)_16-24 3m HORN 91200-HF HORIZONTAL Detector : Peak Project : 821216</p>	<p>Site : 03CH10-HY Condition : PEAK(UNIT) 3m HORN 91200-HF HORIZONTAL Detector : Peak Project : 821216</p>
Peak	<p>Site : 03CH10-HY Condition : PEAK_BE(B4)_16-24 3m HORN 91200-HF HORIZONTAL Detector : Peak Project : 821216</p>	Left blank



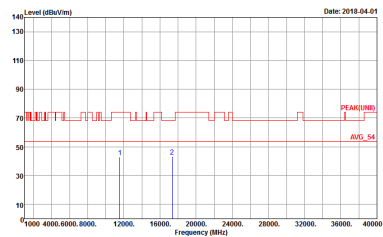
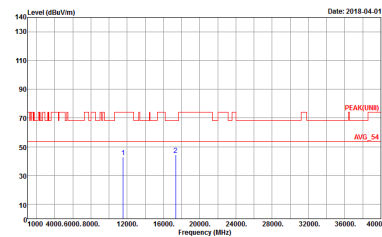
WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11ac VHT80 CH155 5775MHz	
1+2	Vertical	Fundamental
Peak	<p>Site : 03CH10-HY Condition : PEAK_BE(B4)_16-24 3m HORN 9120D-HF VERTICAL Detector : Peak Project : 821216</p>	<p>Site : 03CH10-HY Condition : PEAK(LINII) 3m HORN 9120D-HF VERTICAL Detector : Peak Project : 821216</p>
Peak	<p>Site : 03CH10-HY Condition : PEAK_BE(B4)_16-24 3m HORN 9120D-HF VERTICAL Detector : Peak Project : 821216</p>	Left blank



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.	<p>Site : 03CH10-HY Condition : PEAK(LINE1) 3m HORN 9120D-4HF HORIZONTAL Detector : Peak Project : 821216</p>	<p>Site : 03CH10-HY Condition : PEAK(LINE1) 3m HORN 9120D-4HF VERTICAL Detector : Peak Project : 821216</p>



WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11n HT20 CH157 5785MHz	
1+2	Horizontal	Vertical
<p>Peak</p> <p>Avg.</p>	 <p>Site : 03CH10-111 Condition : PEAK(LINE) 3m HORN 91200-HF HORIZONTAL Detector : Peak Project : 821216</p>	 <p>Site : 03CH10-111 Condition : PEAK(LINE) 3m HORN 91200-HF VERTICAL Detector : Peak Project : 821216</p>



WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11n HT20 CH165 5825MHz	
1+2	Horizontal	Vertical
Peak Avg.	<p>Site : 03SCH10-111 Condition : PEAK(LINE1) 3m HORN 91200-HF HORIZONTAL Detector : Peak Project : 821216</p>	<p>Site : 03SCH10-111 Condition : PEAK(LINE1) 3m HORN 91200-HF VERTICAL Detector : Peak Project : 821216</p>



Band 4 5725~5850MHz

Emission below 1GHz

5GHz WIFI 802.11n HT20 (LF)

WIFI	5GHz 5725~5850MHz	
ANT	802.11n HT20 LF	
1+2	Horizontal	Vertical
QP / Peak	<p>Site : 03CH10-HY Condition : QP 3m BE-LOG-6111D-LF HORIZONTAL Detector : Peak Project : 821216</p>	<p>Site : 03CH10-HY Condition : QP 3m BE-LOG-6111D-LF VERTICAL Detector : Peak Project : 821216</p>

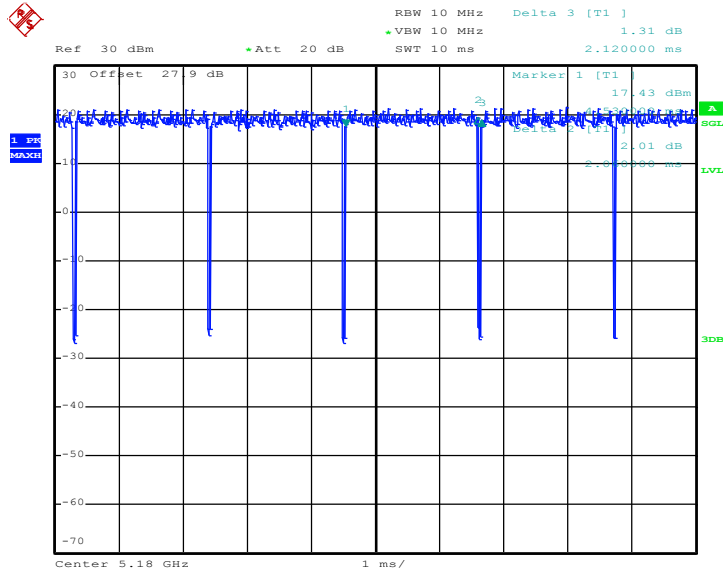


Appendix E. Duty Cycle Plots

Antenna	Band	Duty Cycle(%)	T(us)	1/T(kHz)	VBW Setting	Duty Factor(dB)
0	802.11a	97.17	2000	0.5	1kHz	0.12
1	802.11a	98.10	-	-	10Hz	0.08
0	5GHz 802.11n HT20	97.96	1920	0.52	1kHz	0.09
1	5GHz 802.11n HT20	97.96	1920	0.52	1kHz	0.09
1+2	5GHz 802.11n HT20 Ant. 1	97.96	1920	0.52	1kHz	0.09
1+2	5GHz 802.11n HT20 Ant. 2	98.97	-	-	10Hz	0.04
0	5GHz 802.11n HT40	95.98	955	1.05	3kHz	0.18
1	5GHz 802.11n HT40	95.96	950	1.05	3kHz	0.18
1+2	5GHz 802.11n HT40 Ant. 1	95.48	950	1.05	3kHz	0.20
1+2	5GHz 802.11n HT40 Ant. 2	94.95	940	1.06	3kHz	0.23
0	5GHz 802.11ac VHT20	96.97	1920	0.52	1kHz	0.13
1	5GHz 802.11ac VHT20	96.97	1920	0.52	1kHz	0.13
1+2	5GHz 802.11ac VHT20 Ant. 1	97.96	1920	0.52	1kHz	0.09
1+2	5GHz 802.11ac VHT20 Ant. 2	97.98	1940	0.52	1kHz	0.09
0	5GHz 802.11ac VHT40	95.96	950	1.05	3kHz	0.18
1	5GHz 802.11ac VHT40	96.00	960	1.04	3kHz	0.18
1+2	5GHz 802.11ac VHT40 Ant. 1	95.96	950	1.05	3kHz	0.18
1+2	5GHz 802.11ac VHT40 Ant. 2	95.00	950	1.05	3kHz	0.22
0	5GHz 802.11ac VHT80	91.67	462	2.16	3kHz	0.38
1	5GHz 802.11ac VHT80	91.67	462	2.16	3kHz	0.38
1+2	5GHz 802.11ac VHT80 Ant. 1	91.67	462	2.16	3kHz	0.38
1+2	5GHz 802.11ac VHT80 Ant. 2	91.67	462	2.16	3kHz	0.38

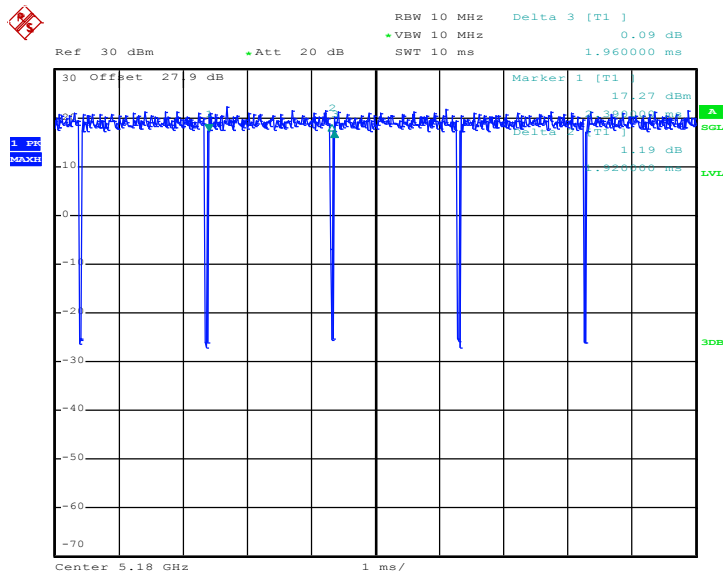
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802.11a



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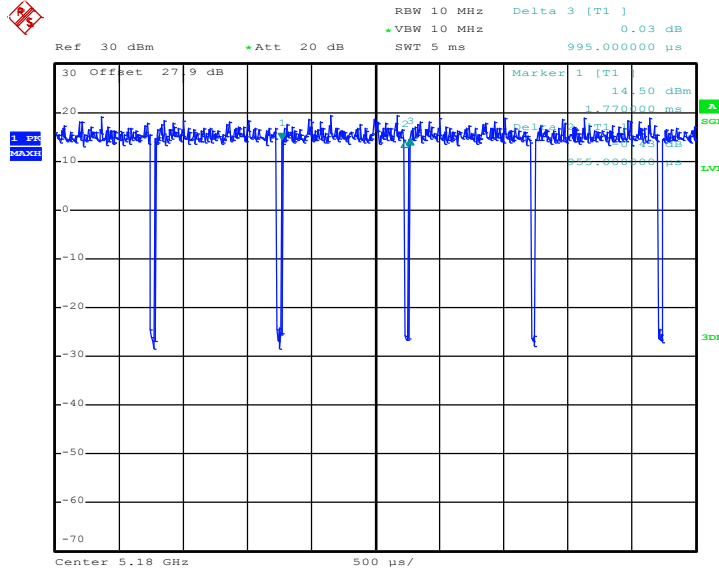
802.11n HT20



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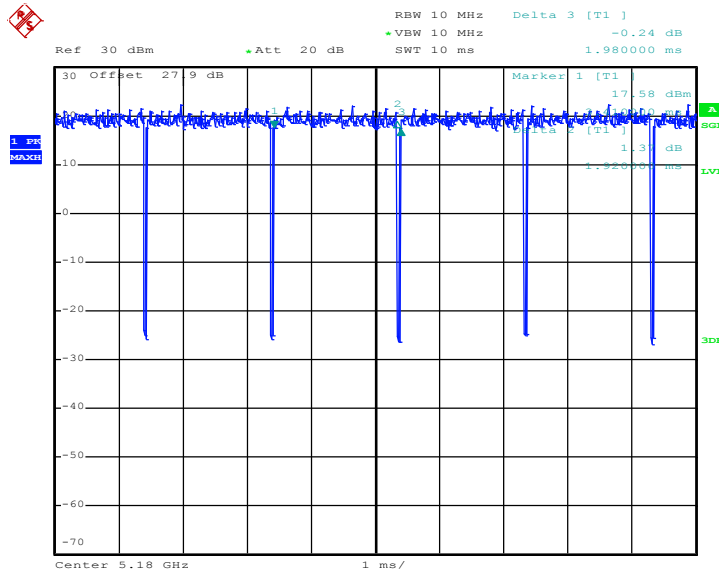


802.11n HT40



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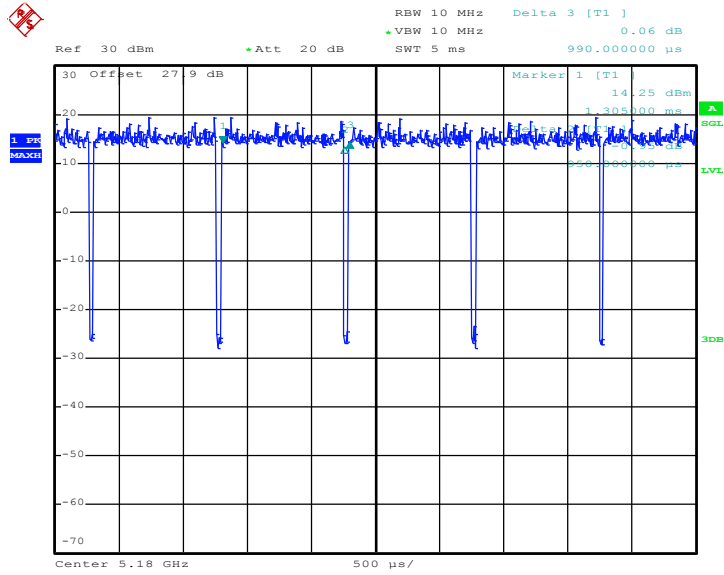
802.11ac VHT20



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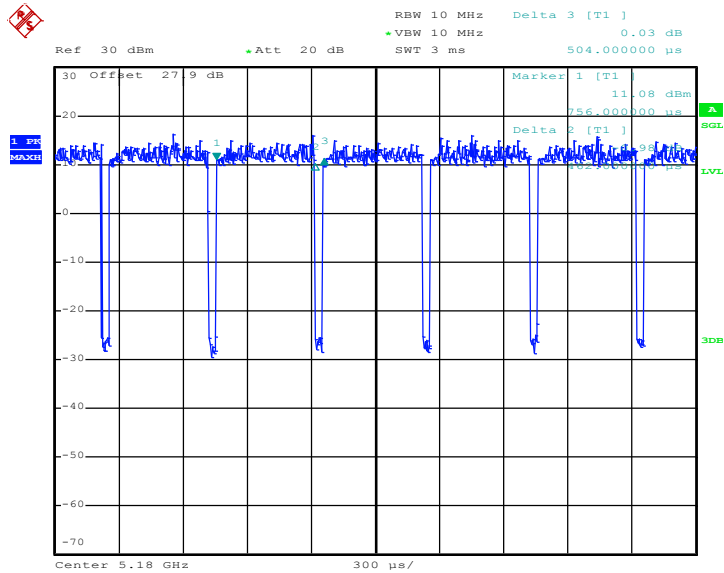


802.11ac VHT40



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802.11ac VHT80

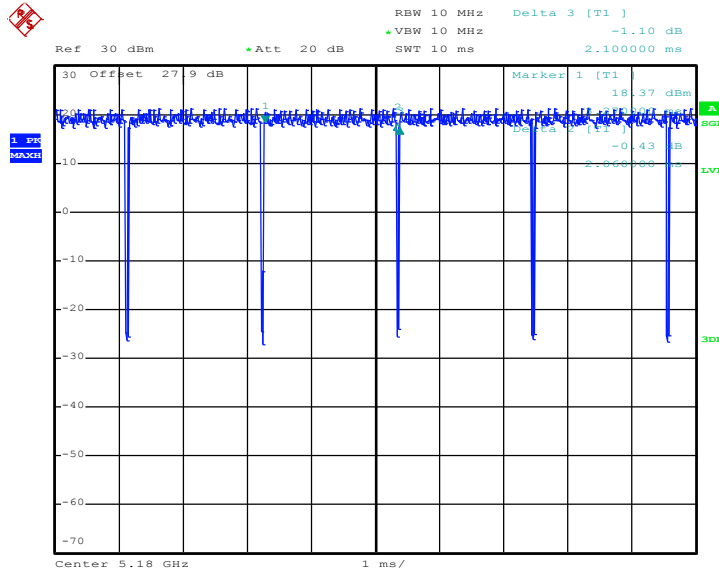


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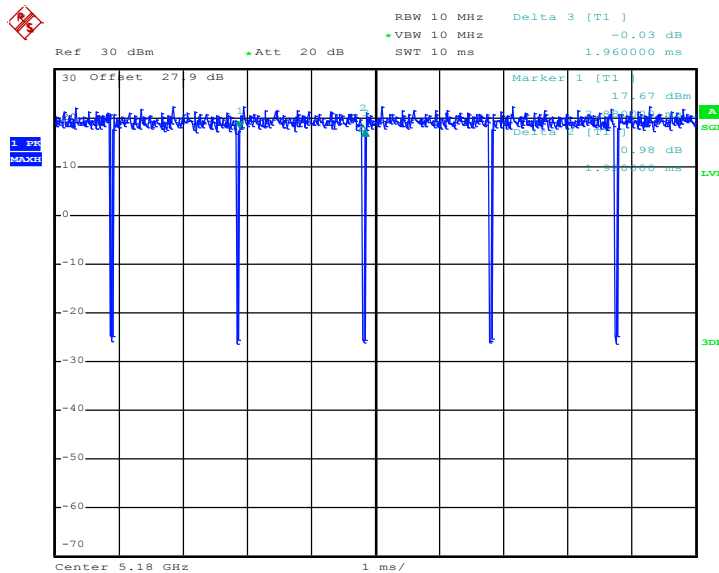
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802.11a



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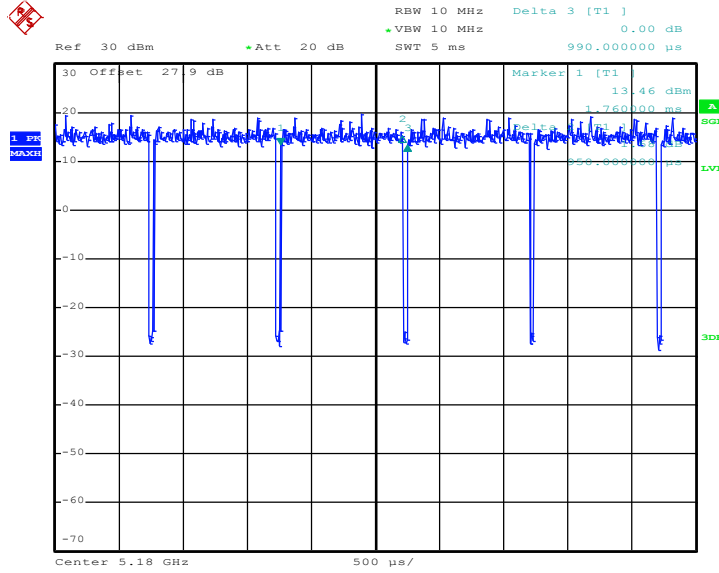
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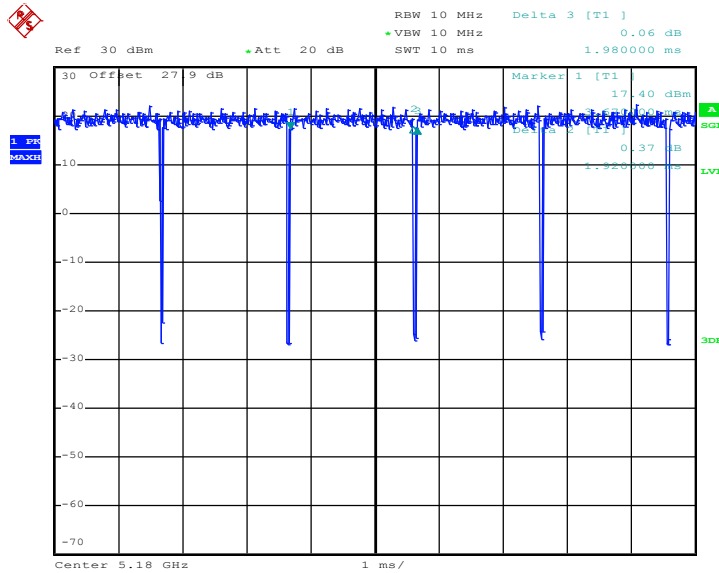


802.11n HT40



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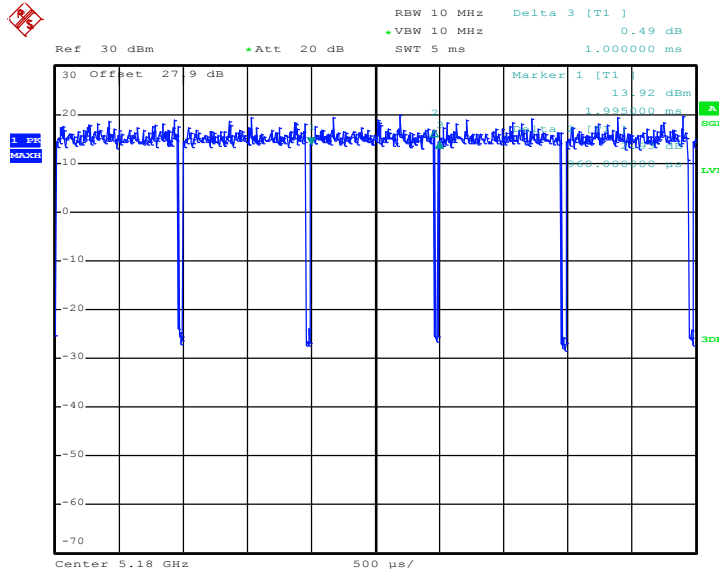
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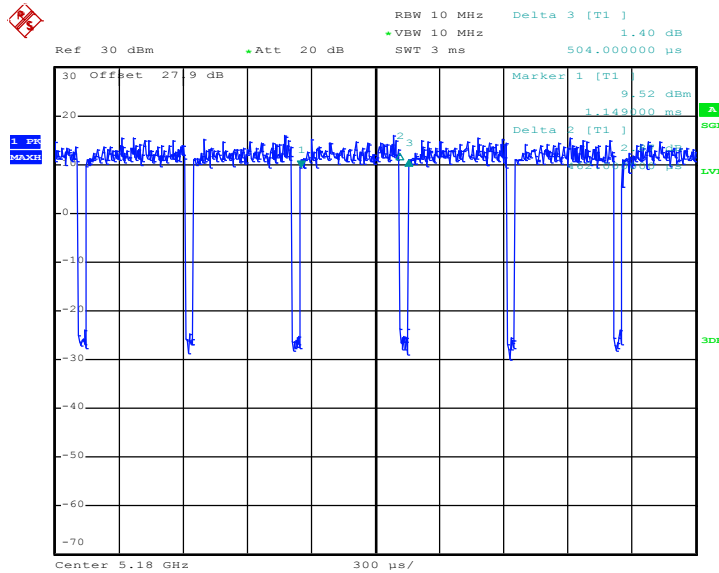


802.11ac VHT40



Date: 26.FEB.2018 22:12:22

802.11ac VHT80

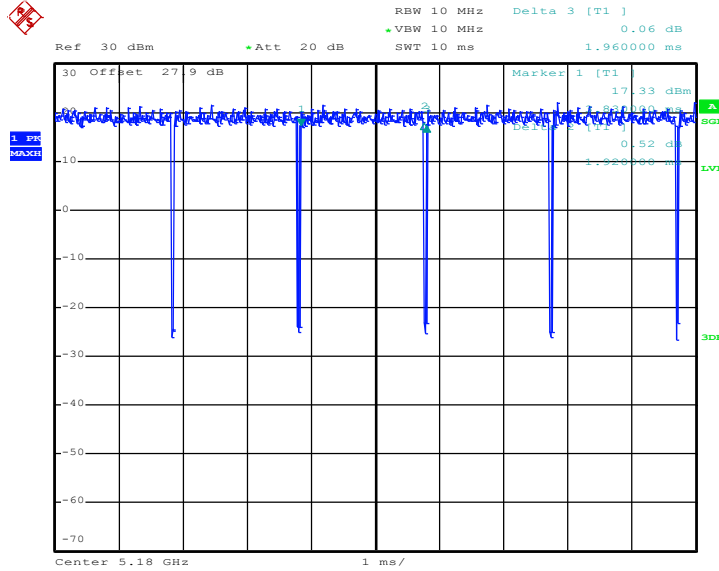


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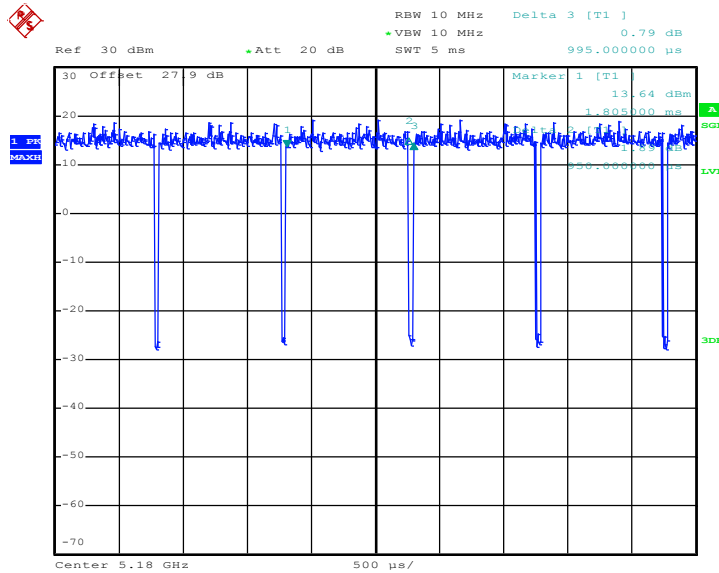
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802.11n HT20



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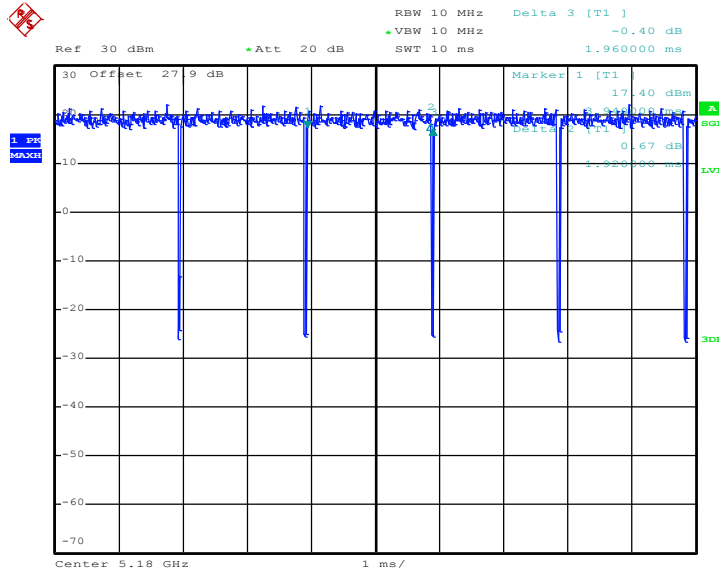
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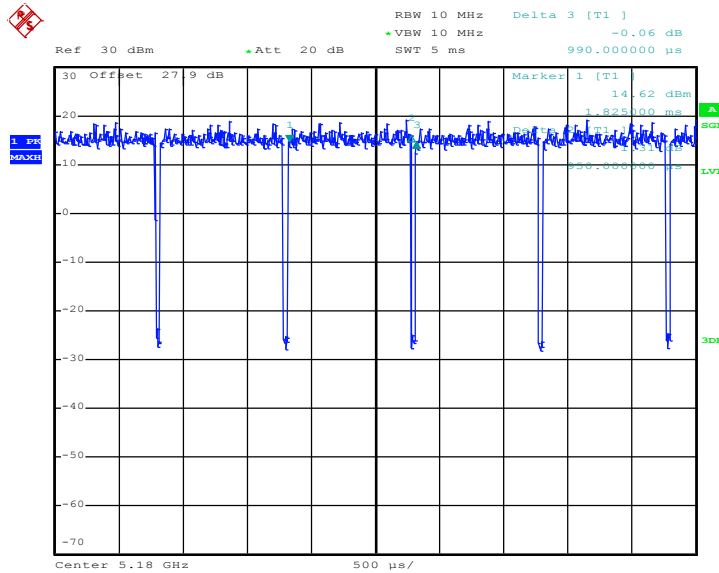


802.11ac VHT20



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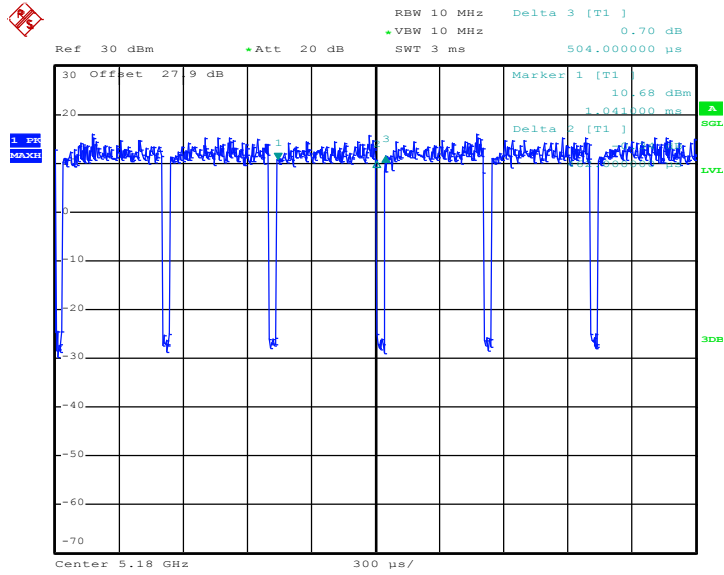
802.11ac VHT40



Date: 26.FEB.2018 22:11:06



802.11ac VHT80

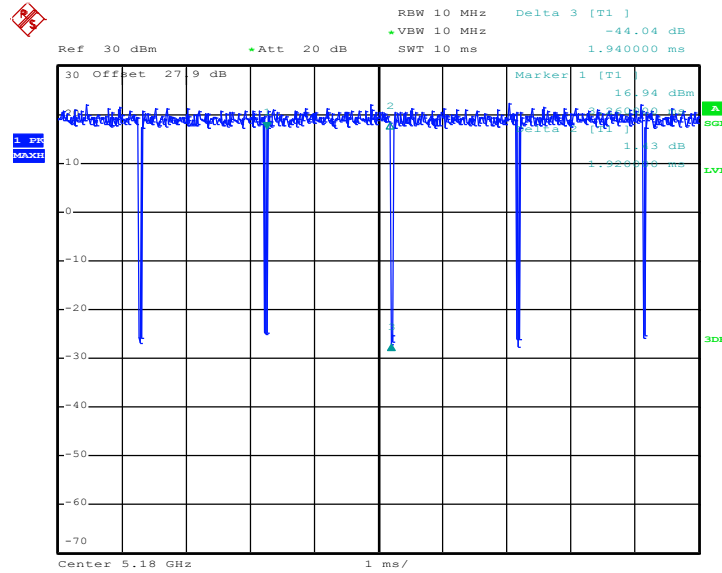


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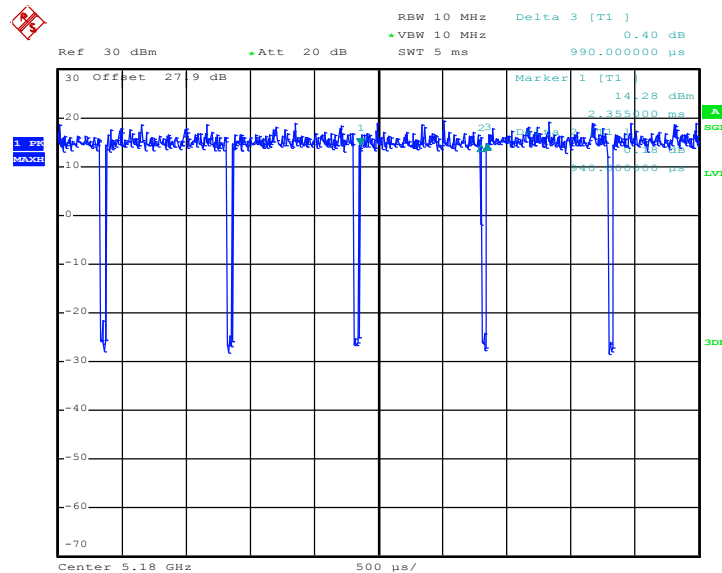
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802.11n HT20



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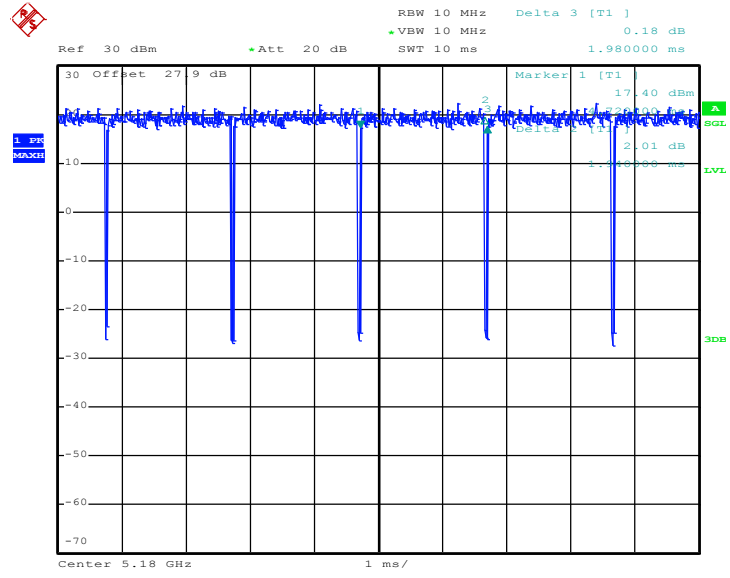
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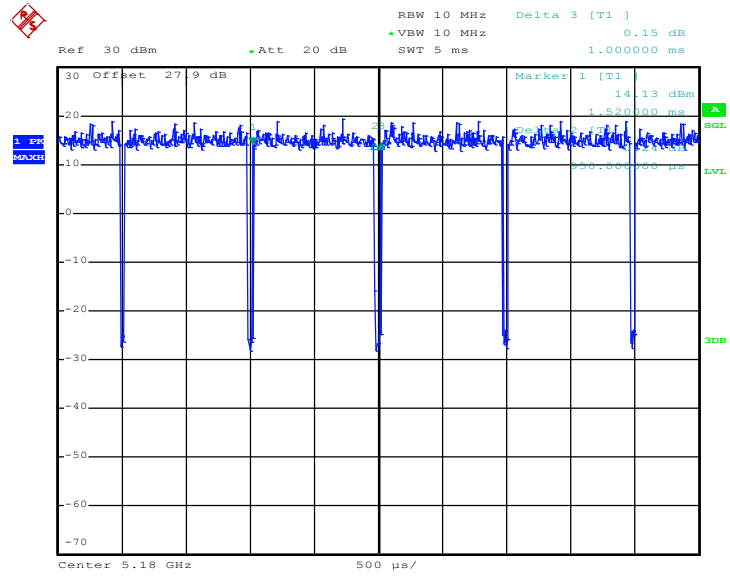


802.11ac VHT20



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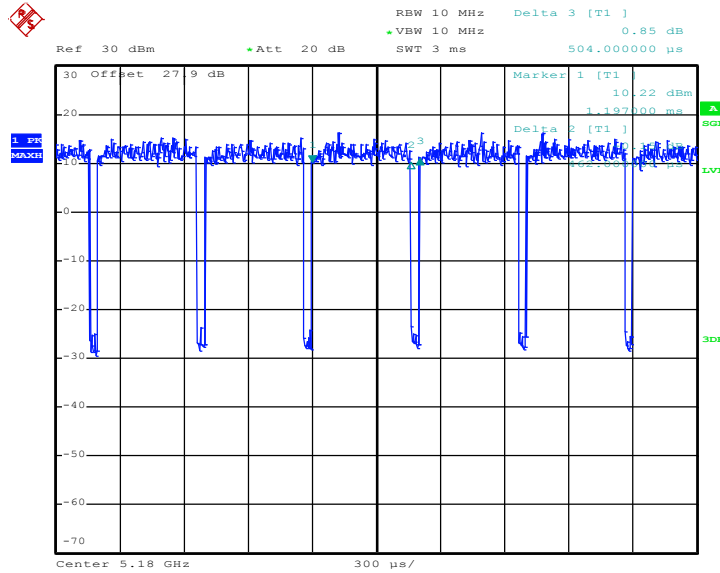
802.11ac VHT40



Date: 26.FEB.2018 22:11:40



802.11ac VHT80



Date: 26.FEB.2018 22:16:17