



FCC RADIO TEST REPORT

FCC ID : ACJJTC52A
Equipment : Mobile Payment Terminal
Brand Name : Panasonic
Model Name : JT-C522WZ01
Marketing Name : JT-C52
Applicant : Panasonic Corporation of North America
Two Riverfront Plaza, 9th Floor, Newark, NJ 07102-5490
Manufacturer : Panasonic Mobile Communications Co., Ltd.
600 Saedo-cho, Tsuzuki-ku, Yokohama City 224-8539, Japan
Standard : FCC Part 15 Subpart C §15.247

The product was received on Jan. 16, 2019 and testing was started from Jan. 23, 2019 and completed on Feb. 11, 2019. We, SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

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

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

Approved by: Jones Tsai

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



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History of this test report

Report No.	Version	Description	Issued Date
FR911608C	01	Initial issue of report	Feb. 14, 2019
FR911608C	02	Update version of the KDB 558074 in section 1.4 and add all of the test plots of 6 dB and 99% bandwidth in section 3.1.5 and 3.1.6	Mar. 11, 2019

Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
3.1	15.247(a)(2)	6dB Bandwidth	Pass	-
3.1	2.1049	99% Occupied Bandwidth	Reporting only	-
3.2	15.247(b)	Power Output Measurement	Pass	-
3.3	15.247(e)	Power Spectral Density	Pass	-
3.4	15.247(d)	Conducted Band Edges	Pass	-
		Conducted Spurious Emission	Pass	-
3.5	15.247(d)	Radiated Band Edges and Radiated Spurious Emission	Pass	Under limit 6.97 dB at 2389.485 MHz
3.6	15.207	AC Conducted Emission	Pass	Under limit 15.26 dB at 0.152 MHz
3.7	15.203 & 15.247(b)	Antenna Requirement	Pass	-

Declaration of Conformity:

The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

Comments and Explanations:

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

Reviewed by: Wii Chang

Report Producer: Polly Tsai

1 General Description

1.1 Product Feature of Equipment Under Test

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

Product Specification subjective to this standard	
Antenna Type	WLAN: Monopole Antenna Bluetooth: Monopole Antenna GPS / Glonass: Monopole Antenna NFC: Loop Antenna

1.2 Modification of EUT

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

1.3 Testing Location

Test Site	SPORTON INTERNATIONAL INC.	
Test Site Location	No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.) TEL: +886-3-327-3456 FAX: +886-3-328-4978	
Test Site No.	Sporton Site No.	
	TH05-HY	CO05-HY

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

Test Site	SPORTON INTERNATIONAL INC.	
Test Site Location	No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.) TEL: +886-3-327-0868 FAX: +886-3-327-0855	
Test Site No.	Sporton Site No.	
	03CH16-HY	

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

FCC Designation No. TW1190 and TW0007



1.4 Applicable Standards

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

- ♦ FCC Part 15 Subpart C §15.247
- ♦ FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v05r01
- ♦ FCC KDB 414788 D01 Radiated Test Site v01r01.
- ♦ ANSI C63.10-2013

Remark:

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

2 Test Configuration of Equipment Under Test

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

2.1 Carrier Frequency and Channel

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
2400-2483.5 MHz	1	2412	7	2442
	2	2417	8	2447
	3	2422	9	2452
	4	2427	10	2457
	5	2432	11	2462
	6	2437		

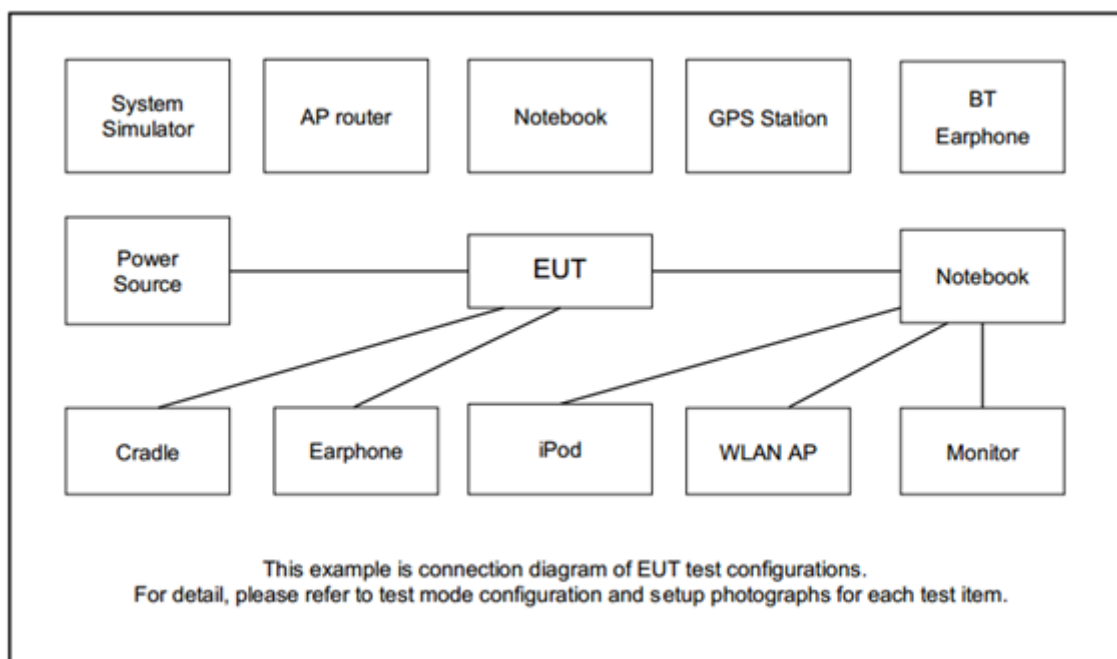
2.2 Test Mode

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

Modulation	Data Rate
802.11b	1 Mbps
802.11g	6 Mbps
802.11n HT20	MCS0

Test Cases	
AC Conducted Emission	Mode 1: Bluetooth Link + WLAN (2.4GHz) Link + MPEG4 + AC Adapter 2
Remark: For Radiated Test Cases, the tests were performed with AC Adapter 1.	

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-AC51U	FCC DoC	N/A	Unshielded,1.8m
2.	Bluetooth Earphone	Sony Ericsson	MW600	PY7DDA-2029	N/A	N/A
3.	Notebook	ASUS	P2430U	FCC DoC	N/A	AC I/P : Unshielded, 1.2m DC O/P : Shielded, 1.8m

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 99% Bandwidth Measurement

3.1.1 Limit of 6dB and 99% Bandwidth

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

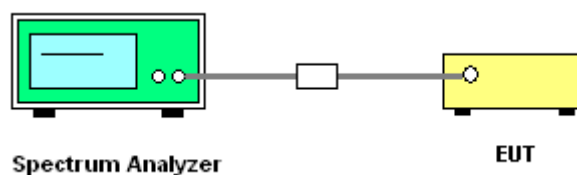
3.1.2 Measuring Instruments

See list of measuring equipment of this test report.

3.1.3 Test Procedures

1. The testing follows the ANSI C63.10 Section 6.9.3 (OBW) and 11.8.1 (6dB BW).
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. Set the Video bandwidth (VBW) = 300 kHz. In order to make an accurate measurement. The 6 dB bandwidth must be greater than 500 kHz.
5. For 99% Bandwidth Measurement, the spectrum analyzer's resolution bandwidth (RBW) is set 1-5% of the emission bandwidth and set the Video bandwidth (VBW) $\geq 3 * RBW$.
6. Measure and record the results in the test report.

3.1.4 Test Setup

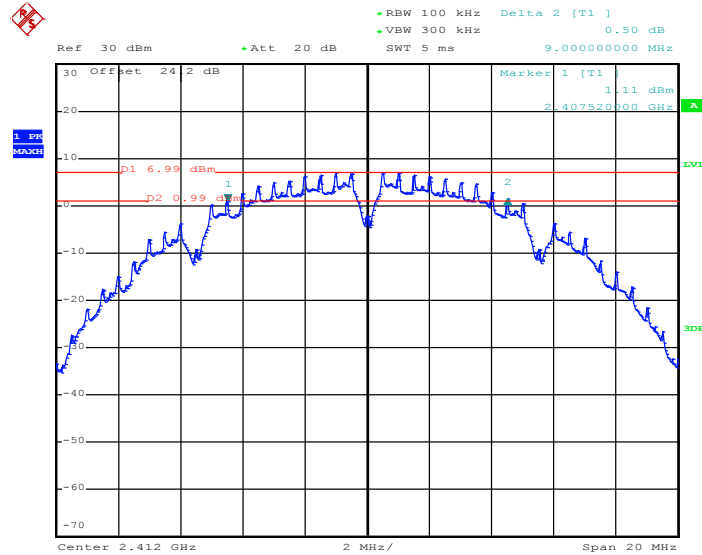


3.1.5 Test Result of 6dB Bandwidth

Please refer to Appendix A.

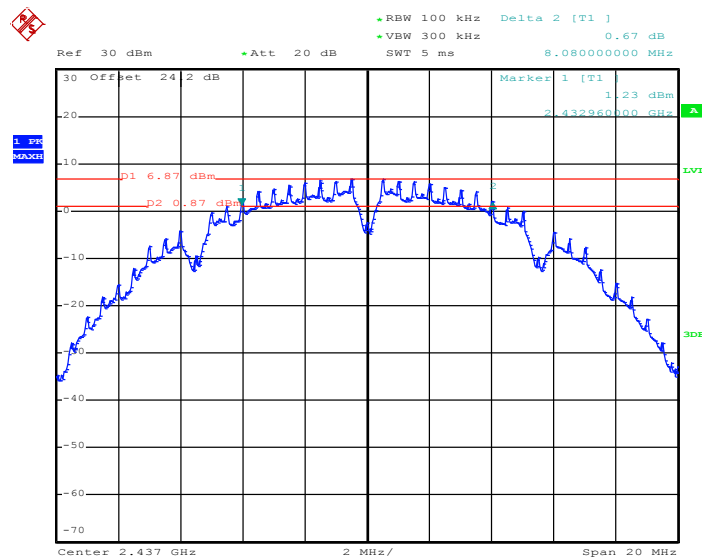
<802.11b>

6 dB Bandwidth Plot on Channel 01



Date: 11.FEB.2019 10:34:05

6 dB Bandwidth Plot on Channel 06



Date: 11.FEB.2019 10:39:28



<802.11g>

6 dB Bandwidth Plot on Channel 01





6 dB Bandwidth Plot on Channel 06





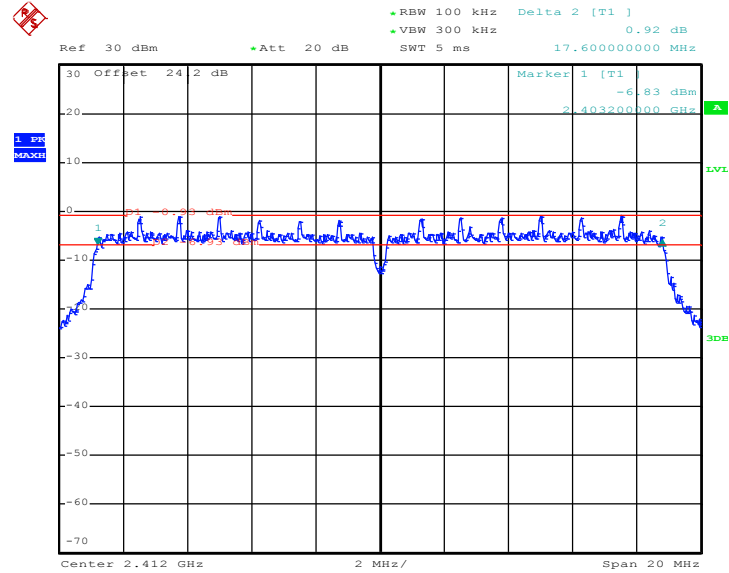
6 dB Bandwidth Plot on Channel 11





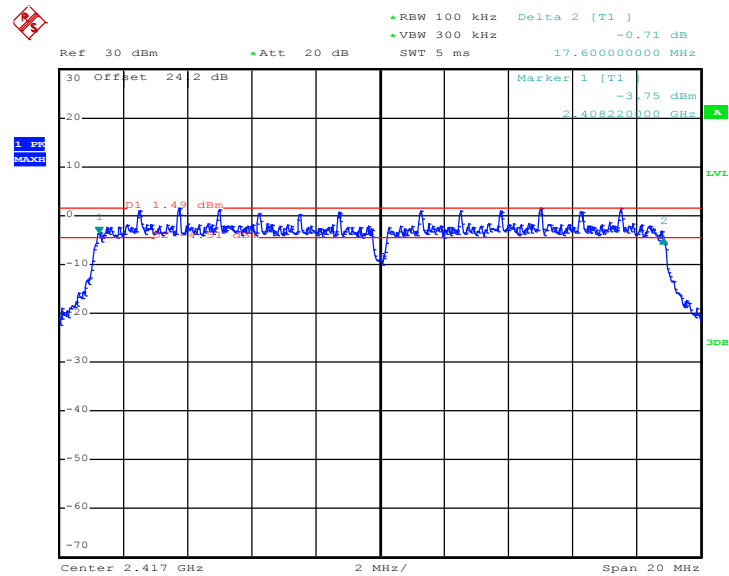
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6 dB Bandwidth Plot on Channel 01

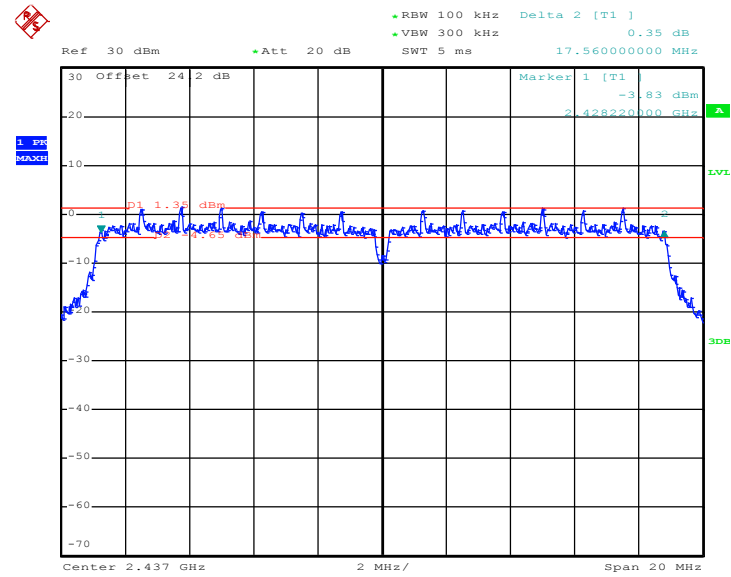


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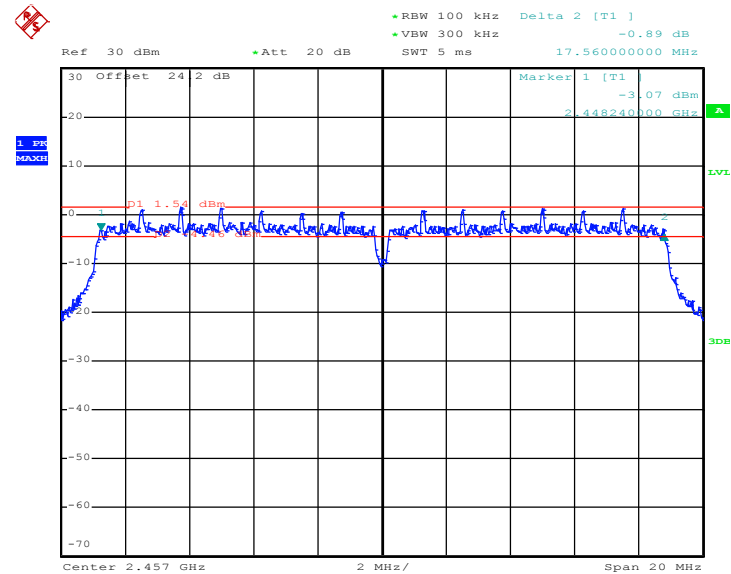
6 dB Bandwidth Plot on Channel 02



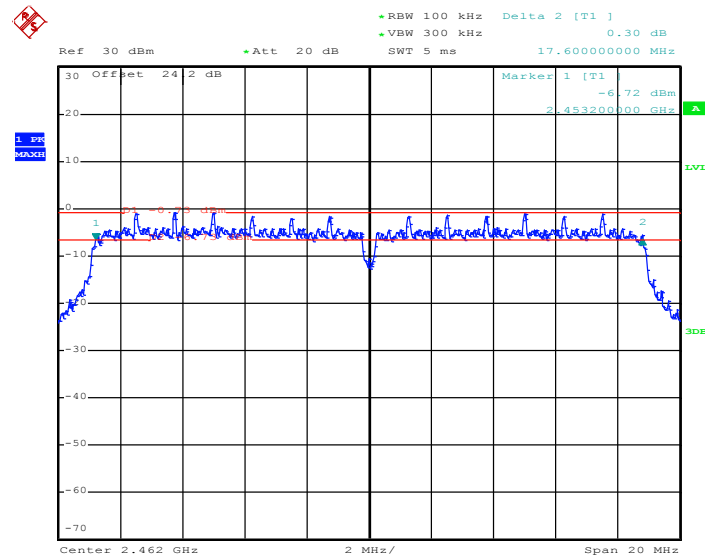
Date: 11.FEB.2019 11:40:15

6 dB Bandwidth Plot on Channel 06


Date: 11.FEB.2019 11:54:40

6 dB Bandwidth Plot on Channel 10


Date: 11.FEB.2019 11:57:59

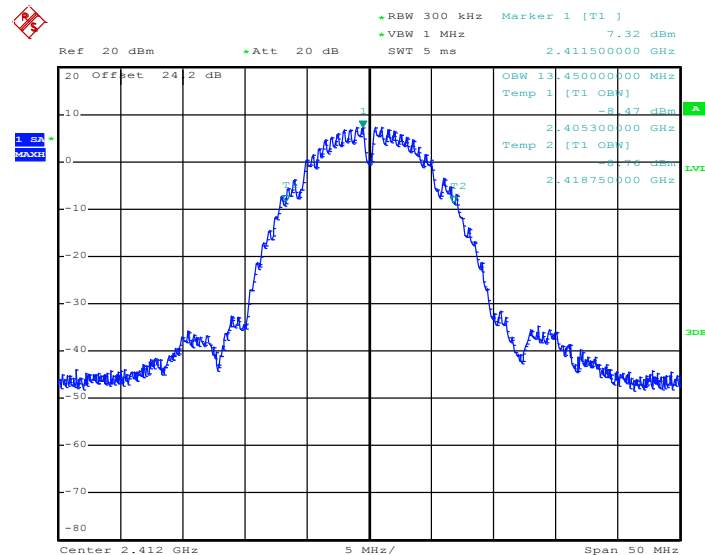
6 dB Bandwidth Plot on Channel 11


Date: 11.FEB.2019 13:33:33

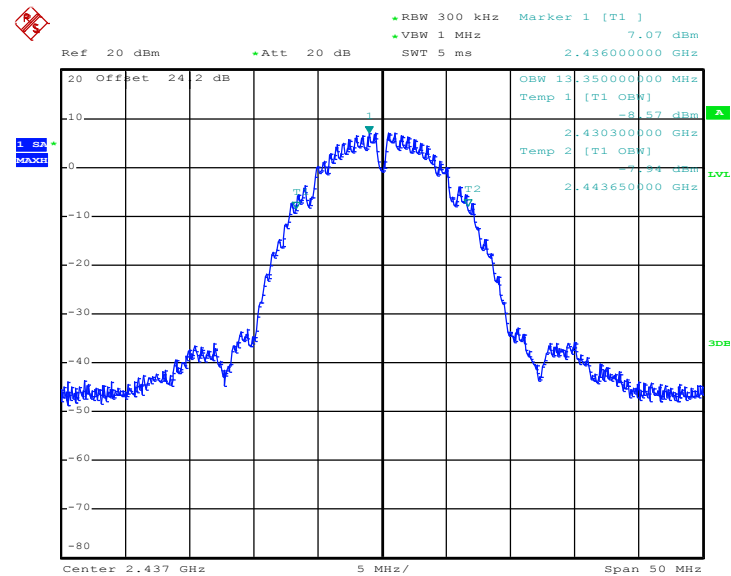
3.1.6 Test Result of 99% Occupied Bandwidth

Please refer to Appendix A.

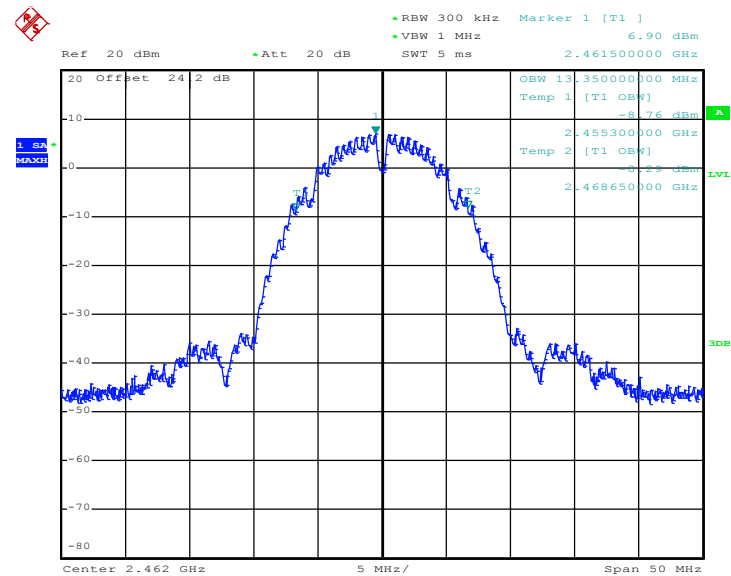
<802.11b>

99% Bandwidth Plot on Channel 01


Date: 11.FEB.2019 10:36:38

99% Occupied Bandwidth Plot on Channel 06


Date: 11.FEB.2019 10:41:23

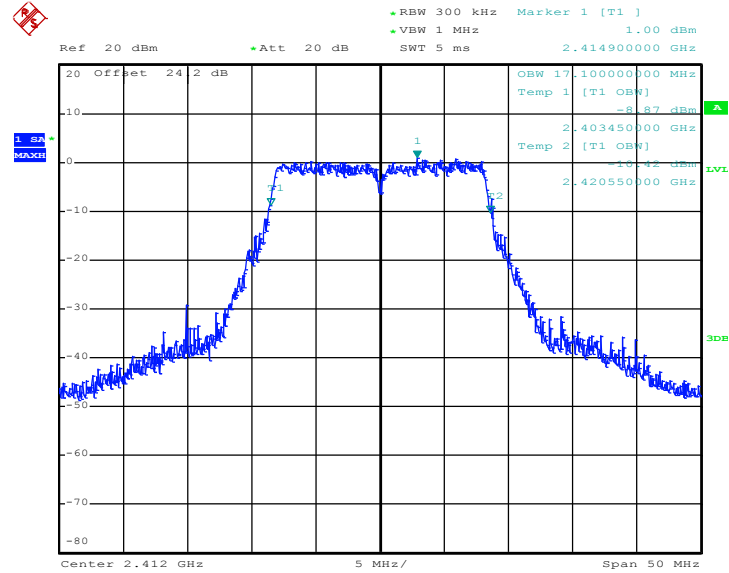
99% Occupied Bandwidth Plot on Channel 11


Date: 11.FEB.2019 10:46:13



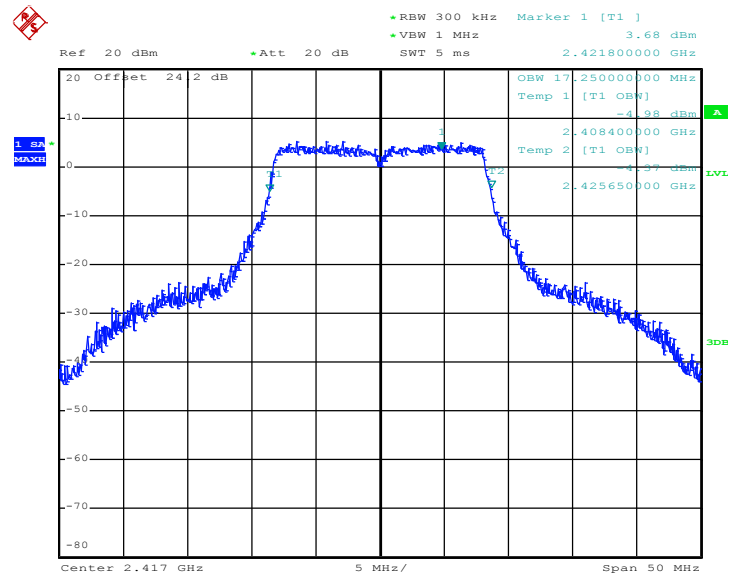
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99% Bandwidth Plot on Channel 01

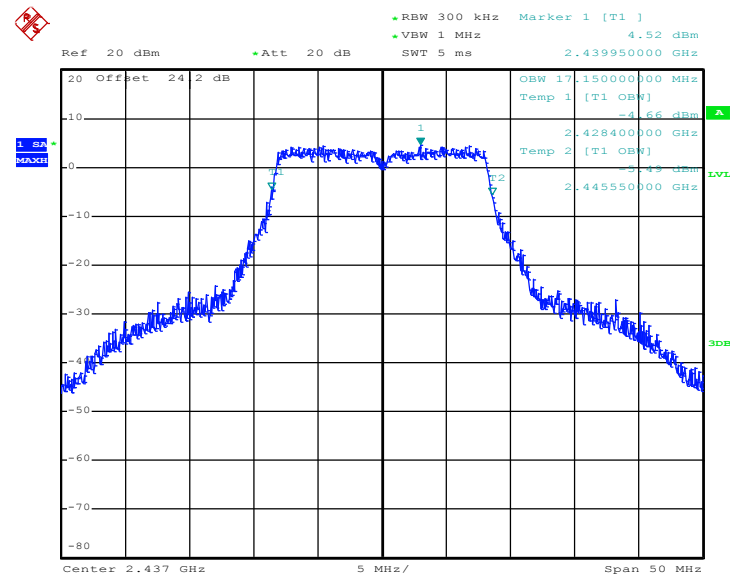


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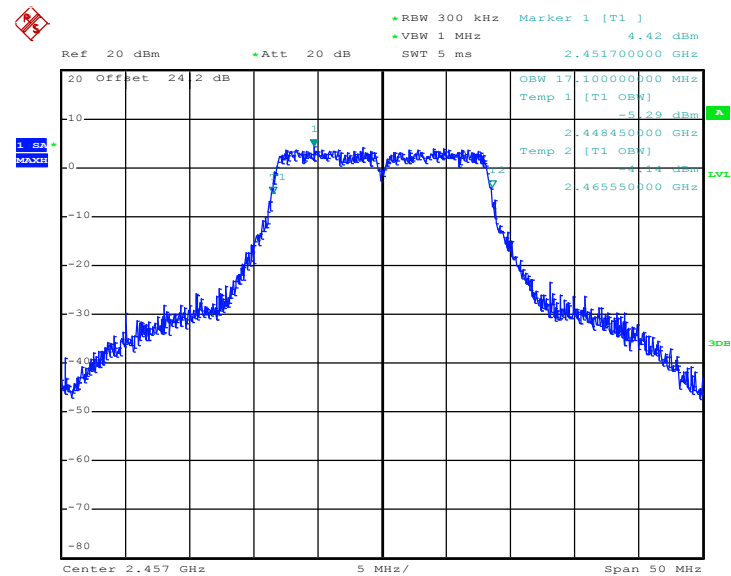
99% Bandwidth Plot on Channel 02



Date: 11.FEB.2019 11:16:49

99% Occupied Bandwidth Plot on Channel 06


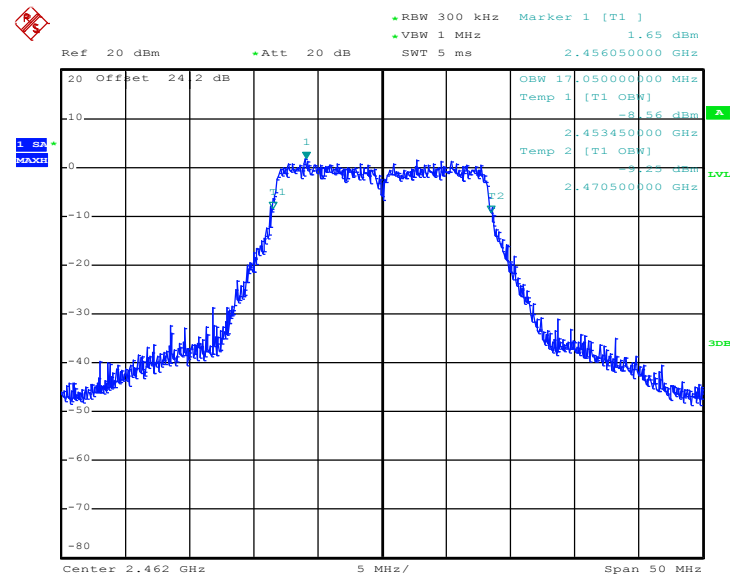
Date: 11.FEB.2019 11:24:29

99% Occupied Bandwidth Plot on Channel 10


Date: 11.FEB.2019 11:27:31



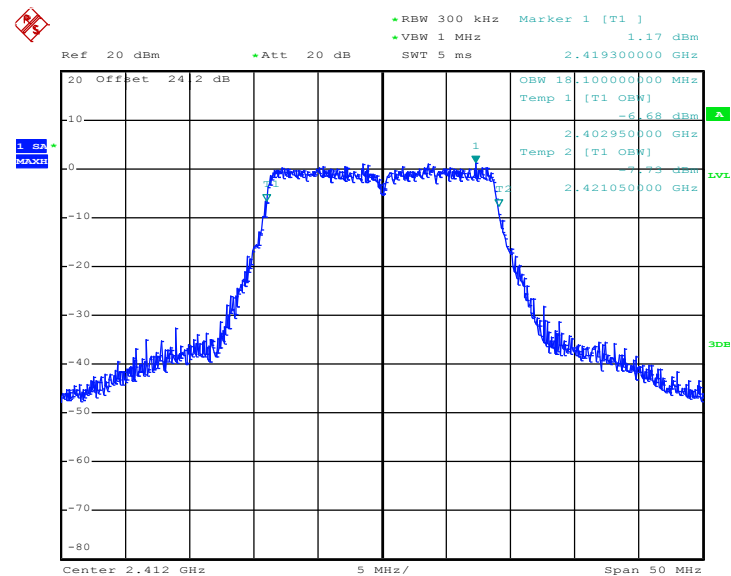
99% Occupied Bandwidth Plot on Channel 11



Date: 11.FEB.2019 11:33:14

<802.11n HT20>

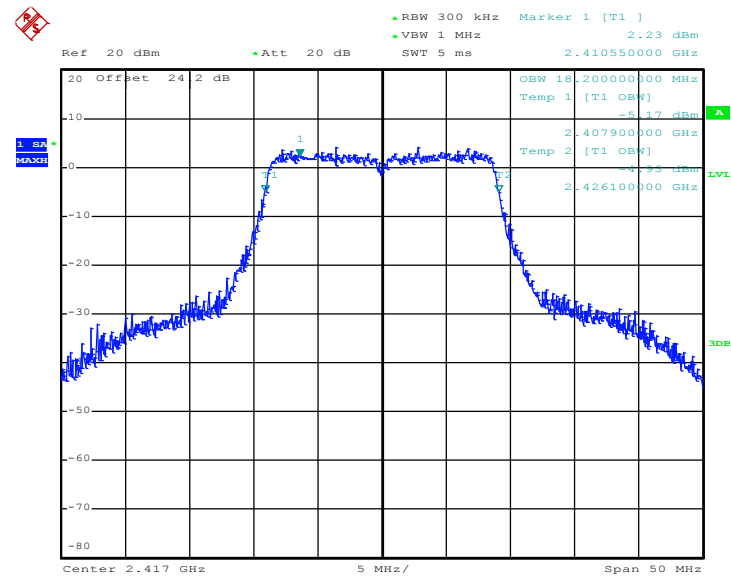
99% Bandwidth Plot on Channel 01



Date: 11.FEB.2019 11:37:51

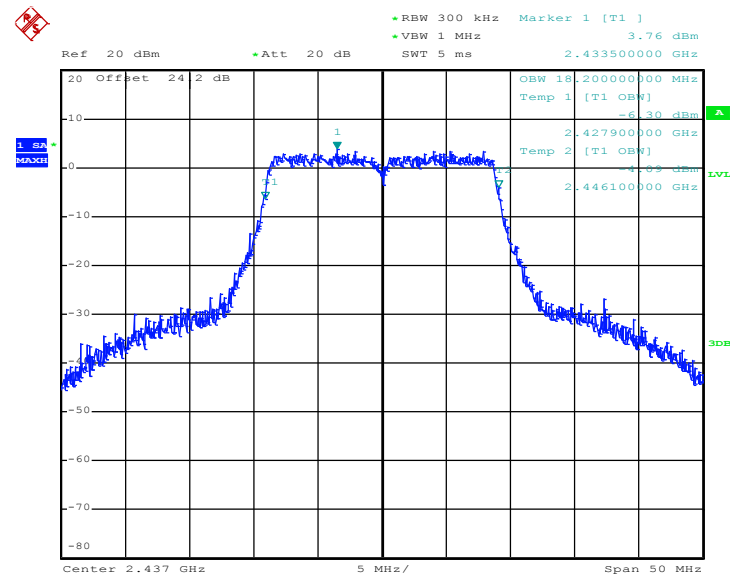


99% Occupied Bandwidth Plot on Channel 02

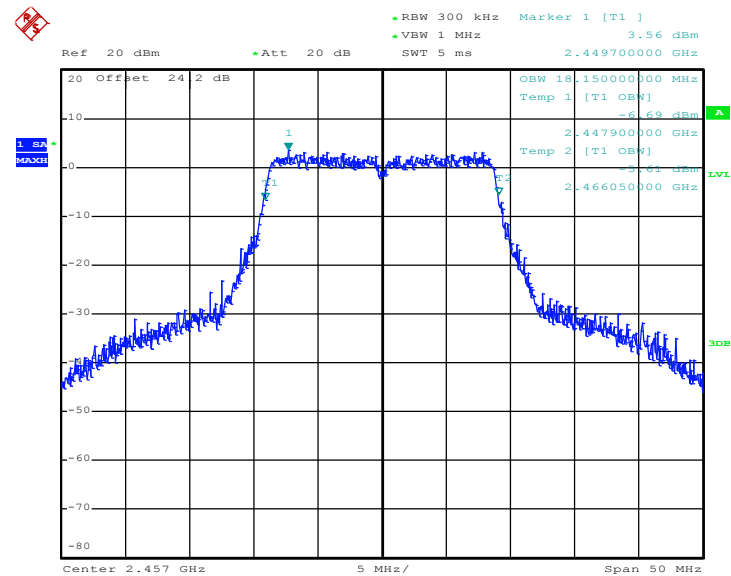


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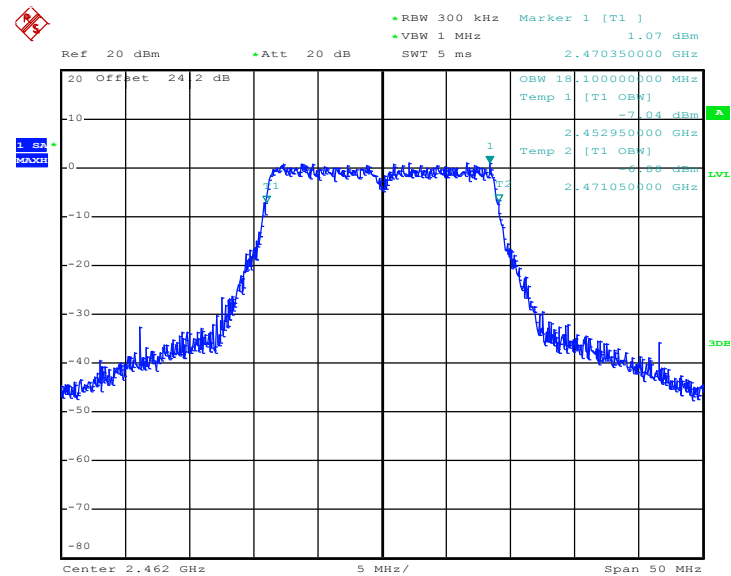
99% Occupied Bandwidth Plot on Channel 06



Date: 11.FEB.2019 11:56:05

99% Occupied Bandwidth Plot on Channel 10


Date: 11.FEB.2019 11:59:15

99% Occupied Bandwidth Plot on Channel 11


Date: 11.FEB.2019 13:35:52

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

3.2 Output Power Measurement

3.2.1 Limit of Output Power

For systems using digital modulation in the 2400-2483.5MHz, the limit for peak output power is 30dBm. If transmitting antenna with directional gain greater than 6dBi is used, the peak output power from the intentional radiator shall be reduced below the above stated value by the amount in dB that the directional gain of the antenna exceeds 6 dBi. In case of point-to-point operation, the limit has to be reduced by 1dB for every 3dB that the directional gain of the antenna exceeds 6dBi.

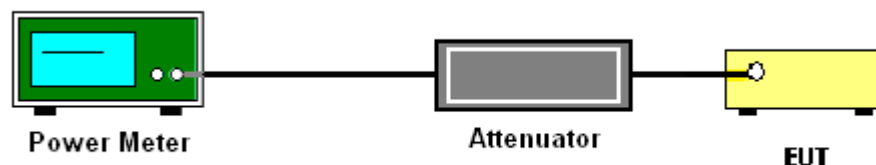
3.2.2 Measuring Instruments

See list of measuring equipment of this test report.

3.2.3 Test Procedures

1. For Average Power, the testing follows ANSI C63.10 Section 11.9.2.3.2 Method AVGPM-G.
2. The RF output of EUT was connected to the power meter by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Measure the conducted output power and record the results in the test report.

3.2.4 Test Setup



3.2.5 Test Result of Average output Power

Please refer to Appendix A.

3.3 Power Spectral Density Measurement

3.3.1 Limit of Power Spectral Density

The peak power spectral density shall not be greater than 8dBm in any 3kHz band at any time interval of continuous transmission.

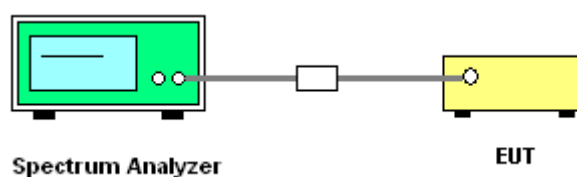
3.3.2 Measuring Instruments

See list of measuring equipment of this test report.

3.3.3 Test Procedures

1. The testing follows the ANSI C63.10 Section 11.10.2 Method PKPSD.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 3 kHz. Video bandwidth VBW = 10 kHz In order to make an accurate measurement, set the span to 1.5 times DTS Channel Bandwidth. (6dB BW)
5. Detector = peak, Sweep time = auto couple, Trace mode = max hold, Allow trace to fully stabilize. Use the peak marker function to determine the maximum power level.
6. Measure and record the results in the test report.

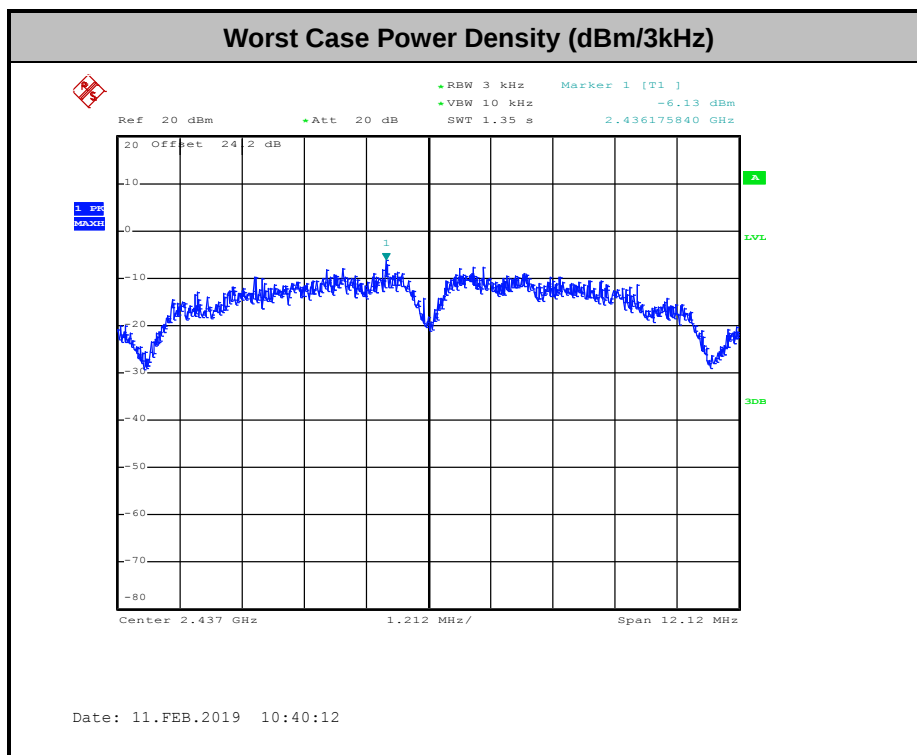
3.3.4 Test Setup





3.3.5 Test Result of Power Spectral Density

Please refer to Appendix A.



3.4 Conducted Band Edges and Spurious Emission Measurement

3.4.1 Limit of Conducted Band Edges and Spurious Emission Measurement

In any 100 kHz bandwidth outside of the authorized frequency band, the emissions which fall in the non-restricted bands shall be attenuated at least 20 dB / 30dB relative to the maximum PSD level in 100 kHz by RF conducted measurement.

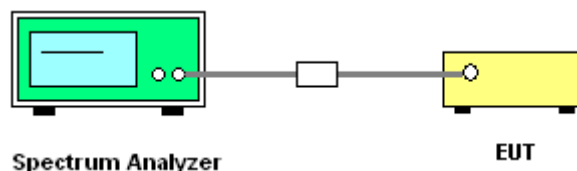
3.4.2 Measuring Instruments

See list of measuring equipment of this test report.

3.4.3 Test Procedures

1. The testing follows the ANSI C63.10 Section 11.11.3 Emission level measurement.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Set RBW = 100 kHz, VBW=300 kHz, Peak Detector. Unwanted Emissions measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz when maximum peak conducted output power procedure is used. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB per 15.247(d).
5. Measure and record the results in the test report.
6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

3.4.4 Test Setup

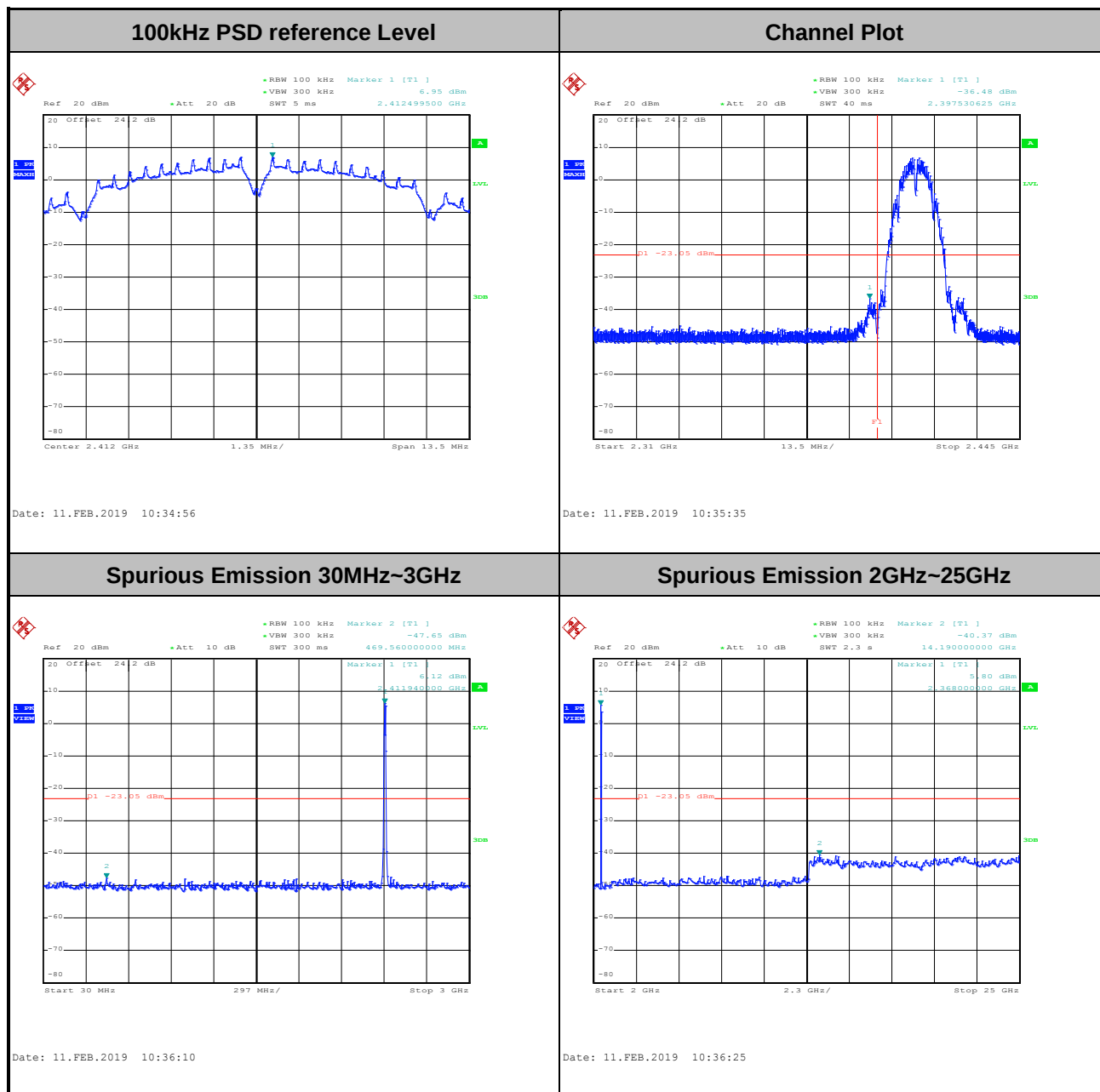




3.4.5 Test Result of Conducted Band Edges and Spurious Emission

Test Engineer :	Derek Hsu, Allen Lin, and Richard Qiu	Temperature :	21~25°C
		Relative Humidity :	51~54%

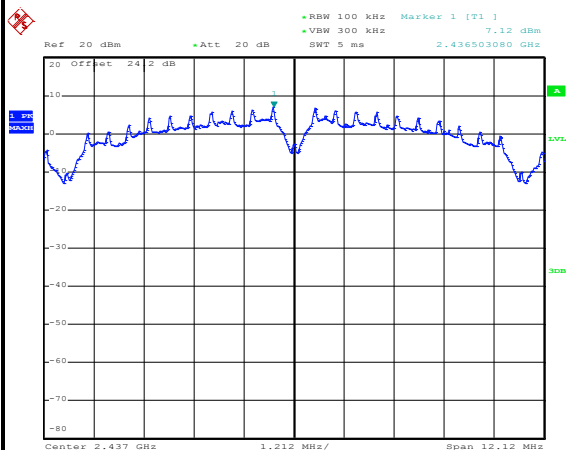
Test Mode :	802.11b	Test Channel :	01
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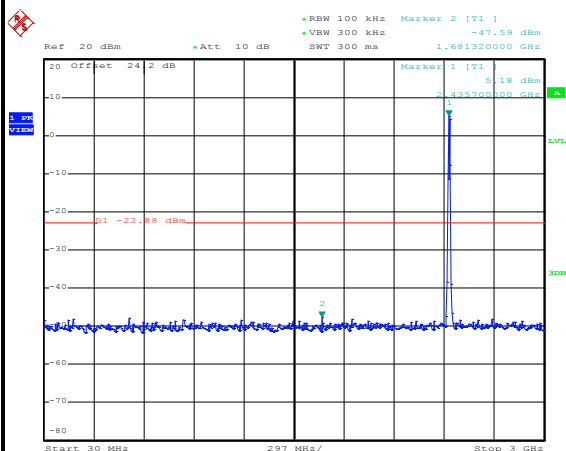
Test Mode :	802.11b	Test Channel :	06
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100kHz PSD reference Level



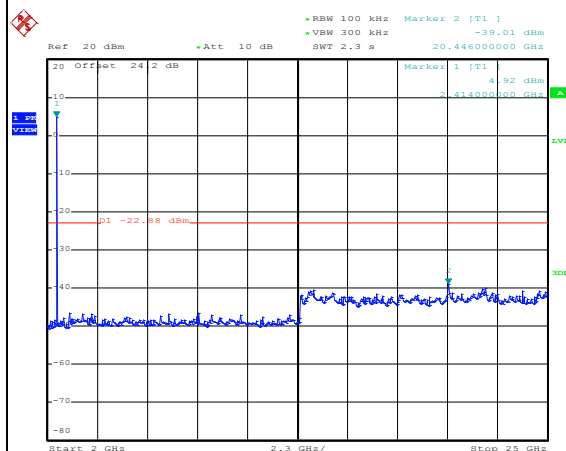
Date: 11.FEB.2019 10:40:34

Spurious Emission 30MHz~3GHz



Date: 11.FEB.2019 10:40:52

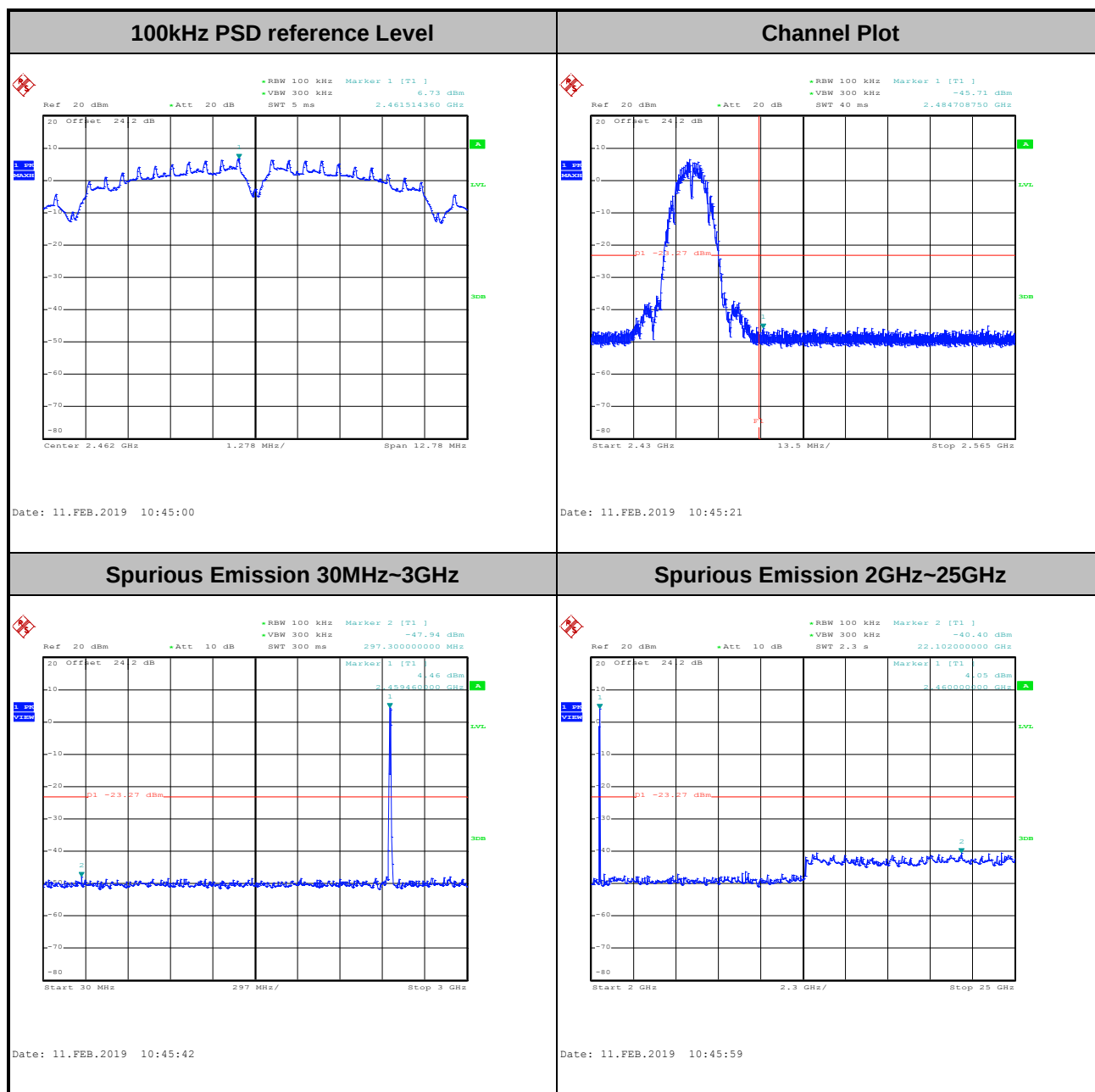
Spurious Emission 2GHz~25GHz



Date: 11.FEB.2019 10:41:07

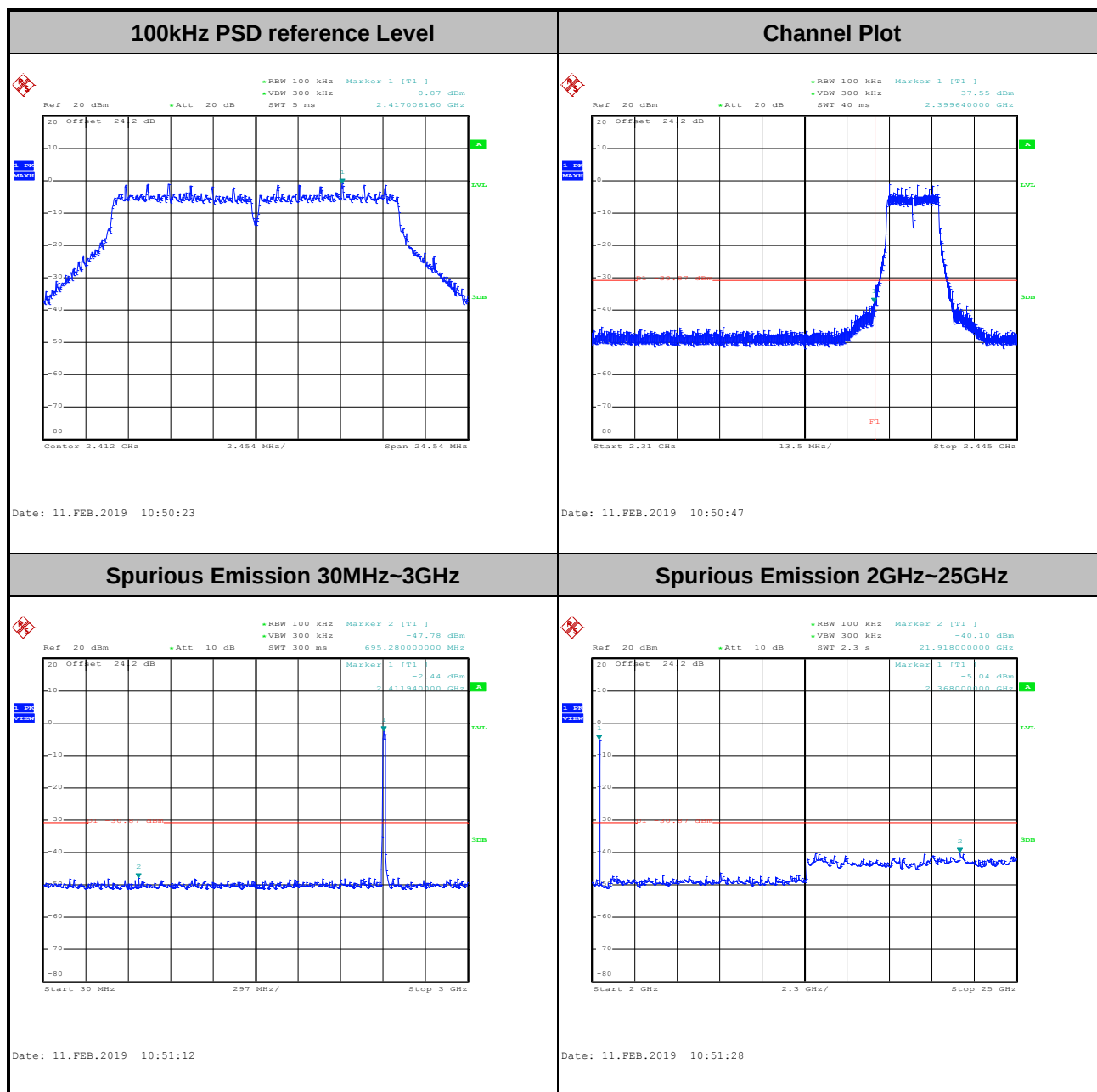


Test Mode :	802.11b	Test Channel :	11
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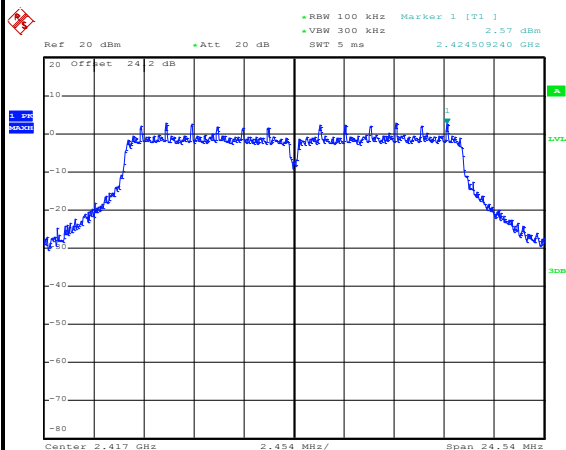
Test Mode :	802.11g	Test Channel :	01
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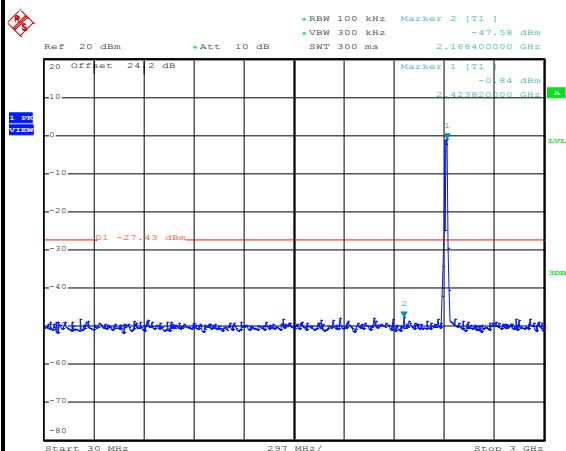
Test Mode :	802.11g	Test Channel :	02
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100kHz PSD reference Level



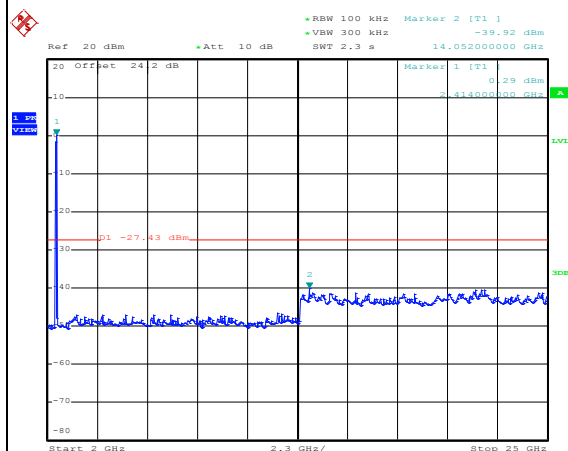
Date: 11.FEB.2019 11:02:01

Spurious Emission 30MHz~3GHz



Date: 11.FEB.2019 11:03:55

Spurious Emission 2GHz~25GHz

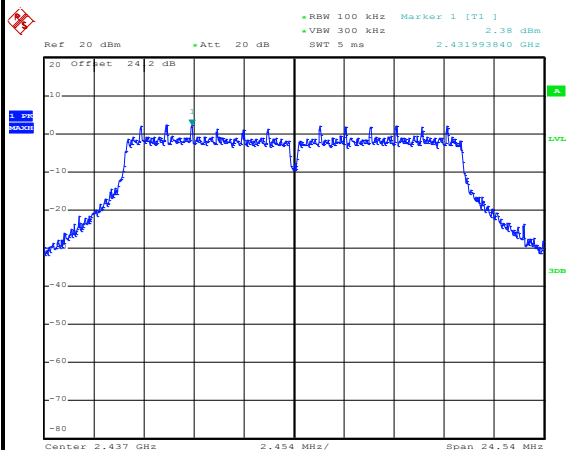


Date: 11.FEB.2019 11:04:12



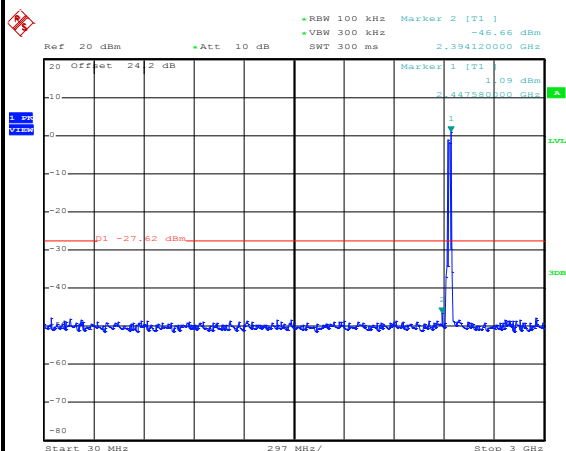
Test Mode :	802.11g	Test Channel :	06
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100kHz PSD reference Level



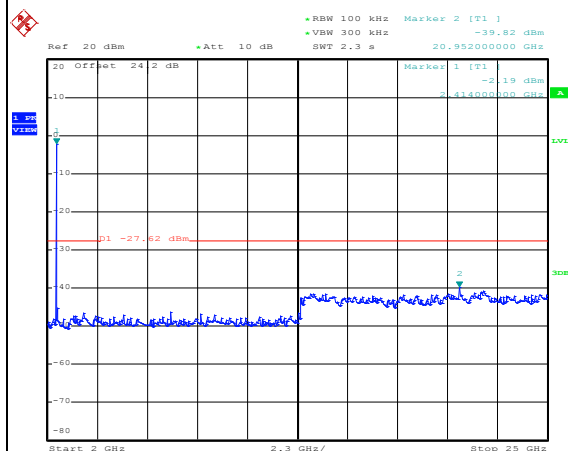
Date: 11.FEB.2019 13:46:05

Spurious Emission 30MHz~3GHz



Date: 11.FEB.2019 13:46:27

Spurious Emission 2GHz~25GHz

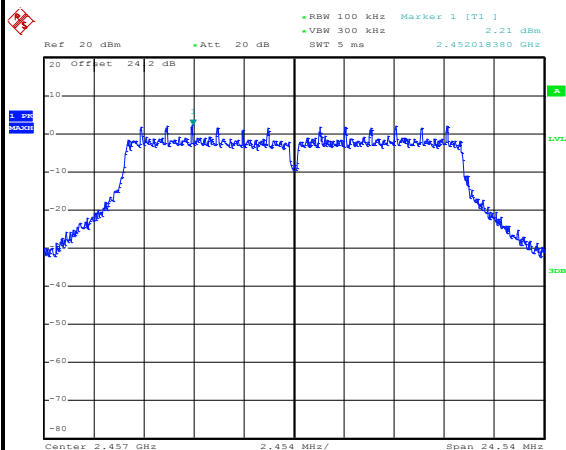


Date: 11.FEB.2019 13:46:42



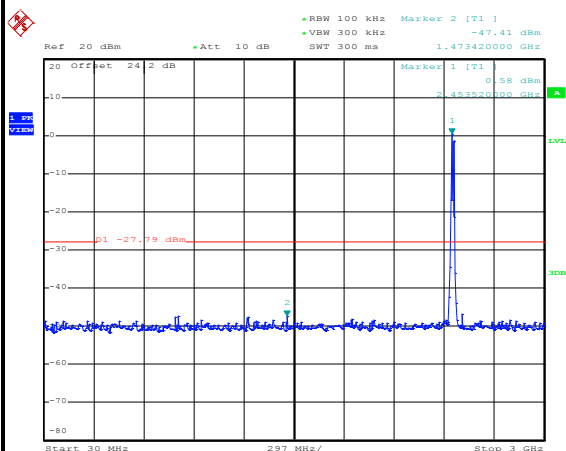
Test Mode :	802.11g	Test Channel :	10
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100kHz PSD reference Level



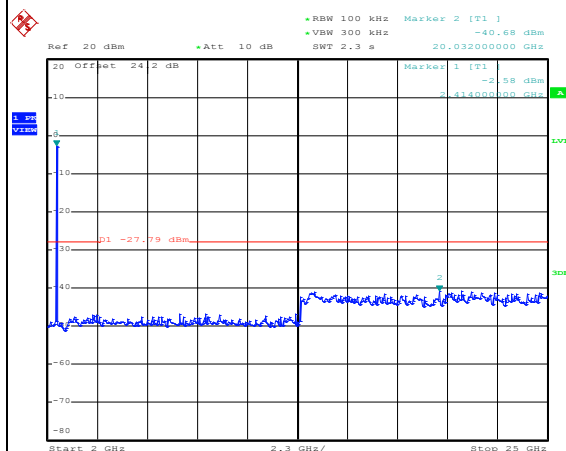
Date: 11.FEB.2019 11:26:40

Spurious Emission 30MHz~3GHz



Date: 11.FEB.2019 11:27:02

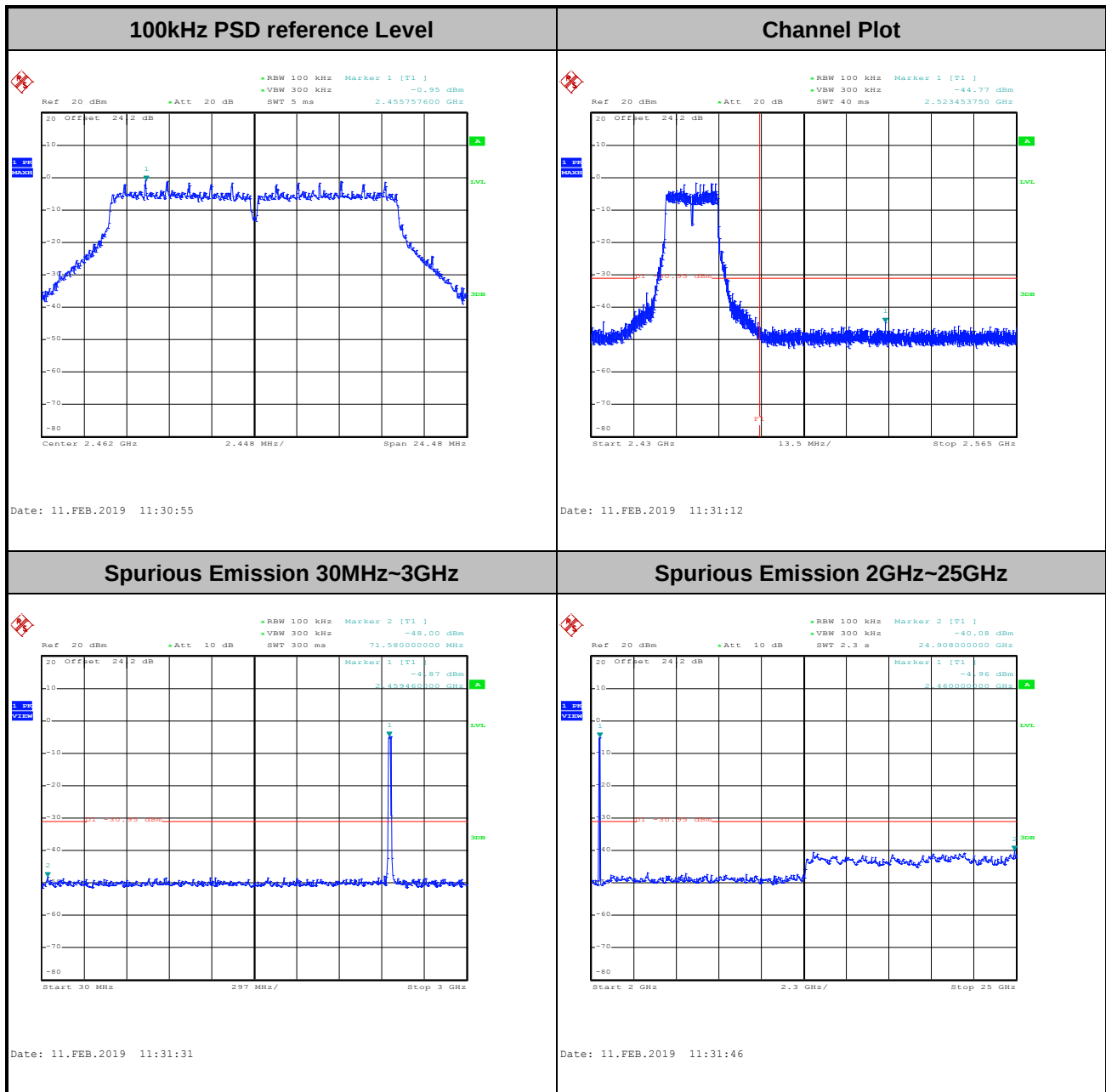
Spurious Emission 2GHz~25GHz

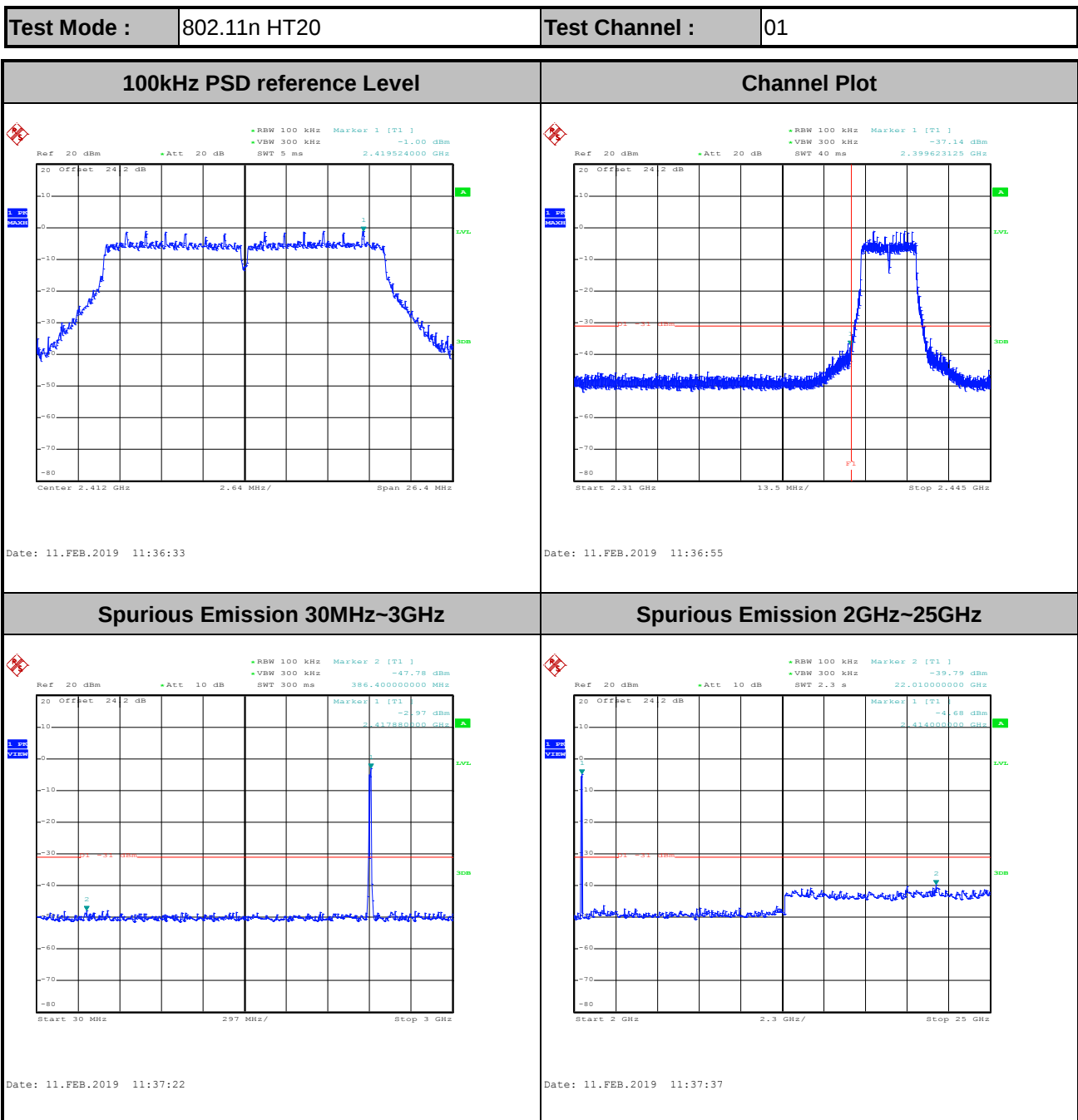


Date: 11.FEB.2019 11:27:18



Test Mode :	802.11g	Test Channel :	11
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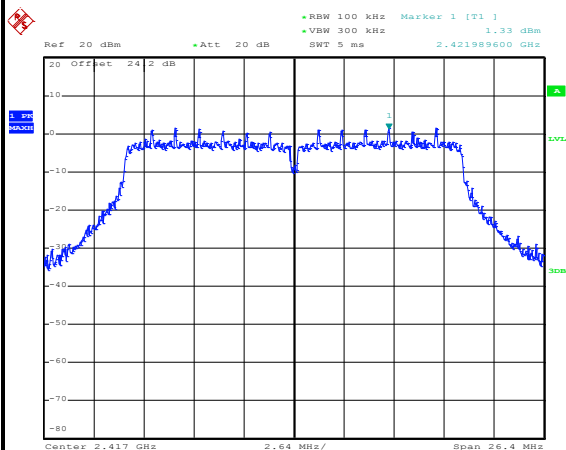






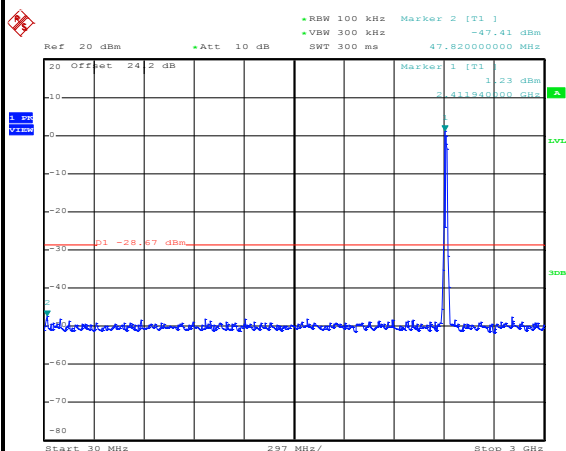
Test Mode :	802.11n HT20	Test Channel :	02
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100kHz PSD reference Level



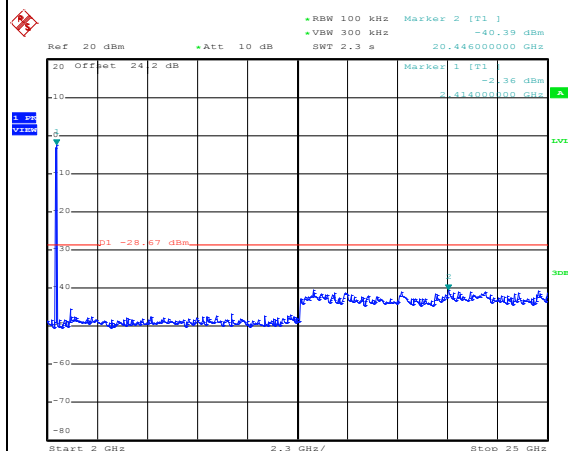
Date: 11.FEB.2019 11:45:59

Spurious Emission 30MHz~3GHz



Date: 11.FEB.2019 11:47:47

Spurious Emission 2GHz~25GHz

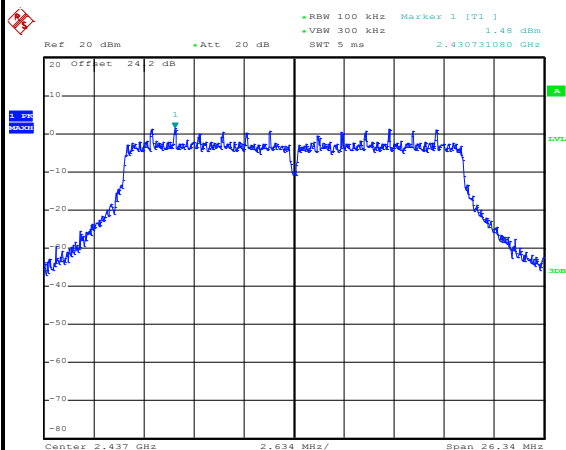


Date: 11.FEB.2019 11:48:20



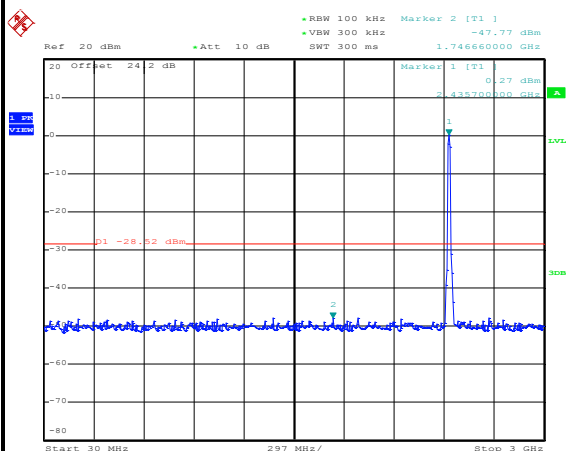
Test Mode :	802.11n HT20	Test Channel :	06
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100kHz PSD reference Level



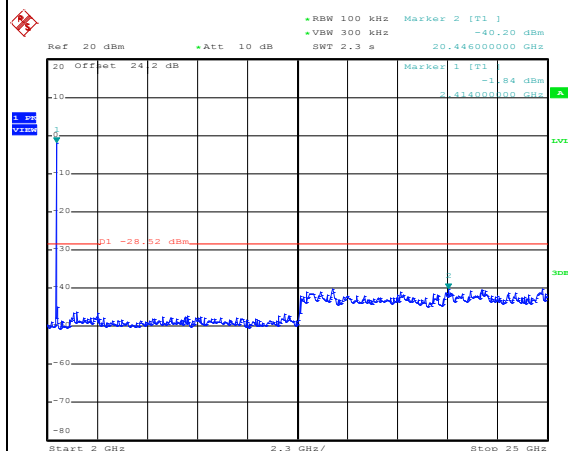
Date: 11.FEB.2019 11:55:12

Spurious Emission 30MHz~3GHz



Date: 11.FEB.2019 11:55:29

Spurious Emission 2GHz~25GHz

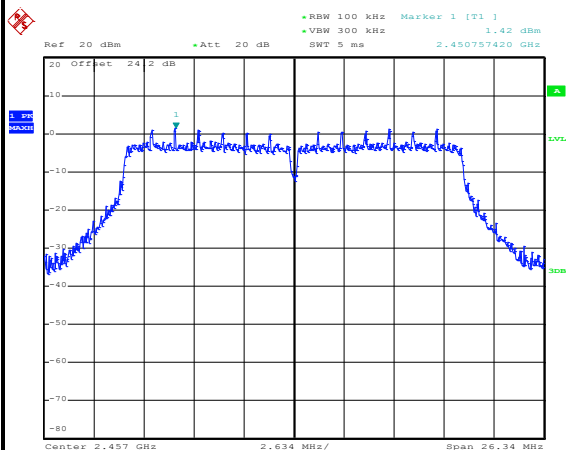


Date: 11.FEB.2019 11:55:46



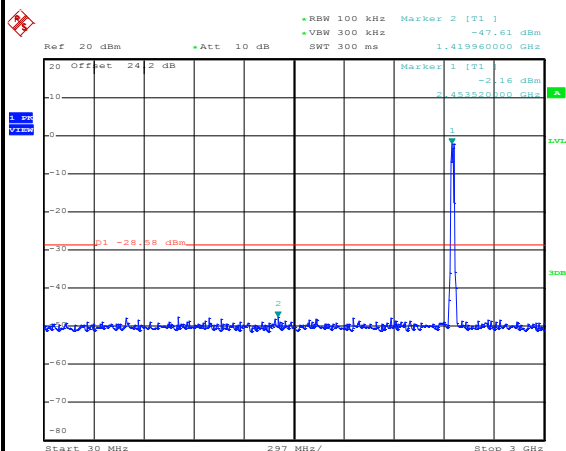
Test Mode :	802.11n HT20	Test Channel :	10
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100kHz PSD reference Level



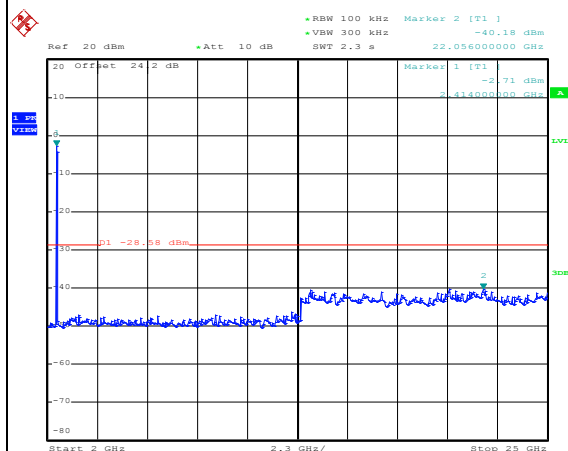
Date: 11.FEB.2019 11:58:28

Spurious Emission 30MHz~3GHz



Date: 11.FEB.2019 11:58:45

Spurious Emission 2GHz~25GHz



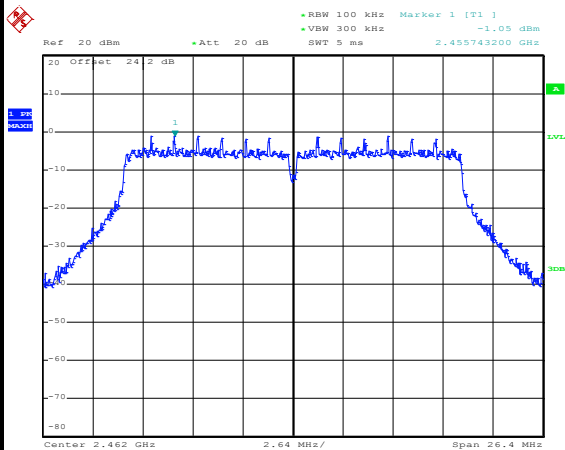
Date: 11.FEB.2019 11:59:00



Test Mode : 802.11n HT20

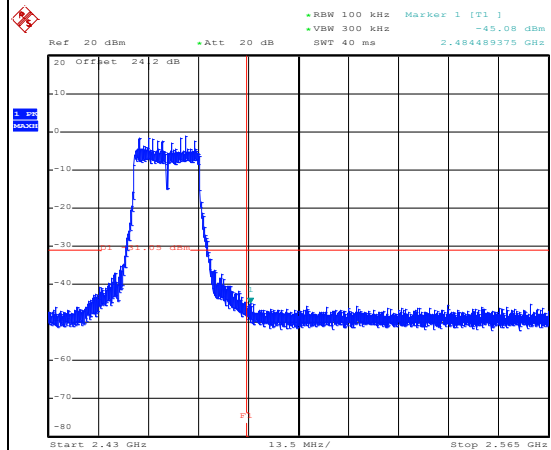
Test Channel : 11

100kHz PSD reference Level



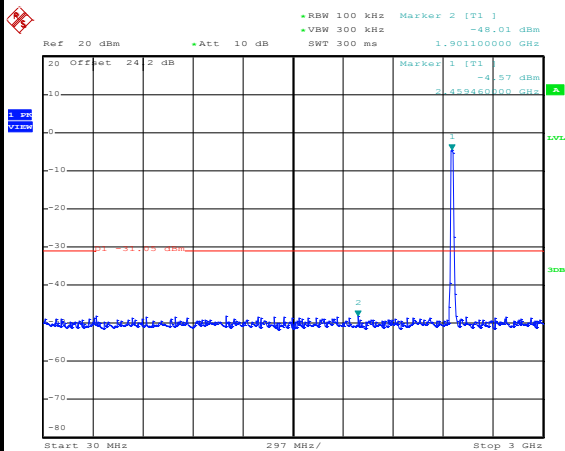
Date: 11.FEB.2019 13:34:36

Channel Plot



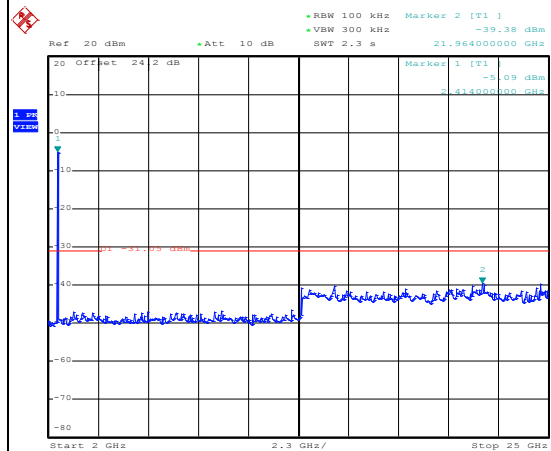
Date: 11.FEB.2019 13:34:58

Spurious Emission 30MHz~3GHz



Date: 11.FEB.2019 13:35:17

Spurious Emission 2GHz~25GHz



Date: 11.FEB.2019 13:35:37

3.5 Radiated Band Edges and Spurious Emission Measurement

3.5.1 Limit of Radiated band edge and Spurious Emission Measurement

In any 100 kHz bandwidth outside the intentional radiator frequency band, all harmonics/spurious must be at least 20 dB below the highest emission level within the authorized band. If the output power of this device was measured by spectrum analyzer, the attenuation under this paragraph shall be 30 dB instead of 20 dB. In addition, radiated emissions which fall in the restricted bands must also comply with the limits as below.

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

3.5.2 Measuring Instruments

See list of measuring equipment of this test report.

3.5.3 Test Procedures

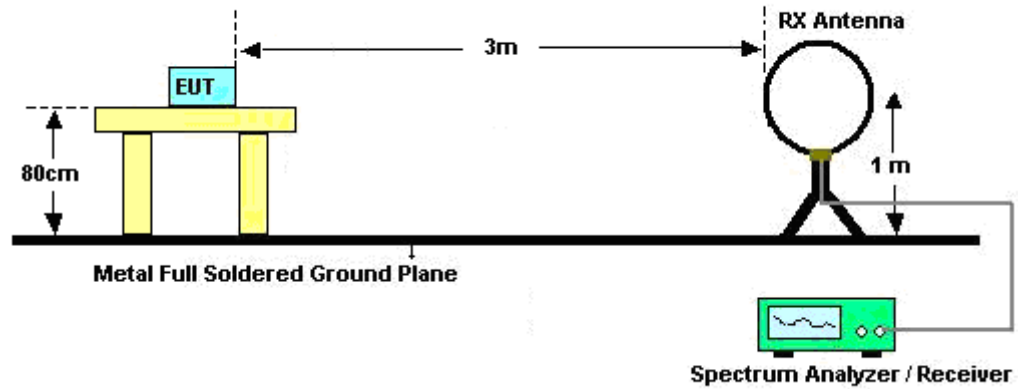
1. The testing follows the ANSI C63.10 Section 11.12.1 Radiated emission measurements.
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level.
3. 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.
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
5. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level
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.
8. Use the following spectrum analyzer settings:
 - (1) Span shall wide enough to fully capture the emission being measured;
 - (2) Set RBW=100 kHz for $f < 1$ GHz; VBW $\geq$ RBW; Sweep = auto; Detector function = peak; Trace = max hold;
 - (3) Set RBW = 1 MHz, VBW= 3MHz for $f \geq 1$ GHz for peak measurement.

For average measurement:

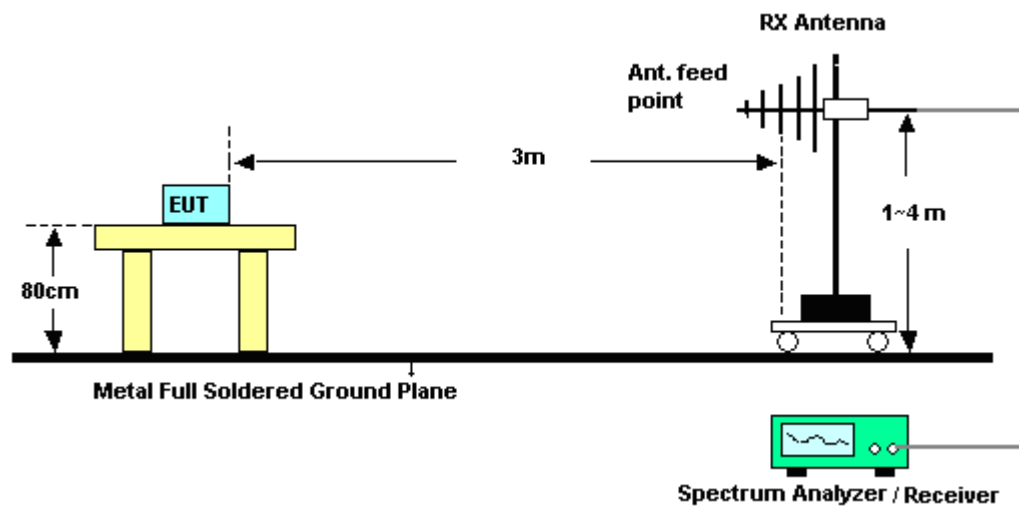
 - VBW = 10 Hz, when duty cycle is no less than 98 percent.
 - VBW $\geq 1/T$, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

3.5.4 Test Setup

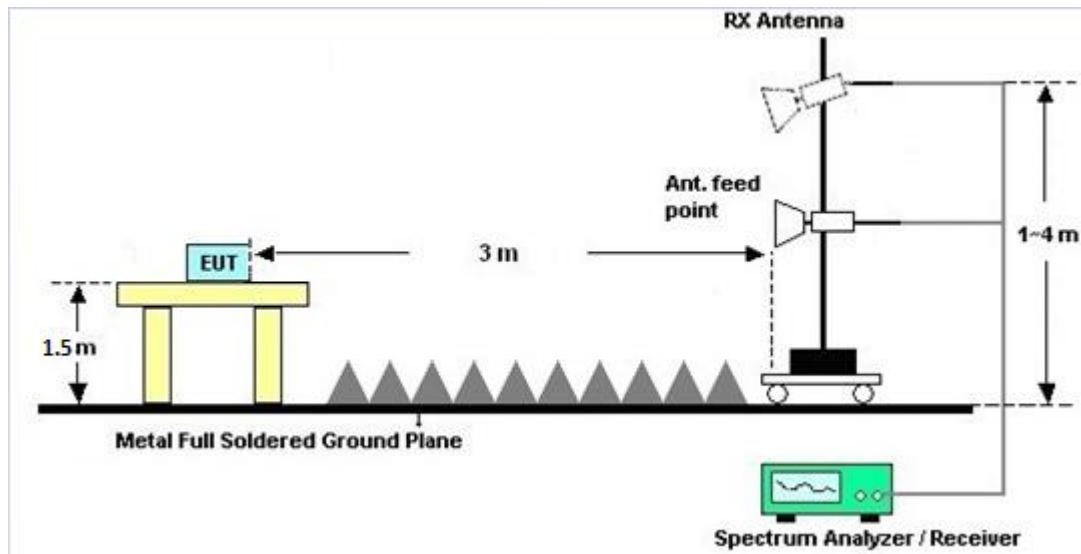
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



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

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 alternative test site - semi-Anechoic chamber according to 414788 D01 Radiated Test Site v01r01, and the result came out very similar.

3.5.6 Test Result of Radiated Spurious at Band Edges

Please refer to Appendix C and D.

3.5.7 Duty Cycle

Please refer to Appendix E.

3.5.8 Test Result of Radiated Spurious Emission (30MHz ~ 10th Harmonic)

Please refer to Appendix C and D.

3.6 AC Conducted Emission Measurement

3.6.1 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.

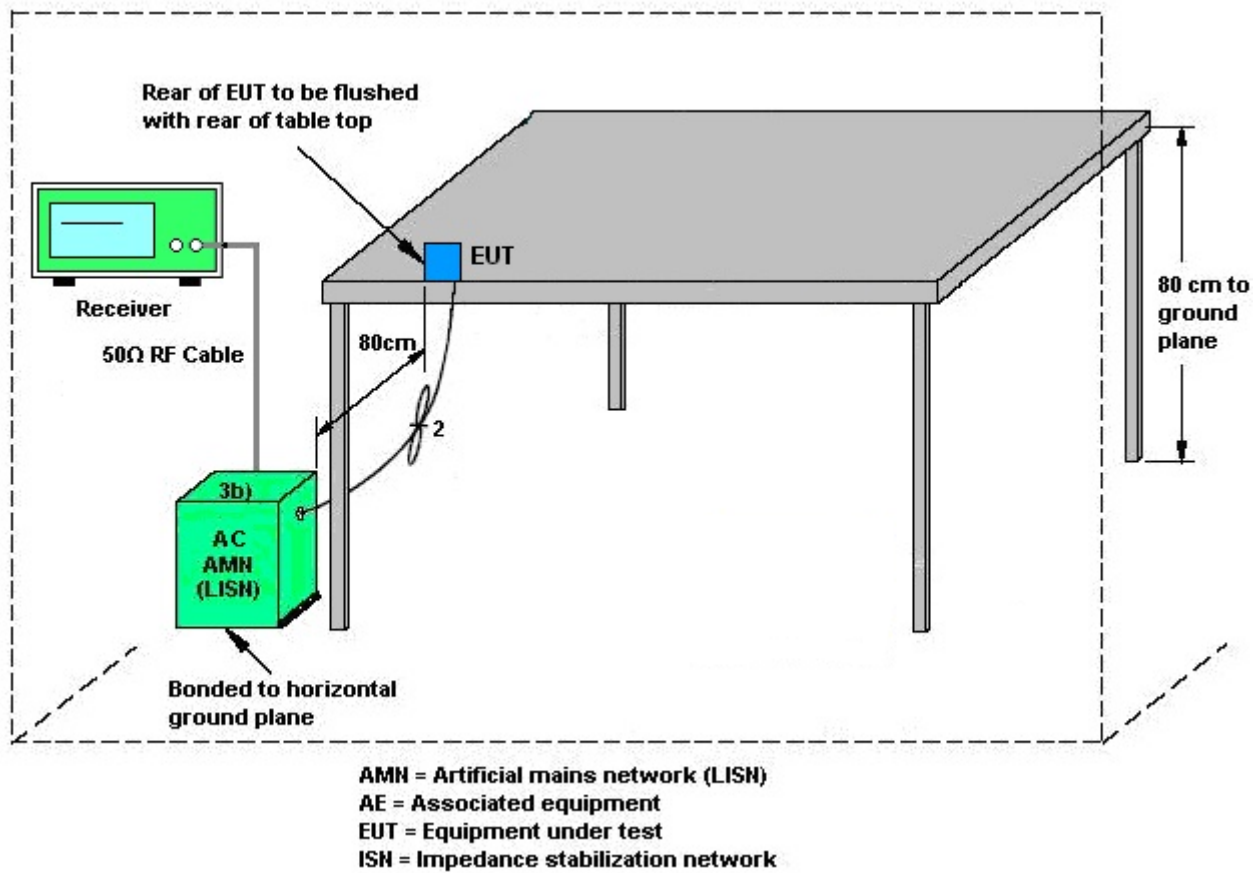
3.6.2 Measuring Instruments

See list of measuring equipment of this test report.

3.6.3 Test Procedures

1. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it 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 (IF bandwidth = 9kHz) with Maximum Hold Mode.

3.6.4 Test Setup



3.6.5 Test Result of AC Conducted Emission

Please refer to Appendix B.



3.7 Antenna Requirements

3.7.1 Standard Applicable

If directional gain of transmitting Antennas is greater than 6dBi, the power shall be reduced by the same level in dB comparing to gain minus 6dBi. The use of a permanently attached Antenna or of an Antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the rule.

3.7.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

3.7.3 Antenna Gain

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



4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Power Sensor	DARE	RadiPower	15I00041S NO09	10MHz~6GHz	May 07, 2018	Jan. 23, 2019 ~ Feb. 11, 2019	May 06, 2019	Conducted (TH05-HY)
Spectrum Analyzer	Rohde & Schwarz	FSP40	100057	9kHz-40GHz	Nov. 21, 2018	Jan. 23, 2019 ~ Feb. 11, 2019	Nov. 20, 2019	Conducted (TH05-HY)
Switch Box & RF Cable	Burgeon	ETF-058	EC130048 4	N/A	Mar. 01, 2018	Jan. 23, 2019 ~ Feb. 11, 2019	Feb. 28, 2019	Conducted (TH05-HY)
AC Power Source	ChainTek	APC-1000W	N/A	N/A	N/A	Feb. 10, 2019	N/A	Conduction (CO05-HY)
EMI Test Receiver	Rohde & Schwarz	ESR3	102388	9KHz~3.6GHz	Nov. 12, 2018	Feb. 10, 2019	Nov. 11, 2019	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100080	9kHz~30MHz	Nov. 14, 2018	Feb. 10, 2019	Nov. 13, 2019	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100081	9kHz~30MHz	Nov. 09, 2018	Feb. 10, 2019	Nov. 08, 2019	Conduction (CO05-HY)
Software	Rohde & Schwarz	EMC32 V10.30	N/A	N/A	N/A	Feb. 10, 2019	N/A	Conduction (CO05-HY)
RF Cable	HUBER + SUHNER	RG 214/U	1358175	9kHz~30MHz	Sep. 14, 2018	Feb. 10, 2019	Sep. 13, 2019	Conduction (CO05-HY)
Pulse Limiter	SCHWARZBE CK	VTSD 9561-F N	9561-F N00373	9kHz-200MHz	Nov. 08, 2018	Feb. 10, 2019	Nov. 07, 2019	Conduction (CO05-HY)
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100315	9 kHz~30 MHz	Nov. 23, 2017	Jan. 28, 2019 ~ Jan. 30, 2019	Nov. 22, 2019	Radiation (03CH16-HY)
Bilog Antenna	TESEQ	CBL6111D&0 0802N1D01N- 06	47020&06	30MHz to 1GHz	Oct. 13, 2018	Jan. 28, 2019 ~ Jan. 30, 2019	Oct. 12, 2019	Radiation (03CH16-HY)
Horn Antenna	SCHWARZBE CK	BBHA 9120 D	9120D-152 2	1G~18GHz	Sep. 07, 2018	Jan. 28, 2019 ~ Jan. 30, 2019	Sep. 06, 2019	Radiation (03CH16-HY)
SHF-EHF Horn Antenna	SCHWARZBE CK	BBHA 9170	BBHA9170 576	18GHz ~ 40GHz	May 08, 2018	Jan. 28, 2019 ~ Jan. 30, 2019	May 07, 2019	Radiation (03CH16-HY)
EMI Test Receiver	Keysight	N9038A (MXE)	MY572901 11	3Hz~26.5GHz	Nov. 29, 2018	Jan. 28, 2019 ~ Jan. 30, 2019	Nov. 28, 2019	Radiation (03CH16-HY)
Spectrum Analyzer	Agilent	N9010A	MY534701 18	10Hz~44GHz	Apr. 17, 2018	Jan. 28, 2019 ~ Jan. 30, 2019	Apr. 16, 2019	Radiation (03CH16-HY)
Amplifier	SONOMA	310N	371607	9kHz~1000MHz	Oct. 02, 2018	Jan. 28, 2019 ~ Jan. 30, 2019	Oct. 01, 2019	Radiation (03CH16-HY)
Preamplifier	Jet-Power	JPA0118-55-3 03	171000180 0054001	1GHz~18GHz	Apr. 16, 2018	Jan. 28, 2019 ~ Jan. 30, 2019	Apr. 15, 2019	Radiation (03CH16-HY)
Preamplifier	Keysight	83017A	MY532701 47	1GHz~26.5GHz	Feb. 02, 2018	Jan. 28, 2019 ~ Jan. 30, 2019	Feb. 01, 2019	Radiation (03CH16-HY)
Amplifier	MITEQ	TTA1840-35- HG	1871923	18GHz~40GHz, VSWR : 2.5:1 max	Jul. 16, 2018	Jan. 28, 2019 ~ Jan. 30, 2019	Jul. 15, 2019	Radiation (03CH16-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 126E	0058/126E	30M~18GHz	Mar. 14, 2018	Jan. 28, 2019 ~ Jan. 30, 2019	Mar. 13, 2019	Radiation (03CH16-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY15539/ 4	30M~18GHz	Mar. 14, 2018	Jan. 28, 2019 ~ Jan. 30, 2019	Mar. 13, 2019	Radiation (03CH16-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY36979/ 4	30M~18GHz	Mar. 14, 2018	Jan. 28, 2019 ~ Jan. 30, 2019	Mar. 13, 2019	Radiation (03CH16-HY)
Software	Audix	E3 6.2009-8-24	RK-001136	N/A	N/A	Jan. 28, 2019 ~ Jan. 30, 2019	N/A	Radiation (03CH16-HY)

5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	2.2
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Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	4.9
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Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.8
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Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	3.9
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Appendix A. Test Result of Conducted Test Items

Test Engineer:	Derek Hsu / Allen Lin/Richard Qiu	Temperature:	21~25	°C
Test Date:	2019/1/23~2019/2/11	Relative Humidity:	51~54	%

TEST RESULTS DATA
6dB and 99% Occupied Bandwidth

2.4GHz Band										
Mod.	Data Rate	NTx	CH.	Freq. (MHz)	99% Occupied BW (MHz)		6dB BW (MHz)		6dB BW Limit (MHz)	Pass/Fail
					Ant 1	Ant 2	Ant 1	Ant 2		
11b	1Mbps	1	1	2412	13.45	-	9.00	-	0.50	Pass
11b	1Mbps	1	6	2437	13.35	-	8.08	-	0.50	Pass
11b	1Mbps	1	11	2462	13.35	-	8.52	-	0.50	Pass
11g	6Mbps	1	1	2412	17.10	-	16.36	-	0.50	Pass
11g	6Mbps	1	2	2417	17.25	-	16.36	-	0.50	Pass
11g	6Mbps	1	6	2437	17.15	-	16.36	-	0.50	Pass
11g	6Mbps	1	10	2457	17.10	-	16.36	-	0.50	Pass
11g	6Mbps	1	11	2462	17.05	-	16.32	-	0.50	Pass
HT20	MCS0	1	1	2412	18.10	-	17.60	-	0.50	Pass
HT20	MCS0	1	2	2417	18.20	-	17.60	-	0.50	Pass
HT20	MCS0	1	6	2437	18.20	-	17.56	-	0.50	Pass
HT20	MCS0	1	10	2457	18.15	-	17.56	-	0.50	Pass
HT20	MCS0	1	11	2462	18.10	-	17.60	-	0.50	Pass

TEST RESULTS DATA
Average Output Power

2.4GHz Band																
Mod.	Data Rate	Ntx	CH.	Freq. (MHz)	Average Conducted Power (dBm)			Conducted Power Limit (dBm)		DG (dBi)		EIRP Power (dBm)		EIRP Power Limit (dBm)		Pass /Fail
					Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	
11b	1Mbps	1	1	2412	15.90	-	-	30.00	-	2.00	-	17.90	-	36.00	-	Pass
11b	1Mbps	1	6	2437	15.70	-		30.00	-	2.00	-	17.70	-	36.00	-	Pass
11b	1Mbps	1	11	2462	15.60	-		30.00	-	2.00	-	17.60	-	36.00	-	Pass
11g	6Mbps	1	1	2412	10.70	-		30.00	-	2.00	-	12.70	-	36.00	-	Pass
11g	6Mbps	1	2	2417	13.90	-		30.00	-	2.00	-	15.90	-	36.00	-	Pass
11g	6Mbps	1	6	2437	14.00	-		30.00	-	2.00	-	16.00	-	36.00	-	Pass
11g	6Mbps	1	10	2457	13.60	-		30.00	-	2.00	-	15.60	-	36.00	-	Pass
11g	6Mbps	1	11	2462	10.70	-		30.00	-	2.00	-	12.70	-	36.00	-	Pass
HT20	MCS0	1	1	2412	10.70	-		30.00	-	2.00	-	12.70	-	36.00	-	Pass
HT20	MCS0	1	2	2417	12.90	-		30.00	-	2.00	-	14.90	-	36.00	-	Pass
HT20	MCS0	1	6	2437	12.90	-		30.00	-	2.00	-	14.90	-	36.00	-	Pass
HT20	MCS0	1	10	2457	12.80	-		30.00	-	2.00	-	14.80	-	36.00	-	Pass
HT20	MCS0	1	11	2462	10.80	-		30.00	-	2.00	-	12.80	-	36.00	-	Pass

Note: Measured power (dBm) has offset with cable loss.

TEST RESULTS DATA
Peak Power Spectral Density

2.4GHz Band												
Mod.	Data Rate	NTx	CH.	Freq. (MHz)	Peak PSD (dBm/3kHz)			DG (dBi)		Peak PSD Limit (dBm/3kHz)		Pass/Fail
					Ant 1	Ant 2	Worse + 3.01	Ant 1	Ant 2	Ant 1	Ant 2	
11b	1Mbps	1	1	2412	-6.91	-	-	2.00	-	8.00	-	Pass
11b	1Mbps	1	6	2437	-6.13	-	-	2.00	-	8.00	-	Pass
11b	1Mbps	1	11	2462	-6.85	-	-	2.00	-	8.00	-	Pass
11g	6Mbps	1	1	2412	-15.20	-	-	2.00	-	8.00	-	Pass
11g	6Mbps	1	2	2417	-11.03	-	-	2.00	-	8.00	-	Pass
11g	6Mbps	1	6	2437	-11.84	-	-	2.00	-	8.00	-	Pass
11g	6Mbps	1	10	2457	-12.26	-	-	2.00	-	8.00	-	Pass
11g	6Mbps	1	11	2462	-15.03	-	-	2.00	-	8.00	-	Pass
HT20	MCS0	1	1	2412	-14.95	-	-	2.00	-	8.00	-	Pass
HT20	MCS0	1	2	2417	-13.05	-	-	2.00	-	8.00	-	Pass
HT20	MCS0	1	6	2437	-12.45	-	-	2.00	-	8.00	-	Pass
HT20	MCS0	1	10	2457	-13.41	-	-	2.00	-	8.00	-	Pass
HT20	MCS0	1	11	2462	-15.68	-	-	2.00	-	8.00	-	Pass

Measured power density (dBm) has offset with cable loss.



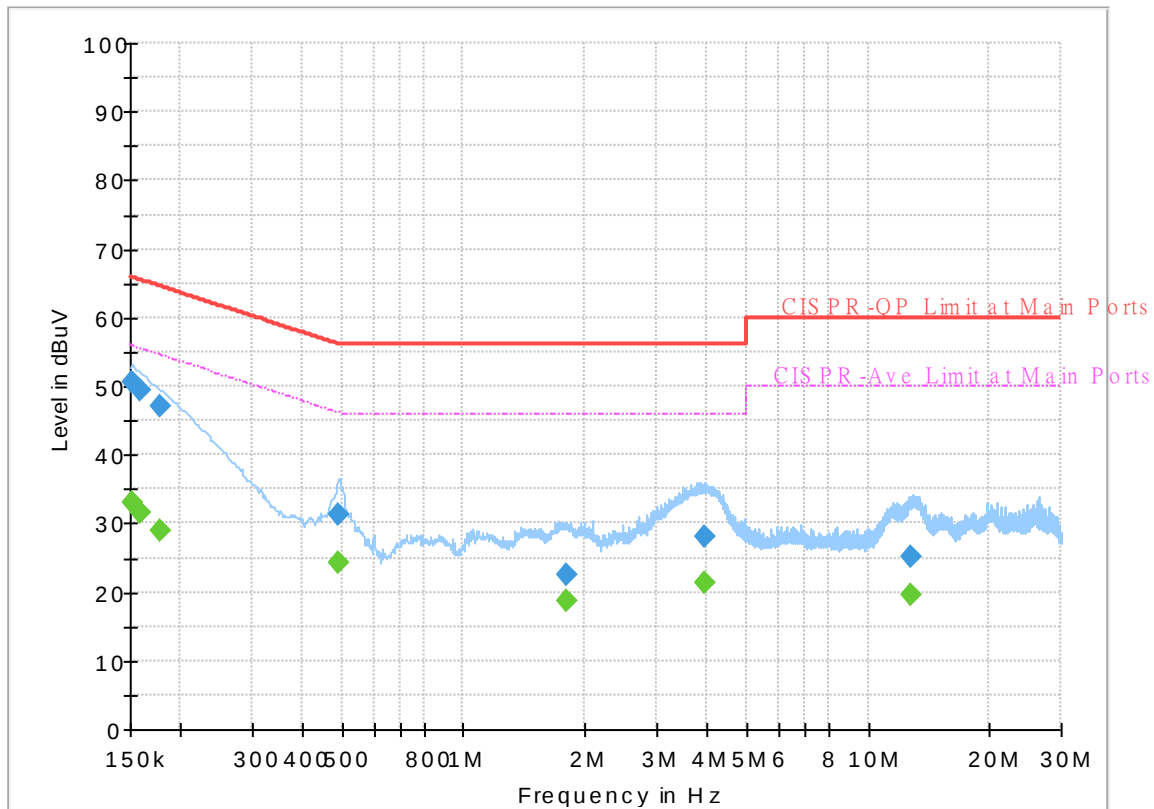
Appendix B. AC Conducted Emission Test Results

Test Engineer :	Eric Jeng	Temperature :	22~25°C
		Relative Humidity :	52~55%

EUT Information

Report NO : 911608
Test Mode : Mode 1
Test Voltage : 120Vac/60Hz
Phase : Line

Full Spectrum



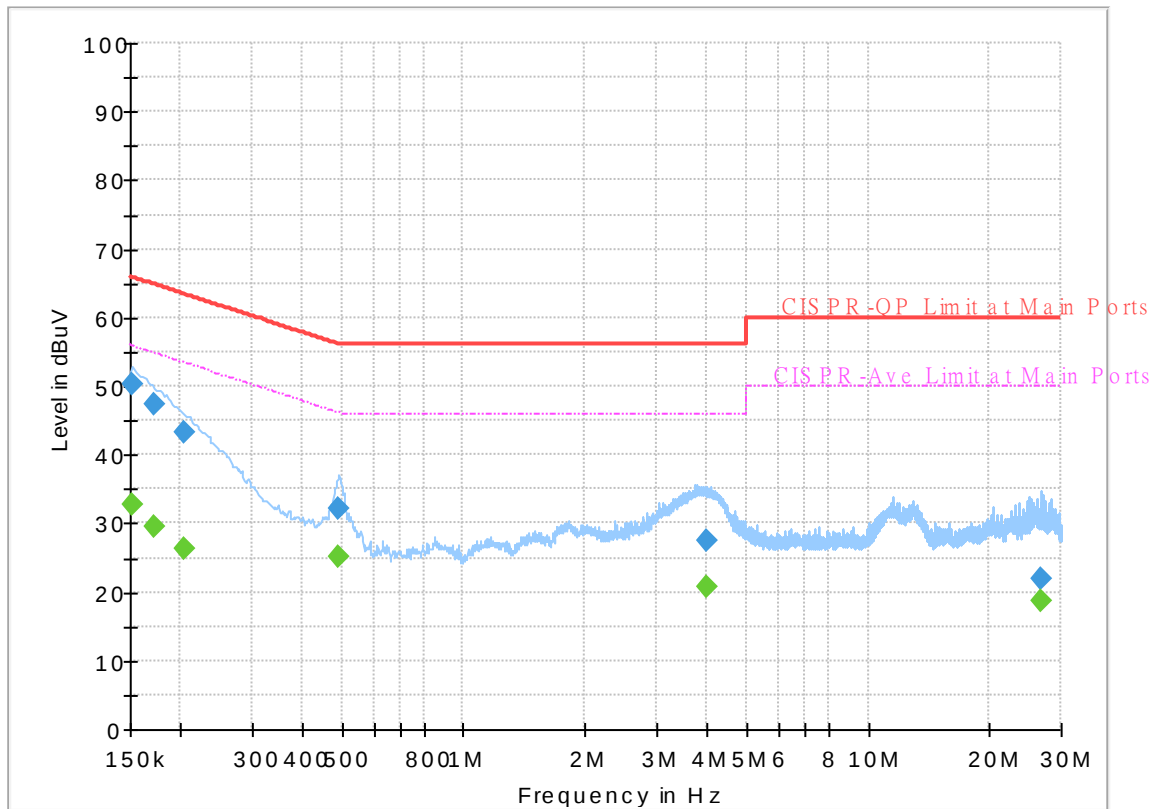
Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.152250	---	32.95	55.88	22.93	L1	OFF	19.5
0.152250	50.62	---	65.88	15.26	L1	OFF	19.5
0.159000	---	31.66	55.52	23.86	L1	OFF	19.5
0.159000	49.41	---	65.52	16.11	L1	OFF	19.5
0.177000	---	29.04	54.63	25.59	L1	OFF	19.5
0.177000	47.01	---	64.63	17.62	L1	OFF	19.5
0.492000	---	24.13	46.13	22.00	L1	OFF	19.5
0.492000	31.32	---	56.13	24.81	L1	OFF	19.5
1.799250	---	18.68	46.00	27.32	L1	OFF	19.6
1.799250	22.59	---	56.00	33.41	L1	OFF	19.6
3.948000	---	21.40	46.00	24.60	L1	OFF	19.6
3.948000	28.00	---	56.00	28.00	L1	OFF	19.6
12.741000	---	19.72	50.00	30.28	L1	OFF	19.7
12.741000	25.09	---	60.00	34.91	L1	OFF	19.7

EUT Information

Report NO : 911608
 Test Mode : Mode 1
 Test Voltage : 120Vac/60Hz
 Phase : Neutral

Full Spectrum



Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.152250	---	32.81	55.88	23.07	N	OFF	19.5
0.152250	50.36	---	65.88	15.52	N	OFF	19.5
0.172500	---	29.56	54.84	25.28	N	OFF	19.5
0.172500	47.32	---	64.84	17.52	N	OFF	19.5
0.204000	---	26.43	53.45	27.02	N	OFF	19.5
0.204000	43.27	---	63.45	20.18	N	OFF	19.5
0.492000	---	25.29	46.13	20.84	N	OFF	19.5
0.492000	32.13	---	56.13	24.00	N	OFF	19.5
4.008750	---	20.86	46.00	25.14	N	OFF	19.6
4.008750	27.55	---	56.00	28.45	N	OFF	19.6
26.720250	---	18.79	50.00	31.21	N	OFF	20.0
26.720250	21.84	---	60.00	38.16	N	OFF	20.0



Appendix C. Radiated Spurious Emission

Test Engineer :	Jacky Hung and CR Liao	Temperature :	23~25°C
		Relative Humidity :	55~57%

2.4GHz 2400~2483.5MHz

WIFI 802.11b (Band Edge @ 3m)

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 CH 01 2412MHz		2382.03	57.27	-16.73	74	41.74	27.22	18.3	29.99	209	334	P	H
		2389.8	45.32	-8.68	54	29.75	27.24	18.32	29.99	209	334	A	H
	*	2412	103.04	-	-	87.4	27.29	18.34	29.99	209	334	P	H
	*	2412	99.84	-	-	84.2	27.29	18.34	29.99	209	334	A	H
													H
													H
		2387.595	57	-17	74	41.45	27.23	18.31	29.99	307	298	P	V
		2389.17	45.78	-8.22	54	30.23	27.23	18.31	29.99	307	298	A	V
	*	2412	105.54	-	-	89.9	27.29	18.34	29.99	307	298	P	V
	*	2412	102.32	-	-	86.68	27.29	18.34	29.99	307	298	A	V
													V
													V
802.11b CH 06 2437MHz		2331	57.47	-16.53	74	42.16	27.09	18.23	30.01	203	359	P	H
		2388.12	44.91	-9.09	54	29.36	27.23	18.31	29.99	203	359	A	H
	*	2437	103.45	-	-	87.73	27.35	18.35	29.98	203	359	P	H
	*	2437	99.99	-	-	84.27	27.35	18.35	29.98	203	359	A	H
		2497.9	57.42	-16.58	74	41.5	27.49	18.39	29.96	203	359	P	H
		2492.37	45.66	-8.34	54	29.75	27.48	18.39	29.96	203	359	A	H
		2371.18	57.01	-16.99	74	41.52	27.19	18.29	29.99	290	297	P	V
		2381.4	44.98	-9.02	54	29.45	27.22	18.3	29.99	290	297	A	V
	*	2437	105.27	-	-	89.55	27.35	18.35	29.98	290	297	P	V
	*	2437	102.06	-	-	86.34	27.35	18.35	29.98	290	297	A	V
		2492.86	58.73	-15.27	74	42.82	27.48	18.39	29.96	290	297	P	V
		2492.72	45.7	-8.3	54	29.79	27.48	18.39	29.96	290	297	A	V



802.11b CH 11 2462MHz	*	2462	103.22	-	-	87.41	27.41	18.37	29.97	206	356	P	H
	*	2462	100.01	-	-	84.2	27.41	18.37	29.97	206	356	A	H
		2487.88	57.06	-16.94	74	41.18	27.47	18.38	29.97	206	356	P	H
		2486.56	45.49	-8.51	54	29.61	27.47	18.38	29.97	206	356	A	H
													H
													H
	*	2462	104.82	-	-	89.01	27.41	18.37	29.97	287	299	P	V
	*	2462	101.56	-	-	85.75	27.41	18.37	29.97	287	299	A	V
		2487.84	58.05	-15.95	74	42.17	27.47	18.38	29.97	287	299	P	V
		2488	45.69	-8.31	54	29.81	27.47	18.38	29.97	287	299	A	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

WIFI 802.11b (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)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11b CH 01 2412MHz		4804	39.43	-34.57	74	53.03	31.21	13.73	58.54	100	0	P	H
													H
													H
													H
		4804	38.33	-35.67	74	51.93	31.21	13.73	58.54	100	0	P	V
													V
													V
													V
802.11b CH 06 2437MHz		4874	39.34	-34.66	74	52.68	31.35	13.84	58.53	100	0	P	H
		7311	43.67	-30.33	74	51.35	36.07	15.22	58.97	100	0	P	H
													H
													H
		4874	39.12	-34.88	74	52.46	31.35	13.84	58.53	100	0	P	V
		7311	42.91	-31.09	74	50.59	36.07	15.22	58.97	100	0	P	V
													V
													V
802.11b CH 11 2462MHz		4924	40.93	-33.07	74	54.08	31.45	13.92	58.52	100	0	P	H
		7386	42.58	-31.42	74	50.05	36.28	15.15	58.9	100	0	P	H
													H
													H
		4924	40.32	-33.68	74	53.47	31.45	13.92	58.52	100	0	P	V
		7386	42.71	-31.29	74	50.18	36.28	15.15	58.9	100	0	P	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

WIFI 802.11g (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)
802.11g CH 01 2412MHz		2343.6	56.41	-17.59	74	41.04	27.12	18.25	30	110	238	P	H
		2390	46.26	-7.74	54	30.69	27.24	18.32	29.99	110	238	A	H
	*	2412	98.99	-	-	83.35	27.29	18.34	29.99	110	238	P	H
	*	2412	91.59	-	-	75.95	27.29	18.34	29.99	110	238	A	H
													H
													H
		2368.17	55.98	-18.02	74	40.51	27.18	18.28	29.99	232	280	P	V
		2390	46.17	-7.83	54	30.6	27.24	18.32	29.99	232	280	A	V
	*	2412	99.9	-	-	84.26	27.29	18.34	29.99	232	280	P	V
	*	2412	92.11	-	-	76.47	27.29	18.34	29.99	232	280	A	V
													V
													V
802.11g CH 02 2417MHz		2387.7	57.39	-16.61	74	41.84	27.23	18.31	29.99	138	238	P	H
		2389.8	46.81	-7.19	54	31.24	27.24	18.32	29.99	138	238	A	H
	*	2417	102.94	-	-	87.28	27.3	18.34	29.98	138	238	P	H
	*	2417	95.11	-	-	79.45	27.3	18.34	29.98	138	238	A	H
													H
													H
		2388.26	57.25	-16.75	74	41.7	27.23	18.31	29.99	232	273	P	V
		2389.38	46.75	-7.25	54	31.2	27.23	18.31	29.99	232	273	A	V
	*	2417	103.18	-	-	87.52	27.3	18.34	29.98	232	273	P	V
	*	2417	95.38	-	-	79.72	27.3	18.34	29.98	232	273	A	V
													V
													V



802.11g CH 06 2437MHz		2382.24	56.05	-17.95	74	40.52	27.22	18.3	29.99	100	238	P	H
		2384.76	46.42	-7.58	54	30.88	27.22	18.31	29.99	100	238	A	H
	*	2437	102.37	-	-	86.65	27.35	18.35	29.98	100	238	P	H
	*	2437	94.85	-	-	79.13	27.35	18.35	29.98	100	238	A	H
		2490.69	56.68	-17.32	74	40.79	27.48	18.38	29.97	100	238	P	H
		2488.87	46.19	-7.81	54	30.31	27.47	18.38	29.97	100	238	A	H
		2382.66	56.51	-17.49	74	40.98	27.22	18.3	29.99	226	279	P	V
		2384.9	46.52	-7.48	54	30.98	27.22	18.31	29.99	226	279	A	V
	*	2437	104.39	-	-	88.67	27.35	18.35	29.98	226	279	P	V
	*	2437	96.36	-	-	80.64	27.35	18.35	29.98	226	279	A	V
		2489.78	57.13	-16.87	74	41.24	27.48	18.38	29.97	226	279	P	V
		2489.08	46.51	-7.49	54	30.63	27.47	18.38	29.97	226	279	A	V
802.11g CH 10 2457MHz	*	2457	103.38	-	-	87.59	27.4	18.36	29.97	108	239	P	H
	*	2457	94.68	-	-	78.89	27.4	18.36	29.97	108	239	A	H
		2489.38	56.47	-17.53	74	40.59	27.47	18.38	29.97	108	239	P	H
		2484.64	46.05	-7.95	54	30.18	27.46	18.38	29.97	108	239	A	H
													H
													H
	*	2457	103.72	-	-	87.93	27.4	18.36	29.97	221	277	P	V
	*	2457	96.01	-	-	80.22	27.4	18.36	29.97	221	277	A	V
		2486.8	56.78	-17.22	74	40.9	27.47	18.38	29.97	221	277	P	V
		2483.86	46.36	-7.64	54	30.49	27.46	18.38	29.97	221	277	A	V
													V
													V



802.11g CH 11 2462MHz	*	2462	98.54	-	-	82.73	27.41	18.37	29.97	128	1	P	H
	*	2462	90.35	-	-	74.54	27.41	18.37	29.97	128	1	A	H
		2493.44	56.37	-17.63	74	40.46	27.48	18.39	29.96	128	1	P	H
		2483.88	46.15	-7.85	54	30.28	27.46	18.38	29.97	128	1	A	H
													H
													H
	*	2462	101.31	-	-	85.5	27.41	18.37	29.97	253	301	P	V
	*	2462	93.58	-	-	77.77	27.41	18.37	29.97	253	301	A	V
		2496.64	56.59	-17.41	74	40.67	27.49	18.39	29.96	253	301	P	V
		2483.52	46.38	-7.62	54	30.51	27.46	18.38	29.97	253	301	A	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

WIFI 802.11g (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)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11g CH 01 2412MHz		4804	40.12	-33.88	74	53.72	31.21	13.73	58.54	100	0	P	H
													H
													H
													H
		4804	38.17	-35.83	74	51.77	31.21	13.73	58.54	100	0	P	V
													V
													V
													V
802.11g CH 06 2437MHz		4874	39.13	-34.87	74	52.47	31.35	13.84	58.53	100	0	P	H
		7311	42.68	-31.32	74	50.36	36.07	15.22	58.97	100	0	P	H
													H
													H
		4874	38.74	-35.26	74	52.08	31.35	13.84	58.53	100	0	P	V
		7311	43.06	-30.94	74	50.74	36.07	15.22	58.97	100	0	P	V
													V
													V
802.11g CH 11 2462MHz		4924	39.39	-34.61	74	52.54	31.45	13.92	58.52	100	0	P	H
		7386	42.99	-31.01	74	50.46	36.28	15.15	58.9	100	0	P	H
													H
													H
		4924	39.15	-34.85	74	52.3	31.45	13.92	58.52	100	0	P	V
		7386	44.2	-29.8	74	51.67	36.28	15.15	58.9	100	0	P	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

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)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20 CH 01 2412MHz		2390	58.54	-15.46	74	42.97	27.24	18.32	29.99	108	237	P	H
		2389.485	47.03	-6.97	54	31.48	27.23	18.31	29.99	108	237	A	H
	*	2412	99	-	-	83.36	27.29	18.34	29.99	108	237	P	H
	*	2412	91.59	-	-	75.95	27.29	18.34	29.99	108	237	A	H
													H
													H
		2390	56.69	-17.31	74	41.12	27.24	18.32	29.99	236	283	P	V
		2390	46.45	-7.55	54	30.88	27.24	18.32	29.99	236	283	A	V
	*	2412	99.94	-	-	84.3	27.29	18.34	29.99	236	283	P	V
	*	2412	92.32	-	-	76.68	27.29	18.34	29.99	236	283	A	V
													V
													V
802.11n HT20 CH 02 2417MHz		2377.2	56.14	-17.86	74	40.62	27.21	18.3	29.99	108	236	P	H
		2389.905	46.05	-7.95	54	30.48	27.24	18.32	29.99	108	236	A	H
	*	2417	101.35	-	-	85.69	27.3	18.34	29.98	108	236	P	H
	*	2417	93.43	-	-	77.77	27.3	18.34	29.98	108	236	A	H
													H
													H
		2387.84	56.52	-17.48	74	40.97	27.23	18.31	29.99	232	275	P	V
		2389.94	46.07	-7.93	54	30.5	27.24	18.32	29.99	232	275	A	V
	*	2417	101.69	-	-	86.03	27.3	18.34	29.98	232	275	P	V
	*	2417	94.13	-	-	78.47	27.3	18.34	29.98	232	275	A	V



802.11n HT20 CH 06 2437MHz		2358.86	56.11	-17.89	74	40.68	27.16	18.27	30	100	235	P	H
		2384.9	46.24	-7.76	54	30.7	27.22	18.31	29.99	100	235	A	H
	*	2437	101.29	-	-	85.57	27.35	18.35	29.98	100	235	P	H
	*	2437	93.41	-	-	77.69	27.35	18.35	29.98	100	235	A	H
		2495.17	57.1	-16.9	74	41.18	27.49	18.39	29.96	100	235	P	H
		2488.45	46.12	-7.88	54	30.24	27.47	18.38	29.97	100	235	A	H
		2374.26	55.99	-18.01	74	40.49	27.2	18.29	29.99	228	274	P	V
		2385.32	46.35	-7.65	54	30.81	27.22	18.31	29.99	228	274	A	V
	*	2437	102.56	-	-	86.84	27.35	18.35	29.98	228	274	P	V
	*	2437	94.62	-	-	78.9	27.35	18.35	29.98	228	274	A	V
		2488.31	56.55	-17.45	74	40.67	27.47	18.38	29.97	228	274	P	V
		2488.31	46.49	-7.51	54	30.61	27.47	18.38	29.97	228	274	A	V
802.11n HT20 CH 10 2457MHz	*	2457	101.01	-	-	85.22	27.4	18.36	29.97	112	237	P	H
	*	2457	93.19	-	-	77.4	27.4	18.36	29.97	112	237	A	H
		2485.18	56.82	-17.18	74	40.95	27.46	18.38	29.97	112	237	P	H
		2486.5	45.9	-8.1	54	30.02	27.47	18.38	29.97	112	237	A	H
													H
													H
	*	2457	102.48	-	-	86.69	27.4	18.36	29.97	223	274	P	V
	*	2457	95.15	-	-	79.36	27.4	18.36	29.97	223	274	A	V
		2495.32	56.21	-17.79	74	40.29	27.49	18.39	29.96	223	274	P	V
		2484.64	46.18	-7.82	54	30.31	27.46	18.38	29.97	223	274	A	V
													V
													V



802.11n HT20 CH 11 2462MHz	*	2462	98.36	-	-	82.55	27.41	18.37	29.97	112	238	P	H
	*	2462	90.96	-	-	75.15	27.41	18.37	29.97	112	238	A	H
		2495.44	56.62	-17.38	74	40.7	27.49	18.39	29.96	112	238	P	H
		2483.52	46.03	-7.97	54	30.16	27.46	18.38	29.97	112	238	A	H
													H
													H
	*	2462	100.28	-	-	84.47	27.41	18.37	29.97	216	276	P	V
	*	2462	92.48	-	-	76.67	27.41	18.37	29.97	216	276	A	V
		2484.44	57.3	-16.7	74	41.43	27.46	18.38	29.97	216	276	P	V
		2483.6	46.66	-7.34	54	30.79	27.46	18.38	29.97	216	276	A	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

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)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20 CH 01 2412MHz		4824	38.68	-35.32	74	52.21	31.25	13.76	58.54	100	0	P	H
													H
													H
													H
		4824	38.56	-35.44	74	52.09	31.25	13.76	58.54	100	0	P	V
													V
													V
													V
802.11n HT20 CH 06 2437MHz		4874	38.54	-35.46	74	51.88	31.35	13.84	58.53	100	0	P	H
		7311	43.01	-30.99	74	50.69	36.07	15.22	58.97	100	0	P	H
													H
													H
		4874	38.67	-35.33	74	52.01	31.35	13.84	58.53	100	0	P	V
		7311	43.12	-30.88	74	50.8	36.07	15.22	58.97	100	0	P	V
													V
													V
802.11n HT20 CH 11 2462MHz		4924	38.98	-35.02	74	52.13	31.45	13.92	58.52	100	0	P	H
		7386	43.04	-30.96	74	50.51	36.28	15.15	58.9	100	0	P	H
													H
													H
		4924	38.76	-35.24	74	51.91	31.45	13.92	58.52	100	0	P	V
		7386	42.66	-31.34	74	50.13	36.28	15.15	58.9	100	0	P	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Emission below 1GHz

2.4GHz WIFI 802.11n HT20 (LF)

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)
2.4GHz 802.11n HT20 LF		98.85	11.1	-32.4	43.5	26.35	16.07	1.05	32.37	-	-	P	H
		147.18	14.34	-29.16	43.5	27.34	17.88	1.48	32.36	-	-	P	H
		222.24	14.24	-31.76	46	28.18	16.44	1.99	32.37	-	-	P	H
		439.3	24.86	-21.14	46	31.08	23.13	3.18	32.53	-	-	P	H
		596.1	24.57	-21.43	46	27.91	25.54	3.8	32.68	-	-	P	H
		764.1	26.74	-19.26	46	26.86	27.82	4.48	32.42	100	0	P	H
													H
													H
													H
													H
													H
													H
		102.36	11.53	-31.97	43.5	26.3	16.53	1.07	32.37	-	-	P	V
		150.42	15.45	-28.05	43.5	28.52	17.8	1.49	32.36	-	-	P	V
		207.66	13.74	-29.76	43.5	28	16.25	1.85	32.36	-	-	P	V
		462.4	24.89	-21.11	46	30.67	23.57	3.2	32.55	-	-	P	V
		550.6	23.83	-22.17	46	28.04	24.82	3.6	32.63	-	-	P	V
		733.3	25.43	-20.57	46	26.19	27.33	4.38	32.47	100	0	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	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”.



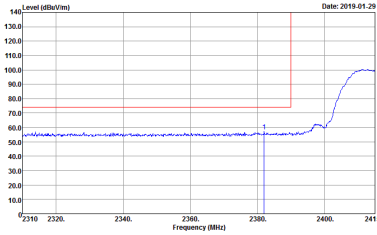
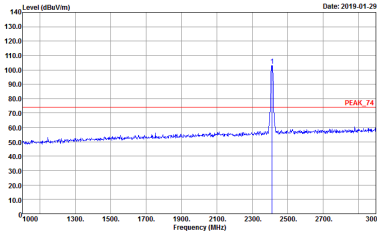
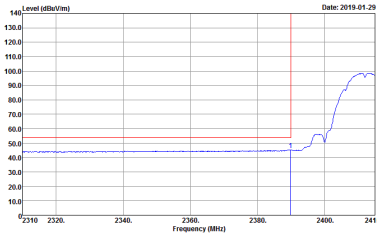
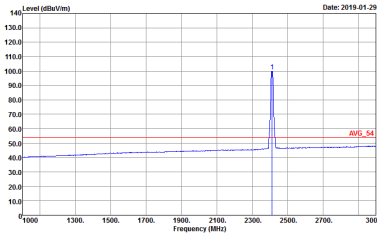
Appendix D. Radiated Spurious Emission Plots

Test Engineer :	Jacky Hung and CR Liao	Temperature :	23~25°C
		Relative Humidity :	55~57%

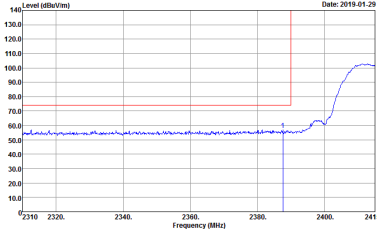
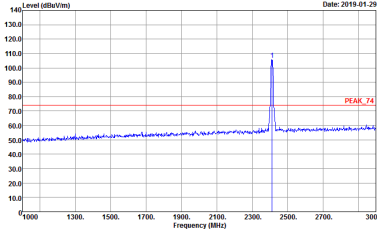
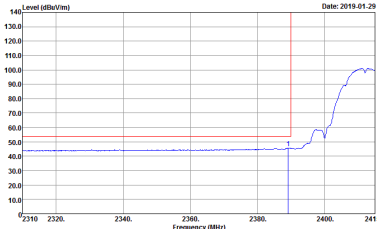
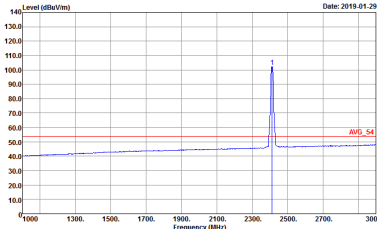
Note symbol

-L	Low channel location
-R	High channel location

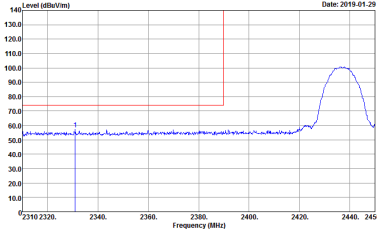
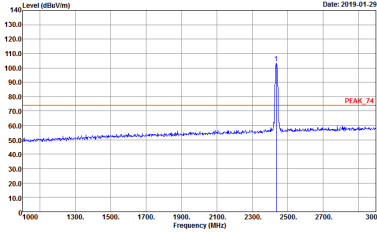
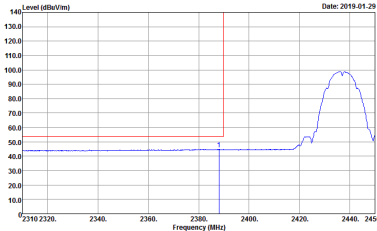
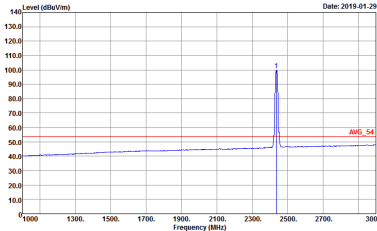
2.4GHz 2400~2483.5MHz
WIFI 802.11b (Band Edge @ 3m)

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH01 2412MHz	
1	Horizontal	Fundamental
Peak	 Site : 03CH16-HY Condition : PEAK_BE_74 3m 91200_1522 HORIZONTAL Detector : Peak Project : 911608	 Site : 03CH16-HY Condition : PEAK_74 3m 91200_1522 HORIZONTAL Detector : Peak Project : 911608
	 Site : 03CH16-HY Condition : AV6_54 3m 91200_1522 HORIZONTAL Detector : Peak Project : 911608	 Site : 03CH16-HY Condition : AV6_54 3m 91200_1522 HORIZONTAL Detector : Peak Project : 911608

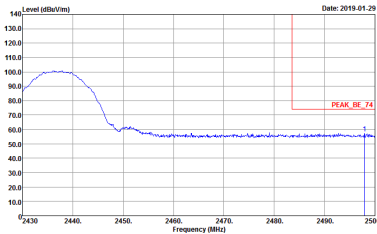
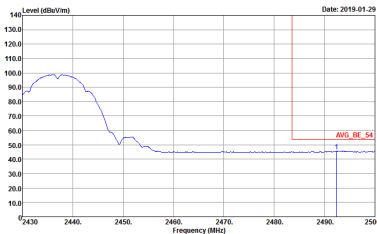


WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH01 2412MHz	
1	Vertical	Fundamental
Peak	 Site : 03CH16-HY Condition : PEAK_BE_74 3m 91200_1522 VERTICAL Detector : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Project : Peak : 911608	 Site : 03CH16-HY Condition : PEAK_74 3m 91200_1522 VERTICAL Detector : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Project : Peak : 911608
	 Site : 03CH16-HY Condition : AVG_BE_54 3m 91200_1522 VERTICAL Detector : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Project : Avg. : 911608	 Site : 03CH16-HY Condition : AVG_54 3m 91200_1522 VERTICAL Detector : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Project : Avg. : 911608



WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH06 2437MHz - L	
1	Horizontal	Fundamental
Peak	 Site : 03CH16-HY Condition : PEAK_BE_74 3m 91200_1522 HORIZONTAL Detector : Peak Project : 911608	 Site : 03CH16-HY Condition : PEAK_74 3m 91200_1522 HORIZONTAL Detector : Peak Project : 911608
Avg.	 Site : 03CH16-HY Condition : AVG_BE_54 3m 91200_1522 HORIZONTAL Detector : Peak Project : 911608	 Site : 03CH16-HY Condition : AVG_54 3m 91200_1522 HORIZONTAL Detector : Peak Project : 911608

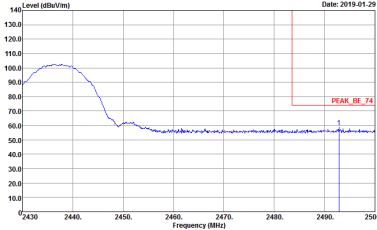
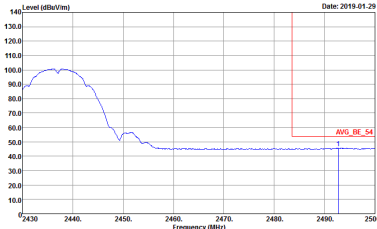


WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH06 2437MHz - R	
1	Horizontal	Fundamental
Peak	 Site : 03CH16-HY Condition : PEAK_BE_74 3m 91200_1522 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 911608	Left blank
Avg.	 Site : 03CH16-HY Condition : AVG_BE_54 3m 91200_1522 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 911608	Left blank

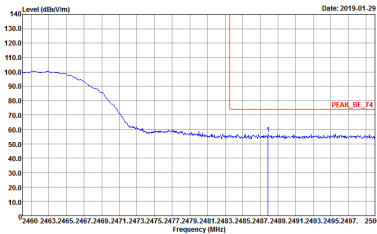
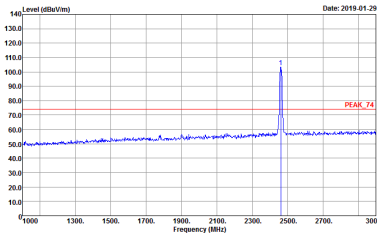
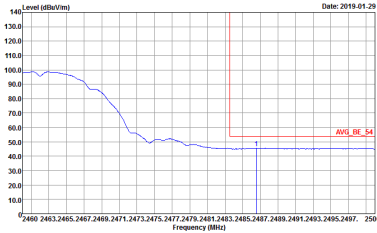
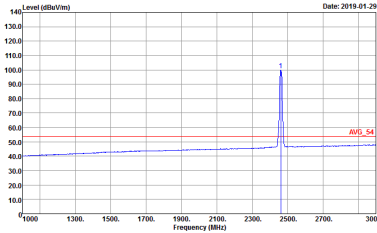


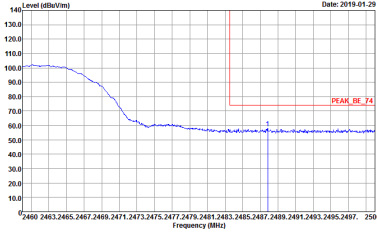
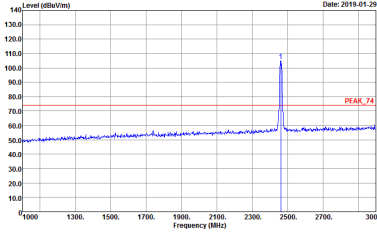
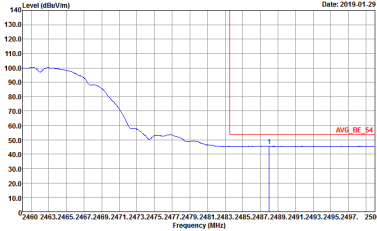
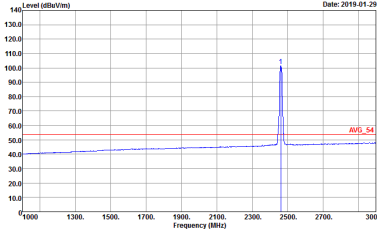
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH06 2437MHz - L	
1	Vertical	Fundamental
Peak	Site : 03CH16-HY Condition : PEAK_BE_74 3m 91200_1522 VERTICAL Detector : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Project : Peak : 911608	Site : 03CH16-HY Condition : PEAK_74 3m 91200_1522 VERTICAL Detector : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Project : Peak : 911608
	Site : 03CH16-HY Condition : AVG_BE_54 3m 91200_1522 VERTICAL Detector : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Project : Avg. : 911608	Site : 03CH16-HY Condition : AVG_54 3m 91200_1522 VERTICAL Detector : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Project : Avg. : 911608



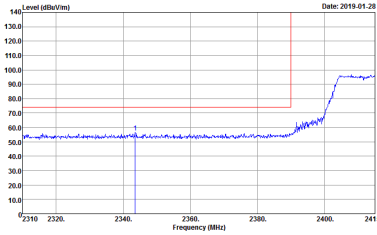
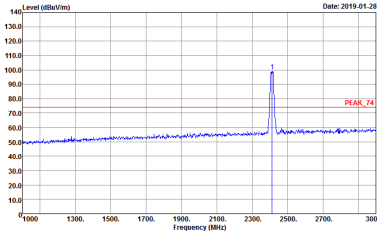
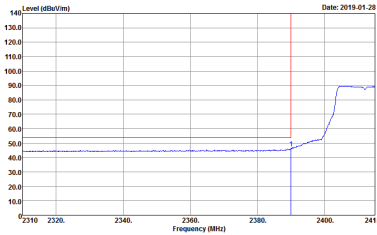
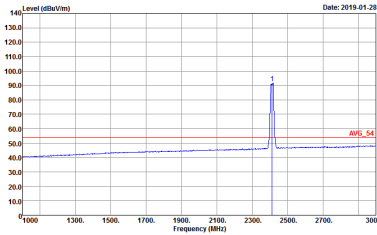
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH06 2437MHz - R	
1	Vertical	Fundamental
Peak	 Site : 03CH16-HY Condition : PEAK_BE_74 3m 91200_1522 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 911608	Left blank
Avg.	 Site : 03CH16-HY Condition : AVG_BE_54 3m 91200_1522 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 911608	Left blank



WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH11 2462MHz	
1	Horizontal	Fundamental
Peak	 Site : 03CH16-HY Condition : PEAK_BE_74 3m 91200_1522 HORIZONTAL Detector : Peak Project : 911608	 Site : 03CH16-HY Condition : PEAK_74 3m 91200_1522 HORIZONTAL Detector : Peak Project : 911608
Avg.	 Site : 03CH16-HY Condition : AVG_BE_54 3m 91200_1522 HORIZONTAL Detector : Peak Project : 911608	 Site : 03CH16-HY Condition : AVG_54 3m 91200_1522 HORIZONTAL Detector : Peak Project : 911608

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH11 2462MHz	
1	Vertical	Fundamental
Peak	 Site : 03CH16-HY Condition : PEAK_BE_74 3m 91200_1522 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 911608	 Site : 03CH16-HY Condition : PEAK_74 3m 91200_1522 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 911608
	 Site : 03CH16-HY Condition : AVG_BE_54 3m 91200_1522 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 911608	 Site : 03CH16-HY Condition : AVG_54 3m 91200_1522 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 911608

2.4GHz 2400~2483.5MHz
WIFI 802.11g (Band Edge @ 3m)

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH01 2412MHz	
1	Horizontal	Fundamental
Peak	 Site : 03CH16-HY Condition : PEAK_BE_74 3m 91200_1522 HORIZONTAL Detector : Peak Project : 911608	 Site : 03CH16-HY Condition : PEAK_74 3m 91200_1522 HORIZONTAL Detector : Peak Project : 911608
	 Site : 03CH16-HY Condition : AVG_BE_54 3m 91200_1522 HORIZONTAL Detector : Peak Project : 911608	 Site : 03CH16-HY Condition : AVG_54 3m 91200_1522 HORIZONTAL Detector : Peak Project : 911608

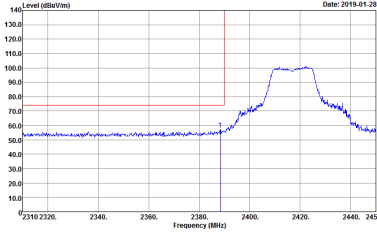
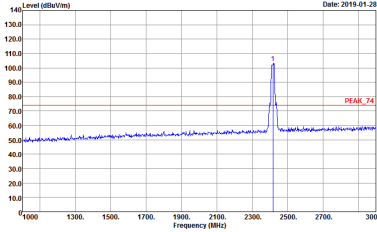
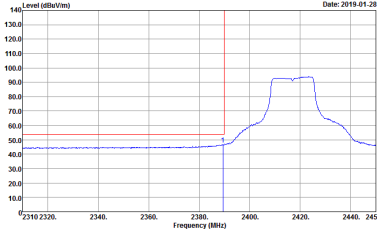
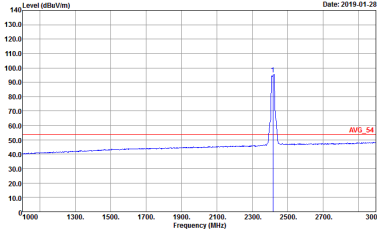


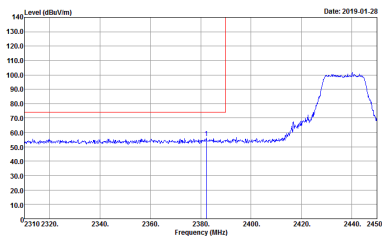
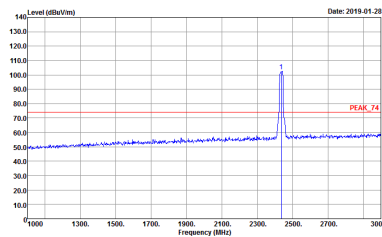
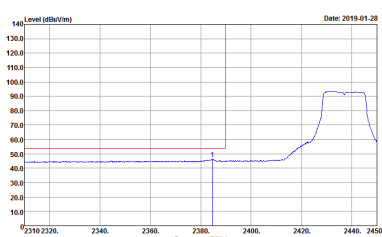
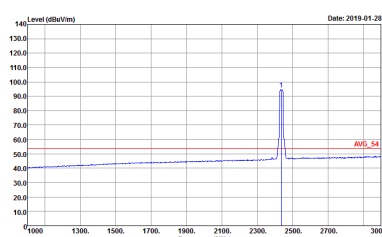
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH01 2412MHz	
1	Vertical	Fundamental
Peak	Site : 03CH16-HY Condition : PEAK_BE_74 3m 91200_1522 VERTICAL Detector : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Project : Peak : 911608	Site : 03CH16-HY Condition : PEAK_74 3m 91200_1522 VERTICAL Detector : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Project : Peak : 911608
Avg.	Site : 03CH16-HY Condition : AVG_BE_54 3m 91200_1522 VERTICAL Detector : RBW:1000.000KHz VBW:1000KHz SWT:Auto Project : Avg. : 911608	Site : 03CH16-HY Condition : AVG_54 3m 91200_1522 VERTICAL Detector : RBW:1000.000KHz VBW:1000KHz SWT:Auto Project : Avg. : 911608

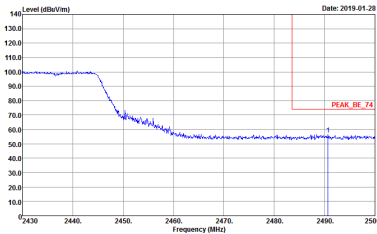
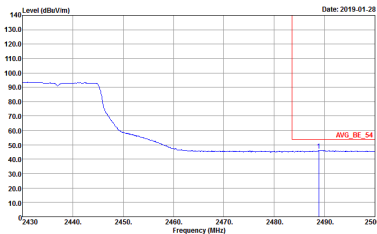


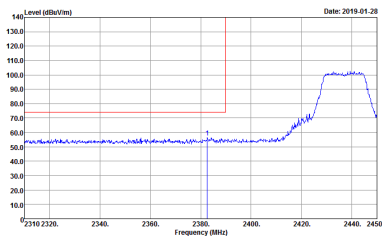
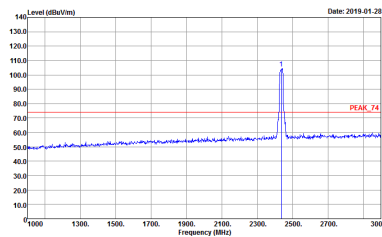
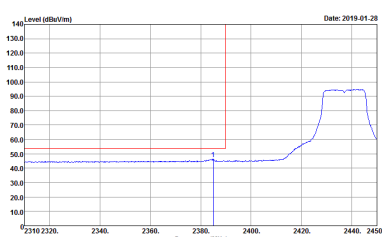
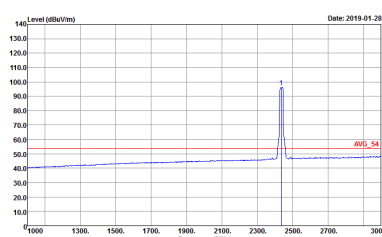
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ANT	802.11g CH02 2417MHz	
1	Horizontal	Fundamental
Peak	Site : 03CH16-HY Condition : PEAK_BE_74 3m 91200_1522 HORIZONTAL Detector : Peak Project : 911608	Site : 03CH16-HY Condition : PEAK_74 3m 91200_1522 HORIZONTAL Detector : Peak Project : 911608
Avg.	Site : 03CH16-HY Condition : AVG_BE_54 3m 91200_1522 HORIZONTAL Detector : Peak Project : 911608	Site : 03CH16-HY Condition : AVG_54 3m 91200_1522 HORIZONTAL Detector : Peak Project : 911608

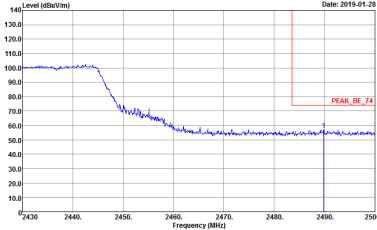
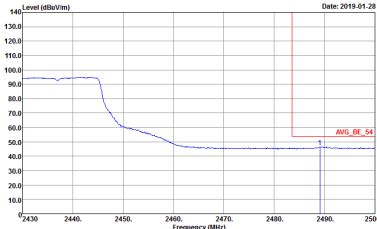


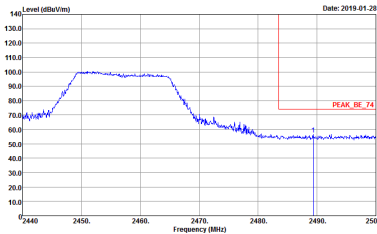
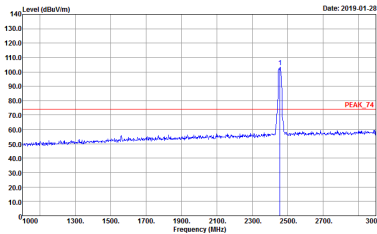
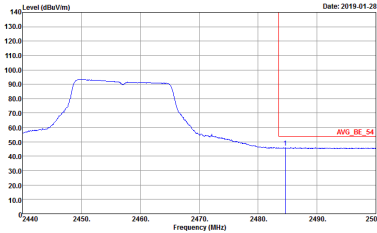
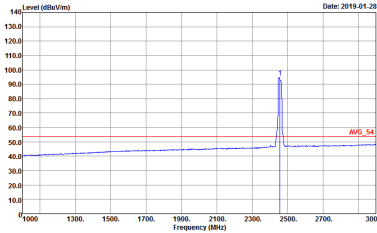
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH02 2417MHz	
1	Vertical	Fundamental
Peak	 Site : 03CH16-HY Condition : PEAK_BE_74 3m 91200_1522 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 911608	 Site : 03CH16-HY Condition : PEAK_74 3m 91200_1522 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 911608
	 Site : 03CH16-HY Condition : AVG_BE_54 3m 91200_1522 VERTICAL RBW:1000.000KHz VBW:1000KHz SWT:Auto Detector : Peak Project : 911608	 Site : 03CH16-HY Condition : AVG_54 3m 91200_1522 VERTICAL RBW:1000.000KHz VBW:1000KHz SWT:Auto Detector : Peak Project : 911608

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH06 2437MHz - L	
1	Horizontal	Fundamental
Peak	 Site : 03CH16-HY Condition : PEAK_BE_74 3m 91200_1522 HORIZONTAL Detector : Peak Project : 911608	 Site : 03CH16-HY Condition : PEAK_74 3m 91200_1522 HORIZONTAL Detector : Peak Project : 911608
	 Site : 03CH16-HY Condition : AVG_BE_54 3m 91200_1522 HORIZONTAL Detector : Peak Project : 911608	 Site : 03CH16-HY Condition : AVG_54 3m 91200_1522 HORIZONTAL Detector : Peak Project : 911608

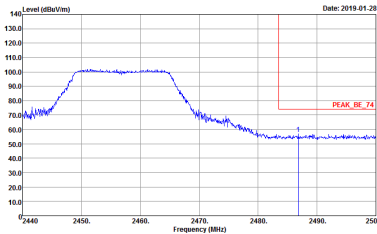
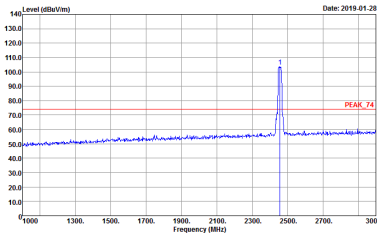
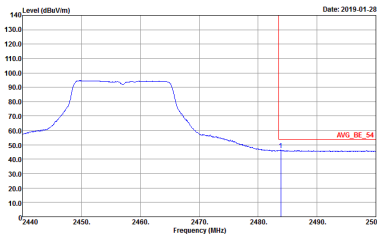
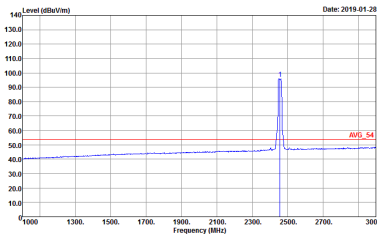
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH06 2437MHz - R	
1	Horizontal	Fundamental
Peak	 Site : 03CH16-HY Condition : PEAK_BE_74 3m 91200_1522 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 911608	Left blank
Avg.	 Site : 03CH16-HY Condition : AVG_BE_54 3m 91200_1522 HORIZONTAL RBW:1000.000KHz VBW:1000KHz SWT:Auto Detector : Peak Project : 911608	Left blank

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH06 2437MHz - L	
1	Vertical	Fundamental
Peak	 Site : 03CH16-HY Condition : PEAK_BE_74 3m 91200_1522 VERTICAL Detector : Peak Project : 911608	 Site : 03CH16-HY Condition : PEAK_74 3m 91200_1522 VERTICAL Detector : Peak Project : 911608
	 Site : 03CH16-HY Condition : AVG_BE_54 3m 91200_1522 VERTICAL Detector : Peak Project : 911608	 Site : 03CH16-HY Condition : AVG_54 3m 91200_1522 VERTICAL Detector : Peak Project : 911608

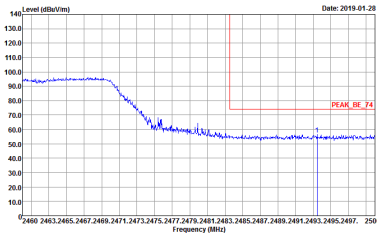
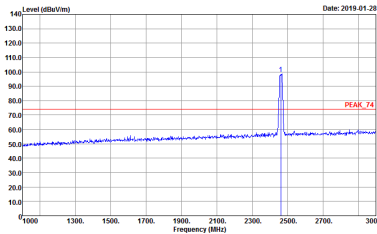
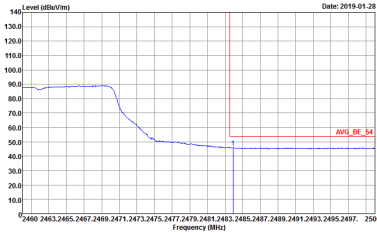
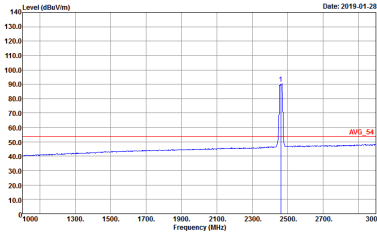
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH06 2437MHz - R	
1	Vertical	Fundamental
Peak	 Site : 03CH16-HY Condition : PEAK_BE_74 3m 91200_1522 VERTICAL Detector : Peak Project : 911608	Left Blank
Avg.	 Site : 03CH16-HY Condition : AVG_BE_54 3m 91200_1522 VERTICAL Detector : Peak Project : 911608	Left Blank

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH10 2457MHz	
1	Horizontal	Fundamental
Peak	 Site : 03CH16-HY Condition : PEAK_BE_74 3m 91200_1522 HORIZONTAL Detector : Peak Project : 911608	 Site : 03CH16-HY Condition : PEAK_74 3m 91200_1522 HORIZONTAL Detector : Peak Project : 911608
	 Site : 03CH16-HY Condition : AVG_BE_54 3m 91200_1522 HORIZONTAL Detector : Peak Project : 911608	 Site : 03CH16-HY Condition : AVG_54 3m 91200_1522 HORIZONTAL Detector : Peak Project : 911608

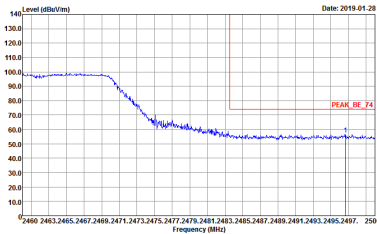
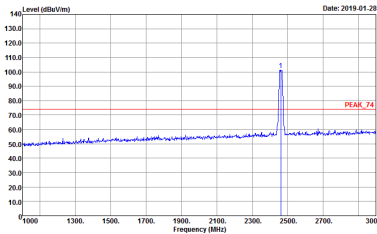
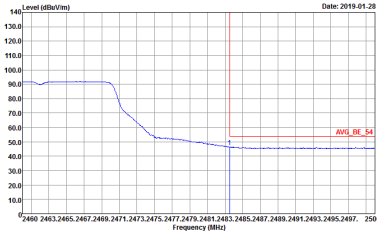
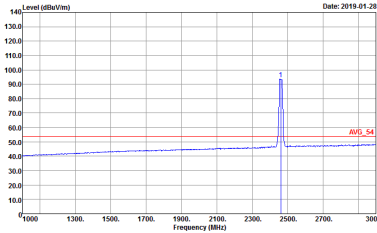


WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH10 2457MHz	
1	Vertical	Fundamental
Peak	 Site : 03CH16-HY Condition : PEAK_BE_74 3m 91200_1522 VERTICAL Detector : Peak Project : 911608	 Site : 03CH16-HY Condition : PEAK_74 3m 91200_1522 VERTICAL Detector : Peak Project : 911608
	 Site : 03CH16-HY Condition : AVG_BE_54 3m 91200_1522 VERTICAL Detector : Peak Project : 911608	 Site : 03CH16-HY Condition : AVG_54 3m 91200_1522 VERTICAL Detector : Peak Project : 911608

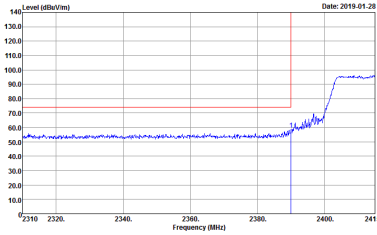
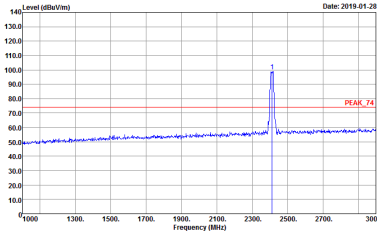
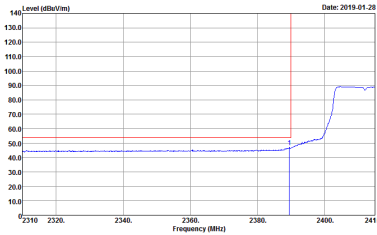
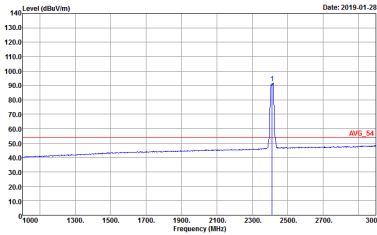


WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH11 2462MHz	
1	Horizontal	Fundamental
Peak	 Site : 03CH16-HY Condition : PEAK_BE_74 3m 91200_1522 HORIZONTAL Detector : Peak Project : 911608	 Site : 03CH16-HY Condition : PEAK_74 3m 91200_1522 HORIZONTAL Detector : Peak Project : 911608
	 Site : 03CH16-HY Condition : AVG_BE_54 3m 91200_1522 HORIZONTAL Detector : Peak Project : 911608	 Site : 03CH16-HY Condition : AVG_54 3m 91200_1522 HORIZONTAL Detector : Peak Project : 911608

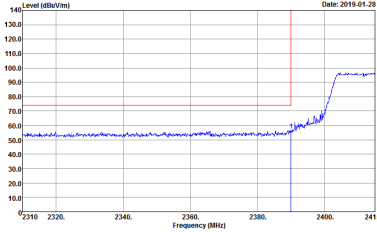
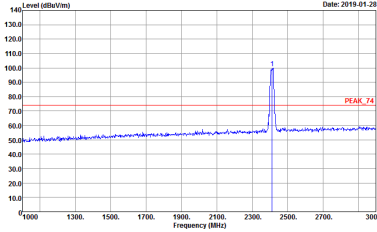
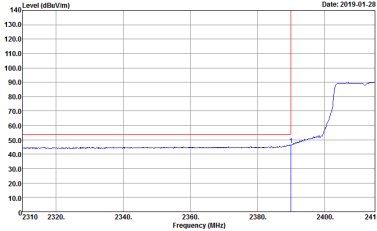
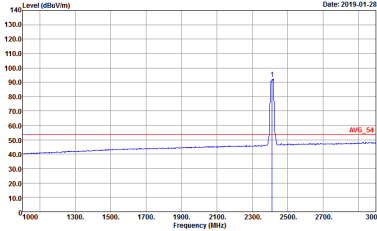


WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH11 2462MHz	
1	Vertical	Fundamental
Peak	 Site : 03CH16-HY Condition : PEAK_BE_74 3m 91200_1522 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 911608	 Site : 03CH16-HY Condition : PEAK_74 3m 91200_1522 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 911608
	 Site : 03CH16-HY Condition : AVG_BE_54 3m 91200_1522 VERTICAL RBW:1000.000KHz VBW:1000KHz SWT:Auto Detector : Peak Project : 911608	 Site : 03CH16-HY Condition : AVG_54 3m 91200_1522 VERTICAL RBW:1000.000KHz VBW:1000KHz SWT:Auto Detector : Peak Project : 911608

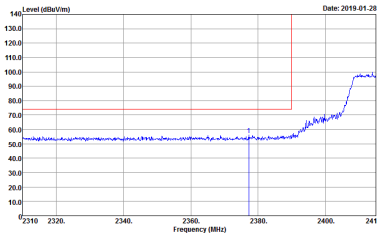
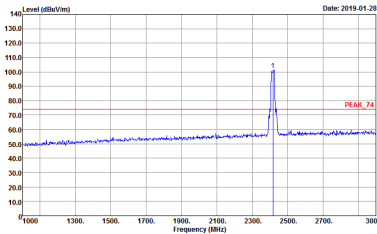
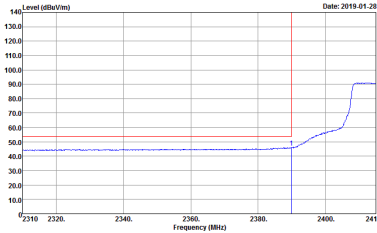
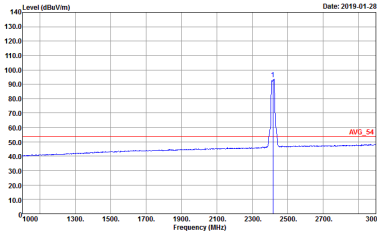
2.4GHz 2400~2483.5MHz
WIFI 802.11n HT20 (Band Edge @ 3m)

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH01 2412MHz	
1	Horizontal	Fundamental
Peak	 Site : 03CH16-HY Condition : PEAK_BE_74 3m 91200_1522 HORIZONTAL Detector : Peak Project : 911608	 Site : 03CH16-HY Condition : PEAK_74 3m 91200_1522 HORIZONTAL Detector : Peak Project : 911608
	 Site : 03CH16-HY Condition : AV6_BE_54 3m 91200_1522 HORIZONTAL Detector : Peak Project : 911608	 Site : 03CH16-HY Condition : AV6_54 3m 91200_1522 HORIZONTAL Detector : Peak Project : 911608

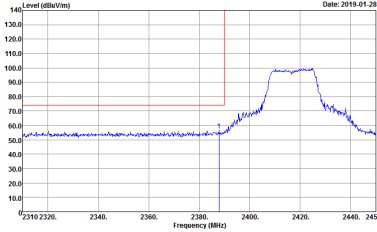
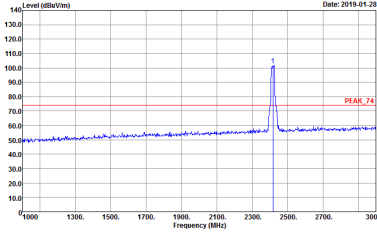
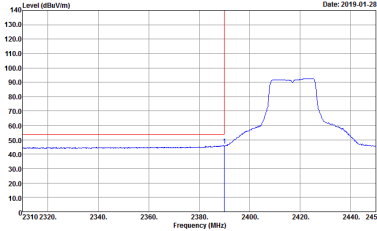
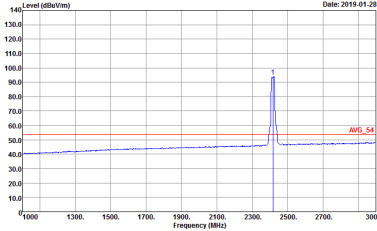


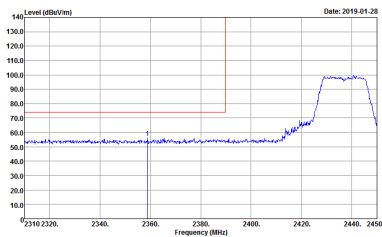
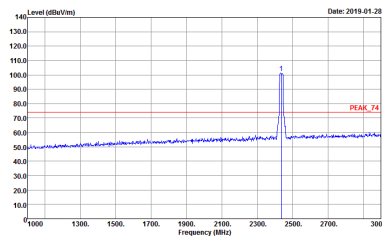
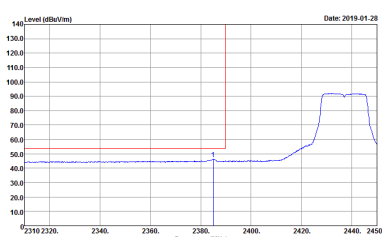
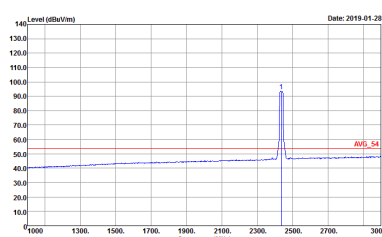
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH01 2412MHz	
1	Vertical	Fundamental
Peak	 Site : 03CH16-HY Condition : PEAK_BE_74 3m 91200_1522 VERTICAL Detector : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Project : Peak : 911608	 Site : 03CH16-HY Condition : PEAK_74 3m 91200_1522 VERTICAL Detector : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Project : Peak : 911608
Avg.	 Site : 03CH16-HY Condition : AVG_BE_54 3m 91200_1522 VERTICAL Detector : RBW:1000.000KHz VBW:1000KHz SWT:Auto Project : Avg. : 911608	 Site : 03CH16-HY Condition : AVG_54 3m 91200_1522 VERTICAL Detector : RBW:1000.000KHz VBW:1000KHz SWT:Auto Project : Avg. : 911608

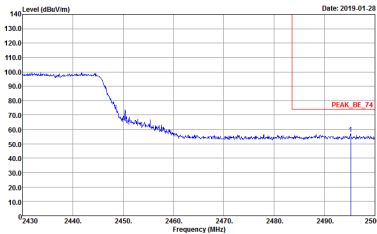
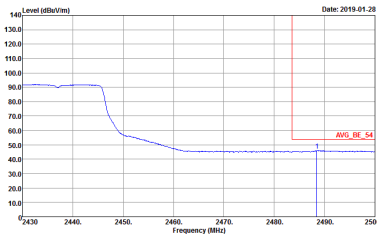


WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH02 2417MHz	
1	Horizontal	Fundamental
Peak	 Site : 03CH16-HY Condition : PEAK_BE_74 3m 91200_1522 HORIZONTAL Detector : Peak Project : 911608	 Site : 03CH16-HY Condition : PEAK_74 3m 91200_1522 HORIZONTAL Detector : Peak Project : 911608
	 Site : 03CH16-HY Condition : AVG_BE_54 3m 91200_1522 HORIZONTAL Detector : Peak Project : 911608	 Site : 03CH16-HY Condition : AVG_54 3m 91200_1522 HORIZONTAL Detector : Peak Project : 911608

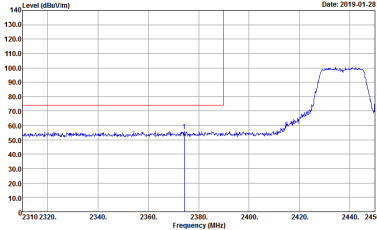
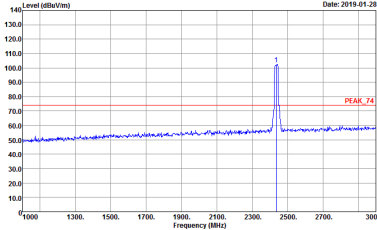
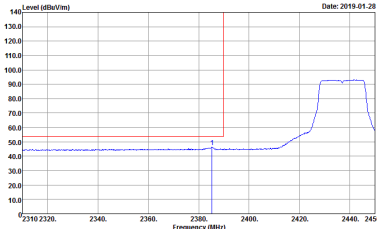
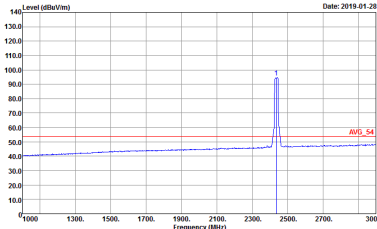


WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH02 2417MHz	
1	Vertical	Fundamental
Peak	 Site : 03CH16-HY Condition : PEAK_BE_74 3m 91200_1522 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 911608	 Site : 03CH16-HY Condition : PEAK_74 3m 91200_1522 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 911608
Avg.	 Site : 03CH16-HY Condition : AVG_BE_54 3m 91200_1522 VERTICAL RBW:1000.000KHz VBW:1000KHz SWT:Auto Detector : Peak Project : 911608	 Site : 03CH16-HY Condition : AVG_54 3m 91200_1522 VERTICAL RBW:1000.000KHz VBW:1000KHz SWT:Auto Detector : Peak Project : 911608

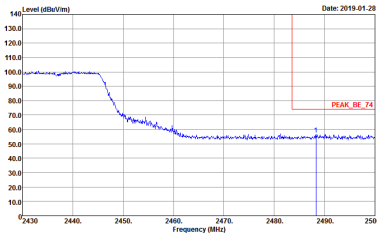
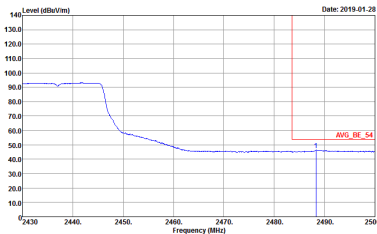
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH06 2437MHz - L	
1	Horizontal	Fundamental
Peak	 Site : 03CH16-HY Condition : PEAK_BE_74 3m 91200_1522 HORIZONTAL Detector : Peak Project : 911608	 Site : 03CH16-HY Condition : PEAK_74 3m 91200_1522 HORIZONTAL Detector : Peak Project : 911608
	 Site : 03CH16-HY Condition : AVG_BE_54 3m 91200_1522 HORIZONTAL Detector : Peak Project : 911608	 Site : 03CH16-HY Condition : AVG_54 3m 91200_1522 HORIZONTAL Detector : Peak Project : 911608

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH06 2437MHz - R	
1	Horizontal	Fundamental
Peak	 Site : 03CH16-HY Condition : PEAK_BE_74 3m 91200_1522 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 911608	Left blank
Avg.	 Site : 03CH16-HY Condition : AVG_BE_54 3m 91200_1522 HORIZONTAL RBW:1000.000KHz VBW:1.000KHz SWT:Auto Detector : Peak Project : 911608	Left blank

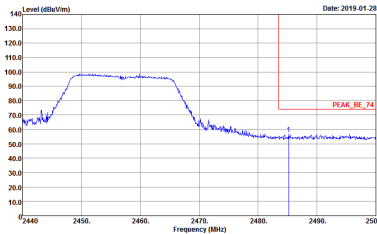
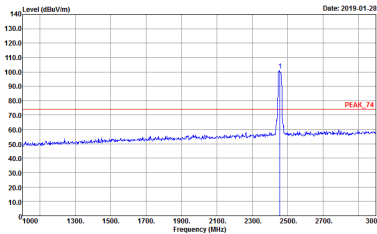
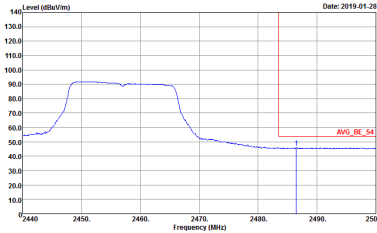
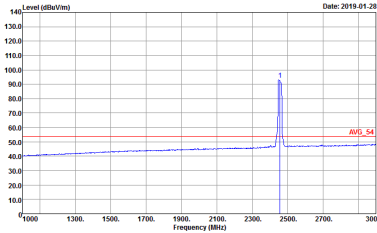


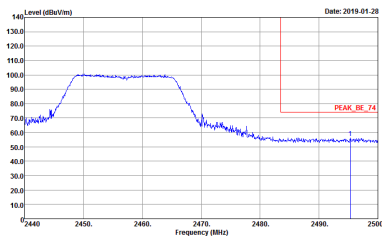
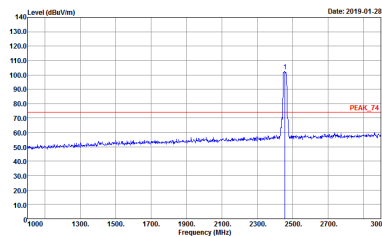
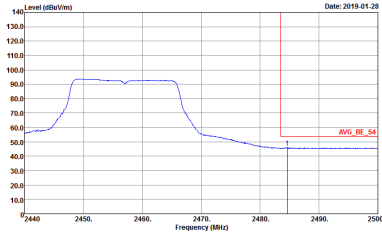
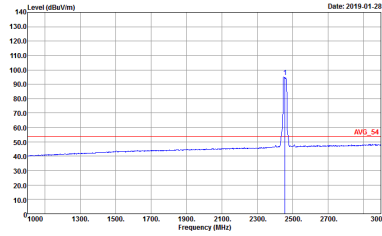
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH06 2437MHz - L	
1	Vertical	Fundamental
Peak	 Site : 03CH16-HY Condition : PEAK_BE_74 3m 91200_1522 VERTICAL Detector : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Project : 911608	 Site : 03CH16-HY Condition : PEAK_74 3m 91200_1522 VERTICAL Detector : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Project : 911608
	 Site : 03CH16-HY Condition : AVG_BE_54 3m 91200_1522 VERTICAL Detector : RBW:1000.000KHz VBW:1000KHz SWT:Auto Project : 911608	 Site : 03CH16-HY Condition : AVG_54 3m 91200_1522 VERTICAL Detector : RBW:1000.000KHz VBW:1000KHz SWT:Auto Project : 911608



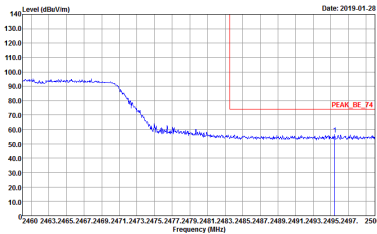
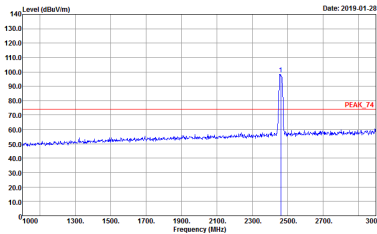
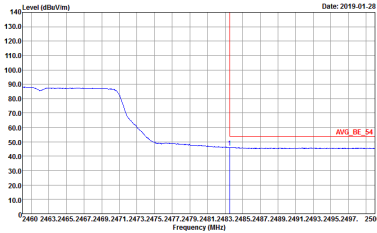
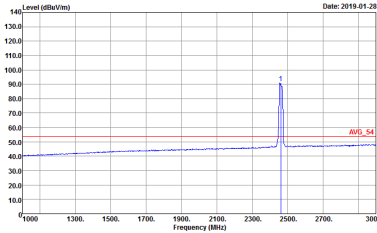
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH06 2437MHz - R	
1	Vertical	Fundamental
Peak	 Site : 03CH16-HY Condition : PEAK_BE_74 3m 91200_1522 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 911608	Left Blank
Avg.	 Site : 03CH16-HY Condition : AVG_BE_54 3m 91200_1522 VERTICAL RBW:1000.000KHz VBW:1.000KHz SWT:Auto Detector : Peak Project : 911608	Left Blank

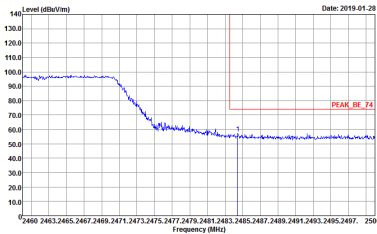
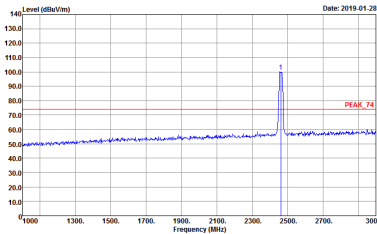
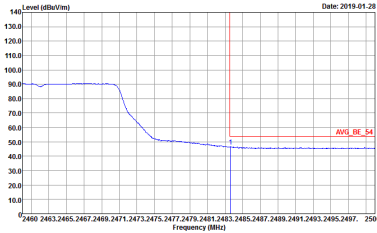
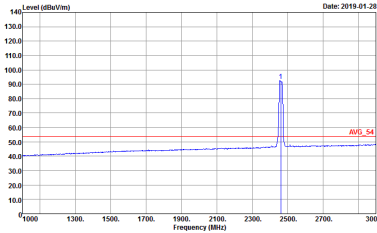


WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH10 2457MHz	
1	Horizontal	Fundamental
Peak	 Site : 03CH16-HY Condition : PEAK_BE_74 3m 91200_1522 HORIZONTAL Detector : Peak Project : 911608	 Site : 03CH16-HY Condition : PEAK_74 3m 91200_1522 HORIZONTAL Detector : Peak Project : 911608
Avg.	 Site : 03CH16-HY Condition : AVG_BE_54 3m 91200_1522 HORIZONTAL Detector : Peak Project : 911608	 Site : 03CH16-HY Condition : AVG_54 3m 91200_1522 HORIZONTAL Detector : Peak Project : 911608

WIFI	2.4GHz 2400~2483.5MHz Fundamental @ 3m	
ANT	802.11n HT20 CH10 2457MHz	
1	Vertical	Fundamental
Peak	 Site : 03CH16-HY Condition : PEAK_BE_74 3m 91200_1522 VERTICAL Detector : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 911608	 Site : 03CH16-HY Condition : PEAK_74 3m 91200_1522 VERTICAL Detector : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 911608
	 Site : 03CH16-HY Condition : AVG_BE_54 3m 91200_1522 VERTICAL Detector : RBW:1000.000KHz VBW:1000KHz SWT:Auto Detector : Peak Project : 911608	 Site : 03CH16-HY Condition : AVG_54 3m 91200_1522 VERTICAL Detector : RBW:1000.000KHz VBW:1000KHz SWT:Auto Detector : Peak Project : 911608



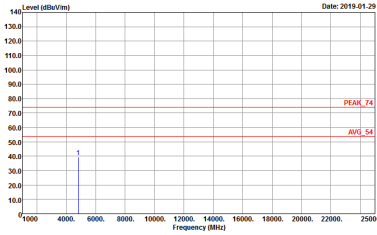
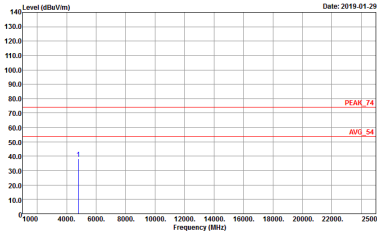
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH11 2462MHz	
1	Horizontal	Fundamental
Peak	 Site : 03CH16-HY Condition : PEAK_BE_74 3m 91200_1522 HORIZONTAL Detector : Peak Project : 911608	 Site : 03CH16-HY Condition : PEAK_74 3m 91200_1522 HORIZONTAL Detector : Peak Project : 911608
	 Site : 03CH16-HY Condition : AVG_BE_54 3m 91200_1522 HORIZONTAL Detector : Peak Project : 911608	 Site : 03CH16-HY Condition : AVG_54 3m 91200_1522 HORIZONTAL Detector : Peak Project : 911608

WIFI	2.4GHz 2400~2483.5MHz Fundamental @ 3m	
ANT	802.11n HT20 CH11 2462MHz	
1	Vertical	Fundamental
Peak	 Site : 03CH16-HY Condition : PEAK_BE_74 3m 91200_1522 VERTICAL Detector : Peak Project : 911608	 Site : 03CH16-HY Condition : PEAK_74 3m 91200_1522 VERTICAL Detector : Peak Project : 911608
	 Site : 03CH16-HY Condition : AVG_BE_54 3m 91200_1522 VERTICAL Detector : Peak Project : 911608	 Site : 03CH16-HY Condition : AVG_54 3m 91200_1522 VERTICAL Detector : Peak Project : 911608

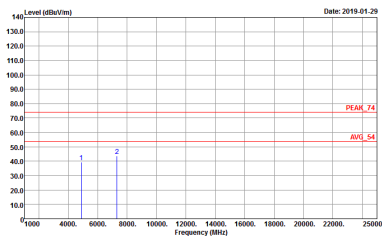
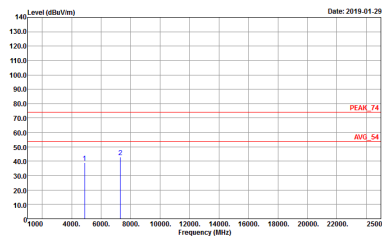


2.4GHz 2400~2483.5MHz

WIFI 802.11b (Harmonic @ 3m)

WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11b CH01 2412MHz	
1	Horizontal	Vertical
Peak Avg.	 Site : 03CH16-HY Condition : PEAK_74 3m 91200_1522 HORIZONTAL Detector : Peak Project : 911608	 Site : 03CH16-HY Condition : PEAK_74 3m 91200_1522 VERTICAL Detector : Peak Project : 911608



WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11b CH06 2437MHz	
1	Horizontal	Vertical
Peak Avg.	 Site : 03CH16-11Y Condition : PEAK_74 3m 91200_1522 HORIZONTAL Detector : Peak Project : 911608	 Site : 03CH16-11Y Condition : PEAK_74 3m 91200_1522 VERTICAL Detector : Peak Project : 911608

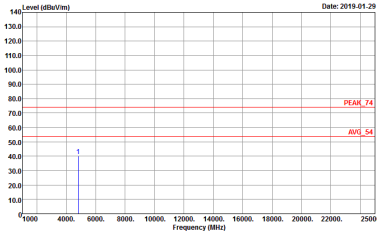
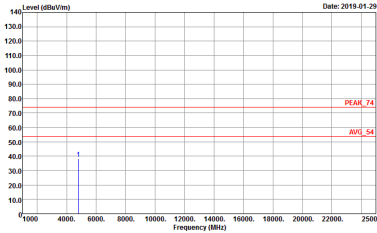


WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11b CH11 2462MHz	
1	Horizontal	Vertical
Peak Avg.	Site : 03CH16-11Y Condition : PEAK_74 3m 91200_1522 HORIZONTAL Detector : Peak Project : 911608	Site : 03CH16-11Y Condition : PEAK_74 3m 91200_1522 VERTICAL Detector : Peak Project : 911608



2.4GHz 2400~2483.5MHz

WIFI 802.11g (Harmonic @ 3m)

WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11g CH01 2412MHz	
1	Horizontal	Vertical
Peak Avg.	 Site : 03CH16-HY Condition : PEAK_74 3m 91200_1522 HORIZONTAL Detector : Peak Project : 911608	 Site : 03CH16-HY Condition : PEAK_74 3m 91200_1522 VERTICAL Detector : Peak Project : 911608

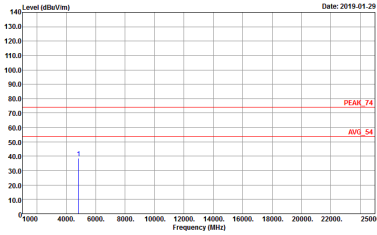
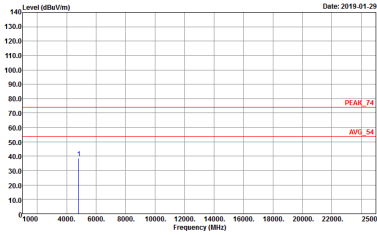


WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11g CH06 2437MHz	
1	Horizontal	Vertical
Peak Avg.	Site : 03CH16-11Y Condition : PEAK_74 3m 91200_1522 HORIZONTAL Detector : Peak Project : 911608	Site : 03CH16-11Y Condition : PEAK_74 3m 91200_1522 VERTICAL Detector : Peak Project : 911608



WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11g CH11 2462MHz	
1	Horizontal	Vertical
Peak Avg.	Site : 03CH16-11Y Condition : PEAK_74 3m 91200_1522 HORIZONTAL Detector : Peak Project : 911608	Site : 03CH16-11Y Condition : PEAK_74 3m 91200_1522 VERTICAL Detector : Peak Project : 911608

**2.4GHz 2400~2483.5MHz****WIFI 802.11n HT20 (Harmonic @ 3m)**

WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11n HT20 CH01 2412MHz	
1	Horizontal	Vertical
Peak Avg.	 Site : 03CH16-HY Condition : PEAK_74 3m 91200_1522 HORIZONTAL Detector : Peak Project : 911608	 Site : 03CH16-HY Condition : PEAK_74 3m 91200_1522 VERTICAL Detector : Peak Project : 911608

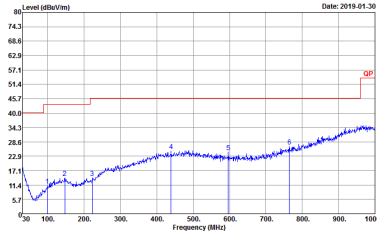
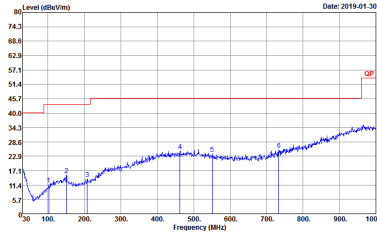


WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11n HT20 CH06 2437MHz	
1	Horizontal	Vertical
Peak Avg.	Site : 03CH16-11Y Condition : PEAK_74 3m 91200_1522 HORIZONTAL Detector : Peak Project : 911608	Site : 03CH16-11Y Condition : PEAK_74 3m 91200_1522 VERTICAL Detector : Peak Project : 911608



WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11n HT20 CH11 2462MHz	
1	Horizontal	Vertical
Peak Avg.	Site : 03CH16-11Y Condition : PEAK_74 3m 91200_1522 HORIZONTAL Detector : Peak Project : 911608	Site : 03CH16-11Y Condition : PEAK_74 3m 91200_1522 VERTICAL Detector : Peak Project : 911608

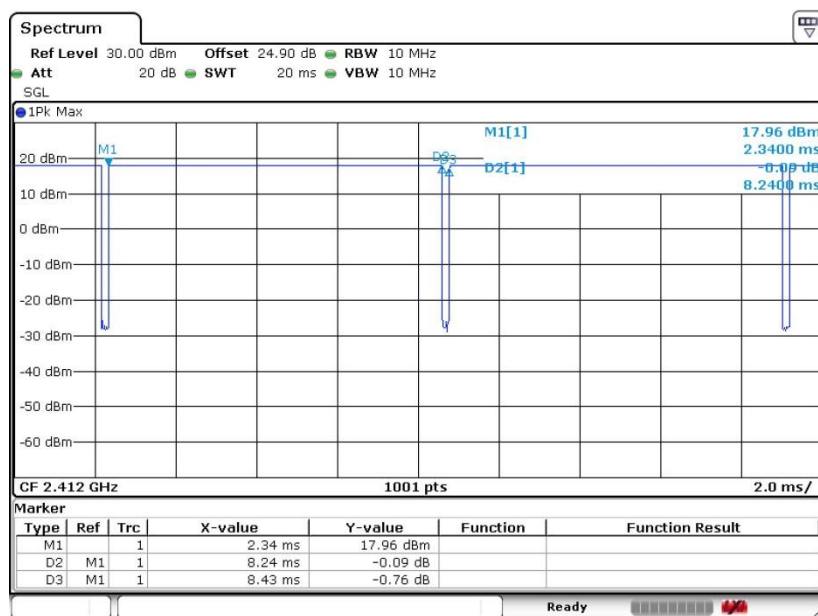
Emission below 1GHz
2.4GHz WIFI 802.11n HT20 (LF)

WIFI	2.4GHz 2400~2483.5MHz	
ANT	802.11n HT20 LF	
1	Horizontal	Vertical
QP / Peak	 Site : 03CH16-HY Condition : QP 3m BTLOG_47020806 HORIZONTAL s : Peak Project : 911608	 Site : 03CH16-HY Condition : QP 3m BTLOG_47020806 VERTICAL s : Peak Project : 911608

Appendix E. Duty Cycle Plots

Band	Duty Cycle(%)	T(us)	1/T(kHz)	VBW Setting	Duty Factor(dB)
802.11b	97.75	8240	0.12	300Hz	0.10
802.11g	86.67	1365	0.73	1kHz	0.62
2.4GHz 802.11n HT20	85.86	1275	0.78	1kHz	0.66

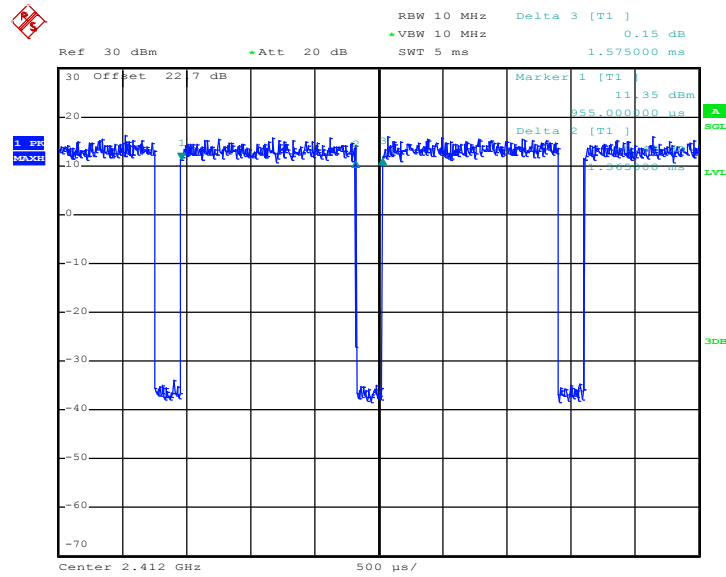
802.11b



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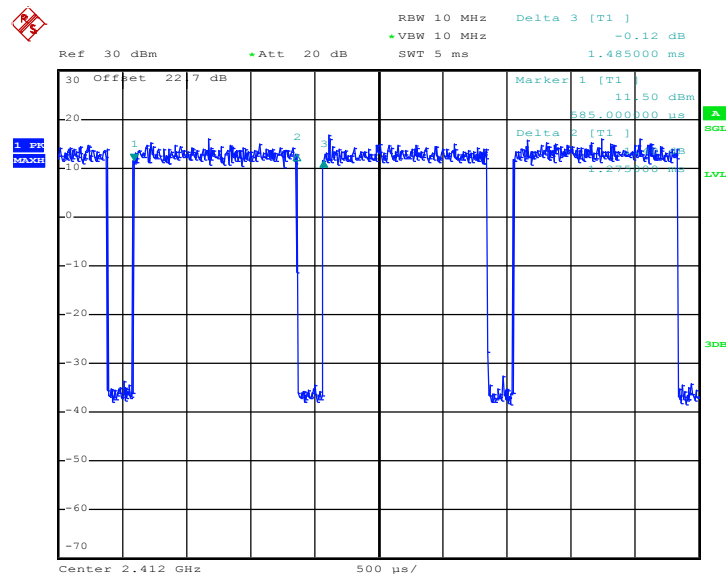


802.11g



Date: 24.JAN.2019 15:39:24

802.11n HT20



Date: 24.JAN.2019 15:43:43