FCC RADIO TEST REPORT

FCC ID	:	**TVE-121757B**
Equipment	:	**Network Security Gateway**
Brand Name	:	**FORTINET**
Model Name	:	**FWF-41FXXXXXX, FortiWiFi 41FXXXXXX, FORTIWIFI-41FXXXXXX FWF-40FXXXXXX, FortiWiFi 40FXXXXXX, FORTIWIFI-40FXXXXXX FWF-41F-3G4GXXXXXX, FortiWiFi 41F-3G4GXXXXXX, FORTIWIFI-41F-3G4GXXXXXX FWF-40F-3G4GXXXXXX, FortiWiFi 40F-3G4GXXXXXX, FORTIWIFI-40F-3G4GXXXXXX (Where "x" can be used as "A-Z", or "0-9", or "-", or blank for software purposes or marketing purposes only)**
Marketing Name	:	**FortiWiFi 41F, FortiWiFi 40F, FortiWiFi 41F-3G4G, FortiWiFi 40F-3G4G**
Applicant	:	**Fortinet Inc. 899 KIFER RD SUNNYVALE CA 94086-5301 UNITED STATES**
Manufacturer	:	**Fortinet Inc. 899 KIFER RD SUNNYVALE CA 94086-5301 UNITED STATES**
Standard	:	**FCC PART 15 SUBPART C §15.247**

The product was received on Oct. 16, 2019 and testing was started from Oct. 22, 2019 and completed on Nov. 26, 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.

Louis Wu

Approved by: Louis Wu

SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory

No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)

Table of Contents

History of this test report

Report No.	Version	Description	Issued Date
FR992436-01A	01	Initial issue of report	Jan. 17, 2020

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 0.32 dB at 2385.600 MHz
3.6	15.207	AC Conducted Emission	Pass	Under limit 13.02 dB at 0.321 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: Tina Chuang

1 General Description

1.1 Product Feature of Equipment Under Test

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

Product Specification subjective to this standard		
WLAN Antenna	Model Number	5000846
Antenna Type	WLAN: <Ant 0>: Dipole Antenna <Ant 1>: Dipole Antenna <Ant 2>: Dipole 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. EMC & Wireless Communications Laboratory	
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. EMC & Wireless Communications Laboratory
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.**
	03CH15-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 v05r02
- FCC KDB 414788 D01 Radiated Test Site v01r01.
- FCC KDB 662911 D01 Multiple Transmitter Output v02r01.
- ANSI C63.10-2013

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

2 Test Configuration of Equipment Under Test

a. The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conduction emission (150 kHz to 30 MHz), radiation emission (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower). For radiated measurement, pre-scanned in two type antenna degrees, 0°and 90°. The worst cases (Ant. 90°) 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

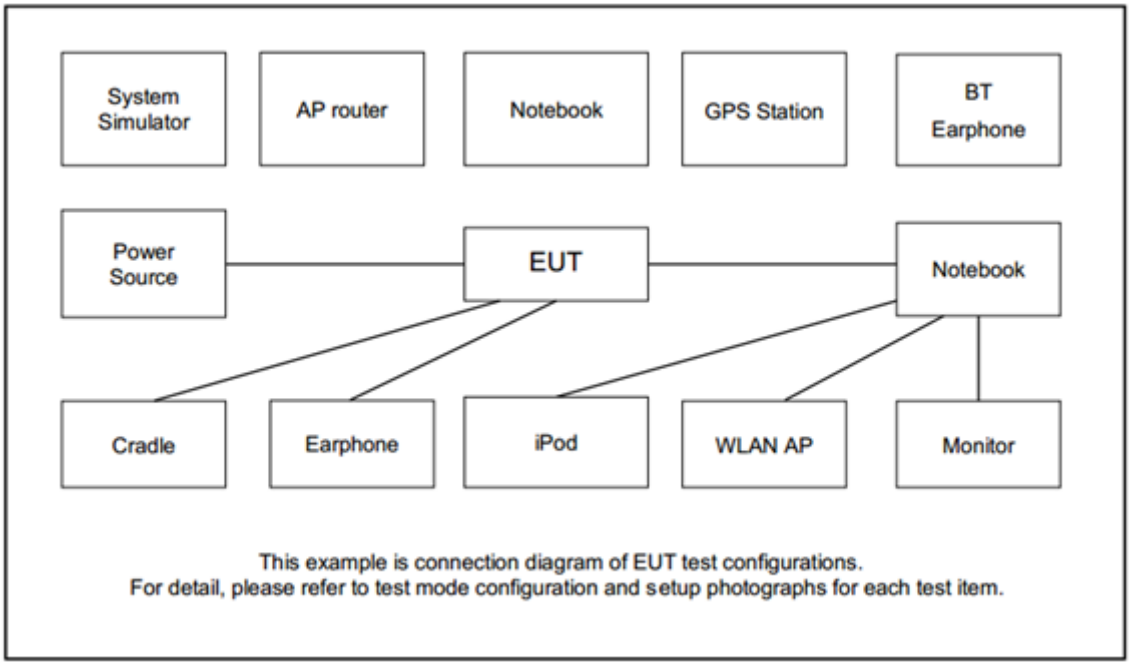
Final test modes are considering the modulation and worse data rates as below table.

Modulation	Data Rate
802.11b	1 Mbps
802.11g	6 Mbps
802.11n HT20	MCS0
802.11n HT40	MCS0

Remark: The manufacturer defines worst case were Non Beamforming, other test items only test worst case and documented.

Test Cases	
AC Conducted Emission	Mode 1 : WLAN (2.4GHz) Link + WAN Link + LAN (1) Link + LAN (2) Link + LAN (3) Link + LAN (A) Load + Adapter

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.	Notebook	DELL	Latitude E3340	FCC DoC/ Contains FCC ID: PD97260NGU	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
2.	Notebook	DELL	Latitude E3400	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
3.	Notebook	DELL	Latitude E5480	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
4.	Notebook	ASUS	8260NGW	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
5.	Notebook	Lenovo	L570	N/A	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m

2.5 EUT Operation Test Setup

The RF test items, utility “QSPR_V5.0-00188” 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.

For TXBF mode, the modulation modes and data rates manipulated by the command lines in the engineering program made the EUT link to another EUT by power under the normal operation. The “abd” software tool was used to enable the EUT to transmit signals continuously.

2.6 Measurement Results Explanation Example

For all conducted test items:

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

Example:
The spectrum analyzer offset is derived from RF cable loss and attenuator factor.
Offset = RF cable loss + attenuator factor.
Following shows an offset computation example with cable loss 4.2 dB and 10dB attenuator.

Offset(dB) = RF cable loss(dB) + attenuator factor(dB).
= 4.2 + 10 = 14.2 (dB)

3 Test Result

3.1 6dB and 99% Bandwidth Measurement

3.1.1 Limit of 6dB and 99% Bandwidth

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

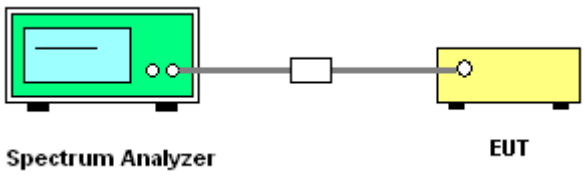
3.1.2 Measuring Instruments

See list of measuring equipment of this test report.

3.1.3 Test Procedures

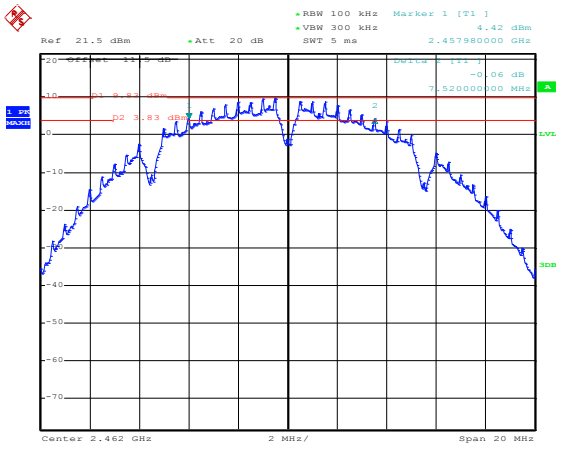
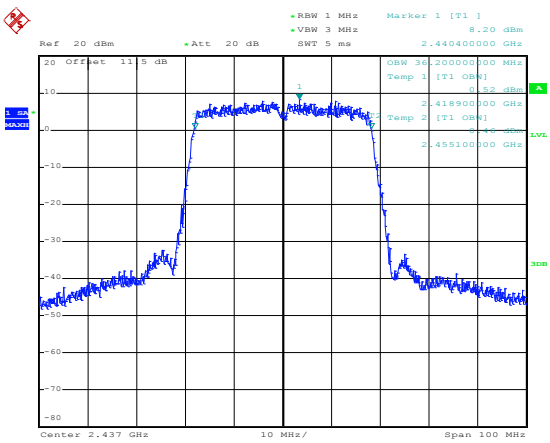
1. The testing follows the ANSI C63.10 Section 6.9.3 (OBW) and 11.8.1 (6dB BW).
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit 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) ≥ 3 * RBW.
6. Measure and record the results in the test report.

3.1.4 Test Setup



3.1.5 Test Result of 6dB and 99% Occupied Bandwidth

Please refer to Appendix A.

Minimum 6dB Bandwidth	Maximum 99% Occupied Bandwidth
	

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 output power is 30dBm. If transmitting antenna with directional gain greater than 6dBi is used, the 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.

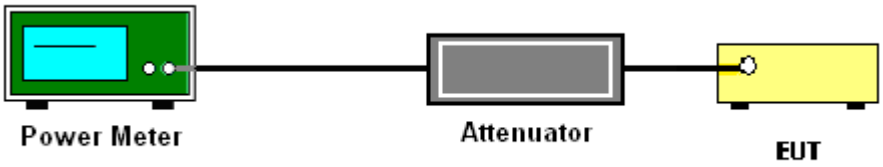
3.2.2 Measuring Instruments

See list of measuring equipment of this test report.

3.2.3 Test Procedures

1. For Peak Power, the testing follows ANSI C63.10 Section 11.9.1.3 PKPM1
2. For Average Power, the testing follows ANSI C63.10 Section 11.9.2.3.2 Method AVGPM-G
3. 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.
4. Set to the maximum power setting and enable the EUT transmit continuously.
5. Measure the conducted output power and record the results in the test report.
6. For MIMO mode, calculation method follows FCC KDB 662911 D01 Multiple Transmitter Output v02r01.

3.2.4 Test Setup



3.2.5 Test Result of Peak Output Power (Reporting Only)

Please refer to Appendix A.

3.2.6 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

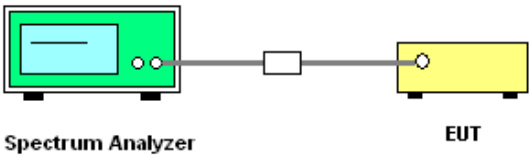
Method AVGPSD-3

1. The testing follows the ANSI C63.10 Section 11.10.7 Method AVGPSD-3.
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) = 10 kHz. Video bandwidth VBW = 30 kHz In order to make an accurate measurement, set the span to 1.5 times DTS Channel Bandwidth. (6dB BW).
5. Number of points in sweep ≥ 2 Span / RBW. (This ensures that bin-to-bin spacing is ≤ RBW/2, so that narrowband signals are not lost between frequency bins).
6. Detector = RMS, Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow max hold to run for at least 60 seconds, or longer as needed to allow the trace to stabilize.
9. Measure and record the results in the test report.
10. For MIMO mode, calculation method follows FCC KDB 662911 D01 Multiple Transmitter Output v02r01.

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

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

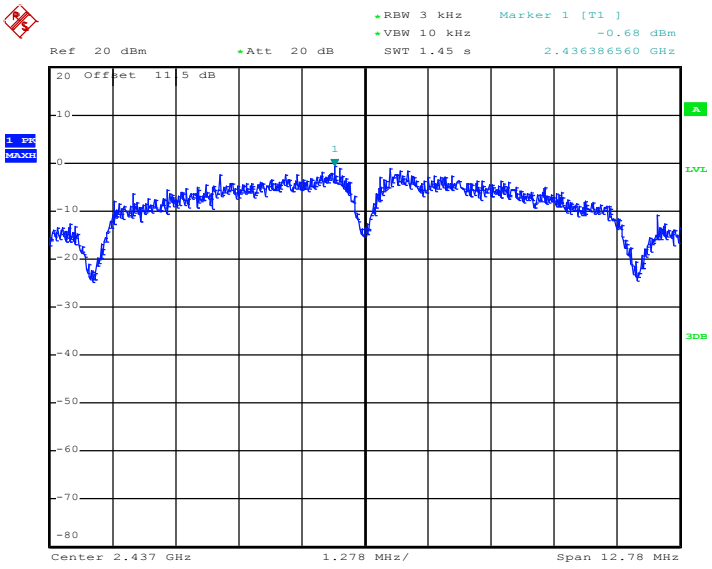
3.3.4 Test Setup



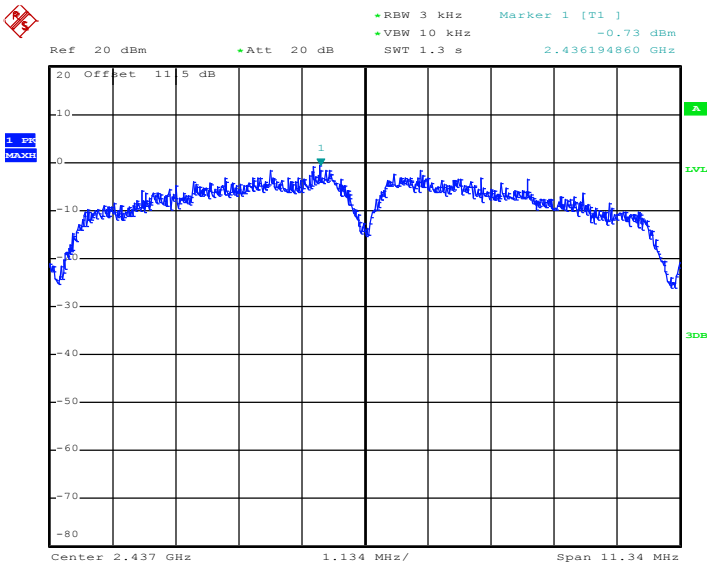
3.3.5 Test Result of Power Spectral Density

Please refer to Appendix A.

Worst Case Power Density (dBm/3kHz) for MIMO Ant. 0



Worst Case Power Density (dBm/3kHz) for MIMO Ant. 1



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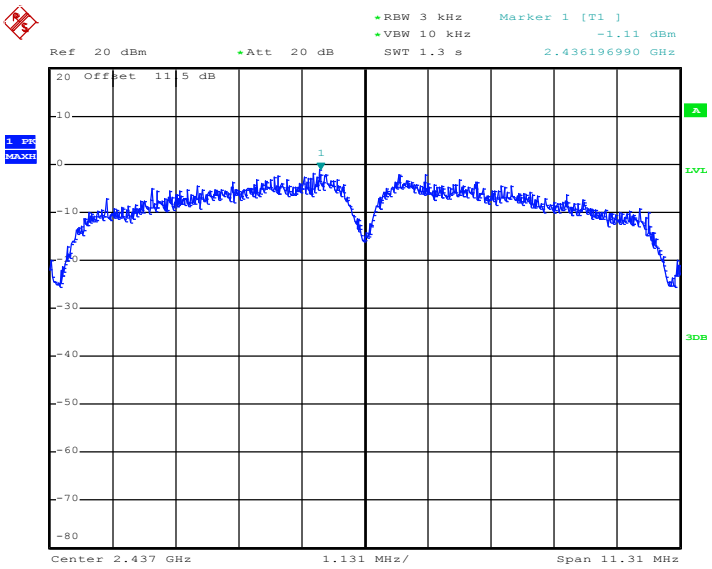
Worst Case Power Density (dBm/3kHz) for MIMO Ant. 2



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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.

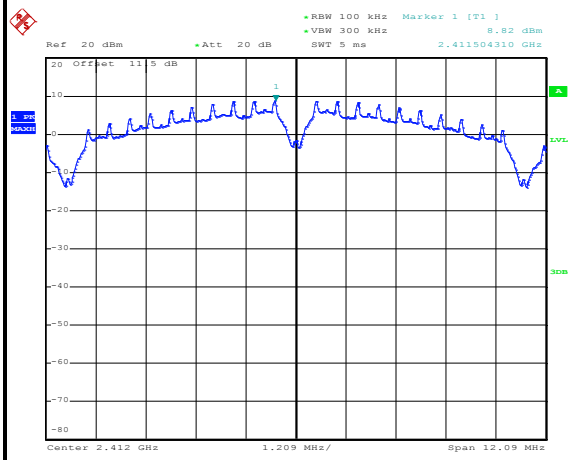
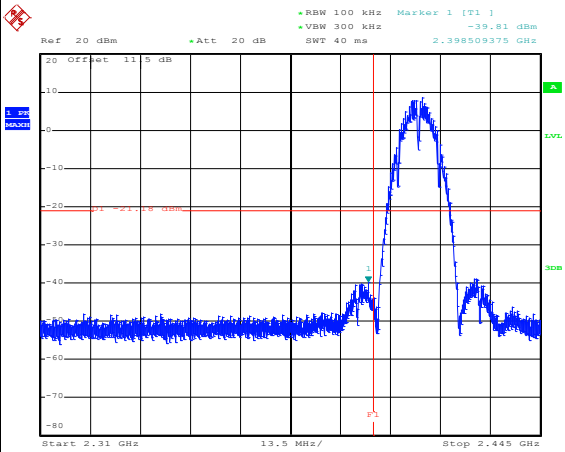
3.4.4 Test Setup

3.4.5 Test Result of Conducted Band Edges and Spurious Emission

Test Engineer :	Hank Hsu	Temperature :	21~25℃
		Relative Humidity :	51~54%

Number of TX = 3Tx, Ant. 0 (Measured)

Test Mode :	802.11b	Test Channel :	01

100kHz PSD reference Level	Low Channel Plot
	
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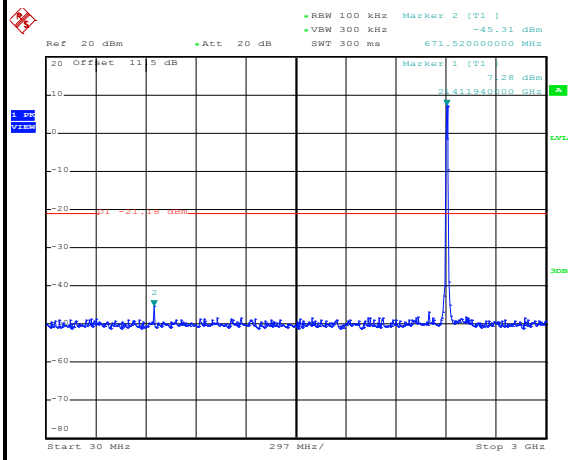
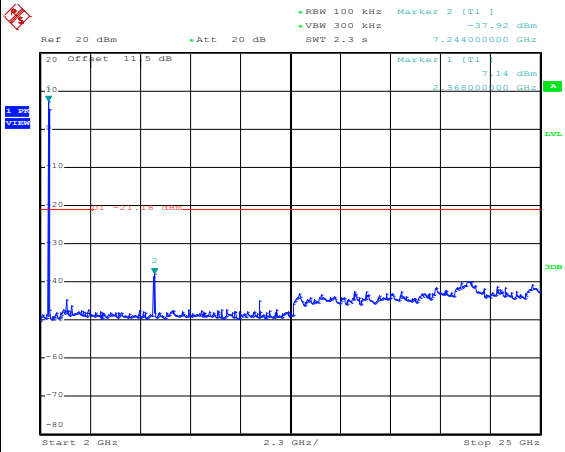
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	
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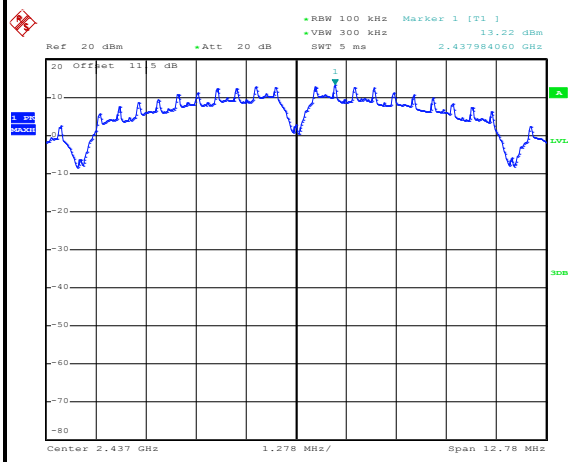
WLAN 802.11b Channel 06	
100kHz PSD reference Level	**Mid Channel Plot**
 Date: 21.NOV.2019 14:58:31	
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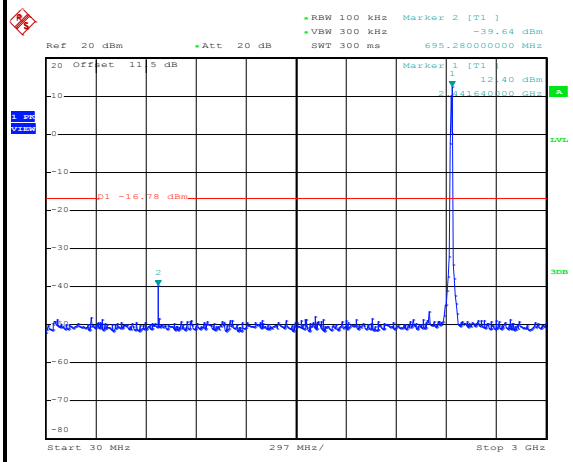
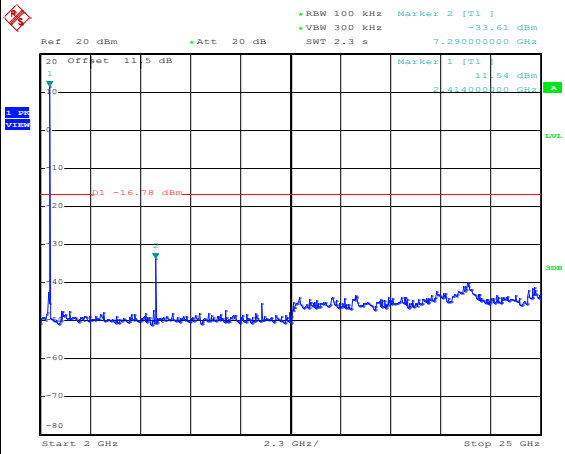
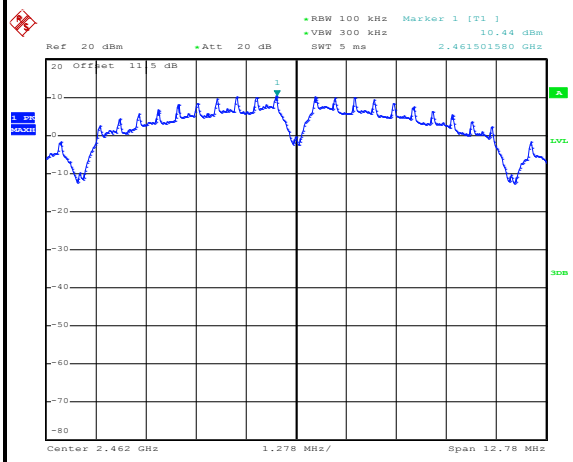
 Date: 21.NOV.2019 14:59:19	 Date: 21.NOV.2019 14:59:59

WLAN 802.11b Channel 11

100kHz PSD reference Level



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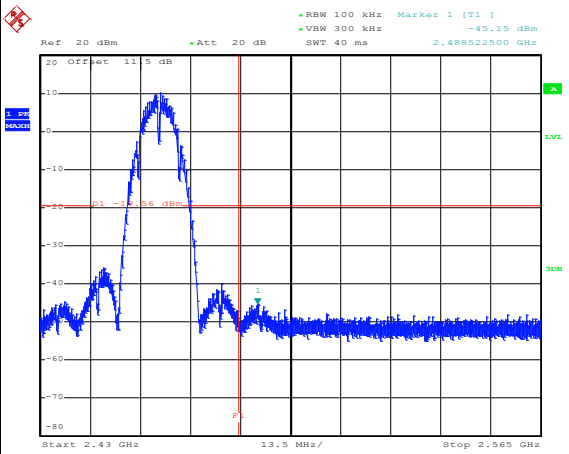
High Channel Plot



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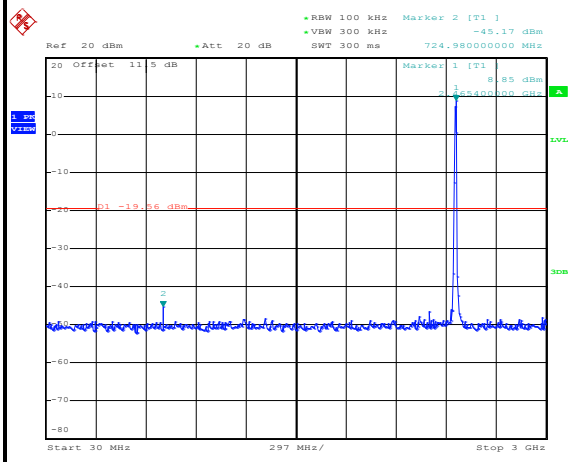
Spurious Emission 30MHz~3GHz



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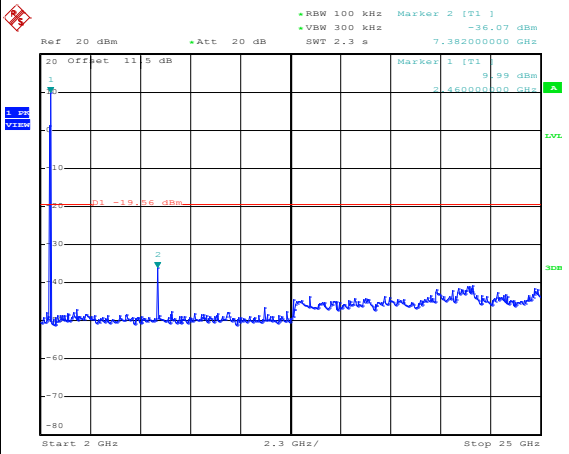
Spurious Emission 2GHz~25GHz



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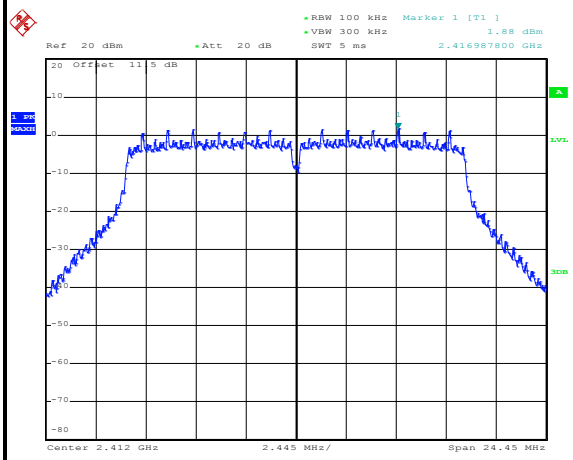
Test Mode :	802.11g	Test Channel :	01

100kHz PSD reference Level



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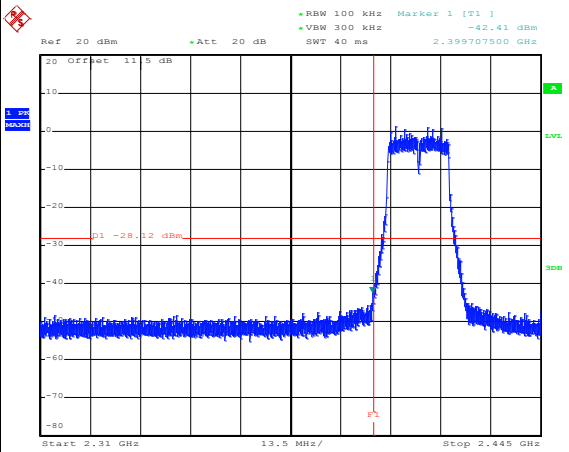
Low Channel Plot



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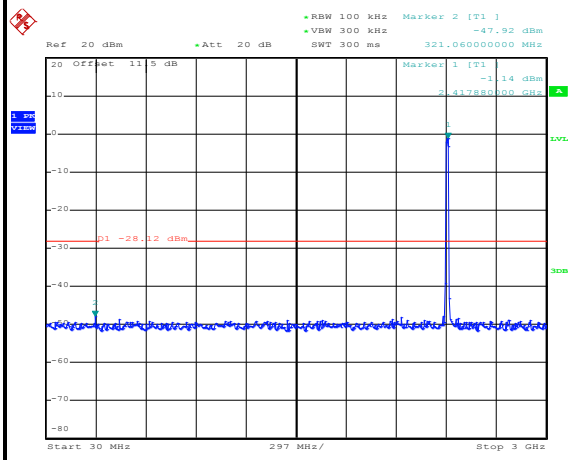
Spurious Emission 30MHz~3GHz



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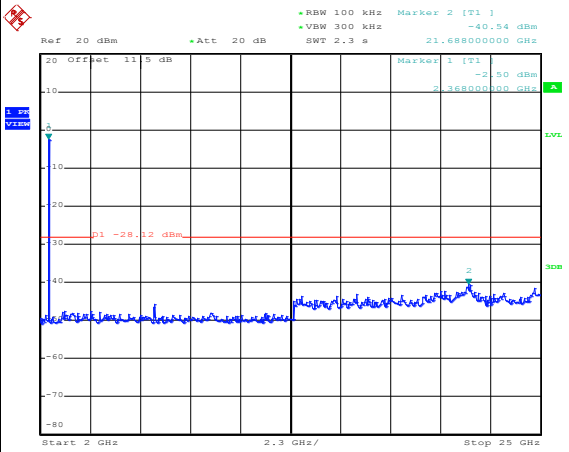
Spurious Emission 2GHz~25GHz



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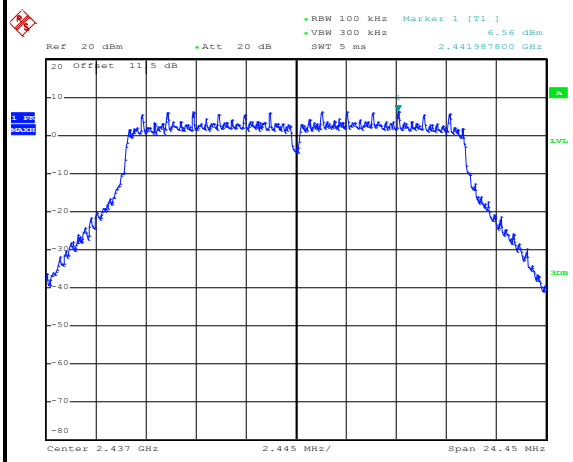
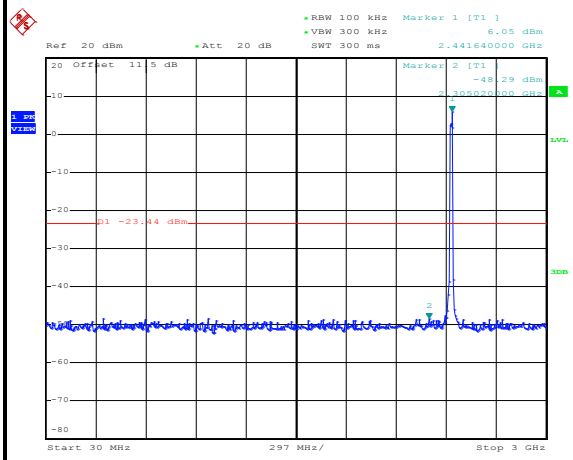
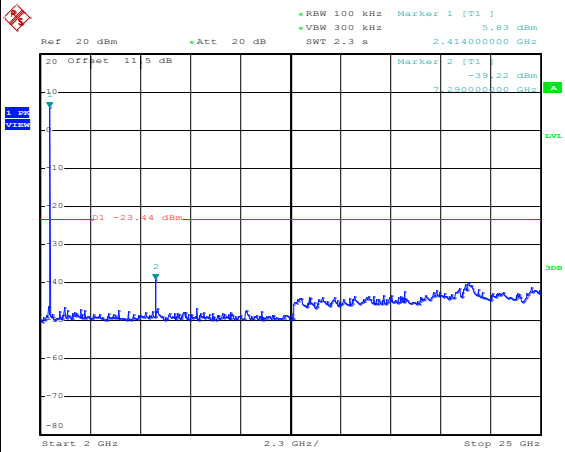
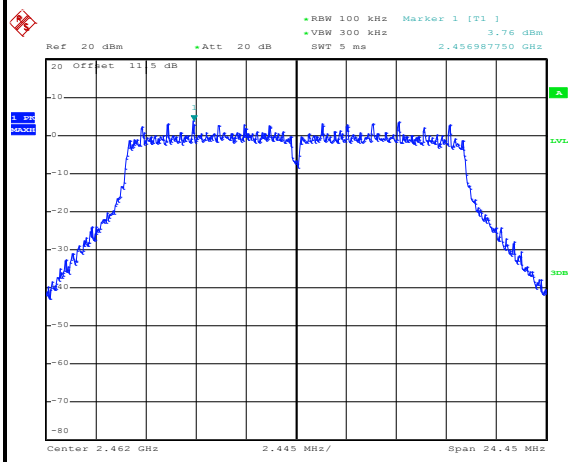
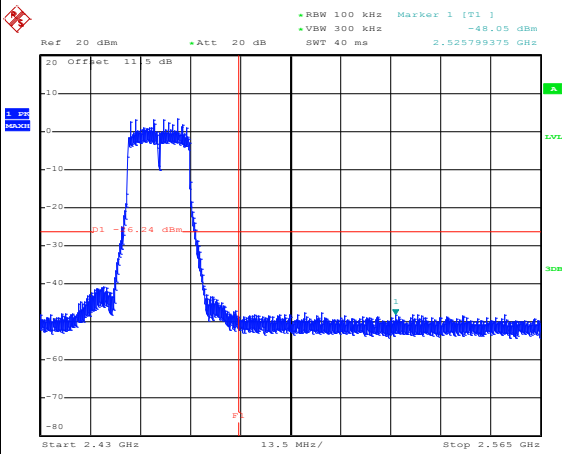
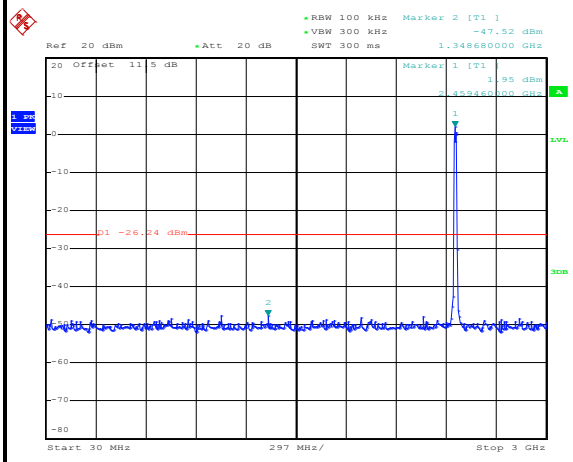
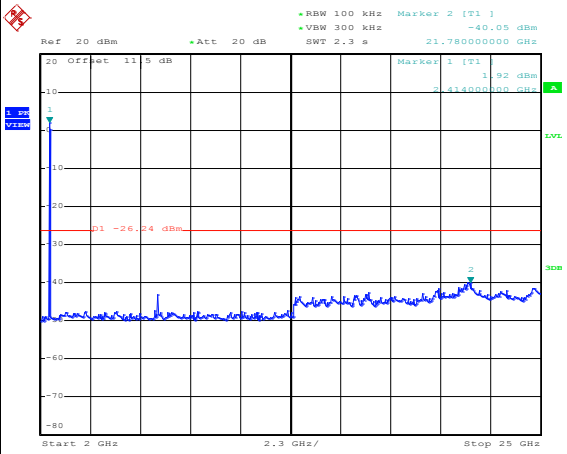
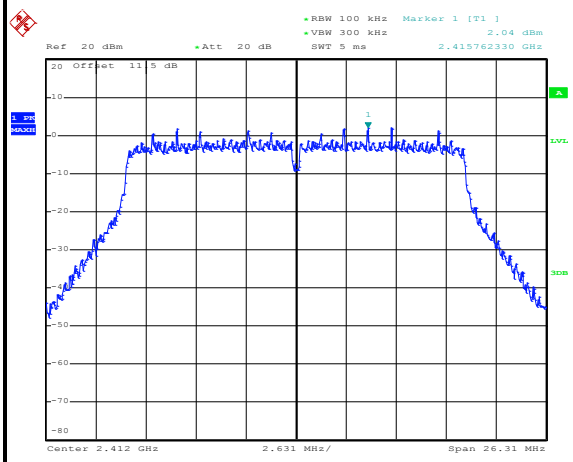
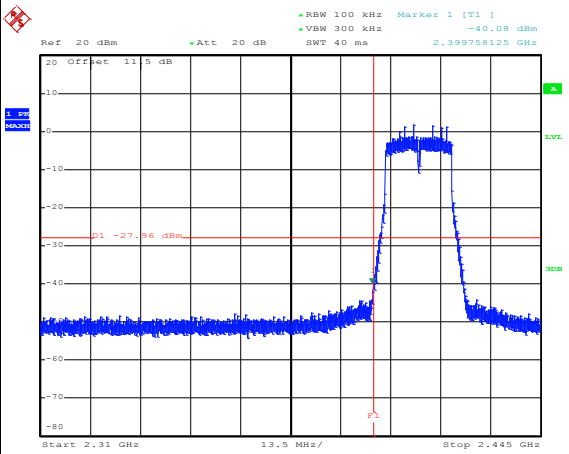
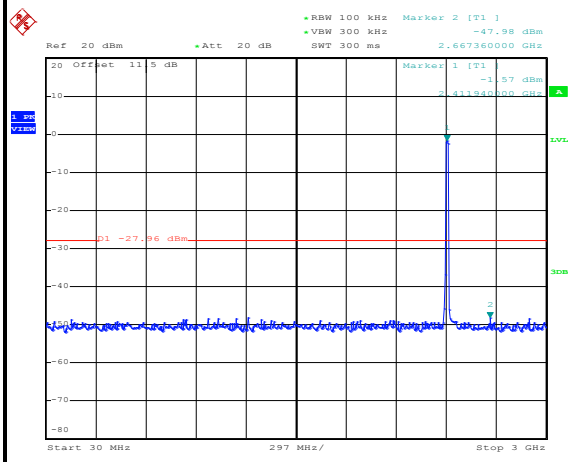
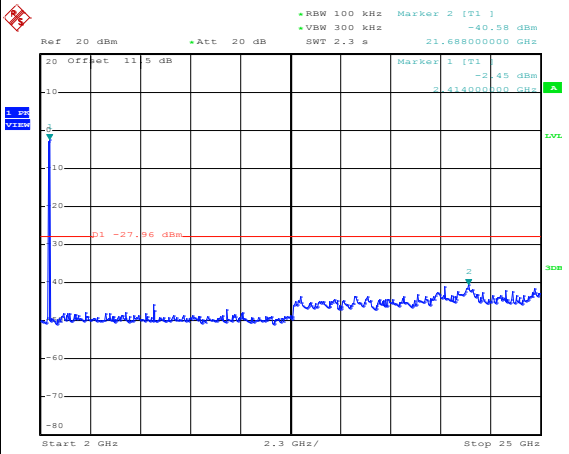
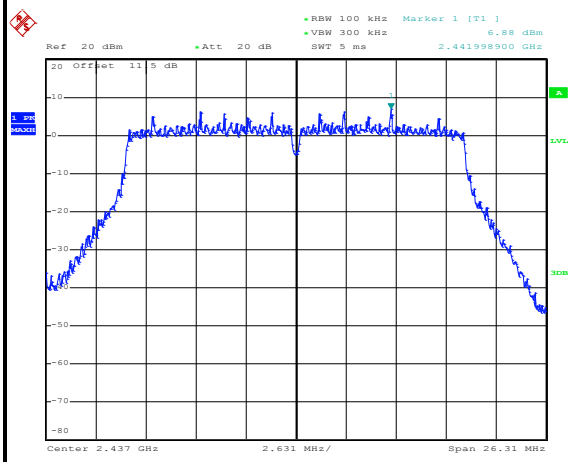
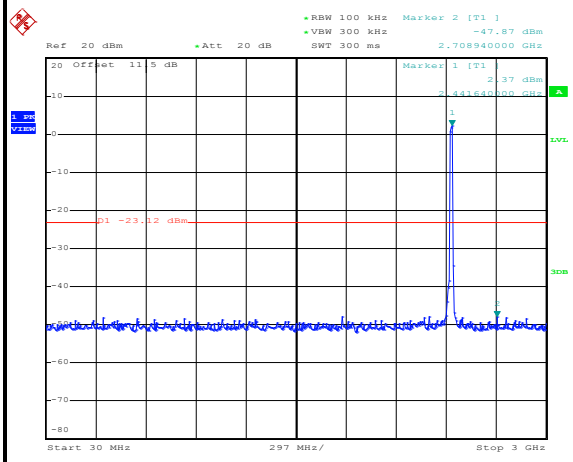
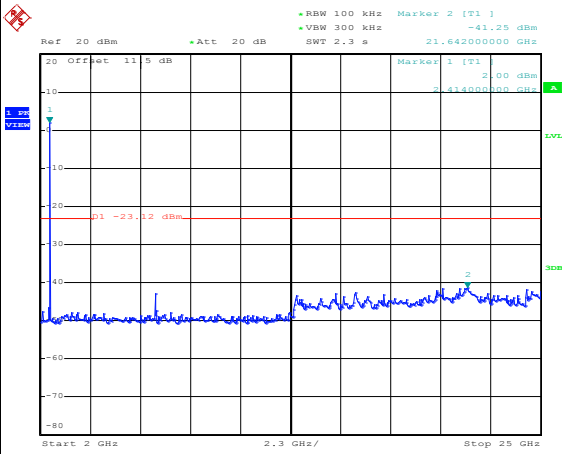
WLAN 802.11g Channel 06	
100kHz PSD reference Level	**Mid Channel Plot**
 Date: 21.NOV.2019 19:29:35	
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
 Date: 21.NOV.2019 19:31:48	 Date: 21.NOV.2019 19:39:49

WLAN 802.11g Channel 11	
100kHz PSD reference Level	**High Channel Plot**
	
Date: 21.NOV.2019 20:34:55	Date: 21.NOV.2019 20:35:26
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	
Date: 21.NOV.2019 20:36:27	Date: 21.NOV.2019 20:38:46

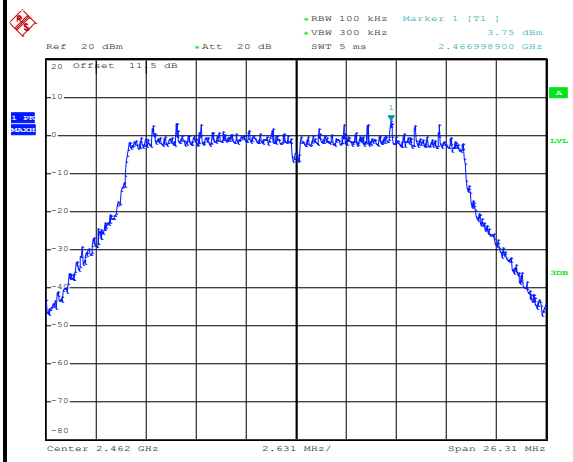
Test Mode :	802.11n HT20	Test Channel :	01

100kHz PSD reference Level	Low Channel Plot
	
Date: 22.NOV.2019 09:59:54	Date: 22.NOV.2019 10:02:54
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	
Date: 22.NOV.2019 10:07:37	Date: 22.NOV.2019 10:07:55

WLAN 802.11n HT20 Channel 06	
100kHz PSD reference Level	**Mid Channel Plot**
 Date: 22.NOV.2019 10:43:34	
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
 Date: 22.NOV.2019 10:44:44	 Date: 22.NOV.2019 10:45:06

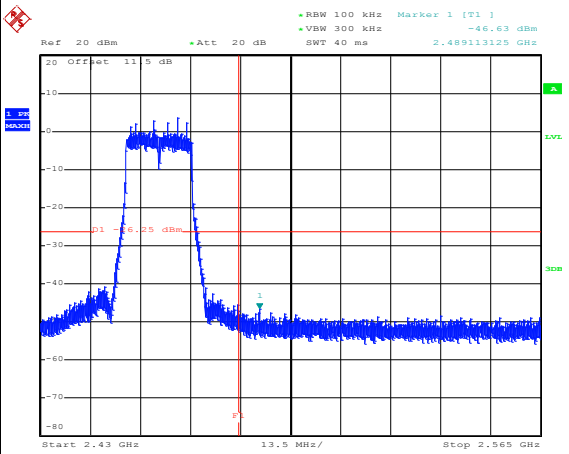
WLAN 802.11n HT20 Channel 11

100kHz PSD reference Level



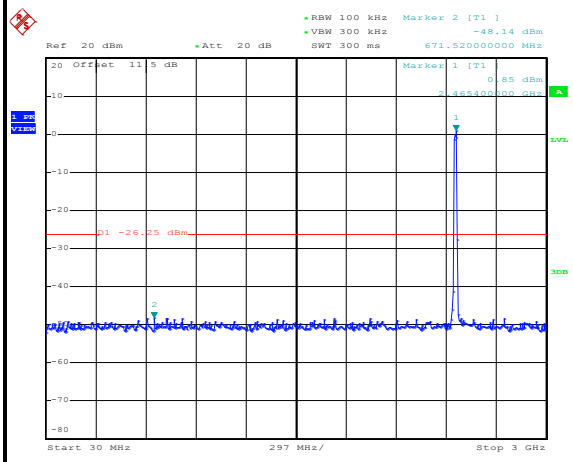
Date: 22.NOV.2019 12:55:51

High Channel Plot



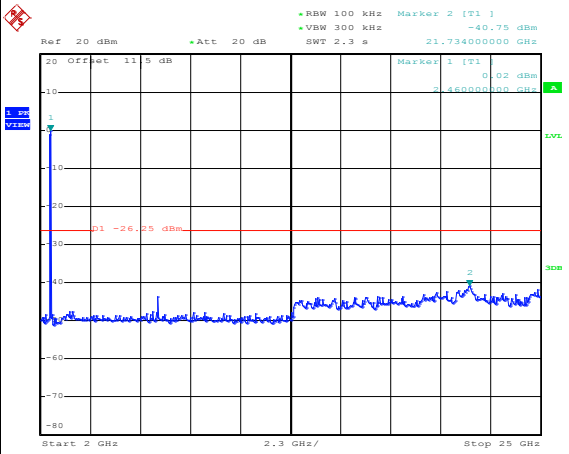
Date: 22.NOV.2019 12:56:05

Spurious Emission 30MHz~3GHz



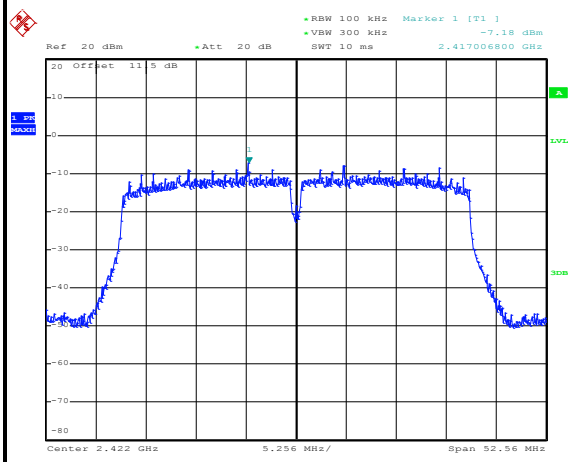
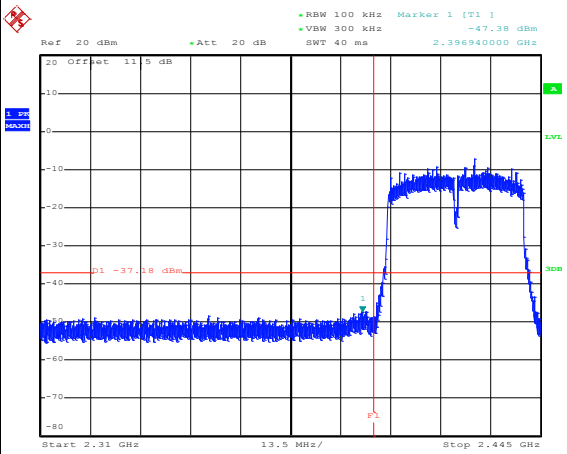
Date: 22.NOV.2019 12:56:28

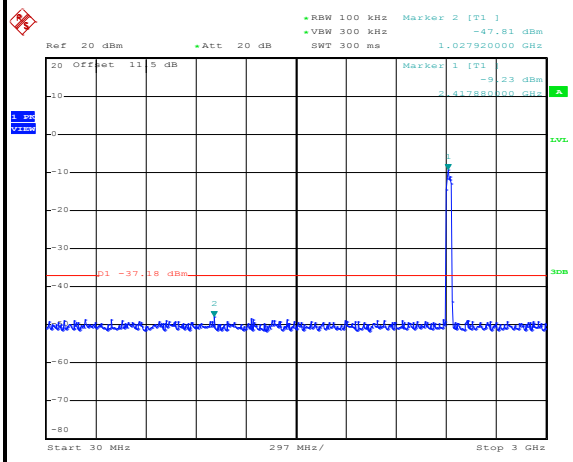
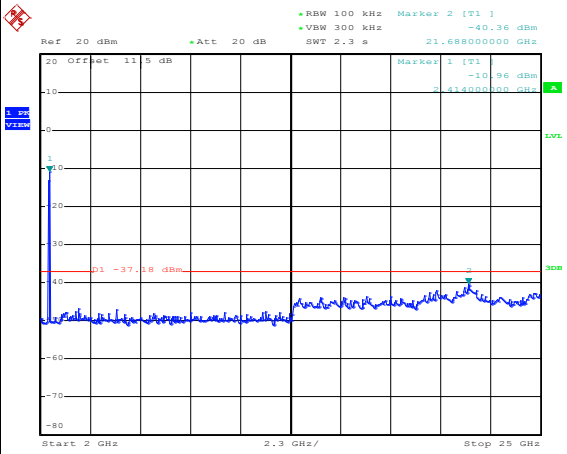
Spurious Emission 2GHz~25GHz

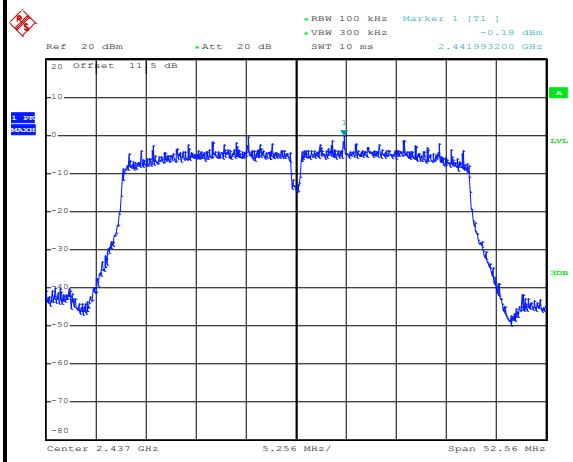
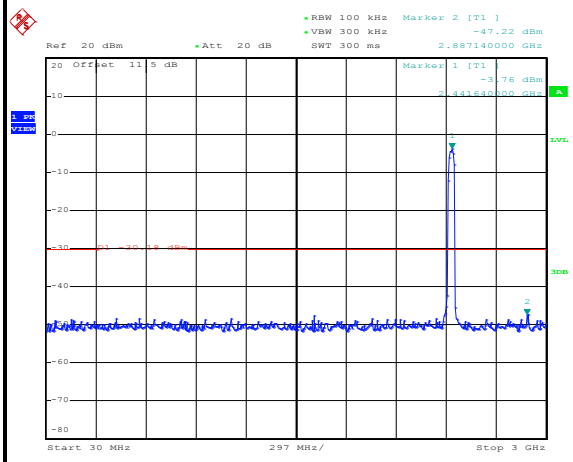
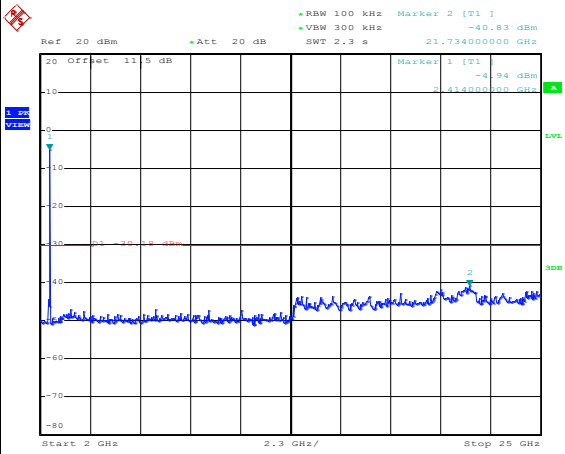


Date: 22.NOV.2019 12:56:51

Test Mode :	802.11n HT40	Test Channel :	03

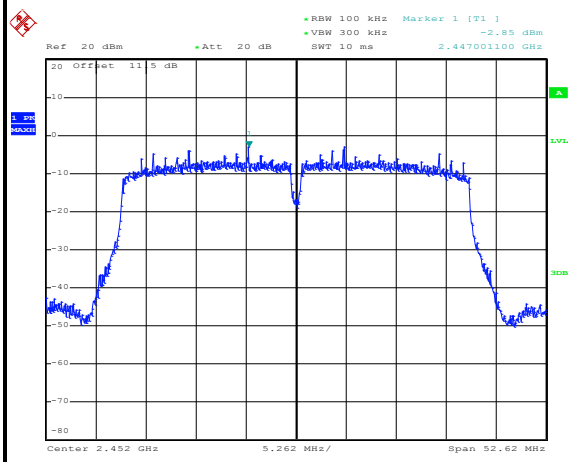
100kHz PSD reference Level	Low Channel Plot
	
Date: 22.NOV.2019 13:17:42	Date: 22.NOV.2019 13:17:56

Spurious Emission 30MHz~3GHz	Spurious Emission 2GHz~25GHz
	
Date: 22.NOV.2019 13:18:49	Date: 22.NOV.2019 13:19:07

WLAN 802.11n HT40 Channel 06	
100kHz PSD reference Level	**Mid Channel Plot**
 Date: 22.NOV.2019 13:36:12	
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
 Date: 22.NOV.2019 13:36:31	 Date: 22.NOV.2019 13:36:49

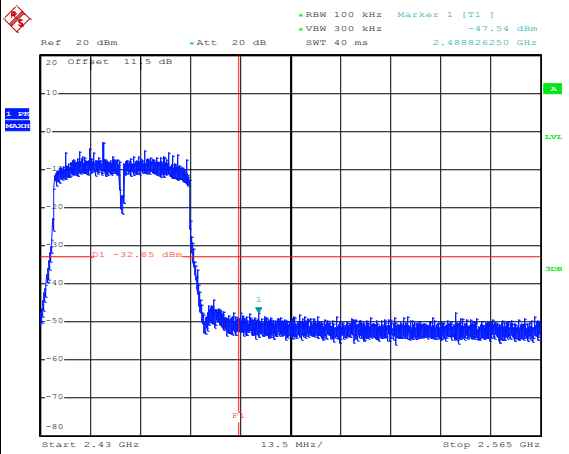
WLAN 802.11n HT40 Channel 09

100kHz PSD reference Level



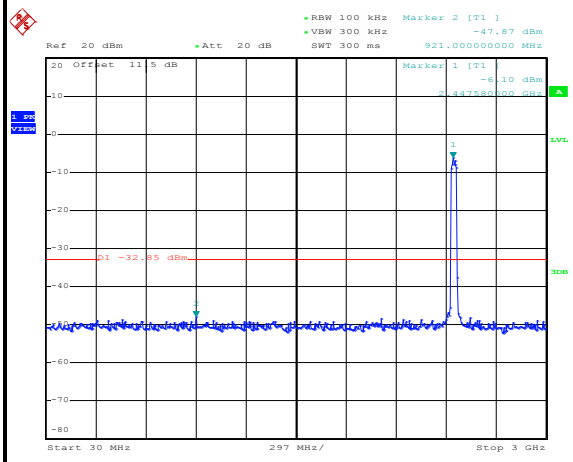
Date: 22.NOV.2019 15:02:22

High Channel Plot



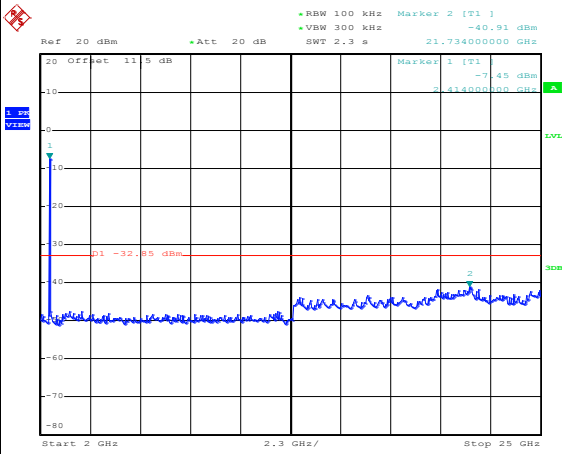
Date: 22.NOV.2019 15:04:41

Spurious Emission 30MHz~3GHz



Date: 22.NOV.2019 15:06:52

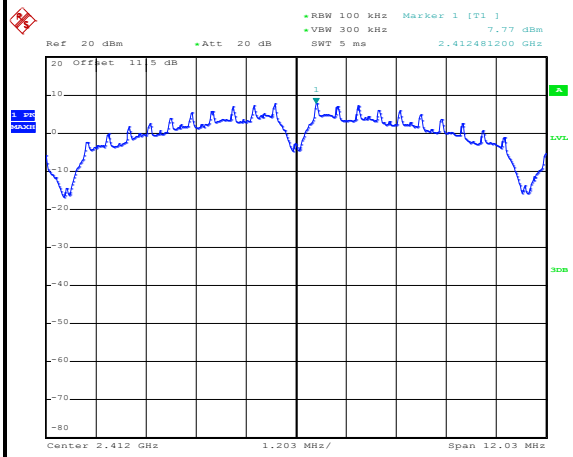
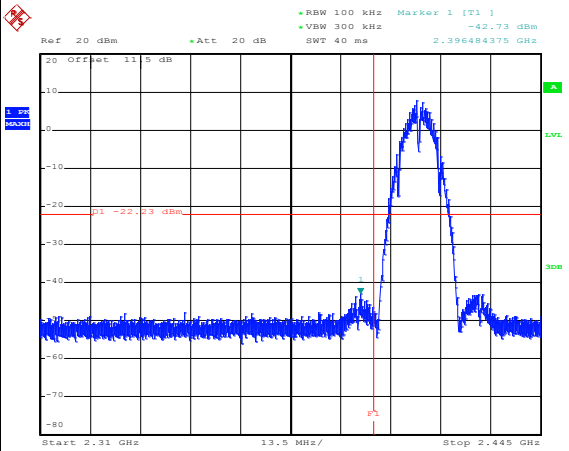
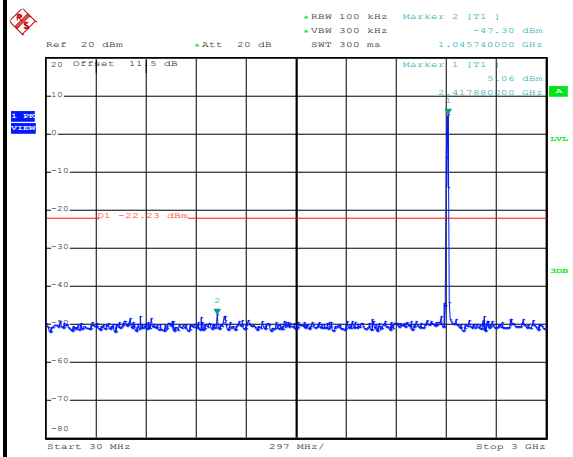
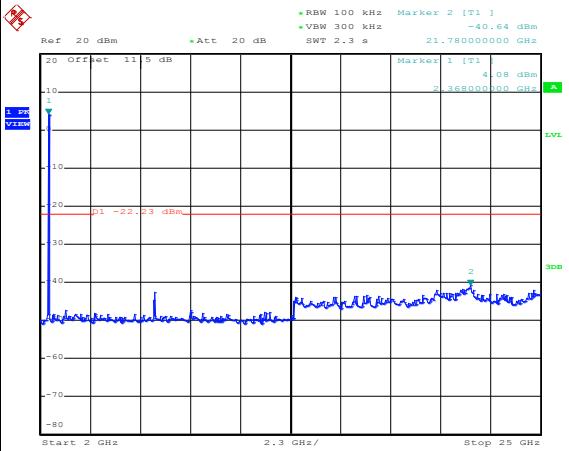
Spurious Emission 2GHz~25GHz

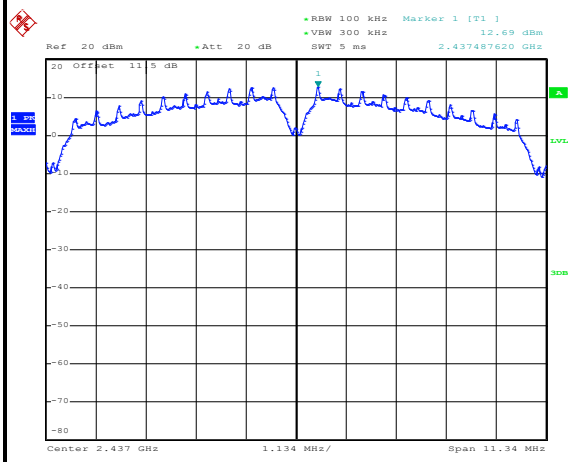
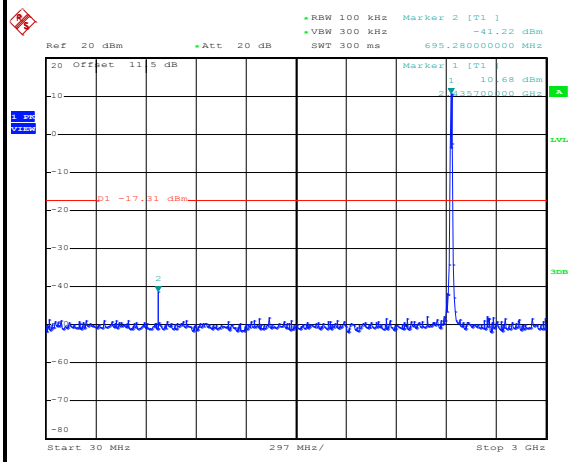
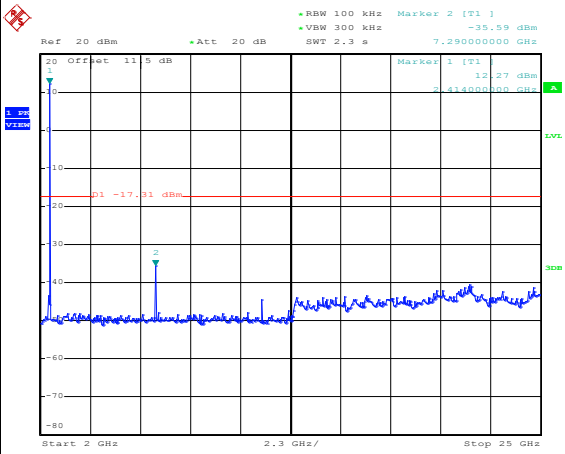


Date: 22.NOV.2019 15:07:08

Number of TX = 3Tx, Ant. 1 (Measured)

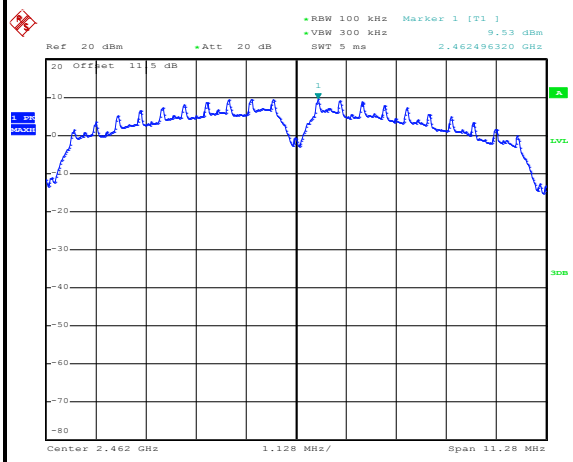
Test Mode :	802.11b	Test Channel :	01

100kHz PSD reference Level	Low Channel Plot
	
Date: 21.NOV.2019 14:27:24	Date: 21.NOV.2019 14:27:55
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	
Date: 21.NOV.2019 14:28:37	Date: 21.NOV.2019 14:30:52

WLAN 802.11b Channel 06	
100kHz PSD reference Level	**Mid Channel Plot**
 Date: 21.NOV.2019 15:32:20	
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
 Date: 21.NOV.2019 15:32:53	 Date: 21.NOV.2019 15:33:14

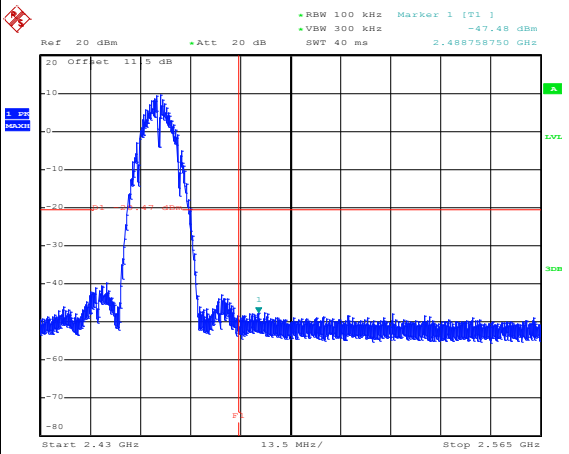
WLAN 802.11b Channel 11

100kHz PSD reference Level



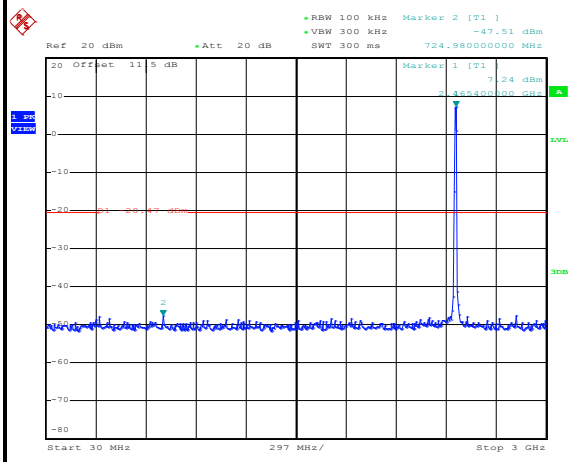
Date: 21.NOV.2019 15:49:04

High Channel Plot



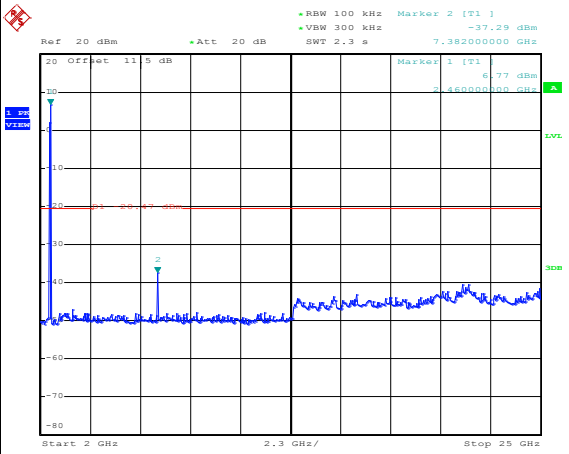
Date: 21.NOV.2019 15:49:31

Spurious Emission 30MHz~3GHz



Date: 21.NOV.2019 15:50:08

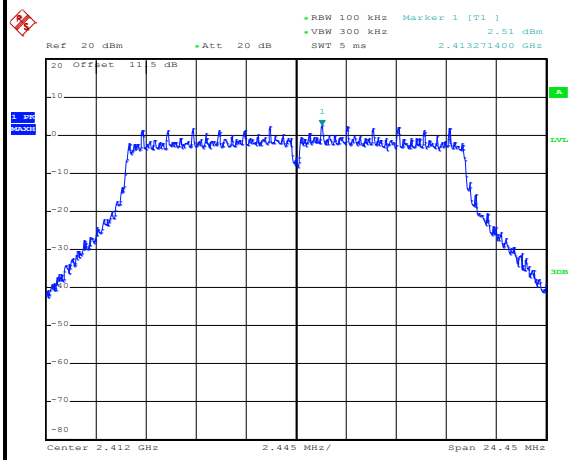
Spurious Emission 2GHz~25GHz



Date: 21.NOV.2019 15:50:26

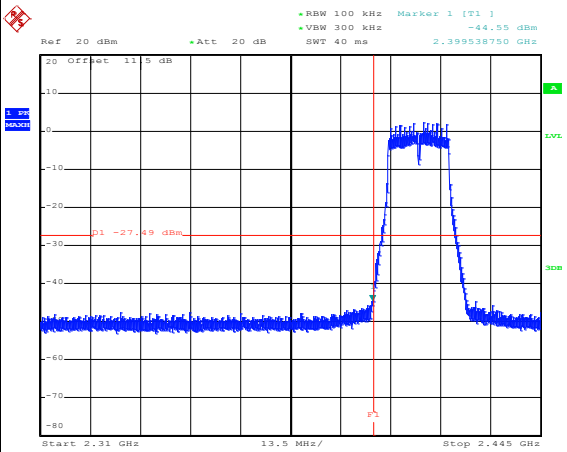
Test Mode :	802.11g	Test Channel :	01

100kHz PSD reference Level



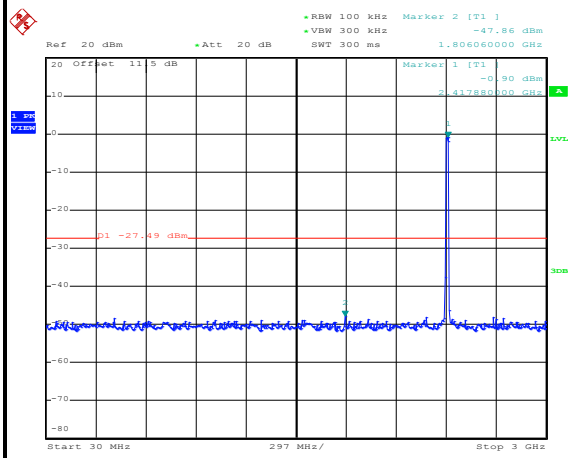
Date: 21.NOV.2019 16:17:11

Low Channel Plot



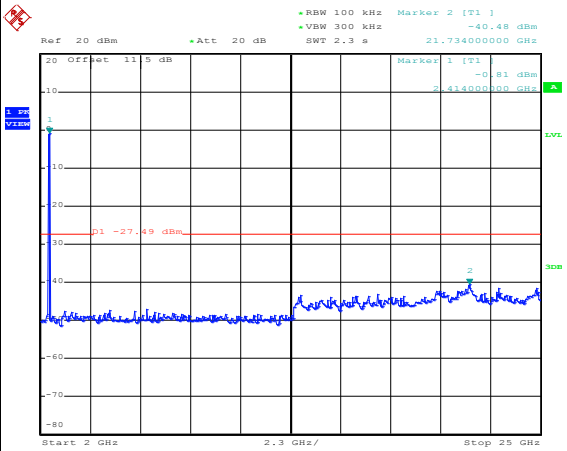
Date: 21.NOV.2019 16:21:29

Spurious Emission 30MHz~3GHz

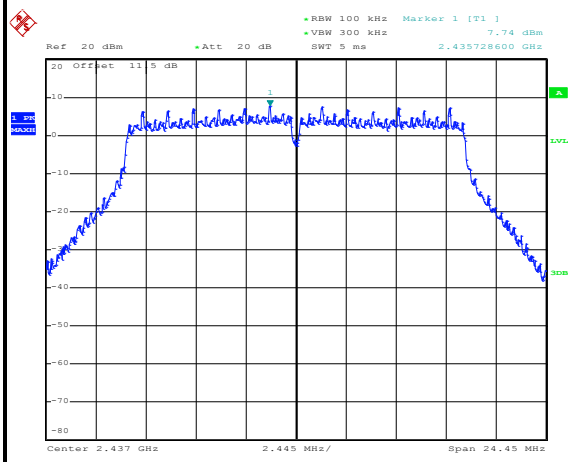
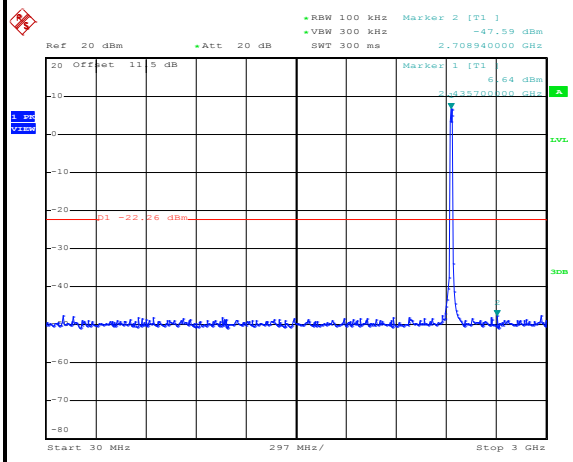
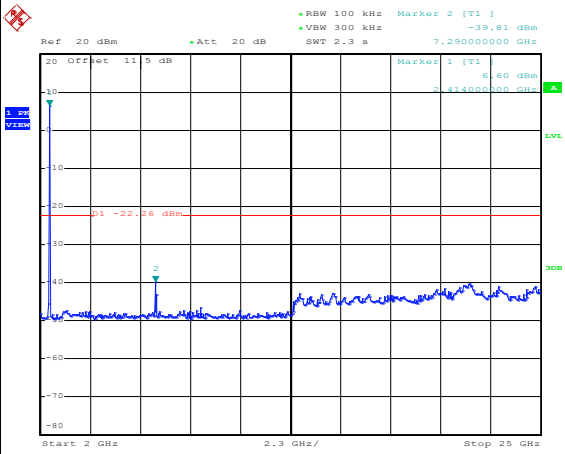


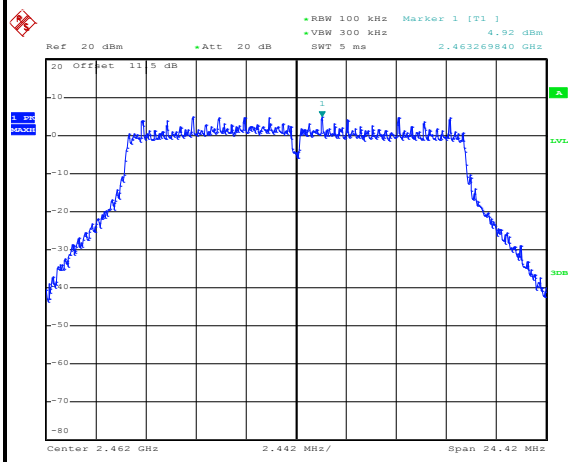
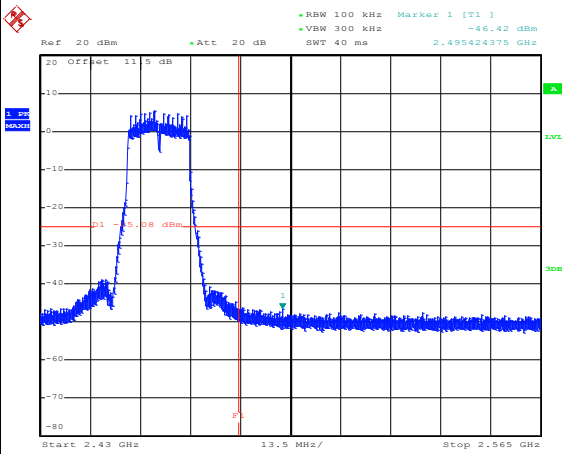
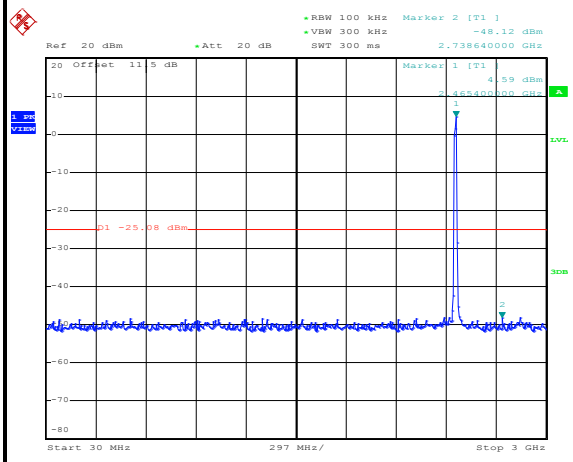
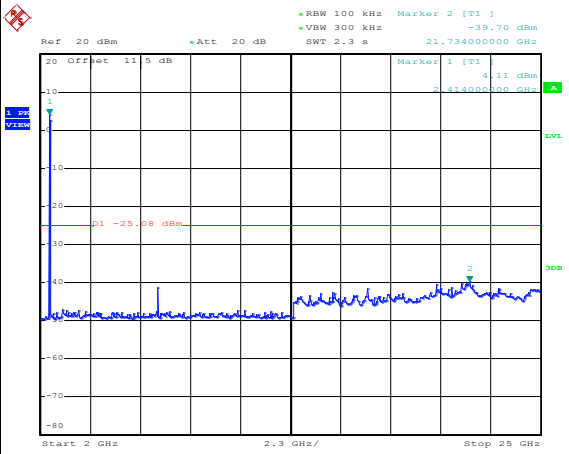
Date: 21.NOV.2019 16:24:21

Spurious Emission 2GHz~25GHz

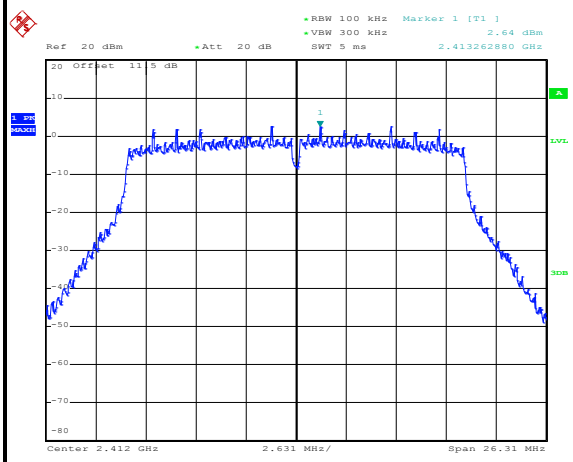
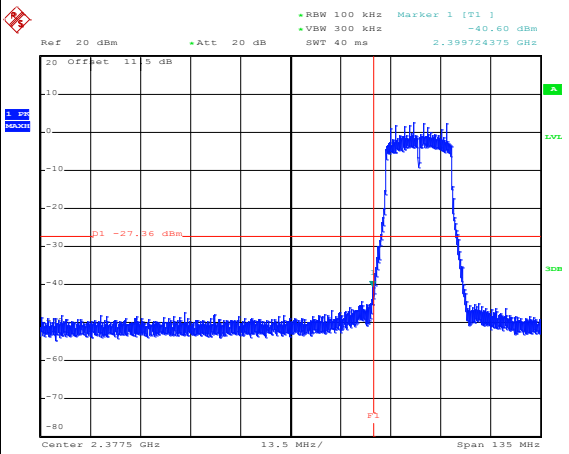
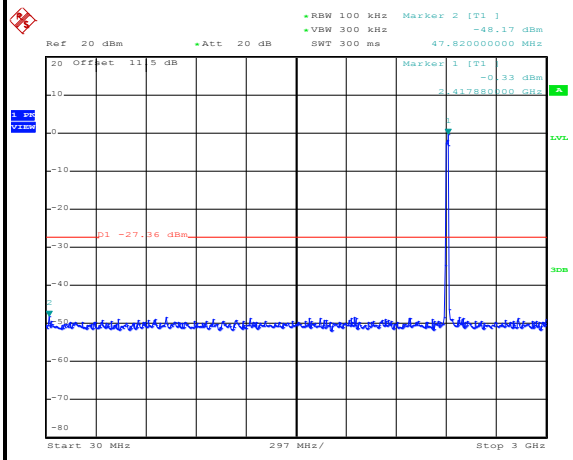
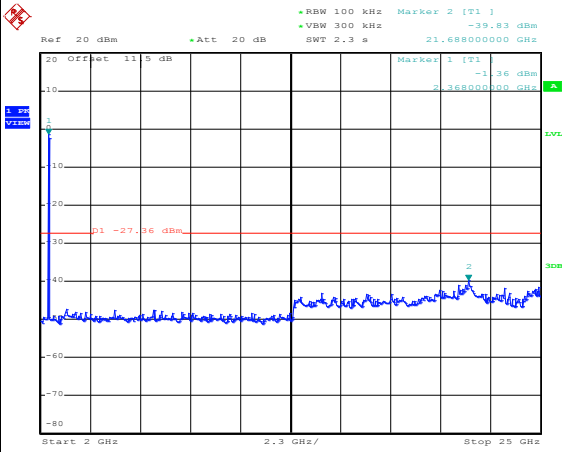


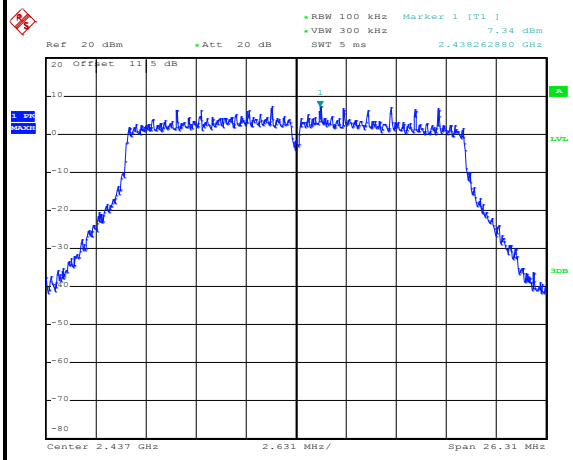
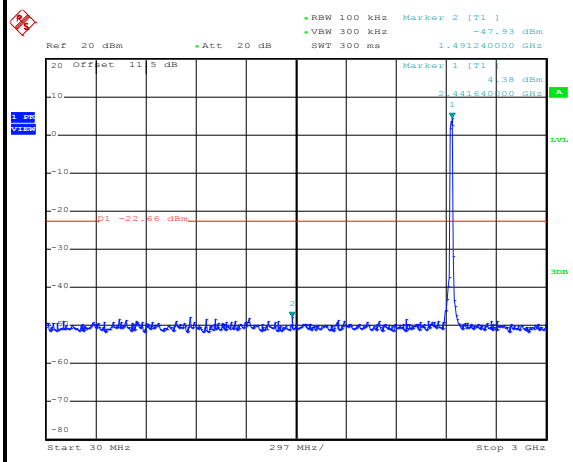
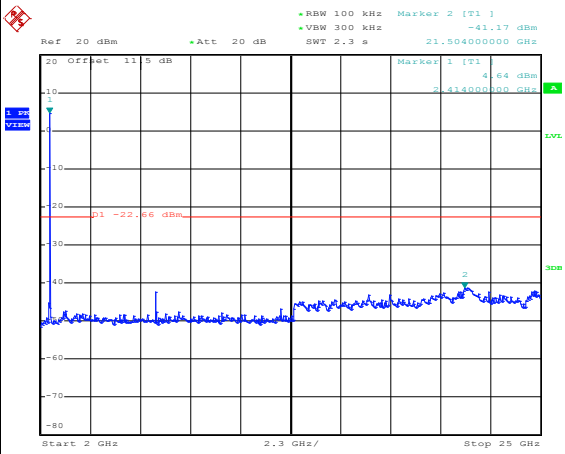
Date: 21.NOV.2019 16:24:42

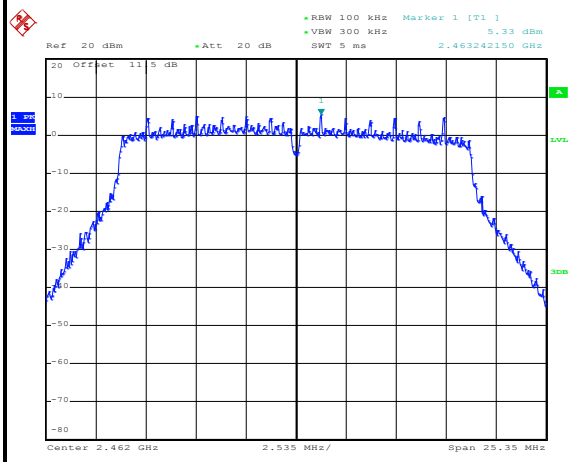
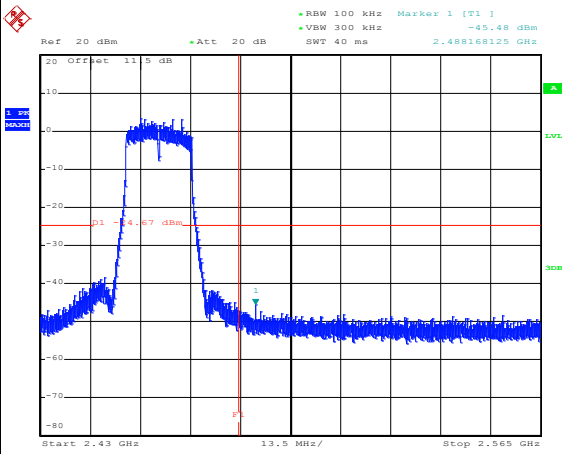
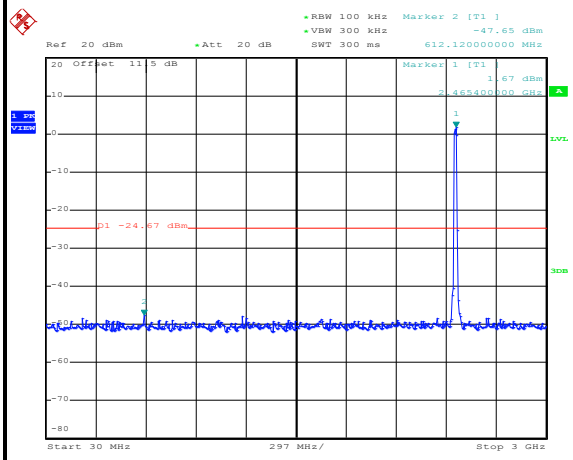
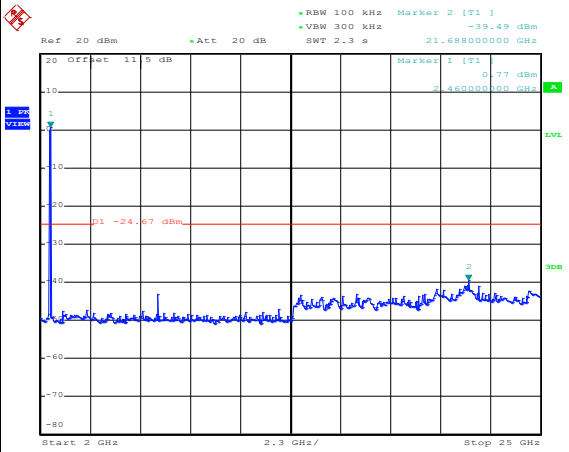
WLAN 802.11g Channel 06	
100kHz PSD reference Level	**Mid Channel Plot**
 Date: 21.NOV.2019 19:47:26	
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
 Date: 21.NOV.2019 20:03:50	 Date: 21.NOV.2019 20:07:36

WLAN 802.11g Channel 11	
100kHz PSD reference Level	**High Channel Plot**
 Date: 21.NOV.2019 20:43:37	 Date: 21.NOV.2019 20:44:42
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
 Date: 21.NOV.2019 20:45:42	 Date: 21.NOV.2019 21:10:21

Test Mode :	802.11n HT20	Test Channel :	01

100kHz PSD reference Level	Low Channel Plot
	
Date: 22.NOV.2019 10:12:40	Date: 22.NOV.2019 10:15:40
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	
Date: 22.NOV.2019 10:18:09	Date: 22.NOV.2019 10:18:34

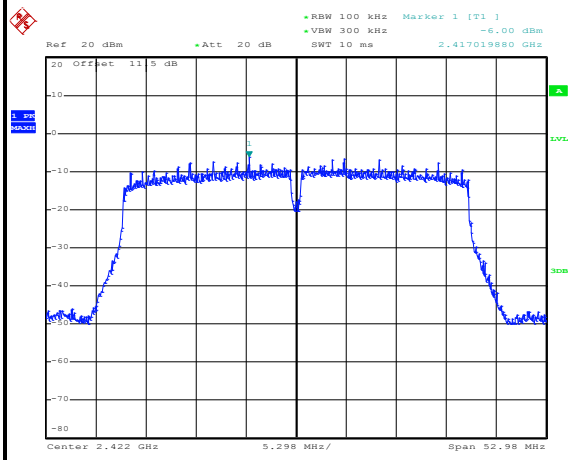
WLAN 802.11n HT20 Channel 06	
100kHz PSD reference Level	**Low Channel Plot**
 Date: 22.NOV.2019 10:48:23	
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
 Date: 22.NOV.2019 10:48:59	 Date: 22.NOV.2019 10:49:20

WLAN 802.11n HT20 Channel 11	
100kHz PSD reference Level	**High Channel Plot**
	
Date: 22.NOV.2019 13:01:42	Date: 22.NOV.2019 13:02:01
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	
Date: 22.NOV.2019 13:02:21	Date: 22.NOV.2019 13:02:37

Test Mode :	802.11n HT40	Test Channel :	03

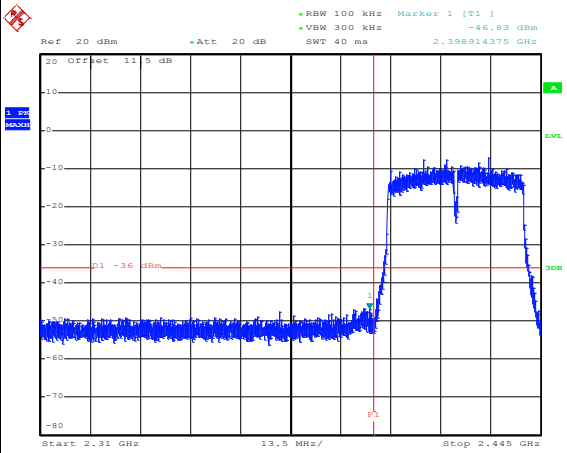
WLAN 802.11n HT40 Channel 03

100kHz PSD reference Level



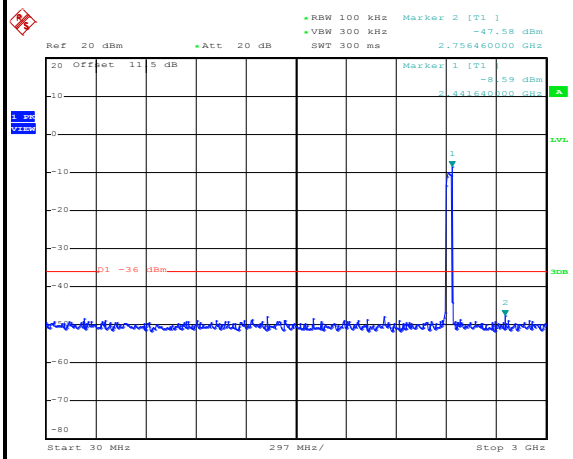
Date: 22.NOV.2019 13:23:18

Low Channel Plot



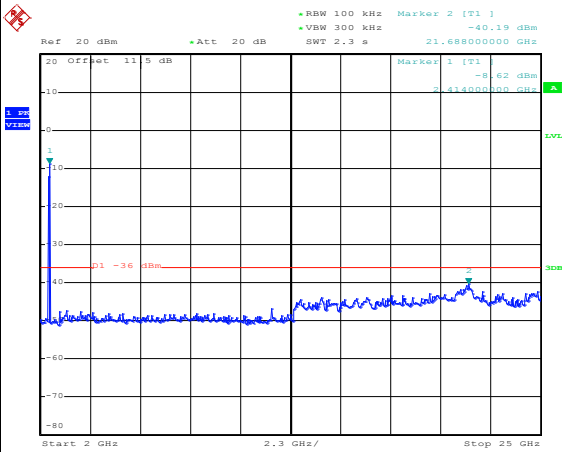
Date: 22.NOV.2019 13:23:34

Spurious Emission 30MHz~3GHz

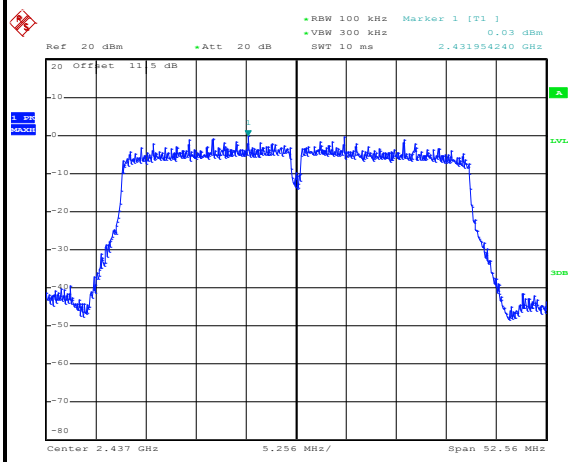
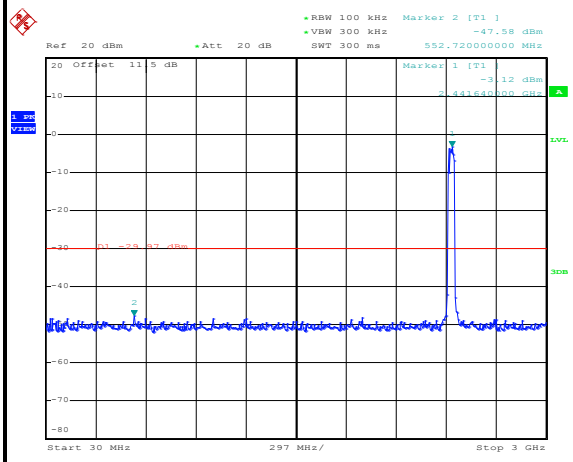
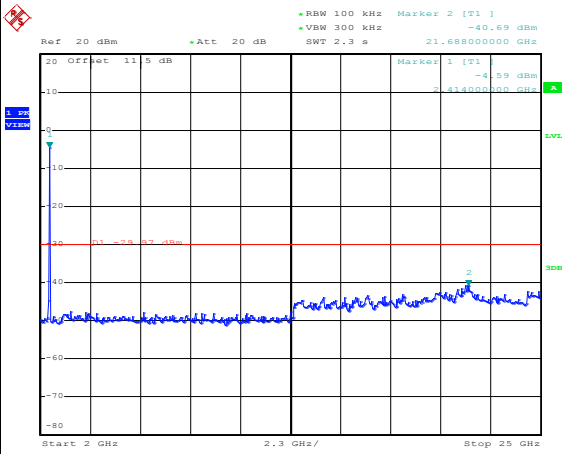


Date: 22.NOV.2019 13:24:10

Spurious Emission 2GHz~25GHz

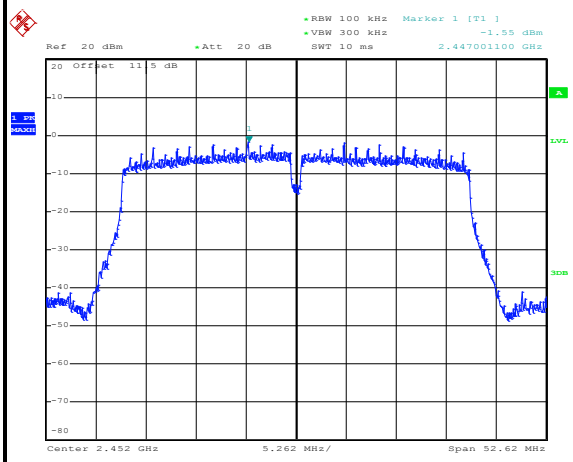


Date: 22.NOV.2019 13:24:28

WLAN 802.11n HT40 Channel 06	
100kHz PSD reference Level	**Mid Channel Plot**
 Date: 22.NOV.2019 13:40:09	
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
 Date: 22.NOV.2019 13:41:40	 Date: 22.NOV.2019 13:41:56

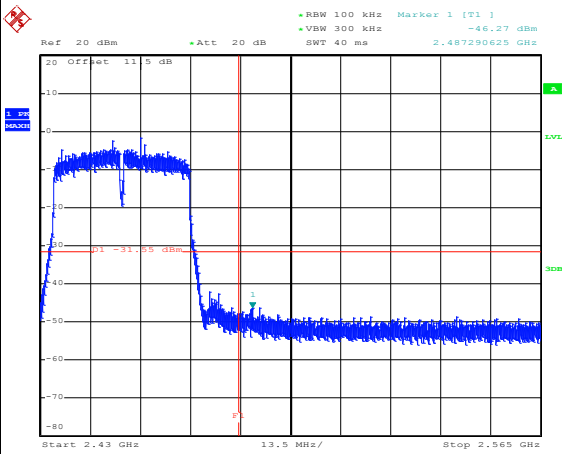
WLAN 802.11n HT40 Channel 09

100kHz PSD reference Level



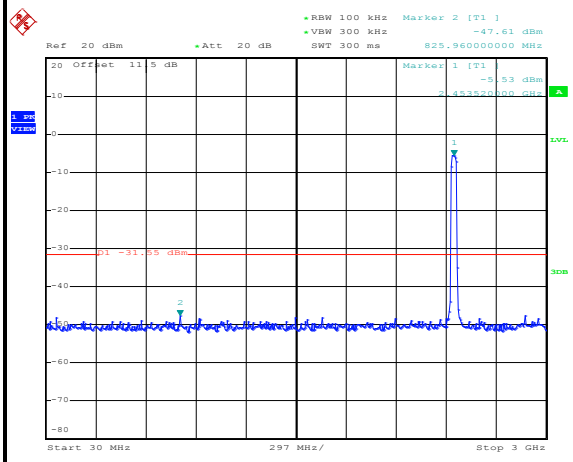
Date: 22.NOV.2019 15:19:43

High Channel Plot



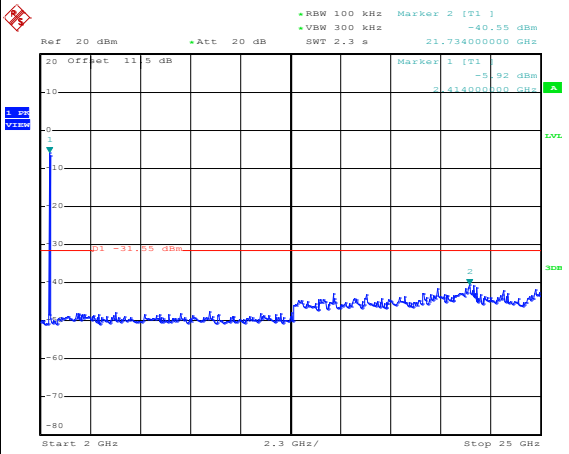
Date: 22.NOV.2019 15:19:56

Spurious Emission 30MHz~3GHz



Date: 22.NOV.2019 15:20:26

Spurious Emission 2GHz~25GHz



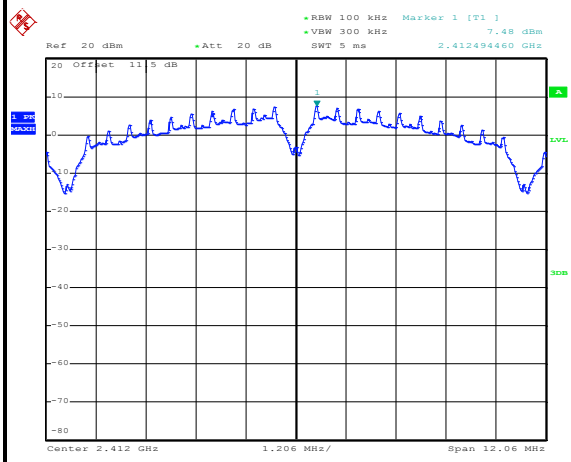
Date: 22.NOV.2019 15:20:48

Number of TX = 3Tx, Ant. 2 (Measured)

Test Mode :	802.11b	Test Channel :	01

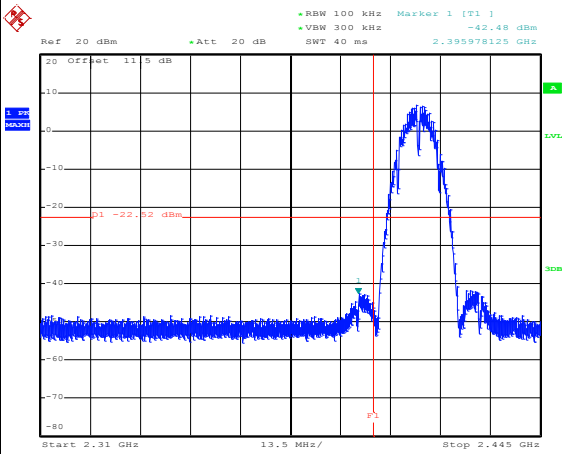
WLAN 802.11b Channel 01

100kHz PSD reference Level



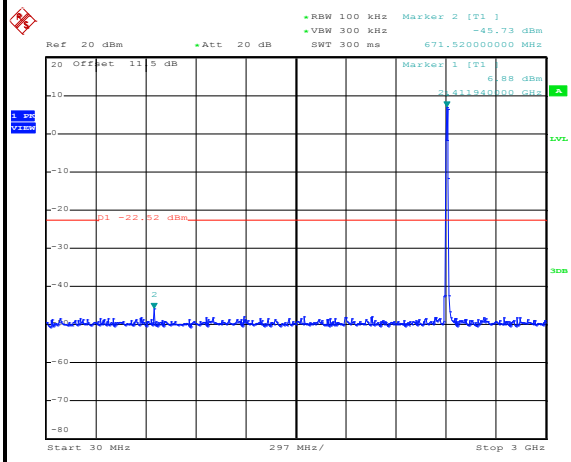
Date: 21.NOV.2019 14:45:31

Low Channel Plot



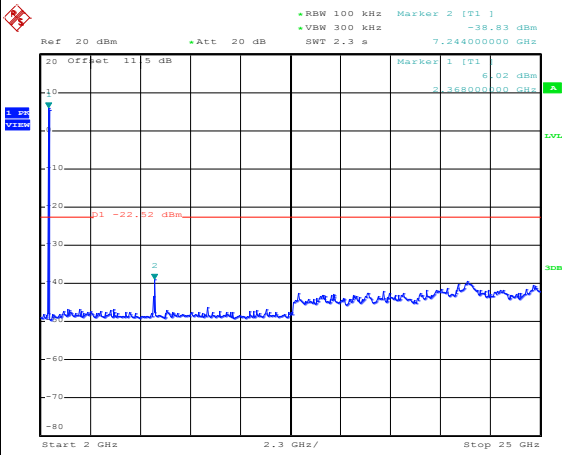
Date: 21.NOV.2019 14:46:01

Spurious Emission 30MHz~3GHz

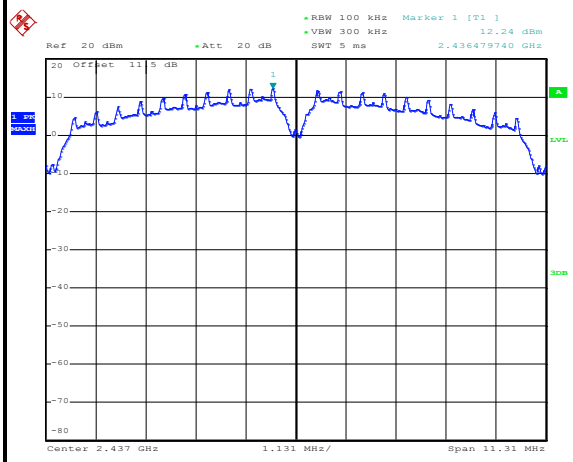
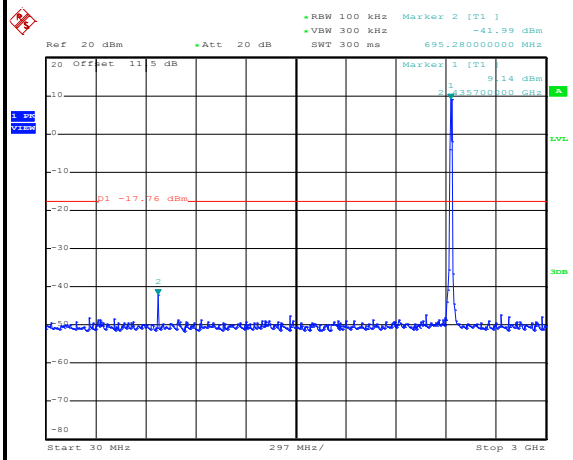
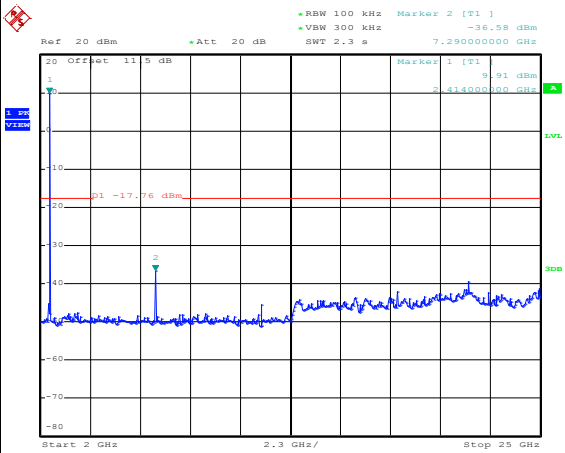


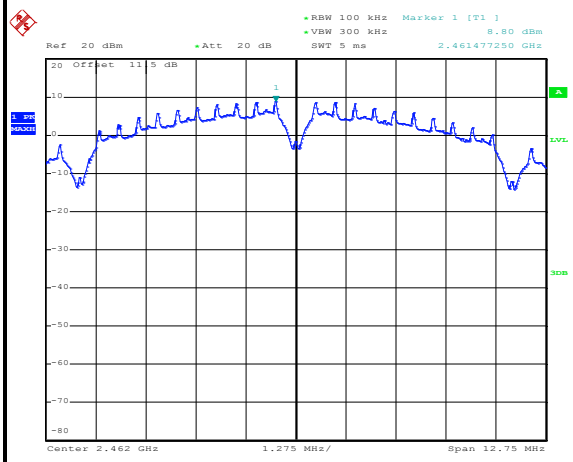
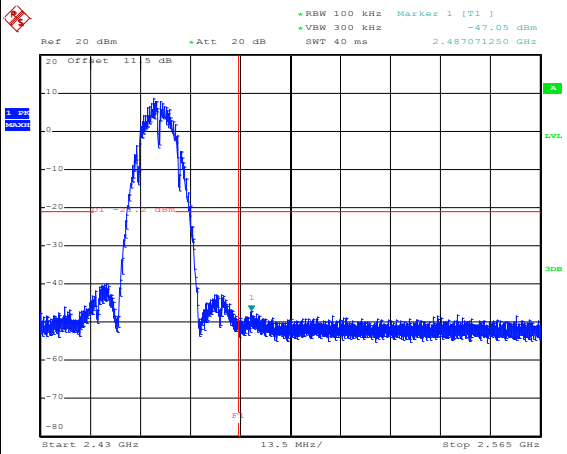
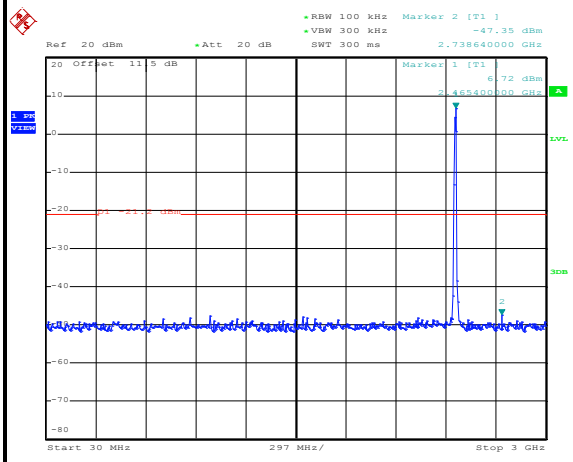
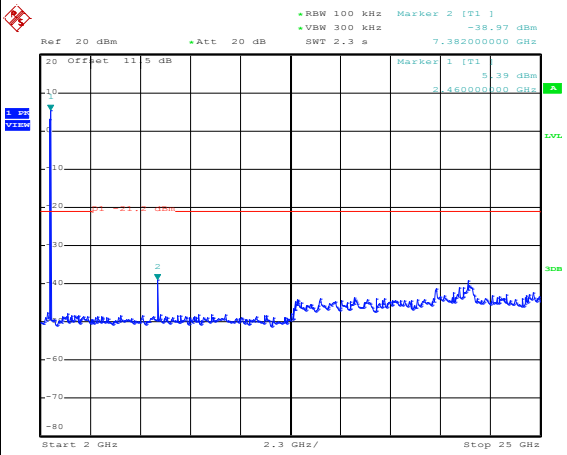
Date: 25.NOV.2019 21:03:25

Spurious Emission 2GHz~25GHz



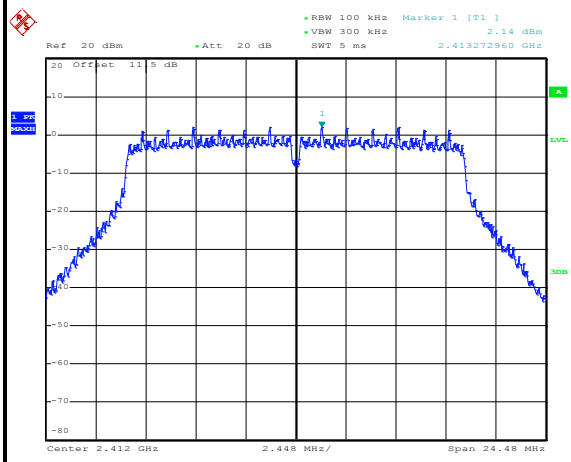
Date: 25.NOV.2019 21:05:56

WLAN 802.11b Channel 06	
100kHz PSD reference Level	**Mid Channel Plot**
 Date: 21.NOV.2019 15:37:17	
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
 Date: 21.NOV.2019 15:37:42	 Date: 21.NOV.2019 15:37:59

WLAN 802.11b Channel 11	
100kHz PSD reference Level	**High Channel Plot**
	
Date: 21.NOV.2019 15:56:29	Date: 21.NOV.2019 15:57:29
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	
Date: 21.NOV.2019 15:58:24	Date: 21.NOV.2019 15:59:05

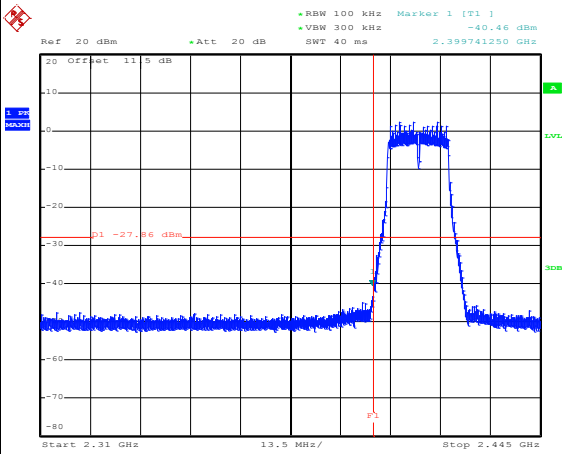
Test Mode :	802.11g	Test Channel :	01

100kHz PSD reference Level



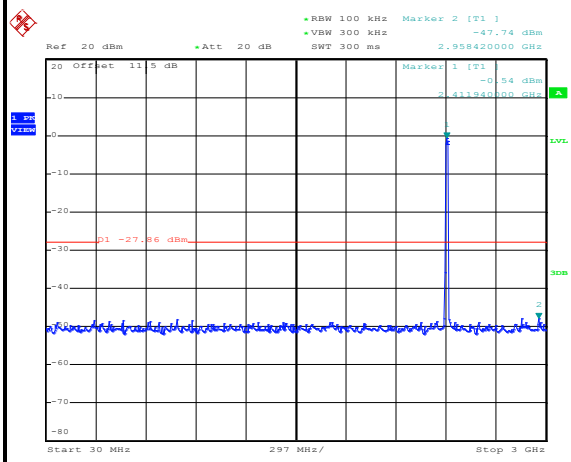
Date: 21.NOV.2019 16:28:40

Low Channel Plot



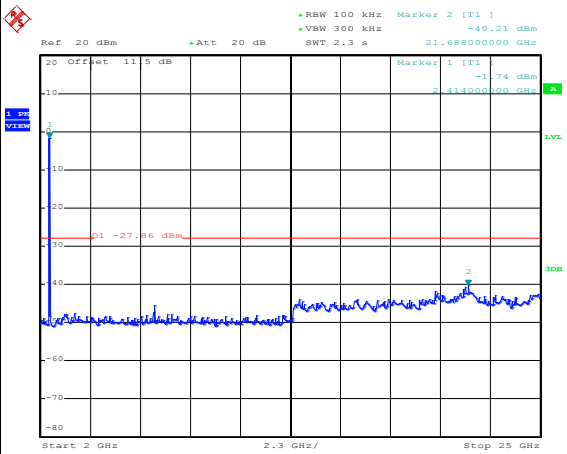
Date: 21.NOV.2019 16:30:32

Spurious Emission 30MHz~3GHz

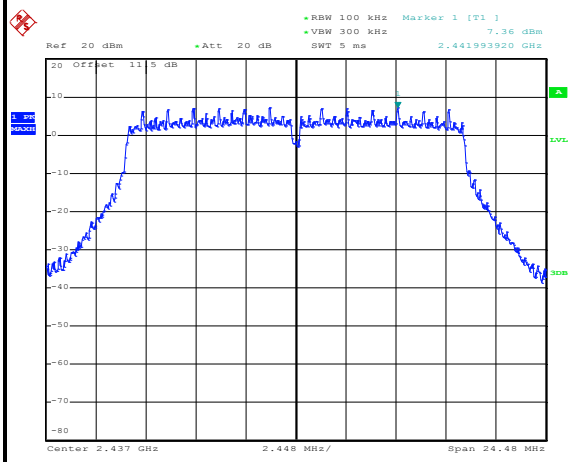
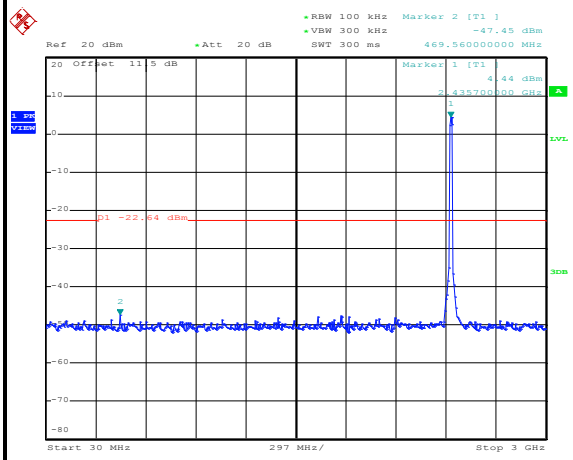
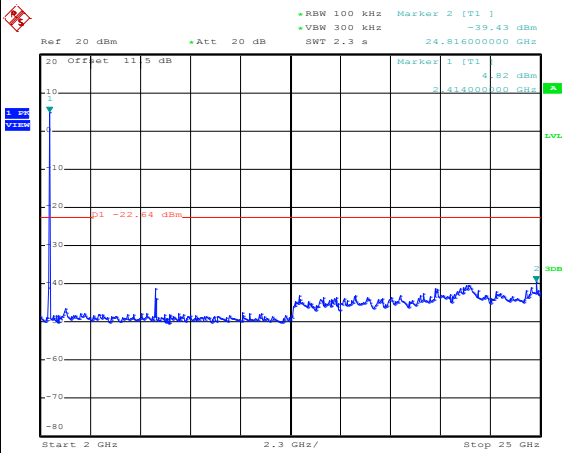


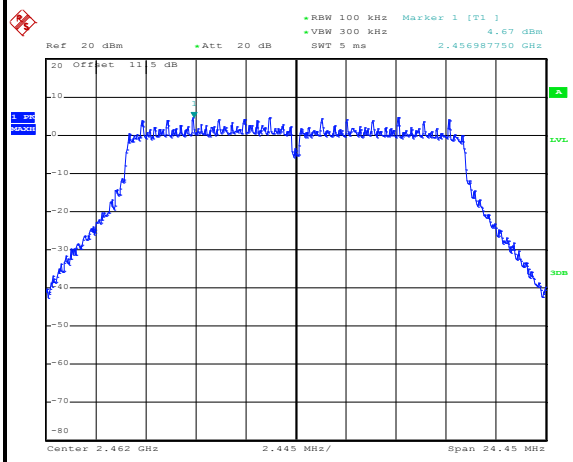
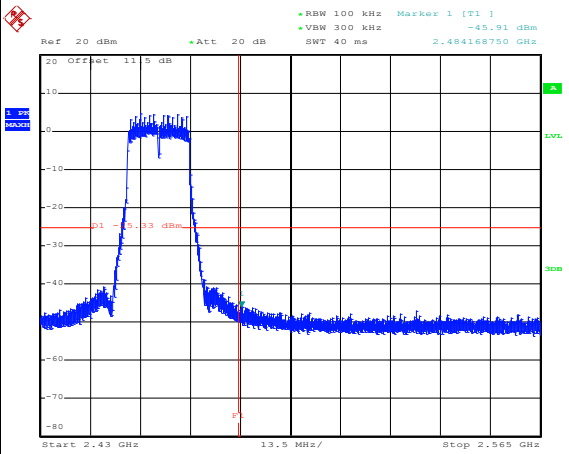
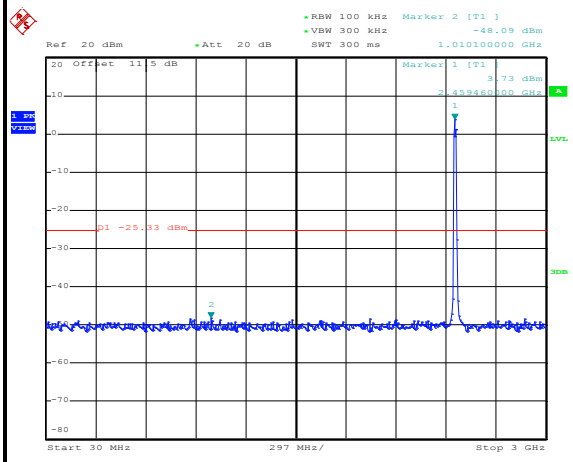
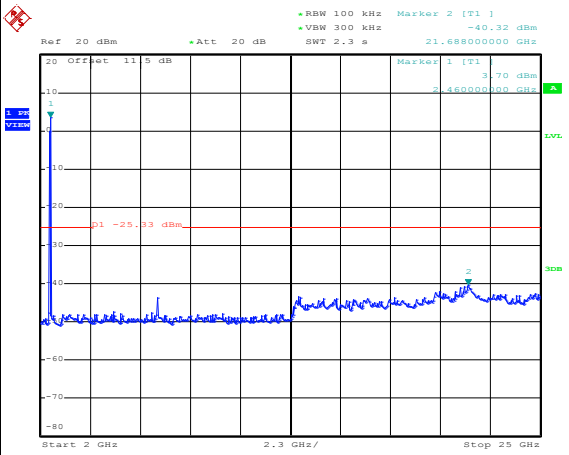
Date: 21.NOV.2019 16:32:07

Spurious Emission 2GHz~25GHz

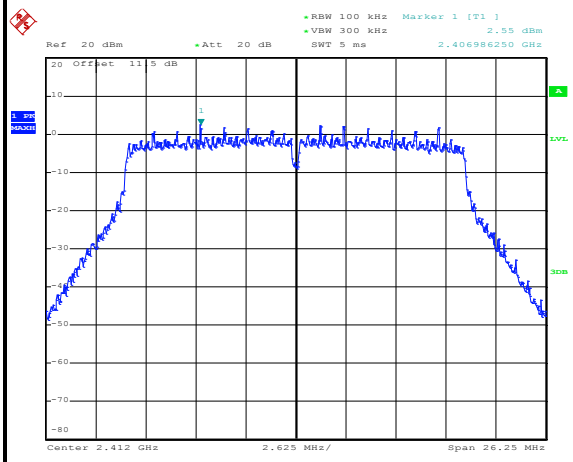
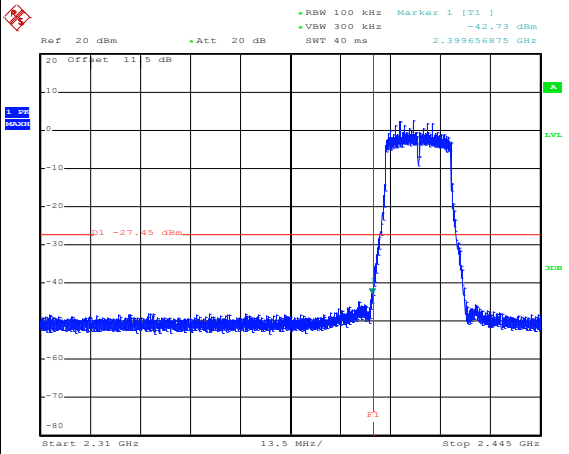
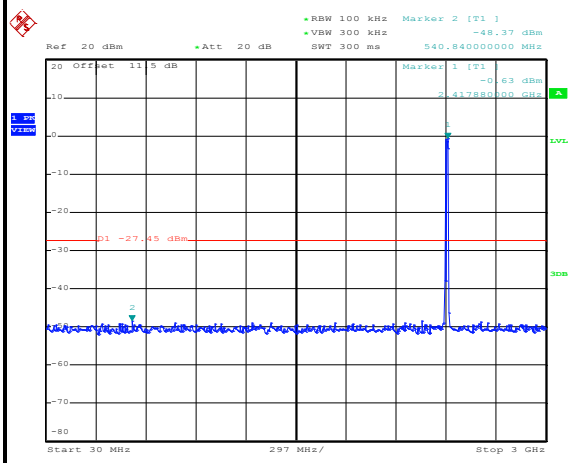
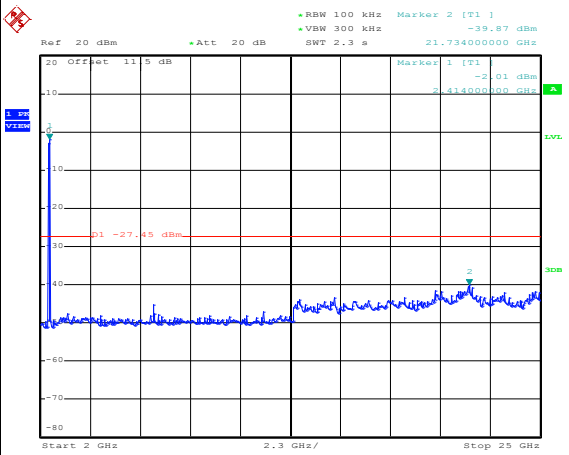


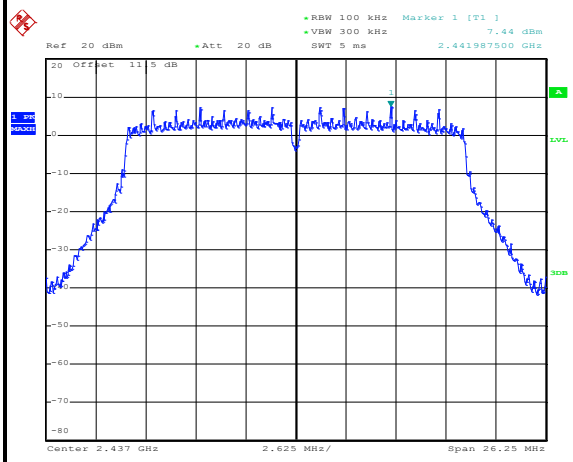
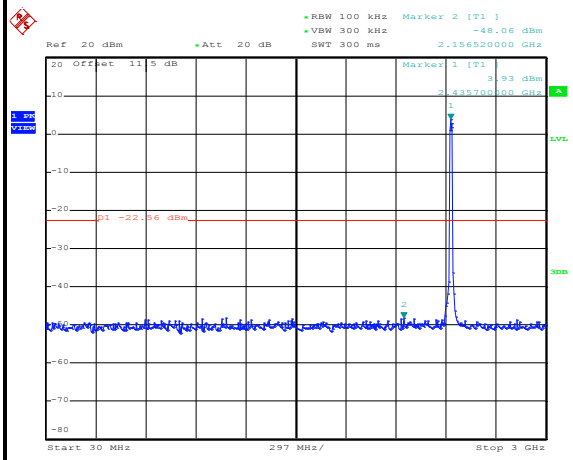
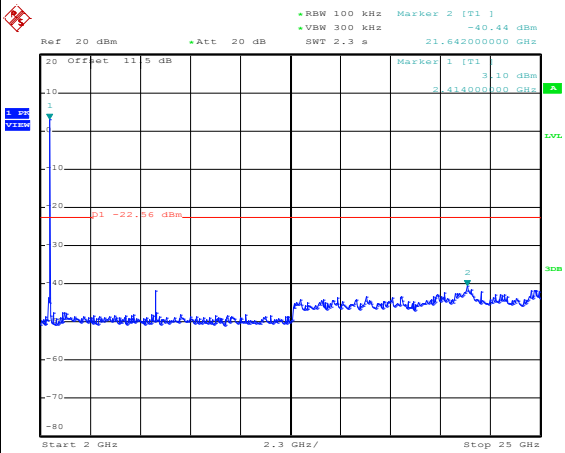
Date: 21.NOV.2019 16:32:30

WLAN 802.11g Channel 06	
100kHz PSD reference Level	**Mid Channel Plot**
 Date: 21.NOV.2019 20:16:19	
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
 Date: 21.NOV.2019 20:17:01	 Date: 21.NOV.2019 20:19:37

WLAN 802.11g Channel 11	
100kHz PSD reference Level	**High Channel Plot**
 Date: 21.NOV.2019 22:35:01	 Date: 22.NOV.2019 10:35:15
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
 Date: 21.NOV.2019 22:35:47	 Date: 21.NOV.2019 22:36:53

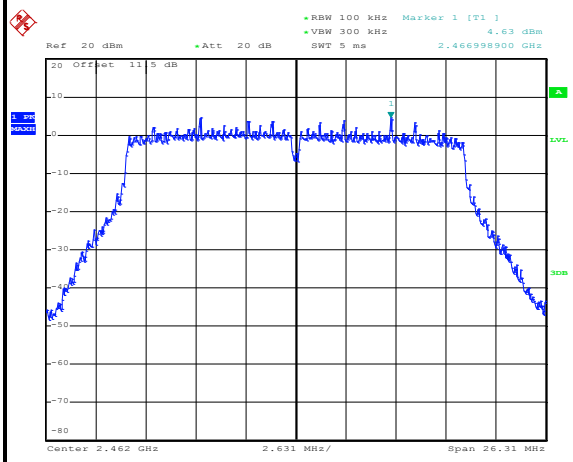
Test Mode :	802.11n HT20	Test Channel :	01

100kHz PSD reference Level	Low Channel Plot
	
Date: 22.NOV.2019 10:23:39	Date: 22.NOV.2019 10:24:37
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	
Date: 22.NOV.2019 10:25:43	Date: 22.NOV.2019 10:26:04

WLAN 802.11n HT20 Channel 06	
100kHz PSD reference Level	**Mid Channel Plot**
 Date: 22.NOV.2019 10:52:49	
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
 Date: 22.NOV.2019 10:53:11	 Date: 22.NOV.2019 10:53:28

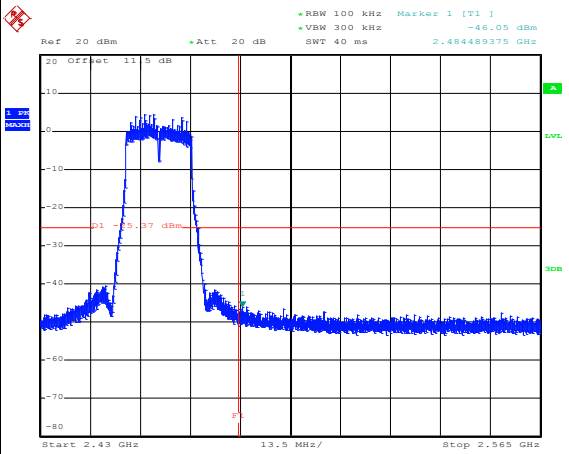
WLAN 802.11n HT20 Channel 11

100kHz PSD reference Level



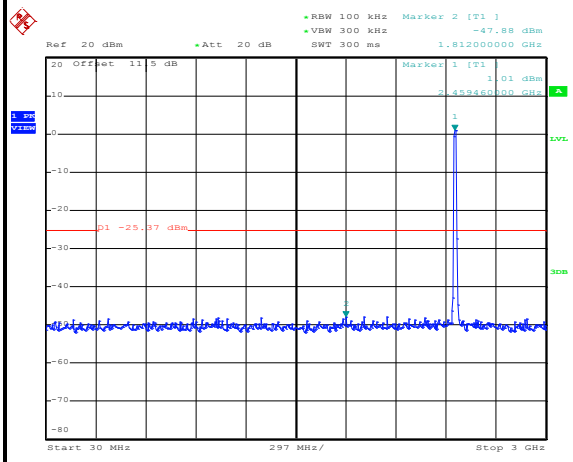
Date: 22.NOV.2019 13:08:28

High Channel Plot



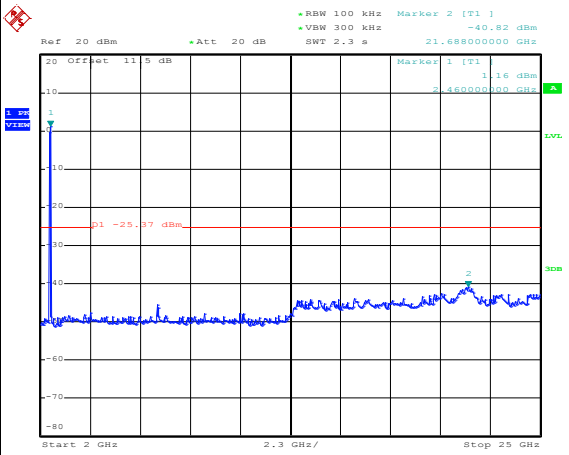
Date: 22.NOV.2019 13:09:21

Spurious Emission 30MHz~3GHz



Date: 22.NOV.2019 13:11:17

Spurious Emission 2GHz~25GHz

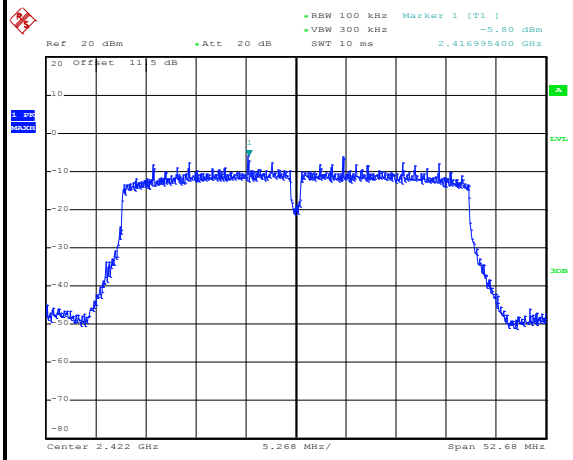


Date: 22.NOV.2019 13:11:33

Test Mode :	802.11n HT40	Test Channel :	03

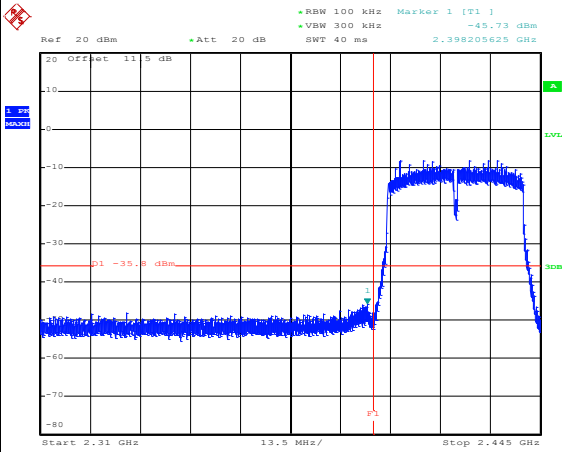
WLAN 802.11n HT40 Channel 03

100kHz PSD reference Level



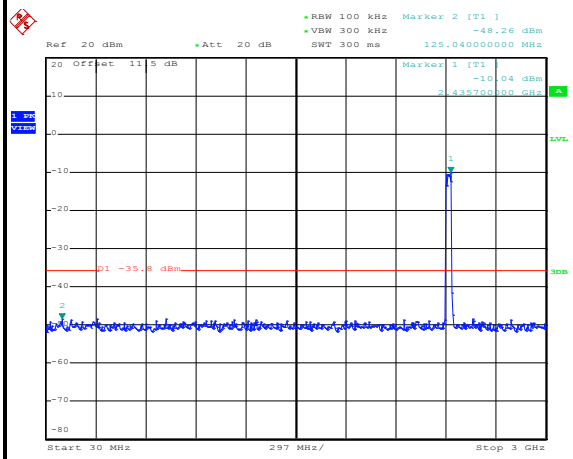
Date: 22.NOV.2019 13:29:58

Low Channel Plot



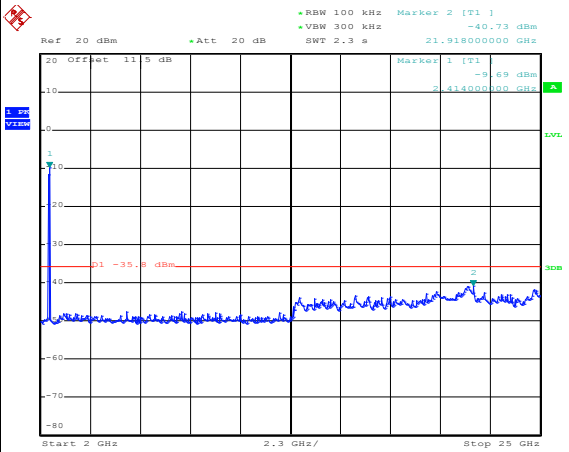
Date: 22.NOV.2019 13:30:15

Spurious Emission 30MHz~3GHz

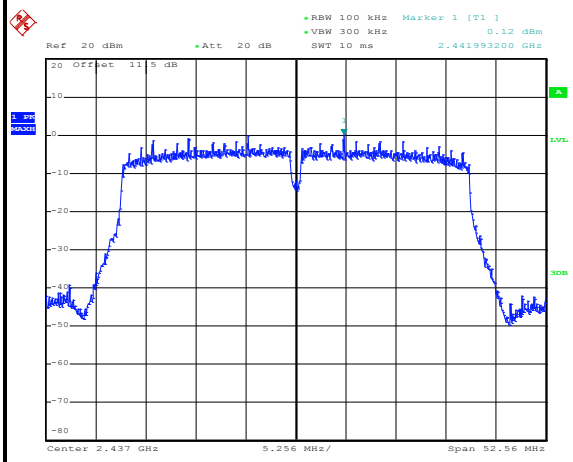
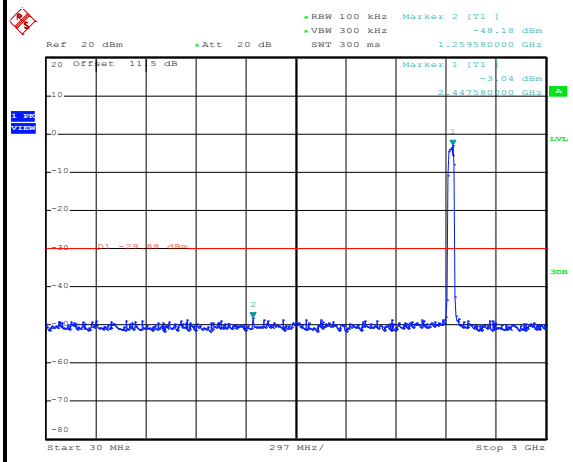
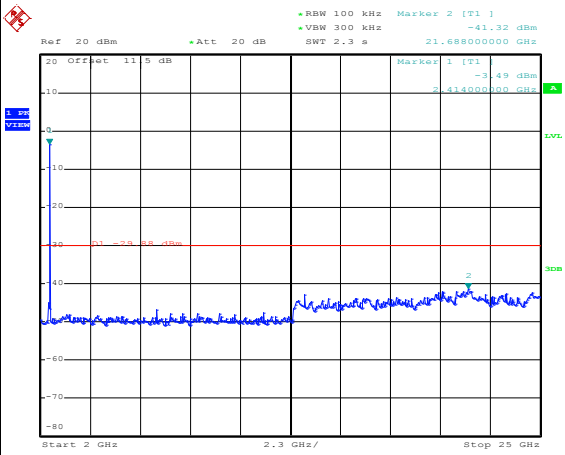


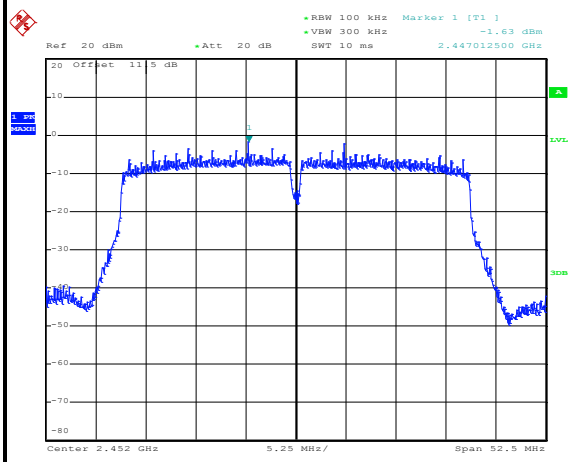
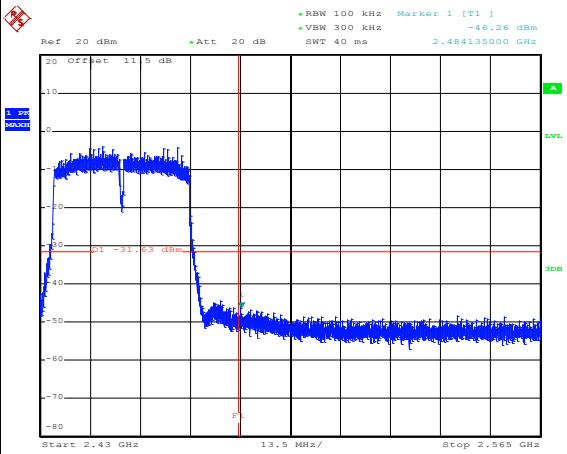
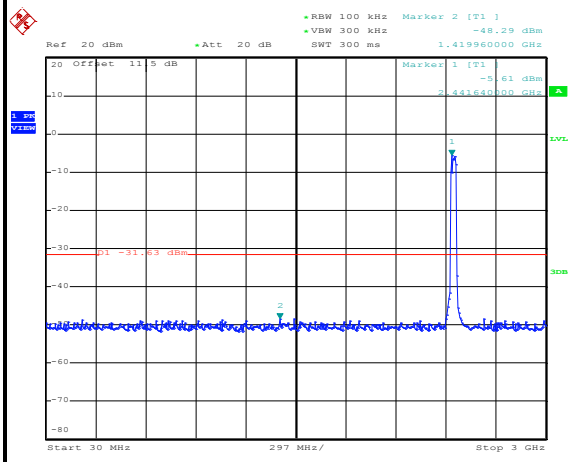
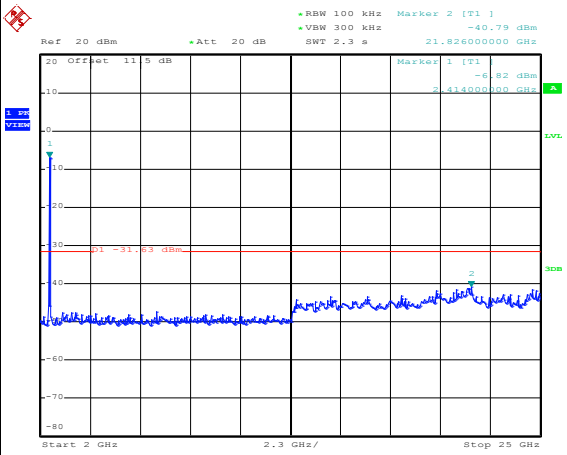
Date: 22.NOV.2019 13:31:04

Spurious Emission 2GHz~25GHz



Date: 22.NOV.2019 13:31:20

WLAN 802.11n HT40 Channel 06	
100kHz PSD reference Level	**Mid Channel Plot**
 Date: 22.NOV.2019 13:48:07	
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
 Date: 22.NOV.2019 13:55:34	 Date: 22.NOV.2019 13:56:32

WLAN 802.11n HT40 Channel 09	
100kHz PSD reference Level	**High Channel Plot**
	
Date: 22.NOV.2019 15:32:09	Date: 22.NOV.2019 15:32:22
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	
Date: 22.NOV.2019 15:32:42	Date: 22.NOV.2019 15:32:57

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

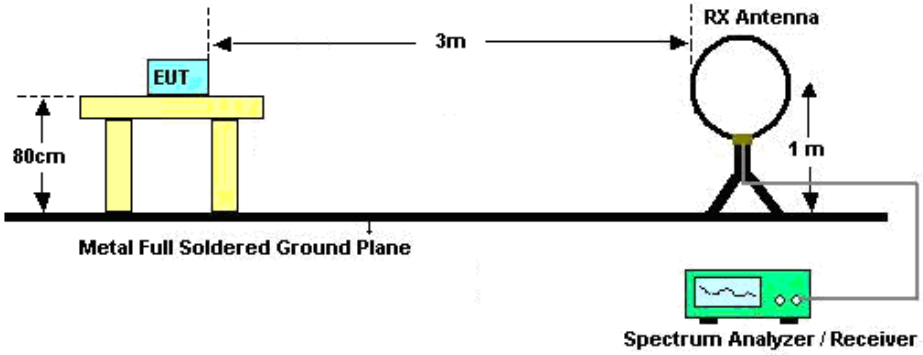
See list of measuring equipment of this test report.

3.5.3 Test Procedures

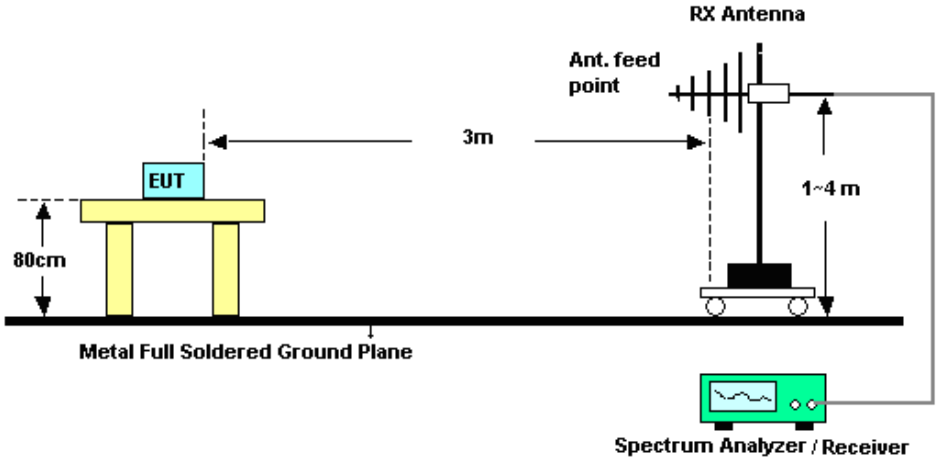
1. The testing follows the ANSI C63.10 Section 11.12.1 Radiated emission measurements
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the 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 RBW; Sweep = auto; Detector function = peak; Trace = max hold;
   (3) Set RBW = 1 MHz, VBW= 3MHz for f 1 GHz for peak measurement.
   For average measurement:
   - VBW = 10 Hz, when duty cycle is no less than 98 percent.
   - VBW ≥ 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

3.5.4 Test Setup

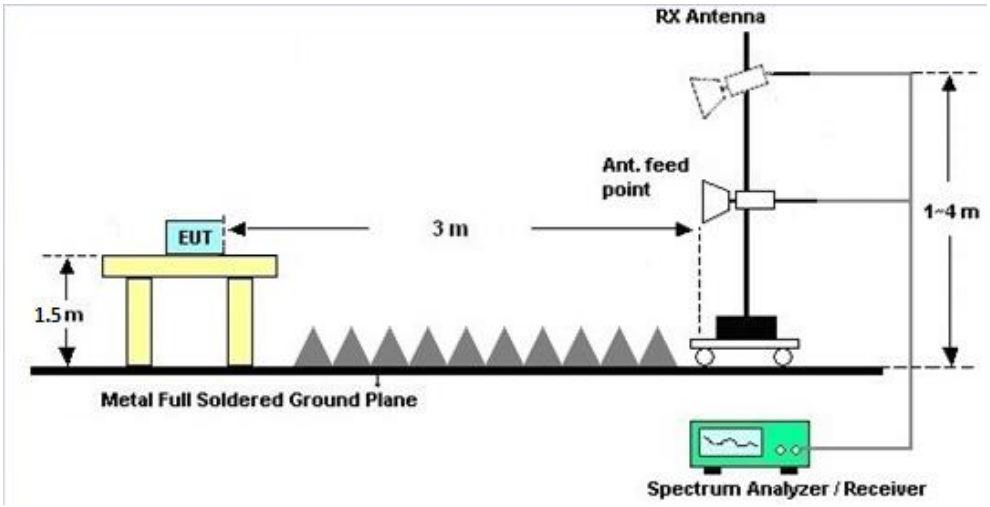
For radiated emissions below 30MHz



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 (dBμV)	
	Quasi-Peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

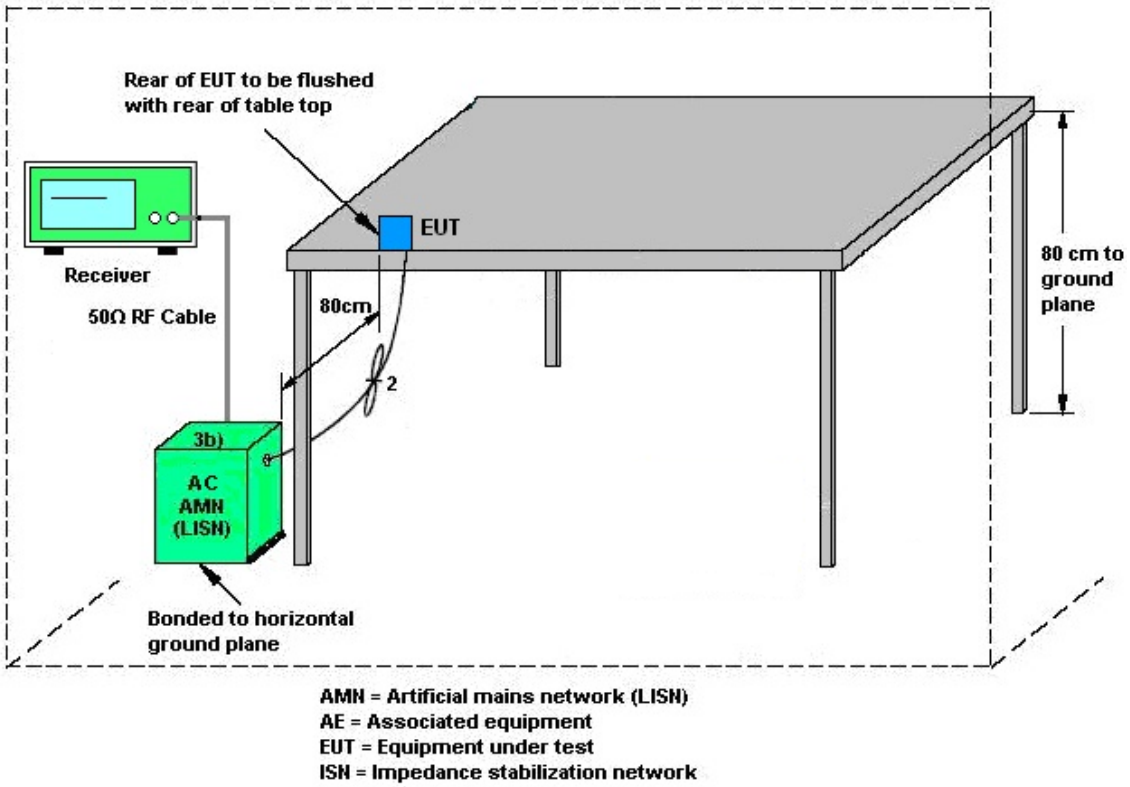
3.6.2 Measuring Instruments

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

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

For CDD transmissions, directional gain is calculated as

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

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

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

For power measurements on IEEE 802.11 devices,

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

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

The EUT supports CDD mode.

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

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

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

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

<CDD Modes>

	Ant. 1 (dBi)	Ant. 2 (dBi)	Ant. 3 (dBi)	DG for Power (dBi)	DG for PSD (dBi)	Power Limit Reduction (dB)	PSD Limit Reduction (dB)
2.4 GHz	4.16	4.16	4.16	4.16	8.93	0.00	2.93

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

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

4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Power Meter	Anritsu	ML2495A	0932001	N/A	Oct. 03, 2019	Oct. 22, 2019~ Nov. 26, 2019	Oct. 02, 2020	Conducted (TH05-HY)
Power Sensor	Anritsu	MA2411B	0846202	300MHz~40GHz	Oct. 03, 2019	Oct. 22, 2019~ Nov. 26, 2019	Oct. 02, 2020	Conducted (TH05-HY)
Spectrum Analyzer	Rohde & Schwarz	FSP40	100055	9kHz-40GHz	Aug. 14, 2019	Oct. 22, 2019~ Nov. 26, 2019	Aug. 13, 2020	Conducted (TH05-HY)
Switch Control Manframe	E-IUSTRUMENT	ETF-1405-0	EC1900067	N/A	Aug. 15, 2019	Oct. 22, 2019~ Nov. 26, 2019	Aug. 14, 2020	Conducted (TH05-HY)
AC Power Source	ChainTek	APC-1000W	N/A	N/A	N/A	Nov. 26, 2019	N/A	Conduction (CO05-HY)
EMI Test Receiver	Rohde & Schwarz	ESR3	102388	9kHz~3.6GHz	Nov. 15, 2019	Nov. 26, 2019	Nov. 14, 2020	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100081	9kHz~30MHz	Nov. 15, 2019	Nov. 26, 2019	Nov. 14, 2020	Conduction (CO05-HY)
Software	Rohde & Schwarz	EMC32 V10.30	N/A	N/A	N/A	Nov. 26, 2019	N/A	Conduction (CO05-HY)
LF Cable	HUBER + SUHNER	RG-214/U	LF01	N/A	Dec. 31, 2018	Nov. 26, 2019	Dec. 30, 2019	Conduction (CO05-HY)
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100851	N/A	Dec. 31, 2018	Nov. 26, 2019	Dec. 30, 2019	Conduction (CO05-HY)
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100488	9 kHz~30 MHz	Jan. 07, 2019	Nov. 19, 2019~ Nov. 25, 2019	Jan. 06, 2020	Radiation (03CH15-HY)
Preamplifier	EMEC	EM18G40G	060715	18GHz ~ 40GHz	Dec. 06, 2018	Nov. 19, 2019~ Nov. 25, 2019	Dec. 05, 2019	Radiation (03CH15-HY)
Bilog Antenna	TESEQ	CBL6111D&00800N1D01N-06	41912&05	30MHz to 1GHz	Feb. 12, 2019	Nov. 19, 2019~ Nov. 25, 2019	Feb. 11, 2020	Radiation (03CH15-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-2114	1-18GHz	Jul. 31, 2019	Nov. 19, 2019~ Nov. 25, 2019	Jul. 30, 2020	Radiation (03CH15-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170584	18GHz- 40GHz	Dec. 05, 2018	Nov. 19, 2019~ Nov. 25, 2019	Dec. 04, 2019	Radiation (03CH15-HY)
Amplifier	SONOMA	310N	363440	9kHz~1GHz	Dec. 28, 2018	Nov. 19, 2019~ Nov. 25, 2019	Dec. 27, 2019	Radiation (03CH15-HY)
Preamplifier	Jet-Power	JPA0118-55-303	1710001800055007	1GHz~18GHz	Apr. 01, 2019	Nov. 19, 2019~ Nov. 25, 2019	May 31, 2020	Radiation (03CH15-HY)
Preamplifier	Keysight	83017A	MY53270195	1GHz~26.5GHz	Aug. 23, 2019	Nov. 19, 2019~ Nov. 25, 2019	Aug. 22, 2020	Radiation (03CH15-HY)
EMI Test Receiver	Keysight	N9038A(MXE)	MY54130085	20MHz~8.4GHz	Nov. 01, 2019	Nov. 19, 2019~ Nov. 25, 2019	Oct. 31, 2020	Radiation (03CH15-HY
EMI Test Receiver	Rohde & Schwarz	ESU26	100390	20Hz~26.5GHz	Dec. 27, 2018	Nov. 19, 2019~ Nov. 25, 2019	Dec. 26, 2019	Radiation (03CH15-HY)
Antenna Mast	ChainTek	MBS-520-1	N/A	1m~4m	N/A	Nov. 19, 2019~ Nov. 25, 2019	N/A	Radiation (03CH15-HY)
Turn Table	ChainTek	T-200-S-1	N/A	0~360 Degree	N/A	Nov. 19, 2019~ Nov. 25, 2019	N/A	Radiation (03CH15-HY)
Software	Audix	E3 6.2009-8-24(k5)	RK-000451	N/A	N/A	Nov. 19, 2019~ Nov. 25, 2019	N/A	Radiation (03CH15-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY36980/4	30M-18G	Apr. 15, 2019	Nov. 19, 2019~ Nov. 25, 2019	Apr. 14, 2020	Radiation (03CH15-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY9838/4PE	30M-18G	Apr. 15, 2019	Nov. 19, 2019~ Nov. 25, 2019	Apr. 14, 2020	Radiation (03CH15-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY802430/4	30M~18GHz	May 13, 2019	Nov. 19, 2019~ Nov. 25, 2019	May 12, 2020	Radiation (03CH15-HY)

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
RF Cable	HUBER + SUHNER	SUCOFLEX 102	505134/2	30MHz-40GHz	Feb. 26, 2019	Nov. 19, 2019~ Nov. 25, 2019	Feb. 25, 2020	Radiation (03CH15-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	800740/2	30MHz-40GHz	Feb. 26, 2019	Nov. 19, 2019~ Nov. 25, 2019	Feb. 25, 2020	Radiation (03CH15-HY)
Filter	Wainwright	WLK4-1000-1530-8000-40SS	SN4	1.53G Low Pass	Jul. 04, 2019	Nov. 19, 2019~ Nov. 25, 2019	Jul. 03, 2020	Radiation (03CH15-HY)
Filter	Wainwright	WHKX12-2700-3000-18000-60ST	SN2	3GHz High Pass Filter	Jul. 17, 2019	Nov. 19, 2019~ Nov. 25, 2019	Jul. 14, 2020	Radiation (03CH15-HY)

5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.2**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**5.2**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**5.5**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**5.2**

Appendix A. Test Result of Conducted Test Items

Test Engineer:	Hank Hsu	Temperature:	21~25	°C
Test Date:	2019/10/22~2019/11/26	Relative Humidity:	51~54	%

<CDD Mode>

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
					Ant0	Ant1	Ant2	Ant0	Ant1	Ant2		
11b	1Mbps	3	1	2412	12.90	12.30	12.85	8.06	8.02	8.04	0.50	Pass
11b	1Mbps	3	6	2437	13.55	12.80	13.05	8.52	7.56	7.54	0.50	Pass
11b	1Mbps	3	11	2462	12.80	12.45	12.75	8.52	7.52	8.50	0.50	Pass
11g	6Mbps	3	1	2412	16.50	16.50	16.50	16.30	16.30	16.32	0.50	Pass
11g	6Mbps	3	6	2437	16.50	16.50	16.50	16.30	16.30	16.32	0.50	Pass
11g	6Mbps	3	11	2462	16.45	16.45	16.45	16.30	16.28	16.30	0.50	Pass
HT20	MCS0	3	1	2412	17.70	17.70	17.65	17.54	17.54	17.50	0.50	Pass
HT20	MCS0	3	6	2437	17.70	17.65	17.65	17.54	17.54	17.50	0.50	Pass
HT20	MCS0	3	11	2462	17.70	17.60	17.65	17.54	16.90	17.54	0.50	Pass
HT40	MCS0	3	3	2422	36.10	36.10	36.10	35.04	35.32	35.12	0.50	Pass
HT40	MCS0	3	6	2437	36.00	36.20	36.00	35.04	35.04	35.04	0.50	Pass
HT40	MCS0	3	9	2452	36.20	36.20	36.10	35.08	35.08	35.00	0.50	Pass

TEST RESULTS DATA
Peak Output Power
(Reporting Only)

2.4GHz Band												
Mod.	Data Rate	NTx	CH.	Freq. (MHz)	Peak Conducted Power (dBm)				Conducted Power Limit (dBm)	DG (dBi)	Pass /Fail	Setting
					Ant0	Ant1	Ant2	SUM	Ant0+Ant1+Ant2	Ant0+Ant1+Ant2		Ant0+Ant1+Ant2
11b	1Mbps	3	1	2412	19.53	18.55	18.05	23.53	30.00	4.16	Pass	16.5
11b	1Mbps	3	6	2437	23.75	22.95	22.38	27.83	30.00	4.16	Pass	20
11b	1Mbps	3	11	2462	21.08	20.18	19.03	24.95	30.00	4.16	Pass	17
11g	6Mbps	3	1	2412	19.01	19.45	19.41	24.07	30.00	4.16	Pass	13.5
11g	6Mbps	3	6	2437	23.43	23.71	24.50	28.68	30.00	4.16	Pass	18
11g	6Mbps	3	11	2462	20.69	22.15	21.81	26.36	30.00	4.16	Pass	15.5
HT20	MCS0	3	1	2412	19.60	20.38	19.95	24.76	30.00	4.16	Pass	14
HT20	MCS0	3	6	2437	22.98	23.81	24.48	28.57	30.00	4.16	Pass	18
HT20	MCS0	3	11	2462	20.45	22.37	21.65	26.33	30.00	4.16	Pass	15.5
HT40	MCS0	3	3	2422	12.60	13.76	13.55	18.10	30.00	4.16	Pass	7
HT40	MCS0	3	6	2437	19.95	19.96	20.08	24.77	30.00	4.16	Pass	13.5
HT40	MCS0	3	9	2452	16.81	18.45	17.51	22.41	30.00	4.16	Pass	11

TEST RESULTS DATA
Average Output Power

2.4GHz Band													
Mod.	Data Rate	N_{TX}	CH.	Freq. (MHz)	Average Conducted Power (dBm)				Conducted Power Limit (dBm)	DG (dBi)	EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail
					Ant0	Ant1	Ant2	SUM	Ant0+Ant1+Ant2	Ant0+Ant1+Ant2	Ant0+Ant1+Ant2	Ant0+Ant1+Ant2	
11b	1Mbps	3	1	2412	17.21	15.82	15.84	21.11	30.00	4.16	25.27	36.00	Pass
11b	1Mbps	3	6	2437	21.50	20.72	20.10	25.58	30.00	4.16	29.74	36.00	Pass
11b	1Mbps	3	11	2462	18.57	17.65	16.77	22.50	30.00	4.16	26.66	36.00	Pass
11g	6Mbps	3	1	2412	12.98	13.56	13.35	18.07	30.00	4.16	22.23	36.00	Pass
11g	6Mbps	3	6	2437	17.45	18.30	18.31	22.81	30.00	4.16	26.97	36.00	Pass
11g	6Mbps	3	11	2462	14.65	16.03	15.43	20.18	30.00	4.16	24.34	36.00	Pass
HT20	MCS0	3	1	2412	13.05	13.63	13.47	18.16	30.00	4.16	22.32	36.00	Pass
HT20	MCS0	3	6	2437	16.95	18.06	17.91	22.44	30.00	4.16	26.60	36.00	Pass
HT20	MCS0	3	11	2462	14.13	15.76	15.11	19.82	30.00	4.16	23.98	36.00	Pass
HT40	MCS0	3	3	2422	6.00	7.07	6.95	11.47	30.00	4.16	15.63	36.00	Pass
HT40	MCS0	3	6	2437	12.87	13.34	13.14	17.89	30.00	4.16	22.05	36.00	Pass
HT40	MCS0	3	9	2452	10.06	11.74	10.72	15.67	30.00	4.16	19.83	36.00	Pass

Setting
Ant0+Ant1+Ant2
16.5
20
17
13.5
18
15.5
14
18
15.5
7
13.5
11

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
					Ant0	Ant1	Ant2	Worse + 4.77	Ant0+Ant1+Ant2	Ant0+Ant1+Ant2	
11b	1Mbps	3	1	2412	-4.75	-6.65	-6.77	0.02	8.93	5.07	Pass
11b	1Mbps	3	6	2437	-0.68	-0.73	-1.11	4.09	8.93	5.07	Pass
11b	1Mbps	3	11	2462	-3.29	-4.33	-4.24	1.48	8.93	5.07	Pass
11g	6Mbps	3	1	2412	-11.82	-10.54	-10.96	-5.77	8.93	5.07	Pass
11g	6Mbps	3	6	2437	-8.77	-5.14	-6.45	-0.37	8.93	5.07	Pass
11g	6Mbps	3	11	2462	-11.65	-8.45	-10.30	-3.68	8.93	5.07	Pass
HT20	MCS0	3	1	2412	-11.53	-11.75	-12.29	-6.76	8.93	5.07	Pass
HT20	MCS0	3	6	2437	-7.36	-6.93	-7.59	-2.16	8.93	5.07	Pass
HT20	MCS0	3	11	2462	-9.67	-9.28	-10.78	-4.51	8.93	5.07	Pass
HT40	MCS0	3	3	2422	-22.59	-21.20	-20.41	-15.64	8.93	5.07	Pass
HT40	MCS0	3	6	2437	-14.54	-14.70	-15.02	-9.77	8.93	5.07	Pass
HT40	MCS0	3	9	2452	-17.58	-15.04	-17.38	-10.27	8.93	5.07	Pass

<TXBF Mode>

TEST RESULTS DATA
Peak Output Power
(Reporting Only)

2.4GHz Band											
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Peak Conducted Power (dBm)				Conducted Power Limit (dBm)	DG (dBi)	Pass /Fail
					Ant0	Ant1	Ant2	SUM	Ant0+Ant1+Ant2	Ant0+Ant1+Ant2	
HT20	MCS0	3	1	2412	19.09	19.64	19.57	24.21	27.07	8.93	Pass
HT20	MCS0	3	6	2437	21.42	22.21	22.26	26.75	27.07	8.93	Pass
HT20	MCS0	3	11	2462	20.02	21.74	21.36	25.87	27.07	8.93	Pass
HT40	MCS0	3	3	2422	12.47	13.51	13.43	17.93	27.07	8.93	Pass
HT40	MCS0	3	6	2437	19.29	19.52	19.49	24.21	27.07	8.93	Pass
HT40	MCS0	3	9	2452	16.28	18.28	17.26	22.12	27.07	8.93	Pass

TEST RESULTS DATA
Average Output Power
(Reporting Only)

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
					Ant0	Ant1	Ant2	SUM	Ant0+Ant1+Ant2	Ant0+Ant1+Ant2	Ant0+Ant1+Ant2	Ant0+Ant1+Ant2	
HT20	MCS0	3	1	2412	12.58	13.14	13.09	17.72	27.07	8.93	26.65	36.00	Pass
HT20	MCS0	3	6	2437	14.97	15.82	15.84	20.33	27.07	8.93	29.26	36.00	Pass
HT20	MCS0	3	11	2462	13.61	15.24	14.74	19.35	27.07	8.93	28.28	36.00	Pass
HT40	MCS0	3	3	2422	5.84	6.91	6.77	11.30	27.07	8.93	20.23	36.00	Pass
HT40	MCS0	3	6	2437	12.47	12.76	12.67	17.41	27.07	8.93	26.34	36.00	Pass
HT40	MCS0	3	9	2452	9.78	11.44	10.56	15.42	27.07	8.93	24.35	36.00	Pass

Setting
Ant0+Ant1+Ant2
13.5
16
15
6.5
13
10.5

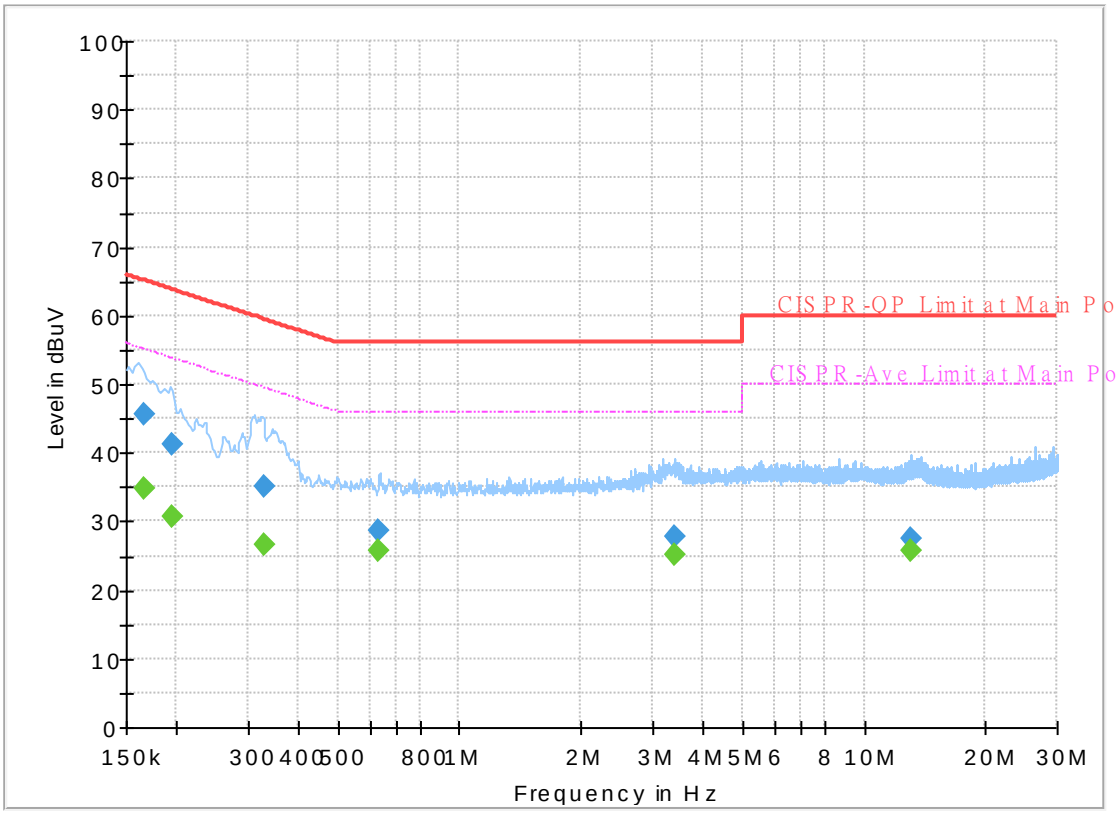
Appendix B. AC Conducted Emission Test Results

Test Engineer :	Tom Lee	**Temperature :**	23~26℃
		Relative Humidity :	48~54%

EUT Information

Report NO :	992436-01
Test Mode :	Mode 1
Test Voltage :	120Vac/60Hz
Phase :	Line

Full Spectrum



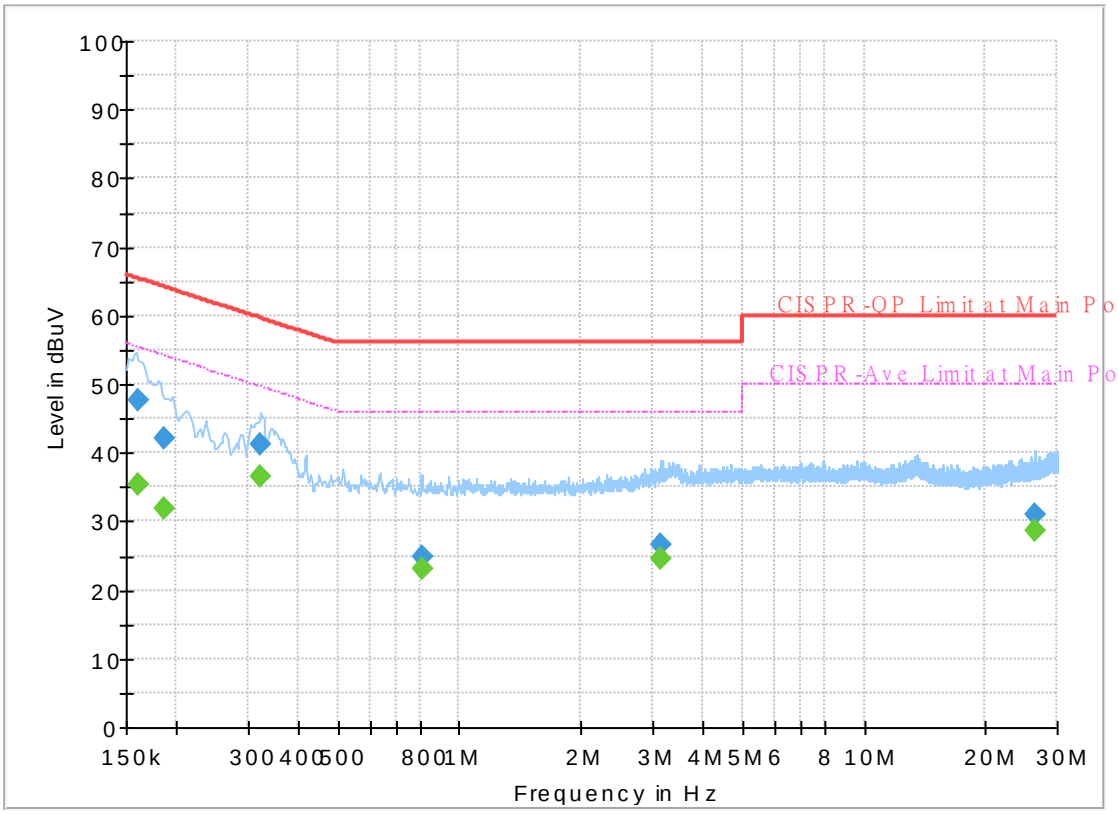
Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.165750	45.56	---	65.17	19.61	L1	OFF	19.5
0.165750	---	34.73	55.17	20.44	L1	OFF	19.5
0.195450	41.12	---	63.80	22.68	L1	OFF	19.5
0.195450	---	30.72	53.80	23.08	L1	OFF	19.5
0.330000	35.06	---	59.45	24.39	L1	OFF	19.5
0.330000	---	26.66	49.45	22.79	L1	OFF	19.5
0.633120	28.56	---	56.00	27.44	L1	OFF	19.5
0.633120	---	25.73	46.00	20.27	L1	OFF	19.5
3.392250	27.70	---	56.00	28.30	L1	OFF	19.6
3.392250	---	25.03	46.00	20.97	L1	OFF	19.6
13.044750	27.61	---	60.00	32.39	L1	OFF	20.0
13.044750	---	25.76	50.00	24.24	L1	OFF	20.0

EUT Information

Report NO :	992436-01
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)
0.161070	---	35.45	55.41	19.96	N	OFF	19.5
0.161070	47.58	---	65.41	17.83	N	OFF	19.5
0.185550	---	31.95	54.23	22.28	N	OFF	19.5
0.185550	42.17	---	64.23	22.06	N	OFF	19.5
0.321180	---	36.66	49.68	13.02	N	OFF	19.5
0.321180	41.12	---	59.68	18.56	N	OFF	19.5
0.811500	---	23.15	46.00	22.85	N	OFF	19.6
0.811500	24.82	---	56.00	31.18	N	OFF	19.6
3.160500	---	24.60	46.00	21.40	N	OFF	19.6
3.160500	26.70	---	56.00	29.30	N	OFF	19.6
26.487420	---	28.71	50.00	21.29	N	OFF	20.5
26.487420	31.05	---	60.00	28.95	N	OFF	20.5

Appendix C. Radiated Spurious Emission

Test Engineer :	Leo Li, Mancy Chou, Bigshow Wang	Temperature :	24.2~25.1°C
		Relative Humidity :	53~64%

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.	
0+1+2		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b CH 01 2412MHz		2372.895	54.95	-19.05	74	42.12	27.85	16.13	31.15	147	49	P	H
		2385.285	44.1	-9.9	54	31.27	27.83	16.15	31.15	147	49	A	H
	*	2412	104.17	-	-	91.32	27.8	16.18	31.13	147	49	P	H
	*	2412	101.2	-	-	88.35	27.8	16.18	31.13	147	49	A	H
													H
													H
		2389.59	63.71	-10.29	74	50.88	27.82	16.16	31.15	169	5	P	V
		2386.23	53.42	-0.58	54	40.59	27.83	16.15	31.15	169	5	A	V
	*	2412	120.8	-	-	107.95	27.8	16.18	31.13	169	5	P	V
	*	2412	117.85	-	-	105	27.8	16.18	31.13	169	5	A	V
													V
													V
802.11b CH 06 2437MHz		2389.1	54.98	-19.02	74	42.15	27.82	16.16	31.15	159	46	P	H
		2388.26	44.05	-9.95	54	31.23	27.82	16.15	31.15	159	46	A	H
	*	2437	109.07	-	-	96.18	27.8	16.21	31.12	159	46	P	H
	*	2437	106.04	-	-	93.15	27.8	16.21	31.12	159	46	A	H
		2484.18	54.13	-19.87	74	41.25	27.73	16.25	31.1	159	46	P	H
		2485.3	43.68	-10.32	54	30.79	27.73	16.26	31.1	159	46	A	H
		2388.12	58.79	-15.21	74	45.97	27.82	16.15	31.15	150	25	P	V
		2389.38	51.17	-2.83	54	38.34	27.82	16.16	31.15	150	25	A	V
	*	2437	121.6	-	-	108.71	27.8	16.21	31.12	150	25	P	V
	*	2437	118.41	-	-	105.52	27.8	16.21	31.12	150	25	A	V
		2483.76	58.13	-15.87	74	45.25	27.73	16.25	31.1	150	25	P	V
		2483.5	50.34	-3.66	54	37.46	27.73	16.25	31.1	150	25	A	V

802.11b CH 11 2462MHz	*	2462	105.21	-	-	92.31	27.78	16.23	31.11	193	23	P	H
	*	2462	102.06	-	-	89.16	27.78	16.23	31.11	193	23	A	H
		2487.04	54.59	-19.41	74	41.7	27.73	16.26	31.1	193	23	P	H
		2488	44.53	-9.47	54	31.65	27.72	16.26	31.1	193	23	A	H
													H
													H
	*	2462	119.33	-	-	106.43	27.78	16.23	31.11	150	4	P	V
	*	2462	116.45	-	-	103.55	27.78	16.23	31.11	150	4	A	V
		2486	60.65	-13.35	74	47.76	27.73	16.26	31.1	150	4	P	V
		2486.84	53.49	-0.51	54	40.6	27.73	16.26	31.1	150	4	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. 0+1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11b CH 01 2412MHz		4824	39.2	-34.8	74	57.33	31.4	9.63	59.16	100	0	P	H
													H
													H
													H
		4824	39.74	-34.26	74	57.87	31.4	9.63	59.16	100	0	P	V
													V
													V
													V
802.11b CH 06 2437MHz		4874	37.88	-36.12	74	55.96	31.45	9.64	59.17	100	0	P	H
		7311	45.79	-28.21	74	56.5	36.78	11.69	59.18	100	0	P	H
													H
													H
		4874	39.93	-34.07	74	58.01	31.45	9.64	59.17	100	0	P	V
		7311	45.89	-28.11	74	56.6	36.78	11.69	59.18	100	0	P	V
													V
													V
802.11b CH 11 2462MHz		4924	38.51	-35.49	74	56.64	31.4	9.65	59.18	100	0	P	H
		7386	43.47	-30.53	74	54.25	36.63	11.74	59.15	100	0	P	H
													H
													H
		4924	38.86	-35.14	74	56.99	31.4	9.65	59.18	100	0	P	V
		7386	45.11	-28.89	74	55.89	36.63	11.74	59.15	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. 0+1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11g CH 01 2412MHz		2326.695	54.87	-19.13	74	42.08	27.9	16.07	31.18	173	50	P	H
		2388.015	45.26	-8.74	54	32.44	27.82	16.15	31.15	173	50	A	H
	*	2412	103.31	-	-	90.46	27.8	16.18	31.13	173	50	P	H
	*	2412	95.49	-	-	82.64	27.8	16.18	31.13	173	50	A	H
													H
													H
		2384.445	64.79	-9.21	74	51.96	27.83	16.15	31.15	145	353	P	V
		2384.97	53.58	-0.42	54	40.75	27.83	16.15	31.15	145	353	A	V
	*	2412	120.12	-	-	107.27	27.8	16.18	31.13	145	353	P	V
	*	2412	112	-	-	99.15	27.8	16.18	31.13	145	353	A	V
													V
													V
802.11g CH 06 2437MHz		2324.98	54.41	-19.59	74	41.62	27.9	16.07	31.18	199	49	P	H
		2385.88	44.87	-9.13	54	32.04	27.83	16.15	31.15	199	49	A	H
	*	2437	107.68	-	-	94.79	27.8	16.21	31.12	199	49	P	H
	*	2437	99.66	-	-	86.77	27.8	16.21	31.12	199	49	A	H
		2499.09	54.18	-19.82	74	41.3	27.7	16.27	31.09	199	49	P	H
		2483.5	44.66	-9.34	54	31.78	27.73	16.25	31.1	199	49	A	H
		2387.7	61.31	-12.69	74	48.49	27.82	16.15	31.15	202	5	P	V
		2388.26	52	-2	54	39.18	27.82	16.15	31.15	202	5	A	V
	*	2437	122.51	-	-	109.62	27.8	16.21	31.12	202	5	P	V
	*	2437	115.56	-	-	102.67	27.8	16.21	31.12	202	5	A	V
		2483.69	59.72	-14.28	74	46.84	27.73	16.25	31.1	202	5	P	V
		2483.69	50.37	-3.63	54	37.49	27.73	16.25	31.1	202	5	A	V

802.11g CH 11 2462MHz	*	2462	102.06	-	-	89.16	27.78	16.23	31.11	135	47	P	H
	*	2462	94.32	-	-	81.42	27.78	16.23	31.11	135	47	A	H
		2492.08	55.2	-18.8	74	42.31	27.72	16.26	31.09	135	47	P	H
		2484.08	45.02	-8.98	54	32.14	27.73	16.25	31.1	135	47	A	H
													H
													H
	*	2462	119.86	-	-	106.96	27.78	16.23	31.11	150	351	P	V
	*	2462	112.94	-	-	100.04	27.78	16.23	31.11	150	351	A	V
		2484.72	63.21	-10.79	74	50.33	27.73	16.25	31.1	150	351	P	V
		2483.76	53.42	-0.58	54	40.54	27.73	16.25	31.1	150	351	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. 0+1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11g CH 01 2412MHz		4824	37.1	-36.9	74	55.23	31.4	9.63	59.16	100	0	P	H
													H
													H
													H
		4824	38.13	-35.87	74	56.26	31.4	9.63	59.16	100	0	P	V
													V
													V
													V
802.11g CH 06 2437MHz		4874	37.2	-36.8	74	55.28	31.45	9.64	59.17	100	0	P	H
		7311	43.96	-30.04	74	54.67	36.78	11.69	59.18	100	0	P	H
													H
													H
		4874	38.9	-35.1	74	56.98	31.45	9.64	59.17	100	0	P	V
		7311	44.38	-29.62	74	55.09	36.78	11.69	59.18	100	0	P	V
													V
													V
802.11g CH 11 2462MHz		4924	38.1	-35.9	74	56.23	31.4	9.65	59.18	100	0	P	H
		7386	43.34	-30.66	74	54.12	36.63	11.74	59.15	100	0	P	H
													H
													H
		4924	38.62	-35.38	74	56.75	31.4	9.65	59.18	100	0	P	V
		7386	44.27	-29.73	74	55.05	36.63	11.74	59.15	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. 0+1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
		2330.055	54.51	-19.49	74	41.7	27.9	16.08	31.17	176	50	P	H
		2387.595	44.98	-9.02	54	32.16	27.82	16.15	31.15	176	50	A	H
	*	2412	102.83	-	-	89.98	27.8	16.18	31.13	176	50	P	H
	*	2412	94.95	-	-	82.1	27.8	16.18	31.13	176	50	A	H
802.11n													H
HT20													H
CH 01		2387.595	61.61	-12.39	74	48.79	27.82	16.15	31.15	169	2	P	V
2412MHz		2389.905	51.91	-2.09	54	39.08	27.82	16.16	31.15	169	2	A	V
	*	2412	119.59	-	-	106.74	27.8	16.18	31.13	169	2	P	V
	*	2412	111.64	-	-	98.79	27.8	16.18	31.13	169	2	A	V
													V
													V
		2323.44	54.26	-19.74	74	41.47	27.9	16.07	31.18	227	48	P	H
		2387.7	44.8	-9.2	54	31.98	27.82	16.15	31.15	227	48	A	H
	*	2437	106.48	-	-	93.59	27.8	16.21	31.12	227	48	P	H
	*	2437	98.77	-	-	85.88	27.8	16.21	31.12	227	48	A	H
802.11n		2497.97	54.37	-19.63	74	41.49	27.7	16.27	31.09	227	48	P	H
HT20		2486	44.68	-9.32	54	31.79	27.73	16.26	31.1	227	48	A	H
CH 06		2388.12	58.78	-15.22	74	45.96	27.82	16.15	31.15	174	2	P	V
2437MHz		2389.66	50.36	-3.64	54	37.53	27.82	16.16	31.15	174	2	A	V
	*	2437	123.25	-	-	110.36	27.8	16.21	31.12	174	2	P	V
	*	2437	114.81	-	-	101.92	27.8	16.21	31.12	174	2	A	V
		2483.9	57.21	-16.79	74	44.33	27.73	16.25	31.1	174	2	P	V
		2483.55	48.43	-5.57	54	35.55	27.73	16.25	31.1	174	2	A	V

	*	2462	104.56	-	-	91.66	27.78	16.23	31.11	221	48	P	H
	*	2462	96.54	-	-	83.64	27.78	16.23	31.11	221	48	A	H
		2483.64	54.81	-19.19	74	41.93	27.73	16.25	31.1	221	48	P	H
		2494.08	44.81	-9.19	54	31.93	27.71	16.26	31.09	221	48	A	H
802.11n													H
HT20													H
CH 11	*	2462	119.78	-	-	106.88	27.78	16.23	31.11	163	2	P	V
2462MHz	*	2462	112.04	-	-	99.14	27.78	16.23	31.11	163	2	A	V
		2484.2	64.21	-9.79	74	51.33	27.73	16.25	31.1	163	2	P	V
		2483.76	53.58	-0.42	54	40.7	27.73	16.25	31.1	163	2	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. 0+1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
		4824	37.31	-36.69	74	55.44	31.4	9.63	59.16	100	0	P	H
													H
802.11n													H
HT20													H
CH 01		4824	38.11	-35.89	74	56.24	31.4	9.63	59.16	100	0	P	V
2412MHz													V
													V
													V
		4874	37.5	-36.5	74	55.58	31.45	9.64	59.17	100	0	P	H
		7311	43.63	-30.37	74	54.34	36.78	11.69	59.18	100	0	P	H
802.11n													H
HT20													H
CH 06		4874	38.7	-35.3	74	56.78	31.45	9.64	59.17	100	0	P	V
2437MHz		7311	44.1	-29.9	74	54.81	36.78	11.69	59.18	100	0	P	V
													V
													V
		4924	38.42	-35.58	74	56.55	31.4	9.65	59.18	100	0	P	H
		7386	42.97	-31.03	74	53.75	36.63	11.74	59.15	100	0	P	H
802.11n													H
HT20													H
CH 11		4924	37.71	-36.29	74	55.84	31.4	9.65	59.18	100	0	P	V
2462MHz		7386	43.39	-30.61	74	54.17	36.63	11.74	59.15	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 HT40 (Band Edge @ 3m)

WIFI Ant. 0+1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
		2330.44	54.29	-19.71	74	41.48	27.9	16.08	31.17	148	50	P	H
		2385.6	44.77	-9.23	54	31.94	27.83	16.15	31.15	148	50	A	H
	*	2424	93.39	-	-	80.53	27.8	16.19	31.13	148	50	P	H
	*	2424	86.3	-	-	73.44	27.8	16.19	31.13	148	50	A	H
802.11n		2493.91	53.94	-20.06	74	41.06	27.71	16.26	31.09	148	50	P	H
HT40		2499.51	44.39	-9.61	54	31.51	27.7	16.27	31.09	148	50	A	H
CH 03		2385.74	64.91	-9.09	74	52.08	27.83	16.15	31.15	157	3	P	V
2422MHz		2385.6	53.68	-0.32	54	40.85	27.83	16.15	31.15	157	3	A	V
	*	2422	110.42	-	-	97.56	27.8	16.19	31.13	157	3	P	V
	*	2422	102.32	-	-	89.46	27.8	16.19	31.13	157	3	A	V
		2486.14	55.92	-18.08	74	43.03	27.73	16.26	31.1	157	3	P	V
		2496.08	46.02	-7.98	54	33.13	27.71	16.27	31.09	157	3	A	V
		2385.04	55.87	-18.13	74	43.04	27.83	16.15	31.15	179	48	P	H
		2389.94	44.93	-9.07	54	32.1	27.82	16.16	31.15	179	48	A	H
	*	2437	99.04	-	-	86.15	27.8	16.21	31.12	179	48	P	H
	*	2437	91.91	-	-	79.02	27.8	16.21	31.12	179	48	A	H
802.11n		2487.82	54.7	-19.3	74	41.82	27.72	16.26	31.1	179	48	P	H
HT40		2488.1	44.58	-9.42	54	31.7	27.72	16.26	31.1	179	48	A	H
CH 06		2379.72	63.54	-10.46	74	50.71	27.84	16.14	31.15	154	3	P	V
2437MHz		2378.6	53.13	-0.87	54	40.3	27.84	16.14	31.15	154	3	A	V
	*	2437	115.6	-	-	102.71	27.8	16.21	31.12	154	3	P	V
	*	2437	108.09	-	-	95.2	27.8	16.21	31.12	154	3	A	V
		2483.83	57.78	-16.22	74	44.9	27.73	16.25	31.1	154	3	P	V
		2483.62	49.24	-4.76	54	36.36	27.73	16.25	31.1	154	3	A	V

		2384.62	54.18	-19.82	74	41.35	27.83	16.15	31.15	100	48	P	H
		2379.16	44.5	-9.5	54	31.67	27.84	16.14	31.15	100	48	A	H
	*	2452	97.17	-	-	84.26	27.8	16.22	31.11	100	48	P	H
	*	2452	88.94	-	-	76.03	27.8	16.22	31.11	100	48	A	H
802.11n		2484.95	54.2	-19.8	74	41.32	27.73	16.25	31.1	100	48	P	H
HT40		2484.46	44.71	-9.29	54	31.83	27.73	16.25	31.1	100	48	A	H
CH 09		2389.8	56.77	-17.23	74	43.94	27.82	16.16	31.15	170	37	P	V
2452MHz		2388.26	45.98	-8.02	54	33.16	27.82	16.15	31.15	170	37	A	V
	*	2452	112.24	-	-	99.33	27.8	16.22	31.11	170	37	P	V
	*	2452	104.58	-	-	91.67	27.8	16.22	31.11	170	37	A	V
		2484.46	62.8	-11.2	74	49.92	27.73	16.25	31.1	170	37	P	V
		2485.23	52.76	-1.24	54	39.87	27.73	16.26	31.1	170	37	A	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 HT40 (Harmonic @ 3m)

WIFI Ant. 0+1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
		4844	37.22	-36.78	74	55.28	31.48	9.63	59.17	100	0	P	H
		7266	42.96	-31.04	74	53.83	36.66	11.66	59.19	100	0	P	H
802.11n													H
HT40													H
CH 03		4844	37.42	-36.58	74	55.48	31.48	9.63	59.17	100	0	P	V
2422MHz		7266	43.1	-30.9	74	53.97	36.66	11.66	59.19	100	0	P	V
													V
													V
		4874	36.73	-37.27	74	54.81	31.45	9.64	59.17	100	0	P	H
		7311	44.31	-29.69	74	55.02	36.78	11.69	59.18	100	0	P	H
802.11n													H
HT40													H
CH 06		4874	37.89	-36.11	74	55.97	31.45	9.64	59.17	100	0	P	V
2437MHz		7311	43.79	-30.21	74	54.5	36.78	11.69	59.18	100	0	P	V
													V
													V
		4904	37.51	-36.49	74	55.65	31.4	9.64	59.18	100	0	P	H
		7356	44.86	-29.14	74	55.61	36.69	11.72	59.16	100	0	P	H
802.11n													H
HT40													H
CH 09		4904	37.48	-36.52	74	55.62	31.4	9.64	59.18	100	0	P	V
2452MHz		7356	43.56	-30.44	74	54.31	36.69	11.72	59.16	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

Emission below 1GHz

2.4GHz WIFI 802.11n HT40 (LF)

WIFI Ant.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Path Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
0+1+2		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
2.4GHz 802.11n HT40 LF		56.19	26.23	-13.77	40	45.45	12.36	1	32.58	-	-	P	H
		210.42	27.33	-16.17	43.5	42.68	15.17	1.98	32.5	-	-	P	H
		321.97	37.66	-8.34	46	48.32	19.54	2.34	32.54	100	0	P	H
		371.44	36.51	-9.49	46	45.63	20.93	2.5	32.55	-	-	P	H
		450.01	29.99	-16.01	46	36.74	23.1	2.71	32.56	-	-	P	H
		499.48	28.07	-17.93	46	33.79	23.99	2.86	32.57	-	-	P	H
													H
													H
													H
													H
													H
													H
		35.82	31.66	-8.34	40	41.37	22.13	0.77	32.61	100	0	P	V
		94.99	25.51	-17.99	43.5	41.41	15.3	1.32	32.52	-	-	P	V
		209.45	29.21	-14.29	43.5	44.52	15.2	1.98	32.49	-	-	P	V
		325.85	31.96	-14.04	46	42.52	19.63	2.35	32.54	-	-	P	V
		375.32	32.46	-13.54	46	41.5	21.01	2.5	32.55	-	-	P	V
		450.01	29.35	-16.65	46	36.1	23.1	2.71	32.56	-	-	P	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	**P**eak or **A**verage
H/V	**H**orizontal or **V**ertical

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

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b CH 01 2412MHz		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
		2390	43.54	-10.46	54	42.6	32.22	4.58	35.86	103	308	A	H

1. 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

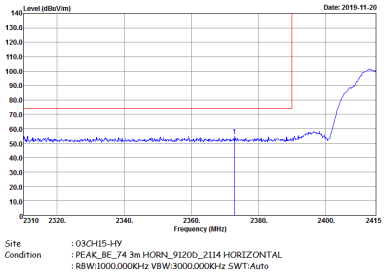
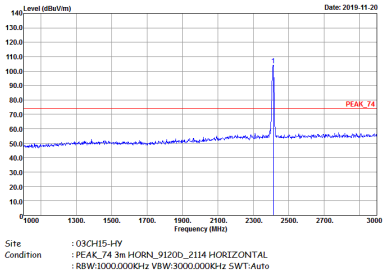
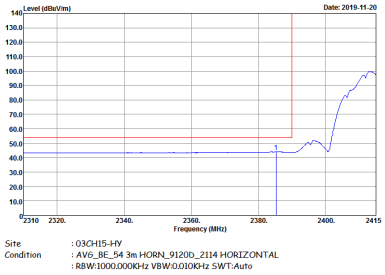
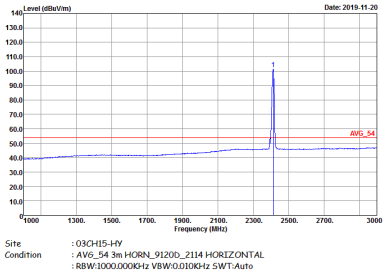
Test Engineer :	Leo Li, Mancy Chou and Bigshow Wang	**Temperature :**	24.2~25.1°C
		Relative Humidity :	53~64%

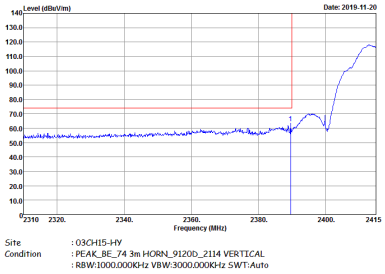
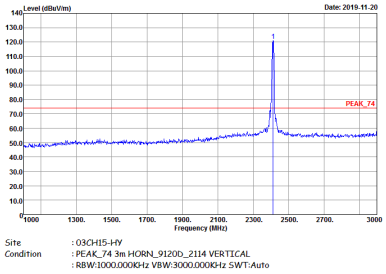
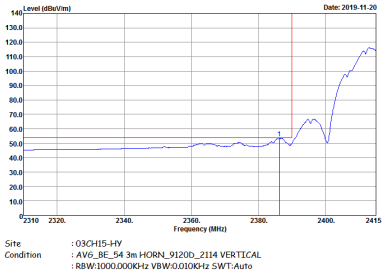
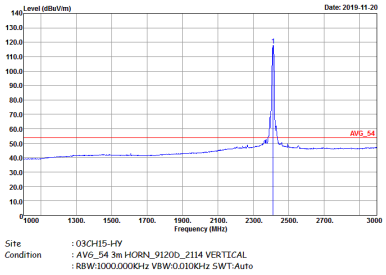
Note symbol

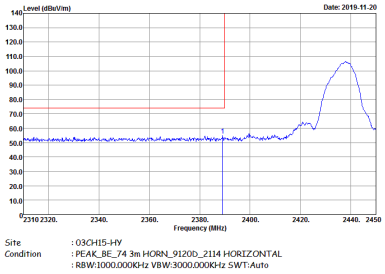
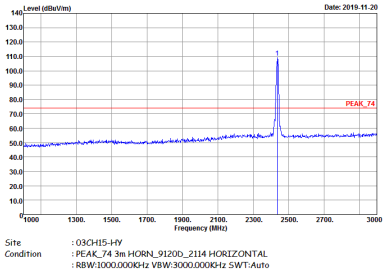
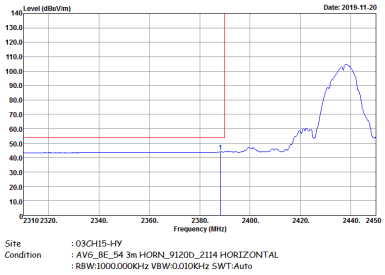
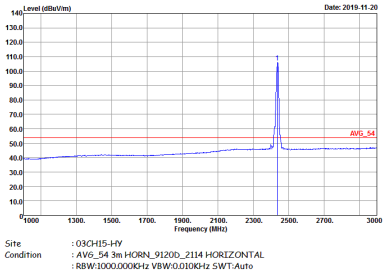
-L	**Low channel location**
-R	**High channel location**

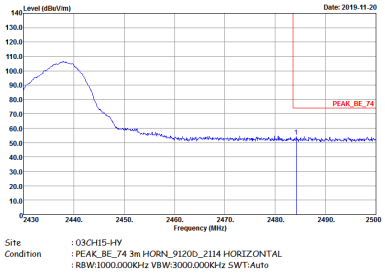
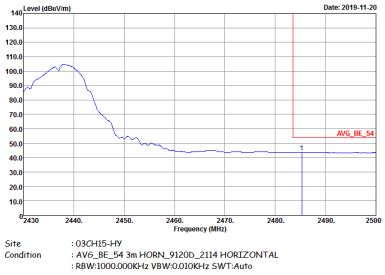
2.4GHz 2400~2483.5MHz

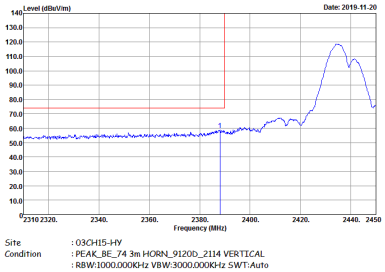
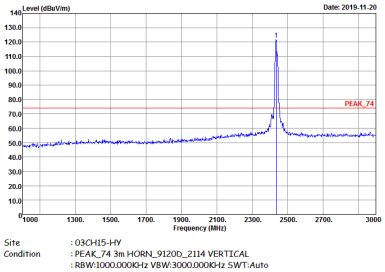
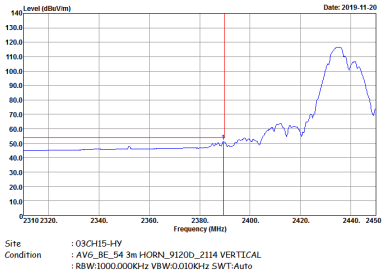
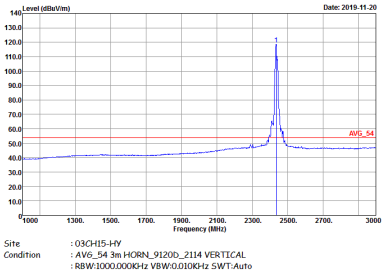
WIFI 802.11b (Band Edge @ 3m)

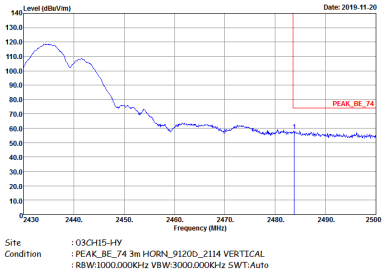
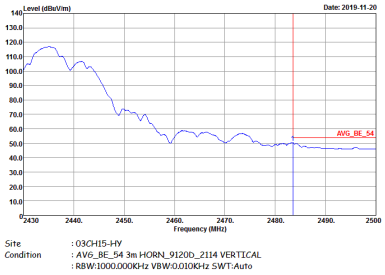
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH01 2412MHz	
0+1+2	Horizontal	Fundamental
Peak		
Avg.		

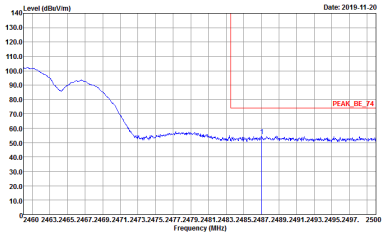
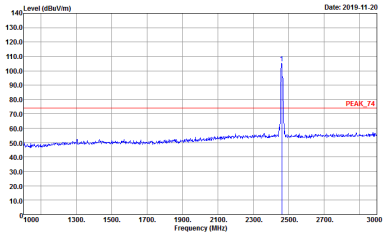
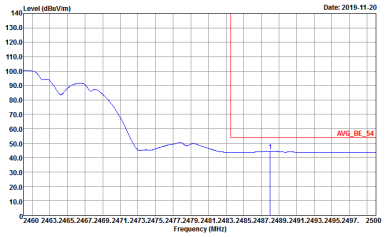
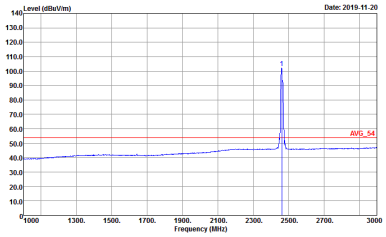
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH01 2412MHz	
0+1+2	Vertical	Fundamental
Peak		
Avg.		

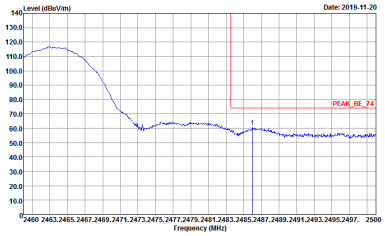
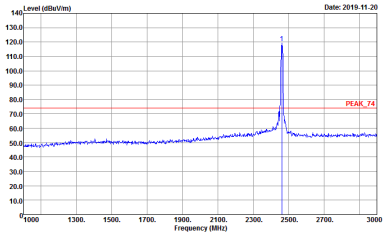
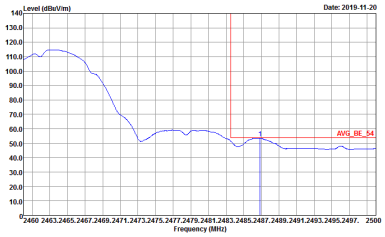
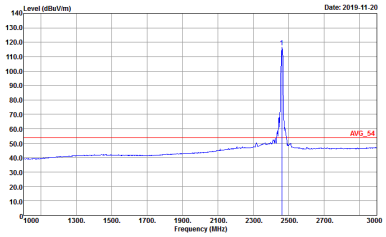
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH06 2437MHz - L	
0+1+2	Horizontal	Fundamental
Peak		
Avg.		

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH06 2437MHz - R	
0+1+2	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH06 2437MHz - L	
0+1+2	Vertical	Fundamental
Peak	 Site : 03CH15-HY Condition : PEAK_BE_74 3m HORN_9120D_2114 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH15-HY Condition : PEAK_74 3m HORN_9120D_2114 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH15-HY Condition : AVG_BE_54 3m HORN_9120D_2114 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto	 Site : 03CH15-HY Condition : AVG_54 3m HORN_9120D_2114 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto

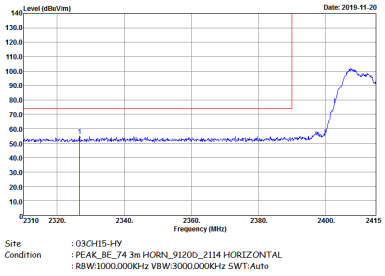
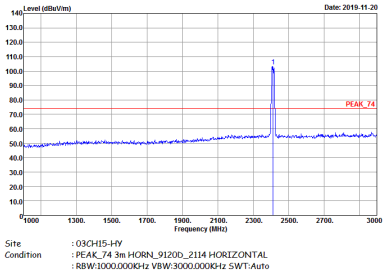
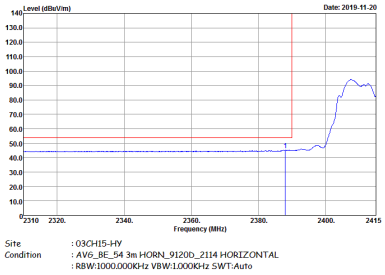
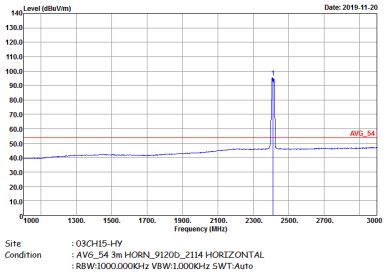
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH06 2437MHz - R	
0+1+2	Vertical	Fundamental
Peak		Left blank
Avg.		Left blank

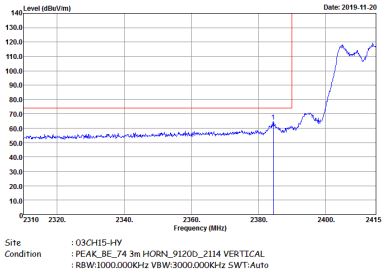
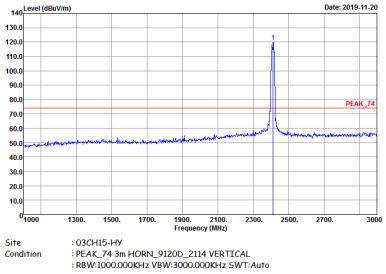
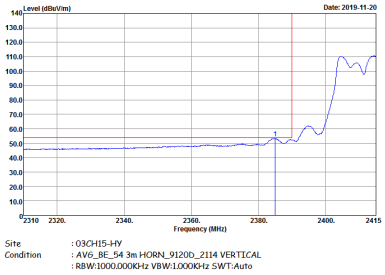
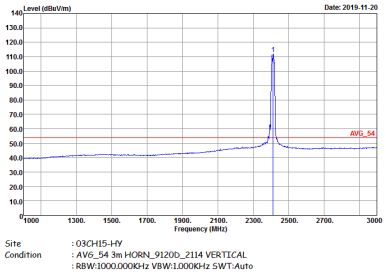
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH11 2462MHz	
0+1+2	Horizontal	Fundamental
Peak	 Site : 03CH15-HY Condition : PEAK_BE_74 3m HORN_9120D_2114 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH15-HY Condition : PEAK_74 3m HORN_9120D_2114 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH15-HY Condition : AVG_BE_54 3m HORN_9120D_2114 HORIZONTAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto	 Site : 03CH15-HY Condition : AVG_54 3m HORN_9120D_2114 HORIZONTAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto

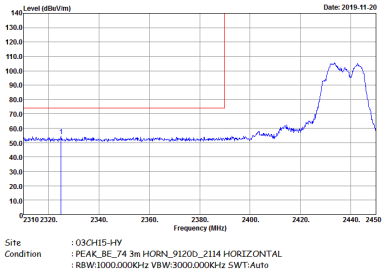
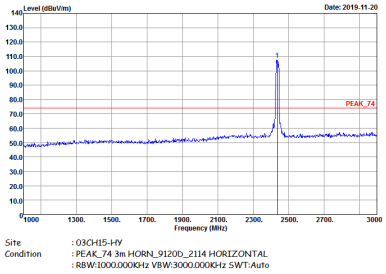
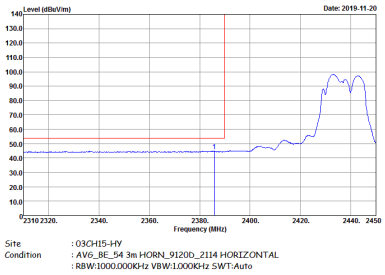
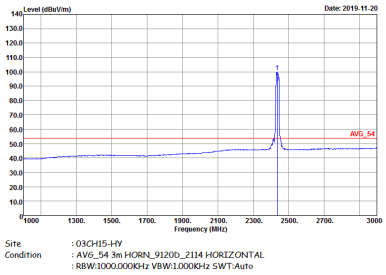
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH11 2462MHz	
0+1+2	Vertical	Fundamental
Peak	 Site : 03CH15-HY Condition : PEAK_BE_74 3m HORN_9120D_2114 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH15-HY Condition : PEAK_74 3m HORN_9120D_2114 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH15-HY Condition : AVG_BE_54 3m HORN_9120D_2114 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto	 Site : 03CH15-HY Condition : AVG_54 3m HORN_9120D_2114 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto

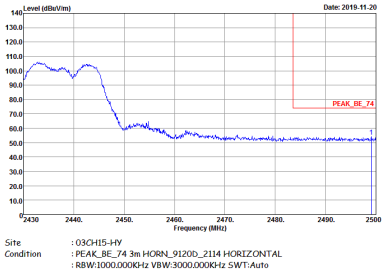
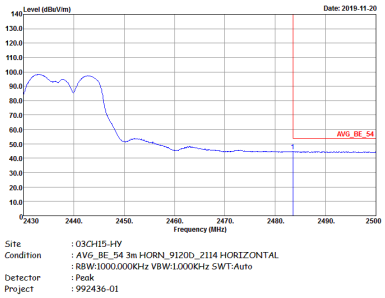
2.4GHz 2400~2483.5MHz

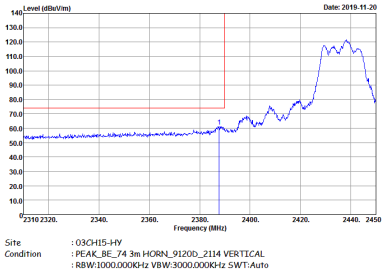
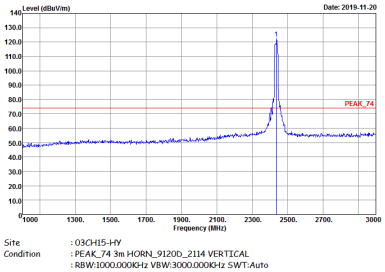
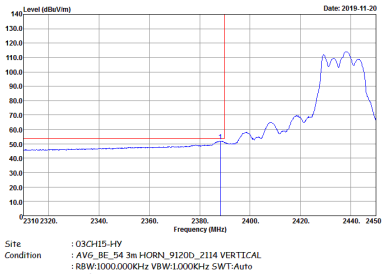
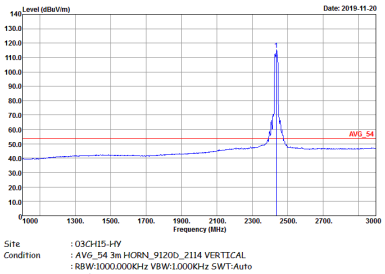
WIFI 802.11g (Band Edge @ 3m)

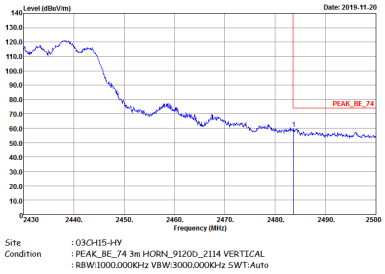
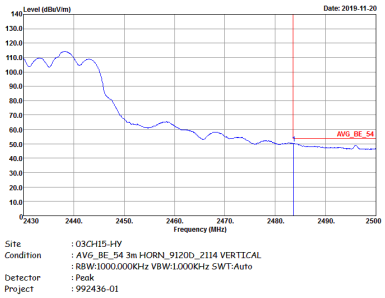
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH01 2412MHz	
0+1+2	Horizontal	Fundamental
Peak		
Avg.		

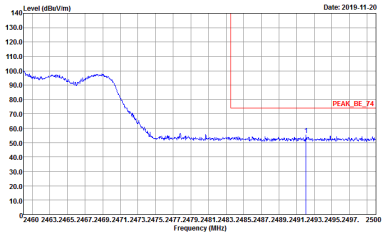
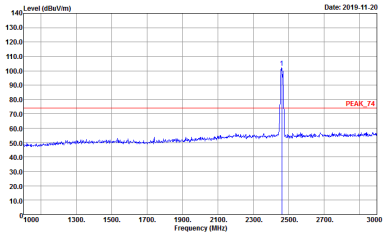
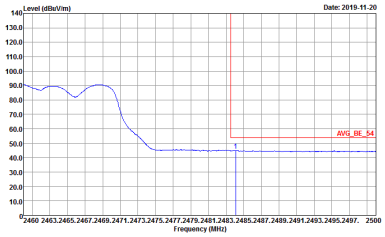
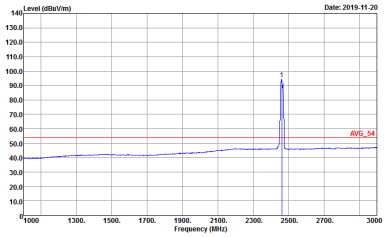
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH01 2412MHz	
0+1+2	Vertical	Fundamental
Peak		
Avg.		

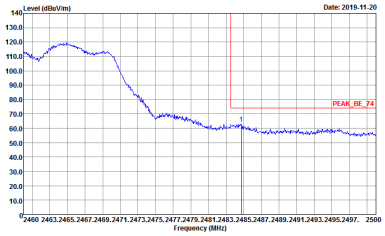
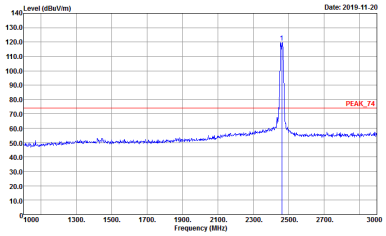
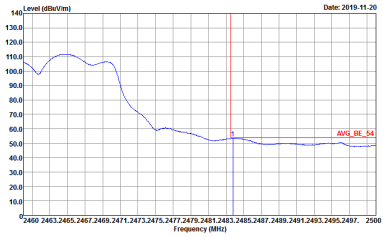
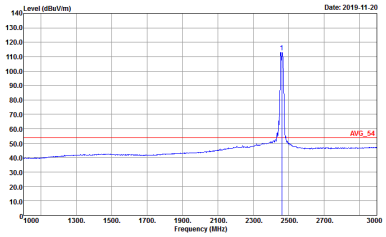
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH06 2437MHz - L	
0+1+2	Horizontal	Fundamental
Peak		
Avg.		

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH06 2437MHz - R	
0+1+2	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH06 2437MHz - L	
0+1+2	Vertical	Fundamental
Peak	 Site : 03CH15-HY Condition : PEAK_BE_74 3m HORN_9120D_2114 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH15-HY Condition : PEAK_74 3m HORN_9120D_2114 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH15-HY Condition : AVG_BE_54 3m HORN_9120D_2114 VERTICAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto Detector : Peak Project : 992436-01	 Site : 03CH15-HY Condition : AVG_54 3m HORN_9120D_2114 VERTICAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto Detector : Peak Project : 992436-01

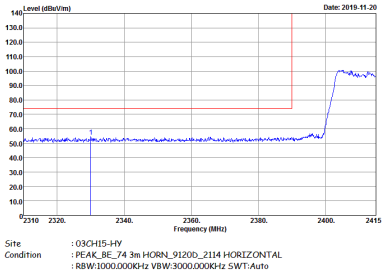
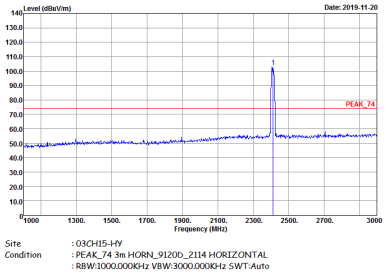
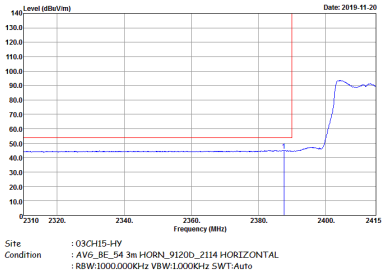
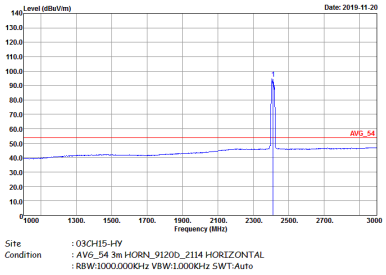
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH06 2437MHz - R	
0+1+2	Vertical	Fundamental
Peak		Left Blank
Avg.		Left Blank

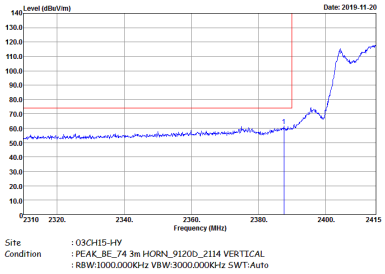
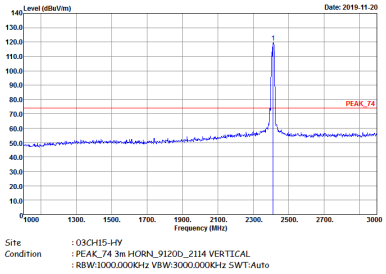
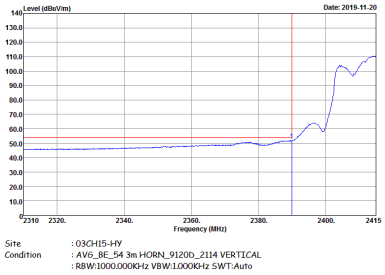
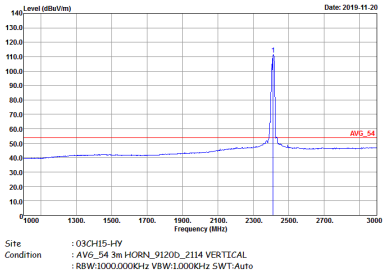
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH11 2462MHz	
0+1+2	Horizontal	Fundamental
Peak	 Site : 03CH15-HY Condition : PEAK_BE_74 3m HORN_9120D_2114 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH15-HY Condition : PEAK_74 3m HORN_9120D_2114 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH15-HY Condition : AVG_BE_54 3m HORN_9120D_2114 HORIZONTAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto	 Site : 03CH15-HY Condition : AVG_54 3m HORN_9120D_2114 HORIZONTAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto

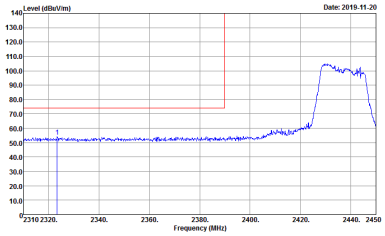
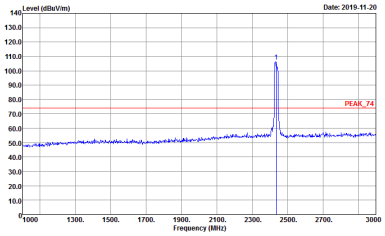
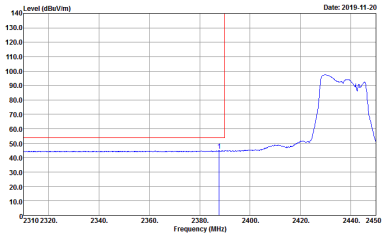
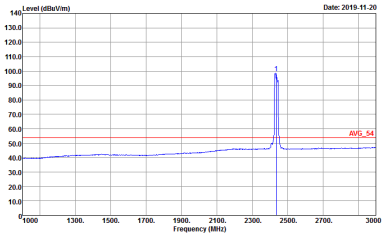
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH11 2462MHz	
0+1+2	Vertical	Fundamental
Peak	 Site : 03CH15-HY Condition : PEAK_BE_74 3m HORN_9120D_2114 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH15-HY Condition : PEAK_74 3m HORN_9120D_2114 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH15-HY Condition : AVG_BE_54 3m HORN_9120D_2114 VERTICAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto	 Site : 03CH15-HY Condition : AVG_54 3m HORN_9120D_2114 VERTICAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto

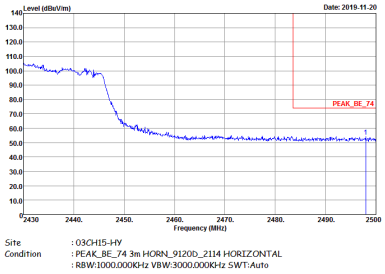
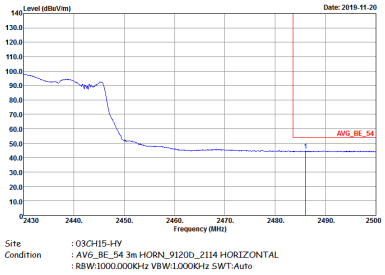
2.4GHz 2400~2483.5MHz

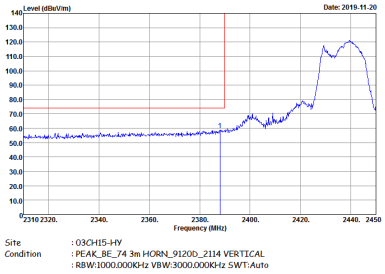
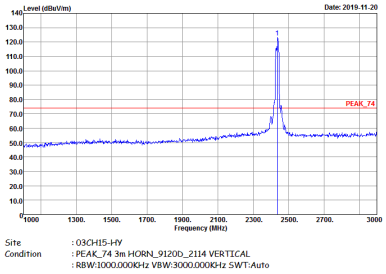
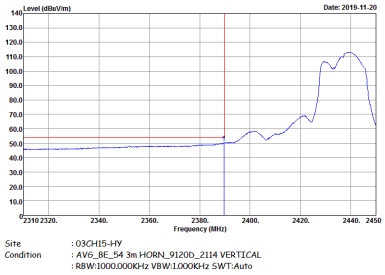
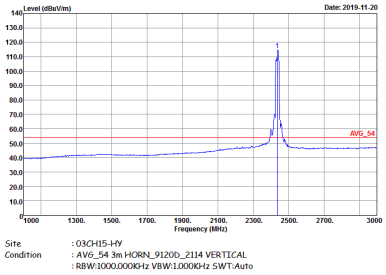
WIFI 802.11n HT20 (Band Edge @ 3m)

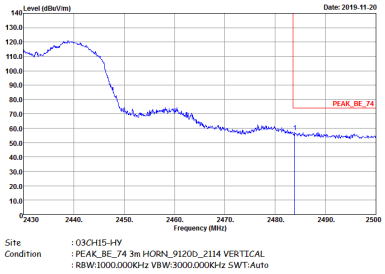
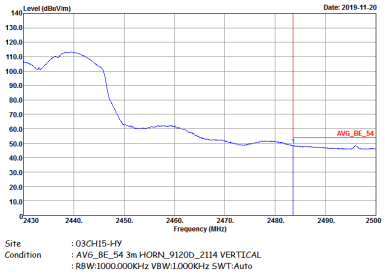
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH01 2412MHz	
0+1+2	Horizontal	Fundamental
Peak		
Avg.		

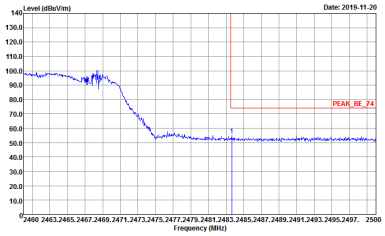
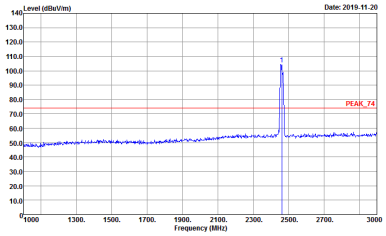
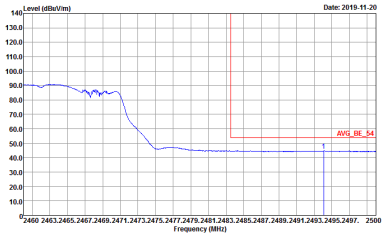
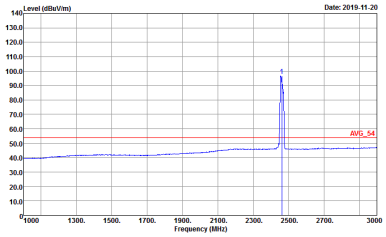
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH01 2412MHz	
0+1+2	Vertical	Fundamental
Peak		
Avg.		

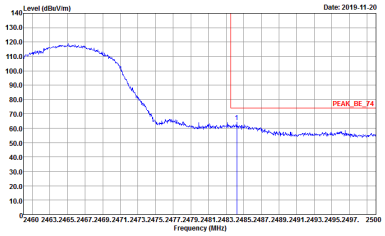
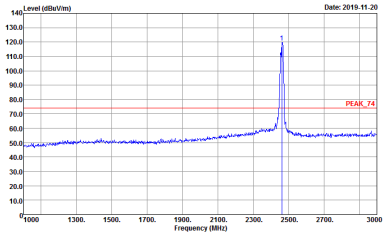
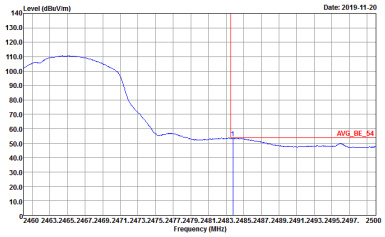
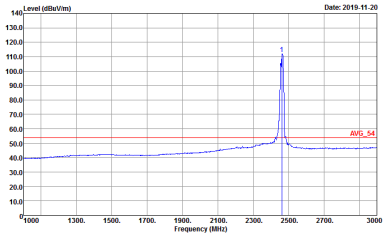
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH06 2437MHz - L	
0+1+2	Horizontal	Fundamental
Peak	 Site : 03CH15-HY Condition : PEAK_BE_74 3m HORN_9120D_2114 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH15-HY Condition : PEAK_74 3m HORN_9120D_2114 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH15-HY Condition : AVG_BE_54 3m HORN_9120D_2114 HORIZONTAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto	 Site : 03CH15-HY Condition : AVG_54 3m HORN_9120D_2114 HORIZONTAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH06 2437MHz - R	
0+1+2	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH06 2437MHz - L	
0+1+2	Vertical	Fundamental
Peak		
Avg.		

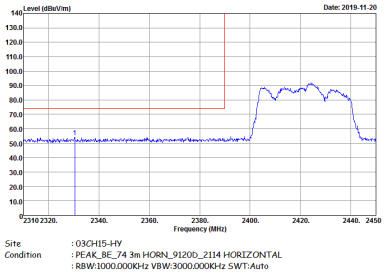
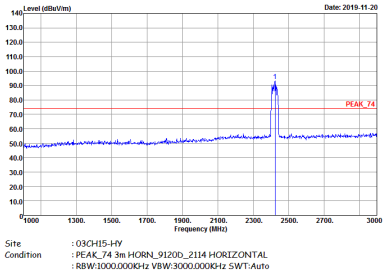
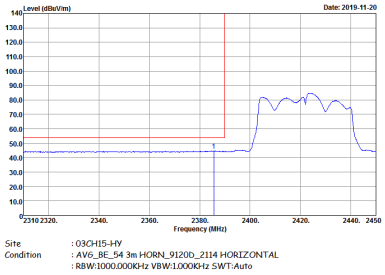
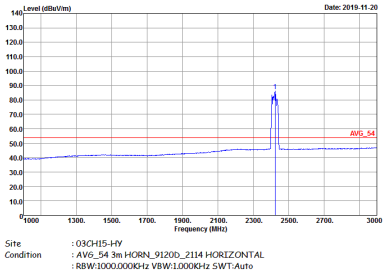
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH06 2437MHz - R	
0+1+2	Vertical	Fundamental
Peak		Left Blank
Avg.		Left Blank

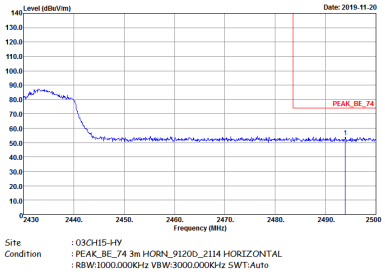
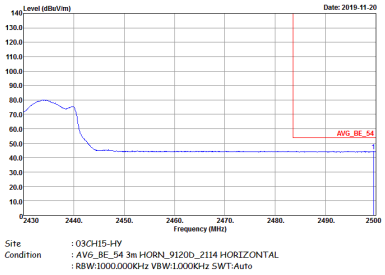
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH11 2462MHz	
0+1+2	Horizontal	Fundamental
Peak	 Site : 03CH15-HY Condition : PEAK_BE_74 3m HORN_9120D_2114 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH15-HY Condition : PEAK_74 3m HORN_9120D_2114 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH15-HY Condition : AVG_BE_54 3m HORN_9120D_2114 HORIZONTAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto	 Site : 03CH15-HY Condition : AVG_54 3m HORN_9120D_2114 HORIZONTAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto

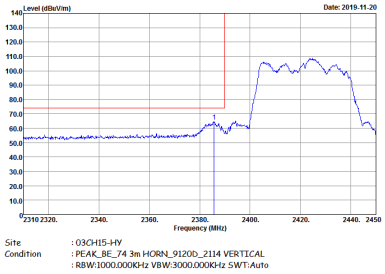
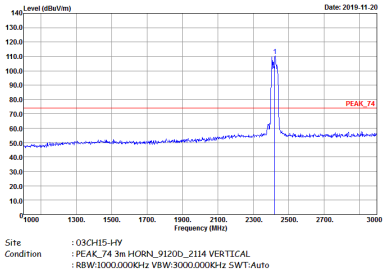
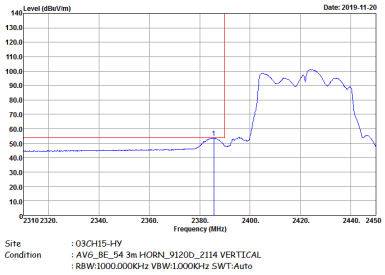
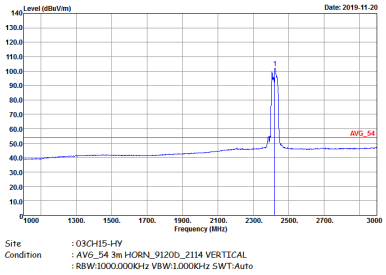
WIFI	2.4GHz 2400~2483.5MHz Fundamental @ 3m	
ANT	802.11n HT20 CH11 2462MHz	
0+1+2	Vertical	Fundamental
Peak	 Site : 03CH15-HY Condition : PEAK_BE_74 3m HORN_9120D_2114 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH15-HY Condition : PEAK_74 3m HORN_9120D_2114 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Avg.	 Site : 03CH15-HY Condition : AVG_BE_54 3m HORN_9120D_2114 VERTICAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto	 Site : 03CH15-HY Condition : AVG_54 3m HORN_9120D_2114 VERTICAL : RBW:1000.000KHz VBW:1.000KHz SWT:Auto

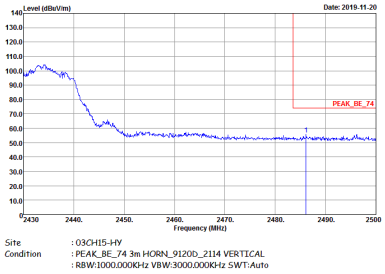
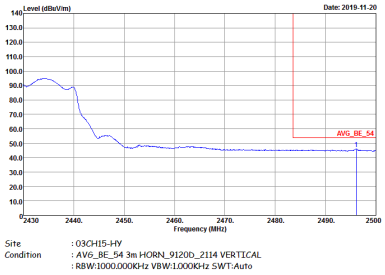
2.4GHz 2400~2483.5MHz

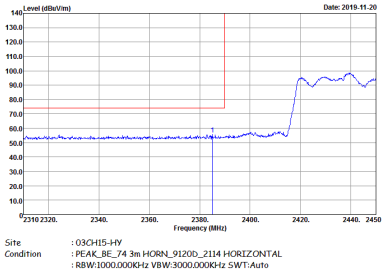
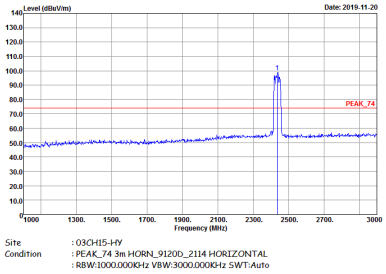
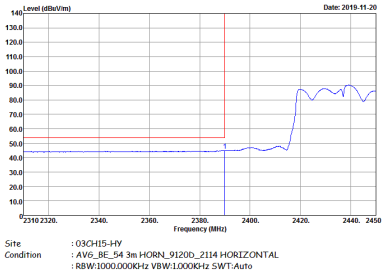
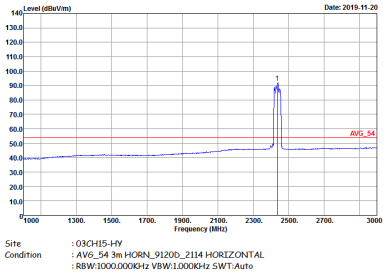
WIFI 802.11n HT40 (Band Edge @ 3m)

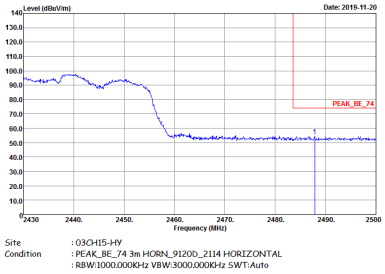
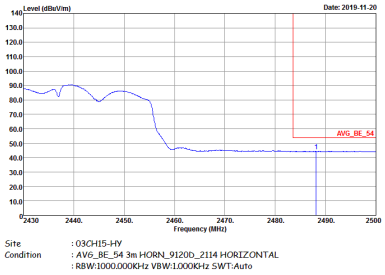
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH03 2422MHz - L	
0+1+2	Horizontal	Fundamental
Peak		
Avg.		

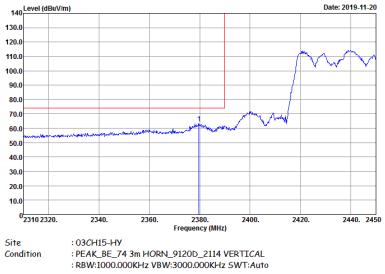
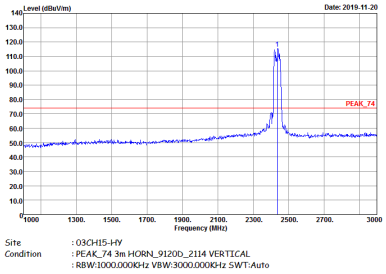
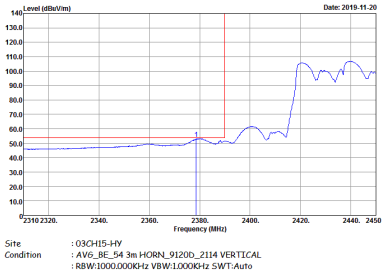
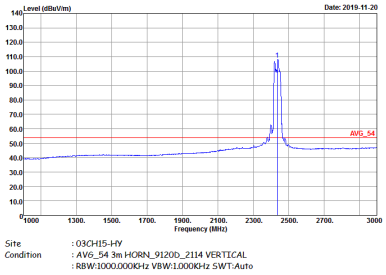
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH03 2422MHz - R	
0+1+2	Horizontal	Fundamental
Peak		Left Blank
Avg.		Left Blank

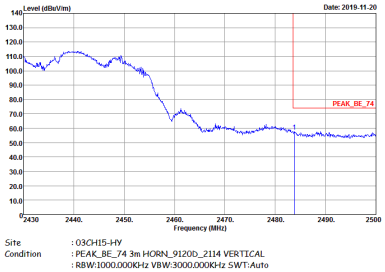
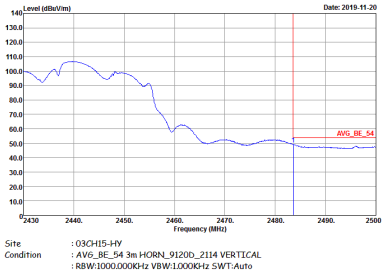
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH03 2422MHz - L	
0+1+2	Vertical	Fundamental
Peak		
Avg.		

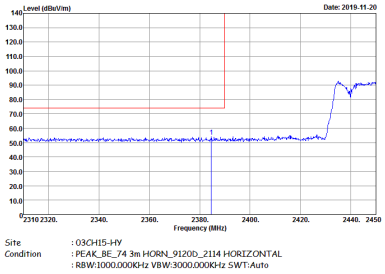
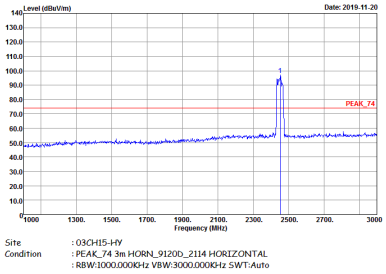
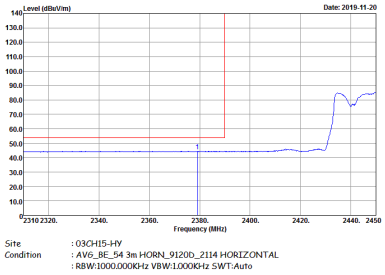
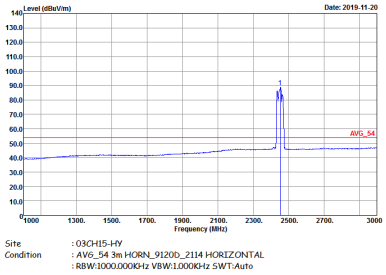
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH03 2422MHz - R	
0+1+2	Vertical	Fundamental
Peak		Left blank
Avg.		Left blank

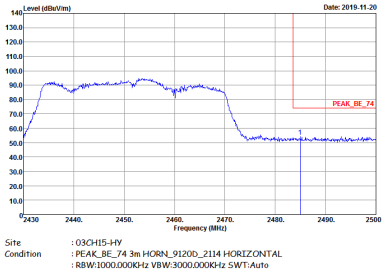
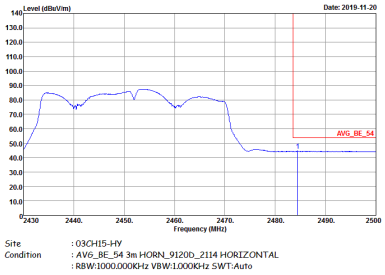
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH06 2437MHz - L	
0+1+2	Horizontal	Fundamental
Peak		
Avg.		

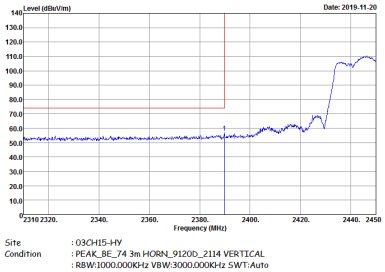
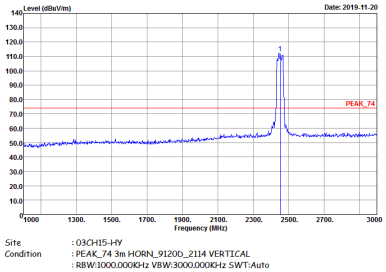
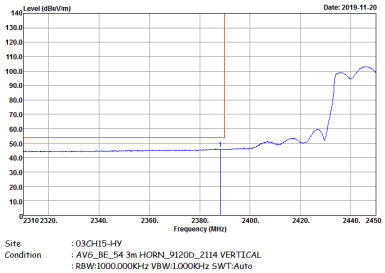
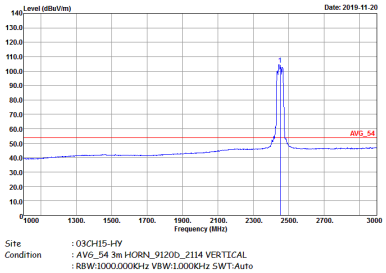
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH06 2437MHz - R	
0+1+2	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

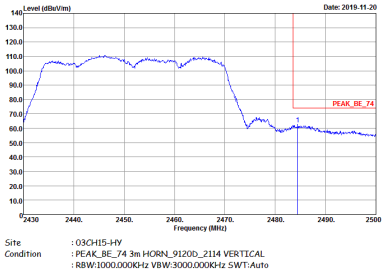
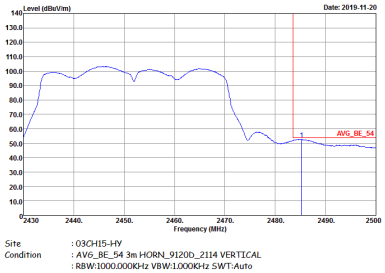
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH06 2437MHz - L	
0+1+2	Vertical	Fundamental
Peak		
Avg.		

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH06 2437MHz - R	
0+1+2	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH09 2452MHz - L	
0+1+2	Horizontal	Fundamental
Peak		
Avg.		

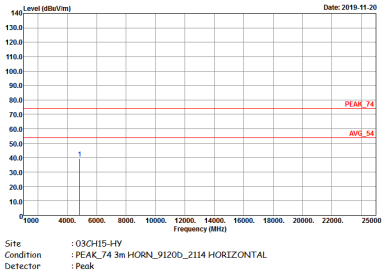
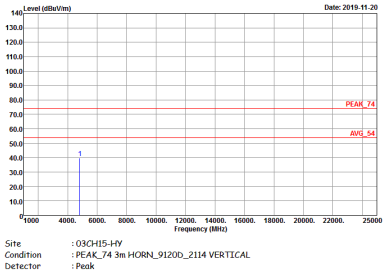
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH09 2452MHz - R	
0+1+2	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

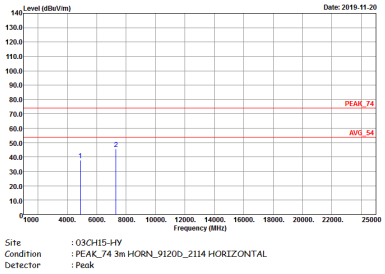
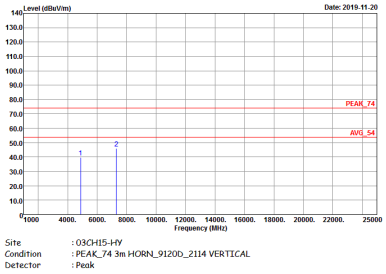
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH09 2452MHz - L	
0+1+2	Vertical	Fundamental
Peak		
Avg.		

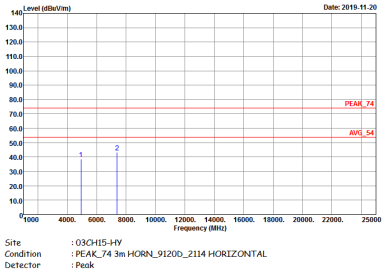
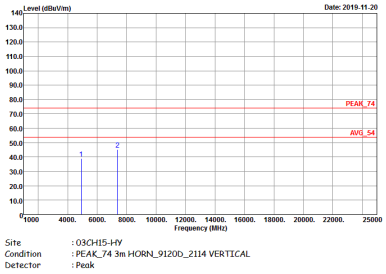
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH09 2452MHz - R	
0+1+2	Vertical	Fundamental
Peak		Left blank
Avg.		Left blank

2.4GHz 2400~2483.5MHz

WIFI 802.11b (Harmonic @ 3m)

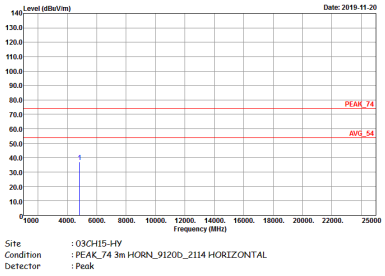
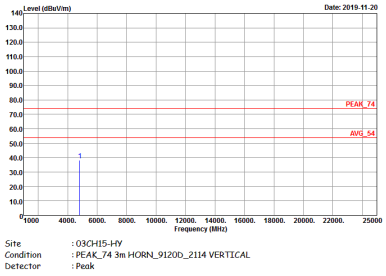
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11b CH01 2412MHz	
0+1+2	Horizontal	Vertical
Peak Avg.		

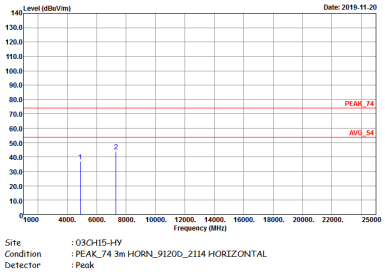
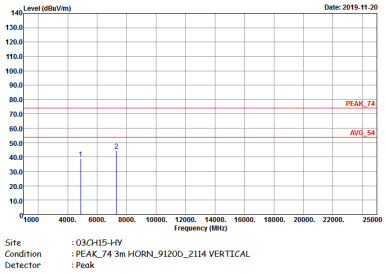
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11b CH06 2437MHz	
0+1+2	Horizontal	Vertical
Peak Avg.		

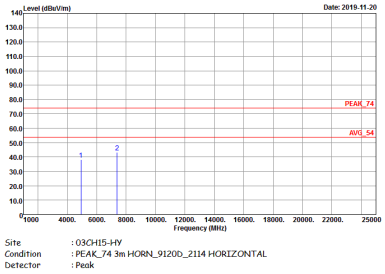
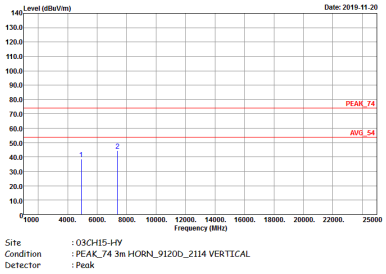
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11b CH11 2462MHz	
0+1+2	Horizontal	Vertical
Peak Avg.		

2.4GHz 2400~2483.5MHz

WIFI 802.11g (Harmonic @ 3m)

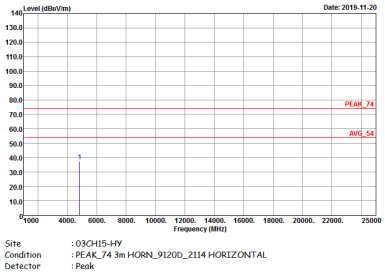
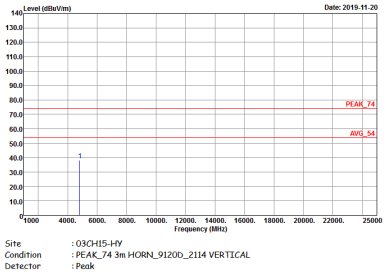
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11g CH01 2412MHz	
0+1+2	Horizontal	Vertical
Peak Avg.		

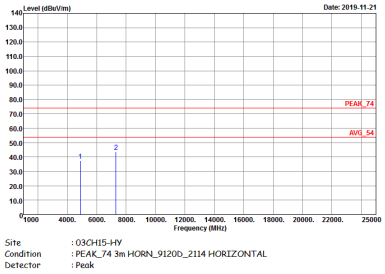
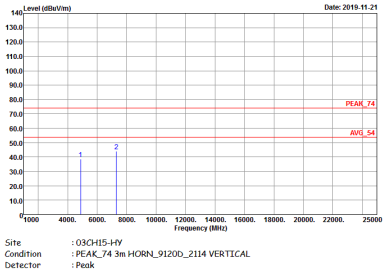
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11g CH06 2437MHz	
0+1+2	Horizontal	Vertical
Peak Avg.		

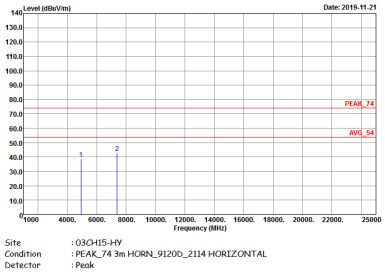
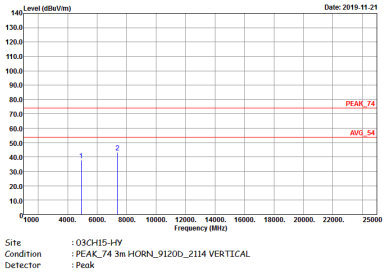
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11g CH11 2462MHz	
0+1+2	Horizontal	Vertical
Peak Avg.		

2.4GHz 2400~2483.5MHz

WIFI 802.11n HT20 (Harmonic @ 3m)

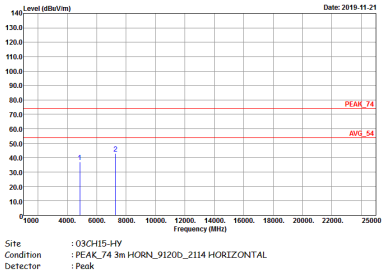
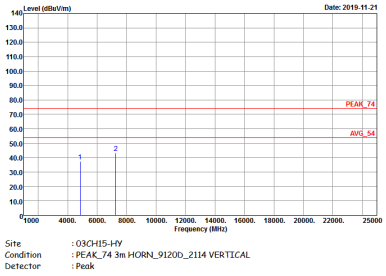
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11n HT20 CH01 2412MHz	
0+1+2	Horizontal	Vertical
Peak Avg.		

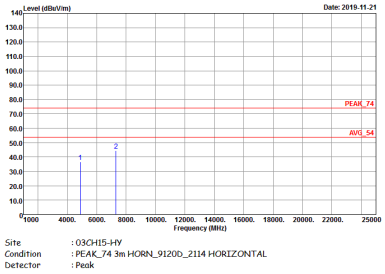
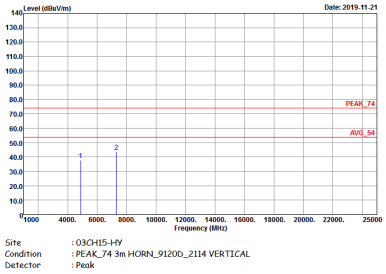
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11n HT20 CH06 2437MHz	
0+1+2	Horizontal	Vertical
Peak Avg.		

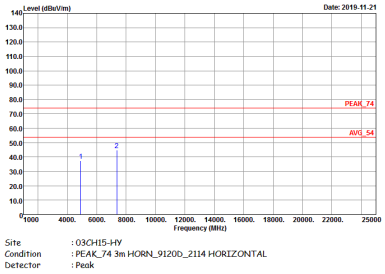
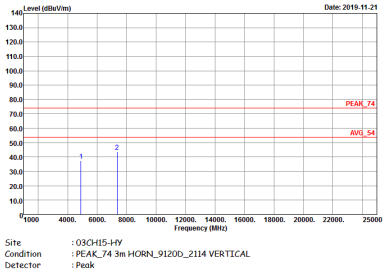
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11n HT20 CH11 2462MHz	
0+1+2	Horizontal	Vertical
Peak Avg.		

2.4GHz 2400~2483.5MHz

WIFI 802.11n HT40 (Harmonic @ 3m)

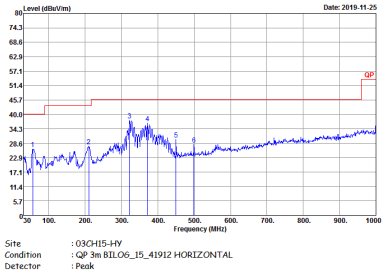
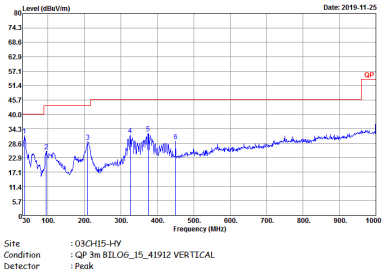
WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11n HT40 CH03 2422MHz	
0+1+2	Horizontal	Vertical
Peak Avg.		

WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11n HT40 CH06 2437MHz	
0+1+2	Horizontal	Vertical
Peak Avg.		

WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11n HT40 CH09 2452MHz	
0+1+2	Horizontal	Vertical
Peak Avg.		

Emission below 1GHz

2.4GHz WIFI 802.11n HT40 (LF)

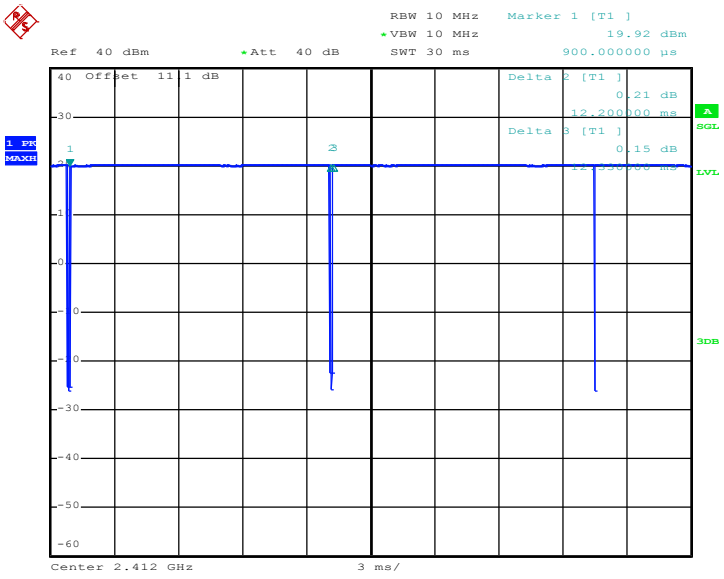
WIFI	2.4GHz 2400~2483.5MHz	
ANT	802.11n HT40 LF	
0+1+2	Horizontal	Vertical
QP / Peak		

Appendix E. Duty Cycle Plots

Antenna	Band	Duty Cycle(%)	T(us)	1/T(kHz)	VBW Setting	Duty Factor(dB)
0+1+2	802.11b for Ant 0	98.95	-	-	10Hz	0.05
0+1+2	802.11b for Ant 1	98.98	-	-	10Hz	0.04
0+1+2	802.11b for Ant 2	99.11	-	-	10Hz	0.04
0+1+2	802.11g for Ant 0	94.56	2000	0.50	1kHz	0.24
0+1+2	802.11g for Ant 1	95.29	2025	0.49	1kHz	0.21
0+1+2	802.11g for Ant 2	95.73	2020	0.50	1kHz	0.19
0+1+2	2.4GHz 802.11n HT20 for Ant 0	96.91	3760	0.27	300Hz	0.14
0+1+2	2.4GHz 802.11n HT20 for Ant 1	97.15	3755	0.27	300Hz	0.13
0+1+2	2.4GHz 802.11n HT20 for Ant 2	97.28	3750	0.27	300Hz	0.12
0+1+2	2.4GHz 802.11n HT40 for Ant 0	94.82	2380	0.42	1kHz	0.23
0+1+2	2.4GHz 802.11n HT40 for Ant 1	95.61	2395	0.42	1kHz	0.19
0+1+2	2.4GHz 802.11n HT40 for Ant 2	96.19	2400	0.42	1kHz	0.17

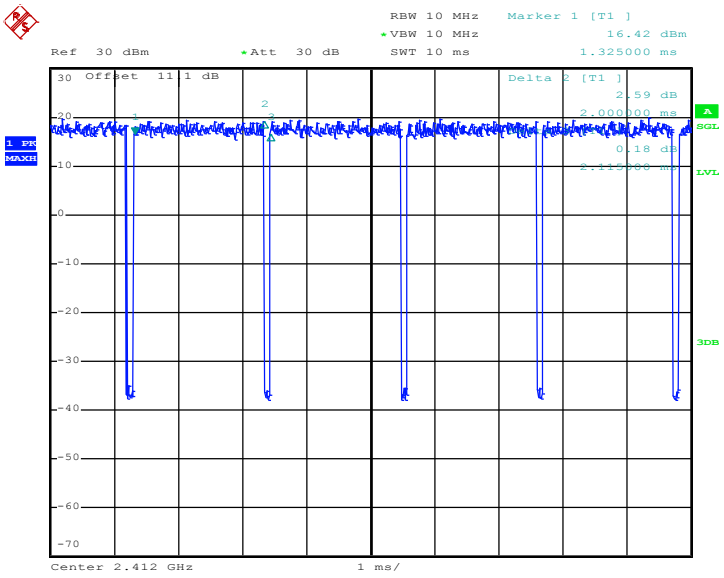
<Ant. 0>

802.11b



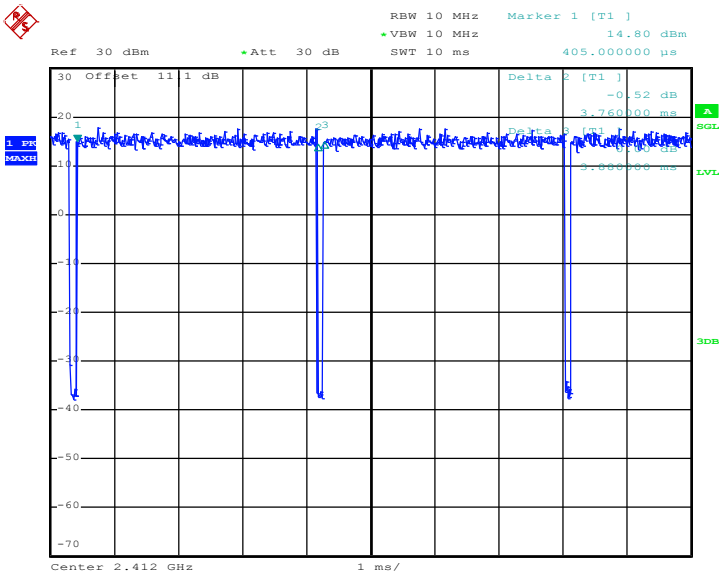
Date: 22.OCT.2019 11:57:15

802.11g



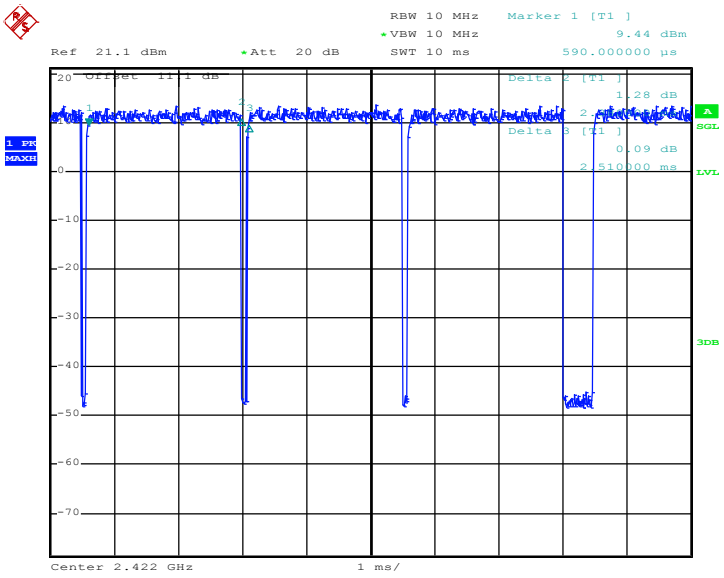
Date: 22.OCT.2019 12:14:40

802.11n HT20



Date: 22.OCT.2019 14:13:35

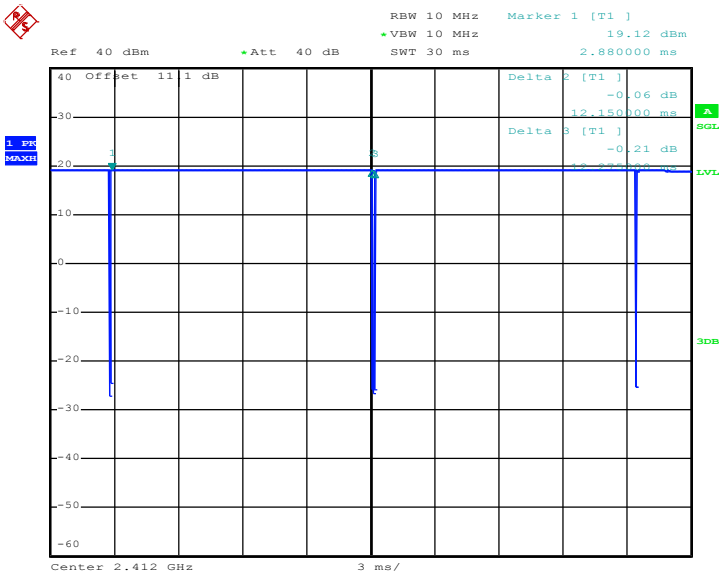
802.11n HT40



Date: 22.OCT.2019 14:43:03

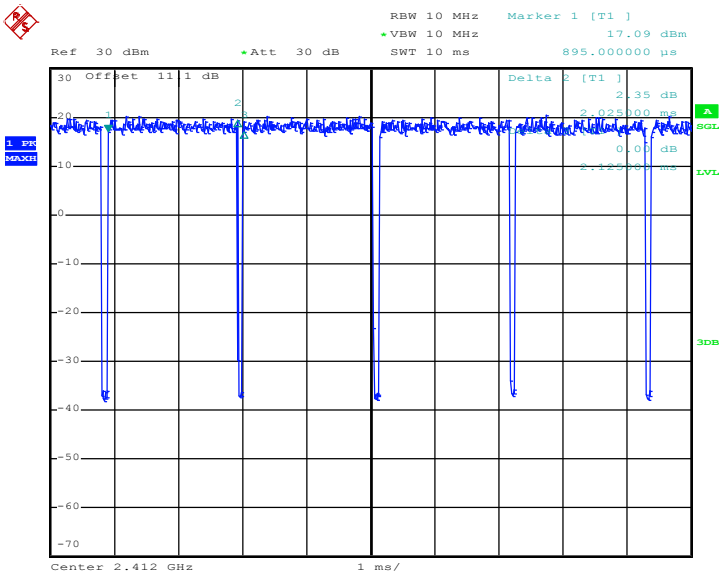
<Ant. 1>

802.11b



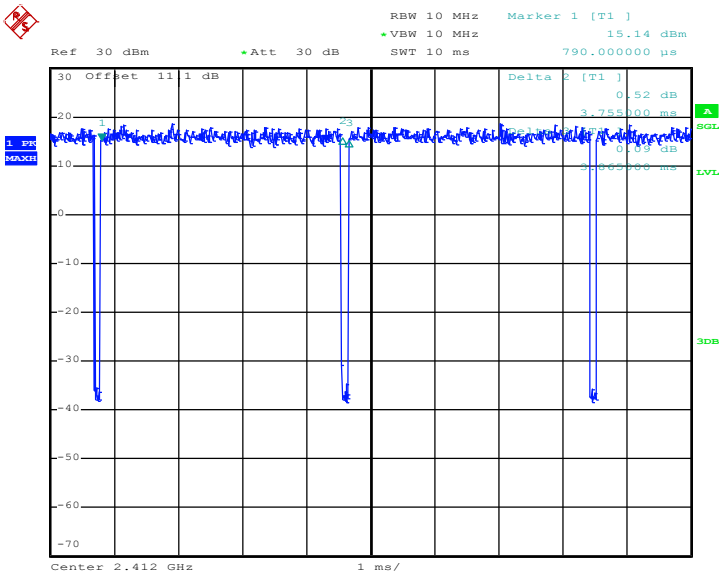
Date: 22.OCT.2019 11:59:00

802.11g



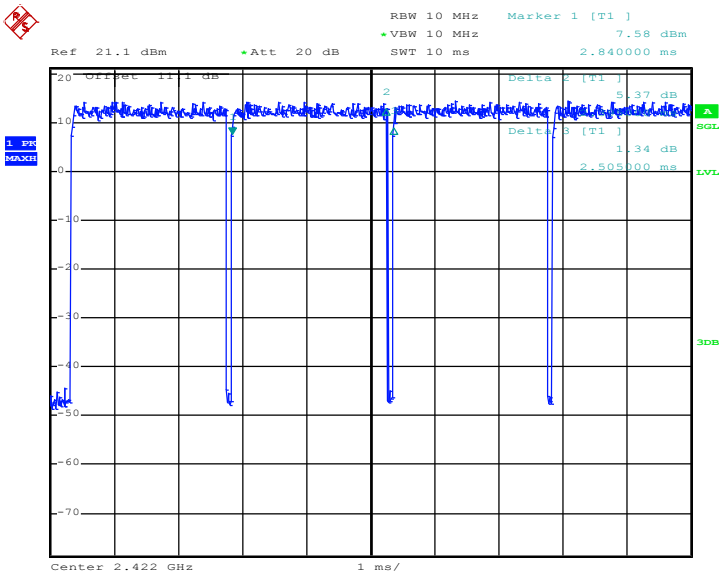
Date: 22.OCT.2019 12:15:48

802.11n HT20



Date: 22.OCT.2019 14:15:30

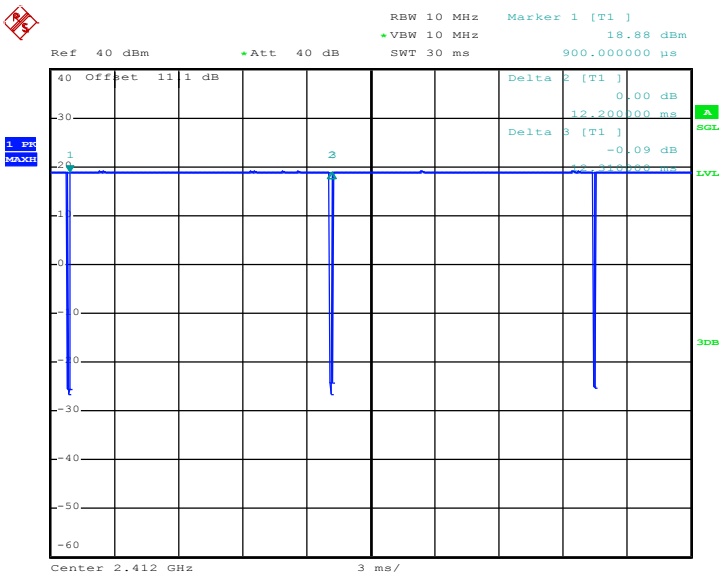
802.11n HT40



Date: 22.OCT.2019 14:44:21

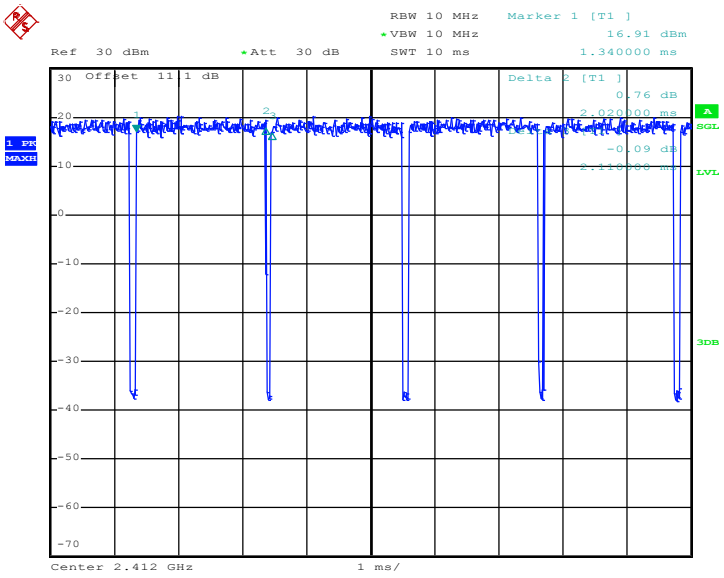
<Ant. 2>

802.11b



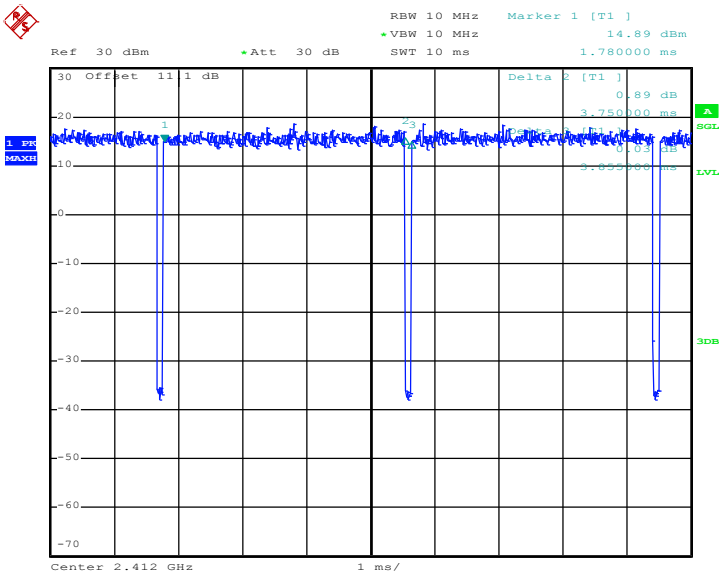
Date: 22.OCT.2019 12:08:11

802.11g



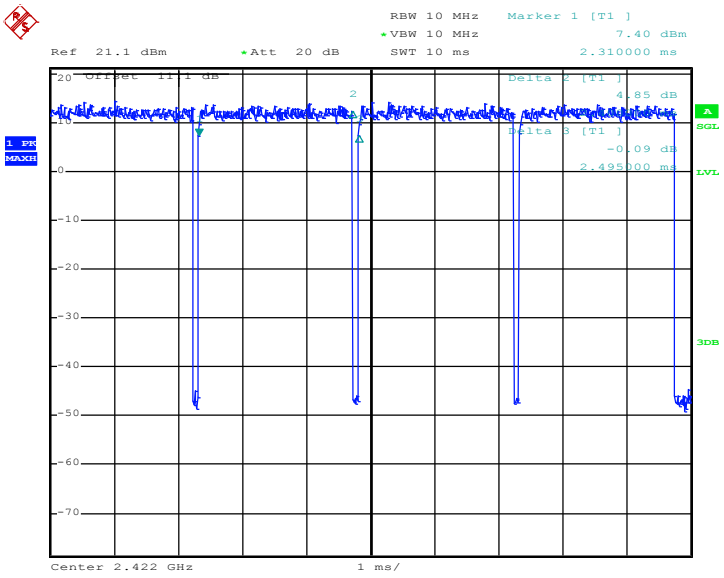
Date: 22.OCT.2019 12:12:40

802.11n HT20



Date: 22.OCT.2019 14:18:02

802.11n HT40



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