FCC RADIO TEST REPORT

FCC ID	**:**	**2ABZ2-EE149**
Equipment	**:**	**Smart Phone**
Brand Name	**:**	**ONEPLUS**
Model Name	**:**	**IN2019**
Applicant	**:**	**OnePlus Technology (Shenzhen) Co., Ltd 18C02, 18C03, 18C04 and 18C05, Shum Yip Terra Building, Binhe Avenue North, Futian District, Shenzhen**
Manufacturer	**:**	**OnePlus Technology (Shenzhen) Co., Ltd 18C02, 18C03, 18C04 and 18C05, Shum Yip Terra Building, Binhe Avenue North, Futian District, Shenzhen**
Standard	**:**	**FCC Part 15 Subpart C §15.247**

The product was received on Jan. 03, 2020 and testing was started from Jan. 11, 2020 and completed on Feb. 26, 2020. 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
FR9D0701C	01	Initial issue of report	Mar. 09, 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 3.17 dB at 2389.520 MHz
3.6	15.207	AC Conducted Emission	Pass	Under limit 16.22 dB at 14.175 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

GSM/WCDMA/LTE/5G NR, Bluetooth, Wi-Fi 2.4GHz 802.11b/g/n/ac/ax, Wi-Fi 5GHz 802.11a/n/ac/ax, NFC, and GNSS.

Product Specification subjective to this standard	
Antenna Type	**WWAN:** Loop / IFA Antenna **WLAN 2.4GHz:** <Ant. 1> Couple Loop Antenna <Ant. 2> Monopole Antenna **WLAN 5GHz:** <Ant. 1> Couple Loop Antenna <Ant. 2> Loop Antenna **Bluetooth:** Couple Loop Antenna **GPS / Glonass / BDS / Galileo / SBAS:** Couple Loop Antenna **NFC:** Coil 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.**
	03CH16-HY

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

FCC designation No.: TW1190 and TW0007

1.4 Applicable Standards

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

- FCC Part 15 Subpart C §15.247
- FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v05r02
- FCC KDB 414788 D01 Radiated Test Site v01r01.
- FCC KDB 662911 D01 Multiple Transmitter Output v02r01.
- ANSI C63.10-2013

Remark:

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

2 Test Configuration of Equipment Under Test

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

b. AC power line Conducted Emission was tested under maximum output power.

2.1 Carrier Frequency and Channel

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

2.2 Test Mode

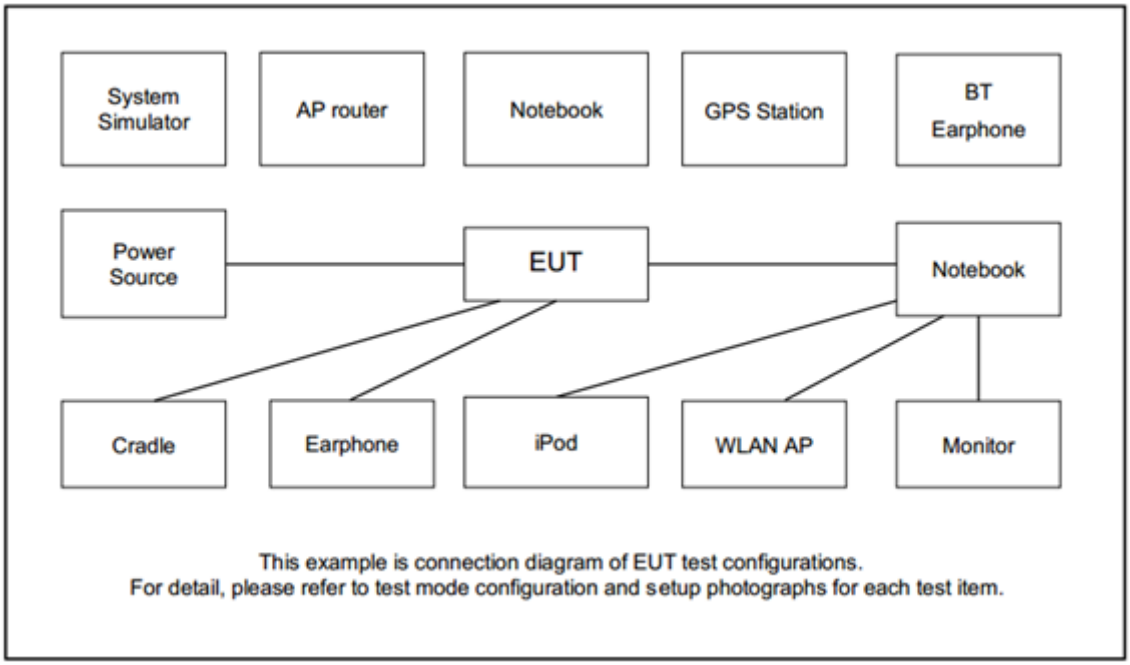
Final test modes are considering the modulation and worse data rates as below table.

MIMO Antenna

Modulation	Data Rate
802.11b	1 Mbps
802.11g	6 Mbps
802.11n HT20 (Covered by HE20)	MCS0
802.11n HT40 (Covered by HE40)	MCS0
802.11ac VHT20 (Covered by HE20)	MCS0
802.11ac VHT40 (Covered by HE40)	MCS0
802.11ax HE20	MCS0
802.11ax HE40	MCS0

Test Cases	
AC Conducted Emission	Mode 1 :GSM850 Idle + WLAN (2.4GHz) Link + Bluetooth Link + USB Cable 2 (Charging from AC Adapter 3)
Remark: For Radiated Test Cases, the tests were performed with Adapter 2, and USB Cable 2.	

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.	System Simulator	Anritsu	MT8820C	N/A	N/A	Unshielded, 1.8 m
2.	Bluetooth Earphone	Sony Ericsson	MW600	PY7DDA-2029	N/A	N/A
3.	WLAN AP	ASUS	RT-AC66U	MSQ-RTAC66U	N/A	Unshielded,1.8m
4.	Notebook	Dell	Latitude 3400	FCC DoC	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.

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.

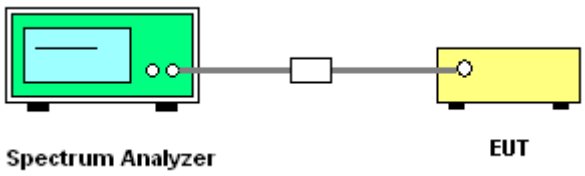
3.1.2 Measuring Instruments

See list of measuring equipment of this test report.

3.1.3 Test Procedures

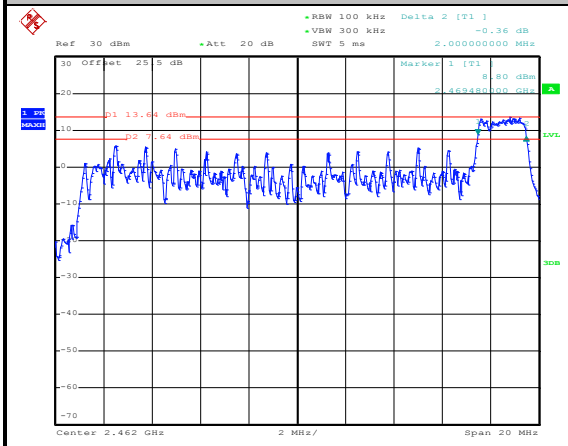
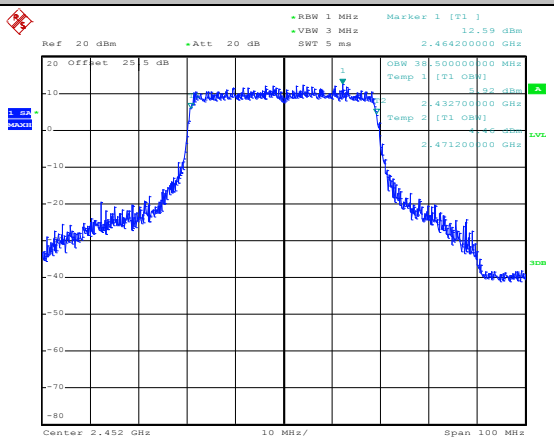
1. The testing follows the ANSI C63.10 Section 6.9.3 (OBW) and 11.8.1 (6dB BW).
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit 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
	
Date: 25.FEB.2020 04:25:37	Date: 25.FEB.2020 00:31:49

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

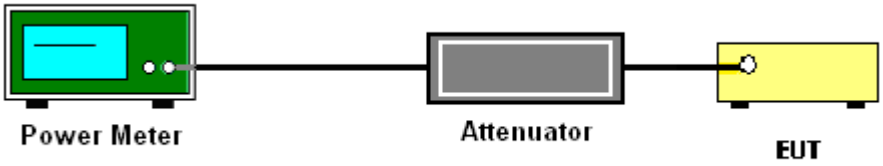
3.2.2 Measuring Instruments

See list of measuring equipment of this test report.

3.2.3 Test Procedures

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

Please refer to Appendix A.

3.3 Power Spectral Density Measurement

3.3.1 Limit of Power Spectral Density

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

3.3.2 Measuring Instruments

See list of measuring equipment of this test report.

3.3.3 Test Procedures

1. The testing follows the ANSI C63.10 Section 11.10.2 Method PKPSD.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 3 kHz. Video bandwidth VBW = 10 kHz In order to make an accurate measurement, set the span to 1.5 times DTS Channel Bandwidth. (6dB BW)
5. Detector = peak, Sweep time = auto couple, Trace mode = max hold, Allow trace to fully stabilize. Use the peak marker function to determine the maximum power level.
6. Measure and record the results in the test report.
7. For MIMO mode, calculation method follows FCC KDB 662911 D01 Multiple Transmitter Output v02r01.

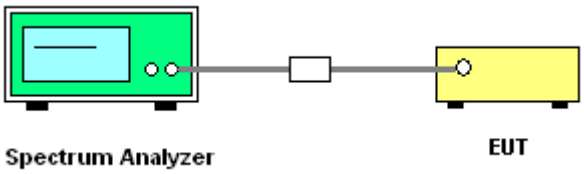
   If measurements performed using method (2) plus 10 log (N) exceeds the emission limit, the test should choose method (1) before declaring that the device fails the emission limit.

   Method (1): Measure and sum the spectra across the outputs.

   The total final Power Spectral Density is from a device with 2 transmitter outputs. The spectrum measurements of the individual outputs are all performed with the same span and number of points, the spectrum value in the first spectral bin of output 1 is summed with that in the first spectral bin of output 2 to obtain the value for the first frequency bin of the summed spectrum.

   Method (2): Measure and add 10 log (N) dB, where N is the number of outputs. (N=2)

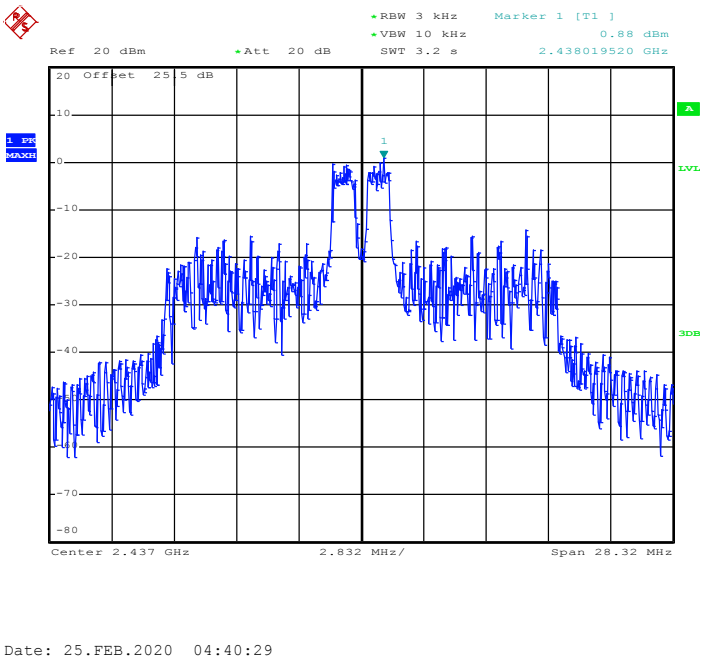
3.3.4 Test Setup



3.3.5 Test Result of Power Spectral Density

Please refer to Appendix A.

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



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.

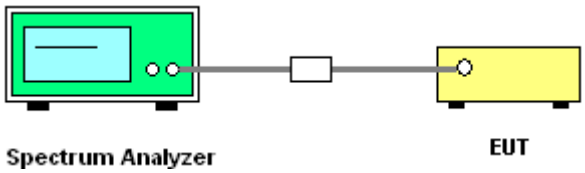
3.4.2 Measuring Instruments

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 30 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

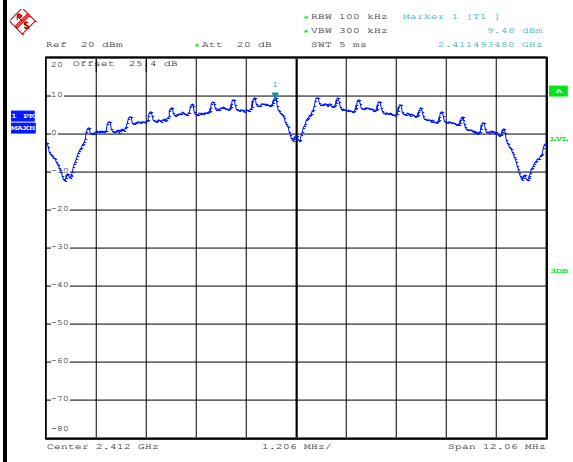
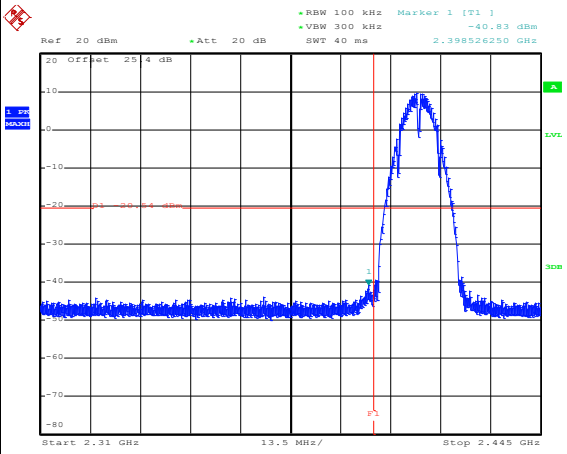


3.4.5 Test Result of Conducted Band Edges and Spurious Emission

Test Engineer :	Kathy Chen and Kia Liao	**Temperature :**	21~25℃
		Relative Humidity :	51~54%

Number of TX = 2, Ant. 1 (Measured)

Test Mode :	802.11b	**Test Channel :**	01

100kHz PSD reference Level	Low Channel Plot
	
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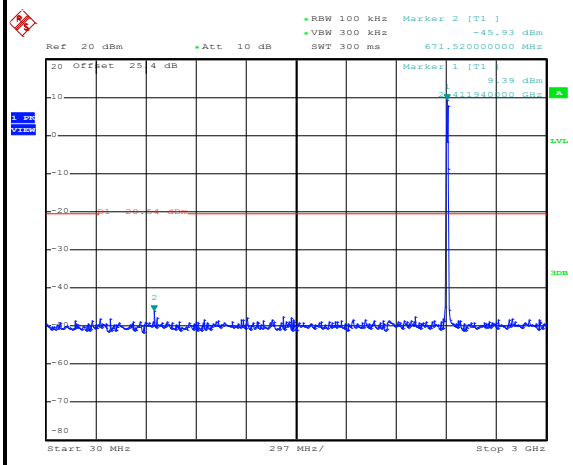
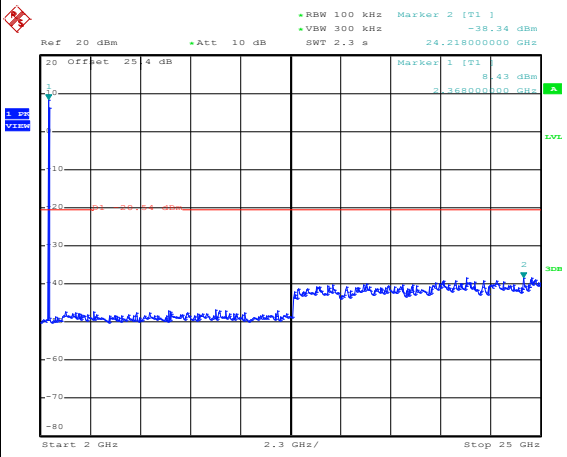
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	
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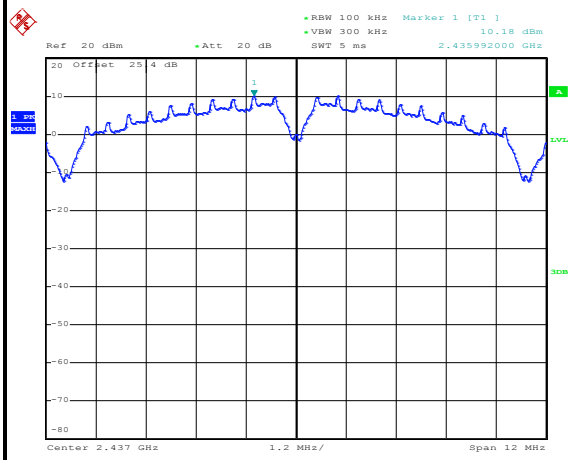
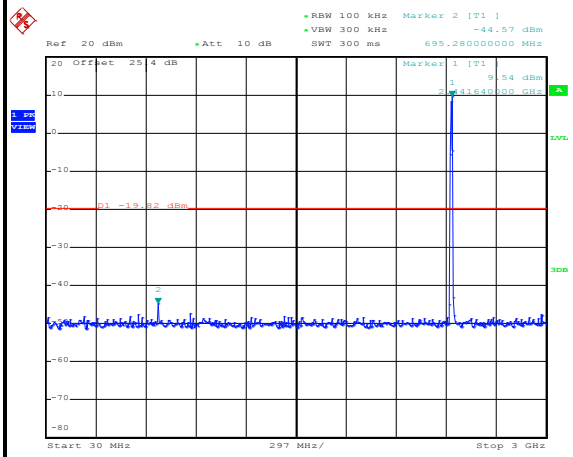
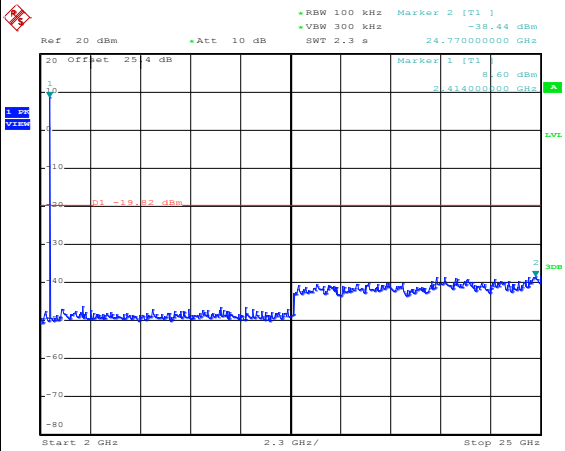
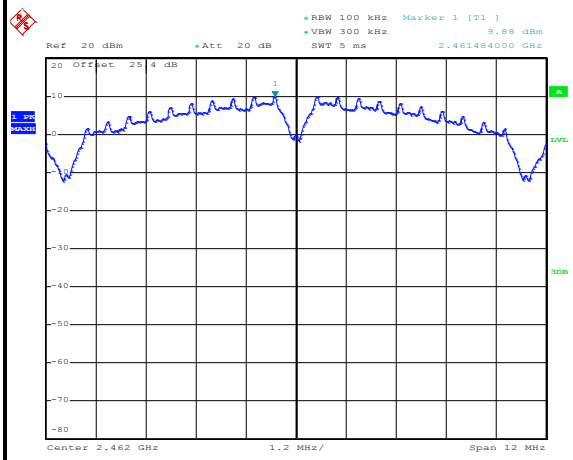
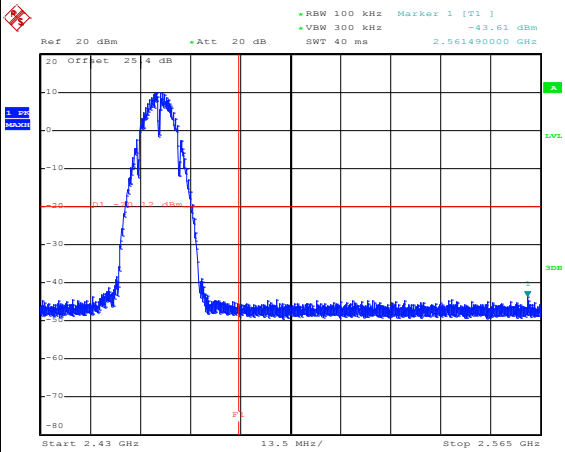
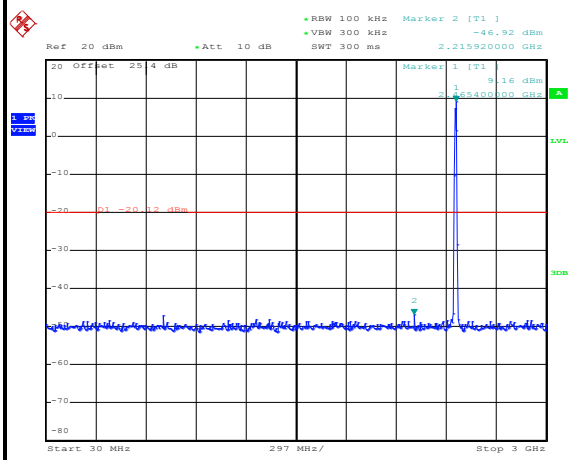
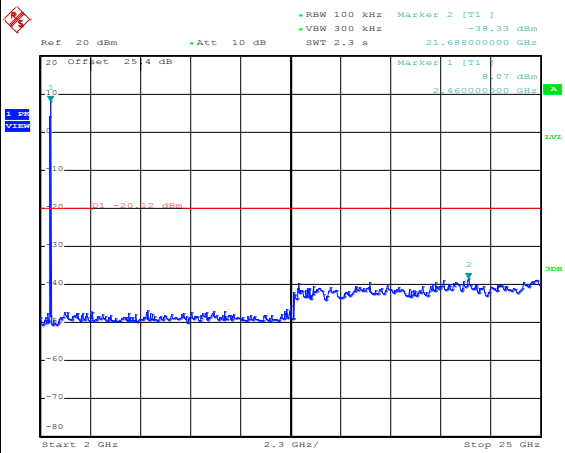
Test Mode :	802.11b	Test Channel :	06

100kHz PSD reference Level	Mid Channel Plot
	
Spurious Emission 30MHz~3GHz	Spurious Emission 2GHz~25GHz
	

Test Mode :	802.11b	Test Channel :	11

100kHz PSD reference Level	High Channel Plot
	
Date: 21.FEB.2020 15:12:35	Date: 21.FEB.2020 15:14:08
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	
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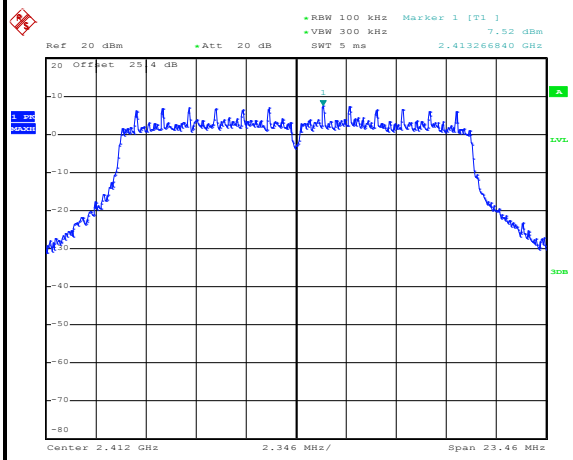
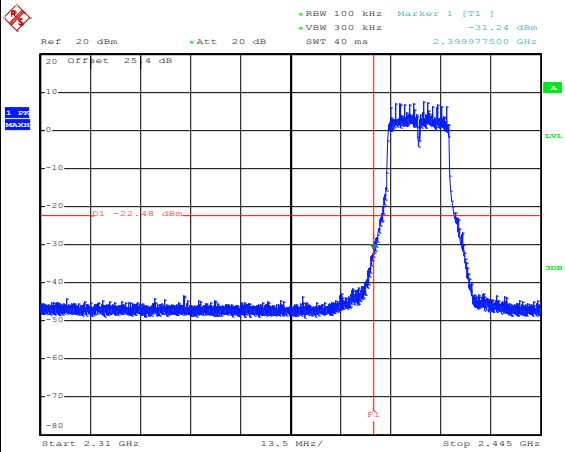
Test Mode :	802.11g	Test Channel :	01

100kHz PSD reference Level	Low Channel Plot
	
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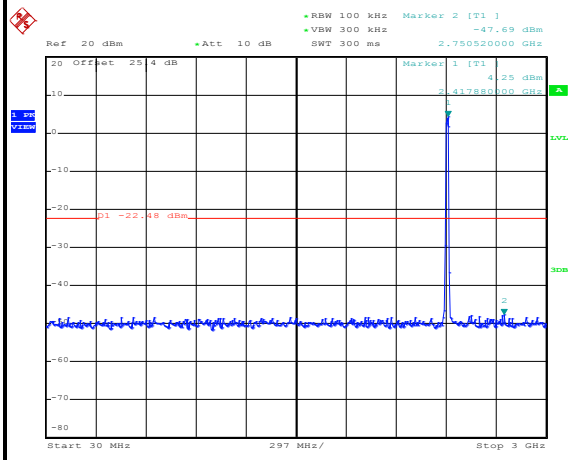
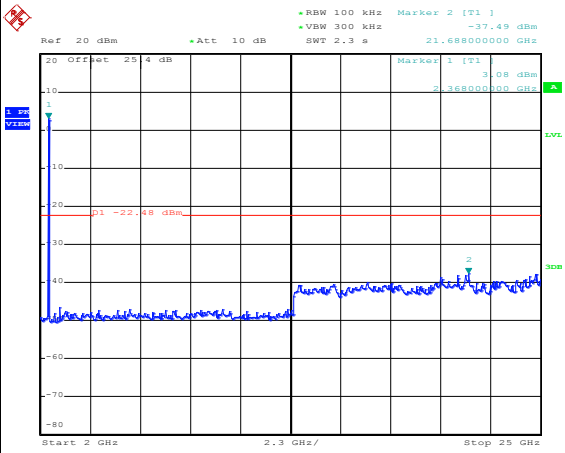
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	
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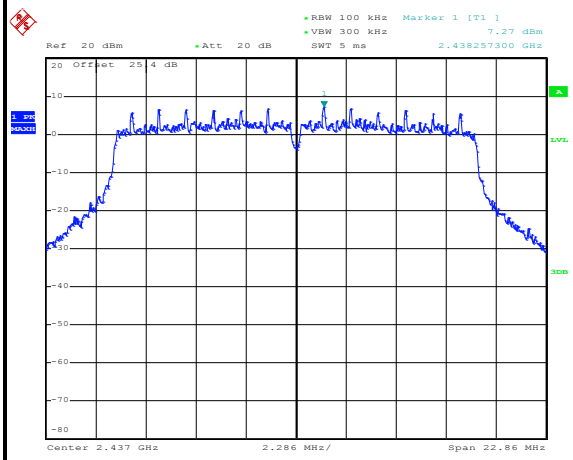
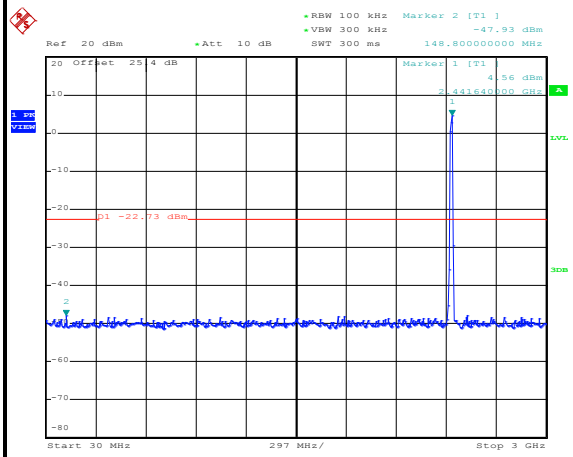
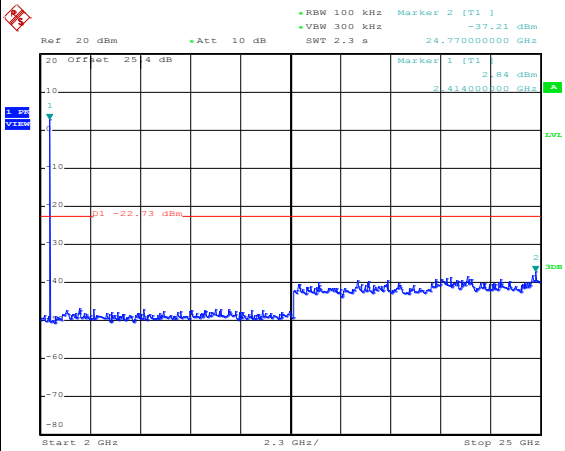
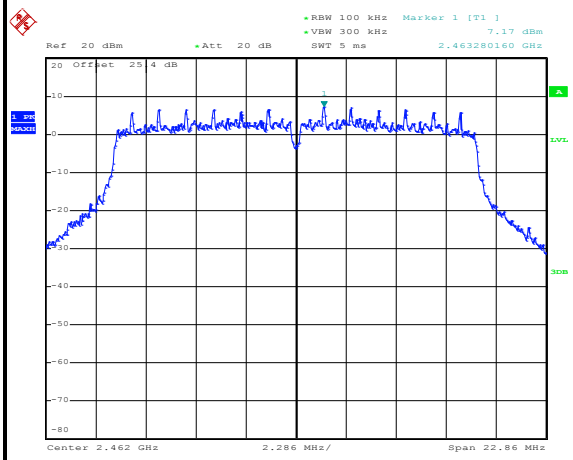
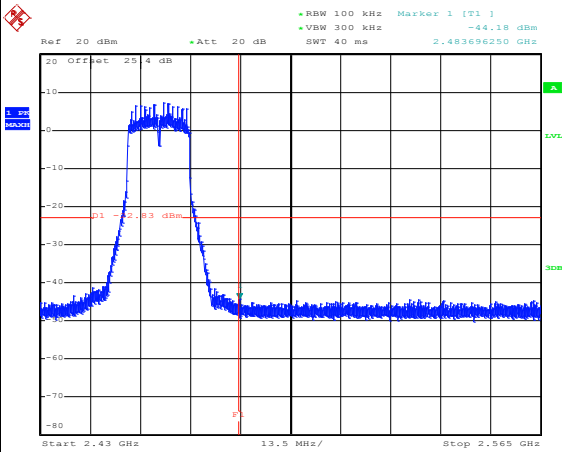
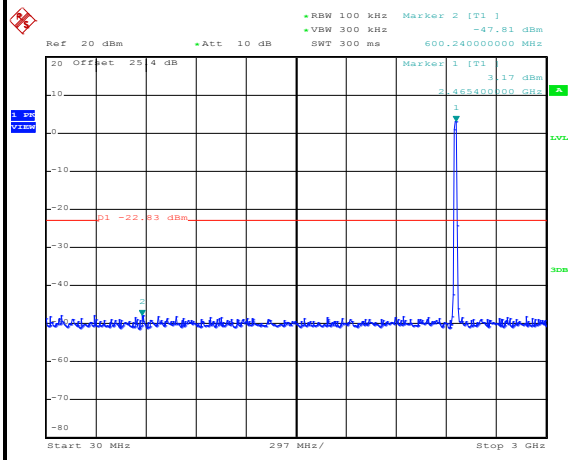
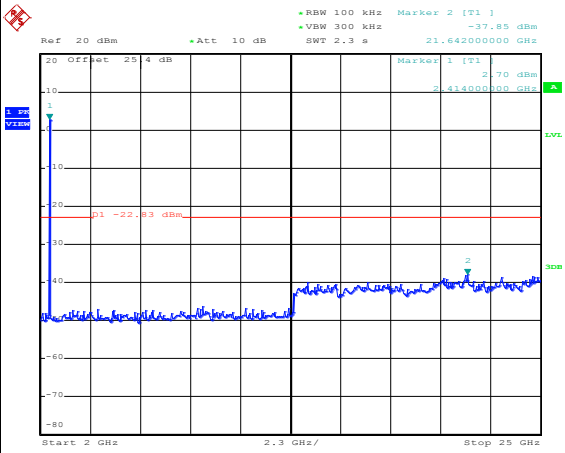
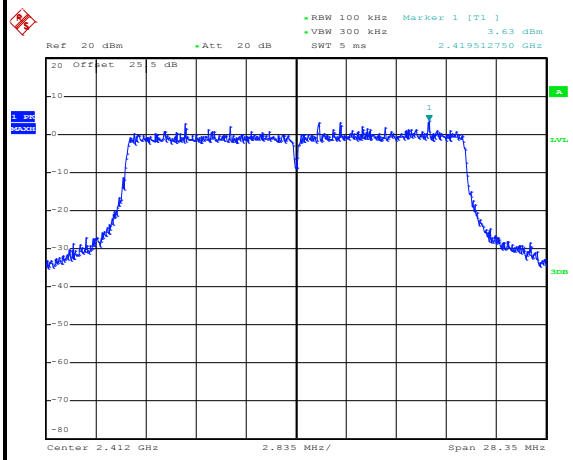
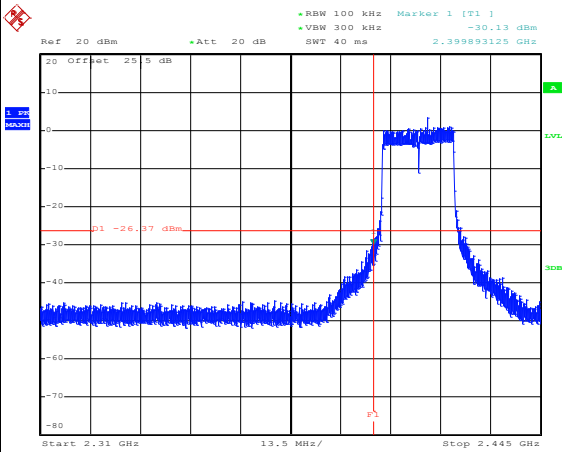
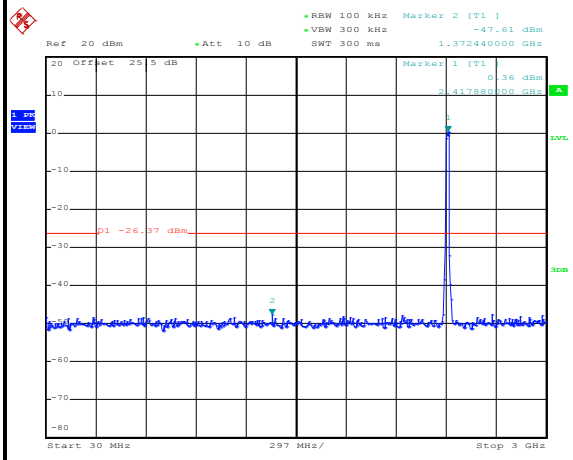
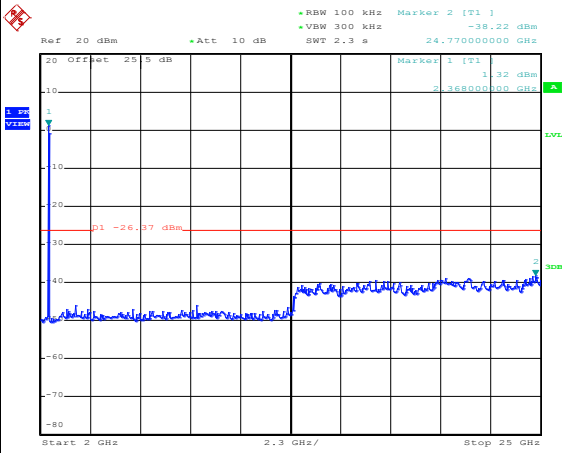
Test Mode :	802.11g	Test Channel :	06

100kHz PSD reference Level	Mid Channel Plot
	
Spurious Emission 30MHz~3GHz	Spurious Emission 2GHz~25GHz
	

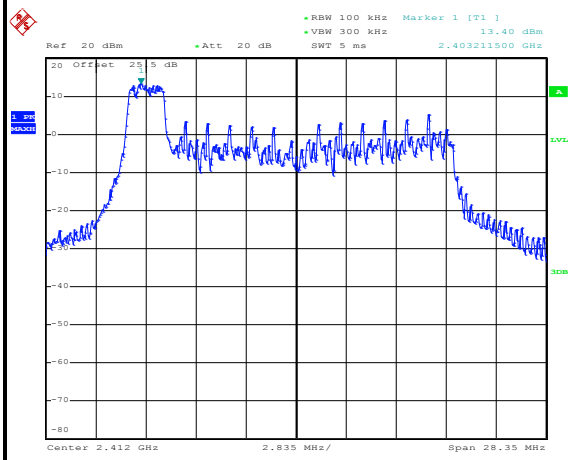
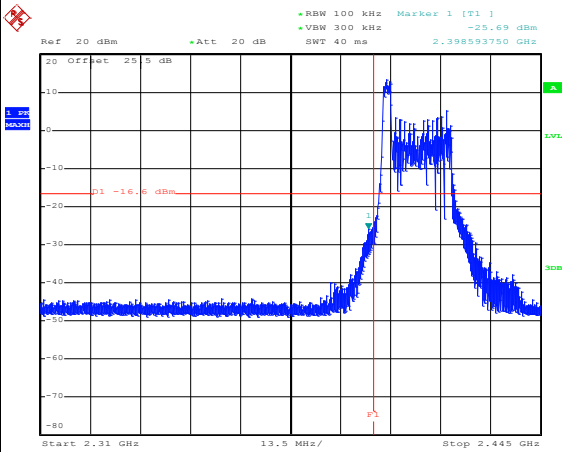
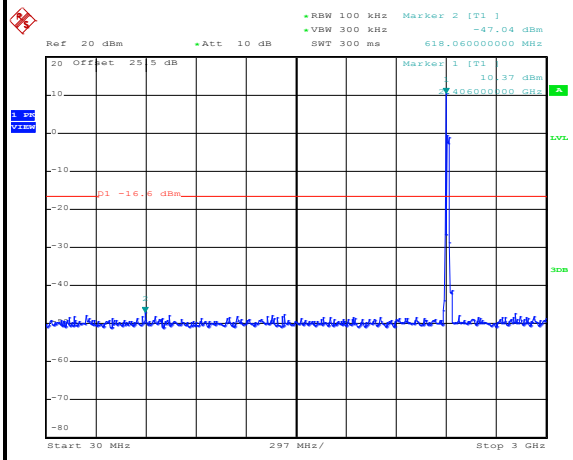
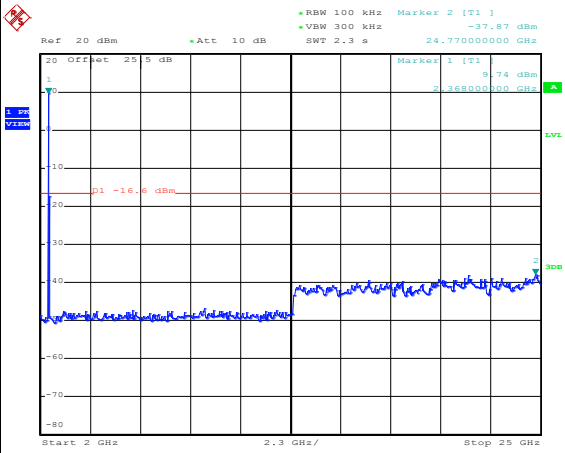
Test Mode :	802.11g	Test Channel :	11

100kHz PSD reference Level	High Channel Plot
	
Date: 21.FEB.2020 16:48:48	Date: 21.FEB.2020 16:50:12
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	
Date: 21.FEB.2020 16:51:04	Date: 21.FEB.2020 16:51:21

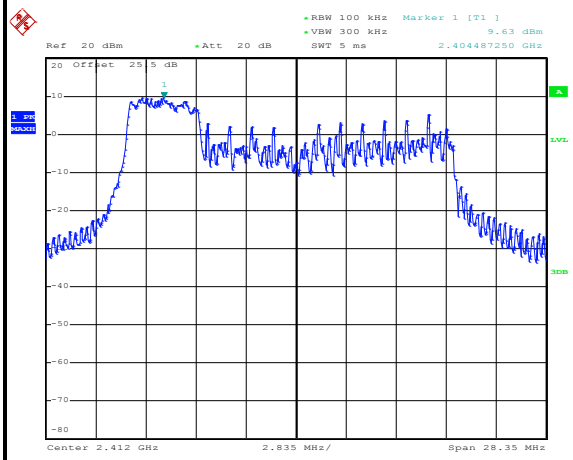
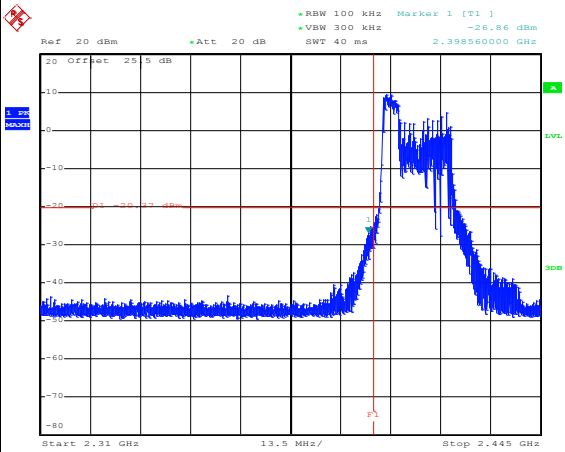
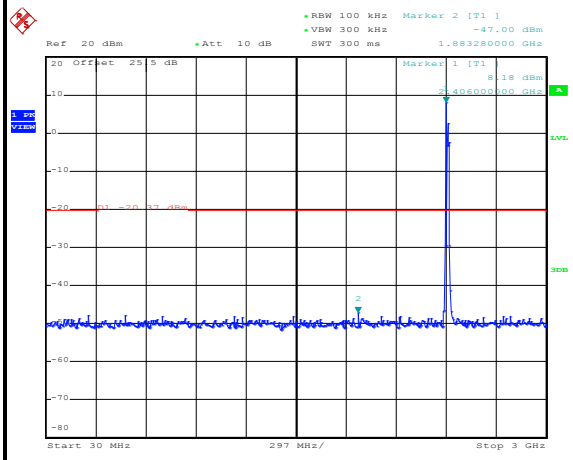
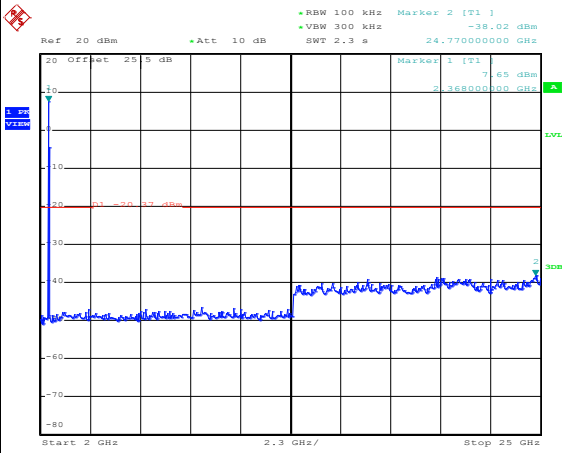
Test Mode :	802.11ax HE20	Test Channel :	01 Full RU

100kHz PSD reference Level	Low Channel Plot
	
Date: 24.FEB.2020 23:09:58	Date: 24.FEB.2020 23:10:21
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	
Date: 24.FEB.2020 23:10:49	Date: 24.FEB.2020 23:11:04

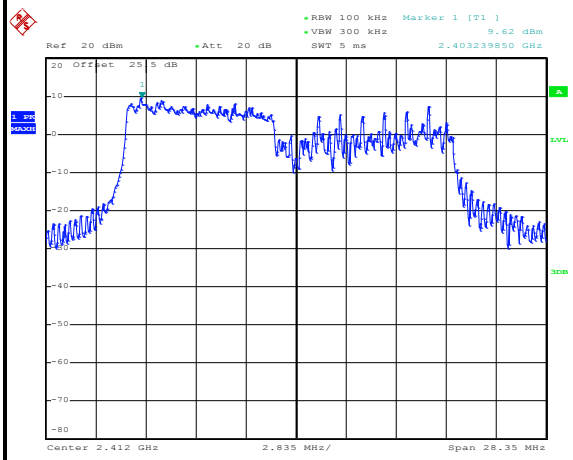
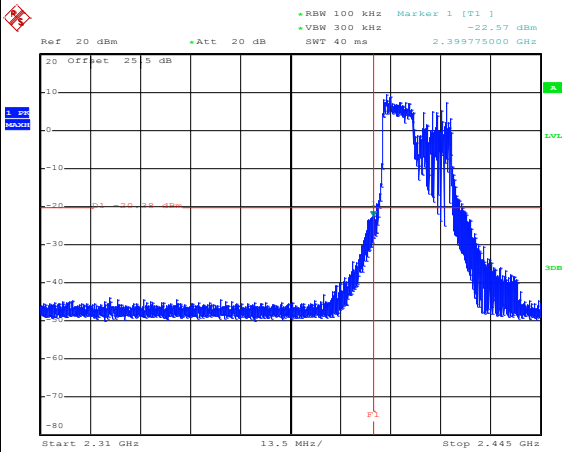
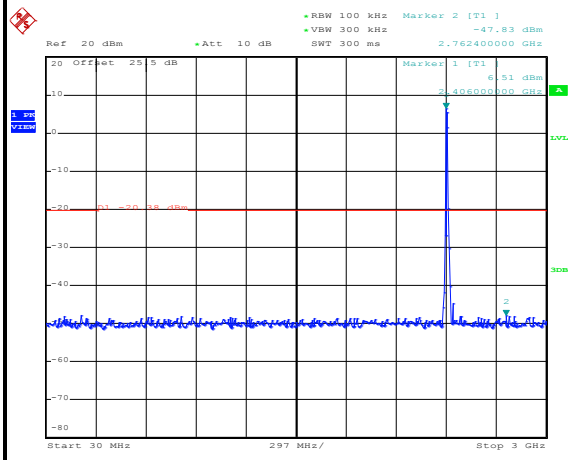
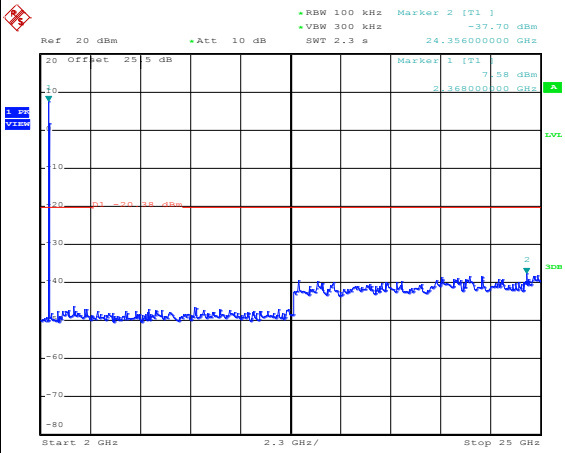
Test Mode :	802.11ax HE20	Test Channel :	01 Partial RU 26/0

100kHz PSD reference Level	Low Channel Plot
	
Date: 25.FEB.2020 02:52:16	Date: 25.FEB.2020 02:53:44
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	
Date: 25.FEB.2020 02:54:47	Date: 25.FEB.2020 02:55:34

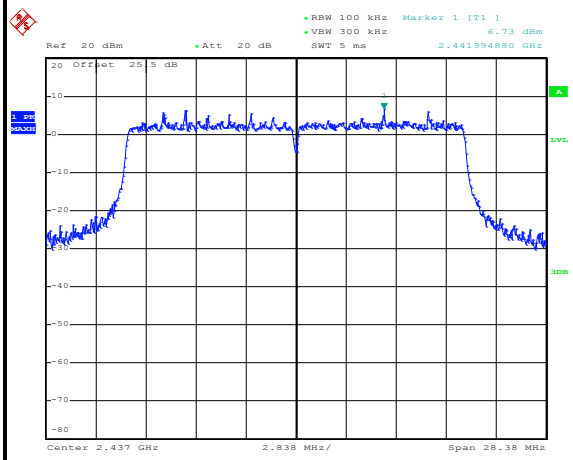
Test Mode :	802.11ax HE20	Test Channel :	01 Partial RU 52/37

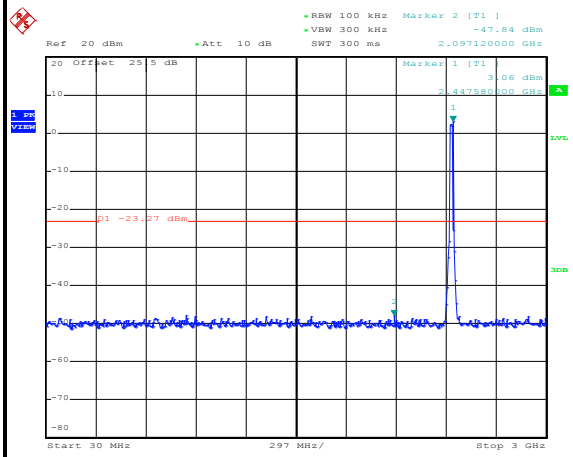
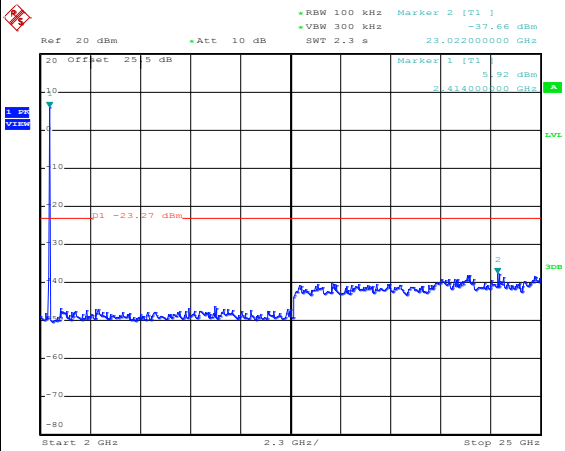
100kHz PSD reference Level	Low Channel Plot
	
Date: 25.FEB.2020 03:26:04	Date: 25.FEB.2020 03:27:01
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	
Date: 25.FEB.2020 03:28:20	Date: 25.FEB.2020 03:28:38

Test Mode :	802.11ax HE20	Test Channel :	01 Partial RU 106/53

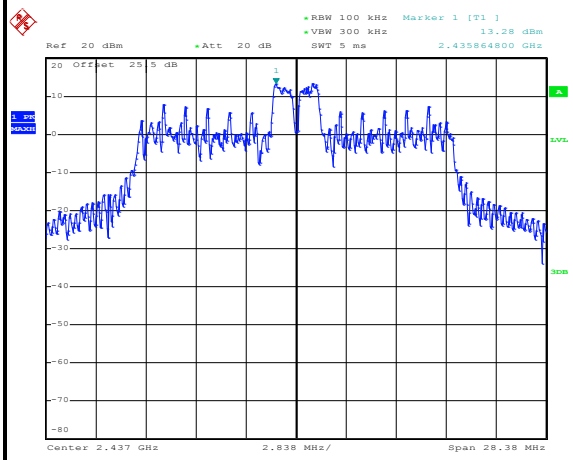
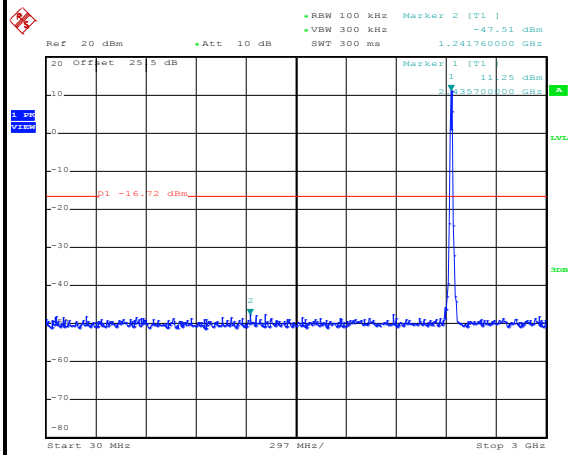
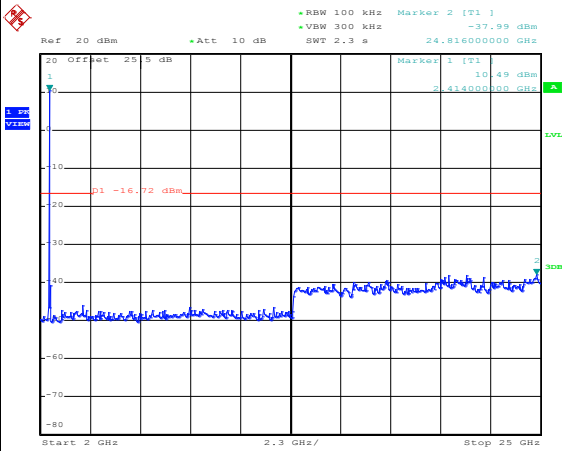
100kHz PSD reference Level	Low Channel Plot
	
Date: 25.FEB.2020 03:53:41	Date: 25.FEB.2020 03:54:26
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	
Date: 25.FEB.2020 03:55:13	Date: 25.FEB.2020 03:55:36

Test Mode :	802.11ax HE20	Test Channel :	06 Full RU

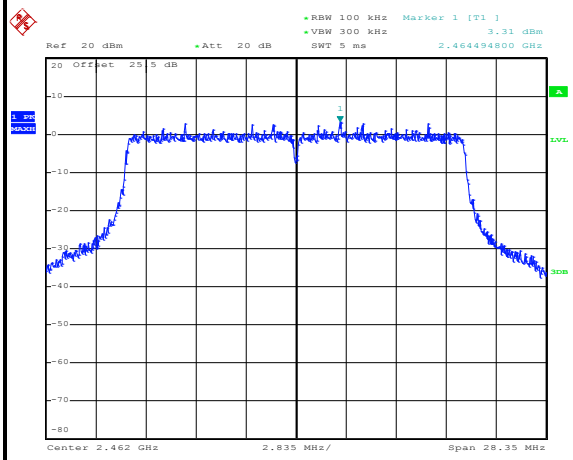
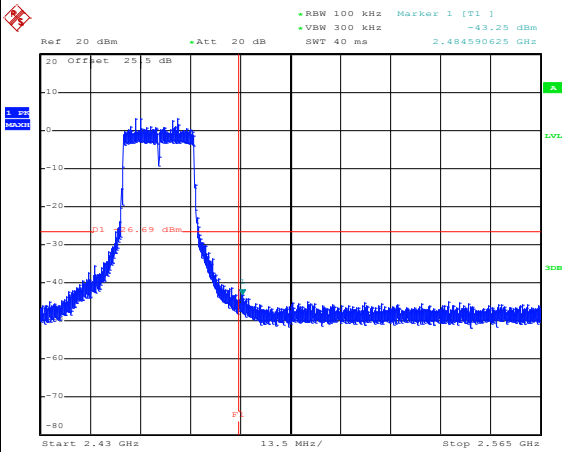
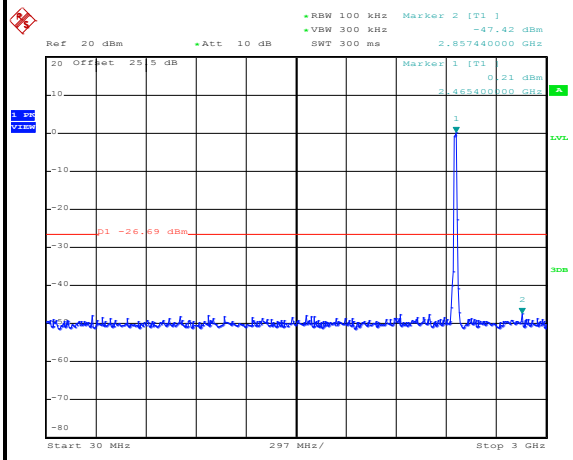
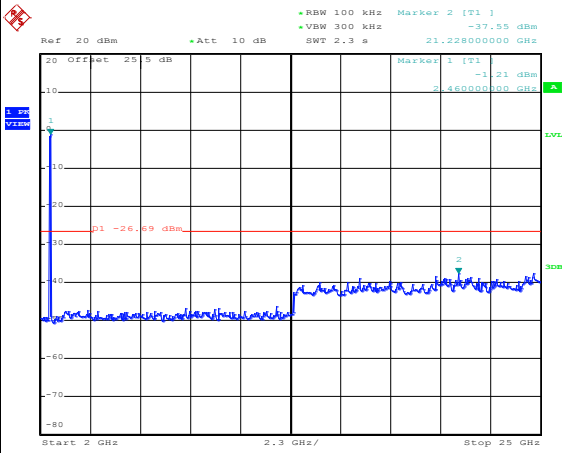
100kHz PSD reference Level	Mid Channel Plot
 Date: 24.FEB.2020 23:25:37	

Spurious Emission 30MHz~3GHz	Spurious Emission 2GHz~25GHz
 Date: 24.FEB.2020 23:26:36	 Date: 24.FEB.2020 23:27:05

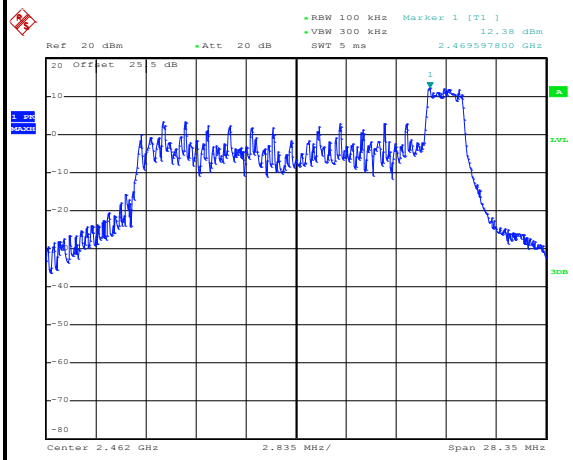
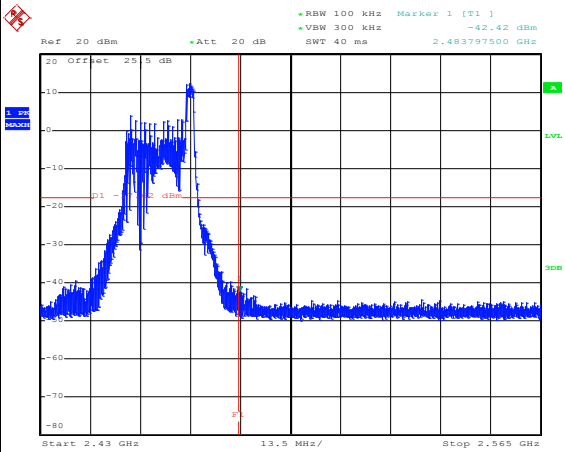
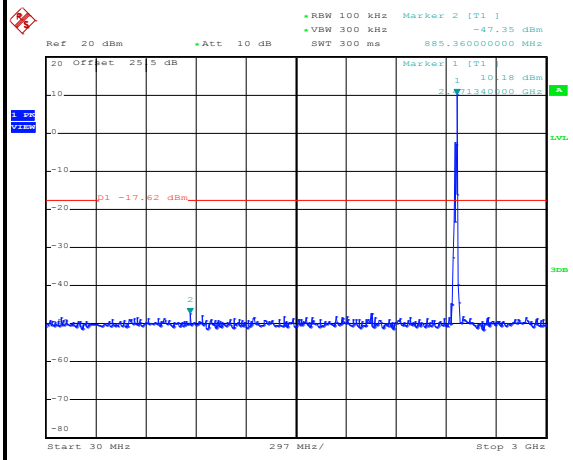
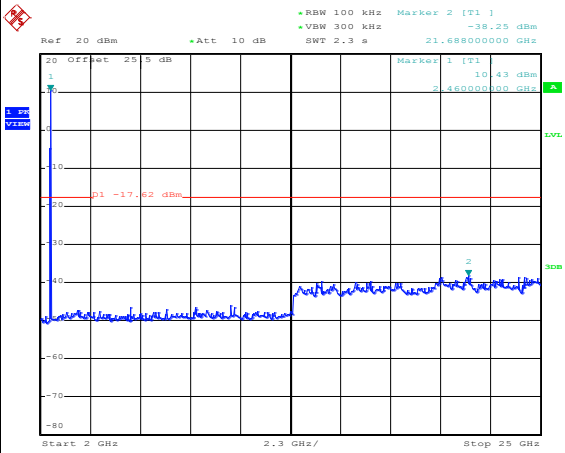
Test Mode :	802.11ax HE20	Test Channel :	06 Partial RU 26/4

100kHz PSD reference Level	Mid Channel Plot
	
Spurious Emission 30MHz~3GHz	Spurious Emission 2GHz~25GHz
	

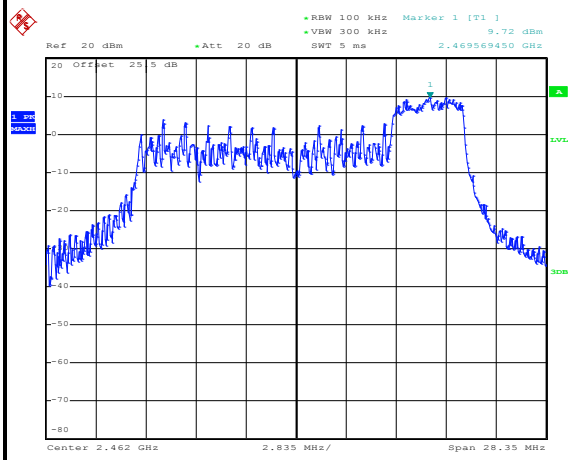
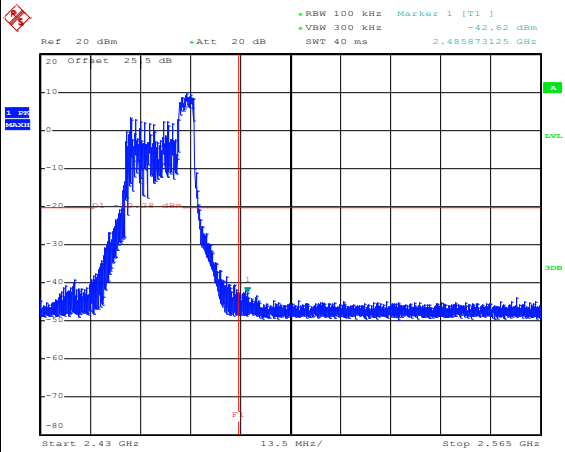
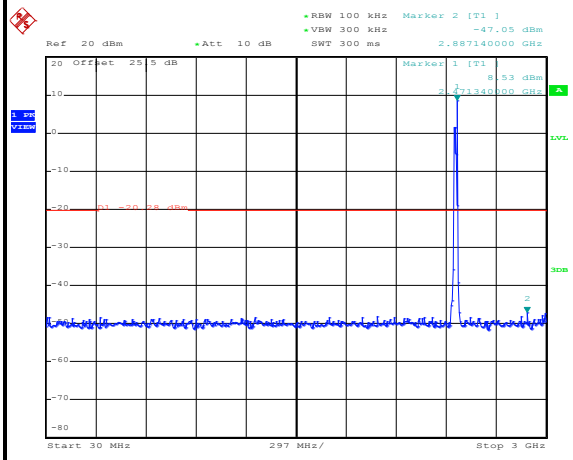
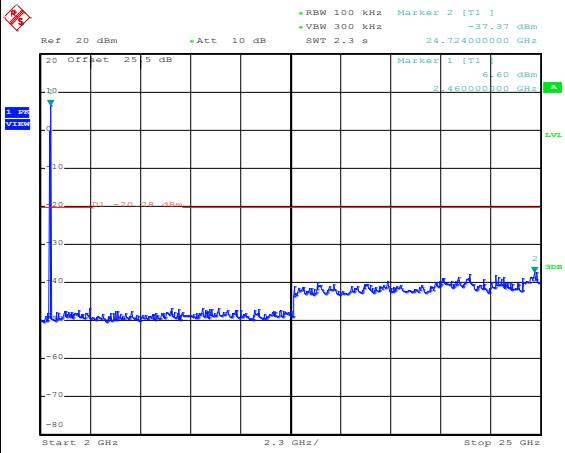
Test Mode :	802.11ax HE20	Test Channel :	11 Full RU

100kHz PSD reference Level	High Channel Plot
	
Date: 25.FEB.2020 00:02:18	Date: 25.FEB.2020 00:02:38
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	
Date: 25.FEB.2020 00:03:12	Date: 25.FEB.2020 00:03:54

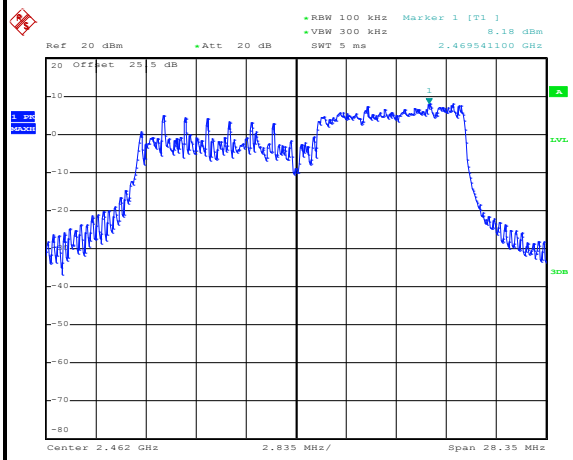
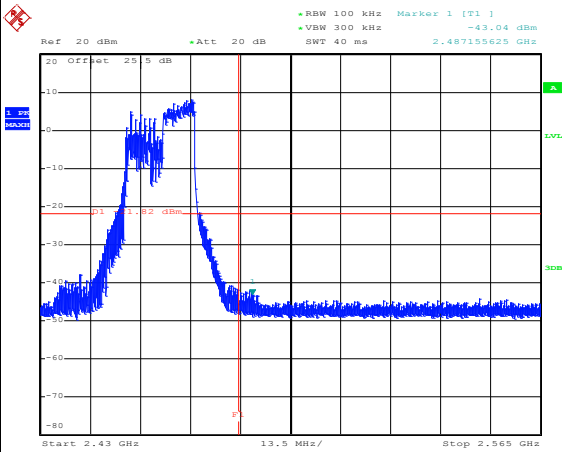
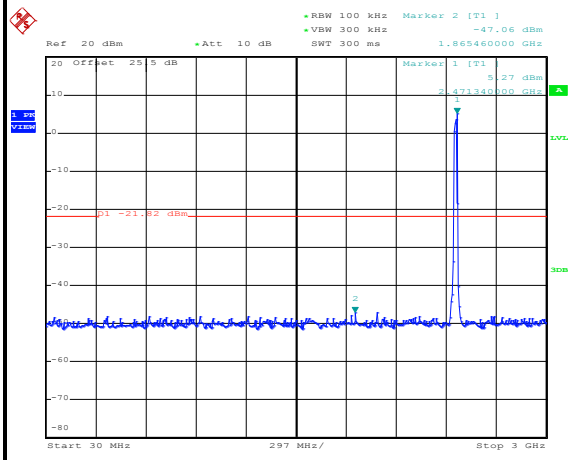
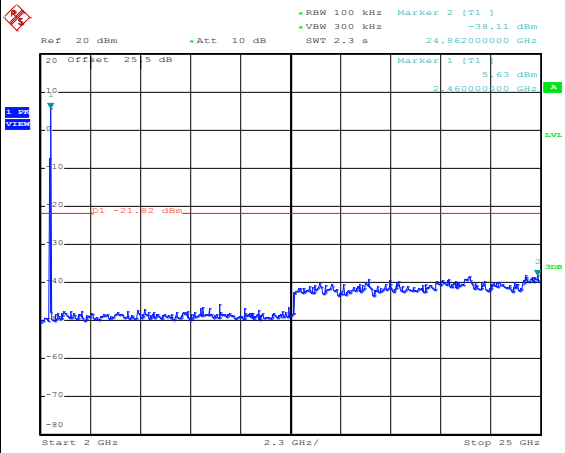
Test Mode :	802.11ax HE20	Test Channel :	11 Partial RU 26/8

100kHz PSD reference Level	High Channel Plot
	
Date: 25.FEB.2020 04:20:32	Date: 25.FEB.2020 04:21:21
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	
Date: 25.FEB.2020 04:21:42	Date: 25.FEB.2020 04:22:00

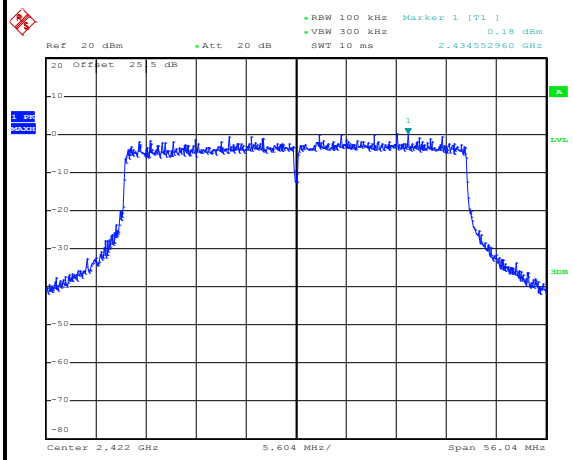
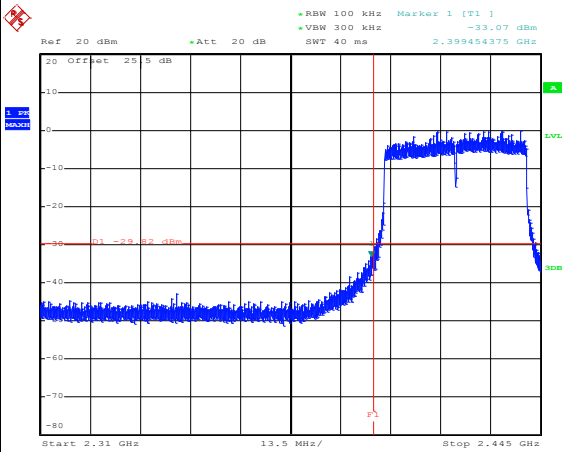
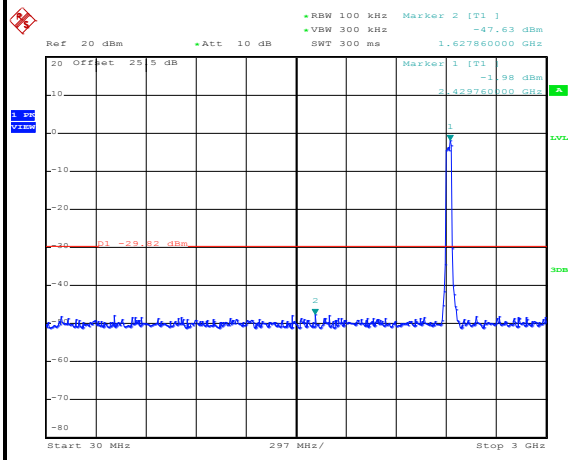
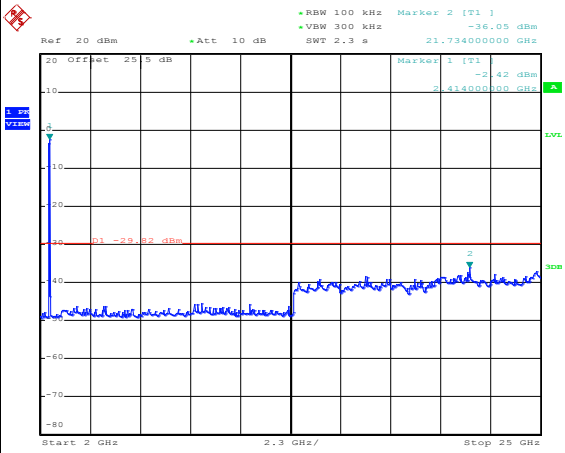
Test Mode :	802.11ax HE20	Test Channel :	11 Partial RU 52/40

100kHz PSD reference Level	High Channel Plot
	
Date: 25.FEB.2020 04:29:28	Date: 25.FEB.2020 04:30:25
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	
Date: 25.FEB.2020 04:30:47	Date: 25.FEB.2020 04:31:21

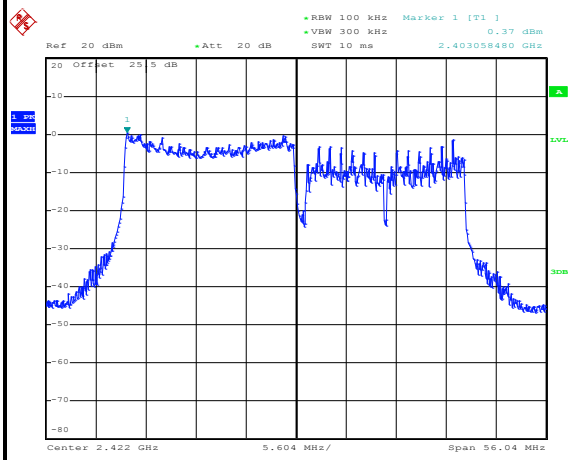
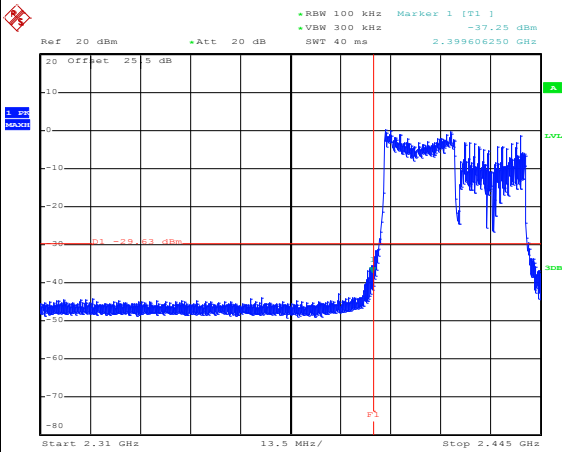
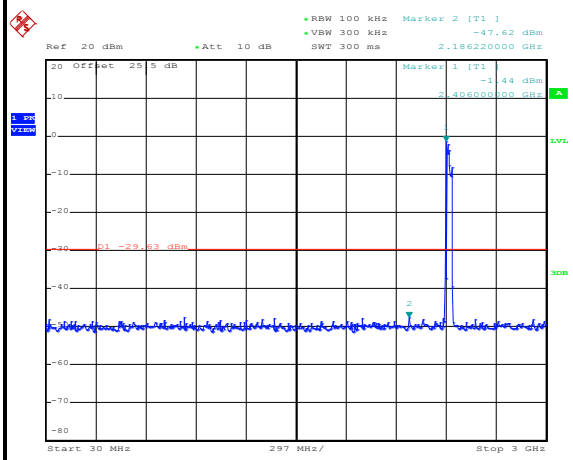
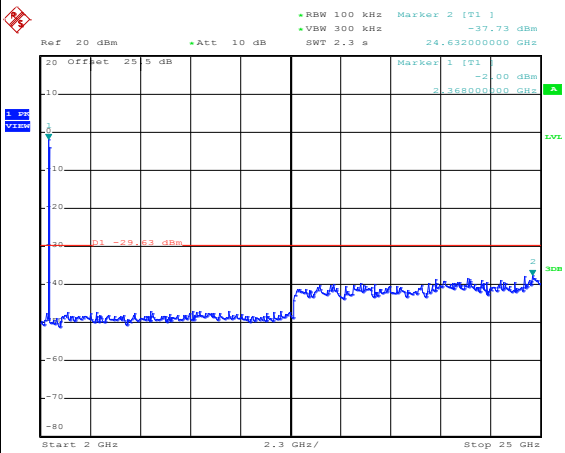
Test Mode :	802.11ax HE20	Test Channel :	11 Partial RU 106/54

100kHz PSD reference Level	High Channel Plot
	
Date: 25.FEB.2020 04:48:32	Date: 25.FEB.2020 04:49:42
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	
Date: 25.FEB.2020 04:50:11	Date: 25.FEB.2020 04:50:43

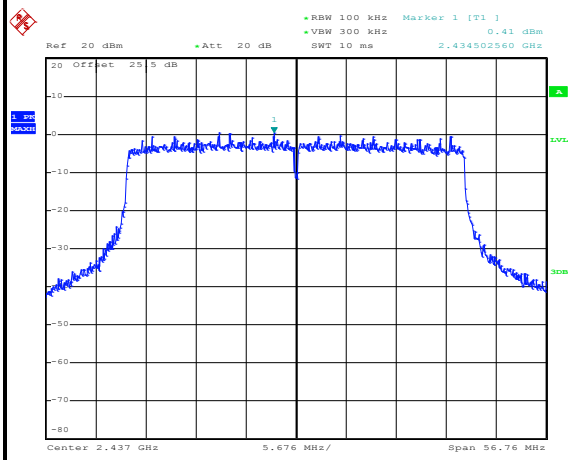
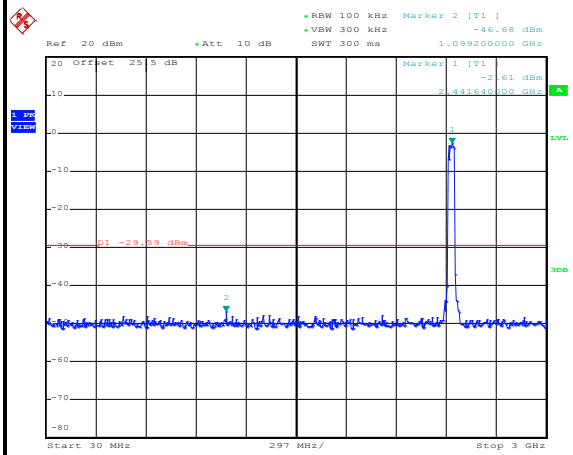
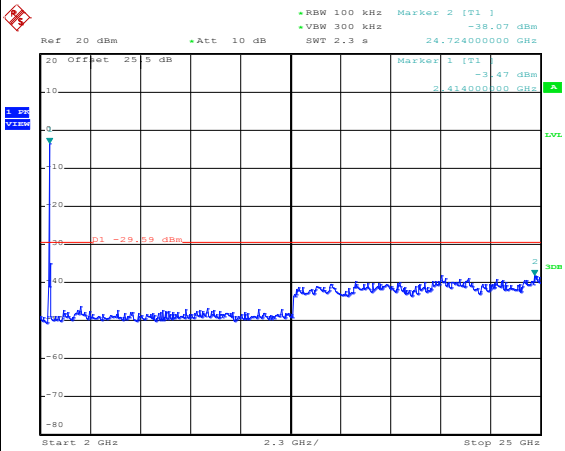
Test Mode :	802.11ax HE40	Test Channel :	03 Full RU

100kHz PSD reference Level	Low Channel Plot
	
Date: 25.FEB.2020 00:09:58	Date: 25.FEB.2020 00:10:21
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	
Date: 25.FEB.2020 00:10:40	Date: 25.FEB.2020 00:12:26

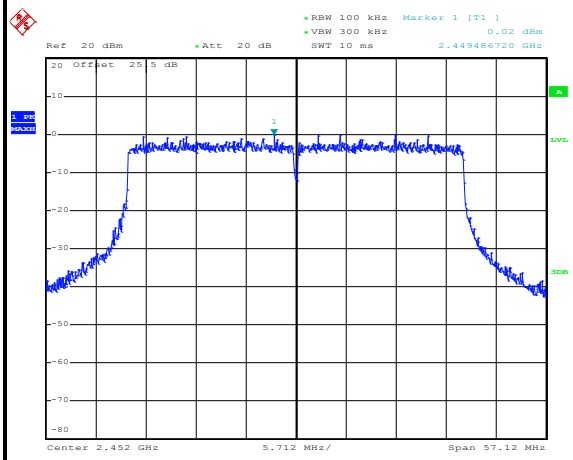
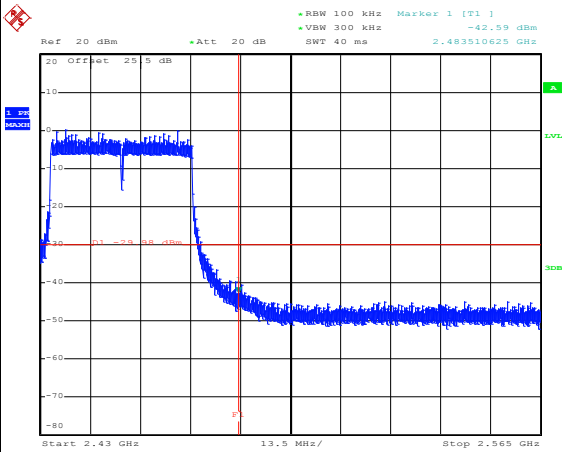
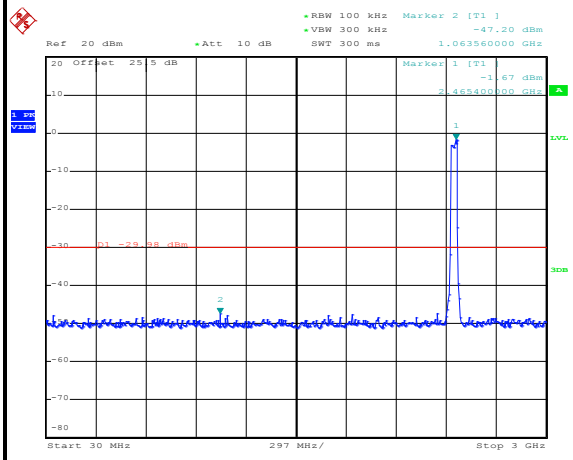
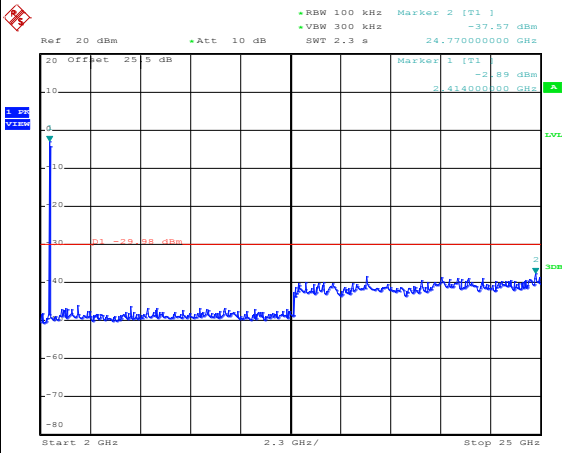
Test Mode :	802.11ax HE40	Test Channel :	03 Partial RU 242/61

100kHz PSD reference Level	Low Channel Plot
	
Date: 25.FEB.2020 02:05:12	Date: 25.FEB.2020 02:07:05
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	
Date: 25.FEB.2020 02:08:29	Date: 25.FEB.2020 02:09:02

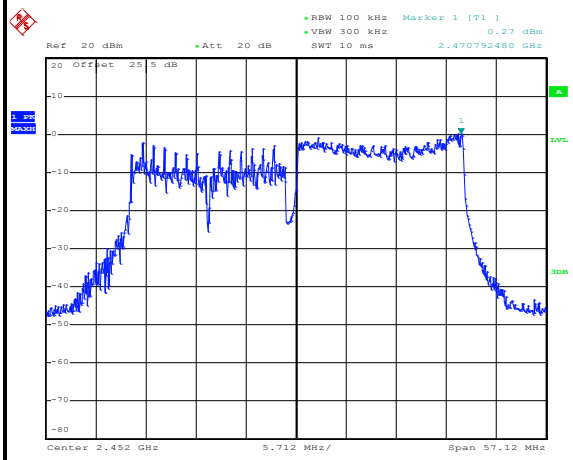
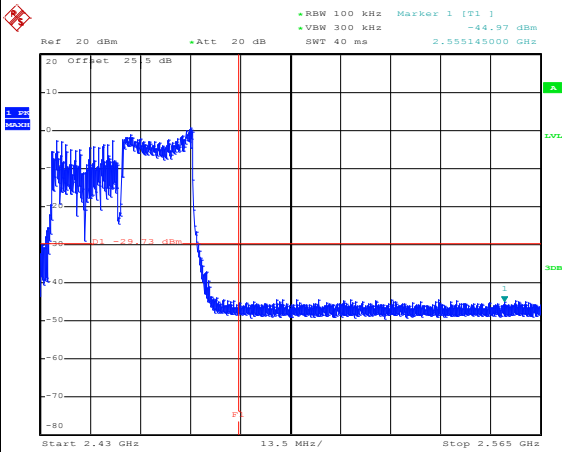
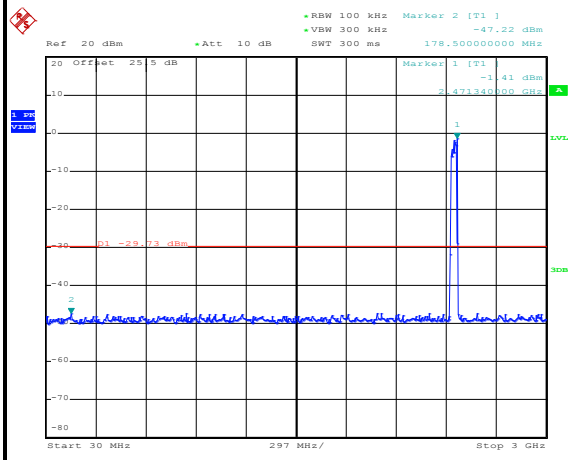
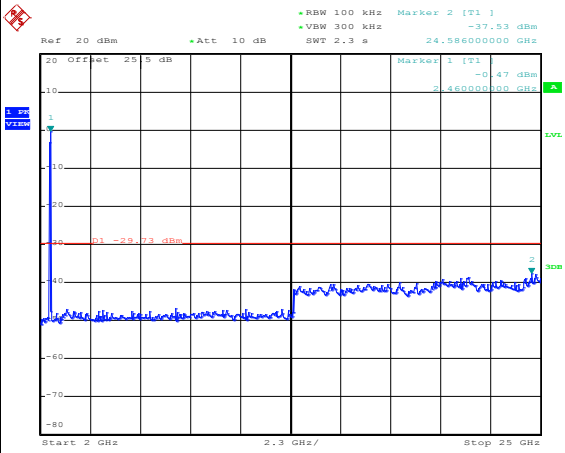
Test Mode :	802.11ax HE40	Test Channel :	06 Full RU

100kHz PSD reference Level	Mid Channel Plot
	
Spurious Emission 30MHz~3GHz	Spurious Emission 2GHz~25GHz
	

Test Mode :	802.11ax HE40	Test Channel :	09 Full RU

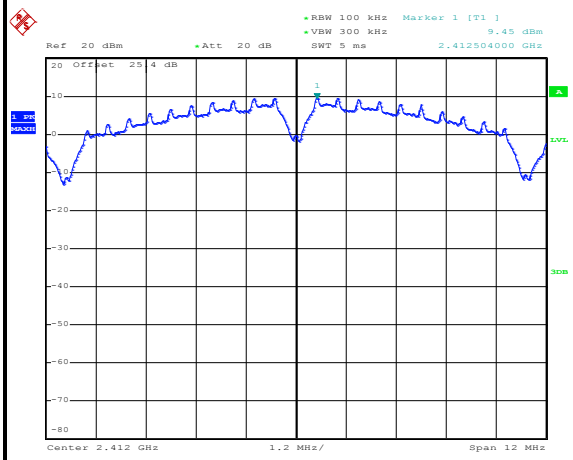
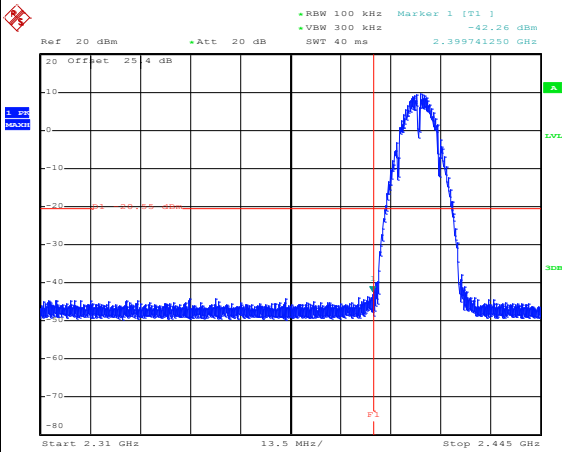
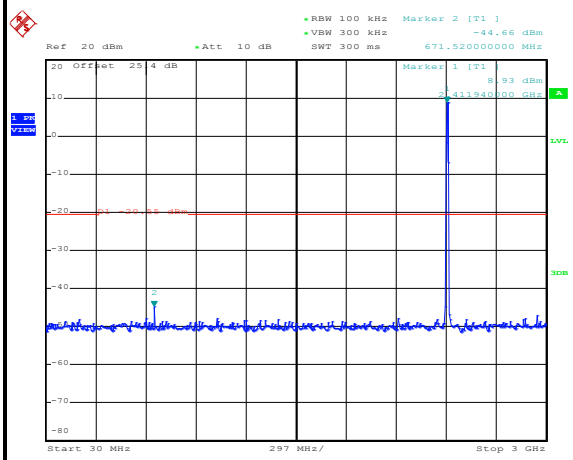
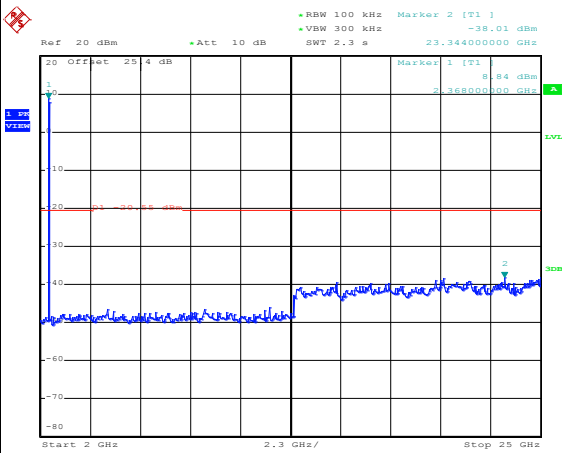
100kHz PSD reference Level	High Channel Plot
	
Date: 25.FEB.2020 00:25:11	Date: 25.FEB.2020 00:25:28
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	
Date: 25.FEB.2020 00:26:16	Date: 25.FEB.2020 00:26:43

Test Mode :	802.11ax HE40	Test Channel :	09 Partial RU 242/62

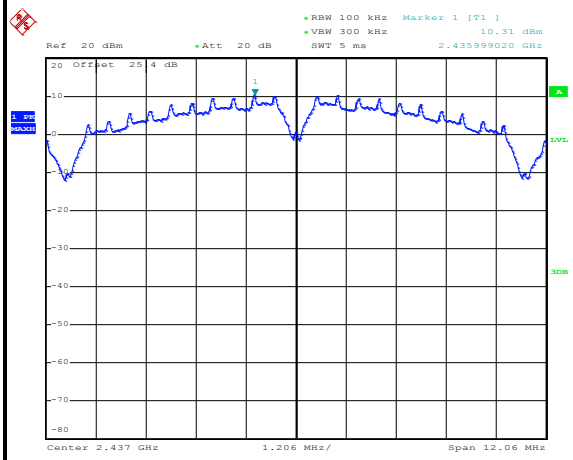
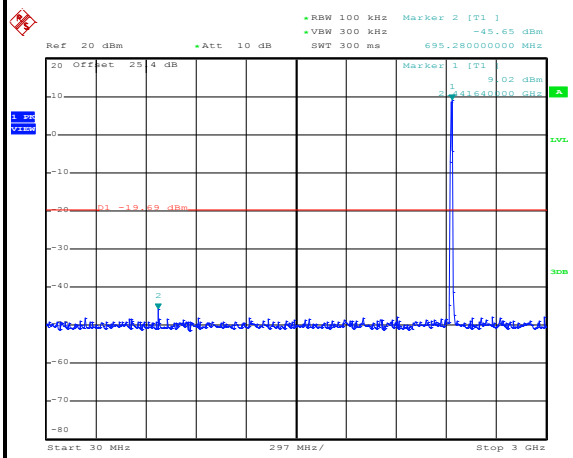
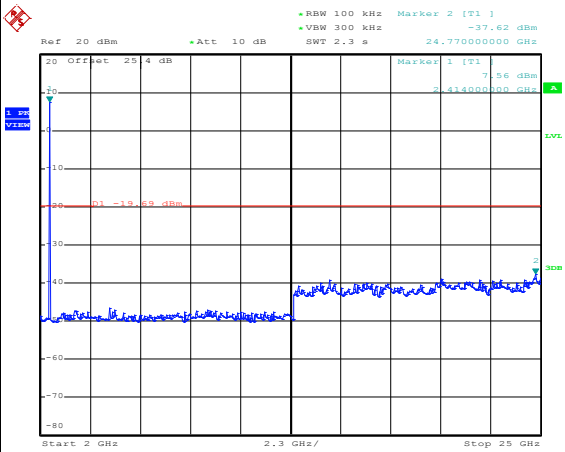
100kHz PSD reference Level	High Channel Plot
	
Date: 25.FEB.2020 02:25:29	Date: 25.FEB.2020 02:26:51
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	
Date: 25.FEB.2020 02:31:02	Date: 25.FEB.2020 02:31:21

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

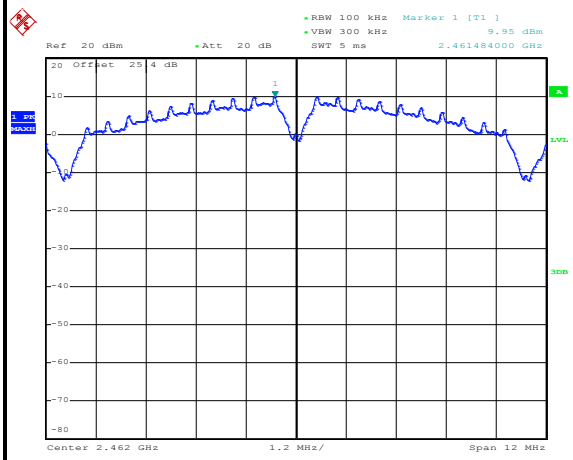
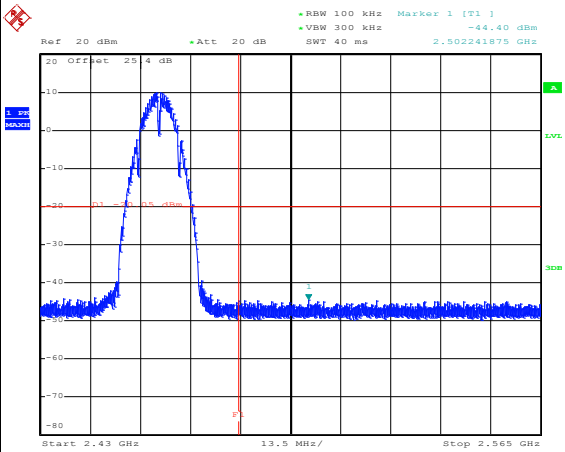
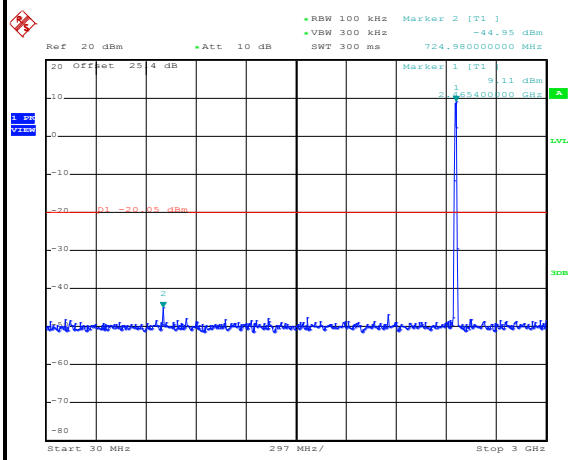
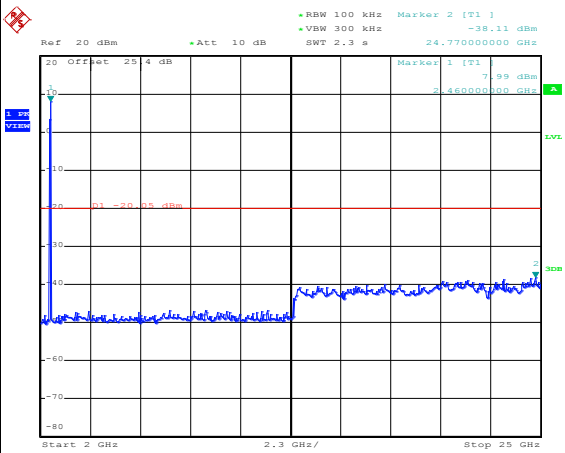
Test Mode :	802.11b	Test Channel :	01

100kHz PSD reference Level	Low Channel Plot
	
Date: 21.FEB.2020 14:15:02	Date: 21.FEB.2020 14:16:20
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	
Date: 21.FEB.2020 14:18:00	Date: 21.FEB.2020 14:18:51

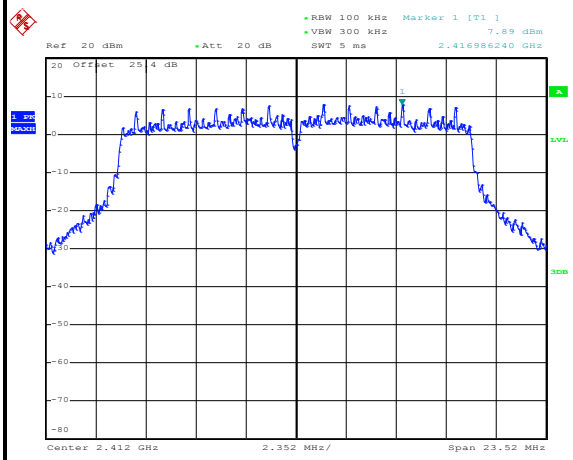
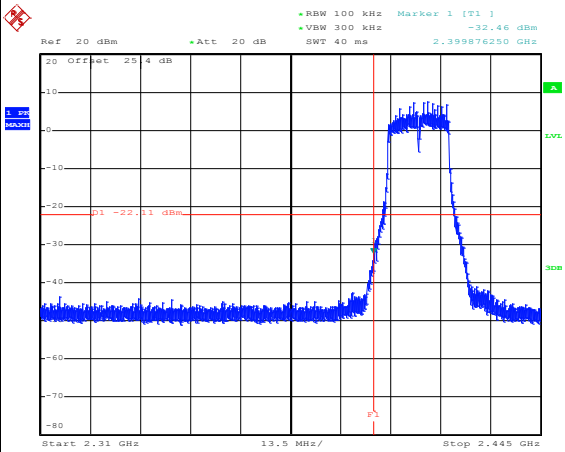
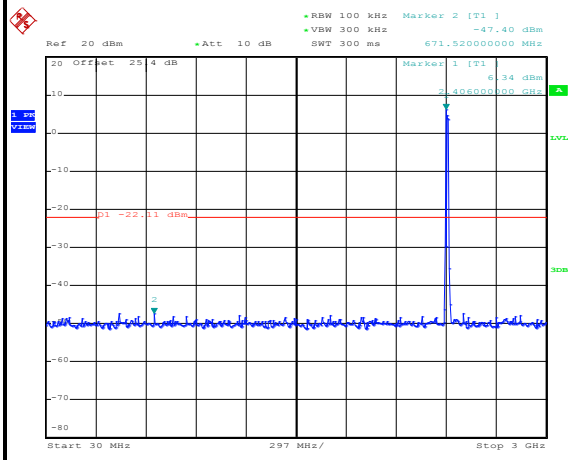
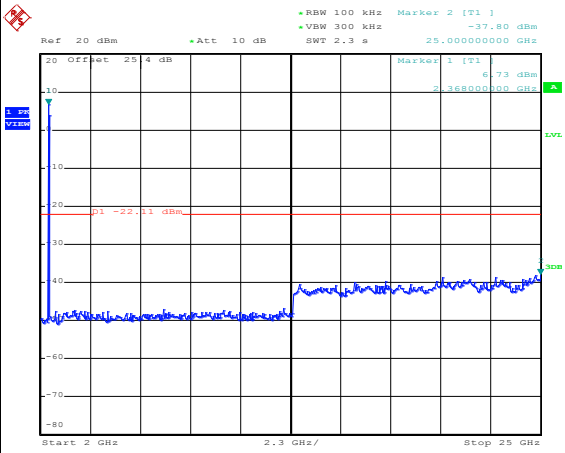
Test Mode :	802.11b	Test Channel :	06

100kHz PSD reference Level	Mid Channel Plot
	
Spurious Emission 30MHz~3GHz	Spurious Emission 2GHz~25GHz
	

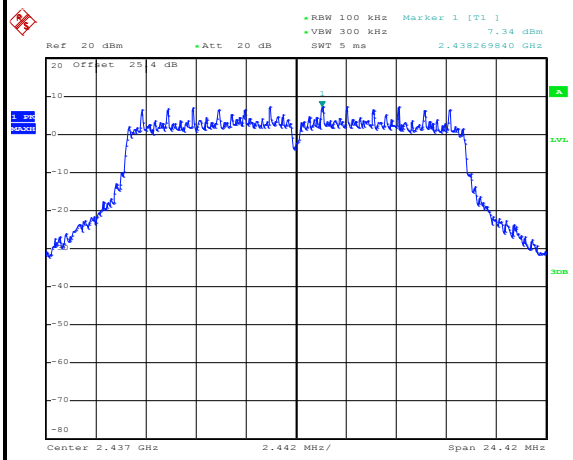
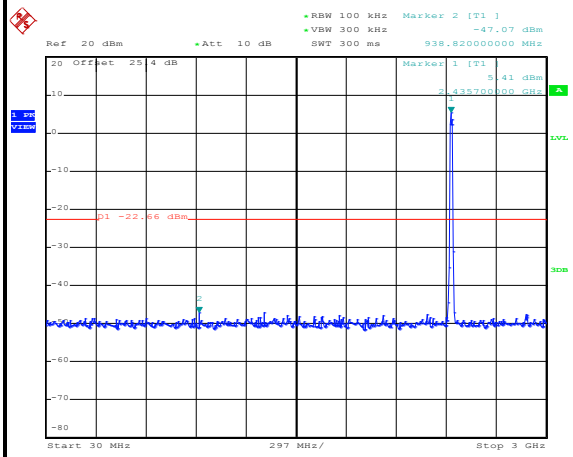
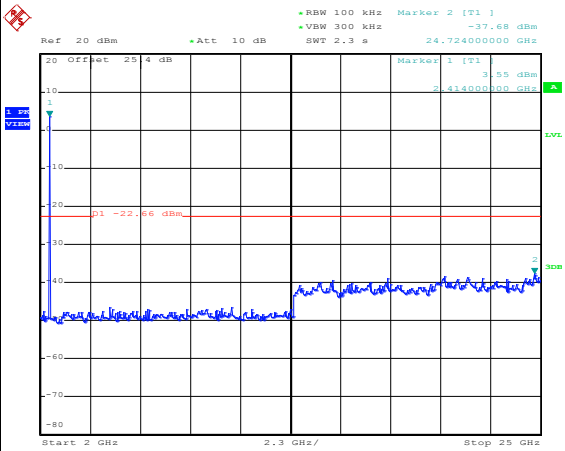
Test Mode :	802.11b	Test Channel :	11

100kHz PSD reference Level	High Channel Plot
	
Date: 21.FEB.2020 15:19:20	Date: 21.FEB.2020 15:20:48
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	
Date: 21.FEB.2020 15:21:13	Date: 21.FEB.2020 15:21:30

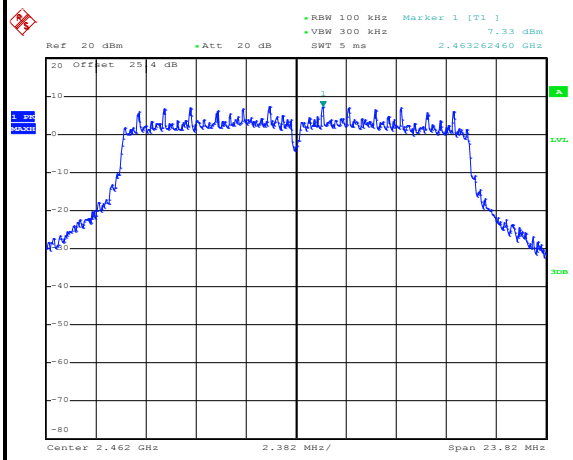
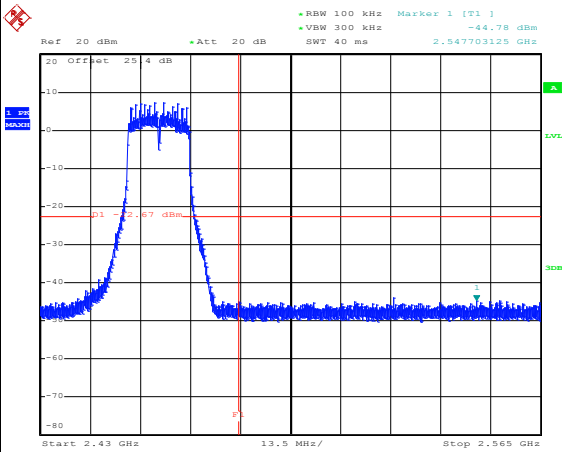
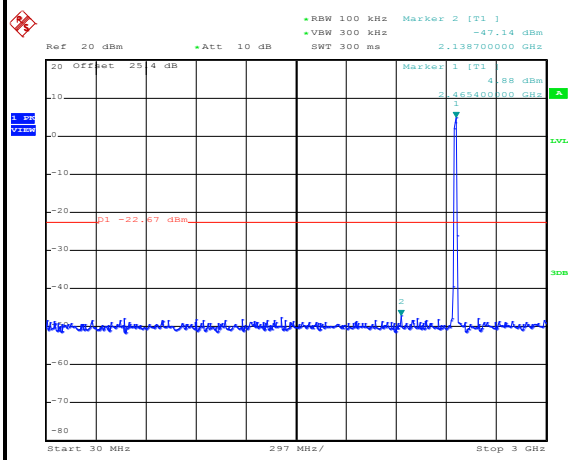
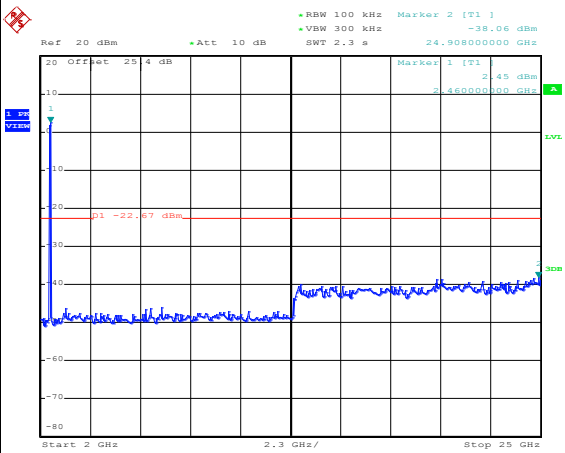
Test Mode :	802.11g	Test Channel :	01

100kHz PSD reference Level	Low Channel Plot
	
Date: 21.FEB.2020 15:47:40	Date: 21.FEB.2020 15:48:08
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	
Date: 21.FEB.2020 15:49:12	Date: 21.FEB.2020 15:50:01

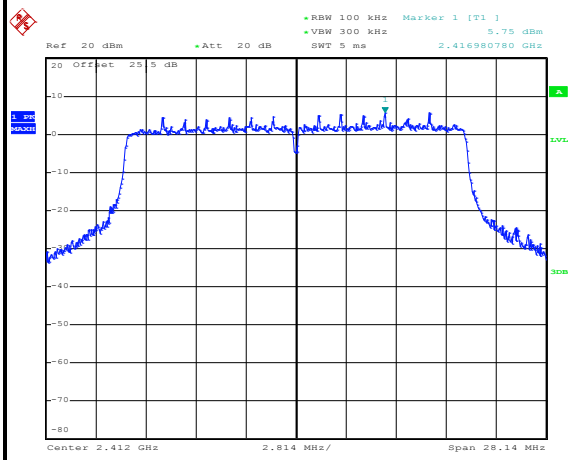
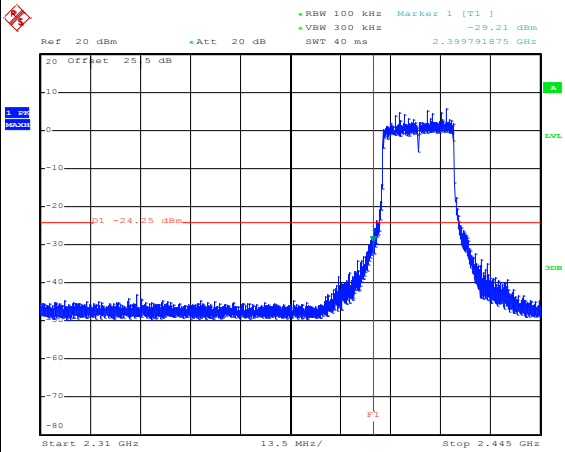
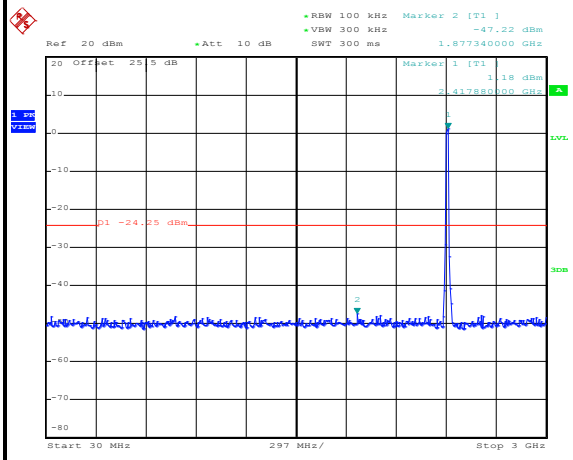
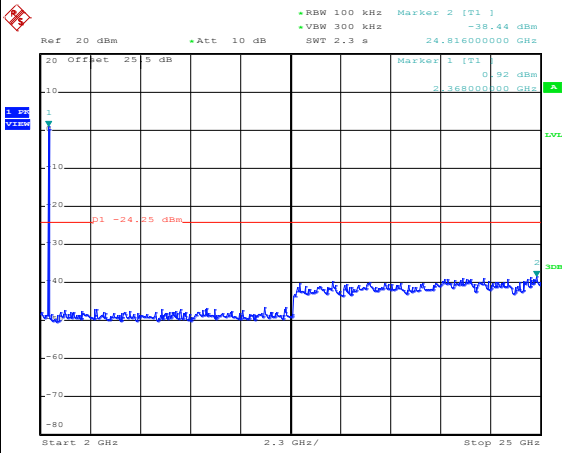
Test Mode :	802.11g	Test Channel :	06

100kHz PSD reference Level	Mid Channel Plot
	
Spurious Emission 30MHz~3GHz	Spurious Emission 2GHz~25GHz
	

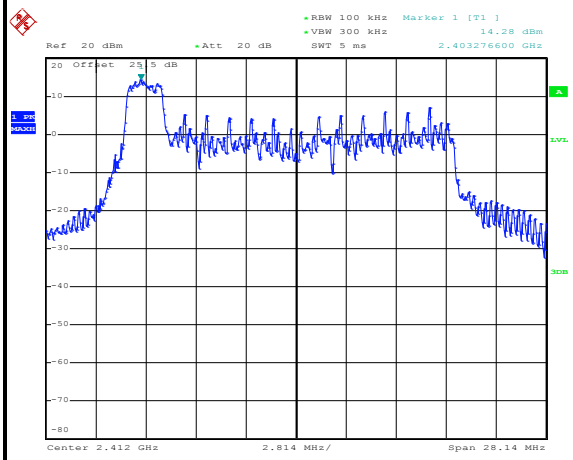
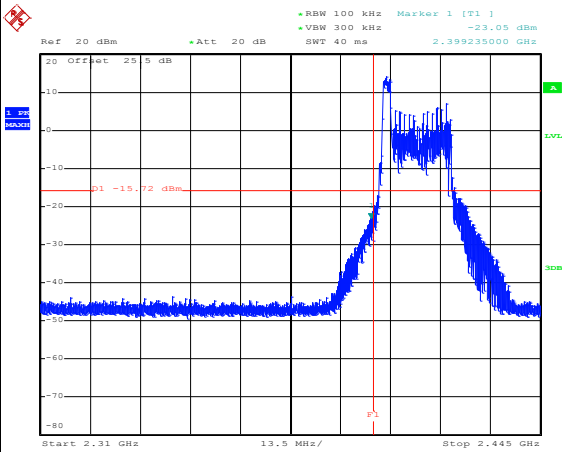
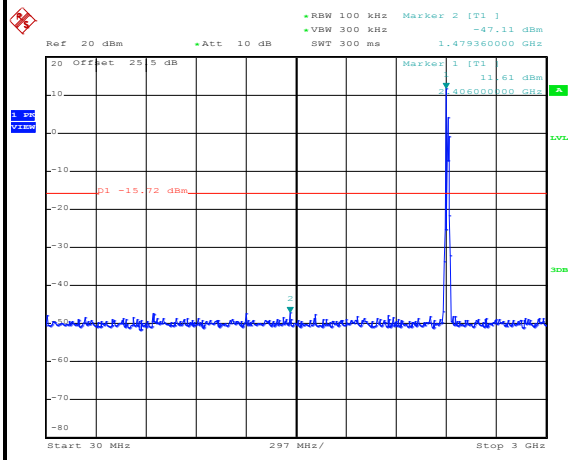
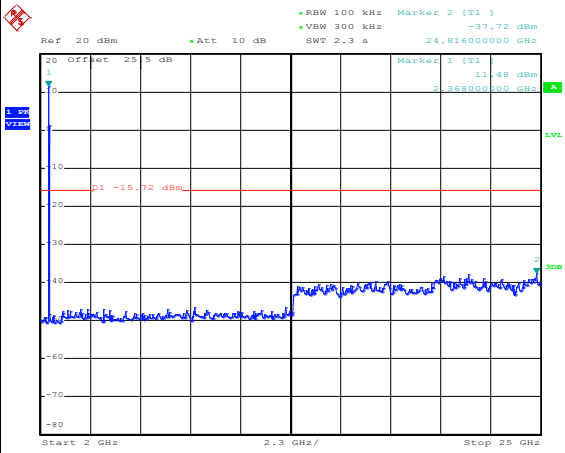
Test Mode :	802.11g	Test Channel :	11

100kHz PSD reference Level	High Channel Plot
	
Date: 21.FEB.2020 16:54:49	Date: 21.FEB.2020 16:55:46
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	
Date: 21.FEB.2020 16:56:09	Date: 21.FEB.2020 16:56:38

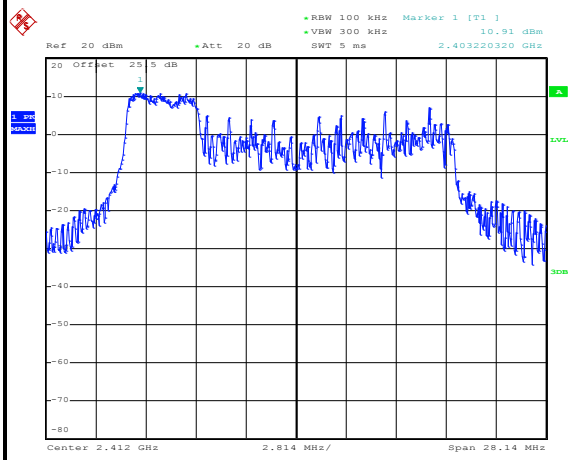
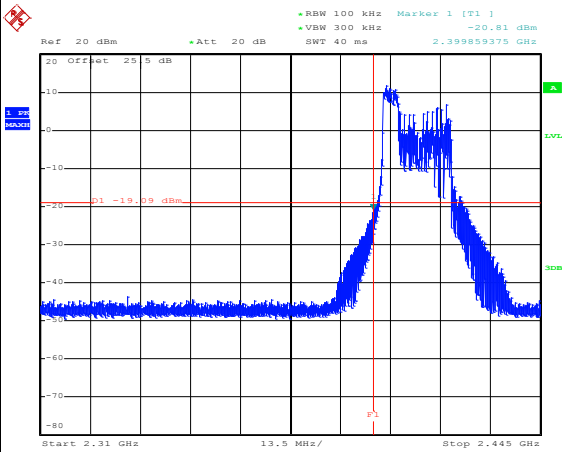
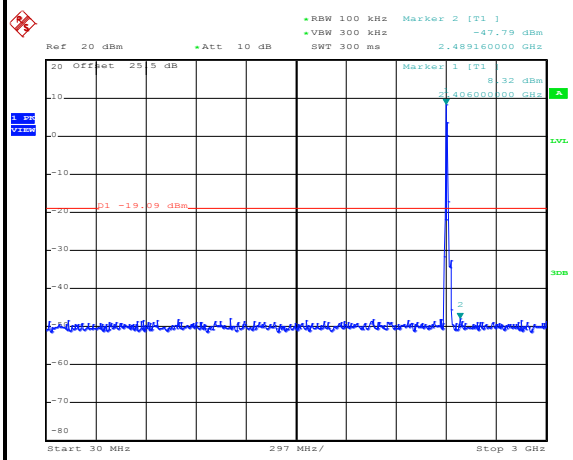
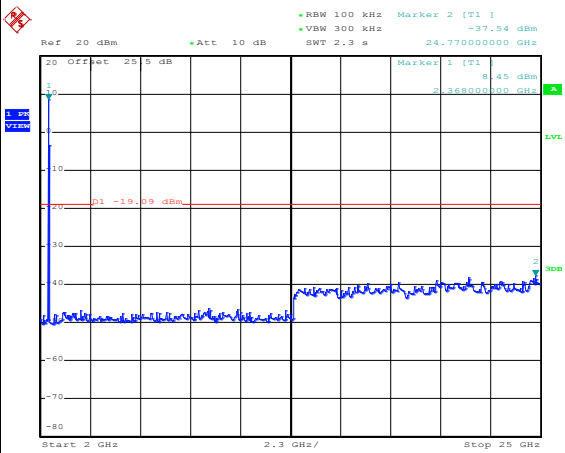
Test Mode :	802.11ax HE20	Test Channel :	01 Full RU

100kHz PSD reference Level	Low Channel Plot
	
Date: 24.FEB.2020 23:12:38	Date: 24.FEB.2020 23:18:26
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	
Date: 24.FEB.2020 23:19:09	Date: 24.FEB.2020 23:19:23

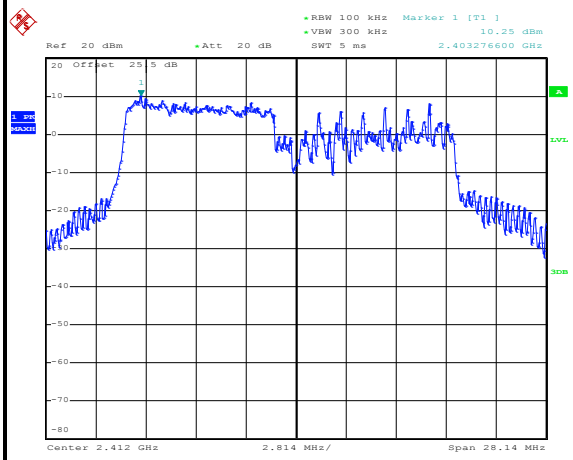
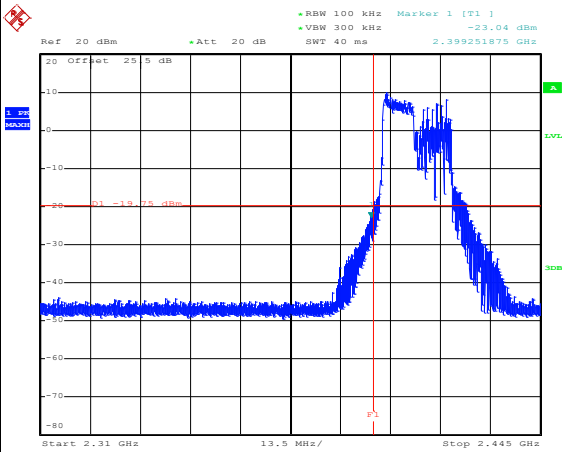
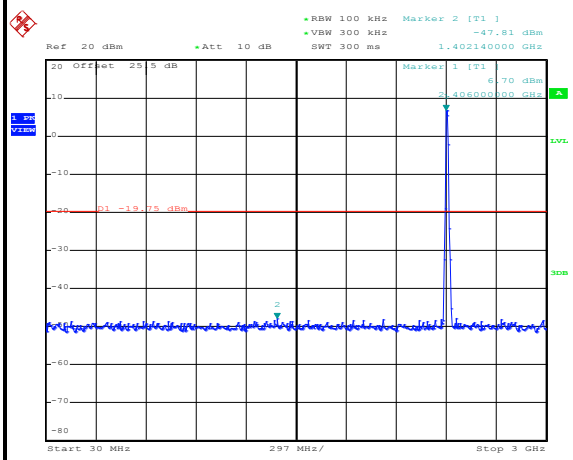
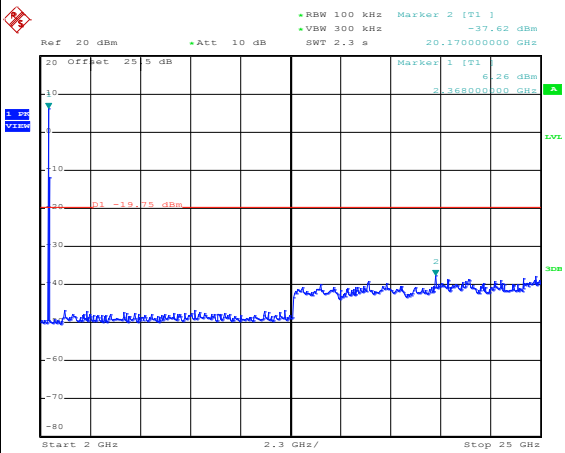
Test Mode :	802.11ax HE20	Test Channel :	01 Partial RU 26/0

100kHz PSD reference Level	Low Channel Plot
	
Date: 25.FEB.2020 02:58:45	Date: 25.FEB.2020 03:00:05
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	
Date: 25.FEB.2020 03:01:23	Date: 25.FEB.2020 03:01:58

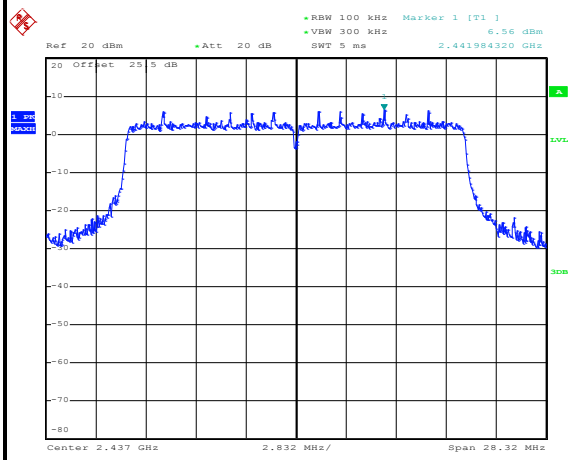
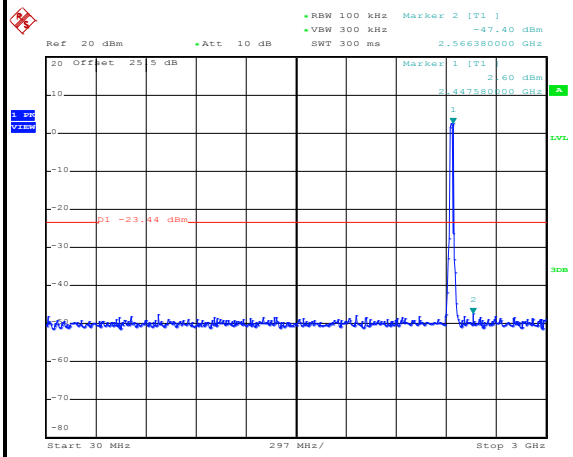
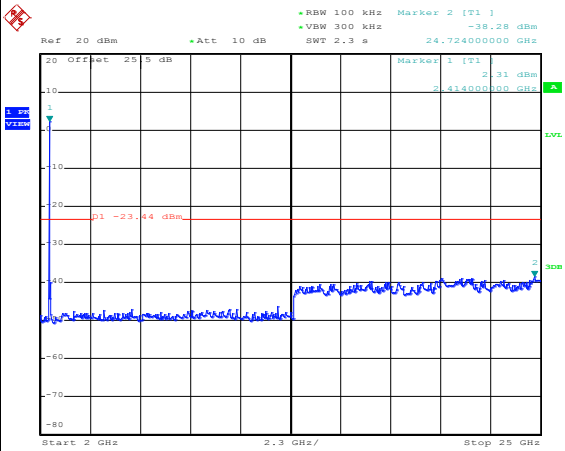
Test Mode :	802.11ax HE20	Test Channel :	01 Partial RU 52/37

100kHz PSD reference Level	Low Channel Plot
	
Date: 25.FEB.2020 03:22:46	Date: 25.FEB.2020 03:23:47
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	
Date: 25.FEB.2020 03:24:10	Date: 25.FEB.2020 03:24:28

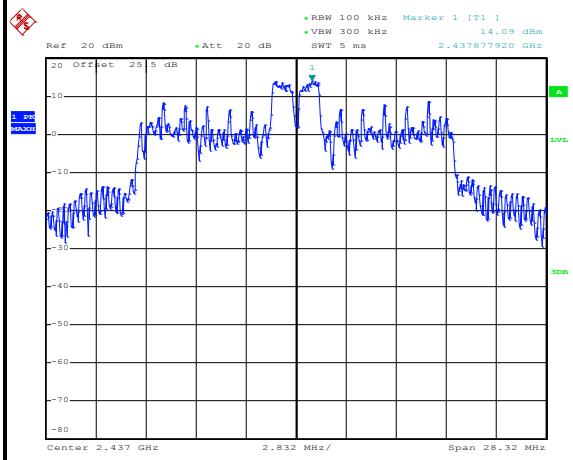
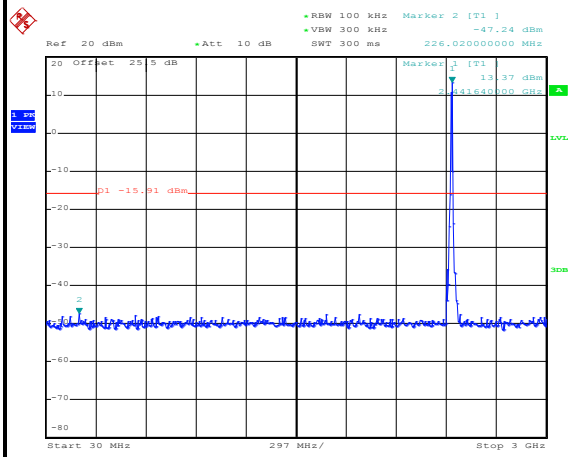
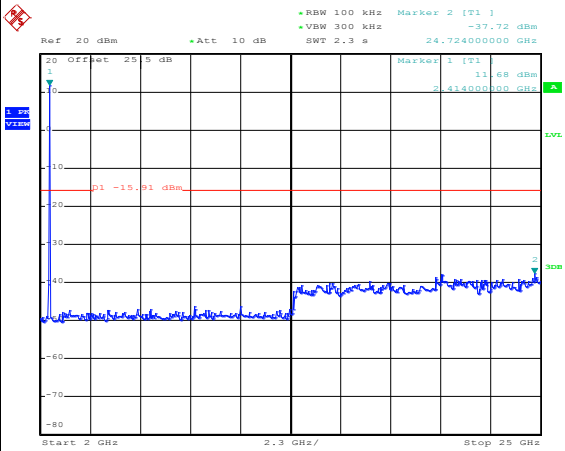
Test Mode :	802.11ax HE20	Test Channel :	01 106 RU 53

100kHz PSD reference Level	Low Channel Plot
	
Date: 25.FEB.2020 03:45:00	Date: 25.FEB.2020 03:46:10
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	
Date: 25.FEB.2020 03:46:30	Date: 25.FEB.2020 03:46:47

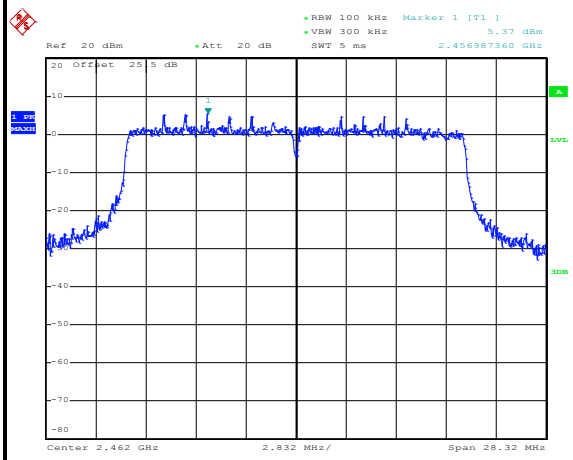
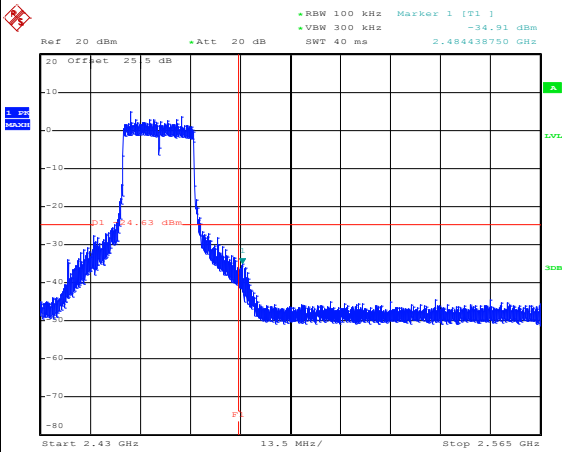
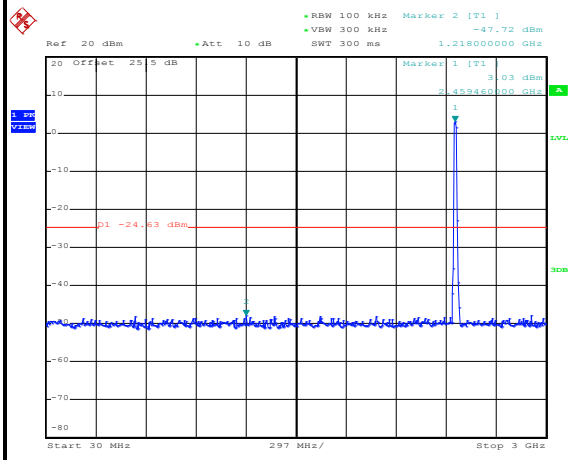
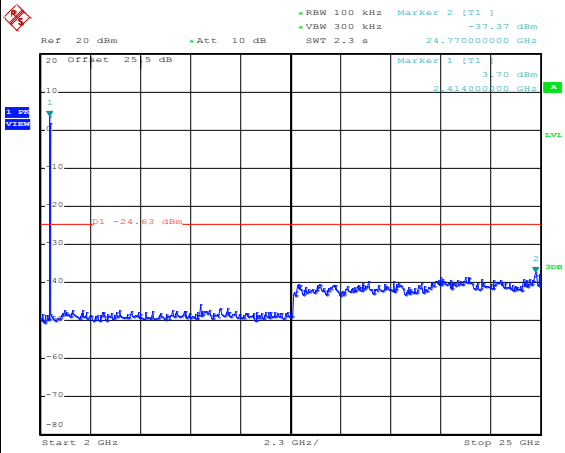
Test Mode :	802.11ax HE20	Test Channel :	06 Full RU

100kHz PSD reference Level	Mid Channel Plot
	
Spurious Emission 30MHz~3GHz	Spurious Emission 2GHz~25GHz
	

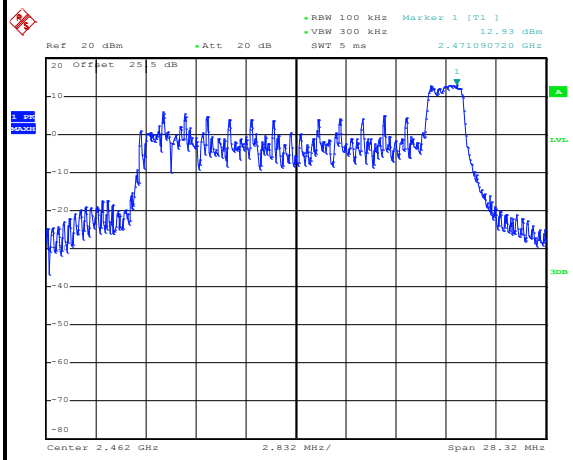
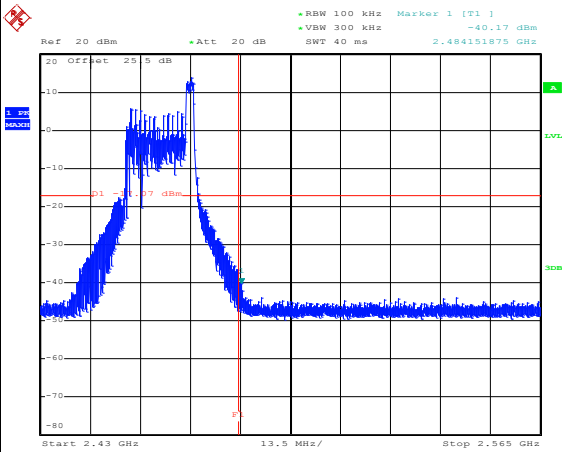
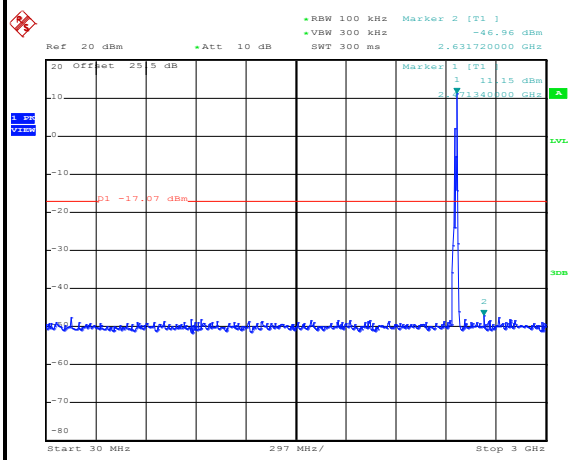
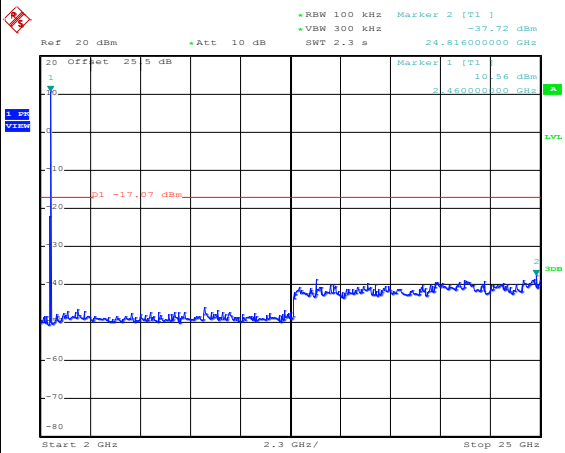
Test Mode :	802.11ax HE20	Test Channel :	06 Partial RU 26/4

100kHz PSD reference Level	Mid Channel Plot
	
Spurious Emission 30MHz~3GHz	Spurious Emission 2GHz~25GHz
	

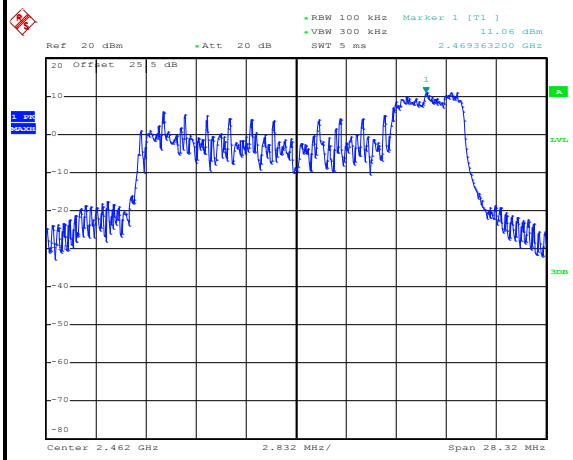
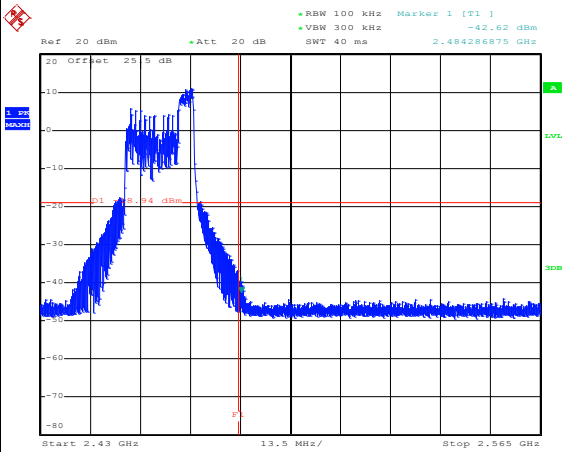
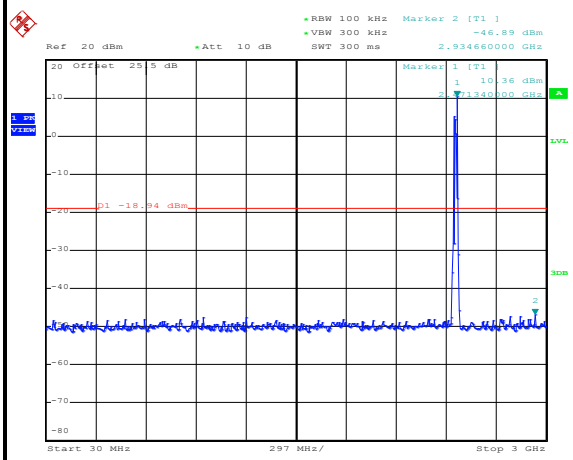
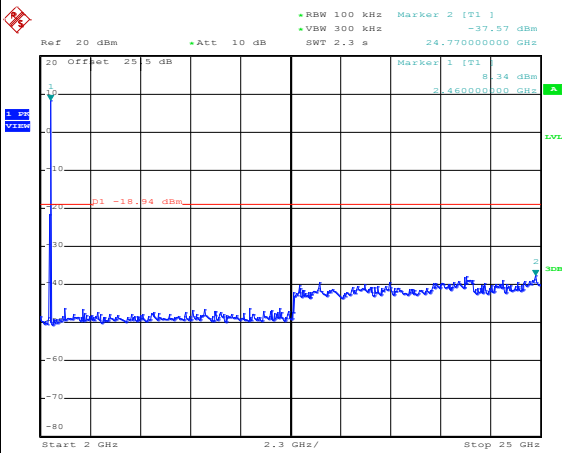
Test Mode :	802.11ax HE20	Test Channel :	11 Full RU

100kHz PSD reference Level	High Channel Plot
	
Date: 25.FEB.2020 00:35:24	Date: 25.FEB.2020 00:35:46
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	
Date: 25.FEB.2020 05:02:29	Date: 25.FEB.2020 05:02:44

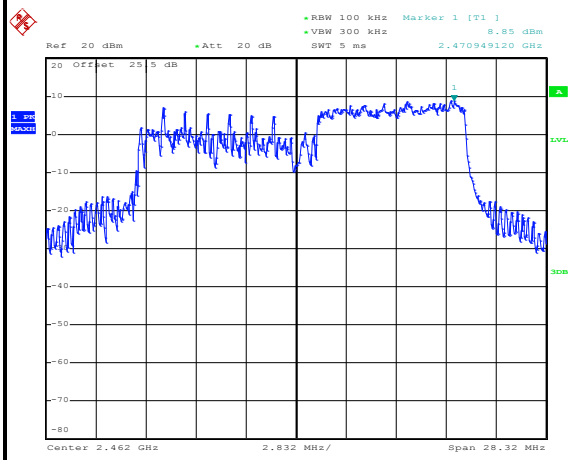
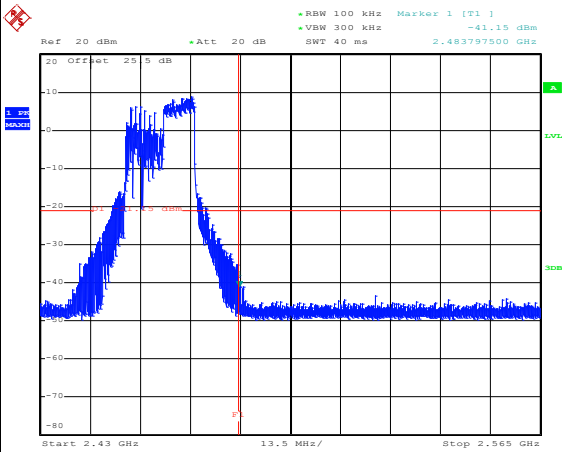
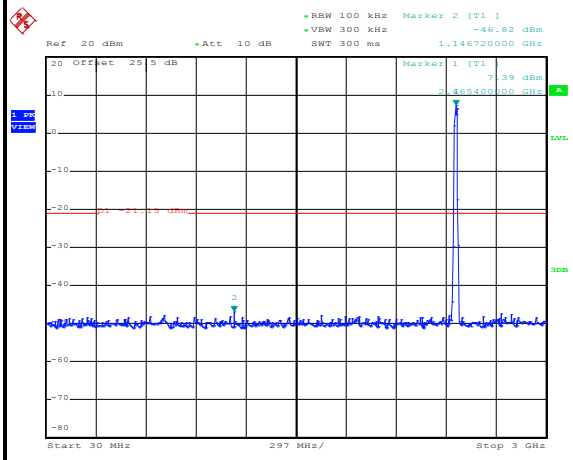
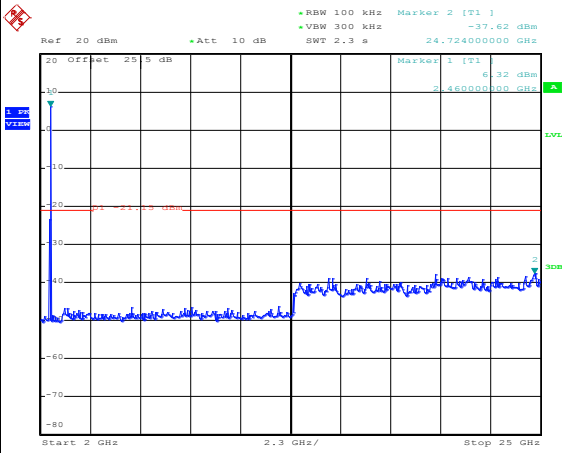
Test Mode :	802.11ax HE20	Test Channel :	11 Partial RU 26/8

100kHz PSD reference Level	High Channel Plot
	
Date: 25.FEB.2020 04:17:33	Date: 25.FEB.2020 04:18:37
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	
Date: 25.FEB.2020 04:19:13	Date: 25.FEB.2020 04:19:28

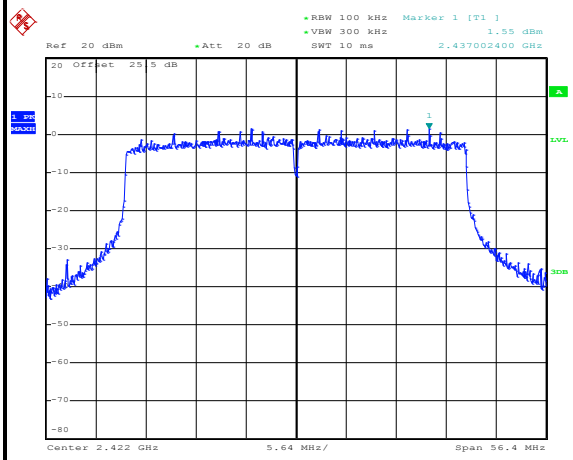
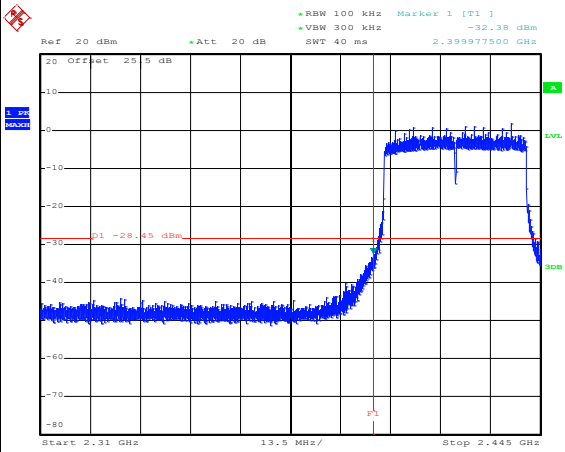
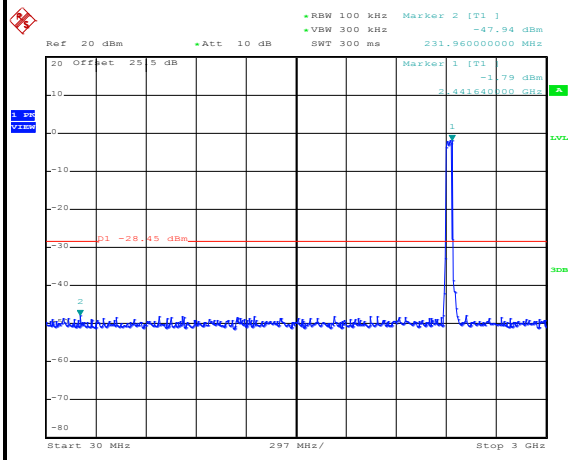
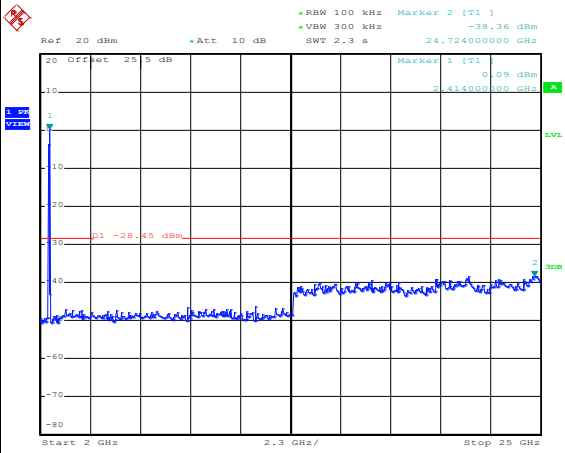
Test Mode :	802.11ax HE20	Test Channel :	11 Partial RU 52/40

100kHz PSD reference Level	High Channel Plot
	
Date: 25.FEB.2020 04:33:10	Date: 25.FEB.2020 04:34:23
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	
Date: 25.FEB.2020 04:34:47	Date: 25.FEB.2020 04:35:05

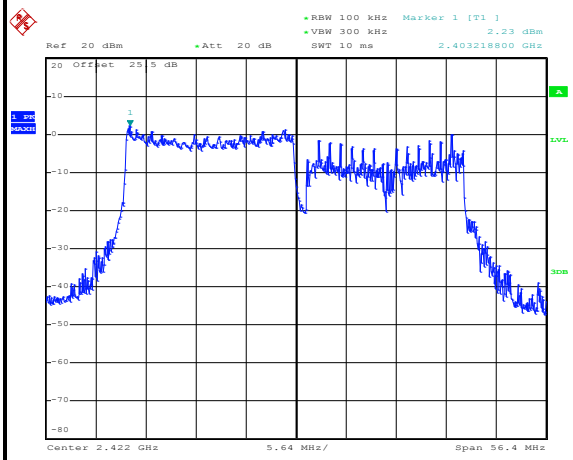
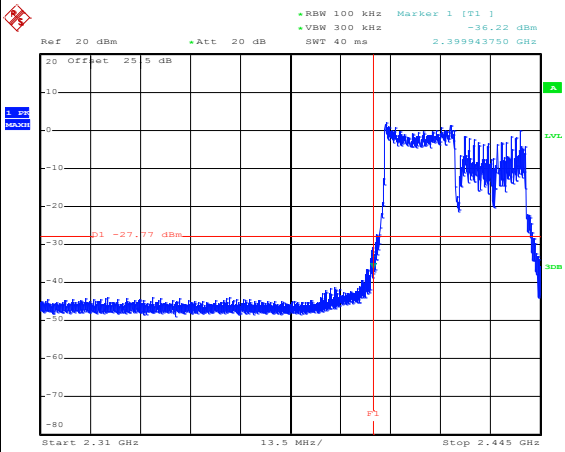
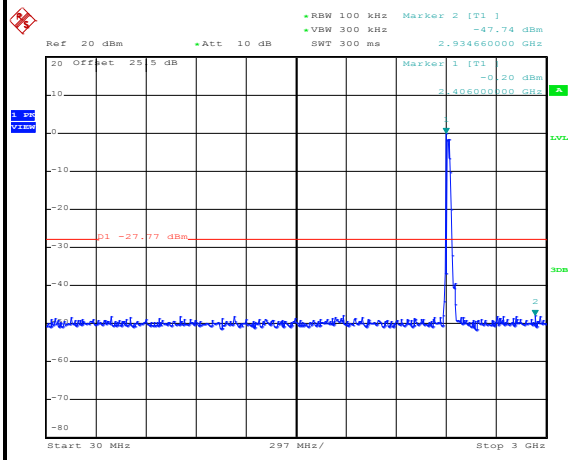
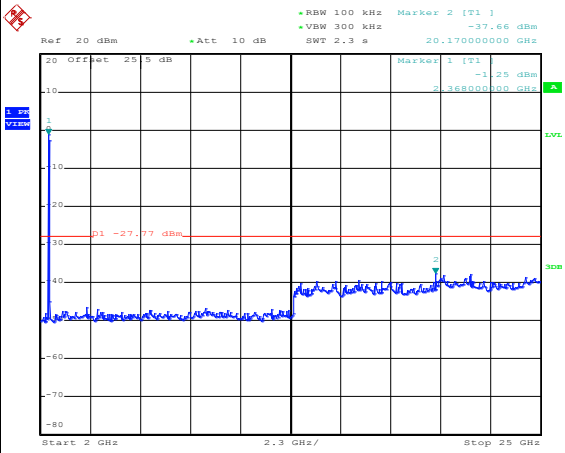
Test Mode :	802.11ax HE20	Test Channel :	11 Partial RU 106/54

100kHz PSD reference Level	High Channel Plot
	
Date: 25.FEB.2020 04:43:02	Date: 25.FEB.2020 04:43:45
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	
Date: 25.FEB.2020 04:44:02	Date: 25.FEB.2020 04:44:19

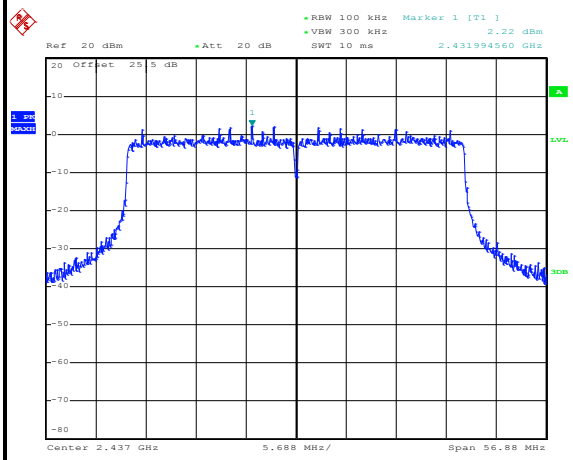
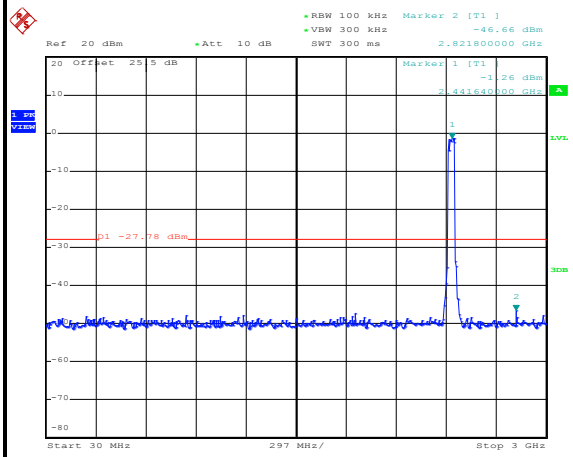
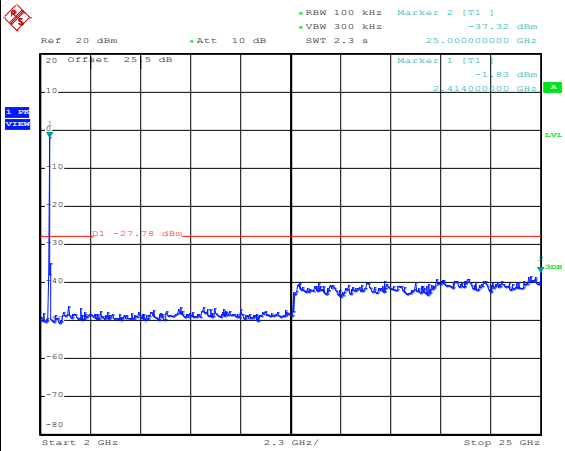
Test Mode :	802.11ax HE40	Test Channel :	03 Full RU

100kHz PSD reference Level	Low Channel Plot
	
Date: 25.FEB.2020 00:13:26	Date: 25.FEB.2020 00:13:47
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	
Date: 25.FEB.2020 00:14:21	Date: 25.FEB.2020 00:14:38

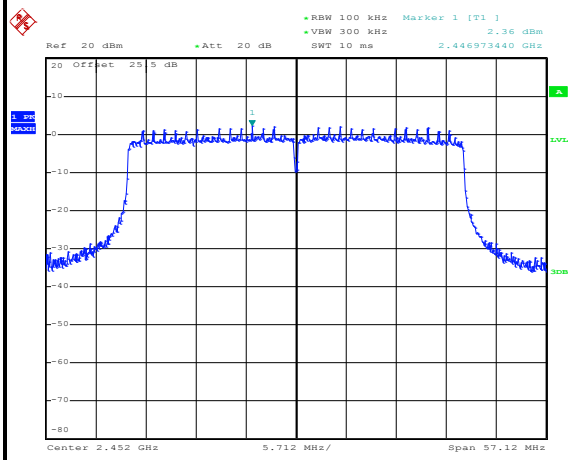
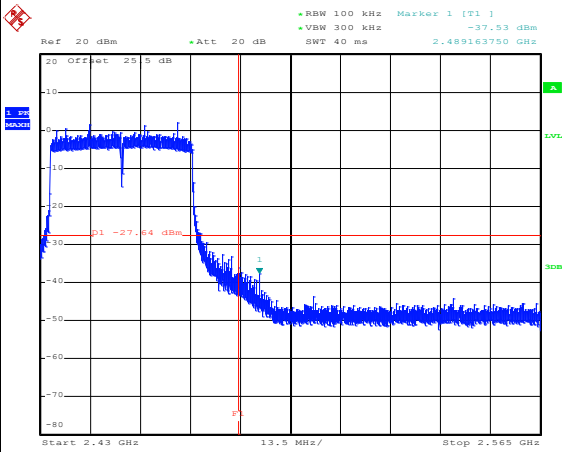
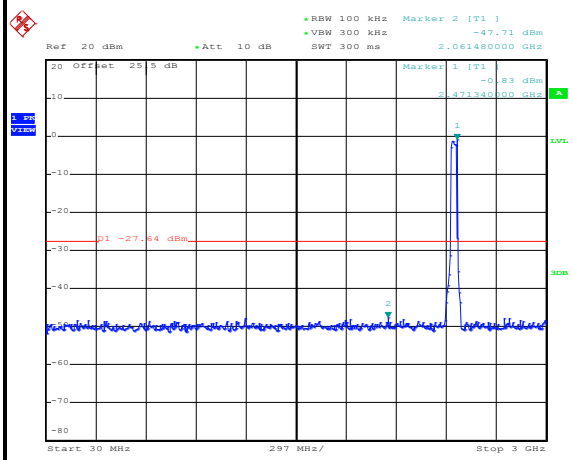
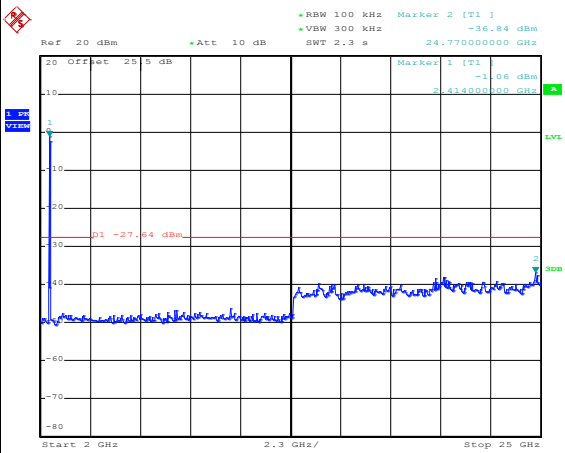
Test Mode :	802.11ax HE40	Test Channel :	03 Partial RU 242/61

100kHz PSD reference Level	Low Channel Plot
	
Date: 25.FEB.2020 02:11:00	Date: 25.FEB.2020 02:13:36
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	
Date: 25.FEB.2020 02:15:13	Date: 25.FEB.2020 02:15:40

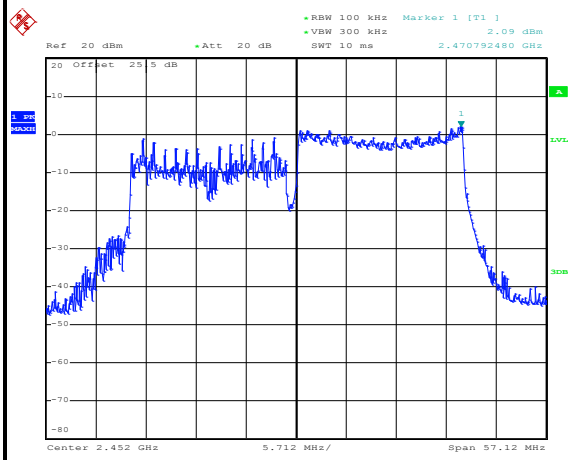
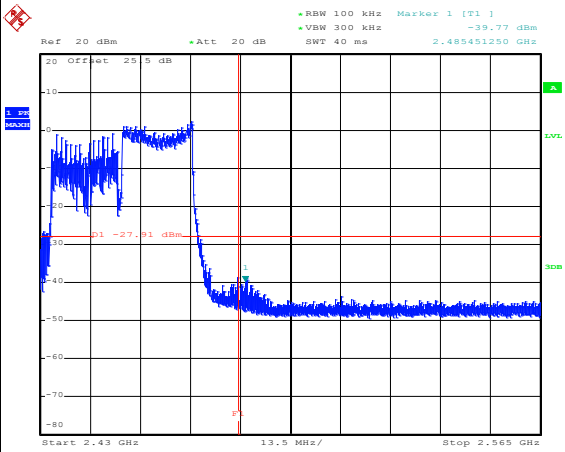
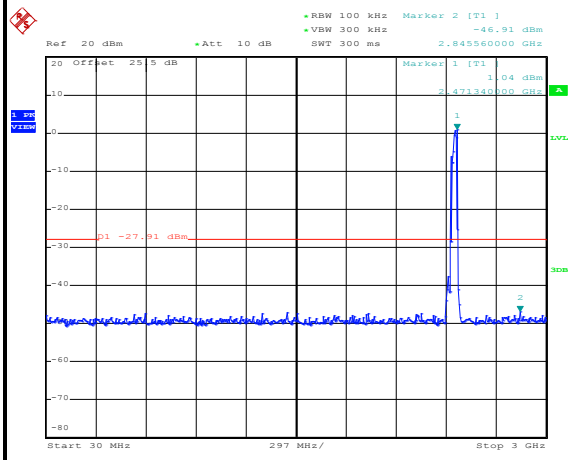
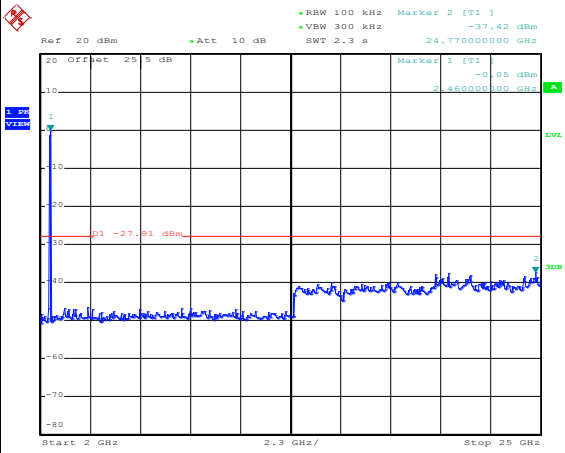
Test Mode :	802.11ax HE40	Test Channel :	06 Full RU

100kHz PSD reference Level	Mid Channel Plot
	
Spurious Emission 30MHz~3GHz	Spurious Emission 2GHz~25GHz
	

Test Mode :	802.11ax HE40	Test Channel :	09 Full RU

100kHz PSD reference Level	High Channel Plot
	
Date: 25.FEB.2020 00:29:32	Date: 25.FEB.2020 00:29:54
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	
Date: 25.FEB.2020 00:30:32	Date: 25.FEB.2020 00:30:54

Test Mode :	802.11ax HE40	Test Channel :	09 Partial RU 242/62

100kHz PSD reference Level	High Channel Plot
	
Date: 25.FEB.2020 02:35:23	Date: 25.FEB.2020 02:36:43
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	
Date: 25.FEB.2020 02:38:13	Date: 25.FEB.2020 02:38:51

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

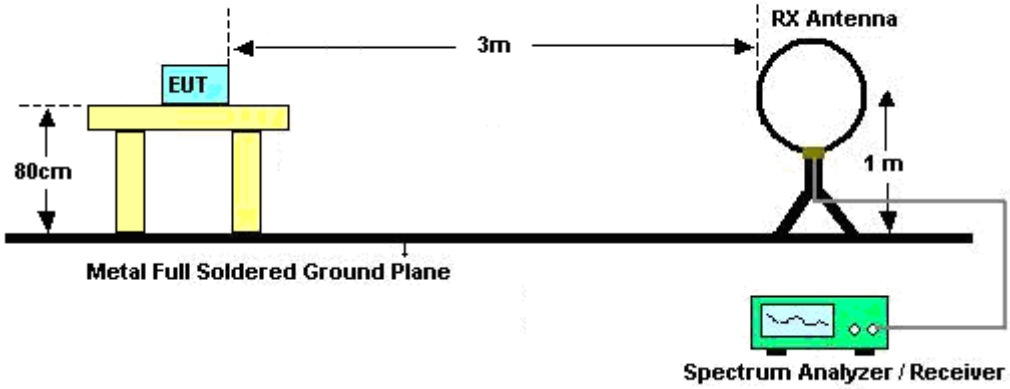
See list of measuring equipment of this test report.

3.5.3 Test Procedures

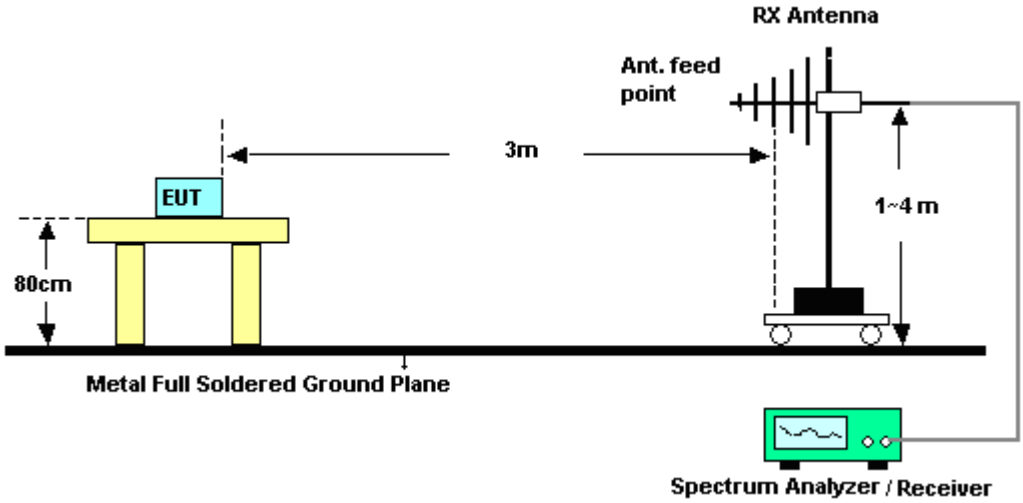
1. The testing follows the ANSI C63.10 Section 11.12.1 Radiated emission measurements.
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the 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

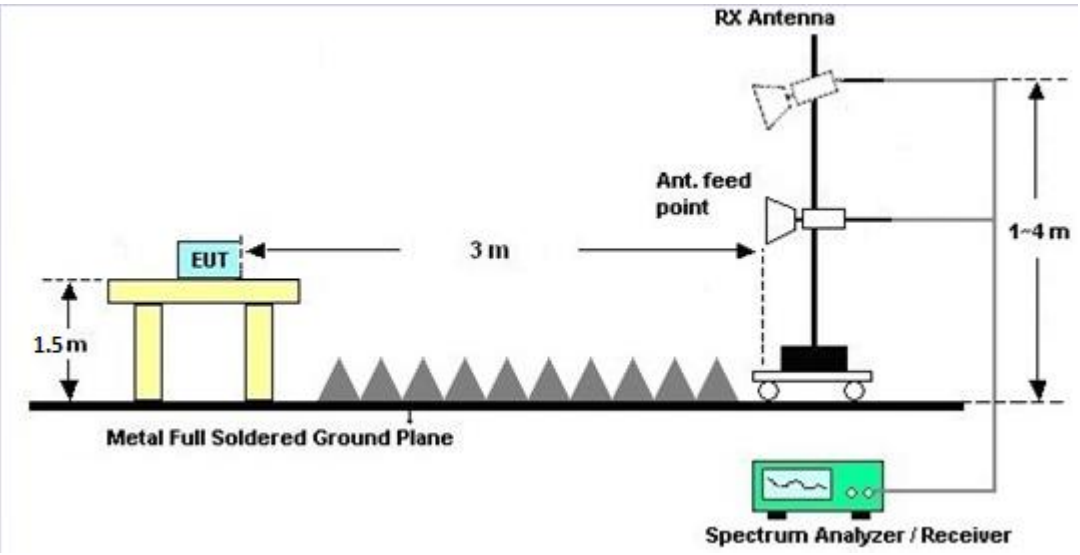
For radiated emissions below 30MHz



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.

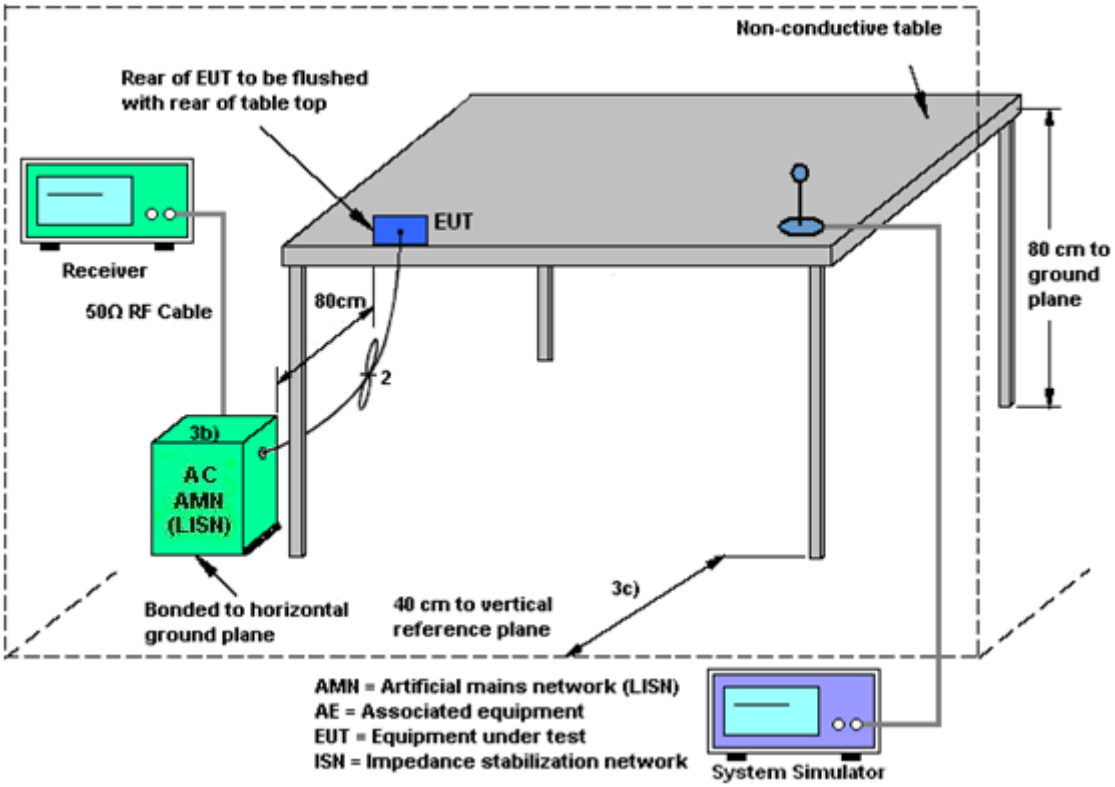
3.6.2 Measuring Instruments

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

<CDD Modes >

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

For CDD transmissions, directional gain is calculated as

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

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

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

For power measurements on IEEE 802.11 devices,

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

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

The EUT supports CDD mode.

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

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

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

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

<CDD Modes>

	Ant. 1 (dBi)	Ant. 2 (dBi)	DG for Power (dBi)	DG for PSD (dBi)	Power Limit Reduction (dB)	PSD Limit Reduction (dB)
2.4 GHz	1.00	0.50	1.00	3.76	0.00	0.00

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

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

4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Hygrometer	Testo	608-H2	41410069	N/A	Jun. 17, 2019	Jan. 13, 2020~ Feb. 26, 2020	Jun. 16, 2020	Conducted (TH05-HY)
Power Sensor	DARE	RPR3006W	16I00054SNO10	10MHz~6GHz	Dec. 23, 2019	Jan. 13, 2020~ Feb. 26, 2020	Dec. 22, 2020	Conducted (TH05-HY)
Spectrum Analyzer	Rohde & Schwarz	FSP40	100055	9kHz-40GHz	Aug. 14, 2019	Jan. 13, 2020~ Feb. 26, 2020	Aug. 13, 2020	Conducted (TH05-HY)
Switch Control Manframe	E-IUSTRUMENT	ETF-1405-0	EC1900067	N/A	Aug. 15, 2019	Jan. 13, 2020~ Feb. 26, 2020	Aug. 14, 2020	Conducted (TH05-HY)
AC Power Source	ChainTek	APC-1000W	N/A	N/A	N/A	Jan. 11, 2020	N/A	Conduction (CO05-HY)
EMI Test Receiver	Rohde & Schwarz	ESR3	102388	9kHz~3.6GHz	Nov. 15, 2019	Jan. 11, 2020	Nov. 14, 2020	Conduction (CO05-HY)
Hygrometer	Testo	608-H1	34913912	N/A	Mar. 19, 2019	Jan. 11, 2020	Mar. 18, 2020	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100081	9kHz~30MHz	Nov. 15, 2019	Jan. 11, 2020	Nov. 14, 2020	Conduction (CO05-HY)
Software	Rohde & Schwarz	EMC32 V10.30	N/A	N/A	N/A	Jan. 11, 2020	N/A	Conduction (CO05-HY)
LF Cable	HUBER + SUHNER	RG-214/U	LF01	N/A	Jan. 02, 2020	Jan. 11, 2020	Jan. 01, 2021	Conduction (CO05-HY)
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100851	N/A	Jan. 02, 2020	Jan. 11, 2020	Jan. 01, 2021	Conduction (CO05-HY)
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100488	9 kHz~30 MHz	Dec. 26, 2019	Jan. 24,.2020~ Feb. 24,.2020	Dec. 25, 2020	Radiation (03CH16-HY)
Bilog Antenna	TESEQ	CBL6111D&00802N1D01N-06	47020&06	30MHz to 1GHz	Oct. 13, 2019	Jan. 24,.2020~ Feb. 24,.2020	Oct. 12, 2020	Radiation (03CH16-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-1522	1G~18GHz	Sep. 19, 2019	Jan. 24,.2020~ Feb. 24,.2020	Sep. 18, 2020	Radiation (03CH16-HY)
Amplifier	SONOMA	310N	371607	9kHz~1000MHz	Oct. 01. 2019	Jan. 24,.2020~ Feb. 24,.2020	Sep. 30. 2020	Radiation (03CH16-HY)
Preamplifier	Jet-Power	JPA0118-55-303	1710001800054001	1GHz~18GHz	May 19, 2019	Jan. 24,.2020~ Feb. 24,.2020	May 18, 2020	Radiation (03CH16-HY)
Preamplifier	EMEC	EMC184045B	980192	18GHz ~40GHz	Jul. 10, 2019	Jan. 24,.2020~ Feb. 24,.2020	Jul. 09, 2020	Radiation (03CH16-HY)
Preamplifier	Keysight	83017A	MY53270264	1GHz~26.5GHz	Dec. 11, 2019	Jan. 24,.2020~ Feb. 24,.2020	Dec.10, 2020	Radiation (03CH16-HY)
EMI Test Receiver	Keysight	N9038A (MXE)	MY55420170	20MHz~8.4GHz	Mar. 08, 2019	Jan. 24,.2020~ Feb. 24,.2020	Mar. 07, 2020	Radiation (03CH16-HY)
Spectrum Analyzer	Agilent	E4446A	MY50180136	3Hz~44GHz	Apr. 29, 2019	Jan. 24,.2020~ Feb. 24,.2020	Apr. 28, 2020	Radiation (03CH16-HY)

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY11680/ 4PE	NA	Aug. 30, 2019	Jan. 24,.2020~ Feb. 24,.2020	Aug. 29, 2020	Radiation (03CH16-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY11688/ 4PE	NA	Aug. 30, 2019	Jan. 24,.2020~ Feb. 24,.2020	Aug. 29, 2020	Radiation (03CH16-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	EC-A5-300 -5757	NA	Aug. 30, 2019	Jan. 24,.2020~ Feb. 24,.2020	Aug. 29, 2020	Radiation (03CH16-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	505134/2	30MHz~40GHz	Feb. 26, 2019	Jan. 24,.2020~ Feb. 24,.2020	Feb. 25, 2020	Radiation (03CH16-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	800740/2	30MHz~40GHz	Feb. 26, 2019	Jan. 24,.2020~ Feb. 24,.2020	Feb. 25, 2020	Radiation (03CH16-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170 576	18GHz~40GHz	May 14, 2019	Jan. 24,.2020~ Feb. 24,.2020	May 13, 2020	Radiation (03CH16-HY)
Preamplifier	EMEC	EM18G40G	060715	18GHz~40GHz	Dec.13, 2019	Jan. 24,.2020~ Feb. 24,.2020	Dec.12, 2020	Radiation (03CH16-HY)
Hygrometer	TECPEL	DTM-303B	TP161243	N/A	Jun 17, 2019	Jan. 24,.2020~ Feb. 24,.2020	Jun 16, 2020	Radiation (03CH16-HY)
Software	Audix	E3 6.2009-8-24	RK-001136	N/A	N/A	Jan. 24,.2020~ Feb. 24,.2020	N/A	Radiation (03CH16-HY)

5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.0**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**4.9**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**6.7**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**3.9**

Appendix A. Test Result of Conducted Test Items

Test Engineer:	Kathy Chen / Kia Liao	Temperature:	21~25	°C
Test Date:	2020/1/13 ~ 2/26	Relative Humidity:	51~54	%

Report Number : FR9D0701C

TEST RESULTS DATA
6dB and 99% Occupied Bandwidth

2.4GHz Band MIMO										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	99% Occupied BW (MHz)		6dB BW (MHz)		6dB BW Limit (MHz)	Pass/Fail
					Ant1	Ant2	Ant1	Ant2		
11b	1Mbps	2	1	2412	13.05	12.95	8.04	8.00	0.50	Pass
11b	1Mbps	2	6	2437	13.00	13.05	8.00	8.04	0.50	Pass
11b	1Mbps	2	11	2462	12.90	12.95	8.00	8.00	0.50	Pass
11g	6Mbps	2	1	2412	16.45	16.45	15.64	15.68	0.50	Pass
11g	6Mbps	2	6	2437	16.45	16.45	15.24	16.28	0.50	Pass
11g	6Mbps	2	11	2462	16.45	16.45	15.24	15.88	0.50	Pass

TEST RESULTS DATA
Average Output Power

2.4GHz Band MIMO																
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
					Ant1	Ant2	SUM	Ant1	Ant2	Ant1	Ant2	Ant1	Ant2	Ant1	Ant2	
11b	1Mbps	2	1	2412	18.70	18.60	21.66	30.00		1.00		22.66		36.00		Pass
11b	1Mbps	2	6	2437	18.80	18.80	21.81	30.00		1.00		22.81		36.00		Pass
11b	1Mbps	2	11	2462	18.90	18.90	21.91	30.00		1.00		22.91		36.00		Pass
11g	6Mbps	2	1	2412	17.70	17.90	20.81	30.00		1.00		21.81		36.00		Pass
11g	6Mbps	2	6	2437	17.60	17.80	20.71	30.00		1.00		21.71		36.00		Pass
11g	6Mbps	2	11	2462	17.60	17.80	20.71	30.00		1.00		21.71		36.00		Pass
HT20	MCS0	2	1	2412	15.50	15.80	18.66	30.00		1.00		19.66		36.00		Pass
HT20	MCS0	2	6	2437	17.00	17.40	20.21	30.00		1.00		21.21		36.00		Pass
HT20	MCS0	2	11	2462	15.60	15.90	18.76	30.00		1.00		19.76		36.00		Pass
HT40	MCS0	2	3	2422	14.70	15.30	18.02	30.00		1.00		19.02		36.00		Pass
HT40	MCS0	2	6	2437	15.40	15.70	18.56	30.00		1.00		19.56		36.00		Pass
HT40	MCS0	2	9	2452	15.50	15.60	18.56	30.00		1.00		19.56		36.00		Pass
VHT20	MCS0	2	1	2412	15.40	15.60	18.51	30.00		1.00		19.51		36.00		Pass
VHT20	MCS0	2	6	2437	16.90	17.20	20.06	30.00		1.00		21.06		36.00		Pass
VHT20	MCS0	2	11	2462	15.50	15.70	18.61	30.00		1.00		19.61		36.00		Pass
VHT40	MCS0	2	3	2422	14.60	15.20	17.92	30.00		1.00		18.92		36.00		Pass
VHT40	MCS0	2	6	2437	15.30	15.60	18.46	30.00		1.00		19.46		36.00		Pass
VHT40	MCS0	2	9	2452	15.30	15.20	18.26	30.00		1.00		19.26		36.00		Pass

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

TEST RESULTS DATA
Peak Power Spectral Density

2.4GHz Band MIMO												
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Peak PSD (dBm/3kHz)			DG (dBi)		Peak PSD Limit (dBm/3kHz)		Pass/Fail
					Ant1	Ant2	Worse + 3.01	Ant1	Ant2	Ant1	Ant2	
11b	1Mbps	2	1	2412	-3.70	-4.75	-0.69	3.76		8.00		Pass
11b	1Mbps	2	6	2437	-5.06	-5.03	-2.02	3.76		8.00		Pass
11b	1Mbps	2	11	2462	-4.88	-5.01	-1.87	3.76		8.00		Pass
11g	6Mbps	2	1	2412	-8.37	-7.99	-4.98	3.76		8.00		Pass
11g	6Mbps	2	6	2437	-9.52	-9.10	-6.09	3.76		8.00		Pass
11g	6Mbps	2	11	2462	-9.73	-8.55	-5.54	3.76		8.00		Pass

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

TEST RESULTS DATA
6dB and 99% Occupied Bandwidth

2.4GHz Band MIMO											
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	99% Occupied BW (MHz)		6dB BW (MHz)		6dB BW Limit (MHz)	Pass/Fail
						Ant1	Ant2	Ant1	Ant2		
HE20	MCS0	2	1	2412	Full	19.20	19.15	18.90	18.76	0.50	Pass
HE20	MCS0	2	1	2412	26/0	18.55	18.55	2.02	17.00	0.50	Pass
HE20	MCS0	2	1	2412	52/37	18.50	18.40	17.04	16.98	0.50	Pass
HE20	MCS0	2	1	2412	106/53	18.50	18.35	17.12	17.12	0.50	Pass
HE20	MCS0	2	6	2437	Full	19.15	19.10	18.92	18.88	0.50	Pass
HE20	MCS0	2	6	2437	26/4	17.60	17.60	2.56	15.00	0.50	Pass
HE20	MCS0	2	11	2462	Full	19.05	19.15	18.90	18.88	0.50	Pass
HE20	MCS0	2	11	2462	26/8	18.60	18.50	2.08	2.00	0.50	Pass
HE20	MCS0	2	11	2462	52/40	18.45	18.35	4.00	17.02	0.50	Pass
HE20	MCS0	2	11	2462	106/54	18.30	18.45	17.12	17.14	0.50	Pass
HE40	MCS0	2	3	2422	Full	38.30	38.20	37.36	37.60	0.50	Pass
HE40	MCS0	2	3	2422	242/61	38.10	38.40	37.28	36.64	0.50	Pass
HE40	MCS0	2	6	2437	Full	38.20	38.40	37.84	37.92	0.50	Pass
HE40	MCS0	2	9	2452	Full	38.40	38.50	38.08	38.08	0.50	Pass
HE40	MCS0	2	9	2452	242/62	38.30	38.10	36.60	36.64	0.50	Pass

TEST RESULTS DATA
Average Output Power

2.4GHz Band MIMO																	
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	Average Conducted Power (dBm)			Conducted Power Limit (dBm)		DG (dBi)		EIRP Power (dBm)		EIRP Power Limit (dBm)		Pass /Fail
						Ant1	Ant2	SUM	Ant1	Ant2	Ant1	Ant2	Ant1	Ant2	Ant1	Ant2	
HE20	MCS0	2	1	2412	Full	15.60	16.50	19.08	30.00		1.00		20.08		36.00		Pass
HE20	MCS0	2	1	2412	26/0	16.50	17.40	19.98	30.00		1.00		20.98		36.00		Pass
HE20	MCS0	2	1	2412	52/37	16.30	17.20	19.78	30.00		1.00		20.78		36.00		Pass
HE20	MCS0	2	1	2412	106/53	17.50	17.90	20.71	30.00		1.00		21.71		36.00		Pass
HE20	MCS0	2	6	2437	Full	17.10	17.90	20.53	30.00		1.00		21.53		36.00		Pass
HE20	MCS0	2	6	2437	26/4	16.90	17.80	20.38	30.00		1.00		21.38		36.00		Pass
HE20	MCS0	2	11	2462	Full	15.70	16.40	19.07	30.00		1.00		20.07		36.00		Pass
HE20	MCS0	2	11	2462	26/8	16.30	17.20	19.78	30.00		1.00		20.78		36.00		Pass
HE20	MCS0	2	11	2462	52/40	16.20	17.10	19.68	30.00		1.00		20.68		36.00		Pass
HE20	MCS0	2	11	2462	106/54	16.80	17.70	20.28	30.00		1.00		21.28		36.00		Pass
HE40	MCS0	2	3	2422	Full	14.80	15.50	18.17	30.00		1.00		19.17		36.00		Pass
HE40	MCS0	2	3	2422	242/61	11.40	12.30	14.88	30.00		1.00		15.88		36.00		Pass
HE40	MCS0	2	6	2437	Full	15.50	15.90	18.71	30.00		1.00		19.71		36.00		Pass
HE40	MCS0	2	9	2452	Full	15.50	15.90	18.71	30.00		1.00		19.71		36.00		Pass
HE40	MCS0	2	9	2452	242/62	11.00	11.90	14.48	30.00		1.00		15.48		36.00		Pass

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

TEST RESULTS DATA
Peak Power Spectral Density

2.4GHz Band MIMO													
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	Peak PSD (dBm/3kHz)			DG (dBi)		Peak PSD Limit (dBm/3kHz)		Pass/Fail
						Ant1	Ant2	Worse + 3.01	Ant1	Ant2	Ant1	Ant2	
HE20	MCS0	2	1	2412	Full	-9.83	-9.35	-6.34	3.76		8.00		Pass
HE20	MCS0	2	1	2412	26/0	-0.56	0.28	3.29	3.76		8.00		Pass
HE20	MCS0	2	1	2412	52/37	-2.63	-2.09	0.92	3.76		8.00		Pass
HE20	MCS0	2	1	2412	106/53	-4.74	-3.94	-0.93	3.76		8.00		Pass
HE20	MCS0	2	6	2437	Full	-9.74	-9.06	-6.05	3.76		8.00		Pass
HE20	MCS0	2	6	2437	26/4	-1.30	0.88	3.89	3.76		8.00		Pass
HE20	MCS0	2	11	2462	Full	-9.87	-9.13	-6.12	3.76		8.00		Pass
HE20	MCS0	2	11	2462	26/8	-2.54	-1.53	1.48	3.76		8.00		Pass
HE20	MCS0	2	11	2462	52/40	-5.72	-3.81	-0.80	3.76		8.00		Pass
HE20	MCS0	2	11	2462	106/54	-6.07	-4.96	-1.95	3.76		8.00		Pass
HE40	MCS0	2	3	2422	Full	-14.29	-12.71	-9.70	3.76		8.00		Pass
HE40	MCS0	2	3	2422	242/61	-9.91	-9.29	-6.28	3.76		8.00		Pass
HE40	MCS0	2	6	2437	Full	-14.42	-13.67	-10.66	3.76		8.00		Pass
HE40	MCS0	2	9	2452	Full	-13.97	-13.09	-10.08	3.76		8.00		Pass
HE40	MCS0	2	9	2452	242/62	-10.77	-8.92	-5.91	3.76		8.00		Pass

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

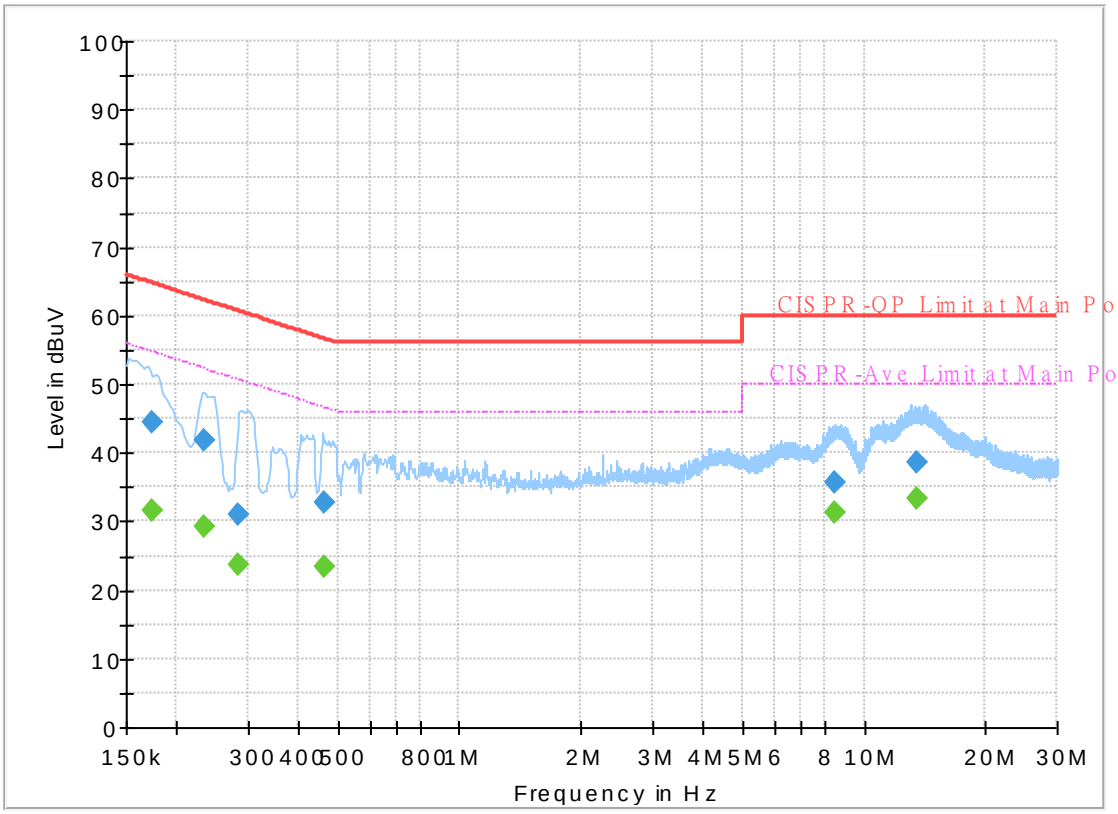
Appendix B. AC Conducted Emission Test Results

Test Engineer :	Howard Huang	**Temperature :**	21~23℃
		Relative Humidity :	40~43%

EUT Information

Report NO :	9D0701
Test Mode :	Mode 1
Test Voltage :	120Vac/60Hz
Phase :	Line

Full Spectrum



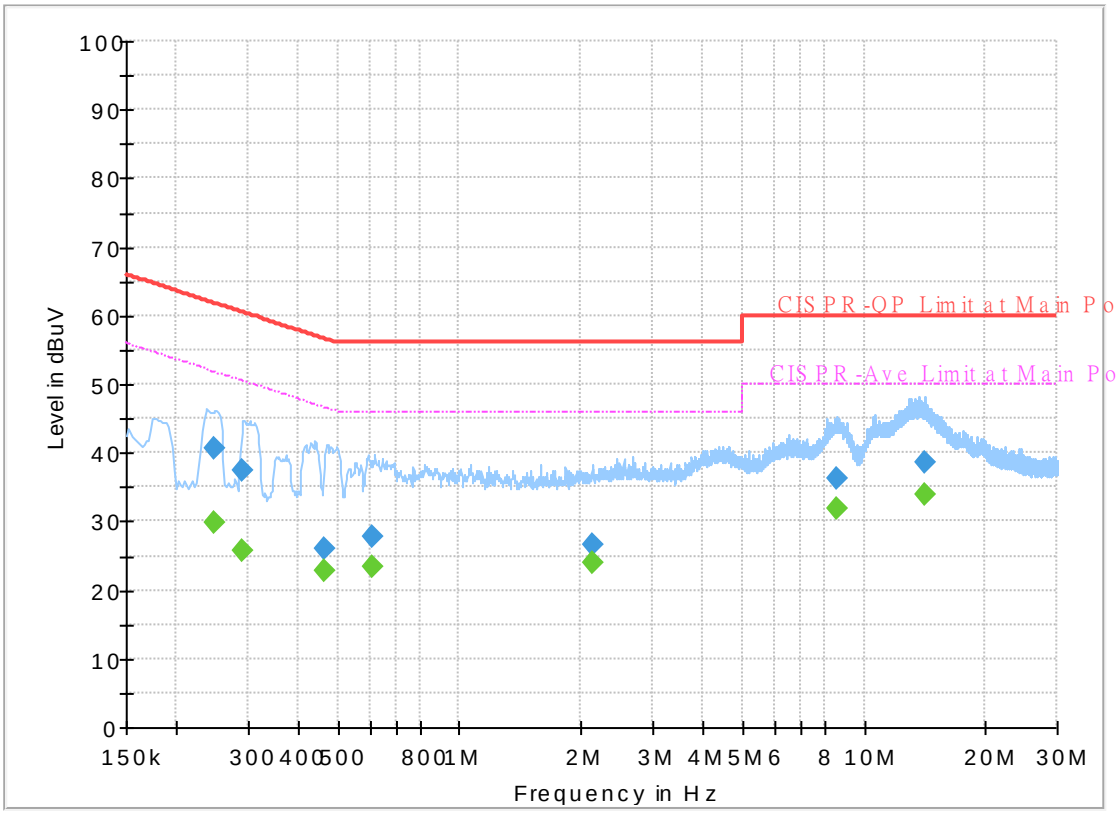
Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.174750	---	31.53	54.73	23.20	L1	OFF	19.5
0.174750	44.30	---	64.73	20.43	L1	OFF	19.5
0.232620	---	29.12	52.36	23.24	L1	OFF	19.5
0.232620	41.82	---	62.36	20.54	L1	OFF	19.5
0.285000	---	23.78	50.67	26.89	L1	OFF	19.5
0.285000	30.88	---	60.67	29.79	L1	OFF	19.5
0.465000	---	23.51	46.60	23.09	L1	OFF	19.5
0.465000	32.60	---	56.60	24.00	L1	OFF	19.5
8.486250	---	31.35	50.00	18.65	L1	OFF	19.9
8.486250	35.64	---	60.00	24.36	L1	OFF	19.9
13.569090	---	33.44	50.00	16.56	L1	OFF	20.1
13.569090	38.61	---	60.00	21.39	L1	OFF	20.1

EUT Information

Report NO :	9D0701
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)
0.247830	---	29.93	51.83	21.90	N	OFF	19.6
0.247830	40.79	---	61.83	21.04	N	OFF	19.6
0.291750	---	25.76	50.47	24.71	N	OFF	19.6
0.291750	37.53	---	60.47	22.94	N	OFF	19.6
0.462750	---	22.81	46.64	23.83	N	OFF	19.6
0.462750	26.06	---	56.64	30.58	N	OFF	19.6
0.611250	---	23.45	46.00	22.55	N	OFF	19.6
0.611250	27.92	---	56.00	28.08	N	OFF	19.6
2.140170	---	24.02	46.00	21.98	N	OFF	19.6
2.140170	26.50	---	56.00	29.50	N	OFF	19.6
8.562750	---	31.76	50.00	18.24	N	OFF	20.0
8.562750	36.20	---	60.00	23.80	N	OFF	20.0
14.174610	---	33.78	50.00	16.22	N	OFF	20.2
14.174610	38.62	---	60.00	21.38	N	OFF	20.2

Appendix C. Radiated Spurious Emission

Test Engineer :	Jacky Hung, Andy Yang, and CR Liro	Temperature :	20~25°C
		Relative Humidity :	50~60%

2.4GHz 2400~2483.5MHz

WIFI 802.11b (Band Edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b CH 01 2412MHz		2378.88	56.69	-17.31	74	40.71	27.68	18.08	29.78	119	110	P	H
		2389.695	44.9	-9.1	54	28.95	27.64	18.09	29.78	119	110	A	H
	*	2412	106.67	-	-	90.73	27.6	18.13	29.79	119	110	P	H
	*	2412	104.03	-	-	88.09	27.6	18.13	29.79	119	110	A	H
													H
													H
		2330.685	56.04	-17.96	74	39.92	27.88	18	29.76	353	74	P	V
		2389.17	44.48	-9.52	54	28.53	27.64	18.09	29.78	353	74	A	V
	*	2412	103.83	-	-	87.89	27.6	18.13	29.79	353	74	P	V
	*	2412	101.33	-	-	85.39	27.6	18.13	29.79	353	74	A	V
													V
													V
802.11b CH 06 2437MHz		2324.84	56.44	-17.56	74	40.31	27.9	17.99	29.76	109	109	P	H
		2316.02	44.51	-9.49	54	28.35	27.94	17.97	29.75	109	109	A	H
	*	2437	104.65	-	-	88.68	27.6	18.17	29.8	109	109	P	H
	*	2437	102.21	-	-	86.24	27.6	18.17	29.8	109	109	A	H
		2492.93	56.81	-17.19	74	40.87	27.51	18.26	29.83	109	109	P	H
		2483.69	44.64	-9.36	54	28.69	27.53	18.24	29.82	109	109	A	H
		2322.88	56.78	-17.22	74	40.65	27.91	17.98	29.76	400	43	P	V
		2310.28	44.5	-9.5	54	28.33	27.96	17.96	29.75	400	43	A	V
	*	2437	102.24	-	-	86.27	27.6	18.17	29.8	400	43	P	V
	*	2437	99.92	-	-	83.95	27.6	18.17	29.8	400	43	A	V
		2493.07	56.02	-17.98	74	40.08	27.51	18.26	29.83	400	43	P	V
		2496.43	44.64	-9.36	54	28.7	27.51	18.26	29.83	400	43	A	V

802.11b CH 11 2462MHz	*	2462	101.47	-	-	85.49	27.58	18.21	29.81	144	106	P	H
	*	2462	98.87	-	-	82.89	27.58	18.21	29.81	144	106	A	H
		2489.28	56.16	-17.84	74	40.22	27.52	18.25	29.83	144	106	P	H
		2483.96	44.77	-9.23	54	28.82	27.53	18.24	29.82	144	106	A	H
													H
													H
	*	2462	100.62	-	-	84.64	27.58	18.21	29.81	397	42	P	V
	*	2462	98.01	-	-	82.03	27.58	18.21	29.81	397	42	A	V
		2498.92	56.64	-17.36	74	40.7	27.5	18.27	29.83	397	42	P	V
		2484.56	44.74	-9.26	54	28.78	27.53	18.25	29.82	397	42	A	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

2.4GHz 2400~2483.5MHz

WIFI 802.11b (Harmonic @ 3m)

WIFI Ant. 1+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	37.03	-36.97	74	51.54	31.15	11.92	58.11	100	0	P	H
													H
													H
													H
		4824	36.33	-37.67	74	50.84	31.15	11.92	58.11	100	0	P	V
													V
													V
													V
802.11b CH 06 2437MHz		4874	36.08	-37.92	74	50.6	31.1	11.98	58.12	100	0	P	H
		7311	42.35	-31.65	74	47.81	36.44	15.25	57.5	100	0	P	H
													H
													H
		4874	36.2	-37.8	74	50.72	31.1	11.98	58.12	100	0	P	V
		7311	41.96	-32.04	74	47.42	36.44	15.25	57.5	100	0	P	V
													V
													V
802.11b CH 11 2462MHz		4924	36.8	-37.2	74	51.3	31.1	12.03	58.13	100	0	P	H
		7386	43.34	-30.66	74	48.61	36.53	15.31	57.4	100	0	P	H
													H
													H
		4924	36.73	-37.27	74	51.23	31.1	12.03	58.13	100	0	P	V
		7386	42.57	-31.43	74	47.84	36.53	15.31	57.4	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	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)
802.11g CH 01 2412MHz		2389.38	58.48	-15.52	74	42.53	27.64	8.17	29.78	120	109	P	H
		2389.17	47.4	-6.6	54	31.45	27.64	8.17	29.78	120	109	A	H
	*	2412	114.06	-	-	98.12	27.6	8.21	29.79	120	109	P	H
	*	2412	106.81	-	-	90.87	27.6	8.21	29.79	120	109	A	H
													H
													H
		2388.75	56.25	-17.75	74	40.29	27.65	8.17	29.78	358	72	P	V
		2389.17	45.75	-8.25	54	29.8	27.64	8.17	29.78	358	72	A	V
	*	2412	109.75	-	-	93.81	27.6	8.21	29.79	358	72	P	V
	*	2412	102.56	-	-	86.62	27.6	8.21	29.79	358	72	A	V
													V
													V
802.11g CH 06 2437MHz		2340.66	56.53	-17.47	74	40.44	27.84	8.09	29.76	113	108	P	H
		2389.24	44.36	-9.64	54	28.41	27.64	8.17	29.78	113	108	A	H
	*	2437	114.96	-	-	98.99	27.6	8.25	29.8	113	108	P	H
	*	2437	107.37	-	-	91.4	27.6	8.25	29.8	113	108	A	H
		2484.39	56.19	-17.81	74	40.23	27.53	8.33	29.82	113	108	P	H
		2486.14	44.47	-9.53	54	28.51	27.53	8.33	29.82	113	108	A	H
		2343.74	57.04	-16.96	74	40.95	27.83	8.1	29.76	400	39	P	V
		2322.32	44.3	-9.7	54	28.17	27.91	8.06	29.76	400	39	A	V
	*	2437	110.19	-	-	94.22	27.6	8.25	29.8	400	39	P	V
	*	2437	103.3	-	-	87.33	27.6	8.25	29.8	400	39	A	V
		2498.46	56.42	-17.58	74	40.48	27.5	8.35	29.83	400	39	P	V
		2489.71	44.44	-9.56	54	28.5	27.52	8.33	29.83	400	39	A	V

802.11g CH 11 2462MHz	*	2462	114.31	-	-	98.33	27.58	8.29	29.81	148	96	P	H
	*	2462	106.52	-	-	90.54	27.58	8.29	29.81	148	96	A	H
		2484.28	59.38	-14.62	74	43.43	27.53	8.32	29.82	148	96	P	H
		2483.76	47.81	-6.19	54	31.86	27.53	8.32	29.82	148	96	A	H
													H
													H
	*	2462	110.64	-	-	94.66	27.58	8.29	29.81	391	39	P	V
	*	2462	103.4	-	-	87.42	27.58	8.29	29.81	391	39	A	V
		2484.52	58.49	-15.51	74	42.53	27.53	8.33	29.82	391	39	P	V
		2483.6	46.9	-7.1	54	30.95	27.53	8.32	29.82	391	39	A	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

2.4GHz 2400~2483.5MHz

WIFI 802.11g (Harmonic @ 3m)

WIFI Ant. 1+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	36.72	-37.28	74	51.23	31.15	11.92	58.11	100	0	P	H
													H
													H
													H
		4824	36.11	-37.89	74	50.62	31.15	11.92	58.11	100	0	P	V
													V
													V
													V
802.11g CH 06 2437MHz		4874	36.24	-37.76	74	50.76	31.1	11.98	58.12	100	0	P	H
		7311	41.96	-32.04	74	47.42	36.44	15.25	57.5	100	0	P	H
													H
													H
		4874	36.17	-37.83	74	50.69	31.1	11.98	58.12	100	0	P	V
		7311	42.23	-31.77	74	47.69	36.44	15.25	57.5	100	0	P	V
													V
													V
802.11g CH 11 2462MHz		4924	36.97	-37.03	74	51.47	31.1	12.03	58.13	100	0	P	H
		7386	42.19	-31.81	74	47.46	36.53	15.31	57.4	100	0	P	H
													H
													H
		4924	37.2	-36.8	74	51.7	31.1	12.03	58.13	100	0	P	V
		7386	42.57	-31.43	74	47.84	36.53	15.31	57.4	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 802.11ax HE20(Full RU) (Band Edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11ax HE20 (Full RU) CH 01 2412MHz		2389.38	66.58	-7.42	74	50.63	27.64	18.09	29.78	100	38	P	H
		2390	48.68	-5.32	54	32.73	27.64	18.09	29.78	100	38	A	H
	*	2412	110.82	-	-	94.88	27.6	18.13	29.79	100	38	P	H
	*	2412	101.84	-	-	85.9	27.6	18.13	29.79	100	38	A	H
													H
													H
		2389.695	65.35	-8.65	74	49.4	27.64	18.09	29.78	100	100	P	V
		2390	48.7	-5.3	54	32.75	27.64	18.09	29.78	100	100	A	V
	*	2412	109.76	-	-	93.82	27.6	18.13	29.79	100	100	P	V
	*	2412	100.49	-	-	84.55	27.6	18.13	29.79	100	100	A	V
													V
													V
802.11ax HE20 (Full RU) CH 06 2437MHz		2334.78	57.76	-16.24	74	41.66	27.86	18	29.76	112	53	P	H
		2389.66	44.74	-9.26	54	28.79	27.64	18.09	29.78	112	53	A	H
	*	2437	112.5	-	-	96.53	27.6	18.17	29.8	112	53	P	H
	*	2437	103.42	-	-	87.45	27.6	18.17	29.8	112	53	A	H
		2491.53	56.43	-17.57	74	40.48	27.52	18.26	29.83	112	53	P	H
		2483.5	44.82	-9.18	54	28.87	27.53	18.24	29.82	112	53	A	H
		2346.26	57.71	-16.29	74	41.65	27.81	18.02	29.77	100	111	P	V
		2389.8	44.78	-9.22	54	28.83	27.64	18.09	29.78	100	111	A	V
	*	2437	111.49	-	-	95.52	27.6	18.17	29.8	100	111	P	V
	*	2437	102.95	-	-	86.98	27.6	18.17	29.8	100	111	A	V
		2485.02	57.19	-16.81	74	41.23	27.53	18.25	29.82	100	111	P	V
		2483.9	44.89	-9.11	54	28.94	27.53	18.24	29.82	100	111	A	V

802.11ax HE20 (Full RU) CH 11 2462MHz	*	2462	109.93	-	-	93.95	27.58	18.21	29.81	147	51	P	H
	*	2462	100.87	-	-	84.89	27.58	18.21	29.81	147	51	A	H
		2483.52	66.67	-7.33	74	50.72	27.53	18.24	29.82	147	51	P	H
		2483.52	48.65	-5.35	54	32.7	27.53	18.24	29.82	147	51	A	H
													H
													H
	*	2462	108.72	-	-	92.74	27.58	18.21	29.81	100	111	P	V
	*	2462	100.16	-	-	84.18	27.58	18.21	29.81	100	111	A	V
		2483.84	67.85	-6.15	74	51.9	27.53	18.24	29.82	100	111	P	V
		2483.52	48.97	-5.03	54	33.02	27.53	18.24	29.82	100	111	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 802.11ax HE20(Full RU) (Harmonic @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ax HE20 (Full RU) CH 01 2412MHz		4824	35.23	-38.77	74	49.76	31.15	12.43	58.11	100	0	P	H
													H
													H
													H
		4824	34.62	-39.38	74	49.15	31.15	12.43	58.11	100	0	P	V
													V
													V
													V
802.11ax HE20 (Full RU) CH06 2437MHz		4874	35.31	-38.69	74	49.85	31.1	12.48	58.12	100	0	P	H
		7311	41.31	-32.69	74	46.69	36.44	15.68	57.5	100	0	P	H
													H
													H
		4874	35.34	-38.66	74	49.88	31.1	12.48	58.12	100	0	P	V
		7311	41.58	-32.42	74	46.96	36.44	15.68	57.5	100	0	P	V
													V
													V
802.11ax HE20 (Full RU) CH11 2462MHz		4924	35.87	-38.13	74	50.38	31.1	12.52	58.13	100	0	P	H
		7386	41.15	-32.85	74	46.36	36.53	15.66	57.4	100	0	P	H
													H
													H
		4924	35.96	-38.04	74	50.47	31.1	12.52	58.13	100	0	P	V
		7386	41.91	-32.09	74	47.12	36.53	15.66	57.4	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 802.11ax HE40(Full RU) (Band Edge @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ax HE40 (Full RU) CH 03 2422MHz		2388.4	63.57	-10.43	74	47.61	27.65	18.09	29.78	135	38	P	H
		2389.94	49.13	-4.87	54	33.18	27.64	18.09	29.78	135	38	A	H
	*	2422	107.31	-	-	91.36	27.6	18.15	29.8	135	38	P	H
	*	2422	97.69	-	-	81.74	27.6	18.15	29.8	135	38	A	H
		2490.2	57.01	-16.99	74	41.07	27.52	18.25	29.83	135	38	P	H
		2483.76	44.93	-9.07	54	28.98	27.53	18.24	29.82	135	38	A	H
		2389.94	61.41	-12.59	74	45.46	27.64	18.09	29.78	101	111	P	V
		2389.94	48.56	-5.44	54	32.61	27.64	18.09	29.78	101	111	A	V
	*	2422	105.83	-	-	89.88	27.6	18.15	29.8	101	111	P	V
	*	2422	96.02	-	-	80.07	27.6	18.15	29.8	101	111	A	V
		2498.11	56.93	-17.07	74	40.99	27.5	18.27	29.83	101	111	P	V
		2483.5	44.89	-9.11	54	28.94	27.53	18.24	29.82	101	111	A	V
802.11ax HE20 (Full RU) CH 06 2437MHz		2389.8	60.83	-13.17	74	44.88	27.64	18.09	29.78	166	37	P	H
		2389.94	46.35	-7.65	54	30.4	27.64	18.09	29.78	166	37	A	H
	*	2437	108.83	-	-	92.86	27.6	18.17	29.8	166	37	P	H
	*	2437	98.85	-	-	82.88	27.6	18.17	29.8	166	37	A	H
		2483.69	63.19	-10.81	74	47.24	27.53	18.24	29.82	166	37	P	H
		2483.5	46.2	-7.8	54	30.25	27.53	18.24	29.82	166	37	A	H
		2389.1	59.27	-14.73	74	43.32	27.64	18.09	29.78	100	87	P	V
		2389.94	46.35	-7.65	54	30.4	27.64	18.09	29.78	100	87	A	V
	*	2437	106.82	-	-	90.85	27.6	18.17	29.8	100	87	P	V
	*	2437	97.6	-	-	81.63	27.6	18.17	29.8	100	87	A	V
		2483.76	59.09	-14.91	74	43.14	27.53	18.24	29.82	100	87	P	V
		2483.5	45.82	-8.18	54	29.87	27.53	18.24	29.82	100	87	A	V

802.11ax HE40 (Full RU) CH 09 2452MHz		2319.52	57.73	-16.27	74	41.58	27.92	17.98	29.75	164	36	P	H
		2388.96	44.96	-9.04	54	29.01	27.64	18.09	29.78	164	36	A	H
	*	2452	107.27	-	-	91.29	27.6	18.19	29.81	164	36	P	H
	*	2452	98.44	-	-	82.46	27.6	18.19	29.81	164	36	A	H
		2483.9	67.02	-6.98	74	51.07	27.53	18.24	29.82	164	36	P	H
		2483.5	49.28	-4.72	54	33.33	27.53	18.24	29.82	164	36	A	H
		2323.58	58.14	-15.86	74	42.01	27.91	17.98	29.76	100	84	P	V
		2389.24	44.89	-9.11	54	28.94	27.64	18.09	29.78	100	84	A	V
	*	2452	106.38	-	-	90.4	27.6	18.19	29.81	100	84	P	V
	*	2452	97.21	-	-	81.23	27.6	18.19	29.81	100	84	A	V
		2484.32	63.62	-10.38	74	47.67	27.53	18.24	29.82	100	84	P	V
		2483.5	48.31	-5.69	54	32.36	27.53	18.24	29.82	100	84	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 802.11ax HE40(Full RU) (Harmonic @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ax HE40 (Full RU) CH 03 2422MHz		4844	35.05	-38.95	74	49.54	31.19	12.44	58.12	100	0	P	H
		7266	41.78	-32.22	74	47.33	36.33	15.68	57.56	100	0	P	H
													H
													H
		4844	35.66	-38.34	74	50.15	31.19	12.44	58.12	100	0	P	V
		7266	41.95	-32.05	74	47.5	36.33	15.68	57.56	100	0	P	V
													V
													V
802.11ax HE40 (Full RU) CH06 2437MHz		4874	35.48	-38.52	74	50.02	31.1	12.48	58.12	100	0	P	H
		7311	42.18	-31.82	74	47.56	36.44	15.68	57.5	100	0	P	H
													H
													H
		4874	35.16	-38.84	74	49.7	31.1	12.48	58.12	100	0	P	V
		7311	42.12	-31.88	74	47.5	36.44	15.68	57.5	100	0	P	V
													V
													V
802.11ax HE40 (Full RU) CH09 2462MHz		4904	35.87	-38.13	74	50.48	31.02	12.5	58.13	100	0	P	H
		7356	43.09	-30.91	74	48.28	36.59	15.66	57.44	100	0	P	H
													H
													H
		4904	35.74	-38.26	74	50.35	31.02	12.5	58.13	100	0	P	V
		7356	42.26	-31.74	74	47.45	36.59	15.66	57.44	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 802.11ax HE20(Partial RU) (Band Edge @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ax HE20 (RU 26/0) CH 01 2412MHz		2389.485	69.78	-4.22	74	53.83	27.64	18.09	29.78	150	48	P	H
		2388.225	45.07	-8.93	54	29.11	27.65	18.09	29.78	150	48	A	H
	*	2412	117.74	-	-	101.8	27.6	18.13	29.79	150	48	P	H
	*	2412	109.09	-	-	93.15	27.6	18.13	29.79	150	48	A	H
													H
													H
		2389.485	69.04	-4.96	74	53.09	27.64	18.09	29.78	100	114	P	V
		2389.59	44.99	-9.01	54	29.04	27.64	18.09	29.78	100	114	A	V
	*	2412	118.08	-	-	102.14	27.6	18.13	29.79	100	114	P	V
	*	2412	109.29	-	-	93.35	27.6	18.13	29.79	100	114	A	V
													V
													V
802.11ax HE20 (RU 52/37) CH 01 2412MHz		2389.17	70.1	-3.9	74	54.15	27.64	18.09	29.78	147	53	P	H
		2390	45.16	-8.84	54	29.21	27.64	18.09	29.78	147	53	A	H
	*	2412	116.9	-	-	100.96	27.6	18.13	29.79	147	53	P	H
	*	2412	108.27	-	-	92.33	27.6	18.13	29.79	147	53	A	H
												P	H
												A	H
		2388.645	69.57	-4.43	74	53.61	27.65	18.09	29.78	100	111	P	V
		2390	45.15	-8.85	54	29.2	27.64	18.09	29.78	100	111	A	V
	*	2412	116.35	-	-	100.42	27.6	18.12	29.79	100	111	P	V
	*	2412	107.43	-	-	91.5	27.6	18.12	29.79	100	111	A	V
												P	V
												A	V

802.11ax HE20 (RU 106/53) CH 01 2412MHz		2389.38	70.64	-3.36	74	54.69	27.64	18.09	29.78	148	48	P	H
		2390	46.18	-7.82	54	30.23	27.64	18.09	29.78	148	48	A	H
	*	2412	117.08	-	-	101.14	27.6	18.13	29.79	148	48	P	H
	*	2412	108.72	-	-	92.78	27.6	18.13	29.79	148	48	A	H
													H
													H
		2388.96	69.73	-4.27	74	53.78	27.64	18.09	29.78	100	112	P	V
		2389.905	46.17	-7.83	54	30.22	27.64	18.09	29.78	100	112	A	V
	*	2412	116.76	-	-	100.82	27.6	18.13	29.79	100	112	P	V
	*	2412	107.36	-	-	91.42	27.6	18.13	29.79	100	112	A	V
													V
													V
802.11ax HE20 (RU 26/4) CH 06 2437MHz		2319.1	57.17	-16.83	74	41.02	27.92	17.98	29.75	131	48	P	H
		2389.94	44.13	-9.87	54	28.18	27.64	18.09	29.78	131	48	A	H
	*	2437	122.85	-	-	106.88	27.6	18.17	29.8	131	48	P	H
	*	2437	114.69	-	-	98.72	27.6	18.17	29.8	131	48	A	H
		2483.55	57.54	-16.46	74	41.59	27.53	18.24	29.82	131	48	P	H
		2486.56	44.29	-9.71	54	28.33	27.53	18.25	29.82	131	48	A	H
		2389.1	58.2	-15.8	74	42.25	27.64	18.09	29.78	100	121	P	V
		2313.22	44.08	-9.92	54	27.91	27.95	17.97	29.75	100	121	A	V
	*	2437	121.01	-	-	105.04	27.6	18.17	29.8	100	121	P	V
	*	2437	113.59	-	-	97.62	27.6	18.17	29.8	100	121	A	V
		2496.29	57.13	-16.87	74	41.19	27.51	18.26	29.83	100	121	P	V
		2484.6	44.2	-9.8	54	28.24	27.53	18.25	29.82	100	121	A	V

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802.11ax HE20 (RU 26/8) CH 11 2462MHz	*	2462	118.8	-	-	102.82	27.58	18.21	29.81	300	55	P	H
	*	2462	109.63	-	-	93.65	27.58	18.21	29.81	300	55	A	H
		2483.96	70.72	-3.28	74	54.77	27.53	18.24	29.82	300	55	P	H
		2484.44	45.74	-8.26	54	29.78	27.53	18.25	29.82	300	55	A	H
													H
													H
	*	2462	117.15	-	-	101.17	27.58	18.21	29.81	100	114	P	V
	*	2462	109.35	-	-	93.37	27.58	18.21	29.81	100	114	A	V
		2484.44	70.09	-3.91	74	54.13	27.53	18.25	29.82	100	114	P	V
		2484.76	45.26	-8.74	54	29.3	27.53	18.25	29.82	100	114	A	V
													V
													V
802.11ax HE20 (RU 52/40) CH 11 2462MHz	*	2462	117.4	-	-	101.42	27.58	18.21	29.81	300	57	P	H
	*	2462	107.76	-	-	91.78	27.58	18.21	29.81	300	57	A	H
		2484.04	70	-4	74	54.05	27.53	18.24	29.82	300	57	P	H
		2484.84	45.23	-8.77	54	29.27	27.53	18.25	29.82	300	57	A	H
													H
													H
	*	2462	116.2	-	-	100.22	27.58	18.21	29.81	100	120	P	V
	*	2462	107.42	-	-	91.44	27.58	18.21	29.81	100	120	A	V
		2483.88	69.84	-4.16	74	53.89	27.53	18.24	29.82	100	120	P	V
		2483.56	45.39	-8.61	54	29.44	27.53	18.24	29.82	100	120	A	V
													V
													V

802.11ax HE20 (RU 106/54) CH 11 2462MHz	*	2462	116.89	-	-	100.91	27.58	18.21	29.81	304	57	P	H
	*	2462	107.23	-	-	91.25	27.58	18.21	29.81	304	57	A	H
		2484.16	67.73	-6.27	74	51.78	27.53	18.24	29.82	304	57	P	H
		2483.52	45.2	-8.8	54	29.25	27.53	18.24	29.82	304	57	A	H
													H
													H
	*	2462	115.26	-	-	99.28	27.58	18.21	29.81	100	120	P	V
	*	2462	106.42	-	-	90.44	27.58	18.21	29.81	100	120	A	V
		2484.16	67.6	-6.4	74	51.65	27.53	18.24	29.82	100	120	P	V
		2483.84	45.64	-8.36	54	29.69	27.53	18.24	29.82	100	120	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 802.11ax HE20(Partial RU) (Harmonic @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ax HE20 (RU 26/0) CH 01 2412MHz		4824	35.47	-38.53	74	49.98	31.15	12.45	58.11	100	0	P	H
													H
													H
													H
		4824	34.84	-39.16	74	49.35	31.15	12.45	58.11	100	0	P	V
													V
													V
													V
802.11ax HE20 (RU 52/37) CH 01 2412MHz		4824	34.69	-39.31	74	49.2	31.15	12.45	58.11	100	0	P	H
													H
													H
													H
		4824	35.21	-38.79	74	49.72	31.15	12.45	58.11	100	0	P	V
													V
													V
													V
802.11ax HE20 (RU 106/53) CH 01 2412MHz		4824	35.05	-38.95	74	49.56	31.15	12.45	58.11	100	0	P	H
													H
													H
													H
		4824	34.83	-39.17	74	49.34	31.15	12.45	58.11	100	0	P	V
													V
													V
													V

802.11ax HE20 (RU 26/4) CH 06 2437MHz		4874	35.02	-38.98	74	49.54	31.1	12.5	58.12	100	0	P	H
		7311	41	-33	74	46.46	36.44	15.6	57.5	100	0	P	H
													H
													H
		4874	34.72	-39.28	74	49.24	31.1	12.5	58.12	100	0	P	V
		7311	41.48	-32.52	74	46.94	36.44	15.6	57.5	100	0	P	V
													V
													V
802.11ax HE20 (RU 26/8) CH 11 2462MHz		4924	34.75	-39.25	74	49.25	31.1	12.53	58.13	100	0	P	H
		7386	41.35	-32.65	74	46.62	36.53	15.6	57.4	100	0	P	H
													H
													H
		4924	35.25	-38.75	74	49.75	31.1	12.53	58.13	100	0	P	V
		7386	42.01	-31.99	74	47.28	36.53	15.6	57.4	100	0	P	V
													V
													V
802.11ax HE20 (RU 52/40) CH 11 2462MHz		4924	34.75	-39.25	74	49.25	31.1	12.53	58.13	100	0	P	H
		7386	41.42	-32.58	74	46.69	36.53	15.6	57.4	100	0	P	H
													H
													H
		4924	34.6	-39.4	74	49.1	31.1	12.53	58.13	100	0	P	V
		7386	40.94	-33.06	74	46.21	36.53	15.6	57.4	100	0	P	V
													V
													V

802.11ax HE20 (RU 106/64) CH 11 2462MHz		4924	34.84	-39.16	74	49.34	31.1	12.53	58.13	100	0	P	H
		7386	41.99	-32.01	74	47.26	36.53	15.6	57.4	100	0	P	H
													H
													H
		4924	34.37	-39.63	74	48.87	31.1	12.53	58.13	100	0	P	V
		7386	41.13	-32.87	74	46.4	36.53	15.6	57.4	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 802.11ax HE40(Partial RU) (Band Edge @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ax HE40 (RU 242/61) CH 03 2422MHz		2389.52	70.83	-3.17	74	54.88	27.64	18.09	29.78	100	55	P	H
		2389.94	50.13	-3.87	54	34.18	27.64	18.09	29.78	100	55	A	H
	*	2422	112.54	-	-	96.59	27.6	18.15	29.8	100	55	P	H
	*	2422	102.55	-	-	86.6	27.6	18.15	29.8	100	55	A	H
		2483.97	57.92	-16.08	74	41.97	27.53	18.24	29.82	100	55	P	H
		2488.87	44.29	-9.71	54	28.35	27.52	18.25	29.83	100	55	A	H
		2389.24	69.69	-4.31	74	53.74	27.64	18.09	29.78	100	112	P	V
		2389.94	49.98	-4.02	54	34.03	27.64	18.09	29.78	100	112	A	V
	*	2422	111.97	-	-	96.03	27.6	18.14	29.8	100	112	P	V
	*	2422	101.71	-	-	85.77	27.6	18.14	29.8	100	112	A	V
		2483.69	57.08	-16.92	74	41.13	27.53	18.24	29.82	100	112	P	V
		2489.43	44.26	-9.74	54	28.32	27.52	18.25	29.83	100	112	A	V
802.11ax HE40 (RU 242/62) CH 09 2462MHz		2357.32	57.63	-16.37	74	41.59	27.77	18.04	29.77	109	48	P	H
		2345.42	44.05	-9.95	54	27.98	27.82	18.02	29.77	109	48	A	H
	*	2452	109.96	-	-	93.98	27.6	18.19	29.81	109	48	P	H
	*	2452	101.16	-	-	85.18	27.6	18.19	29.81	109	48	A	H
		2483.55	69.58	-4.42	74	53.63	27.53	18.24	29.82	109	48	P	H
		2483.5	50.14	-3.86	54	34.19	27.53	18.24	29.82	109	48	A	H
		2335.34	57.73	-16.27	74	41.63	27.86	18	29.76	100	107	P	V
		2352.42	44.06	-9.94	54	28.01	27.79	18.03	29.77	100	107	A	V
	*	2452	109.86	-	-	93.88	27.59	18.2	29.81	100	107	P	V
	*	2452	101.08	-	-	85.1	27.59	18.2	29.81	100	107	A	V
		2483.5	69.47	-4.53	74	53.52	27.53	18.24	29.82	100	107	P	V
		2483.5	50.09	-3.91	54	34.14	27.53	18.24	29.82	100	107	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 802.11ax HE40(Partial RU) (Harmonic @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ax HE40 (RU 242/61) CH 03 2422MHz		4844	35.04	-38.96	74	49.5	31.19	12.47	58.12	100	0	P	H
		7266	41.17	-32.83	74	46.81	36.33	15.59	57.56	100	0	P	H
													H
													H
		4844	34.65	-39.35	74	49.11	31.19	12.47	58.12	100	0	P	V
		7266	41.26	-32.74	74	46.9	36.33	15.59	57.56	100	0	P	V
													V
													V
802.11ax HE40 (RU 242/62) CH 09 2452MHz		4904	33.67	-40.33	74	48.26	31.02	12.52	58.13	100	0	P	H
		7356	41.98	-32.02	74	47.24	36.59	15.59	57.44	100	0	P	H
													H
													H
		4904	34.24	-39.76	74	48.83	31.02	12.52	58.13	100	0	P	V
		7356	41.18	-32.82	74	46.44	36.59	15.59	57.44	100	0	P	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Emission below 1GHz

WIFI 802.11ax HE40 (LF)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
		160.95	25.36	-18.14	43.5	39.09	16.31	2.25	32.29	-	-	P	H
		258.92	30.58	-15.42	46	40.18	19.92	2.82	32.34	-	-	P	H
		301.6	34.41	-11.59	46	44.47	19.24	3.06	32.36	-	-	P	H
		485.9	28.73	-17.27	46	33.41	23.72	3.71	32.11	-	-	P	H
		651.77	29.86	-16.14	46	31.18	26.35	4.37	32.04	-	-	P	H
		926.28	32.88	-13.12	46	29.57	29.68	5.24	31.61	100	0	P	H
													H
													H
													H
													H
2.4GHz													H
802.11ax													H
HE40		177.44	28.65	-14.85	43.5	43.59	15.03	2.33	32.3	-	-	P	V
LF		301.6	27.33	-18.67	46	37.39	19.24	3.06	32.36	-	-	P	V
		480.08	28.97	-17.03	46	33.71	23.67	3.7	32.11	-	-	P	V
		568.35	31.19	-14.81	46	33.02	26.05	4.09	31.97	-	-	P	V
		674.08	29.67	-16.33	46	30.99	26.32	4.45	32.09	-	-	P	V
		848.68	33.25	-12.75	46	31.3	29.08	5.02	32.15	100	0	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

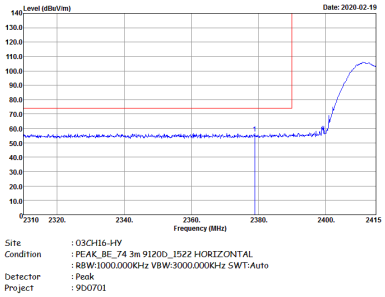
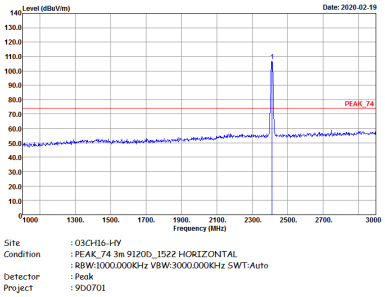
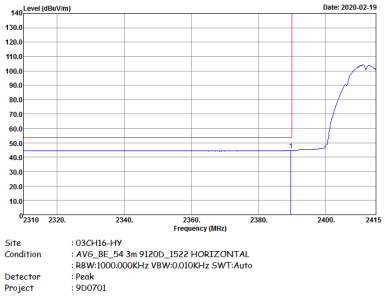
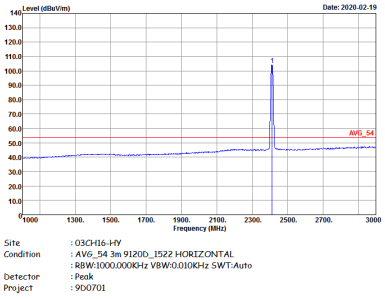
Test Engineer :	Jacky Hung, Andy Yang, and CR Liro	**Temperature :**	20~25°C
		Relative Humidity :	50~60%

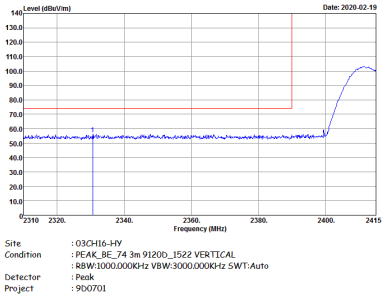
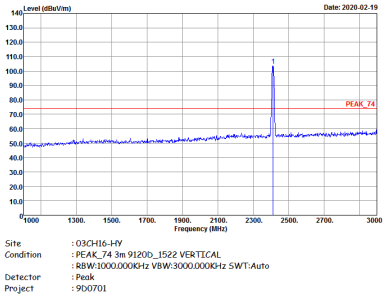
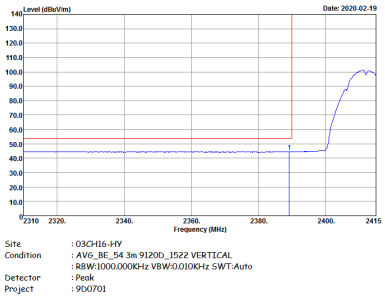
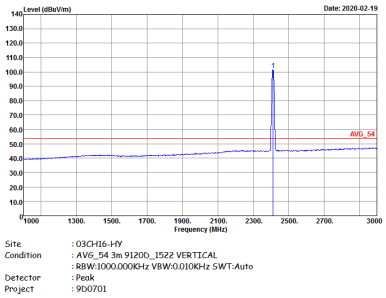
Note symbol

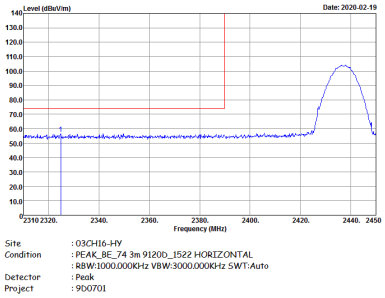
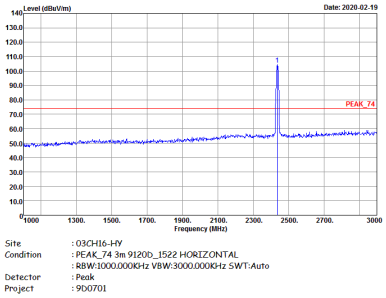
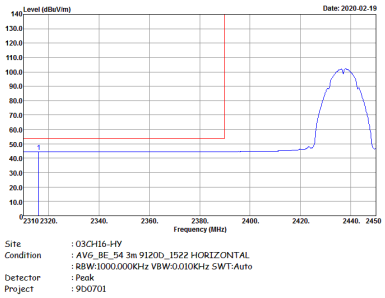
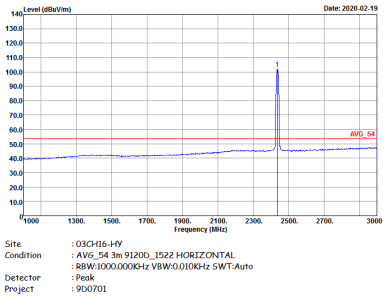
-L	**Low channel location**
-R	**High channel location**

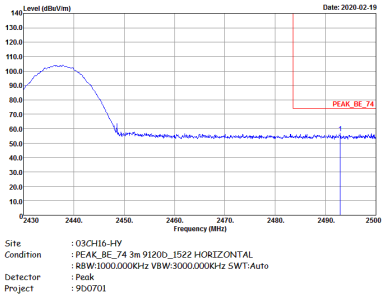
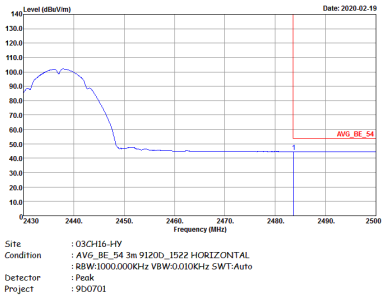
2.4GHz 2400~2483.5MHz

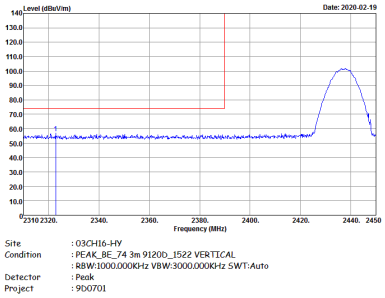
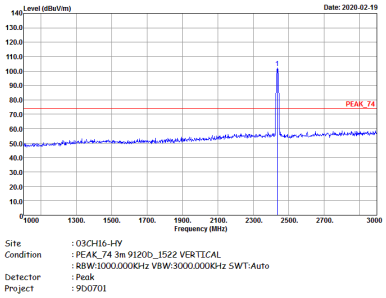
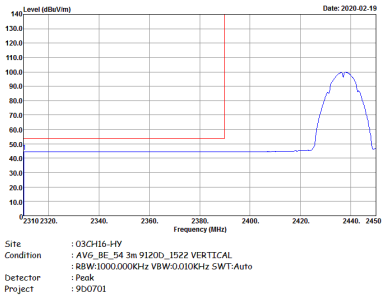
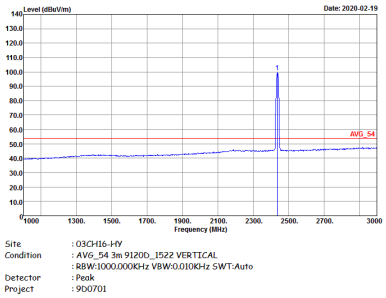
WIFI 802.11b (Band Edge @ 3m)

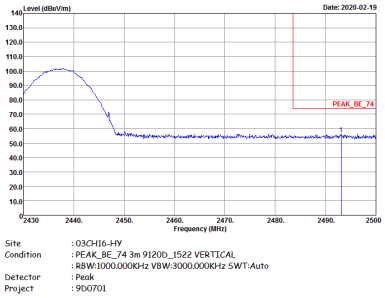
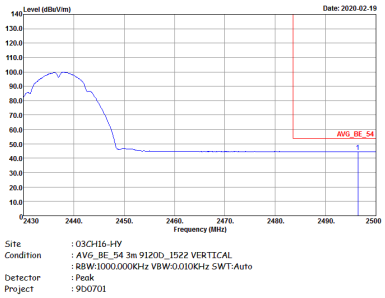
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH01 2412MHz	
1+2	Horizontal	Fundamental
Peak		
Avg.		

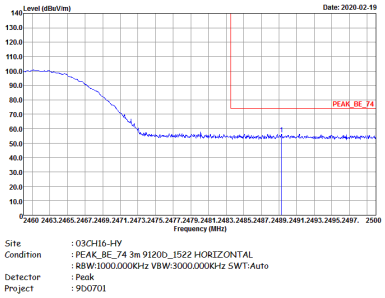
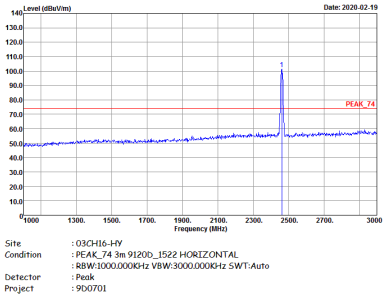
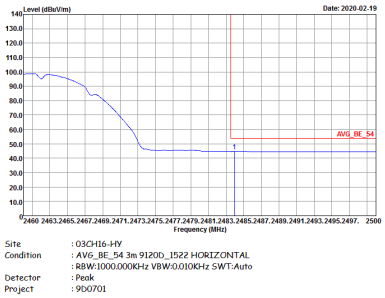
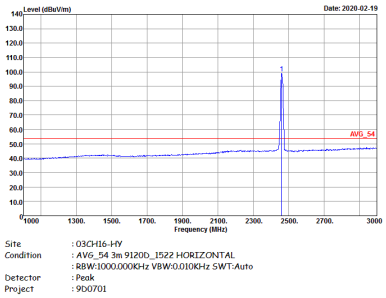
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH01 2412MHz	
1+2	Vertical	Fundamental
Peak		
Avg.		

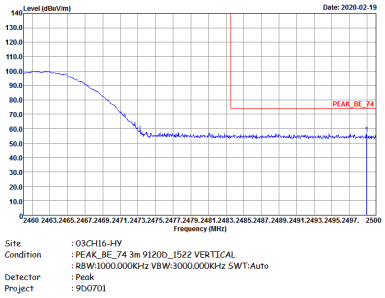
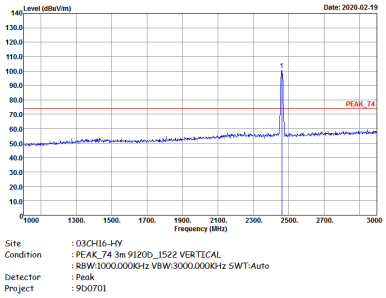
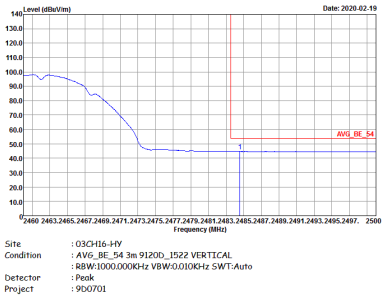
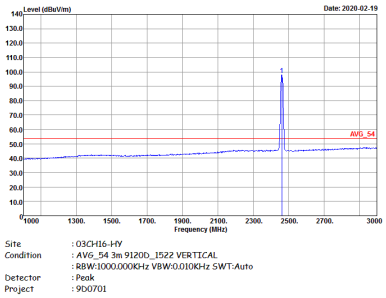
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH06 2437MHz - L	
1+2	Horizontal	Fundamental
Peak		
Avg.		

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

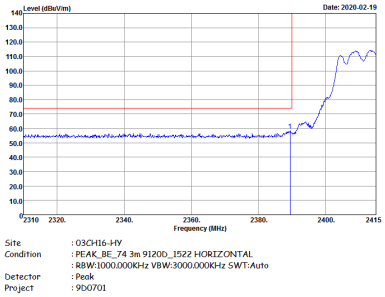
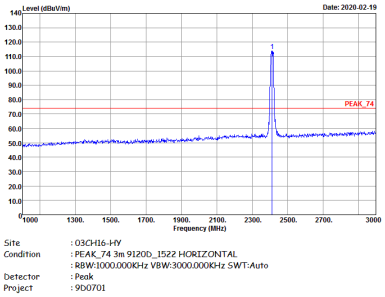
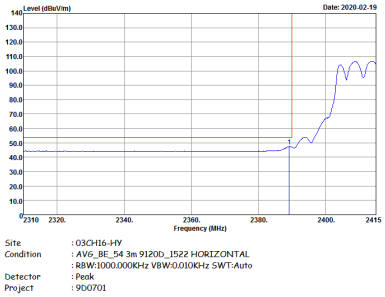
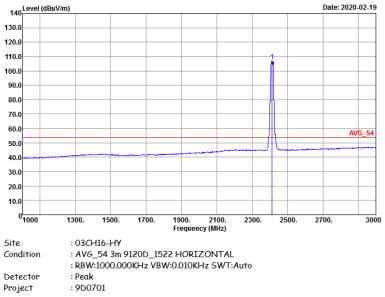
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH06 2437MHz - R	
1+2	Vertical	Fundamental
Peak		Left blank
Avg.		Left blank

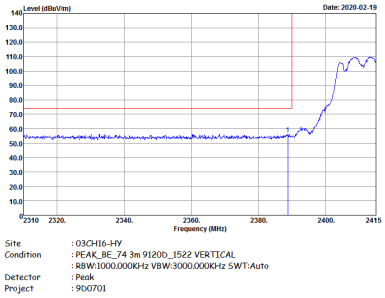
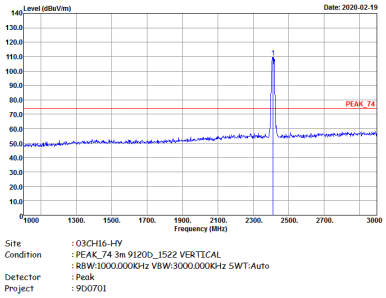
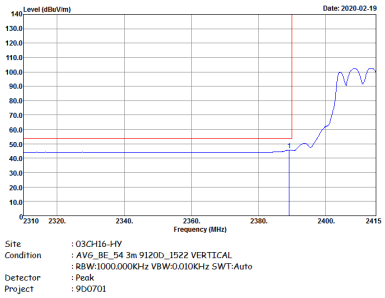
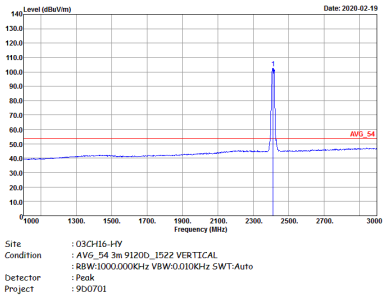
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH11 2462MHz	
1+2	Horizontal	Fundamental
Peak	 Site : 03CH16-HY Condition : PEAK_BE_74 3m 9120D_1522 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 9D0701	 Site : 03CH16-HY Condition : PEAK_74 3m 9120D_1522 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 9D0701
Avg.	 Site : 03CH16-HY Condition : AVG_BE_54 3m 9120D_1522 HORIZONTAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak Project : 9D0701	 Site : 03CH16-HY Condition : AVG_54 3m 9120D_1522 HORIZONTAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak Project : 9D0701

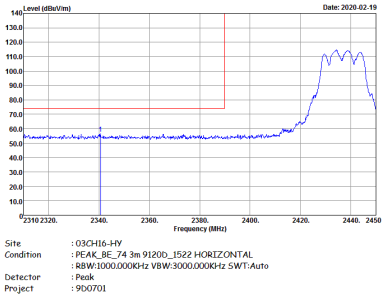
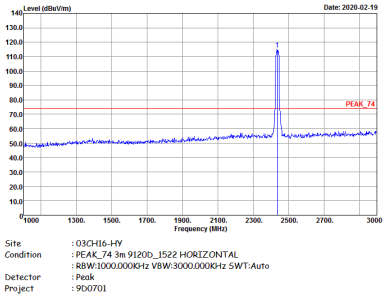
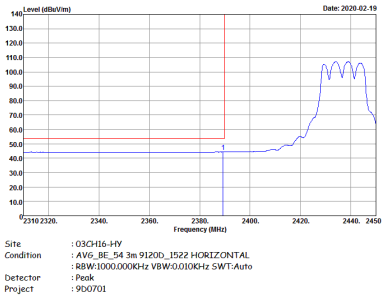
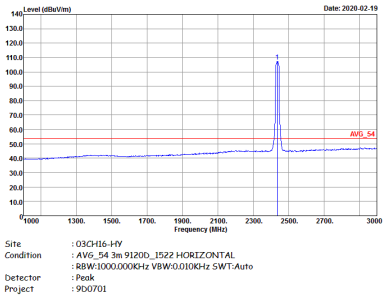
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH11 2462MHz	
1+2	Vertical	Fundamental
Peak	 Site : 03CH16-HY Condition : PEAK_BE_74 3m 9120D_1522 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 9D0701	 Site : 03CH16-HY Condition : PEAK_74 3m 9120D_1522 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 9D0701
Avg.	 Site : 03CH16-HY Condition : AVG_BE_54 3m 9120D_1522 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak Project : 9D0701	 Site : 03CH16-HY Condition : AVG_54 3m 9120D_1522 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak Project : 9D0701

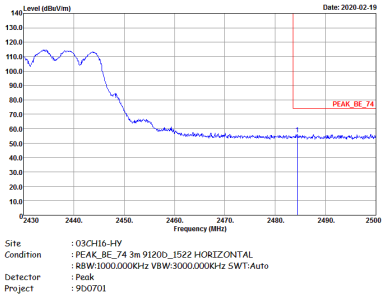
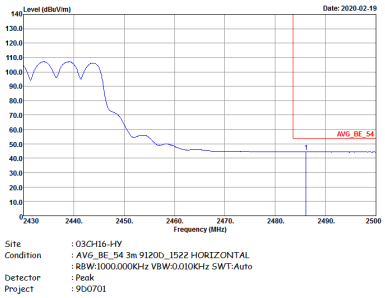
2.4GHz 2400~2483.5MHz

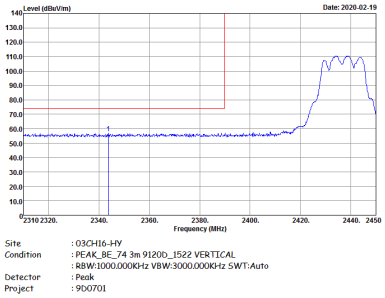
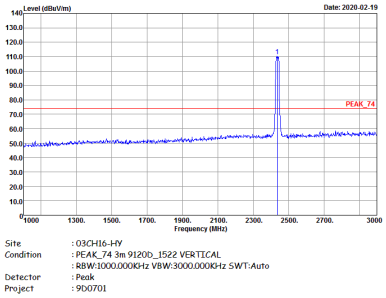
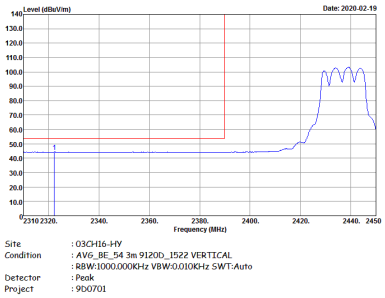
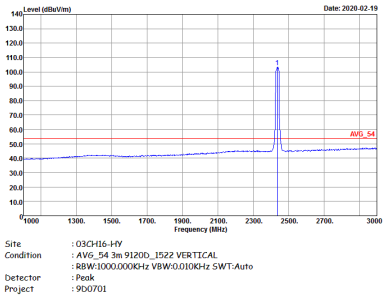
WIFI 802.11g (Band Edge @ 3m)

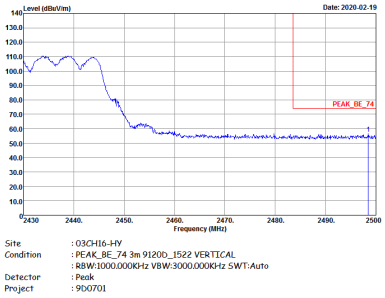
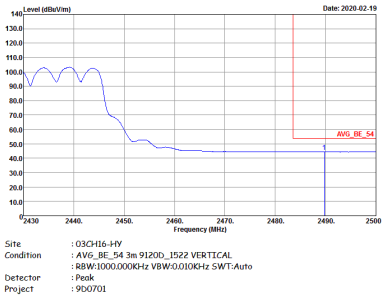
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH01 2412MHz	
1+2	Horizontal	Fundamental
Peak		
Avg.		

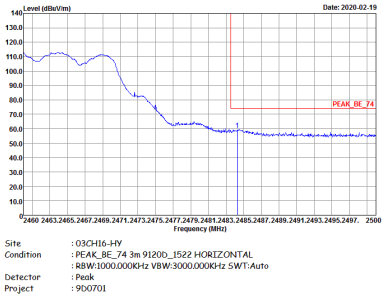
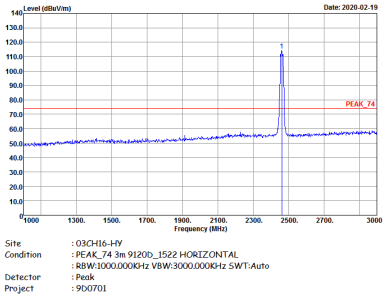
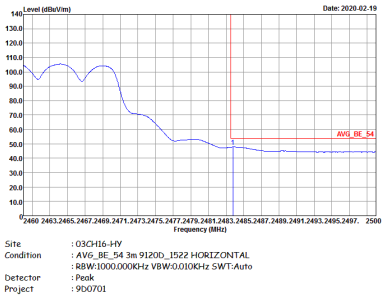
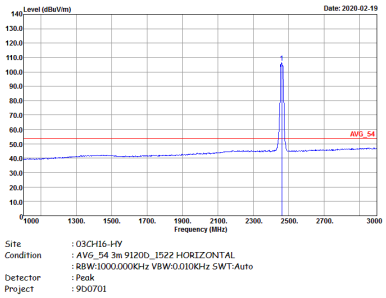
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH01 2412MHz	
1+2	Vertical	Fundamental
Peak		
Avg.		

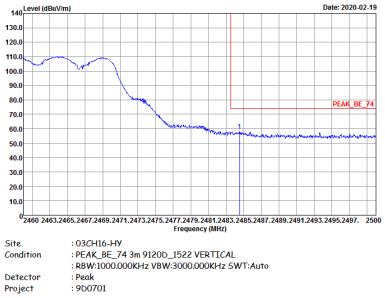
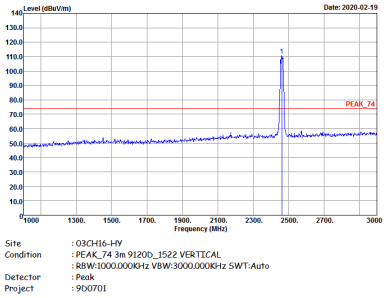
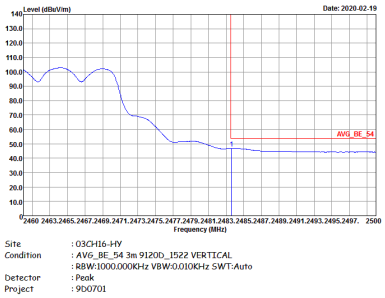
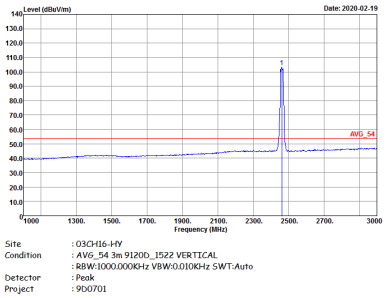
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH06 2437MHz - L	
1+2	Horizontal	Fundamental
Peak		
Avg.		

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

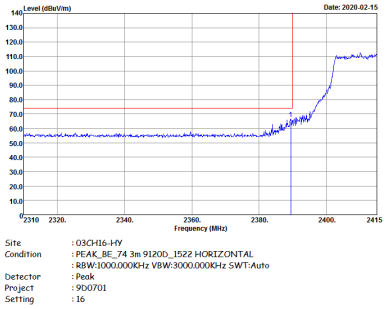
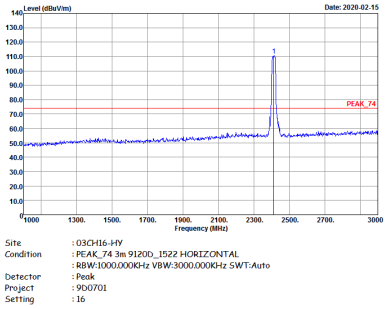
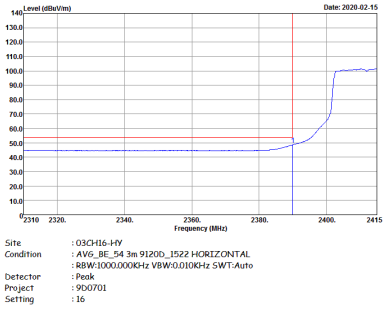
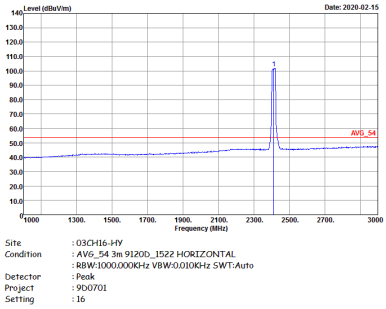
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH06 2437MHz - R	
1+2	Vertical	Fundamental
Peak		Left Blank
Avg.		Left Blank

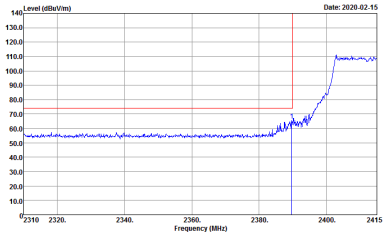
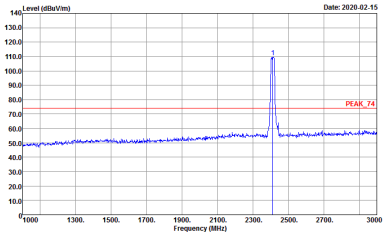
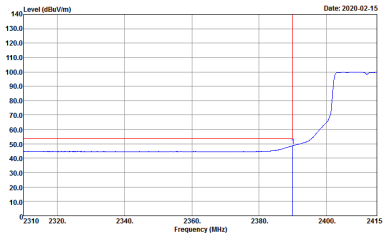
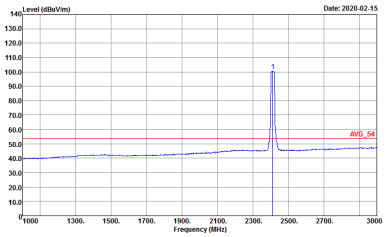
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH11 2462MHz	
1+2	Horizontal	Fundamental
Peak	 Site : 03CH16-HY Condition : PEAK_BE_74 3m 9120D_1522 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 9D0701	 Site : 03CH16-HY Condition : PEAK_74 3m 9120D_1522 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 9D0701
Avg.	 Site : 03CH16-HY Condition : AVG_BE_54 3m 9120D_1522 HORIZONTAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak Project : 9D0701	 Site : 03CH16-HY Condition : AVG_54 3m 9120D_1522 HORIZONTAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak Project : 9D0701

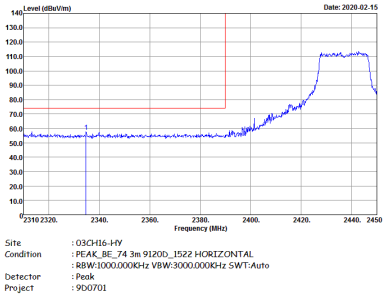
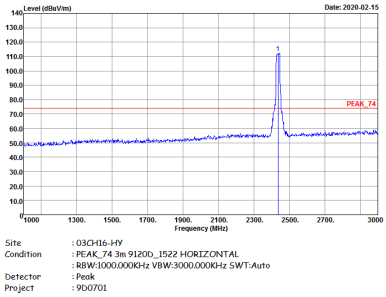
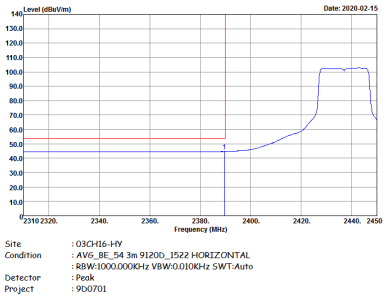
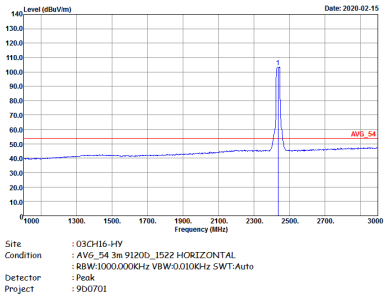
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH11 2462MHz	
1+2	Vertical	Fundamental
Peak	 Site : 03CH16-HY Condition : PEAK_BE_74 3m 9120D_1522 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 9D0701	 Site : 03CH16-HY Condition : PEAK_74 3m 9120D_1522 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 9D0701
Avg.	 Site : 03CH16-HY Condition : AVG_BE_54 3m 9120D_1522 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak Project : 9D0701	 Site : 03CH16-HY Condition : AVG_54 3m 9120D_1522 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak Project : 9D0701

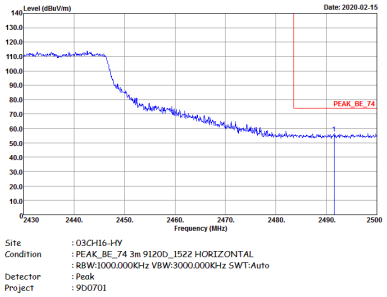
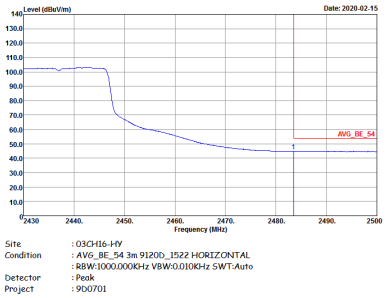
2.4GHz 2400~2483.5MHz

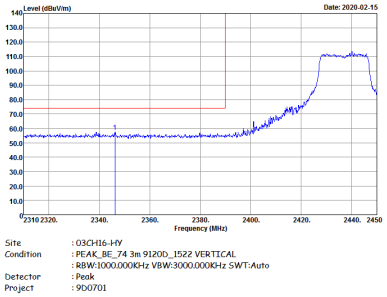
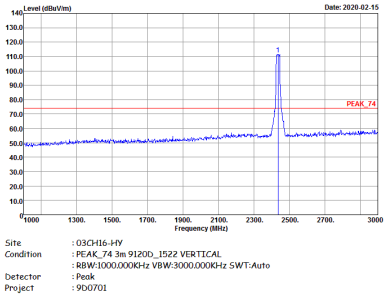
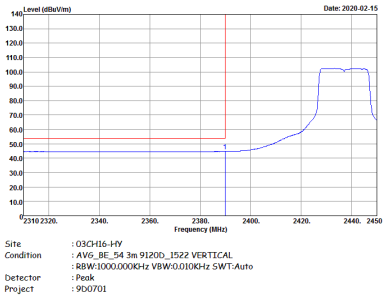
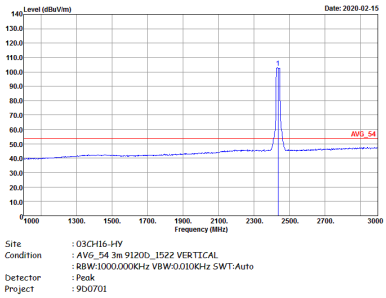
WIFI 802.11ax HE20(Full RU) (Band Edge @ 3m)

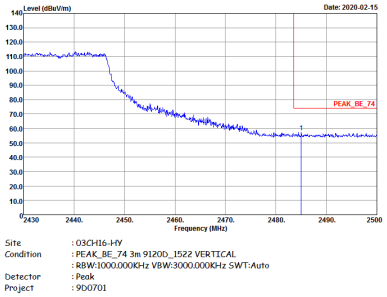
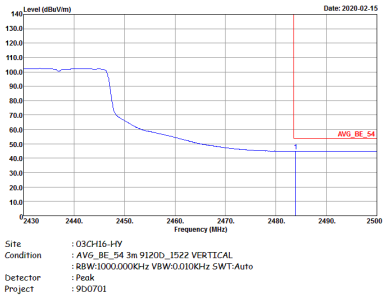
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11ax HE20(Full RU) CH01 2412MHz	
1+2	Horizontal	Fundamental
Peak		
Avg.		

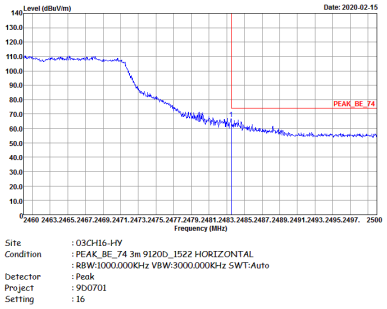
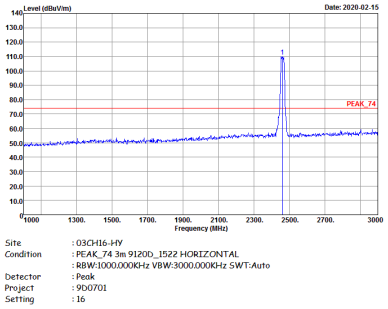
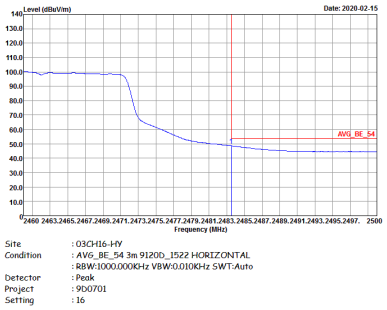
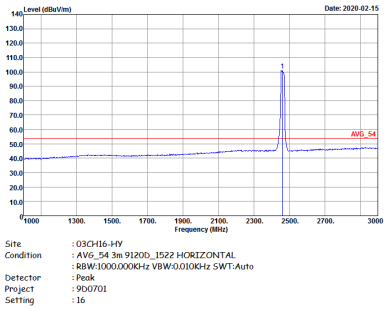
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11ax HE20(Full RU) CH01 2412MHz	
1+2	Vertical	Fundamental
Peak	 Site : 03CH16-HY Condition : PEAK_BE_74 3m 9120D_1522 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 9D0701 Setting : 16	 Site : 03CH16-HY Condition : PEAK_74 3m 9120D_1522 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 9D0701 Setting : 16
Avg.	 Site : 03CH16-HY Condition : AVG_BE_54 3m 9120D_1522 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak Project : 9D0701 Setting : 16	 Site : 03CH16-HY Condition : AVG_54 3m 9120D_1522 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak Project : 9D0701 Setting : 16

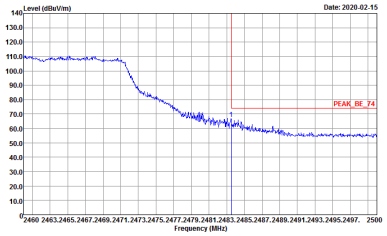
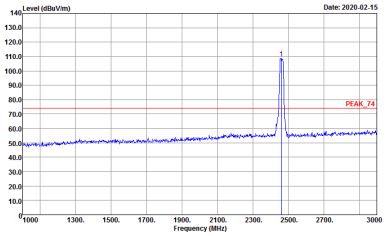
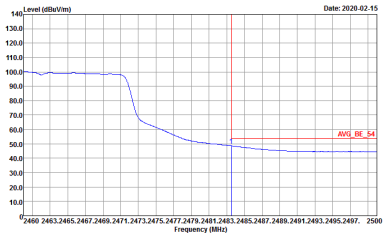
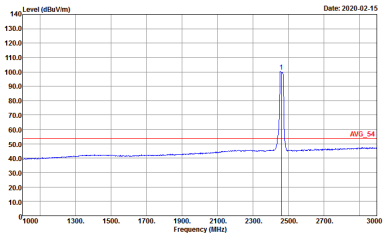
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11ax HE20(Full RU) CH06 2437MHz - L	
1+2	Horizontal	Fundamental
Peak		
Avg.		

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11ax HE20(Full RU) CH06 2437MHz - R	
1+2	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11ax HE20(Full RU) CH06 2437MHz - L	
1+2	Vertical	Fundamental
Peak		
Avg.		

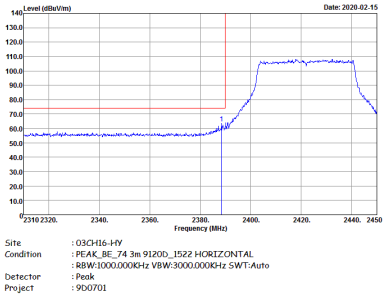
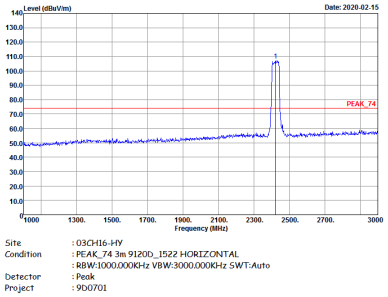
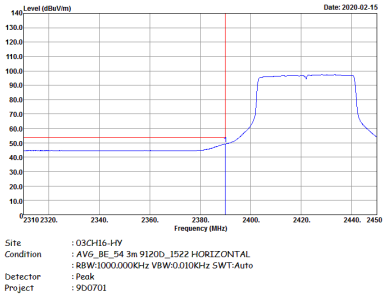
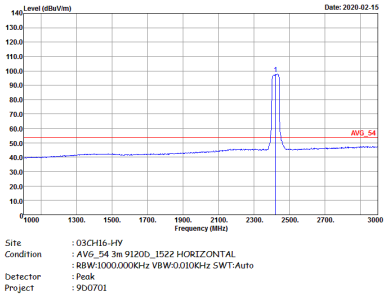
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11ax HE20(Full RU) CH06 2437MHz - R	
1+2	Vertical	Fundamental
Peak		Left blank
Avg.		Left blank

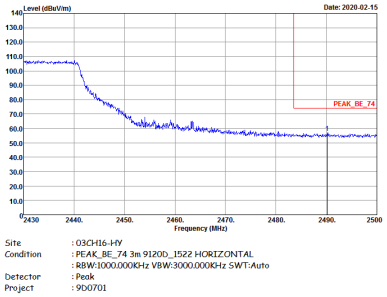
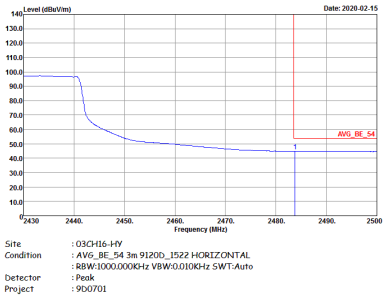
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11ax HE20(Full RU) CH11 2462MHz	
1+2	Horizontal	Fundamental
Peak		
Avg.		

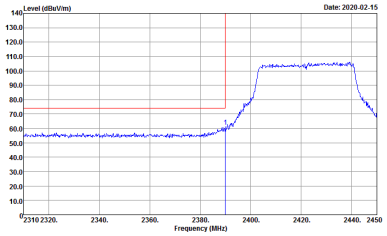
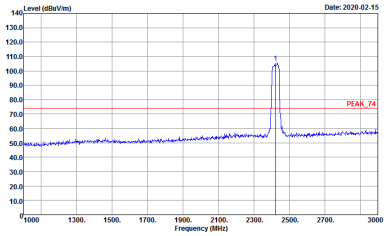
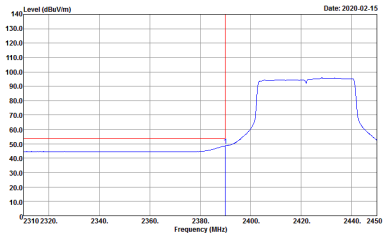
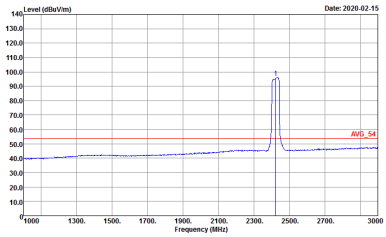
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11ax HE20(Full RU) CH11 2462MHz	
1+2	Vertical	Fundamental
Peak	 Site : 03CH16-HY Condition : PEAK_BE_74 3m 9120D_1522 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 9D0701 Setting : 16	 Site : 03CH16-HY Condition : PEAK_74 3m 9120D_1522 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 9D0701 Setting : 16
Avg.	 Site : 03CH16-HY Condition : AVG_BE_54 3m 9120D_1522 HORIZONTAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak Project : 9D0701 Setting : 16	 Site : 03CH16-HY Condition : AVG_54 3m 9120D_1522 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak Project : 9D0701 Setting : 16

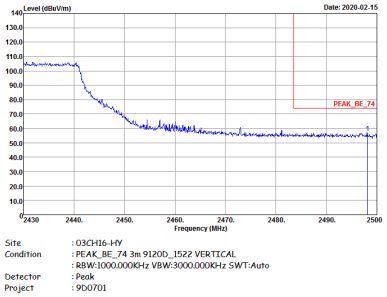
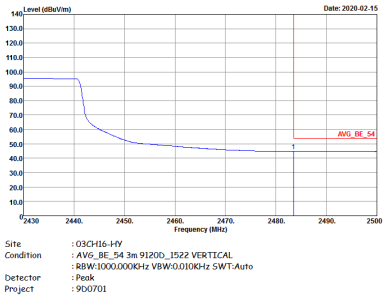
2.4GHz 2400~2483.5MHz

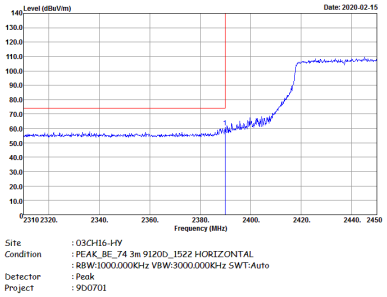
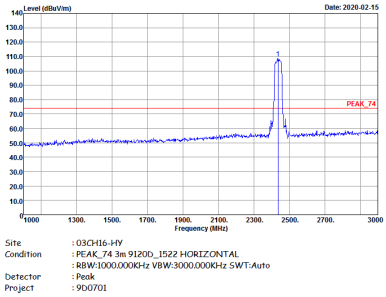
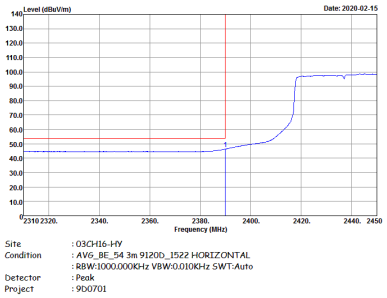
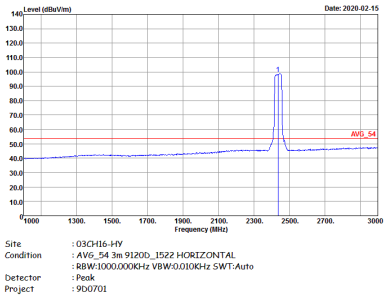
WIFI 802.11ax HE40(Full RU) (Band Edge @ 3m)

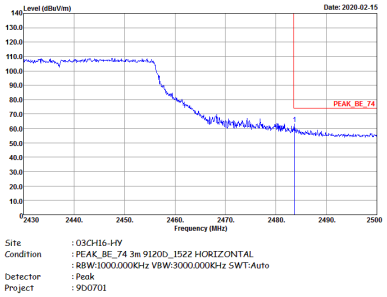
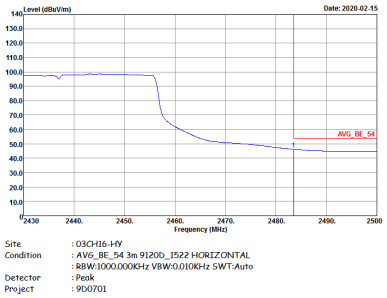
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11ax HE40(Full RU) CH03 2422MHz - L	
1+2	Horizontal	Fundamental
Peak		
Avg.		

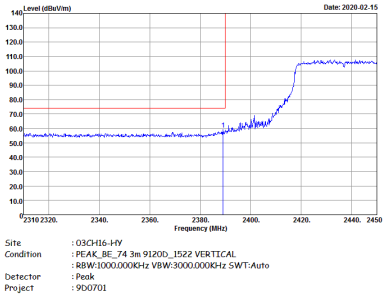
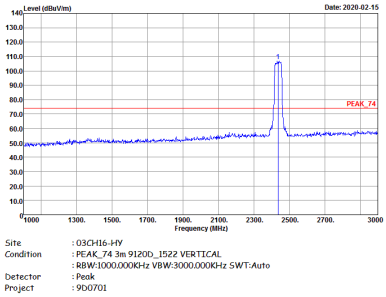
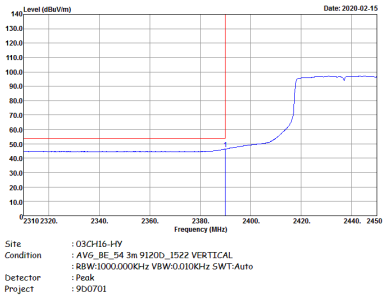
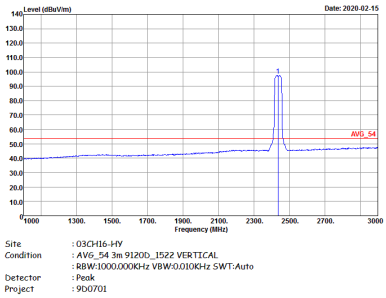
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11ax HE40(Full RU) CH03 2422MHz - R	
1+2	Horizontal	Fundamental
Peak		Left Blank
Avg.		Left Blank

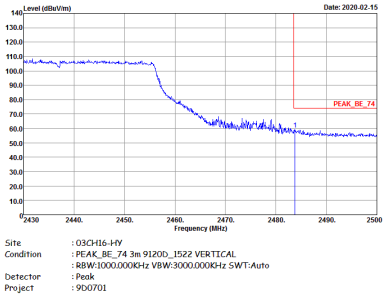
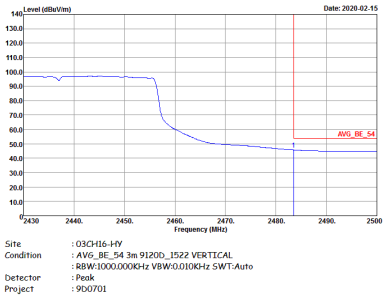
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11ax HE40(Full RU) CH03 2422MHz - L	
1+2	Vertical	Fundamental
Peak	 Site : 03CH16-HY Condition : PEAK_BE_74 3m 9120D_1522 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 9D0701	 Site : 03CH16-HY Condition : PEAK_74 3m 9120D_1522 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 9D0701 Setting :
Avg.	 Site : 03CH16-HY Condition : AVG_BE_54 3m 9120D_1522 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak Project : 9D0701	 Site : 03CH16-HY Condition : AVG_54 3m 9120D_1522 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak Project : 9D0701

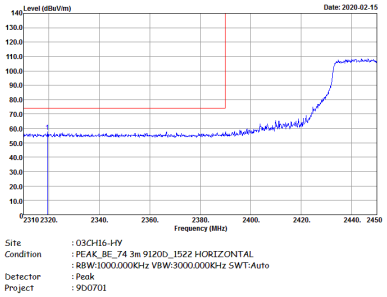
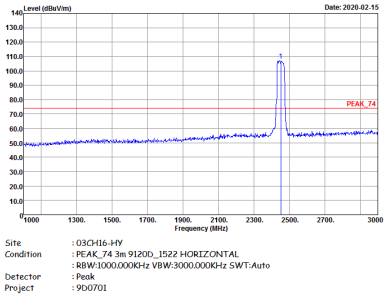
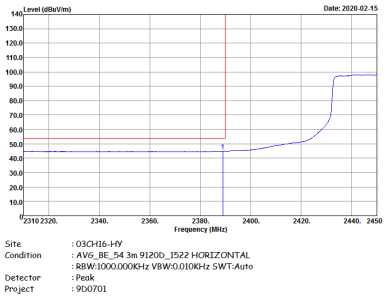
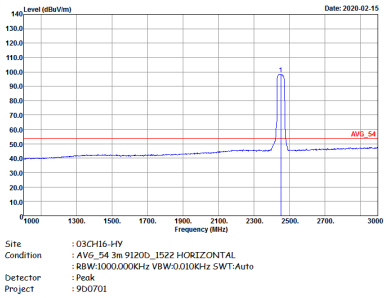
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11ax HE40(Full RU) CH03 2422MHz - R	
1+2	Vertical	Fundamental
Peak		Left blank
Avg.		Left blank

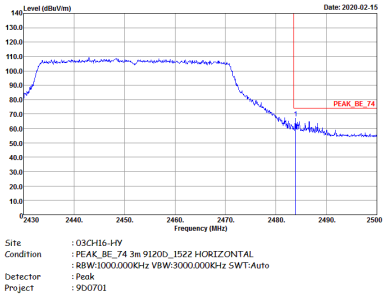
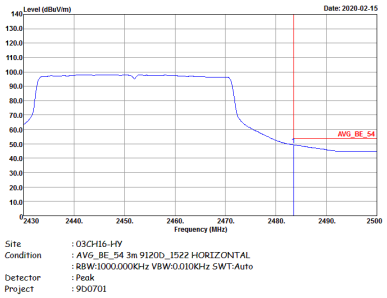
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HE40(Full RU) CH06 2437MHz - L	
1+2	Horizontal	Fundamental
Peak		
Avg.		

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HE40(Full RU) CH06 2437MHz - R	
1+2	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HE40(Full RU) CH06 2437MHz - L	
1+2	Vertical	Fundamental
Peak		
Avg.		

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HE40(Full RU) CH06 2437MHz - R	
1+2	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11ax HE40(Full RU) CH09 2452MHz - L	
1+2	Horizontal	Fundamental
Peak		
Avg.		

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11ax HE40(Full RU) CH09 2452MHz - R	
1+2	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank