FCC RADIO TEST REPORT

FCC ID	:	**IHDT56ZB2**
Equipment	:	**Mobile Cellular Phone**
Brand Name	:	**Motorola**
Model Name	:	**XT2071-4**
Applicant	:	**Motorola Mobility, LLC** **222 W Merchandise Mart Plaza, Suite 1800, Chicago, IL 60654, United States**
Manufacturer	:	**Motorola Mobility, LLC** **222 W Merchandise Mart Plaza, Suite 1800, Chicago, IL 60654, United States**
Standard	:	**FCC Part 15 Subpart C §15.247**

The product was received on May 12, 2020 and testing was started from May 15, 2020 and completed on Jun. 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 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.)

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History of this test report

Report No.	Version	Description	Issued Date
FR051232C	01	Initial issue of report	Jul. 29, 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 3.03 dB at 2483.520 MHz
3.6	15.207	AC Conducted Emission	Pass	Under limit 17.55 dB at 0.503 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: Lucy Wu

1 General Description

1.1 Product Feature of Equipment Under Test

Product Feature		
Equipment	Mobile Cellular Phone	
Brand Name	Motorola	
Model Name	XT2071-4	
FCC ID	IHDT56ZB2	
IMEI Code	**Conducted** :	IMEI 1: 351648110011179 IMEI 2: 351648110011187
	Conduction :	IMEI 1: 351648110009132 IMEI 2: 351648110009140
	Radiation :	IMEI 1: 351648110009058 IMEI 2: 351648110009066
EUT supports Radios application	CDMA/EV-DO/GSM/EGPRS/WCDMA/HSPA/LTE/5G NR/ GNSS/NFC WLAN 11a/b/g/n HT20/HT40 WLAN 11ac VHT20/VHT40/VHT80 Bluetooth BR/EDR/LE	
HW Version	DVT2	
EUT Stage	Identical Prototype	

Remark: The above EUT's information was declared by manufacturer.

Accessory List	
AC Adapter 1 (US)	Brand Name : Motorola
	Model Name : SC-51
	Manufacturer : Chenyang
AC Adapter 1 (EU)	Brand Name : Motorola
	Model Name : SC-52
	Manufacturer : Chenyang
AC Adapter 1 (UK)	Brand Name : Motorola
	Model Name : SC-53UK
	Manufacturer : Chenyang
AC Adapter 1 (AR)	Brand Name : Motorola
	Model Name : SC-56
	Manufacturer : Chenyang
AC Adapter 1 (AU)	Brand Name : Motorola
	Model Name : SC-55AU
	Manufacturer : Chenyang
AC Adapter 2 (US)	Brand Name : Motorola
	Model Name : SC-51
	Manufacturer : Acbel
AC Adapter 2 (EU)	Brand Name : Motorola
	Model Name : SC-52
	Manufacturer : Acbel
AC Adapter 2 (AR)	Brand Name : Motorola
	Model Name : SC-56
	Manufacturer : Acbel
AC Adapter 3 (IN)	Brand Name : Motorola
	Model Name : SC-54
	Manufacturer : Salom
Battery 1	Brand Name : Motorola
	Model Name : LS30
	Manufacturer : ATL
Battery 2	Brand Name : Motorola
	Model Name : LS40
	Manufacturer : ATL
Standard 3.5mm Headset 1	Brand Name : Motorola
	Model Name : SH38C37773
	Manufacturer : Lianyun
Standard 3.5mm Headset 2	Brand Name : Motorola
	Model Name : SH38C44959
	Manufacturer : Lianyun
USB-C to 3.5mm headset adaptor 1	Brand Name : Motorola
	Model Name : SC18C27844
USB-C to 3.5mm headset adaptor 2	Brand Name : Motorola
	Model Name : SC18C27845
USB Cable 1	Brand Name : Motorola
	Model Name : SC18C24367
	Manufacturer : Saibao
USB Cable 2	Brand Name : Motorola
	Model Name : SC18C24368
	Manufacturer : Luxshare

1.2 Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx/Rx Channel Frequency Range	2412 MHz ~ 2462 MHz
Maximum Output Power to antenna	**MIMO <Ant. 4+3>** 802.11b : 23.98 dBm (0.2500 W) 802.11g : 22.95 dBm (0.1972 W) 802.11n HT20 : 22.94 dBm (0.1968 W) 802.11n HT40 : 18.27 dBm (0.0671 W)
99% Occupied Bandwidth	**MIMO <Ant. 4>** 802.11b : 14.74MHz 802.11g : 18.33MHz 802.11n HT20 : 18.98MHz 802.11n HT40 : 36.66MHz **MIMO <Ant. 3>** 802.11b : 15.98MHz 802.11g : 26.52MHz 802.11n HT20 : 28.17MHz 802.11n HT40 : 36.76MHz
Antenna Type / Gain	<Ant. 4>: slot Antenna type with gain -2.00 dBi <Ant. 3>: ILA Antenna Type with gain -1.90 dBi
Type of Modulation	802.11b : DSSS (DBPSK / DQPSK / CCK) 802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)

Remark: MIMO Ant. 4+3 is a calculated result from sum of the power MIMO Ant. 4 and MIMO Ant. 3.

1.3 Modification of EUT

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

1.4 Testing Location

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

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

Test Site	SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory
Test Site Location	No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.) TEL: +886-3-327-0868 FAX: +886-3-327-0855
Test Site No.	**Sporton Site No.**
	03CH15-HY

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

FCC designation No.: TW1190 and TW0007

1.5 Applicable Standards

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

- FCC Part 15 Subpart 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. The TAF code is not including all the FCC KDB listed without accreditation.
3. 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 and Accessory (Earphone or Adapter). 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.

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

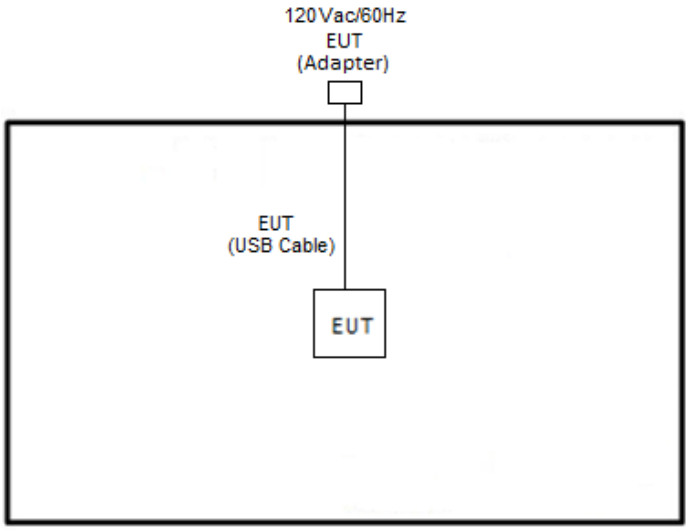
Test Cases	
AC Conducted Emission	Mode 1: GSM850 Idle + WLAN (2.4GHz) Link + Bluetooth Link + USB Cable 1 (Charging from AC Adapter 1 (US)) + SIM 2 for Open Mode
Remark: For Radiated Test Cases, the tests were performed with AC Adapter 1 (US) and USB Cable 1.	

Ch. #	2400-2483.5 MHz			
	802.11b	802.11g	802.11n HT20	802.11n HT40
Low	01	01	01	03
		02	02	
Middle	06	06	06	06
High		10	10	
	11	11	11	09

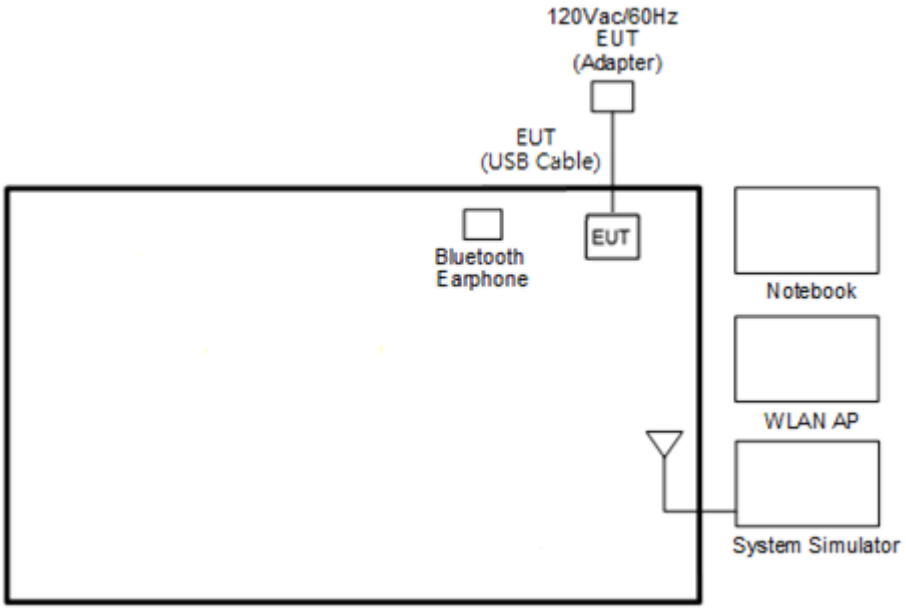
Remark: For radiation spurious emission, the final modulation and the worst data rate was reference the max RF conducted power.

2.3 Connection Diagram of Test System

<WLAN Tx Mode>



<AC Conducted Emission Mode>



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, 1.8 m
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 “QRCT V4.0.00156.0” 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.

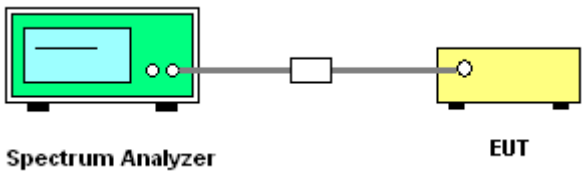
3.1.2 Measuring Instruments

See list of measuring equipment of this test report.

3.1.3 Test Procedures

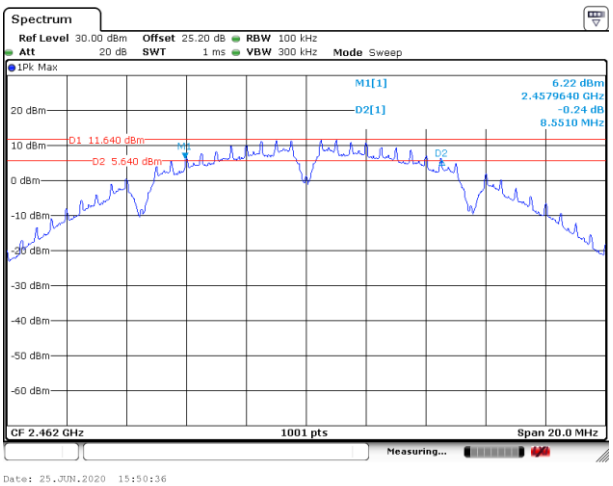
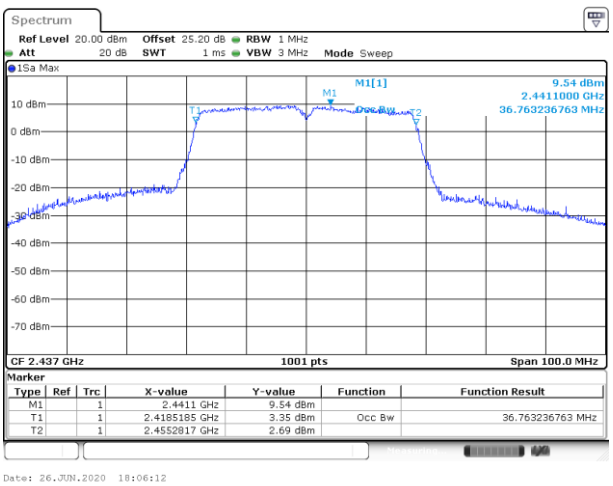
1. The testing follows the ANSI C63.10 Section 6.9.3 (OBW) and 11.8.1 (6dB BW).
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit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

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

3.2 Output Power Measurement

3.2.1 Limit of Output Power

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

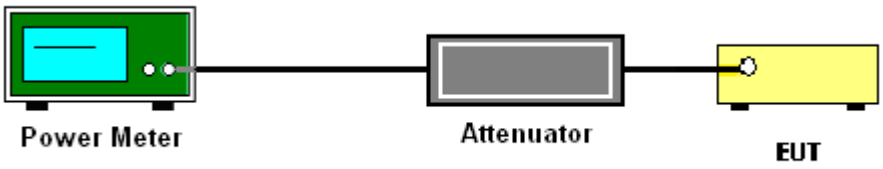
3.2.2 Measuring Instruments

See list of measuring equipment of this test report.

3.2.3 Test Procedures

1. For Peak Power, the testing follows ANSI C63.10 Section 11.9.1.3 PKPM1
2. For Average Power, the testing follows ANSI C63.10 Section 11.9.2.3.2 Method AVGPM-G
3. The RF output of EUT was connected to the power meter by RF cable and attenuator. The path loss was compensated to the results for each measurement.
4. Set to the maximum power setting and enable the EUT transmit continuously.
5. Measure the conducted output power and record the results in the test report.
6. For MIMO mode, calculation method follows FCC KDB 662911 D01 Multiple Transmitter Output v02r01.

3.2.4 Test Setup



3.2.5 Test Result of Peak Output Power (Reporting Only)

Please refer to Appendix A.

3.2.6 Test Result of Average Output Power

Please refer to Appendix A.

3.3 Power Spectral Density Measurement

3.3.1 Limit of Power Spectral Density

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

3.3.2 Measuring Instruments

See list of measuring equipment of this test report.

3.3.3 Test Procedures

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.

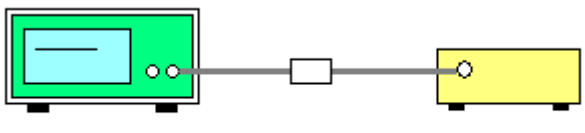
   If measurements performed using method (2) plus 10 log (N) exceeds the emission limit, the test should choose method (1) before declaring that the device fails the emission limit.

   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)

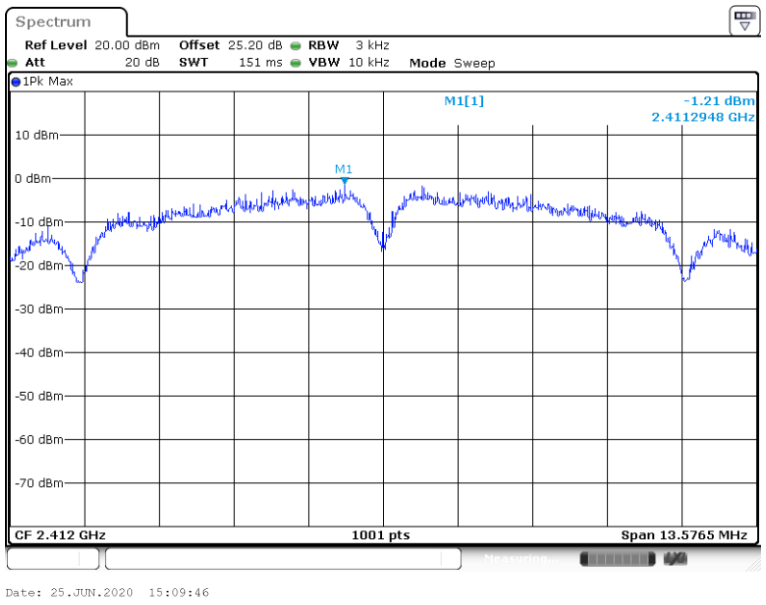
3.3.4 Test Setup



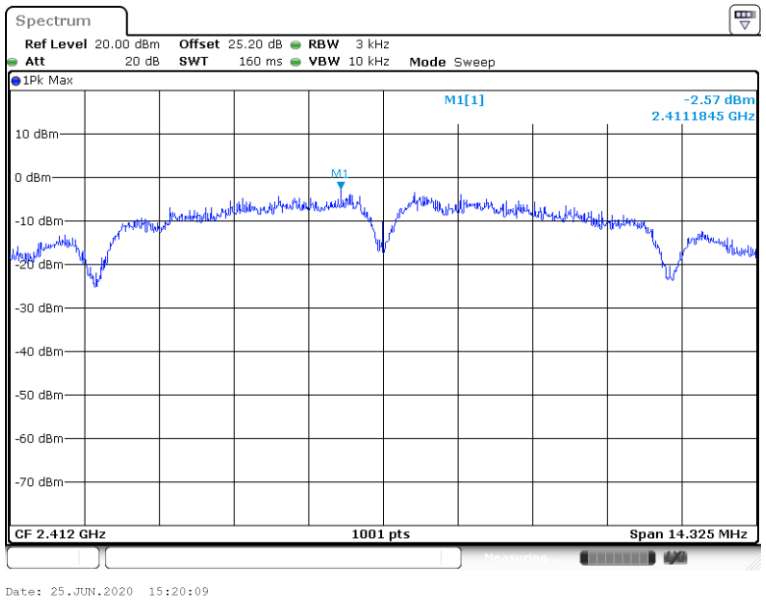
3.3.5 Test Result of Power Spectral Density

Please refer to Appendix A.

Worst Case Power Density (dBm/3kHz) for MIMO Ant. 4



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



3.4 Conducted Band Edges and Spurious Emission Measurement

3.4.1 Limit of Conducted Band Edges and Spurious Emission Measurement

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

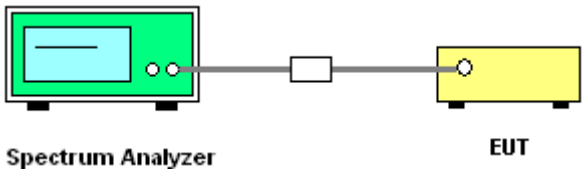
3.4.2 Measuring Instruments

See list of measuring equipment of this test report.

3.4.3 Test Procedures

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

3.4.4 Test Setup

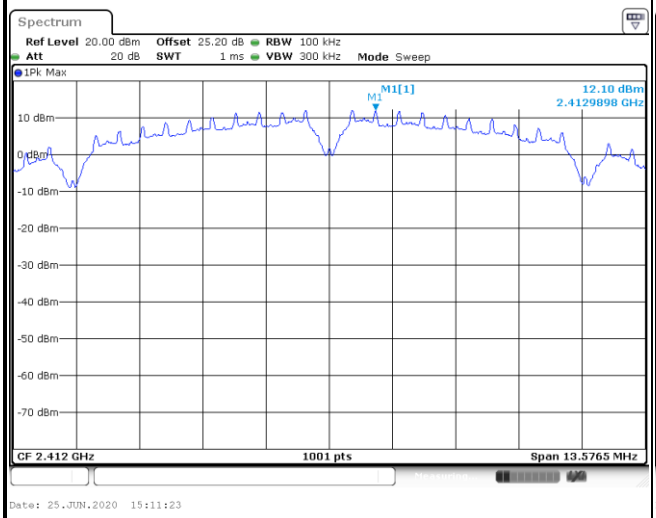
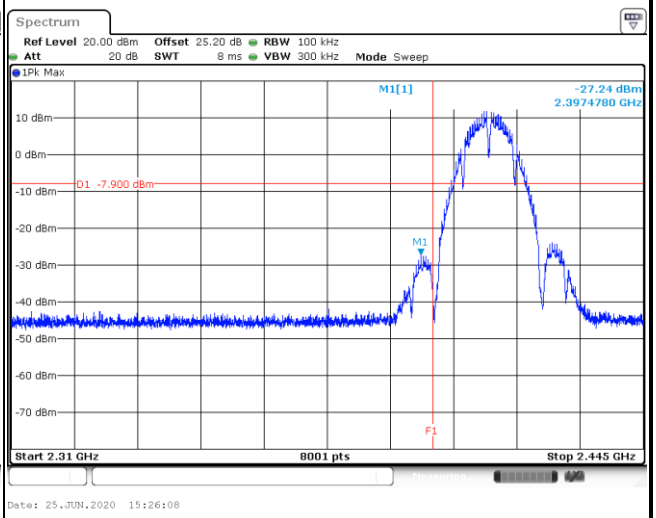
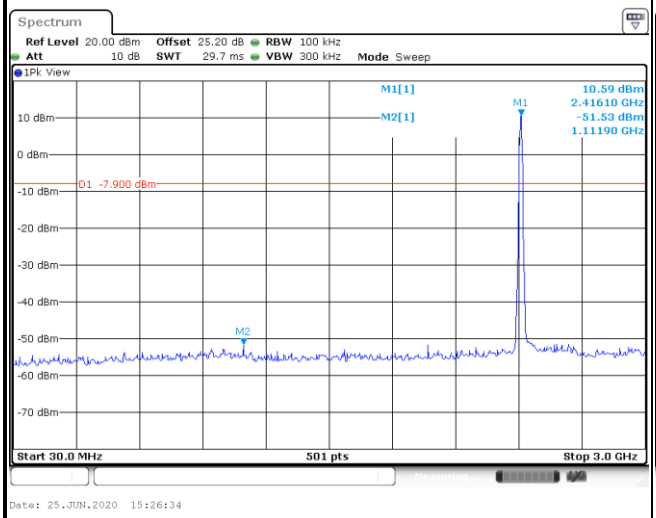
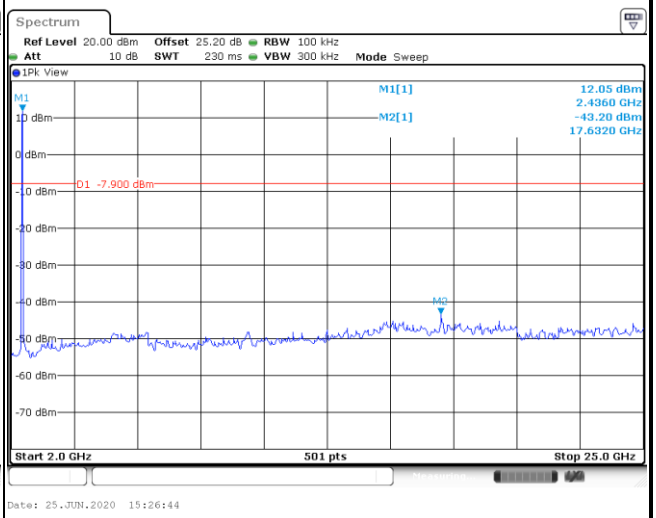


3.4.5 Test Result of Conducted Band Edges and Spurious Emission

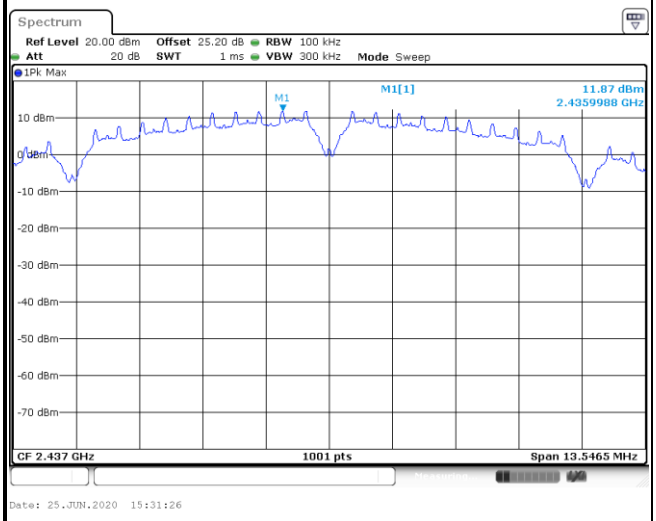
Test Engineer :	Kai Liao and Shiming Liu	**Temperature :**	21.2~24.1℃
		Relative Humidity :	47.2~57.8%

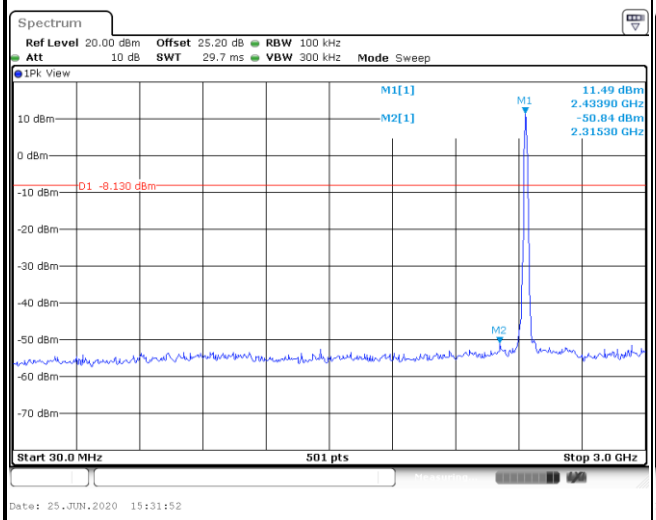
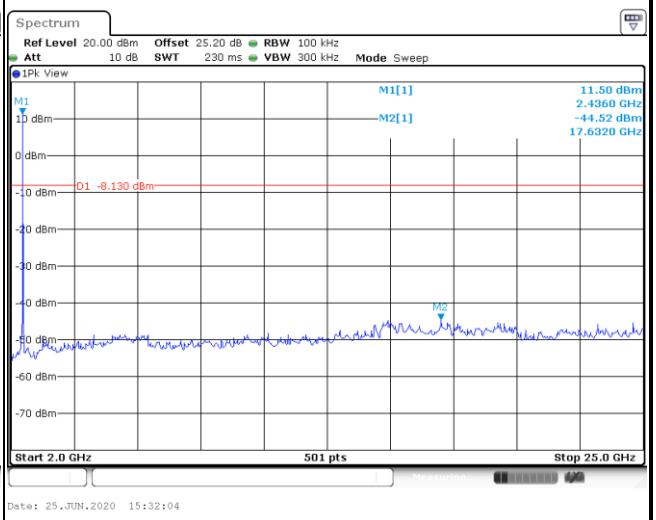
Number of TX = 2, Ant. 4 (Measured)

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

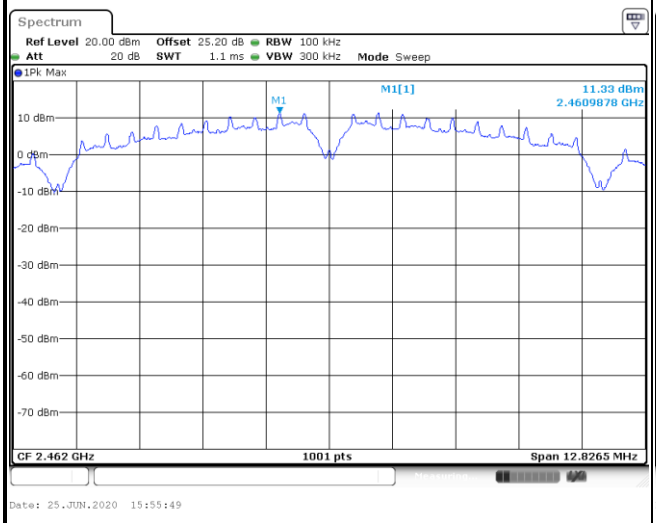
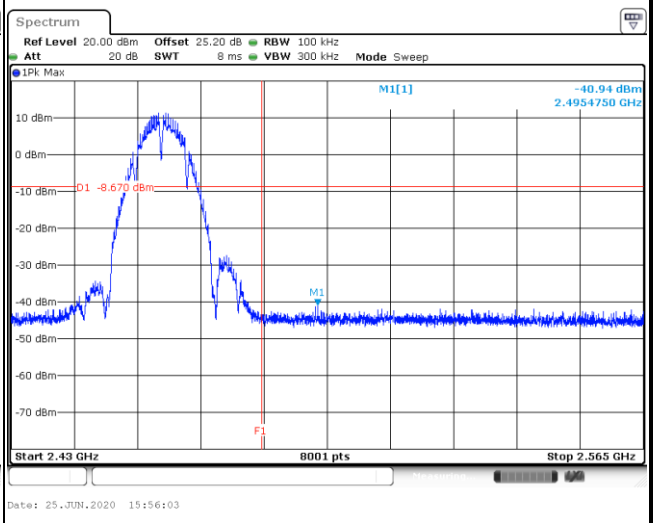
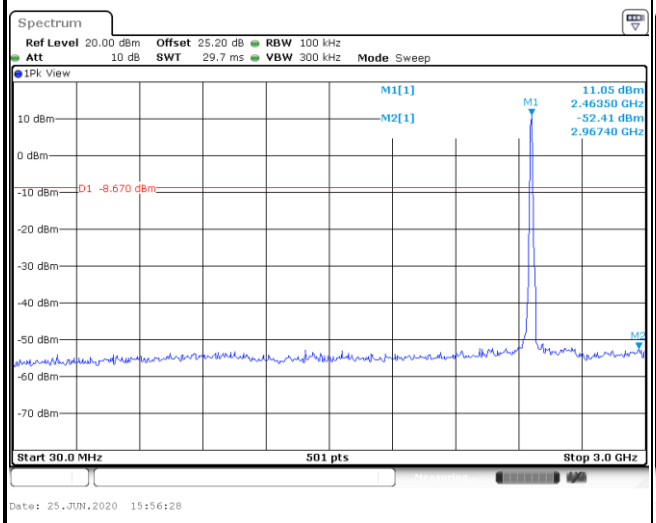
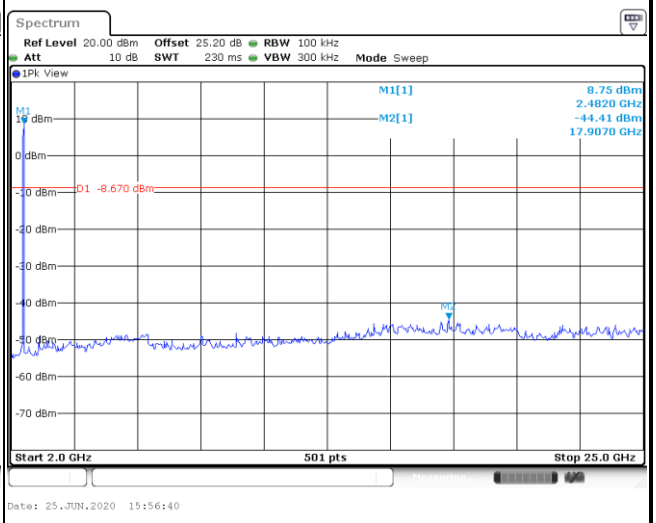
100kHz PSD reference Level	Low Channel Plot
	
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	

Test Mode :	802.11b	Test Channel :	06

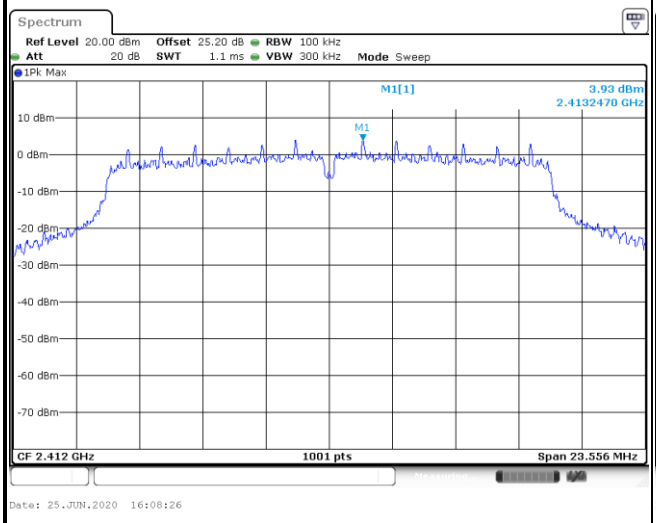
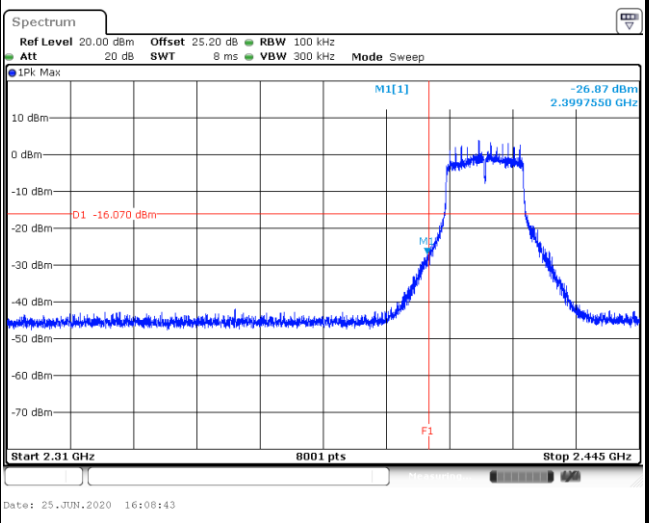
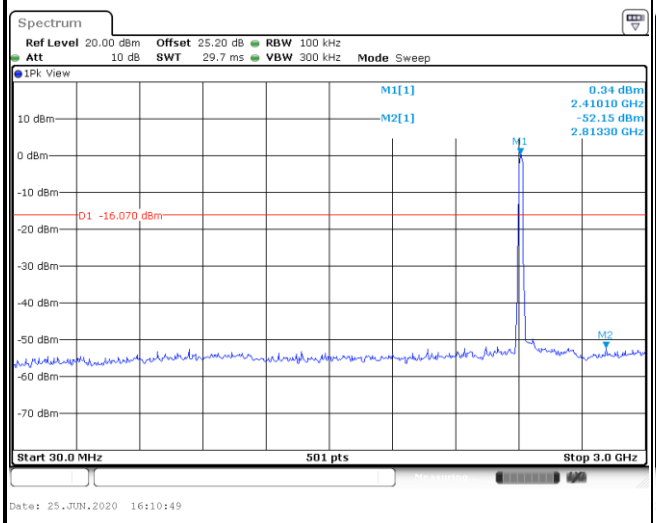
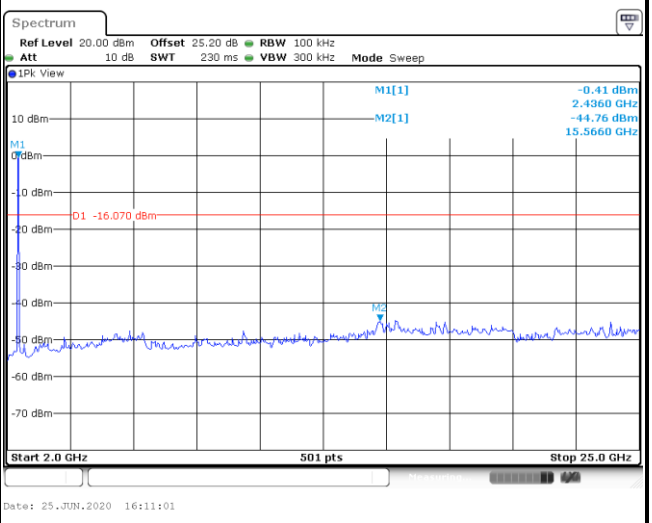
100kHz PSD reference Level	Mid Channel Plot
	

Spurious Emission 30MHz~3GHz	Spurious Emission 2GHz~25GHz
	

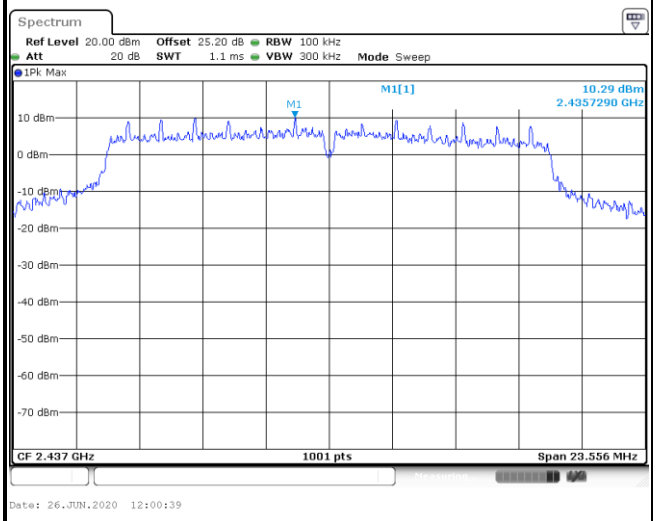
Test Mode :	802.11b	Test Channel :	11

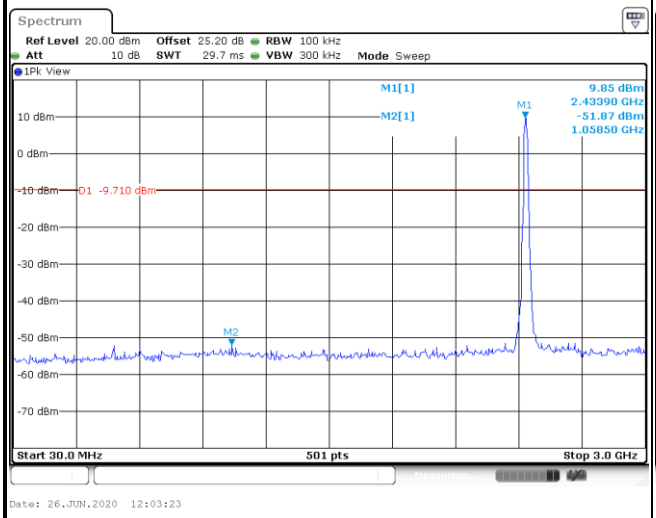
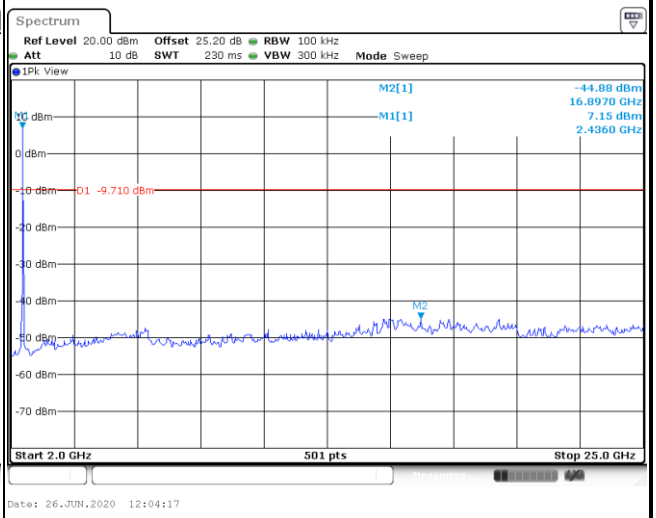
100kHz PSD reference Level	High Channel Plot
	
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	

Test Mode :	802.11g	Test Channel :	01

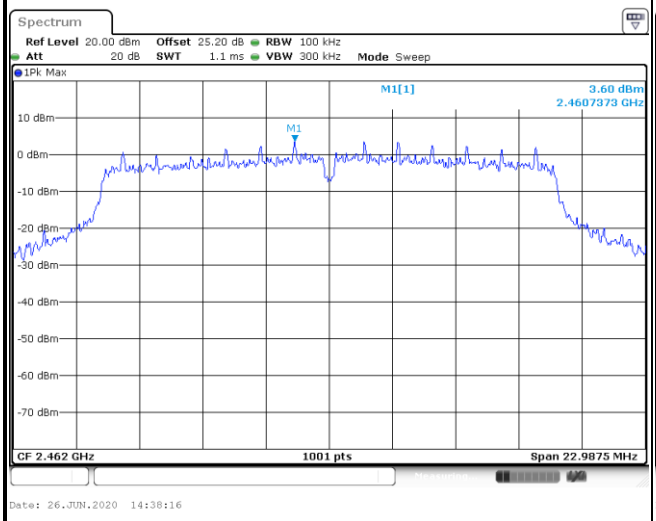
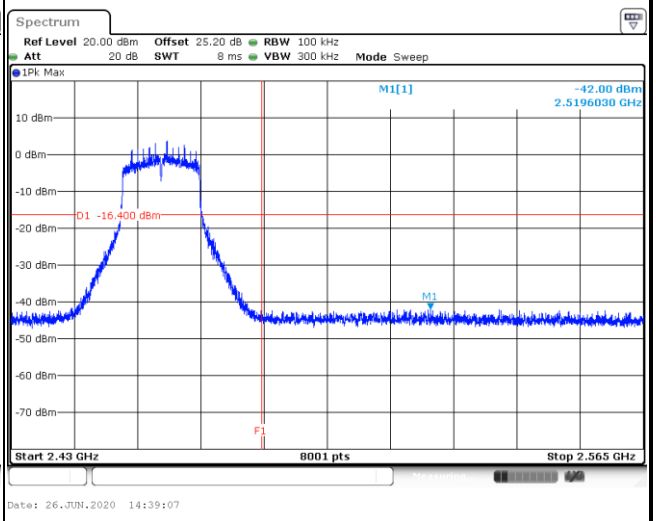
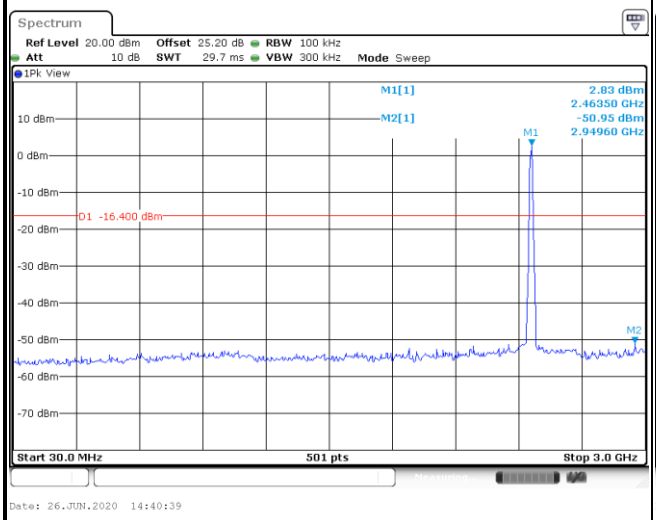
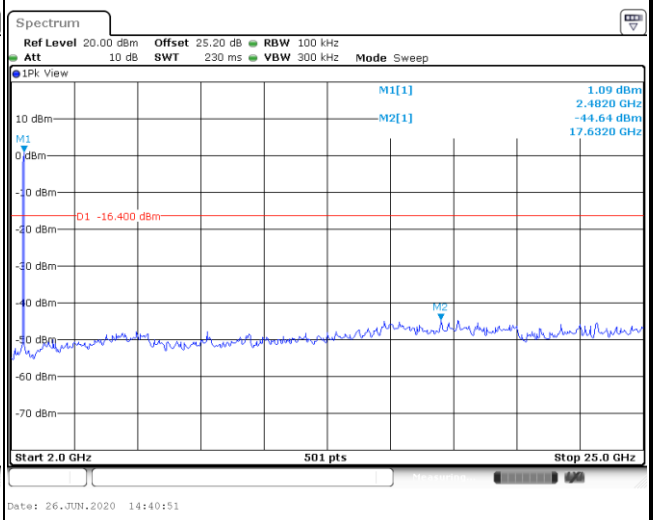
100kHz PSD reference Level	Low Channel Plot
	
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	

Test Mode :	802.11g	Test Channel :	06

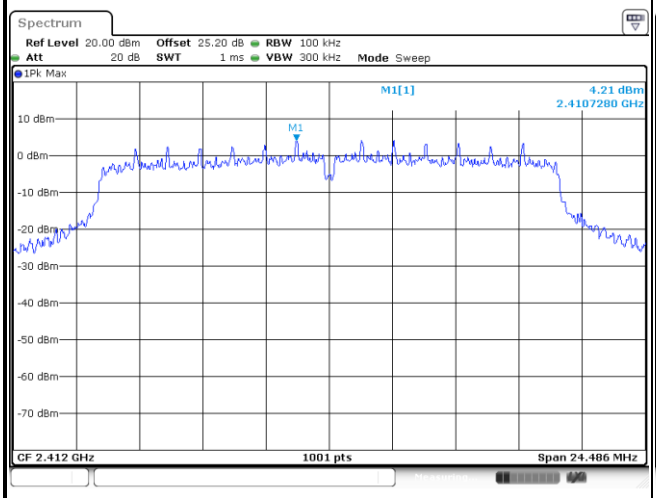
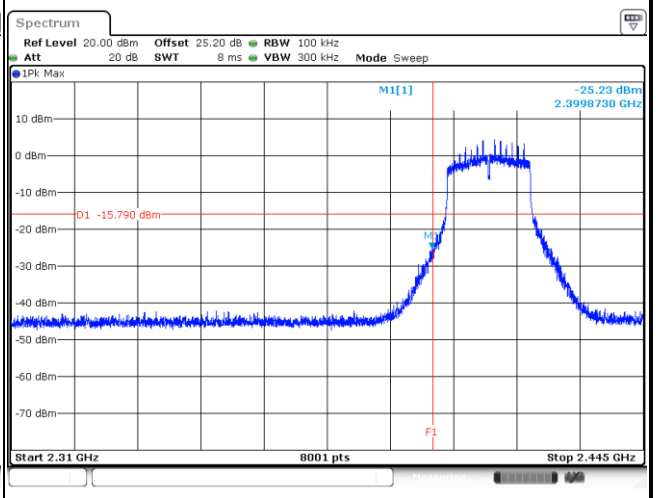
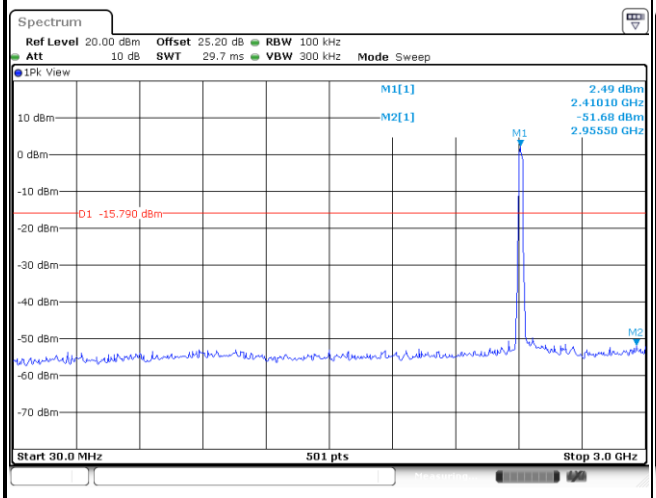
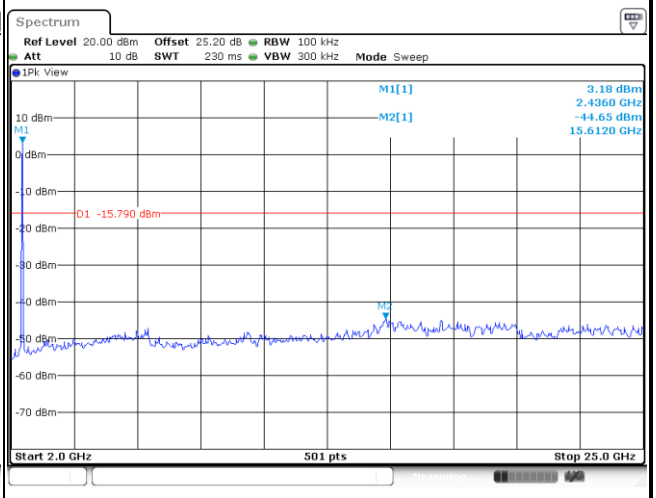
100kHz PSD reference Level	Mid Channel Plot
	

Spurious Emission 30MHz~3GHz	Spurious Emission 2GHz~25GHz
	

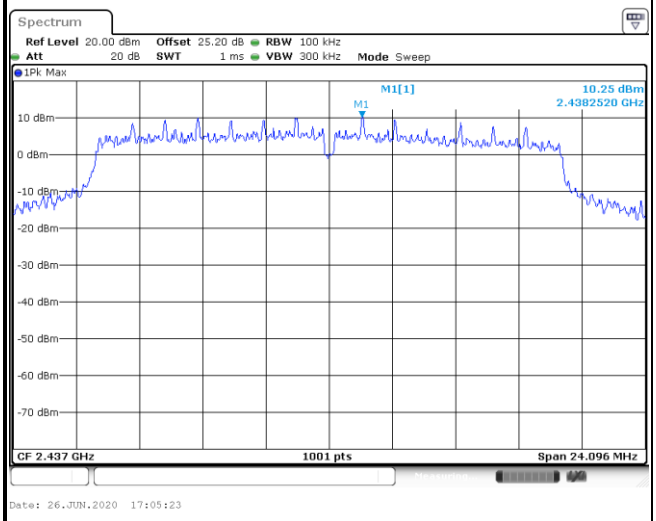
Test Mode :	802.11g	Test Channel :	11

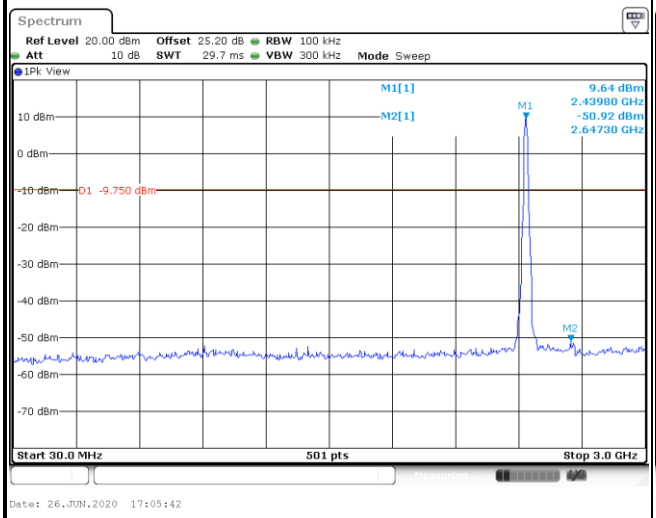
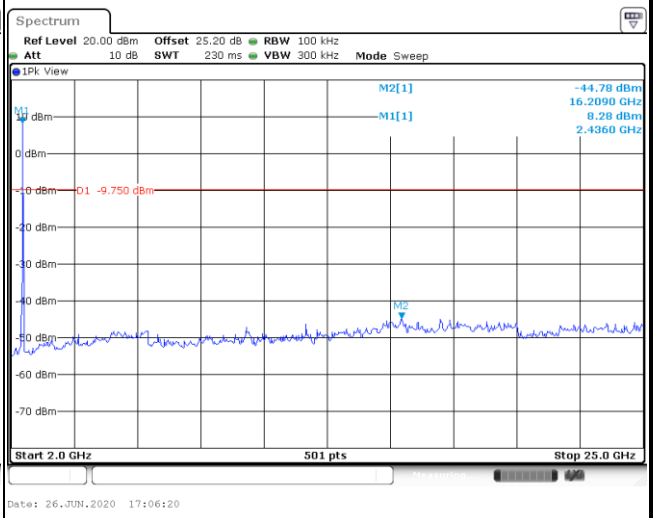
100kHz PSD reference Level	High Channel Plot
	
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	

Test Mode :	802.11n HT20	Test Channel :	01

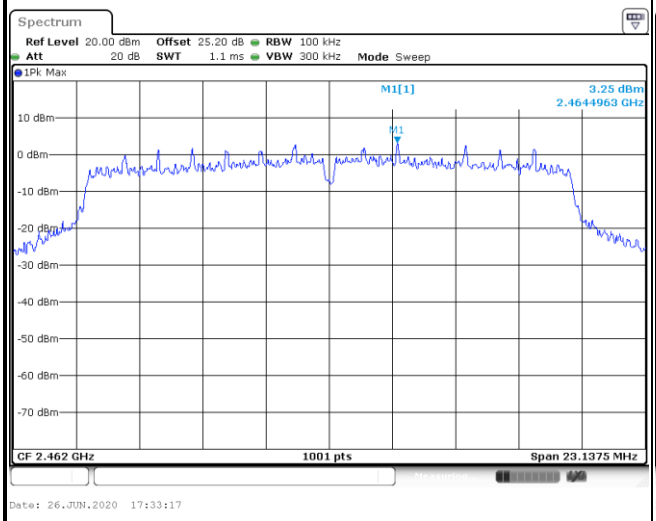
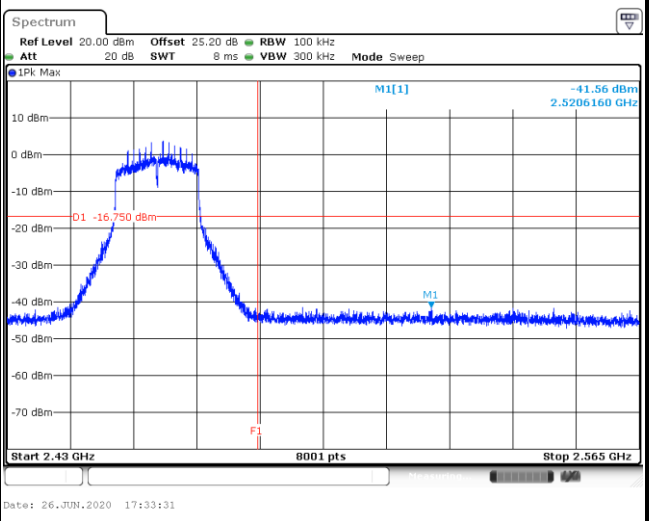
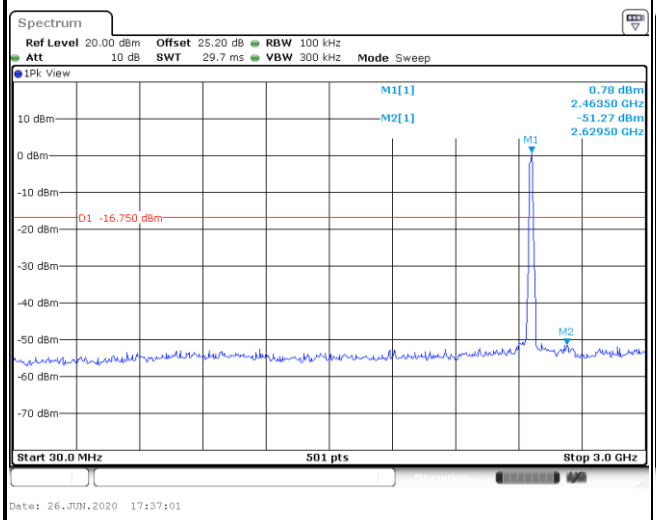
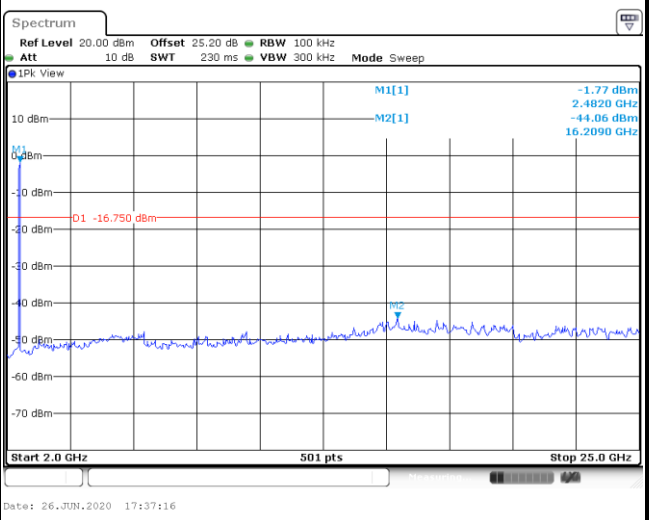
100kHz PSD reference Level	Low Channel Plot
	
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	

Test Mode :	802.11n HT20	Test Channel :	06

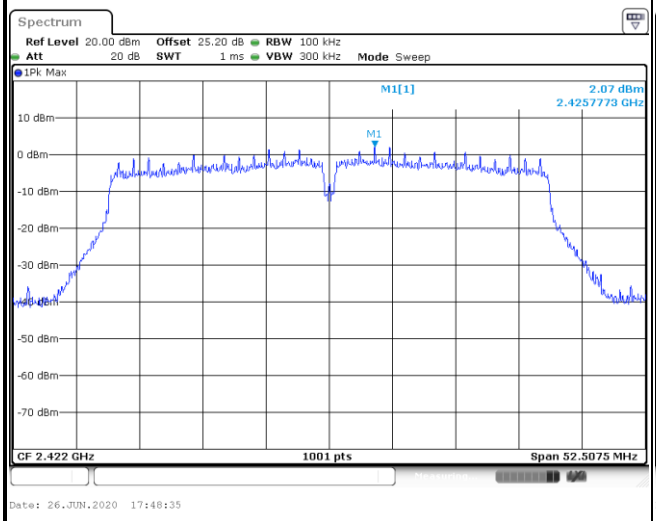
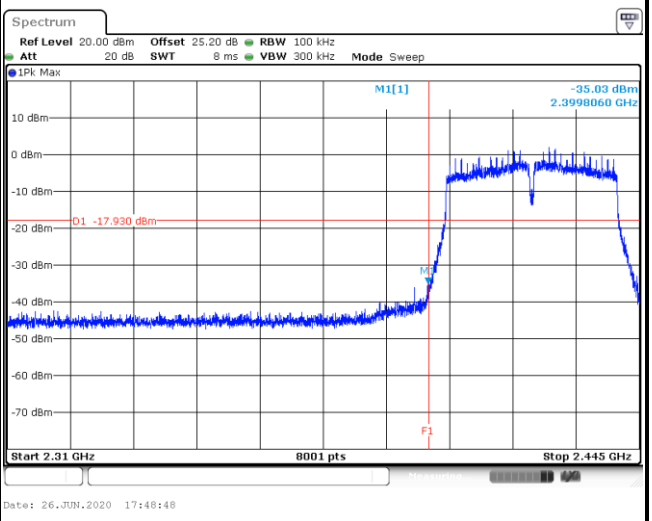
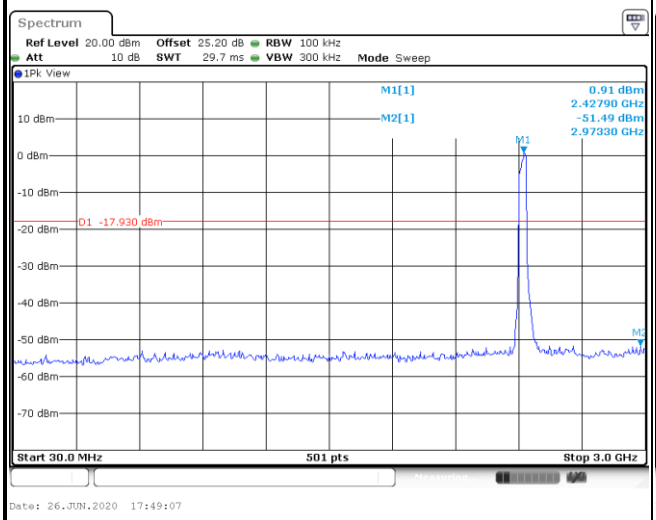
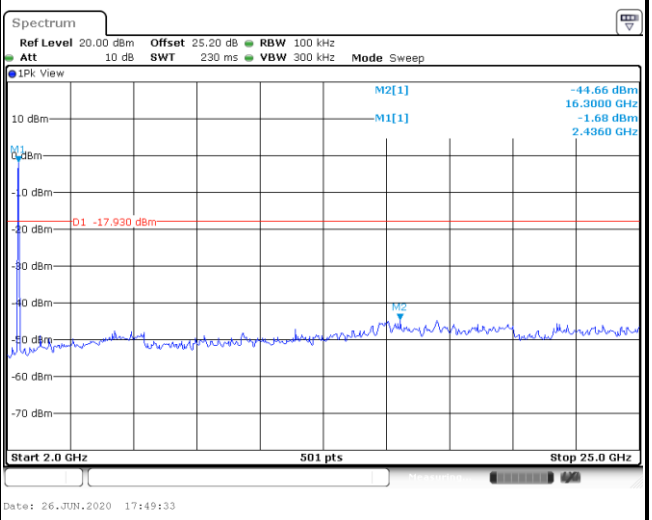
100kHz PSD reference Level	Mid Channel Plot
	

Spurious Emission 30MHz~3GHz	Spurious Emission 2GHz~25GHz
	

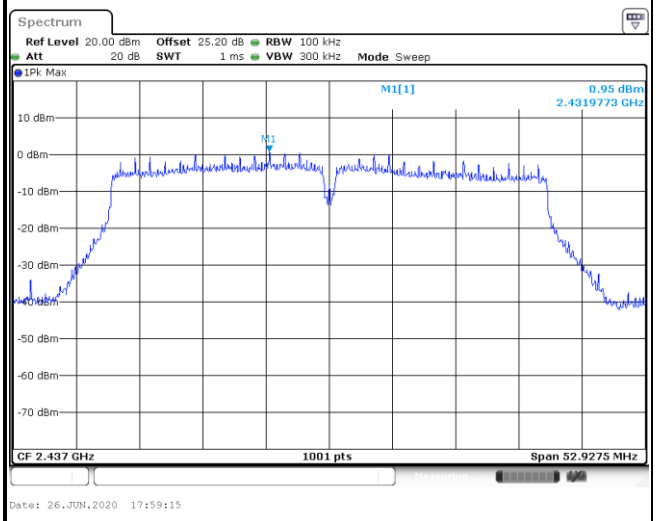
Test Mode :	802.11n HT20	Test Channel :	11

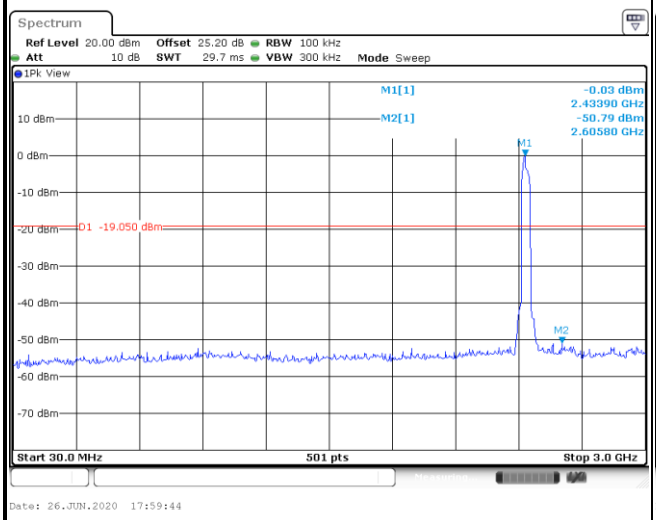
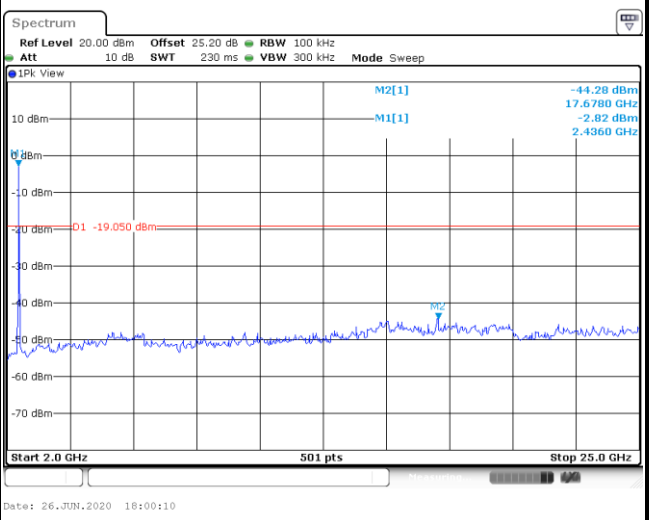
100kHz PSD reference Level	High Channel Plot
	
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	

Test Mode :	802.11n HT40	Test Channel :	03

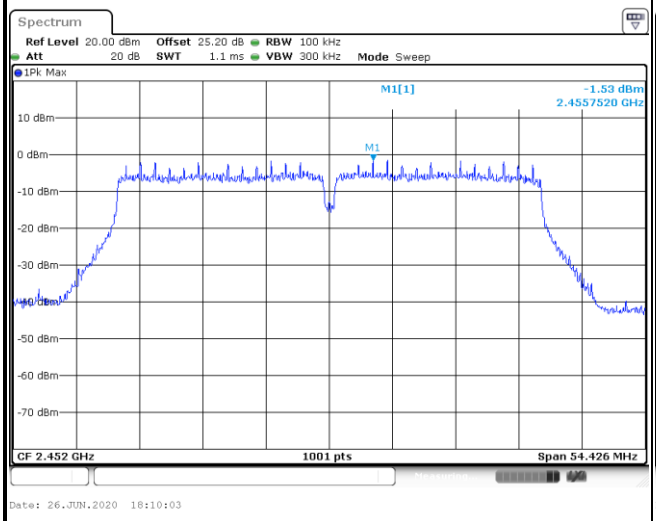
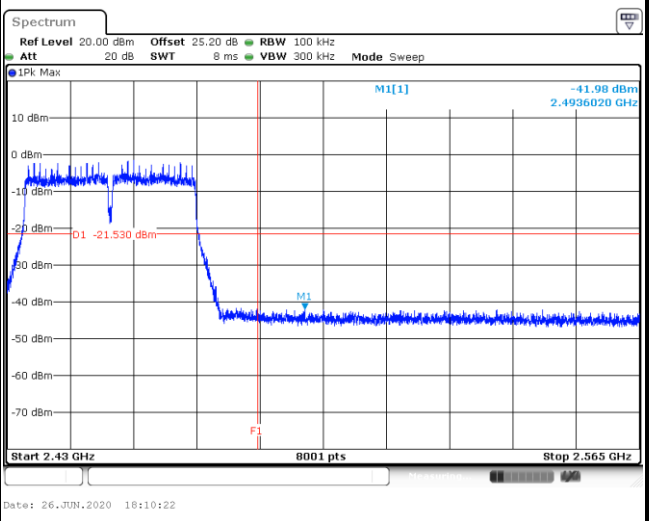
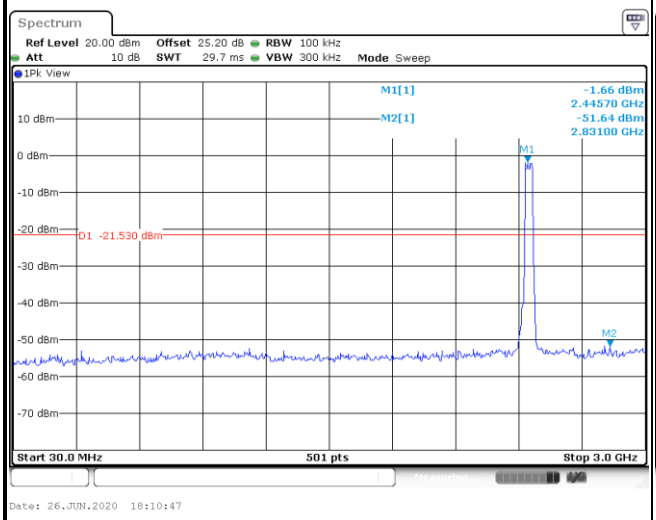
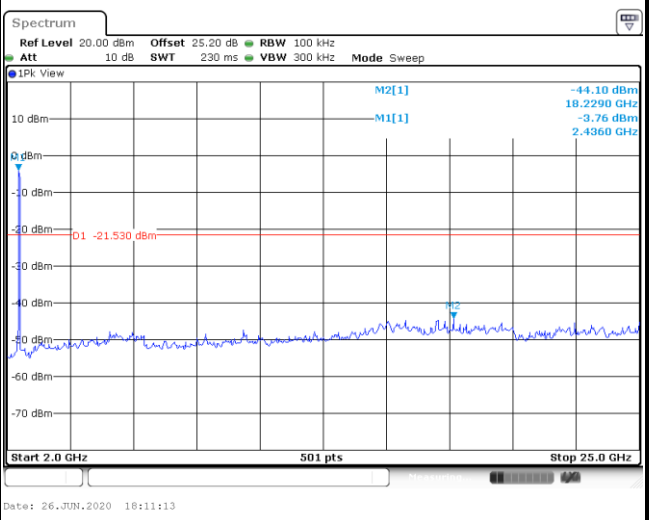
100kHz PSD reference Level	Low Channel Plot
	
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	

Test Mode :	802.11n HT40	Test Channel :	06

100kHz PSD reference Level	Mid Channel Plot
	

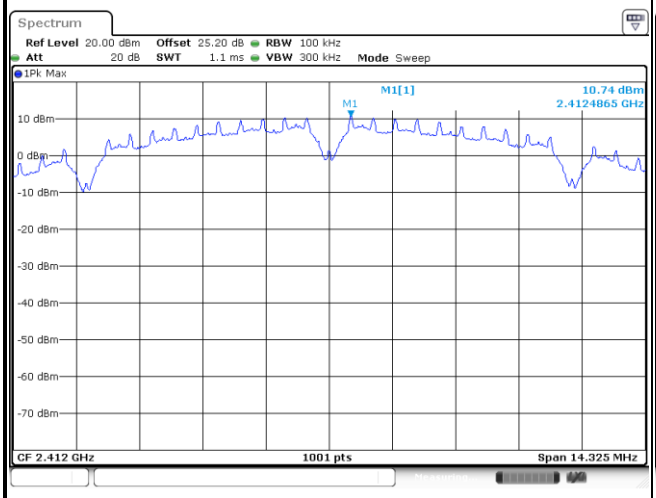
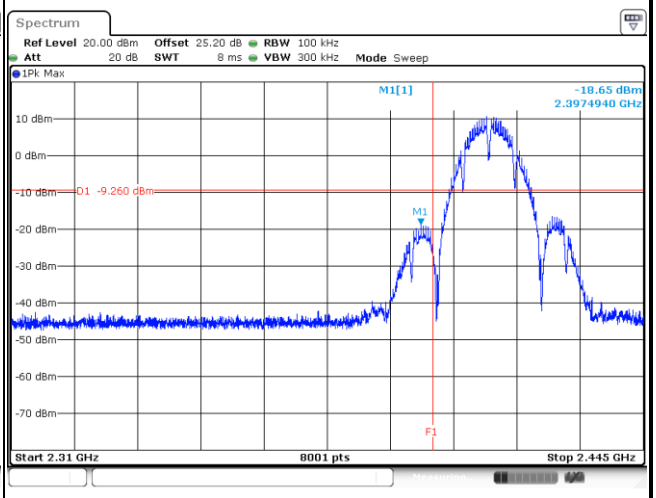
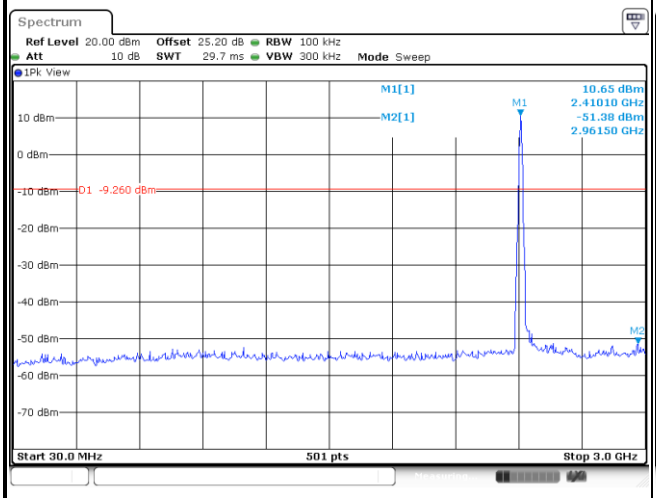
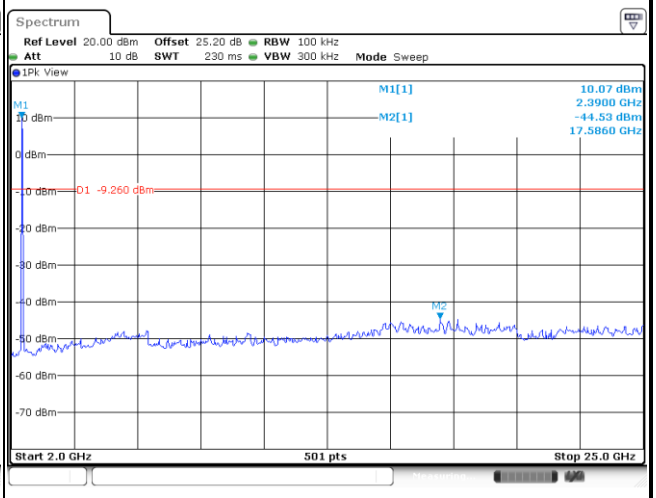
Spurious Emission 30MHz~3GHz	Spurious Emission 2GHz~25GHz
	

Test Mode :	802.11n HT40	Test Channel :	09

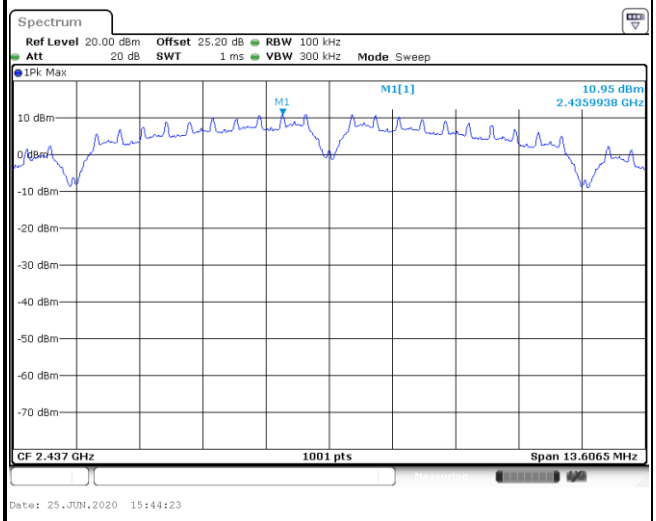
100kHz PSD reference Level	High Channel Plot
	
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	

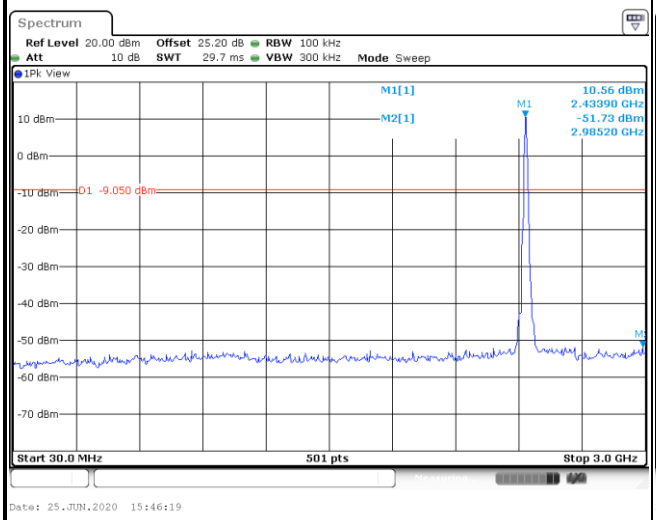
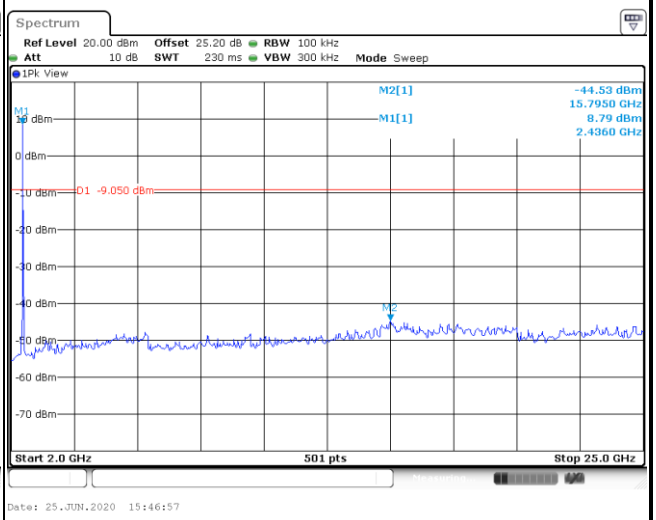
Number of TX = 2, Ant. 3 (Measured)

Test Mode :	802.11b	Test Channel :	01

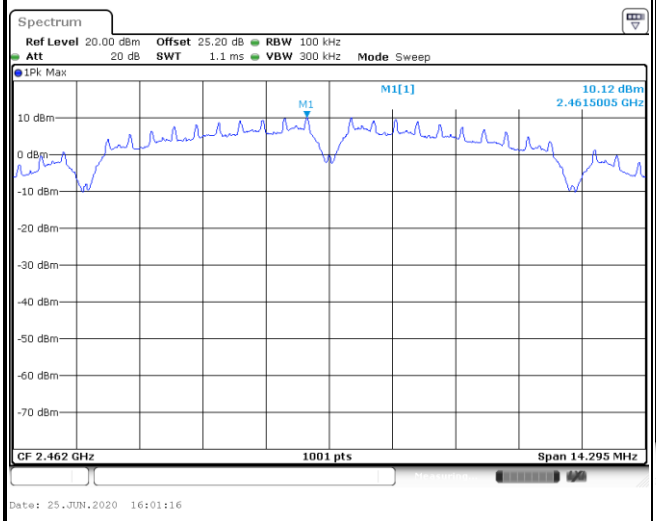
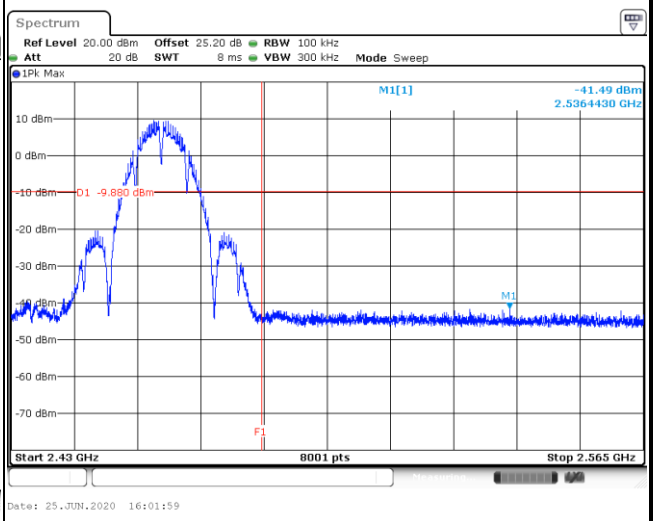
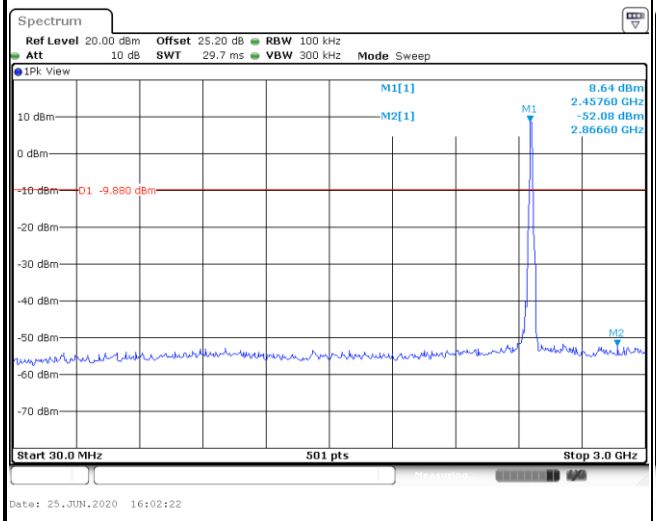
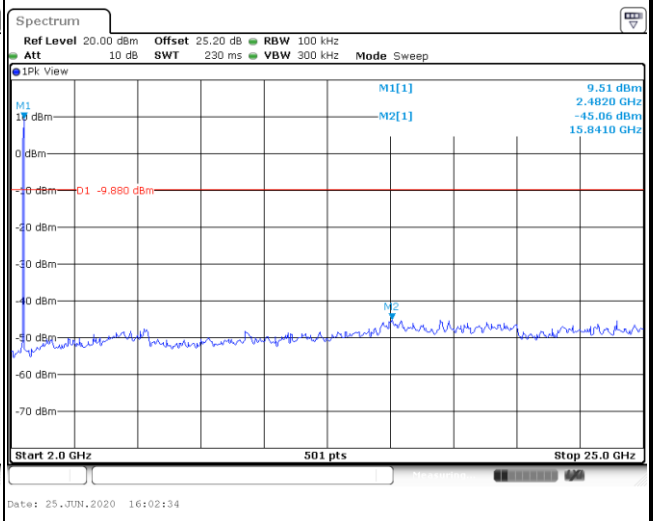
100kHz PSD reference Level	Low Channel Plot
	
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	

Test Mode :	802.11b	Test Channel :	06

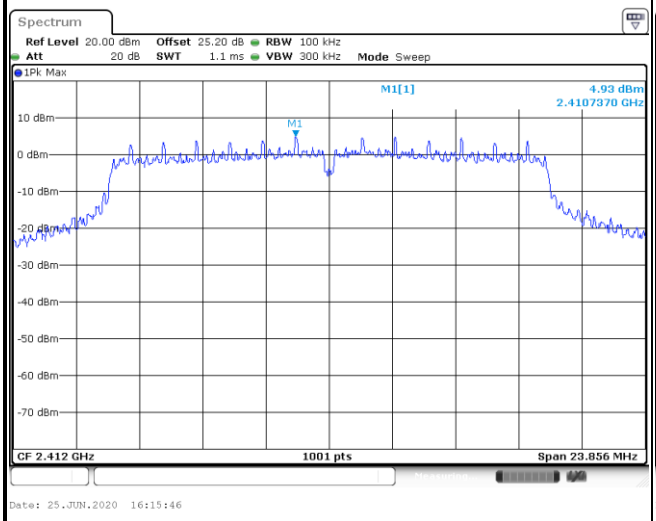
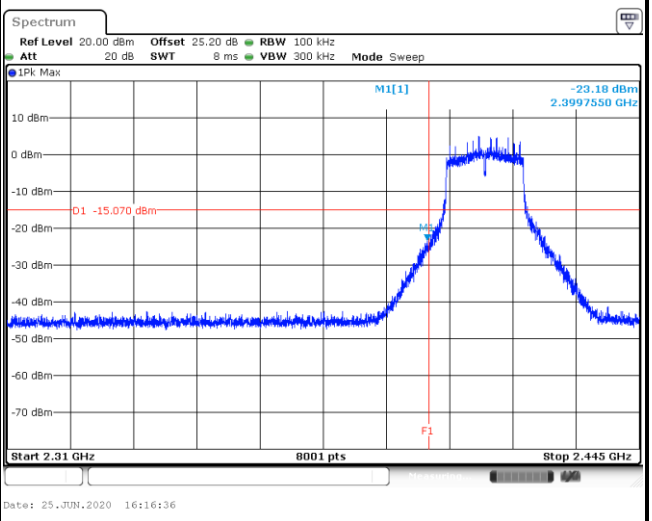
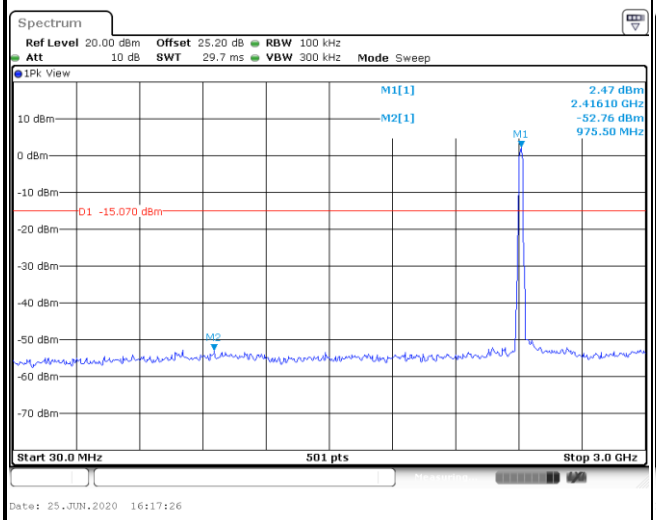
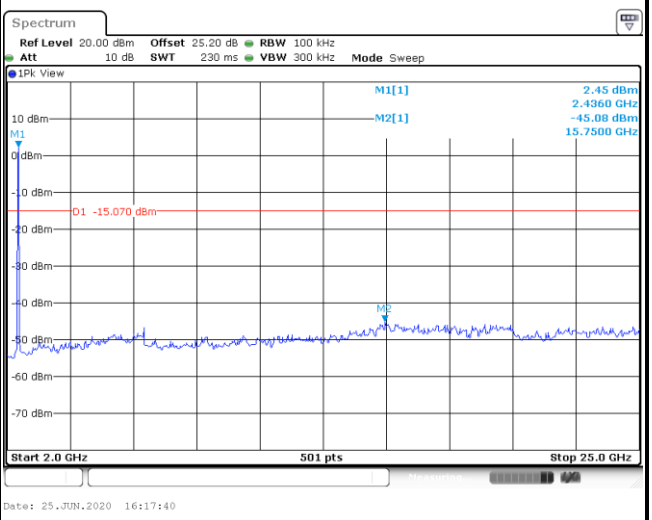
100kHz PSD reference Level	Mid Channel Plot
	

Spurious Emission 30MHz~3GHz	Spurious Emission 2GHz~25GHz
	

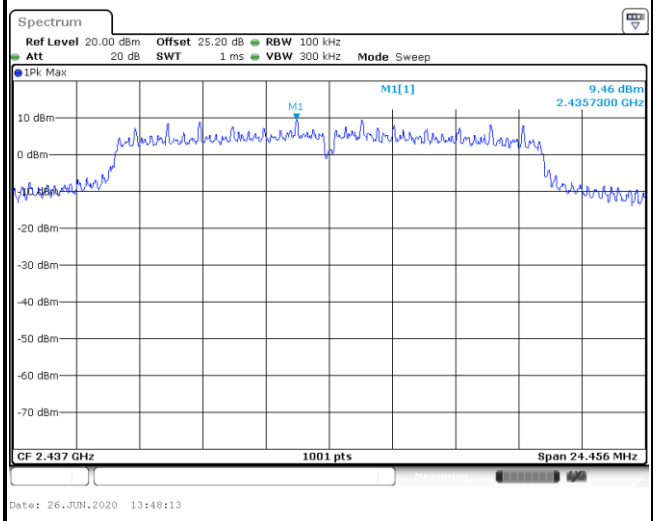
Test Mode :	802.11b	Test Channel :	11

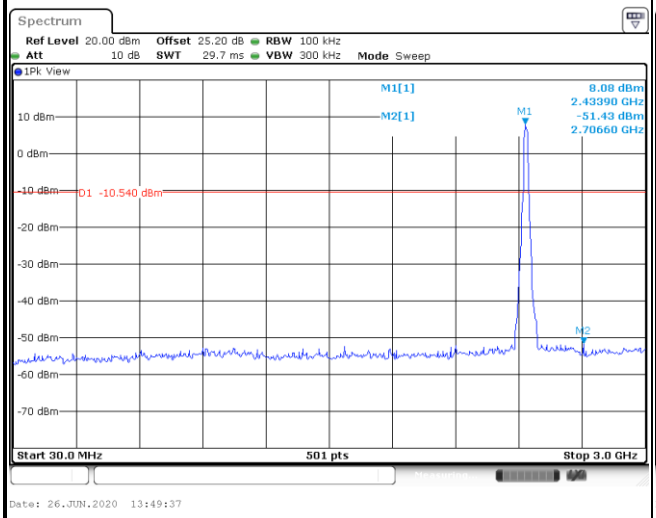
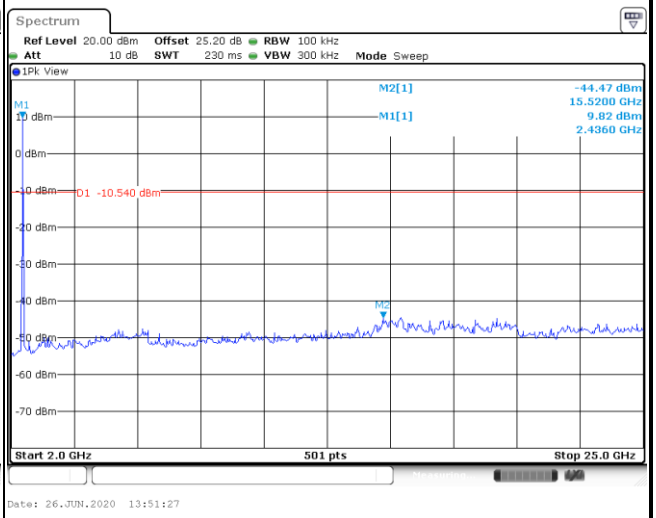
100kHz PSD reference Level	High Channel Plot
	
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	

Test Mode :	802.11g	Test Channel :	01

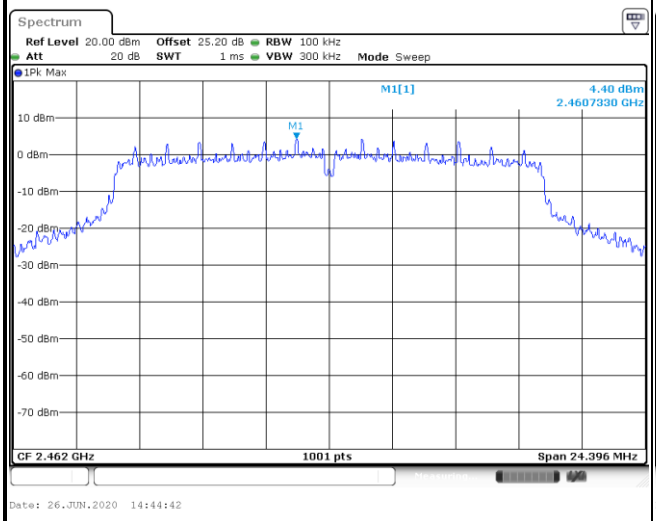
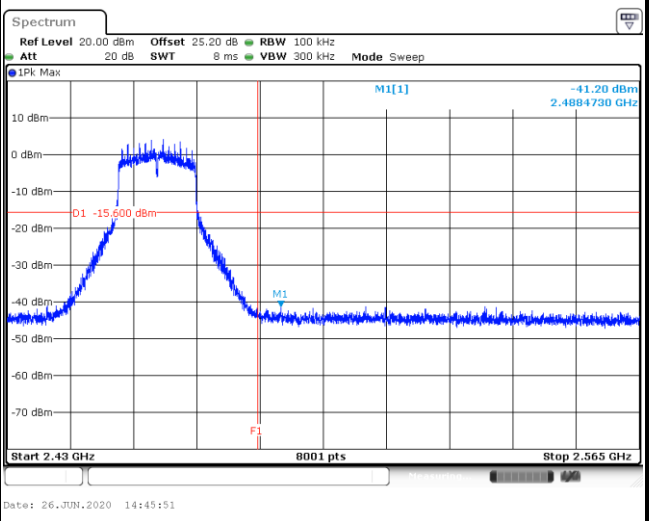
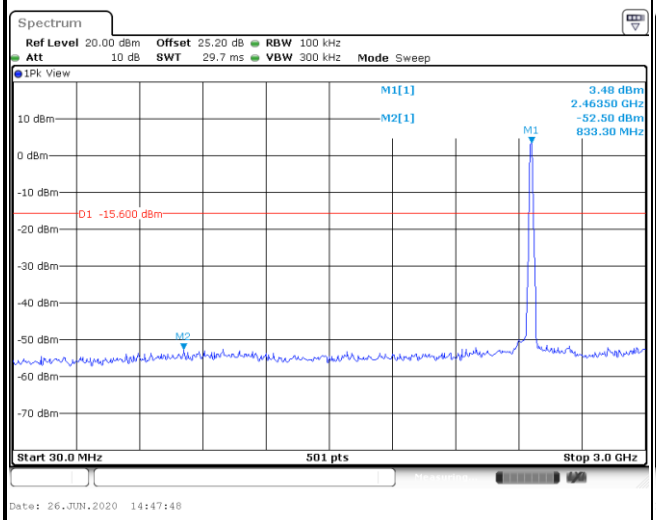
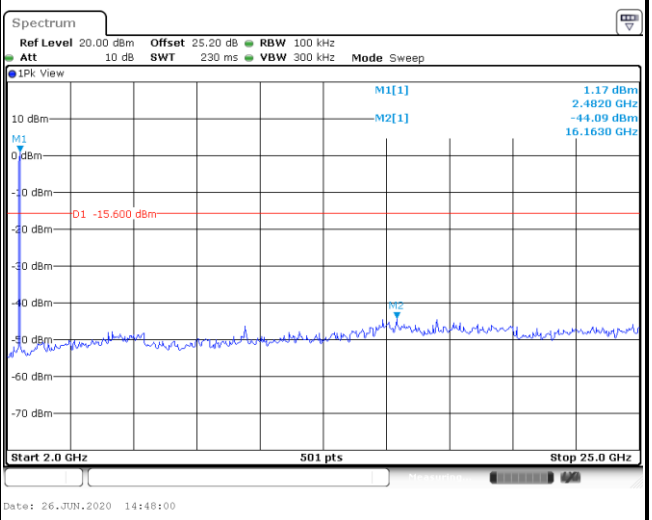
100kHz PSD reference Level	Low Channel Plot
	
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	

Test Mode :	802.11g	Test Channel :	06

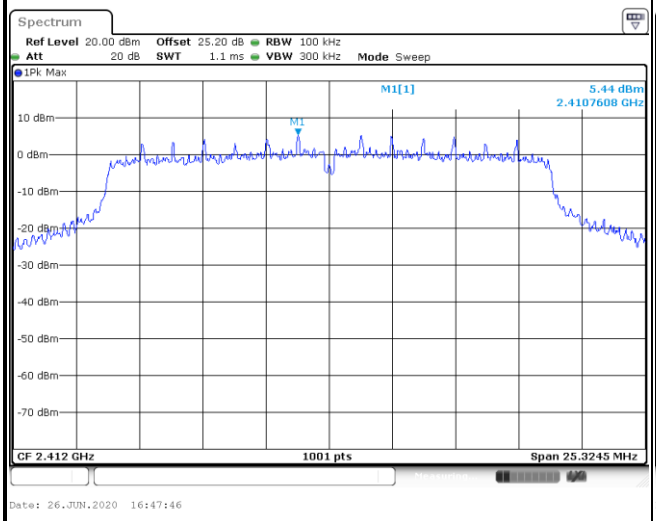
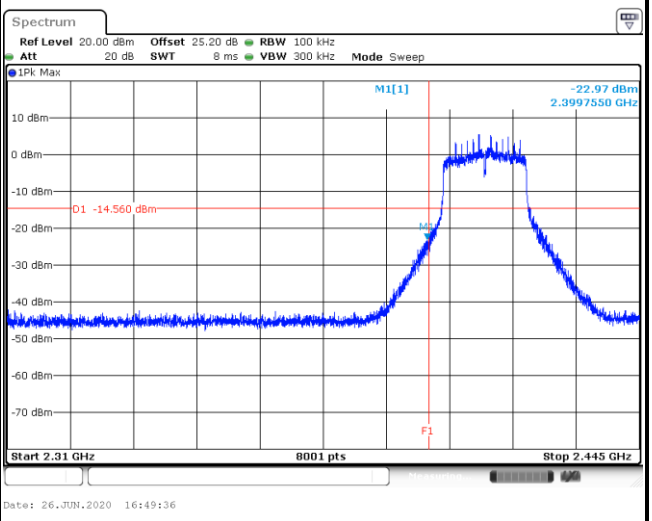
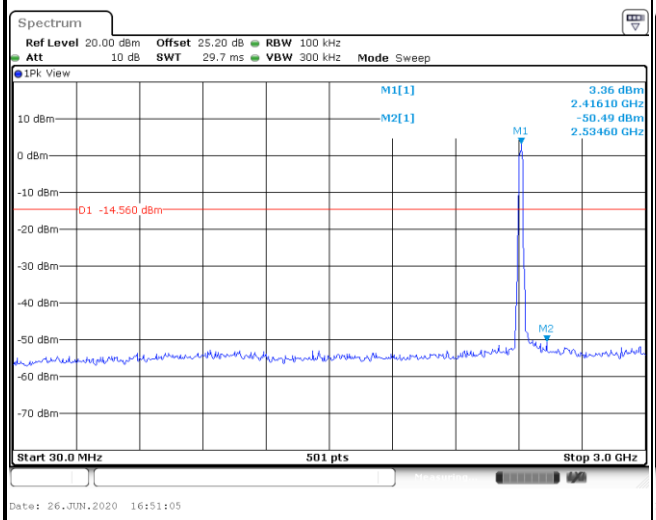
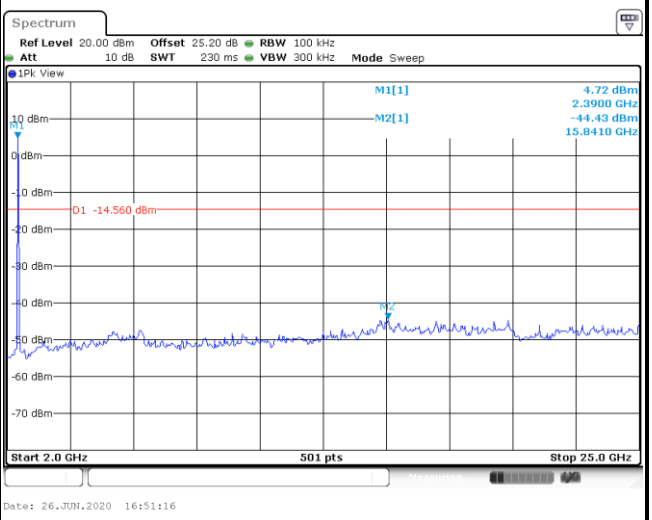
100kHz PSD reference Level	Mid Channel Plot
	

Spurious Emission 30MHz~3GHz	Spurious Emission 2GHz~25GHz
	

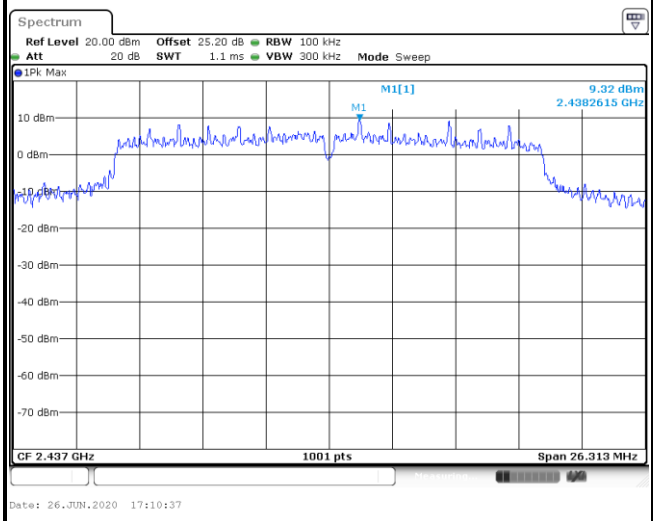
Test Mode :	802.11g	Test Channel :	11

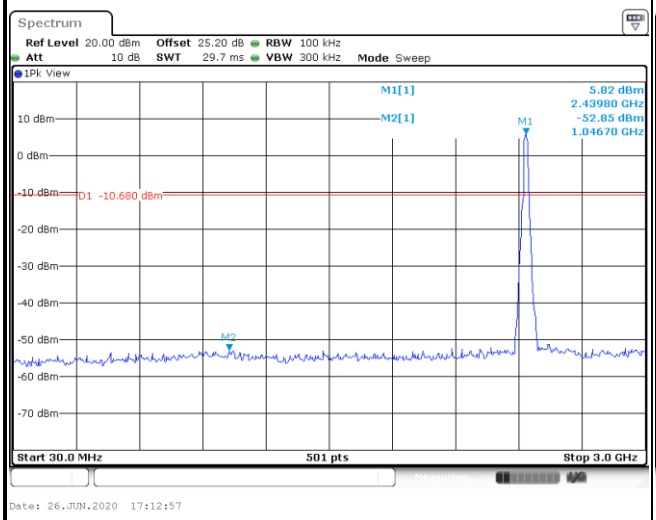
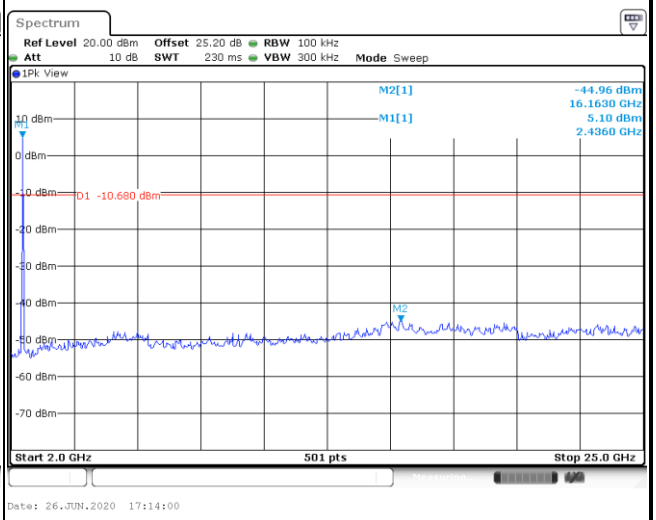
100kHz PSD reference Level	High Channel Plot
	
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	

Test Mode :	802.11n HT20	Test Channel :	01

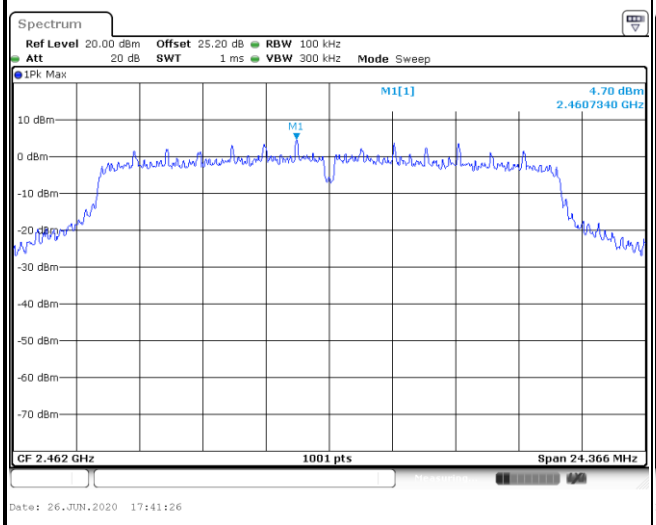
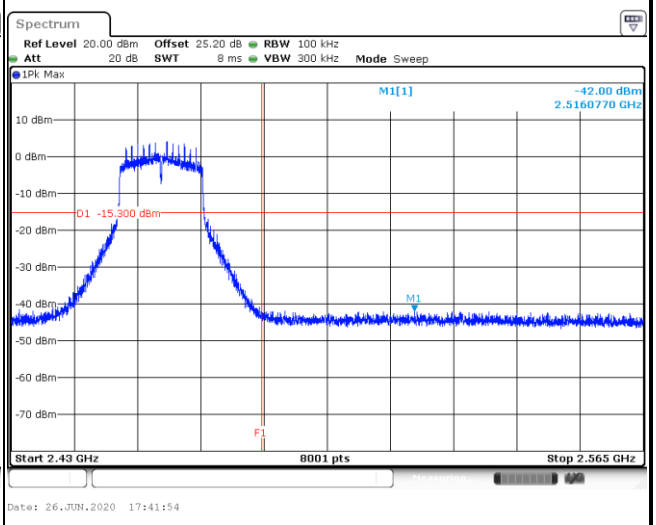
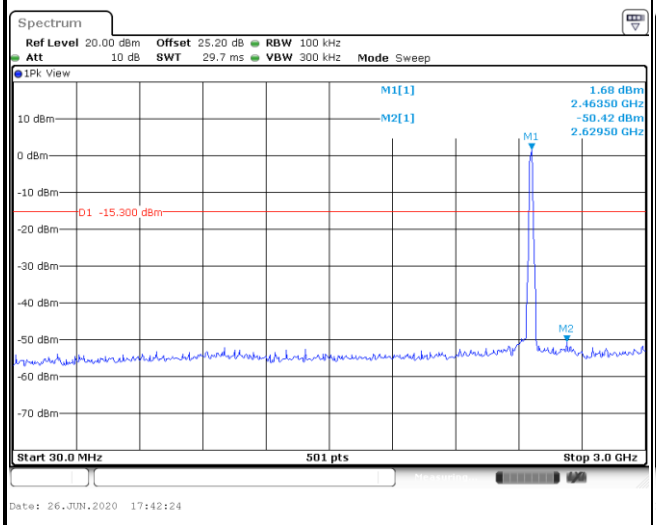
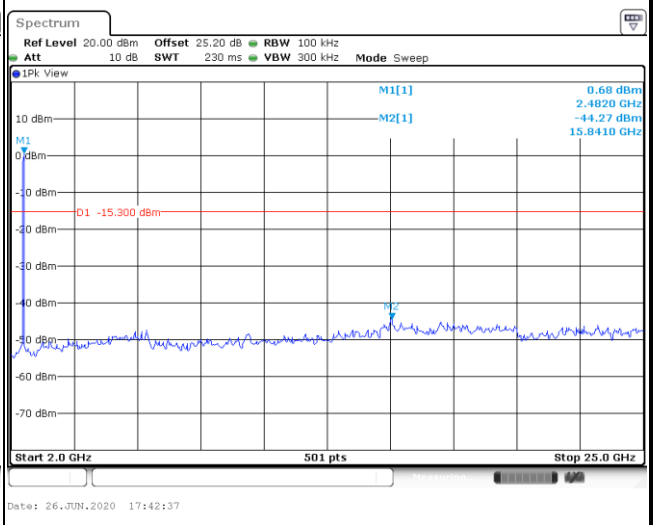
100kHz PSD reference Level	Low Channel Plot
	
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	

Test Mode :	802.11n HT20	Test Channel :	06

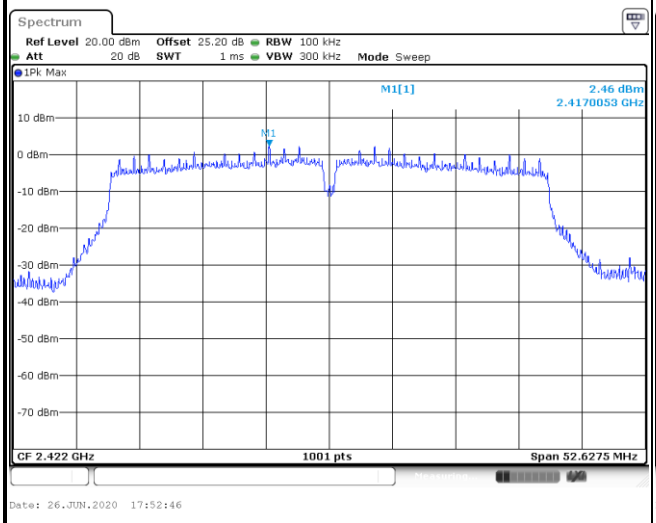
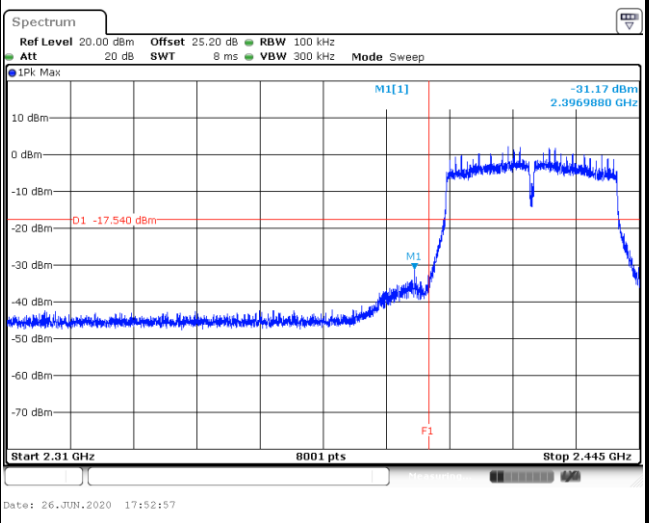
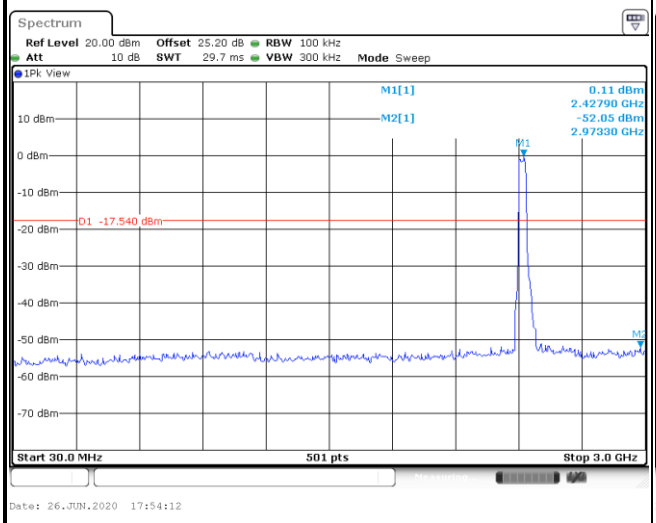
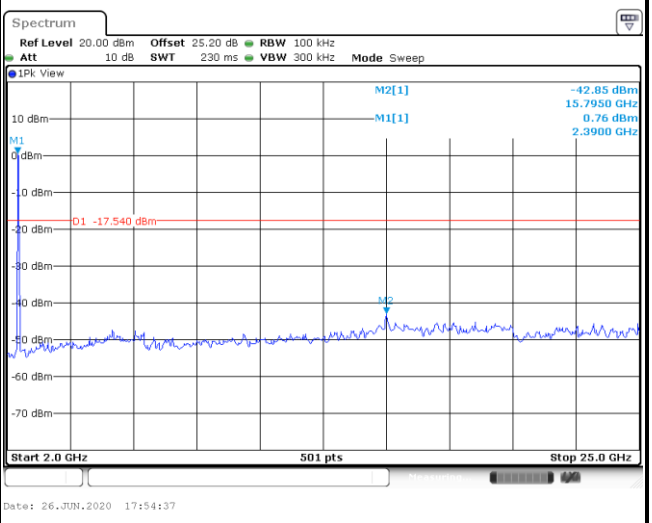
100kHz PSD reference Level	Mid Channel Plot
	

Spurious Emission 30MHz~3GHz	Spurious Emission 2GHz~25GHz
	

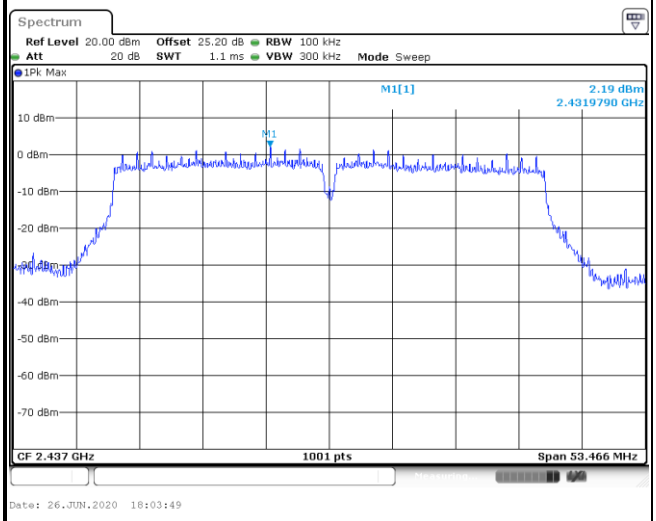
Test Mode :	802.11n HT20	Test Channel :	11

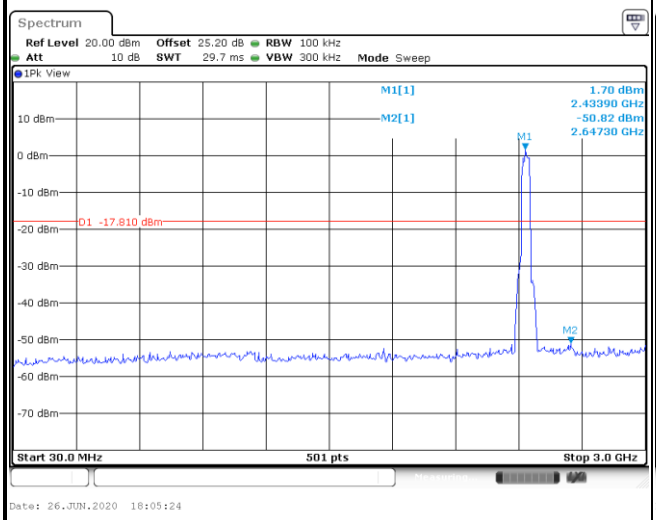
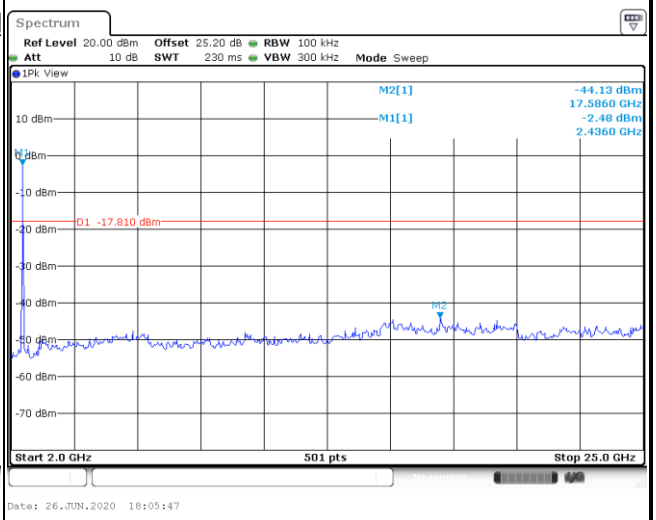
100kHz PSD reference Level	High Channel Plot
	
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	

Test Mode :	802.11n HT40	Test Channel :	03

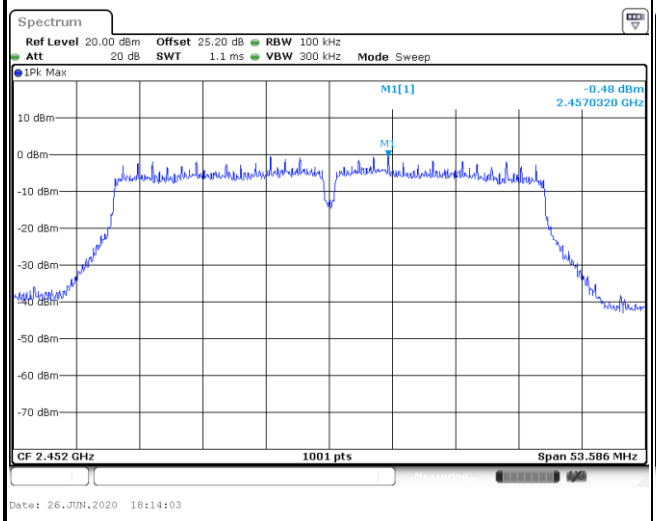
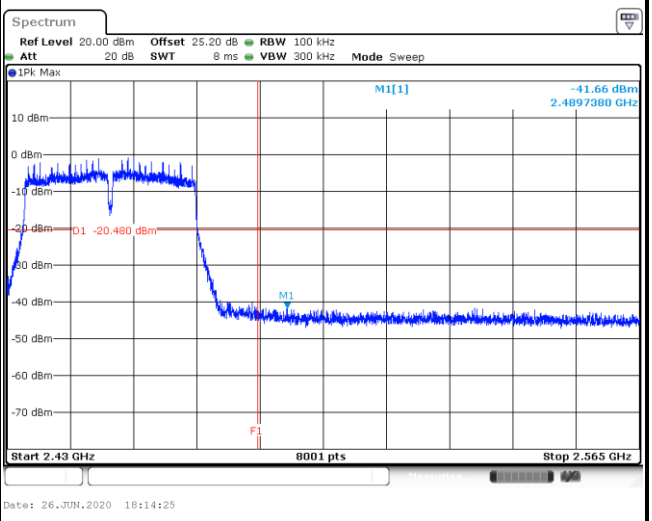
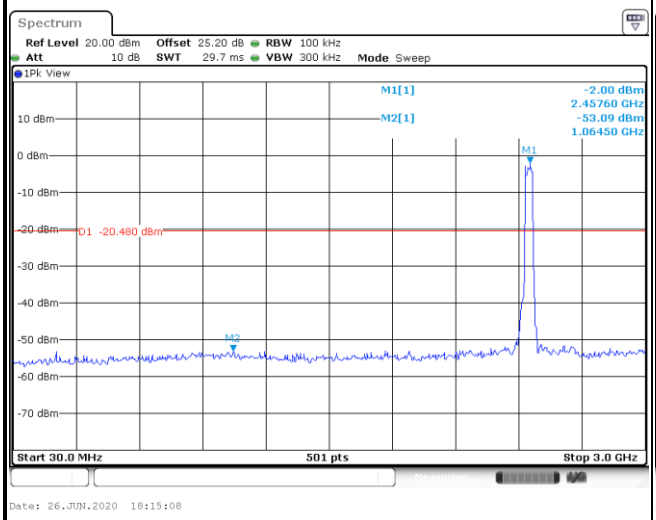
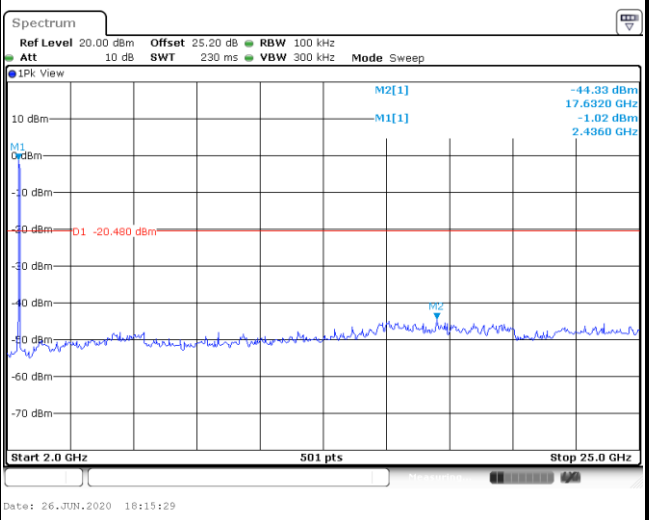
100kHz PSD reference Level	Low Channel Plot
	
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	

Test Mode :	802.11n HT40	Test Channel :	06

100kHz PSD reference Level	Mid Channel Plot
	

Spurious Emission 30MHz~3GHz	Spurious Emission 2GHz~25GHz
	

Test Mode :	802.11n HT40	Test Channel :	09

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

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

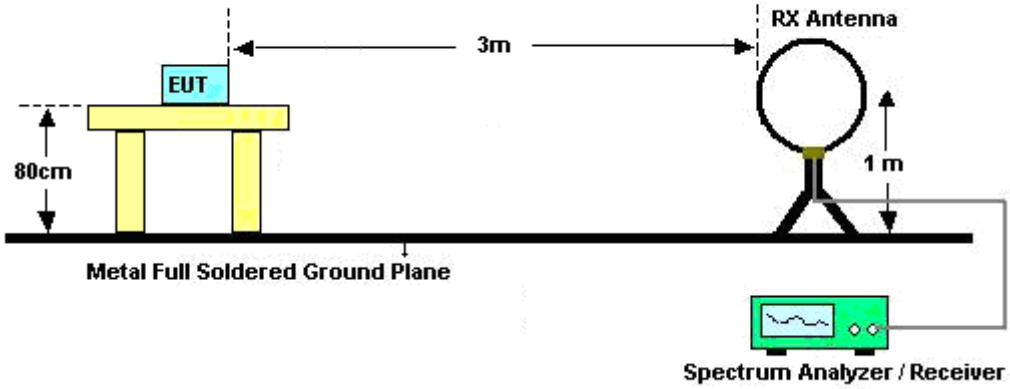
See list of measuring equipment of this test report.

3.5.3 Test Procedures

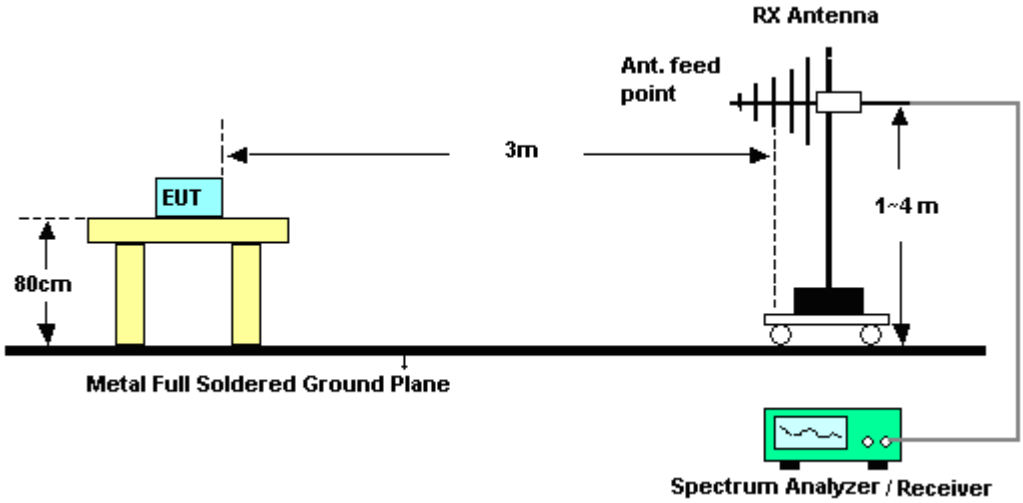
1. The testing follows the ANSI C63.10 Section 11.12.1 Radiated emission measurements.
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the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

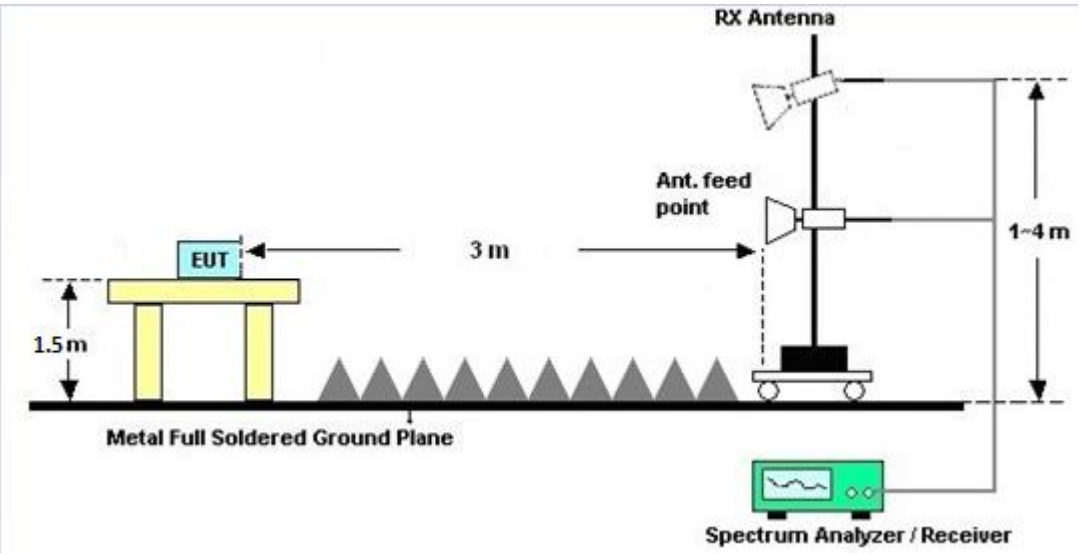
For radiated emissions below 30MHz



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.

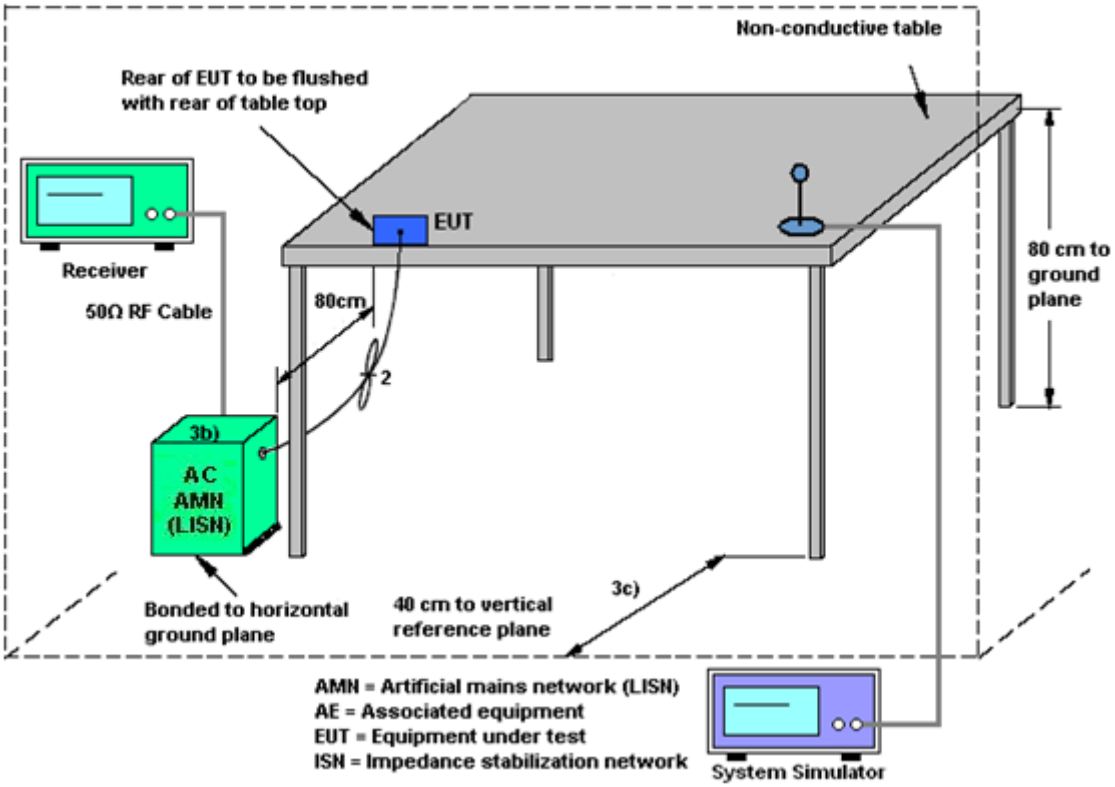
3.6.2 Measuring Instruments

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>

			DG for Power	DG for PSD	Power Limit Reduction	PSD Limit Reduction
	Ant. 4	Ant. 3				
	(dBi)	(dBi)	(dBi)	(dBi)	(dB)	(dB)
2.4 GHz	-2.00	-1.90	-1.90	1.06	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	HTC-1	2	N/A	Mar. 02, 2020	May 15, 2020~ Jun. 26, 2020	Mar. 01, 2021	Conducted (TH05-HY)
Power Sensor	DARE	RPR3006W	16I00054SNO10	10MHz~6GHz	Dec. 23, 2019	May 15, 2020~ Jun. 26, 2020	Dec. 22, 2020	Conducted (TH05-HY)
Signal Analyzer	Rohde & Schwarz	FSV40	101566	10Hz~40GHz	Jul. 15, 2019	May 15, 2020~ Jun. 26, 2020	Jul. 14, 2020	Conducted (TH05-HY)
Spectrum Analyzer	Rohde & Schwarz	FSP40	100055	9kHz-40GHz	Dec. 30, 2019	May 15, 2020~ Jun. 26, 2020	Dec. 29, 2020	Conducted (TH05-HY)
Switch Control Manframe	Burgeon	ETF-058	EC1300484	N/A	Aug. 22, 2019	May 15, 2020~ Jun. 26, 2020	Aug. 21, 2020	Conducted (TH05-HY)
AC Power Source	ChainTek	APC-1000W	N/A	N/A	N/A	May 23, 2020	N/A	Conduction (CO05-HY)
EMI Test Receiver	Rohde & Schwarz	ESR3	102388	9kHz~3.6GHz	Nov. 15, 2019	May 23, 2020	Nov. 14, 2020	Conduction (CO05-HY)
Hygrometer	Testo	608-H1	34913912	N/A	Nov. 07, 2019	May 23, 2020	Nov. 06, 2020	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100081	9kHz~30MHz	Nov. 15, 2019	May 23, 2020	Nov. 14, 2020	Conduction (CO05-HY)
Software	Rohde & Schwarz	EMC32 V10.30	N/A	N/A	N/A	May 23, 2020	N/A	Conduction (CO05-HY)
LF Cable	HUBER + SUHNER	RG-214/U	LF01	N/A	Jan. 02, 2020	May 23, 2020	Jan. 01, 2021	Conduction (CO05-HY)
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100851	N/A	Jan. 02, 2020	May 23, 2020	Jan. 01, 2021	Conduction (CO05-HY)
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100488	9 kHz~30 MHz	Jan. 09, 2020	May 30, 2020~ Jun. 18, 2020	Jan. 08, 2021	Radiation (03CH15-HY)
Bilog Antenna	TESEQ	CBL6111D&00800N1D01N-06	41912&05	30MHz to 1GHz	Feb. 09, 2020	May 30, 2020~ Jun. 18, 2020	Feb. 08, 2021	Radiation (03CH15-HY)
Amplifier	SONOMA	310N	363440	9kHz~1GHz	Dec. 27, 2019	May 30, 2020~ Jun. 18, 2020	Dec. 26, 2020	Radiation (03CH15-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-1620	1-18GHz	Oct. 28, 2019	May 30, 2020~ Jun. 18, 2020	Oct. 27, 2020	Radiation (03CH15-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170584	18GHz- 40GHz	Dec. 10, 2019	May 30, 2020~ Jun. 18, 2020	Dec. 09, 2020	Radiation (03CH15-HY)
Preamplifier	Jet-Power	JPA0118-55-303	1710001800055006	1GHz~18GHz	May 07, 2020	May 30, 2020~ Jun. 18, 2020	May 06, 2021	Radiation (03CH15-HY)
Preamplifier	Keysight	83017A	MY53270195	1GHz~26.5GHz	Aug. 23, 2019	May 30, 2020~ Jun. 18, 2020	Aug. 22, 2020	Radiation (03CH15-HY)
Preamplifier	EMEC	EM18G40G	060715	18GHz ~ 40GHz	Dec. 13, 2019	May 30, 2020~ Jun. 18, 2020	Dec. 12, 2020	Radiation (03CH15-HY)
EMI Test Receiver	Keysight	N9038A(MXE)	MY54130085	20MHz~8.4GHz	Nov. 01, 2019	May 30, 2020~ Jun. 18, 2020	Oct. 31, 2020	Radiation (03CH15-HY
Spectrum Analyzer	Agilent	E4446A	MY50180136	3Hz~44GHz	May 04, 2020	May 30, 2020~ Jun. 18, 2020	May 03, 2021	Radiation (03CH15-HY)
Antenna Mast	ChainTek	MBS-520-1	N/A	1m~4m	N/A	May 30, 2020~ Jun. 18, 2020	N/A	Radiation (03CH15-HY)
Turn Table	ChainTek	T-200-S-1	N/A	0~360 Degree	N/A	May 30, 2020~ Jun. 18, 2020	N/A	Radiation (03CH15-HY)
Software	Audix	E3 6.2009-8-24(k5)	RK-000451	N/A	N/A	May 30, 2020~ Jun. 18, 2020	N/A	Radiation (03CH15-HY)

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY36980/4	30M-18G	Apr. 14, 2020	May 30, 2020~ Jun. 18, 2020	Apr. 13, 2021	Radiation (03CH15-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY9838/4PE	30M-18G	Apr. 14, 2020	May 30, 2020~ Jun. 18, 2020	Apr. 13, 2021	Radiation (03CH15-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY37710/4	30M-18G	Apr. 17, 2020	May 30, 2020~ Jun. 18, 2020	Apr. 16, 2021	Radiation (03CH15-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	505134/2	30MHz-40GHz	Feb. 25, 2020	May 30, 2020~ Jun. 18, 2020	Feb. 24, 2021	Radiation (03CH15-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	800740/2	30MHz-40GHz	Feb. 25, 2020	May 30, 2020~ Jun. 18, 2020	Feb. 24, 2021	Radiation (03CH15-HY)
Filter	Wainwright	WLK4-1000-1530-8000-40SS	SN4	1.53G Low Pass	Jul. 04, 2019	May 30, 2020~ Jun. 18, 2020	Jul. 03, 2020	Radiation (03CH15-HY)
Filter	Wainwright	WHKX12-2700-3000-18000-60ST	SN4	3GHz High Pass Filter	Sep. 17, 2019	May 30, 2020~ Jun. 18, 2020	Sep. 16, 2020	Radiation (03CH15-HY)

5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.3**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**5.0**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**5.4**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**5.0**

Appendix A. Test Result of Conducted Test Items

Test Engineer:	Kai Liao/Shiming Liu	Temperature:	21.2~24.1	°C
Test Date:	2020/05/15~2020/06/26	Relative Humidity:	47.2~57.8	%

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
					Ant 4	Ant 3	Ant 4	Ant 3		
11b	1Mbps	2	1	2412	14.49	15.63	9.05	9.55	0.50	Pass
11b	1Mbps	2	6	2437	14.74	15.98	9.03	9.07	0.50	Pass
11b	1Mbps	2	11	2462	14.09	15.18	8.55	9.53	0.50	Pass
11g	6Mbps	2	1	2412	16.93	16.98	15.70	15.90	0.50	Pass
11g	6Mbps	2	6	2437	18.33	26.52	15.70	16.30	0.50	Pass
11g	6Mbps	2	11	2462	16.68	16.83	15.32	16.26	0.50	Pass
HT20	MCS0	2	1	2412	17.98	18.03	16.32	16.88	0.50	Pass
HT20	MCS0	2	6	2437	18.98	28.17	16.06	17.54	0.50	Pass
HT20	MCS0	2	11	2462	17.83	17.93	15.42	16.24	0.50	Pass
HT40	MCS0	2	3	2422	36.36	36.36	35.01	35.08	0.50	Pass
HT40	MCS0	2	6	2437	36.46	36.76	35.28	35.64	0.50	Pass
HT40	MCS0	2	9	2452	36.66	36.56	36.28	35.72	0.50	Pass

TEST RESULTS DATA
Peak Output Power
(Reporting Only)

2.4GHz Band MIMO																
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Peak Conducted Power (dBm)			Conducted Power Limit (dBm)		DG (dBi)		EIRP Power (dBm)		EIRP Power Limit (dBm)		Pass /Fail
					Ant 4	Ant 3	SUM	Ant 4	Ant 3	Ant 4	Ant 3	Ant 4	Ant 3	Ant 4	Ant 3	
11b	1Mbps	2	1	2412	23.15	21.48	25.41	30.00		-1.90		23.51		36.00		Pass
11b	1Mbps	2	6	2437	23.24	21.55	25.49	30.00		-1.90		23.59		36.00		Pass
11b	1Mbps	2	11	2462	22.32	20.82	24.64	30.00		-1.90		22.74		36.00		Pass
11g	6Mbps	2	1	2412	18.85	19.44	22.17	30.00		-1.90		20.27		36.00		Pass
11g	6Mbps	2	2	2417	21.50	20.65	24.11	30.00		-1.90		22.21		36.00		Pass
11g	6Mbps	2	6	2437	23.64	22.06	25.93	30.00		-1.90		24.03		36.00		Pass
11g	6Mbps	2	10	2457	21.90	21.00	24.48	30.00		-1.90		22.58		36.00		Pass
11g	6Mbps	2	11	2462	17.86	18.47	21.19	30.00		-1.90		19.29		36.00		Pass
HT20	MCS0	2	1	2412	18.86	19.33	22.11	30.00		-1.90		20.21		36.00		Pass
HT20	MCS0	2	2	2417	21.02	20.44	23.75	30.00		-1.90		21.85		36.00		Pass
HT20	MCS0	2	6	2437	23.66	22.13	25.97	30.00		-1.90		24.07		36.00		Pass
HT20	MCS0	2	10	2457	21.07	20.51	23.81	30.00		-1.90		21.91		36.00		Pass
HT20	MCS0	2	11	2462	17.94	18.42	21.20	30.00		-1.90		19.30		36.00		Pass
HT40	MCS0	2	3	2422	19.31	19.25	22.29	30.00		-1.90		20.39		36.00		Pass
HT40	MCS0	2	6	2437	17.92	18.79	21.39	30.00		-1.90		19.49		36.00		Pass
HT40	MCS0	2	9	2452	15.88	17.02	19.50	30.00		-1.90		17.60		36.00		Pass

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

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
					Ant 4	Ant 3	SUM	Ant 4	Ant 3	Ant 4	Ant 3	Ant 4	Ant 3	Ant 4	Ant 3	
11b	1Mbps	2	1	2412	21.50	19.90	23.78	30.00		-1.90		21.88		36.00		Pass
11b	1Mbps	2	6	2437	21.70	20.10	23.98	30.00		-1.90		22.08		36.00		Pass
11b	1Mbps	2	11	2462	20.60	19.30	23.01	30.00		-1.90		21.11		36.00		Pass
11g	6Mbps	2	1	2412	14.60	15.70	18.20	30.00		-1.90		16.30		36.00		Pass
11g	6Mbps	2	2	2417	17.50	17.70	20.61	30.00		-1.90		18.71		36.00		Pass
11g	6Mbps	2	6	2437	20.50	19.30	22.95	30.00		-1.90		21.05		36.00		Pass
11g	6Mbps	2	10	2457	17.80	17.90	20.86	30.00		-1.90		18.96		36.00		Pass
11g	6Mbps	2	11	2462	13.60	14.60	17.14	30.00		-1.90		15.24		36.00		Pass
HT20	MCS0	2	1	2412	14.50	15.40	17.98	30.00		-1.90		16.08		36.00		Pass
HT20	MCS0	2	2	2417	16.80	17.40	20.12	30.00		-1.90		18.22		36.00		Pass
HT20	MCS0	2	6	2437	20.40	19.40	22.94	30.00		-1.90		21.04		36.00		Pass
HT20	MCS0	2	10	2457	16.90	17.30	20.11	30.00		-1.90		18.21		36.00		Pass
HT20	MCS0	2	11	2462	13.50	14.30	16.93	30.00		-1.90		15.03		36.00		Pass
HT40	MCS0	2	3	2422	14.90	15.60	18.27	30.00		-1.90		16.37		36.00		Pass
HT40	MCS0	2	6	2437	13.60	14.80	17.25	30.00		-1.90		15.35		36.00		Pass
HT40	MCS0	2	9	2452	11.80	12.60	15.23	30.00		-1.90		13.33		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
					Ant 4	Ant 3	Worse + 3.01	Ant 4	Ant 3	Ant 4	Ant 3	
11b	1Mbps	2	1	2412	-1.21	-2.57	1.80	1.06		8.00		Pass
11b	1Mbps	2	6	2437	-1.42	-2.67	1.59	1.06		8.00		Pass
11b	1Mbps	2	11	2462	-2.54	-3.46	0.47	1.06		8.00		Pass
11g	6Mbps	2	1	2412	-11.02	-9.58	-6.57	1.06		8.00		Pass
11g	6Mbps	2	6	2437	-5.16	-5.66	-2.15	1.06		8.00		Pass
11g	6Mbps	2	11	2462	-11.11	-10.03	-7.02	1.06		8.00		Pass
HT20	MCS0	2	1	2412	-11.05	-10.19	-7.18	1.06		8.00		Pass
HT20	MCS0	2	6	2437	-5.25	-5.95	-2.24	1.06		8.00		Pass
HT20	MCS0	2	11	2462	-11.77	-11.22	-8.21	1.06		8.00		Pass
HT40	MCS0	2	3	2422	-13.14	-12.38	-9.37	1.06		8.00		Pass
HT40	MCS0	2	6	2437	-14.34	-13.57	-10.56	1.06		8.00		Pass
HT40	MCS0	2	9	2452	-16.18	-15.57	-12.56	1.06		8.00		Pass

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

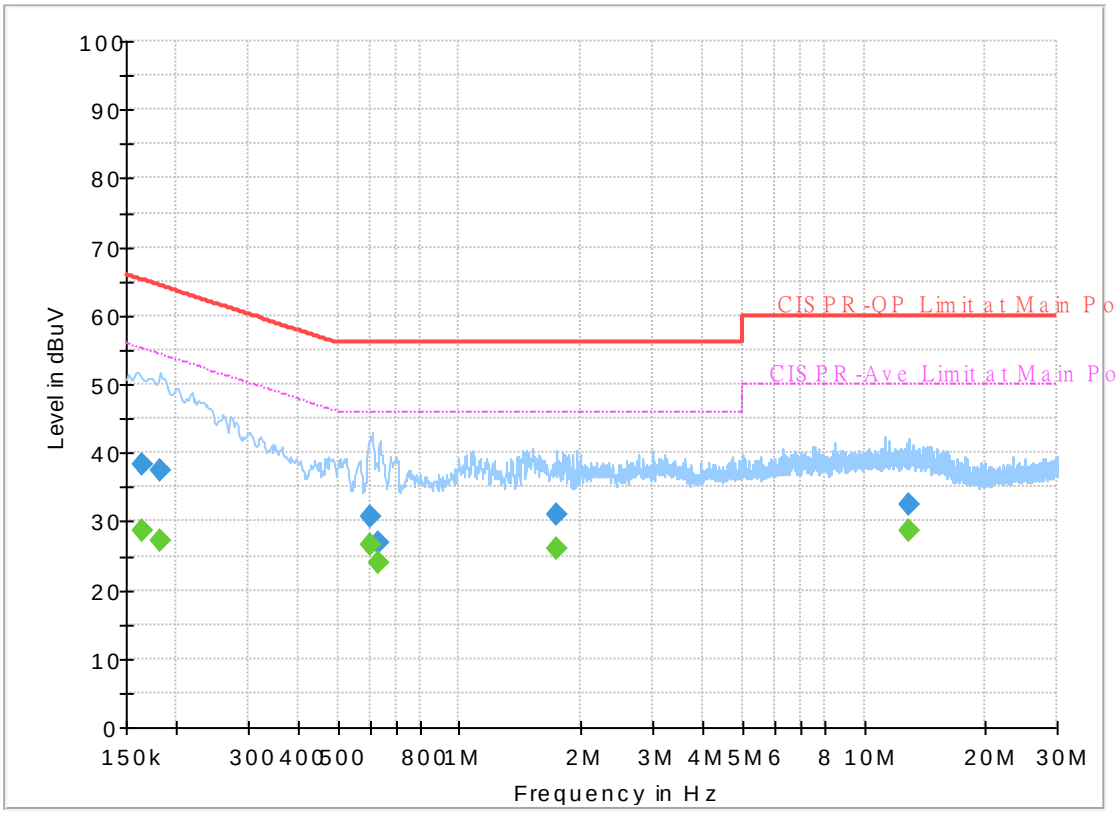
Appendix B. AC Conducted Emission Test Results

Test Engineer :	Tom Lee	**Temperature :**	21~24℃
		Relative Humidity :	42~50%

EUT Information

Report NO :	051232
Test Mode :	Mode 1
Test Voltage :	120Vac/60Hz
Phase :	Line

Full Spectrum



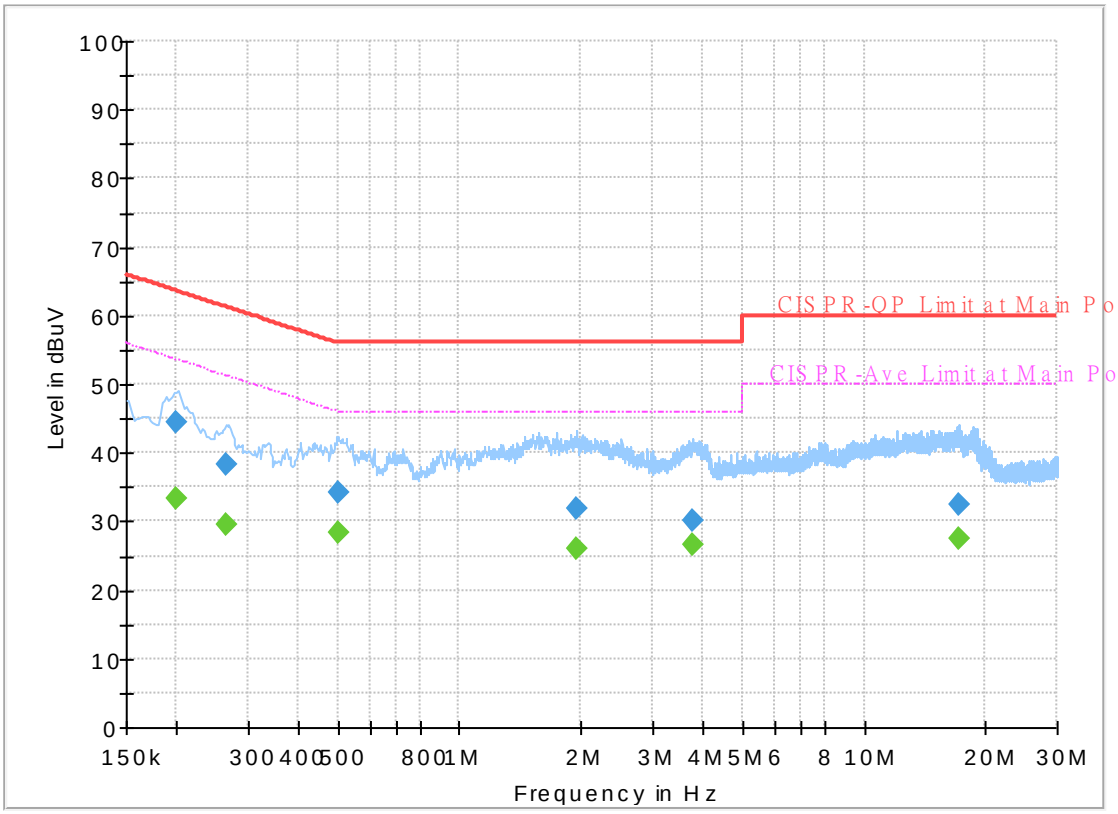
Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.163500	---	28.55	55.28	26.73	L1	OFF	19.6
0.163500	38.16	---	65.28	27.12	L1	OFF	19.6
0.181500	---	27.26	54.42	27.16	L1	OFF	19.6
0.181500	37.38	---	64.42	27.04	L1	OFF	19.6
0.605220	---	26.69	46.00	19.31	L1	OFF	19.6
0.605220	30.68	---	56.00	25.32	L1	OFF	19.6
0.631500	---	24.12	46.00	21.88	L1	OFF	19.6
0.631500	26.81	---	56.00	29.19	L1	OFF	19.6
1.747500	---	25.90	46.00	20.10	L1	OFF	19.6
1.747500	30.89	---	56.00	25.11	L1	OFF	19.6
12.852330	---	28.54	50.00	21.46	L1	OFF	20.2
12.852330	32.55	---	60.00	27.45	L1	OFF	20.2

EUT Information

Report NO :	051232
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)
0.199950	---	33.44	53.61	20.17	N	OFF	19.6
0.199950	44.46	---	63.61	19.15	N	OFF	19.6
0.265380	---	29.50	51.26	21.76	N	OFF	19.6
0.265380	38.18	---	61.26	23.08	N	OFF	19.6
0.502620	---	28.45	46.00	17.55	N	OFF	19.6
0.502620	34.28	---	56.00	21.72	N	OFF	19.6
1.943880	---	26.05	46.00	19.95	N	OFF	19.6
1.943880	31.87	---	56.00	24.13	N	OFF	19.6
3.790500	---	26.66	46.00	19.34	N	OFF	19.7
3.790500	30.24	---	56.00	25.76	N	OFF	19.7
17.215620	---	27.36	50.00	22.64	N	OFF	20.3
17.215620	32.33	---	60.00	27.67	N	OFF	20.3

Appendix C. Radiated Spurious Emission

Test Engineer :	Leo Lee, Mancy Chou and Bigshow Wang	Temperature :	21.4~22.9°C
		Relative Humidity :	52~61%

<Open Mode>

2.4GHz 2400~2483.5MHz

WIFI 802.11b (Band Edge @ 3m)

WIFI Ant.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Path Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
4+3		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b CH 01 2412MHz		2355.36	57.88	-16.12	74	43.79	27.97	17.28	31.16	100	46	P	H
		2388.96	49.61	-4.39	54	35.64	27.77	17.35	31.15	100	46	A	H
	*	2412	104.95	-	-	91.01	27.68	17.39	31.13	100	46	P	H
	*	2412	102.12	-	-	88.18	27.68	17.39	31.13	100	46	A	H
													H
		2389.065	56.5	-17.5	74	42.53	27.77	17.35	31.15	209	347	P	V
		2389.17	47.31	-6.69	54	33.35	27.76	17.35	31.15	209	347	A	V
	*	2412	110.33	-	-	96.39	27.68	17.39	31.13	209	347	P	V
	*	2412	107.34	-	-	93.4	27.68	17.39	31.13	209	347	A	V
													V
802.11b CH 06 2437MHz		2346	55.54	-18.46	74	41.44	28.01	17.26	31.17	100	1	P	H
		2389.52	44.99	-9.01	54	31.03	27.76	17.35	31.15	100	1	A	H
	*	2437	110.91	-	-	96.97	27.63	17.43	31.12	100	1	P	H
	*	2437	108.01	-	-	94.07	27.63	17.43	31.12	100	1	A	H
		2485.96	56.14	-17.86	74	42.19	27.53	17.52	31.1	100	1	P	H
		2484.97	45.3	-8.7	54	31.35	27.53	17.52	31.1	100	1	A	H
		2384.4	55.53	-18.47	74	41.55	27.79	17.34	31.15	232	347	P	V
		2389.52	45.33	-8.67	54	31.37	27.76	17.35	31.15	232	347	A	V
	*	2437	110.15	-	-	96.21	27.63	17.43	31.12	232	347	P	V
	*	2437	107.08	-	-	93.14	27.63	17.43	31.12	232	347	A	V
		2485.06	55.47	-18.53	74	41.52	27.53	17.52	31.1	232	347	P	V
		2484.34	45.39	-8.61	54	31.44	27.53	17.52	31.1	232	347	A	V

802.11b CH 11 2462MHz	*	2462	114.15	-	-	100.2	27.58	17.48	31.11	100	45	P	H
	*	2462	110.95	-	-	97	27.58	17.48	31.11	100	45	A	H
		2488	58.82	-15.18	74	44.88	27.52	17.52	31.1	100	45	P	H
		2488.64	50.82	-3.18	54	36.87	27.52	17.53	31.1	100	45	A	H
													H
													H
	*	2462	109.21	-	-	95.26	27.58	17.48	31.11	300	303	P	V
	*	2462	106.23	-	-	92.28	27.58	17.48	31.11	300	303	A	V
		2486.2	57.17	-16.83	74	43.22	27.53	17.52	31.1	300	303	P	V
		2488.76	47.4	-6.6	54	33.45	27.52	17.53	31.1	300	303	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. 4+3	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	41.08	-32.92	74	58.25	31.25	10.67	59.09	100	0	P	H
													H
													H
													H
		4824	40.48	-33.52	74	57.65	31.25	10.67	59.09	100	0	P	V
													V
													V
													V
802.11b CH 06 2437MHz		4874	39.9	-34.1	74	57.05	31.25	10.72	59.12	100	0	P	H
		7311	45.4	-28.6	74	54.88	36.52	12.56	58.56	100	0	P	H
													H
													H
		4874	39.87	-34.13	74	57.02	31.25	10.72	59.12	100	0	P	V
		7311	45.39	-28.61	74	54.87	36.52	12.56	58.56	100	0	P	V
													V
													V
802.11b CH 11 2462MHz		4924	41.3	-32.7	74	58.34	31.34	10.77	59.15	100	0	P	H
		7386	44.72	-29.28	74	54.05	36.46	12.67	58.46	100	0	P	H
													H
													H
		4924	41.39	-32.61	74	58.43	31.34	10.77	59.15	100	0	P	V
		7386	44.61	-29.39	74	53.94	36.46	12.67	58.46	100	0	P	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

2.4GHz 2400~2483.5MHz

WIFI 802.11g (Band Edge @ 3m)

WIFI Ant. 4+3	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		2390	58.07	-15.93	74	44.11	27.76	17.35	31.15	139	42	P	H
		2390	47.94	-6.06	54	33.98	27.76	17.35	31.15	139	42	A	H
	*	2412	108.67	-	-	94.73	27.68	17.39	31.13	139	42	P	H
	*	2412	100.66	-	-	86.72	27.68	17.39	31.13	139	42	A	H
													H
													H
		2390	62.55	-11.45	74	48.59	27.76	17.35	31.15	323	306	P	V
		2390	50.34	-3.66	54	36.38	27.76	17.35	31.15	323	306	A	V
	*	2412	108.08	-	-	94.14	27.68	17.39	31.13	323	306	P	V
	*	2412	100.24	-	-	86.3	27.68	17.39	31.13	323	306	A	V
													V
													V
802.11g CH 02 2417MHz		2389.38	58.61	-15.39	74	44.65	27.76	17.35	31.15	100	47	P	H
		2389.8	49.51	-4.49	54	35.55	27.76	17.35	31.15	100	47	A	H
	*	2417	111.97	-	-	98.03	27.67	17.4	31.13	100	47	P	H
	*	2417	104.33	-	-	90.39	27.67	17.4	31.13	100	47	A	H
													H
													H
		2387.7	57.6	-16.4	74	43.64	27.77	17.34	31.15	150	318	P	V
		2390	48.64	-5.36	54	34.68	27.76	17.35	31.15	150	318	A	V
	*	2417	108.06	-	-	94.12	27.67	17.4	31.13	150	318	P	V
	*	2417	101.07	-	-	87.13	27.67	17.4	31.13	150	318	A	V
													V
													V

802.11g CH 06 2437MHz		2346	56.12	-17.88	74	42.02	28.01	17.26	31.17	100	360	P	H
		2389.68	46.39	-7.61	54	32.43	27.76	17.35	31.15	100	360	A	H
	*	2437	112.51	-	-	98.57	27.63	17.43	31.12	100	360	P	H
	*	2437	105.11	-	-	91.17	27.63	17.43	31.12	100	360	A	H
		2486.86	56.51	-17.49	74	42.56	27.53	17.52	31.1	100	360	P	H
		2486.77	47.58	-6.42	54	33.63	27.53	17.52	31.1	100	360	A	H
		2317.52	55.91	-18.09	74	41.83	28.06	17.2	31.18	150	113	P	V
		2389.04	46.09	-7.91	54	32.12	27.77	17.35	31.15	150	113	A	V
	*	2437	108.92	-	-	94.98	27.63	17.43	31.12	150	113	P	V
	*	2437	101.39	-	-	87.45	27.63	17.43	31.12	150	113	A	V
		2492.35	55.93	-18.07	74	41.97	27.52	17.53	31.09	150	113	P	V
		2484.88	46.1	-7.9	54	32.15	27.53	17.52	31.1	150	113	A	V
802.11g CH 10 2457MHz	*	2457	112.8	-	-	98.85	27.59	7.55	31.11	100	51	P	H
	*	2457	105.41	-	-	91.46	27.59	7.55	31.11	100	51	A	H
		2483.56	59.32	-14.68	74	45.37	27.53	7.6	31.1	100	51	P	H
		2483.68	50.69	-3.31	54	36.74	27.53	7.6	31.1	100	51	A	H
													H
													H
	*	2457	108.84	-	-	94.89	27.59	7.55	31.11	131	310	P	V
	*	2457	102.17	-	-	88.22	27.59	7.55	31.11	131	310	A	V
		2484.82	59.07	-14.93	74	45.12	27.53	7.6	31.1	131	310	P	V
		2483.62	49.99	-4.01	54	36.04	27.53	7.6	31.1	131	310	A	V
													V
													V

802.11g CH 11 2462MHz	*	2462	108.38	-	-	94.43	27.58	17.48	31.11	100	42	P	H
	*	2462	100.71	-	-	86.76	27.58	17.48	31.11	100	42	A	H
		2483.56	58.2	-15.8	74	44.25	27.53	17.52	31.1	100	42	P	H
		2483.8	48.54	-5.46	54	34.59	27.53	17.52	31.1	100	42	A	H
													H
													H
	*	2462	108	-	-	94.05	27.58	17.48	31.11	349	310	P	V
	*	2462	99.37	-	-	85.42	27.58	17.48	31.11	349	310	A	V
		2483.68	60.7	-13.3	74	46.75	27.53	17.52	31.1	349	310	P	V
		2483.6	50.54	-3.46	54	36.59	27.53	17.52	31.1	349	310	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. 4+3	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	40.75	-33.25	74	57.92	31.25	10.67	59.09	100	0	P	H
													H
													H
													H
		4824	39.83	-34.17	74	57	31.25	10.67	59.09	100	0	P	V
													V
													V
													V
802.11g CH 02 2417MHz		4834	41.19	-32.81	74	58.34	31.27	10.68	59.1	100	0	P	H
		7251	46.69	-27.31	74	56.38	36.5	12.46	58.65	100	0	P	H
													H
													H
		4834	41.54	-32.46	74	58.69	31.27	10.68	59.1	100	0	P	V
		7251	47.07	-26.93	74	56.76	36.5	12.46	58.65	100	0	P	V
													V
													V
802.11g CH 06 2437MHz		4874	39.47	-34.53	74	56.62	31.25	10.72	59.12	100	0	P	H
		7311	45.16	-28.84	74	54.64	36.52	12.56	58.56	100	0	P	H
													H
													H
		4874	40.54	-33.46	74	57.69	31.25	10.72	59.12	100	0	P	V
		7311	45.64	-28.36	74	55.12	36.52	12.56	58.56	100	0	P	V
													V
													V

WIFI Ant. 4+3	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 10 2457MHz		4914	41.82	-32.18	74	58.93	31.28	10.76	59.15	100	0	P	H
		7371	46.03	-27.97	74	55.34	36.52	12.65	58.48	100	0	P	H
													H
													H
		4914	41.39	-32.61	74	58.5	31.28	10.76	59.15	100	0	P	V
		7371	45.66	-28.34	74	54.97	36.52	12.65	58.48	100	0	P	V
													V
													V
802.11g CH 11 2462MHz		4924	40.84	-33.16	74	57.88	31.34	10.77	59.15	100	0	P	H
		7386	45.42	-28.58	74	54.75	36.46	12.67	58.46	100	0	P	H
													H
													H
		4924	40.36	-33.64	74	57.4	31.34	10.77	59.15	100	0	P	V
		7386	44.73	-29.27	74	54.06	36.46	12.67	58.46	100	0	P	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

2.4GHz 2400~2483.5MHz

WIFI 802.11n HT20 (Band Edge @ 3m)

WIFI Ant. 4+3	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)
		2389.485	62.25	-11.75	74	48.29	27.76	17.35	31.15	100	44	P	H
		2390	50.95	-3.05	54	36.99	27.76	17.35	31.15	100	44	A	H
	*	2412	109.42	-	-	95.48	27.68	17.39	31.13	100	44	P	H
	*	2412	101.23	-	-	87.29	27.68	17.39	31.13	100	44	A	H
802.11n													H
HT20													H
CH 01		2389.38	60.45	-13.55	74	46.49	27.76	17.35	31.15	105	262	P	V
2412MHz		2390	50.02	-3.98	54	36.06	27.76	17.35	31.15	105	262	A	V
	*	2412	107.51	-	-	93.57	27.68	17.39	31.13	105	262	P	V
	*	2412	98.56	-	-	84.62	27.68	17.39	31.13	105	262	A	V
													V
													V
		2389.59	58.27	-15.73	74	44.31	27.76	17.35	31.15	100	50	P	H
		2390	49.78	-4.22	54	35.82	27.76	17.35	31.15	100	50	A	H
	*	2417	114.12	-	-	100.18	27.67	17.4	31.13	100	50	P	H
	*	2417	105.61	-	-	91.67	27.67	17.4	31.13	100	50	A	H
802.11n													H
HT20													H
CH 02		2389.8	56.81	-17.19	74	42.85	27.76	17.35	31.15	145	315	P	V
2417MHz		2390	48.26	-5.74	54	34.3	27.76	17.35	31.15	145	315	A	V
	*	2417	109.01	-	-	95.07	27.67	17.4	31.13	145	315	P	V
	*	2417	101.2	-	-	87.26	27.67	17.4	31.13	145	315	A	V
													V
													V

		2381.04	55.7	-18.3	74	41.71	27.81	17.33	31.15	100	360	P	H
		2390	46.74	-7.26	54	32.78	27.76	17.35	31.15	100	360	A	H
	*	2437	112.2	-	-	98.26	27.63	17.43	31.12	100	360	P	H
	*	2437	103.89	-	-	89.95	27.63	17.43	31.12	100	360	A	H
802.11n		2484.79	57.76	-16.24	74	43.81	27.53	17.52	31.1	100	360	P	H
HT20		2483.89	48.31	-5.69	54	34.36	27.53	17.52	31.1	100	360	A	H
CH 06		2326.8	55.36	-18.64	74	41.27	28.05	17.22	31.18	166	320	P	V
2437MHz		2390	46.58	-7.42	54	32.62	27.76	17.35	31.15	166	320	A	V
	*	2437	110.14	-	-	96.2	27.63	17.43	31.12	166	320	P	V
	*	2437	102.06	-	-	88.12	27.63	17.43	31.12	166	320	A	V
		2484.79	57.52	-16.48	74	43.57	27.53	17.52	31.1	166	320	P	V
		2484.07	46.64	-7.36	54	32.69	27.53	17.52	31.1	166	320	A	V
	*	2457	112.84	-	-	98.89	27.59	17.47	31.11	100	48	P	H
	*	2457	105.38	-	-	91.43	27.59	17.47	31.11	100	48	A	H
		2483.6	59.16	-14.84	74	45.21	27.53	17.52	31.1	100	48	P	H
		2483.56	50.63	-3.37	54	36.68	27.53	17.52	31.1	100	48	A	H
802.11n													H
HT20													H
CH 10	*	2457	110.79	-	-	96.84	27.59	17.47	31.11	109	312	P	V
2457MHz	*	2457	102.75	-	-	88.8	27.59	17.47	31.11	109	312	A	V
		2484.64	59.27	-14.73	74	45.32	27.53	17.52	31.1	109	312	P	V
		2483.84	50.39	-3.61	54	36.44	27.53	17.52	31.1	109	312	A	V
													V
													V

	*	2462	110.61	-	-	96.66	27.58	17.48	31.11	100	58	P	H
	*	2462	102.16	-	-	88.21	27.58	17.48	31.11	100	58	A	H
		2483.76	61.15	-12.85	74	47.2	27.53	17.52	31.1	100	58	P	H
		2483.52	50.57	-3.43	54	36.62	27.53	17.52	31.1	100	58	A	H
802.11n													H
HT20													H
CH 11	*	2462	107.42	-	-	93.47	27.58	17.48	31.11	111	264	P	V
2462MHz	*	2462	99.22	-	-	85.27	27.58	17.48	31.11	111	264	A	V
		2483.68	61.15	-12.85	74	47.2	27.53	17.52	31.1	111	264	P	V
		2483.52	50.97	-3.03	54	37.02	27.53	17.52	31.1	111	264	A	V
													V
													V

Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.

2.4GHz 2400~2483.5MHz

WIFI 802.11n HT20 (Harmonic @ 3m)

WIFI Ant. 4+3	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
		4824	40.33	-33.67	74	57.5	31.25	10.67	59.09	100	0	P	H
													H
802.11n													H
HT20													H
CH 01		4824	39.97	-34.03	74	57.14	31.25	10.67	59.09	100	0	P	V
2412MHz													V
													V
													V
		4834	41.54	-32.46	74	58.69	31.27	10.68	59.1	100	0	P	H
		7251	47.81	-26.19	74	57.5	36.5	12.46	58.65	100	0	P	H
802.11n													H
HT20													H
CH 02		4834	41.2	-32.8	74	58.35	31.27	10.68	59.1	100	0	P	V
2417MHz		7251	46.65	-27.35	74	56.34	36.5	12.46	58.65	100	0	P	V
													V
													V
		4874	39.91	-34.09	74	57.06	31.25	10.72	59.12	100	0	P	H
		7311	45.68	-28.32	74	55.16	36.52	12.56	58.56	100	0	P	H
802.11n													H
HT20													H
CH 06		4874	39.79	-34.21	74	56.94	31.25	10.72	59.12	100	0	P	V
2437MHz		7311	44.9	-29.1	74	54.38	36.52	12.56	58.56	100	0	P	V
													V
													V

Remark

1. No other spurious found.
2. All results are PASS against Peak and Average limit line.

WIFI Ant. 4+3	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)
		4914	41.11	-32.89	74	58.22	31.28	10.76	59.15	100	0	P	H
		7371	45.49	-28.51	74	54.8	36.52	12.65	58.48	100	0	P	H
802.11n													H
HT20													H
CH 10		4914	42.13	-31.87	74	59.24	31.28	10.76	59.15	100	0	P	V
2457MHz		7371	45.48	-28.52	74	54.79	36.52	12.65	58.48	100	0	P	V
													V
													V
		4924	40.23	-33.77	74	57.27	31.34	10.77	59.15	100	0	P	H
		7386	45.03	-28.97	74	54.36	36.46	12.67	58.46	100	0	P	H
802.11n													H
HT20													H
CH 11		4924	40.43	-33.57	74	57.47	31.34	10.77	59.15	100	0	P	V
2462MHz		7386	45.15	-28.85	74	54.48	36.46	12.67	58.46	100	0	P	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

2.4GHz 2400~2483.5MHz

WIFI 802.11n HT40 (Band Edge @ 3m)

WIFI Ant. 4+3	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)
		2390	59.22	-14.78	74	45.26	27.76	17.35	31.15	100	2	P	H
		2389.84	50.27	-3.73	54	36.31	27.76	17.35	31.15	100	2	A	H
	*	2422	106.61	-	-	92.68	27.66	17.4	31.13	100	2	P	H
	*	2422	98.7	-	-	84.77	27.66	17.4	31.13	100	2	A	H
802.11n		2485.06	56	-18	74	42.05	27.53	17.52	31.1	100	2	P	H
HT40		2484.25	47.56	-6.44	54	33.61	27.53	17.52	31.1	100	2	A	H
CH 03		2390	58.45	-15.55	74	44.49	27.76	17.35	31.15	237	36	P	V
2422MHz		2390	49.81	-4.19	54	35.85	27.76	17.35	31.15	237	36	A	V
	*	2422	104.21	-	-	90.27	27.66	17.41	31.13	237	36	P	V
	*	2422	96.29	-	-	82.35	27.66	17.41	31.13	237	36	A	V
		2488.39	56.23	-17.77	74	42.28	27.52	17.53	31.1	237	36	P	V
		2488.66	47.14	-6.86	54	33.19	27.52	17.53	31.1	237	36	A	V
		2365.04	55.85	-18.15	74	41.8	27.91	17.3	31.16	109	360	P	H
		2387.92	46.81	-7.19	54	32.85	27.77	17.34	31.15	109	360	A	H
	*	2437	104.52	-	-	90.58	27.63	17.43	31.12	109	360	P	H
	*	2437	96.77	-	-	82.83	27.63	17.43	31.12	109	360	A	H
802.11n		2484.16	56.54	-17.46	74	42.59	27.53	17.52	31.1	109	360	P	H
HT40		2483.8	48.81	-5.19	54	34.86	27.53	17.52	31.1	109	360	A	H
CH 06		2389.84	59.55	-14.45	74	45.59	27.76	17.35	31.15	234	348	P	V
2437MHz		2390	50.51	-3.49	54	36.55	27.76	17.35	31.15	234	348	A	V
	*	2437	104.26	-	-	90.32	27.63	17.43	31.12	234	348	P	V
	*	2437	96.74	-	-	82.8	27.63	17.43	31.12	234	348	A	V
		2484.97	57.56	-16.44	74	43.61	27.53	17.52	31.1	234	348	P	V
		2484.25	48.21	-5.79	54	34.26	27.53	17.52	31.1	234	348	A	V

		2363.92	56.95	-17.05	74	42.89	27.92	17.3	31.16	100	45	P	H
		2388.72	46.85	-7.15	54	32.89	27.77	17.34	31.15	100	45	A	H
	*	2452	104.87	-	-	90.92	27.6	17.46	31.11	100	45	P	H
	*	2452	97.09	-	-	83.14	27.6	17.46	31.11	100	45	A	H
802.11n		2484.43	59.96	-14.04	74	46.01	27.53	17.52	31.1	100	45	P	H
HT40		2484.43	50.68	-3.32	54	36.73	27.53	17.52	31.1	100	45	A	H
CH 09		2339.76	56.2	-17.8	74	42.1	28.02	17.25	31.17	167	68	P	V
2452MHz		2332.88	46.94	-7.06	54	32.85	28.03	17.23	31.17	167	68	A	V
	*	2452	102.64	-	-	88.69	27.6	17.46	31.11	167	68	P	V
	*	2452	94.43	-	-	80.48	27.6	17.46	31.11	167	68	A	V
		2485.33	56.5	-17.5	74	42.55	27.53	17.52	31.1	167	68	P	V
		2488.21	47.51	-6.49	54	33.56	27.52	17.53	31.1	167	68	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

2.4GHz 2400~2483.5MHz

WIFI 802.11n HT40 (Harmonic @ 3m)

WIFI Ant. 4+3	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
		4844	39.9	-34.1	74	57.03	31.29	10.69	59.11	100	0	P	H
		7266	45.58	-28.42	74	55.23	36.5	12.48	58.63	100	0	P	H
802.11n													H
HT40													H
CH 03		4844	40.35	-33.65	74	57.48	31.29	10.69	59.11	100	0	P	V
2422MHz		7266	45.67	-28.33	74	55.32	36.5	12.48	58.63	100	0	P	V
													V
													V
		4874	39.89	-34.11	74	57.04	31.25	10.72	59.12	100	0	P	H
		7311	45.1	-28.9	74	54.58	36.52	12.56	58.56	100	0	P	H
802.11n													H
HT40													H
CH 06		4874	40.77	-33.23	74	57.92	31.25	10.72	59.12	100	0	P	V
2437MHz		7311	44.92	-29.08	74	54.4	36.52	12.56	58.56	100	0	P	V
													V
													V
		4904	41.75	-32.25	74	58.92	31.22	10.75	59.14	100	0	P	H
		7356	46.27	-27.73	74	55.57	36.58	12.62	58.5	100	0	P	H
802.11n													H
HT40													H
CH 09		4904	41.16	-32.84	74	58.33	31.22	10.75	59.14	100	0	P	V
2452MHz		7356	45.7	-28.3	74	55	36.58	12.62	58.5	100	0	P	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Emission below 1GHz

2.4GHz WIFI 802.11n HT20 (LF)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
4+3		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
		30.97	20.38	-19.62	40	30.2	21.85	0.66	32.33	-	-	P	H
		89.17	22.38	-21.12	43.5	38.67	14.83	1.24	32.36	-	-	P	H
		170.65	21.4	-22.1	43.5	36.14	15.82	1.84	32.4	-	-	P	H
		317.12	22.95	-23.05	46	33.69	19.33	2.42	32.49	-	-	P	H
		713.85	37.33	-8.67	46	39.46	26.57	3.71	32.41	-	-	P	H
		914.64	38.67	-7.33	46	37.21	28.87	4.32	31.73	100	0	P	H
													H
													H
													H
													H
2.4GHz													H
802.11n													H
HT20		31.94	21.69	-18.31	40	31.51	21.84	0.67	32.33	-	-	P	V
LF		72.68	22.5	-17.5	40	41.22	12.74	1.12	32.58	-	-	P	V
		176.47	18.28	-25.22	43.5	33.41	15.39	1.87	32.39	-	-	P	V
		258.92	20.16	-25.84	46	30.87	19.49	2.23	32.43	-	-	P	V
		714.82	38.91	-7.09	46	40.99	26.62	3.71	32.41	100	0	P	V
		914.64	38.68	-7.32	46	37.22	28.87	4.32	31.73	-	-	P	V
													V
													V
													V
													V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against limit line.												

Note symbol

*	**Fundamental Frequency** which can be ignored. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency.
!	Test result is **over limit** line.
P/A	**P**eak or **A**verage
H/V	**H**orizontal or **V**ertical

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

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

1. Path Loss(dB) = Cable loss(dB) + Filter loss(dB) + Attenuator loss(dB)
2. Level(dBμV/m) =

Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)

3. Over Limit(dB) = Level(dBμV/m) – Limit Line(dBμV/m)

For Peak Limit @ 2390MHz:

1. Level(dBμV/m)

= Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)

= 32.22(dB/m) + 4.58(dB) + 54.51(dBμV) – 35.86 (dB)

= 55.45 (dBμV/m)

2. Over Limit(dB)

= Level(dBμV/m) – Limit Line(dBμV/m)

= 55.45(dBμV/m) – 74(dBμV/m)

= -18.55(dB)

For Average Limit @ 2390MHz:

1. Level(dBμV/m)

= Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)

= 32.22(dB/m) + 4.58(dB) + 42.6(dBμV) – 35.86 (dB)

= 43.54 (dBμV/m)

2. Over Limit(dB)

= Level(dBμV/m) – Limit Line(dBμV/m)

= 43.54(dBμV/m) – 54(dBμV/m)

= -10.46(dB)

Both peak and average measured complies with the limit line, so test result is “PASS”.

Appendix D. Radiated Spurious Emission Plots

Test Engineer :	Leo Lee, Mancy Chou and Bigshow Wang	**Temperature :**	21.4~22.9°C
		Relative Humidity :	52~61%

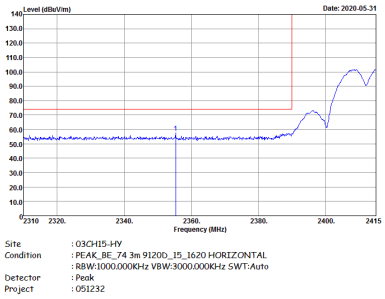
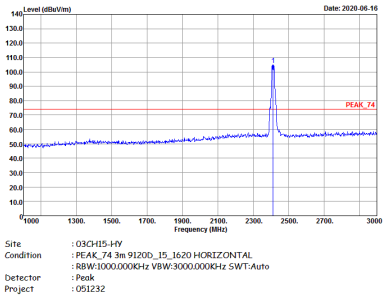
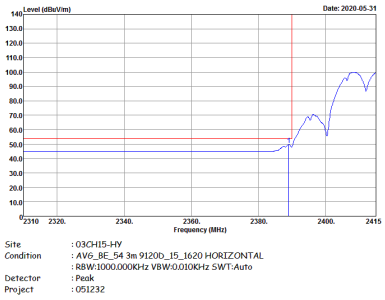
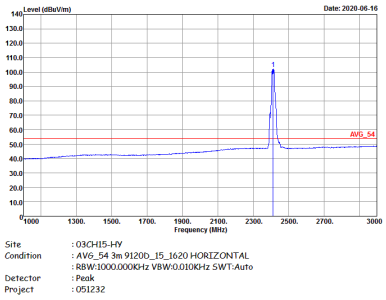
Note symbol

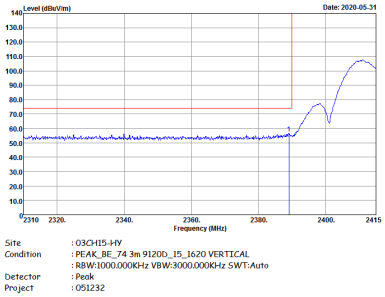
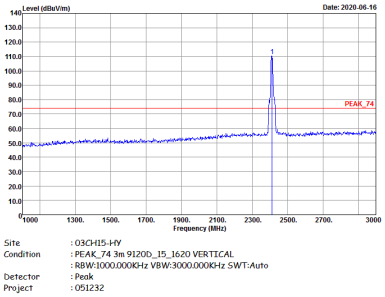
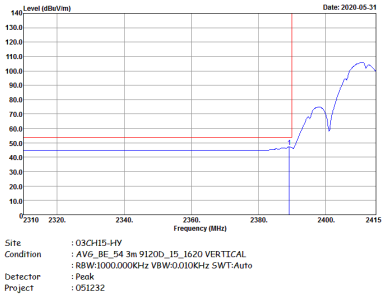
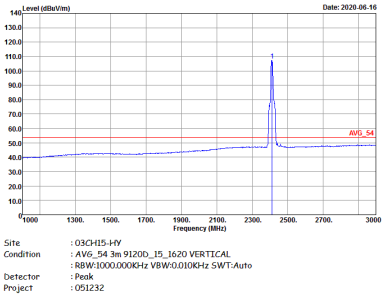
-L	**Low channel location**
-R	**High channel location**

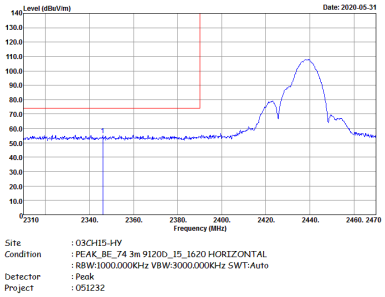
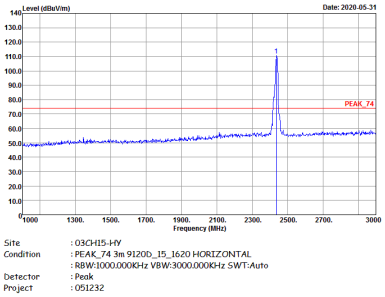
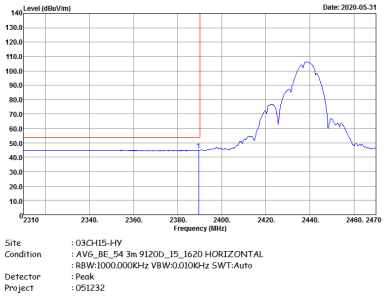
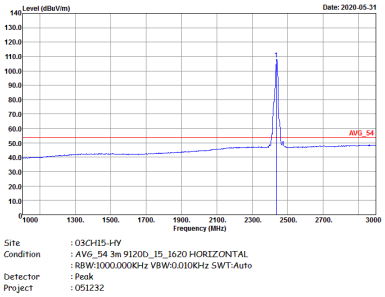
<Open Mode>

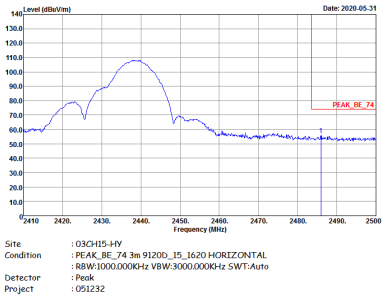
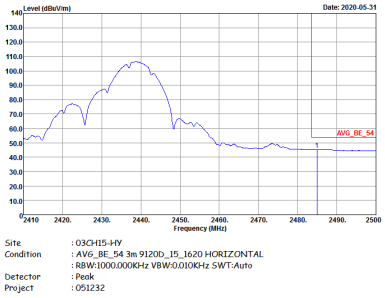
2.4GHz 2400~2483.5MHz

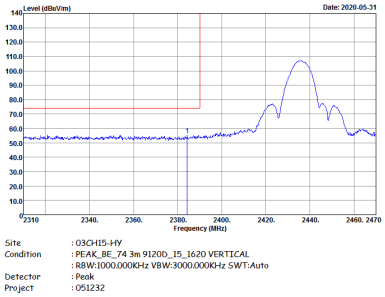
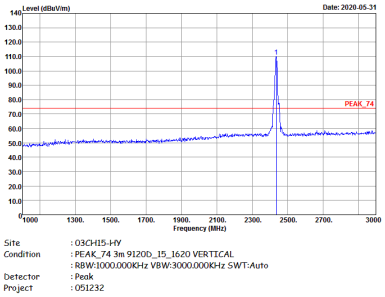
WIFI 802.11b (Band Edge @ 3m)

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH01 2412MHz	
4+3	Horizontal	Fundamental
Peak		
Avg.		

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH01 2412MHz	
4+3	Vertical	Fundamental
Peak		
Avg.		

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH06 2437MHz - L	
4+3	Horizontal	Fundamental
Peak		
Avg.		

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH06 2437MHz - R	
4+3	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH06 2437MHz - L	
4+3	Vertical	Fundamental
Peak		
Avg.