FCC RF Test Report

APPLICANT	:	TP-LINK CORPORATION PTE. LTD.
EQUIPMENT	:	AX1800 Wi-Fi 6 Range Extender
BRAND NAME	:	tp-link
MODEL NAME	:	RE605X
FCC ID	:	2BCGWRE605XV2
STANDARD	:	FCC Part 15 Subpart C §15.247
CLASSIFICATION	:	(DTS) Digital Transmission System
TEST DATE(S)	:	Nov. 29, 2023 ~ Feb. 27, 2024

We, Sporton International Inc. (ShenZhen), 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. (ShenZhen), the test report shall not be reproduced except in full.

Jason Jia

Approved by: Jason Jia

ACCREDITED Cert #5145.01

Sporton International Inc. (ShenZhen)

1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan, Shenzhen, 518055

People's Republic of China

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR3N1401A	Rev. 01	Initial issue of report	Mar. 20, 2024

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	15.247(a)(2)	6dB Bandwidth	≥ 0.5MHz	Pass	-
3.1	-	99% Bandwidth	-	Report Only	-
3.2	15.247(b)	Power Output Measurement	≤ 30dBm	Pass	-
3.3	15.247(e)	Power Spectral Density	≤ 8dBm/3kHz	Pass	-
3.4	15.247(d)	Conducted Band Edges	≤ 30dBc	Pass	-
		Conducted Spurious Emission		Pass	-
3.5	15.247(d)	Radiated Band Edges and Radiated Spurious Emission	15.209(a) & 15.247(d)	Pass	Under limit 0.74 dB at 2484.000 MHz
3.6	15.207	AC Conducted Emission	15.207(a)	Pass	Under limit 8.14 dB at 0.280 MHz
3.7	15.203 & 15.247(b)	Antenna Requirement	15.203 & 15.247(b)	Pass	-

Conformity Assessment Condition:

1. The test results (PASS/FAIL) with all measurement uncertainty excluded are presented against the regulation limits or in accordance with the requirements stipulated by the applicant/manufacturer who shall bear all the risks of non-compliance that may potentially occur if measurement uncertainty is taken into account.
2. The measurement uncertainty please refer to each test result in the section “Measurement Uncertainty”

Disclaimer:

The product specifications of the EUT presented in the test report that may affect the test assessments are declared by the manufacturer who shall take full responsibility for the authenticity.

1 General Description

1.1 Applicant

TP-LINK CORPORATION PTE. LTD.
7 Temasek Boulevard #29-03 Suntec Tower One, Singapore 038987

1.2 Manufacturer

TP-LINK CORPORATION PTE. LTD.
7 Temasek Boulevard #29-03 Suntec Tower One, Singapore 038987

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	AX1800 Wi-Fi 6 Range Extender
Brand Name	tp-link
Model Name	RE605X
FCC ID	2BCGWRE605XV2
SN Code	Conducted: 22341K0000111 Conduction: 22341K0000119 Radiation: 22341K0000101
HW Version	V2.20
SW Version	re605xv2.2_us-up-ver1-0-2-P1[20230914-rel58320]
EUT Stage	Identical Prototype

Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

1.4 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.1+2>** 802.11b : 25.77 dBm (0.3776 W) 802.11g : 25.13 dBm (0.3258 W) 802.11n HT20 : 24.27 dBm (0.2673 W) 802.11n HT40 : 20.72 dBm (0.1180 W) 802.11ax HE20 : 25.33 dBm (0.3412 W) 802.11ax HE40 : 20.82 dBm (0.1208 W)
99% Occupied Bandwidth	**<MIMO Ant.1+2>** 802.11b : 15.23MHz 802.11g : 23.78MHz 802.11ax HE20 : 24.83MHz 802.11ax HE40 : 38.36MHz
Antenna Type / Gain	**<Ant.1/2>:** Dipole Antenna with gain 2.0 dBi
Type of Modulation	802.11b : DSSS (DBPSK / DQPSK / CCK) 802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM) 802.11ax : OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM / 1024QAM)

Note:

1. For WLAN SISO & MIMO mode, the whole testing has assessed only MIMO mode by referring to the higher normal output power.
2. The EUT supports beamforming and MIMO CDD mode, and the CDD mode is the worst case. Therefore, all CDD test items are evaluated in this report. The beamforming mode only evaluates the output power.
3. For 802.11n/11ax mode, the whole testing have assessed only 802.11ax HE20/HE40 by referring to the higher output power.
4. 802.11ax mode only supports full RU for this device, so only the full RU is evaluated.

1.5 Modification of EUT

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

1.6 Testing Location

Sporton International Inc. (ShenZhen) is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.01.

Test Firm	Sporton International Inc. (ShenZhen)		
Test Site Location	1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan, Shenzhen, 518055 People's Republic of China TEL: +86-755-86379589 FAX: +86-755-86379595		
Test Site No.	**Sporton Site No.**	**FCC Designation No.**	**FCC Test Firm Registration No.**
	CO01-SZ TH01-SZ	CN1256	421272

Test Firm	Sporton International Inc. (ShenZhen)		
Test Site Location	101, 1st Floor, Block B, Building 1, No. 2, Tengfeng 4th Road, Fenghuang Community, Fuyong Street, Baoan District, Shenzhen City, Guangdong Province 518103 People's Republic of China TEL: +86-755-86066985		
Test Site No.	**Sporton Site No.**	**FCC Designation No.**	**FCC Test Firm Registration No.**
	03CH01-SZ	CN1256	421272

1.7 Test Software

Item	Site	Manufacturer	Name	Version
1.	03CH01-SZ	AUDIX	E3	6.2009-8-24
2.	CO01-SZ	AUDIX	E3	6.120613b

1.8 Applicable Standards

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

- 47 CFR Part 15 Subpart C §15.247
- FCC KDB 558074 D01 15.247 Meas Guidance v05r02
- FCC KDB 662911 D01 Multiple Transmitter Output v02r01.
- ANSI C63.10-2013

Remark:

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

2 Test Configuration of Equipment Under Test

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

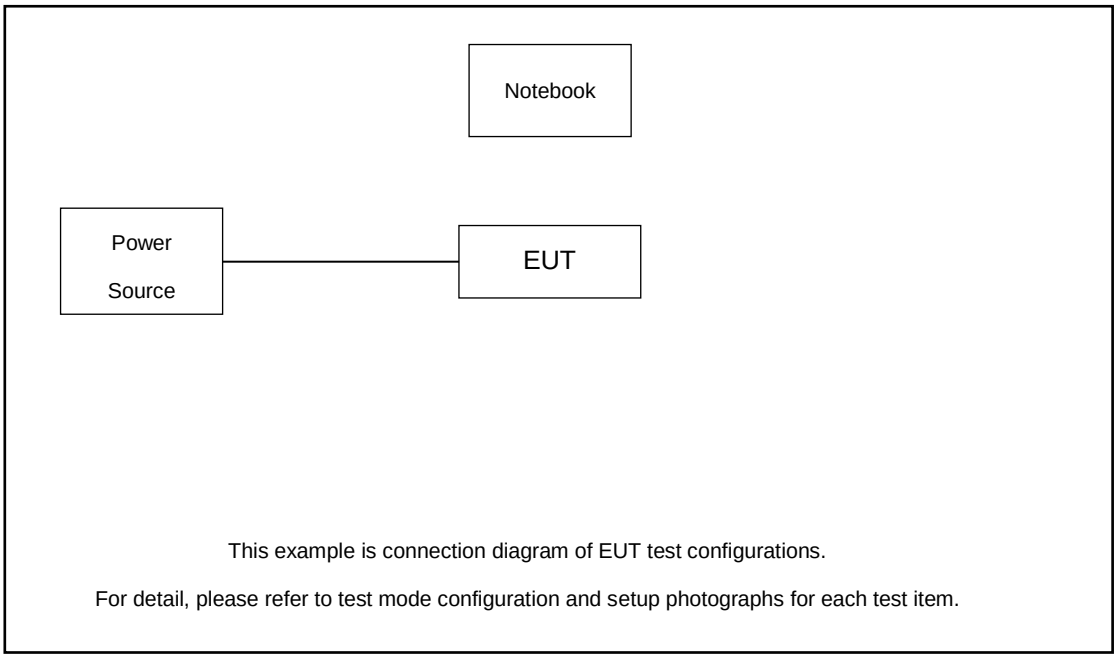
MIMO Antenna

Modulation	Data Rate
802.11b	1 Mbps
802.11g	6 Mbps
802.11n HT20	MCS0
802.11n HT40	MCS0
802.11ax HE20	MCS0
802.11ax HE40	MCS0

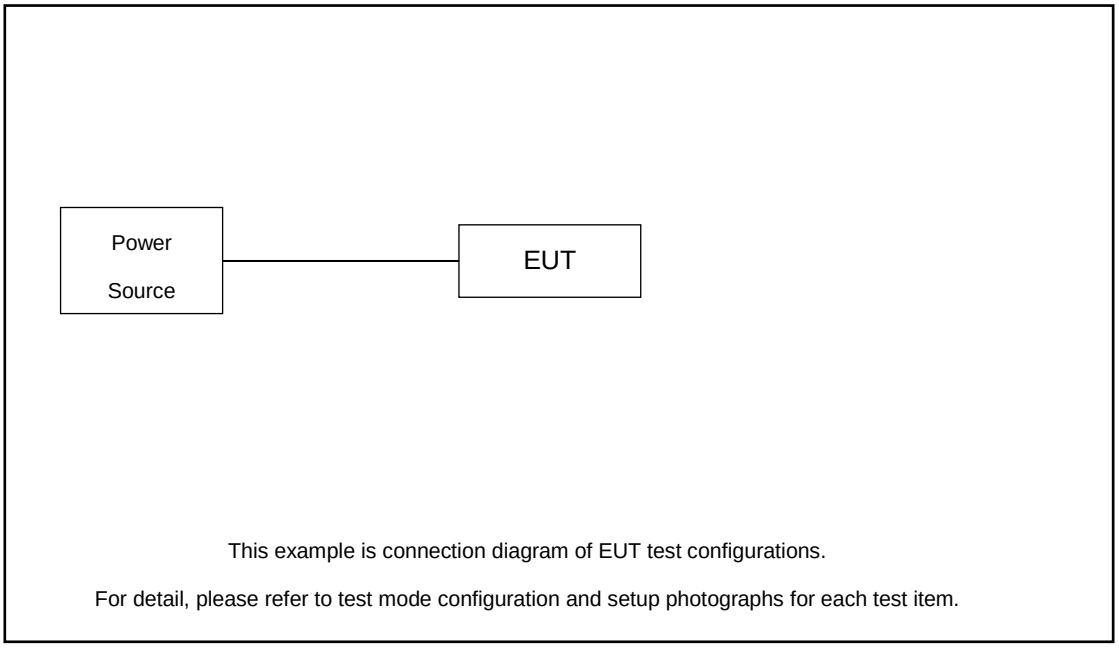
Test Cases	
AC Conducted Emission	Mode 1 :WLAN Link(2.4G) + Power from AC

2.3 Connection Diagram of Test System

For Conducted Emission:



For Radiated Emission:



2.4 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	Notebook	Lenovo	E540	FCC DoC	Lenovo	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m

2.5 EUT Operation Test Setup

For WLAN RF test items, an engineering test program was provided and enabled to make EUT continuous transmit.

For AC power line conducted emissions, the EUT was set to connect with the Notenook under large package sizes transmission.

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 0.80 dB and 20dB attenuator.

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

= 0.80 + 20 = 20.80 (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

The measuring equipment is listed in the section 4 of this test report.

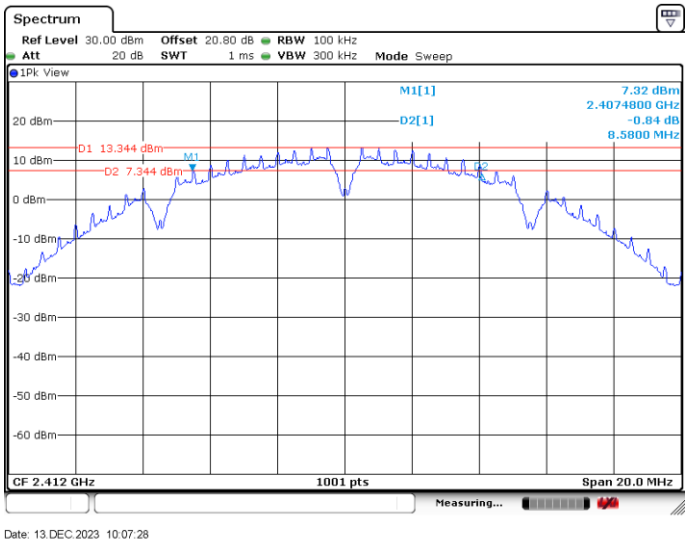
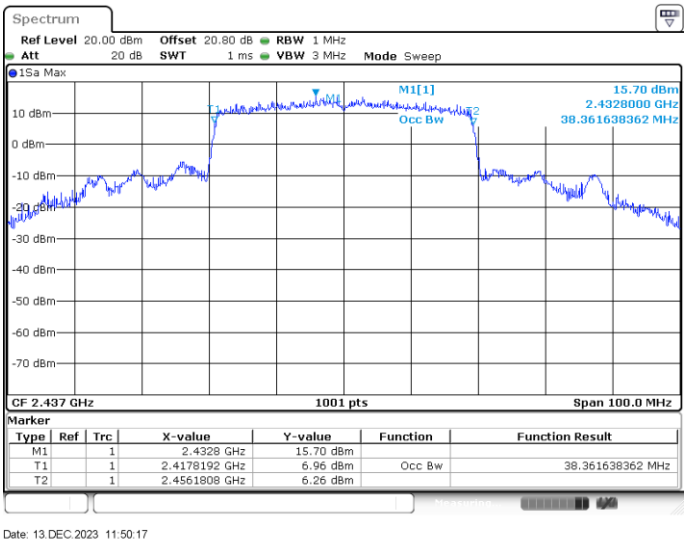
3.1.3 Test Procedures

1. The testing follows ANSI C63.10-2013 clause 11.8
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) = 1%~5% of OBW and set the Video bandwidth (VBW) = 3MHz.
6. Measure and record the results in the test report.

3.1.4 Test Setup

3.1.5 Test Result of 6dB and 99% Occupied Bandwidth

Please refer to Appendix A.

Minimum 6dB Bandwidth	Maximum 99% Occupied Bandwidth
	

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

3.2 Output Power Measurement

3.2.1 Limit of Output Power

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

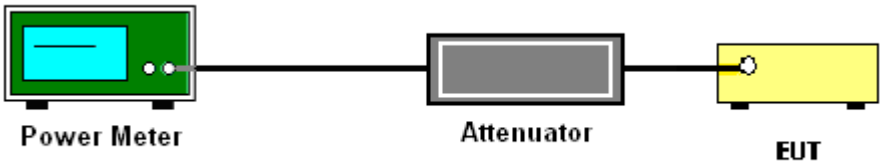
3.2.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.2.3 Test Procedures

1. The testing follows the Measurement Procedure of ANSI C63.10-2013 clause 11.9.1.3 PKPM1 Peak power meter or ANSI C63.10-2013 clause 11.9.2.3.1 Method AVGPM method.
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

The measuring equipment is listed in the section 4 of this test report.

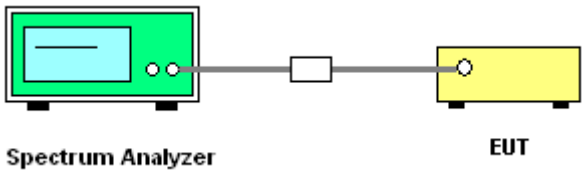
3.3.3 Test Procedures

1. The testing follows Measurement Procedure of ANSI C63.10-2013 clause 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:

   Method (c): Measure and add 10 log(N_{ANT}) dB, where N_{ANT} is the number of outputs.

   The measurement on each individual output were performed with the same span and number on each individual output. The quantity 10 log(N_{ANT}) dB is added to each spectrum value before comparing to the emission limit.

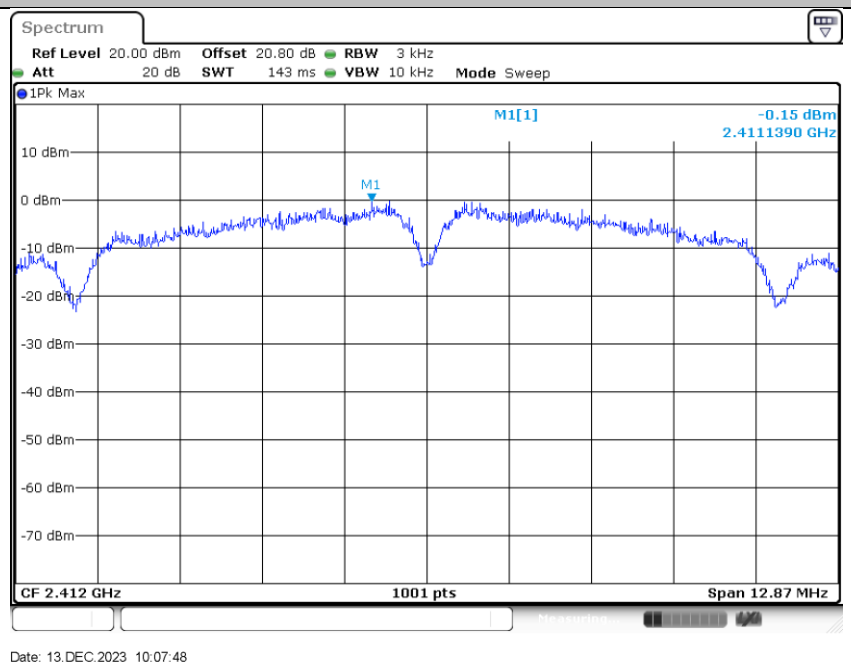
3.3.4 Test Setup



3.3.5 Test Result of Power Spectral Density

Please refer to Appendix A.

Worst Case Power Density (dBm/3kHz)



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.

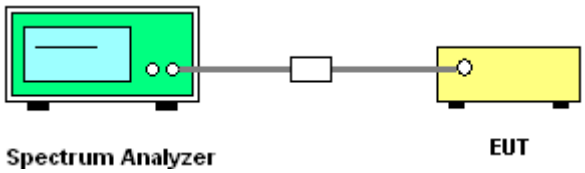
3.4.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.4.3 Test Procedures

1. The testing follows ANSI C63.10-2013 clause 11.11
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

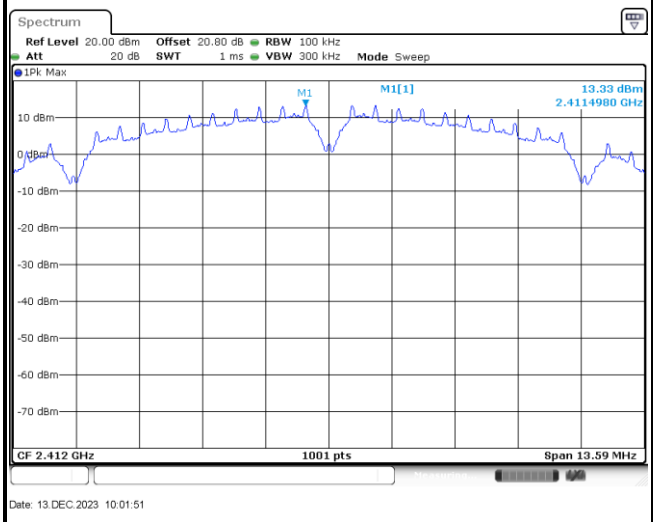
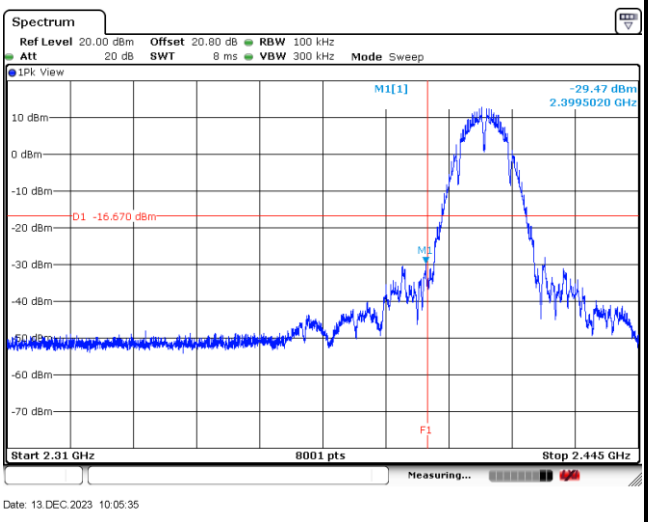


3.4.5 Test Result of Conducted Band Edges and Spurious Emission

Test Engineer :	Sam Zheng	**Temperature :**	24~26℃
		Relative Humidity :	50~53%

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

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

100kHz PSD reference Level	Channel Plot
	
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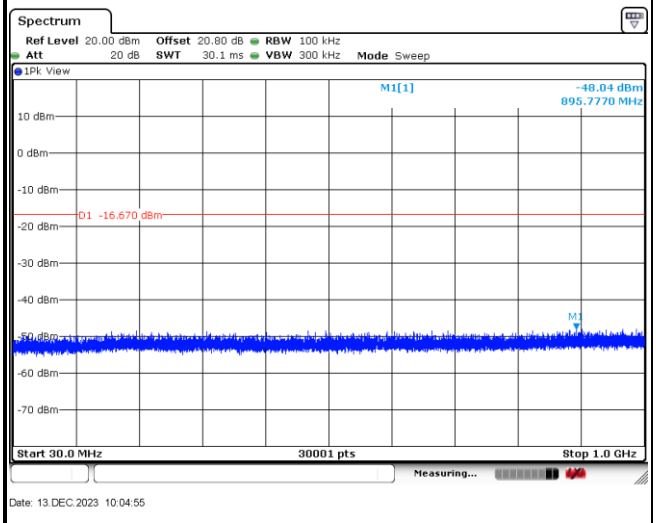
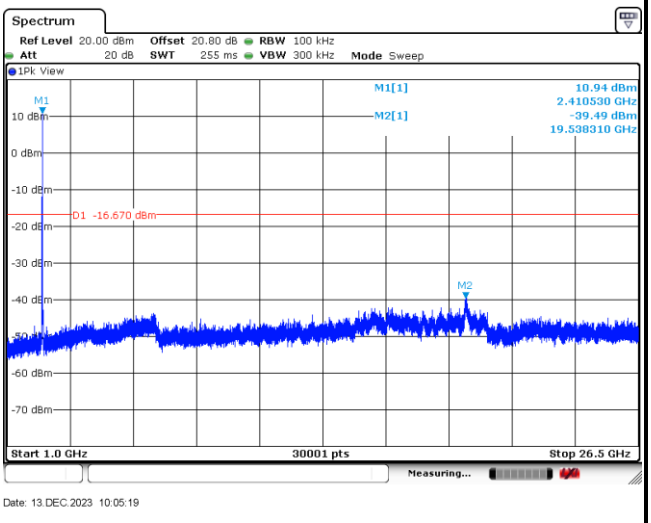
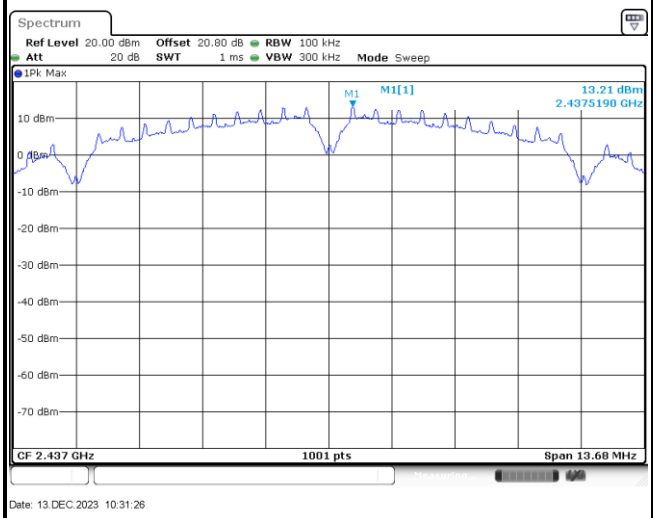
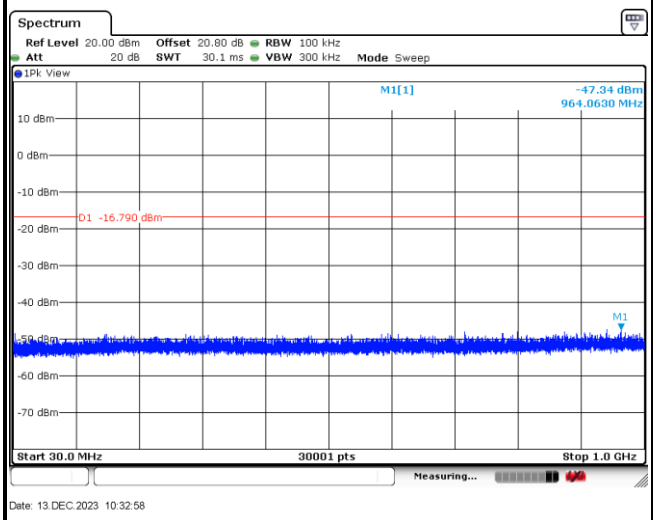
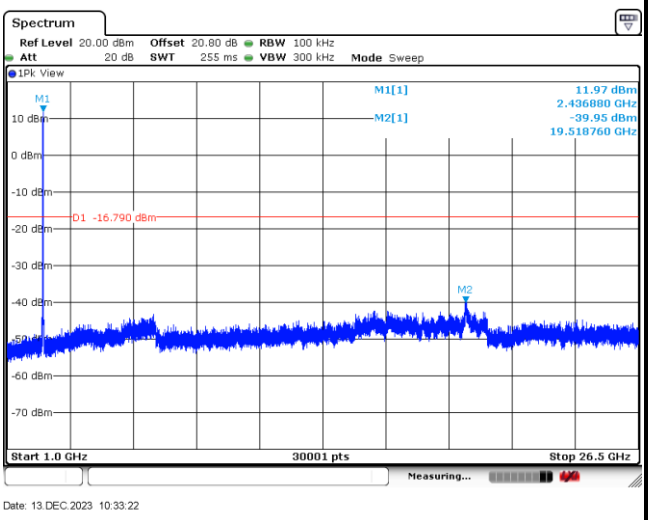
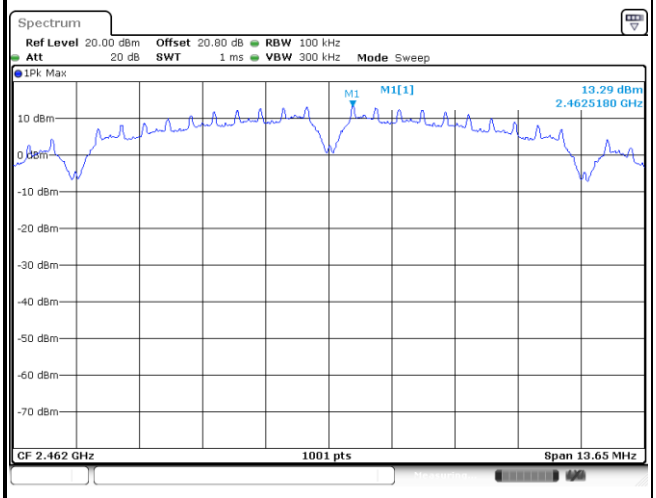
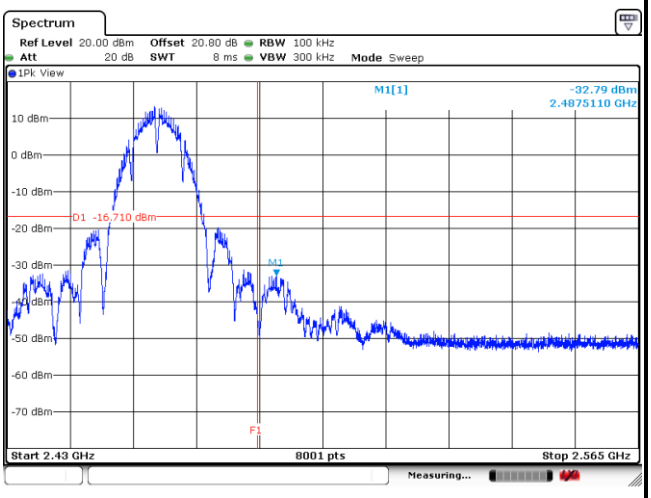
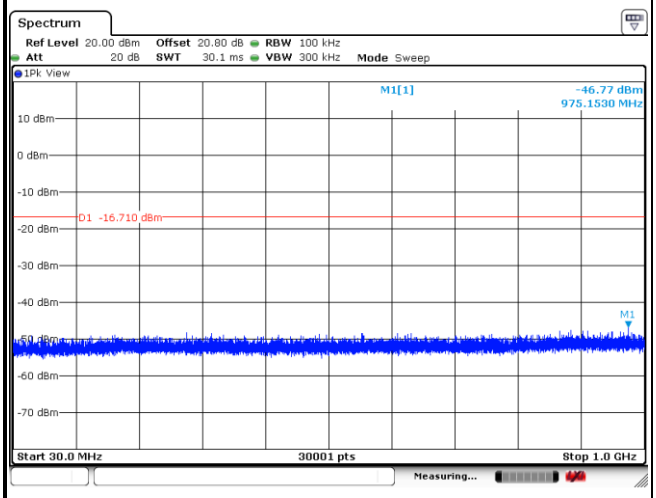
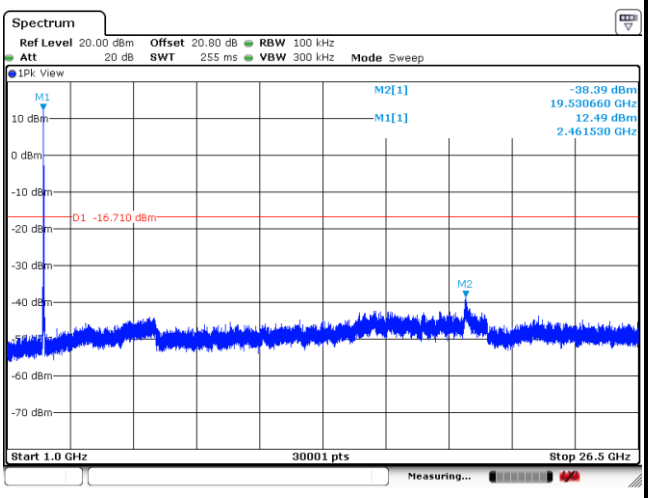
	

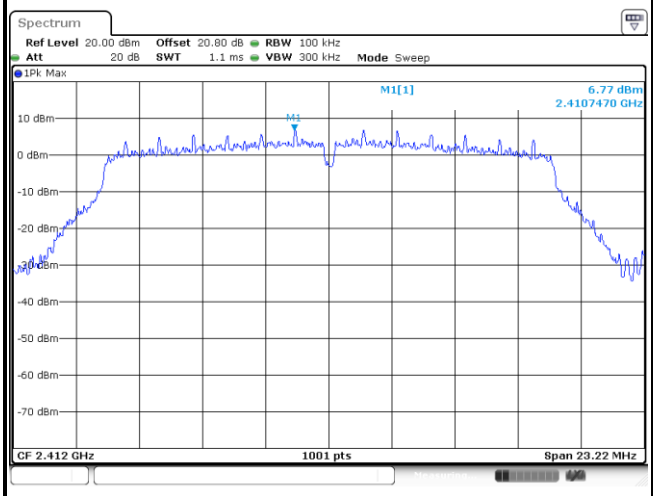
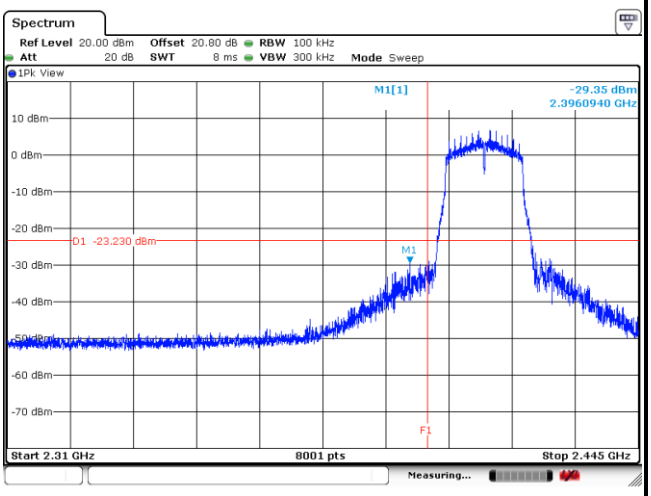
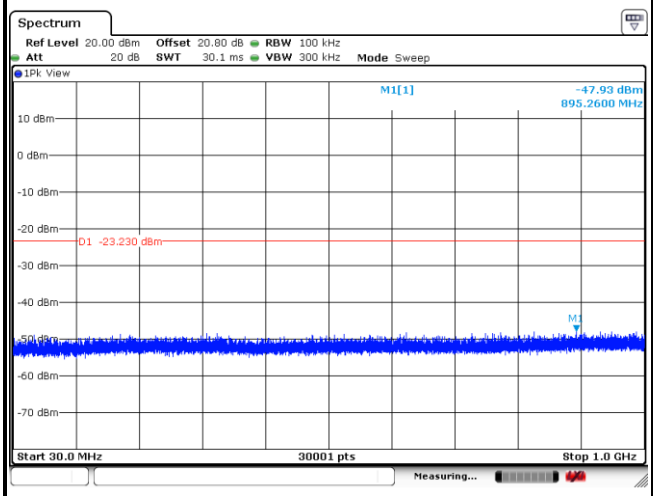
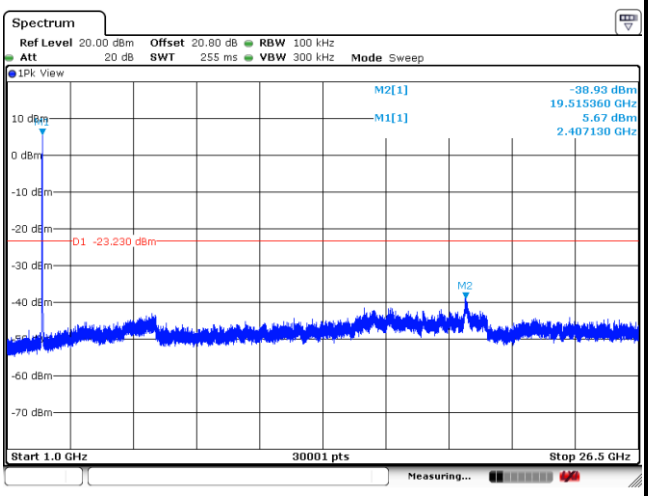
Test Mode :	802.11b	Test Channel :	06

100kHz PSD reference Level	Channel Plot
	-
Spurious Emission Plot-1	**Spurious Emission Plot-2**
	

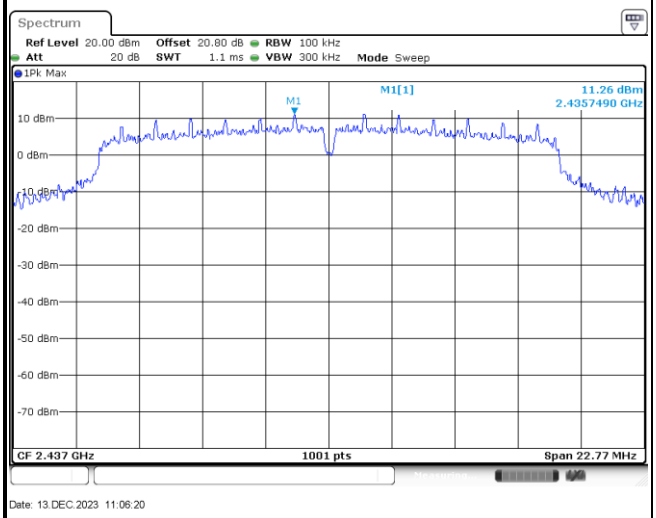
Test Mode :	802.11b	Test Channel :	11

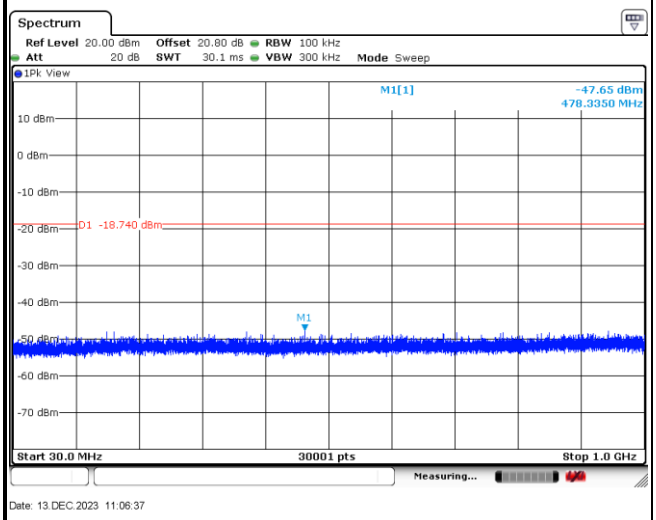
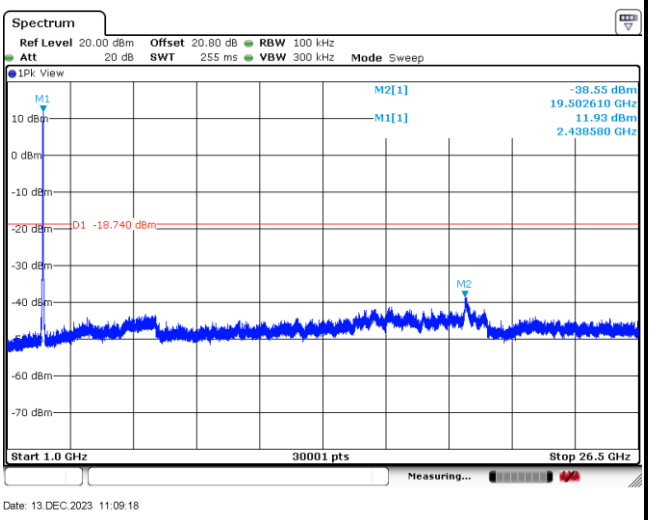
100kHz PSD reference Level	Channel Plot
	
Spurious Emission Plot-1	**Spurious Emission Plot-2**
	

Test Mode :	802.11g	Test Channel :	01

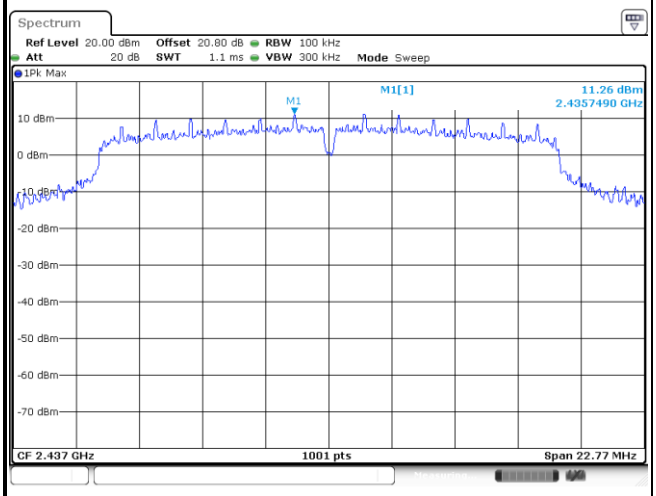
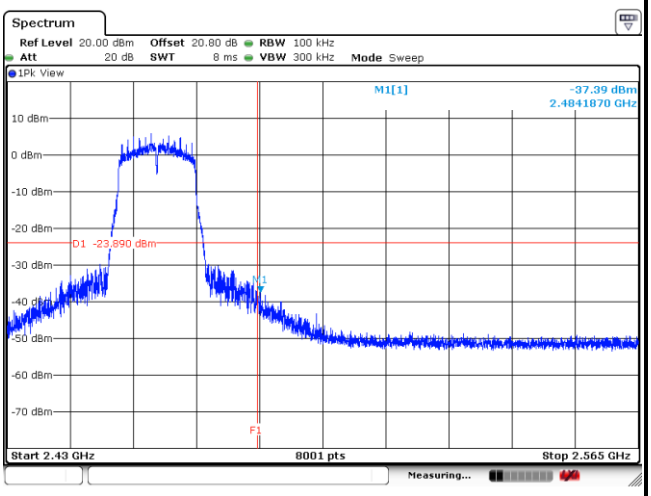
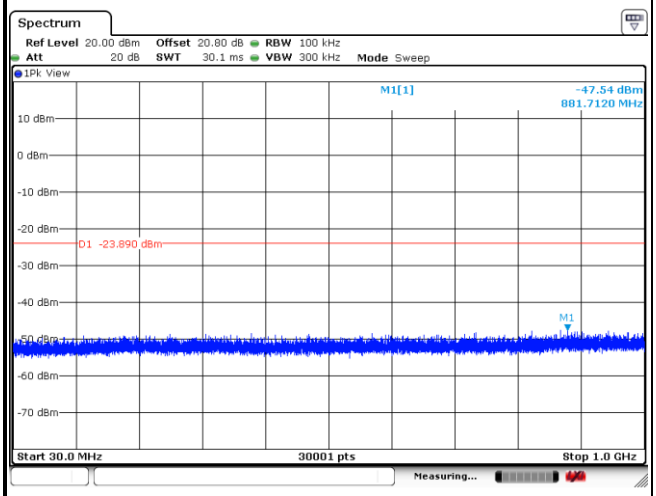
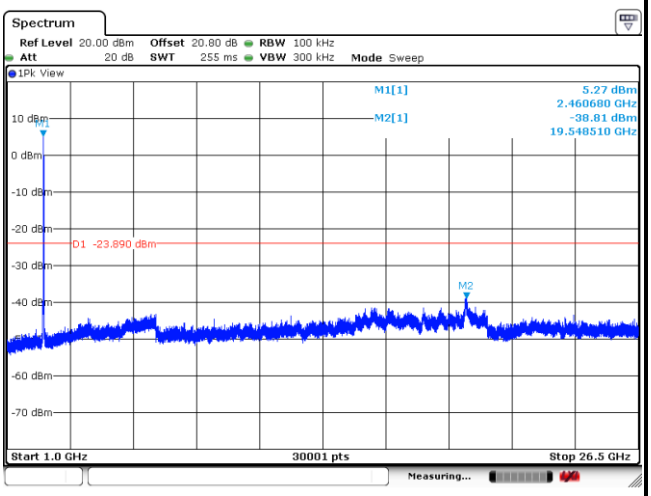
100kHz PSD reference Level	Channel Plot
	
Spurious Emission Plot-1	**Spurious Emission Plot-2**
	

Test Mode :	802.11g	Test Channel :	06

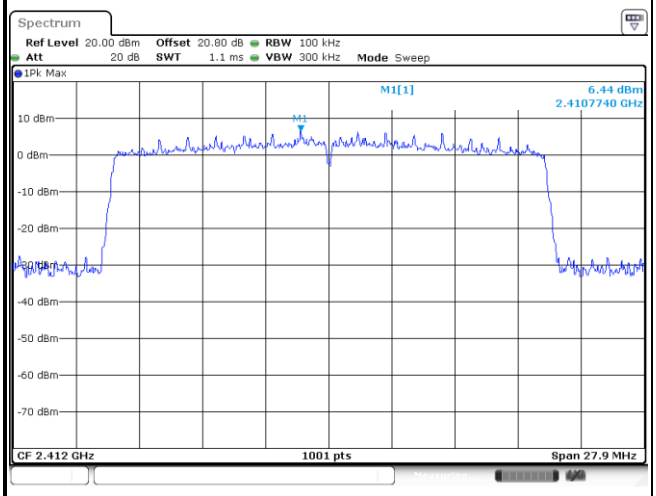
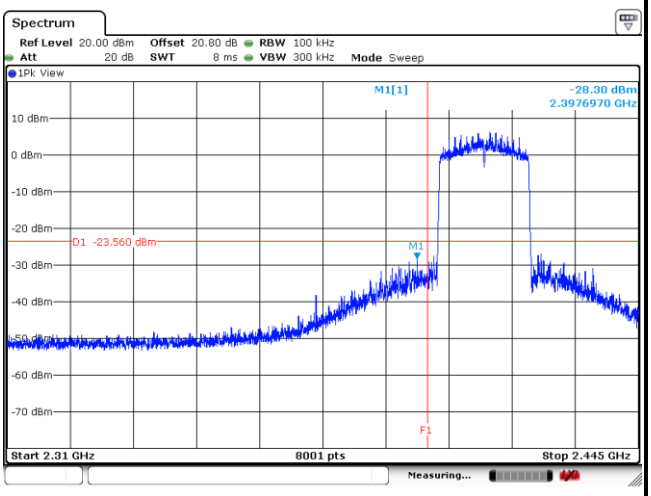
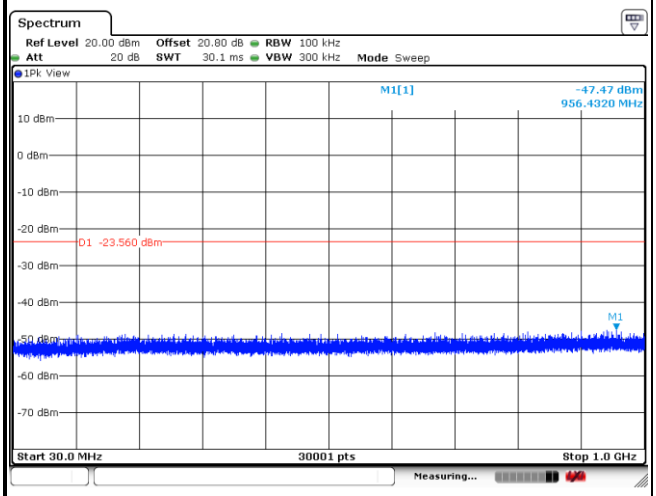
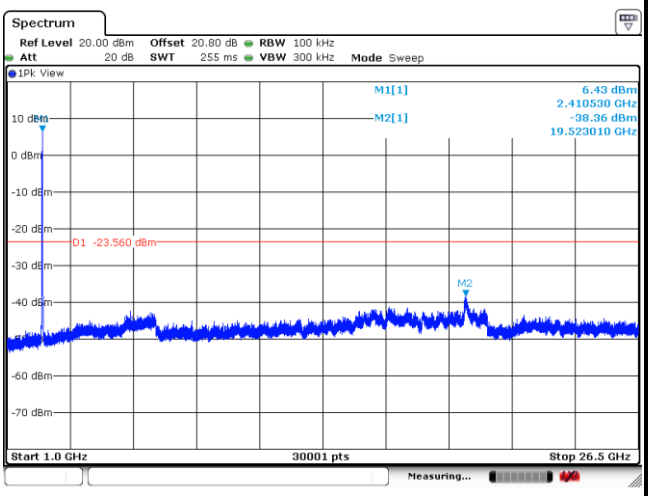
100kHz PSD reference Level	Channel Plot
	-

Spurious Emission Plot-1	Spurious Emission Plot-2
	

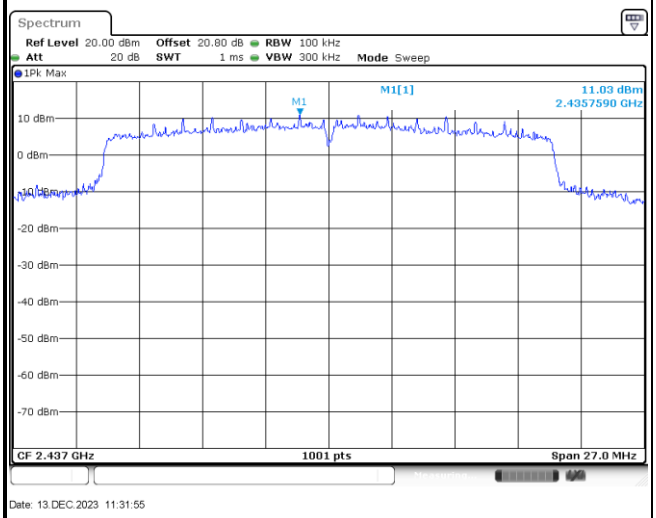
Test Mode :	802.11g	Test Channel :	11

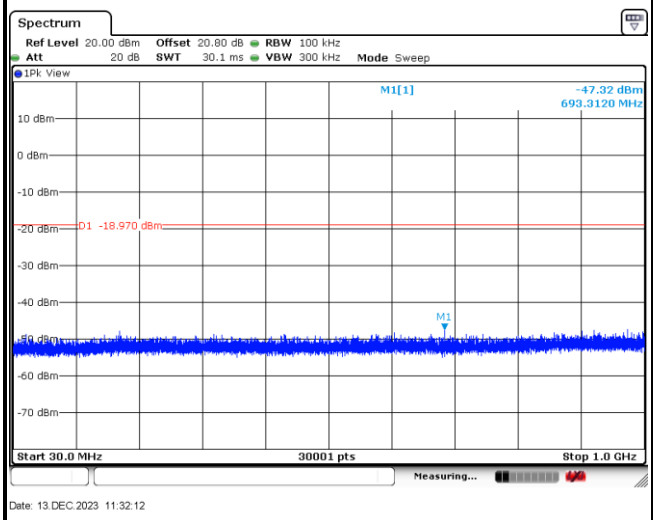
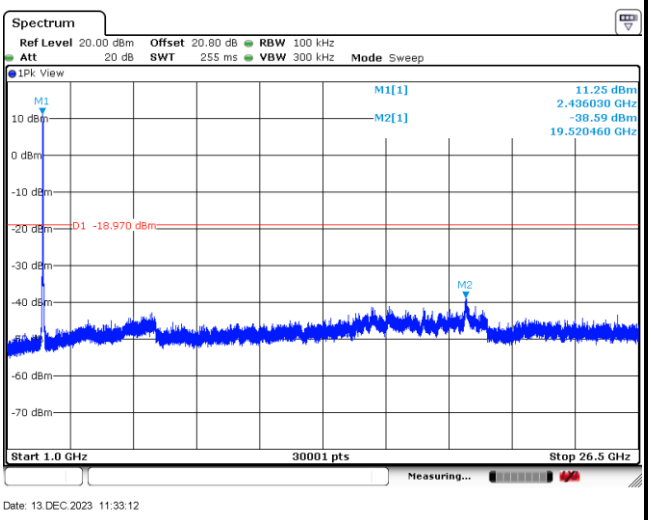
100kHz PSD reference Level	Channel Plot
	
Spurious Emission Plot-1	**Spurious Emission Plot-2**
	

Test Mode :	802.11ax HE20	Test Channel :	01

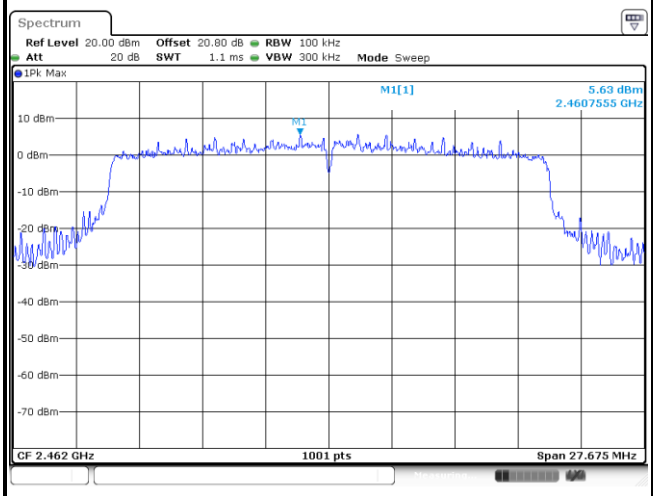
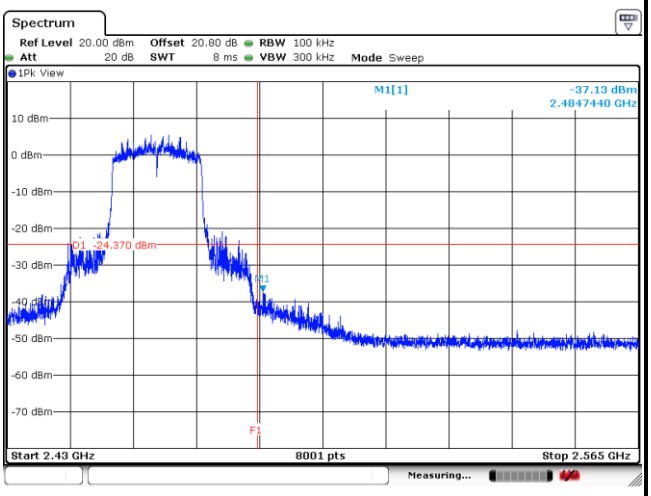
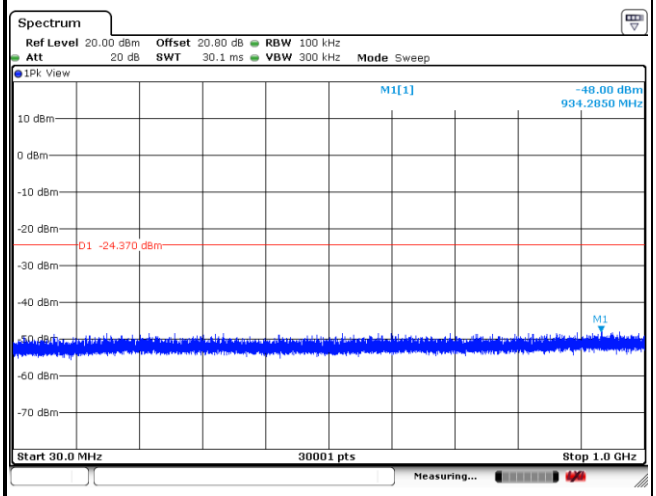
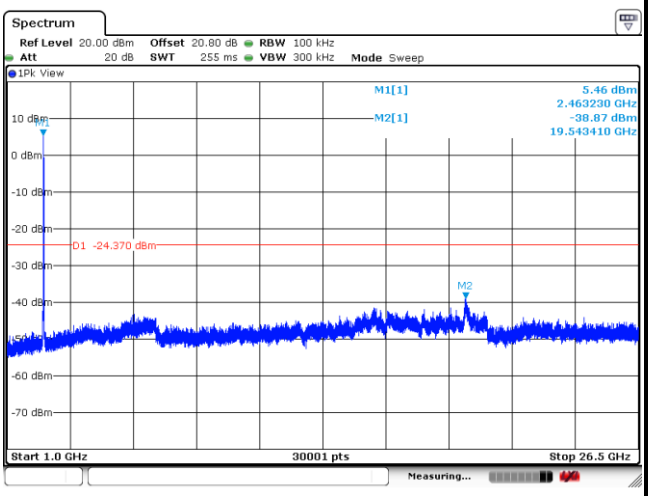
100kHz PSD reference Level	Channel Plot
	
Spurious Emission Plot-1	**Spurious Emission Plot-2**
	

Test Mode :	802.11ax HE20	Test Channel :	06

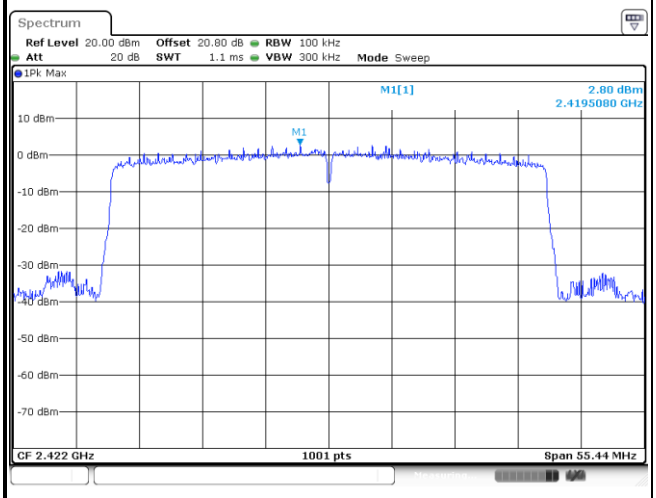
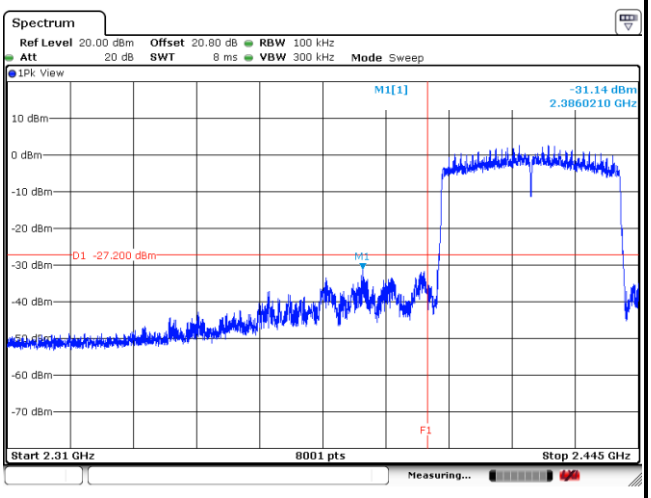
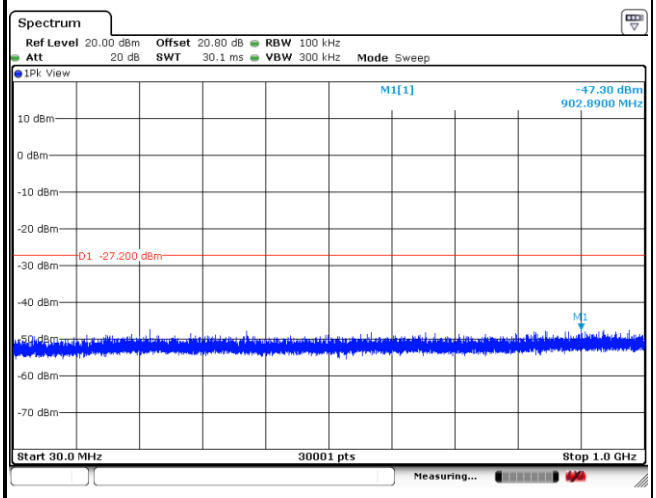
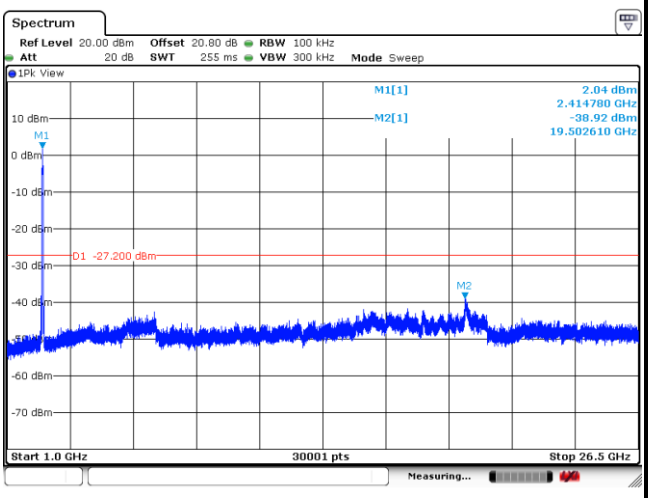
100kHz PSD reference Level	Channel Plot
	-

Spurious Emission Plot-1	Spurious Emission Plot-2
	

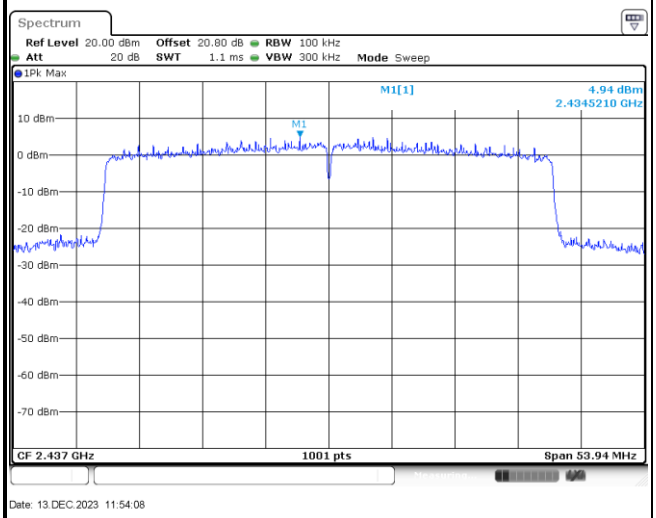
Test Mode :	802.11ax HE20	Test Channel :	11

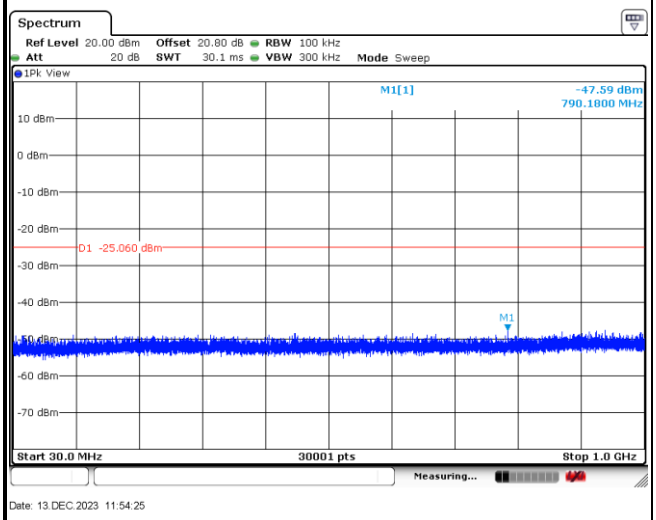
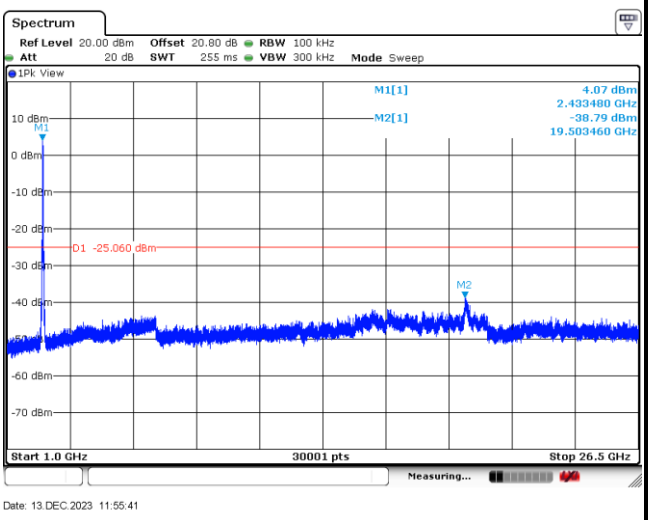
100kHz PSD reference Level	Channel Plot
	
Spurious Emission Plot-1	**Spurious Emission Plot-2**
	

Test Mode :	802.11ax HE40	Test Channel :	03

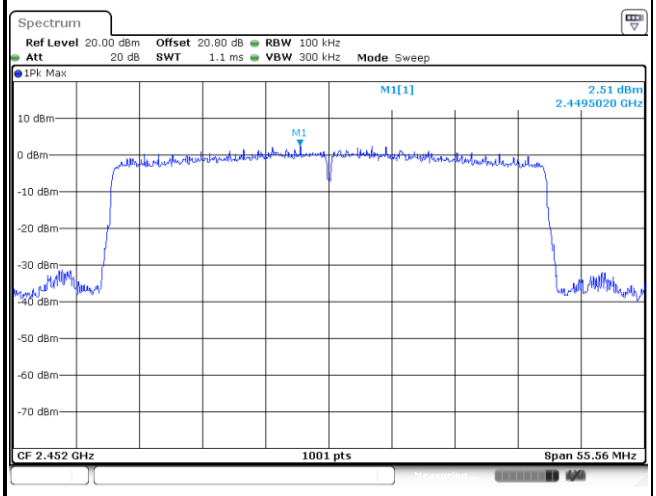
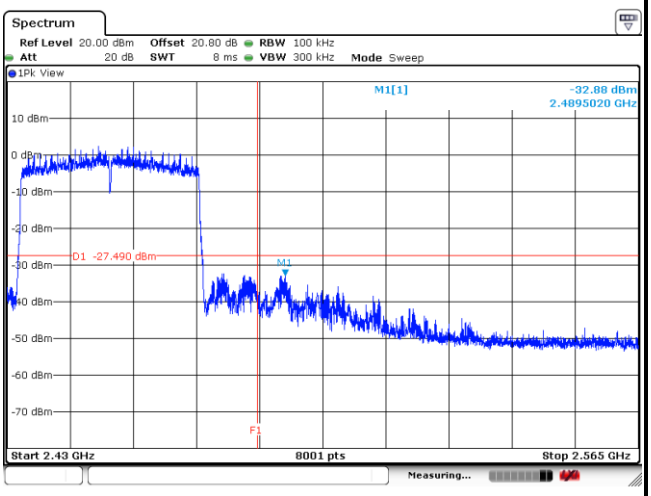
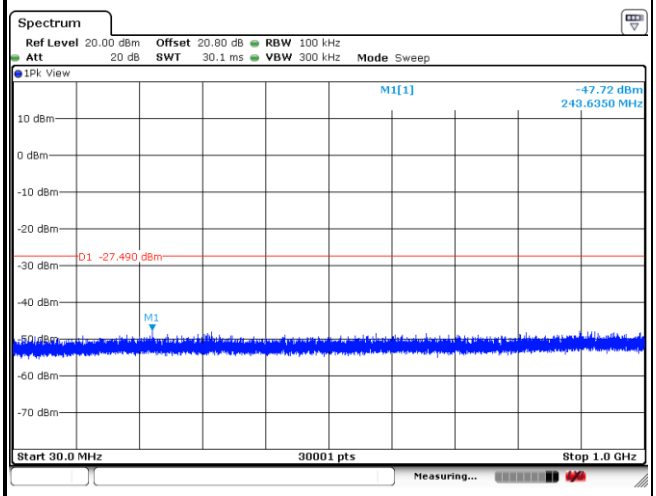
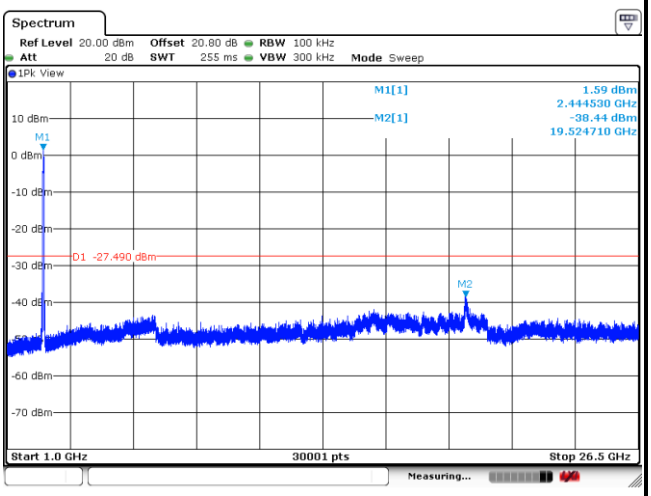
100kHz PSD reference Level	Channel Plot
	
Spurious Emission Plot-1	**Spurious Emission Plot-2**
	

Test Mode :	802.11ax HE40	Test Channel :	06

100kHz PSD reference Level	Channel Plot
	-

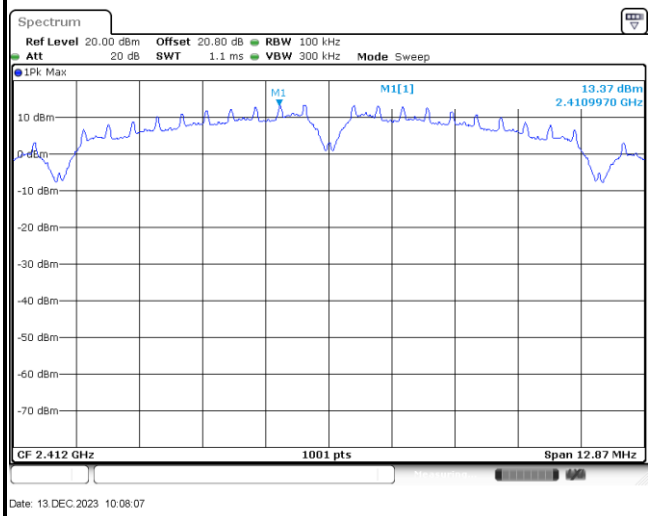
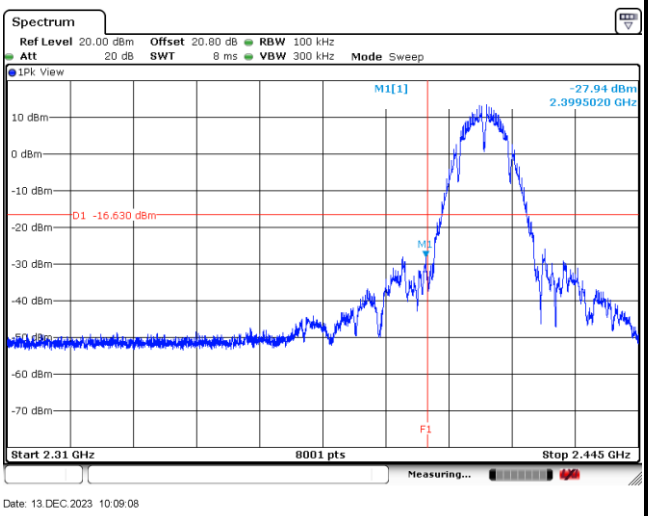
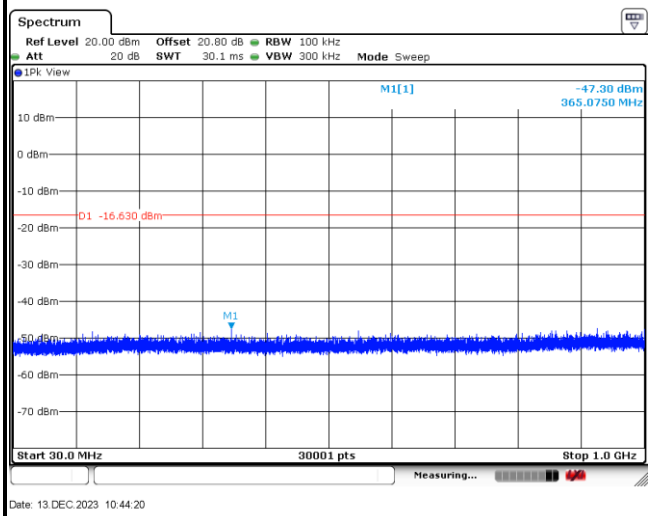
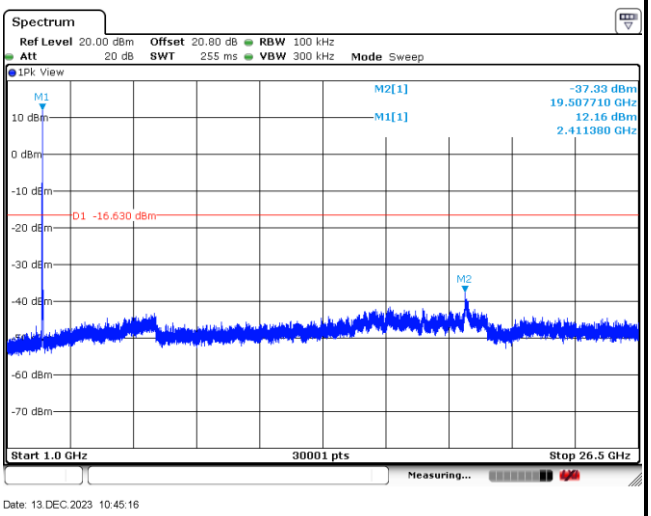
Spurious Emission Plot-1	Spurious Emission Plot-2
	

Test Mode :	802.11ax HE40	Test Channel :	09

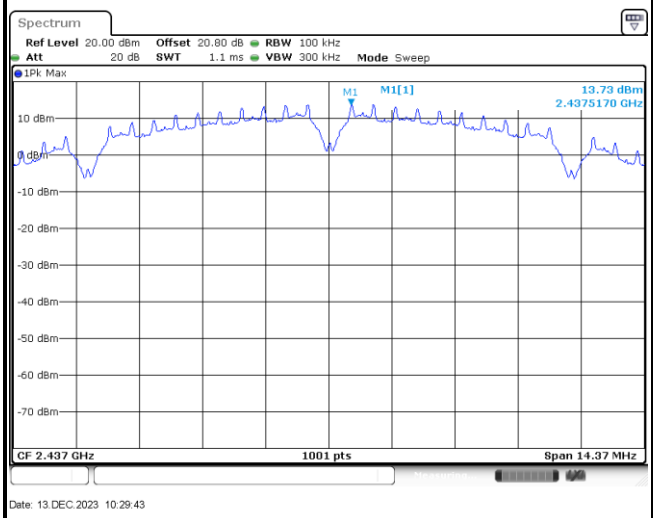
100kHz PSD reference Level	Channel Plot
	
Spurious Emission Plot-1	**Spurious Emission Plot-2**
	

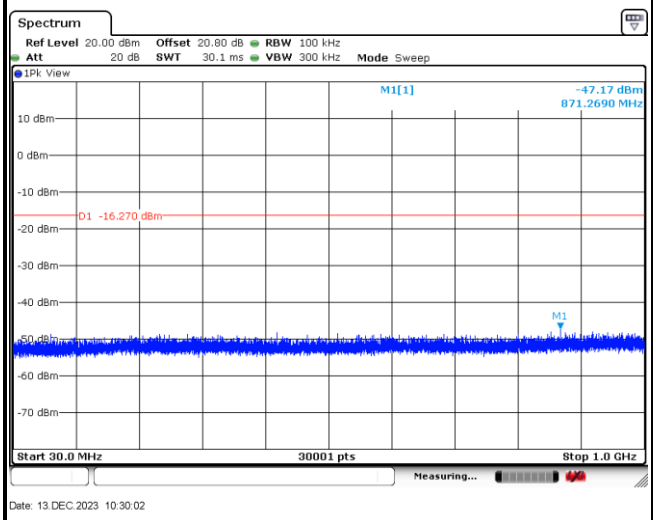
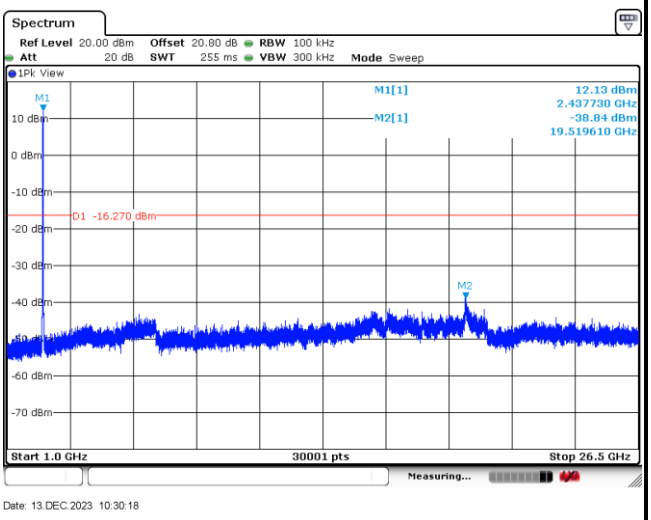
Number of TX = 2, Ant. 2 (Measured)

Test Mode :	802.11b	Test Channel :	01

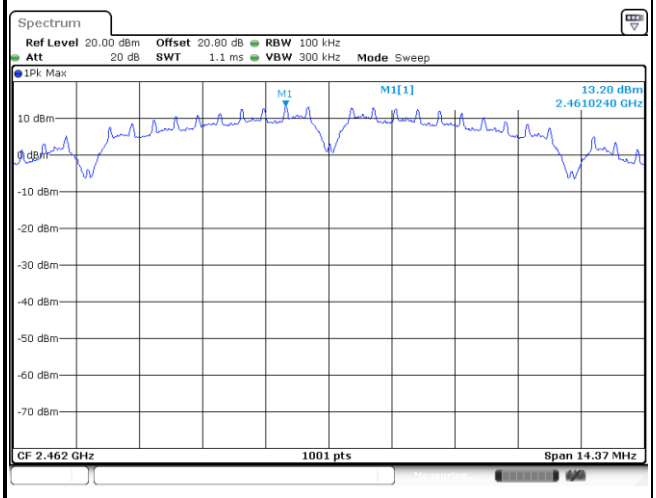
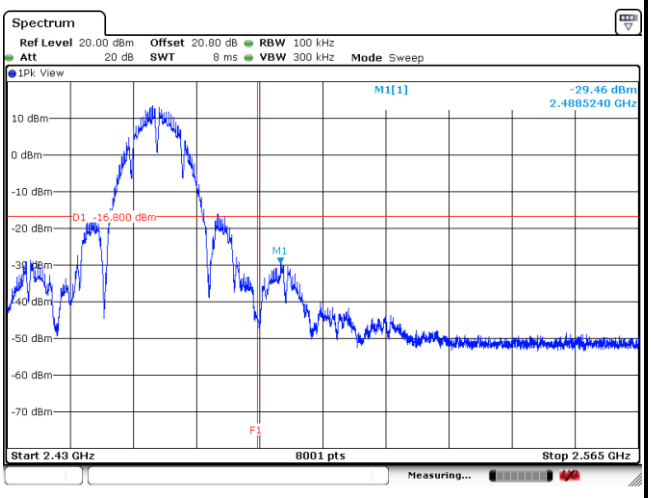
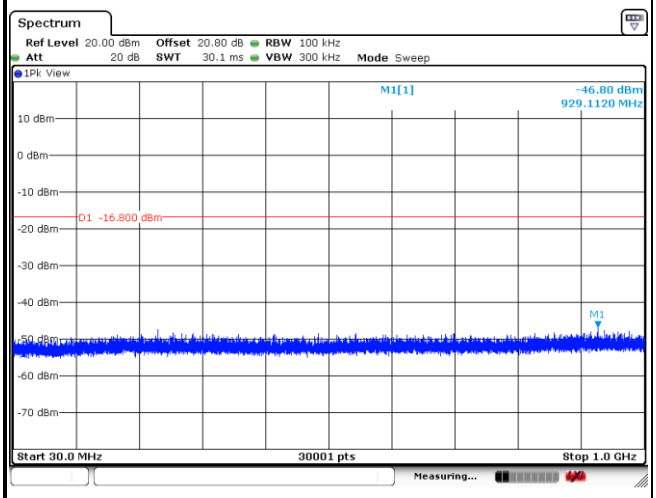
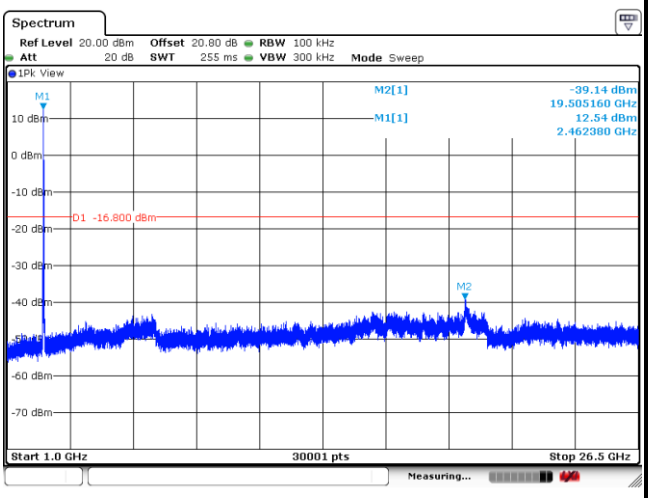
100kHz PSD reference Level	Channel Plot
	
Spurious Emission Plot-1	**Spurious Emission Plot-2**
	

Test Mode :	802.11b	Test Channel :	06

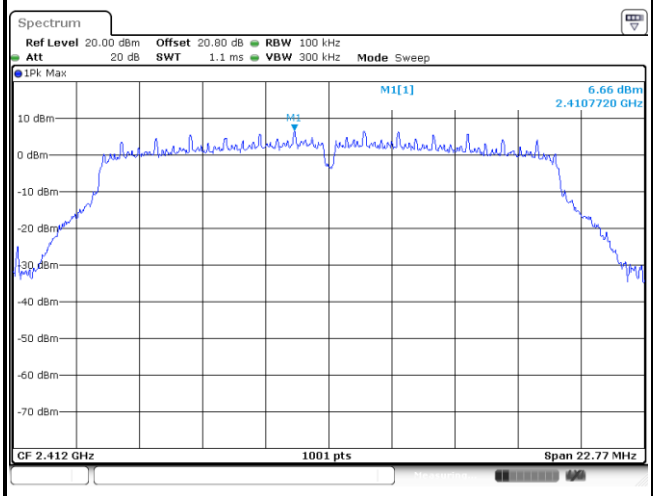
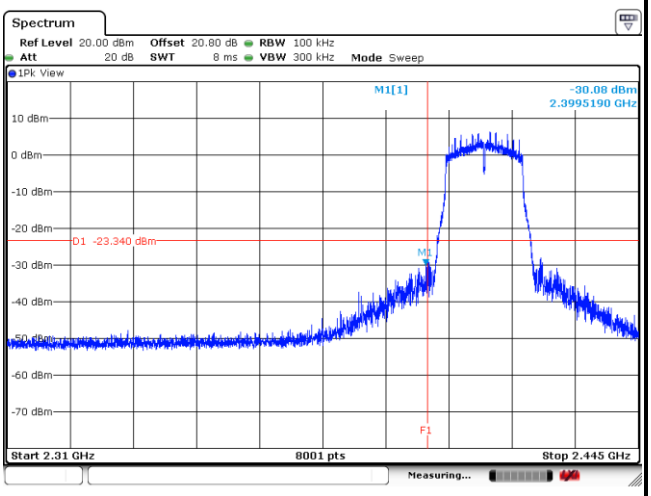
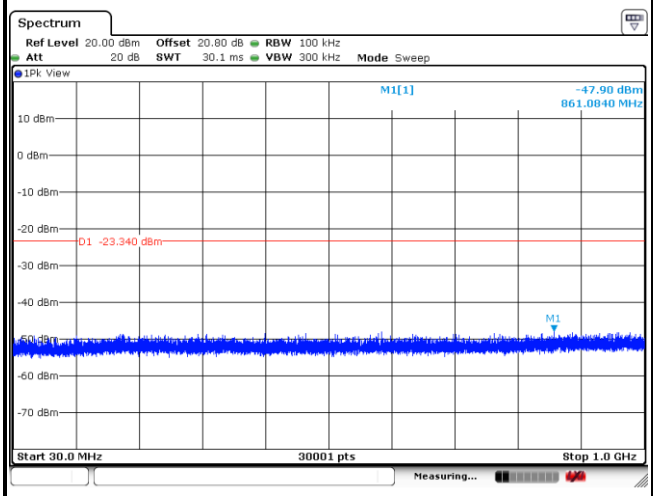
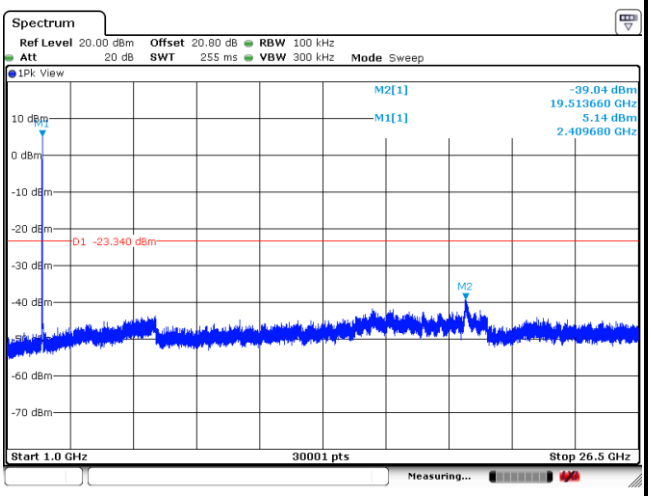
100kHz PSD reference Level	Channel Plot
	-

Spurious Emission Plot-1	Spurious Emission Plot-2
	

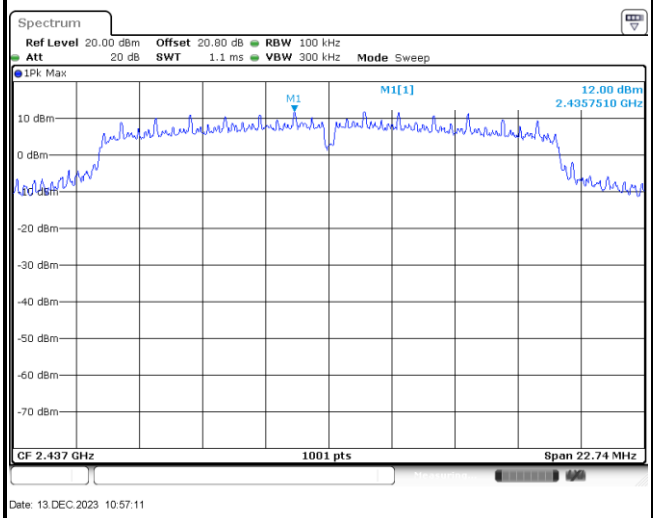
Test Mode :	802.11b	Test Channel :	11

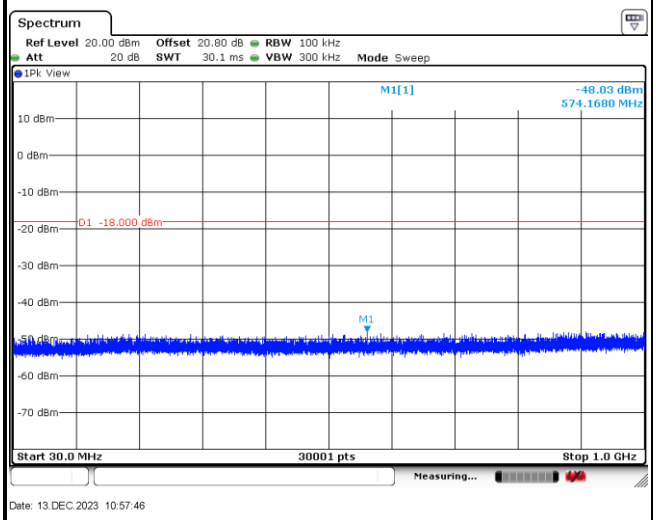
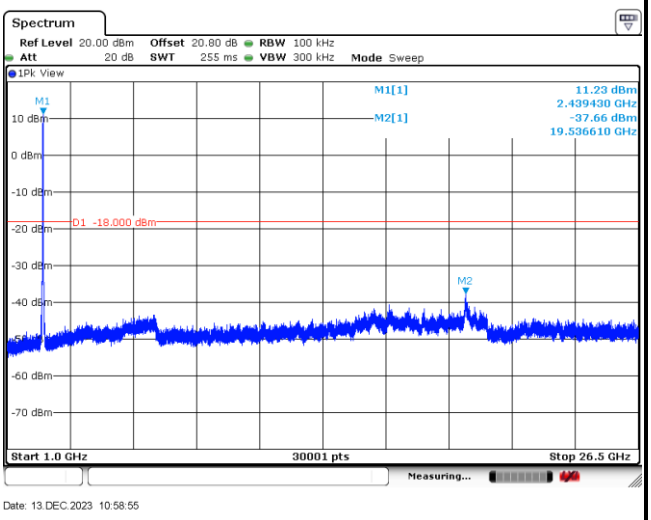
100kHz PSD reference Level	Channel Plot
	
Spurious Emission Plot-1	**Spurious Emission Plot-2**
	

Test Mode :	802.11g	Test Channel :	01

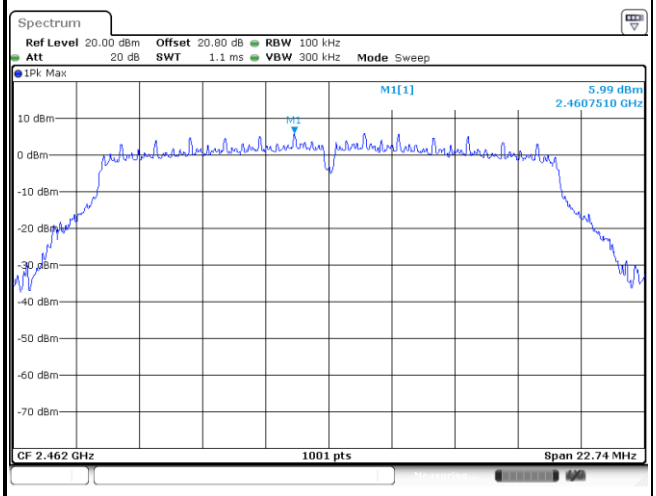
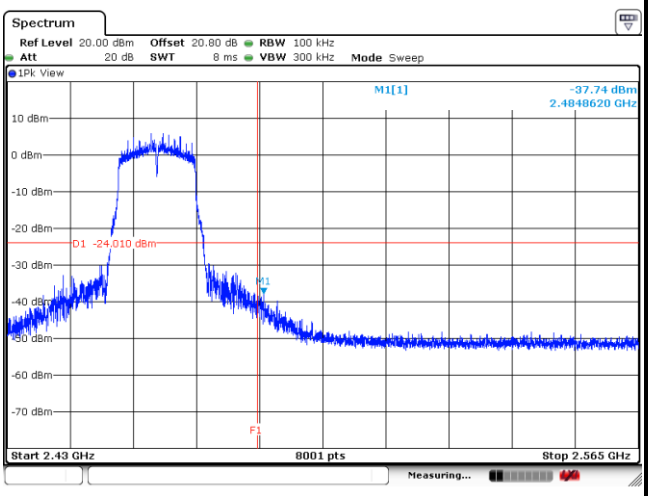
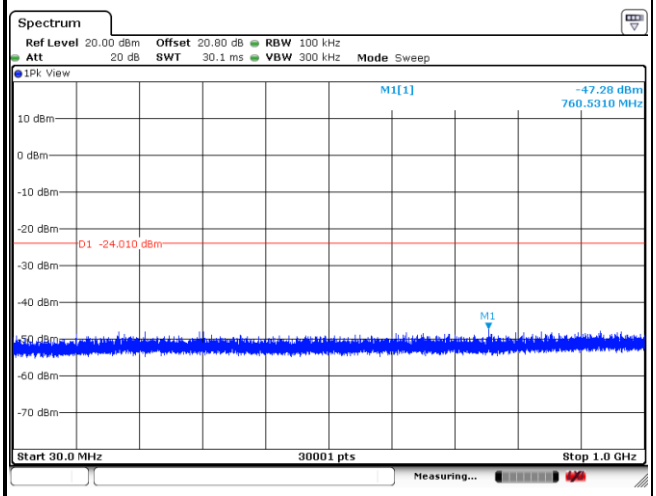
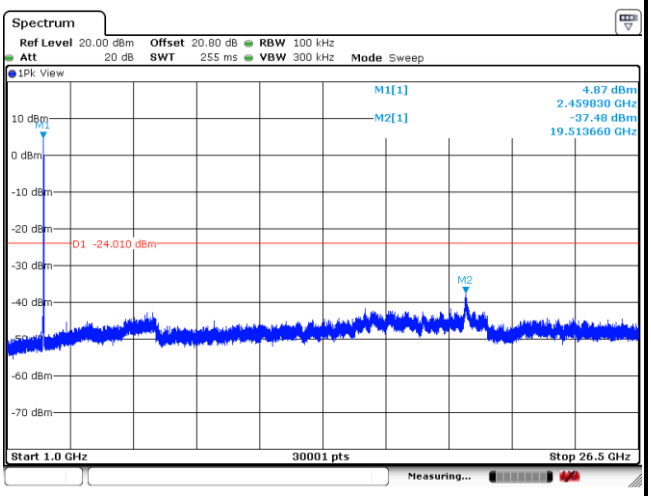
100kHz PSD reference Level	Channel Plot
	
Spurious Emission Plot-1	**Spurious Emission Plot-2**
	

Test Mode :	802.11g	Test Channel :	06

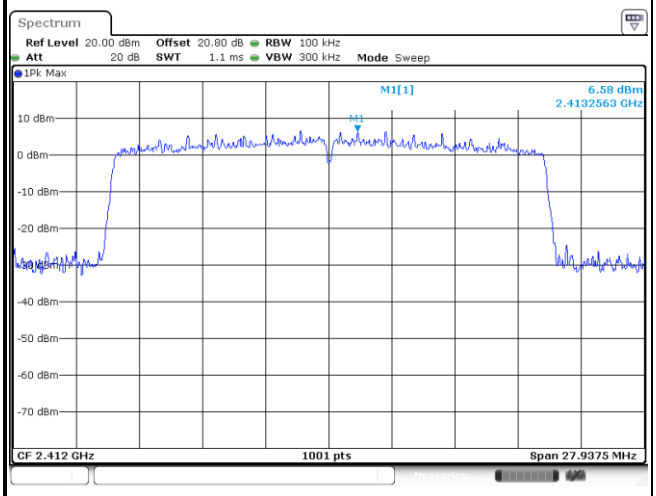
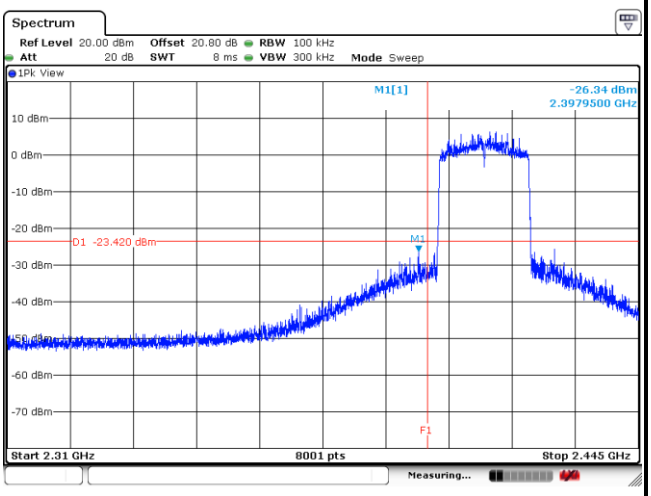
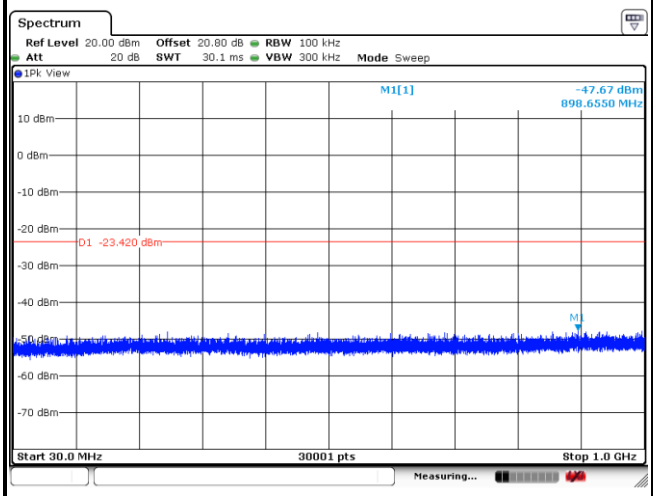
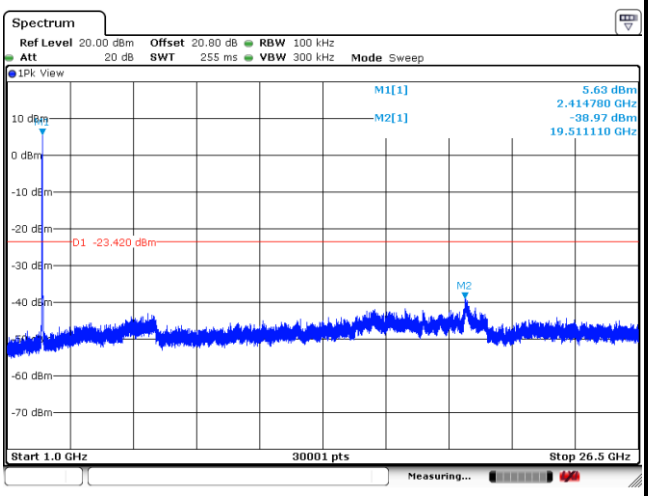
100kHz PSD reference Level	Channel Plot
	-

Spurious Emission Plot-1	Spurious Emission Plot-2
	

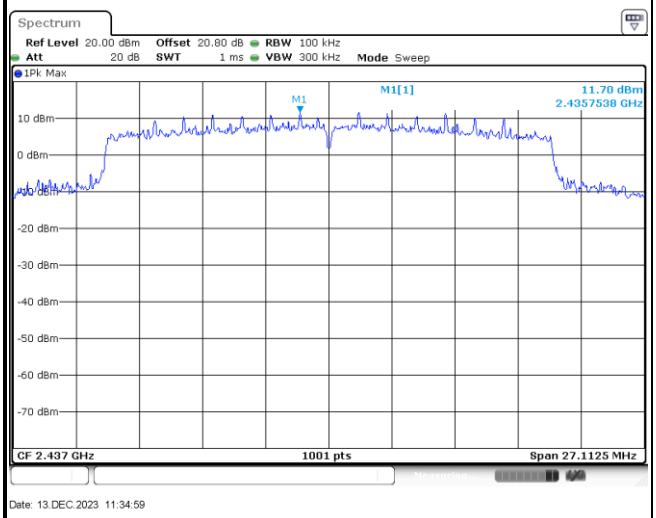
Test Mode :	802.11g	Test Channel :	11

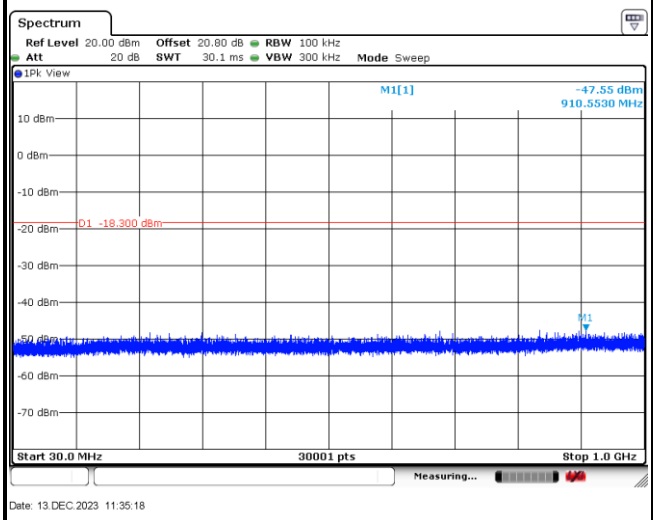
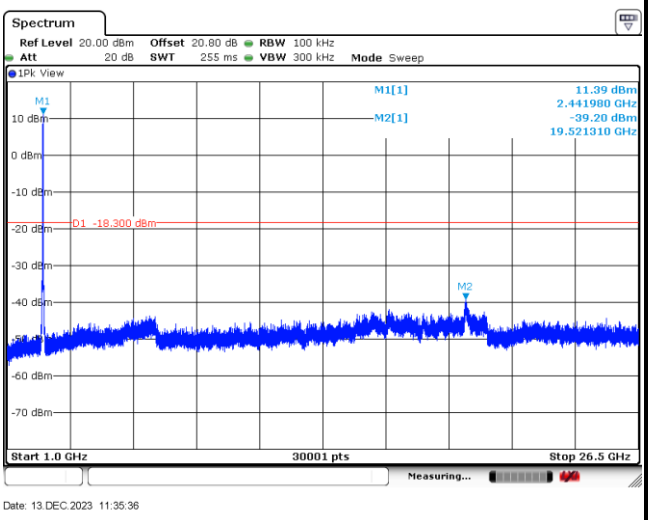
100kHz PSD reference Level	Channel Plot
	
Spurious Emission Plot-1	**Spurious Emission Plot-2**
	

Test Mode :	802.11ax HE20	Test Channel :	01

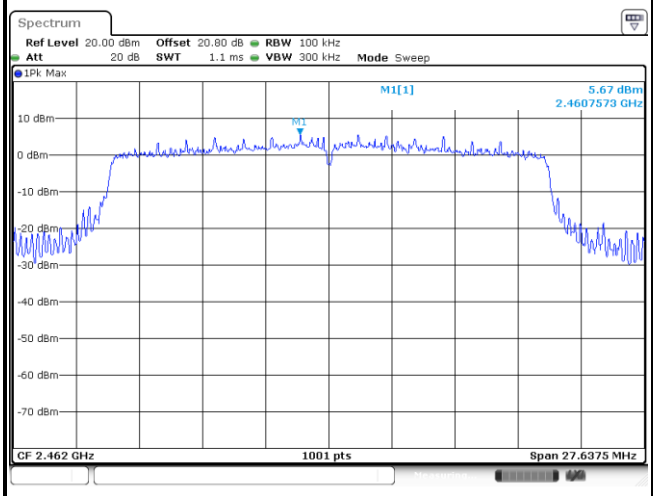
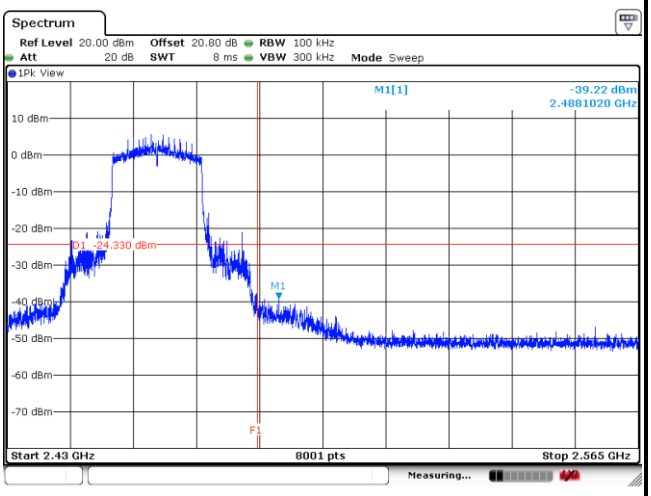
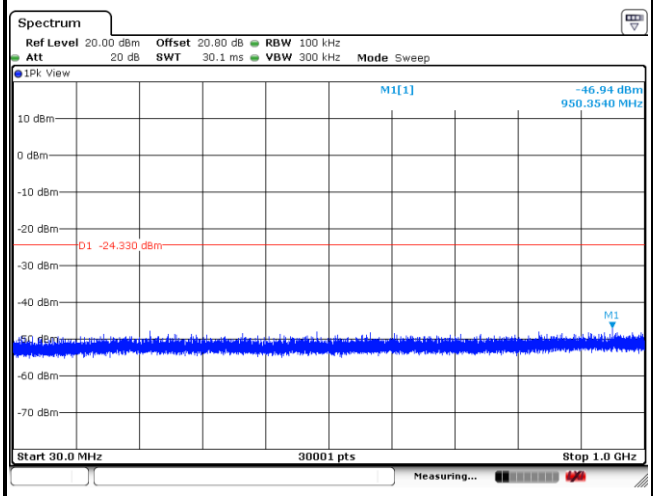
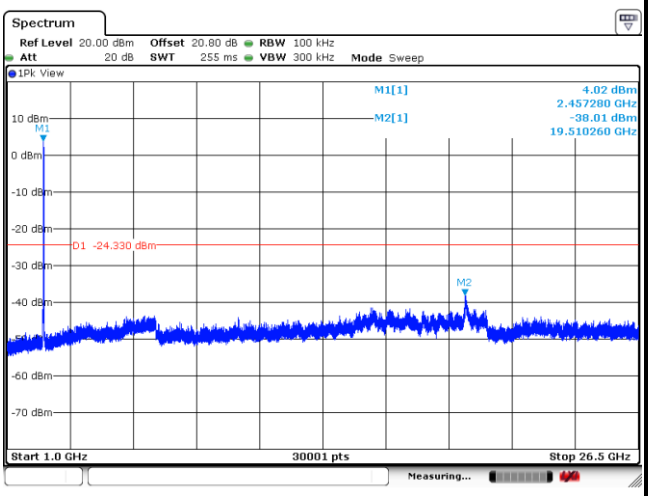
100kHz PSD reference Level	Channel Plot
	
Spurious Emission Plot-1	**Spurious Emission Plot-2**
	

Test Mode :	802.11ax HE20	Test Channel :	06

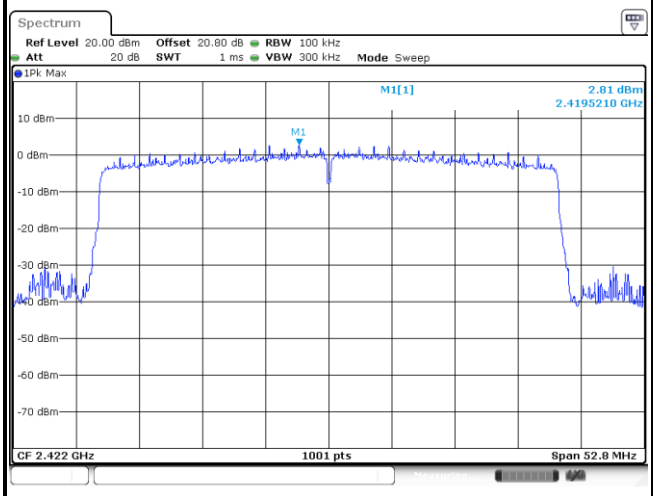
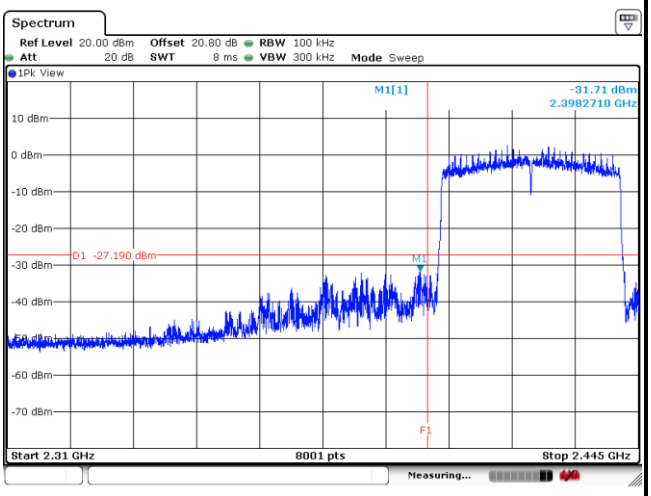
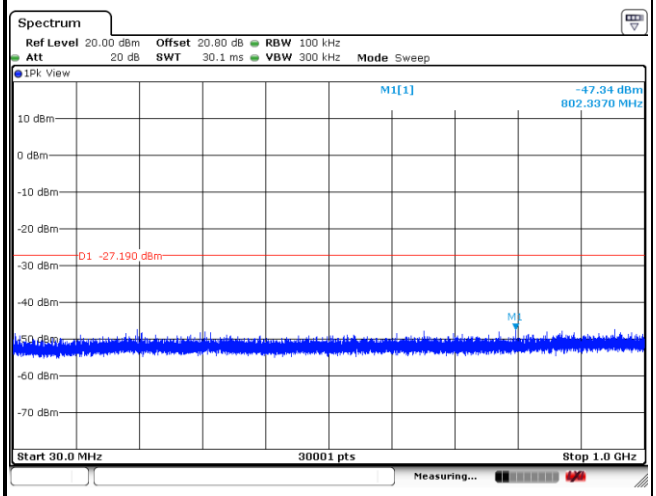
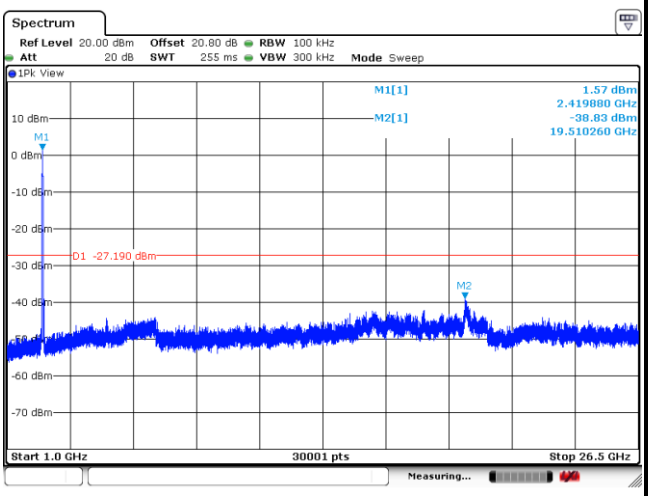
100kHz PSD reference Level	Channel Plot
	-

Spurious Emission Plot-1	Spurious Emission Plot-2
	

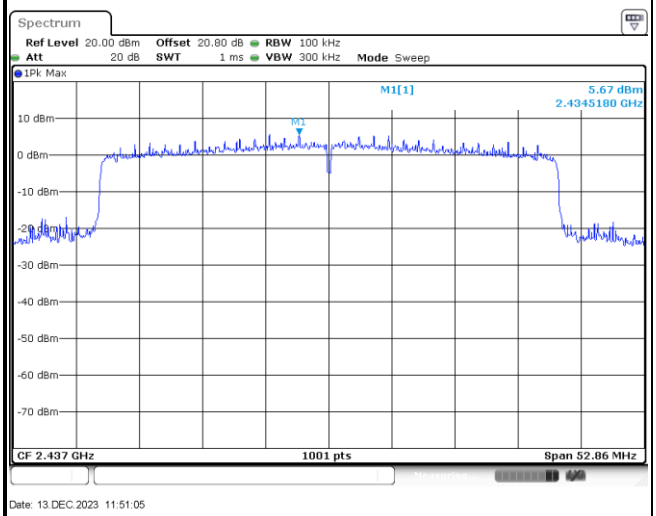
Test Mode :	802.11ax HE20	Test Channel :	11

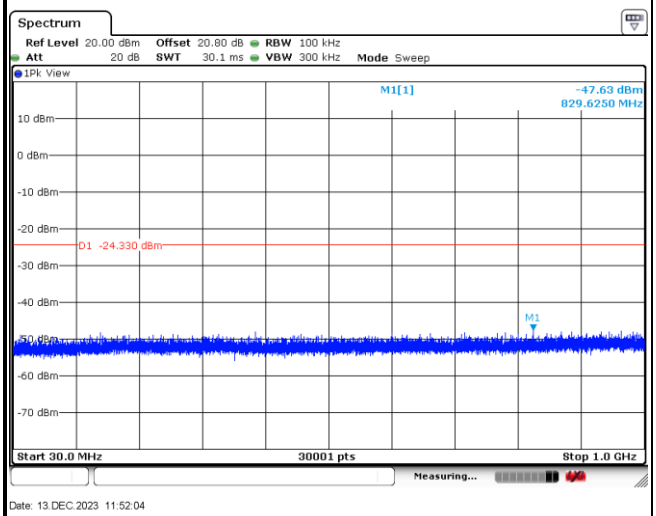
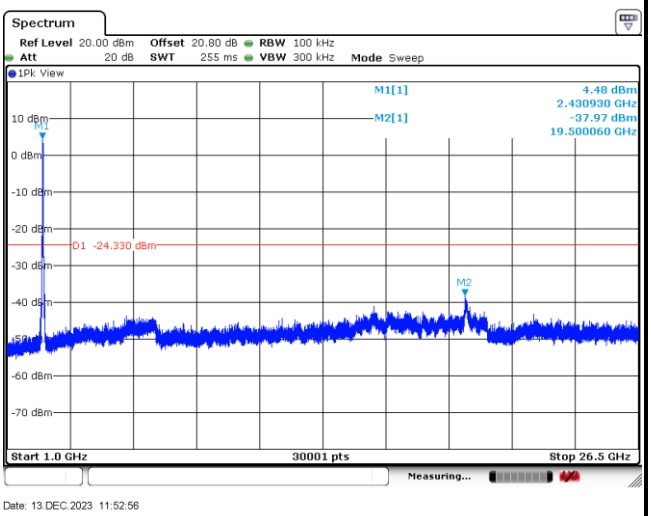
100kHz PSD reference Level	Channel Plot
	
Spurious Emission Plot-1	**Spurious Emission Plot-2**
	

Test Mode :	802.11ax HE40	Test Channel :	03

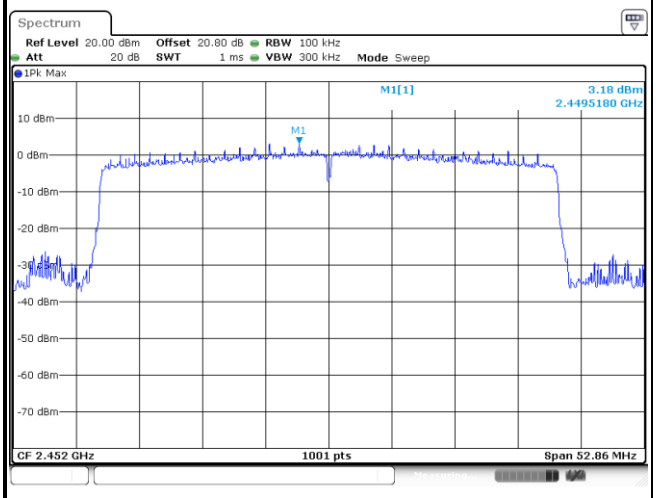
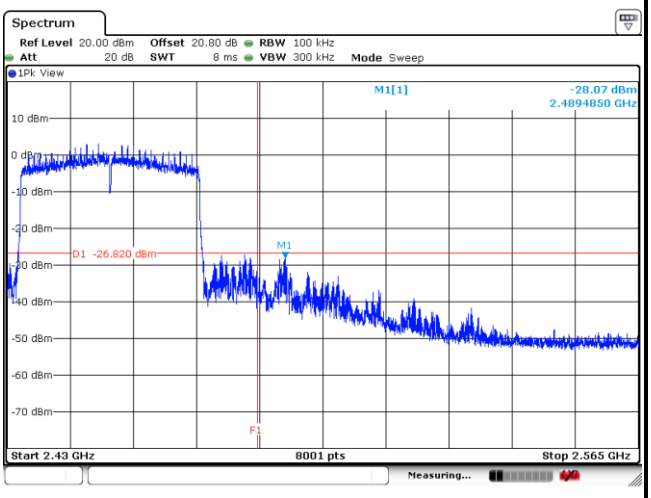
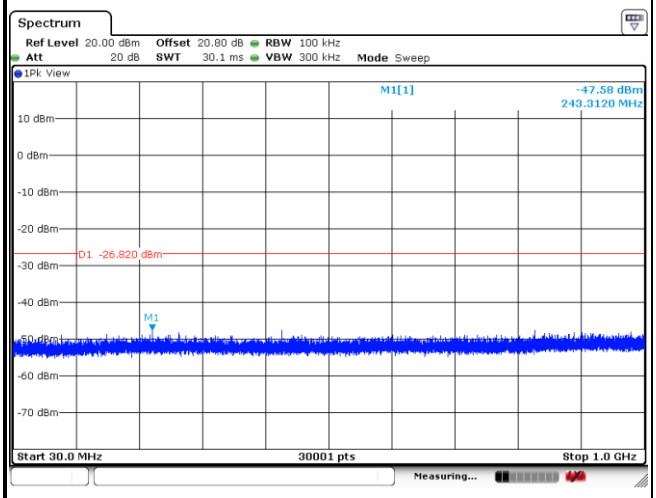
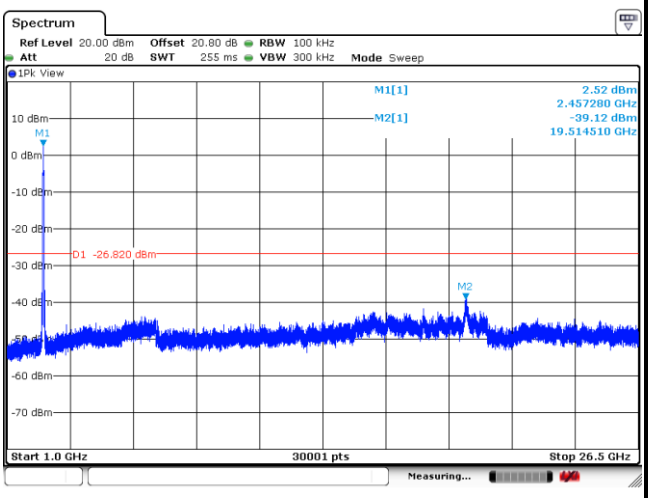
100kHz PSD reference Level	Channel Plot
	
Spurious Emission Plot-1	**Spurious Emission Plot-2**
	

Test Mode :	802.11ax HE40	Test Channel :	06

100kHz PSD reference Level	Channel Plot
	-

Spurious Emission Plot-1	Spurious Emission Plot-2
	

Test Mode :	802.11ax HE40	Test Channel :	09

100kHz PSD reference Level	Channel Plot
	
Spurious Emission Plot-1	**Spurious Emission Plot-2**
	

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

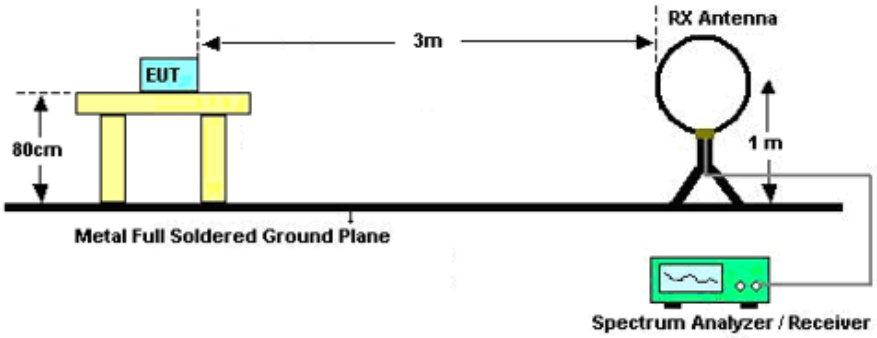
The measuring equipment is listed in the section 4 of this test report.

3.5.3 Test Procedures

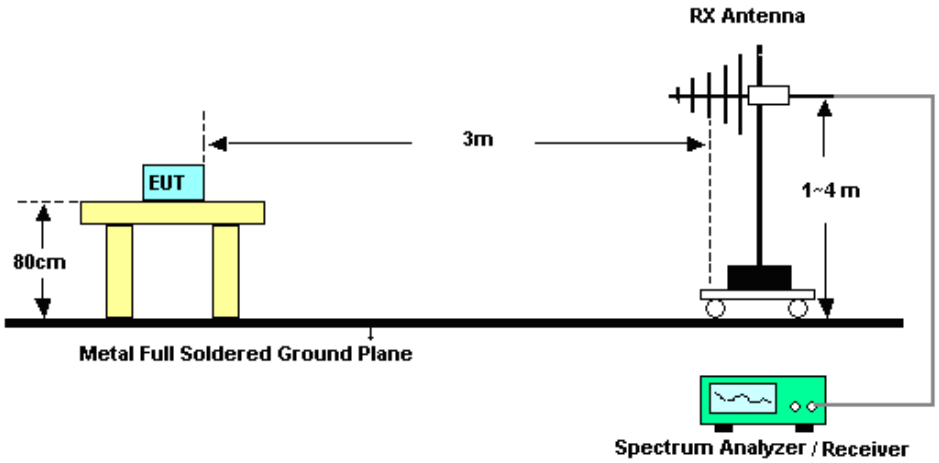
1. The testing follows ANSI C63.10-2013 clause 11.11 & 11.12
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better 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 peak 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

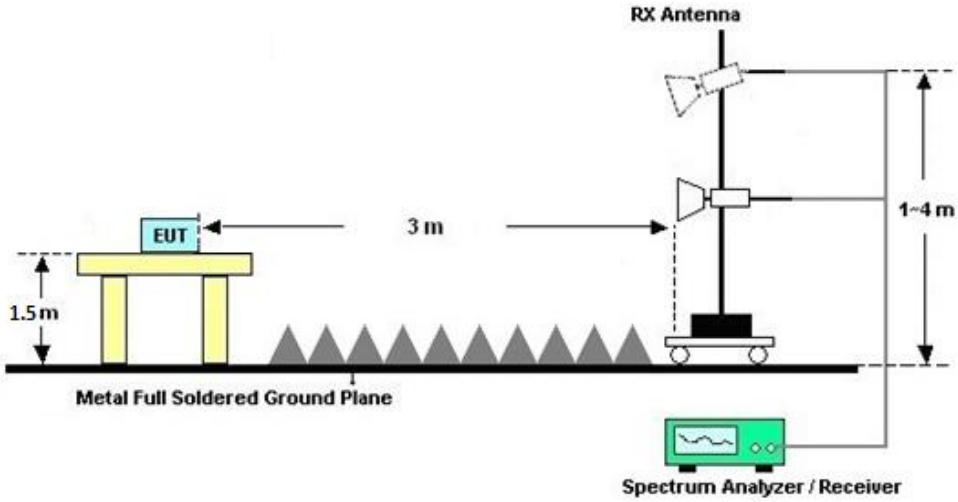
For radiated emissions below 30MHz



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 semi-Anechoic chamber, and the result came out very similar.

3.5.6 Test Result of Radiated Spurious at Band Edges

Please refer to Appendix C.

3.5.7 Duty Cycle

Please refer to Appendix D.

3.5.8 Test Result of Radiated Spurious Emission (30MHz ~ 10th Harmonic or 40GHz, whichever is lower)

Please refer to Appendix C.

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.

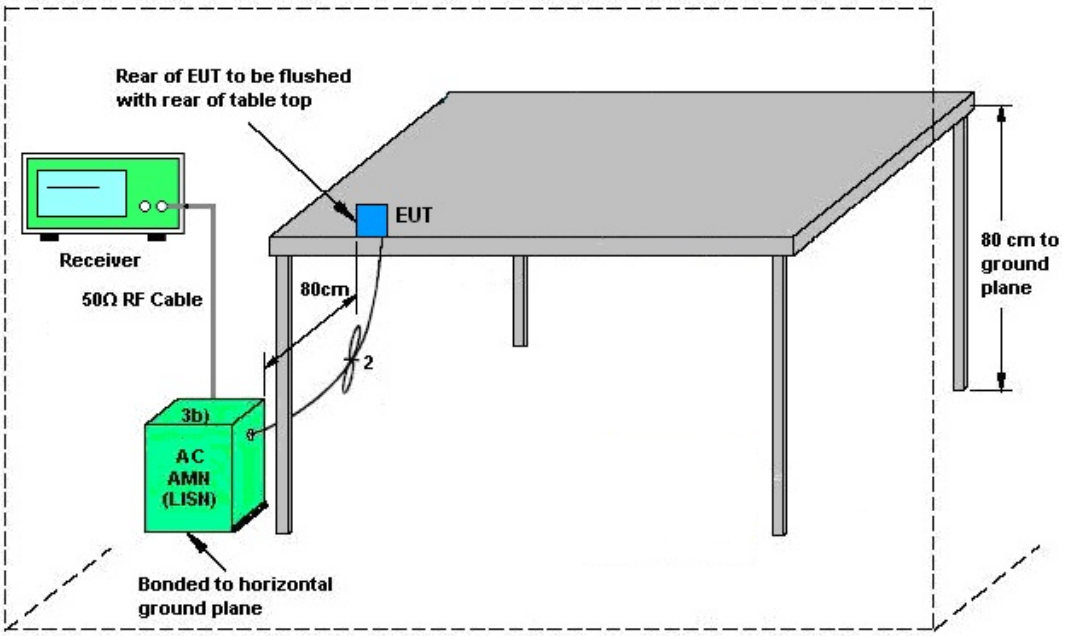
3.6.2 Measuring Instruments

The measuring equipment is listed in the section 4 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



AMN = Artificial mains network (LISN)
AE = Associated equipment
EUT = Equipment under test
ISN = Impedance stabilization network

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	2.00	2.00	2.00	5.01	0.00	0.00

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

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

4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSV40	101078	10Hz~40GHz	Apr. 06, 2023	Dec. 13, 2023	Apr. 05, 2024	Conducted (TH01-SZ)
Pulse Power Senor	Anritsu	MA2411B	1339473	30MHz~40GHz	Dec. 27, 2022	Dec. 13, 2023	Dec. 26, 2023	Conducted (TH01-SZ)
Power Meter	Anritsu	ML2495A	1218010	50MHz Bandwidth	Aug. 21, 2023	Dec. 13, 2023	Aug. 20, 2024	Conducted (TH01-SZ)
EMI Test Receiver&SA	Agilent	N9038A	MY52260185	20Hz~26.5GHz	Dec. 26, 2022	Dec. 25, 2023~ Feb. 27, 2024	Dec. 25, 2023	Radiation (03CH01-SZ)
EMI Test Receiver&SA	Agilent	N9038A	MY52260185	20Hz~26.5GHz	Dec. 27, 2023		Dec. 26, 2024	Radiation (03CH01-SZ)
EXA Spectrum Analyzer	KEYSIGHT	N9010A	MY55150213	10Hz~44GHz	Jul. 07, 2023	Dec. 25, 2023~ Feb. 27, 2024	Jul. 06, 2024	Radiation (03CH01-SZ)
Loop Antenna	R&S	HFH2-Z2	100354	9kHz~30MHz	Jul. 28, 2022	Dec. 25, 2023~ Feb. 27, 2024	Jul. 27, 2024	Radiation (03CH01-SZ)
Bilog Antenna	TeseQ	CBL6112D	35407	30MHz-2GHz	Oct. 24, 2023	Dec. 25, 2023~ Feb. 27, 2024	Oct. 23, 2024	Radiation (03CH01-SZ)
Double Ridge Horn Antenna	ETS-Lindgren	3117	00119436	1GHz~18GHz	Jul. 08, 2023	Dec. 25, 2023~ Feb. 27, 2024	Jul. 07, 2024	Radiation (03CH01-SZ)
SHF-EHF Horn	com-power	AH-840	101071	18Ghz-40GHz	Apr. 08, 2023	Dec. 25, 2023~ Feb. 27, 2024	Apr. 07, 2024	Radiation (03CH01-SZ)
LF Amplifier	Burgeon	BPA-530	102209	0.01~3000Mhz	Apr. 04, 2023	Dec. 25, 2023~ Feb. 27, 2024	Apr. 03, 2024	Radiation (03CH01-SZ)
HF Amplifier	MITEQ	AMF-7D-00101800-30-10P-R	1943528	1GHz~18GHz	Oct. 18, 2023	Dec. 25, 2023~ Feb. 27, 2024	Oct. 17, 2024	Radiation (03CH01-SZ)
HF Amplifier	KEYSIGHT	83017A	MY53270105	0.5GHz~26.5Ghz	Oct. 18, 2023	Dec. 25, 2023~ Feb. 27, 2024	Oct. 17, 2024	Radiation (03CH01-SZ)
HF Amplifier	MITEQ	TTA1840-35-HG	1871923	18GHz~40GHz	Jul. 07, 2023	Dec. 25, 2023~ Feb. 27, 2024	Jul. 06, 2024	Radiation (03CH01-SZ)
AC Power Source	Chroma	61601	616010001985	N/A	Oct. 18, 2023	Dec. 25, 2023~ Feb. 27, 2024	Oct. 17, 2024	Radiation (03CH01-SZ)
Turn Table	EM	EM1000	N/A	0~360 degree	NCR	Dec. 25, 2023~ Feb. 27, 2024	NCR	Radiation (03CH01-SZ)
Antenna Mast	EM	EM1000	N/A	1 m~4 m	NCR	Dec. 25, 2023~ Feb. 27, 2024	NCR	Radiation (03CH01-SZ)
EMI Receiver	R&S	ESR7	101630	9kHz~7GHz;	Jul. 06, 2023	Nov. 29, 2023	Jul. 05, 2024	Conduction (CO01-SZ)
AC LISN	R&S	ENV216	100063	9kHz~30MHz	Aug. 21, 2023	Nov. 29, 2023	Aug. 20, 2024	Conduction (CO01-SZ)
AC LISN (for auxiliary equipment)	EMCO	3816/2SH	00103892	9kHz~30MHz	Oct. 16, 2023	Nov. 29, 2023	Oct. 15, 2024	Conduction (CO01-SZ)
AC Power Source	Chroma	61602	616020000891	100Vac~250Vac	Jul. 07, 2023	Nov. 29, 2023	Jul. 06, 2024	Conduction (CO01-SZ)

NCR: No Calibration Required

5 Measurement Uncertainty

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI 63.10-2013. All the measurement uncertainty value were shown with a coverage K=2 to indicate 95% level of confidence. The measurement data show herein meets or exceeds the CISPR measurement uncertainty values specified in CISPR 16-4-2 and can be compared directly to specified limit to determine compliance.

Uncertainty of Conducted Measurement

Test Item	Uncertainty
Conducted Spurious Emission & Bandedge	±1.34 dB
Occupied Channel Bandwidth	±0.1%
Conducted Power	±1.34 dB
Conducted Power Spectral Density	±1.32 dB
Frequency	±1.3 Hz

Uncertainty of AC Conducted Emission Measurement (0.15 MHz ~ 30 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	2.7 dB

Uncertainty of Radiated Emission Measurement (9 KHz ~ 30 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	2.8 dB

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	4.2 dB

Uncertainty of Radiated Emission Measurement (1 GHz ~ 18 GHz)

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

Uncertainty of Radiated Emission Measurement (18 GHz ~ 40 GHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	4.3 dB

---------- THE END ----------

Appendix A. Conducted Test Results

Report Number : FR3N1401A

Test Engineer:	Sam Zheng	Temperature:	24~26	°C
Test Date:	2023/12/13	Relative Humidity:	50~53	%

<CDD mode>:

Report Number : FR3N1401A

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	Setting
					Ant1	Ant 2	SUM	Ant1	Ant 2	Ant1	Ant 2	Ant1	Ant 2	Ant1	Ant 2		Ant1 / Ant 2
11b	1Mbps	2	1	2412	21.70	22.00	24.86	30.00		2.00		26.86		36.00		Pass	20.00
11b	1Mbps	2	6	2437	22.40	23.10	25.77	30.00		2.00		27.77		36.00		Pass	21.00
11b	1Mbps	2	11	2462	21.80	22.10	24.96	30.00		2.00		26.96		36.00		Pass	20.00
11g	6Mbps	2	1	2412	18.00	18.00	21.01	30.00		2.00		23.01		36.00		Pass	17.00
11g	6Mbps	2	2	2417	20.60	20.70	23.66	30.00		2.00		25.66		36.00		Pass	19.50
11g	6Mbps	2	6	2437	21.70	22.50	25.13	30.00		2.00		27.13		36.00		Pass	21.00
11g	6Mbps	2	10	2457	19.30	20.00	22.67	30.00		2.00		24.67		36.00		Pass	18.50
11g	6Mbps	2	11	2462	17.30	17.30	20.31	30.00		2.00		22.31		36.00		Pass	16.00
HT20	MCS0	2	1	2412	17.10	17.10	20.11	30.00		2.00		22.11		36.00		Pass	16.00
HT20	MCS0	2	2	2417	20.50	20.80	23.66	30.00		2.00		25.66		36.00		Pass	19.50
HT20	MCS0	2	6	2437	20.90	21.60	24.27	30.00		2.00		26.27		36.00		Pass	20.00
HT20	MCS0	2	10	2457	19.40	20.10	22.77	30.00		2.00		24.77		36.00		Pass	18.50
HT20	MCS0	2	11	2462	17.40	17.40	20.41	30.00		2.00		22.41		36.00		Pass	16.00
HT40	MCS0	2	3	2422	15.90	15.90	18.91	30.00		2.00		20.91		36.00		Pass	15.00
HT40	MCS0	2	6	2437	17.40	18.00	20.72	30.00		2.00		22.72		36.00		Pass	16.50
HT40	MCS0	2	9	2452	15.80	16.40	19.12	30.00		2.00		21.12		36.00		Pass	15.00

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

Report Number : FR3N1401A

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	Setting
						Ant1	Ant 2	SUM	Ant1	Ant 2	Ant1	Ant 2	Ant1	Ant 2	Ant1	Ant 2		Ant1 / Ant 2
HE20	MCS0	2	1	2412	Full	17.20	17.30	20.26	30.00		2.00		22.26		36.00		Pass	16.00
HE20	MCS0	2	2	2417	Full	20.60	20.90	23.76	30.00		2.00		25.76		36.00		Pass	19.50
HE20	MCS0	2	6	2437	Full	21.90	22.70	25.33	30.00		2.00		27.33		36.00		Pass	21.00
HE20	MCS0	2	10	2457	Full	19.50	20.20	22.87	30.00		2.00		24.87		36.00		Pass	18.50
HE20	MCS0	2	11	2462	Full	17.50	17.50	20.51	30.00		2.00		22.51		36.00		Pass	16.00
HE40	MCS0	2	3	2422	Full	17.00	17.00	20.01	30.00		2.00		22.01		36.00		Pass	16.00
HE40	MCS0	2	6	2437	Full	17.50	18.10	20.82	30.00		2.00		22.82		36.00		Pass	16.50
HE40	MCS0	2	9	2452	Full	16.40	17.00	19.72	30.00		2.00		21.72		36.00		Pass	15.50

Note: Measured power (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)	99% Occupied BW (MHz)		6dB BW (MHz)		6dB BW Limit (MHz)	Pass/Fail
					Ant1	Ant 2	Ant1	Ant 2		
11b	1Mbps	2	1	2412	13.54	13.79	9.06	8.58	0.50	Pass
11b	1Mbps	2	6	2437	13.89	14.94	9.12	9.58	0.50	Pass
11b	1Mbps	2	11	2462	14.79	15.23	9.10	9.58	0.50	Pass
11g	6Mbps	2	1	2412	16.78	16.53	15.48	15.18	0.50	Pass
11g	6Mbps	2	6	2437	21.58	23.78	15.18	15.16	0.50	Pass
11g	6Mbps	2	11	2462	16.78	16.58	15.16	15.16	0.50	Pass

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	Ant 2	Ant1	Ant 2		
HE20	MCS0	2	1	2412	Full	18.83	18.83	18.60	18.63	0.50	Pass
HE20	MCS0	2	6	2437	Full	20.88	24.83	18.00	18.08	0.50	Pass
HE20	MCS0	2	11	2462	Full	19.08	19.18	18.45	18.43	0.50	Pass
HE40	MCS0	2	3	2422	Full	37.96	37.86	36.96	35.20	0.50	Pass
HE40	MCS0	2	6	2437	Full	38.16	38.36	35.96	35.24	0.50	Pass
HE40	MCS0	2	9	2452	Full	37.86	37.86	37.04	35.24	0.50	Pass

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	Ant 2	Worse + 3.01	Ant1	Ant 2	Ant1	Ant 2	
11b	1Mbps	2	1	2412	-0.78	-0.15	2.86	5.01		8.00		Pass
11b	1Mbps	2	6	2437	-0.21	-0.24	2.80	5.01		8.00		Pass
11b	1Mbps	2	11	2462	-0.39	-0.15	2.86	5.01		8.00		Pass
11g	6Mbps	2	1	2412	-5.96	-5.27	-2.26	5.01		8.00		Pass
11g	6Mbps	2	6	2437	-2.99	-2.43	0.58	5.01		8.00		Pass
11g	6Mbps	2	11	2462	-6.80	-7.61	-3.79	5.01		8.00		Pass

Measured power density (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	Ant 2	Worse + 3.01	Ant1	Ant 2	Ant1	Ant 2	
HE20	MCS0	2	1	2412	Full	-8.61	-7.52	-4.51	5.01		8.00		Pass
HE20	MCS0	2	6	2437	Full	-3.97	-3.22	-0.21	5.01		8.00		Pass
HE20	MCS0	2	11	2462	Full	-8.38	-8.46	-5.37	5.01		8.00		Pass
HE40	MCS0	2	3	2422	Full	-12.16	-11.28	-8.27	5.01		8.00		Pass
HE40	MCS0	2	6	2437	Full	-10.60	-8.74	-5.73	5.01		8.00		Pass
HE40	MCS0	2	9	2452	Full	-12.05	-12.09	-9.04	5.01		8.00		Pass

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

<TXBF mode>:

Report Number : FR3N1401A

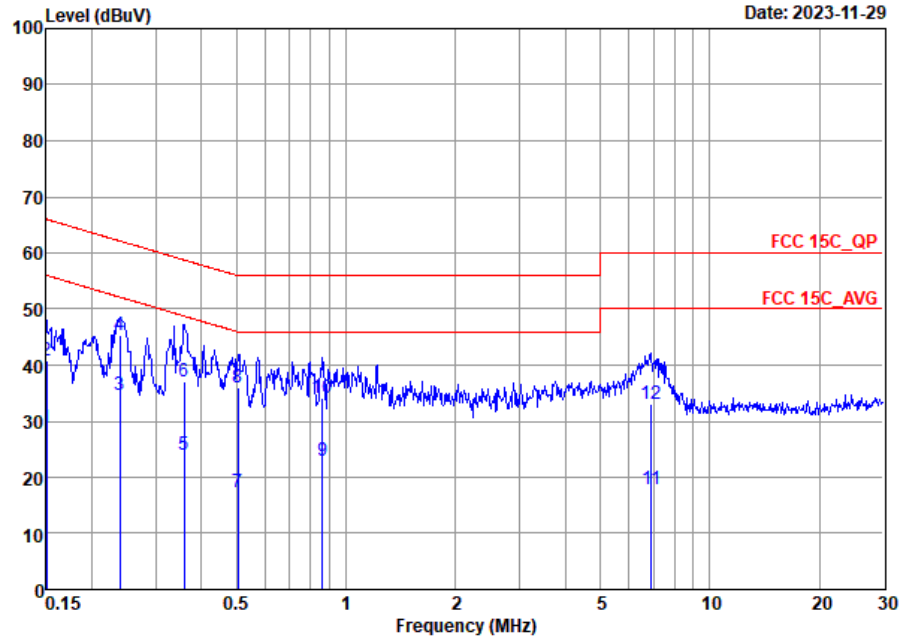
TEST RESULTS DATA
Average Output Power

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	Setting
						Ant1	Ant 2	SUM	Ant1	Ant 2	Ant1	Ant 2	Ant1	Ant 2	Ant1	Ant 2		Ant1 / Ant 2
HE20	MCS0	2	1	2412	Full	17.20	17.30	20.26	30.00		5.01		25.27		36.00		Pass	16.00
HE20	MCS0	2	2	2417	Full	20.60	20.90	23.76	30.00		5.01		28.77		36.00		Pass	19.50
HE20	MCS0	2	6	2437	Full	21.90	22.70	25.33	30.00		5.01		30.34		36.00		Pass	21.00
HE20	MCS0	2	10	2457	Full	19.50	20.20	22.87	30.00		5.01		27.88		36.00		Pass	18.50
HE20	MCS0	2	11	2462	Full	17.50	17.50	20.51	30.00		5.01		25.52		36.00		Pass	16.00
HE40	MCS0	2	3	2422	Full	17.00	17.00	20.01	30.00		5.01		25.02		36.00		Pass	16.00
HE40	MCS0	2	6	2437	Full	17.50	18.10	20.82	30.00		5.01		25.83		36.00		Pass	16.50
HE40	MCS0	2	9	2452	Full	16.40	17.00	19.72	30.00		5.01		24.73		36.00		Pass	15.50

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

Appendix B. AC Conducted Emission Test Results

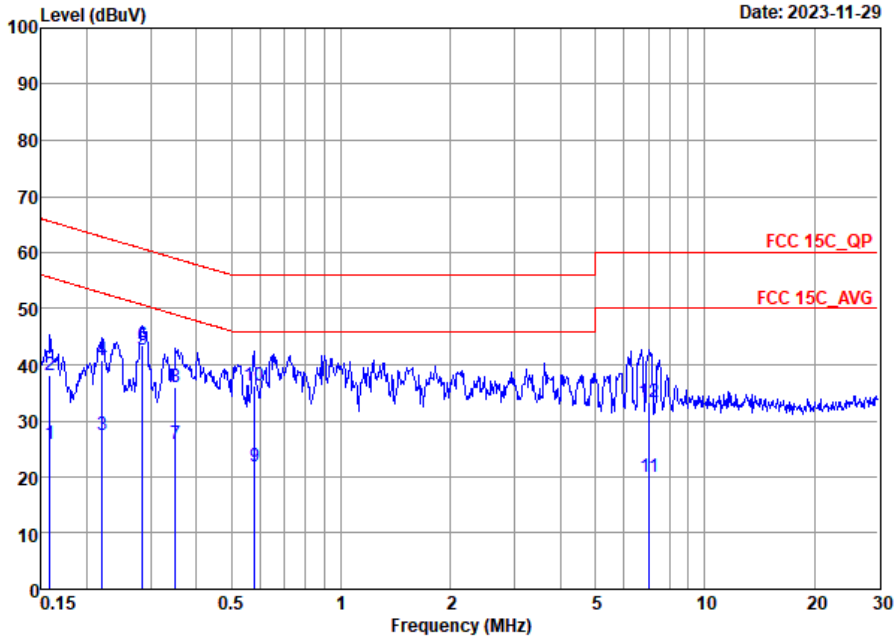
Test Engineer :	FangMing Liang	**Temperature :**	22~24℃
		Relative Humidity :	44~50%
Test Voltage :	120Vac / 60Hz	**Phase :**	Line
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Site : CO01-SZ
Condition: FCC 15C_QP AC LISN 100063_L LINE

		Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
		MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1		0.15	28.72	-27.28	56.00	8.20	10.39	10.13	Average
2		0.15	40.72	-25.28	66.00	20.20	10.39	10.13	QP
3		0.24	34.65	-17.48	52.13	14.30	10.20	10.15	Average
4	*	0.24	45.45	-16.68	62.13	25.10	10.20	10.15	QP
5		0.36	24.03	-24.71	48.74	3.60	10.27	10.16	Average
6		0.36	37.03	-21.71	58.74	16.60	10.27	10.16	QP
7		0.50	17.21	-28.79	46.00	-3.20	10.25	10.16	Average
8		0.50	36.11	-19.89	56.00	15.70	10.25	10.16	QP
9		0.86	23.01	-22.99	46.00	2.50	10.35	10.16	Average
10		0.86	34.11	-21.89	56.00	13.60	10.35	10.16	QP
11		6.91	17.80	-32.20	50.00	-3.00	10.44	10.36	Average
12		6.91	33.11	-26.89	60.00	12.31	10.44	10.36	QP

Test Engineer :	FangMing Liang	**Temperature :**	22~24℃
		Relative Humidity :	44~50%
Test Voltage :	120Vac / 60Hz	**Phase :**	Neutral
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Site : CO01-SZ
Condition: FCC 15C_QP AC LISN 100063_N NEUTRAL

		Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
		MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1		0.16	25.82	-29.74	55.56	5.39	10.29	10.14	Average
2		0.16	38.12	-27.44	65.56	17.69	10.29	10.14	QP
3		0.22	27.37	-25.42	52.79	7.00	10.22	10.15	Average
4		0.22	40.67	-22.12	62.79	20.30	10.22	10.15	QP
5	*	0.28	42.54	-8.14	50.68	22.00	10.39	10.15	Average
6		0.28	43.44	-17.24	60.68	22.90	10.39	10.15	QP
7		0.35	25.99	-22.97	48.96	5.50	10.33	10.16	Average
8		0.35	35.99	-22.97	58.96	15.50	10.33	10.16	QP
9		0.58	21.91	-24.09	46.00	1.60	10.15	10.16	Average
10		0.58	36.21	-19.79	56.00	15.90	10.15	10.16	QP
11		7.02	20.02	-29.98	50.00	-0.60	10.26	10.36	Average
12		7.02	33.32	-26.68	60.00	12.70	10.26	10.36	QP

Note:

1. Level(dBμV) = Read Level(dBμV) + LISN Factor(dB) + Cable Loss(dB)
2. Over Limit(dB) = Level(dBμV) – Limit Line(dBμV)

Appendix C. Radiated Spurious Emission

Test Engineer :	Shiwei Wen	Relative Humidity :	48~49%
		Temperature :	24~25℃

Radiated Spurious Emission Test Modes

Mode	Band (MHz)	Antenna	Modulation	Channel	Frequency	Data Rate	RU	Remark
Mode 1	2400-2483.5	CDD 1+2	802.11b	1	2412	1Mbps	-	-
Mode 2	2400-2483.5	CDD 1+2	802.11b	6	2437	1Mbps	-	-
Mode 3	2400-2483.5	CDD 1+2	802.11b	11	2462	1Mbps	-	-
Mode 4	2400-2483.5	CDD 1+2	802.11g	1	2412	6Mbps	-	-
Mode 5	2400-2483.5	CDD 1+2	802.11g	6	2437	6Mbps	-	-
Mode 6	2400-2483.5	CDD 1+2	802.11g	11	2462	6Mbps	-	-
Mode 7	2400-2483.5	CDD 1+2	802.11 n 20	1	2412	MCS0	-	-
Mode 8	2400-2483.5	CDD 1+2	802.11 n 20	6	2437	MCS0	-	-
Mode 9	2400-2483.5	CDD 1+2	802.11 n 20	11	2462	MCS0	-	-
Mode 10	2400-2483.5	CDD 1+2	802.11n 40	3	2422	MCS0	-	-
Mode 11	2400-2483.5	CDD 1+2	802.11 n 40	6	2437	MCS0	-	-
Mode 12	2400-2483.5	CDD 1+2	802.11 n 40	9	2452	MCS0	-	-
Mode 13	2400-2483.5	CDD 1+2	802.11 ax 20	1	2412	MCS0	Full	-
Mode 14	2400-2483.5	CDD 1+2	802.11 ax 20	6	2437	MCS0	Full	-
Mode 15	2400-2483.5	CDD 1+2	802.11 ax 20	11	2462	MCS0	Full	-
Mode 16	2400-2483.5	CDD 1+2	802.11 ax 40	3	2422	MCS0	Full	-
Mode 17	2400-2483.5	CDD 1+2	802.11 ax 40	6	2437	MCS0	Full	-
Mode 18	2400-2483.5	CDD 1+2	802.11 ax 40	9	2452	MCS0	Full	-
Mode 19	2400-2483.5	CDD 1+2	802.11g	1	2412	6Mbps	-	LF
Mode 21	2400-2483.5	CDD 1+2	802.11g	2	2417	6Mbps	-	-
Mode 22	2400-2483.5	CDD 1+2	802.11g	10	2457	6Mbps	-	-
Mode 23	2400-2483.5	CDD 1+2	802.11 n 20	2	2417	MCS0	-	-
Mode 24	2400-2483.5	CDD 1+2	802.11 n 20	10	2457	MCS0	-	-
Mode 25	2400-2483.5	CDD 1+2	802.11 ax 20	2	2417	MCS0	Full	-
Mode 26	2400-2483.5	CDD 1+2	802.11 ax 20	10	2457	MCS0	Full	-

Summary of each worse mode

Mode	Modulation	Ch.	Freq. (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Pol.	Peak Avg.	Result	Remark
1	802.11b	1	2385.29	52.63	54.00	-1.37	V	Average	Pass	Band Edge
	802.11b	1	4824.00	45.07	74.00	-28.93	V	Peak	Pass	Harmonic
2	802.11b	6	2483.55	49.23	54.00	-4.77	V	Average	Pass	Band Edge
	802.11b	6	7311.00	48.20	74.00	-25.80	H	Peak	Pass	Harmonic
3	802.11b	11	2490.28	50.83	54.00	-3.17	V	Average	Pass	Band Edge
	802.11b	11	7386.00	47.57	74.00	-26.43	V	Peak	Pass	Harmonic
4	802.11g	1	2388.62	53.19	54.00	-0.81	V	Average	Pass	Band Edge
	802.11g	1	4824.00	45.25	74.00	-28.75	H	Peak	Pass	Harmonic
5	802.11g	6	2389.52	50.55	54.00	-3.45	V	Average	Pass	Band Edge
	802.11g	6	7311.00	47.06	74.00	-26.94	V	Peak	Pass	Harmonic
6	802.11g	11	2485.14	72.63	74.00	-1.37	V	Peak	Pass	Band Edge
	802.11g	11	7386.00	48.80	74.00	-25.20	V	Peak	Pass	Harmonic
7	802.11 n 20	1	2389.91	50.60	54.00	-3.40	V	Average	Pass	Band Edge
	802.11 n 20	1	4824.00	46.46	74.00	-27.54	V	Peak	Pass	Harmonic
8	802.11 n 20	6	2484.39	52.08	54.00	-1.92	V	Average	Pass	Band Edge
	802.11 n 20	6	7311.00	47.72	74.00	-26.28	H	Peak	Pass	Harmonic
9	802.11 n 20	11	2486.93	70.52	74.00	-3.48	V	Peak	Pass	Band Edge
	802.11 n 20	11	7386.00	48.66	74.00	-25.34	V	Peak	Pass	Harmonic
10	802.11n 40	3	2389.38	52.96	54.00	-1.04	V	Average	Pass	Band Edge
	802.11n 40	3	7266.00	47.37	74.00	-26.63	V	Peak	Pass	Harmonic
11	802.11 n 40	6	2385.74	51.91	54.00	-2.09	V	Average	Pass	Band Edge
	802.11 n 40	6	7311.00	47.47	74.00	-26.53	V	Peak	Pass	Harmonic
12	802.11 n 40	9	2484.25	52.09	54.00	-1.91	V	Average	Pass	Band Edge
	802.11 n 40	9	7356.00	49.16	74.00	-24.84	V	Peak	Pass	Harmonic
13	802.11 ax 20	1	2387.22	69.80	74.00	-4.20	V	Peak	Pass	Band Edge
	802.11 ax 20	1	4824.00	44.88	74.00	-29.12	H	Peak	Pass	Harmonic

Mode	Modulation	Ch.	Freq. (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Pol.	Peak Avg.	Result	Remark
14	802.11 ax 20	6	2388.54	52.66	54.00	-1.34	V	Average	Pass	Band Edge
14	802.11 ax 20	6	7311.00	47.62	74.00	-26.38	H	Peak	Pass	Harmonic
15	802.11 ax 20	11	2483.55	50.11	54.00	-3.89	V	Average	Pass	Band Edge
15	802.11 ax 20	11	7386.00	49.03	74.00	-24.97	H	Peak	Pass	Harmonic
16	802.11 ax 40	3	2385.74	49.70	54.00	-4.30	V	Average	Pass	Band Edge
16	802.11 ax 40	3	-	-	-	-	-	-	-	Harmonic
17	802.11 ax 40	6	2385.74	69.42	74.00	-4.58	V	Peak	Pass	Band Edge
	802.11 ax 40	6	-	-	-	-	-	-	-	Harmonic
18	802.11 ax 40	9	2488.03	72.82	74.00	-1.18	V	Peak	Pass	Band Edge
18	802.11 ax 40	9	-	-	-	-	-	-	-	Harmonic
19	802.11g	1	772.05	30.83	46	-15.17	V	Peak	Pass	LF
21	802.11g	2	2386.40	53.02	54.00	-0.98	V	Average	Pass	Band Edge
21	802.11g	2	-	-	-	-	-	-	-	Harmonic
22	802.11g	10	2483.60	53.25	54.00	-0.75	V	Average	Pass	Band Edge
22	802.11g	10	-	-	-	-	-	-	-	Harmonic
23	802.11 n 20	2	2388.16	52.94	54.00	-1.06	V	Average	Pass	Band Edge
23	802.11 n 20	2	-	-	-	-	-	-	-	Harmonic
24	802.11 n 20	10	2484.10	52.64	54.00	-1.36	V	Average	Pass	Band Edge
24	802.11 n 20	10	-	-	-	-	-	-	-	Harmonic
25	802.11 ax 20	2	2389.91	53.01	54.00	-0.99	V	Average	Pass	Band Edge
25	802.11 ax 20	2	-	-	-	-	-	-	-	Harmonic
26	802.11 ax 20	10	2484.00	53.26	54.00	-0.74	V	Average	Pass	Band Edge
26	802.11 ax 20	10	-	-	-	-	-	-	-	Harmonic