FCC RF Test Report

APPLICANT	:	TP-LINK CORPORATION PTE. LTD.,
EQUIPMENT	:	AX1500 Wi-Fi 6 Portable Router
BRAND NAME	:	tp-link
MODEL NAME	:	TL-WR1502X
FCC ID	:	2BCGWWR1502X
STANDARD	:	FCC Part 15 Subpart C §15.247
CLASSIFICATION	:	(DTS) Digital Transmission System
TEST DATE(S)	:	Nov. 14, 2023 ~ Dec. 01, 2023

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
FR3N0708A	Rev. 01	Initial issue of report	Dec. 19, 2023

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 0.42 dB at 2390.00 MHz
3.6	15.207	AC Conducted Emission	15.207(a)	Pass	Under limit 5.08 dB at 0.70 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	AX1500 Wi-Fi 6 Portable Router
Brand Name	tp-link
Model Name	TL-WR1502X
FCC ID	2BCGWWR1502X
SN	Conducted: T23C026000001 Conduction/Radiation: T23C026000002
HW Version	V1.0
SW Version	1.0.0 Build 20231018 rel.70140
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 : 25.56 dBm (0.3597 W) 802.11g : 25.26 dBm (0.3357 W) 802.11n HT20 : 25.36 dBm (0.3436 W) 802.11n HT40 : 20.16 dBm (0.1038 W)
99% Occupied Bandwidth	802.11b : 14.34MHz 802.11g : 19.98MHz 802.11n HT20 : 23.23MHz 802.11n HT40 : 35.76MHz
Antenna Type	PIFA Antenna
Type of Modulation	802.11b : DSSS (DBPSK / DQPSK / CCK) 802.11g/n: OFDM (BPSK / QPSK / 16QAM / 64QAM)

Note:

1. The device supports WLAN MIMO CDD mode.
2. For WLAN SISO & MIMO mode, the whole testing has assessed only MIMO mode by referring to the higher normal output power.

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.**
	03CH03-SZ	CN1256	421272

1.7 Test Software

Item	Site	Manufacturer	Name	Version
1.	03CH03-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.

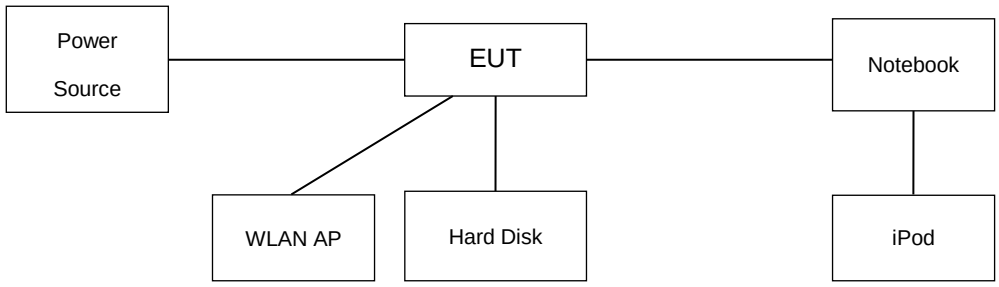
MIMO Antenna

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

Test Cases	
AC Conducted Emission	Mode 1 :WIFI(2.4G) Link + WAN Link + LAN Link + USB Link with Hard Disk (Data from Notebook to Hard Disk) via EUT + USB Cable (Powered by Adapter)
Remark: For Radiated Test Cases, the tests were performed with Adapter and USB Cable.	

2.3 Connection Diagram of Test System

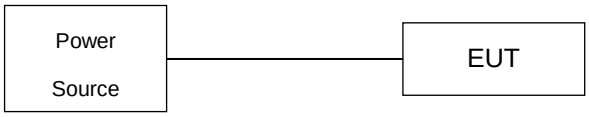
For Conducted Emission:



This example is connection diagram of EUT test configurations.

For detail, please refer to test mode configuration and setup photographs for each test item.

For Radiated Emission:



This example is connection diagram of EUT test configurations.

For detail, please refer to test mode configuration and setup photographs for each test item.

2.4 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	WLAN AP	D-Link	DIR-820L	KA2IR820LA1	N/A	Unshielded, 1.8m
2.	Notebook	Lenovo	E540	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
3.	Hard Disk	N/A	N/A	N/A	N/A	N/A
4.	iPod	Apple	MC69029/A	N/A	N/A	N/A
5.	RJ45 Cable	N/A	N/A	N/A	N/A	N/A

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 WLAN AP 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 1.50 dB and 10dB attenuator.

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

= 1.50 + 10 = 11.50 (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.

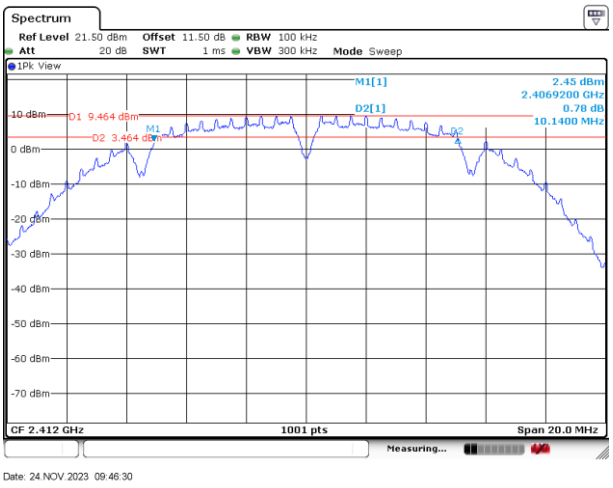
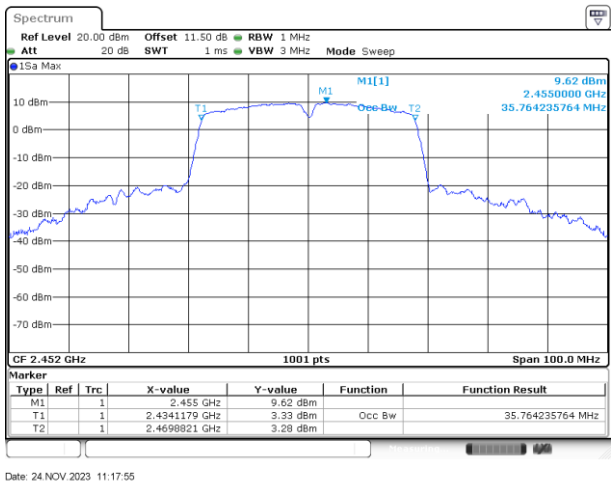
3.1.3 Test Procedures

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) ≥ 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.

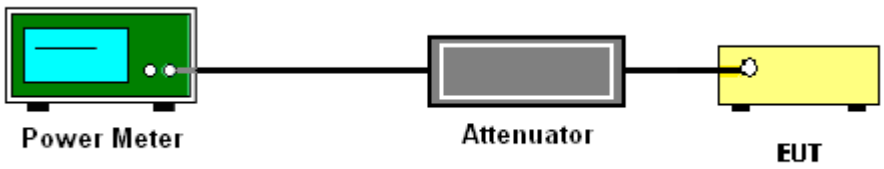
3.2.2 Measuring Instruments

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 11.9.2.3.1 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 (a): 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.

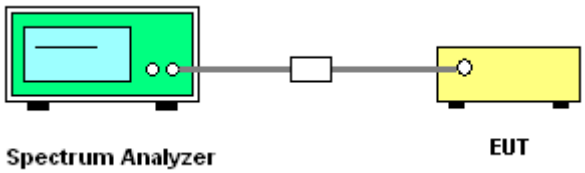
   Method (b): Measure and sum spectral maxima across the outputs.

   The measurement on each individual output were performed with the same span and number on each individual output. The maximum value (peak) of each spectrum is determined. These maximum values are then summed mathematically in linear power units across the outputs.

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

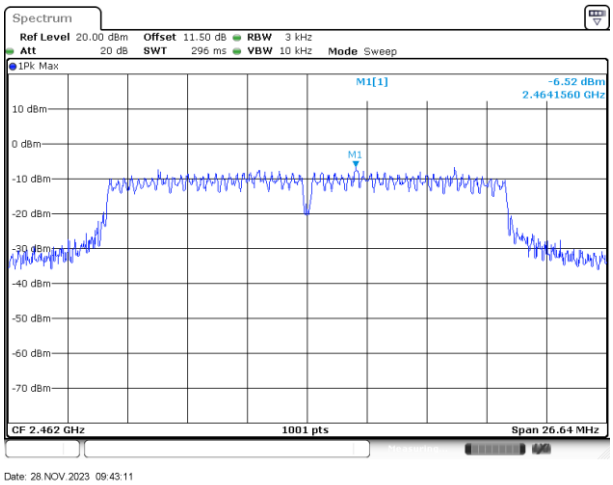
   The measurement on each individual output were performed with the same span and number on each individual output. The quantity 10 log(N_{ANT}) dB is added to each spectrum value before comparing to the emission limit.

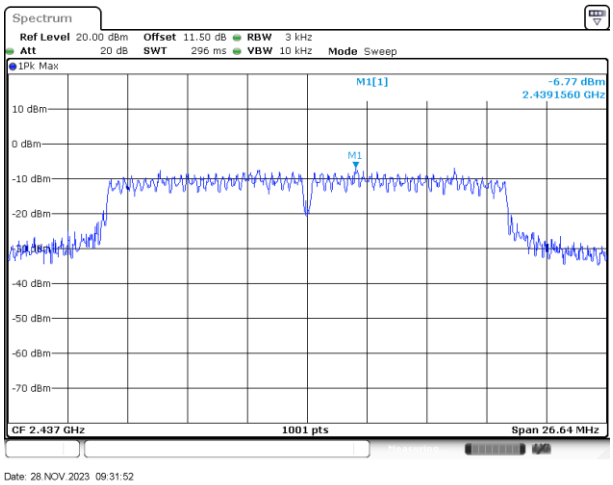
3.3.4 Test Setup



3.3.5 Test Result of Power Spectral Density

Please refer to Appendix A.

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


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


3.4 Conducted Band Edges and Spurious Emission Measurement

3.4.1 Limit of Conducted Band Edges and Spurious Emission Measurement

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

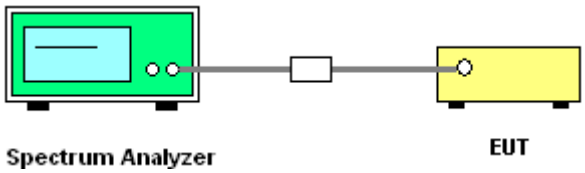
3.4.2 Measuring Instruments

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

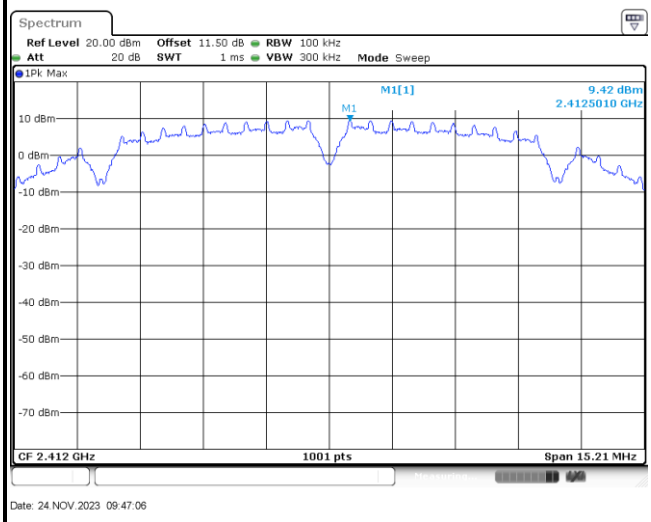
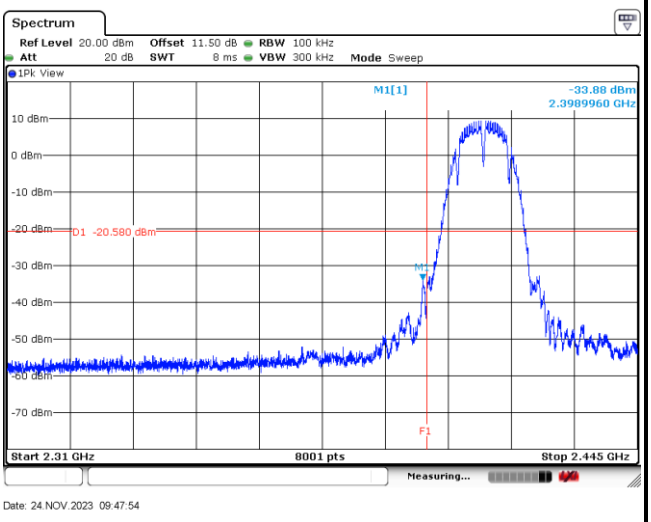
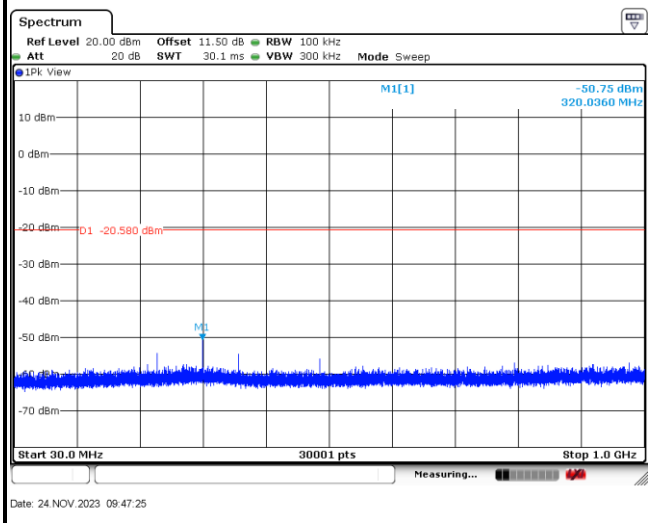
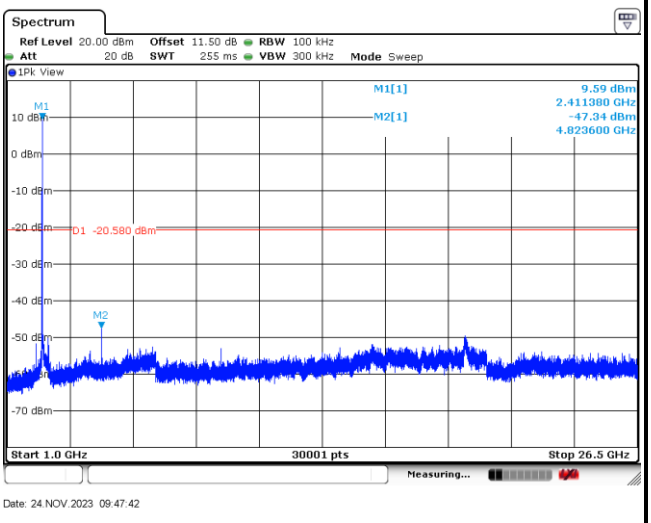


3.4.5 Test Result of Conducted Band Edges and Spurious Emission

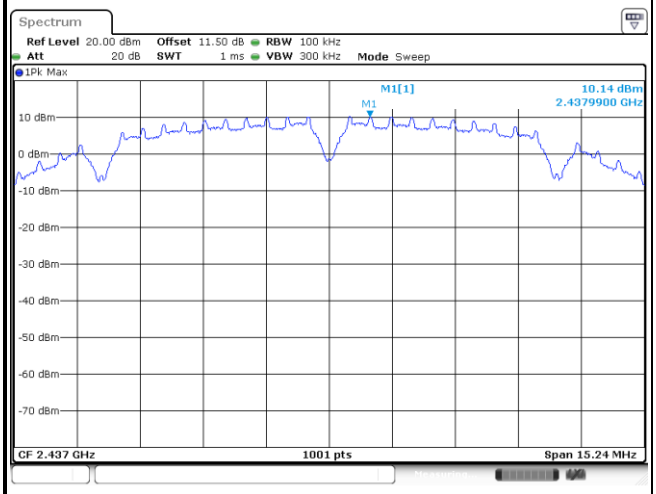
Test Engineer :	Liu Qiu Qiu	**Temperature :**	21~25℃
		Relative Humidity :	51~54%

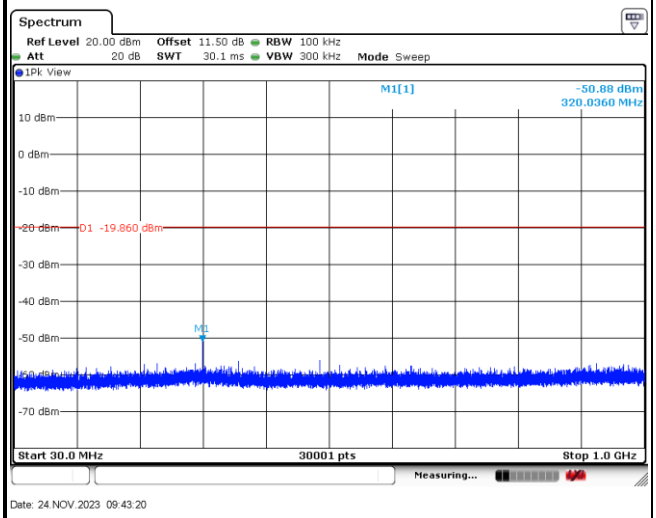
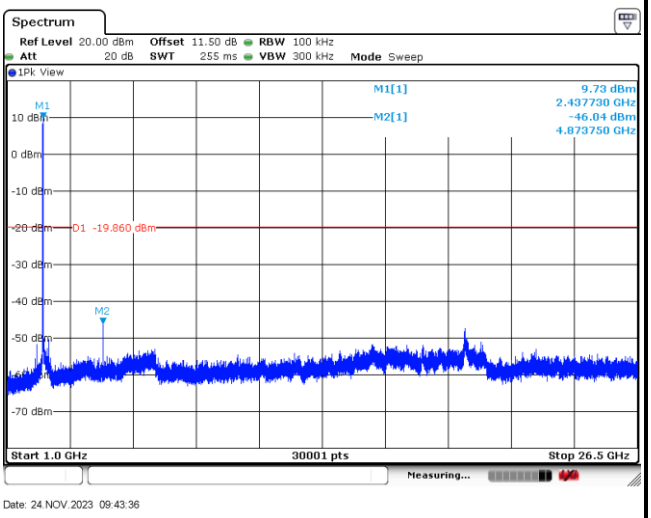
Number of TX = 2, Ant. 1 (Measured)

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

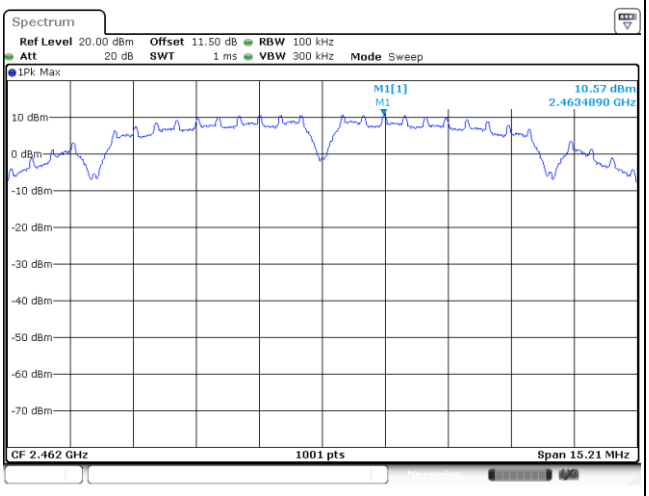
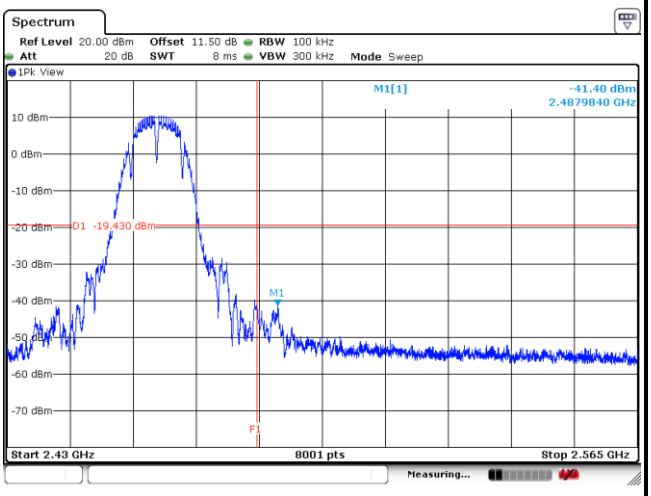
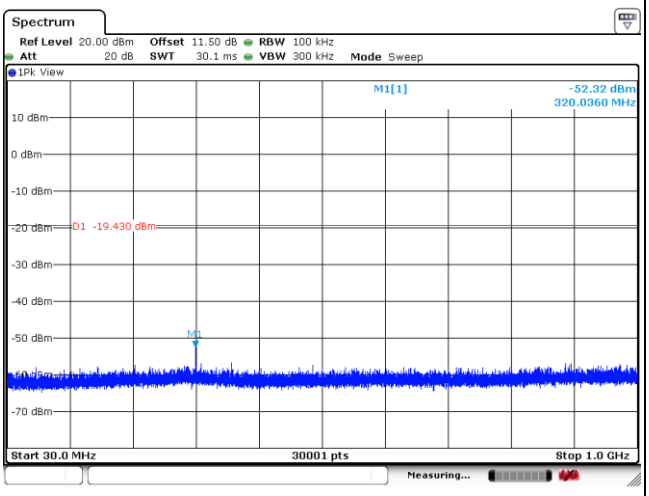
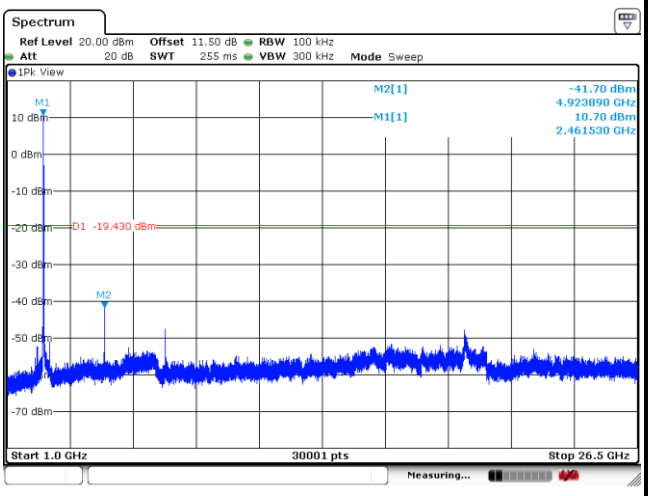
100kHz PSD reference Level	Channel Plot
	
Spurious Emission Plot-1	**Spurious Emission Plot-2**
	

Test Mode :	802.11b	Test Channel :	06

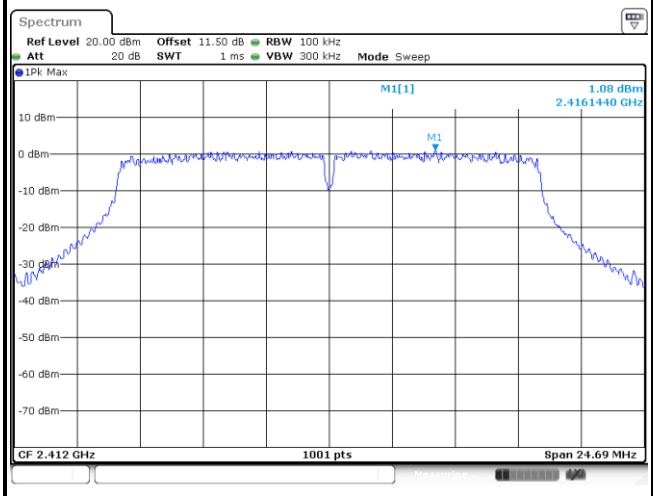
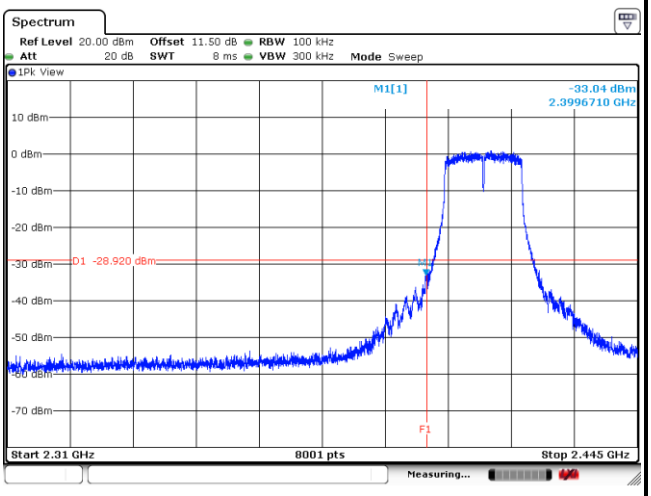
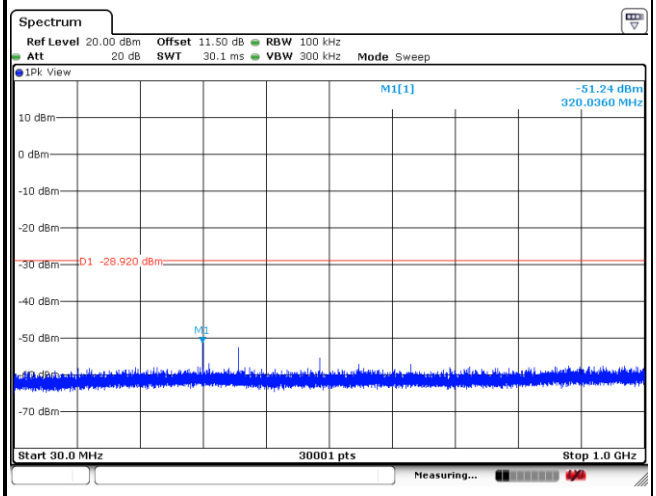
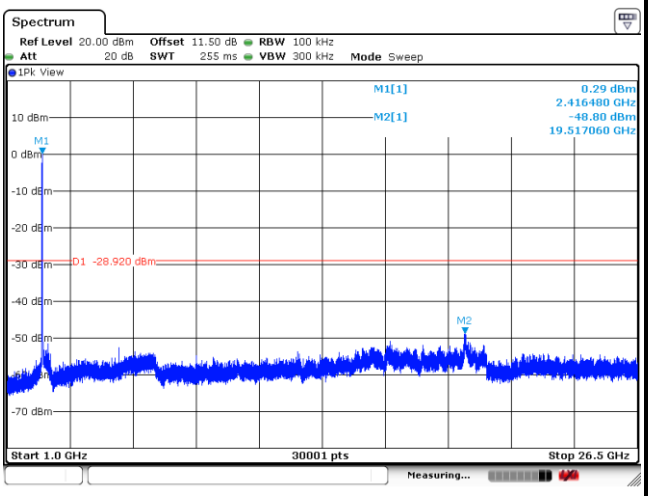
100kHz PSD reference Level	-
	-

Spurious Emission Plot-1	Spurious Emission Plot-2
	

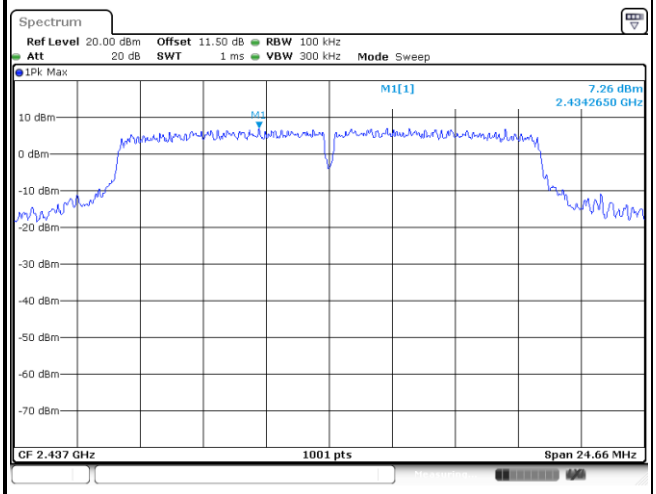
Test Mode :	802.11b	Test Channel :	11

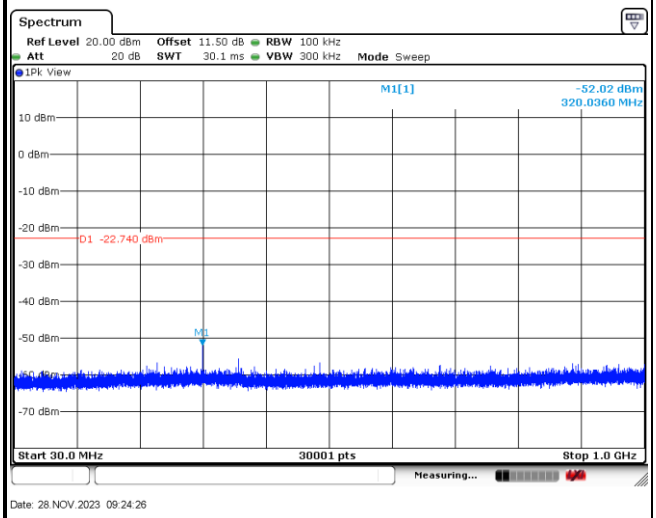
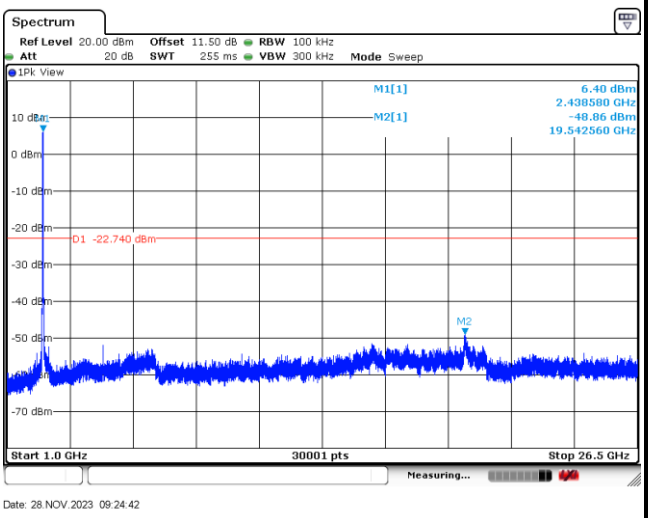
100kHz PSD reference Level	Channel Plot
	
Spurious Emission Plot-1	**Spurious Emission Plot-2**
	

Test Mode :	802.11g	Test Channel :	01

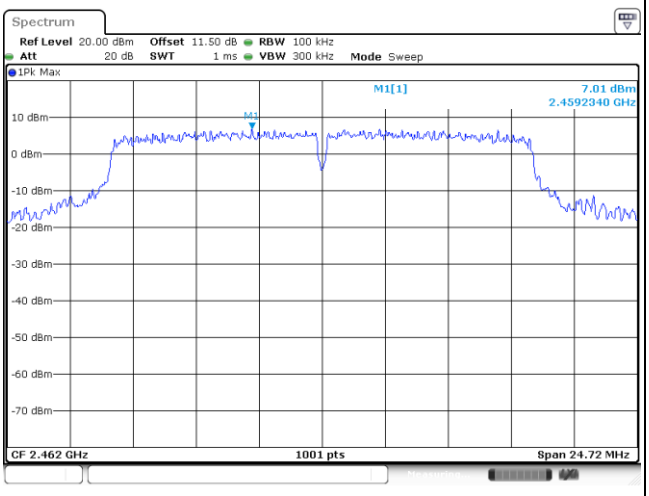
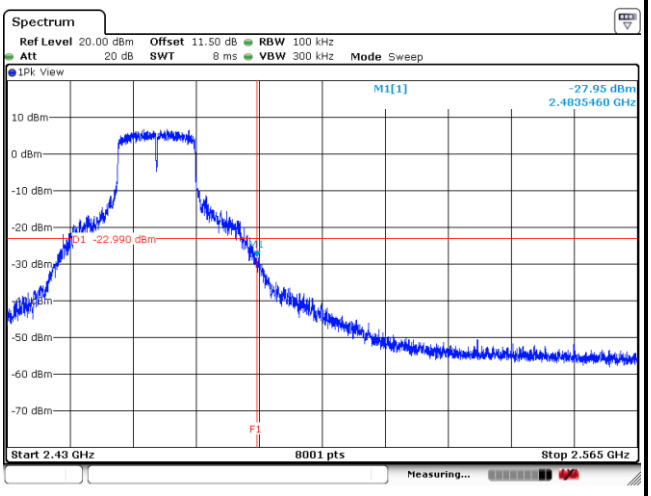
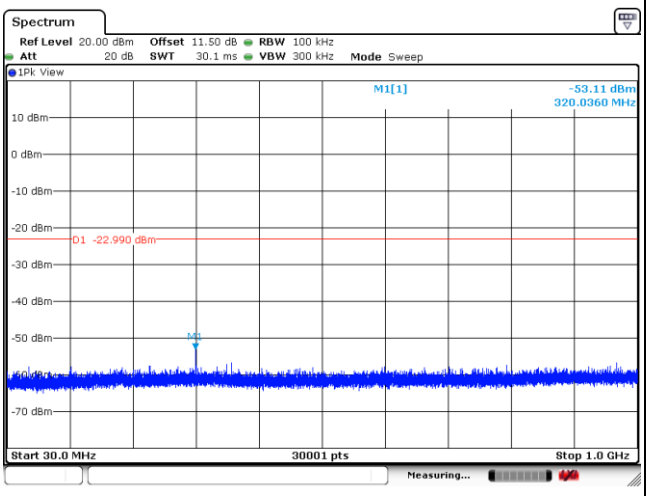
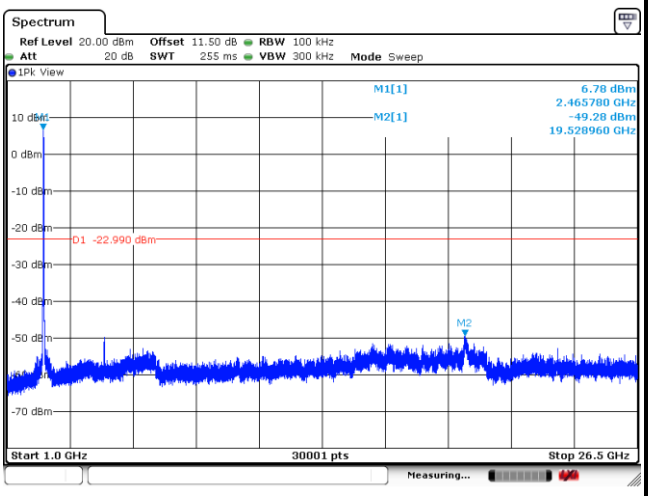
100kHz PSD reference Level	Channel Plot
	
Spurious Emission Plot-1	**Spurious Emission Plot-2**
	

Test Mode :	802.11g	Test Channel :	06

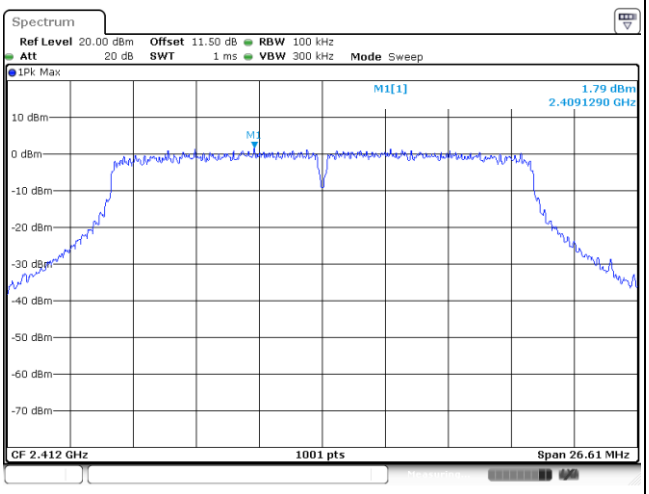
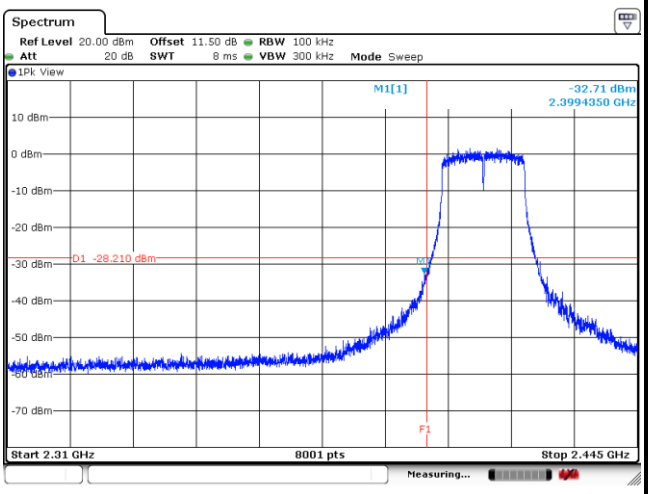
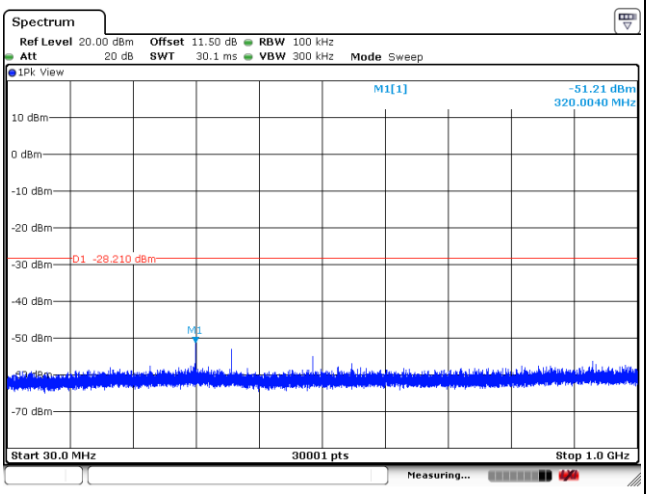
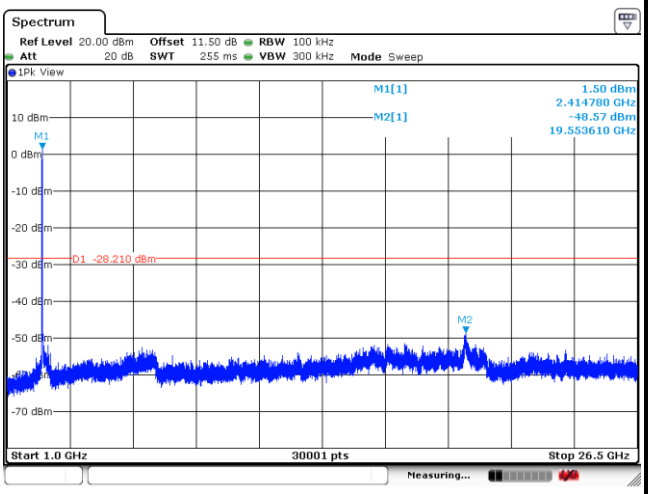
100kHz PSD reference Level	-
	-

Spurious Emission Plot-1	Spurious Emission Plot-2
	

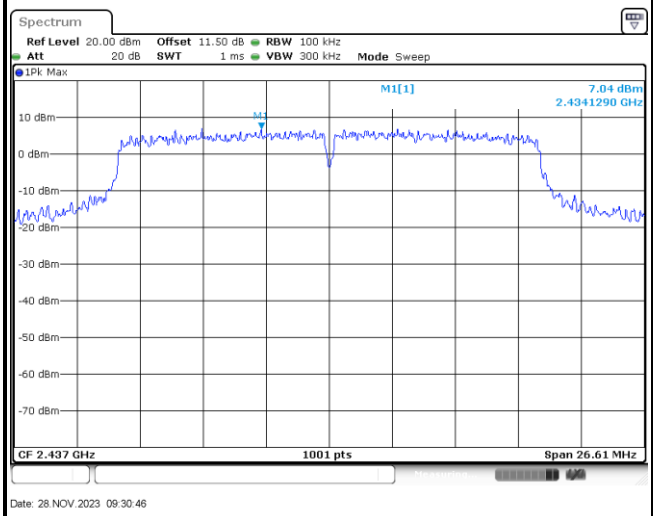
Test Mode :	802.11g	Test Channel :	11

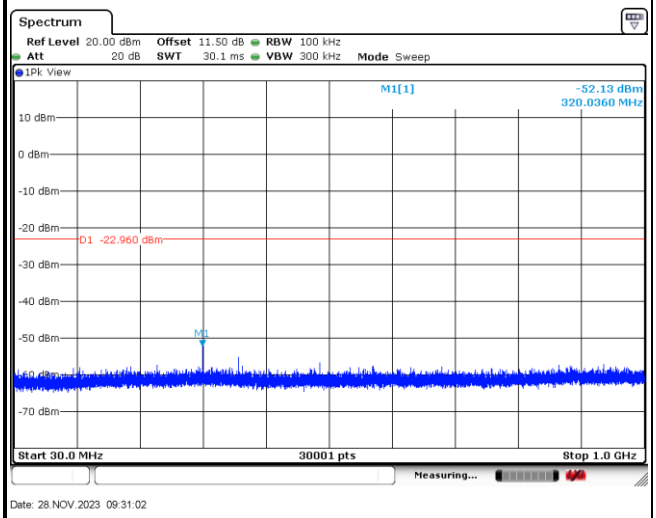
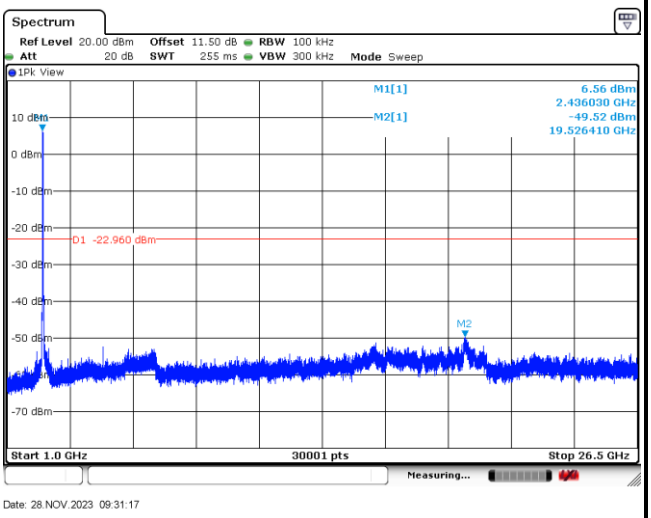
100kHz PSD reference Level	Channel Plot
	
Spurious Emission Plot-1	**Spurious Emission Plot-2**
	

Test Mode :	802.11n HT20	Test Channel :	01

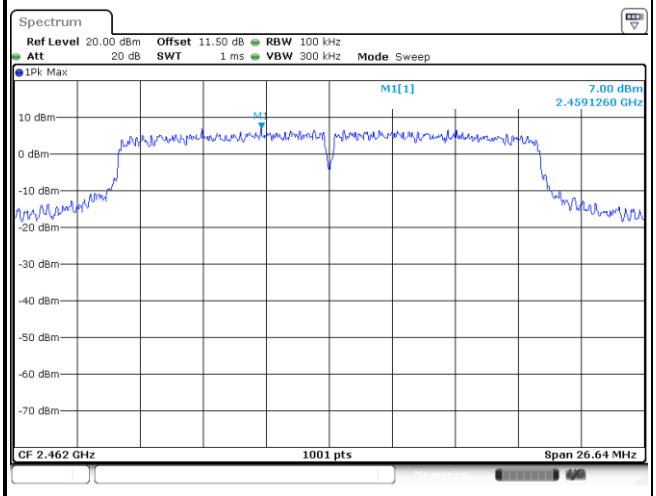
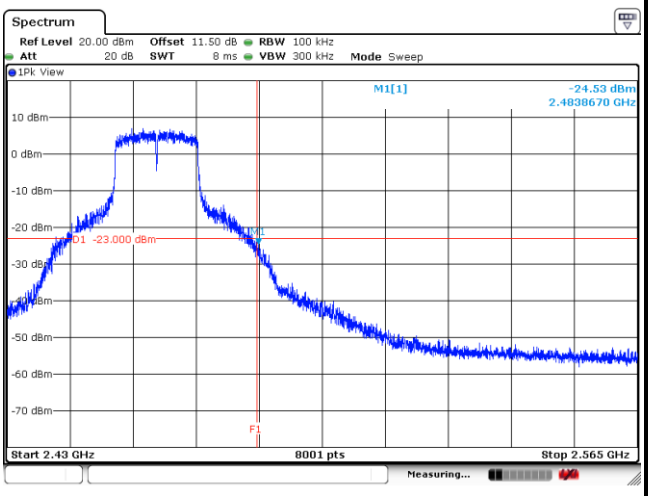
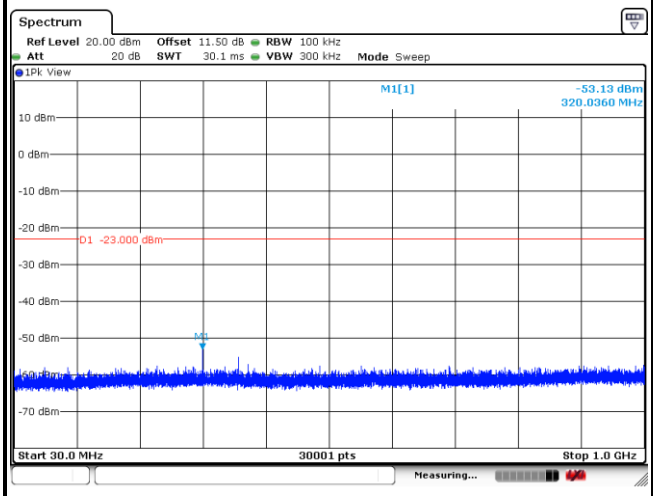
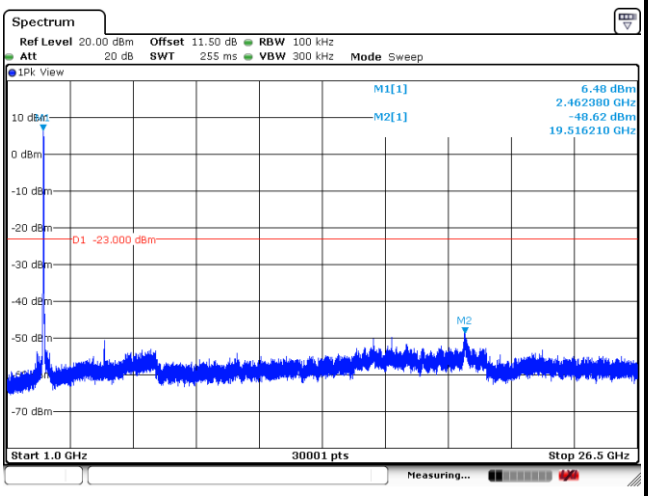
100kHz PSD reference Level	Channel Plot
	
Spurious Emission Plot-1	**Spurious Emission Plot-2**
	

Test Mode :	802.11n HT20	Test Channel :	06

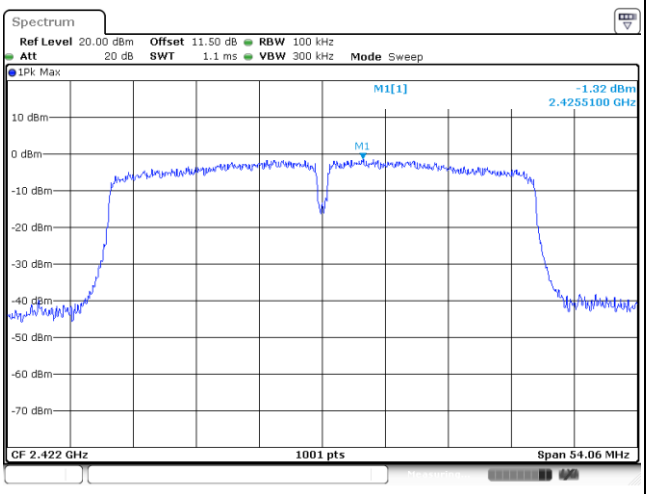
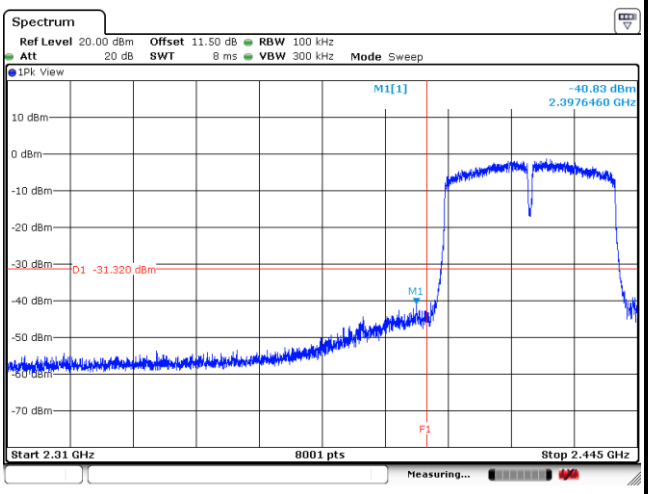
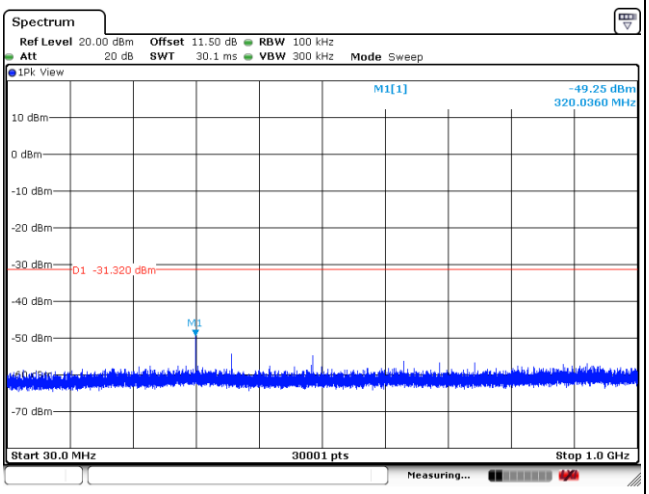
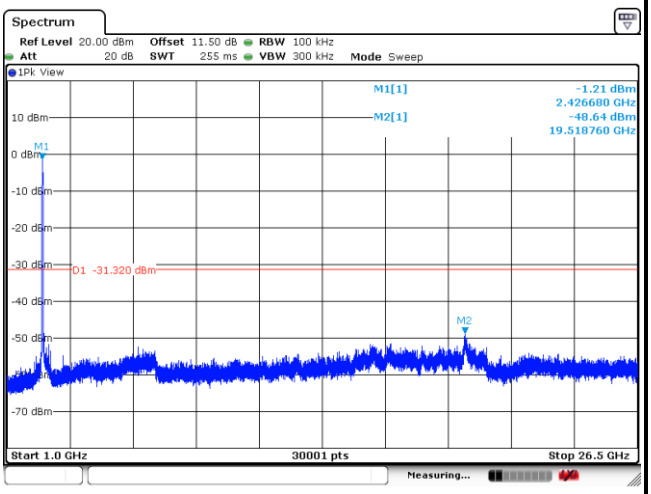
100kHz PSD reference Level	-
	-

Spurious Emission Plot-1	Spurious Emission Plot-2
	

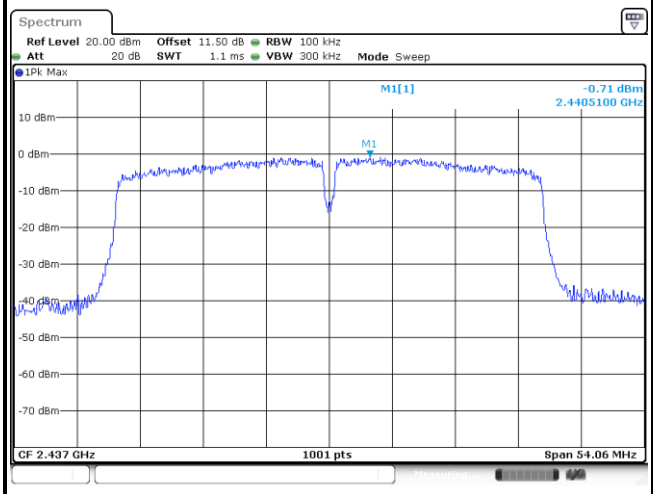
Test Mode :	802.11n HT20	Test Channel :	11

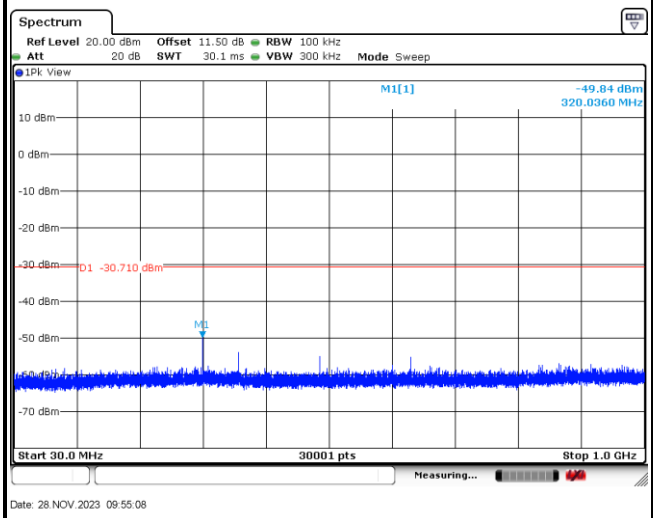
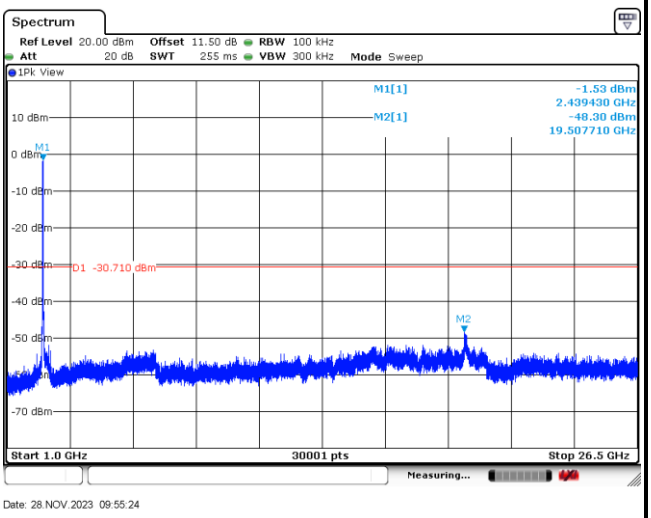
100kHz PSD reference Level	Channel Plot
	
Spurious Emission Plot-1	**Spurious Emission Plot-2**
	

Test Mode :	802.11n HT40	Test Channel :	03

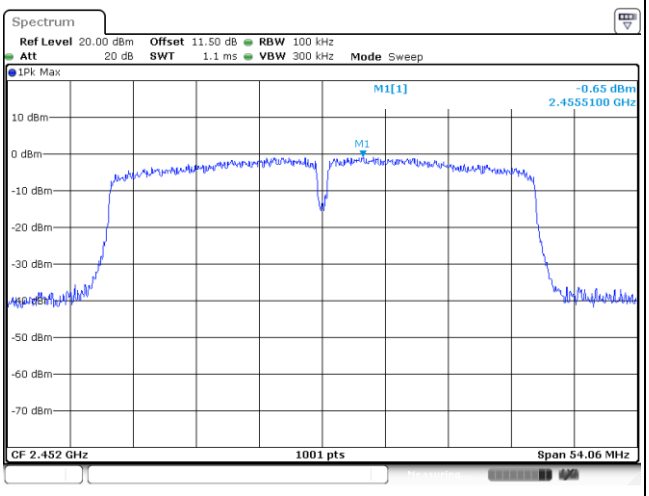
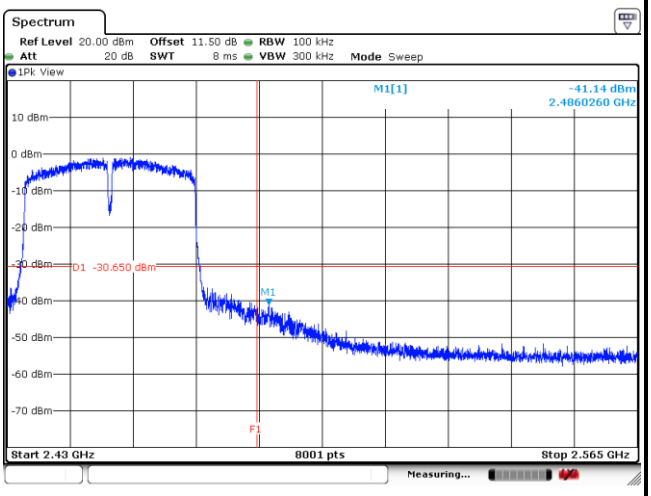
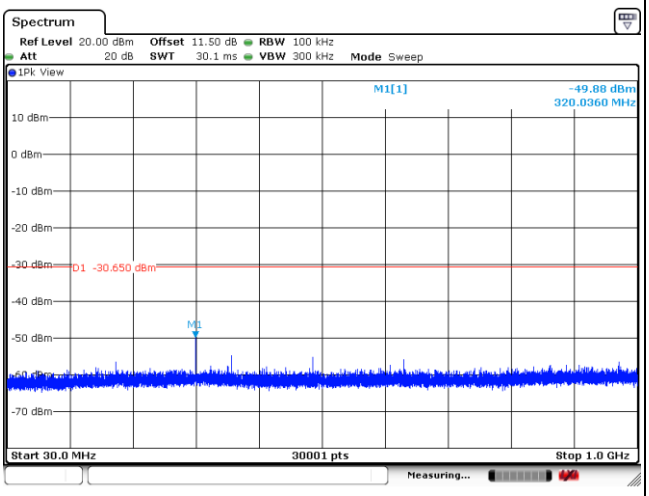
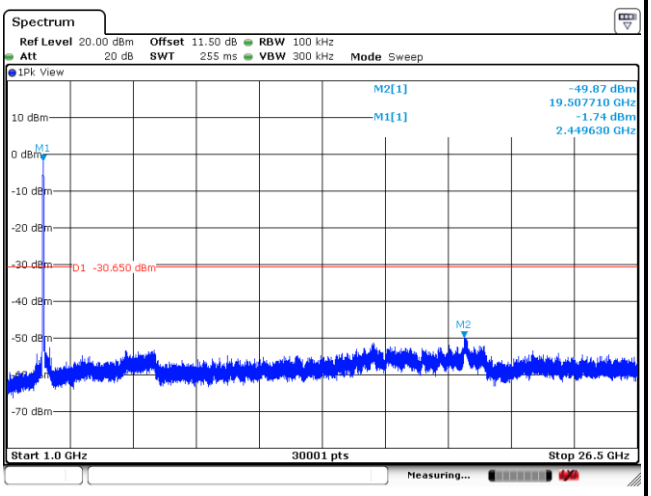
100kHz PSD reference Level	Channel Plot
	
Spurious Emission Plot-1	**Spurious Emission Plot-2**
	

Test Mode :	802.11n HT40	Test Channel :	06

100kHz PSD reference Level	-
	-

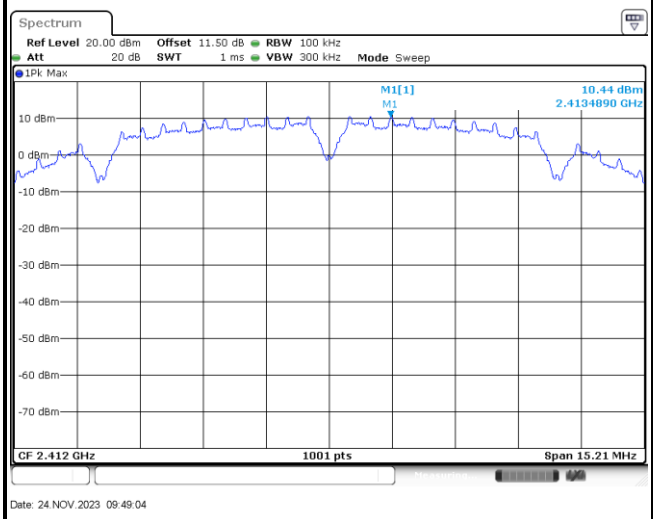
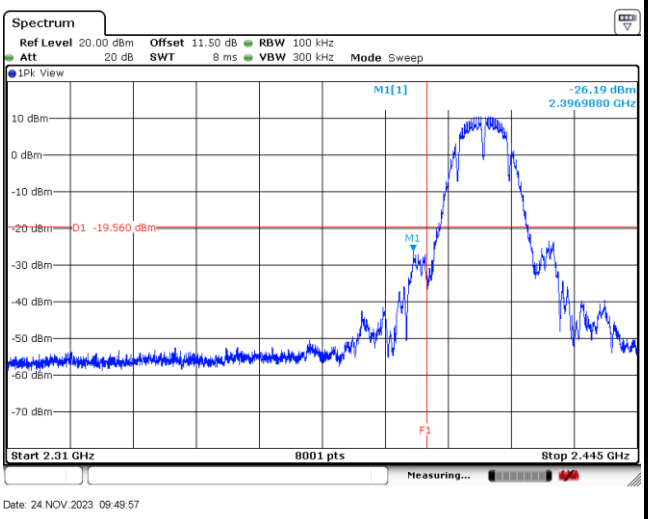
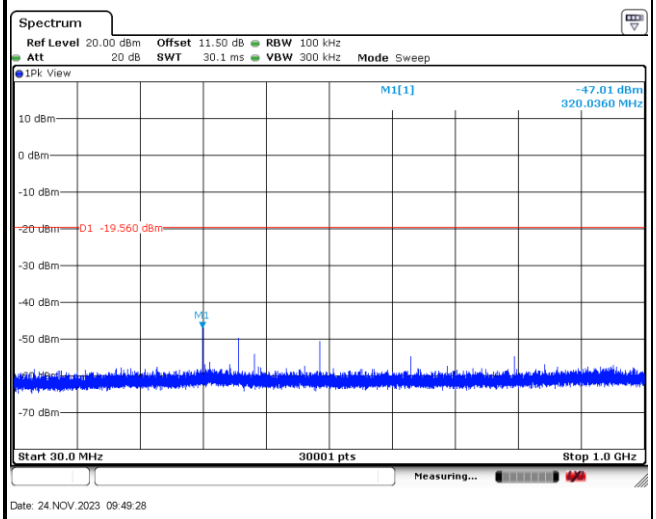
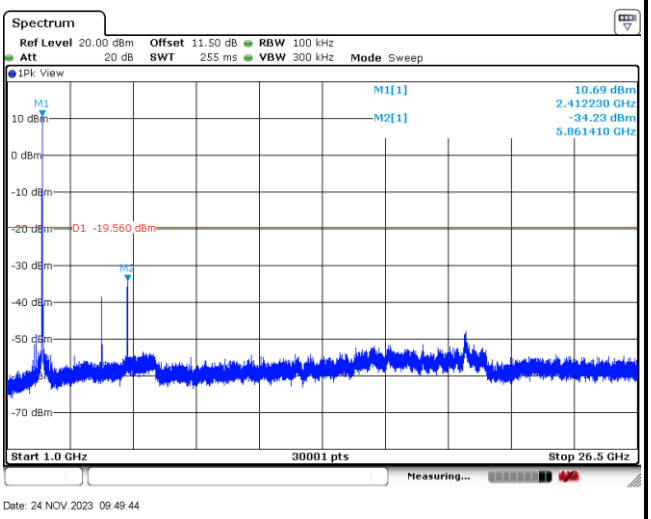
Spurious Emission Plot-1	Spurious Emission Plot-2
	

Test Mode :	802.11n HT40	Test Channel :	09

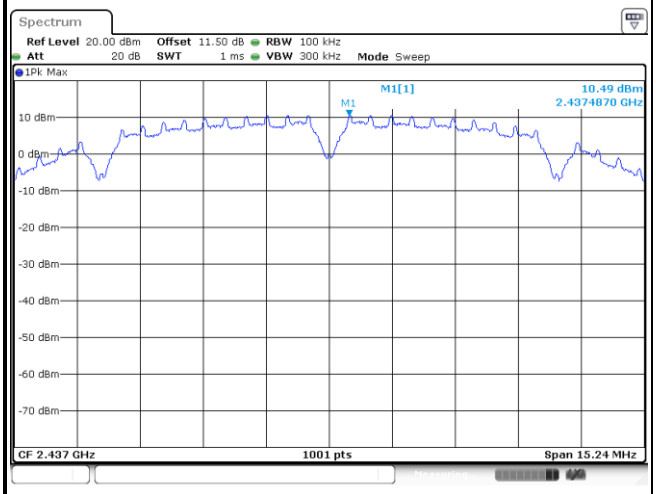
100kHz PSD reference Level	Channel Plot
	
Spurious Emission Plot-1	**Spurious Emission Plot-2**
	

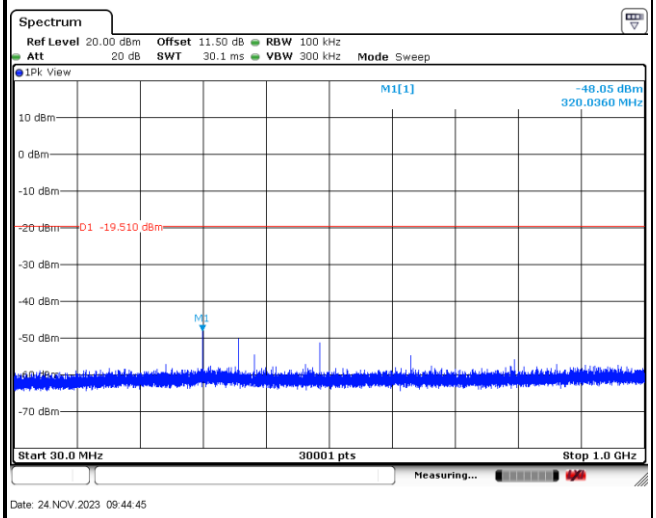
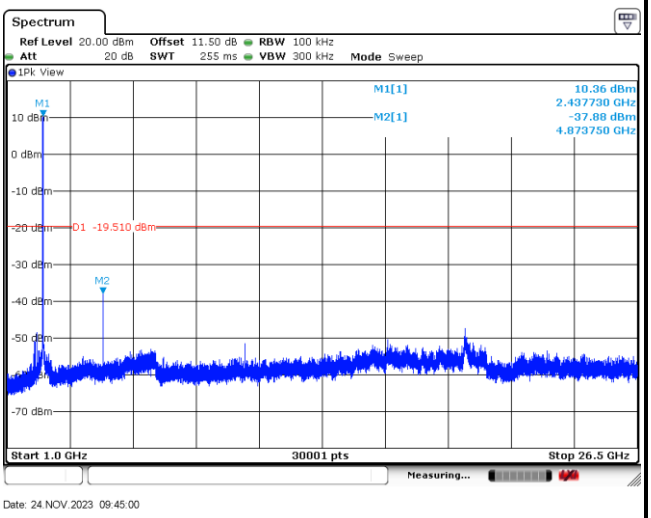
Number of TX = 2, Ant. 2 (Measured)

Test Mode :	802.11b	Test Channel :	01

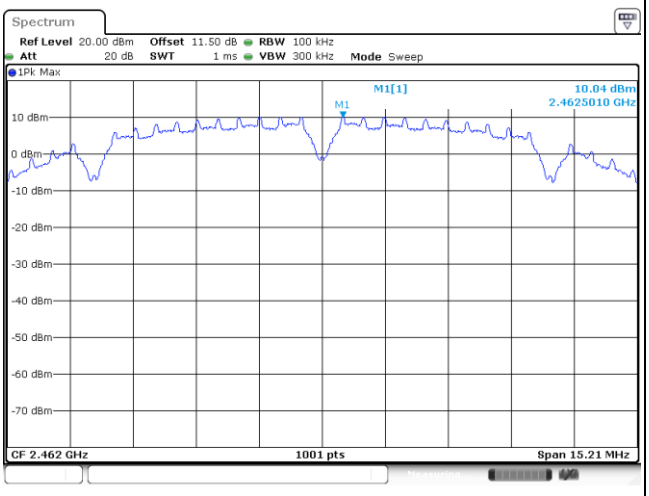
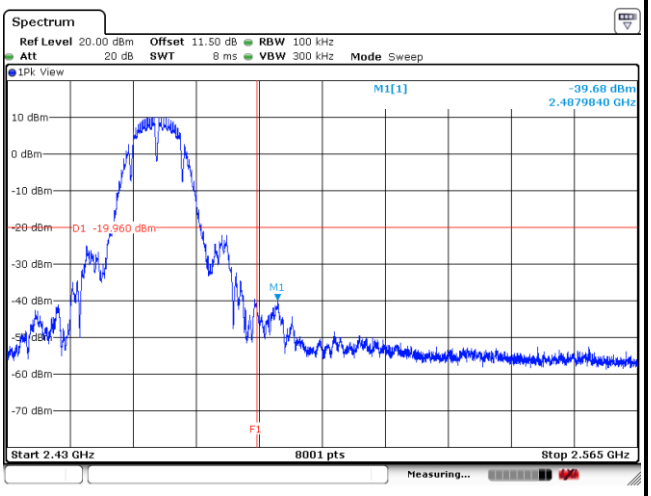
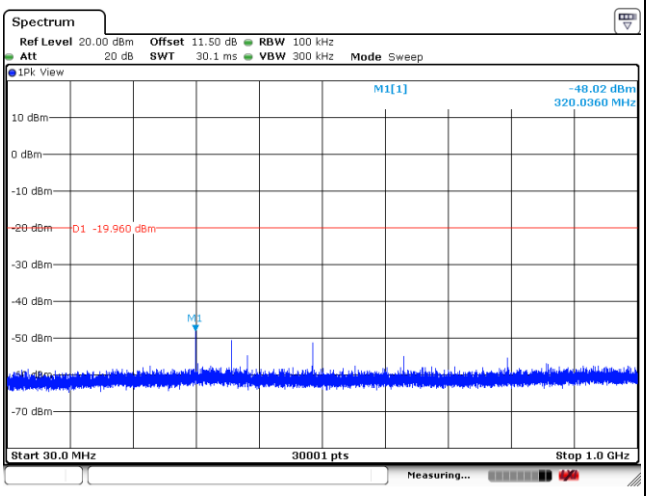
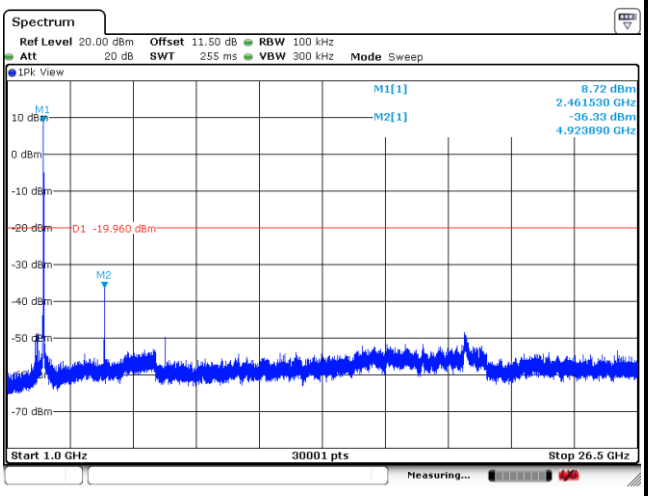
100kHz PSD reference Level	Channel Plot
	
Spurious Emission Plot-1	**Spurious Emission Plot-2**
	

Test Mode :	802.11b	Test Channel :	06

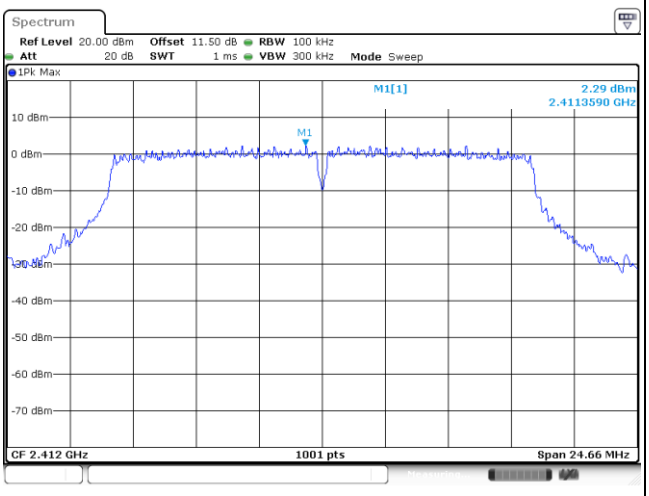
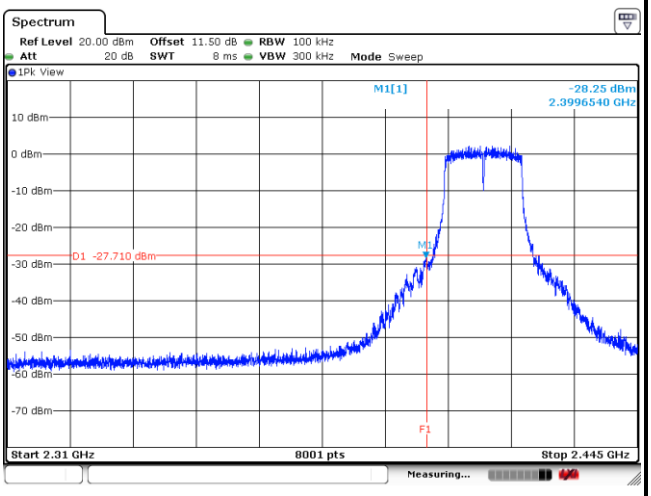
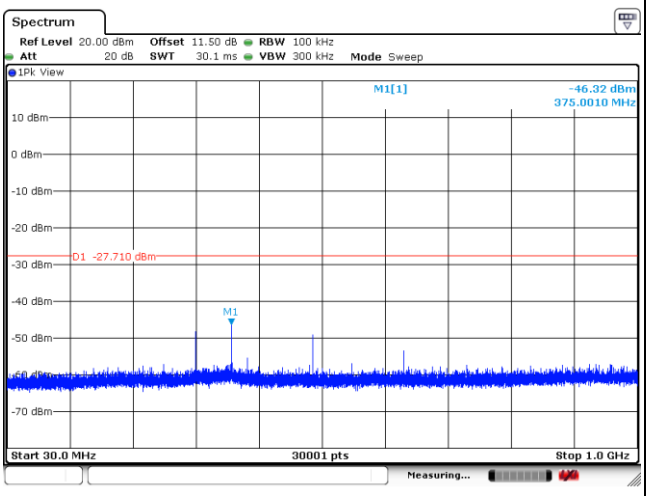
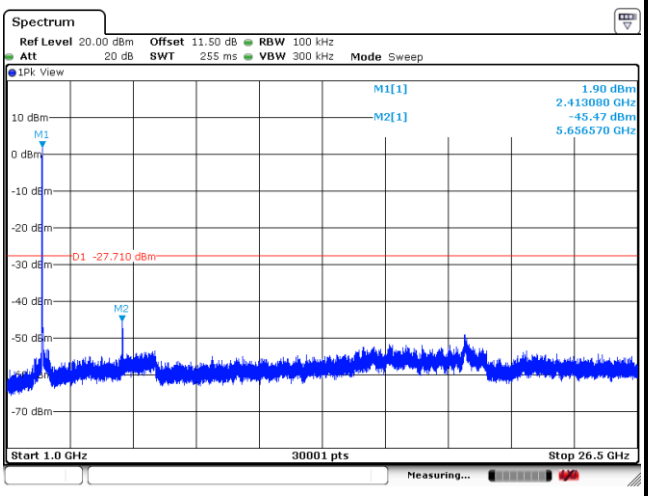
100kHz PSD reference Level	-
	-

Spurious Emission Plot-1	Spurious Emission Plot-2
	

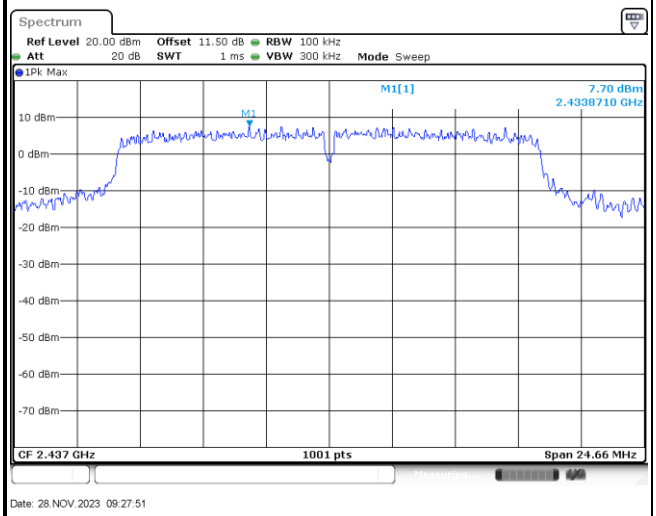
Test Mode :	802.11b	Test Channel :	11

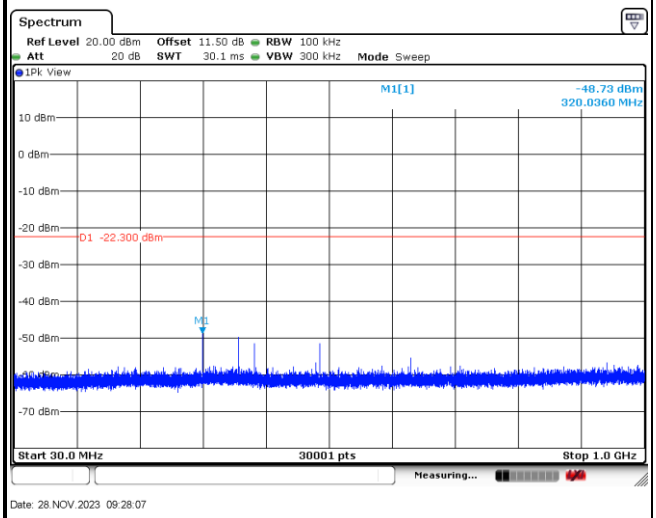
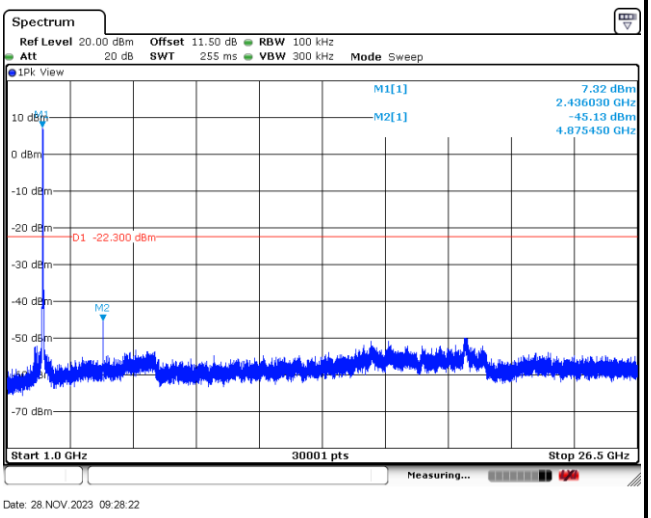
100kHz PSD reference Level	Channel Plot
	
Spurious Emission Plot-1	**Spurious Emission Plot-2**
	

Test Mode :	802.11g	Test Channel :	01

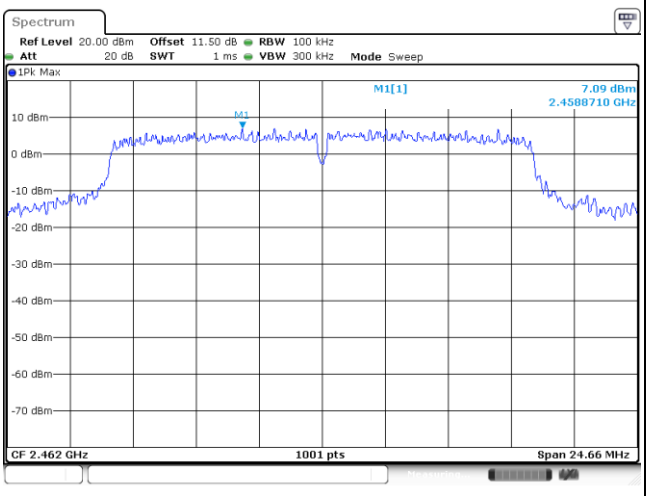
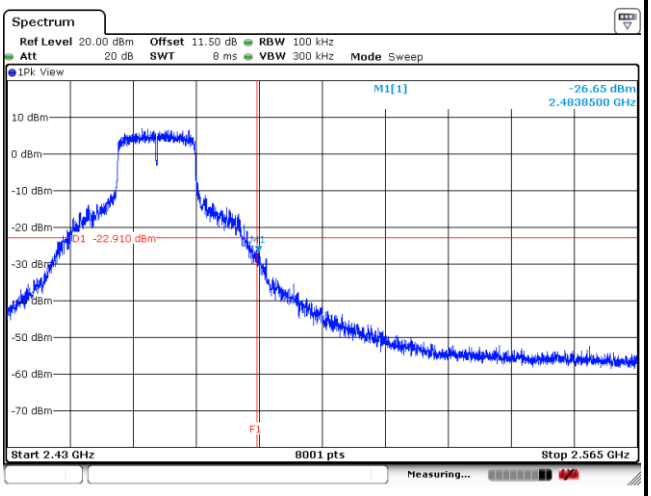
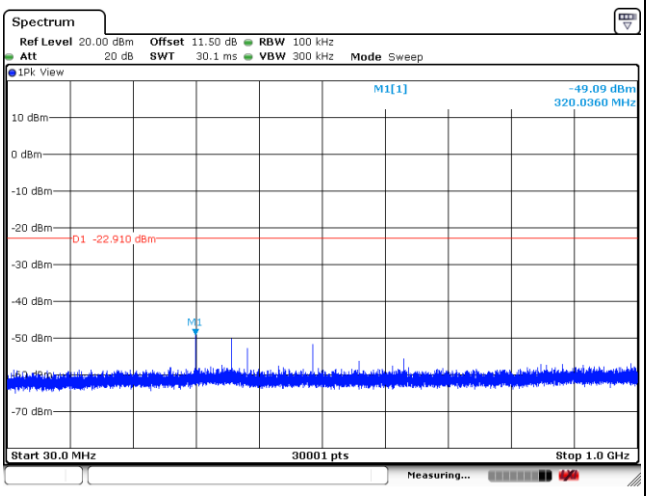
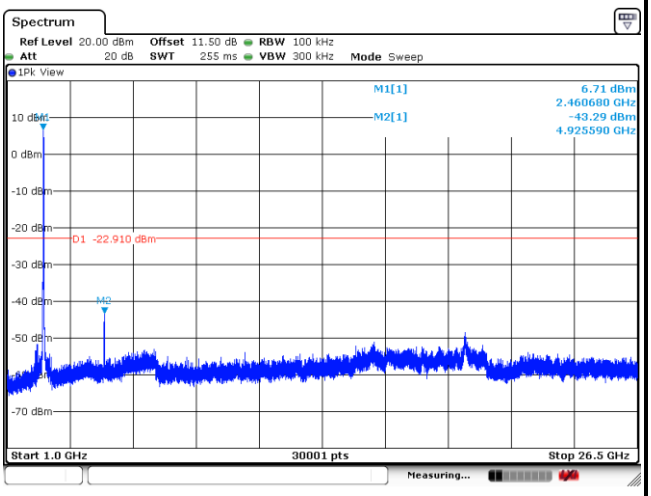
100kHz PSD reference Level	Channel Plot
	
Spurious Emission Plot-1	**Spurious Emission Plot-2**
	

Test Mode :	802.11g	Test Channel :	06

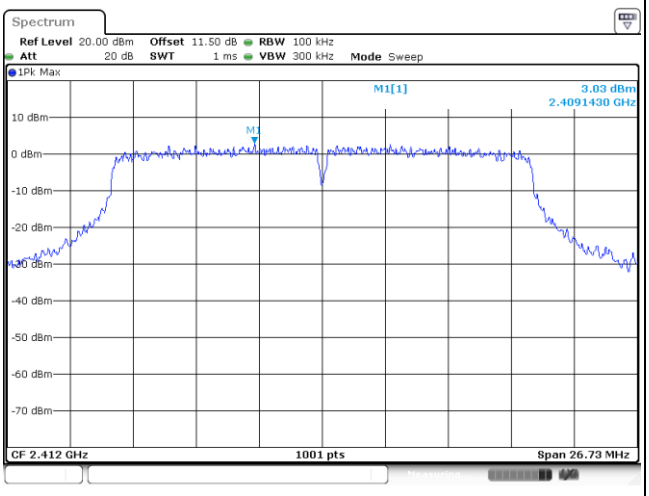
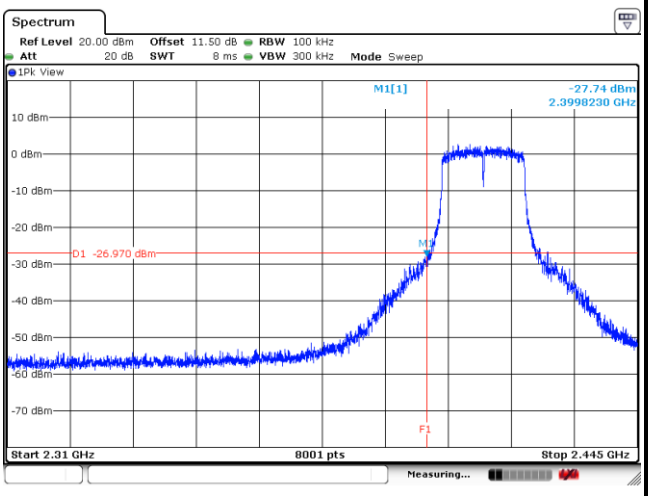
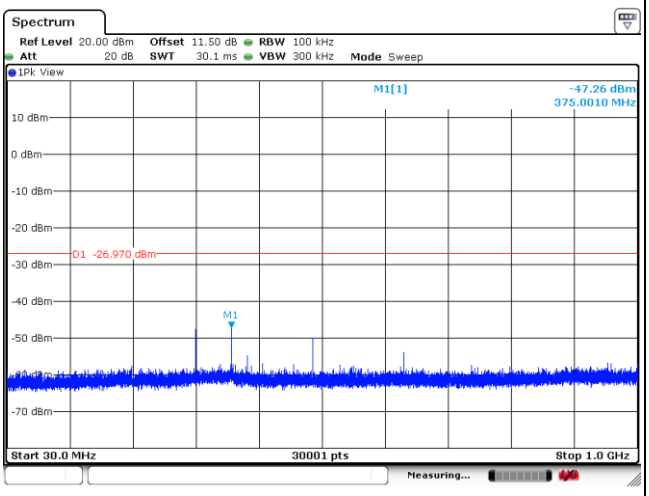
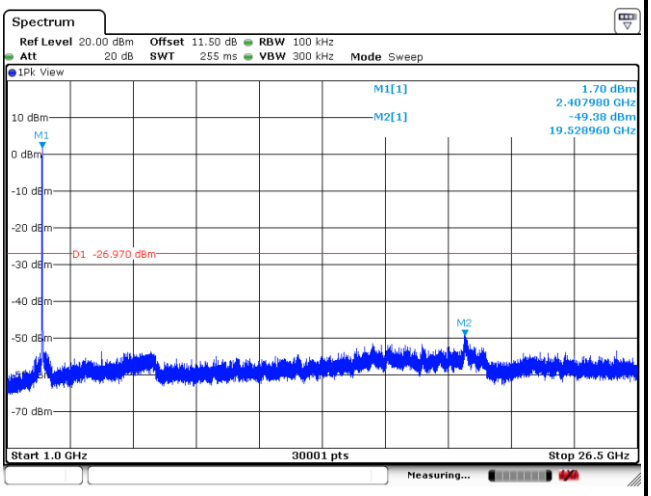
100kHz PSD reference Level	-
	-

Spurious Emission Plot-1	Spurious Emission Plot-2
	

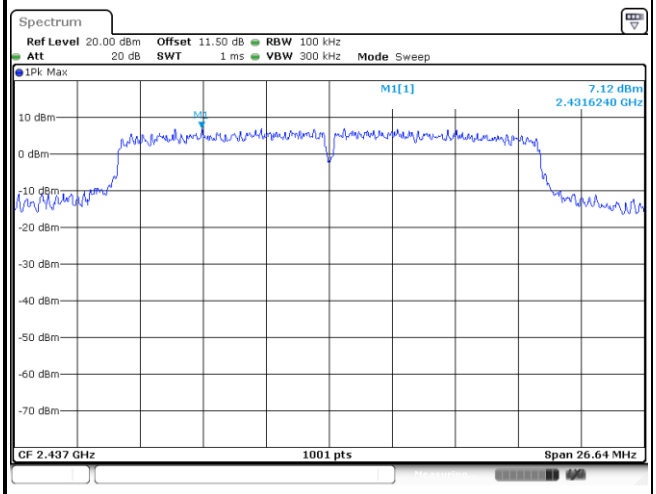
Test Mode :	802.11g	Test Channel :	11

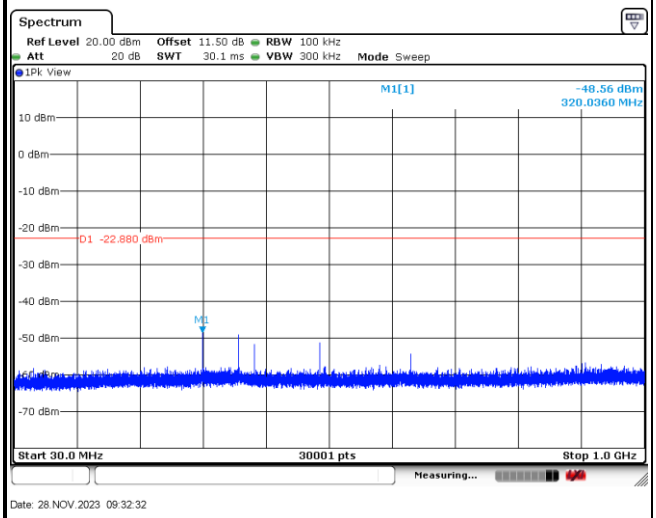
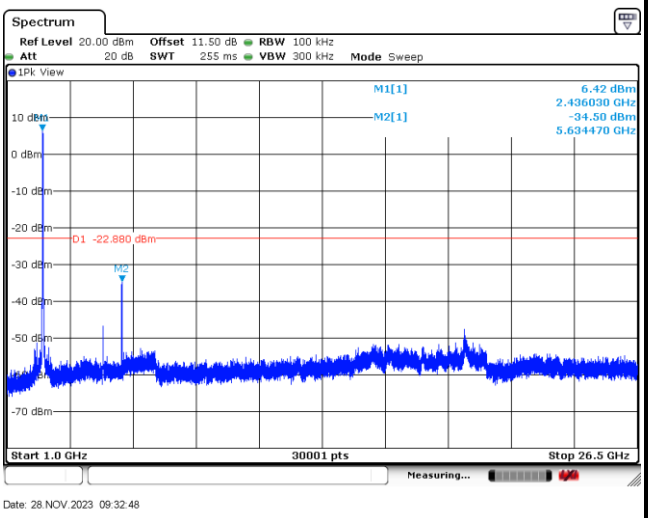
100kHz PSD reference Level	Channel Plot
	
Spurious Emission Plot-1	**Spurious Emission Plot-2**
	

Test Mode :	802.11n HT20	Test Channel :	01

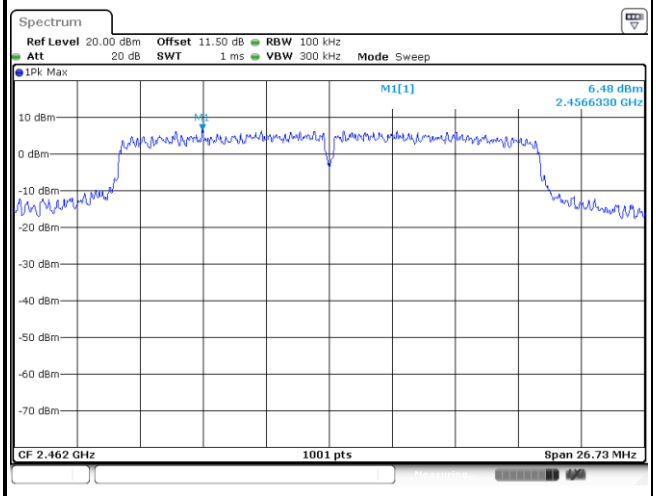
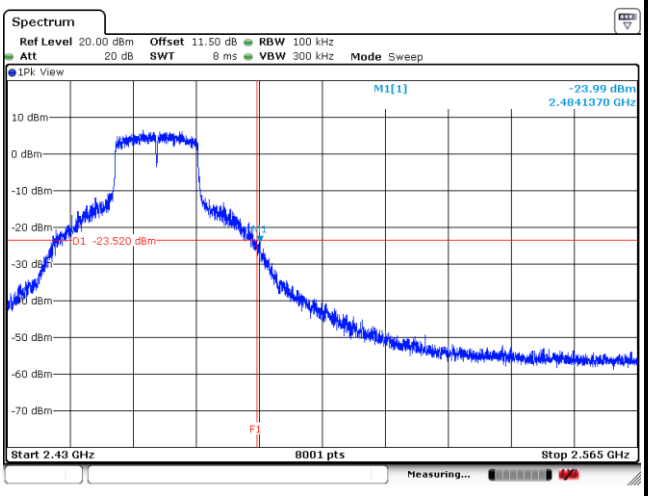
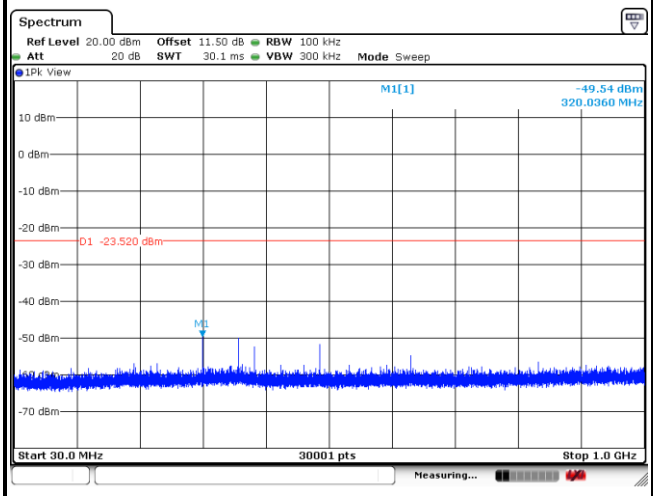
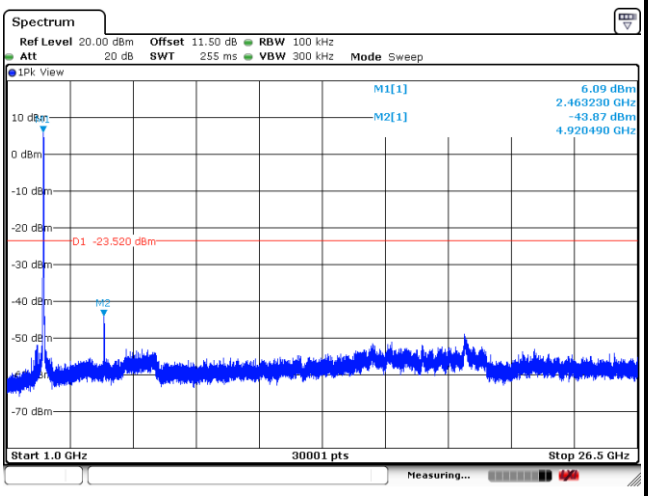
100kHz PSD reference Level	Channel Plot
	
Spurious Emission Plot-1	**Spurious Emission Plot-2**
	

Test Mode :	802.11n HT20	Test Channel :	06

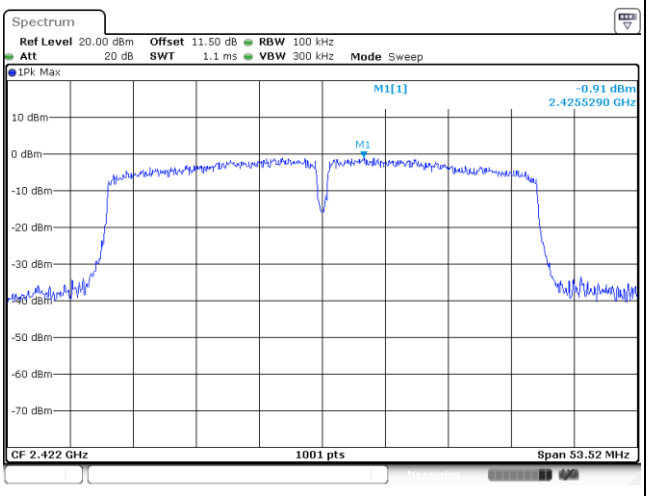
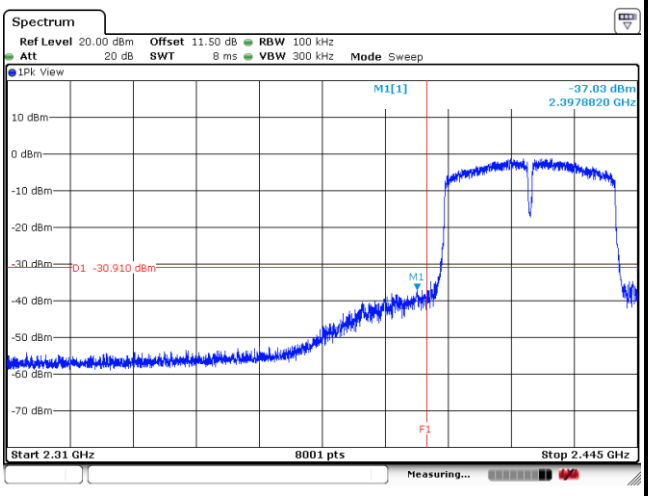
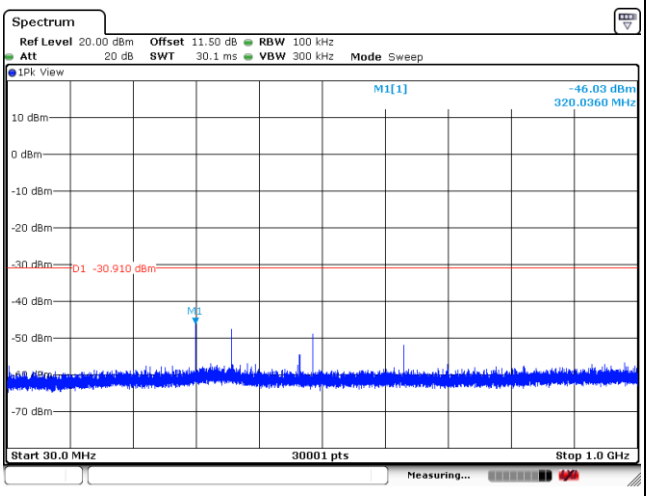
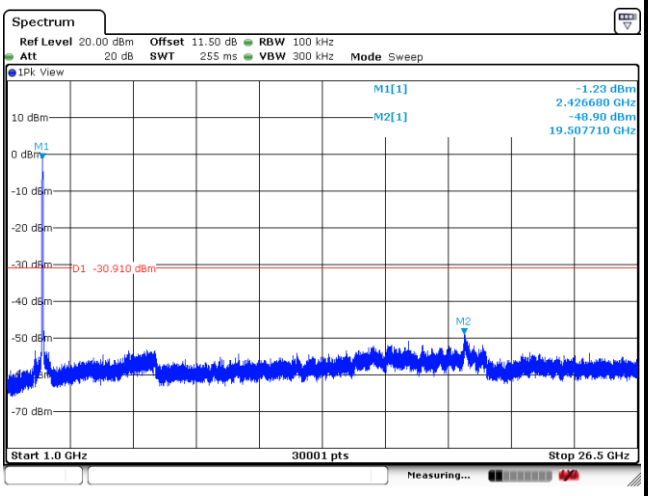
100kHz PSD reference Level	-
	-

Spurious Emission Plot-1	Spurious Emission Plot-2
	

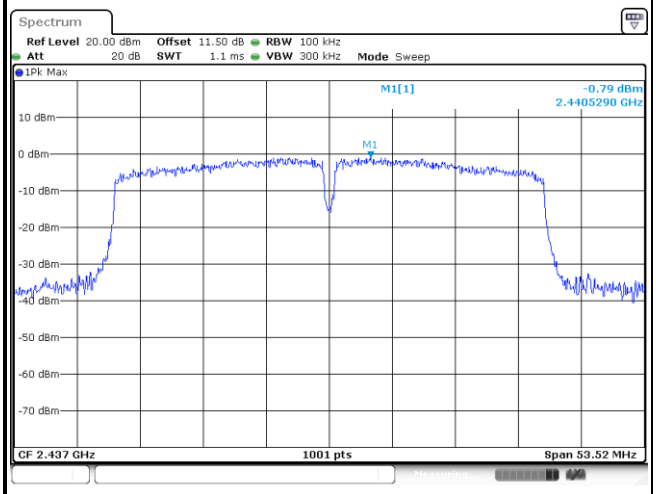
Test Mode :	802.11n HT20	Test Channel :	11

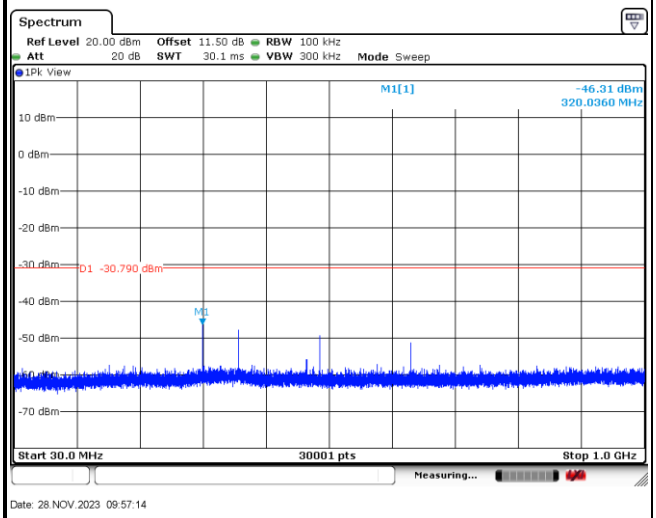
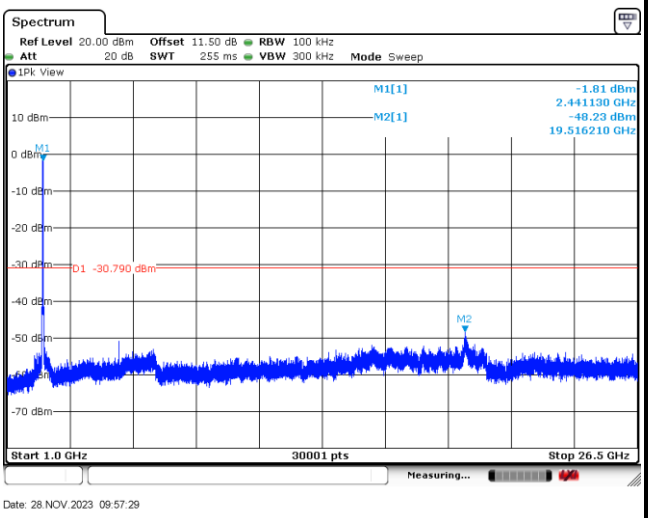
100kHz PSD reference Level	Channel Plot
	
Spurious Emission Plot-1	**Spurious Emission Plot-2**
	

Test Mode :	802.11n HT40	Test Channel :	03

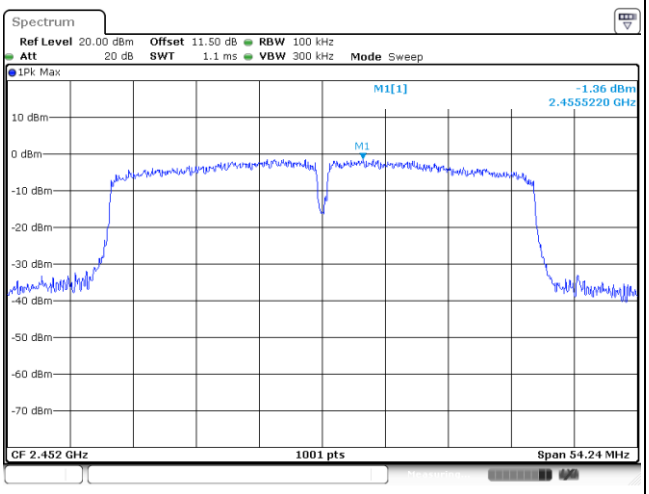
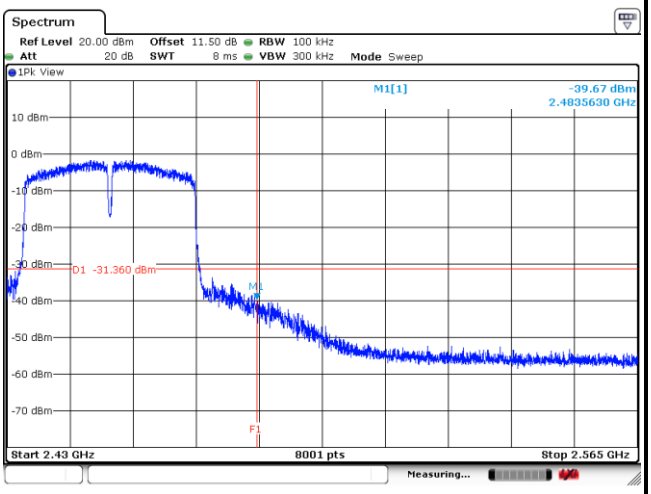
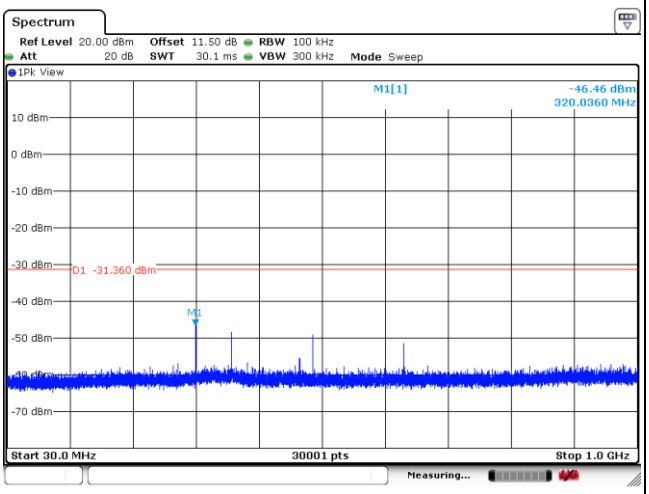
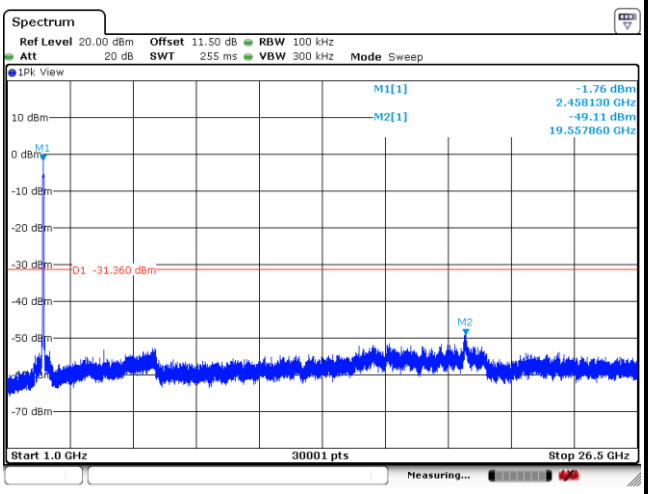
100kHz PSD reference Level	Channel Plot
	
Spurious Emission Plot-1	**Spurious Emission Plot-2**
	

Test Mode :	802.11n HT40	Test Channel :	06

100kHz PSD reference Level	-
	-

Spurious Emission Plot-1	Spurious Emission Plot-2
	

Test Mode :	802.11n HT40	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

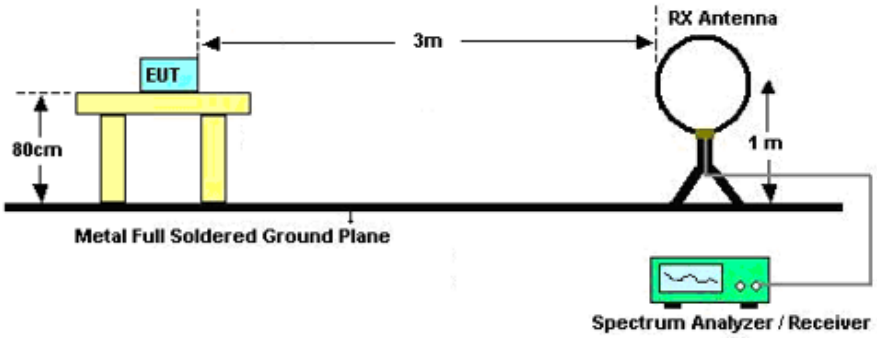
The measuring equipment is listed in the section 4 of this test report.

3.5.3 Test Procedures

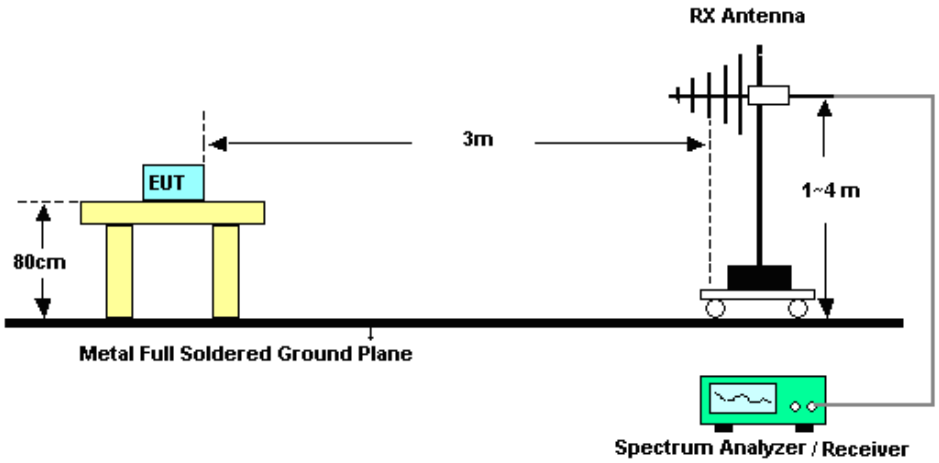
1. The testing follows ANSI C63.10-2013 clause 11.11 & 11.12
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better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

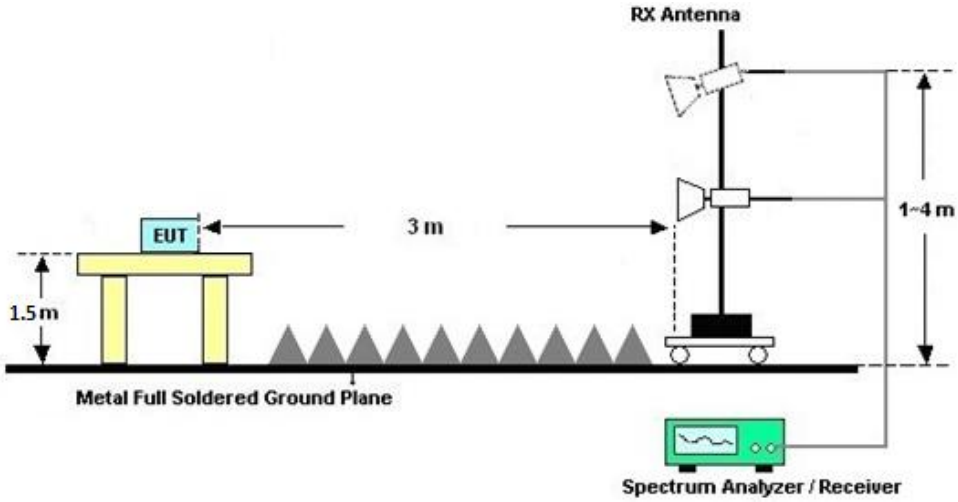
For radiated emissions below 30MHz



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.

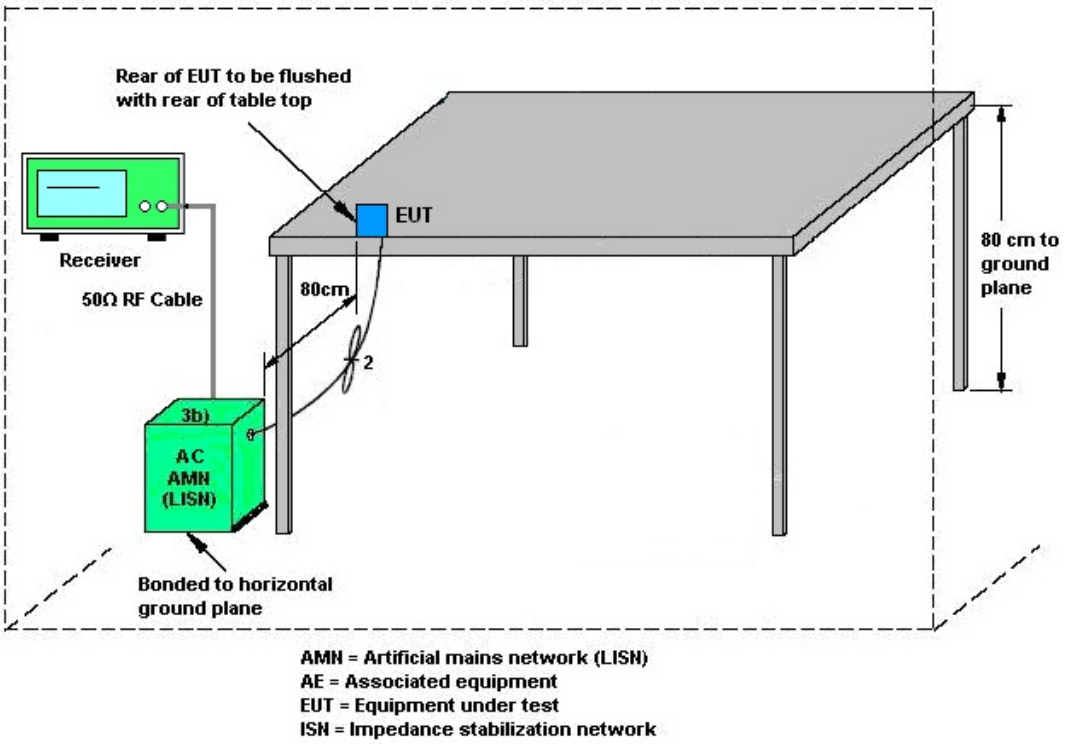
3.6.2 Measuring Instruments

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



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	Nov. 24, 2023~ Nov. 28, 2023	Apr. 05, 2024	Conducted (TH01-SZ)
Pulse Power Senor	Anritsu	MA2411B	1339473	30MHz~40GHz	Dec. 27, 2022	Nov. 24, 2023~ Nov. 28, 2023	Dec. 26, 2023	Conducted (TH01-SZ)
Power Meter	Anritsu	ML2495A	1542004	50MHz Bandwidth	Dec. 27, 2022	Nov. 24, 2023~ Nov. 28, 2023	Dec. 26, 2023	Conducted (TH01-SZ)
EMI Test Receiver&SA	KEYSIGHT	N9038A	MY54450083	20Hz~8.4GHz	Apr. 04, 2023	Nov. 26, 2023~ Dec. 01, 2023	Apr. 03, 2024	Radiation (03CH03-SZ)
EXA Spectrum Anaiyzer	KEYSIGHT	N9010A	MY55150246	10Hz~44GHz;	Apr. 04, 2023	Nov. 26, 2023~ Dec. 01, 2023	Apr. 03, 2024	Radiation (03CH03-SZ)
Loop Antenna	R&S	HFH2-Z2	100354	9kHz~30MHz	Jul. 28, 2022	Nov. 26, 2023~ Dec. 01, 2023	Jul. 27, 2024	Radiation (03CH03-SZ)
Bilog Antenna	TeseQ	CBL6112D	35408	30MHz-2GHz	Aug. 20, 2023	Nov. 26, 2023~ Dec. 01, 2023	Aug. 19, 2025	Radiation (03CH03-SZ)
Double Ridge Horn Antenna	SCHWARZBECK	BBHA9120D	9120D-1355	1GHz~18GHz	Apr. 08, 2023	Nov. 26, 2023~ Dec. 01, 2023	Apr. 07, 2024	Radiation (03CH03-SZ)
HF Amplifier	MITEQ	TTA1840-35-HG	1871923	18GHz~40GHz	Jul. 07, 2023	Nov. 26, 2023~ Dec. 01, 2023	Jul. 06, 2024	Radiation (03CH03-SZ)
SHF-EHF Horn	com-power	AH-840	101071	18Ghz-40GHz	Apr. 08, 2023	Nov. 26, 2023~ Dec. 01, 2023	Apr. 07, 2024	Radiation (03CH03-SZ)
Amplifier	Burgeon	BPA-530	102211	0.01Hz ~3000MHz	Oct. 18, 2023	Nov. 26, 2023~ Dec. 01, 2023	Oct. 17, 2024	Radiation (03CH03-SZ)
HF Amplifier	MITEQ	AMF-7D-00101800-30-10P-R	1943528	1GHz~18GHz	Oct. 18, 2023	Nov. 26, 2023~ Dec. 01, 2023	Oct. 17, 2024	Radiation (03CH03-SZ)
Amplifier	Agilent Technologies	83017A	MY39501302	500MHz~26.5GHz	Dec. 26, 2022	Nov. 26, 2023~ Dec. 01, 2023	Dec. 25, 2023	Radiation (03CH03-SZ)
AC Power Source	Chroma	61601	616010002729	1 N/A	Oct. 18, 2023	Nov. 26, 2023~ Dec. 01, 2023	Oct. 17, 2024	Radiation (03CH03-SZ)
Turn Table	EM	EM1000	N/A	0~360 degree	NCR	Nov. 26, 2023~ Dec. 01, 2023	NCR	Radiation (03CH03-SZ)
Antenna Mast	EM	EM1000	N/A	1 m~4 m	NCR	Nov. 26, 2023~ Dec. 01, 2023	NCR	Radiation (03CH03-SZ)
EMI Receiver	R&S	ESR7	101630	9kHz~7GHz;	Jul. 06, 2023	Nov. 14, 2023	Jul. 05, 2024	Conduction (CO01-SZ)
AC LISN	R&S	ENV216	100063	9kHz~30MHz	Aug. 21, 2023	Nov. 14, 2023	Aug. 20, 2024	Conduction (CO01-SZ)
AC LISN (for auxiliary equipment)	EMCO	3816/2SH	00103892	9kHz~30MHz	Oct. 16, 2023	Nov. 14, 2023	Oct. 15, 2024	Conduction (CO01-SZ)
AC Power Source	Chroma	61602	616020000891	100Vac~250Vac	Jul. 07, 2023	Nov. 14, 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

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))	**2.7dB**

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

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

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

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

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

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

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

Appendix A. Conducted Test Results

Report Number : FR3N0708A

Test Engineer:	Liu Qiu Qiu	Temperature:	21~25	°C
Test Date:	2023/11/24~11/28	Relative Humidity:	51~54	%

TEST RESULTS DATA
6dB and 99% Occupied Bandwidth

2.4GHz Band										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	99% Occupied BW (MHz)		6dB BW (MHz)		6dB BW Limit (MHz)	Pass/Fail
					Ant 1	Ant 2	Ant 1	Ant 2		
11b	1Mbps	2	1	2412	13.94	14.19	10.14	10.14	0.50	Pass
11b	1Mbps	2	6	2437	14.04	14.34	10.16	10.16	0.50	Pass
11b	1Mbps	2	11	2462	14.14	14.29	10.14	10.14	0.50	Pass
11g	6Mbps	2	1	2412	17.13	18.53	16.46	16.44	0.50	Pass
11g	6Mbps	2	6	2437	17.83	19.98	16.44	16.44	0.50	Pass
11g	6Mbps	2	11	2462	17.83	19.13	16.48	16.44	0.50	Pass
HT20	MCS0	2	1	2412	18.43	22.23	17.74	17.82	0.50	Pass
HT20	MCS0	2	6	2437	19.13	23.23	17.74	17.76	0.50	Pass
HT20	MCS0	2	11	2462	19.43	21.93	17.76	17.82	0.50	Pass
HT40	MCS0	2	3	2422	35.66	35.66	36.04	35.68	0.50	Pass
HT40	MCS0	2	6	2437	35.66	35.76	36.04	35.68	0.50	Pass
HT40	MCS0	2	9	2452	35.66	35.76	36.04	36.16	0.50	Pass

Report Number : FR3N0708A

TEST RESULTS DATA
Average Output Power

2.4GHz Band																		
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)		Average Conducted Power (dBm)			Conducted Power Limit (dBm)		DG (dBi)		EIRP Power (dBm)		EIRP Power Limit (dBm)		Pass /Fail	Setting	
					Ant 1	Ant 2	Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2		Ant 0	Ant 1
11b	1Mbps	2	1	2412	0.00	0.00	22.00	22.70	25.37	30.00		2.00		27.37		36.00		Pass	116	120
11b	1Mbps	2	6	2437	0.00	0.00	22.10	22.70	25.42	30.00		2.00		27.42		36.00		Pass	116	120
11b	1Mbps	2	11	2462	0.00	0.00	22.50	22.60	25.56	30.00		2.00		27.56		36.00		Pass	116	120
11g	6Mbps	2	1	2412	0.00	0.00	16.50	17.20	19.87	30.00		2.00		21.87		36.00		Pass	89	93
11g	6Mbps	2	2	2417	0.00	0.00	22.10	22.10	25.11	30.00		2.00		27.11		36.00		Pass	116	120
11g	6Mbps	2	6	2437	0.00	0.00	22.20	22.30	25.26	30.00		2.00		27.26		36.00		Pass	116	120
11g	6Mbps	2	10	2457	0.00	0.00	21.60	21.50	24.56	30.00		2.00		26.56		36.00		Pass	111	115
11g	6Mbps	2	11	2462	0.00	0.00	18.50	18.50	21.51	30.00		2.00		23.51		36.00		Pass	104	108
HT20	MCS0	2	1	2412	0.00	0.00	16.70	17.70	20.24	30.00		2.00		22.24		36.00		Pass	92	96
HT20	MCS0	2	2	2417	0.00	0.00	22.20	22.20	25.21	30.00		2.00		27.21		36.00		Pass	116	120
HT20	MCS0	2	6	2437	0.00	0.00	22.30	22.40	25.36	30.00		2.00		27.36		36.00		Pass	116	120
HT20	MCS0	2	10	2457	0.00	0.00	22.00	21.90	24.96	30.00		2.00		26.96		36.00		Pass	115	119
HT20	MCS0	2	11	2462	0.00	0.00	18.60	18.60	21.61	30.00		2.00		23.61		36.00		Pass	104	108
HT40	MCS0	2	3	2422	0.00	0.00	17.00	17.00	20.01	30.00		2.00		22.01		36.00		Pass	92	94
HT40	MCS0	2	6	2437	0.00	0.00	17.00	17.00	20.01	30.00		2.00		22.01		36.00		Pass	92	94
HT40	MCS0	2	9	2452	0.00	0.00	17.20	17.10	20.16	30.00		2.00		22.16		36.00		Pass	92	94

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

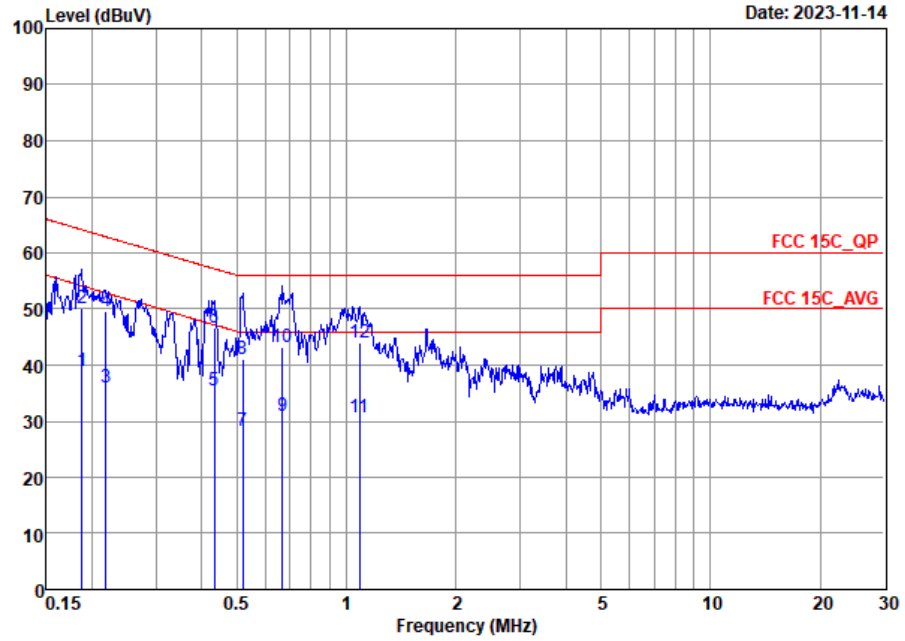
TEST RESULTS DATA
Peak Power Spectral Density

2.4GHz Band												
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Peak PSD (dBm/3kHz)			DG (dBi)		Peak PSD Limit (dBm/3kHz)		Pass/Fail
					Ant 1	Ant 2	Worse + 3.01	Ant 1	Ant 2	Ant 1	Ant 2	
11b	1Mbps	2	1	2412	-10.67	-9.65	-6.64	5.01		8.00		Pass
11b	1Mbps	2	6	2437	-9.88	-9.63	-6.62	5.01		8.00		Pass
11b	1Mbps	2	11	2462	-9.52	-10.02	-6.51	5.01		8.00		Pass
11g	6Mbps	2	1	2412	-13.54	-12.94	-9.93	5.01		8.00		Pass
11g	6Mbps	2	6	2437	-7.57	-7.83	-4.56	5.01		8.00		Pass
11g	6Mbps	2	11	2462	-7.65	-8.14	-4.64	5.01		8.00		Pass
HT20	MCS0	2	1	2412	-11.54	-11.08	-8.07	5.01		8.00		Pass
HT20	MCS0	2	6	2437	-6.87	-6.77	-3.76	5.01		8.00		Pass
HT20	MCS0	2	11	2462	-6.52	-6.83	-3.51	5.01		8.00		Pass
HT40	MCS0	2	3	2422	-12.85	-12.84	-9.83	5.01		8.00		Pass
HT40	MCS0	2	6	2437	-13.35	-14.53	-10.34	5.01		8.00		Pass
HT40	MCS0	2	9	2452	-12.93	-13.68	-9.92	5.01		8.00		Pass

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

Appendix B. AC Conducted Emission Test Results

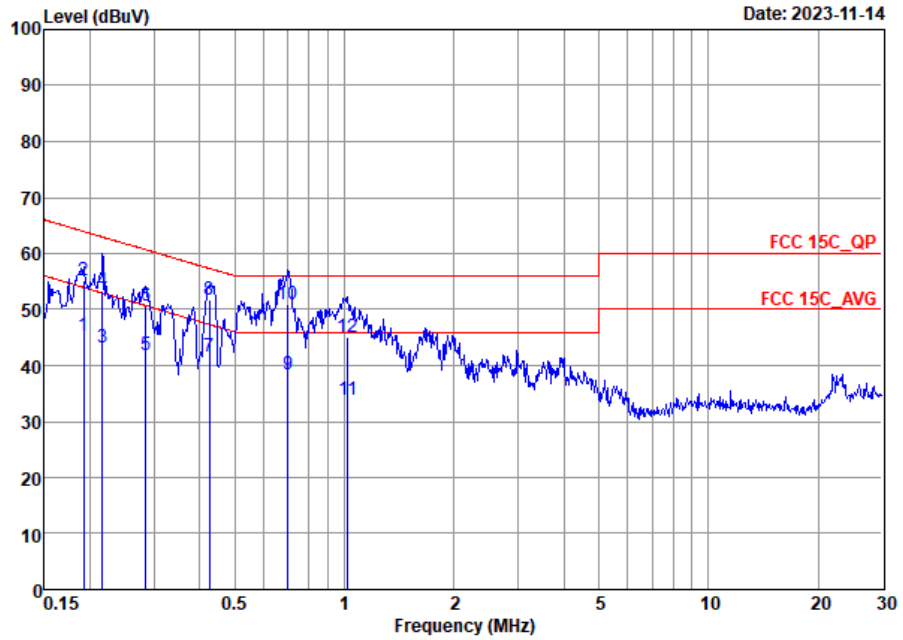
Test Engineer :	FangMing Liang	**Temperature :**	22~24℃
		Relative Humidity :	44~50%
Test Voltage :	120Vac / 60Hz	**Phase :**	Line
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



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		0.19	38.93	-15.22	54.15	18.39	10.39	10.15	Average
2		0.19	50.23	-13.92	64.15	29.69	10.39	10.15	QP
3		0.22	36.10	-16.78	52.88	15.61	10.34	10.15	Average
4		0.22	49.50	-13.38	62.88	29.01	10.34	10.15	QP
5		0.43	35.34	-11.86	47.20	14.80	10.38	10.16	Average
6	*	0.43	46.64	-10.56	57.20	26.10	10.38	10.16	QP
7		0.52	28.20	-17.80	46.00	7.80	10.24	10.16	Average
8		0.52	41.00	-15.00	56.00	20.60	10.24	10.16	QP
9		0.67	30.99	-15.01	46.00	10.90	9.93	10.16	Average
10		0.67	43.19	-12.81	56.00	23.10	9.93	10.16	QP
11		1.09	30.67	-15.33	46.00	10.30	10.20	10.17	Average
12		1.09	43.87	-12.13	56.00	23.50	10.20	10.17	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		0.19	45.27	-8.66	53.93	24.79	10.33	10.15	Average
2		0.19	55.17	-8.76	63.93	34.69	10.33	10.15	QP
3		0.22	43.18	-9.78	52.96	22.80	10.23	10.15	Average
4		0.22	53.38	-9.58	62.96	33.00	10.23	10.15	QP
5		0.28	41.94	-8.74	50.68	21.40	10.39	10.15	Average
6		0.28	50.54	-10.14	60.68	30.00	10.39	10.15	QP
7		0.43	41.64	-5.69	47.33	21.50	9.98	10.16	Average
8		0.43	51.64	-5.69	57.33	31.50	9.98	10.16	QP
9		0.70	38.52	-7.48	46.00	18.00	10.36	10.16	Average
10	*	0.70	50.92	-5.08	56.00	30.40	10.36	10.16	QP
11		1.02	33.88	-12.12	46.00	13.50	10.22	10.16	Average
12		1.02	44.98	-11.02	56.00	24.60	10.22	10.16	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 :	Huang weiwei	**Relative Humidity :**	45~50%
		Temperature :	20-24℃

Radiated Spurious Emission Test Modes

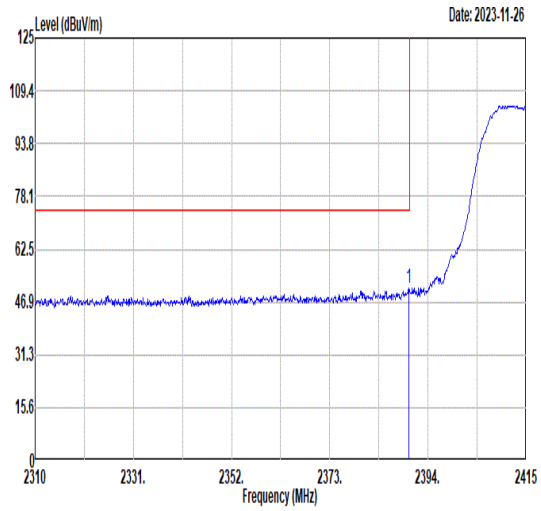
Mode	Band (MHz)	Antenna	Modulation	Channel	Frequency	Data Rate	RU	Remark
Mode 1	2400-2483.5	CDD 1+2	802.11b	01	2412	1Mbps	-	-
Mode 2	2400-2483.5	CDD 1+2	802.11b	06	2437	1Mbps	-	-
Mode 3	2400-2483.5	CDD 1+2	802.11b	11	2462	1Mbps	-	-
Mode 4	2400-2483.5	CDD 1+2	802.11g	01	2412	6Mbps	-	-
Mode 5	2400-2483.5	CDD 1+2	802.11g	06	2437	6Mbps	-	-
Mode 6	2400-2483.5	CDD 1+2	802.11g	11	2462	6Mbps	-	-
Mode 7	2400-2483.5	CDD 1+2	802.11n HT20	01	2412	MCS0	-	-
Mode 8	2400-2483.5	CDD 1+2	802.11n HT20	06	2437	MCS0	-	-
Mode 9	2400-2483.5	CDD 1+2	802.11n HT20	11	2462	MCS0	-	-
Mode 10	2400-2483.5	CDD 1+2	802.11n HT40	03	2422	MCS0	-	-
Mode 11	2400-2483.5	CDD 1+2	802.11n HT40	06	2437	MCS0	-	-
Mode 12	2400-2483.5	CDD 1+2	802.11n HT40	09	2452	MCS0	-	-
Mode 13	2400-2483.5	CDD 1+2	802.11g	02	2417	6M		
Mode 14	2400-2483.5	CDD 1+2	802.11g	10	2457	MCS0		
Mode 15	2400-2483.5	CDD 1+2	802.11n HT20	02	2417	MCS0		
Mode 16	2400-2483.5	CDD 1+2	802.11n HT20	10	2457	MCS0		

Summary of each worse mode

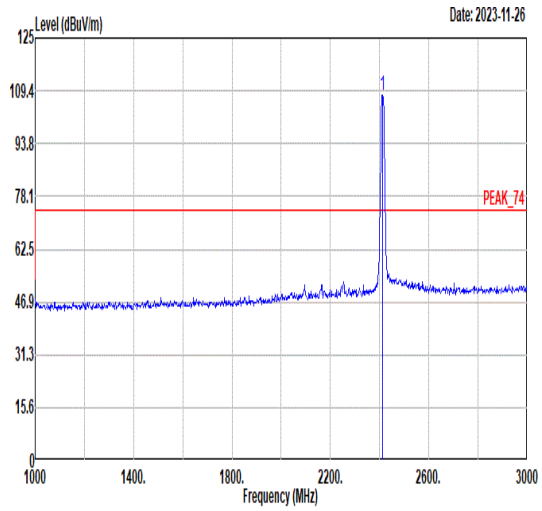
Mode	Modulation	Ch.	Freq. (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Pol.	Peak Avg.	Result	Remark
1	802.11b	01	2389.28	39.68	54.00	-14.32	H	Average	Pass	Band Edge
1	802.11b	01	4824.00	49.62	54.00	-4.38	H	Average	Pass	Harmonic
2	802.11b	06	-	-	-	-	-	-	-	Band Edge
2	802.11b	06	4874.00	50.88	54.00	-3.12	H	Average	Pass	Harmonic
3	802.11b	11	2483.52	45.86	54.00	-8.14	H	Average	Pass	Band Edge
3	802.11b	11	4924.00	53.57	54.00	-0.43	H	Average	Pass	Harmonic
4	802.11g	01	2390	53.58	54	-0.42	-	Average	Pass	Band Edge
4	802.11g	01	4824.00	47.59	74.00	-26.41	V	Peak	Pass	Harmonic
5	802.11g	06	-	-	-	-	-	-	-	Band Edge
5	802.11g	06	4874.00	43.58	54.00	-10.42	V	Average	Pass	Harmonic
6	802.11g	11	2483.52	53.36	54.00	-0.64	H	Average	Pass	Band Edge
6	802.11g	11	4924.00	45.22	54.00	-8.78	V	Average	Pass	Harmonic
7	802.11n HT20	01	2390	52.66	54.00	-1.34	H	Average	Pass	Band Edge
7	802.11n HT20	01	4824.00	43.19	74.00	-30.81	H	Peak	Pass	Harmonic
8	802.11n HT20	06	-	-	-	-	-	-	-	Band Edge
8	802.11n HT20	06	4874.00	45.79	74.00	-28.21	V	Peak	Pass	Harmonic
9	802.11n HT20	11	2483.52	53.33	54.00	-0.67	H	Average	Pass	Band Edge
9	802.11n HT20	11	4924.00	47.18	54.00	-6.82	V	Average	Pass	Harmonic
10	802.11n HT40	03	2389.94	43.17	54.00	-10.83	H	Average	Pass	Band Edge
10	802.11n HT40	03	7266.00	43.76	74.00	-30.24	V	Peak	Pass	Harmonic
11	802.11n HT40	06	-	-	-	-	-	-	-	Band Edge
11	802.11n HT40	06	7311.00	44.31	74.00	-29.69	H	Peak	Pass	Harmonic
12	802.11n HT40	09	2483.50	47.12	54.00	-6.88	H	Average	Pass	Band Edge
12	802.11n HT40	09	7356.00	44.00	74.00	-30.00	V	Peak	Pass	Harmonic
-	802.11g	01	70.74	30.99	40	-9.06	V	Average	Pass	LF
13	802.11g	02	2389.8	51.87	54.00	-2.13	H	Average	Pass	Band Edge
14	802.11g	10	2486.04	51.46	54.00	-2.54	H	Average	Pass	Band Edge
15	802.11n HT20	02	2390	52.45	54.00	-1.55	H	Average	Pass	Band Edge
16	802.11n HT20	10	2483.52	53.06	54.00	-0.94	H	Average	Pass	Band Edge

Mode	1	
	Band Edge	
	2400-2483.5_802.11b_CH01_2412MHz	
ANT	CDD 1+2	
Pol.	Horizontal	Fundamental

Peak

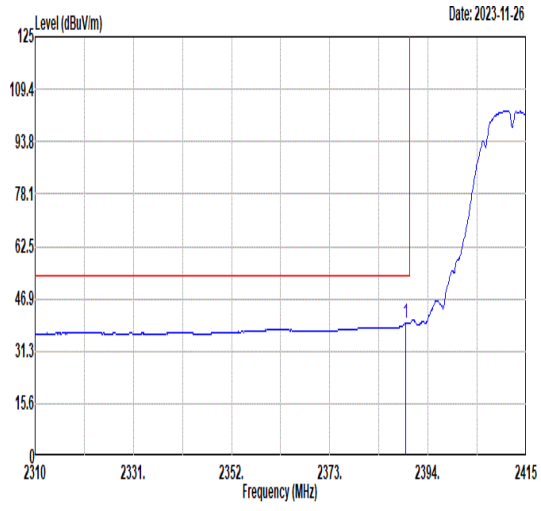


	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg	
1	2389.91	50.75	74.00	-23.25	47.26	32.36	4.80	33.67	108	69	Peak

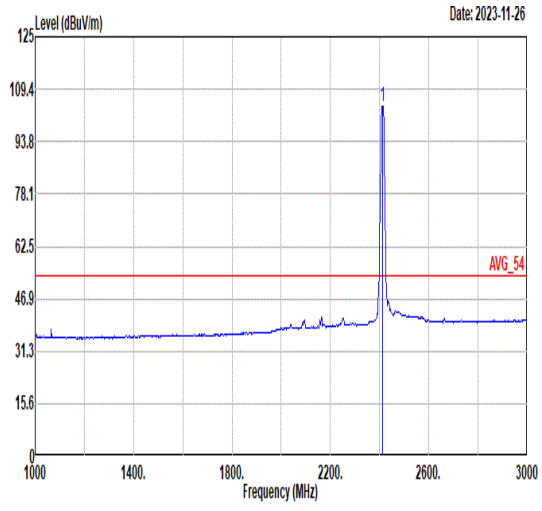


	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg	
1	2412.00	108.13	------	------	104.59	32.37	4.82	33.65	108	69	Peak

Avg



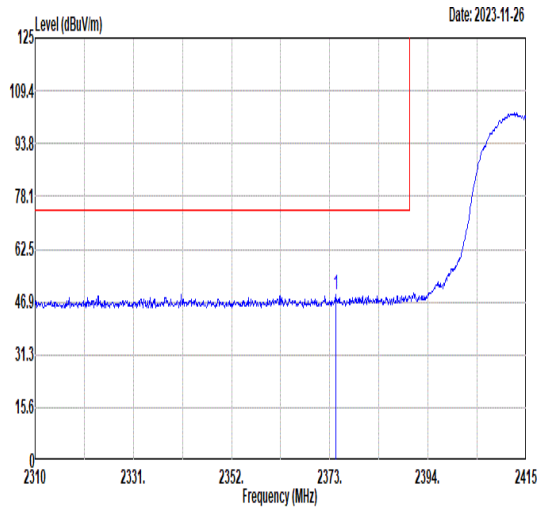
	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg	
1	2389.28	39.68	54.00	-14.32	36.20	32.36	4.79	33.67	108	69	Average



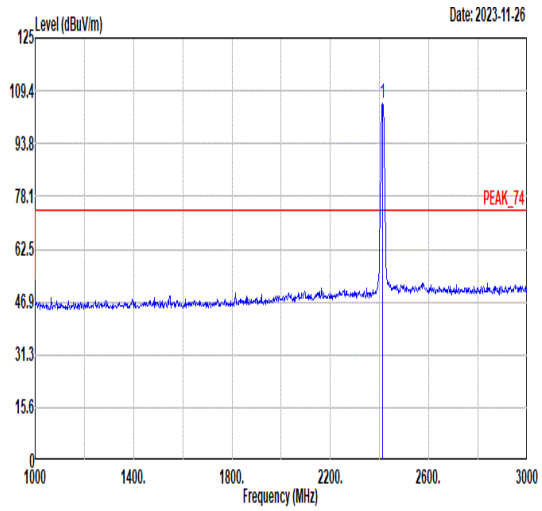
	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg	
1	2412.00	104.28	------	------	100.74	32.37	4.82	33.65	108	69	Average

Mode	1	
	Band Edge	
	2400-2483.5_802.11b_CH01_2412MHz	
ANT	CDD 1+2	
Pol.	Vertical	Fundamental

Peak

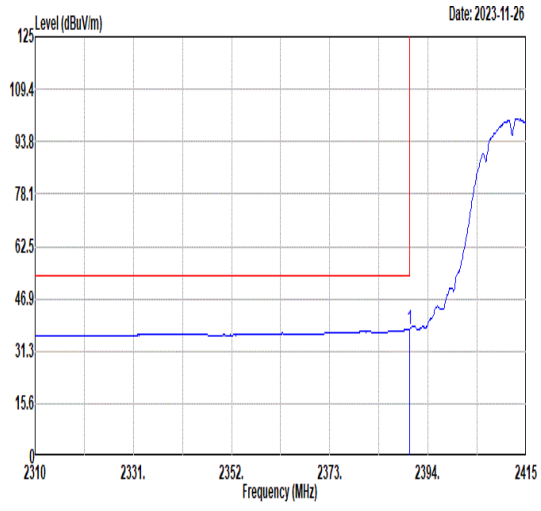


	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg	
1	2374.37	49.28	74.00	-24.72	45.83	32.35	4.78	33.68	338	267	Peak

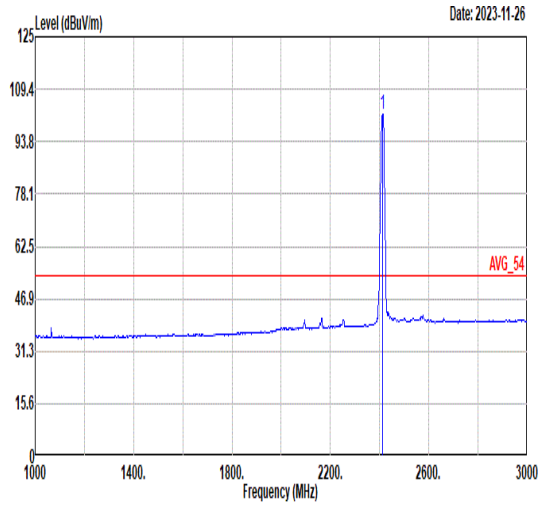


	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg	
1	2412.00	105.72	------	------	102.18	32.37	4.82	33.65	338	267	Peak

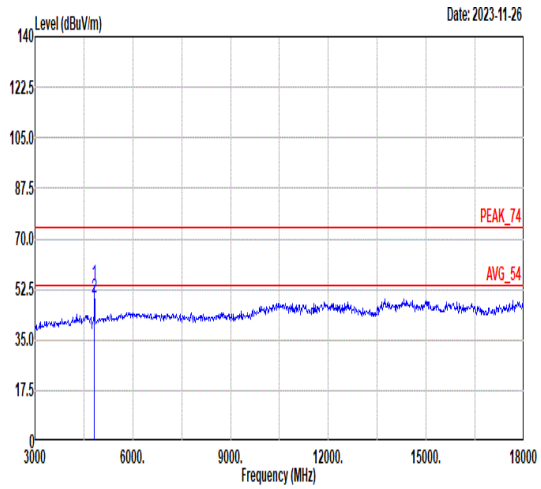
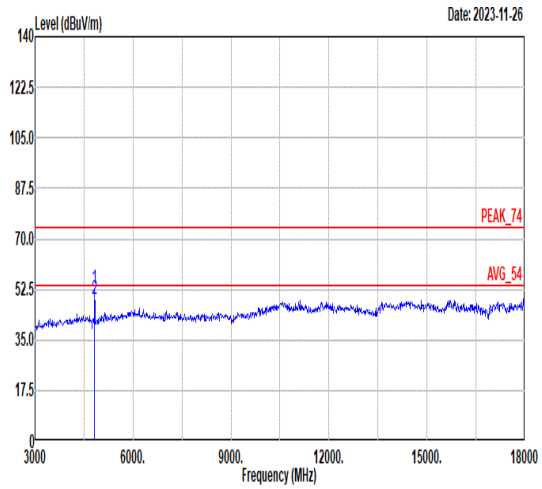
Avg



	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg	
1	2390.00	37.72	54.00	-16.28	34.23	32.36	4.80	33.67	338	267	Average



	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg	
1	2412.00	101.81	------	------	98.27	32.37	4.82	33.65	338	267	Average

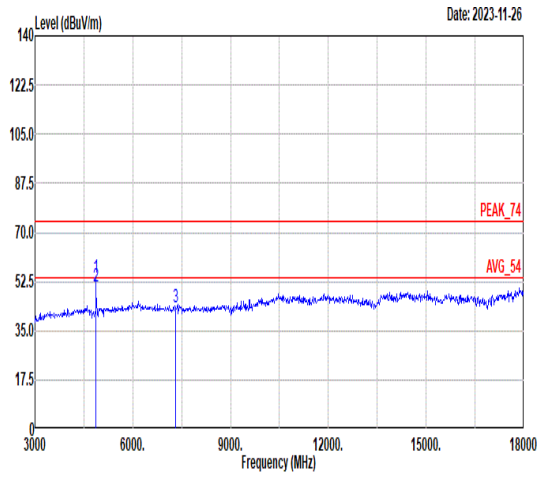
Mode	1	
	Harmonic	
	2400-2483.5_802.11b_CH01_2412MHz	
ANT	CDD 1+2	
Pol.	Horizontal	Vertical
Peak Avg		

	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg	
1	4824.00	54.22	74.00	-19.78	69.55	34.40	7.75	57.48	296	38	Peak
2	4824.00	49.62	54.00	-4.38	64.95	34.40	7.75	57.48	296	38	Average

	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg	
1	4824.00	53.02	74.00	-20.98	68.35	34.40	7.75	57.48	114	85	Peak
2	4824.00	49.19	54.00	-4.81	64.52	34.40	7.75	57.48	114	85	Average

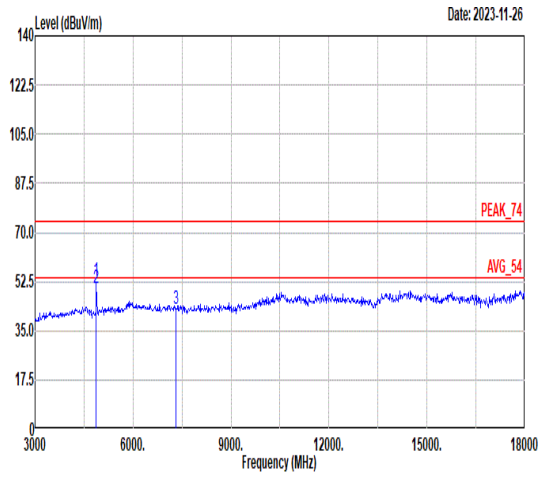
Mode	2	
	Harmonic	
	2400-2483.5_802.11b_CH06_2437MHz	
ANT	CDD 1+2	
Pol.	Horizontal	Vertical

Peak



	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg	
1	4874.00	53.78	74.00	-20.22	69.16	34.37	7.77	57.52	280	40	Peak
2	4874.00	50.88	54.00	-3.12	66.26	34.37	7.77	57.52	280	40	Average
3	7311.00	43.23	74.00	-30.77	57.17	36.05	8.93	58.92	--	--	Peak

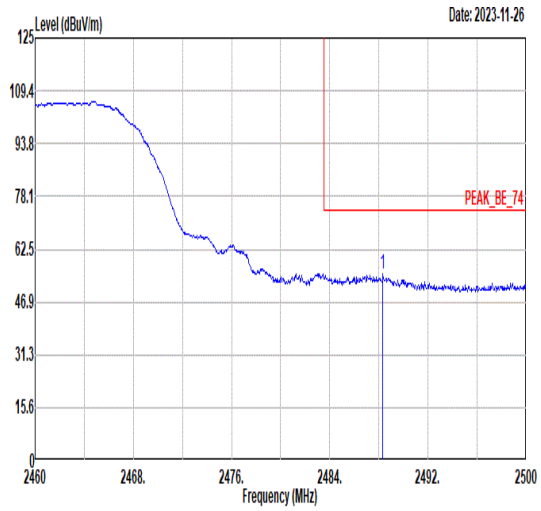
Avg



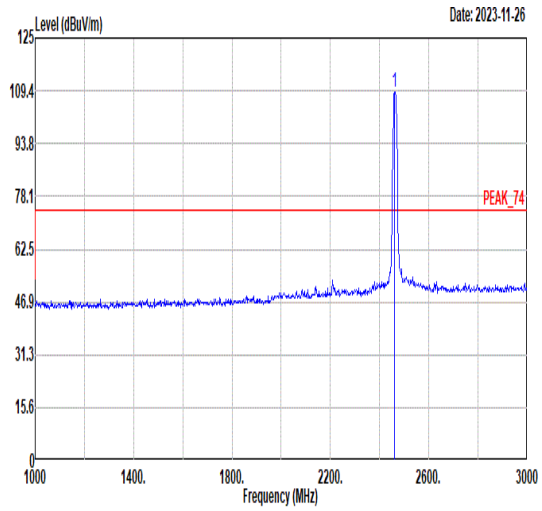
	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg	
1	4874.00	52.88	74.00	-21.12	68.26	34.37	7.77	57.52	103	46	Peak
2	4874.00	49.98	54.00	-4.02	65.36	34.37	7.77	57.52	103	46	Average
3	7311.00	43.05	74.00	-30.95	56.99	36.05	8.93	58.92	--	--	Peak

Mode	3	
	Band Edge	
	2400-2483.5_802.11b_CH11_2462MHz	
ANT	CDD 1+2	
Pol.	Horizontal	Fundamental

Peak

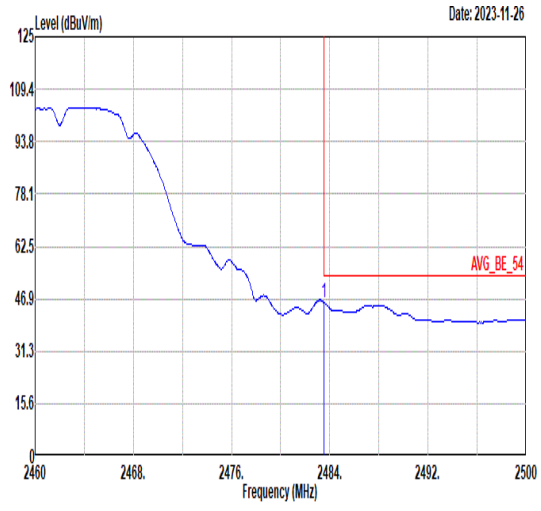


	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg	
1	2488.32	54.95	74.00	-19.05	51.23	32.40	4.93	33.61	111	68	Peak

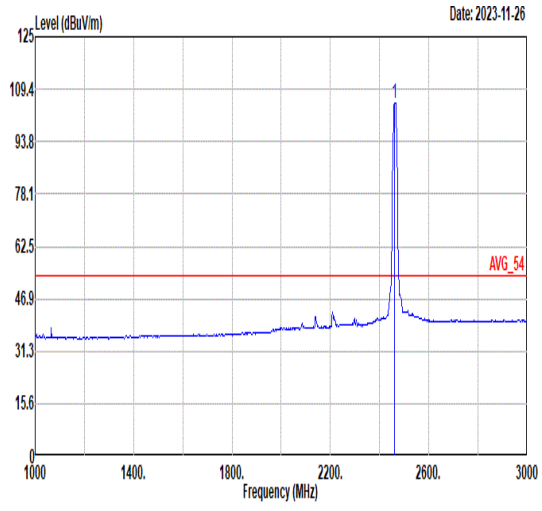


	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg	
1	2462.00	109.07	------	------	105.41	32.39	4.89	33.62	111	68	Peak

Avg



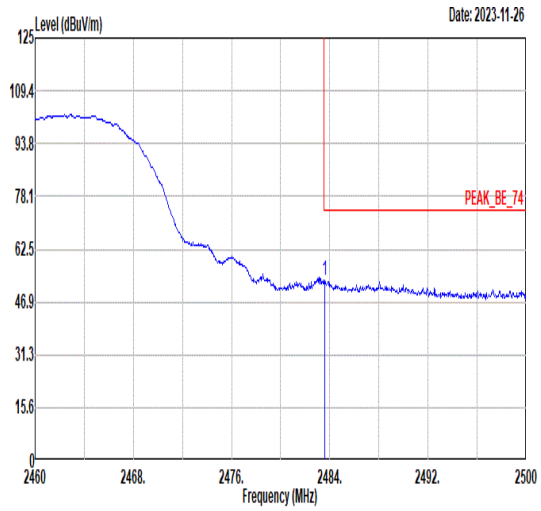
	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg	
1	2483.52	45.86	54.00	-8.14	42.16	32.39	4.92	33.61	111	68	Average



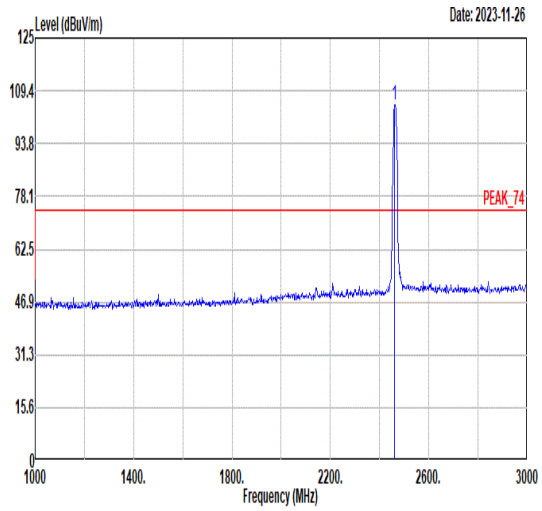
	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg	
1	2462.00	105.41	------	------	101.75	32.39	4.89	33.62	111	68	Average

Mode	3	
	Band Edge	
	2400-2483.5_802.11b_CH11_2462MHz	
ANT	CDD 1+2	
Pol.	Vertical	Fundamental

Peak

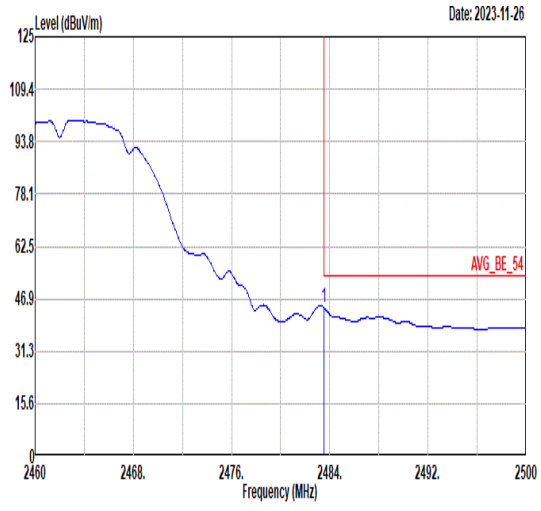


	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg	
1	2483.60	53.16	74.00	-20.84	49.46	32.39	4.92	33.61	358	271	Peak

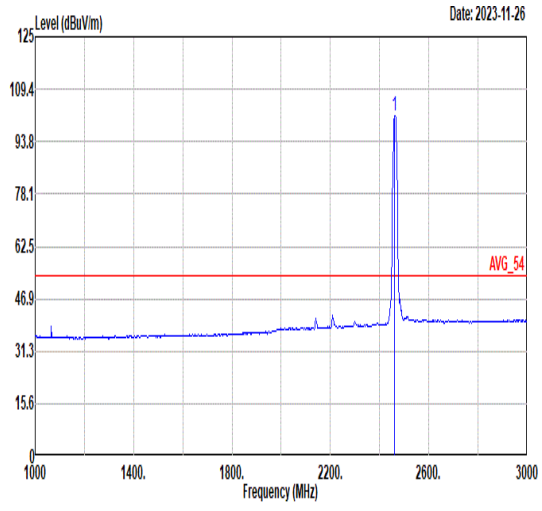


	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg	
1	2462.00	105.38	------	------	101.72	32.39	4.89	33.62	358	271	Peak

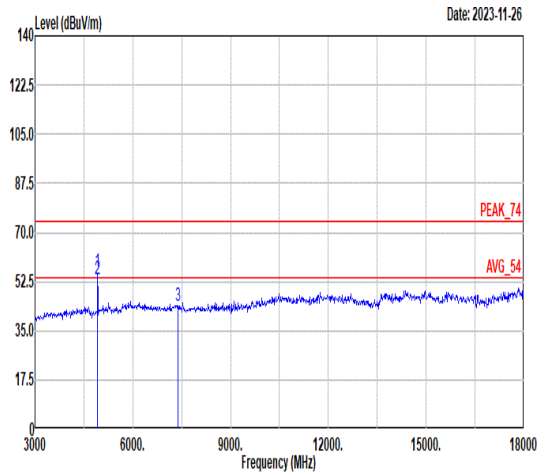
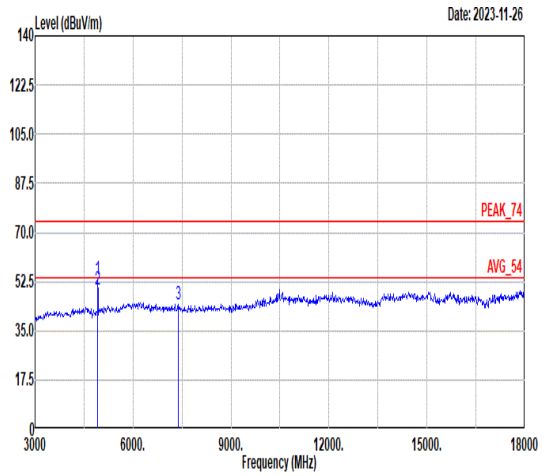
Avg



	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg	
1	2483.52	44.17	54.00	-9.83	40.47	32.39	4.92	33.61	358	271	Average

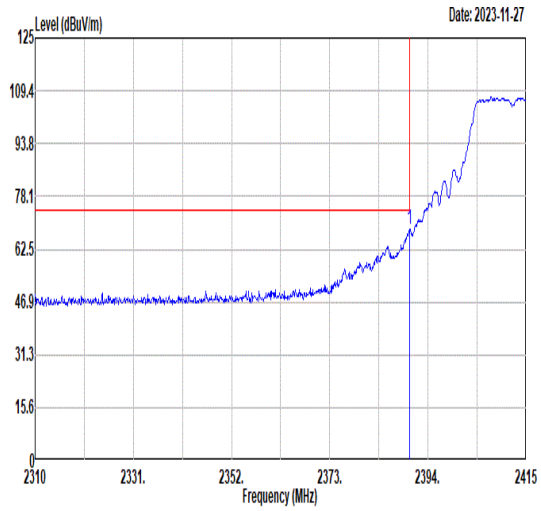
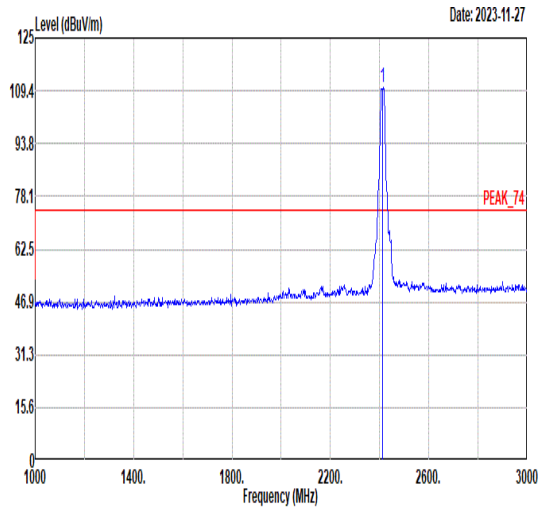
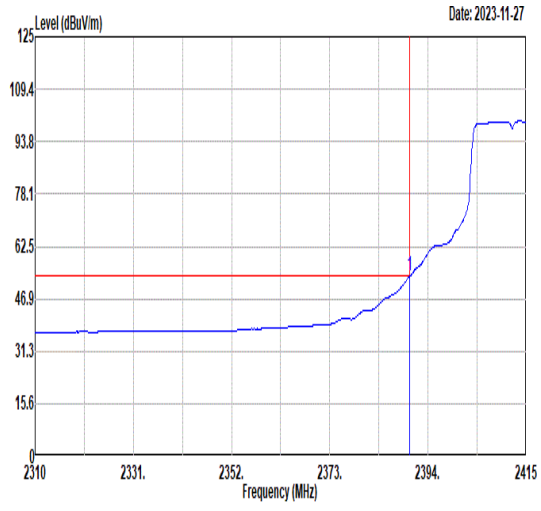
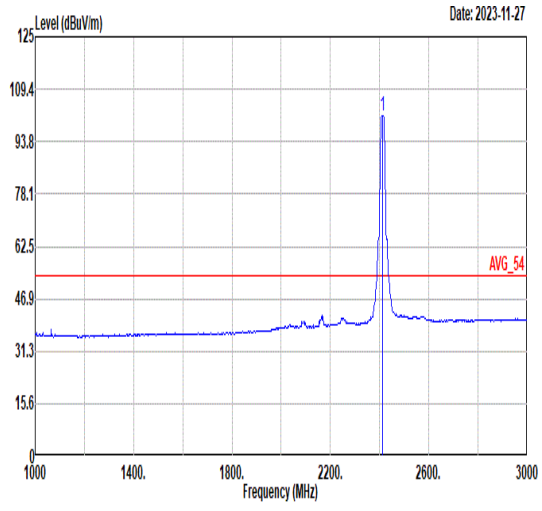


	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg	
1	2462.00	101.41	------	------	97.75	32.39	4.89	33.62	358	271	Average

Mode	3	
	Harmonic	
	2400-2483.5_802.11b_CH11_2462MHz	
ANT	CDD 1+2	
Pol.	Horizontal	Vertical
Peak Avg		

	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg	
1	4924.00	55.77	74.00	-18.23	71.19	34.34	7.79	57.55	342	50	Peak
2	4924.00	53.57	54.00	-0.43	68.99	34.34	7.79	57.55	342	50	Average
3	7386.00	43.99	74.00	-30.01	57.78	35.99	9.17	58.95	--	--	Peak

	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg	
1	4924.00	53.31	74.00	-20.69	68.73	34.34	7.79	57.55	134	80	Peak
2	4924.00	49.47	54.00	-4.53	64.89	34.34	7.79	57.55	134	80	Average
3	7386.00	44.52	74.00	-29.48	58.31	35.99	9.17	58.95	--	--	Peak

Mode	4	
	Band Edge	
	2400-2483.5_802.11g_CH01_2412MHz	
ANT	CDD 1+2	
Pol.	Horizontal	Fundamental
Peak		
Avg		

	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg	
1	2390.00	68.50	74.00	-5.50	65.01	32.36	4.80	33.67	236	69	Peak

	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg	
1	2412.00	110.35	------	------	106.81	32.37	4.82	33.65	236	69	Peak

	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg	
1	2390.00	53.58	54.00	-0.42	50.09	32.36	4.80	33.67	236	69	Average

	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg	
1	2412.00	101.63	------	------	98.09	32.37	4.82	33.65	236	69	Average