



Test Report No:  
23A0149R-RFUSV01S-A

## TEST REPORT

### FCC Rules&Regulations

Product Name	Mesh Wi-Fi Router
Brand Name	Castlenet
Model No.	EBM522CUP, EBM522C, EBM522, EBM522CP, EBM522CU
FCC ID	RK9-EBM522C
Applicant's Name / Address	CastleNet Technology Inc. No. 14, Ln. 141, Sec. 3, Beishen Rd., Shenkeng Dist., New Taipei City 22244, Taiwan (R.O.C.)
Manufacturer's Name / Address	CastleNet Technology Inc. No. 14, Ln. 141, Sec. 3, Beishen Rd., Shenkeng Dist., New Taipei City 22244, Taiwan (R.O.C.)
Test Method Requested, Standard	FCC CFR Title 47 Part 15 Subpart C Section 15.247 ANSI C63.10-2013
Verdict Summary	IN COMPLIANCE
Documented By	<i>Amelia Wu</i> Amelia Wu
Approved By	<i>Rueyuan Lin</i> Rueyuan Lin
Date of Receipt	Oct. 06, 2023
Date of Issue	Dec. 07, 2023
Report Version	V1.0

## INDEX

	<b>page</b>
Competences and Guarantees.....	4
General Conditions.....	4
Revision History.....	5
Summary of Test Result.....	6
Comments and Remarks.....	6
1. General Information.....	7
1.1. EUT Description.....	7
1.2. EUT Information.....	8
1.3. Testing Applied Standards.....	9
1.4. Testing Location Information.....	9
1.5. Measurement Uncertainty.....	9
1.6. List of Test Equipment.....	10
2. Test Configuration of EUT.....	11
2.1. Test Condition.....	11
2.2. Test Frequency Mode.....	11
2.3. Duty Cycle.....	13
2.4. The Worst Case Measurement Configuration.....	15
2.5. Tested System Details.....	16
2.6. Configuration of Tested System.....	16
3. AC Power Line Conducted Emission.....	17
3.1. Test Setup.....	17
3.2. Test Limit.....	17
3.3. Test Procedure.....	17
3.4. Test Result of AC Power Line Conducted Emission.....	17
4. Occupied Bandwidth & DTS Bandwidth.....	18
4.1. Test Setup.....	18
4.2. Test Limit.....	18
4.3. Test Procedures.....	18
4.4. Test Result of Occupied Bandwidth & DTS Bandwidth.....	18
5. Maximum Conducted Output Power.....	19
5.1. Test Setup.....	19
5.2. Test Limit.....	19
5.3. Test Procedures.....	19
5.4. Test Result of Maximum Conducted Output Power.....	19
6. Maximum Power Spectral Density.....	20
6.1. Test Setup.....	20

6.2.	Test Limit .....	20
6.3.	Test Procedures .....	20
6.4.	Test Result of Maximum Power Spectral Density .....	20
7.	Antenna Port Conducted Emission .....	21
7.1.	Test Setup .....	21
7.2.	Test Limit .....	21
7.3.	Test Procedure .....	21
7.4.	Test Result of Antenna Port Conducted Emission .....	21
8.	Transmitter Radiated Spurious Emission .....	22
8.1.	Test Setup .....	22
8.2.	Test Limit .....	23
8.3.	Test Procedure .....	23
8.4.	Test Result of Transmitter Radiated Spurious Emission .....	23
Appendix A. Test Result of AC Power Line Conducted Emission		
Appendix B. Test Result of Occupied Bandwidth & DTS Bandwidth		
Appendix C. Test Result of Maximum Conducted Output Power		
Appendix D. Test Result of Maximum Power Spectral Density		
Appendix E. Test Result of Antenna Port Conducted Emission		
Appendix F. Test Result of Transmitter Radiated Spurious Emission		
Appendix G. Test Setup Photograph		

## Competences and Guarantees

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DEKRA is a testing laboratory competent to carry out the tests described in this report.

In order to assure the traceability to other national and international laboratories, DEKRA has a calibration and maintenance program for its measurement equipment.

DEKRA guarantees the reliability of the data presented in this report, which is the result of the measurements and the tests performed to the item under test on the date and under the conditions stated in the report and it is based on the knowledge and technical facilities available at DEKRA at the time of performance of the test.

DEKRA is liable to the client for the maintenance of the confidentiality of all information related to the item under test and the results of the test.

The results presented in this Test Report apply only to the particular item under test established in this document.

**IMPORTANT:** No parts of this report may be reproduced or quoted out of context, in any form or by any means, except in full, without the previous written permission of DEKRA.

## General Conditions

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1. The test results relate only to the samples tested.
2. The test results shown in the test report are traceable to the national/international standard through the calibration report of the equipment and evaluated measurement uncertainty herein.
3. This report must not be used to claim product endorsement by TAF or any agency of the government.
4. The test report shall not be reproduced without the written approval of DEKRA Testing and Certification Co., Ltd.
5. Measurement uncertainties evaluated for each testing system and associated connections are given here to provide the system information for reference. Compliance determinations do not take into account measurement uncertainties for each testing system, but are based on the results of the compliance measurement.

## Revision History

Version	Description	Issued Date
V1.0	Initial issue of report	Dec. 07, 2023

## Summary of Test Result

Report Clause	Test Items	Result (PASS/FAIL)	Remark
3	AC Power Line Conducted Emission	PASS	-
4	Occupied Bandwidth & DTS Bandwidth	PASS	-
5	Maximum Conducted Output Power	PASS	-
6	Maximum Power Spectral Density	PASS	-
7	Antenna Port Conducted Emission	PASS	-
8	Transmitter Radiated Spurious Emission	PASS	-

### Comments and Explanations

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

## Comments and Remarks

The product specification and testing instructions for the EUT declared in the report are provided by the manufacturer who will take all responsibilities for the accuracy.

## 1. General Information

### 1.1. EUT Description

Frequency Range	2400 ~ 2483.5 MHz	
Operating Frequency	IEEE 802.11b/g IEEE 802.11n/ac/ax (20 MHz)	2412 ~ 2462 MHz
	IEEE 802.11n/ac/ax (40 MHz)	2422 ~ 2452 MHz
Channel Number	IEEE 802.11b/g IEEE 802.11n/ac/ax (20 MHz)	11 Channels
	IEEE 802.11n/ac/ax (40 MHz)	7 Channels
Type of Modulation	IEEE 802.11b	DSSS-DBPSK, DQPSK, CCK
	IEEE 802.11g/n	OFDM-BPSK, QPSK, 16QAM, 64QAM
	IEEE 802.11ac	OFDM-BPSK, QPSK, 16QAM, 64QAM, 256QAM
	IEEE 802.11ax	OFDMA-BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM

Accessories Information				
No.	Equipment Name	Brand Name	Model No.	Rating
1	Adapter 1	MOSO	MS-V1500R120-018H0 -US(SC411-U0)	INPUT:AC100 ~ 240V, 50/60Hz, 0.6A Max OUTPUT: DC12.0V, 1.5A
2	Adapter 2	Chenyang	CYAPYL18-120150U	INPUT:AC100 ~ 240V, 50/60Hz, 0.6A Max OUTPUT: DC12.0V, 1.5A
No.	Equipment Name	Brand Name	Model No.	Description
3	RJ-45 Cable 1	EEK SONG	PF01-C111	Non-Shielded, 1.0m
4	RJ-45 Cable 2	EEK SONG	PF01-C122	Non-Shielded, 1.8m
5	RJ-45 Cable 3	HOP	G-HOP802-223-001	Non-Shielded, 1.8m

The difference for each model is shown as below:

Configuration	Model No.	USB port	Power button
1	EBM522C, EBM522	X	X
2	EBM522CP	X	V
3	EBM522CU	V	X
4	EBM522CUP	V	V

From the above models, model: EBM522CUP was selected as representative model for the test and its data was recorded in this report.

EBM522 and EBM522C are the same, just for marketing purpose.

Antenna Information					
Ant.	Brand Name	Model No.	Type	Antenna Gain (dBi)	Directional Gain (dBi)
0	Lynwave	ALX22P-221AA2-00	Dipole	3	5.715
1	Lynwave	ALX21P-221AAH-00	Dipole	2.4	

$$\text{Directional Gain} = 10\log [(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{\text{Ant}}]$$

**For IEEE 802.11b/g/n/ac/ax Mode: (2TX, 2RX)**

Both Ant. 0 and Ant. 1 can be used as transmitting/receiving antennas, and they can transmit/receive signal simultaneously.

## 1.2. EUT Information

EUT Power Type	From Adapter			
EUT Function	<input checked="" type="checkbox"/>	Point-to-multipoint	<input type="checkbox"/>	Point-to-point
Beamforming Function	<input checked="" type="checkbox"/>	With beamforming	<input type="checkbox"/>	Without beamforming
Resource Unit of 802.11ax	<input checked="" type="checkbox"/>	Full RU	<input type="checkbox"/>	Partial RU



### 1.3. Testing Applied Standards

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

- ◆ 47 CFR FCC Part 15
- ◆ ANSI C63.10-2013

The following reference test guidance is not within the scope of accreditation of TAF:

- ◆ KDB 558074 D01 v05r02
- ◆ KDB 662911 D01 v02r01
- ◆ KDB 414788 D01 v01r01

### 1.4. Testing Location Information

Testing Location Information		
Test Laboratory : DEKRA Testing and Certification Co., Ltd.		
1 (TAF: 3024)	ADD: No.372-2, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County 31061, Taiwan, R.O.C. TEL: +886-3-582-8001 FAX: +886-3-582-8958	
2 (TAF: 3024)	ADD: No.372, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County 31061, Taiwan, R.O.C. TEL: +886-3-582-8001 FAX: +886-3-582-8958	
Test site number for address 1 includes HC-SR02. Test site number for address 2 includes HC-CB02, HC-CB03, HC-CB04, HC-SR10 and HC-SR12.		

Test Condition	Test Site No.	Test Engineer	Test Environment (°C / %)	Test Date
AC Conduction Emission	HC-SR02	Igor Tseng	21.2 / 56	2023/11/02
RF Conducted Emission	HC-SR12	Scott Chang	24~25.3 / 56~63	2023/11/01~2023/11/16
Radiated Emission	HC-CB04	Gary Liao	22~23 / 60~62	2023/10/16~2023/10/25

### 1.5. Measurement Uncertainty

Uncertainties have been calculated according to the DEKRA internal document with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2)).

Test Item	Uncertainty
AC Power Line Conducted Emission	± 2.34 dB
Occupied Bandwidth & DTS Bandwidth	± 282.55 Hz
Maximum Conducted Output Power	± 1.16 dB
Maximum Power Spectral Density	± 2.47 dB
Antenna Port Conducted Emission	± 2.47 dB
Transmitter Radiated Spurious Emission	± 3.52 dB below 1 GHz ± 3.56 dB above 1 GHz

## 1.6. List of Test Equipment

### HC-SR02

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Cal. Date	Next Cal. Date
Artificial Mains Network	R&S	ENV4200	848411/010	9kHz-30MHz, 4line/100A	2022/12/19	2023/12/18
EMI Test Receiver	R&S	ESR3	102608	9 kHz - 3.6 GHz	2023/09/19	2024/09/18
LISN	R&S	ENV216	100096	9kHz-30MHz	2023/06/02	2024/06/01
Coaxial Cable(9m)	Harbour	RG-400	HC-SR02	9 kHz-2500 MHz	2023/08/04	2024/08/03
DEKRA Testing System	AUDIX	e3 210616 dekra V9	HC-SR02	N/A	N/A	N/A

### HC-SR12

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Cal. Date	Next Cal. Date
High Speed Peak Power Meter Dual Input	Anritsu	ML2496A	1602004	0.3-40 GHz	2023/10/25	2024/10/24
Pulse Power Sensor	Anritsu	MA2411B	1531043	0.3-40 GHz	2023/10/25	2024/10/24
Pulse Power Sensor	Anritsu	MA2411B	1531044	0.3-40 GHz	2023/10/25	2024/10/24
Signal & Spectrum Analyzer	R&S	FSV40	101869	10Hz-40GHz	2023/07/03	2024/07/02

### HC-CB04

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Cal. Date	Next Cal. Date
Signal and Spectrum Analyzer	R&S	FSVA40	101435	10 Hz-40 GHz	2023/05/29	2024/05/28
EXA Signal Analyzer	Keysight	N9010A	MY51440132	10 Hz-44 GHz	2022/12/13	2023/12/12
Trilog Broadband Antenna	Schwarzbeck	VULB 9168	1209	30 MHz-2 GHz	2023/06/13	2024/06/12
Double Ridged Horn Antenna	RF SPIN	DRH18-E	211212A18EN	1G-18GHz	2022/11/15	2023/11/14
Pre-Amplifier	EMCI	EMC01820I	980364	30M-8 GHz,20 dB	2023/06/06	2024/06/05
Pre-Amplifier	EMEC	EM01G18GA	060835	1-18 GHz,50 dB	2023/07/24	2024/07/23
Pre-Amplifier	DEKRA	AP-400C	201801231	18G-40 GHz,48 dB	2023/10/03	2024/10/02
Coaxial Cable(11m)	Suhner	SF102_SF104	HC-CB04	30M-18 GHz	2023/08/08	2024/08/07
Coaxial Cable(3m)	Suhner,Rosnol	SF102_UP0264	HC-CB04-1	18G-40 GHz	2023/08/14	2024/08/13
EMI Test Receiver	R&S	ESR7	102260	10 Hz-7 GHz	2022/12/01	2023/11/30
Magnetic Loop Antenna	Teseq	HLA 6121	44287	0.01-30 MHz	2023/10/13	2024/10/12
Radiated Software	AUDIX	e3 V9	HC-CB04_1	N/A	N/A	N/A

Note: All equipment upon which need to calibrated are with calibration period of 1 year.

## 2. Test Configuration of EUT

### 2.1. Test Condition

EUT Operational Condition	
Testing Voltage	AC 120V/60Hz

### 2.2. Test Frequency Mode

Test Software Version	M Tool v3.1.0.6
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<Non-beamforming mode>

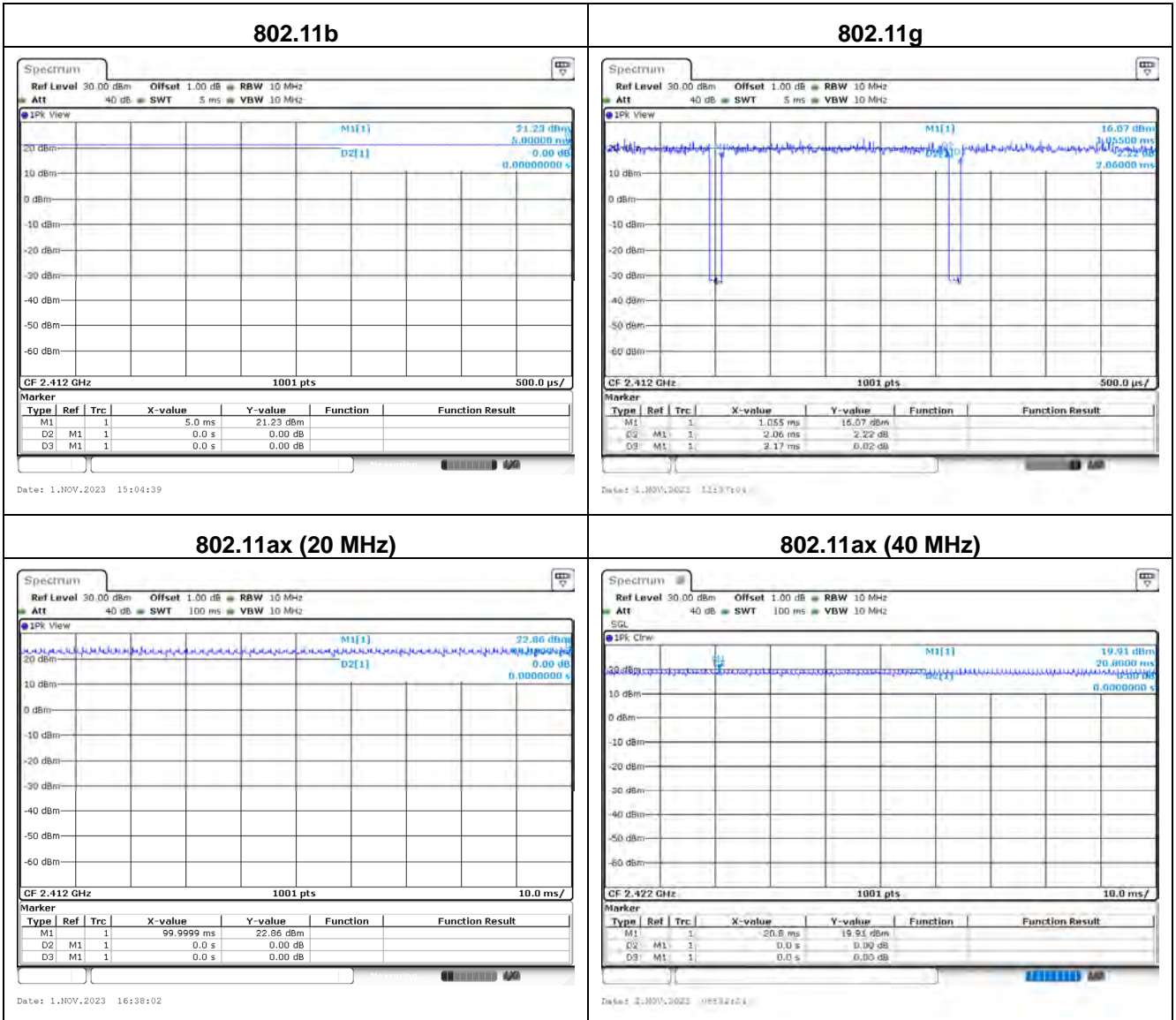
Modulation	Frequency (MHz)	Power Setting
802.11b	2412	84.0
	2417	85.0
	2437	92.0
	2457	84.0
	2462	84.0
802.11g	2412	66.0
	2417	74.0
	2437	84.0
	2457	75.0
	2462	65.0
802.11ax (20 MHz)	2412	68.0
	2417	76.0
	2437	82.0
	2457	73.0
	2462	64.0
802.11ax (40 MHz)	2422	64.0
	2427	65.0
	2437	70.0
	2447	65.0
	2452	64.0

## &lt;Beamforming mode&gt;

Modulation	Frequency (MHz)	Power Setting
802.11ax (20 MHz)	2412	56.0
	2417	64.0
	2437	70.0
	2457	61.0
	2462	52.0
802.11ax (40 MHz)	2422	52.0
	2427	53.0
	2437	58.0
	2447	53.0
	2452	52.0

### 2.3. Duty Cycle

Modulation	On Times (ms)	On+Off Times (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T Minimum VBW (kHz)
802.11b	-	-	100.00	0.000	0.010
802.11g	2.060	2.170	94.93	0.226	0.485
802.11ax (20 MHz)	-	-	100.00	0.000	0.010
802.11ax (40 MHz)	-	-	100.00	0.000	0.010



## 2.4. The Worst Case Measurement Configuration

Tests Item	AC Power Line Conducted Emission
Test Condition	AC power line conducted measurement for line and neutral
Operating Mode	Transmit
1	EUT + Adapter 1
2	EUT + Adapter 2

Tests Item	Occupied Bandwidth & DTS Bandwidth Maximum Conducted Output Power Maximum Power Spectral Density Antenna Port Conducted Emission
Test Condition	Conducted measurement at transmit chains

Tests Item	Transmitter Radiated Spurious Emission
Test Condition	Radiated measurement If EUT consist of multiple antenna assembly (multiple antenna are used in EUT regardless of spatial multiplexing MIMO configuration), the radiated test should be performed with highest antenna gain of each antenna type.
Operating Mode < 1GHz	Transmit
1	EUT + Adapter 1
2	EUT + Adapter 2
Operating Mode > 1GHz	Transmit

The EUT was performed at X axis, Y axis and Z axis position for transmitter radiated spurious emission test. The worst case was found at Y axis, so the measurement will follow this same test configuration.

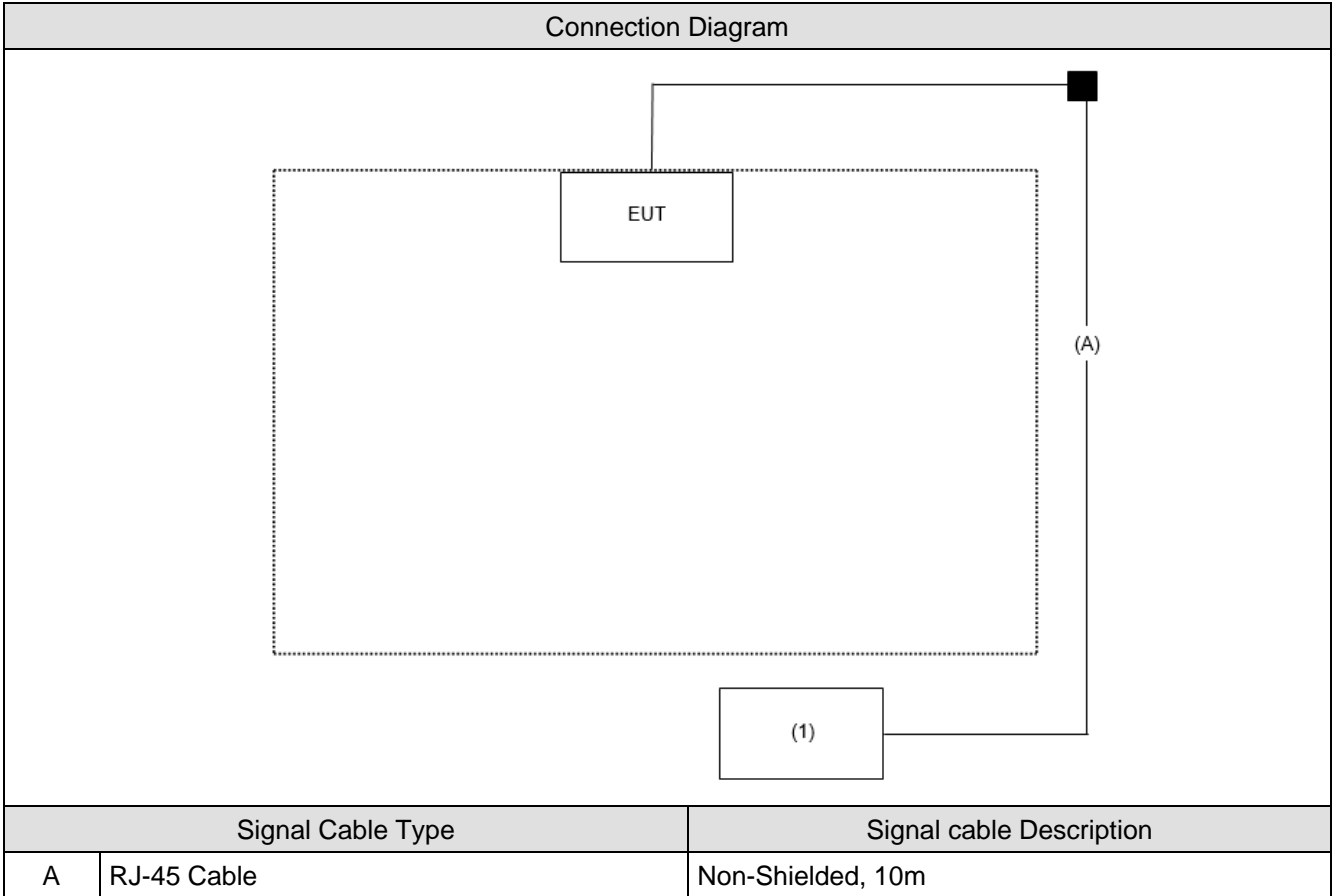
### Note:

1. Determining compliance shall be based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
2. For radiated emission below 1 GHz and AC power line conducted emission have performed all modes of operation were investigated and the worst-case emissions are reported.
3. The device was evaluated and the total power of the 802.11n mode and 802.11ac mode does not exceed that of the 802.11ax mode, so the outcome of the 802.11ax mode is reported in this report.
4. This device does not support "802.11ax Channel Puncturing" function.

## 2.5. Tested System Details

No.	Equipment	Brand Name	Model No.	Serial No.
1	Notebook	ASUS	E402S	GBN0CV14W224476

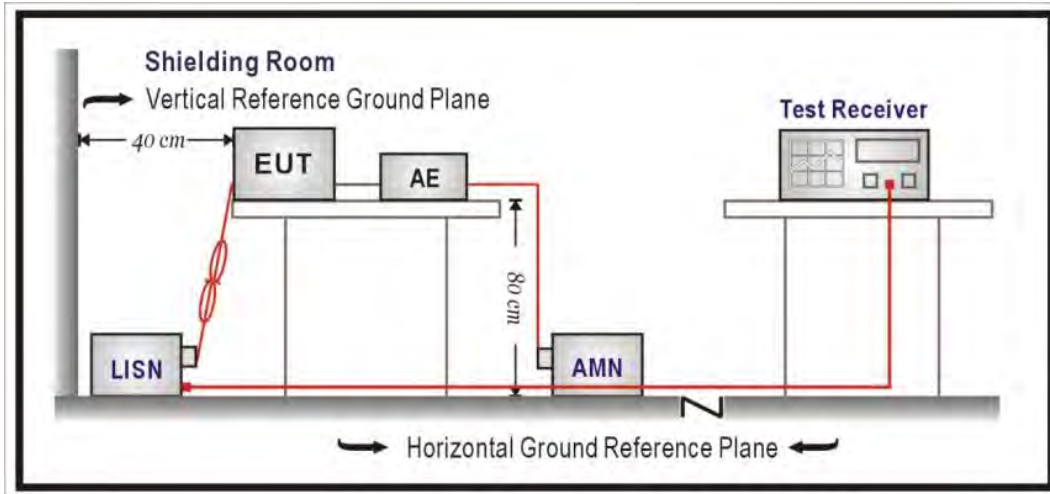
## 2.6. Configuration of Tested System





### 3. AC Power Line Conducted Emission

#### 3.1. Test Setup



#### 3.2. Test Limit

Frequency (MHz)	QP (dBuV)	AV (dBuV)
0.15 - 0.50	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30	60	50

Remarks: In the above table, the tighter limit applies at the band edges.

#### 3.3. Test Procedure

The EUT was setup according to ANSI C63.10: 2013. The EUT was placed on a platform of nominal size, 1 m by 1.5 m, raised 80 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 80 cm from any other grounded conducting surface. The EUT and simulators are connected to the main power through a line impedance stabilization network (LISN). The LISN provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN. (Please refer to the block diagram of the test setup and photographs.)

Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor, was individually connected through a LISN to the input power source.

The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length.

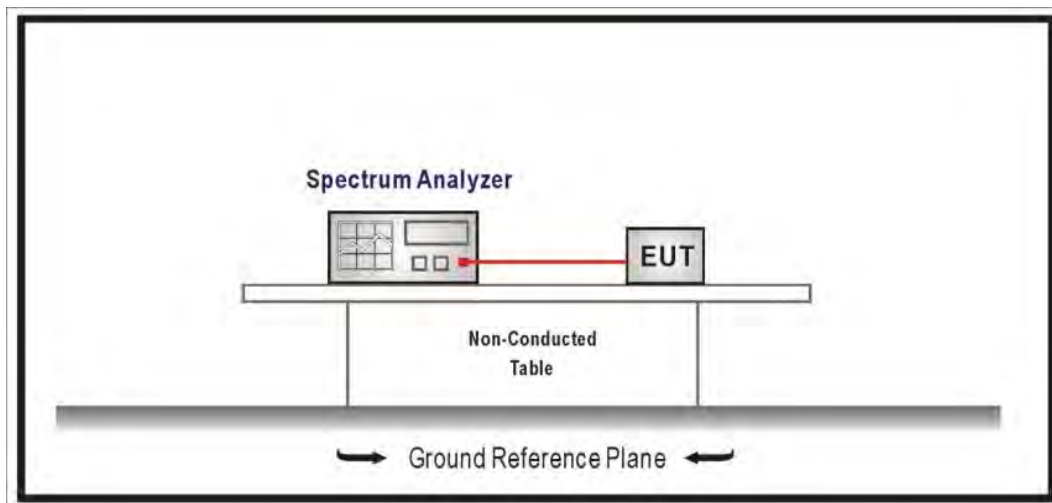
Conducted emissions were investigated over the frequency range from 0.15 MHz to 30 MHz using a receiver bandwidth of 9 kHz.

#### 3.4. Test Result of AC Power Line Conducted Emission

Refer as Appendix A

## 4. Occupied Bandwidth & DTS Bandwidth

### 4.1. Test Setup



### 4.2. Test Limit

The 6 dB bandwidth:  $\geq 0.50$  MHz.

Occupied Bandwidth: N/A

### 4.3. Test Procedures

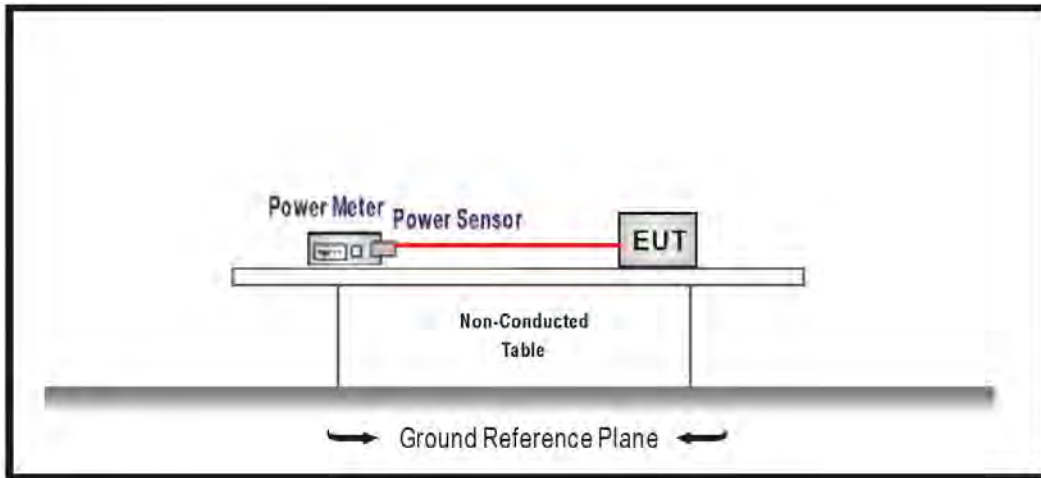
The EUT was setup according to ANSI C63.10: 2013; tested according to DTS test procedure of KDB 558074.

### 4.4. Test Result of Occupied Bandwidth & DTS Bandwidth

Refer as Appendix B

## 5. Maximum Conducted Output Power

### 5.1. Test Setup



### 5.2. Test Limit

The maximum conducted output power shall be less 30 dBm (1 Watt).

### 5.3. Test Procedures

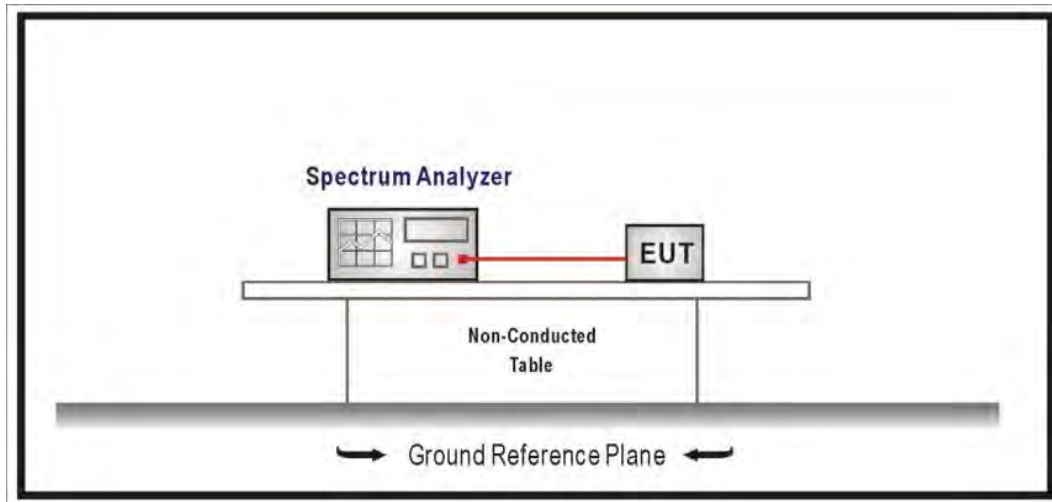
The EUT was setup according to ANSI C63.10: 2013; tested according to DTS test procedure of KDB 558074.

### 5.4. Test Result of Maximum Conducted Output Power

Refer as Appendix C

## 6. Maximum Power Spectral Density

### 6.1. Test Setup



### 6.2. Test Limit

The peak power spectral density conducted from the intentional radiated to the antenna shall not be greater than +8 dBm in any 3 kHz band during any time interval of continuous transmission.

### 6.3. Test Procedures

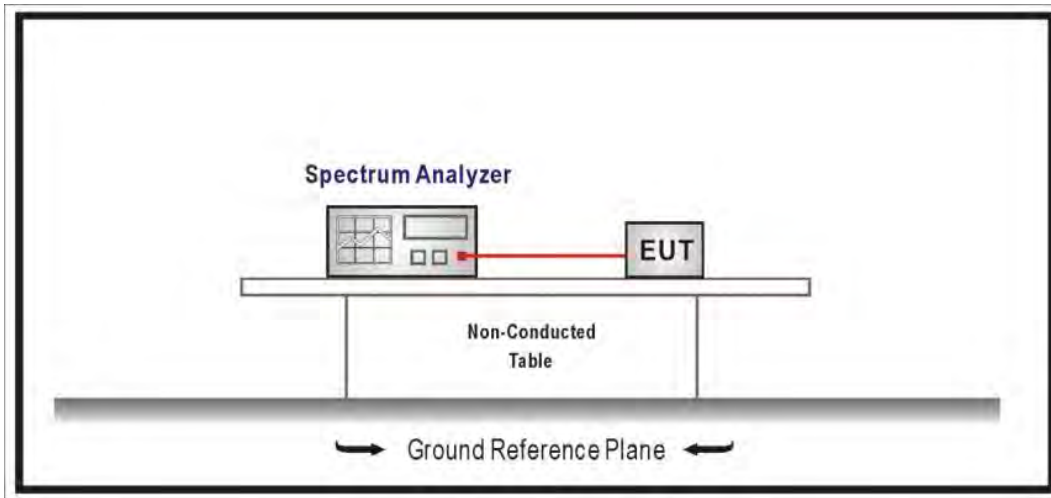
The EUT was setup according to ANSI C63.10: 2013; tested according to DTS test procedure of KDB 558074.

### 6.4. Test Result of Maximum Power Spectral Density

Refer as Appendix D

## 7. Antenna Port Conducted Emission

### 7.1. Test Setup



### 7.2. Test Limit

RF output power procedure	Limit (dBc)
Peak output power procedure	20
Average output power procedure	30

Remarks:

1. In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limit.
2. If the transmitter complies with the conducted power limit 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.

### 7.3. Test Procedure

The EUT was setup according to ANSI C63.10: 2013 and tested according to DTS test procedure of KDB 558074.

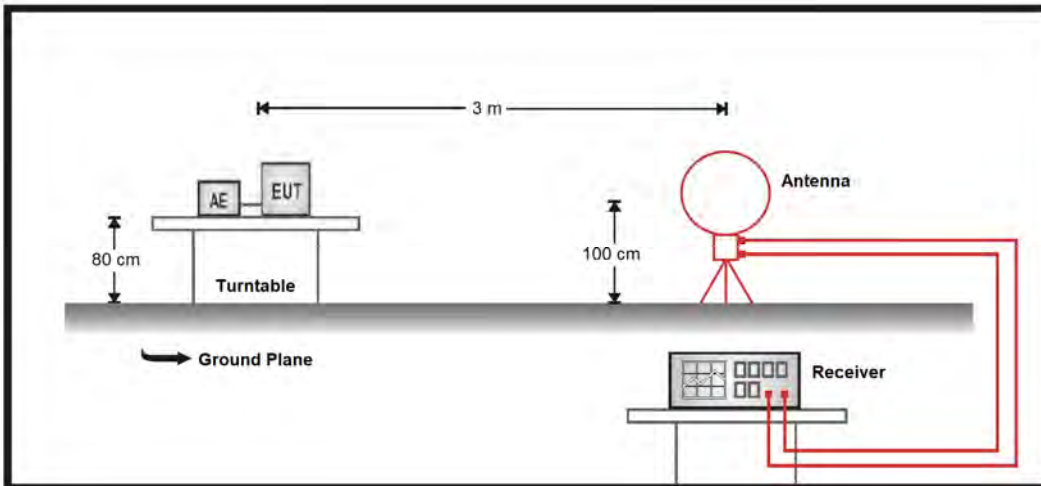
### 7.4. Test Result of Antenna Port Conducted Emission

Refer as Appendix E

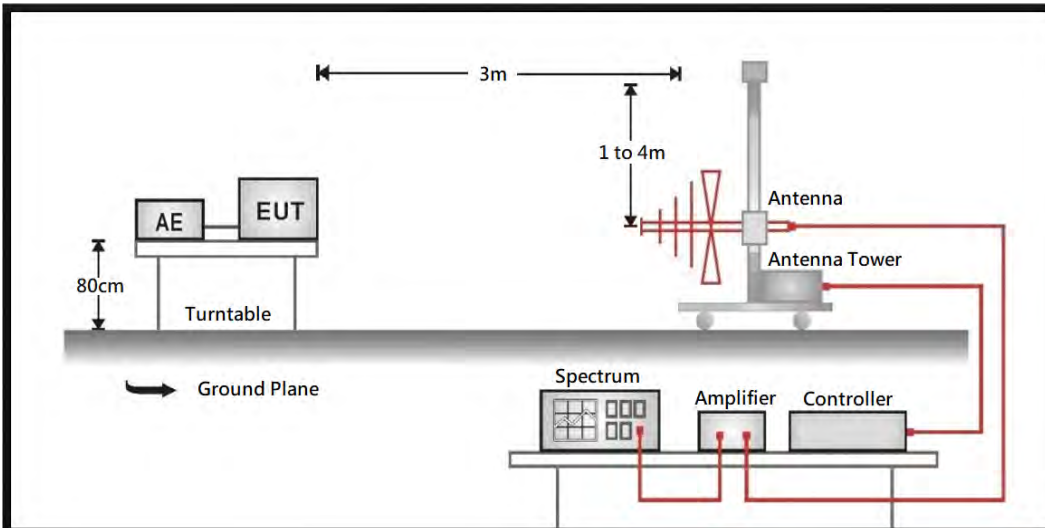
## 8. Transmitter Radiated Spurious Emission

### 8.1. Test Setup

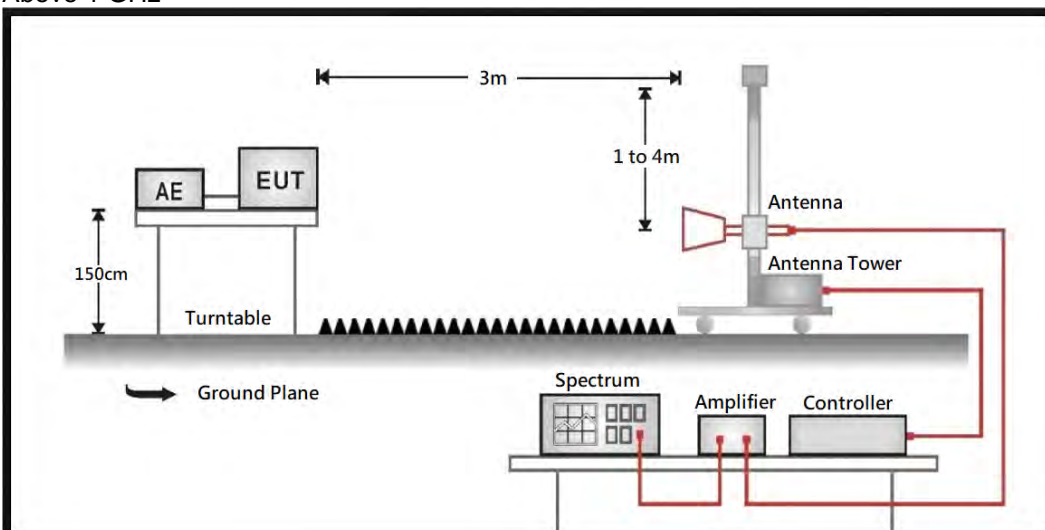
9 kHz ~ 30 MHz



30 MHz ~ 1 GHz



Above 1 GHz



## 8.2. Test Limit

Frequency (MHz)	Field strength (uV/m)	Field strength (dBuV/m)	Measurement distance (m)
0.009 – 0.490	2400/F(kHz)	20 log (2400/F(kHz))	300
0.490 – 1.705	24000/F(kHz)	20 log (24000/F(kHz))	30
1.705 - 30	30	29.5	30
30 - 88	100	40	3
88 - 216	150	43.5	3
216 - 960	200	46	3
Above 960	500	54	3

Remarks:

1. Field strength (dBuV/m) = 20 log Field strength (uV/m)
2. In the Above Table, the tighter limit applies at the band edges.
3. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

## 8.3. Test Procedure

The EUT was setup according to ANSI C63.10: 2013 and tested according to DTS test procedure of KDB 558074.

The EUT and its simulators are placed on a turn table which is 0.8 or 1.5 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level.

The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.10: 2013 on radiated measurement.

On any frequency or frequencies from 9 kHz(include The the lowest oscillator frequency generated within the device up to the 10th harmonic) to 1000 MHz, the limit shown are based on measuring equipment employing a quasi-peak detector function and on any frequency or frequencies above 1000 MHz the radiated limit shown are based upon the use of measurement instrumentation employing an average detector function. When average radiated emission measurement are included emission measurement below 1000 MHz, there also is a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit.

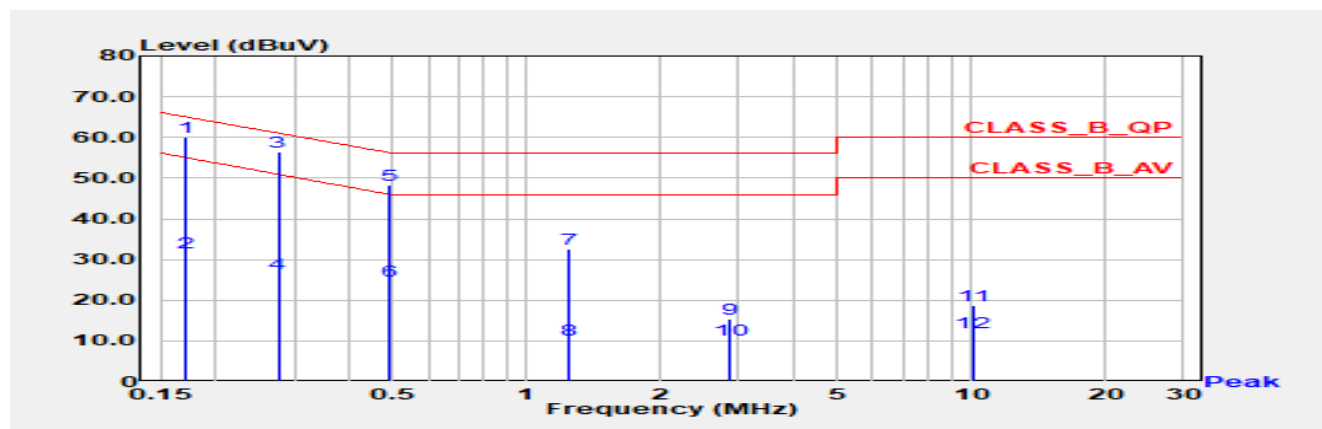
The bandwidth below 1 GHz setting on the field strength meter is 120 kHz and above 1 GHz is 1 MHz.

## 8.4. Test Result of Transmitter Radiated Spurious Emission

Refer as Appendix F

## Appendix A. Test Result of AC Power Line Conducted Emission

Test Mode	Mode 1: EUT + Adapter 1	Phase	Line
Test Condition	802.11b / Ant. 0 + Ant. 1 / 2417 MHz		



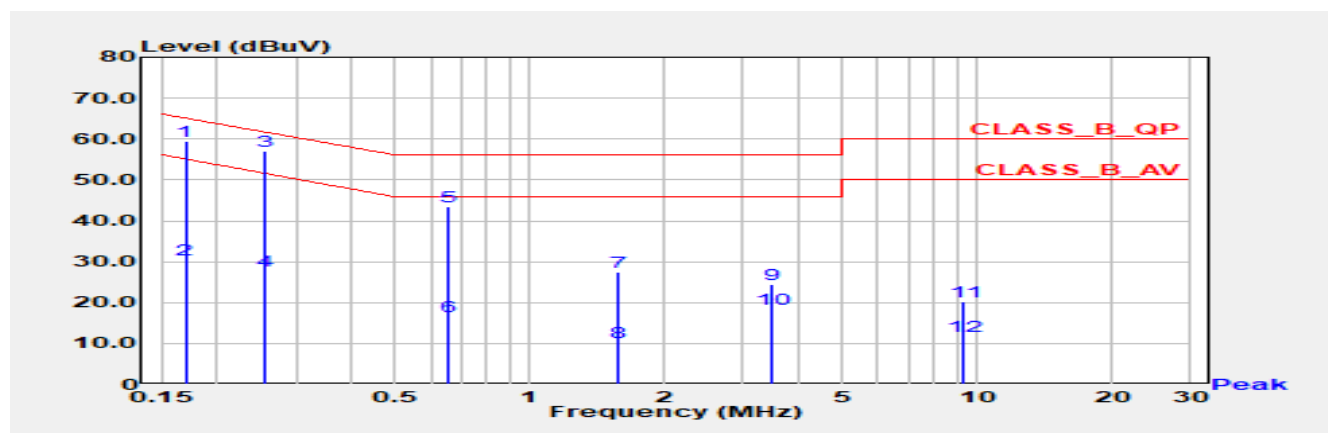
No	Frequency (MHz)	Emission Level (dBuV)	Limit (dBuV)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	0.172	60.08	64.88	-4.80	50.46	9.62	QP
2	0.172	31.58	54.88	-23.30	21.96	9.62	AV
*3	0.276	56.55	60.94	-4.39	46.93	9.62	QP
4	0.276	26.57	50.94	-24.37	16.94	9.62	AV
5	0.491	48.35	56.15	-7.80	38.70	9.65	QP
*6	0.491	24.62	46.15	-21.53	14.97	9.65	AV
7	1.251	32.47	56.00	-23.53	22.76	9.71	QP
8	1.251	10.25	46.00	-35.75	0.54	9.71	AV
9	2.865	15.35	56.00	-40.65	5.56	9.79	QP
10	2.865	10.25	46.00	-35.75	0.46	9.79	AV
11	10.045	18.67	60.00	-41.33	8.58	10.09	QP
12	10.045	11.96	50.00	-38.04	1.87	10.09	AV

Remark:

1. "\*" means this data is the worst emission level.
2. Emission Level = Reading Level + Correct Factor (Correct Factor = LISN Insertion Loss + Cable Loss).
3. Margin = Emission Level - Limit.



Test Mode	Mode 1: EUT + Adapter 1	Phase	Neutral
Test Condition	802.11b / Ant. 0 + Ant. 1 / 2417 MHz		

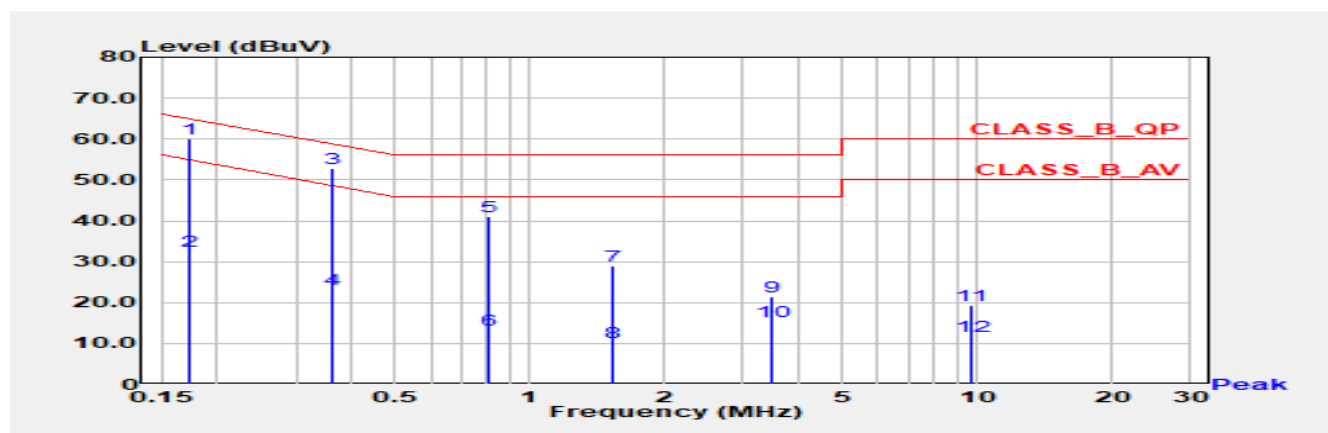


No	Frequency (MHz)	Emission Level (dBuV)	Limit (dBuV)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	0.170	59.45	64.98	-5.53	49.83	9.62	QP
2	0.170	30.42	54.98	-24.55	20.80	9.62	AV
*3	0.256	57.16	61.57	-4.40	47.54	9.62	QP
*4	0.256	27.68	51.57	-23.88	18.06	9.62	AV
5	0.653	43.39	56.00	-12.61	33.72	9.67	QP
6	0.653	16.51	46.00	-29.49	6.85	9.67	AV
7	1.581	27.50	56.00	-28.50	17.77	9.73	QP
8	1.581	10.37	46.00	-35.63	0.64	9.73	AV
9	3.488	24.48	56.00	-31.52	14.66	9.82	QP
10	3.488	18.33	46.00	-27.67	8.51	9.82	AV
11	9.339	20.10	60.00	-39.90	10.04	10.06	QP
12	9.339	11.89	50.00	-38.11	1.82	10.06	AV

Remark:

1. "\*" means this data is the worst emission level.
2. Emission Level = Reading Level + Correct Factor (Correct Factor = LISN Insertion Loss + Cable Loss).
3. Margin = Emission Level - Limit.

Test Mode	Mode 2: EUT + Adapter 2	Phase	Line
Test Condition	802.11b / Ant. 0 + Ant. 1 / 2417 MHz		

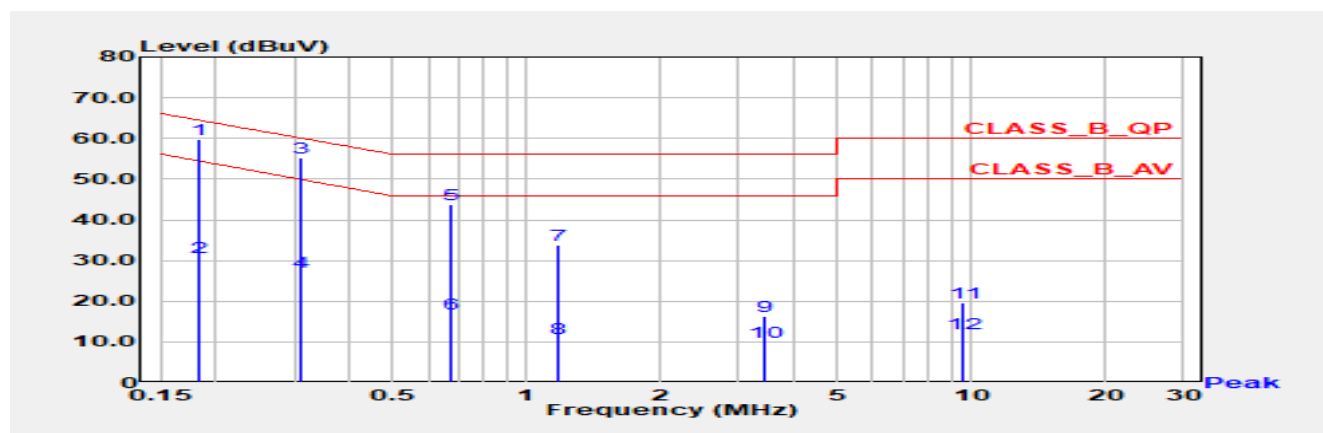


No	Frequency (MHz)	Emission Level (dBuV)	Limit (dBuV)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
*1	0.173	60.16	64.81	-4.65	50.55	9.62	QP
*2	0.173	32.66	54.81	-22.15	23.04	9.62	AV
3	0.362	52.90	58.68	-5.78	43.26	9.64	QP
4	0.362	23.38	48.68	-25.30	13.74	9.64	AV
5	0.813	41.02	56.00	-14.98	31.34	9.68	QP
6	0.813	13.14	46.00	-32.86	3.45	9.68	AV
7	1.529	28.90	56.00	-27.10	19.18	9.73	QP
8	1.529	10.29	46.00	-35.71	0.56	9.73	AV
9	3.488	21.50	56.00	-34.50	11.68	9.82	QP
10	3.488	15.34	46.00	-30.66	5.52	9.82	AV
11	9.660	19.43	60.00	-40.57	9.35	10.08	QP
12	9.660	11.89	50.00	-38.11	1.82	10.08	AV

Remark:

1. "\*" means this data is the worst emission level.
2. Emission Level = Reading Level + Correct Factor (Correct Factor = LISN Insertion Loss + Cable Loss).
3. Margin = Emission Level - Limit.

Test Mode	Mode 2: EUT + Adapter 2	Phase	Neutral
Test Condition	802.11b / Ant. 0 + Ant. 1 / 2417 MHz		



No	Frequency (MHz)	Emission Level (dBuV)	Limit (dBuV)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
*1	0.184	59.87	64.29	-4.41	50.26	9.62	QP
2	0.184	30.81	54.29	-23.48	21.20	9.62	AV
3	0.312	55.18	59.93	-4.75	45.55	9.63	QP
*4	0.312	27.31	49.93	-22.62	17.68	9.63	AV
5	0.679	43.63	56.00	-12.37	33.96	9.67	QP
6	0.679	17.02	46.00	-28.98	7.35	9.67	AV
7	1.175	33.92	56.00	-22.08	24.22	9.71	QP
8	1.175	10.86	46.00	-35.14	1.15	9.71	AV
9	3.440	16.33	56.00	-39.67	6.52	9.82	QP
10	3.440	10.01	46.00	-35.99	0.19	9.82	AV
11	9.590	19.51	60.00	-40.49	9.44	10.07	QP
12	9.590	12.04	50.00	-37.96	1.96	10.07	AV

Remark:

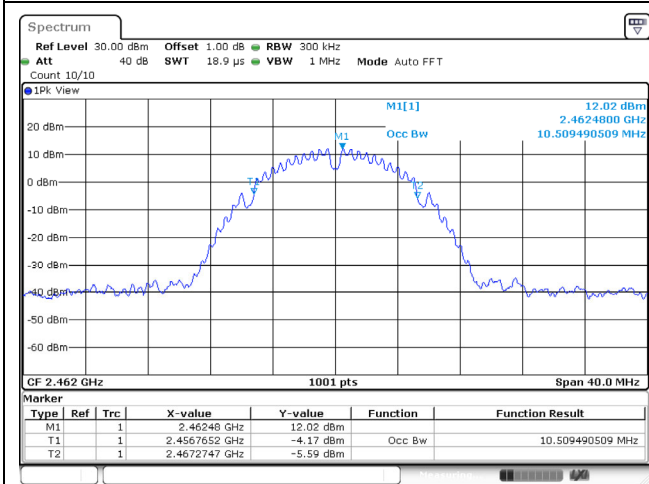
1. "\*" means this data is the worst emission level.
2. Emission Level = Reading Level + Correct Factor (Correct Factor = LISN Insertion Loss + Cable Loss).
3. Margin = Emission Level - Limit.

## Appendix B.1 Test Result of Occupied Bandwidth

Modulation	Frequency (MHz)	Occupied Bandwidth (MHz)		Limit (MHz)
		Ant. 0	Ant. 1	
802.11b	2412	10.469	10.389	-
	2417	10.269	10.349	
	2437	10.349	10.389	-
	2457	10.349	10.349	
	2462	10.509	10.389	-
802.11g	2412	16.983	16.863	-
	2417	16.943	17.182	
	2437	17.382	17.582	-
	2457	17.102	16.983	
	2462	17.022	16.823	-
802.11ax (20 MHz)	2412	19.100	19.220	-
	2417	19.060	19.140	-
	2437	19.140	19.340	
	2457	19.100	19.060	
	2462	19.180	19.140	-
802.11ax (40 MHz)	2422	37.642	37.482	-
	2427	37.722	37.720	
	2437	37.642	37.642	
	2447	36.763	36.843	-
	2452	37.642	37.642	-

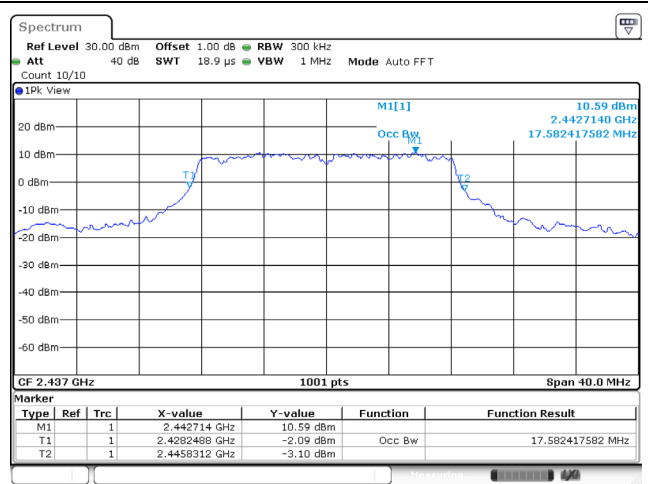
### Spectrum plot of maximum value

802.11b / Ant. 0 / 2462 MHz



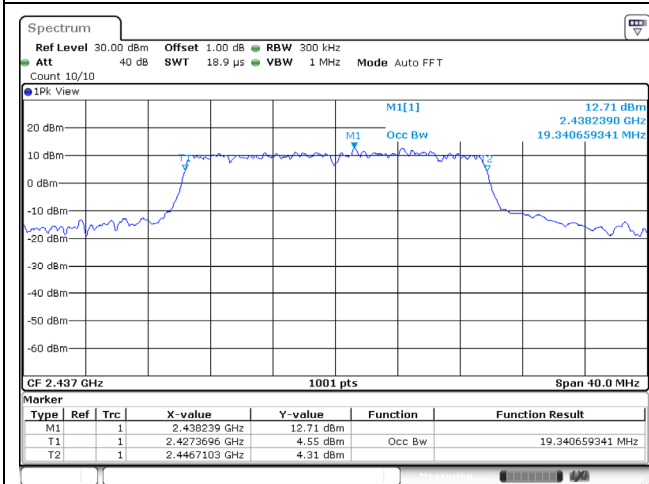
Date: 1.NOV.2023 13:48:36

802.11g / Ant. 1 / 2437 MHz



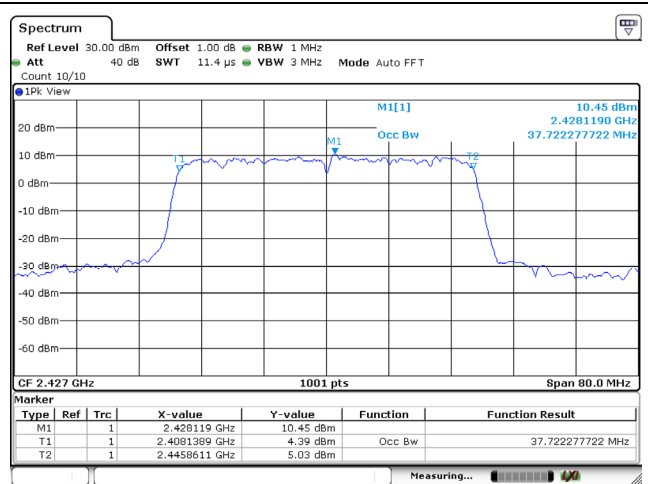
Date: 1.NOV.2023 14:35:09

802.11ax (20 MHz) / Ant. 1 / 2437 MHz



Date: 1.NOV.2023 16:43:00

802.11ax (40 MHz) / Ant. 0 / 2427 MHz



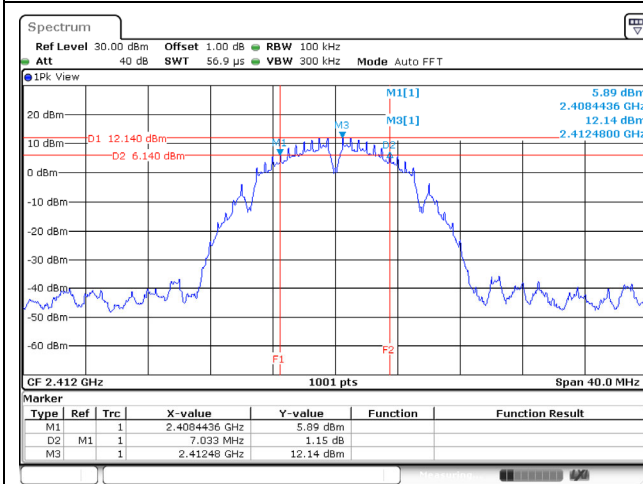
Date: 2.NOV.2023 09:55:40

## Appendix B.2 Test Result of DTS Bandwidth

Modulation	Frequency (MHz)	DTS Bandwidth (MHz)		Limit (MHz)	Result
		Ant. 0	Ant. 1		
802.11b	2412	7.033	7.033	0.50	Pass
	2417	7.992	7.998	0.50	Pass
	2437	7.033	7.033	0.50	Pass
	2457	7.033	7.073	0.50	Pass
	2462	7.033	7.073	0.50	Pass
802.11g	2412	16.343	16.303	0.50	Pass
	2417	16.429	16.469	0.50	Pass
	2437	16.303	16.343	0.50	Pass
	2457	16.343	16.303	0.50	Pass
	2462	16.343	16.343	0.50	Pass
802.11ax (20 MHz)	2412	18.981	18.981	0.50	Pass
	2417	18.982	18.942	0.50	Pass
	2437	18.981	18.941	0.50	Pass
	2457	18.981	18.941	0.50	Pass
	2462	18.981	18.981	0.50	Pass
802.11ax (40 MHz)	2422	37.562	36.843	0.50	Pass
	2427	37.568	37.648	0.50	Pass
	2437	37.562	37.082	0.50	Pass
	2447	36.514	36.449	0.50	Pass
	2452	37.562	36.843	0.50	Pass

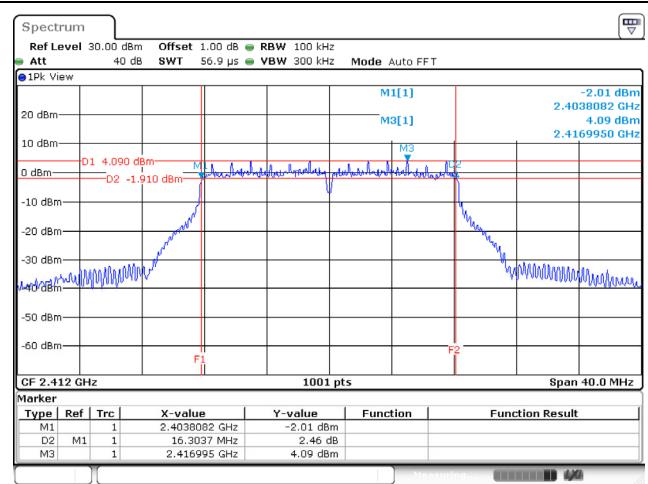
### Spectrum plot of worst value

802.11b / Ant. 0 / 2412 MHz



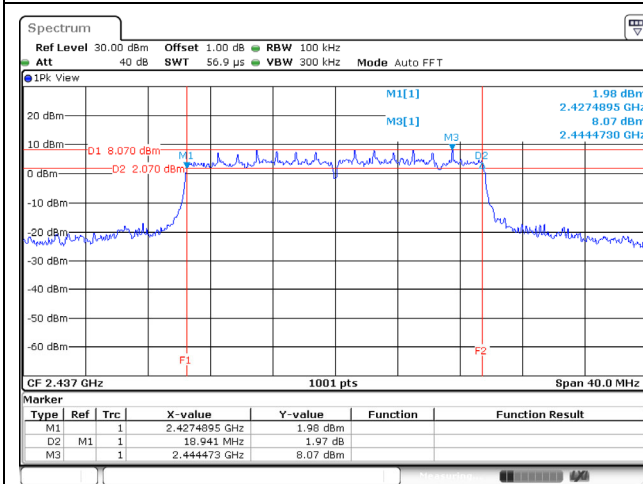
Date: 1.NOV.2023 13:28:29

802.11g / Ant. 1 / 2412 MHz



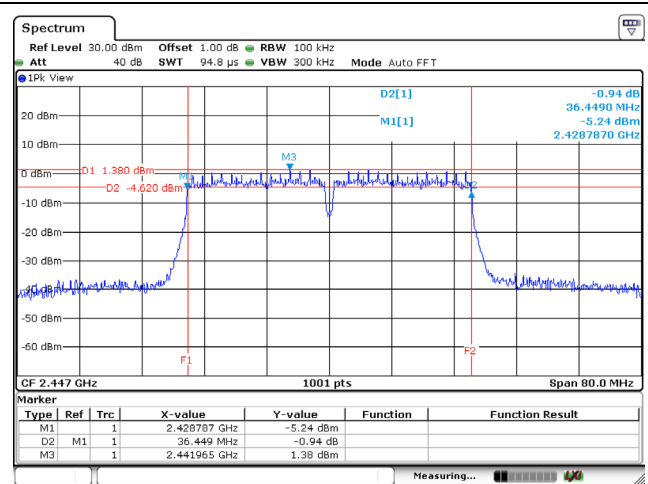
Date: 1.NOV.2023 14:42:36

802.11ax (20 MHz) / Ant. 1 / 2437 MHz



Date: 1.NOV.2023 16:42:52

802.11ax (40 MHz) / Ant. 1 / 2447 MHz



Date: 2.NOV.2023 09:38:54

## Appendix C. Test Result of Maximum Conducted Output Power

<Non-beamforming mode>

Modulation	Frequency (MHz)	Maximum Conducted Average Output Power (dBm)				Max. Antenna Gain (dBi)	EIRP Power (dBm)	EIRP Limit (dBm)
		Ant. 0	Ant. 1	Total	Limit (dBm)			
802.11b	2412	20.28	19.14	22.76	30.00	3.000	25.76	36.00
	2417	20.41	19.31	22.91	30.00	3.000	25.91	36.00
	2437	22.30	20.42	24.47	30.00	3.000	27.47	36.00
	2457	20.26	19.08	22.72	30.00	3.000	25.72	36.00
	2462	20.33	19.05	22.75	30.00	3.000	25.75	36.00
802.11g	2412	16.45	16.58	19.53	30.00	3.000	22.53	36.00
	2417	18.18	18.22	21.21	30.00	3.000	24.21	36.00
	2437	20.33	20.51	23.43	30.00	3.000	26.43	36.00
	2457	18.11	18.41	21.27	30.00	3.000	24.27	36.00
	2462	16.11	16.33	19.23	30.00	3.000	22.23	36.00
802.11ax (20 MHz)	2412	17.12	17.33	20.24	30.00	3.000	23.24	36.00
	2417	18.77	19.04	21.92	30.00	3.000	24.92	36.00
	2437	19.62	20.28	22.97	30.00	3.000	25.97	36.00
	2457	18.01	18.45	21.25	30.00	3.000	24.25	36.00
	2462	16.15	16.48	19.33	30.00	3.000	22.33	36.00
802.11ax (40 MHz)	2422	16.32	16.48	19.41	30.00	3.000	22.41	36.00
	2427	16.43	16.76	19.61	30.00	3.000	22.61	36.00
	2437	17.48	17.88	20.69	30.00	3.000	23.69	36.00
	2447	16.54	16.77	19.67	30.00	3.000	22.67	36.00
	2452	16.17	16.51	19.35	30.00	3.000	22.35	36.00



<Beamforming mode>

Modulation	Frequency (MHz)	Maximum Conducted Average Output Power (dBm)				Max. Antenna Gain (dBi)	EIRP Power (dBm)	EIRP Limit (dBm)
		Ant. 0	Ant. 1	Total	Limit (dBm)			
802.11ax (20 MHz)	2412	14.24	14.59	17.43	30.00	5.715	23.15	36.00
	2417	15.85	15.88	18.88	30.00	5.715	24.59	36.00
	2437	16.48	17.23	19.88	30.00	5.715	25.60	36.00
	2457	15.03	15.89	18.49	30.00	5.715	24.20	36.00
	2462	13.09	13.72	16.43	30.00	5.715	22.14	36.00
802.11ax (40 MHz)	2422	13.43	13.73	16.60	30.00	5.715	22.31	36.00
	2427	13.26	13.42	16.35	30.00	5.715	22.07	36.00
	2437	14.04	14.87	17.48	30.00	5.715	23.20	36.00
	2447	13.47	13.64	16.56	30.00	5.715	22.28	36.00
	2452	13.41	13.92	16.68	30.00	5.715	22.40	36.00

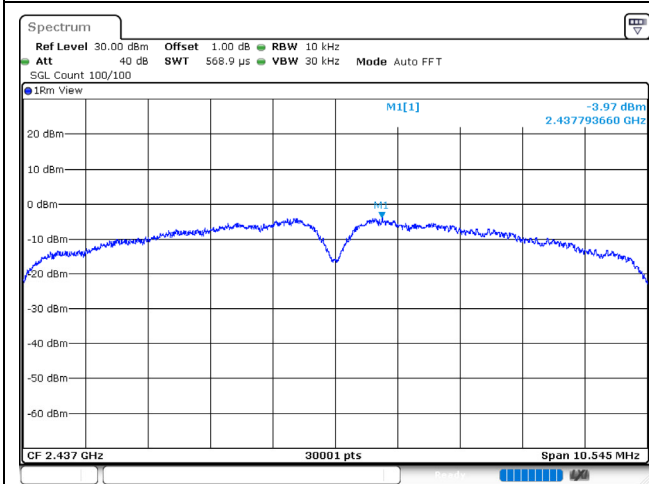
## Appendix D. Test Result of Maximum Power Spectral Density

Modulation	Frequency (MHz)	Power Spectral Density (dBm / 3kHz)			Limit (dBm / 3kHz)	Result
		Ant. 0	Ant. 1	Total		
802.11b	2412	-6.470	-7.530	-3.957	8.00	Pass
	2417	-6.010	-7.530	-3.694	8.00	Pass
	2437	-3.970	-6.520	-2.050	8.00	Pass
	2457	-6.700	-7.570	-4.103	8.00	Pass
	2462	-6.130	-7.750	-3.855	8.00	Pass
802.11g	2412	-12.530	-12.550	-9.304	8.00	Pass
	2417	-10.170	-10.660	-7.172	8.00	Pass
	2437	-8.210	-8.320	-5.028	8.00	Pass
	2457	-10.860	-10.570	-7.476	8.00	Pass
	2462	-12.830	-12.530	-9.441	8.00	Pass
802.11ax (20 MHz)	2412	-12.150	-11.800	-8.961	8.00	Pass
	2417	-10.710	-10.590	-7.639	8.00	Pass
	2437	-9.740	-9.480	-6.598	8.00	Pass
	2457	-11.750	-11.780	-8.755	8.00	Pass
	2462	-13.670	-13.660	-10.655	8.00	Pass
802.11ax (40 MHz)	2422	-15.410	-15.320	-12.354	8.00	Pass
	2427	-15.470	-14.550	-11.975	8.00	Pass
	2437	-14.200	-14.140	-11.160	8.00	Pass
	2447	-14.220	-15.170	-11.659	8.00	Pass
	2452	-16.040	-15.660	-12.836	8.00	Pass

Note: Total power spectral density = power spectral density + duty factor, and the duty factor refer to section 2.3.

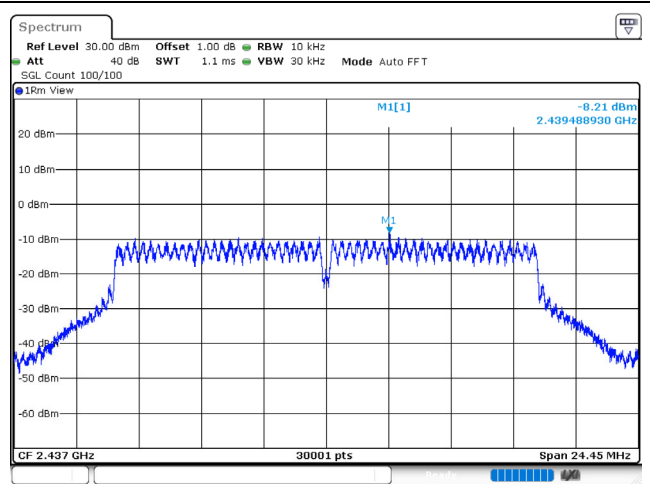
### Spectrum plot of worst value

**802.11b / Ant. 0 / 2437 MHz**



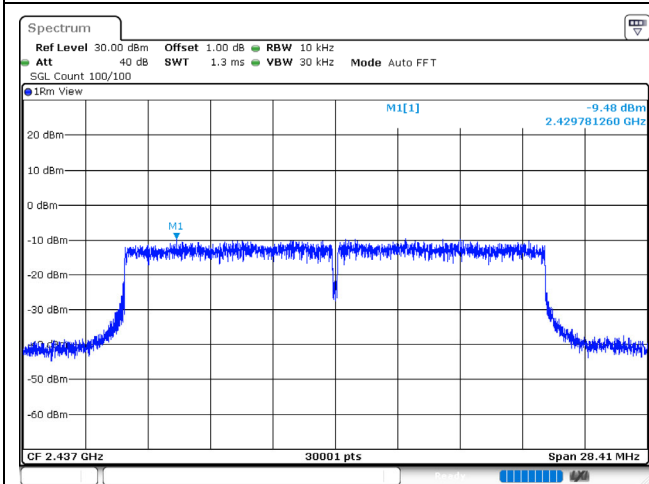
Date: 1.NOV.2023 13:41:43

**802.11g / Ant. 0 / 2437 MHz**



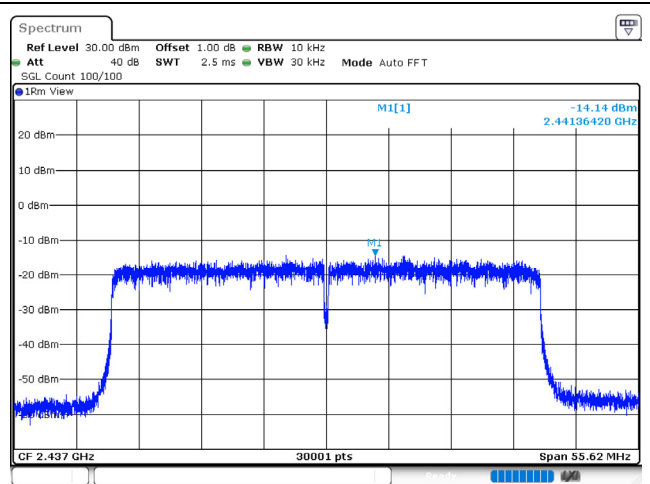
Date: 1.NOV.2023 14:01:30

**802.11ax (20 MHz) / Ant. 1 / 2437 MHz**



Date: 1.NOV.2023 16:43:09

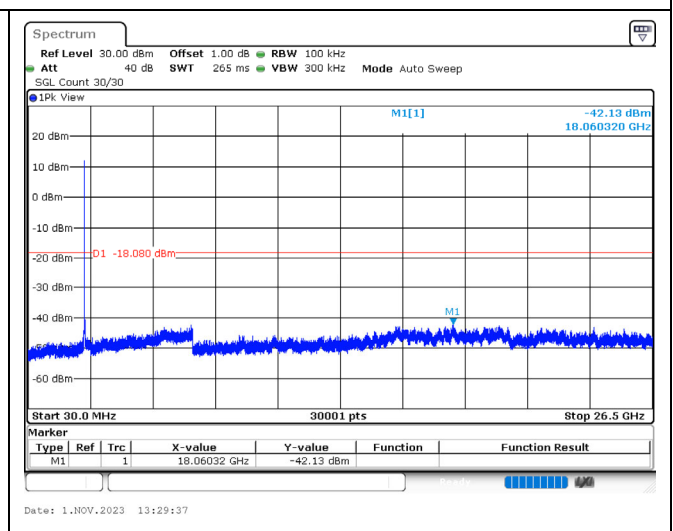
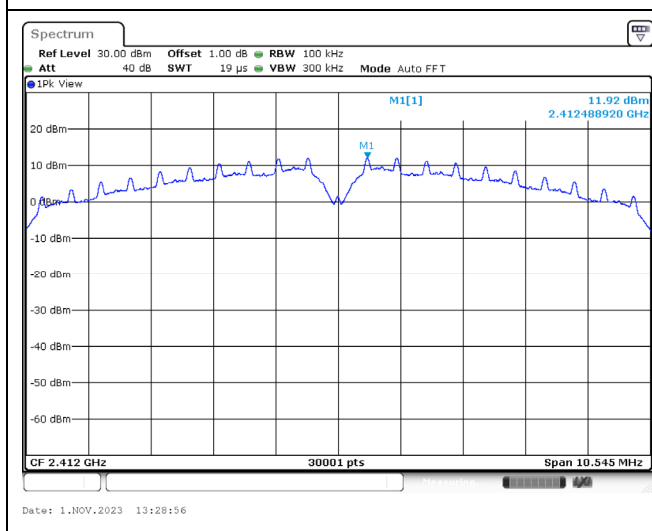
**802.11ax (40 MHz) / Ant. 1 / 2437 MHz**



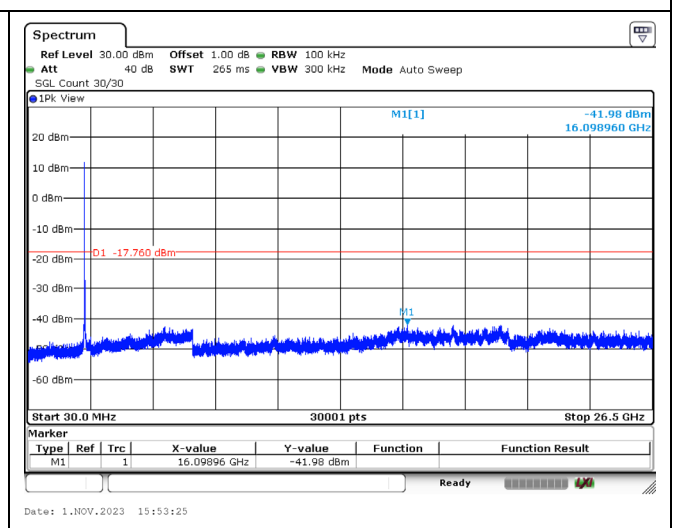
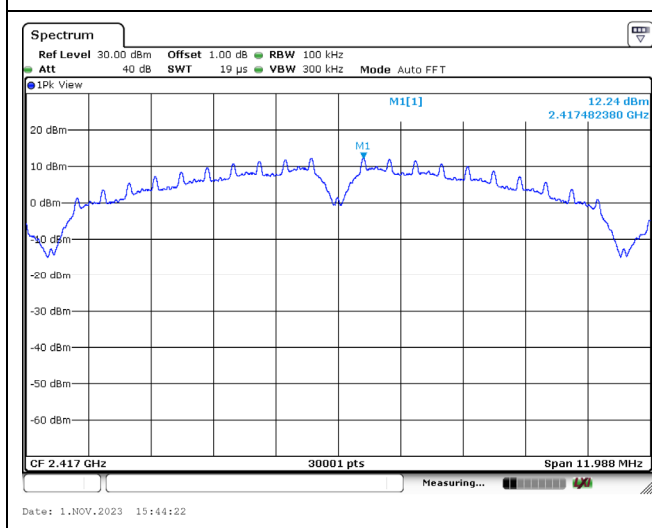
Date: 2.NOV.2023 09:09:56

## Appendix E. Test Result of Antenna Port Conducted Emission

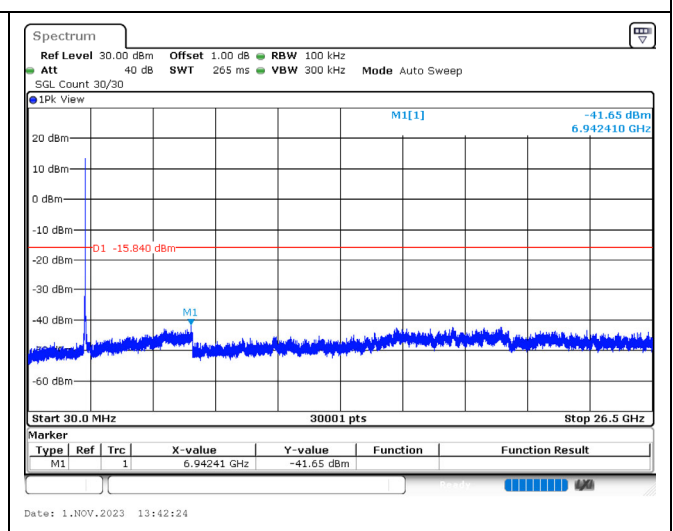
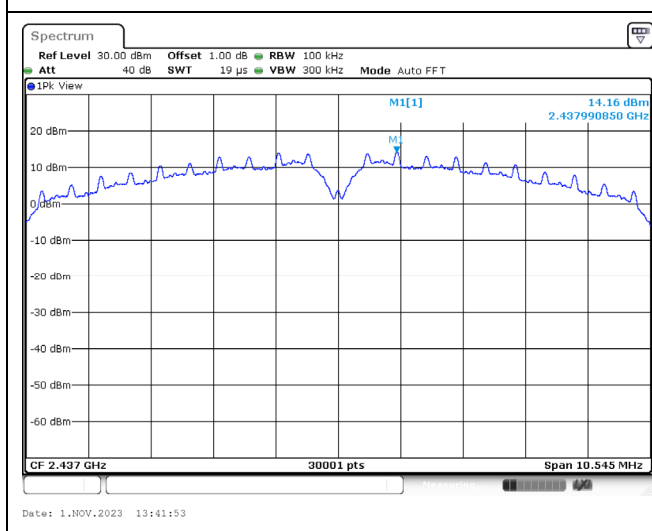
### 802.11b / Ant.0 / 2412 MHz



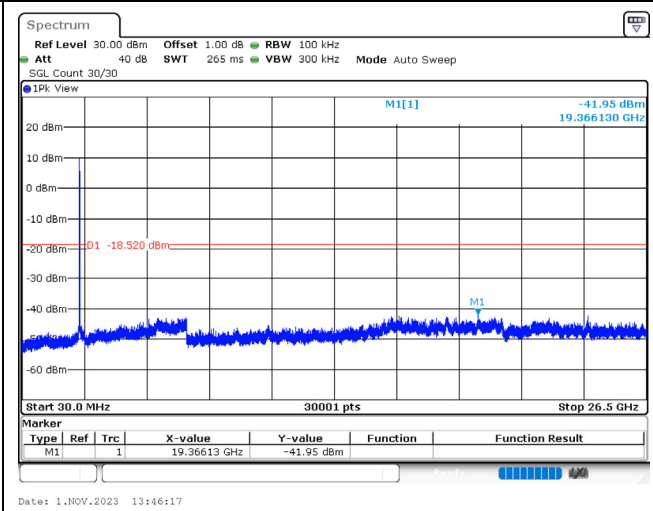
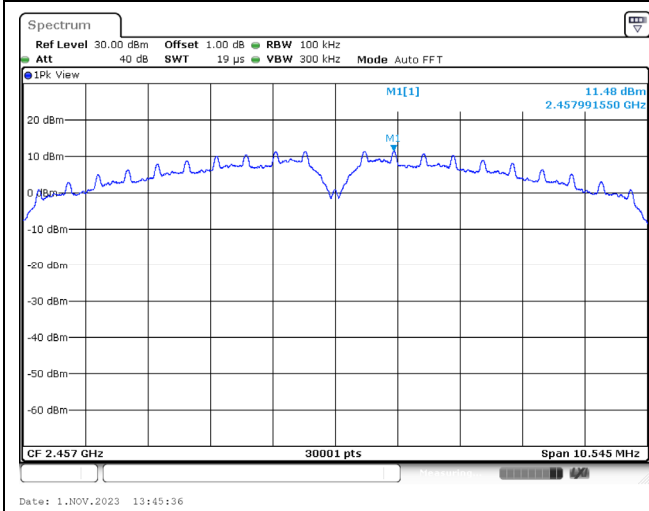
### 802.11b / Ant.0 / 2417 MHz



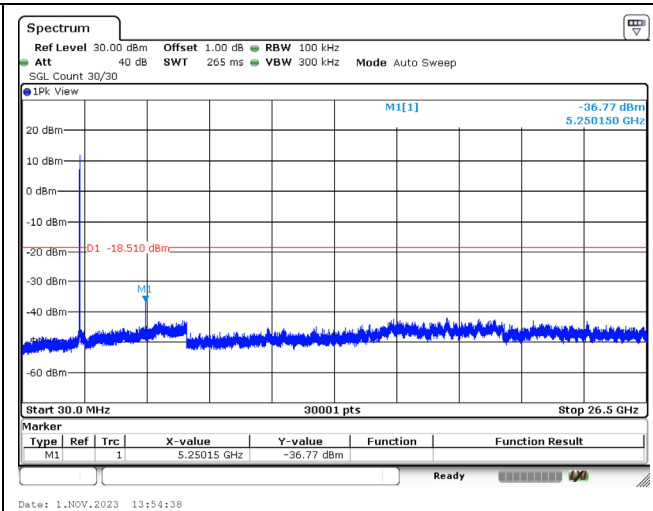
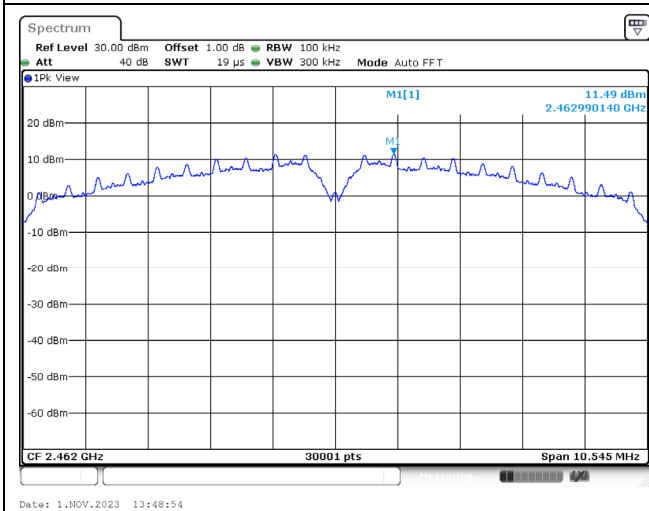
### 802.11b / Ant.0 / 2437 MHz



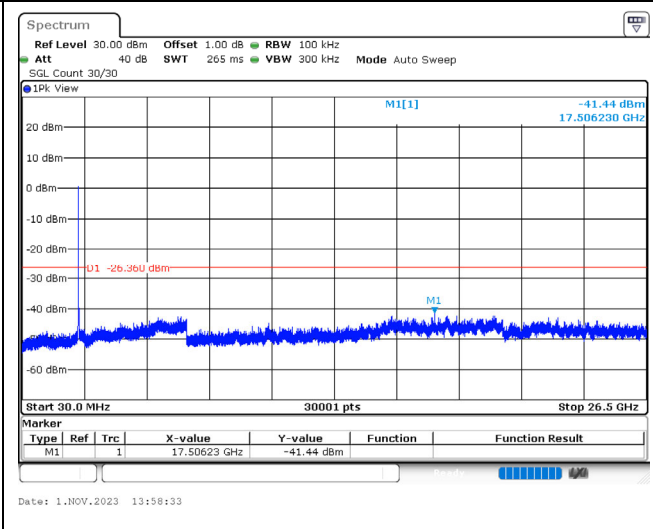
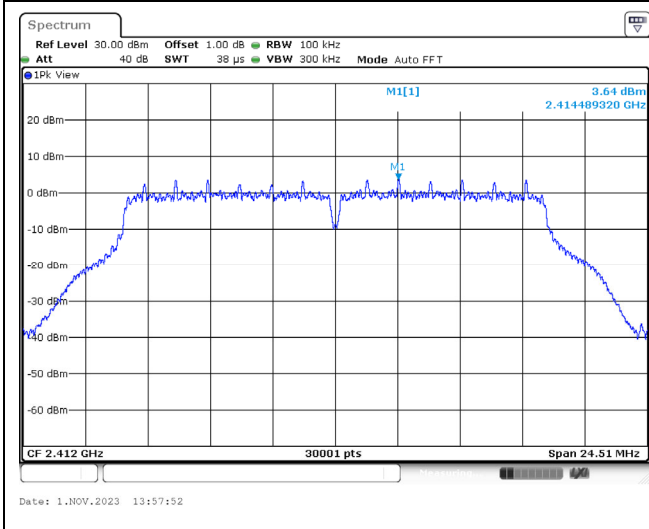
### 802.11b / Ant.0 / 2457 MHz



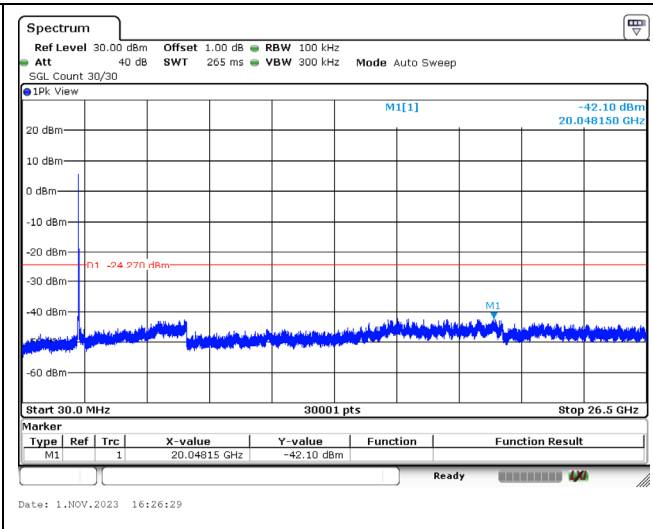
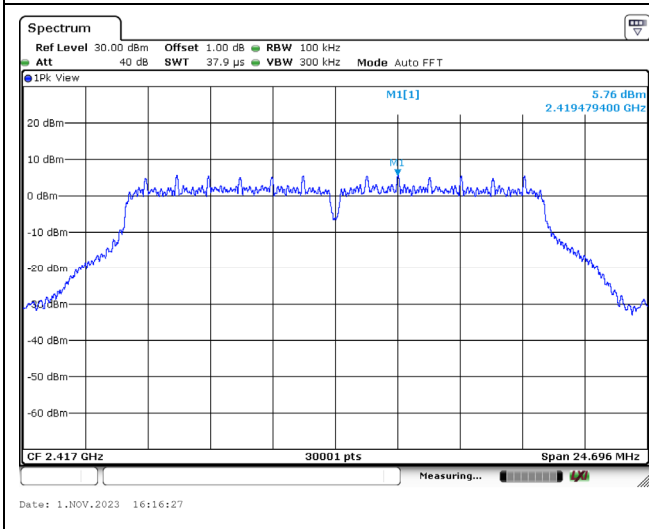
### 802.11b / Ant.0 / 2462 MHz



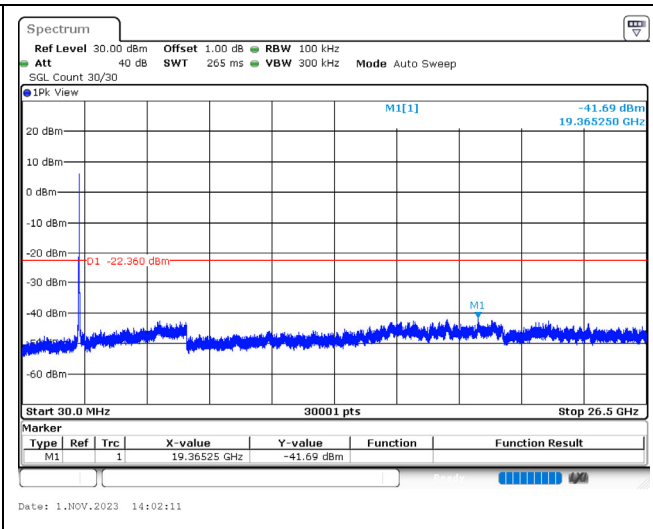
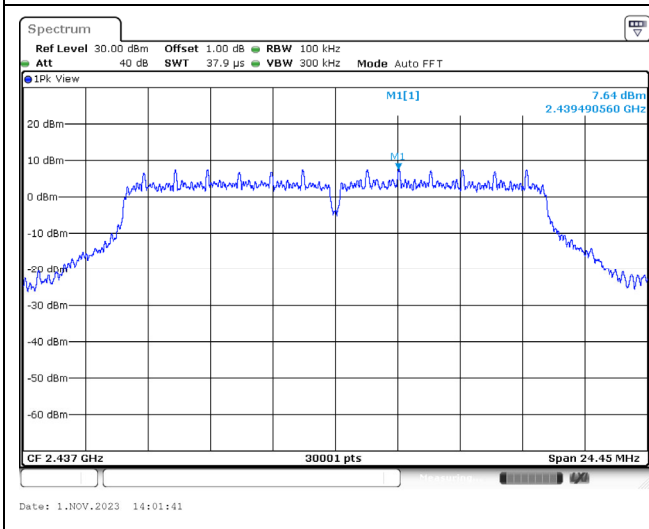
### 802.11g / Ant.0 / 2412 MHz



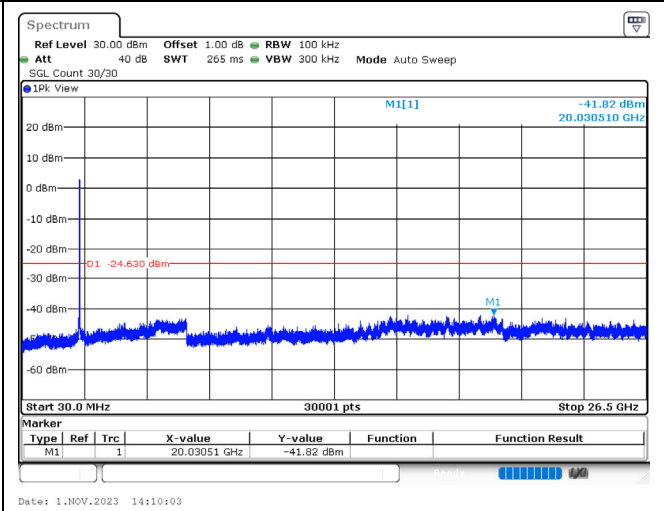
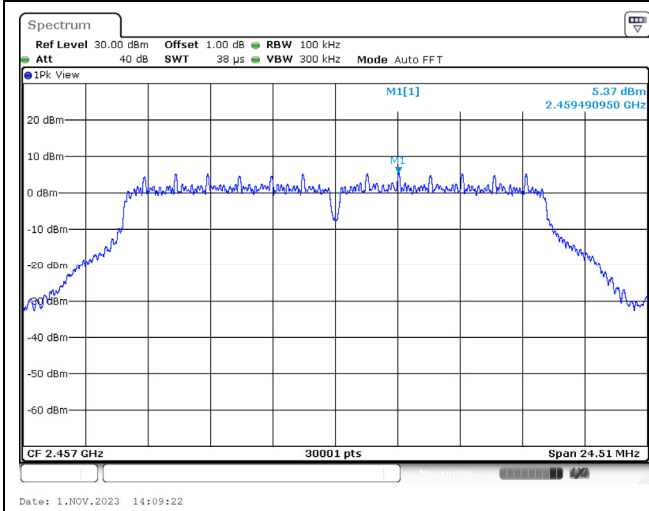
### 802.11g / Ant.0 / 2417 MHz



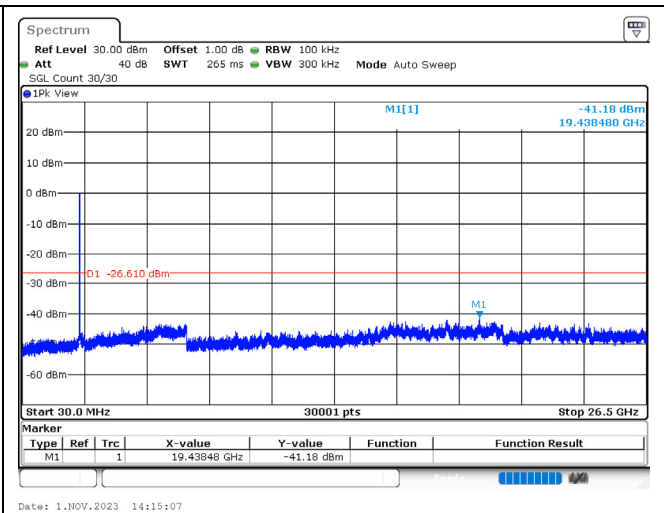
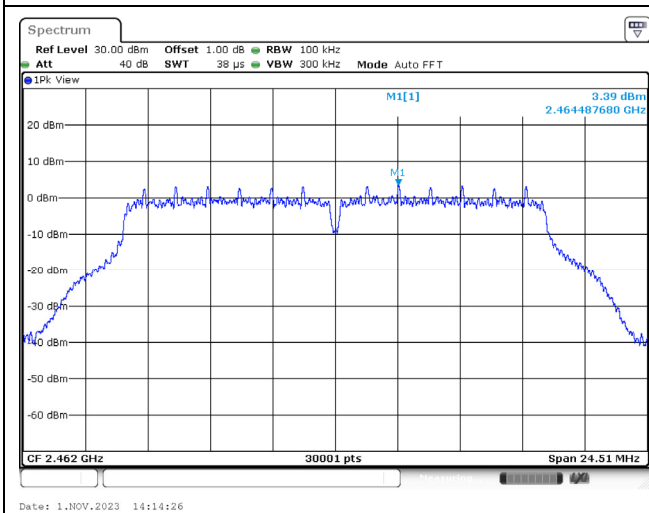
### 802.11g / Ant.0 / 2437 MHz



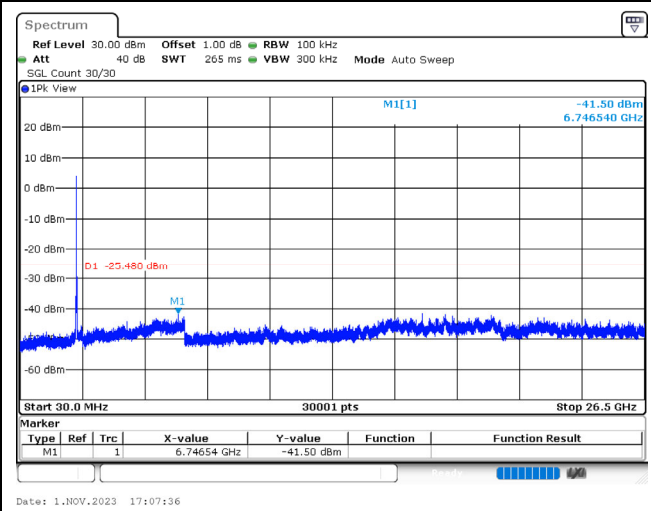
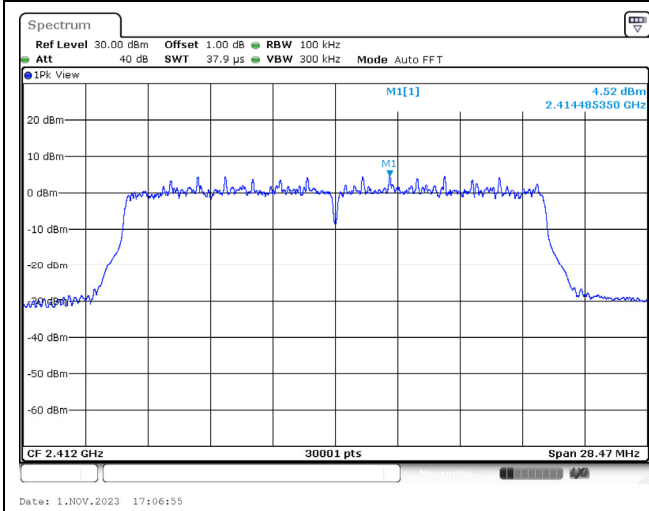
### 802.11g / Ant.0 / 2457 MHz



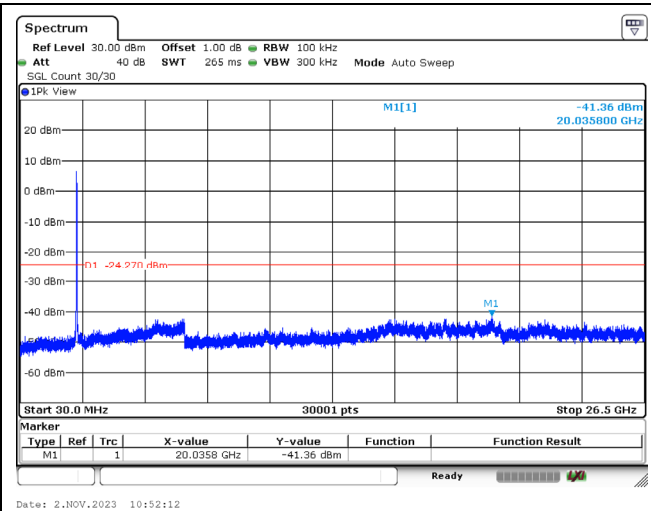
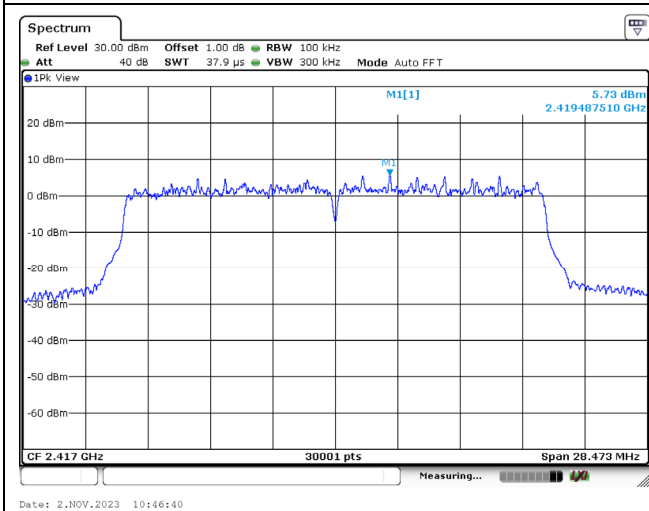
### 802.11g / Ant.0 / 2462 MHz



### 802.11ax (20 MHz) / Ant.0 / 2412 MHz



### 802.11ax (20 MHz) / Ant.0 / 2417 MHz



### 802.11ax (20 MHz) / Ant.0 / 2437 MHz

