

FCC Test Report

Product Name	11ax Cloud Managed AP
Model No.	ECW336
FCC ID	A8J-ECW336

Applicant	EnGenius Technologies
Address	1580 Scenic Avenue, Costa Mesa, CA92626

Date of Receipt	Mar. 07, 2022
Issue Date	May 20, 2022
Report No.	2230212R-RFUSWL2V01-A
Report Version	V1.0



The test results relate only to the samples tested.

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.

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The test report shall not be reproduced without the written approval of DEKRA Testing and Certification Co., Ltd.

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.

Test Report

Issue Date: May 20, 2022

Report No.: 2230212R-RFUSWL2V01-A



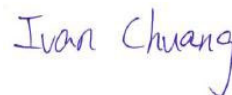
Product Name	11ax Cloud Managed AP
Applicant	EnGenius Technologies
Address	1580 Scenic Avenue, Costa Mesa, CA92626
Manufacturer	Senao Networks, Inc.
Model No.	ECW336
FCC ID	A8J-ECW336
EUT Rated Voltage	AC 100-240V, 50-60Hz
EUT Test Voltage	AC 120V/60Hz
Trade Name	EnGenius
Applicable Standard	FCC CFR Title 47 Part 15 Subpart C ANSI C63.4: 2014, ANSI C63.10: 2013
Test Result	Complied

Documented By :



(Senior Project Specialist / Genie Chang)

Tested By :



(Senior Engineer / Ivan Chuang)

Approved By :



(Senior Engineer / Alan Chen)

TABLE OF CONTENTS

Description	Page
1. GENERAL INFORMATION	6
1.1. EUT Description.....	6
1.2. Tested System Details.....	9
1.3. Configuration of Tested System	9
1.4. EUT Exercise Software	9
1.5. Test Facility	10
1.6. List of Test Item and Equipment	11
1.7. Uncertainty	12
2. Conducted Emission.....	13
2.1. Test Setup	13
2.2. Limits	13
2.3. Test Procedure	13
2.4. Test Result of Conducted Emission.....	14
3. Peak Power Output	15
3.1. Test Setup	15
3.2. Limits	15
3.3. Test Procedure	15
3.4. Test Result of Peak Power Output.....	16
4. Radiated Emission.....	22
4.1. Test Setup	22
4.2. Limits	23
4.3. Test Procedure	24
4.4. Test Result of Radiated Emission.....	26
5. RF Antenna Conducted Test.....	33
5.1. Test Setup	33
5.2. Limits	33
5.3. Test Procedure	33
5.4. Test Result of RF antenna conducted test.....	34
6. Band Edge	38
6.1. Test Setup	38
6.2. Limits	39
6.3. Test Procedure	39
6.4. Test Result of Band Edge	41
7. 6dB Bandwidth	53
7.1. Test Setup	53
7.2. Limits	53
7.3. Test Procedure	53
7.4. Test Result of 6dB Bandwidth.....	54
8. Power Density	62
8.1. Test Setup	62

8.2.	Limits	62
8.3.	Test Procedure	62
8.4.	Test Result of Power Density	63
9.	Duty Cycle.....	67
9.1.	Test Setup	67
9.2.	Test Procedure	67
9.3.	Test Result of Duty Cycle.....	68
10.	EMI Reduction Method During Compliance Testing	71
Appendix 1: EUT Test Photographs		
Appendix 2: Product Photos-Please refer to the file: 2230212R-Product Photos		

Revision History

Report No.	Version	Description	Issued Date
2230212R-RFUSWL2V01-A	V1.0	Initial issue of report.	2022-05-20

1. GENERAL INFORMATION

1.1. EUT Description

Product Name	11ax Cloud Managed AP
Trade Name	EnGenius
Model No.	ECW336
FCC ID.	A8J-ECW336
Frequency Range	802.11b/g/n/ac/ax-20: 2412-2462MHz, 802.11n/ac/ax-40: 2422-2452MHz
Number of Channels	802.11b/g/n/ac/ax-20MHz: 11CH, n/ac/ax-40MHz: 7CH
Data Speed	802.11b: 1-11Mbps, 802.11g: 6-54Mbps, 802.11ax: up to 1147.1Mbps
Channel separation	802.11b/g/n/ac/ax: 5 MHz
Type of Modulation	DSSS (DBPSK, DQPSK, CCK) OFDM, OFDMA (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM)
Antenna Type	PIFA antenna
Antenna Gain	Refer to the table “Antenna List”
Channel Control	Auto

Antenna List

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	Senao	ECW336	PIFA antenna	4.07dBi for 2.4 GHz
2	Senao	ECW336	PIFA antenna	4.26dBi for 2.4 GHz
3	Senao	ECW336	PIFA antenna	3.89dBi for 2.4 GHz
4	Senao	ECW336	PIFA antenna	3.15dBi for 2.4 GHz

Note: The antenna of EUT is conforming to FCC 15.203.

For power CDD Directional gain	For power Beamforming Directional gain
4.26dBi for 2.4 GHz	10.28dBi for 2.4 GHz

For CDD mode:

2400MHz: Directional gain = 4.26 dBi

(Directional gain = $G_{ANT\ MAX} + \text{Array Gain}$, Array Gain = 0 dB for $N_{ANT} \leq 4$)

For Beamforming mode:

2400MHz: Directional gain = 10.28 dBi

(Directional gain = $G_{ANT\ MAX} + \text{Array Gain}$, Array Gain = $10 \cdot \log(4) = 6.02$ dB)

For PSD Directional gain
9.88dBi for 2.4 GHz

2400MHz: Directional gain = 9.88 dBi

Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2 / N_{ANT}]$ dBi

802.11b/g/n/ac/ax-20MHz Center Frequency of Each Channel:

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 01:	2412 MHz	Channel 02:	2417 MHz	Channel 03:	2422 MHz	Channel 04:	2427 MHz
Channel 05:	2432 MHz	Channel 06:	2437 MHz	Channel 07:	2442 MHz	Channel 08:	2447 MHz
Channel 09:	2452 MHz	Channel 10:	2457 MHz	Channel 11:	2462 MHz		

802.11n/ac/ax-40MHz Center Frequency of Each Channel:

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 03:	2422 MHz	Channel 04:	2427 MHz	Channel 05:	2432 MHz	Channel 06:	2437 MHz
Channel 07:	2442 MHz	Channel 08:	2447 MHz	Channel 09:	2452 MHz		

Note:

1. The EUT is a 11ax Cloud Managed AP with a built-in WLAN(802.11a/b/g/n/ac/ax) transceiver, this report for 2.4GHz WLAN.
2. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.
3. Lowest and highest data rates are tested in each mode. Only worst case is shown in the report.
(802.11b is 1Mbps 、802.11g is 6Mbps 、802.11ax-20BW/40BW is MCS0)
4. The CDD mode and Beamforming mode are presented in the power output test item. For other test items, CDD mode is the worst case for the final test and shown in this report.
5. These tests are conducted on a sample for the purpose of demonstrating compliance of 802.11b/g/n/ac/ax transmitter with Part 15 Subpart C Paragraph 15.247 of spread spectrum devices.

Test Mode:	Mode 1: Transmit (802.11b)-CDD
	Mode 2: Transmit (802.11g)-CDD
	Mode 3: Transmit (802.11ax-20BW)-CDD
	Mode 4: Transmit (802.11ax-40BW)-CDD
	Mode 5: Transmit (802.11ax-20BW)-Beamforming
	Mode 6: Transmit (802.11ax-40BW)-Beamforming

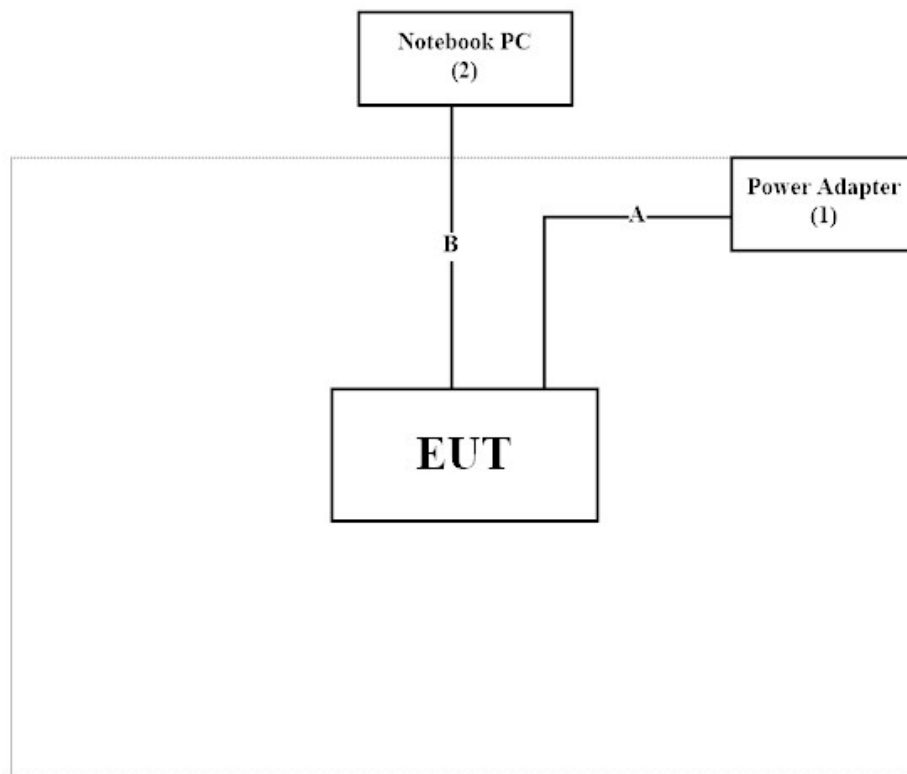
1.2. Tested System Details

The types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

Product	Manufacturer	Model No.	Serial No.	Power Cord
1 Power Adapter	APD	WA-30J12R	N/A	N/A
2 Notebook PC	Lenovo	TP00067C	PF-0EW0C3	N/A

Signal Cable Type	Signal cable Description
A Power Cable	Non-shielded, 1.5m
B LAN Cable	Non-shielded, 3m

1.3. Configuration of Tested System



1.4. EUT Exercise Software

1. Setup the EUT as shown in Section 1.3.
2. Execute software “QSPR Version V5.0-00199” on the Notebook PC.
3. Configure the test mode, the test channel, and the data rate.
4. Press “OK” to start the continuous transmit.
5. Verify that the EUT works properly.

1.5. Test Facility

Ambient conditions in the laboratory:

Performed Item	Items	Required	Actual
Conducted Emission	Temperature (°C)	10~40 °C	24.4 °C
	Humidity (%RH)	10~90 %	60.1 %
Radiated Emission	Temperature (°C)	10~40 °C	24.8 °C
	Humidity (%RH)	10~90 %	65.8 %
Conductive	Temperature (°C)	10~40 °C	22 °C
	Humidity (%RH)	10~90 %	55 %

USA : FCC Registration Number: TW0033

Canada : CAB Identifier Number: TW3023 / Company Number: 26930

Site Description : Accredited by TAF
Accredited Number: 3023

Test Laboratory : DEKRA Testing and Certification Co., Ltd
Address : No. 5-22, Ruishukeng Linkou District, New Taipei City,
24451, Taiwan
Performed : No. 26, Huaya 1st Rd., Guishan Dist., Taoyuan City
Location : 333411, Taiwan, R.O.C.
Phone number : +886-3-275-7255
Fax number : +866-3-327-8031
Email address : info.tw@dekra.com
Website : <http://www.dekra.com.tw>

1.6. List of Test Item and Equipment

For Conduction measurements /HY-SR01

	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Due. Date
X	EMI Test Receiver	R&S	ESR7	101601	2021/06/19	2022/06/18
X	Two-Line V-Network	R&S	ENV216	101306	2022/04/08	2023/04/07
X	Two-Line V-Network	R&S	ENV216	101307	2022/05/04	2023/05/03
X	Coaxial Cable	SUHNER	RG400_BNC	RF001	2021/05/24	2022/05/23

Note:

1. All equipments are calibrated every one year.
2. The test instruments marked with "X" are used to measure the final test results.
3. Test Software version : AUDIX e3 V9

For Conducted measurements /HY-SR02

	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Due. Date
X	Spectrum Analyzer	R&S	FSV40	101149	2022/03/25	2023/03/24
X	Peak Power Analyzer	KEYSIGHT	8900B	MY51000539	2021/06/07	2022/06/06
X	Power Sensor	KEYSIGHT	N1923A	MY59240002	2021/05/17	2022/05/16
X	Power Sensor	KEYSIGHT	N1923A	MY59240003	2021/05/17	2022/05/16

Note:

1. All equipments are calibrated every one year.
2. The test instruments marked with "X" are used to measure the final test results.
3. Test Software version : RF Conducted Test Tools R3 V3.0.1.19 .

For Radiated measurements /HY-CB03

	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Due. Date
X	Loop Antenna	AMETEK	HLA6121	49611	2022/03/18	2023/03/17
X	Bi-Log Antenna	SCHWARZBECK	VULB9168	9168-675	2021/08/11	2022/08/10
X	Horn Antenna	ETS-Lindgren	3117	00227700	2021/10/12	2022/10/11
X	Horn Antenna	Com-Power	AH-840	101100	2021/10/04	2022/10/03
X	Pre-Amplifier	SGH	0301	20211007-10	2022/02/22	2023/02/21
X	Pre-Amplifier	SGH	PRAMP118	20200202	2022/03/23	2023/03/22
X	Pre-Amplifier	EMCI	EMC05820SE	980310	2021/07/07	2022/07/06
	Pre-Amplifier	EMCI	EMC184045SE	980369		
	Coaxial Cable	EMCI	EMC102-KM-KM-600	1160314	2022/05/12	2023/05/11
	Coaxial Cable	EMCI	EMC102-KM-KM-7000	170242		
X	Filter	MICRO TRONICS	BRM50702	G251	2021/09/16	2022/09/15
	Filter	MICRO TRONICS	BRM50716	G188	2021/09/16	2022/09/15
X	EMI Test Receiver	R&S	ESR	102793	2021/12/15	2022/12/14
X	Spectrum Analyzer	R&S	FSV3044	101114	2022/02/11	2023/02/10
	Coaxial Cable	SGH	SGH18	2021005-3		
	Coaxial Cable	SGH	SGH18	202108-4		
	Coaxial Cable	SGH	SGH18	202110223-1		
	Coaxial Cable	SGH	HA800	GD20110222-3		

Note:

1. All equipments are calibrated every one year.
2. The test instruments marked with "X" are used to measure the final test results.
3. Test Software version : AUDIX e3 V9

1.7. Uncertainty

Uncertainties have been calculated according to the DEKRA internal document.

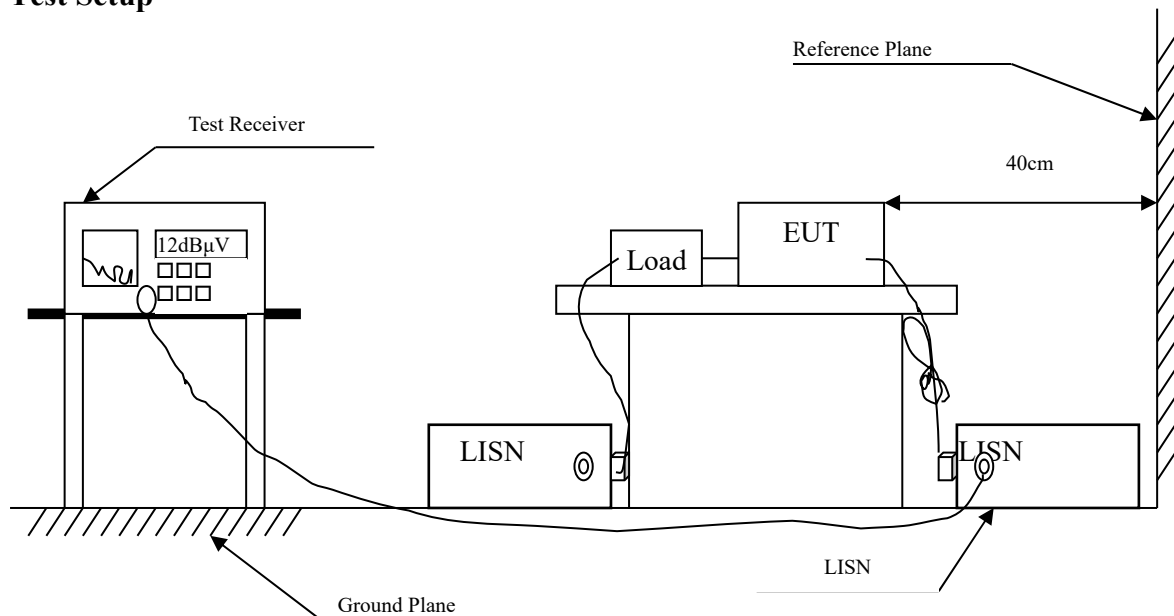
The reported expanded uncertainties are based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95%.

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.

Test item	Uncertainty	
Conducted Emission	± 3.42 dB	
Peak Power Output	± 0.91 dB	
Radiated Emission	Under 1GHz ± 4.06 dB	Above 1GHz ± 3.73 dB
RF Antenna Conducted Test	± 2.53 dB	
Band Edge	Under 1GHz ± 4.06 dB	Above 1GHz ± 3.73 dB
6dB Bandwidth	± 682.83 Hz	
Power Density	± 2.53 dB	
Duty Cycle	± 2.31 ms	

2. Conducted Emission

2.1. Test Setup



2.2. Limits

FCC Part 15 Subpart C Paragraph 15.207 (dB μ V) Limit		
Frequency MHz	Limits	
	QP	AVG
0.15 - 0.50	66-56	56-46
0.50-5.0	56	46
5.0 - 30	60	50

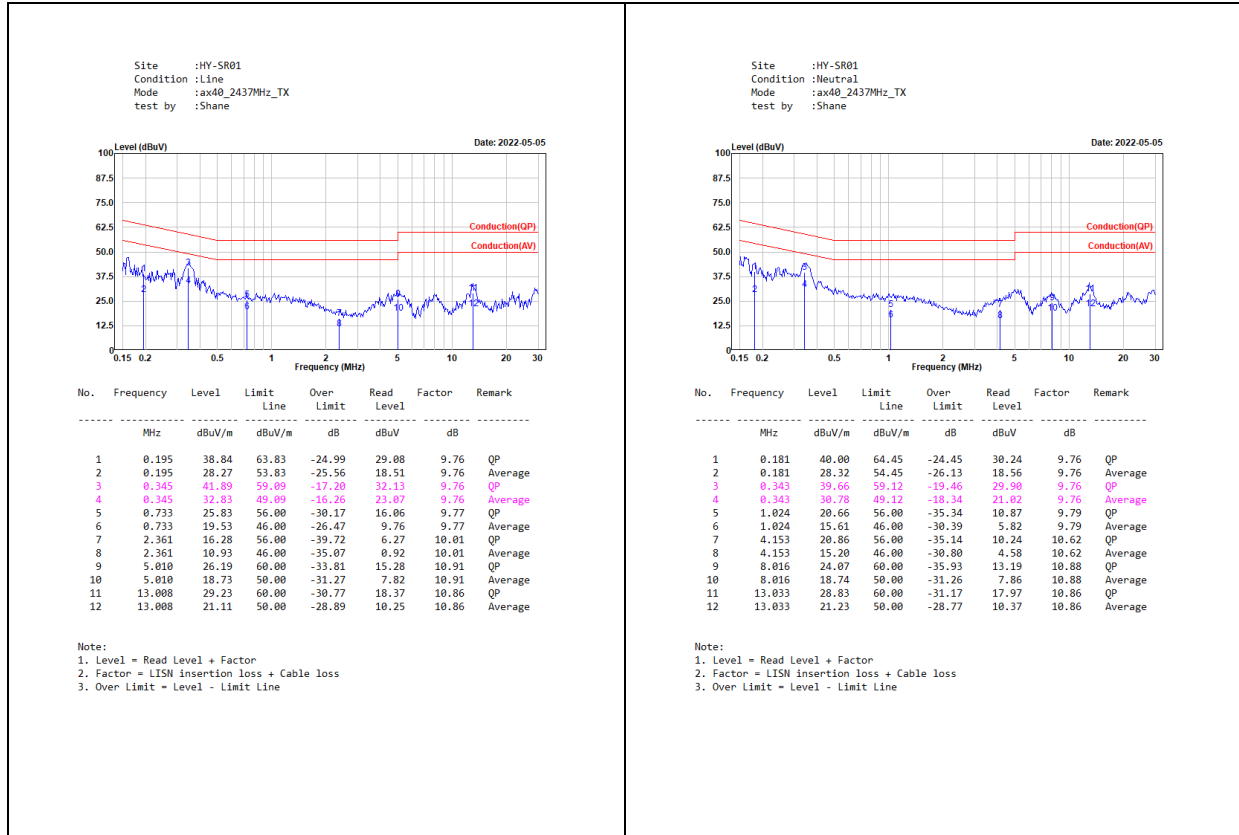
2.3. Test Procedure

The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm /50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs.)

Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2014 on conducted measurement.

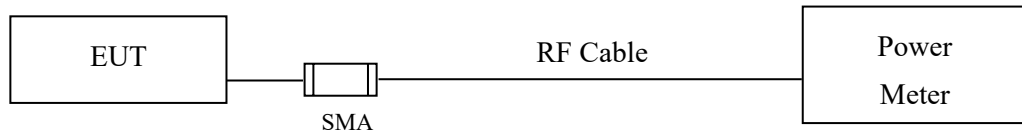
Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

2.4. Test Result of Conducted Emission



3. Peak Power Output

3.1. Test Setup



3.2. Limits

The maximum peak power shall be less 1 Watt.

3.3. Test Procedure

The EUT was tested according to C63.10:2013 for compliance to FCC 47CFR 15.247 requirements. The maximum peak conducted output power using C63.10:2013 Section 11.9.1.3 PKPM1 Peak power meter method. The maximum average conducted output power using C63.10:2013 Section 11.9.2.3 Measurement using a power meter (PM). (Measurement using a gated RF average-reading power meter).

The maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For CDD mode:

2400MHz: Directional gain = 4.26 dBi, Limit= 30dBm

(Directional gain = $G_{ANT\ MAX} + \text{Array Gain}$, Array Gain = 0 dB for $N_{ANT} \leq 4$)

For Beamforming mode:

2400MHz: Directional gain = 10.28 dBi, Limit= 25.72dBm

(Directional gain = $G_{ANT\ MAX} + \text{Array Gain}$, Array Gain = $10 \cdot \log(4) = 6.02\ \text{dB}$)

3.4. Test Result of Peak Power Output

Product : 11ax Cloud Managed AP
 Test Item : Peak Power Output Data
 Test Mode : Mode 1: Transmit (802.11b)-CDD
 Test Date : 2022/04/01

Chain A+B+C+D

Channel No	Frequency (MHz)	Data Rate (Mbps)	Chain A Power (dBm)	Chain B Power (dBm)	Chain C Power (dBm)	Chain D Power (dBm)	Chain A+B+C+D Power (dBm)	Limit (dBm)	Result
01	2412	1	17.78	18.16	17.88	17.82	23.93	<30dBm	Pass
06	2437	1	20.28	20.82	20.61	20.34	26.54	<30dBm	Pass
11	2462	1	16.78	17.11	17.03	16.92	22.98	<30dBm	Pass

Note: Peak Power Output Value (dBm) = 10*LOG (Chain A (mW) + Chain B (mW) + Chain C (mW) + Chain D (mW))

Product : 11ax Cloud Managed AP
 Test Item : Peak Power Output Data
 Test Mode : Mode 2: Transmit (802.11g)-CDD
 Test Date : 2022/04/01

Chain A+B+C+D

Channel No	Frequency (MHz)	Data Rate (Mbps)	Chain A Power (dBm)	Chain B Power (dBm)	Chain C Power (dBm)	Chain D Power (dBm)	Chain A+B+C+D Power (dBm)	Limit (dBm)	Result
01	2412	6	16.37	16.62	16.66	16.47	22.55	<30dBm	Pass
06	2437	6	20.21	20.52	20.32	20.17	26.33	<30dBm	Pass
11	2462	6	16.26	16.61	16.51	16.47	22.48	<30dBm	Pass

Note: Peak Power Output Value (dBm) = 10*LOG (Chain A (mW) + Chain B (mW) + Chain C (mW) + Chain D (mW))

Product : 11ax Cloud Managed AP
 Test Item : Peak Power Output Data
 Test Mode : Mode 3: Transmit (802.11ax-20BW)-CDD
 Test Date : 2022/04/01

Chain A+B+C+D

Channel No	Frequency (MHz)	Data Rate (Mbps)	Chain A Power (dBm)	Chain B Power (dBm)	Chain C Power (dBm)	Chain D Power (dBm)	Chain A+B+C+D Power (dBm)	Limit (dBm)	Result
01	2412	MCS0	16.74	17.21	17.11	17.02	23.04	<30dBm	Pass
06	2437	MCS0	18.62	18.92	18.61	18.57	24.70	<30dBm	Pass
11	2462	MCS0	14.78	15.23	14.93	15.02	21.01	<30dBm	Pass

Note: Peak Power Output Value (dBm) = 10*LOG (Chain A (mW) + Chain B (mW) + Chain C (mW) + Chain D (mW))

Product : 11ax Cloud Managed AP
 Test Item : Peak Power Output Data
 Test Mode : Mode 4: Transmit (802.11ax-40BW)-CDD
 Test Date : 2022/04/01

Chain A+B+C+D

Channel No	Frequency (MHz)	Data Rate (Mbps)	Chain A Power (dBm)	Chain B Power (dBm)	Chain C Power (dBm)	Chain D Power (dBm)	Chain A+B+C+D Power (dBm)	Limit (dBm)	Result
03	2422	MCS0	15.55	15.85	15.81	15.86	21.79	<30dBm	Pass
06	2437	MCS0	14.93	15.34	15.22	15.23	21.20	<30dBm	Pass
09	2452	MCS0	14.52	14.78	14.82	14.81	20.75	<30dBm	Pass

Note: Peak Power Output Value (dBm) = 10*LOG (Chain A (mW) + Chain B (mW) + Chain C (mW) + Chain D (mW))

Product : 11ax Cloud Managed AP
 Test Item : Peak Power Output Data
 Test Mode : Mode 5: Transmit (802.11ax-20BW)-Beamforming
 Test Date : 2022/04/01

Chain A+B+C+D

Channel No	Frequency (MHz)	Data Rate (Mbps)	Chain A Power (dBm)	Chain B Power (dBm)	Chain C Power (dBm)	Chain D Power (dBm)	Chain A+B+C+D Power (dBm)	Limit (dBm)	Result
01	2412	MCS0	10.72	11.19	11.09	11.00	17.02	<25.72dBm	Pass
06	2437	MCS0	12.60	12.90	12.59	12.55	18.68	<25.72dBm	Pass
11	2462	MCS0	8.76	9.21	8.91	9.00	14.99	<25.72dBm	Pass

Note: Peak Power Output Value (dBm) = 10*LOG (Chain A (mW) + Chain B (mW) + Chain C (mW) + Chain D (mW))

Product : 11ax Cloud Managed AP
 Test Item : Peak Power Output Data
 Test Mode : Mode 6: Transmit (802.11ax-40BW)-Beamforming
 Test Date : 2022/04/01

Chain A+B+C+D

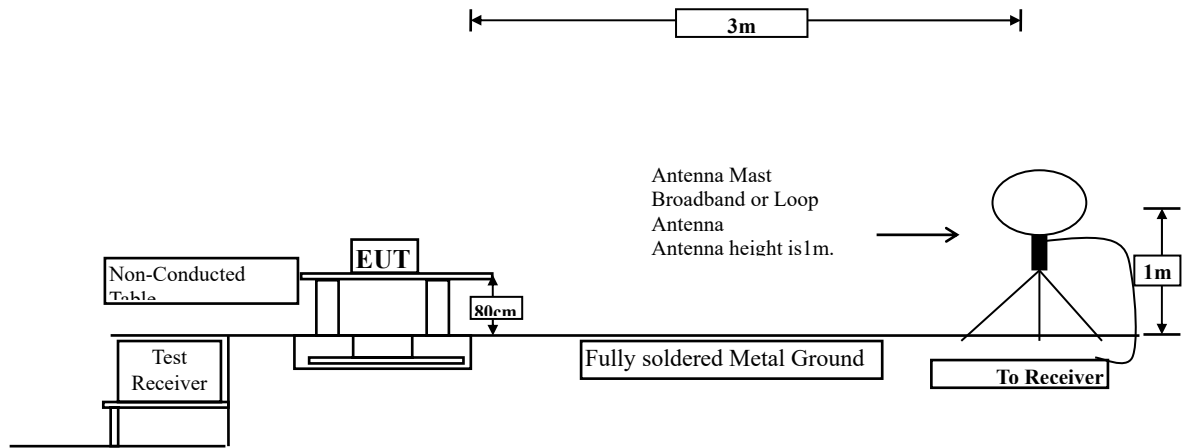
Channel No	Frequency (MHz)	Data Rate (Mbps)	Chain A Power (dBm)	Chain B Power (dBm)	Chain C Power (dBm)	Chain D Power (dBm)	Chain A+B+C+D Power (dBm)	Limit (dBm)	Result
03	2422	MCS0	9.53	9.83	9.79	9.84	15.77	<25.72dBm	Pass
06	2437	MCS0	8.91	9.32	9.20	9.21	15.18	<25.72dBm	Pass
09	2452	MCS0	8.50	8.76	8.80	8.79	14.73	<25.72dBm	Pass

Note: Peak Power Output Value (dBm) = 10*LOG (Chain A (mW) + Chain B (mW) + Chain C (mW) + Chain D (mW))

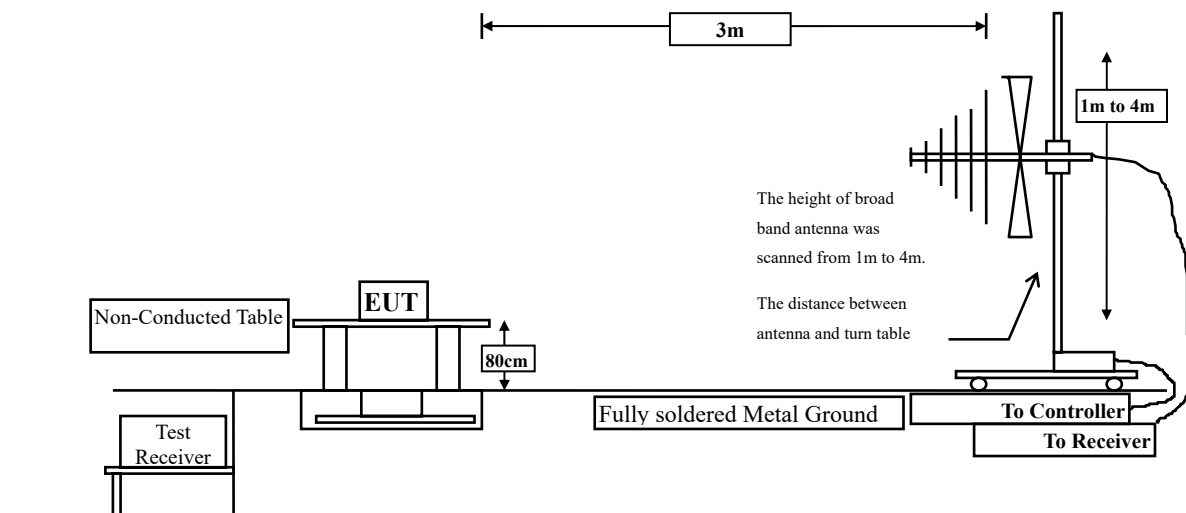
4. Radiated Emission

4.1. Test Setup

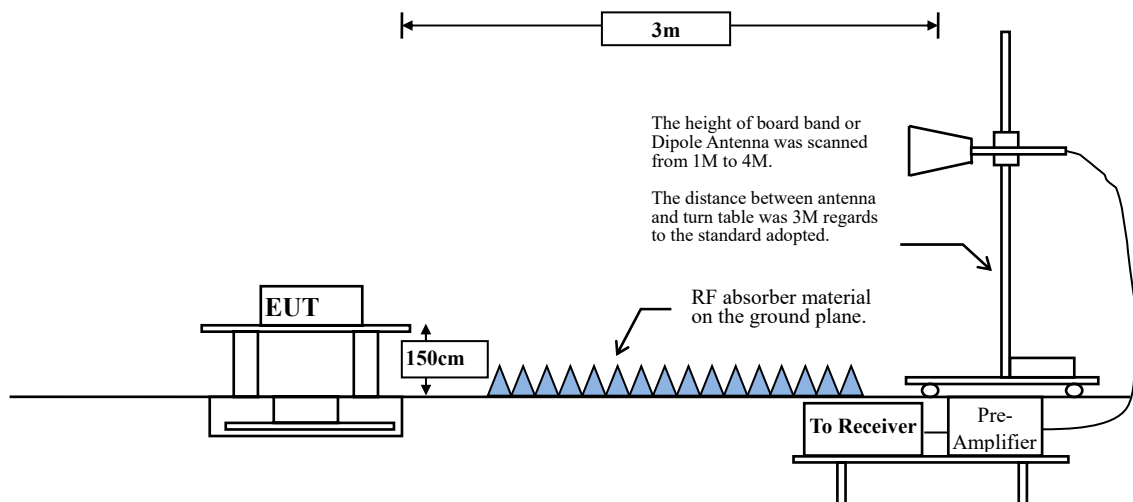
Radiated Emission Under 30MHz



Radiated Emission Below 1GHz



Radiated Emission Above 1GHz



4.2. Limits

➤ General Radiated Emission Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 20dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

FCC Part 15 Subpart C Paragraph 15.209 Limits		
Frequency MHz	Field strength (microvolts/meter)	Measurement distance (meter)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

- Remarks:
1. RF Voltage (dBuV) = 20 log RF Voltage (uV)
 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.

4.3. Test Procedure

The EUT was setup according to ANSI C63.10: 2013 and tested according to C63.10:2013 Section 11.12.1 for compliance to FCC 47CFR 15.247 requirements.

Measuring the frequency range below 1GHz, the EUT is placed on a turn table which is 0.8 meter above ground, when measuring the frequency range above 1GHz, the EUT is placed on a turn table which is 1.5 meter above ground.

The turn table is rotated 360 degrees to determine the position of the maximum emission level.

The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna is scanned between 1 meter and 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10: 2013 on radiated measurement.

The resolution bandwidth below 30MHz setting on the field strength meter is 9kHz and 30MHz~1GHz is 120kHz and above 1GHz is 1MHz.

Radiated emission measurements below 30MHz are made using Loop Antenna and 30MHz~1GHz are made using broadband Bilog antenna and above 1GHz are made using Horn Antennas.

The measurement is divided into the Preliminary Measurement and the Final Measurement.

The suspected frequencies are searched for in Preliminary Measurement with the measurement antenna kept pointed at the source of the emission both in azimuth and elevation, with the polarization of the antenna oriented for maximum response. The antenna is pointed at an angle towards the source of the emission, and the EUT is rotated in both height and polarization to maximize the measured emission. The emission is kept within the illumination area of the 3 dB bandwidth of the antenna. The measurement frequency range from 9kHz - 10th Harmonic of fundamental was investigated.

RBW and VBW Parameter setting:

According to C63.10 Section 11.12.2.4 Peak measurement procedure.

RBW = as specified in Table 1.

$VBW \geq 3 \times RBW$.

Table 1 —RBW as a function of frequency

Frequency	RBW
9-150 kHz	200-300 Hz
0.15-30 MHz	9-10 kHz
30-1000 MHz	100-120 kHz
> 1000 MHz	1 MHz

According to C63.10 Section 11.12.2.5 Average measurement procedure.

RBW = 1MHz.

VBW = 10Hz, when duty cycle $\geq 98 \%$

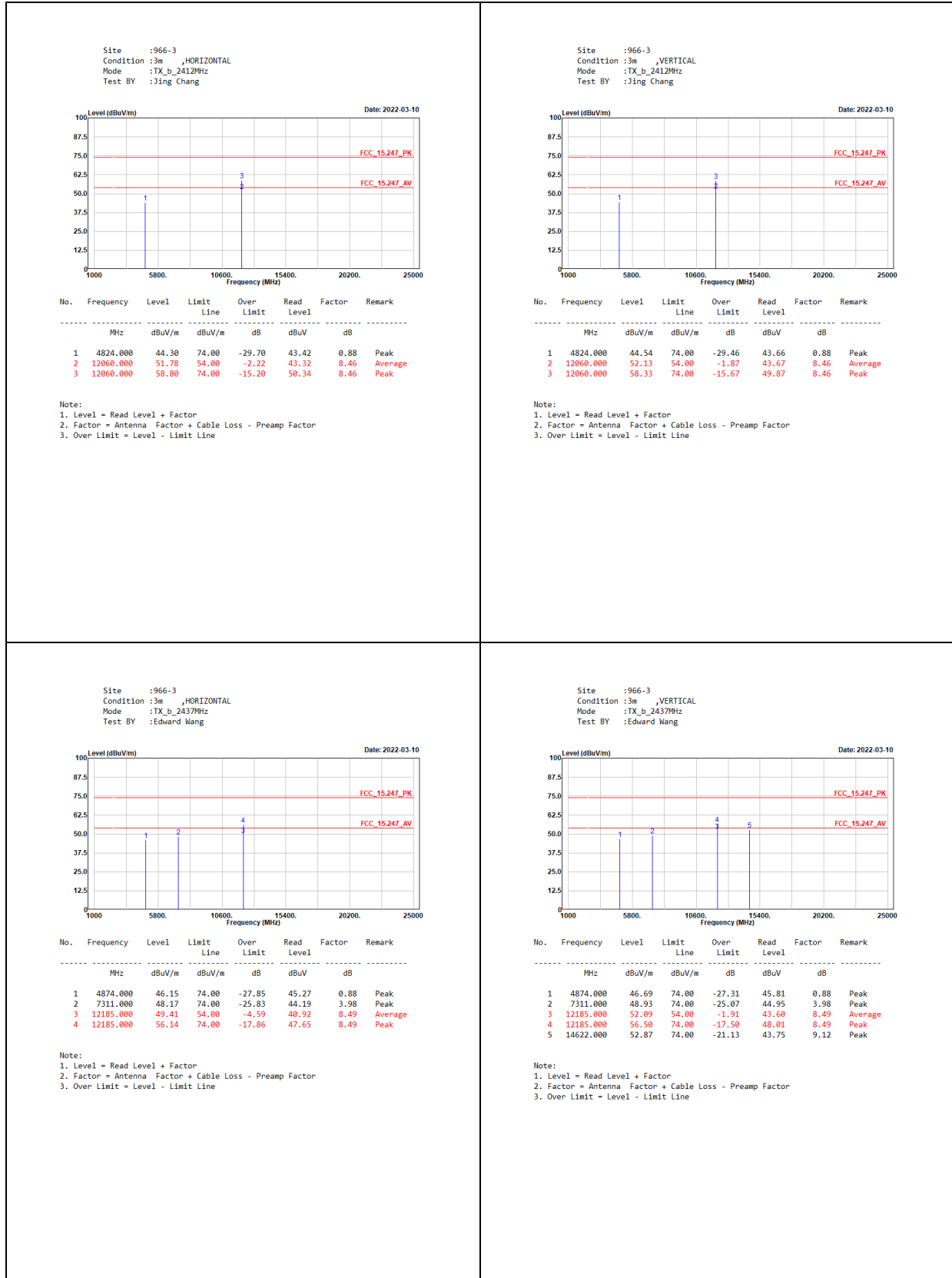
$VBW \geq 1/T$, when duty cycle $< 98 \%$

(T refers to 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.)

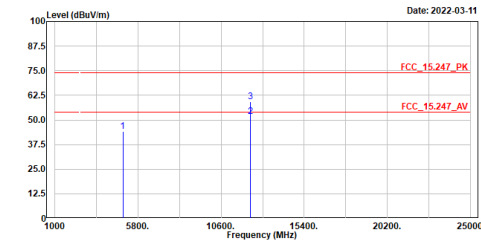
2.4GHz band	Duty Cycle (%)	T (ms)	1/T (Hz)	VBW (Hz)
802.11b	57.91	0.6810	1468	2000
802.11g	96.34	1.9750	506	1000
802.11ax20	93.45	5.4200	185	200
802.11ax40	93.79	5.4400	184	200

Note: Duty Cycle Refer to Section 9

4.4. Test Result of Radiated Emission



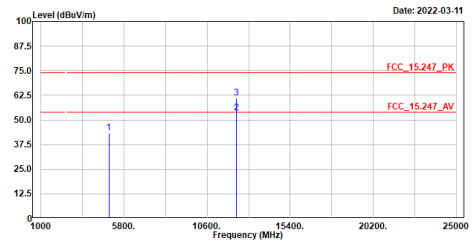
Site :966-3
Condition :3m ,HORIZONTAL
Mode :TX_b_2462MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	Line	Limit	Level		
				dB	dBuV	dB	
1	4924.000	44.02	74.00	-29.98	43.04	0.98	Peak
2	12310.000	51.71	54.00	-2.29	43.23	8.48	Average
3	12310.000	59.20	74.00	-14.80	50.72	8.48	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

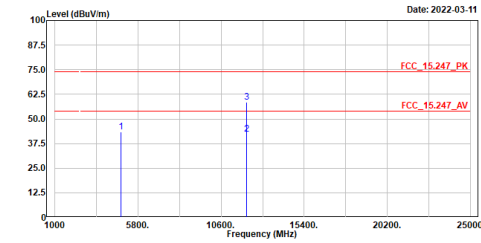
Site :966-3
Condition :3m ,VERTICAL
Mode :TX_b_2462MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	Line	Limit	Level		
				dB	dBuV	dB	
1	4924.000	43.40	74.00	-30.60	42.41	0.99	Peak
2	12310.000	53.42	54.00	-0.58	44.94	8.48	Average
3	12310.000	61.08	74.00	-12.92	52.60	8.48	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

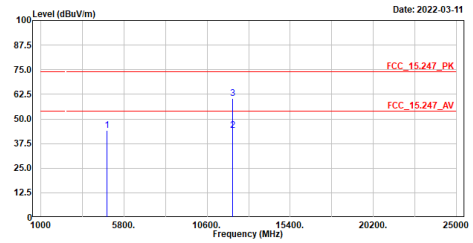
Site :966-3
Condition :3m ,HORIZONTAL
Mode :TX_g_2412MHz
Test BY :Edward Wang



No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	Line	Limit	Level		
				dB	dBuV	dB	
1	4824.000	43.53	74.00	-30.47	42.65	0.88	Peak
2	12060.000	42.33	54.00	-11.67	33.87	8.46	Average
3	12060.000	58.55	74.00	-15.45	50.09	8.46	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

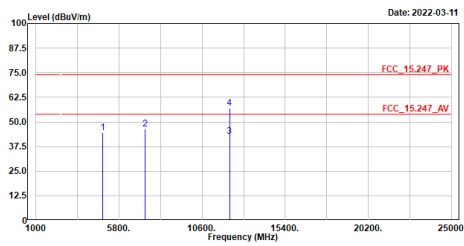
Site :966-3
Condition :3m ,VERTICAL
Mode :TX_g_2412MHz
Test BY :Edward Wang



No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	Line	Limit	Level		
				dB	dBuV	dB	
1	4824.000	44.07	74.00	-29.93	43.19	0.88	Peak
2	12060.000	44.08	54.00	-9.92	35.62	8.46	Average
3	12060.000	60.40	74.00	-13.60	51.94	8.46	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

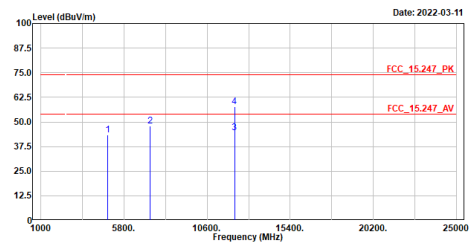
Site :966-3
Condition :3m ,HORIZONTAL
Mode :TX_g_2437MHz
Test BY :Edward Wang



No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	Line	Limit	Level		
				dB	dBuV	dB	
1	4874.000	44.41	74.00	-29.59	43.53	0.88	Peak
2	7311.000	46.54	74.00	-27.46	42.55	3.99	Peak
3	12185.000	42.47	54.00	-11.53	33.98	8.49	Average
4	12185.000	57.14	74.00	-16.86	48.65	8.49	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

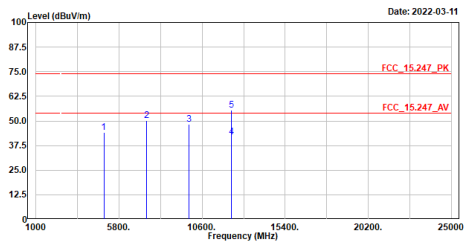
Site :966-3
Condition :3m ,VERTICAL
Mode :TX_g_2437MHz
Test BY :Edward Wang



No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	Line	Limit	Level		
				dB	dBuV	dB	
1	4874.000	43.42	74.00	-30.58	42.54	0.88	Peak
2	7311.000	47.77	74.00	-26.23	43.77	4.00	Peak
3	12185.000	44.49	54.00	-9.51	36.00	8.49	Average
4	12185.000	57.83	74.00	-16.17	49.33	8.50	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

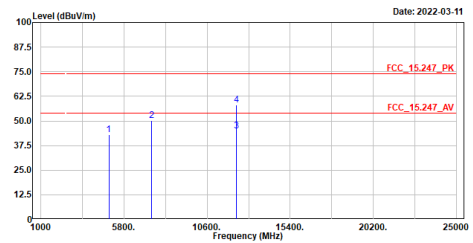
Site :966-3
Condition :3m ,HORIZONTAL
Mode :TX_g_2462MHz
Test BY :Edward Wang



No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	Line	Limit	Level		
				dB	dBuV	dB	
1	4924.000	44.19	74.00	-29.81	43.20	0.99	Peak
2	7386.000	50.35	74.00	-23.65	46.34	4.01	Peak
3	9848.000	48.37	74.00	-25.63	42.78	5.59	Peak
4	12310.000	41.97	54.00	-12.03	33.49	8.48	Average
5	12310.000	55.66	74.00	-18.34	47.18	8.48	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

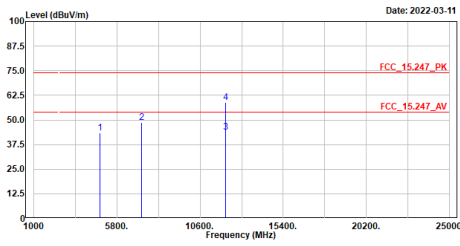
Site :966-3
Condition :3m ,VERTICAL
Mode :TX_g_2462MHz
Test BY :Edward Wang



No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	Line	Limit	Level		
				dB	dBuV	dB	
1	4924.000	43.13	74.00	-30.87	42.14	0.99	Peak
2	7386.000	50.34	74.00	-23.66	46.32	4.02	Peak
3	12310.000	44.83	54.00	-9.17	36.35	8.48	Average
4	12310.000	58.15	74.00	-15.85	49.66	8.49	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

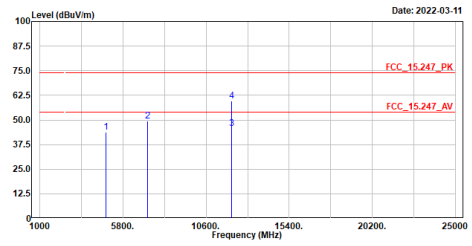
Site :966-3
Condition :3m ,HORIZONTAL
Mode :TX_ax20_2412MHz
Test BY :Edward Wang



No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	Line	Limit	Level	dB	
1	4824.000	43.58	74.00	-30.42	42.70	0.88	Peak
2	7236.000	48.83	74.00	-25.17	44.87	3.96	Peak
3	12060.000	43.63	54.00	-10.37	35.17	8.46	Average
4	12060.000	58.84	74.00	-15.16	50.37	8.47	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

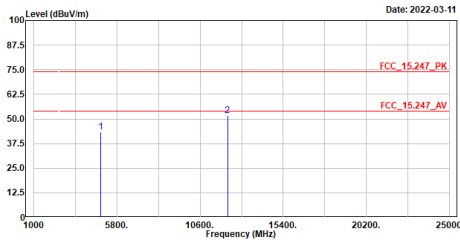
Site :966-3
Condition :3m ,VERTICAL
Mode :TX_ax20_2412MHz
Test BY :Edward Wang



No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	Line	Limit	Level	dB	
1	4824.000	43.88	74.00	-30.12	43.00	0.88	Peak
2	7236.000	49.57	74.00	-24.43	45.60	3.97	Peak
3	12060.000	45.74	54.00	-8.26	37.28	8.46	Average
4	12060.000	59.44	74.00	-14.56	50.96	8.48	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

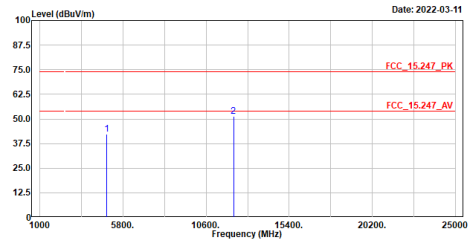
Site :966-3
Condition :3m ,HORIZONTAL
Mode :TX_ax20_2437MHz
Test BY :Edward Wang



No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	Line	Limit	Level	dB	
1	4874.000	43.56	74.00	-30.44	42.68	0.88	Peak
2	12185.000	51.72	74.00	-22.28	43.23	8.49	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

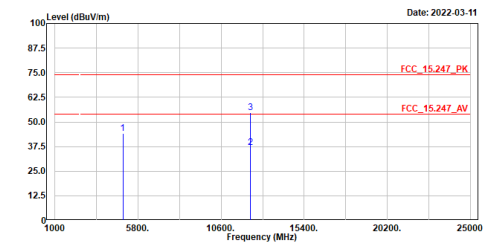
Site :966-3
Condition :3m ,VERTICAL
Mode :TX_ax20_2437MHz
Test BY :Edward Wang



No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	Line	Limit	Level	dB	
1	4874.000	42.09	74.00	-31.91	41.21	0.88	Peak
2	12185.000	51.30	74.00	-22.70	42.81	8.49	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

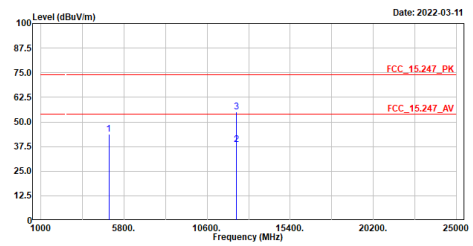
Site :966-3
Condition :3m ,HORIZONTAL
Mode :TX_ax20_2462MHz
Test BY :Edward Wang



No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	Line	Limit	Level		
				dB	dBuV	dB	
1	4924.000	44.04	74.00	-29.96	43.05	0.99	Peak
2	12310.000	37.04	54.00	-16.96	28.56	8.48	Average
3	12310.000	54.58	74.00	-19.42	46.09	8.49	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

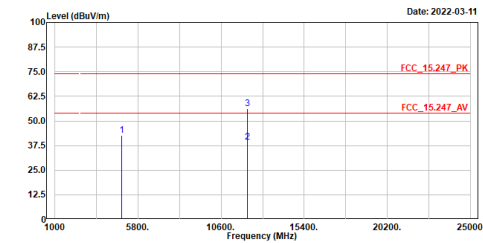
Site :966-3
Condition :3m ,VERTICAL
Mode :TX_ax20_2462MHz
Test BY :Edward Wang



No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	Line	Limit	Level		
				dB	dBuV	dB	
1	4924.000	43.59	74.00	-30.41	42.60	0.99	Peak
2	12310.000	38.56	54.00	-15.44	30.08	8.48	Average
3	12310.000	55.00	74.00	-19.00	46.51	8.49	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

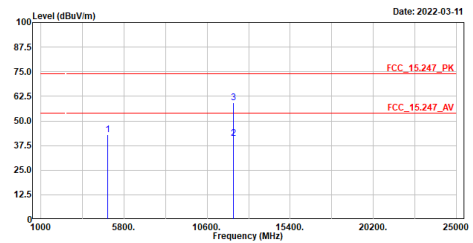
Site :966-3
Condition :3m ,HORIZONTAL
Mode :TX_ax40_2422MHz
Test BY :Edward Wang



No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	Line	Limit	Level		
				dB	dBuV	dB	
1	4844.000	42.56	74.00	-31.44	41.72	0.84	Peak
2	12110.000	39.16	54.00	-14.84	30.67	8.49	Average
3	12110.000	56.05	74.00	-17.95	47.56	8.49	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

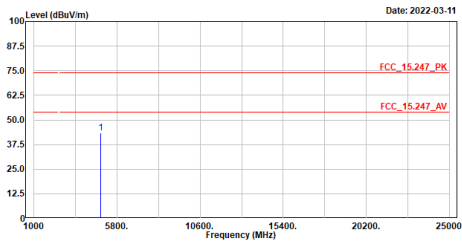
Site :966-3
Condition :3m ,VERTICAL
Mode :TX_ax40_2422MHz
Test BY :Edward Wang



No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	Line	Limit	Level		
				dB	dBuV	dB	
1	4844.000	43.11	74.00	-30.89	42.27	0.84	Peak
2	12110.000	41.03	54.00	-12.97	32.54	8.49	Average
3	12110.000	59.41	74.00	-14.59	50.91	8.50	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

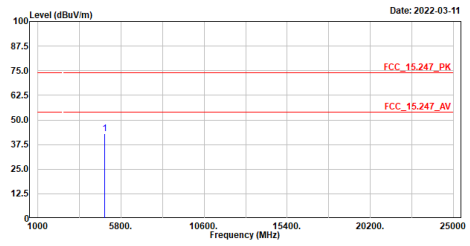
Site :966-3
Condition :3m ,HORIZONTAL
Mode :TX_ax40_2437MHz
Test BY :Edward Wang



No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	Line	Limit	Level	dB	
1	4874.000	43.47	74.00	-30.53	42.59	0.88	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

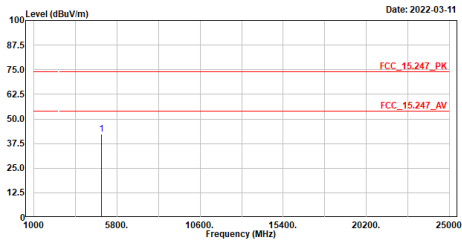
Site :966-3
Condition :3m ,VERTICAL
Mode :TX_ax40_2437MHz
Test BY :Edward Wang



No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	Line	Limit	Level	dB	
1	4874.000	42.98	74.00	-31.02	42.10	0.88	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

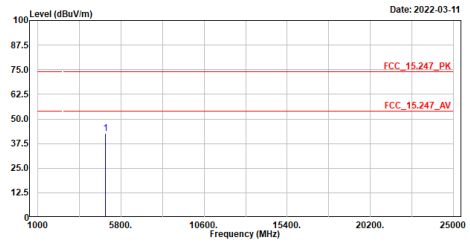
Site :966-3
Condition :3m ,HORIZONTAL
Mode :TX_ax40_2452MHz
Test BY :Edward Wang



No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	Line	Limit	Level	dB	
1	4904.000	42.41	74.00	-31.59	41.46	0.95	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

Site :966-3
Condition :3m ,VERTICAL
Mode :TX_ax40_2452MHz
Test BY :Edward Wang



No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	Line	Limit	Level	dB	
1	4904.000	42.83	74.00	-31.17	41.88	0.95	Peak

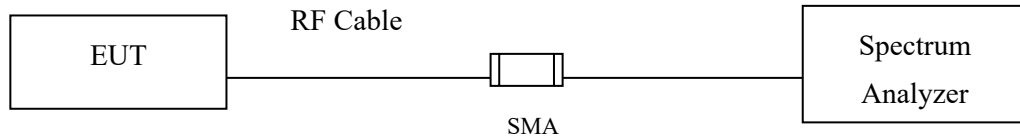
Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line



5. RF Antenna Conducted Test

5.1. Test Setup

RF antenna Conducted Measurement:



5.2. Limits

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum 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. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

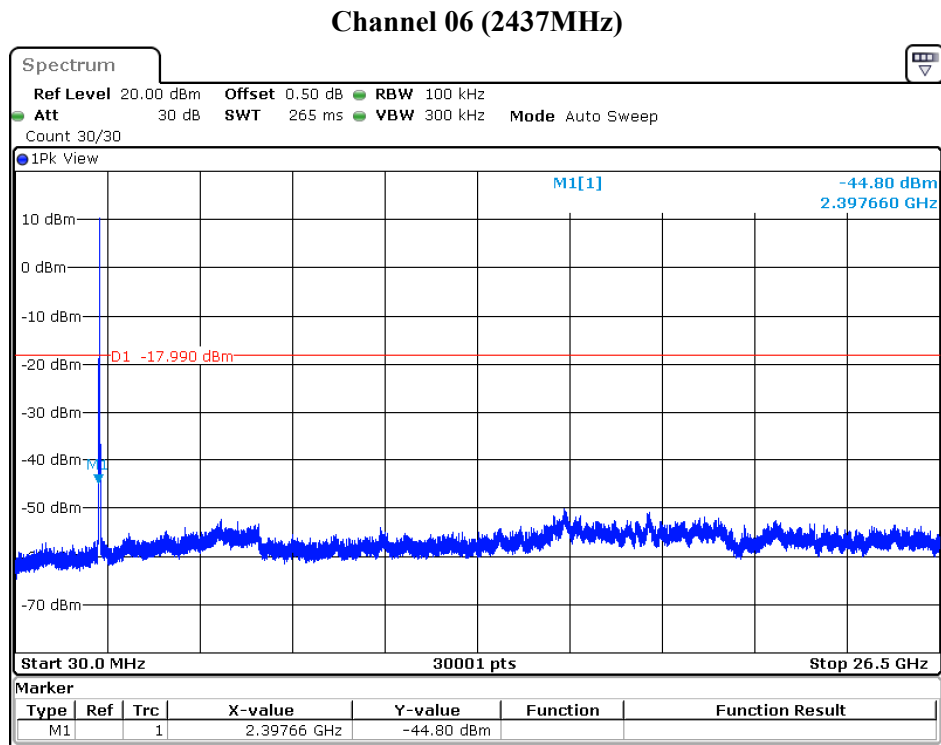
5.3. Test Procedure

The EUT was tested according to C63.10:2013 Section 11.11 for compliance to FCC 47CFR 15.247 requirements.

Set RBW = 100 kHz, Set VBW > RBW, scan up through 10th harmonic.

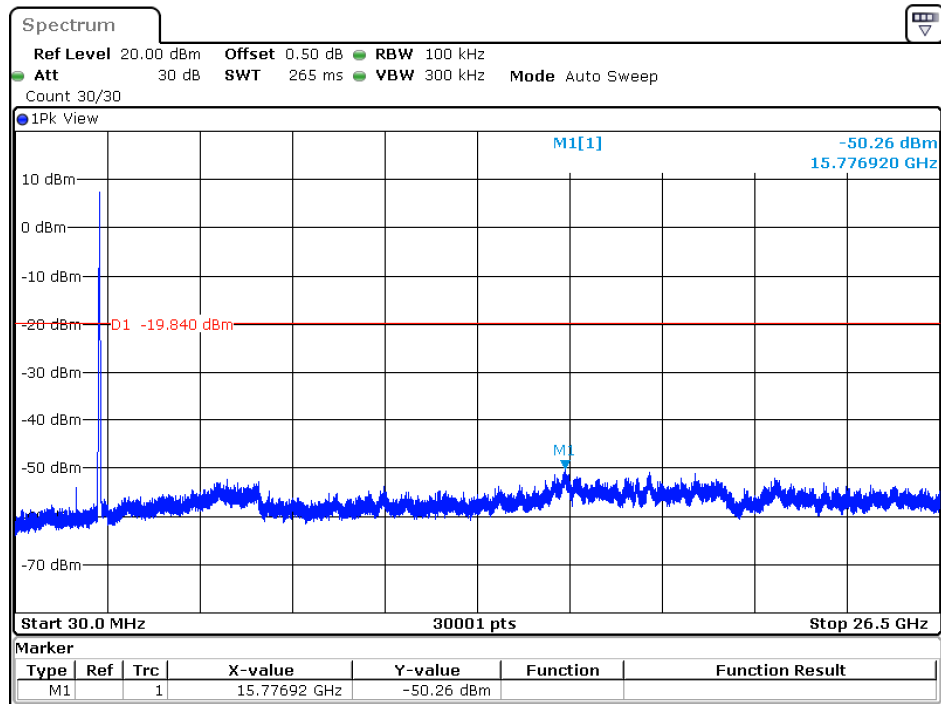
5.4. Test Result of RF antenna conducted test

Product : 11ax Cloud Managed AP
 Test Item : RF antenna conducted test
 Test Mode : Mode 1: Transmit (802.11b)-CDD
 Test Date : 2022/03/18



Date: 18.MAR.2022 08:20:11

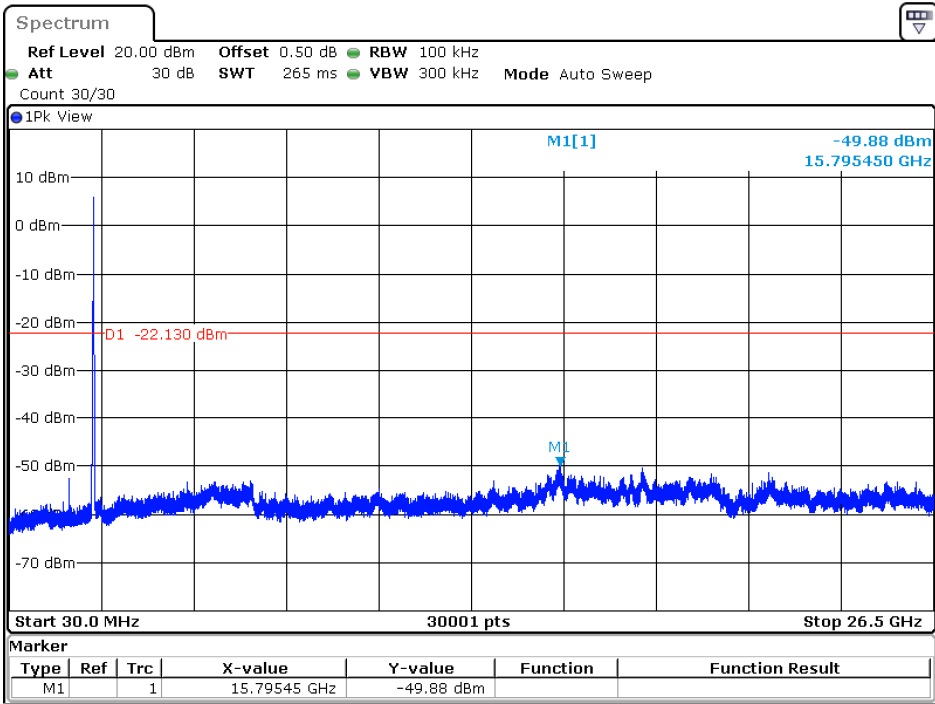
Product : 11ax Cloud Managed AP
Test Item : RF Antenna Conducted Spurious
Test Mode : Mode 2: Transmit (802.11g)-CDD
Test Date : 2022/03/18

Channel 06 (2437MHz)

Date: 18.MAR.2022 09:21:12

Product : 11ax Cloud Managed AP
Test Item : RF Antenna Conducted Spurious
Test Mode : Mode 3: Transmit (802.11ax-20BW)-CDD
Test Date : 2022/01/04

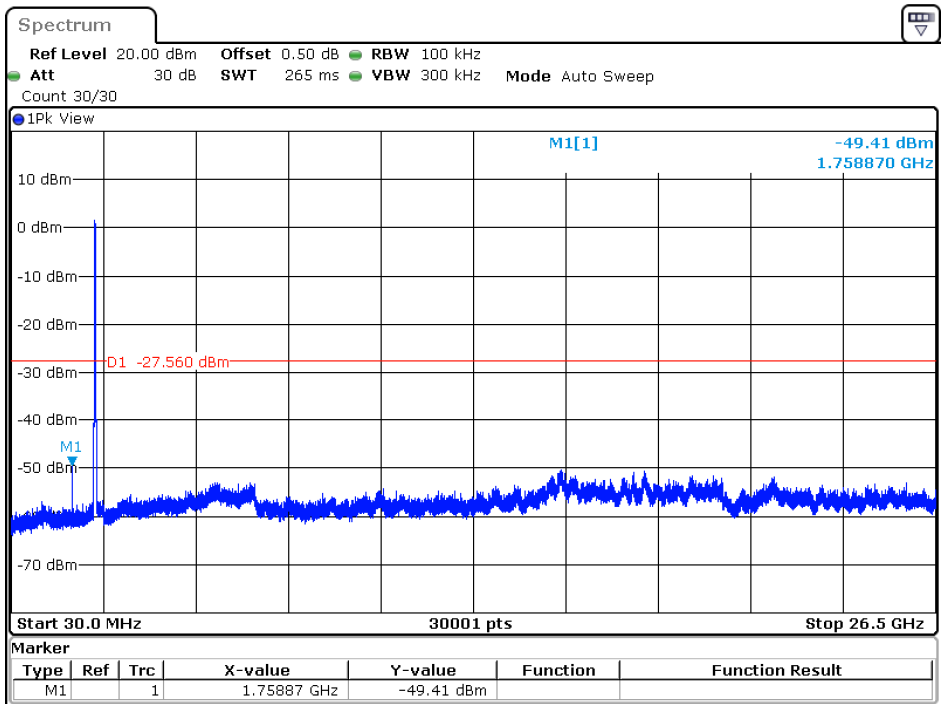
Channel 06 (2437MHz)



Date: 18.MAR.2022 10:10:30

Product : 11ax Cloud Managed AP
Test Item : RF Antenna Conducted Spurious
Test Mode : Mode 4: Transmit (802.11ax-40BW)-CDD
Test Date : 2022/03/18

Channel 03 (2422MHz)

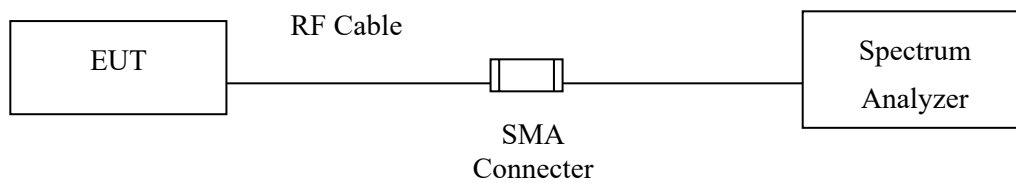


Date: 18.MAR.2022 10:49:00

6. Band Edge

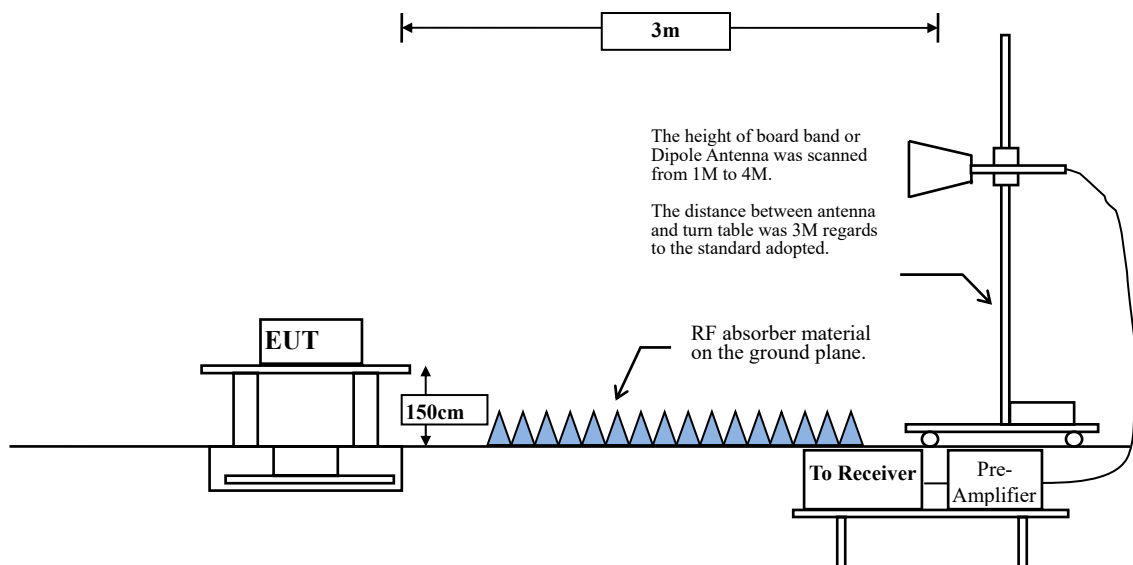
6.1. Test Setup

RF Conducted Measurement



RF Radiated Measurement:

Above 1GHz



6.2. Limits

According to FCC Section 15.247(d). 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 measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. 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. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

6.3. Test Procedure

The EUT was setup according to ANSI C63.10, 2013 and tested according to C63.10:2013 Section 11.12.1 for compliance to FCC 47CFR 15.247 requirements.

The EUT is placed on a turn table which is 1.5 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10:2013 on radiated measurement.

RBW and VBW Parameter setting:

According to C63.10 Section 11.12.2.4 Peak measurement procedure.

RBW = as specified in Table 1.

$VBW \geq 3 \times RBW$.

Table 1 —RBW as a function of frequency

Frequency	RBW
9-150 kHz	200-300 Hz
0.15-30 MHz	9-10 kHz
30-1000 MHz	100-120 kHz
> 1000 MHz	1 MHz

According to C63.10 Section 11.12.2.5 Average measurement procedure.

RBW = 1MHz.

VBW = 10Hz, when duty cycle $\geq 98 \%$

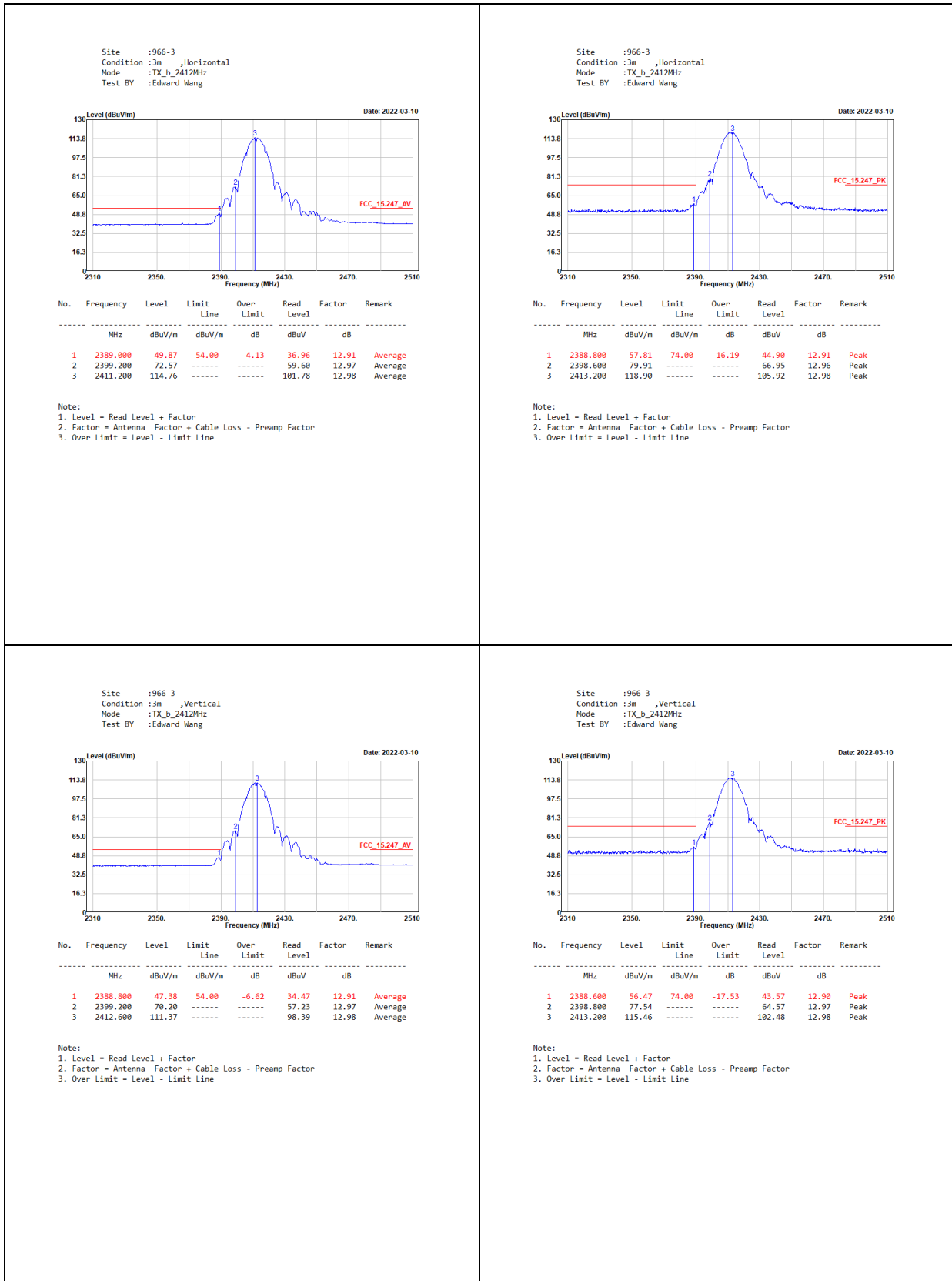
$VBW \geq 1/T$, when duty cycle $< 98 \%$

(T refers to 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.)

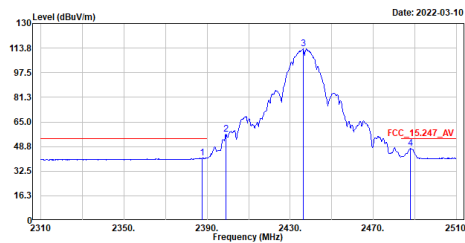
2.4GHz band	Duty Cycle (%)	T (ms)	1/T (Hz)	VBW (Hz)
802.11b	57.91	0.6810	1468	2000
802.11g	96.34	1.9750	506	1000
802.11ax20	93.45	5.4200	185	200
802.11ax40	93.79	5.4400	184	200

Note: Duty Cycle Refer to Section 9

6.4. Test Result of Band Edge



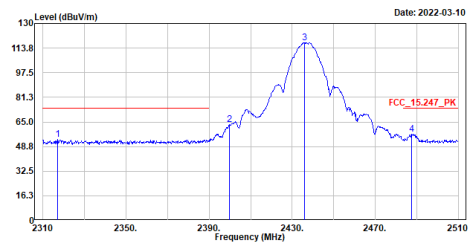
Site :966-3
Condition :3m ,Horizontal
Mode :TX_b_2437MHz
Test BY :Edward Wang



No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	Line	Limit	Level	dB	
1	2387.800	41.23	54.00	-12.77	28.33	12.90	Average
2	2399.200	56.87	-----	-----	43.90	12.97	Average
3	2436.200	113.25	-----	-----	100.24	13.01	Average
4	2487.800	47.58	54.00	-6.42	34.50	13.08	Average

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

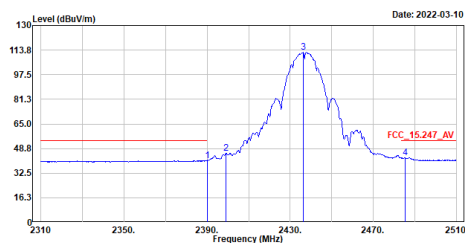
Site :966-3
Condition :3m ,Horizontal
Mode :TX_b_2437MHz
Test BY :Edward Wang



No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	Line	Limit	Level	dB	
1	2317.200	53.32	74.00	-20.68	40.73	12.59	Peak
2	2399.800	63.19	-----	-----	50.22	12.97	Peak
3	2436.000	117.27	-----	-----	104.26	13.01	Peak
4	2487.400	56.84	74.00	-17.16	43.76	13.08	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

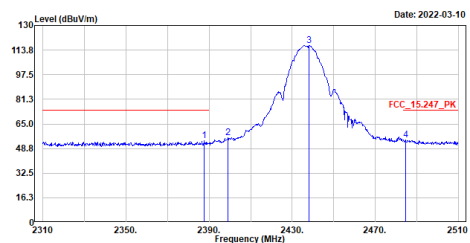
Site :966-3
Condition :3m ,Vertical
Mode :TX_b_2437MHz
Test BY :Edward Wang



No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	Line	Limit	Level	dB	
1	2390.000	40.91	54.00	-13.09	28.00	12.91	Average
2	2399.200	45.66	-----	-----	32.69	12.97	Average
3	2436.200	112.54	-----	-----	99.53	13.01	Average
4	2485.200	42.54	54.00	-11.46	29.46	13.08	Average

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

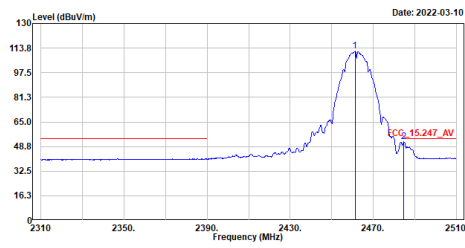
Site :966-3
Condition :3m ,Vertical
Mode :TX_b_2437MHz
Test BY :Edward Wang



No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	Line	Limit	Level	dB	
1	2387.800	53.78	74.00	-20.22	40.88	12.90	Peak
2	2399.200	55.71	-----	-----	42.74	12.97	Peak
3	2438.200	116.67	-----	-----	103.66	13.01	Peak
4	2484.600	54.54	74.00	-19.46	41.46	13.08	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

Site :966-3
Condition :3m ,Horizontal
Mode :TX_b_2462MHz
Test BY :Edward Wang

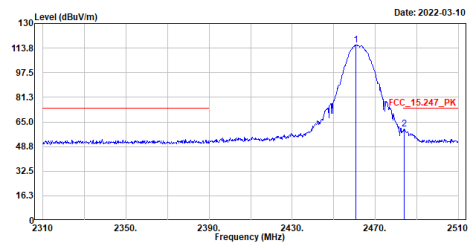


No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	Line	Limit	Level	dB	
1	2461.200	111.79	-----	-----	98.74	13.05	Average
2	2484.800	51.83	54.00	-2.17	38.75	13.08	Average

Note:

1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

Site :966-3
Condition :3m ,Horizontal
Mode :TX_b_2462MHz
Test BY :Edward Wang

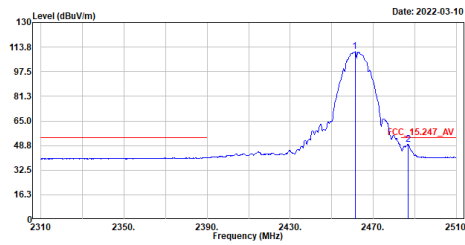


No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	Line	Limit	Level	dB	
1	2460.800	115.87	-----	-----	102.83	13.04	Peak
2	2484.800	60.35	74.00	-13.65	47.27	13.08	Peak

Note:

1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

Site :966-3
Condition :3m ,Vertical
Mode :TX_b_2462MHz
Test BY :Edward Wang

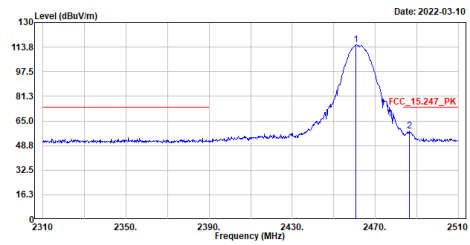


No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	Line	Limit	Level	dB	
1	2461.200	111.10	-----	-----	98.05	13.05	Average
2	2486.800	49.45	54.00	-4.55	36.37	13.08	Average

Note:

1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

Site :966-3
Condition :3m ,Vertical
Mode :TX_b_2462MHz
Test BY :Edward Wang

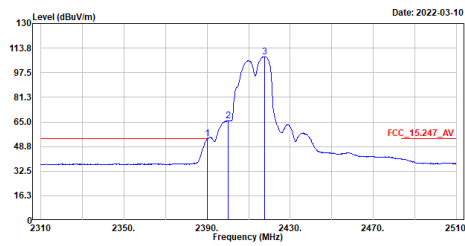


No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	Line	Limit	Level	dB	
1	2460.800	115.13	-----	-----	102.09	13.04	Peak
2	2486.600	58.17	74.00	-15.83	45.09	13.08	Peak

Note:

1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

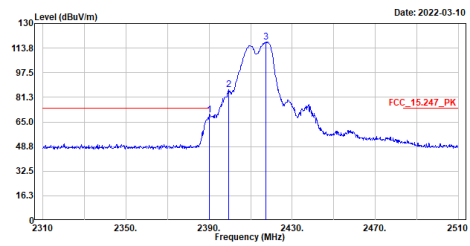
Site :966-3
Condition :3m ,Horizontal
Mode :TX_g_2412MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	Line	Limit	Level		
1	2398.000	53.86	54.00	-0.14	48.95	12.91	Average
2	2400.000	65.63	-----	-----	52.66	12.97	Average
3	2417.600	108.04	-----	-----	95.04	13.00	Average

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

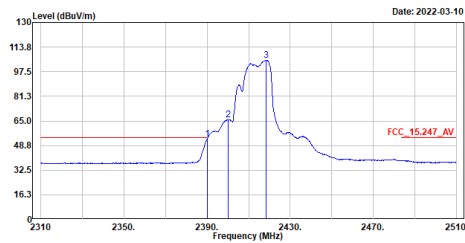
Site :966-3
Condition :3m ,Horizontal
Mode :TX_g_2412MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	Line	Limit	Level		
1	2398.000	69.80	74.00	-4.20	56.89	12.91	Peak
2	2399.600	86.20	-----	-----	73.23	12.97	Peak
3	2417.400	117.84	-----	-----	104.84	13.00	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

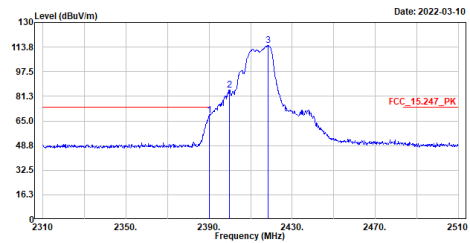
Site :966-3
Condition :3m ,Vertical
Mode :TX_g_2412MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	Line	Limit	Level		
1	2398.000	53.06	54.00	-0.94	48.15	12.91	Average
2	2400.000	65.67	-----	-----	52.70	12.97	Average
3	2418.400	105.12	-----	-----	92.12	13.00	Average

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

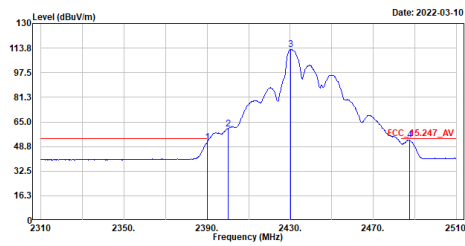
Site :966-3
Condition :3m ,Vertical
Mode :TX_g_2412MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	Line	Limit	Level		
1	2398.000	68.92	74.00	-5.08	56.01	12.91	Peak
2	2399.800	85.24	-----	-----	72.27	12.97	Peak
3	2418.400	114.87	-----	-----	101.87	13.00	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

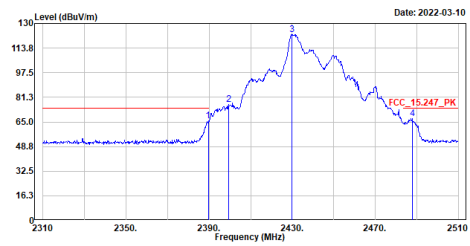
Site :966-3
Condition :3m ,Horizontal
Mode :TX_g_2437MHz
Test BY :Edward Wang



No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	Line	Limit	Level	dB	
1	2390.000	51.74	54.00	-2.26	38.83	12.91	Average
2	2400.000	60.40	-----	-----	47.43	12.97	Average
3	2430.200	112.90	-----	-----	99.89	13.01	Average
4	2487.400	53.06	54.00	-0.94	39.98	13.08	Average

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

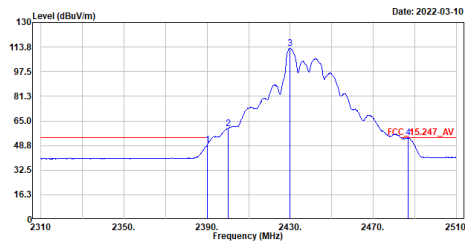
Site :966-3
Condition :3m ,Horizontal
Mode :TX_g_2437MHz
Test BY :Edward Wang



No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	Line	Limit	Level	dB	
1	2389.600	65.57	74.00	-8.43	52.66	12.91	Peak
2	2399.400	76.45	-----	-----	63.48	12.97	Peak
3	2430.000	122.89	-----	-----	109.88	13.01	Peak
4	2487.800	67.41	74.00	-6.59	54.33	13.08	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

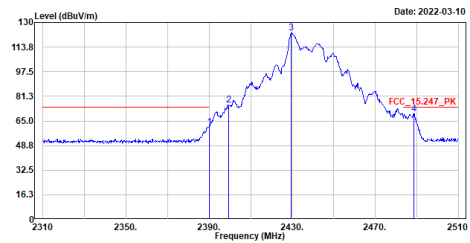
Site :966-3
Condition :3m ,Vertical
Mode :TX_g_2437MHz
Test BY :Edward Wang



No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	Line	Limit	Level	dB	
1	2390.000	49.23	54.00	-4.77	36.32	12.91	Average
2	2400.000	59.84	-----	-----	46.87	12.97	Average
3	2429.800	112.97	-----	-----	99.96	13.01	Average
4	2486.800	53.91	54.00	-0.09	40.83	13.08	Average

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

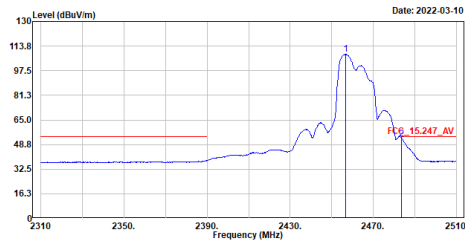
Site :966-3
Condition :3m ,Vertical
Mode :TX_g_2437MHz
Test BY :Edward Wang



No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	Line	Limit	Level	dB	
1	2390.000	61.07	74.00	-12.93	48.16	12.91	Peak
2	2399.600	75.65	-----	-----	62.68	12.97	Peak
3	2429.600	123.11	-----	-----	110.10	13.01	Peak
4	2488.600	69.88	74.00	-4.12	56.79	13.09	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

Site :966-3
Condition :3m ,Horizontal
Mode :TX_g_2462MHz
Test BY :Jing Chang

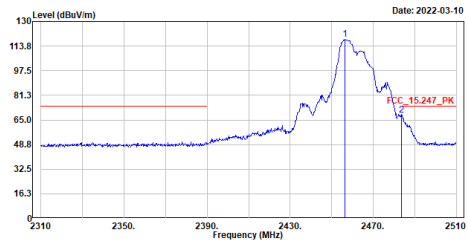


No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	Line	Limit	Level	dB	
1	2456.800	108.31	-----	-----	95.27	13.04	Average
2	2483.600	52.72	54.00	-1.28	39.64	13.08	Average

Note:

1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

Site :966-3
Condition :3m ,Horizontal
Mode :TX_g_2462MHz
Test BY :Jing Chang

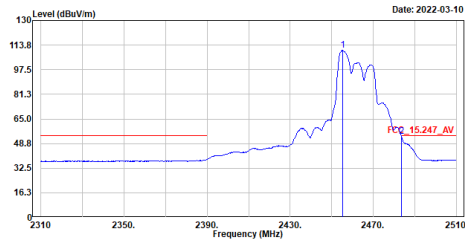


No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	Line	Limit	Level	dB	
1	2456.400	118.02	-----	-----	104.98	13.04	Peak
2	2483.600	68.42	74.00	-5.58	55.34	13.08	Peak

Note:

1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

Site :966-3
Condition :3m ,Vertical
Mode :TX_g_2462MHz
Test BY :Jing Chang

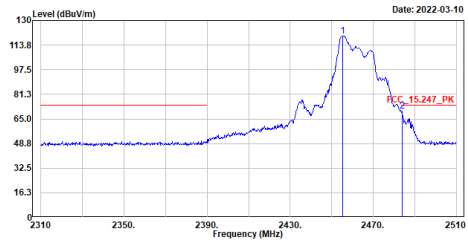


No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	Line	Limit	Level	dB	
1	2455.200	110.29	-----	-----	97.25	13.04	Average
2	2483.600	53.45	54.00	-0.55	48.37	13.08	Average

Note:

1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

Site :966-3
Condition :3m ,Vertical
Mode :TX_g_2462MHz
Test BY :Jing Chang

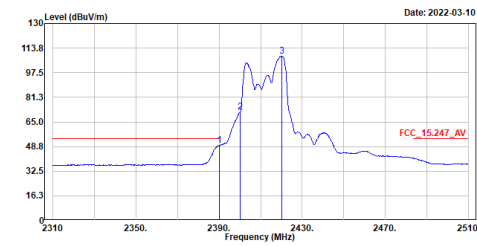


No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	Line	Limit	Level	dB	
1	2455.200	119.85	-----	-----	106.81	13.04	Peak
2	2483.600	70.00	74.00	-4.00	56.92	13.08	Peak

Note:

1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

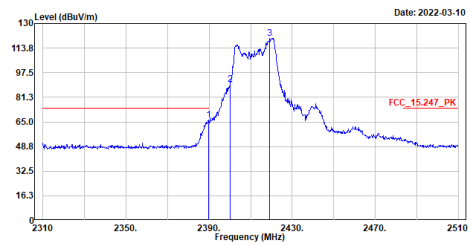
Site :966-3
Condition :3m ,Horizontal
Mode :TX_ax20_2412MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	Line	Limit	Level	dB	
1	2398.000	49.54	54.00	-4.46	36.63	12.91	Average
2	2400.000	71.41	-----	-----	58.44	12.97	Average
3	2420.200	108.35	-----	-----	95.35	13.00	Average

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

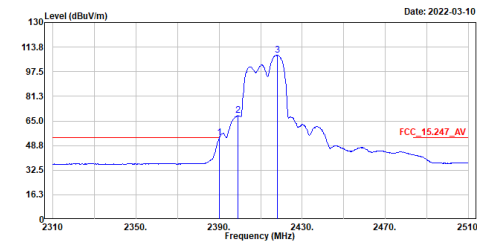
Site :966-3
Condition :3m ,Horizontal
Mode :TX_ax20_2412MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	Line	Limit	Level	dB	
1	2389.800	66.41	74.00	-7.59	53.50	12.91	Peak
2	2400.000	89.61	-----	-----	76.64	12.97	Peak
3	2419.200	120.43	-----	-----	107.43	13.00	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

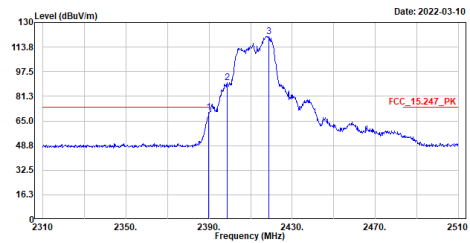
Site :966-3
Condition :3m ,Vertical
Mode :TX_ax20_2412MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	Line	Limit	Level	dB	
1	2398.000	53.76	54.00	-0.24	40.85	12.91	Average
2	2399.200	68.45	-----	-----	55.48	12.97	Average
3	2418.200	108.45	-----	-----	95.45	13.00	Average

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

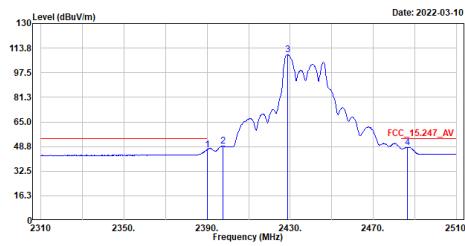
Site :966-3
Condition :3m ,Vertical
Mode :TX_ax20_2412MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	Line	Limit	Level	dB	
1	2389.800	70.85	74.00	-3.15	57.94	12.91	Peak
2	2398.800	90.28	-----	-----	77.31	12.97	Peak
3	2418.800	120.82	-----	-----	107.82	13.00	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

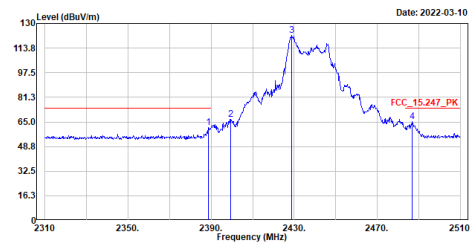
Site :966-3
Condition :3m ,Horizontal
Mode :TX_ax20_2437MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	Line	Limit	Level	dB	
1	2398.000	46.75	54.00	-7.25	33.84	12.91	Average
2	2397.600	49.07	-----	-----	36.11	12.96	Average
3	2428.800	109.32	-----	-----	96.31	13.01	Average
4	2486.600	48.29	54.00	-5.71	35.21	13.08	Average

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

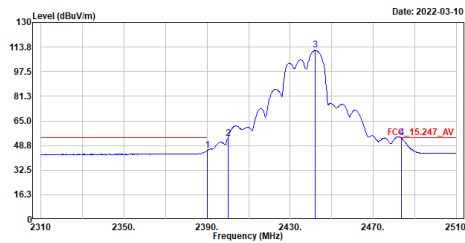
Site :966-3
Condition :3m ,Horizontal
Mode :TX_ax20_2437MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	Line	Limit	Level	dB	
1	2388.800	61.56	74.00	-12.44	48.65	12.91	Peak
2	2399.600	66.68	-----	-----	53.71	12.97	Peak
3	2428.800	122.16	-----	-----	109.15	13.01	Peak
4	2486.800	65.09	74.00	-8.91	52.01	13.08	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

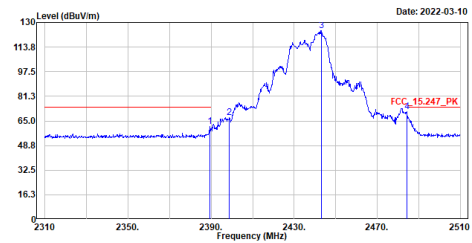
Site :966-3
Condition :3m ,Vertical
Mode :TX_ax20_2437MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	Line	Limit	Level	dB	
1	2398.000	45.45	54.00	-8.55	32.54	12.91	Average
2	2400.000	53.63	-----	-----	40.66	12.97	Average
3	2442.000	111.73	-----	-----	98.70	13.03	Average
4	2483.600	53.79	54.00	-0.21	40.71	13.08	Average

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

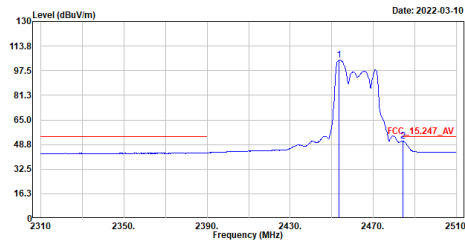
Site :966-3
Condition :3m ,Vertical
Mode :TX_ax20_2437MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	Line	Limit	Level	dB	
1	2389.400	61.28	74.00	-12.72	48.37	12.91	Peak
2	2398.800	67.33	-----	-----	54.36	12.97	Peak
3	2443.000	124.66	-----	-----	111.63	13.03	Peak
4	2484.200	70.96	74.00	-3.04	57.88	13.08	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

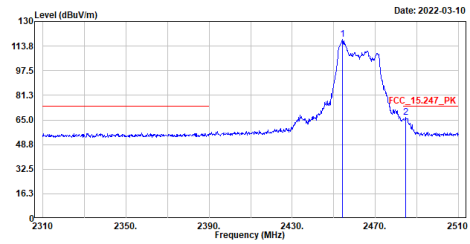
Site :966-3
Condition :3m ,Horizontal
Mode :TX_ax20_2462MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	Line	Limit	Level	dB	
1	2453.600	104.52	-----	-----	91.48	13.04	Average
2	2484.200	51.09	54.00	-2.91	38.01	13.08	Average

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

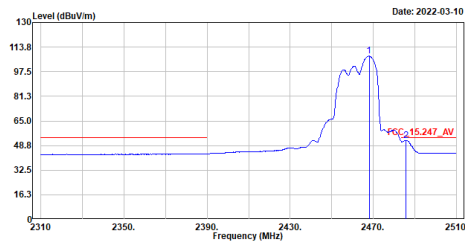
Site :966-3
Condition :3m ,Horizontal
Mode :TX_ax20_2462MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	Line	Limit	Level	dB	
1	2454.200	118.08	-----	-----	105.04	13.04	Peak
2	2484.800	66.79	74.00	-7.21	53.71	13.08	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

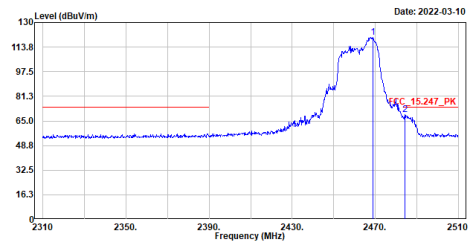
Site :966-3
Condition :3m ,Vertical
Mode :TX_ax20_2462MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	Line	Limit	Level	dB	
1	2468.000	107.72	-----	-----	94.66	13.06	Average
2	2485.800	52.18	54.00	-1.82	39.10	13.08	Average

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

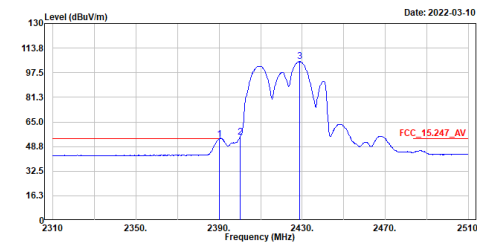
Site :966-3
Condition :3m ,Vertical
Mode :TX_ax20_2462MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	Line	Limit	Level	dB	
1	2468.800	119.99	-----	-----	106.93	13.06	Peak
2	2484.200	69.11	74.00	-4.89	56.03	13.08	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

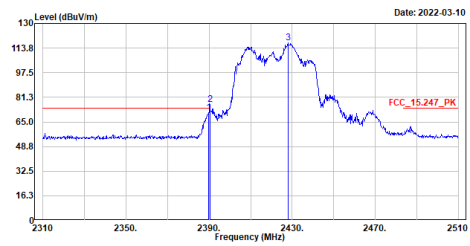
Site :966-3
Condition :3m ,Horizontal
Mode :TX_ax40_2422MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	Line	Limit	Level	dB	
1	2390.000	53.65	54.00	-0.35	49.74	12.91	Average
2	2400.000	54.82	-----	-----	41.85	12.97	Average
3	2428.000	104.89	-----	-----	91.88	13.01	Average

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

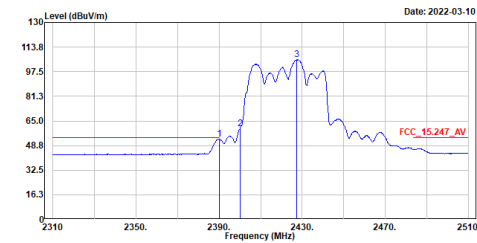
Site :966-3
Condition :3m ,Horizontal
Mode :TX_ax40_2422MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	Line	Limit	Level	dB	
1	2389.800	71.09	74.00	-2.91	58.18	12.91	Peak
2	2390.400	76.35	-----	-----	63.43	12.92	Peak
3	2428.000	117.04	-----	-----	104.03	13.01	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

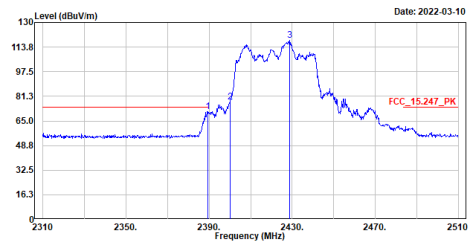
Site :966-3
Condition :3m ,Vertical
Mode :TX_ax40_2422MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	Line	Limit	Level	dB	
1	2390.000	53.13	54.00	-0.87	49.22	12.91	Average
2	2400.000	60.01	-----	-----	47.04	12.97	Average
3	2427.400	105.43	-----	-----	92.42	13.01	Average

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

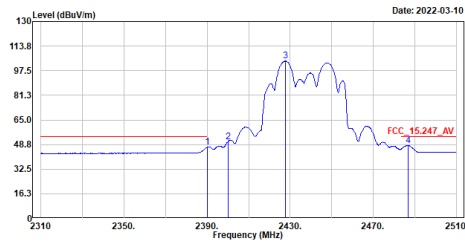
Site :966-3
Condition :3m ,Vertical
Mode :TX_ax40_2422MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	Line	Limit	Level	dB	
1	2389.400	71.24	74.00	-2.76	58.33	12.91	Peak
2	2400.000	77.37	-----	-----	64.40	12.97	Peak
3	2428.000	118.10	-----	-----	105.09	13.01	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

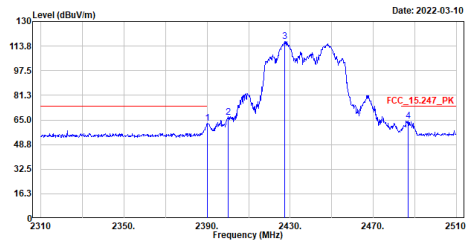
Site :966-3
Condition :3m ,Horizontal
Mode :TX_ax40_2437MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	Line	Limit	Level	dB	
1	2390.000	46.95	54.00	-7.05	34.04	12.91	Average
2	2400.000	50.67	-----	-----	37.70	12.97	Average
3	2427.600	103.86	-----	-----	90.85	13.01	Average
4	2486.800	48.19	54.00	-5.81	35.11	13.08	Average

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

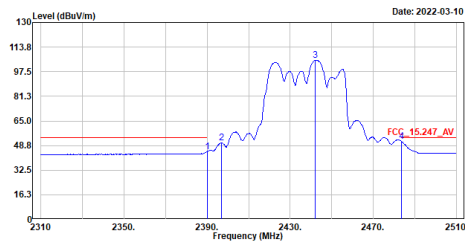
Site :966-3
Condition :3m ,Horizontal
Mode :TX_ax40_2437MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	Line	Limit	Level	dB	
1	2390.000	62.63	74.00	-11.37	49.72	12.91	Peak
2	2400.000	66.56	-----	-----	53.59	12.97	Peak
3	2427.200	116.75	-----	-----	103.74	13.01	Peak
4	2486.800	64.43	74.00	-9.57	51.35	13.08	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

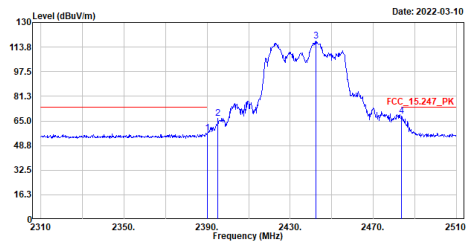
Site :966-3
Condition :3m ,Vertical
Mode :TX_ax40_2437MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	Line	Limit	Level	dB	
1	2390.000	44.70	54.00	-9.30	31.79	12.91	Average
2	2397.000	50.55	-----	-----	37.59	12.96	Average
3	2442.200	105.18	-----	-----	92.15	13.03	Average
4	2483.600	51.46	54.00	-2.54	38.38	13.08	Average

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

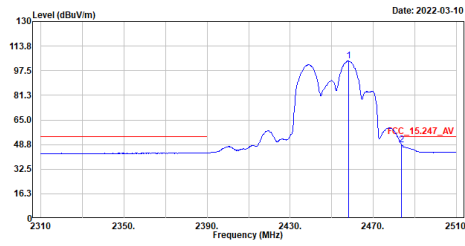
Site :966-3
Condition :3m ,Vertical
Mode :TX_ax40_2437MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	Line	Limit	Level	dB	
1	2390.000	56.90	74.00	-17.10	43.99	12.91	Peak
2	2395.200	66.95	-----	-----	54.00	12.95	Peak
3	2442.400	117.94	-----	-----	104.91	13.03	Peak
4	2483.600	67.96	74.00	-6.04	54.88	13.08	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

Site :966-3
Condition :3m ,Horizontal
Mode :TX_ax40_2452MHz
Test BY :Jing Chang

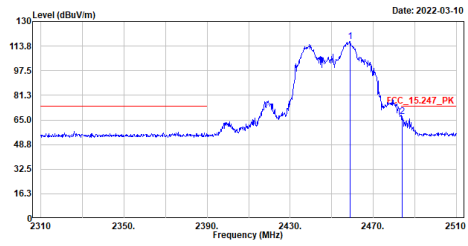


No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	Line	Limit	Level	dB	
1	2458.000	103.96	-----	-----	98.92	13.04	Average
2	2483.600	48.70	54.00	-5.30	35.62	13.08	Average

Note:

1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

Site :966-3
Condition :3m ,Horizontal
Mode :TX_ax40_2452MHz
Test BY :Jing Chang

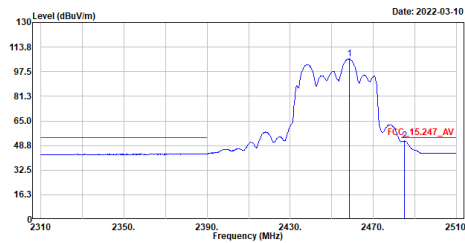


No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	Line	Limit	Level	dB	
1	2458.800	116.94	-----	-----	103.98	13.04	Peak
2	2483.800	67.15	74.00	-6.85	54.07	13.08	Peak

Note:

1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

Site :966-3
Condition :3m ,Vertical
Mode :TX_ax40_2452MHz
Test BY :Jing Chang

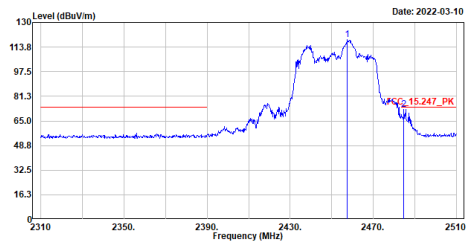


No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	Line	Limit	Level	dB	
1	2458.400	105.96	-----	-----	92.92	13.04	Average
2	2485.000	51.76	54.00	-2.24	38.68	13.08	Average

Note:

1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

Site :966-3
Condition :3m ,Vertical
Mode :TX_ax40_2452MHz
Test BY :Jing Chang



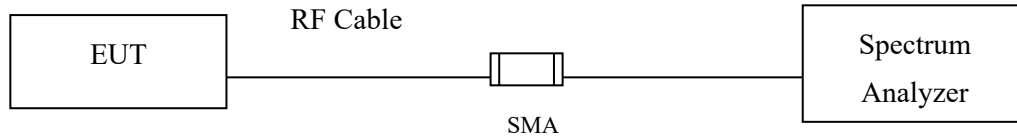
No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	Line	Limit	Level	dB	
1	2457.600	118.62	-----	-----	105.58	13.04	Peak
2	2484.800	72.85	74.00	-1.15	59.77	13.08	Peak

Note:

1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

7. 6dB Bandwidth

7.1. Test Setup



7.2. Limits

The minimum bandwidth shall be at least 500 kHz.

7.3. Test Procedure

The EUT was setup according to ANSI C63.4, 2014; tested according to ANSI C63.10 Section 11.8 for compliance to FCC 47CFR 15.247 requirements.

7.4. Test Result of 6dB Bandwidth

Product : 11ax Cloud Managed AP
 Test Item : 6dB Bandwidth Data
 Test Mode : Mode 1: Transmit (802.11b)-CDD

Chain A

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
01	2412	8072	>500	Pass
06	2437	8072	>500	Pass
11	2462	8032	>500	Pass

Chain B

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
01	2412	8072	>500	Pass
06	2437	10030	>500	Pass
11	2462	8512	>500	Pass

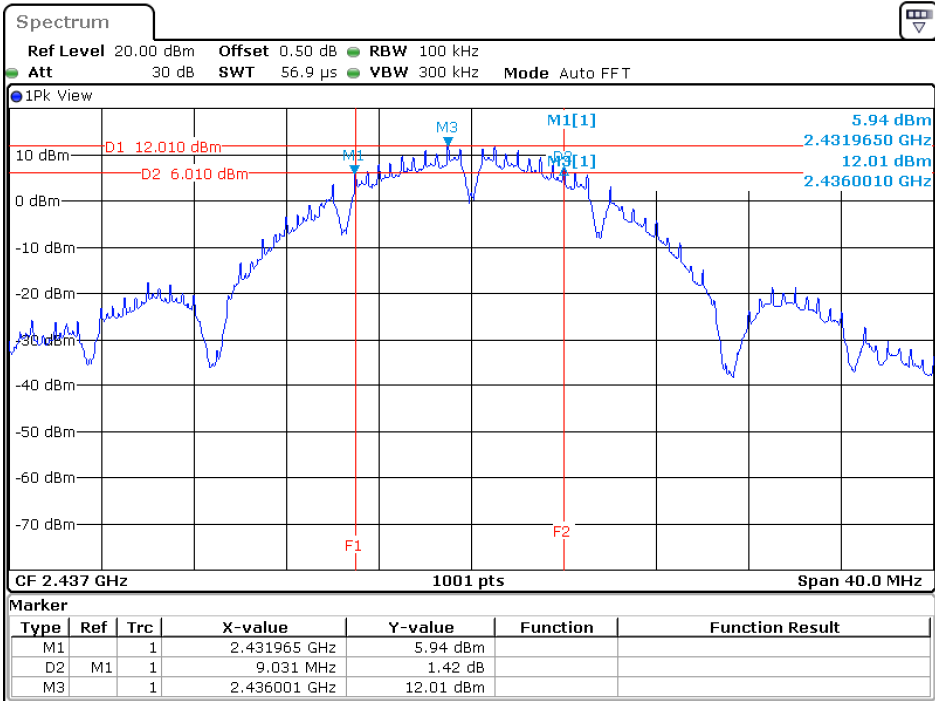
Chain C

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
01	2412	8072	>500	Pass
06	2437	9031	>500	Pass
11	2462	8032	>500	Pass

Chain D

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
01	2412	8072	>500	Pass
06	2437	9990	>500	Pass
11	2462	8032	>500	Pass

Figure Channel 06:



Date: 18.MAR.2022 08:18:45

Product : 11ax Cloud Managed AP
Test Item : 6dB Bandwidth Data
Test Mode : Mode 2: Transmit (802.11g)-CDD

Chain A

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
01	2412	15944	>500	Pass
06	2437	16304	>500	Pass
11	2462	16304	>500	Pass

Chain B

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
01	2412	16304	>500	Pass
06	2437	16304	>500	Pass
11	2462	16264	>500	Pass

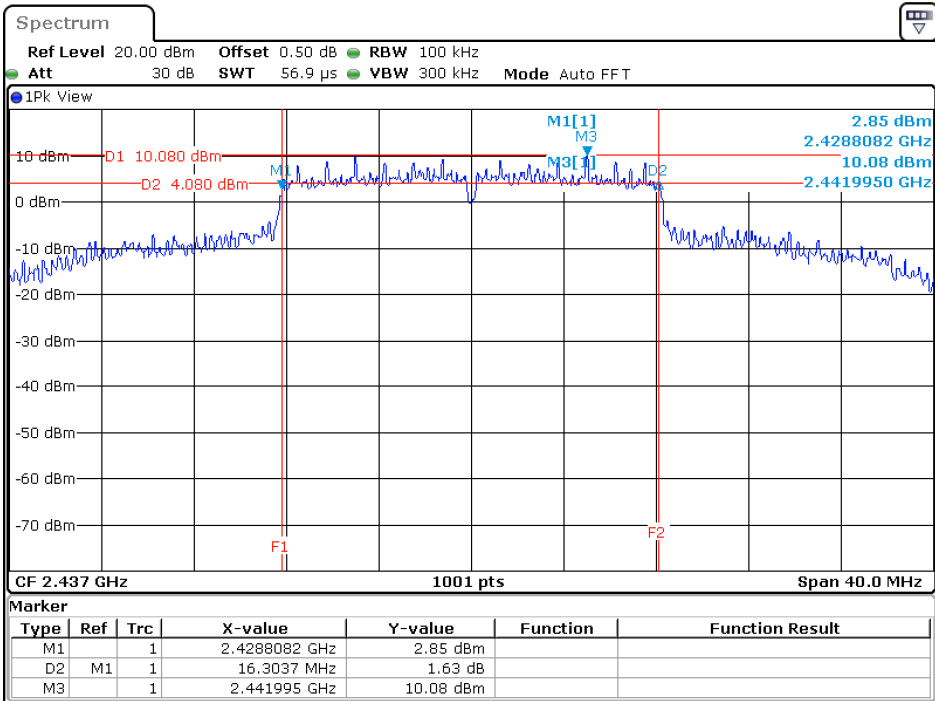
Chain C

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
01	2412	16304	>500	Pass
06	2437	16264	>500	Pass
11	2462	15704	>500	Pass

Chain D

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
01	2412	15904	>500	Pass
06	2437	16304	>500	Pass
11	2462	15704	>500	Pass

Figure Channel 06:



Date: 18.MAR.2022 09:16:29

Product : 11ax Cloud Managed AP
Test Item : 6dB Bandwidth Data
Test Mode : Mode 3: Transmit (802.11ax-20BW)-CDD

Chain A

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
01	2412	18661	>500	Pass
06	2437	18422	>500	Pass
11	2462	17902	>500	Pass

Chain B

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
01	2412	18821	>500	Pass
06	2437	18901	>500	Pass
11	2462	19021	>500	Pass

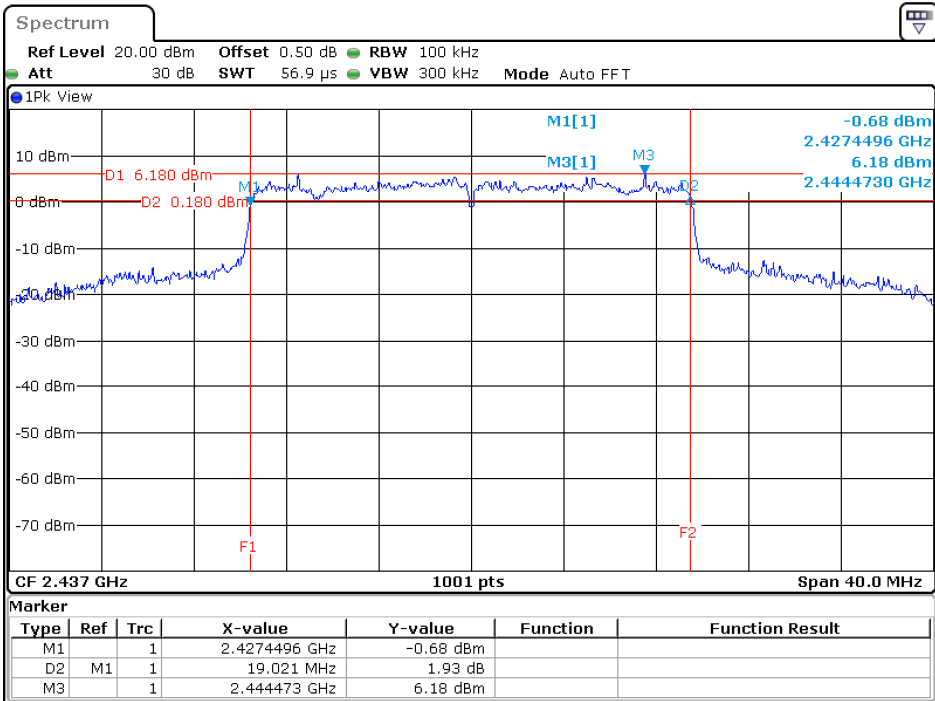
Chain C

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
01	2412	18701	>500	Pass
06	2437	18741	>500	Pass
11	2462	18981	>500	Pass

Chain D

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
01	2412	18781	>500	Pass
06	2437	19021	>500	Pass
11	2462	18741	>500	Pass

Figure Channel 06:



Date: 18.MAR.2022 10:07:34

Product : 11ax Cloud Managed AP
 Test Item : 6dB Bandwidth Data
 Test Mode : Mode 4: Transmit (802.11ax-40BW)-CDD

Chain A

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
03	2422	36923	>500	Pass
06	2437	37323	>500	Pass
09	2452	37003	>500	Pass

Chain B

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
03	2422	37802	>500	Pass
06	2437	37802	>500	Pass
09	2452	37562	>500	Pass

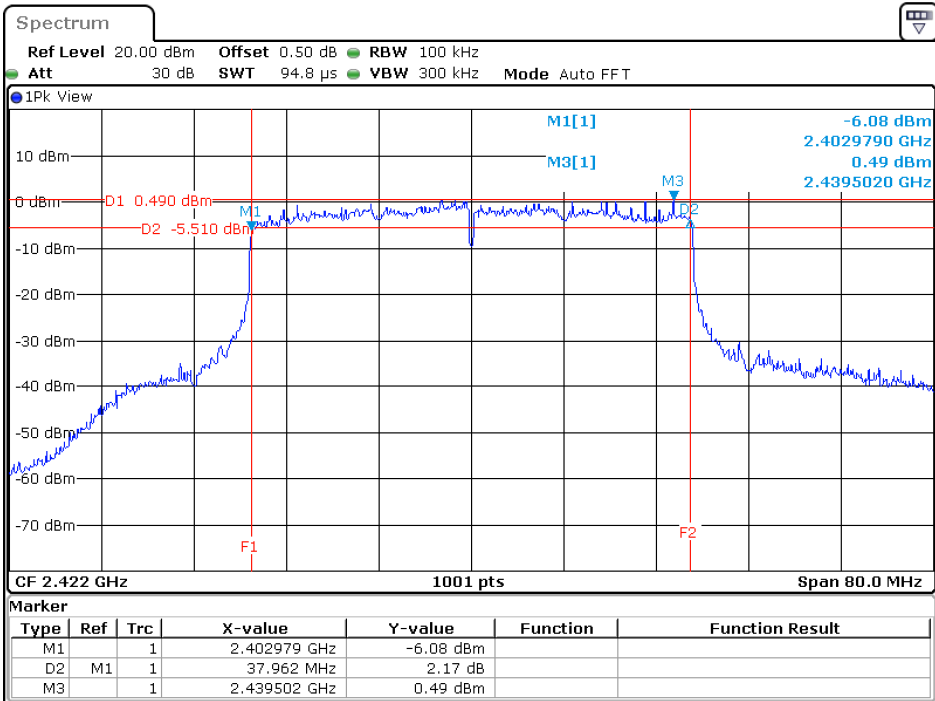
Chain C

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
03	2422	37962	>500	Pass
06	2437	37802	>500	Pass
09	2452	37722	>500	Pass

Chain D

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
03	2422	37323	>500	Pass
06	2437	37882	>500	Pass
09	2452	37802	>500	Pass

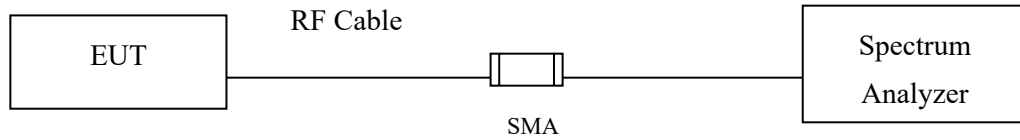
Figure Channel 03:



Date: 18.MAR.2022 10:46:13

8. Power Density

8.1. Test Setup



8.2. Limits

The transmitted power density averaged over any 1 second interval shall not be greater +8dBm in any 3kHz bandwidth.

8.3. Test Procedure

The EUT was setup according to ANSI C63.10, 2013; tested according to DTS test procedure of KDB 558074 for compliance to FCC 47CFR 15.247 requirements.

The maximum power spectral density using C63.10 Section 11.10.2 Method PKPSD (peak PSD)

The maximum power density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

2400MHz: Directional gain = 9.88 dBi, Limit= 4.12dBm

Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2 / N_{ANT}]$ dBi

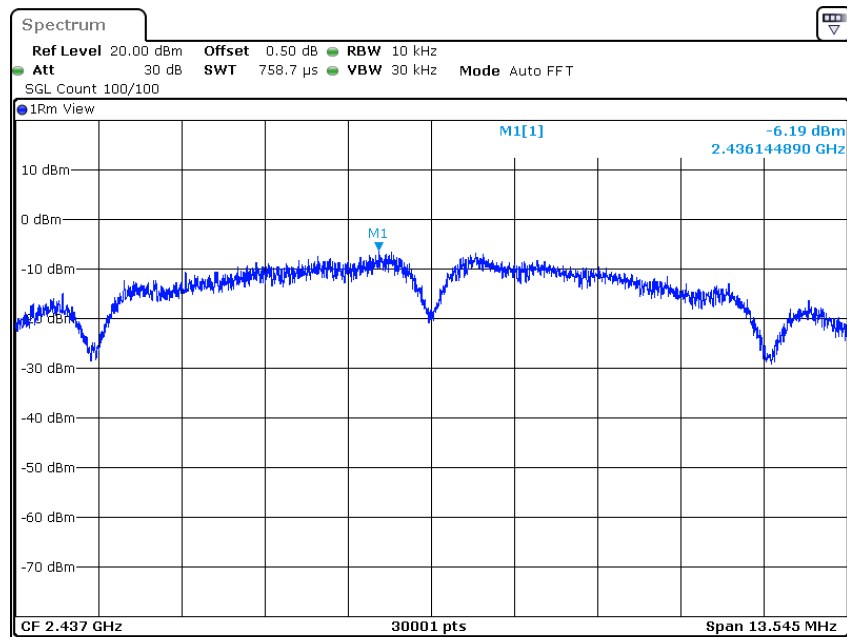
8.4. Test Result of Power Density

Product : 11ax Cloud Managed AP
 Test Item : Power Density Data
 Test Mode : Mode 1: Transmit (802.11b)-CDD

Channel No.	Frequency (MHz)	Data Rate (Mbps)	Chain (dBm)	PPSD/MHz (dBm)	Duty factor (dBm)	Total PPSD/MHz (dBm)	Limit (dBm)	Result
01	2412	1	A	-7.760	2.373	1.406	4.12	Pass
			B	-7.010				
			C	-6.990				
			D	-6.310				
06	2437	1	A	-6.660	2.373	1.915	4.12	Pass
			B	-6.430				
			C	-6.190				
			D	-6.650				
11	2462	1	A	-7.840	2.373	0.618	4.12	Pass
			B	-7.960				
			C	-7.740				
			D	-7.570				

Note: Total PPSD/MHz = $10 \cdot \log(\text{Chain A (mW)} + \text{Chain B (mW)} + \text{Chain C (mW)} + \text{Chain D (mW)}) + \text{Duty factor}$

Figure Channel 06:



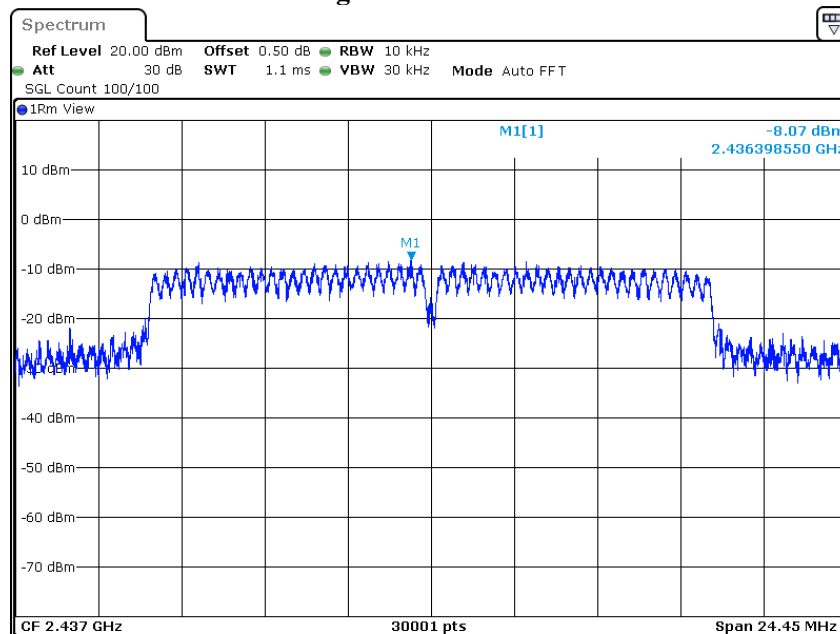
Date: 18.MAR.2022 08:18:57

Product : 11ax Cloud Managed AP
 Test Item : Power Density Data
 Test Mode : Mode 2: Transmit (802.11g)-CDD

Channel No.	Frequency (MHz)	Data Rate (Mbps)	Chain (dBm)	PPSD/MHz (dBm)	Duty factor (dBm)	Total PPSD/MHz (dBm)	Limit (dBm)	Result
01	2412	6	A	-12.200	0.16	-5.929	4.12	Pass
			B	-12.530				
			C	-12.460				
			D	-11.360				
06	2437	6	A	-8.770	0.16	-2.396	4.12	Pass
			B	-8.900				
			C	-8.620				
			D	-8.070				
11	2462	6	A	-13.100	0.16	-5.905	4.12	Pass
			B	-12.230				
			C	-11.570				
			D	-11.620				

Note: Total PPSD/MHz = $10 \cdot \log(\text{Chain A (mW)} + \text{Chain B (mW)} + \text{Chain C (mW)} + \text{Chain D (mW)}) + \text{Duty factor}$

Figure Channel 06:



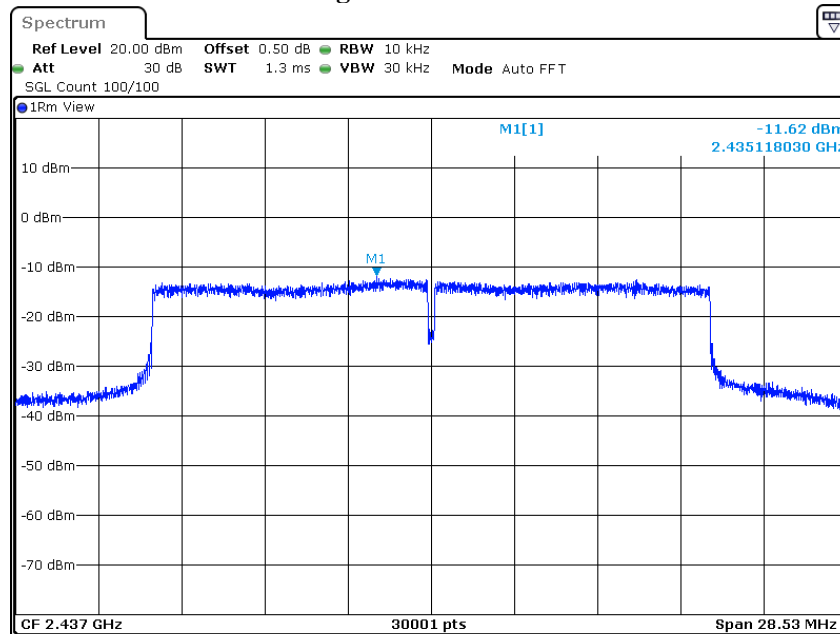
Date: 18.MAR.2022 09:16:41

Product : 11ax Cloud Managed AP
 Test Item : Power Density Data
 Test Mode : Mode 3: Transmit (802.11ax-20BW)-CDD

Channel No.	Frequency (MHz)	Data Rate (Mbps)	Chain (dBm)	PPSD/MHz (dBm)	Duty factor (dBm)	Total PPSD/MHz (dBm)	Limit (dBm)	Result
01	2412	MCS0	A	-13.740	0.29	-7.295	4.12	Pass
			B	-13.560				
			C	-13.850				
			D	-13.310				
06	2437	MCS0	A	-11.810	0.29	-5.607	4.12	Pass
			B	-11.710				
			C	-12.620				
			D	-11.620				
11	2462	MCS0	A	-15.220	0.29	-8.236	4.12	Pass
			B	-14.380				
			C	-14.590				
			D	-14.090				

Note: Total PPSS/MHz = 10*log(Chain A (mW) + Chain B (mW) + Chain C (mW) + Chain D (mW)) + Duty factor

Figure Channel 06:



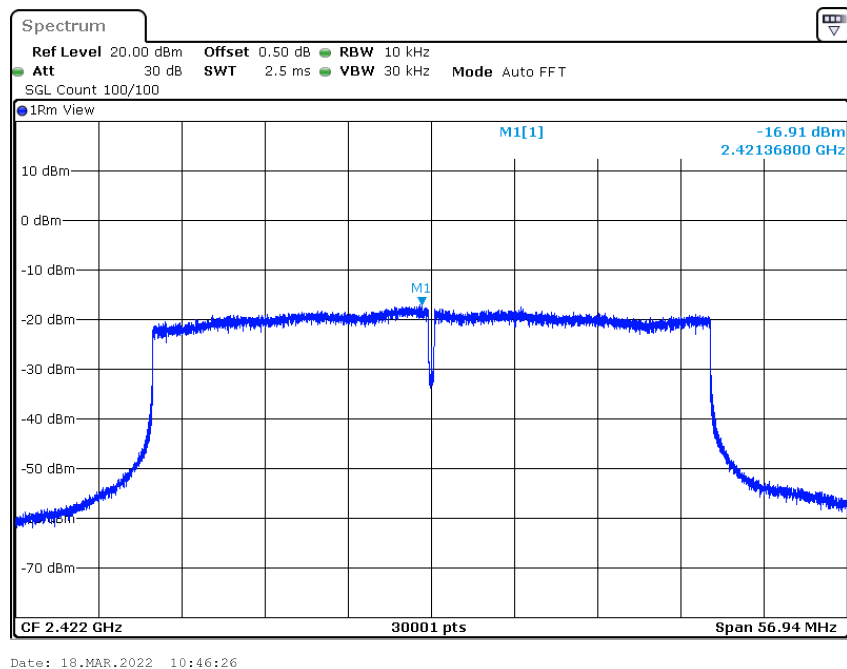
Date: 18.MAR.2022 10:07:46

Product : 11ax Cloud Managed AP
 Test Item : Power Density Data
 Test Mode : Mode 4: Transmit (802.11ax-40BW)-CDD

Channel No.	Frequency (MHz)	Data Rate (Mbps)	Chain (dBm)	PPSD/MHz (dBm)	Duty factor (dBm)	Total PPSD/MHz (dBm)	Limit (dBm)	Result
03	2422	MCS0	A	-17.290	0.28	-10.804	4.12	Pass
			B	-17.150				
			C	-16.910				
			D	-17.070				
06	2437	MCS0	A	-19.400	0.28	-13.117	4.12	Pass
			B	-19.170				
			C	-19.700				
			D	-19.410				
09	2452	MCS0	A	-19.260	0.28	-12.542	4.12	Pass
			B	-18.940				
			C	-18.840				
			D	-18.370				

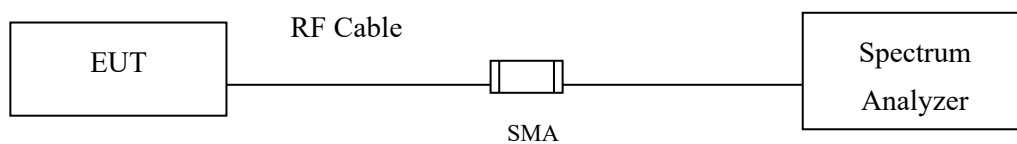
Note: Total PPSD/MHz = $10 \cdot \log(\text{Chain A (mW)} + \text{Chain B (mW)} + \text{Chain C (mW)} + \text{Chain D (mW)}) + \text{Duty factor}$

Figure Channel 03:



9. Duty Cycle

9.1. Test Setup



9.2. Test Procedure

The EUT was setup according to ANSI C63.10 2013; tested according to ANSI C63.10 2013 for compliance to FCC 47CFR 15.247 requirements.

9.3. Test Result of Duty Cycle

Product : 11ax Cloud Managed AP
Test Item : Duty Cycle
Test Mode : Transmit-CDD mode

Duty Cycle Formula:

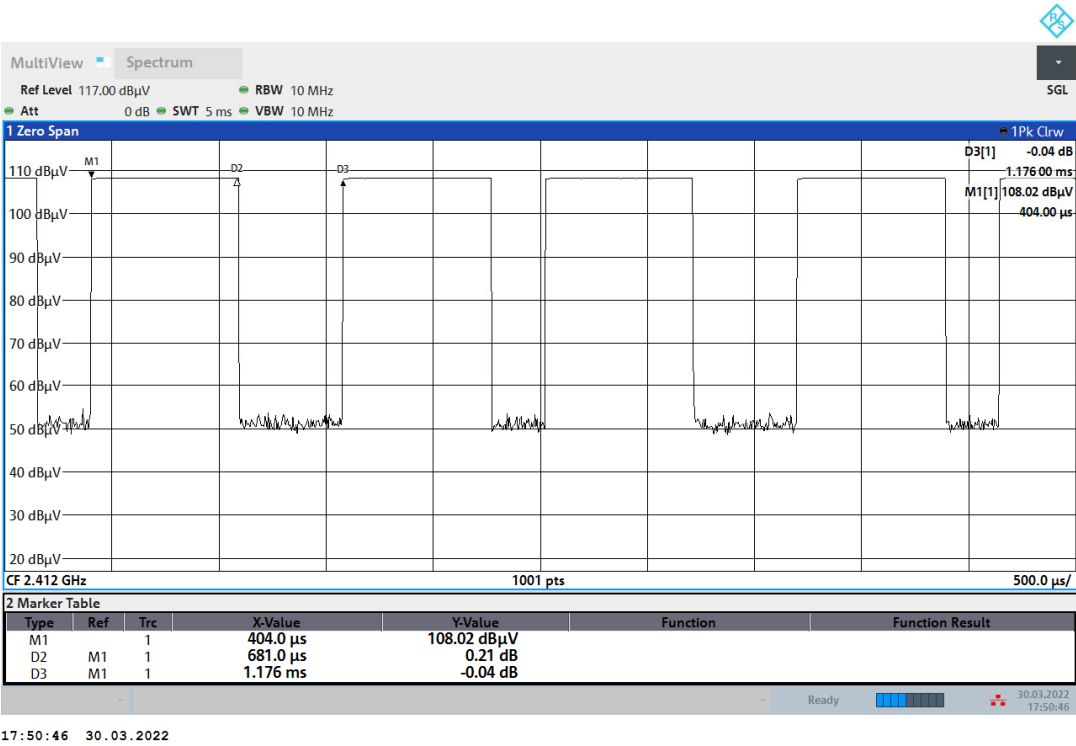
$\text{Duty Cycle} = \text{Ton} / (\text{Ton} + \text{Toff})$

$\text{Duty Factor} = 10 \text{ Log } (1/\text{Duty Cycle})$

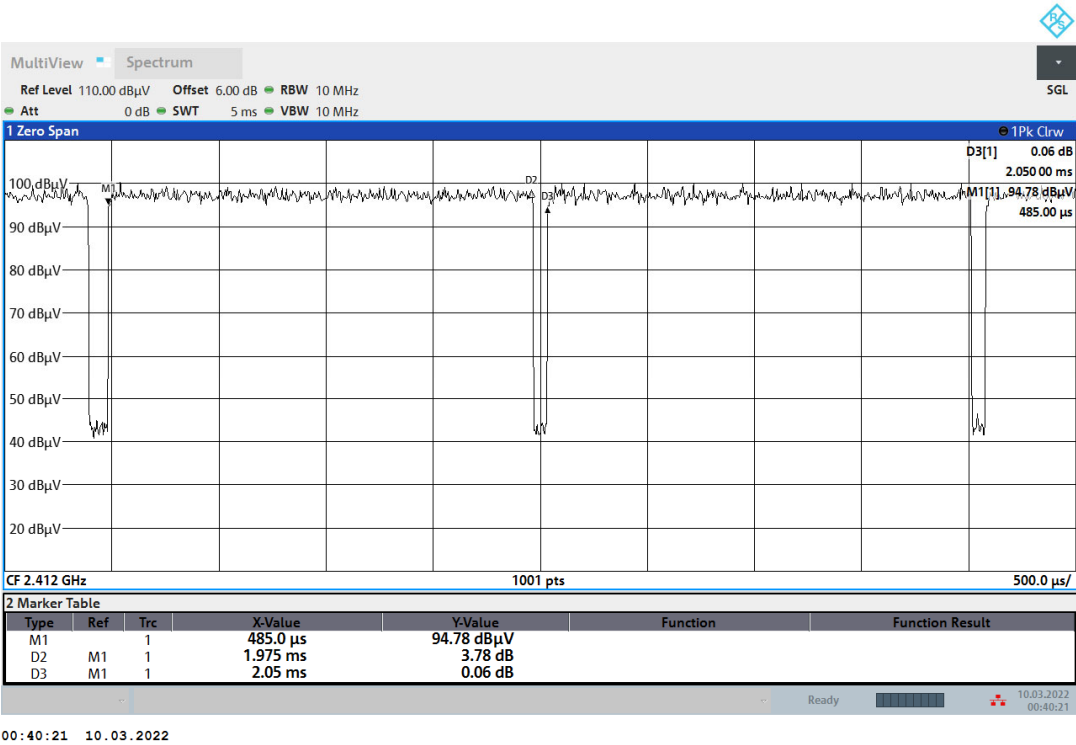
Results:

2.4GHz band	Ton (ms)	Ton + Toff (ms)	Duty Cycle (%)	Duty Factor (dB)
802.11b	0.6810	1.1760	57.91	2.37
802.11g	1.9750	2.0500	96.34	0.16
802.11ax20	5.4200	5.8000	93.45	0.29
802.11ax40	5.4400	5.8000	93.79	0.28

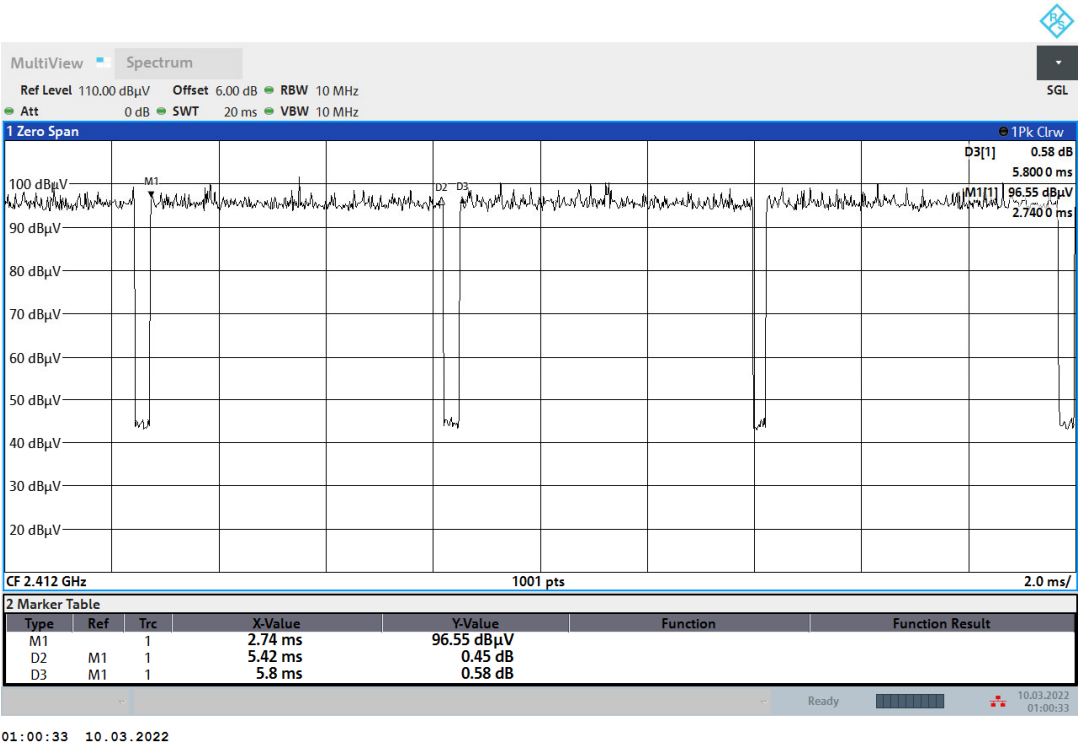
802.11b



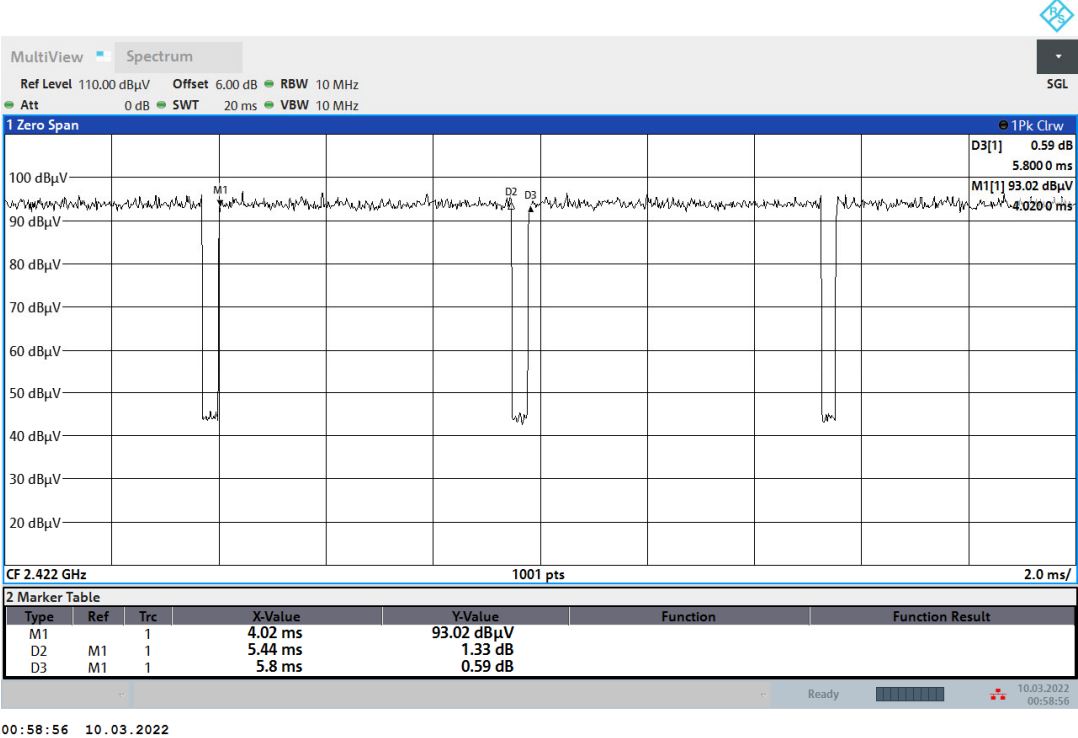
802.11g



802.11ax20



802.11ax40



10. EMI Reduction Method During Compliance Testing

No modification was made during testing.