FCC Test Result for Inspection

Product Name	802.11a/b/g/n/ac RTL8822CE Combo module
Model No	RTL8822CE
FCC ID	TX2-RTL8822CE

Applicant	Realtek Semiconductor Corp.
Address	No. 2, Innovation Road II, Hsinchu Science Park, Hsinchu 300, Taiwan

Date of Receipt	Jun. 16, 2022
Issue Date	Aug. 18, 2022
Report No.	2260547R-RFNAOTHV03-5
Report Version	V1.0

Testing Laboratory
3023

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.
This report must not be used to claim product endorsement by TAF or any agency of the government.
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: Aug. 18, 2022
Report No.: 2260547R-RFNAOTHV03-5

Product Name	802.11a/b/g/n/ac RTL8822CE Combo module
Applicant	Realtek Semiconductor Corp.
Address	No. 2, Innovation Road II, Hsinchu Science Park, Hsinchu 300, Taiwan
Manufacturer	Realtek Semiconductor Corp.
Model No.	RTL8822CE
FCC ID	TX2-RTL8822CE
EUT Rated Voltage	DC 3.3V
EUT Test Voltage	DC 3.3V (Power by Test Platform)
Trade Name	Realtek
Applicable Standard	FCC CFR Title 47 Part 15 Subpart C FCC CFR Title 47 Part 15 Subpart E ANSI C63.4: 2014, ANSI C63.10: 2013 KDB Publication 789033
Test Result	Complied

Documented By : Jinn Chen
(Supervisor / Jinn Chen)

Tested By : Bill Lin
(Senior Engineer / Bill Lin)

Approved By : Alan Chen
(Senior Engineer / Alan Chen)

TABLE OF CONTENTS

Revision History

Report No.	Version	Description	Issued Date
2260547R-RFNAOTHV03-5	V1.0	Initial issue of report.	Aug. 18, 2022

1. GENERAL INFORMATION

1.1. EUT Description

Product Name	802.11a/b/g/n/ac RTL8822CE Combo module
Trade Name	Realtek
Model No.	RTL8822CE
FCC ID	TX2-RTL8822CE
Frequency Range	802.11b/g/n/ac-20MHz: 2412-2472MHz 802.11n/ac-40MHz: 2422-2462MHz 802.11a/n/ac-20MHz: 5180-5320MHz, 5500-5720MHz, 5745-5825MHz 802.11n/ac-40/MHz: 5190-5310MHz, 5510-5710MHz, 5755-5795MHz 802.11ac-80MHz: 5210-5290MHz, 5530-5690MHz, 5775MHz
Number of Channels	802.11b/g/n/ac-20: 13, 802.11n/ac-40MHz: 9 802.11a/n/ac-20: 25; 802.11n/ac-40: 12; 802.11ac-80MHz: 6
Data Speed	802.11b: 1-11Mbps, 802.11a/g: 6-54Mbps, 802.11n: up to 300Mbps 802.11ac-80MHz: up to 866.7Mbps
Channel separation	802.11b/g/n/ac-20MHz: 5 MHz, 802.11a/n/ac-20MHz: 20MHz 802.11n/ac-40MHz: 40MHz, 802.11ac-80MHz: 80MHz
Type of Modulation	DSSS, DBPSK, DQPSK, CCK OFDM, BPSK, QPSK, 16QAM, 64QAM, 256QAM
Antenna Type	PIFA Antenna
Channel Control	Auto
Antenna Gain	Refer to the table “Antenna List”
Power Cable	Non-shielded, 1m, with one ferrite core bonded.
Power Adapter	MFR: Adapter Technology Co.,Ltd, M/N: ATM036T-A150 Input: AC 100-240V~50-60Hz, 1A-0.45A Output: DC 15V, 2.4A, 36W Cable Out: Non-shielded, 1.5m, with one ferrite core bonded.

Antenna List

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	ARISTOTLE ENTERPRISES INC.	RFA-25-AP379-4B-150(Main)	PIFA	0.35dBi for 2.4GHz 2.70dBi for 5.15~5.25GHz 2.53dBi for 5.25~5.35GHz 2.53dBi for 5.47~5.725GHz 2.53dBi for 5.725~5.850GHz
		RFA-25-AP823-4B-40(Aux)	PIFA	0.85dBi for 2.4GHz 4.36dBi for 5.15~5.25GHz 4.36dBi for 5.25~5.35GHz 4.46dBi for 5.47~5.725GHz 4.37dBi for 5.725~5.850GHz

Note:

1. The antenna of EUT is conforming to FCC 15.203.
2. Only the higher gain antenna was tested and recorded in this report.

802.11b/g/n/ac-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	Channel 12:	2467 MHz
Channel 13:	2472 MHz						

802.11n/ac-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	Channel 10:	2457 MHz
Channel 11:	2462 MHz						

802.11a/n/ac-20MHz Center Working Frequency of Each Channel:

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 036:	5180 MHz	Channel 040:	5200 MHz	Channel 044:	5220 MHz	Channel 048:	5240 MHz
Channel 052:	5260 MHz	Channel 056:	5280 MHz	Channel 060:	5300 MHz	Channel 064:	5320 MHz
Channel 100:	5500 MHz	Channel 104:	5520 MHz	Channel 108:	5540 MHz	Channel 112:	5560 MHz
Channel 116:	5580 MHz	Channel 120:	5600 MHz	Channel 124:	5620 MHz	Channel 128:	5640 MHz
Channel 132:	5660 MHz	Channel 136:	5680 MHz	Channel 140:	5700 MHz	Channel 144:	5720 MHz
Channel 149:	5745 MHz	Channel 153:	5765 MHz	Channel 157:	5785 MHz	Channel 161:	5805 MHz
Channel 165:	5825 MHz						

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

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 038:	5190 MHz	Channel 046:	5230 MHz	Channel 054:	5270 MHz	Channel 062:	5310 MHz
Channel 102:	5510 MHz	Channel 110:	5550 MHz	Channel 118:	5590 MHz	Channel 126:	5630 MHz
Channel 134:	5670 MHz	Channel 142:	5710 MHz	Channel 151:	5755 MHz	Channel 159:	5795 MHz

802.11ac-80MHz Center Working Frequency of Each Channel:

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 042:	5210 MHz	Channel 058:	5290 MHz	Channel 106:	5530 MHz	Channel 122:	5610 MHz
Channel 138:	5690 MHz	Channel 155:	5775 MHz				

Note:

1. The EUT is a 802.11a/b/g/n/ac RTL8822CE Combo module with a built-in WLAN (802.11a/b/g/n/ac) with Bluetooth (5.0 and V3.0+HS, V2.1+EDR) transceiver, this report for WLAN.
2. Lowest and highest data rates are tested in each mode. Only worst case is shown in the report.
3. The radiation measurements are performed in X, Y, Z axis positioning. Only the worst case is shown in the report.
4. This is a permissive change for FCC ID: TX2-RTL8822CE. According to the major change, DEKRA tests Peak Power Output, Radiated Emission, Radiated Band Edge worst-case and other testing data refer to original module report (report no.: RF180816E04 and RF180816E04-1). Additional the host: Mobile Medical Assistant Tablet, Brand: onyx, Model number: ONYX-MD101, xxxONYX-MD101xxxxxxxxxx (x=0~9, A~Z, a~z or blank or middle bar; for marketing purpose only) is contain this module's FCC ID.
5. These tests are conducted on a sample for the purpose of demonstrating compliance of transmitter with Part 15 Subpart C Paragraph 15.247, Part 15 Subpart E of spread spectrum devices.

Test Mode (2.4GHz)	Mode 1 : Transmit (802.11b_1Mbps)

Test Mode (5GHz)	Mode 2 : Transmit (802.11ac-40BW_30Mbps)

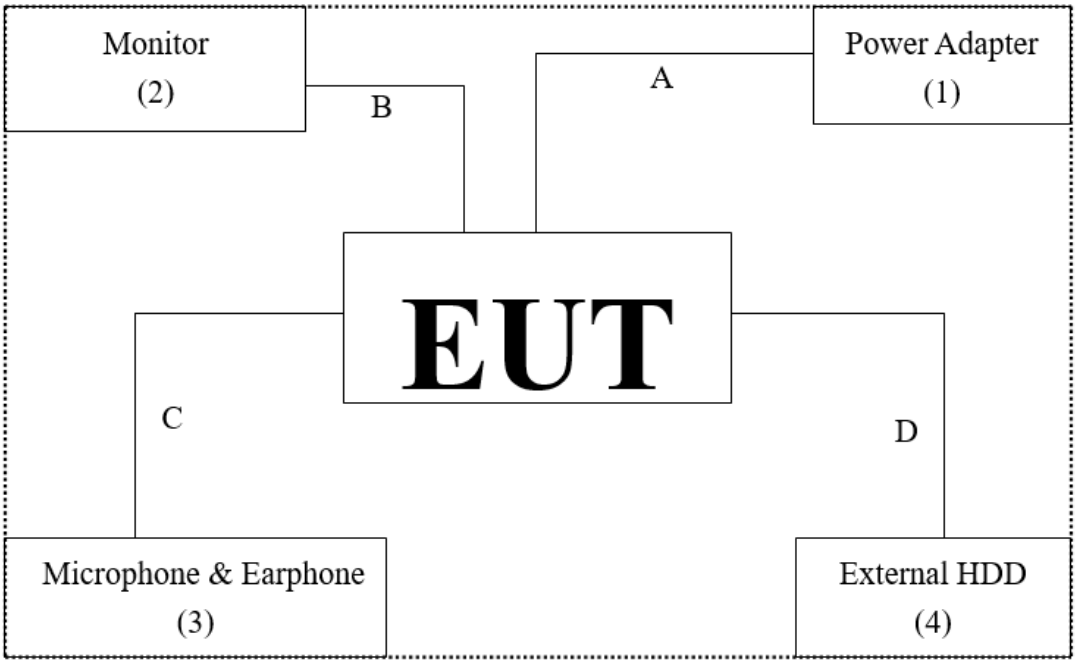
1.2. Tested System Details

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	Adapter Technology Co.,Ltd	ATM036T-A150	N/A	N/A
2	Monitor	Lenovo	H20215FE0	VY549709	Non-shielded, 1.8m
3	Microphone & Earphone	Verbatim	C09024VB	N/A	N/A
4	External HDD	Transcend	TS1TSJ25H3B	F21786-0103	N/A

Signal Cable Type		Signal cable Description
A	Power Cable	Non-shielded, 1.5m, with one ferrite core bonded.
B	Mini Display to HDMI Cable	Shielded, 2m
C	Microphone & Earphone Cable	Non-shielded, 1.2m
D	USB Cable	Shielded, 0.5m

1.3. Configuration of Tested System



1.4. EUT Exercise Software

1. Setup the EUT as shown in Section 1.3.
2. Execute software “MPTool Version 0.0001.1020.2018” on the EUT.
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
Radiated Emission	Temperature (°C)	10~40 ℃	22.6 ℃
	Humidity (%RH)	10~90 %	58.2 %
Conductive	Temperature (°C)	10~40 ℃	22 ℃
	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 Location : No. 26, Huaya 1st Rd., Guishan Dist.,Taoyuan City 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 Conducted measurements / HY-SR02

	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Due. Date
X	Spectrum Analyzer	R&S	FSV30	103466	2021.12.27	2022.12.26
X	Peak Power Analyzer	KEYSIGHT	8900B	MY51000539	2022.05.27	2023.05.26
X	Power Sensor	KEYSIGHT	N1923A	MY59240002	2022.05.19	2023.05.18
X	Power Sensor	KEYSIGHT	N1923A	MY59240003	2022.05.19	2023.05.18

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-CB02

	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Due. Date
X	Loop Antenna	AMETEK	HLA6121	56736	2022.05.14	2023.05.13
X	Bi-Log Antenna	SCHWARZBECK	VULB9168	9168-675	2021.08.11	2023.08.10
X	Horn Antenna	RF SPIN	DRH18-E	210503A18ES	2022/06/08	2023/06/07
X	Horn Antenna	Com-Power	AH-840	101100	2021.10.04	2022.10.03
X	Pre-Amplifier	SGH	SGH0301-9	20211007-11	2022.02.22	2023.02.21
X	Pre-Amplifier	EMCI	EMC051845SE	980632	2021.09.07	2022.09.06
X	Pre-Amplifier	EMCI	EMC05820SE	980361	2021.12.16	2022.12.15
X	Pre-Amplifier	EMCI	EMC184045SE	980369	2022.05.12	2023.05.11
	Coaxial Cable	EMCI	EMC102-KM-KM-600	1160314		
	Coaxial Cable	EMCI	EMC102-KM-KM-7000	170242		
X	Filter	MICRO TRONICS	BRM50702	G251	2021.09.16	2022.09.15
X	Filter	MICRO TRONICS	BRM50716	G188	2021.09.16	2022.09.15
X	Spectrum Analyzer	R&S	FSV3044	101113	2022.01.25	2023.02.24
X	EMI Test Receiver	R&S	ESR	102793	2021.12.15	2022.12.14
X	Coaxial Cable	SGH	HA800	GD20110223-2	2022.03.17	2023.03.16
	Coaxial Cable	SGH	HA800	GD20110222-4		
	Coaxial Cable	SGH	SGH18	2021005-2		
	Coaxial Cable	SGH	SGH18	202108-5		

Note:
1. Bi-Log Antenna is calibrated every two years, the other 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 : E3 210616 dekra 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	
Peak Power Output (2.4GHz)	Power Meter ±0.89 dB	Spectrum Analyzer ±2.06 dB
Radiated Emission (2.4GHz)	Under 1GHz ±4.05 dB	Above 1GHz ±3.73 dB
Band Edge (2.4GHz)	Under 1GHz ±4.05 dB	Above 1GHz ±3.73 dB
Duty Cycle (2.4GHz)	±2.31 ms	
Maximun conducted output power (5GHz)	Power Meter ±0.89 dB	Spectrum Analyzer ±2.06 dB
Radiated Emission (5GHz)	Under 1GHz ±4.05 dB	Above 1GHz ±3.73 dB
Band Edge (5GHz)	Under 1GHz ±4.05 dB	Above 1GHz ±3.73 dB
Duty Cycle (5GHz)	±2.31 ms	

2. Peak Power Output (2.4GHz)

2.1. Test Setup

2.2. Limits

The maximum peak power shall be less 1 Watt.

2.3. 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).

2.4. Test Result of Peak Power Output

Product : 802.11a/b/g/n/ac RTL8822CE Combo module
Test Item : Peak Power Output
Test Mode : Mode 1 : Transmit (802.11b_1Mbps)
Test Date : 2022/08/12

Average Power

Channel No.	Frequency (MHz)	Data Rate (Mbps)	Chain A Power (dBm)	Chain B Power (dBm)	Chain A + B Power (dBm)	Limit (dBm)	Result
1	2412	1	19.55	19.67	22.62	<30dBm	Pass

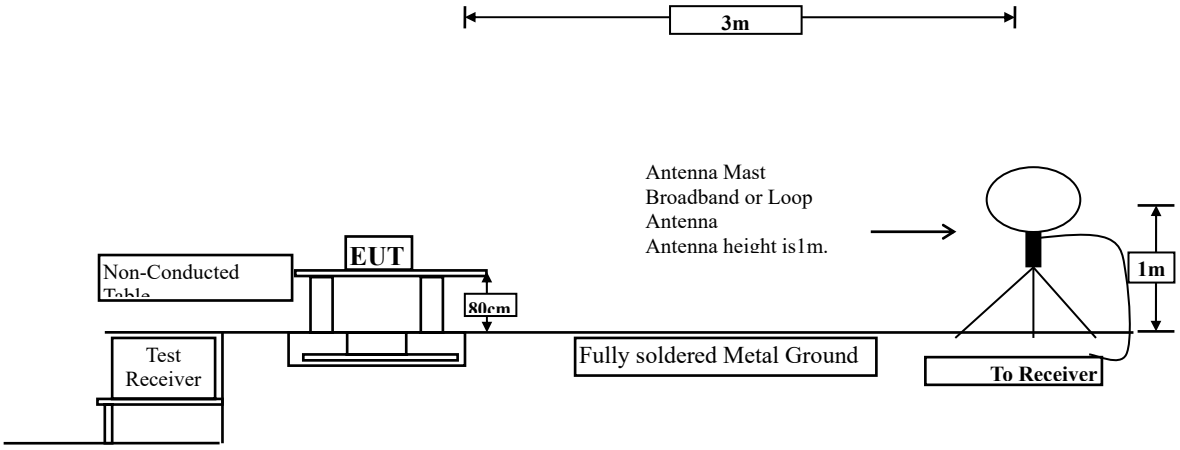
Peak Power

Channel No.	Frequency (MHz)	Data Rate (Mbps)	Chain A Power (dBm)	Chain B Power (dBm)	Chain A + B Power (dBm)	Limit (dBm)	Result
1	2412	1	21.48	21.56	24.53	<30dBm	Pass

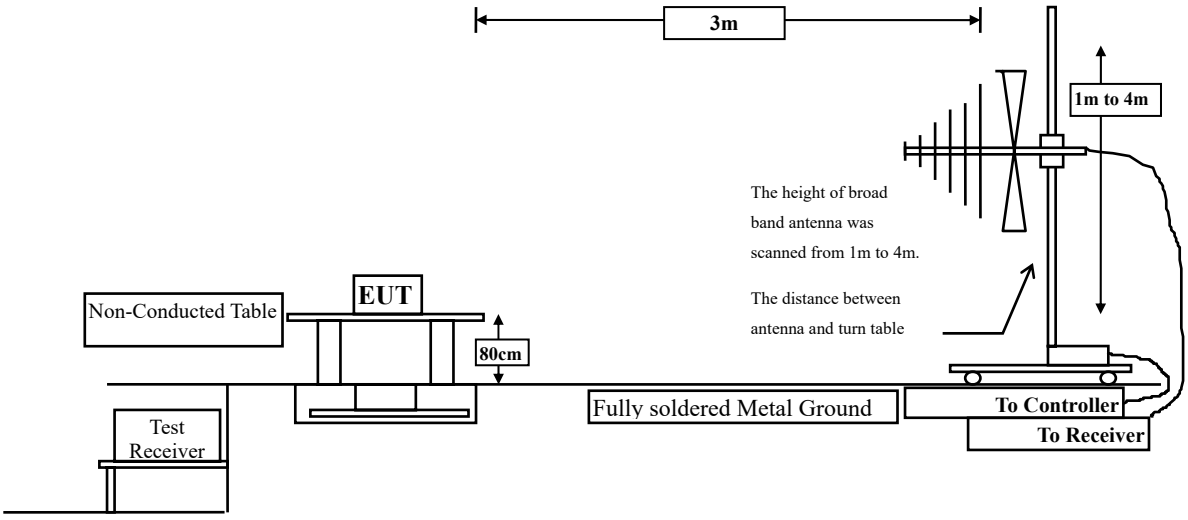
3. Radiated Emission

3.1. Test Setup

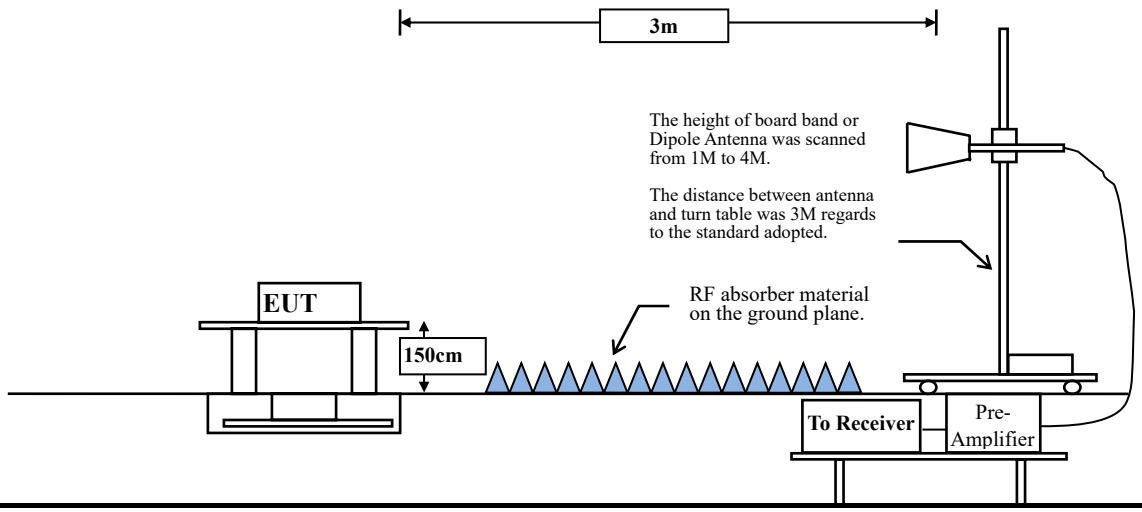
Radiated Emission Under 30MHz



Radiated Emission Below 1GHz



Radiated Emission Above 1GHz



3.2. 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.

3.3. 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 form 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 ≥ 3 x 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 ≥ 98 %

VBW ≥ 1/T, when duty cycle < 98 %

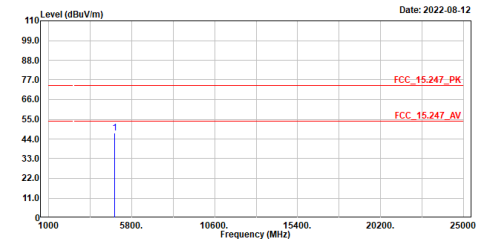
(T refers to the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.)

2.4GHz band	Duty Cycle (%)	T (ms)	1/T (Hz)	VBW (Hz)
802.11b	94.14	8.1900	122	200

Note: Duty Cycle Refer to Section 5.

3.4. Test Result of Radiated Emission

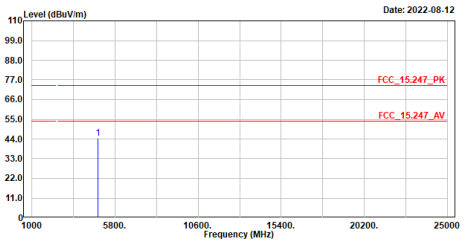
Site :HY-CB02
Condition :3m ,HORIZONTAL
Mode :TX_b_2412MHz
TEST BY :Lance



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	4824.000	47.26	74.00	-26.74	61.99	-14.73	Peak

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

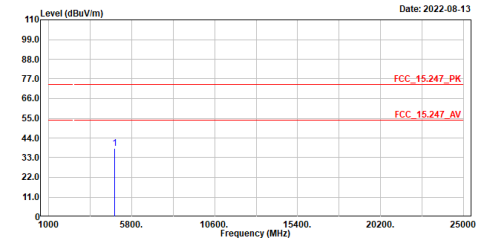
Site :HY-CB02
Condition :3m ,VERTICAL
Mode :TX_b_2412MHz
TEST BY :Lance



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	4824.000	44.57	74.00	-29.43	59.30	-14.73	Peak

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

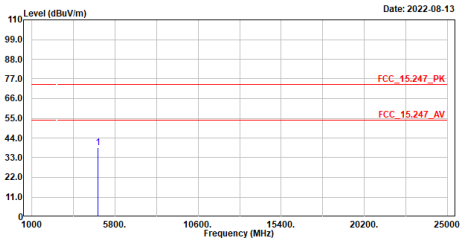
Site :HY-CB02
Condition :3m ,HORIZONTAL
Mode :RX_b_2412MHz
TEST BY :Lance



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	4824.000	38.12	74.00	-35.88	52.85	-14.73	Peak

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

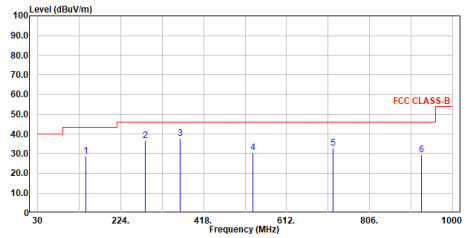
Site :HY-CB02
Condition :3m ,VERTICAL
Mode :RX_b_2412MHz
TEST BY :Lance



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	4824.000	38.71	74.00	-35.29	53.44	-14.73	Peak

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

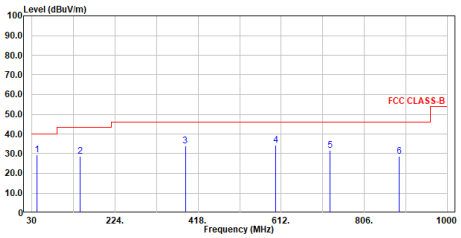
Site :HY-CB02
Condition :3m ,HORIZONTAL
Mode :TX_b_2412MHz
TEST BY :Lance



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	143.248	28.65	43.50	-14.85	53.16	-24.51	QP
2	282.321	36.43	46.00	-9.57	60.61	-24.18	QP
3	363.438	37.91	46.00	-8.09	59.89	-21.98	QP
4	533.309	30.72	46.00	-15.28	48.81	-18.09	QP
5	720.519	32.78	46.00	-13.22	47.42	-14.64	QP
6	927.008	29.56	46.00	-16.44	41.54	-11.98	QP

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line
4. The emission under 30MHz was not included since the emission levels are very low against the limit.

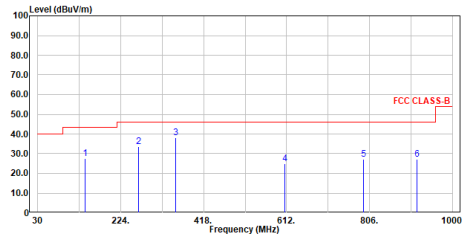
Site :HY-CB02
Condition :3m ,VERTICAL
Mode :TX_b_2412MHz
TEST BY :Lance



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	41.155	29.59	40.00	-10.41	54.01	-24.42	QP
2	143.248	28.81	43.50	-14.69	53.32	-24.51	QP
3	388.294	34.07	46.00	-11.93	55.45	-21.38	QP
4	599.996	34.28	46.00	-11.72	50.43	-16.15	QP
5	726.218	31.85	46.00	-14.15	46.37	-14.52	QP
6	887.238	28.62	46.00	-17.38	41.24	-12.62	QP

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line
4. The emission under 30MHz was not included since the emission levels are very low against the limit.

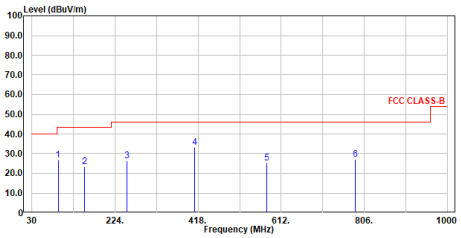
Site :HY-CB02
Condition :3m ,HORIZONTAL
Mode :RX_b_2412MHz
TEST BY :Lance



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	140.459	27.65	43.50	-15.85	52.42	-24.77	QP
2	265.104	33.54	46.00	-12.46	58.62	-25.08	QP
3	352.646	38.09	46.00	-7.91	60.50	-22.41	QP
4	607.878	24.93	46.00	-21.07	41.13	-16.20	QP
5	791.329	27.10	46.00	-18.90	40.46	-13.36	QP
6	916.701	27.04	46.00	-18.96	39.03	-11.99	QP

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line
4. The emission under 30MHz was not included since the emission levels are very low against the limit.

Site :HY-CB02
Condition :3m ,VERTICAL
Mode :RX_b_2412MHz
TEST BY :Lance

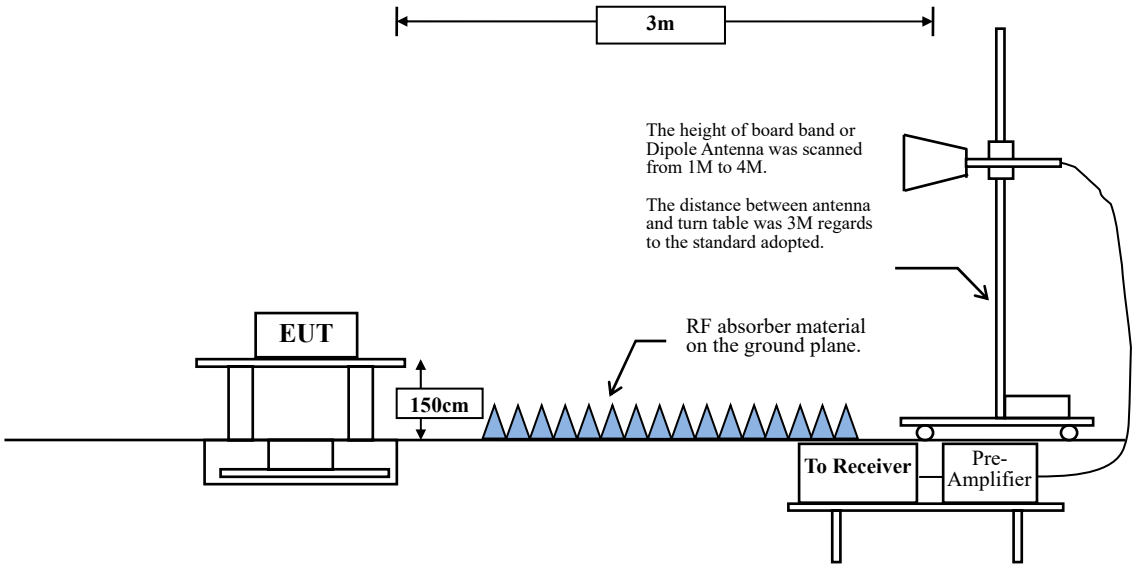


No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	91.353	26.91	43.50	-16.59	57.24	-30.33	QP
2	153.311	23.33	43.50	-20.17	47.58	-24.25	QP
3	251.524	26.23	46.00	-19.77	51.68	-25.45	QP
4	409.998	33.15	46.00	-12.85	54.13	-20.98	QP
5	577.686	25.22	46.00	-20.78	42.14	-16.92	QP
6	785.266	27.07	46.00	-18.93	40.61	-13.54	QP

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line
4. The emission under 30MHz was not included since the emission levels are very low against the limit.

4. Band Edge (2.4GHz)

4.1. Test Setup



4.2. 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)).

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.
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 ≥ 3 x 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

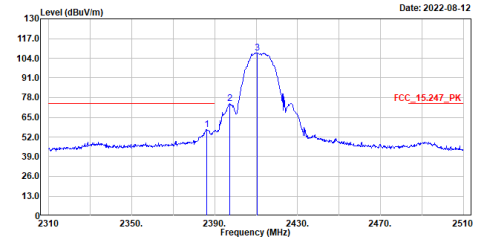
According to C63.10 Section 11.12.2.5 Average measurement procedure.
RBW = 1MHz.
VBW = 10Hz, when duty cycle ≥ 98 %
VBW ≥ 1/T, when duty cycle < 98 %
(T refers to the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.)

2.4GHz band	Duty Cycle (%)	T (ms)	1/T (Hz)	VBW (Hz)
802.11b	94.14	8.1900	122	200

Note: Duty Cycle Refer to Section 5.

4.4. Test Result of Band Edge

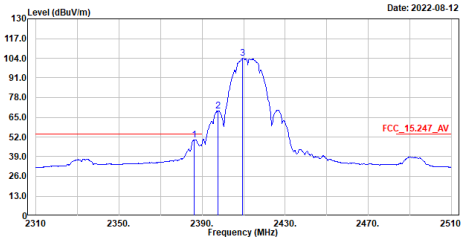
Site :HY-CB02
Condition :3m ,Horizontal
Mode :TX_b_2412MHz
TEST BY :Lance



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	2386.200	57.11	74.00	-16.89	50.73	6.38	Peak
2	2397.400	73.99	------	------	67.61	6.38	Peak
3	2410.400	107.59	------	------	101.24	6.35	Peak

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

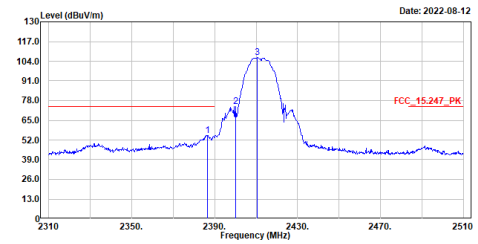
Site :HY-CB02
Condition :3m ,Horizontal
Mode :TX_b_2412MHz
TEST BY :Lance



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	2386.200	50.26	54.00	-3.74	44.02	6.24	Average
2	2397.800	69.35	------	------	63.12	6.23	Average
3	2409.600	103.77	------	------	97.56	6.21	Average

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

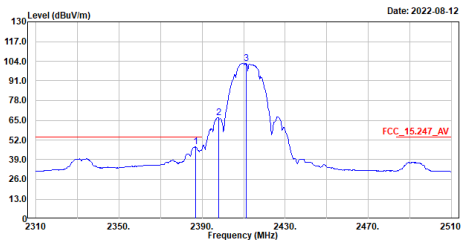
Site :HY-CB02
Condition :3m ,Vertical
Mode :TX_b_2412MHz
TEST BY :Lance



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	2386.400	55.14	74.00	-18.86	48.76	6.38	Peak
2	2400.000	74.13	------	------	67.76	6.37	Peak
3	2410.600	106.49	------	------	100.14	6.35	Peak

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

Site :HY-CB02
Condition :3m ,Vertical
Mode :TX_b_2412MHz
TEST BY :Lance

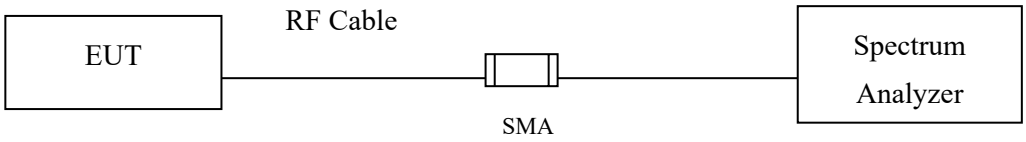


No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	2386.800	47.36	54.00	-6.64	41.11	6.25	Average
2	2398.000	66.71	------	------	60.48	6.23	Average
3	2411.200	102.73	------	------	96.52	6.21	Average

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

5. Duty Cycle (2.4GHz)

5.1. Test Setup



5.2. 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.

5.3. Test Result of Duty Cycle

Product : 802.11a/b/g/n/ac RTL8822CE Combo module
Test Item : Duty Cycle
Test Mode : Transmit

Duty Cycle Formula:
Duty Cycle = Ton / (Ton + Toff)
Duty Factor = 10 Log (1/Duty Cycle)

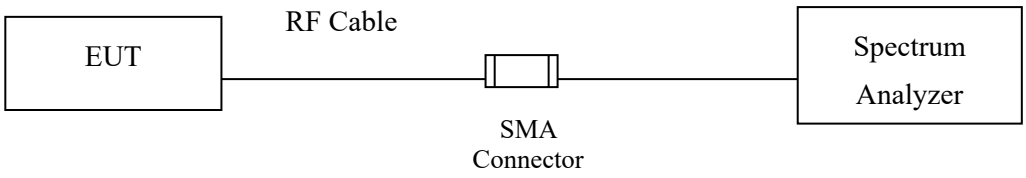
Results:

2.4GHz band	Ton (ms)	Ton + Toff (ms)	Duty Cycle (%)	Duty Factor (dB)
802.11b	8.1900	8.7000	94.14	0.26

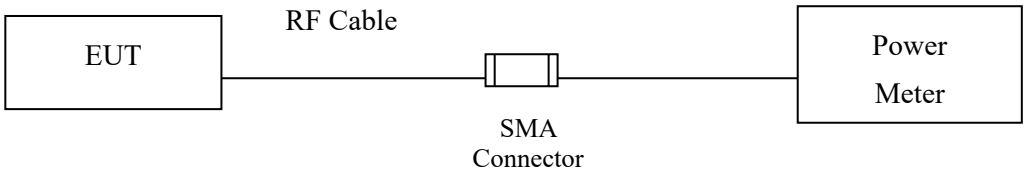
6. Maximun conducted output power (5GHz)

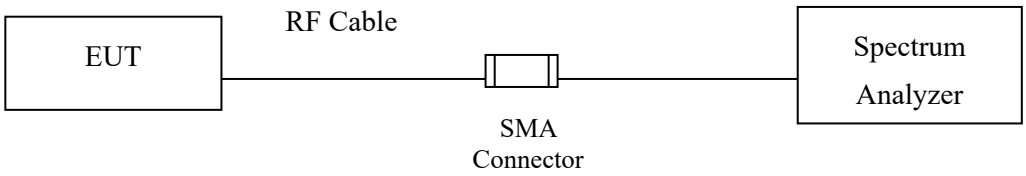
6.1. Test Setup

Occupied Bandwidth



Conduction Power Measurement





6.2. Limits

For the band 5.15-5.25 GHz,

(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. provided the maximum antenna gain does not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. Fixed point-topoint U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm 10 log B, where B is the 26dB emission bandwidth in megahertz. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point UNII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

6.3. Test Procedure

As an alternative to FCC KDB-789033, the EUT maximum conducted output power was measured with an average power meter employing a video bandwidth greater the 6dB BW of the emission under test. Maximum conducted output power was read directly from the meter across all data rates, and across three channels within each sub-band. Special care was used to make sure that the EUT was transmitting in continuous mode. This method exceeds the limitations of FCC KDB-789033, and provides more accurate measurements.

Maximum conducted output power using KDB 789033 section E)3)b) Method PM-G (Measurement using a gated RF average power meter)
Note: the power meter have a video bandwidth that is greater than or equal to the measurement bandwidth.
Maximum conducted output power using KDB 789033 section E)2)d) Method SA-2 (trace averaging across on and off times of the EUT transmissions, followed by duty cycle correction).

When transmitted signals consist of two or more non-contiguous spectrum segments (e.g., 80+80 MHz mode) or when a single spectrum segment of a transmission crosses the boundary between two adjacent U-NII bands, KDB 644545 D03 section D) procedure is used for measurements.

6.4. Test Result of Maximum conducted output power

Product : 802.11a/b/g/n/ac RTL8822CE Combo module
Test Item : Maximum conducted output power
Test Mode : Mode 2 : Transmit (802.11ac-40BW_30Mbps)
Test Date : 2022/08/12

Maximum conducted output power Measurement:

Channel No.	Frequency	Chain A Power	Chain B Power	Output Power	Output Power Limit	Result
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	
159	5795	19.94	20.16	23.06	30	Pass

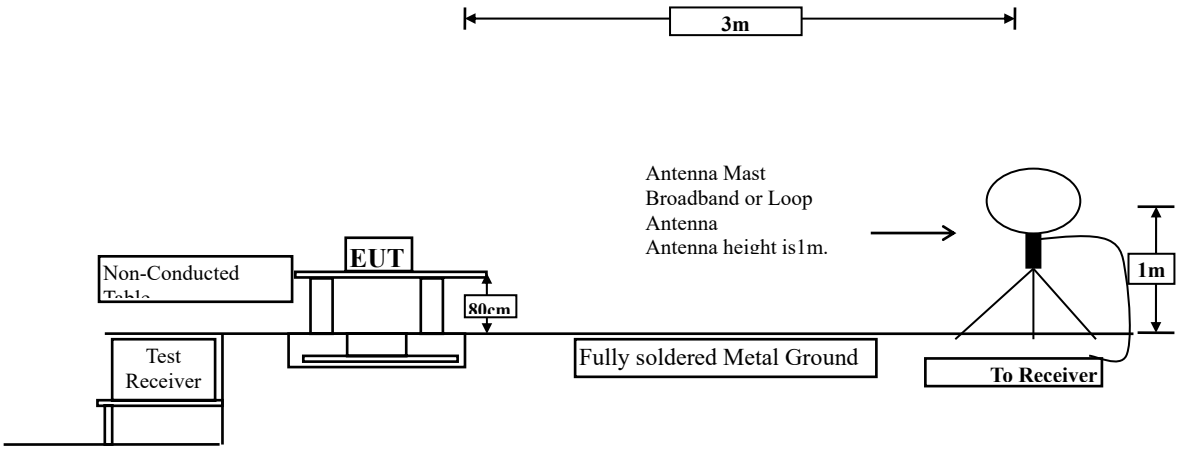
Note:

1. Output Power (dBm) = 10LOG (Chain A Power (mW)+Chain B Power (mW))
2. 26dB Bandwidth is the bandwidth of chain A or chain Bwhichever is less bandwidth, output power limitation is more stringent.

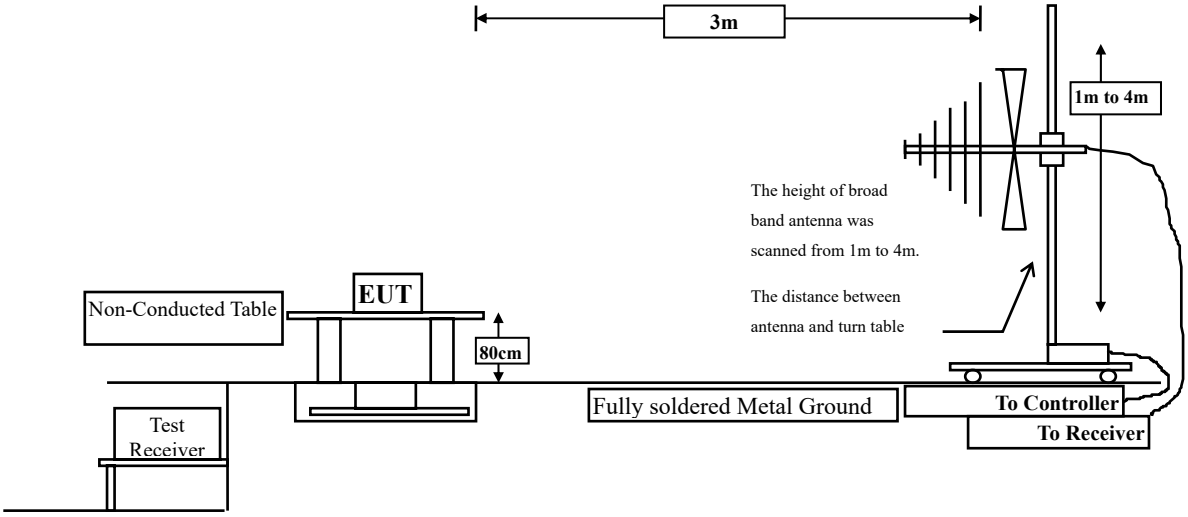
7. Radiated Emission

7.1. Test Setup

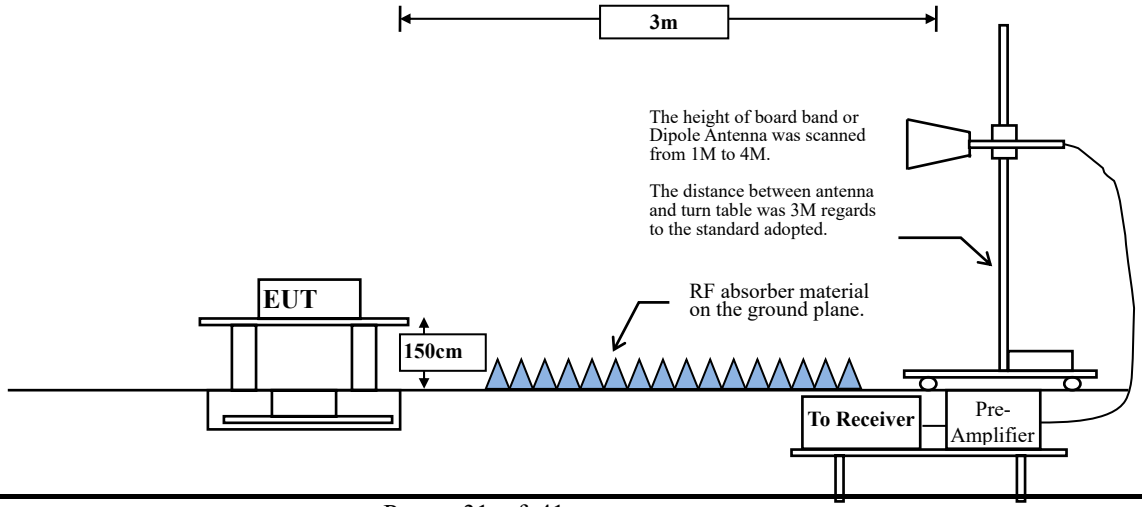
Radiated Emission Under 30MHz



Radiated Emission Below 1GHz



Radiated Emission Above 1GHz



7.2. 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(a) 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: E field strength (dBμV/m) = 20 log E field strength (uV/m)

7.3. Test Procedure

The EUT was setup according to ANSI C63.10, 2013 and tested according to FCC KDB-789033 test procedure for compliance to FCC 47CFR 15. 407 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 form 9kHz - 10th Harmonic of fundamental was investigated.

RBW and VBW Parameter setting:

According to KDB 789033 section II.G.5 Procedure for Unwanted Maximum Emissions Measurements above 1000 MHz.
RBW = 1MHz.
VBW ≥ 3MHz.

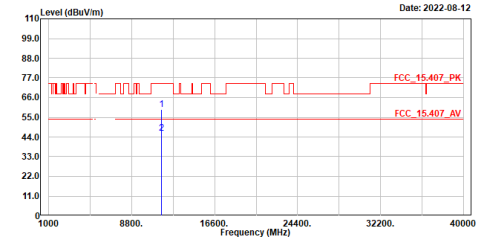
According to KDB 789033 section II.G.6 Procedures for Average Unwanted Emissions Measurements above 1000 MHz.
RBW = 1MHz.
VBW = 10Hz, when duty cycle ≥ 98 %
VBW ≥ 1/T, when duty cycle < 98 %
(T refers to the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.)

5GHz band	Duty Cycle (%)	T (ms)	1/T (Hz)	VBW (Hz)
802.11ac40	50.00	0.5700	1754	2000

Note: Duty Cycle Refer to Section 9.

7.4. Test Result of Radiated Emission

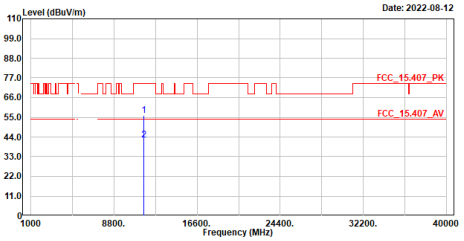
Site :HY-CB02
Condition :3m ,HORIZONTAL
Mode :TX_ac40_5795MHz
TEST BY :Lance



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	11590.000	59.53	74.00	-14.47	68.13	-8.60	Peak
2	11590.000	46.28	54.00	-7.72	54.88	-8.60	Average

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

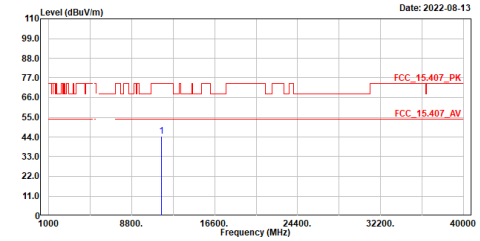
Site :HY-CB02
Condition :3m ,VERTICAL
Mode :TX_ac40_5795MHz
TEST BY :Lance



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	11590.000	55.93	74.00	-18.07	64.53	-8.60	Peak
2	11590.000	42.42	54.00	-11.58	51.02	-8.60	Average

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

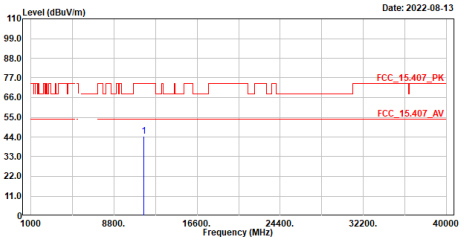
Site :HY-CB02
Condition :3m ,HORIZONTAL
Mode :RX_ac40_5795MHz
TEST BY :Lance



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	11590.000	44.44	74.00	-29.56	53.04	-8.60	Peak

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

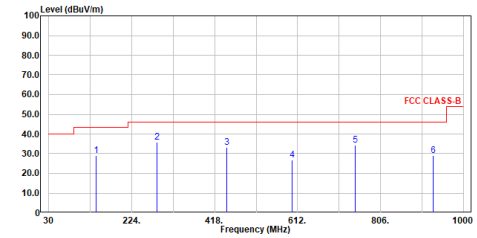
Site :HY-CB02
Condition :3m ,VERTICAL
Mode :RX_ac40_5795MHz
TEST BY :Lance



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	11590.000	44.35	74.00	-29.65	52.95	-8.60	Peak

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

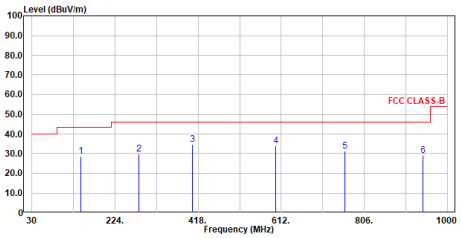
Site :HY-CB02
Condition :3m ,HORIZONTAL
Mode :TX_ac40_5795MHz
TEST BY :Lance



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	141.308	28.90	43.50	-14.60	53.62	-24.72	QP
2	283.655	35.93	46.00	-10.07	60.09	-24.16	QP
3	445.645	33.29	46.00	-12.71	53.03	-19.74	QP
4	599.996	26.81	46.00	-19.19	42.96	-16.15	QP
5	747.073	34.45	46.00	-11.55	48.39	-13.94	QP
6	929.190	28.98	46.00	-17.02	40.96	-11.98	QP

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line
4. The emission under 30MHz was not included since the emission levels are very low against the limit.

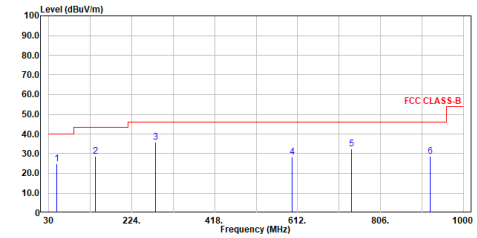
Site :HY-CB02
Condition :3m ,VERTICAL
Mode :TX_ac40_5795MHz
TEST BY :Lance



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	144.945	28.66	43.50	-14.84	53.16	-24.50	QP
2	280.139	29.99	46.00	-16.01	54.24	-24.25	QP
3	405.148	34.55	46.00	-11.45	55.54	-20.99	QP
4	599.996	34.13	46.00	-11.87	50.28	-16.15	QP
5	761.138	31.22	46.00	-14.78	45.02	-13.80	QP
6	942.528	29.17	46.00	-16.83	40.97	-11.80	QP

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line
4. The emission under 30MHz was not included since the emission levels are very low against the limit.

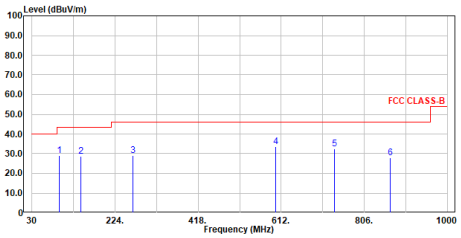
Site :HY-CB02
Condition :3m ,HORIZONTAL
Mode :RX_ac40_5795MHz
TEST BY :Lance



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	48.673	24.74	40.00	-15.26	48.95	-24.21	QP
2	139.246	28.74	43.50	-14.76	53.52	-24.78	QP
3	280.018	36.02	46.00	-9.98	60.27	-24.25	QP
4	599.996	28.34	46.00	-17.66	44.49	-16.15	QP
5	737.494	32.34	46.00	-13.66	46.46	-14.12	QP
6	922.764	28.65	46.00	-17.35	40.63	-11.98	QP

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line
4. The emission under 30MHz was not included since the emission levels are very low against the limit.

Site :HY-CB02
Condition :3m ,VERTICAL
Mode :RX_ac40_5795MHz
TEST BY :Lance

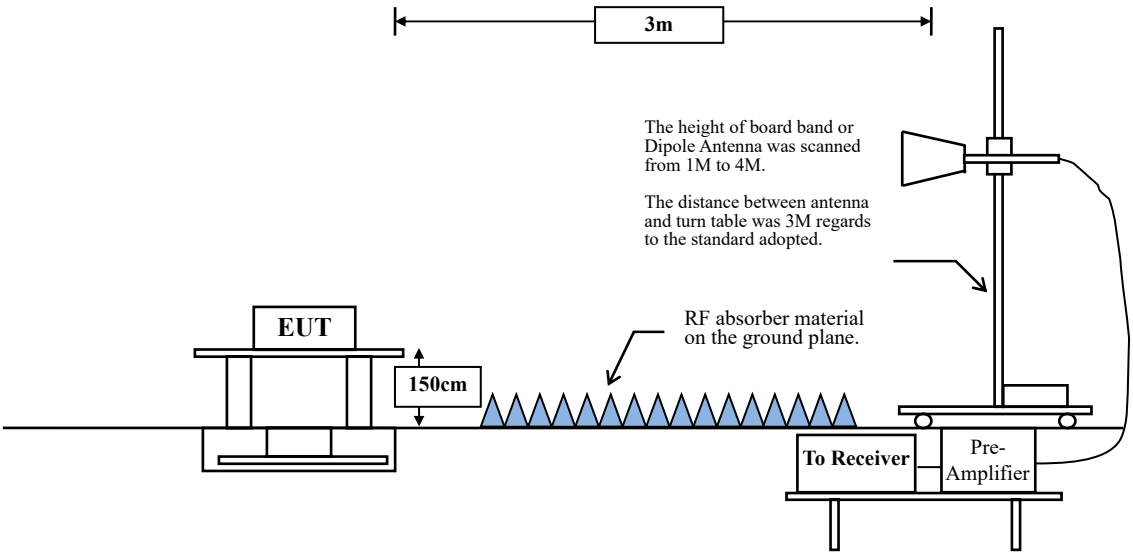


No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	93.535	29.08	43.50	-14.42	59.12	-30.04	QP
2	143.733	28.58	43.50	-14.92	53.03	-24.45	QP
3	265.710	28.91	46.00	-17.09	53.95	-25.04	QP
4	599.996	33.60	46.00	-12.40	49.75	-16.15	QP
5	736.039	32.45	46.00	-13.55	46.57	-14.12	QP
6	866.140	27.90	46.00	-18.10	40.71	-12.81	QP

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line
4. The emission under 30MHz was not included since the emission levels are very low against the limit.

8. Band Edge (5GHz)

8.1. Test Setup



8.2. Limits

The provisions of Section 15.205 of this part apply to intentional radiators operating under this section.

Radiated emissions which fall in the restricted bands, as defined in Section 15.205, must also comply with the radiated emission limits specified in Section 15.209:

FCC Part 15 Subpart C Paragraph 15.209 Limits		
Frequency MHz	uV/m @3m	dBμV/m@3m
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

Remarks : 1. RF Voltage (dBμV) = 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.

8.3. Test Procedure

The EUT is placed on a turn table which is 1.5 meter above ground. The turn table can rotate 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 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.

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

The EUT was setup to ANSI C63.10, 2013; tested to UNII test procedure of FCC KDB-789033 for compliance to FCC 47CFR Subpart E requirements.

RBW and VBW Parameter setting:

According to KDB 789033 section II.G.5 Procedure for Unwanted Maximum Emissions Measurements above 1000 MHz.
RBW = 1MHz.
VBW ≥ 3MHz.

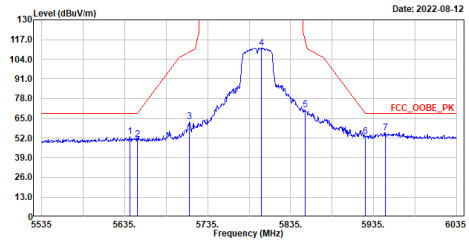
According to KDB 789033 section II.G.6 Procedures for Average Unwanted Emissions Measurements above 1000 MHz.
RBW = 1MHz.
VBW = 10Hz, when duty cycle ≥ 98 %
VBW ≥ 1/T, when duty cycle < 98 %
(T refers to the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.)

5GHz band	Duty Cycle (%)	T (ms)	1/T (Hz)	VBW (Hz)
802.11ac40	50.00	0.5700	1754	2000

Note: Duty Cycle Refer to Section 9.

8.4. Test Result of Band Edge

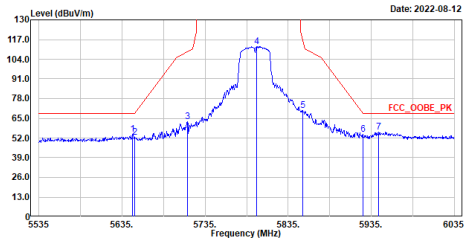
Site :HY-CB02
Condition :3m ,Horizontal
Mode :TX_ac40_5795MHz
TEST BY :Lance



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5641.000	52.85	68.20	-15.35	36.48	16.37	Peak
2	5650.000	50.99	68.21	-17.22	34.56	16.43	Peak
3	5713.000	62.81	108.84	-46.03	46.10	16.71	Peak
4	5799.500	111.37	------	------	94.44	16.93	Peak
5	5853.000	70.72	115.36	-44.64	53.80	16.92	Peak
6	5925.000	52.89	68.21	-15.32	35.80	17.09	Peak
7	5949.000	55.57	68.20	-12.63	38.45	17.12	Peak

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

Site :HY-CB02
Condition :3m ,Vertical
Mode :TX_ac40_5795MHz
TEST BY :Lance

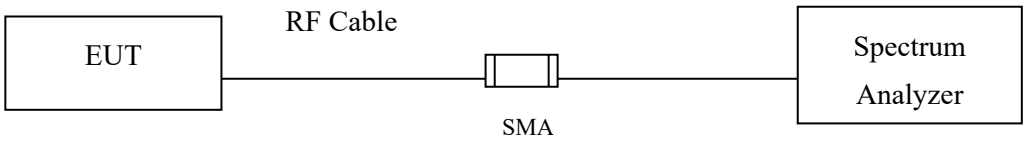


No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5648.000	54.38	68.20	-13.82	37.97	16.41	Peak
2	5650.000	52.28	68.21	-15.93	35.85	16.43	Peak
3	5713.500	62.66	108.98	-46.32	45.95	16.71	Peak
4	5797.500	112.27	------	------	95.34	16.93	Peak
5	5853.000	70.31	115.36	-45.05	53.39	16.92	Peak
6	5925.000	54.59	68.21	-13.62	37.50	17.09	Peak
7	5944.000	56.13	68.20	-12.07	39.02	17.11	Peak

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

9. Duty Cycle (5GHz)

9.1. Test Setup



9.2. Test Procedure

The EUT was setup according to ANSI C63.10 2013; tested according to U-NII test procedure of KDB789033 for compliance to FCC 47CFR 15.407 requirements.

9.3. Test Result of Duty Cycle

Product : 802.11a/b/g/n/ac RTL8822CE Combo module
Test Item : Duty Cycle
Test Mode : Transmit

Duty Cycle Formula:

Duty Cycle = Ton / (Ton + Toff)

Duty Factor = 10 Log (1/Duty Cycle)

Results:

5GHz band	Ton (ms)	Ton + Toff (ms)	Duty Cycle (%)	Duty Factor (dB)
802.11 ac40	0.5700	1.1400	50.00	3.01