



ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT



EUT Description: ClickShare
Applicant: Barco NV
President Kennedypark 35 8500 Kortrijk Belgium
Manufacturer: Barco NV
President Kennedypark 35 8500 Kortrijk Belgium
Brand Name: Barco
Model No.: CSBTN005
Report Number: TERF2505001672ER
FCC ID 2AAED-CSBTN005
Date of EUT Received: N/A, the test results are fully leveraged from test report number TERF2505001679ER, for more details please refer to section 3 in this report.
Date of Test: N/A, the test results are fully leveraged from test report number TERF2505001679ER, for more details please refer to section 3 in this report.
Issue Date: July 2, 2025

Jim Chang
Approved By _____
Jim Chang

We hereby certify that:

The above equipment was tested by SGS Taiwan Ltd. Central RF Lab. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10:2013 and the energy emitted by the sample EUT comply with FCC rule part §15.247.

The results of this report relate only to the sample identified in this report.

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Revision History

Report Number	Revision	Description	Issue Date	Revised By	Remark
TERF2505001672ER	00	Original	July 2, 2025	Susan Lin	

Note:

- 1、The remark "*" indicates modification of the report upon requests from certification body.

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1 GENERAL INFORMATION

1.1 Product Description

EUT Description:	ClickShare
Brand Name:	Barco
Model No.:	CSBTN005
Hardware Version:	Barco_Furitesse_DVT2_PL000000061_20250214_1
Firmware Version:	5.15.47-mtk+g-usi-v2.4-87e4e4a45d60
EUT Series No.:	1200602574, 1200602587
Power Supply:	5 Vdc from USB port
Test Software (Name/Version):	default (myftm command)

1.2 RF Specification

WLAN 2.4GHz

Mode	Frequency Range	Channels	Rated Power (dBm)		Modulation Technology
			Peak	Avg.	
802.11b	2412~2462	11	20.26	17.83	CCK
802.11g	2412~2462	11	23.96	17.63	OFDM
802.11n_HT20	2412~2462	11	24.16	17.89	OFDM
802.11n_HT40	2422~2452	7	21.64	15.73	OFDM
802.11ax_HE20	2412~2462	11	24.83	17.71	OFDMA
802.11ax_HE40	2422~2452	7	22.73	15.52	OFDMA
Modulation type:					
DQPSK, DBPSK for CCK in 802.11b					
64QAM, 16QAM, QPSK, BPSK for OFDM in 802.11g, 11n					
1024QAM, 256QAM, 64QAM, 16QAM, QPSK, BPSK for OFDMA in 802.11ax					
Data Rate:					
802.11b: 1/2/5.5/11 Mbps					
802.11g: 6/9/12/18/24/36/48/54 Mbps					
802.11n_HT20: up to 144.4Mbps					
802.11n_HT40: up to 300Mbps					
802.11ax_HE20: up to 286.8Mbps					
802.11ax_HE40: up to 573.6Mbps					

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1.3 Antenna Designation

Antenna Type	Supplier	Antenna No.	Antenna Part No.	Freq. (MHz)	Peak Antenna Gain (dBi)
PIFA	USI	ANT 1	US5990-12-002-C	2412-2462	2.45
		ANT 2	US5990-12-001-C	2412-2462	1.94

Note:

1. Pre-scanned was done on the above antennas, measurements were demonstrated by using the antenna with the highest gain as the worst case scenarios.
2. The antenna information is provided by the applicant, and the laboratory shall not be held liable for the accuracy, completeness, or reliability of any applicant-supplied data.

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1.4 Test Methodology of Applied Standards

FCC Part 15, Subpart C §15.247

FCC KDB 558074 D01 15.247 Meas Guidance v05r02

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

ANSI C63.10:2013

1.5 Test Facility

Laboratory	Test Site Address	Test Site Name	FCC Designation number	IC CAB identifier	
SGS Taiwan Ltd. Central RF Lab. (TAF code 3702)	No.134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan.	SAC 1	TW0027	TW3702	
		SAC 2			
		SAC 3			
		Conduction 1			
		Conducted 1			
		Conducted 2			
		Conducted 3			
	No.2, Keji 1st Rd., Guishan District, Taoyuan City, Taiwan 333	Conducted 4	TW0028		
		Conducted 5			
		Conducted 6			
		Conduction C			
		SAC C			
		SAC D			
		SAC G			
		Conducted A			
		Conducted B			
		Conducted C			
		Conducted D			
		Conducted E			
		Conducted F			
		Conducted G			

Note: Test site name is remarked on the equipment list in each section of this report as an indication where measurements occurred in specific test site and address.

Temperature:	19-23	°C	Relative Humidity:	58-85	%
Test site	Conducted 2		Test Start:	05/14/2025	
Test Engineer:	Dannis Chen		Test Done:	06/12/2025	

1.6 Special Accessories

There are no special accessories used while test was conducted.

1.7 Equipment Modifications

There was no modification incorporated into the EUT.

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2 SYSTEM TEST CONFIGURATION

2.1 EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

2.2 EUT Exercise

An engineering test mode (software/firmware) that applicant provided was utilized to manipulate the EUT into transmit, selection of the test channel, and modulation scheme.

2.3 Test Procedure

2.3.1 Conducted Emissions

The EUT is placed on a table which is 0.8 m above ground plane. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz. The CISPR Quasi-Peak and Average detector mode is employed. The two LISNs provide 50uH/50 ohm of coupling impedance for the measuring instrument. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

2.3.2 Conducted Test (RF)

The active antenna port of the unlicensed wireless device is connected to the spectrum analyzer with attenuator to protect the instrumentation. If a second antenna port is available, it is tested at one operating frequency, with other port(s) appropriately terminated, to verify it has similar output characteristics as the fully tested port.

2.3.3 Radiated Emissions

The EUT is placed on a turn table. For emissions testing at or below 1 GHz, the table height shall be 0.8 m above the reference ground plane. For emission measurements above 1 GHz, the table height shall be 1.5 m. The turn table shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. emission, the relative positions of this transmitter (EUT) was rotated through three orthogonal axes and measurement procedures for electric field radiated emissions above 1 GHz the EUT measurement is to be made "while keeping the antenna in the 'cone of radiation' from that area and pointed at the area both in azimuth and elevation, with polarization oriented for maximum response." is still within the 3dB illumination BW of the measurement antenna.

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2.4 Measurement Results Explanation Example

2.4.1 Radiated Emission Test Sites For Measurements From 9 kHz To 30 MHz

Radiated emission below 30MHz is measured in a 9m*6m*6m semi-anechoic chamber, the measurements correspond to those obtained at an open-field test site.

There is a comparison data of both open-field test site and semi-Anechoic chamber, and the result came out very similar.

2.4.2 For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuation factor between EUT conducted port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly EUT RF output level.

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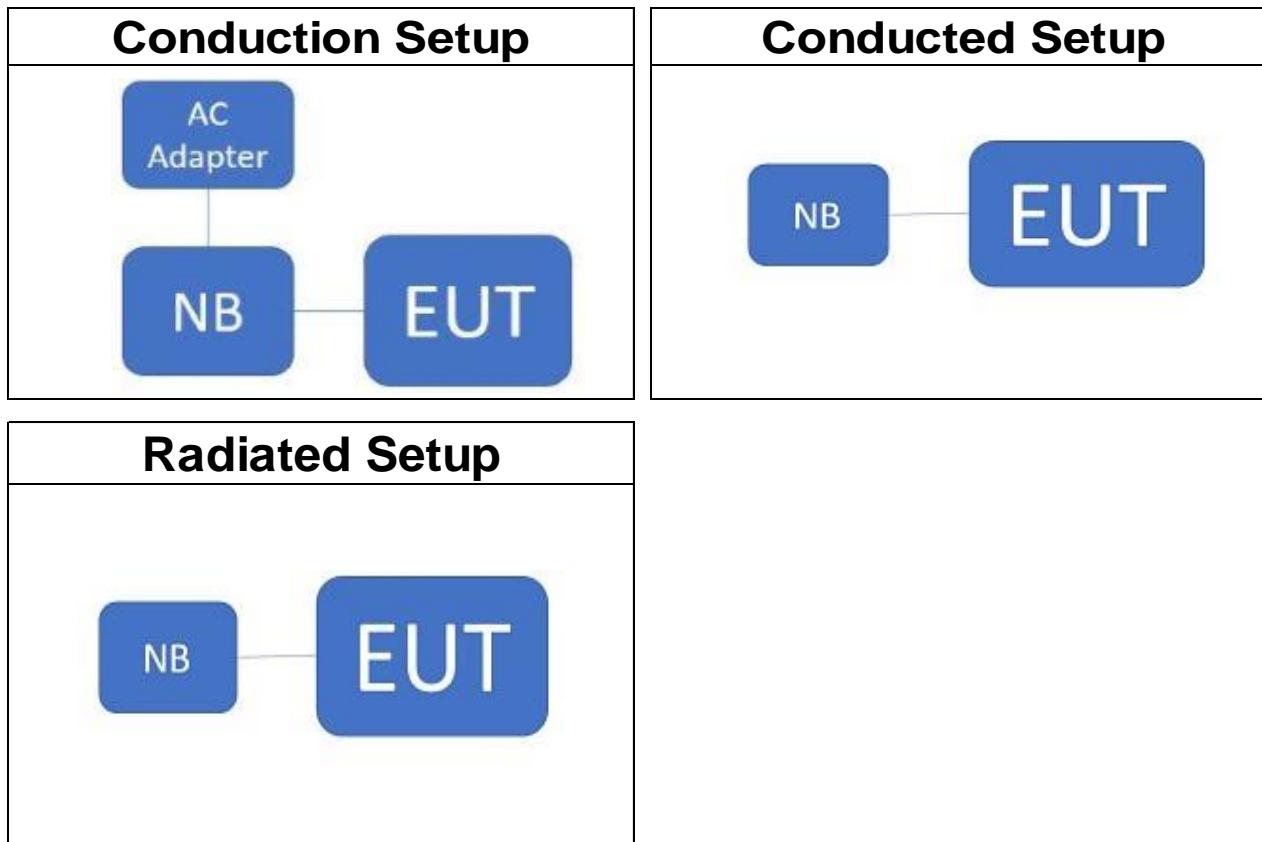
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2.5 Test Configuration



2.6 Control Unit(s)

AC Power-Line Conducted Emission Test Site: Conduction 1					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL. (mm/dd/yyyy)	CAL DUE. (mm/dd/yyyy)
AC Adapter	HP	TPN-AA06	N/A	N/A	N/A
Notebook	HP	HSN-Q35C-4	5CD2428X3N	N/A	N/A

Conducted Emission Test Site: Conducted 2					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL. (mm/dd/yyyy)	CAL DUE. (mm/dd/yyyy)
Notebook	Lenovo	L480	PF-1M4D8L 19-/03	N/A	N/A

Radiated Emission Test Site: SAC 3					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL. (mm/dd/yyyy)	CAL DUE. (mm/dd/yyyy)
Notebook	HP	HSN-Q35C-4	5CD2428X3N	N/A	N/A

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3 SUMMARY OF TEST RESULTS

FCC Rules	Description Of Test	Result	Note
§15.207(a)	AC Power Line Conducted Emission	Compliant	
§15.247(b) (3)	Peak Output Power	Compliant	
§15.247(a)(2)	Emission Bandwidth	Compliant	
§15.209 §15.247(d)	Conducted Band Edge and Spurious Emission	Compliant	
§15.209 §15.247(d)	Radiated Band Edge and Spurious Emission	Compliant	
§15.205	Restricted Bands	Compliant	
§15.247(e)	Power Spectral Density	Compliant	
§15.203	Antenna Requirement	Compliant	

Note

1. *N/S* Indicates whether item(s) being newly tested [N] or spot checked [S].
2. *Items other than newly tested [N]* are leveraged from test report TERF2505001679ER.

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4 DESCRIPTION OF TEST MODES

4.1 Operating Frequencies

2400~2483.5 MHz	
20MHz	
CH	Freq. (MHz)
1	2412
2	2417
3	2422
4	2427
5	2432
6	2437
7	2442
8	2447
9	2452
10	2457
11	2462

40MHz	
CH	Freq. (MHz)
3	2422
4	2427
5	2432
6	2437
7	2442
8	2447
9	2452

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4.2 The Worst Test Modes and Channel Details

1. The EUT has been tested under operating condition.
2. Test program used to control the EUT for staying in continuous transmitting and receiving mode is programmed.
3. Investigation has been done on all the possible configurations for searching the worst case.

The given UE is pre-scanned among below modes.

Mode		Transmission Chain						Single Transmission Spatial		Multi Transmission Spatial	
V	802.11 b	V	Ch0	V	Ch1		Ch2		Ch3		1TX
V	802.11 g	V	Ch0	V	Ch1		Ch2		Ch3		1TX
V	802.11 n	V	Ch0	V	Ch1		Ch2		Ch3		1TX
	802.11 ac		Ch0		Ch1		Ch2		Ch3		1TX
V	802.11 ax	V	Ch0	V	Ch1		Ch2		Ch3		1TX
	802.11 be		Ch0		Ch1		Ch2		Ch3		1TX
											2TX

4. Therefore, below summary is the modes of test configuration that yield the highest reading and generate the highest emission chosen to carry out the relevantly mandatory test items.

CONDUCTED TEST					
MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)	ANTENNA PORT
802.11b	1 to 11	1,6,11	CCK	1	2TX
802.11g	1 to 11	1,6,11	OFDM	6	2TX
802.11n_HT20	1 to 11	1,6,11	OFDM	MCS0	2TX
802.11n_HT40	3 to 9	3,4,5,6,7,8,9	OFDM	MCS0	2TX

CONDUCTED TEST						
MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	RU CONFIGURATION	DATA RATE (Mbps)	ANTENNA PORT
802.11ax_HE20	1 to 11	1,6,11	OFDMA	FULL RU 26/0,26/8 52/37,52/40 106/53,106/54	MCS0	2TX
802.11ax_HE40	3 to 9	3,4,5,6,7,8,9	OFDMA	FULL RU 242/61,242/62	MCS0	2TX

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TRANSMIT RADIATED EMISSION TEST (BELOW 1 GHz)					
MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)	ANTENNA PORT
802.11g	1 to 11	6	OFDM	6	2Tx

TRANSMIT RADIATED EMISSION TEST (ABOVE 1 GHz)					
MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)	ANTENNA PORT
802.11b	1 to 11	1,6,11	CCK	1	2Tx
802.11g	1 to 11	1,6,11	OFDM	6	2Tx
802.11n20	1 to 11	1,6,11	OFDM	MCS0	2Tx
802.11n40	3 to 9	3,4,5,6,7,8,9	OFDM	MCS0	2Tx
802.11ax20	1 to 11	1,6,11	OFDMA	MCS0	2Tx
802.11ax40	3 to 9	3,4,5,6,7,8,9	OFDMA	MCS0	2Tx

Note:

The field strength of radiated emission was measured as the EUT positioned in different orthogonal planes (E1/E2/H) based on actual usage of the EUT to pre-scan the emissions for determining the worst case scenario.

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5 MEASUREMENT UNCERTAINTY

Test Items	Uncertainty
AC Power Line Conducted Emission	+/- 1.54 dB
Output Power measurement	+/- 0.97 dB
Emission Bandwidth	+/- 1.38 Hz
Conducted emission measurement	+/- 0.77 dB
Peak Power Density	+/- 0.61 dB
Temperature	+/- 0.6 °C
Humidity	+/- 3 %
DC / AC Power Source	+/- 1 %

Radiated Spurious Emission Measurement Uncertainty			
Polarization: Vertical	+/- 1.89 dB	9kHz~30MHz	
	+/- 4.1 dB	30MHz - 1000MHz	
	+/- 3.37 dB	1GHz - 18GHz	
	+/- 3.83 dB	18GHz - 40GHz	
Polarization: Horizontal	+/- 1.89 dB	9kHz~30MHz	
	+/- 4.1 dB	30MHz - 1000MHz	
	+/- 3.37 dB	1GHz - 18GHz	
	+/- 3.83 dB	18GHz - 40GHz	
Radiated Spurious Emission	+/- 2 dB	33GHz-50GHz	
	+/- 1.59 dB	50GHz-60GHz	
	+/- 1.71 dB	60GHz-90GHz	
	+/- 1.64 dB	90GHz-140GHz	
	+/- 3.84 dB	140GHz-220GHz	

Note:

1. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.
2. The conformity assessment statement in this report is based solely on the test results, measurement uncertainty is excluded.

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6 MEASUREMENT EQUIPMENT USED

6.1 Emission from AC power line

AC Power-Line Conducted Emission Test Site: Conduction 1					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL. (mm/dd/yyyy)	CAL DUE. (mm/dd/yyyy)
Coaxial Cables	EMC Instruments Corp.	EMCCFD300-BM-BM-3000	161207	06/22/2024	06/21/2025
EMI Test Receiver	R&S	ESCI 7	100759	08/28/2024	08/27/2025
LISN	SCHWARZBECK	NSLK 8127	1040	09/07/2024	09/06/2025
Pulse Limiter	SCHWARZBECK	VTSD 9561F-N	793	06/22/2024	06/21/2025
Test Software	Audix	e3	Ver. 9.210616	N.C.R	N.C.R

6.2 Conducted Measurement

Conducted Emission Test Site: Conducted 2					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL. (mm/dd/yyyy)	CAL DUE. (mm/dd/yyyy)
EXA Spectrum Analyzer	KEYSIGHT	N9010B	MY59071541	07/08/2024	07/07/2025
Power Meter	Anritsu	ML2496A	2138003	10/09/2024	10/08/2025
Power Sensor	Anritsu	MA2411B	1911393	10/09/2024	10/08/2025
Power Sensor	Anritsu	MA2411B	1911394	10/09/2024	10/08/2025
Test Software	SGS	Radio Test Software	Ver. 21	N.C.R	N.C.R

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6.3 Radiated Measurement

Radiated Emission Test Site: SAC 3					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL. (mm/dd/yyyy)	CAL DUE. (mm/dd/yyyy)
4G High Pass Filter	WI	WHKX4.0	22	12/11/2024	12/10/2025
Attenuator	Mini-Circuits	BW-S10W2+	16	12/11/2024	12/10/2025
Band Reject Filter 2400-2483.5	EWT	EWT-14-0166	M2	12/11/2024	12/10/2025
Bi-log Antenna	SCHWARZBECK	VULB9168	378	08/09/2024	08/08/2025
Coaxial Cables	EMCI+Huber Suhner	EMC107-SM-SM-1000 +SUCOFLEX 104PEA +EMC107-SM-SM-1500 +SUCOFLEX 106	RX Cable 9K-18G (221110+MY4251/4PEA+221106+760 96/6)	08/30/2024	08/29/2025
Coaxial Cables	Huber Suhner	SUCOFLEX 102	RX Cable 18G-40G MY2630/2+805062 /2	08/30/2024	08/29/2025
EMI Test Receiver	R&S	ESCI 7	100759	08/28/2024	08/27/2025
EXA Spectrum Analyzer	KEYSIGHT	N9010B	MY63440386	02/05/2025	02/04/2026
Horn Antenna	RF SPIN	DRH0844	LE2D05A0844	07/10/2024	07/09/2025
Horn Antenna	SCHWARZBECK	BBHA9120D	1441	09/23/2024	09/22/2025
Loop Antenna	COM-POWER	AL-130R	10160104	12/19/2024	12/18/2025
Pre-Amplifier	EMCI	EMC118A45SEE	980868	08/30/2024	08/29/2025
Pre-Amplifier	EMCI	EMC184045SEE	9080939	08/30/2024	08/29/2025
Pre-Amplifier	HP	8447D	2944A07676	08/30/2024	08/29/2025
Site Cal	SGS	SAC 3	N/A	08/30/2024	08/29/2025
Test Software	Audix	e3	Ver. 9.210616	N.C.R	N.C.R

NOTE: N.C.R refers to Not Calibrated Required.

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7 CONDUCTED EMISSION TEST

7.1 Standard Applicable

Frequency range within 150kHz to 30MHz shall not exceed the Limit table as below.

Frequency range MHz	Limits (dBuV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50

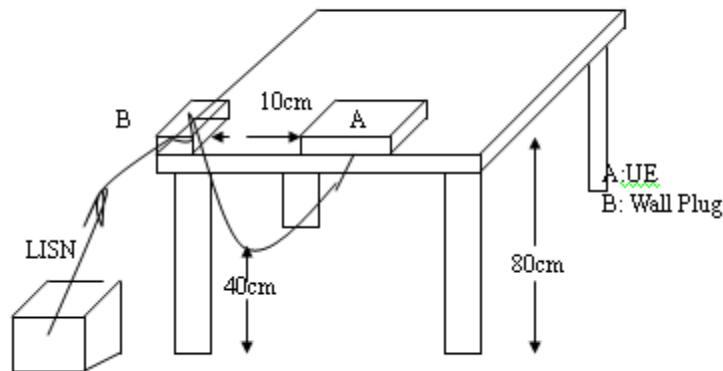
Note

1. The lower limit shall apply at the transition frequencies
2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.

7.2 EUT Setup:

1. The conducted emission tests were performed in the test site, using the setup in accordance with the ANSI C63.10:2013.
2. The AC/DC Power adaptor of EUT was plug-in LISN. The EUT was placed flushed with the rear of the table.
3. The LISN was connected with 120Vac/60Hz power source.

7.3 Test Setup



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7.4 Measurement Procedure

1. The EUT was placed on a table which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all phases of power being supplied by given UE are completed

7.5 Measurement Result

Level = Read Level + Factor

Factor = (LISN, ISN, or current probe)Factor + Cable Loss +Attenuator

Note: Refer to next page for measurement data and plots.

Note2: The * reveals the worst-case results that closest to the limit.

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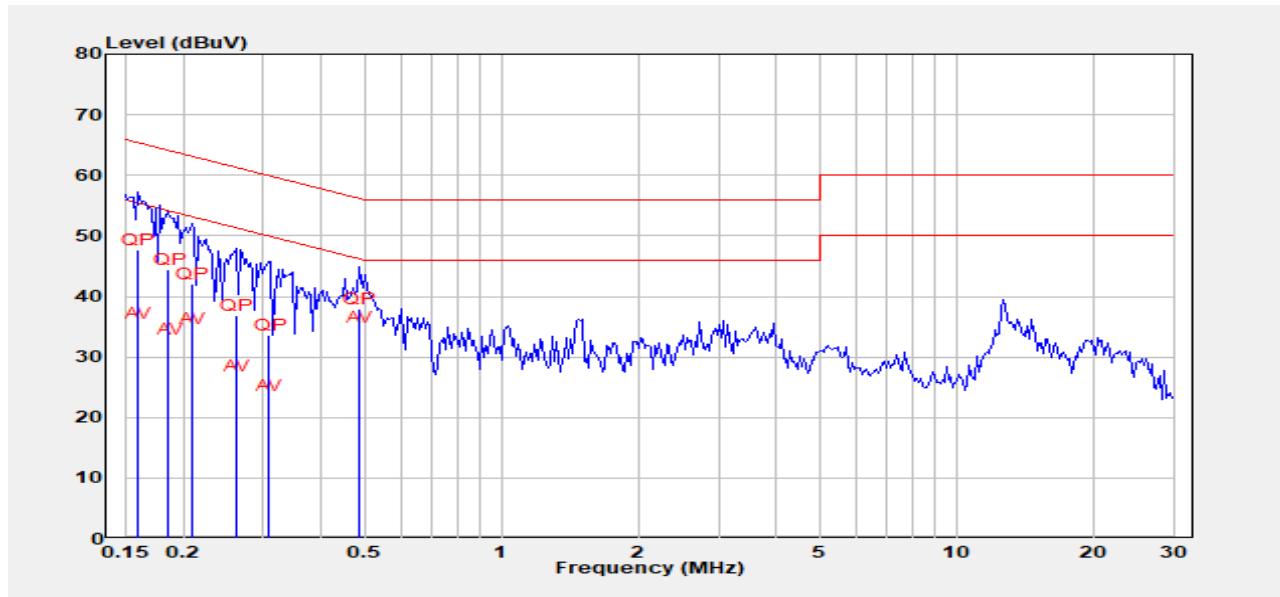
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AC POWER LINE CONDUCTED EMISSION TEST DATA

Report Number :TERF2505001679ER Test Site :Conduction 1
 Operation Mode :WLAN2.4G Test Date :2025-06-13
 Power :120V/60Hz Temp./Humi. :24.5°C/66%
 Probe :L Engineer :Nick Lin
 Note: :



Freq. MHz	Detector Mode	Spectrum Reading Level dB μ V	Factor dB	Actual	Limit	Margin
				FS dB μ V	dB μ V	dB
0.158	Average	25.37	10.13	35.50	55.56	-20.06
0.158	QP	37.53	10.13	47.66	65.56	-17.90
0.185	Average	22.91	10.13	33.04	54.24	-21.20
0.185	QP	34.31	10.13	44.44	64.24	-19.80
0.208	Average	24.53	10.13	34.66	53.27	-18.61
0.208	QP	31.87	10.13	42.00	63.27	-21.27
0.260	Average	16.83	10.14	26.97	51.42	-24.46
0.260	QP	26.62	10.14	36.76	61.42	-24.67
0.308	Average	13.44	10.14	23.58	50.02	-26.43
0.308	QP	23.57	10.14	33.71	60.02	-26.30
0.486	Average	24.71	10.16	34.87	46.23	-11.36
0.486	QP	27.77	10.16	37.93	56.23	-18.30

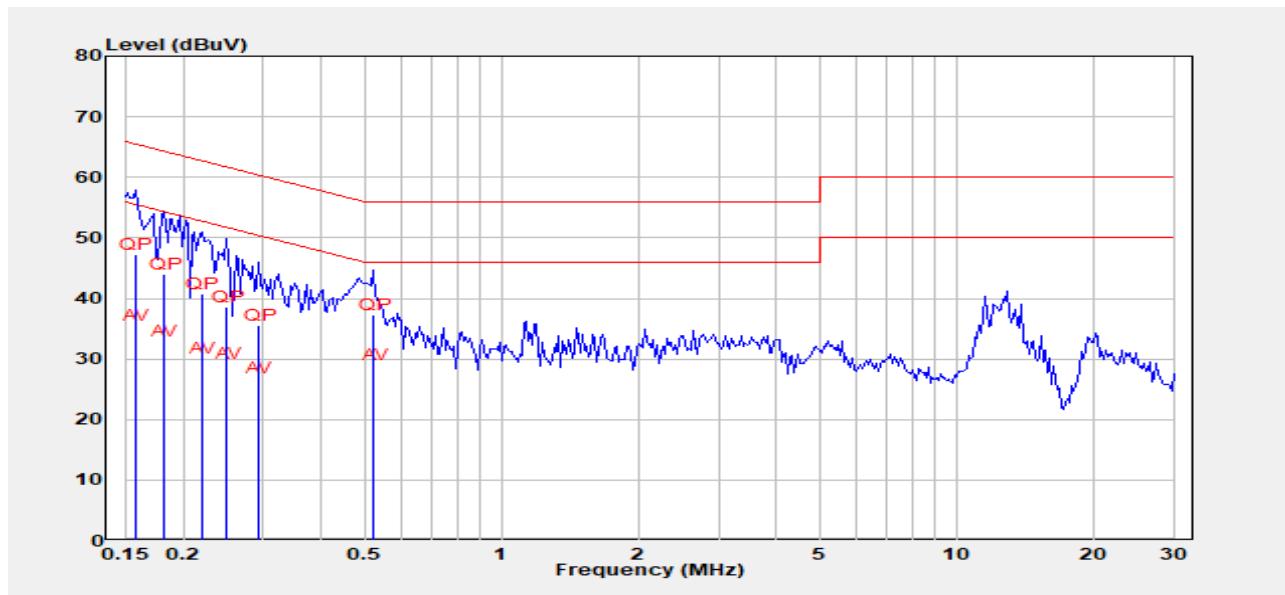
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Report Number :TERF2505001679ER Test Site :Conduction 1
Operation Mode :WLAN2.4G Test Date :2025-06-13
Power :120V/60Hz Temp./Humi. :24.5°C/66%
Probe :N Engineer :Nick Lin
Note: :



Freq. MHz	Detector Mode	Spectrum Reading Level dB μ V	Factor	Actual		Margin dB
				FS dB μ V	dB μ V	
0.156	Average	25.38	10.12	35.50	55.65	-20.15
0.156	QP	37.23	10.12	47.35	65.65	-18.30
0.182	Average	22.89	10.12	33.01	54.42	-21.41
0.182	QP	33.92	10.12	44.04	64.42	-20.38
0.220	Average	20.07	10.12	30.19	52.83	-22.64
0.220	QP	30.53	10.12	40.65	62.83	-22.18
0.249	Average	19.07	10.13	29.20	51.78	-22.58
0.249	QP	28.44	10.13	38.57	61.78	-23.21
0.292	Average	16.66	10.14	26.80	50.46	-23.66
0.292	QP	25.37	10.14	35.51	60.46	-24.95
0.524	Average	18.96	10.16	29.12	46.00	-16.88
0.524	QP	27.22	10.16	37.38	56.00	-18.62

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8 PEAK OUTPUT POWER MEASUREMENT

8.1 Standard Applicable

8.1.1 Duty Cycle

Pre-analysis Check: While conducting average power measurement, duty cycle of each mode shall be checked to ensure its duty cycle in order to compensate for the loss due to insufficient ratio of duty cycle.

All duty cycle is pre-scanned, and result as obtained below shows only the most representative ones where duty cycle is conducted as the given transmission with given virtual operation that expresses the percentage.

8.1.2 FCC

For systems using digital modulation in the 2400-2483.5 MHz bands, the limit for peak output power is 1Watt.

If the transmitting antenna of directional gain greater than 6dBi are used the peak output power from the intentional radiator shall be reduced below the above stated value by the amount in dB that the directional gain of the Antenna exceeds 6dBi.

In case of point-to-point operation, the limit has to be reduced by 1dB for every 3dB that the directional gain of Antenna exceeds 6dBi.

Note:

When the antenna gain is greater than 6 dBi, the power limit attenuated accordingly.

As per section F. 2). e). (ii) of FCC KDB 662911 D01

If antenna gains are not equal and each transmit antenna is driven by only one spatial stream, directional gain may be calculated by either of the following formulas.

$$\bullet \quad \text{DirectionalGain} = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$$

where

Each antenna is driven by no more than one spatial stream;

NSS = the number of independent spatial streams of data;

NANT = the total number of antennas

$g_{j,k} = 10^{G_k/20}$ if the kth antenna is being fed by spatial stream j, or zero if it is not;

G_k is the gain in dBi of the kth antenna.

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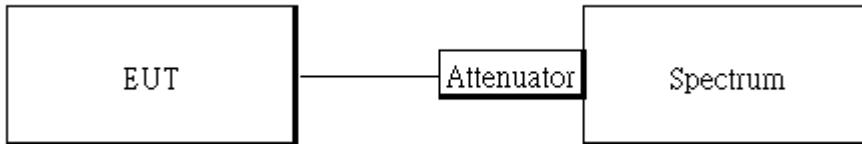
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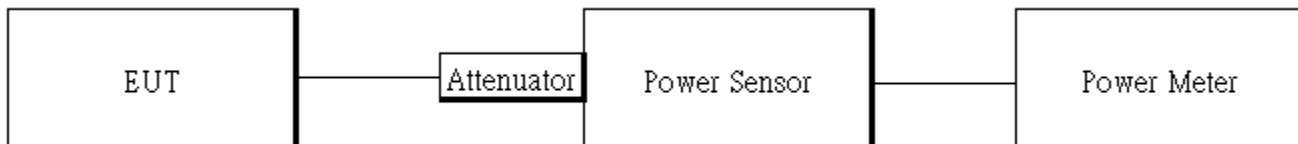
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8.2 Test Setup

8.2.1 Duty Cycle



8.2.2 Output Power:



8.3 Measurement Procedure

8.3.1 Duty Cycle:

1. Set span = Zero
2. RBW = 8MHz
3. VBW = 8MHz,
4. Detector = Peak

8.3.2 Output Power

1. Place the EUT on the table and set it in transmitting mode.
2. The testing follows the Measurement Procedure of FCC KDB 558074 D01 DTS Meas. Guidance .
3. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the power meter.

Power Meter:

It is used as the auxiliary test equipment to conduct the output power measurement.

4. Record the max. Reading as observed from Spectrum or Power Meter.
5. MIMO mode: offset is set with “measure and add 10 Log (N)” to measurement for MIMO mode. Offset = cable loss + 10 log (N), where N is number of transmitting antenna, cable loss is specified below.

*** Note: The duty cycle factor and below is compensated to obtain the maximum value of measurement in average.**

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8.4 Measurement Result

8.4.1 Duty Cycle:

Mode		Duty Cycle (%) = Ton / (Ton+Toff)	Duty Factor (dB) =10*log (1/Duty Cycle)	1/T (kHz)	VBW setting (kHz)
802.11b		84.92	0.71	0.18	1.00
802.11g		84.62	0.73	0.48	1.00
802.11n_20		84.40	0.74	0.54	1.00
802.11n_40		84.26	0.74	1.10	2.00
Mode	RU Config	Duty Cycle (%) = Ton / (Ton+Toff)	Duty Factor (dB) =10*log (1/Duty Cycle)	1/T (kHz)	VBW setting (kHz)
802.11ax_20	Full	84.27	0.74	1.33	2.00
	26 RU	84.81	0.72	0.22	1.00
	52 RU	84.81	0.72	0.22	1.00
	106 RU	84.80	0.72	0.28	1.00
802.11ax_40	Full	83.33	0.79	1.82	2.00
	242 RU	84.66	0.72	0.63	1.00

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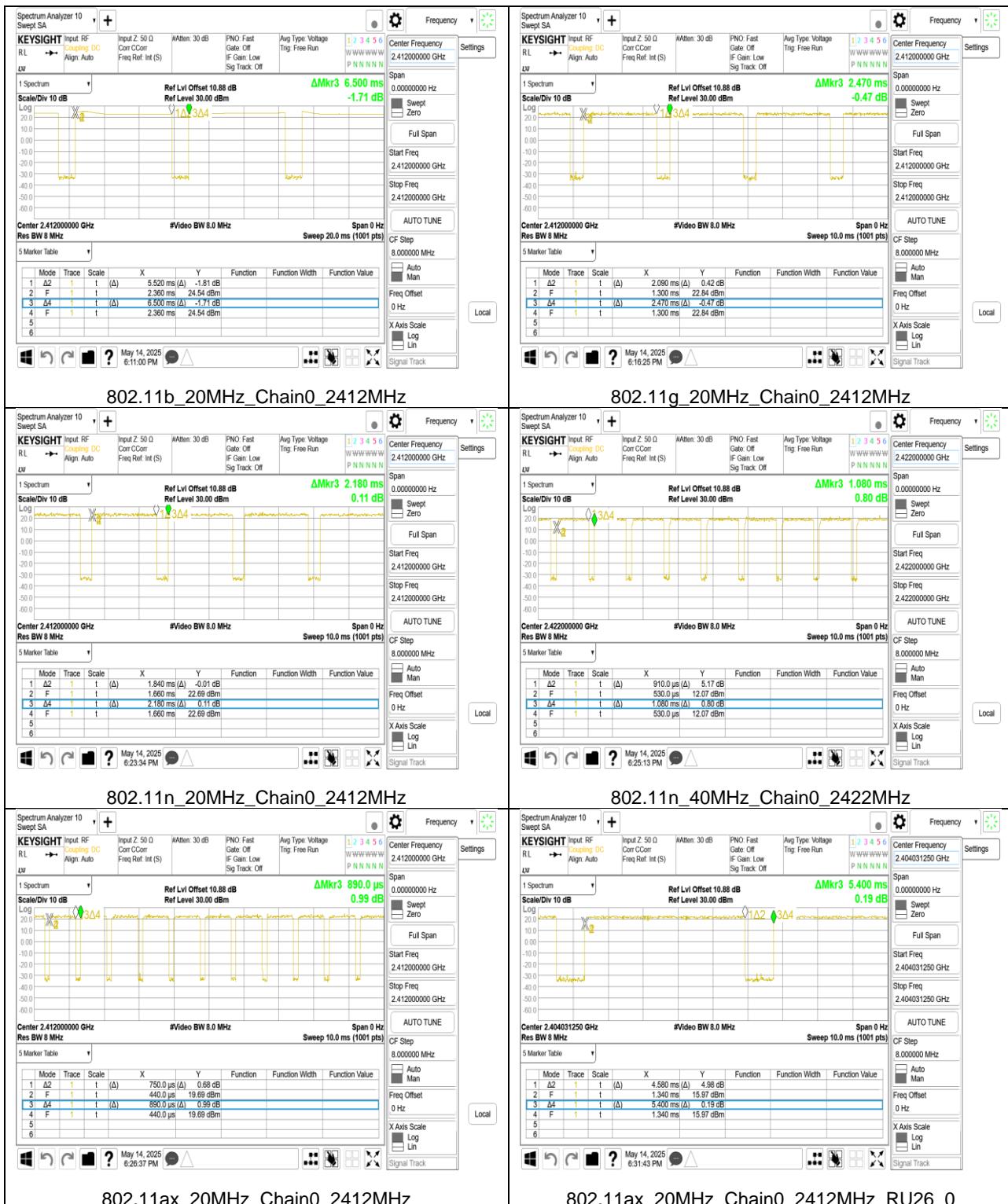
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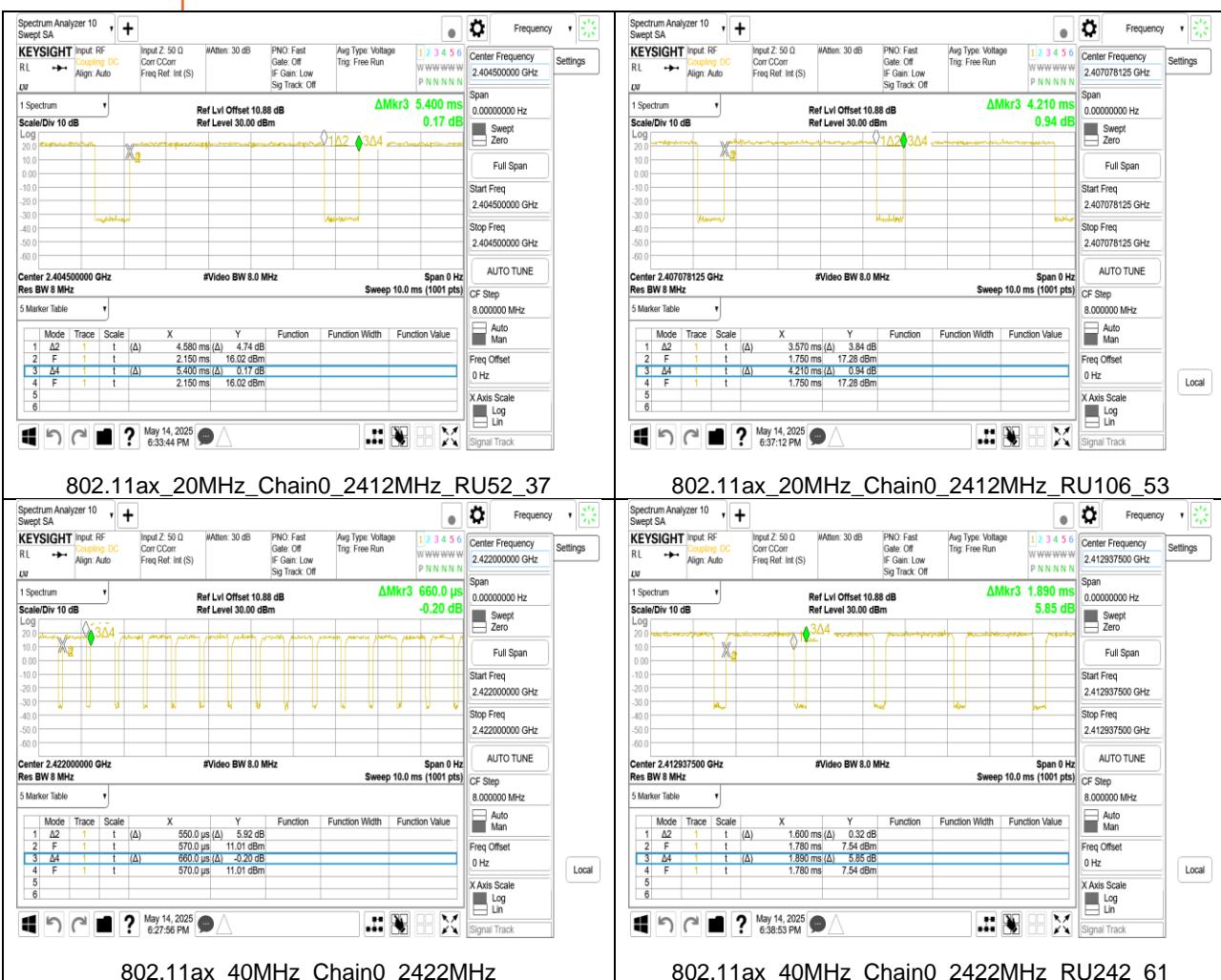
8.4.2 Duty Cycle test plots



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8.4.3 Output Power

802.11b_2TX

CH	Freq. (MHz)	Data Rate	Peak Output Power (dBm)		Total Peak Output Power (mW)	Total Peak Output Power (dBm)	Limit (dBm)	RESULT
			Ch0	Ch1				
1	2412	1	16.56	17.46	101.01	20.04	30.00	PASS
6	2437	1	16.39	17.49	99.66	19.99	30.00	PASS
11	2462	1	16.90	17.57	106.13	20.26	30.00	PASS

802.11b_2TX

CH	Freq. (MHz)	Data Rate	Avg. Output Power (dBm)		Total Avg. Output Power (mW)	Total Avg. Output Power (dBm)	Limit (dBm)	RESULT
			Ch0	Ch1				
1	2412	1	14.26	15.31	60.63	17.83	30.00	PASS
6	2437	1	13.54	15.52	58.24	17.65	30.00	PASS
11	2462	1	14.35	15.19	60.26	17.80	30.00	PASS

802.11g_2TX

CH	Freq. (MHz)	Data Rate	Peak Output Power (dBm)		Total Peak Output Power (mW)	Total Peak Output Power (dBm)	Limit (dBm)	RESULT
			Ch0	Ch1				
1	2412	6	20.30	21.06	234.80	23.71	30.00	PASS
6	2437	6	19.89	21.07	225.44	23.53	30.00	PASS
11	2462	6	20.47	21.38	248.83	23.96	30.00	PASS

802.11g_2TX

CH	Freq. (MHz)	Data Rate	Avg. Output Power (dBm)		Total Avg. Output Power (mW)	Total Avg. Output Power (dBm)	Limit (dBm)	RESULT
			Ch0	Ch1				
1	2412	6	13.98	15.19	57.98	17.63	30.00	PASS
6	2437	6	13.73	15.18	56.50	17.52	30.00	PASS
11	2462	6	14.08	14.97	56.93	17.55	30.00	PASS

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802.11n_HT20M_2TX

CH	Freq. (MHz)	Data Rate	Peak Output Power (dBm)		Total Peak Output Power (mW)	Total Peak Output Power (dBm)	Limit (dBm)	RESULT
			Ch0	Ch1				
1	2412	MCS0	20.75	21.52	260.76	24.16	30.00	PASS
6	2437	MCS0	20.12	21.35	239.26	23.79	30.00	PASS
11	2462	MCS0	20.09	21.41	240.45	23.81	30.00	PASS

802.11n_HT20M_2TX

CH	Freq. (MHz)	Data Rate	Avg. Output Power (dBm)		Total Avg. Output Power (mW)	Total Avg. Output Power (dBm)	Limit (dBm)	RESULT
			Ch0	Ch1				
1	2412	MCS0	14.46	15.20	60.99	17.85	30.00	PASS
6	2437	MCS0	13.90	15.16	57.31	17.58	30.00	PASS
11	2462	MCS0	14.55	15.19	61.50	17.89	30.00	PASS

802.11n_HT40M_2TX

CH	Freq. (MHz)	Data Rate	Peak Output Power (dBm)		Total Peak Output Power (mW)	Total Peak Output Power (dBm)	Limit (dBm)	RESULT
			Ch0	Ch1				
3	2422	MCS0	18.51	18.74	145.77	21.64	30.00	PASS
4	2427	MCS0	17.72	18.34	127.39	21.05	30.00	PASS
5	2432	MCS0	17.52	18.56	128.27	21.08	30.00	PASS
6	2437	MCS0	17.40	18.94	133.30	21.25	30.00	PASS
7	2442	MCS0	17.36	18.34	122.68	20.89	30.00	PASS
8	2447	MCS0	16.87	17.44	104.10	20.17	30.00	PASS
9	2452	MCS0	18.43	18.33	137.74	21.39	30.00	PASS

802.11n_HT40M_2TX

CH	Freq. (MHz)	Data Rate	Avg. Output Power (dBm)		Total Avg. Output Power (mW)	Total Avg. Output Power (dBm)	Limit (dBm)	RESULT
			Ch0	Ch1				
3	2422	MCS0	12.51	12.92	37.44	15.73	30.00	PASS
4	2427	MCS0	11.59	12.23	31.16	14.94	30.00	PASS
5	2432	MCS0	11.22	12.50	31.05	14.92	30.00	PASS
6	2437	MCS0	11.16	12.67	31.58	14.99	30.00	PASS
7	2442	MCS0	11.12	12.23	29.68	14.72	30.00	PASS
8	2447	MCS0	10.80	11.42	25.91	14.14	30.00	PASS
9	2452	MCS0	12.58	12.38	35.44	15.50	30.00	PASS

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802.11ax_HE20M_2TX

CH	Freq. (MHz)	Data Rate	RU Config	Peak Output Power (dBm)		Total Peak Output Power (mW)	Total Peak Output Power (dBm)	Limit (dBm)	RESULT
				Ch0	Ch1				
1	2412	MCS0	full	21.28	22.06	294.97	24.70	30.00	PASS
			26/0	15.71	16.64	83.37	19.21	30.00	PASS
			52/37	17.29	18.45	123.56	20.92	30.00	PASS
			106/53	19.60	20.98	216.52	23.35	30.00	PASS
6	2437	MCS0	full	20.91	21.94	279.63	24.47	30.00	PASS
11	2462	MCS0	full	21.53	22.10	304.41	24.83	30.00	PASS
			26/8	20.08	21.09	230.39	23.62	30.00	PASS
			52/40	19.74	20.80	214.42	23.31	30.00	PASS
			106/54	21.10	21.96	285.86	24.56	30.00	PASS

802.11ax_HE20M_2TX

CH	Freq. (MHz)	Data Rate	RU Config	Avg. Output Power (dBm)		Total Avg. Output Power (mW)	Total Avg. Output Power (dBm)	Limit (dBm)	RESULT
				Ch0	Ch1				
1	2412	MCS0	full	14.17	14.91	57.14	17.57	30.00	PASS
			26/0	3.87	5.44	5.93	7.73	30.00	PASS
			52/37	5.25	6.95	8.30	9.19	30.00	PASS
			106/53	8.16	9.38	15.20	11.82	30.00	PASS
6	2437	MCS0	full	13.99	15.00	56.73	17.54	30.00	PASS
11	2462	MCS0	full	14.31	15.05	59.01	17.71	30.00	PASS
			26/8	8.65	9.88	17.04	12.31	30.00	PASS
			52/40	8.30	9.51	15.68	11.95	30.00	PASS
			106/54	9.99	11.09	22.81	13.58	30.00	PASS

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CH	Freq. (MHz)	Data Rate	RU Config	Peak Output Power (dBm)		Total Peak Output Power (mW)	Total Peak Output Power (dBm)	Limit (dBm)	RESULT
				Ch0	Ch1				
3	2422	MCS0	full	19.54	19.90	187.67	22.73	30.00	PASS
			242/61	19.27	20.02	184.99	22.67	30.00	PASS
4	2427	MCS0	full	18.57	18.97	150.83	21.78	30.00	PASS
5	2432	MCS0	full	18.42	19.39	156.40	21.94	30.00	PASS
6	2437	MCS0	full	17.87	19.25	145.37	21.62	30.00	PASS
7	2442	MCS0	full	18.73	19.70	167.97	22.25	30.00	PASS
8	2447	MCS0	full	18.90	19.30	162.74	22.11	30.00	PASS
9	2452	MCS0	full	18.77	18.66	148.79	21.73	30.00	PASS
			242/62	18.26	18.35	135.38	21.32	30.00	PASS

802.11ax_HE40M_2TX

CH	Freq. (MHz)	Data Rate	RU Config	Avg. Output Power (dBm)		Total Avg. Output Power (mW)	Total Avg. Output Power (dBm)	Limit (dBm)	RESULT
				Ch0	Ch1				
3	2422	MCS0	full	12.24	12.76	35.65	15.52	30.00	PASS
			242/61	9.43	9.86	18.47	12.66	30.00	PASS
4	2427	MCS0	full	11.89	12.45	33.05	15.19	30.00	PASS
5	2432	MCS0	full	11.50	12.76	33.02	15.19	30.00	PASS
6	2437	MCS0	full	11.00	12.59	30.76	14.88	30.00	PASS
7	2442	MCS0	full	11.90	12.98	35.37	15.49	30.00	PASS
8	2447	MCS0	full	12.20	12.56	34.64	15.40	30.00	PASS
9	2452	MCS0	full	12.32	12.07	33.18	15.21	30.00	PASS
			242/62	8.10	8.30	13.23	11.21	30.00	PASS

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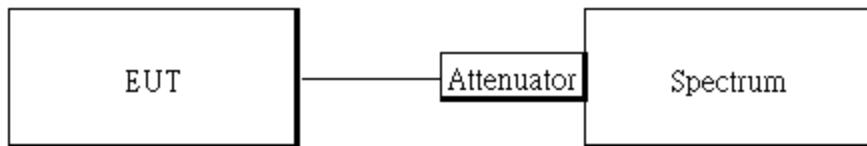
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9 EMISSION BANDWIDTH MEASUREMENT

9.1 Standard Applicable

The minimum 6 dB bandwidth shall be at least 500 kHz.

9.2 Test Setup



9.3 Measurement Procedure:

1. Place the EUT on the table and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.

9.3.1 6dB BW measurements

1. The testing follows the Measurement Procedure of the KDB 558074 D01.
2. Set the spectrum analyzer as
RBW= 100 kHz ,
VBW = 3 X RBW,
Span= 2 to 5 times of the OBW,
Sweep=auto, Detector = Peak, and Max hold.
3. Mark the upper and lower frequencies of -6dB.
4. Repeat above procedures until all test default channel is completed.

9.3.2 99% BW measurements

1. The testing follows the Measurement Procedure of the RSS-Gen section 6.7.
2. Set the spectrum analyzer as
RBW= 1 % to 5% of 99%,
VBW \geq 3 X RBW,
Span= large enough to capture all products of the modulation process
Sweep=auto, Detector = Peak, and Max hold.
3. Mark the upper and lower frequencies of 99%.
4. Repeat above procedures until all test default channel is completed.

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9.4 Measurement Result:

9.4.1 6dB BW measurements

802.11b Ch0

Freq. (MHz)	6dB BW (kHz)	Limit (kHz)	Result
2412	8107	≥ 500	PASS
2437	8107	≥ 500	PASS
2462	7607	≥ 500	PASS

802.11b Ch1

Freq. (MHz)	6dB BW (kHz)	Limit (kHz)	Result
2412	8080	≥ 500	PASS
2437	7654	≥ 500	PASS
2462	8102	≥ 500	PASS

802.11g Ch0

Freq. (MHz)	6dB BW (kHz)	Limit (kHz)	Result
2412	16310	≥ 500	PASS
2437	14500	≥ 500	PASS
2462	13850	≥ 500	PASS

802.11g Ch1

Freq. (MHz)	6dB BW (kHz)	Limit (kHz)	Result
2412	15140	≥ 500	PASS
2437	15130	≥ 500	PASS
2462	15150	≥ 500	PASS

802.11n_HT_20M Ch0

Freq. (MHz)	6dB BW (kHz)	Limit (kHz)	Result
2412	17580	≥ 500	PASS
2437	15100	≥ 500	PASS
2462	13860	≥ 500	PASS

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802.11n_HT_20M Ch1

Freq. (MHz)	6dB BW (kHz)	Limit (kHz)	Result
2412	15140	≥ 500	PASS
2437	15160	≥ 500	PASS
2462	15150	≥ 500	PASS

802.11n_HT_40M Ch0

Freq. (MHz)	6dB BW (kHz)	Limit (kHz)	Result
2422	31370	≥ 500	PASS
2437	33870	≥ 500	PASS
2452	32630	≥ 500	PASS

802.11n_HT_40M Ch1

Freq. (MHz)	6dB BW (kHz)	Limit (kHz)	Result
2422	35110	≥ 500	PASS
2437	35170	≥ 500	PASS
2452	35100	≥ 500	PASS

802.11ax_HE_20M Ch0

Freq. (MHz)	RU Config	6dB BW (kHz)	Limit (kHz)	Result
2412	full	15430	≥ 500	PASS
2437	full	15800	≥ 500	PASS
2462	full	16210	≥ 500	PASS

802.11ax_HE_20M Ch1

Freq. (MHz)	RU Config	6dB BW (kHz)	Limit (kHz)	Result
2412	full	17000	≥ 500	PASS
2437	full	15150	≥ 500	PASS
2462	full	15020	≥ 500	PASS

802.11ax_HE_40M Ch0

Freq. (MHz)	RU Config	6dB BW (kHz)	Limit (kHz)	Result
2422	full	31360	≥ 500	PASS
2437	full	33860	≥ 500	PASS
2452	full	35690	≥ 500	PASS

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802.11ax_HE_40M Ch1

Freq. (MHz)	RU Config	6dB BW (kHz)	Limit (kHz)	Result
2422	full	35130	≥ 500	PASS
2437	full	35460	≥ 500	PASS
2452	full	35130	≥ 500	PASS

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802.11b_20MHz_Chain0_2412MHz



802.11b 20MHz Chain0 2462MHz



802.11b_20MHz_Chain1_2437MHz

802.11b_20MHz_Chain1_2462MHz

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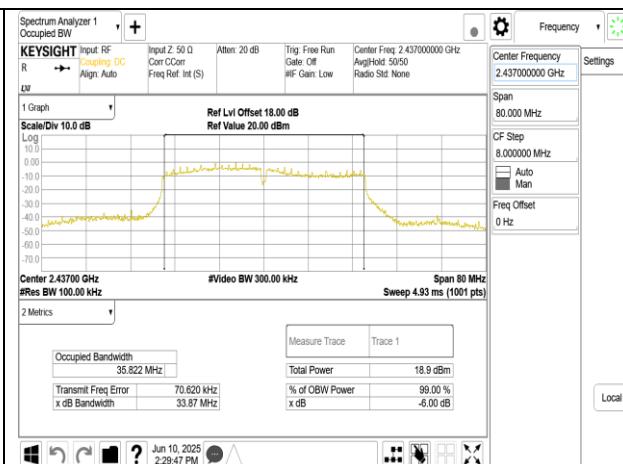
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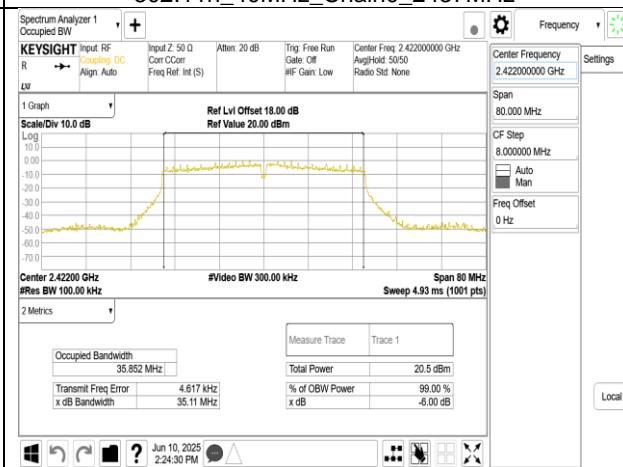
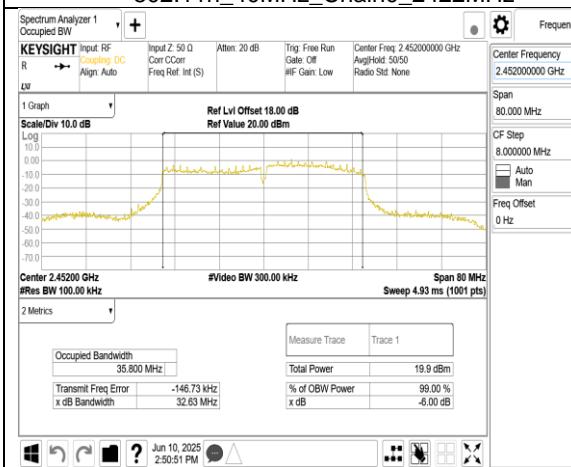
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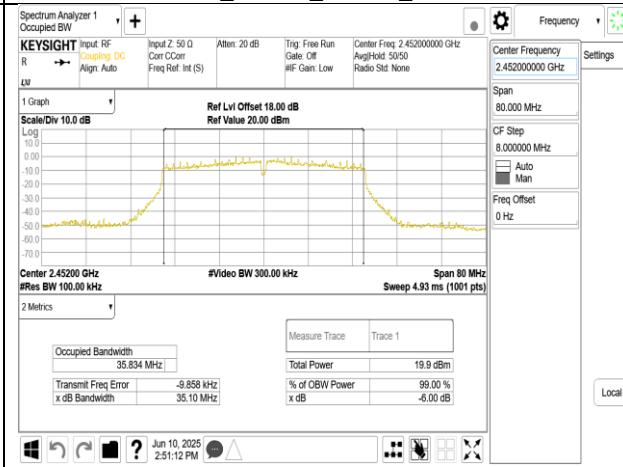
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802.11n_40MHz_Chain0_2422MHz



802.11n_40MHz_Chain0_2452MHz



802.11n_40MHz_Chain1_2437MHz

802.11n_40MHz_Chain1_2422MHz

802.11n_40MHz_Chain1_2452MHz

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9.4.2 99% Bandwidth

802.11b Ch0

Freq. (MHz)	99% BW (MHz)
2412	13.877
2437	13.198
2462	12.553

802.11b Ch1

Freq. (MHz)	99% BW (MHz)
2412	13.197
2437	13.18
2462	13.103

802.11g Ch0

Freq. (MHz)	99% BW (MHz)
2412	16.558
2437	16.275
2462	15.985

802.11g Ch1

Freq. (MHz)	99% BW (MHz)
2412	16.304
2437	16.346
2462	16.345

802.11n_HT20M Ch0

Freq. (MHz)	99% BW (MHz)
2412	17.842
2437	17.561
2462	17.209

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802.11n_HT20M Ch1

Freq. (MHz)	99% BW (MHz)
2412	17.488
2437	17.543
2462	17.512

802.11n_HT40M Ch0

Freq. (MHz)	99% BW (MHz)
2422	35.785
2437	35.833
2452	35.834

802.11n_HT40M Ch1

Freq. (MHz)	99% BW (MHz)
2422	35.869
2437	35.961
2452	35.799

802.11ax_HE20M Ch0

Freq. (MHz)	RU Config	99% BW (MHz)
2412	full	18.806
2437	full	18.79
2462	full	18.854

802.11ax_HE20M Ch1

Freq. (MHz)	RU Config	99% BW (MHz)
2412	full	18.977
2437	full	18.9
2462	full	18.602

802.11ax_HE40M Ch0

Freq. (MHz)	RU Config	99% BW (MHz)
2422	full	37.445
2437	full	37.369
2452	full	37.559

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802.11ax_HE40M Ch1

Freq. (MHz)	RU Config	99% BW (MHz)
2422	full	37.521
2437	full	37.654
2452	full	37.499

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