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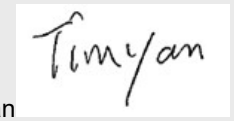
Test report No: 4394324.51

TEST REPORT
Radio Spectrum Matters (RF)

Identification of item tested	COMBO module
Trademark	/
Model and /or type reference	JXC8720-18
FCC ID	PUU-CFIXCNLRCRV
Features	3.3Vdc
Applicant´s name / address	Savant Technologies LLC dba GE Lighting, a Savant company 1975 Noble Road, Cleveland, Ohio, United States, 44112
Test method requested, standard	FCC CFR Title 47 Part15 Subpart C Section 15.247; KDB558074 D01v05r02;
Verdict Summary	COMPLIANCE
Tested by (name & signature)	Johnny Bo 
Approved by (name & signature)	Tim Yan 
Date of issue	2022-12-06
Report template No	TRF_EMC 2017-06- FCC_Part15C_247

INDEX

page

GENERAL CONDITIONS

1. This report is only referred to the item that has undergone the test.
2. This report does not constitute or imply on its own an approval of the product by the Certification Bodies or Competent Authorities.
3. This document is only valid if complete; no partial reproduction can be made without previous written permission of DEKRA.
4. This test report cannot be used partially or in full for publicity and/or promotional purposes without previous written permission of DEKRA.
5. This report will not be used for social proof function in China market.

UNCERTAINTY

For all measurements where guidance for the calculation of the instrumentation uncertainty of a measurement is specified in EN 55016-4-2 (CISPR 16-4-2), EN/IEC 61000-4 series or a product standard, the measurement instrumentation uncertainty has been calculated and applied in accordance with these standards.

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%.

ENVIRONMENTAL CONDITIONS

The climatic conditions during the tests are within the limits specified by the manufacturer for the operation of the EUT and the test equipment. The climatic conditions during the tests were within the following limits:

Ambient temperature	-40 °C – 105 °C
Relative Humidity air	30% - 60%
Atmospheric pressure	86 kPa – 106 kPa

If explicitly required in the basic standard or applied product / product family standard the climatic values are recorded and documented separately in this test report.

POSSIBLE TEST CASE VERDICTS

Test case does not apply to test object	N/A
Test object does meet requirement	P (Pass) / PASS
Test object does not meet requirement	F (Fail) / FAIL
Not tested	N/T

DEFINITION OF SYMBOLS USED IN THIS TEST REPORT

☒ Indicates that the listed condition, standard or equipment is applicable for this report/test/EUT.				
☐ Indicates that the listed condition, standard or equipment is not applicable for this report/test/EUT.				
Decimal separator used in this report	☒	Comma (,)	☐	Point (.)

ABBREVIATIONS

For the purposes of the present document, the following abbreviations apply:

EUT	:	Equipment Under Test
QP	:	Quasi-Peak
CAV	:	CISPR Average
AV	:	Average
CDN	:	Coupling Decoupling Network
SAC	:	Semi-Anechoic Chamber
OATS	:	Open Area Test Site
BW	:	Bandwidth
AM	:	Amplitude Modulation
PM	:	Pulse Modulation
HCP	:	Horizontal Coupling Plane
VCP	:	Vertical Coupling Plane
U_N	:	Nominal voltage
*T*x	:	Transmitter
*R*x	:	Receiver
N/A	:	Not Applicable
N/M	:	Not Measured

DOCUMENT HISTORY

Report nr.	Date	Description
4394324.51	2022-12-06	First release.

REMARKS AND COMMENTS

The equipment under test (EUT) does meet the essential requirements of the stated standard(s)/test(s).

1 GENERAL INFORMATION

1.1 General Description of the Item(s)

Description of the item .....:	COMBO module
Trademark.....:	/
Model / Type number.....:	JXC8720-18
FCC ID.....:	PUU-CFIXCNLRCRV
Hardware .....:	JXC8720-18 V1.1
Software.....:	cync Alpha 6.8.0.34336-5c4db77a1
Firmware .....:	N/A
Ratings.....:	3.3Vdc
Manufacturer.....:	Same as applicant
Factory.....:	Same as applicant

The product contains wireless RF module and the characteristics of radio module (WIFI) are:

Frequency Band .....:	2412 MHz-2462 MHz
Type of Modulation .....:	IEEE 802.11b: DSSS(CCK, DQPSK, DBPSK) IEEE 802.11g: OFDM(64-QAM, 16-QAM, QPSK, BPSK) IEEE 802.11n-HT20: OFDM(64-QAM, 16-QAM, QPSK, BPSK)
Data Rate.....:	IEEE 802.11b: Up to 11 Mbps IEEE 802.11g: Up to 54 Mbps IEEE 802.11n-HT20: Up to MCS7
Geo-location Capability.....:	Not Support
Adaptivity .....:	Adaptive
Maximum RF output power(EIRP)..:	IEEE 802.11b: 19.3 dBm IEEE 802.11g: 18.2 dBm IEEE 802.11n-HT20: 16.9 dBm
Antenna type.....:	PCB Antenna
Antenna gain.....:	2.6 dBi
Number of channel .....:	IEEE 802.11b: 11 IEEE 802.11g: 11 IEEE 802.11n-HT20: 11
Operating Temperature Range.....:	-40 °C – 105 °C

			Reference poles				
Rated power supply .....:	Voltage and Frequency		L1	L2	L3	N	PE
	☐	AC:	☐	☐	☐	☐	☐
	☒	DC: 3.3V					
	☐	Battery:					
Mounting position.....:	☐	Table top equipment					
	☐	Wall/Ceiling mounted equipment					
	☐	Floor standing equipment					
	☐	Hand-held equipment					

	☒	Other: Built-in

Intended use of the Equipment Under Test (EUT)
The apparatus as supplied for the test is COMBO module intended for residential use. Model JXC8720-18 was chosen for full test.

Copy of marking plate:
No provide.

1.2 Test data

Test Location	DEKRA Testing and Certification (Shanghai) Ltd. Guangzhou Branch Block 5, No.3, Qiyun Road, Huangpu District, Guangzhou, Guangdong, China FCC Designation Number: CN1324;
Date of receipt of test item	2022-09-02
Date (s) of performance of tests	2022-09-02 to 2022-10-19
Test sample	Normal sample: JXC8720-18 (lab on.4394324-1) RF conducted sample: JXC8720-18 (lab on.4394324-3) RF radiated sample: JXC8720-18 (lab on.4394324-2)

1.3 The environment(s) in which the EUT is intended to be used

The equipment under test (EUT) is intended to be used in the following environment(s):

☒	Residential (domestic) environment.
☒	Commercial and light-industrial environment.
☐	Industrial environment.

1.4 Channel List

The radio module (WIFI) operating channels are:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2412	7	2442
2	2417	8	2447
3	2422	9	2452
4	2427	10	2457
5	2432	11	2462
6	2437	-	-

2 DESCRIPTION OF TEST SETUP

2.1 Operating mode(s) used for tests

During the tests the following operating mode(s) has(have) been used.

Operating mode	Operating mode description	Used for methos	
		Conducted	Radiated
1	Transmitting at WIFI	☒	☒
2	On mode; Supply power by PC	☒	☒
3			
4			
Supplemental information: ---			

2.2 Support / Auxiliary equipment / unit / software for the EUT

The EUT has been tested with the following auxiliary equipment / unit / software:

Auxiliary equipment / unit / software	Type / Version	Manufacturer	Supplied by
Laptop	Latitude 5488	DELL	DEKRA
UI_mptool (soft ware)	V2.0	-	Client
Supplemental information: ---			

2.3 Test Configuration / Block diagram used for tests

Refer to Annex 3.

2.4 Measurement procedure

The EUT was controlled by a serial PCB(TELINK BDT) which provided by manufacturer which connected to laptop through the com port. After connected, run the software "UI_mptool V2.0" supplied by manufacturer to control the EUT work in required test mode as below table.

RF Mode	Frequency (MHz)
IEEE 802.11 b/g/n20	2412
	2437
	2462

3 VERDICT SUMMARY SECTION

This chapter presents an overview of standards and results. Refer to the next chapters for details of measured test results and applied test levels.

3.1 Standards

Standard	Year	Description
FCC CFR Title 47 Part 15 Subpart C Section 15.247	2022	Operation within the bands 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz.
KDB 558074 D01 v05r02	2019	Guidance for performing compliance measurements on Digital Transmission System (DTS) operating under section 15.247
ANSI C63.10	2013	American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices

3.2 Deviation(s) from the Standard(s) / Test Specification(s)

The following deviation(s) was / were made from the published requirements of the listed standards: N/A.

3.3 Overview of results

FCC measurement			
Requirement – Test case	**Basic standard(s)**	**Verdict**	**Remark**
AC Power Line Conducted Emission	FCC 15.207	PASS	---
Emissions in non-restricted frequency bands	FCC 15.247(d), FCC 15.209	PASS	---
Emissions in restricted frequency bands	FCC 15.247(b)(3)	PASS	---
Duty cycle	ANSI C63.10:2013	PASS	---
Band Edge	FCC 15.247(d)	PASS	---
Fundamental emission output power	FCC 15.247(d), FCC 15.209	PASS	---
DTS Bandwidth	FCC 15.247(a)(2)	PASS	---
Power Spectral Density	FCC 15.247(e)	PASS	---
Antenna Requirement	FCC 15.203	PASS	---
Supplementary information: ---			

The measurement result is considered in conformance with the requirement if it is within the prescribed limit, It is not necessary to calculate the uncertainty associated with the measurement result.

4 TRANSMITTER TEST RESULTS

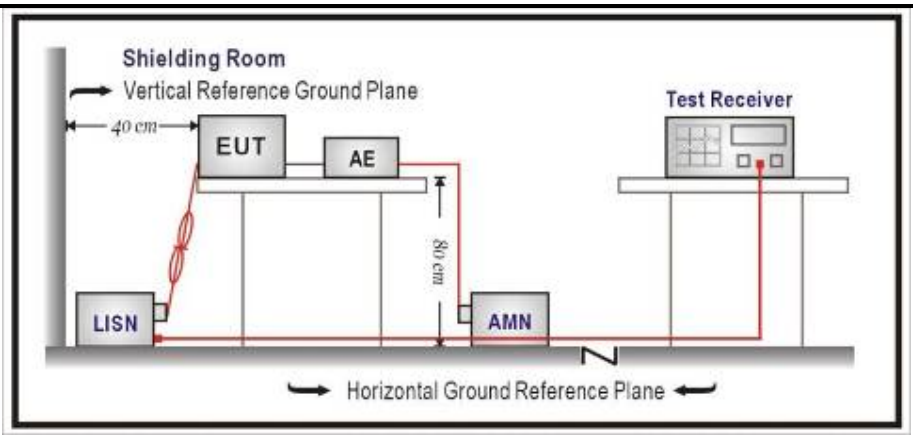
4.1 AC Power Line Conducted Emission	VERDICT: PASS

Limits

FCC Part 15 Subpart C Paragraph 15.207				
Frequency range [MHz]	Limit: QP [dB(μV)[1)]]	Limit: AV [dB(μV) [1)]]	IF BW	Detector(s)
0,15 - 0,50	66 – 56 [2)]	56 - 46 [2)]	9 KHz	QP, AV
0,50 - 5,0	56	46	9 KHz	QP, AV
5,0 - 30	60	50	9 KHz	QP, AV

[1)] At the transition frequency, the lower limit applies.
[2)] The limit decreases linearly with the logarithm of the frequency.

Test Configuration



Test Procedure

	References Rule	Chapter	Item
☒	ANSI C63.10-2013	6.2	Standard test method for ac power-line conducted emissions from unlicensedwireless devices

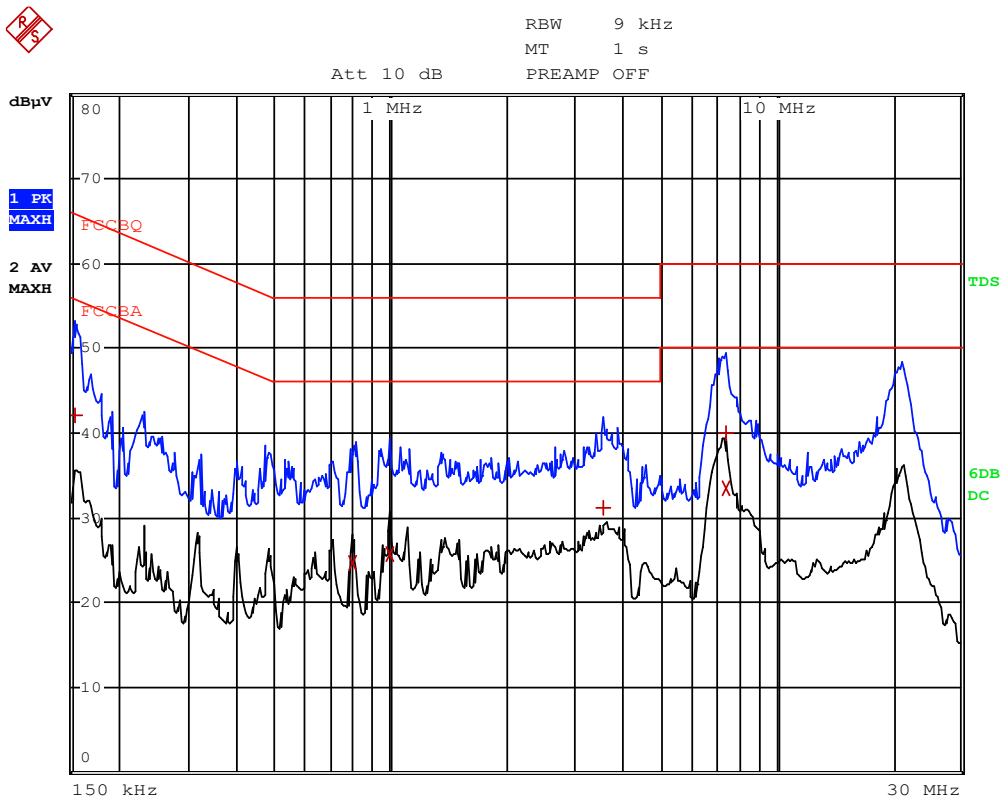
Performed measurements

Port under test			Terminal							
☒	AC mains input power		☒	N	☒	L1	☐	L2	☐	L3
☐	DC input power		☐	Positive (+)			☐	Negative (-)		
Test method applied		☒	Artificial mains network							
		☐	Voltage probe							
Test setup		☒	Table top	☐	Artificial hand applied					
		☐	Floor standing	☐	Other:					
		Refer to the Annex 2 for test setup photo(s).								
Operating mode(s) used		Mode 2								
Envirment condition (temperature; humidiry)		23,0 °C; 45,0 %								
Remark		---								

Model	JXC8720-18
Operation Mode (worst case)	Mode 2
Test voltage	120 Vac, 60 Hz

Results

Live



EDIT PEAK LIST (Final Measurement Results)

Trace1:	FCCBQ
Trace2:	FCCBA
Trace3:	---

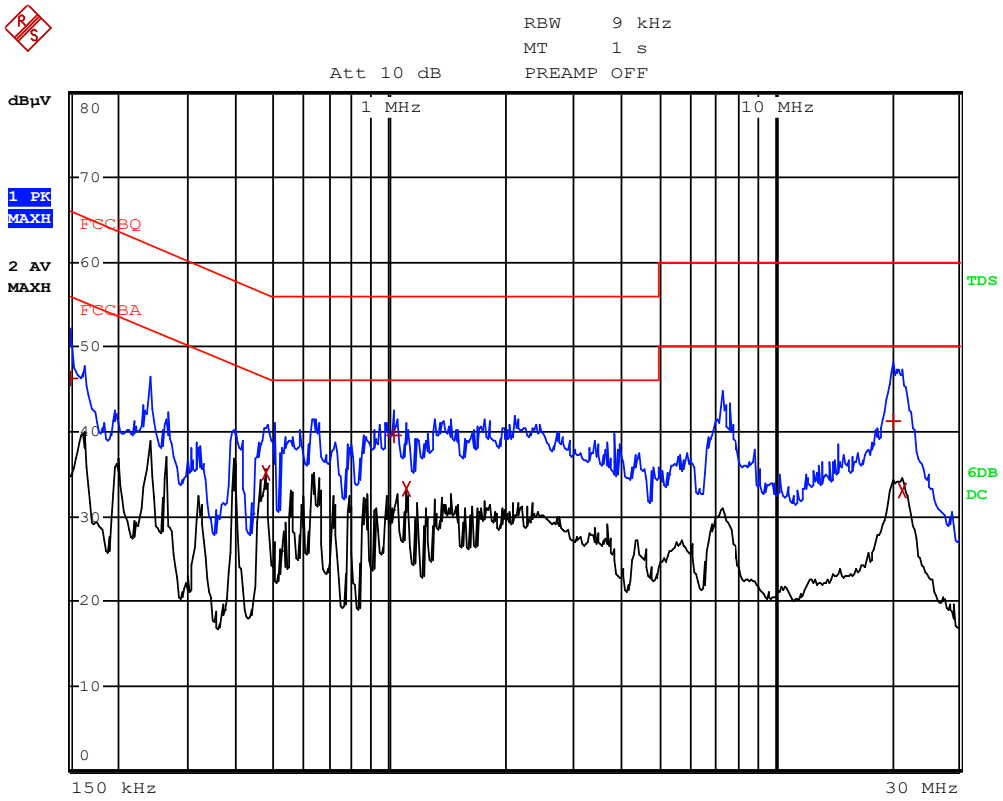
TRACE	FREQUENCY	LEVEL dBµV	DELTA LIMIT dB
2 Average	7.378 MHz	33.41	-16.58
1 Quasi Peak	7.398 MHz	39.94	-20.05
2 Average	994 kHz	25.68	-20.31
2 Average	794 kHz	24.77	-21.22
1 Quasi Peak	154 kHz	42.00	-23.77
1 Quasi Peak	3.554 MHz	31.14	-24.85

Remarks:

1) Level (final measurement) = received value + transducer (Lisn+cable)
2) Delta = Level – Limit

No other significant emissions were measured at the frequency range of interest employing both the QP and AV detectors.

Neutral



EDIT PEAK LIST (Final Measurement Results)

Trace1:	FCCBQ
Trace2:	FCCBA
Trace3:	---

TRACE	FREQUENCY	LEVEL dBµV	DELTA LIMIT dB
2 Average	478 kHz	35.08	-11.28
2 Average	1.11 MHz	33.33	-12.66
1 Quasi Peak	1.026 MHz	39.47	-16.52
2 Average	21.278 MHz	33.12	-16.87
1 Quasi Peak	20.33 MHz	41.24	-18.75
1 Quasi Peak	150 kHz	46.21	-19.78

Remarks:

1) Level (final measurement) = received value + transducer (Lisn+cable)
2) Delta = Level – Limit

No other significant emissions were measured at the frequency range of interest employing both the QP and AV detectors.

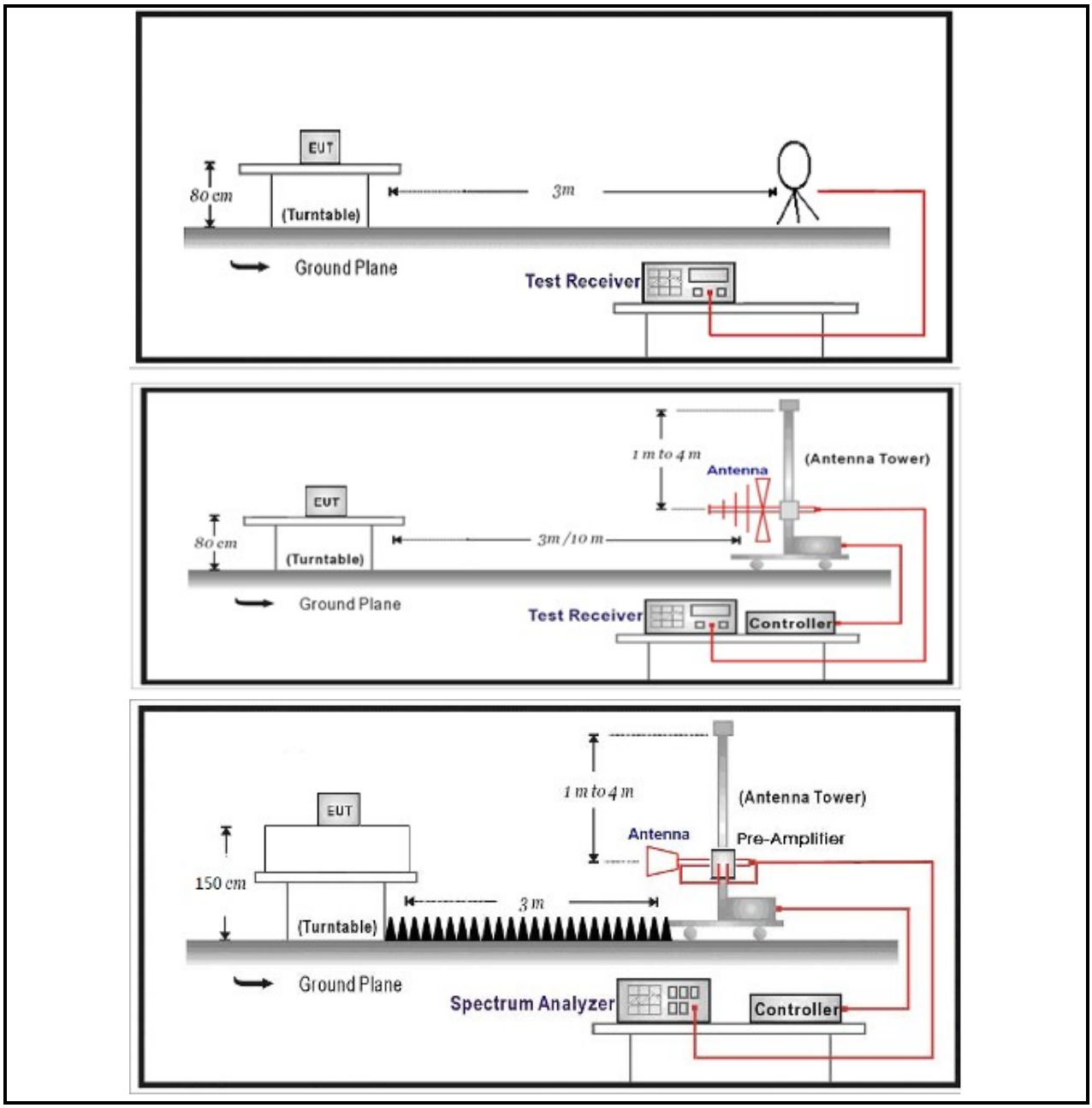
4.2 Emissions in non-restricted frequency bands — VERDICT: PASS

Emissions Limit 15.209(a)			
Frequency (MHz)	Field strength (μV/m)	Field strength (dBμV/m)	Measurement distance (m)
0.009 - 0.49	2400/F(kHz)	48.5 – 13.8	300(Note 1)
0.49 - 1.705	24000/F(kHz)	33.8 - 23	30(Note 1)
1.705 - 30	30	29.5	30(Note 1)
30 - 88	100	40	3(Note 2)
88 - 216	150	43.5	3(Note 2)
216 - 960	200	46	3(Note 2)
Above 960	500	54	3(Note 2)

Note 1: At frequencies below 30 MHz, measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field. Pending the development of an appropriate measurement procedure for measurements performed below 30 MHz, when performing measurements at a closer distance than specified, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade).

Note 2: At frequencies at or above 30 MHz, measurements may be performed at a distance other than what is specified provided: measurements are not made in the near field except where it can be shown that near field measurements are appropriate due to the characteristics of the device; and it can be demonstrated that the signal levels needed to be measured at the distance employed can be detected by the measurement equipment. Measurements shall not be performed at a distance greater than 30 meters unless it can be further demonstrated that measurements at a distance of 30 meters or less are impractical. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse linear-distance for field strength measurements; inverse-linear-distance-squared for power density measurements).

Test Configuration



Test Procedure

	References Rule	Chapter	Description
☒	ANSI C63.10	11.12	Emissions in restricted frequency bands
	☒ ANSI C63.10	11.12.1	Radiated emission measurements
	☒ ANSI C63.10	11.12.2.7	Radiated spurious emission test
	☒ ANSI C63.10	6.4	Radiated emissions from unlicensed wireless devices below 30 MHz
	☒ ANSI C63.10	6.5	Radiated emissions from unlicensed wireless devices in the frequency range of 30 MHz to 1000 MHz
	☒ ANSI C63.10	6.6	Radiated emissions from unlicensed wireless devices above 1 GHz

Performed measurements

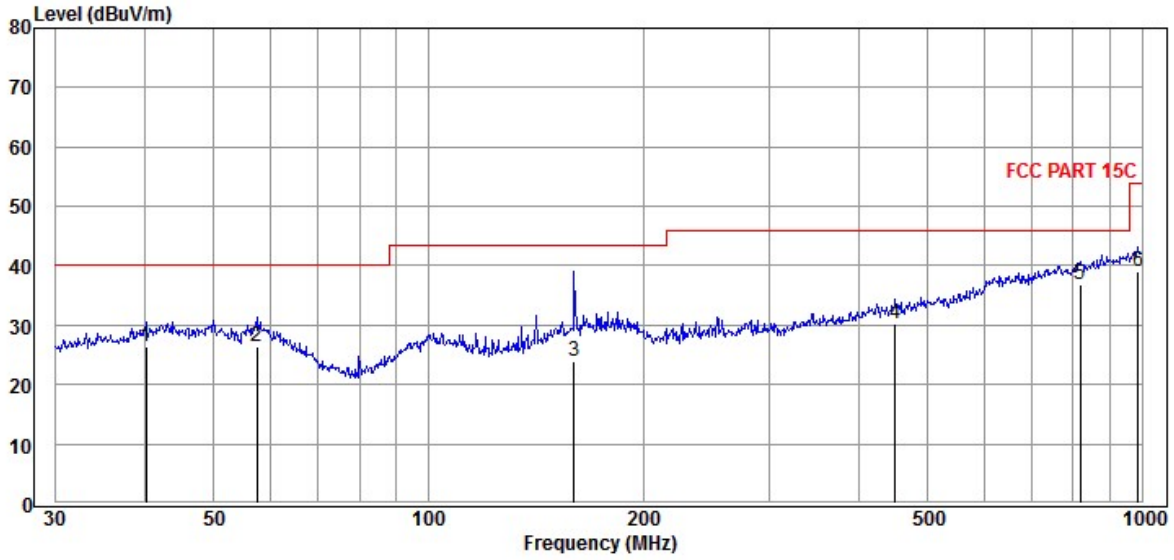
Port under test	Enclosure port	
Test method applied	☐	Conducted measurement
	☒	Radiated measurement
Test setup	Refer to the Annex 3 for test setup photo(s).	
Operating mode(s) used	Mode 1-2	
Remark	1)The test frequency range, 9kHz~30MHz, 18GHz~26GHz, both of the worst case are at least 20dB below the limits, therefore no data appear in the report. 2)The EUT are tested in three orientations. The record is the worst orientation which refer to the Annex 3 for test setup photo(s).	

Results of 30 – 1000 MHz

Model	JXC8720-18
Operation Mode	Mode 1 @2412MHz, IEEE 802.11 b (worst case)
Test voltage	3.3 Vdc

Results

Horizontal



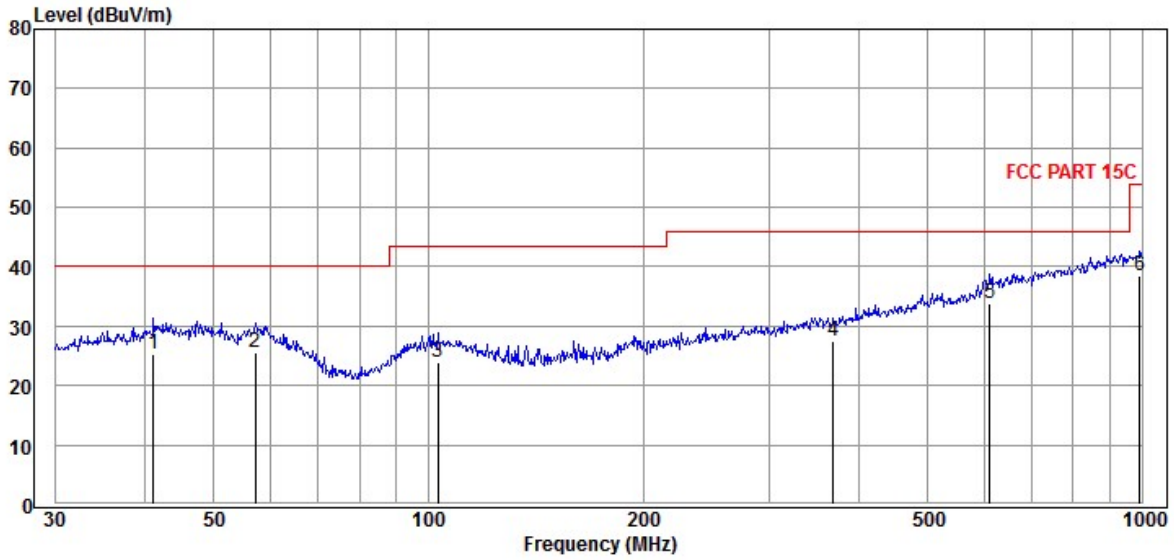
Freq (MHz)	Reading (dBuV)	C.F (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin=limit-result (dB)
40.14	10.92	15.59	26.51	40.00	13.49
57.39	10.16	16.13	26.29	40.00	13.71
159.78	13.65	10.32	23.97	43.50	19.53
451.14	10.71	19.53	30.24	46.00	15.76
818.83	11.82	24.98	36.80	46.00	9.20
986.07	11.94	27.11	39.05	54.00	14.95

Remarks:

1) C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain
2) Result = Reading + C.F (Correction Factor)

No other significant emissions were measured at the frequency range of interest employing the QP detectors.

Vertical



Freq (MHz)	Reading (dBuV)	C.F (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin=limit-result (dB)
41.13	9.38	15.94	25.32	40.00	14.68
57.19	9.42	16.08	25.50	40.00	14.50
103.08	9.92	13.95	23.87	43.50	19.63
369.41	9.94	17.52	27.46	46.00	18.54
612.06	11.08	22.72	33.80	46.00	12.20
993.01	11.49	27.08	38.57	54.00	15.43

Remarks:

1) C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain
2) Result = Reading + C.F (Correction Factor)

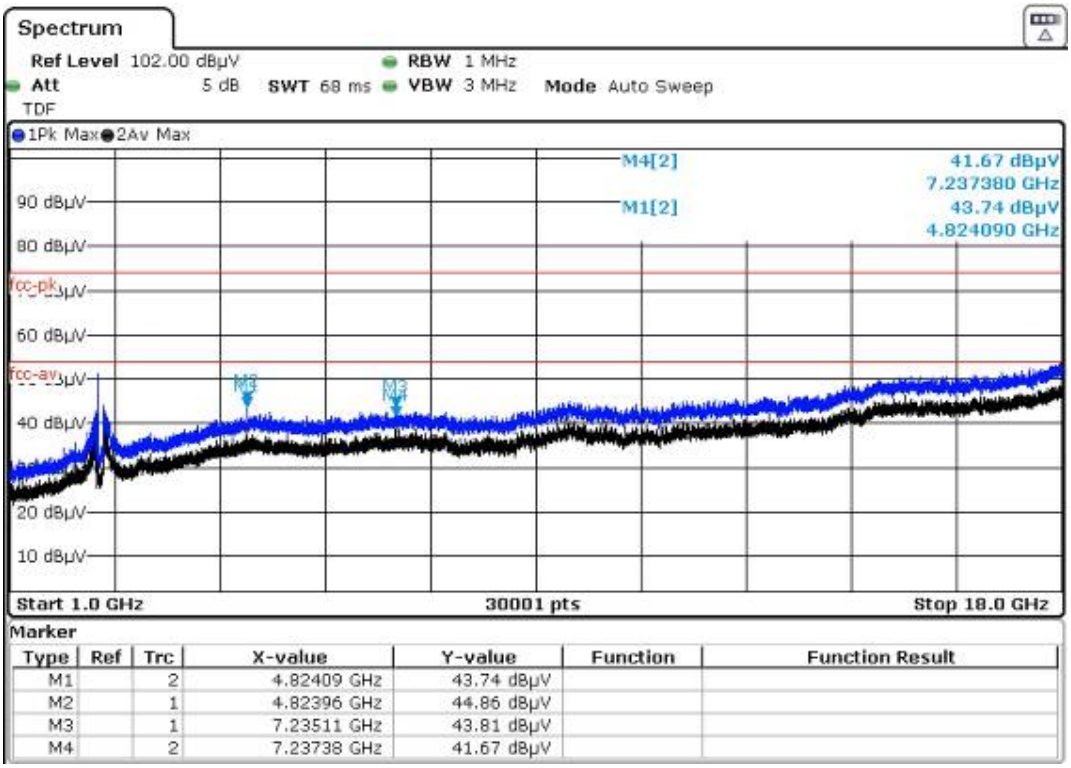
No other significant emissions were measured at the frequency range of interest employing the QP detectors.

Results of 1 – 18 GHz

Model	JXC8720-18
Operation Mode (worst case)	Mode 1 @2412 MHz, IEEE 802.11 b
Test voltage	3.3 Vdc

Results

Horizontal



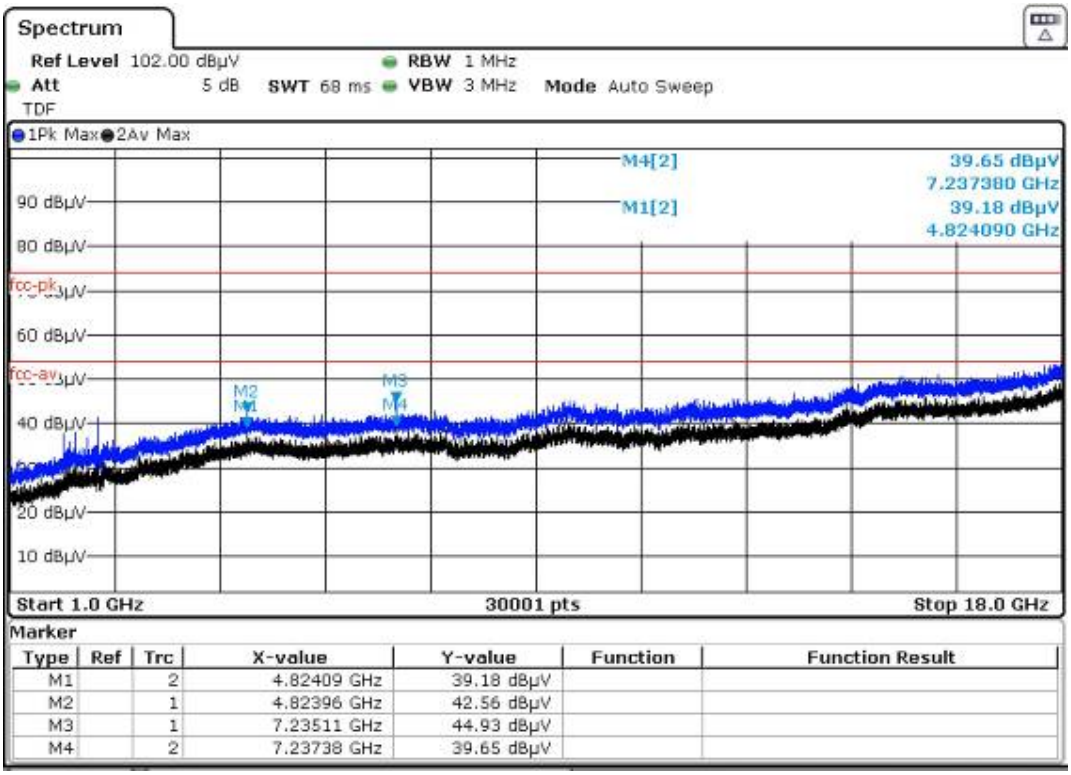
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		2	4.82409 GHz	43.74 dBµV		
M2		1	4.82396 GHz	44.86 dBµV		
M3		1	7.23511 GHz	43.81 dBµV		
M4		2	7.23738 GHz	41.67 dBµV		

Remarks: Y-Value = received value + Correction Factor (Antenna factor + Cable loss - Preamp gain)

No other significant emissions were measured at the frequency range of interest employing the PK and AV detectors.

Vertical



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		2	4.82409 GHz	39.18 dBµV		
M2		1	4.82396 GHz	42.56 dBµV		
M3		1	7.23511 GHz	44.93 dBµV		
M4		2	7.23738 GHz	39.65 dBµV		

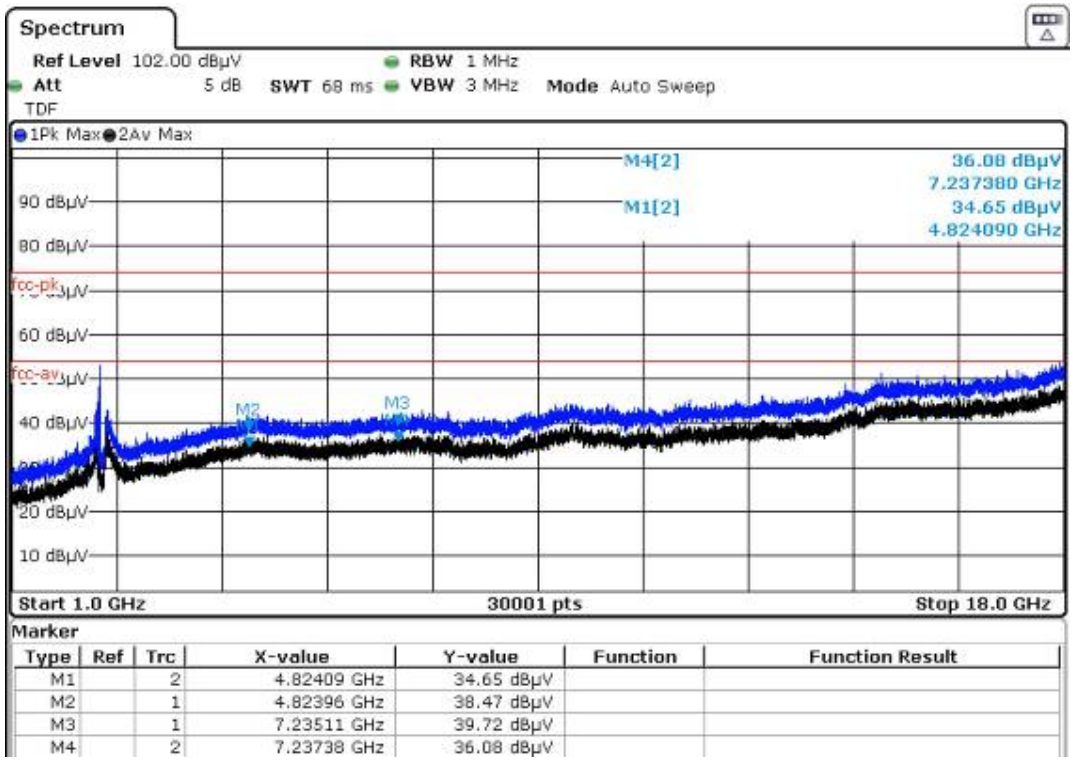
Remarks: Y-Value = received value + Correction Factor (Antenna factor + Cable loss - Preamp gain)

No other significant emissions were measured at the frequency range of interest employing the PK and AV detectors.

Model	JXC8720-18
Operation Mode (worst case)	Mode 1 @2412 MHz, IEEE 802.11 g
Test voltage	3.3 Vdc

Results

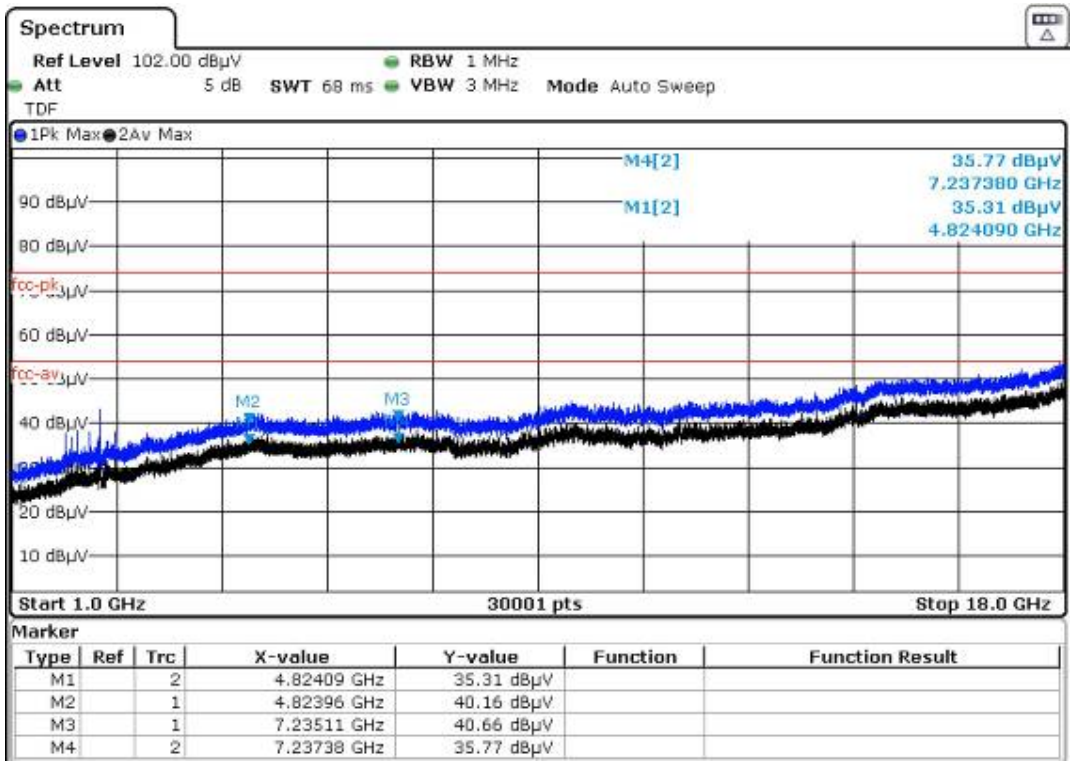
Horizontal



Remarks: Y-Value = received value + Correction Factor (Antenna factor + Cable loss - Preamp gain)

No other significant emissions were measured at the frequency range of interest employing the PK and AV detectors.

Vertical



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		2	4.82409 GHz	35.31 dBµV		
M2		1	4.82396 GHz	40.16 dBµV		
M3		1	7.23511 GHz	40.66 dBµV		
M4		2	7.23738 GHz	35.77 dBµV		

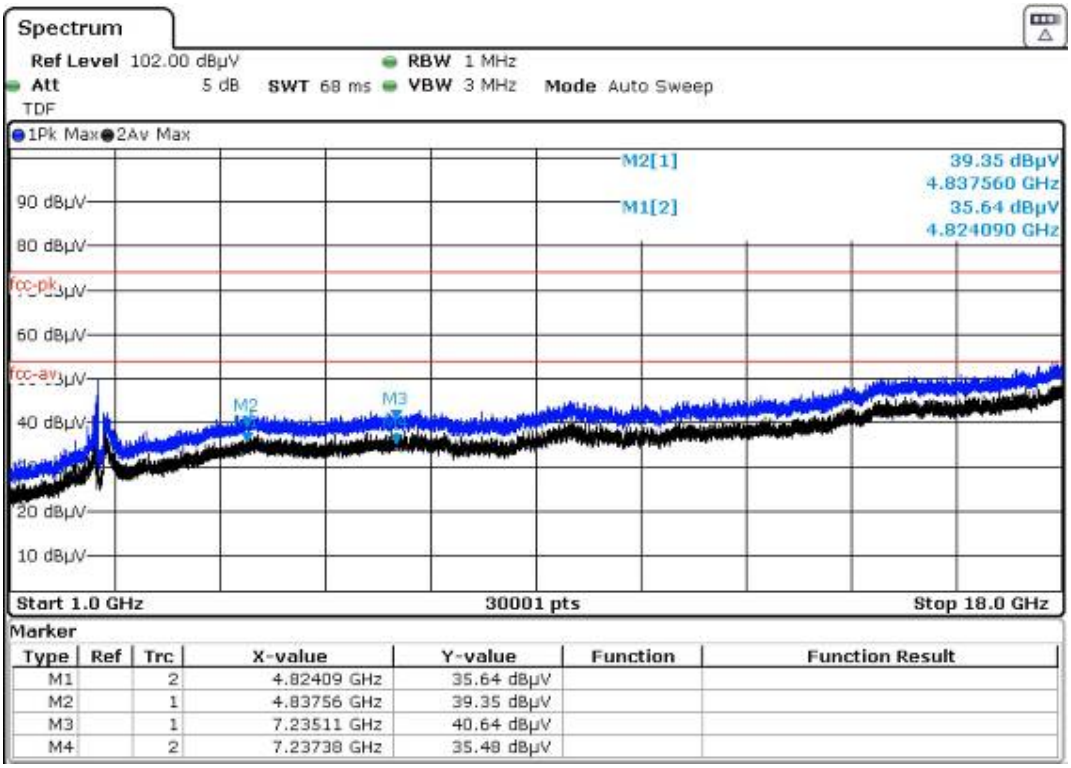
Remarks: Y-Value = received value + Correction Factor (Antenna factor + Cable loss - Preamp gain)

No other significant emissions were measured at the frequency range of interest employing the PK and AV detectors.

Model	JXC8720-18
Operation Mode (worst case)	Mode 1 @2412 MHz, IEEE 802.11 n20
Test voltage	3.3 Vdc

Results

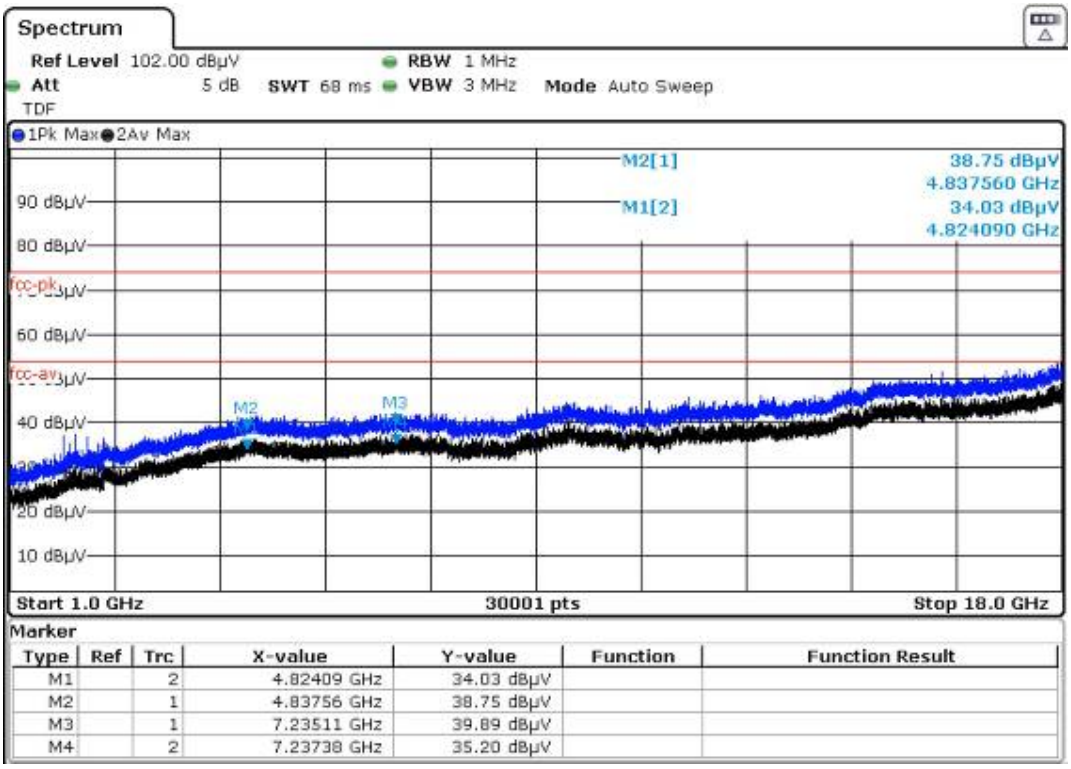
Horizontal



Remarks: Y-Value = received value + Correction Factor (Antenna factor + Cable loss - Preamp gain)

No other significant emissions were measured at the frequency range of interest employing the PK and AV detectors.

Vertical



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		2	4.82409 GHz	34.03 dBµV		
M2		1	4.83756 GHz	38.75 dBµV		
M3		1	7.23511 GHz	39.89 dBµV		
M4		2	7.23738 GHz	35.20 dBµV		

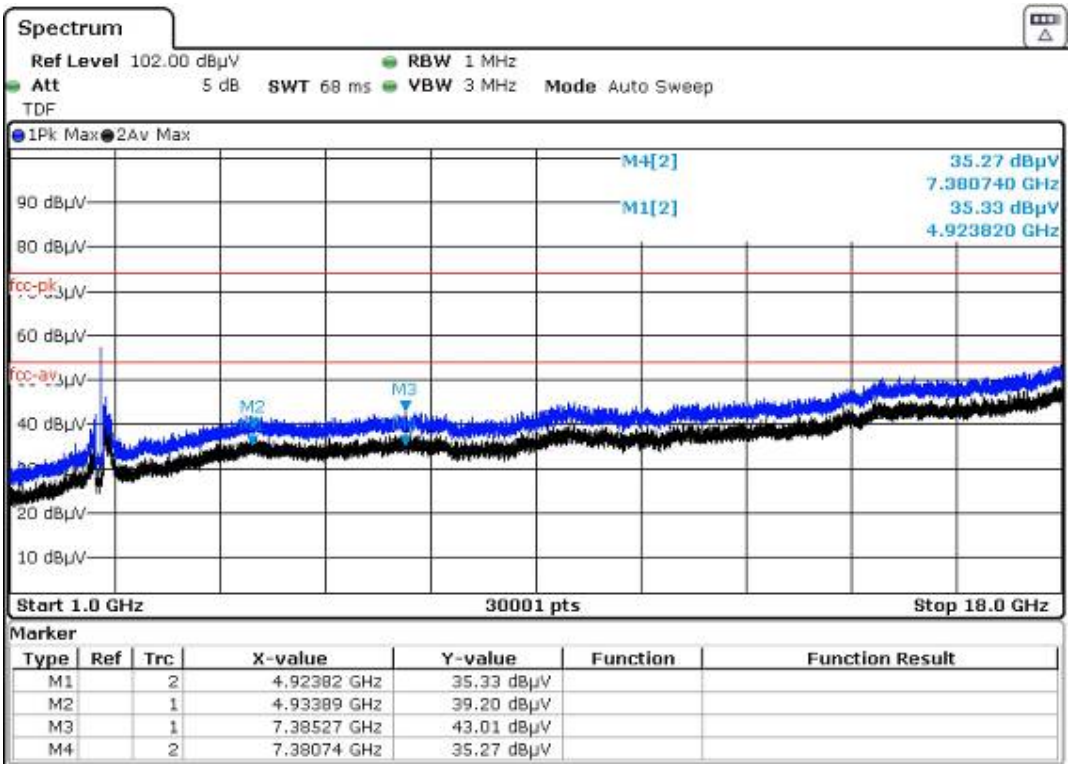
Remarks: Y-Value = received value + Correction Factor (Antenna factor + Cable loss - Preamp gain)

No other significant emissions were measured at the frequency range of interest employing the PK and AV detectors.

Model	JXC8720-18
Operation Mode (worst case)	Mode 1 @2462 MHz, IEEE 802.11 b
Test voltage	3.3 Vdc

Results

Horizontal



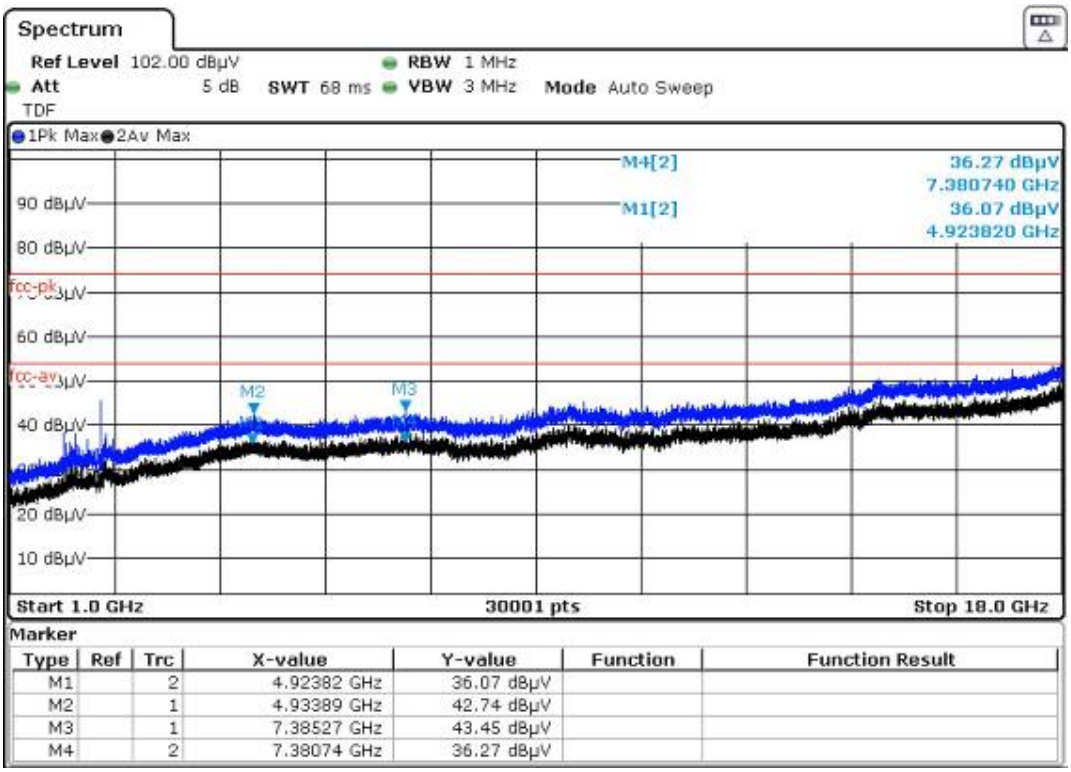
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		2	4.92382 GHz	35.33 dBµV		
M2		1	4.93389 GHz	39.20 dBµV		
M3		1	7.38527 GHz	43.01 dBµV		
M4		2	7.38074 GHz	35.27 dBµV		

Remarks: Y-Value = received value + Correction Factor (Antenna factor + Cable loss - Preamp gain)

No other significant emissions were measured at the frequency range of interest employing the PK and AV detectors.

Vertical



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		2	4.92382 GHz	36.07 dBµV		
M2		1	4.93389 GHz	42.74 dBµV		
M3		1	7.38527 GHz	43.45 dBµV		
M4		2	7.38074 GHz	36.27 dBµV		

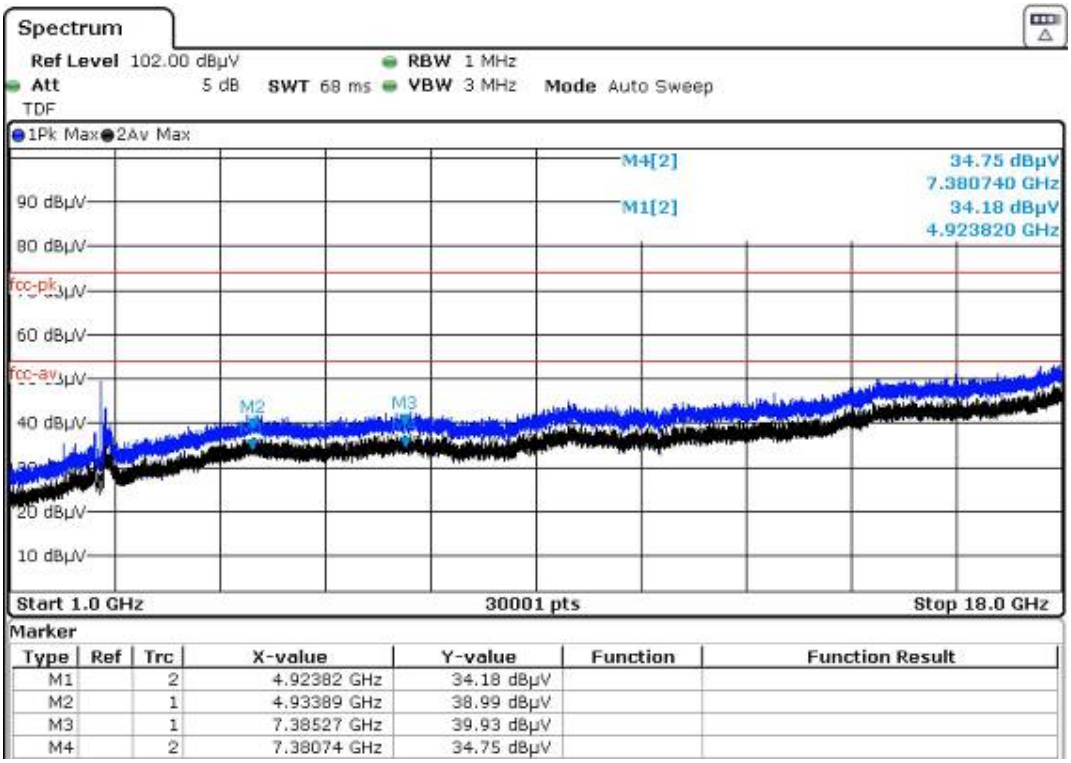
Remarks: Y-Value = received value + Correction Factor (Antenna factor + Cable loss - Preamp gain)

No other significant emissions were measured at the frequency range of interest employing the PK and AV detectors.

Model	JXC8720-18
Operation Mode (worst case)	Mode 1 @2462 MHz, IEEE 802.11 g
Test voltage	3.3 Vdc

Results

Horizontal



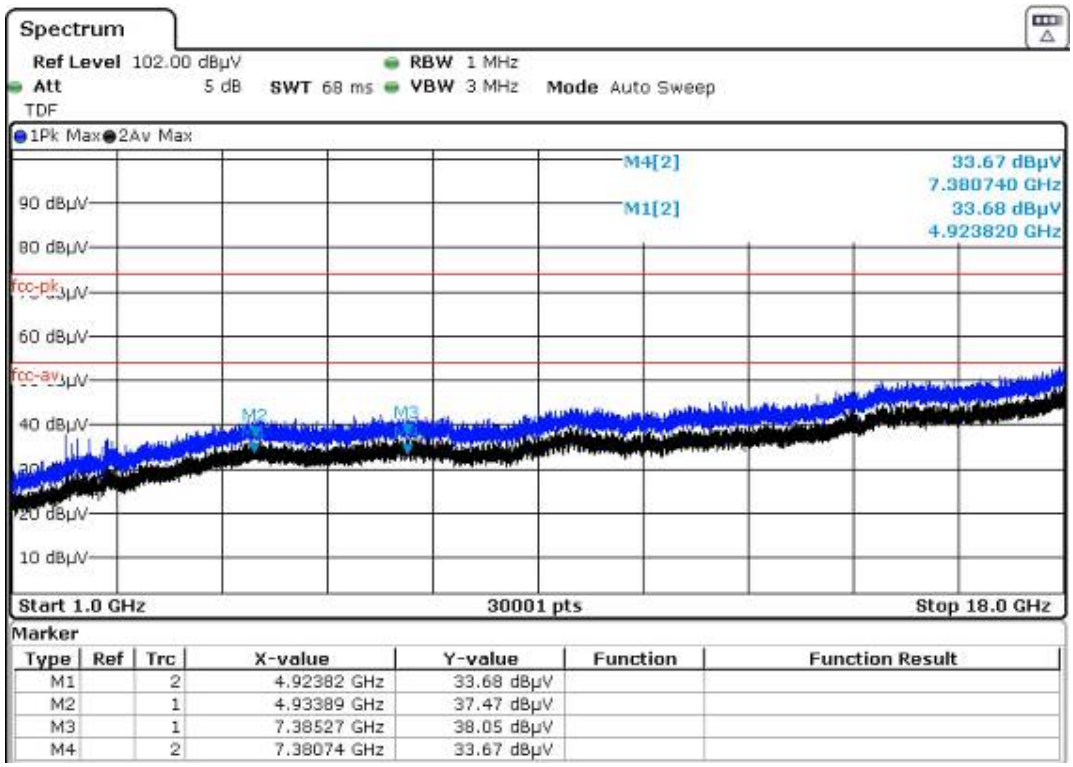
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		2	4.92382 GHz	34.18 dBµV		
M2		1	4.93389 GHz	38.99 dBµV		
M3		1	7.38527 GHz	39.93 dBµV		
M4		2	7.38074 GHz	34.75 dBµV		

Remarks: Y-Value = received value + Correction Factor (Antenna factor + Cable loss - Preamp gain)

No other significant emissions were measured at the frequency range of interest employing the PK and AV detectors.

Vertical



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		2	4.92382 GHz	33.68 dBµV		
M2		1	4.93389 GHz	37.47 dBµV		
M3		1	7.38527 GHz	38.05 dBµV		
M4		2	7.38074 GHz	33.67 dBµV		

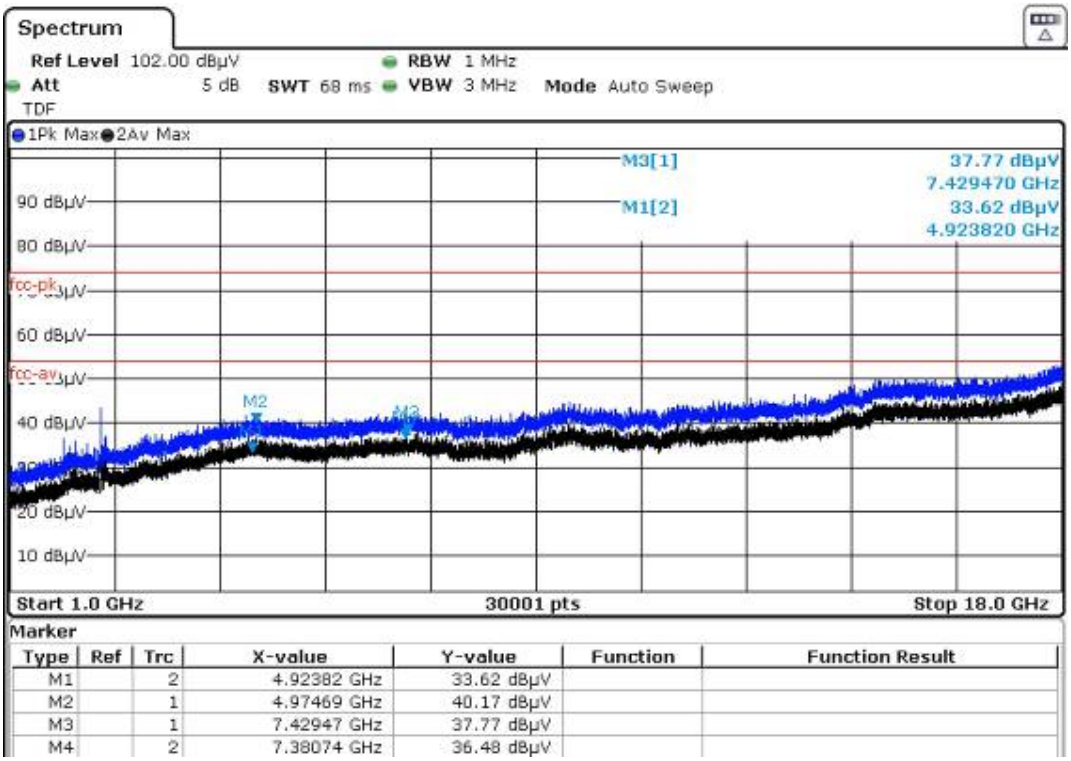
Remarks: Y-Value = received value + Correction Factor (Antenna factor + Cable loss - Preamp gain)

No other significant emissions were measured at the frequency range of interest employing the PK and AV detectors.

Model	JXC8720-18
Operation Mode (worst case)	Mode 1 @2462 MHz, IEEE 802.11 n20
Test voltage	3.3 Vdc

Results

Horizontal



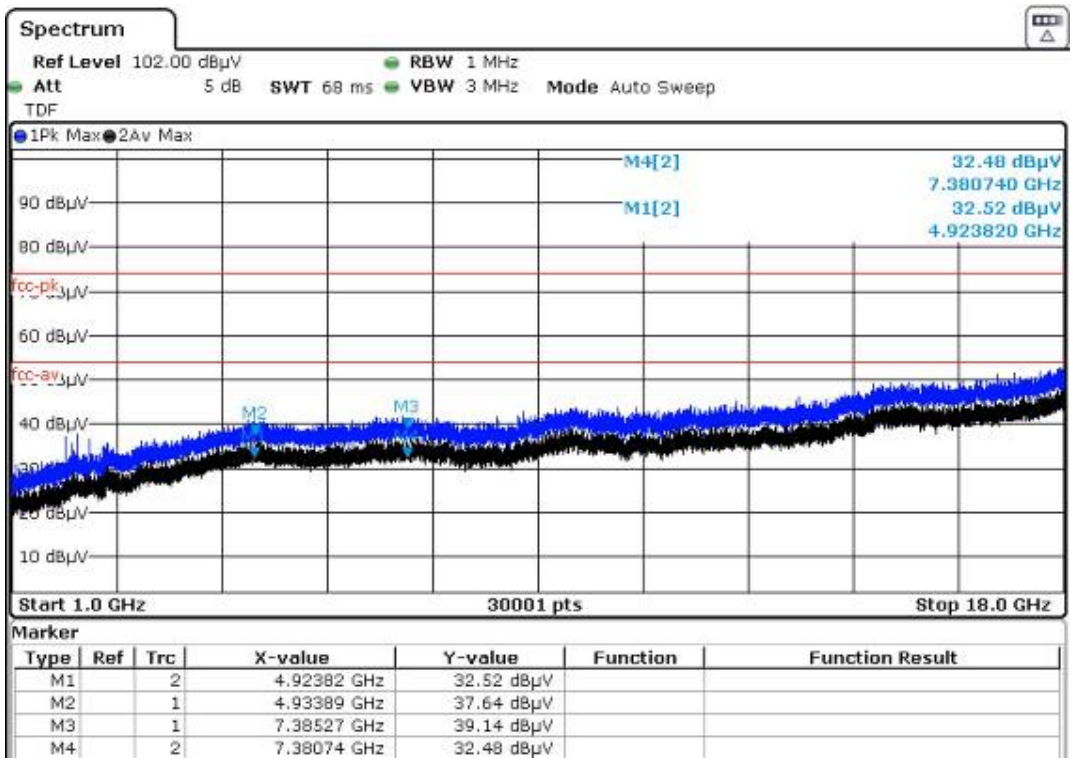
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		2	4.92382 GHz	33.62 dBµV		
M2		1	4.97469 GHz	40.17 dBµV		
M3		1	7.42947 GHz	37.77 dBµV		
M4		2	7.38074 GHz	36.48 dBµV		

Remarks: Y-Value = received value + Correction Factor (Antenna factor + Cable loss - Preamp gain)

No other significant emissions were measured at the frequency range of interest employing the PK and AV detectors.

Vertical



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		2	4.92382 GHz	32.52 dBµV		
M2		1	4.93389 GHz	37.64 dBµV		
M3		1	7.38527 GHz	39.14 dBµV		
M4		2	7.38074 GHz	32.48 dBµV		

Remarks: Y-Value = received value + Correction Factor (Antenna factor + Cable loss - Preamp gain)

No other significant emissions were measured at the frequency range of interest employing the PK and AV detectors.

4.3 Emissions in restricted frequency bands	VERDICT: PASS

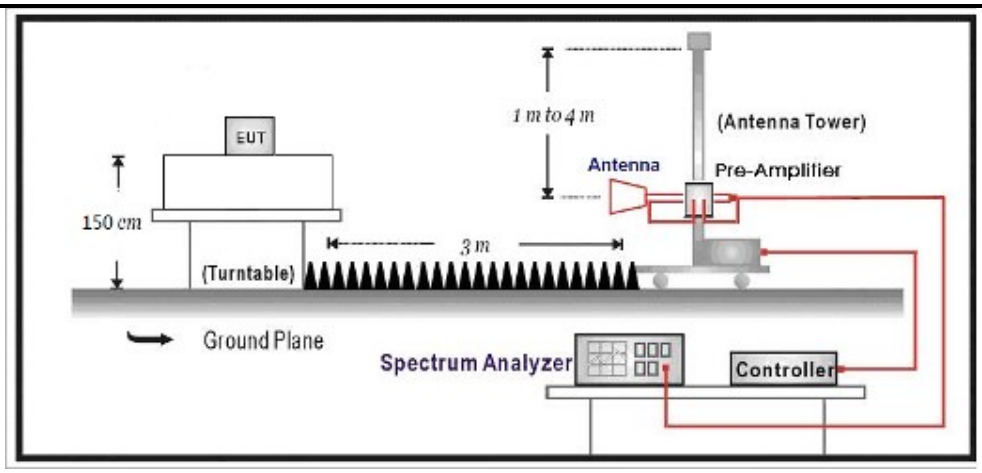
Restricted Bands of operation of FCC			
Frequency (MHz)	Frequency (MHz)	Frequency (MHz)	Frequency (GHz)
0.090 – 0.110	16.42 – 16.423	399.9 – 410	4.5 – 5.15
0.495 – 0.505	16.69475 –16.69525	608 – 614	5.35 – 5.46
2.1735 – 2.1905	16.80425 – 16.80475	960 – 1240	7.25 – 7.75
4.125 – 4.128	25.5 – 25.67	1300 – 1427	8.025 – 8.5
4.17725 – 4.17775	37.5 – 38.25	1435 – 1626.5	9.0 – 9.2
4.20725 – 4.20775	73 – 74.6	1645.5 – 1646.5	9.3 – 9.5
6.215 – 6.218	74.8 – 75.2	1660 – 1710	10.6 – 12.7
6.26775 – 6.26825	108 – 121.94	1718.8 – 1722.2	13.25 – 13.4
6.31175 – 6.31225	123 – 138	2200 – 2300	14.47 – 14.5
8.291 – 8.294	149.9 – 150.05	2310 – 2390	15.35 – 16.2
8.362 – 8.366	156.52475 – 156.52525	2483.5 – 2500	17.7 – 21.4
8.37625 – 8.38675	156.7 – 156.9	2690 – 2900	22.01 – 23.12
8.81425 – 8.81475	162.0125 – 167.17	3260 – 3267	23.6 – 24.0
12.29 – 12.293	167.72 – 173.2	3332 – 3339	31.2 – 31.8
12.51975–12.52025	240 – 285	3345.8 – 3358	36.43 – 36.5
12.57675–12.57725	322 – 335.4	3600 – 4400	
13.36 – 13.41			
Restricted Bands of operation for IC			
0.090 - 0.110	13.36 - 13.41	960 - 1427	9.0 - 9.2
0.495 - 0.505	16.42 - 16.423	1435 - 1626.5	9.3 - 9.5
2.1735 - 2.1905	16.69475 - 16.69525	1645.5 - 1646.5	10.6 - 12.7
3.020 - 3.026	16.80425 - 16.80475	1660 - 1710	13.25 - 13.4
4.125 - 4.128	25.5 - 25.67	1718.8 - 1722.2	14.47 - 14.5
4.17725 - 4.17775	37.5 - 38.25	2200 - 2300	15.35 - 16.2
4.20725 - 4.20775	73 - 74.6	2310 - 2390	17.7 - 21.4
5.677 - 5.683	74.8 - 75.2	2483.5 - 2500	22.01 - 23.12
6.215 - 6.218	108 - 138	2655 - 2900	23.6 - 24.0
6.26775 - 6.26825	149.9 - 150.05	3260 - 3267	31.2 - 31.8
6.31175 - 6.31225	156.52475 - 156.52525	3332 - 3339	36.43 - 36.5
8.291 - 8.294	156.7 - 156.9	3345.8 - 3358	Above 38.6
8.362 - 8.366	162.0125 - 167.17	3500 - 4400	
8.37625 - 8.38675	167.72 - 173.2	4500 - 5150	
8.41425 - 8.41475	240 - 285	5350 - 5460	
12.29 - 12.293	322 - 335.4	7250 - 7750	
12.51975 - 12.52025	399.9 - 410	8025 - 8500	
12.57675 - 12.57725	608 - 614	--	

Restricted Band Emissions Limit			
Frequency (MHz)	Field strength (μV/m)	Field strength (dBμV/m)	Measurement distance (m)
0.009 - 0.49	2400/F(kHz)	48.5 – 13.8	300(Note 1)
0.49 - 1.705	24000/F(kHz)	33.8 - 23	30(Note 1)
1.705 - 30	30	29.5	30(Note 1)
30 - 88	100	40	3(Note 2)
88 - 216	150	43.5	3(Note 2)
216 - 960	200	46	3(Note 2)
Above 960	500	54	3(Note 2)

Note 1: At frequencies below 30 MHz, measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field. Pending the development of an appropriate measurement procedure for measurements performed below 30 MHz, when performing measurements at a closer distance than specified, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade).

Note 2: At frequencies at or above 30 MHz, measurements may be performed at a distance other than what is specified provided: measurements are not made in the near field except where it can be shown that near field measurements are appropriate due to the characteristics of the device; and it can be demonstrated that the signal levels needed to be measured at the distance employed can be detected by the measurement equipment. Measurements shall not be performed at a distance greater than 30 meters unless it can be further demonstrated that measurements at a distance of 30 meters or less are impractical. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse linear-distance for field strength measurements; inverse-linear-distance-squared for power density measurements).

Test Configuration



Test Procedure

	References Rule	Chapter	Description
☒	ANSI C63.10	11.12	Emissions in restricted frequency bands
	☒ ANSI C63.10	11.12.1	Radiated emission measurements
	☒ ANSI C63.10	11.12.2.7	Radiated spurious emission test
	☐ ANSI C63.10	6.4	Radiated emissions from unlicensed wireless devices below 30 MHz
	☐ ANSI C63.10	6.5	Radiated emissions from unlicensed wireless devices in the frequency range of 30 MHz to 1000 MHz
	☒ ANSI C63.10	6.6	Radiated emissions from unlicensed wireless devices above 1 GHz

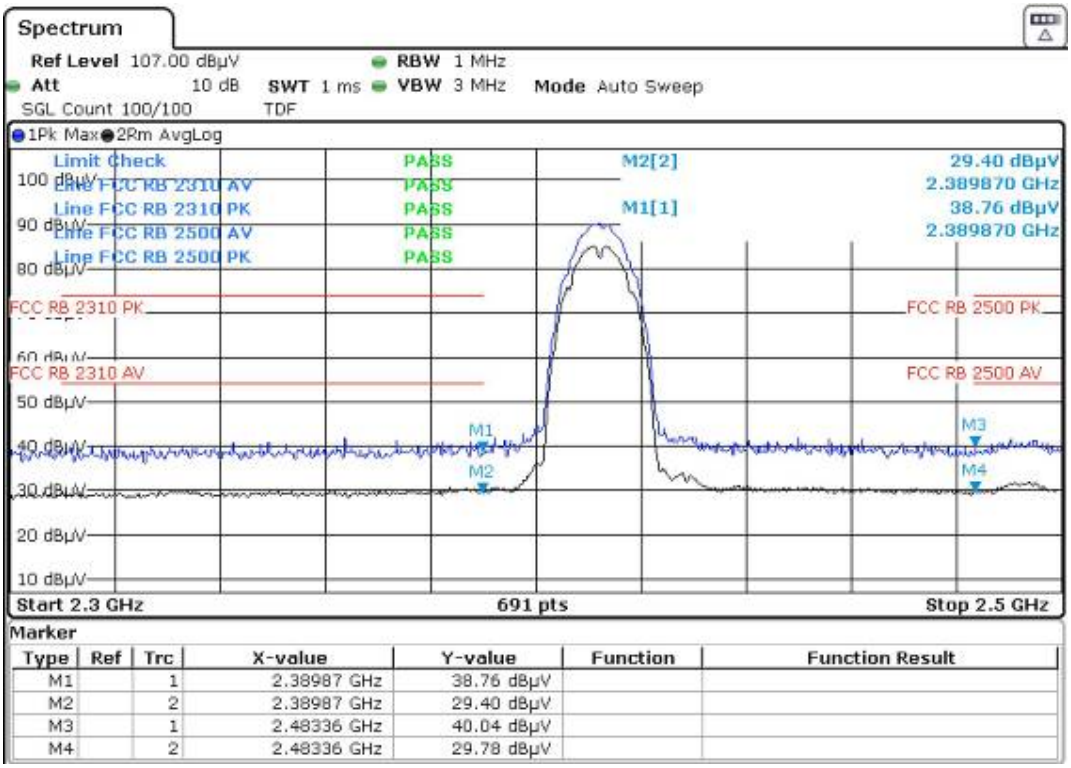
Performed measurements

Port under test	Enclosure port	
Test method applied	☐	Conducted measurement
	☒	Radiated measurement
Test setup	Refer to the Annex 3 for test setup photo(s).	
Operating mode(s) used	Mode 1	
Remark	---	

Model	JXC8720-18
Operation Mode (worst case)	Mode 1 @2412 MHz, IEEE 802.11 b
Test voltage	3.3 Vdc

Results

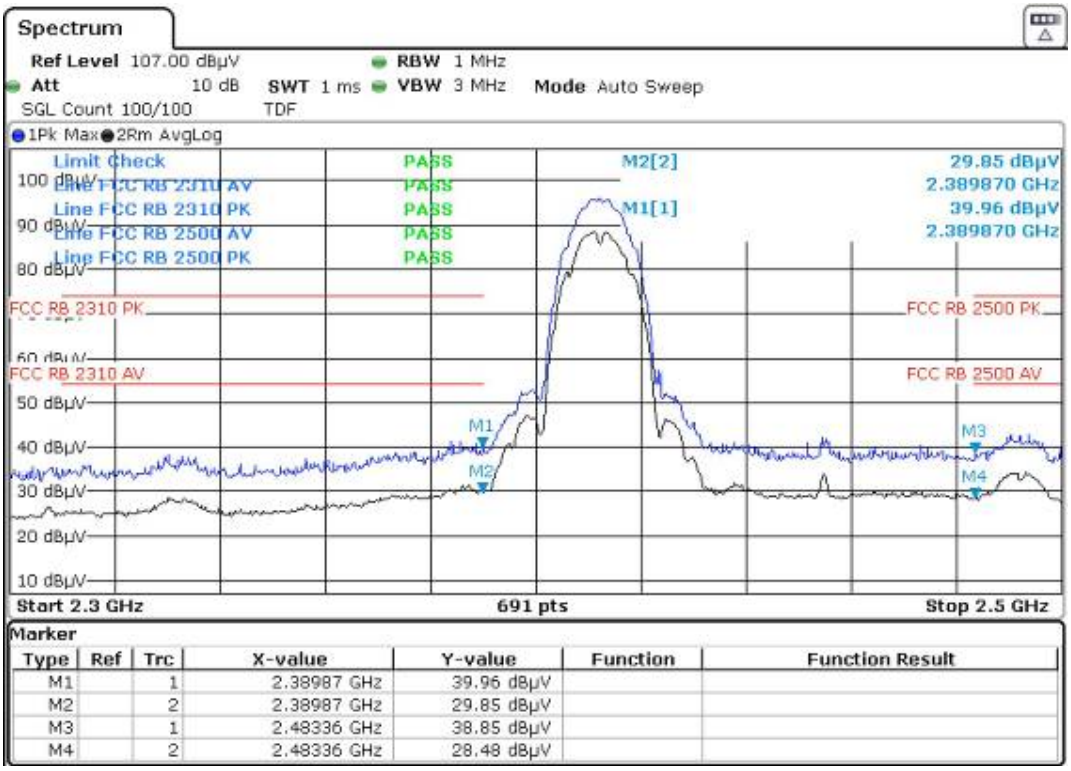
Horizontal



Remarks: Y-Value = received value + Correction Factor (Antenna factor + Cable loss - Preamp gain)

No other significant emissions were measured at the frequency range of interest employing the PK and AV detectors.

Vertical



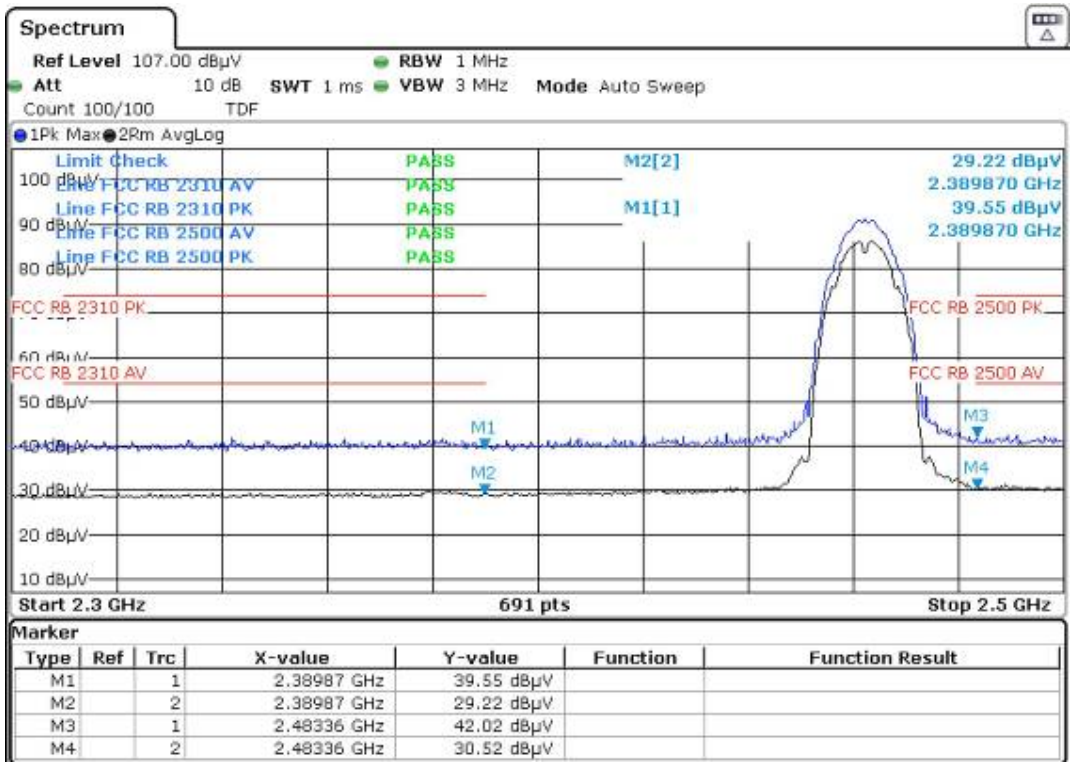
Remarks: Y-Value = received value + Correction Factor (Antenna factor + Cable loss - Preamp gain)

No other significant emissions were measured at the frequency range of interest employing the PK and AV detectors.

Model	JXC8720-18
Operation Mode (worst case)	Mode 1 @2462 MHz, IEEE 802.11 b
Test voltage	3.3 Vdc

Results

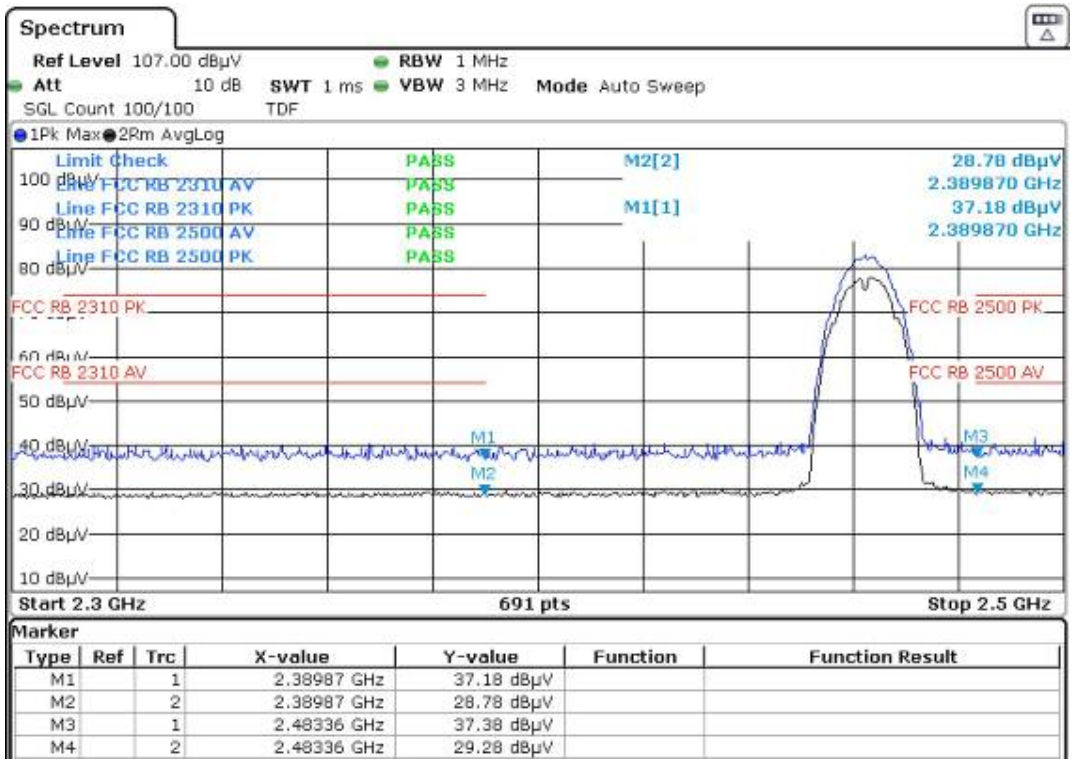
Horizontal



Remarks: Y-Value = received value + Correction Factor (Antenna factor + Cable loss - Preamp gain)

No other significant emissions were measured at the frequency range of interest employing the PK and AV detectors.

Vertical



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.38987 GHz	37.18 dBµV		
M2		2	2.38987 GHz	28.78 dBµV		
M3		1	2.48336 GHz	37.38 dBµV		
M4		2	2.48336 GHz	29.28 dBµV		

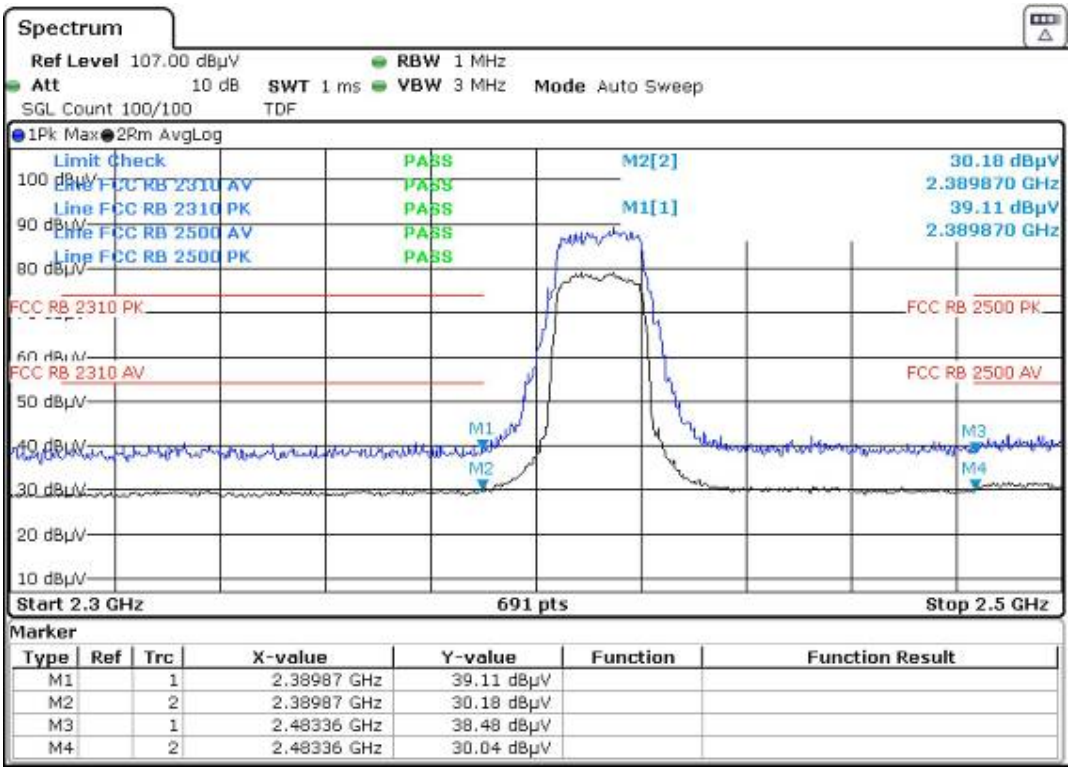
Remarks: Y-Value = received value + Correction Factor (Antenna factor + Cable loss - Preamp gain)

No other significant emissions were measured at the frequency range of interest employing the PK and AV detectors.

Model	JXC8720-18
Operation Mode (worst case)	Mode 1 @2412 MHz, IEEE 802.11 g
Test voltage	3.3 Vdc

Results

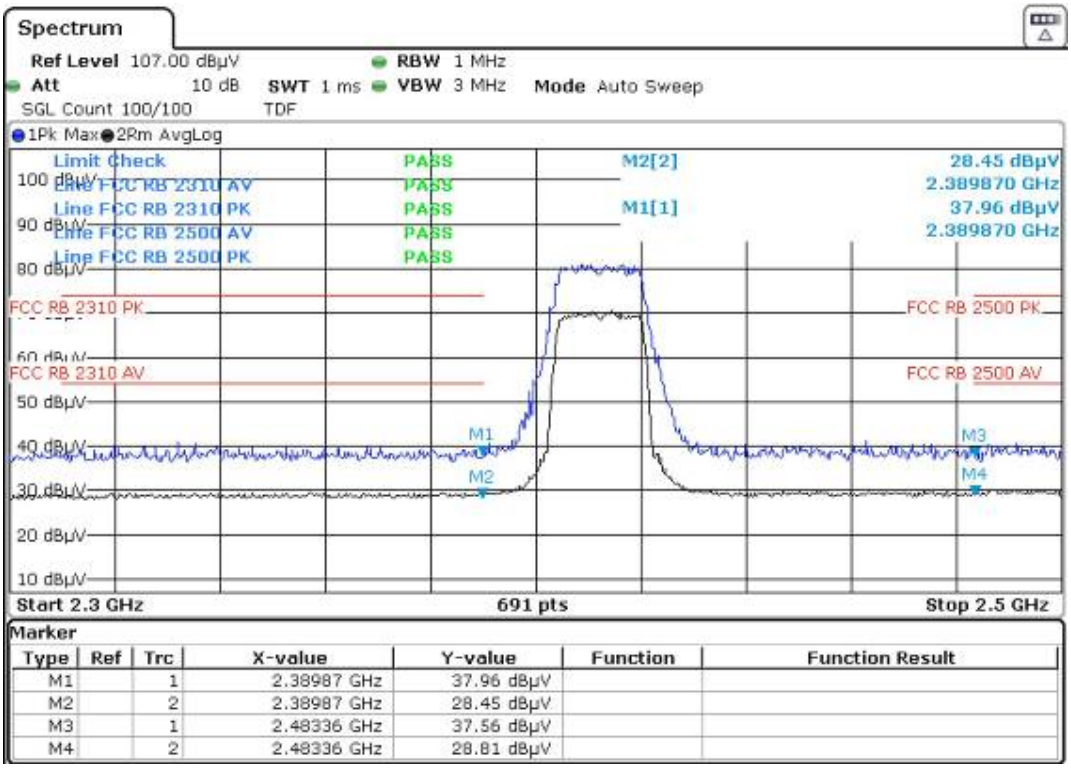
Horizontal



Remarks: Y-Value = received value + Correction Factor (Antenna factor + Cable loss - Preamp gain)

No other significant emissions were measured at the frequency range of interest employing the PK and AV detectors.

Vertical



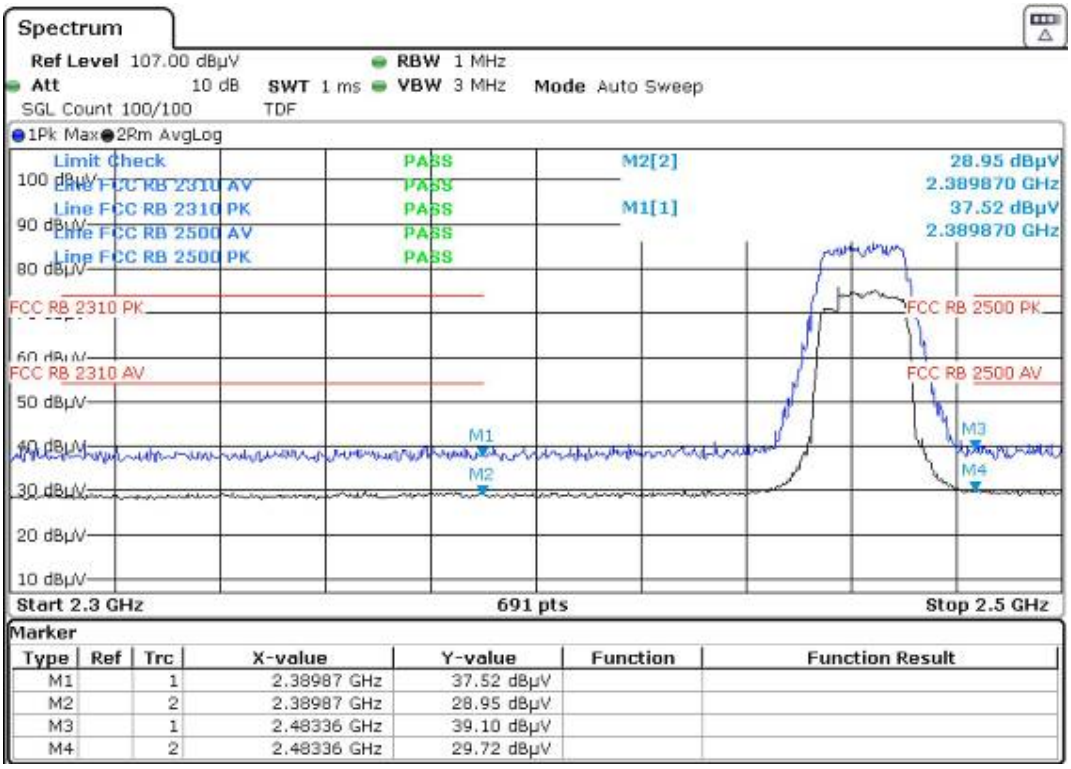
Remarks: Y-Value = received value + Correction Factor (Antenna factor + Cable loss - Preamp gain)

No other significant emissions were measured at the frequency range of interest employing the PK and AV detectors.

Model	JXC8720-18
Operation Mode (worst case)	Mode 1 @2462 MHz, IEEE 802.11 g
Test voltage	3.3 Vdc

Results

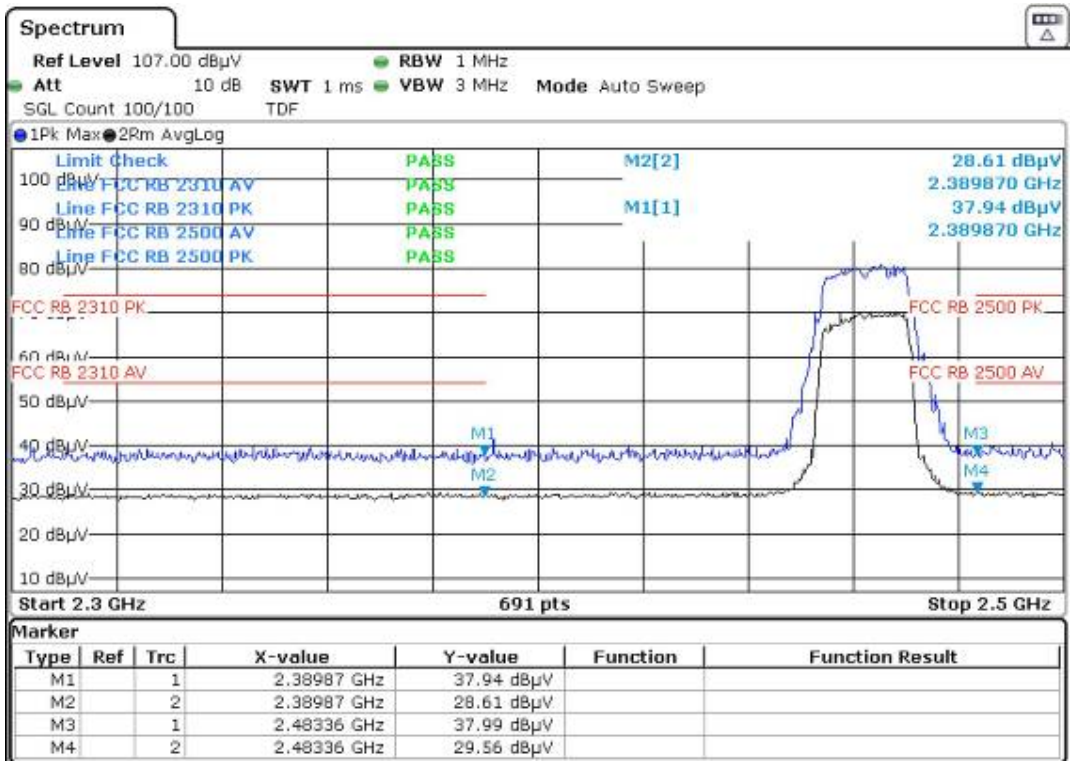
Horizontal



Remarks: Y-Value = received value + Correction Factor (Antenna factor + Cable loss - Preamp gain)

No other significant emissions were measured at the frequency range of interest employing the PK and AV detectors.

Vertical



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.38987 GHz	37.94 dBµV		
M2		2	2.38987 GHz	28.61 dBµV		
M3		1	2.48336 GHz	37.99 dBµV		
M4		2	2.48336 GHz	29.56 dBµV		

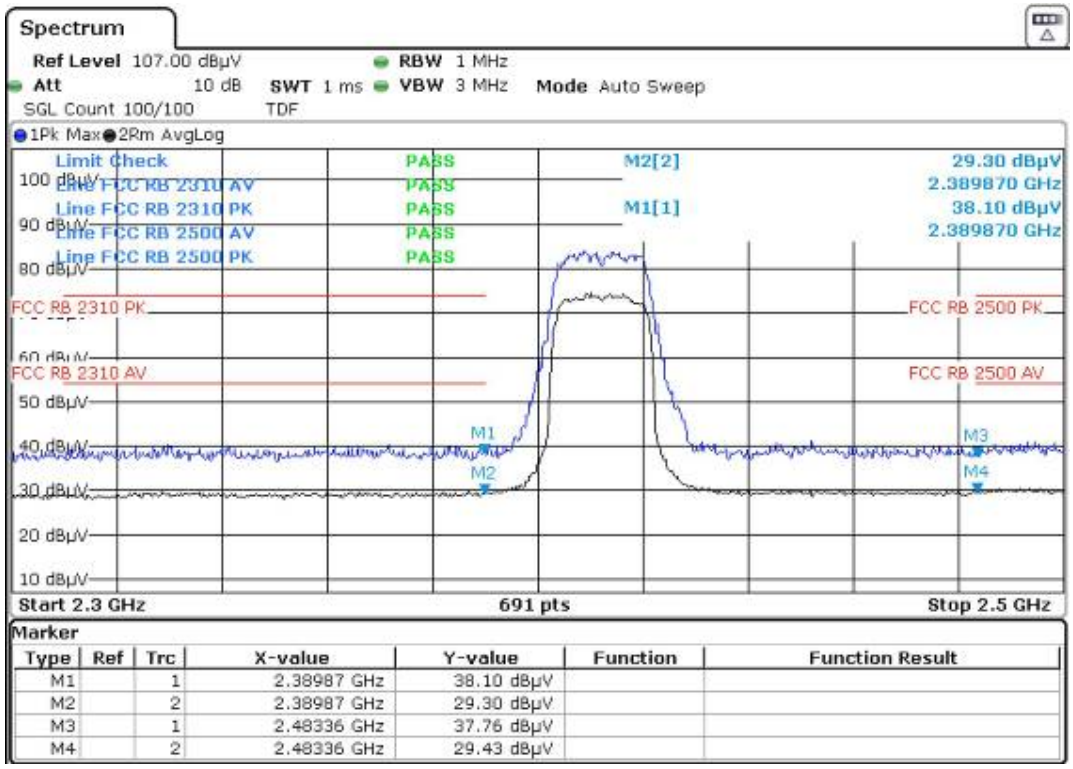
Remarks: Y-Value = received value + Correction Factor (Antenna factor + Cable loss - Preamp gain)

No other significant emissions were measured at the frequency range of interest employing the PK and AV detectors.

Model	JXC8720-18
Operation Mode (worst case)	Mode 1 @2412 MHz, IEEE 802.11 n20
Test voltage	3.3 Vdc

Results

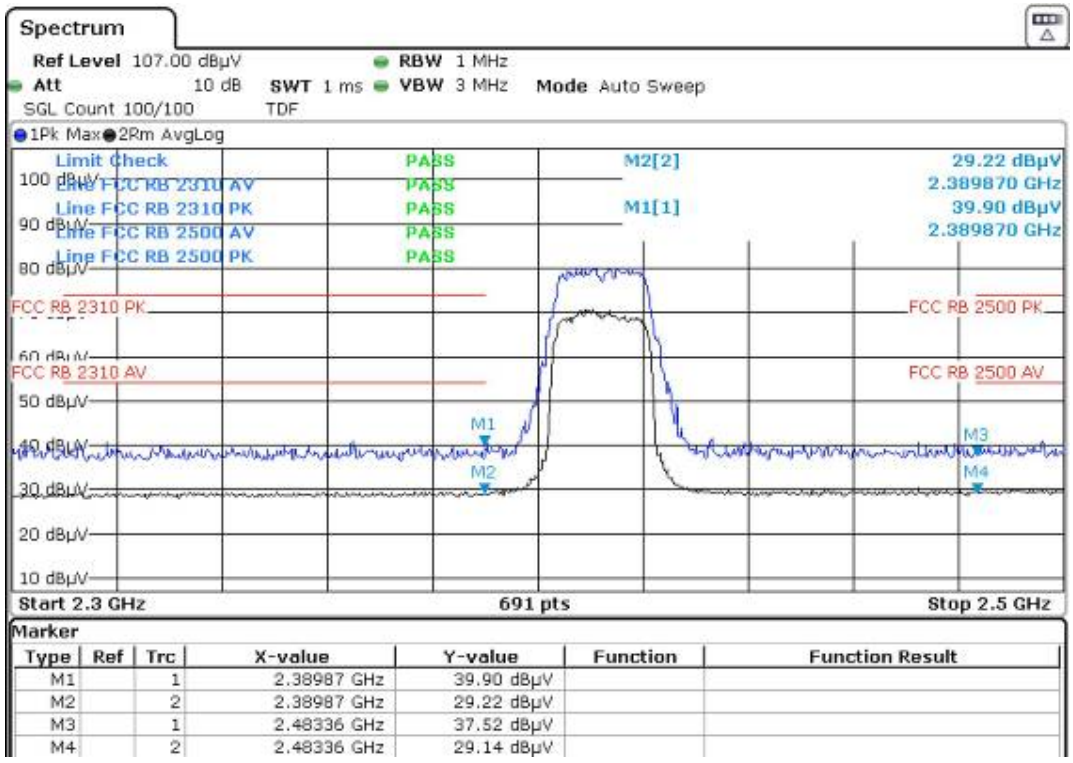
Horizontal



Remarks: Y-Value = received value + Correction Factor (Antenna factor + Cable loss - Preamp gain)

No other significant emissions were measured at the frequency range of interest employing the PK and AV detectors.

Vertical



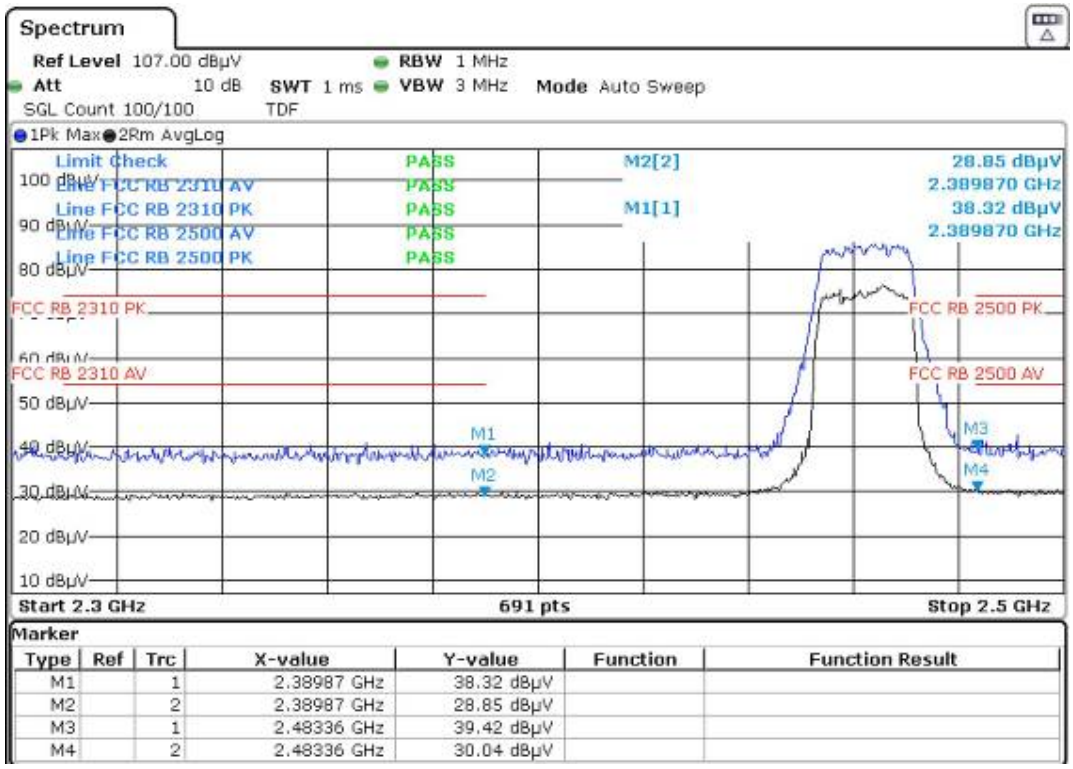
Remarks: Y-Value = received value + Correction Factor (Antenna factor + Cable loss - Preamp gain)

No other significant emissions were measured at the frequency range of interest employing the PK and AV detectors.

Model	JXC8720-18
Operation Mode (worst case)	Mode 1 @2462 MHz, IEEE 802.11 n20
Test voltage	3.3 Vdc

Results

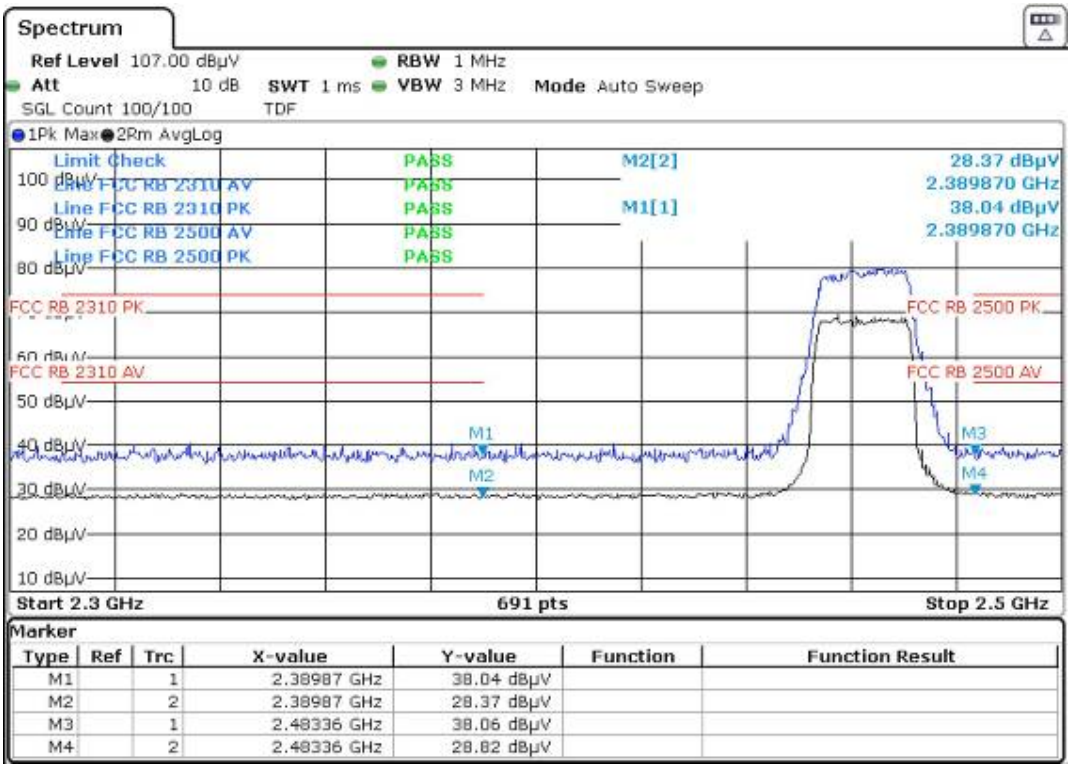
Horizontal



Remarks: Y-Value = received value + Correction Factor (Antenna factor + Cable loss - Preamp gain)

No other significant emissions were measured at the frequency range of interest employing the PK and AV detectors.

Vertical



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.38987 GHz	38.04 dBµV		
M2		2	2.38987 GHz	28.37 dBµV		
M3		1	2.48336 GHz	38.06 dBµV		
M4		2	2.48336 GHz	28.82 dBµV		

Remarks: Y-Value = received value + Correction Factor (Antenna factor + Cable loss - Preamp gain)

No other significant emissions were measured at the frequency range of interest employing the PK and AV detectors.

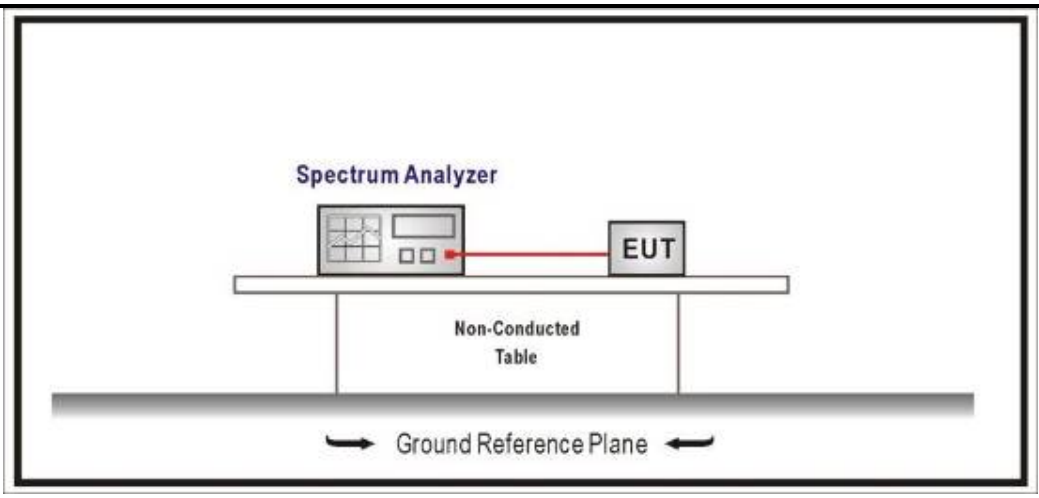
4.4 Band Edge	VERDICT: PASS

Standard	FCC Part 15 Subpart C Paragraph 15.247(d)
RF Output power (Detection methods)	Limit(dB)
RF Output power(Average detector)	30dBc(Note1)
RF Output power(PK detector)	20dBc(Note2)

Note 1: If maximum conducted (average) output power was used to demonstrate compliance as described in 9.2, then the peak power in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at by LEast 30 dB relative to the maximum in-band peak PSD by LEvel in 100 kHz (i.e., 30 dBc).

Note 2: If the maximum peak conducted output power procedure was used, then the peak output power measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at by least 20 dB relative to the maximum in-band peak PSD by level in 100 kHz (i.e., 20 dBc).

Test Configuration



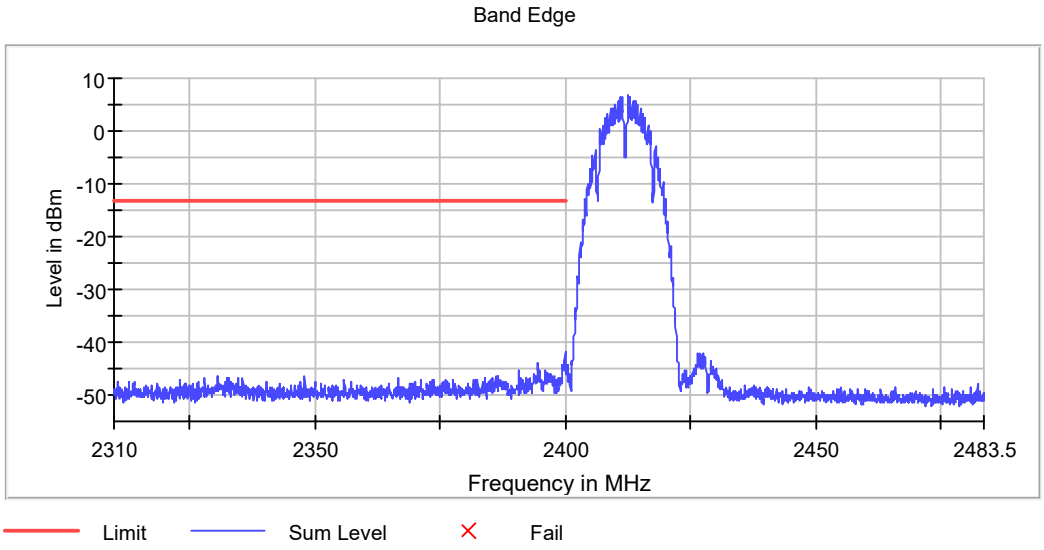
Test Procedure

	References Rule		Chapter	Description
☒	ANSI C63.10		6.10	Band-edge testing
	☒	ANSI C63.10	6.10.5	Restricted-band band-edge measurements
	☐	ANSI C63.10	6.10.6	Marker-delta method
☒	ANSI C63.10		11.12	Emissions in restricted frequency bands
	☒	ANSI C63.10	11.12.2	Antenna-port conducted measurements
		☐ ANSI C63.10	11.12.2.3	Quasi-peak measurement procedure
		☒ ANSI C63.10	11.12.2.4	Peak power measurement procedure
		☐ ANSI C63.10	11.12.2.5	Average power measurement procedures

Performed measurements

Port under test	Antenna port	
Test method applied	☒	Conducted measurement
	☐	Radiated measurement
Test setup	Refer to the Annex 3 for test setup photo(s).	
Operating mode(s) used	Mode 1	
Remark	---	

IEEE 802.11 b
Results @2412 MHz



Inband Peak

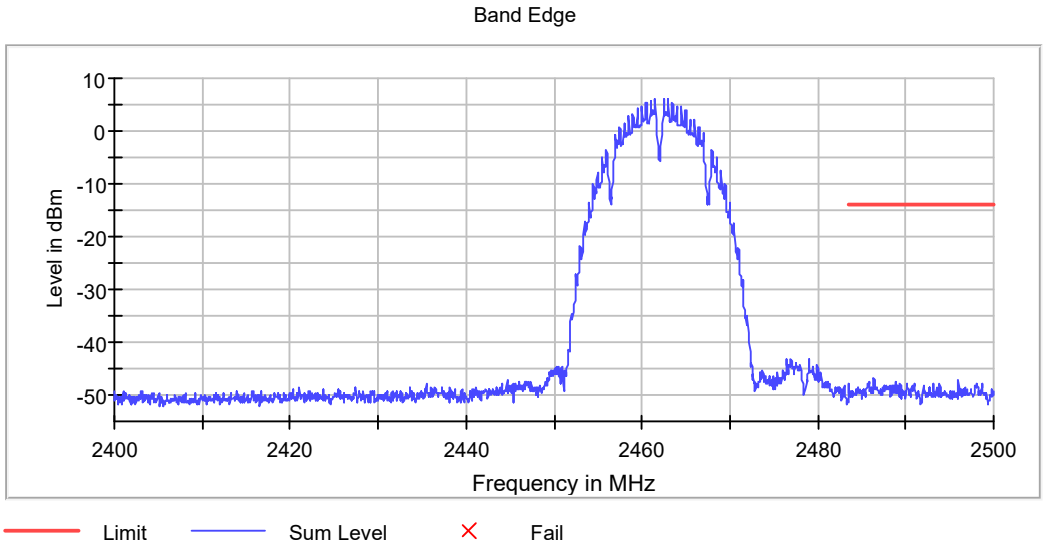
Frequency (MHz)	Level (dBm)
2412.0000	6.6

Measurements	
RBW	100.000 kHz
VBW	300.000 kHz

Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)	Result
2399.975000	-41.9	28.5	-13.4	PASS
2399.925000	-43.6	30.3	-13.4	PASS
2399.825000	-43.7	30.4	-13.4	PASS
2399.875000	-43.8	30.4	-13.4	PASS
2394.575000	-44.1	30.7	-13.4	PASS
2394.525000	-44.2	30.8	-13.4	PASS
2399.625000	-44.2	30.8	-13.4	PASS
2399.375000	-44.2	30.8	-13.4	PASS
2399.325000	-44.3	30.9	-13.4	PASS
2399.425000	-44.3	30.9	-13.4	PASS
2399.475000	-44.5	31.1	-13.4	PASS
2399.575000	-44.6	31.3	-13.4	PASS
2399.725000	-44.7	31.3	-13.4	PASS
2399.775000	-44.7	31.3	-13.4	PASS
2394.625000	-44.8	31.5	-13.4	PASS

IEEE 802.11 b
Results @2462 MHz



Inband Peak

Frequency (MHz)	Level (dBm)
2462.0000	6.0

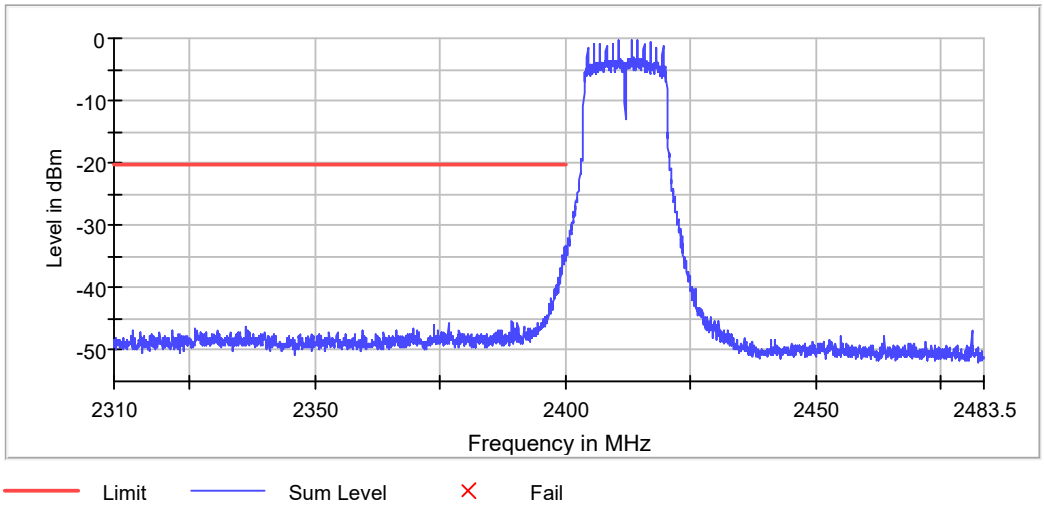
Measurements	
RBW	100.000 kHz
VBW	300.000 kHz

Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)	Result
2486.375000	-46.8	32.8	-14.0	PASS
2486.425000	-47.1	33.1	-14.0	PASS
2496.025000	-47.2	33.2	-14.0	PASS
2495.975000	-47.3	33.3	-14.0	PASS
2488.825000	-47.6	33.6	-14.0	PASS
2485.825000	-47.6	33.6	-14.0	PASS
2493.175000	-47.8	33.8	-14.0	PASS
2498.025000	-47.8	33.8	-14.0	PASS
2493.825000	-47.8	33.8	-14.0	PASS
2490.125000	-47.8	33.8	-14.0	PASS
2493.875000	-47.8	33.8	-14.0	PASS
2485.775000	-47.9	33.9	-14.0	PASS
2488.775000	-47.9	33.9	-14.0	PASS
2485.675000	-48.0	33.9	-14.0	PASS
2498.675000	-48.0	34.0	-14.0	PASS

IEEE 802.11 g
Results @2412 MHz

Band Edge



Inband Peak

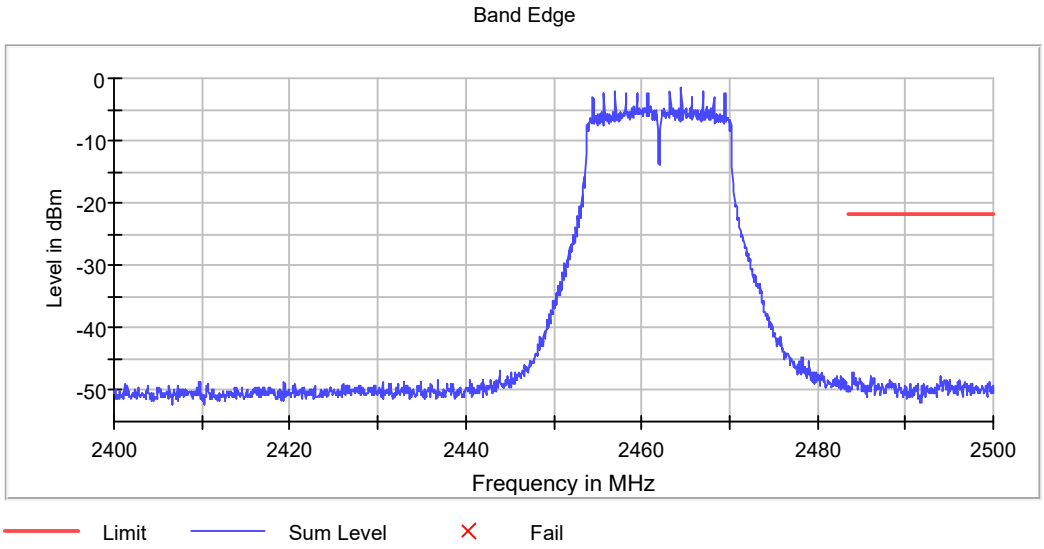
Frequency (MHz)	Level (dBm)
2412.0000	-0.2

Measurements	
RBW	100.000 kHz
VBW	300.000 kHz

Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)	Result
2399.975000	-33.2	13.0	-20.2	PASS
2399.925000	-33.4	13.2	-20.2	PASS
2399.875000	-34.5	14.2	-20.2	PASS
2399.825000	-34.8	14.6	-20.2	PASS
2399.525000	-34.9	14.7	-20.2	PASS
2399.725000	-35.1	14.8	-20.2	PASS
2399.775000	-35.1	14.9	-20.2	PASS
2399.475000	-35.1	14.9	-20.2	PASS
2399.575000	-35.6	15.4	-20.2	PASS
2399.625000	-36.3	16.1	-20.2	PASS
2399.675000	-36.3	16.1	-20.2	PASS
2399.325000	-36.5	16.2	-20.2	PASS
2399.375000	-36.7	16.5	-20.2	PASS
2399.125000	-37.0	16.8	-20.2	PASS
2399.425000	-37.0	16.8	-20.2	PASS

IEEE 802.11 g
Results @2462 MHz



Inband Peak

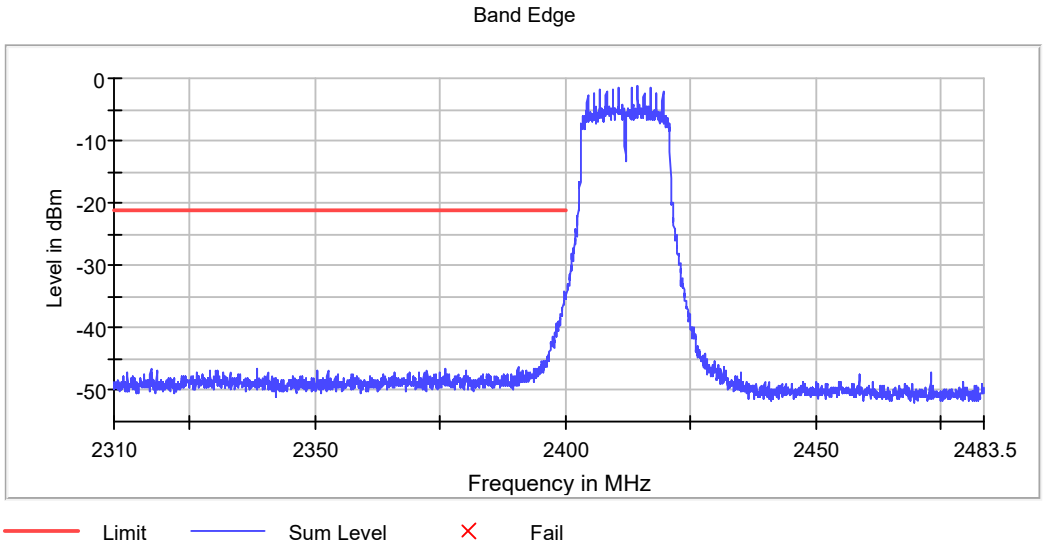
Frequency (MHz)	Level (dBm)
2462.0000	-1.6

Measurements	
RBW	100.000 kHz
VBW	300.000 kHz

Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)	Result
2484.025000	-47.1	25.5	-21.6	PASS
2484.075000	-47.2	25.6	-21.6	PASS
2483.975000	-47.7	26.0	-21.6	PASS
2486.025000	-47.7	26.0	-21.6	PASS
2493.975000	-47.8	26.1	-21.6	PASS
2485.975000	-47.9	26.3	-21.6	PASS
2484.425000	-47.9	26.3	-21.6	PASS
2486.375000	-48.0	26.4	-21.6	PASS
2494.025000	-48.0	26.4	-21.6	PASS
2484.825000	-48.1	26.5	-21.6	PASS
2484.875000	-48.1	26.5	-21.6	PASS
2486.425000	-48.2	26.6	-21.6	PASS
2484.125000	-48.2	26.6	-21.6	PASS
2484.375000	-48.2	26.6	-21.6	PASS
2486.325000	-48.4	26.8	-21.6	PASS

IEEE 802.11 n20
Results @2412 MHz



Inband Peak

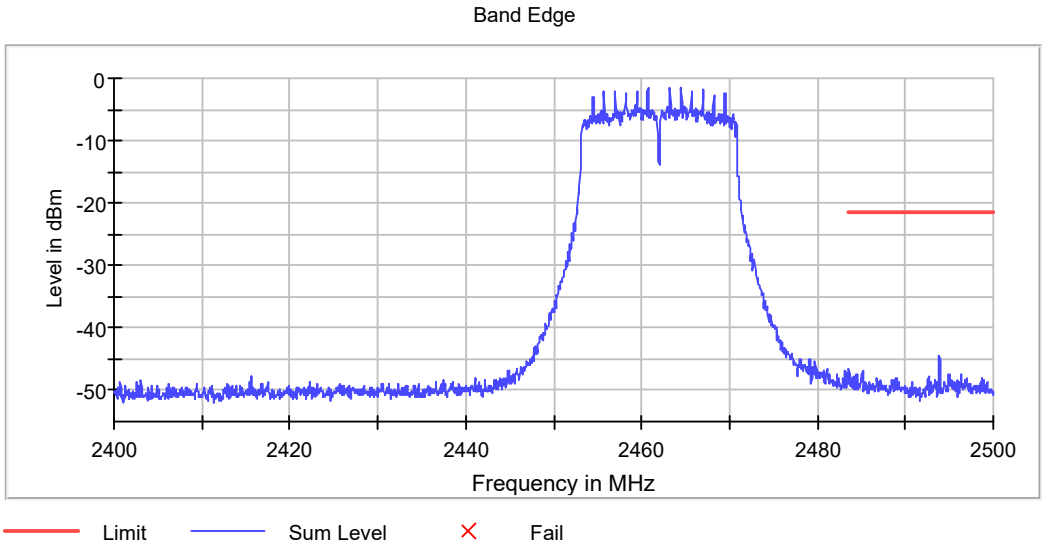
Frequency (MHz)	Level (dBm)
2412.0000	-1.1

Measurements	
RBW	100.000 kHz
VBW	300.000 kHz

Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)	Result
2399.875000	-34.2	13.1	-21.1	PASS
2399.925000	-34.3	13.2	-21.1	PASS
2399.975000	-34.5	13.4	-21.1	PASS
2399.825000	-34.9	13.8	-21.1	PASS
2399.625000	-35.7	14.6	-21.1	PASS
2399.775000	-35.8	14.7	-21.1	PASS
2399.725000	-35.9	14.8	-21.1	PASS
2399.575000	-36.0	14.9	-21.1	PASS
2399.675000	-36.2	15.1	-21.1	PASS
2399.525000	-36.7	15.6	-21.1	PASS
2399.375000	-36.8	15.7	-21.1	PASS
2399.325000	-37.2	16.1	-21.1	PASS
2399.475000	-37.2	16.1	-21.1	PASS
2399.425000	-37.3	16.2	-21.1	PASS
2399.225000	-37.7	16.6	-21.1	PASS

IEEE 802.11 n20
Results @2462 MHz



Inband Peak

Frequency (MHz)	Level (dBm)
2462.0000	-1.4

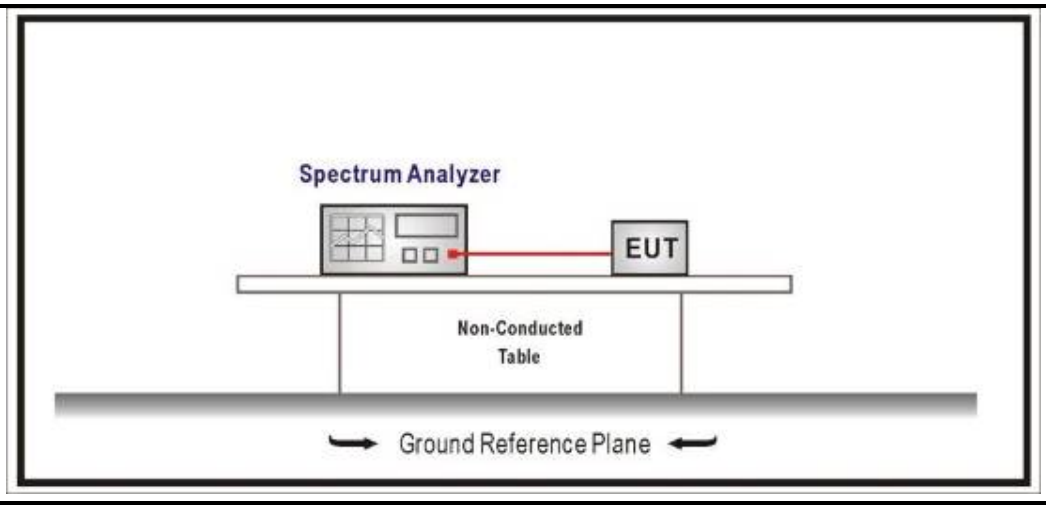
Measurements	
RBW	100.000 kHz
VBW	300.000 kHz

Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)	Result
2493.875000	-44.5	23.2	-21.4	PASS
2493.925000	-45.1	23.7	-21.4	PASS
2493.825000	-45.4	24.0	-21.4	PASS
2483.525000	-46.4	25.0	-21.4	PASS
2483.575000	-46.4	25.1	-21.4	PASS
2485.125000	-46.7	25.4	-21.4	PASS
2483.625000	-47.3	25.9	-21.4	PASS
2485.075000	-47.3	25.9	-21.4	PASS
2496.325000	-47.3	26.0	-21.4	PASS
2496.375000	-47.4	26.0	-21.4	PASS
2484.475000	-47.4	26.0	-21.4	PASS
2484.525000	-47.4	26.0	-21.4	PASS
2485.175000	-47.4	26.0	-21.4	PASS
2494.925000	-47.5	26.1	-21.4	PASS
2494.975000	-47.5	26.2	-21.4	PASS

4.5 Duty cycle	VERDICT: PASS

Test Configuration



Test Procedure

References Rule		Chapter	Description
☒	ANSI C63.10	11.6	Duty cycle (D), transmission duration (T), and maximum power control level

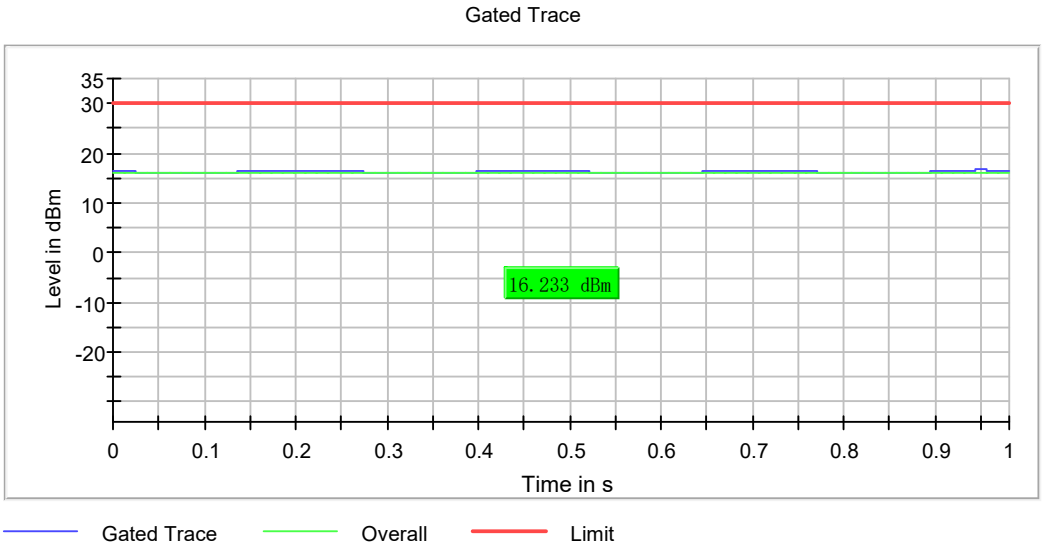
Performed measurements

Port under test	Antenna port	
Test method applied	☒	Conducted measurement
	☐	Radiated measurement
Test setup	Refer to the Annex 3 for test setup photo(s).	
Operating mode(s) used	Mode 1	
Remark	---	

Results

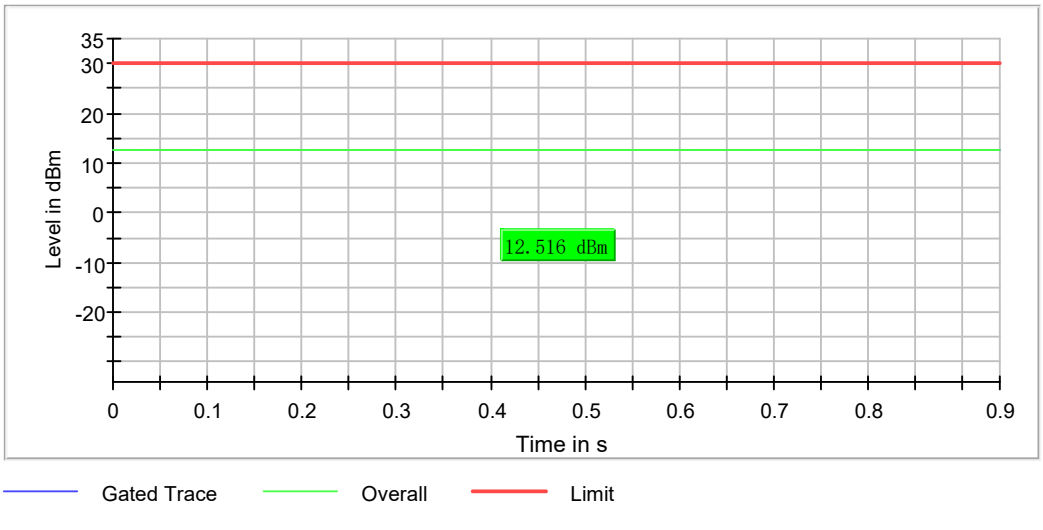
Test Mode	Tx On (ms)	Tx On + Tx Off (ms)	Duty Cycle
IEEE 802.11 b	---	---	100%

Note 1: T means 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.
Note 2: According to KDB 558074, when test for Radiated Emission Band Edge and Radiated Emission, for average detector set: VBW ≥ 1/T will be used.



Test Mode	Tx On (ms)	Tx On + Tx Off (ms)	Duty Cycle
IEEE 802.11 g	---	---	100%

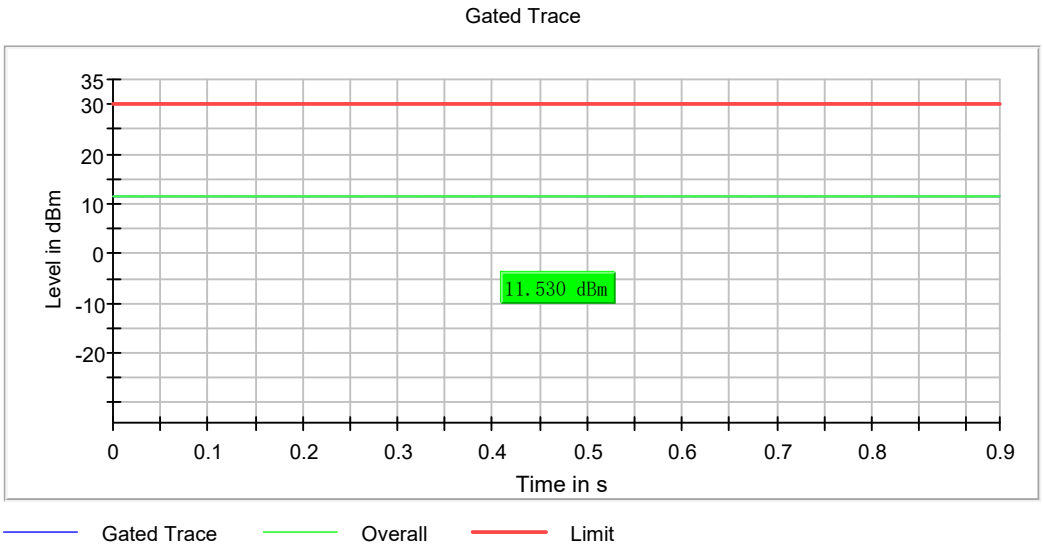
Note 1: T means the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control Level for the tested mode of operation.
Note 2: According to KDB 558074, when test for Radiated Emission Band Edge and Radiated Emission, for average detector set: VBW ≥ 1/T will be used.



Test Mode	Tx On (ms)	Tx On + Tx Off (ms)	Duty Cycle
IEEE 802.11 n20	---	---	100%

Note 1: T means 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.

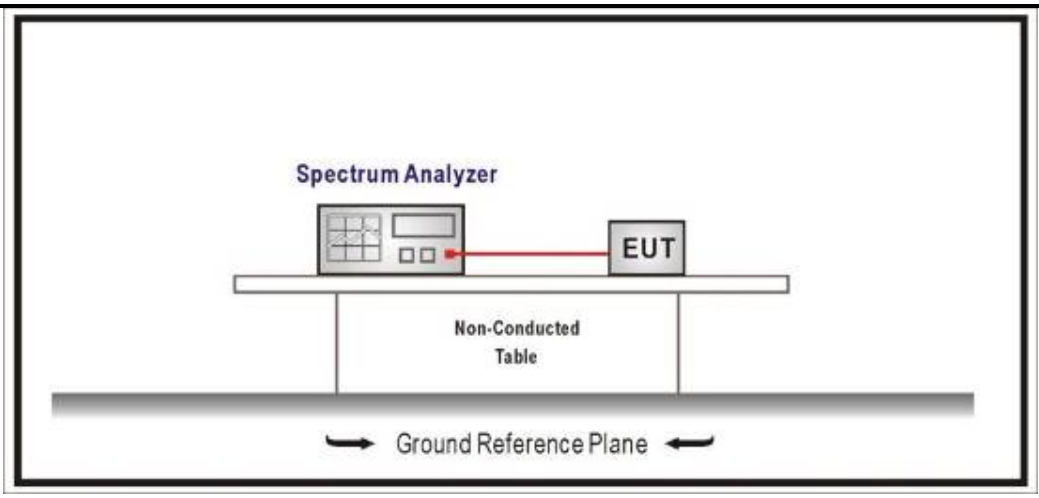
Note 2: According to KDB 558074, when test for Radiated Emission Band Edge and Radiated Emission, for average detector set: VBW ≥ 1/T will be used.



4.6 DTS Bandwidth	VERDICT: PASS

Standard	FCC Part 15 Subpart C Paragraph 15.247 (a)(2)
Systems using digital modulation techniques operate in the 2400-2483.5 MHz .The minimum 6 dB bandwidth shall be at by least 500 kHz	

Test Configuration



Test Procedure

	Reference Rule		Chapter	Description
☒	ANSI C63.10		11.8	DTS bandwidth
	☐	ANSI C63.10	11.8.1	Option 1
	☒	ANSI C63.10	11.8.2	Option 2

Performed measurements

Port under test	Antenna port	
Test method applied	☒	Conducted measurement
	☐	Radiated measurement
Test setup	Refer to the Annex 3 for test setup photo(s).	
Operating mode(s) used	Mode 1	
Remark		

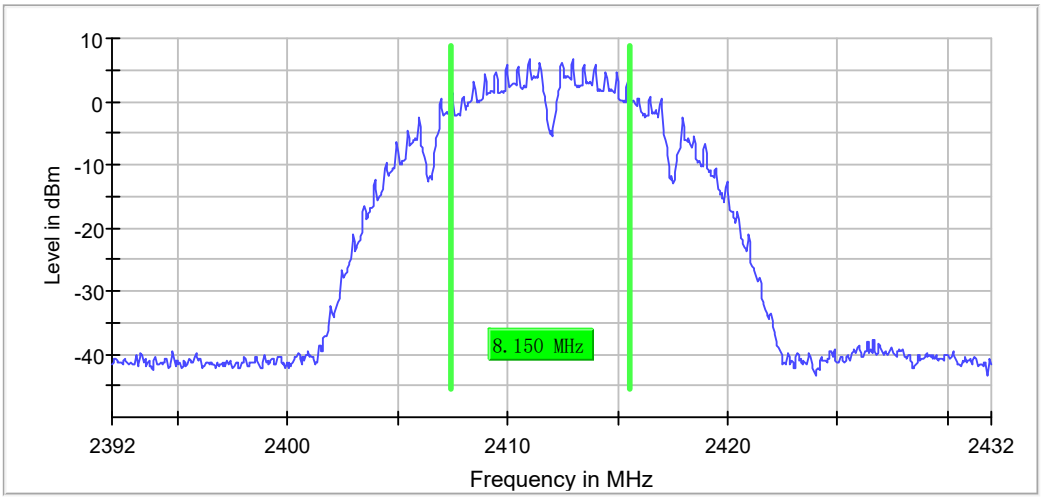
Results

Mode	CH.	Test Freq. (MHz)	6dB Occupied Bandwidth (MHz)	Limit (kHz)	Result
IEEE 802.11 b	1	2412	8.15	>500	Pass
	6	2437	9.15	>500	Pass
	11	2462	9.60	>500	Pass

6dB Occupied Bandwidth

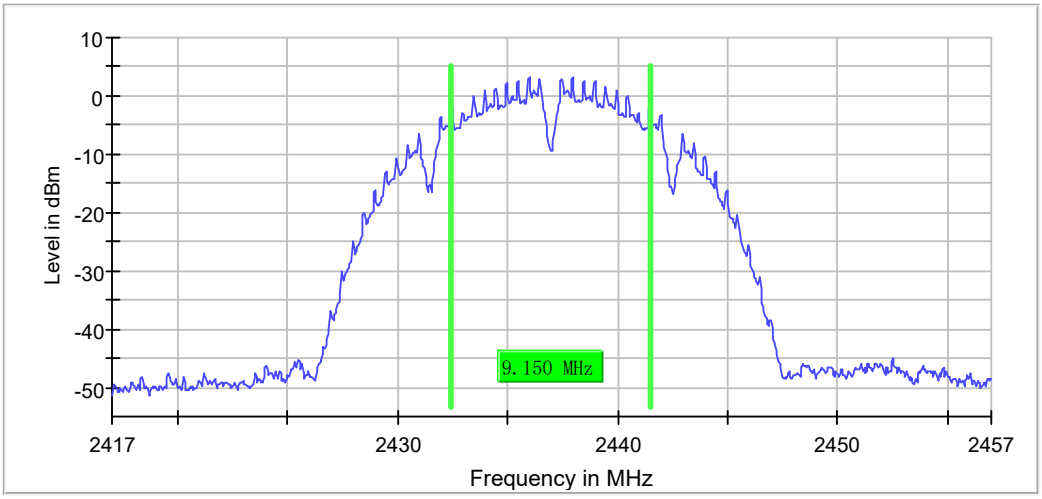
Mode 1 / CH1 (2412MHz)

6 dB Bandwidth



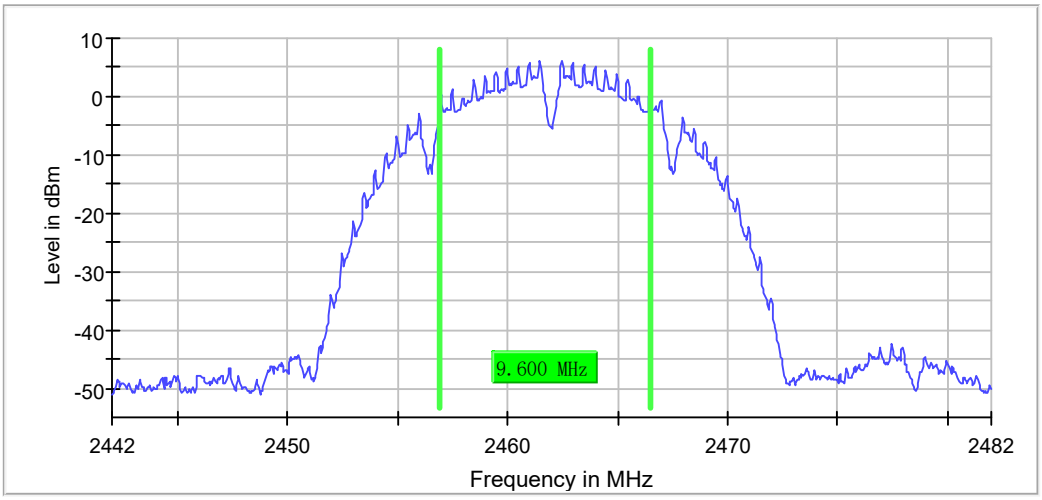
Mode 1 / CH6 (2437MHz)

6 dB Bandwidth



Mode 1 / CH39 (2462MHz)

6 dB Bandwidth



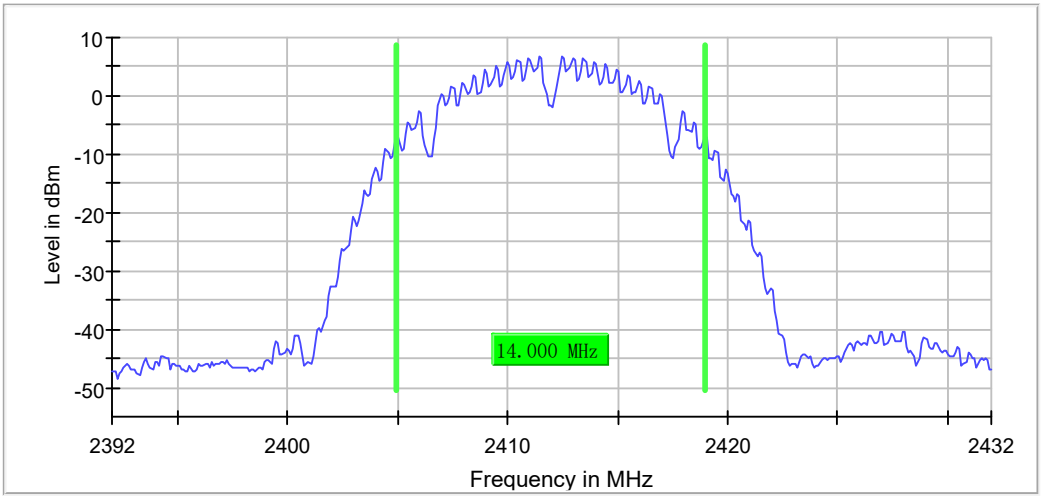
Remark: RBW=100 KHz, VBW=300 KHz

Mode	CH.	Test Freq. (MHz)	99% Occupied Bandwidth (MHz)	Limit	Result
IEEE 802.11 b	1	2412	14.0	Within frequency range	Pass
	6	2437	14.0	Within frequency range	Pass
	11	2462	14.0	Within frequency range	Pass

99% Occupied Bandwidth

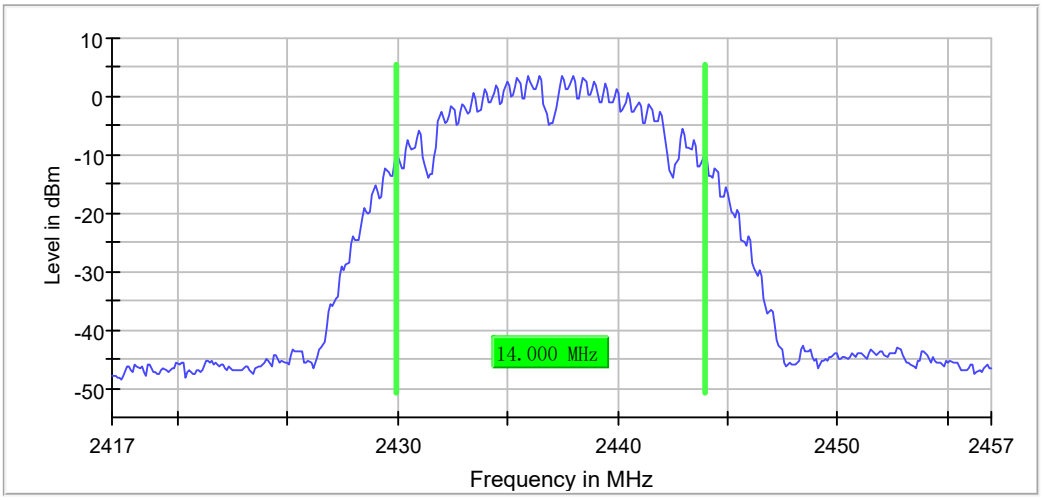
Mode 1 / CH1 (2412 MHz)

99 % Bandwidth



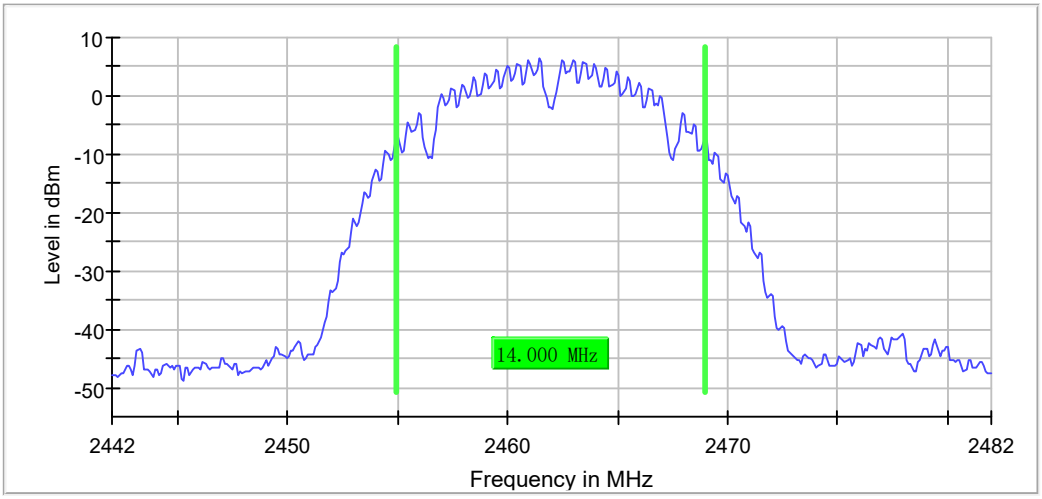
Mode 1 / CH6 (2437 MHz)

99 % Bandwidth



Mode 1 / CH39 (2462 MHz)

99 % Bandwidth



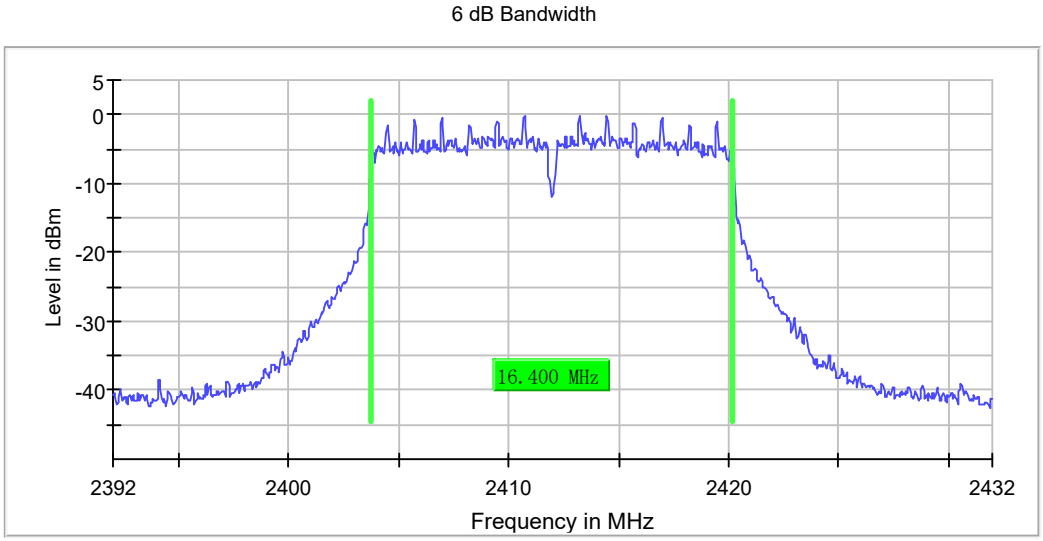
Remark: RBW=200 KHz, VBW=1000 KHz

Results

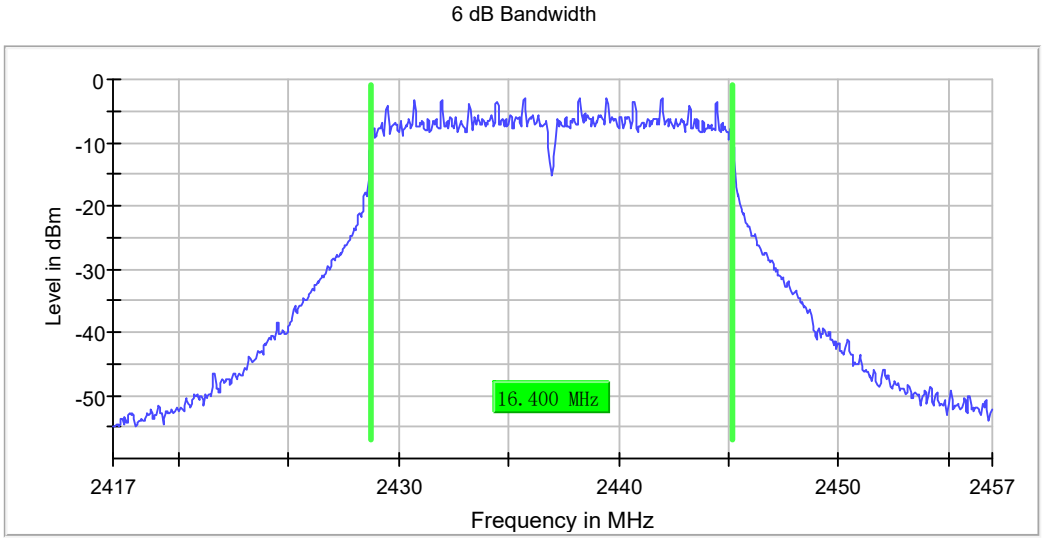
Mode	CH.	Test Freq. (MHz)	6dB Occupied Bandwidth (MHz)	Limit (kHz)	Result
IEEE 802.11 g	1	2412	16.40	>500	Pass
	6	2437	16.40	>500	Pass
	11	2462	16.40	>500	Pass

6dB Occupied Bandwidth

Mode 1 / CH1 (2412MHz)

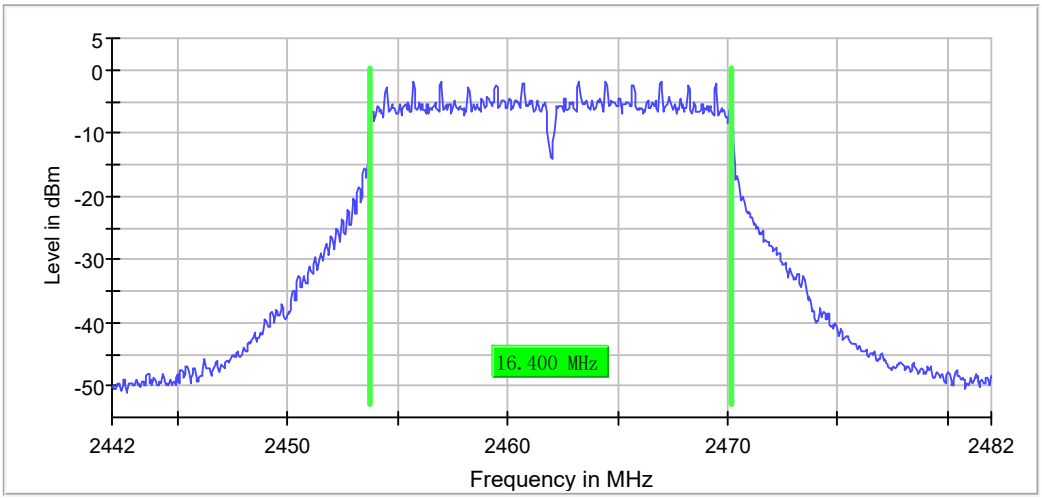


Mode 1 / CH6 (2437MHz)



Mode 1 / CH39 (2462MHz)

6 dB Bandwidth



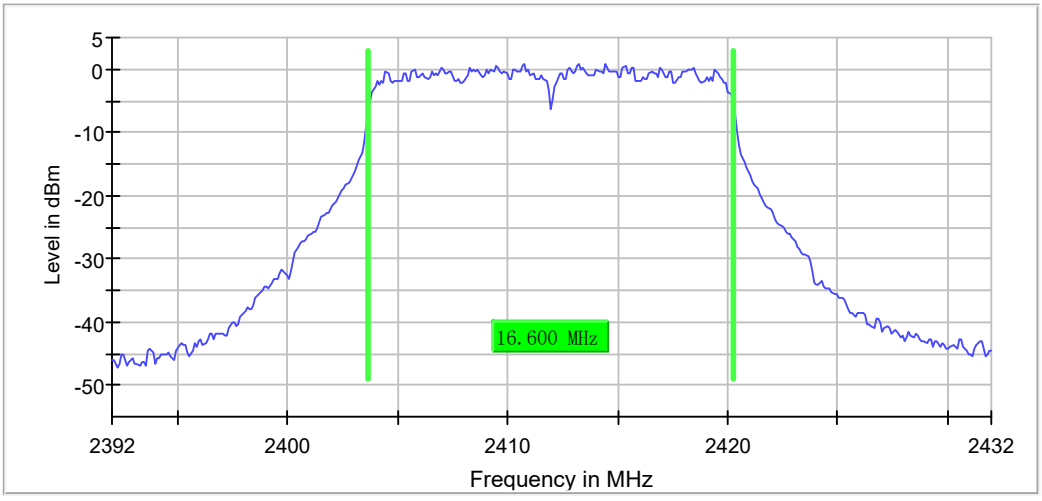
Remark: RBW=100 KHz, VBW=300 KHz

Mode	CH.	Test Freq. (MHz)	99% Occupied Bandwidth (MHz)	Limit	Result
IEEE 802.11 g	1	2412	16.6	Within frequency range	Pass
	6	2437	16.6	Within frequency range	Pass
	11	2462	16.6	Within frequency range	Pass

99% Occupied Bandwidth

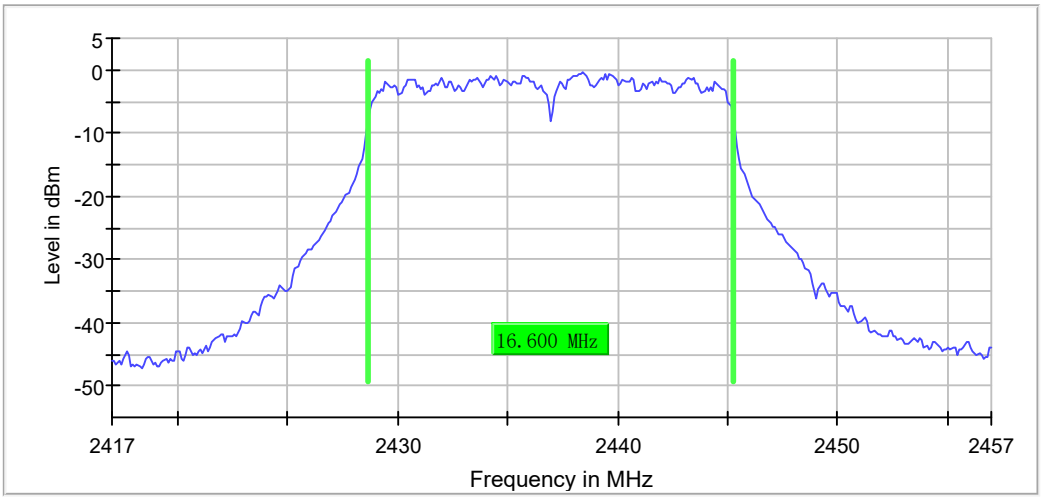
Mode 1 / CH1 (2412 MHz)

99 % Bandwidth



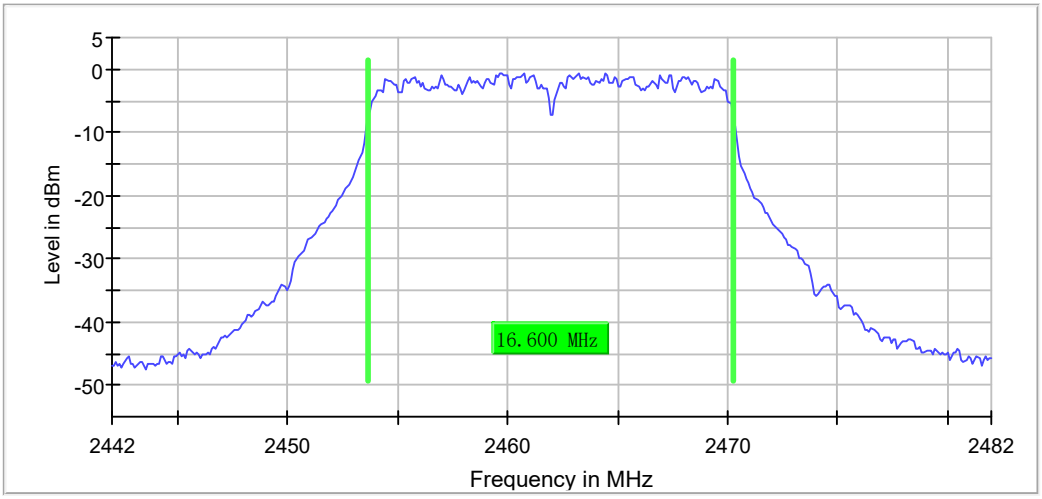
Mode 1 / CH6 (2437 MHz)

99 % Bandwidth



Mode 1 / CH11 (2462 MHz)

99 % Bandwidth



Remark: RBW=200 KHz, VBW=1000 KHz

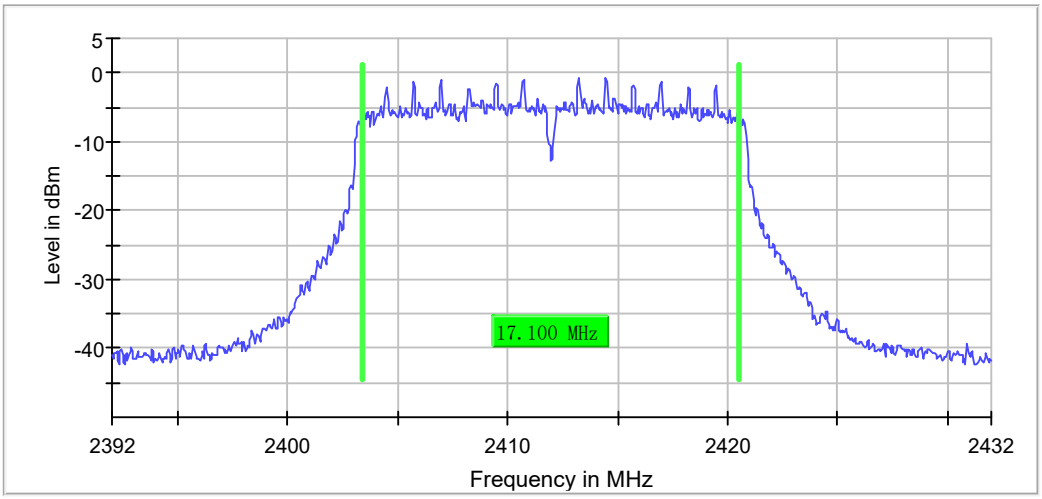
Results

Mode	CH.	Test Freq. (MHz)	6dB Occupied Bandwidth (MHz)	Limit (kHz)	Result
IEEE 802.11 n20	1	2412	17.10	>500	Pass
	6	2437	17.65	>500	Pass
	11	2462	17.60	>500	Pass

6dB Occupied Bandwidth

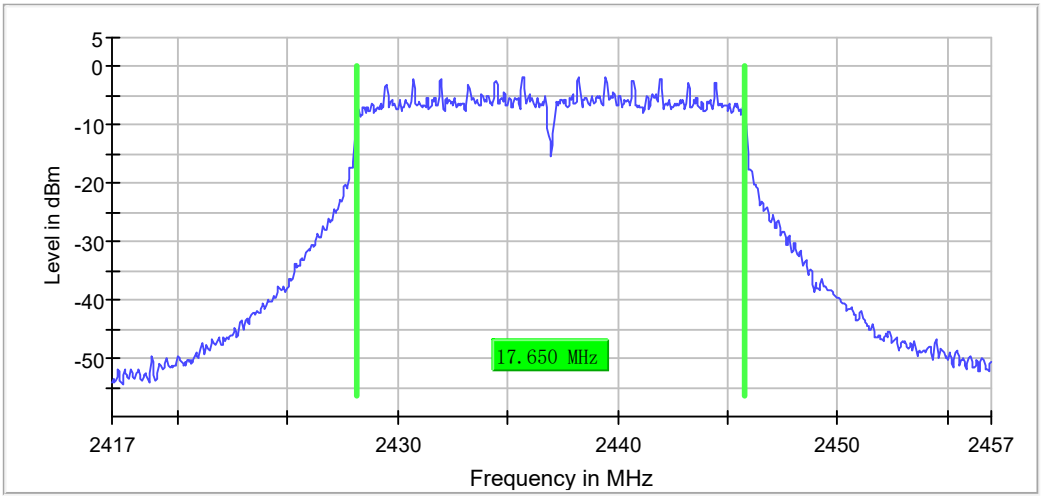
Mode 1 / CH1 (2412MHz)

6 dB Bandwidth



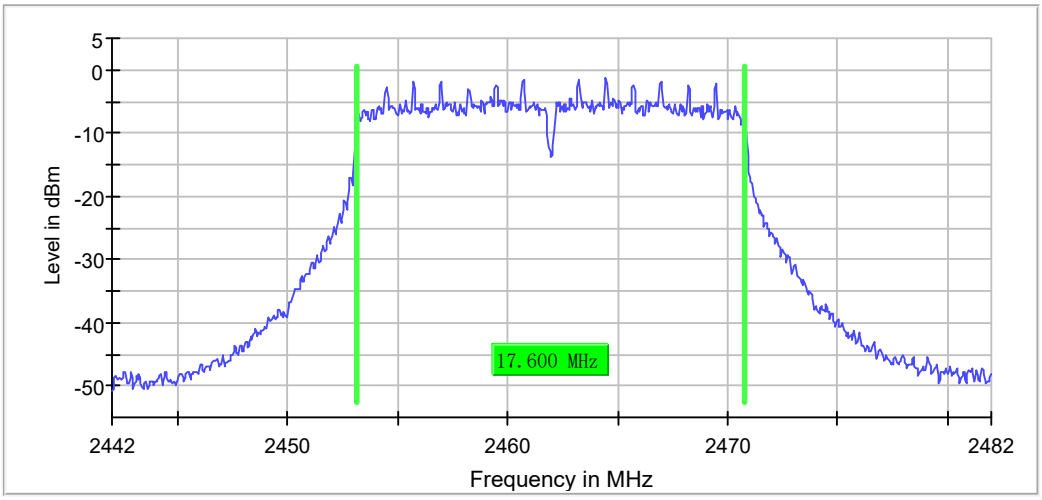
Mode 1 / CH6 (2437MHz)

6 dB Bandwidth



Mode 1 / CH11 (2462MHz)

6 dB Bandwidth



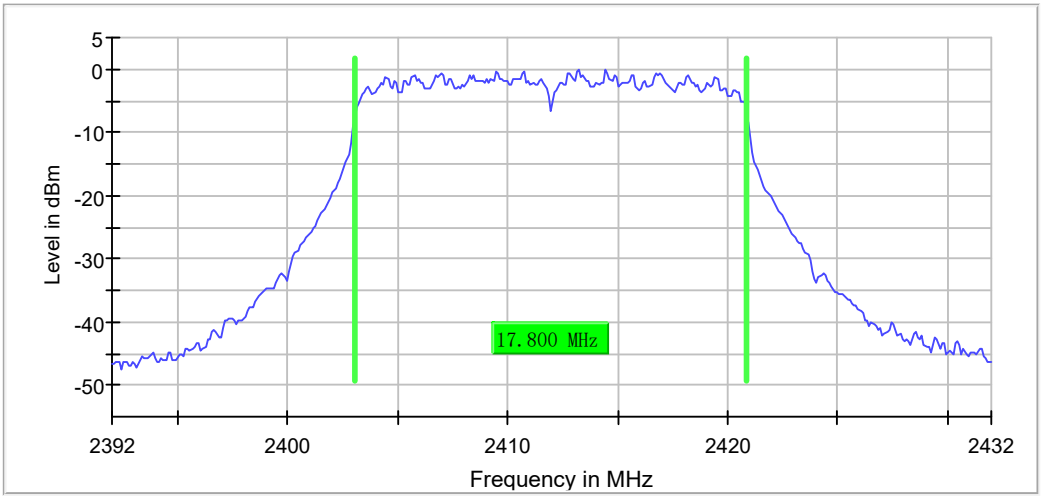
Remark: RBW=100 KHz, VBW=300 KHz

Mode	CH.	Test Freq. (MHz)	99% Occupied Bandwidth (MHz)	Limit	Result
IEEE 802.11 n20	1	2412	17.8	Within frequency range	Pass
	6	2437	17.8	Within frequency range	Pass
	11	2462	17.7	Within frequency range	Pass

99% Occupied Bandwidth

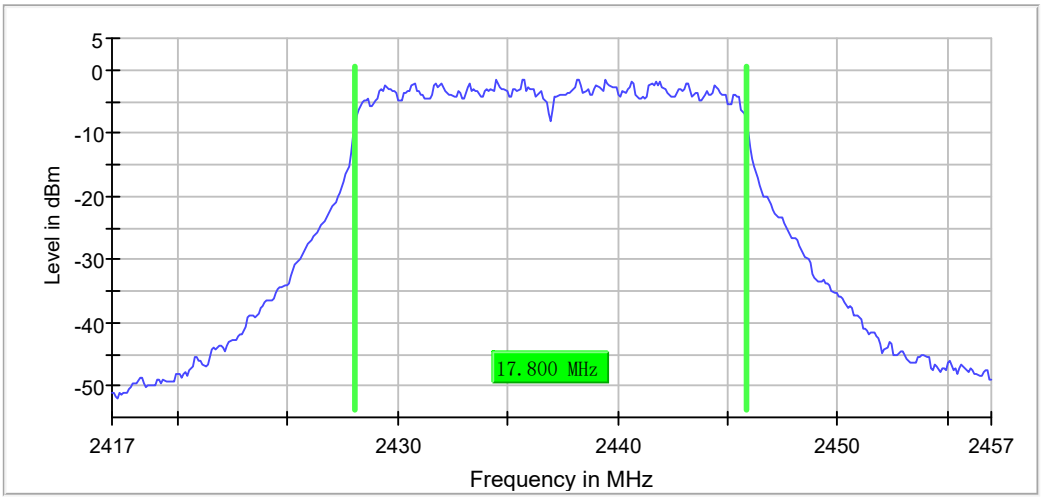
Mode 1 / CH1 (2412 MHz)

99 % Bandwidth



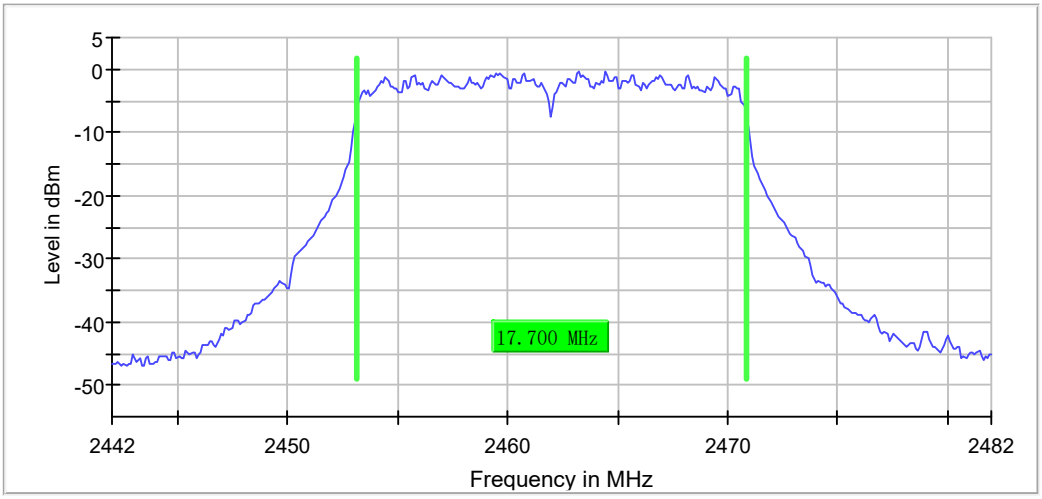
Mode 1 / CH6 (2437 MHz)

99 % Bandwidth



Mode 1 / CH11 (2462 MHz)

99 % Bandwidth

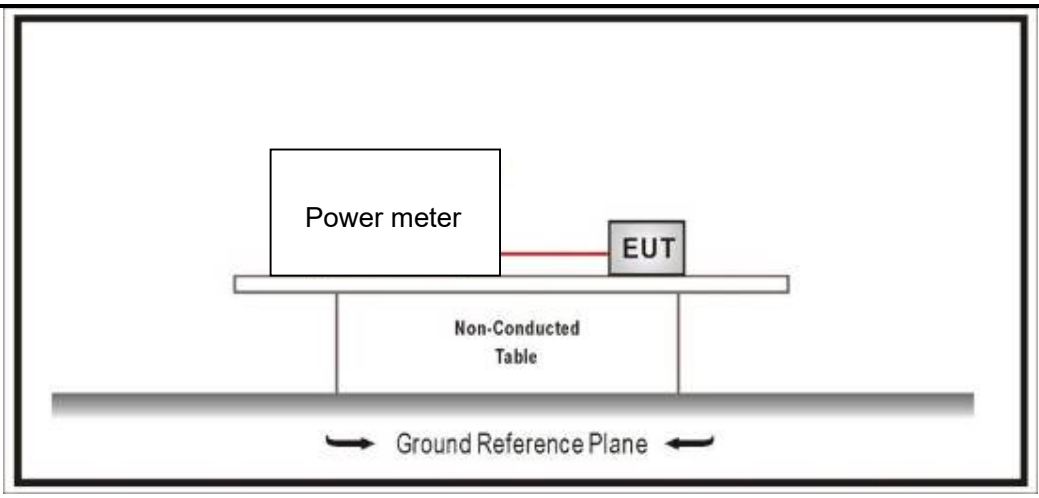


Remark: RBW=200 KHz, VBW=1000 KHz

4.7	Fundamental emission output power	VERDICT: PASS

Standard			FCC Part 15 Subpart C Paragraph 15.247 (b)(3)
☒	GTX ＜6dBi		Pout≤30dBm
☐	GTX ＞6dBi		
	☐	Non-Fix point-point	Pout≤30-(GTX -6)
	☐	Fix point-point	Pout≤30-[(GTX-6)]/3
	☐	Point-to-multipoint	Pout≤30-(GTX-6)
	☐	Overlap Beams	Pout≤30-[(GTX-6)]/3
	☐	Aggregate power transmitted simultaneously on all beams	Pout≤30-[(GTX-6)]/3
	☐	singby LE directional beam	Pout≤30-[(GTX-6)]/3+8dB
Note 1 : GTX directional gain of transmitting antennas. Note 2 : Pout is maximum peak conducted output power .			

Test Configuration



Test Procedure

	References Rule		Chapter	Description
☒	ANSI C63.10		11.9	Fundamental emission output power
	☒	ANSI C63.10	11.9.1	Maximum peak conducted output power
		☐ ANSI C63.10	11.9.1.1	RBW ≥ DTS bandwidth
		☐ ANSI C63.10	11.9.1.2	Integrated band power method
		☒ ANSI C63.10	11.9.1.3	PKPM1 Peak power meter method

Performed measurements

Port under test	Antenna port	
Test method applied	☒	Conducted measurement
	☐	Radiated measurement
Test setup	Refer to the Annex 3 for test setup photo(s).	
Operating mode(s) used	Mode 1	
Remark	---	

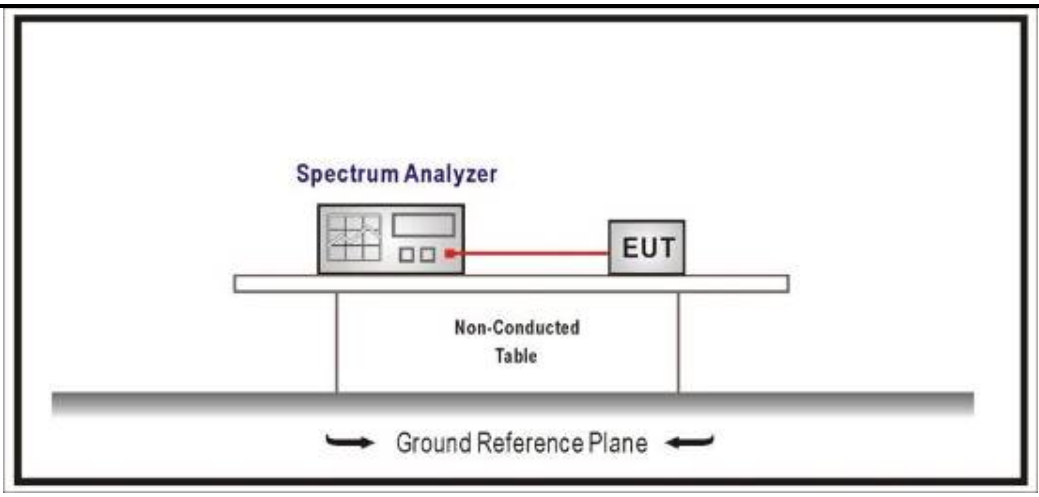
Results

Mode	Channel	Test Frequency (MHz)	Power Output (dBm)	Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)	Result
IEEE 802.11 b	1	2412	16.2	≤30	18.8	≤36	Pass
	6	2437	16.7	≤30	19.3	≤36	Pass
	11	2462	14.6	≤30	17.4	≤36	Pass
IEEE 802.11 g	1	2412	12.4	≤30	15.0	≤36	Pass
	6	2437	15.6	≤30	18.2	≤36	Pass
	11	2462	13.3	≤30	15.9	≤36	Pass
IEEE 802.11 n20	1	2412	11.8	≤30	14.4	≤36	Pass
	6	2437	14.3	≤30	16.9	≤36	Pass
	11	2462	12.1	≤30	14.7	≤36	Pass

4.8 Power Density	VERDICT: PASS

Standard	FCC Part 15 Subpart C Paragraph 15.247 (b)(3)
Power Spectral Density≤8dBm/3kHz	

Test Configuration



Test Procedure

	References Rule		Chapter	Description
☒	ANSI C63.10		11.10	Maximum power spectral density level in the fundamental emission
	☒	ANSI C63.10	11.10.2	Method PKPSD (peak PSD)
	☐	ANSI C63.10	11.10.3	Method AVGPSD-1(Duty cycle≥98%)
	☐	ANSI C63.10	11.10.4	Method AVGPSD-1A(Duty cycle≥98%)
	☐	ANSI C63.10	11.10.5	Method AVGPSD-2(Duty cycle＜98%)
	☐	ANSI C63.10	11.10.6	Method AVGPSD-2A(Duty cycle＜98%)
	☐	ANSI C63.10	11.10.7	Method AVGPSD-3
	☐	ANSI C63.10	11.10.8	Method AVGPSD-3A

Performed measurements

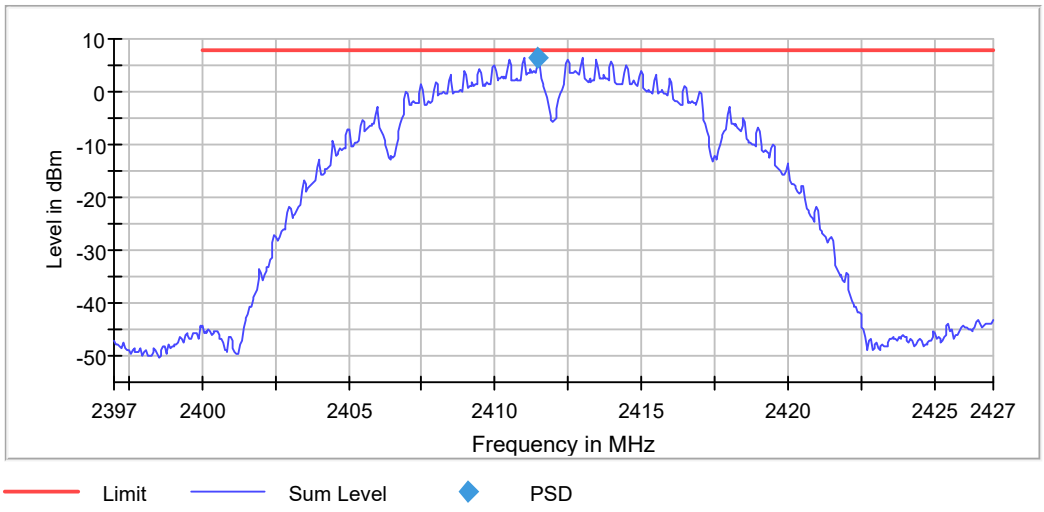
Port under test	Antenna port	
Test method applied	☒	Conducted measurement
	☐	Radiated measurement
Test setup	Refer to the Annex 3 for test setup photo(s).	
Operating mode(s) used	Mode 1	
Remark	---	

Results

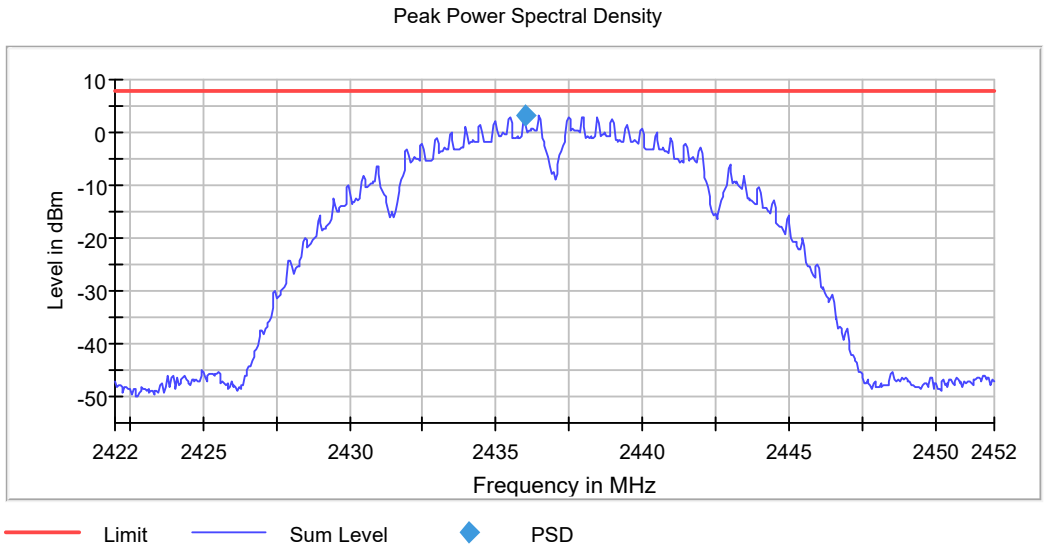
Mode	Channel	Test Frequency (MHz)	Power Output (dBm)	Limit (dBm/3kHz)	Result
IEEE 802.11 b	1	2412	6.500	≤8	Pass
	6	2437	3.280	≤8	Pass
	11	2462	6.186	≤8	Pass
IEEE 802.11 g	1	2412	-0.318	≤8	Pass
	6	2437	-1.791	≤8	Pass
	11	2462	-1.619	≤8	Pass
IEEE 802.11 n20	1	2412	-1.248	≤8	Pass
	6	2437	-2.454	≤8	Pass
	11	2462	-1.491	≤8	Pass

Data of IEEE 802.11 b

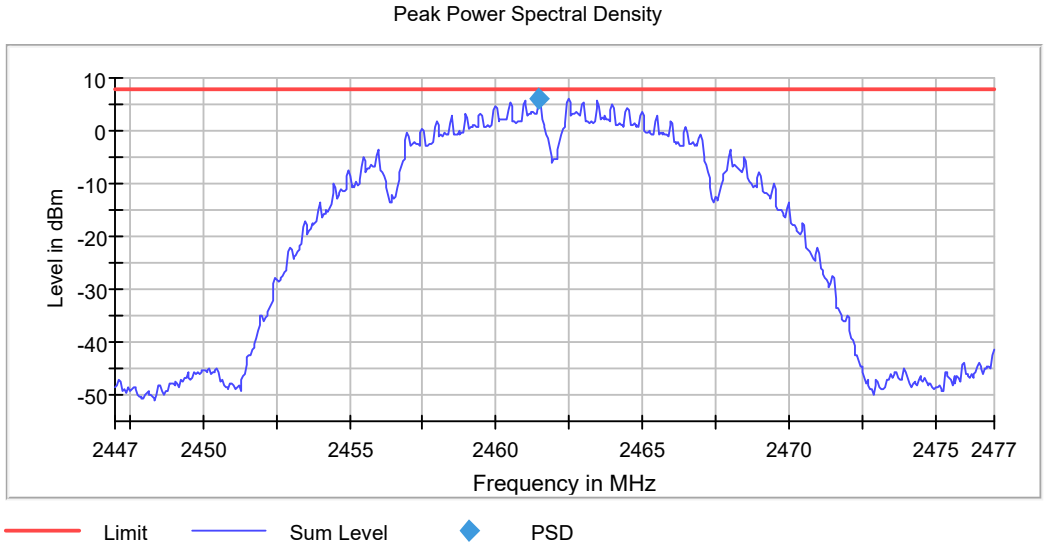
Peak Power Spectral Density



RBW=100 KHz, VBW=300 KHz



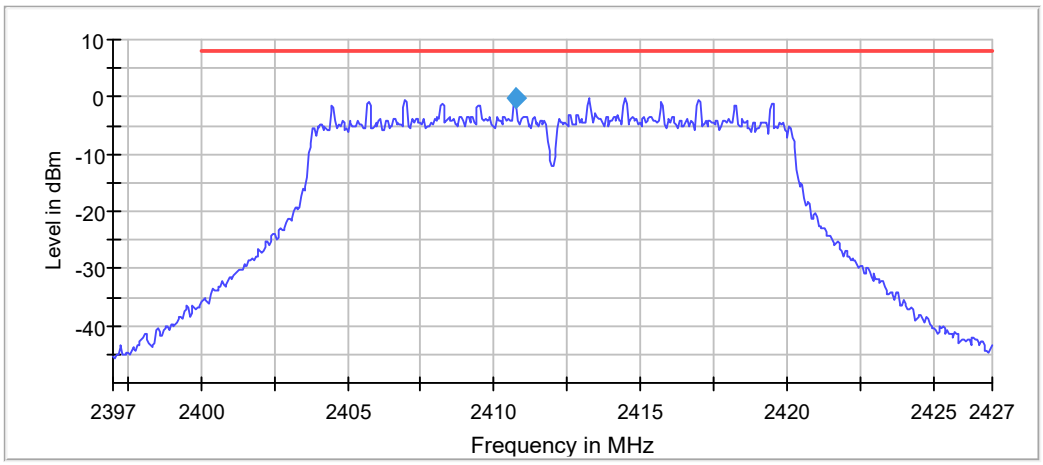
RBW=100 KHz, VBW=300 KHz



RBW=100 KHz, VBW=300 KHz

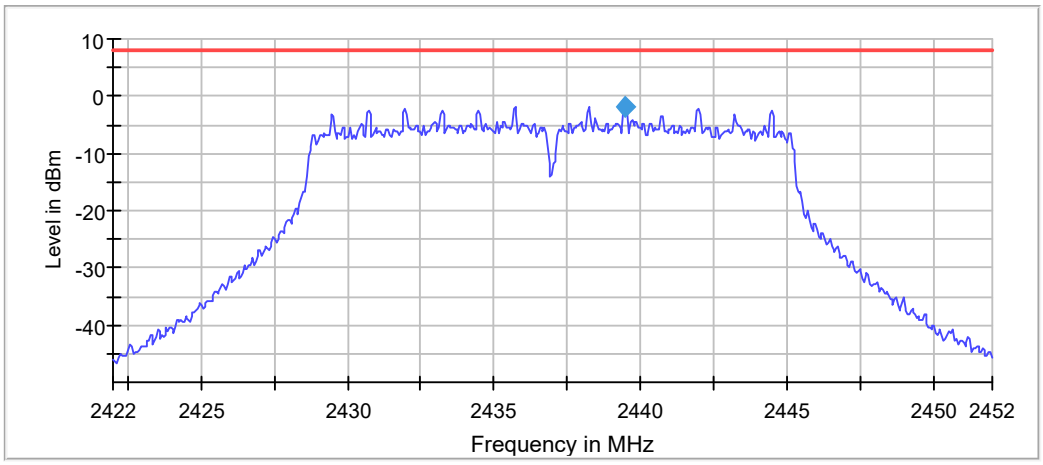
Data of IEEE 802.11 g

Peak Power Spectral Density



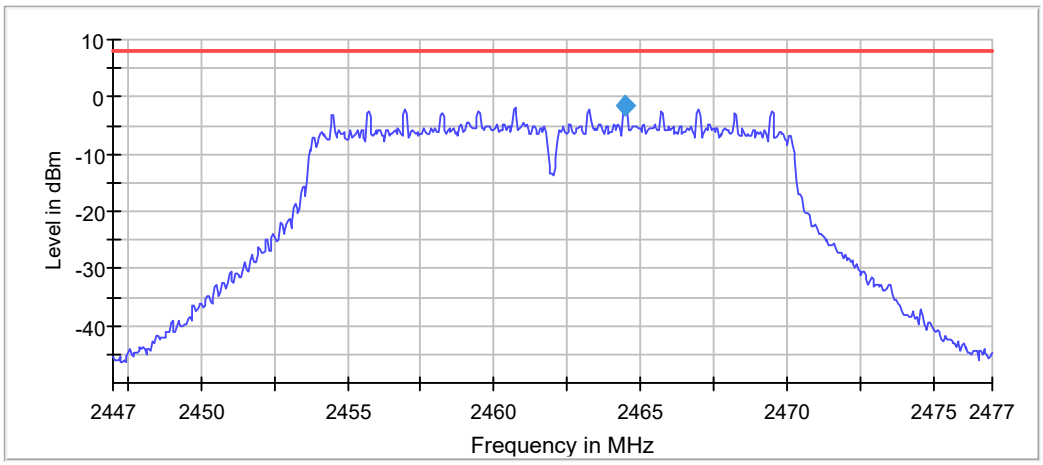
RBW=100 KHz, VBW=300 KHz

Peak Power Spectral Density



RBW=100 KHz, VBW=300 KHz

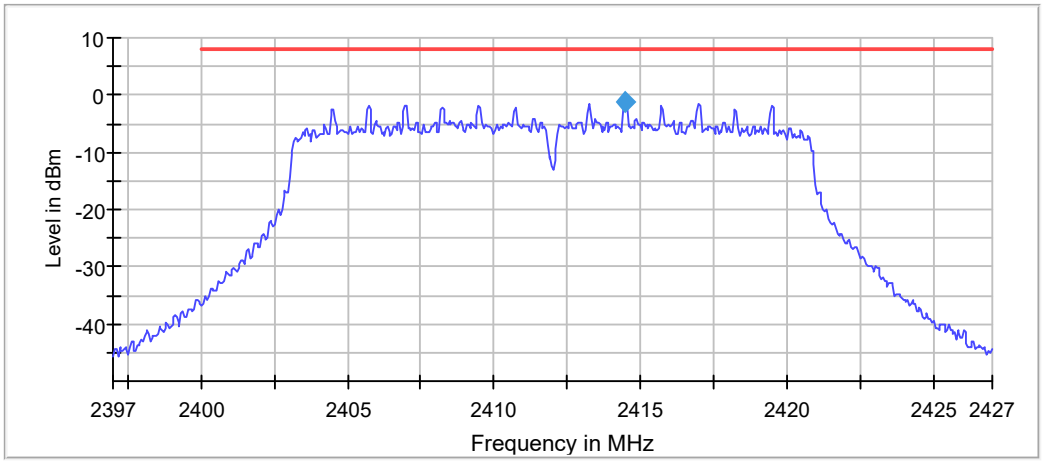
Peak Power Spectral Density



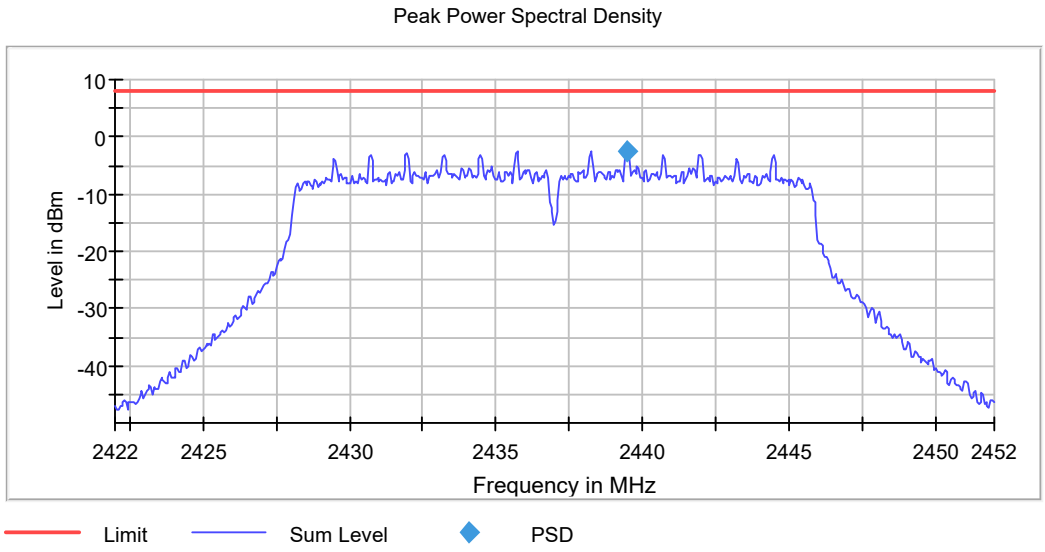
RBW=100 KHz, VBW=300 KHz

Data of IEEE 802.11 n20

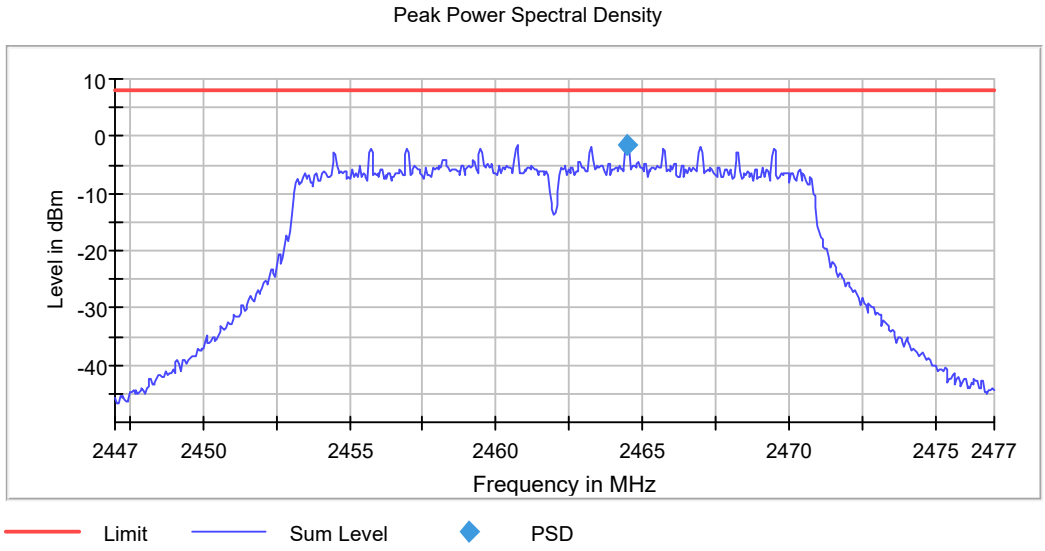
Peak Power Spectral Density



RBW=100 KHz, VBW=300 KHz



RBW=100 KHz, VBW=300 KHz



RBW=100 KHz, VBW=300 KHz

5 IDENTIFICATION OF THE EQUIPMENT UNDER TEST

The photographs show the tested device.

Refer to documents External photo and Internal photo.

ANNEX 1 – MEASUREMENT UNCERTAINTY

Test Item	Uncertainty
Occupied Channel Bandwidth	±0,7%
RF Output power, conducted	±0,6dB
Power Spectral Density, Conducted	±0,6dB
Unwanted Emissions, Conducted	±0.7dB
Spurious (30-1000MHz)	±4,4dB
Spurious (1-18GHz)	±4,4dB

ANNEX 2 - USED EQUIPMENT

Continuous disturbances conducted (150 kHz to 30 MHz)

Item	Instrumentation	Manufacturer	Model No.	Serial No.	DEKRA No.	Cal. Due date
1	EMI Receiver	R&S	ESCI	101206	G/L858	2023/07/21
2	LISN	R&S	ENV216	101336	G/L859	2023/07/21
3	Shielding Room	Changzhou Feite	/	/	G/L861	2023/06/17

Emissions in non-restricted frequency bands/ Emissions in restricted frequency bands

Item	Instrumentation	Manufacturer	Model No.	Serial No.	DEKRA No.	Cal. Due date
1	EMI receiver	R&S	ESCI	101205	G/L857	2023/07/21
2	Antenna (30MHz-3GHz)	SCHWARZBECK	VULB9163	506	G/L864	2022/10/26
3	Chamber	ETS	/	/	G/L856	2024/06/10
4	Antenna (1GHz-18GHz)	R&S	HF907	102306	G/L1236	2023/02/23
5	Horn antenna preamplifier	Schwarzbeek	SCU-18	102234	G/L1236-1	2023/02/21
6	Spectrum analyzer	R&S	FSV40	SN101012	G/L1235	2023/01/17
7	HF antenna (18 – 26.5 GHz)	ETS	3160-09	00164643	G/L1237	2023/01/16
8	High frequency antenna preamplifier (18 – 26.5 GHz)	Schwarzbeck	SCU-26	1879064	G/L1237-1	2023/01/10
9	Broadband horn antenna (15 – 40 GHz)	Schwarzbeck	BBHA9170	00908	GZ1901	2023/05/06
10	High frequency antenna preamplifier (18 – 26.5 GHz)	Schwarzbeck	SCU-26	1879064	G/L1237-1	2023/01/10
11	Annular magnetic field antenna	TESEQ	HLA6121	540045	GZ1905	2023/05/12
12	Test software	AUDIX	e3	Version 6.130520	---	---

Duty cycle/Band Edge/Fundamental emission output power/DTS Bandwidth/Power Spectral Density

Item	Instrumentation	Manufacturer	Model	Serial no.	DEKRA No.	Cal Due date
1	Spectrum analyzer	R&S	FSV	SN101012	G/L1235	2023/01/17
2	Chamber	ETS	/	/	G/L856	2024/06/10
3	OSP	R&S	OSP 150	101907	GZ1894	2023/04/27
4	Test software	R&S	WMS32	Version 11.40.00	---	---

ANNEX 3 - TEST PHOTOS

Refer to document Test setup.

--- END ---