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Test report No: 4918539.51

TEST REPORT
Radio Spectrum Matters (RF)

Identification of item tested	Cync dynamic effect indoor strip
Trademark	GE
Model and /or type reference	CSTR16CDID/ENS, CSTR32CDID/ENS
FCC ID	PUU-STR-CDID
Features	Adaptor: CLASS 2 POWER UNIT MODEL NO: XY24SR-240100VQ-UW INPUT: 100-240Vac, 50/60Hz, 0.6A MAX OUTPUT: 24Vdc, 1.0A
Applicant´s name / address	Savant Technologies LLC, dba GE Lighting, a Savant Company 1975 Noble Road, Cleveland, OH, 44112, US.
Test method requested, standard	FCC CFR Title 47 Part15 Subpart C Section 15.247; KDB558074 D01v05r02;
Verdict Summary	COMPLIANCE
Tested by (name & signature)	Jazz Liang
Approved by (name & signature)	Tim Yan
Date of issue	2024-06-19
Report template No	TRF_EMC 2017-06- FCC_Part15C_247

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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
4918539.51	2024-06-19	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 ..... :	Cync dynamic effect indoor strip
Trademark ..... :	GE
Model / Type number ..... :	CSTR16CDID/ENS, CSTR32CDID/ENS
FCC ID ..... :	PUU-STR-CDID
Hardware ..... :	N/A
Software ..... :	N/A
Firmware ..... :	N/A
Ratings ..... :	Adaptor: CLASS 2 POWER UNIT MODEL NO: XY24SR-240100VQ-UW INPUT: 100-240Vac, 50/60Hz, 0.6A MAX OUTPUT: 24Vdc, 1.0A
Manufacturer..... :	Same as applicant
Factory 1 ..... :	Dongguan ZOYO Electronics Technology Co., Ltd. NO.11, Nange west Road, Nanya Village, Daojiao Town, Dongguan, Guangdong, China
Factory 2 ..... :	SILVER AGE VIETNAM TECHNOLOGY COMPANY LIMITED. Lot A2, Gia Le industrial zone, Dong Xuan commune, Dong Hung district, Thai Binh province, VietNam.

			Reference poles				
Rated power supply .....:	Voltage and Frequency		L1	L2	L3	N	PE
	☒	AC: 100-240 V, 50/60 Hz	☒	☐	☐	☒	☐
	☐	AC:	☐	☐	☐	☐	☐
	☐	DC:					
	☐	Battery:					
Mounting position.....:	☒	Table top equipment					
	☐	Wall/Ceiling mounted equipment					
	☐	Floor standing equipment					
	☐	Hand-held equipment					
	☐	Other:					

Based on customer description: Wireless module Characteristic

Wireless module No.	JXC8720-18
Operating frequency range(s) – Tx :	2412 – 2462 MHz for 2.4G WIFI 2402 – 2480 MHz for Bluetooth
Operating frequency range(s) – Rx :	2412 – 2462 MHz for 2.4G WIFI 2402 – 2480 MHz for Bluetooth
Type of Modulation ..... :	WLAN 2.4GHz : IEEE 802.11b: DSSS (CCK, QPSK, BPSK); IEEE 802.11g: OFDM (BPSK, QPSK, 16QAM, 64QAM); IEEE 802.11n HT20: OFDM (BPSK, QPSK, 16QAM, 64QAM) Bluetooth LE:GFSK
Antenna type..... :	Integrate antenna
Antenna gain..... :	0.5 dBi
Operation temperature range	-20 – 40 ℃

Antenna List

Antenna Model No.	N/A					
Antenna Manufacturer	N/A					
Antenna Delivery	☒	1*TX+1*RX	☐	2*TX+2*RX	☐	3*TX+3*RX
Antenna Technology	☒	SISO				
	☐	MIMO	☐	Basic methodology		
			☐	Sectorized antenna systems		
			☐	Cross-polarized antennas		
			☐	Unequal antenna gains, with equal transmit powers		
			☐	Spatial Multiplexing		
			☐	Cyclic Delay Diversity (CDD)		
Antenna Type	Integrate antenna					
Antenna Gain						
Antenna Technology			Ant Gain(eth1) (dBi)			
☒ SISO	☒	Ant1	0.5			
	☐	Ant2	-			

The radio module (Bluetooth) operating channels are:

BLE:

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
0	2402	14	2430	28	2458
1	2404	15	2432	29	2460
2	2406	16	2434	30	2462
3	2408	17	2436	31	2464
4	2410	18	2438	32	2466
5	2412	19	2440	33	2468
6	2414	20	2442	34	2470

7	2416	21	2444	35	2472
8	2418	22	2446	36	2474
9	2420	23	2448	37	2476
10	2422	24	2450	38	2478
11	2424	25	2452	39	2480
12	2426	26	2454	-	-
13	2428	27	2456	-	-

The WIFI mode operating channels are:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
0	2412	7	2447
1	2417	8	2452
2	2422	9	2457
3	2427	10	2462
4	2432	-	-
5	2437	-	-
6	2442	-	-

Intended use of the Equipment Under Test (EUT)
The apparatus as supplied for the test is Cync dynamic effect indoor strip which intended for residential use, the product contains electronic circuitry and without earth connection. It contains a Wireless module, so it would be controlled by other Wi-Fi devices through APPs. Based on customer description, models CSTR16CDID/ENS, CSTR32CDID/ENS are identical except for the length of the LED strip(5m for model CSTR16CDID/ENS, 10m for model CSTR32CDID/ENS). Hence, model CSTR32CDID/ENS was chosen for full test.

Copy of marking plate:
Refer to document label.

1.2 Test data

Test Location	DEKRA Testing and Certification (Shanghai) Ltd. Block 5, No.3, Qiyun Road, Huangpu District, Guangzhou, Guangdong, China FCC Designation Number: CN1324;
Date of receipt of test item	2024-05-14
Date (s) of performance of tests	2024-05-14 to 2024-05-31
Test sample	Normal sample: CSTR32CDID/ENS (lab no.4918539-1) RF conducted sample: CSTR32CDID/ENS (lab no.4918539-2) RF radiated sample: CSTR32CDID/ENS (lab no.4918539-3)

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.

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	LED 4000K on mode; Supply power by AC/DC adaptor	☒	☒
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
AmebaZ2_mptool_1V3 (soft ware)	-	-	Client
Realtek Bluetooth MP Kit Setup Package (soft ware)	-	-	Client
Adaptor Name: CLASS 2 POWER UNIT	XY24SR-240100VQ-UW	GE Lighting, a Savant Company / XING YUAN ELETRONICS CO.,LTD	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(TUYA) which provided by test lab which connected to laptop through the com port. After connected, run the software “AmebaZ2_mptool_1V3” supplied by manufacturer to control the EUT work in required test mode as below table.

RF Mode	Frequency (MHz)	Set_power in software
IEEE 802.11 b/g/n20	2412	100
	2437	100
	2462	100

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

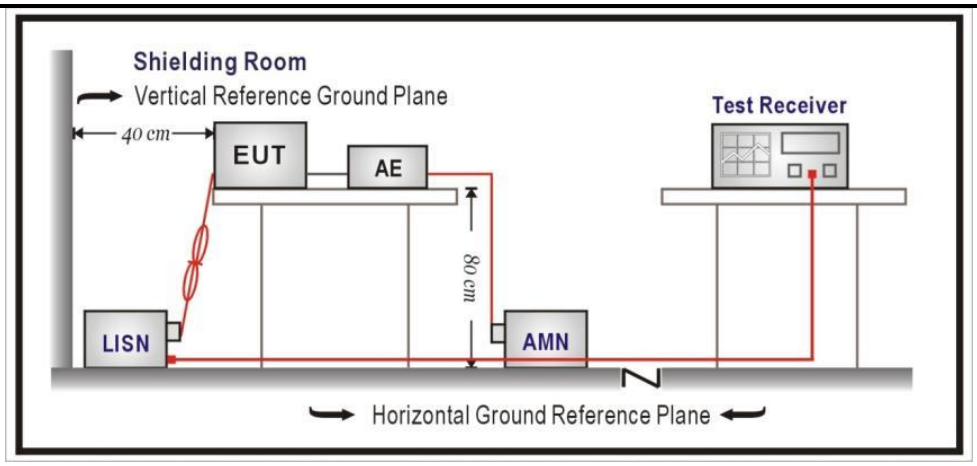
4.1 AC Power Line Conducted Emission	VERDICT: PASS

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



Performed measurements

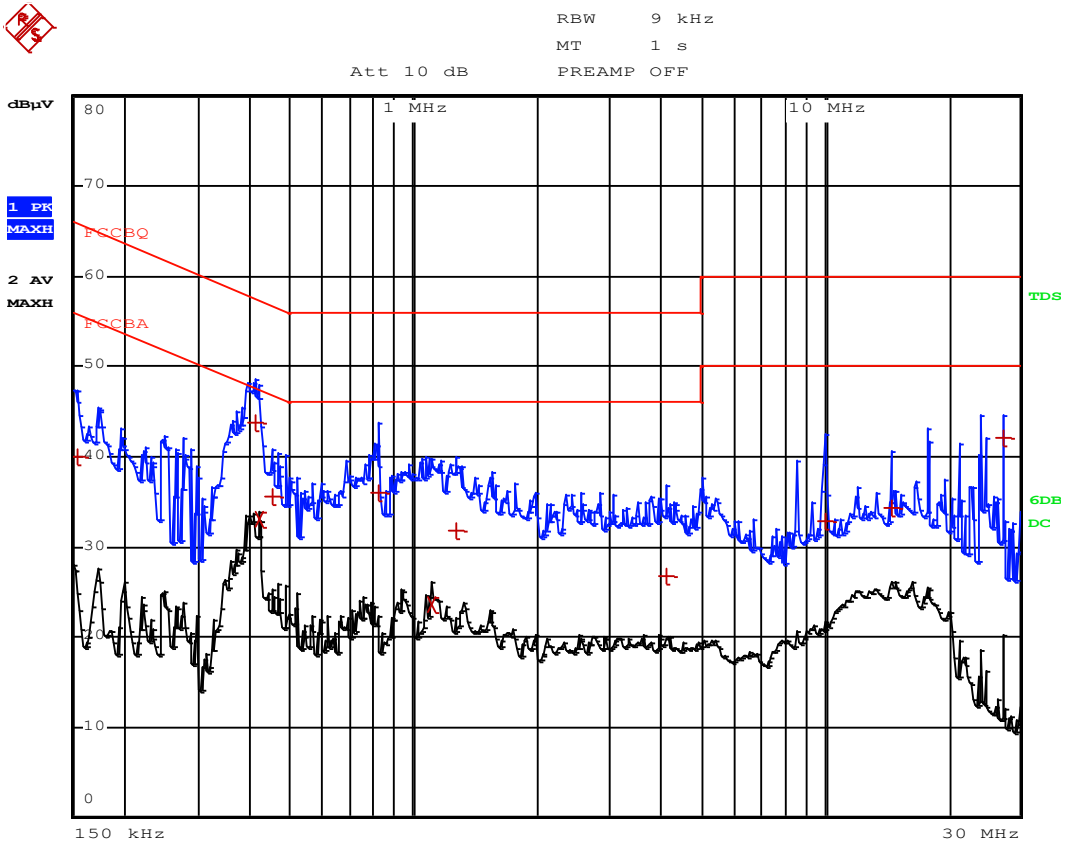
Port under test			Terminal							
☒	AC mains input power		☒	N	☒	L1	☐	L2	☐	L3
☐	DC input power		☐	Positive (+)			☐	Negative (-)		

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	CSTR32CDID/ENS
Operation Mode (worst case)	Mode 2
Test voltage	120 Vac, 60 Hz

Results

Live



EDIT PEAK LIST (Final Measurement Results)

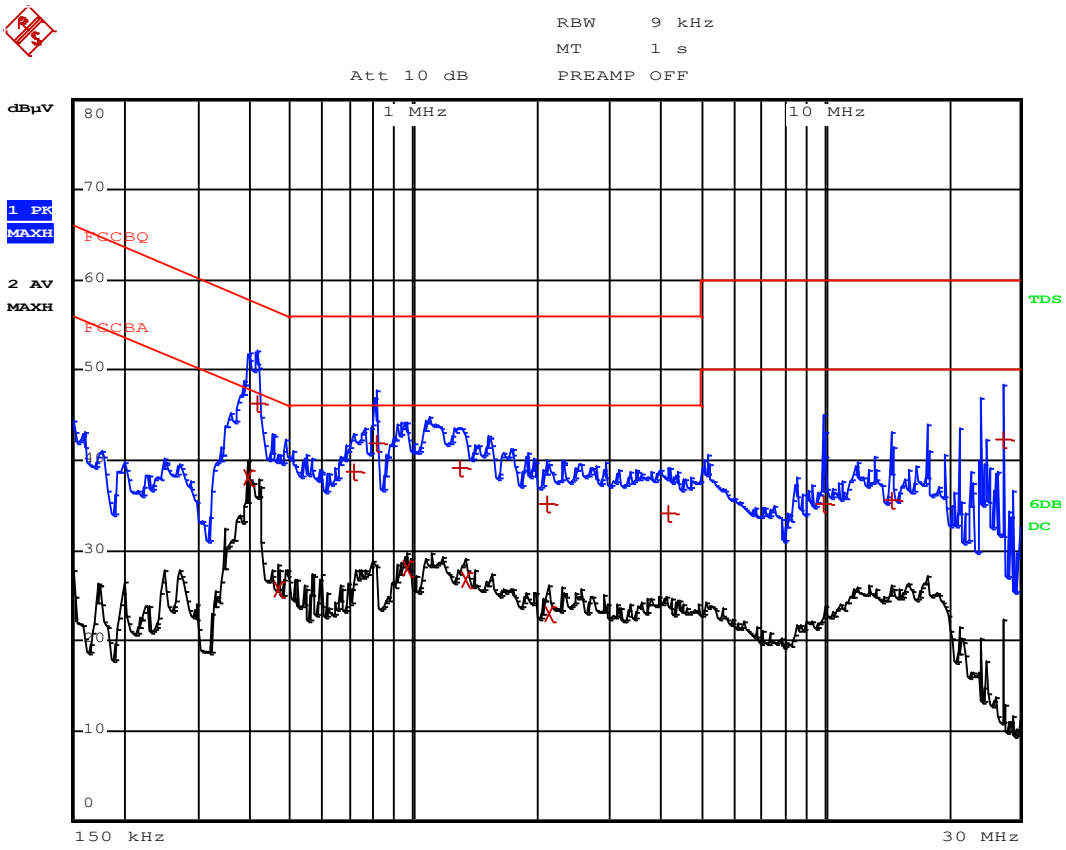
Trace1:	FCCBQ		
Trace2:	FCCBA		
Trace3:	---		
TRACE	FREQUENCY	LEVEL dBµV	DELTA LIMIT dB
1 Quasi Peak	410 kHz	43.87	-13.77
2 Average	418 kHz	33.07	-14.41
1 Quasi Peak	27.35 MHz	42.05	-17.94
1 Quasi Peak	822 kHz	35.96	-20.03
1 Quasi Peak	454 kHz	35.63	-21.16
2 Average	1.106 MHz	23.65	-22.34
1 Quasi Peak	1.278 MHz	31.86	-24.13
1 Quasi Peak	14.57 MHz	34.42	-25.57
1 Quasi Peak	154 kHz	39.95	-25.82

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	394 kHz	38.00	-9.97
1 Quasi Peak	414 kHz	46.40	-11.16
1 Quasi Peak	810 kHz	41.97	-14.02
1 Quasi Peak	1.294 MHz	39.21	-16.78
1 Quasi Peak	714 kHz	38.69	-17.30
1 Quasi Peak	27.35 MHz	42.31	-17.68
2 Average	962 kHz	27.93	-18.06
2 Average	1.334 MHz	26.75	-19.24
2 Average	466 kHz	25.82	-20.76
1 Quasi Peak	2.122 MHz	35.10	-20.89
1 Quasi Peak	4.158 MHz	34.06	-21.93
2 Average	2.142 MHz	22.96	-23.03
1 Quasi Peak	14.582 MHz	35.58	-24.41
1 Quasi Peak	10.014 MHz	35.26	-24.73

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.

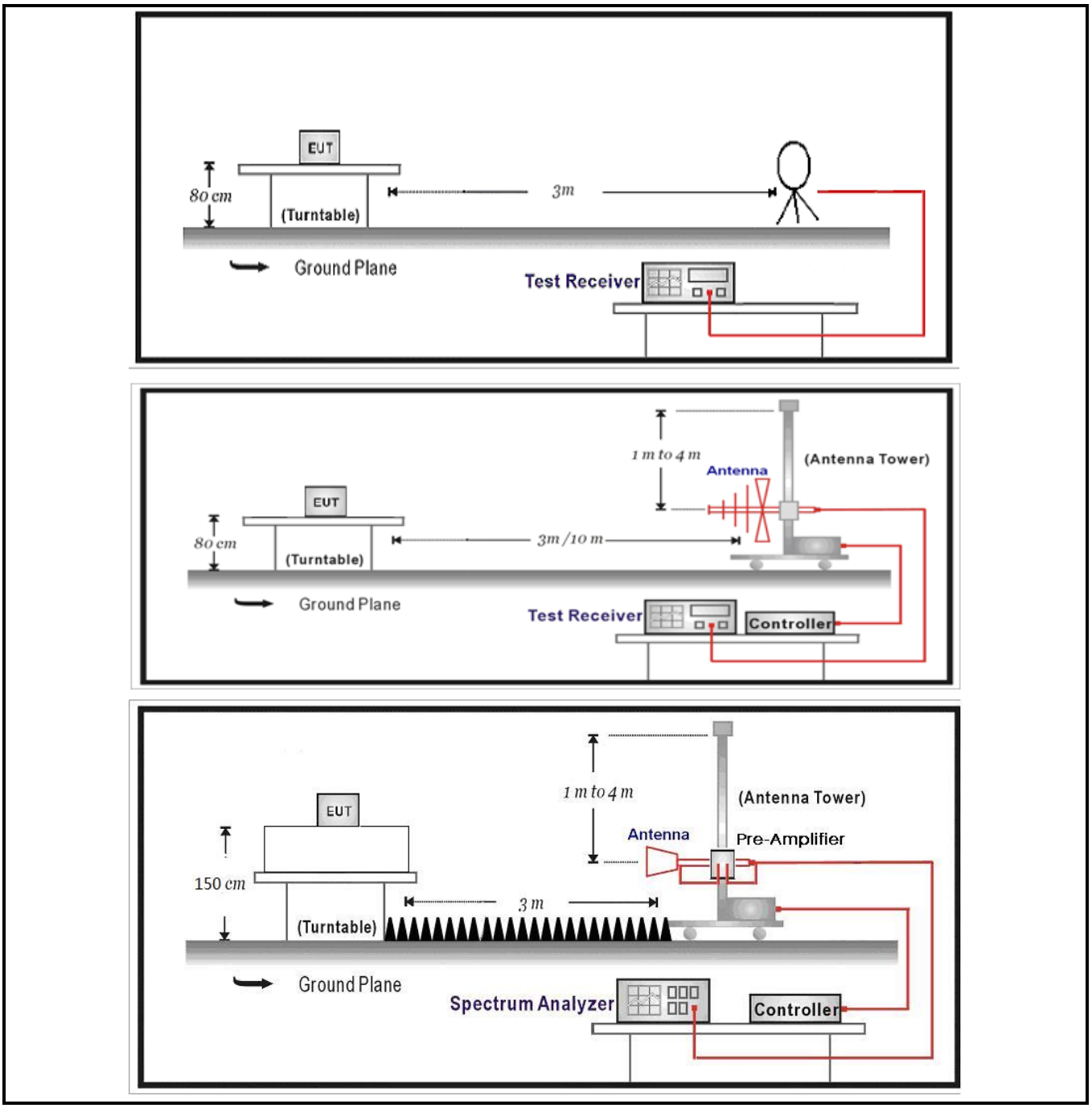
4.2 Emissions in non-restricted frequency bands — VERDICT: PASS

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



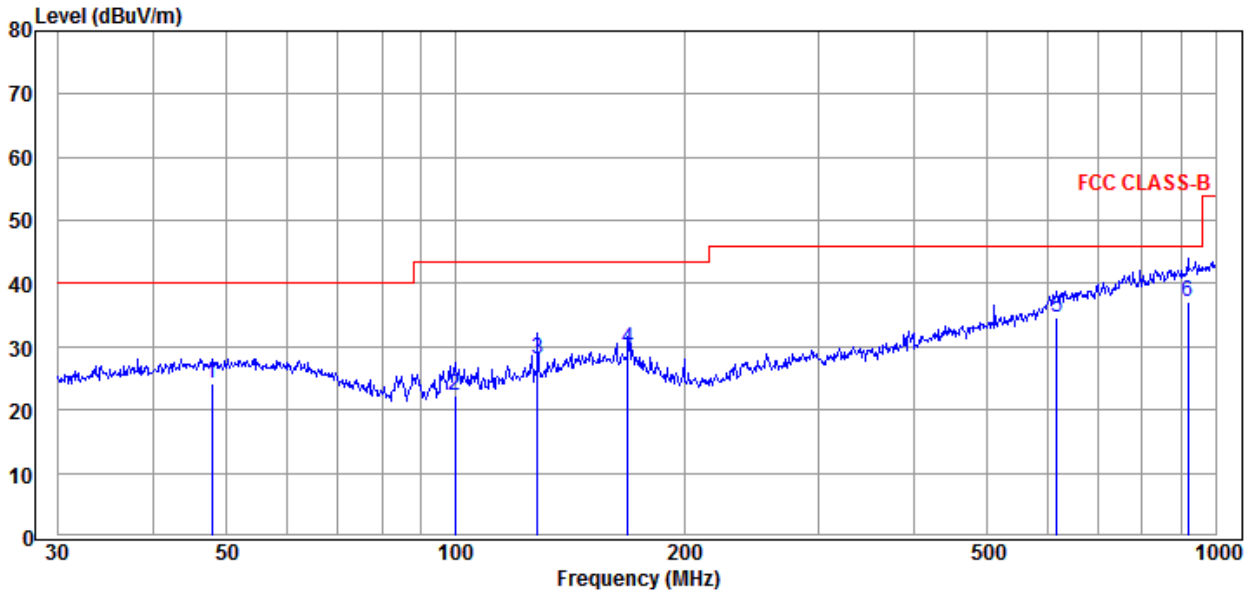
Performed measurements

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	CSTR32CDID/ENS
Operation Mode	Mode 2 (worst case)
Test voltage	120Vac

Results
Horizontal



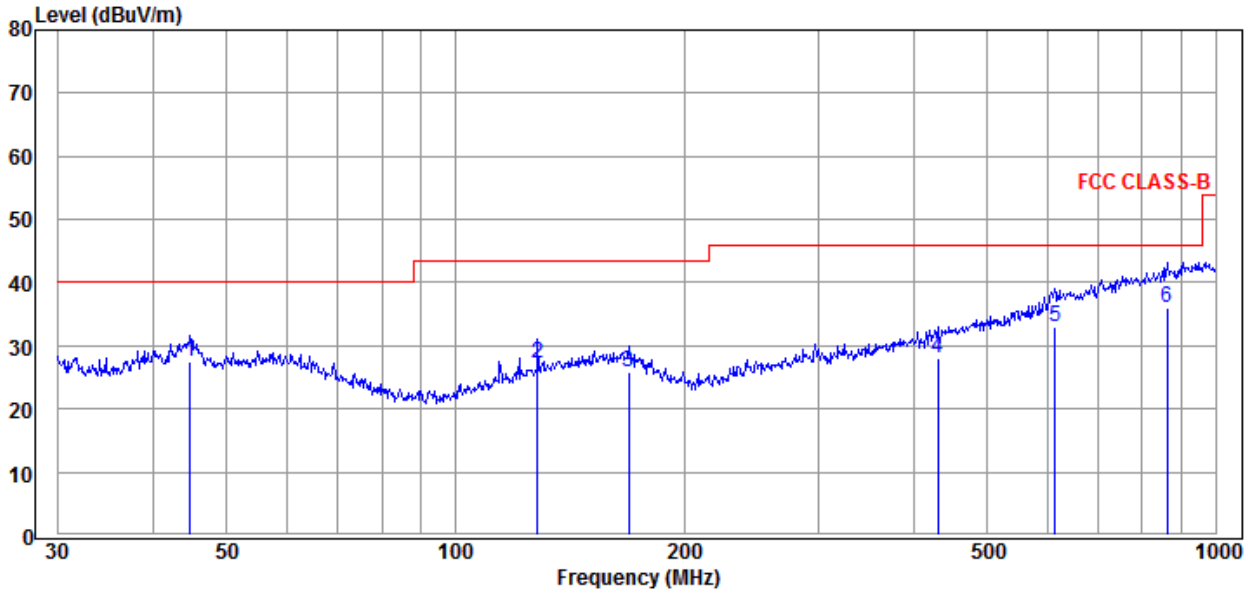
Freq (MHz)	Reading (dBuV)	C.F (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin=limit-result (dB)
47.83	3.67	20.49	24.16	40.00	15.84
99.88	6.29	16.08	22.37	43.50	21.13
128.11	8.97	19.14	28.11	43.50	15.39
168.41	8.95	20.79	29.74	43.50	13.76
618.54	4.96	29.74	34.70	46.00	11.30
919.29	3.23	33.81	37.04	46.00	8.96

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)
44.74	7.14	20.35	27.49	40.00	12.51
128.11	8.02	19.14	27.16	43.50	16.34
169.01	5.12	20.75	25.87	43.50	17.63
431.03	2.88	25.14	28.02	46.00	17.98
614.21	3.36	29.64	33.00	46.00	13.00
863.06	2.74	33.33	36.07	46.00	9.93

Remarks:

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

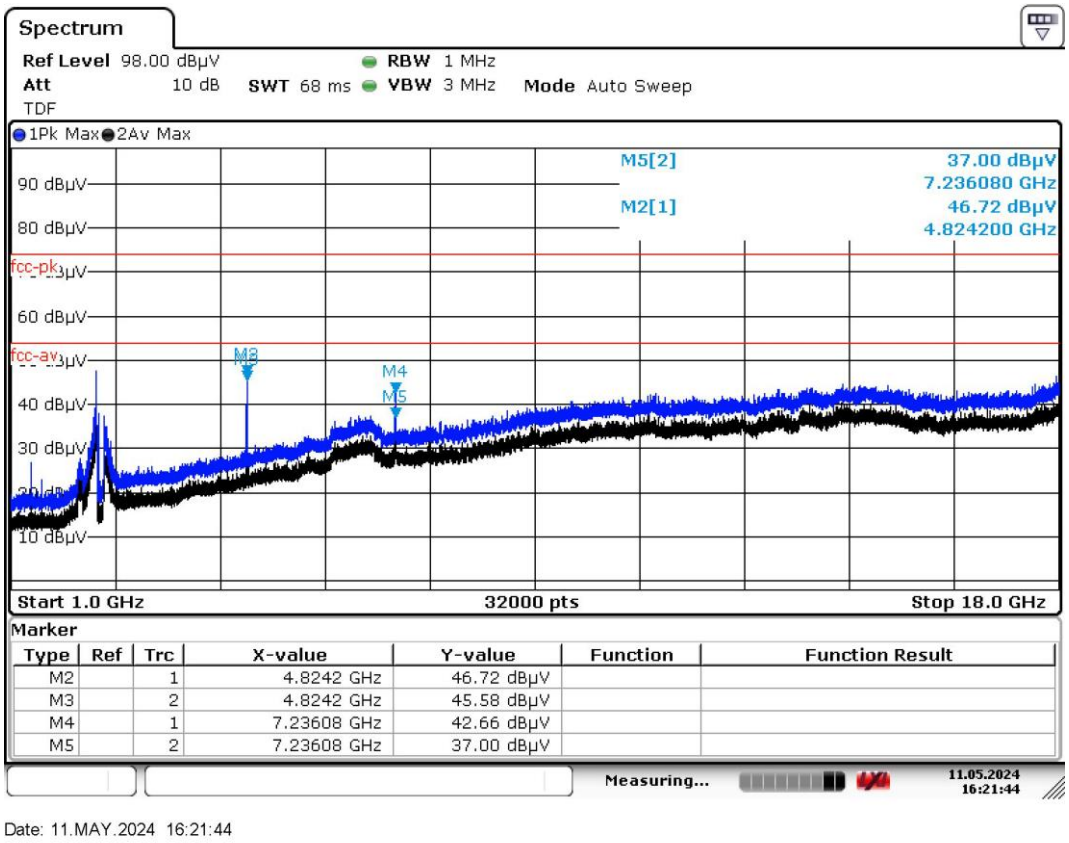
No other significant emissions were measured at the frequency range of interest employing the QP detectors.

Results of 1 – 18 GHz

Model	CSTR32CDID/ENS
Operation Mode (worst case)	Mode 1 @2412 MHz, IEEE 802.11 b
Test voltage	120Vac

Results

Horizontal

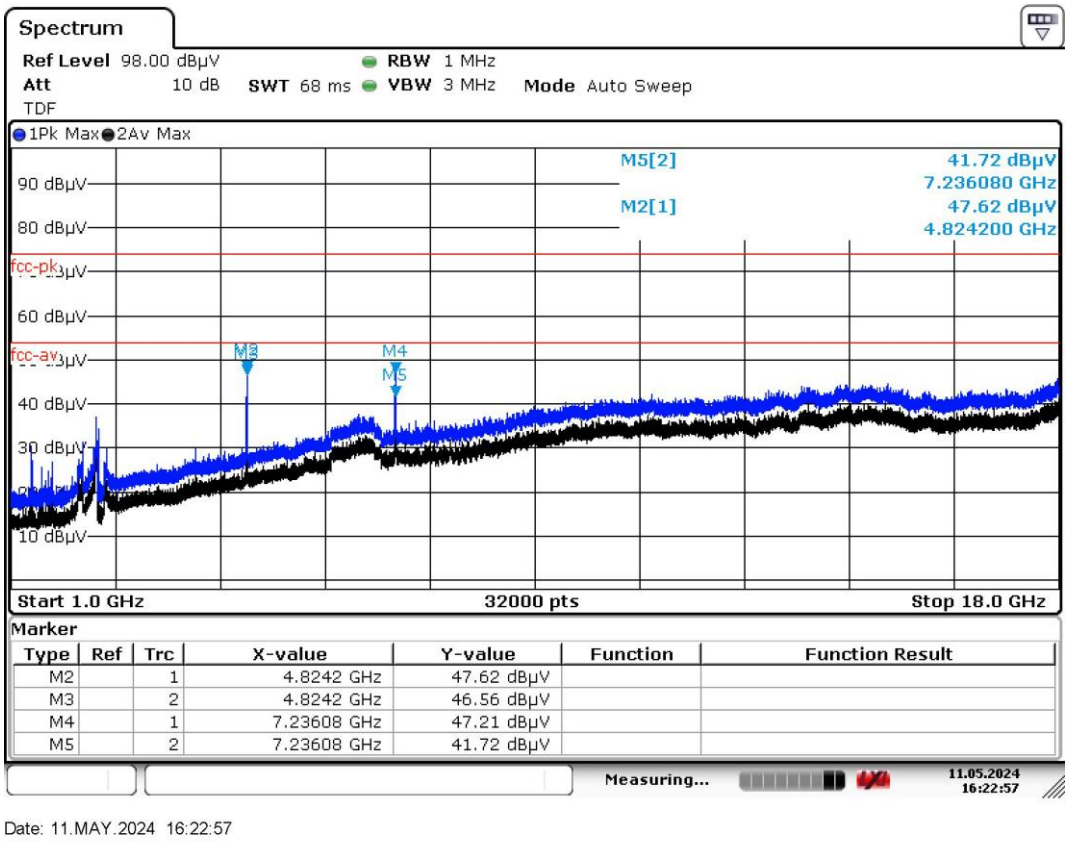


Date: 11.MAY.2024 16:21:44

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



Date: 11.MAY.2024 16:22:57

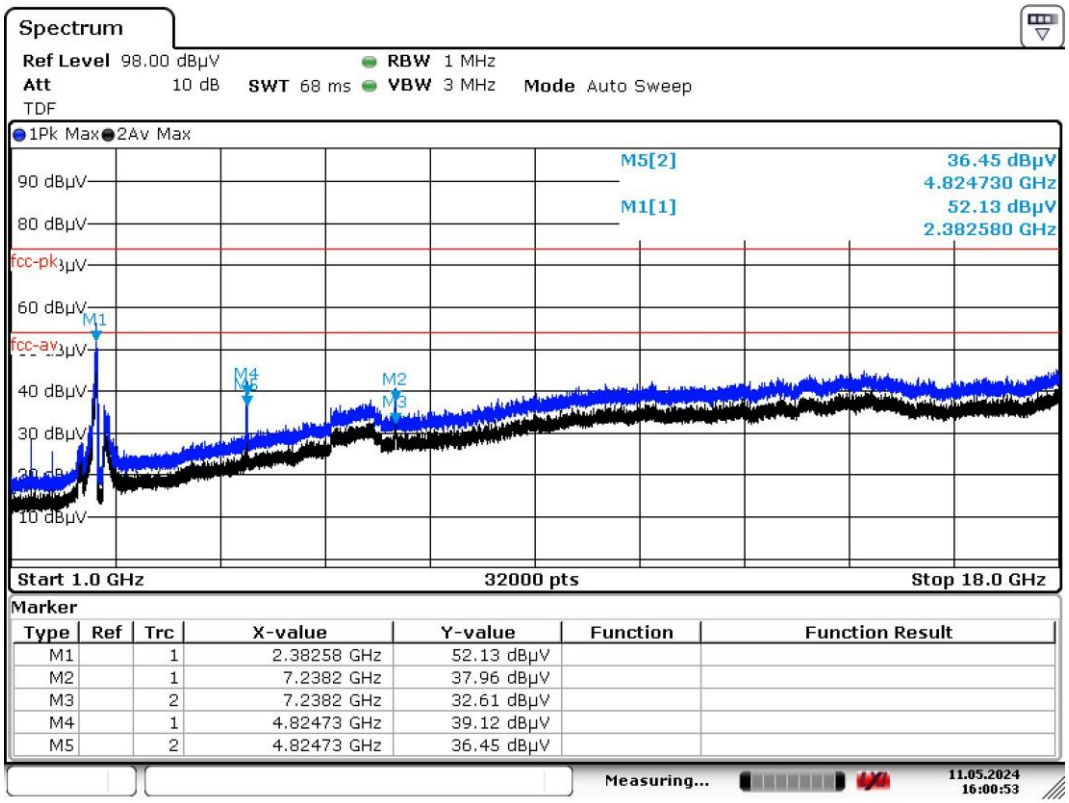
Remarks: Y-Value = received value + Correction Factor (Antenna factor + Cable loss - Preamp gain)

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

Model	CSTR32CDID/ENS
Operation Mode (worst case)	Mode 1 @2412 MHz, IEEE 802.11 g
Test voltage	120Vac

Results

Horizontal

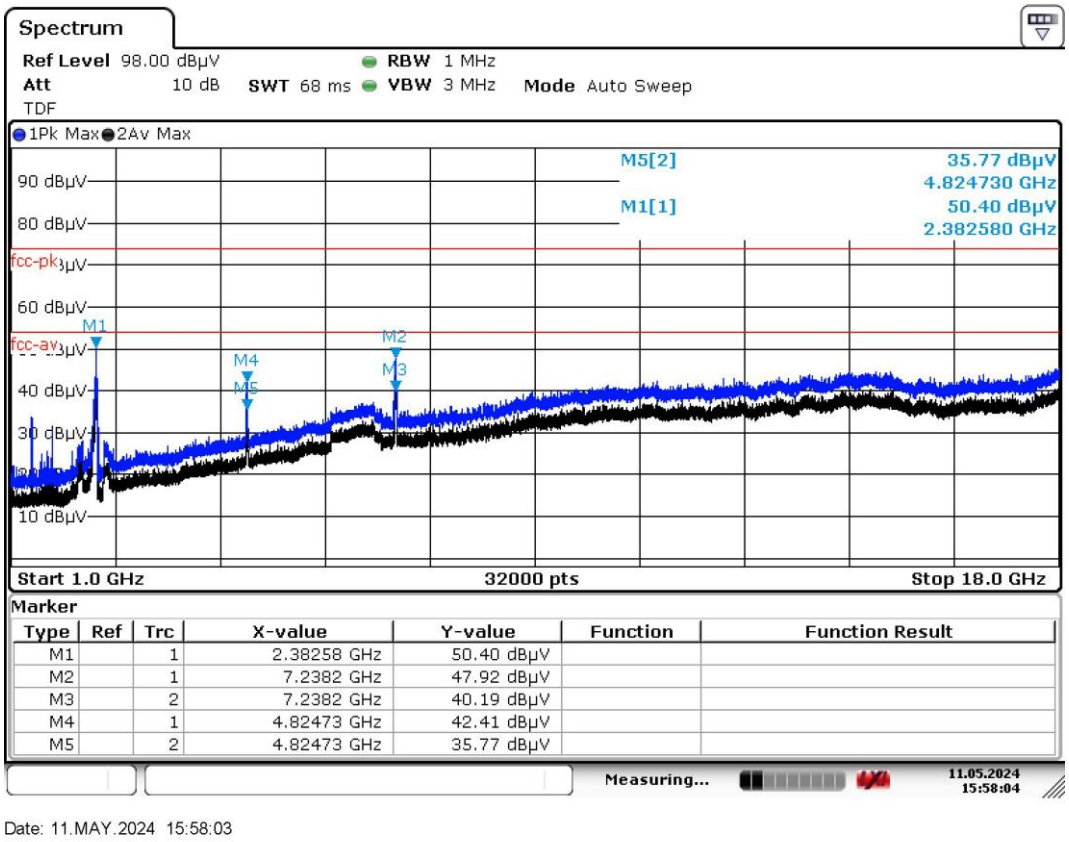


Date: 11.MAY.2024 16:00:53

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



Date: 11.MAY.2024 15:58:03

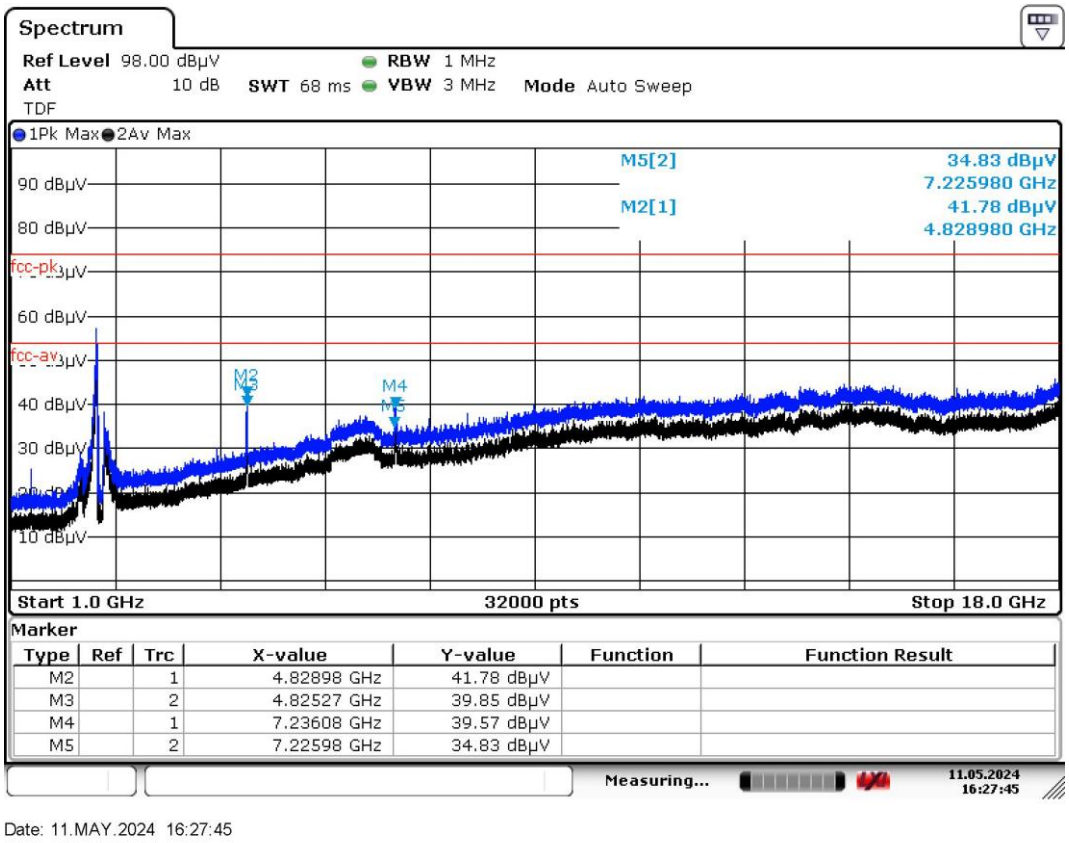
Remarks: Y-Value = received value + Correction Factor (Antenna factor + Cable loss - Preamp gain)

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

Model	CSTR32CDID/ENS
Operation Mode (worst case)	Mode 1 @2412 MHz, IEEE 802.11 n20
Test voltage	120Vac

Results

Horizontal

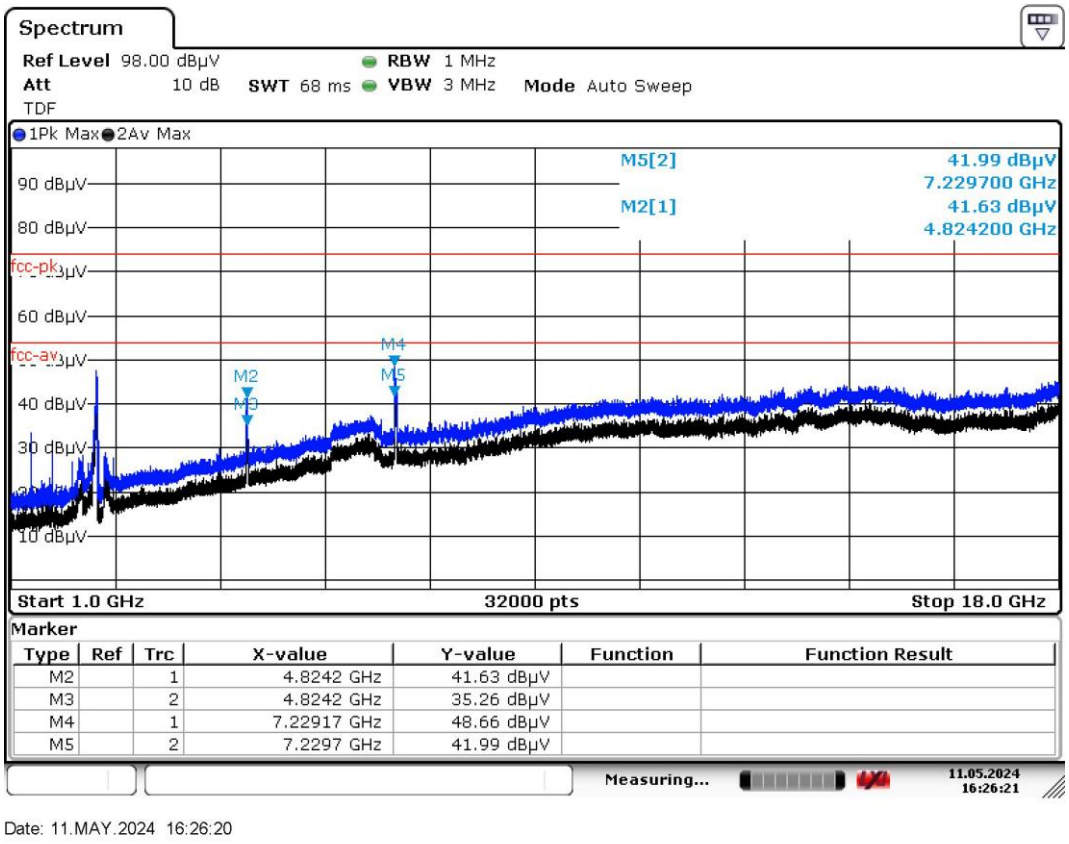


Date: 11.MAY.2024 16:27:45

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



Date: 11.MAY.2024 16:26:20

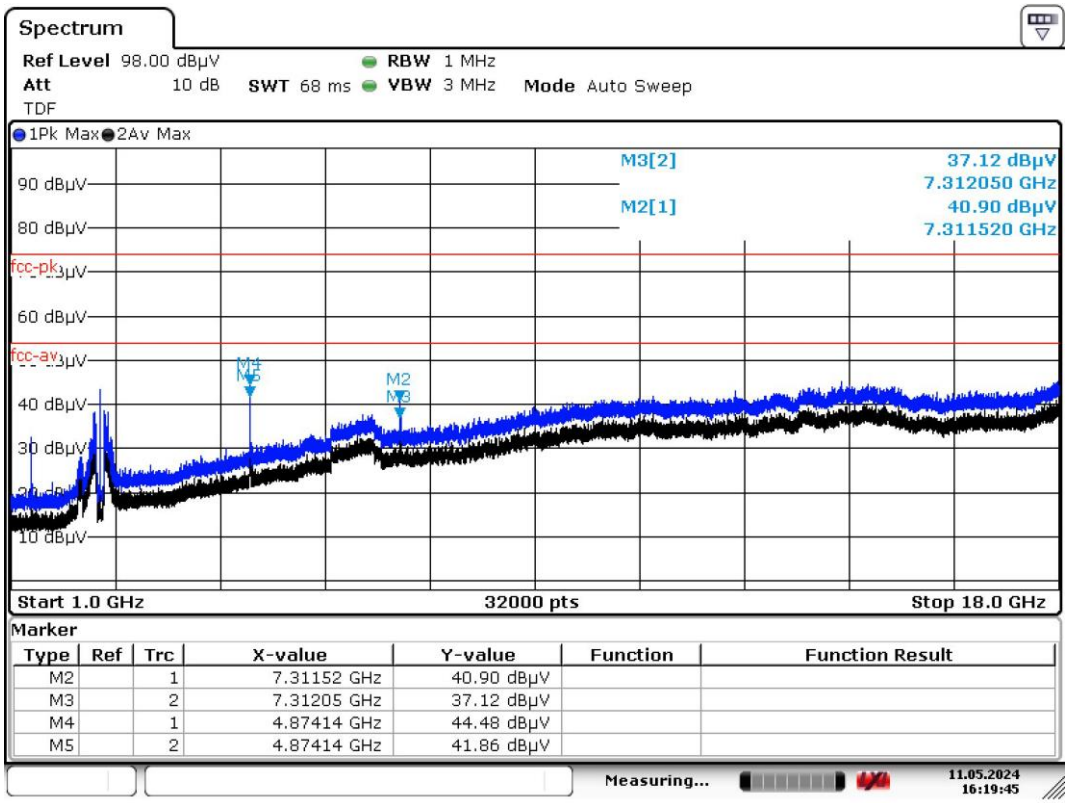
Remarks: Y-Value = received value + Correction Factor (Antenna factor + Cable loss - Preamp gain)

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

Model	CSTR32CDID/ENS
Operation Mode (worst case)	Mode 1 @2437 MHz, IEEE 802.11 b
Test voltage	120Vac

Results

Horizontal

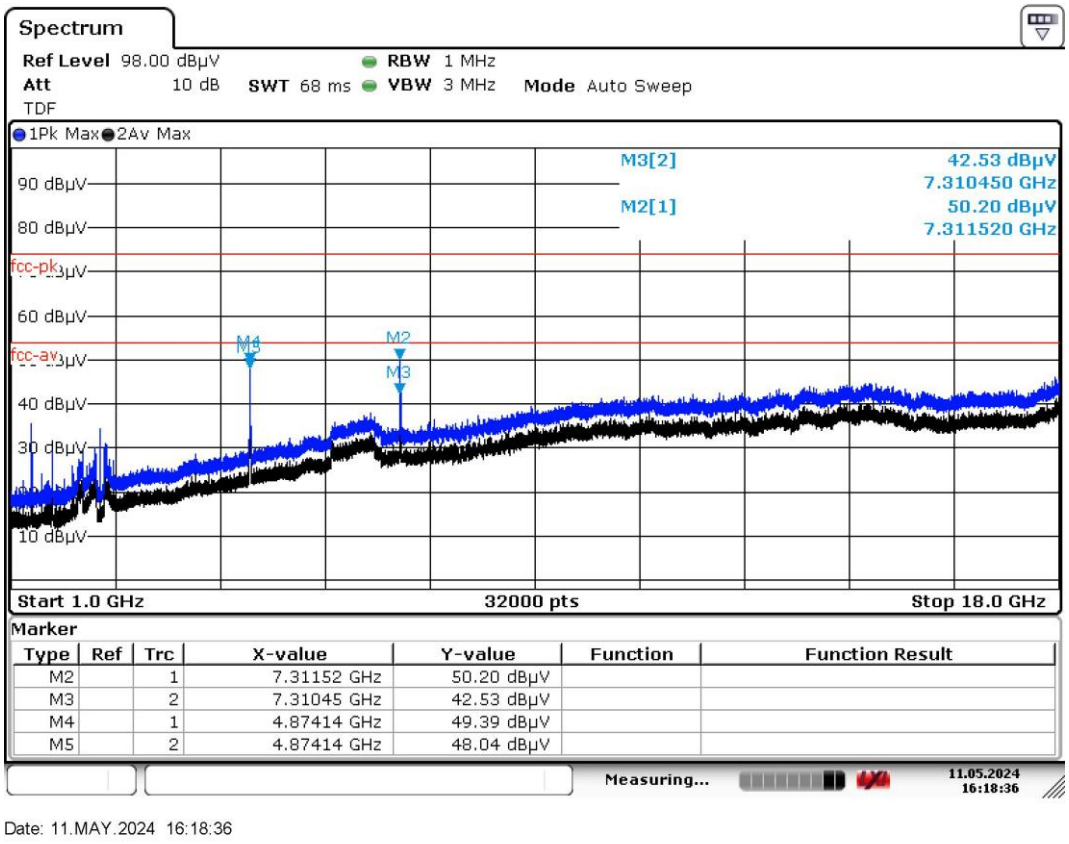


Date: 11.MAY.2024 16:19:44

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



Date: 11.MAY.2024 16:18:36

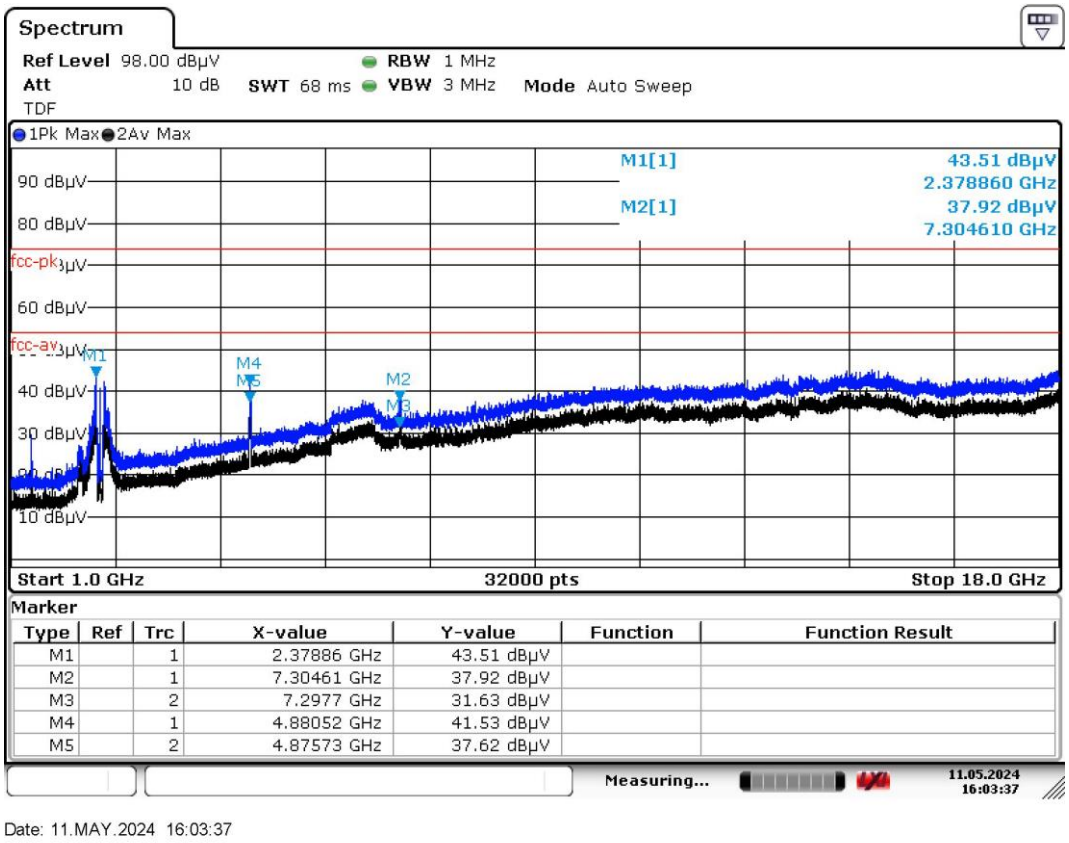
Remarks: Y-Value = received value + Correction Factor (Antenna factor + Cable loss - Preamp gain)

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

Model	CSTR32CDID/ENS
Operation Mode (worst case)	Mode 1 @2437 MHz, IEEE 802.11 g
Test voltage	120Vac

Results

Horizontal

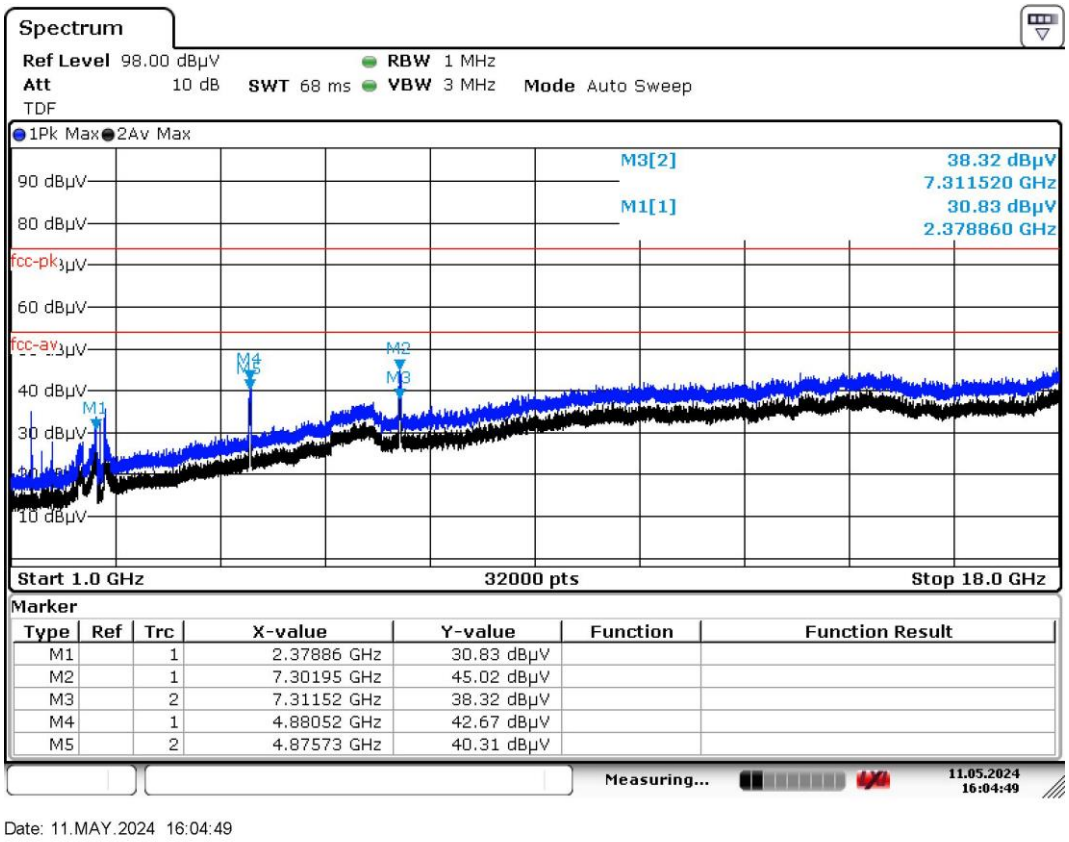


Date: 11.MAY.2024 16:03:37

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



Date: 11.MAY.2024 16:04:49

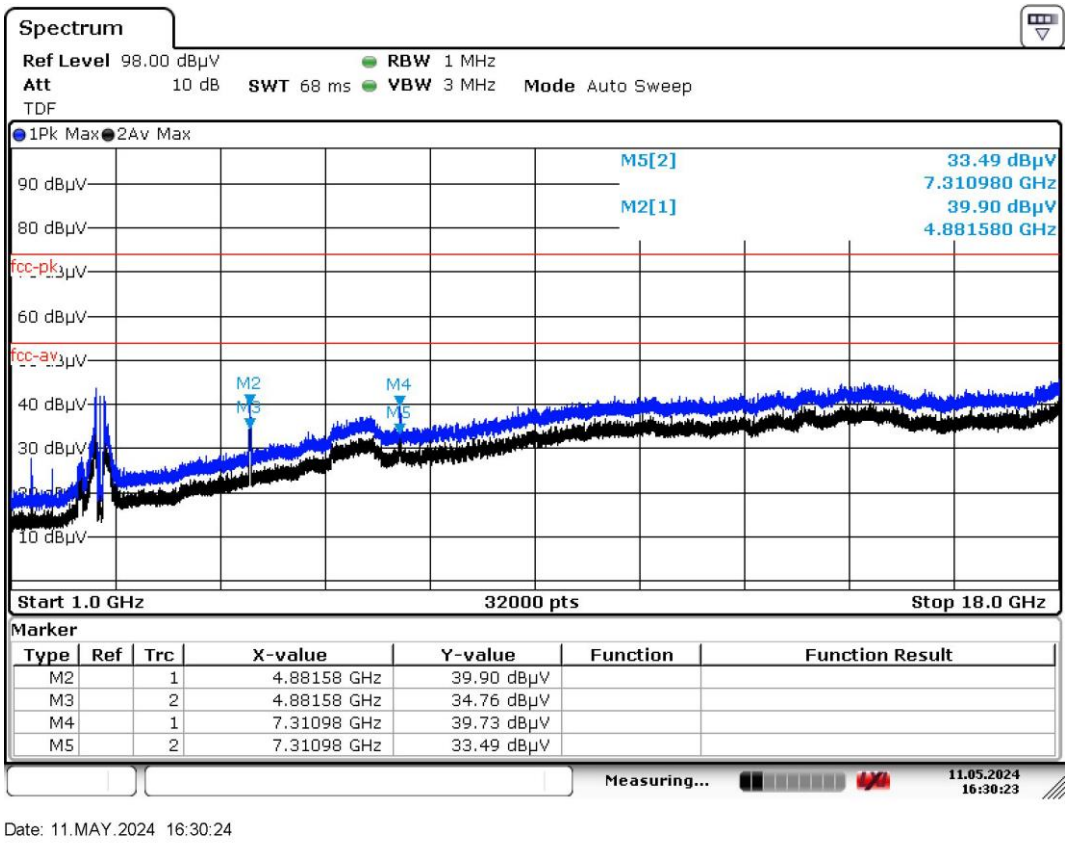
Remarks: Y-Value = received value + Correction Factor (Antenna factor + Cable loss - Preamp gain)

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

Model	CSTR32CDID/ENS
Operation Mode (worst case)	Mode 1 @2437 MHz, IEEE 802.11 n20
Test voltage	120Vac

Results

Horizontal

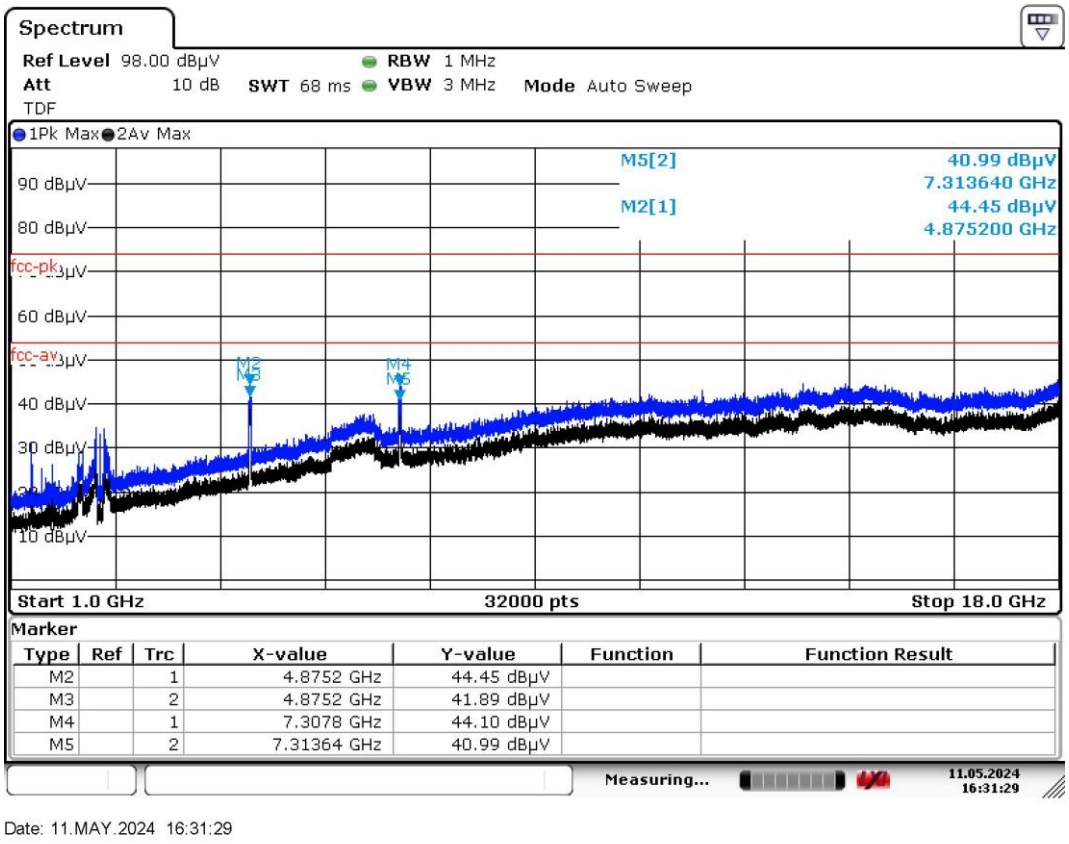


Date: 11.MAY.2024 16:30:24

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



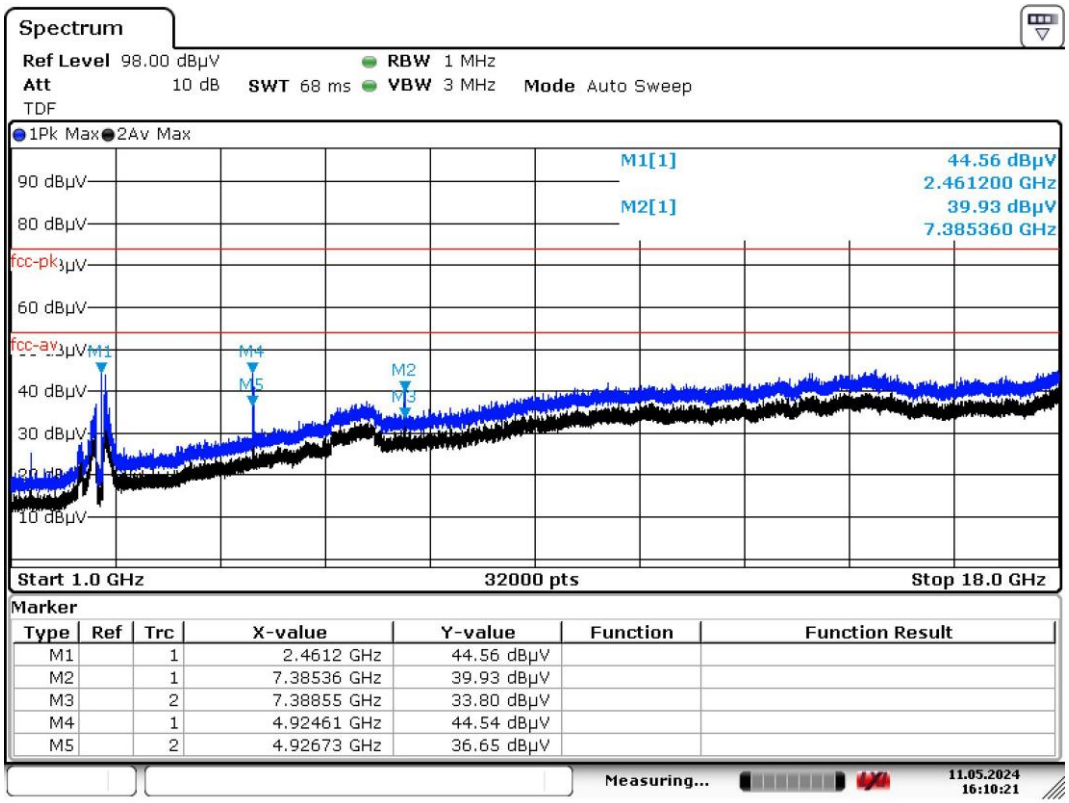
Remarks: Y-Value = received value + Correction Factor (Antenna factor + Cable loss - Preamp gain)

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

Model	CSTR32CDID/ENS
Operation Mode (worst case)	Mode 1 @2462 MHz, IEEE 802.11 b
Test voltage	120Vac

Results

Horizontal

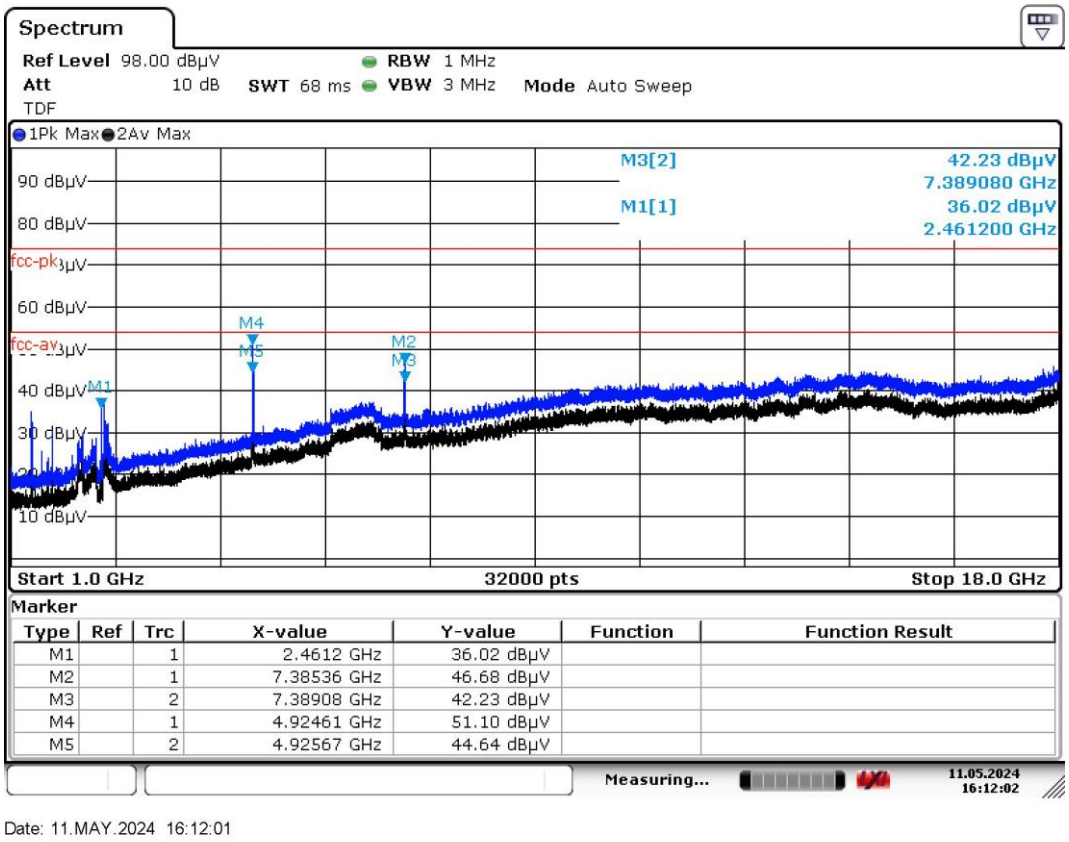


Date: 11.MAY.2024 16:10:21

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



Date: 11.MAY.2024 16:12:01

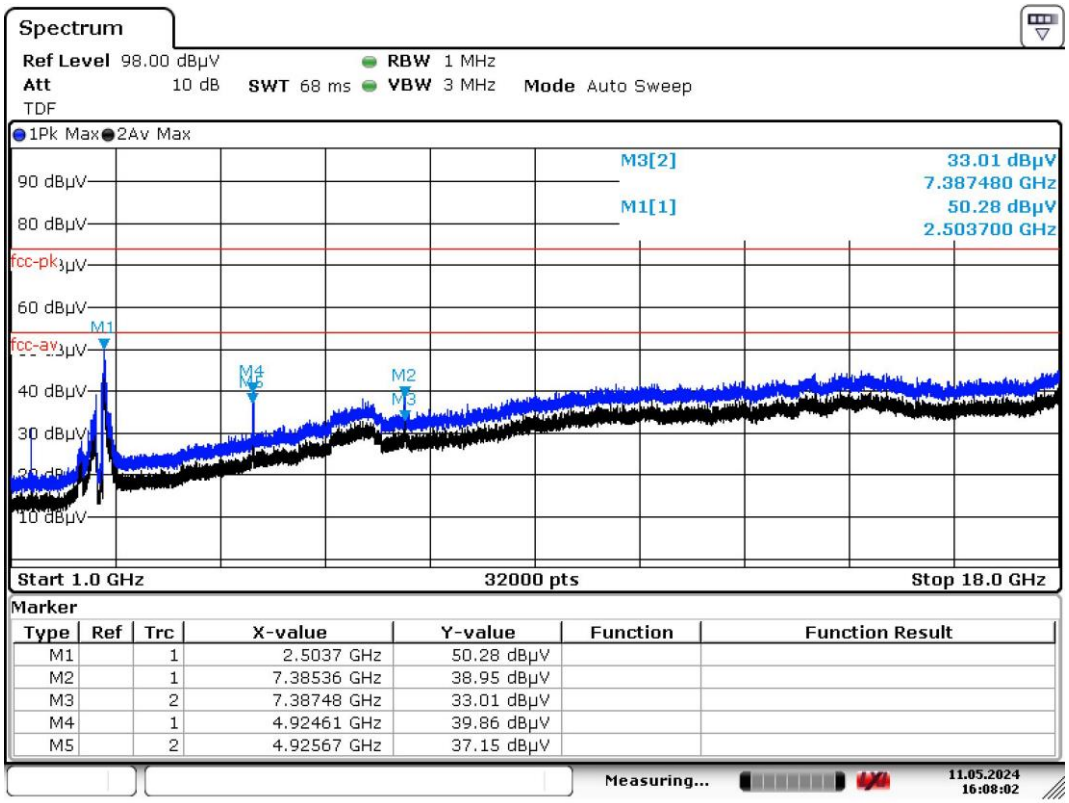
Remarks: Y-Value = received value + Correction Factor (Antenna factor + Cable loss - Preamp gain)

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

Model	CSTR32CDID/ENS
Operation Mode (worst case)	Mode 1 @2462 MHz, IEEE 802.11 g
Test voltage	120Vac

Results

Horizontal

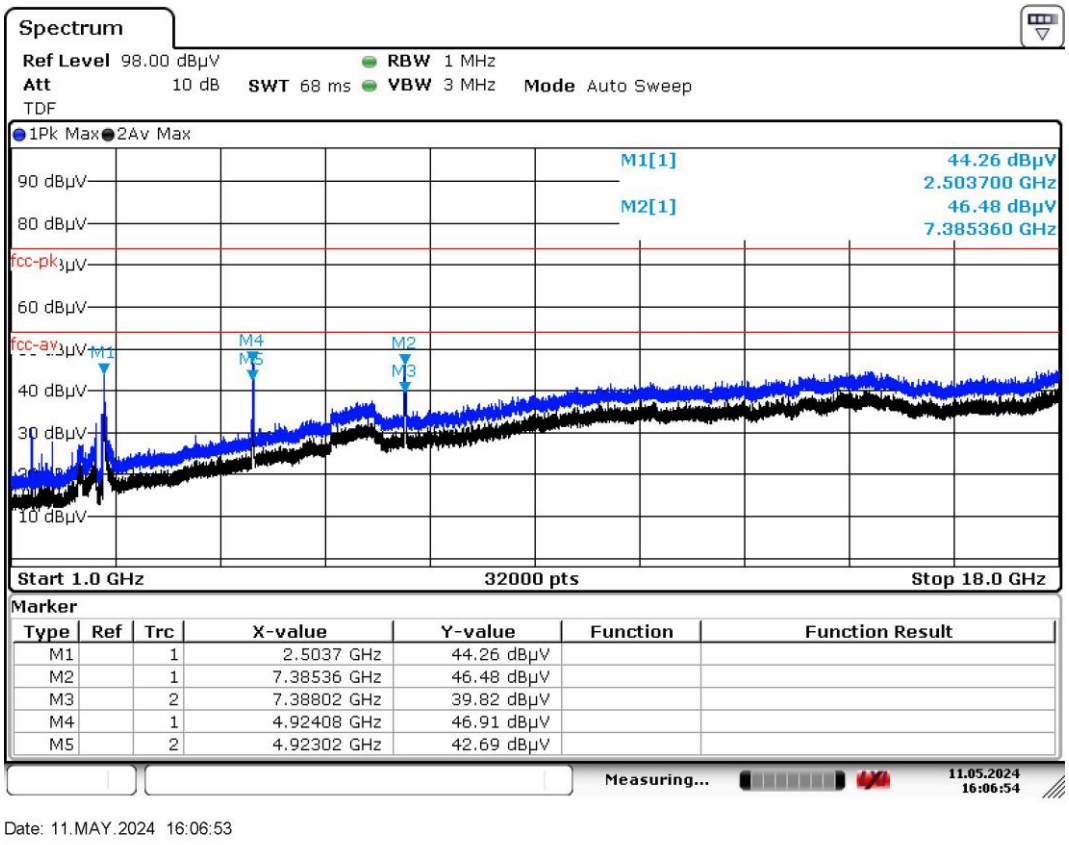


Date: 11.MAY.2024 16:08:02

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



Date: 11.MAY.2024 16:06:53

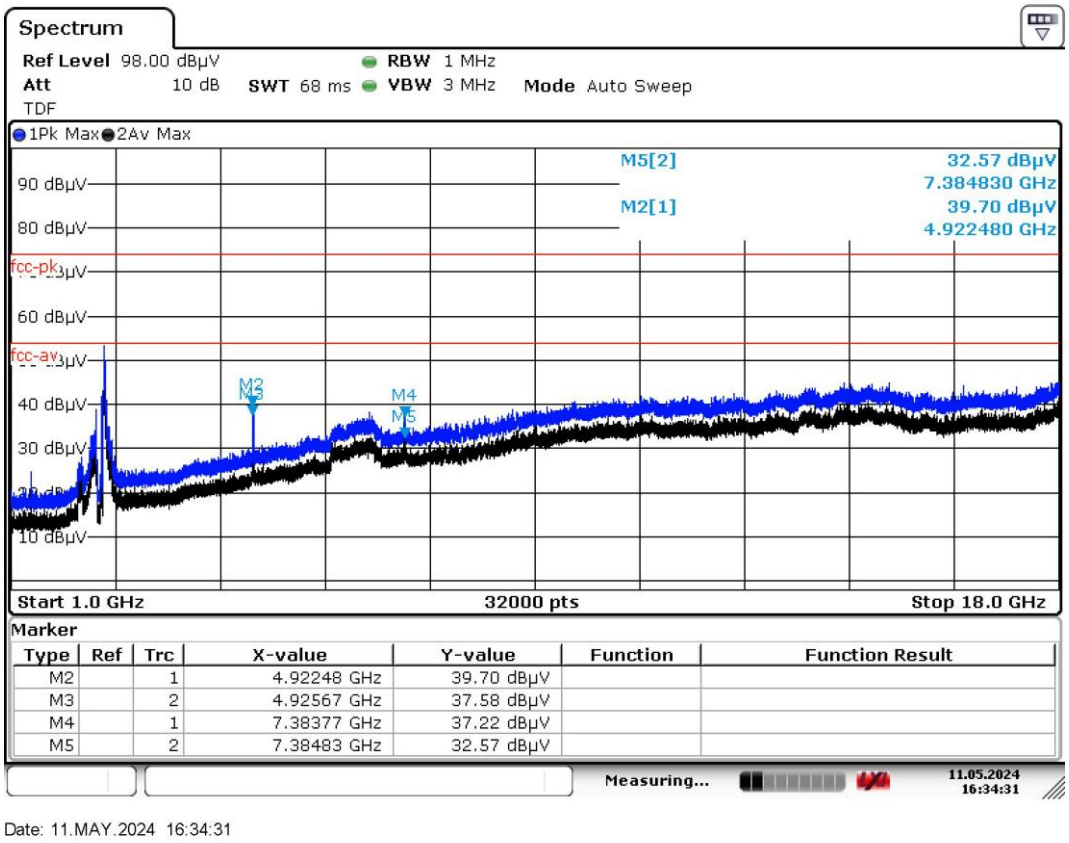
Remarks: Y-Value = received value + Correction Factor (Antenna factor + Cable loss - Preamp gain)

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

Model	CSTR32CDID/ENS
Operation Mode (worst case)	Mode 1 @2462 MHz, IEEE 802.11 n20
Test voltage	120Vac

Results

Horizontal

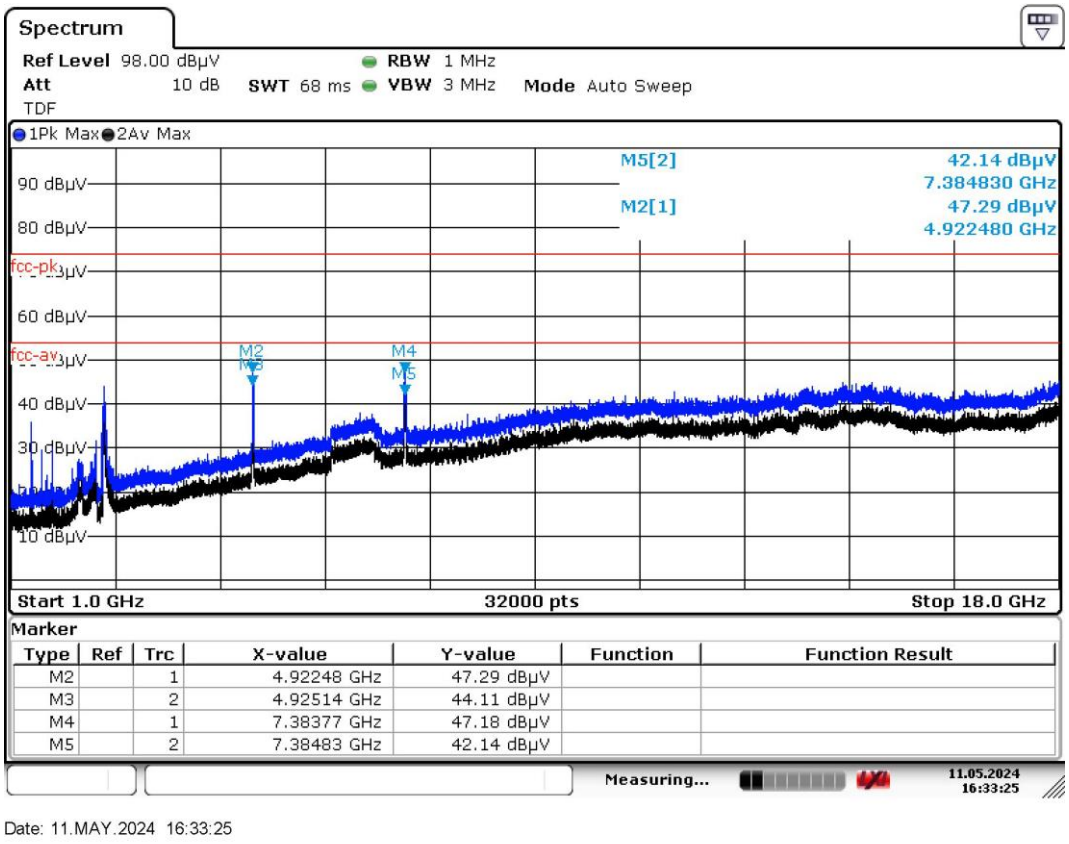


Date: 11.MAY.2024 16:34:31

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.

4.3 Emissions in restricted frequency bands — VERDICT: PASS

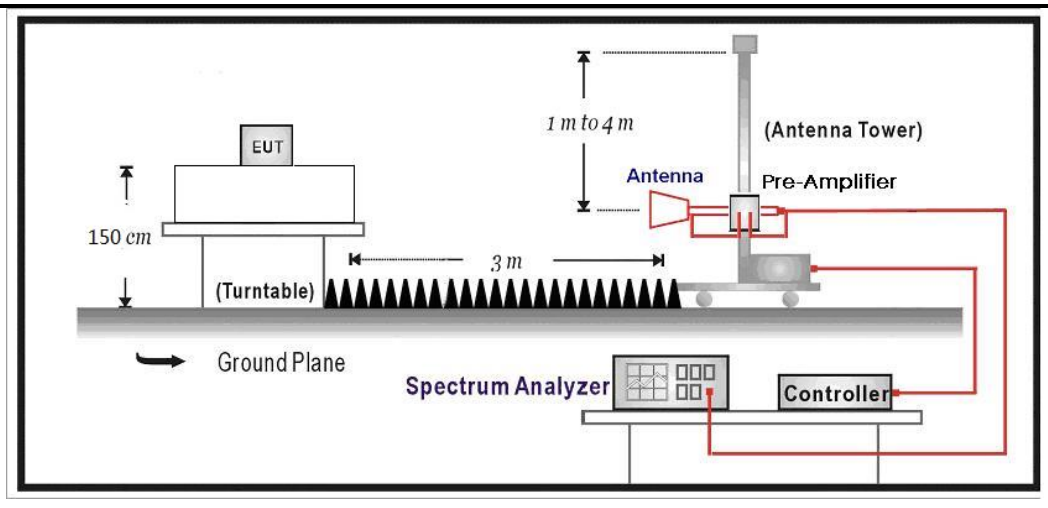
Restricted Bands of operation of FCC			
Frequency (MHz)	Frequency (MHz)	Frequency (MHz)	Frequency (GHz)
0.090 – 0.110	16.42 – 16.423	399.9 – 410	4.5 – 5.15
0.495 – 0.505	16.69475 –16.69525	608 – 614	5.35 – 5.46
2.1735 – 2.1905	16.80425 – 16.80475	960 – 1240	7.25 – 7.75
4.125 – 4.128	25.5 – 25.67	1300 – 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



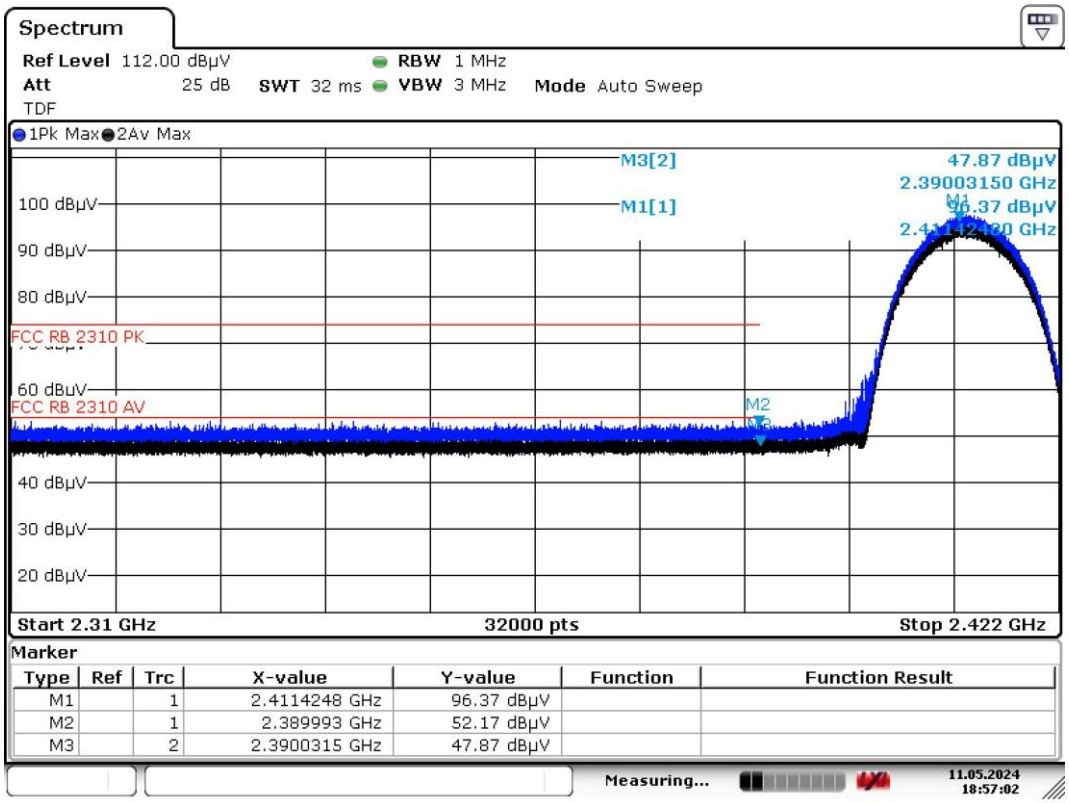
Performed measurements

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	CSTR32CDID/ENS
Operation Mode (worst case)	Mode 1 @2412 MHz, IEEE 802.11 b
Test voltage	120Vac

Results

Horizontal

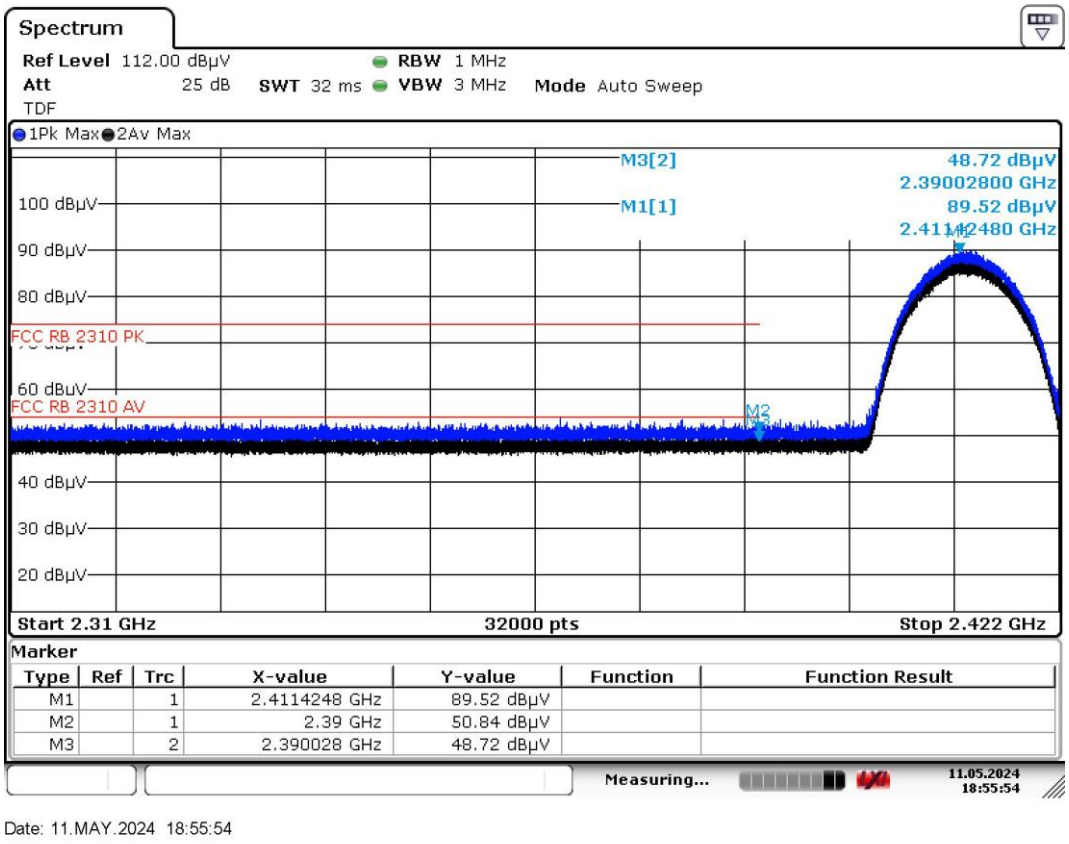


Date: 11.MAY.2024 18:57:02

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



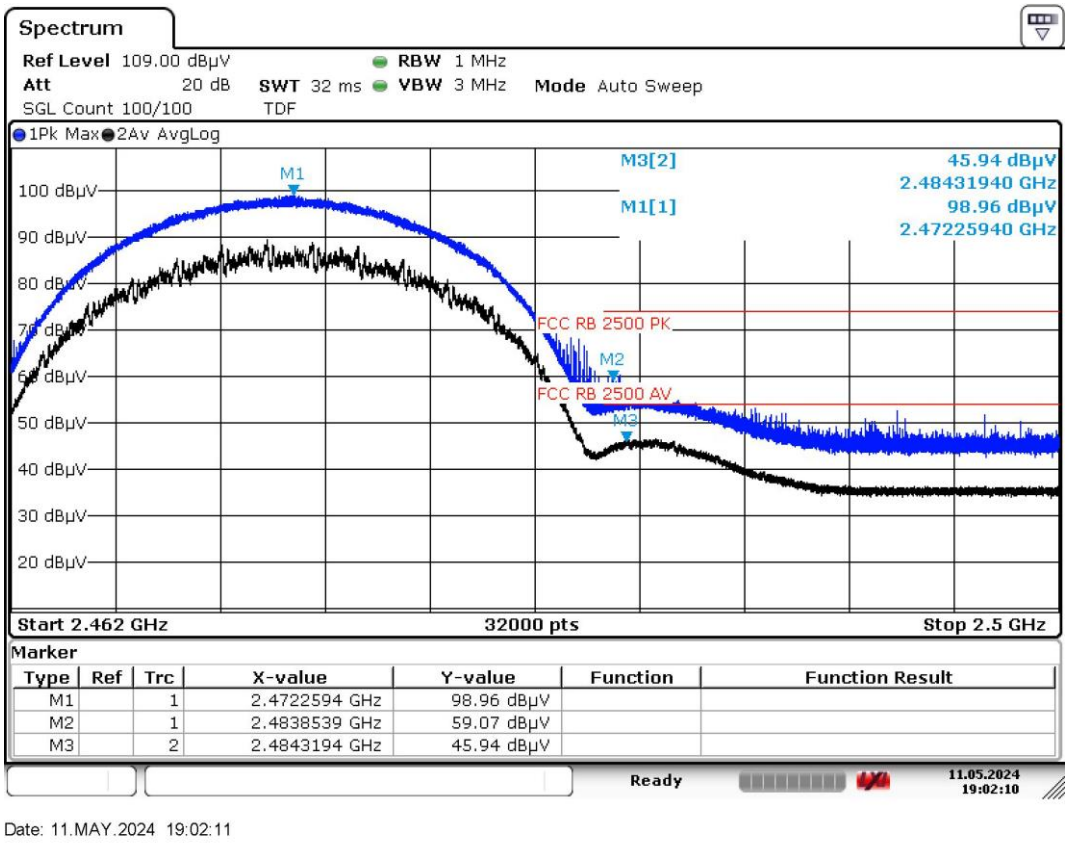
Remarks: Y-Value = received value + Correction Factor (Antenna factor + Cable loss - Preamp gain)

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

Model	CSTR32CDID/ENS
Operation Mode (worst case)	Mode 1 @2462 MHz, IEEE 802.11 b
Test voltage	120Vac

Results

Horizontal

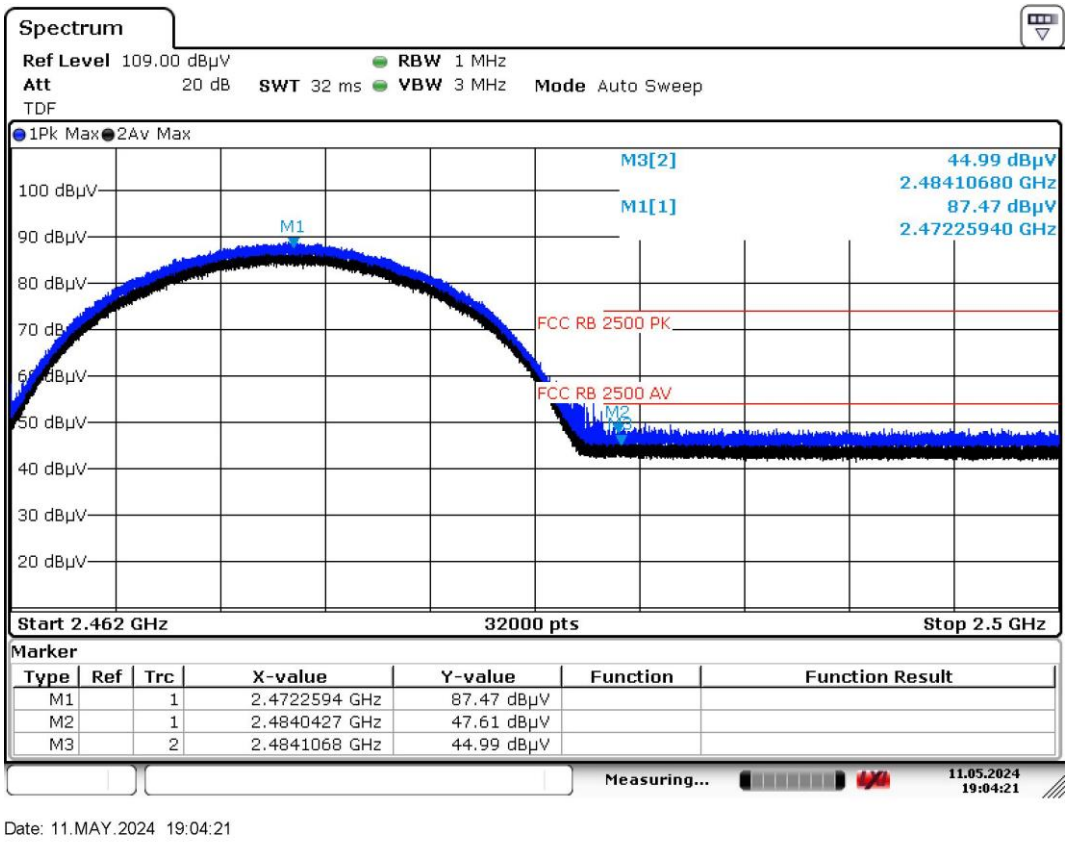


Date: 11.MAY.2024 19:02:11

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



Date: 11.MAY.2024 19:04:21

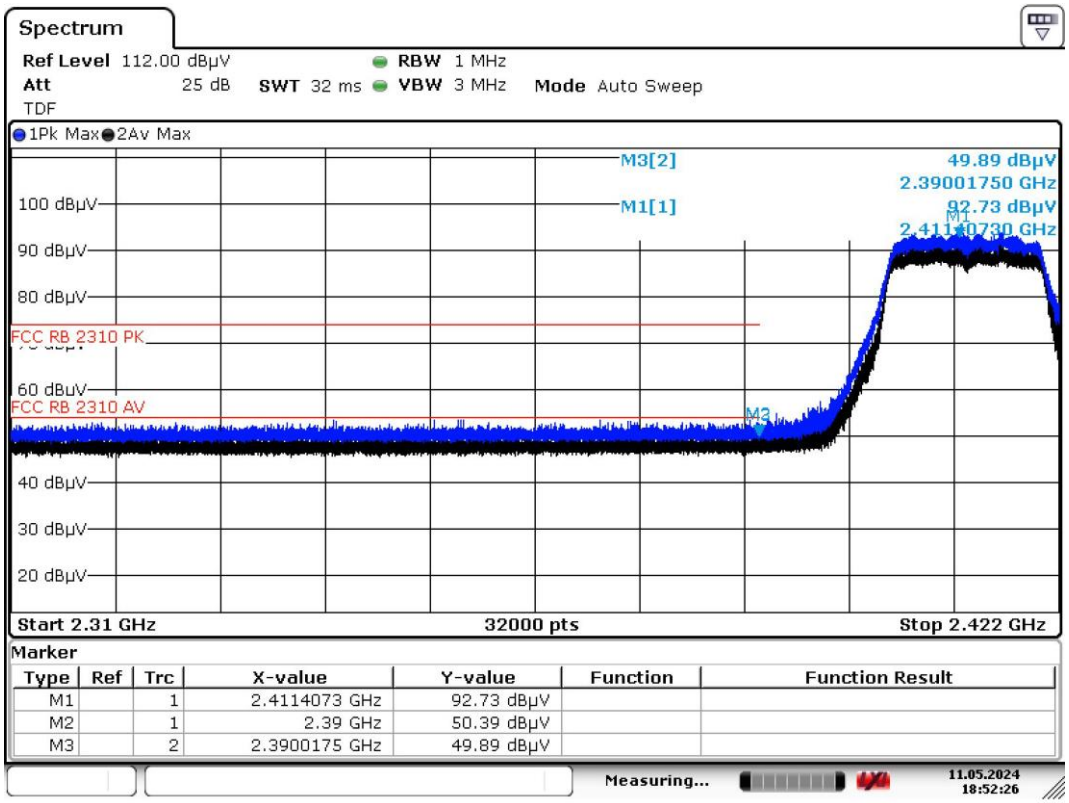
Remarks: Y-Value = received value + Correction Factor (Antenna factor + Cable loss - Preamp gain)

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

Model	CSTR32CDID/ENS
Operation Mode (worst case)	Mode 1 @2412 MHz, IEEE 802.11 g
Test voltage	120Vac

Results

Horizontal

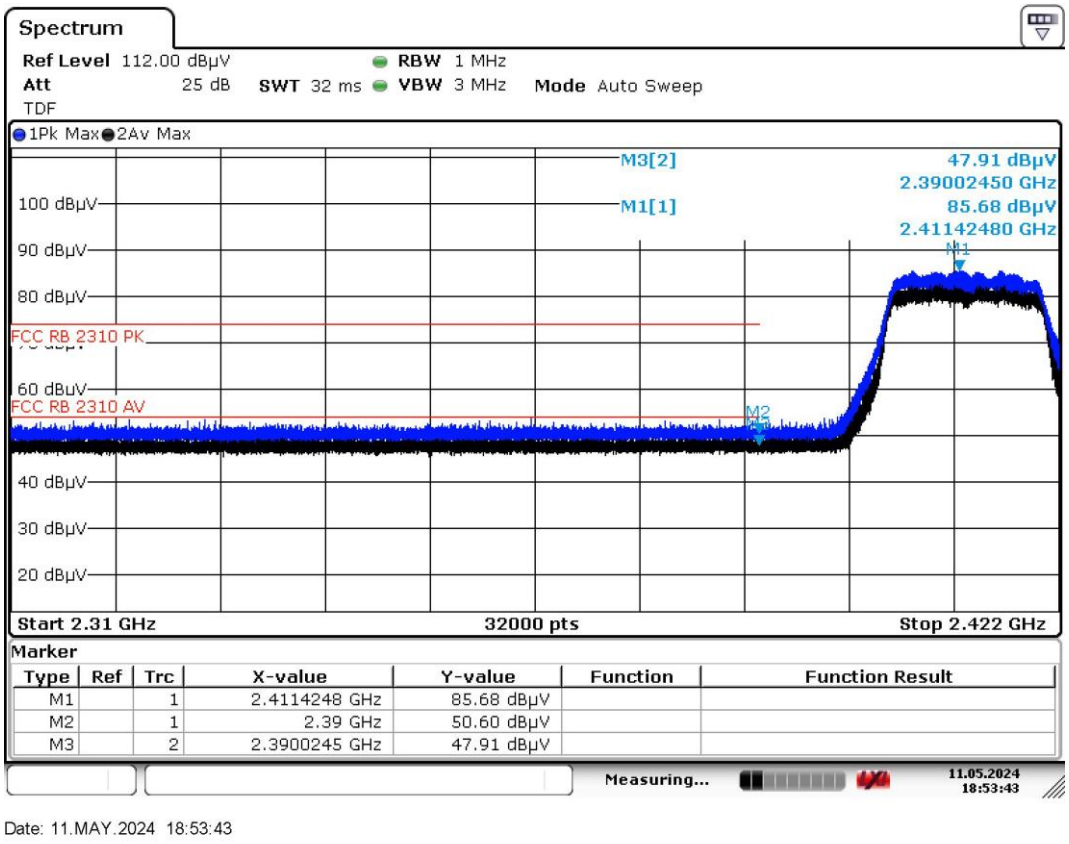


Date: 11.MAY.2024 18:52:26

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



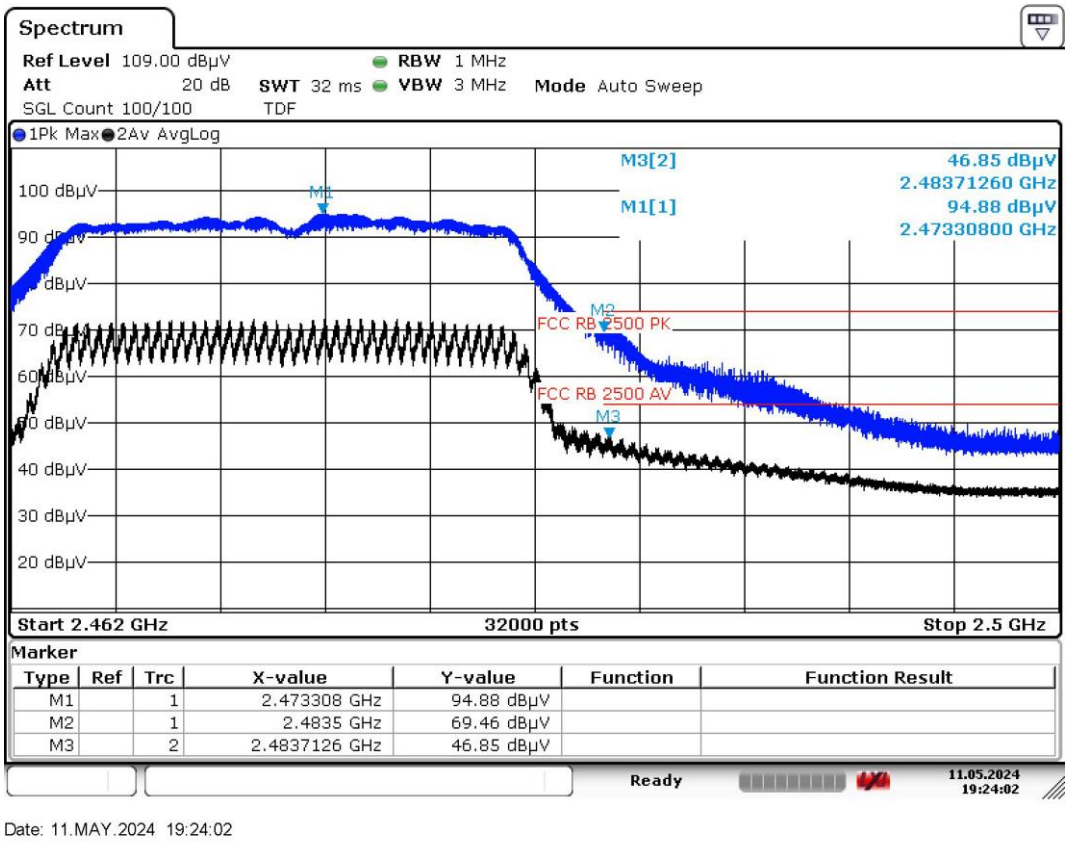
Remarks: Y-Value = received value + Correction Factor (Antenna factor + Cable loss - Preamp gain)

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

Model	CSTR32CDID/ENS
Operation Mode (worst case)	Mode 1 @2462 MHz, IEEE 802.11 g
Test voltage	120Vac

Results

Horizontal

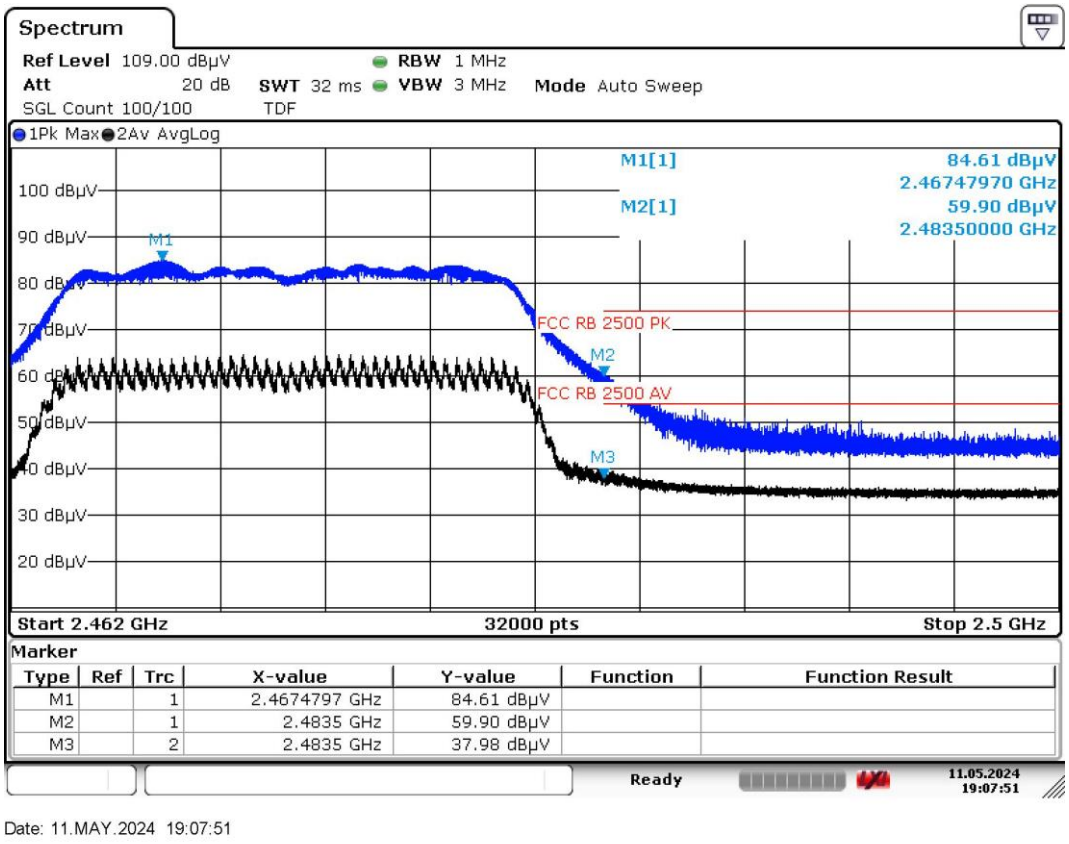


Date: 11.MAY.2024 19:24:02

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



Date: 11.MAY.2024 19:07:51

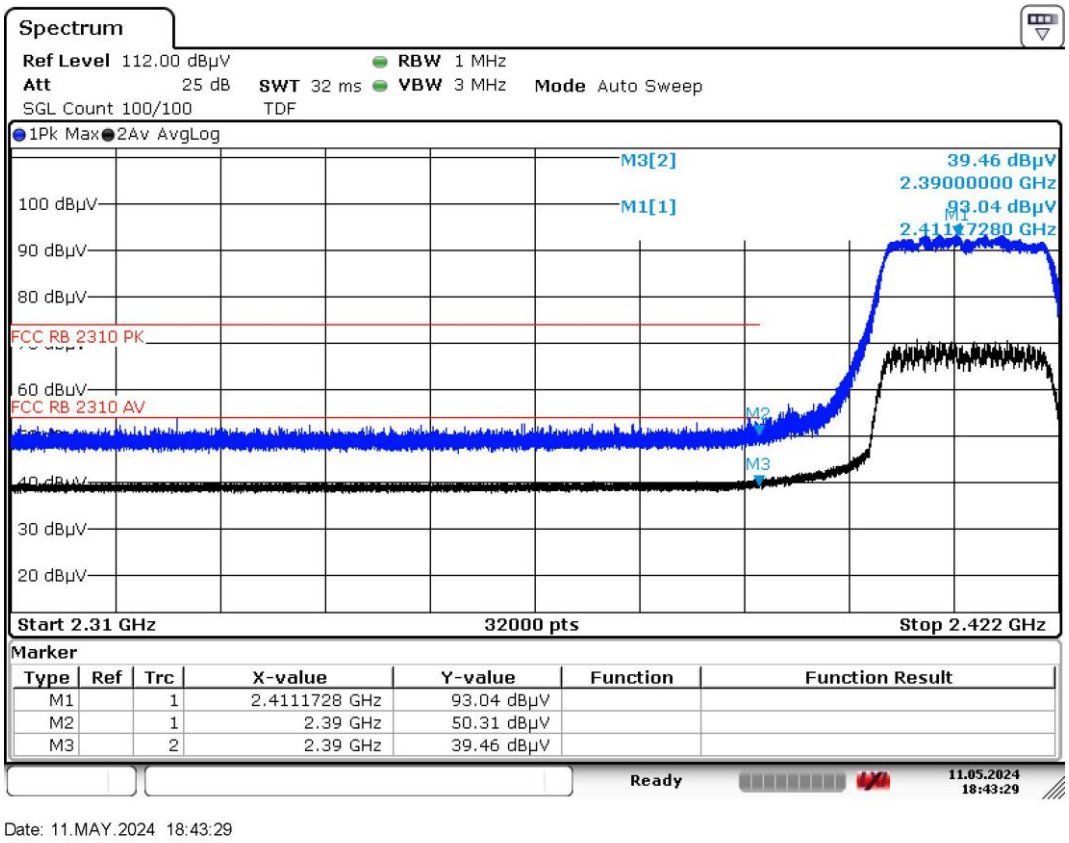
Remarks: Y-Value = received value + Correction Factor (Antenna factor + Cable loss - Preamp gain)

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

Model	CSTR32CDID/ENS
Operation Mode (worst case)	Mode 1 @2412 MHz, IEEE 802.11 n20
Test voltage	120Vac

Results

Horizontal

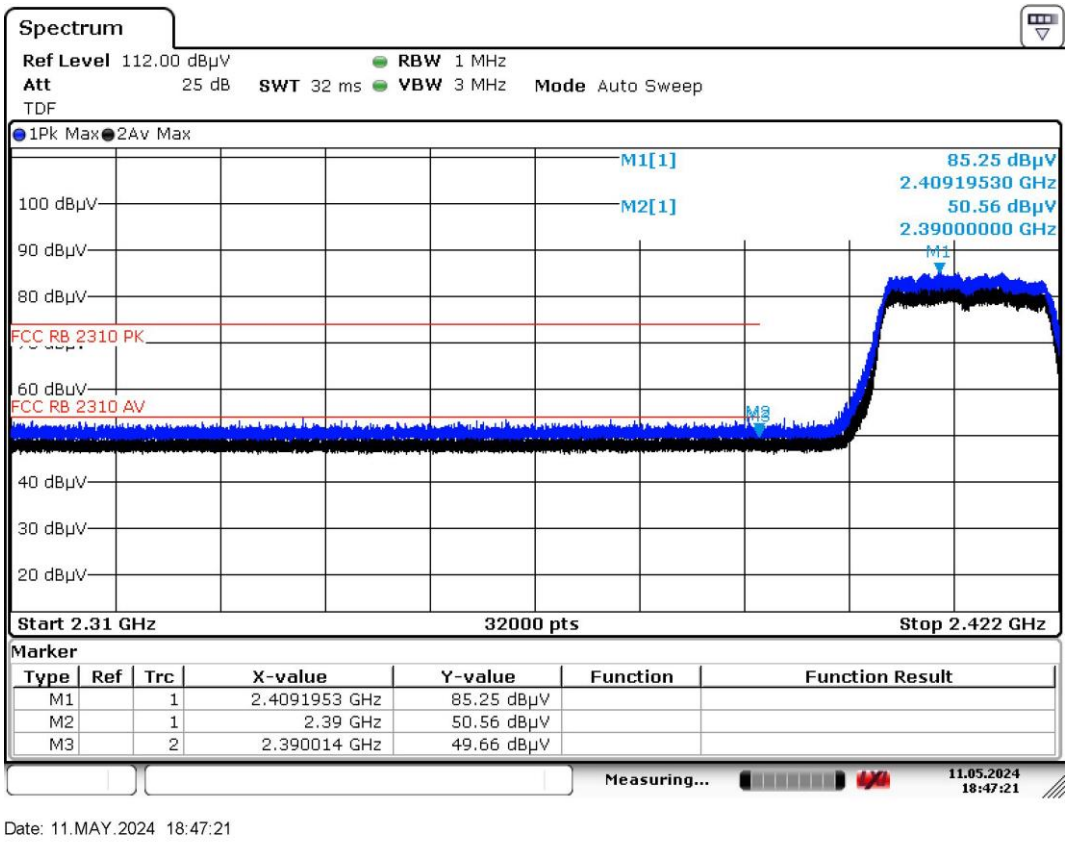


Date: 11.MAY.2024 18:43:29

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



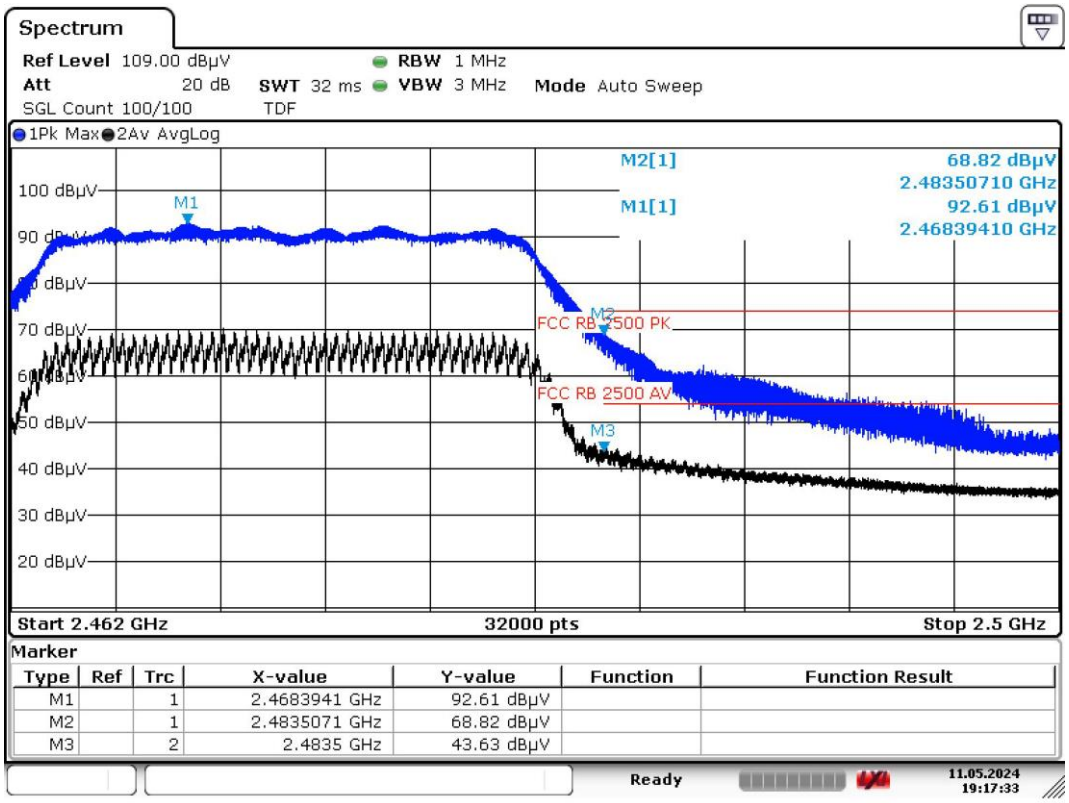
Remarks: Y-Value = received value + Correction Factor (Antenna factor + Cable loss - Preamp gain)

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

Model	CSTR32CDID/ENS
Operation Mode (worst case)	Mode 1 @2462 MHz, IEEE 802.11 n20
Test voltage	120Vac

Results

Horizontal

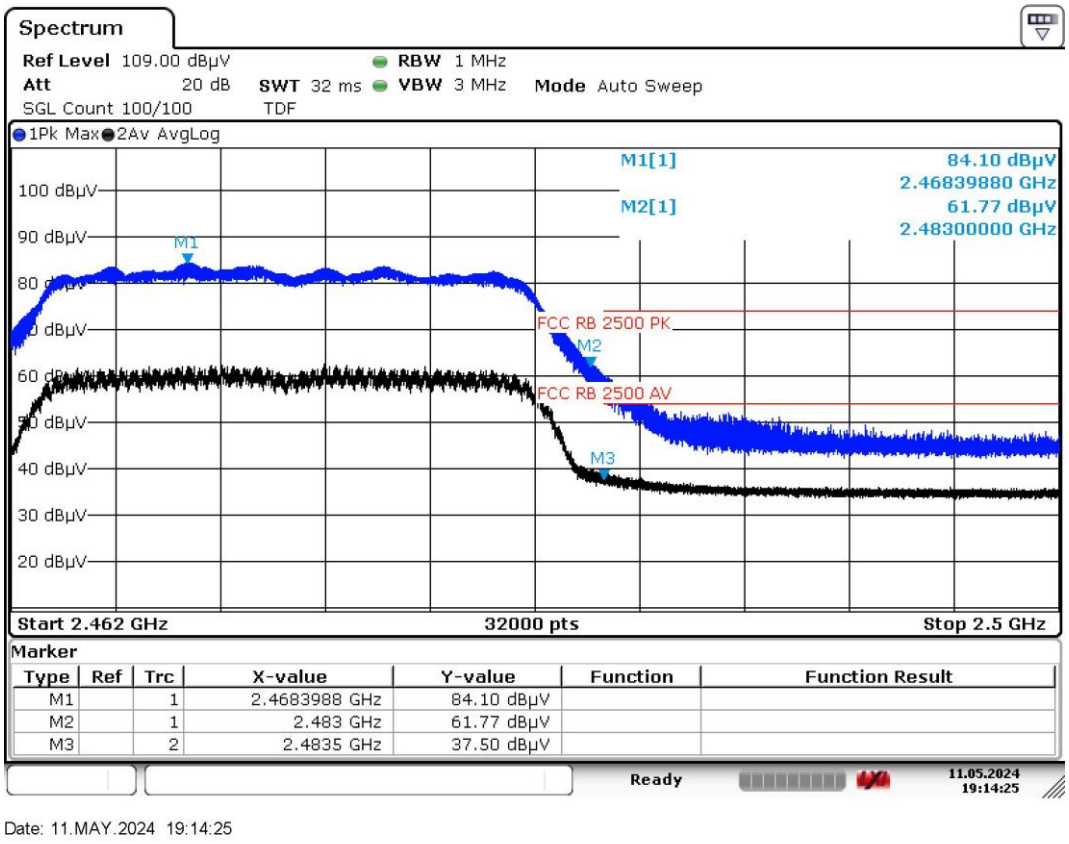


Date: 11.MAY.2024 19:17:33

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



Date: 11.MAY.2024 19:14:25

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.

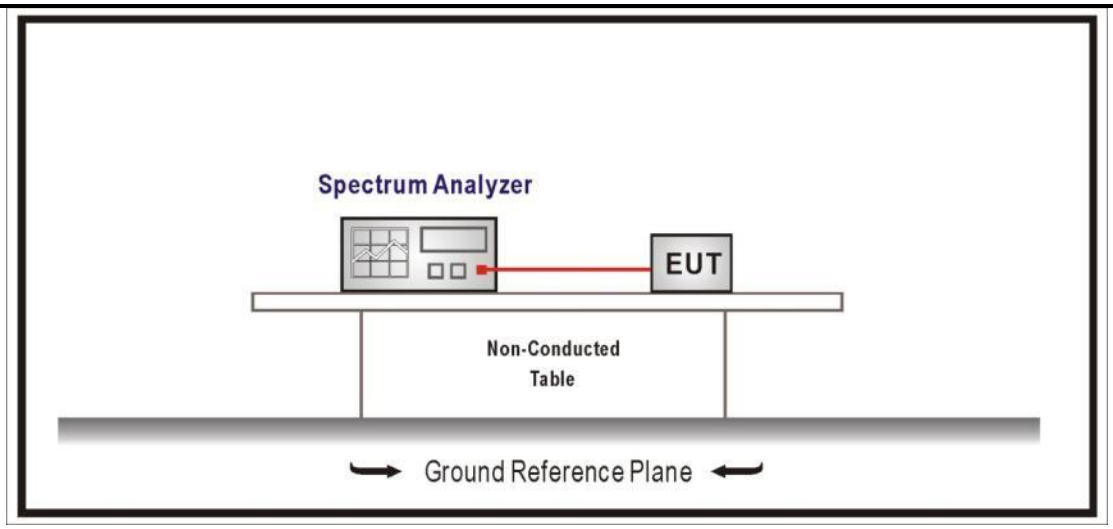
4.4 Band Edge	VERDICT: PASS

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).

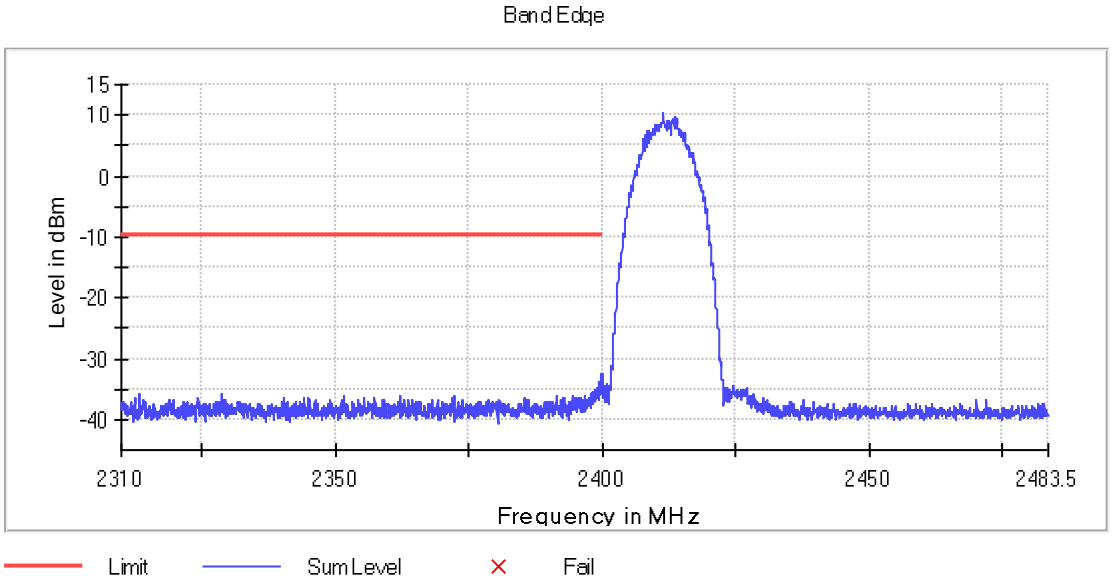
Test Configuration



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



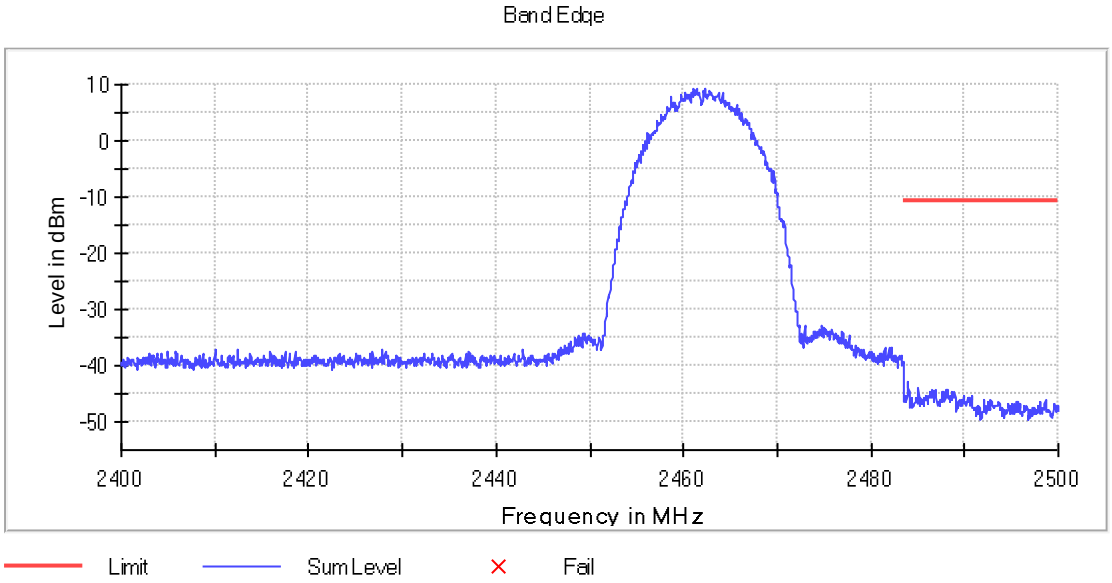
Inband Peak

Frequency (MHz)	Level (dBm)
2412.0000	10.3

Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)	Result
2399.975000	-32.4	22.7	-9.7	PASS
2399.925000	-32.5	22.9	-9.7	PASS
2399.425000	-33.9	24.2	-9.7	PASS
2399.775000	-34.2	24.5	-9.7	PASS
2399.375000	-34.4	24.7	-9.7	PASS
2399.175000	-34.8	25.2	-9.7	PASS
2399.875000	-35.0	25.3	-9.7	PASS
2398.925000	-35.1	25.5	-9.7	PASS
2398.525000	-35.2	25.5	-9.7	PASS
2399.725000	-35.2	25.5	-9.7	PASS
2399.475000	-35.3	25.6	-9.7	PASS
2398.875000	-35.4	25.7	-9.7	PASS
2399.825000	-35.4	25.8	-9.7	PASS
2399.225000	-35.5	25.9	-9.7	PASS
2399.275000	-35.6	25.9	-9.7	PASS

IEEE 802.11 b
Results @2462 MHz



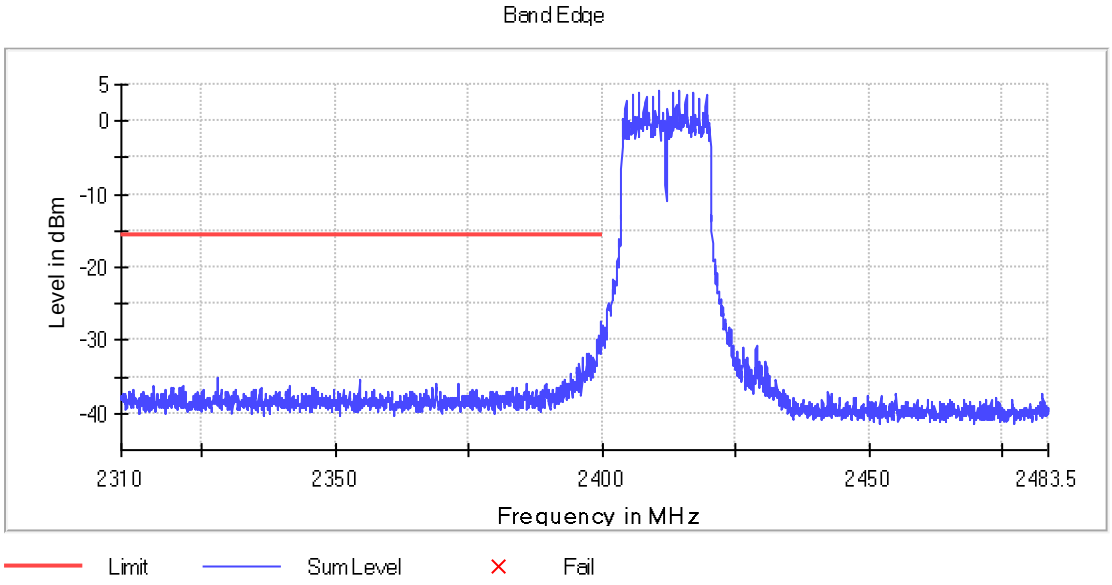
Inband Peak

Frequency (MHz)	Level (dBm)
2462.0000	9.4

Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)	Result
2483.925000	-42.7	32.1	-10.6	PASS
2483.975000	-42.9	32.3	-10.6	PASS
2484.025000	-43.8	33.2	-10.6	PASS
2485.075000	-43.9	33.2	-10.6	PASS
2485.025000	-43.9	33.3	-10.6	PASS
2488.075000	-44.3	33.7	-10.6	PASS
2486.875000	-44.3	33.7	-10.6	PASS
2486.575000	-44.4	33.8	-10.6	PASS
2488.125000	-44.4	33.8	-10.6	PASS
2488.925000	-44.5	33.9	-10.6	PASS
2484.075000	-44.5	33.9	-10.6	PASS
2486.825000	-44.5	33.9	-10.6	PASS
2486.625000	-44.6	34.0	-10.6	PASS
2486.325000	-44.7	34.0	-10.6	PASS
2488.875000	-44.7	34.0	-10.6	PASS

IEEE 802.11 g
Results @2412 MHz



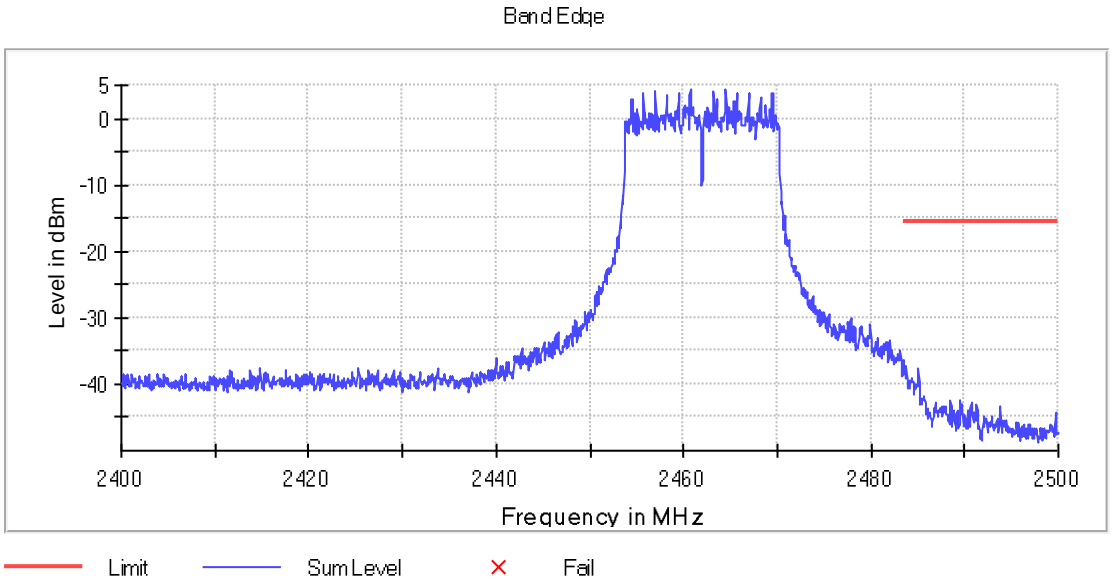
Inband Peak

Frequency (MHz)	Level (dBm)
2412.0000	4.3

Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)	Result
2399.725000	-27.4	11.7	-15.7	PASS
2399.775000	-27.4	11.8	-15.7	PASS
2399.975000	-28.6	12.9	-15.7	PASS
2399.375000	-29.2	13.6	-15.7	PASS
2399.425000	-29.3	13.6	-15.7	PASS
2399.825000	-29.8	14.1	-15.7	PASS
2399.325000	-29.8	14.1	-15.7	PASS
2399.225000	-29.9	14.2	-15.7	PASS
2399.175000	-30.0	14.3	-15.7	PASS
2399.675000	-30.0	14.3	-15.7	PASS
2399.125000	-30.5	14.8	-15.7	PASS
2399.475000	-30.6	14.9	-15.7	PASS
2399.075000	-31.0	15.3	-15.7	PASS
2399.875000	-31.1	15.4	-15.7	PASS
2399.275000	-31.1	15.5	-15.7	PASS

IEEE 802.11 g
Results @2462 MHz



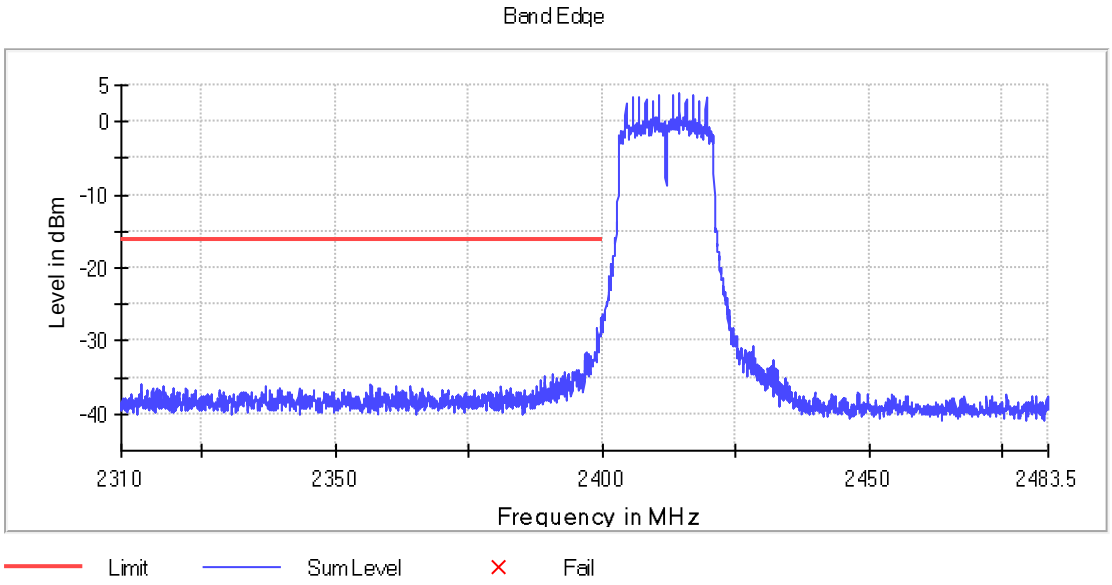
Inband Peak

Frequency (MHz)	Level (dBm)
2462.0000	4.5

Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)	Result
2483.775000	-37.3	21.8	-15.5	PASS
2483.825000	-37.3	21.8	-15.5	PASS
2483.625000	-37.4	21.8	-15.5	PASS
2483.575000	-37.4	21.8	-15.5	PASS
2485.075000	-37.8	22.2	-15.5	PASS
2485.025000	-37.8	22.3	-15.5	PASS
2483.525000	-38.1	22.6	-15.5	PASS
2483.675000	-38.9	23.4	-15.5	PASS
2484.325000	-39.0	23.5	-15.5	PASS
2483.725000	-39.1	23.6	-15.5	PASS
2484.425000	-39.3	23.8	-15.5	PASS
2484.475000	-39.3	23.8	-15.5	PASS
2484.375000	-39.4	23.9	-15.5	PASS
2484.975000	-39.4	23.9	-15.5	PASS
2484.225000	-39.4	23.9	-15.5	PASS

IEEE 802.11 n20
Results @2412 MHz



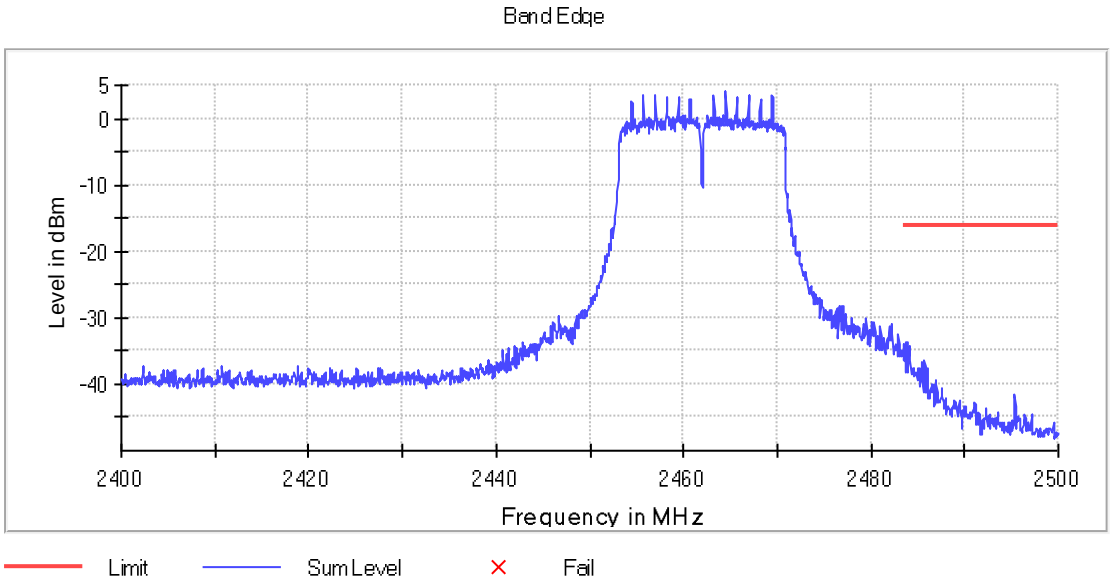
Inband Peak

Frequency (MHz)	Level (dBm)
2412.0000	3.9

Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)	Result
2399.975000	-26.3	10.2	-16.1	PASS
2399.875000	-26.8	10.6	-16.1	PASS
2399.925000	-27.1	11.0	-16.1	PASS
2399.775000	-28.0	11.9	-16.1	PASS
2399.825000	-28.1	12.0	-16.1	PASS
2399.125000	-28.1	12.0	-16.1	PASS
2399.175000	-28.4	12.3	-16.1	PASS
2399.725000	-28.6	12.4	-16.1	PASS
2399.575000	-28.8	12.7	-16.1	PASS
2399.625000	-28.8	12.7	-16.1	PASS
2399.075000	-28.9	12.7	-16.1	PASS
2399.025000	-29.0	12.9	-16.1	PASS
2398.975000	-29.1	13.0	-16.1	PASS
2399.675000	-29.3	13.2	-16.1	PASS
2399.525000	-29.6	13.5	-16.1	PASS

IEEE 802.11 n20
Results @2462 MHz



Inband Peak

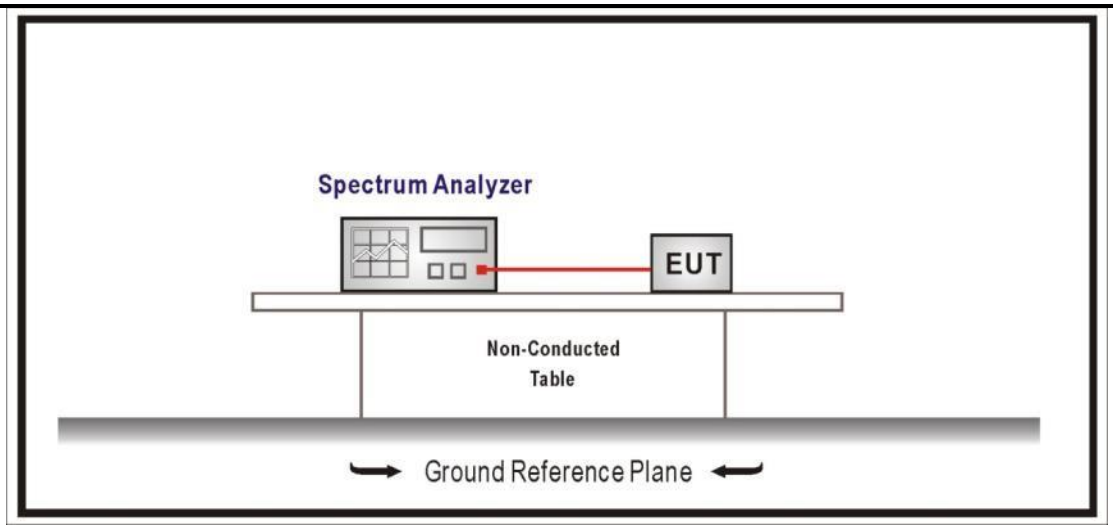
Frequency (MHz)	Level (dBm)
2462.0000	4.0

Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)	Result
2483.825000	-33.6	17.6	-16.0	PASS
2483.875000	-33.7	17.7	-16.0	PASS
2484.125000	-34.4	18.4	-16.0	PASS
2484.075000	-34.6	18.5	-16.0	PASS
2483.775000	-35.2	19.2	-16.0	PASS
2484.175000	-36.0	20.0	-16.0	PASS
2483.575000	-36.1	20.1	-16.0	PASS
2483.525000	-36.3	20.3	-16.0	PASS
2485.725000	-36.4	20.4	-16.0	PASS
2484.225000	-36.5	20.5	-16.0	PASS
2485.425000	-36.6	20.6	-16.0	PASS
2485.475000	-36.7	20.7	-16.0	PASS
2483.625000	-36.8	20.7	-16.0	PASS
2483.925000	-37.0	20.9	-16.0	PASS
2485.675000	-37.1	21.1	-16.0	PASS

4.5 Duty cycle	VERDICT: PASS

Test Configuration



Performed measurements

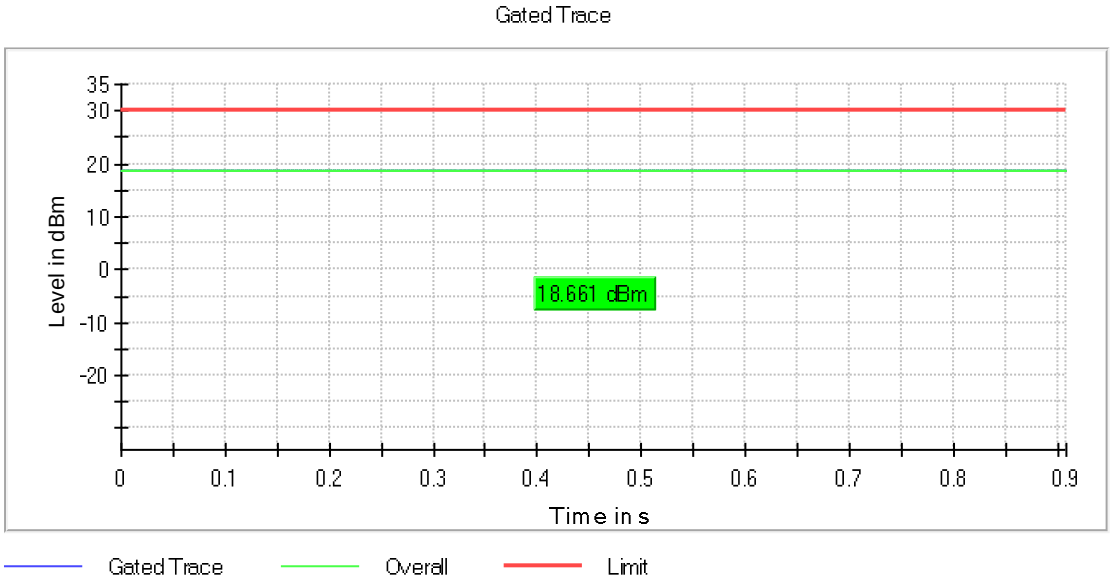
Port under test	Antenna port	
Test method applied	☒	Conducted measurement
	☐	Radiated measurement
Test setup	Refer to the Annex 3 for test setup photo(s).	
Operating mode(s) used	Mode 1	
Remark	---	

Results

Test Mode	Tx On (ms)	Tx On + Tx Off (ms)	Duty Cycle
IEEE 802.11 b	---	---	91.03%

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.

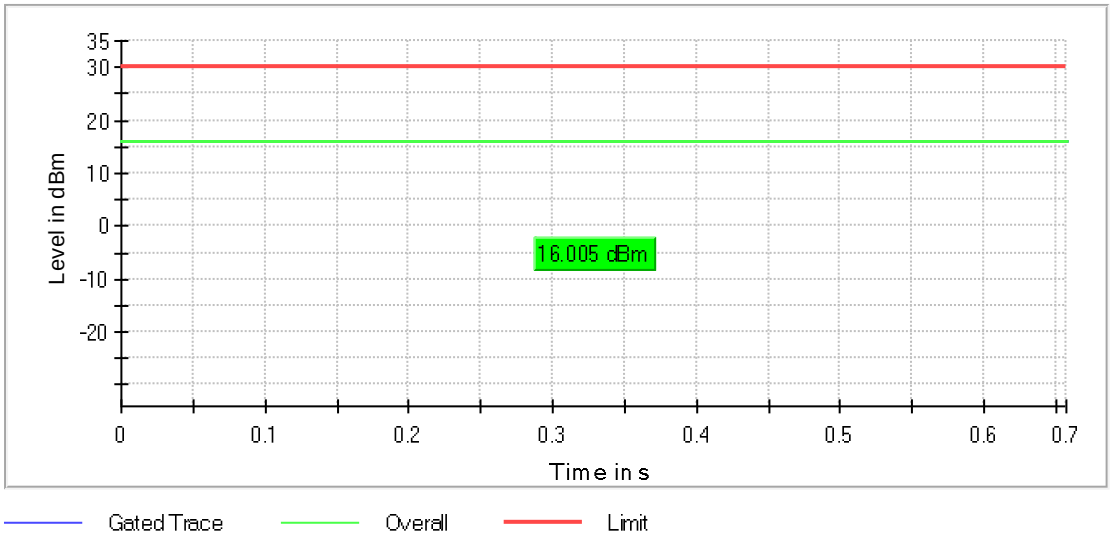
Note 2: According to KDB 558074, when test for Radiated Emission Band Edge and Radiated Emission, for average detector set: VBW ≥ 1/T will be used.



Test Mode	Tx On (ms)	Tx On + Tx Off (ms)	Duty Cycle
IEEE 802.11 g	---	---	91.13%

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.

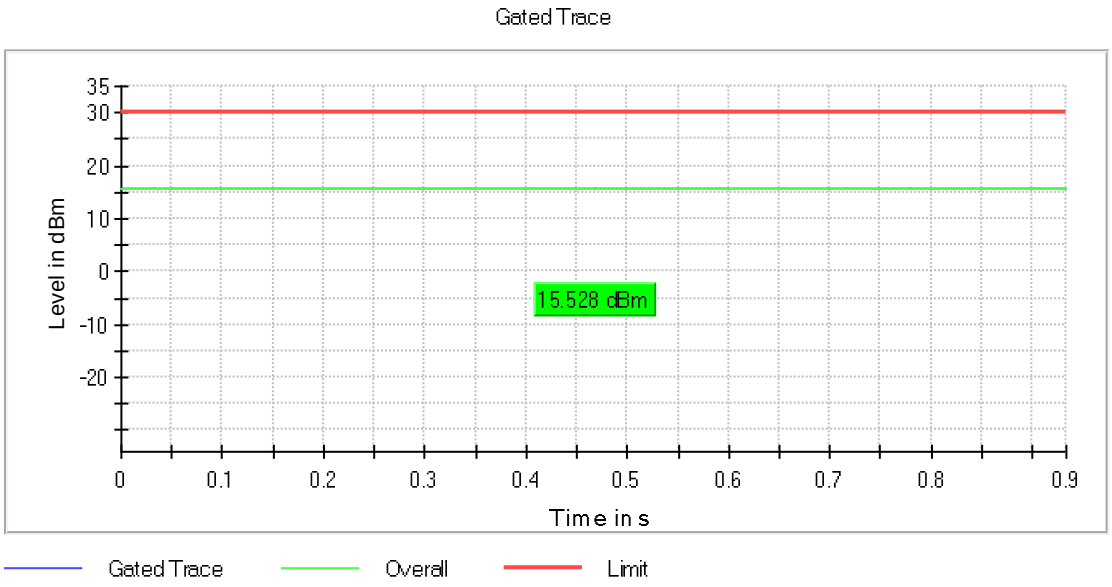
Note 2: According to KDB 558074, when test for Radiated Emission Band Edge and Radiated Emission, for average detector set: VBW ≥ 1/T will be used.



Test Mode	Tx On (ms)	Tx On + Tx Off (ms)	Duty Cycle
IEEE 802.11 n20	---	---	93.55%

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.

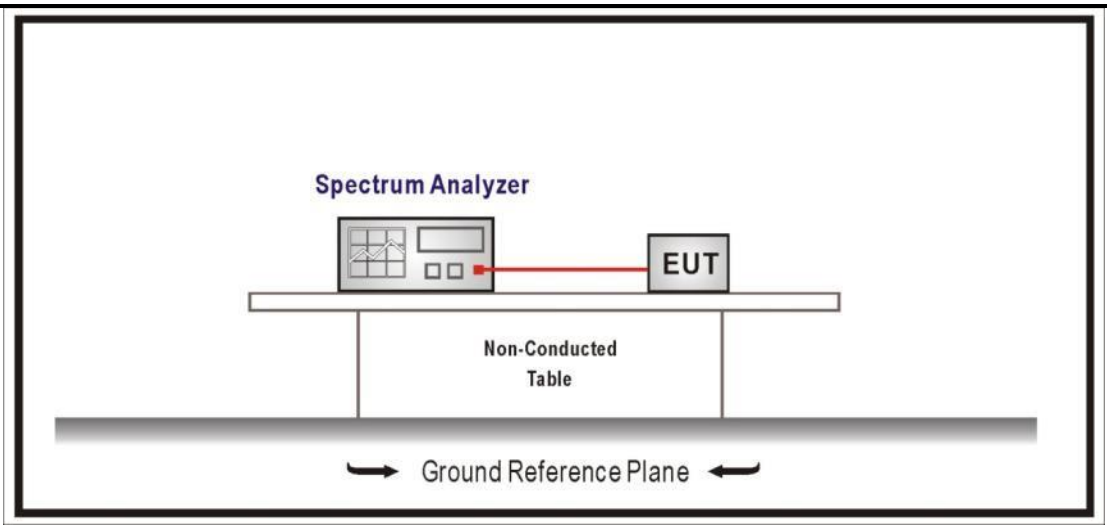
Note 2: According to KDB 558074, when test for Radiated Emission Band Edge and Radiated Emission, for average detector set: VBW ≥ 1/T will be used.



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



Performed measurements

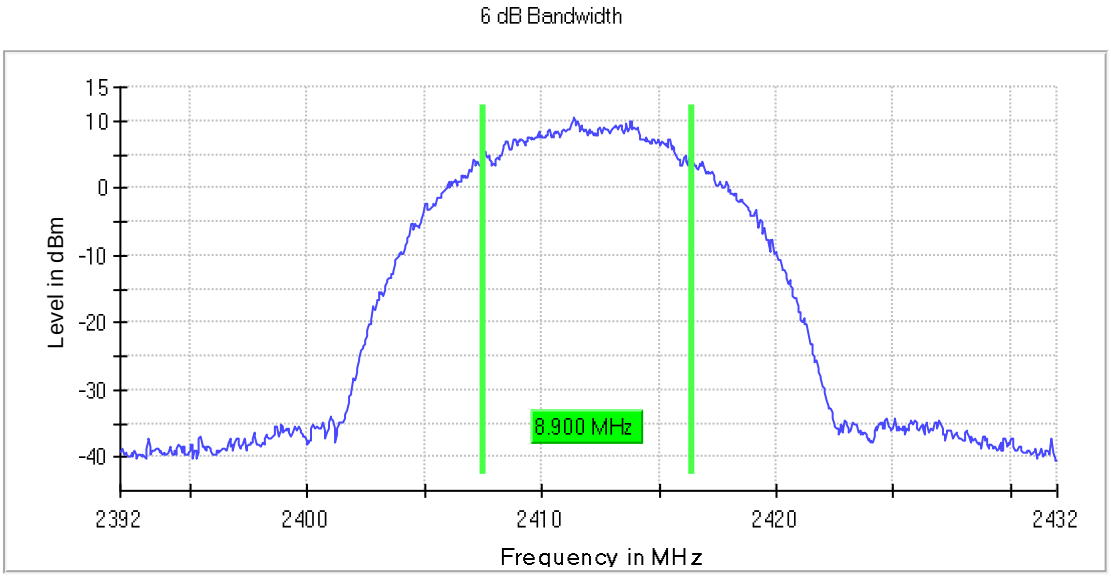
Port under test	Antenna port	
Test method applied	☒	Conducted measurement
	☐	Radiated measurement
Test setup	Refer to the Annex 3 for test setup photo(s).	
Operating mode(s) used	Mode 1	
Remark	---	

Results

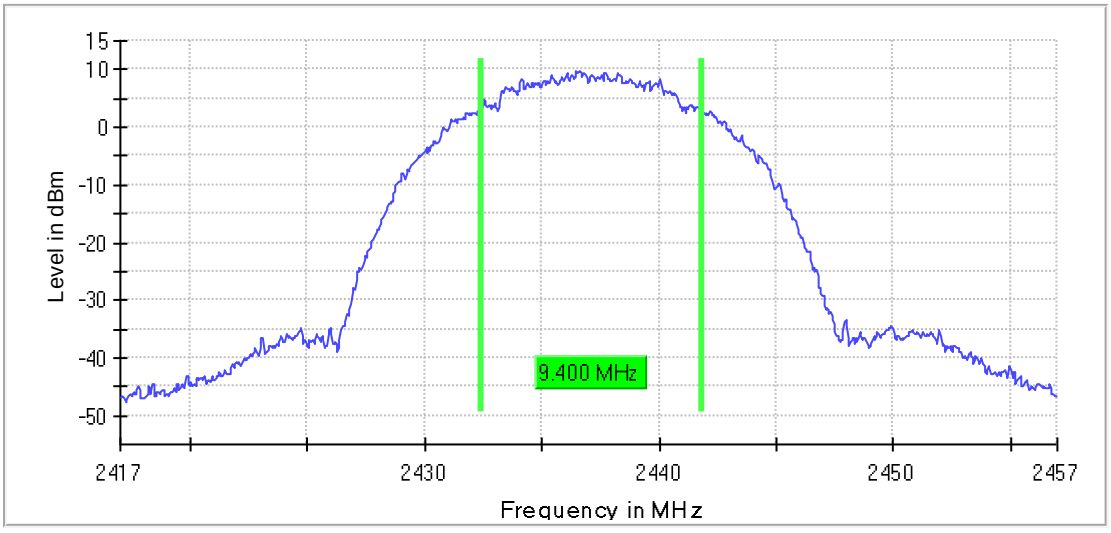
Mode	CH.	Test Freq. (MHz)	6dB Occupied Bandwidth (MHz)	Limit (kHz)	Result
IEEE 802.11 b	0	2412	8.9	>500	Pass
	5	2437	9.4	>500	Pass
	10	2462	9.7	>500	Pass

6dB Occupied Bandwidth

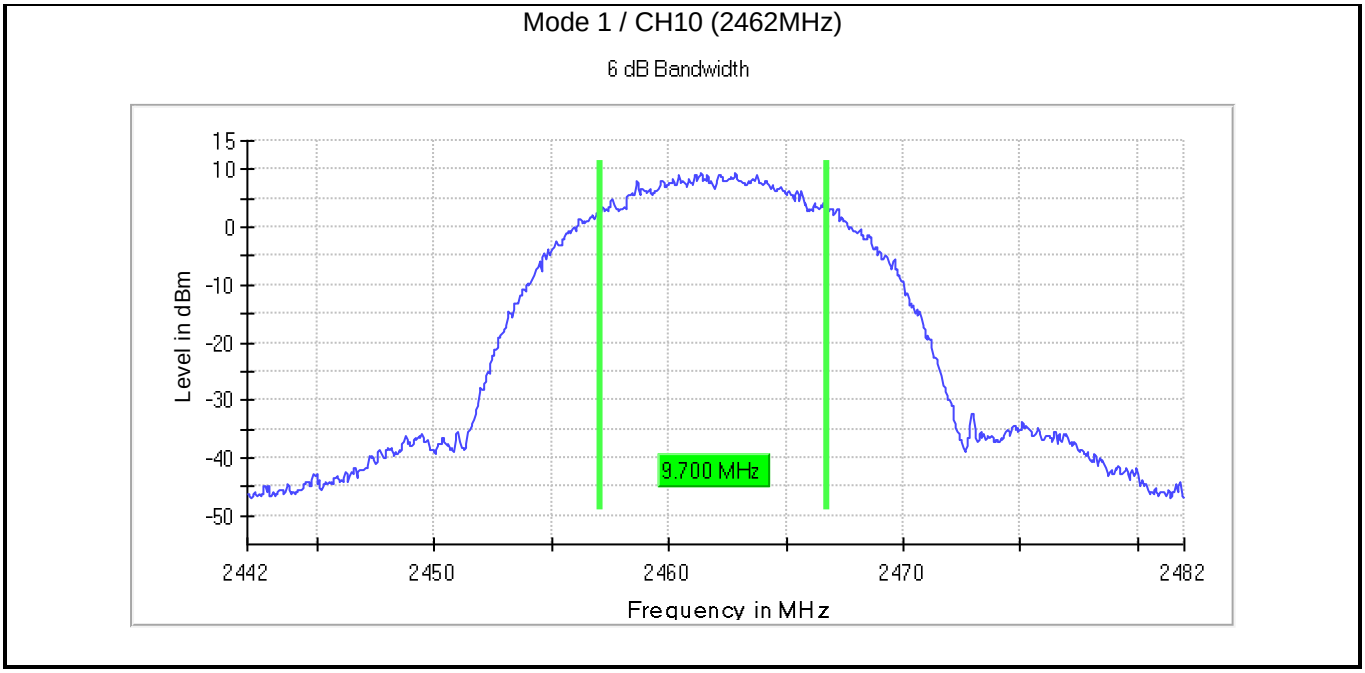
Mode 1 / CH0 (2412MHz)



Mode 1 / CH5 (2437MHz)



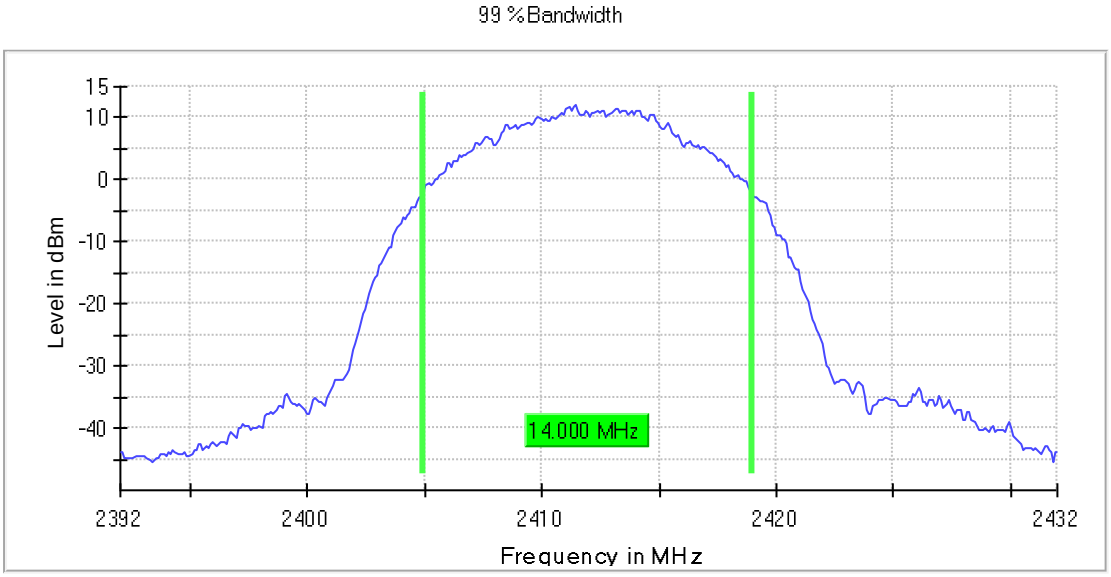
Mode 1 / CH10 (2462MHz)



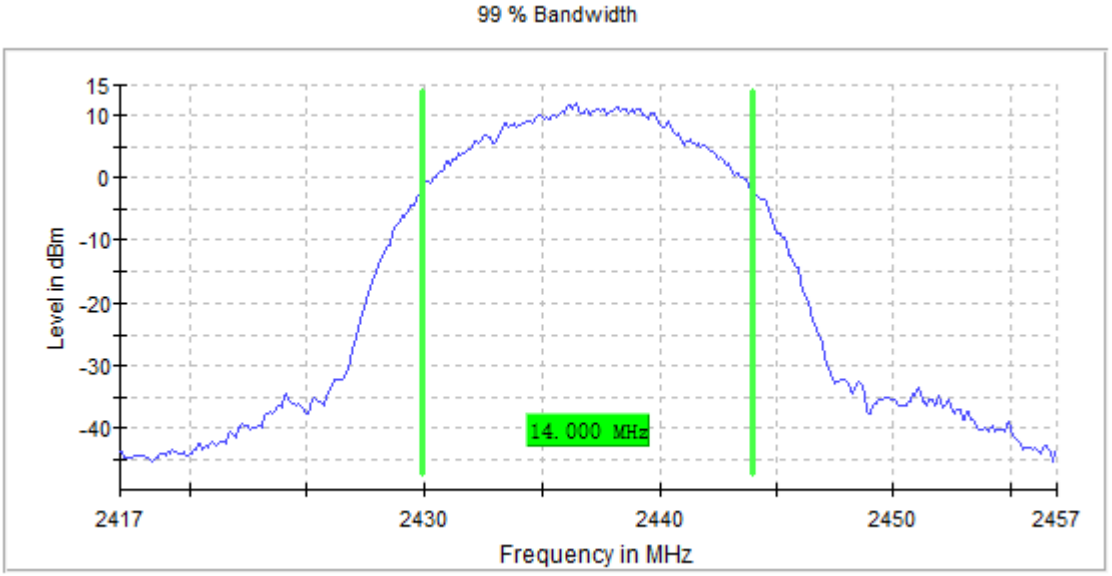
Mode	CH.	Test Freq. (MHz)	99% Occupied Bandwidth (MHz)	Limit	Result
IEEE 802.11 b	0	2412	14.0	Within frequency range	Pass
	5	2437	14	Within frequency range	Pass
	10	2462	14.1	Within frequency range	Pass

99% Occupied Bandwidth

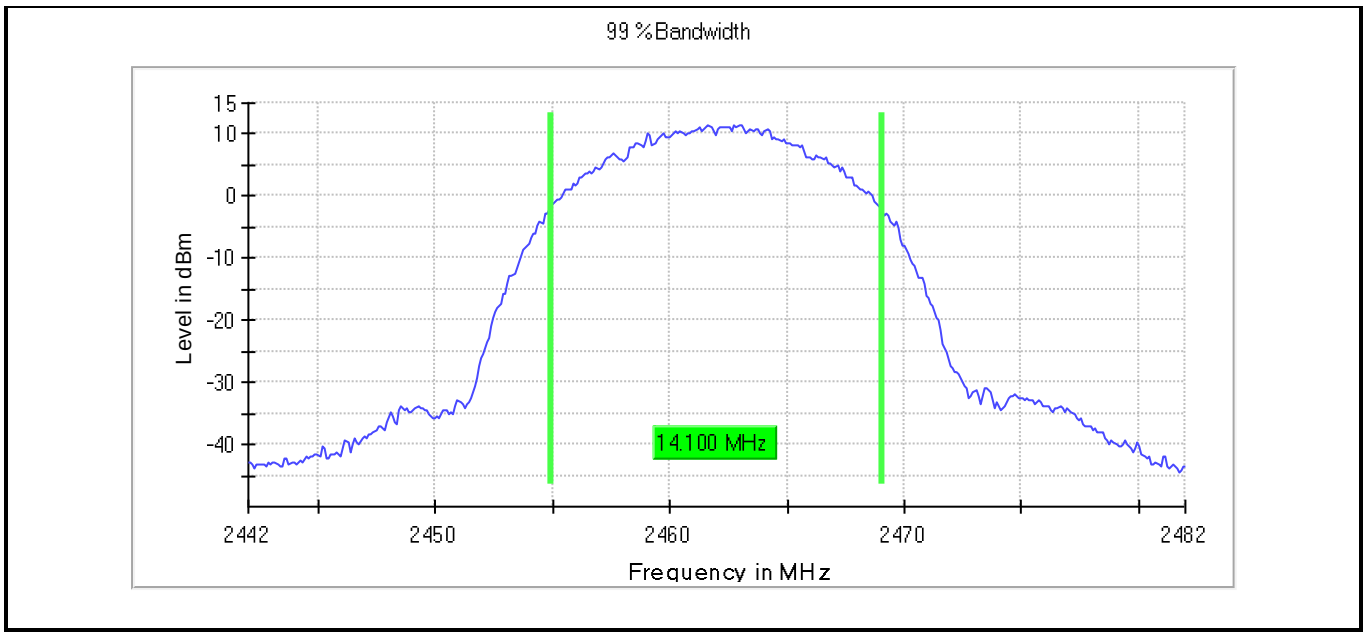
Mode 1 / CH0 (2412 MHz)



Mode 1 / CH5 (2437MHz)



Mode 1 / CH10 (2462 MHz)

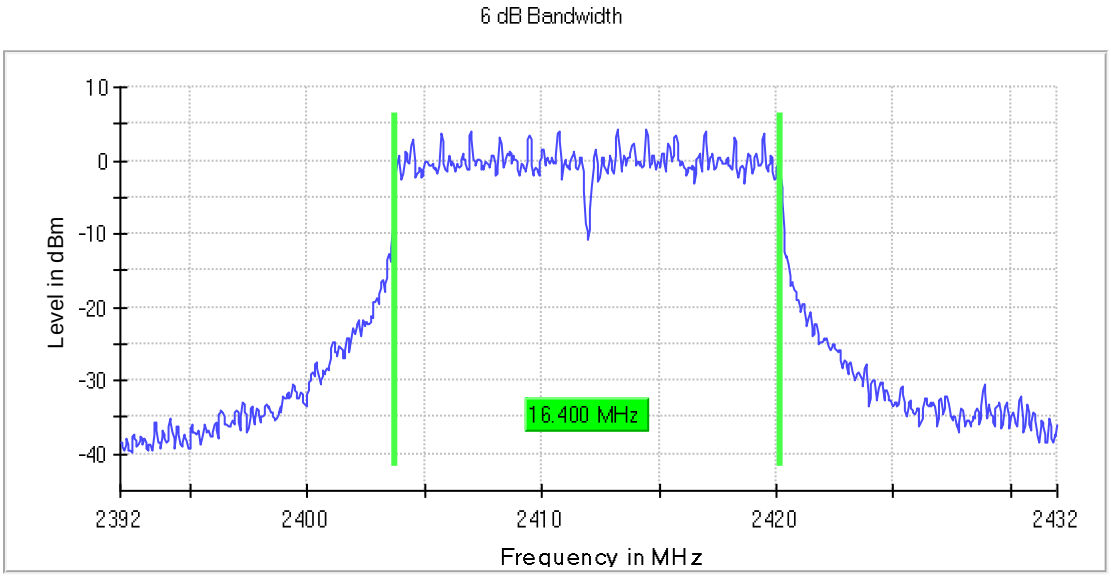

99 % Bandwidth
15
10
0
-10
-20
-30
-40
Level in dBm
14.100 MHz
2442
2450
2460
2470
2482
Frequency in MHz

Results

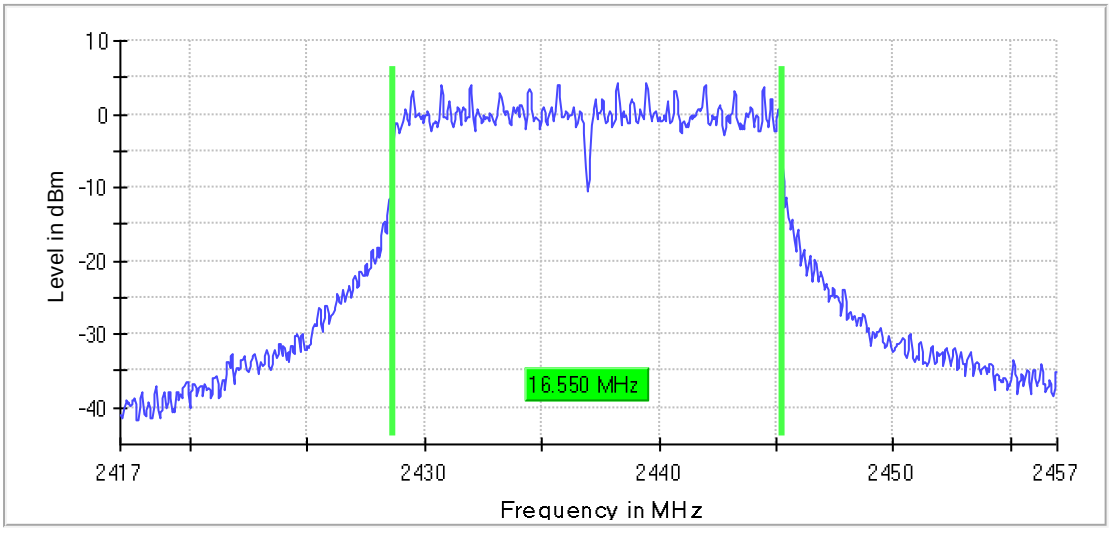
Mode	CH.	Test Freq. (MHz)	6dB Occupied Bandwidth (MHz)	Limit (kHz)	Result
IEEE 802.11 g	0	2412	16.40	>500	Pass
	5	2437	16.55	>500	Pass
	10	2462	16.50	>500	Pass

6dB Occupied Bandwidth

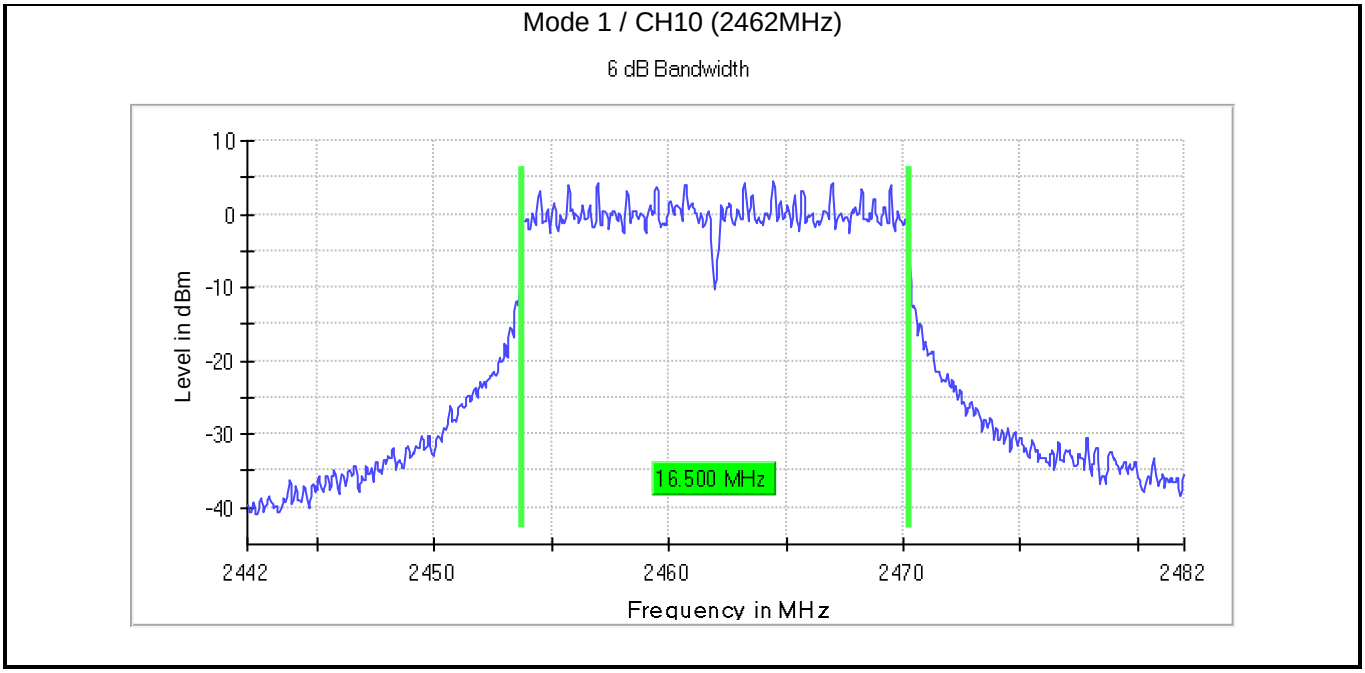
Mode 1 / CH0 (2412MHz)



Mode 1 / CH5 (2437MHz)



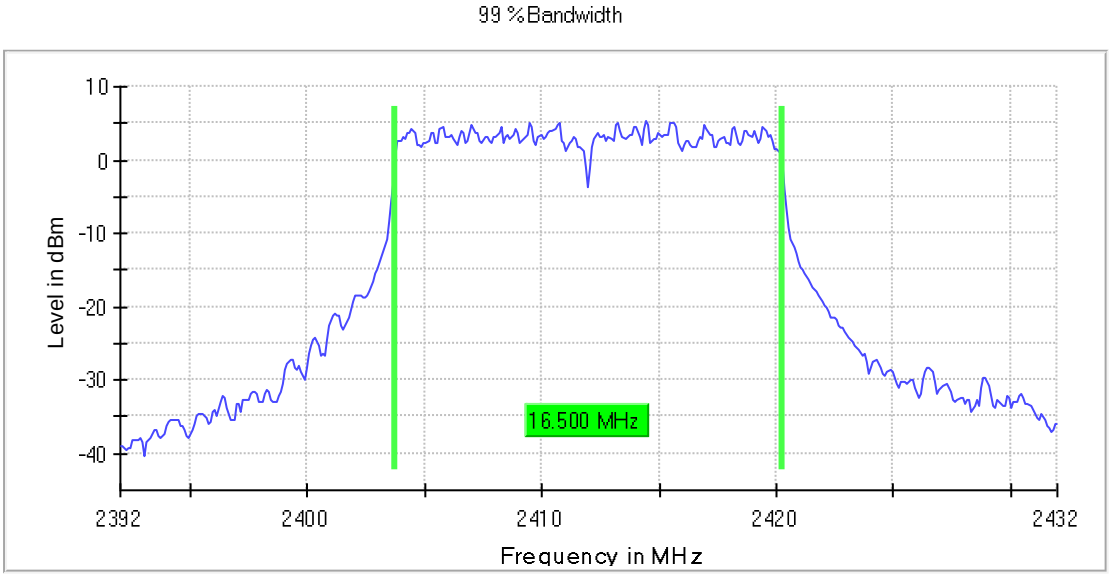
Mode 1 / CH10 (2462MHz)



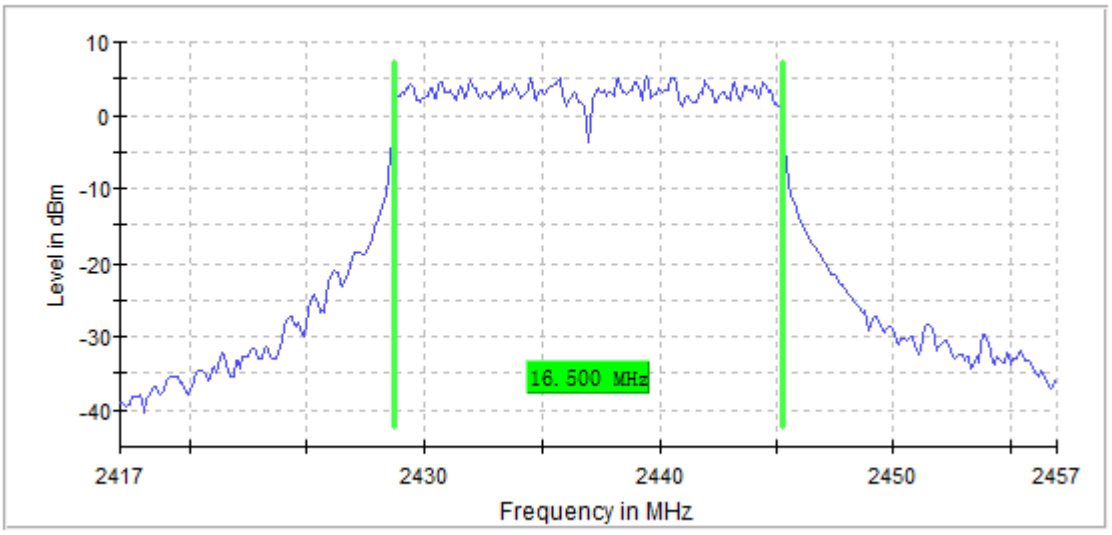
Mode	CH.	Test Freq. (MHz)	99% Occupied Bandwidth (MHz)	Limit	Result
IEEE 802.11 g	0	2412	16.5	Within frequency range	Pass
	5	2437	16.5	Within frequency range	Pass
	10	2462	16.6	Within frequency range	Pass

99% Occupied Bandwidth

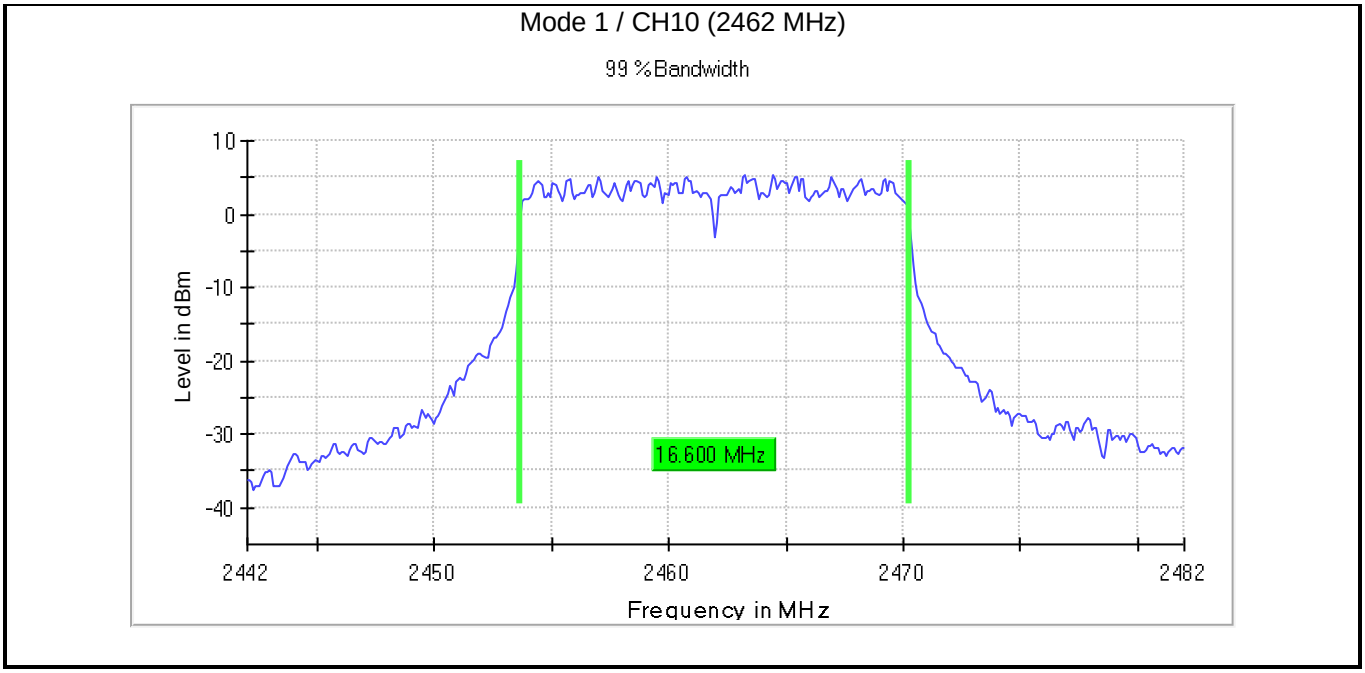
Mode 1 / CH0 (2412 MHz)



Mode 1 / CH5 (2437 MHz)



Mode 1 / CH10 (2462 MHz)

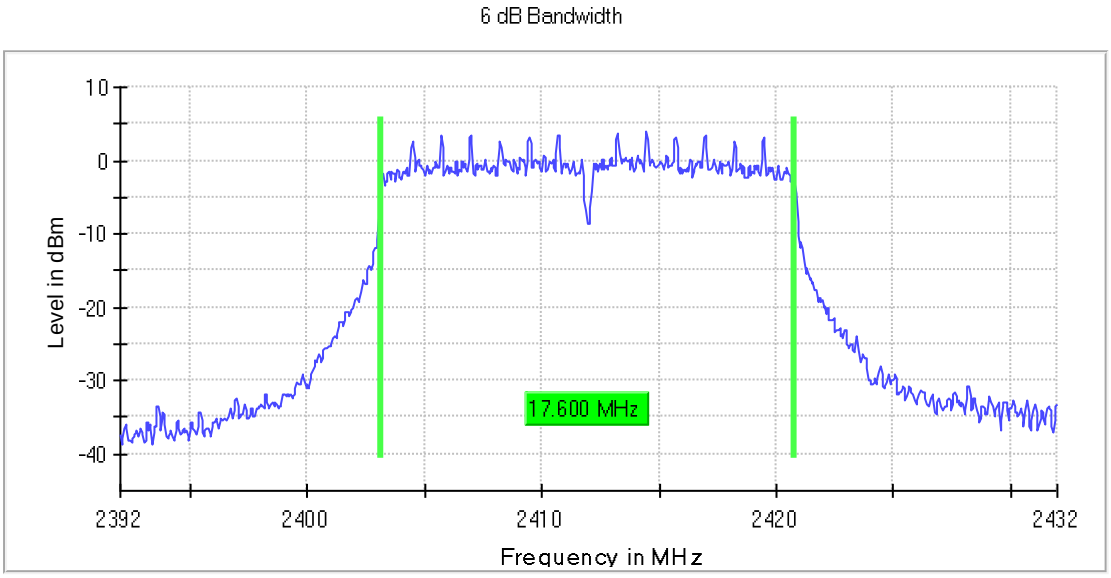


Results

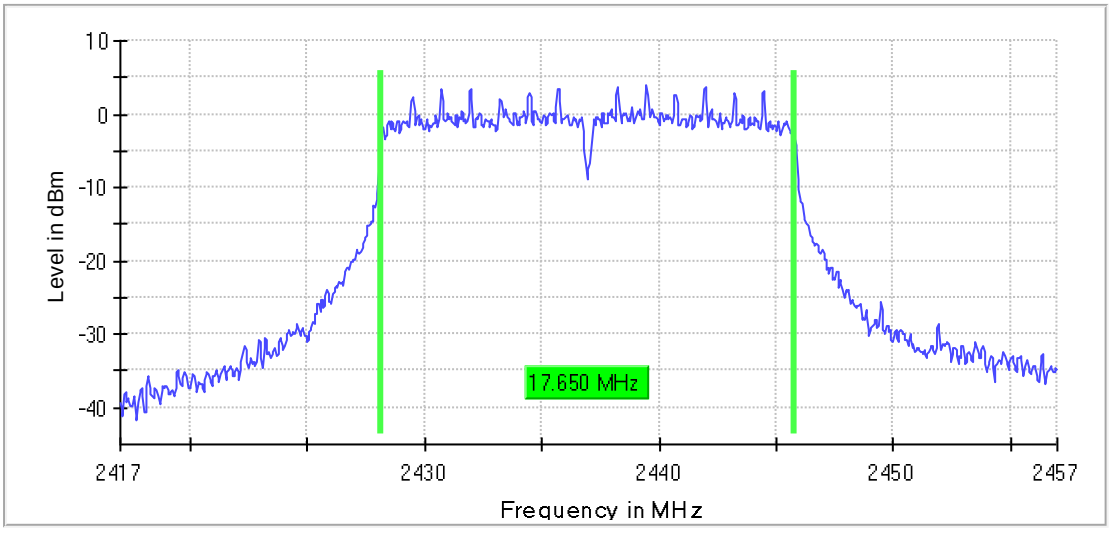
Mode	CH.	Test Freq. (MHz)	6dB Occupied Bandwidth (MHz)	Limit (kHz)	Result
IEEE 802.11 n20	0	2412	17.60	>500	Pass
	5	2437	17.65	>500	Pass
	10	2462	17.60	>500	Pass

6dB Occupied Bandwidth

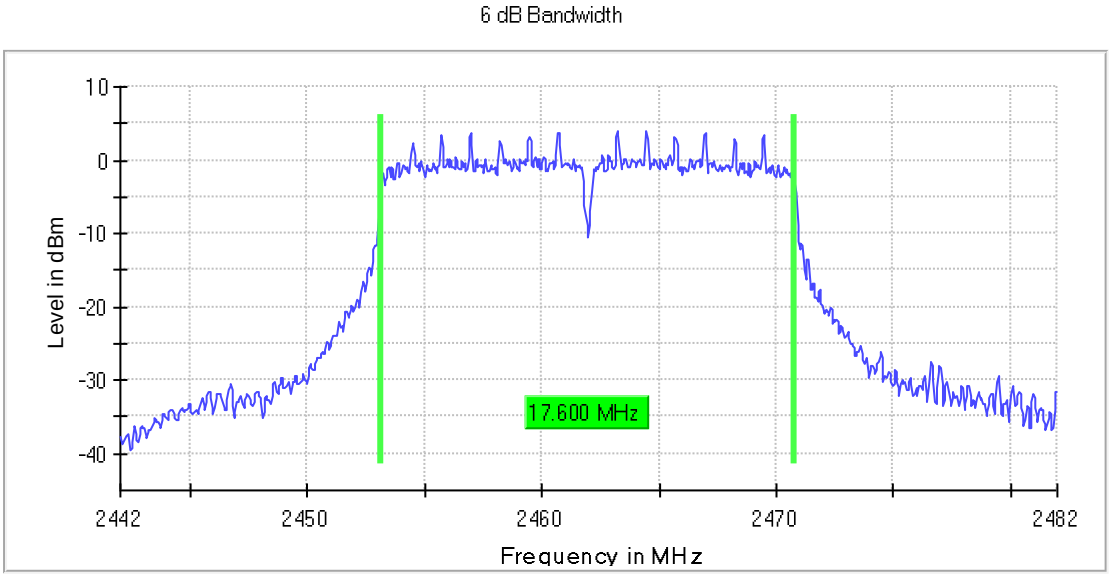
Mode 1 / CH0 (2412MHz)



Mode 1 / CH5 (2437MHz)



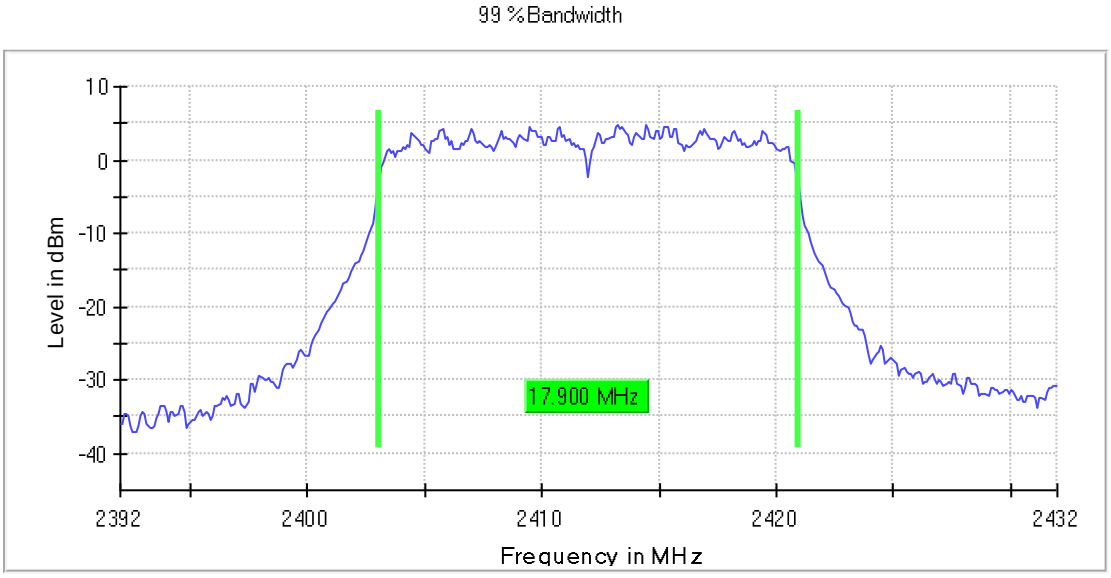
Mode 1 / CH10 (2462MHz)



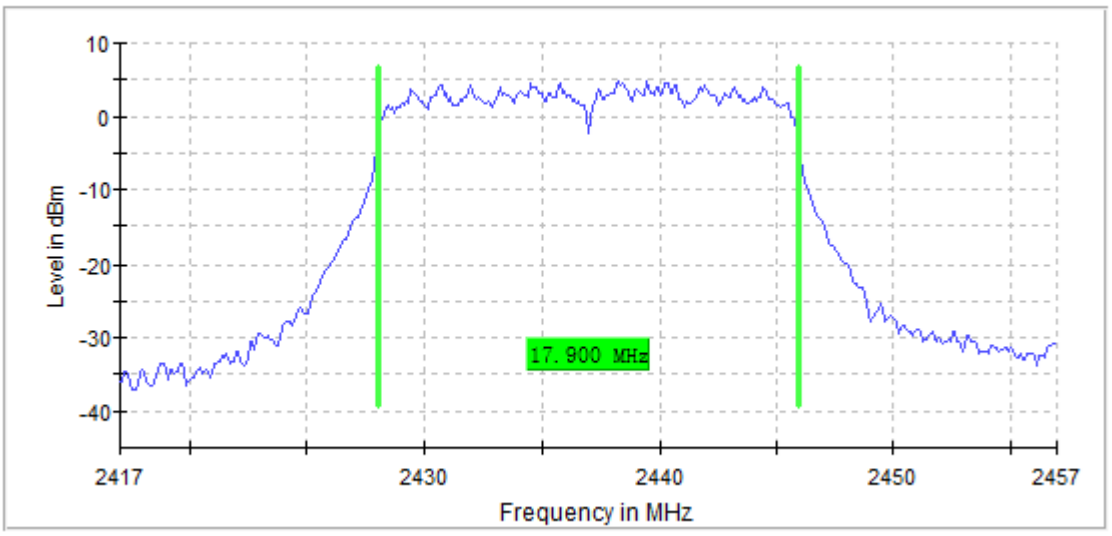
Mode	CH.	Test Freq. (MHz)	99% Occupied Bandwidth (MHz)	Limit	Result
IEEE 802.11 n20	0	2412	17.9	Within frequency range	Pass
	37	2437	17.9	Within frequency range	Pass
	10	2462	17.8	Within frequency range	Pass

99% Occupied Bandwidth

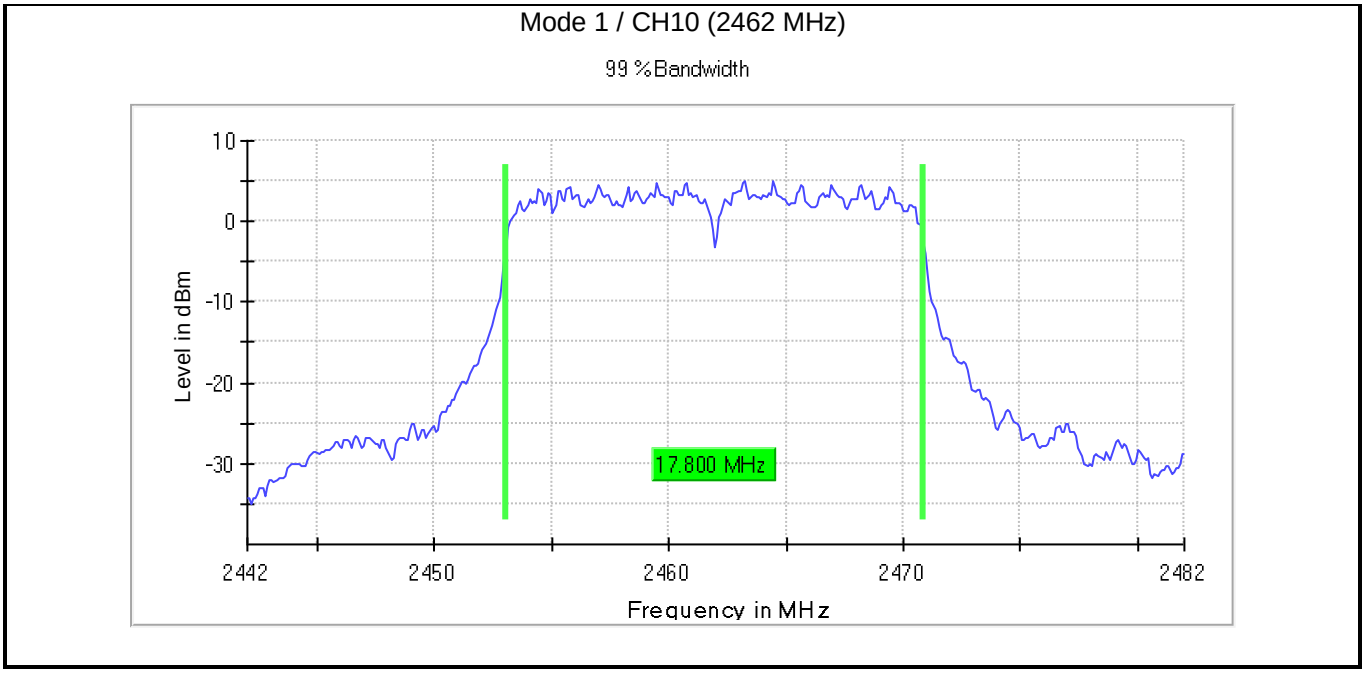
Mode 1 / CH0 (2412 MHz)



Mode 1 / CH5 (2437 MHz)



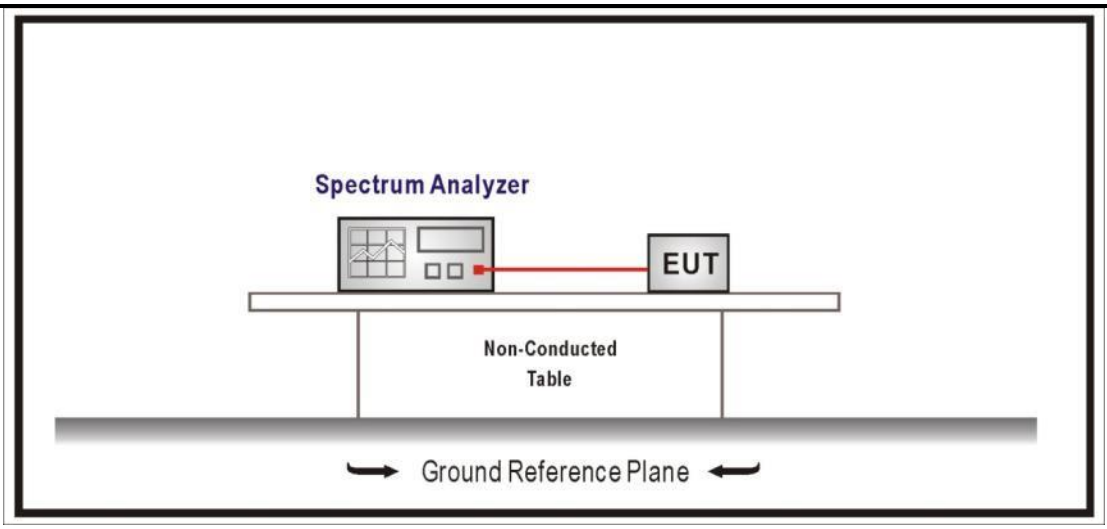
Mode 1 / CH10 (2462 MHz)



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



Performed measurements

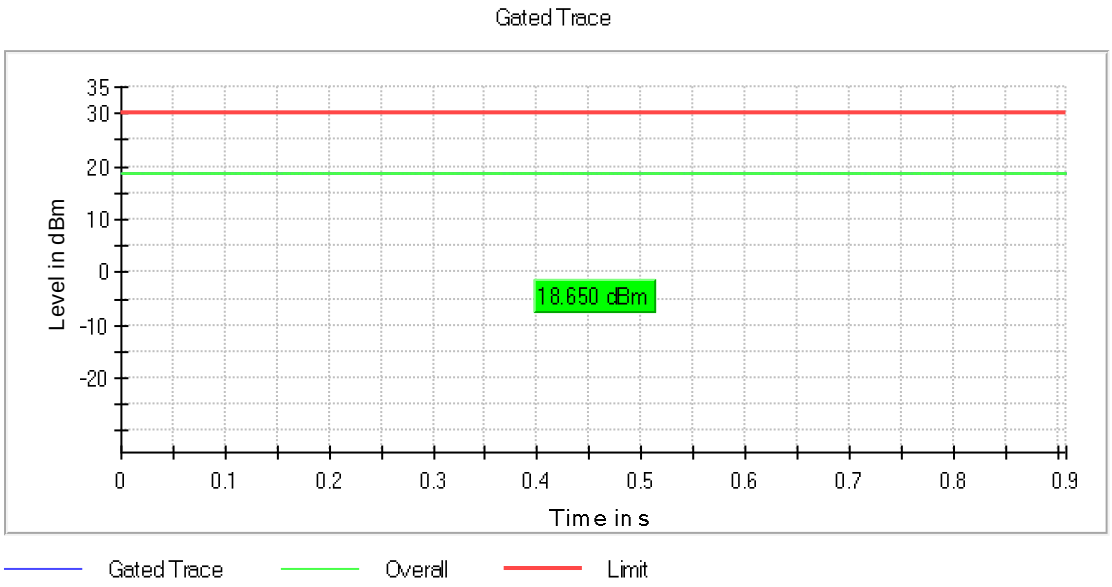
Port under test	Antenna port	
Test method applied	☒	Conducted measurement
	☐	Radiated measurement
Test setup	Refer to the Annex 3 for test setup photo(s).	
Operating mode(s) used	Mode 1	
Remark	---	

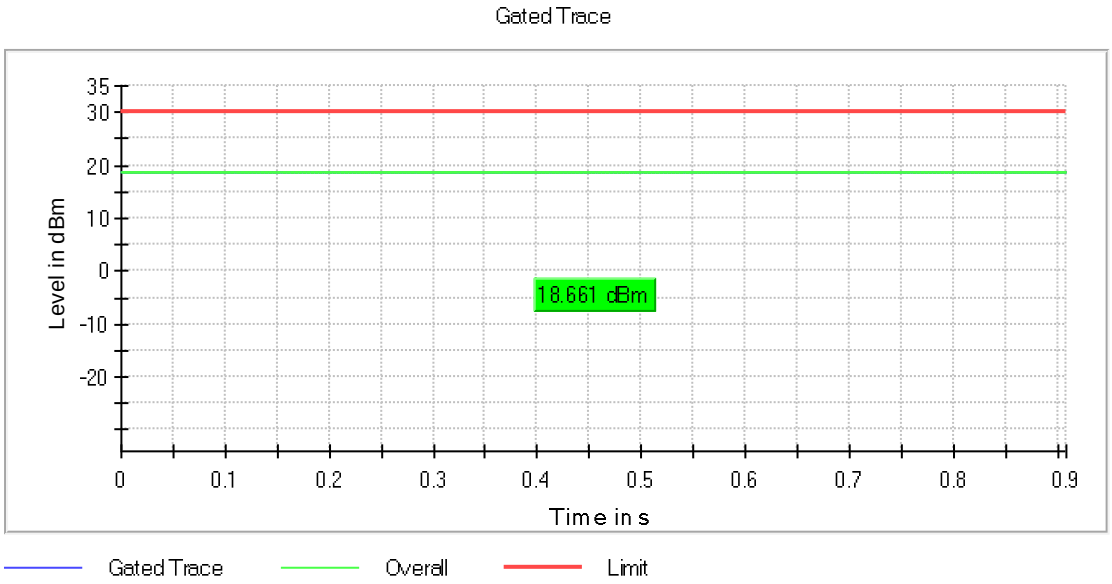
Results

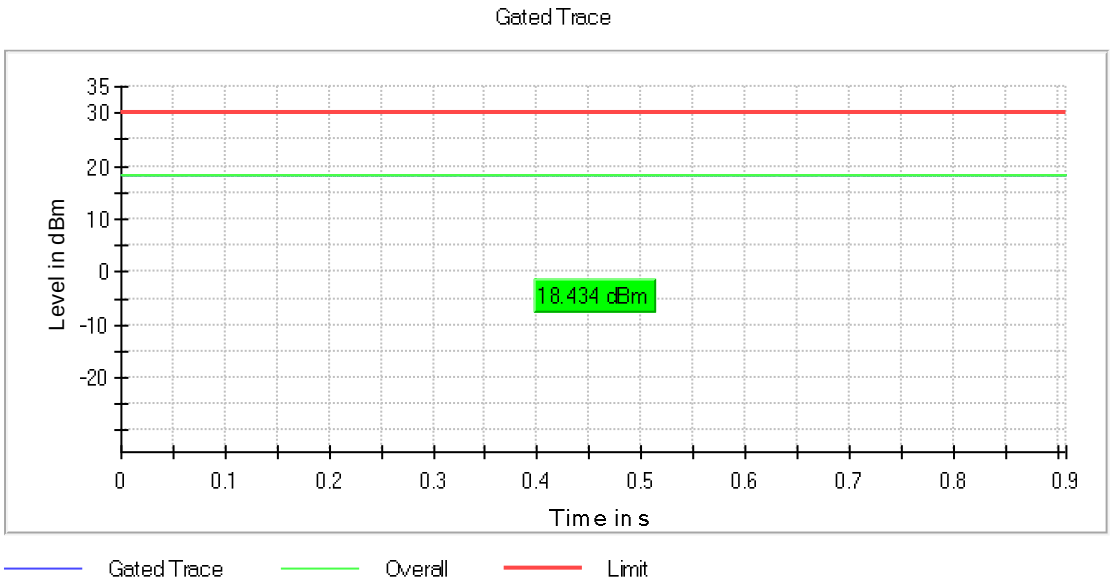
Mode	Channel	Test Frequency (MHz)	Power Output (dBm)	Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)	Result
IEEE 802.11 b	0	2412	18.65	≤30	19.15	≤36	Pass
	5	2437	18.66	≤30	19.16	≤36	Pass
	10	2462	18.43	≤30	18.93	≤36	Pass
IEEE 802.11 g	0	2412	15.80	≤30	16.30	≤36	Pass
	5	2437	16.00	≤30	16.50	≤36	Pass
	10	2462	15.88	≤30	16.38	≤36	Pass
IEEE 802.11 n20	0	2412	15.37	≤30	15.87	≤36	Pass
	5	2437	15.52	≤30	16.02	≤36	Pass
	10	2462	15.44	≤30	15.94	≤36	Pass

Remark: 0.5 dBi

Data of IEEE 802.11 b

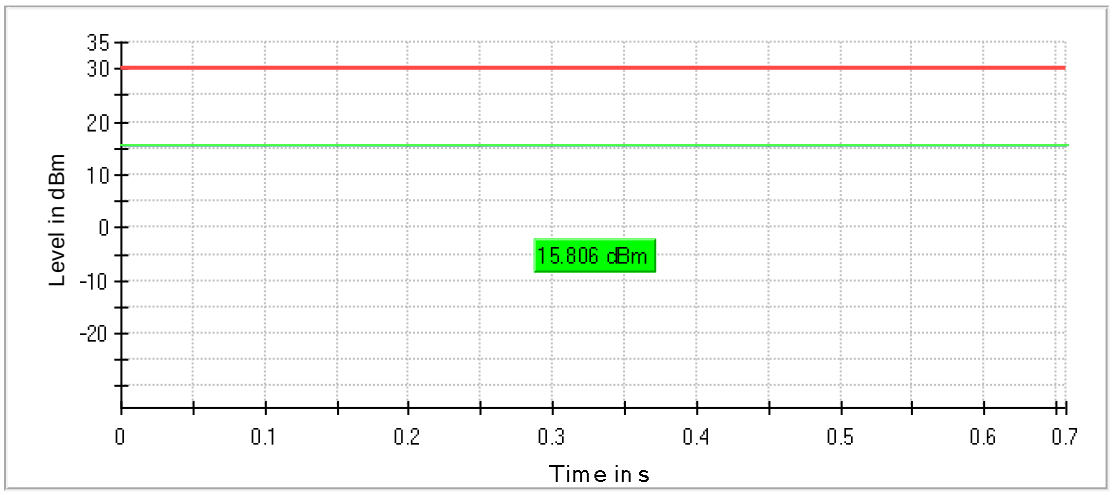



Gated Trace
Level in dBm
35
30
20
10
0
-10
-20
18.661 dBm
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
Time in s
Gated Trace
Overall
Limit


Gated Trace
Level in dBm
35
30
20
10
0
-10
-20
18.434 dBm
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
Time in s
Gated Trace
Overall
Limit

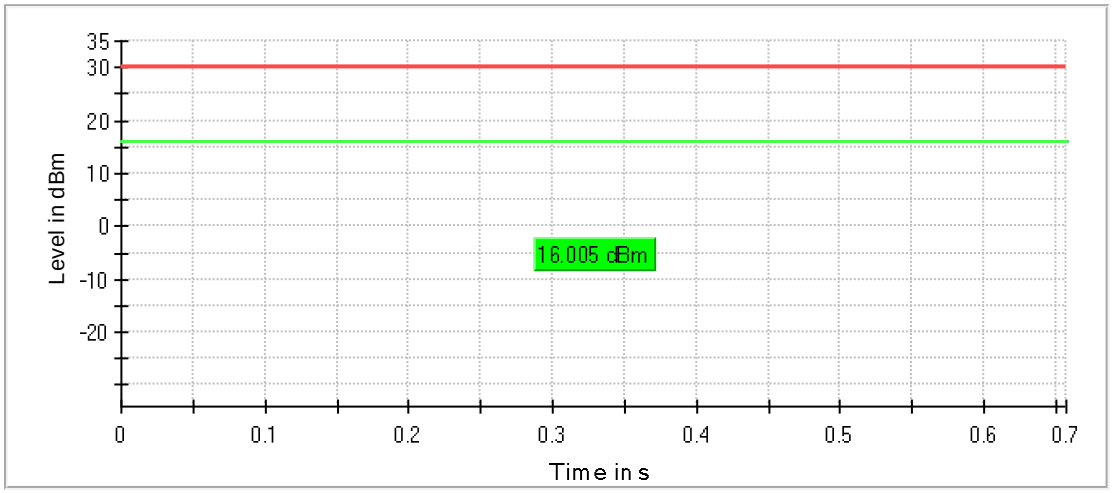
Data of IEEE 802.11 g

Gated Trace



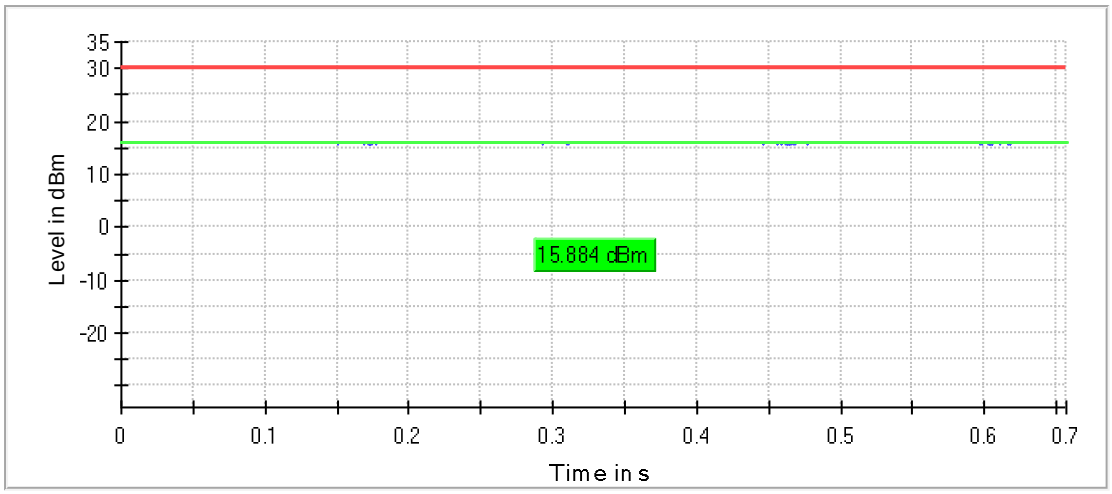
Gated Trace Overall Limit

Gated Trace



Gated Trace Overall Limit

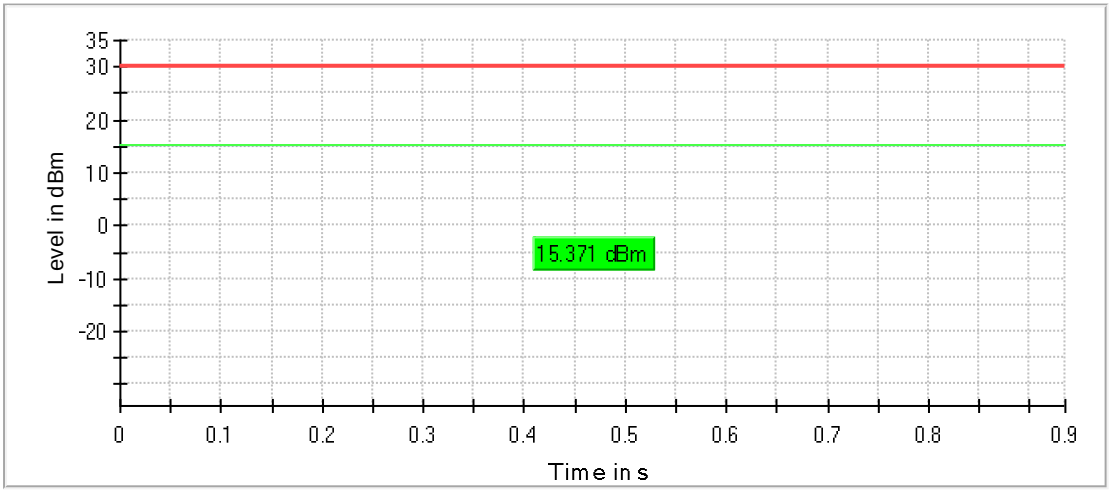
Gated Trace



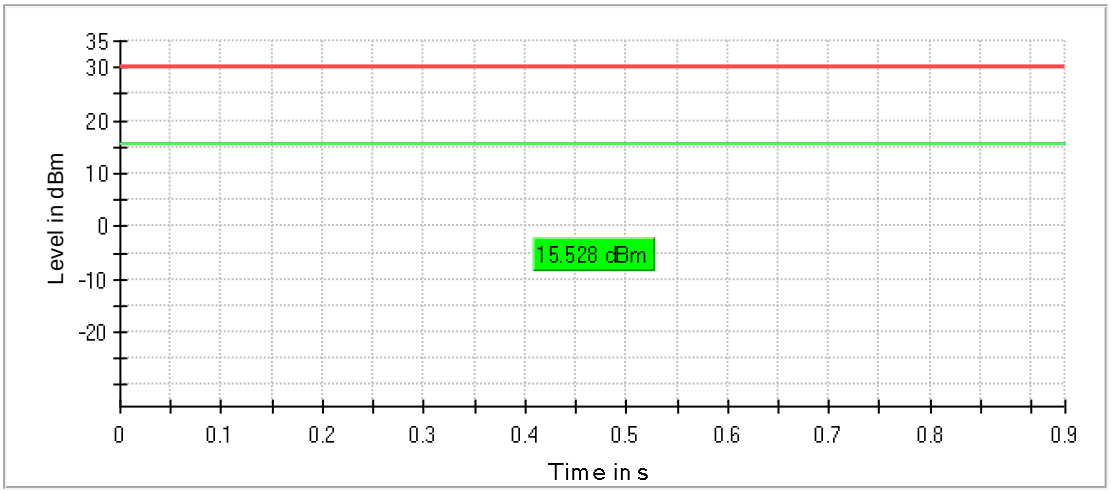
Gated Trace Overall Limit

Data of IEEE 802.11 n20

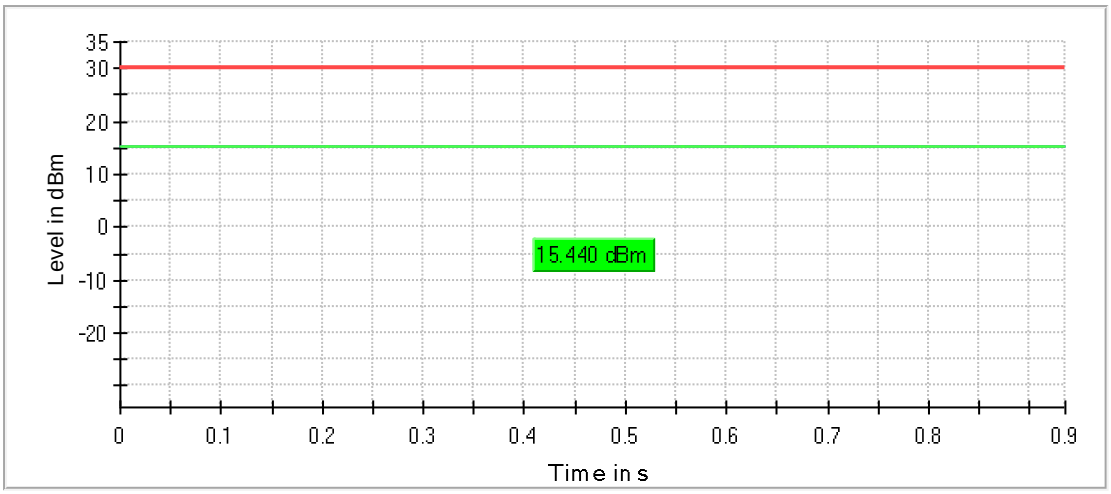
Gated Trace



Gated Trace



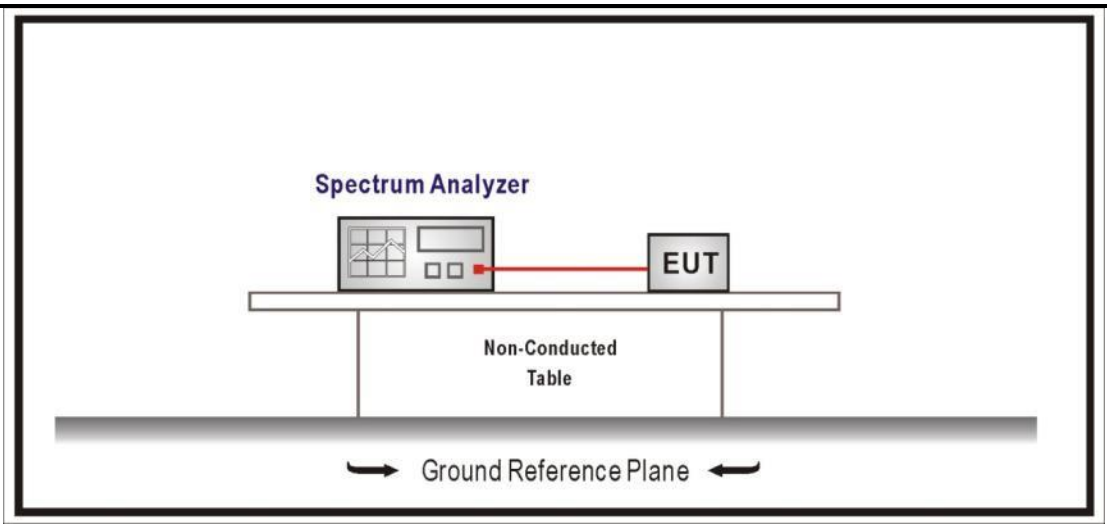
Gated Trace



4.8 Power Density	VERDICT: PASS

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

Test Configuration



Performed measurements

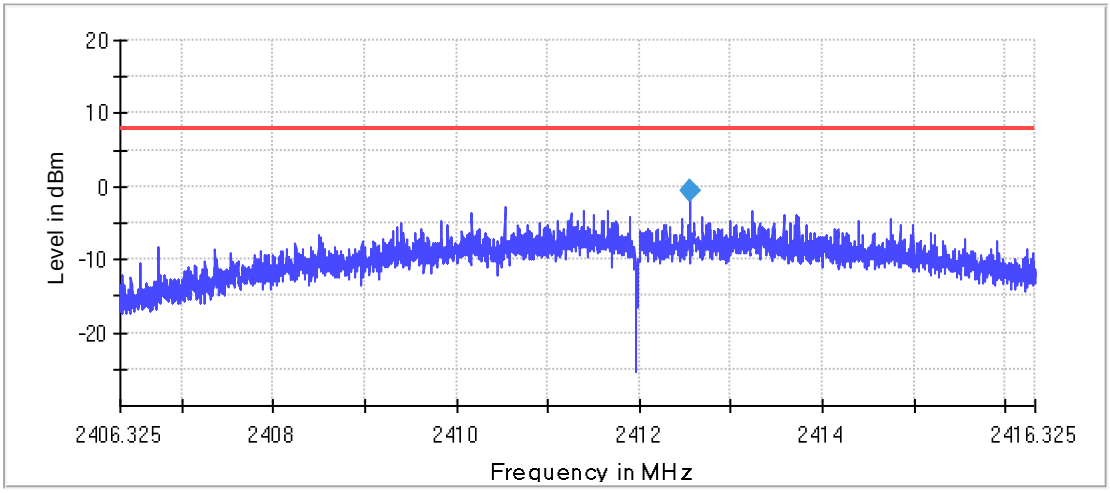
Port under test	Antenna port	
Test method applied	☒	Conducted measurement
	☐	Radiated measurement
Test setup	Refer to the Annex 3 for test setup photo(s).	
Operating mode(s) used	Mode 1	
Remark	---	

Results

Mode	Channel	Test Frequency (MHz)	Power Output (dBm)	Limit (dBm/3kHz)	Result
IEEE 802.11 b	0	2412	-0.712	≤8	Pass
	5	2436	-2.291	≤8	Pass
	10	2437	-1.222	≤8	Pass
IEEE 802.11 g	0	2412	4.132	≤8	Pass
	5	2437	4.193	≤8	Pass
	10	2462	4.323	≤8	Pass
IEEE 802.11 n20	0	2412	3.755	≤8	Pass
	5	2437	3.782	≤8	Pass
	10	2462	3.871	≤8	Pass

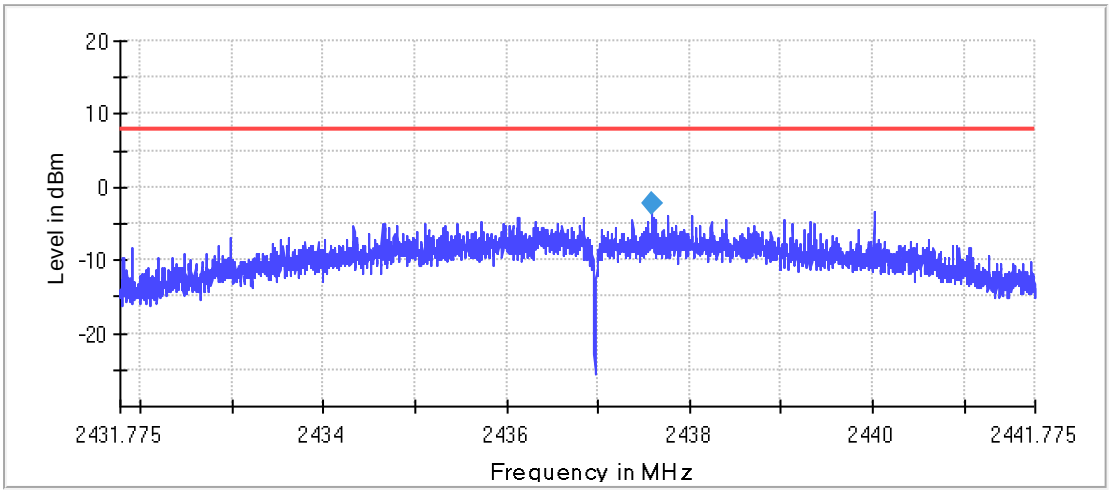
Data of IEEE 802.11 b

Peak Power Spectral Density 2nd



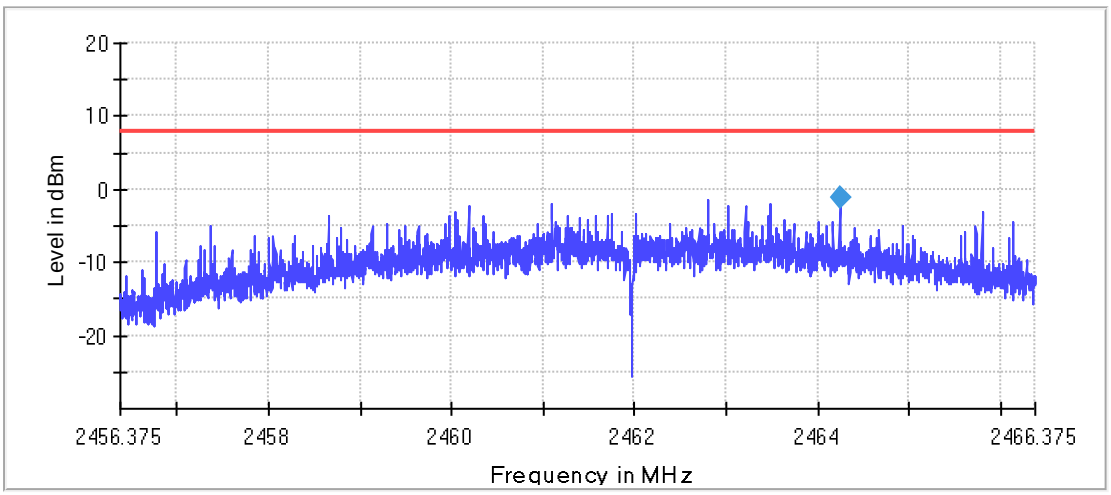
Limit Sum Level PSD

Peak Power Spectral Density 2nd



Limit Sum Level PSD

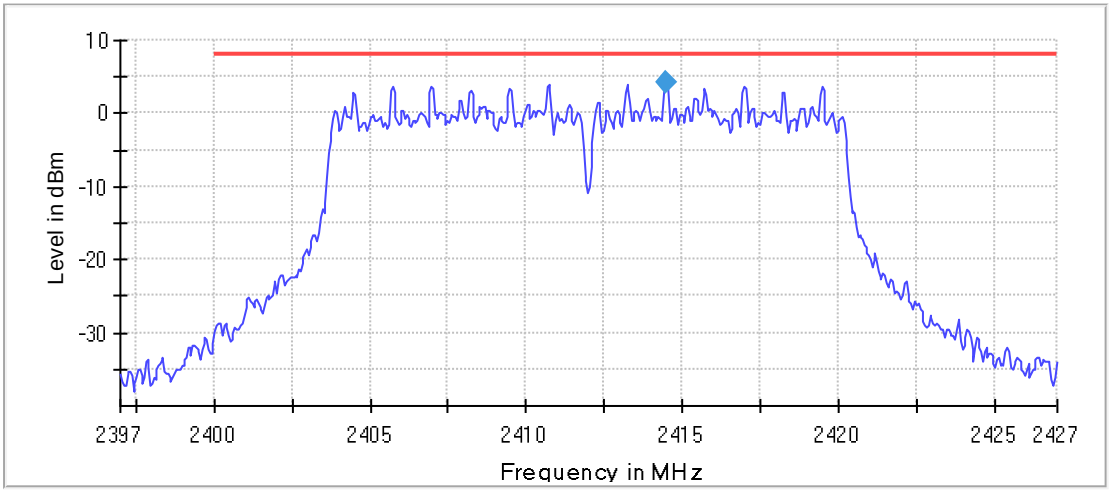
Peak Power Spectral Density 2nd



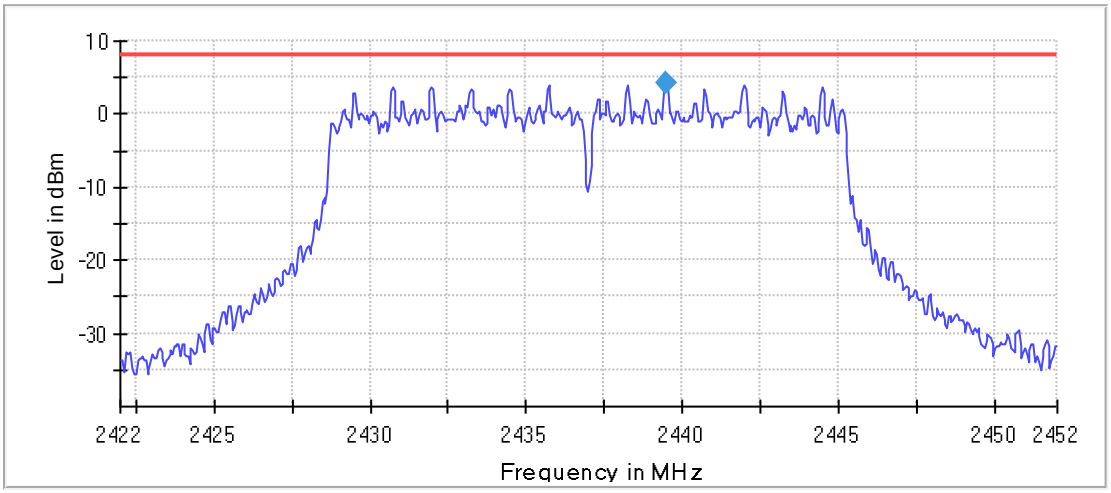
Limit Sum Level PSD

Data of IEEE 802.11 g

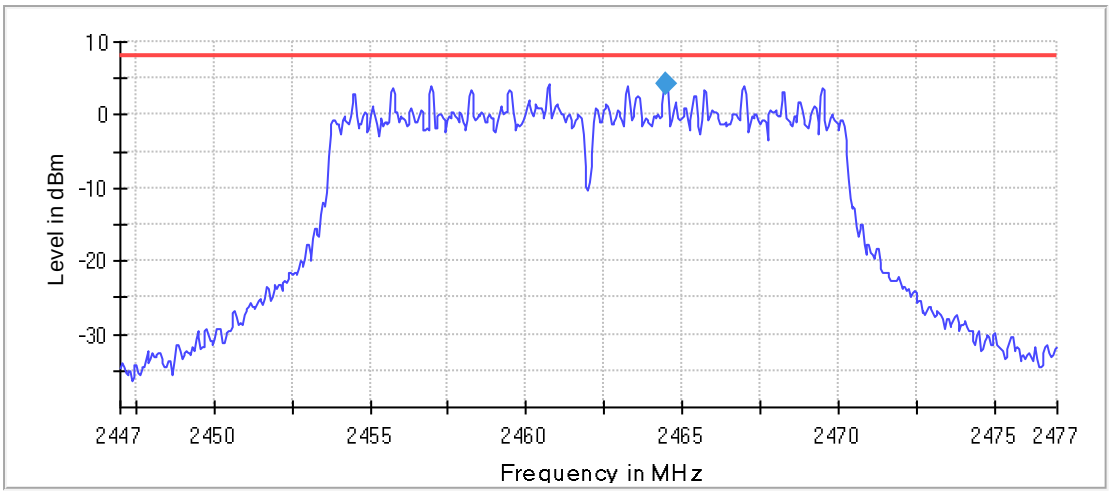
Peak Power Spectral Density



Peak Power Spectral Density

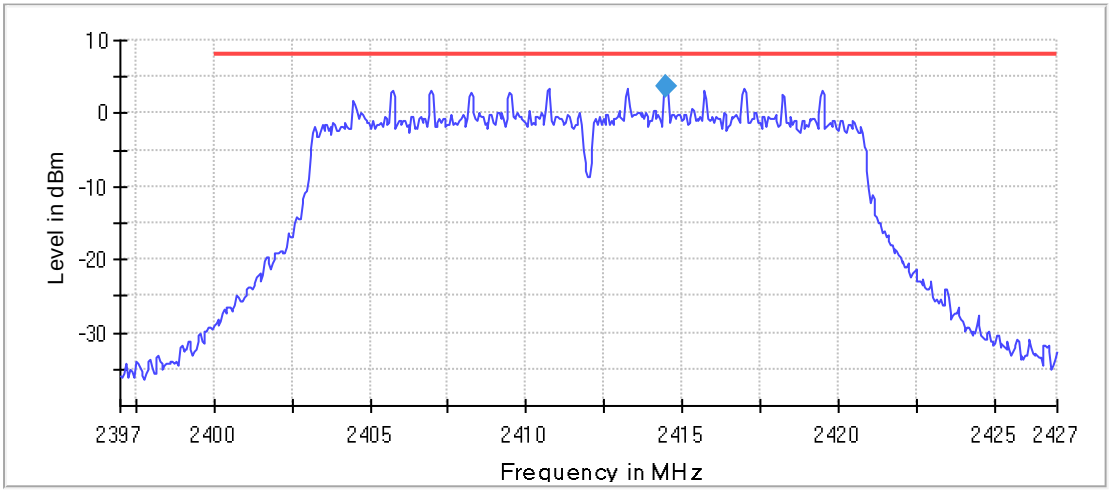


Peak Power Spectral Density

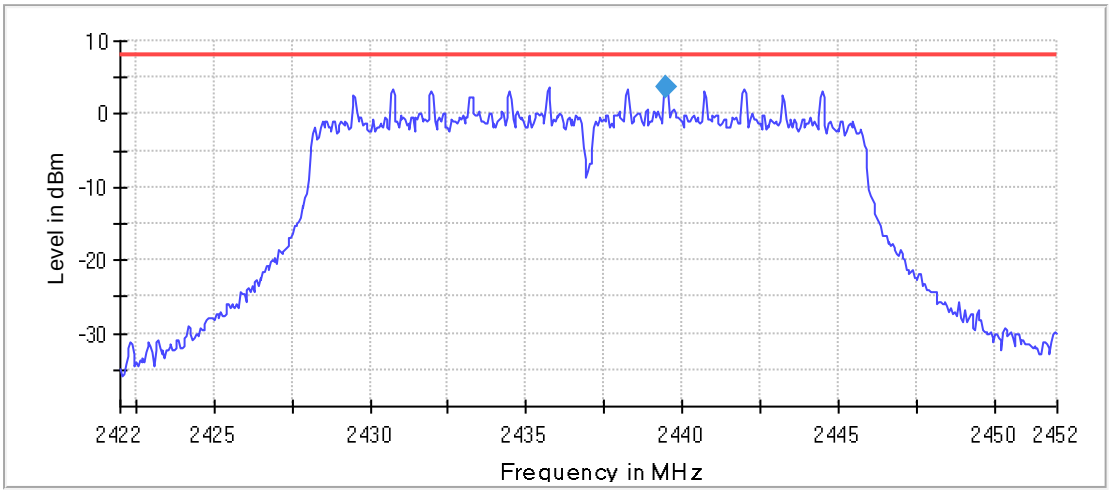


Data of IEEE 802.11 n20

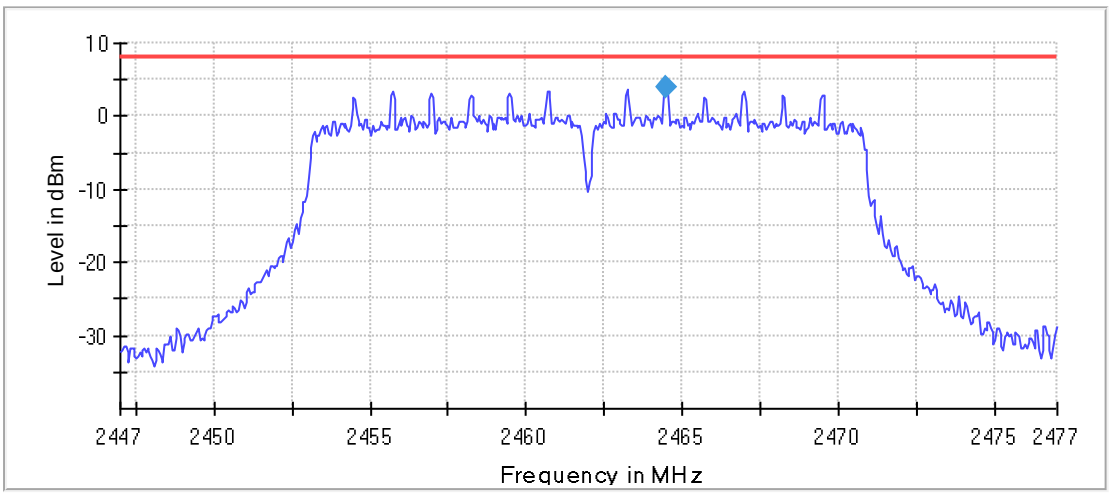
Peak Power Spectral Density



Peak Power Spectral Density



Peak Power Spectral Density



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 (1-12,75GHz)	±4,4dB

ANNEX 2 - USED EQUIPMENT

For Continuous disturbances conducted (150 kHz to 30 MHz)

Instrumentation	Manufacturer	Model No.	Serial No.	DEKRA No.	Cal. Due date
Shielding Room	Changzhou Feite	/	/	G/L861	2024/05/31
EMI Receiver	R&S	ESCI	101206	G/L857	2024/07/02
LISN	R&S	ENV216	101337	G/L859	2024/07/02

For Radiated Emission (30MHz-1000MHz)

Instrumentation	Manufacturer	Model No.	Serial No.	DEKRA No.	Cal. Due date
3m Chamber	ETS	FACT3-2.0	CT000344-1100	G/L856	2024/06/04
EMI receiver	R&S	ESCI	101205	G/L858	2024/07/02
Antenna (30MHz-3GHz)	SCHWARZBECK	VULB9163	506	G/L864	2024/12/05
Antenna (30MHz-2GHz)	SCHWARZBECK	VULB9168	01229	GZ2018	2025/03/12
CMAD	TESEQ	CMAD 20B	49023	GZ1756	2024/09/08
CMAD	TESEQ	CMAD 20B	49024	GZ1757	2024/09/08
CMAD	TESEQ	CMAD 20B	49026	GZ1758	2024/09/08
CDNE	TESEQ	M310	48706	GZ1759	2024/09/07
CDNE	TESEQ	M210	540133	GZ1906	2025/05/07
Test software	AUDIX	e3	Version 6.130520	---	---

For Radiated Emission (1GHz-18GHz)

Instrumentation	Manufacturer	Model No.	Serial No.	DEKRA No.	Cal. Due date
3m Chamber	ETS	FACT3-2.0	CT000344-1100	G/L856	2024/06/04
Antenna (1GHz-18GHz)	R&S	HF907	102306	G/L1236	2025/04/10
Horn antenna preamplifier	Schwarzbeek	SCU-18	102234	G/L1236-1	2025/02/21
Antenna (1GHz-18GHz)	SCHWARZBECK	BBHA 9120D	02408	GZ2019	2025/01/16
Horn antenna preamplifier	EMC Instruments corporation	EMC051845 SE	980778	GZ2009	2024/12/04
Spectrum analyzer	R&S	FSV	SN101012	G/L1235	2025/01/09

FOR RF

Instrumentation	Manufacturer	Model	Serial no.	DEKRA No.	Cal Due date
Spectrum analyzer	R&S	FSV	SN101012	G/L1235	2025/03/07
Chamber	ETS	/	/	G/L856	2024/06/04
Horn antenna (1GHz-18GHz)	R&S	HF907	102306	G/L1236	2025/04/10
Horn antenna preamplifier	Schwarzbeek	SCU-18	102234	G/L1236-1	2025/02/03
Horn antenna (18GHz-26.5GHz)	ETS	3160-09	00164643	G/L1237	2025/01/09
Horn antenna preamplifier	/	SCU-26D	1879064	G/L1237-1	2025/01/24
EMI receiver	R&S	ESCI	101205	G/L857	2024/07/02
Antenna (30MHz-2GHz)	SCHWARZBECK	VULB9168	01229	GZ2018	2025/03/12
Antenna (30MHz-3GHz)	SCHWARZBECK	VULB9163	506	G/L864	2024/06/04
OSP	R&S	OSP 150	101907	GZ1894	2025/02/01
Signal generator	R&S	SMB 100A	181317	GZ1895	2025/02/01
Vector signal generator	R&S	SMBV100A	263671	GZ1896	2025/02/01
Wireless connectivity tester	R&S	CMW 270	100990	GZ1893	2025/02/01
Manual step attenuator (11dB)	Keysight	8494B	TH60074118	GZ2086	2024/07/07
Manual step attenuator (70dB)	Keysight	8495D	TH60074471	GZ2087	2024/07/07
Band filter	HX Microwave	HXLBQ-DZA118	23110101-2	GZ2540	2024-11-26
Band filter	HX Microwave	HXLBQ-DZA104	23110101-1	GZ2541	2024-11-26
Band filter	HX Microwave	HXLBQ-DZA219	23080804-1	GZ2464	2024-08-29
RMI artificial antenna	/	/	/	GZ1988	2025-05-14
Programmable Temperature & Humidity Chamber	ASTUOD	TT-5166	52689	GZ2209	2025/05/08
Test software	R&S	EMC32	---	---	Version 11.30.00

ANNEX 3 - TEST PHOTOS

Refer to document Test setup.

--- END ---