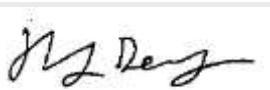
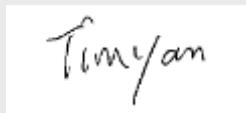


Test report No: 4931295.50

TEST REPORT

Radio Spectrum Matters (RF)

Identification of item tested	Zigbee module
Trademark	SenSpot, SeniMax
Model and /or type reference	SenSpot/SeniMax
FCC ID	2BNXA-RSNSX11
Features	2.5 - 4.1 Vdc (battery)
Applicant's name / address	RESENSYS LLC. 6517 MID CITIES AVE, BELTSVILLE, USA
Test method requested, standard	FCC CFR Title 47 Part15 Subpart C Section 15.247; KDB558074 D01v05r02
Verdict Summary	COMPLIANCE
Tested by (name & signature)	Harry Deng 
Approved by (name & signature)	Tim Yan 
Date of issue	2025-09-09
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	15 °C – 35 °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 measured	N/M

DEFINITION OF SYMBOLS USED IN THIS TEST REPORT

<input checked="" type="checkbox"/> Indicates that the listed condition, standard or equipment is applicable for this report/test/EUT.			
<input type="checkbox"/> Indicates that the listed condition, standard or equipment is not applicable for this report/test/EUT.			
Decimal separator used in this report	<input type="checkbox"/>	Comma (,)	<input checked="" type="checkbox"/> 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
4931295.50	2025-05-29	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	Zigbee module
Trademark.....	SenSpot, SeniMax
Model / Type number.....	SenSpot/SeniMax
FCC ID	2BNXA-RSNSX11
Ratings.....	2.5 - 4.1 Vdc (battery)
Manufacturer/Factory.....	RESENSYS LLC. 6517 MID CITIES AVE, BELTSVILLE, USA

RF information (According to Applicant's declaration):

Operating frequency range(s) – Tx.:	2405-2475 MHz
Operating frequency range(s) – Rx :	2405-2475 MHz
Type of Modulation	O-QPSK
Data Rate.....	250 kbps
Antenna type.....	Integral Antenna
Antenna gain.....	2.2 dBi
Number of channel	15

Rated power supply	Voltage and Frequency	Reference poles				
		L1	L2	L3	N	PE
	<input type="checkbox"/> AC:	<input type="checkbox"/>				
	<input type="checkbox"/> DC:					
	<input checked="" type="checkbox"/> Battery: 2.5-4.1 Vdc					
Mounting position.....	<input type="checkbox"/> Table top equipment					
	<input checked="" type="checkbox"/> Wall/Ceiling mounted equipment					
	<input type="checkbox"/> Floor standing equipment					
	<input type="checkbox"/> Hand-held equipment					
	<input type="checkbox"/> Other:					

Intended use of the Equipment Under Test (EUT)
The apparatus as supplied for the test is Zigbee module which intended for residential use, the product contains electronic control circuitry and powered by battery.

Copy of marking plate:
No provided.

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; ISED CAB identifier: CN0130
Date of receipt of test item	2024-12-24
Date (s) of performance of tests	2024-12-24 to 2025-01-16
Sampler number	4931295-1

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):

<input checked="" type="checkbox"/>	Residential (domestic) environment.
<input checked="" type="checkbox"/>	Commercial and light-industrial environment.
<input type="checkbox"/>	Industrial environment.

1.4 Channel List

Working Frequency of Each Channel:							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
11	2405 MHz	12	2410 MHz	13	2415 MHz	14	2420 MHz
15	2425 MHz	16	2430 MHz	17	2435 MHz	18	2440 MHz
19	2445 MHz	20	2450 MHz	21	2455 MHz	22	2460 MHz
23	2465 MHz	24	2470 MHz	25	2475 MHz	---	---

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	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
2		<input type="checkbox"/>	<input type="checkbox"/>
3		<input type="checkbox"/>	<input type="checkbox"/>
<u>Supplemental information:</u> ---			

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
Battery	ORB3500P	---	Applicant
Base board	---	---	Applicant
<u>Supplemental information:</u> ---			

2.3 Test Configuration / Block diagram used for tests

Refer to Annex 3.

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	2025	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	N/A	See 1)
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	---
<u>Supplementary information:</u>			
1) This device is powered by battery and could not connected to AC mains.			

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.

3.4 Measurement procedure

The EUT was controlled by a serial PCB which provided by manufacturer which connected to laptop through the com port. After connected, run the software “RF Studio” supplied by manufacturer to control the EUT work in required test mode as below table.

Mode	Frequency (MHz)
Zigbee	2405
	2440
	2475

4 TRANSMITTER TEST RESULTS

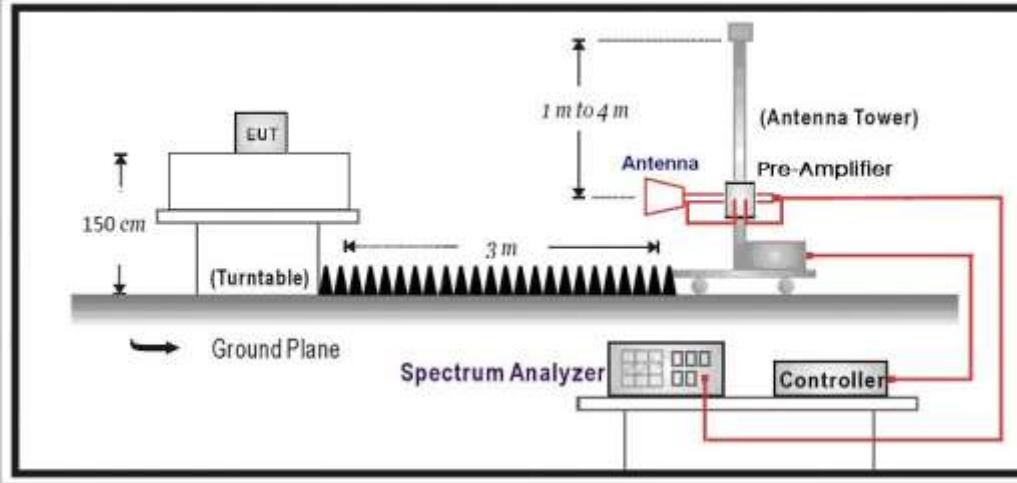
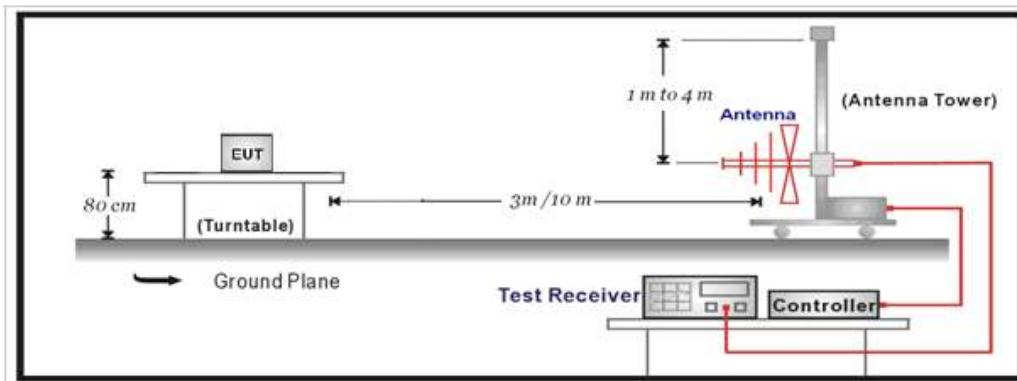
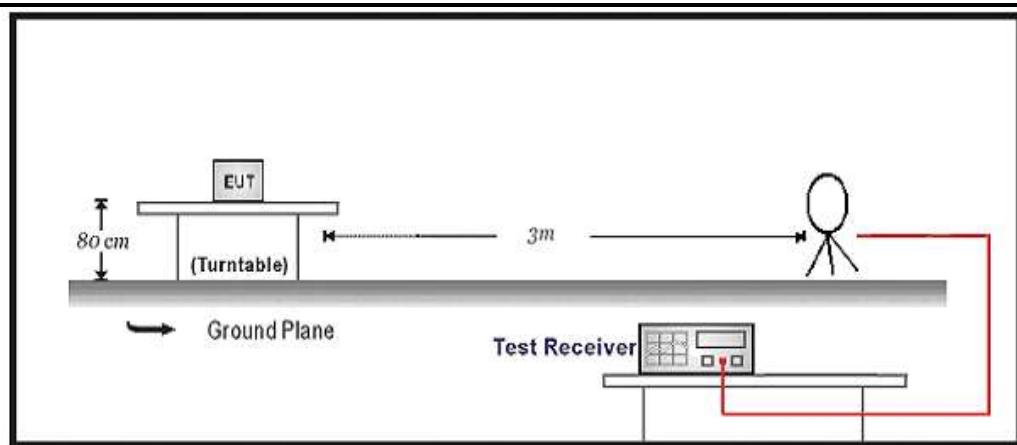
4.1	Emissions in non-restricted frequency bands	VERDICT: PASS
-----	---	---------------

Emissions Limit 15.209(a)			
Frequency (MHz)	Field strength (μ V/m)	Field strength ($\text{dB}\mu$ V/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

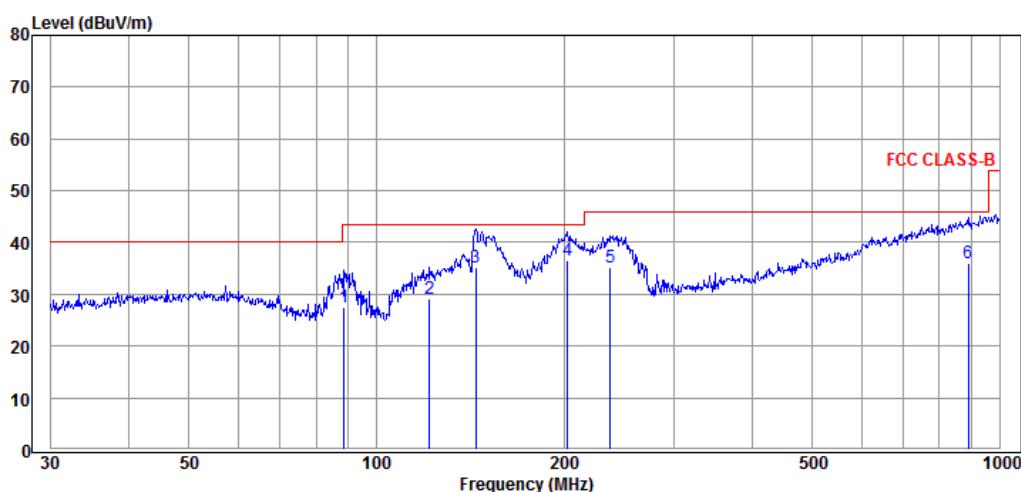
Port under test	Enclosure port	
Test method applied	<input type="checkbox"/>	Conducted measurement
	<input checked="" type="checkbox"/>	Radiated measurement
Test setup	Refer to the Annex 3 for test setup photo(s).	
Operating mode(s) used	Mode 1	
Remark	The test frequency range, 9kHz~30MHz, 18GHz~26GHz, both of the worst case are at least 20dB below the limits, therefore no data appear in the report.	

Results of 30 – 1000 MHz

Model	SENSPOT/SENIMAX
Operation Mode	Mode 1 @2405 MHz (worst case)
Test voltage	3.9 Vdc (battery)

Results

Horizontal



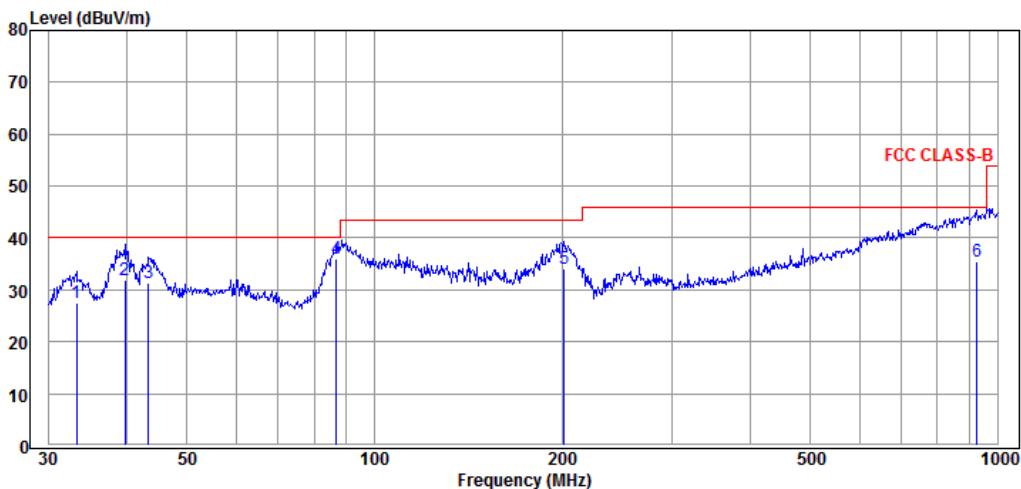
Freq (MHz)	Reading (dBuV)	C.F (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin=limit-result (dB)
88.65	12.57	14.99	27.56	43.50	15.94
121.55	10.56	18.56	29.12	43.50	14.38
144.34	14.51	20.63	35.14	43.50	8.36
202.81	19.31	17.37	36.68	43.50	6.82
237.48	15.92	19.30	35.22	46.00	10.78
890.73	2.43	33.47	35.90	46.00	10.10

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)
33.21	8.39	19.05	27.44	40.00	12.56
39.72	11.99	19.89	31.88	40.00	8.12
43.35	11.17	20.23	31.40	40.00	8.60
86.81	21.00	15.07	36.07	40.00	3.93
201.39	16.80	17.41	34.21	43.50	9.29
925.76	1.59	33.90	35.49	46.00	10.51

Remarks:

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

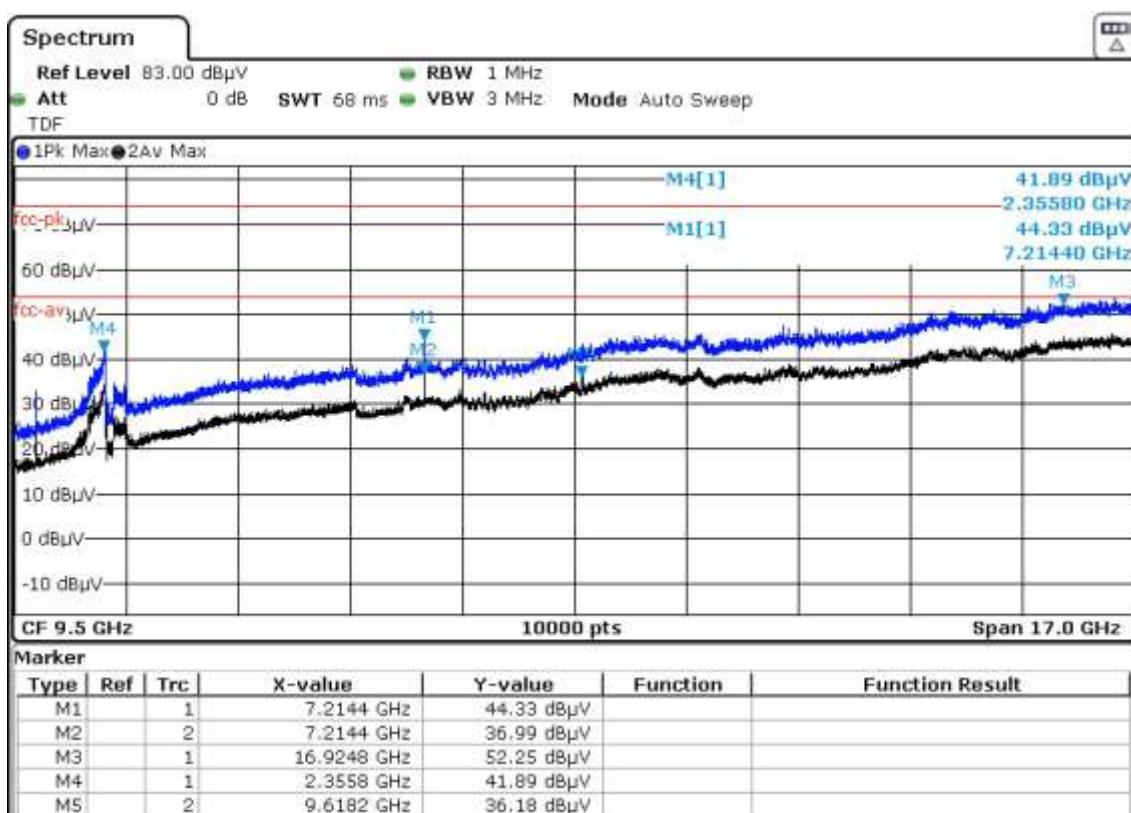
No other significant emissions were measured at the frequency range of interest employing the QP detectors.

Results of 1 – 18 GHz

Model	SENSPOT/SENIMAX
Operation Mode	Mode 1 @2405 MHz
Test voltage	3.9 Vdc (battery)

Results

Horizontal

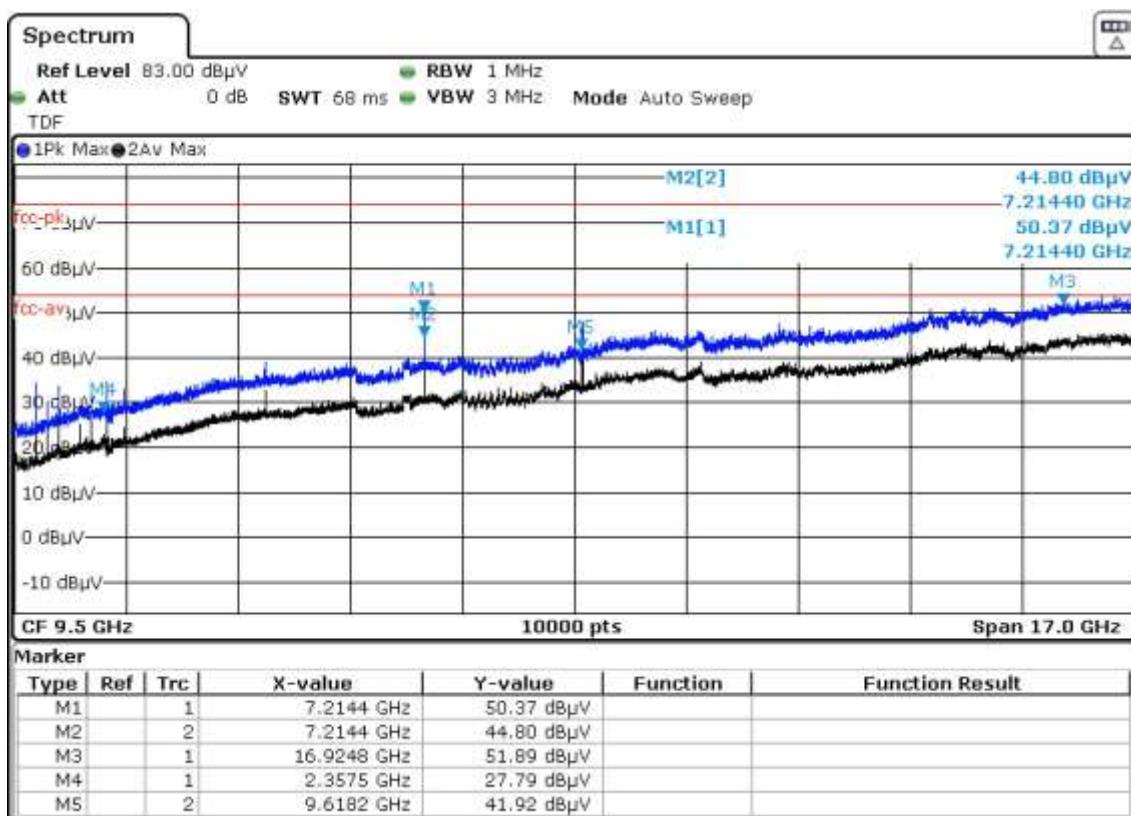


Remarks:

- 1) Due to the spectrum display limitation, the unit dBuV in test figure is dBuV/m actually.
- 2) Y-Value (dBuV/m)= received value (dBuV)+ Correction Factor (Antenna factor (dBuV/m)+ Cable loss (dB)- Preamp gain (dB))

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

Vertical



Remarks:

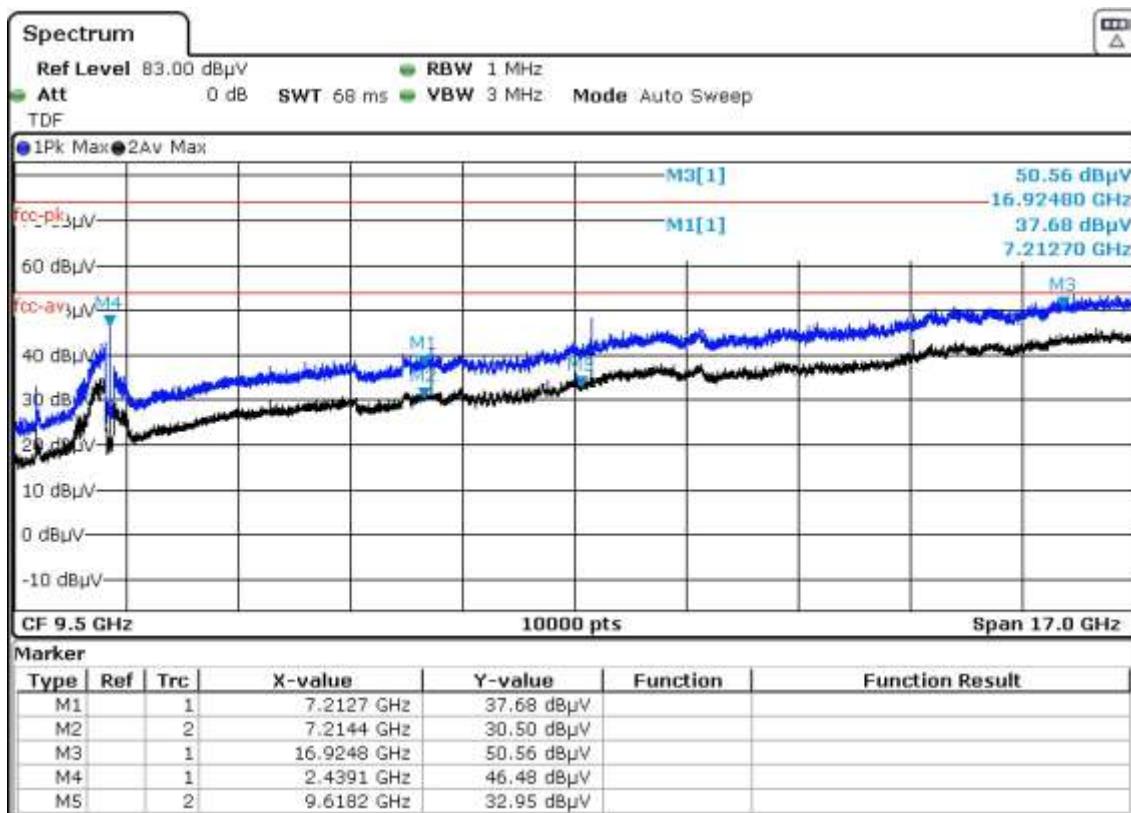
- 1) Due to the spectrum display limitation, the unit dB μ V in test figure is dB μ V/m actually.
- 2) Y-Value (dB μ V/m)= received value (dB μ V)+ Correction Factor (Antenna factor (dB μ V/m)+ Cable loss (dB)- Preamp gain (dB))

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

Model	SENPOT/SENIMAX
Operation Mode	Mode 1 @2440 MHz
Test voltage	3.9 Vdc (battery)

Results

Horizontal

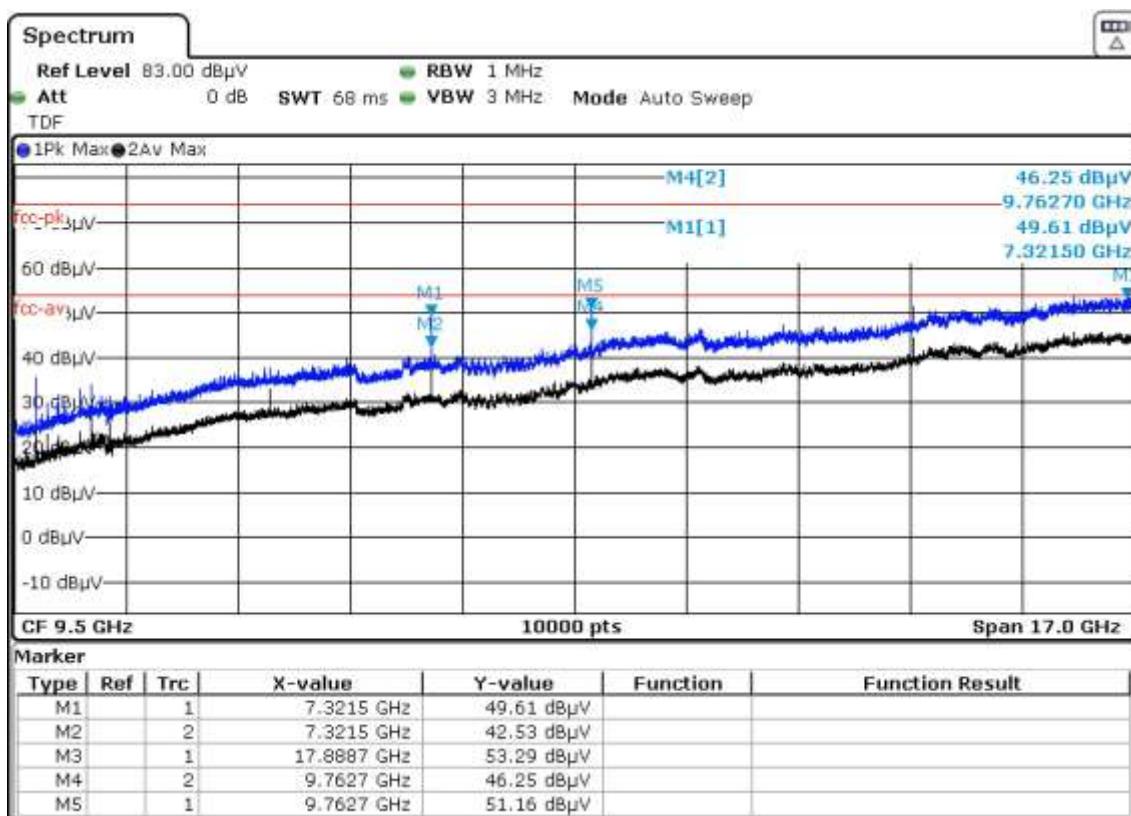


Remarks:

- 1) Due to the spectrum display limitation, the unit dBuV in test figure is dBuV/m actually.
- 2) Y-Value (dBuV/m)= received value (dBuV)+ Correction Factor (Antenna factor (dBuV/m)+ Cable loss (dB)- Preamp gain (dB))

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

Vertical



Remarks:

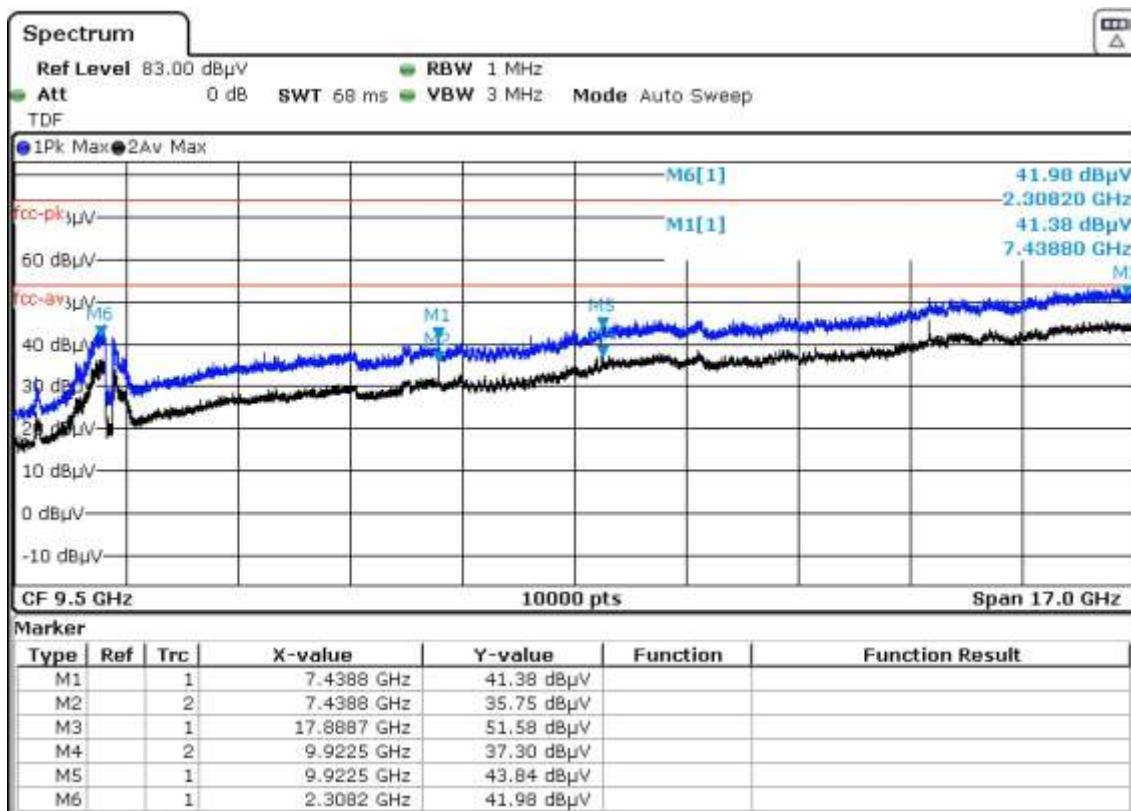
- 1) Due to the spectrum display limitation, the unit dB μ V in test figure is dB μ V/m actually.
- 2) Y-Value (dB μ V/m)= received value (dB μ V)+ Correction Factor (Antenna factor (dB μ V/m)+ Cable loss (dB)- Preamp gain (dB))

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

Model	SENPOT/SENIMAX
Operation Mode	Mode 1 @2480 MHz
Test voltage	3.9 Vdc (battery)

Results

Horizontal

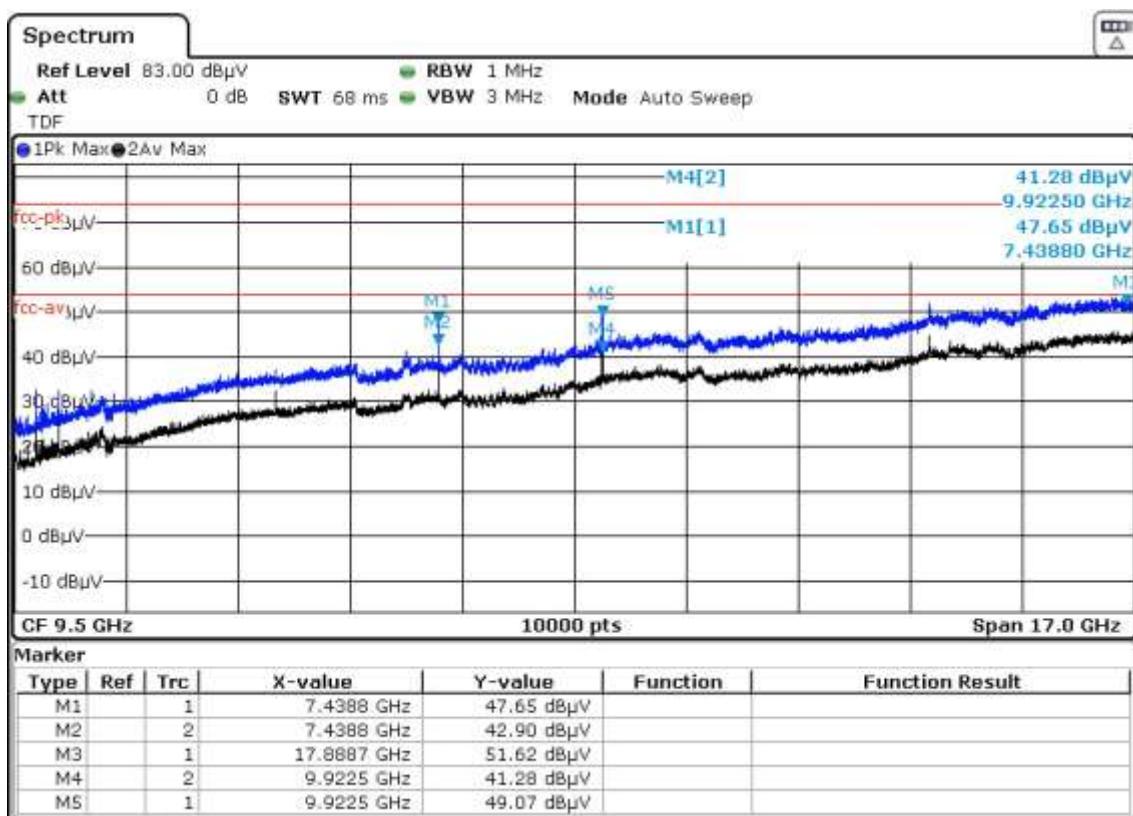


Remarks:

- 1) Due to the spectrum display limitation, the unit dB μ V in test figure is dB μ V/m actually.
- 2) Y-Value (dB μ V/m) = received value (dB μ V) + Correction Factor (Antenna factor (dB μ V/m)) + Cable loss (dB) - Preamp gain (dB)

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

Vertical



Remarks:

- 1) Due to the spectrum display limitation, the unit dB μ V in test figure is dB μ V/m actually.
- 2) Y-Value (dB μ V/m)= received value (dB μ V)+ Correction Factor (Antenna factor (dB μ V/m)+ Cable loss (dB)- Preamp gain (dB))

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

4.2 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			

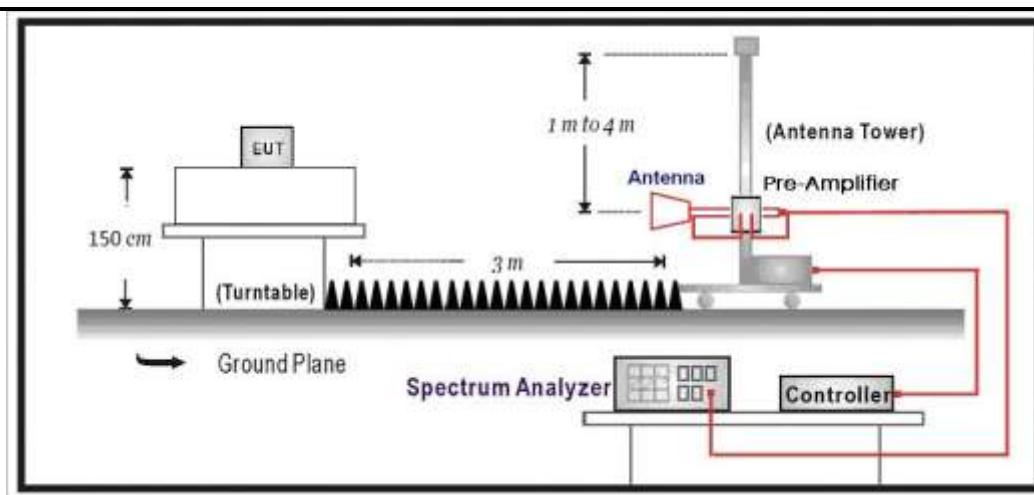
Restricted Band Emissions Limit

Frequency (MHz)	Field strength ($\mu\text{V/m}$)	Field strength ($\text{dB}\mu\text{V/m}$)	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



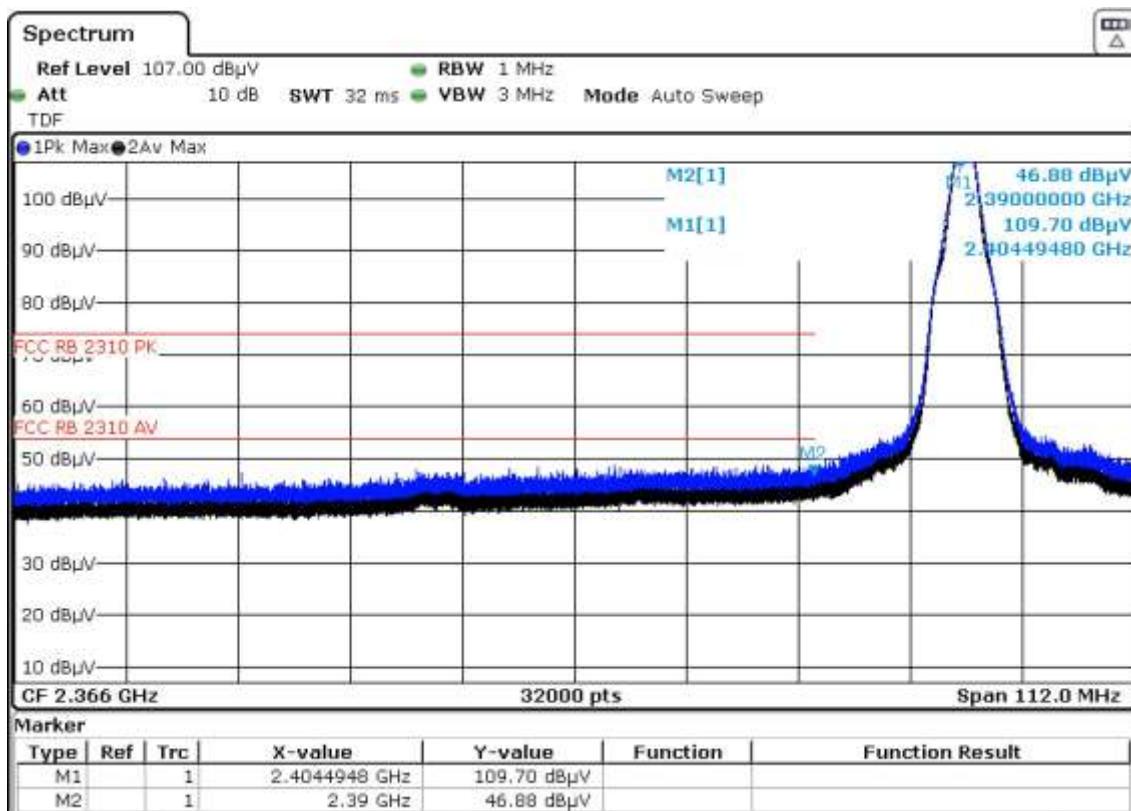
Performed measurements

Port under test	Enclosure port	
Test method applied	<input type="checkbox"/>	Conducted measurement
	<input checked="" type="checkbox"/>	Radiated measurement
Test setup	Refer to the Annex 3 for test setup photo(s).	
Operating mode(s) used	Mode 1	
Remark	---	

Model	SENPOT/SENIMAX
Operation Mode	Mode 1 @2405 MHz
Test voltage	3.9 Vdc (battery)

Results

Horizontal

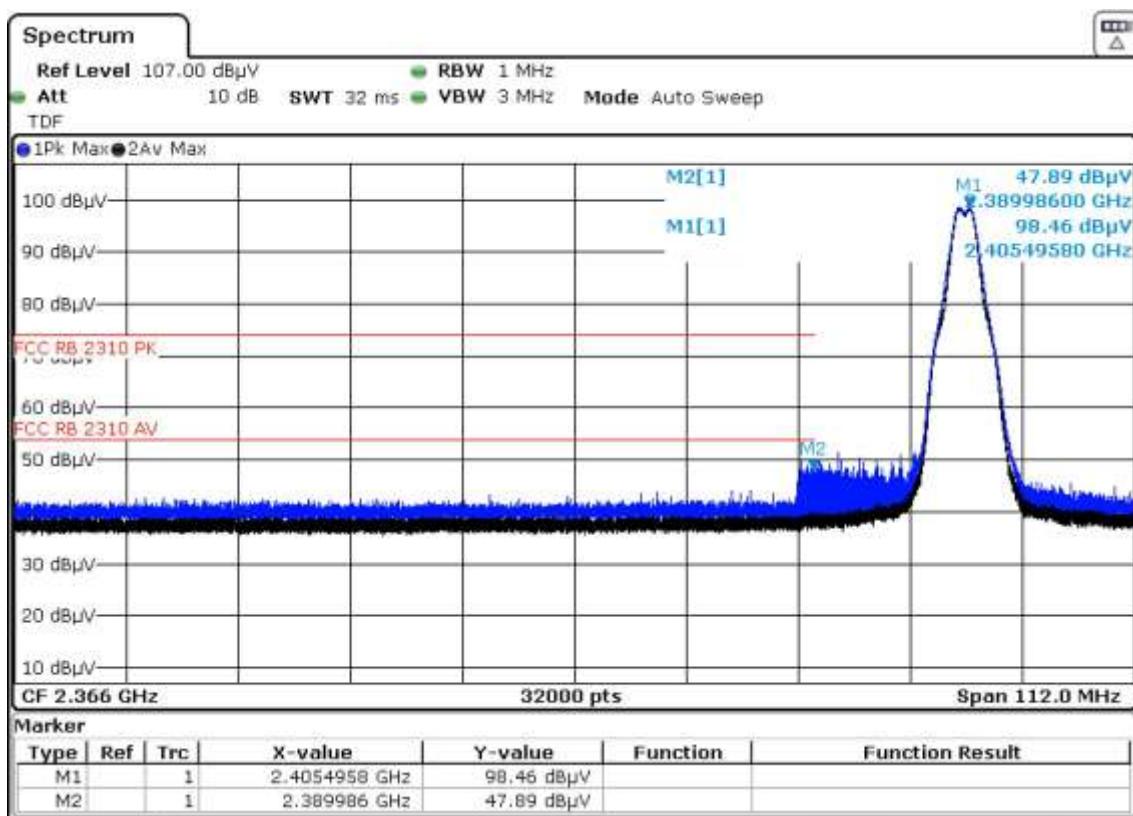


Remarks:

- 1) Due to the spectrum display limitation, the unit dB μ V in test figure is dB μ V/m actually.
- 2) Y-Value (dB μ V/m) = received value (dB μ V) + Correction Factor (Antenna factor (dB μ V/m) + Cable loss (dB) - Preamp gain (dB))

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

Vertical



Remarks:

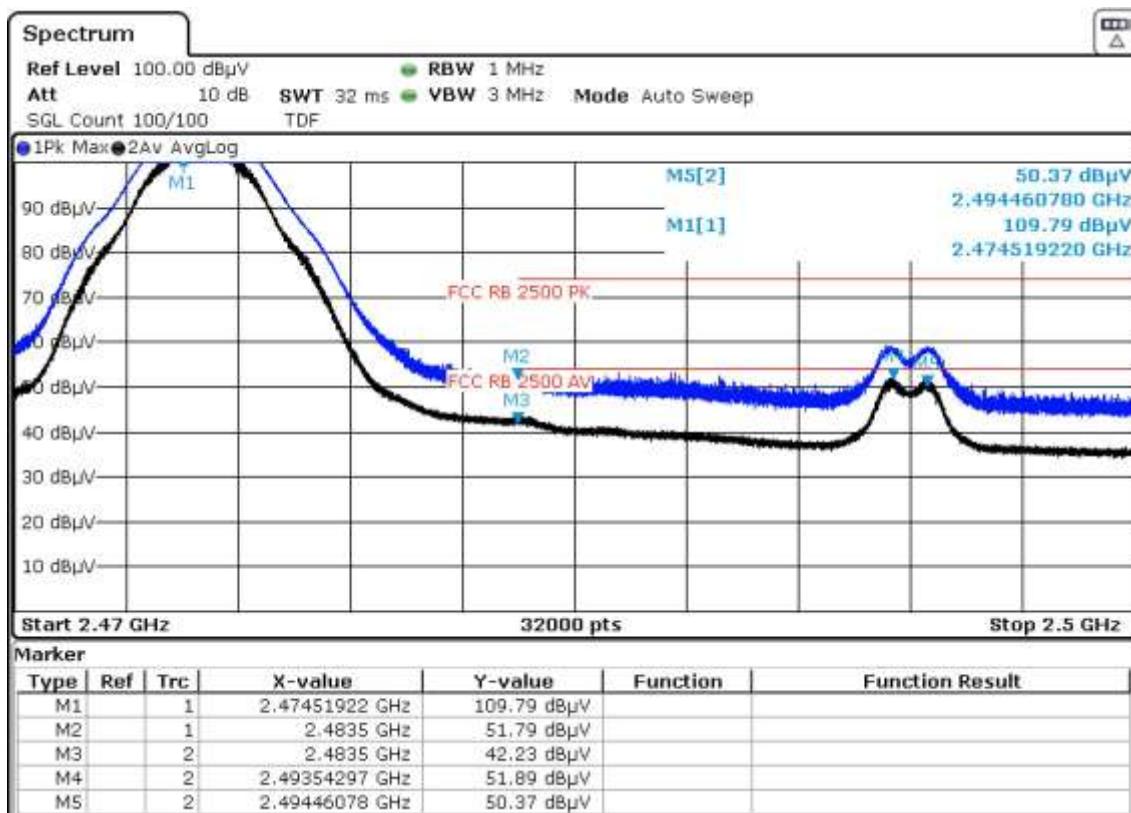
- 1) Due to the spectrum display limitation, the unit dB μ V in test figure is dB μ V/m actually.
- 2) Y-Value (dB μ V/m)= received value (dB μ V)+ Correction Factor (Antenna factor (dB μ V/m)+ Cable loss (dB)- Preamp gain (dB))

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

Model	SENPOT/SENIMAX
Operation Mode	Mode 1 @2480 MHz
Test voltage	3.9 Vdc (battery)

Results

Horizontal

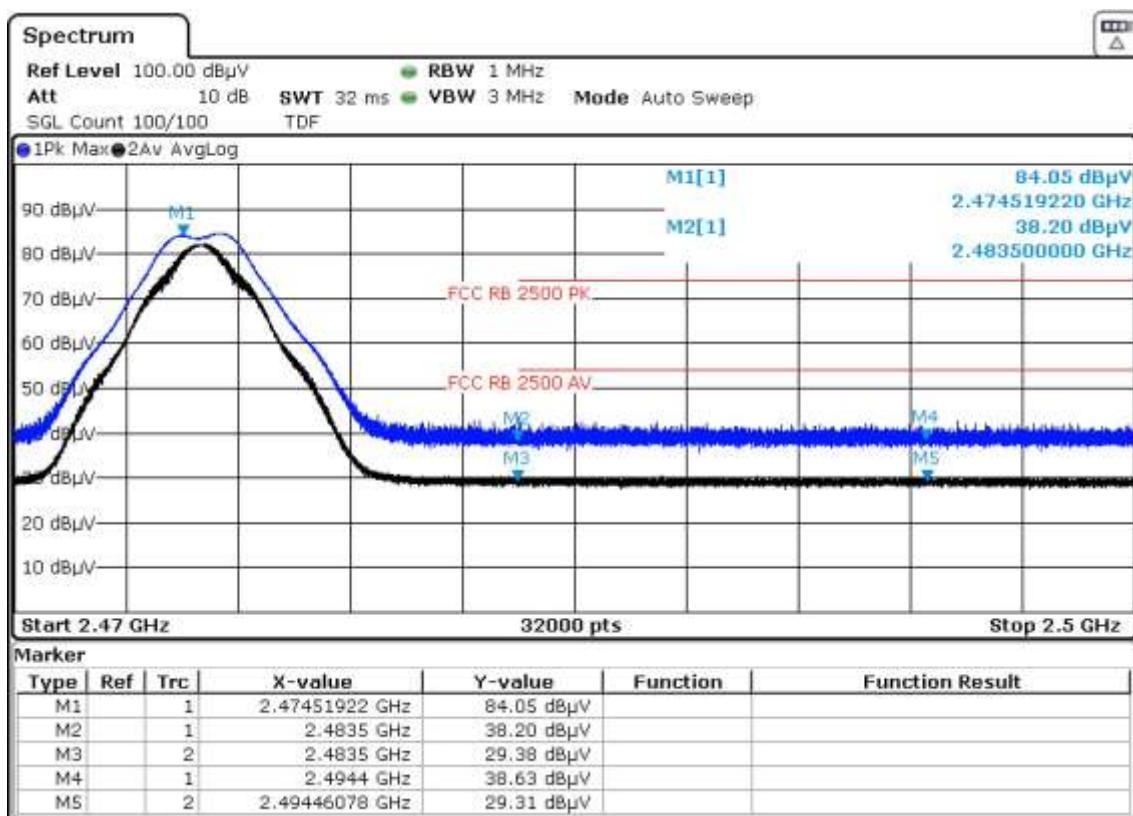


Remarks:

- 1) Due to the spectrum display limitation, the unit dBuV in test figure is dBuV/m actually.
- 2) Y-Value (dBuV/m)= received value (dBuV)+ Correction Factor (Antenna factor (dBuV/m)+ Cable loss (dB)- Preamp gain (dB))

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

Vertical



Remarks:

- 1) Due to the spectrum display limitation, the unit dB μ V in test figure is dB μ V/m actually.
- 2) Y-Value (dB μ V/m)= received value (dB μ V)+ Correction Factor (Antenna factor (dB μ V/m)+ Cable loss (dB)- Preamp gain (dB))

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

4.3 Band Edge

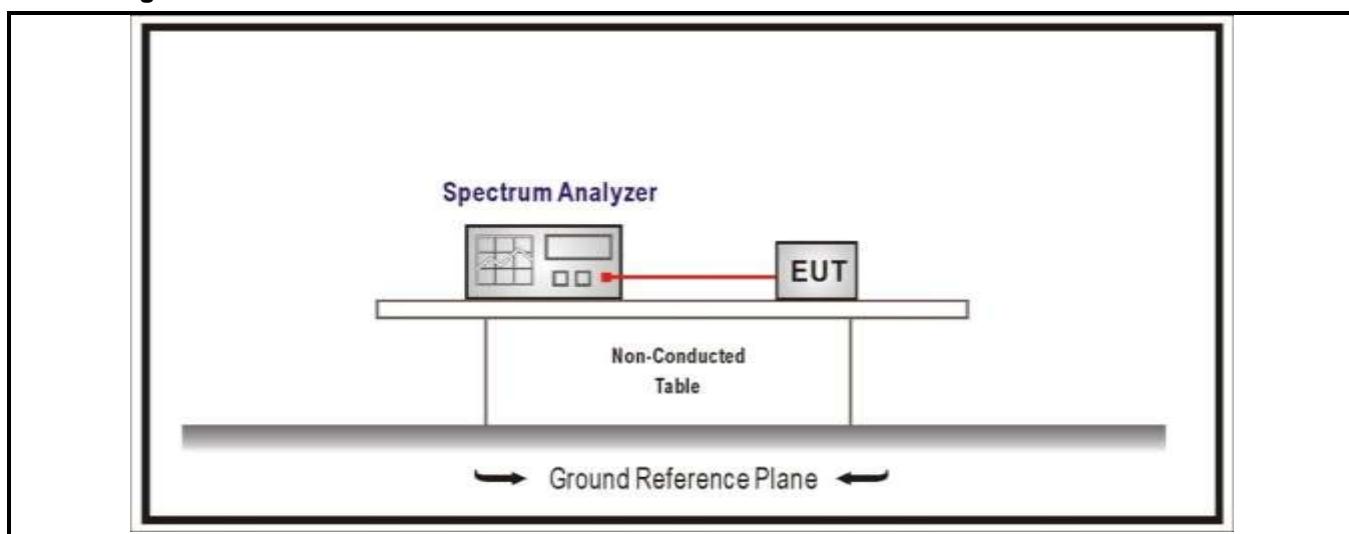
VERDICT: PASS

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 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 least 20 dB relative to the maximum in-band peak PSD by level in 100 kHz (i.e., 20 dBc).

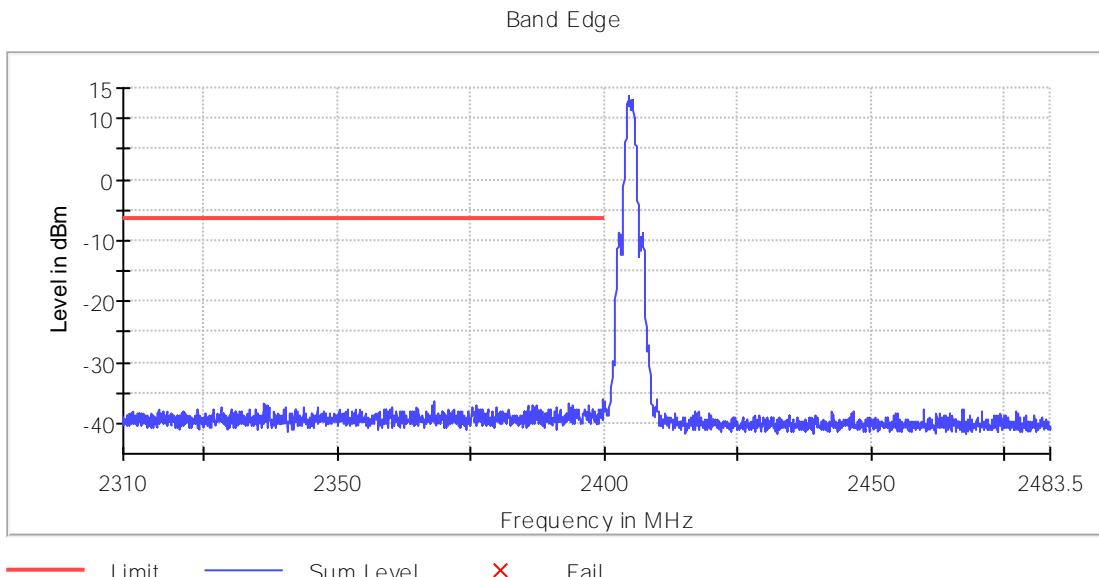
Test Configuration



Performed measurements

Port under test	Antenna port	
Test method applied	<input checked="" type="checkbox"/>	Conducted measurement
	<input type="checkbox"/>	Radiated measurement
Test setup	Refer to the Annex 3 for test setup photo(s).	
Operating mode(s) used	Mode 1	
Remark	---	

Results of mode 1 @2405 MHz



Inband Peak

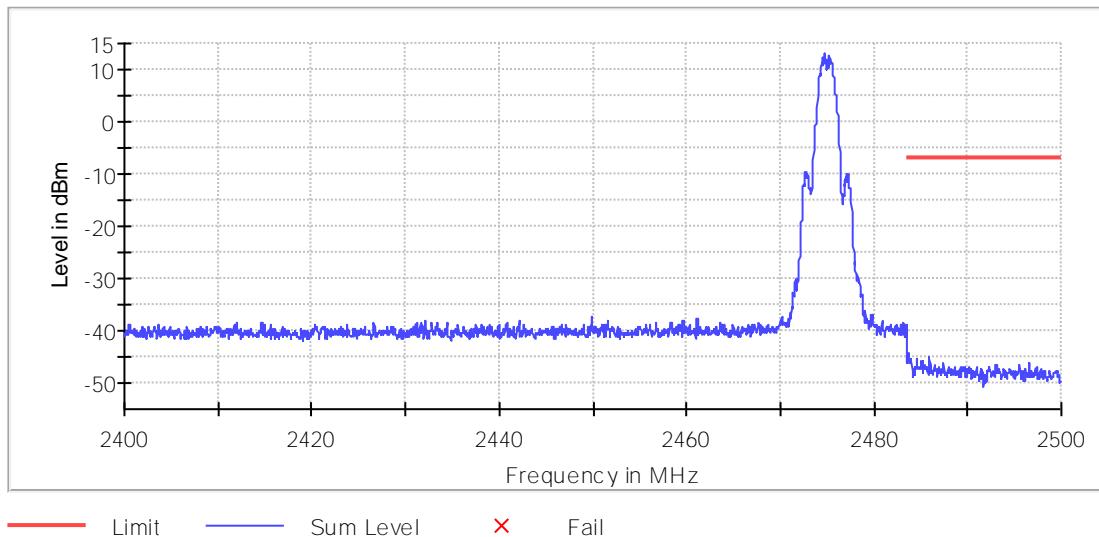
Frequency (MHz)	Level (dBm)
2405.0000	13.6

Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)	Result
2399.875000	-36.2	29.8	-6.4	PASS
2368.175000	-36.5	30.2	-6.4	PASS
2393.425000	-36.7	30.3	-6.4	PASS
2399.975000	-36.7	30.3	-6.4	PASS
2399.925000	-36.7	30.4	-6.4	PASS
2393.475000	-36.9	30.5	-6.4	PASS
2368.225000	-36.9	30.5	-6.4	PASS
2336.475000	-36.9	30.5	-6.4	PASS
2386.475000	-37.0	30.6	-6.4	PASS
2386.525000	-37.0	30.6	-6.4	PASS
2367.775000	-37.0	30.6	-6.4	PASS
2385.725000	-37.0	30.6	-6.4	PASS
2385.675000	-37.0	30.7	-6.4	PASS
2387.475000	-37.1	30.7	-6.4	PASS
2394.175000	-37.1	30.8	-6.4	PASS

Results of mode 1 @2480 MHz

Band Edge



Inband Peak

Frequency (MHz)	Level (dBm)
2475.0000	13.0

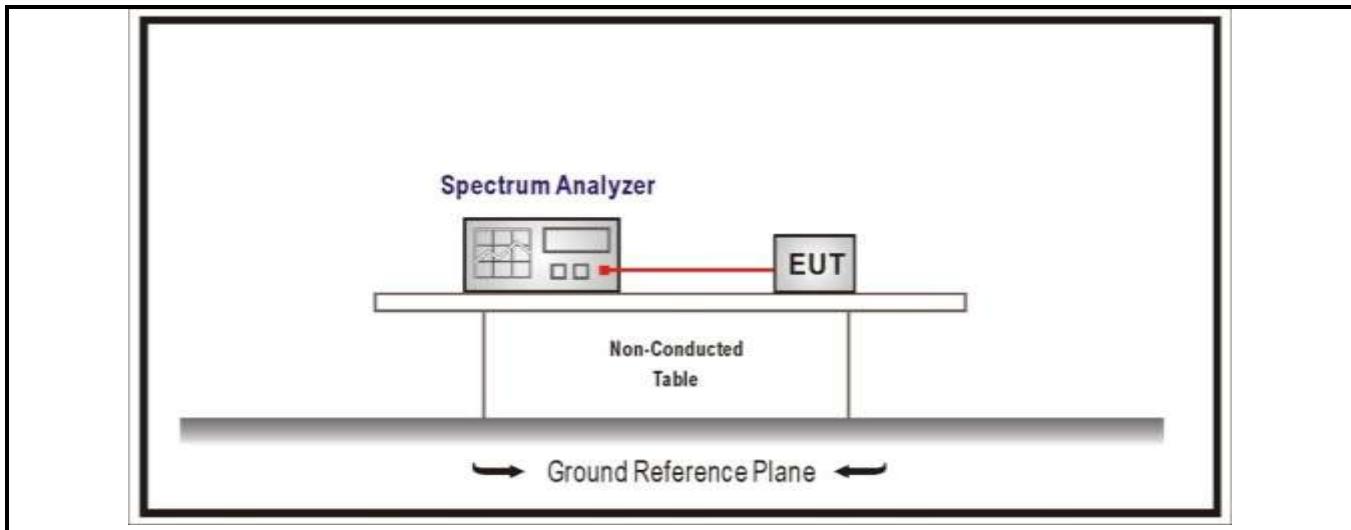
Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)	Result
2483.625000	-44.2	37.2	-7.0	PASS
2483.675000	-44.7	37.7	-7.0	PASS
2483.775000	-44.8	37.8	-7.0	PASS
2483.725000	-44.8	37.8	-7.0	PASS
2483.575000	-45.1	38.1	-7.0	PASS
2485.875000	-45.2	38.2	-7.0	PASS
2483.975000	-45.2	38.2	-7.0	PASS
2484.575000	-45.2	38.3	-7.0	PASS
2484.625000	-45.3	38.3	-7.0	PASS
2485.925000	-45.5	38.5	-7.0	PASS
2483.925000	-45.7	38.7	-7.0	PASS
2485.175000	-45.8	38.8	-7.0	PASS
2484.025000	-45.9	38.9	-7.0	PASS
2485.075000	-45.9	38.9	-7.0	PASS
2485.125000	-46.0	39.0	-7.0	PASS

4.4 Duty cycle

VERDICT: PASS

Test Configuration



Performed measurements

Port under test	Antenna port	
Test method applied	<input checked="" type="checkbox"/>	Conducted measurement
	<input type="checkbox"/>	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
Mode 1	---	---	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: $VBW \geq 1/T$ will be used.

Gated Trace

Level in dBm

Time in s

11.8 15 17.048 dBm 20 25 30 35

0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1

— Gated Trace — Overall — Limit

4.5 DTS Bandwidth

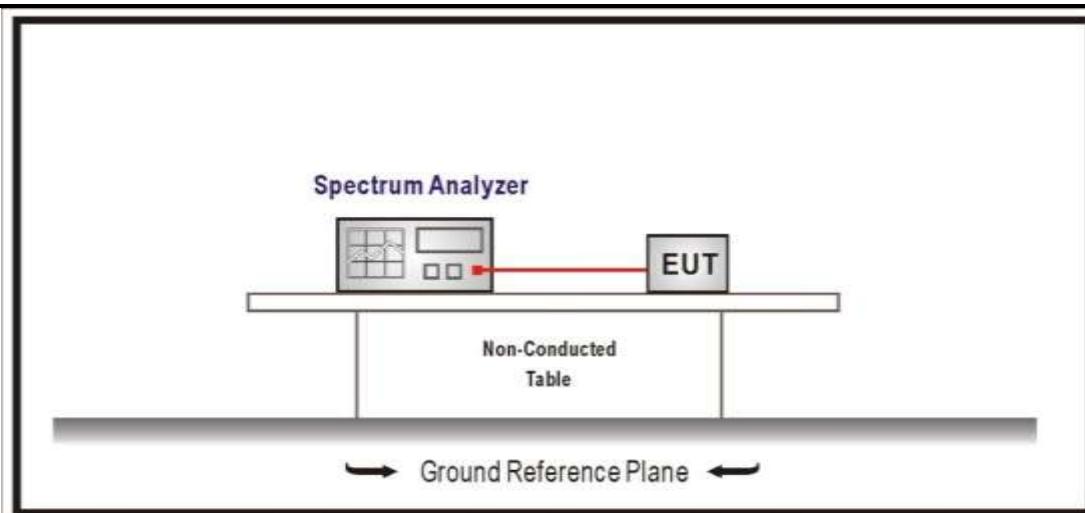
VERDICT: PASS

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 least 500 kHz

Test Configuration



Performed measurements

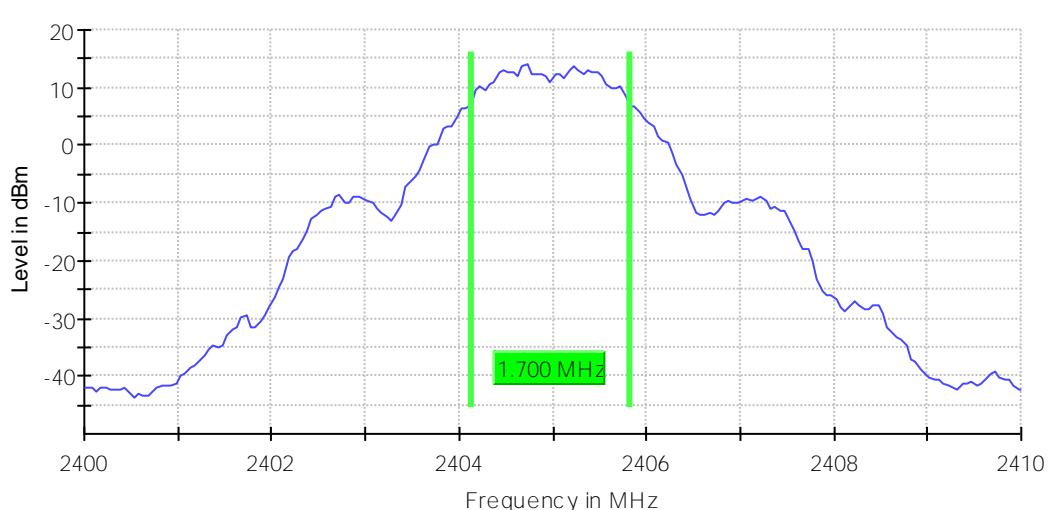
Port under test	Antenna port	
Test method applied	<input checked="" type="checkbox"/>	Conducted measurement
	<input type="checkbox"/>	Radiated measurement
Test setup	Refer to the Annex 3 for test setup photo(s).	
Operating mode(s) used	Mode 1	
Remark	---	

Results

Mode	CH.	Test Freq. (MHz)	6dB Occupied Bandwidth (MHz)	Limit (kHz)	Result
1	11	2405	1.70	>500	Pass
	25	2475	1.70	>500	Pass

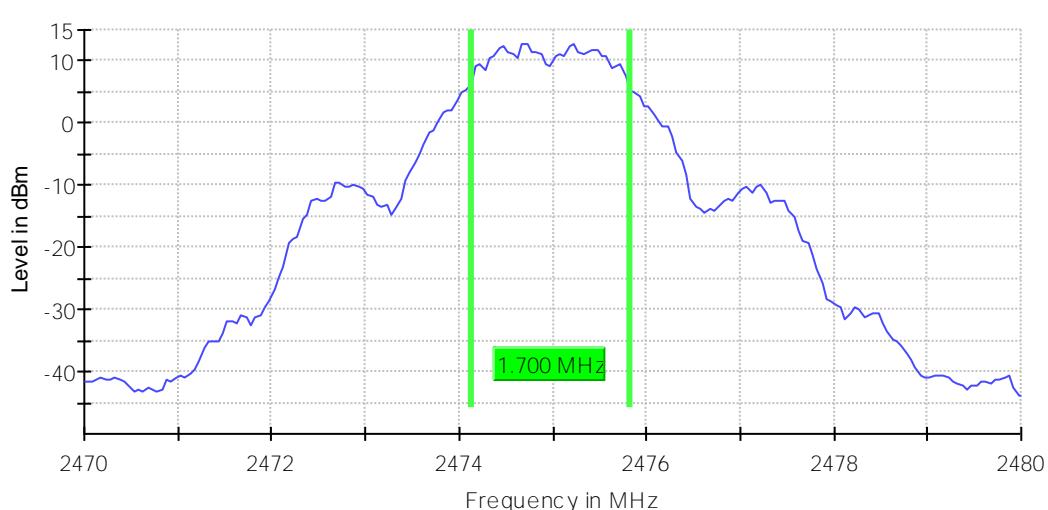
6dB Occupied Bandwidth
 Mode 1 / CH11 (2405MHz)

6 dB Bandwidth



Mode 1 / CH26 (2480MHz)

6 dB Bandwidth



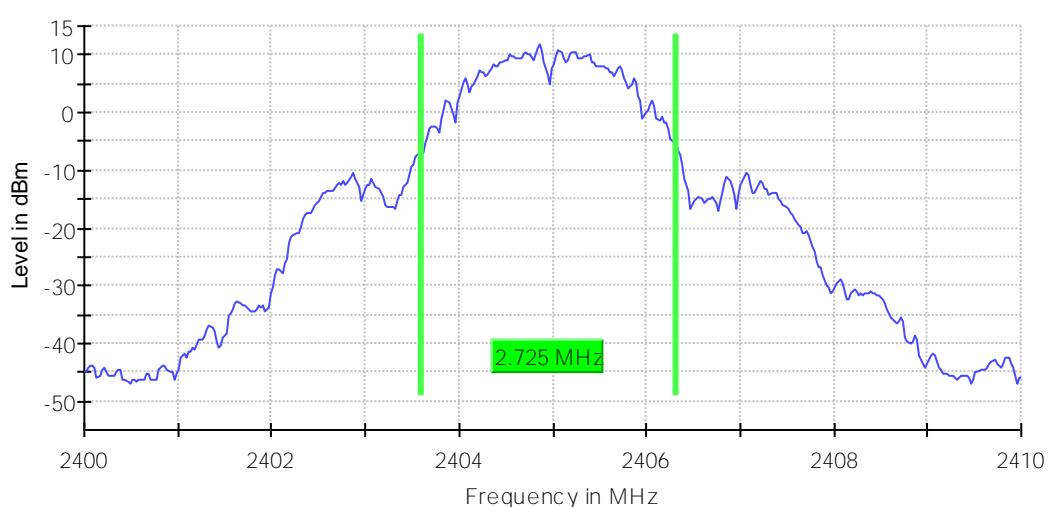
Supplementary information: RBW=100 kHz, VBW=300 kHz

Mode	CH.	Test Freq. (MHz)	99% Occupied Bandwidth (MHz)	Limit	Result
1	11	2405	2.72	Within frequency range	Pass
	25	2475	2.70	Within frequency range	Pass

99% Occupied Bandwidth

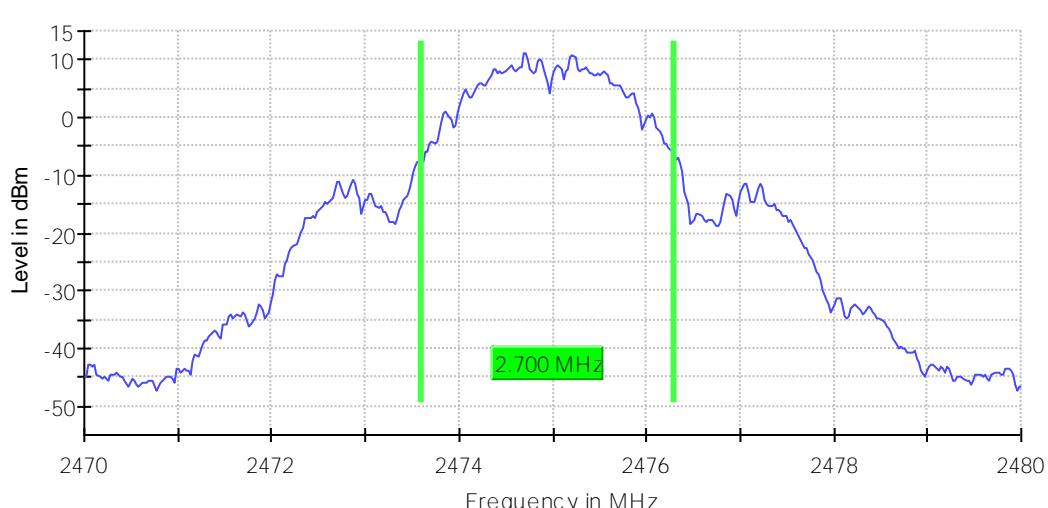
Mode 1 / CH11 (2405 MHz)

99 % Bandwidth



Mode 1 / CH26 (2480 MHz)

99 % Bandwidth



Supplementary information: RBW=30 kHz, VBW=100 kHz

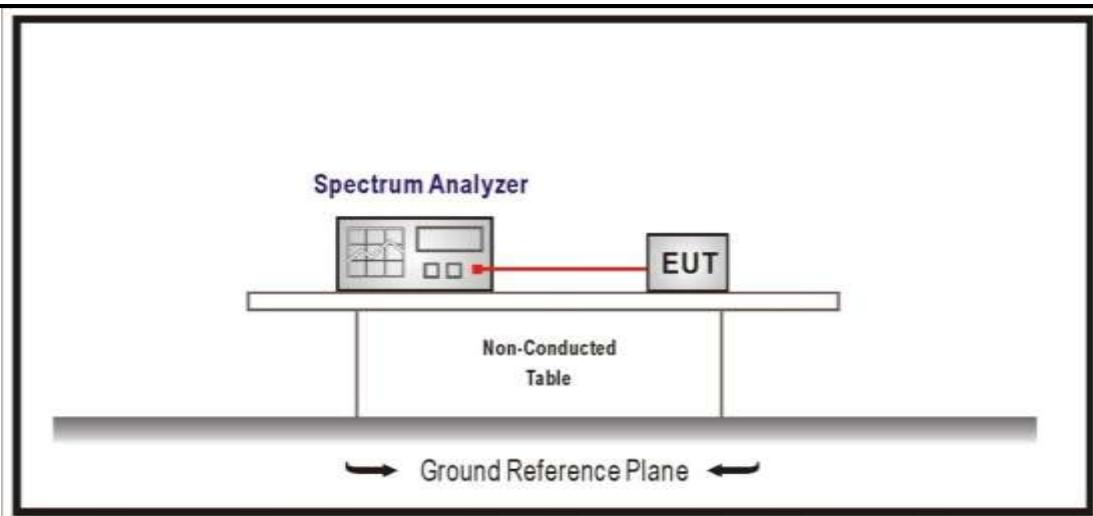
4.6 Fundamental emission output power

VERDICT: PASS

Standard		FCC Part 15 Subpart C Paragraph 15.247 (b)(3)
<input checked="" type="checkbox"/>	GTX <6dBi	Pout≤30dBm
<input type="checkbox"/>	GTX >6dBi	
<input type="checkbox"/>	Non-Fix point-point	Pout≤30-(GTX -6)
<input type="checkbox"/>	Fix point-point	Pout≤30-[(GTX-6)]/3
<input type="checkbox"/>	Point-to-multipoint	Pout≤30-(GTX-6)
<input type="checkbox"/>	Overlap Beams	Pout≤30-[(GTX-6)]/3
<input type="checkbox"/>	Aggregate power transmitted simultaneously on all beams	Pout≤30-[(GTX-6)]/3
<input type="checkbox"/>	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

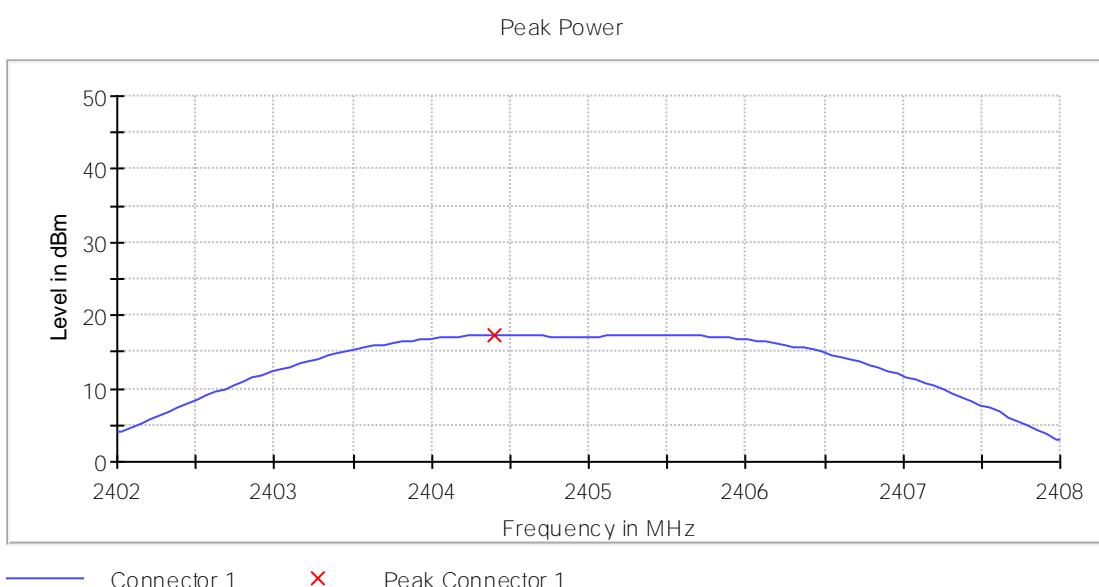
Port under test	Antenna port	
Test method applied	<input checked="" type="checkbox"/>	Conducted measurement
	<input type="checkbox"/>	Radiated measurement
Test setup	Refer to the Annex 3 for test setup photo(s).	
Operating mode(s) used	Mode 1	
Remark	RBW=2 MHz, VBW=10 MHz	

Results

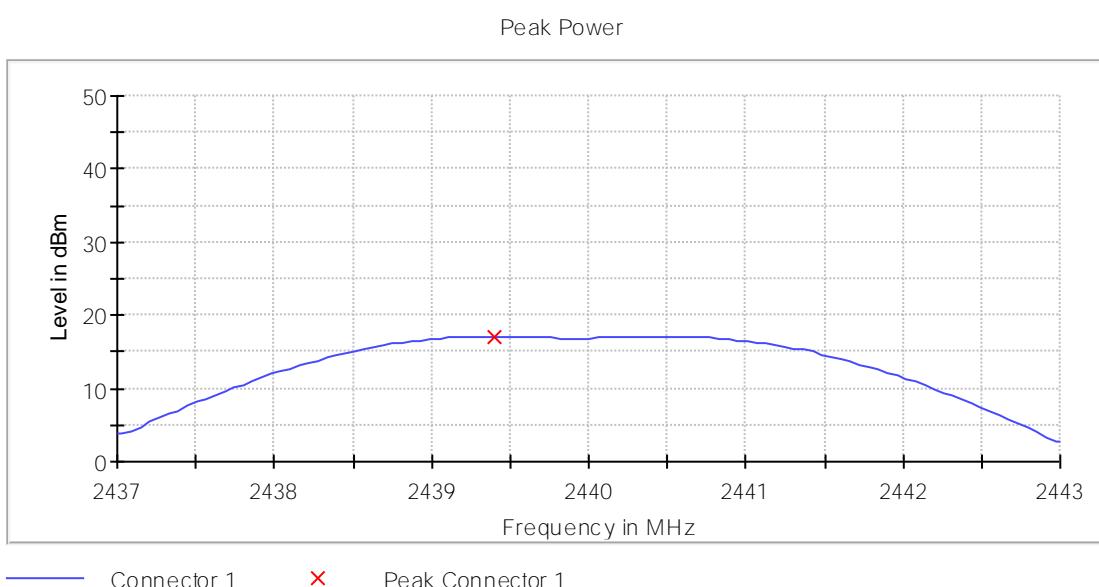
Mode	Channel	Test Frequency (MHz)	Power Output (dBm)	Limit (dBm)	Result
Mode 1	11	2405	17.30	≤30	Pass
	18	2440	16.90	≤30	Pass
	25	2475	16.20	≤30	Pass

Test figure

Channel 11, 2405 MHz

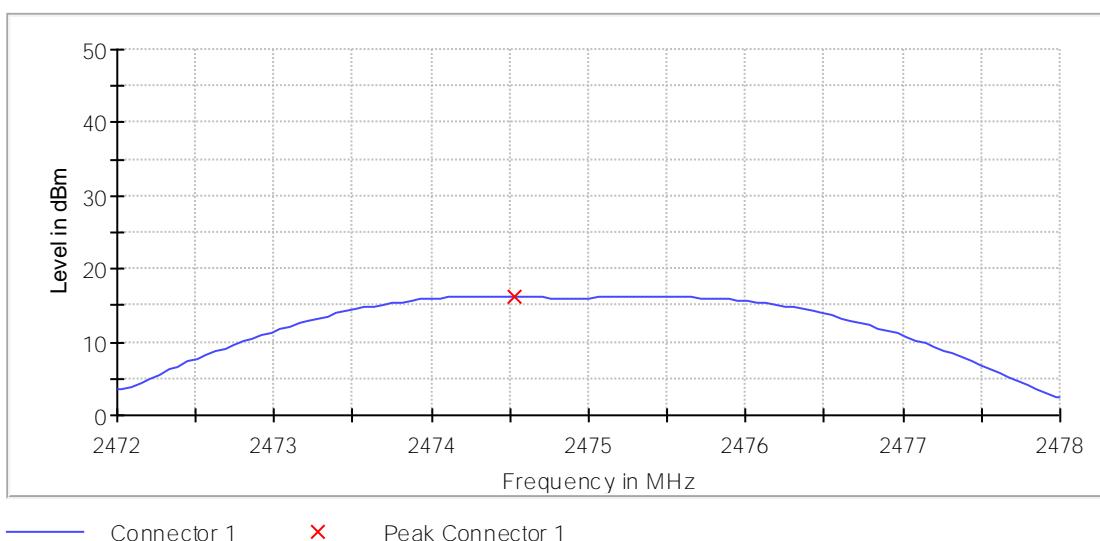


Channel 18, 2440 MHz



Channel 25, 2475 MHz

Peak Power

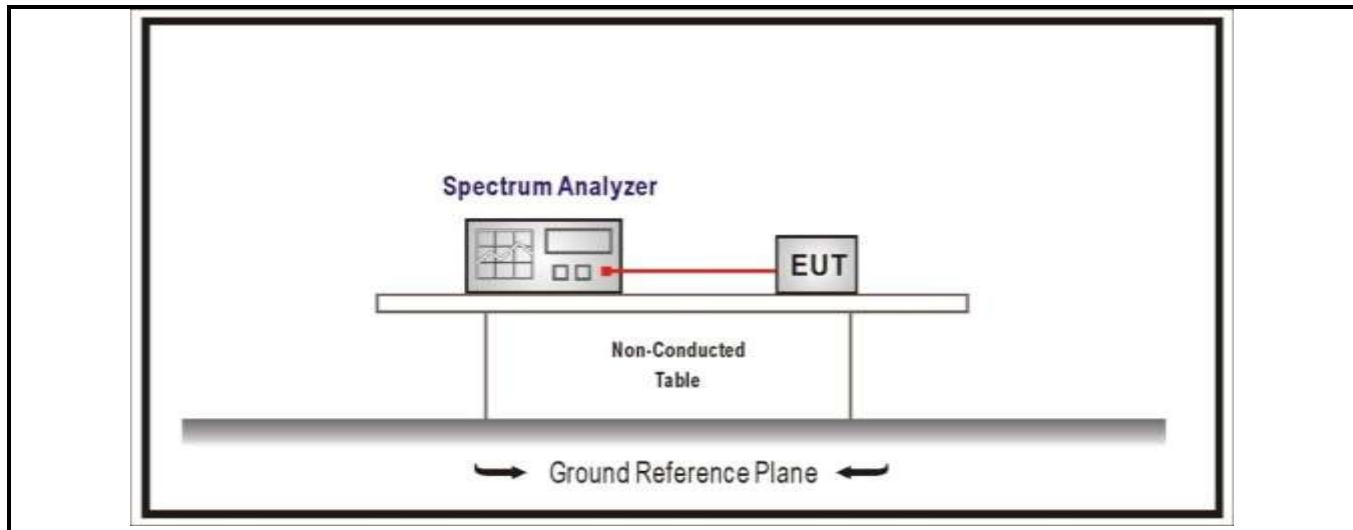


4.7 Power Density

VERDICT: PASS

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

Test Configuration



Performed measurements

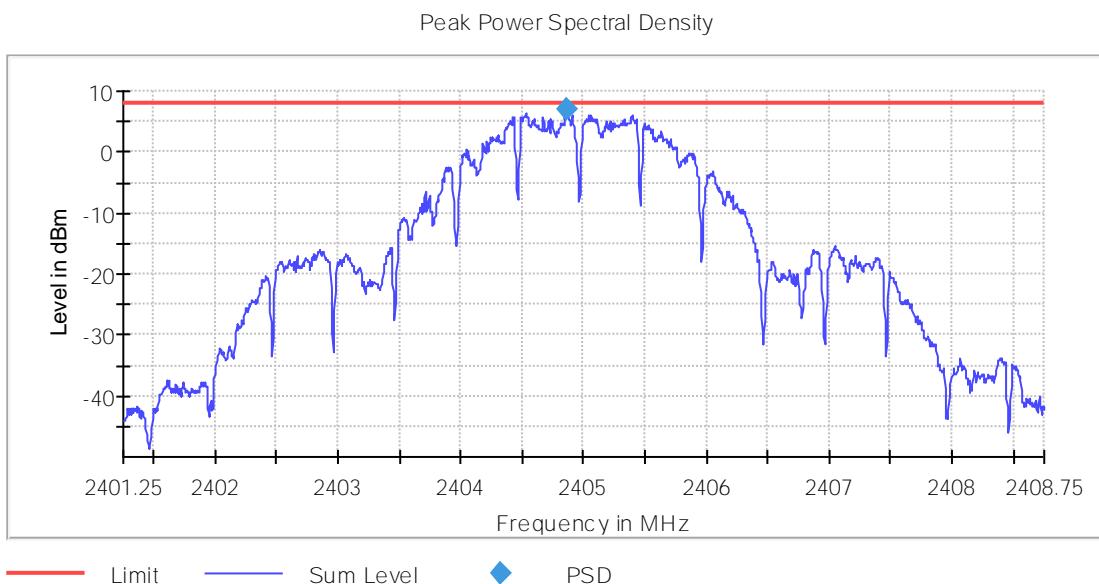
Port under test	Antenna port	
Test method applied	<input checked="" type="checkbox"/>	Conducted measurement
	<input type="checkbox"/>	Radiated measurement
Test setup	Refer to the Annex 3 for test setup photo(s).	
Operating mode(s) used	Mode 1	
Remark	RBW=10 kHz, VBW=30 kHz	

Results

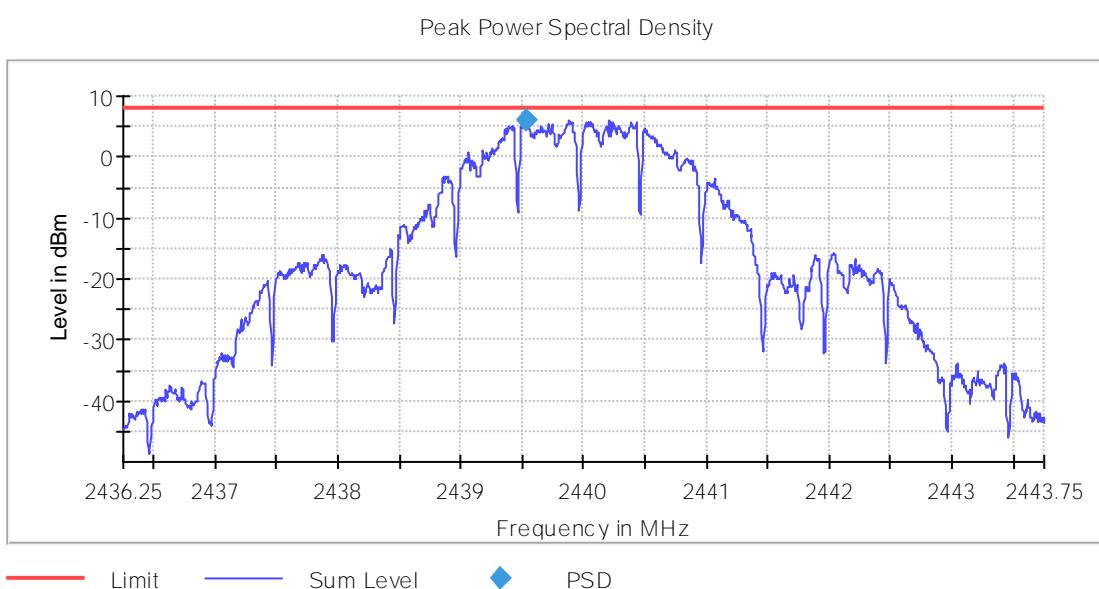
Mode	Channel	Test Frequency (MHz)	Power Output (dBm)	Limit (dBm/3kHz)	Result
Mode 1	11	2405	7.063	\leq 8	Pass
	18	2440	6.090	\leq 8	Pass
	25	2475	6.021	\leq 8	Pass

Test figure

Channel 11, 2405 MHz



Channel 18, 2440 MHz



Channel 25, 2475 MHz

Peak Power Spectral Density



5 IDENTIFICATION OF THE EQUIPMENT UNDER TEST

The photographs show the tested device.

Refer to documents 4931295_External photo and 4931295_Internal photo.

ANNEX 1 – MEASUREMENT UNCERTAINTY

Test Item	Uncertainty
Occupied Channel Bandwidth	0.7 %
RF Output power, conducted	0.6 dB
Power Spectral Density, Conducted	0.6 dB
Unwanted Emissions, Conducted	0.7 dB
Radiated disturbance (9 kHz-30 MHz)	4.14 dB
Radiated disturbance (30-300 MHz)	4.72 dB
Radiated disturbance (300-1000 MHz)	4.88 dB
Radiated disturbance (1-18 GHz)	3.94 dB
Radiated disturbance (18-26.5 GHz)	4.04 dB
Radiated disturbance (26.5-40 GHz)	4.04 dB

ANNEX 2 - USED EQUIPMENT

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	2025/06/23
2	Antenna (30MHz-3GHz)	SCHWARZBECK	VULB9163	506	G/L864	2025/06/11
3	Chamber	ETS	/	/	G/L856	2025/03/25
4	Antenna (1GHz-18GHz)	R&S	HF907	102306	G/L1236	2025/02/03
5	Horn antenna preamplifier	Schwarzbeek	SCU-18	102234	G/L1236-1	2025/02/03
6	Spectrum analyzer	R&S	FSV	SN101012	G/L1235	2025/03/07
7	HF antenna (18 – 26.5 GHz)	ETS	3160-09	00164643	G/L1237	2025/01/22
8	High frequency antenna preamplifier (18 – 26.5 GHz)	Schwarzbeck	SCU-26	1879064	G/L1237-1	2025/01/24
9	Antenna (15GHz-40GHz)	SCHWARZBECK	BBHA 9170	00908	GZ1901	2025/06/04
10	Horn antenna preamplifier	EMCI	EMC264045 SE	980679	GZ1901-1	2025/06/04
11	Annular magnetic field antenna	TESEQ	HLA6121	540045	GZ1905	2025/11/16

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	2025/03/07
2	OSP	R&S	OSP 150	101907	GZ1894	2025/02/01

ANNEX 3 - TEST PHOTOS

Refer to document 4931295_Test setup.

--- END ---