DEKRA Testing and Certification, S.A.U.
Parque Tecnológico de Andalucía,
c/ Severo Ochoa nº 2 · 29590 Campanillas · Málaga · España
C.I.F. A29507456

ISED CABid: ES1909

Test report No:
NIE: 67469RRF.002

Test Report
USA FCC Part 15.247, 15.209
CANADA RSS-247, RSS-Gen

(*) Identification of item tested	Wellness ring
(*) Trademark	ŌURA
(*) Model and /or type reference	Gen3 Ring (BLB_03)
(*) Derived model not tested	BLB_03 Sizes: US6, US7, US8, US9, US10, US12 & US13 BLB_04 Sizes US6, US7, US8, US9, US10, US11, US12 & US13
Other identification of the product	HW version: BLB_03 (SIZE US11) SW version: 1.15.1 FCC ID: 2AD7V-OURA2101 IC: 20635-OURA2101
(*) Features	Bluetooth LE, inductive charging
Applicant	Oura Health Oy Elektroniikkatie 10, 90590 Oulu, Finland
Test method requested, standard	USA FCC Part 15.247 (10-1-20 Edition): Operation within the bands 902 - 928 MHz, 2400 - 2483.5 MHz, and 5725 - 5850 MHz. USA FCC Part 15.209 (10-1-20 Edition): Radiated emission limits; general requirements. CANADA RSS-247 Issue 2 (February 2017). CANADA RSS-Gen Issue 5 Amendment 1 (March 2019). Guidance for Performing Compliance Measurements on Digital Transmission System, Frequency Hopping Spread Spectrum System, and Hybrid Systems Devices Operating Under Section 15.247 of the FCC Rules. 558074 D01 Meas Guidance v05r02 dated April 2, 2019. ANSI C63.10-2013: American National Standard for Testing Unlicensed Wireless Devices.
Summary	IN COMPLIANCE
Approved by (name / position & signature)	Rafael López Martín EMC Consumer & RF Lab. Manager  2021.11.03 11:59:10 +01'00'
Date of issue	2021-11-03
Report template No	FDT08_23 (*) "Data provided by the client"

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Competences and guarantees

DEKRA Testing and Certification S.A.U. is a testing laboratory accredited by the National Accreditation Body (ENAC -Entidad Nacional de Acreditación) to perform the tests indicated in the Certificate No. 51/LE 147.

DEKRA Testing and Certification S.A.U. is an FCC-recognized accredited testing laboratory with the appropriate scope of accreditation that covers the performed tests in this report.

DEKRA Testing and Certification S.A.U. is an ISED-recognized accredited testing laboratory, CABid: ES1909, with the appropriate scope of accreditation that covers the performed tests in this report.

In order to assure the traceability to other national and international laboratories, DEKRA Testing and Certification S.A.U. has a calibration and maintenance program for its measurement equipment.

DEKRA Testing and Certification S.A.U. guarantees the reliability of the data presented in this report, which is the result of the measurements and the tests performed to the item under test on the date and under the conditions stated on the report and it is based on the knowledge and technical facilities available at DEKRA Testing and Certification S.A.U. at the time of performance of the test.

DEKRA Testing and Certification S.A.U. is liable to the client for the maintenance of the confidentiality of all information related to the item under test and the results of the test.

The results presented in this Test Report apply only to the particular item under test established in this document.

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.
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Uncertainty

Uncertainty (factor k=2) was calculated according to the DEKRA Testing and Certification S.A.U. internal document PODT000.

Data provided by the client

The following data has been provided by the client:

1. Information relating to the description of the sample ("Identification of the item tested", "Trademark", "Model and/or type reference tested"

2. OURA is a revolutionary wellness ring and app, designed to help user get more restful sleep and perform better. It enables user to learn how the lifestyle choices affect user's sleep, and how the quality of the sleep affects user's ability to perform.

   The OURA ring can automatically tell when user is sleeping. When user goes to sleep, the ŌURA ring analyzes the quality of the rest and recovery by measuring the heart rate (optically), respiration

rate, body temperature, and movement. While user is awake, it monitors the duration and intensity of the activities, and the time user spends sitting.

The OURA app integrates and visualizes this data to identify patterns between the sleep quality and daily activities. By understanding how well user slept and recharged, it can determine the readiness to perform and help user adjust the intensity and duration of the day's activities. It can also uncover actionable insights for changes to the daily activities that can help user sleep better.

3. Customer provides the following information related to Derived Models not tested:

ŌURA

Declaration of differences

Purpose of the document:

This document contains general information of the Oura Ring Gen3 HW differences.

Ring sizes:

There are eight sizes of the rings: US6, US7, US8, US9, US10, US11, US12 and US13. All sizes are identical in RF characteristics.
All sizes were pre-tested and size US11 was selected as worst case to represent all sizes.

The rings in different sizes also have different size circuit boards and capacity batteries.

Every eight size of rings need dedicated battery type/physical size. Batteries are Li-ion type.

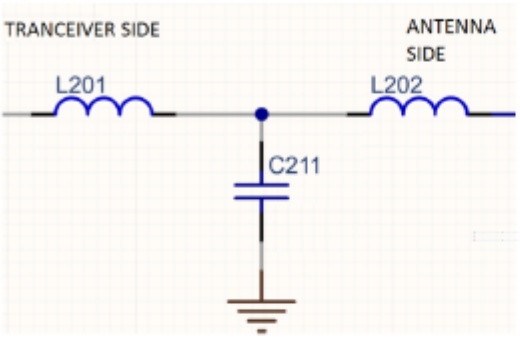
- Li-ion type
- Nominal voltage 3.7V
- Capacities varying from 15mAh to 22mAh depending on battery size.
- Batteries are CB certified and tested according to UN 38.3 requirements

Component / Part No.	Manufacturer/ Trademark	Type No./ Model	Technical data	Standard No., Edition/year	Mark(s) & Certificates of conformity [1]
Battery	Shenzhen Grepow Battery CO. LTD	1)YE160722G 2)YE160723G 3)YE160724G 4)YE160725G 5)YE160726G 6)YE160727G 7)YE160728G 8)YE160729G	3.7 Vdc Li-ion, 15-22 mAh, 0.0555Wh -0.0703Wh, Charging voltage 4.2Vdc, min. discharge voltage 3 Vdc	IEC 62133 (ed.2) edition	1)DK-73416-UL 2)DK-73886-UL 3)DK-73253-UL 4)DK-73413-UL 5)DK-73251-UL 6)DK73573-UL 7)DK-73720-UL 8)DK-73572-UL

ŌURA

Antenna matching:

Antenna matching varies for different sizes of rings. Matching is done by varying L201, C211 and L202 values according to the following table.



	L201	C211	L202
US06	0n6	3p0	1n8
US07	0n6	3p3	1n3
US08	0n6	3p3	1n3
US09	0n6	3p3	1n0
US10	0n6	3p0	2n2
US11	0n6	2p5	1n8
US12	0n6	2p6	2n0
US13	0n6	3p6	1n3

HW versions BLB03 vs. BLB04:

Memory

BLB03 and BLB04 HW versions have slightly different memory systems. BLB_03 have two of SPI controllable MX25R6435FBDIL0 64MB flash memories and BLB_04 one GD25LE128ELIGR 128MB flash memory component.

BLB_03

- o two of MX25R6435FBDIL0 NOR flash memory component
- o size 2x64MB
- o 100 000 erase/program cycles, 20-year data retention
- o SPI controlled
- o operation voltage 1.65V to 3.6V
- o Max clock frequency 80 MHz

BLB_04

- o GD25LE128ELIGR NOR flash memory component
- o size 128 MB
- o 100 000 erase/program cycles, 20-year data retention
- o SPI controlled
- o Operation voltage 1.65V to 2.0V
- o Max clock frequency 133 MHZ

Battery charge state sensing:

The charge state is sensed from the battery. There are differences between state sensing between BLB_3 and BLB_04 design. BLB_03 design uses battery gauge MAX17260 for the sensing and the BLB_04 uses direct battery voltage sensing using processors ADC input.

ŌURA

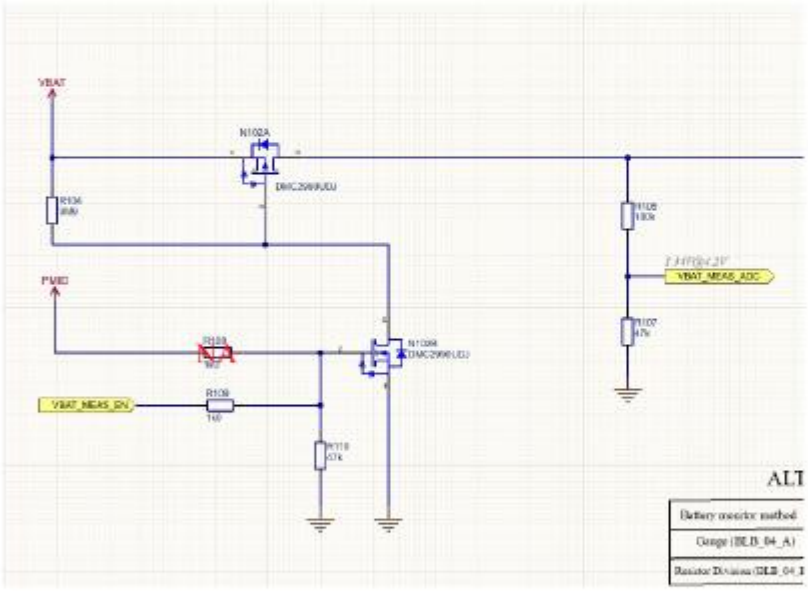
BLB_03

MAX17260 Fuel gauge in BLB_03

- 1 ohm sense resistor used
- I2C interface
- State of charge sensing
- Current measurement
- Temperature sensing - not used
- Vsupply 2.3V - 4.9V
- shutdown current typ. 0.5uA, max 0.9 uA
- Hibernate current typ 5.1 uA max 12uA
- Active mode current typ. 15 uA max 30 uA

BLB_04

- Measurement is done by reading VBAT_MEAS_ADC value by the processor P10_5 pin.



- Leakage current through resistors R105 and R107 can be prevented by setting VBAT_MEAS_EN low state or input state. (Processor pin P6_3)

Signed on behalf of Oura Health Oy in Oulu, 20th October 2021

Oura Health Oy
Elektroniikkatie 10
90590 Oulu, FINLAND
VAT no FI25427764

Jyri Suokas
(signature & companystamp)
Name: Jyri Suokas
Title: Senior Quality Specialist

Usage of samples

Samples undergoing test have been selected by: the client.

- Sample S/01 is composed of the following elements:

Control Nº	Description	Model	Serial Nº	Date of reception
67469B/001	Smart ring	GEN3 (BLB_03 SIZE 11)	--	2021/05/24
67469B/015	Charger base	GEN3 Charger	--	2021/07/06
67469B/019	USB-C cable	--	--	2021/07/06

Auxiliary elements used with the sample S/01:

Control Nº	Description	Model	Serial Nº	Date of reception
67469B/018	AC/DC adapter	EP-TA50EWE	R37N5B35XC4RT3	2021/07/06

Sample S/01 has undergone the test(s): All Radiated tests indicated in Appendix A.

- Sample S/02 is composed of the following elements:

Control Nº	Description	Model	Serial Nº	Date of reception
67469B/004	Smart ring (PCB)	--	--	2021/05/24

Auxiliary elements used with the sample S/02:

Control Nº	Description	Model	Serial Nº	Date of reception
67518/008	USB to TTL Serial cable	--	--	2021/04/12

Sample S/02 has undergone the test(s): All Conducted tests indicated in Appendix A.

Test sample description

Ports..... :	Port name and description	Cable				
		Specified max length [m]	Attached during test	Shielded	Coupled to patient(3)	
	--		☐	☐	☐	
Supplementary information to the ports..... :	--					
Rated power supply .....:	Voltage and Frequency		Reference poles			
			L1	L2	L3	N	PE
	☐	AC:	☐	☐	☐	☐	☐
	☒	DC: 3.7 V					
Rated Power .....:	--						
Clock frequencies .....:	--						
Other parameters.....:	--						
Software version .....:	1.15.1						
Hardware version.....:	BLB_03 (Size US11)						
Dimensions in cm (W x H x D)....:	--						
Mounting position.....:	☐	Table top equipment					
	☐	Wall/Ceiling mounted equipment					
	☐	Floor standing equipment					
	☐	Hand-held equipment					
	☒	Other: Wearable equipment					
Modules/parts .....:	Module/parts of test item		Type		Manufacturer	
	--					
Accessories (not part of the test item) .....:	Description		Type		Manufacturer	
	USB to TTL Serial cable				FDTI Chip	
	AC/DC adapter				SAMSUNG	
Documents as provided by the applicant.....:	Description		File name		Issue date	
	--					

(3) Only for Medical Equipment

Identification of the client

Oura Health Oy.
Elektroniikkatie 10
90590 Oulu, Finland

Testing period and place

Test Location	DEKRA Testing and Certification S.A.U.
Date (start)	2021-09-07
Date (finish)	2021-10-20

Document history

Report number	Date	Description
67469RRF.002	2021-11-03	First release.

Environmental conditions

In the control chamber, the following limits were not exceeded during the test:

Temperature	Min. = 15 ºC Max. = 35 ºC
Relative humidity	Min. = 20 % Max. = 75 %

In the semianechoic chamber, the following limits were not exceeded during the test:

Temperature	Min. = 15 ºC Max. = 35 ºC
Relative humidity	Min. = 20 % Max. = 75 %

In the chamber for conducted measurements, the following limits were not exceeded during the test:

Temperature	Min. = 15 ºC Max. = 35 ºC
Relative humidity	Min. = 20 % Max. = 75 %

Remarks and comments

The tests have been performed by the technical personnel: Jaime Barranquero and Victoria Olmedo.

Used instrumentation:

Conducted Measurements:

		Last Calibration	Due Calibration
1.	Shielded Room ETS LINDGREN S101	N.A.	N.A.
2.	SIGNAL AND SPECTRUM ANALYZER 2Hz-50GHz ROHDE AND SCHWARZ FSW50	2021/07	2023/07
3.	OPEN SWITCH UNIT UP TO 40GHz Rohde&Schwarz OSP-B157Wx	2021/03	2023/03
4.	DC POWER SUPPLY 30V/3A 90W GW INSTEK GPS-3030D	N.A.	N.A.
5.	Digital Multimeter Fluke 175	2020/11	2021/11

Radiated Measurements:

		Last Calibration	Due Calibration
1.	Semianechoic Absorber Lined Chamber ALBATROSS P29419	N.A.	N.A.
2.	SHIELDED ROOM ALBATROSS P29419	N.A.	N.A.
3.	ULTRALOG ANTENNA 30MHz-6GHz ROHDE AND SCHWARZ HL562E_UPG	2019/10	2022/10
4.	HORN ANTENNA 1-18GHz SCHWARZBECK MESS- ELEKTRONIK BBHA 9120D	2019/11	2022/11
5.	HORN ANTENNA 18-40GHz SCHWARZBECK BBHA 9170	2021/03	2024/03
6.	PREAMPLIFIER 30dB 500MHz-18GHz SCHWARZBECK BBV 9718 C	2021/02	2022/02
7.	PRE-AMPLIFIER G>30dB 18-40GHz BONN ELEKTRONIK BLMA 1840-3G	2019/11	2021/11
8.	EMI TEST RECEIVER 2Hz-44GHz ROHDE AND SCHWARZ ESW44	2019/10	2021/10 (*)

(*) Tests performed before expiration of calibration period.

Testing verdicts

Not applicable:	N/A
Pass:	P
Fail:	F
Not measured:	N/M

Summary

1. Bluetooth Low Energy 5.0 (1M, 2M).

FCC PART 15 PARAGRAPH / RSS-247			
Requirement – Test case		**Verdict**	**Remark**
FCC 15.247 (a)(2) / RSS-247 5.2 (a)	6 dB Bandwidth	P	
FCC 15.247 (b) / RSS-247 5.4 (d)	Maximum output power and antenna gain	P	
FCC 15.247 (d) / RSS-247 5.5	Band-edge emissions compliance (Transmitter)	P	
FCC 15.247 (e) / RSS-247 5.2 (b)	Power spectral density	P	
FCC 15.247 (d) / RSS-247 5.5	Emission limitations radiated (Transmitter)	P	
Supplementary information and remarks: None.			

Appendix A: Test results. Bluetooth Low Energy 5.0 (1M, 2M)

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TEST CONDITIONS

POWER SUPPLY (*):

Vnominal:	3.7 Vdc
Type of Power Supply:	Battery

ANTENNAS (*):

Type of Antenna:	Integral
Maximum Declared Antenna Gain:	-24.9 dBi

(*) Declared by applicant.

TEST FREQUENCIES:

Low Channel:	2402 MHz
Middle Channel:	2440 MHz
High Channel:	2480 MHz

CONDUCTED MEASUREMENTS

The equipment under test was set up in a shielded room and it connected to the spectrum analyser using a low-loss RF cable. The reading of the spectrum analyser is corrected taking into account the cable loss.

The DC supply voltage is applied using an external power supply which output is monitored with a multimeter.

RADIATED MEASUREMENTS

All radiated tests were performed in a semi-anechoic chamber. The measurement antenna (Bilog antenna for the range 30 MHz to 1000 MHz and Double ridged horn antenna for the range 1 to 17 GHz) is situated at a distance of 3 m for measurements up to 17 GHz and at a distance of 1 m for the frequency range 17 GHz-26 GHz (17 GHz-40 GHz horn antenna).

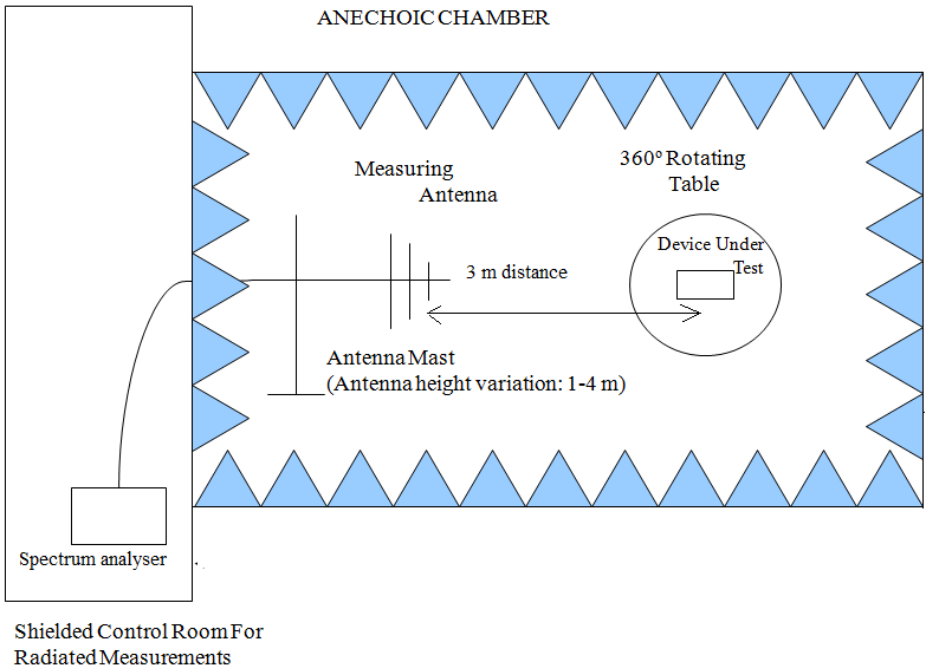
For radiated emissions in the range 17 GHz-26 GHz measured at a distance closer than the specified distance in standard, an inverse proportionality factor of 20 dB per decade is used to normalize the measured data for determining compliance.

The equipment under test was set up on a non-conductive platform above the ground plane and its situation and orientation was varied to find the maximum radiated emission. It was also rotated 360º and the antenna height (Bilog antenna and Double ridged horn antenna) was varied from 1 to 4 meters to find the maximum radiated emission.

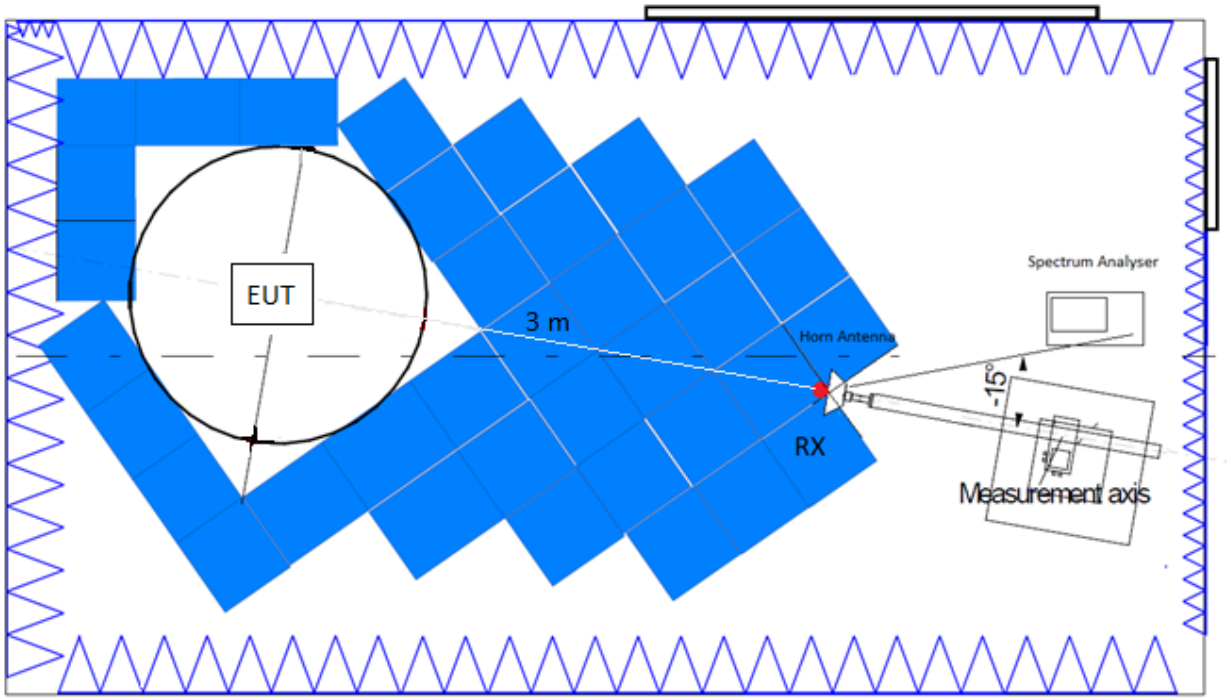
Measurements were made in both horizontal and vertical planes of polarization.

A resolution bandwidth/video bandwidth of 100 kHz / 300 kHz was used for frequencies below 1 GHz and 1 MHz / 3 MHz for frequencies above 1 GHz.

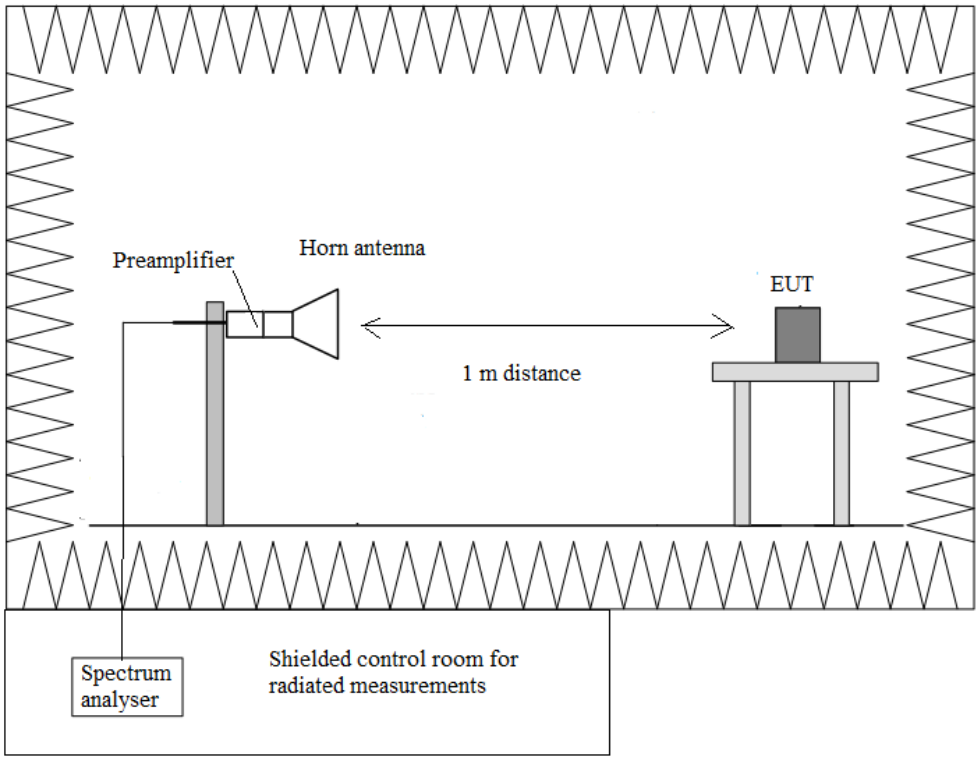
Radiated measurements setup from 30 MHz to 1 GHz:



Radiated measurements setup from 1 GHz to 17 GHz:



Radiated measurements setup for f > 17 GHz:



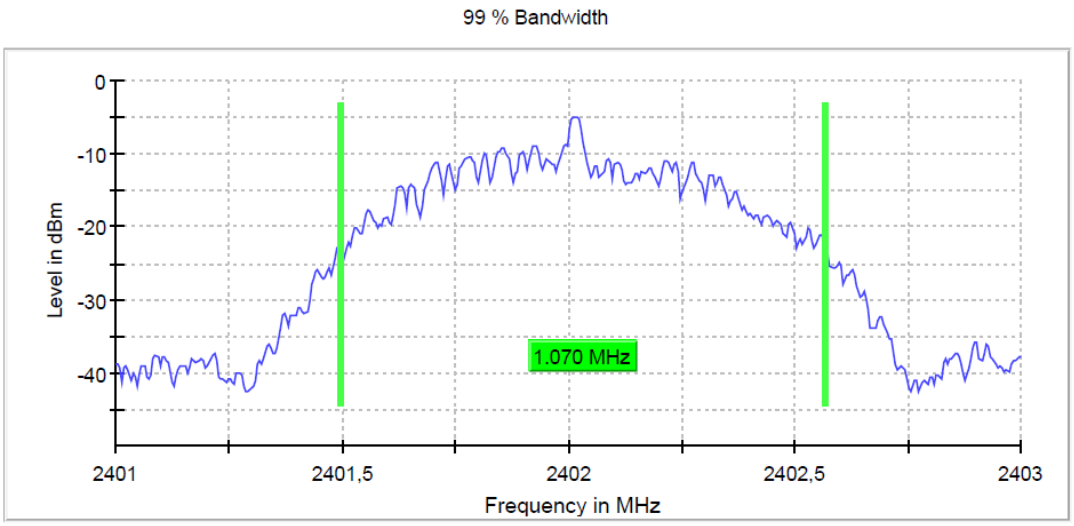
Occupied Bandwidth

RESULTS:

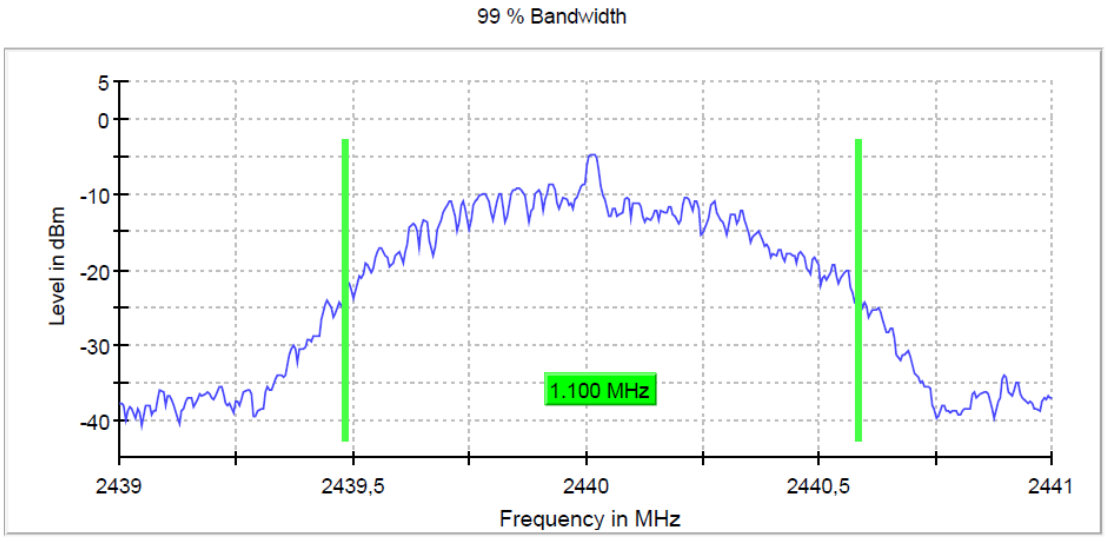
- **1M modulation:**

	Low Channel 2402 MHz	Middle Channel 2440 MHz	High Channel 2480 MHz
99% bandwidth (MHz)	1.070000	1.100000	1.120000
Measurement Uncertainty (%)	< ±1.17		

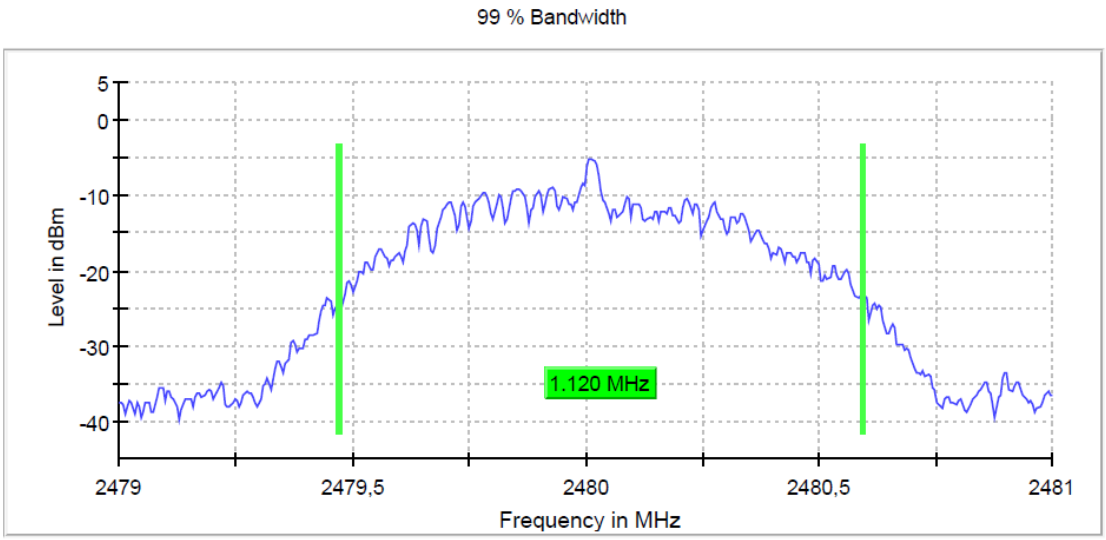
- Low Channel:



- Middle Channel:



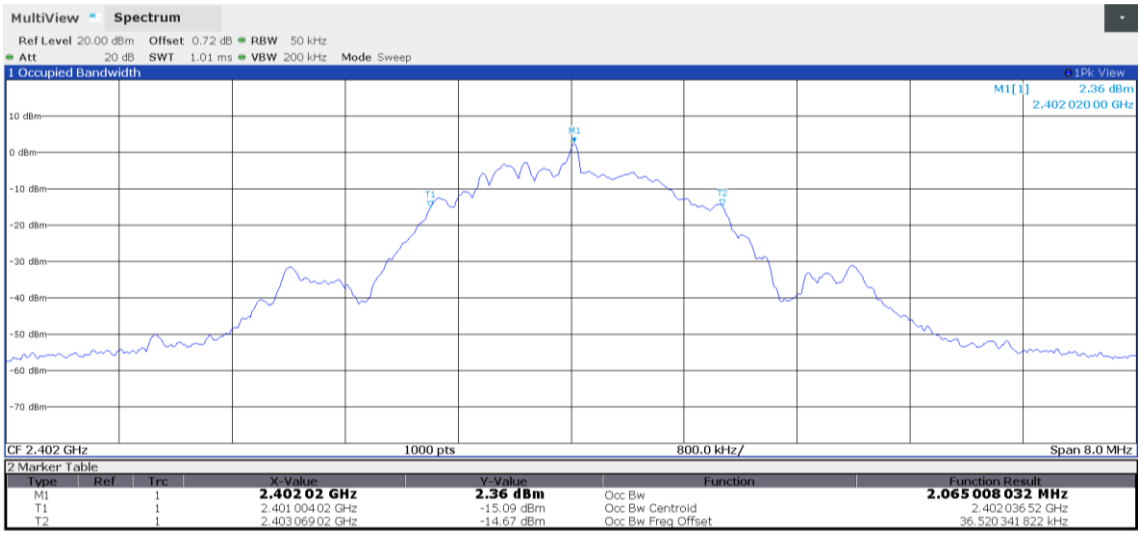
- High Channel:



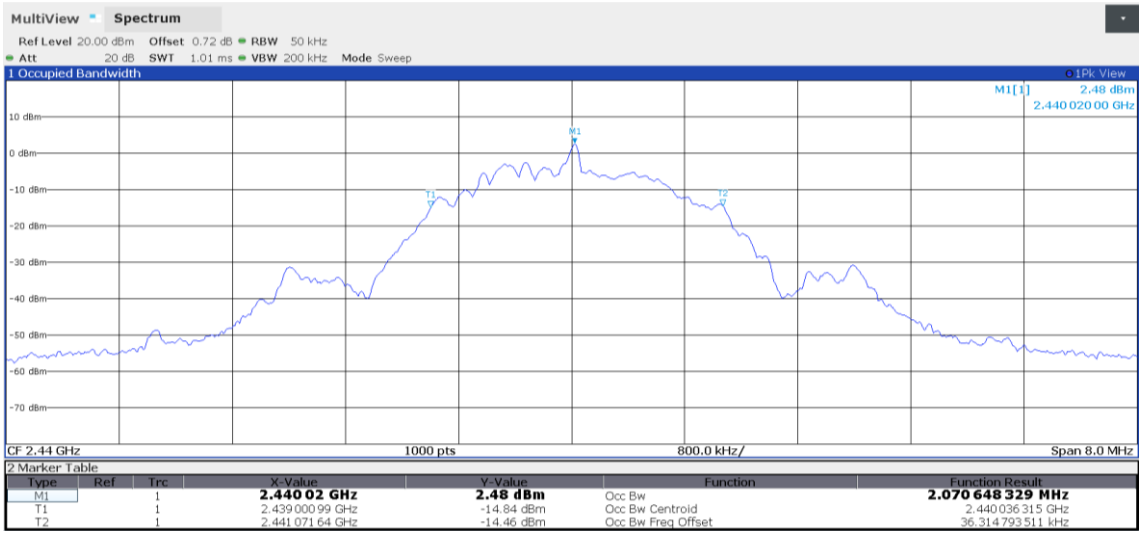
- **2M modulation:**

	Low Channel 2402 MHz	Middle Channel 2440 MHz	High Channel 2480 MHz
99% bandwidth (MHz)	2.065008	2.070648	2.087117
Measurement Uncertainty (kHz)	< ±10.40		

- Low Channel:



- Middle Channel:



- High Channel:

FCC 15.247 (a)(2) / RSS-247 5.2 (a) 6 dB Bandwidth

SPECIFICATION:

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

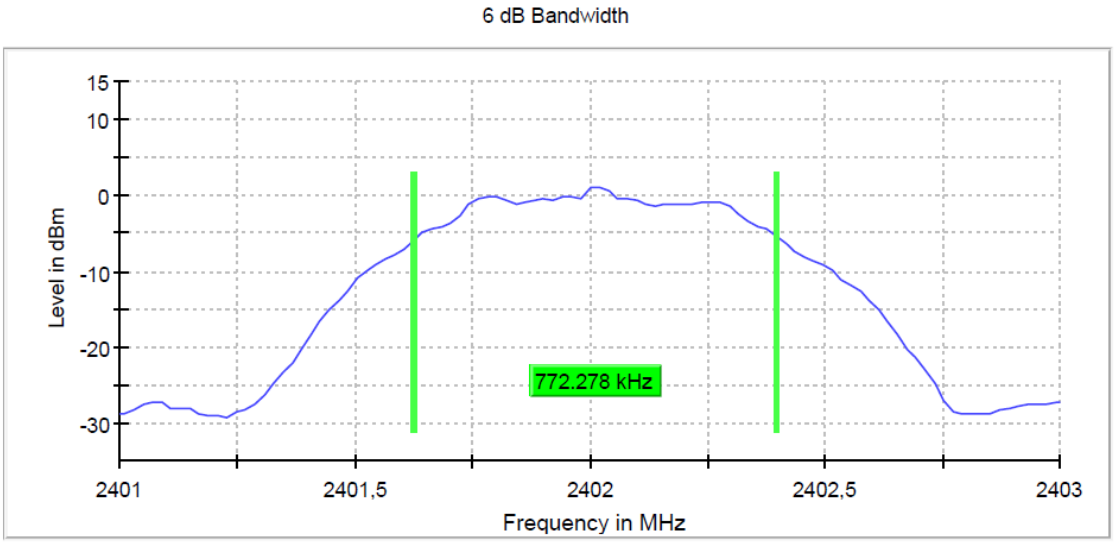
RESULTS:

- **1M modulation:**

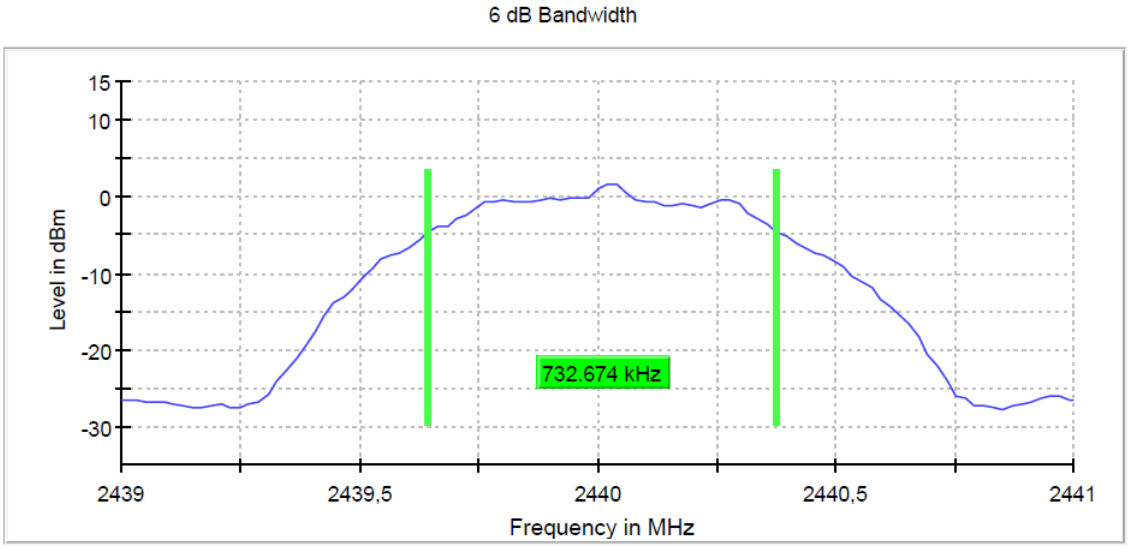
	Low Channel 2402 MHz	Middle Channel 2440 MHz	High Channel 2480 MHz
6 dB Spectrum bandwidth (MHz)	0.772278	0.732674	0.732674
Measurement uncertainty (%)	< ±2.84		

Verdict: PASS

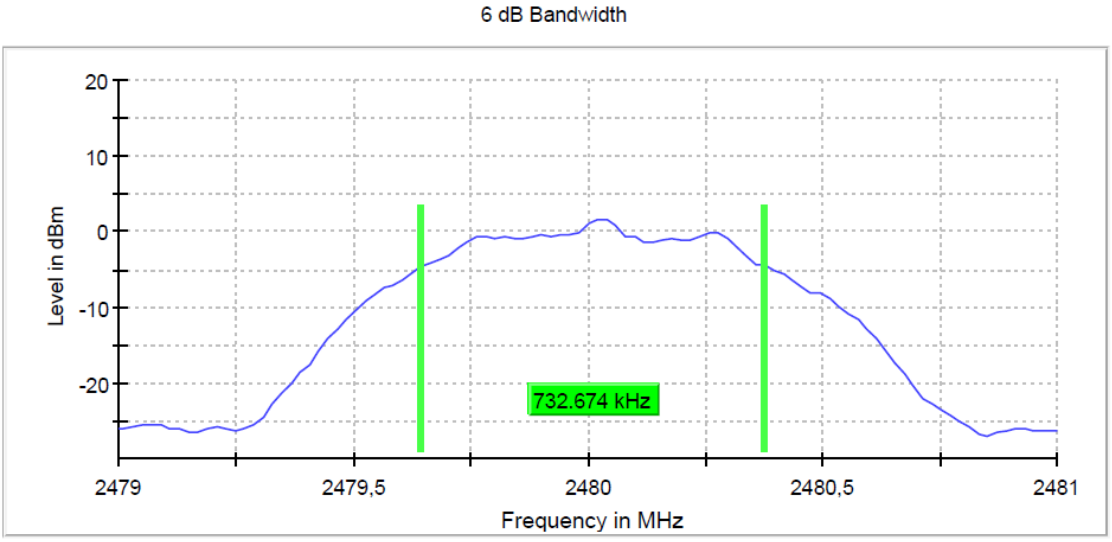
- Low Channel:



- Middle Channel:



- High Channel:

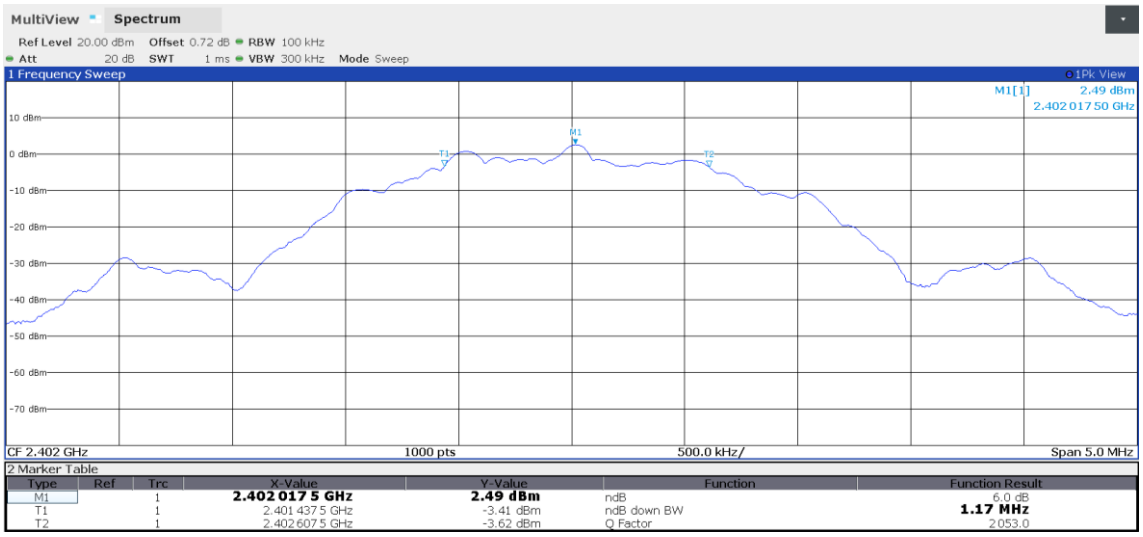


- **2M modulation:**

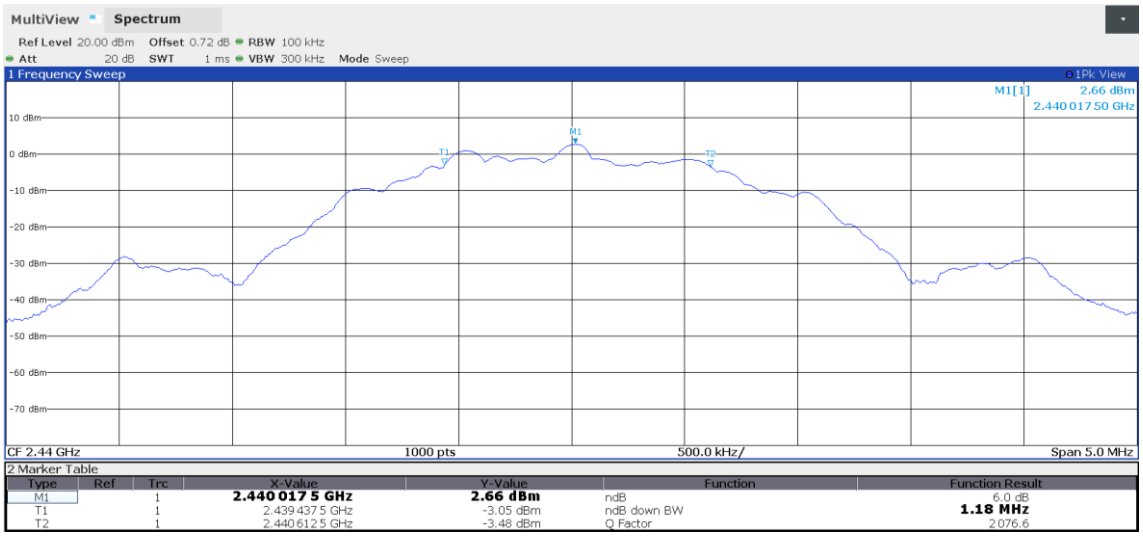
	Low Channel 2402 MHz	Middle Channel 2440 MHz	High Channel 2480 MHz
6 dB Spectrum bandwidth (MHz)	1.170000	1.180000	1.180000
Measurement Uncertainty (kHz)	< ±14.44		

Verdict: PASS

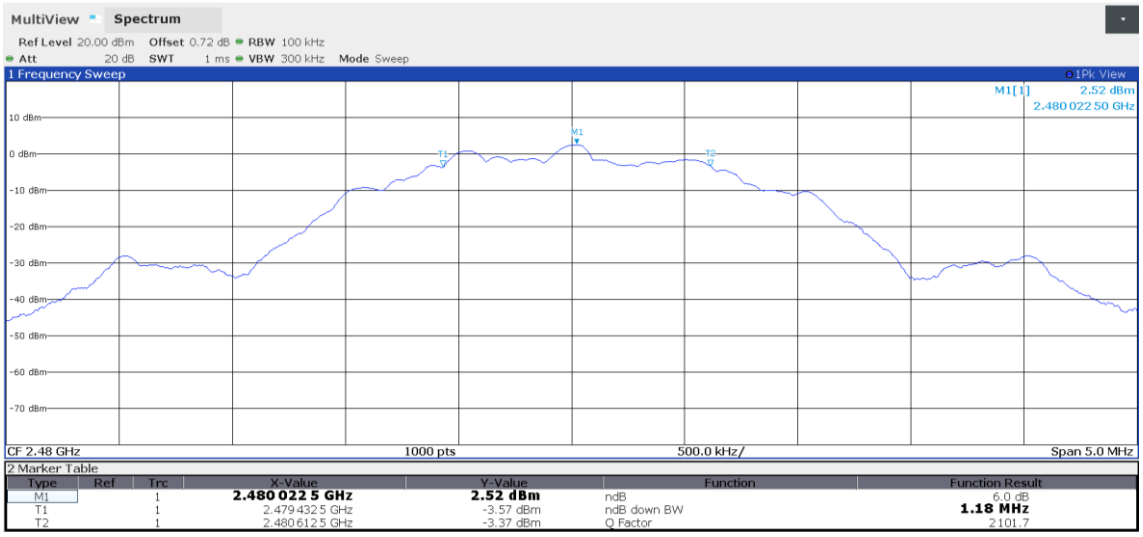
- Low Channel:



- Middle Channel:



- High Channel:



FCC 15.247 (b) / RSS-247 5.4 (d) Maximum Output Power and Antenna Gain

SPECIFICATION:

For systems using digital modulation in the 2400-2483.5 MHz band: 1 Watt (30 dBm).
The e.i.r.p. shall not exceed 4 W (36 dBm) (RSS-247).

RESULTS:

The maximum peak conducted output power level of the fundamental emission was measured according to clause 11.9.1.1 “RBW ≥ DTS bandwidth” of ANSI C63.10-2013.

The EIRP power (dBm) is calculated by adding the declared maximum antenna gain to the measured conducted power.

Maximum Declared Antenna Gain: -24.9 dBi

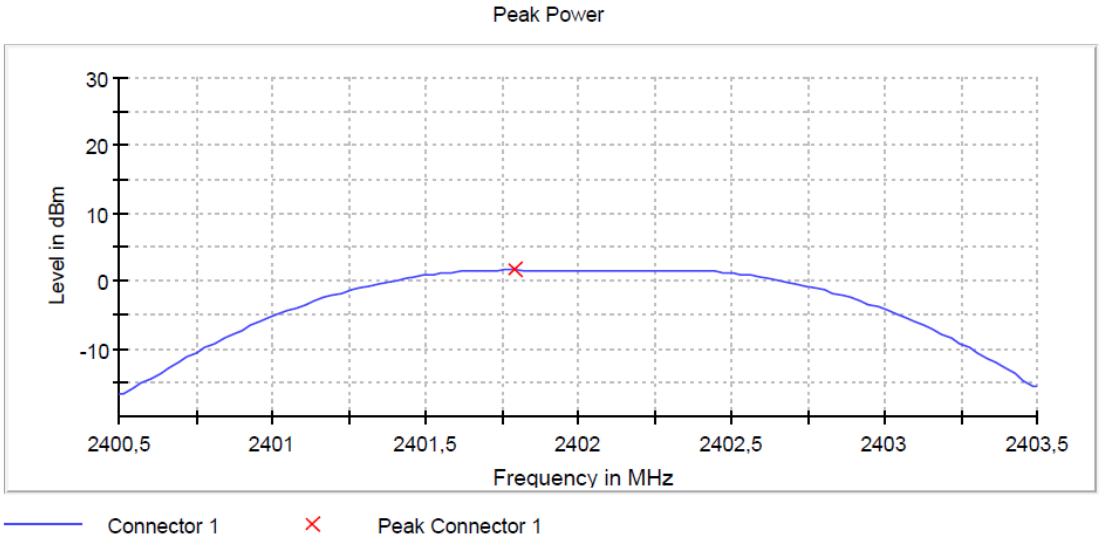
- **1M modulation:**

	Low Channel 2402 MHz	Middle Channel 2440 MHz	High Channel 2480 MHz
Maximum Conducted Power (dBm)	1.60	1.70	1.80
Maximum EIRP Power (dBm)	-23.30	-23.20	-23.10
Measurement Uncertainty (dB)	< ±0.80		

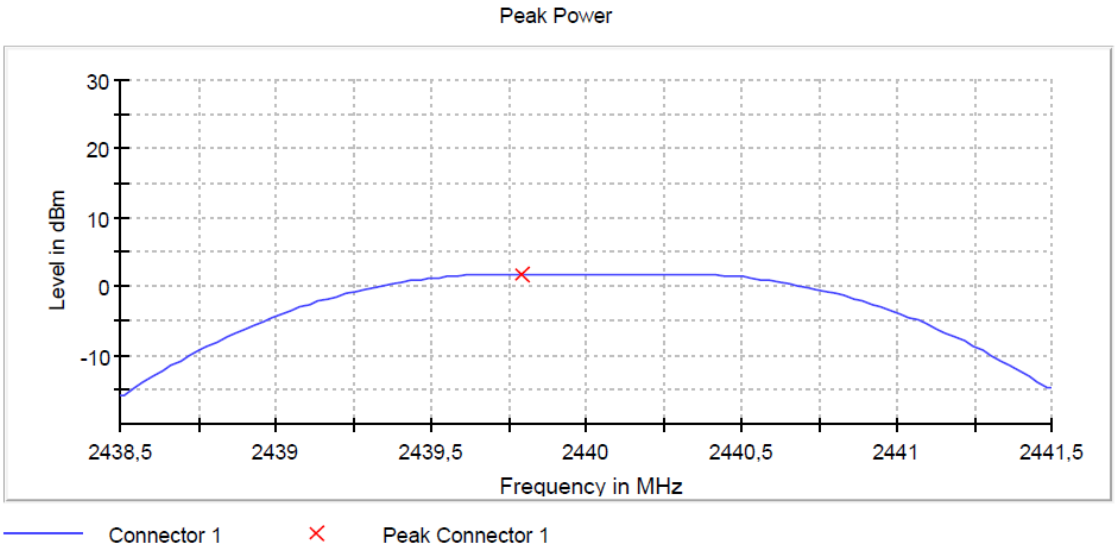
The maximum directional gain of the antenna is less than 6 dBi and therefore the maximum output power is not required to be reduced from the stated values.

Verdict: PASS

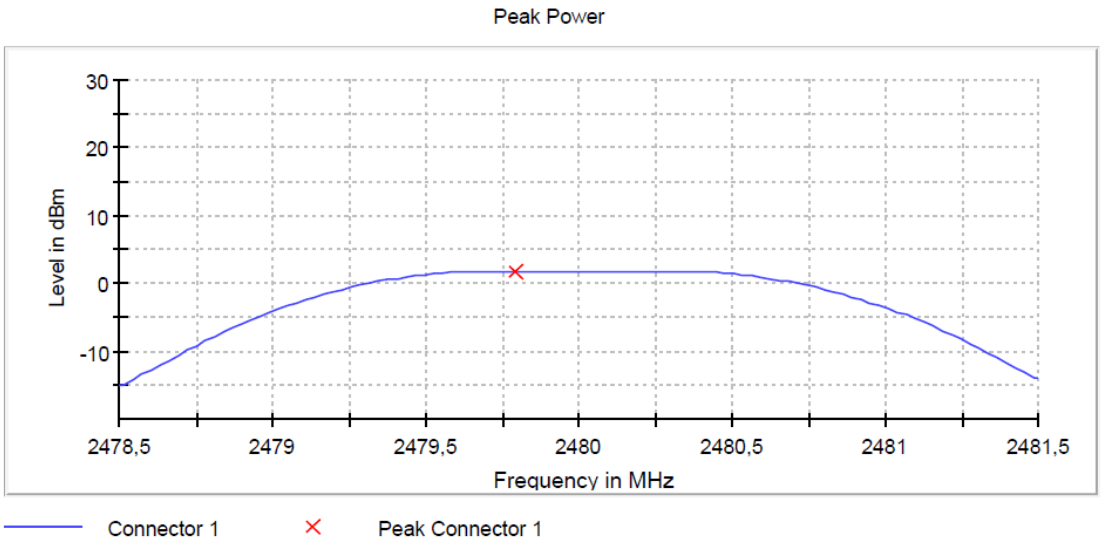
- Low Channel:



- Middle Channel:



- High Channel:



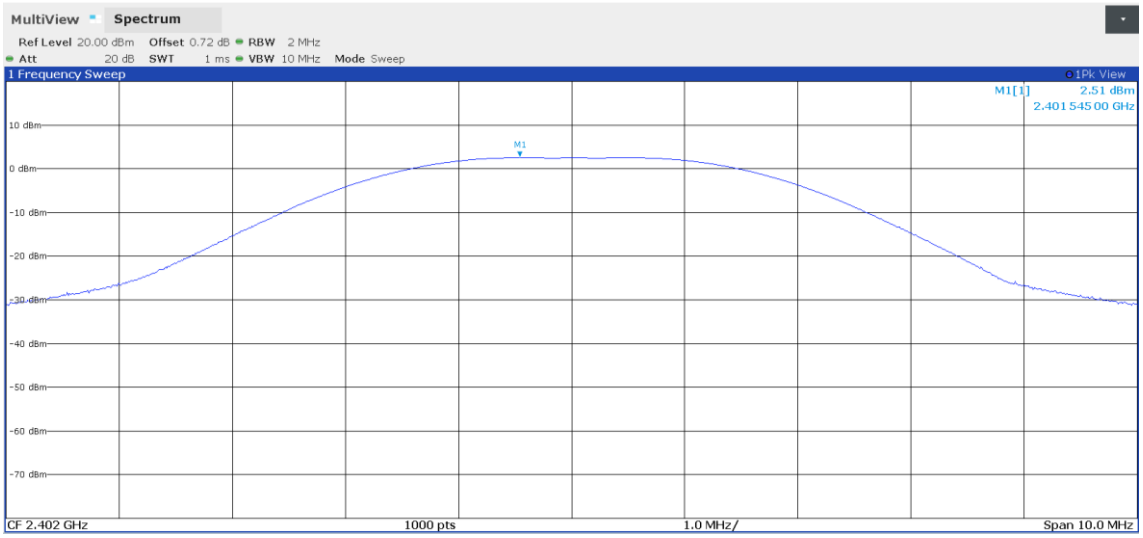
- **2M modulation:**

	Low Channel 2402 MHz	Middle Channel 2440 MHz	High Channel 2480 MHz
Maximum Conducted Power (dBm)	2.51	2.72	2.56
Maximum EIRP Power (dBm)	-22.39	-22.18	-22.34
Measurement Uncertainty (dB)	< ±1.85		

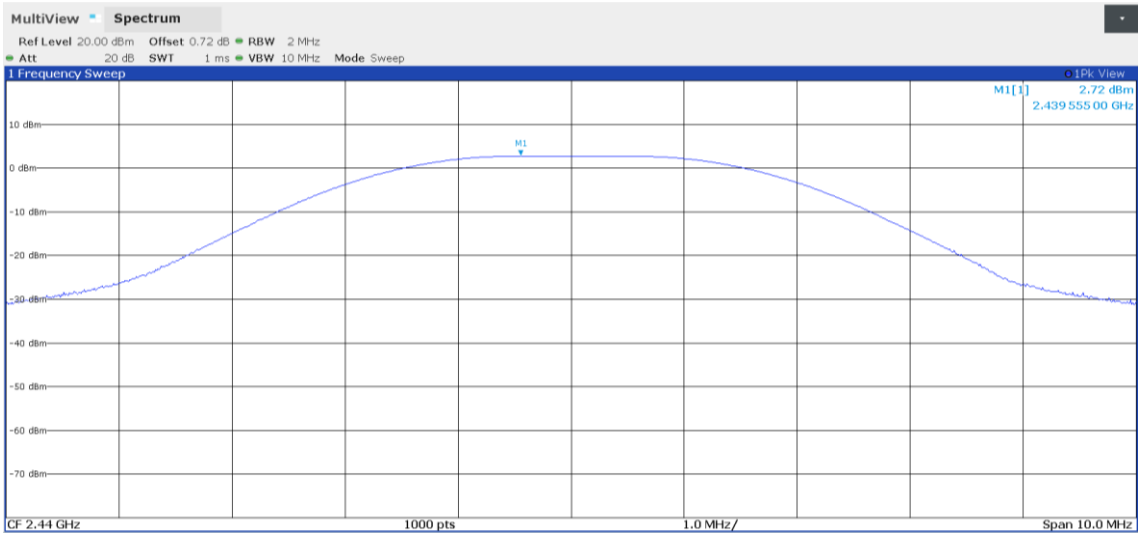
The maximum directional gain of the antenna is less than 6 dBi and therefore the maximum output power is not required to be reduced from the stated values.

Verdict: PASS

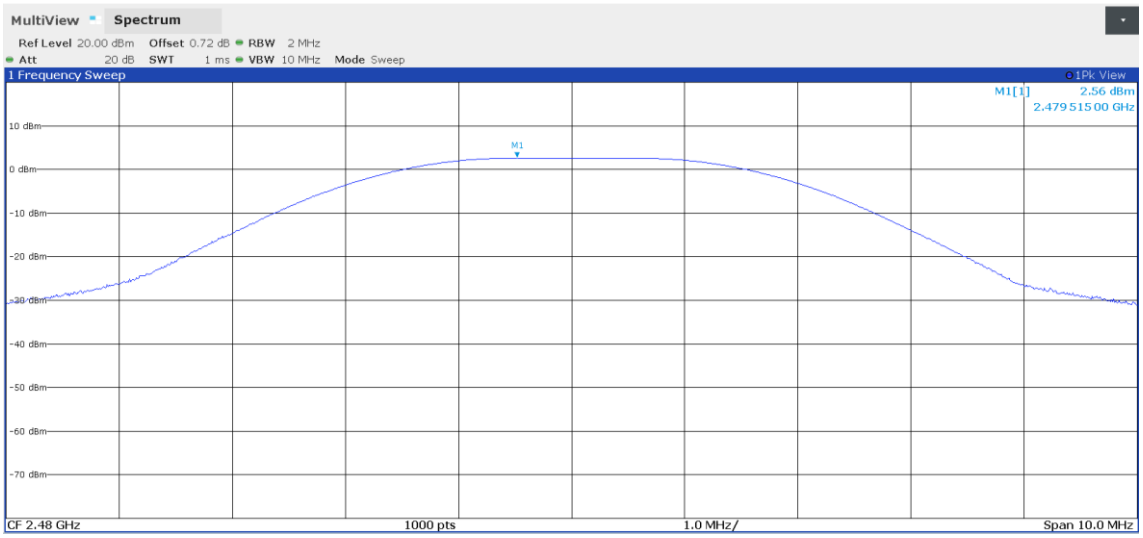
- Low Channel:



- Middle Channel:



- High Channel:



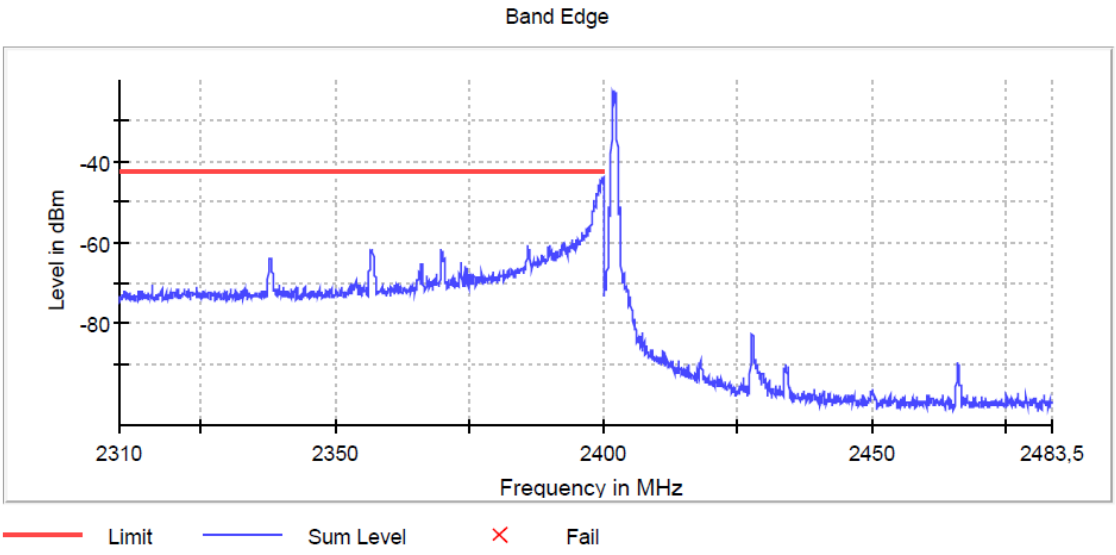
FCC 15.247 (d) / RSS-247 5.5 Band-Edge Emissions Compliance (Transmitter)

SPECIFICATION:

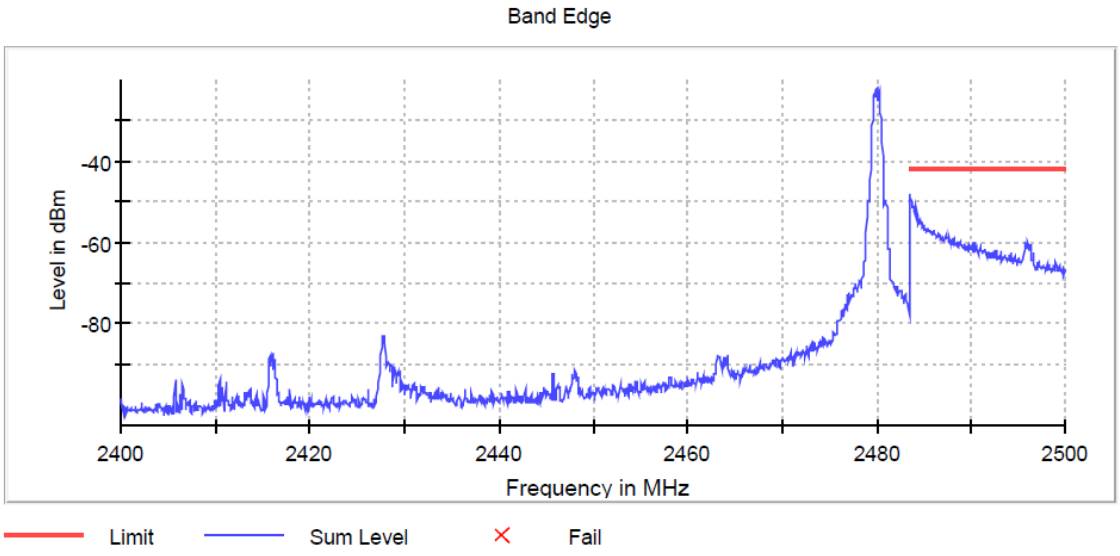
In any 100 kHz bandwidths outside the frequency band in which the intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.

RESULTS:

- **1M modulation:**
  - Low Channel:



  - High Channel:



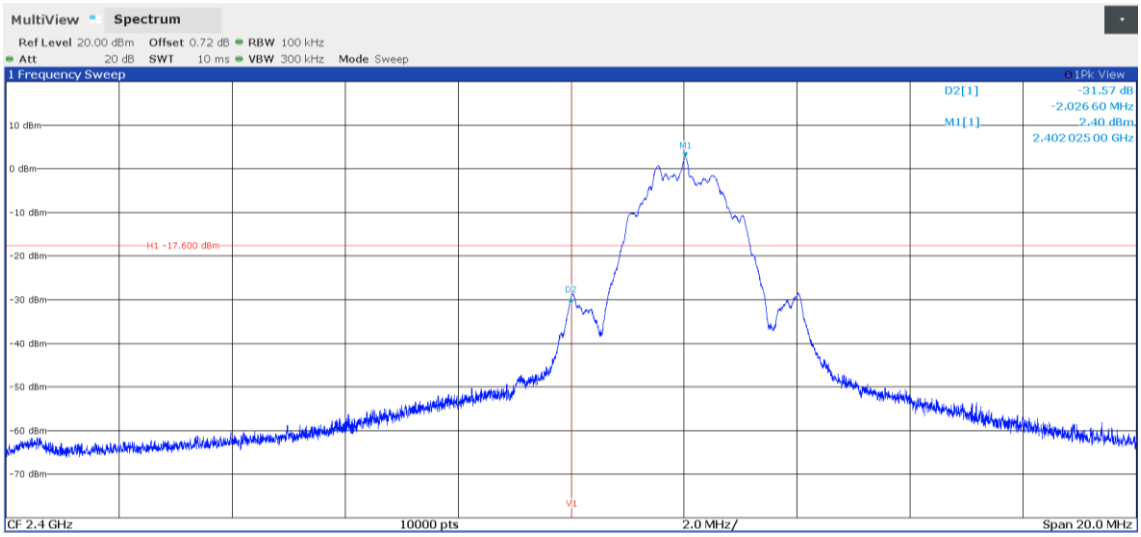
The attenuation of the highest emissions at the band edges is more than 20 dB respect to the highest level of the desired power.

Verdict: PASS

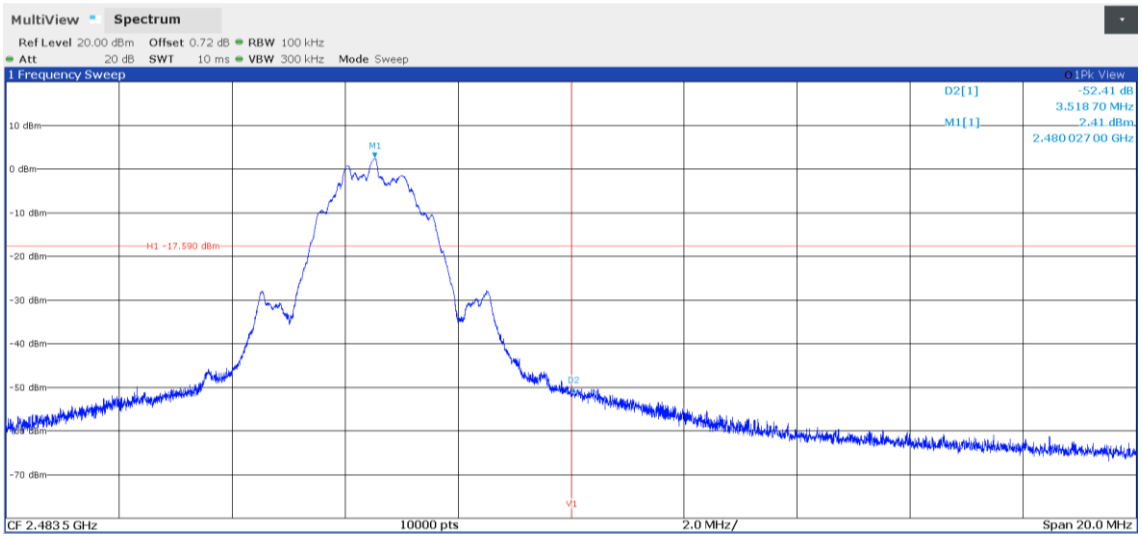
Measurement Uncertainty (dB) < ±1.76

- **2M modulation:**

  - Low Channel:



  - High Channel:



The attenuation of the highest emissions at the band edges is more than 20 dB respect to the highest level of the desired power.

Verdict: PASS

Measurement Uncertainty (dB) < ±3.00

FCC 15.247 (e) / RSS-247 5.2 (b) Power Spectral Density

SPECIFICATION:

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

RESULTS:

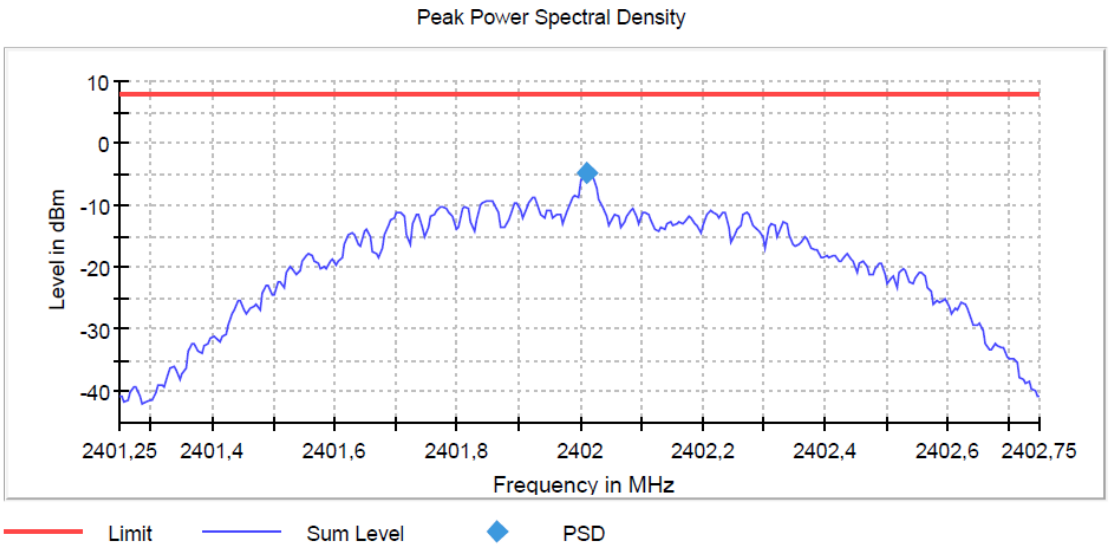
The maximum power spectral density level of the fundamental emission was measured according to clause 11.10.2 “Method PKPSD (peak PSD)” of ANSI C63.10-2013.

- **1M modulation:**

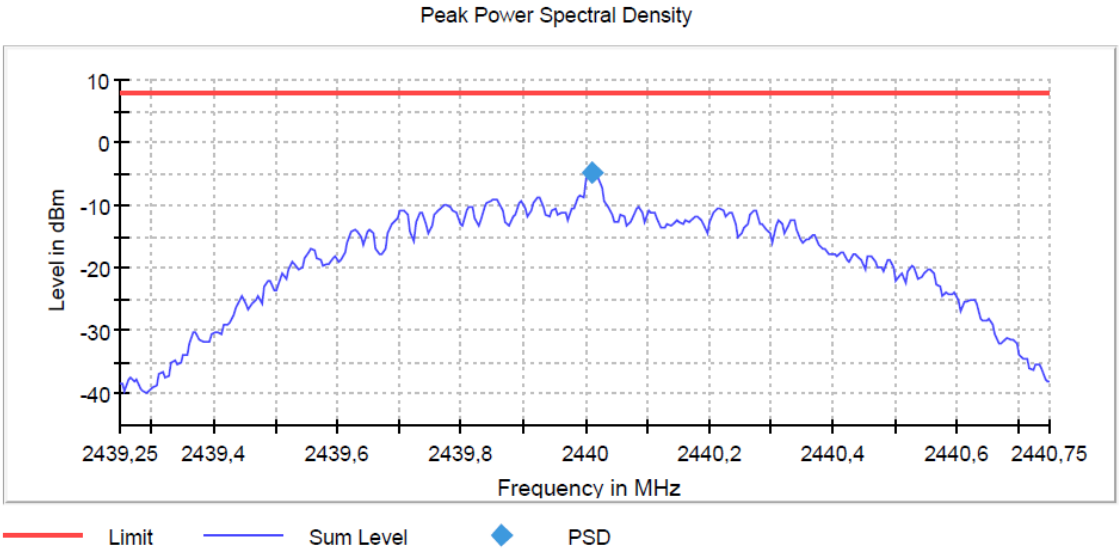
	Low Channel 2402 MHz	Middle Channel 2440 MHz	High Channel 2480 MHz
Power Spectral Density (dBm)	-4.665	-4.660	-5.005
Measurement Uncertainty (dB)	< ±0.99		

Verdict: PASS

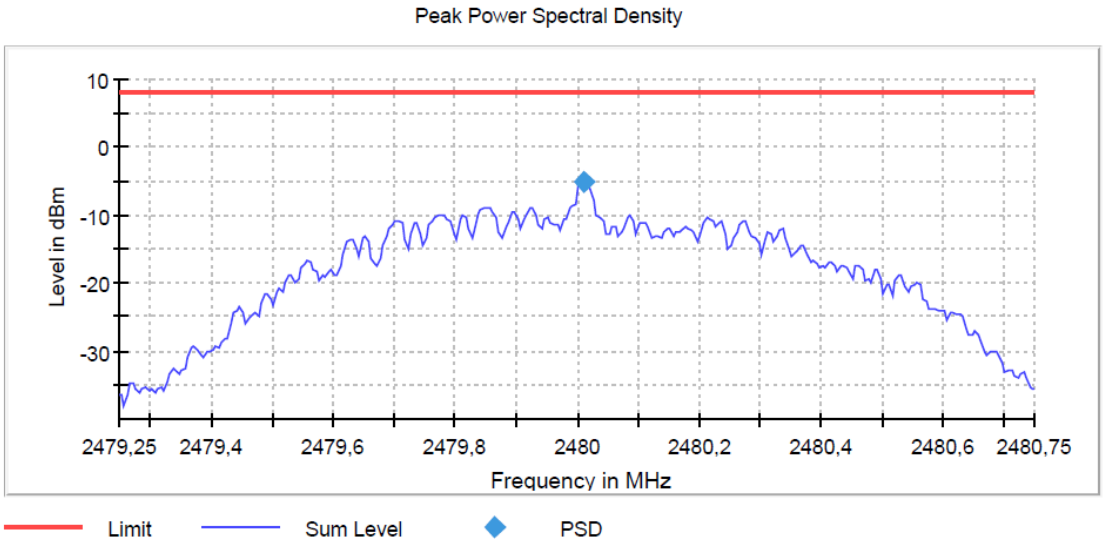
- Low Channel:



- Middle Channel:



- High Channel:

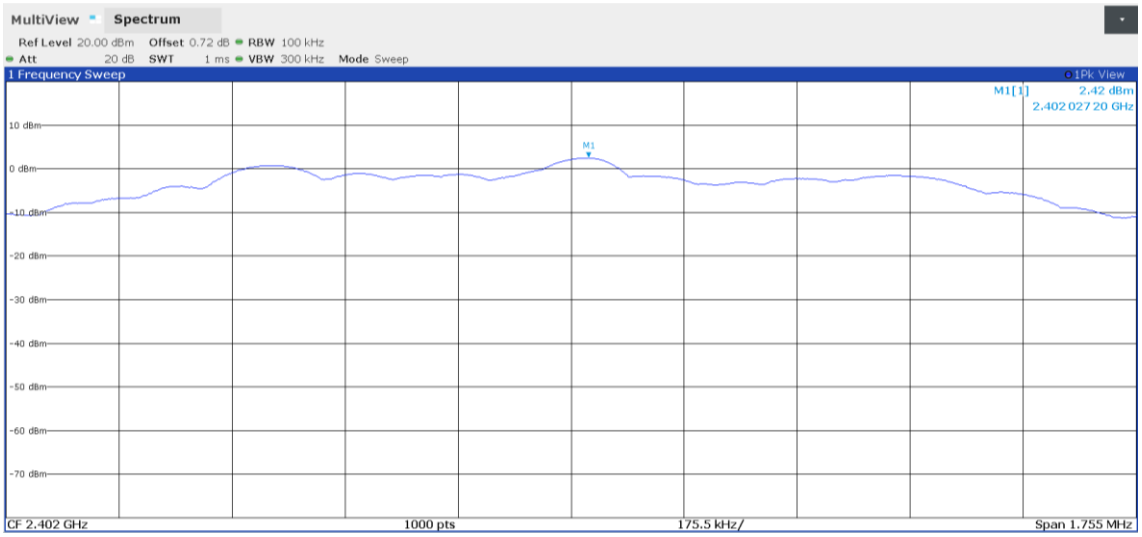


- **2M modulation:**

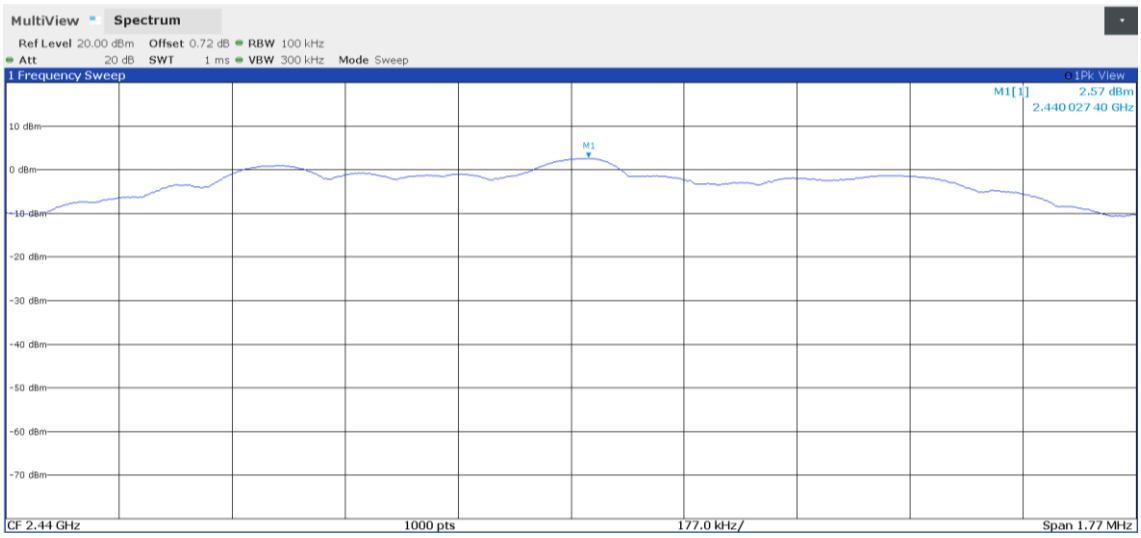
	Low Channel 2402 MHz	Middle Channel 2440 MHz	High Channel 2480 MHz
Power Spectral Density (dBm)	2.42	2.57	2.41
Measurement Uncertainty (dB)	< ±1.91		

Verdict: PASS

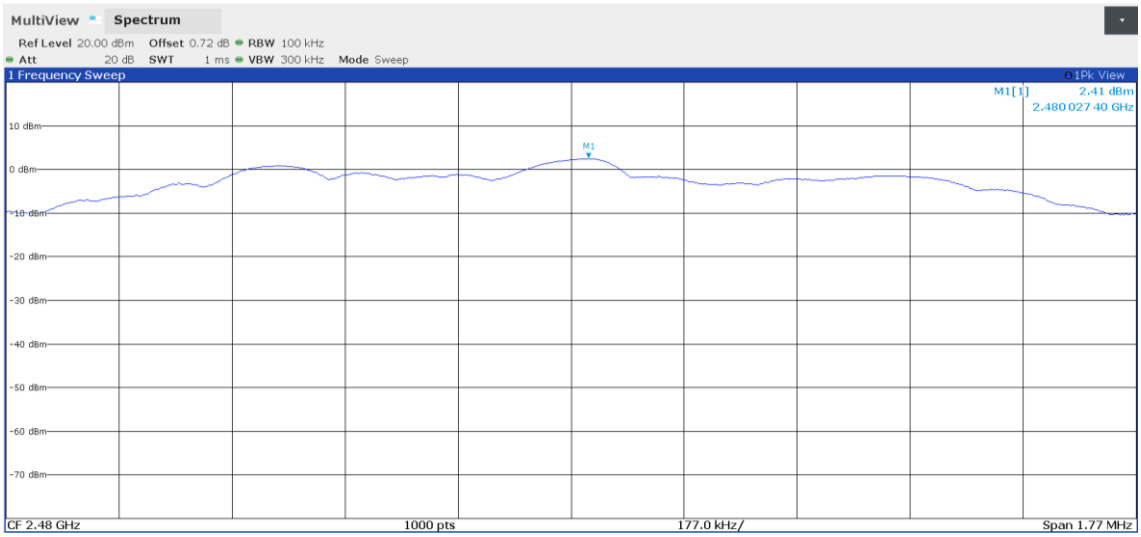
- Low Channel:



- Middle Channel:



- High Channel:



FCC 15.247 (d) / RSS-247 5.5 Emission Limitations Radiated (Transmitter)

SPECIFICATION:

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)/RSS-Gen):

Frequency Range (MHz)	Field strength (µV/m)	Field strength (dBµV/m)	Measurement distance (m)
0.009 – 0.490	2400/F(kHz)	-	300
0.490 – 1.705	24000/F(kHz)	-	30
1.705 – 30.0	30	-	30
30 – 88	100	40	3
88 – 216	150	43.5	3
216 – 960	200	46	3
960 – 1000	500	54	3

The emission limits shown in the above table are based on measurements employing CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.

For average radiated emission measurements above 1000 MHz, there is also a limit specified when measuring with peak detector function, corresponding to 20 dB above the indicated values in the table.

RSS-247:

Attenuation below the general field strength limits specified in RSS-Gen is not required.

RESULTS:

The situation and orientation of the equipment under test was varied to find the maximum radiated emission. It was also rotated 360º and the antenna height was varied from 1 to 4 meters to find the maximum radiated emission.

Measurements were made in both horizontal and vertical planes of polarization.

All tests were performed in a semi-anechoic chamber at a distance of 3 m for the frequency range 30 MHz – 17 GHz and at distance of 1m for the frequency range 17 GHz – 26 GHz.

The field strength is calculated by adding a correction factor to the measured level from the spectrum analyzer. This correction factor includes antenna factor, cable loss and pre-amplifiers gain.

- **1M modulation:**

  Frequency range 30 MHz – 1 GHz:

  The spurious frequencies detected do not depend on the operating channel.

  Spurious frequencies detected at less than 20 dB below the limit:

Spurious frequency (MHz)	Emission Level (dBµV/m)	Detector	Polarization	Measurement Uncertainty (dB)
47.4115	26.73	Quasi-Peak	V	< ±5.15
54.2500	29.03	Quasi-Peak	V	
65.5020	27.36	Quasi-Peak	V	
68.5575	24.67	Quasi-Peak	V	
78.0635	22.35	Quasi-Peak	V	
81.3130	30.26	Quasi-Peak	V	
88.1030	36.91	Quasi-Peak	V	
169.4860	33.61	Quasi-Peak	H	
196.5975	30.32	Quasi-Peak	V	
345.7835	37.38	Quasi-Peak	H	

  Frequency range 1 – 26 GHz:

- Low Channel:

  No spurious frequencies detected at 20 dB below the limit.

- Middle Channel:

  No spurious frequencies detected at 20 dB below the limit.

- High Channel:

  No spurious frequencies detected at 20 dB below the limit.

- **2M modulation:**

  Frequency range 30 MHz – 1 GHz:

  The spurious frequencies detected do not depend on the operating channel.

  Spurious frequencies detected at less than 20 dB below the limit:

Spurious frequency (MHz)	Emission Level (dBµV/m)	Detector	Polarization	Measurement Uncertainty (dB)
33.8800	29.78	Quasi-Peak	V	< ±5.15
40.6700	32.63	Quasi-Peak	V	
54.2015	34.31	Quasi-Peak	V	
67.7815	26.92	Quasi-Peak	V	
74.5715	29.67	Quasi-Peak	V	
94.8930	31.49	Quasi-Peak	V	
101.6830	36.48	Quasi-Peak	V	
108.4730	34.96	Quasi-Peak	V	
196.5975	34.20	Quasi-Peak	H	
291.5120	36.17	Quasi-Peak	H	

  Frequency range 1 – 26 GHz:

- Low Channel:

  No spurious frequencies detected at 20 dB below the limit.

- Middle Channel:

  No spurious frequencies detected at 20 dB below the limit.

- High Channel:

  No spurious frequencies detected at 20 dB below the limit.

Verdict: PASS

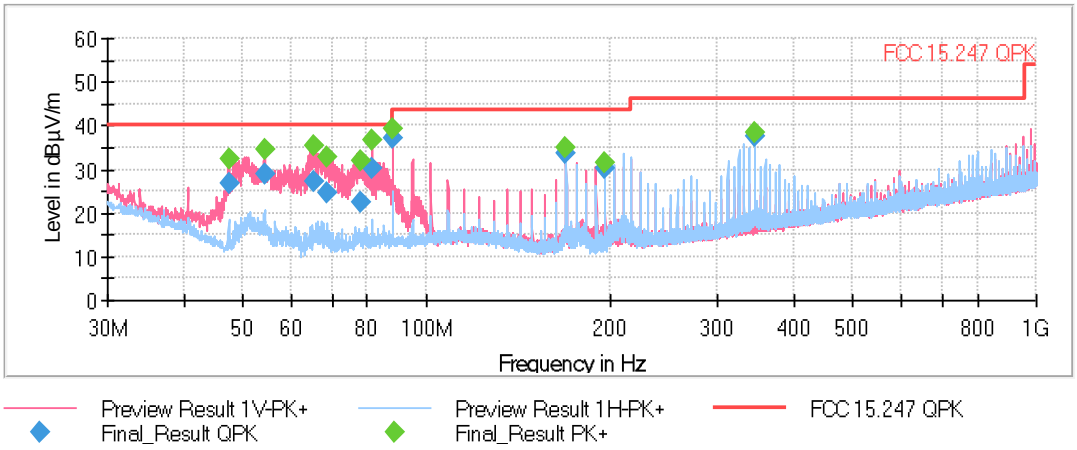
Measurement Uncertainty:

< ±5.15 dB,	30MHz < f < 1 GHz
< ±4.01 dB,	1GHz < f < 3 GHz
< ±4.28 dB,	3 GHz < f < 17 GHz
< ±4.89 dB,	17 GHz < f < 26 GHz

- **1M modulation:**

FREQUENCY RANGE 30 MHz – 1 GHz:

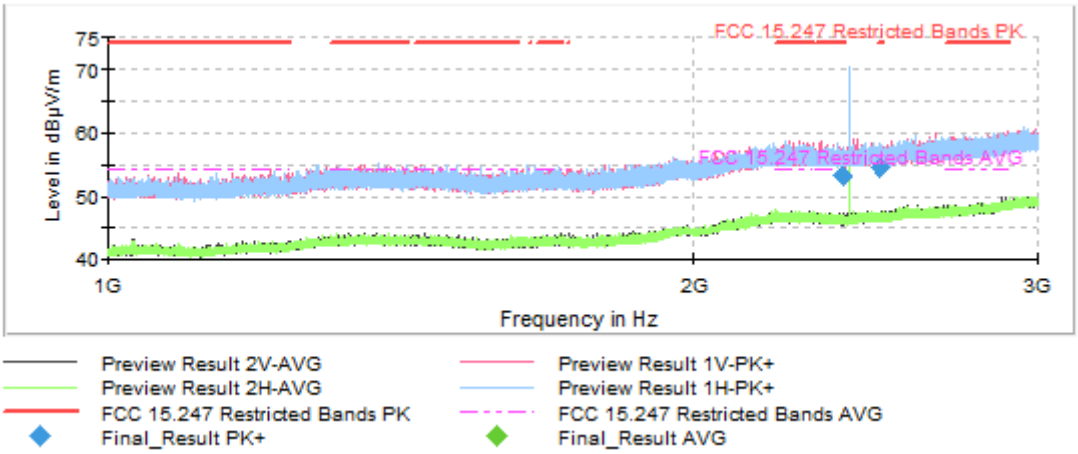
The spurious frequencies detected do not depend on the operating channel.



This plot is valid for the Low, Middle and High Channels.

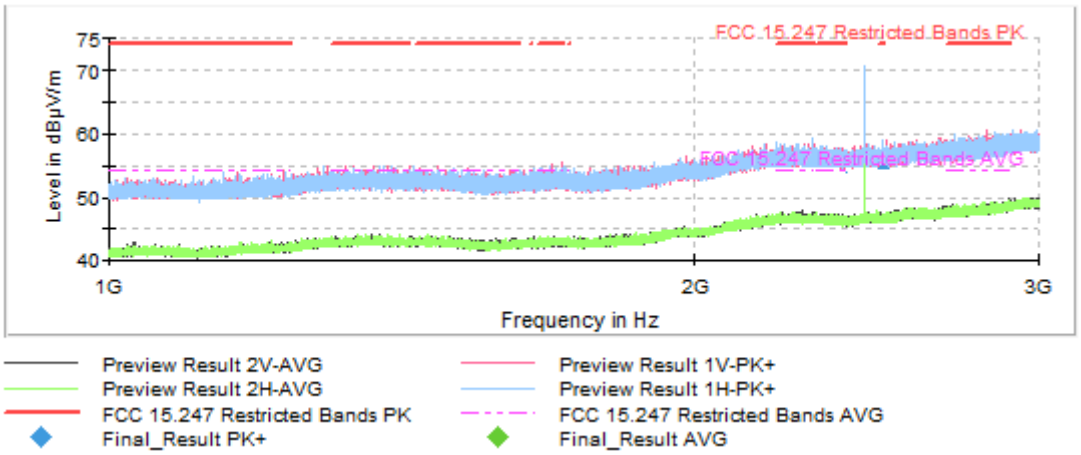
FREQUENCY RANGE 1 – 3 GHz:

- Low Channel:



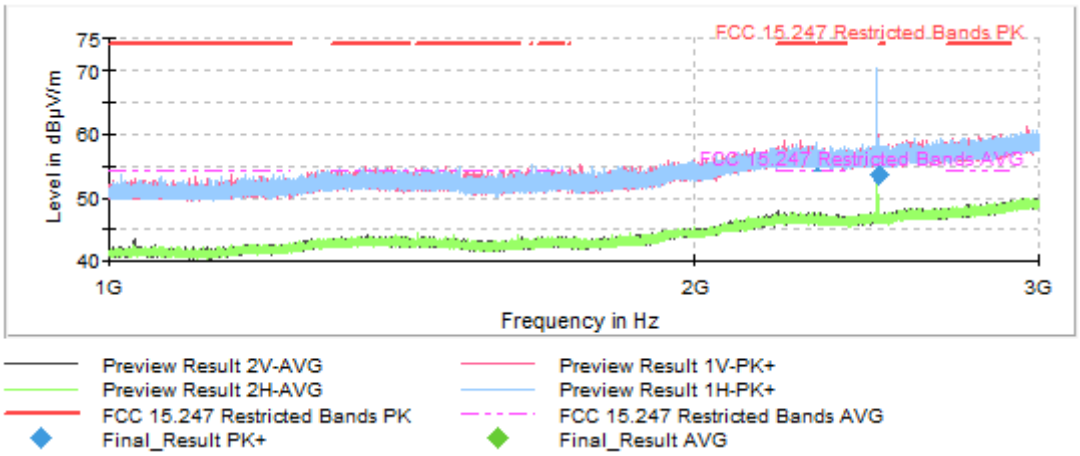
The peak above the limit is the carrier frequency.

- Middle Channel:



The peak above the limit is the carrier frequency.

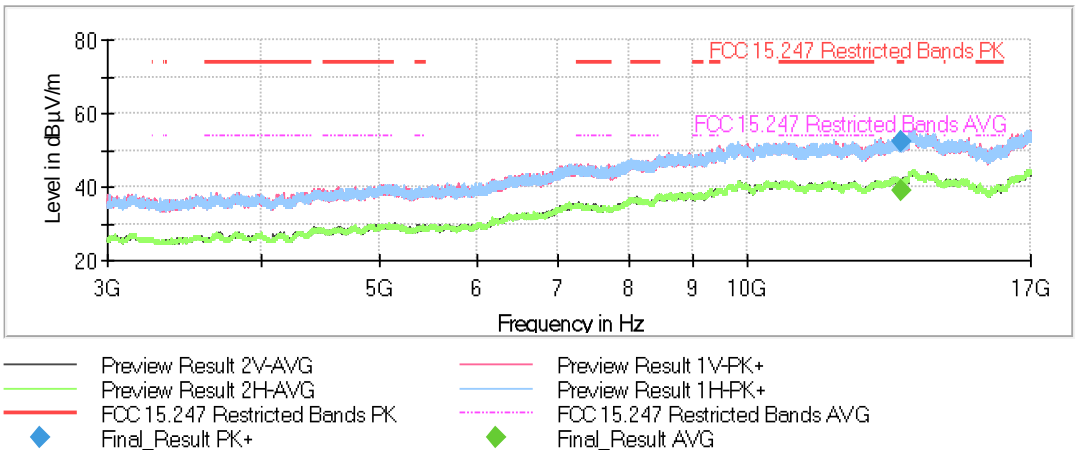
- High Channel:



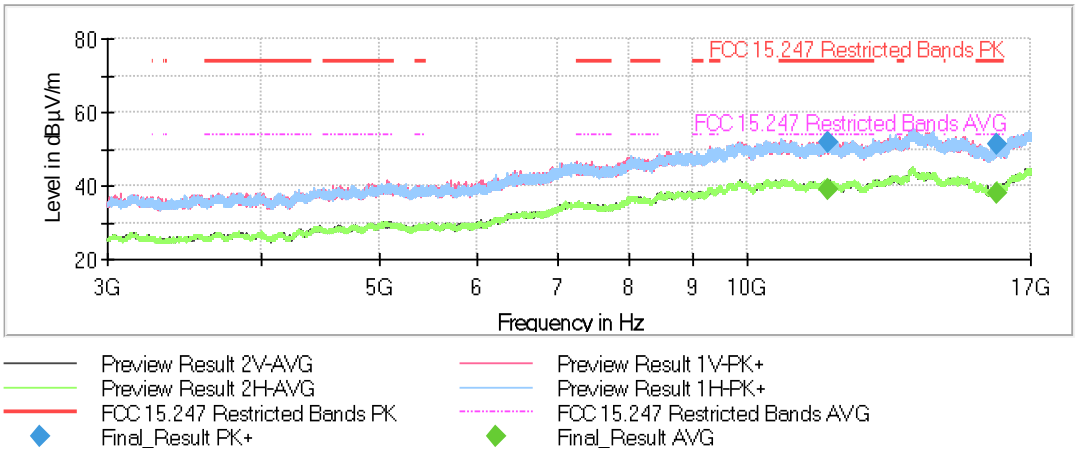
The peak above the limit is the carrier frequency.

FREQUENCY RANGE 3 – 17 GHz:

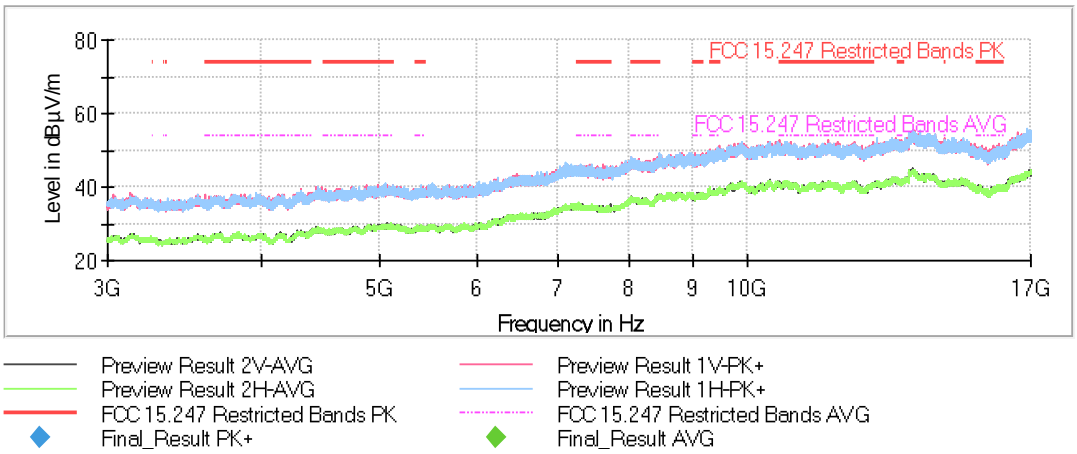
- Low Channel:



- Middle Channel:

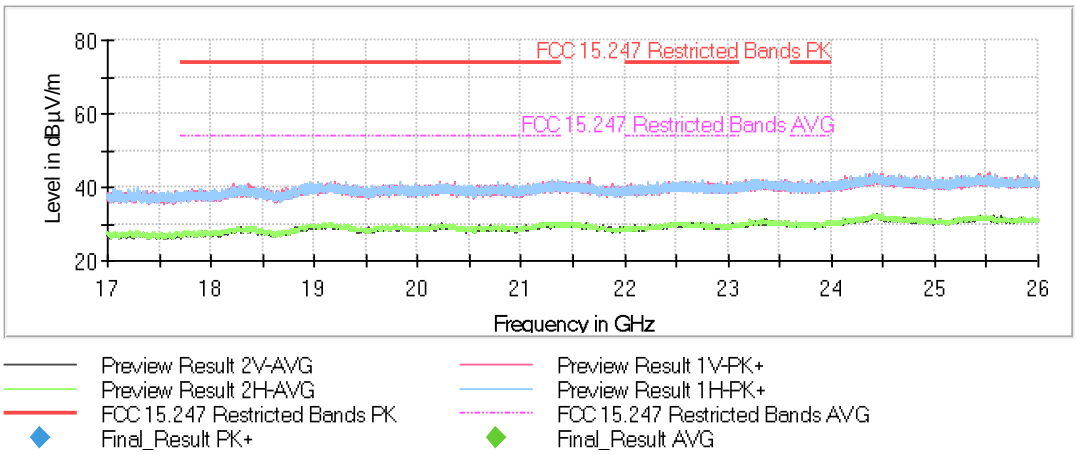


- High Channel:



FREQUENCY RANGE 17 – 26 GHz:

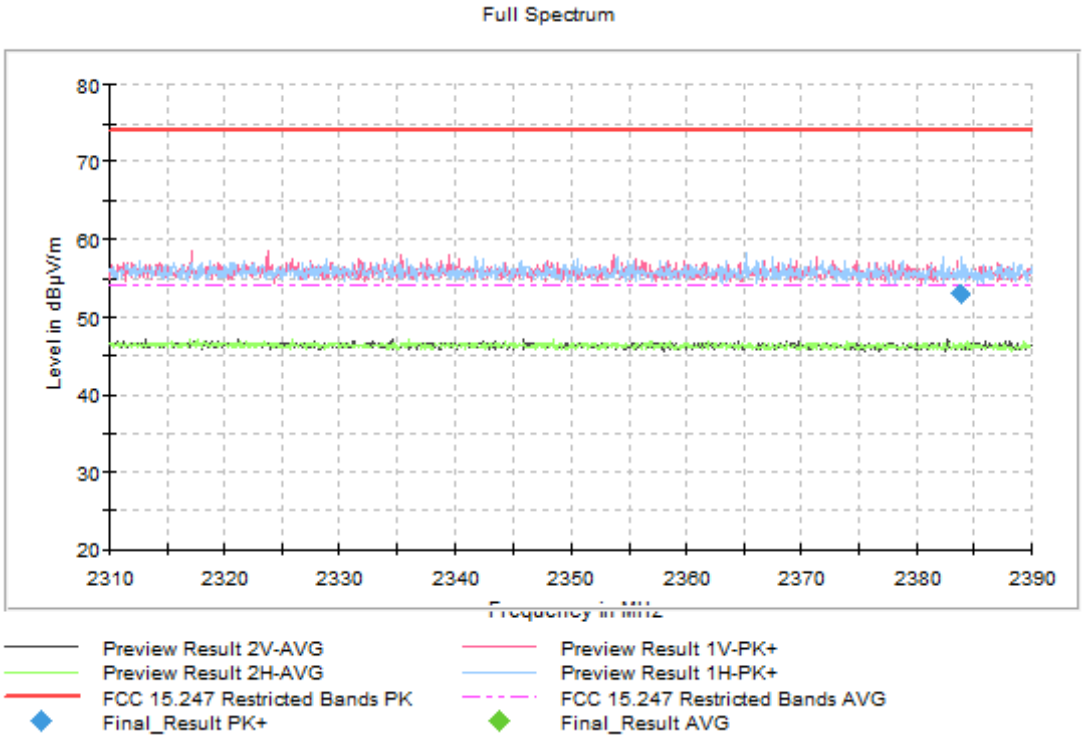
The spurious frequencies detected do not depend on the operating channel.



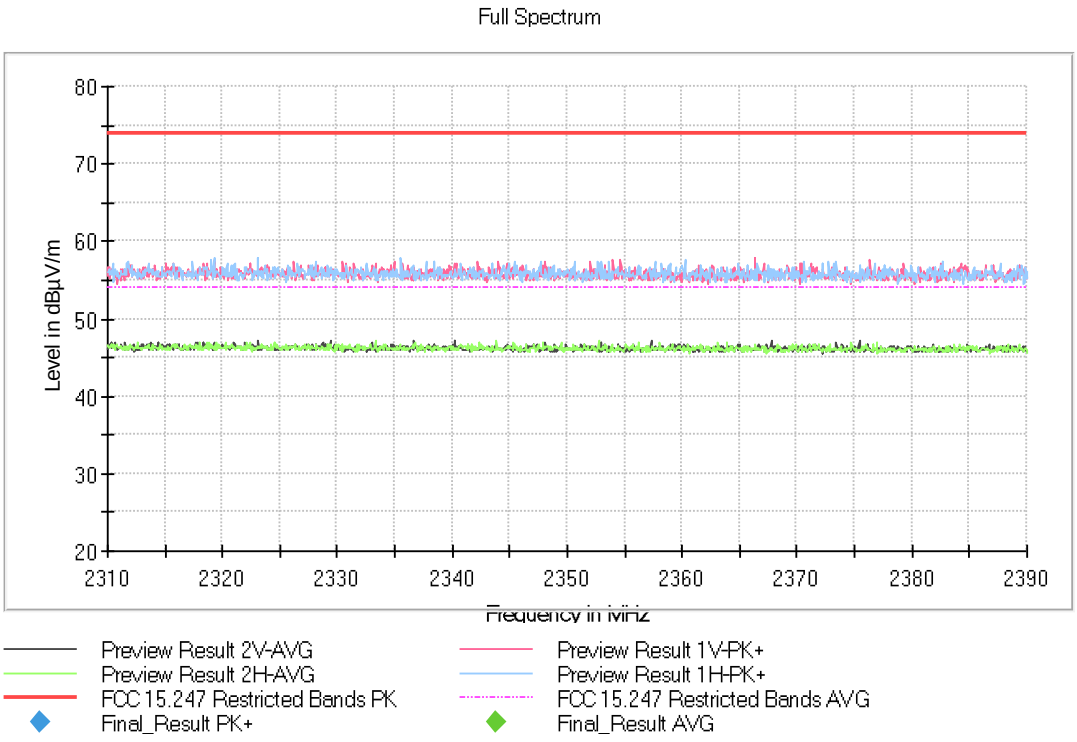
This plot is valid for the Low, Middle and High Channels.

FREQUENCY RANGE 2.31 – 2.39 GHz:

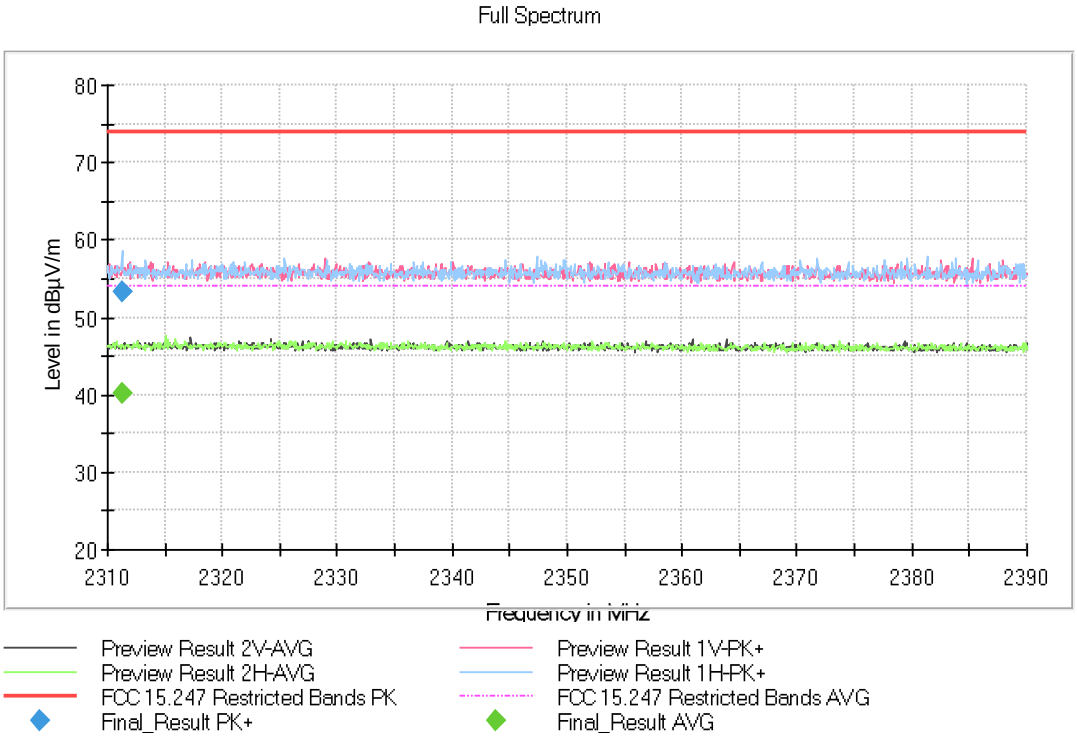
- Low Channel:



- Middle Channel:

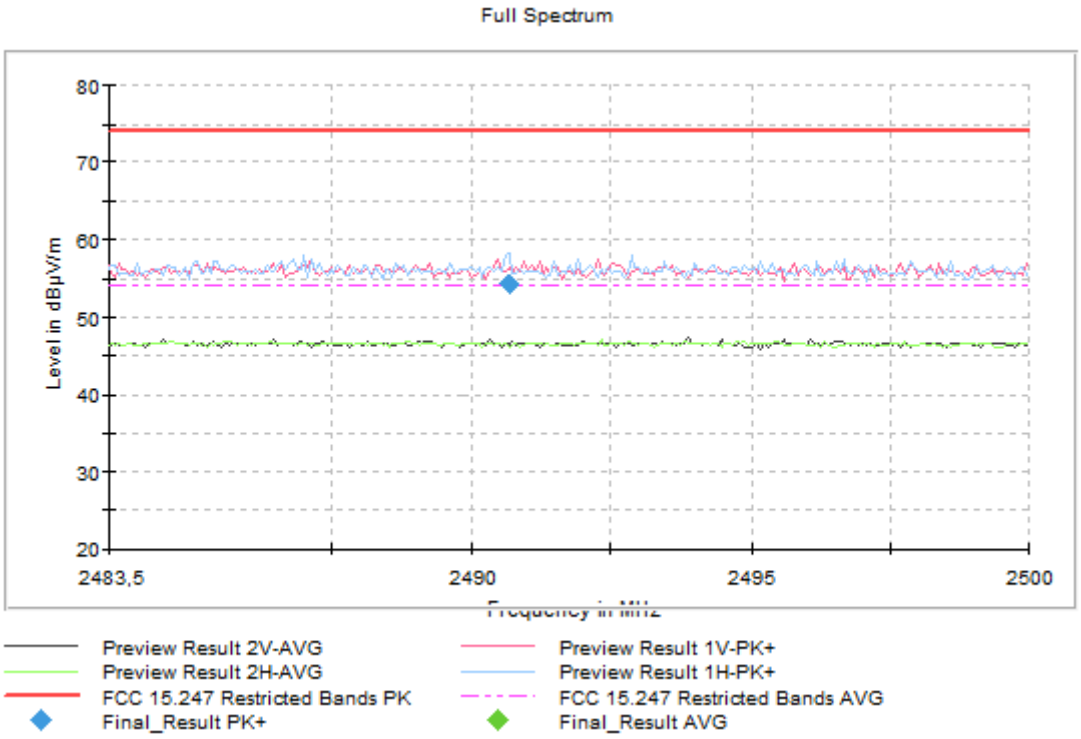


- High Channel:

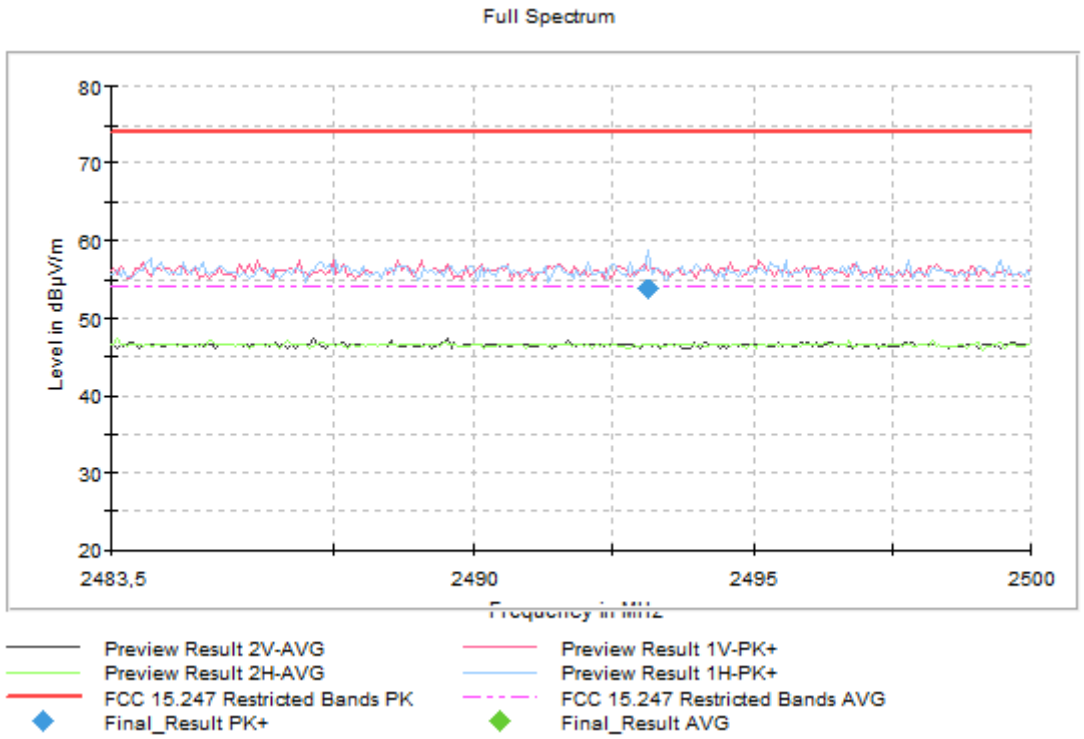


FREQUENCY RANGE 2.4835 – 2.5 GHz:

- Low Channel:



- Middle Channel:

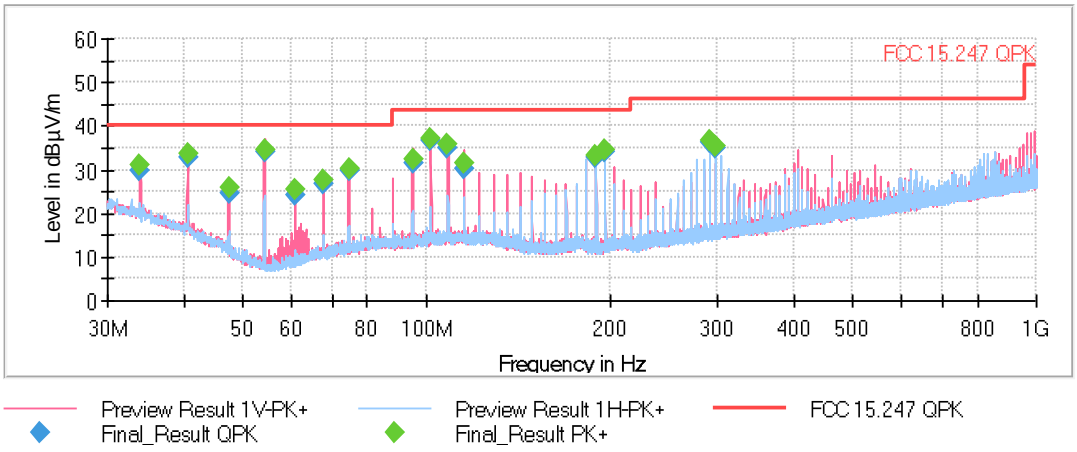


- High Channel:

- **2M modulation:**

FREQUENCY RANGE 30 MHz – 1 GHz:

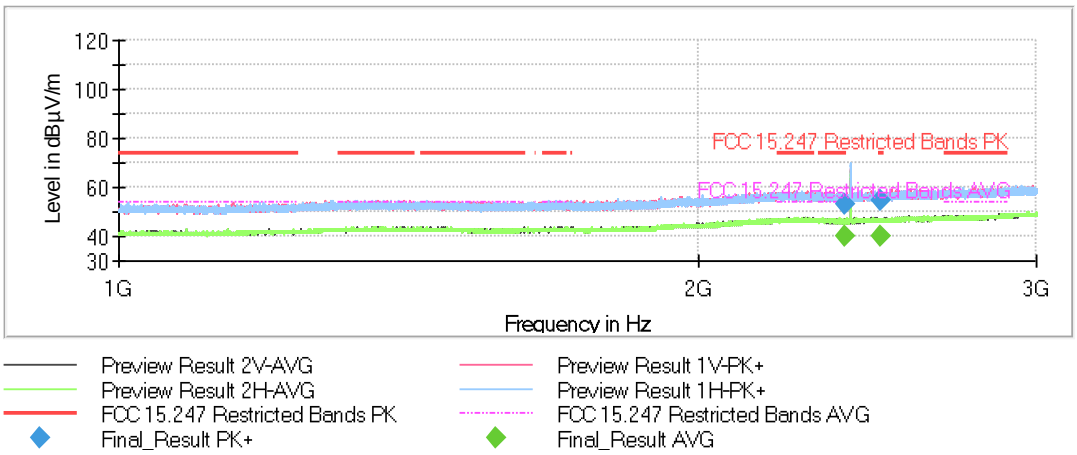
The spurious frequencies detected do not depend on the operating channel.



This plot is valid for the Low, Middle and High Channels.

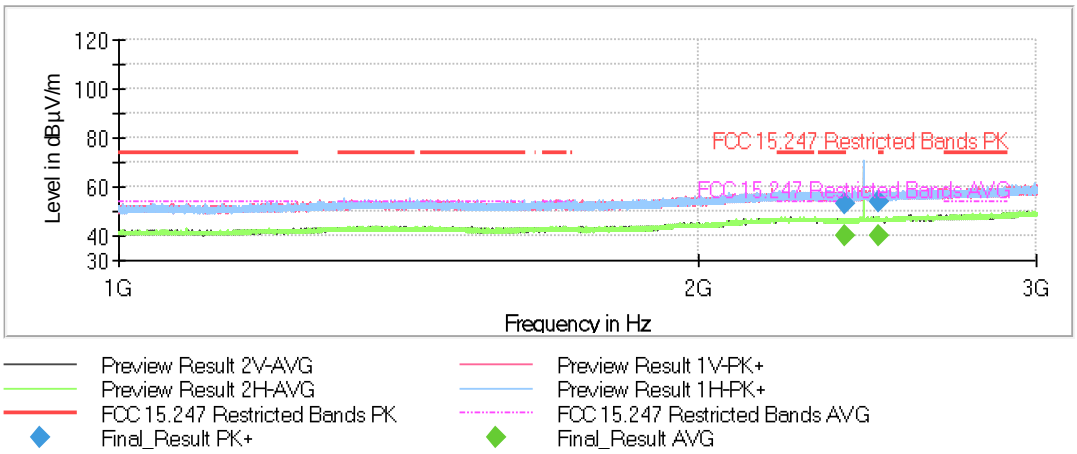
FREQUENCY RANGE 1 – 3 GHz:

- Low Channel:



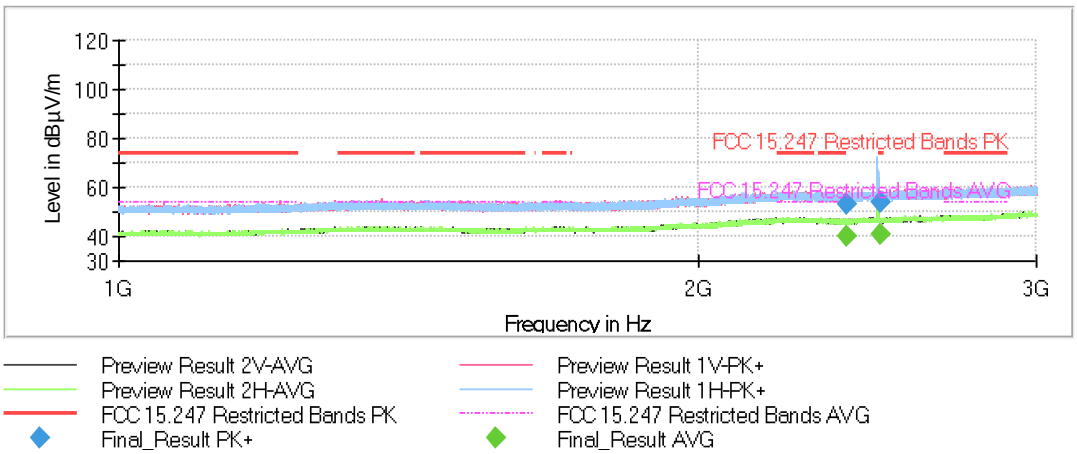
The peak above the limit is the carrier frequency.

- Middle Channel:



The peak above the limit is the carrier frequency.

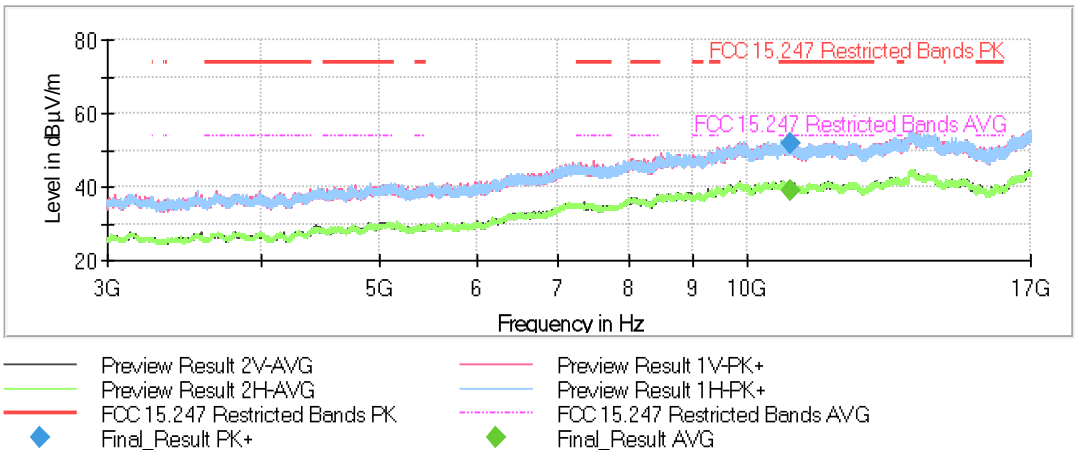
- High Channel:



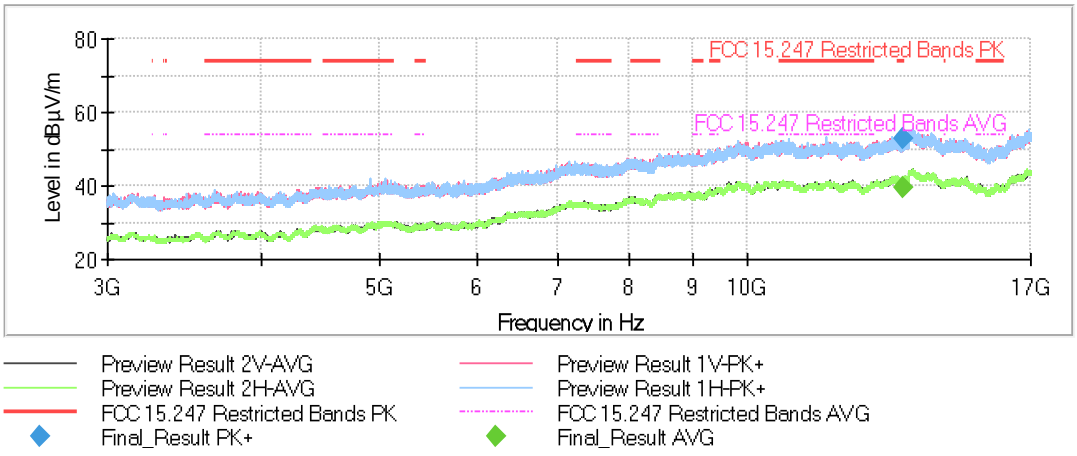
The peak above the limit is the carrier frequency.

FREQUENCY RANGE 3 – 17 GHz:

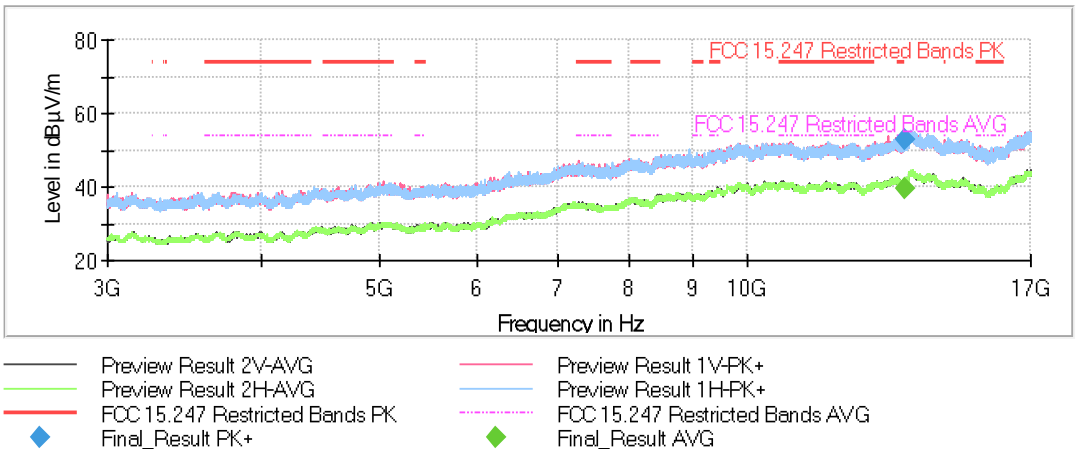
- Low Channel:



- Middle Channel:

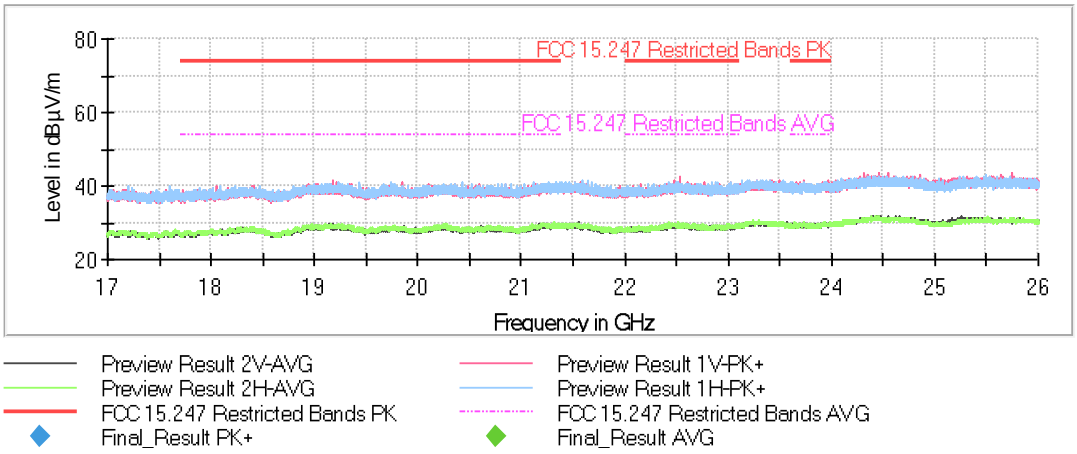


- High Channel:



FREQUENCY RANGE 17 – 26 GHz:

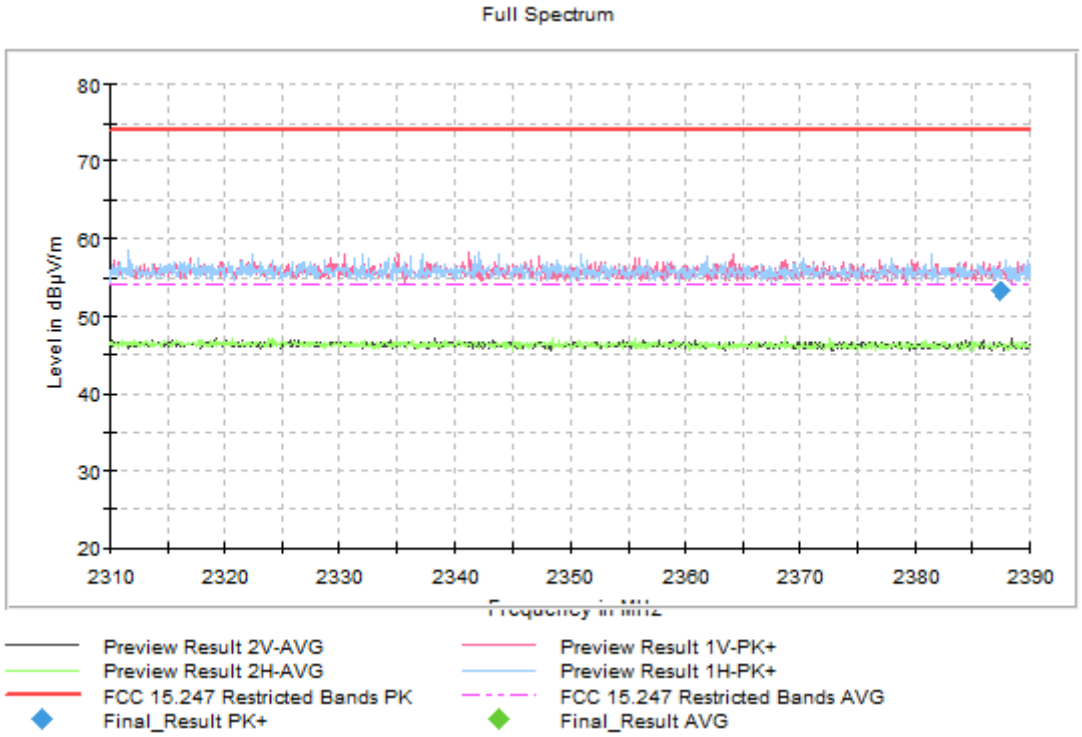
The spurious frequencies detected do not depend on the operating channel.



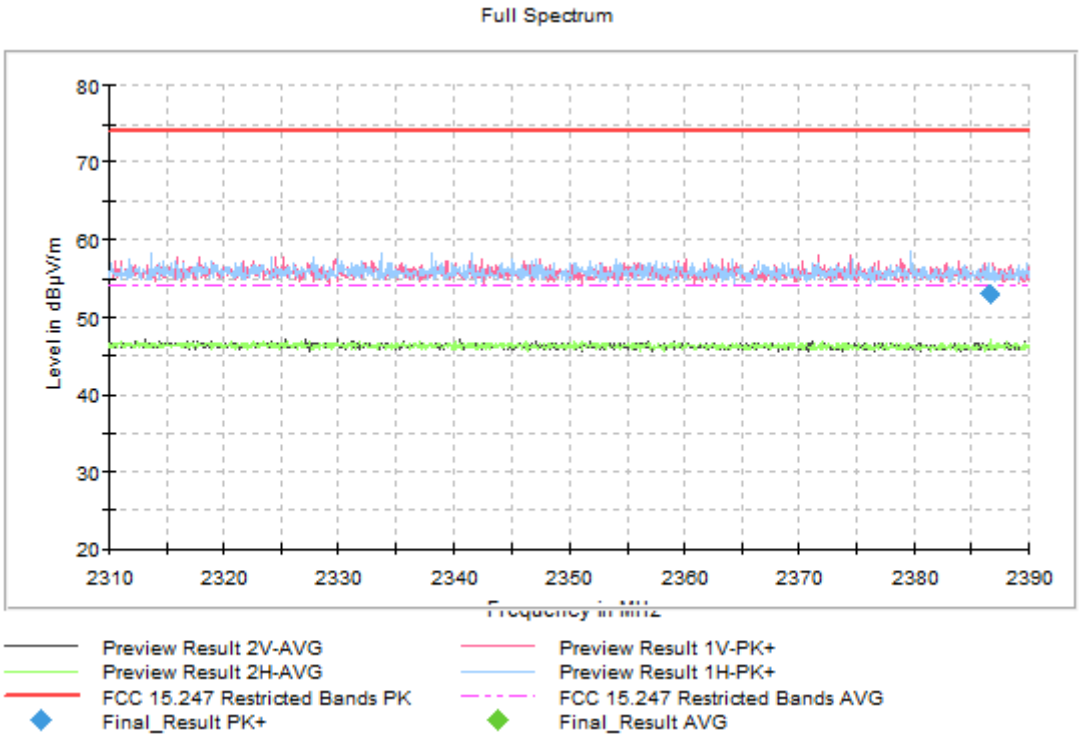
This plot is valid for the Low, Middle and High Channels.

FREQUENCY RANGE 2.31 – 2.39 GHz:

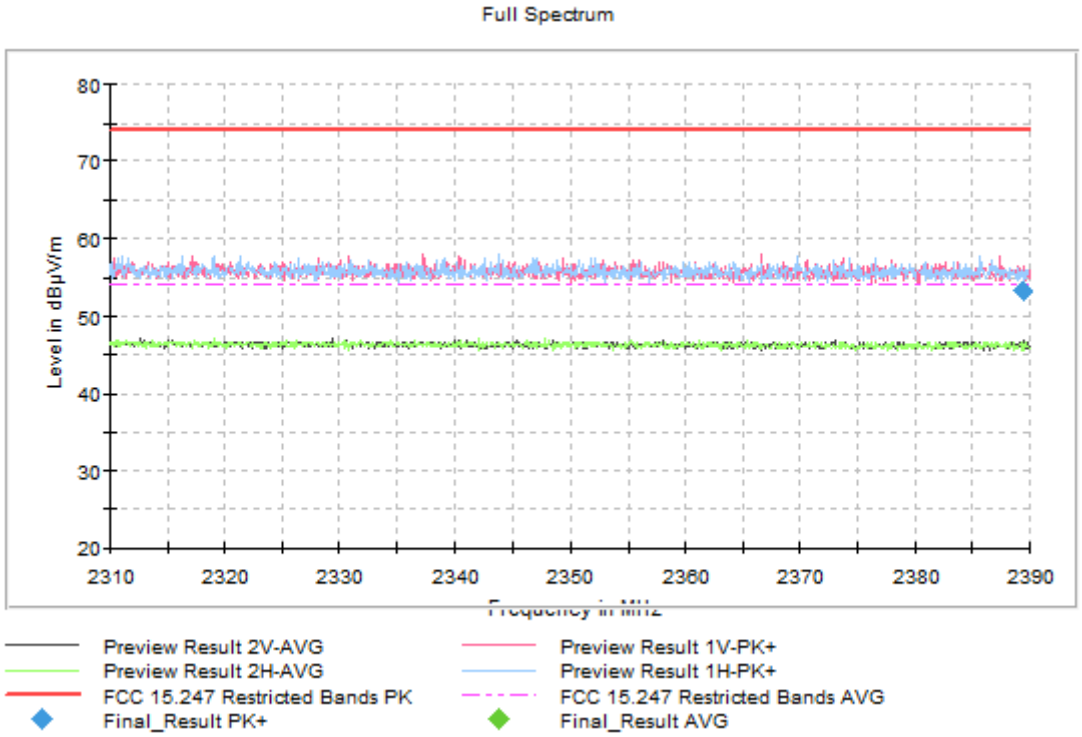
- Low Channel:



- Middle Channel:

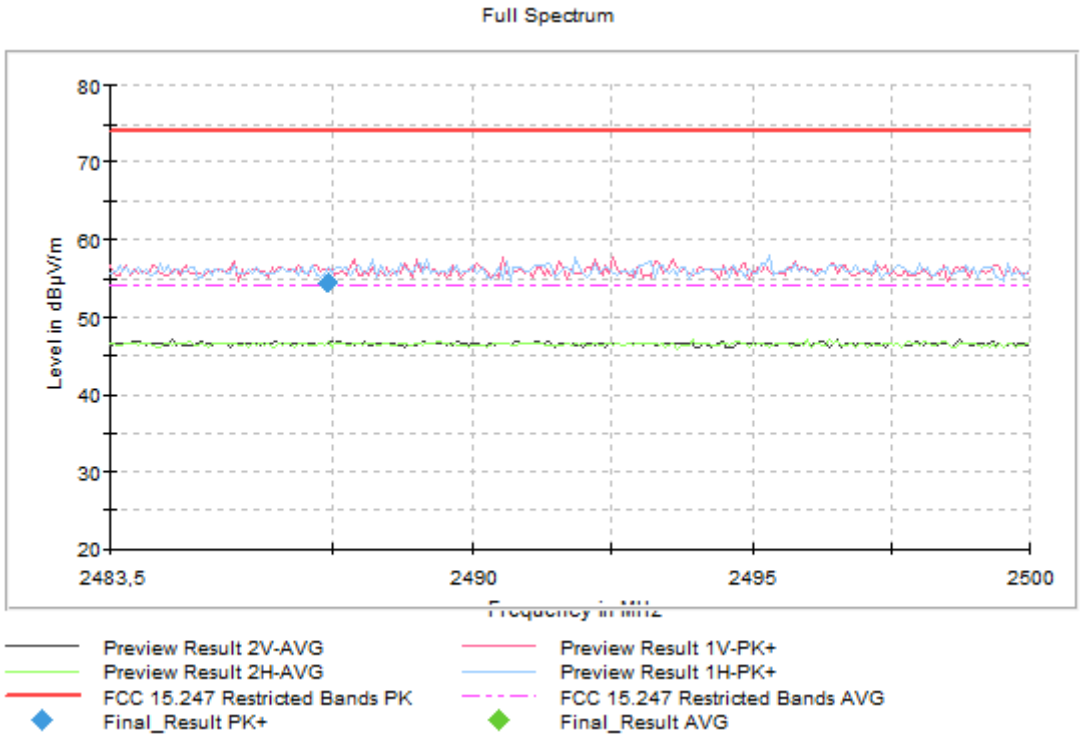


- High Channel:

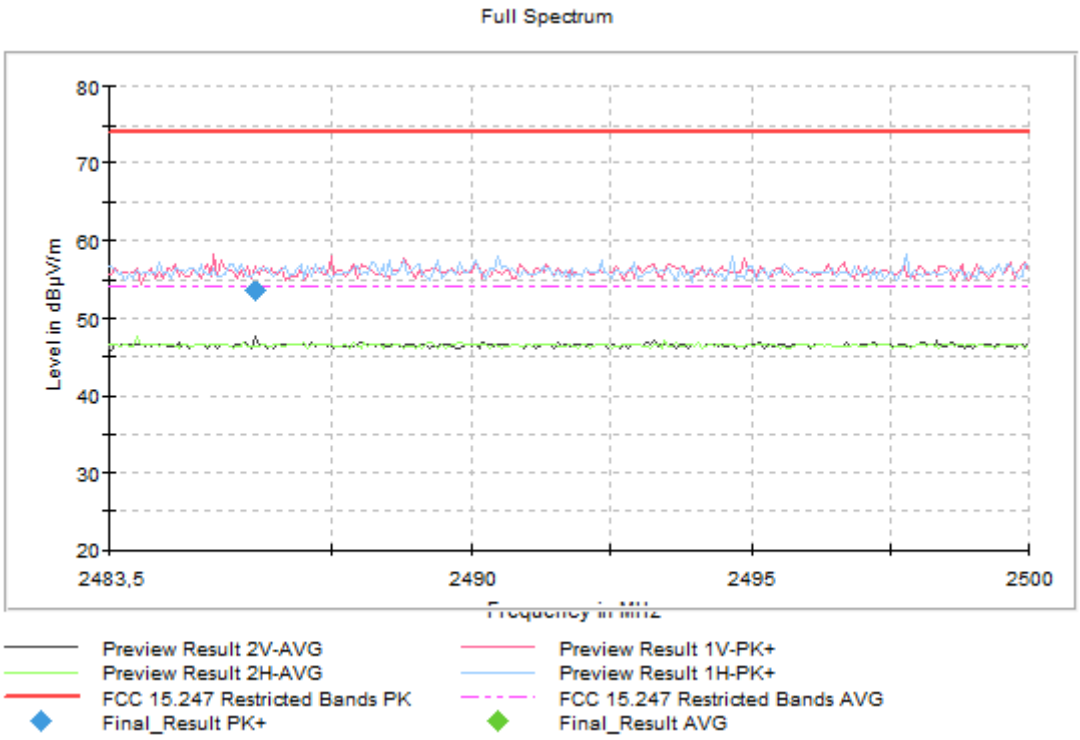


FREQUENCY RANGE 2.4835 – 2.5 GHz:

- Low Channel:



- Middle Channel:



- High Channel: