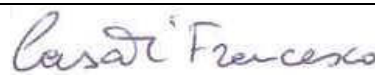


RF TEST REPORT

Test Report No:	25-4791433404-2-1-0-RAD-A
UL Project No:	4791433404
Date of issue:	2025-12-16
Total number of pages:	99
Applicant:	Finder S.p.A. con unico socio Via Drubiaglio, 14 10040 Almese (TO) – Italy
Contact's person:	Rocco Didio (r.didio@findernet.com)
Testing Laboratory:	UL International Italia S.r.l. Via delle Industrie, 6 (Sede A) 20061 Carugate (MI) – Italy
Testing location:	UL International Italia S.r.l. Via delle Industrie, 6 20061 Carugate (MI) – Italy
Test specification:	
Regulations:	FCC/ISED
Standards:	FCC Parts 15.207 & 15.209(a) & 15.247 RSS-247 Issue 3:2023 RSS-Gen Issue 5:2021
Non-standard test method:	N/A
Scope of testing:	Wireless - New testing
TRF No.:	TRF_Accredia_FCC/ISED-FT_rev 0
Test Report Form(s) Originator:	UL International Italia S.r.l.
Master TRF	2017-07
Compiled by: (name, function, signature)	Andrea Giovanni Galbiati <i>Laboratory Engineer</i> 
Approved by: (name, function, signature)	Francesco Casati <i>Operations Leader</i> 
General disclaimer: The test results presented in this test report relate only to the object tested, not selected by UL International Italia S.r.l.. This report shall not be reproduced, except in full, without the written approval of the issuing Testing Laboratory. This document contains data (of information) using color and if printed, should be printed in color to retain legibility and the information represented by the color.	
Declaration of responsibility: Data provided by the customer are clearly identified with (*). UL International Italia S.r.l. cannot be considered responsible for this information, for any other document sent by the Applicant/Manufacturer and for any difference between the software version present in the tested sample and that present in the object intended for final sale. In some cases, the software in the tested sample is in a version dedicated exclusively to the test, and therefore does not represent the software installed in the final version of the product.	

Test Item Description:	Annual astro time switch with Bluetooth
Trade Mark: (*)	Finder 
Manufacturer: (*)	Finder S.p.A. con unico socio Via Drubiaglio, 14 10040 Almese (TO) – Italy
Model Name or Numer / HVIN: (*)	12B282300000
PMN: (*)	No information available
FCC ID: (*)	2A97G-12001
ISED Canada Certification number: (*)	No information available
Ratings: (*)	IN: 110-230 V AC/DC (2.8 VA/0.9 W) OUT: 16 A, 250 Vac (2 x CO contacts)
Testing:	
Date of receipt of test item:	2025-02-24
UL Sample Tag No.:	7479954 7479102
Status of sample upon receipt:	☒ New and operational ☐ Reconditioned ☐ Damaged
Date(s) of performance of tests:	2025-02-24 to 2025-03-27
Name and address of factory(ies): (*)	Finder S.p.A. con unico socio Via Drubiaglio, 14 10040 Almese (TO) – Italy
General remarks: A cross ☒ in a rectangular shape means that this option is applied. ☒ Indicates that the listed condition, standard or equipment is applicable for this report. ☐ Indicates that the listed condition, standard or equipment is not applicable for this report. Throughout this report a ☐ comma / ☒ point is used as decimal separator. Where not otherwise specified or communicated in writing, statements of conformity (e.g. Pass/Fail) are established according to the following decision rule: considering that the applied test standards take measurement uncertainty into account, acceptance limit equals the tolerance limit (simple acceptance). This leads to a maximum 50% of false accept or false reject when the measured value equals the tolerance limit. See ILAC-G8:09/2019 for further details.	

General product information: (*)

Configurable Time switch with 2 output relays. Multifunction.

Document history

Test Report No.	Reason for change	Date of issue
25-4791433404-2-1-0-RAD-A	Original release	2025-12-16

NOTE: New test report issue cancels and replaces the previous one.

Laboratory Accreditation

FCC Accredited Test Firm

Accreditation	MRA	Designation Number	Expiration Date
Ministero dello Sviluppo Economico- Direzione Generale Pianificazione e Gestione dello Spettro Radioelettrico <u>Scope:</u> - Unintentional Radiators - FCC Part 15 Subpart B - Industrial, Scientific, and Medical Equipment - FCC Part 18 - Intentional Radiators - FCC Part 15 Subpart C	US-EU	IT0010	04-02-2027

ISED Wireless Device Testing Laboratory

Company Number	CAB Identifier	Scope/Recognition Date	Expiration Date
UL INTERNATIONAL ITALIA S.R.L.	IT0008	RSS-GEN (2023-10-06) RSS-247 (2023-10-06)	RECOGNIZED UNTIL: 2027-09-30 ACCREDIA ISO/IEC 17025:2017 Expires: 2025-06-16

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1 Test Item Description

Serial number: (*)	No information available					
Date of production: (*)	No information available					
Ports: (*)	Port name and description		Cable			
			Maximum length(m)	Attached during test	Shielded	
	Mains IN	n.d.	☒	☐		
	Two contact relays floating (CON, NO, NC)	n.d.	☐	☐		
Supplementary information to the ports:	---					
Rated power supply: (*)		Voltage and frequency	Reference poles			
			N	L1	L2	L3
	☒	AC: 110-230 V	☒	☒	☐	☐
	☒	DC: 110-230 V				
Rated power: (*)	1 W (maximum)					
Working frequencies: (*)	2.4 GHz band (BLE) 32.768 kHz, 32 MHz (clock) 64 MHz (max internal frequency)					
Other parameters: (*)	Weight: 0.11 kg					
Firmware/Software version (*)	63					
Hardware version: (*)	1.0					
Dimensions in cm (W x H x D): (*)	3.5 x 8.88 x 6.08					

Number	Operating modes			
1	Continuous Transmission on Bottom Channel, Max Power (frequency = 2402 MHz) Data rate: 1 Mbps			
2	Continuous Transmission on Advertising Channel, Max Power (frequency = 2426 MHz) Data rate: 1 Mbps			
3	Continuous Transmission on Middle Channel, Max Power (frequency = 2440 MHz) Data rate: 1 Mbps			
4	Continuous Transmission on Top Channel, Max Power (frequency = 2480 MHz) Data rate: 1 Mbps			
Supplemental information to the operating mode:		For radiated tests only Pre-scan in the X,Y and Z axes of orientation, the worst case of orientation was recorded in the test report.		
		Setup: 		
Auxiliary equipment (AuxEq): <i>Peripheral equipment that is part of the system under test</i>		Description	Manufacturer	Type
		---	---	---
Associated equipment (AE): <i>Equipment that is not part of the system under test but needed to exercise and/or monitor the EUT</i>		Description	Manufacturer	Type
		---	---	---
Documents as provided by the applicant: (*)		Description	File name	Issue date
		---	---	---
Modifications to the test item during testing:		None		

Copy of marking plate: (*)

NOT AVAILABLE

1.1 Additional Information of EUT Radio Function(s) (*)

Technology Tested:	RF 2.4 GHz (custom module)		
Type of Radio Device:	☐ Receiver	☐ Transmitter	☒ Transceiver
Power Supply Requirement(s):	Nominal	120 V; 60 Hz	
Tested Data rate:	1 Mbps		
Nominal Channel Bandwidth:	1 MHz		
Channel Spacing	2 MHz		
Duty Cycle	99.6 %		
Modulation	GFSK		
Software	proprietary Finder – ver. 63		
Antenna Type	PCB trace		
Antenna Details:	Integral antenna		
Declared Antenna Gain:	-0.82 dBi		
Transmit Frequency Range:	2402 MHz to 2480 MHz		
Transmit Channels Tested:	Channel ID	Channel Number	Frequency (MHz)
	Bottom	37	2402
	Advertising	38	2426
	Middle	17	2440
	Top	39	2480

2 Verdict summary section

FCC Reference (47CFR)	ISED Canada Reference	Measurement	Verdict	Note
Part 15.35(c)	N/A	Transmitter Duty Cycle	P	1
N/A	RSS-Gen 6.7	Transmitter 99% Occupied Bandwidth	P	
Part 15.247(a)(2)	RSS-Gen 6.7 / RSS-247 5.2(a)	Transmitter Minimum 6 dB Bandwidth	P	
Part 15.247(b)(3)	RSS-Gen 6.12 / RSS-247 5.4(d)	Transmitter Maximum Peak Output Power	P	
Part 15.247(e)	RSS-247 5.2(b)	Transmitter Power Spectral Density	P	
Part 15.247(d)	RSS-Gen 6.13 / RSS-247 5.5	Transmitter Conducted Emissions	N/A	2
Part 15.247(d) & 15.209(a)	RSS-Gen 6.13 / RSS-247 5.5	Transmitter Band Edge Conducted Emissions	N/A	2
Part 15.247(d) & 15.209(a)	RSS-Gen 6.13 / RSS-247 5.5	Transmitter Radiated Emissions	P	
Part 15.247(d) & 15.209(a)	RSS-Gen 6.13 / RSS-247 5.5	Transmitter Band Edge Radiated Emissions	P	
Part 15.207	RSS-Gen 8.8	Transmitter AC Conducted Emissions	P	
Test method: ANSI C63.10-2020 for FCC and ANSI C63.10-2020+Cor.1-2023+C63.10a-2024 + Errata to C63.10a-2024 for ISED. Test guide: KDB 558074 D01 15.247 Meas Guidance v05r02, April 2, 2019				
Notes: - Parameter measured to apply a correction on other measurements. - Radiated method applied.				

Possible test case verdicts:

Test case not performed: N/P

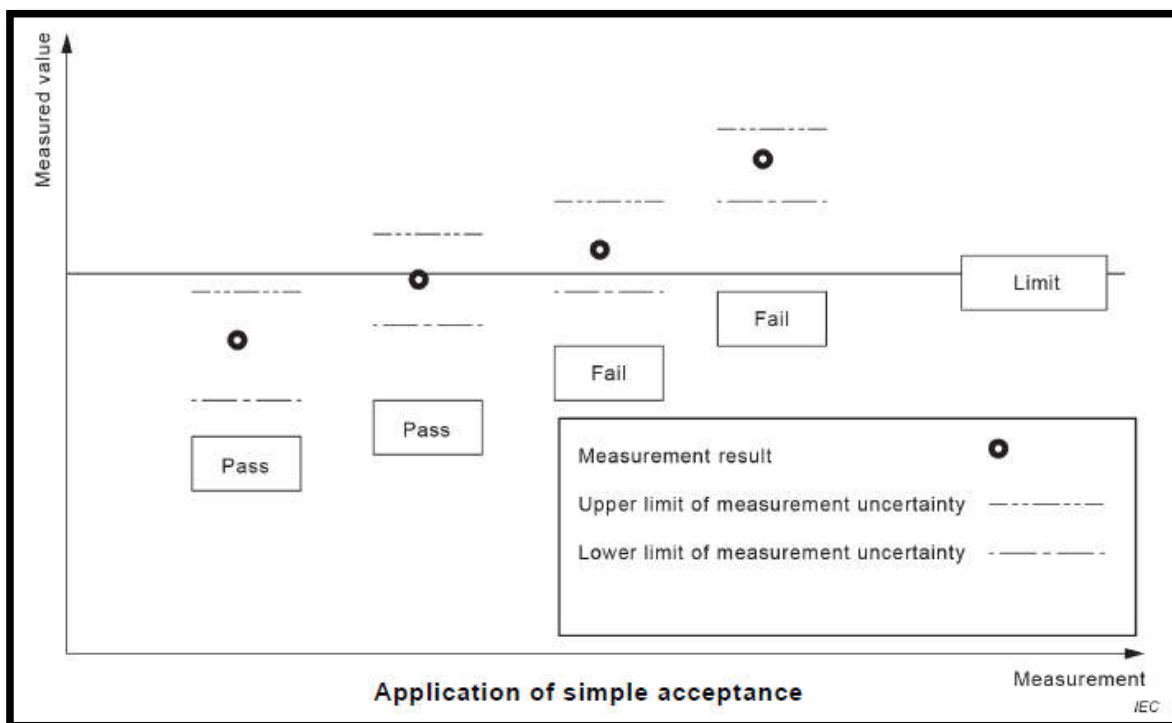
Test case does not apply to test object: N/A

Test object does meet requirement: Pass (P)

Test object does not meet requirement: Fail (F)

3 Conformity decision rule

Determining compliance shall be based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.



4 Formulas used

☒ Disturbance voltage

$$V \text{ (dB}\mu\text{V)} = V \text{ receiver (dB}\mu\text{V)} + \text{Correction (dB)}$$

where:

$$\text{Correction (dB)} = \text{I.L. transducer (dB)} + \text{I.L. cable (dB)}$$

☐ Magnetic field

$$H \text{ (dB}\mu\text{A/m)} = V \text{ receiver (dB}\mu\text{V)} + \text{Correction (dB)}$$

where:

$$\text{Correction (dB)} = \text{Magnetic antenna factor (dB}/\Omega\text{m)} + \text{I.L. cables (dB)}$$

☒ Electric field

$$E \text{ (dB}\mu\text{V/m)} = V \text{ receiver (dB}\mu\text{V)} + \text{Correction (dB)}$$

where:

$$\text{Correction (dB)} = \text{Electric antenna factor (dB/m)} - \text{Gain external preamplifier (dB)} + \text{I.L. external filter (dB)} + \text{I.L. cables (dB)}$$

Note: external preamplifier and external filter are optional and, if used, are indicated in the list of test equipment

☒ Margin

$$\text{Margin (dB)} = \text{Measure} - \text{Limit}$$

☐ Radiated emission limit conversion for a different measuring distance

$$40 \text{ dB/decade (f < 30 MHz); } 20 \text{ dB/decade (f} \geq 30 \text{ MHz)}$$

☐ Correction of radiated field from 5 m to 3 m

$$+8.87 \text{ dB (f < 30 MHz); } +4.44 \text{ dB (f} \geq 30 \text{ MHz)}$$

☒ Linear to logarithmic conversion

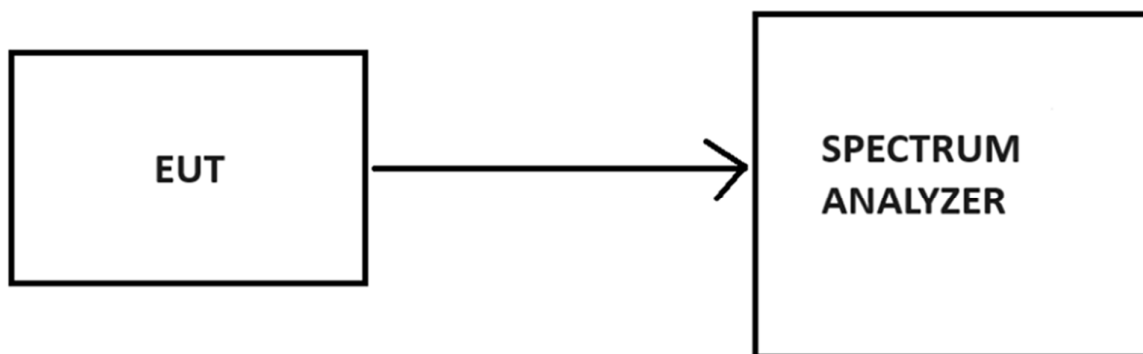
$$\text{Log} = 20 \cdot \log(\text{Lin}) \text{ for voltage and current; } \text{Log} = 10 \cdot \log(\text{Lin}) \text{ for power}$$

☒ Conducted Radio Measurements

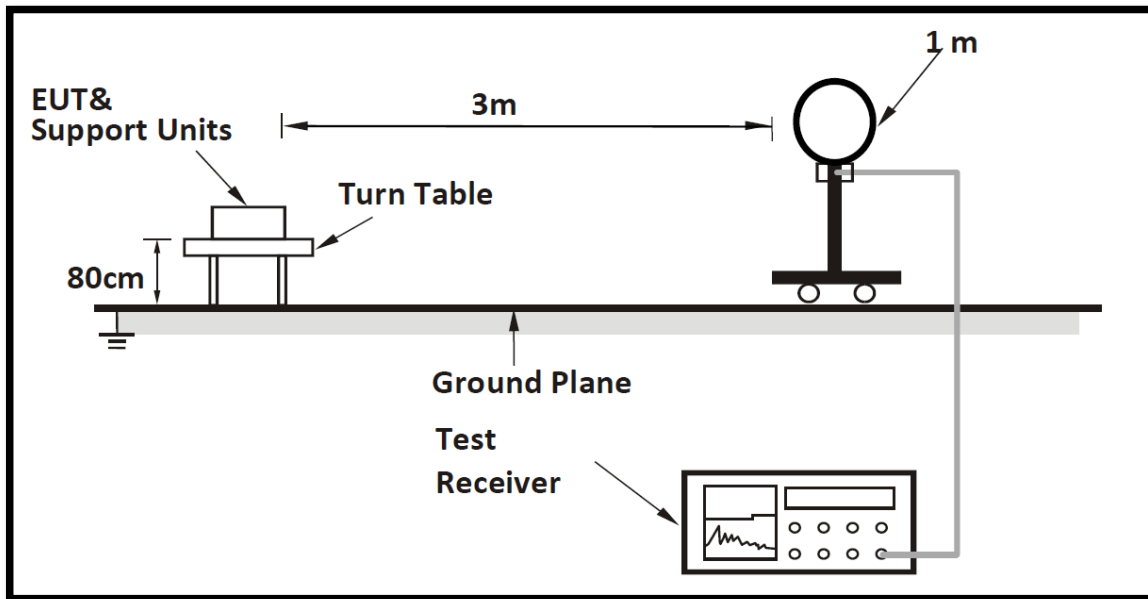
$$P_{\text{out_EUT}} = P_{\text{read_Amplifier}} \text{ (dBm)} + \text{Cable Losses (dB)} + \text{Attenuator (dB)}$$

5 Test Setup Diagrams

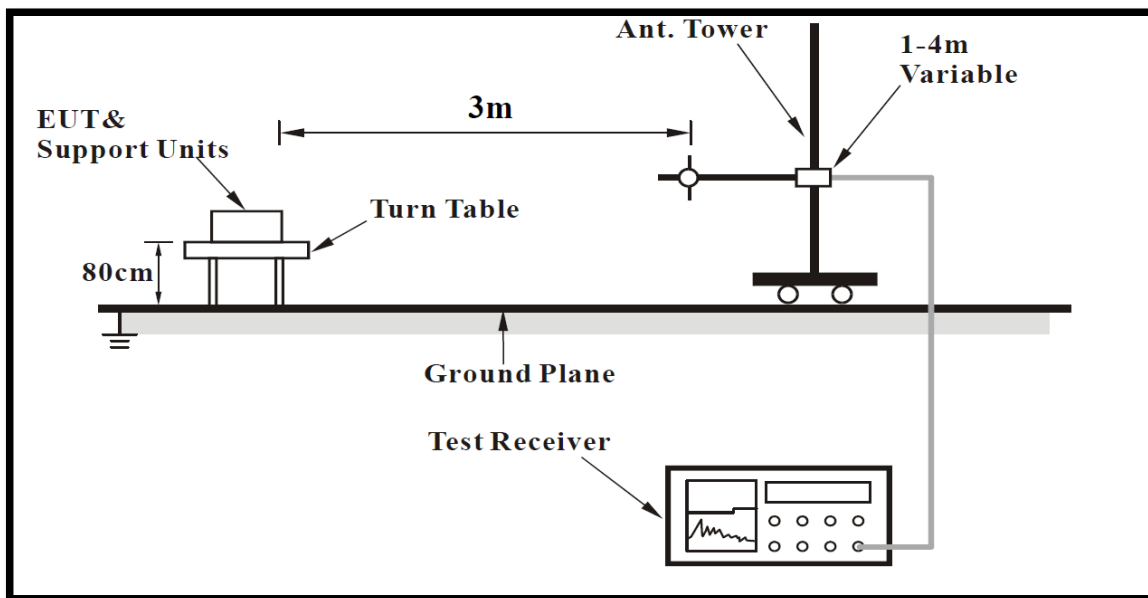
Conducted tests on antenna port:



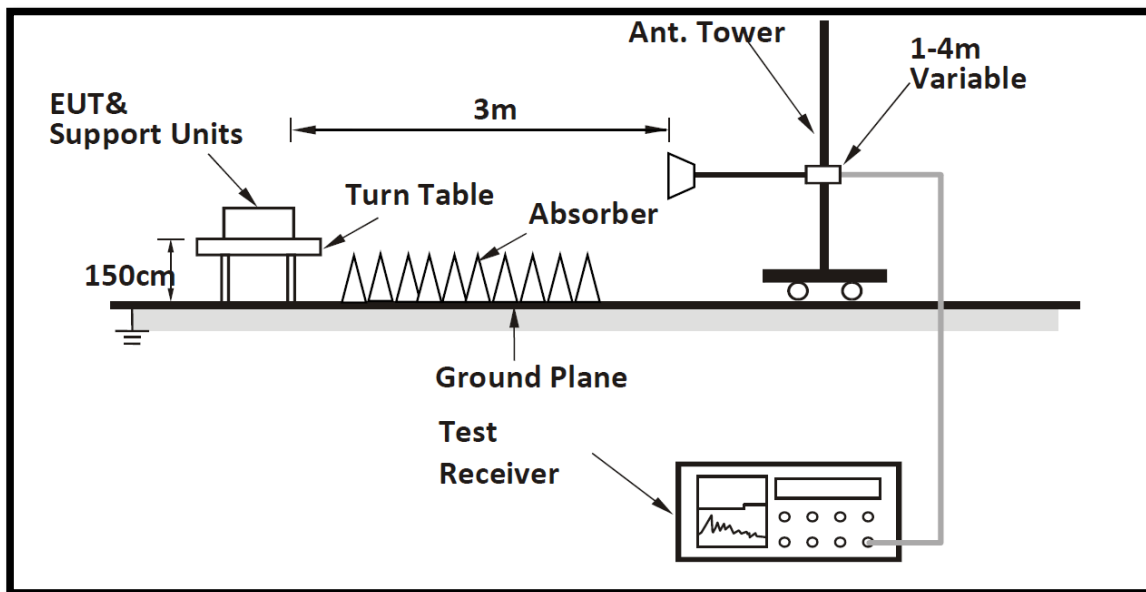
Radiated emission from 9kHz to 30 MHz



Radiated emission from 30 MHz to 1 GHz



Radiated emission from 1 GHz to 26 GHz



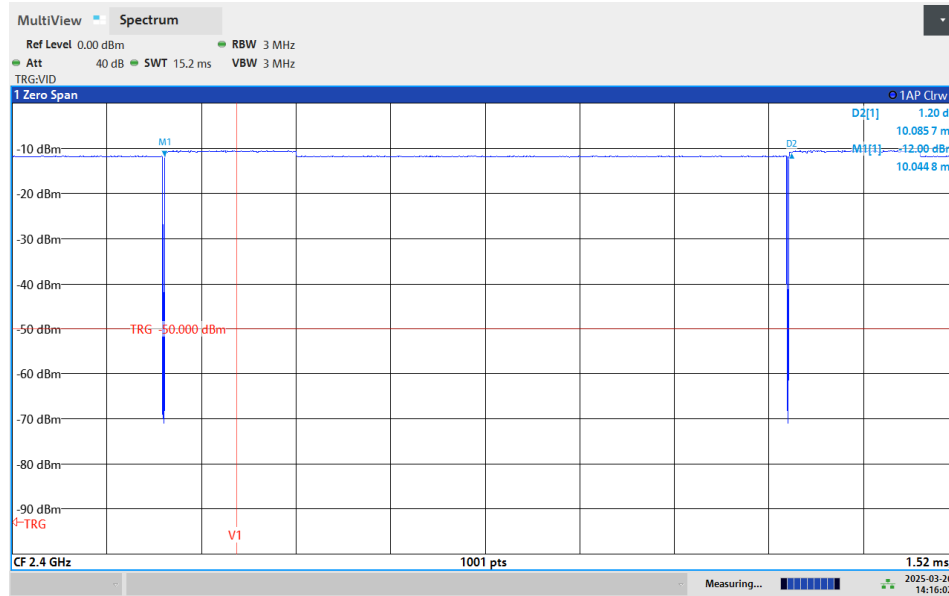
6 Tests

6.1 Transmitter Duty Cycle

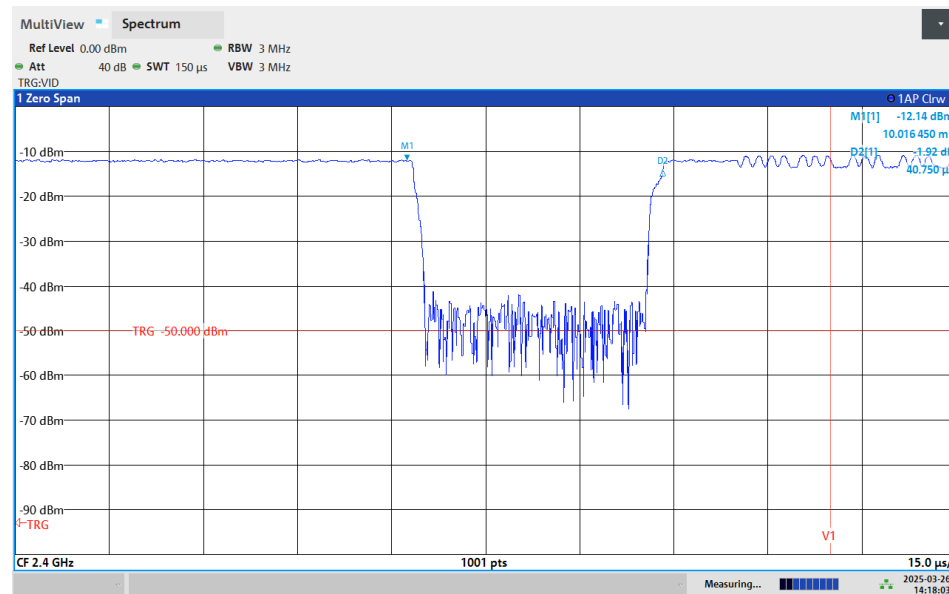
Tested by:	Matteo Borghesi
Test date:	2025-03-26
Test location (stand):	EMC Laboratory
Ambient temperature:	22 °C
Relative humidity:	45 %
Atmospheric pressure:	998 mbar
ISED Reference:	-
FCC Reference:	Part 15.35 (c)
Test Method Used	FCC KDB 558074 Section 6 referencing ANSI C63.10 Section 11.6
Used mains voltage/frequency:	120 V, 60 Hz
Supplementary information:	The transmitter duty cycle was measured using a spectrum/signal analyser in the time domain and calculated by using the following calculation: $DC (\%) = \left(\frac{\sum T_{ON}}{\text{Period or 100 ms whichever is the lesser}} \right) \times 100$ $DC (dB) = 10 \times \log \left(\frac{\text{Period or 100 ms whichever is the lesser}}{\sum T_{ON}} \right)$

Results:

Operating mode: 1



02:16:03 PM 03/26/2025



02:18:04 PM 03/26/2025

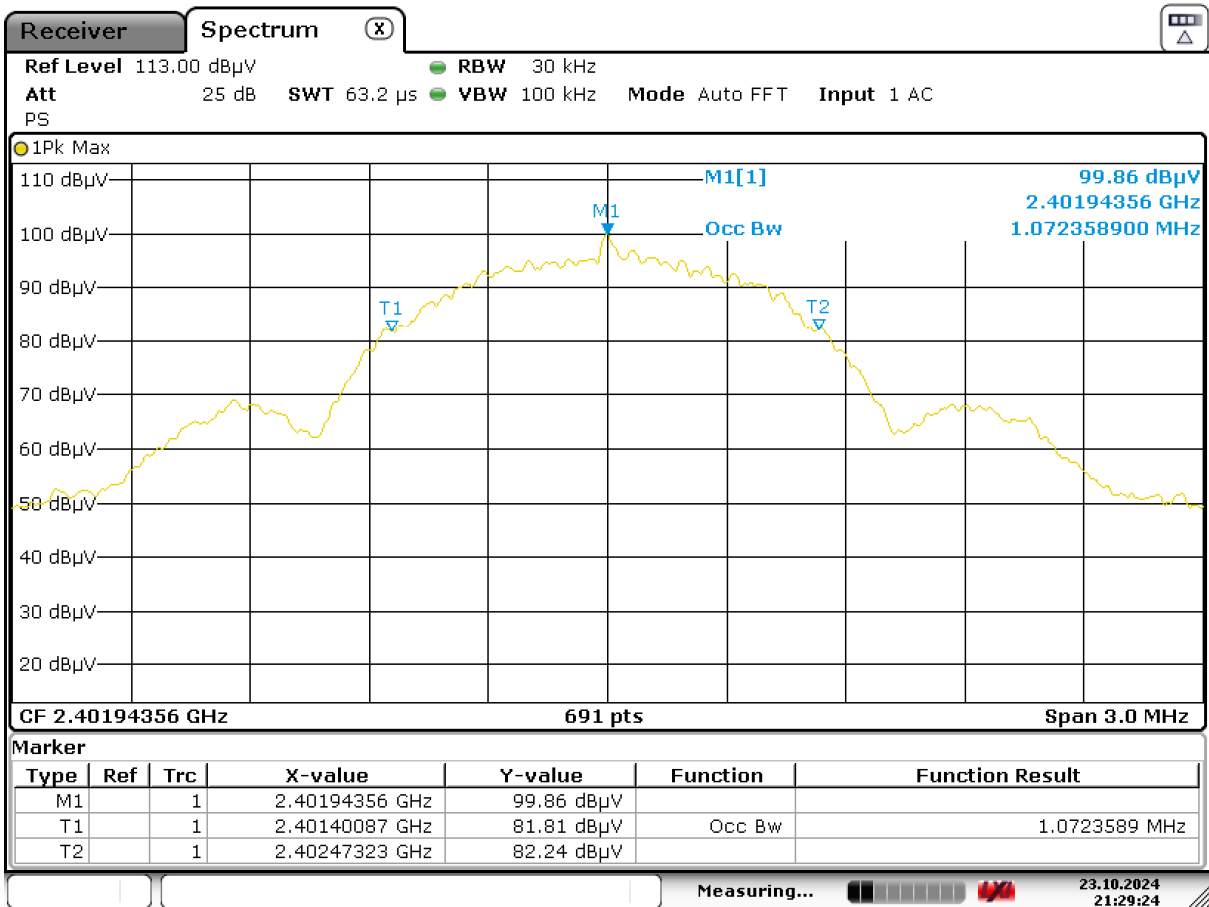
Pulse Duration (ms)	Period (ms)	Duty Cycle (%)	DC Correction Factor (dB)
10.045	10.0857	99.6	0

6.2 Transmitter 99% Occupied Bandwidth

Tested by:	Matteo Borghesi
Test date:	2025-02-26
Test location (stand):	EMC Laboratory
Ambient temperature:	23 °C
Relative humidity:	43 %
Atmospheric pressure:	994 mbar
FCC Reference:	-
ISED Reference:	RSS-Gen 6.7
Test Method Used	RSS-Gen 6.7 and Notes below
Used mains voltage/frequency:	120 V, 60 Hz
Supplementary information:	The 99% emission bandwidth was measured using the signal analyser occupied bandwidth function. The resolution bandwidth was set in the range of 1% to 5% of the occupied bandwidth and the video bandwidth set to 3 times the resolution bandwidth. The span was set to capture all products of the modulation process including emission skirts. The attenuation loss of the connected RF cable is 0.61 dB and that of the 150mm IPEX to SMA female RF connector is 1.01 dB. The total attenuation loss of 1.62 dB has no influence on the results of the bandwidth measurements.

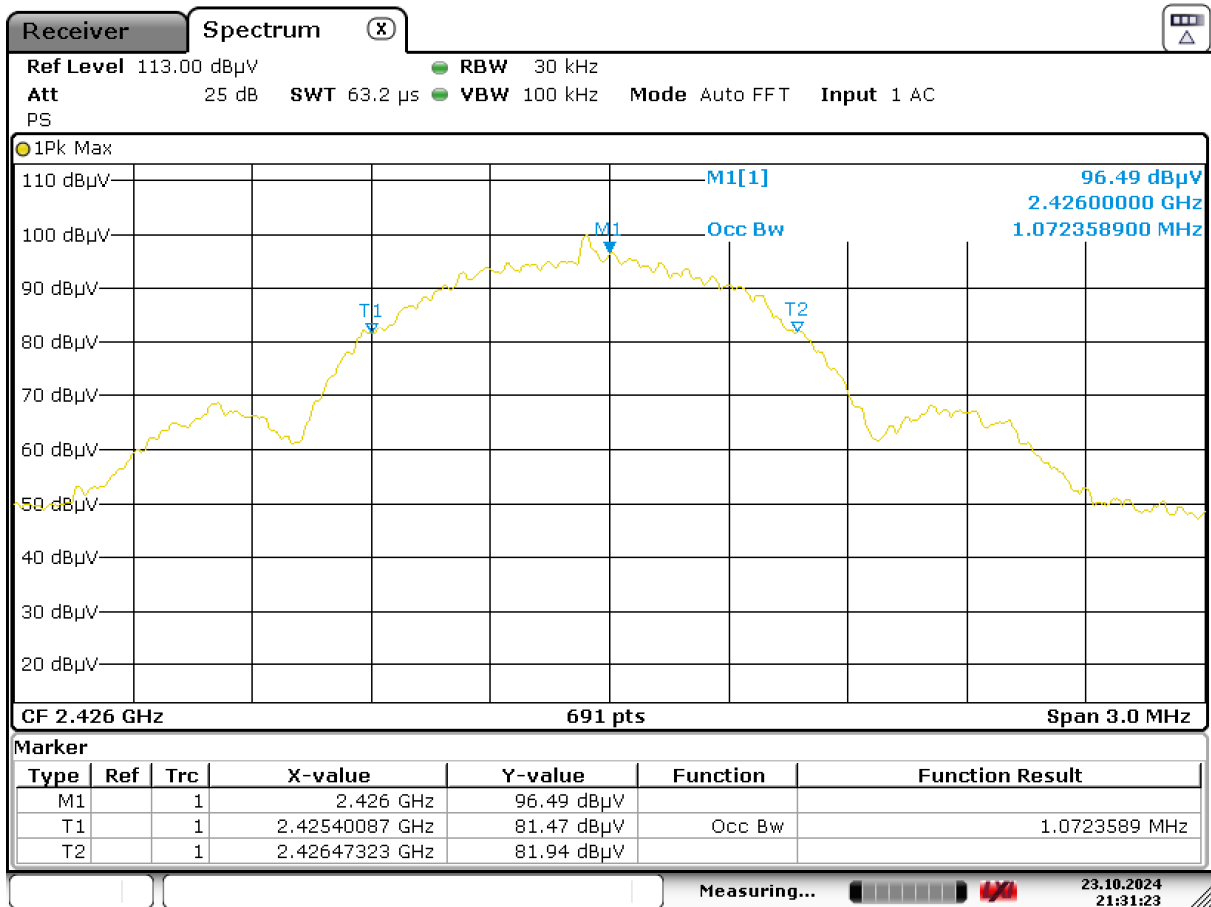
Results:

Operating mode: 1



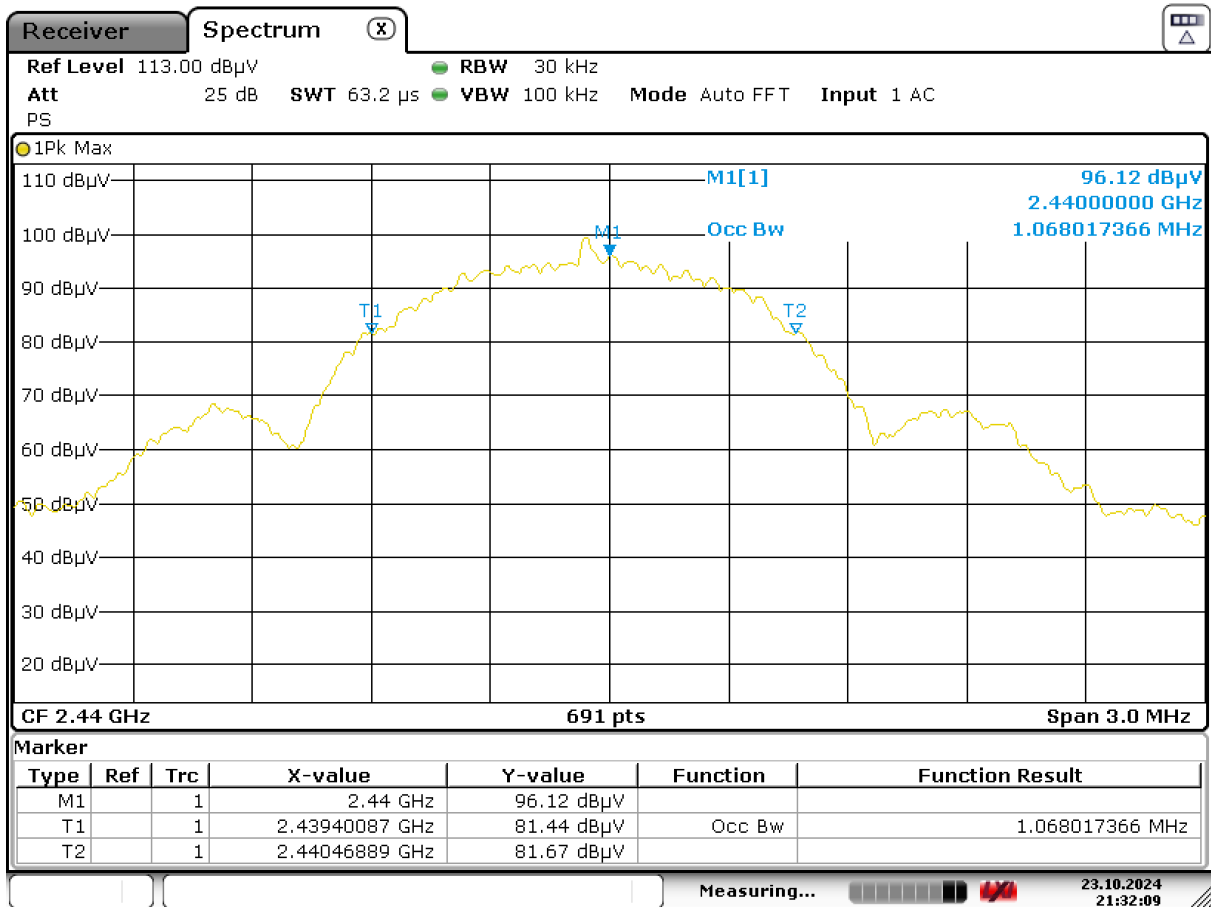
Date: 23.OCT.2024 21:29:24

Operating mode: 2



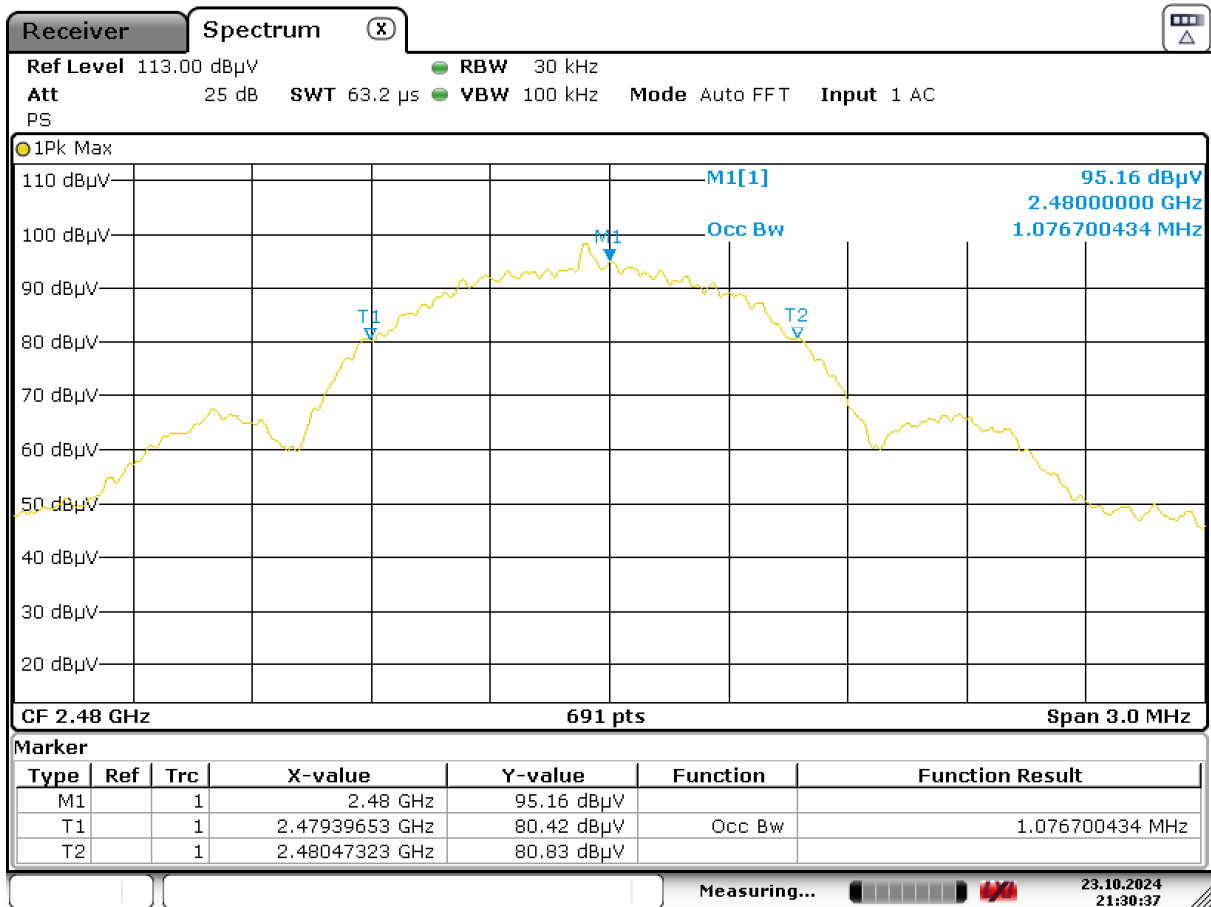
Date: 23.OCT.2024 21:31:22

Operating mode: 3



Date: 23.OCT.2024 21:32:09

Operating mode: 4



Date: 23.OCT.2024 21:30:37

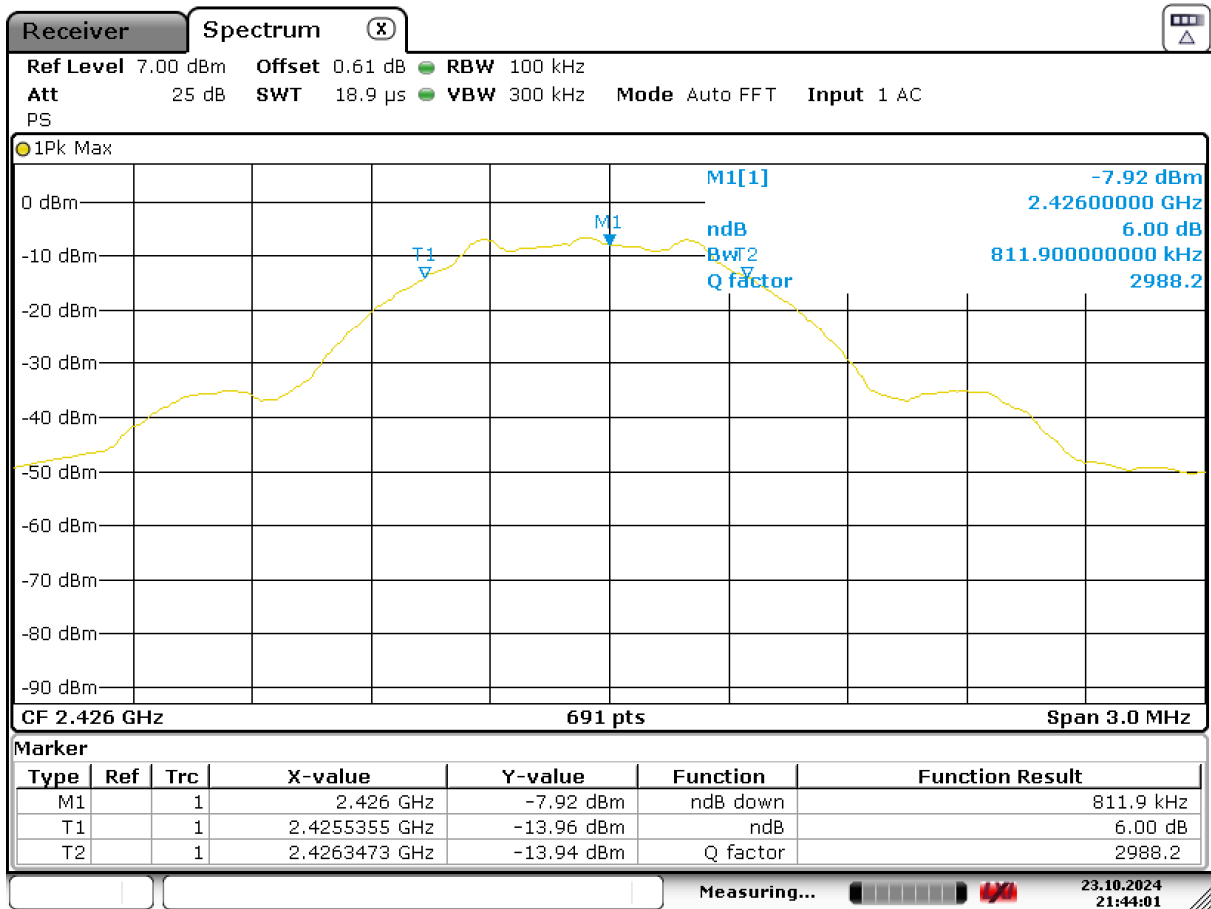
Channel	99% Occupied Bandwidth (kHz)
Bottom 2402	1072.358
Middle 2426	1072.359
Middle 2440	1068.017
Top 2480	1076.700

6.3 Transmitter Minimum 6 dB Bandwidth

Tested by:	Matteo Borghesi
Test date:	2025-02-26
Test location (stand):	EMC Laboratory
Ambient temperature:	23 °C
Relative humidity:	43 %
Atmospheric pressure:	994 mbar
FCC Reference:	Part 15.247(a)(2)
ISED Canada Reference:	RSS-Gen 6.7 / RSS-247 5.2(a)
Test Method Used	FCC KDB 558074 Section 8.2 referencing ANSI C63.10 Section 11.8.2
Used mains voltage/frequency:	120 V, 60 Hz
Supplementary information:	The attenuation loss of the connected RF cable is 0.61 dB and that of the 150mm IPEX to SMA female RF connector is 1.01 dB. The total attenuation loss of 1.62 dB has no influence on the results of the bandwidth measurements.

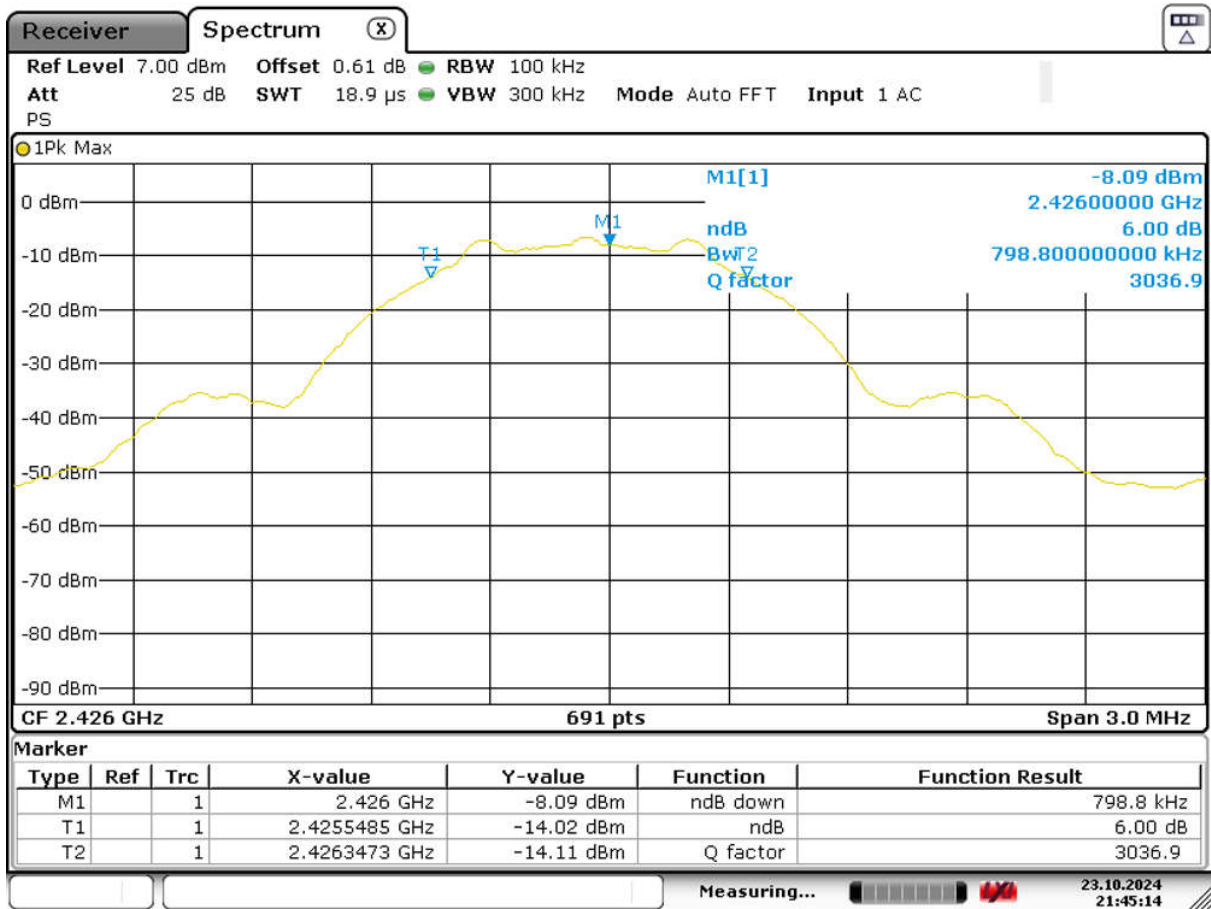
Results:

Operating mode: 1



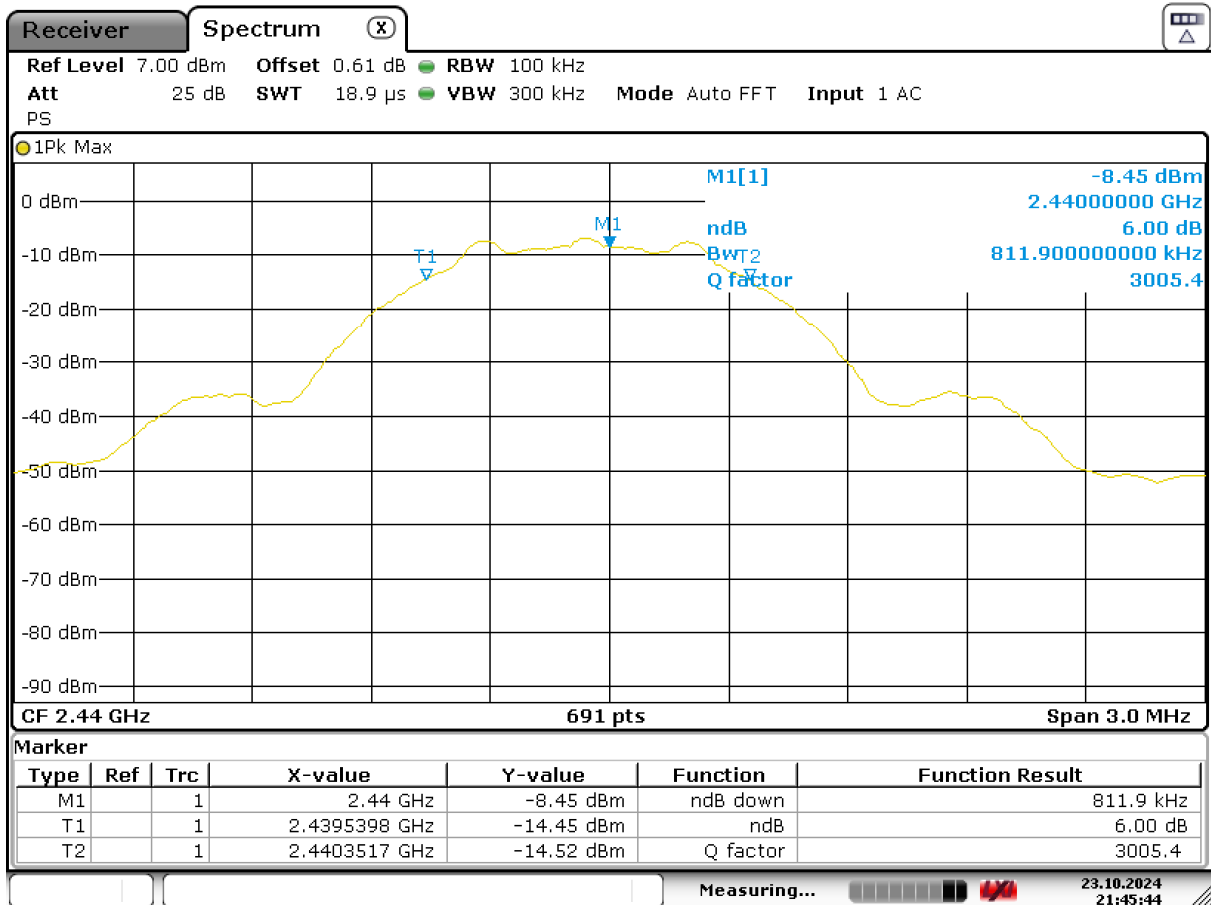
Date: 23.OCT.2024 21:44:01

Operating mode: 2



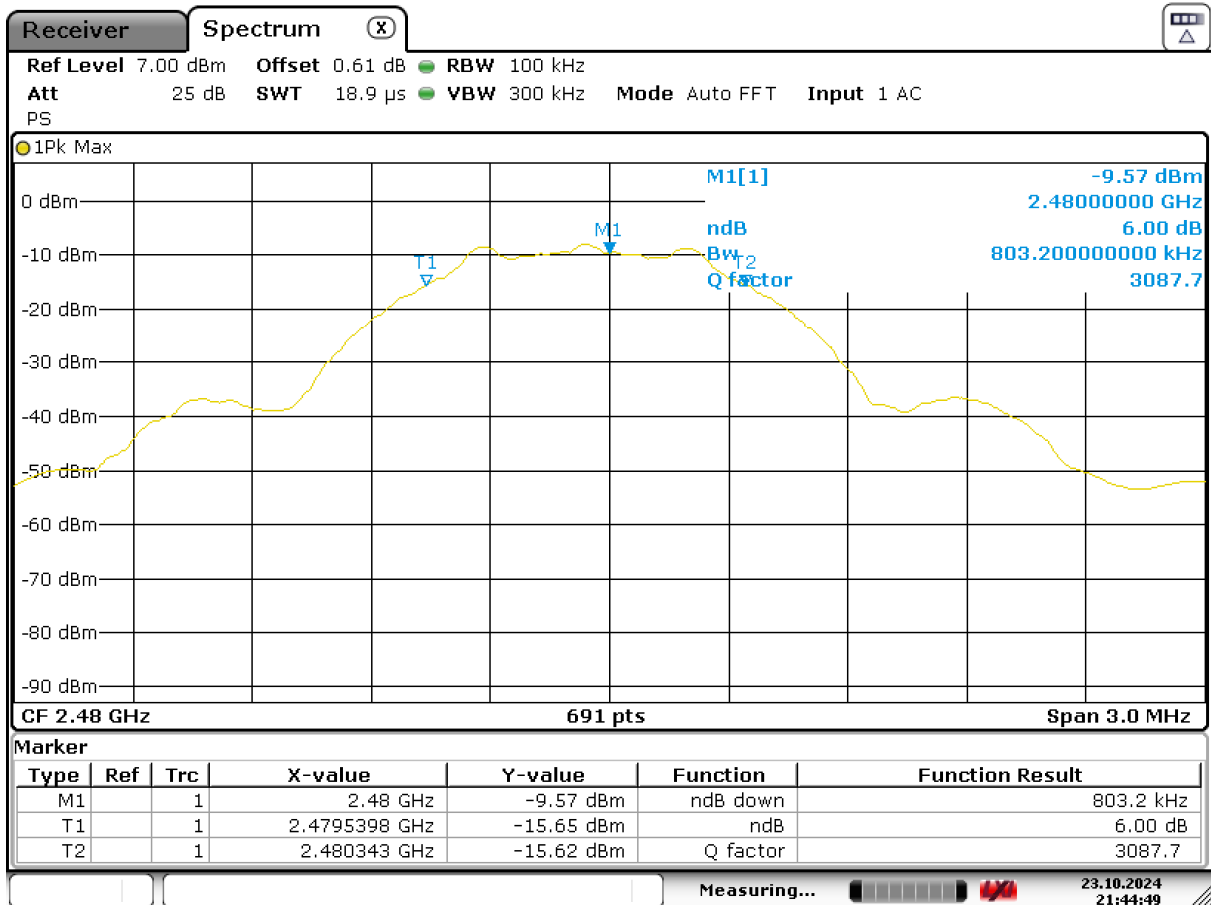
Date: 23.OCT.2024 21:45:14

Operating mode: 3



Date: 23.OCT.2024 21:45:44

Operating mode: 4



Date: 23.OCT.2024 21:44:49

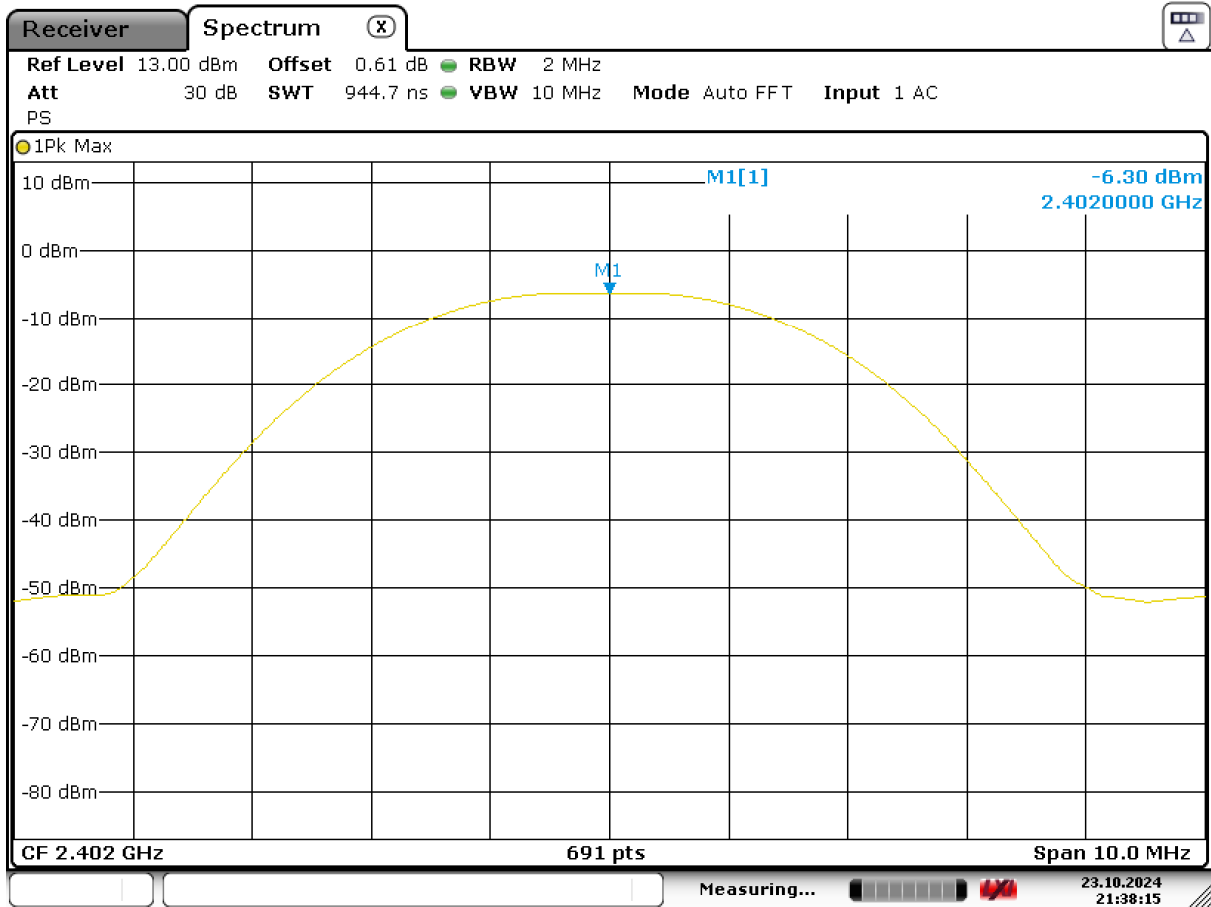
Channel	6 dB Bandwidth (kHz)	Limit (kHz)	Result
Bottom 2402	811.9	≥ 500	Pass
Middle 2426	798.8	≥ 500	Pass
Middle 2440	811.9	≥ 500	Pass
Top 2480	803.2	≥ 500	Pass

6.4 Transmitter Maximum Peak Output Power

Tested by:	Matteo Borghesi
Test date:	2025-02-26
Test location (stand):	EMC Laboratory
Ambient temperature:	23 °C
Relative humidity:	43 %
Atmospheric pressure:	994 mbar
FCC Reference:	Part 15.247(b)(3)
ISED Canada Reference:	RSS-Gen 6.12 / RSS-247 5.4(d)
Test Method Used	FCC KDB 558074 Section 8.3.1.1 referencing ANSI C63.10 Section 11.9.1.1 and Notes below
Used mains voltage/frequency:	120 V, 60 Hz
Supplementary information:	- Instrument's band/channel power measurement function with the band limits set equal to the DTS bandwidth edges was used. - The conducted power was added to the declared antenna gain to obtain the EIRP. 0.61 dB offset applied for RF cable insertion loss correction. Another 1.01 dB of attenuation was added to the calculation as insertion loss of the RF connector 150mm IPEX to SMA female. The total attenuation is 1.62 dB

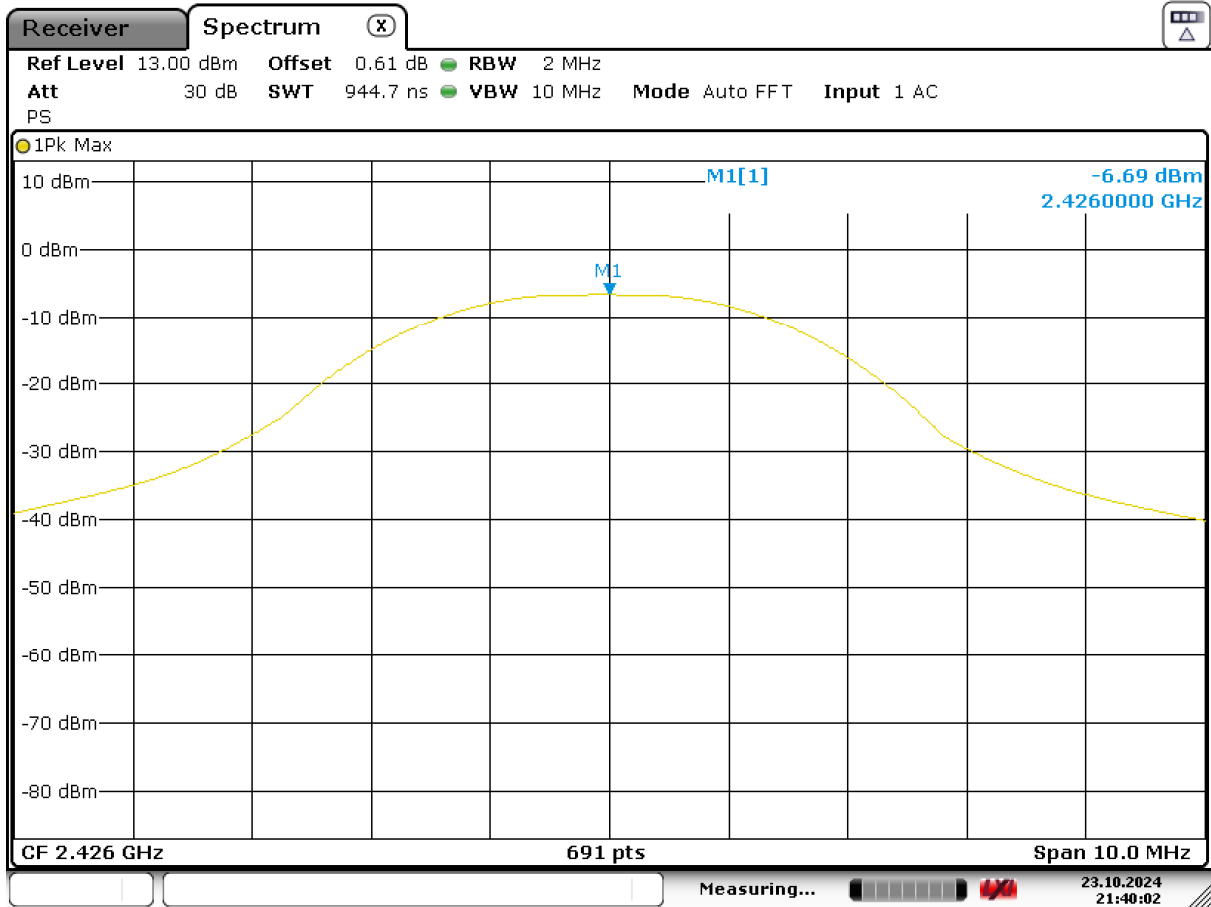
Results:

Operating mode: 1



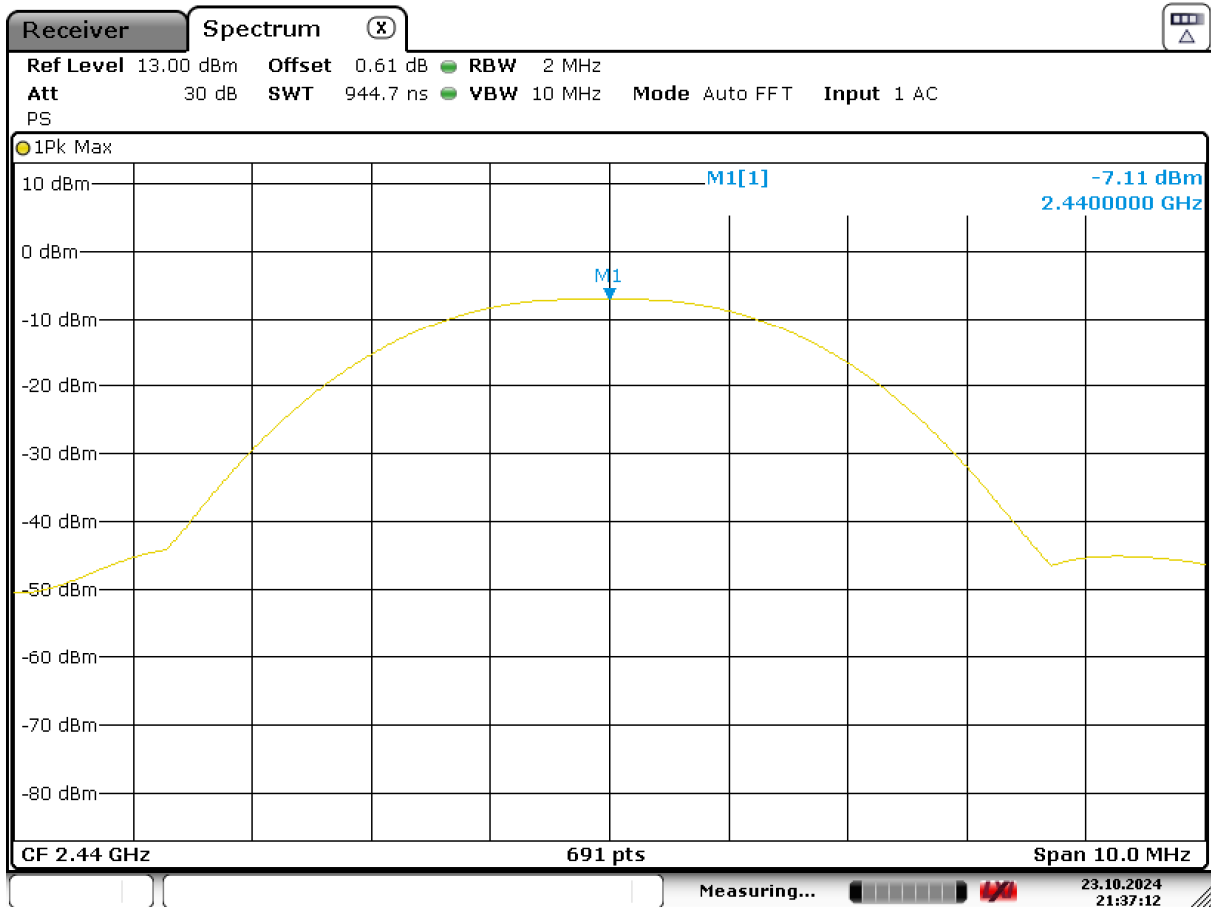
Date: 23.OCT.2024 21:38:14

Operating mode: 2



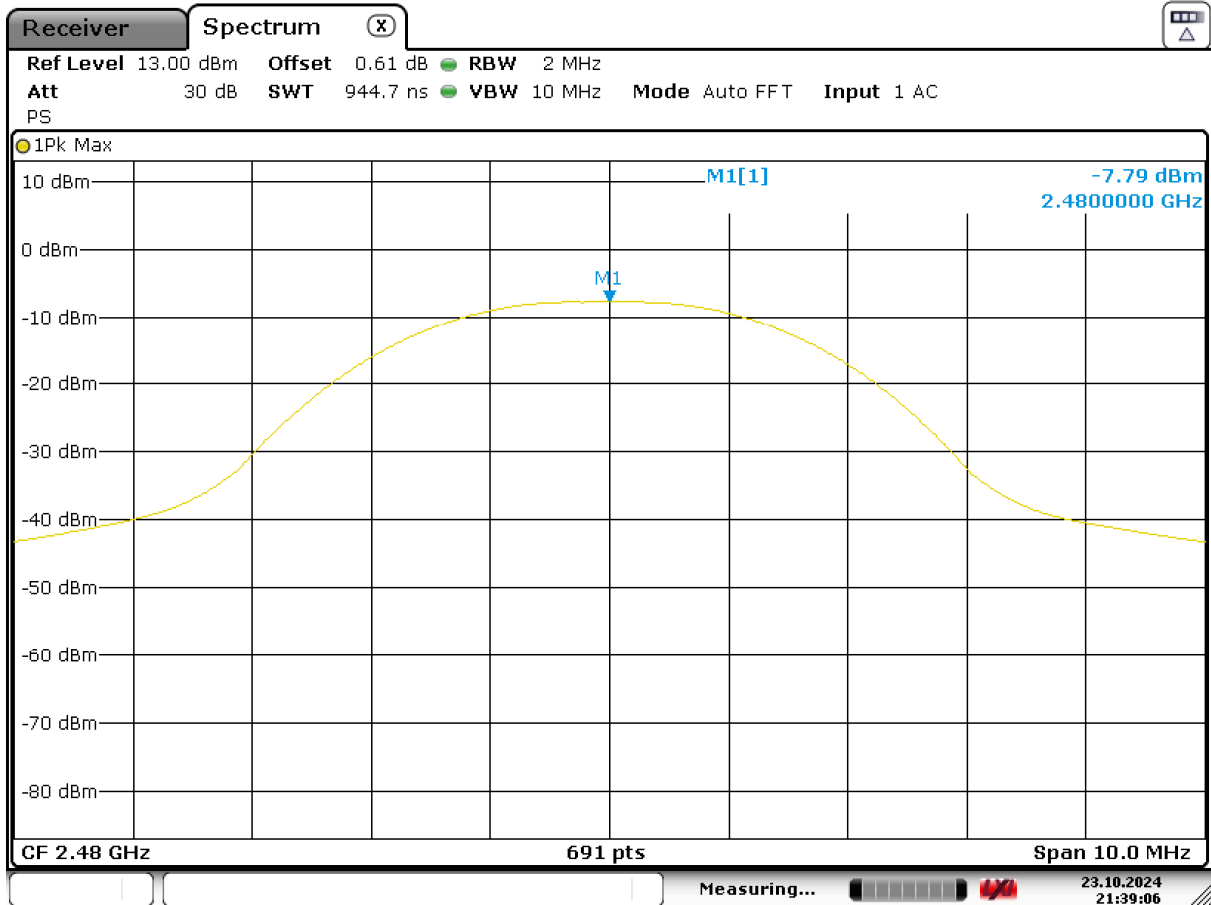
Date: 23.OCT.2024 21:40:02

Operating mode: 3



Date: 23.OCT.2024 21:37:12

Operating mode: 4



Date: 23.OCT.2024 21:39:06

Channel	Conducted Peak Power (dBm)	Conducted Peak Power Limit (dBm)	Margin (dB)	Result
Bottom 2402	-5.29	30.0	-35.29	Pass
Middle 2426	-5.68	30.0	-35.68	Pass
Middle 2440	-6.10	30.0	-36.10	Pass
Top 2480	-6.78	30.0	-36.78	Pass

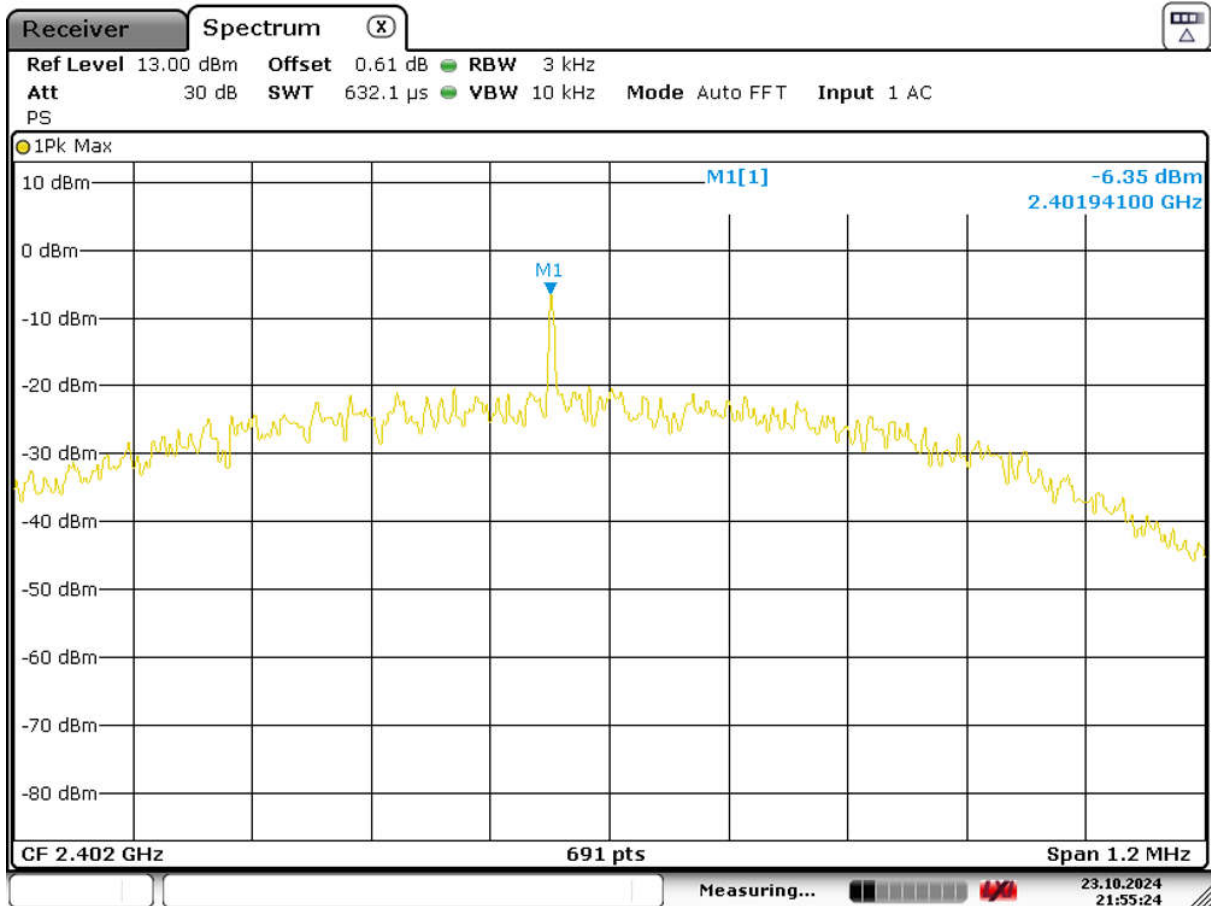
Channel	Conducted Peak Power (dBm)	Declared Antenna Gain (dBi)	EIRP (dBm)	De Facto EIRP Limit (dBm)	Margin (dB)	Result
Bottom 2402	-5.29	-0.82	-6.11	36.0	-42.11	Pass
Middle 2426	-5.68	-0.82	-6.50	36.0	-42.50	Pass
Middle 2440	-6.10	-0.82	-6.92	36.0	-42.92	Pass
Top 2480	-6.78	-0.82	-7.60	36.0	-43.60	Pass

6.5 Transmitter Power Spectral Density

Tested by:	Matteo Borghesi
Test date:	2025-02-26
Test location (stand):	EMC Laboratory
Ambient temperature:	23 °C
Relative humidity:	43 %
Atmospheric pressure:	994 mbar
FCC Reference:	Part 15.247(e)
ISED Canada Reference:	RSS-247 5.2(b)
Test Method Used	FCC KDB 558074 Section 8.4 referencing ANSI C63.10 Section 11.10.2
Used mains voltage/frequency:	120 V, 60 Hz
Supplementary information:	Max Peak value was identified by Peak Search automatic function. 0.61 dB offset applied for RF cable insertion loss correction. Another 1.01 dB of attenuation was added to the calculation as insertion loss of the RF connector 150mm IPEX to SMA female. The total attenuation is 1.62 dB

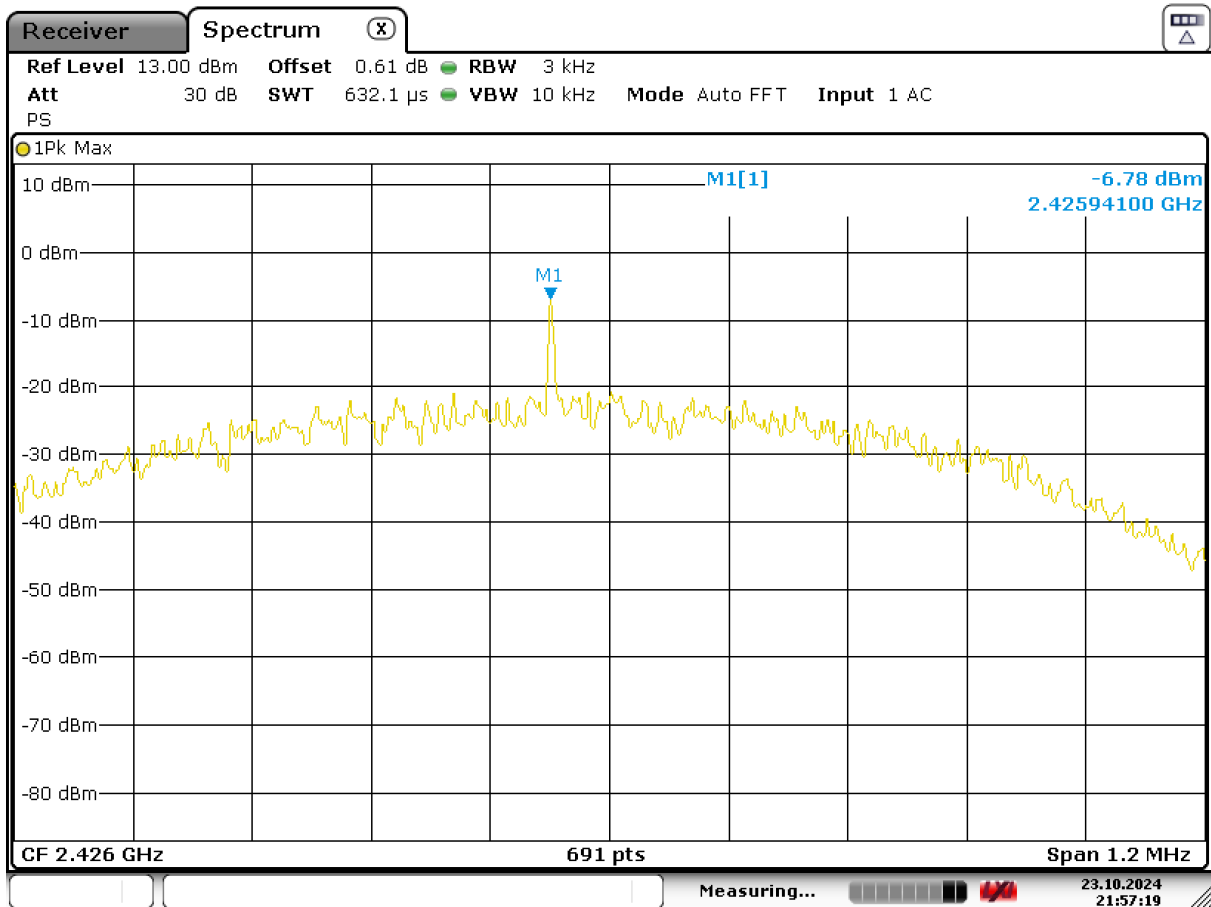
Results:

Operating mode: 1



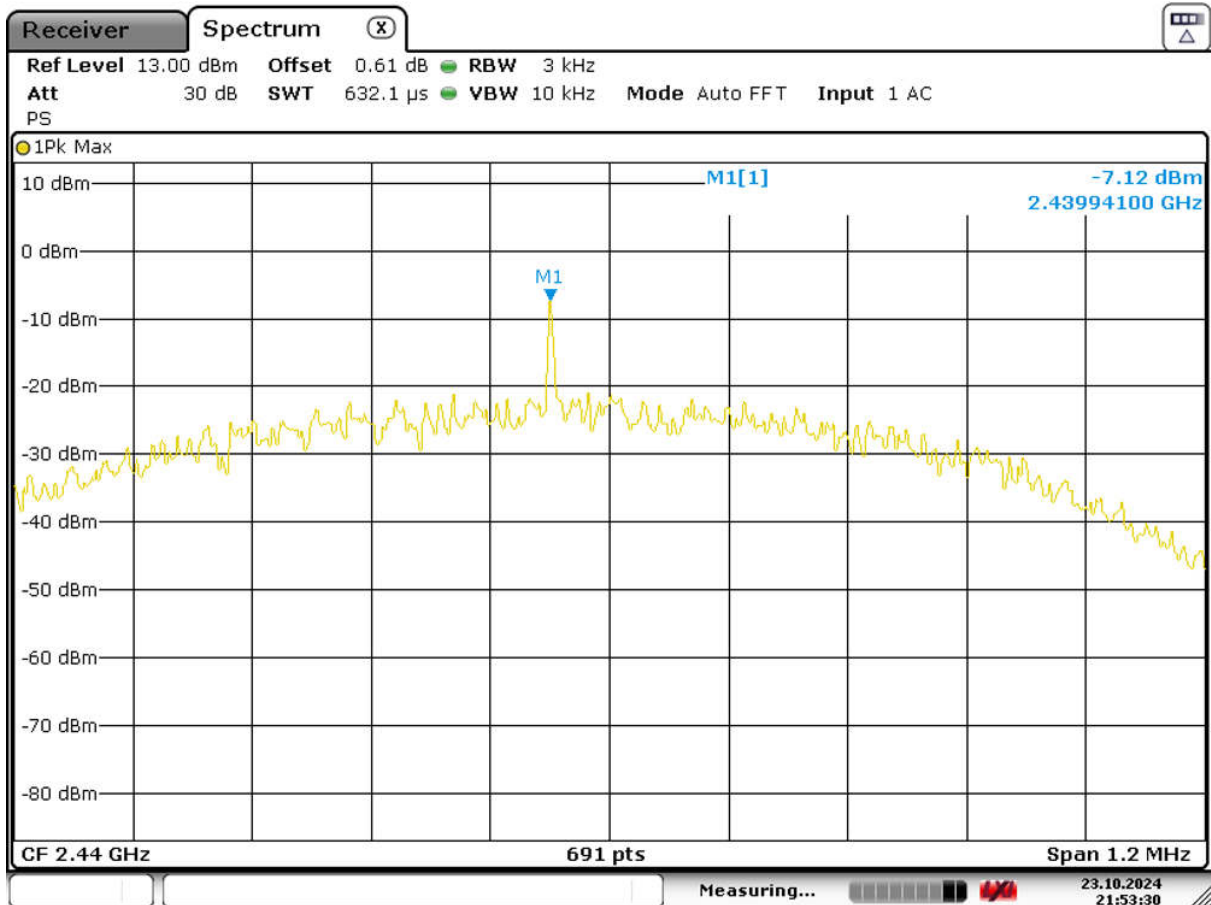
Date: 23.OCT.2024 21:55:24

Operating mode: 2



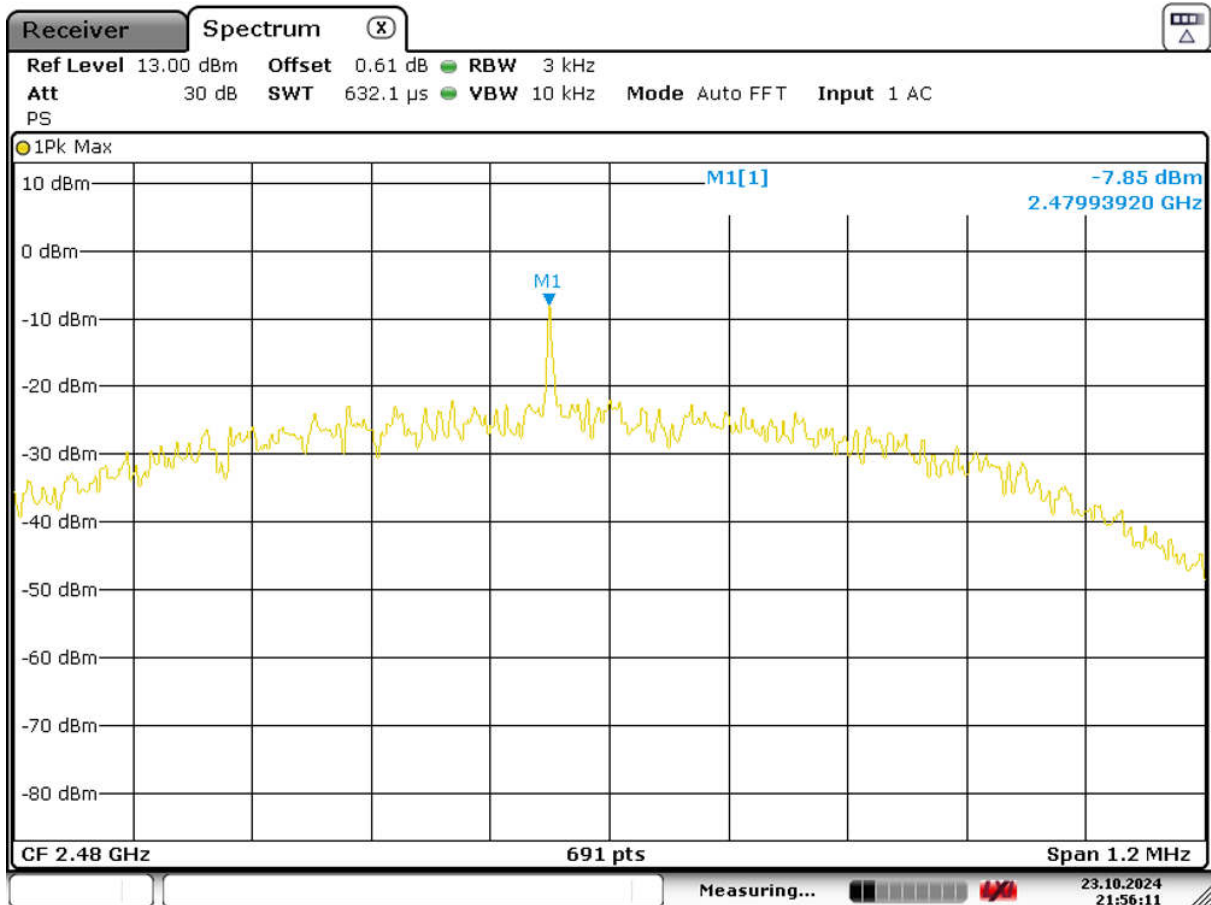
Date: 23.OCT.2024 21:57:19

Operating mode: 3



Date: 23.OCT.2024 21:53:30

Operating mode: 4



Date: 23.OCT.2024 21:56:11

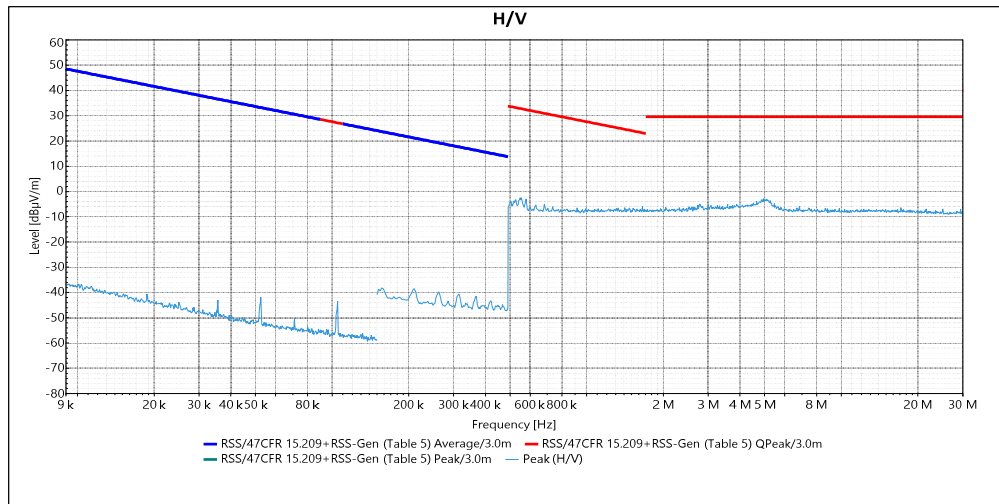
Channel	Max Peak (dBm / 3 kHz)	Limit (dBm / 3 kHz)	Margin (dB)	Result
Bottom 2402	-5.34	8.0	-13.34	Pass
Middle 2426	-5.77	8.0	-13.77	Pass
Middle 2440	-6.11	8.0	-14.11	Pass
Top 2480	-6.84	8.0	-14.84	Pass

6.6 Transmitter Radiated Emission < 30 MHz

Tested by:	Matteo Borghesi
Test date:	2025-03-07
Test location (stand):	Area 8: SAC 3-1.2 (RF emission)
Ambient temperature:	23 °C
Relative humidity:	41 %
Atmospheric pressure:	1001 mbar
FCC Reference:	Parts 15.247(d) & 15.209(a)
ISED Canada Reference:	RSS-Gen 6.13 & 8.9 / RSS-247 5.5
Test Method Used	ANSI C63.10 Sections 6.3, 6.4 and 6.5
Frequency Range	9 kHz to 30 MHz
Used mains voltage/frequency:	120 V, 60 Hz
Supplementary information:	Measurements below 30 MHz were performed in a semi-anechoic chamber at 3 metres. ANSI C63.10 clause 5.2 states an alternative test site that can demonstrate equivalence to an open area test site may be used for measurements below 30 MHz. Therefore, measurements were performed in a semi-anechoic chamber. The correlation data between semi-anechoic chamber and an open field test site is available upon request The limits in CFR 47, Part 15, Subpart C, paragraph 15.209 (a). are identical to those in RSS-Gen Section 8.9, Table 6, since the measurements are performed in terms of magnetic field strength and converted to electric field strength levels (as reported in the table) using a free space impedance of 377Ω. For example, the measurement frequency X kHz resulted in a level of Y dBμV/m which is equivalent to $Y - 51.5 = Z$ dBμA/m, which has the same margin, W dB, to the corresponding RSS-Gen Table 6 limit as it has to the 15.209(a) limit

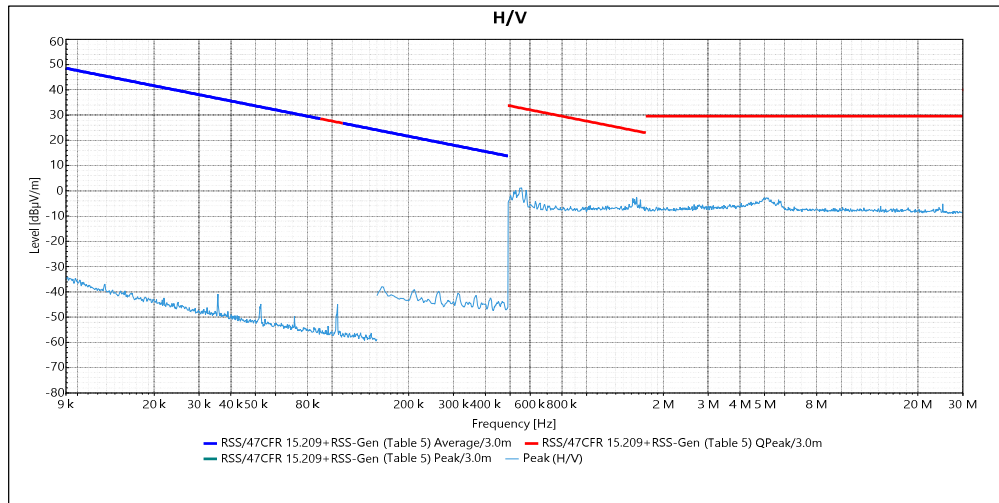
Results:

Operating mode	1
Axis	X
Verdict.....	Pass
Instrument settings	Start Frequency: 9 kHz; Stop Frequency: 150 kHz; Step: 50 Hz; Sweep Time: 500 ms/Step; RF Attenuation: Auto; RBW: 200 Hz; VBW: Auto; Preamplifier: OFF; Preselector: ON
Instrument settings	Start Frequency: 150 kHz; Stop Frequency: 30 MHz; Step: 2.25 kHz; Sweep Time: 500 ms/Step; RF Attenuation: Auto; RBW: 9 kHz; VBW: Auto; Preamplifier: OFF; Preselector: ON



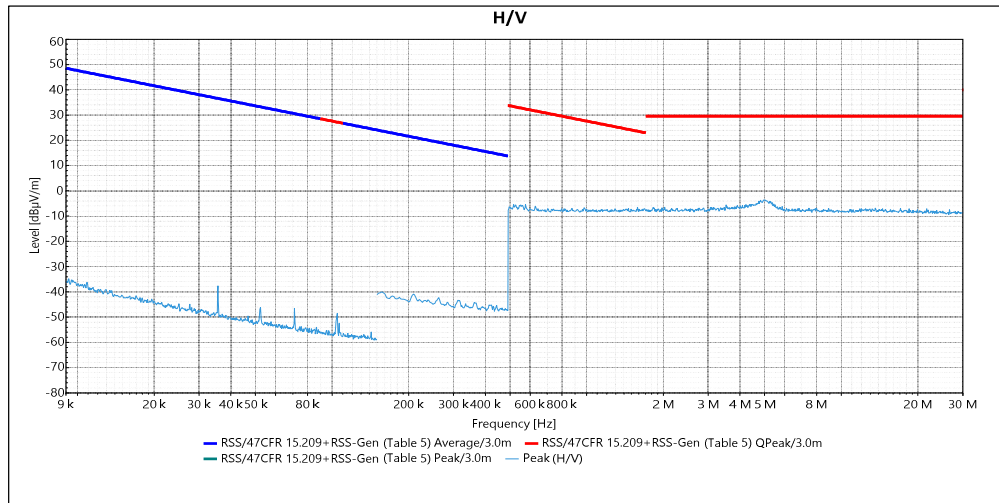
- ☒ The emissions are below the measurement system noise floor or 20 dB or more below the limit
- ☐ Final measurements for emissions that are above -20 dB from the applicable limits are shown below (at least 6 worst frequencies):

Operating mode	1
Used mains voltage/frequency ...	Y
Verdict	Pass
Instrument settings	Start Frequency: 9 kHz; Stop Frequency: 150 kHz; Step: 50 Hz; Sweep Time: 500 ms/Step; RF Attenuation: Auto; RBW: 200 Hz; VBW: Auto; Preamplifier: OFF; Preselector: ON
Instrument settings	Start Frequency: 150 kHz; Stop Frequency: 30 MHz; Step: 2.25 kHz; Sweep Time: 500 ms/Step; RF Attenuation: Auto; RBW: 9 kHz; VBW: Auto; Preamplifier: OFF; Preselector: ON



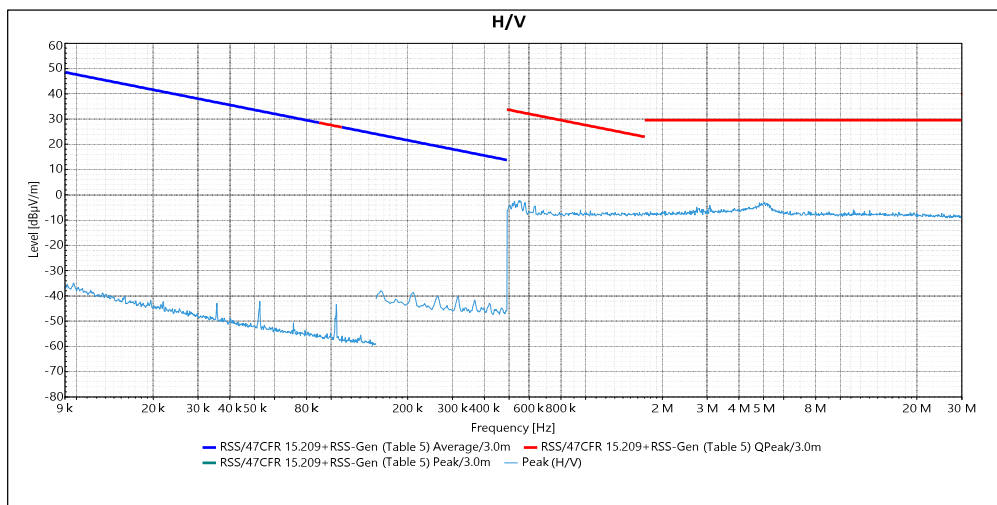
- ☒ The emissions are below the measurement system noise floor or 20 dB or more below the limit
- ☐ Final measurements for emissions that are above -20 dB from the applicable limits are shown below (at least 6 worst frequencies):

Operating mode	1
Used mains voltage/frequency ...	Z
Verdict	Pass
Instrument settings	Start Frequency: 9 kHz; Stop Frequency: 150 kHz; Step: 50 Hz; Sweep Time: 500 ms/Step; RF Attenuation: Auto; RBW: 200 Hz; VBW: Auto; Preamplifier: OFF; Preselector: ON
Instrument settings	Start Frequency: 150 kHz; Stop Frequency: 30 MHz; Step: 2.25 kHz; Sweep Time: 500 ms/Step; RF Attenuation: Auto; RBW: 9 kHz; VBW: Auto; Preamplifier: OFF; Preselector: ON



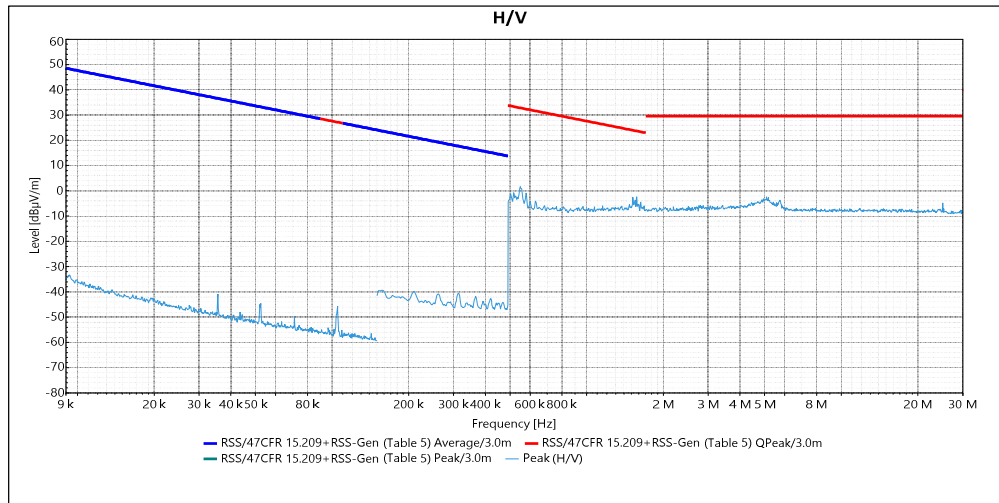
- ☒ The emissions are below the measurement system noise floor or 20 dB or more below the limit
- ☐ Final measurements for emissions that are above -20 dB from the applicable limits are shown below (at least 6 worst frequencies):

Operating mode	2
Used mains voltage/frequency ...	X
Verdict	Pass
Instrument settings	Start Frequency: 9 kHz; Stop Frequency: 150 kHz; Step: 50 Hz; Sweep Time: 500 ms/Step; RF Attenuation: Auto; RBW: 200 Hz; VBW: Auto; Preamplifier: OFF; Preselector: ON
Instrument settings	Start Frequency: 150 kHz; Stop Frequency: 30 MHz; Step: 2.25 kHz; Sweep Time: 500 ms/Step; RF Attenuation: Auto; RBW: 9 kHz; VBW: Auto; Preamplifier: OFF; Preselector: ON



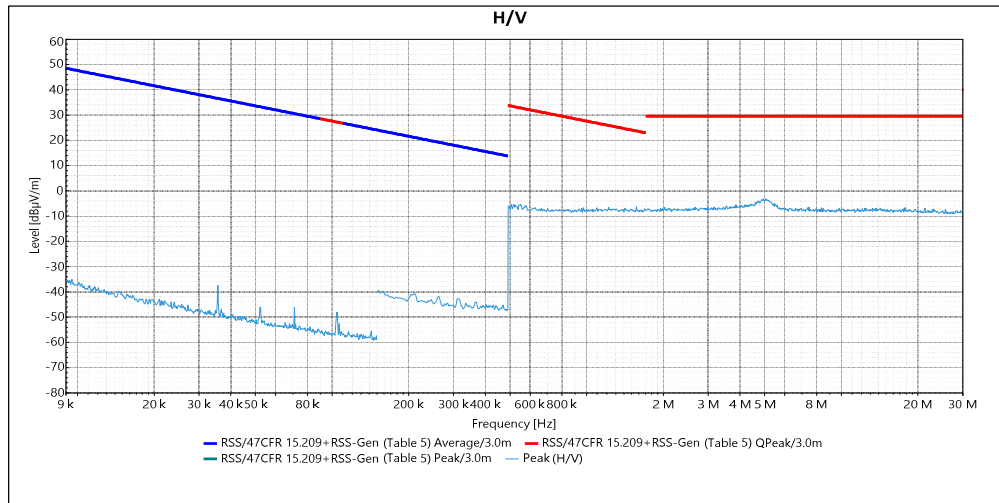
- ☒ The emissions are below the measurement system noise floor or 20 dB or more below the limit
- ☐ Final measurements for emissions that are above -20 dB from the applicable limits are shown below (at least 6 worst frequencies):

Operating mode	2
Used mains voltage/frequency ...	Y
Verdict	Pass
Instrument settings	Start Frequency: 9 kHz; Stop Frequency: 150 kHz; Step: 50 Hz; Sweep Time: 500 ms/Step; RF Attenuation: Auto; RBW: 200 Hz; VBW: Auto; Preamplifier: OFF; Preselector: ON
Instrument settings	Start Frequency: 150 kHz; Stop Frequency: 30 MHz; Step: 2.25 kHz; Sweep Time: 500 ms/Step; RF Attenuation: Auto; RBW: 9 kHz; VBW: Auto; Preamplifier: OFF; Preselector: ON



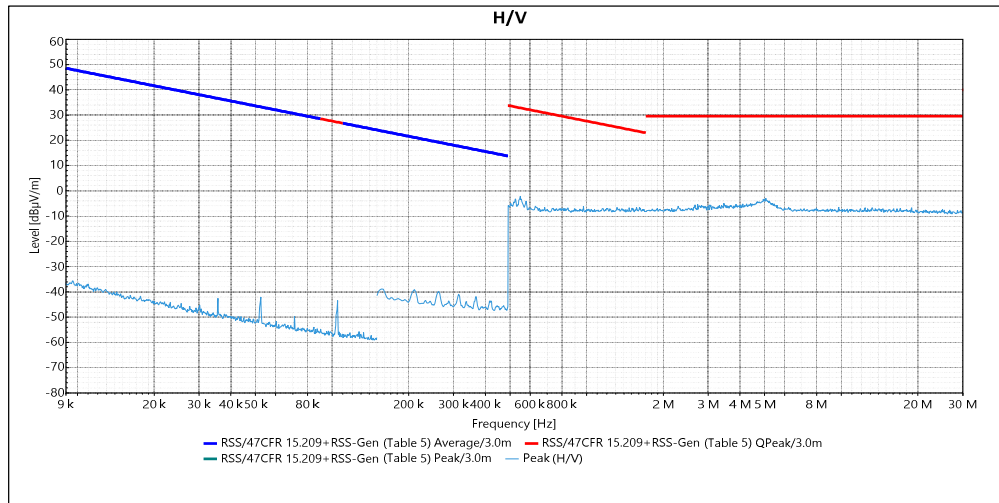
- ☒ The emissions are below the measurement system noise floor or 20 dB or more below the limit
- ☐ Final measurements for emissions that are above -20 dB from the applicable limits are shown below (at least 6 worst frequencies):

Operating mode	2
Used mains voltage/frequency ...	Z
Verdict	Pass
Instrument settings	Start Frequency: 9 kHz; Stop Frequency: 150 kHz; Step: 50 Hz; Sweep Time: 500 ms/Step; RF Attenuation: Auto; RBW: 200 Hz; VBW: Auto; Preamplifier: OFF; Preselector: ON
Instrument settings	Start Frequency: 150 kHz; Stop Frequency: 30 MHz; Step: 2.25 kHz; Sweep Time: 500 ms/Step; RF Attenuation: Auto; RBW: 9 kHz; VBW: Auto; Preamplifier: OFF; Preselector: ON



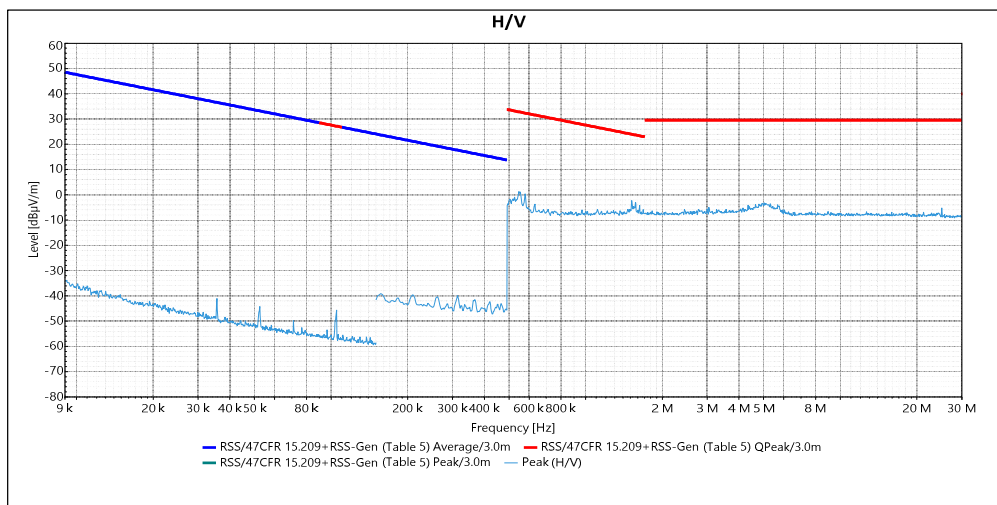
- ☒ The emissions are below the measurement system noise floor or 20 dB or more below the limit
- ☐ Final measurements for emissions that are above -20 dB from the applicable limits are shown below (at least 6 worst frequencies):

Operating mode	3
Used mains voltage/frequency ...	X
Verdict	Pass
Instrument settings	Start Frequency: 9 kHz; Stop Frequency: 150 kHz; Step: 50 Hz; Sweep Time: 500 ms/Step; RF Attenuation: Auto; RBW: 200 Hz; VBW: Auto; Preamplifier: OFF; Preselector: ON
Instrument settings	Start Frequency: 150 kHz; Stop Frequency: 30 MHz; Step: 2.25 kHz; Sweep Time: 500 ms/Step; RF Attenuation: Auto; RBW: 9 kHz; VBW: Auto; Preamplifier: OFF; Preselector: ON



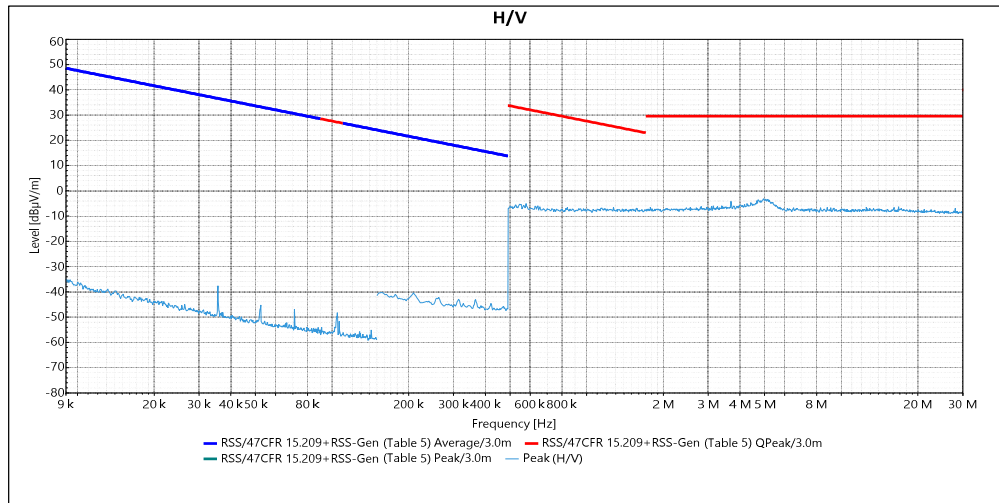
- ☒ The emissions are below the measurement system noise floor or 20 dB or more below the limit
- ☐ Final measurements for emissions that are above -20 dB from the applicable limits are shown below (at least 6 worst frequencies):

Operating mode	3
Used mains voltage/frequency ...	Y
Verdict	Pass
Instrument settings	Start Frequency: 9 kHz; Stop Frequency: 150 kHz; Step: 50 Hz; Sweep Time: 500 ms/Step; RF Attenuation: Auto; RBW: 200 Hz; VBW: Auto; Preamplifier: OFF; Preselector: ON
Instrument settings	Start Frequency: 150 kHz; Stop Frequency: 30 MHz; Step: 2.25 kHz; Sweep Time: 500 ms/Step; RF Attenuation: Auto; RBW: 9 kHz; VBW: Auto; Preamplifier: OFF; Preselector: ON



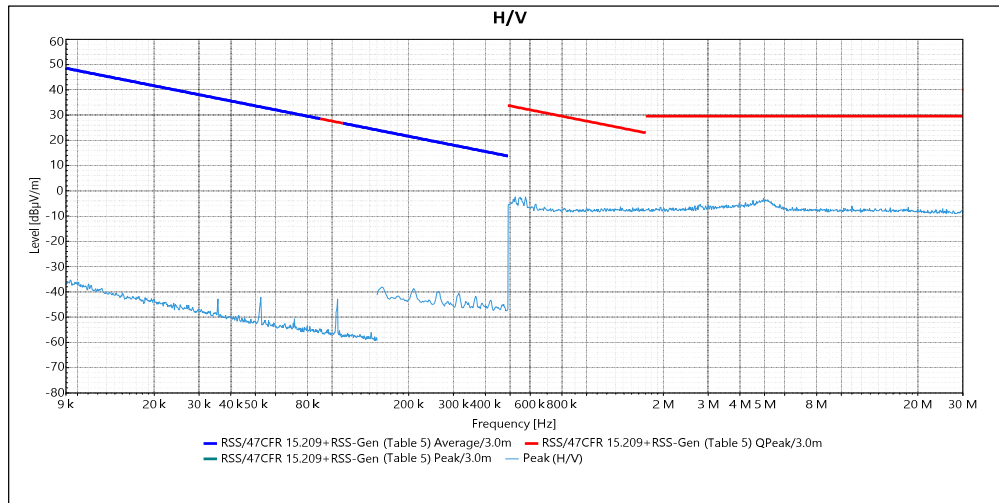
- ☒ The emissions are below the measurement system noise floor or 20 dB or more below the limit
- ☐ Final measurements for emissions that are above -20 dB from the applicable limits are shown below (at least 6 worst frequencies):

Operating mode	3
Used mains voltage/frequency ...	Z
Verdict	Pass
Instrument settings	Start Frequency: 9 kHz; Stop Frequency: 150 kHz; Step: 50 Hz; Sweep Time: 500 ms/Step; RF Attenuation: Auto; RBW: 200 Hz; VBW: Auto; Preamplifier: OFF; Preselector: ON
Instrument settings	Start Frequency: 150 kHz; Stop Frequency: 30 MHz; Step: 2.25 kHz; Sweep Time: 500 ms/Step; RF Attenuation: Auto; RBW: 9 kHz; VBW: Auto; Preamplifier: OFF; Preselector: ON



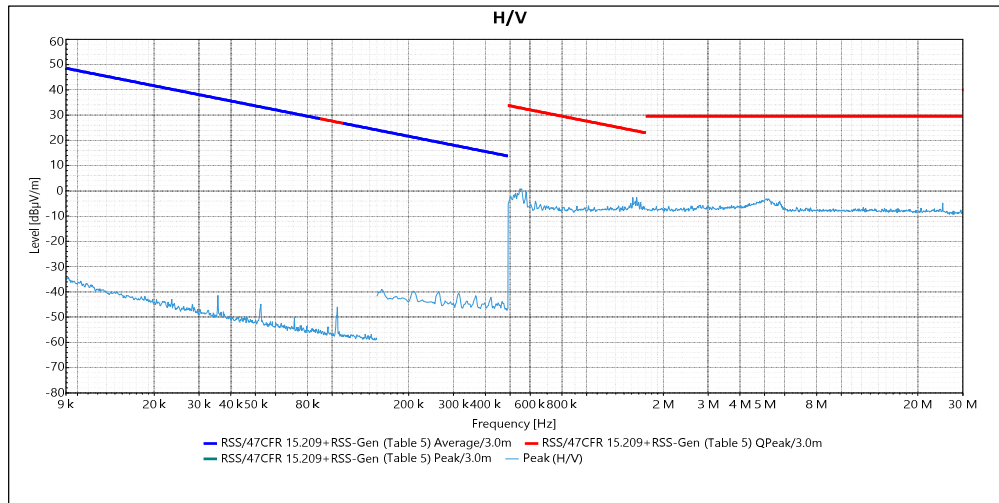
- ☒ The emissions are below the measurement system noise floor or 20 dB or more below the limit
- ☐ Final measurements for emissions that are above -20 dB from the applicable limits are shown below (at least 6 worst frequencies):

Operating mode	4
Used mains voltage/frequency ...	X
Verdict	Pass
Instrument settings	Start Frequency: 9 kHz; Stop Frequency: 150 kHz; Step: 50 Hz; Sweep Time: 500 ms/Step; RF Attenuation: Auto; RBW: 200 Hz; VBW: Auto; Preamplifier: OFF; Preselector: ON
Instrument settings	Start Frequency: 150 kHz; Stop Frequency: 30 MHz; Step: 2.25 kHz; Sweep Time: 500 ms/Step; RF Attenuation: Auto; RBW: 9 kHz; VBW: Auto; Preamplifier: OFF; Preselector: ON



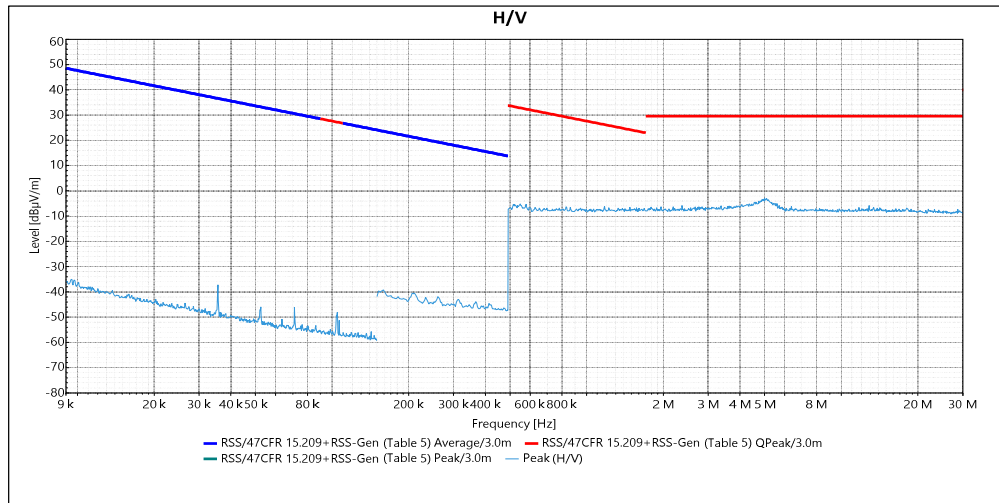
- ☒ The emissions are below the measurement system noise floor or 20 dB or more below the limit
- ☐ Final measurements for emissions that are above -20 dB from the applicable limits are shown below (at least 6 worst frequencies):

Operating mode	4
Used mains voltage/frequency ...	Y
Verdict	Pass
Instrument settings	Start Frequency: 9 kHz; Stop Frequency: 150 kHz; Step: 50 Hz; Sweep Time: 500 ms/Step; RF Attenuation: Auto; RBW: 200 Hz; VBW: Auto; Preamplifier: OFF; Preselector: ON
Instrument settings	Start Frequency: 150 kHz; Stop Frequency: 30 MHz; Step: 2.25 kHz; Sweep Time: 500 ms/Step; RF Attenuation: Auto; RBW: 9 kHz; VBW: Auto; Preamplifier: OFF; Preselector: ON



- ☒ The emissions are below the measurement system noise floor or 20 dB or more below the limit
- ☐ Final measurements for emissions that are above -20 dB from the applicable limits are shown below (at least 6 worst frequencies):

Operating mode	4
Used mains voltage/frequency ...	Z
Verdict	Pass
Instrument settings	Start Frequency: 9 kHz; Stop Frequency: 150 kHz; Step: 50 Hz; Sweep Time: 500 ms/Step; RF Attenuation: Auto; RBW: 200 Hz; VBW: Auto; Preamplifier: OFF; Preselector: ON
Instrument settings	Start Frequency: 150 kHz; Stop Frequency: 30 MHz; Step: 2.25 kHz; Sweep Time: 500 ms/Step; RF Attenuation: Auto; RBW: 9 kHz; VBW: Auto; Preamplifier: OFF; Preselector: ON



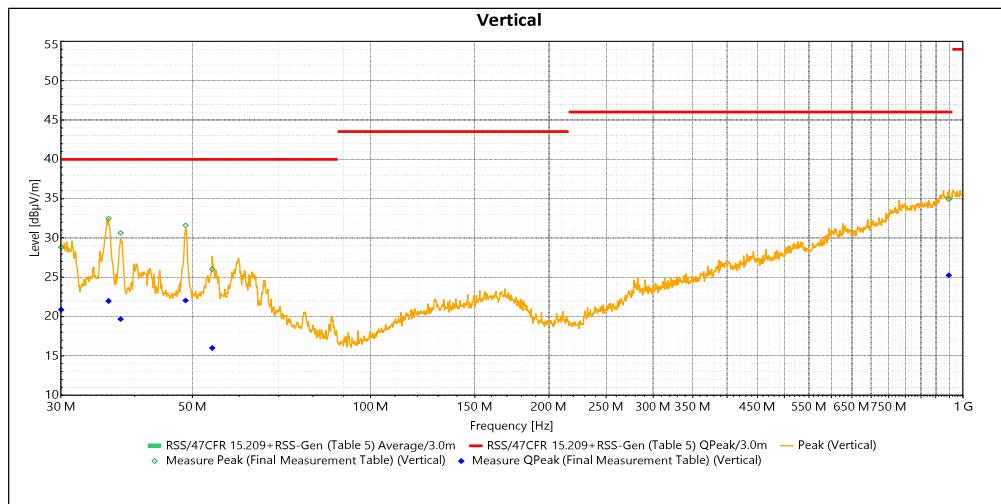
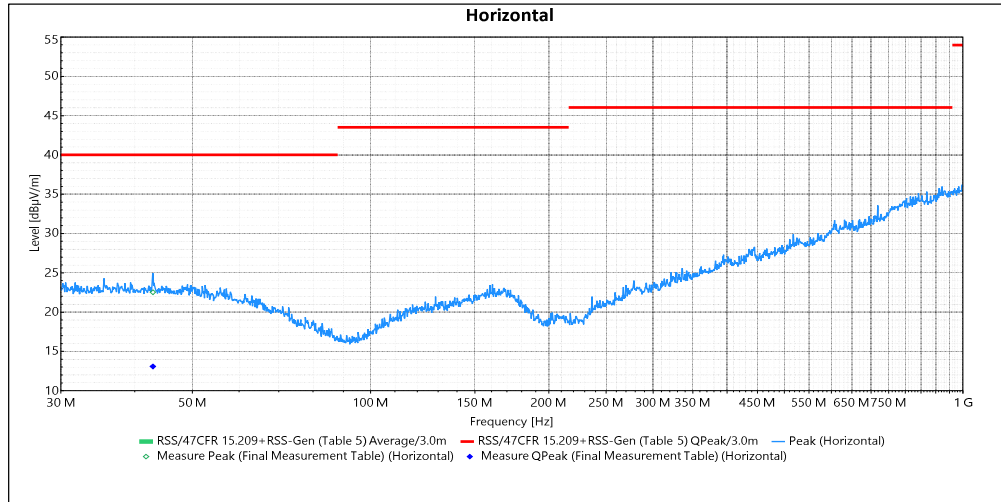
- ☒ The emissions are below the measurement system noise floor or 20 dB or more below the limit
- ☐ Final measurements for emissions that are above -20 dB from the applicable limits are shown below (at least 6 worst frequencies):

6.7 Transmitter Radiated Emission > 30 MHz

Tested by:	Matteo Borghesi
Test date:	2025-02-24 to 2025-02-27
Test location (stand):	Area 8: SAC 3-1.2 (RF emission)
Ambient temperature:	23 °C
Relative humidity:	41 to 43 %
Atmospheric pressure:	995 to to 997 mbar
FCC Reference:	Parts 15.247(d) & 15.209(a)
ISED Canada Reference:	RSS-Gen 6.13 & 8.9 / RSS-247 5.5
Test Method Used	ANSI C63.10 Sections 6.3, 6.5, 6.6
Frequency Range	30 MHz to 26 GHz
Used mains voltage/frequency:	120 V, 60 Hz
Supplementary information:	---

Results:

Operating mode	1
Verdict	Pass
Instrument settings	Start Frequency: 30 MHz; Stop Frequency: 1 GHz; Step: 30 kHz; Sweep Time: 20 ms/Step; RF Attenuation: Auto; RBW: 120 kHz; VBW: Auto; Preamplifier: ON; Preselector: ON
Instrument settings	Start Frequency: 30 MHz; Stop Frequency: 1 GHz; Step: 30 kHz; Sweep Time: 20 ms/Step; RF Attenuation: Auto; RBW: 120 kHz; VBW: Auto; Preamplifier: ON; Preselector: ON

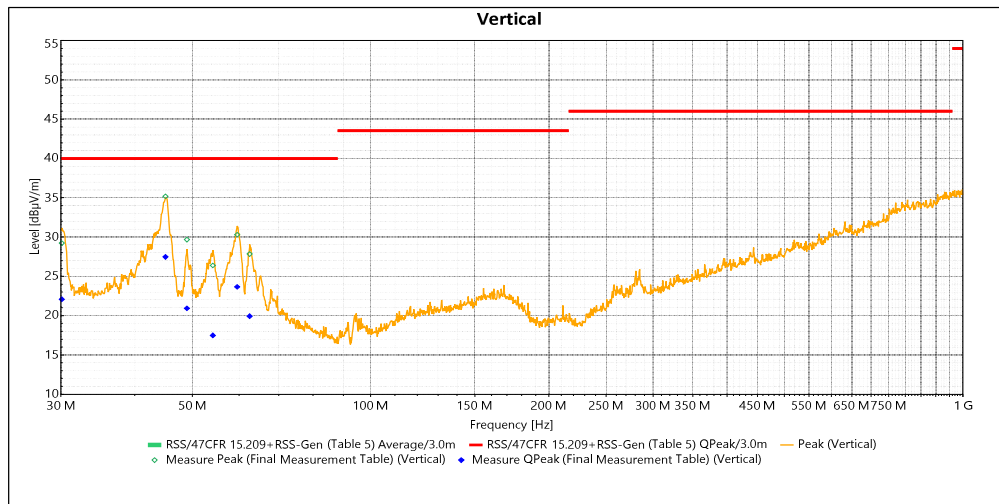
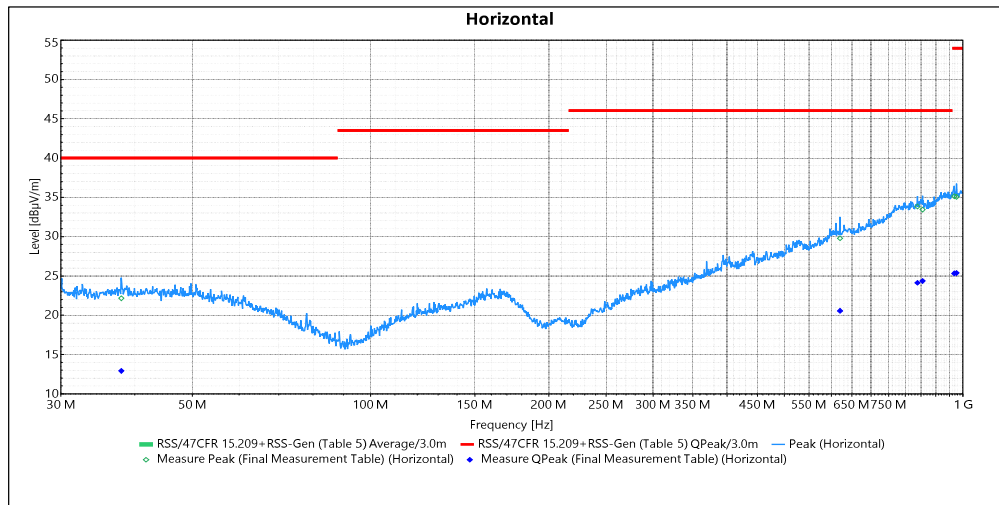


- ☐ The emissions are below the measurement system noise floor or 20 dB or more below the limit
- ☒ Final measurements for emissions that are above -20 dB from the applicable limits are shown below (at least 6 worst frequencies):

Final Measurement Table

Frequency	Measure Peak (dBuV/m)	Measure QPeak (dBuV/m)	Limit QPeak (dBuV/m)	Margin QPeak (dB)	Max height (m)	Max angle (°)	Polarization	RBW (Hz)	Meas.Time (s)	Comments	Correction (dB)
42.9 MHz	22.53	13.09	40	-26.91	1.62	145.2	Horizontal	120 k	5	Pass	19.72
30.03 MHz	28.83	20.87	40	-19.13	1.03	311.1	Vertical	120 k	5	Pass	18.43
36.12 MHz	32.45	21.97	40	-18.03	1.25	352.6	Vertical	120 k	5	Pass	18.84
37.86 MHz	30.62	19.68	40	-20.32	1.15	303.9	Vertical	120 k	5	Pass	19.08
48.72 MHz	31.59	22.04	40	-17.96	1.23	116.5	Vertical	120 k	5	Pass	20.08
54.03 MHz	26.02	16	40	-24	1.89	72	Vertical	120 k	5	Pass	19.97
947.49 MHz	34.91	25.26	46.02	-20.76	1.94	246	Vertical	120 k	5	Pass	32.27

Operating mode	2
Verdict	Pass
Instrument settings	Start Frequency: 30 MHz; Stop Frequency: 1 GHz; Step: 30 kHz; Sweep Time: 20 ms/Step; RF Attenuation: Auto; RBW: 120 kHz; VBW: Auto; Preamplifier: ON; Preselector: ON
Instrument settings	Start Frequency: 30 MHz; Stop Frequency: 1 GHz; Step: 30 kHz; Sweep Time: 20 ms/Step; RF Attenuation: Auto; RBW: 120 kHz; VBW: Auto; Preamplifier: ON; Preselector: ON



- ☐ The emissions are below the measurement system noise floor or 20 dB or more below the limit
- ☒ Final measurements for emissions that are above -20 dB from the applicable limits are shown below (at least 6 worst frequencies):

Final Measurement Table

Frequency	Measure Peak (dBuV/m)	Measure QPeak (dBuV/m)	Limit QPeak (dBuV/m)	Margin QPeak (dB)	Max height (m)	Max angle (°)	Polarization	RBW (Hz)	Meas.Time (s)	Comments	Correction (dB)
37.95 MHz	22.16	12.92	40	-27.08	1.25	95.5	Horizontal	120 k	5	Pass	19.09
620.82 MHz	29.79	20.56	46.02	-25.46	3.59	140.4	Horizontal	120 k	5	Pass	28.07
838.41 MHz	33.83	24.13	46.02	-21.89	2.3	262.2	Horizontal	120 k	5	Pass	31.02
855.21 MHz	33.44	24.37	46.02	-21.65	2.42	82.4	Horizontal	120 k	5	Pass	31.14
967.2 MHz	35.15	25.32	53.98	-28.66	2.23	247.6	Horizontal	120 k	5	Pass	32.53
976.35 MHz	35.06	25.38	53.98	-28.6	2.47	117.4	Horizontal	120 k	5	Pass	32.57
30.12 MHz	29.23	22.09	40	-17.91	1.04	191.8	Vertical	120 k	5	Pass	18.43
45.06 MHz	35.18	27.48	40	-12.52	1.22	32.3	Vertical	120 k	5	Pass	19.93
48.96 MHz	29.68	20.93	40	-19.07	1.03	3.2	Vertical	120 k	5	Pass	20.09
54.18 MHz	26.39	17.49	40	-22.51	1.37	141.7	Vertical	120 k	5	Pass	19.95
59.55 MHz	30.3	23.66	40	-16.34	1.02	149.4	Vertical	120 k	5	Pass	19.48
62.49 MHz	27.84	19.93	40	-20.07	1.36	235.9	Vertical	120 k	5	Pass	19.11

Operating mode	3
Verdict	Pass
Instrument settings	Start Frequency: 30 MHz; Stop Frequency: 1 GHz; Step: 30 kHz; Sweep Time: 20 ms/Step; RF Attenuation: Auto; RBW: 120 kHz; VBW: Auto; Preamplifier: ON; Preselector: ON
Instrument settings	Start Frequency: 30 MHz; Stop Frequency: 1 GHz; Step: 30 kHz; Sweep Time: 20 ms/Step; RF Attenuation: Auto; RBW: 120 kHz; VBW: Auto; Preamplifier: ON; Preselector: ON

