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RADIO REPORT FCC 47 CFR Part 15C ISED Canada RSS-247 Frequency hopping systems operating within the 2400.0 MHz - 2483.5 MHz MHz band	
Report Reference No	G0M-2302-1881-TFC247BL-W271-V03
Testing Laboratory	Eurofins Product Service GmbH
Address	Storkower Str. 38c 15526 Reichenwalde Germany
Accreditation	DAkkS - Registration number : D-PL-12092-01-03 (ISED) ISED Testing Laboratory site: 3470A DAkkS - Registration number : D-PL-12092-01-04 (FCC) FCC Filed Test Laboratory, Reg.-No.: 96970
Applicant	u-blox AG
Address	Zürcherstrasse 68 8800 Thalwil Switzerland
Test Specification	47 CFR Part 15C RSS-247, Issue 2, 2017-02 RSS-Gen, Issue 5, Amendment 2, 2021-02
Non-Standard Test Method	None
Equipment under Test (EUT):	
Product Description	MAYA-W2 host-based multiradio modules
Model(s)	MAYA-W271-00B
Additional Model(s)	None
Brand Name(s)	u-blox
Hardware Version(s)	02
Software Version(s)	1.0.0.39.1-18.80.1.p154.38
FCC ID	XPYMAYAW2A
IC	8595A-MAYAW2A
Test Result	**PASSED**

Possible test case verdicts:		
Required by standard but not tested	N/T	
Not required by standard	N/R	
Not applicable to EUT	N/A	
Test object does meet the requirement	P(PASS)	
Test object does not meet the requirement	F(FAIL)	
Testing:		
Test Lab Temperature	20 °C - 30 °C	
Test Lab Humidity	25 % - 55 %	
Date of receipt of test item	2023-03-02	
Report:		
Compiled by	Radwan Jaafar	
Responsible for test (+ signature) (Responsible for Test)	Radwan Jaafar	
Approved by (+ signature) (Test Lab Engineer)	Wilfried Treffke	
Date of Issue	2024-01-11	
Total number of pages	112	
General Remarks:		
The test results presented in this report relate only to the object tested. **The results contained in this report reflect the results for this particular model and serial number. It is the responsibility of the manufacturer to ensure that all production models meet the intent of the requirements detailed within this report.** This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.		
Additional Comments:		

ADDITIONAL VARIANTS

Additional Variants (not tested and not evaluated variants)		
Not-tested Variant	**Description**	
1	Product Type Description	Host-based multiradio module
	Model name	MAYA-W261-00B
	Brand name	u-blox
	Hardware Version	02
	Software Version	1.0.0.39.1-18.80.1.p154.38
	FCC ID	XPYMAYAW2A
	IC	8595A-MAYAW2A
	PMN	MAYA-W261-00B
	HVIN	MAYA-W261-00B
	FVIN	N/A
	HMN	N/A
Comment: Those named additional variants above have not been tested. Those additional variants of the series have been declared by the manufacturer. The test report explicitly states that those variants were neither tested nor assessed nor evaluated.		

VERSION HISTORY

Version History			
Version	Issue Date	Remarks	Revised By
01	2023-11-03	Initial Release	--
02	2023-11-29	Replaced document: G0M-2302-1881-TFC247BL-W271-V01 Replaced by: G0M-2302-1881-TFC247BL-W271-V02 Reason: Correction of the model name and FVIN of the EUT.	R. Jaafar
03	2024-01-11	Replaced document: G0M-2302-1881-TFC247BL-W271-V02 Replaced by: G0M-2302-1881-TFC247BL-W271-V03 Reason: - Correction of the module name in the plots. - Add EIRP test results for IC at section 3.3.	R. Jaafar

ABBREVIATIONS AND ACRONYMS

Acronyms	
Acronym	Description
EUT	Equipment Under Test
FCC	Federal Communications Commission
ISED	Innovation, Science and Economic Development Canada
RBW	Resolution bandwidth
RMS	Root mean square
VBW	Video bandwidth
V_{NOM}	Nominal supply voltage

REPORT INDEX

1 Equipment (Test Item) Under Test

Description	MAYA-W2 host-based multiradio modules		
Model	MAYA-W271-00B		
Additional Model(s)	None		
Brand Name(s)	u-blox		
Sample Identification	EUT	Sample-ID	Serial Number
	conducted, and radiated with external antenna	43093	AM56C1DEB945F940300
	conducted, and radiated with external antenna	43094	AM56C1DEB945FD00300
Hardware Version(s)	02		
Software Version(s)	1.0.0.39.1-18.80.1.p154.38		
PMN	MAYA-W271-00B		
HVIN	MAYA-W271-00B		
FVIN	N/A		
HMN	N/A		
FCC ID	XPYMAYAW2A		
IC	8595A-MAYAW2A		
Equipment type	Radio Module		
Radio type	Transceiver		
Assigned frequency bands	2400.0 MHz - 2483.5 MHz		
Radio technology	Bluetooth LE 5.3		
Bluetooth Specification	LE 1M PHY		Yes
	LE 2M PHY		Yes
	LE Coded PHY S=8 (125 kbit)		Yes
	LE Coded PHY S=2 (500 kbit)		Yes
	Stable Modulation Index - Transmitter		No
	Stable Modulation Index - Receiver		Yes
Modulation	GFSK		
Number of antenna ports	2		
Antenna	Type	External	
	Model	ANT-DB1-RAF-SMA	
	Manufacturer	Linx Technologies	
	Gain	4.1 dBi (customer declaration)	
Supply Voltage (1st port)	V_{NOM}	3.3 VDC	
Supply Voltage (2nd port)	V_{NOM}	1.8 VDC	
Operating Temperature	T_{NOM}	20 °C	
AC/DC-Adaptor	Model	None	
Manufacturer	u-blox AG Zürcherstrasse 68 8800 Thalwil Switzerland		

1.1 Photos – Equipment External

EUT top view
Photo exhibits removed - refer to additional exhibit

EUT bottom view
Photo exhibits removed - refer to additional exhibit

EUT overview with external antenna
Photo exhibits removed - refer to additional exhibit

External antenna
Photo exhibits removed - refer to additional exhibit

Evaluation board top view
Photo exhibits removed - refer to additional exhibit

Evaluation board bottom view
Photo exhibits removed - refer to additional exhibit

Evaluation board side view
Photo exhibits removed - refer to additional exhibit

Cable (SPI Cable)
Photo exhibits removed - refer to additional exhibit

Data cable
Photo exhibits removed - refer to additional exhibit

USB C cable
Photo exhibits removed - refer to additional exhibit

Power adapter
Photo exhibits removed - refer to additional exhibit

Cable to connect EUT to external power supply
Photo exhibits removed - refer to additional exhibit

1.2 Photos – Equipment Internal

RF Module-MW271 (length)
Photo exhibits removed - refer to additional exhibit

RF Module-MW271 (width)
Photo exhibits removed - refer to additional exhibit

RF Module-MW271 unshielded (length)
Photo exhibits removed - refer to additional exhibit

RF Module-MW271 unshielded (width)
Photo exhibits removed - refer to additional exhibit

1.3 Support Equipment

Product Type	Device	Manufacturer	Model	Comment
AE	Notebook	Dell	Latitude E7250	For configuring test modes
AE	Evaluation Board	u-blox		
CBL	USB-C	---	---	Connection between evaluation board and EUT
CBL	Data cable	---	---	
CBL	SBI cable			
CBL	Ethernet	---	---	Connection between evaluation board and notebook
AE	AC/DC Adapter	EDACPOWER ELECT.	EA1045CR	To power the evaluation board
SFT	Terminal	Debian / Linux	---	For test mode activation
Description:				
AE	Auxiliary Equipment			
SIM	Simulator			
CBL	Connecting Cable			
SFT	Software			
Comment:				

1.4 Test Modes

Mode	Description
1 Mbps	Mode = Transmit Modulation = GFSK Packet Type = PRBS9 Packet Length =193 Bytes Spreading = None Duty cycle = 86 % Pmax = 19 dBm
2 Mbps	Mode = Transmit Modulation = GFSK Packet Type = PRBS9 Packet Length =250 Bytes Spreading = None Duty cycle = 43 % Pmax = 19 dBm
Receive	Mode = Receive
Note: Coded S2 and S8 are not part of the test scope.	
Comment: The above settings were found as worst case by evaluation of the output power.	

1.5 Test Frequencies

Designator	Mode	Channel	Frequency [MHz]
F1	Tx	0	2402
F2	Tx / Rx	19	2440
F3	Tx	39	2480

1.6 Sample emission level calculation

The following is a description of terms and a sample calculation, as appears in the radiated emissions data table. The numbers used in the calculation are for example only. There is no direct correlation to the specific data taken for the product described in this document:

Reading:

This is the reading obtained on the spectrum analyzer in dBµV. Any external preamplifiers used are taken into account through internal analyzer settings.

A.F.:

This is the antenna factor for the receiving antenna. It is a conversion factor, which converts electric fields strengths to voltages, which can be measured directly on the spectrum analyzer. It is treated as a loss in dB. Cable losses have been included with the A.F. to simplify the calculations. The antenna factor is used in calculations as follows:

Reading on Analyzer (dBµV) + A.F. (dB/m) = Net field strength (dBµV/m)

Net:

This is the net field strength measurement (as shown above).

Margin:

This is the margin of compliance below the FCC limit. The units are given in dB. A negative margin indicates the emission was below the limit. A positive margin indicates that the emission exceeds the limit.

Field strength limit:

This is the FCC Class B radiated emission limit (in units of dBµV/m). The FCC limits are given in units of µV/m. The following formula is used to convert the units of µV/m to dBµV/m:

Field strength limit (dBµV/m) = 20 · log (µV/m)

Example only for radiated field strength:

Reading + AF	= Net Reading	:	Net reading	- Field strength limit	= Margin
+21.5 dBµV	+ 26 dB/m	:	47.5 dBµV/m	- 57.0 dBµV/m	= -9.5

2 Result Summary

FCC 47 CFR Part 15C, ISED RSS-247				
Product Standard Reference	**Requirement**	**Reference Method**	**Result**	**Remarks**
ISED RSS-Gen, Issue 5 A2 (section 6.7)	Occupied Bandwidth	ANSI C63.10-2013	PASS	Informational only
FCC § 15.247(a)(2) ISED RSS-247, Issue 2 (section 5.2)	6 dB Bandwidth	ANSI C63.10-2013	PASS	
FCC § 15.247(b) ISED RSS-247, Issue 2 (section 5.4)	Maximum peak conducted power	ANSI C63.10-2013	PASS	
FCC § 15.247(e) ISED RSS-247, Issue 2 (section 5.2)	Power spectral density	ANSI C63.10-2013	PASS	
FCC § 15.207 ISED RSS-247, Issue 2 (section 3.1)	AC power line conducted emissions	ANSI C63.10-2013	PASS	
FCC § 15.247(d) ISED RSS-247, Issue 2 (section 5.5)	Band edge compliance	ANSI C63.10-2013	PASS	
FCC § 15.247(d) ISED RSS-247, Issue 2 (section 5.5)	Conducted spurious emissions	ANSI C63.10-2013	PASS	
FCC § 15.247(d) FCC § 15.209 ISED RSS-Gen, Issue 5 A2 (section 6.13)	Transmitter radiated spurious emissions	ANSI C63.10-2013	PASS	
ISED RSS-247, Issue 2 (section 3.1)	Receiver radiated spurious emissions	ANSI C63.4-2014	PASS	
Comment: The Decision Rule is applied on the basis of ETSI TR 102 273 and ETSI TR 100 028. These standards provide guidance on how to calculate and apply measurement uncertainty whilst providing maximum uncertainties allowance. In all cases due consideration will be given to ILAC-G8:09/2019. Where a result is considered conditional in respect of its proximity to the limit line, the customer would be made aware of situation so that they can make an informed decision on how to proceed.				

Possible Test Case Verdicts	
PASS	Test object does meet the requirements
FAIL	Test object does not meet the requirements
N/T	Required by standard but not tested
N/R	Not required by standard for the test object

3 Test Conditions and Results

3.1 Test Conditions and Results - Occupied bandwidth

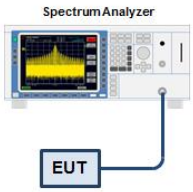
3.1.1 Information

Test Information	
Reference	ISED RSS-Gen, Issue 5 A2 (section 6.7)
Measurement Method	ANSI C63.10 6.9.3
Measurement Uncertainty	± 1.26 %
Test Sample ID	43093
Operator	Ehsan Sohrabi
Date	2023-07-03

3.1.2 Limits

Limits
None (Informational only)

3.1.3 Setup

Test Setup


3.1.4 Equipment

Test Equipment					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyser	R&S	FSU 26	EF01631	2022-08	2023-08
Cable (CAABF)	Gigalane	GIGALANE 1730	EF00779	2023-03	2024-03

3.1.5 Procedure

Test Procedure
1. EUT transmitter is activated in test mode under normal conditions 2. The spectrum analyzer is set to peak detection and maximum hold with a span twice the emission spectrum 3. The resolution bandwidth is set to the range of 1 % to 5 % of the occupied bandwidth 4. The occupied bandwidth is measured with the build-in analyzer function

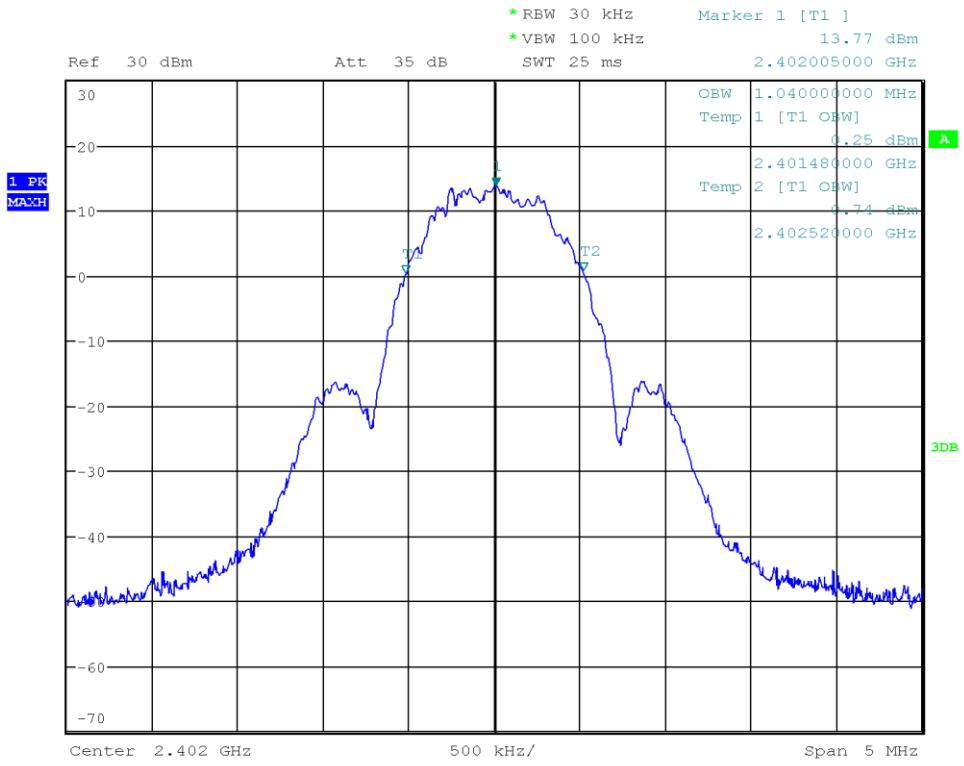
3.1.6 Results

Test Results 1 Mbps		
Mode	Frequency [MHz]	Bandwidth [MHz]
GFSK	2402	1.040
GFSK	2440	1.040
GFSK	2480	1.045

Test Results 2 Mbps		
Mode	Frequency [MHz]	Bandwidth [MHz]
GFSK	2402	2.070
GFSK	2440	2.070
GFSK	2480	2.070

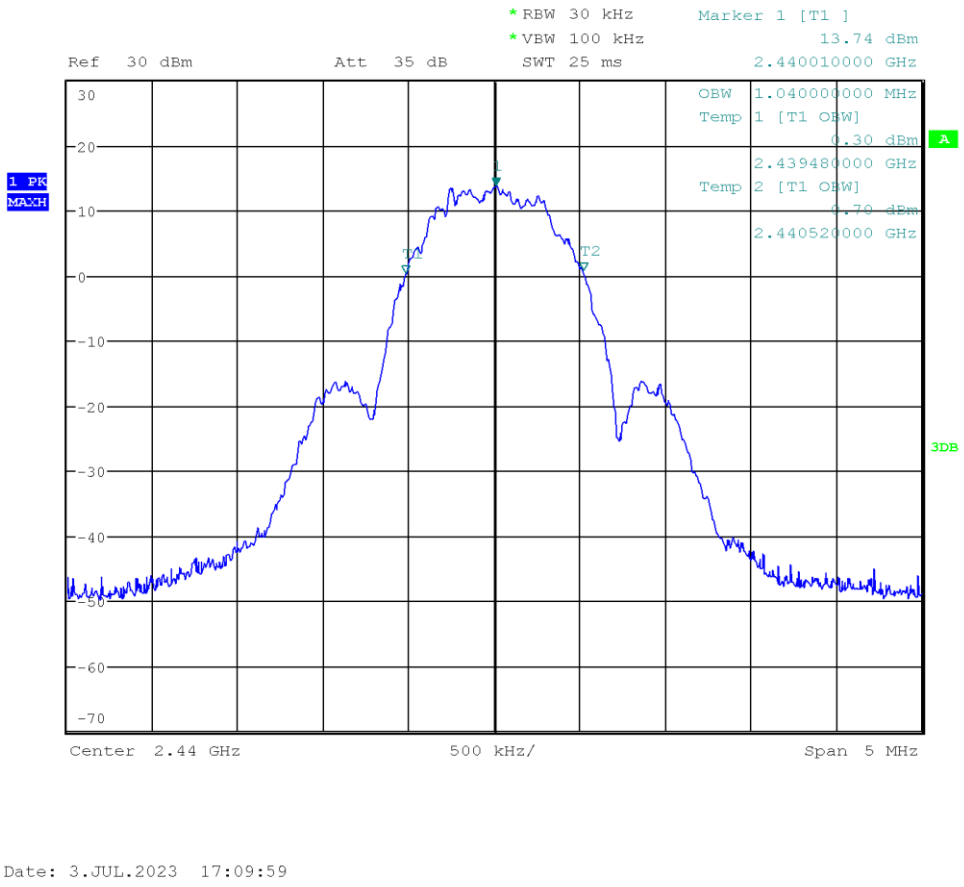
Occupied Bandwidth

Project Number:	G0M-2302-1881
Applicant:	u-blox AG
Model Description:	Host-based multiradio module
Model:	MAYA-W271-00B
Test Sample ID:	43093
Reference Standards:	FCC 15.247, RSS-247
Reference Method:	ANSI C63.10:2013, Section 6.9.3
Operational Mode:	GFSK, Channel: 0, 2402 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Radwan Jaafar
Test Site:	Eurofins Product Service GmbH
Test Date:	2023-07-03
Note:	PHY 1 Mbps, PRBS9, 193 bytes, Pmax (19 dBm)
Occupied Bandwidth [MHz]:	1.040



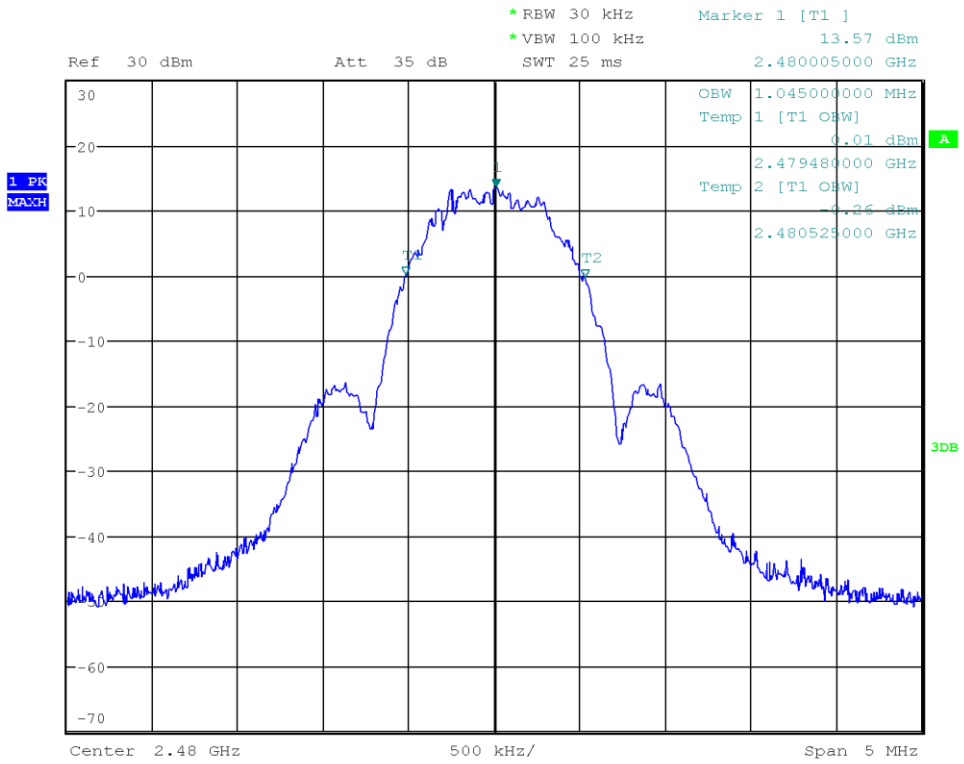
Occupied Bandwidth

Project Number:	G0M-2302-1881
Applicant:	u-blox AG
Model Description:	Host-based multiradio module
Model:	MAYA-W271-00B
Test Sample ID:	43093
Reference Standards:	FCC 15.247, RSS-247
Reference Method:	ANSI C63.10:2013, Section 6.9.3
Operational Mode:	GFSK, Channel: 19, 2440 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Radwan Jaafar
Test Site:	Eurofins Product Service GmbH
Test Date:	2023-07-03
Note:	PHY 1 Mbps, PRBS9, 193 bytes, Pmax (19 dBm)
Occupied Bandwidth [MHz]:	1.040



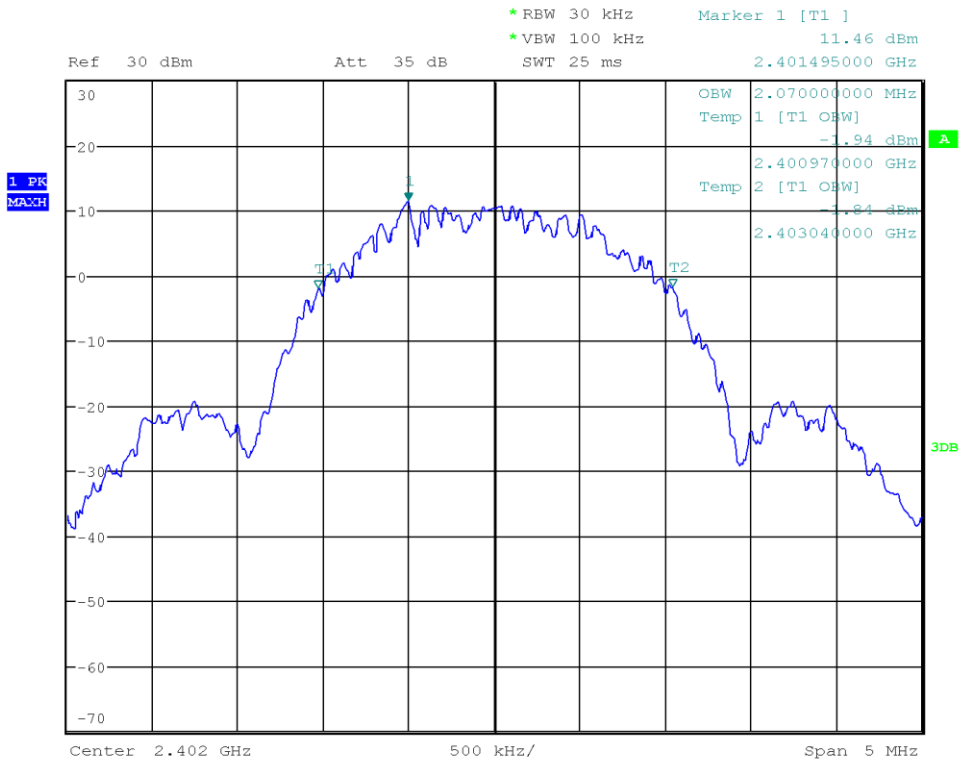
Occupied Bandwidth

Project Number:	G0M-2302-1881
Applicant:	u-blox AG
Model Description:	Host-based multiradio module
Model:	MAYA-W271-00B
Test Sample ID:	43093
Reference Standards:	FCC 15.247, RSS-247
Reference Method:	ANSI C63.10:2013, Section 6.9.3
Operational Mode:	GFSK, Channel: 39, 2480 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Radwan Jaafar
Test Site:	Eurofins Product Service GmbH
Test Date:	2023-07-03
Note:	PHY 1 Mbps, PRBS9, 193 bytes, Pmax (19 dBm)
Occupied Bandwidth [MHz]:	1.045



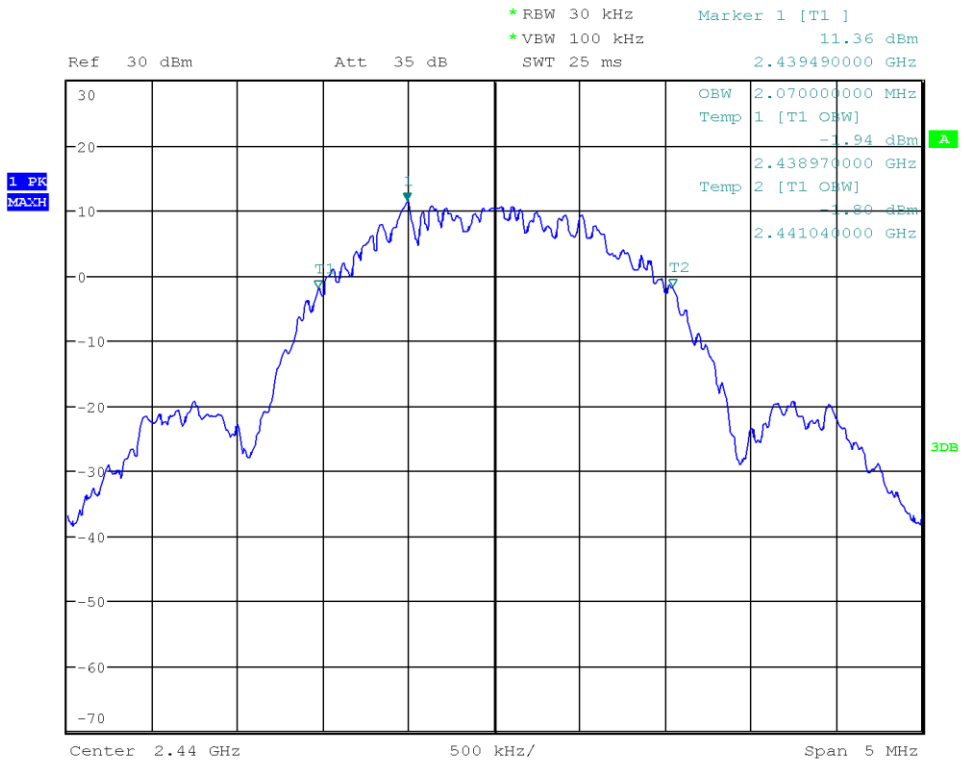
Occupied Bandwidth

Project Number:	G0M-2302-1881
Applicant:	u-blox AG
Model Description:	Host-based multiradio module
Model:	MAYA-W271-00B
Test Sample ID:	43093
Reference Standards:	FCC 15.247, RSS-247
Reference Method:	ANSI C63.10:2013, Section 6.9.3
Operational Mode:	GFSK, Channel: 0, 2402 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Radwan Jaafar
Test Site:	Eurofins Product Service GmbH
Test Date:	2023-07-03
Note:	PHY 2 Mbps, PRBS9, 193 bytes, Pmax (19 dBm)
Occupied Bandwidth [MHz]:	2.070



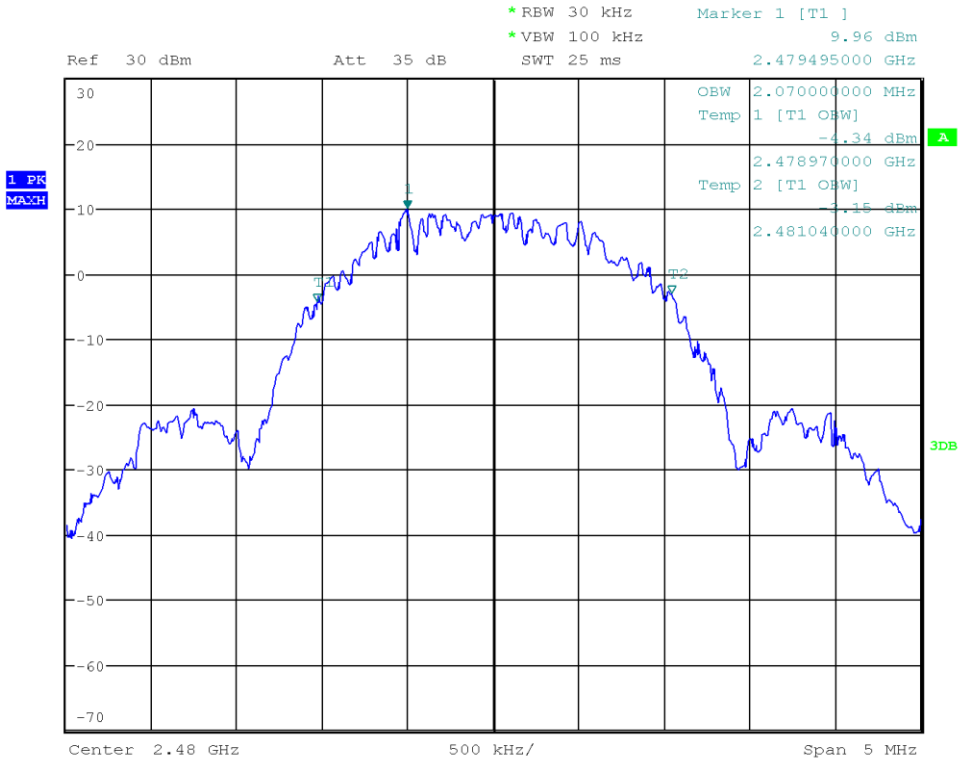
Occupied Bandwidth

Project Number:	G0M-2302-1881
Applicant:	u-blox AG
Model Description:	Host-based multiradio module
Model:	MAYA-W271-00B
Test Sample ID:	43093
Reference Standards:	FCC 15.247, RSS-247
Reference Method:	ANSI C63.10:2013, Section 6.9.3
Operational Mode:	GFSK, Channel: 19, 2440 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Radwan Jaafar
Test Site:	Eurofins Product Service GmbH
Test Date:	2023-07-03
Note:	PHY 2 Mbps, PRBS9, 193 bytes, Pmax (19 dBm)
Occupied Bandwidth [MHz]:	2.070



Occupied Bandwidth

Project Number:	G0M-2302-1881
Applicant:	u-blox AG
Model Description:	Host-based multiradio module
Model:	MAYA-W271-00B
Test Sample ID:	43093
Reference Standards:	FCC 15.247, RSS-247
Reference Method:	ANSI C63.10:2013, Section 6.9.3
Operational Mode:	GFSK, Channel: 39, 2480 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Radwan Jaafar
Test Site:	Eurofins Product Service GmbH
Test Date:	2023-07-03
Note:	PHY 2 Mbps, PRBS9, 193 bytes, Pmax (19 dBm)
Occupied Bandwidth [MHz]:	2.070



3.2 Test Conditions and Results - 6 dB bandwidth

3.2.1 Information

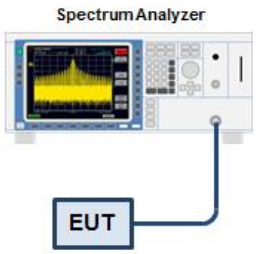
Test Information	
Reference	FCC § 15.247(a)(2); ISED RSS-247, Issue 2 (section 5.2)
Measurement Method	ANSI C63.10 11.8
Measurement Uncertainty	± 1.26 %
Operator	Ehsan Sohrabi
Date	2023-07-03

3.2.2 Limits

Limits
≥ 500kHz

3.2.3 Setup

Test Setup



3.2.4 Equipment

Test Equipment					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyser	R&S	FSU 26	EF01631	2022-08	2023-08
Cable (CAABF)	Gigalane	GIGALANE 1730	EF00779	2023-03	2024-03

3.2.5 Procedure

Test Procedure

1. EUT set to test mode
2. Span set to at least twice the emission spectrum
3. Detector set to peak and max hold and RBW is set to 100 kHz
4. Envelope peak value of emission spectrum is selected
5. Marker on envelope of spectrum is set to level of -6 dB to the left of the peak
6. Marker on envelope of spectrum is set to level of -6 dB to the right of the peak
7. 6 dB Bandwidth is determined by marker frequency separation

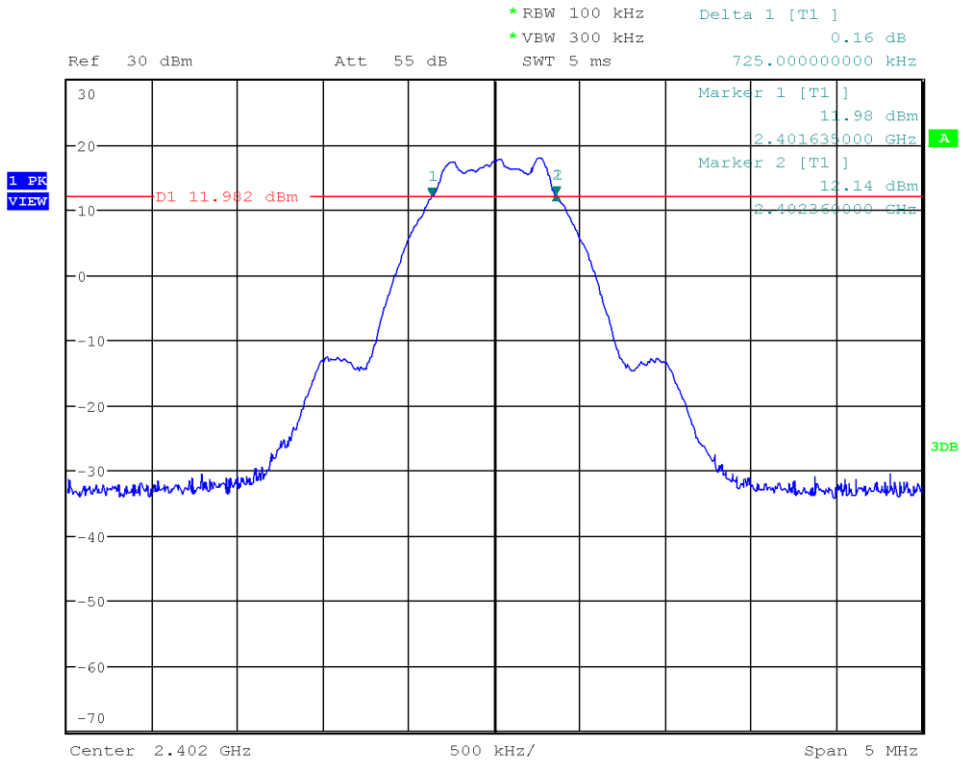
3.2.6 Results

Test Results 1 Mbps				
Mode	Frequency [MHz]	Bandwidth [kHz]	Limit [kHz]	Verdict
GFSK	2402	725	500	PASS
GFSK	2440	730	500	PASS
GFSK	2480	730	500	PASS

Test Results 2 Mbps				
Mode	Frequency [MHz]	Bandwidth [kHz]	Limit [kHz]	Verdict
GFSK	2402	1290	500	PASS
GFSK	2440	1290	500	PASS
GFSK	2480	1290	500	PASS

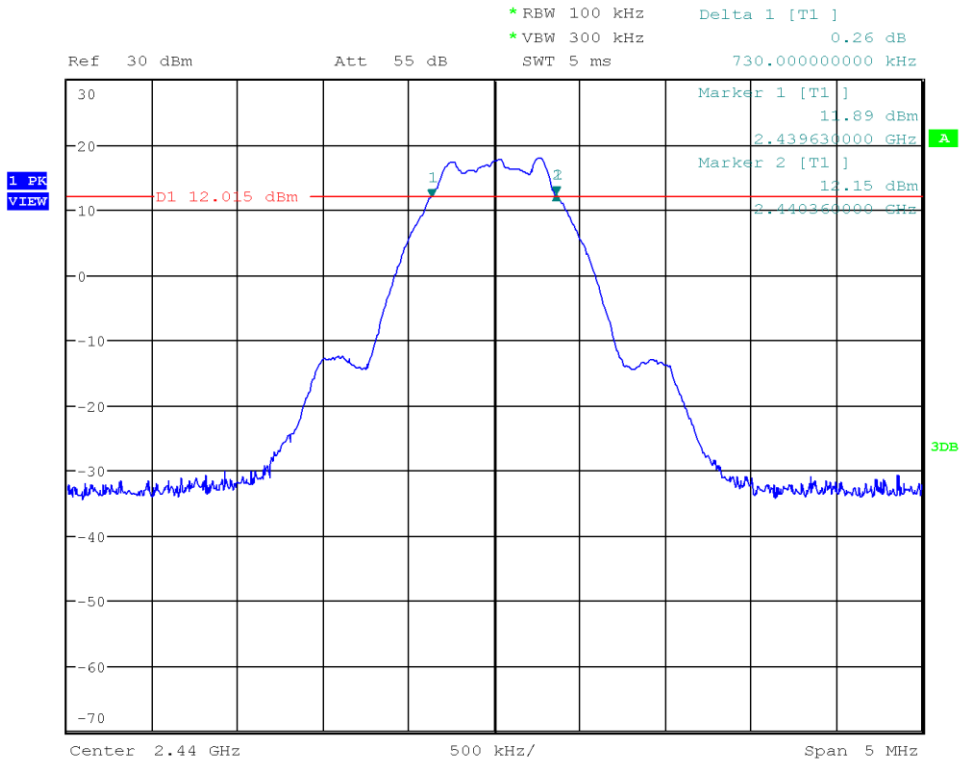
DTS (6 dB) Bandwidth

Project Number:	G0M-2302-1881
Applicant:	u-blox AG
Model Description:	Host-based multiradio module
Model:	MAYA-W271-00B
Test Sample ID:	43093
Reference Standards:	FCC 15.247, RSS-247
Reference Method:	ANSI C63.10:2013, Section 11.8.1 Option 1
Operational Mode:	GFSK, Channel: 0, 2402 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Radwan Jaafar
Test Site:	Eurofins Product Service GmbH
Test Date:	2023-07-03
Note:	PHY 1 Mbps, PRBS9, 193 bytes, Pmax (19 dBm)
Lower Frequency [MHz]:	2401.635
Upper Frequency [MHz]:	2402.360
6 dB Bandwidth [kHz]:	725



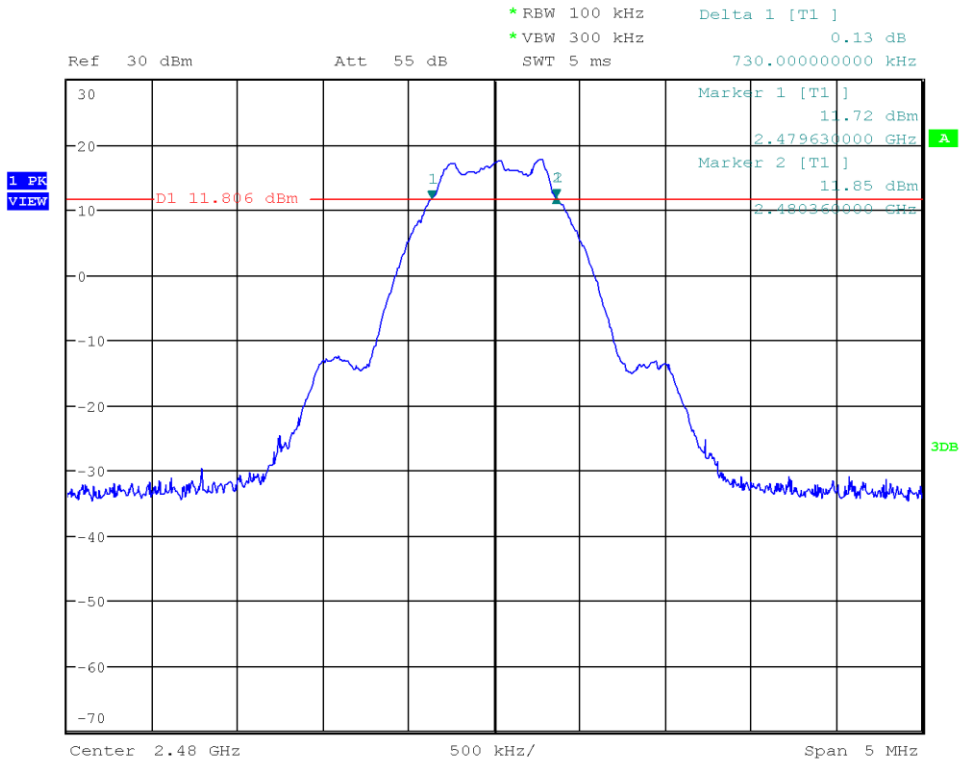
DTS (6 dB) Bandwidth

Project Number:	G0M-2302-1881
Applicant:	u-blox AG
Model Description:	Host-based multiradio module
Model:	MAYA-W271-00B
Test Sample ID:	43093
Reference Standards:	FCC 15.247, RSS-247
Reference Method:	ANSI C63.10:2013, Section 11.8.1 Option 1
Operational Mode:	GFSK, Channel: 19, 2440 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Radwan Jaafar
Test Site:	Eurofins Product Service GmbH
Test Date:	2023-07-03
Note:	PHY 1 Mbps, PRBS9, 193 bytes, Pmax (19 dBm)
Lower Frequency [MHz]:	2439.630
Upper Frequency [MHz]:	2440.360
6 dB Bandwidth [kHz]:	730



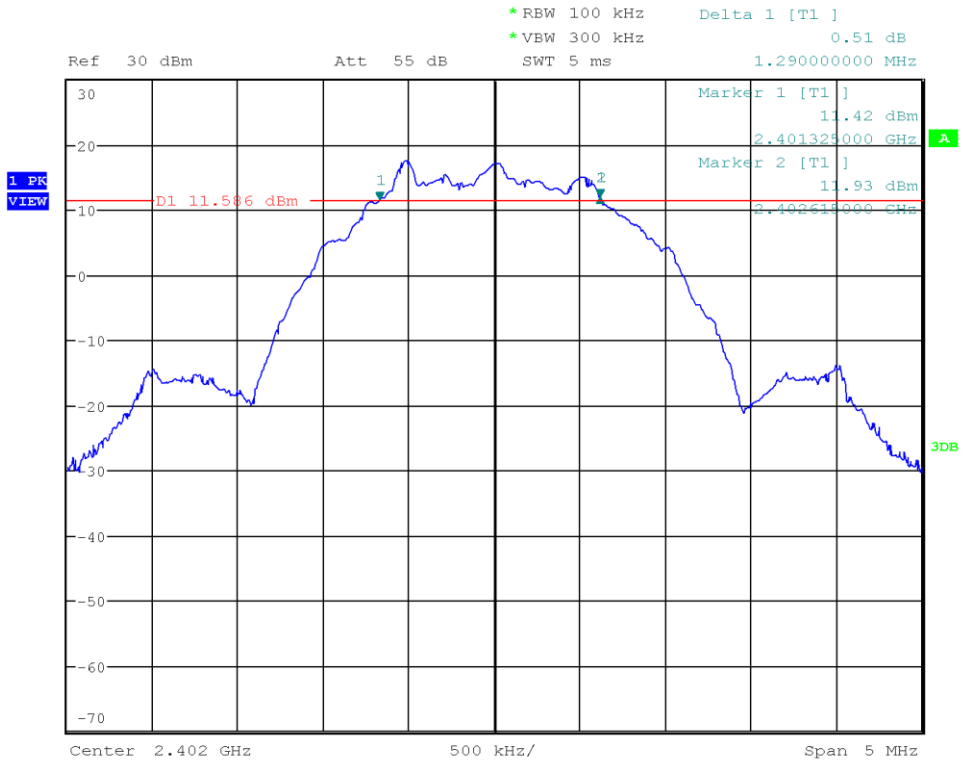
DTS (6 dB) Bandwidth

Project Number:	G0M-2302-1881
Applicant:	u-blox AG
Model Description:	Host-based multiradio module
Model:	MAYA-W271-00B
Test Sample ID:	43093
Reference Standards:	FCC 15.247, RSS-247
Reference Method:	ANSI C63.10:2013, Section 11.8.1 Option 1
Operational Mode:	GFSK, Channel: 39, 2480 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Radwan Jaafar
Test Site:	Eurofins Product Service GmbH
Test Date:	2023-07-03
Note:	PHY 1 Mbps, PRBS9, 193 bytes, Pmax (19 dBm)
Lower Frequency [MHz]:	2479.630
Upper Frequency [MHz]:	2480.360
6 dB Bandwidth [kHz]:	730



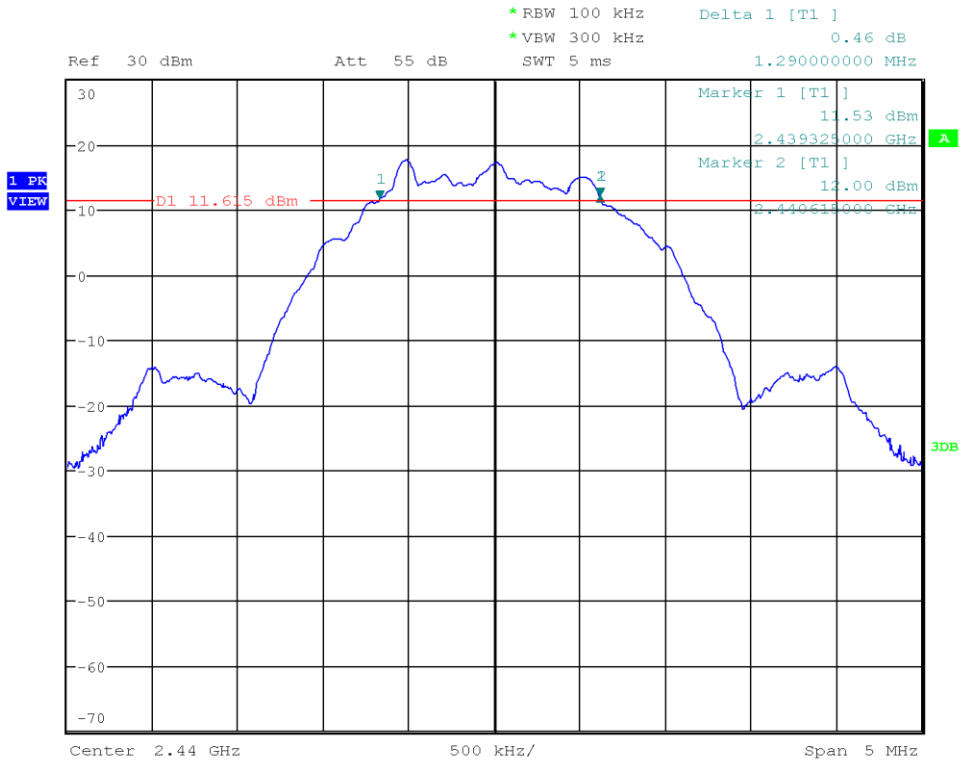
DTS (6 dB) Bandwidth

Project Number:	G0M-2302-1881
Applicant:	u-blox AG
Model Description:	Host-based multiradio module
Model:	MAYA-W271-00B
Test Sample ID:	43093
Reference Standards:	FCC 15.247, RSS-247
Reference Method:	ANSI C63.10:2013, Section 11.8.1 Option 1
Operational Mode:	GFSK, Channel: 0, 2402 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Radwan Jaafar
Test Site:	Eurofins Product Service GmbH
Test Date:	2023-07-03
Note:	PHY 2 Mbps, PRBS9, 193 bytes, Pmax (19 dBm)
Lower Frequency [MHz]:	2401.325
Upper Frequency [MHz]:	2402.615
6 dB Bandwidth [kHz]:	1290



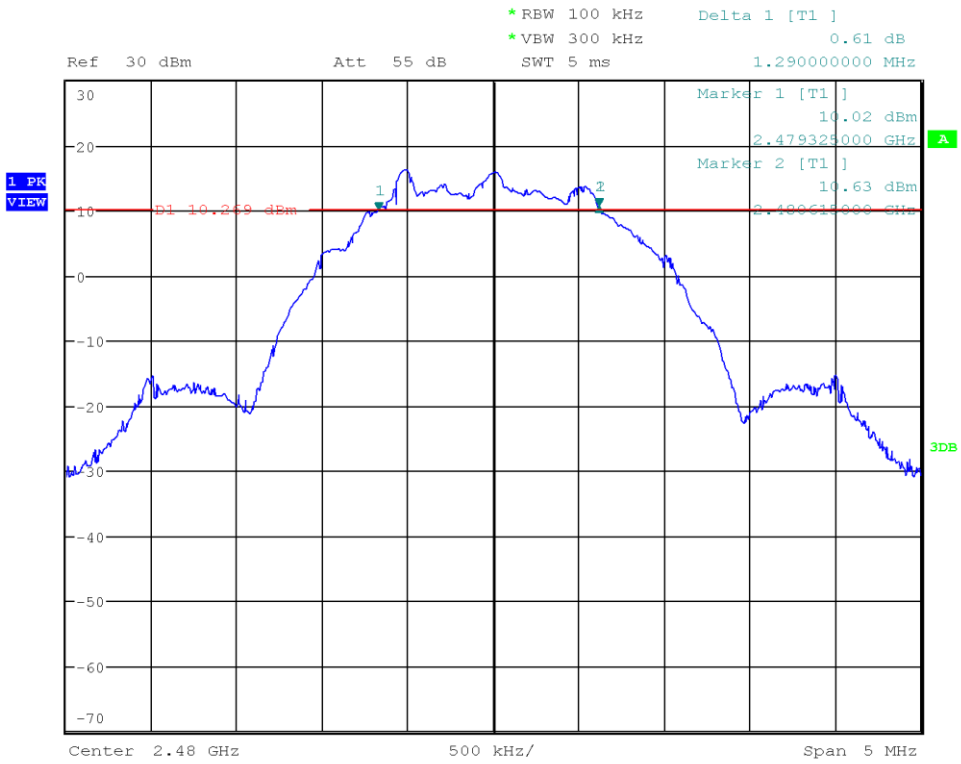
DTS (6 dB) Bandwidth

Project Number:	G0M-2302-1881
Applicant:	u-blox AG
Model Description:	Host-based multiradio module
Model:	MAYA-W271-00B
Test Sample ID:	43093
Reference Standards:	FCC 15.247, RSS-247
Reference Method:	ANSI C63.10:2013, Section 11.8.1 Option 1
Operational Mode:	GFSK, Channel: 19, 2440 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Radwan Jaafar
Test Site:	Eurofins Product Service GmbH
Test Date:	2023-07-03
Note:	PHY 2 Mbps, PRBS9, 193 bytes, Pmax (19 dBm)
Lower Frequency [MHz]:	2439.325
Upper Frequency [MHz]:	2440.615
6 dB Bandwidth [kHz]:	1290



DTS (6 dB) Bandwidth

Project Number:	G0M-2302-1881
Applicant:	u-blox AG
Model Description:	Host-based multiradio module
Model:	MAYA-W271-00B
Test Sample ID:	43093
Reference Standards:	FCC 15.247, RSS-247
Reference Method:	ANSI C63.10:2013, Section 11.8.1 Option 1
Operational Mode:	GFSK, Channel: 39, 2480 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Radwan Jaafar
Test Site:	Eurofins Product Service GmbH
Test Date:	2023-07-03
Note:	PHY 2 Mbps, PRBS9, 193 bytes, Pmax (19 dBm)
Lower Frequency [MHz]:	2479.325
Upper Frequency [MHz]:	2480.615
6 dB Bandwidth [kHz]:	1290



3.3 Test Conditions and Results - Maximum peak conducted output power

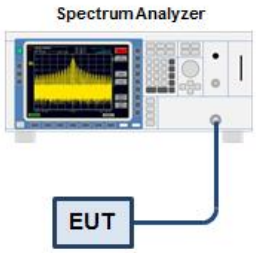
3.3.1 Information

Test Information	
Reference	FCC § 15.247(b); ISED RSS-247, Issue 2 (section 5.4)
Measurement Method	ANSI C63.10 11.9.1
Measurement Uncertainty	± 2.86 dB
Operator	Ehsan Sohrabi
Date	2023-07-03

3.3.2 Limits

Limits
1 W (30 dBm)
FCC: The conducted output power limit specified above is based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in the table, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
ISED: The maximum peak conducted output power shall not exceed 1W. The e.i.r.p. shall not exceed 4 W.

3.3.3 Setup

Test Setup


3.3.4 Equipment

Test Equipment					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyser	R&S	FSU 26	EF01631	2022-08	2023-08
Cable (CAABF)	Gigalane	GIGALANE 1730	EF00779	2023-03	2024-03

3.3.5 Procedure

Test Procedure
1. EUT set to test mode (Communication tester is used if needed) 2. Analyzer resolution bandwidth is set ≥ DTS bandwidth 3. Detector set to peak and max hold 4. Sweep time is set to auto 5. After the trace has stabilized a marker is set to peak of envelope

3.3.6 Results

Test Results 1 Mbps - FCC				
Channel [MHz]	Channel [MHz]	Channel [MHz]	Channel [MHz]	Channel [MHz]
2402	19.665	0.0926	1.0	PASS
2440	19.171	0.0826	1.0	PASS
2480	18.957	0.0787	1.0	PASS

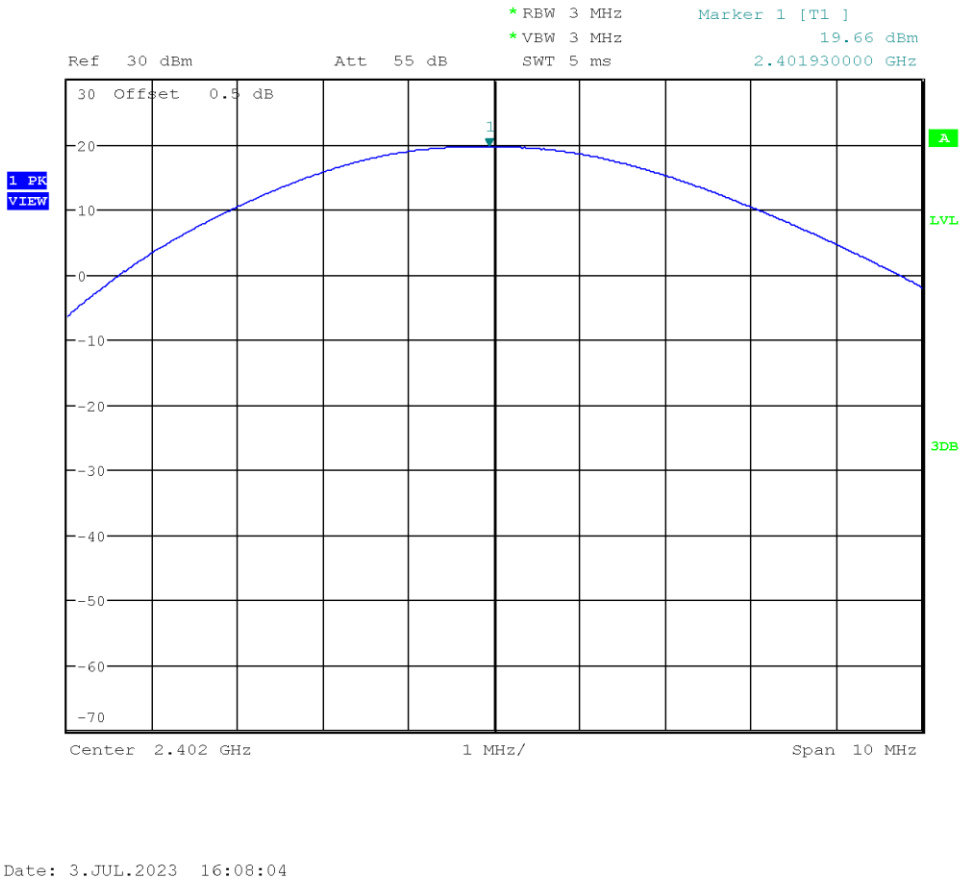
Test Results 2 Mbps - FCC				
Channel [MHz]	Channel [MHz]	Channel [MHz]	Channel [MHz]	Channel [MHz]
2402	19.266	0.0845	1.0	PASS
2440	19.308	0.0853	1.0	PASS
2480	18.023	0.0634	1.0	PASS

Test Results 1 Mbps - ISED							
Channel [MHz]	Conducted Power [dBm	Conducted Power [W]	Conducted Limit [W]	EIRP Power [dBm]	EIRP Power [W]	EIRP Limit [W]	Verdict
2402	19.665	0.0926	1.0	23.765	0.237	4.0	PASS
2440	19.171	0.0826	1.0	23.271	0.212	4.0	PASS
2480	18.957	0.0787	1.0	23.057	0.202	4.0	PASS

Test Results 1 Mbps - ISED							
Channel [MHz]	Conducted Power [dBm	Conducted Power [W]	Conducted Limit [W]	EIRP Power [dBm]	EIRP Power [W]	EIRP Limit [W]	Verdict
2402	19.266	0.0845	1.0	23.366	0.217	4.0	PASS
2440	19.308	0.0853	1.0	23.408	0.219	4.0	PASS
2480	18.023	0.0634	1.0	22.123	0.163	4.0	PASS

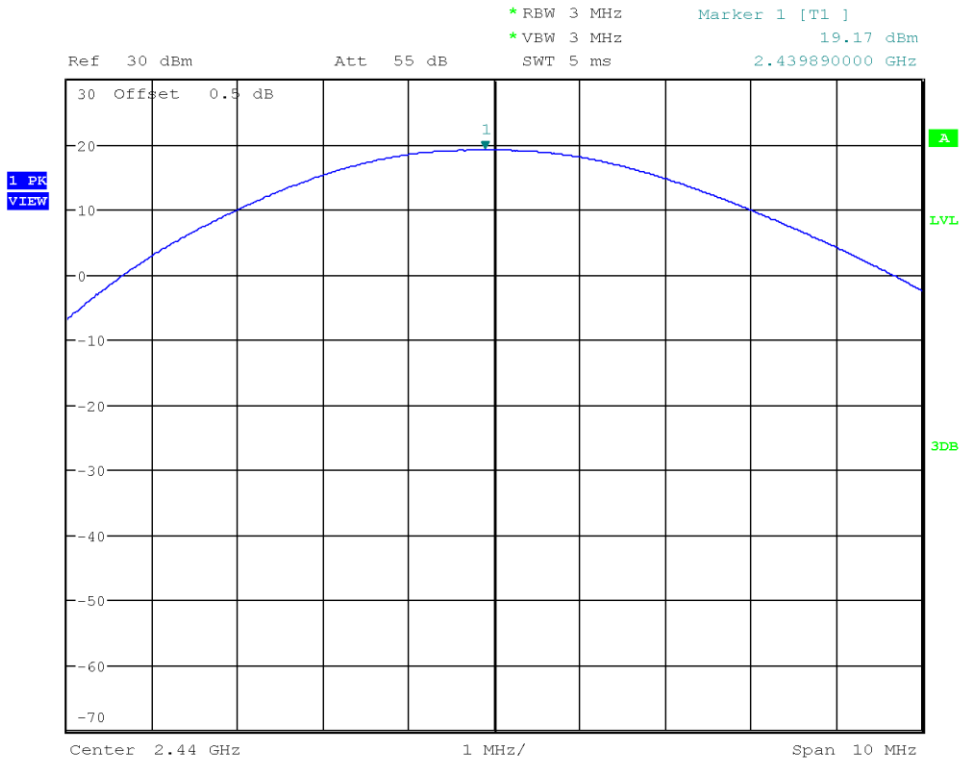
Peak Conducted Output Power

Project Number:	G0M-2302-1881
Applicant:	u-blox AG
Model Description:	Host-based multiradio module
Model:	MAYA-W271-00B
Test Sample ID:	43094
Reference Standards:	FCC 15.247, RSS-247
Reference Method:	ANSI C63.10:2013, Section 11.9.1.1
Operational Mode:	GFSK, Channel: 0, 2402 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Radwan Jaafar
Test Site:	Eurofins Product Service GmbH
Test Date:	2023-07-03
Note:	PHY 1 Mbps,PRBS9, 193 bytes, Pmax (19 dBm)
Peak Power [dBm]:	19.665
Peak Power [W]:	0.0926



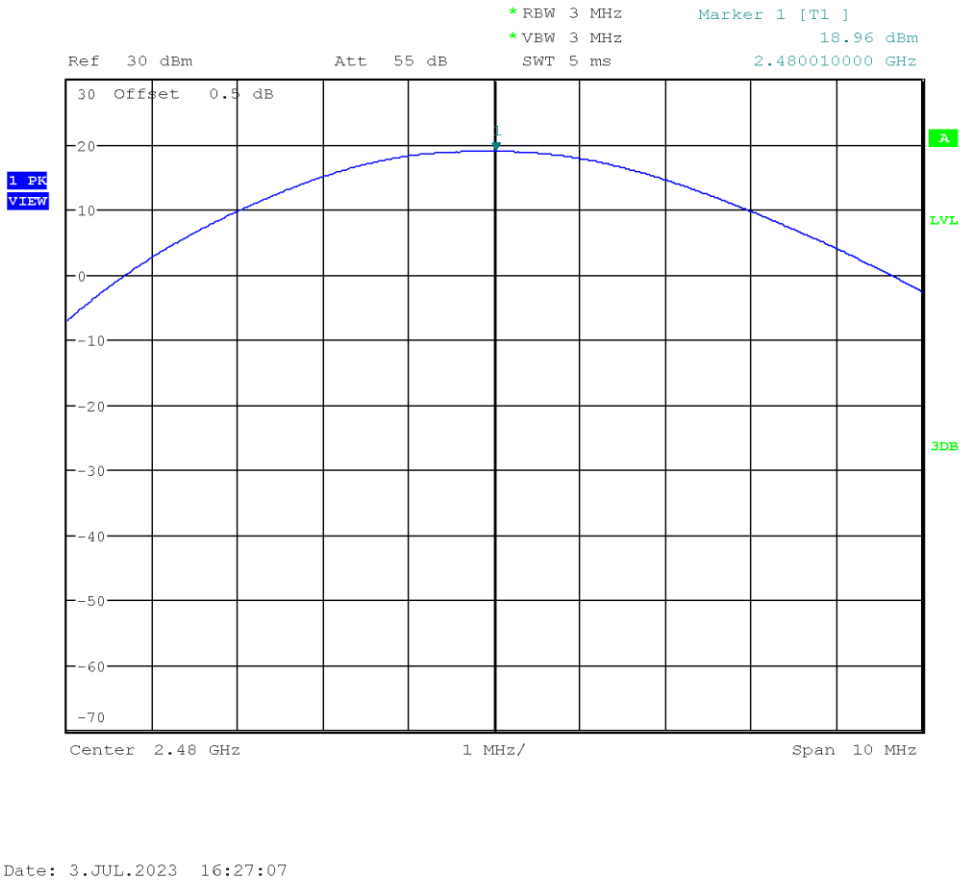
Peak Conducted Output Power

Project Number:	G0M-2302-1881
Applicant:	u-blox AG
Model Description:	Host-based multiradio module
Model:	MAYA-W271-00B
Test Sample ID:	43093
Reference Standards:	FCC 15.247, RSS-247
Reference Method:	ANSI C63.10:2013, Section 11.9.1.1
Operational Mode:	GFSK, Channel: 19, 2440 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Radwan Jaafar
Test Site:	Eurofins Product Service GmbH
Test Date:	2023-07-03
Note:	PHY 1 Mbps,PRBS9, 193 bytes, Pmax (19 dBm)
Peak Power [dBm]:	19.171
Peak Power [W]:	0.0826



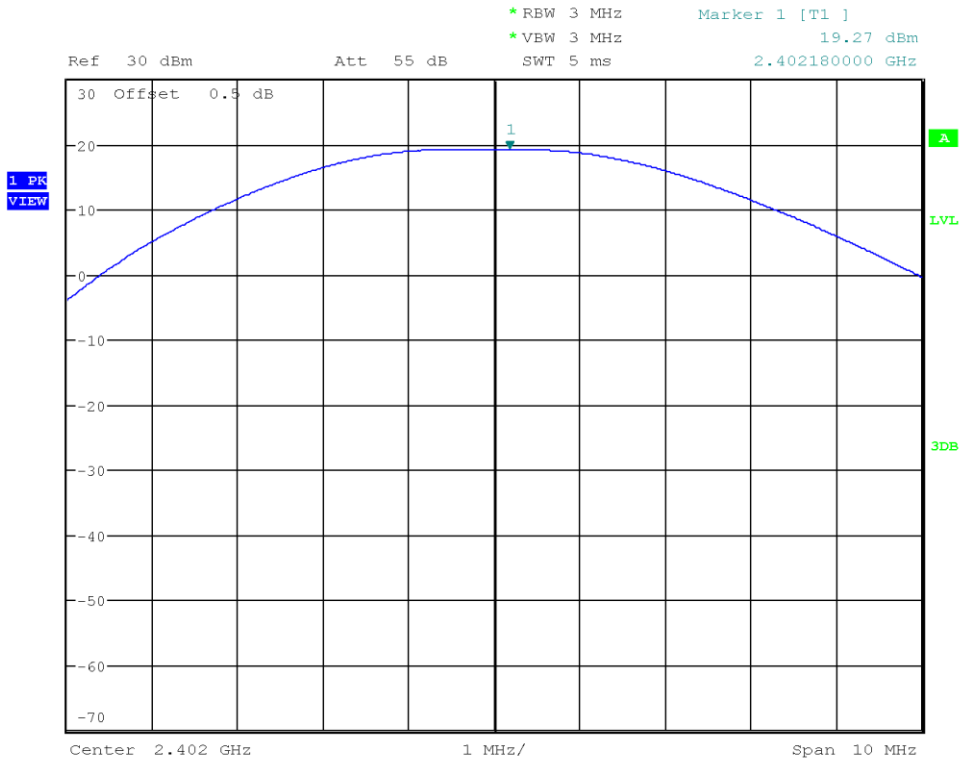
Peak Conducted Output Power

Project Number:	G0M-2302-1881
Applicant:	u-blox AG
Model Description:	Host-based multiradio module
Model:	MAYA-W271-00B
Test Sample ID:	43093
Reference Standards:	FCC 15.247, RSS-247
Reference Method:	ANSI C63.10:2013, Section 11.9.1.1
Operational Mode:	GFSK, Channel: 39, 2480 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Radwan Jaafar
Test Site:	Eurofins Product Service GmbH
Test Date:	2023-07-03
Note:	PHY 1 Mbps,PRBS9, 193 bytes, Pmax (19 dBm)
Peak Power [dBm]:	18.957
Peak Power [W]:	0.0787



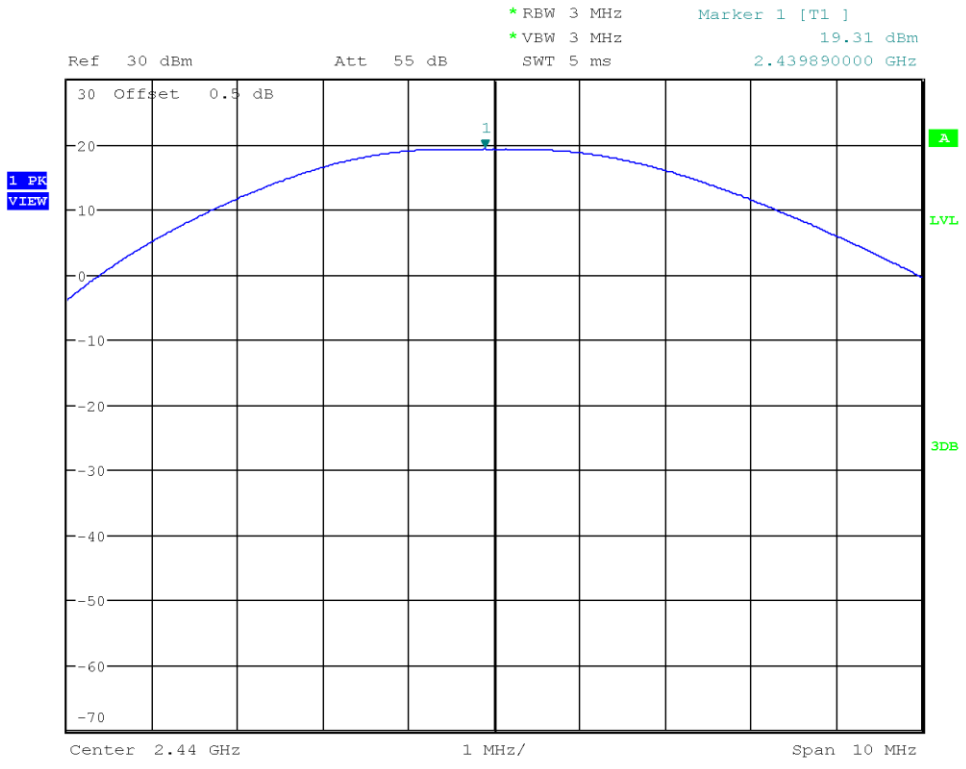
Peak Conducted Output Power

Project Number:	G0M-2302-1881
Applicant:	u-blox AG
Model Description:	Host-based multiradio module
Model:	MAYA-W271-00B
Test Sample ID:	43093
Reference Standards:	FCC 15.247, RSS-247
Reference Method:	ANSI C63.10:2013, Section 11.9.1.1
Operational Mode:	GFSK, Channel: 0, 2402 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Radwan Jaafar
Test Site:	Eurofins Product Service GmbH
Test Date:	2023-07-03
Note:	PHY 2 Mbps,PRBS9, 193 bytes, Pmax (19 dBm)
Peak Power [dBm]:	19.266
Peak Power [W]:	0.0845



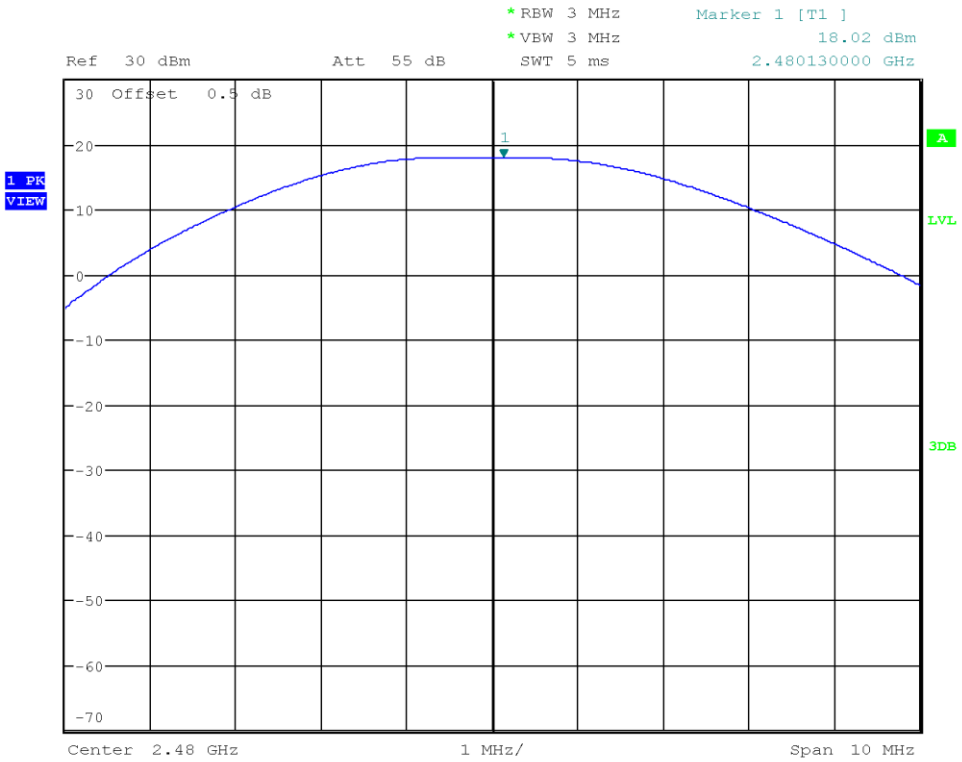
Peak Conducted Output Power

Project Number:	G0M-2302-1881
Applicant:	u-blox AG
Model Description:	Host-based multiradio module
Model:	MAYA-W271-00B
Test Sample ID:	43093
Reference Standards:	FCC 15.247, RSS-247
Reference Method:	ANSI C63.10:2013, Section 11.9.1.1
Operational Mode:	GFSK, Channel: 19, 2440 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Radwan Jaafar
Test Site:	Eurofins Product Service GmbH
Test Date:	2023-07-03
Note:	PHY 2 Mbps,PRBS9, 193 bytes, Pmax (19 dBm)
Peak Power [dBm]:	19.308
Peak Power [W]:	0.0853



Peak Conducted Output Power

Project Number:	G0M-2302-1881
Applicant:	u-blox AG
Model Description:	Host-based multiradio module
Model:	MAYA-W271-00B
Test Sample ID:	43093
Reference Standards:	FCC 15.247, RSS-247
Reference Method:	ANSI C63.10:2013, Section 11.9.1.1
Operational Mode:	GFSK, Channel: 39, 2480 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Radwan Jaafar
Test Site:	Eurofins Product Service GmbH
Test Date:	2023-07-03
Note:	PHY 2 Mbps,PRBS9, 193 bytes, Pmax (19 dBm)
Peak Power [dBm]:	18.023
Peak Power [W]:	0.0634



3.4 Test Conditions and Results - Power spectral density

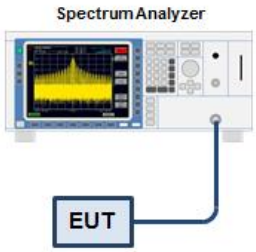
3.4.1 Information

Test Information	
Reference	FCC § 15.247(e); ISED RSS-247, Issue 2 (section 5.2)
Measurement Method	ANSI C63.10 11.10.2, 14.3.2
Measurement Uncertainty	± 2.86 dB
Operator	Ehsan Sohrabi
Date	2023-07-03

3.4.2 Limits

Limits
8 dBm / 3 kHz

3.4.3 Setup

Test Setup


3.4.4 Equipment

Test Equipment					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyser	R&S	FSU 26	EF01631	2022-08	2023-08
Cable (CAABF)	Gigalane	GIGALANE 1730	EF00779	2023-03	2024-03

3.4.5 Procedure

Test Procedure
1. EUT set to test mode 2. The analyzer is set to DTS channel center frequency with a span of 1.5 times the DTS bandwidth 3. The RBW is set to 100 kHz with VBW ≥ RBW and the detector is set to peak with max hold 4. After the trace has stabilized a marker is set to the envelope maximum 5. If the power spectral density is above the limit the RBW is reduced (not lower than 3 kHz) and the measurement is repeated 6. If the EUT has more than one transmit chain the procedure is repeated for each transmit chain

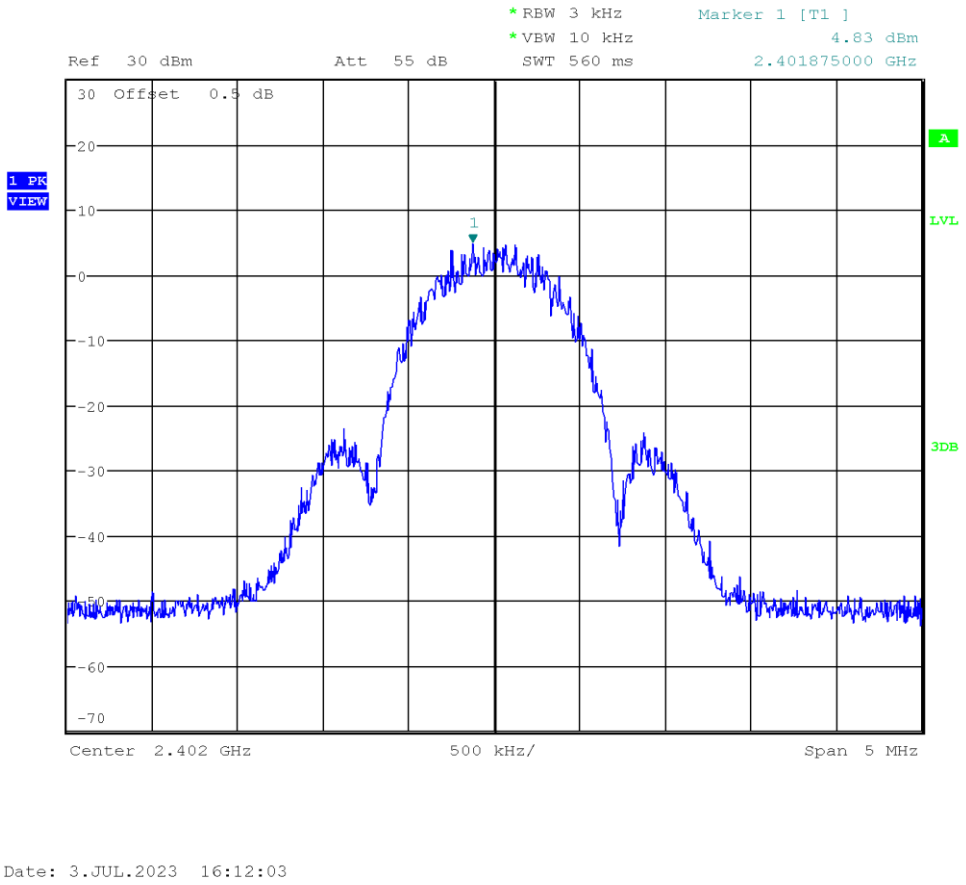
3.4.6 Results

Test Results 1 Mbps			
Channel [MHz]	PSD [dBm/RBW*]	Limit [dBm/3kHz]	Verdict
2402	4.828	8.0	PASS
2440	4.397	8.0	PASS
2480	4.008	8.0	PASS
*RBW = 3 kHz			

Test Results 2 Mbps			
Channel [MHz]	PSD [dBm/RBW]	Limit [dBm/3kHz]	Verdict
2402	7.132	8.0	PASS
2440	7.078	8.0	PASS
2480	5.807	8.0	PASS
*RBW = 10 kHz			

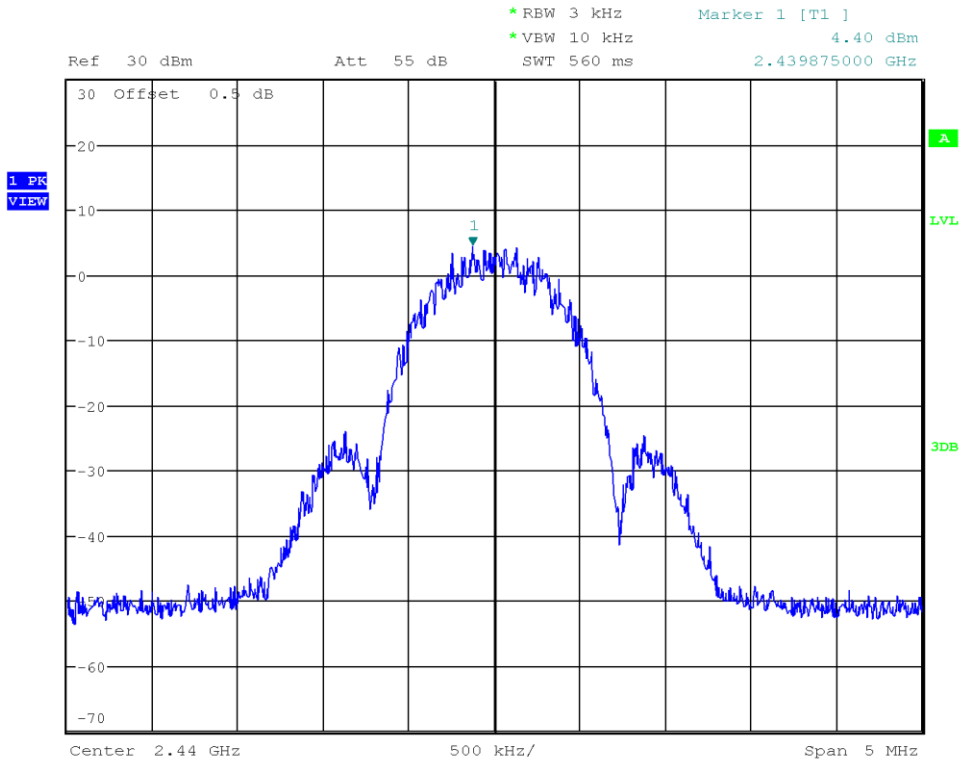
Peak Power Spectral Density

Project Number:	G0M-2302-1881
Applicant:	u-blox AG
Model Description:	Host-based multiradio module
Model:	MAYA-W271-00B
Test Sample ID:	43094
Reference Standards:	FCC 15.247, RSS-247
Reference Method:	ANSI C63.10:2013, Section 11.10.2
Operational Mode:	GFSK, Channel: 0, 2402 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Radwan Jaafar
Test Site:	Eurofins Product Service GmbH
Test Date:	2023-07-03
Note:	PHY 1 Mbps, PRBS9, 193 bytes, Pmax (19 dBm)
Peak Frequency [MHz]:	2401.875
Spectral Density [dBm/RBW]:	4.828
Resolution Bandwidth [kHz]:	3 kHz



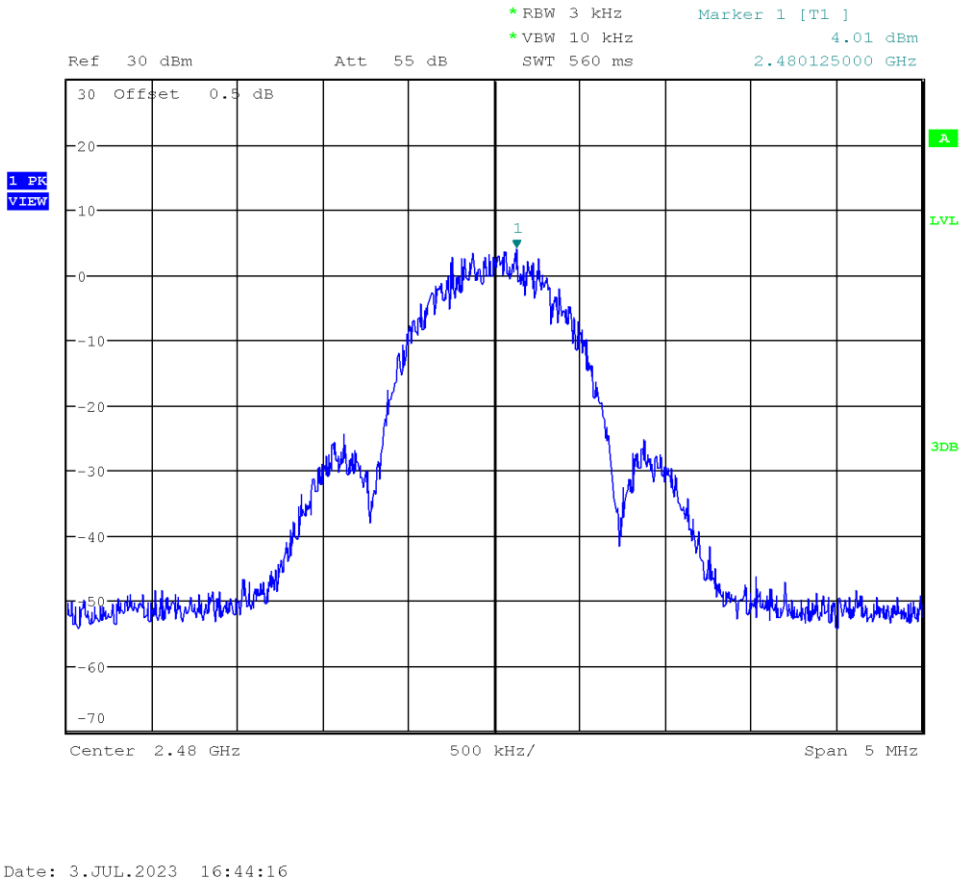
Peak Power Spectral Density

Project Number:	G0M-2302-1881
Applicant:	u-blox AG
Model Description:	Host-based multiradio module
Model:	MAYA-W271-00B
Test Sample ID:	43093
Reference Standards:	FCC 15.247, RSS-247
Reference Method:	ANSI C63.10:2013, Section 11.10.2
Operational Mode:	GFSK, Channel: 19, 2440 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Radwan Jaafar
Test Site:	Eurofins Product Service GmbH
Test Date:	2023-07-03
Note:	PHY 1 Mbps, PRBS9, 193 bytes, Pmax (19 dBm)
Peak Frequency [MHz]:	2439.875
Spectral Density [dBm/RBW]:	4.397
Resolution Bandwidth [kHz]:	3 kHz



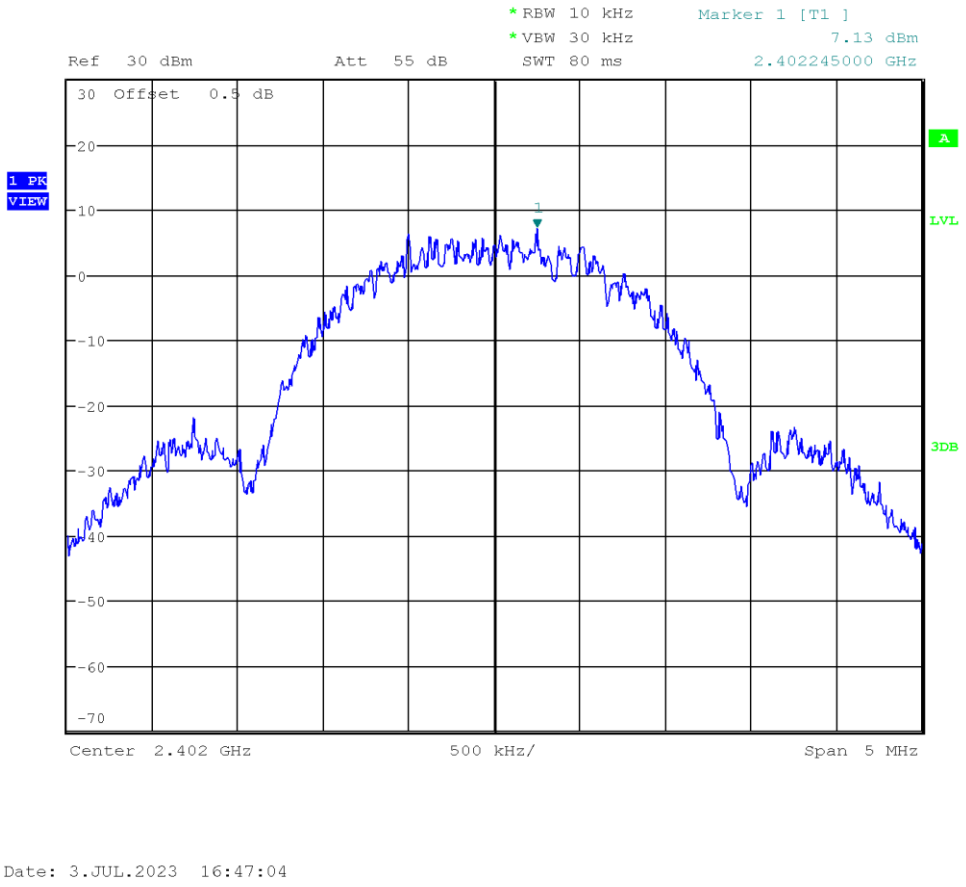
Peak Power Spectral Density

Project Number:	G0M-2302-1881
Applicant:	u-blox AG
Model Description:	Host-based multiradio module
Model:	MAYA-W271-00B
Test Sample ID:	43093
Reference Standards:	FCC 15.247, RSS-247
Reference Method:	ANSI C63.10:2013, Section 11.10.2
Operational Mode:	GFSK, Channel: 39, 2480 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Radwan Jaafar
Test Site:	Eurofins Product Service GmbH
Test Date:	2023-07-03
Note:	PHY 1 Mbps, PRBS9, 193 bytes, Pmax (19 dBm)
Peak Frequency [MHz]:	2480.125
Spectral Density [dBm/RBW]:	4.008
Resolution Bandwidth [kHz]:	3 kHz



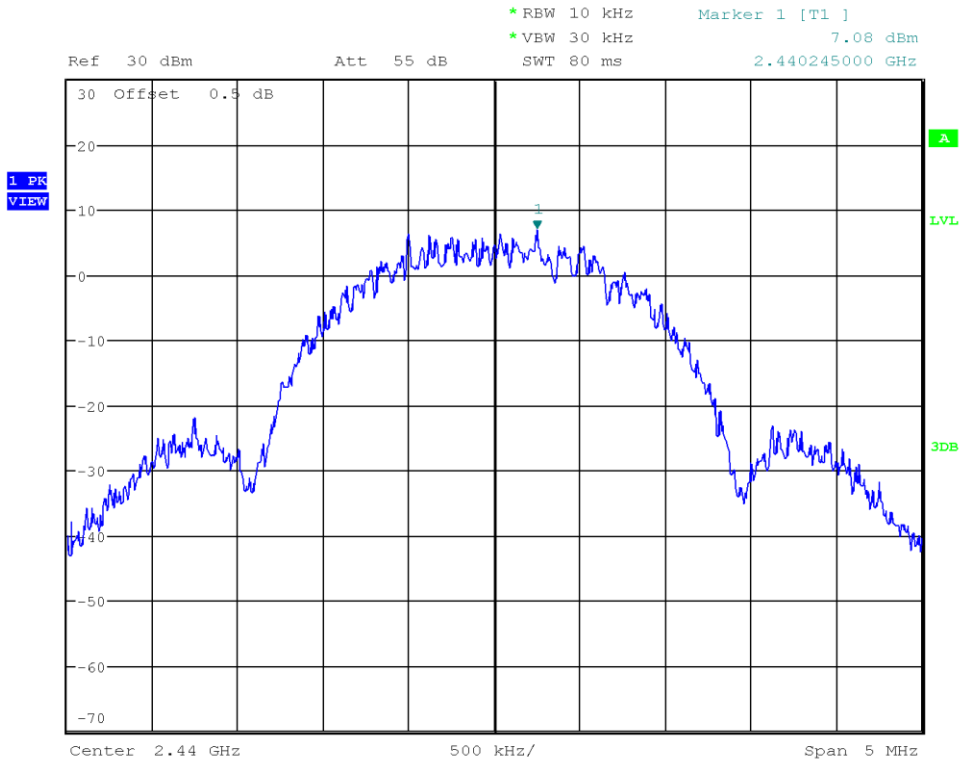
Peak Power Spectral Density

Project Number:	G0M-2302-1881
Applicant:	u-blox AG
Model Description:	Host-based multiradio module
Model:	MAYA-W271-00B
Test Sample ID:	43093
Reference Standards:	FCC 15.247, RSS-247
Reference Method:	ANSI C63.10:2013, Section 11.10.2
Operational Mode:	GFSK, Channel: 0, 2402 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Radwan Jaafar
Test Site:	Eurofins Product Service GmbH
Test Date:	2023-07-03
Note:	PHY 2 Mbps, PRBS9, 193 bytes, Pmax (19 dBm)
Peak Frequency [MHz]:	2402.245
Spectral Density [dBm/RBW]:	7.132
Resolution Bandwidth [kHz]:	10 kHz



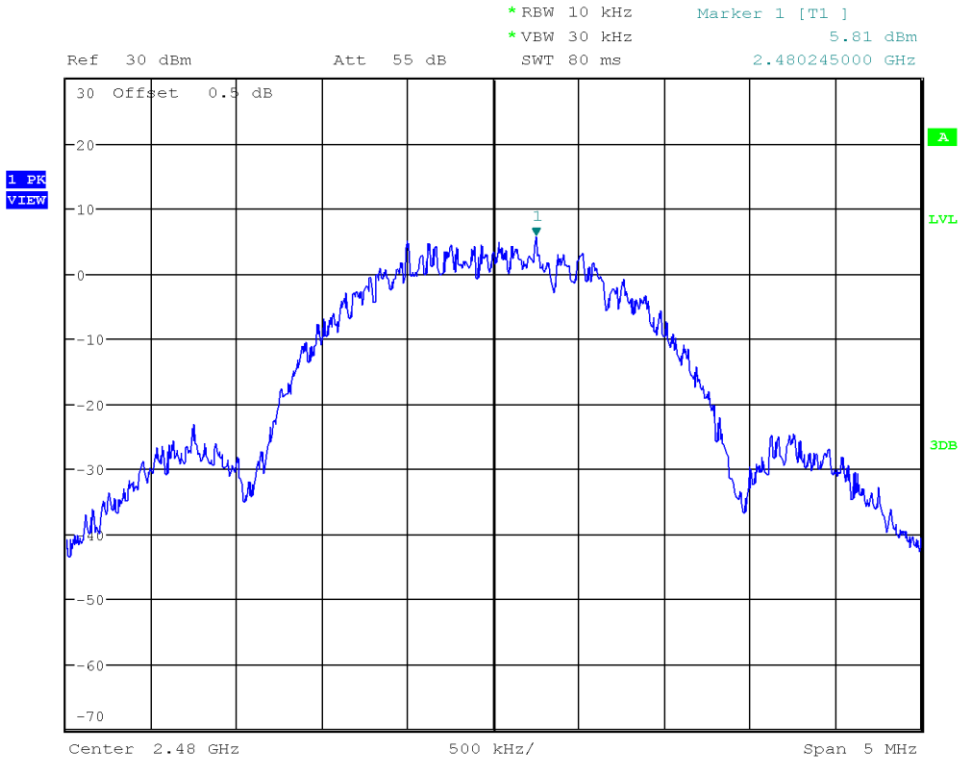
Peak Power Spectral Density

Project Number:	G0M-2302-1881
Applicant:	u-blox AG
Model Description:	Host-based multiradio module
Model:	MAYA-W271-00B
Test Sample ID:	43093
Reference Standards:	FCC 15.247, RSS-247
Reference Method:	ANSI C63.10:2013, Section 11.10.2
Operational Mode:	GFSK, Channel: 19, 2440 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Radwan Jaafar
Test Site:	Eurofins Product Service GmbH
Test Date:	2023-07-03
Note:	PHY 2 Mbps, PRBS9, 193 bytes, Pmax (19 dBm)
Peak Frequency [MHz]:	2440.245
Spectral Density [dBm/RBW]:	7.078
Resolution Bandwidth [kHz]:	10 kHz



Peak Power Spectral Density

Project Number:	G0M-2302-1881
Applicant:	u-blox AG
Model Description:	Host-based multiradio module
Model:	MAYA-W271-00B
Test Sample ID:	43093
Reference Standards:	FCC 15.247, RSS-247
Reference Method:	ANSI C63.10:2013, Section 11.10.2
Operational Mode:	GFSK, Channel: 39, 2480 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Radwan Jaafar
Test Site:	Eurofins Product Service GmbH
Test Date:	2023-07-03
Note:	PHY 2 Mbps, PRBS9, 193 bytes, Pmax (19 dBm)
Peak Frequency [MHz]:	2480.245
Spectral Density [dBm/RBW]:	5.807
Resolution Bandwidth [kHz]:	10 kHz



3.5 Test Conditions and Results - AC powerline conducted emissions

3.5.1 Information

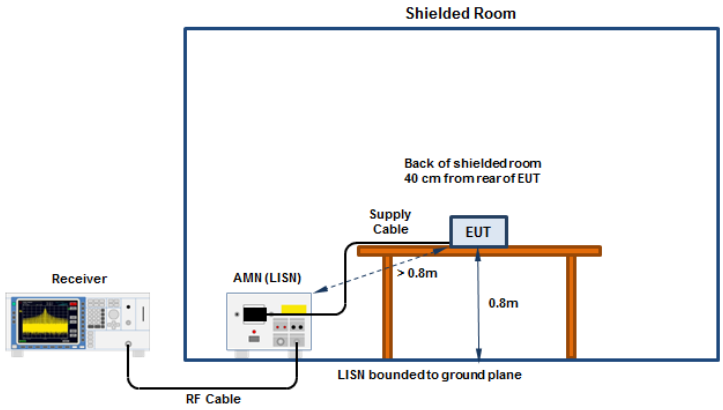
Test Information	
Reference	FCC § 15.207; ISED RSS-247, Issue 2 (section 3.1)
Measurement Method	ANSI C63.10 6.2
Measurement Uncertainty	± 3.82 dB
Operator	Ibraimov Azamat
Date	2023-07-25

3.5.2 Limits

Limits		
Frequency [MHz]	Quasi-Peak [dBµV]	Average [dBµV]
0.15 - 0.5	66 - 56*	56 - 46*
0.5 - 5	56	46
5 - 30	60	50
* Limit decreases linearly with the logarithm of the frequency		

3.5.3 Setup

Test Setup



3.5.4 Equipment

Test Software			
Description	Manufacturer	Name	Version
EMC Software	DARE Instruments	RadiMation	2020.1.8

Test Equipment					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
EMI Test Receiver	R&S	ESR7	EF00943	2022-07	2023-07
Pulse Limiter	R&S	ESH3-Z2	EF01222	2021-07	2023-07
LISN	Schwarzbeck	NSLK 8127 RC	EF01592	2023-06	2024-06

3.5.5 Setup Photos

Setup for measurements 150 KHz - 30 MHz
Photo exhibits removed - refer to additional exhibit

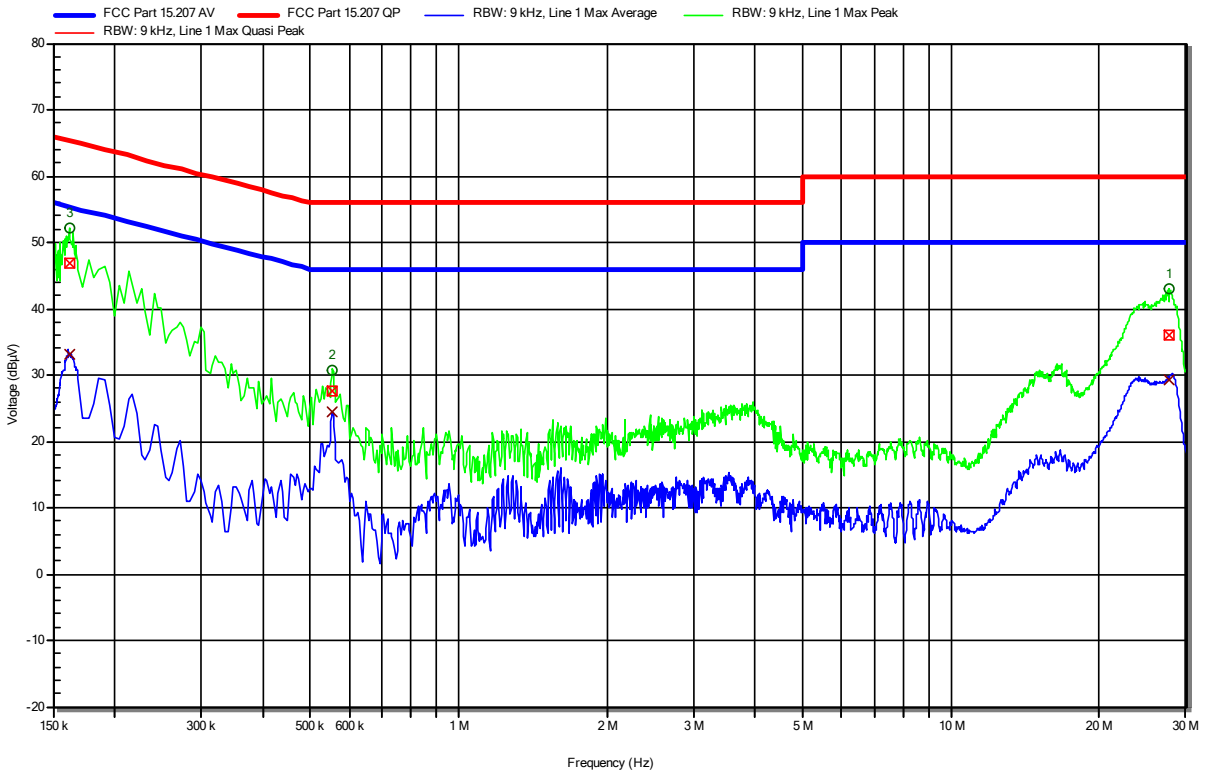
Setup for measurements 150 KHz - 30 MHz (Cables)
Photo exhibits removed - refer to additional exhibit

EUT Setup
Photo exhibits removed - refer to additional exhibit

Conducted emissions at the mains power port
according to 47 CFR Part 15.247, RSS-247

Project Number:	G0M-2302-1881
Applicant:	u-blox AG
Model Description:	Stand-alone multiradio module
Model:	MAYA-W271-00B
Test Sample ID:	43094
Test Site:	Eurofins Product Service GmbH
Operator:	Ibraimov Azamat
Test Date:	2023-07-25
Operating Conditions:	ambient temperature: 23 °Celsius power input: 3.3 VDC
LISN:	Schwarzbeck NSLK 8127 RC (L)
Operational Mode:	Tx, BLE 5.3, 2440 MHz, PRBS9_193 Bytes, 1 Mbps, P = 19 dBm
EUT Configuration:	
Applied to Port:	120 VAC / 60 Hz

Index 83
RadiMation



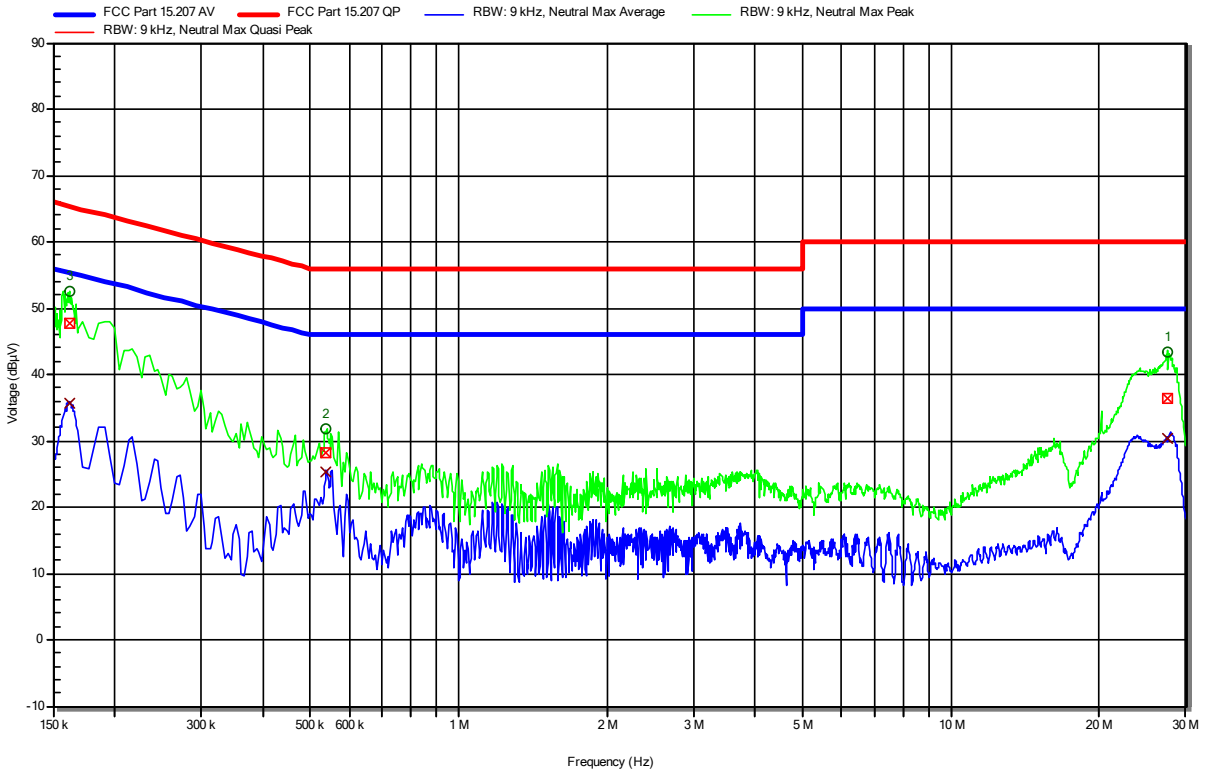
Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	LISN
1	27.659 MHz	36.1 dBµV	60 dBµV	-23.9 dB	Pass	Line 1
2	554.1 kHz	27.52 dBµV	56 dBµV	-28.48 dB	Pass	Line 1
3	161.7 kHz	46.87 dBµV	65.38 dBµV	-18.51 dB	Pass	Line 1

Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status	LISN
1	27.659 MHz	29.38 dBµV	50 dBµV	-20.62 dB	Pass	Line 1
2	554.1 kHz	24.41 dBµV	46 dBµV	-21.59 dB	Pass	Line 1
3	161.7 kHz	33.08 dBµV	55.38 dBµV	-22.3 dB	Pass	Line 1

Conducted emissions at the mains power port
according to 47 CFR Part 15.247, RSS-247

Project Number:	G0M-2302-1881
Applicant:	u-blox AG
Model Description:	Stand-alone multiradio module
Model:	MAYA-W271-00B
Test Sample ID:	43094
Test Site:	Eurofins Product Service GmbH
Operator:	Ibraimov Azamat
Test Date:	2023-07-25
Operating Conditions:	ambient temperature: 23 °Celsius power input: 3.3 VDC
LISN:	Schwarzbeck NSLK 8127 (N)
Operational Mode:	Tx, BLE 5.3, 2440 MHz, PRBS9_193 Bytes, 1 Mbps, P = 19 dBm
EUT Configuration:	
Applied to Port:	120 VAC / 60 Hz

Index 82
RadiMation

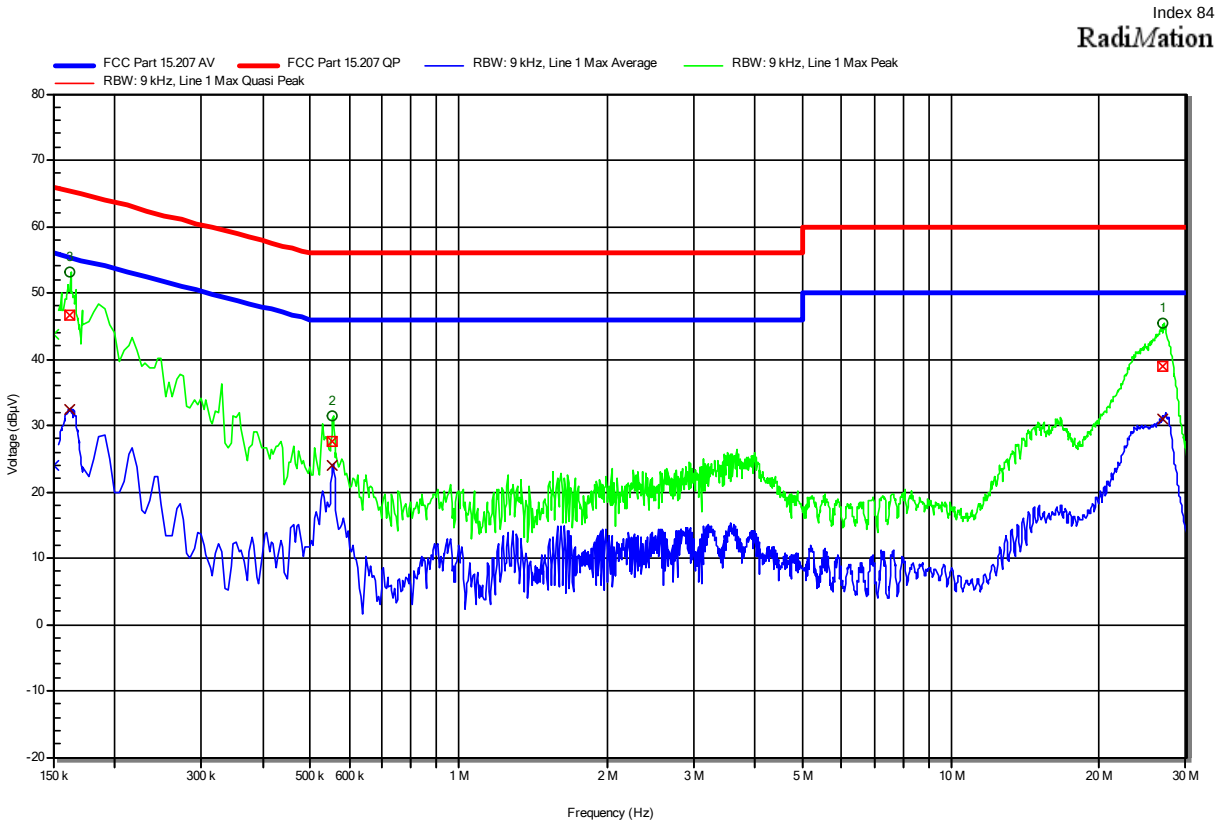


Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	LISN
1	27.614 MHz	36.41 dBµV	60 dBµV	-23.59 dB	Pass	Neutral
2	538.8 kHz	28.27 dBµV	56 dBµV	-27.73 dB	Pass	Neutral
3	161.7 kHz	47.62 dBµV	65.38 dBµV	-17.76 dB	Pass	Neutral

Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status	LISN
1	27.614 MHz	30.29 dBµV	50 dBµV	-19.71 dB	Pass	Neutral
2	538.8 kHz	25.29 dBµV	46 dBµV	-20.71 dB	Pass	Neutral
3	161.7 kHz	35.7 dBµV	55.38 dBµV	-19.68 dB	Pass	Neutral

Conducted emissions at the mains power port
according to 47 CFR Part 15.247, RSS-247

Project Number:	G0M-2302-1881
Applicant:	u-blox AG
Model Description:	Stand-alone multiradio module
Model:	MAYA-W271-00B
Test Sample ID:	43094
Test Site:	Eurofins Product Service GmbH
Operator:	Ibraimov Azamat
Test Date:	2023-07-25
Operating Conditions:	ambient temperature: 23 °Celsius power input: 3.3 VDC
LISN:	Schwarzbeck NSLK 8127 RC (L)
Operational Mode:	Rx, BT-LE 5.3, 2440 MHz
EUT Configuration:	
Applied to Port:	120 VAC / 60 Hz



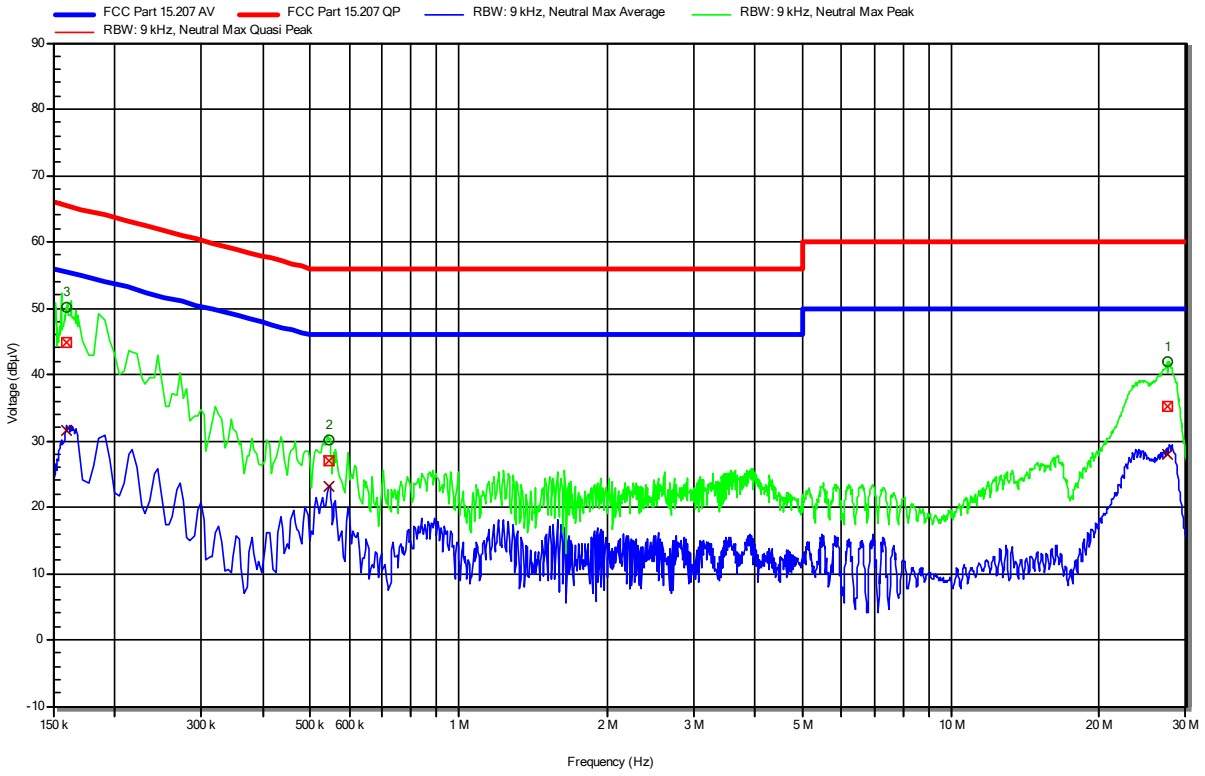
Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	LISN
1	26.912 MHz	38.98 dBµV	60 dBµV	-21.02 dB	Pass	Line 1
2	555.45 kHz	27.54 dBµV	56 dBµV	-28.46 dB	Pass	Line 1
3	162.6 kHz	46.71 dBµV	65.33 dBµV	-18.62 dB	Pass	Line 1

Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status	LISN
1	26.912 MHz	31.07 dBµV	50 dBµV	-18.93 dB	Pass	Line 1
2	555.45 kHz	24.01 dBµV	46 dBµV	-21.99 dB	Pass	Line 1
3	162.6 kHz	32.48 dBµV	55.33 dBµV	-22.85 dB	Pass	Line 1

Conducted emissions at the mains power port
according to 47 CFR Part 15.247, RSS-247

Project Number:	G0M-2302-1881
Applicant:	u-blox AG
Model Description:	Stand-alone multiradio module
Model:	MAYA-W271-00B
Test Sample ID:	43094
Test Site:	Eurofins Product Service GmbH
Operator:	Ibraimov Azamat
Test Date:	2023-07-25
Operating Conditions:	ambient temperature: 23 °Celsius power input: 3.3 VDC
LISN:	Schwarzbeck NSLK 8127 (N)
Operational Mode:	Rx, BT-LE 5.3, 2440 MHz
EUT Configuration:	
Applied to Port:	120 VAC / 60 Hz

Index 85
RadiMation



Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	LISN
1	27.609 MHz	35.09 dBµV	60 dBµV	-24.91 dB	Pass	Neutral
2	546 kHz	26.95 dBµV	56 dBµV	-29.05 dB	Pass	Neutral
3	159.9 kHz	44.82 dBµV	65.47 dBµV	-20.65 dB	Pass	Neutral

Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status	LISN
1	27.609 MHz	27.92 dBµV	50 dBµV	-22.08 dB	Pass	Neutral
2	546 kHz	23.17 dBµV	46 dBµV	-22.83 dB	Pass	Neutral
3	159.9 kHz	31.68 dBµV	55.47 dBµV	-23.79 dB	Pass	Neutral

3.6 Test Conditions and Results - Band-edge compliance

3.6.1 Information

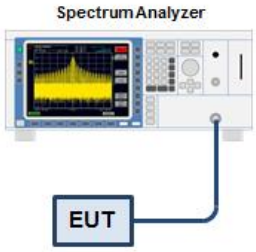
Test Information	
Reference	FCC § 15.247(d); ISED RSS-247, Issue 2 (section 5.5)
Measurement Uncertainty	± 3.64 dB
Measurement Method	ANSI C63.10 11.13
Operator	Ehsan Sohrabi
Date	2023-07-03

3.6.2 Limits

Limits	
Power Measurement	Out-of-band attenuation [dB]
Peak	20
RMS	30

3.6.3 Setup

Test Setup



3.6.4 Equipment

Test Equipment					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyser	R&S	FSU 26	EF01631	2022-08	2023-08
Cable (CAABF)	Gigalane	GIGALANE 1730	EF00779	2023-03	2024-03

3.6.5 Procedure

Test Procedure

1. EUT set to test mode (Communication tester is used if needed)
2. Span set around lower band edge and detector is set to peak and max hold
3. Resolution bandwidth is set to 100 kHz
4. Markers are set to peak emission levels within frequency band and outside frequency band
5. Band edge attenuation is determined from level difference

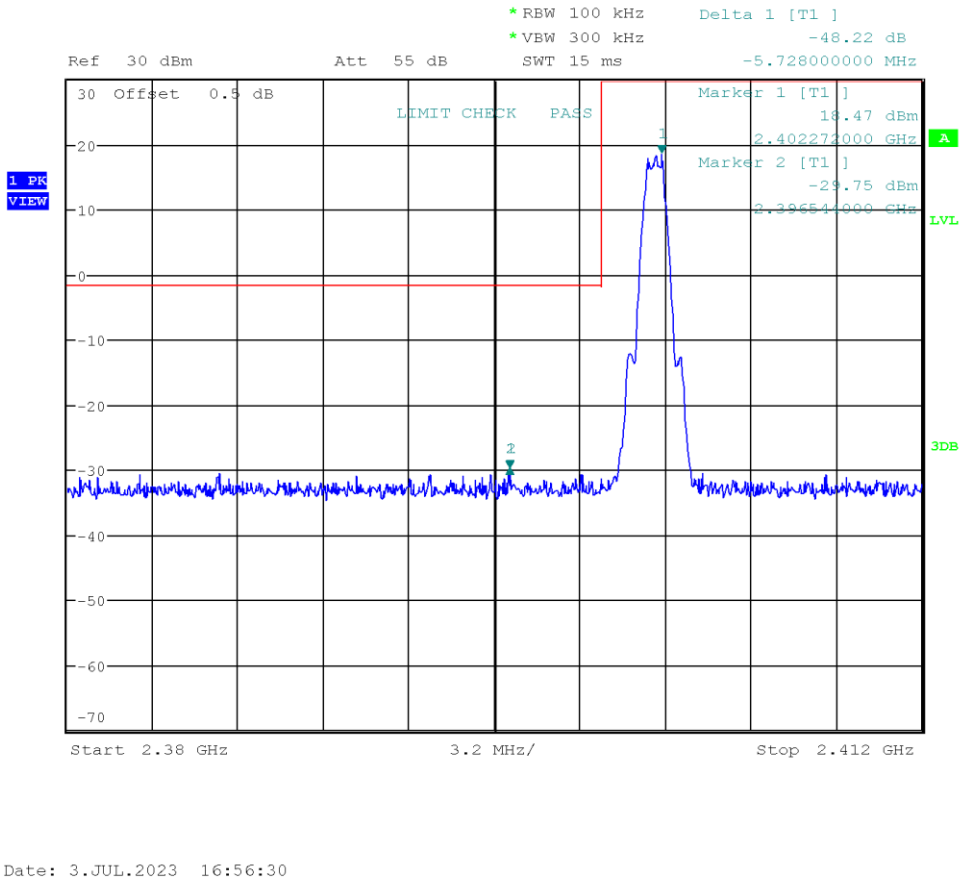
3.6.6 Results

Test Results 1 Mbps				
Mode	Channel [MHz]	Out-of-band Attenuation [dB]	Limit [dB]	Verdict
GFSK	2402	-48.22	-20	PASS
GFSK	2480	-48.46	-20	PASS

Test Results 2 Mbps				
Mode	Channel [MHz]	Out-of-band Attenuation [dB]	Limit [dB]	Verdict
GFSK	2402	-32.28	-20	PASS
GFSK	2480	-46.67	-20	PASS

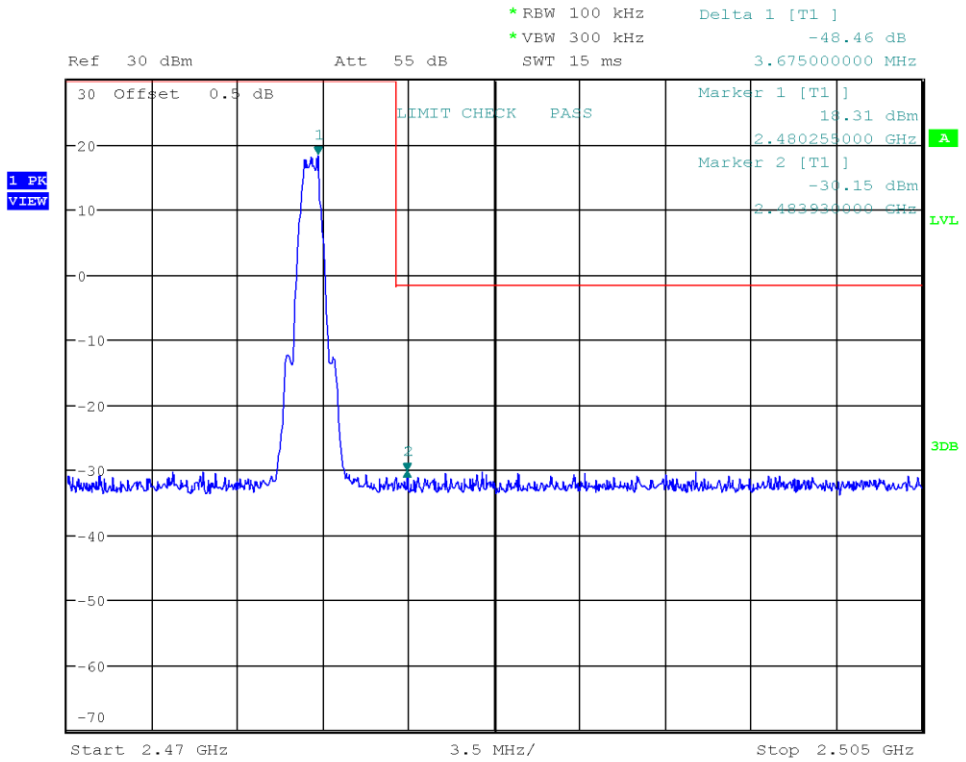
Emissions in nonrestricted frequency bands at the Band-edge

Project Number:	G0M-2302-1881
Applicant:	u-blox AG
Model Description:	Host-based multiradio module
Model:	MAYA-W271-00B
Test Sample ID:	43093
Reference Standards:	FCC 15.247, RSS-247
Reference Method:	ANSI C63.10:2013, Section 7.8.6, 6.10.4
Operating Conditions:	Tnom/Vnom
Operator:	Radwan Jaafar
Test Site:	Eurofins Product Service GmbH
Test Date:	2023-07-03
Note:	PHY 1 Mbps, PRBS9, 193 bytes, Pmax (19 dBm)
Band-edge	Lower
In-band Frequency [MHz]:	2402.272
Max. in-band Level [dBm/100 kHz]:	18.471
Out-of-band Frequency [MHz]:	2396.544
Max. out-of-band Level [dBm/100 kHz]:	-29.747
Attenuation [dB]:	-48.22



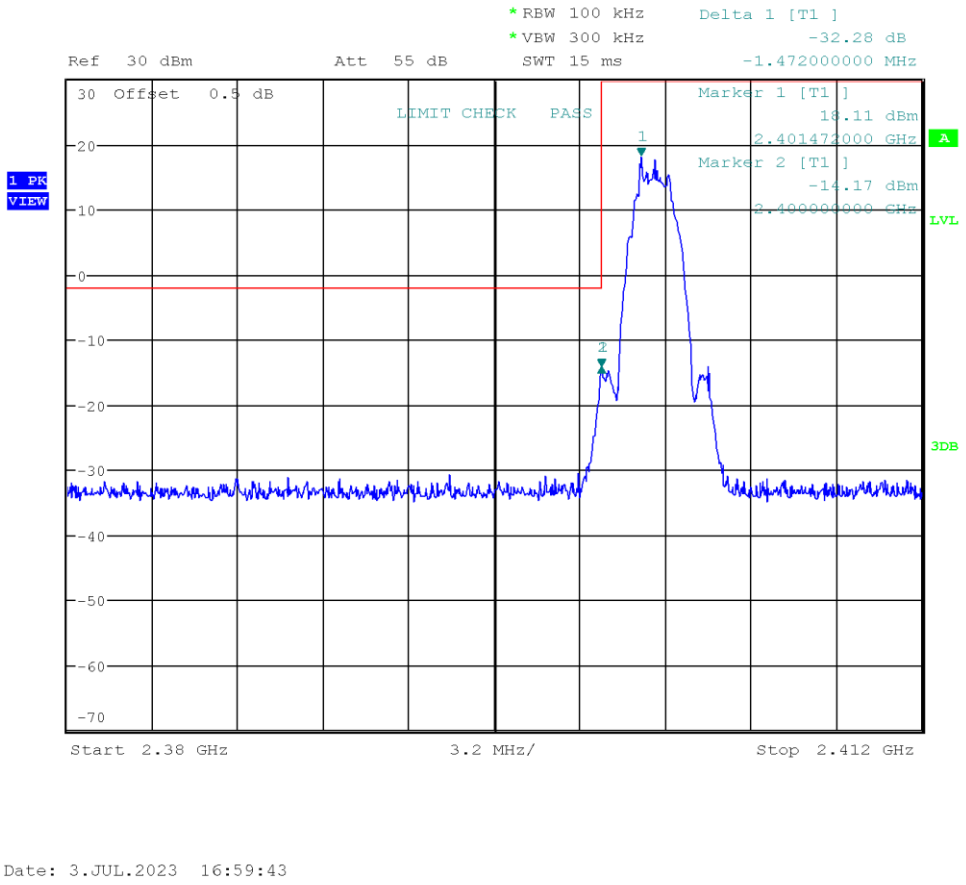
Emissions in nonrestricted frequency bands at the Band-edge

Project Number:	G0M-2302-1881
Applicant:	u-blox AG
Model Description:	Host-based multiradio module
Model:	MAYA-W271-00B
Test Sample ID:	43093
Reference Standards:	FCC 15.247, RSS-247
Reference Method:	ANSI C63.10:2013, Section 7.8.6, 6.10.4
Operating Conditions:	Tnom/Vnom
Operator:	Radwan Jaafar
Test Site:	Eurofins Product Service GmbH
Test Date:	2023-07-03
Note:	PHY 1 Mbps, PRBS9, 193 bytes, Pmax (19 dBm)
Band-edge	Upper
In-band Frequency [MHz]:	2480.255
Max. in-band Level [dBm/100 kHz]:	18.312
Out-of-band Frequency [MHz]:	2483.93
Max. out-of-band Level [dBm/100 kHz]:	-30.15
Attenuation [dB]:	-48.46



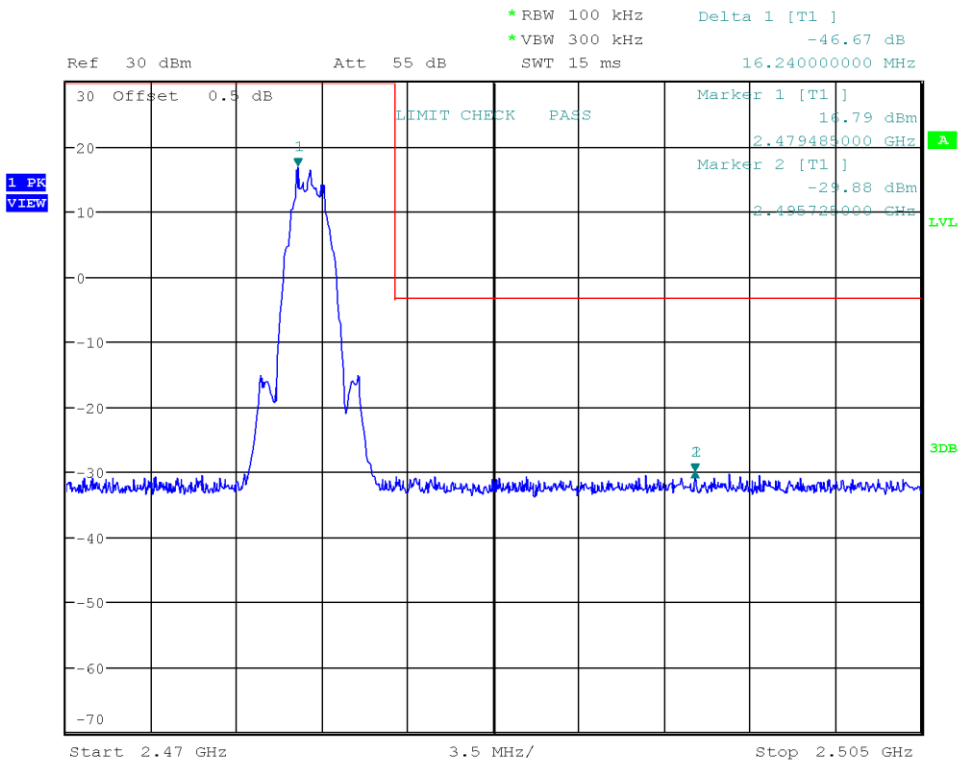
Emissions in nonrestricted frequency bands at the Band-edge

Project Number:	G0M-2302-1881
Applicant:	u-blox AG
Model Description:	Host-based multiradio module
Model:	MAYA-W271-00B
Test Sample ID:	43093
Reference Standards:	FCC 15.247, RSS-247
Reference Method:	ANSI C63.10:2013, Section 7.8.6, 6.10.4
Operating Conditions:	Tnom/Vnom
Operator:	Radwan Jaafar
Test Site:	Eurofins Product Service GmbH
Test Date:	2023-07-03
Note:	PHY 2 Mbps, PRBS9, 193 bytes, Pmax (19 dBm)
Band-edge	Lower
In-band Frequency [MHz]:	2401.472
Max. in-band Level [dBm/100 kHz]:	18.11
Out-of-band Frequency [MHz]:	2400.0
Max. out-of-band Level [dBm/100 kHz]:	-14.174
Attenuation [dB]:	-32.28



Emissions in nonrestricted frequency bands at the Band-edge

Project Number:	G0M-2302-1881
Applicant:	u-blox AG
Model Description:	Host-based multiradio module
Model:	MAYA-W271-00B
Test Sample ID:	43093
Reference Standards:	FCC 15.247, RSS-247
Reference Method:	ANSI C63.10:2013, Section 7.8.6, 6.10.4
Operating Conditions:	Tnom/Vnom
Operator:	Radwan Jaafar
Test Site:	Eurofins Product Service GmbH
Test Date:	2023-07-03
Note:	PHY 2 Mbps, PRBS9, 193 bytes, Pmax (19 dBm)
Band-edge	Upper
In-band Frequency [MHz]:	2479.485
Max. in-band Level [dBm/100 kHz]:	16.786
Out-of-band Frequency [MHz]:	2495.725
Max. out-of-band Level [dBm/100 kHz]:	-29.884
Attenuation [dB]:	-46.67



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3.7 Test Conditions and Results - Conducted spurious emissions

3.7.1 Information

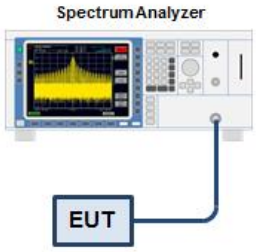
Test Information	
Reference	FCC § 15.247(d); ISED RSS-247, Issue 2 (section 5.5)
Measurement Uncertainty	± 4.25 dB
Measurement Method	ANSI C63.10 11.11
Operator	Ehsan Sohrabi
Date	2023-07-03

3.7.2 Limits

Limits	
Power Measurement	Out-of-band attenuation [dB]
Peak	20
RMS	30

3.7.3 Setup

Test Setup



3.7.4 Equipment

Test Equipment					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyser	R&S	FSU 26	EF01631	2022-08	2023-08
Cable (CAABF)	Gigalane	GIGALANE 1730	EF00779	2023-03	2024-03

3.7.5 Procedure

Test Procedure

1. EUT set to test mode (Communication tester is used if needed)
2. Span set around lower band edge and detector is set to peak and max hold
3. Resolution bandwidth is set to 100 kHz
4. Markers are set to peak emission levels outside frequency band

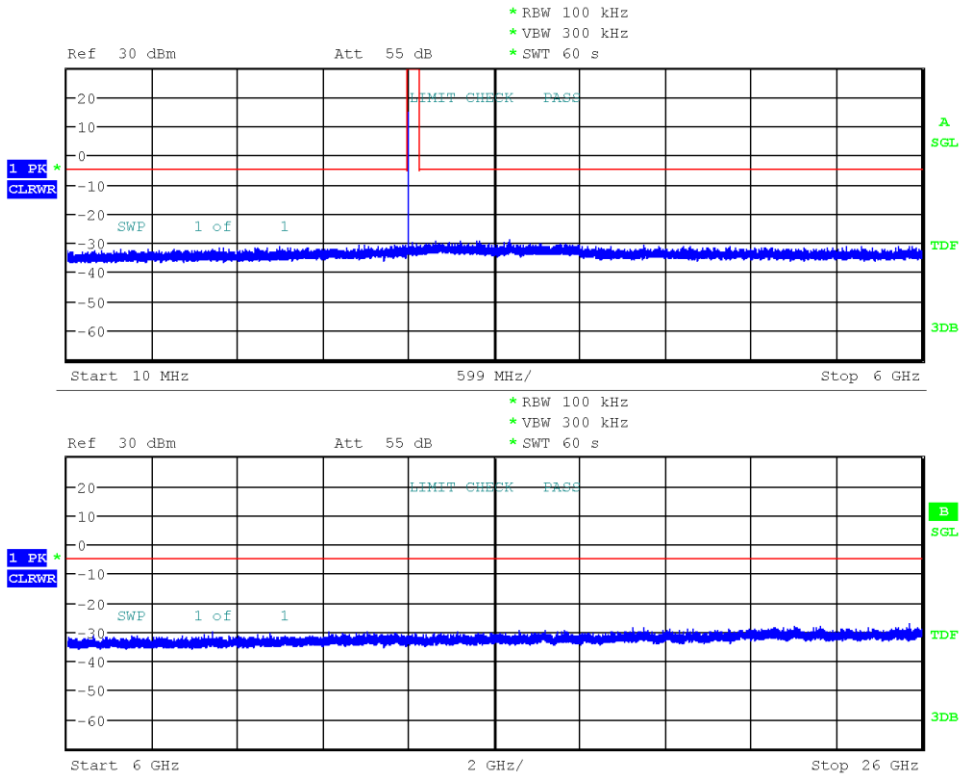
3.7.6 Results

Test Results 1 Mbps		
Mode	Channel [MHz]	Verdict
GFSK	2402	PASS
GFSK	2440	PASS
GFSK	2480	PASS

Test Results 2 Mbps		
Mode	Channel [MHz]	Verdict
GFSK	2402	PASS
GFSK	2440	PASS
GFSK	2480	PASS

Conducted Spurious Emissions

Project Number:	G0M-2302-1881
Applicant:	u-blox AG
Model Description:	Host-based multiradio module
Model:	MAYA-W271-00B
Test Sample ID:	43093
Reference Standards:	FCC 15.247, RSS-247
Reference Method:	ANSI C63.10:2013, Section 11.11
Operational Mode:	GFSK, Channel: 0, 2402 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Radwan Jaafar
Test Site:	Eurofins Product Service GmbH
Test Date:	2023-07-03
Note:	PHY 1 Mbps, PRBS9, 193 bytes, Pmax (19 dBm)
Max. in-band Frequency [MHz]:	2402.3
Max. in-band Level [dBm/100 kHz]:	15.2
Out-of-band Limit [dBm/100 kHz]:	-4.8



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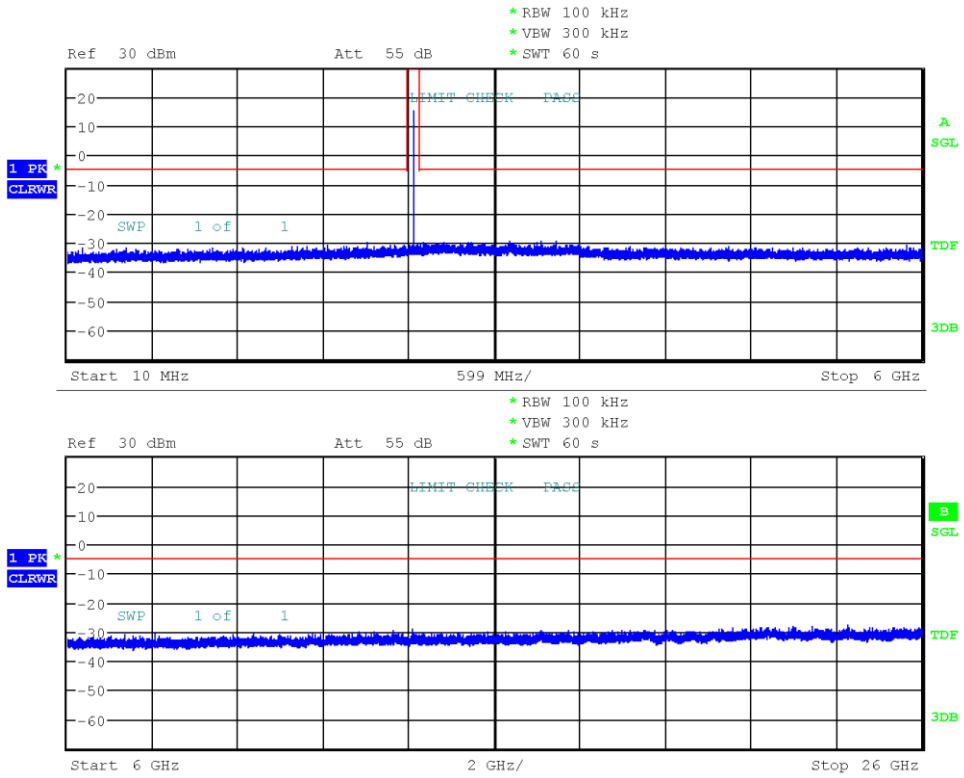
Conducted Spurious Emissions

Project Number:	G0M-2302-1881
Applicant:	u-blox AG
Model Description:	Host-based multiradio module
Model:	MAYA-W271-00B
Test Sample ID:	43093
Reference Standards:	FCC 15.247, RSS-247
Reference Method:	ANSI C63.10:2013, Section 11.11
Operational Mode:	GFSK, Channel: 19, 2440 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Radwan Jaafar
Test Site:	Eurofins Product Service GmbH
Test Date:	2023-07-03
Note:	PHY 1 Mbps, PRBS9, 193 bytes, Pmax (19 dBm)
Max. in-band Frequency [MHz]:	2440.3
Max. in-band Level [dBm/100 kHz]:	15.3
Out-of-band Limit [dBm/100 kHz]:	-4.7



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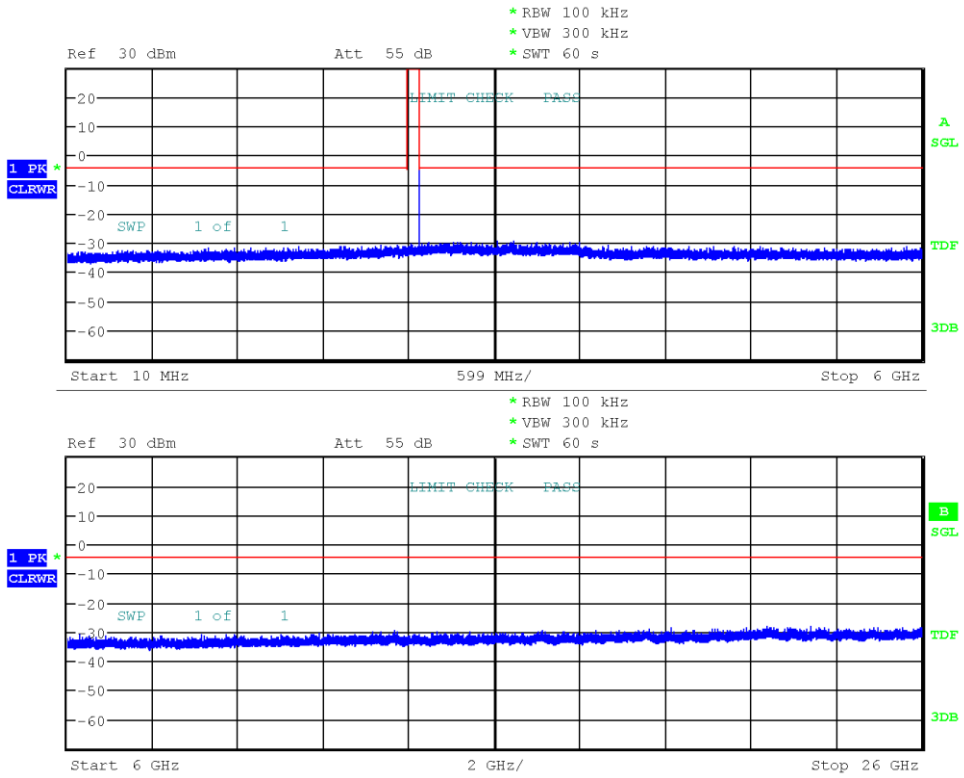
Conducted Spurious Emissions

Project Number:	G0M-2302-1881
Applicant:	u-blox AG
Model Description:	Host-based multiradio module
Model:	MAYA-W271-00B
Test Sample ID:	43093
Reference Standards:	FCC 15.247, RSS-247
Reference Method:	ANSI C63.10:2013, Section 11.11
Operational Mode:	GFSK, Channel: 39, 2480 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Radwan Jaafar
Test Site:	Eurofins Product Service GmbH
Test Date:	2023-07-03
Note:	PHY 1 Mbps, PRBS9, 193 bytes, Pmax (19 dBm)
Max. in-band Frequency [MHz]:	2480.3
Max. in-band Level [dBm/100 kHz]:	15.6
Out-of-band Limit [dBm/100 kHz]:	-4.4



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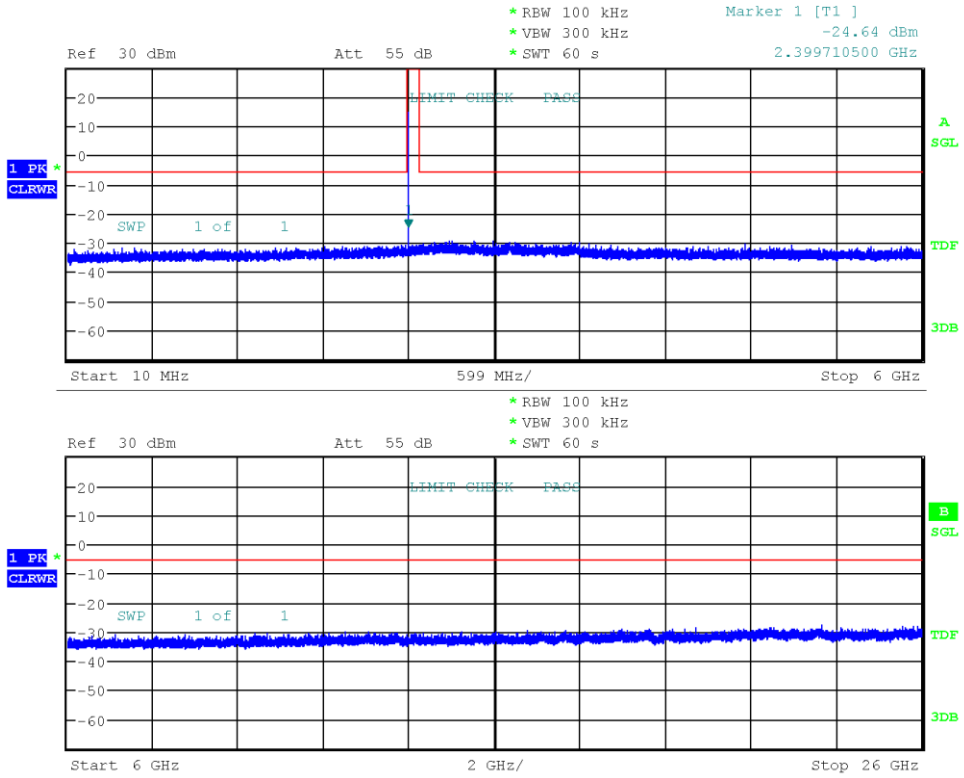
Conducted Spurious Emissions

Project Number:	G0M-2302-1881
Applicant:	u-blox AG
Model Description:	Host-based multiradio module
Model:	MAYA-W271-00B
Test Sample ID:	43093
Reference Standards:	FCC 15.247, RSS-247
Reference Method:	ANSI C63.10:2013, Section 11.11
Operational Mode:	GFSK, Channel: 0, 2402 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Radwan Jaafar
Test Site:	Eurofins Product Service GmbH
Test Date:	2023-07-03
Note:	PHY 2 Mbps, PRBS9, 193 bytes, Pmax (19 dBm)
Max. in-band Frequency [MHz]:	2401.5
Max. in-band Level [dBm/100 kHz]:	14.9
Out-of-band Limit [dBm/100 kHz]:	-5.1



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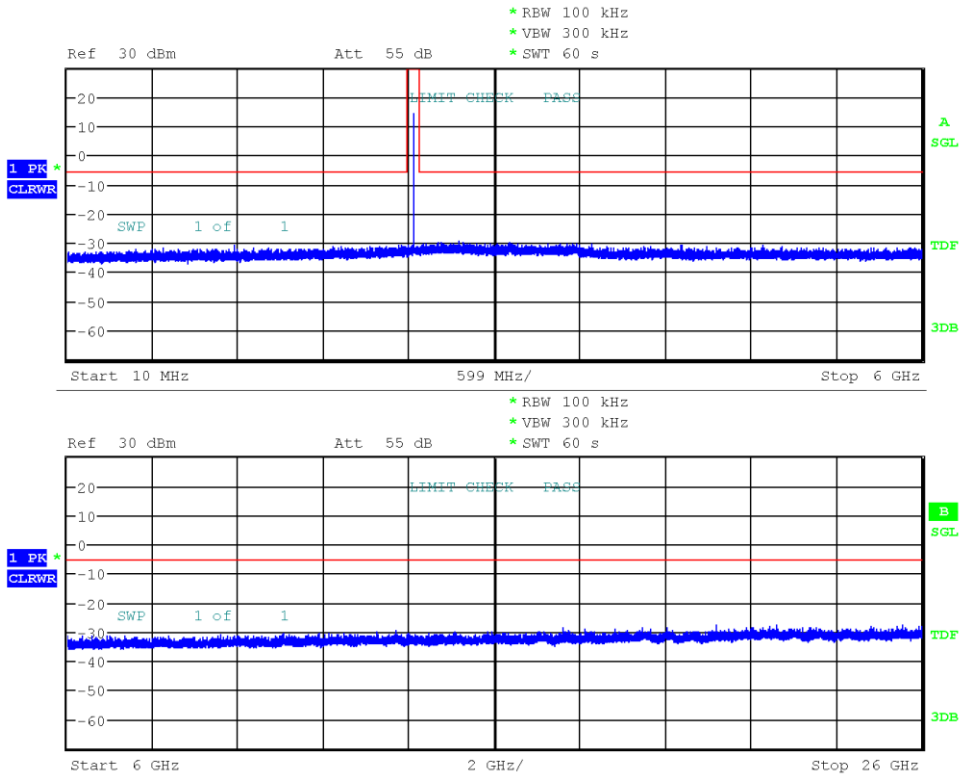
Conducted Spurious Emissions

Project Number:	G0M-2302-1881
Applicant:	u-blox AG
Model Description:	Host-based multiradio module
Model:	MAYA-W271-00B
Test Sample ID:	43093
Reference Standards:	FCC 15.247, RSS-247
Reference Method:	ANSI C63.10:2013, Section 11.11
Operational Mode:	GFSK, Channel: 19, 2440 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Radwan Jaafar
Test Site:	Eurofins Product Service GmbH
Test Date:	2023-07-03
Note:	PHY 2 Mbps, PRBS9, 193 bytes, Pmax (19 dBm)
Max. in-band Frequency [MHz]:	2439.5
Max. in-band Level [dBm/100 kHz]:	14.8
Out-of-band Limit [dBm/100 kHz]:	-5.2



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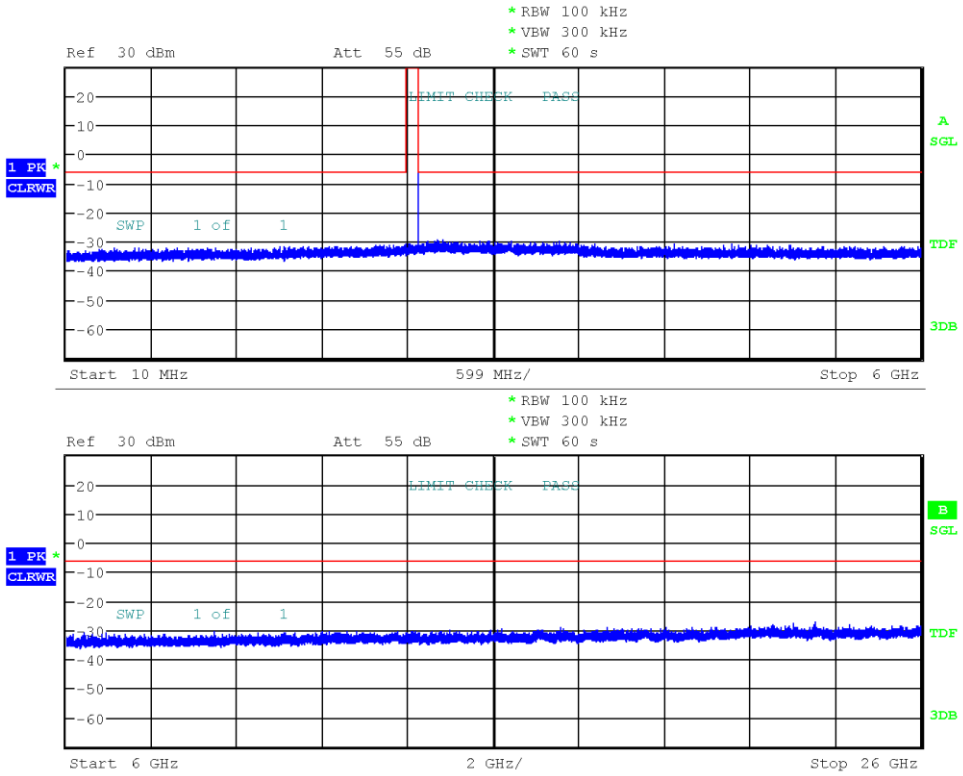
Conducted Spurious Emissions

Project Number:	G0M-2302-1881
Applicant:	u-blox AG
Model Description:	Host-based multiradio module
Model:	MAYA-W271-00B
Test Sample ID:	43093
Reference Standards:	FCC 15.247, RSS-247
Reference Method:	ANSI C63.10:2013, Section 11.11
Operational Mode:	GFSK, Channel: 39, 2480 MHz
Operating Conditions:	Tnom/Vnom
Operator:	Radwan Jaafar
Test Site:	Eurofins Product Service GmbH
Test Date:	2023-07-03
Note:	PHY 2 Mbps, PRBS9, 193 bytes, Pmax (19 dBm)
Max. in-band Frequency [MHz]:	2479.5
Max. in-band Level [dBm/100 kHz]:	14.0
Out-of-band Limit [dBm/100 kHz]:	-6.0



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3.8 Test Conditions and Results - Transmitter radiated emissions

3.8.1 Information

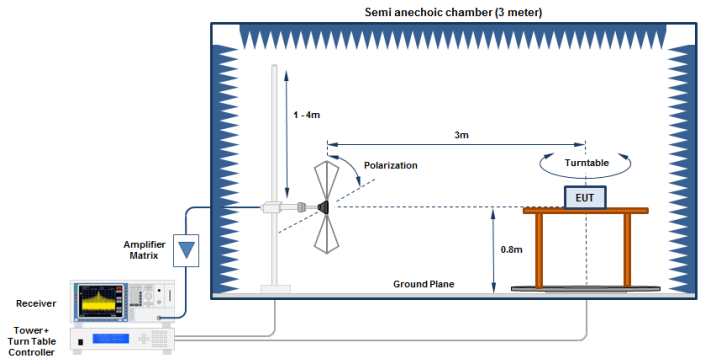
Test Information	
Reference	FCC § 15.247(d); FCC § 15.209; ISED RSS-Gen, Issue 5 A2 (section 6.13)
Measurement Uncertainty	± 5.95 dB
Measurement Method	ANSI C63.10 6.4, 6.5, 6.6, 11.12
Operator	A.Ibraimov
Date	2023-07-12

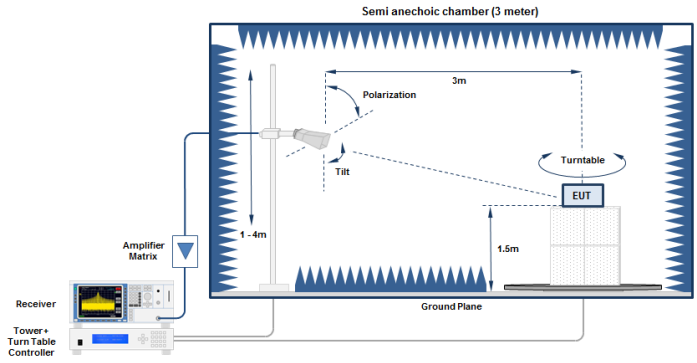
3.8.2 Limits

Limits			
Frequency range [MHz]	Detector	Field strength [µV/m]	Measurement distance [m]
0.009 - 0.09	Average	2400/F[kHz]	300
0.09 - 0.110	Quasi-Peak	2400/F[kHz]	300
0.110 - 0.490	Average	2400/F[kHz]	300
0.490 - 1.705	Quasi-Peak	24000/F[kHz]	30
1.705 - 30.0	Quasi-Peak	30	30
30 - 88	Quasi-Peak	100	3
88 - 216	Quasi-Peak	150	3
216 - 960	Quasi-Peak	200	3
960 - 1000	Quasi-Peak	500	3
>1000	Average	500	3

3.8.3 Setup

Test Setup 30 MHz - 1000 MHz



Test Setup > 1 GHz


3.8.4 Equipment

Test Software			
Description	Manufacturer	Name	Version
EMC Software	DARE Instruments	RadiMation	2020.1.8

Test Equipment 30 MHz - 1000 MHz					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Anechoic Chamber	Frankonia	AC1	EF00062	2022-11	2025-11
Measurement Receiver	Agilent	N9038A-526/WXP	EF01070	2023-02	2024-02
Antenna	Schwarzbeck	VULB 9168	EF01824	2022-10	2023-10

Test Equipment > 1 GHz					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Anechoic Chamber	Frankonia	AC2	EF01616	2022-10	2023-10
Spectrum analyzer	R&S	FSW43	EF00896	2022-08	2023-08
Antenna	Schwarzbeck	BBHA 9120B	EF01678	2021-03	2024-03
Antenna	Schwarzbeck	HWRD 650	EF01679	2021-03	2024-03
Antenna	Amplifier Research	AT4560	EF00302	2021-06	2023-09

3.8.5 Procedure

Test Procedure 30 MHz - 1000 MHz
1. EUT is placed on a non conducting support at the center of a turn table 0.8 m above the ground
2. EUT set to test mode
3. The receiver is set to peak detection with max hold
4. The EUT is rotated through 360° and the height of the antenna is varied from 1 m to 4 m
5. All significant emissions are measured again using the corresponding final detector

Test Procedure > 1 GHz
1. EUT is placed on a non conducting support at the center of a turn table 1.5 m above the ground
2. EUT set to test mode
3. The receiver is set to peak detection with max hold
4. The EUT is rotated through 360° and the height of the antenna is varied from 1 m to 4 m
5. All significant emissions are measured again using the corresponding final detector

3.8.6 Results

Test Results – 1 Mbps						
Channel [MHz]	Emission [MHz]	Level [dBµV/m]	Det.	Pol.	Limit [dBµV/m]	Margin [dB]
2402	2362	59.29	pk	ver	74.00	-14.71
2402	2362	43.83	avg	ver	54.00	-10.17
2402	2489	44.35	pk	ver	74.00	-29.65
2402	2489	37.65	avg	ver	54.00	-16.35
2402	12009	42.08	pk	ver	74.00	-31.92
2402	12009	35.10	avg	ver	54.00	-18.90
2440	2359.6	48.56	pk	ver	74.00	-25.44
2440	2359.6	40.10	avg	ver	54.00	-13.90
2440	12199	43.34	pk	ver	74.00	-30.66
2440	12199	34.29	avg	ver	54.00	-19.71
2480	2380	49.77	pk	ver	74.00	-24.23
2480	2380	41.96	avg	ver	54.00	-12.04
2480	2483.6	59.50	pk	ver	74.00	-14.50
2480	2483.6	49.30	avg	ver	54.00	-04.70
2480	4960	47.13	pk	ver	74.00	-26.87
2480	4960	44.04	avg	ver	54.00	-09.96
2480	7439	49.20	pk	ver	74.00	-24.80
2480	7439	44.37	avg	ver	54.00	-09.63
2480	12401	45.67	pk	ver	74.00	-28.33
2480	12401	38.28	avg	ver	54.00	-15.72

Test Results – 2 Mbps						
Channel [MHz]	Emission [MHz]	Level [dBµV/m]	Det.	Pol.	Limit [dBµV/m]	Margin [dB]
2402	2361.3	57.50	pk	ver	74.00	-16.50
2402	2361.3	45.42	avg	ver	54.00	-08.58
2402	4802.9	45.28	pk	hor	74.00	-28.72
2402	4802.9	38.77	avg	hor	54.00	-15.23
2440	7321.5	49.49	pk	ver	74.00	-24.51
2440	7321.5	42.88	avg	ver	54.00	-11.12
2480	2483.6	56.59	pk	ver	74.00	-17.41
2480	2483.6	49.53	avg	ver	54.00	-04.47
2480	4961	47.61	pk	ver	74.00	-26.39
2480	4961	41.03	avg	ver	54.00	-12.97

3.8.7 Setup Photos

Setup for measurements below 1 GHz (1)
Photo exhibits removed - refer to additional exhibit

Setup for measurements below 1 GHz (2)
Photo exhibits removed - refer to additional exhibit

EUT Test Setup below 1 GHz
Photo exhibits removed - refer to additional exhibit

Setup for measurements above 1 GHz
Photo exhibits removed - refer to additional exhibit

EUT Test Setup above 1 GHz
Photo exhibits removed - refer to additional exhibit

3.9 Test Conditions and Results - Receiver radiated emissions

3.9.1 Information

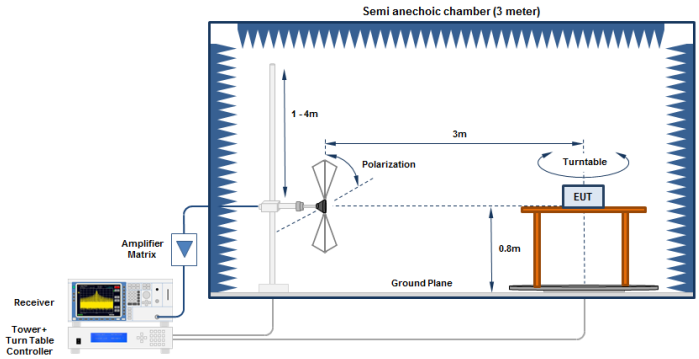
Test Information	
Reference	ISED RSS-247, Issue 2 (section 3.1)
Measurement Uncertainty	± 5.95 dB
Measurement Method	ANSI C63.4-2014 8.1-8.3
Operator	E. Sohrabi
Date	2023-07-03

3.9.2 Limits

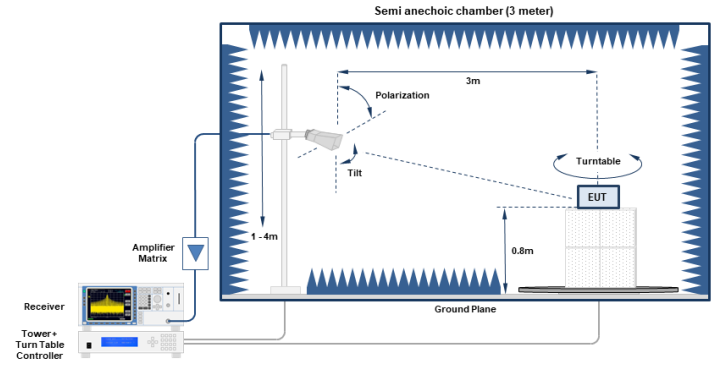
Limits			
Frequency range [MHz]	Detector	Field strength [µV/m]	Measurement distance [m]
30 - 88	Quasi-Peak	100	3
88 - 216	Quasi-Peak	150	3
216 - 960	Quasi-Peak	200	3
960 - 1000	Quasi-Peak	500	3
>1000	Average	500	3

3.9.3 Setup

Test Setup 30 MHz - 1000 MHz



Test Setup > 1 GHz



3.9.4 Equipment

Test Software			
Description	Manufacturer	Name	Version
EMC Software	DARE Instruments	RadiMation	2020.1.8

Test Equipment 30 MHz - 1000 MHz					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Anechoic Chamber	Frankonia	AC1	EF00062	2022-11	2025-11
Measurement Receiver	Agilent	N9038A-526/WXP	EF01070	2023-02	2024-02
Antenna	Schwarzbeck	VULB 9168	EF01824	2022-10	2023-10

Test Equipment > 1 GHz					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Anechoic Chamber	Frankonia	AC1	EF01011	2022-11	2023-11
Measurement Receiver	Agilent	N9038A-526/WXP	EF01070	2023-02	2024-02
Antenna	Schwarzbeck	BBHA 9120D	EF01561	2021-11	2024-11
Antenna	Schwarzbeck	HWRD 650	EF01679	2021-03	2024-03

3.9.5 Procedure

Test Procedure
1. EUT is placed on a non conducting support at the center of a turn table 0.8 m above the ground
2. EUT is set to test mode
3. The receiver is set to peak detection with max hold
4. The EUT is rotated through 360° and the height of the antenna is varied from 1 m to 4 m
5. All significant emissions are measured again using the corresponding final detector

3.9.6 Results

Test Results						
Channel [MHz]	Emission [MHz]	Level [dBµV/m]	Det.	Pol.	Limit [dBµV/m]	Margin [dB]
2440	576.013	34.90	pk	ver	46.00	-11.08
2440	6476	48.85	pk	ver	74.00	-25.15
2440	6476	37.47	avg	ver	53.98	-16.51

3.9.7 Setup Photos

Setup for measurements below 1 GHz (1)
Photo exhibits removed - refer to additional exhibit

Setup for measurements below 1 GHz (2)
Photo exhibits removed - refer to additional exhibit

EUT Test Setup
Photo exhibits removed - refer to additional exhibit

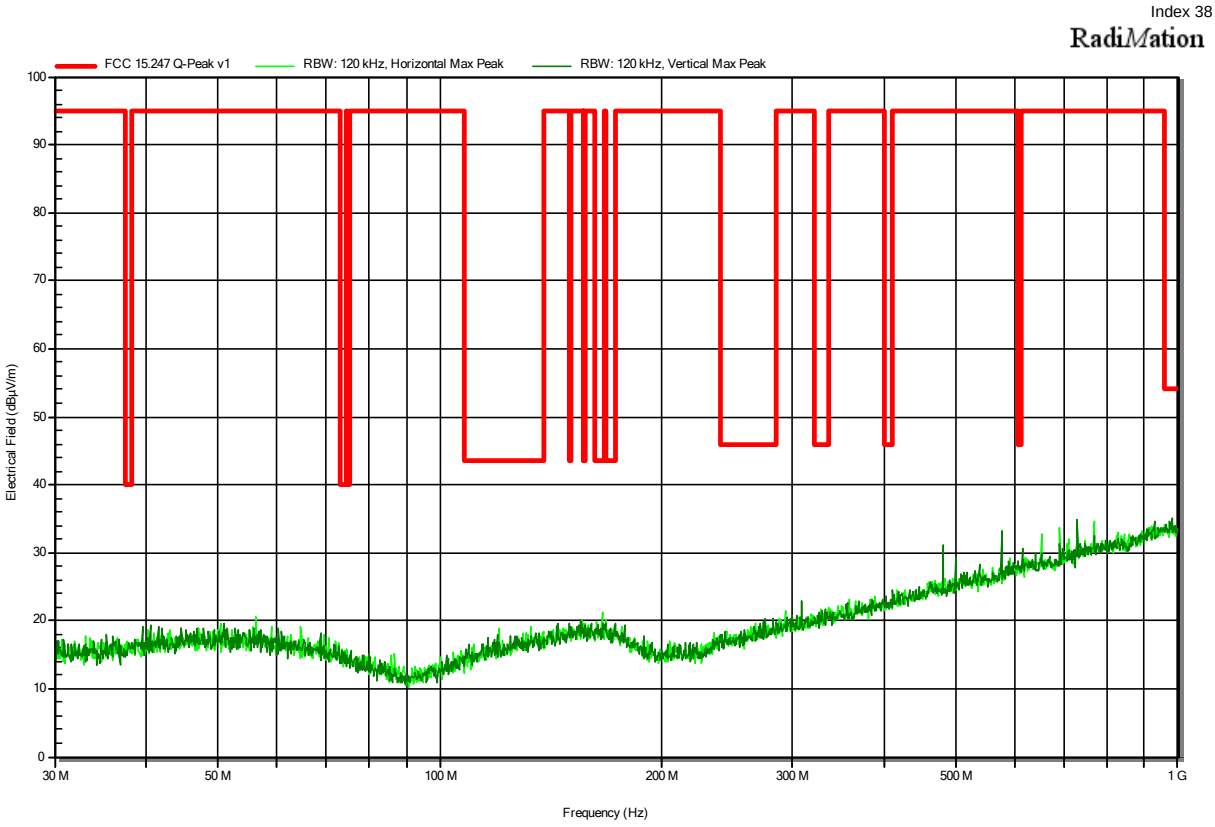
Setup for measurements above 1 GHz (1)
Photo exhibits removed - refer to additional exhibit

Setup for measurements above 1 GHz (2)
Photo exhibits removed - refer to additional exhibit

ANNEX A Transmitter spurious emissions

Radiated Spurious Emissions according to 47 CFR Part 15.247, RSS-247

Project Number:	G0M-2302-1881
Applicant:	u-blox AG
Model Description:	Host-based multiradio module
Model:	MAYA-W271-00B
Test Sample ID:	43094
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Sohrabi
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 23 °Celsius, Vnom: 3.3 VDC
Antenna:	Schwarzbeck VULB 9168
Measurement distance:	3 m
Mode:	Tx; BT-LE 5.3, 2402 MHz, PRBS9, 193 Bytes, 1 Mbit/s, P = 19 dBm
Test Date:	2023-07-11

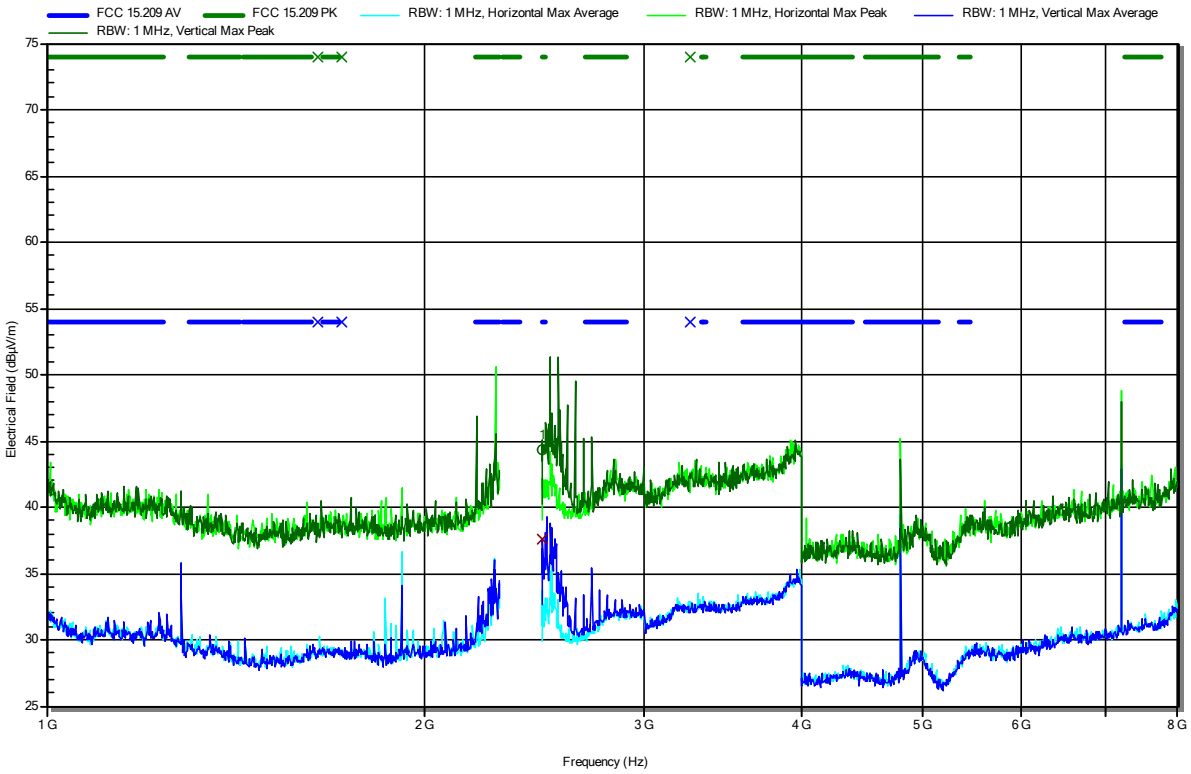


Radiated Spurious Emissions according to 47 CFR Part 15.247, RSS-247

Project Number:	G0M-2302-1881
Applicant:	u-blox AG
Model Description:	Host-based multiradio module
Model:	MAYA-W271-00B
Test Sample ID:	43094
Test Site:	Eurofins Product Service GmbH
Operator:	Ibraimov Azamat
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 24 °Celsius, Vnom: 3.3 VDC
Antenna:	Schwarzbeck BBHA 9120B
Measurement distance:	3 m
Mode:	Tx; BT-LE 5.3, 2402 MHz, PRBS9, 193 Bytes, 1 Mbit/s, P = 19 dBm
Test Date:	2023-07-12

Index 44

RadiMation



Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
2.489 GHz	44.35 dBµV/m	74 dBµV/m	-29.65 dB	Pass	Vertical

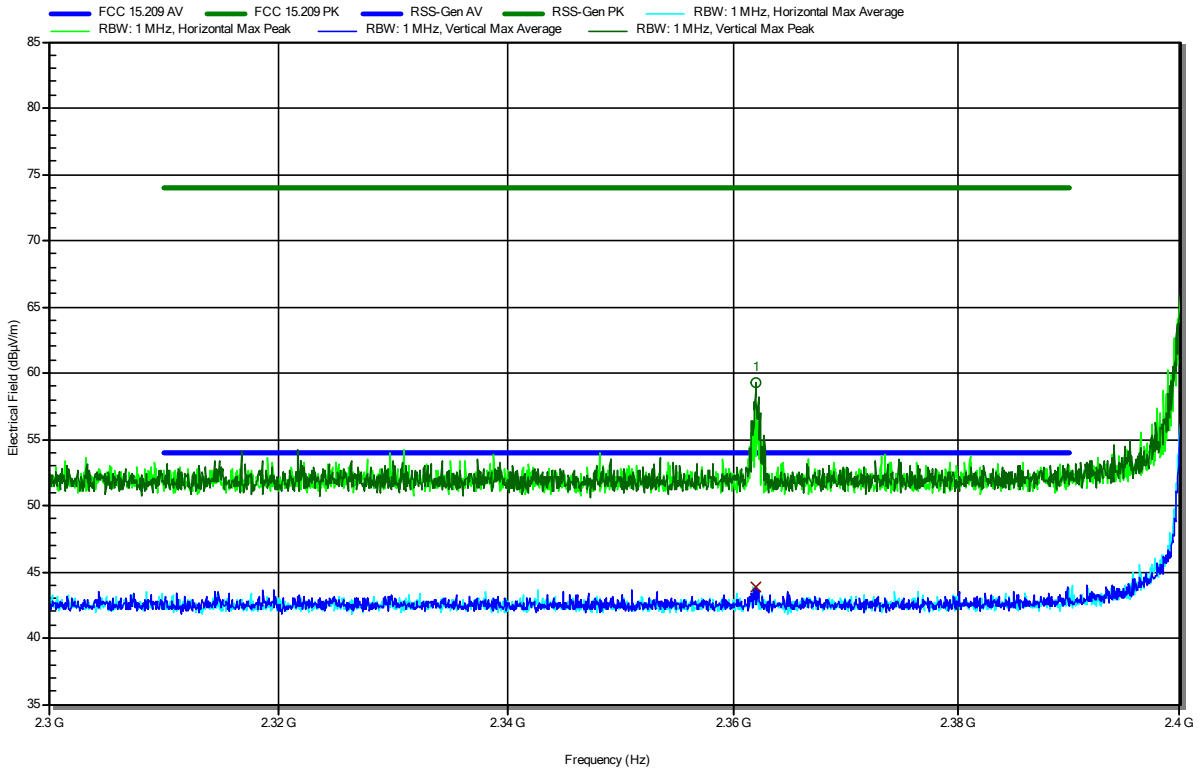
Frequency	Average	Average Limit	Average Difference	Average Status	Polarization
2.489 GHz	37.65 dBµV/m	54 dBµV/m	-16.35 dB	Pass	Vertical

Radiated Spurious Emissions according to 47 CFR Part 15.247, RSS-247

Project Number:	G0M-2302-1881
Applicant:	u-blox AG
Model Description:	Host-based multiradio module
Model:	MAYA-W271-00B
Test Sample ID:	43094
Test Site:	Eurofins Product Service GmbH
Operator:	Ibraimov Azamat
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 24 °Celsius, Vnom: 3.3 VDC
Antenna:	Schwarzbeck BBHA 9120B
Measurement distance:	3 m
Mode:	Tx; BT-LE 5.3, 2402 MHz, PRBS9, 193 Bytes, 1 Mbit/s, P = 19 dBm
Test Date:	2023-07-12
Note:	lower bandedge

Index 43

RadiMation



Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
2.362 GHz	59.29 dBµV/m	74 dBµV/m	-14.71 dB	Pass	Vertical

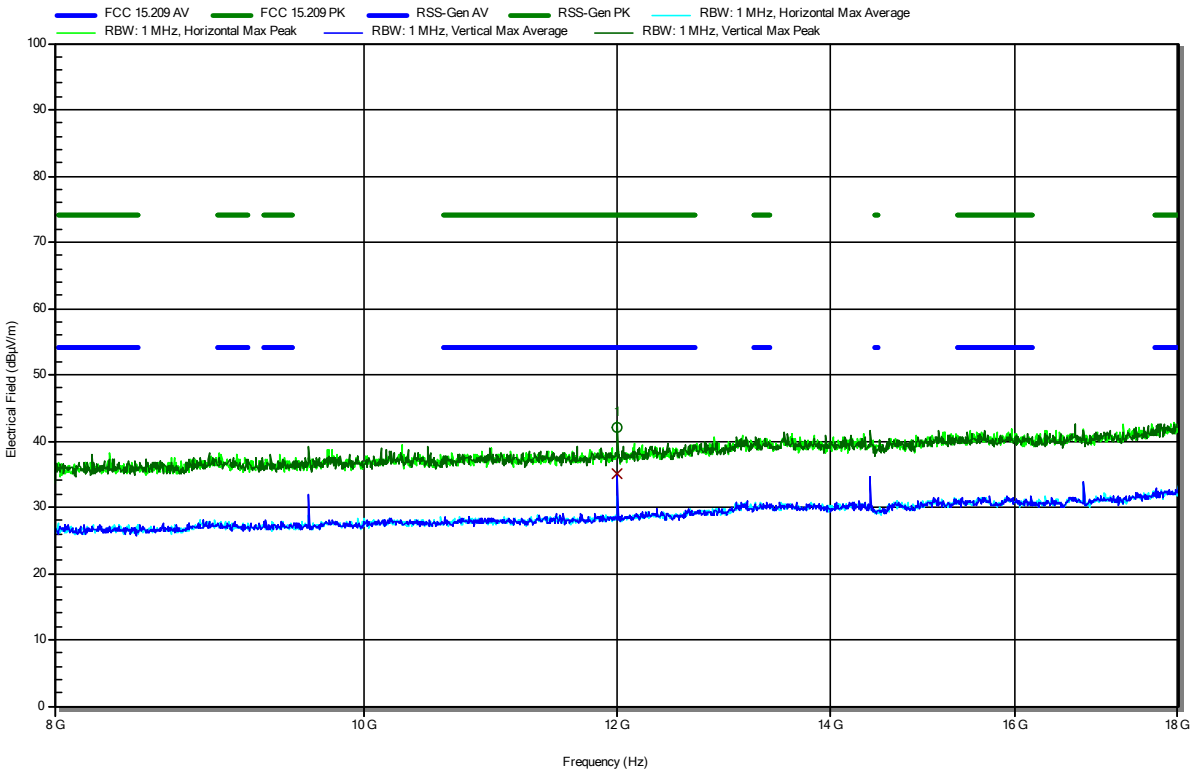
Frequency	Average	Average Limit	Average Difference	Average Status	Polarization
2.362 GHz	43.83 dBµV/m	54 dBµV/m	-10.17 dB	Pass	Vertical

Radiated Spurious Emissions according to 47 CFR Part 15.247, RSS-247

Project Number:	G0M-2302-1881
Applicant:	u-blox AG
Model Description:	Host-based multiradio module
Model:	MAYA-W271-00B
Test Sample ID:	43094
Test Site:	Eurofins Product Service GmbH
Operator:	Ibraimov Azamat
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 24 °Celsius, Vnom: 3.3 VDC
Antenna:	Schwarzbeck HWRD 650
Measurement distance:	3 m
Mode:	Tx; BT-LE 5.3, 2402 MHz, PRBS9, 193 Bytes, 1 Mbit/s, P = 19 dBm
Test Date:	2023-07-12

Index 54

RadiMation



Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
12.009 GHz	42.08 dBµV/m	74 dBµV/m	-31.92 dB	Pass	Vertical

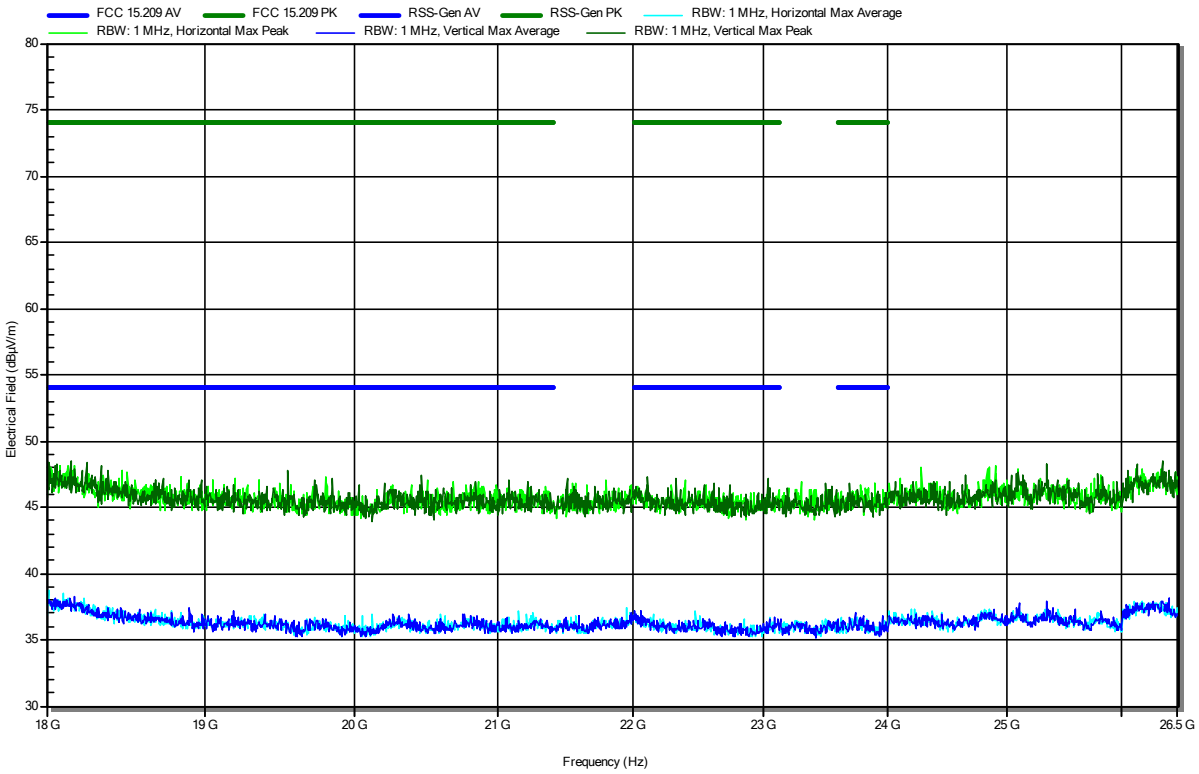
Frequency	Average	Average Limit	Average Difference	Average Status	Polarization
12.009 GHz	35.1 dBµV/m	54 dBµV/m	-18.9 dB	Pass	Vertical

Radiated Spurious Emissions according to 47 CFR Part 15.247, RSS-247

Project Number:	G0M-2302-1881
Applicant:	u-blox AG
Model Description:	Host-based multiradio module
Model:	MAYA-W271-00B
Test Sample ID:	43094
Test Site:	Eurofins Product Service GmbH
Operator:	Ibraimov Azamat
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 24 °Celsius, Vnom: 3.3 VDC
Antenna:	Amplifier Research AT4560
Measurement distance:	3 m
Mode:	Tx; BT-LE 5.3, 2402 MHz, PRBS9, 193 Bytes, 1 Mbit/s, P = 19 dBm
Test Date:	2023-07-13

Index 59

RadiMation

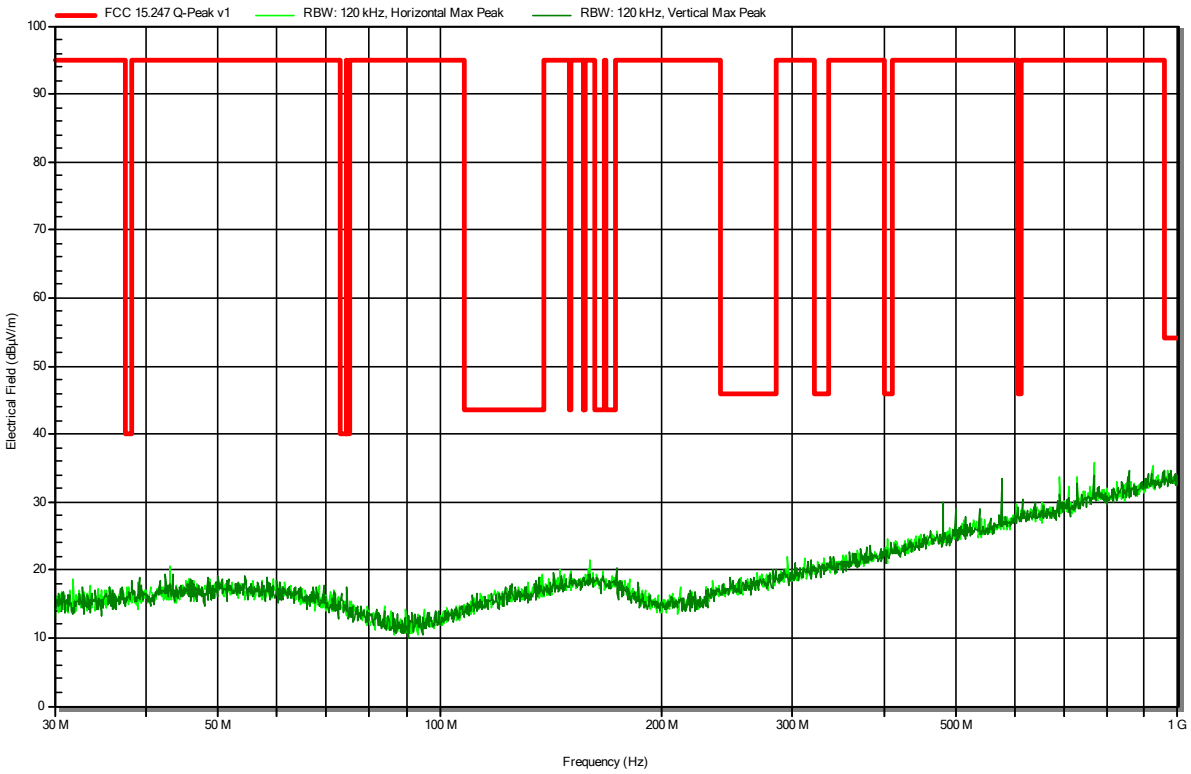


Radiated Spurious Emissions according to 47 CFR Part 15.247, RSS-247

Project Number:	G0M-2302-1881
Applicant:	u-blox AG
Model Description:	Host-based multiradio module
Model:	MAYA-W271-00B
Test Sample ID:	43094
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Sohrabi
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 23 °Celsius, Vnom: 3.3 VDC
Antenna:	Schwarzbeck VULB 9168
Measurement distance:	3 m
Mode:	Tx; BT-LE 5.3, 2440 MHz, PRBS9, 193 Bytes, 1 Mbit/s, P = 19 dBm
Test Date:	2023-07-11

Index 39

RadiMation

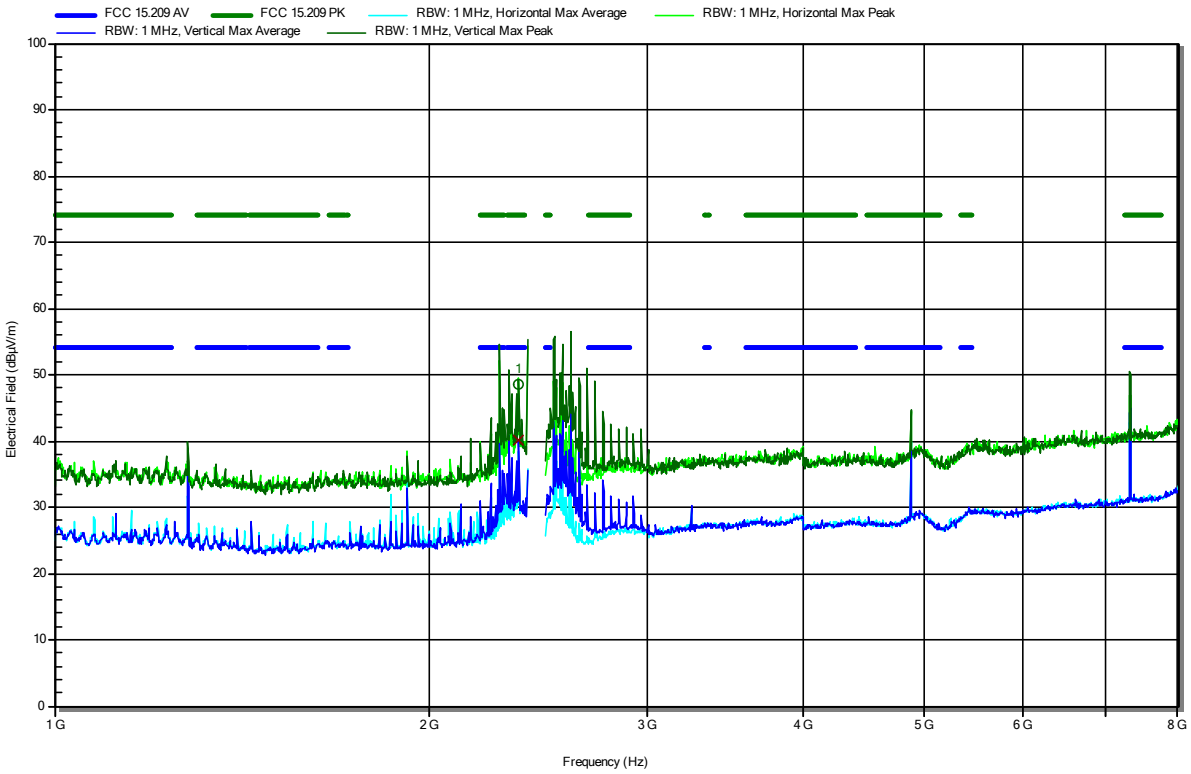


Radiated Spurious Emissions according to 47 CFR Part 15.247, RSS-247

Project Number:	G0M-2302-1881
Applicant:	u-blox AG
Model Description:	Host-based multiradio module
Model:	MAYA-W271-00B
Test Sample ID:	43094
Test Site:	Eurofins Product Service GmbH
Operator:	Ibraimov Azamat
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 24 °Celsius, Vnom: 3.3 VDC
Antenna:	Schwarzbeck BBHA 9120B
Measurement distance:	3 m
Mode:	Tx; BT-LE 5.3, 2440 MHz, PRBS9, 193 Bytes, 1 Mbit/s, P = 19 dBm
Test Date:	2023-07-12

Index 45

RadiMation



Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
2.3596 GHz	48.56 dBµV/m	74 dBµV/m	-25.44 dB	Pass	Vertical

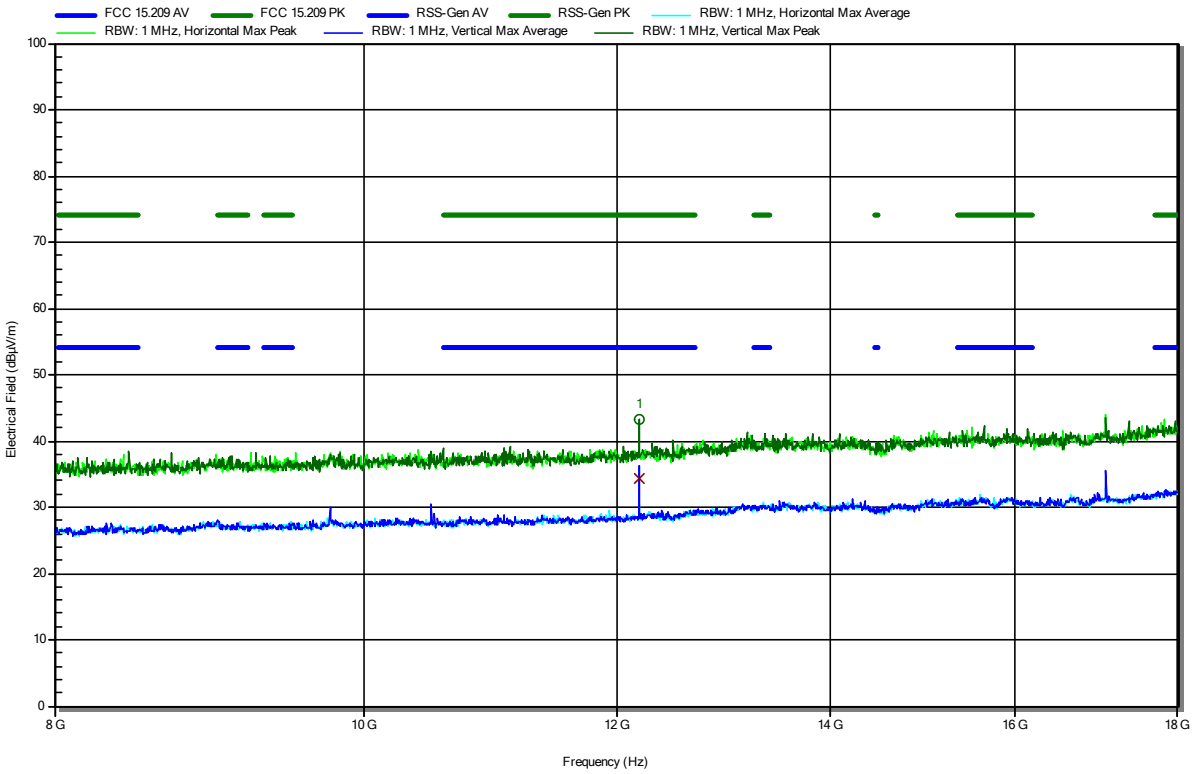
Frequency	Average	Average Limit	Average Difference	Average Status	Polarization
2.3596 GHz	40.1 dBµV/m	54 dBµV/m	-13.9 dB	Pass	Vertical

Radiated Spurious Emissions according to 47 CFR Part 15.247, RSS-247

Project Number:	G0M-2302-1881
Applicant:	u-blox AG
Model Description:	Host-based multiradio module
Model:	MAYA-W271-00B
Test Sample ID:	43094
Test Site:	Eurofins Product Service GmbH
Operator:	Ibraimov Azamat
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 24 °Celsius, Vnom: 3.3 VDC
Antenna:	Schwarzbeck HWRD 650
Measurement distance:	3 m
Mode:	Tx; BT-LE 5.3, 2440 MHz, PRBS9, 193 Bytes, 1 Mbit/s, P = 19 dBm
Test Date:	2023-07-12

Index 55

RadiMation

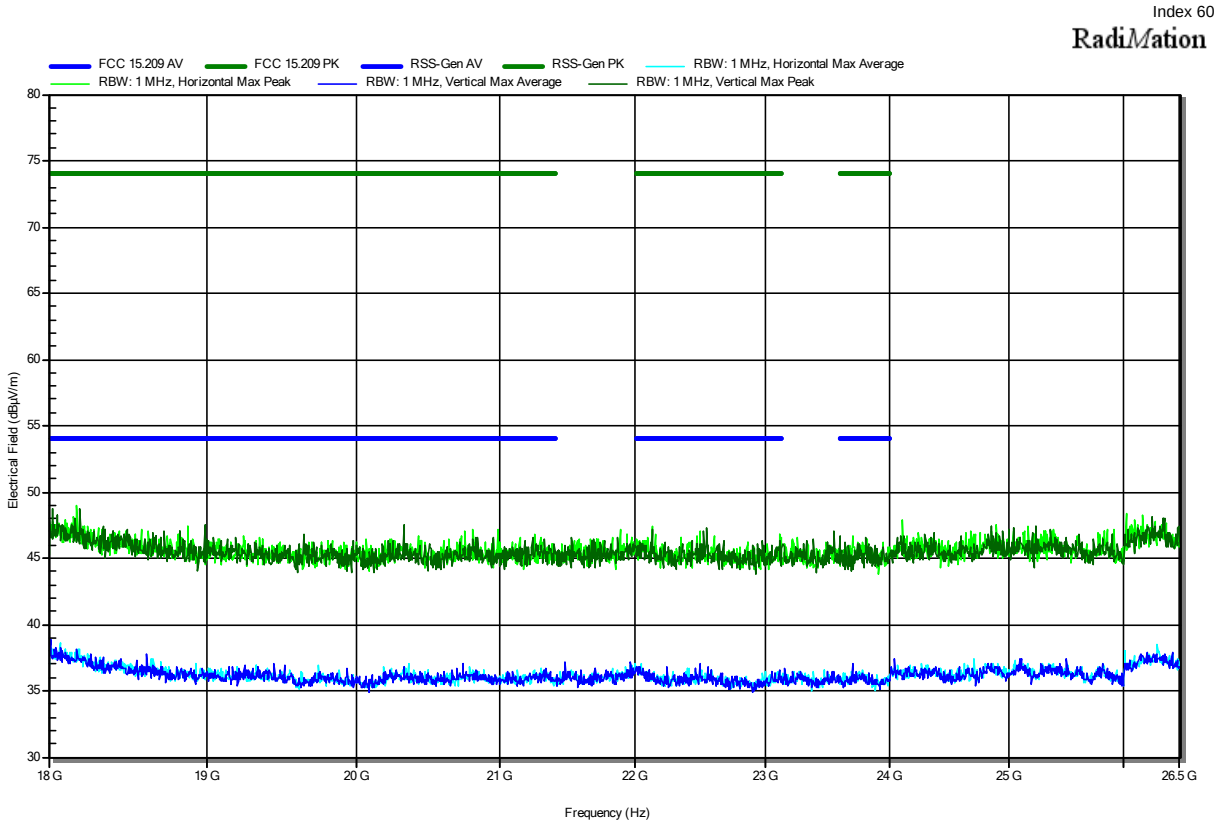


Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
12.199 GHz	43.34 dBµV/m	74 dBµV/m	-30.66 dB	Pass	Vertical

Frequency	Average	Average Limit	Average Difference	Average Status	Polarization
12.199 GHz	34.29 dBµV/m	54 dBµV/m	-19.71 dB	Pass	Vertical

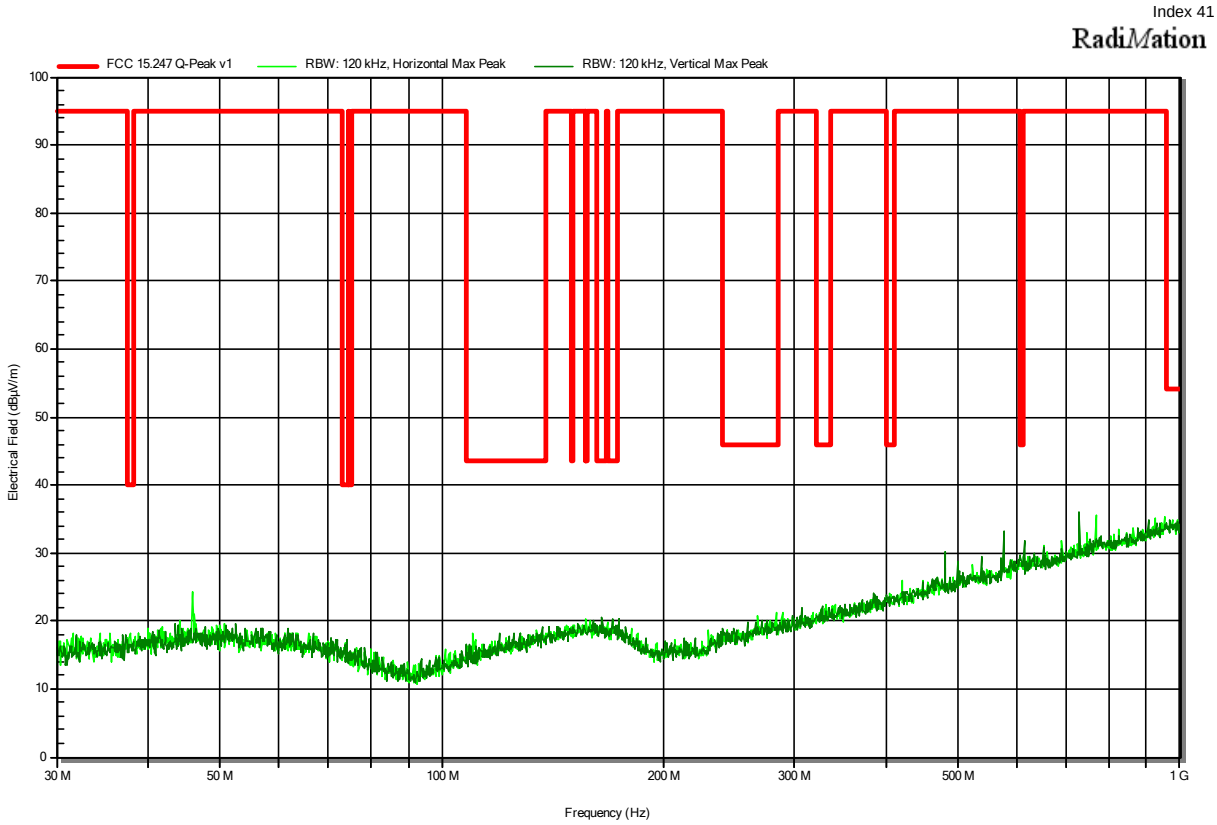
Radiated Spurious Emissions according to 47 CFR Part 15.247, RSS-247

Project Number:	G0M-2302-1881
Applicant:	u-blox AG
Model Description:	Host-based multiradio module
Model:	MAYA-W271-00B
Test Sample ID:	43094
Test Site:	Eurofins Product Service GmbH
Operator:	Ibraimov Azamat
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 24 °Celsius, Vnom: 3.3 VDC
Antenna:	Amplifier Research AT4560
Measurement distance:	3 m
Mode:	Tx; BT-LE 5.3, 2440 MHz, PRBS9, 193 Bytes, 1 Mbit/s, P = 19 dBm
Test Date:	2023-07-13



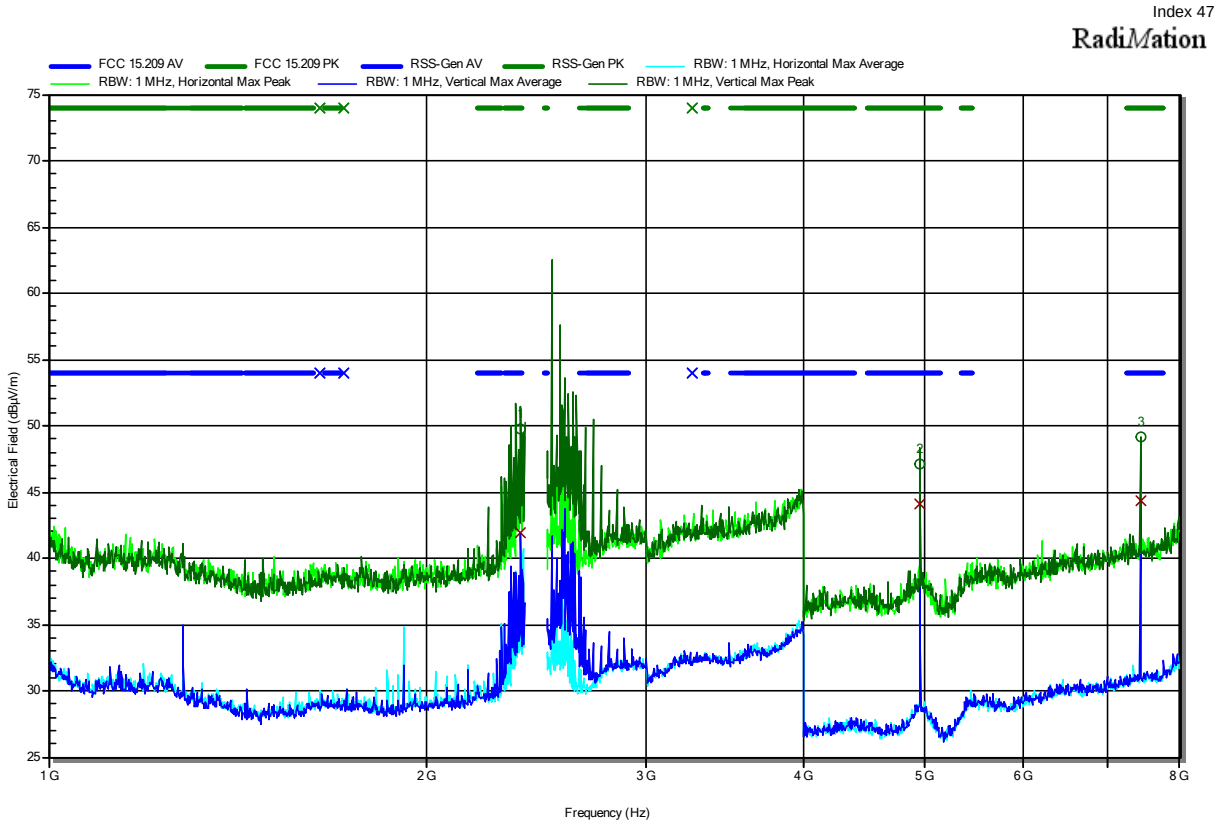
Radiated Spurious Emissions according to 47 CFR Part 15.247, RSS-247

Project Number:	G0M-2302-1881
Applicant:	u-blox AG
Model Description:	Host-based multiradio module
Model:	MAYA-W271-00B
Test Sample ID:	43094
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Sohrabi
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 23 °Celsius, Vnom: 3.3 VDC
Antenna:	Schwarzbeck VULB 9168
Measurement distance:	3 m
Mode:	Tx; BT-LE 5.3, 2480 MHz, PRBS9, 193 Bytes, 1 Mbit/s, P = 19 dBm
Test Date:	2023-07-11



Radiated Spurious Emissions according to 47 CFR Part 15.247, RSS-247

Project Number:	G0M-2302-1881
Applicant:	u-blox AG
Model Description:	Host-based multiradio module
Model:	MAYA-W271-00B
Test Sample ID:	43094
Test Site:	Eurofins Product Service GmbH
Operator:	Ibraimov Azamat
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 24 °Celsius, Vnom: 3.3 VDC
Antenna:	Schwarzbeck BBHA 9120B
Measurement distance:	3 m
Mode:	Tx; BT-LE 5.3, 2480 MHz, PRBS9, 193 Bytes, 1 Mbit/s, P = 19 dBm
Test Date:	2023-07-12



Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
2.38 GHz	49.77 dBµV/m	74 dBµV/m	-24.23 dB	Pass	Vertical
4.96 GHz	47.13 dBµV/m	74 dBµV/m	-26.87 dB	Pass	Vertical
7.439 GHz	49.2 dBµV/m	74 dBµV/m	-24.8 dB	Pass	Vertical

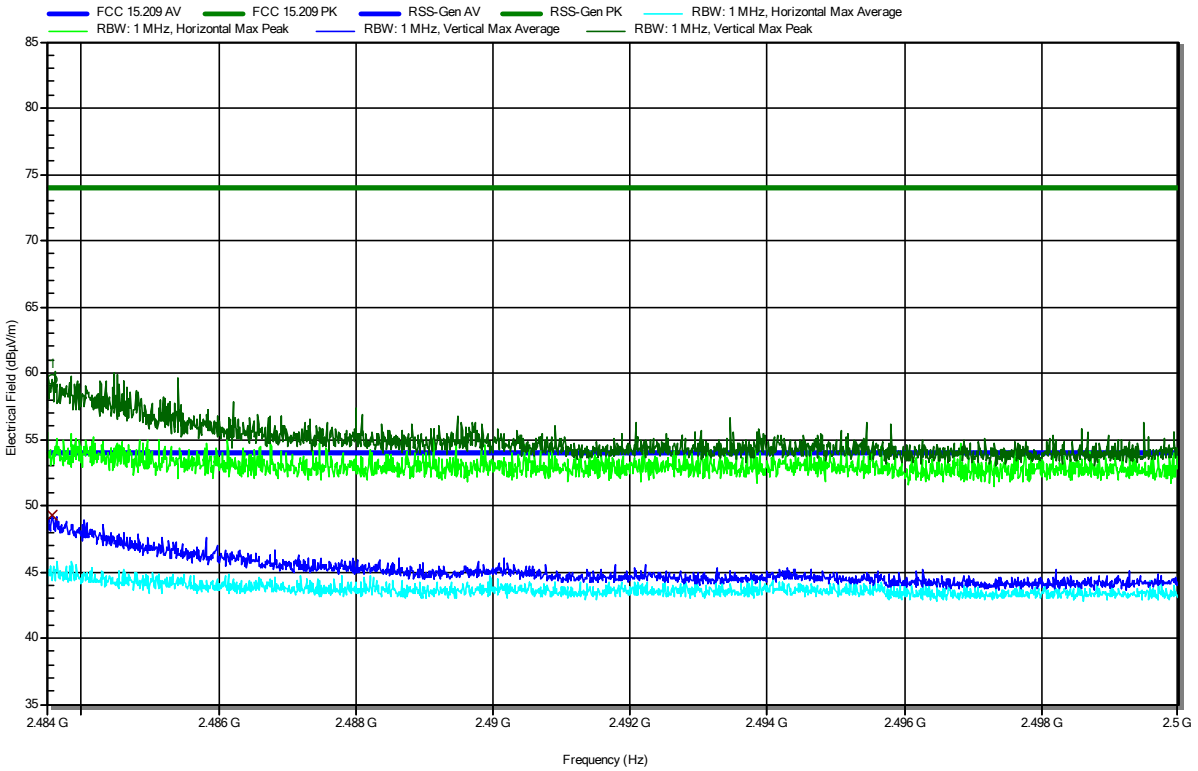
Frequency	Average	Average Limit	Average Difference	Average Status	Polarization
2.38 GHz	41.96 dBµV/m	54 dBµV/m	-12.04 dB	Pass	Vertical
4.96 GHz	44.04 dBµV/m	54 dBµV/m	-9.96 dB	Pass	Vertical
7.439 GHz	44.37 dBµV/m	54 dBµV/m	-9.63 dB	Pass	Vertical

Radiated Spurious Emissions according to 47 CFR Part 15.247, RSS-247

Project Number:	G0M-2302-1881
Applicant:	u-blox AG
Model Description:	Host-based multiradio module
Model:	MAYA-W271-00B
Test Sample ID:	43094
Test Site:	Eurofins Product Service GmbH
Operator:	Ibraimov Azamat
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 24 °Celsius, Vnom: 3.3 VDC
Antenna:	Schwarzbeck BBHA 9120B
Measurement distance:	3 m
Mode:	Tx; BT-LE 5.3, 2480 MHz, PRBS9, 193 Bytes, 1 Mbit/s, P = 19 dBm
Test Date:	2023-07-12
Note:	upper bandedge

Index 46

RadiMation



Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
2.4836 GHz	59.5 dBµV/m	74 dBµV/m	-14.5 dB	Pass	Vertical

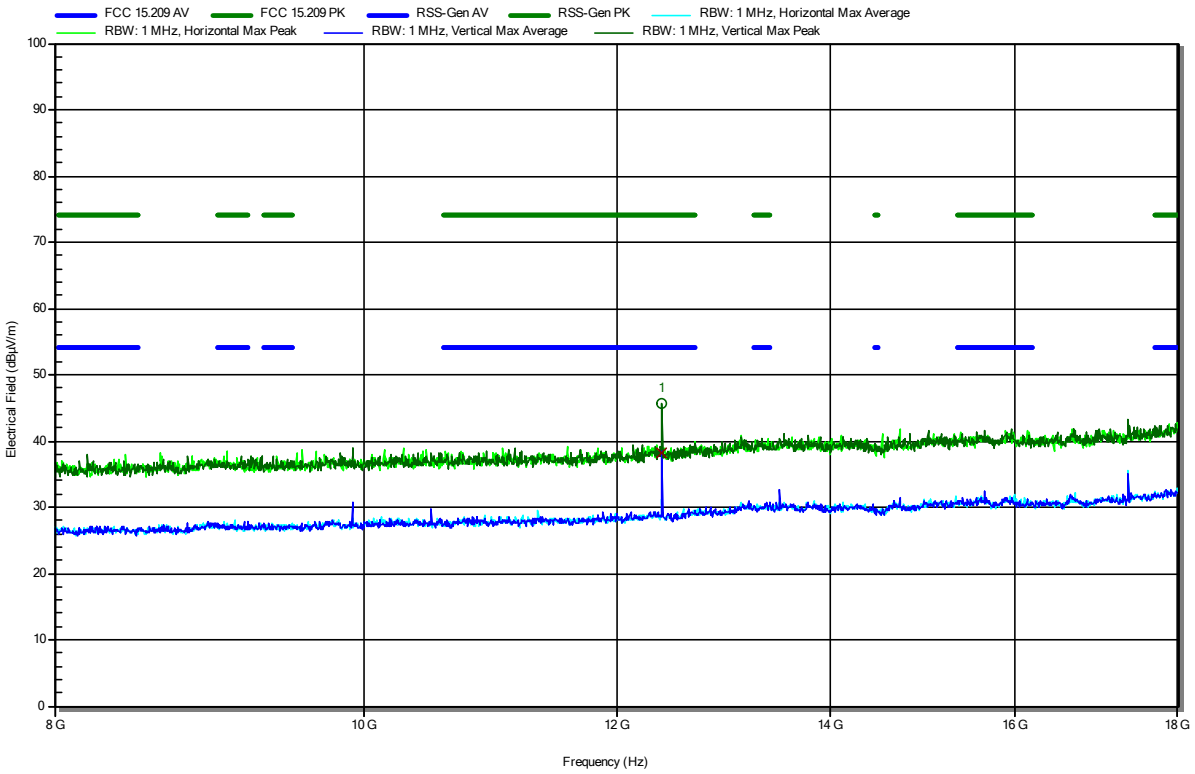
Frequency	Average	Average Limit	Average Difference	Average Status	Polarization
2.4836 GHz	49.3 dBµV/m	54 dBµV/m	-4.7 dB	Pass	Vertical

Radiated Spurious Emissions according to 47 CFR Part 15.247, RSS-247

Project Number:	G0M-2302-1881
Applicant:	u-blox AG
Model Description:	Host-based multiradio module
Model:	MAYA-W271-00B
Test Sample ID:	43094
Test Site:	Eurofins Product Service GmbH
Operator:	Ibraimov Azamat
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 24 °Celsius, Vnom: 3.3 VDC
Antenna:	Schwarzbeck HWRD 650
Measurement distance:	3 m
Mode:	Tx; BT-LE 5.3, 2480 MHz, PRBS9, 193 Bytes, 1 Mbit/s, P = 19 dBm
Test Date:	2023-07-12

Index 56

RadiMation



Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
12.401 GHz	45.67 dBµV/m	74 dBµV/m	-28.33 dB	Pass	Vertical

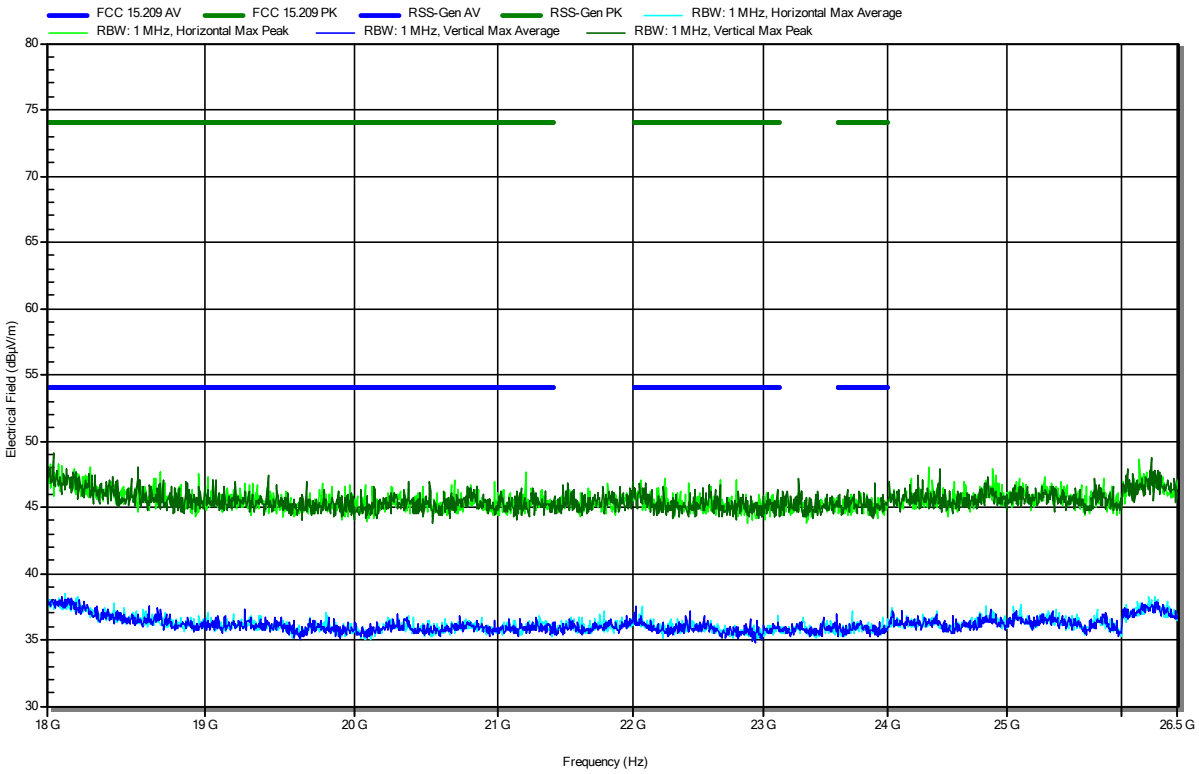
Frequency	Average	Average Limit	Average Difference	Average Status	Polarization
12.401 GHz	38.28 dBµV/m	54 dBµV/m	-15.72 dB	Pass	Vertical

Radiated Spurious Emissions according to 47 CFR Part 15.247, RSS-247

Project Number:	G0M-2302-1881
Applicant:	u-blox AG
Model Description:	Host-based multiradio module
Model:	MAYA-W271-00B
Test Sample ID:	43094
Test Site:	Eurofins Product Service GmbH
Operator:	Ibraimov Azamat
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 24 °Celsius, Vnom: 3.3 VDC
Antenna:	Amplifier Research AT4560
Measurement distance:	3 m
Mode:	Tx; BT-LE 5.3, 2480 MHz, PRBS9, 193 Bytes, 1 Mbit/s, P = 19 dBm
Test Date:	2023-07-13

Index 61

RadiMation

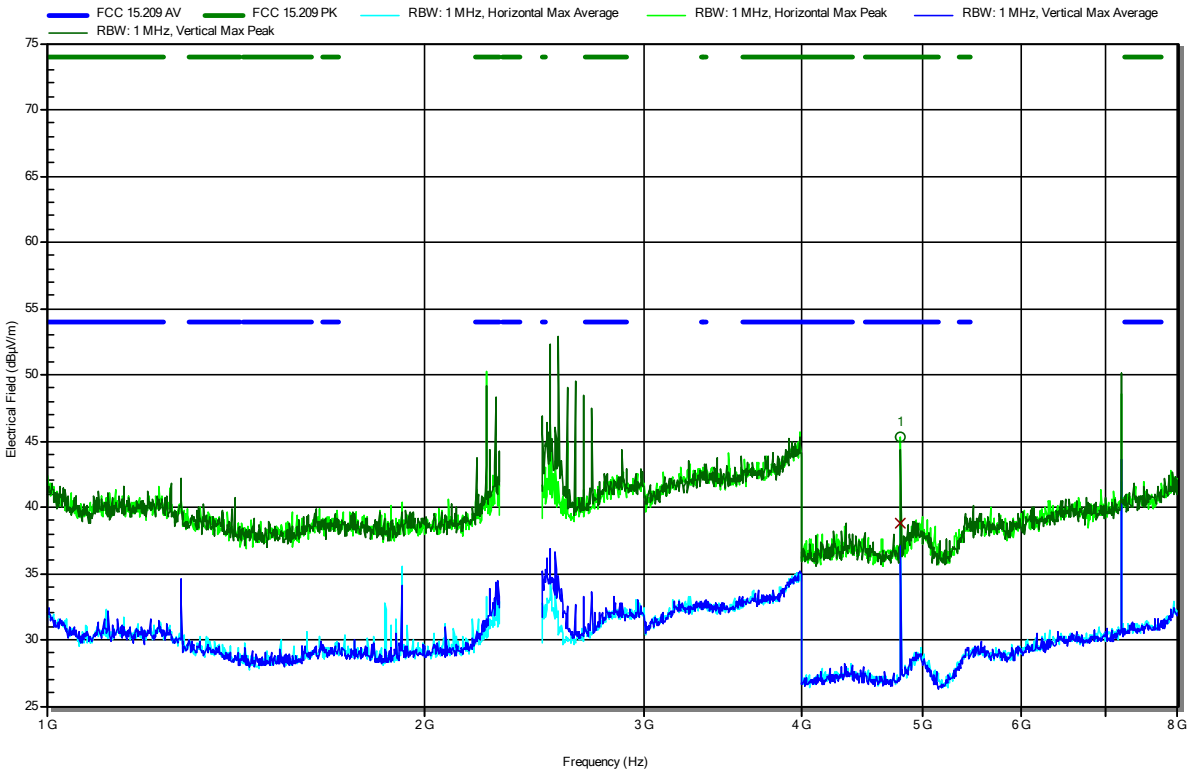


Radiated Spurious Emissions according to 47 CFR Part 15.247, RSS-247

Project Number:	G0M-2302-1881
Applicant:	u-blox AG
Model Description:	Host-based multiradio module
Model:	MAYA-W271-00B
Test Sample ID:	43094
Test Site:	Eurofins Product Service GmbH
Operator:	Ibraimov Azamat
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 24 °Celsius, Vnom: 3.3 VDC
Antenna:	Schwarzbeck BBHA 9120B
Measurement distance:	3 m
Mode:	Tx; BT-LE 5.3, 2402 MHz, PRBS9, 250 Bytes, 2 Mbit/s, P = 19 dBm
Test Date:	2023-07-12

Index 49

RadiMation



Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
4.8029 GHz	45.28 dBµV/m	74 dBµV/m	-28.72 dB	Pass	Horizontal

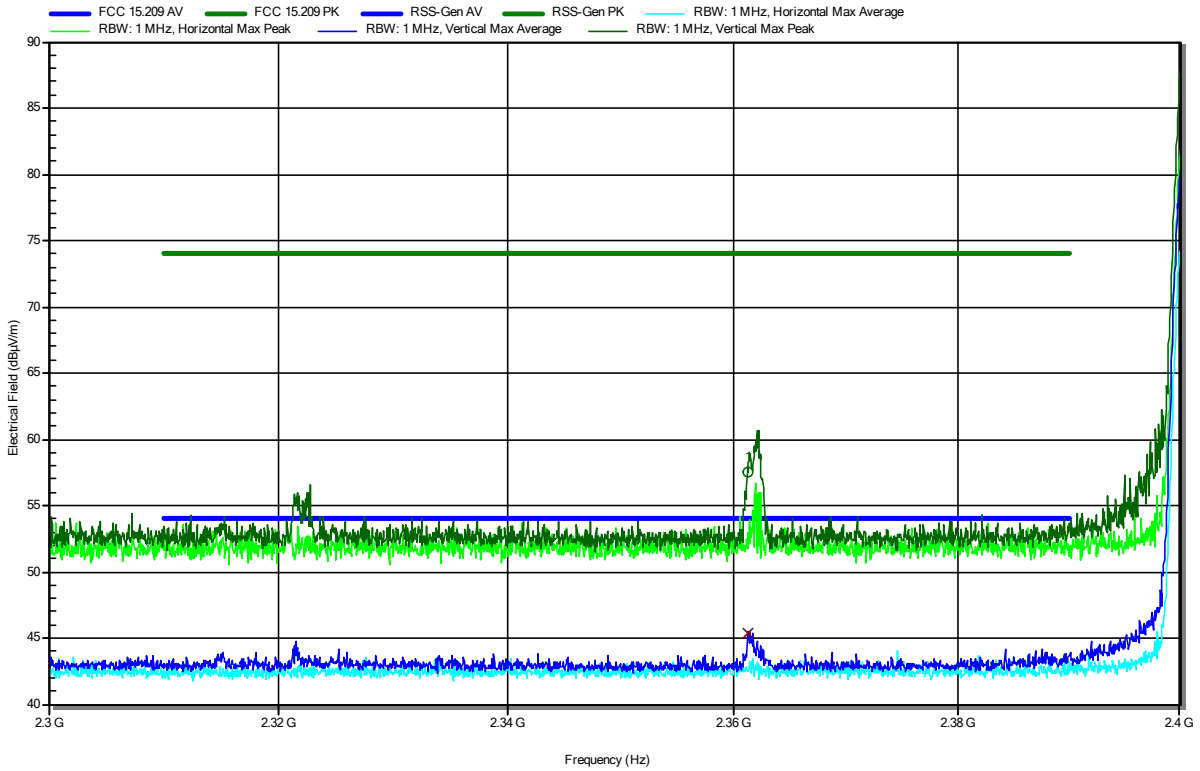
Frequency	Average	Average Limit	Average Difference	Average Status	Polarization
4.8029 GHz	38.77 dBµV/m	54 dBµV/m	-15.23 dB	Pass	Horizontal

Radiated Spurious Emissions according to 47 CFR Part 15.247, RSS-247

Project Number:	G0M-2302-1881
Applicant:	u-blox AG
Model Description:	Host-based multiradio module
Model:	MAYA-W271-00B
Test Sample ID:	43094
Test Site:	Eurofins Product Service GmbH
Operator:	Ibraimov Azamat
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 24 °Celsius, Vnom: 3.3 VDC
Antenna:	Schwarzbeck BBHA 9120B
Measurement distance:	3 m
Mode:	Tx; BT-LE 5.3, 2402 MHz, PRBS9, 250 Bytes, 2 Mbit/s, P = 19 dBm
Test Date:	2023-07-12
Note:	lower bandedge

Index 48

RadiMation



Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
2.3613 GHz	57.5 dBµV/m	74 dBµV/m	-16.5 dB	Pass	Vertical

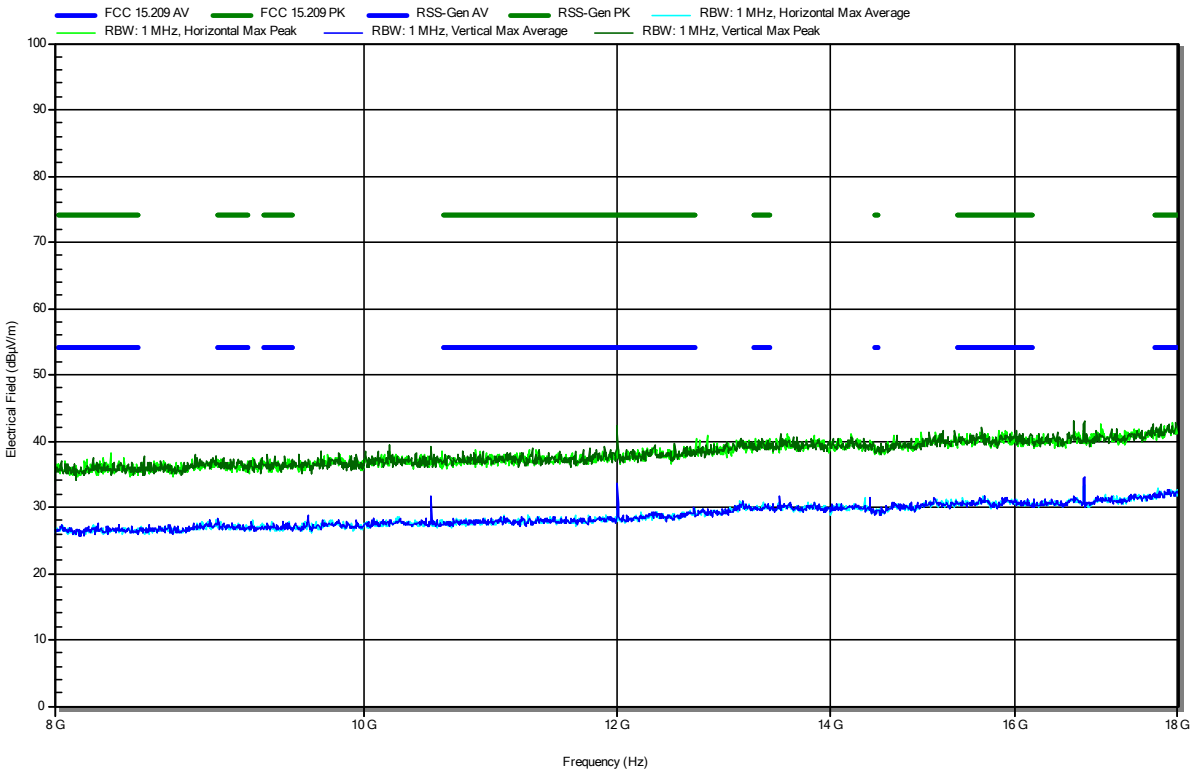
Frequency	Average	Average Limit	Average Difference	Average Status	Polarization
2.3613 GHz	45.42 dBµV/m	54 dBµV/m	-8.58 dB	Pass	Vertical

Radiated Spurious Emissions according to 47 CFR Part 15.247, RSS-247

Project Number:	G0M-2302-1881
Applicant:	u-blox AG
Model Description:	Host-based multiradio module
Model:	MAYA-W271-00B
Test Sample ID:	43094
Test Site:	Eurofins Product Service GmbH
Operator:	Ibraimov Azamat
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 24 °Celsius, Vnom: 3.3 VDC
Antenna:	Schwarzbeck HWRD 650
Measurement distance:	3 m
Mode:	Tx; BT-LE 5.3, 2402 MHz, PRBS9, 250 Bytes, 2 Mbit/s, P = 19 dBm
Test Date:	2023-07-12

Index 57

RadiMation

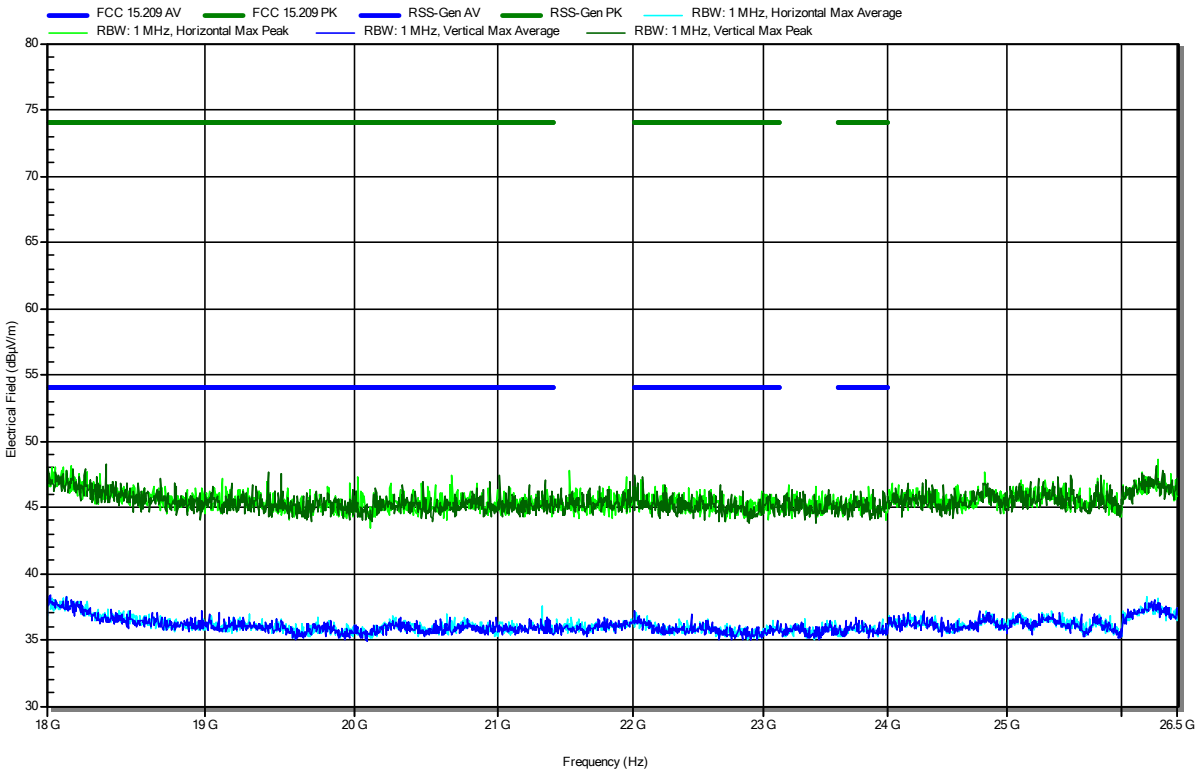


Radiated Spurious Emissions according to 47 CFR Part 15.247, RSS-247

Project Number:	G0M-2302-1881
Applicant:	u-blox AG
Model Description:	Host-based multiradio module
Model:	MAYA-W271-00B
Test Sample ID:	43094
Test Site:	Eurofins Product Service GmbH
Operator:	Ibraimov Azamat
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 24 °Celsius, Vnom: 3.3 VDC
Antenna:	Amplifier Research AT4560
Measurement distance:	3 m
Mode:	Tx; BT-LE 5.3, 2402 MHz, PRBS9, 250 Bytes, 2 Mbit/s, P = 19 dBm
Test Date:	2023-07-13

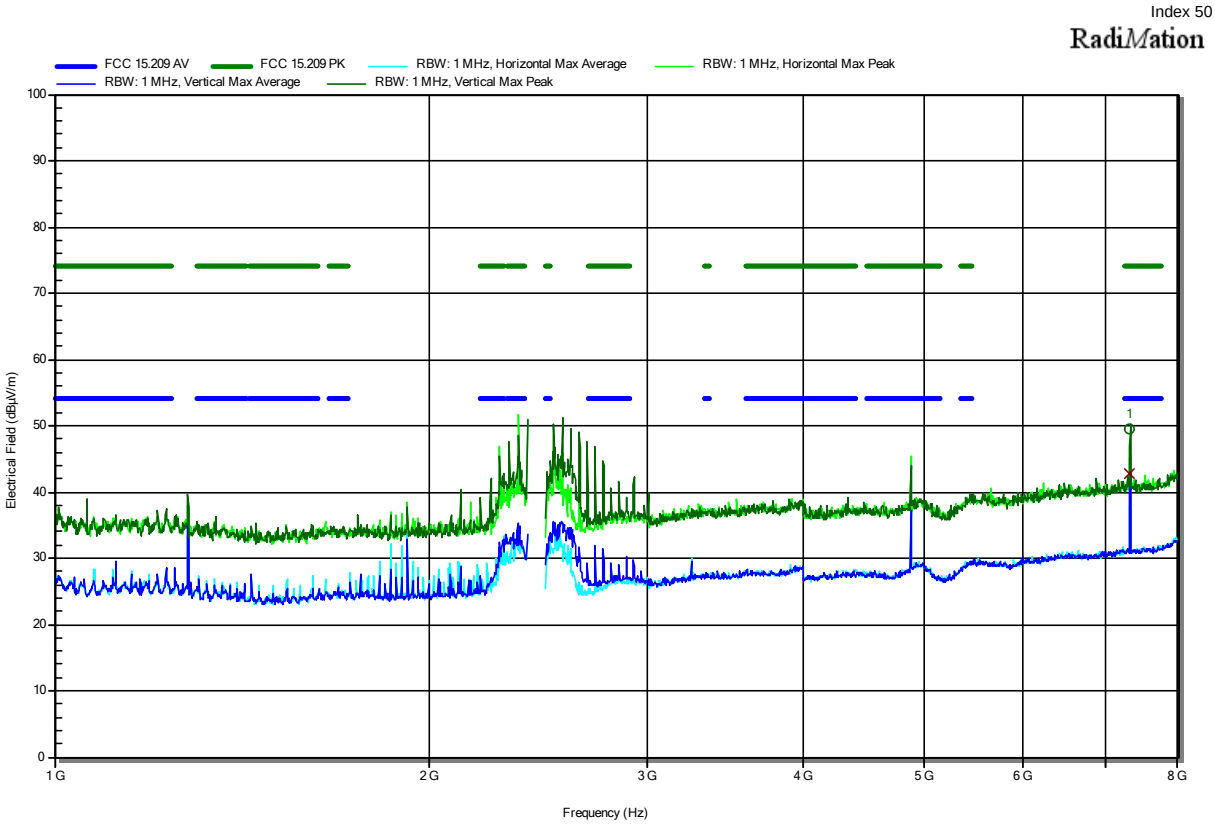
Index 62

RadiMation



Radiated Spurious Emissions according to 47 CFR Part 15.247, RSS-247

Project Number:	G0M-2302-1881
Applicant:	u-blox AG
Model Description:	Host-based multiradio module
Model:	MAYA-W271-00B
Test Sample ID:	43094
Test Site:	Eurofins Product Service GmbH
Operator:	Ibraimov Azamat
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 24 °Celsius, Vnom: 3.3 VDC
Antenna:	Schwarzbeck BBHA 9120B
Measurement distance:	3 m
Mode:	Tx; BT-LE 5.3, 2440 MHz, PRBS9, 250 Bytes, 2 Mbit/s, P = 19 dBm
Test Date:	2023-07-12



Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
7.3215 GHz	49.49 dBµV/m	74 dBµV/m	-24.51 dB	Pass	Vertical

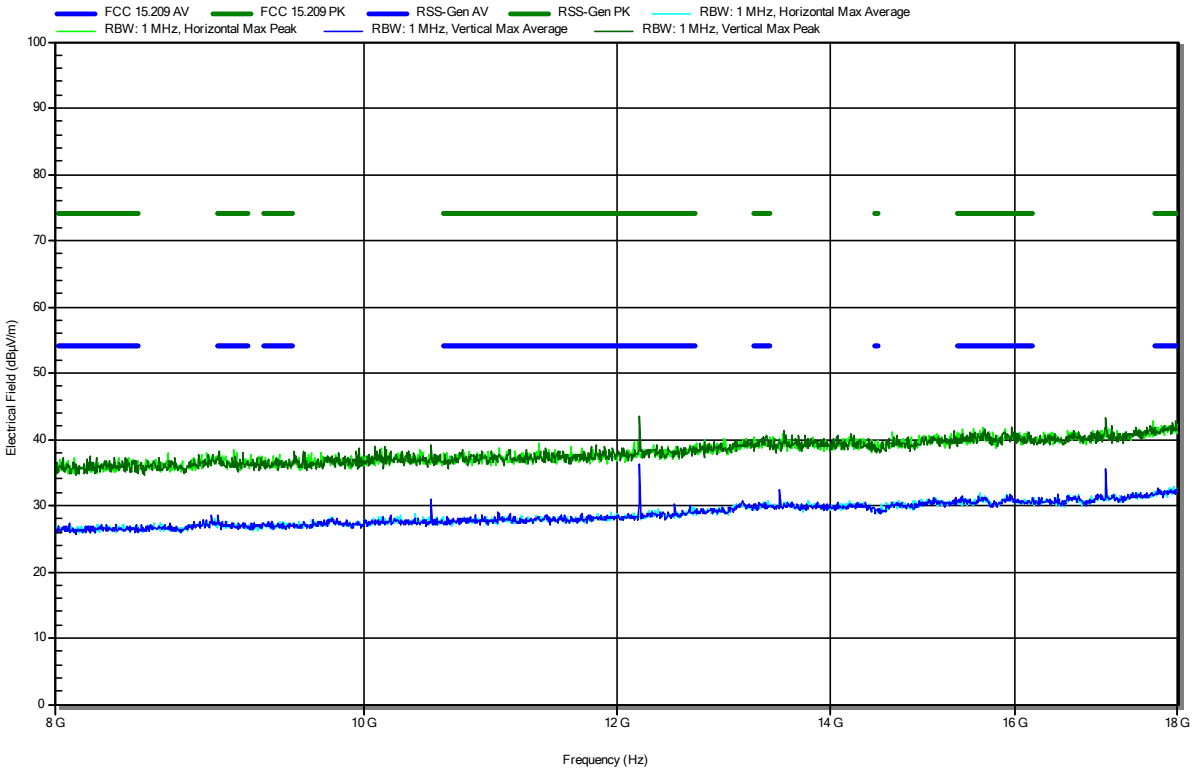
Frequency	Average	Average Limit	Average Difference	Average Status	Polarization
7.3215 GHz	42.88 dBµV/m	54 dBµV/m	-11.12 dB	Pass	Vertical

Radiated Spurious Emissions according to 47 CFR Part 15.247, RSS-247

Project Number:	G0M-2302-1881
Applicant:	u-blox AG
Model Description:	Host-based multiradio module
Model:	MAYA-W271-00B
Test Sample ID:	43094
Test Site:	Eurofins Product Service GmbH
Operator:	Ibraimov Azamat
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 24 °Celsius, Vnom: 3.3 VDC
Antenna:	Schwarzbeck HWRD 650
Measurement distance:	3 m
Mode:	Tx; BT-LE 5.3, 2440 MHz, PRBS9, 250 Bytes, 2 Mbit/s, P = 19 dBm
Test Date:	2023-07-12
Note:	

Index 58

RadiMation

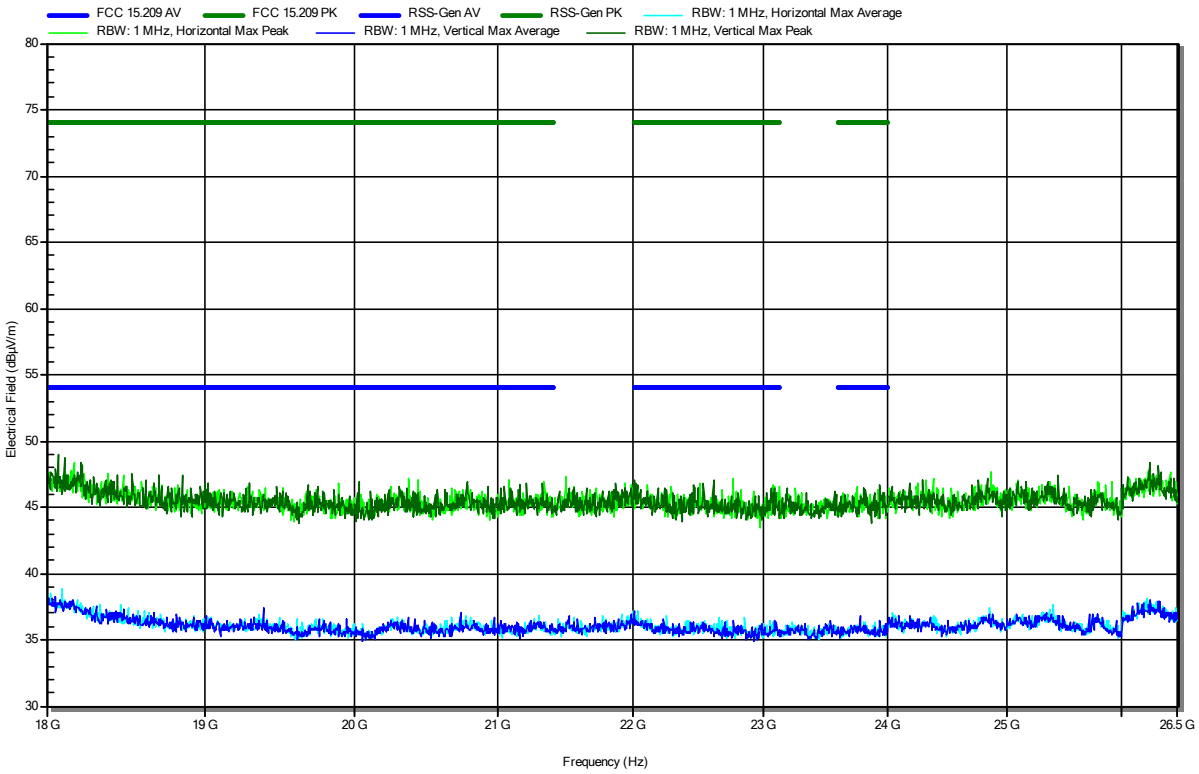


Radiated Spurious Emissions according to 47 CFR Part 15.247, RSS-247

Project Number:	G0M-2302-1881
Applicant:	u-blox AG
Model Description:	Host-based multiradio module
Model:	MAYA-W271-00B
Test Sample ID:	43094
Test Site:	Eurofins Product Service GmbH
Operator:	Ibraimov Azamat
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 24 °Celsius, Vnom: 3.3 VDC
Antenna:	Amplifier Research AT4560
Measurement distance:	3 m
Mode:	Tx; BT-LE 5.3, 2440 MHz, PRBS9, 250 Bytes, 2 Mbit/s, P = 19 dBm
Test Date:	2023-07-13

Index 63

RadiMation

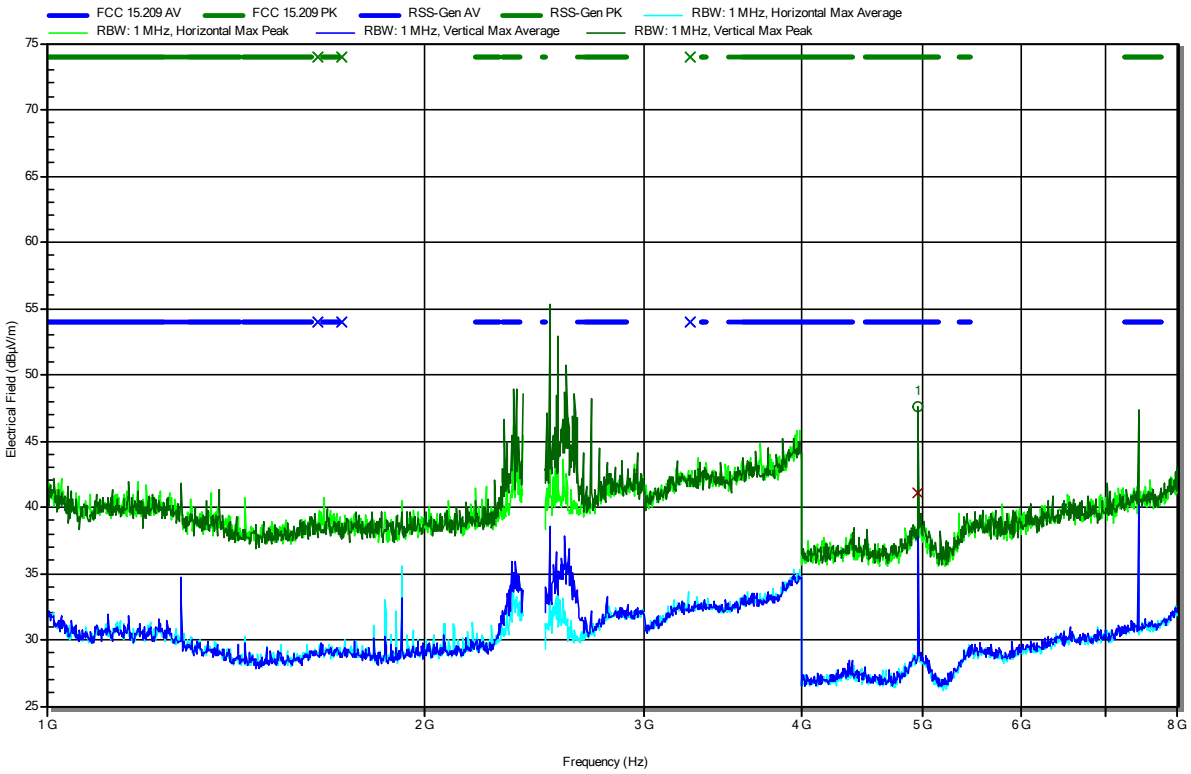


Radiated Spurious Emissions according to 47 CFR Part 15.247, RSS-247

Project Number:	G0M-2302-1881
Applicant:	u-blox AG
Model Description:	Host-based multiradio module
Model:	MAYA-W271-00B
Test Sample ID:	43094
Test Site:	Eurofins Product Service GmbH
Operator:	Ibraimov Azamat
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 24 °Celsius, Vnom: 3.3 VDC
Antenna:	Schwarzbeck BBHA 9120B
Measurement distance:	3 m
Mode:	Tx; BT-LE 5.3, 2480 MHz, PRBS9, 250 Bytes, 2 Mbit/s, P = 19 dBm
Test Date:	2023-07-12

Index 52

RadiMation



Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
4.961 GHz	47.61 dBµV/m	74 dBµV/m	-26.39 dB	Pass	Vertical

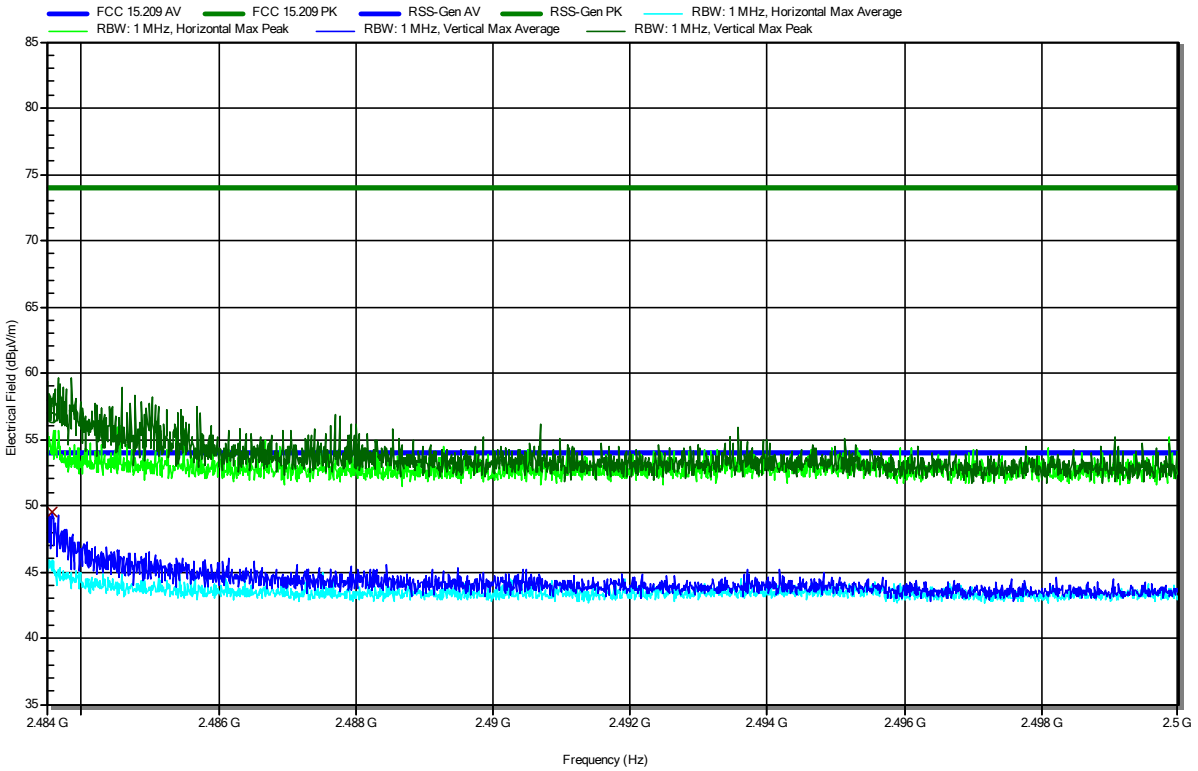
Frequency	Average	Average Limit	Average Difference	Average Status	Polarization
4.961 GHz	41.03 dBµV/m	54 dBµV/m	-12.97 dB	Pass	Vertical

Radiated Spurious Emissions according to 47 CFR Part 15.247, RSS-247

Project Number:	G0M-2302-1881
Applicant:	u-blox AG
Model Description:	Host-based multiradio module
Model:	MAYA-W271-00B
Test Sample ID:	43094
Test Site:	Eurofins Product Service GmbH
Operator:	Ibraimov Azamat
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 24 °Celsius, Vnom: 3.3 VDC
Antenna:	Schwarzbeck BBHA 9120B
Measurement distance:	3 m
Mode:	Tx; BT-LE 5.3, 2480 MHz, PRBS9, 250 Bytes, 2 Mbit/s, P = 19 dBm
Test Date:	2023-07-12
Note:	upper bandedge

Index 51

RadiMation



Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
2.4836 GHz	56.59 dBµV/m	74 dBµV/m	-17.41 dB	Pass	Vertical

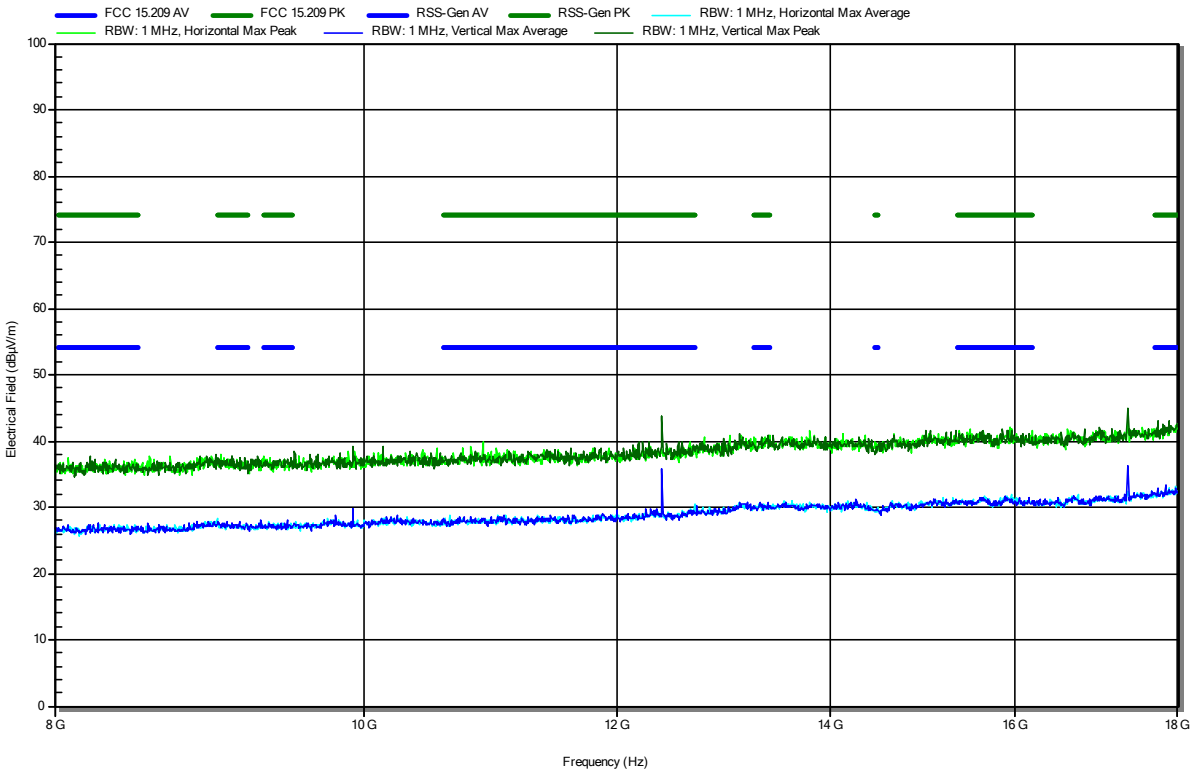
Frequency	Average	Average Limit	Average Difference	Average Status	Polarization
2.4836 GHz	49.53 dBµV/m	54 dBµV/m	-4.47 dB	Pass	Vertical

Radiated Spurious Emissions according to 47 CFR Part 15.247, RSS-247

Project Number:	G0M-2302-1881
Applicant:	u-blox AG
Model Description:	Host-based multiradio module
Model:	MAYA-W271-00B
Test Sample ID:	43094
Test Site:	Eurofins Product Service GmbH
Operator:	Ibraimov Azamat
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 24 °Celsius, Vnom: 3.3 VDC
Antenna:	Schwarzbeck HWRD 650
Measurement distance:	3 m
Mode:	Tx; BT-LE 5.3, 2480 MHz, PRBS9, 250 Bytes, 2 Mbit/s, P = 19 dBm
Test Date:	2023-07-12

Index 53

RadiMation

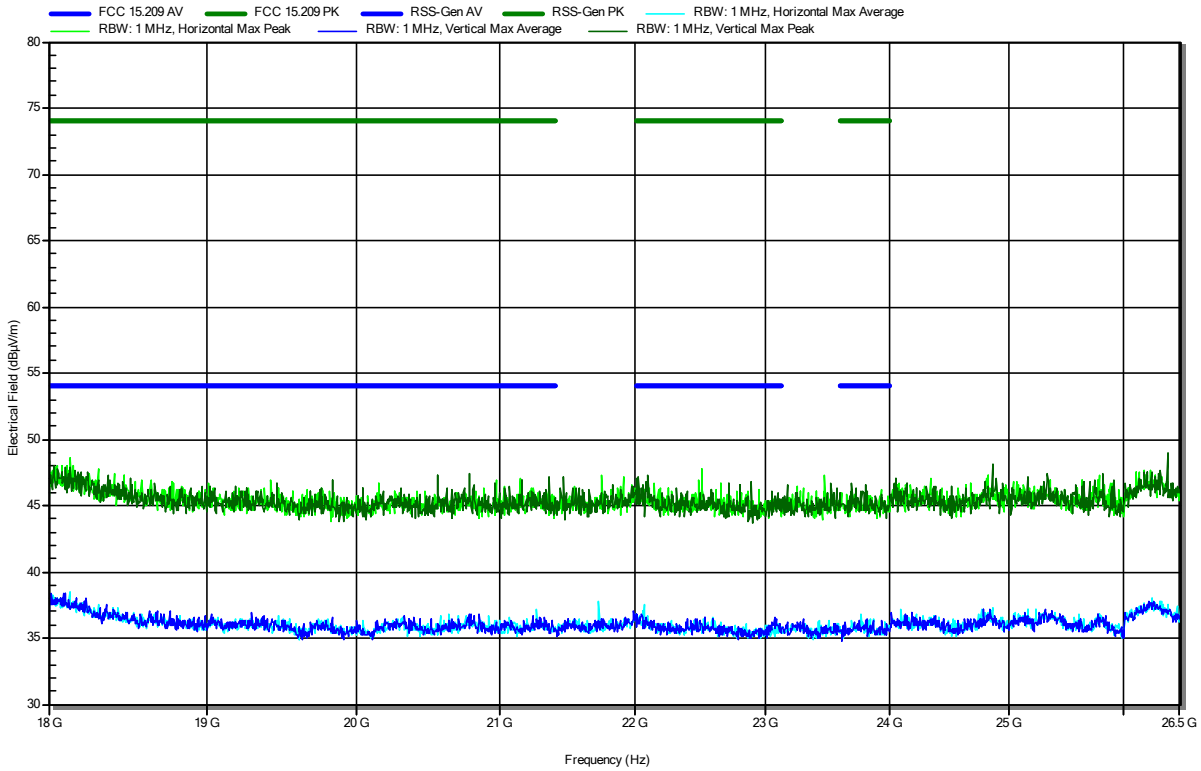


Radiated Spurious Emissions according to 47 CFR Part 15.247, RSS-247

Project Number:	G0M-2302-1881
Applicant:	u-blox AG
Model Description:	Host-based multiradio module
Model:	MAYA-W271-00B
Test Sample ID:	43094
Test Site:	Eurofins Product Service GmbH
Operator:	Ibraimov Azamat
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 24 °Celsius, Vnom: 3.3 VDC
Antenna:	Amplifier Research AT4560
Measurement distance:	3 m
Mode:	Tx; BT-LE 5.3, 2480 MHz, PRBS9, 250 Bytes, 2 Mbit/s, P = 19 dBm
Test Date:	2023-07-13
Note:	

Index 64

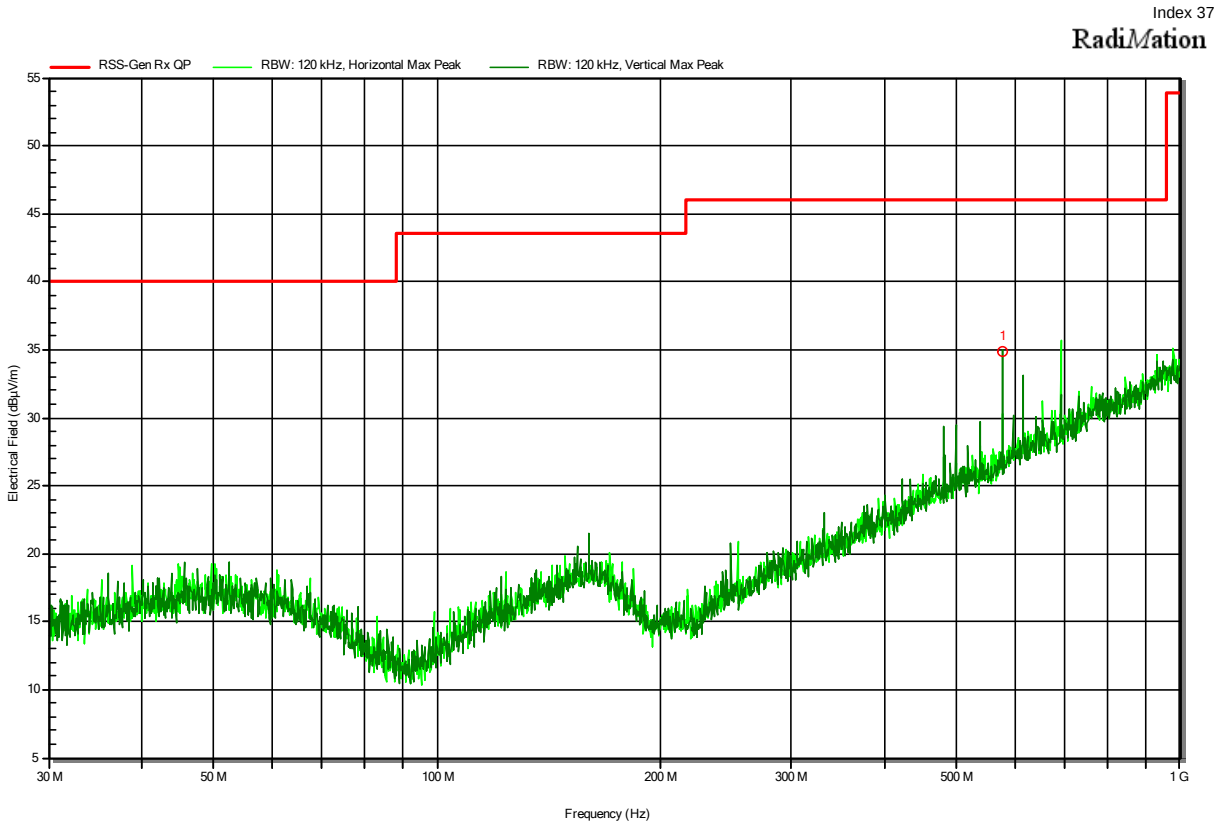
RadiMation



ANNEX B Receiver spurious emissions

Radiated Spurious Emissions according to 47 CFR Part 15.247, RSS-247

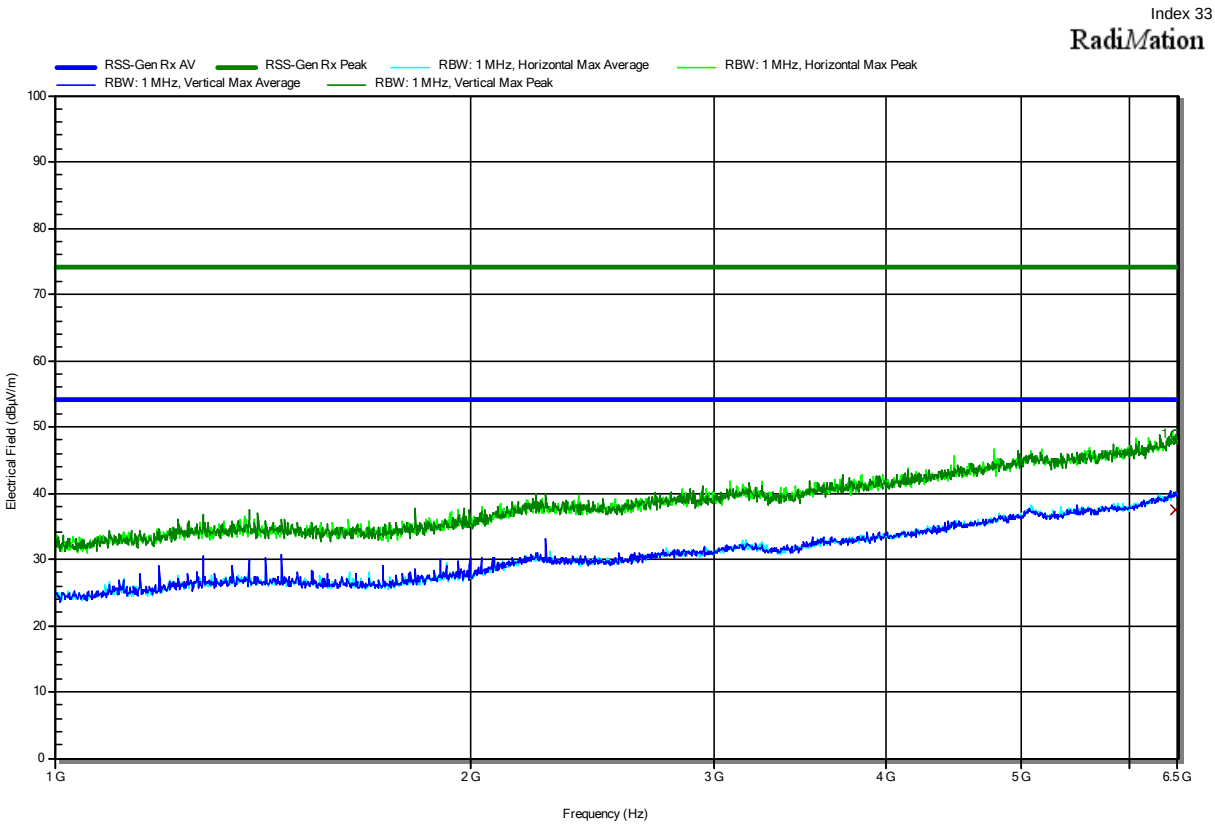
Project Number:	G0M-2302-1881
Applicant:	u-blox AG
Model Description:	Host-based multiradio module
Model:	MAYA-W271-00B
Test Sample ID:	43093
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Sohrabi
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 23 °Celsius, Vnom: 3.3 VDC
Antenna:	Schwarzbeck VULB 9168
Measurement distance:	3 m
Mode:	Rx; BT-LE 5.3, 2440 MHz, 1 Mbit/s
Test Date:	2023-07-11



Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
576.013 MHz	34.9 dBµV/m	46 dBµV/m	-11.08 dB	Pass	Vertical

Radiated Spurious Emissions according to 47 CFR Part 15.247, RSS-247

Project Number:	G0M-2302-1881
Applicant:	u-blox AG
Model Description:	Host-based multiradio module
Model:	MAYA-W271-00B
Test Sample ID:	43093
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Sohrabi
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 23 °Celsius, Vnom: 3.3 VDC
Antenna:	Schwarzbeck BBHA 9120D
Measurement distance:	3 m
Mode:	Rx; BT-LE 5.3, 2440 MHz, 1 Mbit/s
Test Date:	2023-07-07



Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
6.476 GHz	48.85 dBµV/m	74 dBµV/m	-25.15 dB	Pass	Vertical

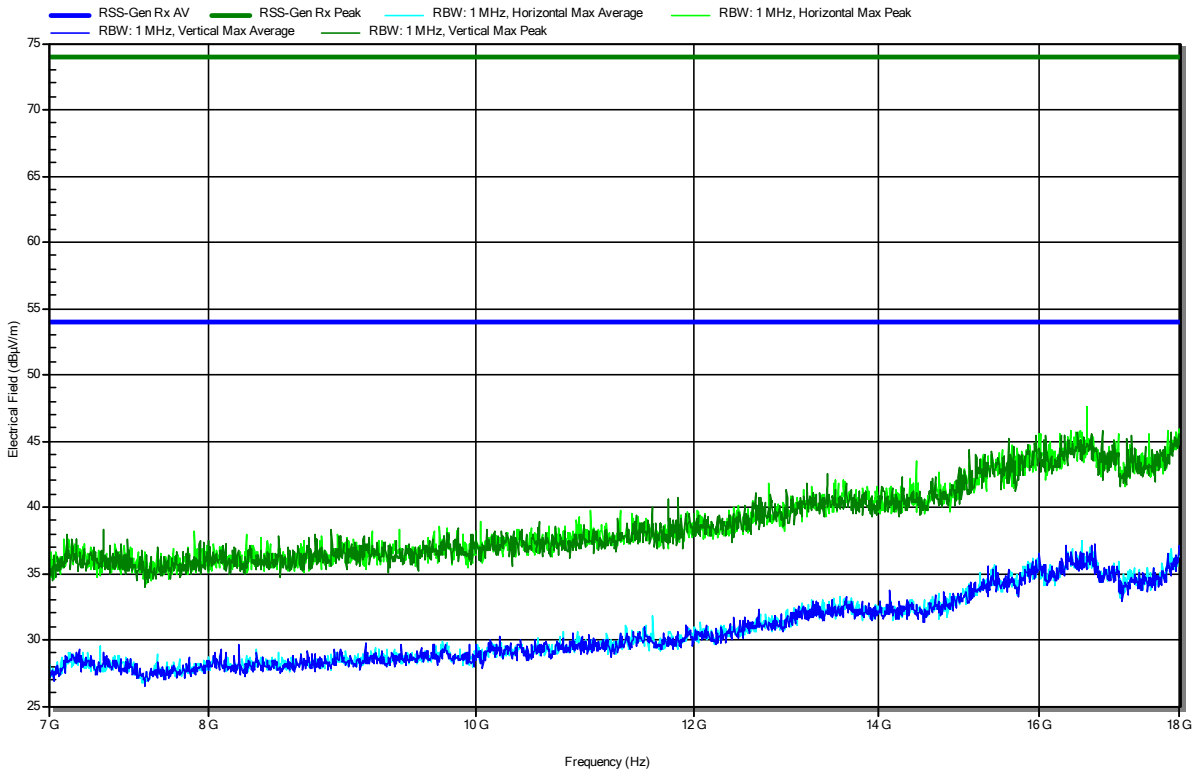
Frequency	Average	Average Limit	Average Difference	Average Status	Polarization
6.476 GHz	37.47 dBµV/m	53.98 dBµV/m	-16.51 dB	Pass	Vertical

Radiated Spurious Emissions according to 47 CFR Part 15.247, RSS-247

Project Number:	G0M-2302-1881
Applicant:	u-blox AG
Model Description:	Host-based multiradio module
Model:	MAYA-W271-00B
Test Sample ID:	43093
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Sohrabi
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 23 °Celsius, Vnom: 3.3 VDC
Antenna:	Schwarzbeck HWRD 650
Measurement distance:	3 m
Mode:	Rx; BT-LE 5.3, 2440 MHz, 1 Mbit/s
Test Date:	2023-07-07

Index 36

RadiMation



= = = END OF TEST REPORT = = =