

RADIO REPORT FCC 47 CFR Part 15C Digital transmission systems operating within the 2400.0 MHz - 2483.5 MHz band	
Report Reference No	G0M-2109-1013-TFC247BL-V01
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	wenglör sensoric GmbH
Address	wenglör Straße 3 88069 Tettnang GERMANY
Test Specification	47 CFR Part 15C
Non-Standard Test Method	None
Equipment under Test (EUT):	
Product Description	Bluetooth module
Model(s)	DC1392
Additional Model(s)	None
Brand Name(s)	None
Hardware Version(s)	1.0
Software Version(s)	1.0
FCC ID	2A3OLDC1392
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	2022-09-12	
Report:		
Compiled by	Odai Qawasmeh	
Tested by (+ signature)	Dhamia Almozani	
Supervised by (+ signature) (Responsible for Test)	Odai Qawasmeh	
Approved by (+ signature) (Test Lab Engineer)	Wilfried Treffke	
Date of Issue	2022-11-29	
Total number of pages	107	
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:		

VERSION HISTORY

Version History			
Version	Issue Date	Remarks	Revised By
01	2022-11-29	Initial Release	

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

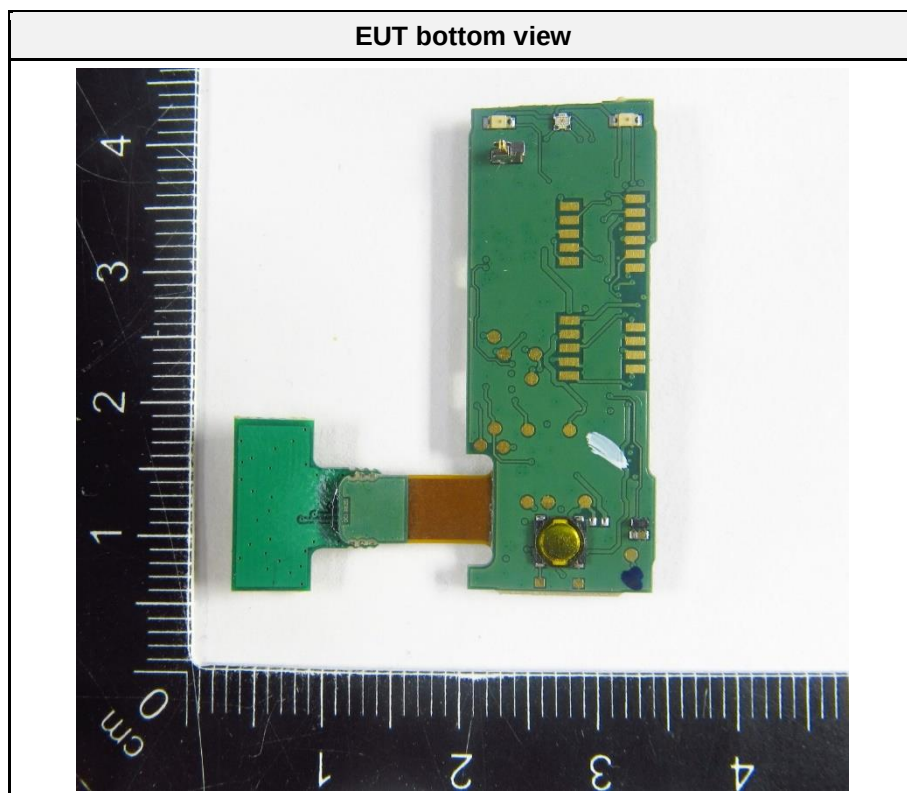
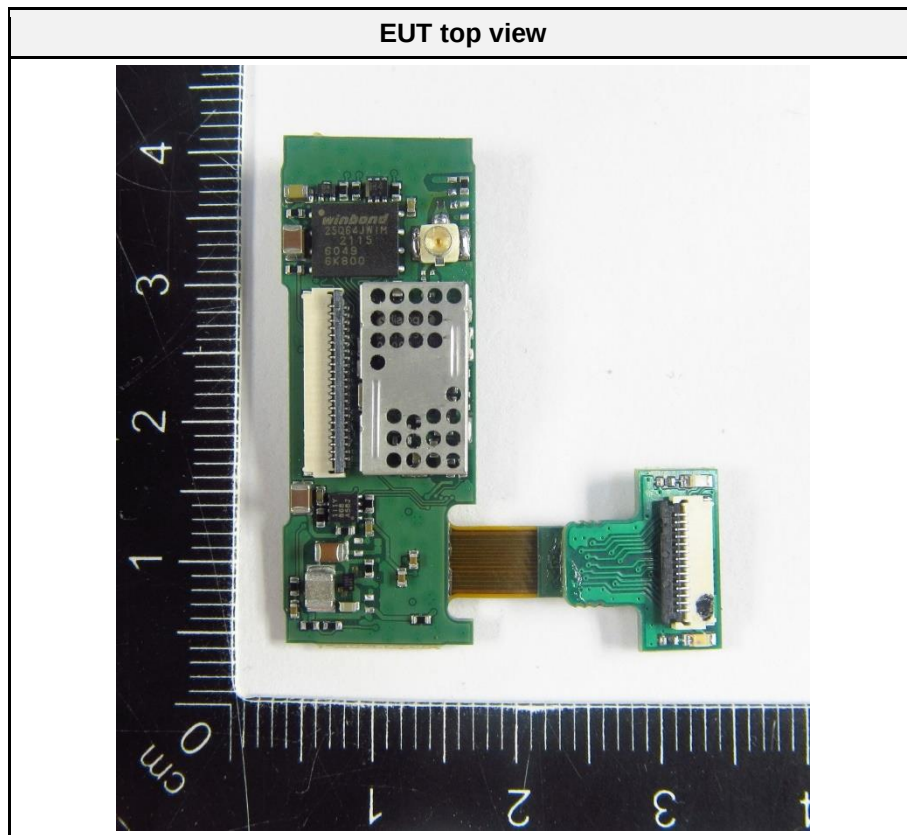
REPORT INDEX

1	Equipment (Test Item) Under Test.....	6
1.1	Photos – Equipment External & Internal.....	7
1.2	Support Equipment.....	10
1.3	Test Modes	11
1.4	Test Frequencies.....	12
1.5	Sample emission level calculation.....	13
2	Result Summary.....	14
3	Test Conditions and Results.....	15
3.1	Test Conditions and Results - Occupied bandwidth.....	15
3.2	Test Conditions and Results - 6 dB bandwidth.....	23
3.3	Test Conditions and Results - Maximum peak conducted output power	31
3.4	Test Conditions and Results - Power spectral density	39
3.5	Test Conditions and Results - AC powerline conducted emissions.....	47
3.6	Test Conditions and Results - Band-edge compliance.....	53
3.7	Test Conditions and Results - Conducted spurious emissions.....	59
3.8	Test Conditions and Results - Transmitter radiated emissions	67
ANNEX A	Transmitter spurious emissions	74

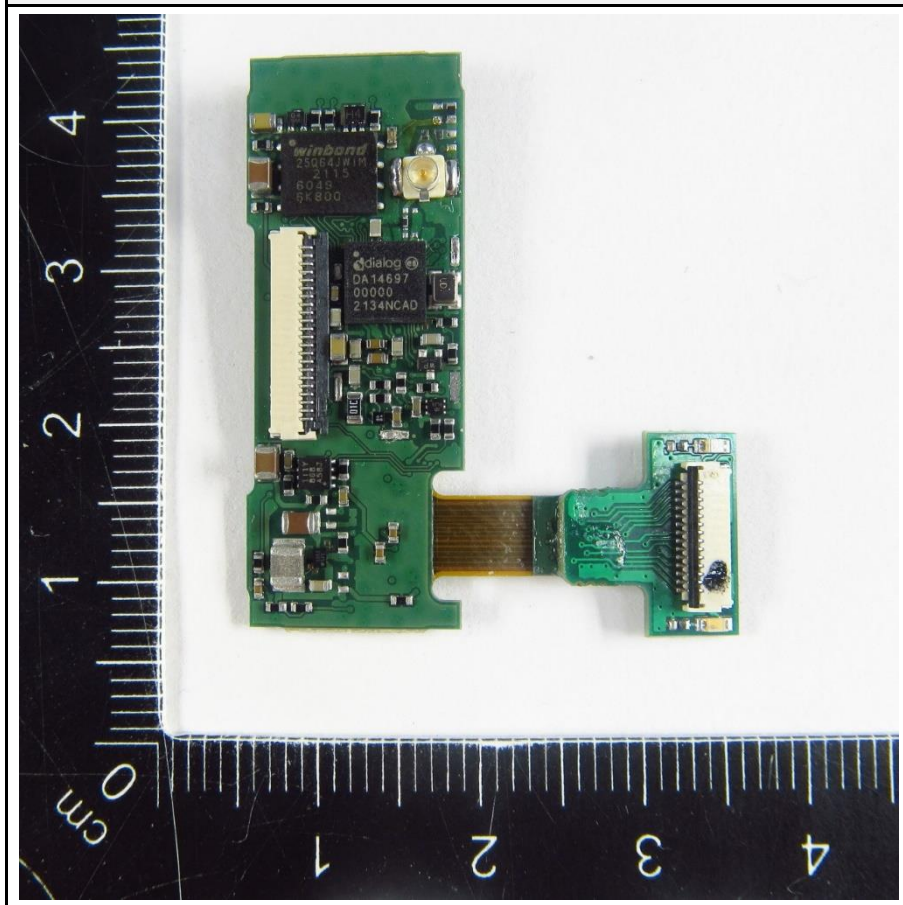
1 Equipment (Test Item) Under Test

Description	Bluetooth module	
Model	DC1392	
Additional Model(s)	None	
Brand Name(s)	None	
Serial Number(s)	Prototype	
Hardware Version(s)	1.0	
Software Version(s)	1.0	
FCC ID	2A30LDC1392	
Equipment type	End Product	
Radio type	Transceiver	
Assigned frequency bands	2400.0 MHz - 2483.5 MHz	
Radio technology	Bluetooth LE 5.1	
Bluetooth Specification	LE 1M PHY	Yes
	LE 2M PHY	Yes
	LE Coded PHY S=8 (125 kbit)	No
	LE Coded PHY S=2 (500 kbit)	No
	Stable Modulation Index - Transmitter	No
	Stable Modulation Index - Receiver	No
Modulation	GFSK	
Number of antenna ports	1	
Antenna	Type	Integrated
	Model	Not specified
	Manufacturer	Not specified
	Gain	1.98 dBi (antenna pattern measurement)
Supply Voltage	V _{NOM}	5 VDC
Operating Temperature	T _{NOM}	25 °C
AC/DC-Adaptor	None	
Manufacturer	wenglor sensoric GmbH wenglor Straße 3 88069 Tettnang GERMANY	

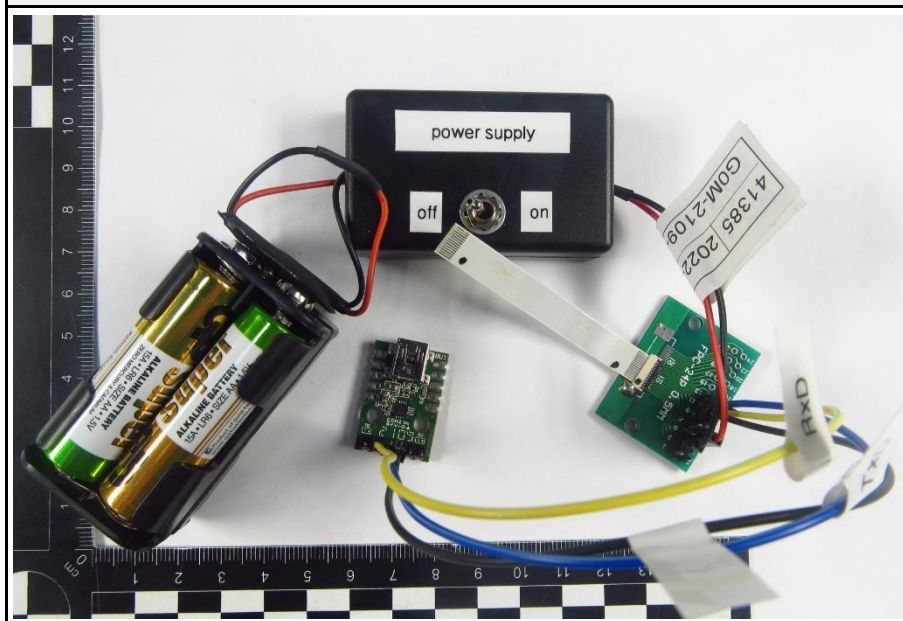
1.1 Photos – Equipment External & Internal

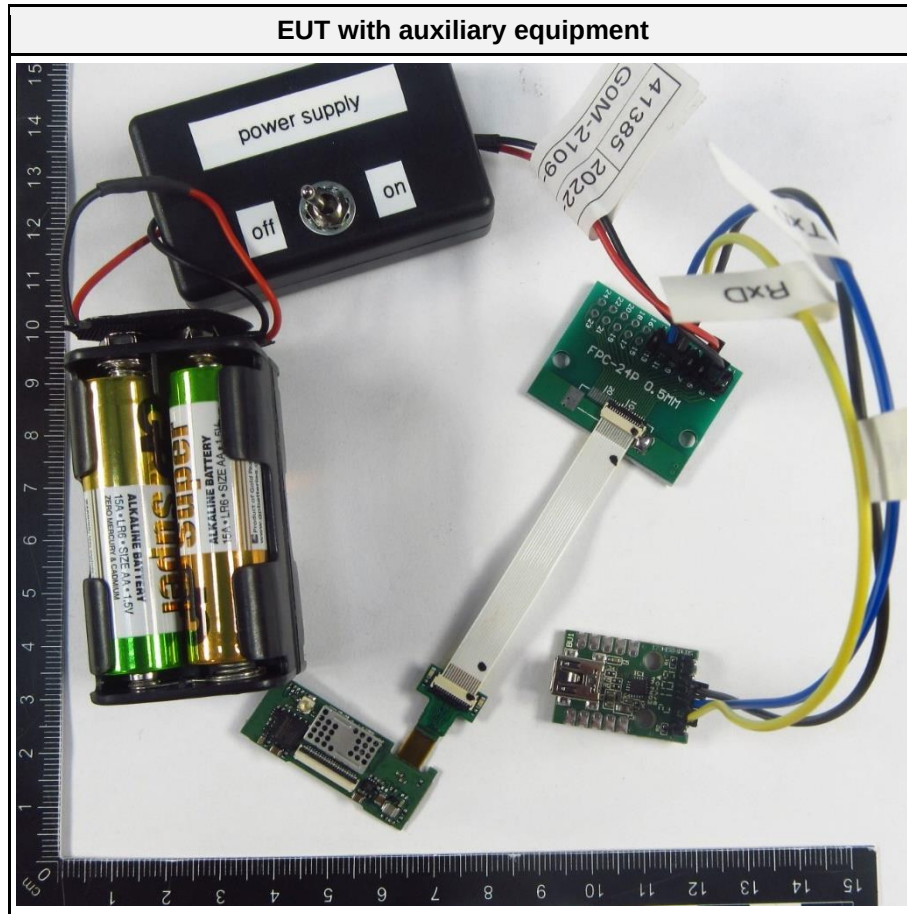


EUT top view without shield



Auxiliary Equipment





1.2 Support Equipment

Product Type	Device	Manufacturer	Model	Comment
AE	Notebook	Lenovo	Thinkpad	for configuring test modes
SFT	HTerm	-	-	for setting output power
SFT	Bluetooth over DTM	Eurofins Product Service GmbH	-	for adjusting channels
Description:				
AE	Auxiliary Equipment			
SIM	Simulator			
CBL	Connecting Cable			
SFT	Software			
Comment:				

1.3 Test Modes

Mode	Description
GFSK 1M	Mode = Transmit Modulation = 2-GFSK Spreading = None Duty cycle = 87% Packet length = 193 Power setting = 6 dBm (Software setting)
GFSK 2M	Mode = Transmit Modulation = 2-GFSK Spreading = None Duty cycle = 82% Packet length = 239 Power setting = 6 dBm (Software setting)
Receive	Mode = Receive
Comment:	

1.4 Test Frequencies

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

1.5 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:

$$\text{Reading on Analyzer (dB}\mu\text{V)} + \text{A.F. (dB/m)} = \text{Net field strength (dB}\mu\text{V/m)}$$

Net:

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

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:

$$\text{Limit (dB}\mu\text{V/m)} = 20 \cdot \log(\mu\text{V/m})$$

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.

Example only:

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

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	N/R	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

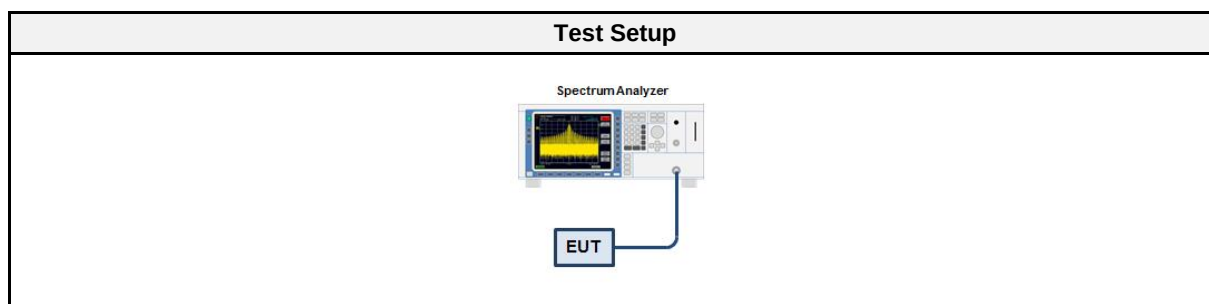
3.1.1 Information

Test Information	
Reference	ISED RSS-Gen, Issue 5 A2 (section 6.7)
Measurement Method	ANSI C63.10 6.9.3
Measurement Uncertainty	$\pm 1.26 \%$
Test Sample ID	41254
Operator	Florian Voigt, Dhamia Almozani
Date	2022-11-29

3.1.2 Limits

Limits
None (Informational only)

3.1.3 Setup



3.1.4 Equipment

Test Equipment					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyser	R&S	FSU 43	EF01631	2022-08	2023-08
Cable	Gigalan	CAAT	EF00779	2022-02	2023-02

3.1.5 Procedure

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

3.1.6 Results

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

Test Results		
Mode	Frequency [MHz]	Bandwidth [MHz]
GFSK 2 Mbps	2402	2.085
GFSK 2 Mbps	2440	2.085
GFSK 2 Mbps	2480	2.085

Occupied Bandwidth

Project Number: G0M-2109-1013
 Applicant: wenglorsensoric GmbH
 Model Description: Bluetooth module
 Model: DC1392
 Test Sample ID: 41253
 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: Dhamia Almozani
 Test Site: Eurofins Product Service GmbH
 Test Date: 2022-09-28
 Note: Bit rate= 1 Mbps
 Occupied Bandwidth [MHz]: 1.040



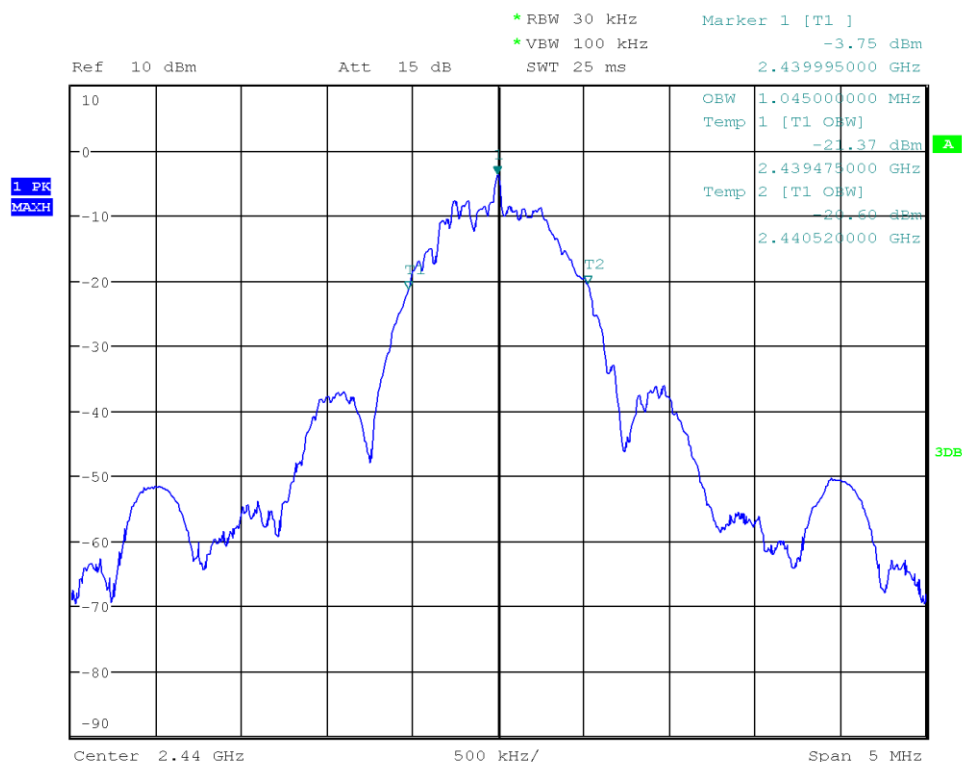
Date: 28.SEP.2022 14:08:22

Test Report No.: G0M-2109-1013-TFC247BL-V01

Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Occupied Bandwidth

Project Number: G0M-2109-1013
 Applicant: wenglorsensoric GmbH
 Model Description: Bluetooth module
 Model: DC1392
 Test Sample ID: 41253
 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: Dhamia Almozani
 Test Site: Eurofins Product Service GmbH
 Test Date: 2022-09-28
 Note: Bit rate= 1 Mbps
 Occupied Bandwidth [MHz]: 1.045



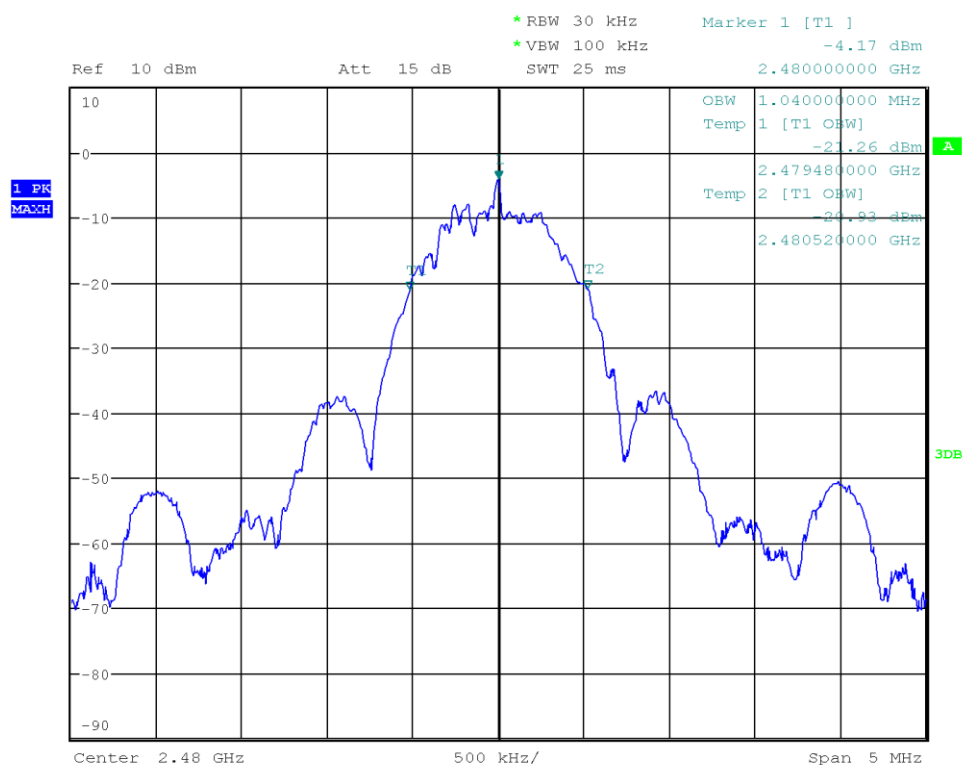
Date: 28.SEP.2022 14:11:20

Test Report No.: G0M-2109-1013-TFC247BL-V01

Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Occupied Bandwidth

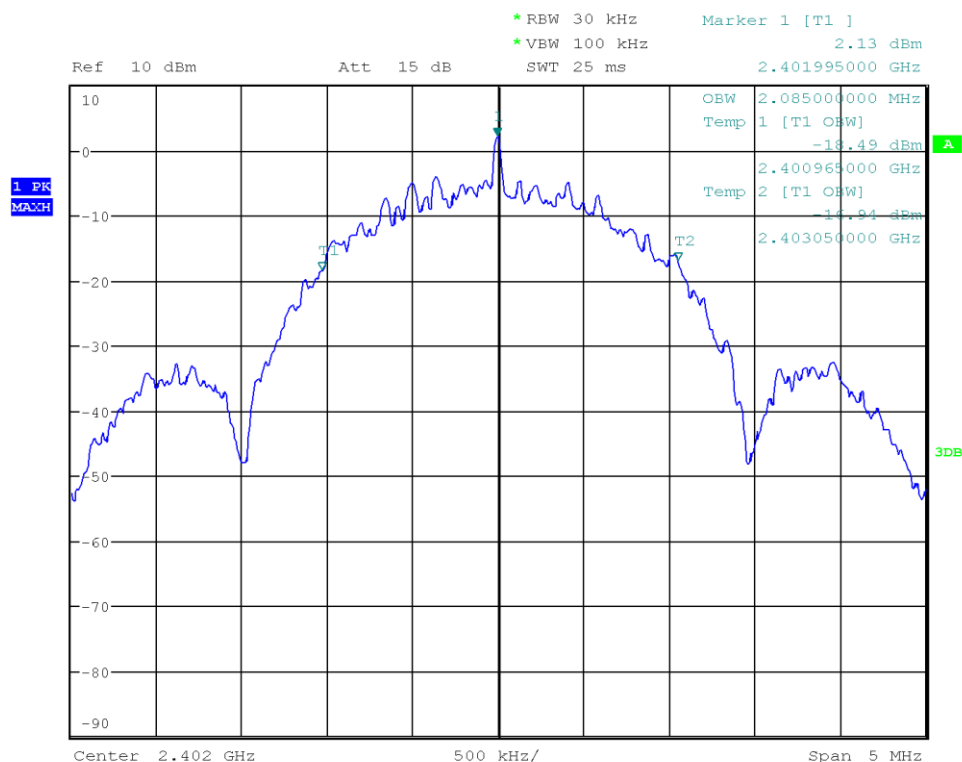
Project Number: G0M-2109-1013
 Applicant: wenglorsensoric GmbH
 Model Description: Bluetooth module
 Model: DC1392
 Test Sample ID: 41253
 Reference Standards: FCC 15.247, RSS-247
 Reference Method: ANSI C63.10:2013, Section 6.9.3
 Operational Mode: GFSK, Channel: 39, 2480 MHz
 Operating Conditions: Tnom/Vnom
 Operator: Dhamia Almozani
 Test Site: Eurofins Product Service GmbH
 Test Date: 2022-09-28
 Note: Bit rate= 1 Mbps
 Occupied Bandwidth [MHz]: 1.040



Date: 28.SEP.2022 14:12:16

Occupied Bandwidth

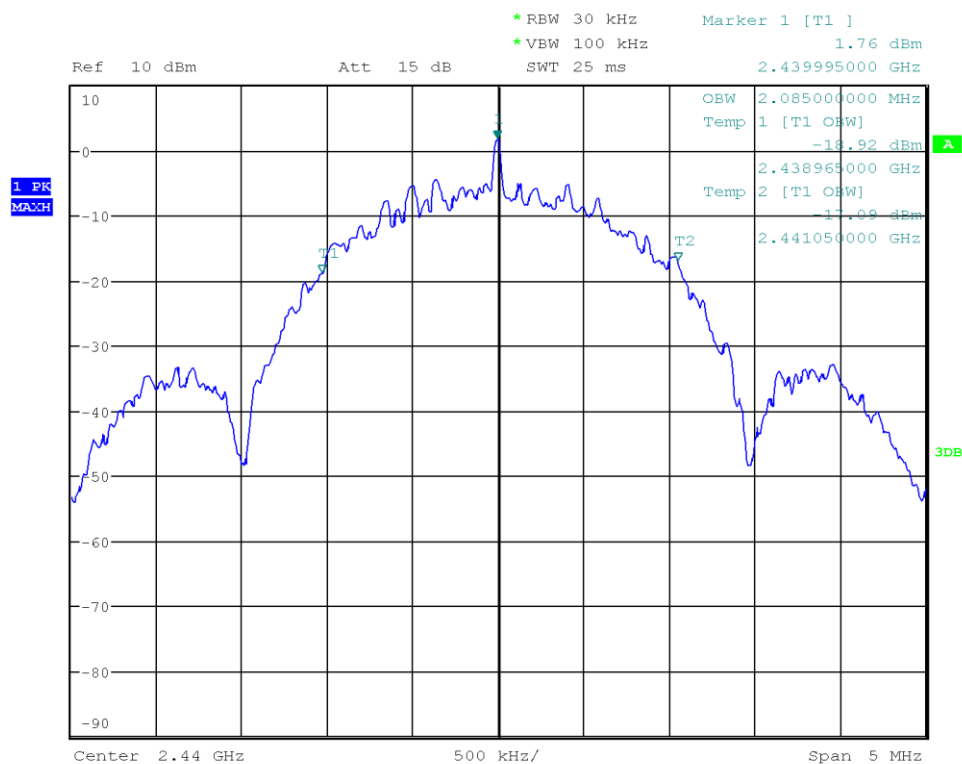
Project Number: G0M-2109-1013
 Applicant: wenglorsensoric GmbH
 Model Description: Bluetooth module
 Model: DC1392C
 Test Sample ID: 41253
 Reference Standards: FCC 15.247, RSS-247
 Reference Method: ANSI C63.10:2013, Section 6.9.3
 Operational Mode: GFSK, Channel: 0, 2402 MHz
 Operating Conditions: Tnom/Vnom
 Operator: Florian Voigt
 Test Site: Eurofins Product Service GmbH
 Test Date: 2022-11-29
 Note: Bit rate= 2 Mbps
 Occupied Bandwidth [MHz]: 2.085



Date: 29.NOV.2022 20:09:16

Occupied Bandwidth

Project Number: G0M-2109-1013
 Applicant: wenglorsensoric GmbH
 Model Description: Bluetooth module
 Model: DC1392C
 Test Sample ID: 41253
 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: Florian Voigt
 Test Site: Eurofins Product Service GmbH
 Test Date: 2022-11-29
 Note: Bit rate= 2 Mbps
 Occupied Bandwidth [MHz]: 2.085



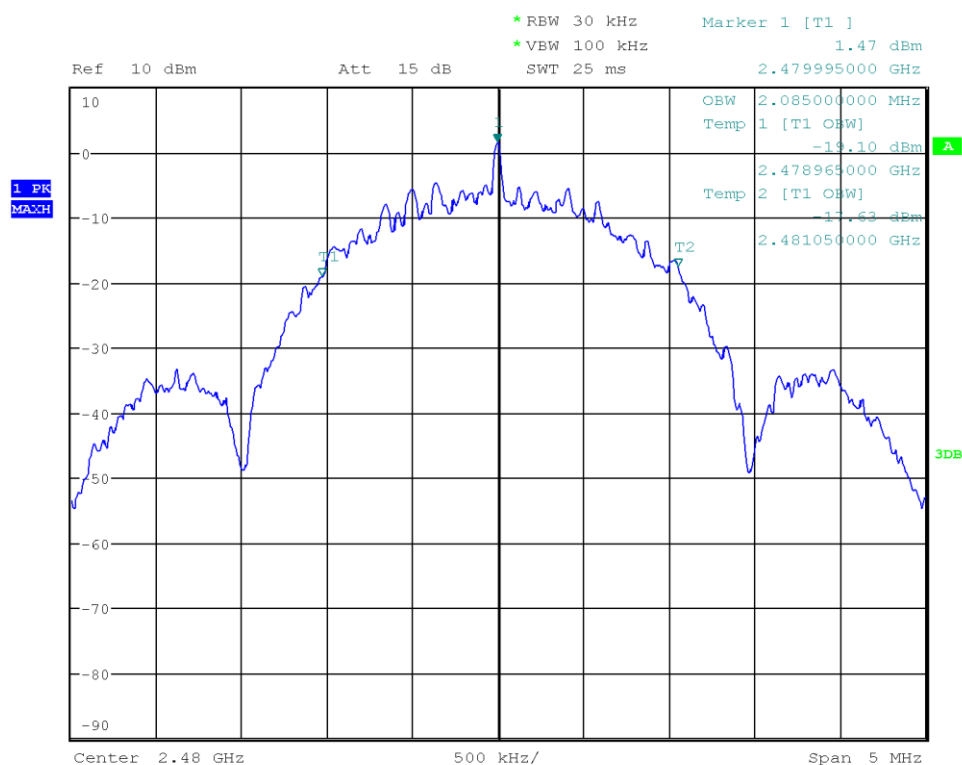
Date: 29.NOV.2022 20:10:06

Test Report No.: G0M-2109-1013-TFC247BL-V01

Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Occupied Bandwidth

Project Number: G0M-2109-1013
 Applicant: wenglorsensoric GmbH
 Model Description: Bluetooth module
 Model: DC1392C
 Test Sample ID: 41253
 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: Florian Voigt
 Test Site: Eurofins Product Service GmbH
 Test Date: 2022-11-29
 Note: Bit rate= 2 Mbps
 Occupied Bandwidth [MHz]: 2.085



Date: 29.NOV.2022 20:10:59

3.2 Test Conditions and Results - 6 dB bandwidth

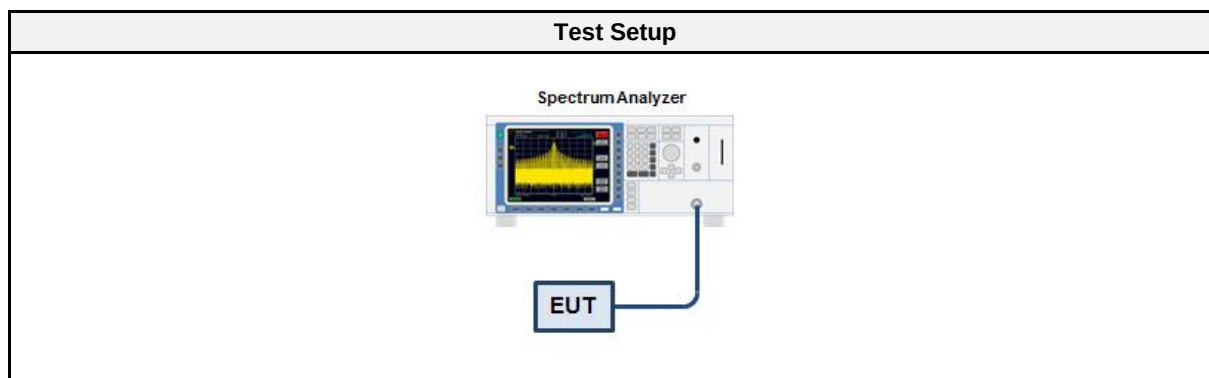
3.2.1 Information

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	Dr.-Ing. Dhamia Almozani
Date	2022-09-28

3.2.2 Limits

Limits
≥ 500kHz

3.2.3 Setup



3.2.4 Equipment

Test Equipment					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyser	R&S	FSU 26	EF01003	2022-07	2023-07
Cable	Gigalan	CAAAT	EF00779	2022-02	2023-02

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

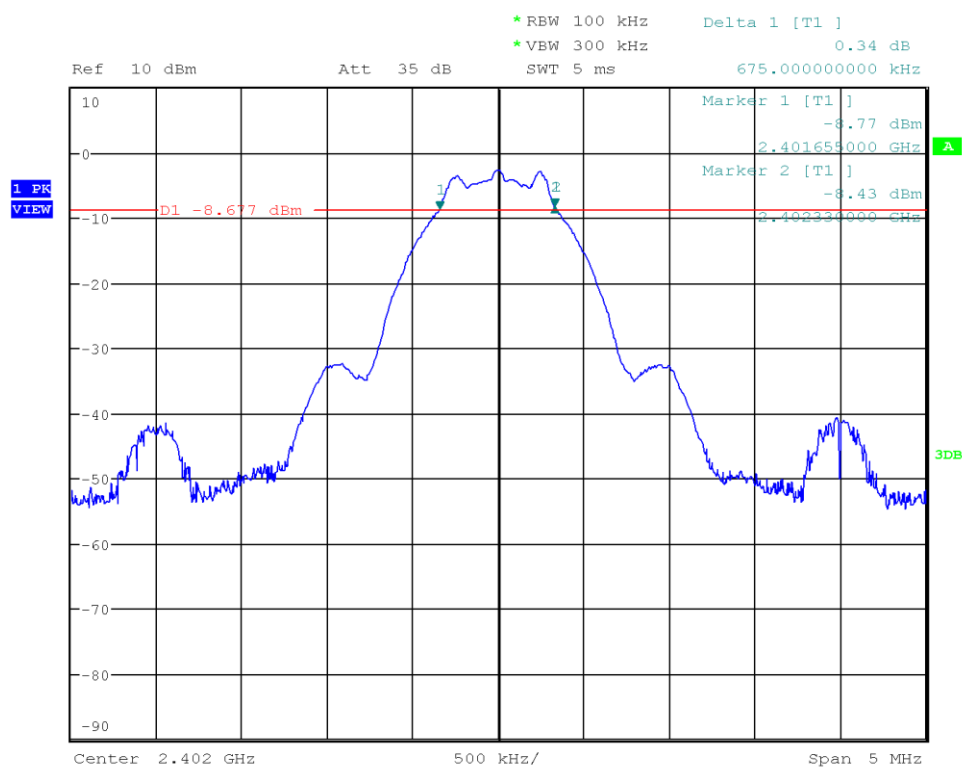
3.2.6 Results

Test Results				
Mode	Frequency [MHz]	Bandwidth [kHz]	Limit [kHz]	Verdict
GFSK 1 Mbps	2402	675	500	PASS
GFSK 1 Mbps	2440	665	500	PASS
GFSK 1 Mbps	2480	680	500	PASS

Test Results				
Mode	Frequency [MHz]	Bandwidth [kHz]	Limit [kHz]	Verdict
GFSK 2 Mbps	2402	1165	500	PASS
GFSK 2 Mbps	2440	1155	500	PASS
GFSK 2 Mbps	2480	1155	500	PASS

DTS (6 dB) Bandwidth

Project Number: G0M-2109-1013
 Applicant: wenglorsensoric GmbH
 Model Description: Bluetooth module
 Model: DC1392
 Test Sample ID: 41253
 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: Dhamia Almozani
 Test Site: Eurofins Product Service GmbH
 Test Date: 2022-09-28
 Note: Bit Rate= 1 Mbps
 Lower Frequency [MHz]: 2401.655
 Upper Frequency [MHz]: 2402.330
 6 dB Bandwidth [kHz]: 675



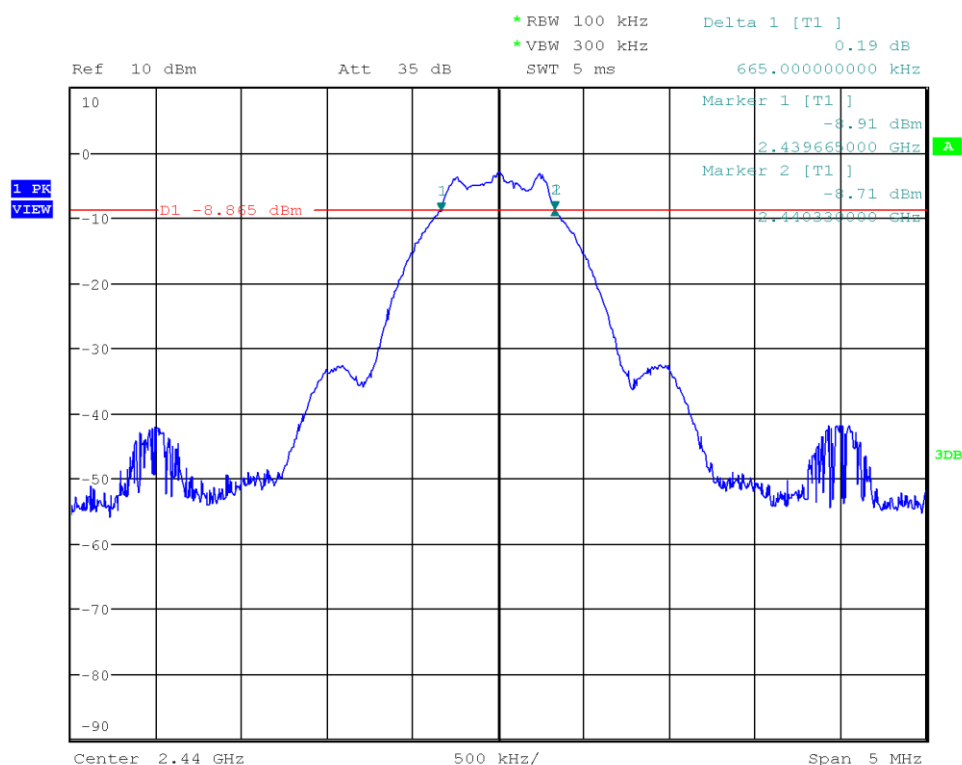
Date: 28.SEP.2022 14:23:34

Test Report No.: G0M-2109-1013-TFC247BL-V01

Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

DTS (6 dB) Bandwidth

Project Number: G0M-2109-1013
 Applicant: wenglorsensoric GmbH
 Model Description: Bluetooth module
 Model: DC1392
 Test Sample ID: 41253
 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: Dhamia Almozani
 Test Site: Eurofins Product Service GmbH
 Test Date: 2022-09-28
 Note: Bit Rate= 1 Mbps
 Lower Frequency [MHz]: 2439.665
 Upper Frequency [MHz]: 2440.330
 6 dB Bandwidth [kHz]: 665



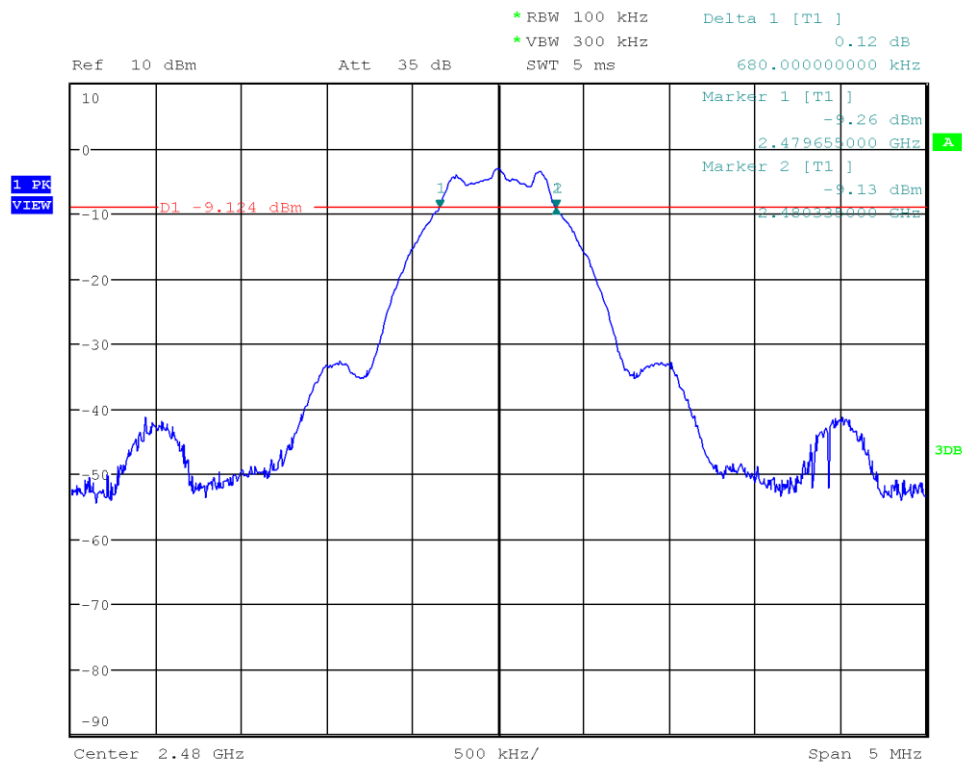
Date: 28.SEP.2022 14:24:22

Test Report No.: G0M-2109-1013-TFC247BL-V01

Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

DTS (6 dB) Bandwidth

Project Number: G0M-2109-1013
 Applicant: wenglorsensoric GmbH
 Model Description: Bluetooth module
 Model: DC1392
 Test Sample ID: 41253
 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: Dhamia Almozani
 Test Site: Eurofins Product Service GmbH
 Test Date: 2022-09-28
 Note: Bit Rate= 1 Mbps
 Lower Frequency [MHz]: 2479.655
 Upper Frequency [MHz]: 2480.335
 6 dB Bandwidth [kHz]: 680



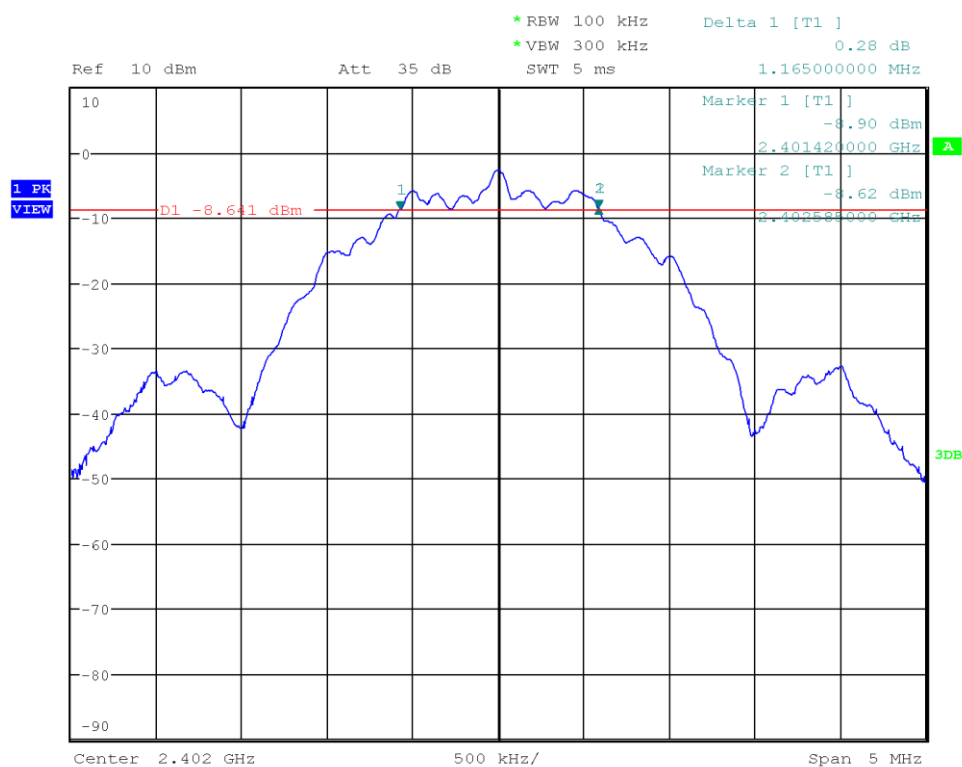
Date: 28.SEP.2022 14:25:41

Test Report No.: G0M-2109-1013-TFC247BL-V01

Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

DTS (6 dB) Bandwidth

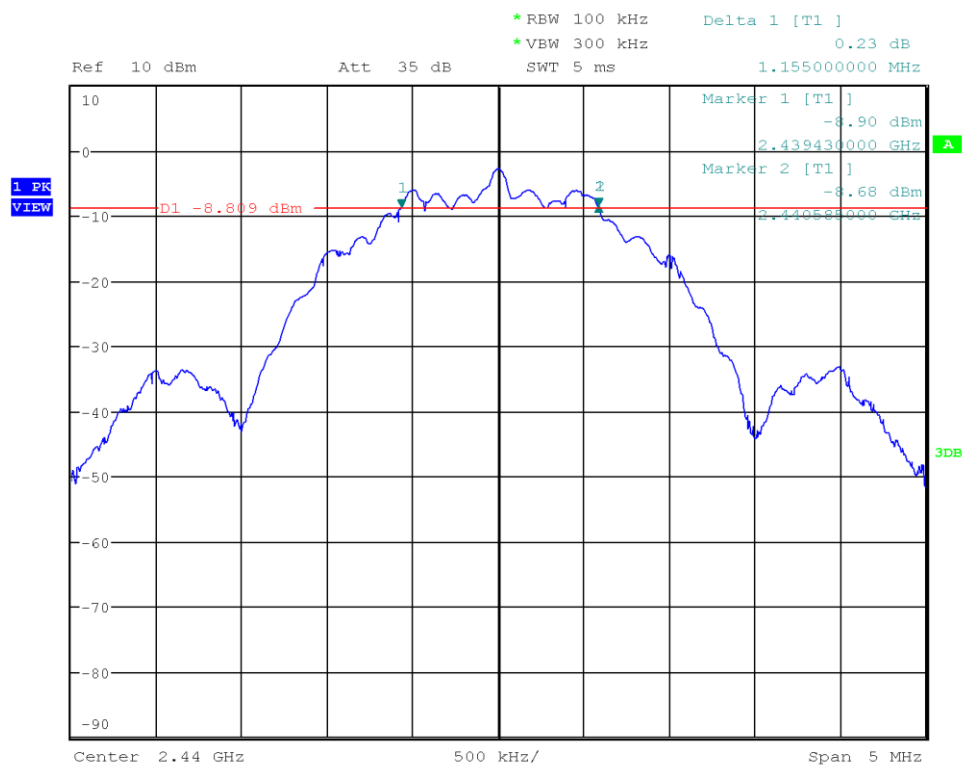
Project Number: G0M-2109-1013
 Applicant: wenglorsensoric GmbH
 Model Description: Bluetooth module
 Model: DC1392
 Test Sample ID: 41253
 Reference Standards: FCC 15.247, RSS-247
 Reference Method: ANSI C63.10:2013, Section 11.8.1 Option 1
 Operational Mode: GFSK, Channel: 0, 2402 MHz
 Operating Conditions: Tnom/Vnom
 Operator: Dhamia Almozani
 Test Site: Eurofins Product Service GmbH
 Test Date: 2022-09-28
 Note: Bit Rate= 2 Mbps
 Lower Frequency [MHz]: 2401.420
 Upper Frequency [MHz]: 2402.585
 6 dB Bandwidth [kHz]: 1165



Date: 28.SEP.2022 14:29:28

DTS (6 dB) Bandwidth

Project Number: G0M-2109-1013
 Applicant: wenglorsensoric GmbH
 Model Description: Bluetooth module
 Model: DC1392
 Test Sample ID: 41253
 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: Dhamia Almozani
 Test Site: Eurofins Product Service GmbH
 Test Date: 2022-09-28
 Note: Bit Rate= 2 Mbps
 Lower Frequency [MHz]: 2439.430
 Upper Frequency [MHz]: 2440.585
 6 dB Bandwidth [kHz]: 1155



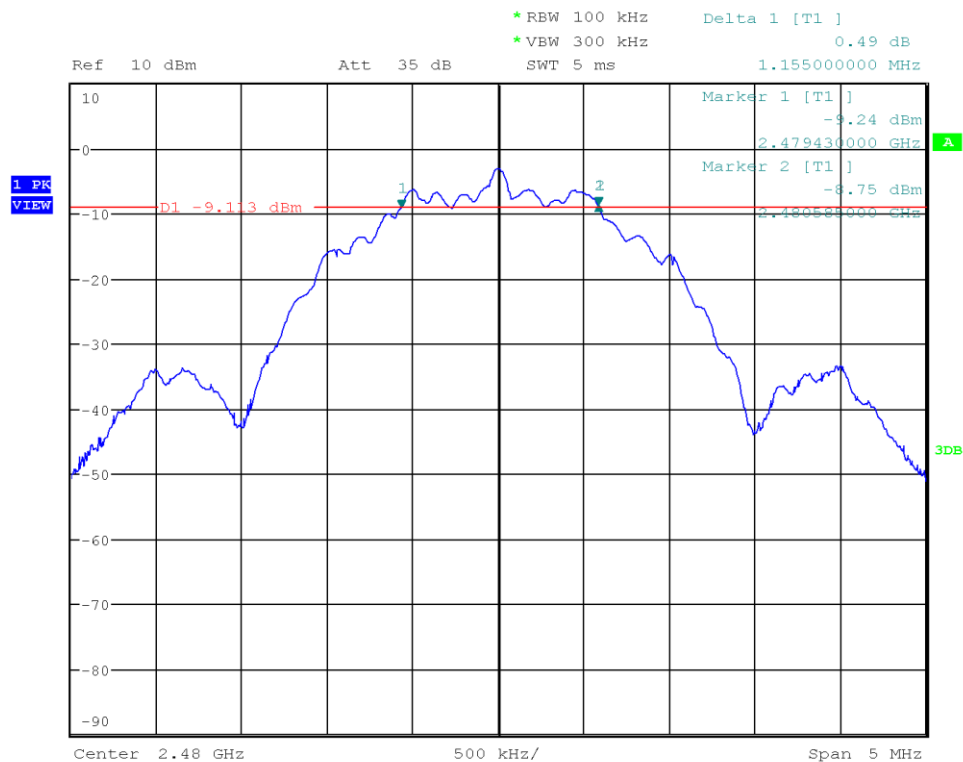
Date: 28.SEP.2022 14:30:26

Test Report No.: G0M-2109-1013-TFC247BL-V01

Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

DTS (6 dB) Bandwidth

Project Number: G0M-2109-1013
 Applicant: wenglor sensoric GmbH
 Model Description: Bluetooth module
 Model: DC1392
 Test Sample ID: 41253
 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: Dhamia Almozani
 Test Site: Eurofins Product Service GmbH
 Test Date: 2022-09-28
 Note: Bit Rate= 2 Mbps
 Lower Frequency [MHz]: 2479.430
 Upper Frequency [MHz]: 2480.585
 6 dB Bandwidth [kHz]: 1155



Date: 28.SEP.2022 14:31:40

Test Report No.: G0M-2109-1013-TFC247BL-V01

Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

3.3 Test Conditions and Results - Maximum peak conducted output power

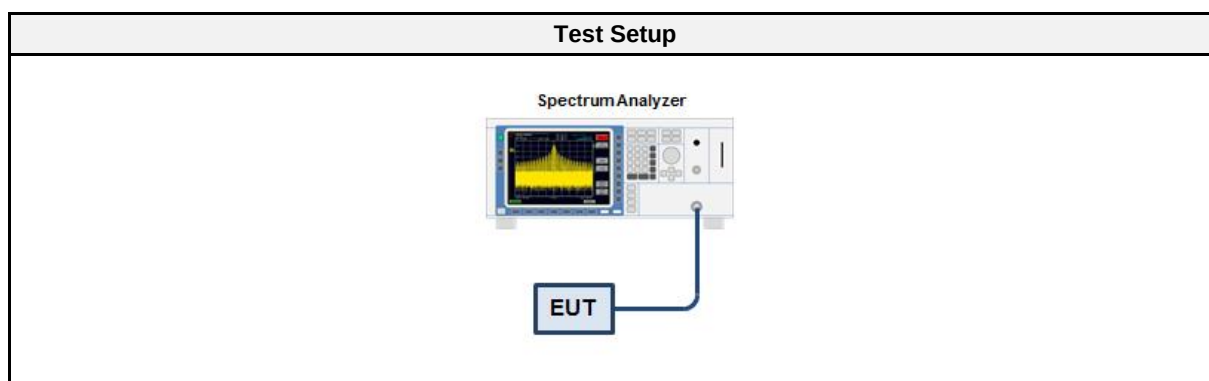
3.3.1 Information

Test Information	
Reference	FCC § 15.247(b); ISSED RSS-247, Issue 2 (section 5.4)
Measurement Method	ANSI C63.10 11.9.1
Measurement Uncertainty	± 2.86 dB
Operator	Dhamia Almozani
Date	2022-09-28

3.3.2 Limits

Limits
1 W (30 dBm)
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.

3.3.3 Setup



3.3.4 Equipment

Test Equipment					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyser	R&S	FSU 26	EF01003	2022-07	2023-07
Cable	Gigalan	CAAAT	EF00779	2022-02	2023-02

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

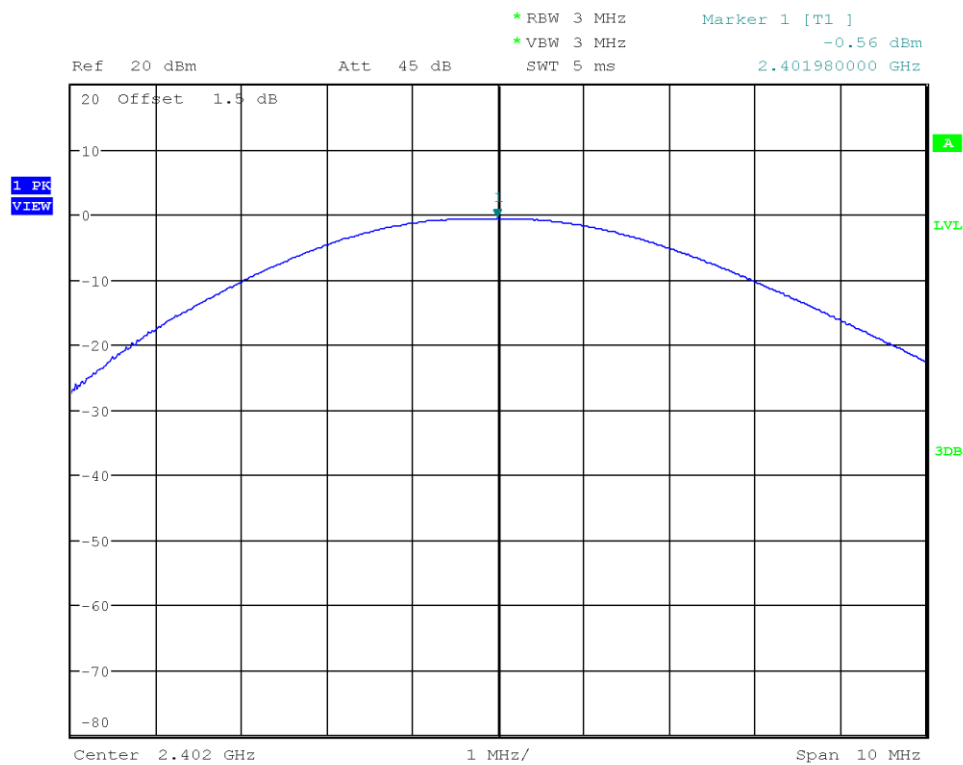
3.3.6 Results

Test Results 1 Mbps				
Channel [MHz]	Power [dBm]	Power [W]	Limit [W]	Verdict
2402	-0.562	0.0009	1.0	PASS
2440	-1.003	0.0008	1.0	PASS
2480	-1.280	0.0007	1.0	PASS

Test Results 2 Mbps				
Channel [MHz]	Power [dBm]	Power [W]	Limit [W]	Verdict
2402	-0.603	0.0009	1.0	PASS
2440	-0.970	0.0008	1.0	PASS
2480	-1.274	0.0007	1.0	PASS

Peak Conducted Output Power

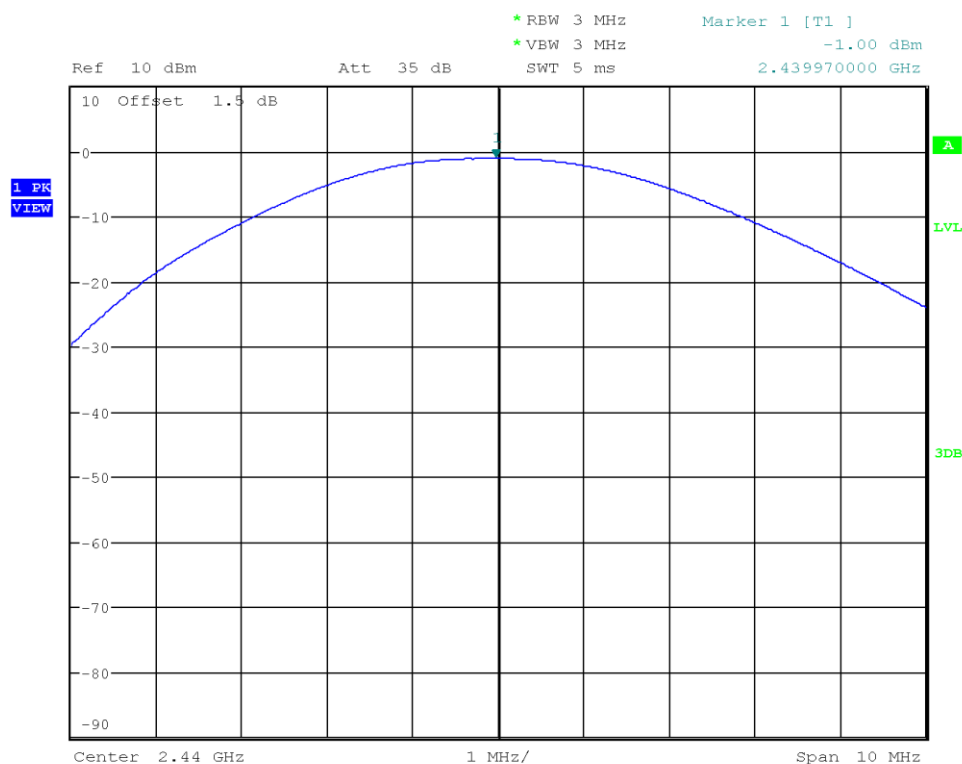
Project Number: G0M-2109-1013
 Applicant: wenglor sensoric GmbH
 Model Description: Bluetooth module
 Model: DC1392
 Test Sample ID: 41253
 Reference Standards: FCC 15.247, RSS-247
 Reference Method: ANSI C63.10:2013, Section 11.9.1.1
 Operational Mode: GFSK, Channel: 0, 2402 MHz
 Operating Conditions: Tnom/Vnom
 Operator: Dhamia Almozani
 Test Site: Eurofins Product Service GmbH
 Test Date: 2022-09-28
 Note: Bit Rate= 1 Mbps
 Peak Power [dBm]: -0.562
 Peak Power [W]: 0.0009



Date: 28.SEP.2022 16:13:22

Peak Conducted Output Power

Project Number: G0M-2109-1013
 Applicant: wenglor sensoric GmbH
 Model Description: Bluetooth module
 Model: DC1392
 Test Sample ID: 41253
 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: Dhamia Almozani
 Test Site: Eurofins Product Service GmbH
 Test Date: 2022-09-28
 Note: Bit Rate= 1 Mbps
 Peak Power [dBm]: -1.003
 Peak Power [W]: 0.0008



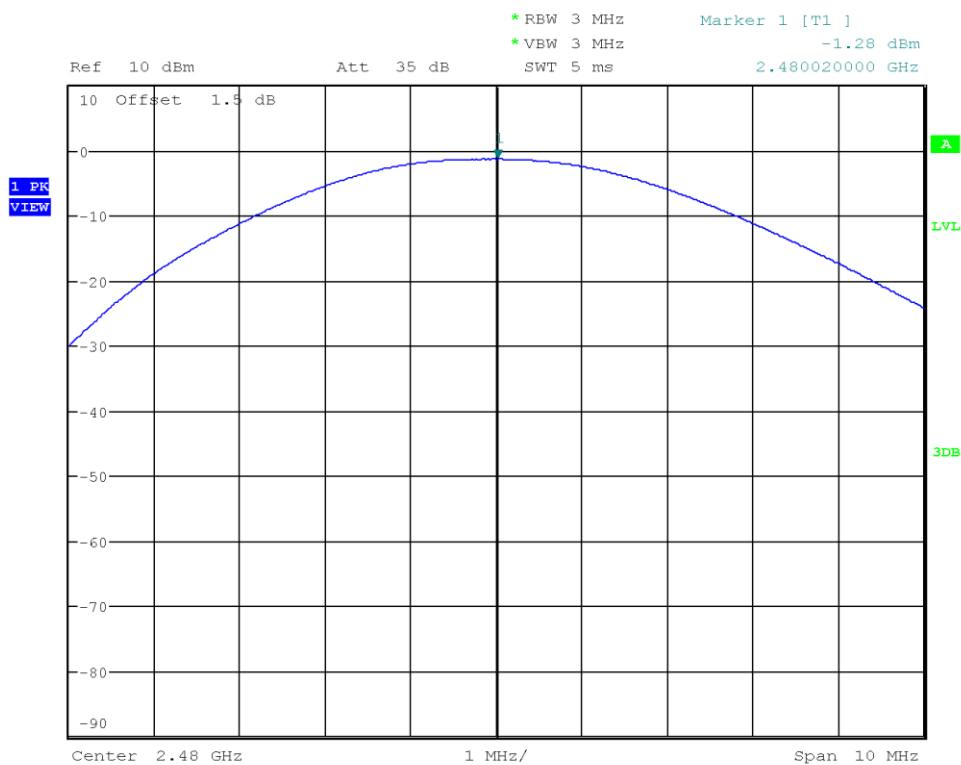
Date: 28.SEP.2022 16:14:10

Test Report No.: G0M-2109-1013-TFC247BL-V01

Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Peak Conducted Output Power

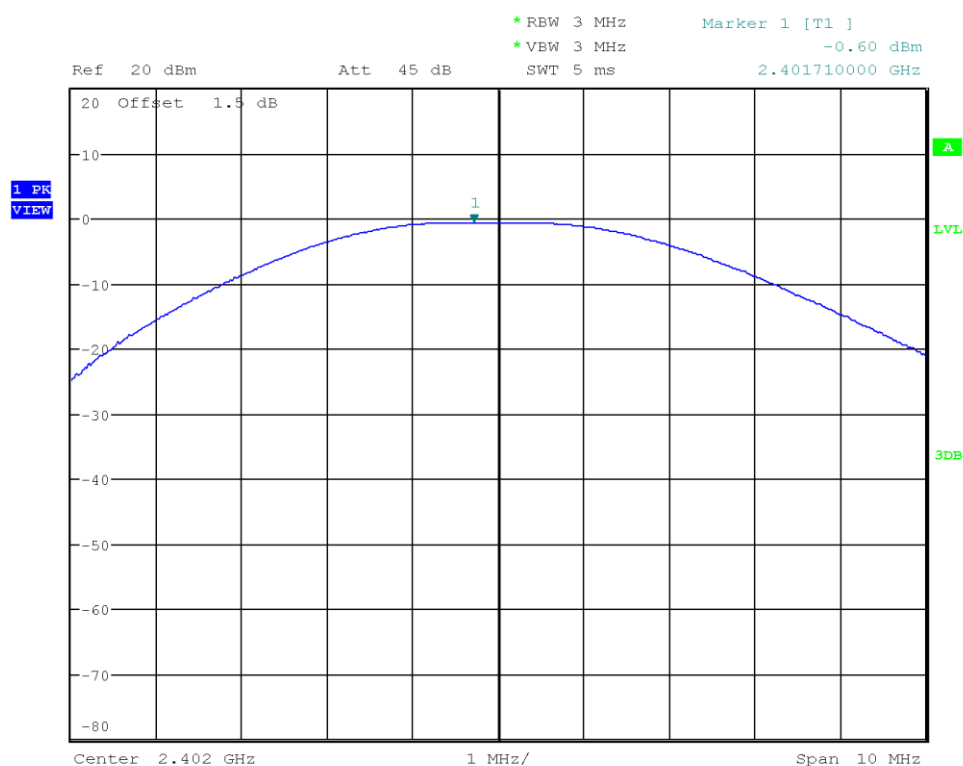
Project Number: G0M-2109-1013
 Applicant: wenglor sensoric GmbH
 Model Description: Bluetooth module
 Model: DC1392
 Test Sample ID: 41253
 Reference Standards: FCC 15.247, RSS-247
 Reference Method: ANSI C63.10:2013, Section 11.9.1.1
 Operational Mode: GFSK, Channel: 39, 2480 MHz
 Operating Conditions: Tnom/Vnom
 Operator: Dhamia Almozani
 Test Site: Eurofins Product Service GmbH
 Test Date: 2022-09-28
 Note: Bit Rate= 1 Mbps
 Peak Power [dBm]: -1.280
 Peak Power [W]: 0.0007



Date: 28.SEP.2022 16:14:59

Peak Conducted Output Power

Project Number: G0M-2109-1013
 Applicant: wenglor sensoric GmbH
 Model Description: Bluetooth module
 Model: DC1392
 Test Sample ID: 41253
 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: Dhamia Almozani
 Test Site: Eurofins Product Service GmbH
 Test Date: 2022-09-28
 Note: Bit Rate= 2 Mbps
 Peak Power [dBm]: -0.603
 Peak Power [W]: 0.0009



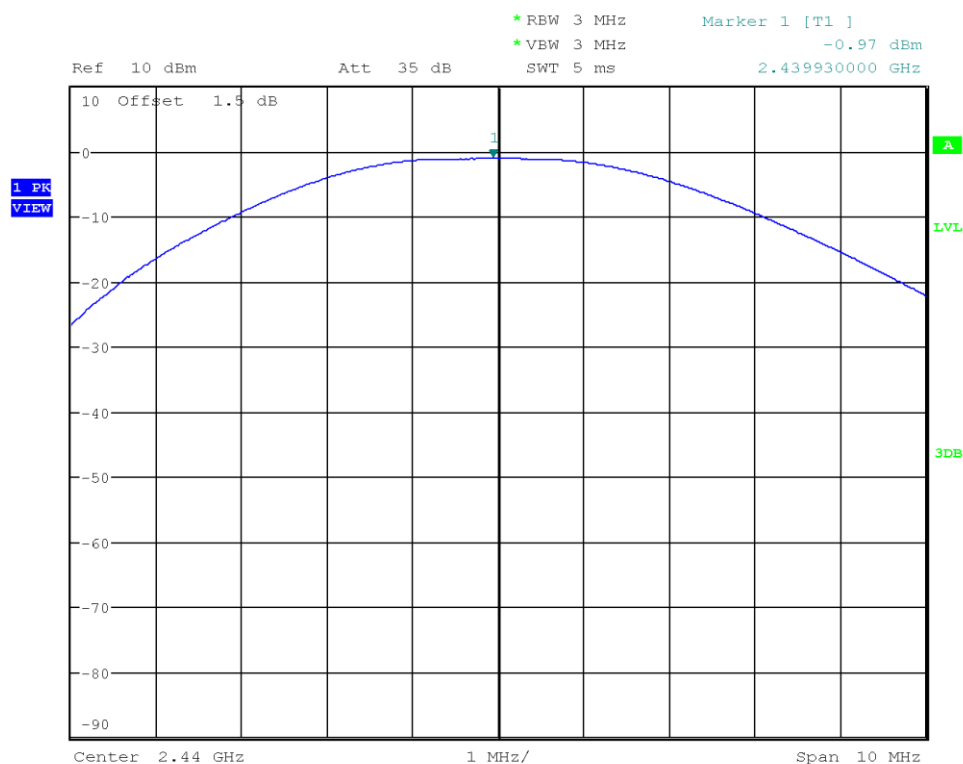
Date: 28.SEP.2022 16:17:22

Test Report No.: G0M-2109-1013-TFC247BL-V01

Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Peak Conducted Output Power

Project Number: G0M-2109-1013
 Applicant: wenglor sensoric GmbH
 Model Description: Bluetooth module
 Model: DC1392
 Test Sample ID: 41253
 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: Dhamia Almozani
 Test Site: Eurofins Product Service GmbH
 Test Date: 2022-09-28
 Note: Bit Rate= 2 Mbps
 Peak Power [dBm]: -0.970
 Peak Power [W]: 0.0008



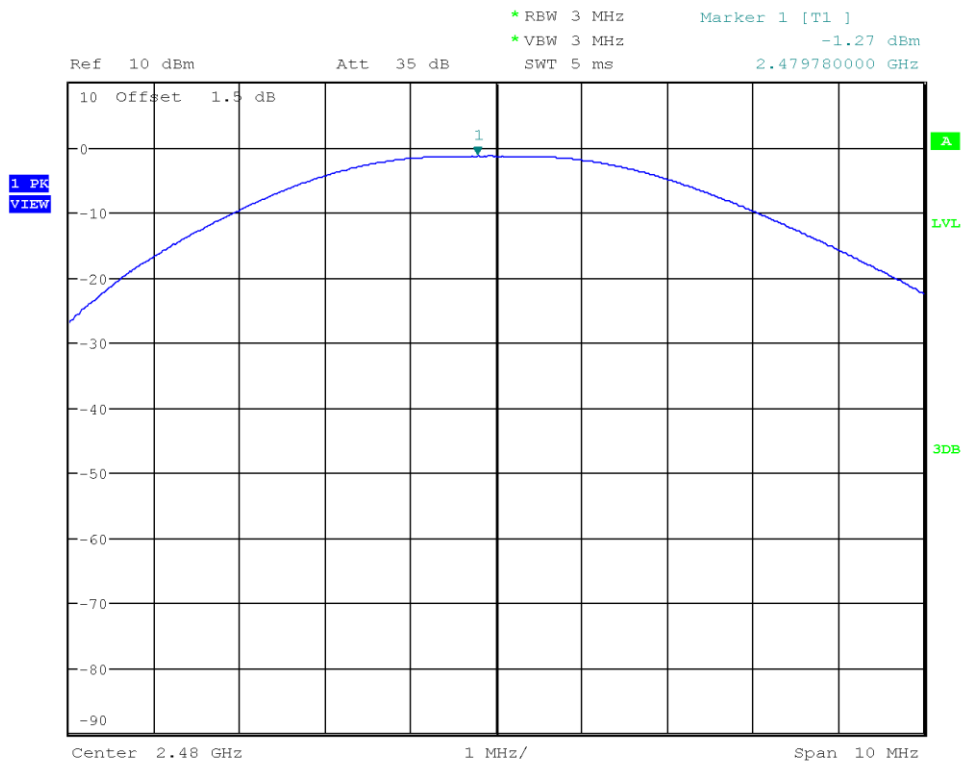
Date: 28.SEP.2022 16:18:01

Test Report No.: G0M-2109-1013-TFC247BL-V01

Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Peak Conducted Output Power

Project Number: G0M-2109-1013
 Applicant: wenglorsensoric GmbH
 Model Description: Bluetooth module
 Model: DC1392
 Test Sample ID: 41253
 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: Dhamia Almozani
 Test Site: Eurofins Product Service GmbH
 Test Date: 2022-09-28
 Note: Bit Rate= 2 Mbps
 Peak Power [dBm]: -1.274
 Peak Power [W]: 0.0007



Date: 28.SEP.2022 16:18:37

3.4 Test Conditions and Results - Power spectral density

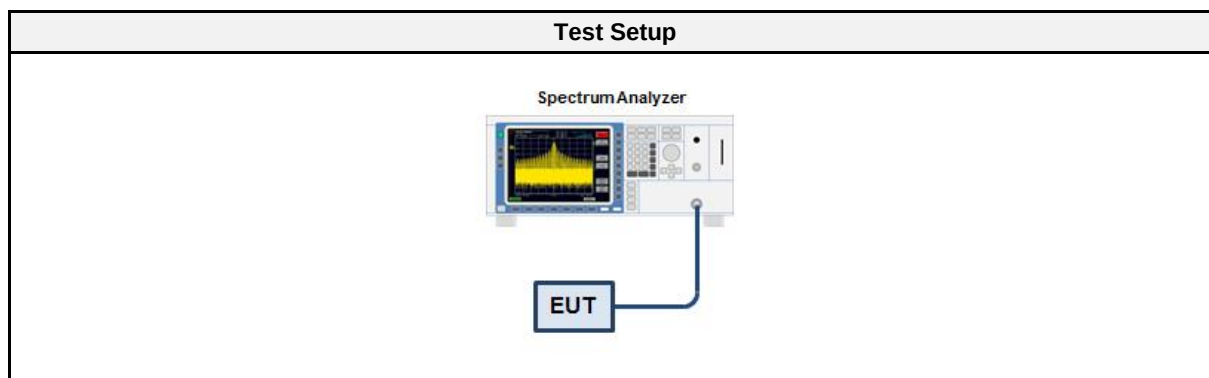
3.4.1 Information

Test Information	
Reference	FCC § 15.247(e); ISSED RSS-247, Issue 2 (section 5.2)
Measurement Method	ANSI C63.10 11.10.2, 14.3.2
Measurement Uncertainty	± 2.86 dB
Operator	Dhamia Almozani
Date	2022-09-28

3.4.2 Limits

Limits
8 dBm / 3 kHz

3.4.3 Setup



3.4.4 Equipment

Test Equipment					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyser	R&S	FSU 26	EF01003	2022-07	2023-07
Cable	Gigalan	CAAAT	EF00779	2022-02	2023-02

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 $\geq$ 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

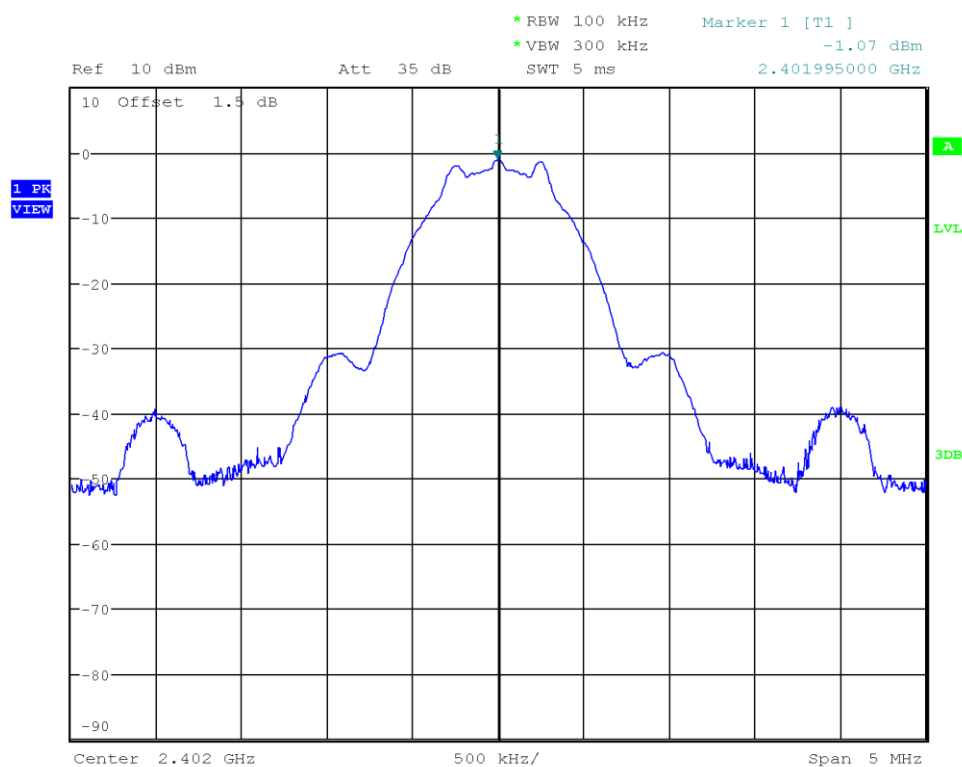
3.4.6 Results

Test Results 1 Mbps			
Channel [MHz]	PSD [dBm/RBW]	Limit [dBm/3kHz]	Verdict
2402	-1.068	8.0	PASS
2440	-1.283	8.0	PASS
2480	-1.562	8.0	PASS
RBW = 100 kHz			

Test Results 2 Mbps			
Channel [MHz]	PSD [dBm/RBW]	Limit [dBm/3kHz]	Verdict
2402	-1.083	8.0	PASS
2440	-1.277	8.0	PASS
2480	-1.566	8.0	PASS
RBW = 100 kHz			

Peak Power Spectral Density

Project Number: G0M-2109-1013
 Applicant: wenglor sensoric GmbH
 Model Description: Bluetooth module
 Model: DC1392
 Test Sample ID: 41253
 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: Dhamia Almozani
 Test Site: Eurofins Product Service GmbH
 Test Date: 2022-09-28
 Note: Bit Rate=1 Mbps
 Peak Frequency [MHz]: 2401.995
 Spectral Density [dBm/RBW]: -1.068
 Resolution Bandwidth [kHz]: 100 kHz



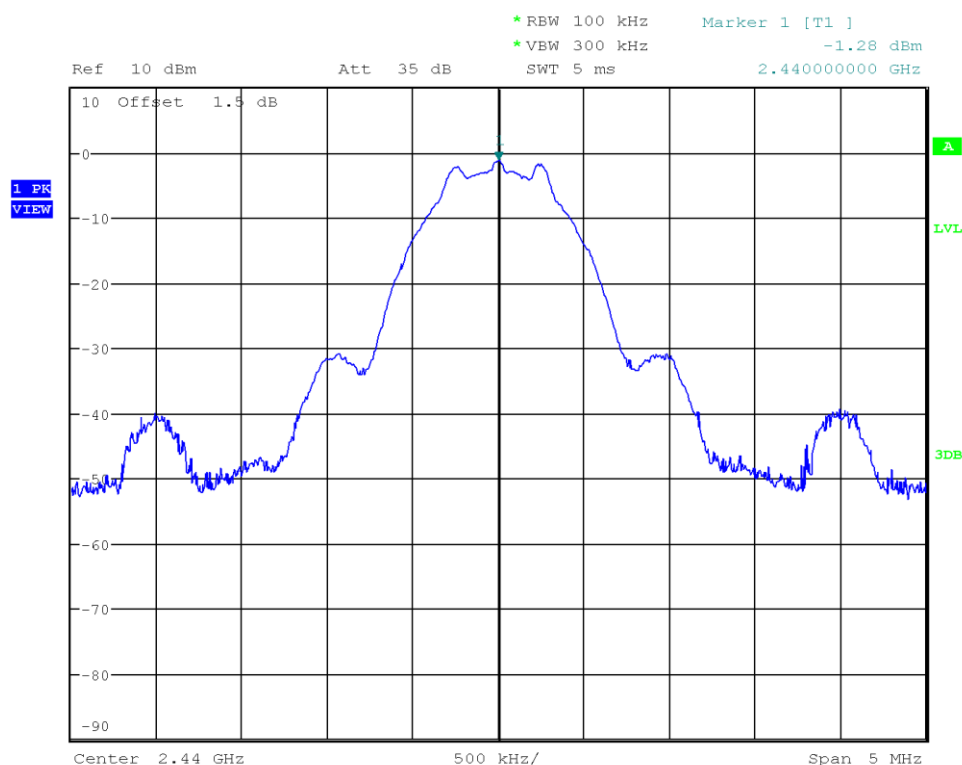
Date: 28.SEP.2022 16:24:14

Test Report No.: G0M-2109-1013-TFC247BL-V01

Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Peak Power Spectral Density

Project Number: G0M-2109-1013
 Applicant: wenglor sensoric GmbH
 Model Description: Bluetooth module
 Model: DC1392
 Test Sample ID: 41253
 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: Dhamia Almozani
 Test Site: Eurofins Product Service GmbH
 Test Date: 2022-09-28
 Note: Bit Rate=1 Mbps
 Peak Frequency [MHz]: 2440.000
 Spectral Density [dBm/RBW]: -1.283
 Resolution Bandwidth [kHz]: 100 kHz



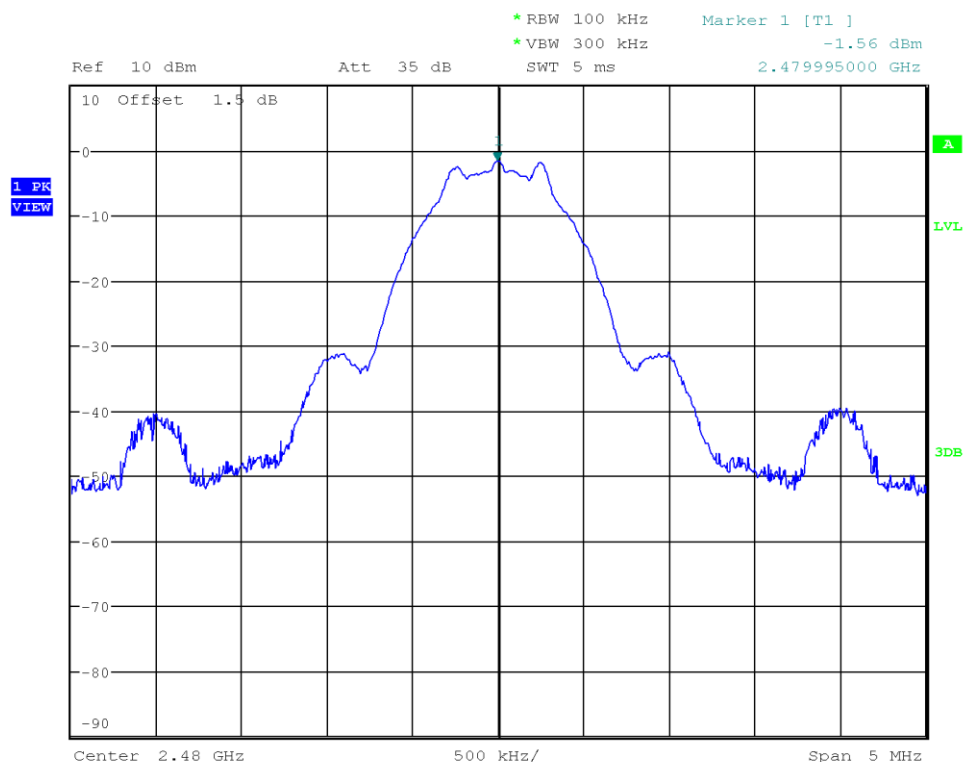
Date: 28.SEP.2022 16:25:15

Test Report No.: G0M-2109-1013-TFC247BL-V01

Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Peak Power Spectral Density

Project Number: G0M-2109-1013
 Applicant: wenglor sensoric GmbH
 Model Description: Bluetooth module
 Model: DC1392
 Test Sample ID: 41253
 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: Dhamia Almozani
 Test Site: Eurofins Product Service GmbH
 Test Date: 2022-09-28
 Note: Bit Rate=1 Mbps
 Peak Frequency [MHz]: 2479.995
 Spectral Density [dBm/RBW]: -1.562
 Resolution Bandwidth [kHz]: 100 kHz



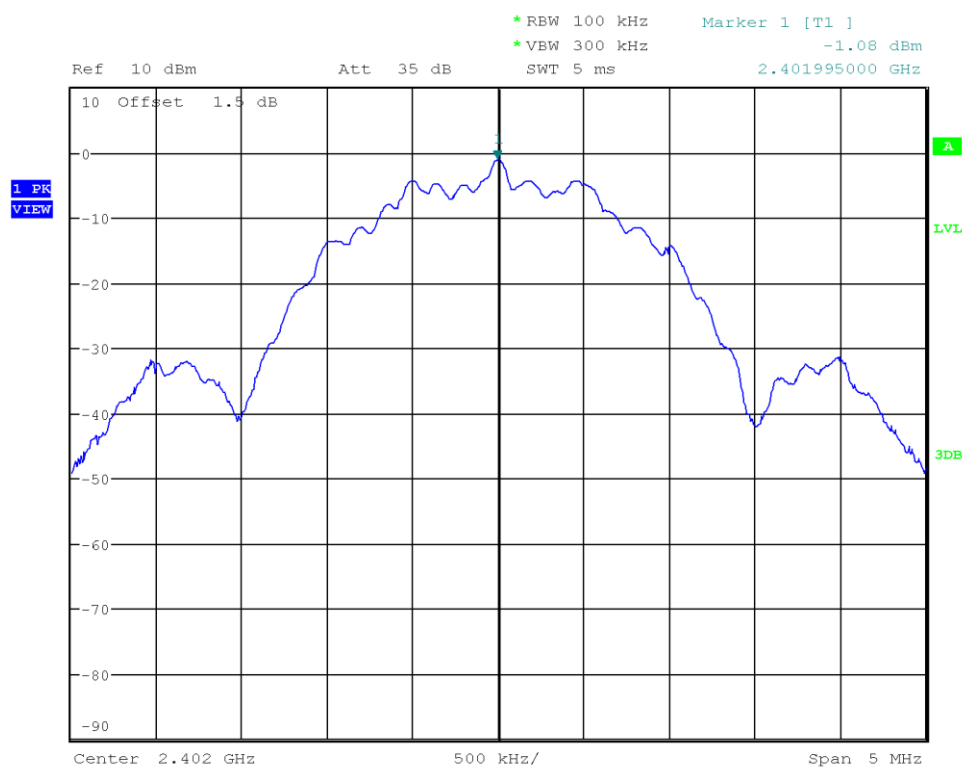
Date: 28.SEP.2022 16:27:06

Test Report No.: G0M-2109-1013-TFC247BL-V01

Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Peak Power Spectral Density

Project Number: G0M-2109-1013
 Applicant: wenglor sensoric GmbH
 Model Description: Bluetooth module
 Model: DC1392
 Test Sample ID: 41253
 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: Dhamia Almozani
 Test Site: Eurofins Product Service GmbH
 Test Date: 2022-09-28
 Note: Bit Rate=2 Mbps
 Peak Frequency [MHz]: 2401.995
 Spectral Density [dBm/RBW]: -1.083
 Resolution Bandwidth [kHz]: 100 kHz



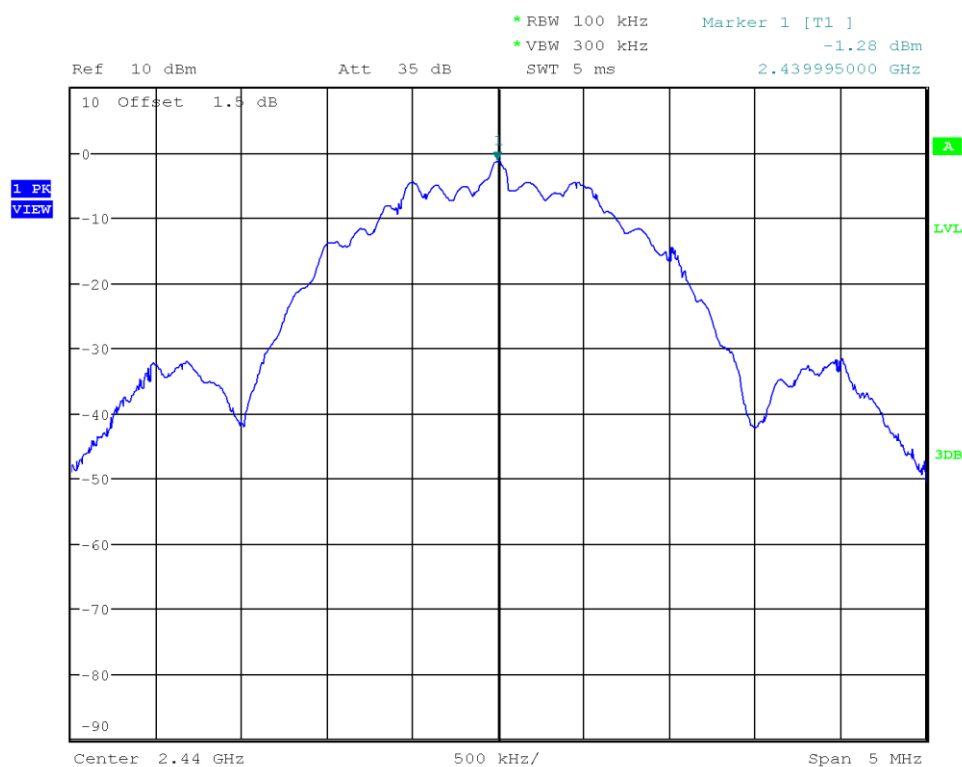
Date: 28.SEP.2022 16:29:05

Test Report No.: G0M-2109-1013-TFC247BL-V01

Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Peak Power Spectral Density

Project Number: G0M-2109-1013
 Applicant: wenglor sensoric GmbH
 Model Description: Bluetooth module
 Model: DC1392
 Test Sample ID: 41253
 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: Dhamia Almozani
 Test Site: Eurofins Product Service GmbH
 Test Date: 2022-09-28
 Note: Bit Rate=2 Mbps
 Peak Frequency [MHz]: 2439.995
 Spectral Density [dBm/RBW]: -1.277
 Resolution Bandwidth [kHz]: 100 kHz



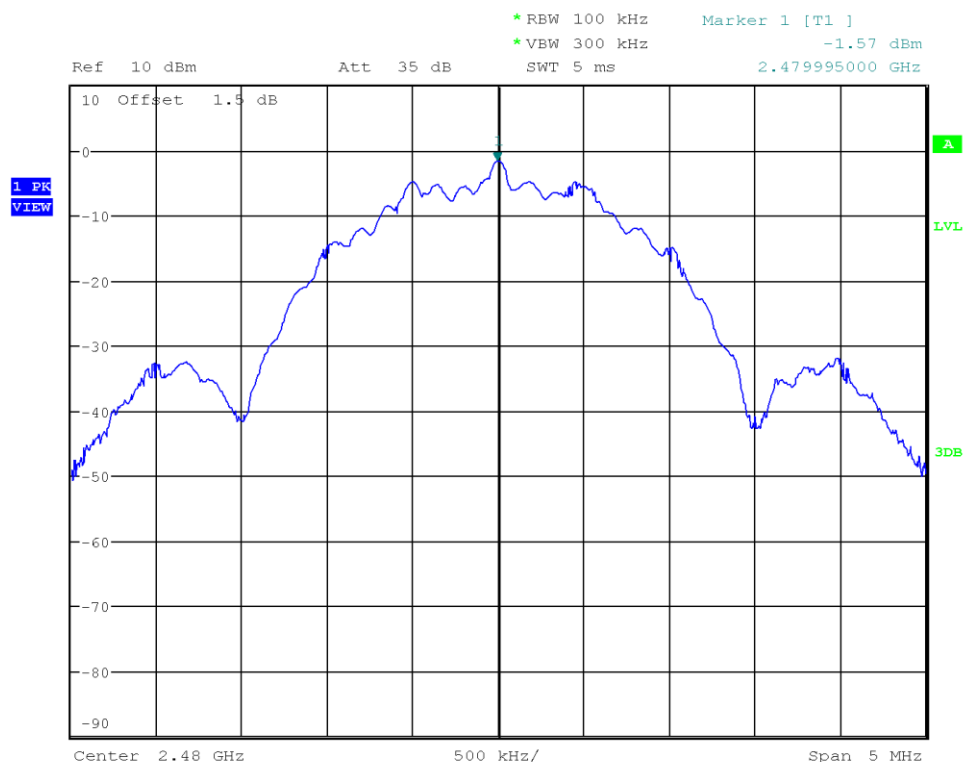
Date: 28.SEP.2022 16:30:02

Test Report No.: G0M-2109-1013-TFC247BL-V01

Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Peak Power Spectral Density

Project Number: G0M-2109-1013
 Applicant: wenglor sensoric GmbH
 Model Description: Bluetooth module
 Model: DC1392
 Test Sample ID: 41253
 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: Dhamia Almozani
 Test Site: Eurofins Product Service GmbH
 Test Date: 2022-09-28
 Note: Bit Rate=2 Mbps
 Peak Frequency [MHz]: 2479.995
 Spectral Density [dBm/RBW]: -1.566
 Resolution Bandwidth [kHz]: 100 kHz



Date: 28.SEP.2022 16:30:50

Test Report No.: G0M-2109-1013-TFC247BL-V01

Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

3.5 Test Conditions and Results - AC powerline conducted emissions

3.5.1 Information

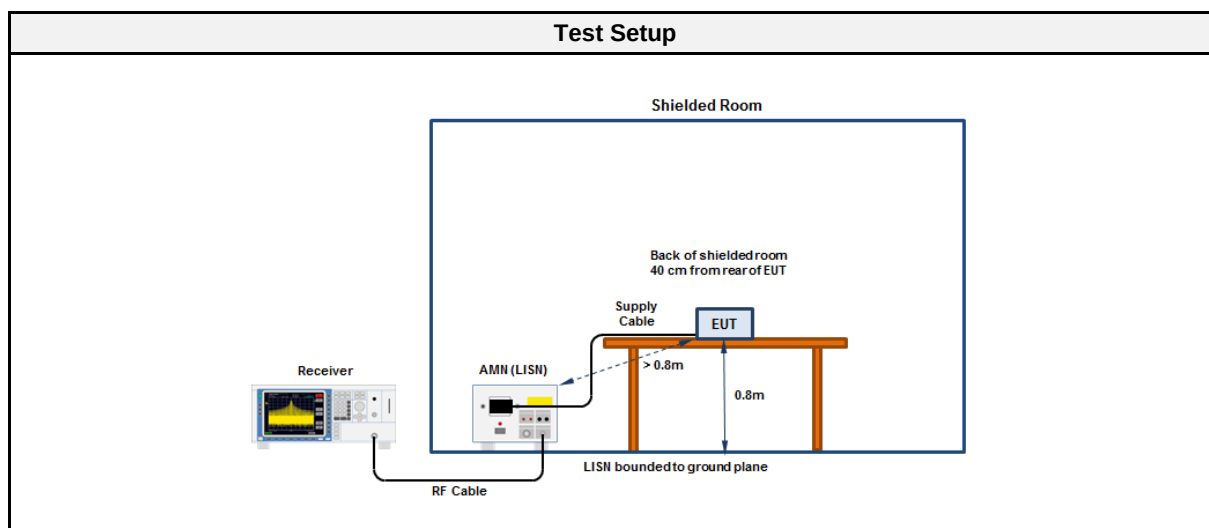
Test Information	
Reference	FCC § 15.207; ISED RSS-247, Issue 2 (section 3.1)
Measurement Method	ANSI C63.10 6.2
Measurement Uncertainty	± 3.82 dB
Operator	Florian Voigt
Date	2022-09-27

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



3.5.4 Equipment

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

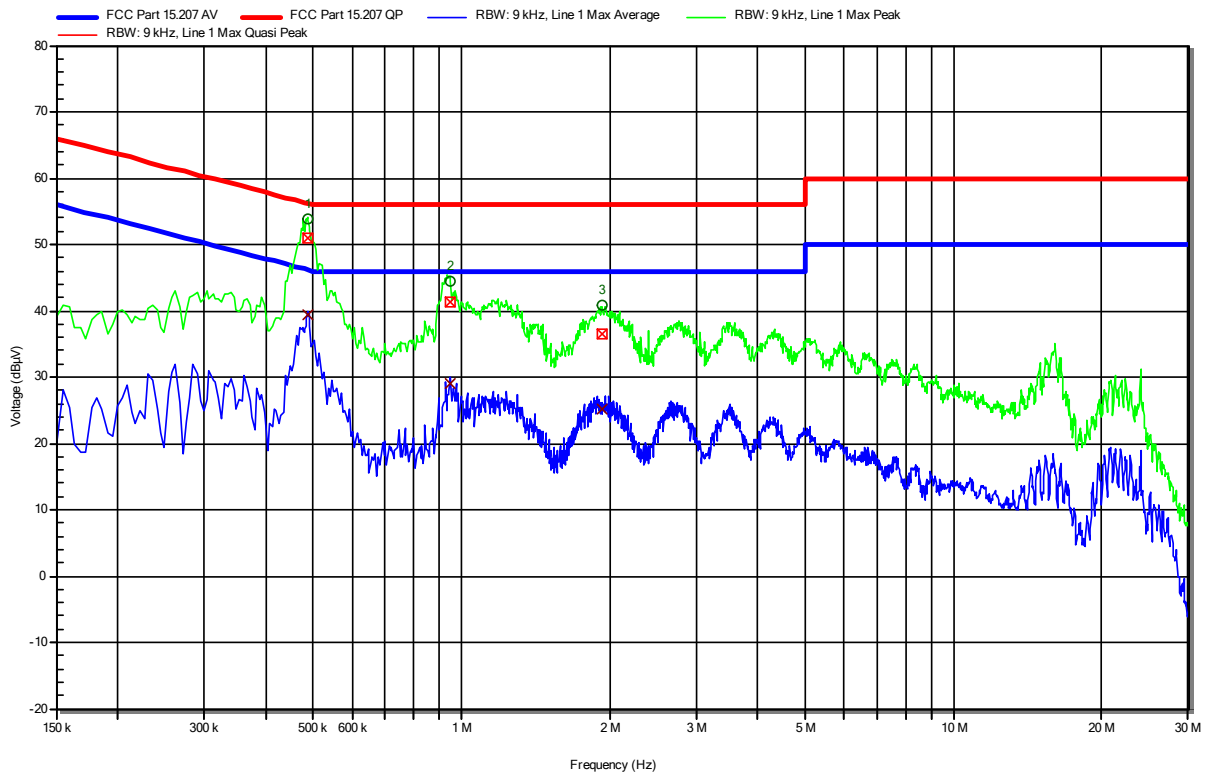
Test Equipment					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
EMI Test Receiver	R&S	ESR7	EF00943	2022-07	2023-07
Pulse Limiter	R&S	ESH3-Z2	EF01222	2021-07	2023-07
LISN	Schwarzbeck	NSLK 8127 RC	EF01592	2021-07	2023-07

Conducted emissions at the mains power port according to 47 CFR Part 15.247

Project Number: G0M-2109-1013
 Applicant: wenglor sensoric GmbH
 Model Description: Bluetooth module
 Model: DC1392
 Test Sample ID: 41260
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Test Date: 2022-09-27
 Operating Conditions: ambient temperature: 24 °Celsius
 power input: 5 VDC
 LISN: Schwarzbeck NSLK 8127 RC L1
 Operational Mode: BLE, 2440 MHz, 1 Mbit/s, PRBS9, 193 bytes, 88% DC, 6dBm
 Applied to Port: 120 VAC / 60 Hz
 Note 1:

Index 31

RadiMation



Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	LISN
1	487.05 kHz	50.95 dBμV	56.22 dBμV	-5.27 dB	Pass	Line 1
2	951 kHz	41.26 dBμV	56 dBμV	-14.74 dB	Pass	Line 1
3	1.927 MHz	36.52 dBμV	56 dBμV	-19.48 dB	Pass	Line 1

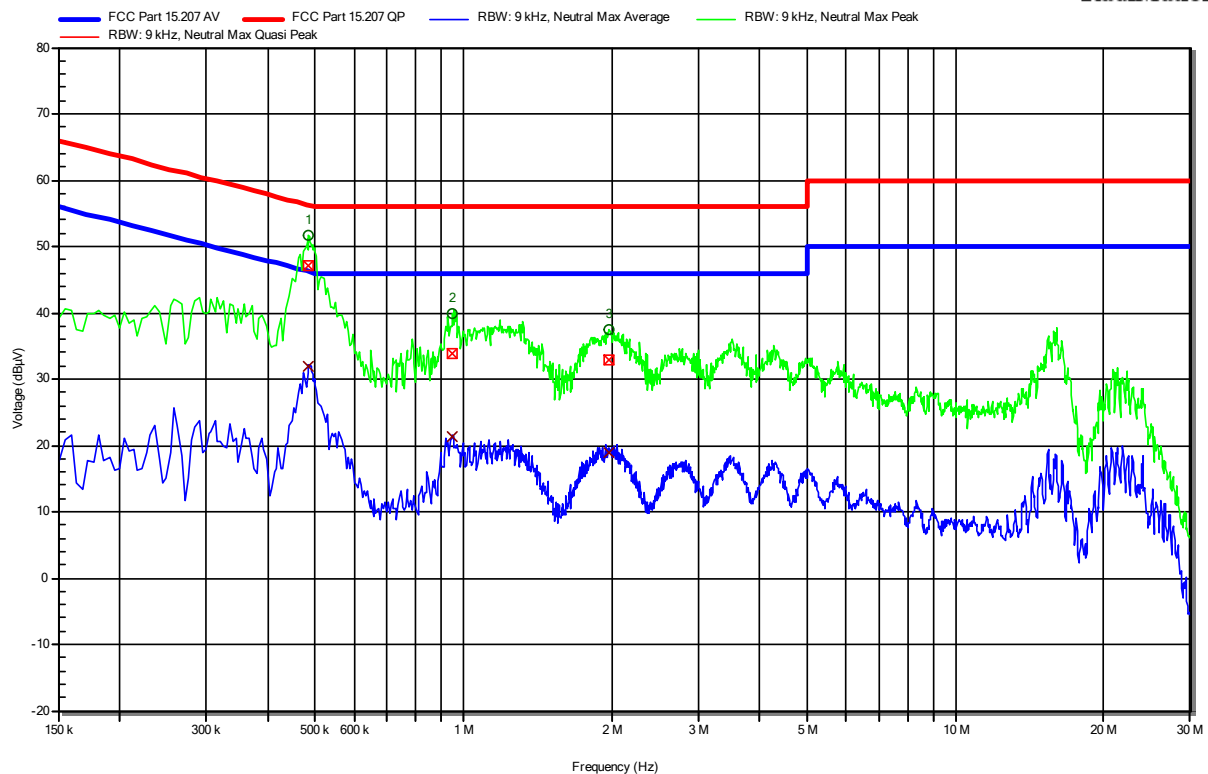
Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status	LISN
1	487.05 kHz	39.29 dBμV	46.22 dBμV	-6.93 dB	Pass	Line 1
2	951 kHz	29.09 dBμV	46 dBμV	-16.91 dB	Pass	Line 1
3	1.927 MHz	25.09 dBμV	46 dBμV	-20.91 dB	Pass	Line 1

Conducted emissions at the mains power port according to 47 CFR Part 15.247

Project Number: G0M-2109-1013
 Applicant: wenglor sensoric GmbH
 Model Description: Bluetooth module
 Model: DC1392
 Test Sample ID: 41260
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Test Date: 2022-09-27
 Operating Conditions: ambient temperature: 24 °Celsius
 power input: 5 VDC
 LISN: Schwarzbeck NSLK 8127
 Operational Mode: BLE, 2440 MHz, 1 Mbit/s, PRBS9, 193 bytes, 88% DC, 6dBm
 Applied to Port: 120 VAC / 60 Hz
 Note 1:

Index 32

RadiMation



Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	LISN
1	484.8 kHz	47.16 dBμV	56.26 dBμV	-9.1 dB	Pass	Neutral
2	951 kHz	33.92 dBμV	56 dBμV	-22.08 dB	Pass	Neutral
3	1.977 MHz	32.89 dBμV	56 dBμV	-23.11 dB	Pass	Neutral

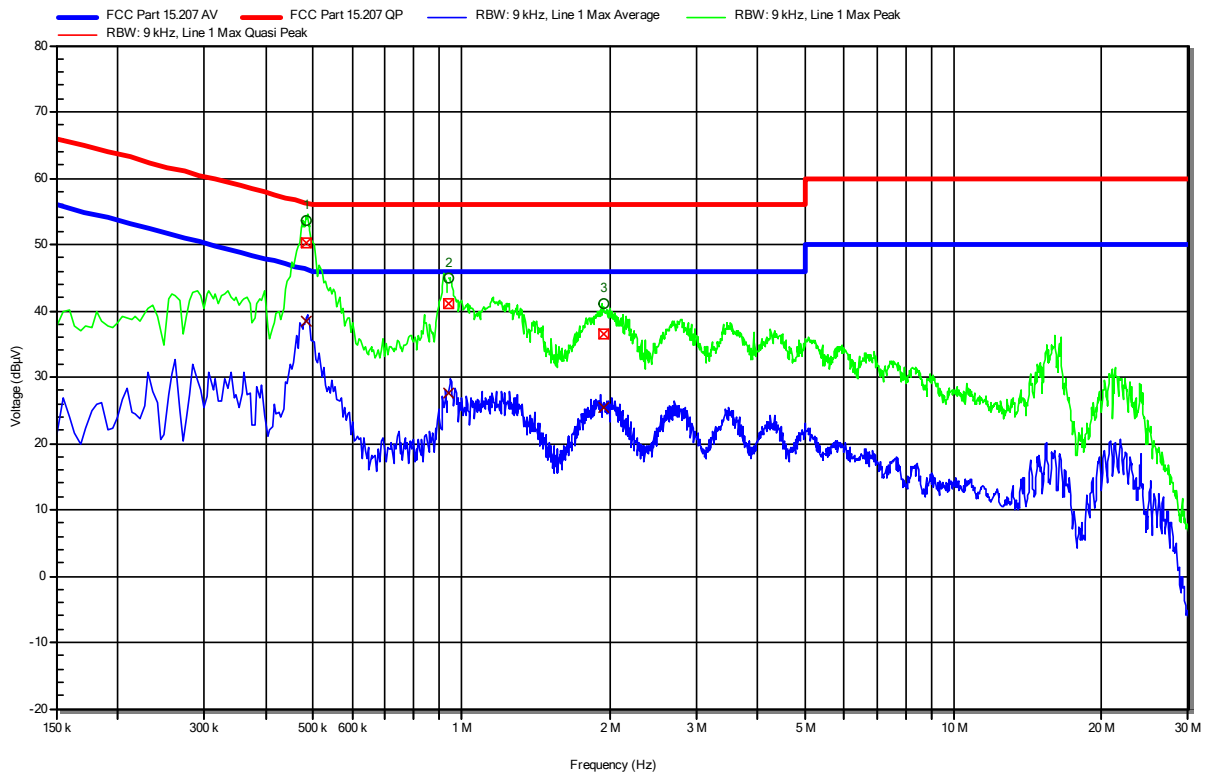
Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status	LISN
1	484.8 kHz	31.96 dBμV	46.26 dBμV	-14.3 dB	Pass	Neutral
2	951 kHz	21.36 dBμV	46 dBμV	-24.64 dB	Pass	Neutral
3	1.977 MHz	18.95 dBμV	46 dBμV	-27.05 dB	Pass	Neutral

Conducted emissions at the mains power port according to 47 CFR Part 15.247

Project Number: G0M-2109-1013
 Applicant: wenglor sensoric GmbH
 Model Description: Bluetooth module
 Model: DC1392
 Test Sample ID: 41260
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Test Date: 2022-09-27
 Operating Conditions: ambient temperature: 24 °Celsius
 power input: 5 VDC
 LISN: Schwarzbeck NSLK 8127 RC L1
 Operational Mode: BLE, 2440 MHz, 2 Mbit/s, PRBS9, 239 bytes, 83% DC, 6dBm
 Applied to Port: 120 VAC / 60 Hz
 Note 1:

Index 35

RadiMation



Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	LISN
1	483 kHz	50.12 dBμV	56.29 dBμV	-6.16 dB	Pass	Line 1
2	942 kHz	41.16 dBμV	56 dBμV	-14.84 dB	Pass	Line 1
3	1.941 MHz	36.44 dBμV	56 dBμV	-19.56 dB	Pass	Line 1

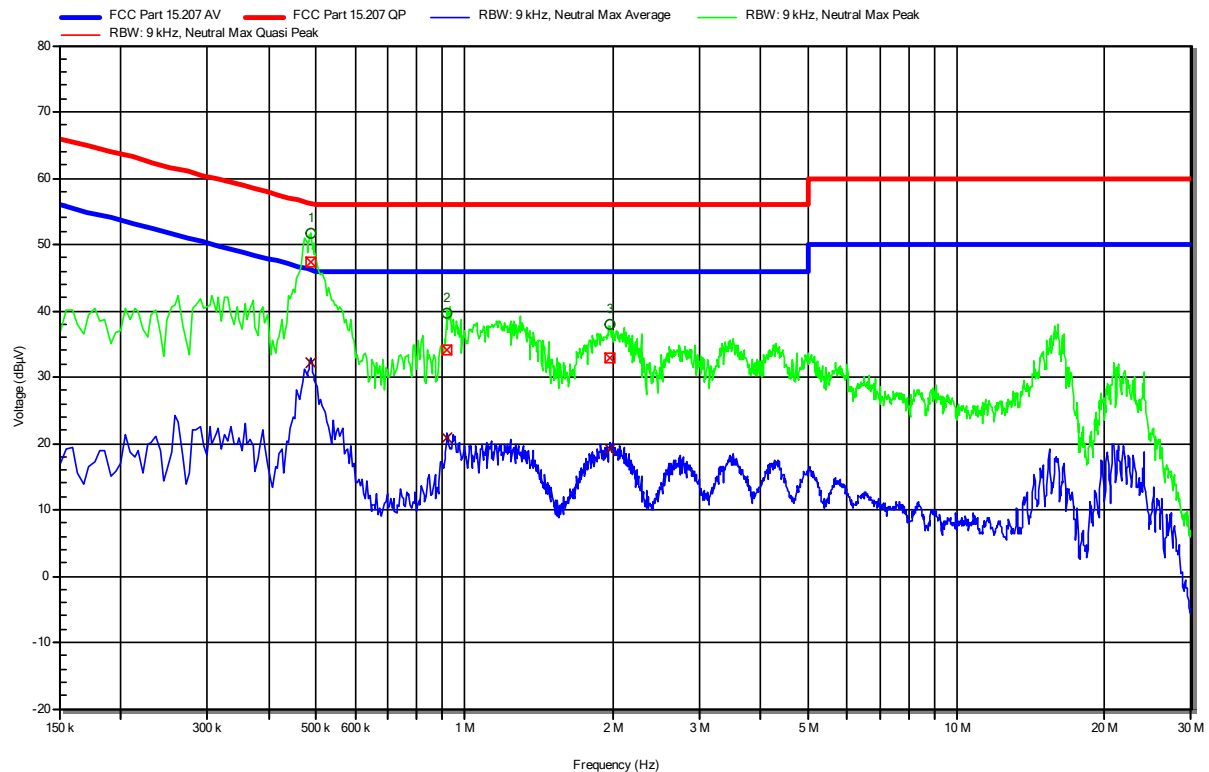
Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status	LISN
1	483 kHz	38.41 dBμV	46.29 dBμV	-7.88 dB	Pass	Line 1
2	942 kHz	27.69 dBμV	46 dBμV	-18.31 dB	Pass	Line 1
3	1.941 MHz	25.41 dBμV	46 dBμV	-20.59 dB	Pass	Line 1

Conducted emissions at the mains power port according to 47 CFR Part 15.247

Project Number: G0M-2109-1013
 Applicant: wenglor sensoric GmbH
 Model Description: Bluetooth module
 Model: DC1392
 Test Sample ID: 41260
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Test Date: 2022-09-27
 Operating Conditions: ambient temperature: 24 °Celsius
 power input: 5 VDC
 LISN: Schwarzbeck NSLK 8127
 Operational Mode: BLE, 2440 MHz, 2 Mbit/s, PRBS9, 239 bytes, 83% DC, 6dBm
 Applied to Port: 120 VAC / 60 Hz
 Note 1:

Index 36

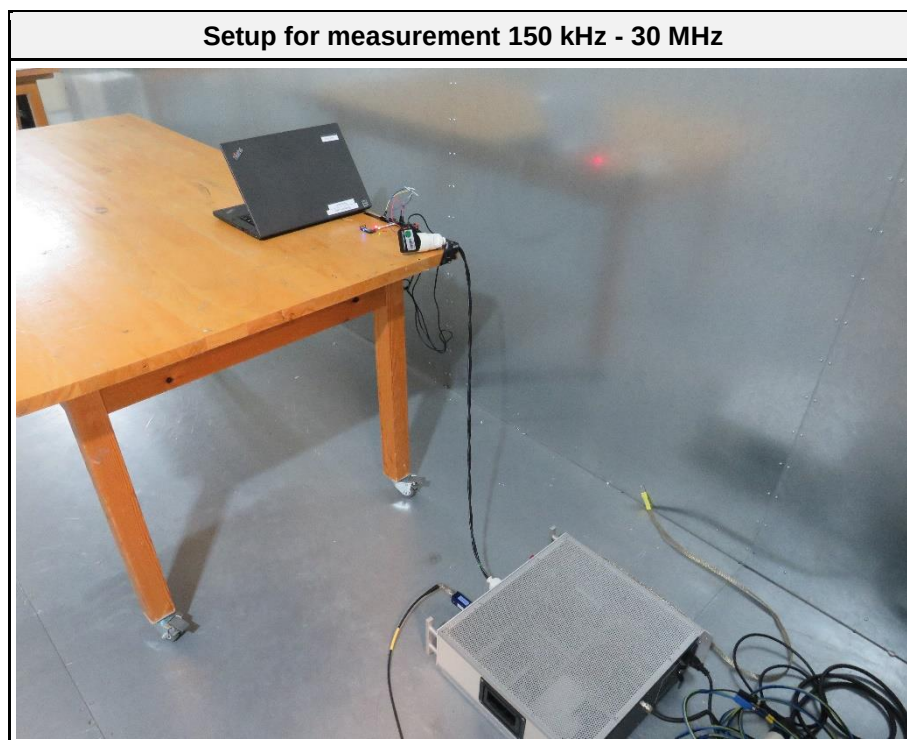
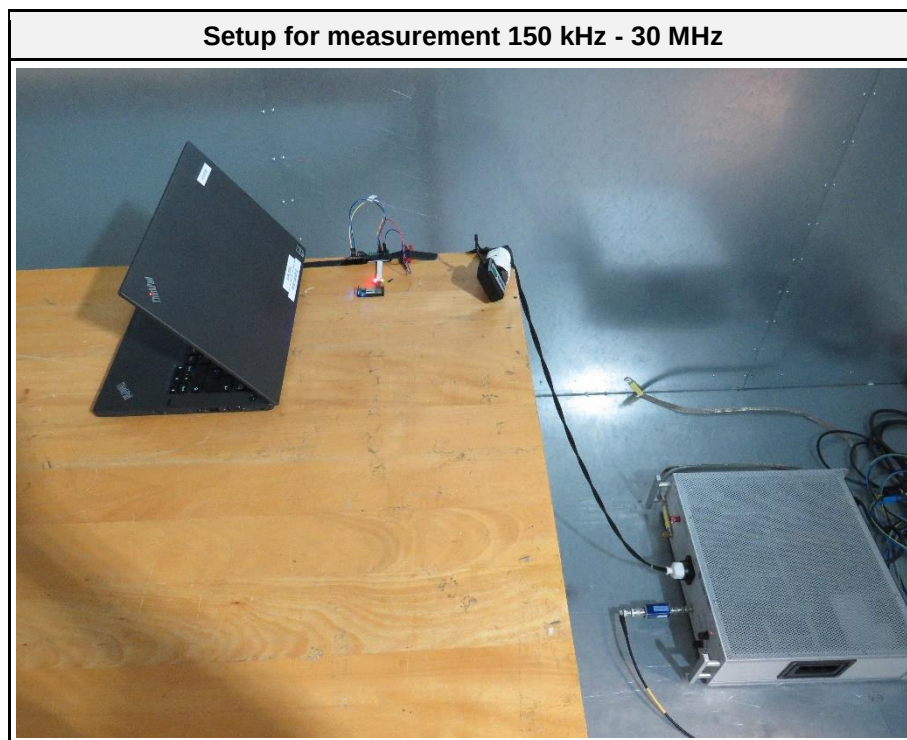
RadiMation



Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	LISN
1	486.6 kHz	47.4 dBμV	56.23 dBμV	-8.83 dB	Pass	Neutral
2	923.1 kHz	34.06 dBμV	56 dBμV	-21.94 dB	Pass	Neutral
3	1.972 MHz	32.85 dBμV	56 dBμV	-23.15 dB	Pass	Neutral

Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status	LISN
1	486.6 kHz	32.25 dBμV	46.23 dBμV	-13.98 dB	Pass	Neutral
2	923.1 kHz	20.9 dBμV	46 dBμV	-25.1 dB	Pass	Neutral
3	1.972 MHz	19.09 dBμV	46 dBμV	-26.91 dB	Pass	Neutral

3.5.5 Setup Photos



3.6 Test Conditions and Results - Band-edge compliance

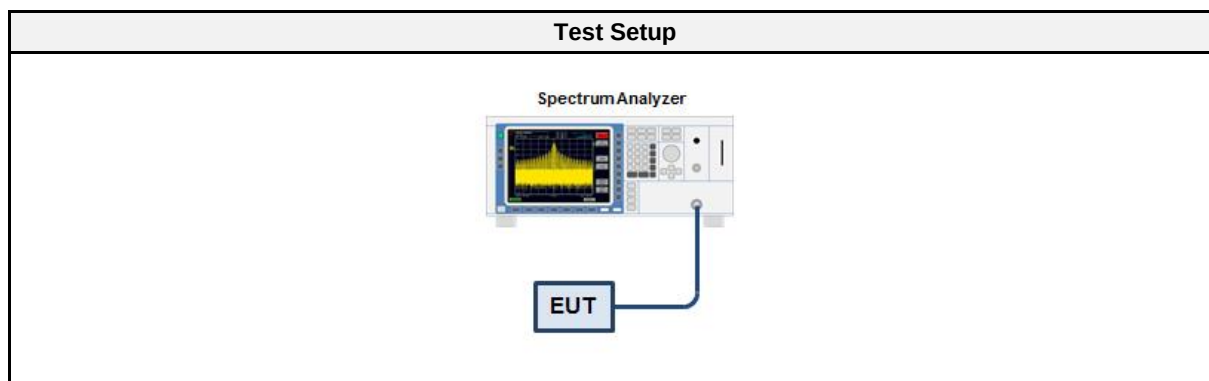
3.6.1 Information

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	Dhamia Almozani
Date	2022-09-28

3.6.2 Limits

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

3.6.3 Setup



3.6.4 Equipment

Test Equipment					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyser	R&S	FSU 26	EF01003	2022-07	2023-07
Cable	Gigalan	CAAAT	EF00779	2022-02	2023-02

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

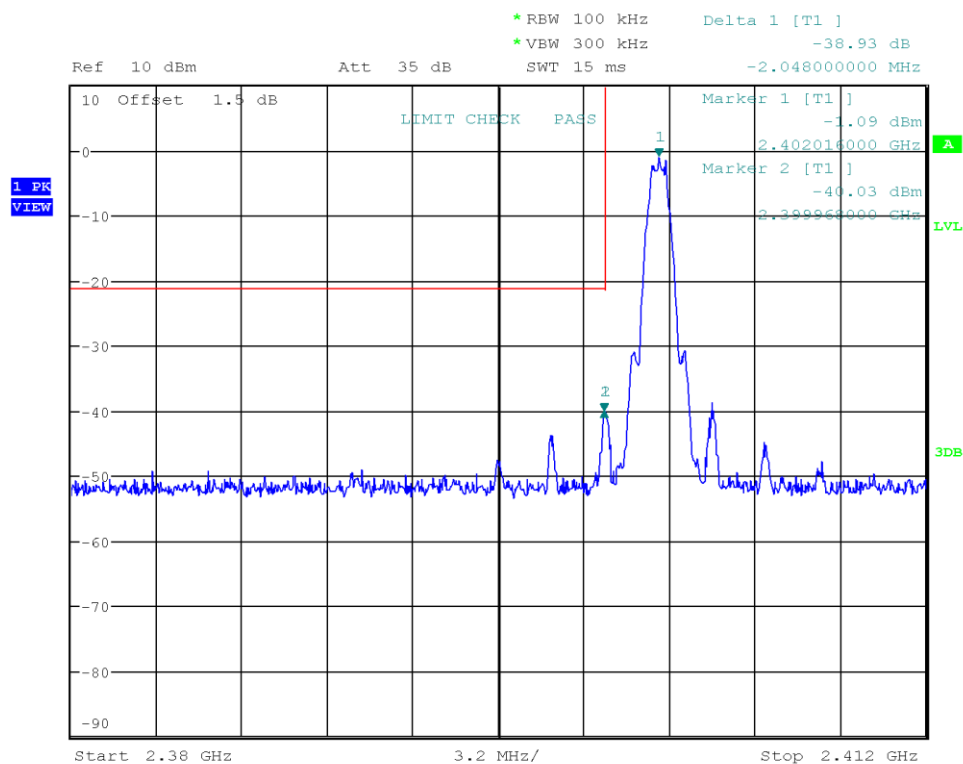
3.6.6 Results

Test Results				
Mode	Channel [MHz]	Out-of-band Attenuation [dB]	Limit [dB]	Verdict
GFSK 1 Mbps	2402	-38.94	-20	PASS
GFSK 1 Mbps	2480	-44.16	-20	PASS

Test Results				
Mode	Channel [MHz]	Out-of-band Attenuation [dB]	Limit [dB]	Verdict
GFSK 2 Mbps	2402	-30.12	-20	PASS
GFSK 2 Mbps	2480	-43.28	-20	PASS

Emissions in nonrestricted frequency bands at the Band-edge

Project Number:	G0M-2109-1013
Applicant:	wenglor sensoric GmbH
Model Description:	Bluetooth module
Model:	DC1392
Test Sample ID:	41253
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:	Dhamia Almozani
Test Site:	Eurofins Product Service GmbH
Test Date:	2022-09-28
Note:	Bit Rate= 1 Mbps
Band-edge	Lower
In-band Frequency [MHz]:	2402.016
Max. in-band Level [dBm/100 kHz]:	-1.093
Out-of-band Frequency [MHz]:	2399.968
Max. out-of-band Level [dBm/100 kHz]:	-40.028
Attenuation [dB]:	-38.94



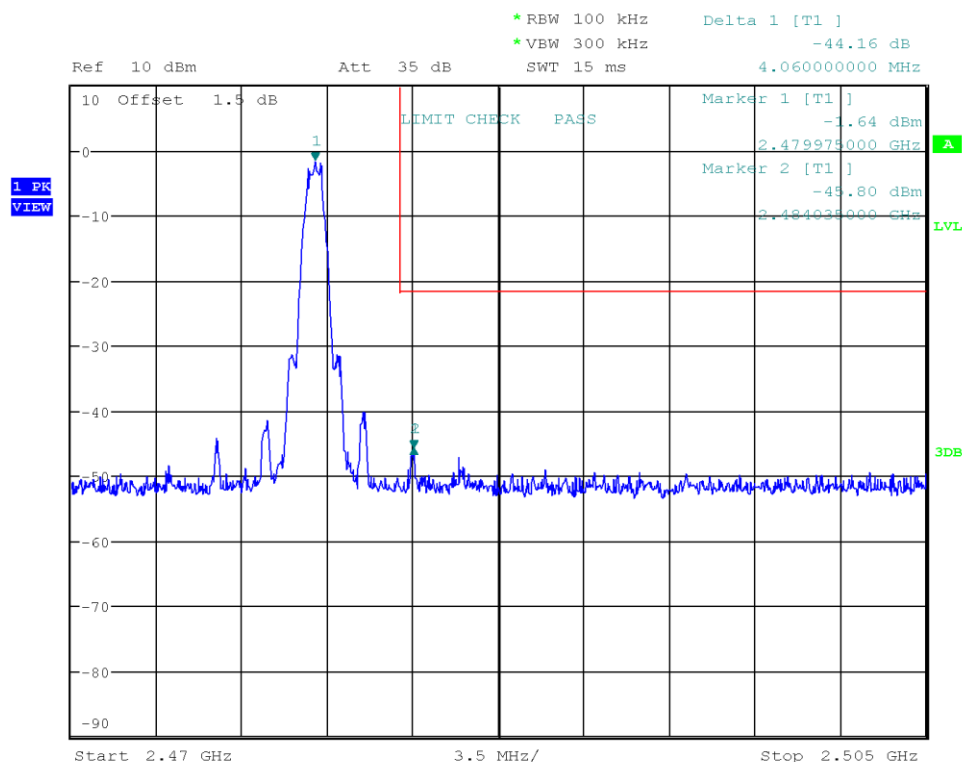
Date: 28.SEP.2022 16:39:05

Test Report No.: G0M-2109-1013-TFC247BL-V01

Eurofins Product Service GmbH
Storkower Str. 38c, D-15526 Reichenwalde, Germany

Emissions in nonrestricted frequency bands at the Band-edge

Project Number: G0M-2109-1013
 Applicant: wenglor sensoric GmbH
 Model Description: Bluetooth module
 Model: DC1392
 Test Sample ID: 41253
 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: Dhamia Almozani
 Test Site: Eurofins Product Service GmbH
 Test Date: 2022-09-28
 Note: Bit Rate= 1 Mbps
 Band-edge: Upper
 In-band Frequency [MHz]: 2479.975
 Max. in-band Level [dBm/100 kHz]: -1.639
 Out-of-band Frequency [MHz]: 2484.035
 Max. out-of-band Level [dBm/100 kHz]: -45.8
 Attenuation [dB]: -44.16



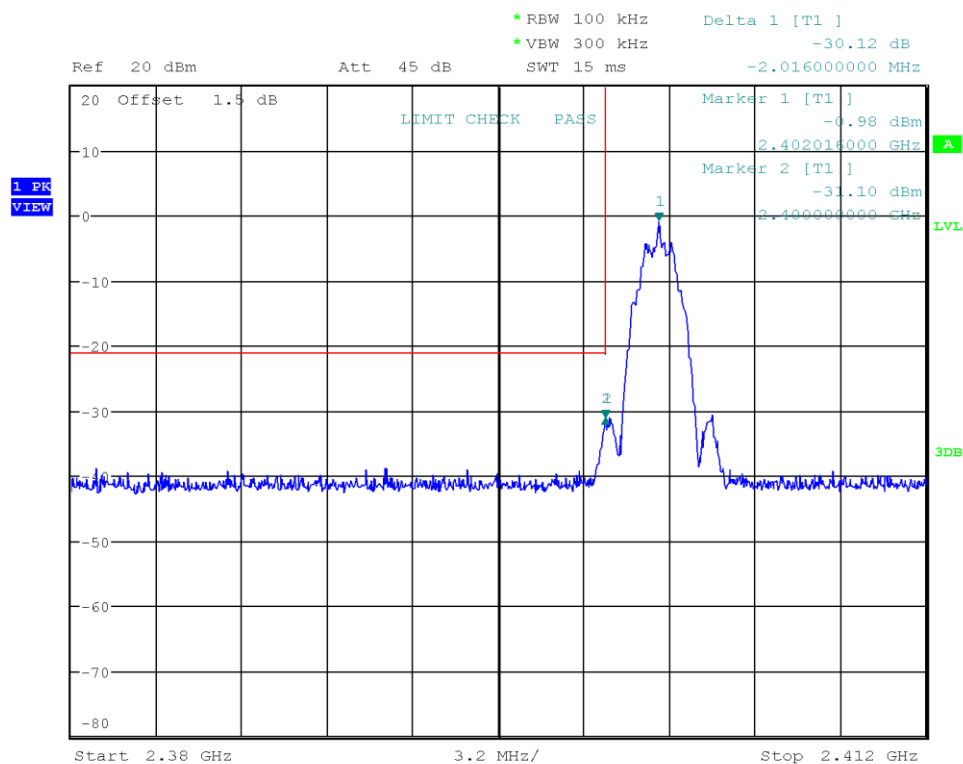
Date: 28.SEP.2022 16:40:14

Test Report No.: G0M-2109-1013-TFC247BL-V01

Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Emissions in nonrestricted frequency bands at the Band-edge

Project Number:	G0M-2109-1013
Applicant:	wenglör sensoric GmbH
Model Description:	Bluetooth module
Model:	DC1392
Test Sample ID:	41253
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:	Dhamia Almozani
Test Site:	Eurofins Product Service GmbH
Test Date:	2022-09-28
Note:	Bit Rate= 2 Mbps
Band-edge	Lower
In-band Frequency [MHz]:	2402.016
Max. in-band Level [dBm/100 kHz]:	-0.981
Out-of-band Frequency [MHz]:	2400.0
Max. out-of-band Level [dBm/100 kHz]:	-31.097
Attenuation [dB]:	-30.12



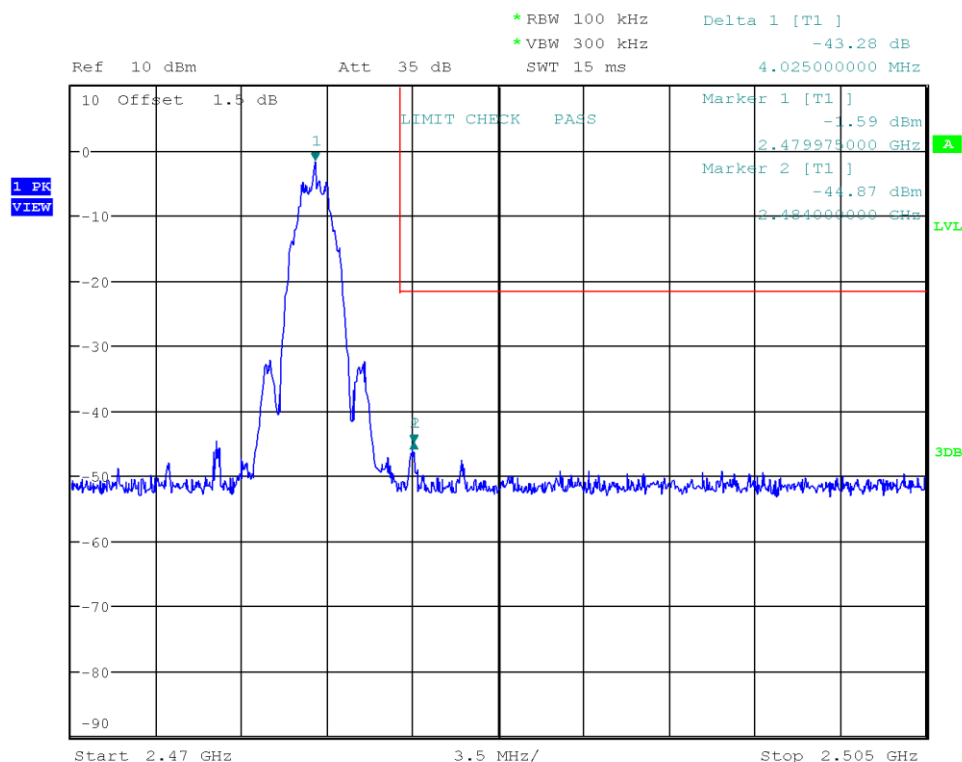
Date: 28.SEP.2022 16:43:06

Test Report No.: G0M-2109-1013-TFC247BL-V01

Eurofins Product Service GmbH
Storkower Str. 38c, D-15526 Reichenwalde, Germany

Emissions in nonrestricted frequency bands at the Band-edge

Project Number: G0M-2109-1013
 Applicant: wenglor sensoric GmbH
 Model Description: Bluetooth module
 Model: DC1392
 Test Sample ID: 41253
 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: Dhamia Almozani
 Test Site: Eurofins Product Service GmbH
 Test Date: 2022-09-28
 Note: Bit Rate= 2 Mbps
 Band-edge: Upper
 In-band Frequency [MHz]: 2479.975
 Max. in-band Level [dBm/100 kHz]: -1.586
 Out-of-band Frequency [MHz]: 2484.0
 Max. out-of-band Level [dBm/100 kHz]: -44.868
 Attenuation [dB]: -43.28



Date: 28.SEP.2022 16:44:15

Test Report No.: G0M-2109-1013-TFC247BL-V01

Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

3.7 Test Conditions and Results - Conducted spurious emissions

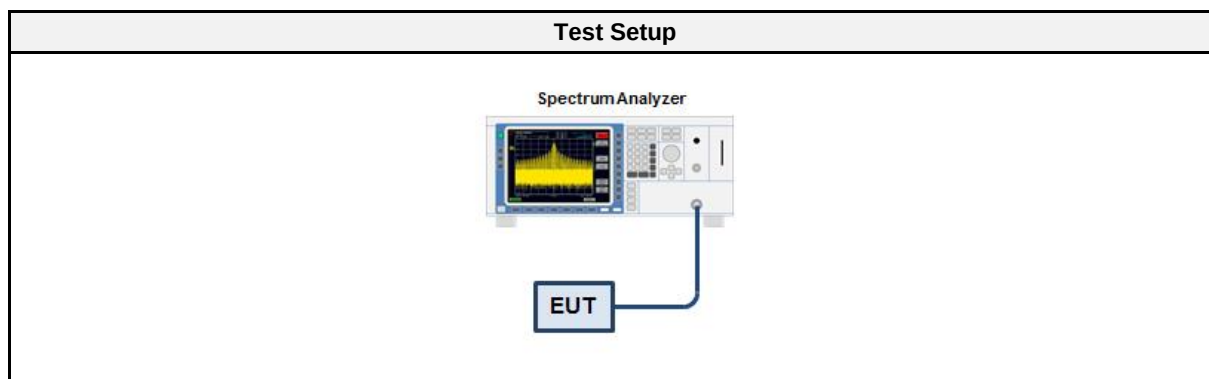
3.7.1 Information

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	Dhamia Almozani
Date	2022-09-28

3.7.2 Limits

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

3.7.3 Setup



3.7.4 Equipment

Test Equipment					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyser	R&S	FSU 26	EF01003	2022-07	2023-07
Cable	Gigalan	CAAAT	EF00779	2022-02	2023-02

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

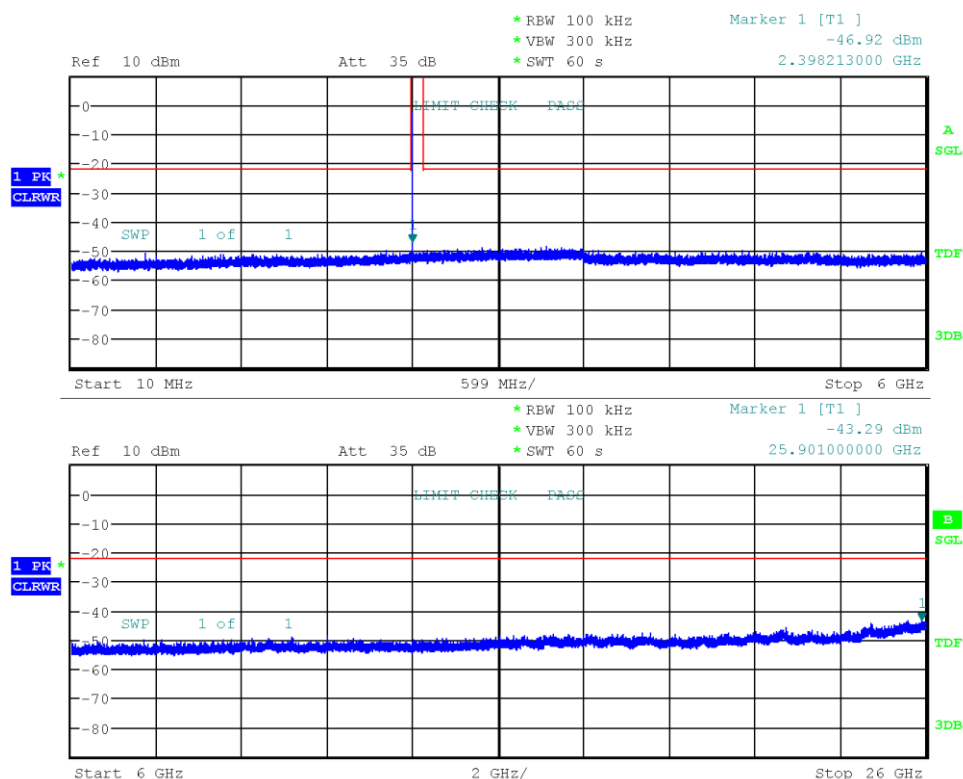
3.7.6 Results

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

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

Conducted Spurious Emissions

Project Number: G0M-2109-1013
 Applicant: wenglor sensoric GmbH
 Model Description: Bluetooth module
 Model: DC1392
 Test Sample ID: 41253
 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: Dhamia Almozani
 Test Site: Eurofins Product Service GmbH
 Test Date: 2022-09-28
 Note: Bit Rate= 1 Mbps
 Max. in-band Frequency [MHz]: 2402.0
 Max. in-band Level [dBm/100 kHz]: -2.0
 Out-of-band Limit [dBm/100 kHz]: -22.0



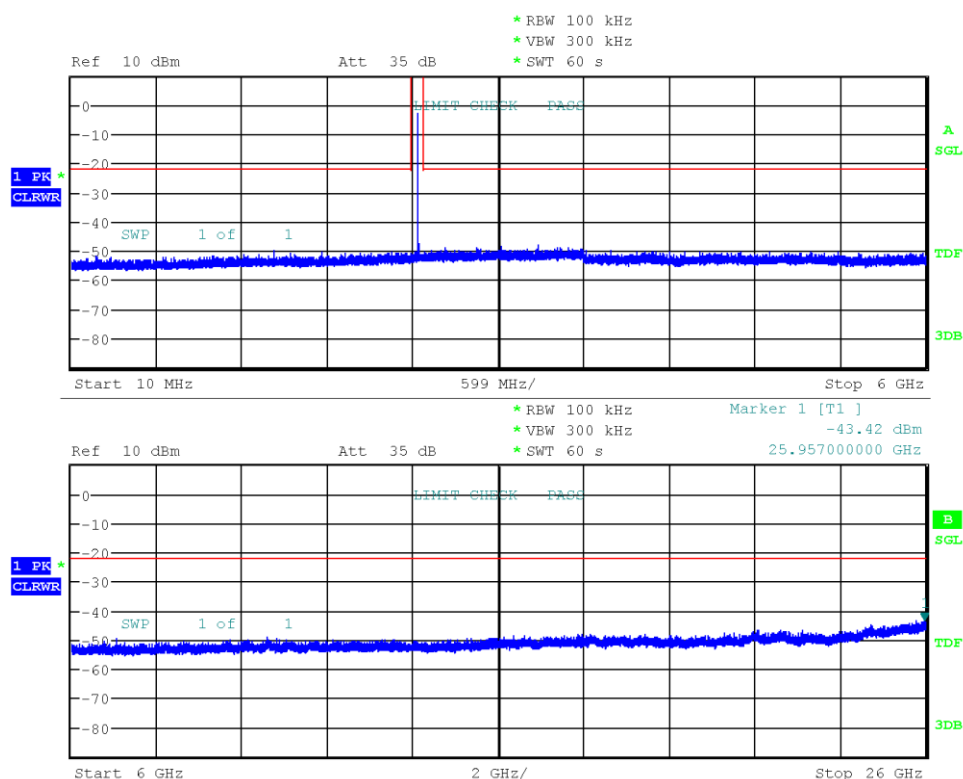
Date: 28.SEP.2022 16:58:16

Test Report No.: G0M-2109-1013-TFC247BL-V01

Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Conducted Spurious Emissions

Project Number: G0M-2109-1013
 Applicant: wenglorsensoric GmbH
 Model Description: Bluetooth module
 Model: DC1392
 Test Sample ID: 41253
 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: Dhamia Almozani
 Test Site: Eurofins Product Service GmbH
 Test Date: 2022-09-28
 Note: Bit Rate= 1 Mbps
 Max. in-band Frequency [MHz]: 2440.0
 Max. in-band Level [dBm/100 kHz]: -2.0
 Out-of-band Limit [dBm/100 kHz]: -22.0



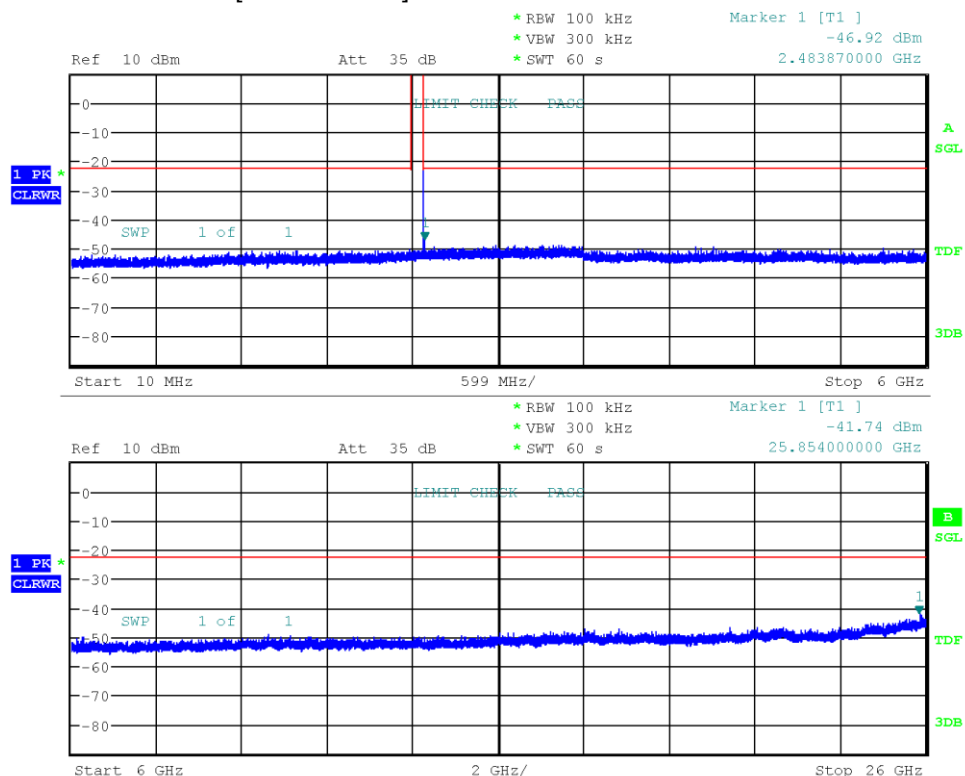
Date: 28.SEP.2022 17:01:37

Test Report No.: G0M-2109-1013-TFC247BL-V01

Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Conducted Spurious Emissions

Project Number: G0M-2109-1013
 Applicant: wenglor sensoric GmbH
 Model Description: Bluetooth module
 Model: DC1392
 Test Sample ID: 41253
 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: Dhamia Almozani
 Test Site: Eurofins Product Service GmbH
 Test Date: 2022-09-28
 Note: Bit Rate= 1 Mbps
 Max. in-band Frequency [MHz]: 2480.0
 Max. in-band Level [dBm/100 kHz]: -2.3
 Out-of-band Limit [dBm/100 kHz]: -22.3



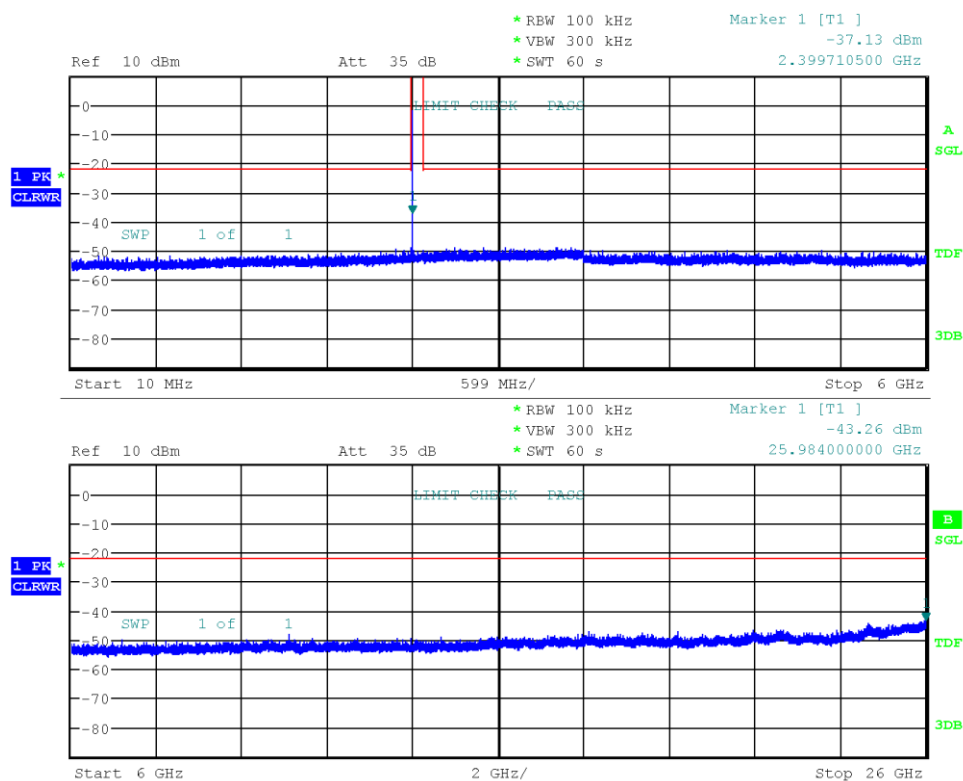
Date: 28.SEP.2022 17:05:37

Test Report No.: G0M-2109-1013-TFC247BL-V01

Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Conducted Spurious Emissions

Project Number: G0M-2109-1013
 Applicant: wenglorsensoric GmbH
 Model Description: Bluetooth module
 Model: DC1392
 Test Sample ID: 41253
 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: Dhamia Almozani
 Test Site: Eurofins Product Service GmbH
 Test Date: 2022-09-28
 Note: Bit Rate= 2 Mbps
 Max. in-band Frequency [MHz]: 2402.0
 Max. in-band Level [dBm/100 kHz]: -1.8
 Out-of-band Limit [dBm/100 kHz]: -21.8



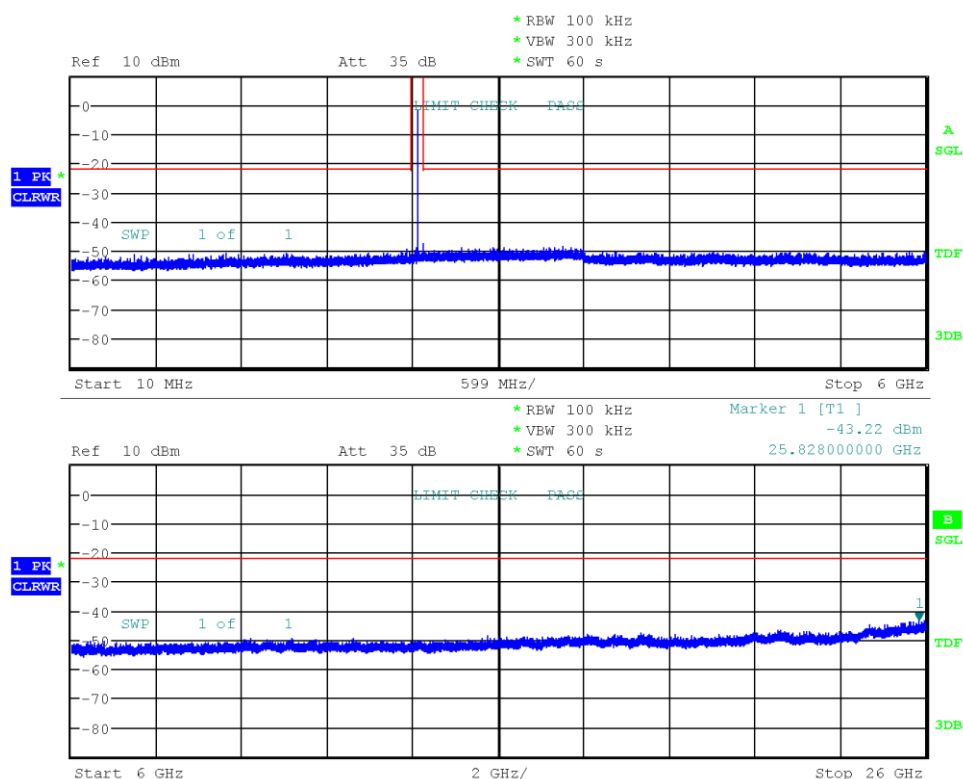
Date: 28.SEP.2022 17:13:52

Test Report No.: G0M-2109-1013-TFC247BL-V01

Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Conducted Spurious Emissions

Project Number: G0M-2109-1013
 Applicant: wenglorsensoric GmbH
 Model Description: Bluetooth module
 Model: DC1392
 Test Sample ID: 41253
 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: Dhamia Almozani
 Test Site: Eurofins Product Service GmbH
 Test Date: 2022-09-28
 Note: Bit Rate= 2 Mbps
 Max. in-band Frequency [MHz]: 2440.0
 Max. in-band Level [dBm/100 kHz]: -2.0
 Out-of-band Limit [dBm/100 kHz]: -22.0



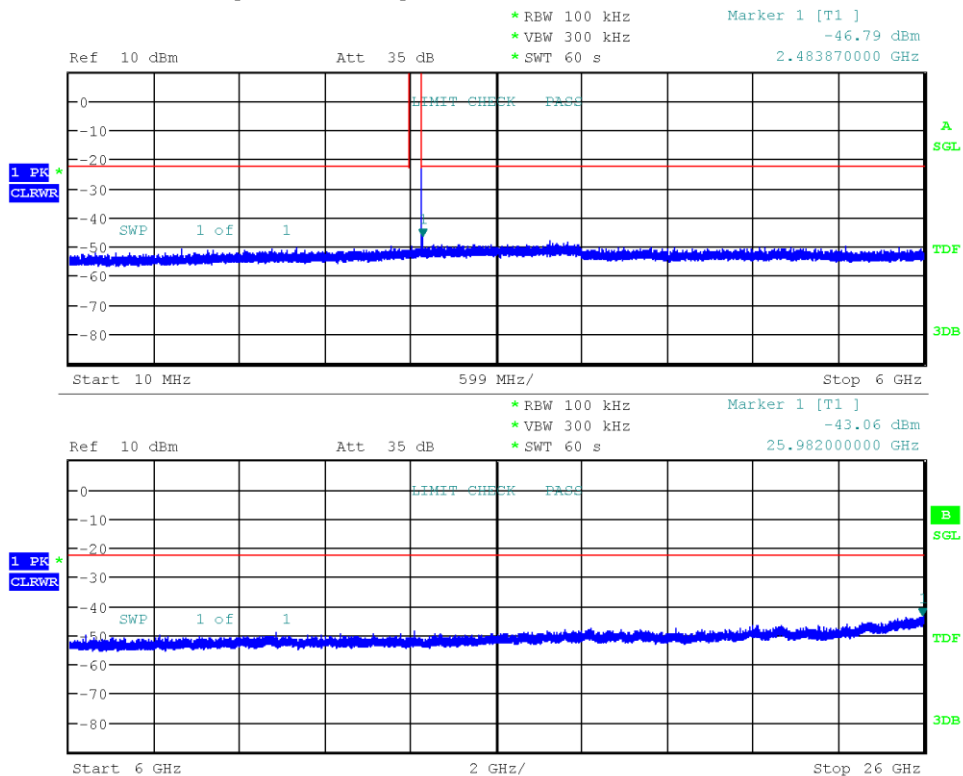
Date: 28.SEP.2022 17:17:03

Test Report No.: G0M-2109-1013-TFC247BL-V01

Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Conducted Spurious Emissions

Project Number: G0M-2109-1013
 Applicant: wenglorsensoric GmbH
 Model Description: Bluetooth module
 Model: DC1392
 Test Sample ID: 41253
 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: Dhamia Almozani
 Test Site: Eurofins Product Service GmbH
 Test Date: 2022-09-28
 Note: Bit Rate= 2 Mbps
 Max. in-band Frequency [MHz]: 2480.0
 Max. in-band Level [dBm/100 kHz]: -2.3
 Out-of-band Limit [dBm/100 kHz]: -22.3



Date: 28.SEP.2022 17:20:46

Test Report No.: G0M-2109-1013-TFC247BL-V01

Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

3.8 Test Conditions and Results - Transmitter radiated emissions

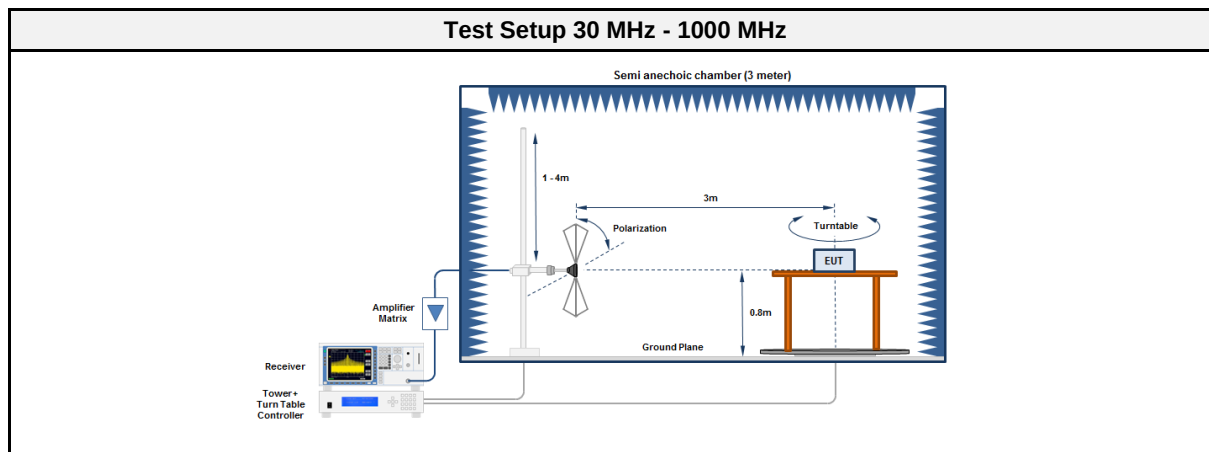
3.8.1 Information

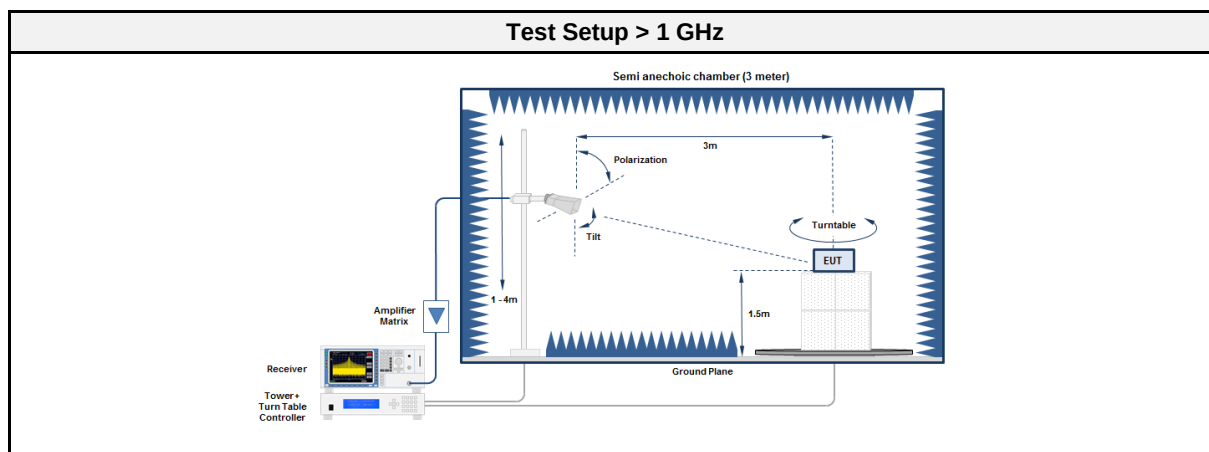
Test Information	
Reference	FCC § 15.247(d); FCC § 15.209; ISSED RSS-Gen, Issue 5 A2 (section 6.13)
Measurement Uncertainty	± 5.95 dB
Measurement Method	ANSI C63.10 6.4, 6.5, 6.6, 11.12
Operator	Florian Voigt
Date	2022-09-23

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
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





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	2021-02	2024-02
Measurement Receiver	Agilent	N9038A-526/WXP	EF01070	2021-07	2023-01
Antenna	R&S	HK 116	EF00030	2021-05	2024-05
Antenna	R&S	HL 223	EF00187	2022-06	2025-06

Test Equipment > 1 GHz					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Anechoic Chamber	Frankonia	AC2	EF01616	2021-09	2022-09
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	2023-06

3.8.5 Procedure

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

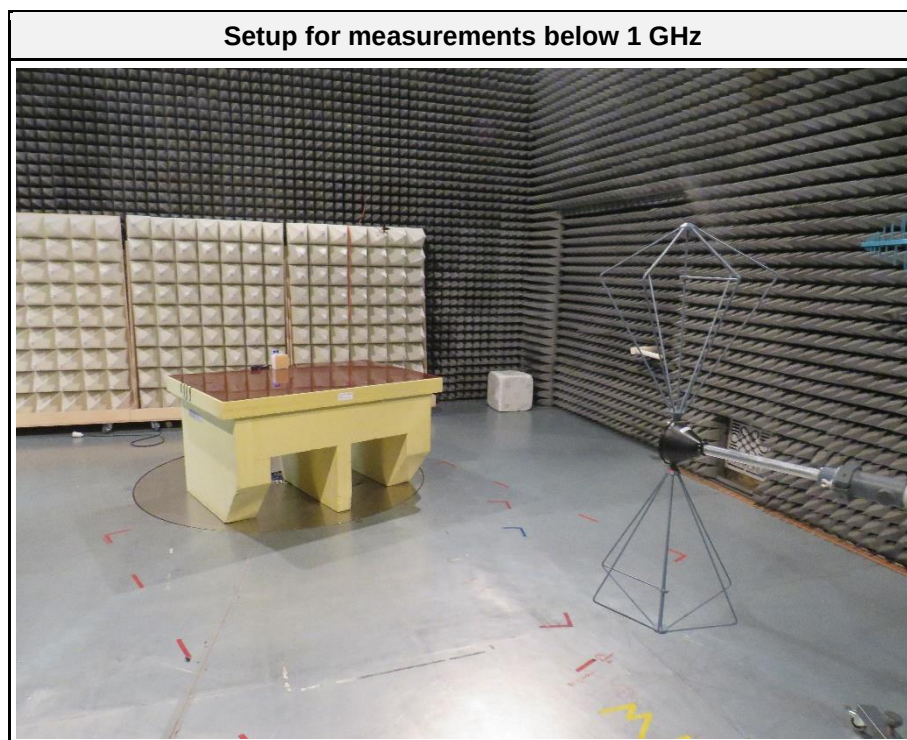
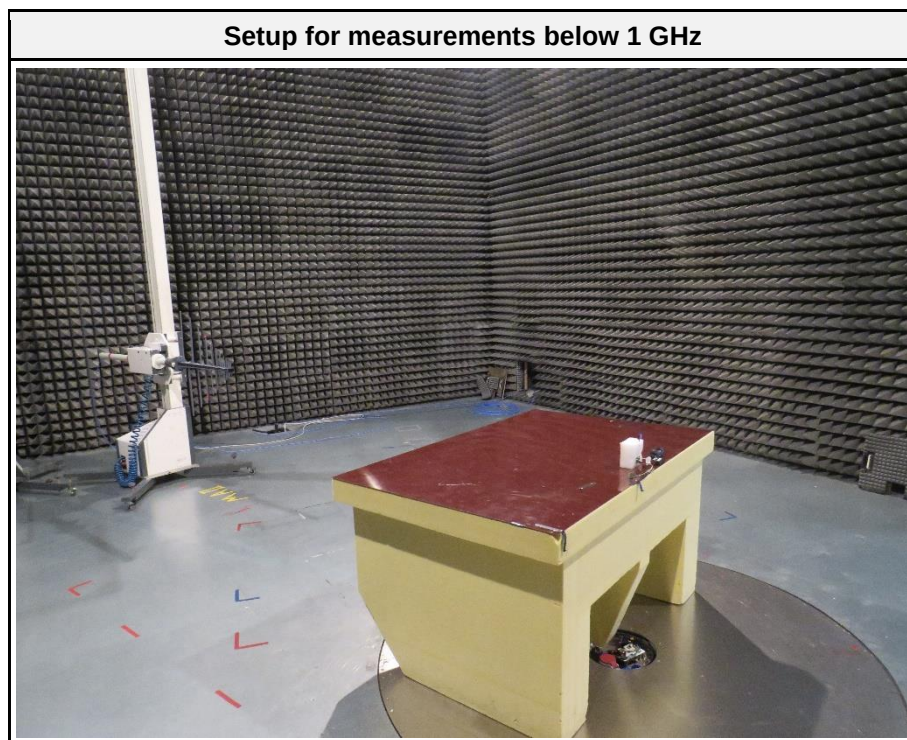
Test Procedure > 1 GHz	
- EUT is placed on a non conducting support at the center of a turn table 1.5 m above the ground - EUT set to test mode - The receiver is set to peak detection with max hold - The EUT is rotated through 360° and the height of the antenna is varied from 1 m to 4 m - All significant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

3.8.6 Results

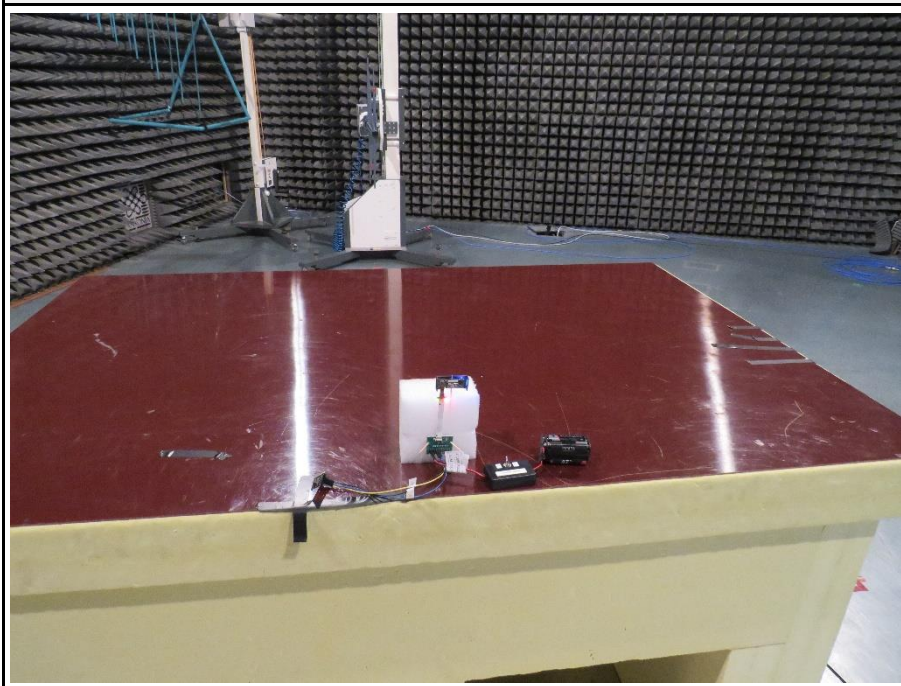
Test Results – 1 Mbit/s						
Channel [MHz]	Emission [MHz]	Level [dBμV/m]	Det.	Pol.	Limit [dBμV/m]	Margin [dB]
2402	2388.6	53.82	pk	hor	74.00	-20.18
2402	2388.6	42.01	avg	hor	54.00	-11.99
2402	4803.9	55.61	pk	hor	74.00	-18.39
2402	4803.9	50.65	avg	hor	54.00	-03.35
2402	12009	57.37	pk	ver	74.00	-16.63
2402	12009	50.55	avg	ver	54.00	-03.45
2402	20263	46.00	pk	ver	74.00	-28.00
2402	20263	35.57	avg	ver	54.00	-18.43
2440	4880	57.06	pk	hor	74.00	-16.94
2440	4880	51.59	avg	hor	54.00	-02.41
2440	7319.3	53.01	pk	hor	74.00	-20.99
2440	7319.3	48.75	avg	hor	54.00	-05.25
2440	12199	48.42	pk	ver	74.00	-25.58
2440	12199	44.14	avg	ver	54.00	-09.86
2440	20686	47.89	pk	hor	74.00	-26.11
2440	20686	34.96	avg	hor	54.00	-19.04
2480	2484	56.56	pk	hor	74.00	-17.44
2480	2484	47.79	avg	hor	54.00	-06.21
2480	4960	55.82	pk	hor	74.00	-18.18
2480	4960	50.69	avg	hor	54.00	-03.31
2480	7439	46.06	pk	hor	74.00	-27.94
2480	7439	41.29	avg	hor	54.00	-12.71
2480	12399	55.41	pk	ver	74.00	-18.59
2480	12399	51.42	avg	ver	54.00	-02.58
2480	20276	46.06	pk	hor	74.00	-27.94
2480	20276	35.07	avg	hor	54.00	-18.93

Test Results – 2 Mbit/s						
Channel [MHz]	Emission [MHz]	Level [dBμV/m]	Det.	Pol.	Limit [dBμV/m]	Margin [dB]
2402	2388.3	52.84	pk	hor	74.00	-21.16
2402	2388.3	42.44	avg	hor	54.00	-11.56
2402	4804	53.30	pk	hor	74.00	-20.70
2402	4804	52.46	pk	ver	74.00	-21.54
2402	4804	49.62	avg	hor	54.00	-04.38
2402	4804	47.98	avg	ver	54.00	-06.02
2402	12008	57.42	pk	ver	74.00	-16.58
2402	12008	52.26	avg	ver	54.00	-01.74
2402	20342	46.85	pk	hor	74.00	-27.15
2402	20342	35.91	avg	hor	54.00	-18.09
2440	4879.1	53.75	pk	ver	74.00	-20.25
2440	4879.1	48.23	avg	ver	54.00	-05.77
2440	4880	53.91	pk	ver	74.00	-20.09
2440	4880	50.94	avg	ver	54.00	-03.06
2440	7320.1	55.38	pk	hor	74.00	-18.62
2440	7320.1	49.11	pk	ver	74.00	-24.89
2440	7320.1	50.97	avg	hor	54.00	-03.03
2440	7320.1	42.81	avg	ver	54.00	-11.19
2440	12198	59.03	pk	ver	74.00	-14.97
2440	12198	52.45	avg	ver	54.00	-01.55
2440	18121	48.84	pk	hor	74.00	-25.16
2440	18121	35.74	avg	hor	54.00	-18.26
2480	2483.9	58.13	pk	ver	74.00	-15.87
2480	2483.9	46.36	avg	ver	54.00	-07.64
2480	2484	58.89	pk	hor	74.00	-15.11
2480	2484	48.09	avg	hor	54.00	-05.91
2480	4960	55.01	pk	hor	74.00	-18.99
2480	4960	53.60	pk	ver	74.00	-20.40
2480	4960	51.05	avg	hor	54.00	-02.95
2480	4960	49.77	avg	ver	54.00	-04.23
2480	7440	46.45	pk	ver	74.00	-27.55
2480	7440	45.56	pk	hor	74.00	-28.44
2480	7440	40.32	avg	ver	54.00	-13.68
2480	7440	39.40	avg	hor	54.00	-14.60
2480	12398	55.97	pk	ver	74.00	-18.03
2480	12398	49.59	avg	ver	54.00	-04.41
2480	18132	47.74	pk	ver	74.00	-26.26
2480	18132	36.15	avg	ver	54.00	-17.85

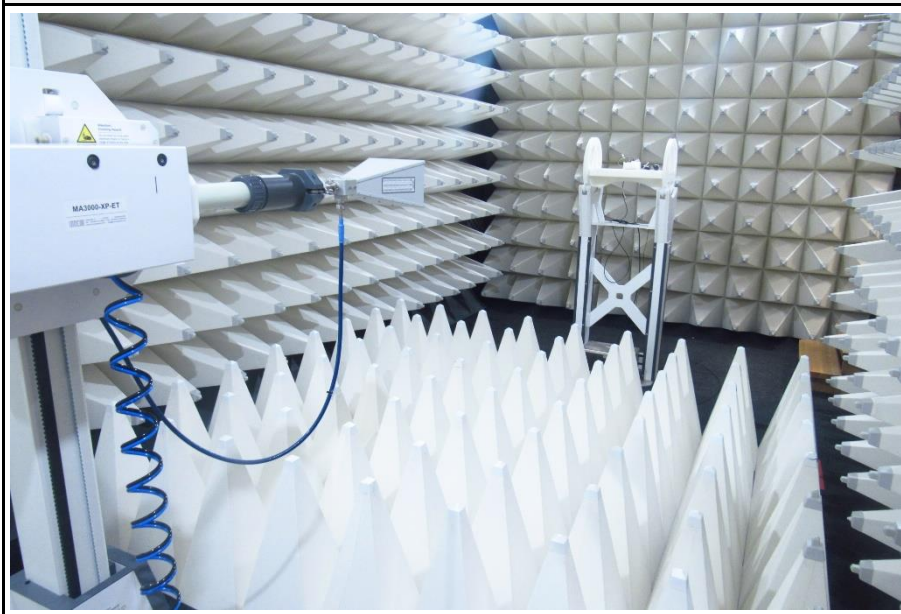
3.8.7 Setup Photos



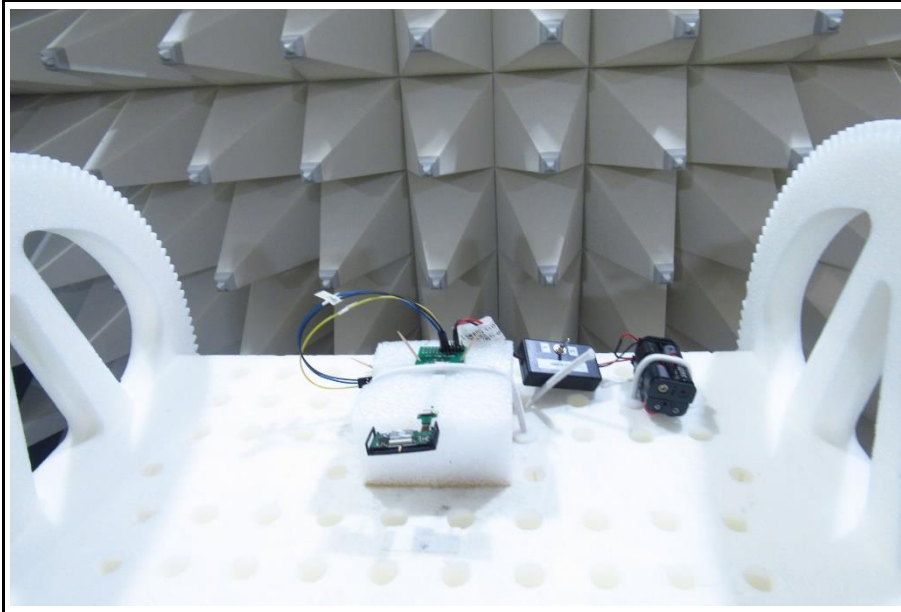
EUT Test Setup



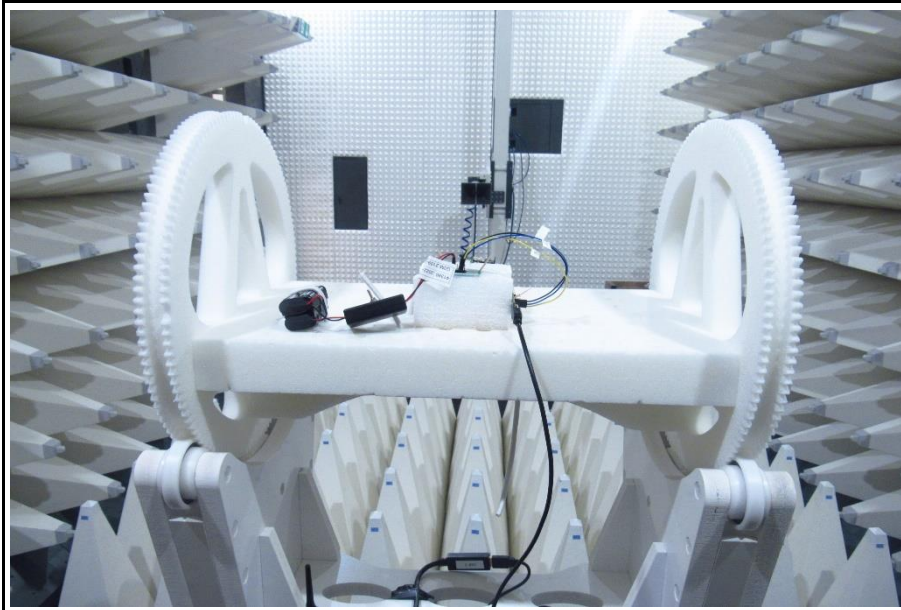
Setup for measurements above 1 GHz



EUT Test Setup



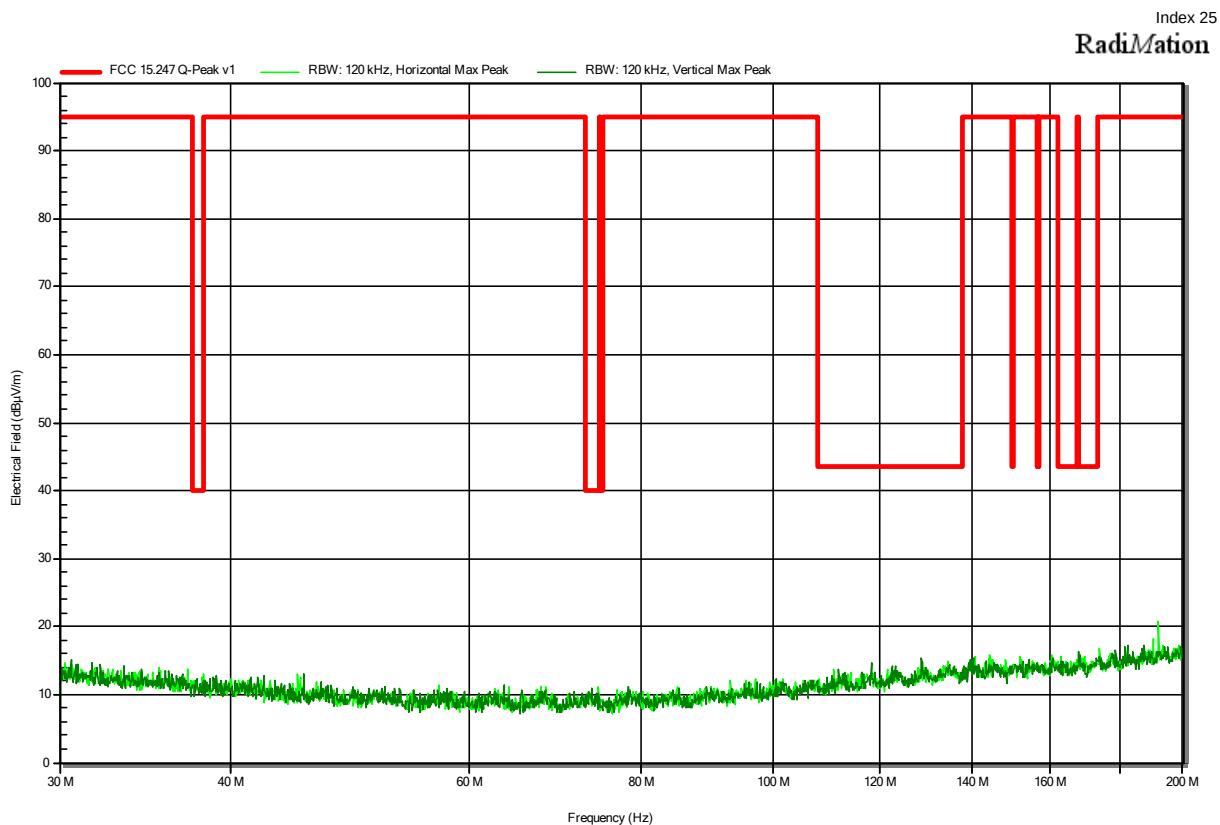
EUT Test Setup (back)



ANNEX A Transmitter spurious emissions

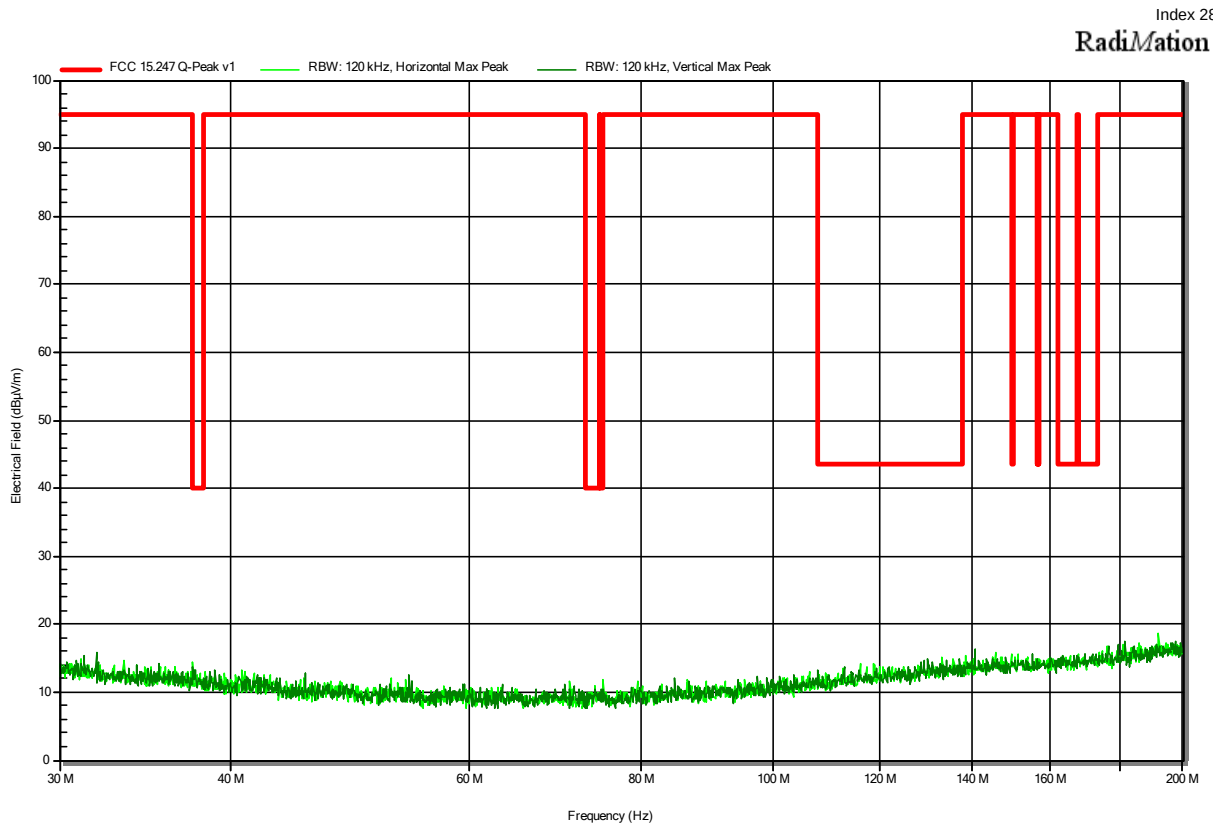
Radiated Spurious Emissions according to 47 CFR Part 15.247

Project Number: G0M-2109-1013
 Applicant: wenglor sensoric GmbH
 Model Description: Bluetooth module
 Model: DC1392
 Test Sample ID: 41260
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 24 °Celsius, Vnom: 5 VDC
 Antenna: Rohde & Schwarz HK 116
 Measurement distance: 3 m
 Mode: Tx; BLE, 2402 MHz, 1 Mbit/s, PRBS9, 193 bytes, 88% DC, 6dBm Output Power
 Test Date: 2022-09-23
 Note:



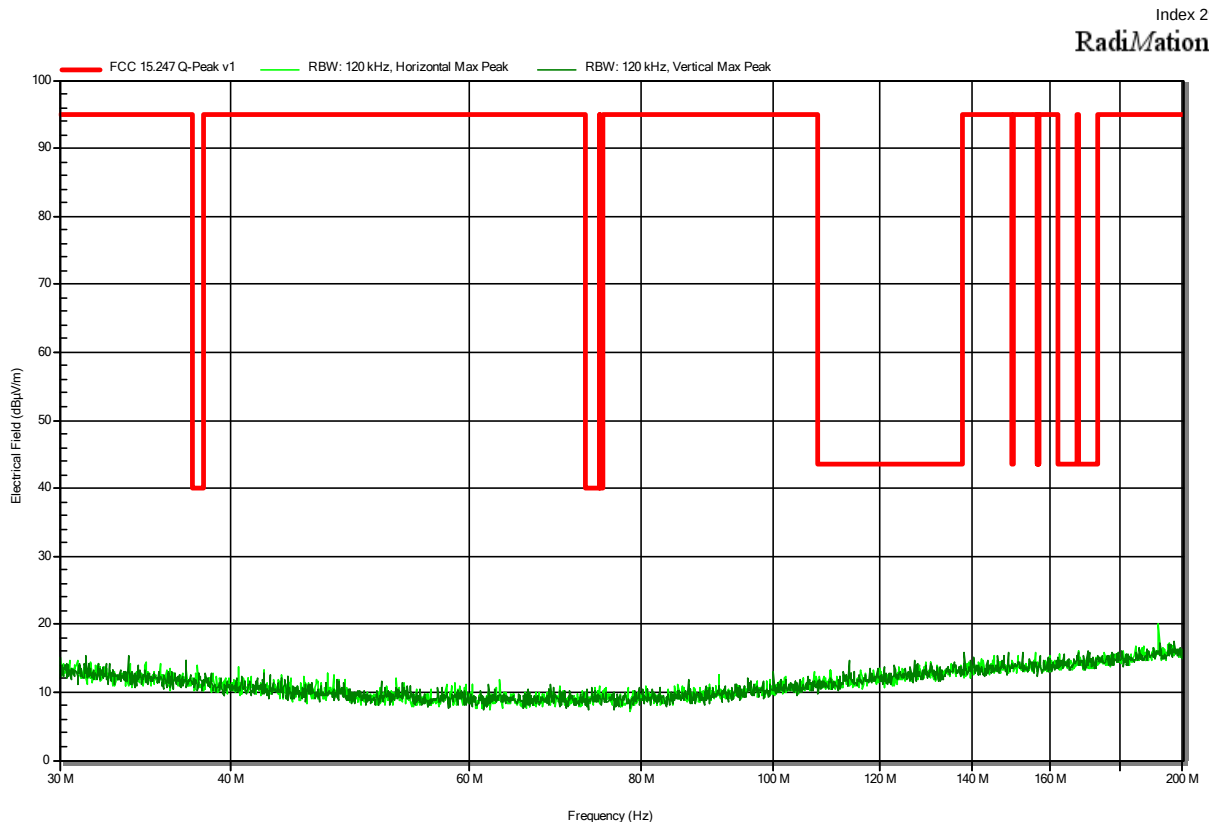
Radiated Spurious Emissions according to 47 CFR Part 15.247

Project Number: G0M-2109-1013
 Applicant: wenglor sensoric GmbH
 Model Description: Bluetooth module
 Model: DC1392
 Test Sample ID: 41260
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 24 °Celsius, Vnom: 5 VDC
 Antenna: Rohde & Schwarz HK 116
 Measurement distance: 3 m
 Mode: Tx; BLE, 2440 MHz, 1 Mbit/s, PRBS9, 193 bytes, 88% DC, 6dBm Output Power
 Test Date: 2022-09-23
 Note:



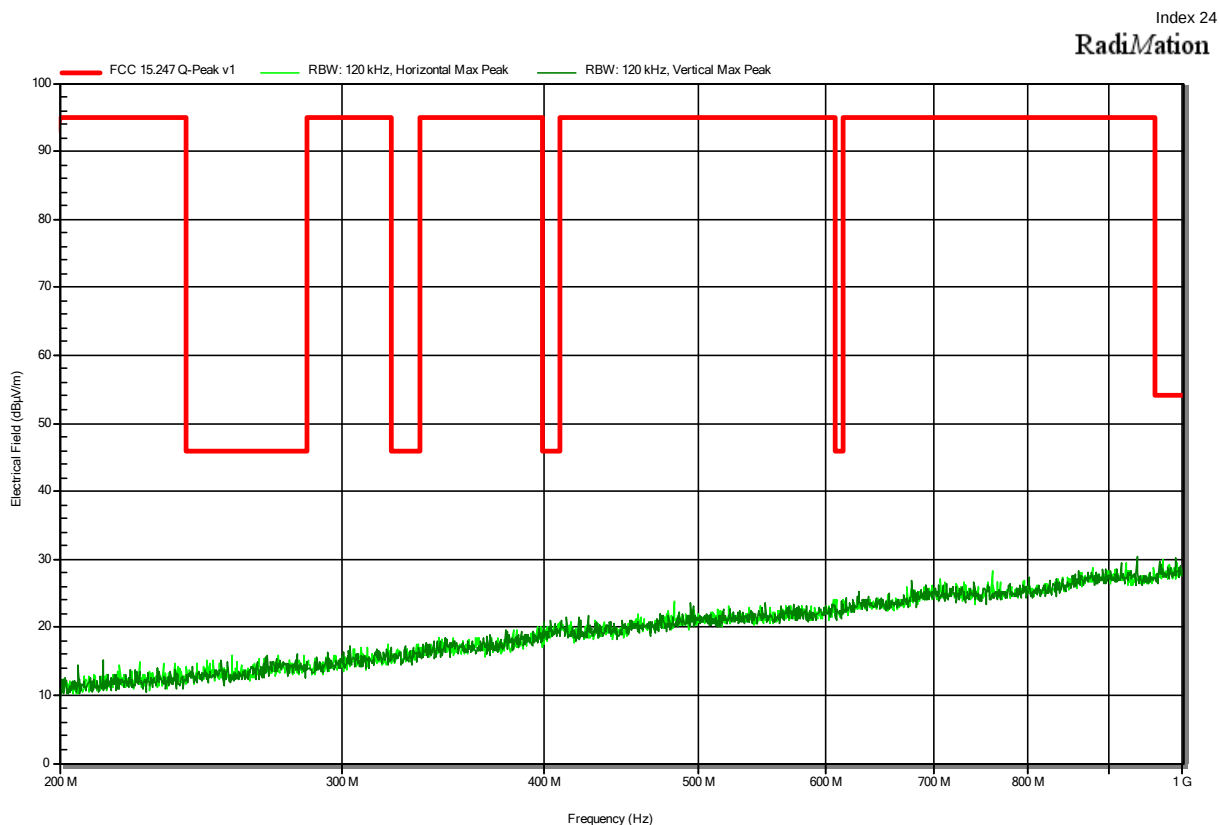
Radiated Spurious Emissions according to 47 CFR Part 15.247

Project Number: G0M-2109-1013
 Applicant: wenglor sensoric GmbH
 Model Description: Bluetooth module
 Model: DC1392
 Test Sample ID: 41260
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 24 °Celsius, Vnom: 5 VDC
 Antenna: Rohde & Schwarz HK 116
 Measurement distance: 3 m
 Mode: Tx; BLE, 2480 MHz, 1 Mbit/s, PRBS9, 193 bytes, 88% DC, 6dBm Output Power
 Test Date: 2022-09-23
 Note:



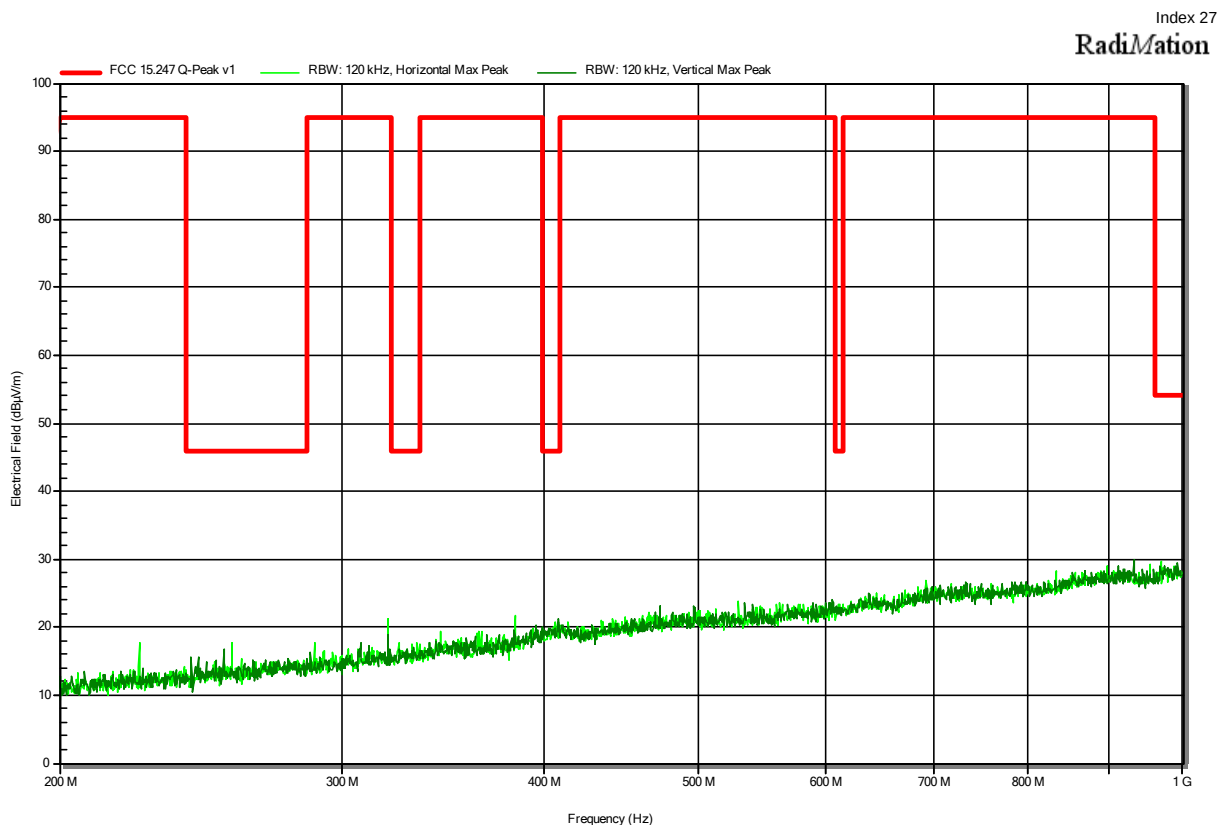
Radiated Spurious Emissions according to 47 CFR Part 15.247

Project Number: G0M-2109-1013
 Applicant: wenglor sensoric GmbH
 Model Description: Bluetooth module
 Model: DC1392
 Test Sample ID: 41260
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 24 °Celsius, Vnom: 5 VDC
 Antenna: Rohde & Schwarz HL 223
 Measurement distance: 3 m
 Mode: Tx; BLE, 2402 MHz, 1 Mbit/s, PRBS9, 193 bytes, 88% DC, 6dBm Output Power
 Test Date: 2022-09-23
 Note:



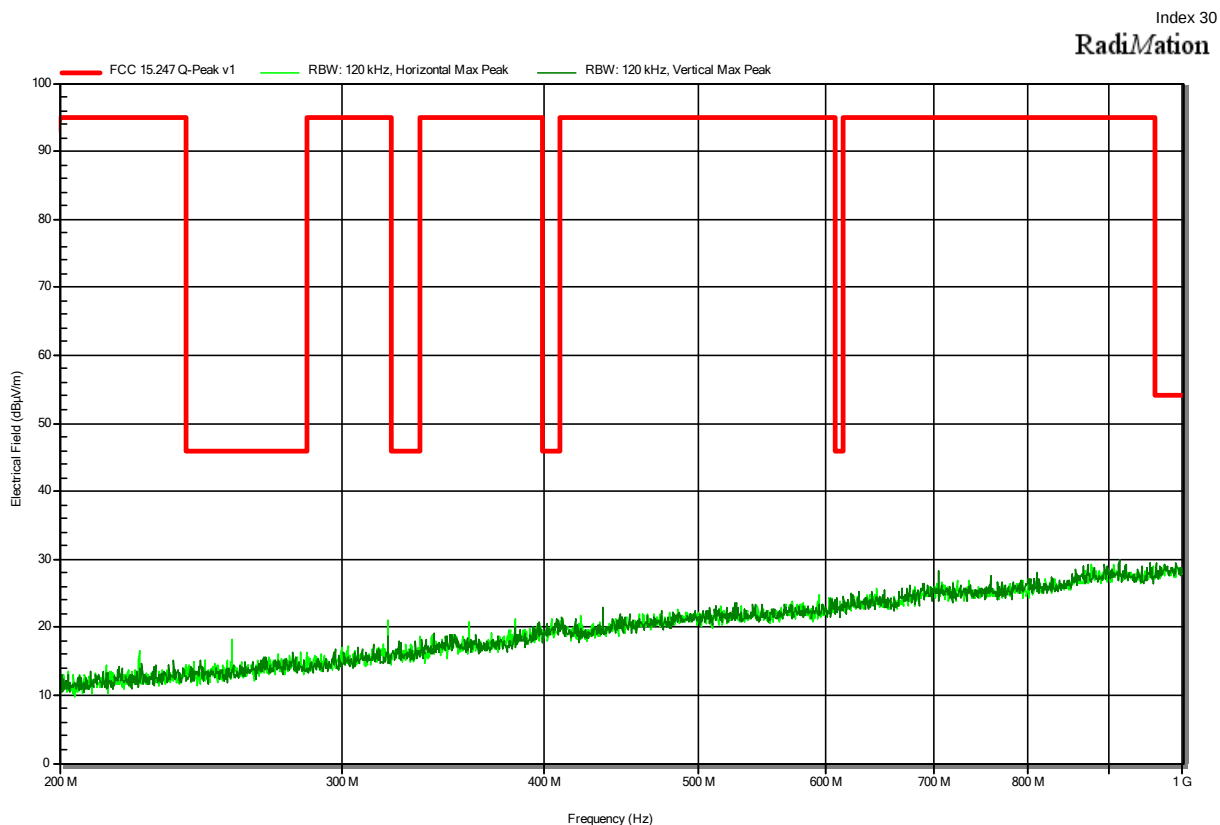
Radiated Spurious Emissions according to 47 CFR Part 15.247

Project Number: G0M-2109-1013
 Applicant: wenglor sensoric GmbH
 Model Description: Bluetooth module
 Model: DC1392
 Test Sample ID: 41260
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 24 °Celsius, Vnom: 5 VDC
 Antenna: Rohde & Schwarz HL 223
 Measurement distance: 3 m
 Mode: Tx; BLE, 2440 MHz, 1 Mbit/s, PRBS9, 193 bytes, 88% DC, 6dBm Output Power
 Test Date: 2022-09-23
 Note:



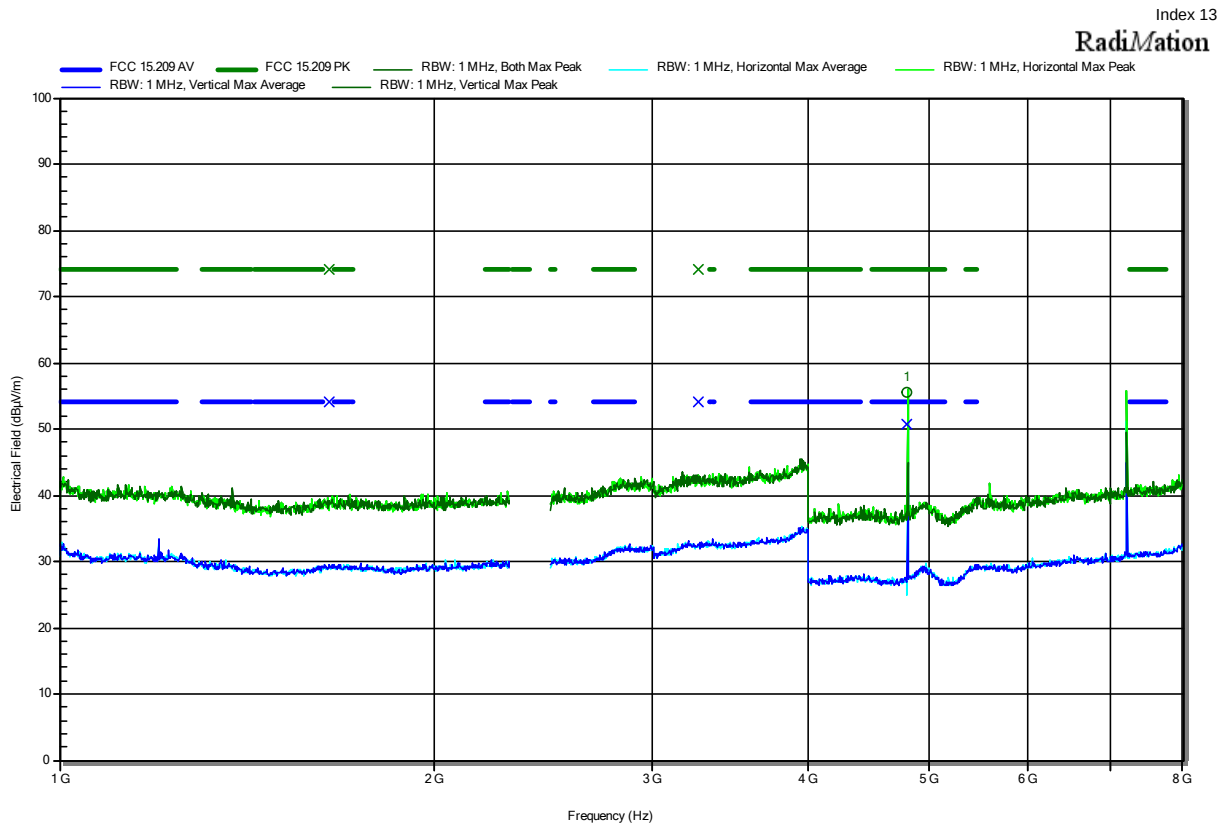
Radiated Spurious Emissions according to 47 CFR Part 15.247

Project Number: G0M-2109-1013
 Applicant: wenglor sensoric GmbH
 Model Description: Bluetooth module
 Model: DC1392
 Test Sample ID: 41260
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 24 °Celsius, Vnom: 5 VDC
 Antenna: Rohde & Schwarz HL 223
 Measurement distance: 3 m
 Mode: Tx; BLE, 2480 MHz, 1 Mbit/s, PRBS9, 193 bytes, 88% DC, 6dBm Output Power
 Test Date: 2022-09-23
 Note:



Radiated Spurious Emissions according to 47 CFR Part 15.247

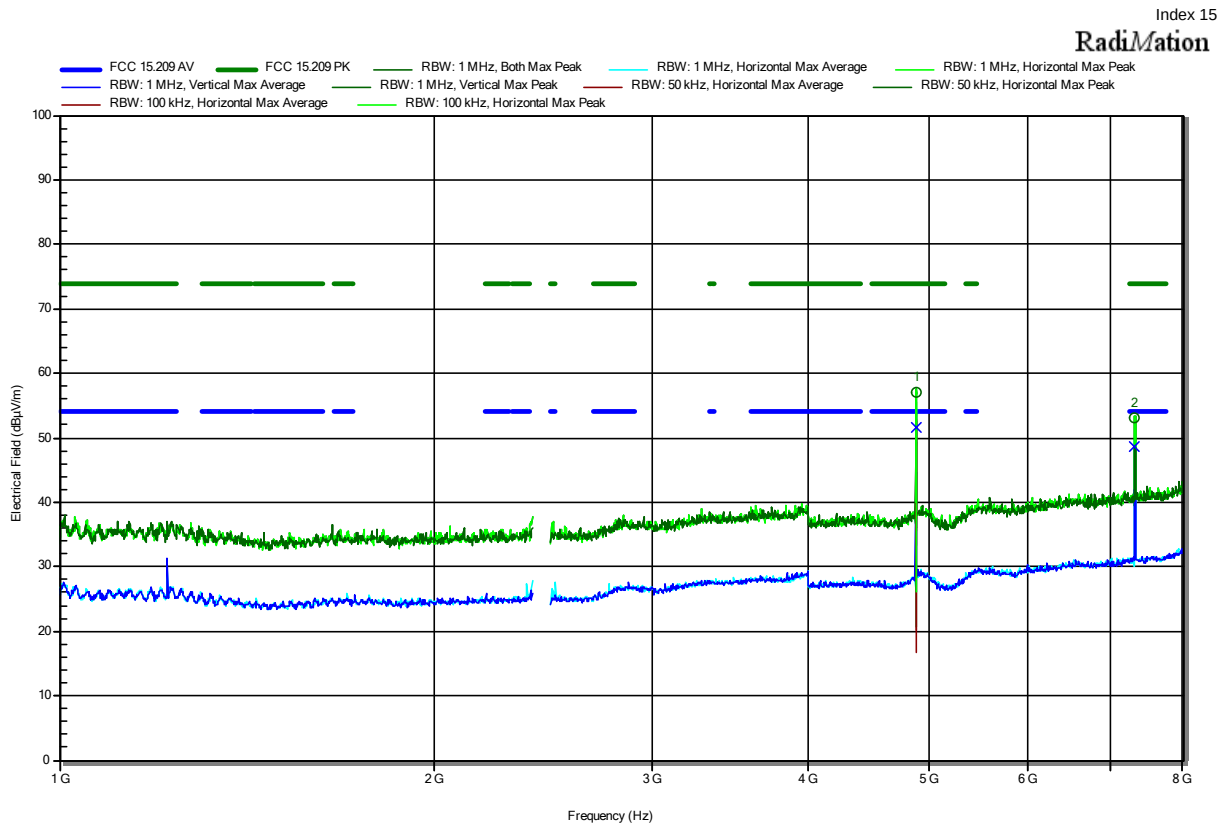
Project Number: G0M-2109-1013
 Applicant: wenglor sensoric GmbH
 Model Description: Bluetooth module
 Model: DC1392
 Test Sample ID: 41260
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Qawasmeh
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 24 °Celsius, Vnom: 5 VDC
 Antenna: Schwarzbeck BBHA 9120B
 Measurement distance: 3 m
 Mode: Tx; BLE, 2402 MHz, 1 Mbit/s, PRBS9, 193 bytes, 88% DC, 6dBm Output Power
 Test Date: 2022-09-22
 Note:



Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
4.8039 GHz	55.61 dBµV/m	74 dBµV/m	-18.39 dB	Pass	Horizontal
Frequency	Average	Average Limit	Average Difference	Average Status	Polarization
4.8039 GHz	50.65 dBµV/m	54 dBµV/m	-3.35 dB	Pass	Horizontal

Radiated Spurious Emissions according to 47 CFR Part 15.247

Project Number: G0M-2109-1013
 Applicant: wenglor sensoric GmbH
 Model Description: Bluetooth module
 Model: DC1392
 Test Sample ID: 41260
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Qawasmeh
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 24 °Celsius, Vnom: 5 VDC
 Antenna: Schwarzbeck BBHA 9120B
 Measurement distance: 3 m
 Mode: Tx; BLE, 2440 MHz, 1 Mbit/s, PRBS9, 193 bytes, 88% DC, 6dBm Output Power
 Test Date: 2022-09-22
 Note:



Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
4.88 GHz	57.06 dBµV/m	74 dBµV/m	-16.94 dB	Pass	Horizontal
7.3193 GHz	53.01 dBµV/m	74 dBµV/m	-20.99 dB	Pass	Horizontal

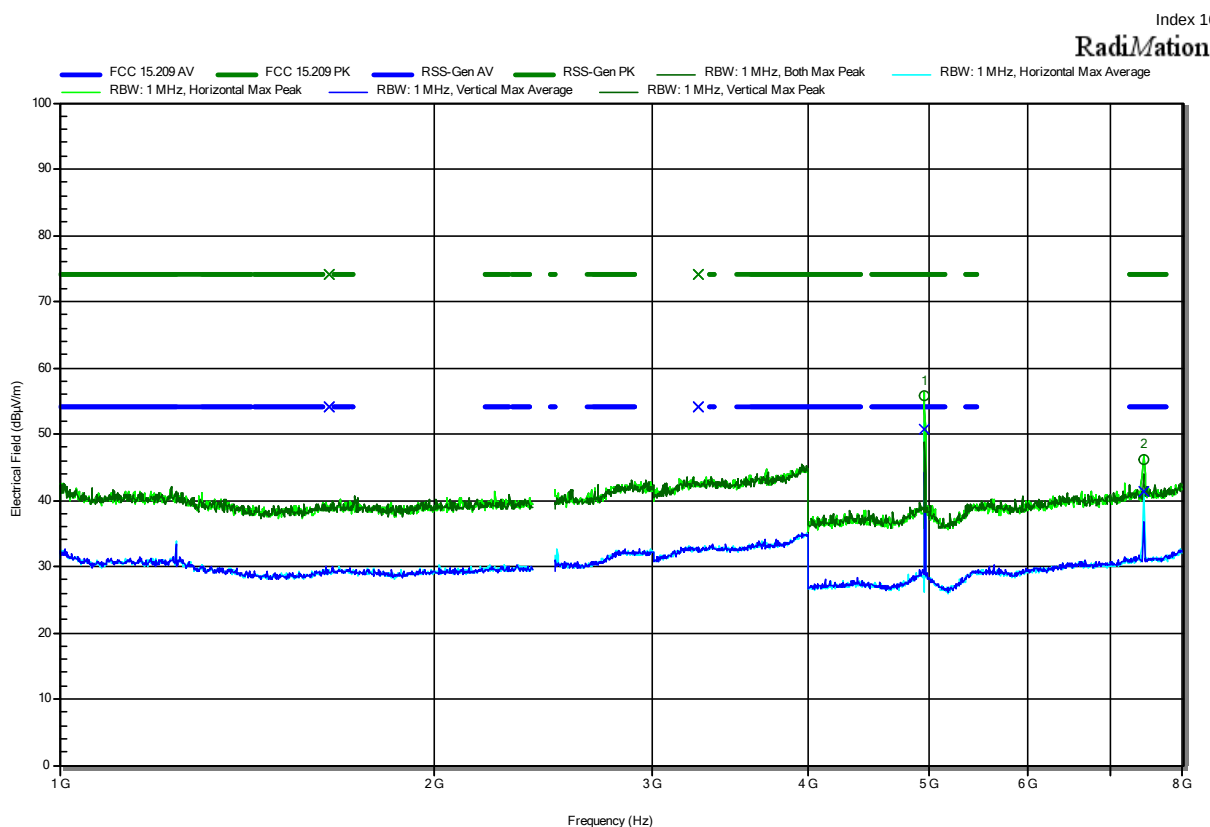
Frequency	Average	Average Limit	Average Difference	Average Status	Polarization
4.88 GHz	51.59 dBµV/m	54 dBµV/m	-2.41 dB	Pass	Horizontal
7.3193 GHz	48.75 dBµV/m	54 dBµV/m	-5.25 dB	Pass	Horizontal

Test Report No.: G0M-2109-1013-TFC247BL-V01

Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Radiated Spurious Emissions according to 47 CFR Part 15.247

Project Number: G0M-2109-1013
 Applicant: wenglor sensoric GmbH
 Model Description: Bluetooth module
 Model: DC1392
 Test Sample ID: 41260
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Qawasmeh
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 24 °Celsius, Vnom: 5 VDC
 Antenna: Schwarzbeck BBHA 9120B
 Measurement distance: 3 m
 Mode: Tx; BLE, 2480 MHz, 1 Mbit/s, PRBS9, 193 bytes, 88% DC, 6dBm Output Power
 Test Date: 2022-09-22
 Note:



Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
4.96 GHz	55.82 dBμV/m	74 dBμV/m	-18.18 dB	Pass	Horizontal
7.439 GHz	46.06 dBμV/m	74 dBμV/m	-27.94 dB	Pass	Horizontal

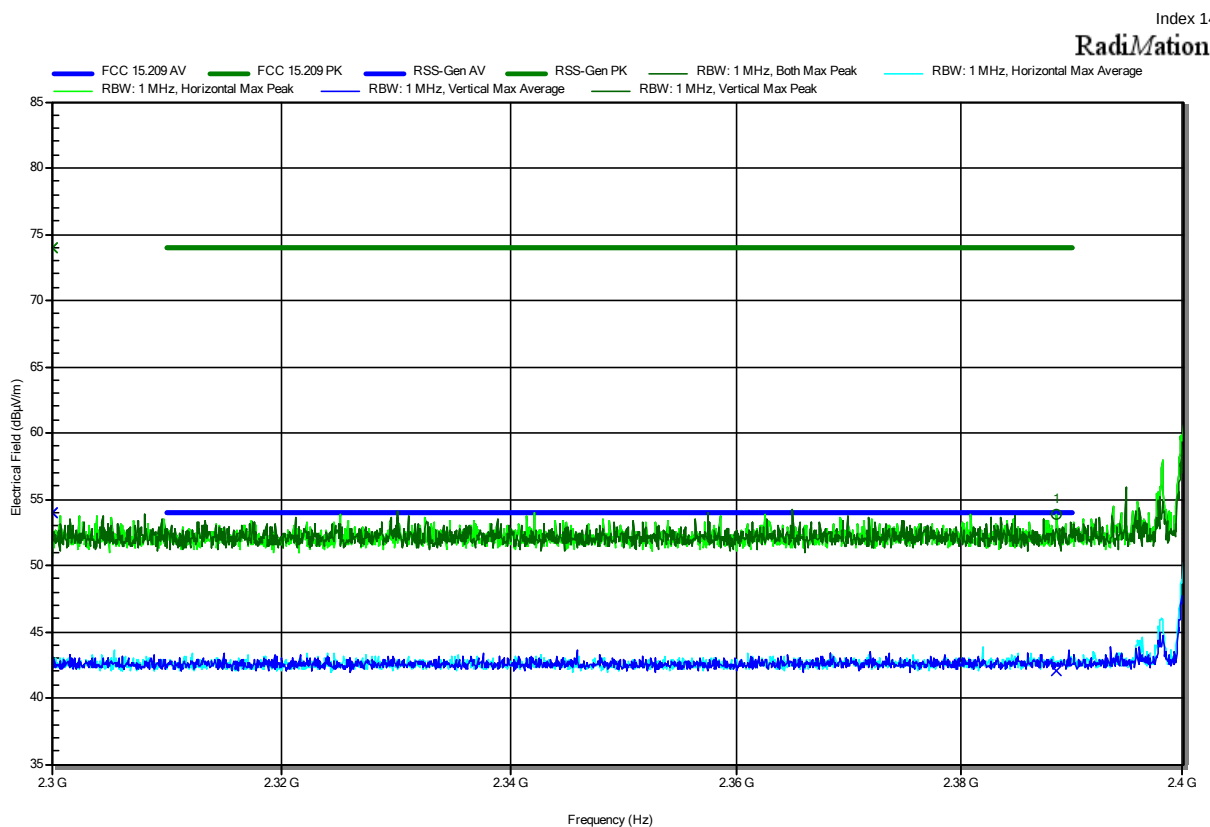
Frequency	Average	Average Limit	Average Difference	Average Status	Polarization
4.96 GHz	50.69 dBμV/m	54 dBμV/m	-3.31 dB	Pass	Horizontal
7.439 GHz	41.29 dBμV/m	54 dBμV/m	-12.71 dB	Pass	Horizontal

Test Report No.: G0M-2109-1013-TFC247BL-V01

Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Radiated Spurious Emissions according to 47 CFR Part 15.247

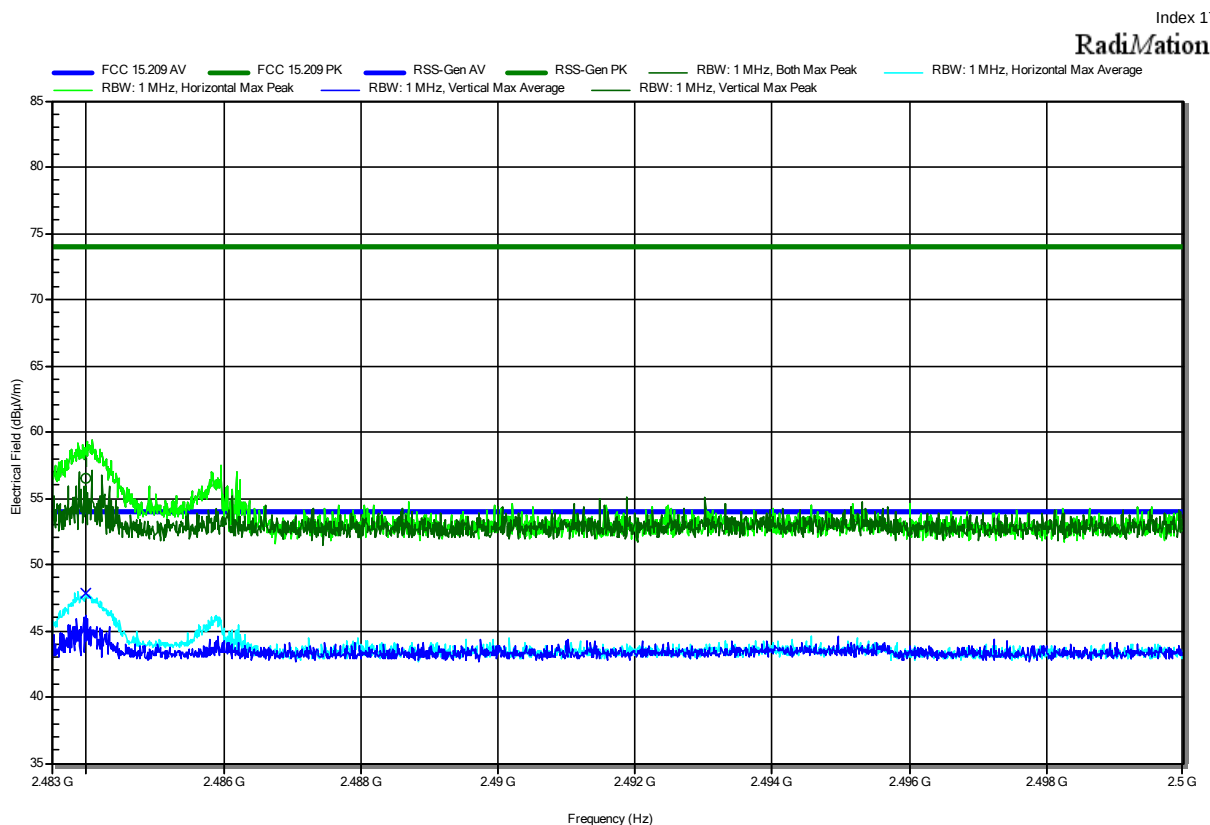
Project Number: G0M-2109-1013
 Applicant: wenglor sensoric GmbH
 Model Description: Bluetooth module
 Model: DC1392
 Test Sample ID: 41260
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Qawasmeh
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 24 °Celsius, Vnom: 5 VDC
 Antenna: Schwarzbeck BBHA 9120B
 Measurement distance: 3 m
 Mode: Tx; BLE, 2402 MHz, 1 Mbit/s, PRBS9, 193 bytes, 88% DC, 6dBm Output Power
 Test Date: 2022-09-22
 Note: lower bandedge



Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
2.3886 GHz	53.82 dBµV/m	74 dBµV/m	-20.18 dB	Pass	Horizontal
Frequency	Average	Average Limit	Average Difference	Average Status	Polarization
2.3886 GHz	42.01 dBµV/m	54 dBµV/m	-11.99 dB	Pass	Horizontal

Radiated Spurious Emissions according to 47 CFR Part 15.247

Project Number: G0M-2109-1013
 Applicant: wenglor sensoric GmbH
 Model Description: Bluetooth module
 Model: DC1392
 Test Sample ID: 41260
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Qawasmeh
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 24 °Celsius, Vnom: 5 VDC
 Antenna: Schwarzbeck BBHA 9120B
 Measurement distance: 3 m
 Mode: Tx; BLE, 2480 MHz, 1 Mbit/s, PRBS9, 193 bytes, 88% DC, 6dBm Output Power
 Test Date: 2022-09-22
 Note: upper bandedge

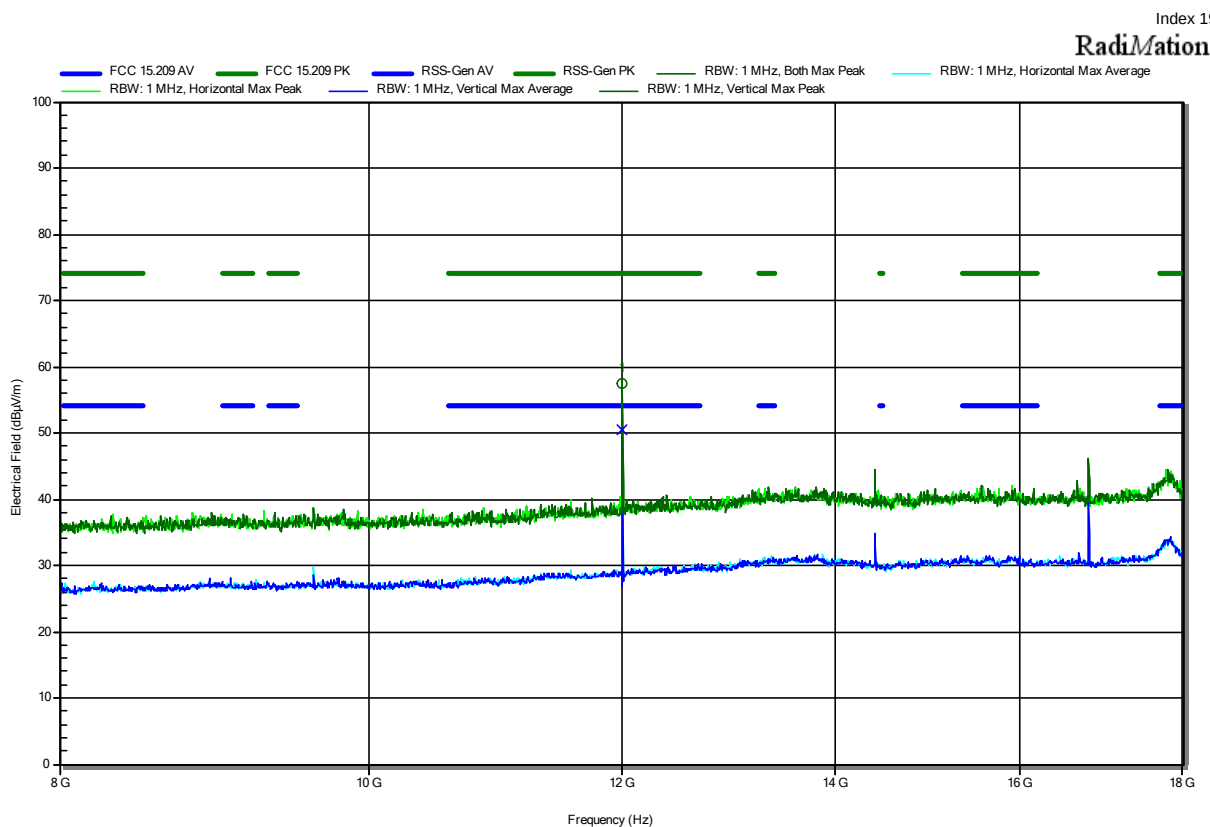


Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
2.484 GHz	56.56 dBμV/m	74 dBμV/m	-17.44 dB	Pass	Horizontal
Frequency	Average	Average Limit	Average Difference	Average Status	Polarization
2.484 GHz	47.79 dBμV/m	54 dBμV/m	-6.21 dB	Pass	Horizontal

Radiated Spurious Emissions according to 47 CFR Part 15.247

Project Number: G0M-2109-1013
 Applicant: wenglorsensoric GmbH
 Model Description: Bluetooth module
 Model: DC1392
 Test Sample ID: 41260
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Qawasmeh
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 24 °Celsius, Vnom: 5 VDC
 Antenna: Schwarzbeck HWRD 650
 Measurement distance: 3 m
 Mode: Tx; BLE, 2402 MHz, 1 Mbit/s, PRBS9, 193 bytes, 88% DC, 6dBm Output Power

Test Date: 2022-09-22
 Note:



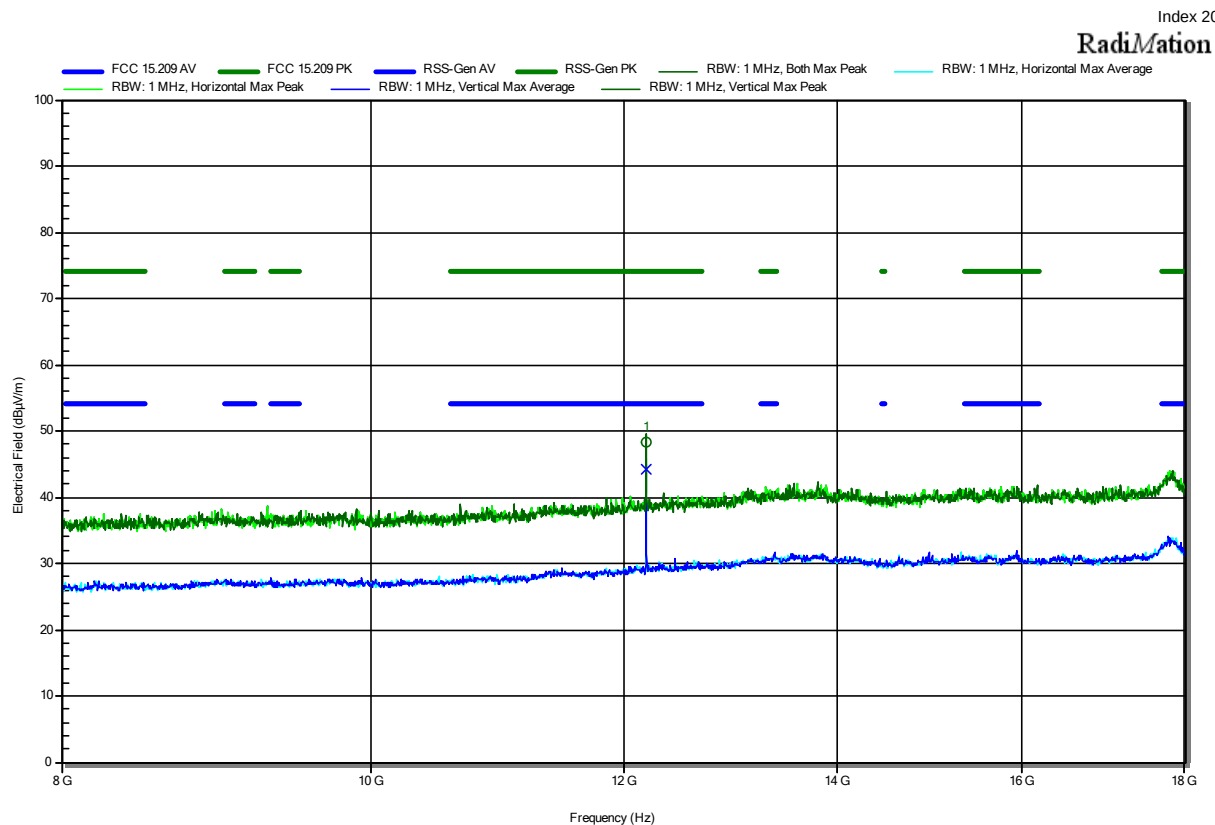
Frequency 12.009 GHz	Peak 57.37 dBµV/m	Peak Limit 74 dBµV/m	Peak Difference -16.63 dB	Peak Status Pass	Polarization Vertical
Frequency 12.009 GHz	Average 50.55 dBµV/m	Average Limit 54 dBµV/m	Average Difference -3.45 dB	Average Status Pass	Polarization Vertical

Radiated Spurious Emissions according to 47 CFR Part 15.247

Project Number: G0M-2109-1013
 Applicant: wenglor sensoric GmbH
 Model Description: Bluetooth module
 Model: DC1392
 Test Sample ID: 41260
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Qawasmeh
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 24 °Celsius, Vnom: 5 VDC
 Antenna: Schwarzbeck HWRD 650
 Measurement distance: 3 m
 Mode: Tx; BLE, 2440 MHz, 1 Mbit/s, PRBS9, 193 bytes, 88% DC, 6dBm Output Power

Test Date: 2022-09-22

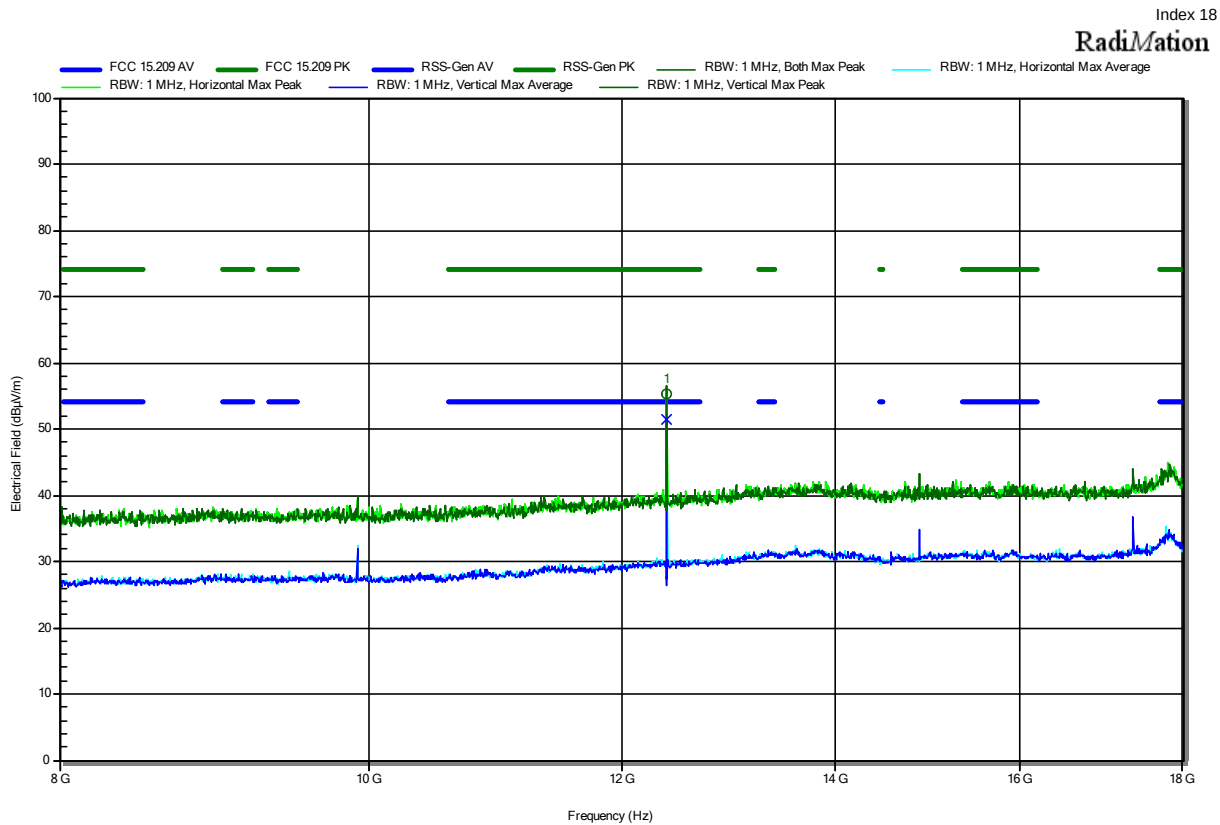
Note:



Frequency 12.199 GHz	Peak 48.42 dBµV/m	Peak Limit 74 dBµV/m	Peak Difference -25.58 dB	Peak Status Pass	Polarization Vertical
Frequency 12.199 GHz	Average 44.14 dBµV/m	Average Limit 54 dBµV/m	Average Difference -9.86 dB	Average Status Pass	Polarization Vertical

Radiated Spurious Emissions according to 47 CFR Part 15.247

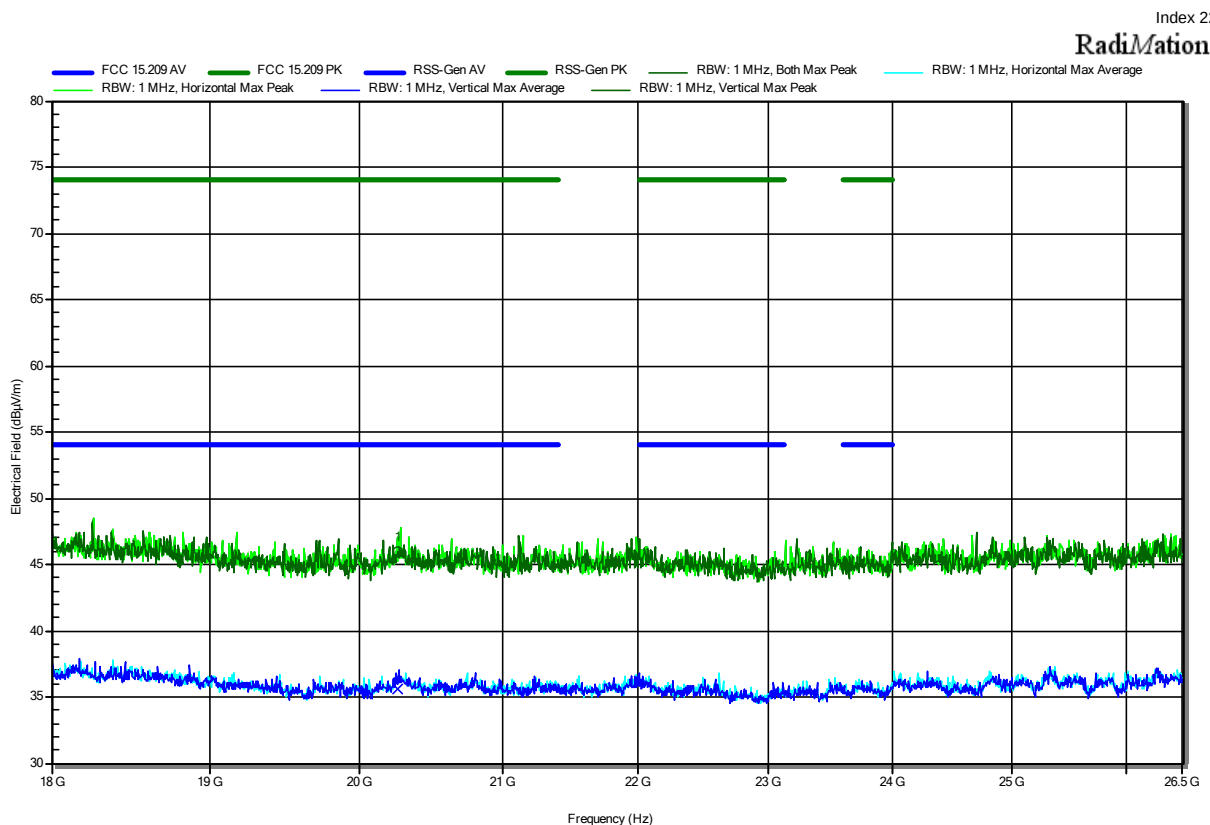
Project Number: G0M-2109-1013
 Applicant: wenglor sensoric GmbH
 Model Description: Bluetooth module
 Model: DC1392
 Test Sample ID: 41260
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Qawasmeh
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 24 °Celsius, Vnom: 5 VDC
 Antenna: Schwarzbeck HWRD 650
 Measurement distance: 3 m
 Mode: Tx; BLE, 2480 MHz, 1 Mbit/s, PRBS9, 193 bytes, 88% DC, 6dBm Output Power
 Test Date: 2022-09-22
 Note:



Frequency 12.399 GHz	Peak 55.41 dBµV/m	Peak Limit 74 dBµV/m	Peak Difference -18.59 dB	Peak Status Pass	Polarization Vertical
Frequency 12.399 GHz	Average 51.42 dBµV/m	Average Limit 54 dBµV/m	Average Difference -2.58 dB	Average Status Pass	Polarization Vertical

Radiated Spurious Emissions according to 47 CFR Part 15.247

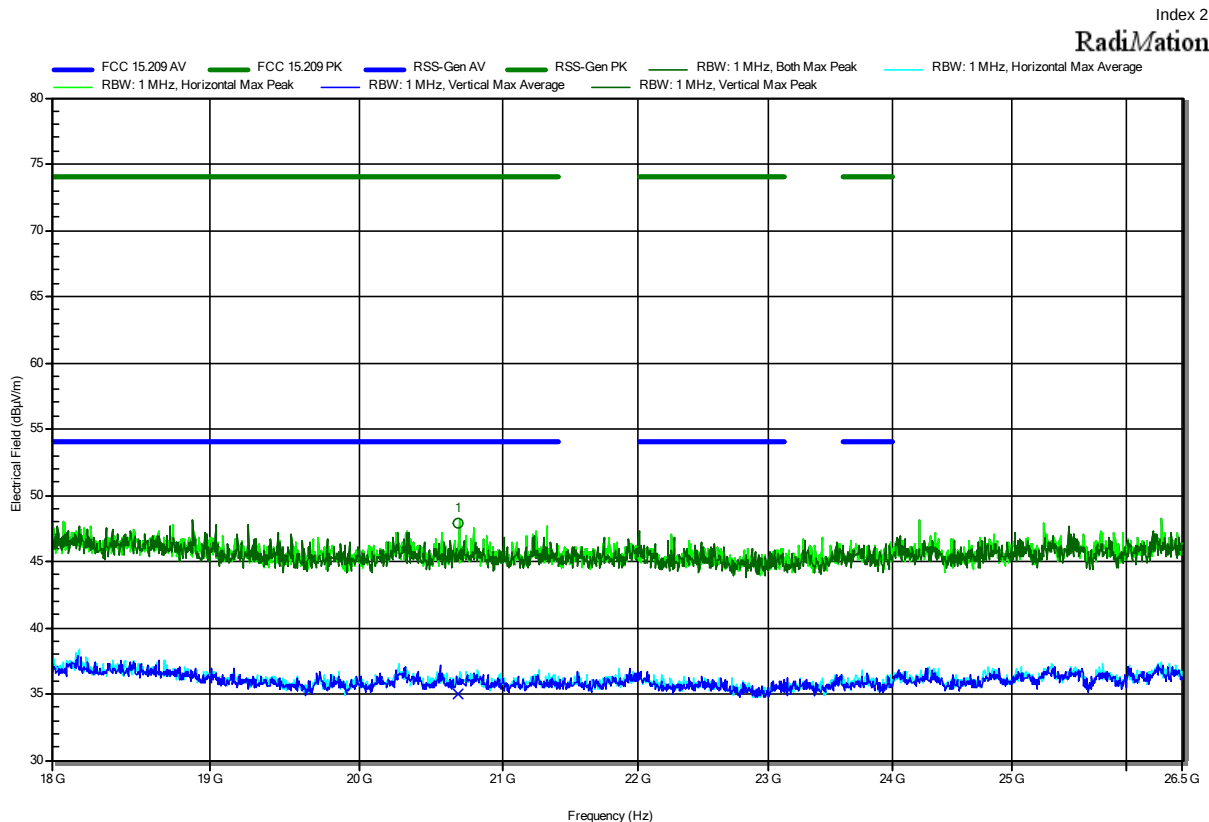
Project Number: G0M-2109-1013
 Applicant: wenglor sensoric GmbH
 Model Description: Bluetooth module
 Model: DC1392
 Test Sample ID: 41260
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Qawasmeh
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 24 °Celsius, Vnom: 5 VDC
 Antenna: Amplifier Research AT4560
 Measurement distance: 3 m
 Mode: Tx; BLE, 2402 MHz, 1 Mbit/s, PRBS9, 193 bytes, 88% DC, 6dBm Output Power
 Test Date: 2022-09-22
 Note:



Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
20.263 GHz	46 dBμV/m	74 dBμV/m	-28 dB	Pass	Vertical
Frequency	Average	Average Limit	Average Difference	Average Status	Polarization
20.263 GHz	35.57 dBμV/m	54 dBμV/m	-18.43 dB	Pass	Vertical

Radiated Spurious Emissions according to 47 CFR Part 15.247

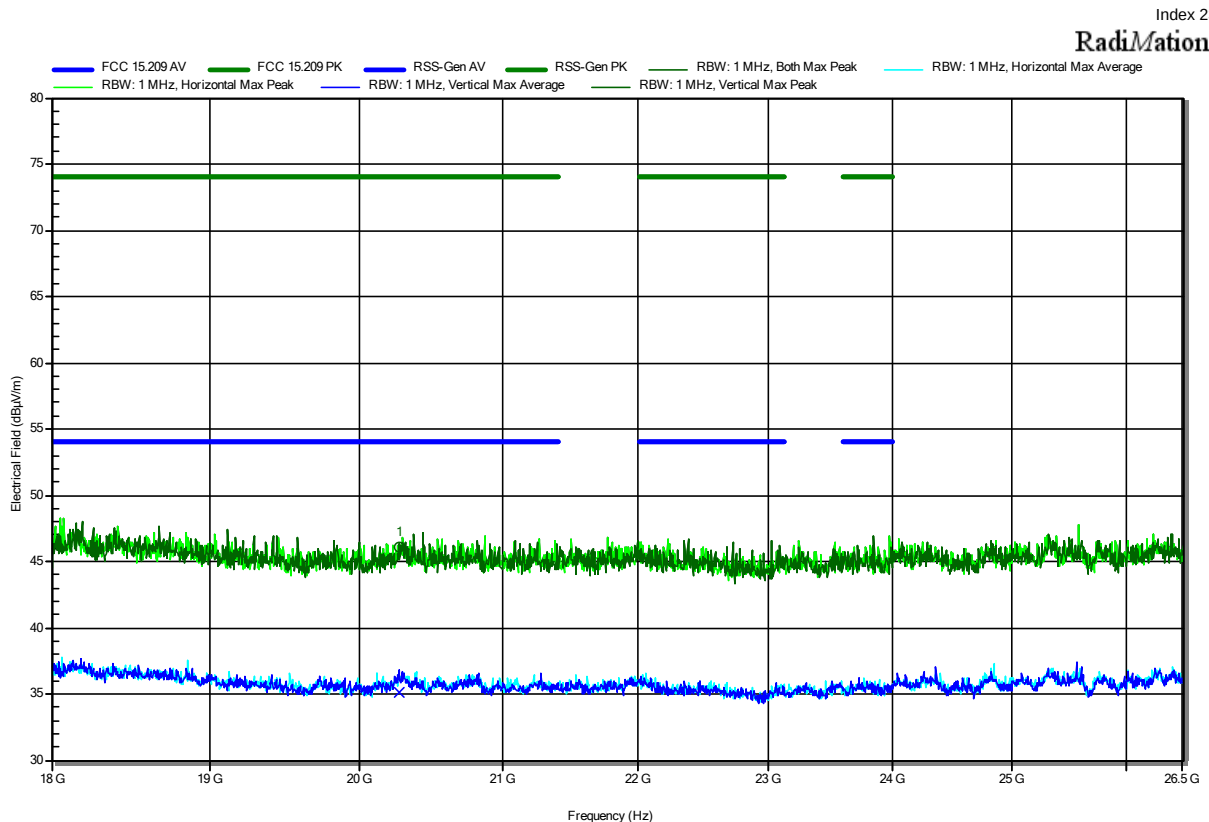
Project Number: G0M-2109-1013
 Applicant: wenglor sensoric GmbH
 Model Description: Bluetooth module
 Model: DC1392
 Test Sample ID: 41260
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Qawasmeh
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 24 °Celsius, Vnom: 5 VDC
 Antenna: Amplifier Research AT4560
 Measurement distance: 3 m
 Mode: Tx; BLE, 2440 MHz, 1 Mbit/s, PRBS9, 193 bytes, 88% DC, 6dBm Output Power
 Test Date: 2022-09-22
 Note:



Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
20.686 GHz	47.89 dBµV/m	74 dBµV/m	-26.11 dB	Pass	Horizontal
Frequency	Average	Average Limit	Average Difference	Average Status	Polarization
20.686 GHz	34.96 dBµV/m	54 dBµV/m	-19.04 dB	Pass	Horizontal

Radiated Spurious Emissions according to 47 CFR Part 15.247

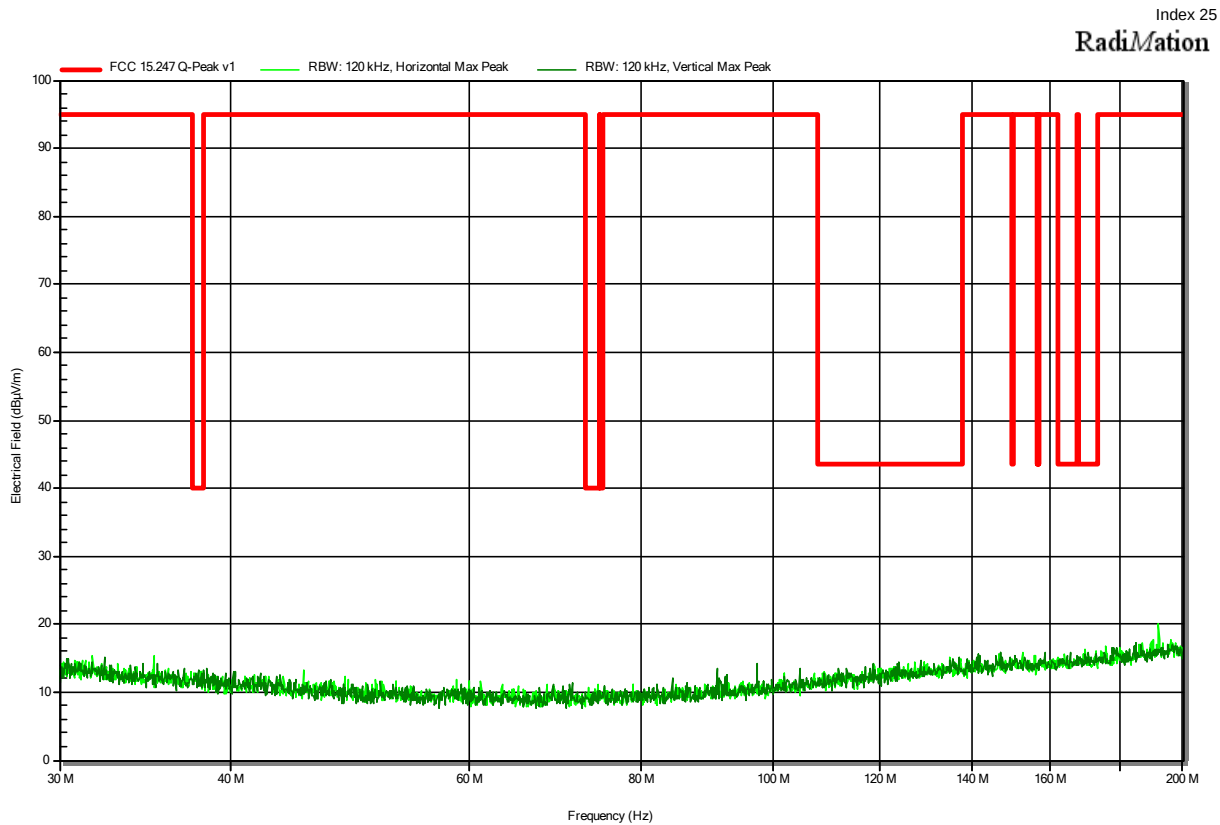
Project Number: G0M-2109-1013
 Applicant: wenglör sensoric GmbH
 Model Description: Bluetooth module
 Model: DC1392
 Test Sample ID: 41260
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Qawasmeh
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 24 °Celsius, Vnom: 5 VDC
 Antenna: Amplifier Research AT4560
 Measurement distance: 3 m
 Mode: Tx; BLE, 2480 MHz, 1 Mbit/s, PRBS9, 193 bytes, 88% DC, 6dBm Output Power
 Test Date: 2022-09-22
 Note:



Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
20.276 GHz	46.06 dBμV/m	74 dBμV/m	-27.94 dB	Pass	Horizontal
Frequency	Average	Average Limit	Average Difference	Average Status	Polarization
20.276 GHz	35.07 dBμV/m	54 dBμV/m	-18.93 dB	Pass	Horizontal

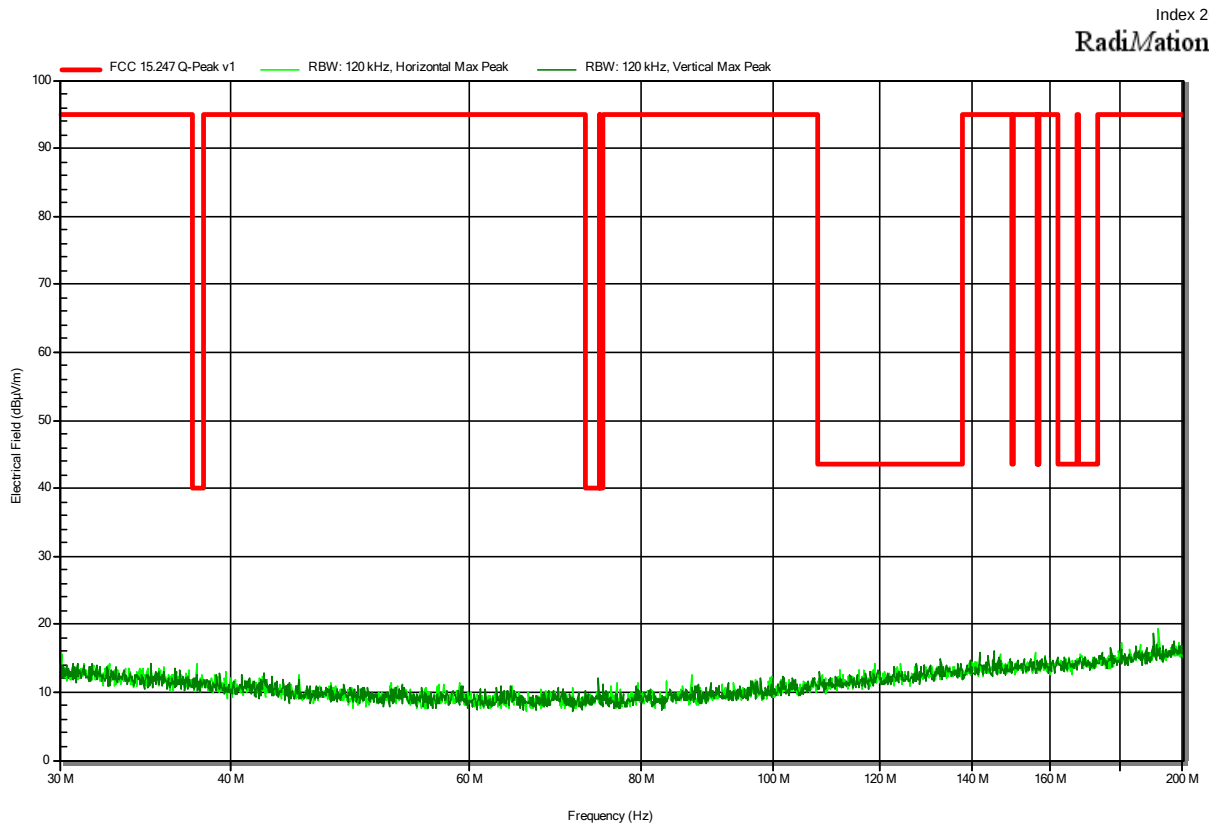
Radiated Spurious Emissions according to 47 CFR Part 15.247

Project Number: G0M-2109-1013
 Applicant: wenglor sensoric GmbH
 Model Description: Bluetooth module
 Model: DC1392
 Test Sample ID: 41260
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 24 °Celsius, Vnom: 5 VDC
 Antenna: Rohde & Schwarz HK 116
 Measurement distance: 3 m
 Mode: Tx; BLE, 2402 MHz, 2 Mbit/s, PRBS9, 239 bytes, 83% DC, 6dBm Output Power
 Test Date: 2022-09-23
 Note:



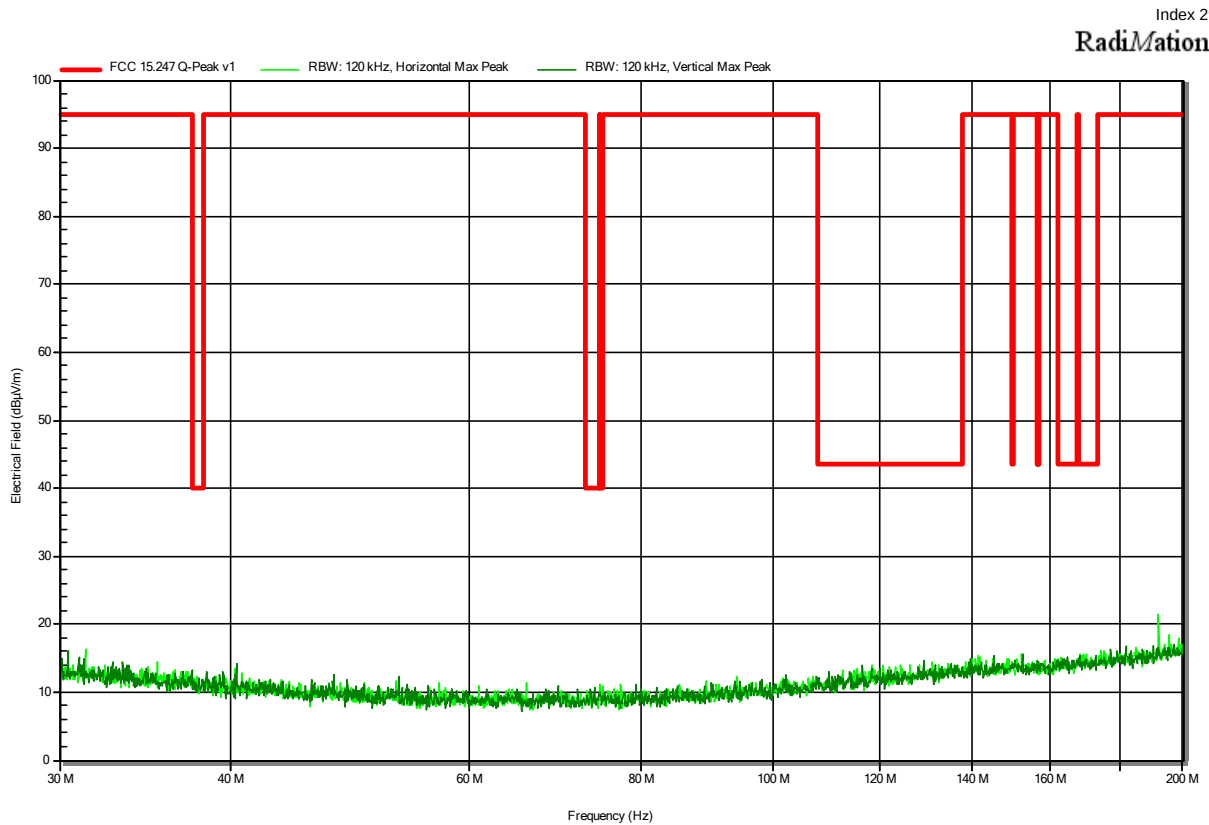
Radiated Spurious Emissions according to 47 CFR Part 15.247

Project Number: G0M-2109-1013
 Applicant: wenglor sensoric GmbH
 Model Description: Bluetooth module
 Model: DC1392
 Test Sample ID: 41260
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 24 °Celsius, Vnom: 5 VDC
 Antenna: Rohde & Schwarz HK 116
 Measurement distance: 3 m
 Mode: Tx; BLE, 2440 MHz, 2 Mbit/s, PRBS9, 239 bytes, 83% DC, 6dBm Output Power
 Test Date: 2022-09-23
 Note:



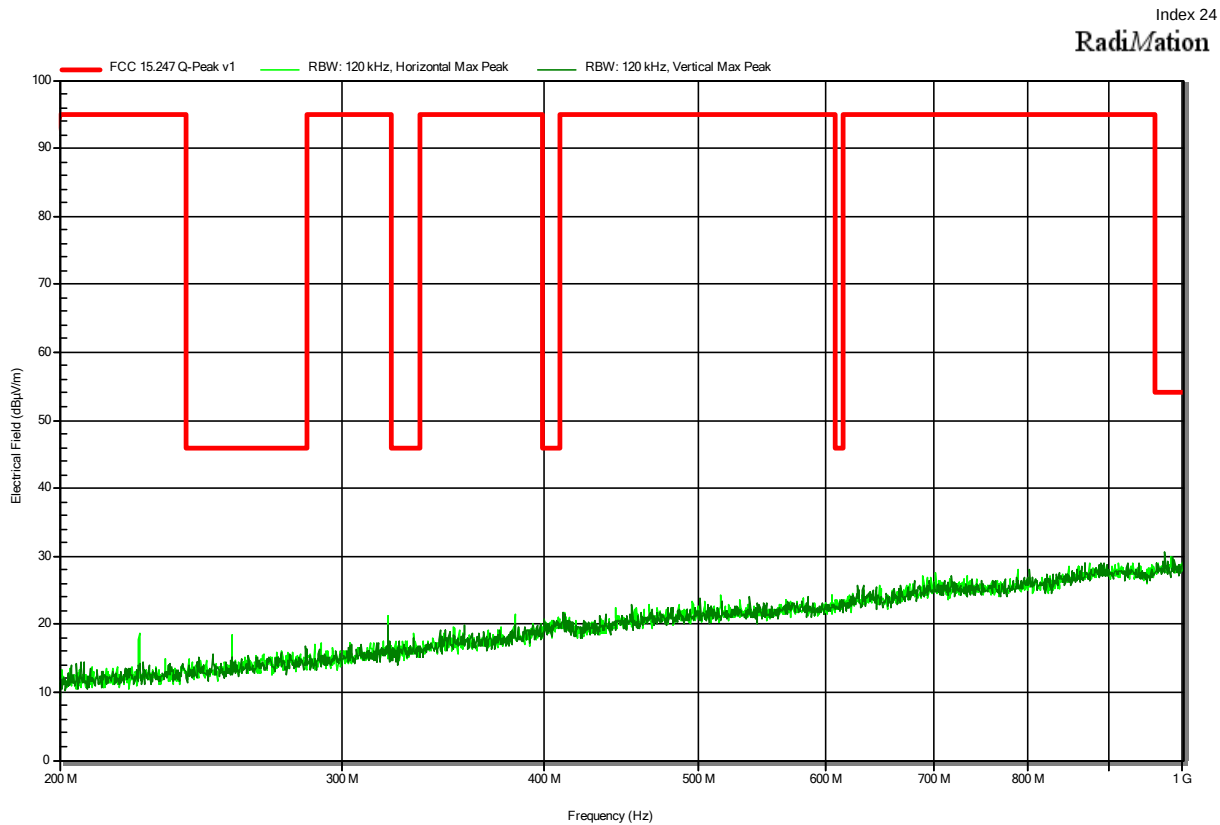
Radiated Spurious Emissions according to 47 CFR Part 15.247

Project Number: G0M-2109-1013
 Applicant: wenglor sensoric GmbH
 Model Description: Bluetooth module
 Model: DC1392
 Test Sample ID: 41260
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 24 °Celsius, Vnom: 5 VDC
 Antenna: Rohde & Schwarz HK 116
 Measurement distance: 3 m
 Mode: Tx; BLE, 2480 MHz, 2 Mbit/s, PRBS9, 239 bytes, 83% DC, 6dBm Output Power
 Test Date: 2022-09-23
 Note:



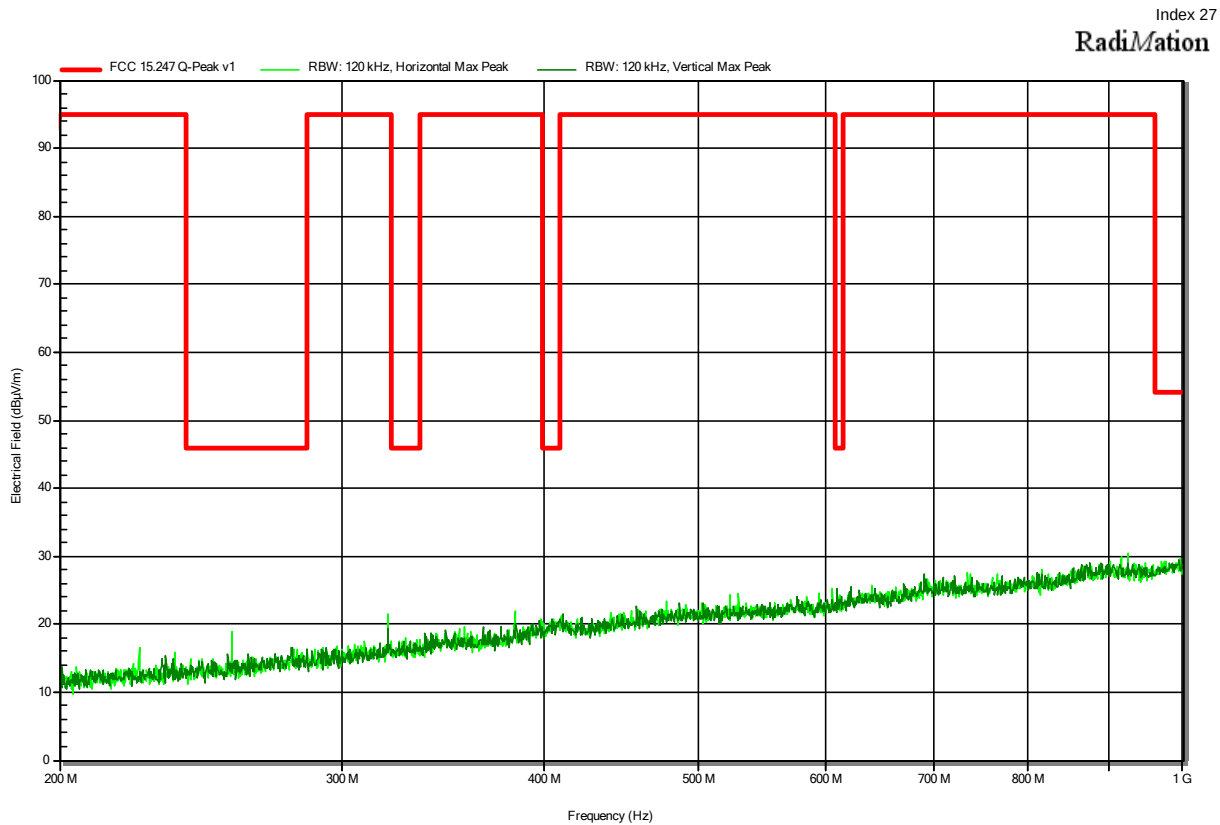
Radiated Spurious Emissions according to 47 CFR Part 15.247

Project Number: G0M-2109-1013
 Applicant: wenglor sensoric GmbH
 Model Description: Bluetooth module
 Model: DC1392
 Test Sample ID: 41260
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 24 °Celsius, Vnom: 5 VDC
 Antenna: Rohde & Schwarz HL 223
 Measurement distance: 3 m
 Mode: Tx; BLE, 2402 MHz, 2 Mbit/s, PRBS9, 239 bytes, 83% DC, 6dBm Output Power
 Test Date: 2022-09-23
 Note:



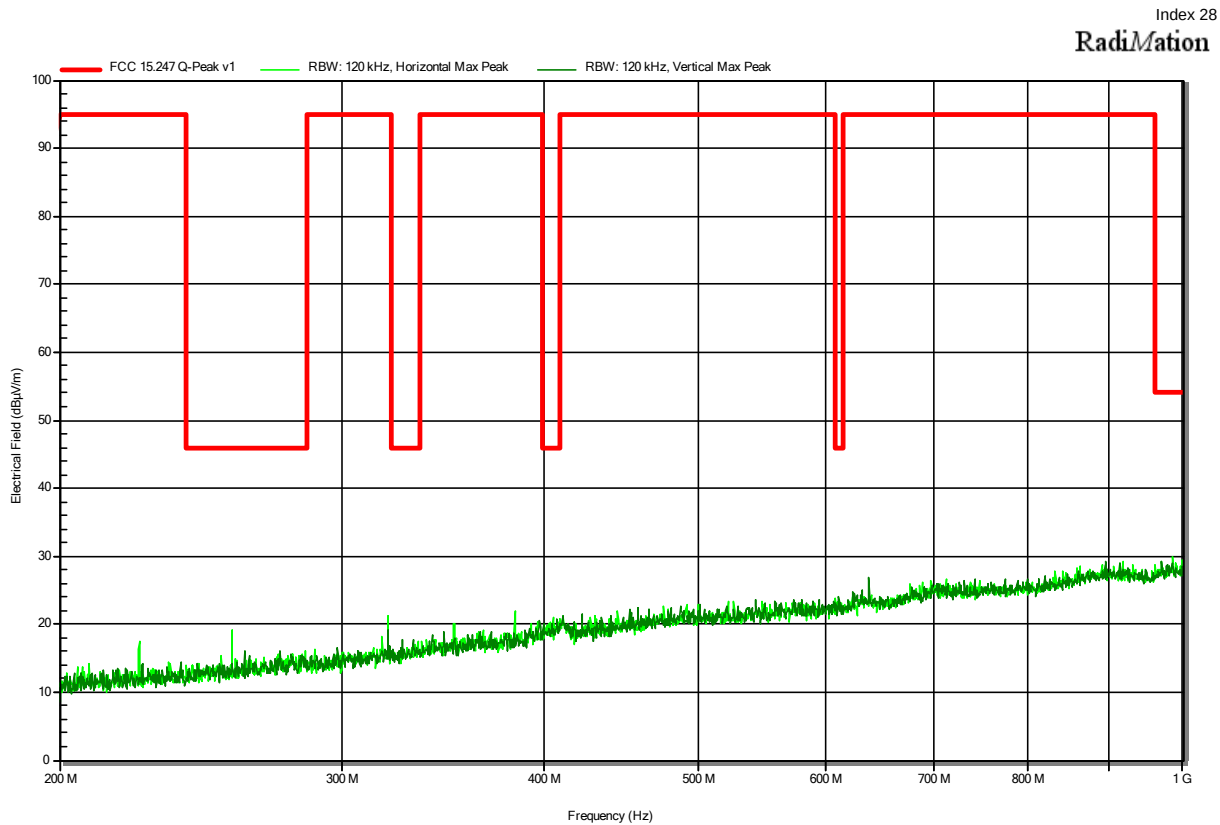
Radiated Spurious Emissions according to 47 CFR Part 15.247

Project Number: G0M-2109-1013
 Applicant: wenglor sensoric GmbH
 Model Description: Bluetooth module
 Model: DC1392
 Test Sample ID: 41260
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 24 °Celsius, Vnom: 5 VDC
 Antenna: Rohde & Schwarz HL 223
 Measurement distance: 3 m
 Mode: Tx; BLE, 2440 MHz, 2 Mbit/s, PRBS9, 239 bytes, 83% DC, 6dBm Output Power
 Test Date: 2022-09-23
 Note:



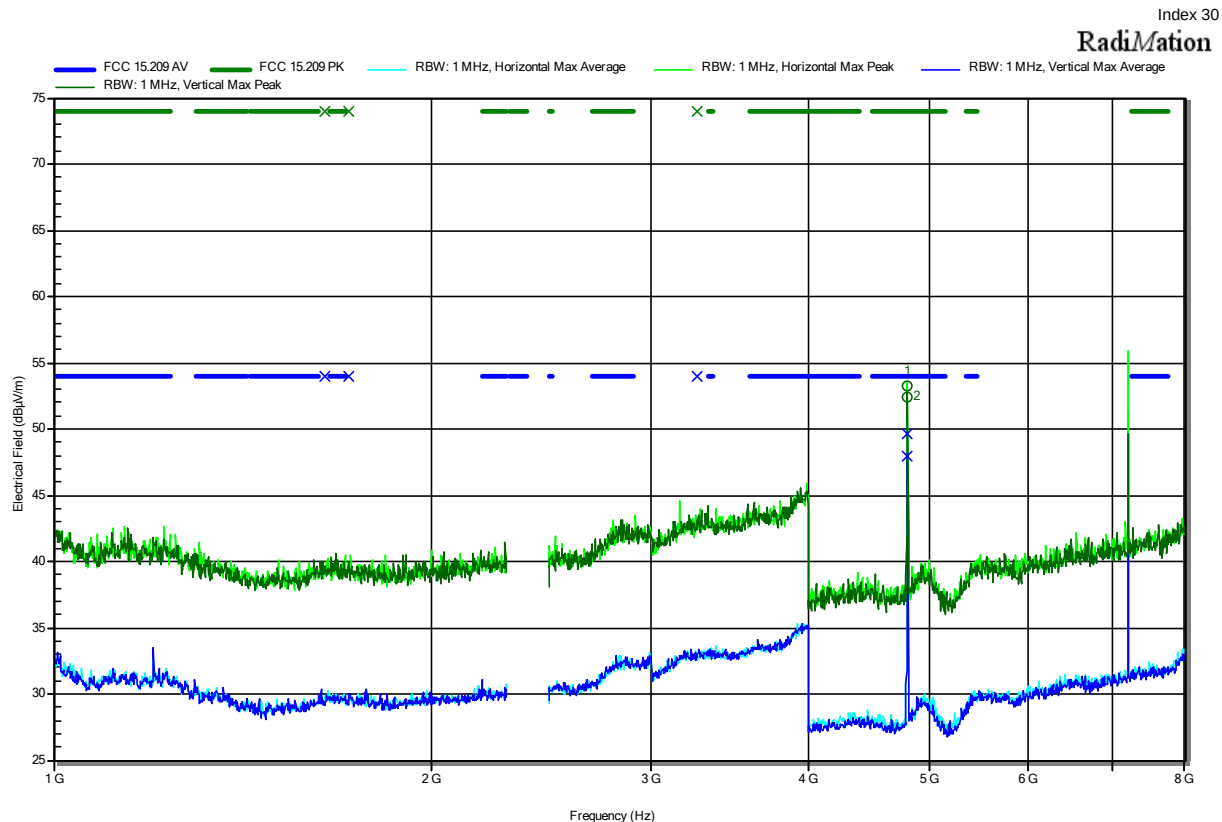
Radiated Spurious Emissions according to 47 CFR Part 15.247

Project Number: G0M-2109-1013
 Applicant: wenglor sensoric GmbH
 Model Description: Bluetooth module
 Model: DC1392
 Test Sample ID: 41260
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 24 °Celsius, Vnom: 5 VDC
 Antenna: Rohde & Schwarz HL 223
 Measurement distance: 3 m
 Mode: Tx; BLE, 2480 MHz, 2 Mbit/s, PRBS9, 239 bytes, 83% DC, 6dBm Output Power
 Test Date: 2022-09-23
 Note:



Radiated Spurious Emissions according to 47 CFR Part 15.247

Project Number: G0M-2109-1013
 Applicant: wenglor sensoric GmbH
 Model Description: Bluetooth module
 Model: DC1392
 Test Sample ID: 41260
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 24 °Celsius, Vnom: 5 VDC
 Antenna: Schwarzbeck BBHA 9120B
 Measurement distance: 3 m
 Mode: Tx; BLE, 2402 MHz, 2 Mbit/s, PRBS9, 239 bytes, 83% DC, 6dBm Output Power
 Test Date: 2022-09-23
 Note:



Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
4.804 GHz	53.3 dBμV/m	74 dBμV/m	-20.7 dB	Pass	Horizontal
4.804 GHz	52.46 dBμV/m	74 dBμV/m	-21.54 dB	Pass	Vertical

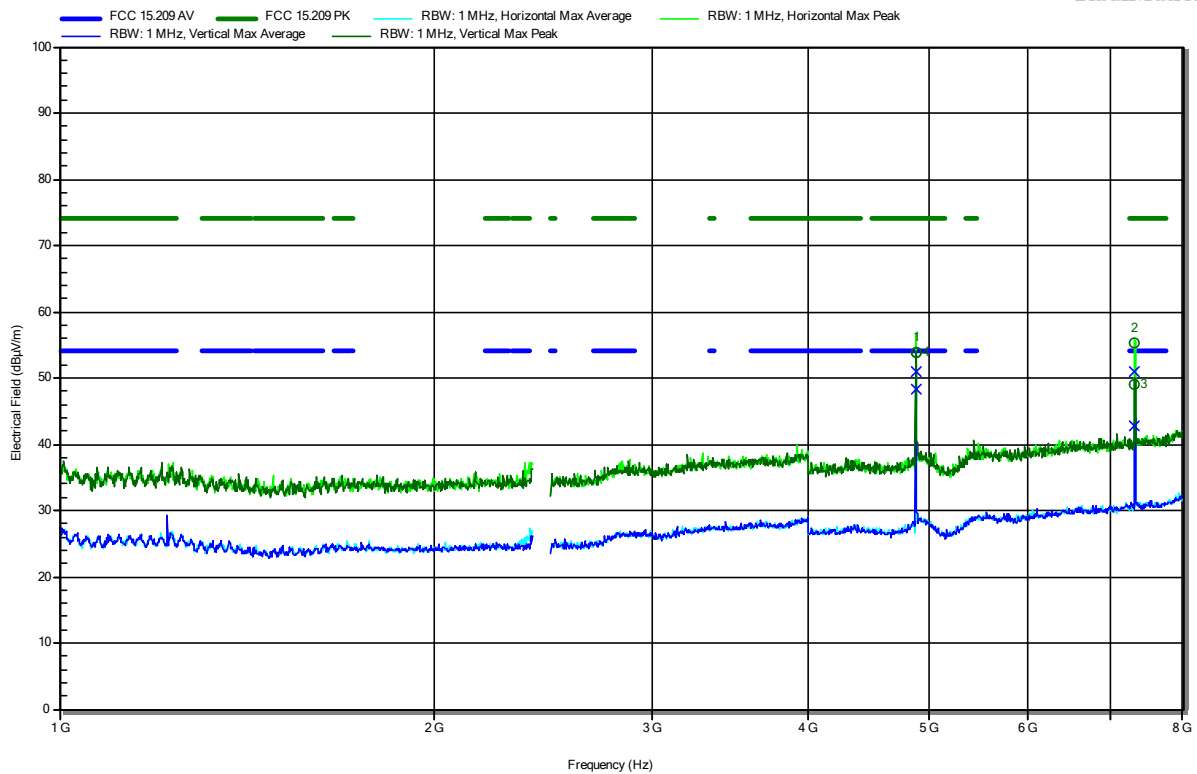
Frequency	Average	Average Limit	Average Difference	Average Status	Polarization
4.804 GHz	49.62 dBμV/m	54 dBμV/m	-4.38 dB	Pass	Horizontal
4.804 GHz	47.98 dBμV/m	54 dBμV/m	-6.02 dB	Pass	Vertical

Radiated Spurious Emissions according to 47 CFR Part 15.247

Project Number: G0M-2109-1013
 Applicant: wenglor sensoric GmbH
 Model Description: Bluetooth module
 Model: DC1392
 Test Sample ID: 41260
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 24 °Celsius, Vnom: 5 VDC
 Antenna: Schwarzbeck BBHA 9120B
 Measurement distance: 3 m
 Mode: Tx; BLE, 2440 MHz, 2 Mbit/s, PRBS9, 239 bytes, 83% DC, 6dBm Output Power
 Test Date: 2022-09-23
 Note:

Index 31

RadiMation



Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
4.8791 GHz	53.75 dBμV/m	74 dBμV/m	-20.25 dB	Pass	Vertical
4.88 GHz	53.91 dBμV/m	74 dBμV/m	-20.09 dB	Pass	Vertical
7.3201 GHz	55.38 dBμV/m	74 dBμV/m	-18.62 dB	Pass	Horizontal
7.3201 GHz	49.11 dBμV/m	74 dBμV/m	-24.89 dB	Pass	Vertical
Frequency	Average	Average Limit	Average Difference	Average Status	Polarization
4.8791 GHz	48.23 dBμV/m	54 dBμV/m	-5.77 dB	Pass	Vertical
4.88 GHz	50.94 dBμV/m	54 dBμV/m	-3.06 dB	Pass	Vertical
7.3201 GHz	50.97 dBμV/m	54 dBμV/m	-3.03 dB	Pass	Horizontal
7.3201 GHz	42.81 dBμV/m	54 dBμV/m	-11.19 dB	Pass	Vertical

Test Report No.: G0M-2109-1013-TFC247BL-V01

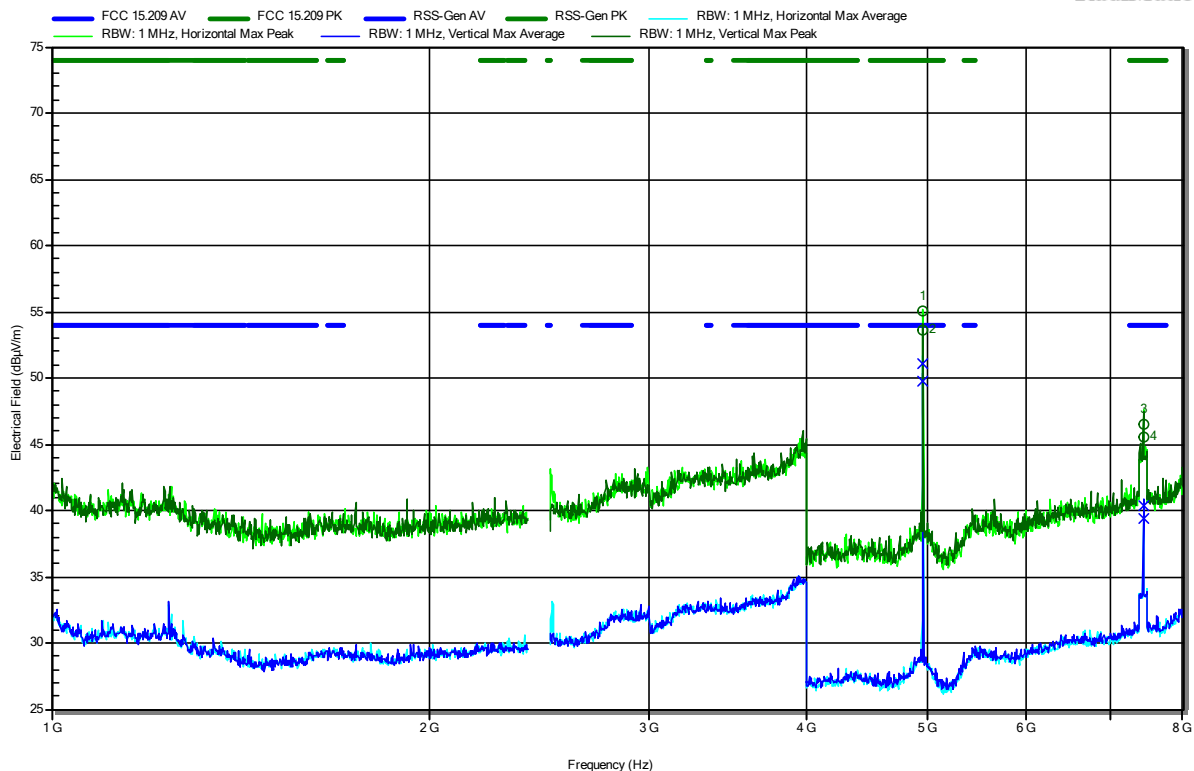
Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Radiated Spurious Emissions according to 47 CFR Part 15.247

Project Number: G0M-2109-1013
 Applicant: wenglor sensoric GmbH
 Model Description: Bluetooth module
 Model: DC1392
 Test Sample ID: 41260
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 24 °Celsius, Vnom: 5 VDC
 Antenna: Schwarzbeck BBHA 9120B
 Measurement distance: 3 m
 Mode: Tx; BLE, 2480 MHz, 2 Mbit/s, PRBS9, 239 bytes, 83% DC, 6dBm Output Power
 Test Date: 2022-09-26
 Note:

Index 33

RadiMation



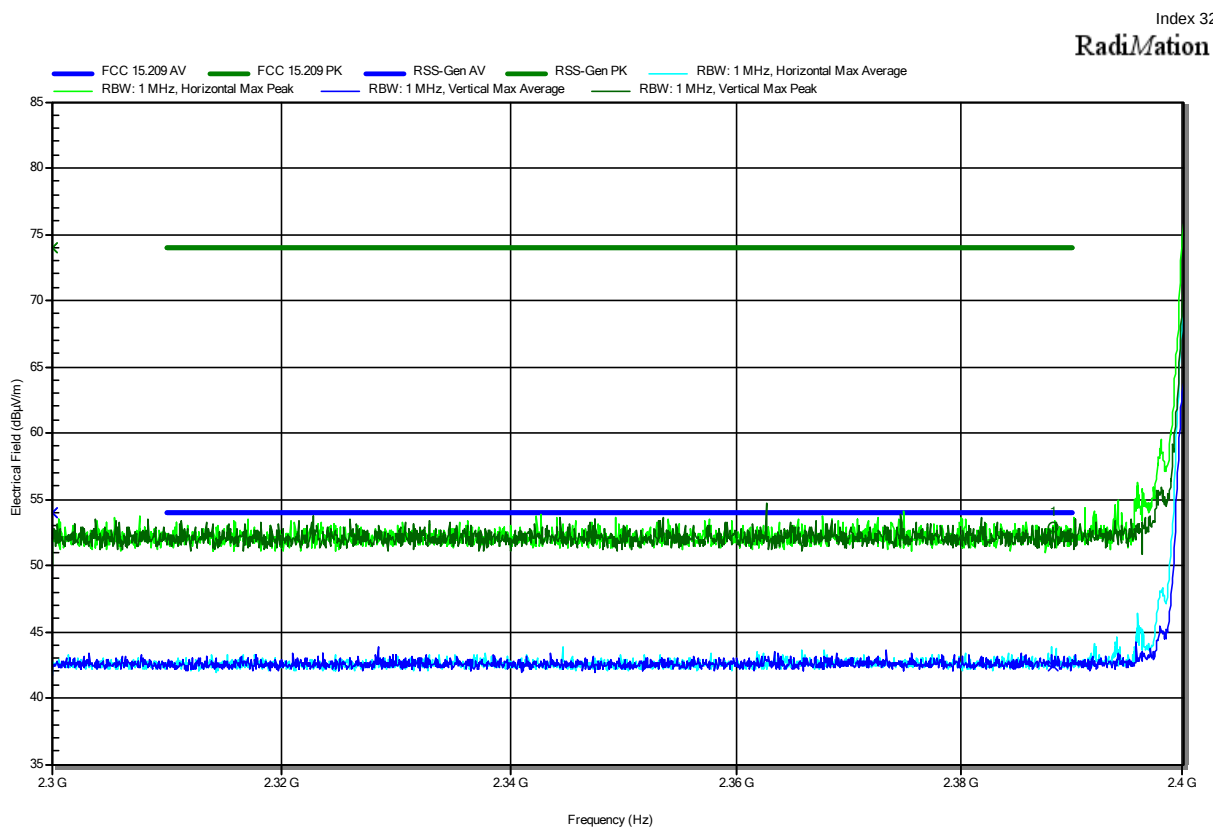
Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
4.96 GHz	55.01 dBµV/m	74 dBµV/m	-18.99 dB	Pass	Horizontal
4.96 GHz	53.6 dBµV/m	74 dBµV/m	-20.4 dB	Pass	Vertical
7.44 GHz	46.45 dBµV/m	74 dBµV/m	-27.55 dB	Pass	Vertical
7.44 GHz	45.56 dBµV/m	74 dBµV/m	-28.44 dB	Pass	Horizontal
Frequency	Average	Average Limit	Average Difference	Average Status	Polarization
4.96 GHz	51.05 dBµV/m	54 dBµV/m	-2.95 dB	Pass	Horizontal
4.96 GHz	49.77 dBµV/m	54 dBµV/m	-4.23 dB	Pass	Vertical
7.44 GHz	40.32 dBµV/m	54 dBµV/m	-13.68 dB	Pass	Vertical
7.44 GHz	39.4 dBµV/m	54 dBµV/m	-14.6 dB	Pass	Horizontal

Test Report No.: G0M-2109-1013-TFC247BL-V01

Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Radiated Spurious Emissions according to 47 CFR Part 15.247

Project Number: G0M-2109-1013
 Applicant: wenglor sensoric GmbH
 Model Description: Bluetooth module
 Model: DC1392
 Test Sample ID: 41260
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 24 °Celsius, Vnom: 5 VDC
 Antenna: Schwarzbeck BBHA 9120B
 Measurement distance: 3 m
 Mode: Tx; BLE, 2402 MHz, 2 Mbit/s, PRBS9, 239 bytes, 83% DC, 6dBm Output Power
 Test Date: 2022-09-23
 Note: lower bandedge



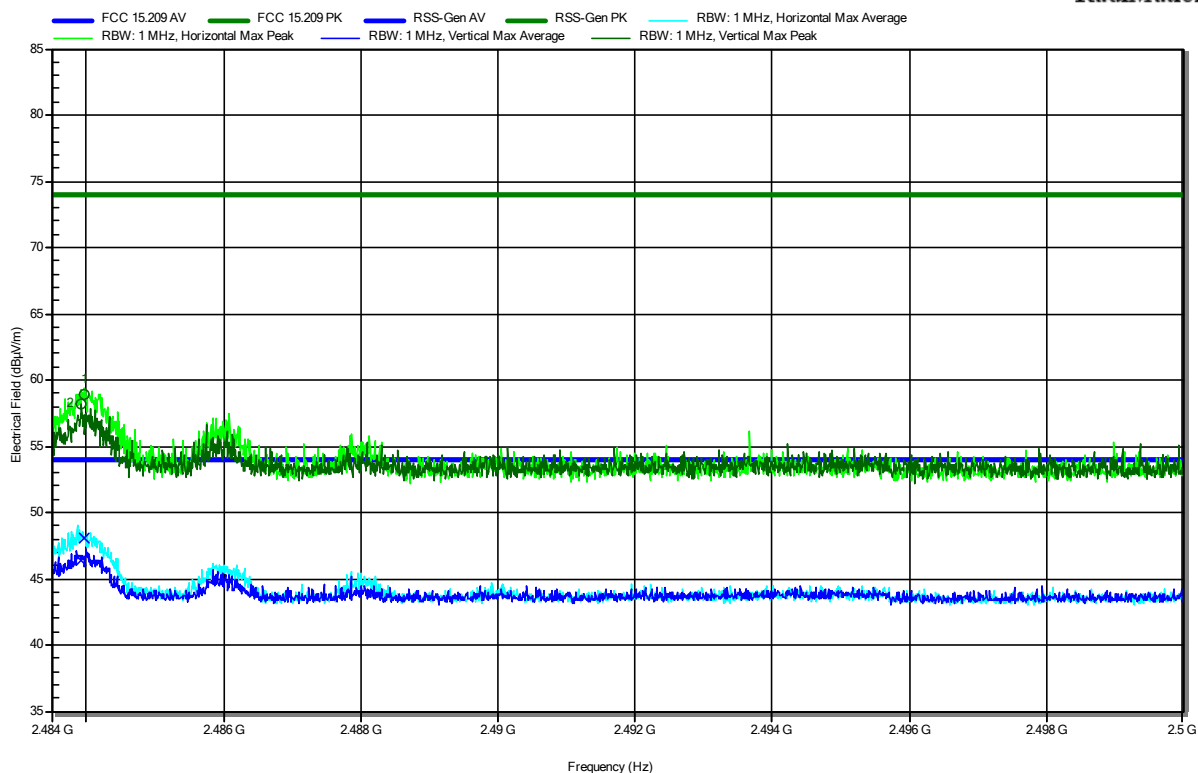
Frequency 2.3883 GHz	Peak 52.84 dBµV/m	Peak Limit 74 dBµV/m	Peak Difference -21.16 dB	Peak Status Pass	Polarization Horizontal
Frequency 2.3883 GHz	Average 42.44 dBµV/m	Average Limit 54 dBµV/m	Average Difference -11.56 dB	Average Status Pass	Polarization Horizontal

Radiated Spurious Emissions according to 47 CFR Part 15.247

Project Number: G0M-2109-1013
 Applicant: wenglor sensoric GmbH
 Model Description: Bluetooth module
 Model: DC1392
 Test Sample ID: 41260
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Voigt
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 24 °Celsius, Vnom: 5 VDC
 Antenna: Schwarzbeck BBHA 9120B
 Measurement distance: 3 m
 Mode: Tx; BLE, 2480 MHz, 2 Mbit/s, PRBS9, 239 bytes, 83% DC, 6dBm Output Power
 Test Date: 2022-09-26
 Note: upper bandedge

Index 34

RadiMation



Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
2.4839 GHz	58.13 dBμV/m	74 dBμV/m	-15.87 dB	Pass	Vertical
2.484 GHz	58.89 dBμV/m	74 dBμV/m	-15.11 dB	Pass	Horizontal

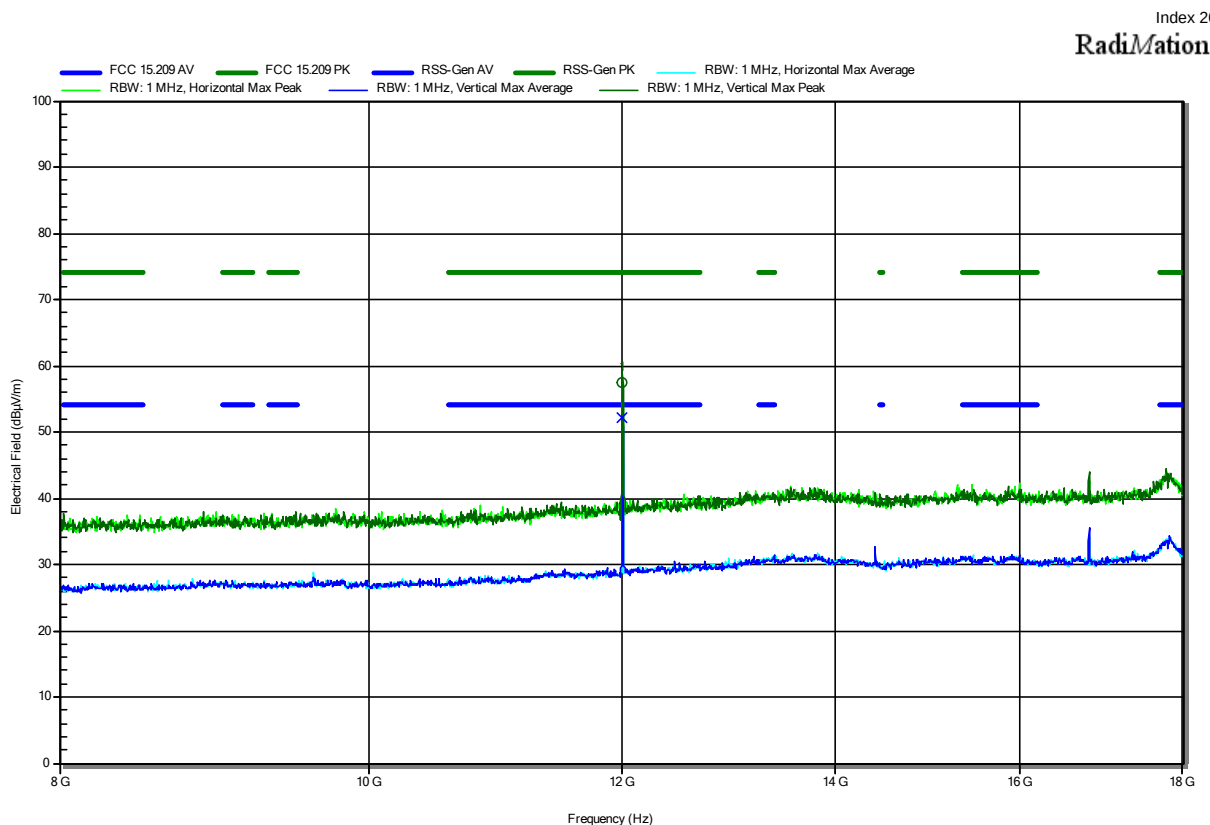
Frequency	Average	Average Limit	Average Difference	Average Status	Polarization
2.4839 GHz	46.36 dBμV/m	54 dBμV/m	-7.64 dB	Pass	Vertical
2.484 GHz	48.09 dBμV/m	54 dBμV/m	-5.91 dB	Pass	Horizontal

Test Report No.: G0M-2109-1013-TFC247BL-V01

Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Radiated Spurious Emissions according to 47 CFR Part 15.247

Project Number: G0M-2109-1013
 Applicant: wenglor sensoric GmbH
 Model Description: Bluetooth module
 Model: DC1392
 Test Sample ID: 41260
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Qawasmeh
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 23 °Celsius, Vnom: 5 VDC
 Antenna: Schwarzbeck HWRD 650
 Measurement distance: 3 m
 Mode: Tx; BLE, 2402 MHz, 2 Mbit/s, PRBS9, 239 bytes, 83% DC, 6dBm Output Power
 Test Date: 2022-09-22
 Note:



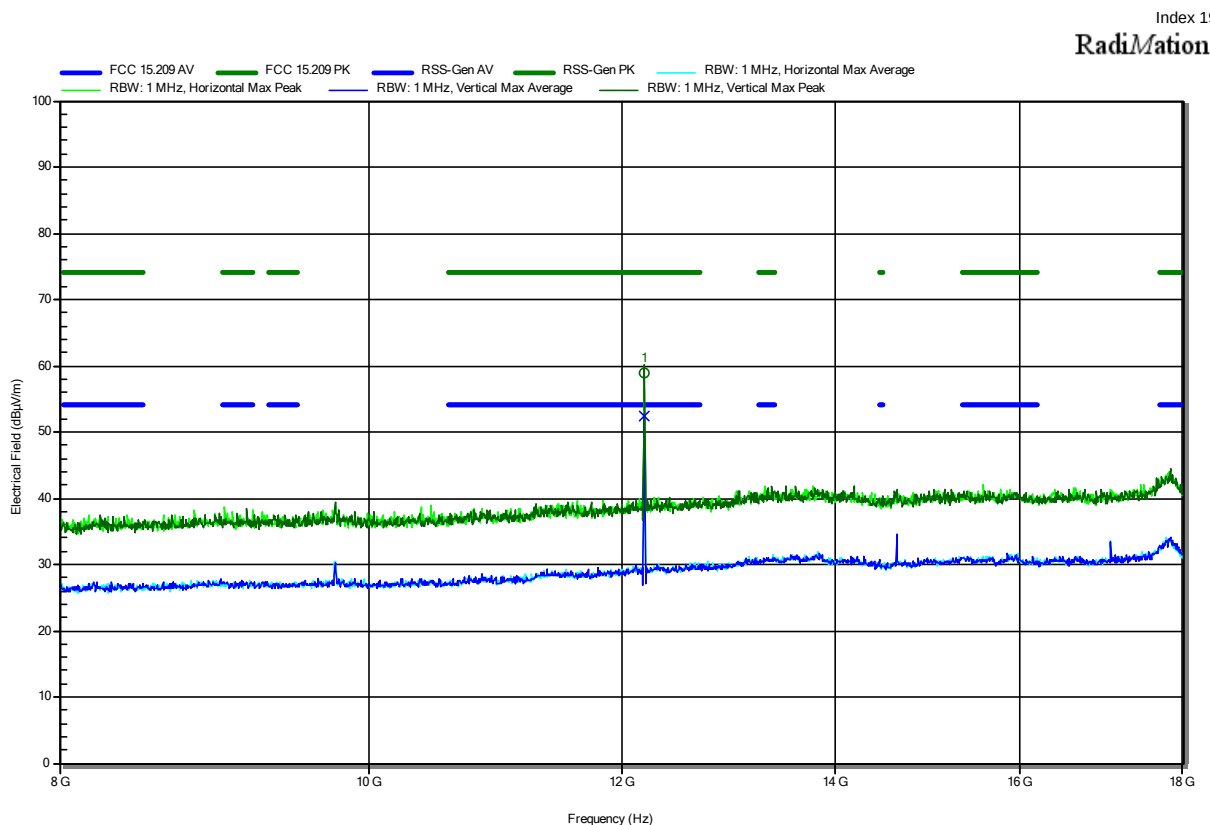
Frequency 12.008 GHz	Peak 57.42 dBμV/m	Peak Limit 74 dBμV/m	Peak Difference -16.58 dB	Peak Status Pass	Polarization Vertical
Frequency 12.008 GHz	Average 52.26 dBμV/m	Average Limit 54 dBμV/m	Average Difference -1.74 dB	Average Status Pass	Polarization Vertical

Test Report No.: G0M-2109-1013-TFC247BL-V01

Eurofins Product Service GmbH
Storkower Str. 38c, D-15526 Reichenwalde, Germany

Radiated Spurious Emissions according to 47 CFR Part 15.247

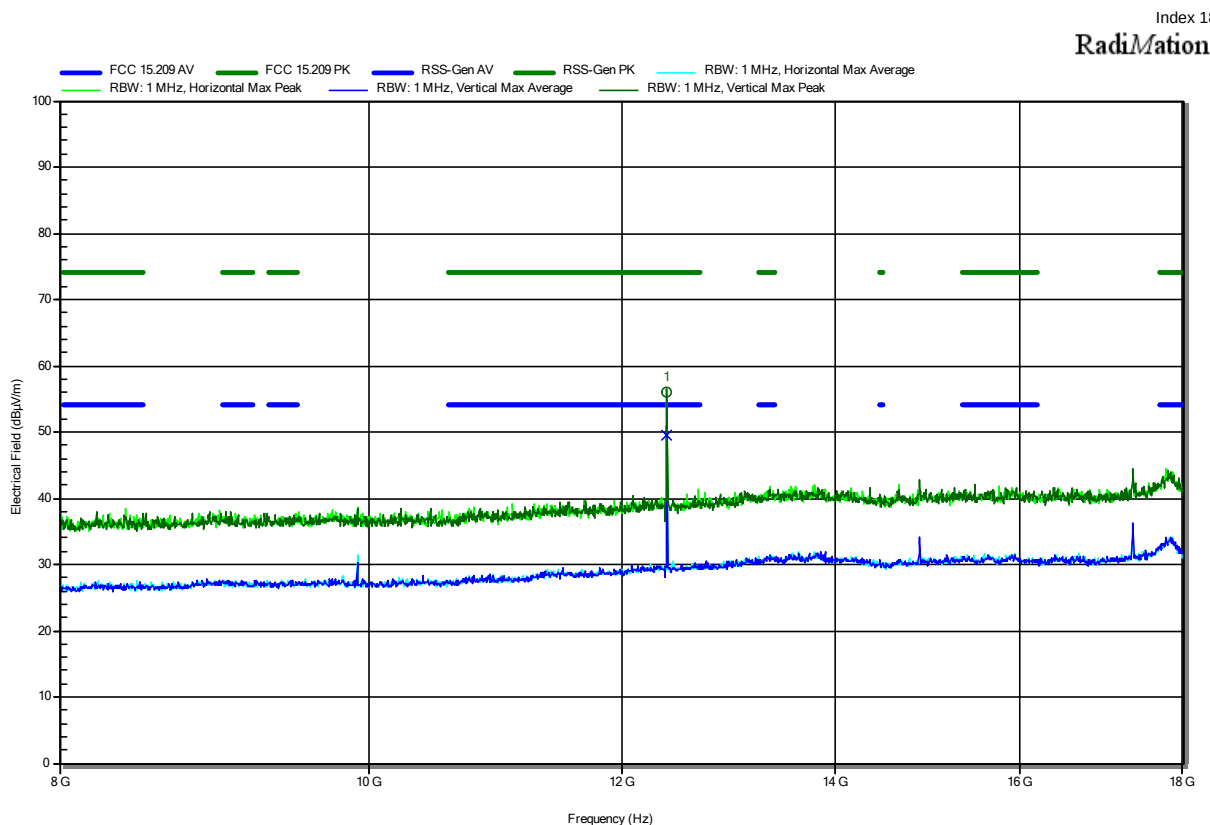
Project Number: G0M-2109-1013
 Applicant: wenglor sensoric GmbH
 Model Description: Bluetooth module
 Model: DC1392
 Test Sample ID: 41260
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Qawasmeh
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 23 °Celsius, Vnom: 5 VDC
 Antenna: Schwarzbeck HWRD 650
 Measurement distance: 3 m
 Mode: Tx; BLE, 2440 MHz, 2 Mbit/s, PRBS9, 239 bytes, 83% DC, 6dBm Output Power
 Test Date: 2022-09-22
 Note:



Frequency 12.198 GHz	Peak 59.03 dBµV/m	Peak Limit 74 dBµV/m	Peak Difference -14.97 dB	Peak Status Pass	Polarization Vertical
Frequency 12.198 GHz	Average 52.45 dBµV/m	Average Limit 54 dBµV/m	Average Difference -1.55 dB	Average Status Pass	Polarization Vertical

Radiated Spurious Emissions according to 47 CFR Part 15.247

Project Number: G0M-2109-1013
 Applicant: wenglor sensoric GmbH
 Model Description: Bluetooth module
 Model: DC1392
 Test Sample ID: 41260
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Qawasmeh
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 23 °Celsius, Vnom: 5 VDC
 Antenna: Schwarzbeck HWRD 650
 Measurement distance: 3 m
 Mode: Tx; BLE, 2480 MHz, 2 Mbit/s, PRBS9, 239 bytes, 83% DC, 6dBm Output Power
 Test Date: 2022-09-22
 Note:



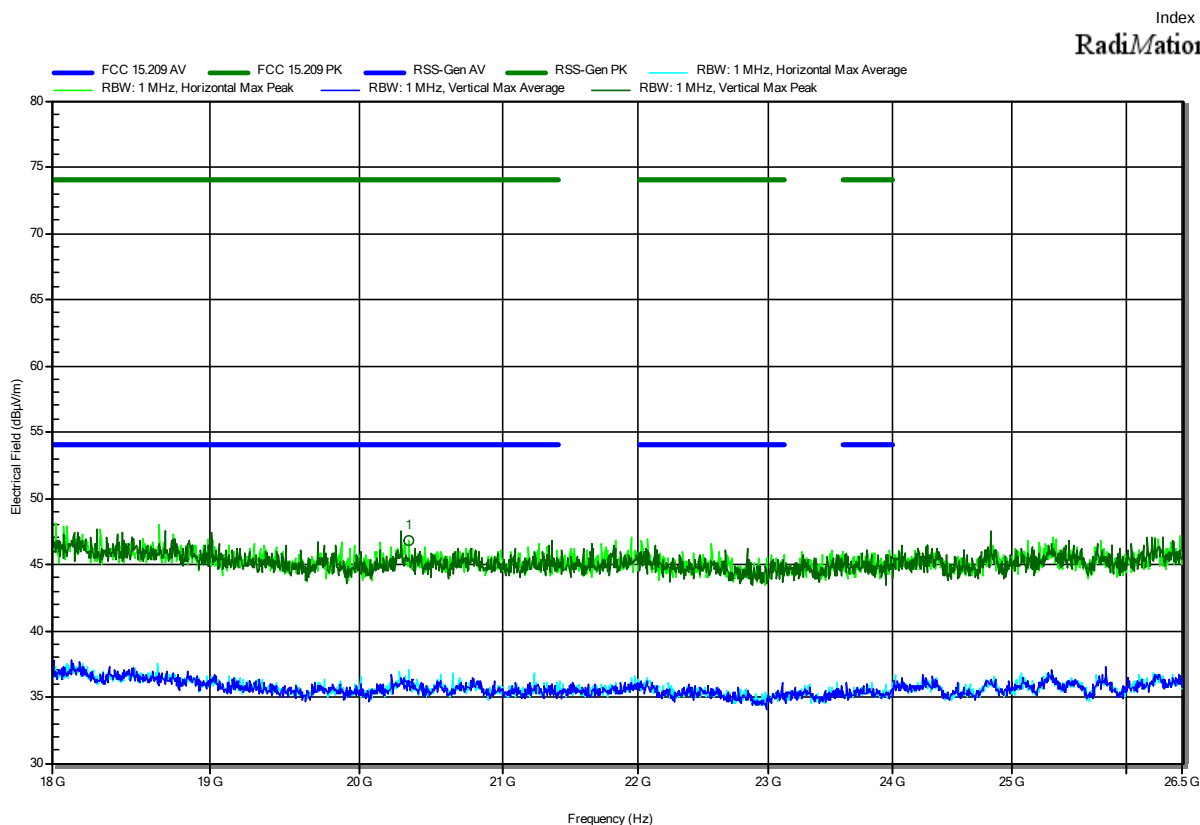
Frequency 12.398 GHz	Peak 55.97 dBµV/m	Peak Limit 74 dBµV/m	Peak Difference -18.03 dB	Peak Status Pass	Polarization Vertical
Frequency 12.398 GHz	Average 49.59 dBµV/m	Average Limit 54 dBµV/m	Average Difference -4.41 dB	Average Status Pass	Polarization Vertical

Test Report No.: G0M-2109-1013-TFC247BL-V01

Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Radiated Spurious Emissions according to 47 CFR Part 15.247

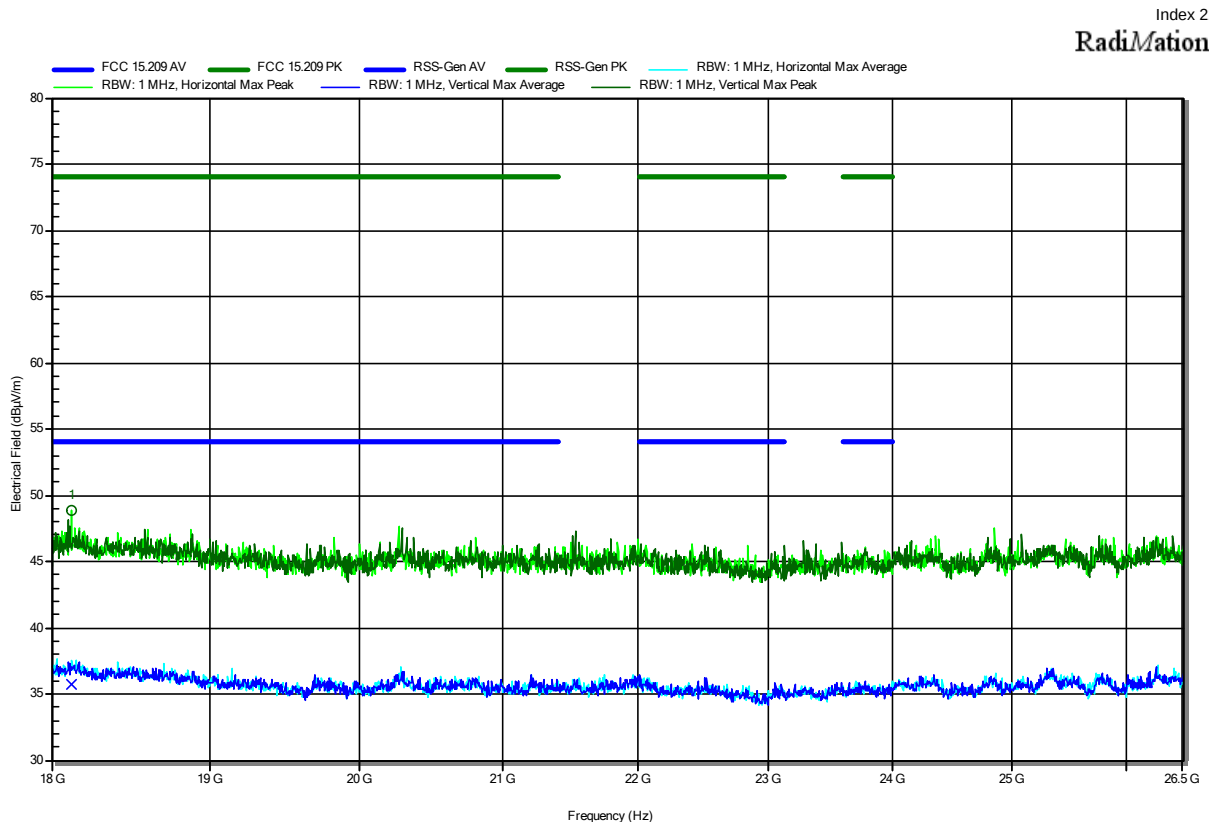
Project Number: G0M-2109-1013
 Applicant: wenglor sensoric GmbH
 Model Description: Bluetooth module
 Model: DC1392
 Test Sample ID: 41260
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Qawasmeh
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 23 °Celsius, Vnom: 5 VDC
 Antenna: Amplifier Research AT4560
 Measurement distance: 3 m
 Mode: Tx; BLE, 2402 MHz, 2 Mbit/s, PRBS9, 239 bytes, 83% DC, 6dBm Output Power
 Test Date: 2022-09-22
 Note:



Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
20.342 GHz	46.85 dBμV/m	74 dBμV/m	-27.15 dB	Pass	Horizontal
Frequency	Average	Average Limit	Average Difference	Average Status	Polarization
20.342 GHz	35.91 dBμV/m	54 dBμV/m	-18.09 dB	Pass	Horizontal

Radiated Spurious Emissions according to 47 CFR Part 15.247

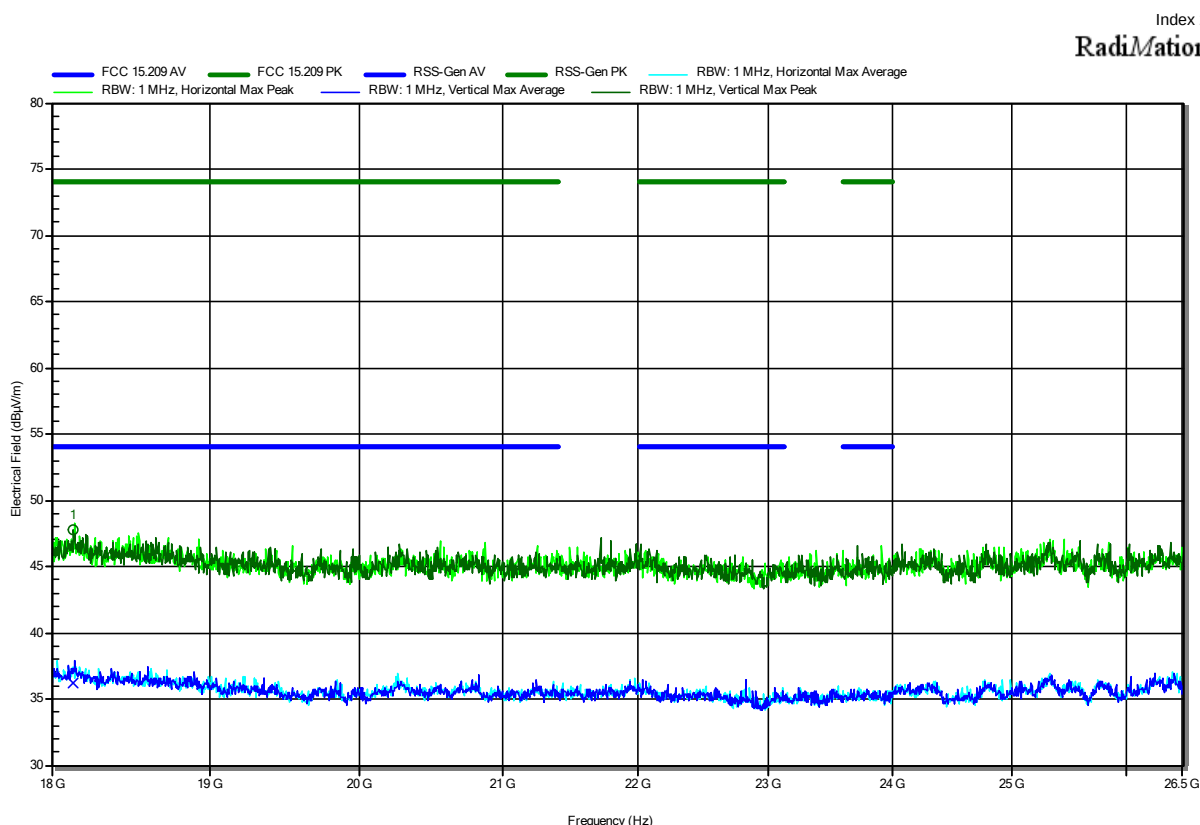
Project Number: G0M-2109-1013
 Applicant: wenglor sensoric GmbH
 Model Description: Bluetooth module
 Model: DC1392
 Test Sample ID: 41260
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Qawasmeh
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 23 °Celsius, Vnom: 5 VDC
 Antenna: Amplifier Research AT4560
 Measurement distance: 3 m
 Mode: Tx; BLE, 2440 MHz, 2 Mbit/s, PRBS9, 239 bytes, 83% DC, 6dBm Output Power
 Test Date: 2022-09-22
 Note:



Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
18.121 GHz	48.84 dBμV/m	74 dBμV/m	-25.16 dB	Pass	Horizontal
Frequency	Average	Average Limit	Average Difference	Average Status	Polarization
18.121 GHz	35.74 dBμV/m	54 dBμV/m	-18.26 dB	Pass	Horizontal

Radiated Spurious Emissions according to 47 CFR Part 15.247

Project Number: G0M-2109-1013
 Applicant: wenglor sensoric GmbH
 Model Description: Bluetooth module
 Model: DC1392
 Test Sample ID: 41260
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Qawasmeh
 Measurement software: RadiMation, version 2020.1.8
 Test Conditions: Tnom: 23 °Celsius, Vnom: 5 VDC
 Antenna: Amplifier Research AT4560
 Measurement distance: 3 m
 Mode: Tx; BLE, 2480 MHz, 2 Mbit/s, PRBS9, 239 bytes, 83% DC, 6dBm Output Power
 Test Date: 2022-09-22
 Note:



Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
18.132 GHz	47.74 dBµV/m	74 dBµV/m	-26.26 dB	Pass	Vertical
Frequency	Average	Average Limit	Average Difference	Average Status	Polarization
18.132 GHz	36.15 dBµV/m	54 dBµV/m	-17.85 dB	Pass	Vertical

== = END OF TEST REPORT == =

Test Report No.: G0M-2109-1013-TFC247BL-V01

Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany