RADIO REPORT

FCC 47 CFR Part 15C
ISED Canada RSS-247

Digital transmission systems operating within the 2400.0 MHz - 2483.5 MHz band

Report Reference No	G0M-2205-1483-TFC247BL-V02
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	Kistler Instrumente AG
Address	Eulachstrasse 22 8408 Winterthur 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	Handheld measurement device
Model(s)	5811A00
Additional Model(s)	None
Brand Name(s)	None
Hardware Version(s)	A
Software Version(s)	1.0
FCC ID	2AWIT-5811A
IC	28487-5811A
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	2022-06-23	
Report:		
Compiled by	Radwan Jaafar	
Tested by (+ signature) (Responsible for Test)	Radwan Jaafar	 .....
Approved by (+ signature) (Test Lab Engineer)	Wilfried Treffke	 .....
Date of Issue	2024-01-12	
Total number of pages	67	
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	Handheld measurement device
	Model name	5811A01
	Brand name	N/A
	Hardware Version	A
	Software Version	1.00
	FCC ID	2AWIT-5811A
	IC	28487-5811A
	PMN	Handheld I/O-Link
	HVIN	5811A01
	FVIN	1.0
	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	2023-11-16	Initial Release	--
02	2024-01-12	Replaced document: G0M-2205-1483-TFC247BL-V01 Replaced by: G0M-2205-1483-TFC247BL-V02 Reason: - Add Additional Variants (not tested) -page 3- - Correction of the antenna gain on section 1. - Add EIRP test results for IC on section 3.1. - Editorial correction to AC powerline conducted emissions on section 3.2.	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	Handheld measurement device	
Model	5811A00	
Additional Model(s)	None	
Brand Name(s)	None	
Serial Number(s)	Prototype Radiated Test Sample ID 40272	
Hardware Version(s)	A	
Software Version(s)	1.0	
PMN	Handheld Charge	
HVIN	5811A00	
FVIN	1.0	
HMN	n/a	
FCC ID	2AWIT-5811A	
IC	28487-5811A	
Equipment type	End Product	
Radio type	Transceiver	
Assigned frequency bands	2400.0 MHz - 2483.5 MHz	
Radio technology	Bluetooth LE 5.0	
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	
Radio Module	Type	Bluetooth + Wifi module
	Model	Jody-W263
	Manufacturer	U-Blox
	HW Version	Not specified
	SW Version	Not specified
	FCC-ID	XPYJODYW263
	IC	8595A-JODYW263
Antenna	Type	Integrated
	Model	PCB Inverted-F
	Manufacturer	Kistler Instrumente AG
	Gain	3.3 dBi
Supply Voltage	V_{NOM}	5 VDC / 7.2 VDC (Battery)
Operating Temperature	T_{NOM}	25 °C
AC/DC-Adaptor	Model	BI18L-050300-I
	Vendor	EGSTION
	Input	100-240 VAC
	Output	5 VDC
Manufacturer	Kistler Instrumente AG Eulachstrasse 22 8408 Winterthur SWITZERLAND	

1.1 Photos – Equipment External

EUT - Front side
STC

EUT - Rear side
STC

EUT - Left side
STC

EUT - Right side
STC

EUT - Top side
STC

EUT - Top side - BNC covers removed
STC

EUT - Bottom side
STC

ACDC adapter
STC

Micro USB to USB
STC

Battery Top View
STC

Battery Back View
STC

Battery Side View (left)
STC

Battery Side View (right)
STC

EUT with auxiliary equipment (AC/DC-Adapter)
STC

EUT with auxiliary equipment
STC

1.2 Photos – Equipment Internal

Internal 1
STC

Internal 2
STC

Internal 3
STC

Internal 4
STC

Internal 5
STC

Internal 6
STC

Internal 7
STC

Internal 8
STC

Internal 9
STC

Internal 10
STC

1.3 Support Equipment

Product Type	Device	Manufacturer	Model	Comment
AE	Notebook	-	-	For configuring test modes
Description:				
AE	Auxiliary Equipment			
SIM	Simulator			
CBL	Connecting Cable			
SFT	Software			
Comment:				

1.4 Test Modes

Mode	Description
GFSK	Mode = Transmit Modulation = GFSK Data Rate = 2 Mbit/s Packet Type = PRBS9 Pakcet Length = 193 Bytes Spreading = None Duty cycle = 88%
Receive	Mode = Receive
Comment: Worst case was found in module test report number MDE_UBLOX_2008_FCC_02 issued by 7layers GmbH on 2020-12-21.	

1.5 Test Frequencies

Designator	Mode	Channel	Frequency [MHz]
F1	Tx	0	2402
F2	Tx / Rx	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).

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:

Limit (dBµV/m) = 20*log (µV/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	N/T	
FCC § 15.247(b) ISED RSS-247, Issue 2 (section 5.4)	Maximum peak conducted power	ANSI C63.10-2013	PASS	Note 1
FCC § 15.247(e) ISED RSS-247, Issue 2 (section 5.2)	Power spectral density	ANSI C63.10-2013	N/T	
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	Note 1
FCC § 15.247(d) ISED RSS-247, Issue 2 (section 5.5)	Conducted spurious emissions	ANSI C63.10-2013	N/T	
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	
Note 1: Due to the integration of a pre-certified module, only partial and spot check tests were performed with reference to the original test report MDE_UBLOX_2008_FCC_02 issued by 7layers GmbH on 2020-12-21.				
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 - Maximum peak conducted output power

3.1.1 Information

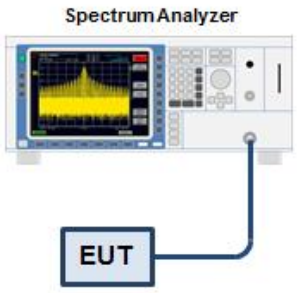
Test Information	
Reference	FCC § 15.247(b); ISED RSS-247, Issue 5 (section 5.4)
Measurement Method	ANSI C63.10 11.9.1
Measurement Uncertainty	± 2.86 dB
Operator	Odai Qawasmeh
Date	2023-02-02

3.1.2 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.

3.1.3 Setup

Test Setup



3.1.4 Equipment

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

3.1.5 Procedure

Test Procedure

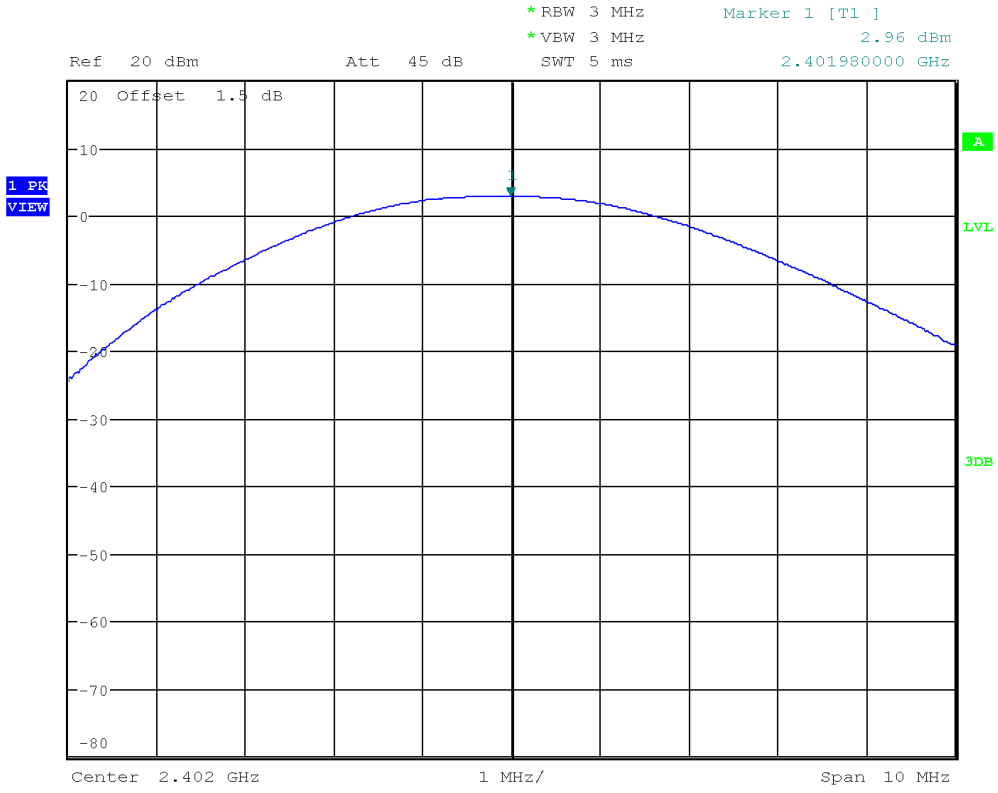
1. EUT set to test mode (Communication tester is used if needed)
2. Analyzer resolution bandwidth is set ≥ DTS bandwidth
3. Detector set to peak and max hold
4. Sweep time is set to auto
5. After the trace has stabilized a marker is set to peak of envelope

3.1.6 Results

Test Results							
Channel [MHz]	Conducted Power [dBm]	Conducted Power [W]	Conducted Limit [W]	EIRP Power [dBm]	EIRP Power [W]	EIRP Limit [W]	Verdict
2402	2.963	0.0020	1.0	6.263	0.0042	4.0	PASS
2480	3.483	0.0022	1.0	6.783	0.0047	4.0	PASS

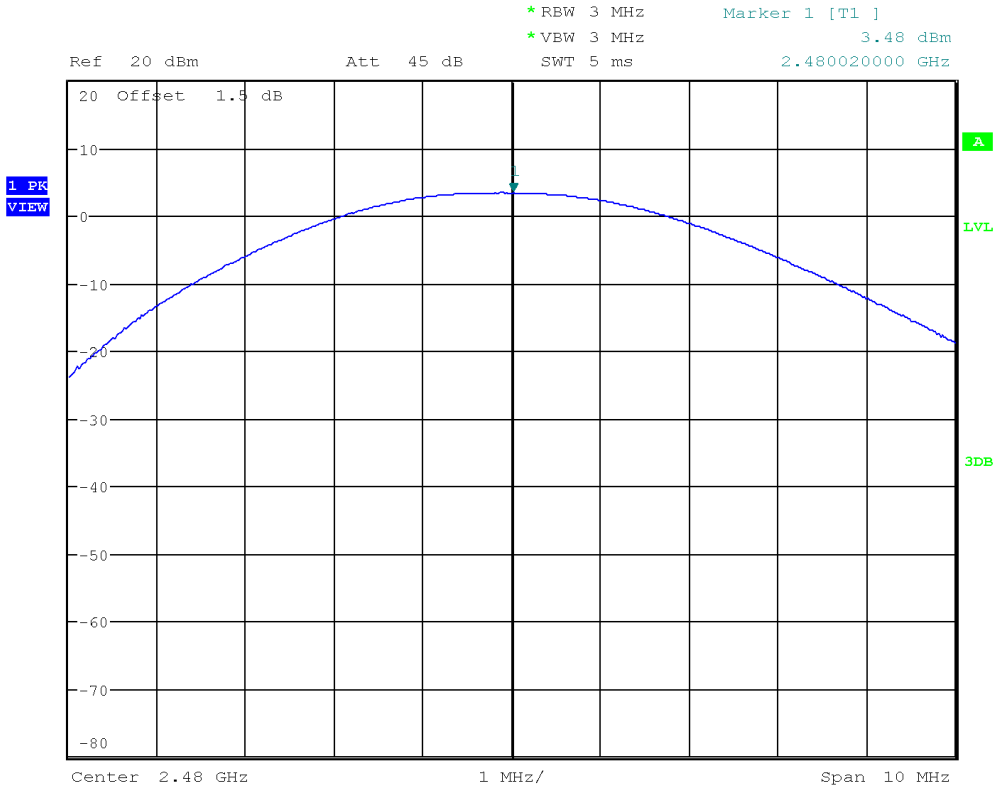
Peak Conducted Output Power

Project Number:	G0M-2205-1483
Applicant:	Kistler Instrumente AG
Model Description:	Handheld
Model:	5811A
Test Sample ID:	41714
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:	Odai Qawasmeh
Test Site:	Eurofins Product Service GmbH
Test Date:	2023-02-02
Note:	ISED Spot Check
Peak Power [dBm]:	2.963
Peak Power [W]:	0.0020



Peak Conducted Output Power

Project Number:	G0M-2205-1483
Applicant:	Kistler Instrumente AG
Model Description:	Handheld
Model:	5811A
Test Sample ID:	41714
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:	Odai Qawasmeh
Test Site:	Eurofins Product Service GmbH
Test Date:	2023-02-02
Note:	ISED Spot Check
Peak Power [dBm]:	3.483
Peak Power [W]:	0.0022



3.2 Test Conditions and Results - AC powerline conducted emissions

3.2.1 Information

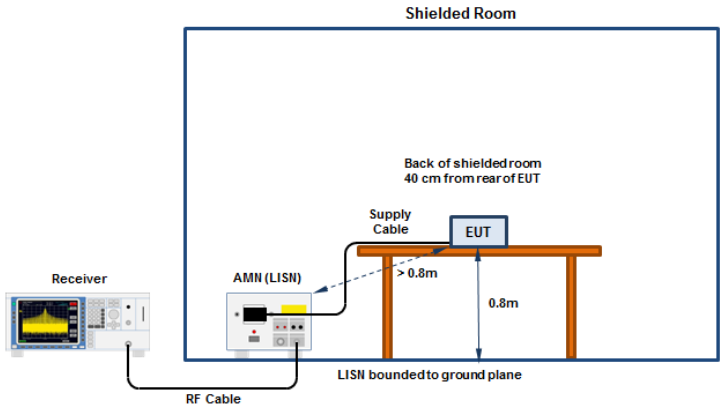
Test Information	
Reference	FCC § 15.207; ISED RSS-247, Issue 5 (section 3.1)
Measurement Method	ANSI C63.10 6.2
Measurement Uncertainty	± 3.82 dB
Operator	Odai Qawasmeh
Date	2022-06-29

3.2.2 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		

3.2.3 Setup

Test Setup



3.2.4 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	2021-08	2022-08
Pulse Limiter	R&S	ESH3-Z2	EF01222	2021-07	2022-07
LISN	Schwarzbeck	NSLK 8127 RC	EF01592	2021-07	2022-07

3.2.5 Setup Photos

Setup for measurements 150 kHz – 30 MHz
STC

Setup for measurements 150 kHz – 30 MHz
STC

Conducted emissions at the mains power port according to FCC 15.207; RSS-247 – Issue 2

Project Number:	G0M-2205-1483
Applicant:	Kistler Instrumente AG
Model Description:	Handheld
Model:	5811A
Test Sample ID:	40273
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Degenhardt
Test Date:	2022-06-29
Operating Conditions:	ambient temperature: 23 °Celsius power input: 7.2 VDC
LISN:	Schwarzbeck NSLK 8127 RC L1
Operational Mode:	TX, BT-LE, 2480 MHz, PRBS9, 193 Bytes
EUT Configuration:	
Applied to Port:	120 VAC / 60 Hz
Note 1:	

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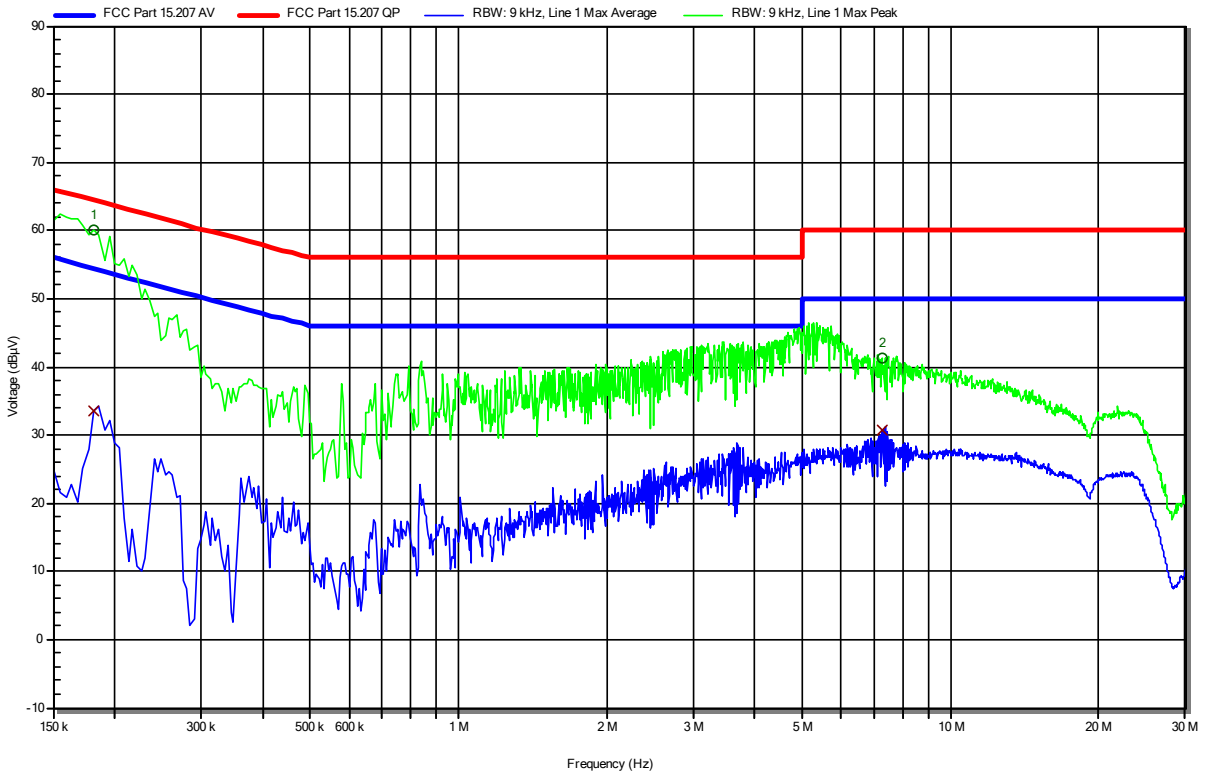
RadiMation



Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status	LISN
1	181.5 kHz	33.44 dBµV	54.42 dBµV	-20.98 dB	Pass	Line 1
2	7.251 MHz	30.81 dBµV	50 dBµV	-19.19 dB	Pass	Line 1

Conducted emissions at the mains power port according to FCC 15.207; RSS-247 – Issue 2

Project Number:	G0M-2205-1483
Applicant:	Kistler Instrumente AG
Model Description:	Handheld
Model:	5811A
Test Sample ID:	40273
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Degenhardt
Test Date:	2022-06-29
Operating Conditions:	ambient temperature: 23 °Celsius power input: 7.2 VDC
LISN:	Schwarzbeck NSLK 8127
Operational Mode:	Tx, BT-LE, 2480 MHz, PRBS9, 193 Bytes
EUT Configuration:	
Applied to Port:	120 VAC / 60 Hz
Note 1:	

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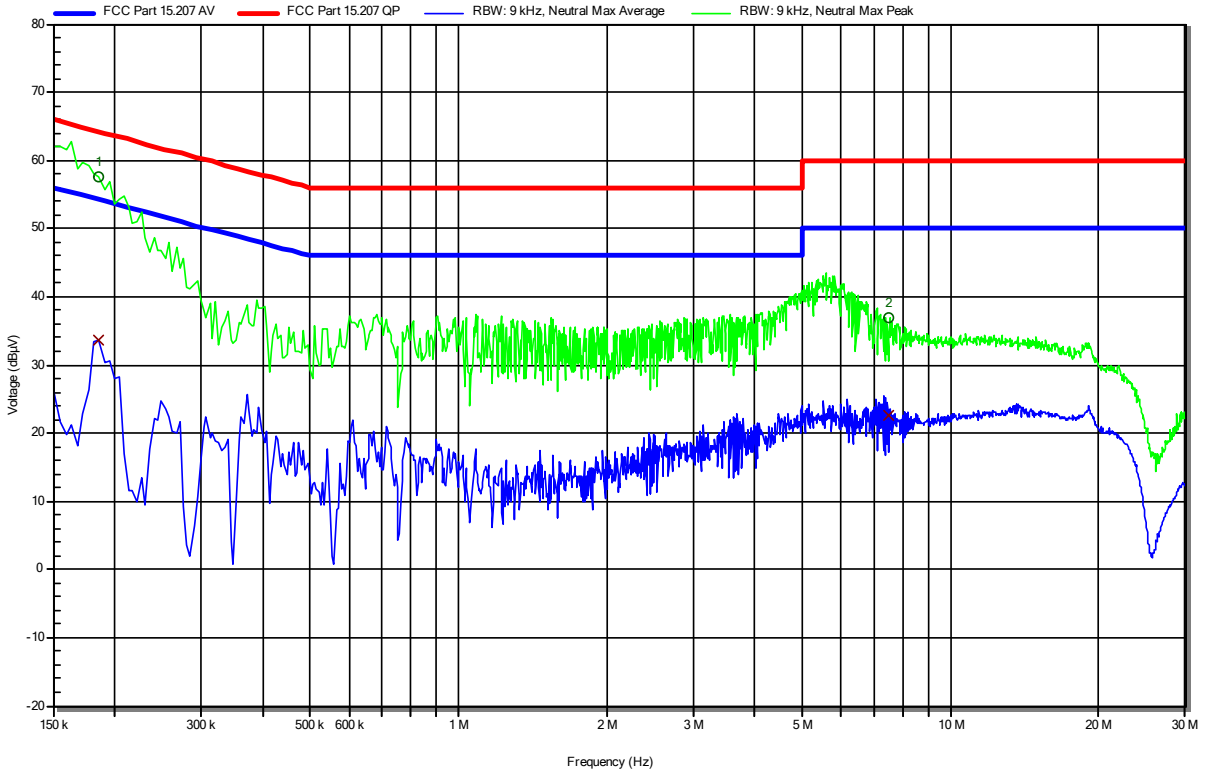
RadiMation



Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status	LISN
1	186 kHz	33.74 dBµV	54.21 dBµV	-20.47 dB	Pass	Neutral
2	7.508 MHz	22.6 dBµV	50 dBµV	-27.4 dB	Pass	Neutral

Conducted emissions at the mains power port according to RSS-247; RSS-Gen

Project Number:	G0M-2205-1483
Applicant:	Kistler Instrumente AG
Model Description:	Handheld
Model:	5811A
Test Sample ID:	40273
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Degenhardt
Test Date:	2022-06-29
Operating Conditions:	ambient temperature: 23 °Celsius power input: 7.2 VDC
LISN:	Schwarzbeck NSLK 8127 RC L1
Operational Mode:	Rx, BT-LE, 2480 MHz
EUT Configuration:	
Applied to Port:	120 VAC / 60 Hz
Note 1:	

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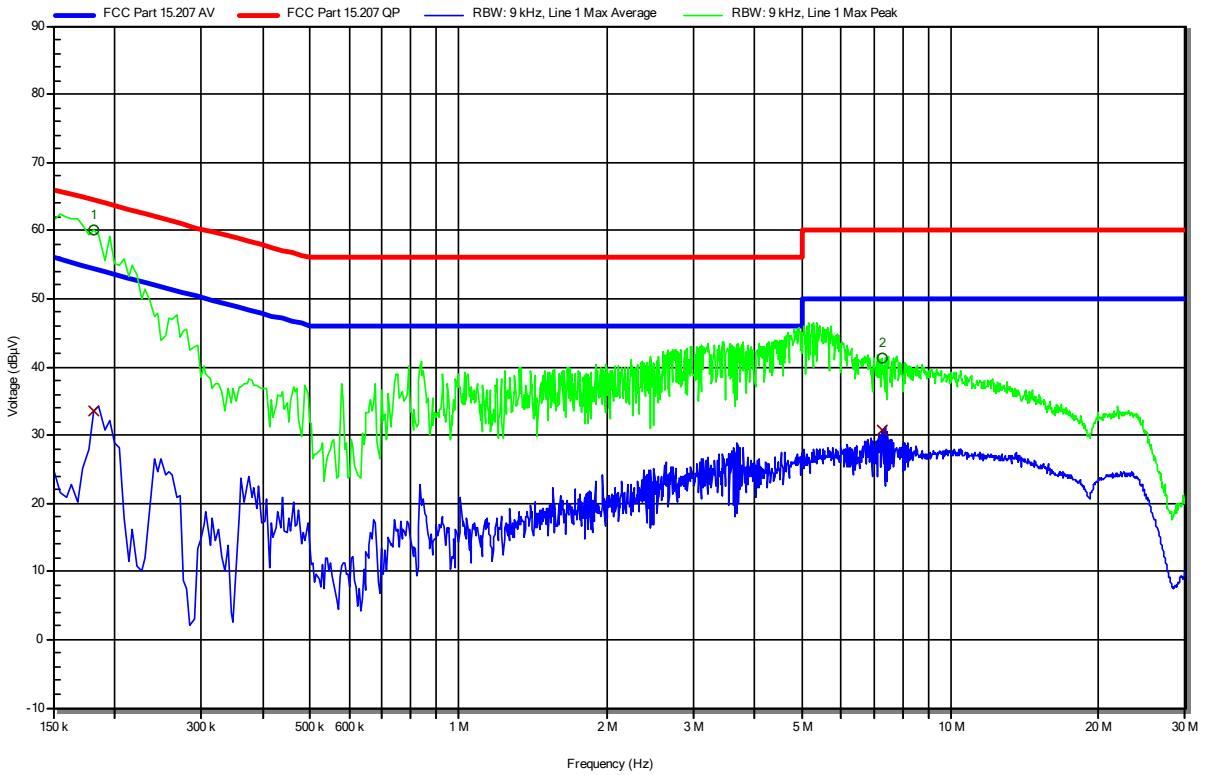
RadiMation



Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status	LISN
1	181.5 kHz	33.44 dBµV	54.42 dBµV	-20.98 dB	Pass	Line 1
2	7.251 MHz	30.81 dBµV	50 dBµV	-19.19 dB	Pass	Line 1

Conducted emissions at the mains power port according to RSS-247; RSS-Gen

Project Number:	G0M-2205-1483
Applicant:	Kistler Instrumente AG
Model Description:	Handheld
Model:	5811A
Test Sample ID:	40273
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Degenhardt
Test Date:	2022-06-29
Operating Conditions:	ambient temperature: 23 °Celsius power input: 7.2 VDC
LISN:	Schwarzbeck NSLK 8127
Operational Mode:	Rx, BT-LE, 2480 MHz
EUT Configuration:	
Applied to Port:	120 VAC / 60 Hz
Note 1:	

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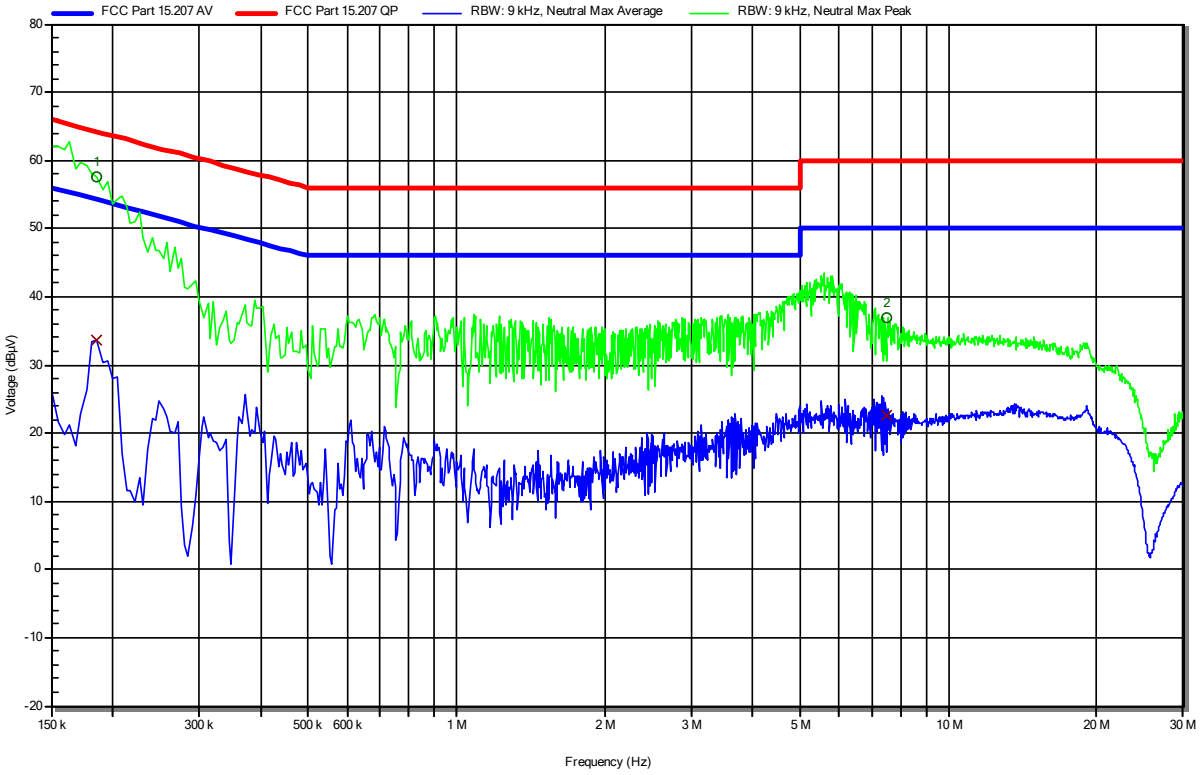
RadiMation



Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status	LISN
1	186 kHz	33.74 dBµV	54.21 dBµV	-20.47 dB	Pass	Neutral
2	7.508 MHz	22.6 dBµV	50 dBµV	-27.4 dB	Pass	Neutral

3.3 Test Conditions and Results - Band-edge compliance

3.3.1 Information

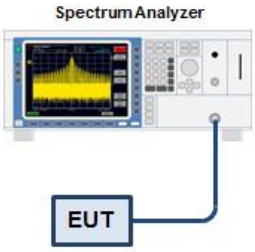
Test Information	
Reference	ISED RSS-247, Issue 5 (section 5.5)
Measurement Uncertainty	± 3.64 dB
Measurement Method	ANSI C63.10 11.13
Operator	Odai Qawasmeh
Date	2023-02-02

3.3.2 Limits

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

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	EF01003	2022-07	2023-07
Cable	Gigalane	CAAAZ	EF00779	2022-02	2023-02

3.3.5 Procedure

Test Procedure

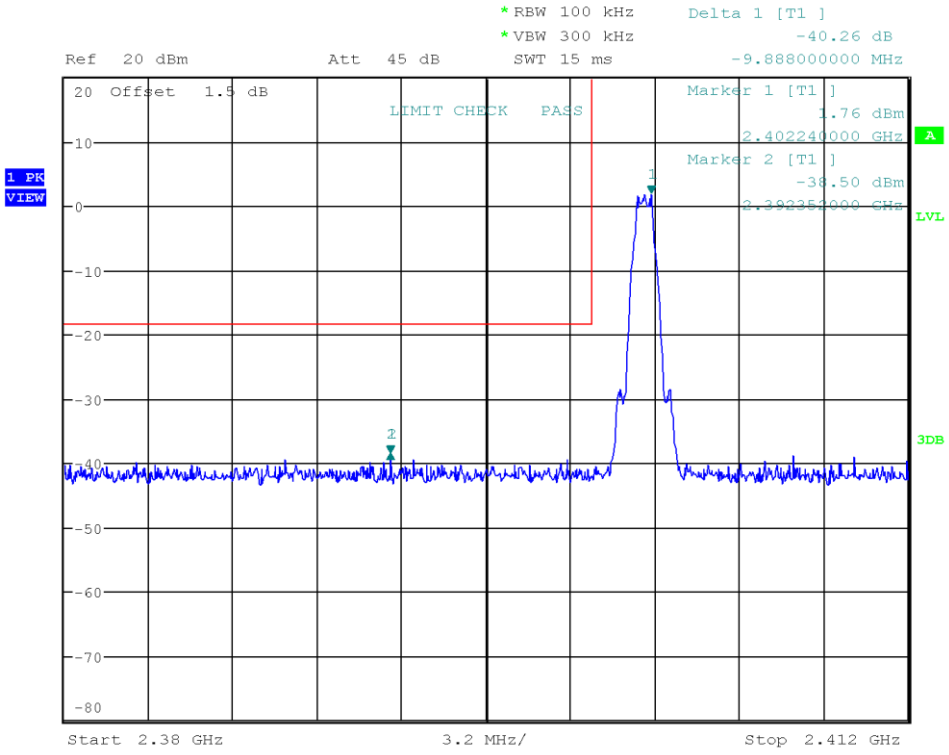
1. EUT set to test mode (Communication tester is used if needed)
2. Span set around lower band edge and detector is set to peak and max hold
3. Resolution bandwidth is set to 100 kHz
4. Markers are set to peak emission levels within frequency band and outside frequency band
5. Band edge attenuation is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

3.3.6 Results

Test Results				
Mode	Channel [MHz]	Out-of-band Attenuation [dB]	Limit [dB]	Verdict
GFSK	2402	-40.26	-20	PASS
GFSK	2480	-40.86	-20	PASS

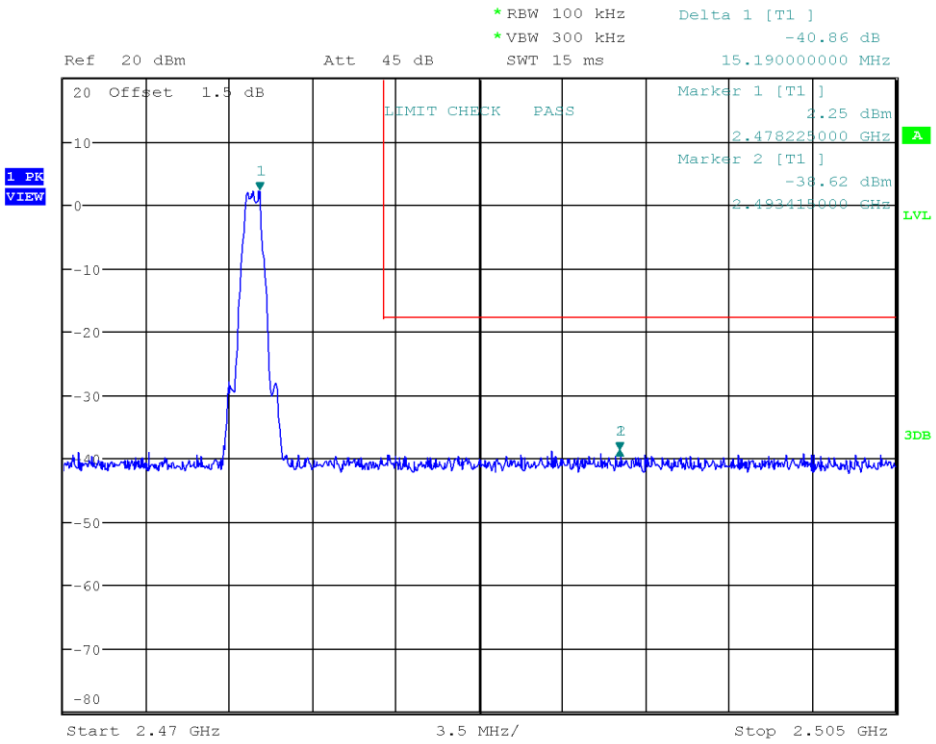
Emissions in nonrestricted frequency bands at the Band-edge

Project Number:	G0M-2205-1483
Applicant:	Kistler Instrumente AG
Model Description:	Handheld
Model:	5811A
Test Sample ID:	41714
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:	Odai Qawasmeh
Test Site:	Eurofins Product Service GmbH
Test Date:	2023-02-02
Note:	ISED Spot Check
Band-edge	Lower
In-band Frequency [MHz]:	2402.24
Max. in-band Level [dBm/100 kHz]:	1.755
Out-of-band Frequency [MHz]:	2392.352
Max. out-of-band Level [dBm/100 kHz]:	-38.505
Attenuation [dB]:	-40.26



Emissions in nonrestricted frequency bands at the Band-edge

Project Number:	G0M-2205-1483
Applicant:	Kistler Instrumente AG
Model Description:	Handheld
Model:	5811A
Test Sample ID:	41714
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:	Odai Qawasmeh
Test Site:	Eurofins Product Service GmbH
Test Date:	2023-02-02
Note:	ISED Spot Check
Band-edge	Upper
In-band Frequency [MHz]:	2478.225
Max. in-band Level [dBm/100 kHz]:	2.247
Out-of-band Frequency [MHz]:	2493.415
Max. out-of-band Level [dBm/100 kHz]:	-38.617
Attenuation [dB]:	-40.86



3.4 Test Conditions and Results - Transmitter radiated emissions

3.4.1 Information

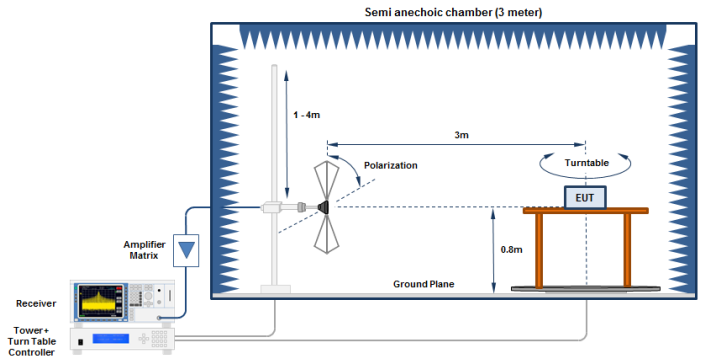
Test Information	
Reference	FCC § 15.247(d); FCC § 15.209; ISED RSS-Gen, Issue 5 A2 (section 6.13)
Measurement Uncertainty	± 5.95 dB
Measurement Method	ANSI C63.10 6.4, 6.5, 6.6, 11.12
Operator	Odai Qawasmeh
Date	2022-07-01

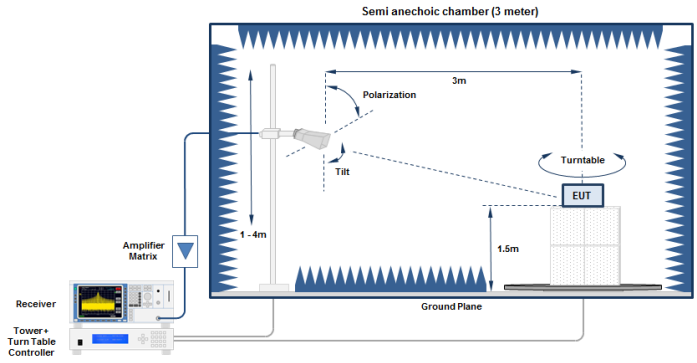
3.4.2 Limits

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

3.4.3 Setup

Test Setup 30 MHz - 1000 MHz



Test Setup > 1 GHz


3.4.4 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	2022-07
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	AC 2	EF01616	2021-09	2022-09
Spectrum analyzer	R&S	FSU43	EF01631	2021-07	2022-07
Horn antenna	Schwarzbeck	BBHA 9120B	EF01678	2021-03	2024-03
Horn Antenna	Schwarzbeck	HWRD 650	EF01679	2021-03	2024-03
Antenna	Amplifier Research	AT4560	EF00302	2021-06	2023-06

3.4.5 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

3.4.6 Results

Test Results						
Channel [MHz]	Emission [MHz]	Level [dBµV/m]	Det.	Pol.	Limit [dBµV/m]	Margin [dB]
2480	38.2195	21.70	pk	ver	40.00	-18.31
2480	121.1612	38.20	pk	hor	43.50	-05.30
2480	121.1612	31.10	qpk	hor	43.50	-12.46
2480	149.9818	31.70	pk	hor	43.50	-11.84
2480	156.7912	34.20	qpk	hor	43.50	-09.27
2480	165.575	31.80	pk	hor	43.50	-11.74
2480	166.117	35.40	qpk	hor	43.50	-08.08
2480	171.2885	36.20	qpk	ver	43.50	-07.29
2480	330.78	34.50	pk	hor	46.00	-11.52
2480	331.8	35.30	pk	hor	46.00	-10.71
2480	960.02	40.40	pk	hor	54.00	-13.58
2480	960.04	40.70	pk	ver	54.00	-13.27
2480	1082.7	49.74	pk	hor	74.00	-24.26
2480	1082.7	27.13	avg	hor	54.00	-26.87
2480	1112.7	49.26	pk	hor	74.00	-24.74
2480	1112.7	27.54	avg	hor	54.00	-26.46
2480	1595	43.33	pk	ver	74.00	-30.67
2480	1595	31.75	avg	ver	54.00	-22.25
2480	2324	46.34	pk	hor	74.00	-27.66
2480	2324	27.98	avg	hor	54.00	-26.02
2480	2329	47.98	pk	hor	74.00	-26.02
2480	2329	34.73	avg	hor	54.00	-19.27
2480	2338.2	58.25	pk	hor	74.00	-15.75
2480	2338.2	49.92	avg	hor	54.00	-04.08
2480	2364.4	58.82	pk	ver	74.00	-15.18
2480	2364.4	46.30	avg	ver	54.00	-07.70
2480	2483.9	59.02	pk	hor	74.00	-14.98
2480	2483.9	47.14	avg	hor	54.00	-06.86
2480	2489.3	59.09	pk	ver	74.00	-14.91
2480	2489.3	46.66	avg	ver	54.00	-07.34
2480	2494.3	59.24	pk	ver	74.00	-14.76
2480	2494.3	46.78	avg	ver	54.00	-07.22
2480	2499.5	58.96	pk	ver	74.00	-15.04
2480	2499.5	45.77	avg	ver	54.00	-08.23
2480	13359	43.06	pk	hor	74.00	-30.94
2480	13359	31.44	avg	hor	54.00	-22.56
2480	17769	43.33	pk	ver	74.00	-30.67
2480	17769	31.42	avg	ver	54.00	-22.58
2480	18390	48.85	pk	ver	74.00	-25.15
2480	18390	36.49	avg	ver	54.00	-17.51
2480	20654	48.43	pk	ver	74.00	-25.57
2480	20654	36.74	avg	ver	54.00	-17.26

3.4.7 Setup Photos

Setup for measurements below 1 GHz
STC

EUT Test Setup
STC

Setup for measurements above 1 GHz
STC

EUT Test Setup
STC

3.5 Test Conditions and Results - Receiver radiated emissions

3.5.1 Information

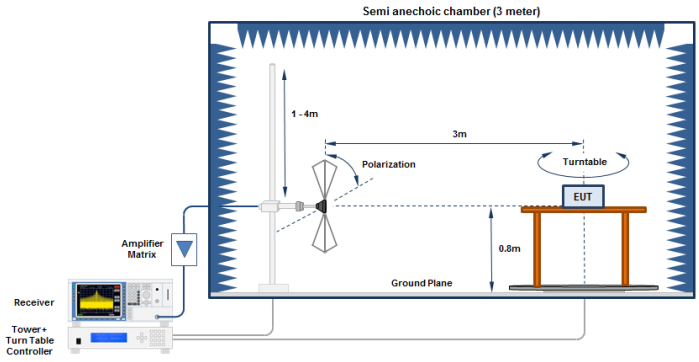
Test Information	
Reference	ISED RSS-247, Issue 5 (section 3.1)
Measurement Uncertainty	± 5.95 dB
Measurement Method	ANSI C63.4-2014 8.1-8.3
Operator	Odai Qawasmeh
Date	2022-07-01

3.5.2 Limits

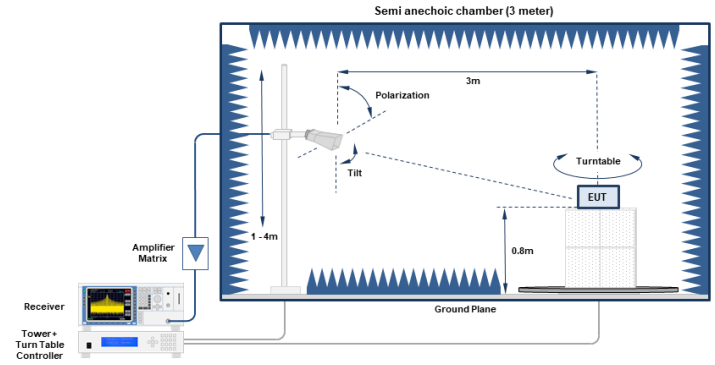
Limits			
Frequency range [MHz]	Detector	Field strength [µV/m]	Measurement distance [m]
30 - 88	Quasi-Peak	100	3
88 - 216	Quasi-Peak	150	3
216 - 960	Quasi-Peak	200	3
960 - 1000	Quasi-Peak	500	3
>1000	Average	500	3

3.5.3 Setup

Test Setup 30 MHz - 1000 MHz



Test Setup > 1 GHz



3.5.4 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	2022-07
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	AC1	EF00062	2021-02	2024-02
Measurement Receiver	Agilent	N9038A-526/WXP	EF01070	2021-07	2022-07
Horn antenna	Schwarzbeck	BBHA 9120B	EF01678	2021-03	2024-03
Horn Antenna	Schwarzbeck	HWRD 650	EF01679	2021-03	2024-03

3.5.5 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

3.5.6 Results

Test Results						
Channel [MHz]	Emission [MHz]	Level [dBµV/m]	Det.	Pol.	Limit [dBµV/m]	Margin [dB]
2480	33.638	26.90	qpk	ver	40.00	-13.13
2480	116.4705	19.10	qpk	hor	43.50	-24.45
2480	144.1321	38.30	qpk	hor	43.50	-05.23
2480	148.5399	39.80	qpk	hor	43.50	-03.73
2480	159.8473	38.50	qpk	ver	43.50	-05.02
2480	166.0684	37.10	qpk	ver	43.50	-06.37
2480	291.277	31.50	qpk	hor	46.00	-14.53
2480	309.7726	30.20	qpk	hor	46.00	-15.78
2480	420	33.50	pk	hor	46.00	-12.53
2480	599.9861	36.10	qpk	ver	46.00	-09.87
2480	840.0064	37.60	qpk	hor	46.00	-08.45
2480	879.9895	41.80	qpk	hor	46.00	-04.24
2480	950.0001	39.40	qpk	ver	46.00	-06.57
2480	1050	43.11	pk	ver	74.00	-30.89
2480	1050	35.67	avg	ver	53.98	-18.31
2480	5995	47.22	pk	ver	74.00	-26.78
2480	5995	40.61	avg	ver	53.98	-13.37
2480	17685	50.24	pk	hor	74.00	-23.76
2480	17685	37.27	avg	hor	53.98	-16.71

3.5.7 Setup Photos

Setup for measurements below 1 GHz
STC

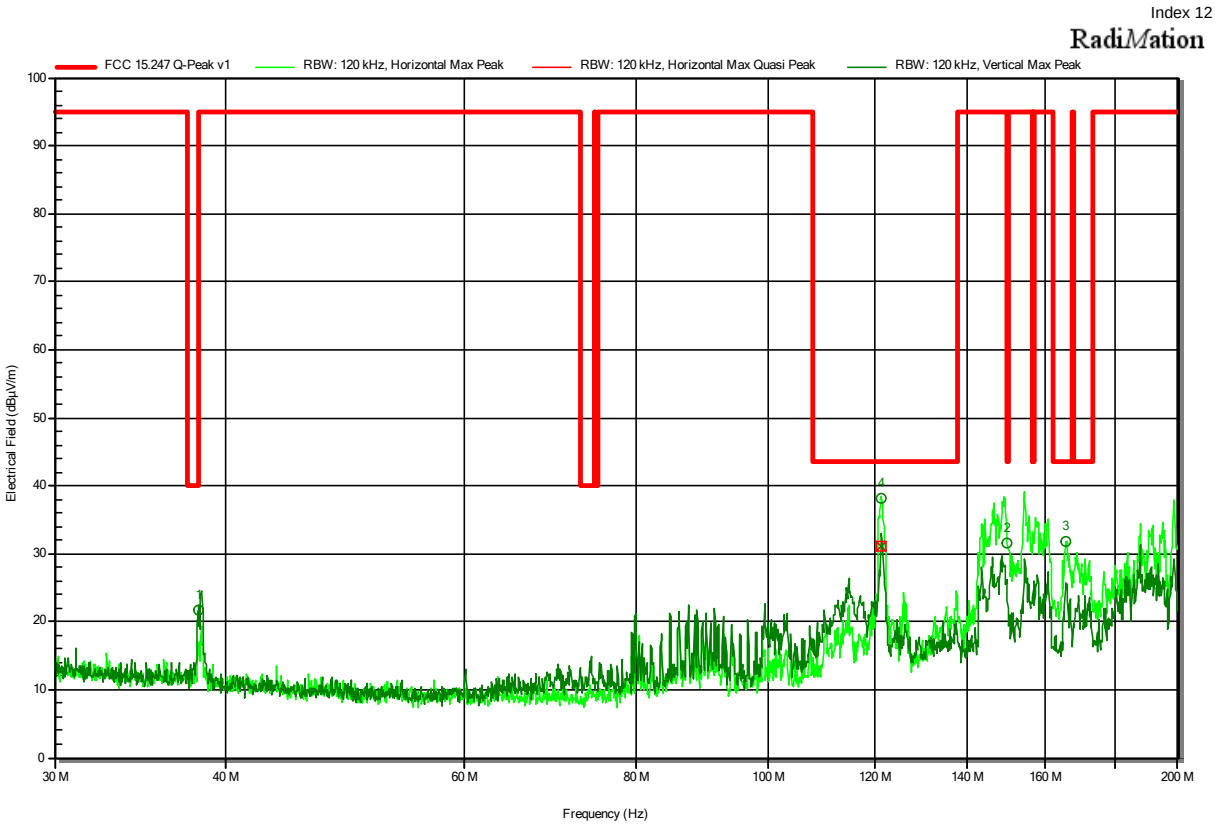
Setup for measurements above 1 GHz
STC

EUT Test Setup
STC

ANNEX A Transmitter spurious emissions

Radiated Spurious Emissions according to FCC 15.247; RSS-247, ISSUE 2

Project Number:	G0M-2205-1483
Applicant:	Kistler Instrumente AG
Model Description:	Handheld Messgerät
Model:	5811A
Test Sample ID:	40272
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:	Rohde & Schwarz HK 116
Measurement distance:	3 m
Mode:	Tx; BT-LE, 2480 MHz, PRBS9, 193 Bytes
Test Date:	2022-07-06
Note:	EUT horizontal

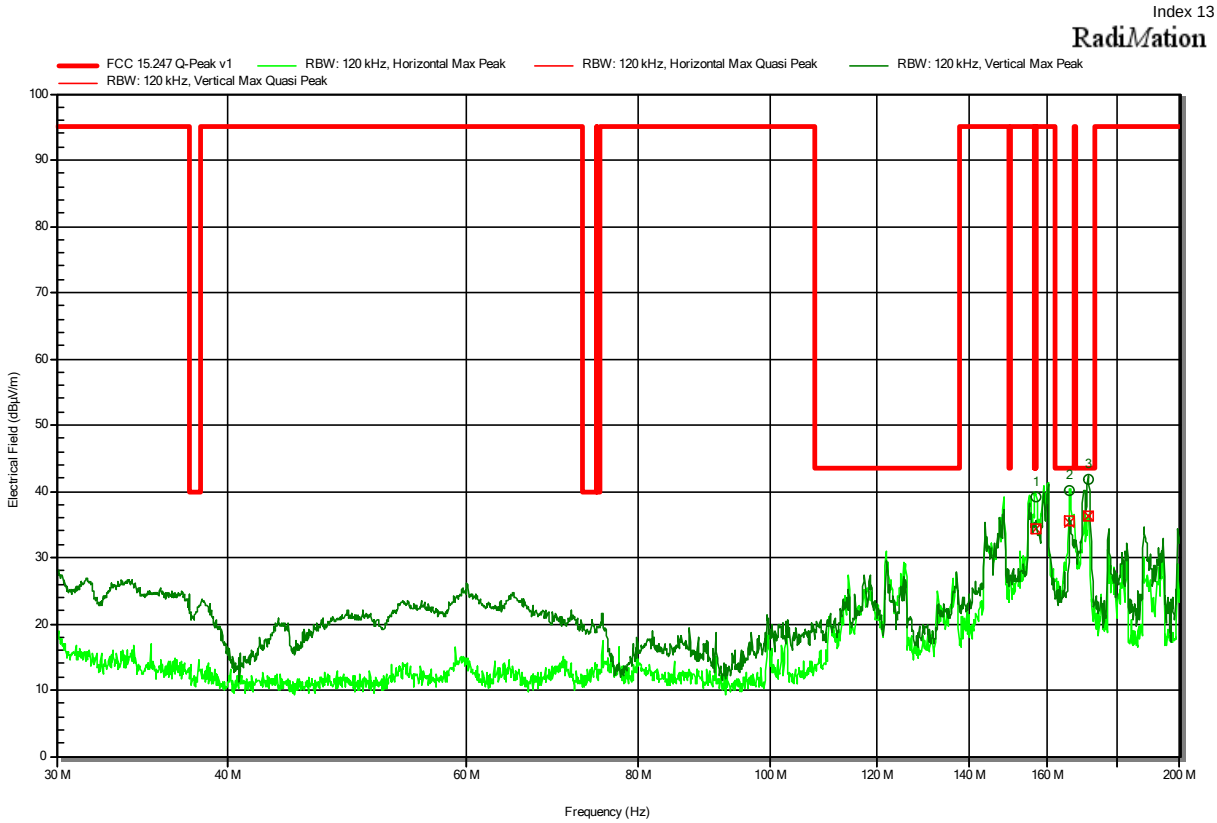


Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
38.2195 MHz	21.7 dBµV/m	40 dBµV/m	-18.31 dB	Pass	Vertical
121.1612 MHz	38.2 dBµV/m	43.5 dBµV/m	-5.3 dB	Pass	Horizontal
149.9818 MHz	31.7 dBµV/m	43.5 dBµV/m	-11.84 dB	Pass	Horizontal
165.575 MHz	31.8 dBµV/m	43.5 dBµV/m	-11.74 dB	Pass	Horizontal

Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	Polarization
121.1612 MHz	31.1 dBµV/m	43.5 dBµV/m	-12.46 dB	Pass	Horizontal

Radiated Spurious Emissions according to FCC 15.247; RSS-247, ISSUE 2

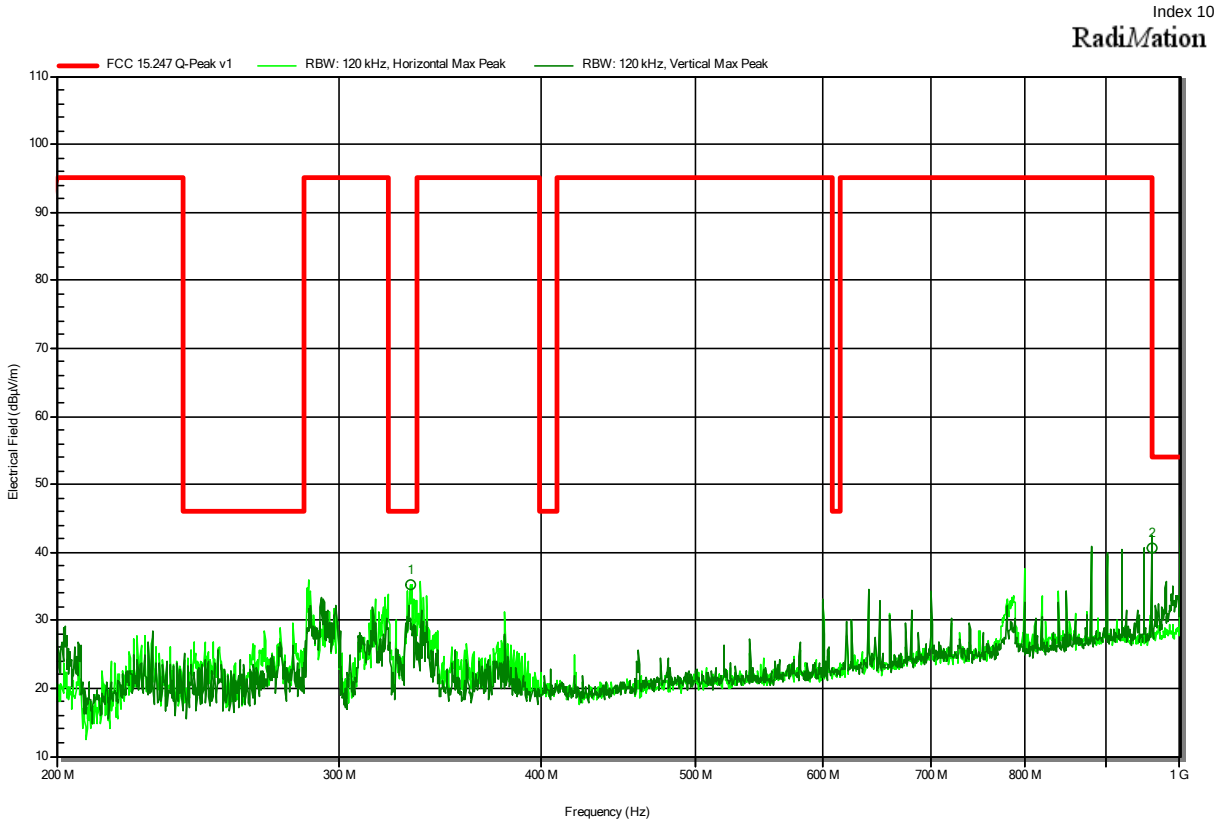
Project Number:	G0M-2205-1483
Applicant:	Kistler Instrumente AG
Model Description:	Handheld Messgerät
Model:	5811A
Test Sample ID:	40272
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Qawasmeh
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 23 °Celsius, Vnom: 5 VDC
Antenna:	Rohde & Schwarz HK 116
Measurement distance:	3 m
Mode:	Tx; BT-LE, 2480 MHz, PRBS9, 193 Bytes
Test Date:	2022-07-08
Note:	EUT vertical



Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	Polarization
156.7912 MHz	34.2 dBµV/m	43.5 dBµV/m	-9.27 dB	Pass	Horizontal
166.117 MHz	35.4 dBµV/m	43.5 dBµV/m	-8.08 dB	Pass	Horizontal
171.2885 MHz	36.2 dBµV/m	43.5 dBµV/m	-7.29 dB	Pass	Vertical

Radiated Spurious Emissions according to FCC 15.247; RSS-247, ISSUE 2

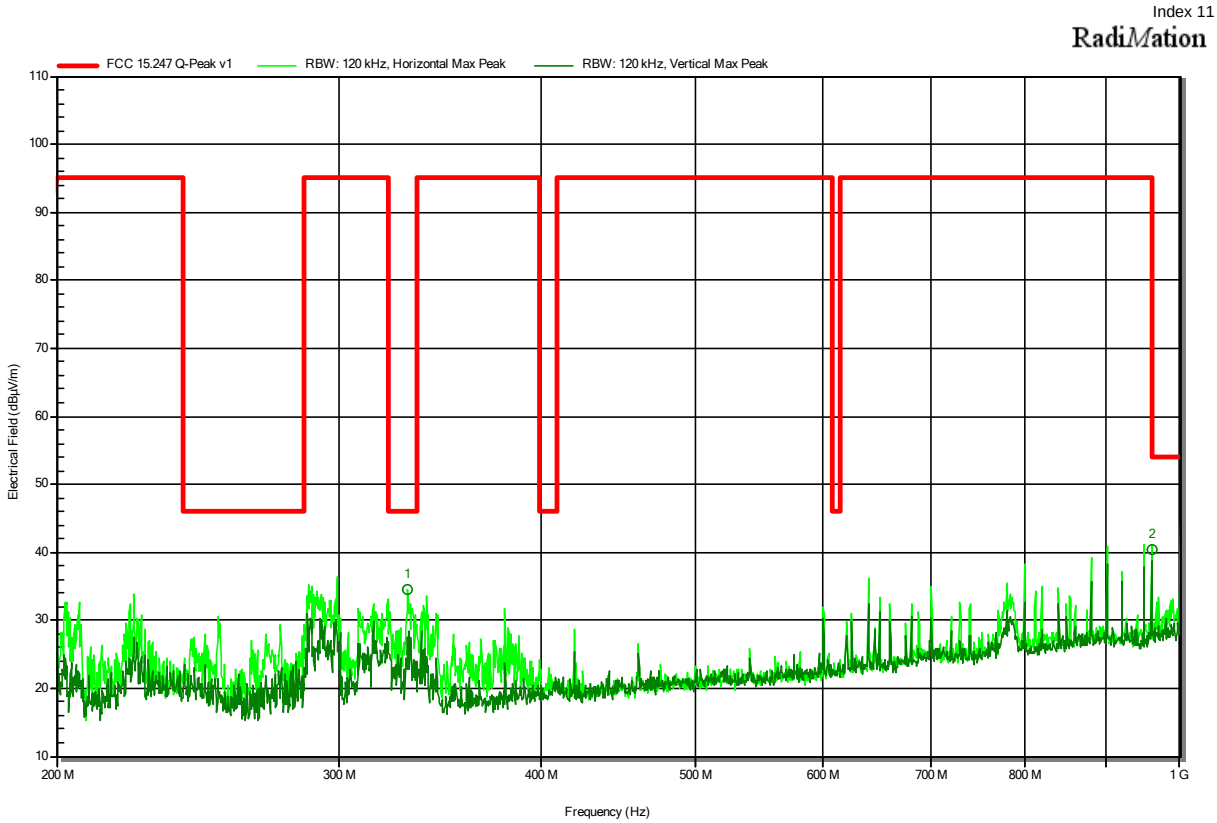
Project Number:	G0M-2205-1483
Applicant:	Kistler Instrumente AG
Model Description:	Handheld Messgerät
Model:	5811A
Test Sample ID:	40272
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Qawasmeh
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 23 °Celsius, Vnom: 5 VDC
Antenna:	Rohde & Schwarz HL 223
Measurement distance:	3 m
Mode:	Tx; BT-LE, 2480 MHz, PRBS9, 193 Bytes
Test Date:	2022-07-06
Note:	EUT vertical



Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
331.8 MHz	35.3 dBµV/m	46 dBµV/m	-10.71 dB	Pass	Horizontal
960.04 MHz	40.7 dBµV/m	54 dBµV/m	-13.27 dB	Pass	Vertical

Radiated Spurious Emissions according to FCC 15.247; RSS-247, ISSUE 2

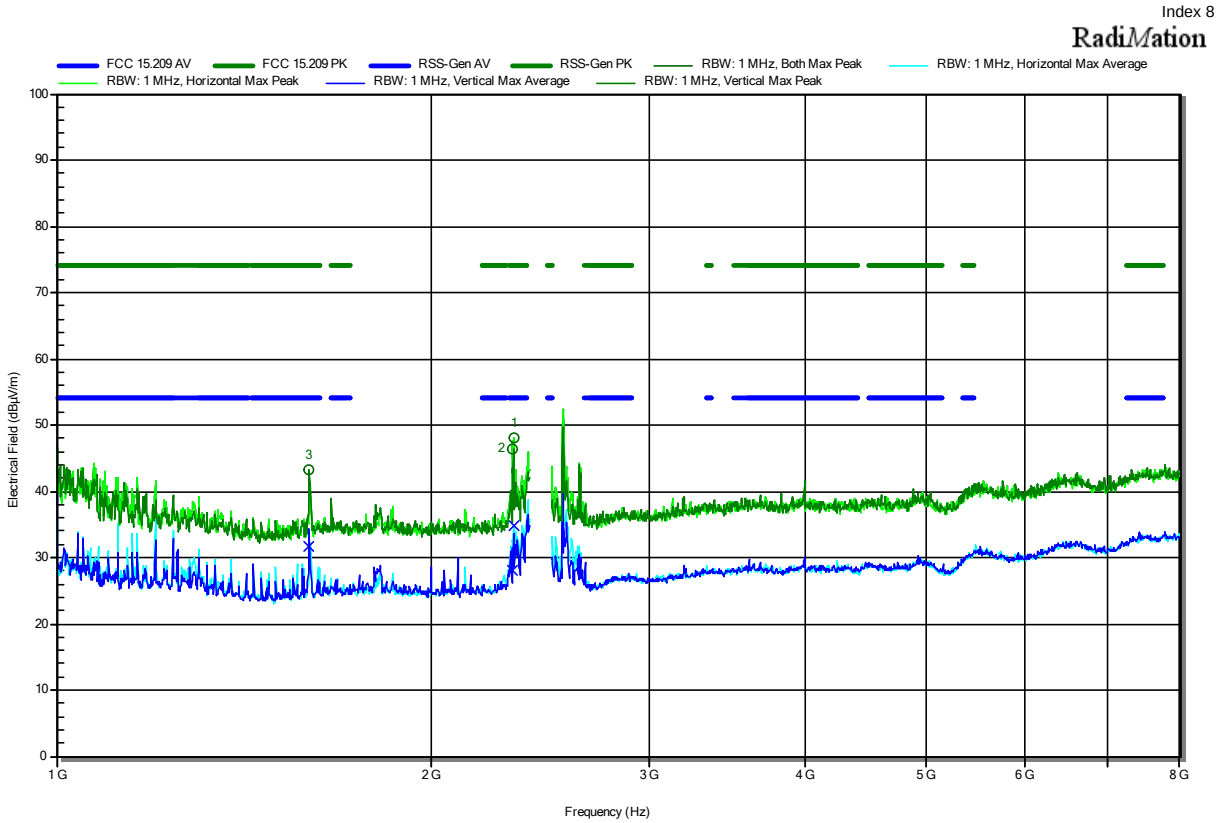
Project Number:	G0M-2205-1483
Applicant:	Kistler Instrumente AG
Model Description:	Handheld Messgerät
Model:	5811A
Test Sample ID:	40272
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Qawasmeh
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 23 °Celsius, Vnom: 5 VDC
Antenna:	Rohde & Schwarz HL 223
Measurement distance:	3 m
Mode:	Tx; BT-LE, 2480 MHz, PRBS9, 193 Bytes
Test Date:	2022-07-06
Note:	EUT horizontal



Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
330.78 MHz	34.5 dBµV/m	46 dBµV/m	-11.52 dB	Pass	Horizontal
960.02 MHz	40.4 dBµV/m	54 dBµV/m	-13.58 dB	Pass	Horizontal

Radiated Spurious Emissions according to FCC 15.247; RSS-247, ISSUE 2

Project Number:	G0M-2205-1483
Applicant:	Kistler Instrumente AG
Model Description:	Handheld Messgerät
Model:	5811A
Test Sample ID:	40272
Test Site:	Eurofins Product Service GmbH
Operator:	Godson Offorji
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 23 °Celsius, Vnom: 5 VDC
Antenna:	Schwarzbeck BBHA 9120B
Measurement distance:	3 m
Mode:	Tx; BT-LE, 2480 MHz, PRBS9, 193 Bytes
Test Date:	2022-07-01
Note:	EUT Hori

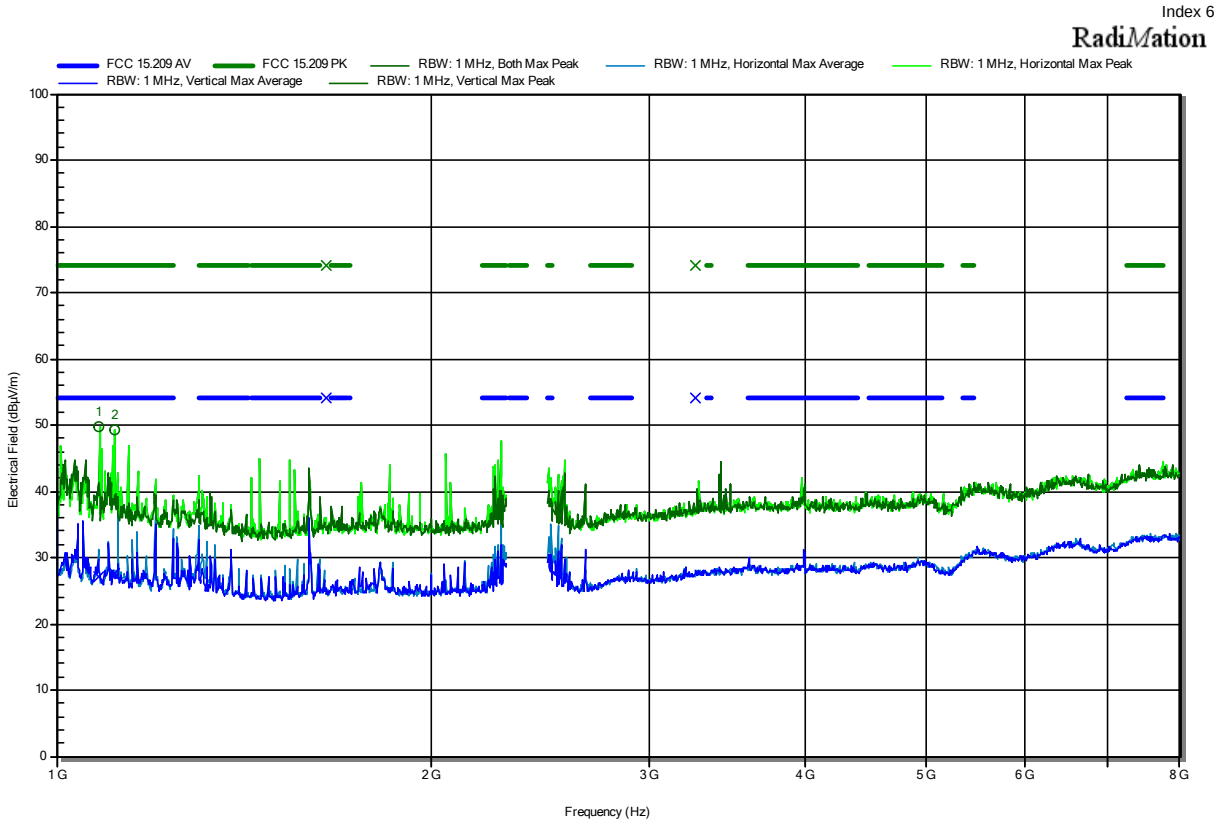


Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
1.595 GHz	43.33 dBµV/m	74 dBµV/m	-30.67 dB	Pass	Vertical
2.324 GHz	46.34 dBµV/m	74 dBµV/m	-27.66 dB	Pass	Horizontal
2.329 GHz	47.98 dBµV/m	74 dBµV/m	-26.02 dB	Pass	Horizontal

Frequency	Average	Average Limit	Average Difference	Average Status	Polarization
1.595 GHz	31.75 dBµV/m	54 dBµV/m	-22.25 dB	Pass	Vertical
2.324 GHz	27.98 dBµV/m	54 dBµV/m	-26.02 dB	Pass	Horizontal
2.329 GHz	34.73 dBµV/m	54 dBµV/m	-19.27 dB	Pass	Horizontal

Radiated Spurious Emissions according to FCC 15.247; RSS-247, ISSUE 2

Project Number:	G0M-2205-1483
Applicant:	Kistler Instrumente AG
Model Description:	Handheld Messgerät
Model:	5811A
Test Sample ID:	40272
Test Site:	Eurofins Product Service GmbH
Operator:	Godson Offorji
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 23 °Celsius, Vnom: 5 VDC
Antenna:	Schwarzbeck BBHA 9120B
Measurement distance:	3 m
Mode:	Tx; BT-LE, 2480 MHz, PRBS9, 193 Bytes
Test Date:	2022-07-01
Note:	EUT Hori

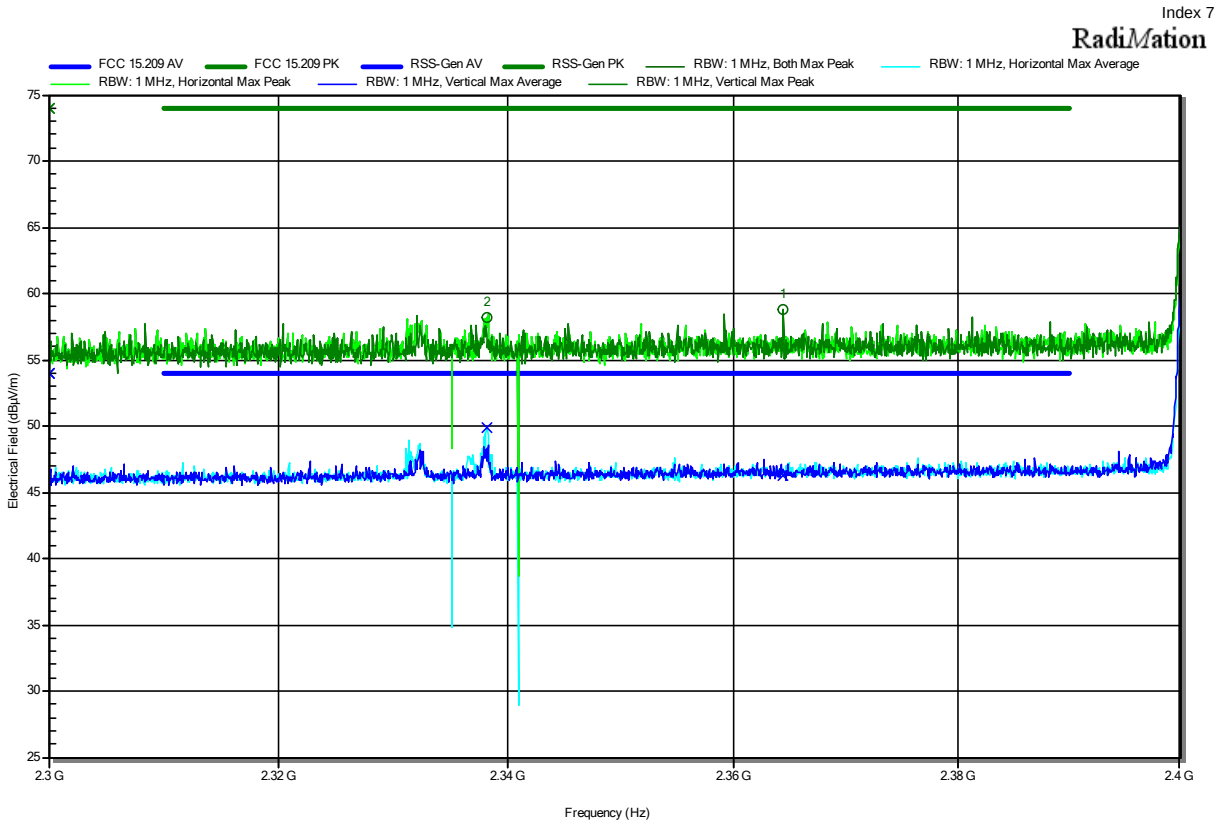


Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
1.0827 GHz	49.74 dBµV/m	74 dBµV/m	-24.26 dB	Pass	Horizontal
1.1127 GHz	49.26 dBµV/m	74 dBµV/m	-24.74 dB	Pass	Horizontal

Frequency	Average	Average Limit	Average Difference	Average Status	Polarization
1.0827 GHz	27.13 dBµV/m	54 dBµV/m	-26.87 dB	Pass	Horizontal
1.1127 GHz	27.54 dBµV/m	54 dBµV/m	-26.46 dB	Pass	Horizontal

Radiated Spurious Emissions according to FCC 15.247; RSS-247, ISSUE 2

Project Number:	G0M-2205-1483
Applicant:	Kistler Instrumente AG
Model Description:	Handheld Messgerät
Model:	5811A
Test Sample ID:	40272
Test Site:	Eurofins Product Service GmbH
Operator:	Godson Offorji
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 23 °Celsius, Vnom: 5 VDC
Antenna:	Schwarzbeck BBHA 9120B
Measurement distance:	3 m
Mode:	Tx; BT-LE, 2480 MHz, PRBS9, 193 Bytes
Test Date:	2022-07-01
Note:	lower bandedge EUT Hori

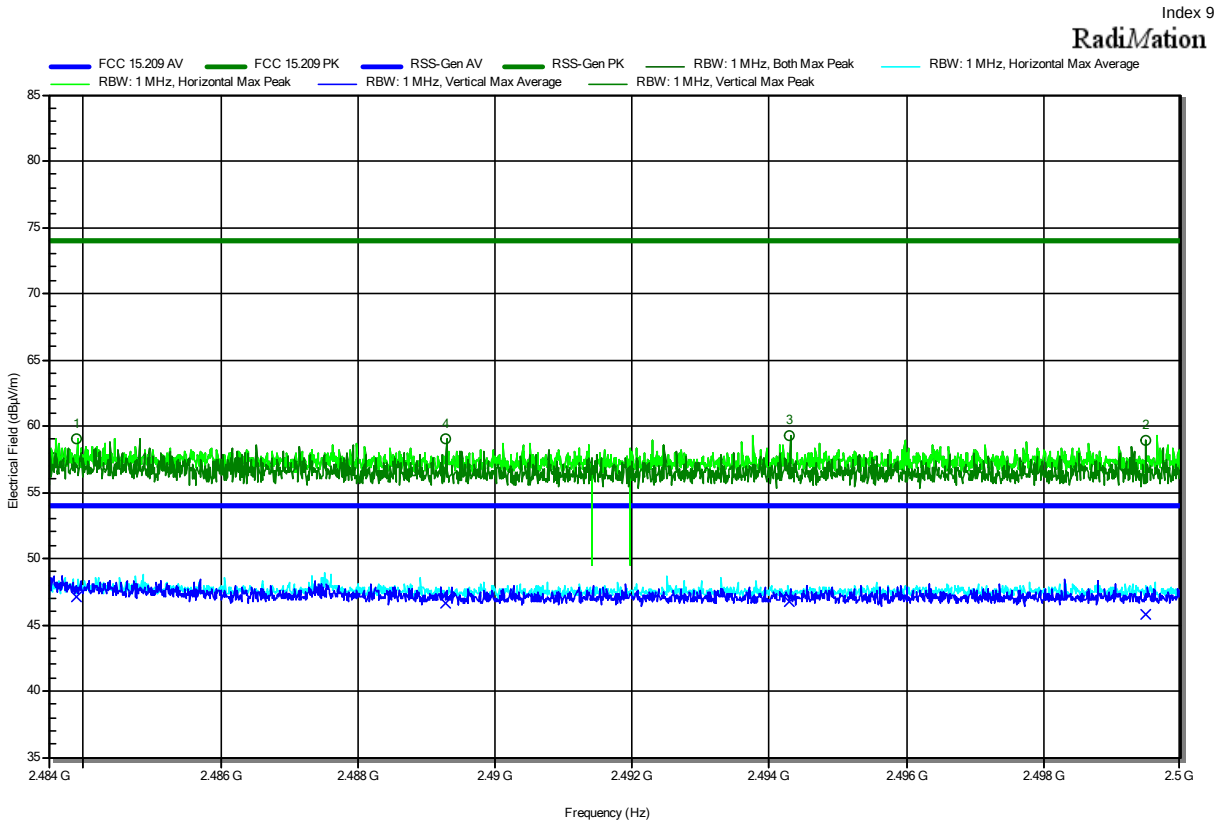


Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
2.3382 GHz	58.25 dBµV/m	74 dBµV/m	-15.75 dB	Pass	Horizontal
2.3644 GHz	58.82 dBµV/m	74 dBµV/m	-15.18 dB	Pass	Vertical

Frequency	Average	Average Limit	Average Difference	Average Status	Polarization
2.3382 GHz	49.92 dBµV/m	54 dBµV/m	-4.08 dB	Pass	Horizontal
2.3644 GHz	46.3 dBµV/m	54 dBµV/m	-7.7 dB	Pass	Vertical

Radiated Spurious Emissions according to FCC 15.247; RSS-247, ISSUE 2

Project Number:	G0M-2205-1483
Applicant:	Kistler Instrumente AG
Model Description:	Handheld Messgerät
Model:	5811A
Test Sample ID:	40272
Test Site:	Eurofins Product Service GmbH
Operator:	Godson Offorji
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 23 °Celsius, Vnom: 5 VDC
Antenna:	Schwarzbeck BBHA 9120B
Measurement distance:	3 m
Mode:	Tx; BT-LE, 2480 MHz, PRBS9, 193 Bytes
Test Date:	2022-07-01
Note:	upper bandedge EUT Hori

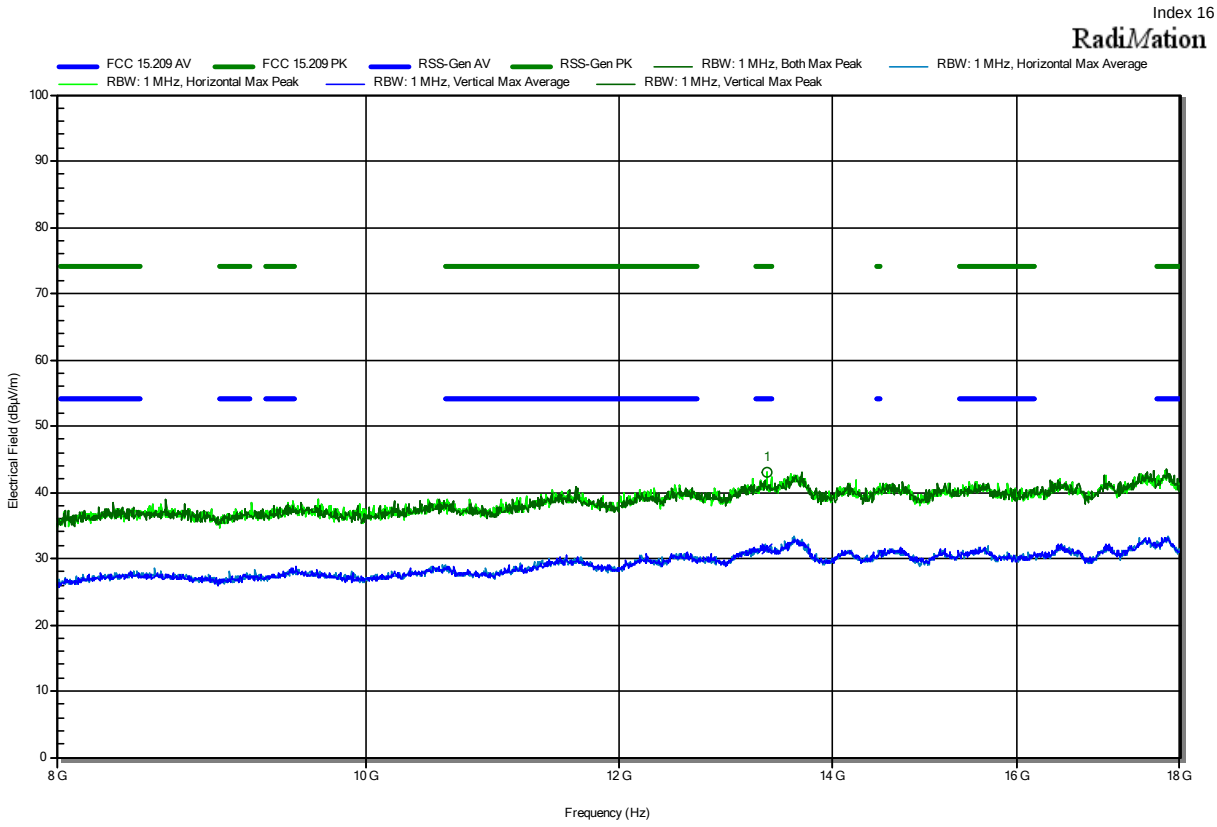


Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
2.4839 GHz	59.02 dBµV/m	74 dBµV/m	-14.98 dB	Pass	Horizontal
2.4893 GHz	59.09 dBµV/m	74 dBµV/m	-14.91 dB	Pass	Vertical
2.4943 GHz	59.24 dBµV/m	74 dBµV/m	-14.76 dB	Pass	Vertical
2.4995 GHz	58.96 dBµV/m	74 dBµV/m	-15.04 dB	Pass	Vertical

Frequency	Average	Average Limit	Average Difference	Average Status	Polarization
2.4839 GHz	47.14 dBµV/m	54 dBµV/m	-6.86 dB	Pass	Horizontal
2.4893 GHz	46.66 dBµV/m	54 dBµV/m	-7.34 dB	Pass	Vertical
2.4943 GHz	46.78 dBµV/m	54 dBµV/m	-7.22 dB	Pass	Vertical
2.4995 GHz	45.77 dBµV/m	54 dBµV/m	-8.23 dB	Pass	Vertical

Radiated Spurious Emissions according to FCC 15.247; RSS-247, ISSUE 2

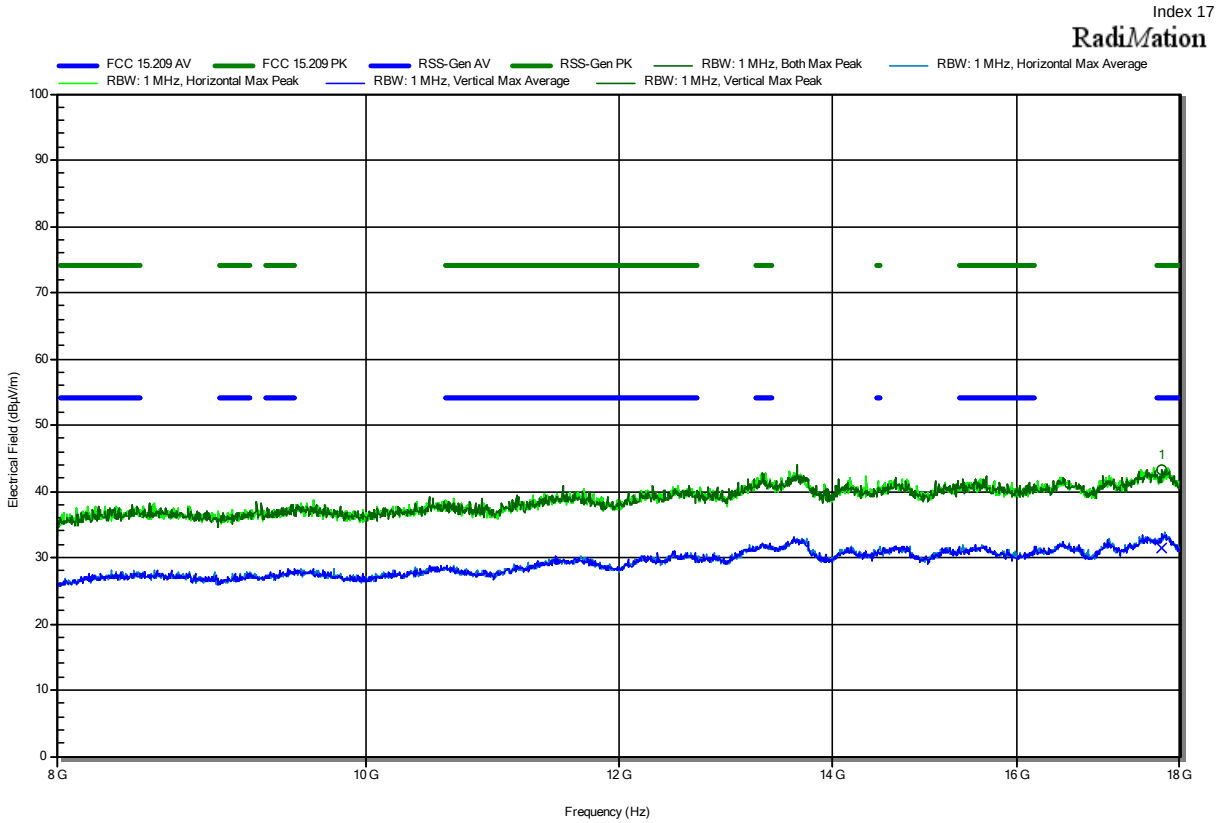
Project Number:	G0M-2205-1483
Applicant:	Kistler Instrumente AG
Model Description:	Handheld Messgerät
Model:	5811A
Test Sample ID:	40272
Test Site:	Eurofins Product Service GmbH
Operator:	Godson Offorji
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 23 °Celsius, Vnom: 5 VDC
Antenna:	Schwarzbeck HWRD 650
Measurement distance:	3 m
Mode:	Tx; BT-LE, 2480 MHz, PRBS9, 193 Bytes
Test Date:	2022-07-11
Note:	EUT Horizontal



Frequency 13.359 GHz	Peak 43.06 dBµV/m	Peak Limit 74 dBµV/m	Peak Difference -30.94 dB	Peak Status Pass	Polarization Horizontal
Frequency 13.359 GHz	Average 31.44 dBµV/m	Average Limit 54 dBµV/m	Average Difference -22.56 dB	Average Status Pass	Polarization Horizontal

Radiated Spurious Emissions according to FCC 15.247; RSS-247, ISSUE 2

Project Number:	G0M-2205-1483
Applicant:	Kistler Instrumente AG
Model Description:	Handheld Messgerät
Model:	5811A
Test Sample ID:	40272
Test Site:	Eurofins Product Service GmbH
Operator:	Godson Offorji
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; BT-LE, 2480 MHz, PRBS9, 193 Bytes
Test Date:	2022-07-11
Note:	EUT Vertical

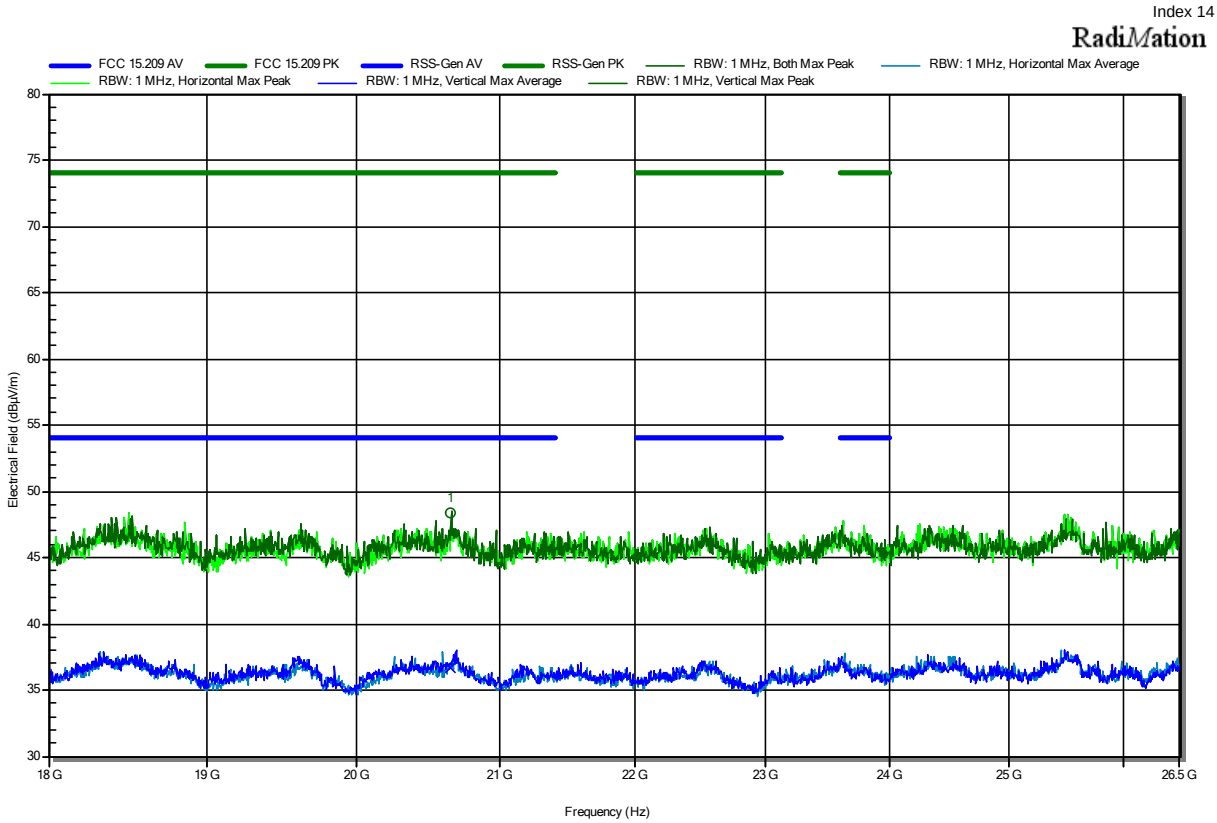


Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
17.769 GHz	43.33 dBµV/m	74 dBµV/m	-30.67 dB	Pass	Vertical

Frequency	Average	Average Limit	Average Difference	Average Status	Polarization
17.769 GHz	31.42 dBµV/m	54 dBµV/m	-22.58 dB	Pass	Vertical

Radiated Spurious Emissions according to FCC 15.247; RSS-247, ISSUE 2

Project Number:	G0M-2205-1483
Applicant:	Kistler Instrumente AG
Model Description:	Handheld Messgerät
Model:	5811A
Test Sample ID:	40272
Test Site:	Eurofins Product Service GmbH
Operator:	Godson Offorji
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; BT-LE, 2480 MHz, PRBS9, 193 Bytes
Test Date:	2022-07-11
Note:	EUT Vertical

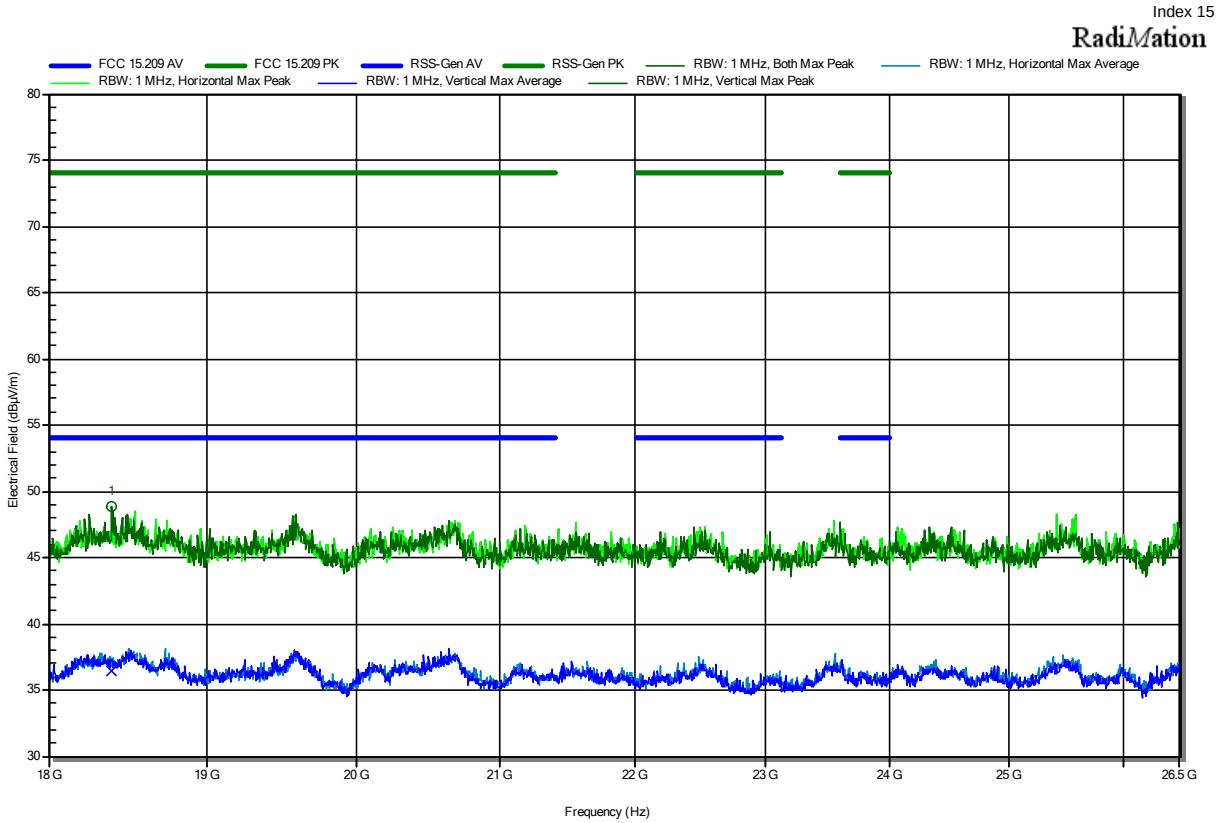


Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
20.654 GHz	48.43 dBµV/m	74 dBµV/m	-25.57 dB	Pass	Vertical

Frequency	Average	Average Limit	Average Difference	Average Status	Polarization
20.654 GHz	36.74 dBµV/m	54 dBµV/m	-17.26 dB	Pass	Vertical

Radiated Spurious Emissions according to FCC 15.247; RSS-247, ISSUE 2

Project Number:	G0M-2205-1483
Applicant:	Kistler Instrumente AG
Model Description:	Handheld Messgerät
Model:	5811A
Test Sample ID:	40272
Test Site:	Eurofins Product Service GmbH
Operator:	Godson Offorji
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; BT-LE, 2480 MHz, PRBS9, 193 Bytes
Test Date:	2022-07-11
Note:	EUT Horizontal



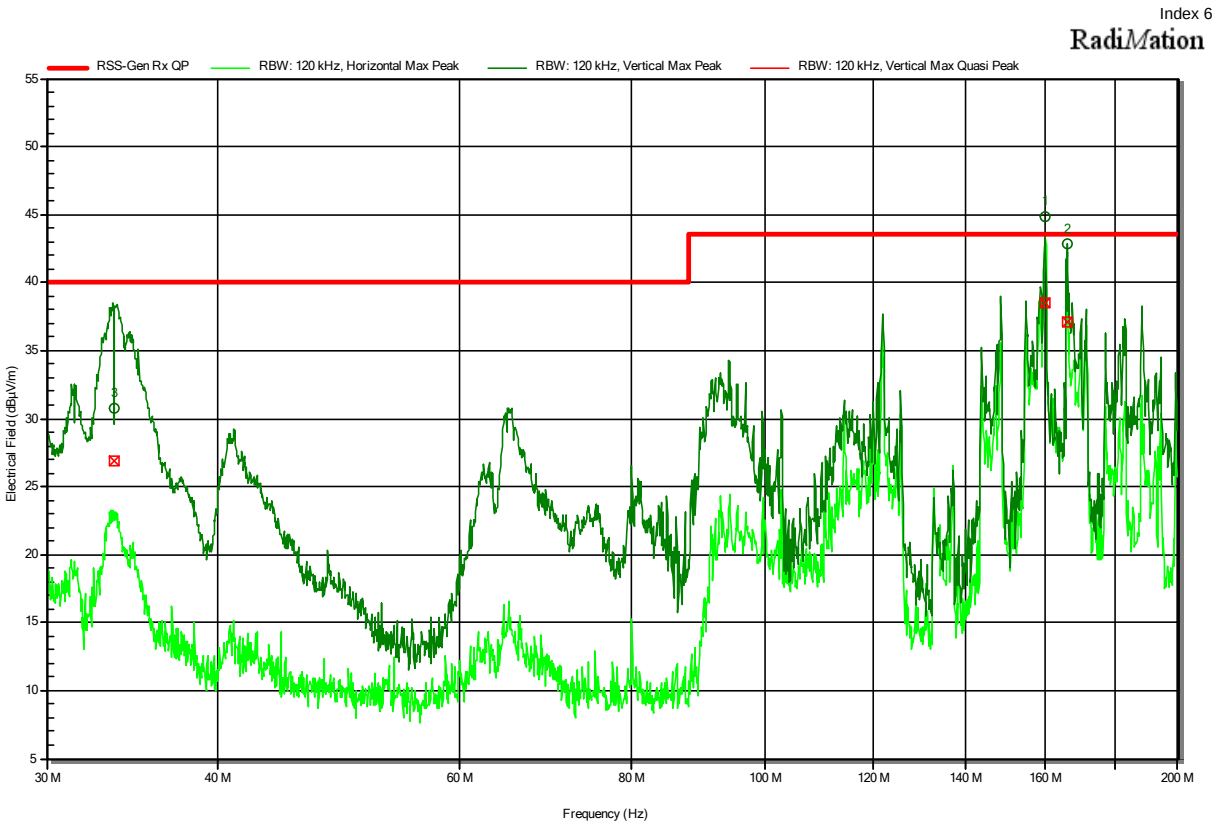
Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
18.39 GHz	48.85 dBµV/m	74 dBµV/m	-25.15 dB	Pass	Vertical

Frequency	Average	Average Limit	Average Difference	Average Status	Polarization
18.39 GHz	36.49 dBµV/m	54 dBµV/m	-17.51 dB	Pass	Vertical

ANNEX B Receiver spurious emissions

Radiated Spurious Emissions according to RSS-Gen Issue 5, RSS-247 Issue 2

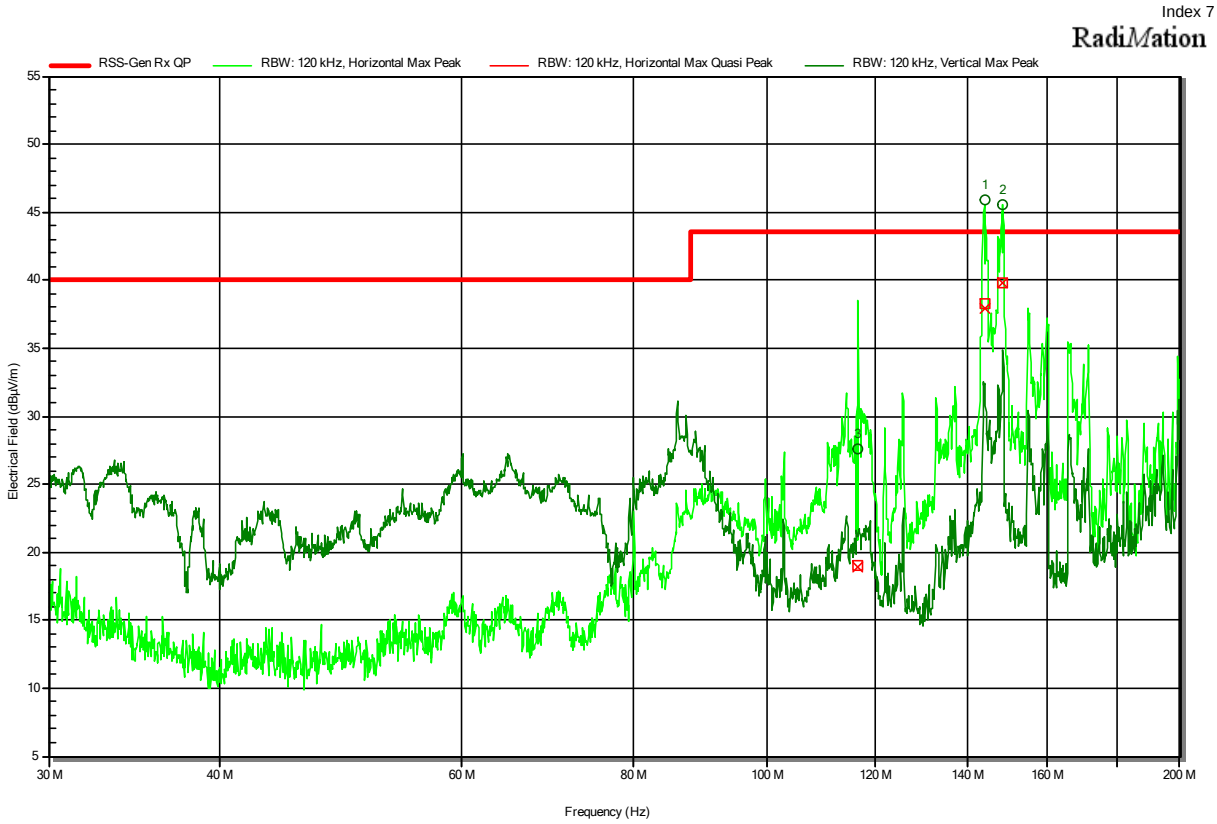
Project Number:	G0M-2205-1483
Applicant:	Kistler Instrumente AG
Model Description:	Handheld
Model:	5811A
Test Sample ID:	40272
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Qawasmeh
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 21 °Celsius, Vnom:
Antenna:	Rohde & Schwarz HK 116
Measurement distance:	3 m
Mode:	Rx; BT-LE, 2480 MHz
Test Date:	2022-07-08
Note:	EUT vertical



Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	Polarization
33.638 MHz	26.9 dBµV/m	40 dBµV/m	-13.13 dB	Pass	Vertical
159.8473 MHz	38.5 dBµV/m	43.5 dBµV/m	-5.02 dB	Pass	Vertical
166.0684 MHz	37.1 dBµV/m	43.5 dBµV/m	-6.37 dB	Pass	Vertical

Radiated Spurious Emissions according to RSS-Gen Issue 5, RSS-247 Issue 2

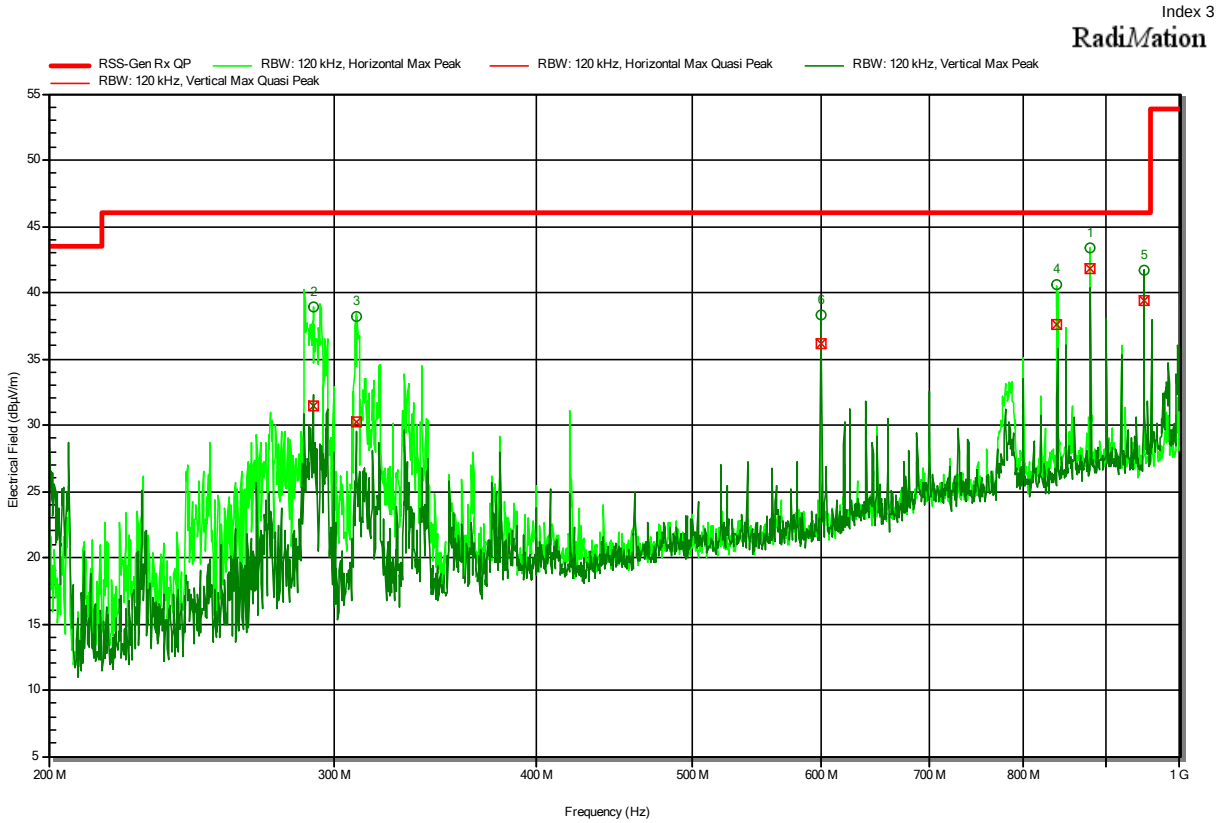
Project Number:	G0M-2205-1483
Applicant:	Kistler Instrumente AG
Model Description:	Handheld
Model:	5811A
Test Sample ID:	40272
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Qawasmeh
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 21 °Celsius, Vnom:
Antenna:	Rohde & Schwarz HK 116
Measurement distance:	3 m
Mode:	Rx; BT-LE, 2480 MHz
Test Date:	2022-07-08
Note:	EUT horizontal



Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	Polarization
116.4705 MHz	19.1 dBµV/m	43.5 dBµV/m	-24.45 dB	Pass	Horizontal
144.1321 MHz	38.3 dBµV/m	43.5 dBµV/m	-5.23 dB	Pass	Horizontal
148.5399 MHz	39.8 dBµV/m	43.5 dBµV/m	-3.73 dB	Pass	Horizontal

Radiated Spurious Emissions according to RSS-Gen Issue 5, RSS-247 Issue 2

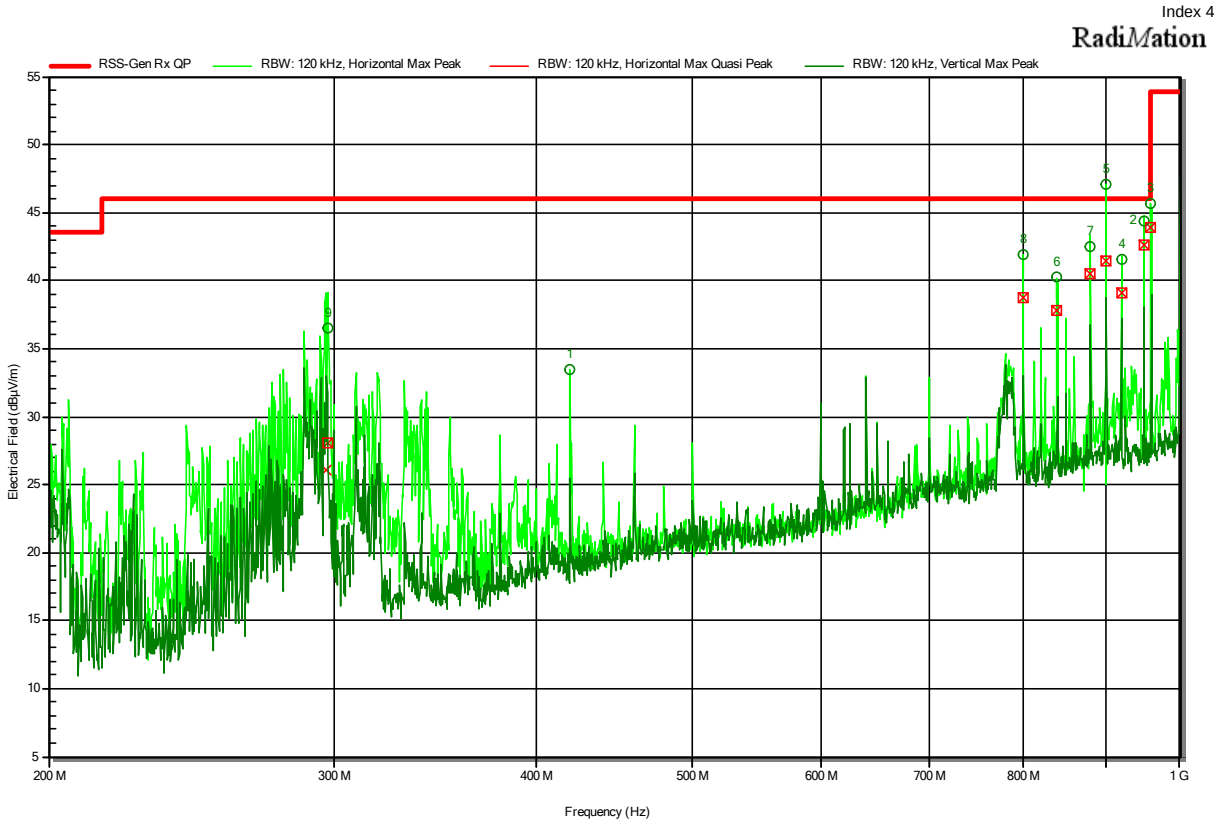
Project Number:	G0M-2205-1483
Applicant:	Kistler Instrumente AG
Model Description:	Handheld
Model:	5811A
Test Sample ID:	40272
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Qawasmeh
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 21 °Celsius, Vnom:
Antenna:	Rohde & Schwarz HL 223
Measurement distance:	3 m
Mode:	Rx; BT-LE, 2480 MHz
Test Date:	2022-07-01
Note:	EUT vertical



Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	Polarization
291.277 MHz	31.5 dBµV/m	46 dBµV/m	-14.53 dB	Pass	Horizontal
309.7726 MHz	30.2 dBµV/m	46 dBµV/m	-15.78 dB	Pass	Horizontal
599.9861 MHz	36.1 dBµV/m	46 dBµV/m	-9.87 dB	Pass	Vertical
840.0064 MHz	37.6 dBµV/m	46 dBµV/m	-8.45 dB	Pass	Horizontal
879.9895 MHz	41.8 dBµV/m	46 dBµV/m	-4.24 dB	Pass	Horizontal
950.0001 MHz	39.4 dBµV/m	46 dBµV/m	-6.57 dB	Pass	Vertical

Radiated Spurious Emissions according to RSS-Gen Issue 5, RSS-247 Issue 2

Project Number:	G0M-2205-1483
Applicant:	Kistler Instrumente AG
Model Description:	Handheld
Model:	5811A
Test Sample ID:	40272
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Qawasmeh
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 21 °Celsius, Vnom:
Antenna:	Rohde & Schwarz HL 223
Measurement distance:	3 m
Mode:	Rx; BT-LE, 2480 MHz
Test Date:	2022-07-01
Note:	EUT horizontal

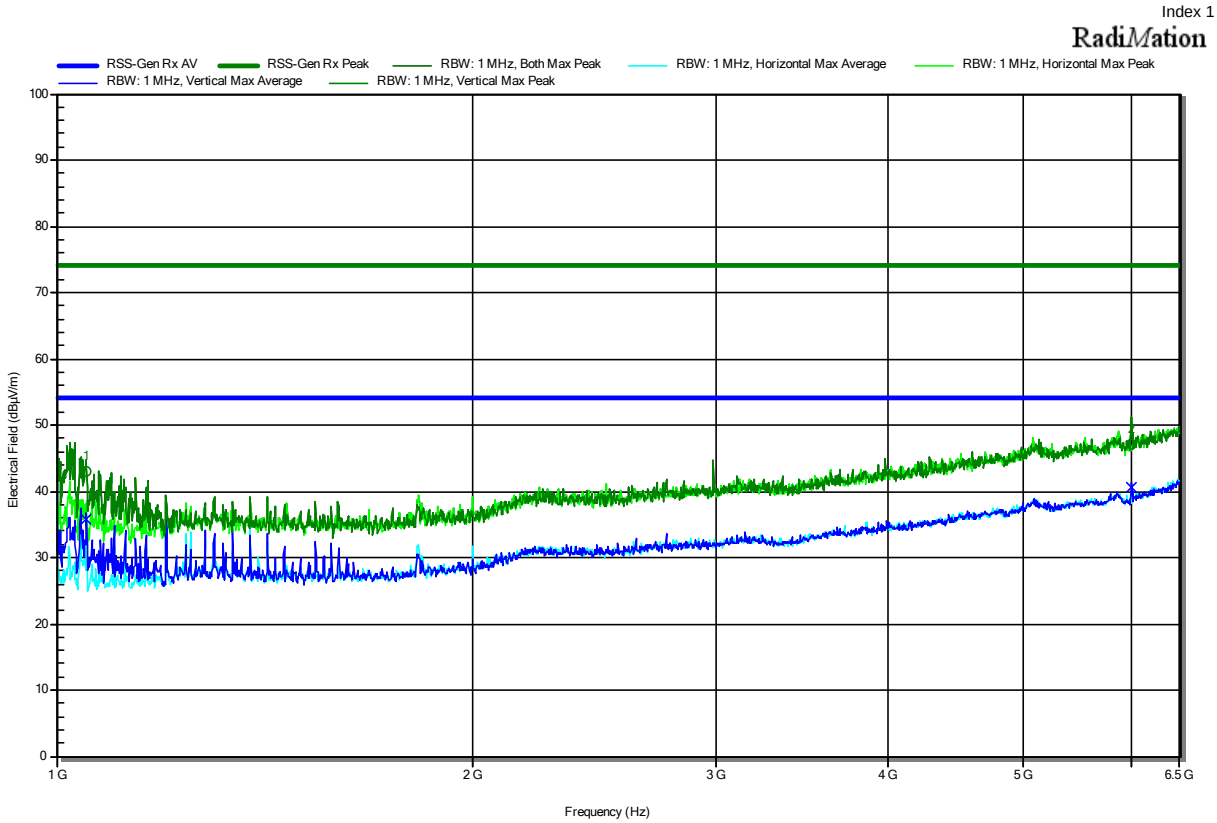


Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
420 MHz	33.5 dBµV/m	46 dBµV/m	-12.53 dB	Pass	Horizontal

Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	Polarization
297.3586 MHz	28.1 dBµV/m	46 dBµV/m	-17.93 dB	Pass	Horizontal
799.9958 MHz	38.8 dBµV/m	46 dBµV/m	-7.21 dB	Pass	Horizontal
839.993 MHz	37.8 dBµV/m	46 dBµV/m	-8.2 dB	Pass	Horizontal
879.9841 MHz	40.5 dBµV/m	46 dBµV/m	-5.52 dB	Pass	Horizontal
899.9936 MHz	41.5 dBµV/m	46 dBµV/m	-4.5 dB	Pass	Horizontal
919.9803 MHz	39.1 dBµV/m	46 dBµV/m	-6.95 dB	Pass	Horizontal
950 MHz	42.6 dBµV/m	46 dBµV/m	-3.44 dB	Pass	Horizontal
959.9994 MHz	43.9 dBµV/m	46 dBµV/m	-2.11 dB	Pass	Horizontal

Radiated Spurious Emissions according to RSS-Gen Issue 5, RSS-247 Issue 2

Project Number:	G0M-2205-1483
Applicant:	Kistler Instrumente AG
Model Description:	Handheld
Model:	5811A
Test Sample ID:	40272
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Qawasmeh
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 21 °Celsius, Vnom:
Antenna:	Schwarzbeck BBHA 9120D
Measurement distance:	3 m
Mode:	Rx; BT-LE, 2480 MHz
Test Date:	2022-07-01
Note:	

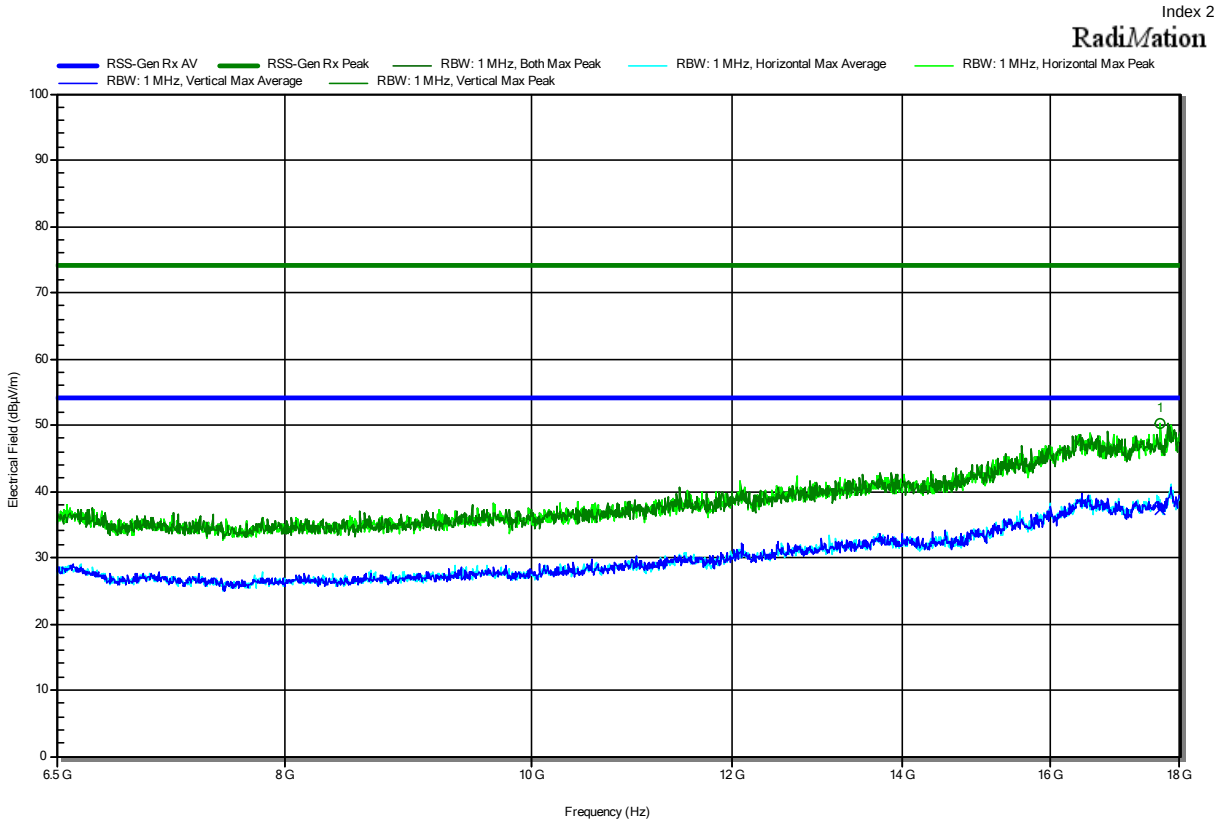


Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
1.05 GHz	43.11 dBµV/m	74 dBµV/m	-30.89 dB	Pass	Vertical
5.995 GHz	47.22 dBµV/m	74 dBµV/m	-26.78 dB	Pass	Vertical

Frequency	Average	Average Limit	Average Difference	Average Status	Polarization
1.05 GHz	35.67 dBµV/m	53.98 dBµV/m	-18.31 dB	Pass	Vertical
5.995 GHz	40.61 dBµV/m	53.98 dBµV/m	-13.37 dB	Pass	Vertical

Radiated Spurious Emissions according to RSS-Gen Issue 5, RSS-247 Issue 2

Project Number:	G0M-2205-1483
Applicant:	Kistler Instrumente AG
Model Description:	Handheld
Model:	5811A
Test Sample ID:	40272
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Qawasmeh
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 21 °Celsius, Vnom:
Antenna:	Schwarzbeck HWRD 650
Measurement distance:	3 m
Mode:	Rx; BT-LE, 2480 MHz
Test Date:	2022-07-01
Note:	



Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
17.685 GHz	50.24 dBµV/m	74 dBµV/m	-23.76 dB	Pass	Horizontal

Frequency	Average	Average Limit	Average Difference	Average Status	Polarization
17.685 GHz	37.27 dBµV/m	53.98 dBµV/m	-16.71 dB	Pass	Horizontal

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