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-2104-9736-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-2 DAkkS - Registration number : D-PL-12092-01-04 (FCC) FCC Filed Test Laboratory, Reg.-No.: 96970
Applicant	ANDREAS STIHL AG & Co. KG
Address	Andreas-Stihl-Straße 4 71336 Waiblingen GERMANY
Test Specification	47 CFR Part 15C RSS-247, Issue 2, 2017-02 RSS-Gen, Issue 5, Amendment 1, 2019-03
Non-Standard Test Method	None
Equipment under Test (EUT):	
Product Description	STIHL Smart Connector 2 A / STIHL Part No. CA01-400-4900-A
Model(s)	SC2A
Additional Model(s)	None
Brand Name(s)	STIHL
Hardware Version(s)	01.00
Software Version(s)	01.16
FCC ID	2ALP8SC2A
IC	23431-SC2A
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	2021-05-20
Report:	

Compiled by	Florian Voigt	
Tested by (+ signature) (Responsible for Test)	Florian Voigt Wilfried Treffke	F. Vogt W. Treffke .....
Approved by (+ signature) (Deputy Head of Lab)	Toralf Jahn	T. J .....
Date of Issue	2021-06-18	
Total number of pages	88	

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	2021-06-18	Initial Release	

ABBREVIATIONS AND ACRONYMS

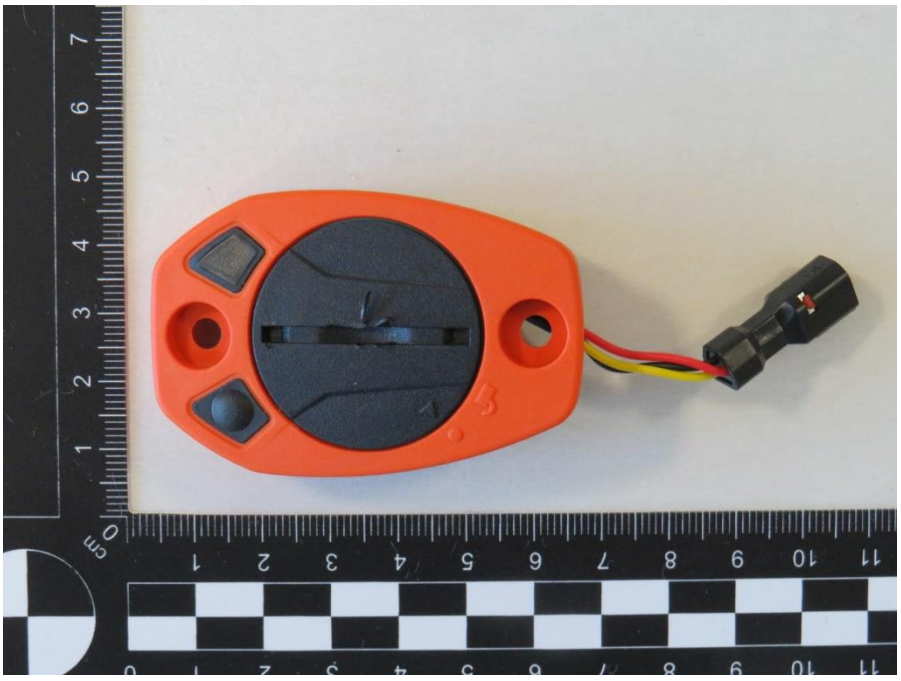
Acronyms	
Acronym	Description
EUT	Equipment Under Test
FCC	Federal Communications Commission
ISED	Innovation, Science and Economic Development Canada
RBW	Resolution bandwidth
RMS	Root mean square
VBW	Video bandwidth
V_{NOM}	Nominal supply voltage

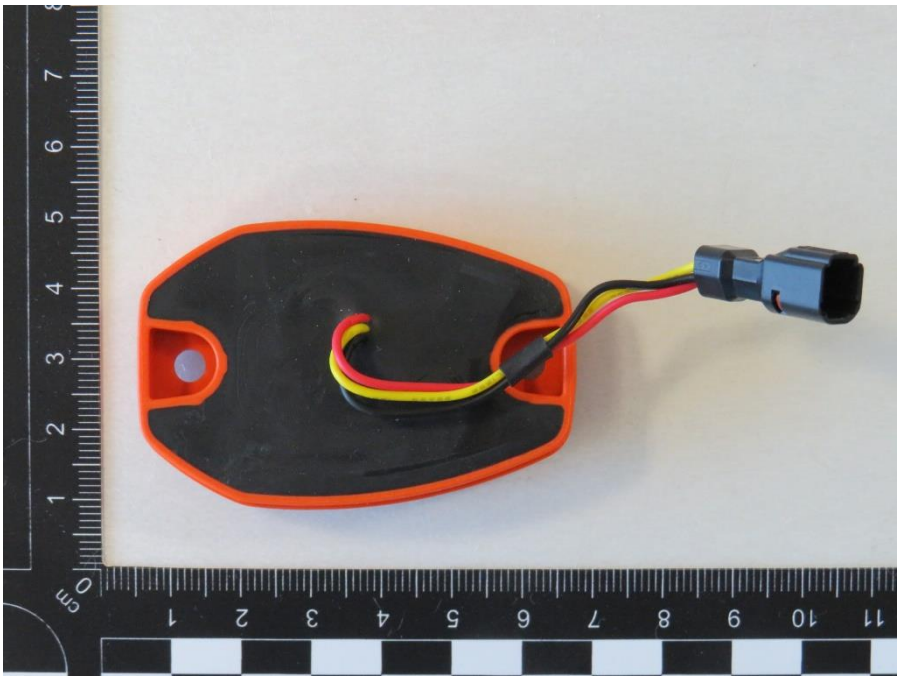
REPORT INDEX

1 Equipment (Test Item) Under Test

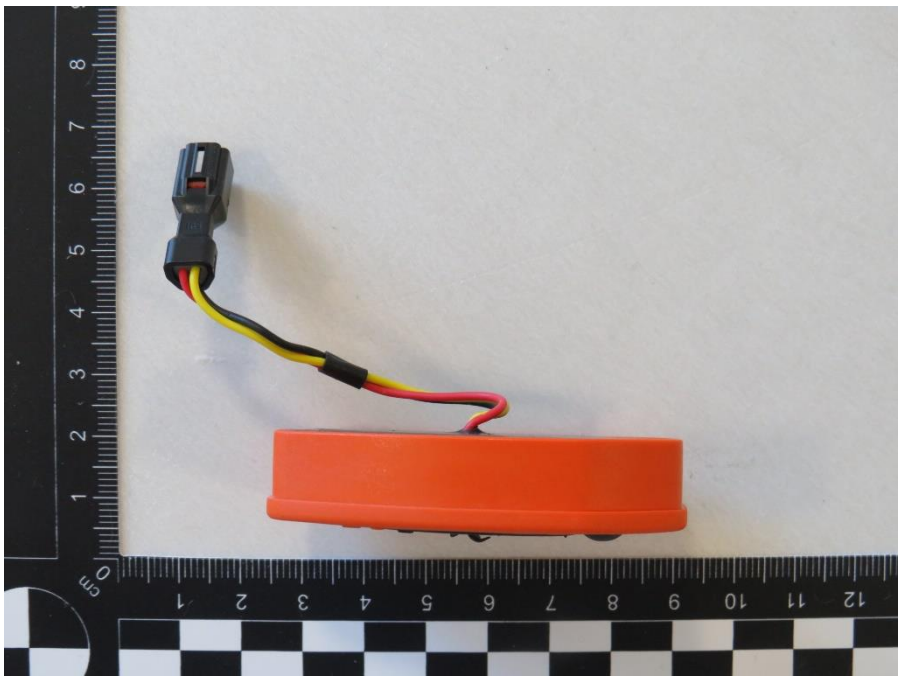
Description	STIHL Smart Connector 2 A / STIHL Part No. CA01-400-4900-A		
Model	SC2A		
Additional Model(s)	None		
Brand Name(s)	STIHL		
Serial Number(s)	None		
Test sample Id(s)	34607 34694		
Hardware Version(s)	01.00		
Software Version(s)	01.16		
PMN	Smart Connector 2 A		
HVIN	SC2A		
FVIN	n/a		
HMN	n/a		
FCC ID	2ALP8SC2A		
IC	23431-SC2A		
Equipment type	End Product		
Radio type	Transceiver		
Assigned frequency bands	2400.0 MHz - 2483.5 MHz		
Radio technology	Bluetooth LE 4.2		
Bluetooth Specification	LE 1M PHY		Yes
	LE 2M PHY		No
	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 antenna	
	Model	PCB antenna	
	Manufacturer	ANDREAS STIHL AG & Co. KG	
	Gain	-1.8 dBi (Customer declaration)	
Supply Voltage	V_{NOM}	3.0 VDC	
Operating Temperature	T_{NOM}	20 °C	
AC/DC-Adaptor	None		
Manufacturer	ANDREAS STIHL AG & Co. KG Andreas-Stihl-Straße 4 71336 Waiblingen GERMANY		

1.1 Photos – Equipment External

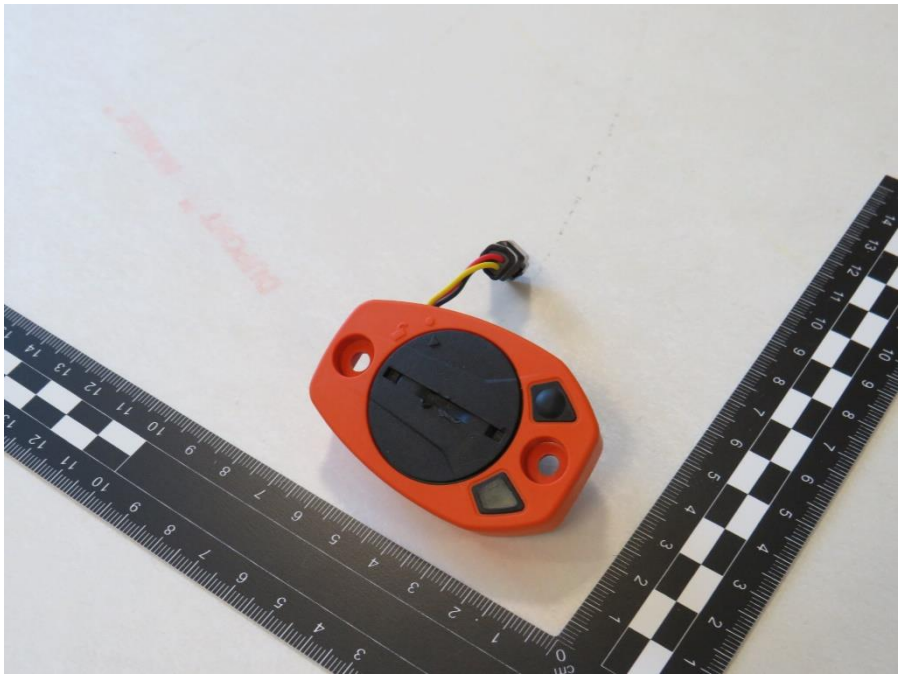
EUT top side view


EUT bottom side view


EUT side view

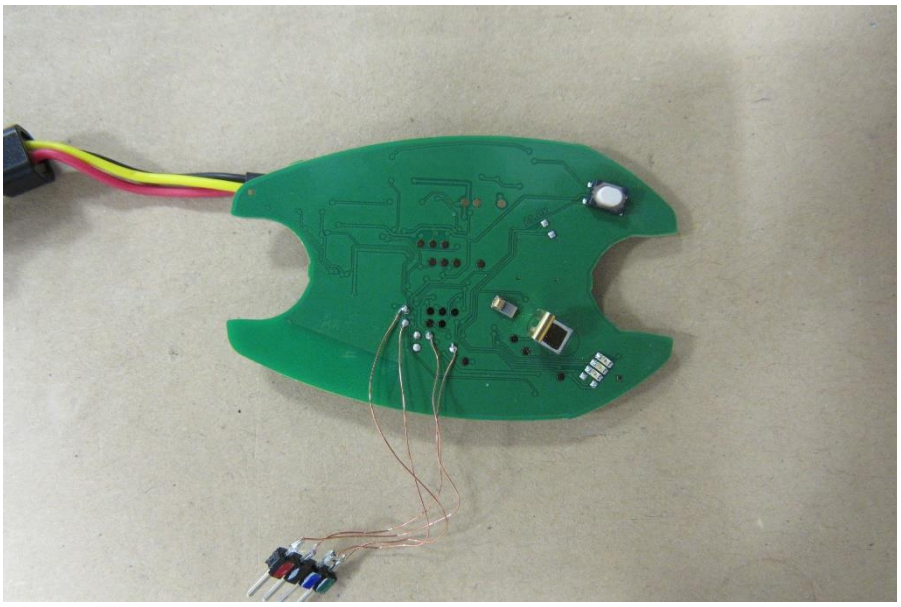


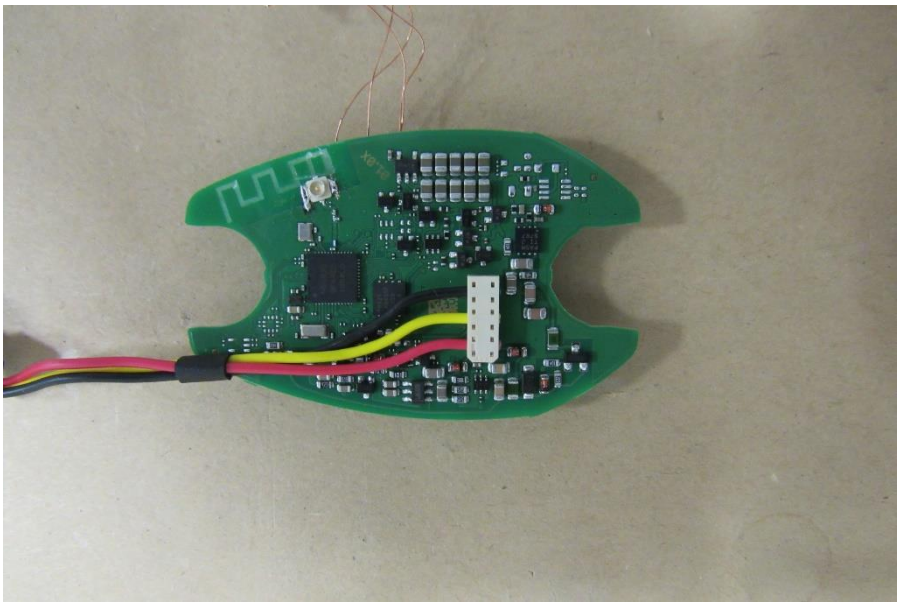
EUT perspective view



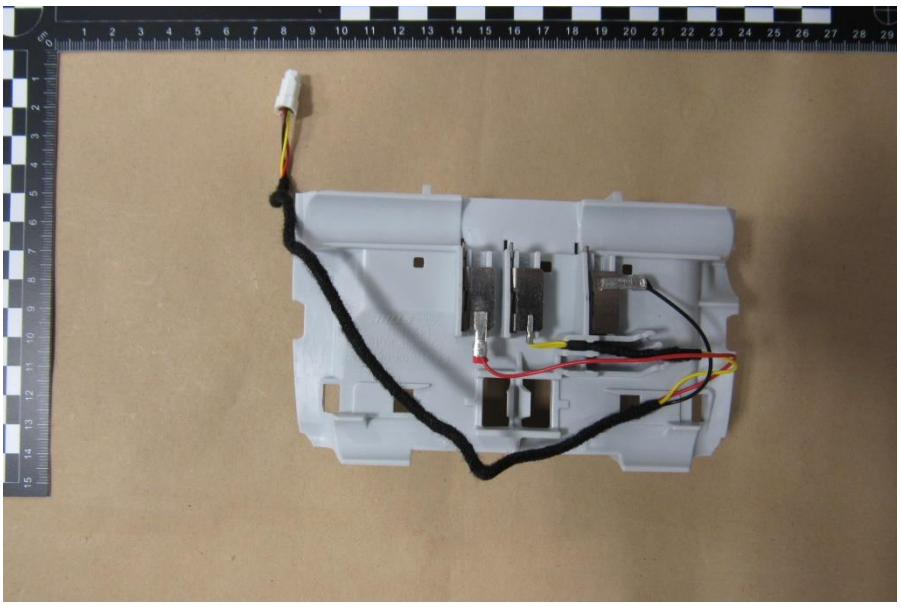
EUT with battery


1.2 Photos – Equipment Internal

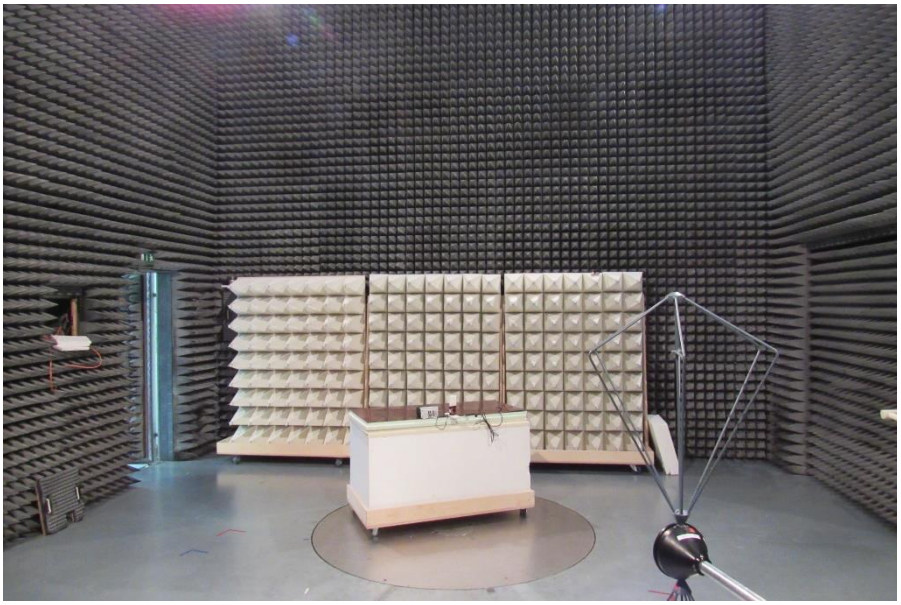
Conducted sample PCB bottom


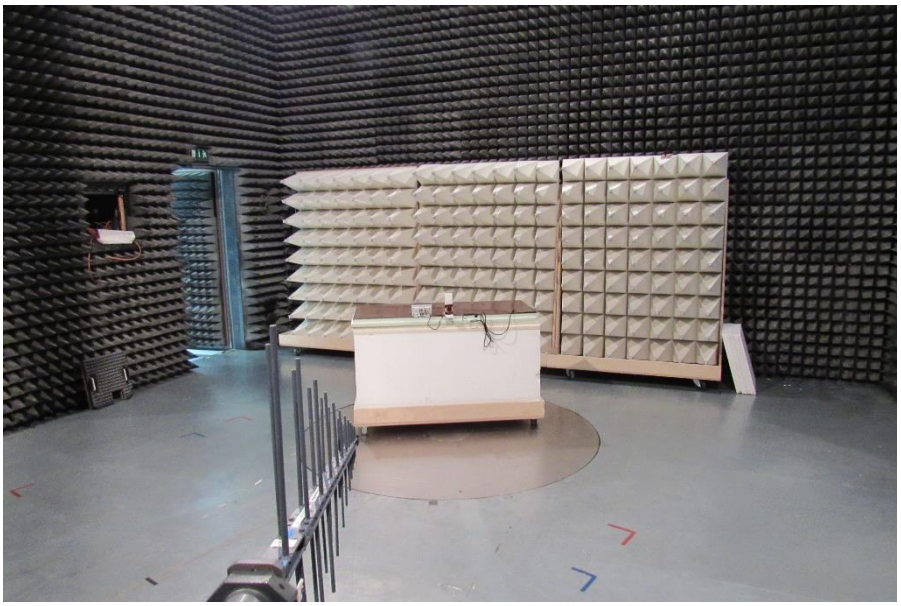
Conducted sample PCB top


AE: Battery

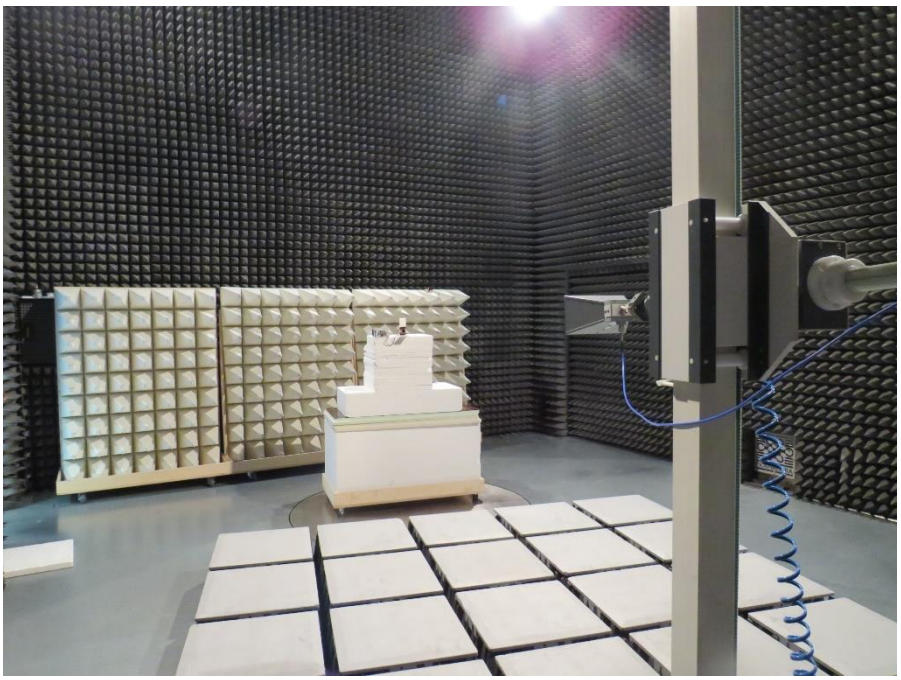

AE: Battery connectors


1.3 Photos – Test Setup

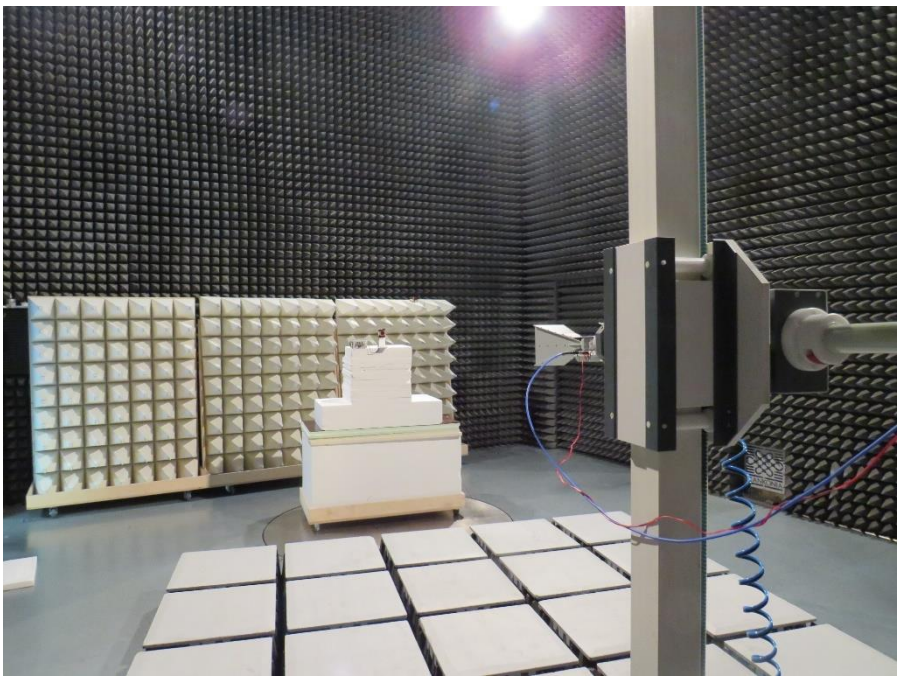
Test Setup Radiated Emissions below 200 MHz


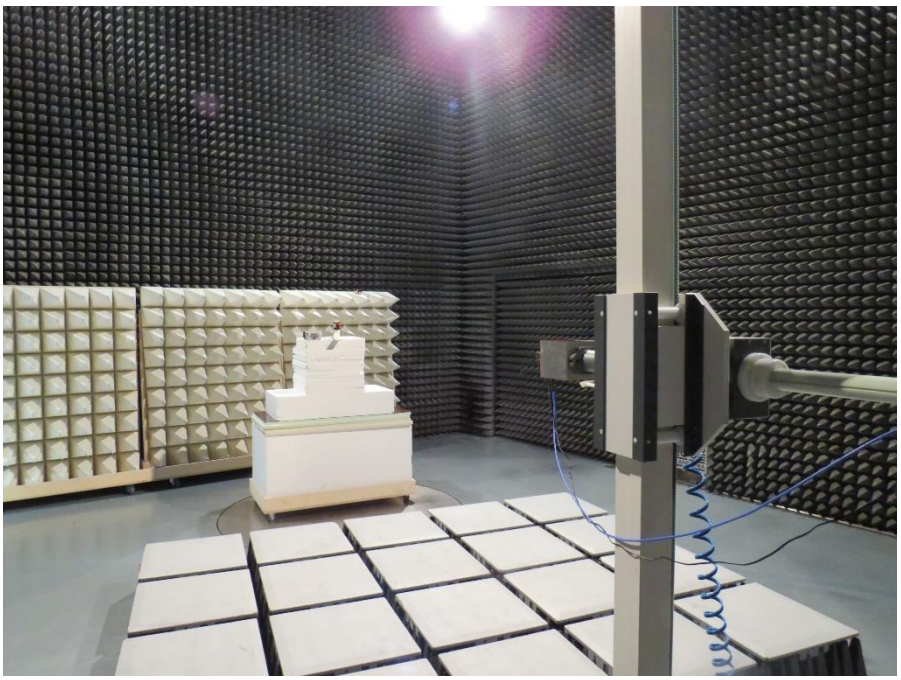
Test Setup Radiated Emissions 200 - 1000 MHz


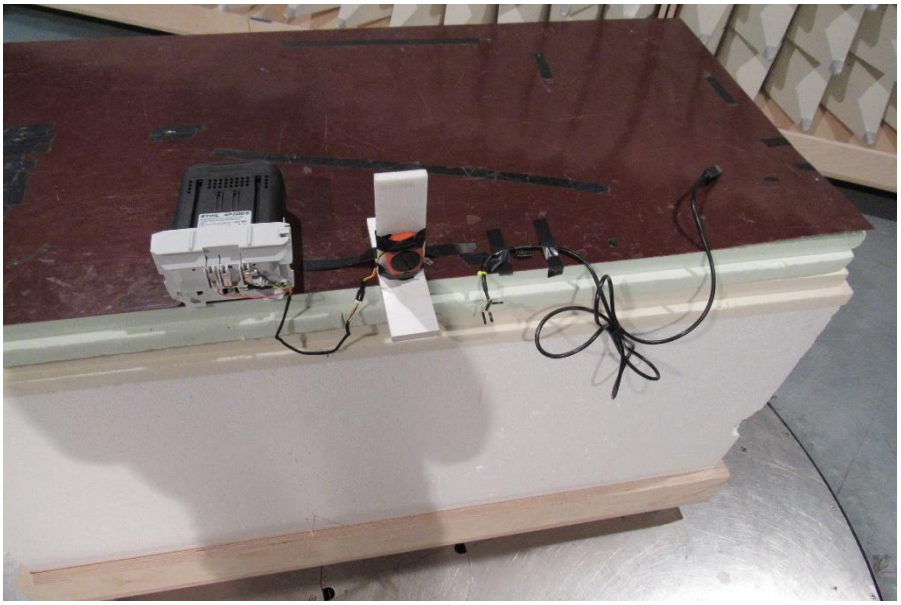
Test Setup Radiated Emissions 1 - 6.5 GHz



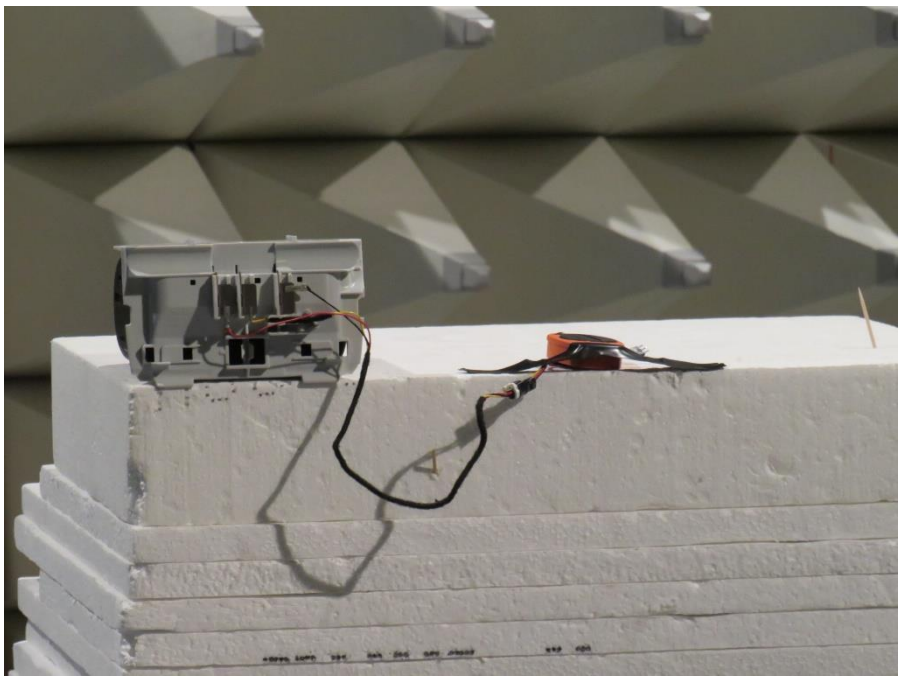
Test setup Radiated Emissions 6.5 - 18 GHz



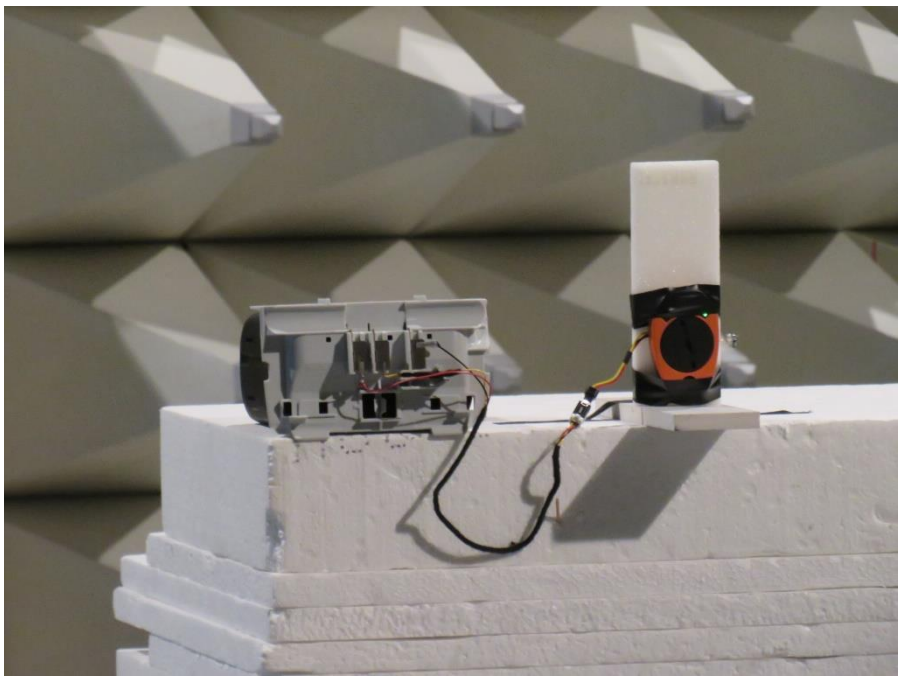
Test Setup Radiated Emissions above 18 GHz


Test Setup Near View Below 1GHz


Test Setup Near View Above 1GHz - EUT horizontal



Test Setup Near View Above 1GHz - EUT vertical



1.4 Support Equipment

Product Type	Device	Manufacturer	Model	Comment
AE	Laptop	Lenovo	T440	
CBL	FTDI cable	Delock	83787	
AE	Lab power supply	Korad	KD6005P	
AE	Battery pack	STIHL	AP 500 S	Connected to datalines of EUT during radiated Tests.
Description:				
AE	Auxiliary Equipment			
SIM	Simulator			
CBL	Connecting Cable			
SFT	Software			
Comment:				

1.5 Test Modes

Mode	Description
GFSK	Mode = Transmit Modulation = GFSK Spreading = None Duty cycle = 69%
Receive	Mode = Receive
Comment:	

1.6 Test Frequencies

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

1.7 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 (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	N/R	Not directly or indirectly connected to AC-Mains
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 (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 C63.10-2013	PASS	
Comment:				

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

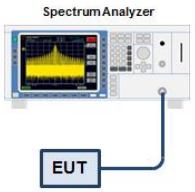
3.1.1 Information

Test Information	
Reference	ISED RSS-Gen, Issue 5 (section 6.7)
Measurement Method	ANSI C63.10 6.9.3
Measurement Uncertainty	± 1.26 %
Test Sample ID	34694
Operator	Florian Voigt
Date	2021-06-16

3.1.2 Limits

Limits
None (Informational only)

3.1.3 Setup

Test Setup


3.1.4 Equipment

Test Equipment					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyser	R&S	FSU 26	EF01407	2020-07	2021-07
Cable (diverse)	– (diverse)	– (diverse)	EF00779 CAABD	2020-12	2021-12

3.1.5 Procedure

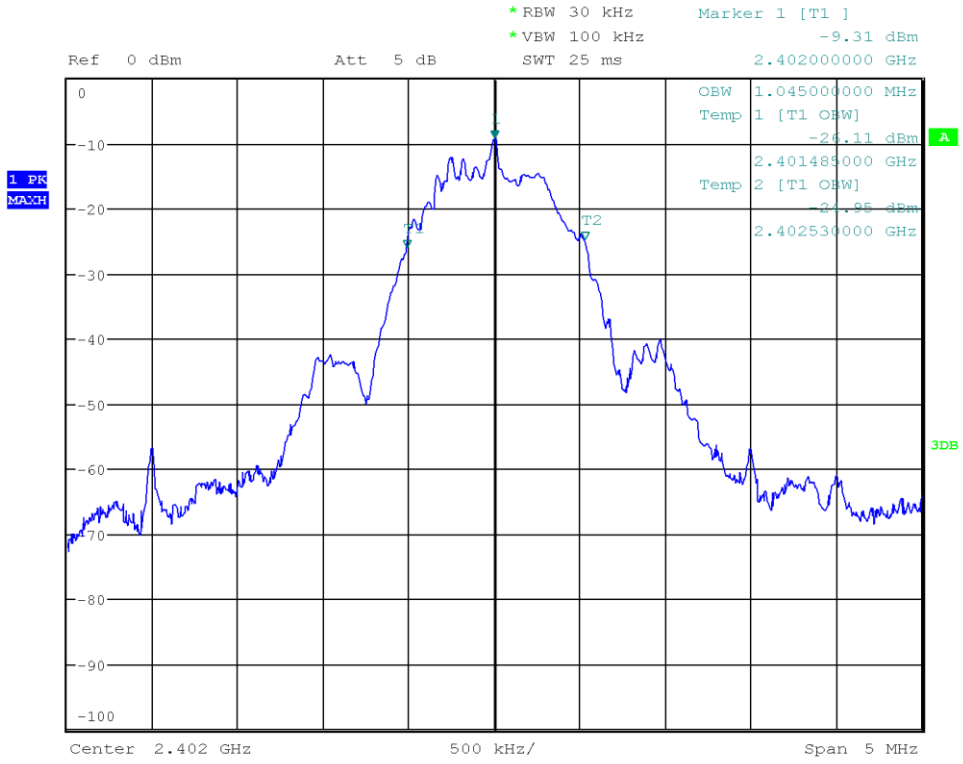
Test Procedure
1. EUT transmitter is activated in test mode under normal conditions 2. The spectrum analyzer is set to peak detection and maximum hold with a span twice the emission spectrum 3. The resolution bandwidth is set to the range of 1 % to 5 % of the occupied bandwidth 4. The occupied bandwidth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

3.1.6 Results

Test Results		
Mode	Frequency [MHz]	Bandwidth [MHz]
GFSK	2402	1.045
GFSK	2440	1.045
GFSK	2480	1.050

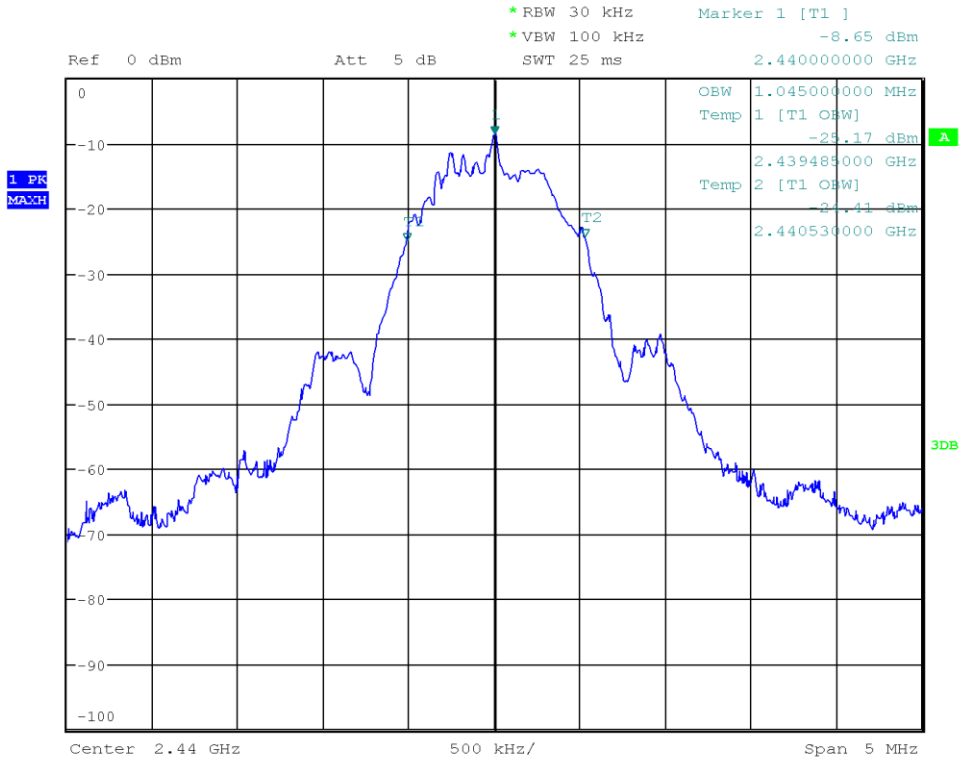
Occupied Bandwidth

Project Number:	G0M-2104-9736
Applicant:	ANDREAS STIHL AG & Co. KG
Model Description:	STIHL Smart Connector 2 A / STIHL Part No. CA01-400-4900-A
Model:	SC2A
Test Sample ID:	34694
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:	2021-06-16
Occupied Bandwidth [MHz]:	1.045



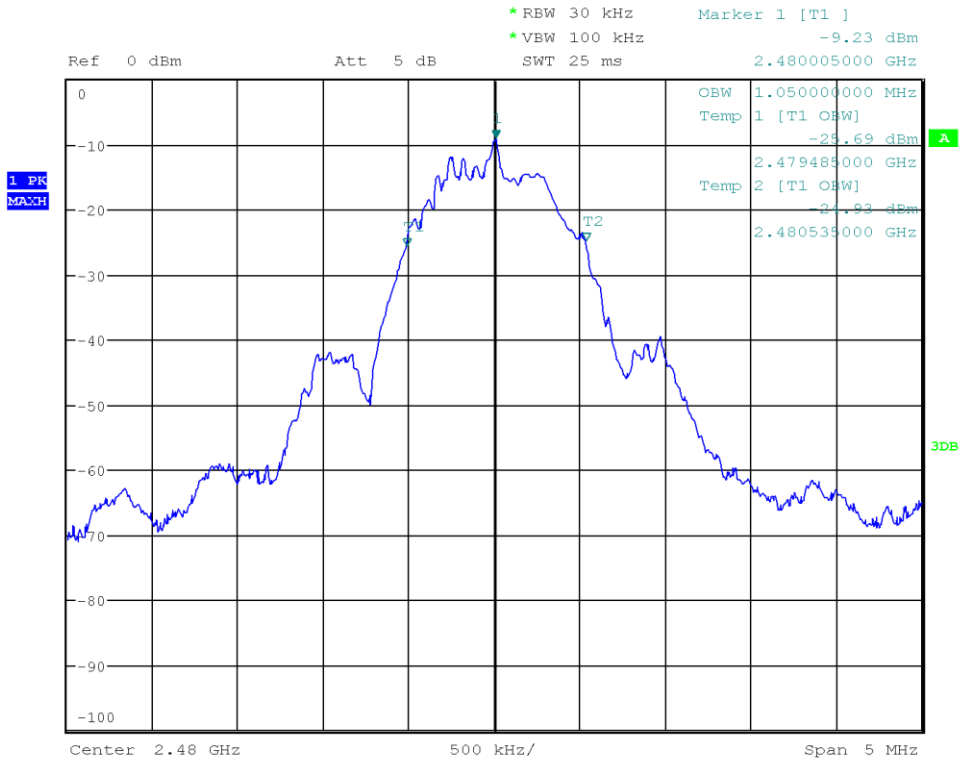
Occupied Bandwidth

Project Number:	G0M-2104-9736
Applicant:	ANDREAS STIHL AG & Co. KG
Model Description:	STIHL Smart Connector 2 A / STIHL Part No. CA01-400-4900-A
Model:	SC2A
Test Sample ID:	34694
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:	2021-06-16
Occupied Bandwidth [MHz]:	1.045



Occupied Bandwidth

Project Number:	G0M-2104-9736
Applicant:	ANDREAS STIHL AG & Co. KG
Model Description:	STIHL Smart Connector 2 A / STIHL Part No. CA01-400-4900-A
Model:	SC2A
Test Sample ID:	34694
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:	2021-06-16
Occupied Bandwidth [MHz]:	1.050



3.2 Test Conditions and Results - 6 dB bandwidth

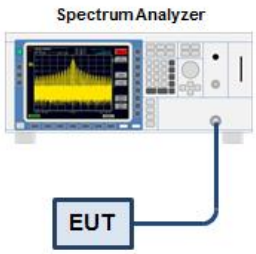
3.2.1 Information

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	Florian Voigt
Date	2021-06-16

3.2.2 Limits

Limits
≥ 500kHz

3.2.3 Setup

Test Setup


3.2.4 Equipment

Test Equipment					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyser	R&S	FSU 26	EF01407	2020-07	2021-07
Cable (diverse)	– (diverse)	– (diverse)	EF00779 CAABD	2020-12	2021-12

3.2.5 Procedure

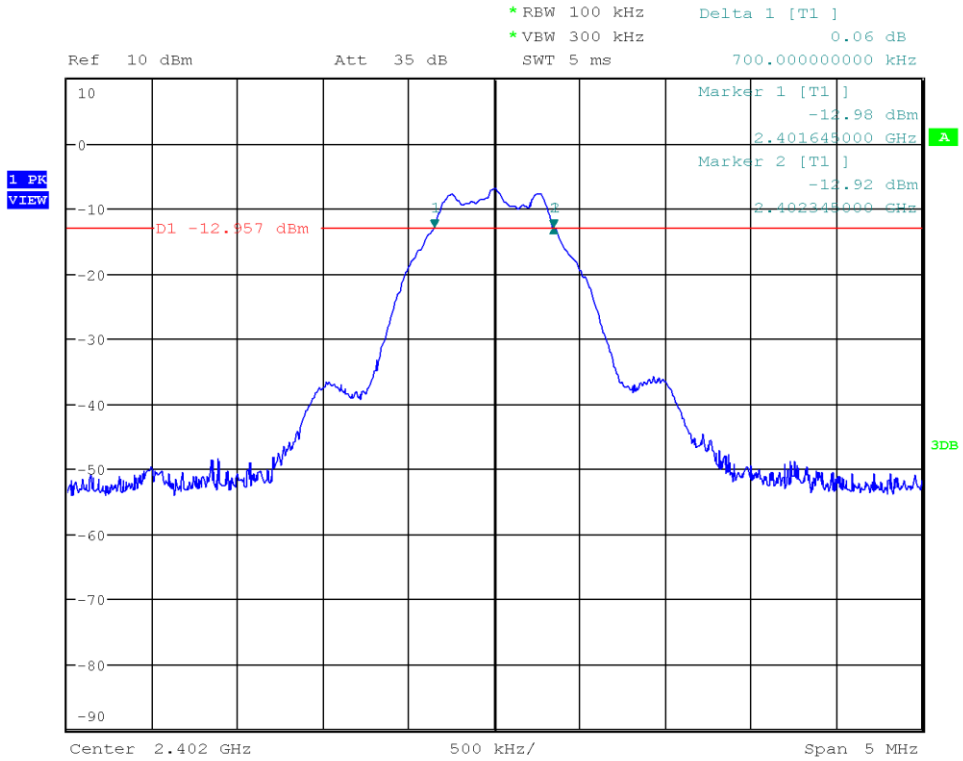
Test Procedure
1. EUT set to test mode 2. Span set to at least twice the emission spectrum 3. Detector set to peak and max hold and RBW is set to 100 kHz 4. Envelope peak value of emission spectrum is selected 5. Marker on envelope of spectrum is set to level of -6 dB to the left of the peak 6. Marker 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	2402	700	500	PASS
GFSK	2440	700	500	PASS
GFSK	2480	700	500	PASS

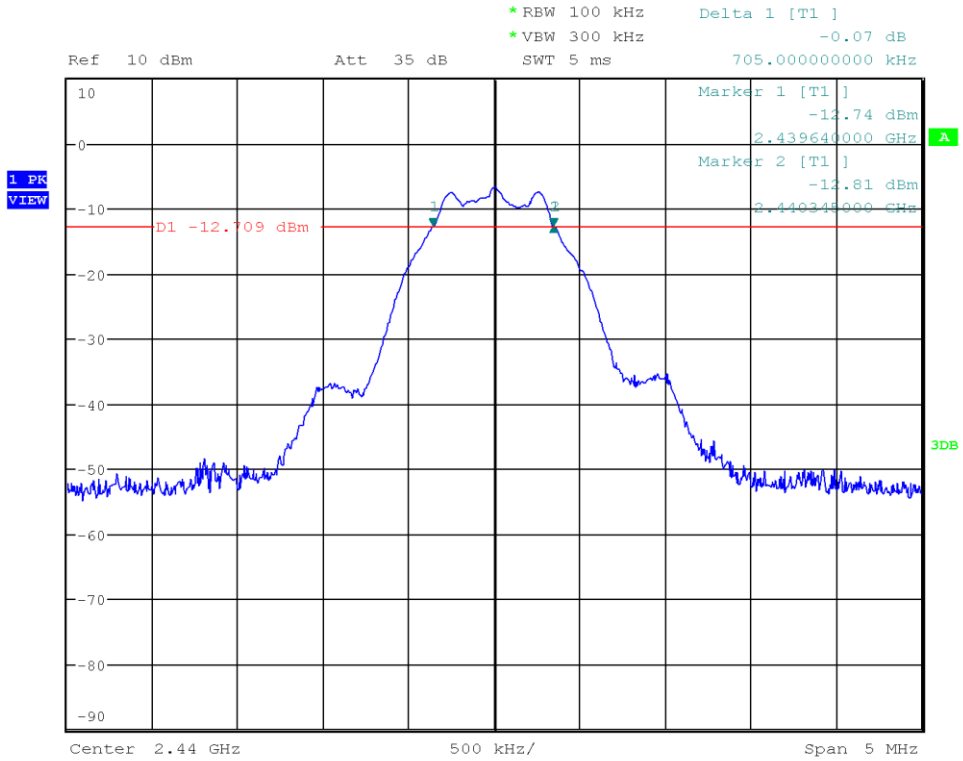
DTS (6 dB) Bandwidth

Project Number:	G0M-2104-9736
Applicant:	ANDREAS STIHL AG & Co. KG
Model Description:	STIHL Smart Connector 2 A / STIHL Part No. CA01-400-4900-A
Model:	SC2A
Test Sample ID:	34694
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:	Florian Voigt
Test Site:	Eurofins Product Service GmbH
Test Date:	2021-06-16
Lower Frequency [MHz]:	2401.645
Upper Frequency [MHz]:	2402.345
6 dB Bandwidth [kHz]:	700



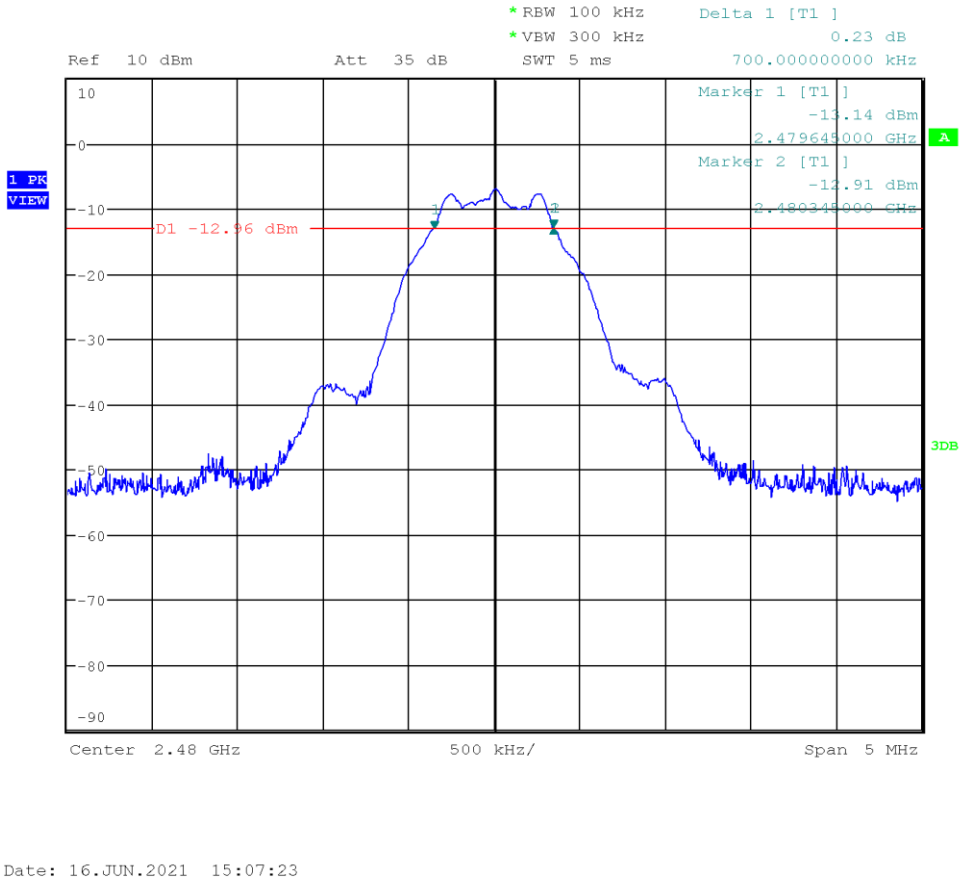
DTS (6 dB) Bandwidth

Project Number:	G0M-2104-9736
Applicant:	ANDREAS STIHL AG & Co. KG
Model Description:	STIHL Smart Connector 2 A / STIHL Part No. CA01-400-4900-A
Model:	SC2A
Test Sample ID:	34694
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:	Florian Voigt
Test Site:	Eurofins Product Service GmbH
Test Date:	2021-06-16
Lower Frequency [MHz]:	2439.640
Upper Frequency [MHz]:	2440.345
6 dB Bandwidth [kHz]:	705



DTS (6 dB) Bandwidth

Project Number:	G0M-2104-9736
Applicant:	ANDREAS STIHL AG & Co. KG
Model Description:	STIHL Smart Connector 2 A / STIHL Part No. CA01-400-4900-A
Model:	SC2A
Test Sample ID:	34694
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:	Florian Voigt
Test Site:	Eurofins Product Service GmbH
Test Date:	2021-06-16
Lower Frequency [MHz]:	2479.645
Upper Frequency [MHz]:	2480.345
6 dB Bandwidth [kHz]:	700



3.3 Test Conditions and Results - Maximum peak conducted output power

3.3.1 Information

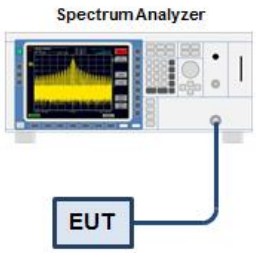
Test Information	
Reference	FCC § 15.247(b); ISED RSS-247, Issue 2 (section 5.4)
Measurement Method	ANSI C63.10 11.9.1
Measurement Uncertainty	± 2.86 dB
Operator	Florian Voigt
Date	2021-06-16

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

Test Setup



3.3.4 Equipment

Test Equipment					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyser	R&S	FSU 26	EF01407	2020-07	2021-07
Cable (diverse)	– (diverse)	– (diverse)	EF00779 CAABD	2020-12	2021-12

3.3.5 Procedure

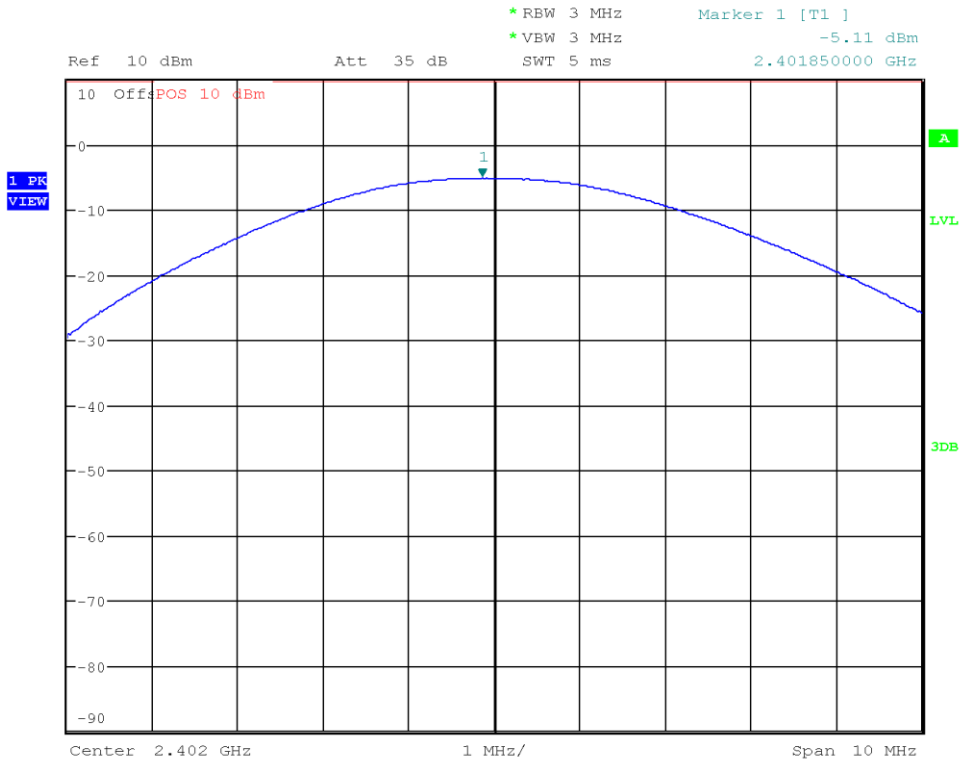
Test Procedure
1. EUT set to test mode (Communication tester is used if needed) 2. Analyzer resolution bandwidth is set ≥ DTS bandwidth 3. Detector set to peak and max hold 4. Sweep time is set to auto 5. After the trace has stabilized a marker is set to peak of envelope

3.3.6 Results

Test Results				
Channel [MHz]	Power [dBm]	Power [W]	Limit [W]	Verdict
2402	-5.1	0.00031	1.0	PASS
2440	-4.9	0.00032	1.0	PASS
2480	-5.1	0.00031	1.0	PASS

Peak Conducted Output Power

Project Number:	G0M-2104-9736
Applicant:	ANDREAS STIHL AG & Co. KG
Model Description:	STIHL Smart Connector 2 A / STIHL Part No. CA01-400-4900-A
Model:	SC2A
Test Sample ID:	34694
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:	Florian Voigt
Test Site:	Eurofins Product Service GmbH
Test Date:	2021-06-16
Peak Power [dBm]:	-5.111
Peak Power [W]:	0.0003



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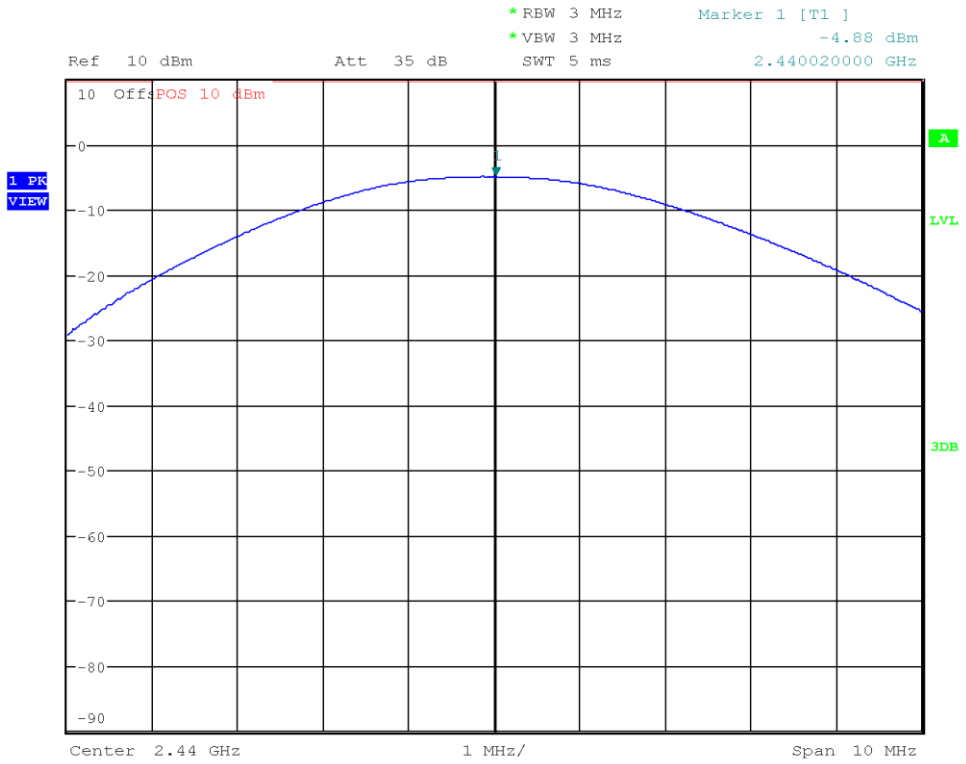
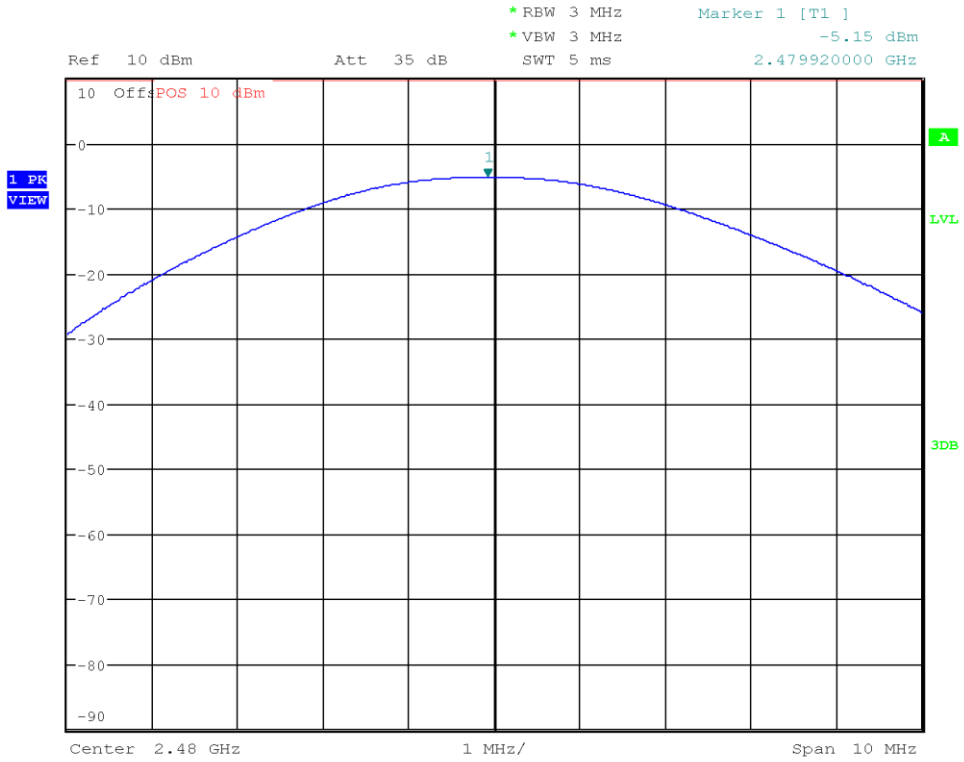
Peak Conducted Output Power

Project Number:	G0M-2104-9736
Applicant:	ANDREAS STIHL AG & Co. KG
Model Description:	STIHL Smart Connector 2 A / STIHL Part No. CA01-400-4900-A
Model:	SC2A
Test Sample ID:	34694
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:	Florian Voigt
Test Site:	Eurofins Product Service GmbH
Test Date:	2021-06-16
Peak Power [dBm]:	-4.880
Peak Power [W]:	0.0003



Peak Conducted Output Power

Project Number:	G0M-2104-9736
Applicant:	ANDREAS STIHL AG & Co. KG
Model Description:	STIHL Smart Connector 2 A / STIHL Part No. CA01-400-4900-A
Model:	SC2A
Test Sample ID:	34694
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:	Florian Voigt
Test Site:	Eurofins Product Service GmbH
Test Date:	2021-06-16
Peak Power [dBm]:	-5.149
Peak Power [W]:	0.0003



3.4 Test Conditions and Results - Power spectral density

3.4.1 Information

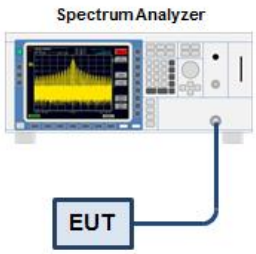
Test Information	
Reference	FCC § 15.247(e); ISED RSS-247, Issue 2 (section 5.2)
Measurement Method	ANSI C63.10 11.10.2, 14.3.2
Measurement Uncertainty	± 2.86 dB
Operator	Florian Voigt
Date	2021-06-16

3.4.2 Limits

Limits
8 dBm / 3 kHz

3.4.3 Setup

Test Setup



3.4.4 Equipment

Test Equipment					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyser	R&S	FSU 26	EF01407	2020-07	2021-07
Cable (diverse)	– (diverse)	– (diverse)	EF00779 CAABD	2020-12	2021-12

3.4.5 Procedure

Test Procedure

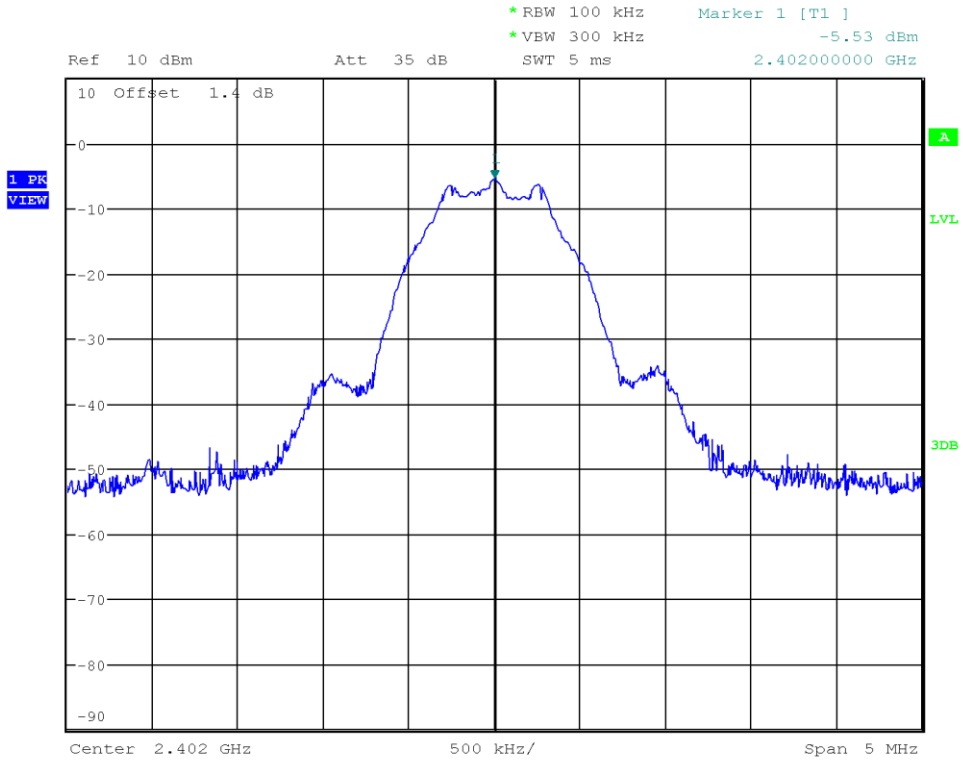
1. EUT set to test mode
2. The analyzer is set to DTS channel center frequency with a span of 1.5 times the DTS bandwidth
3. The RBW is set to 100 kHz with VBW ≥ RBW and the detector is set to peak with max hold
4. After the trace has stabilized a marker is set to the envelope maximum
5. If the power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

3.4.6 Results

Test Results			
Channel [MHz]	PSD [dBm/RBW]	Limit [dBm/3kHz]	Verdict
2402	-5.5	8.0	PASS
2440	-5.3	8.0	PASS
2480	-5.6	8.0	PASS
RBW = 100 kHz			

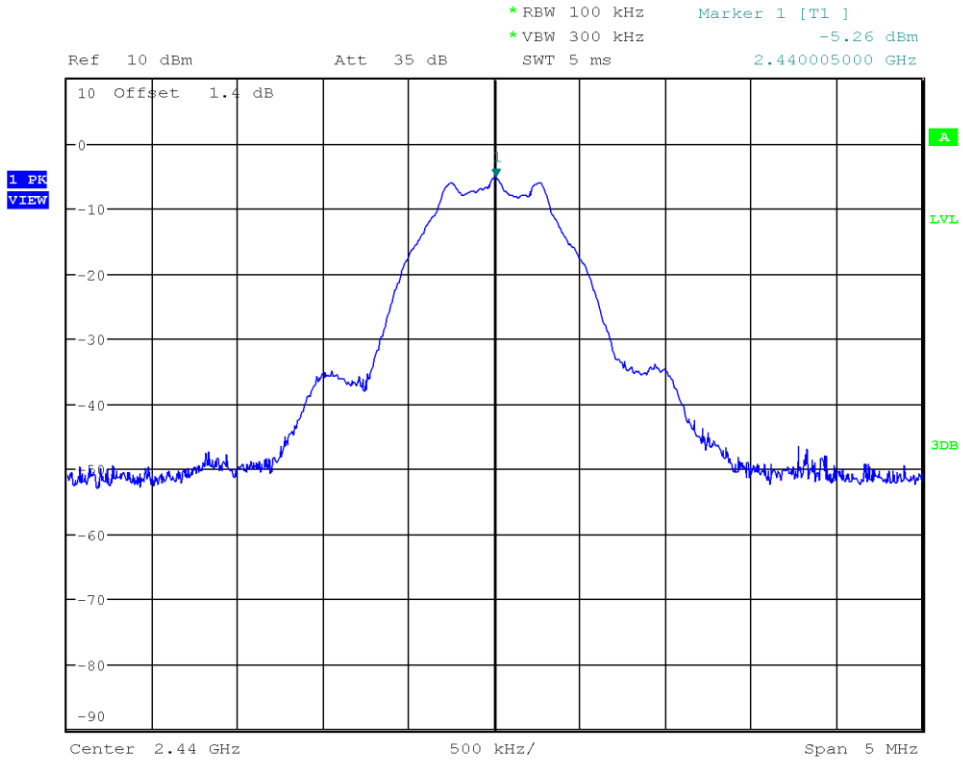
Peak Power Spectral Density

Project Number:	G0M-2104-9736
Applicant:	ANDREAS STIHL AG & Co. KG
Model Description:	STIHL Smart Connector 2 A / STIHL Part No. CA01-400-4900-A
Model:	SC2A
Test Sample ID:	34694
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:	Florian Voigt
Test Site:	Eurofins Product Service GmbH
Test Date:	2021-06-16
Peak Frequency [MHz]:	2402.000
Spectral Density [dBm/RBW]:	-5.529
Resolution Bandwidth [kHz]:	100 kHz



Peak Power Spectral Density

Project Number:	G0M-2104-9736
Applicant:	ANDREAS STIHL AG & Co. KG
Model Description:	STIHL Smart Connector 2 A / STIHL Part No. CA01-400-4900-A
Model:	SC2A
Test Sample ID:	34694
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:	Florian Voigt
Test Site:	Eurofins Product Service GmbH
Test Date:	2021-06-16
Peak Frequency [MHz]:	2440.005
Spectral Density [dBm/RBW]:	-5.261
Resolution Bandwidth [kHz]:	100 kHz



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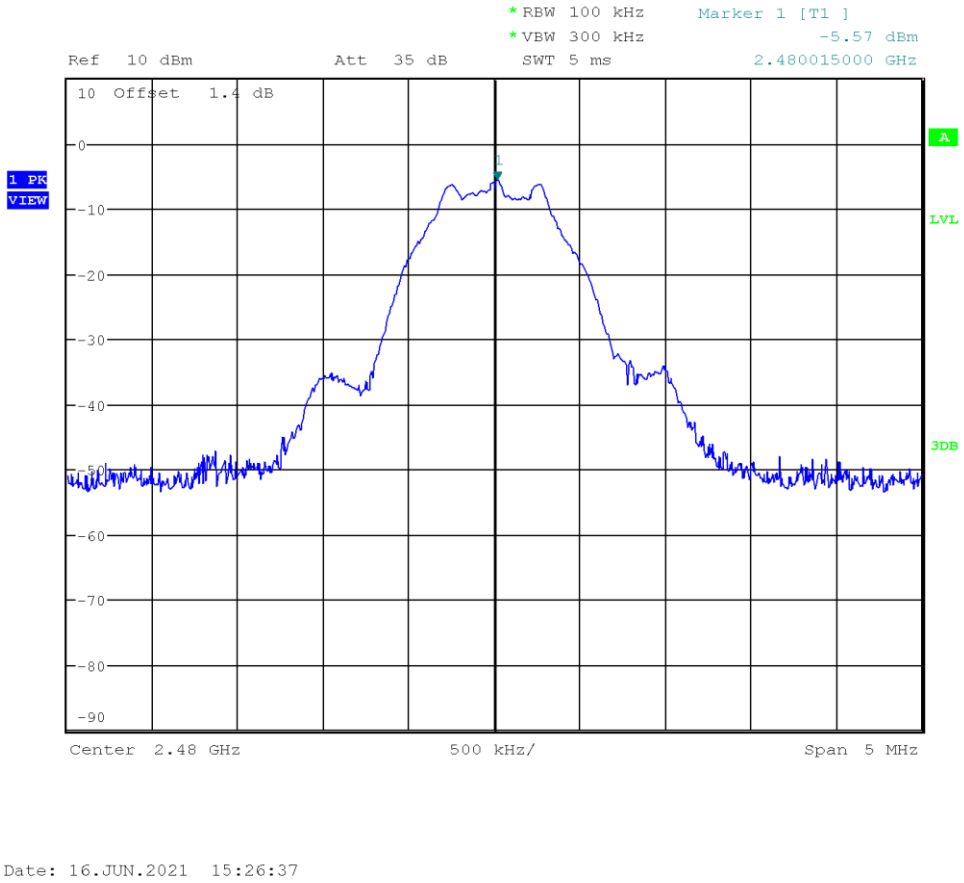
Peak Power Spectral Density

Project Number:	G0M-2104-9736
Applicant:	ANDREAS STIHL AG & Co. KG
Model Description:	STIHL Smart Connector 2 A / STIHL Part No. CA01-400-4900-A
Model:	SC2A
Test Sample ID:	34694
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:	Florian Voigt
Test Site:	Eurofins Product Service GmbH
Test Date:	2021-06-16
Peak Frequency [MHz]:	2480.015
Spectral Density [dBm/RBW]:	-5.568
Resolution Bandwidth [kHz]:	100 kHz



3.5 Test Conditions and Results - Band-edge compliance

3.5.1 Information

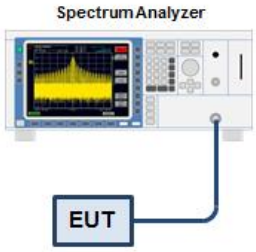
Test Information	
Reference	FCC § 15.247(d); ISED RSS-247, Issue 2 (section 5.5)
Measurement Uncertainty	± 3.64 dB
Measurement Method	ANSI C63.10 11.13
Operator	Florian Voigt
Date	2021-06-16

3.5.2 Limits

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

3.5.3 Setup

Test Setup



3.5.4 Equipment

Test Equipment					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyser	R&S	FSU 26	EF01407	2020-07	2021-07
Cable (diverse)	– (diverse)	– (diverse)	EF00779 CAABD	2020-12	2021-12

3.5.5 Procedure

Test Procedure

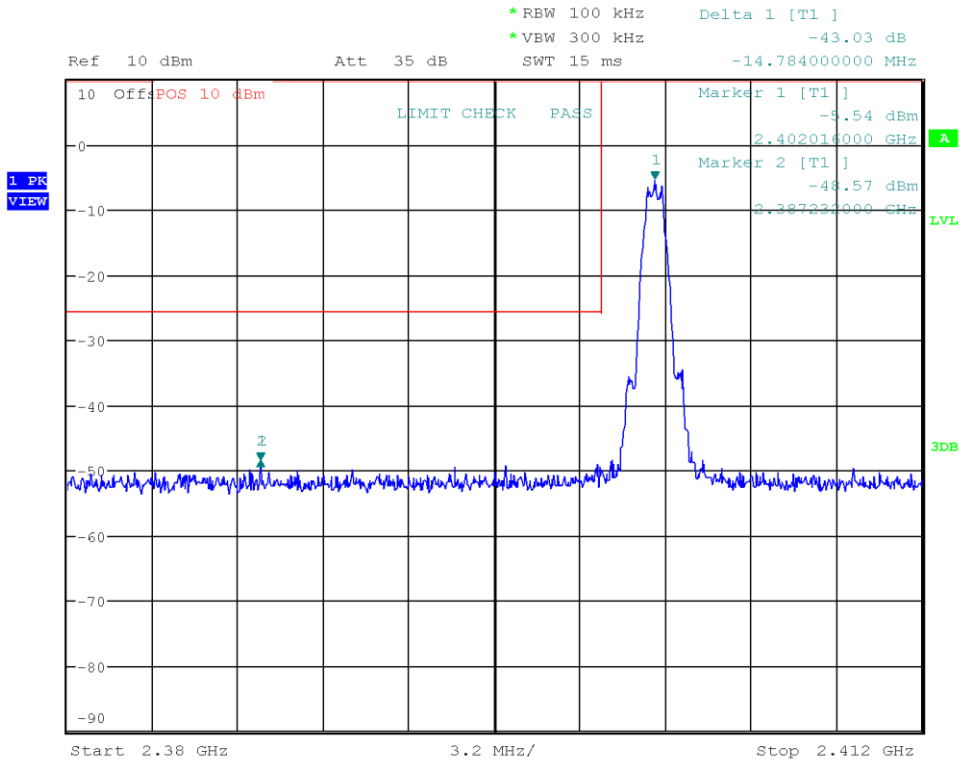
1. EUT set to test mode (Communication tester is used if needed)
2. Span set around lower band edge and detector is set to peak and max hold
3. Resolution bandwidth is set to 100 kHz
4. Markers are set to peak emission levels within frequency band and outside frequency band
5. Band edge attenuation is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

3.5.6 Results

Test Results				
Mode	Channel [MHz]	Out-of-band Attenuation [dB]	Limit [dB]	Verdict
GFSK	2402	-43.03	-20	PASS
GFSK	2480	-43.27	-20	PASS

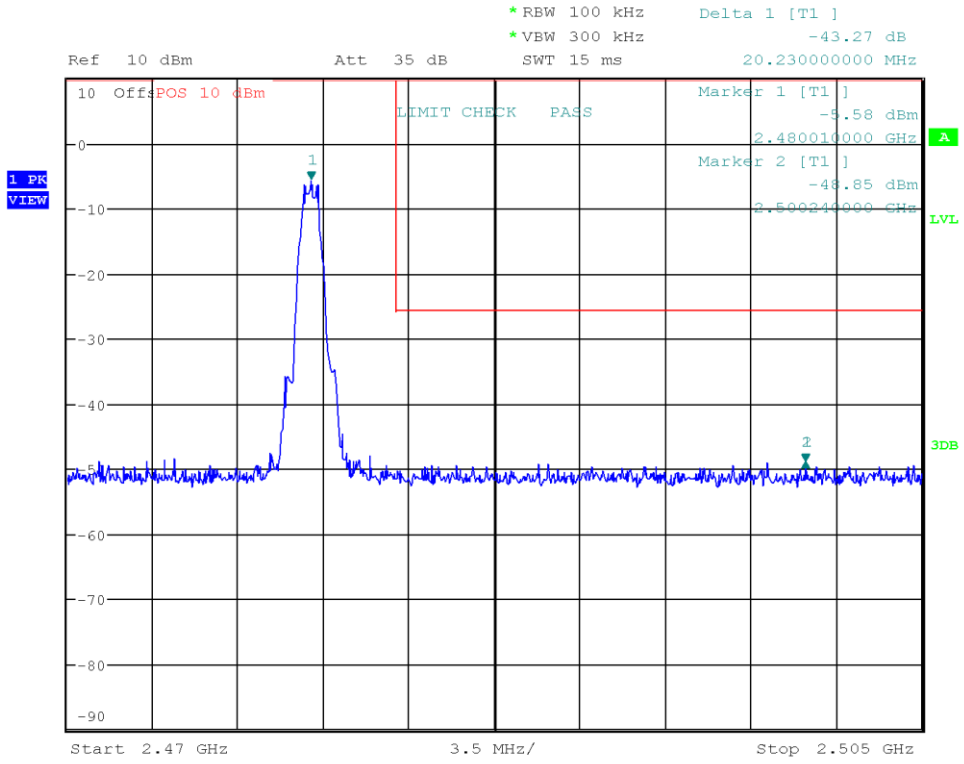
Emissions in nonrestricted frequency bands at the Band-edge

Project Number:	G0M-2104-9736
Applicant:	ANDREAS STIHL AG & Co. KG
Model Description:	STIHL Smart Connector 2 A / STIHL Part No. CA01-400-4900-A
Model:	SC2A
Test Sample ID:	34694
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:	Florian Voigt
Test Site:	Eurofins Product Service GmbH
Test Date:	2021-06-16
Band-edge	Lower
In-band Frequency [MHz]:	2402.016
Max. in-band Level [dBm/100 kHz]:	-5.541
Out-of-band Frequency [MHz]:	2387.232
Max. out-of-band Level [dBm/100 kHz]:	-48.566
Attenuation [dB]:	-43.03



Emissions in nonrestricted frequency bands at the Band-edge

Project Number:	G0M-2104-9736
Applicant:	ANDREAS STIHL AG & Co. KG
Model Description:	STIHL Smart Connector 2 A / STIHL Part No. CA01-400-4900-A
Model:	SC2A
Test Sample ID:	34694
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:	Florian Voigt
Test Site:	Eurofins Product Service GmbH
Test Date:	2021-06-16
Band-edge	Upper
In-band Frequency [MHz]:	2480.01
Max. in-band Level [dBm/100 kHz]:	-5.579
Out-of-band Frequency [MHz]:	2500.24
Max. out-of-band Level [dBm/100 kHz]:	-48.85
Attenuation [dB]:	-43.27



3.6 Test Conditions and Results - Conducted spurious emissions

3.6.1 Information

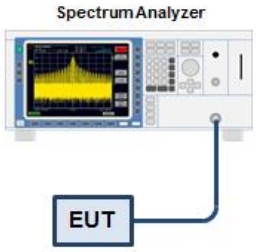
Test Information	
Reference	FCC § 15.247(d); ISED RSS-247, Issue 2 (section 5.5)
Measurement Uncertainty	± 4.25 dB
Measurement Method	ANSI C63.10 11.11
Operator	Florian Voigt
Date	2021-06-16

3.6.2 Limits

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

3.6.3 Setup

Test Setup



3.6.4 Equipment

Test Equipment					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyser	R&S	FSU 26	EF01407	2020-07	2021-07
Cable (diverse)	– (diverse)	– (diverse)	EF00779 CAABD	2020-12	2021-12

3.6.5 Procedure

Test Procedure

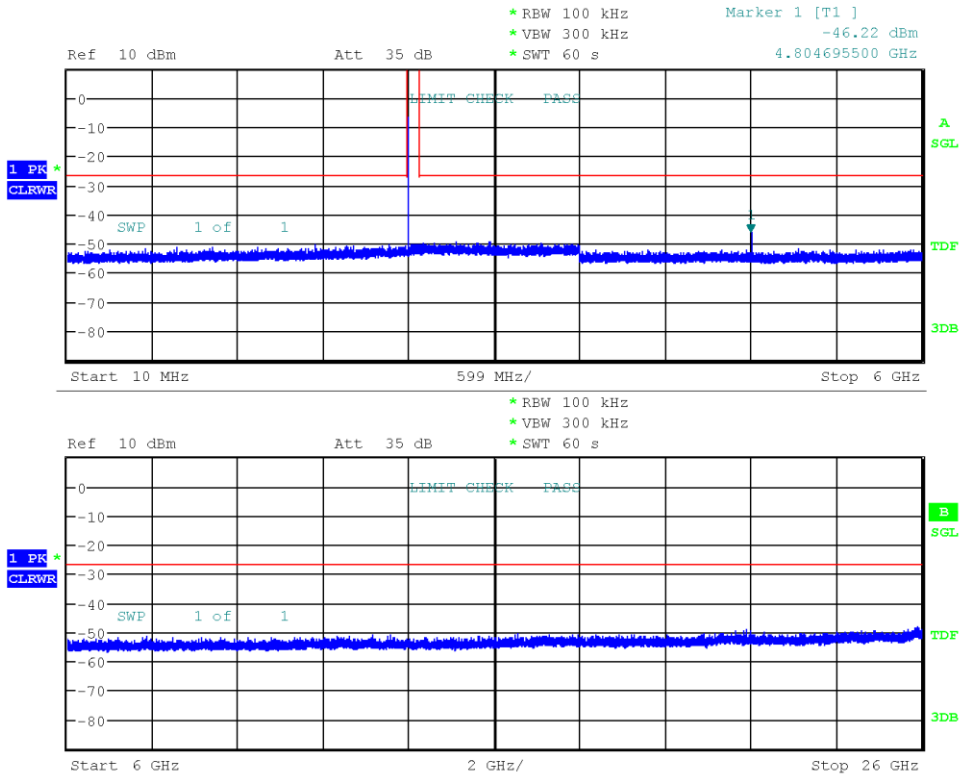
1. EUT set to test mode (Communication tester is used if needed)
2. Span set around lower band edge and detector is set to peak and max hold
3. Resolution bandwidth is set to 100 kHz
4. Markers are set to peak emission levels outside frequency band

3.6.6 Results

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

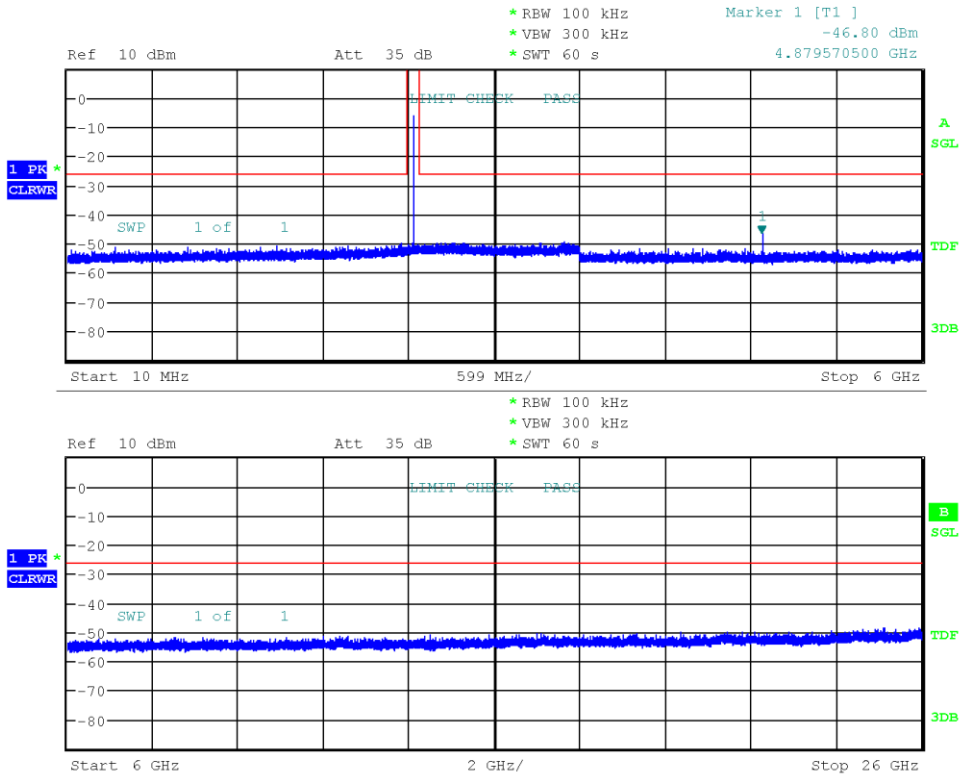
Conducted Spurious Emissions

Project Number:	G0M-2104-9736
Applicant:	ANDREAS STIHL AG & Co. KG
Model Description:	STIHL Smart Connector 2 A / STIHL Part No. CA01-400-4900-A
Model:	SC2A
Test Sample ID:	34694
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:	Florian Voigt
Test Site:	Eurofins Product Service GmbH
Test Date:	2021-06-16
Max. in-band Frequency [MHz]:	2402.0
Max. in-band Level [dBm/100 kHz]:	-6.3
Out-of-band Limit [dBm/100 kHz]:	-26.3



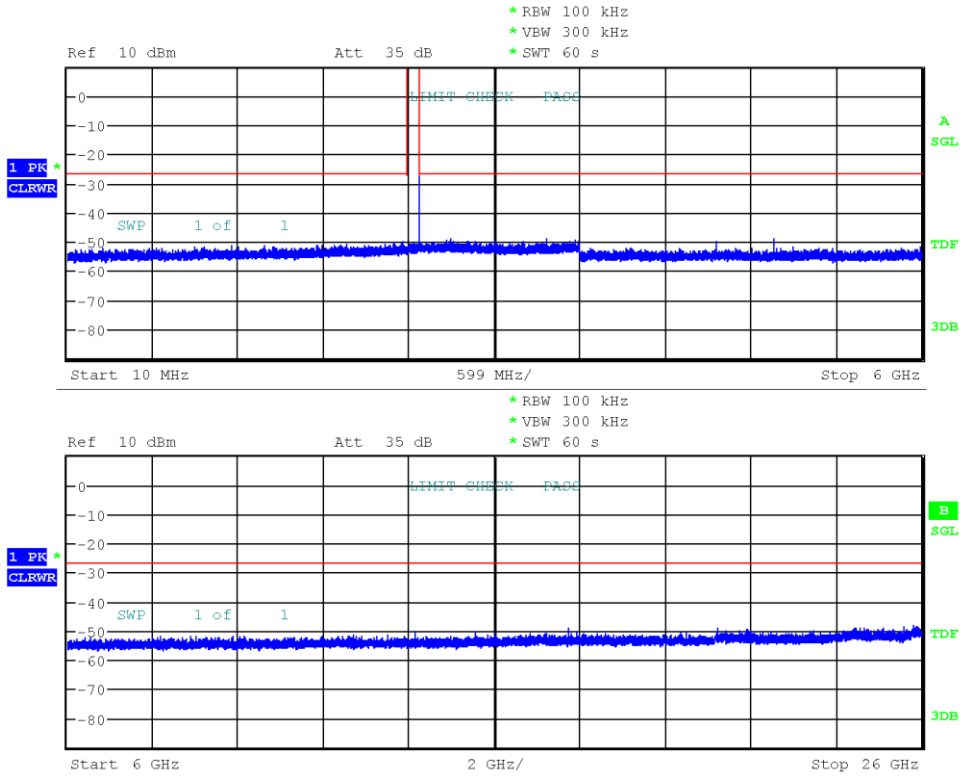
Conducted Spurious Emissions

Project Number:	G0M-2104-9736
Applicant:	ANDREAS STIHL AG & Co. KG
Model Description:	STIHL Smart Connector 2 A / STIHL Part No. CA01-400-4900-A
Model:	SC2A
Test Sample ID:	34694
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:	Florian Voigt
Test Site:	Eurofins Product Service GmbH
Test Date:	2021-06-16
Max. in-band Frequency [MHz]:	2440.0
Max. in-band Level [dBm/100 kHz]:	-6.1
Out-of-band Limit [dBm/100 kHz]:	-26.1



Conducted Spurious Emissions

Project Number:	G0M-2104-9736
Applicant:	ANDREAS STIHL AG & Co. KG
Model Description:	STIHL Smart Connector 2 A / STIHL Part No. CA01-400-4900-A
Model:	SC2A
Test Sample ID:	34694
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:	Florian Voigt
Test Site:	Eurofins Product Service GmbH
Test Date:	2021-06-16
Max. in-band Frequency [MHz]:	2480.0
Max. in-band Level [dBm/100 kHz]:	-6.3
Out-of-band Limit [dBm/100 kHz]:	-26.3



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3.7 Test Conditions and Results - Transmitter radiated emissions

3.7.1 Information

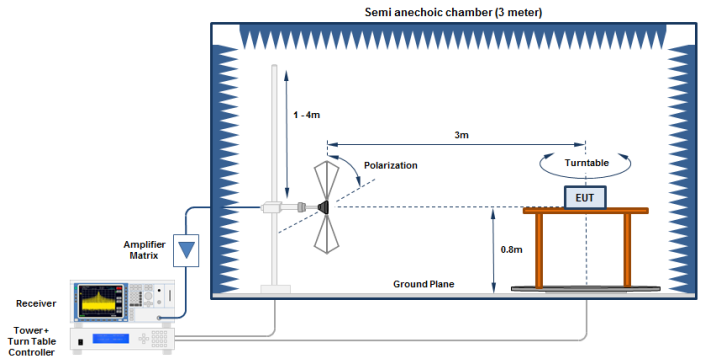
Test Information	
Reference	FCC § 15.247(d); FCC § 15.209; ISED RSS-Gen, Issue 5 (section 6.13)
Measurement Uncertainty	± 5.95 dB
Measurement Method	ANSI C63.10 6.4, 6.5, 6.6, 11.12
Operator	Florian Voigt
Date	2021-06-10 - 2021-06-15

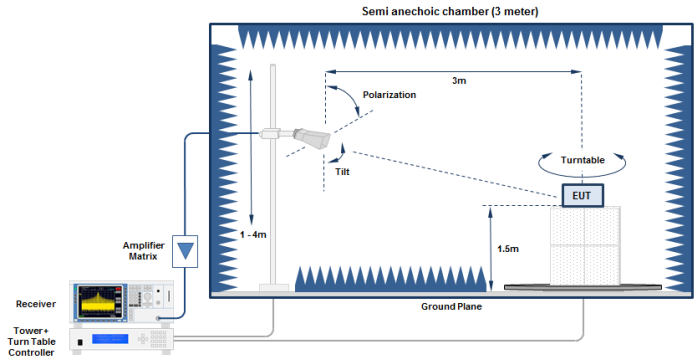
3.7.2 Limits

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

3.7.3 Setup

Test Setup 30 MHz - 1000 MHz



Test Setup > 1 GHz


3.7.4 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	2020-06	2021-06
Antenna	R&S	HK 116	EF00030	2019-04	2022-04
Antenna	R&S	HL 223	EF00187	2019-05	2022-05

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	2020-06	2021-06
Antenna	Schwarzbeck	BBHA 9120D	EF00018	2019-10	2022-10
Antenna	Schwarzbeck	HWRD 650	EF01679	2021-03	2022-03
Antenna	Amplifier Research	ATH18G40	EF01152	2020-11	2022-11

3.7.5 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

3.7.6 Results

Test Results						
Channel [MHz]	Emission [MHz]	Level [dBµV/m]	Det.	Pol.	Limit [dBµV/m]	Margin [dB]
2402	2337.8	40.46	pk	hor	74.00	-33.54
2402	2337.8	34.72	avg	hor	54.00	-19.28
2402	4804.2	52.93	pk	ver	74.00	-21.07
2402	4804.2	48.80	avg	ver	54.00	-05.20
2402	12012	40.34	pk	hor	74.00	-33.66
2402	12012	33.02	avg	hor	54.00	-20.98
2440	2311.8	44.16	pk	ver	74.00	-29.84
2440	2311.8	39.14	avg	ver	54.00	-14.86
2440	4958.1	53.34	pk	ver	74.00	-20.66
2440	4958.1	49.35	avg	ver	54.00	-04.65
2440	7319	50.63	pk	ver	74.00	-23.37
2440	7319	47.84	avg	ver	54.00	-06.16
2440	7321	51.89	pk	hor	74.00	-22.11
2440	7321	48.66	avg	hor	54.00	-05.34
2480	2352	48.29	pk	hor	74.00	-25.71
2480	2352	44.01	avg	hor	54.00	-09.99
2480	4960	56.15	pk	ver	74.00	-17.85
2480	4960	50.97	avg	ver	54.00	-03.03
2480	7439	50.07	pk	ver	74.00	-23.93
2480	7439	47.10	avg	ver	54.00	-06.90
2480	4680.5	53.10	pk	hor	74.00	-20.90
2480	4680.5	34.81	avg	hor	54.00	-19.19
2480	4680.6	42.77	pk	hor	74.00	-31.23
2480	4680.6	43.97	avg	hor	54.00	-10.03
2480	4959.5	54.61	pk	hor	74.00	-19.39
2480	4959.5	50.28	avg	hor	54.00	-03.72

3.8 Test Conditions and Results - Receiver radiated emissions

3.8.1 Information

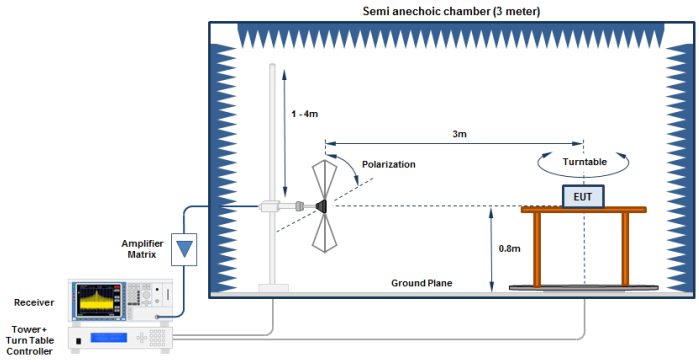
Test Information	
Reference	ISED RSS-247, Issue 2 (section 3.1)
Measurement Uncertainty	± 5.95 dB
Measurement Method	ANSI C63.10 6.5, 6.6, 11.12
Operator	Wilfried Treffke
Date	2021-05-27

3.8.2 Limits

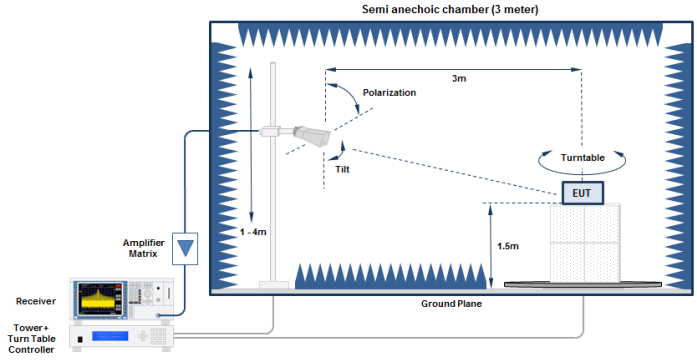
Limits			
Frequency range [MHz]	Detector	Field strength [µV/m]	Measurement distance [m]
30 - 88	Quasi-Peak	100	3
88 - 216	Quasi-Peak	150	3
216 - 960	Quasi-Peak	200	3
960 - 1000	Quasi-Peak	500	3
>1000	Average	500	3

3.8.3 Setup

Test Setup 30 MHz - 1000 MHz



Test Setup > 1 GHz



3.8.4 Equipment

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

Test Equipment 30 MHz - 1000 MHz					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Anechoic Chamber	Frankonia	AC1	EF00062	2021-02	2024-02
Measurement Receiver	Agilent	N9038A-526/WXP	EF01070	2020-06	2021-06
Antenna	R&S	HK 116	EF00030	2019-04	2022-04
Antenna	R&S	HL 223	EF00187	2019-05	2022-05

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	2020-06	2021-06
Antenna	Schwarzbeck	BBHA 9120D	EF00018	2019-10	2022-10

3.8.5 Procedure

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

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

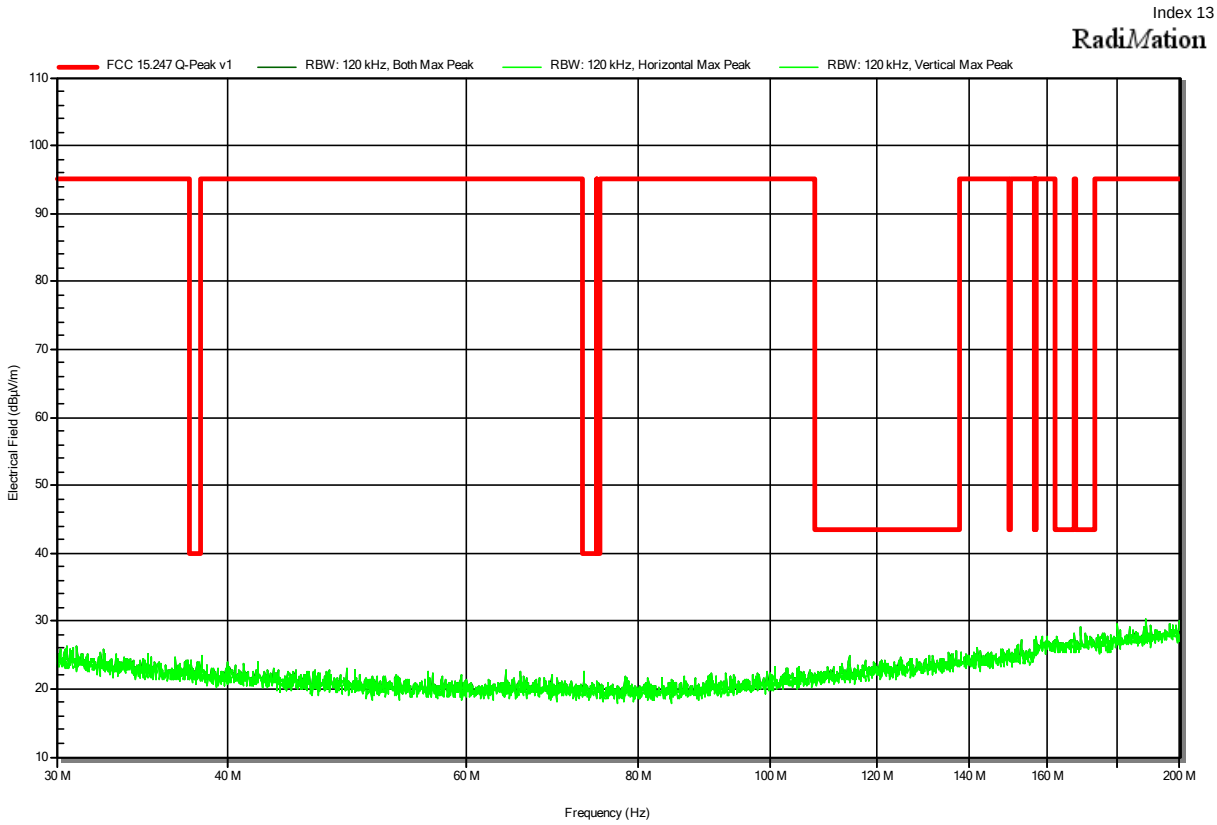
3.8.6 Results

Test Results						
Channel [MHz]	Emission [MHz]	Level [dBµV/m]	Det.	Pol.	Limit [dBµV/m]	Margin [dB]
2440	4955	46.14	pk	ver	53.98	-07.84
2440	4958	49.58	pk	hor	53.98	-04.40
2440	4958	48.49	avg	hor	53.98	-05.49

ANNEX A Transmitter spurious emissions

Radiated Spurious Emissions according to ISED RSS-247 Issue 2, 47 CFR § 15.247

Project Number:	G0M-2104-9736
Applicant:	ANDREAS STIHL AG & Co. KG
Model Description:	STIHL Smart Connector 2 A / STIHL Part No. CA01-400-4900-A
Model:	SC2A
Test Sample ID:	34607
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Voigt
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 23 °Celsius, Vnom: 3.0 VDC (lithium battery)
Antenna:	Rohde & Schwarz HK 116
Measurement distance:	3 m
Mode:	Tx; BLE; 2402 MHz; EUT vertical
Test Date:	2021-06-10
Note:	

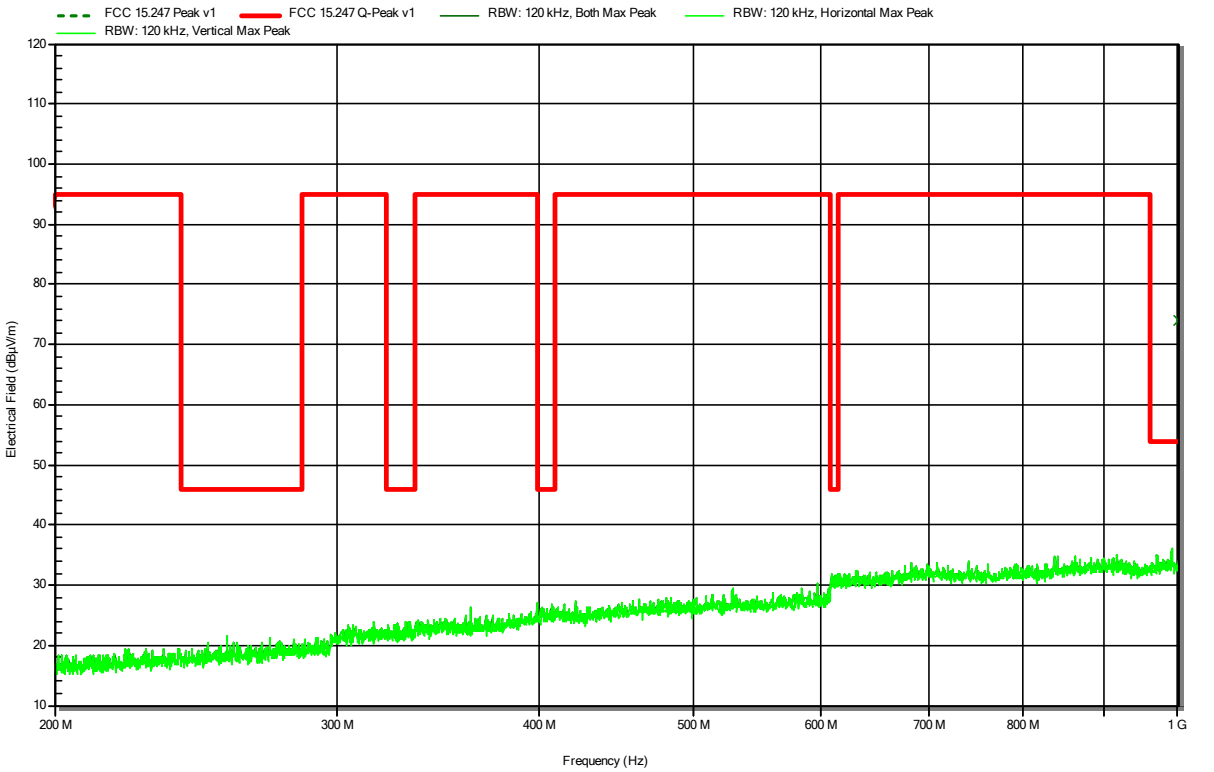


Radiated Spurious Emissions according to ISED RSS-247 Issue 2, 47 CFR § 15.247

Project Number:	G0M-2104-9736
Applicant:	ANDREAS STIHL AG & Co. KG
Model Description:	STIHL Smart Connector 2 A / STIHL Part No. CA01-400-4900-A
Model:	SC2A
Test Sample ID:	34607
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Voigt
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 23 °Celsius, Vnom: 3.0 VDC (lithium battery)
Antenna:	Rohde & Schwarz HL 223
Measurement distance:	3 m
Mode:	Tx; BLE; 2402 MHz; EUT vertical
Test Date:	2021-06-10
Note:	

Index 20

RadiMation

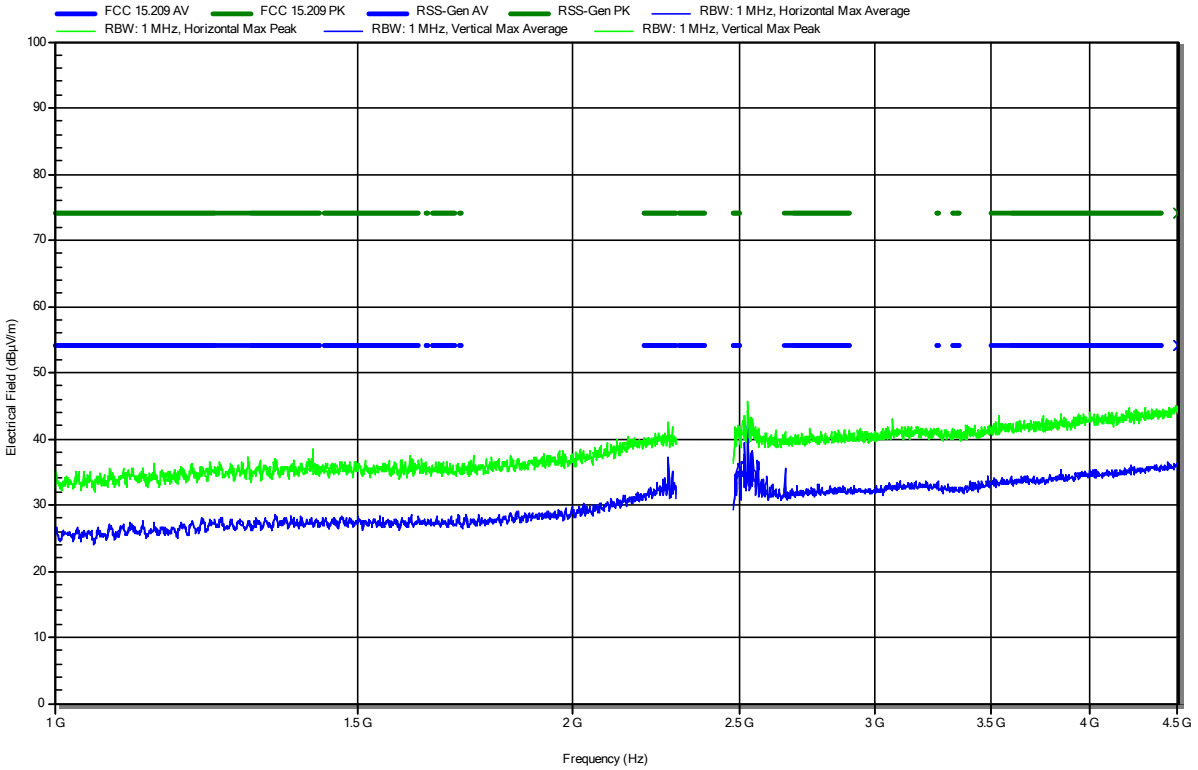


Radiated Spurious Emissions according to ISED RSS-247 Issue 2, 47 CFR § 15.247

Project Number:	G0M-2104-9736
Applicant:	ANDREAS STIHL AG & Co. KG
Model Description:	STIHL Smart Connector 2 A / STIHL Part No. CA01-400-4900-A
Model:	SC2A
Test Sample ID:	34607
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Voigt
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 23 °Celsius, Vnom: 3.0 VDC (lithium battery)
Antenna:	Schwarzbeck BBHA 9120D
Measurement distance:	3 m
Mode:	Tx; BLE; 2402 MHz; EUT vertical
Test Date:	2021-06-14
Note:	

Index 37

RadiMation

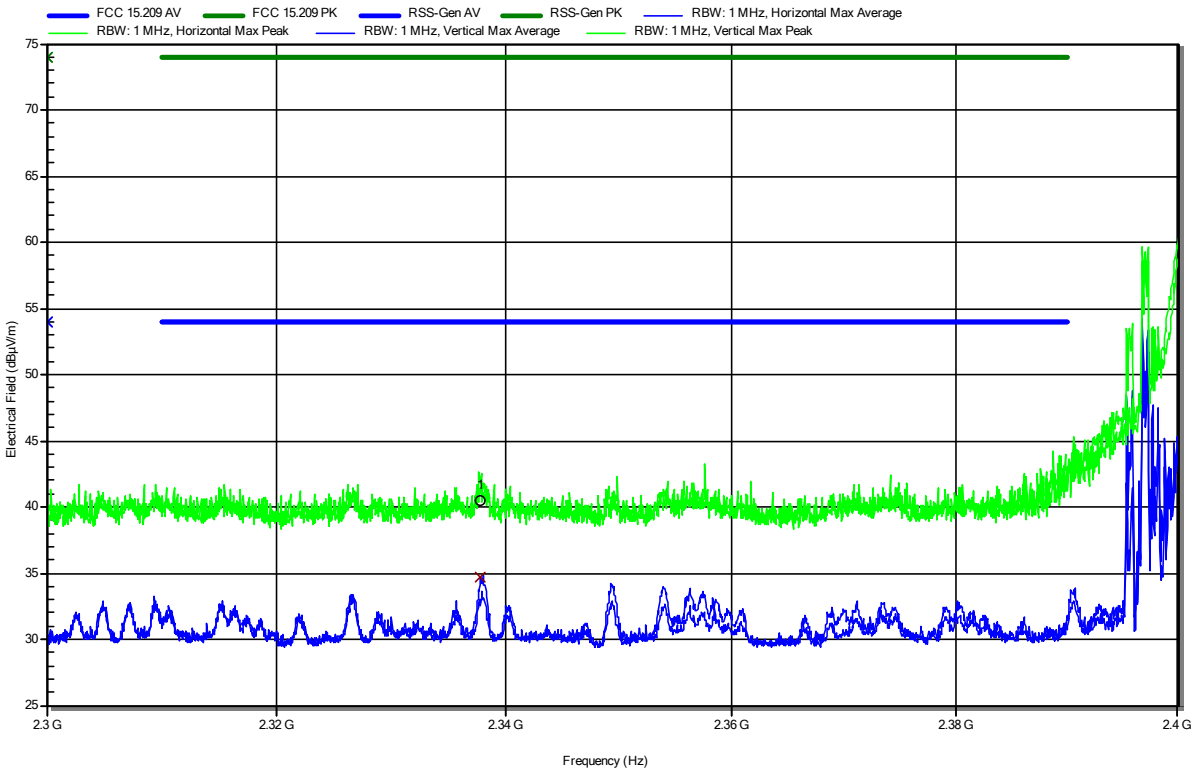


Radiated Spurious Emissions according to ISED RSS-247 Issue 2, 47 CFR § 15.247

Project Number:	G0M-2104-9736
Applicant:	ANDREAS STIHL AG & Co. KG
Model Description:	STIHL Smart Connector 2 A / STIHL Part No. CA01-400-4900-A
Model:	SC2A
Test Sample ID:	34607
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Voigt
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 23 °Celsius, Vnom: 3.0 VDC (lithium battery)
Antenna:	Schwarzbeck BBHA 9120D
Measurement distance:	3 m
Mode:	Tx; BLE; 2402 MHz; EUT vertical
Test Date:	2021-06-14
Note:	

Index 44

RadiMation



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
2.3378 GHz	40.46 dBµV/m	74 dBµV/m	-33.54 dB	Pass

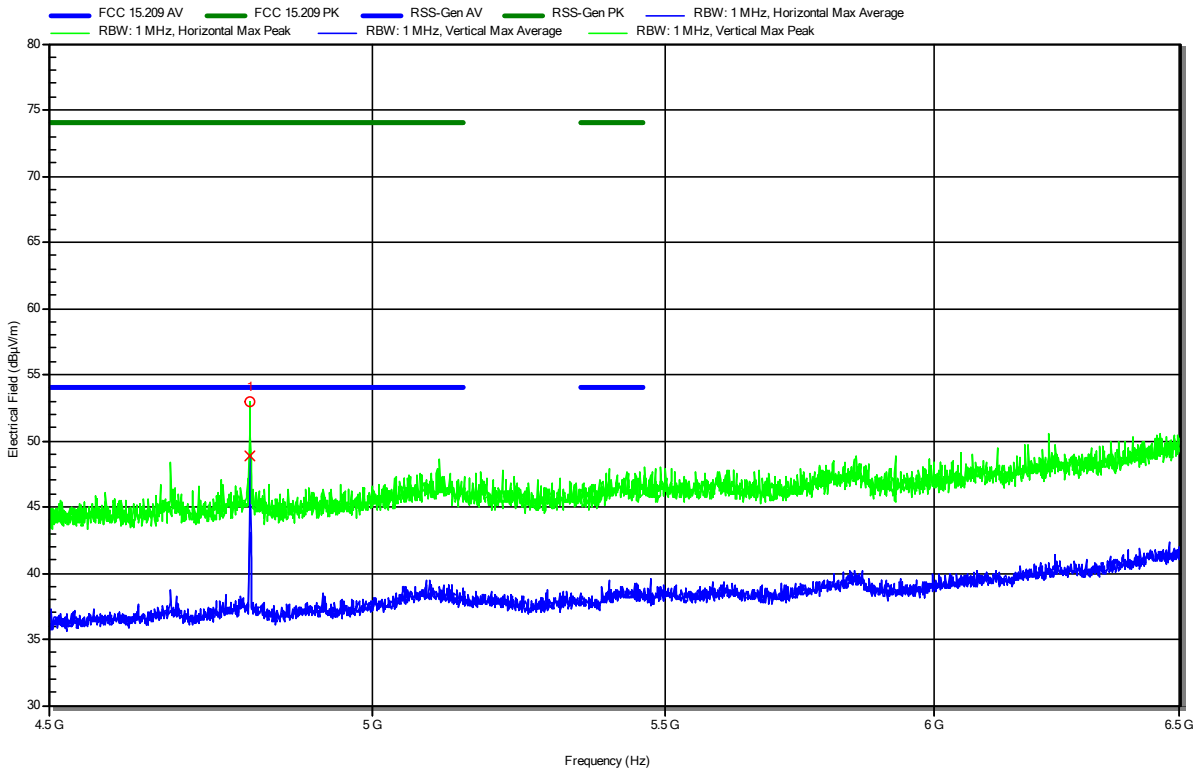
Frequency	Average	Average Limit	Average Difference	Average Status
2.3378 GHz	34.72 dBµV/m	54 dBµV/m	-19.28 dB	Pass

Radiated Spurious Emissions according to ISED RSS-247 Issue 2, 47 CFR § 15.247

Project Number:	G0M-2104-9736
Applicant:	ANDREAS STIHL AG & Co. KG
Model Description:	STIHL Smart Connector 2 A / STIHL Part No. CA01-400-4900-A
Model:	SC2A
Test Sample ID:	34607
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Voigt
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 23 °Celsius, Vnom: 3.0 VDC (lithium battery)
Antenna:	Schwarzbeck BBHA 9120D
Measurement distance:	3 m
Mode:	Tx; BLE; 2402 MHz; EUT vertical
Test Date:	2021-06-14
Note:	

Index 40

RadiMation

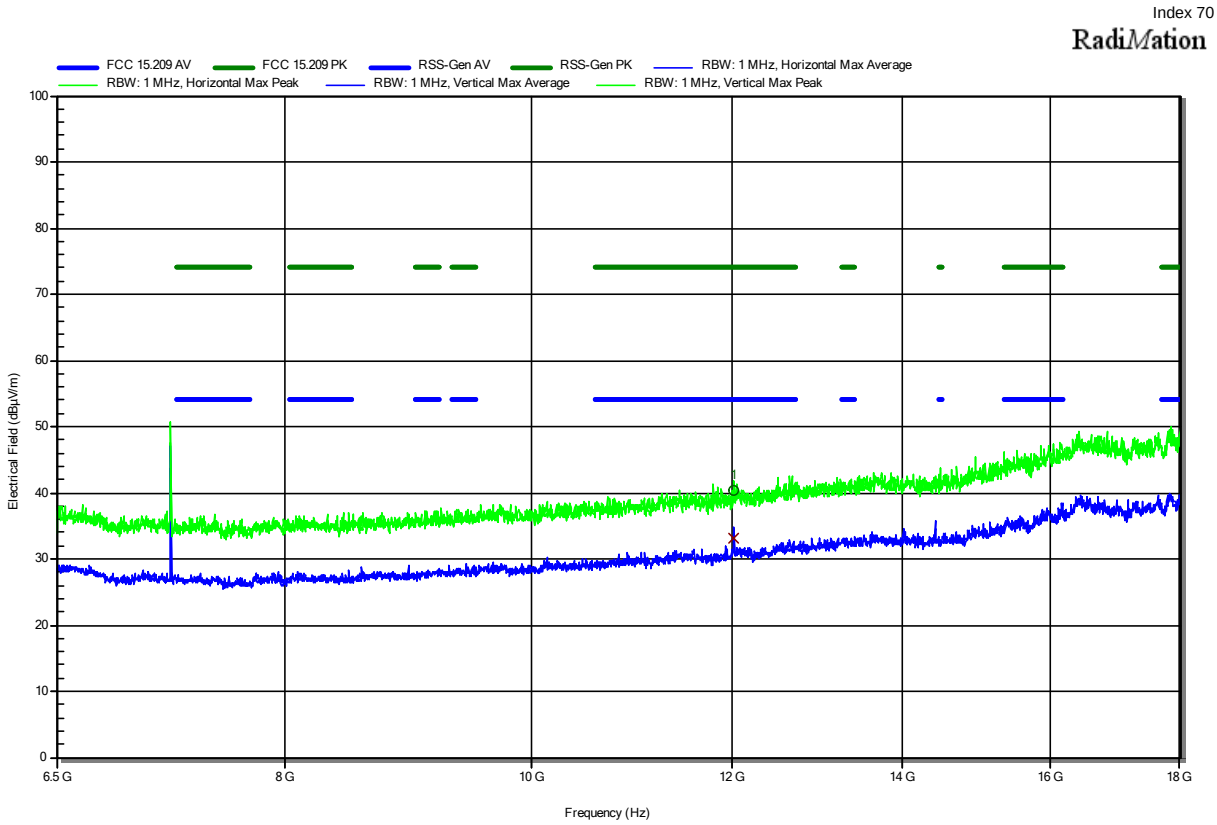


Frequency	Peak	Peak Limit	Peak Difference	Peak Status
4.8042 GHz	52.93 dBµV/m	74 dBµV/m	-21.07 dB	Pass

Frequency	Average	Average Limit	Average Difference	Average Status
4.8042 GHz	48.8 dBµV/m	54 dBµV/m	-5.2 dB	Pass

Radiated Spurious Emissions according to ISED RSS-247 Issue 2, 47 CFR § 15.247

Project Number:	G0M-2104-9736
Applicant:	ANDREAS STIHL AG & Co. KG
Model Description:	STIHL Smart Connector 2 A / STIHL Part No. CA01-400-4900-A
Model:	SC2A
Test Sample ID:	34607
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Voigt
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 23 °Celsius, Vnom: 3.0 VDC (lithium battery)
Antenna:	Schwarzbeck HWRD 650
Measurement distance:	3 m
Mode:	Tx; BLE; 2402 MHz; EUT vertical
Test Date:	2021-06-15
Note:	

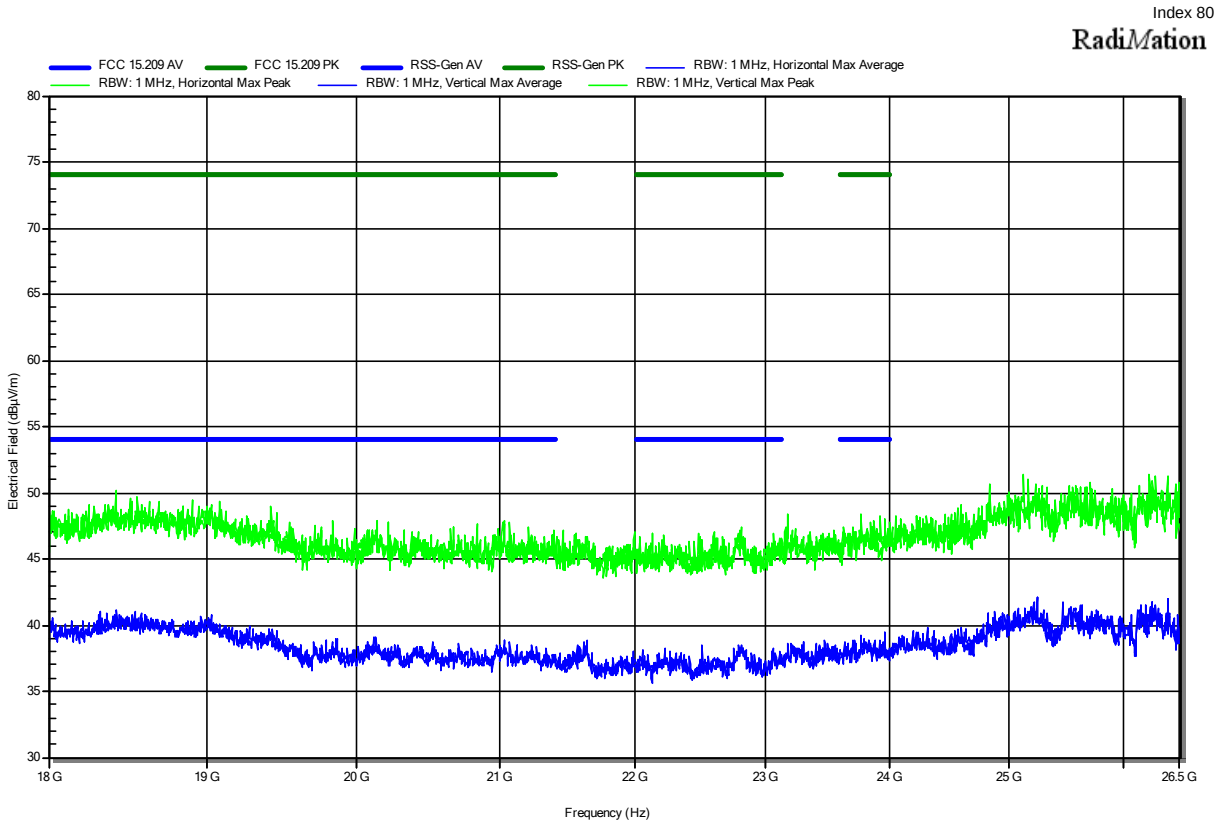


Frequency	Peak	Peak Limit	Peak Difference	Peak Status
12.012 GHz	40.34 dBµV/m	74 dBµV/m	-33.66 dB	Pass

Frequency	Average	Average Limit	Average Difference	Average Status
12.012 GHz	33.02 dBµV/m	54 dBµV/m	-20.98 dB	Pass

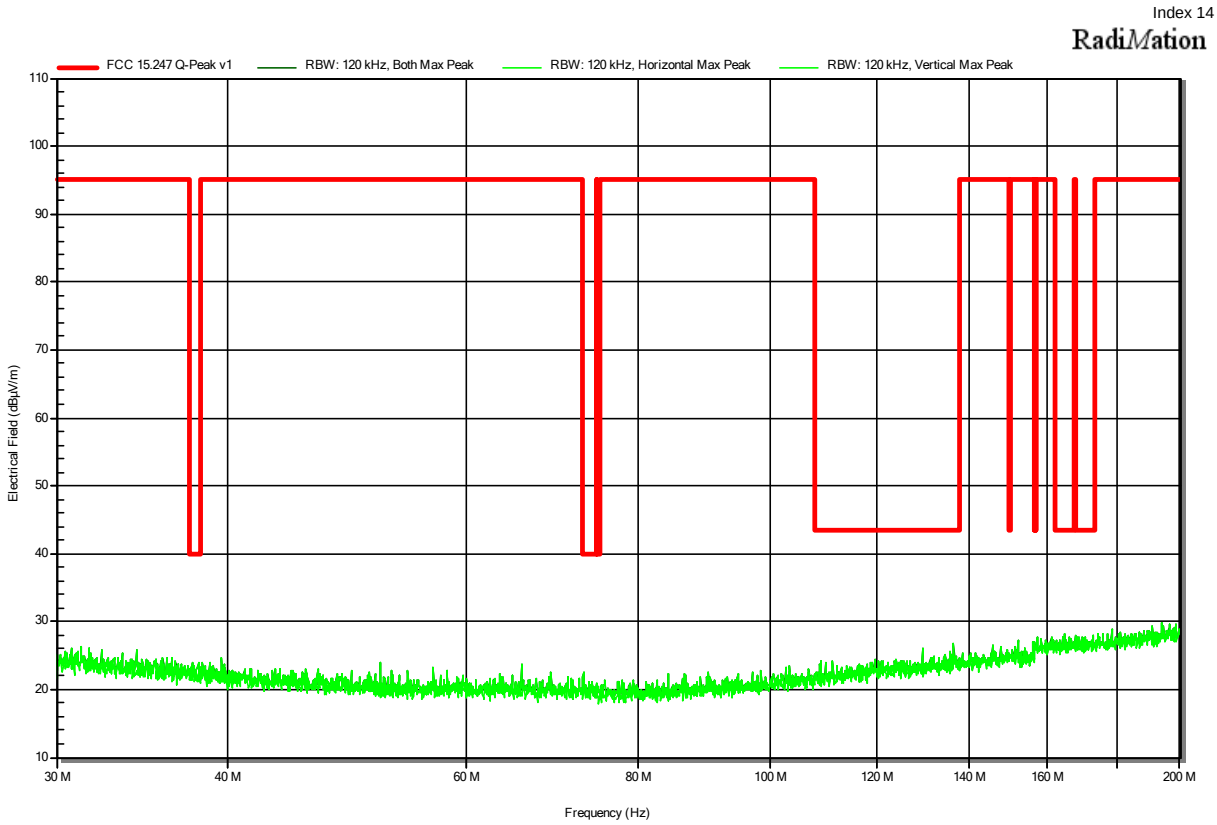
Radiated Spurious Emissions according to ISED RSS-247 Issue 2, 47 CFR § 15.247

Project Number:	G0M-2104-9736
Applicant:	ANDREAS STIHL AG & Co. KG
Model Description:	STIHL Smart Connector 2 A / STIHL Part No. CA01-400-4900-A
Model:	SC2A
Test Sample ID:	34607
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Voigt
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 23 °Celsius, Vnom: 3.0 VDC (lithium battery)
Antenna:	ATH18G40
Measurement distance:	3 m
Mode:	Tx; BLE; 2402 MHz; EUT vertical
Test Date:	2021-06-15
Note:	



Radiated Spurious Emissions according to ISED RSS-247 Issue 2, 47 CFR § 15.247

Project Number:	G0M-2104-9736
Applicant:	ANDREAS STIHL AG & Co. KG
Model Description:	STIHL Smart Connector 2 A / STIHL Part No. CA01-400-4900-A
Model:	SC2A
Test Sample ID:	34607
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Voigt
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 23 °Celsius, Vnom: 3.0 VDC (lithium battery)
Antenna:	Rohde & Schwarz HK 116
Measurement distance:	3 m
Mode:	Tx; BLE; 2440 MHz; EUT vertical
Test Date:	2021-06-10
Note:	

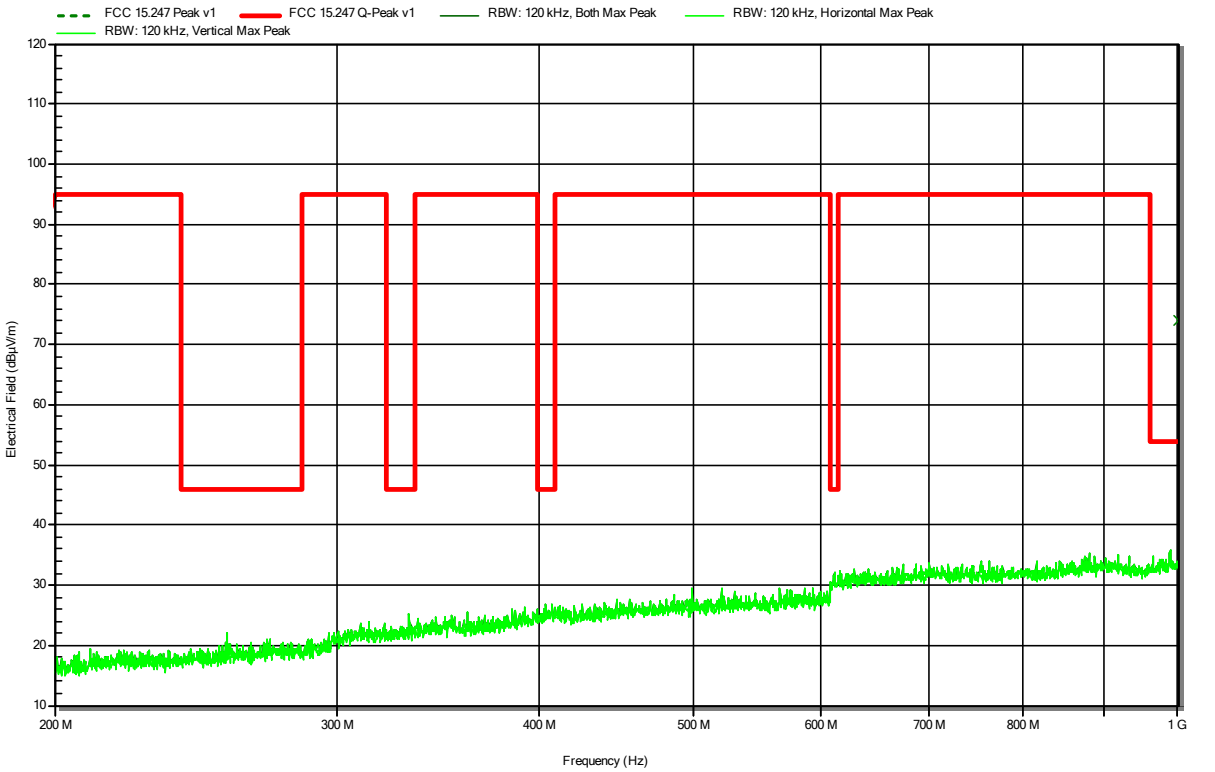


Radiated Spurious Emissions according to ISED RSS-247 Issue 2, 47 CFR § 15.247

Project Number:	G0M-2104-9736
Applicant:	ANDREAS STIHL AG & Co. KG
Model Description:	STIHL Smart Connector 2 A / STIHL Part No. CA01-400-4900-A
Model:	SC2A
Test Sample ID:	34607
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Voigt
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 23 °Celsius, Vnom: 3.0 VDC (lithium battery)
Antenna:	Rohde & Schwarz HL 223
Measurement distance:	3 m
Mode:	Tx; BLE; 2440 MHz; EUT vertical
Test Date:	2021-06-10
Note:	

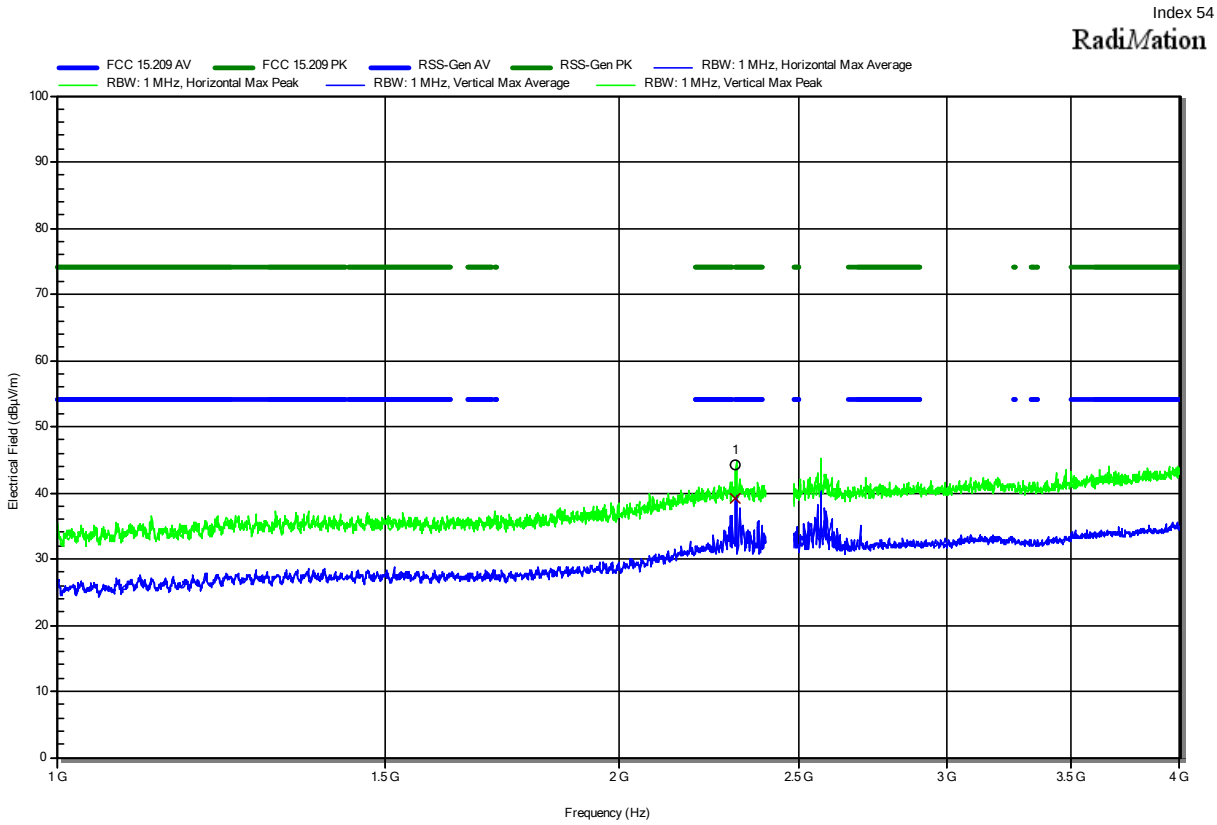
Index 19

RadiMation



Radiated Spurious Emissions according to ISED RSS-247 Issue 2, 47 CFR § 15.247

Project Number:	G0M-2104-9736
Applicant:	ANDREAS STIHL AG & Co. KG
Model Description:	STIHL Smart Connector 2 A / STIHL Part No. CA01-400-4900-A
Model:	SC2A
Test Sample ID:	34607
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Voigt
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 23 °Celsius, Vnom: 3.0 VDC (lithium battery)
Antenna:	Schwarzbeck BBHA 9120D
Measurement distance:	3 m
Mode:	Tx; BLE; 2440 MHz; EUT vertical
Test Date:	2021-06-14
Note:	



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
2.3118 GHz	44.16 dBµV/m	74 dBµV/m	-29.84 dB	Pass

Frequency	Average	Average Limit	Average Difference	Average Status
2.3118 GHz	39.14 dBµV/m	54 dBµV/m	-14.86 dB	Pass

Radiated Spurious Emissions according to ISED RSS-247 Issue 2, 47 CFR § 15.247

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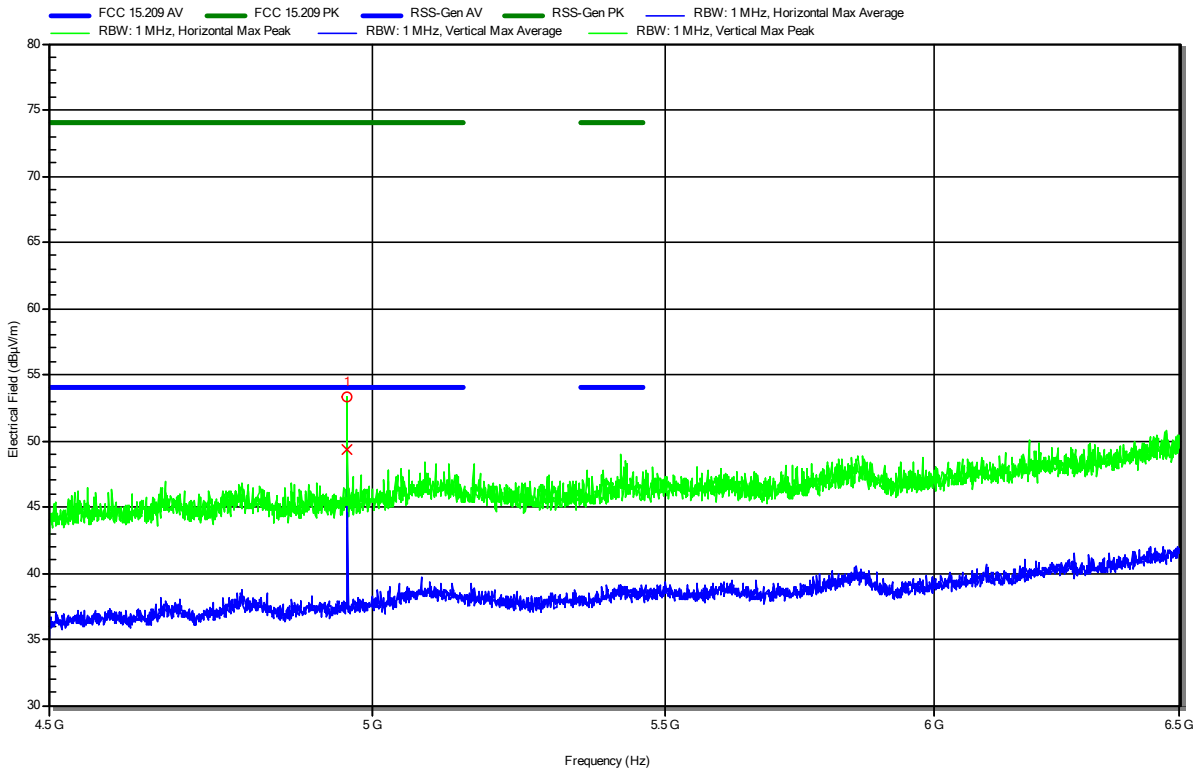
Applicant:	ANDREAS STIHL AG & Co. KG
Model Description:	STIHL Smart Connector 2 A / STIHL Part No. CA01-400-4900-A
Model:	SC2A
Test Sample ID:	34607
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Voigt
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 23 °Celsius, Vnom: 3.0 VDC (lithium battery)
Antenna:	Schwarzbeck BBHA 9120D
Measurement distance:	3 m
Mode:	Tx; BLE; 2440 MHz; EUT vertical
Test Date:	2021-06-14
Note:	

Index 52

RadiMation



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
4.9581 GHz	53.34 dBµV/m	74 dBµV/m	-20.66 dB	Pass

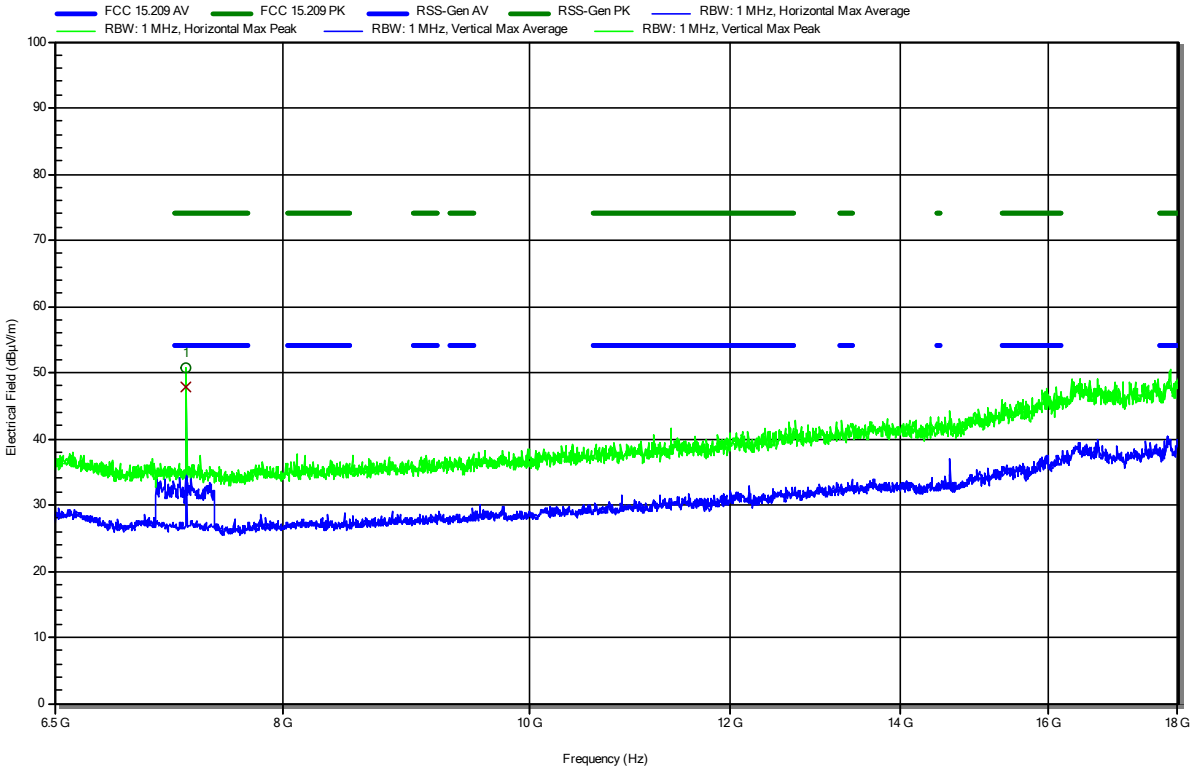
Frequency	Average	Average Limit	Average Difference	Average Status
4.9581 GHz	49.35 dBµV/m	54 dBµV/m	-4.65 dB	Pass

Radiated Spurious Emissions according to ISED RSS-247 Issue 2, 47 CFR § 15.247

Project Number:	G0M-2104-9736
Applicant:	ANDREAS STIHL AG & Co. KG
Model Description:	STIHL Smart Connector 2 A / STIHL Part No. CA01-400-4900-A
Model:	SC2A
Test Sample ID:	34607
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Voigt
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 23 °Celsius, Vnom: 3.0 VDC (lithium battery)
Antenna:	Schwarzbeck HWRD 650
Measurement distance:	3 m
Mode:	Tx; BLE; 2440 MHz; EUT vertical
Test Date:	2021-06-15
Note:	

Index 69

RadiMation



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
7.319 GHz	50.63 dBµV/m	74 dBµV/m	-23.37 dB	Pass

Frequency	Average	Average Limit	Average Difference	Average Status
7.319 GHz	47.84 dBµV/m	54 dBµV/m	-6.16 dB	Pass

Radiated Spurious Emissions according to ISED RSS-247 Issue 2, 47 CFR § 15.247

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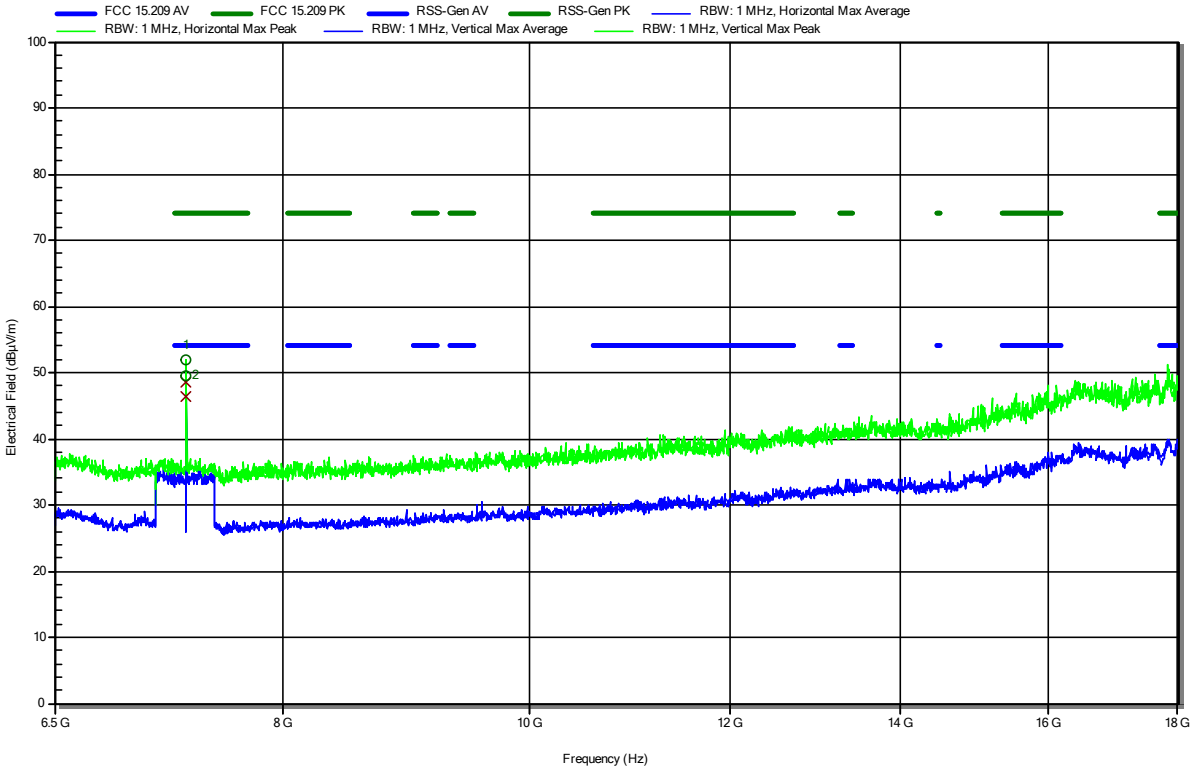
Model Description:	STIHL Smart Connector 2 A / STIHL Part No. CA01-400-4900-A
Model:	SC2A
Test Sample ID:	34607
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Voigt
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 23 °Celsius, Vnom: 3.0 VDC (lithium battery)
Antenna:	Schwarzbeck HWRD 650
Measurement distance:	3 m
Mode:	Tx; BLE; 2440 MHz; EUT horizontal
Test Date:	2021-06-15
Note:	

Index 72

RadiMation



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
7.319 GHz	49.41 dBµV/m	74 dBµV/m	-24.59 dB	Pass
7.321 GHz	51.89 dBµV/m	74 dBµV/m	-22.11 dB	Pass

Frequency	Average	Average Limit	Average Difference	Average Status
7.319 GHz	46.39 dBµV/m	54 dBµV/m	-7.61 dB	Pass
7.321 GHz	48.66 dBµV/m	54 dBµV/m	-5.34 dB	Pass

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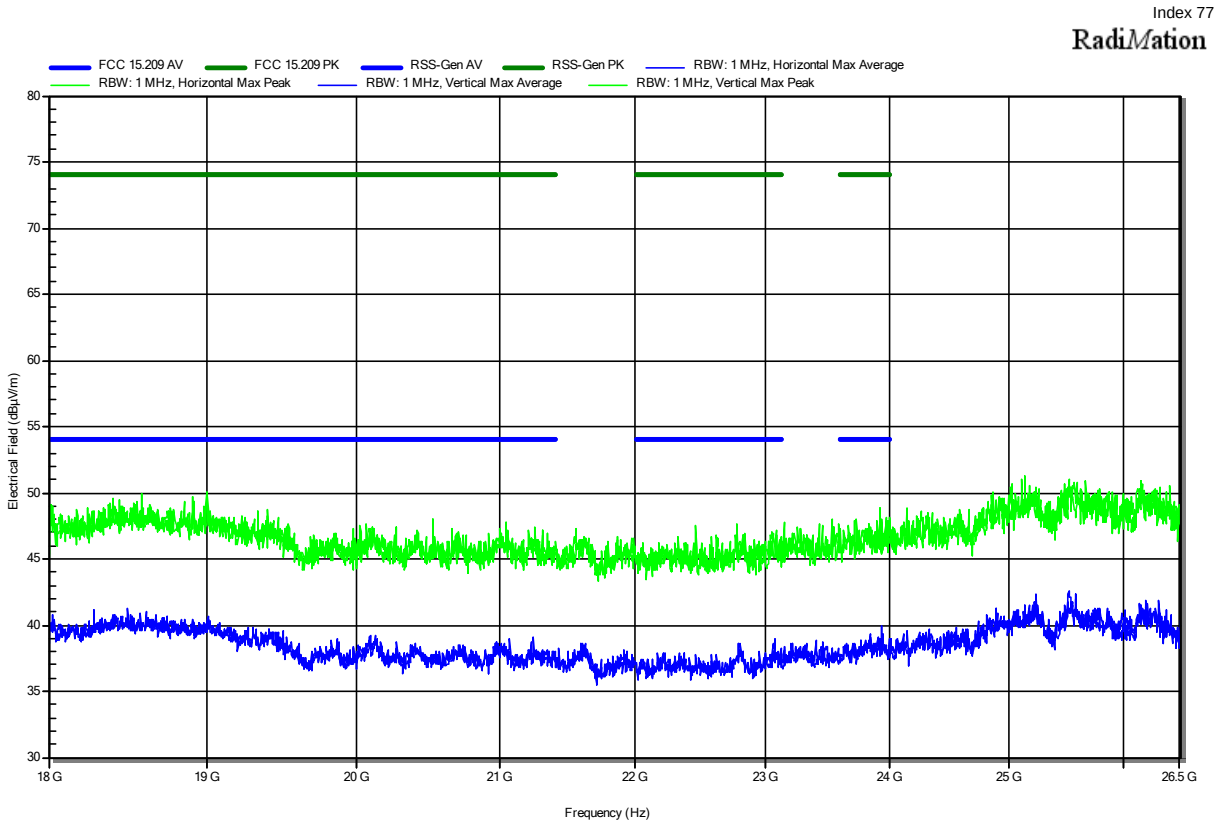
Model:	SC2A
Test Sample ID:	34607
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Voigt
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 23 °Celsius, Vnom: 3.0 VDC (lithium battery)
Antenna:	ATH18G40
Measurement distance:	3 m
Mode:	Tx; BLE; 2440 MHz; EUT vertical
Test Date:	2021-06-15
Note:	



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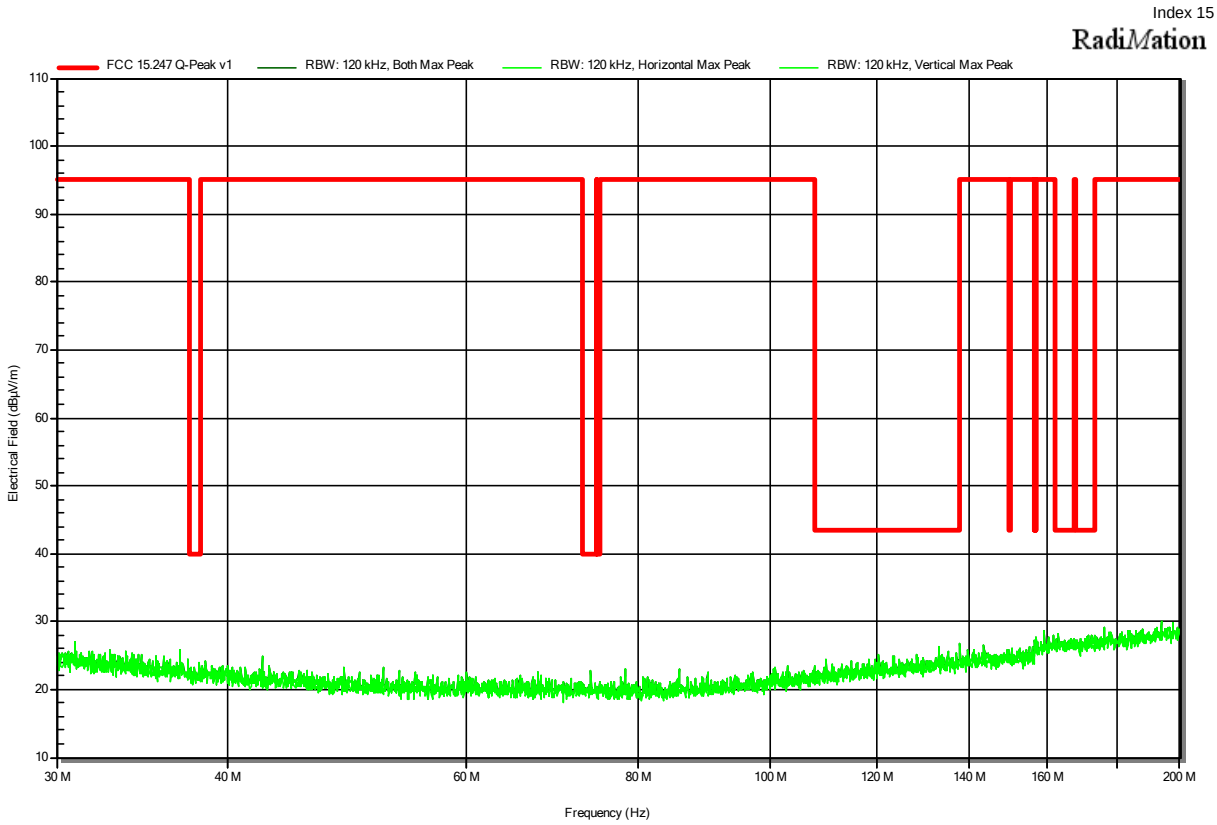
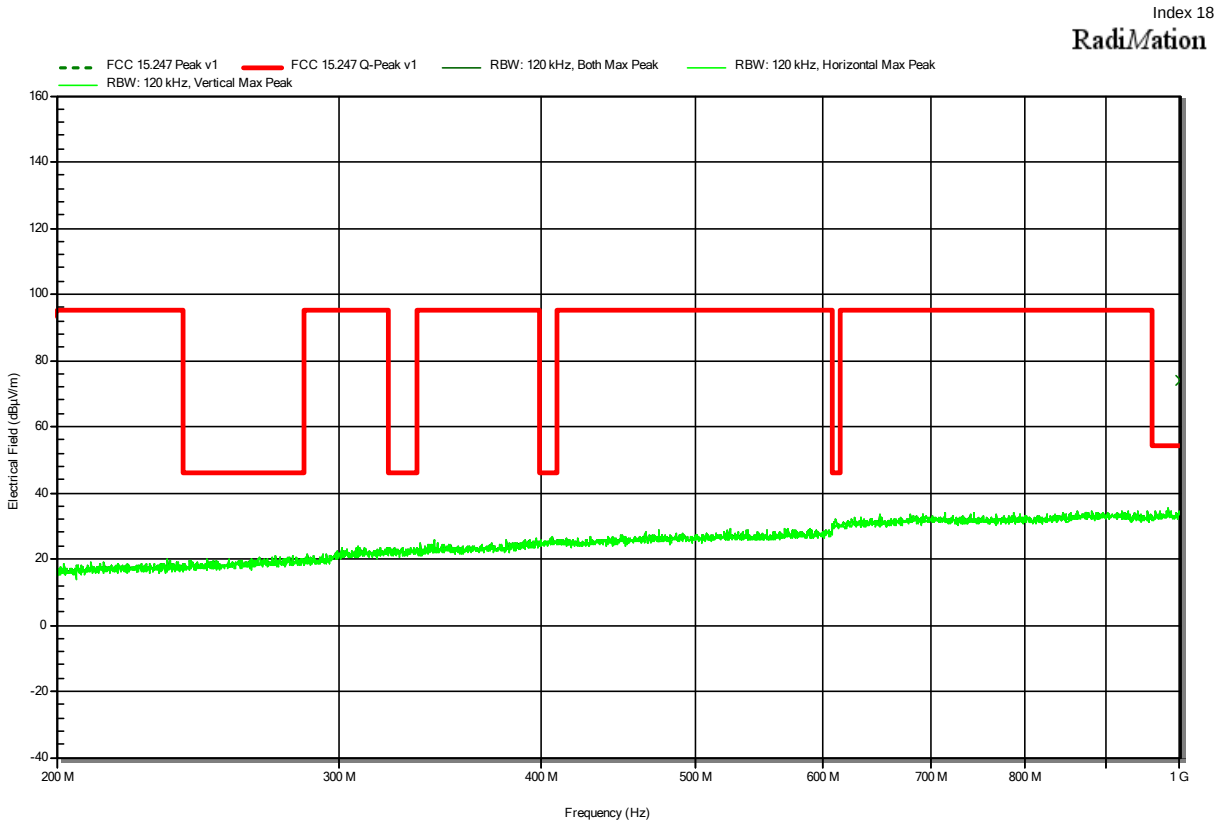
Model:	SC2A
Test Sample ID:	34607
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Voigt
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 23 °Celsius, Vnom: 3.0 VDC (lithium battery)
Antenna:	Rohde & Schwarz HK 116
Measurement distance:	3 m
Mode:	Tx; BLE; 2480 MHz; EUT vertical
Test Date:	2021-06-10
Note:	



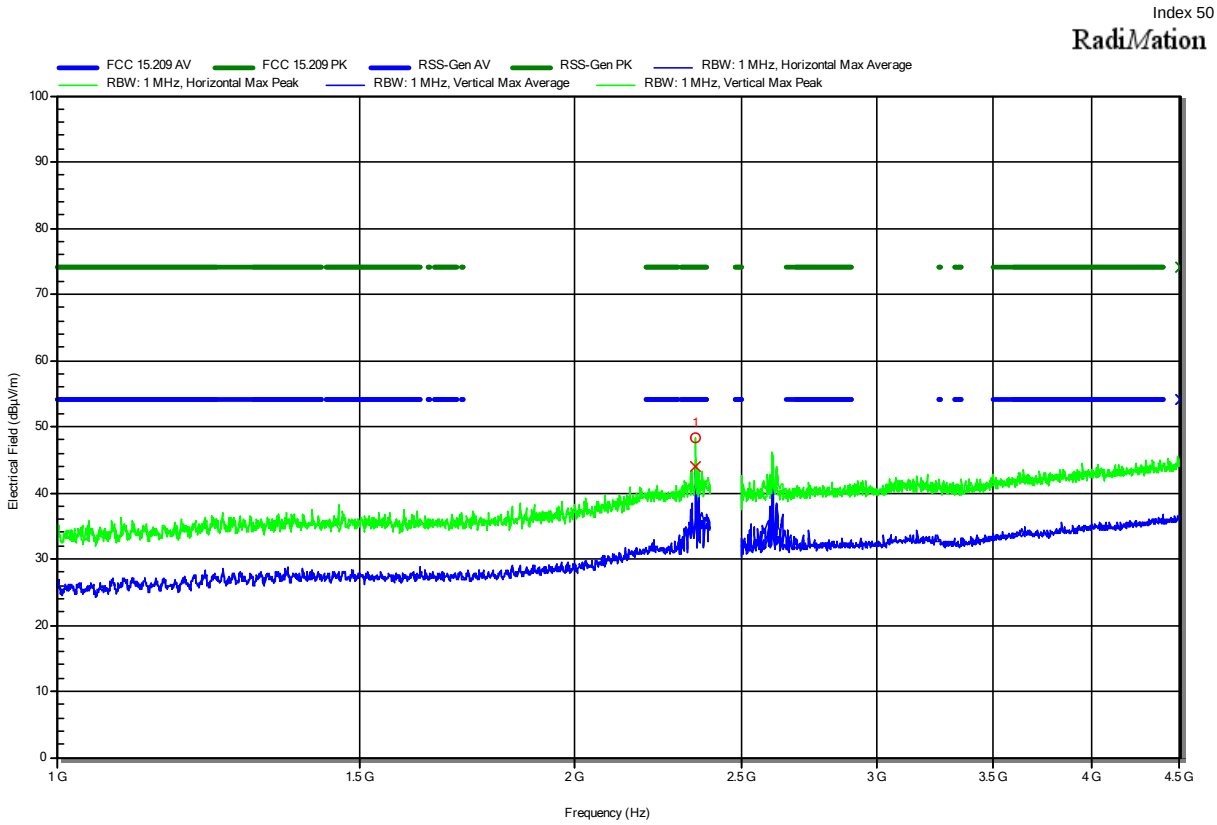
Radiated Spurious Emissions according to ISED RSS-247 Issue 2, 47 CFR § 15.247

Project Number:	G0M-2104-9736
Applicant:	ANDREAS STIHL AG & Co. KG
Model Description:	STIHL Smart Connector 2 A / STIHL Part No. CA01-400-4900-A
Model:	SC2A
Test Sample ID:	34607
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Voigt
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 23 °Celsius, Vnom: 3.0 VDC (lithium battery)
Antenna:	Rohde & Schwarz HL 223
Measurement distance:	3 m
Mode:	Tx; BLE; 2480 MHz; EUT vertical
Test Date:	2021-06-10
Note:	



Radiated Spurious Emissions according to ISED RSS-247 Issue 2, 47 CFR § 15.247

Project Number:	G0M-2104-9736
Applicant:	ANDREAS STIHL AG & Co. KG
Model Description:	STIHL Smart Connector 2 A / STIHL Part No. CA01-400-4900-A
Model:	SC2A
Test Sample ID:	34607
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Voigt
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 23 °Celsius, Vnom: 3.0 VDC (lithium battery)
Antenna:	Schwarzbeck BBHA 9120D
Measurement distance:	3 m
Mode:	Tx; BLE; 2480 MHz; EUT vertical
Test Date:	2021-06-14
Note:	



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
2.352 GHz	48.29 dBµV/m	74 dBµV/m	-25.71 dB	Pass

Frequency	Average	Average Limit	Average Difference	Average Status
2.352 GHz	44.01 dBµV/m	54 dBµV/m	-9.99 dB	Pass

Radiated Spurious Emissions according to ISED RSS-247 Issue 2, 47 CFR § 15.247

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Model:	SC2A
Test Sample ID:	34607
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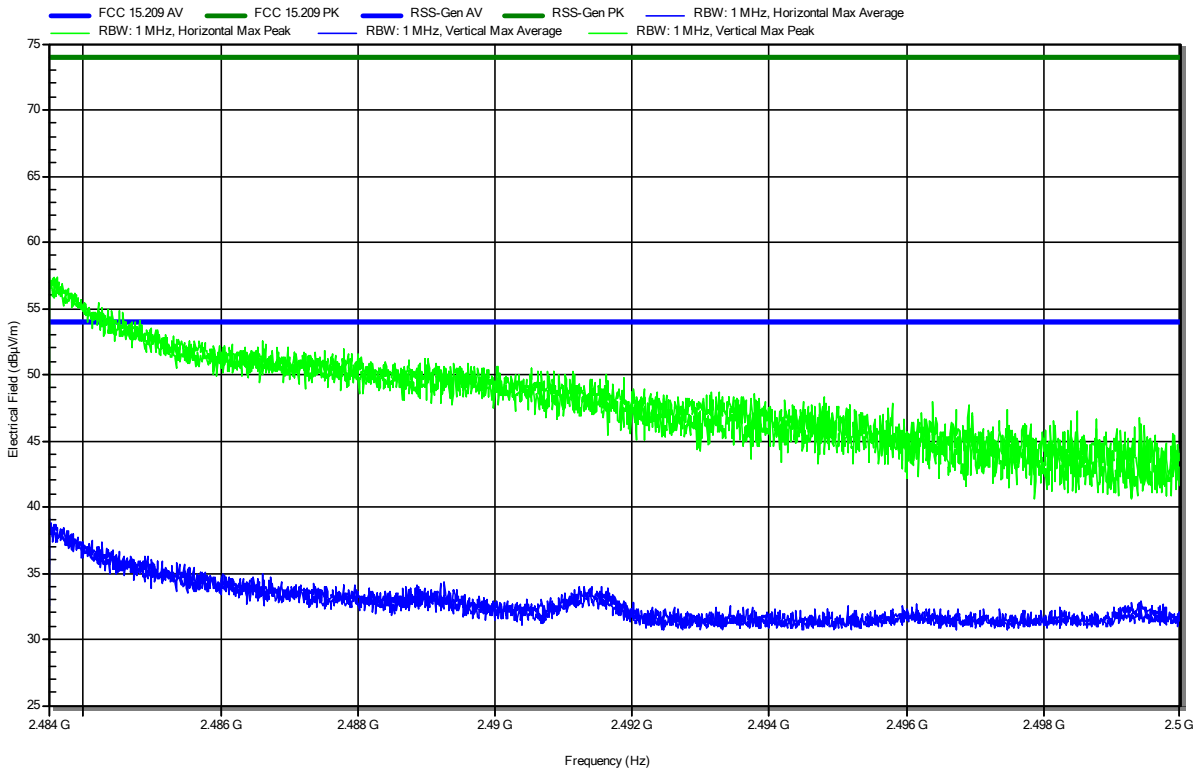
Operator:	Mr. Voigt
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 23 °Celsius, Vnom: 3.0 VDC (lithium battery)
Antenna:	Schwarzbeck BBHA 9120D
Measurement distance:	3 m
Mode:	Tx; BLE; 2480 MHz; EUT vertical
Test Date:	2021-06-14
Note:	

Index 47

RadiMation

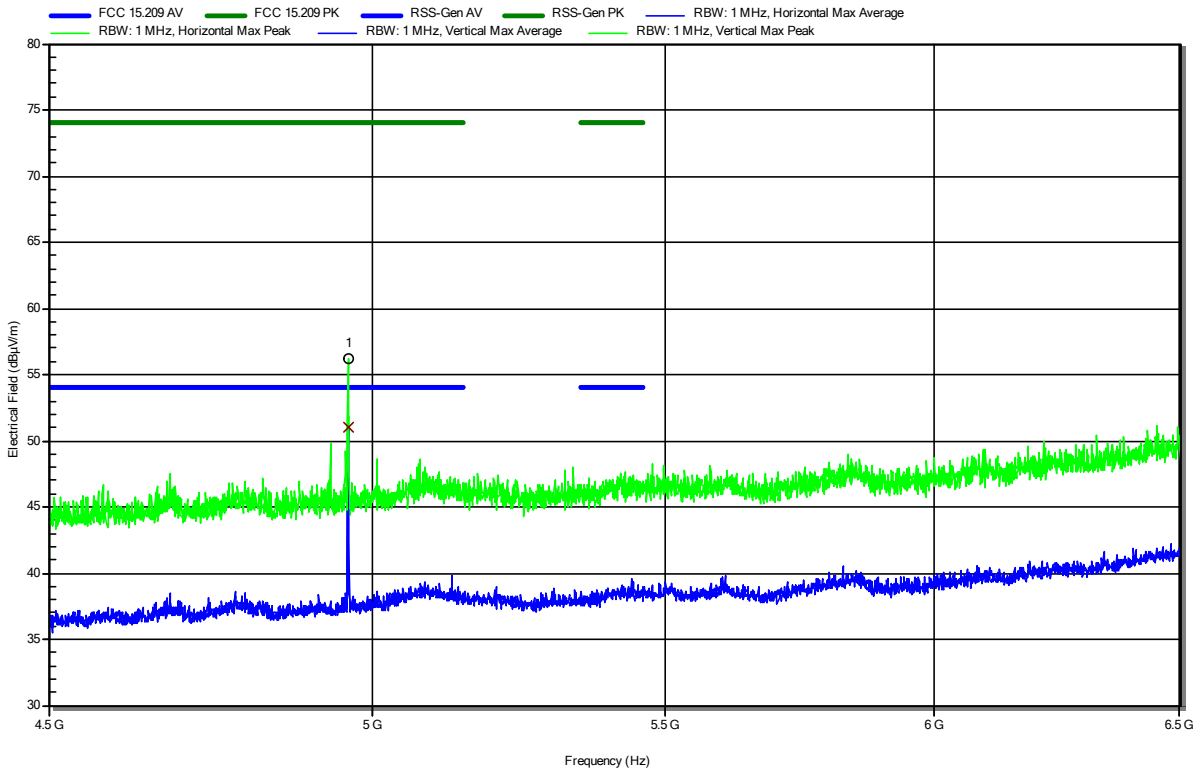


Radiated Spurious Emissions according to ISED RSS-247 Issue 2, 47 CFR § 15.247

Project Number:	G0M-2104-9736
Applicant:	ANDREAS STIHL AG & Co. KG
Model Description:	STIHL Smart Connector 2 A / STIHL Part No. CA01-400-4900-A
Model:	SC2A
Test Sample ID:	34607
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Voigt
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 23 °Celsius, Vnom: 3.0 VDC (lithium battery)
Antenna:	Schwarzbeck BBHA 9120D
Measurement distance:	3 m
Mode:	Tx; BLE; 2480 MHz; EUT vertical
Test Date:	2021-06-14
Note:	

Index 51

RadiMation



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
4.96 GHz	56.15 dBµV/m	74 dBµV/m	-17.85 dB	Pass

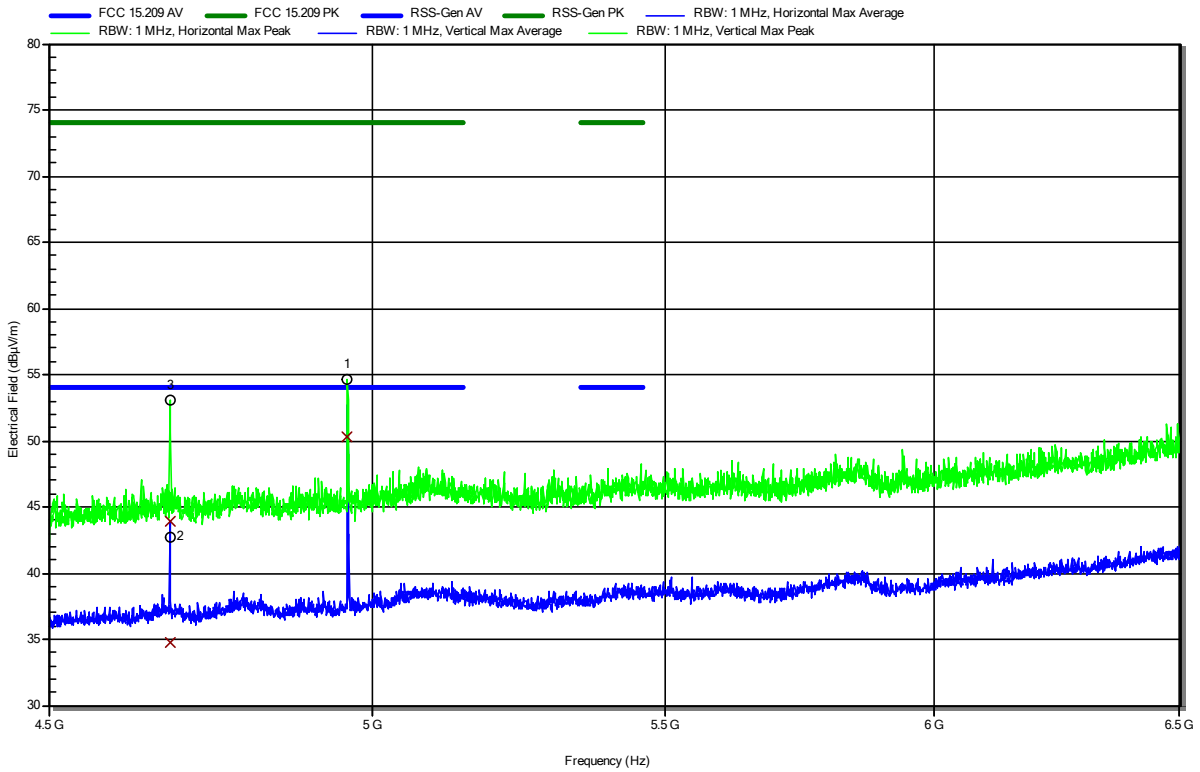
Frequency	Average	Average Limit	Average Difference	Average Status
4.96 GHz	50.97 dBµV/m	54 dBµV/m	-3.03 dB	Pass

Radiated Spurious Emissions according to ISED RSS-247 Issue 2, 47 CFR § 15.247

Project Number:	G0M-2104-9736
Applicant:	ANDREAS STIHL AG & Co. KG
Model Description:	STIHL Smart Connector 2 A / STIHL Part No. CA01-400-4900-A
Model:	SC2A
Test Sample ID:	34607
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Voigt
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 23 °Celsius, Vnom: 3.0 VDC (lithium battery)
Antenna:	Schwarzbeck BBHA 9120D
Measurement distance:	3 m
Mode:	Tx; BLE; 2480 MHz; EUT horizontal
Test Date:	2021-06-14
Note:	

Index 55

RadiMation



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
4.6805 GHz	53.1 dBµV/m	74 dBµV/m	-20.9 dB	Pass
4.6806 GHz	42.77 dBµV/m	74 dBµV/m	-31.23 dB	Pass
4.9595 GHz	54.61 dBµV/m	74 dBµV/m	-19.39 dB	Pass

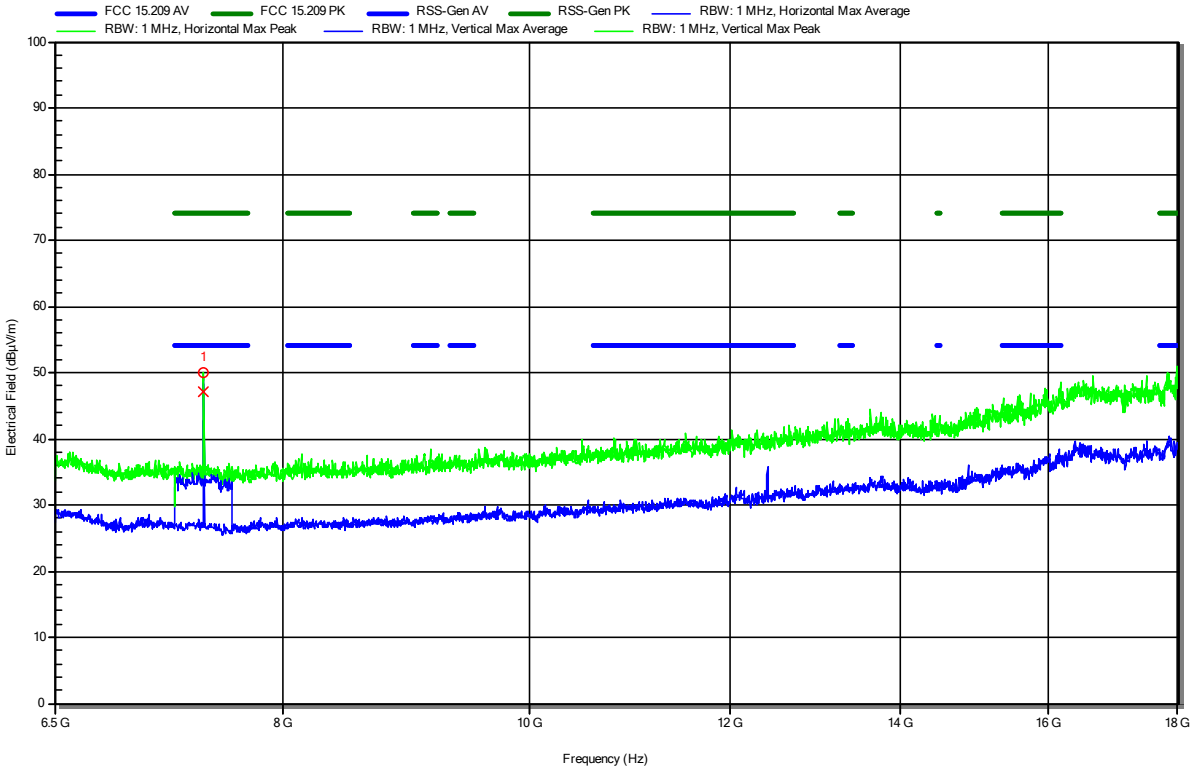
Frequency	Average	Average Limit	Average Difference	Average Status
4.6805 GHz	34.81 dBµV/m	54 dBµV/m	-19.19 dB	Pass
4.6806 GHz	43.97 dBµV/m	54 dBµV/m	-10.03 dB	Pass
4.9595 GHz	50.28 dBµV/m	54 dBµV/m	-3.72 dB	Pass

Radiated Spurious Emissions according to ISED RSS-247 Issue 2, 47 CFR § 15.247

Project Number:	G0M-2104-9736
Applicant:	ANDREAS STIHL AG & Co. KG
Model Description:	STIHL Smart Connector 2 A / STIHL Part No. CA01-400-4900-A
Model:	SC2A
Test Sample ID:	34607
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Voigt
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 23 °Celsius, Vnom: 3.0 VDC (lithium battery)
Antenna:	Schwarzbeck HWRD 650
Measurement distance:	3 m
Mode:	Tx; BLE; 2480 MHz; EUT vertical
Test Date:	2021-06-15
Note:	

Index 71

RadiMation

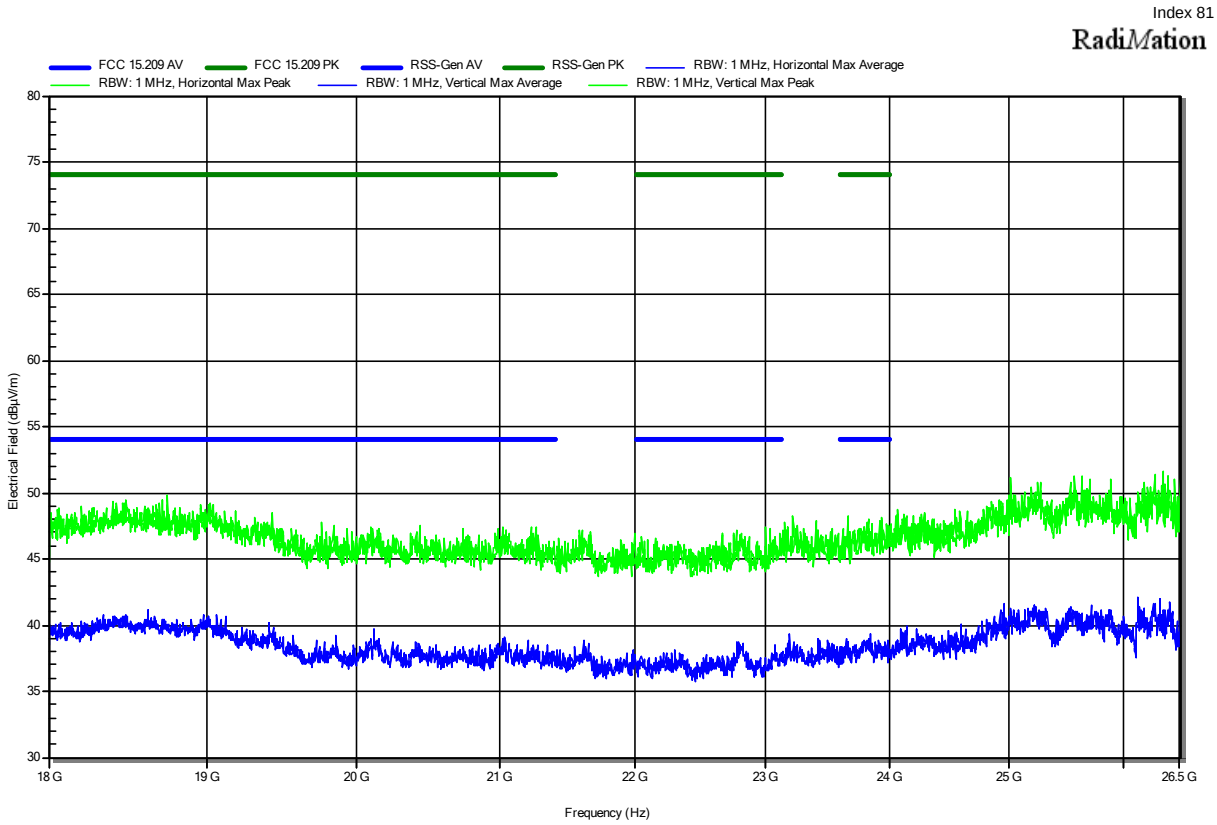


Frequency	Peak	Peak Limit	Peak Difference	Peak Status
7.439 GHz	50.07 dBµV/m	74 dBµV/m	-23.93 dB	Pass

Frequency	Average	Average Limit	Average Difference	Average Status
7.439 GHz	47.1 dBµV/m	54 dBµV/m	-6.9 dB	Pass

Radiated Spurious Emissions according to ISED RSS-247 Issue 2, 47 CFR § 15.247

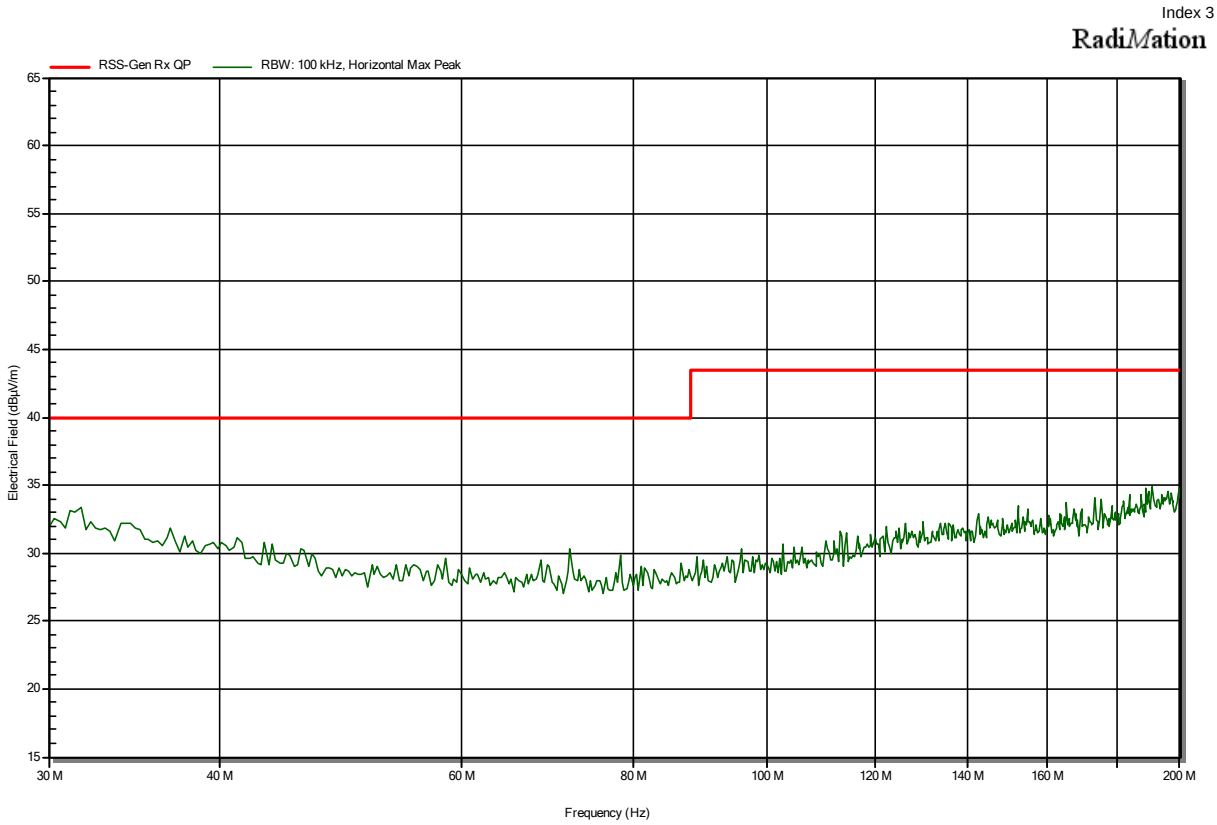
Project Number:	G0M-2104-9736
Applicant:	ANDREAS STIHL AG & Co. KG
Model Description:	STIHL Smart Connector 2 A / STIHL Part No. CA01-400-4900-A
Model:	SC2A
Test Sample ID:	34607
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Voigt
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 23 °Celsius, Vnom: 3.0 VDC (lithium battery)
Antenna:	ATH18G40
Measurement distance:	3 m
Mode:	Tx; BLE; 2480 MHz; EUT vertical
Test Date:	2021-06-15
Note:	



ANNEX B Receiver spurious emissions

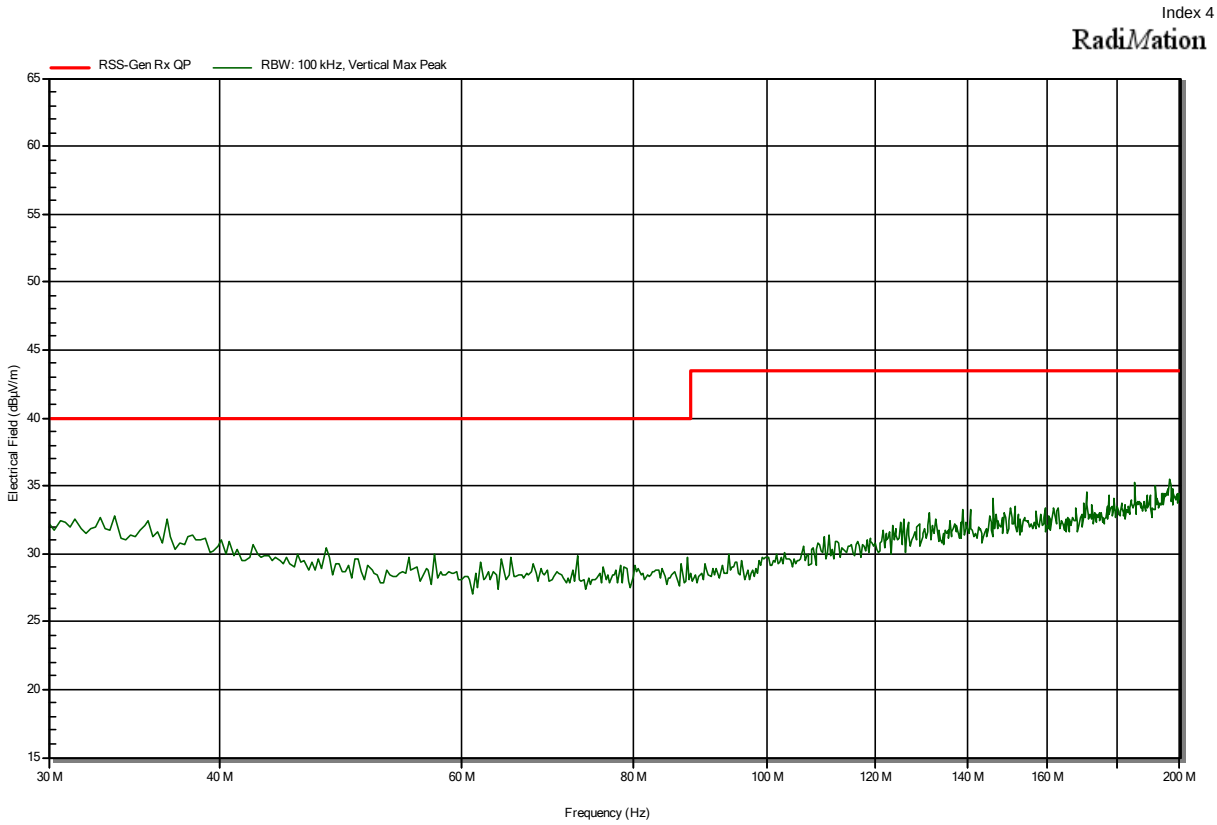
Radiated Spurious Emissions according to ISED RSS-247 Issue 2 (February 2017)

Project Number:	G0M-2104-9736
Applicant:	ANDREAS STIHL AG & Co. KG
Model Description:	STIHL Smart Connector 2 A / STIHL Part No. CA01-400-4900-A
Model:	SC2A
Test Sample ID:	34605
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 22 °Celsius, Vnom: 3.0 VDC (lithium battery)
Antenna:	Rohde & Schwarz HK 116, Horizontal
Measurement distance:	3 m
Mode:	Rx; BLE; 2440 MHz; EUT horizontal
Test Date:	2021-05-27



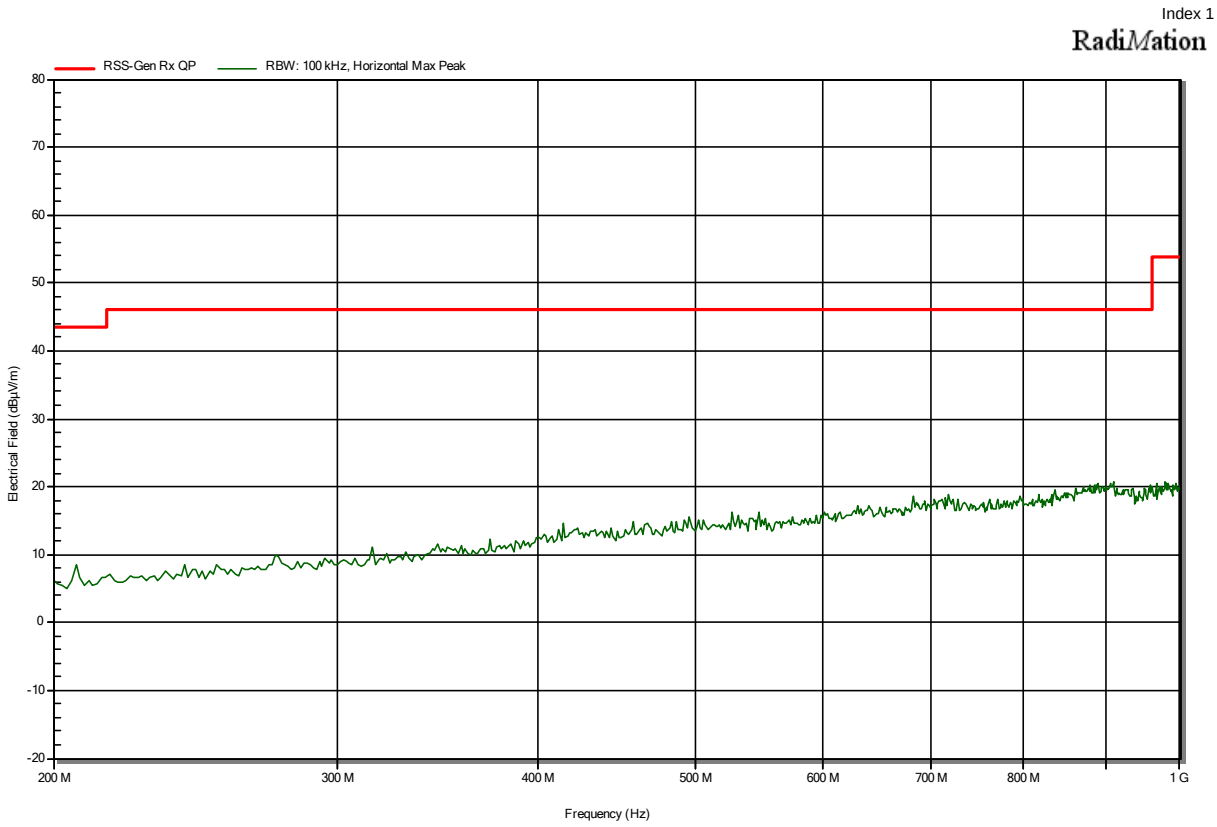
Radiated Spurious Emissions according to ISED RSS-247 Issue 2 (February 2017)

Project Number:	G0M-2104-9736
Applicant:	ANDREAS STIHL AG & Co. KG
Model Description:	STIHL Smart Connector 2 A / STIHL Part No. CA01-400-4900-A
Model:	SC2A
Test Sample ID:	34605
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 22 °Celsius, Vnom: 3.0 VDC (lithium battery)
Antenna:	Rohde & Schwarz HK 116, Vertical
Measurement distance:	3 m
Mode:	Rx; BLE; 2440 MHz; EUT horizontal
Test Date:	2021-05-27



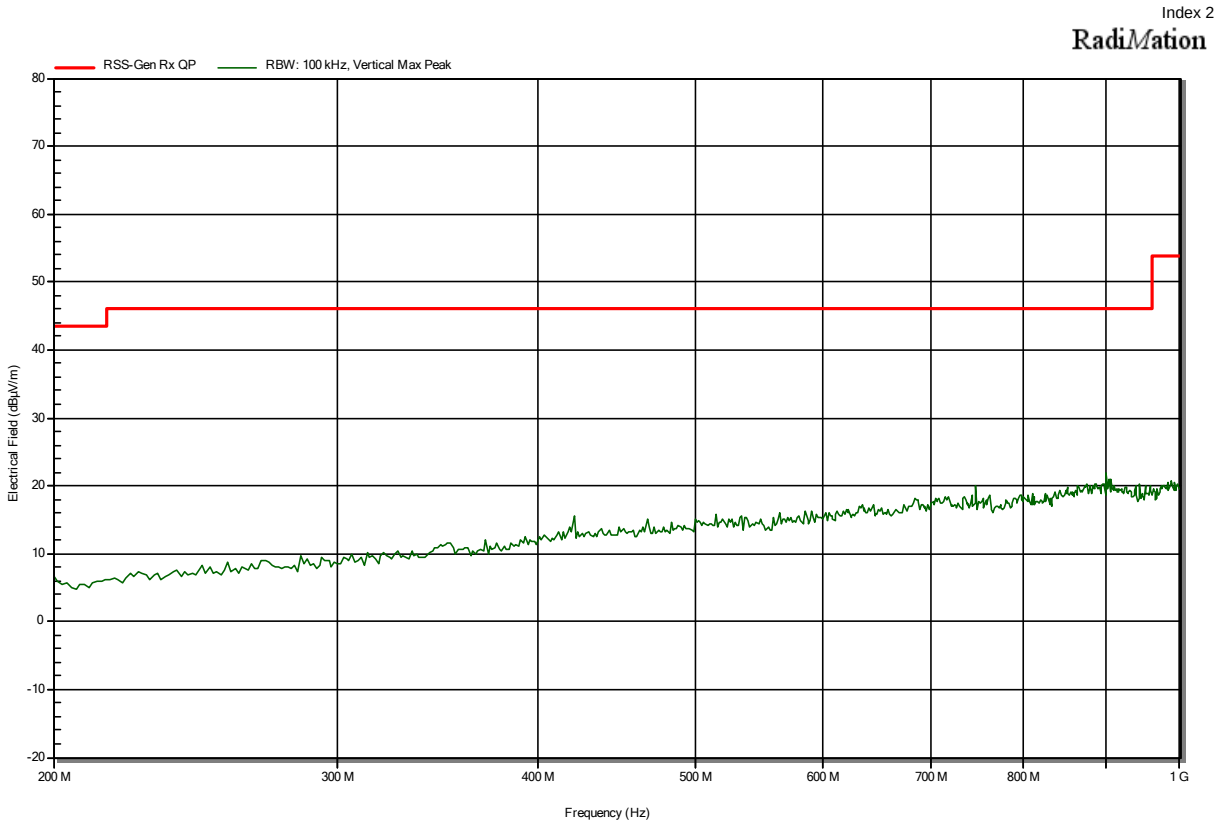
Radiated Spurious Emissions according to ISED RSS-247 Issue 2 (February 2017)

Project Number:	G0M-2104-9736
Applicant:	ANDREAS STIHL AG & Co. KG
Model Description:	STIHL Smart Connector 2 A / STIHL Part No. CA01-400-4900-A
Model:	SC2A
Test Sample ID:	34605
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 22 °Celsius, Vnom: 3.0 VDC (lithium battery)
Antenna:	Rohde & Schwarz HL 223, Horizontal
Measurement distance:	3 m
Mode:	Rx; BLE; 2440 MHz; EUT horizontal
Test Date:	2021-05-27



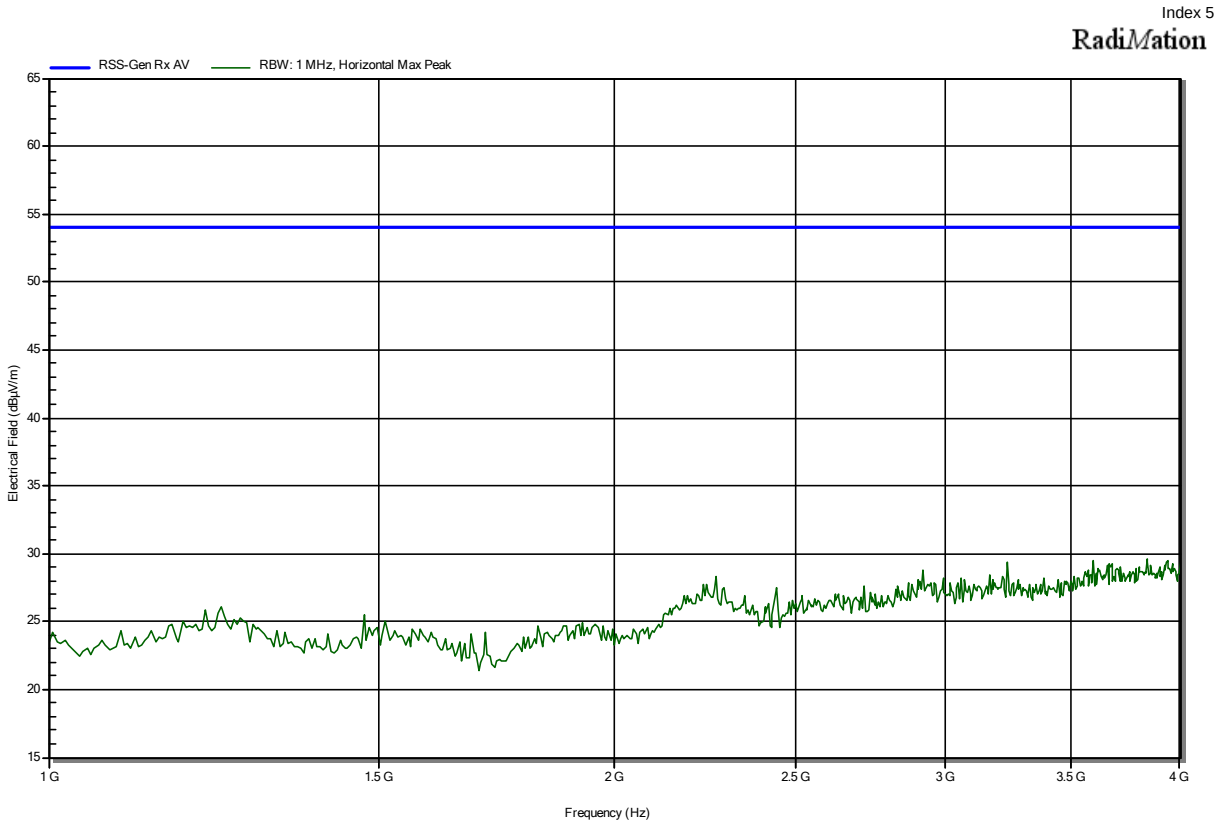
Radiated Spurious Emissions according to ISED RSS-247 Issue 2 (February 2017)

Project Number:	G0M-2104-9736
Applicant:	ANDREAS STIHL AG & Co. KG
Model Description:	STIHL Smart Connector 2 A / STIHL Part No. CA01-400-4900-A
Model:	SC2A
Test Sample ID:	34605
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 22 °Celsius, Vnom: 3.0 VDC (lithium battery)
Antenna:	Rohde & Schwarz HL 223, Vertical
Measurement distance:	3 m
Mode:	Rx; BLE; 2440 MHz; EUT horizontal
Test Date:	2021-05-27



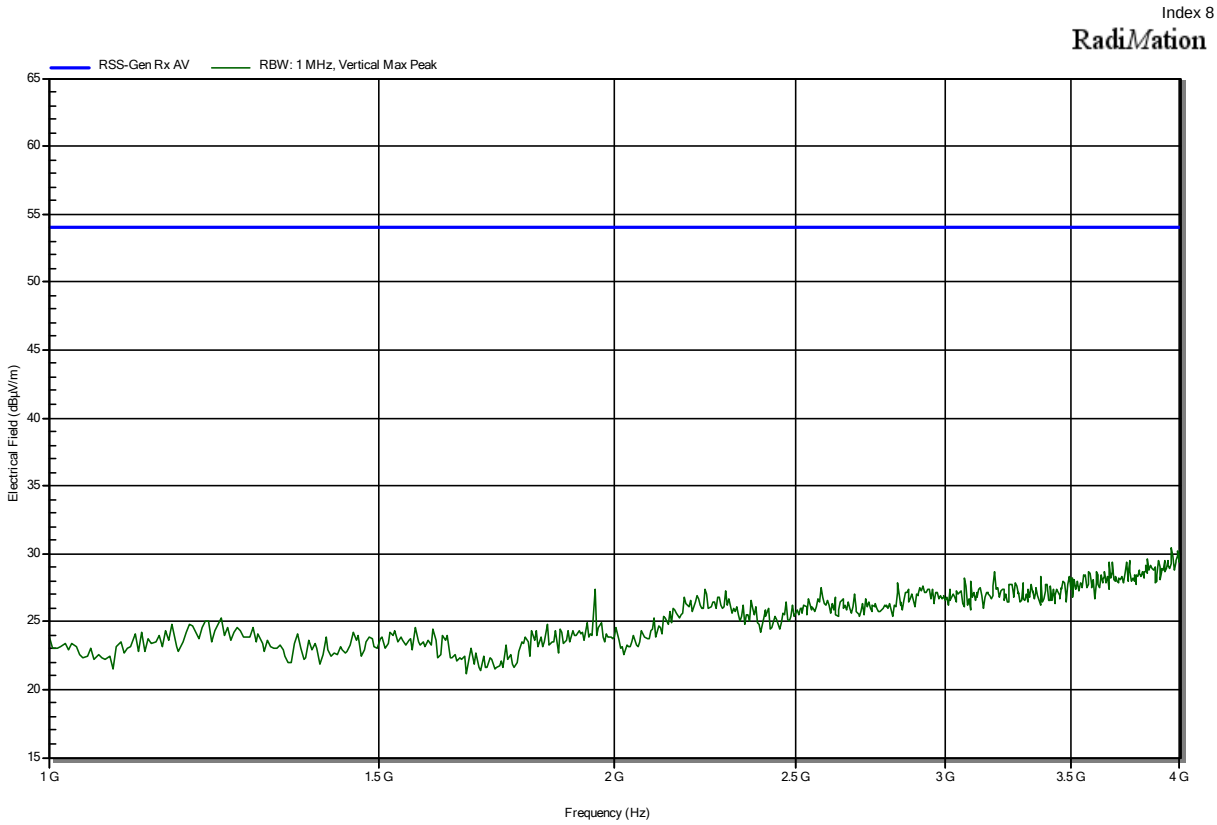
Radiated Spurious Emissions according to ISED RSS-247 Issue 2 (February 2017)

Project Number:	G0M-2104-9736
Applicant:	ANDREAS STIHL AG & Co. KG
Model Description:	STIHL Smart Connector 2 A / STIHL Part No. CA01-400-4900-A
Model:	SC2A
Test Sample ID:	34605
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 22 °Celsius, Vnom: 3.0 VDC (lithium battery)
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	3 m
Mode:	Rx; BLE; 2440 MHz; EUT horizontal
Test Date:	2021-05-27



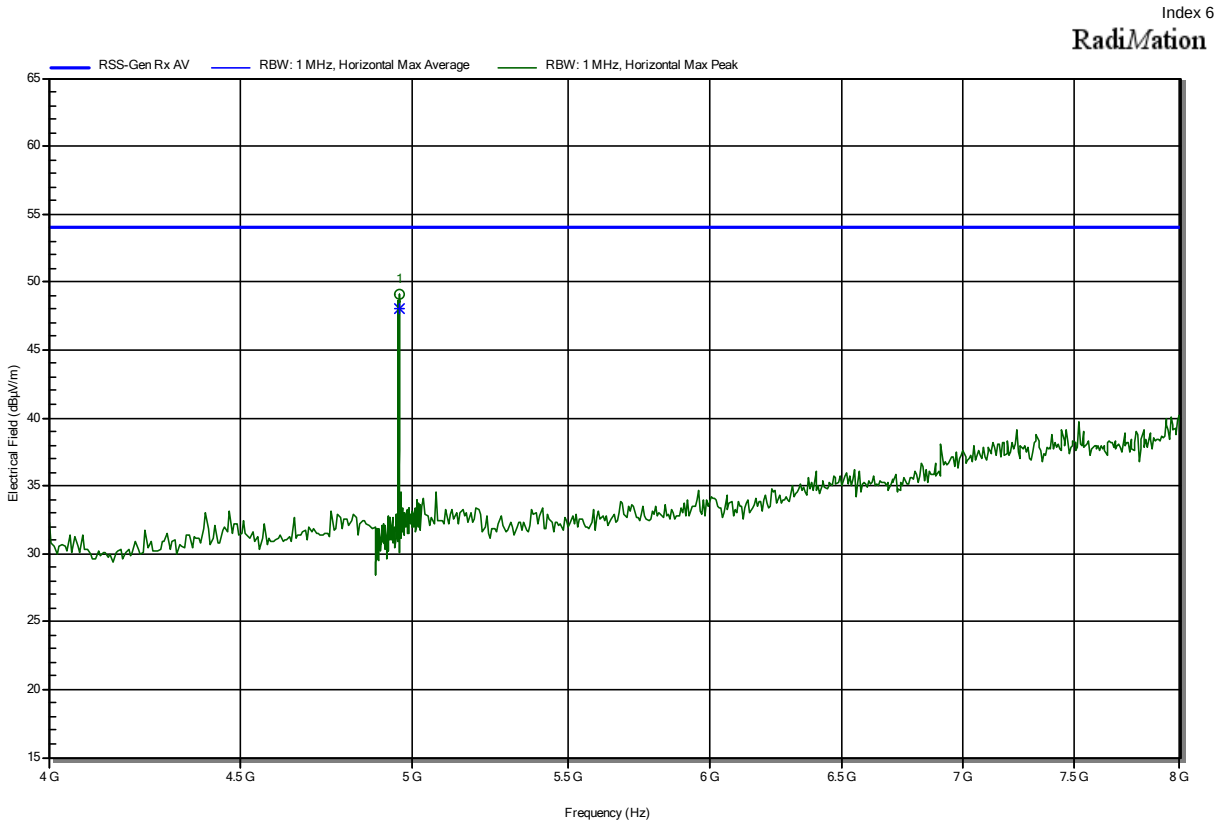
Radiated Spurious Emissions according to ISED RSS-247 Issue 2 (February 2017)

Project Number:	G0M-2104-9736
Applicant:	ANDREAS STIHL AG & Co. KG
Model Description:	STIHL Smart Connector 2 A / STIHL Part No. CA01-400-4900-A
Model:	SC2A
Test Sample ID:	34605
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 22 °Celsius, Vnom: 3.0 VDC (lithium battery)
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	3 m
Mode:	Rx; BLE; 2440 MHz; EUT horizontal
Test Date:	2021-05-27



Radiated Spurious Emissions according to ISED RSS-247 Issue 2 (February 2017)

Project Number:	G0M-2104-9736
Applicant:	ANDREAS STIHL AG & Co. KG
Model Description:	STIHL Smart Connector 2 A / STIHL Part No. CA01-400-4900-A
Model:	SC2A
Test Sample ID:	34605
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 22 °Celsius, Vnom: 3.0 VDC (lithium battery)
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	3 m
Mode:	Rx; BLE; 2440 MHz; EUT horizontal
Test Date:	2021-05-27

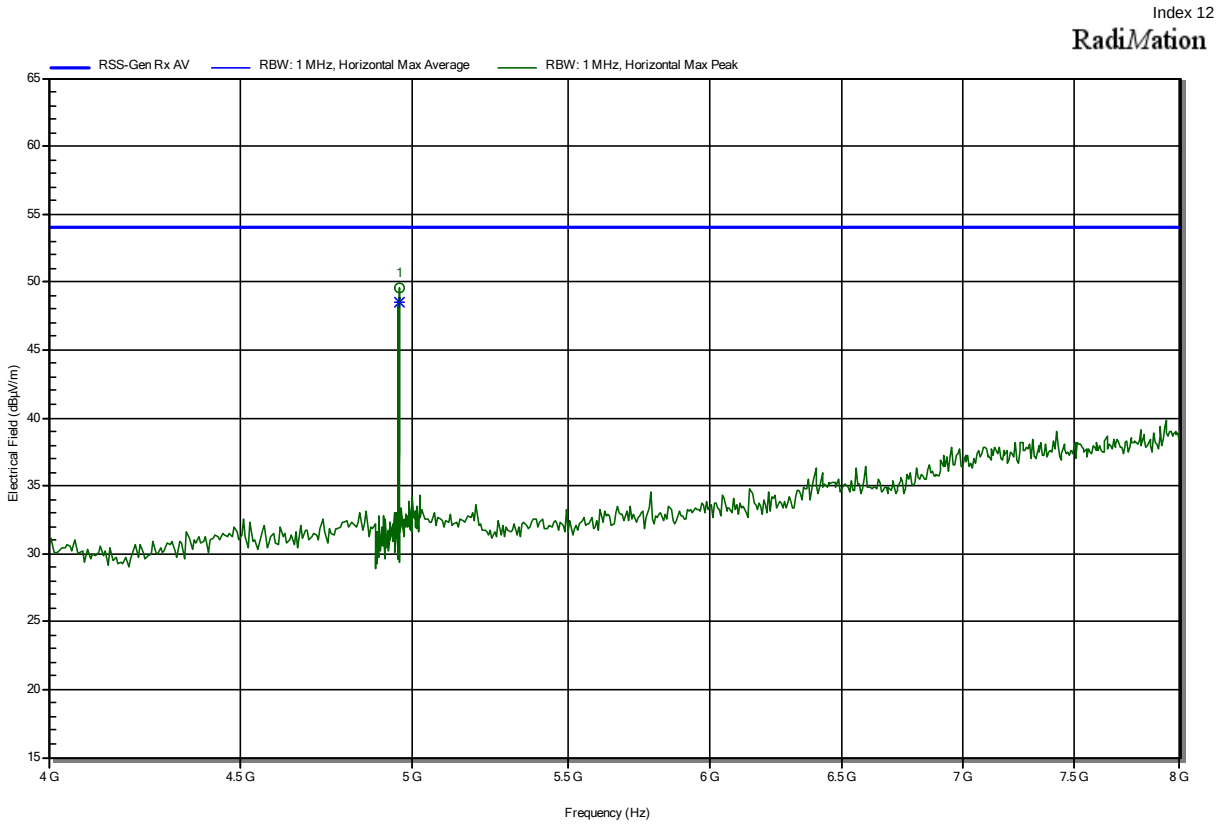


Frequency	Peak	Peak Limit	Peak Difference	Peak Status
4.958 GHz	49.11 dBµV/m	53.98 dBµV/m	-4.87 dB	Pass

Frequency	Average	Average Limit	Average Difference	Average Status
4.958 GHz	48.01 dBµV/m	53.98 dBµV/m	-5.97 dB	Pass

Radiated Spurious Emissions according to ISED RSS-247 Issue 2 (February 2017)

Project Number:	G0M-2104-9736
Applicant:	ANDREAS STIHL AG & Co. KG
Model Description:	STIHL Smart Connector 2 A / STIHL Part No. CA01-400-4900-A
Model:	SC2A
Test Sample ID:	34605
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 22 °Celsius, Vnom: 3.0 VDC (lithium battery)
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	3 m
Mode:	Rx; BLE; 2440 MHz; EUT vertical
Test Date:	2021-05-27

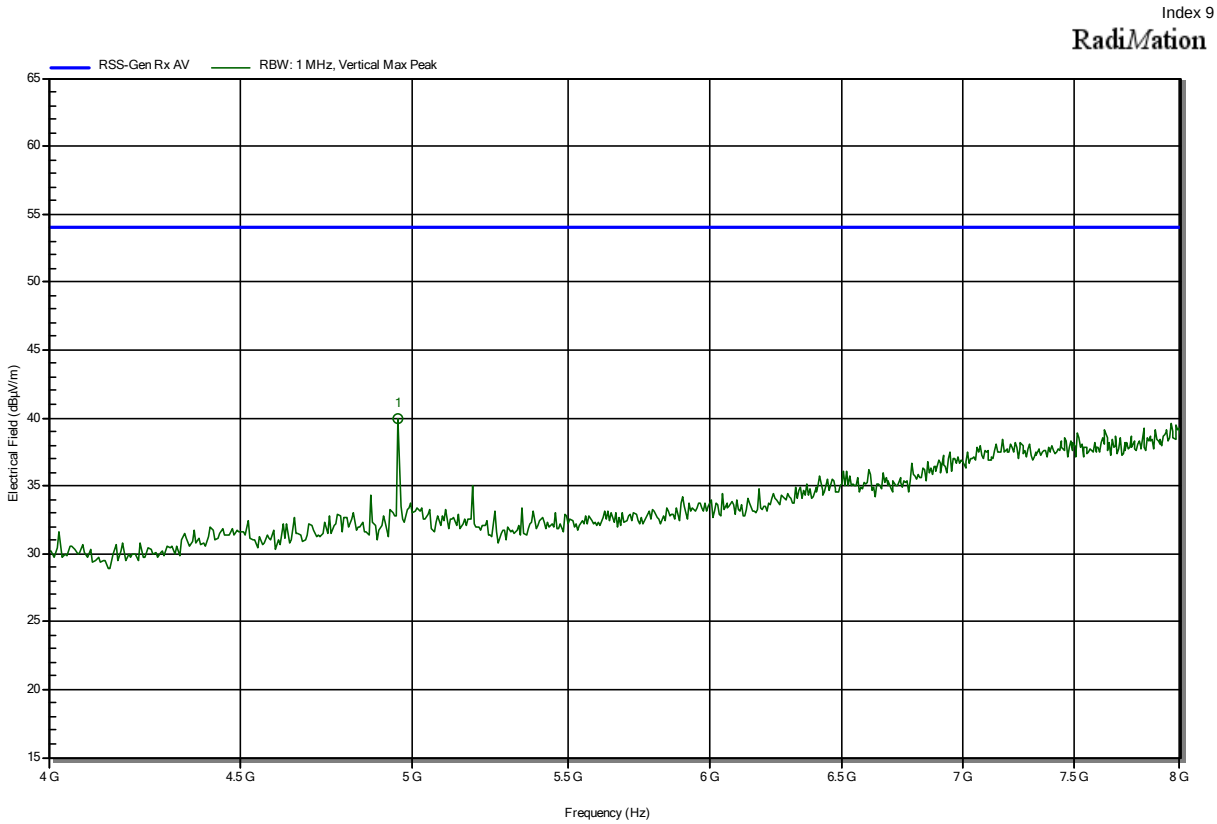


Frequency	Peak	Peak Limit	Peak Difference	Peak Status
4.958 GHz	49.58 dBµV/m	53.98 dBµV/m	-4.4 dB	Pass

Frequency	Average	Average Limit	Average Difference	Average Status
4.958 GHz	48.49 dBµV/m	53.98 dBµV/m	-5.49 dB	Pass

Radiated Spurious Emissions according to ISED RSS-247 Issue 2 (February 2017)

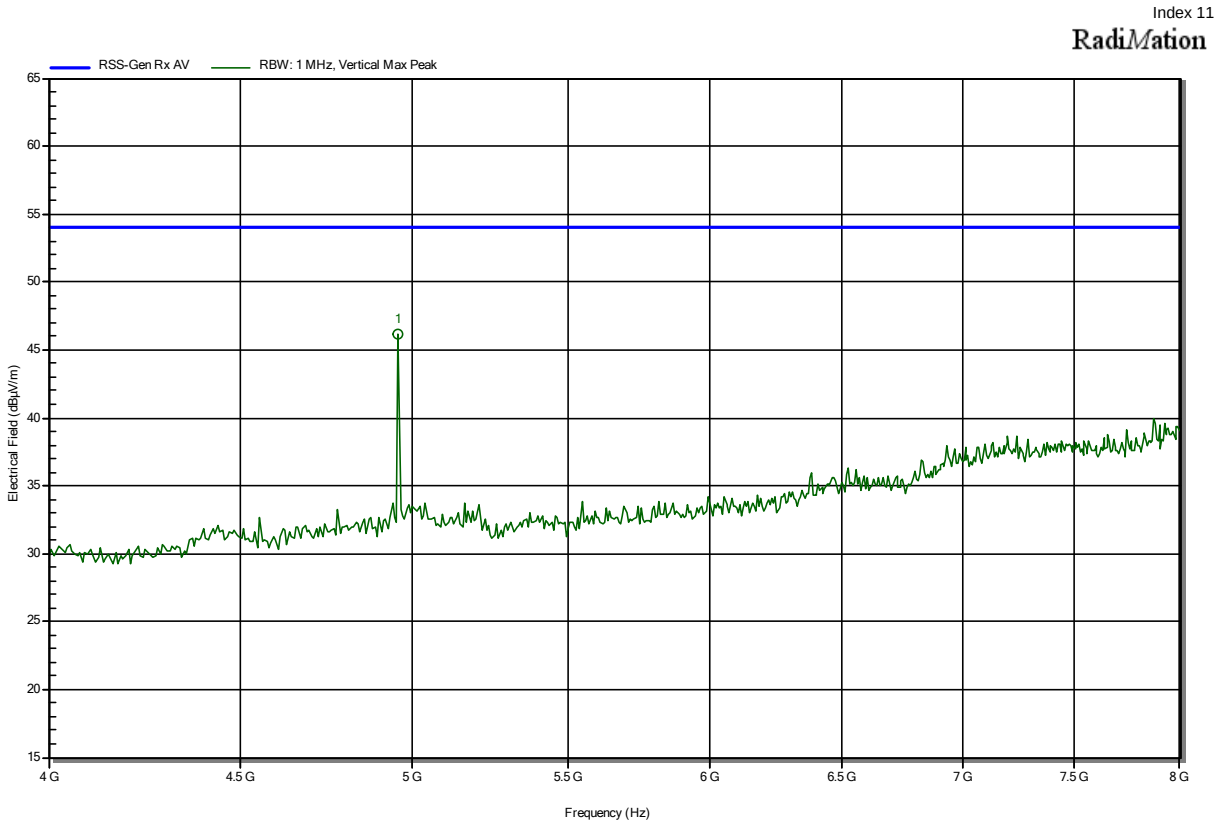
Project Number:	G0M-2104-9736
Applicant:	ANDREAS STIHL AG & Co. KG
Model Description:	STIHL Smart Connector 2 A / STIHL Part No. CA01-400-4900-A
Model:	SC2A
Test Sample ID:	34605
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 22 °Celsius, Vnom: 3.0 VDC (lithium battery)
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	3 m
Mode:	Rx; BLE; 2440 MHz; EUT horizontal
Test Date:	2021-05-27



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
4.955 GHz	39.96 dBµV/m	53.98 dBµV/m	-14.02 dB	Pass

Radiated Spurious Emissions according to ISED RSS-247 Issue 2 (February 2017)

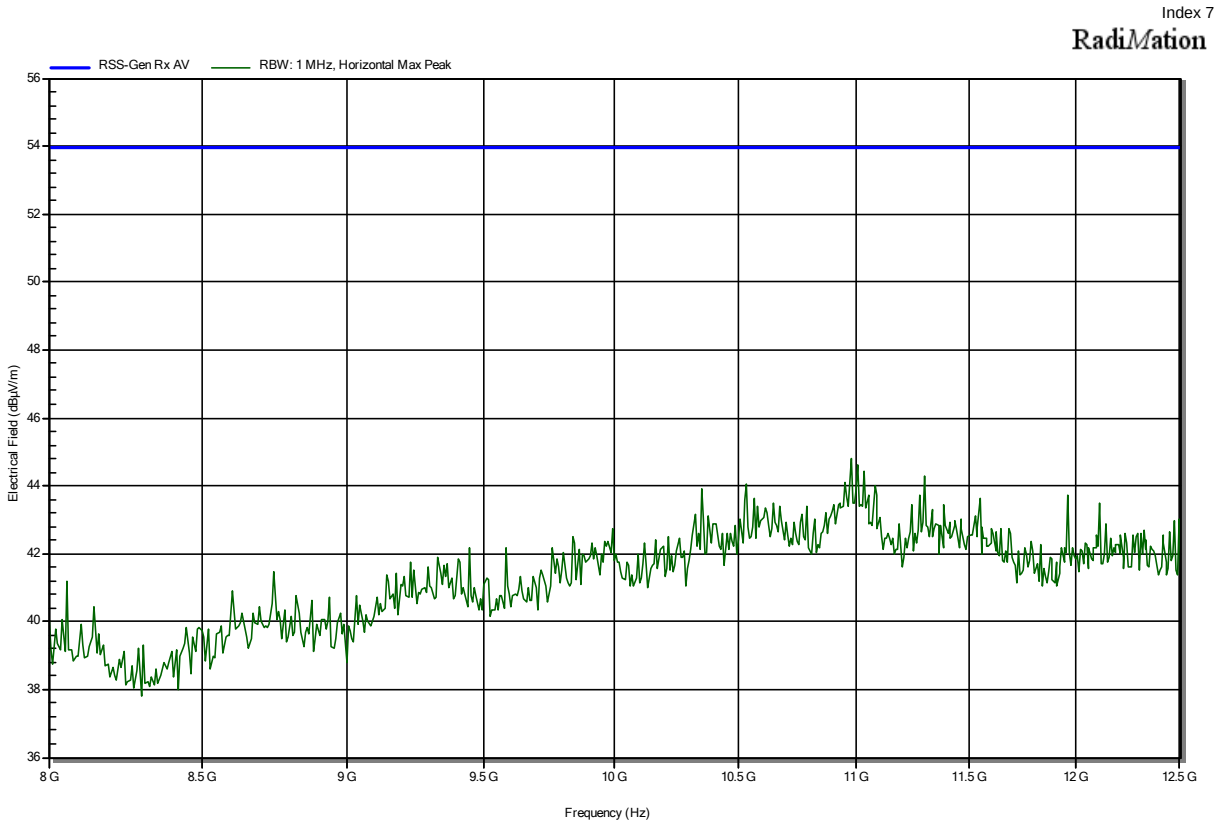
Project Number:	G0M-2104-9736
Applicant:	ANDREAS STIHL AG & Co. KG
Model Description:	STIHL Smart Connector 2 A / STIHL Part No. CA01-400-4900-A
Model:	SC2A
Test Sample ID:	34605
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 22 °Celsius, Vnom: 3.0 VDC (lithium battery)
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	3 m
Mode:	Rx; BLE; 2440 MHz; EUT vertical
Test Date:	2021-05-27



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
4.955 GHz	46.14 dBµV/m	53.98 dBµV/m	-7.84 dB	Pass

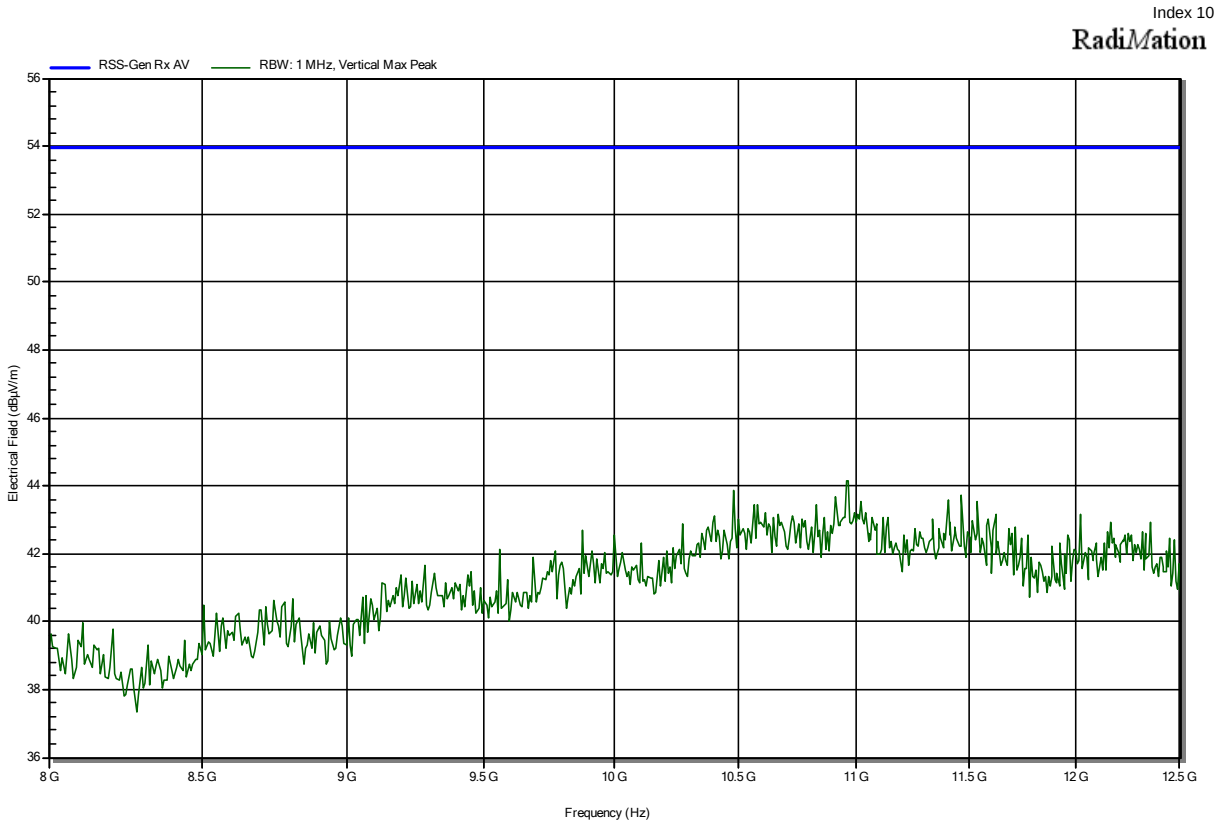
Radiated Spurious Emissions according to ISED RSS-247 Issue 2 (February 2017)

Project Number:	G0M-2104-9736
Applicant:	ANDREAS STIHL AG & Co. KG
Model Description:	STIHL Smart Connector 2 A / STIHL Part No. CA01-400-4900-A
Model:	SC2A
Test Sample ID:	34605
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 22 °Celsius, Vnom: 3.0 VDC (lithium battery)
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	3 m
Mode:	Rx; BLE; 2440 MHz; EUT horizontal
Test Date:	2021-05-27



Radiated Spurious Emissions according to ISED RSS-247 Issue 2 (February 2017)

Project Number:	G0M-2104-9736
Applicant:	ANDREAS STIHL AG & Co. KG
Model Description:	STIHL Smart Connector 2 A / STIHL Part No. CA01-400-4900-A
Model:	SC2A
Test Sample ID:	34605
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 22 °Celsius, Vnom: 3.0 VDC (lithium battery)
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	3 m
Mode:	Rx; BLE; 2440 MHz; EUT horizontal
Test Date:	2021-05-27



= = = END OF TEST REPORT = = =