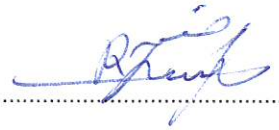
RADIO REPORT

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-2112-1232-TFC247BL-V01
Testing Laboratory	Eurofins Product Service GmbH
Address	Storkower Str. 38c 15526 Reichenwalde Germany
Accreditation	DAkkS - Registration number : D-PL-12092-01-03 (ISED) ISED Testing Laboratory site: 3470A DAkkS - Registration number : D-PL-12092-01-04 (FCC) FCC Filed Test Laboratory, Reg.-No.: 96970
Applicant	WTO Werkzeug-Einrichtungen GmbH
Address	Neuer Hohdammweg 1 77797 Ohlsbach Germany
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	SDTH Controller
Model(s)	WTO SC 002
Additional Model(s)	None
Brand Name(s)	WTO
Hardware Version(s)	K / EH40
Software Version(s)	2.3.00
FCC ID	2AZ56115715
IC	27343-115715
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	2022-07-12	
Report:		
Compiled by	Thuy Anh Hoang	
Tested by (+ signature) (Test Lab Engineer)	Thuy Anh Hoang	
Supervised by (+ signature) (Responsible for Test)	Burkhard Pudell	
Approved by (+ signature) (Test Lab Engineer)	Radwan Jaafar	
Date of Issue	2022-08-23	
Total number of pages	37	
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	SDTH Controller
	Model name	WTO SC 002
	Brand name	Coromant Capto® DTH Plus
	Hardware Version	K / EH40
	Software Version	2.3.00
2	Product Type Description	SDTH Controller
	Model name	WTO SC 002
	Brand name	WTO
	Hardware Version	K / EH10
	Software Version	2.3.00
3	Product Type Description	SDTH Controller
	Model name	WTO SC 002
	Brand name	Coromant Capto® DTH Plus
	Hardware Version	K / EH10
	Software Version	2.3.00
4	Product Type Description	SDTH Controller
	Model name	WTO SC 002
	Brand name	WTO
	Hardware Version	K / EH30
	Software Version	2.3.00
5	Product Type Description	SDTH Controller
	Model name	WTO SC 002
	Brand name	Coromant Capto® DTH Plus
	Hardware Version	K / EH30
	Software Version	2.3.00
6	Product Type Description	SDTH Controller
	Model name	WTO SC 002
	Brand name	WTO
	Hardware Version	K / EH50
	Software Version	2.3.00
7	Product Type Description	SDTH Controller
	Model name	WTO SC 002
	Brand name	Coromant Capto® DTH Plus
	Hardware Version	K / EH50
	Software Version	2.3.00
8	Product Type Description	SDTH Controller
	Model name	WTO SC 002
	Brand name	WTO
	Hardware Version	K / EH63
	Software Version	2.3.00
9	Product Type Description	SDTH Controller
	Model name	WTO SC 002
	Brand name	Coromant Capto® DTH Plus
	Hardware Version	K / EH63
	Software Version	2.3.00
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	2022-08-23	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

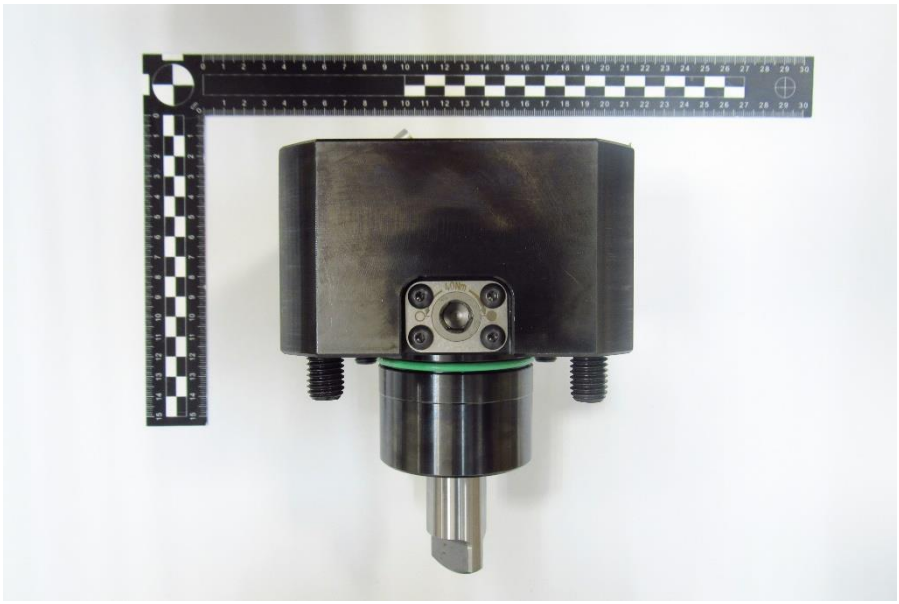
REPORT INDEX

1 Equipment (Test Item) Under Test

Description	SDTH Controller		
Model	WTO SC 002		
Additional Model(s)	None		
Brand Name(s)	WTO		
Serial Number(s)	L22-000021-1.5		Test Sample ID 40521
Hardware Version(s)	K / EH40		
Software Version(s)	2.3.00		
PMN	WTO SC 002		
HVIN	WTO SC 002		
FVIN	2.3.0		
HMN	n/a		
FCC ID	2AZ56115715		
IC	27343-115715		
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 Low Energy	
	Model	EYSKBN	
	Manufacturer	Taiyo Yuden	
	HW Version	Not specified	
	SW Version	Not specified	
	FCC-ID	RYYEYSKBN	
	IC	4389B-EYSKBN	
Antenna	Type	Integrated antenna	
	Model	EYSKBN	
	Manufacturer	Taiyo Yuden	
	Gain	-0.6 dBi (declared by applicant)	
Supply Voltage	V_{NOM}	3 VDC (Lithium battery)	
Operating Temperature	T_{NOM}	23 °C	
AC/DC-Adaptor	None		
Manufacturer	WTO Werkzeug-Einrichtungen GmbH Auf der oberen Au 45 77797 Ohlsbach Germany		

1.1 Photos – Equipment External

EUT Front


EUT Back


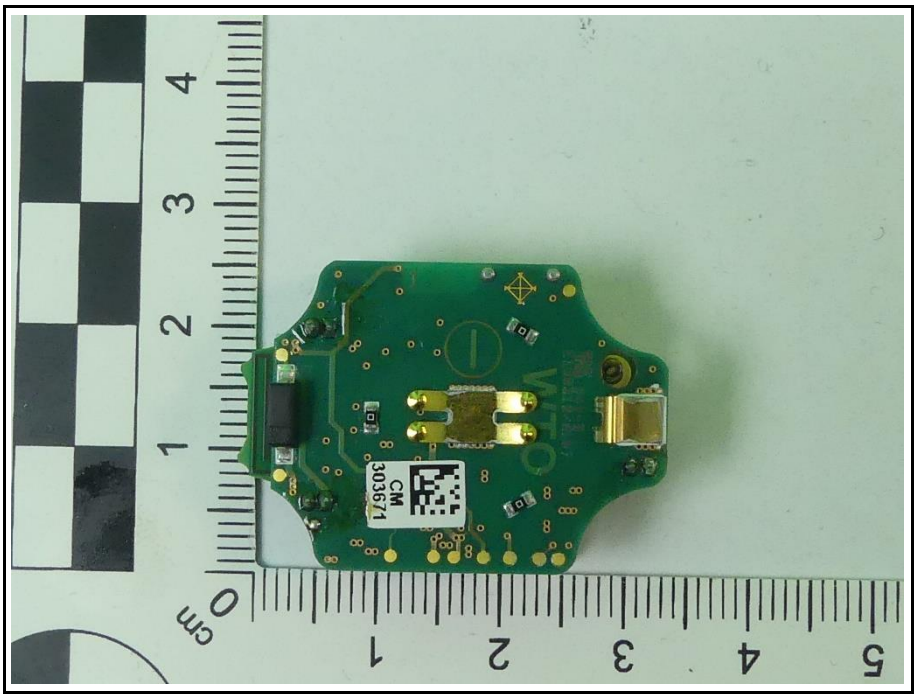
EUT Top


EUT Bottom

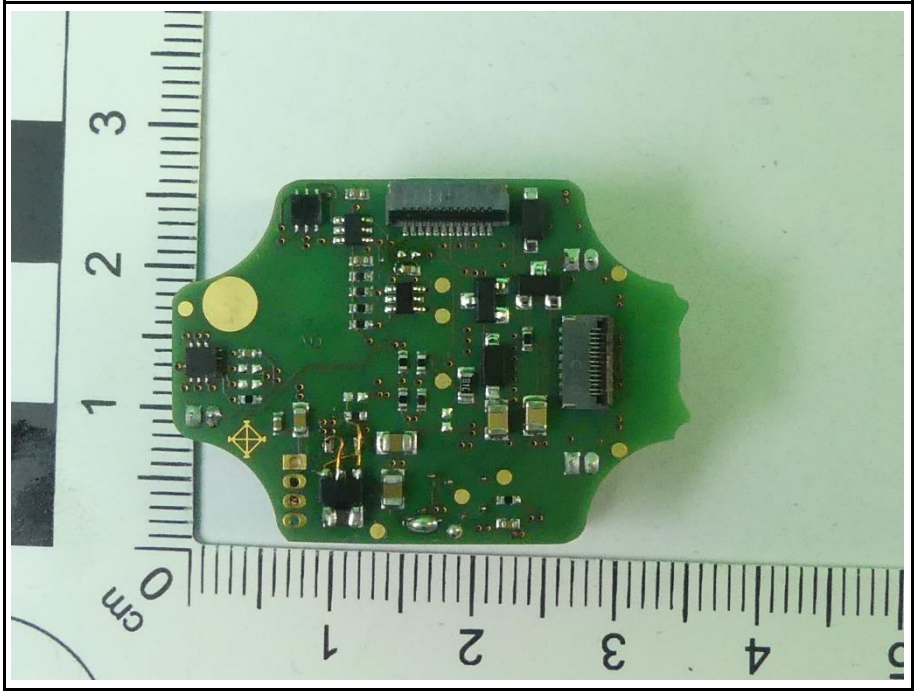

EUT Right

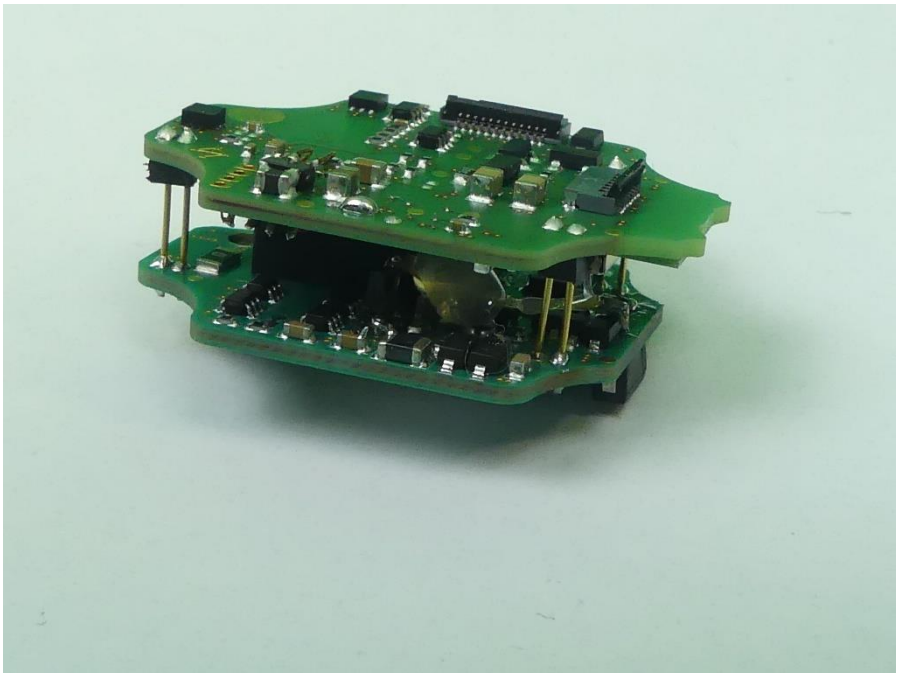

EUT Left

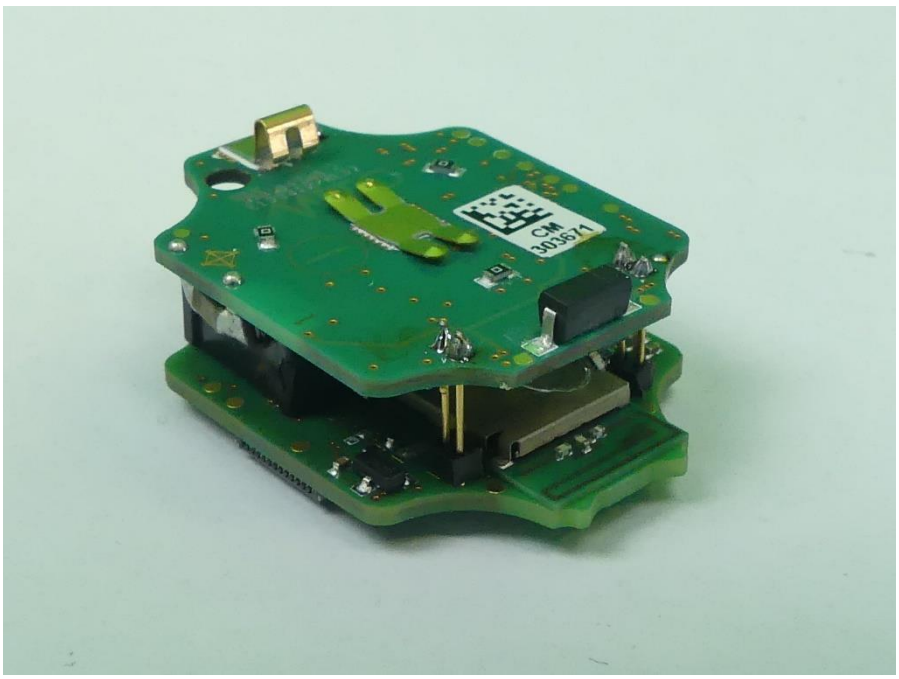

1.2 Photos – Equipment Internal

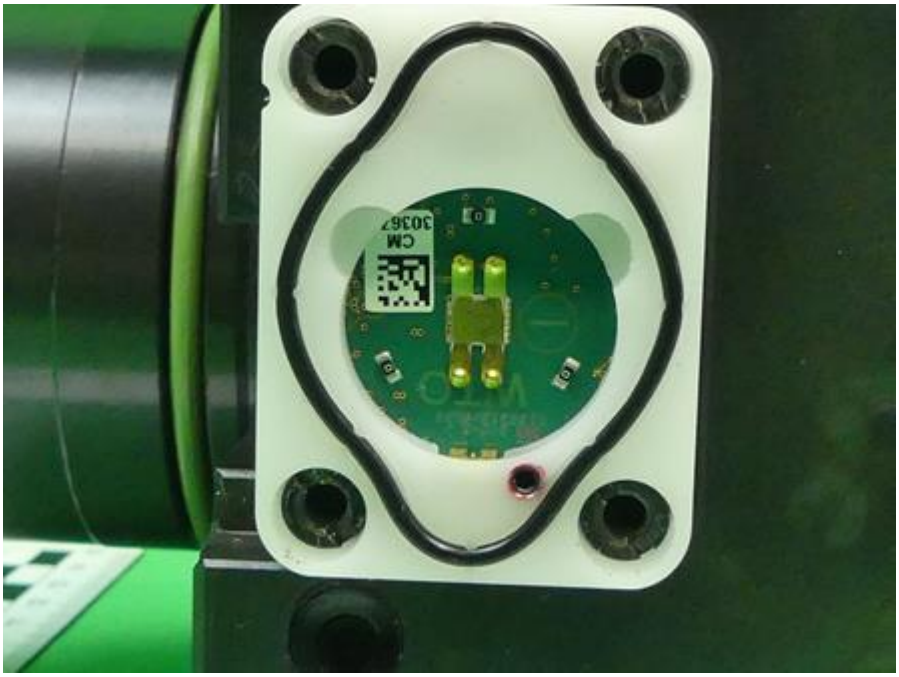


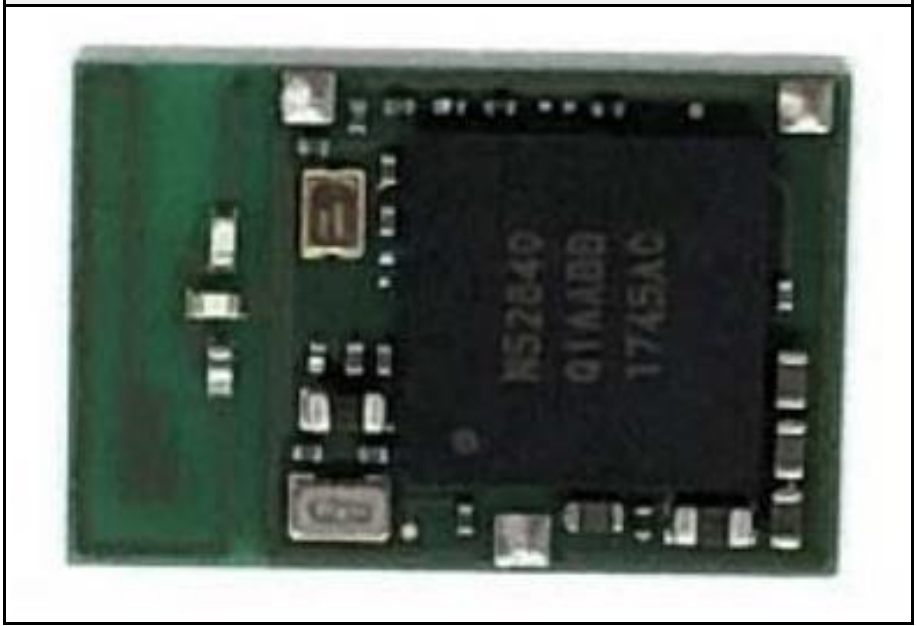
EUT PCB Bluetooth top view



EUT PCB Bluetooth view 1


EUT PCB Bluetooth view 2


EUT Electronic unit


Bluetooth Module unshielded


1.3 Support Equipment

Product Type	Device	Manufacturer	Model	Comment
AE	Notebook	Lenovo	-	To set EUT in the test mode
CBL	USB cable	Not specified	Test Sample ID 40524	To set EUT in the test mode
AE	DB debug-Box for Controller	Not specified	Test Sample ID 40522	To set EUT in the test mode
Description:				
AE	Auxiliary Equipment			
SIM	Simulator			
CBL	Connecting Cable			
SFT	Software			
Comment:				

1.4 Test Modes

Mode	Description
Transmit	Mode = Transmit Modulation = GFSK Packet Typ = LE 2M PHY Duty cycle = 81% Power setting = 14 (software setting) Data rate = 2 Mbps (PRBS9)
Receive	Mode = Receive
Comment: The above settings are found as worst case during evaluation of the original modular test report 12510206S-A-R3, issued on 2018-11-16 by UL Japan, Inc. Shonan EMC Lab.. Conducted peak/average output power was evaluated to determine the worst case settings.	

1.5 Test Frequencies

Designator	Mode	Channel	Frequency [MHz]
F1	Tx / Rx	19	2440

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/T	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	N/T	
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	N/T	
FCC § 15.247(d) ISED RSS-247, Issue 2 (section 5.5)	Band edge compliance	ANSI C63.10-2013	N/T	
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	
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 - Transmitter radiated emissions

3.1.1 Information

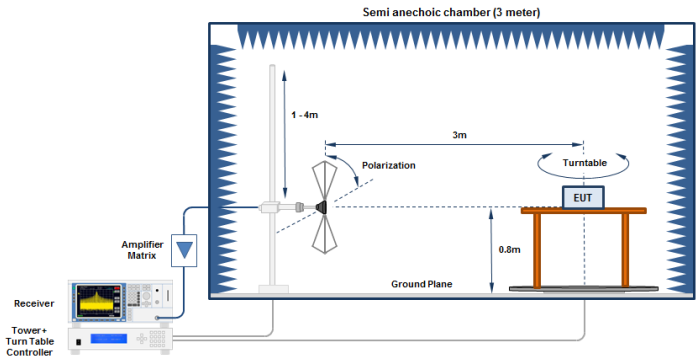
Test Information	
Reference	FCC § 15.247(d); FCC § 15.209; ISED RSS-Gen, Issue 5 A2 (section 6.13)
Measurement Uncertainty	± 5.95 dB
Measurement Method	ANSI C63.10 6.4, 6.5, 6.6, 11.12
Operator	Thuy Anh Hoang
Date	2022-08-08

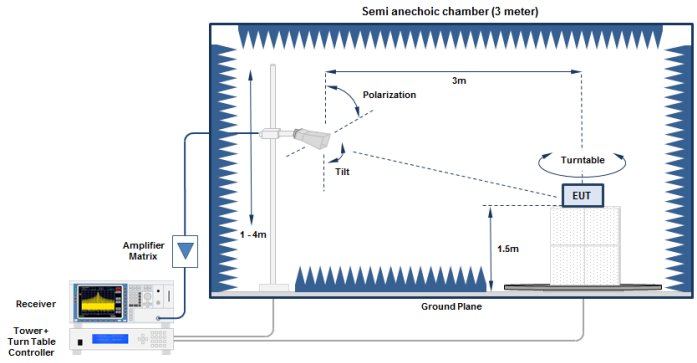
3.1.2 Limits

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

3.1.3 Setup

Test Setup 30 MHz - 1000 MHz



Test Setup > 1 GHz


3.1.4 Equipment

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

Test Equipment 30 MHz - 1000 MHz					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Anechoic Chamber	Frankonia	AC1	EF00062	2021-02	2024-02
Measurement Receiver	Agilent	N9038A-526/WXP	EF01070	2021-07	2023-01
Antenna	R&S	HK 116	EF00030	2021-05	2024-05
Antenna	R&S	HL 223	EF01565	2020-03	2023-03

Test Equipment > 1 GHz					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Anechoic chamber	Frankonia	AC2	EF01616	2021-09	2022-09
Spectrum Analyzer	R&S	FSU 43	EF01631	2022-08	2023-08
Antenna	Schwarzbeck	BBHA 9120B	EF01678	2021-03	2024-03
Antenna	Schwarzbeck	HWRD 650	EF01679	2021-03	2024-03
Antenna	Amplifier Research	AT4560	EF00302	2021-06	2023-06

3.1.5 Procedure

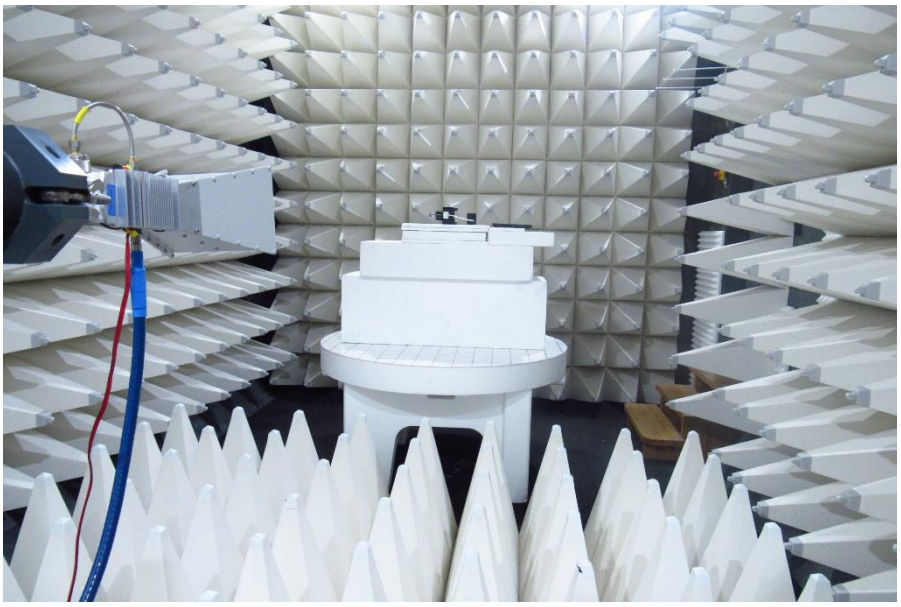
Test Procedure 30 MHz - 1000 MHz
1. EUT is placed on a non-conducting support at the center of a turn table 0.8 m above the ground 2. EUT set to test mode 3. The receiver is set to peak detection with max hold 4. The EUT is rotated through 360° and the height of the antenna is varied from 1 m to 4 m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

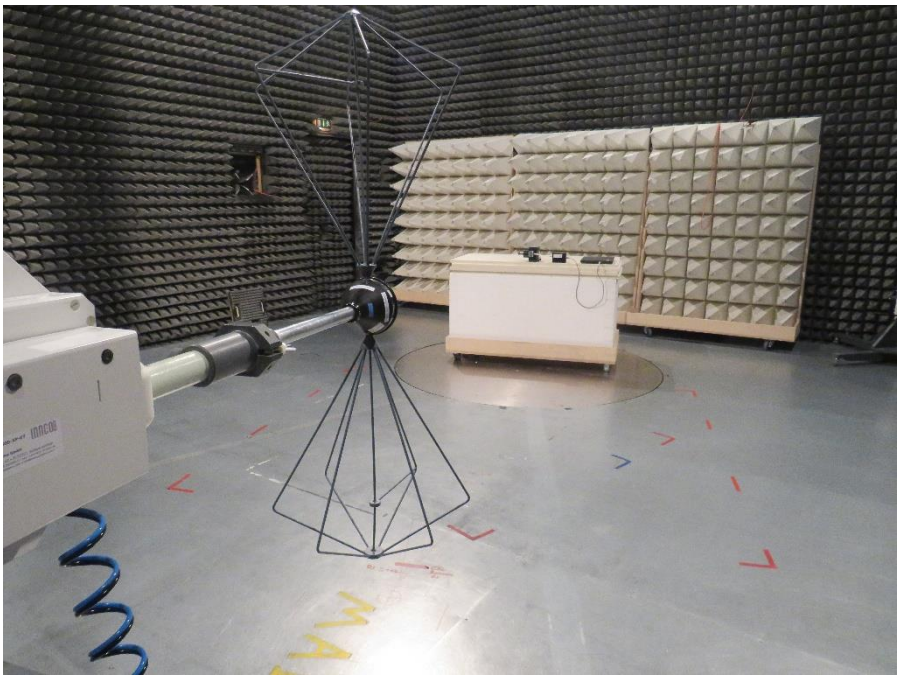
Test Procedure > 1 GHz
1. EUT is placed on a non-conducting support at the center of a turn table 1.5 m above the ground 2. EUT set to test mode 3. The receiver is set to peak detection with max hold 4. The EUT is rotated through 360° and the height of the antenna is varied from 1 m to 4 m 5. All significant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

3.1.6 Results

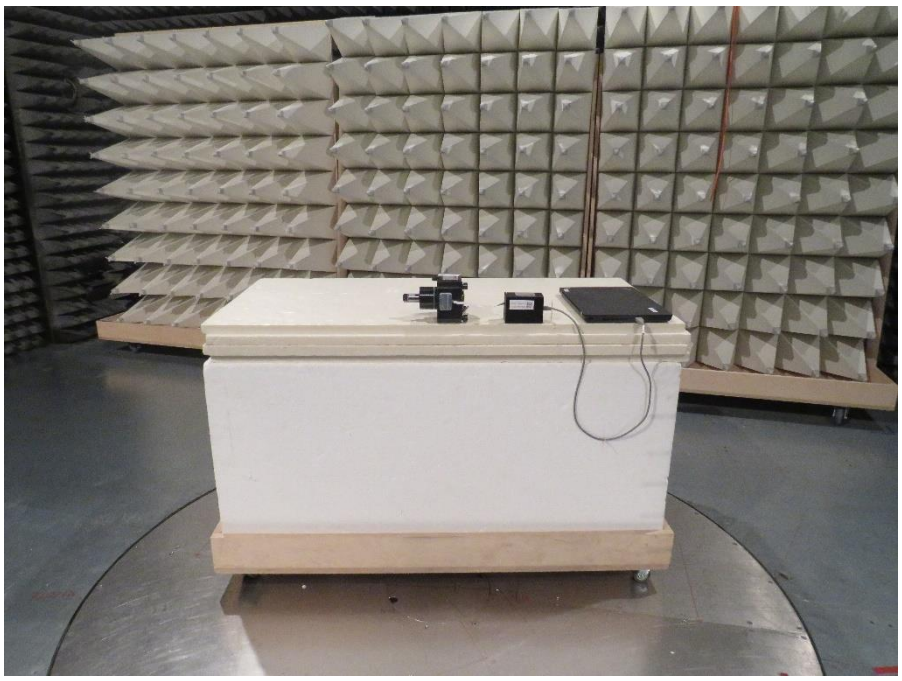
Test Results						
Channel [MHz]	Emission [MHz]	Level [dBµV/m]	Det.	Pol.	Limit [dBµV/m]	Margin [dB]
2440	131.7407	22.20	pk	ver	43.50	-21.34
2440	167.7935	20.20	pk	ver	43.50	-23.29
2440	612.42	25.20	pk	ver	46.00	-20.83
2440	3974.2	45.91	pk	hor	74.00	-28.09
2440	3974.2	33.53	avg	hor	54.00	-20.47
2440	17870	44.21	pk	ver	74.00	-29.79
2440	17870	32.30	avg	ver	54.00	-21.70
2440	18101	47.79	pk	hor	74.00	-26.21
2440	18101	35.74	avg	hor	54.00	-18.26

3.1.7 Setup Photos

Radiated Emission - above 1 GHz


Radiated Emission - 30 MHz to 200 MHz


Radiated Emission - Focus



3.2 Test Conditions and Results - Receiver radiated emissions

3.2.1 Information

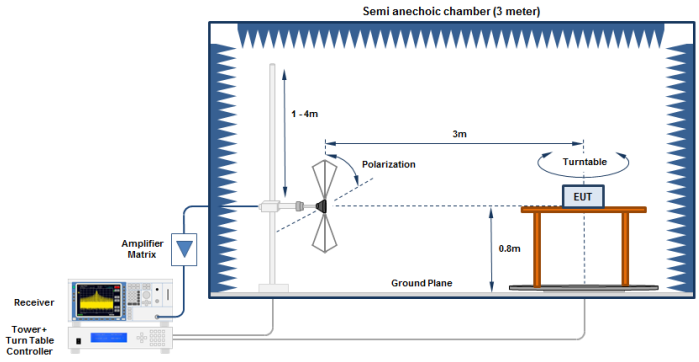
Test Information	
Reference	ISED RSS-247, Issue 2 (section 3.1)
Measurement Uncertainty	± 5.95 dB
Measurement Method	ANSI C63.4-2014 8.1-8.3
Operator	Thuy Anh Hoang
Date	2022-08-01

3.2.2 Limits

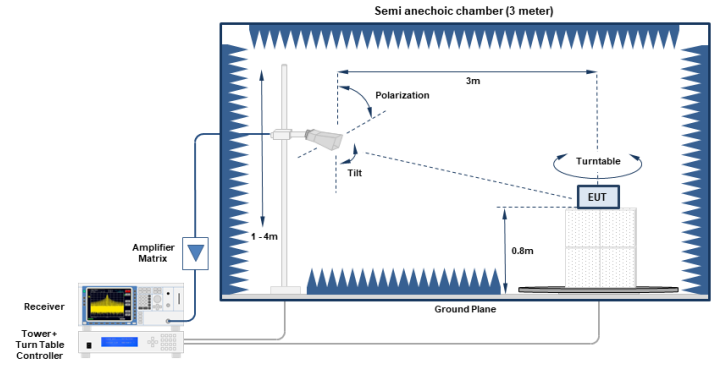
Limits			
Frequency range [MHz]	Detector	Field strength [µV/m]	Measurement distance [m]
30 - 88	Quasi-Peak	100	3
88 - 216	Quasi-Peak	150	3
216 - 960	Quasi-Peak	200	3
960 - 1000	Quasi-Peak	500	3
>1000	Average	500	3

3.2.3 Setup

Test Setup 30 MHz - 1000 MHz



Test Setup > 1 GHz



3.2.4 Equipment

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

Test Equipment 30 MHz - 1000 MHz					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Anechoic Chamber	Frankonia	AC1	EF00062	2021-02	2024-02
Measurement Receiver	Agilent	N9038A-526/WXP	EF01070	2021-07	2023-01
Antenna	R&S	HK 116	EF00030	2021-05	2024-05
Antenna	R&S	HL 223	EF00187	2022-06	2025-06

Test Equipment > 1 GHz					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Anechoic Chamber	Frankonia	AC1	EF01011	2022-06	2025-06
Measurement Receiver	Agilent	N9038A-526/WXP	EF01070	2021-07	2023-01
Antenna	Schwarzbeck	BBHA 9120D	EF00018	2019-10	2022-10
Antenna	Schwarzbeck	HWRD 650	EF01679	2021-03	2024-03
Antenna	Amplifier Research	AT4560	EF00302	2021-06	2023-06

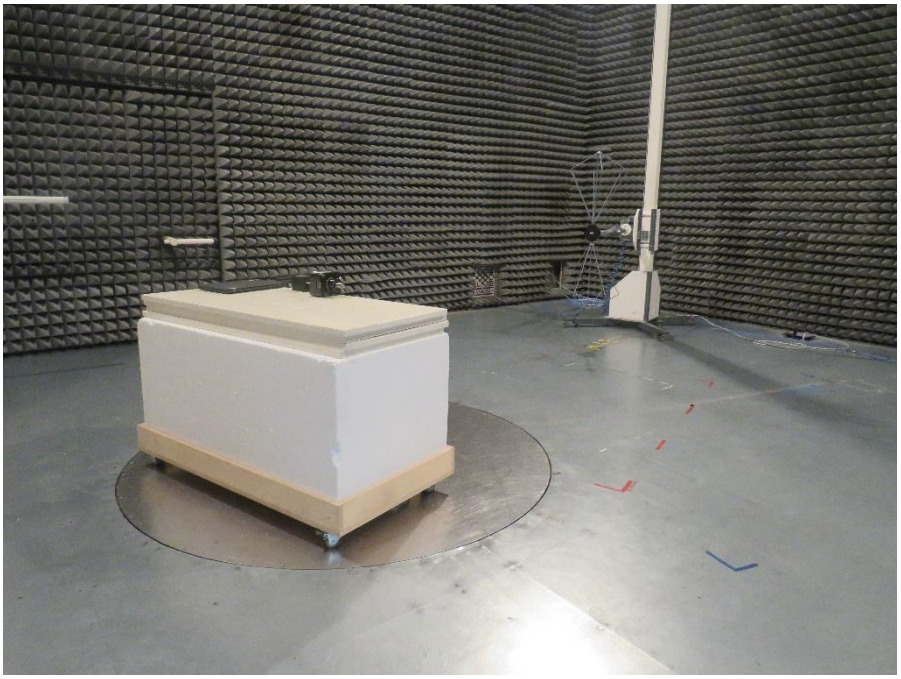
3.2.5 Procedure

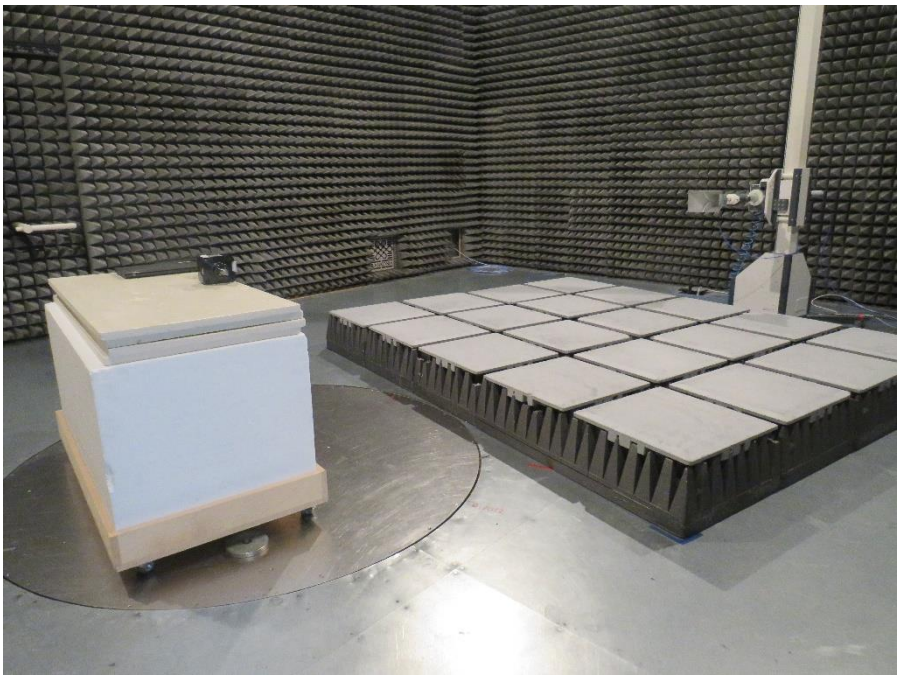
Test Procedure
1. EUT is placed on a non conducting support at the center of a turn table 0.8 m above the ground
2. EUT is set to test mode
3. The receiver is set to peak detection with max hold
4. The EUT is rotated through 360° and the height of the antenna is varied from 1 m to 4 m
5. All significant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

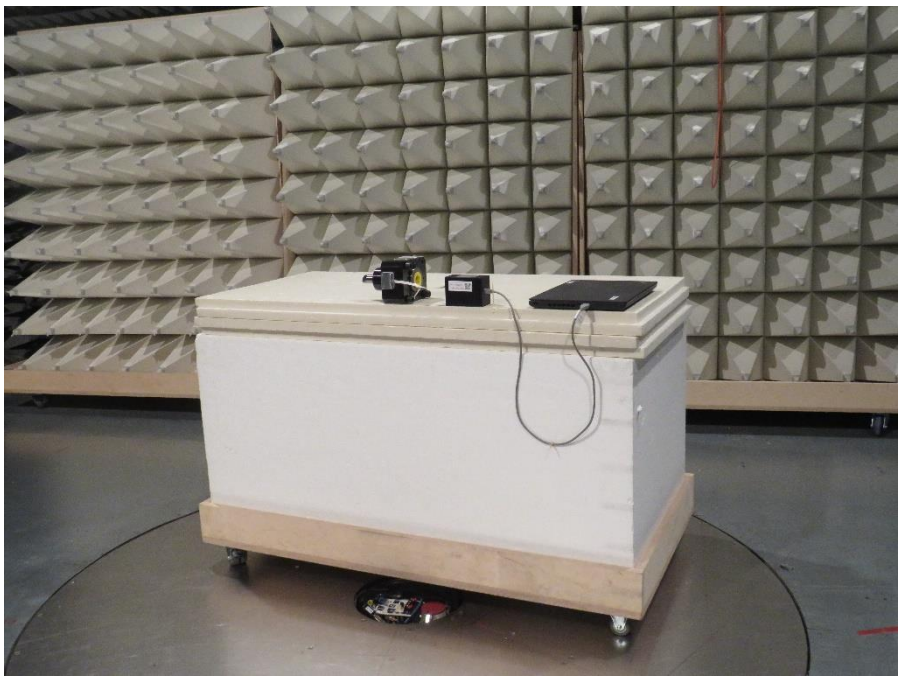
3.2.6 Results

Test Results						
Channel [MHz]	Emission [MHz]	Level [dBµV/m]	Det.	Pol.	Limit [dBµV/m]	Margin [dB]
2440	55.2705	24.90	pk	hor	40.00	-15.13
2440	155.834	29.60	pk	ver	43.50	-13.88
2440	268.36	24.70	pk	ver	46.00	-21.27
2440	897.34	28.90	pk	ver	46.00	-17.07
2440	6437	48.01	pk	ver	74.00	-25.99
2440	6437	39.63	avg	ver	53.98	-14.35
2440	17316	45.18	pk	ver	74.00	-28.82
2440	17316	35.47	avg	ver	53.98	-18.51

3.2.7 Setup Photos

Radiated Emissions - 30 MHz to 200 MHz


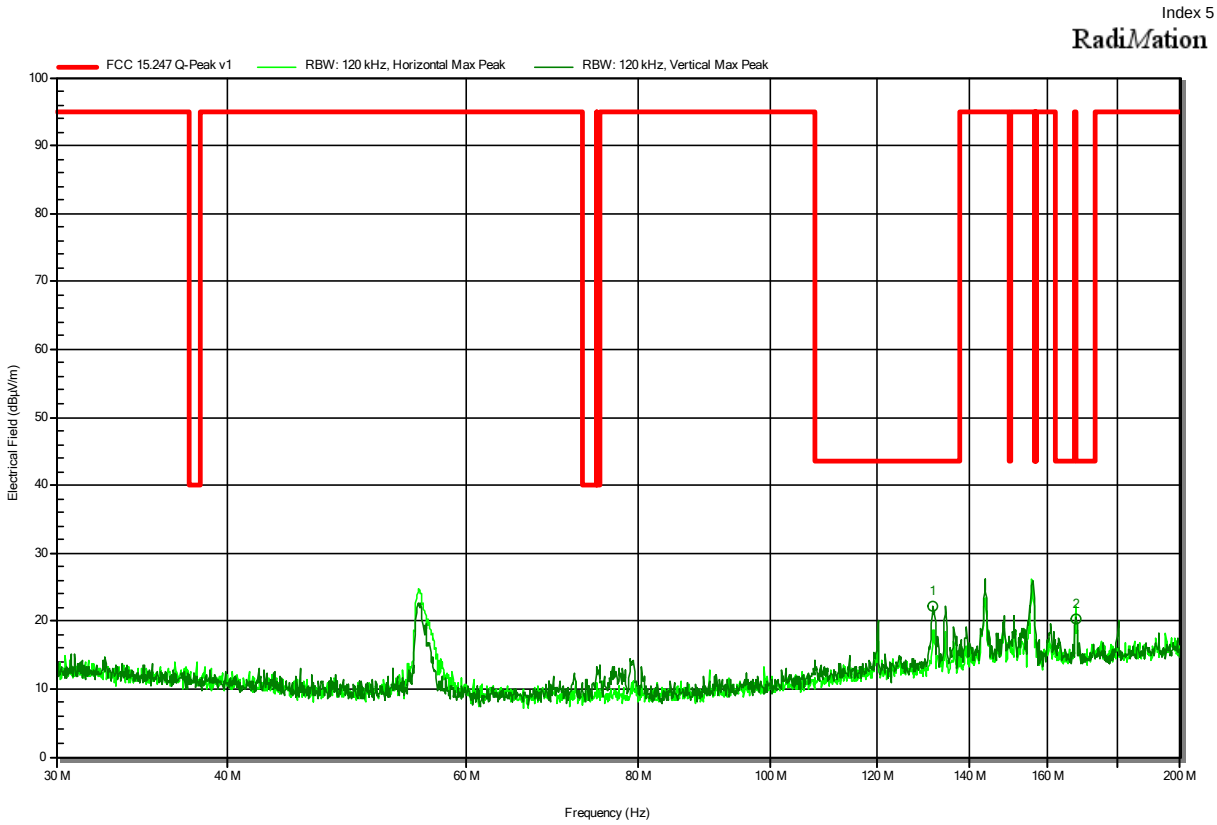
Radiated Emissions - above 1 GHz


Radiated Emissions - Focus


ANNEX A Transmitter spurious emissions

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

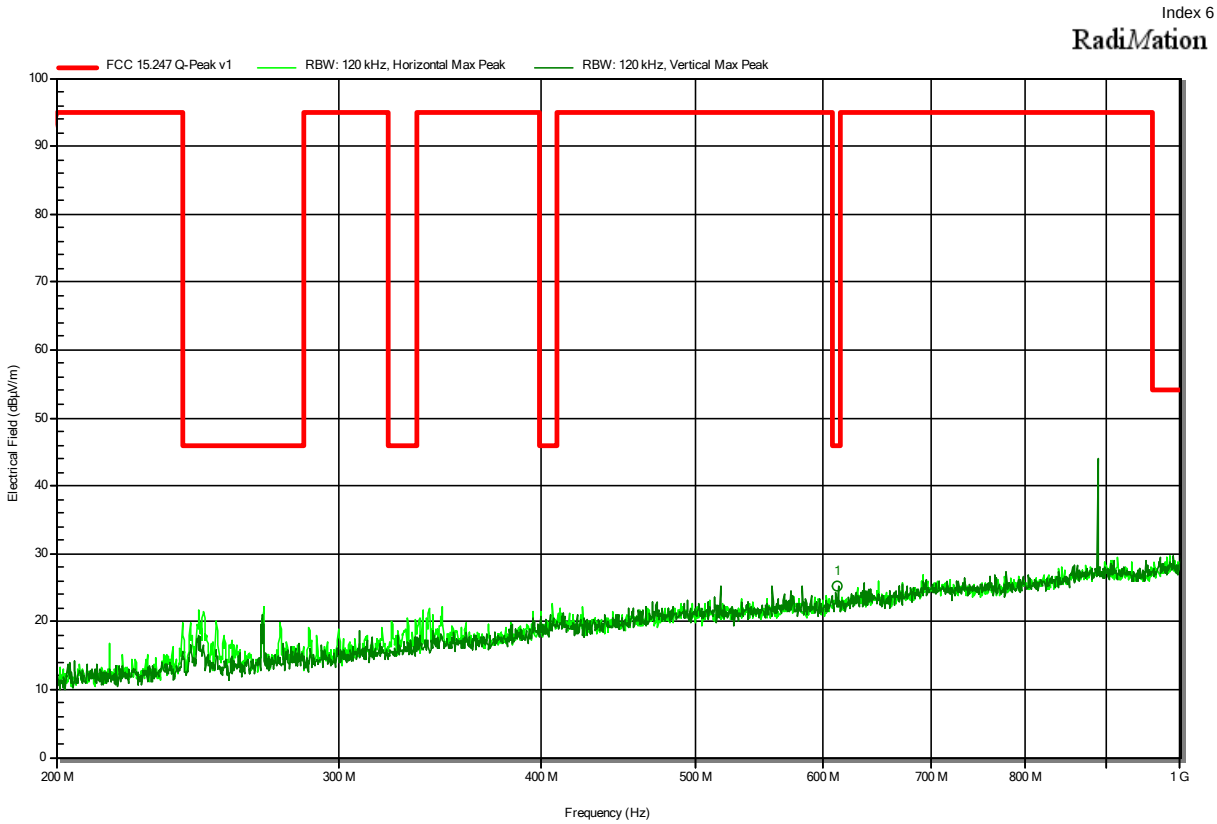
Project Number:	G0M-2112-1232
Applicant:	WTO Werkzeug-Einrichtungen GmbH
Model Description:	SDTH Controller
Model:	WTO SC 002
Test Sample ID:	40521
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Qawasmeh
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 21 °Celsius, Vnom: 24 VDC
Antenna:	Rohde & Schwarz HK 116
Measurement distance:	3 m
Mode:	Tx; BLE; 2440 MHz; 2 Mbps; PRBS9; 239 Bytes, DC 83%
Test Date:	2022-08-02
Note:	



Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
131.7407 MHz	22.2 dBµV/m	43.5 dBµV/m	-21.34 dB	Pass	Vertical
167.7935 MHz	20.2 dBµV/m	43.5 dBµV/m	-23.29 dB	Pass	Vertical

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

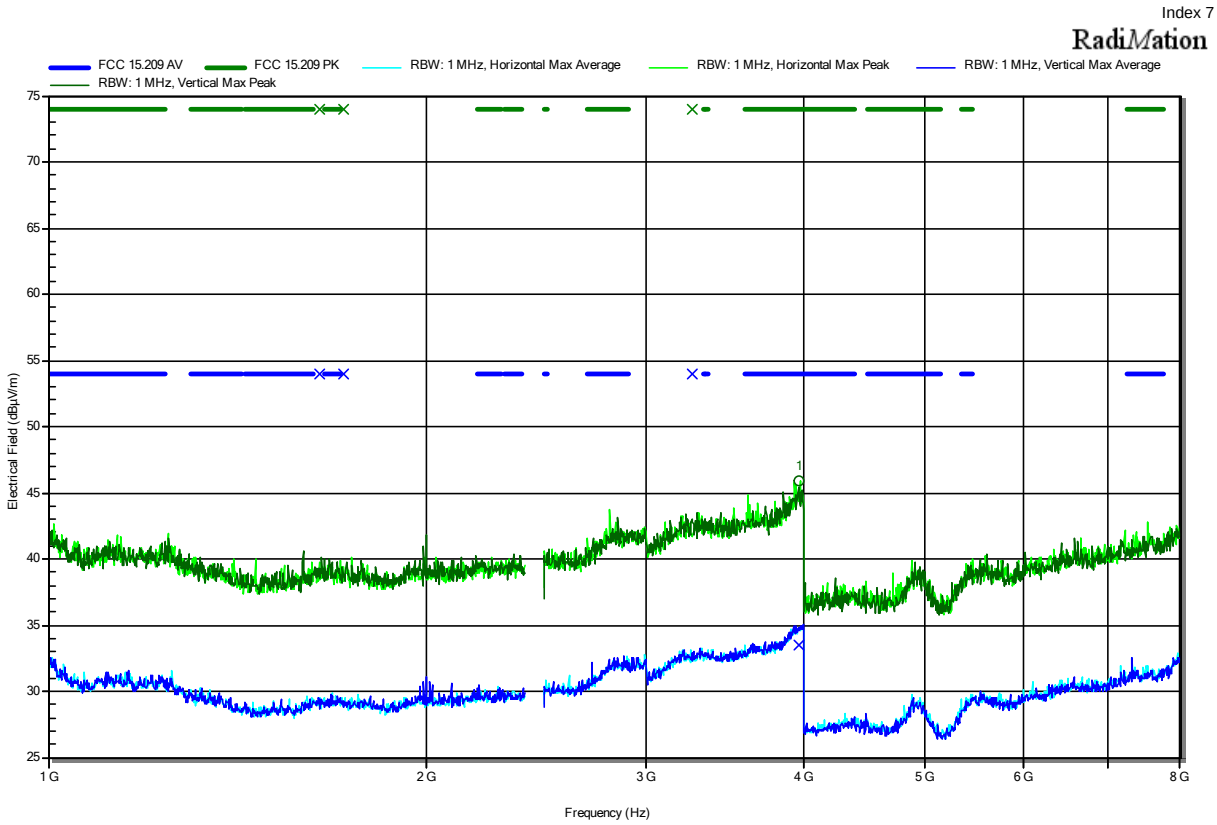
Project Number:	G0M-2112-1232
Applicant:	WTO Werkzeug-Einrichtungen GmbH
Model Description:	SDTH Controller
Model:	WTO SC 002
Test Sample ID:	40521
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Qawasmeh
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 21 °Celsius, Vnom: 24 VDC
Antenna:	Rohde & Schwarz HL 223
Measurement distance:	3 m
Mode:	Tx; BLE; 2440 MHz; 2 Mbps; PRBS9; 239 Bytes, DC 83%
Test Date:	2022-08-02
Note:	



Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
612.42 MHz	25.2 dBµV/m	46 dBµV/m	-20.83 dB	Pass	Vertical

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

Project Number:	G0M-2112-1232
Applicant:	WTO Werkzeug-Einrichtungen GmbH
Model Description:	SDTH Controller
Model:	WTO SC 002
Test Sample ID:	40521
Test Site:	Eurofins Product Service GmbH
Operator:	Mrs Hoang
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 21 °Celsius, Vnom: 24 VDC
Antenna:	Schwarzbeck BBHA 9120B
Measurement distance:	3 m
Mode:	Tx; BLE; 2440 MHz; 2 Mbps; PRBS9; 239 Bytes, DC 83%
Test Date:	2022-08-08
Note:	

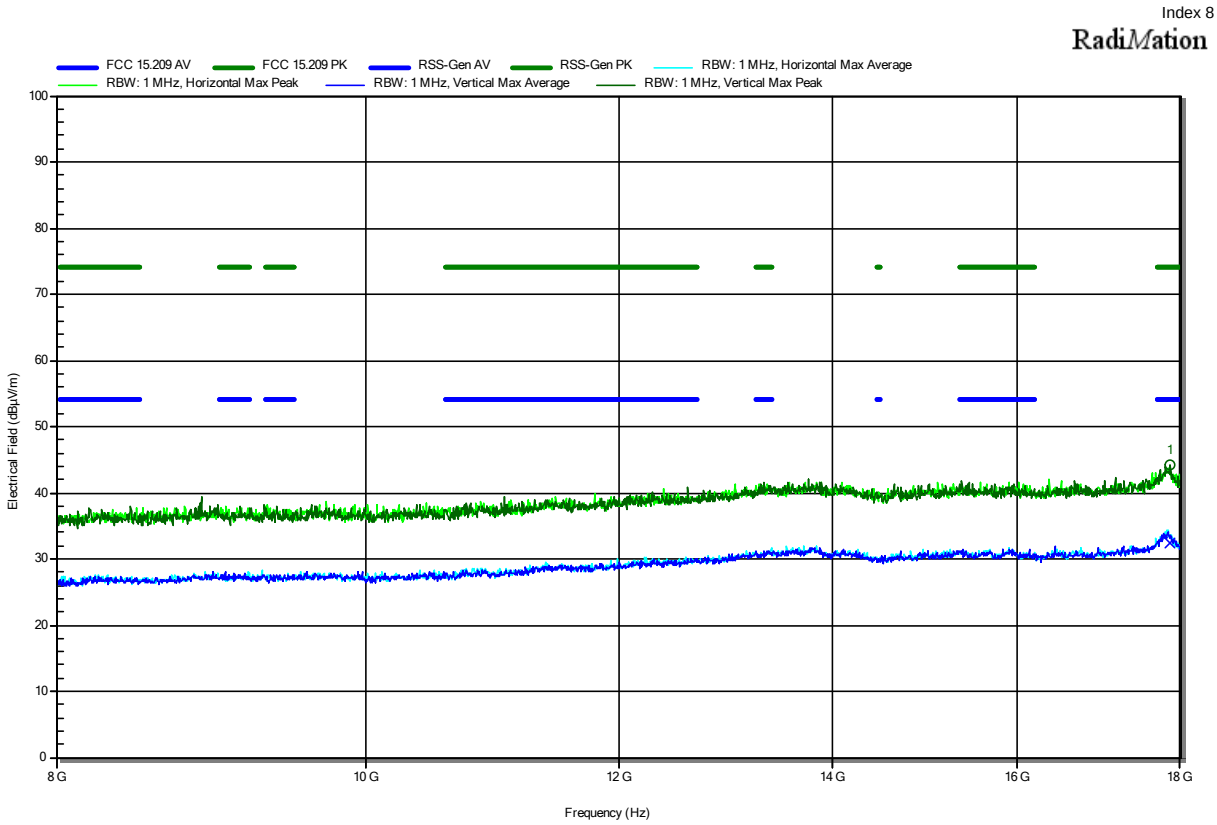


Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
3.9742 GHz	45.91 dBµV/m	74 dBµV/m	-28.09 dB	Pass	Horizontal

Frequency	Average	Average Limit	Average Difference	Average Status	Polarization
3.9742 GHz	33.53 dBµV/m	54 dBµV/m	-20.47 dB	Pass	Horizontal

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

Project Number:	G0M-2112-1232
Applicant:	WTO Werkzeug-Einrichtungen GmbH
Model Description:	SDTH Controller
Model:	WTO SC 002
Test Sample ID:	40521
Test Site:	Eurofins Product Service GmbH
Operator:	Mrs Hoang
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 21 °Celsius, Vnom: 24 VDC
Antenna:	Schwarzbeck HWRD 650
Measurement distance:	3 m
Mode:	Tx; BLE; 2440 MHz; 2 Mbps; PRBS9; 239 Bytes, DC 83%
Test Date:	2022-08-08
Note:	

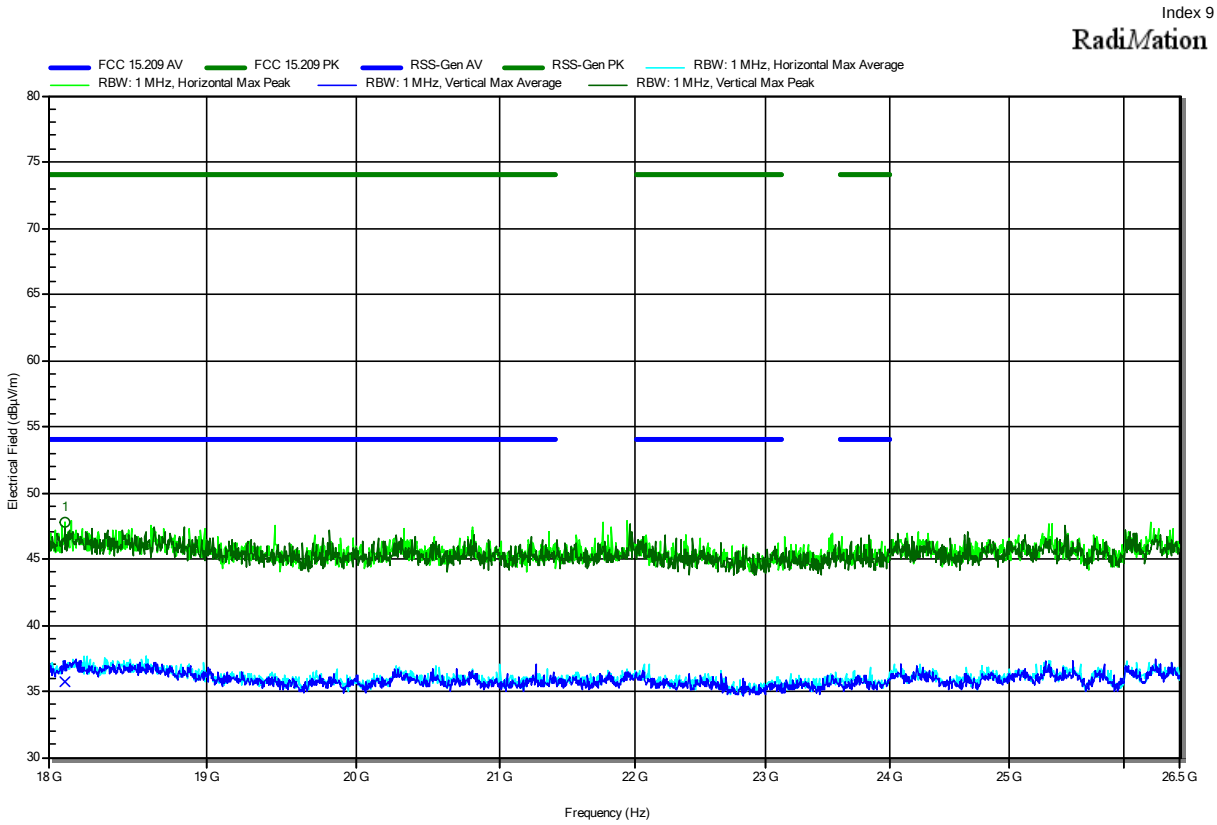


Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
17.87 GHz	44.21 dBµV/m	74 dBµV/m	-29.79 dB	Pass	Vertical

Frequency	Average	Average Limit	Average Difference	Average Status	Polarization
17.87 GHz	32.3 dBµV/m	54 dBµV/m	-21.7 dB	Pass	Vertical

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

Project Number:	G0M-2112-1232
Applicant:	WTO Werkzeug-Einrichtungen GmbH
Model Description:	SDTH Controller
Model:	WTO SC 002
Test Sample ID:	40521
Test Site:	Eurofins Product Service GmbH
Operator:	Mrs Hoang
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 21 °Celsius, Vnom: 24 VDC
Antenna:	Amplifier Research AT4560
Measurement distance:	3 m
Mode:	Tx; BLE; 2440 MHz; 2 Mbps; PRBS9; 239 Bytes, DC 83%
Test Date:	2022-08-08
Note:	



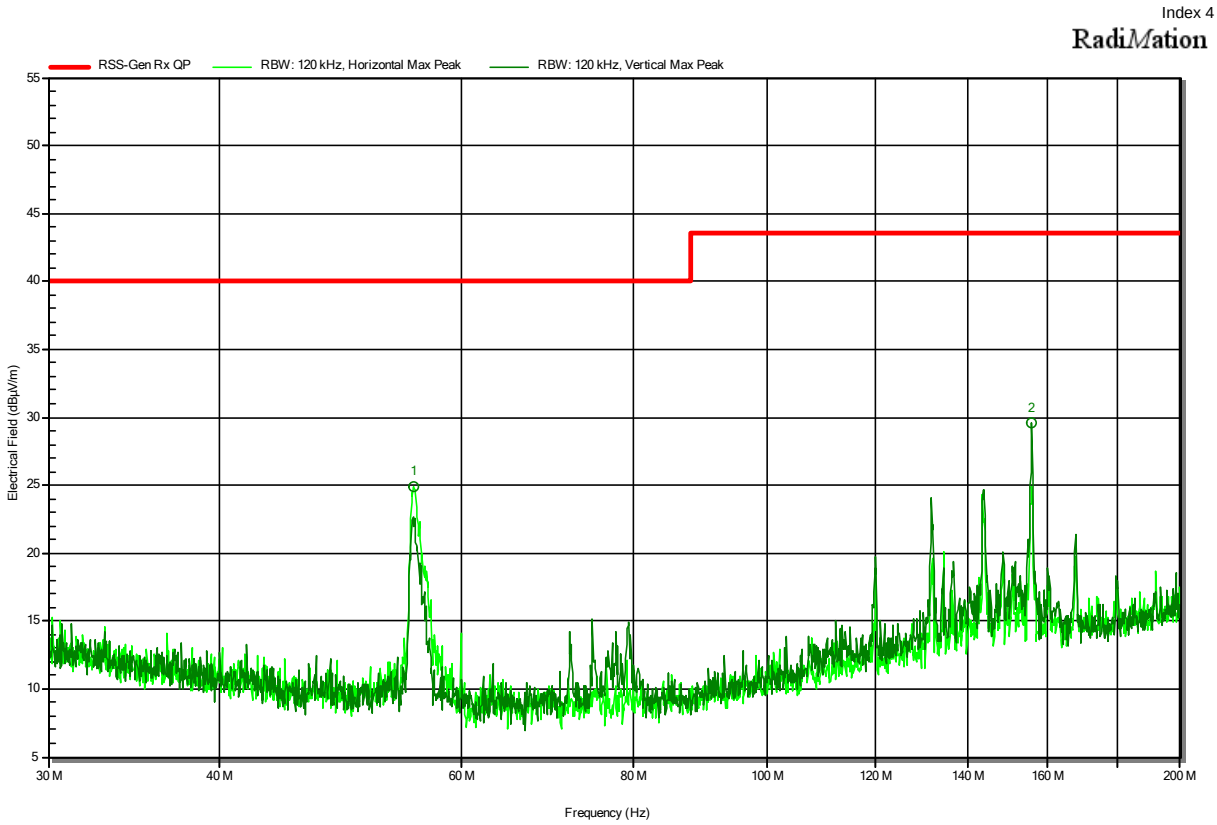
Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
18.101 GHz	47.79 dBµV/m	74 dBµV/m	-26.21 dB	Pass	Horizontal

Frequency	Average	Average Limit	Average Difference	Average Status	Polarization
18.101 GHz	35.74 dBµV/m	54 dBµV/m	-18.26 dB	Pass	Horizontal

ANNEX B Receiver spurious emissions

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

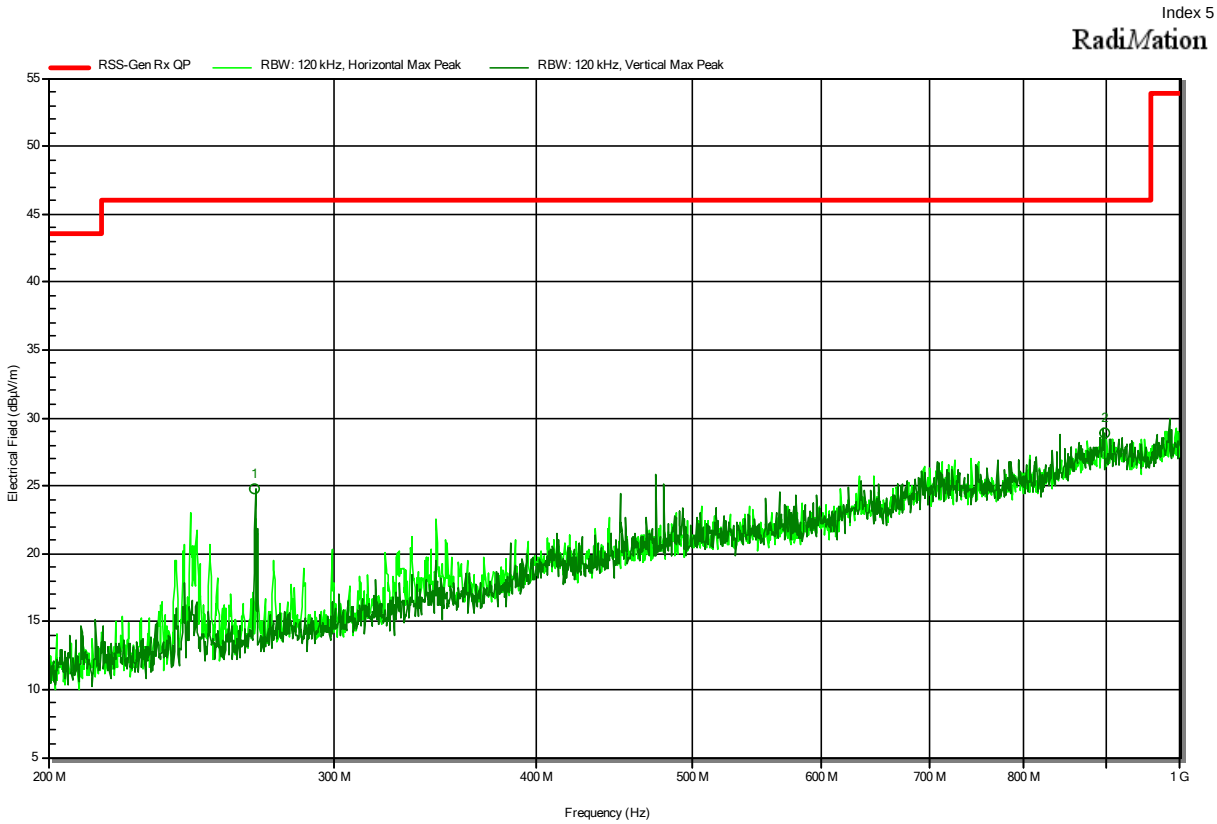
Project Number:	G0M-2112-1232
Applicant:	WTO Werkzeug-Einrichtungen GmbH
Model Description:	SDTH Controller
Model:	WTO SC 002
Test Sample ID:	40521
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Qawasmeh
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 21 °Celsius, Vnom: 24 VDC
Antenna:	Rohde & Schwarz HK 116
Measurement distance:	3 m
Mode:	Rx; BLE; 2440 MHz
Test Date:	2022-08-02
Note:	



Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
55.2705 MHz	24.9 dBµV/m	40 dBµV/m	-15.13 dB	Pass	Horizontal
155.834 MHz	29.6 dBµV/m	43.5 dBµV/m	-13.88 dB	Pass	Vertical

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

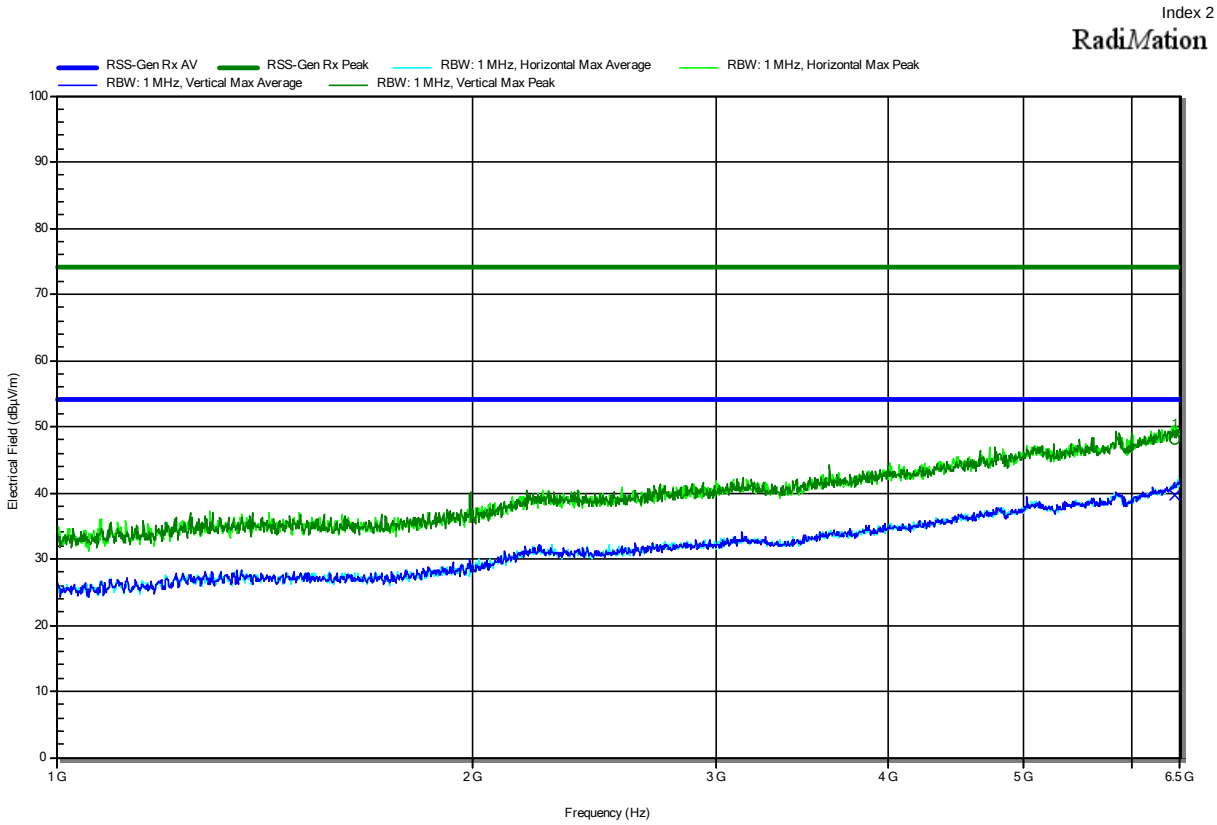
Project Number:	G0M-2112-1232
Applicant:	WTO Werkzeug-Einrichtungen GmbH
Model Description:	SDTH Controller
Model:	WTO SC 002
Test Sample ID:	40521
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Qawasmeh
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 21 °Celsius, Vnom: 24 VDC
Antenna:	Rohde & Schwarz HL 223
Measurement distance:	3 m
Mode:	Rx; BLE; 2440 MHz
Test Date:	2022-08-02
Note:	



Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
268.36 MHz	24.7 dBµV/m	46 dBµV/m	-21.27 dB	Pass	Vertical
897.34 MHz	28.9 dBµV/m	46 dBµV/m	-17.07 dB	Pass	Vertical

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

Project Number:	G0M-2112-1232
Applicant:	WTO Werkzeug-Einrichtungen GmbH
Model Description:	SDTH Controller
Model:	WTO SC 002
Test Sample ID:	40521
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Qawasmeh
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 21 °Celsius, Vnom: 24 VDC
Antenna:	Schwarzbeck BBHA 9120D
Measurement distance:	3 m
Mode:	Rx; BLE; 2440 MHz
Test Date:	2022-08-02
Note:	

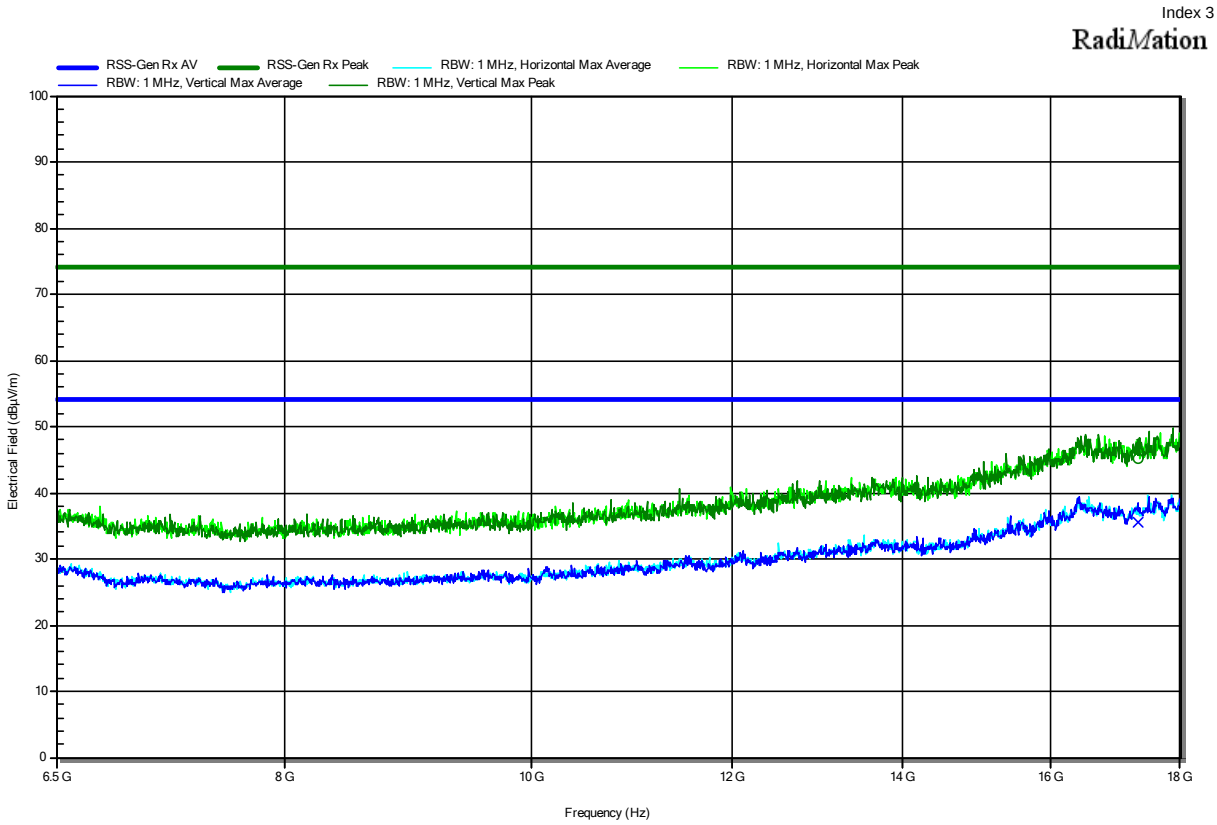


Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
6.437 GHz	48.01 dBµV/m	74 dBµV/m	-25.99 dB	Pass	Vertical

Frequency	Average	Average Limit	Average Difference	Average Status	Polarization
6.437 GHz	39.63 dBµV/m	53.98 dBµV/m	-14.35 dB	Pass	Vertical

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

Project Number:	G0M-2112-1232
Applicant:	WTO Werkzeug-Einrichtungen GmbH
Model Description:	SDTH Controller
Model:	WTO SC 002
Test Sample ID:	40521
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Qawasmeh
Measurement software:	RadiMation, version 2020.1.8
Test Conditions:	Tnom: 21 °Celsius, Vnom: 24 VDC
Antenna:	Schwarzbeck HWRD 650
Measurement distance:	3 m
Mode:	Rx; BLE; 2440 MHz
Test Date:	2022-08-02
Note:	



Frequency	Peak	Peak Limit	Peak Difference	Peak Status	Polarization
17.316 GHz	45.18 dBµV/m	74 dBµV/m	-28.82 dB	Pass	Vertical

Frequency	Average	Average Limit	Average Difference	Average Status	Polarization
17.316 GHz	35.47 dBµV/m	53.98 dBµV/m	-18.51 dB	Pass	Vertical

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