RADIO REPORT

FCC 47 CFR Part 15C
ISED Canada RSS-247

Digital transmission systems operating within the 2400 – 2483.5 MHz band

Report Reference No	G0M-2003-8874-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	NewTec GmbH
Address	Buchenweg 3 89284 Pfaffenhofen a. d. Roth 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	Industrial Gateway
Model(s)	NTSecureGateway
Additional Model(s)	None
Brand Name(s)	None
Hardware Version(s)	V2.1
Software Version(s)	V0.9
FCC ID	2AWTTNT-SECGW
IC	N/A
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 - 26 °C	
Test Lab Humidity	32 – 50 %	
Date of receipt of test item	2020-06-30	
Report:		
Compiled by	Florian Voigt	
Tested by (+ signature) (Responsible for Test)	Florian Voigt	F. Vogt .....
Approved by (+ signature) (Head of Lab)	Christian Weber	C. Weber .....
Date of Issue	2020-10-27	
Total number of pages	50	
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	2020-10-27	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

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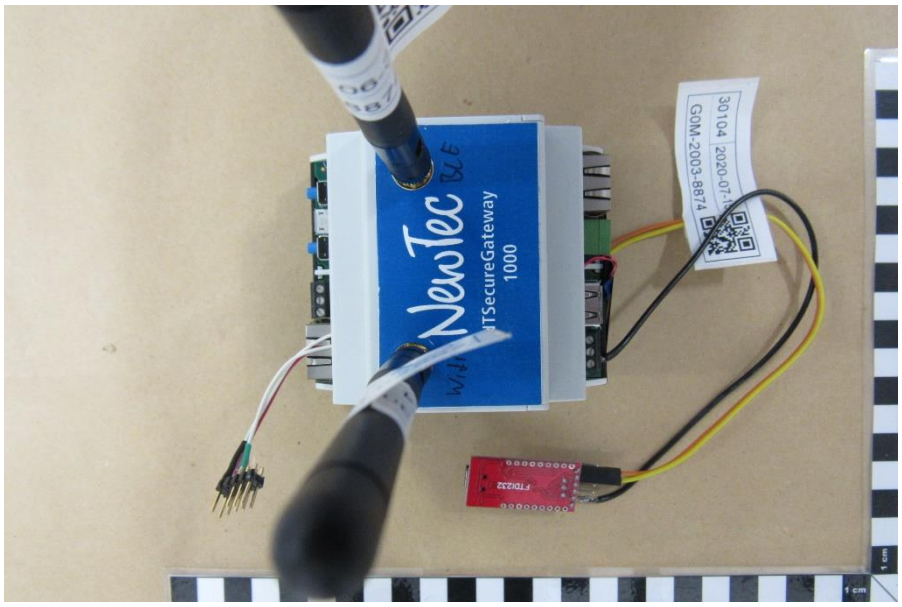
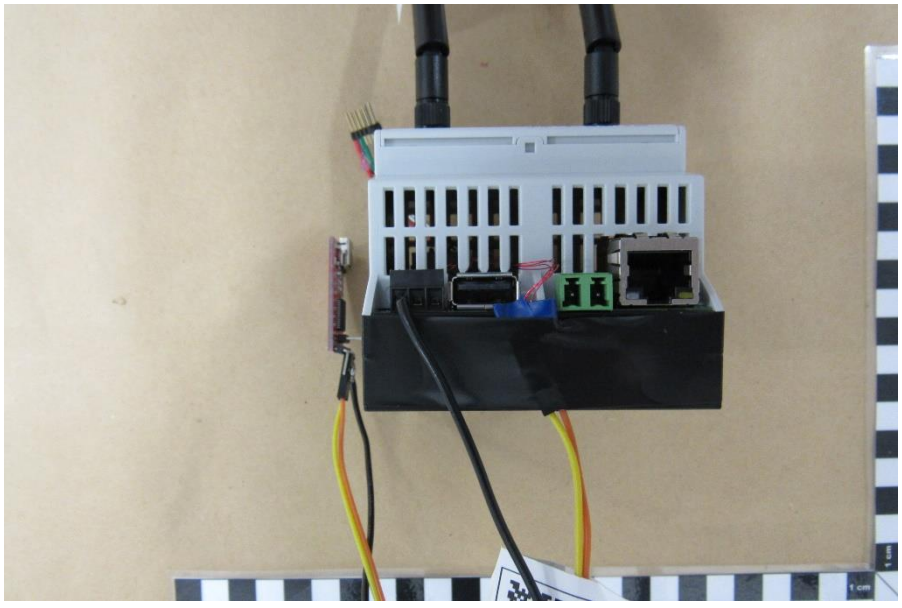
1 Equipment (Test Item) Under Test

Description	Industrial Gateway	
Model	NTSecureGateway	
Additional Model(s)	None	
Brand Name(s)	None	
Serial Number(s)	000029	
Hardware Version(s)	V2.1	
Software Version(s)	V0.9	
PMN	N/A	
HVIN	N/A	
FVIN	N/A	
HMN	N/A	
FCC ID	2AWTTNT-SECGW	
IC	N/A	
Equipment type	End Product	
Radio type	Transceiver	
Assigned frequency bands	2400 - 2483.5 MHz	
Radio technology	Bluetooth LE 5.1	
Bluetooth Specification	LE 1M PHY	Yes
	LE 2M PHY	Yes
	LE Coded PHY S=2 (125 kbit)	No
	LE Coded PHY S=8 (500 kbit)	No
	Stable Modulation Index - Transmitter	No
	Stable Modulation Index - Receiver	No
Modulation	GFSK	
Number of antenna ports	1	
Radio Module	Type	BTLE Module
	Model	BL652
	Manufacturer	Laird Inc.
	HW Version	Not specified
	SW Version	Not specified
	FCC ID	SQGBL652
	IC	N/A
Antenna	Type	External
	Model	W1010
	Manufacturer	PulseLarsen Antennas
	Gain	2.0 dBi (declared by customer)
Supply Voltage	V_{NOM}	24 VDC
Operating Temperature	T_{NOM}	20 °C
AC/DC-Adaptor	None	
Manufacturer	NewTec GmbH Buchenweg 3 89284 Pfaffenhofen a. d. Roth GERMANY	

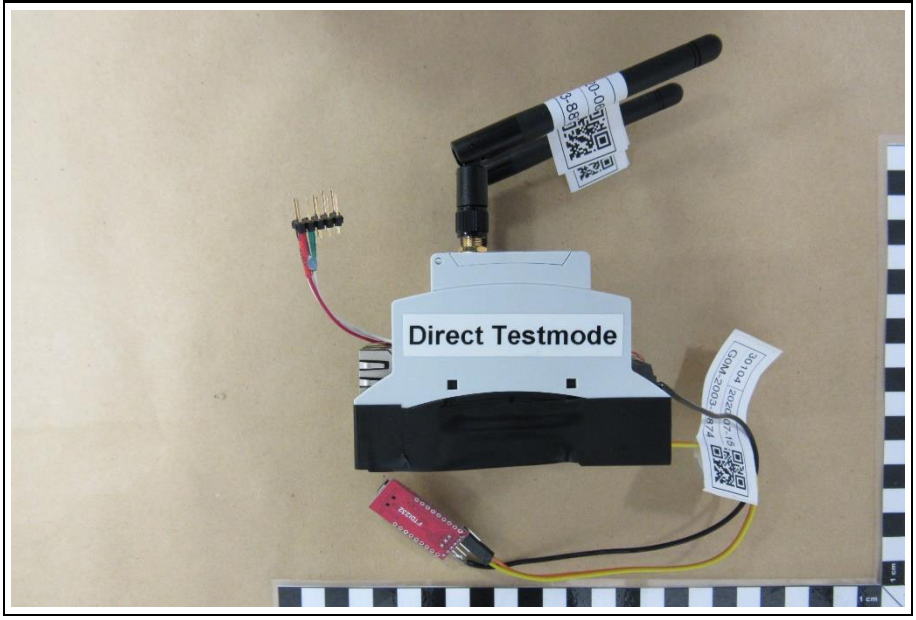
1.1 Photos – Equipment External

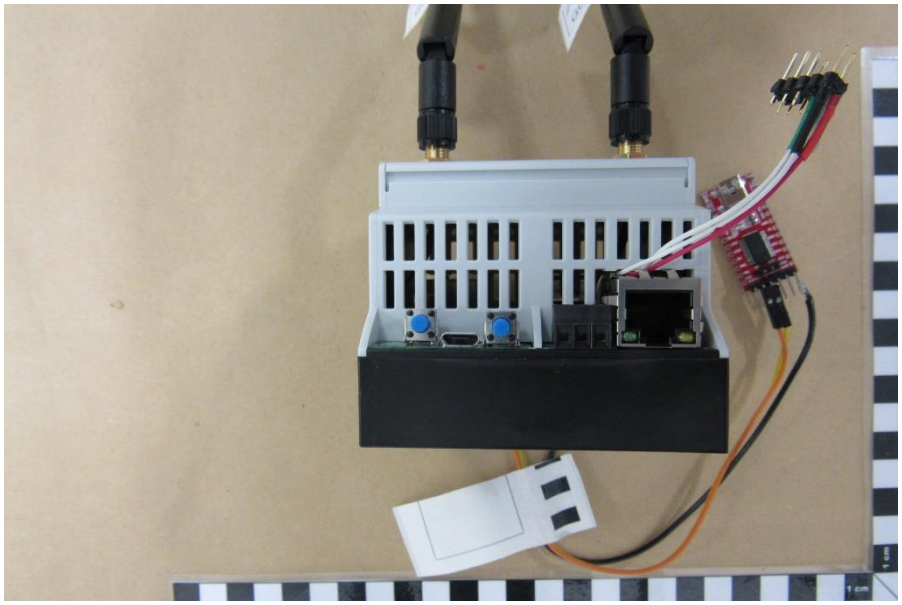
EUT top side view


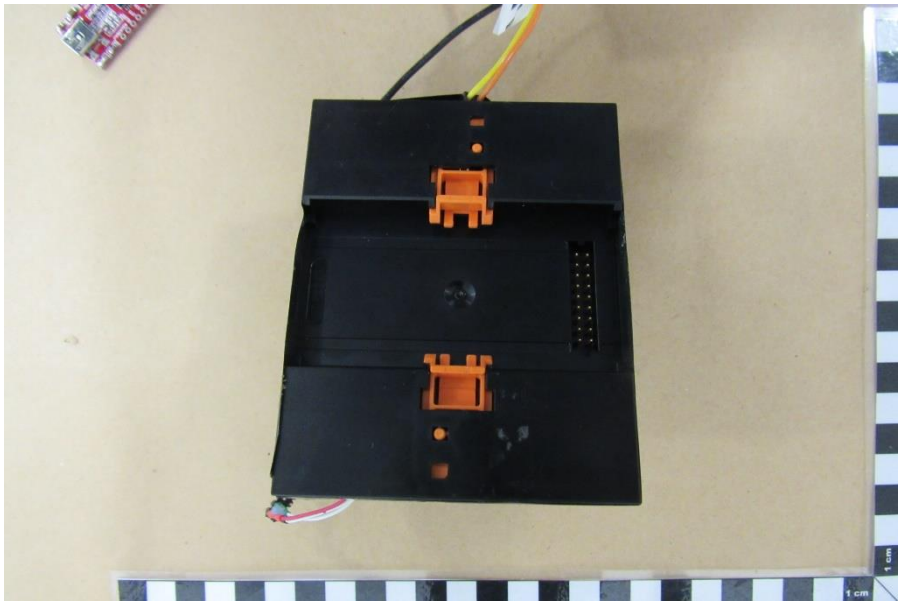
EUT front side view


EUT right side view

EUT left side view

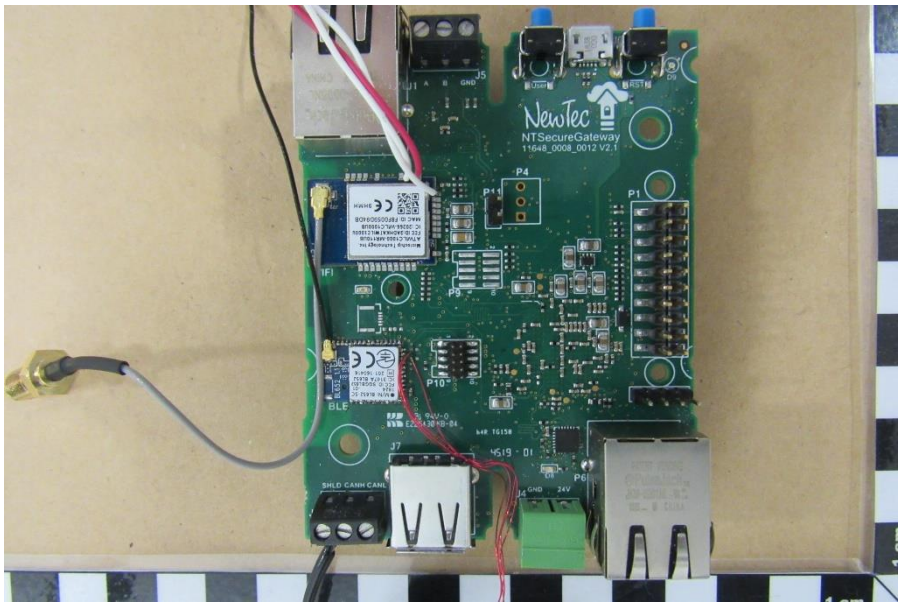


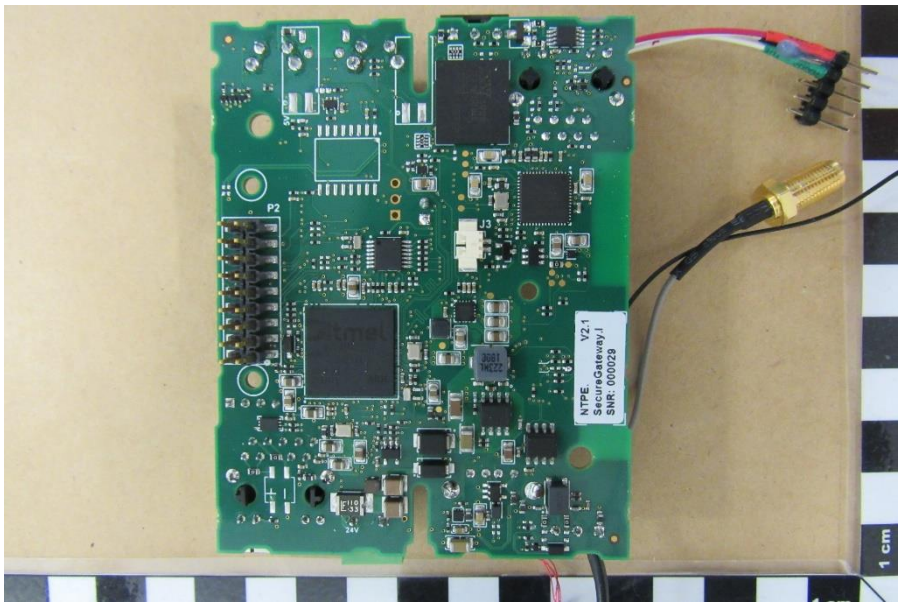
EUT back side view


EUT bottom view


EUT antenna view

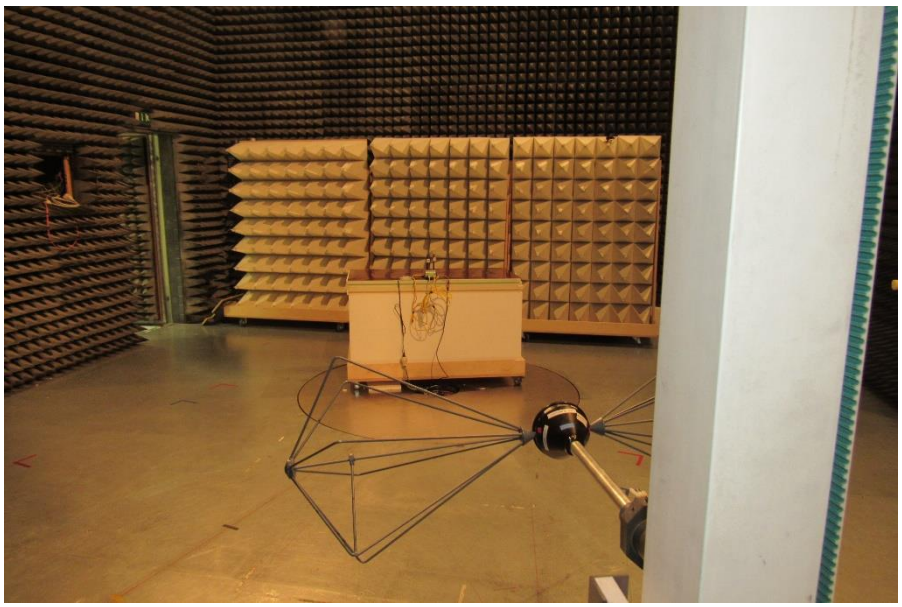
1.2 Photos – Equipment Internal

PCB top


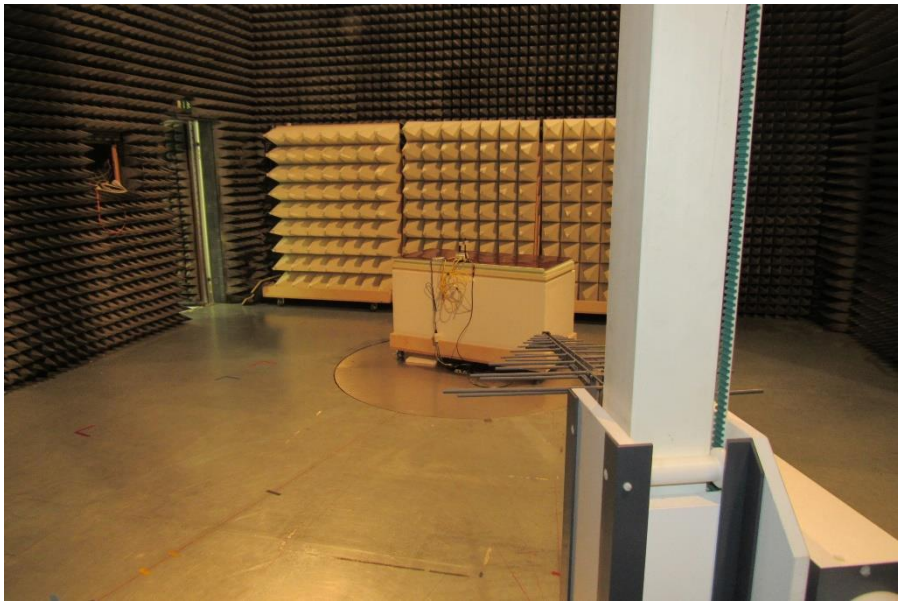
PCB bottom


1.3 Photos – Test Setup

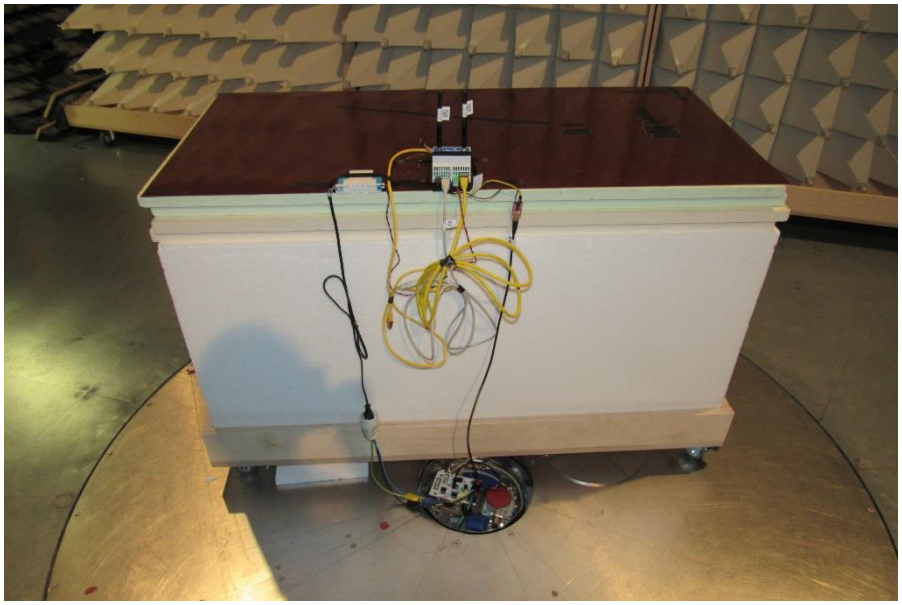
Test setup AC-Powerline CE

Test setup radiated below 0.2 GHz


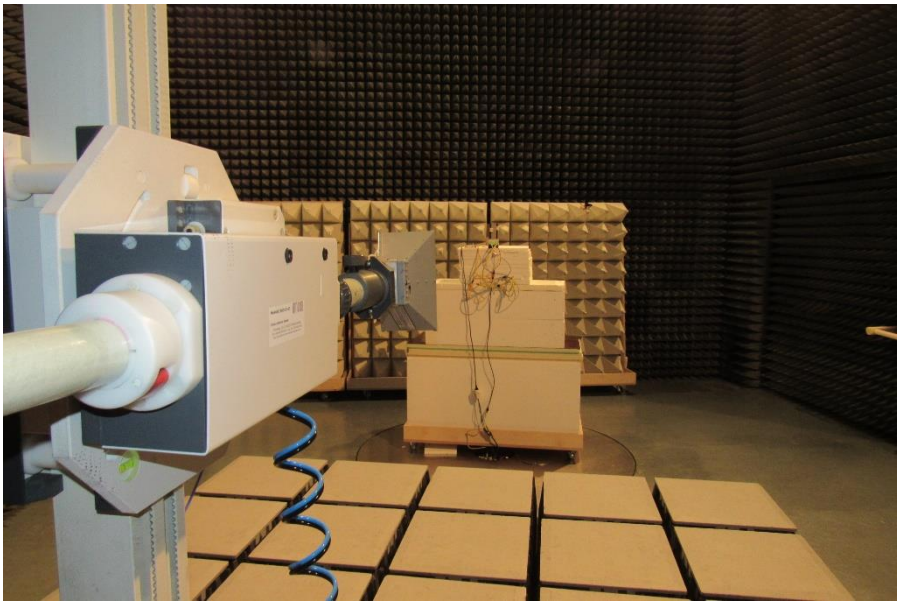
Test setup radiated between 0.2 to 1 GHz



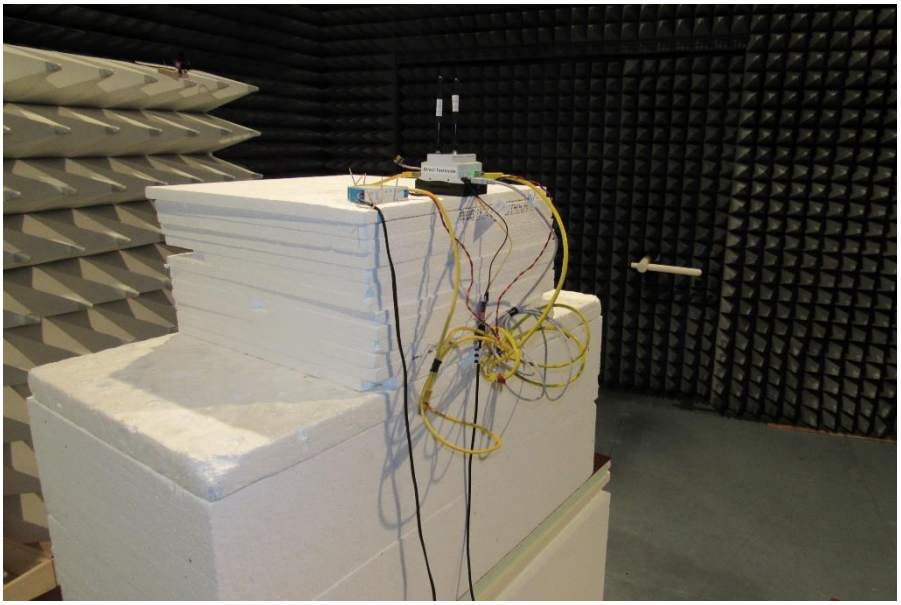
Test setup radiated EUT view below 1 GHz



Test setup radiated above 1 GHz



Test setup radiated EUT view above 1 GHz



1.4 Support Equipment

Product Type	Device	Manufacturer	Model	Comment
AE	Notebook	Lenovo	ThinkPad T510	
AE	Power Supply AC Adapter	Liteon	ADLX90NLC3A	
SFT	nRF Connect	Nordic Semiconductor	v3.4.1	
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 = 64% Datarate = 1 MBit/s
Receive	Mode = Receive
Comment: Mode selection based on maximum peak output power listed in modular approval test report.	

1.6 Test Frequencies

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

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 6.6)	Occupied Bandwidth	ANSI C63.10-2013	N/R	Informational only
FCC § 15.247(a)(2) ISED RSS-247, Issue 2 (section 5.2)	6 dB Bandwidth	ANSI C63.10-2013	N/T	
FCC § 15.247(b)(1) 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	PASS	
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 (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 - AC powerline conducted emissions

3.1.1 Information

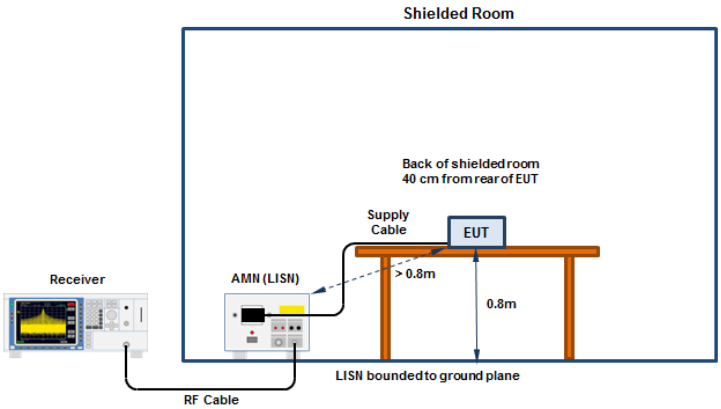
Test Information	
Reference	FCC § 15.207; ISED RSS-247, Issue 2 (section 3.1)
Measurement Method	ANSI C63.10 6.2
Operator	Florian Voigt
Date	2020-07-29
Measurement uncertainty	≤ 3.82dB

3.1.2 Limits

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

3.1.3 Setup

Test Setup



3.1.4 Equipment

Test Software			
Description	Manufacturer	Name	Version
EMC Software	DARE Instruments	RadiMation	2016.1.10

Test Equipment					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
EMI Test Receiver	R&S	ESU8	EF00379	2020-07	2021-07
Pulse Limiter	R&S	ESH3-Z2	EF01222	2020-07	2021-07
LISN	Schwarzbeck	NSLK 8127 RC	EF01592	2019-10	2020-10

Conducted emissions at the mains power port according to FCC Part C 15.207, ISED RSS-247, Issue 2

Project Number:	G0M-2003-8874
Applicant:	NewTec GmbH
Model Description:	Industrial Gateway
Model:	NTSecureGateway
Test Sample ID:	29949
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Voigt
Test Date:	2020-07-29
Operating Conditions:	ambient temperature: 25.3°C power input: 120 VAC
LISN:	Schwarzbeck NSLK 8127 RC L
Mode:	BTLE, 2440MHz, 1MBit/s + 802.11g, 2437MHz, 6MBit/s OFDM

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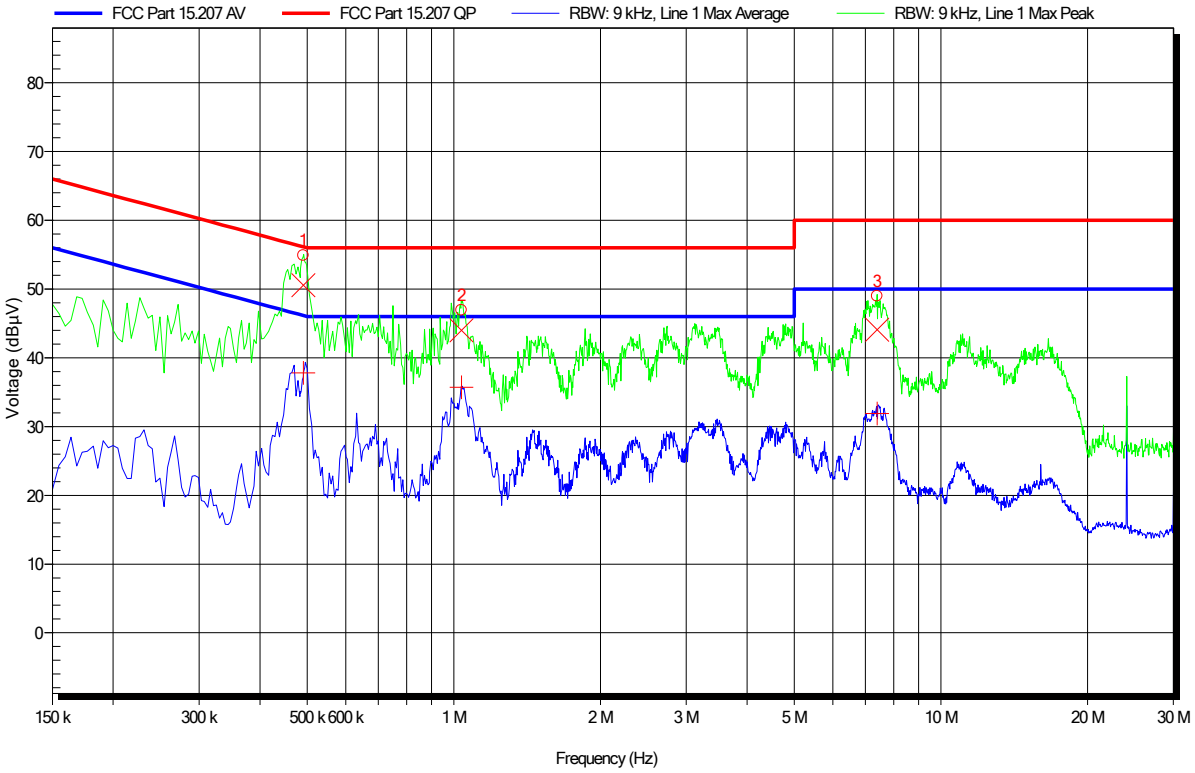

Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	LISN
1	491.55 kHz	50.56 dBµV	56.14 dBµV	-5.58 dB	Pass	Line 1
2	1.036 MHz	43.98 dBµV	56 dBµV	-12.02 dB	Pass	Line 1
3	7.391 MHz	44.11 dBµV	60 dBµV	-15.89 dB	Pass	Line 1

Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status	LISN
1	491.55 kHz	37.79 dBµV	46.14 dBµV	-8.35 dB	Pass	Line 1
2	1.036 MHz	35.73 dBµV	46 dBµV	-10.27 dB	Pass	Line 1
3	7.391 MHz	31.92 dBµV	50 dBµV	-18.08 dB	Pass	Line 1

Conducted emissions at the mains power port according to FCC Part C 15.207, ISED RSS-247, Issue 2

Project Number:	G0M-2003-8874
Applicant:	NewTec GmbH
Model Description:	Industrial Gateway
Model:	NTSecureGateway
Test Sample ID:	29949
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Voigt
Test Date:	2020-07-29
Operating Conditions:	ambient temperature: 25.3°C power input: 120 VAC
LISN:	Schwarzbeck NSLK 8127 RC N
Mode:	BTLE, 2440MHz, 1MBit/s + 802.11g, 2437MHz, 6MBit/s OFDM

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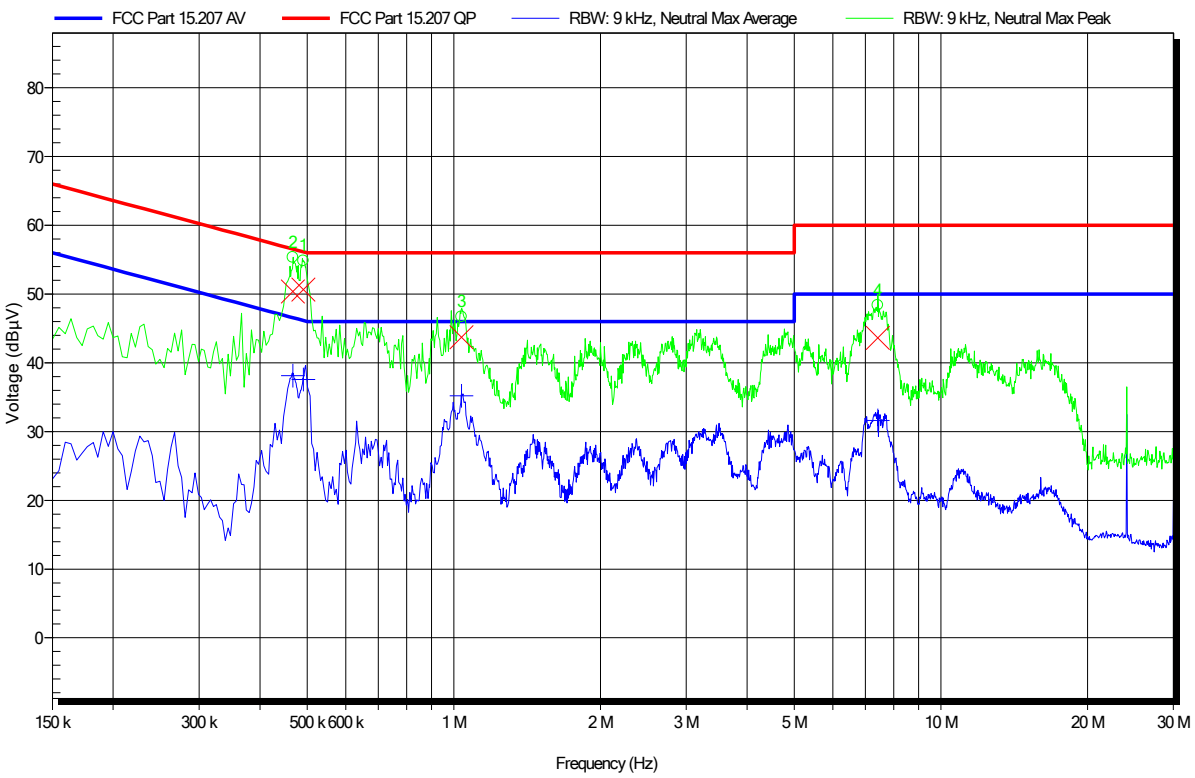


Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	LISN
1	491.1 kHz	50.64 dBµV	56.15 dBµV	-5.51 dB	Pass	Neutral
2	467.7 kHz	50.38 dBµV	56.55 dBµV	-6.17 dB	Pass	Neutral
3	1.037 MHz	43.7 dBµV	56 dBµV	-12.3 dB	Pass	Neutral
4	7.422 MHz	43.61 dBµV	60 dBµV	-16.39 dB	Pass	Neutral

Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status	LISN
1	491.1 kHz	37.59 dBµV	46.15 dBµV	-8.56 dB	Pass	Neutral
2	467.7 kHz	38.11 dBµV	46.55 dBµV	-8.44 dB	Pass	Neutral
3	1.037 MHz	35.21 dBµV	46 dBµV	-10.79 dB	Pass	Neutral
4	7.422 MHz	31.63 dBµV	50 dBµV	-18.37 dB	Pass	Neutral

3.2 Test Conditions and Results - Transmitter radiated emissions

3.2.1 Information

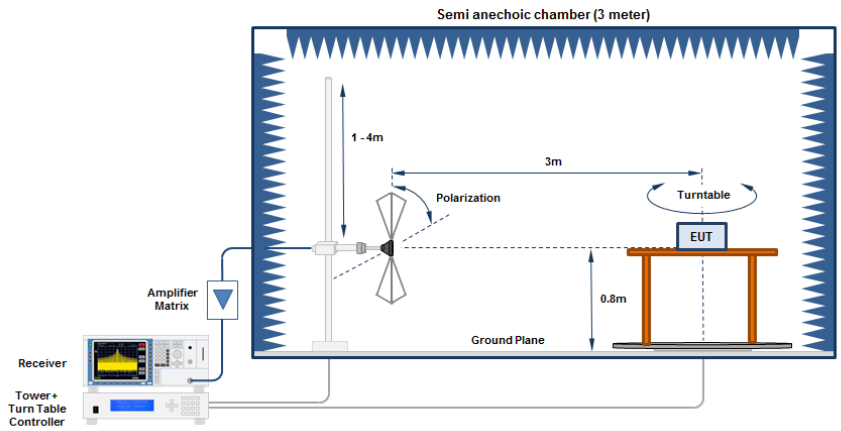
Test Information	
Reference	FCC § 15.247(d); FCC § 15.209; ISED RSS-Gen, Issue 5 (section 6.13)
Measurement Method	ANSI C63.10 6.4, 6.5, 6.6, 11.12
Operator	Florian Voigt
Date	2020-07-23 - 2020-07-27
Measurement uncertainty	30MHz ≤ f < 200MHz : ≤ 5.1dB 200MHz ≤ f < 6GHz : ≤ 5.3dB f ≥ 6GHz : ≤ 5.95dB

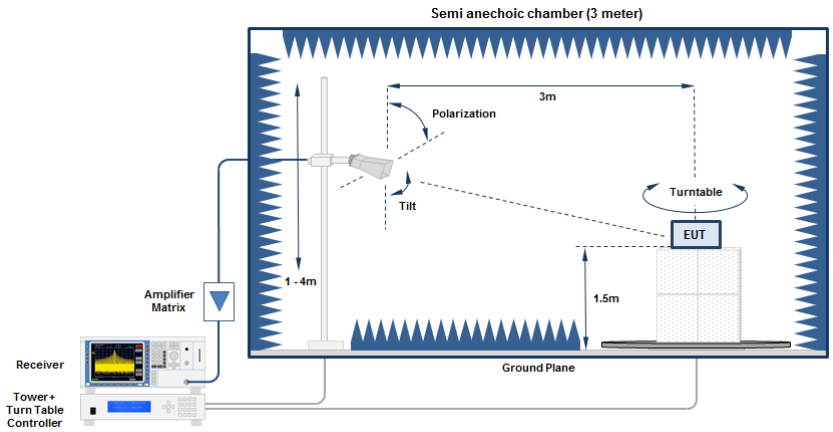
3.2.2 Limits

Limits			
Frequency [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

3.2.3 Setup

Test Setup 30 - 1000 MHz



Test Setup > 1 GHz


3.2.4 Equipment

Test Software			
Description	Manufacturer	Name	Version
EMC Software	DARE Instruments	RadiMation	2016.1.10

Test Equipment 30 - 1000 MHz					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Anechoic Chamber	Frankonia	AC1	EF00062	2018-07	2021-07
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	2018-07	2021-07
Antenna	Schwarzbeck	BBHA 9120D	EF00018	2019-10	2022-10
Spectrum analyzer	R&S	FSU26	EF01003	2019-07	2020-07
Antenna	Amplifier Research	AT4560	EF00302	2019-05	2021-05

3.2.5 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

3.2.6 Results

Test Results						
Channel [MHz]	Emission [MHz]	Level [dBµV/m]	Det.	Pol.	Limit [dBµV/m]	Margin [dB]
2440	38.0767	24.40	qpk	ver	40.00	-15.61
2440	117.3119	26.70	qpk	ver	43.50	-16.82
2440	133.7054	26.80	qpk	ver	43.50	-16.70
2440	331.9903	36.80	qpk	hor	46.00	-09.24
2440	331.9964	32.60	qpk	ver	46.00	-13.36
2440	608.4838	27.70	qpk	ver	46.00	-18.31
2440	611.0597	27.70	qpk	hor	46.00	-18.33
2440	1439.7	34.14	pk	ver	74.00	-39.86
2440	2312.5	45.70	pk	ver	74.00	-28.30
2440	4615	41.77	pk	hor	74.00	-32.23
2440	4615	42.93	pk	ver	74.00	-31.07
2440	4878	45.78	pk	hor	74.00	-28.22
2440	4880	46.09	pk	ver	74.00	-27.91
2440	4897	43.24	pk	hor	74.00	-30.76
2440	19192	41.91	pk	ver	74.00	-32.09

3.3 Test Conditions and Results - Receiver radiated emissions

3.3.1 Information

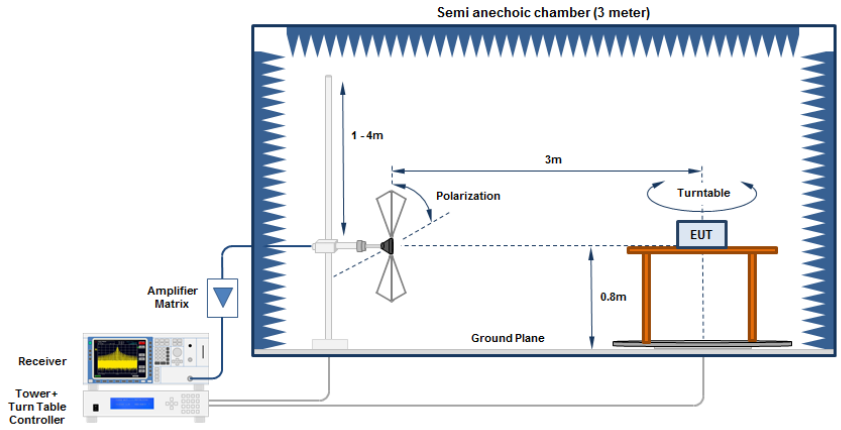
Test Information	
Reference	ISED RSS-247, Issue 2 (section 3.1)
Measurement Method	ANSI C63.10 6.5, 6.6, 11.12
Operator	Florian Voigt
Date	2020-07-23 + 2020-07-27
Measurement uncertainty	30MHz ≤ f < 200MHz : ≤ 5.1dB 200MHz ≤ f < 6GHz : ≤ 5.3dB f ≥ 6GHz : ≤ 5.95dB

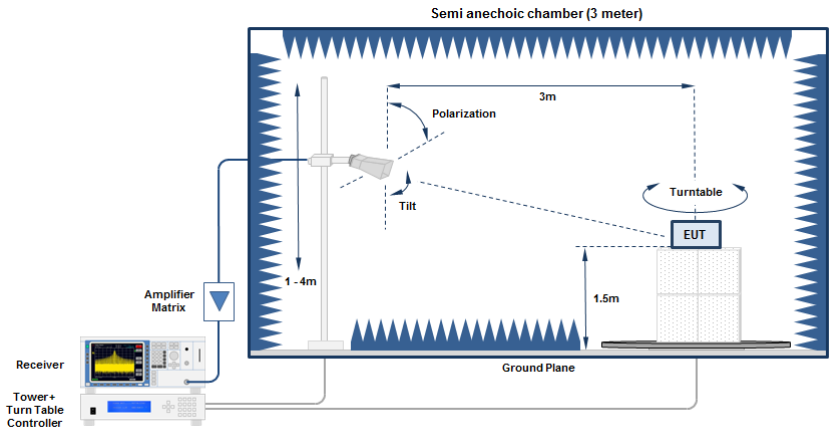
3.3.2 Limits

Limits			
Frequency [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

3.3.3 Setup

Test Setup 30 - 1000 MHz



Test Setup > 1 GHz


3.3.4 Equipment

Test Software			
Description	Manufacturer	Name	Version
EMC Software	DARE Instruments	RadiMation	2016.1.10

Test Equipment 30 - 1000 MHz					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Anechoic Chamber	Frankonia	AC1	EF00062	2018-07	2021-07
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	2018-07	2021-07
Antenna	Schwarzbeck	BBHA 9120D	EF00018	2019-10	2022-10
Spectrum analyzer	R&S	FSU26	EF01003	2019-07	2020-07

3.3.5 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

3.3.6 Results

Test Results						
Channel [MHz]	Emission [MHz]	Level [dBµV/m]	Det.	Pol.	Limit [dBµV/m]	Margin [dB]
2440	40.6948	37.10	qpk	ver	40.00	-02.88
2440	61.0215	30.20	qpk	ver	40.00	-09.77
2440	79.4807	27.70	qpk	ver	40.00	-12.34
2440	80.7658	21.10	qpk	hor	40.00	-18.87
2440	149.1922	20.30	qpk	hor	43.50	-23.19
2440	154.7047	27.00	qpk	ver	43.50	-16.48
2440	159.3465	29.80	qpk	ver	43.50	-13.74
2440	170.816	20.20	qpk	hor	43.50	-23.25
2440	331.9963	33.10	qpk	hor	46.00	-12.86
2440	1438	34.67	pk	ver	53.98	-19.31
2440	4878	42.98	pk	hor	53.98	-11.00
2440	4878	43.59	pk	ver	53.98	-10.39
2440	4897	39.91	pk	hor	53.98	-14.07

ANNEX A Transmitter spurious emissions

Spurious emissions according to ISED RSS-247, Issue 2, FCC 47 e-CFR §15.247

Project number:	G0M-2003-8874
Applicant:	NewTec GmbH
EUT Name:	Industrial Gateway
Model:	NTSecureGateway
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Voigt
Measurement software:	RadiMation, version 2016.1.10
Test Conditions:	Tnom: 25.3°C, Vnom: 24 VDC
Antenna:	Rohde & Schwarz HK 116, Horizontal
Measurement distance:	3 m
Mode:	TX; BTLE, 2440MHz, 1MBit/s
Test Date:	2020-07-27
Note:	

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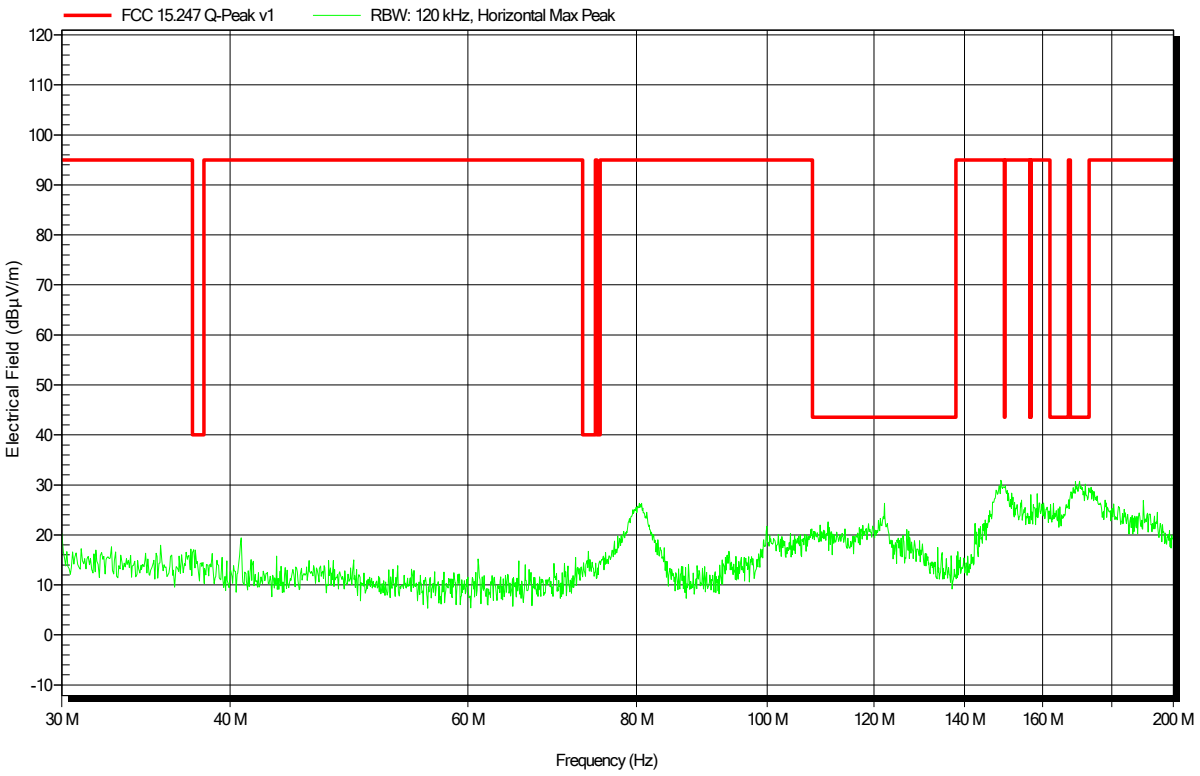

Spurious emissions according to ISED RSS-247, Issue 2, FCC 47 e-CFR §15.247

Project number:	G0M-2003-8874
Applicant:	NewTec GmbH
EUT Name:	Industrial Gateway
Model:	NTSecureGateway
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Voigt
Measurement software:	RadiMation, version 2016.1.10
Test Conditions:	Tnom: 25.3°C, Vnom: 24 VDC
Antenna:	Rohde & Schwarz HK 116, Vertical
Measurement distance:	3 m
Mode:	TX; BTLE, 2440MHz, 1MBit/s
Test Date:	2020-07-27
Note:	

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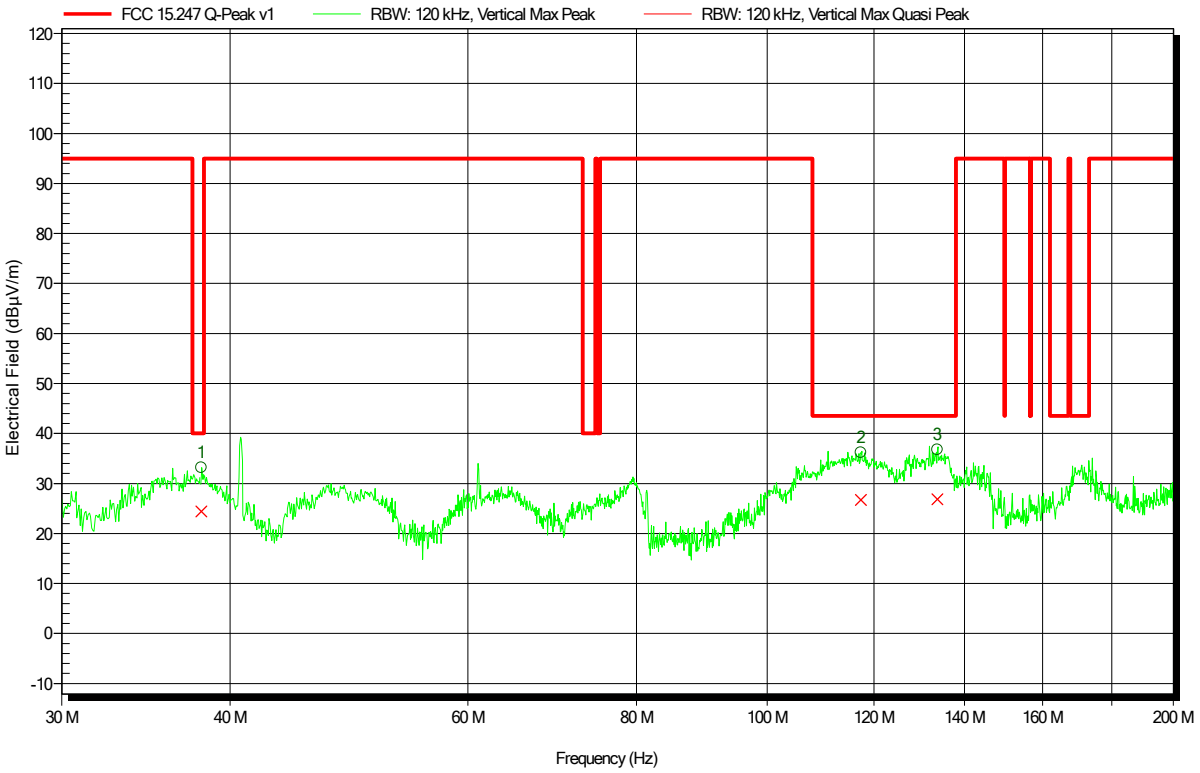

Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status
38.0767 MHz	24.4 dBµV/m	40 dBµV/m	-15.61 dB	Pass
117.3119 MHz	26.7 dBµV/m	43.5 dBµV/m	-16.82 dB	Pass
133.7054 MHz	26.8 dBµV/m	43.5 dBµV/m	-16.7 dB	Pass

Spurious emissions according to ISED RSS-247, Issue 2, FCC 47 e-CFR §15.247

Project number:	G0M-2003-8874
Applicant:	NewTec GmbH
EUT Name:	Industrial Gateway
Model:	NTSecureGateway
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Voigt
Measurement software:	RadiMation, version 2016.1.10
Test Conditions:	Tnom: 25.3°C, Vnom: 24 VDC
Antenna:	Rohde & Schwarz HL 223, Horizontal
Measurement distance:	3 m
Mode:	TX; BTLE, 2440MHz, 1MBit/s
Test Date:	2020-07-27
Note:	

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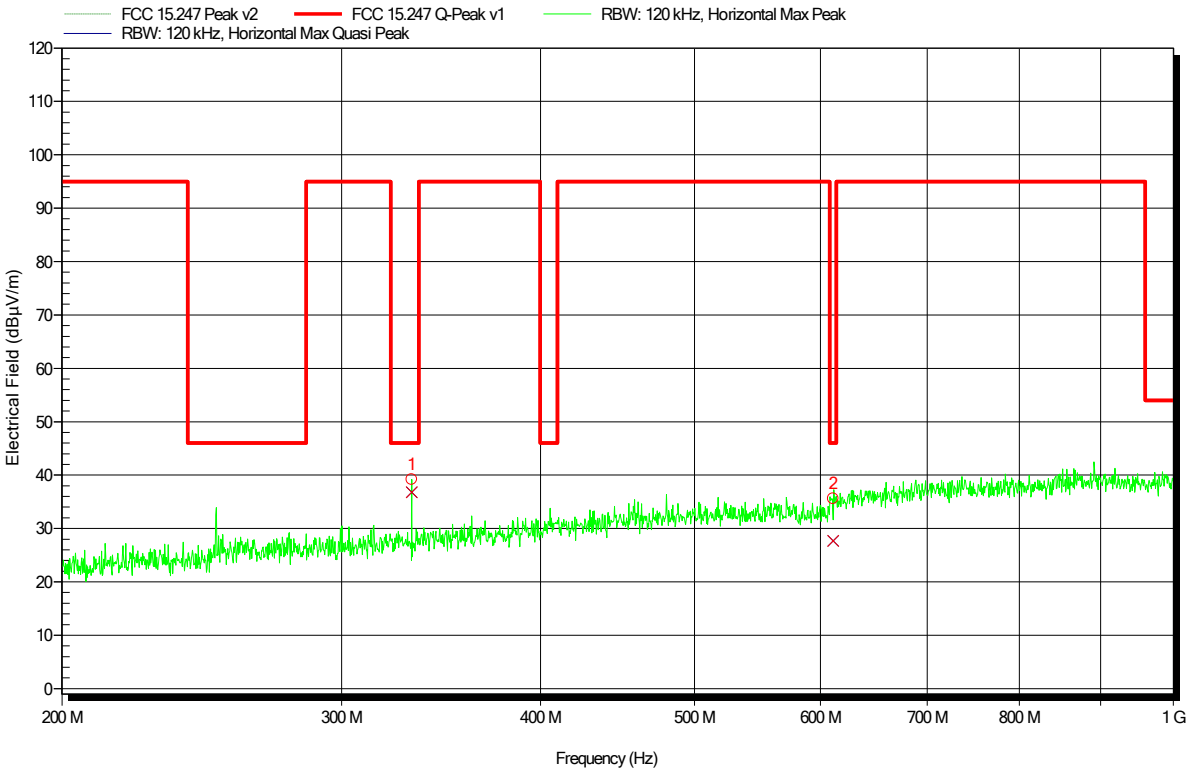

Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status
331.9903 MHz	36.8 dBµV/m	46 dBµV/m	-9.24 dB	Pass
611.0597 MHz	27.7 dBµV/m	46 dBµV/m	-18.33 dB	Pass

Spurious emissions according to ISED RSS-247, Issue 2, FCC 47 e-CFR §15.247

Project number:	G0M-2003-8874
Applicant:	NewTec GmbH
EUT Name:	Industrial Gateway
Model:	NTSecureGateway
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Voigt
Measurement software:	RadiMation, version 2016.1.10
Test Conditions:	Tnom: 25.3°C, Vnom: 24 VDC
Antenna:	Rohde & Schwarz HL 223, Vertical
Measurement distance:	3 m
Mode:	TX; BTLE, 2440MHz, 1MBit/s
Test Date:	2020-07-27
Note:	

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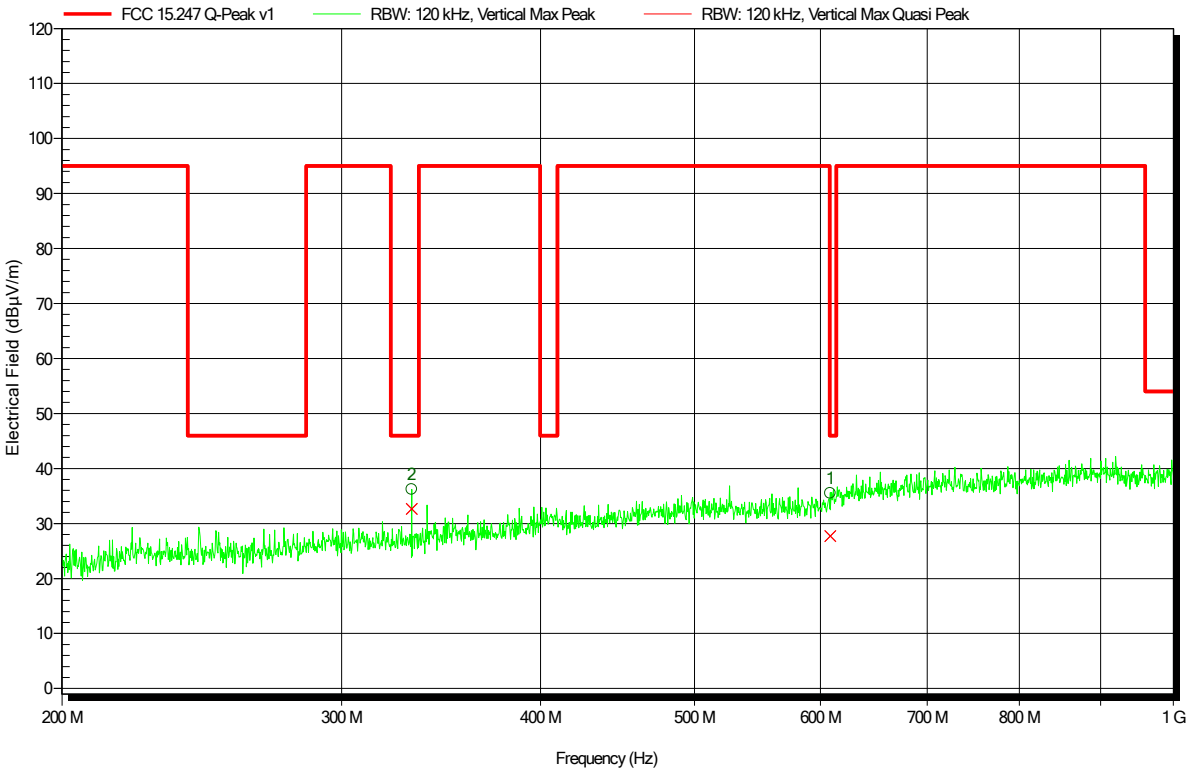
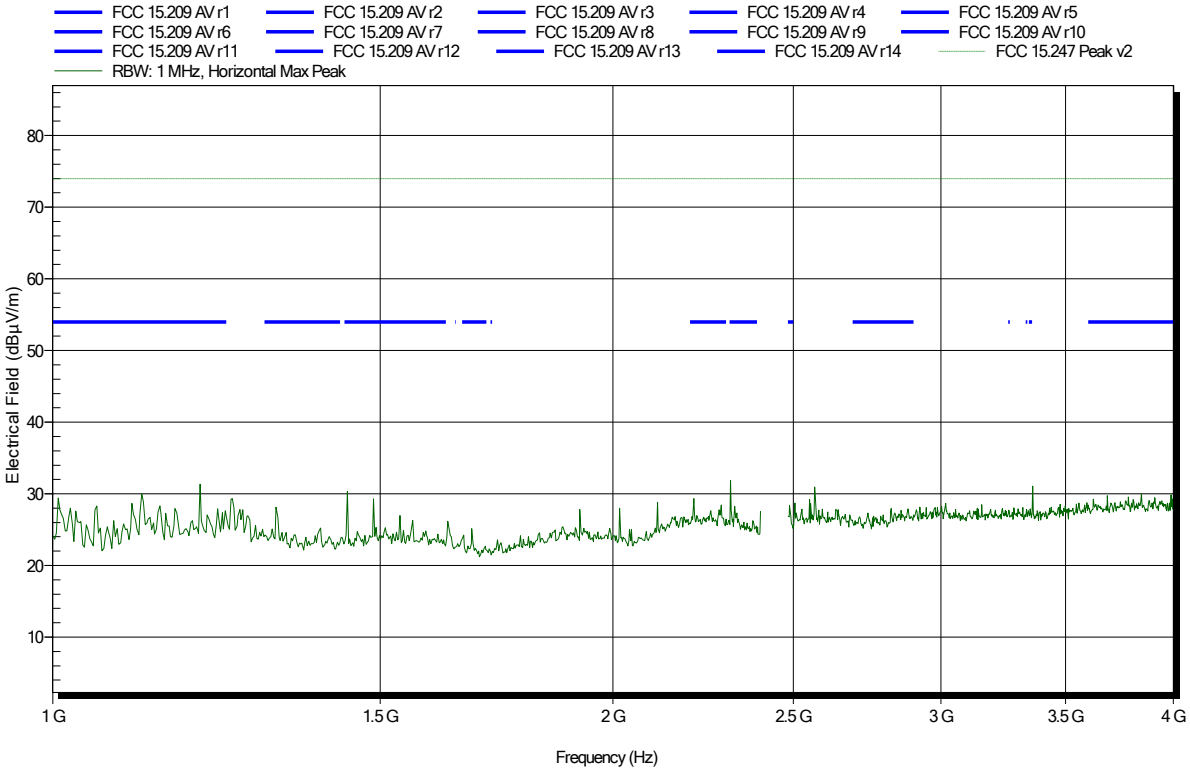


Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status
331.9964 MHz	32.6 dBµV/m	46 dBµV/m	-13.36 dB	Pass
608.4838 MHz	27.7 dBµV/m	46 dBµV/m	-18.31 dB	Pass

Spurious emissions according to ISED RSS-247, Issue 2, FCC 47 e-CFR §15.247

Project number:	G0M-2003-8874
Applicant:	NewTec GmbH
EUT Name:	Industrial Gateway
Model:	NTSecureGateway
Test Site:	Eurofins Product Service GmbH
Operator:	Florian Voigt
Test Conditions:	Tnom: 25.3°C, Vnom: 24 VDC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; BTLE, 2440MHz, 1MBit/s
Test Date:	2020-07-23
Note:	

Index 4



Spurious emissions according to ISED RSS-247, Issue 2, FCC 47 e-CFR §15.247

Project number:	G0M-2003-8874
Applicant:	NewTec GmbH
EUT Name:	Industrial Gateway
Model:	NTSecureGateway
Test Site:	Eurofins Product Service GmbH
Operator:	Florian Voigt
Test Conditions:	Tnom: 25.3°C, Vnom: 24 VDC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; BTLE, 2440MHz, 1MBit/s
Test Date:	2020-07-23
Note:	

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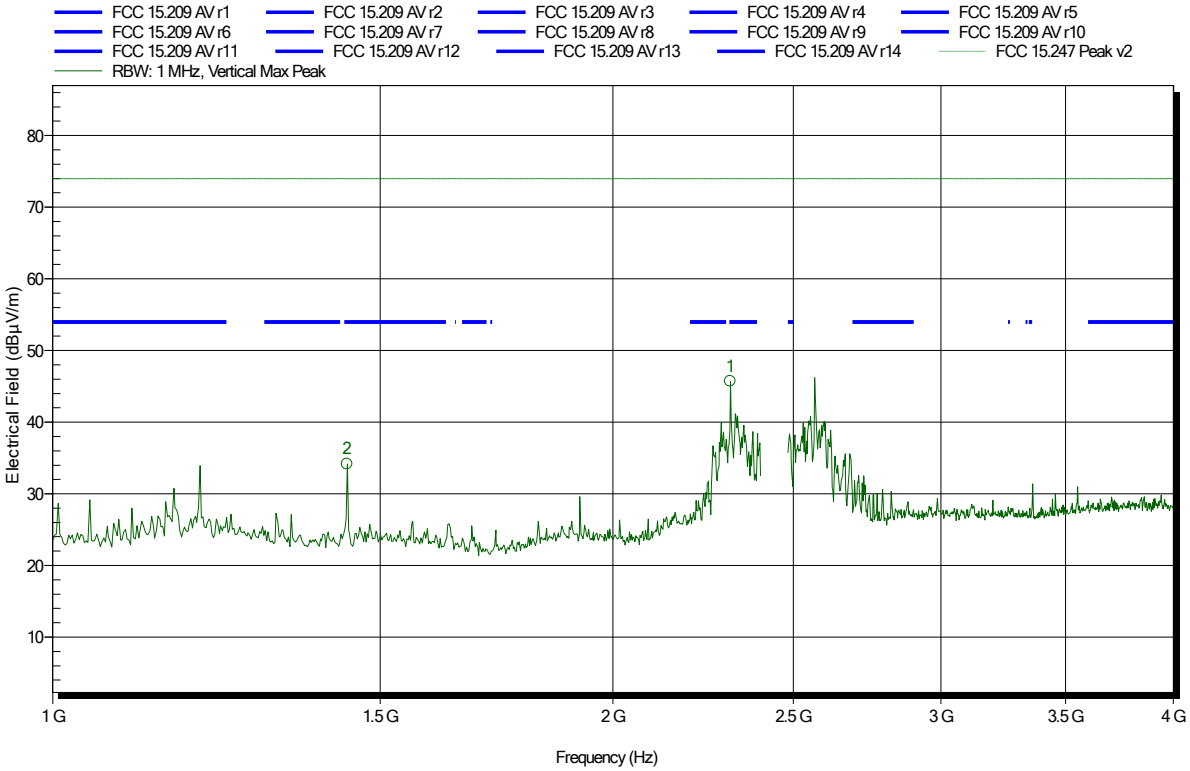

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
1.4397 GHz	34.14 dBµV/m	74 dBµV/m	-39.86 dB	Pass
2.3125 GHz	45.7 dBµV/m	74 dBµV/m	-28.3 dB	Pass

Spurious emissions according to ISED RSS-247, Issue 2, FCC 47 e-CFR §15.247

Project number:	G0M-2003-8874
Applicant:	NewTec GmbH
EUT Name:	Industrial Gateway
Model:	NTSecureGateway
Test Site:	Eurofins Product Service GmbH
Operator:	Florian Voigt
Test Conditions:	Tnom: 25.3°C, Vnom: 24 VDC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; BTLE, 2440MHz, 1MBit/s
Test Date:	2020-07-23
Note:	

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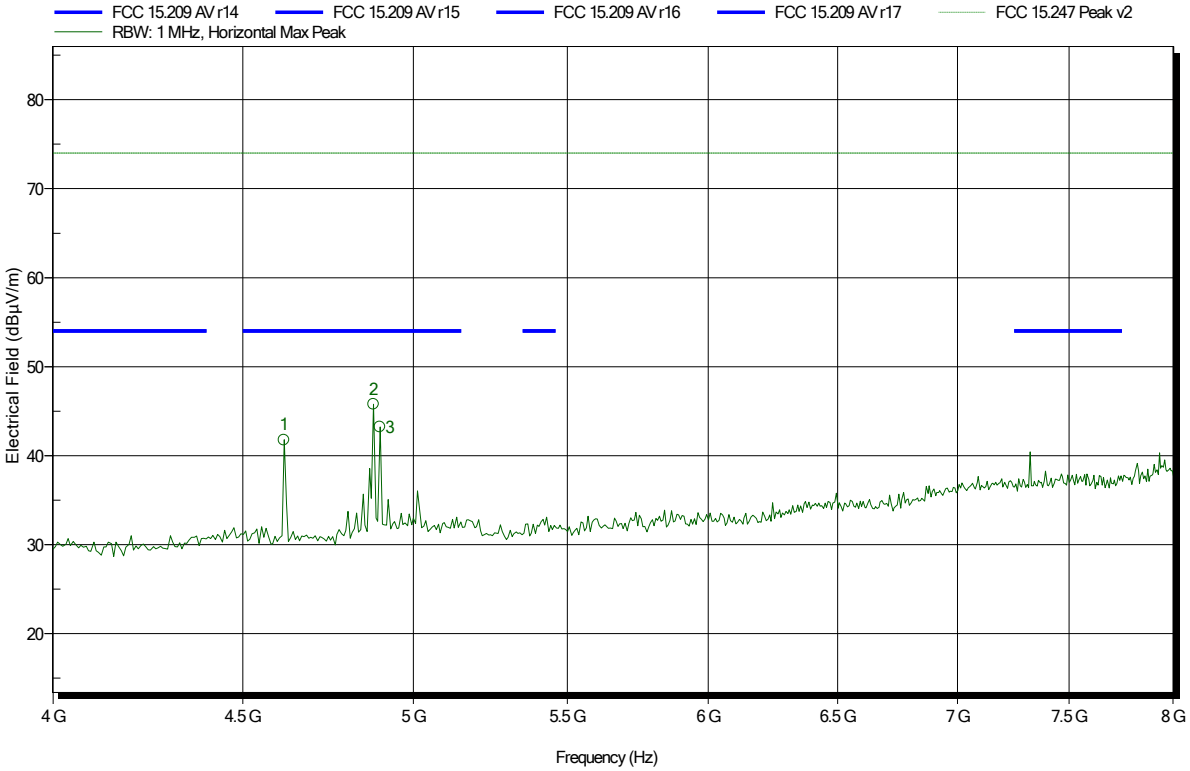

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
4.615 GHz	41.77 dBµV/m	74 dBµV/m	-32.23 dB	Pass
4.878 GHz	45.78 dBµV/m	74 dBµV/m	-28.22 dB	Pass
4.897 GHz	43.24 dBµV/m	74 dBµV/m	-30.76 dB	Pass

Spurious emissions according to ISED RSS-247, Issue 2, FCC 47 e-CFR §15.247

Project number:	G0M-2003-8874
Applicant:	NewTec GmbH
EUT Name:	Industrial Gateway
Model:	NTSecureGateway
Test Site:	Eurofins Product Service GmbH
Operator:	Florian Voigt
Test Conditions:	Tnom: 25.3°C, Vnom: 24 VDC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; BTLE, 2440MHz, 1MBit/s
Test Date:	2020-07-23
Note:	

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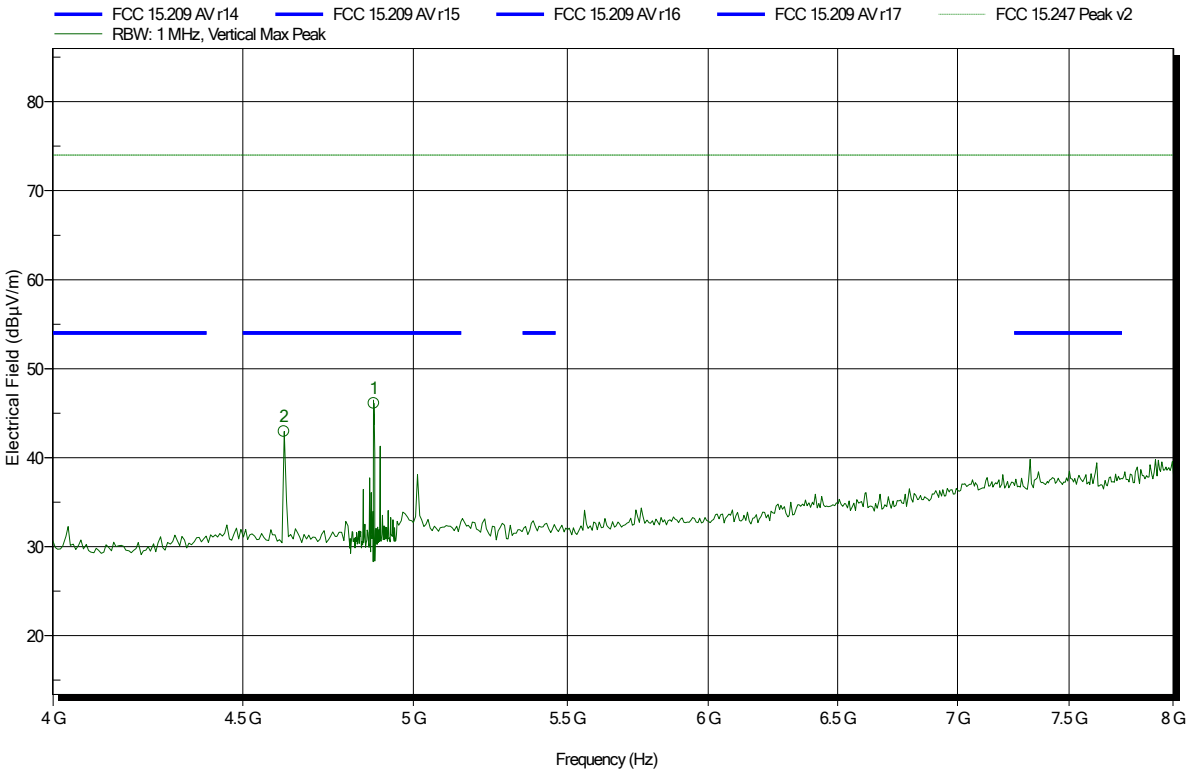

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
4.615 GHz	42.93 dBµV/m	74 dBµV/m	-31.07 dB	Pass
4.88 GHz	46.09 dBµV/m	74 dBµV/m	-27.91 dB	Pass

Spurious emissions according to ISED RSS-247, Issue 2, FCC 47 e-CFR §15.247

Project number:	G0M-2003-8874
Applicant:	NewTec GmbH
EUT Name:	Industrial Gateway
Model:	NTSecureGateway
Test Site:	Eurofins Product Service GmbH
Operator:	Florian Voigt
Test Conditions:	Tnom: 25.3°C, Vnom: 24 VDC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; BTLE, 2440MHz, 1MBit/s
Test Date:	2020-07-23
Note:	

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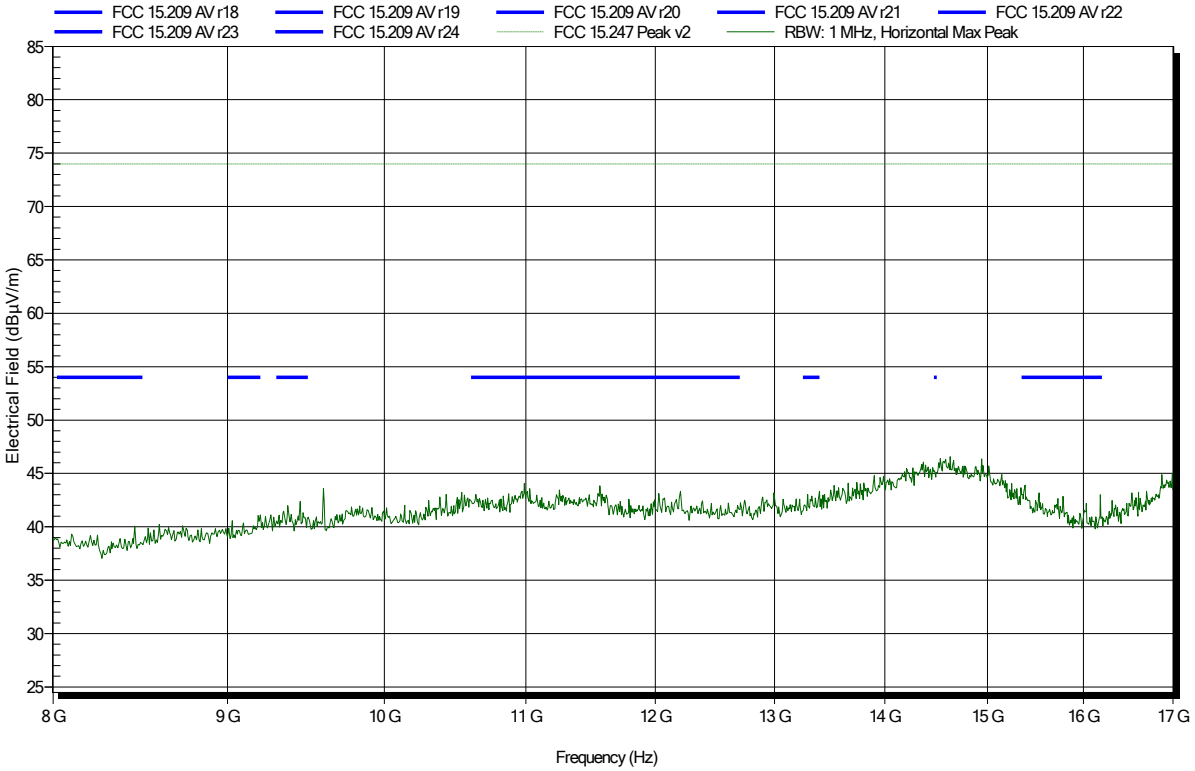

Spurious emissions according to ISED RSS-247, Issue 2, FCC 47 e-CFR §15.247

Project number:	G0M-2003-8874
Applicant:	NewTec GmbH
EUT Name:	Industrial Gateway
Model:	NTSecureGateway
Test Site:	Eurofins Product Service GmbH
Operator:	Florian Voigt
Test Conditions:	Tnom: 25.3°C, Vnom: 24 VDC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; BTLE, 2440MHz, 1MBit/s
Test Date:	2020-07-23
Note:	

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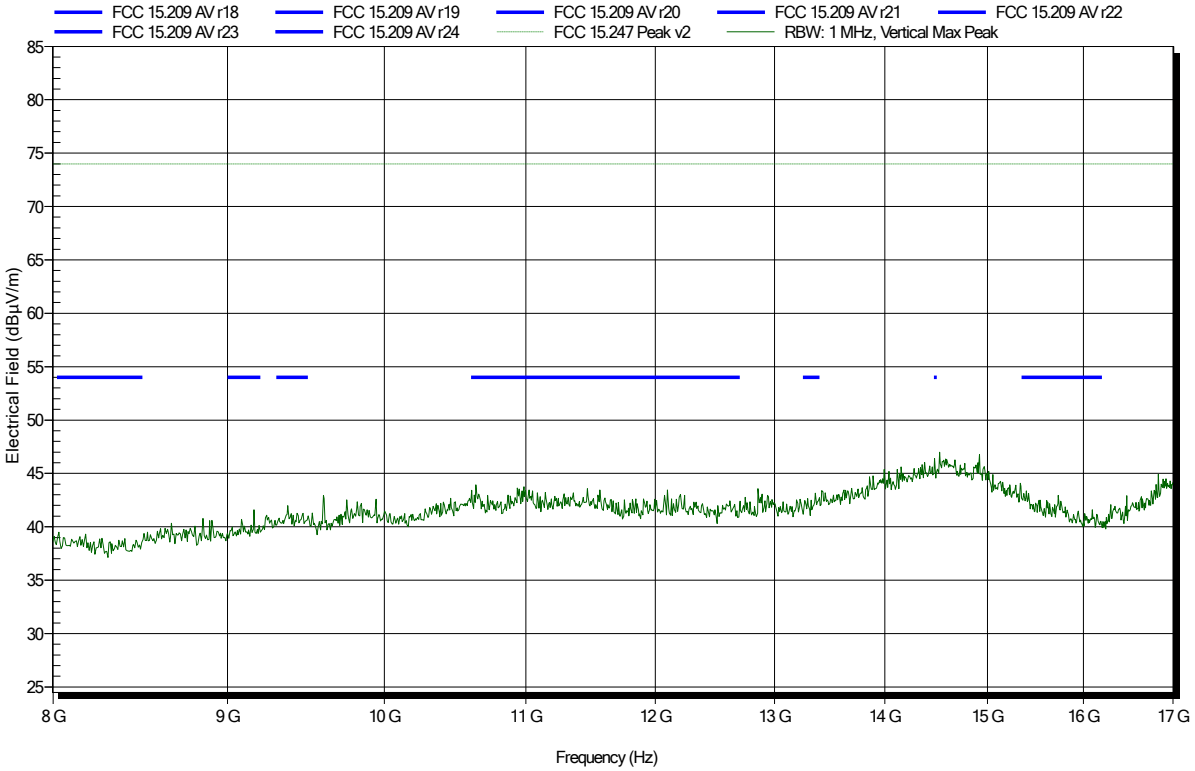

Spurious emissions according to ISED RSS-247, Issue 2, FCC 47 e-CFR §15.247

Project number:	G0M-2003-8874
Applicant:	NewTec GmbH
EUT Name:	Industrial Gateway
Model:	NTSecureGateway
Test Site:	Eurofins Product Service GmbH
Operator:	Florian Voigt
Test Conditions:	Tnom: 25.3°C, Vnom: 24 VDC
Antenna:	Amplifier Research AT4560, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; BTLE, 2440MHz, 1MBit/s
Test Date:	2020-07-24
Note:	

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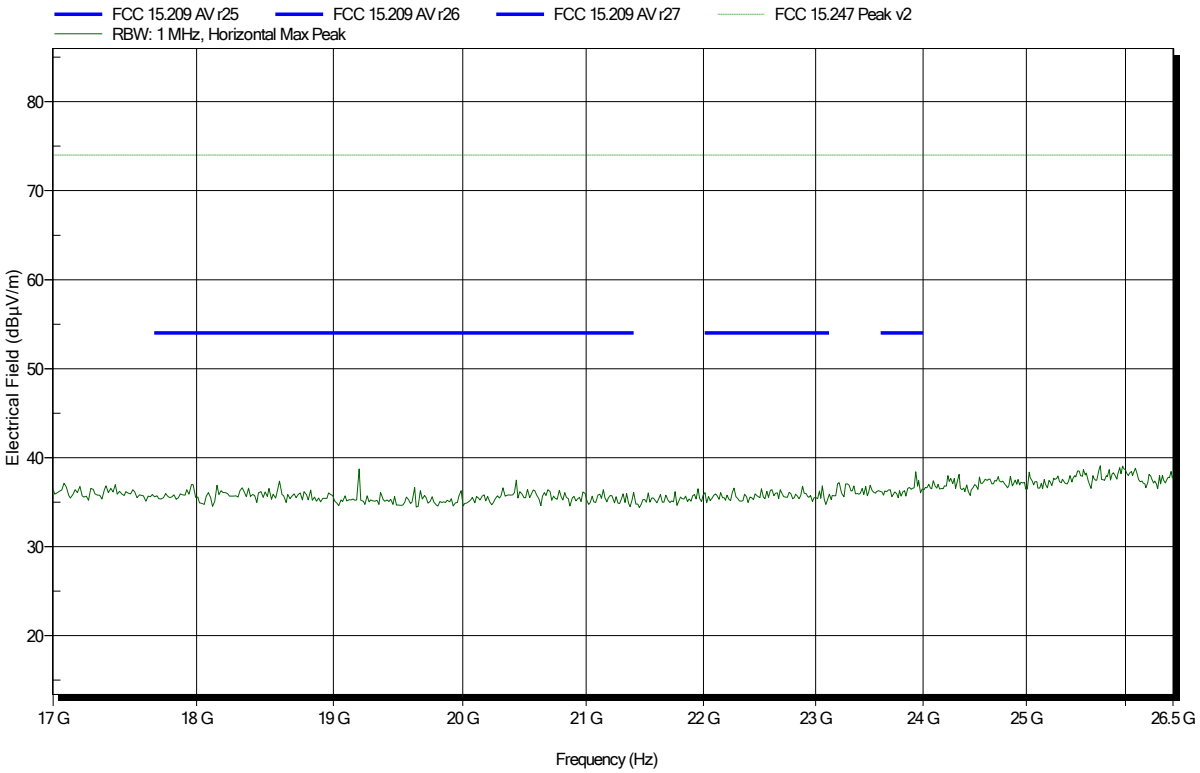

Spurious emissions according to ISED RSS-247, Issue 2, FCC 47 e-CFR §15.247

Project number:	G0M-2003-8874
Applicant:	NewTec GmbH
EUT Name:	Industrial Gateway
Model:	NTSecureGateway
Test Site:	Eurofins Product Service GmbH
Operator:	Florian Voigt
Test Conditions:	Tnom: 25.3°C, Vnom: 24 VDC
Antenna:	Amplifier Research AT4560, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; BTLE, 2440MHz, 1MBit/s
Test Date:	2020-07-24
Note:	

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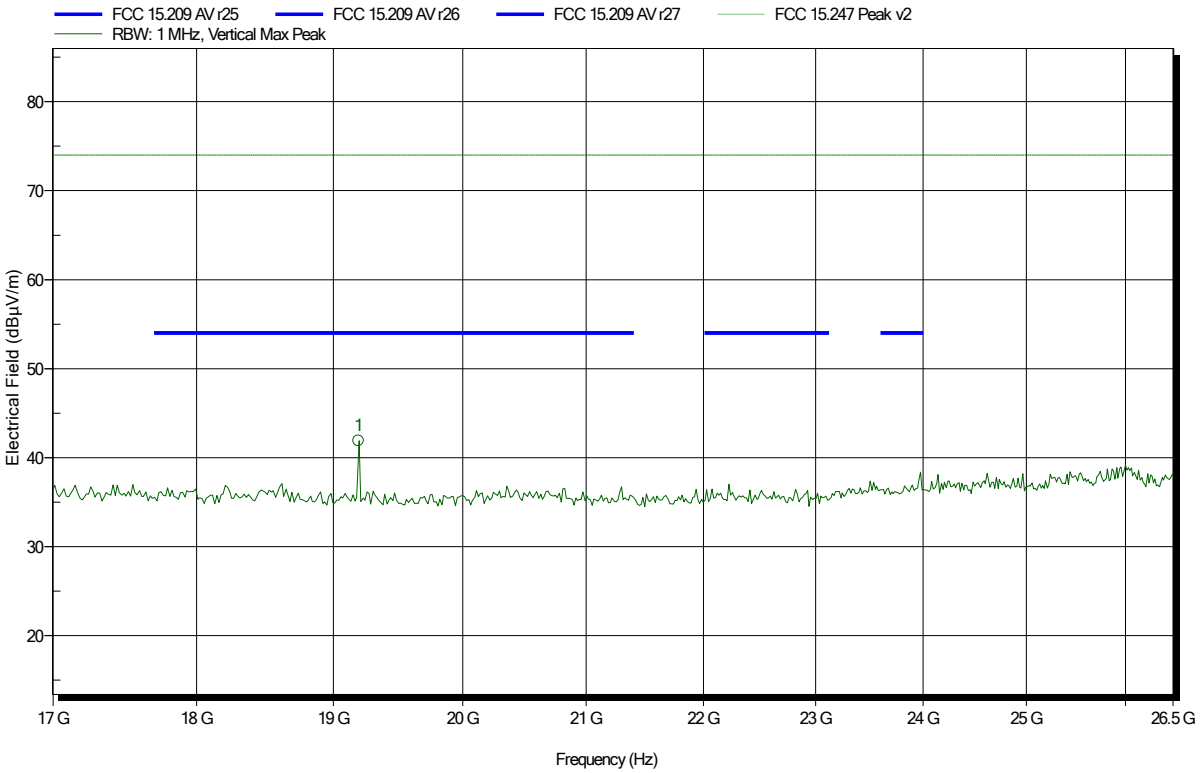

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
19.192 GHz	41.91 dBµV/m	74 dBµV/m	-32.09 dB	Pass

ANNEX B Receiver spurious emissions

Spurious emissions according to ISED RSS-247, Issue 2

Project number:	G0M-2003-8874
Applicant:	NewTec GmbH
EUT Name:	Industrial Gateway
Model:	NTSecureGateway
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Voigt
Measurement software:	RadiMation, version 2016.1.10
Test Conditions:	Tnom: 25.3°C, Vnom: 24 VDC
Antenna:	Rohde & Schwarz HK 116, Horizontal
Measurement distance:	3 m
Mode:	RX; BTLE, 2440MHz
Test Date:	2020-07-27
Note:	

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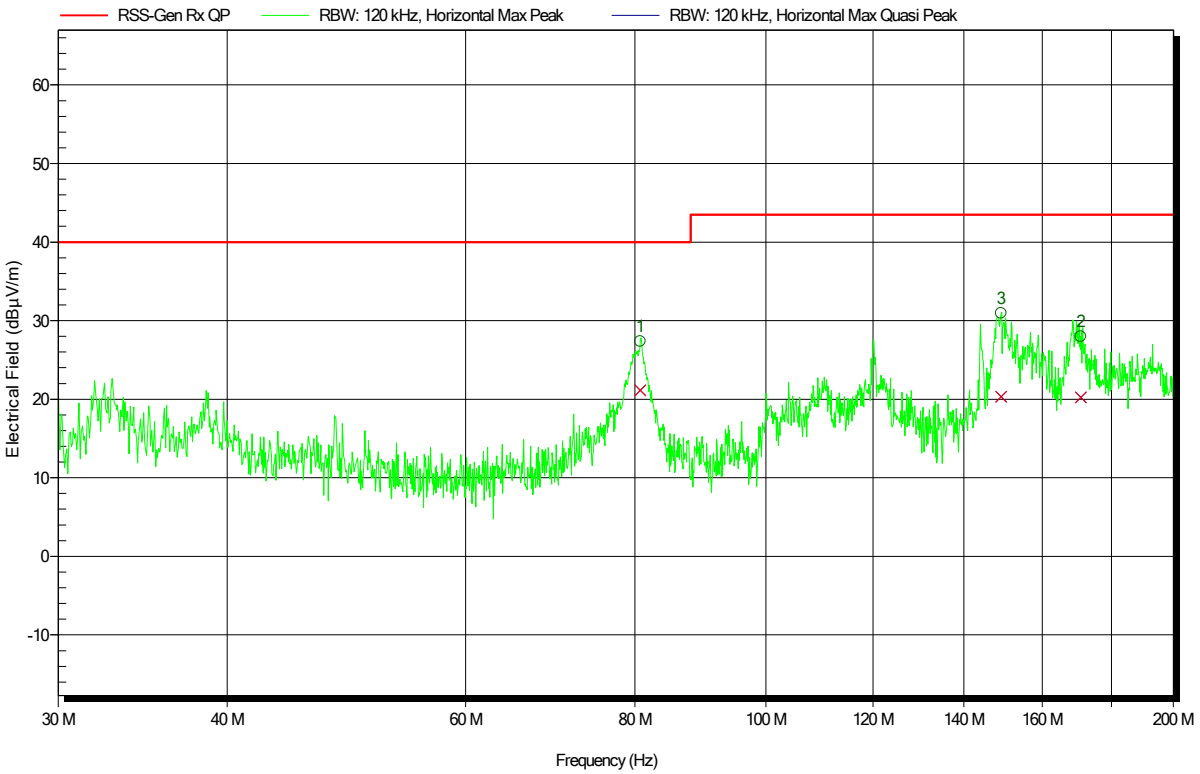

Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	Angle	Height
80.7658 MHz	21.1 dBµV/m	40 dBµV/m	-18.87 dB	Pass	0 Degree	1 m
149.1922 MHz	20.3 dBµV/m	43.5 dBµV/m	-23.19 dB	Pass	0 Degree	1 m
170.816 MHz	20.2 dBµV/m	43.5 dBµV/m	-23.25 dB	Pass	0 Degree	1 m

Spurious emissions according to ISED RSS-247, Issue 2

Project number:	G0M-2003-8874
Applicant:	NewTec GmbH
EUT Name:	Industrial Gateway
Model:	NTSecureGateway
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Voigt
Measurement software:	RadiMation, version 2016.1.10
Test Conditions:	Tnom: 25.3°C, Vnom: 24 VDC
Antenna:	Rohde & Schwarz HK 116, Vertical
Measurement distance:	3 m
Mode:	RX; BTLE, 2440MHz
Test Date:	2020-07-27
Note:	

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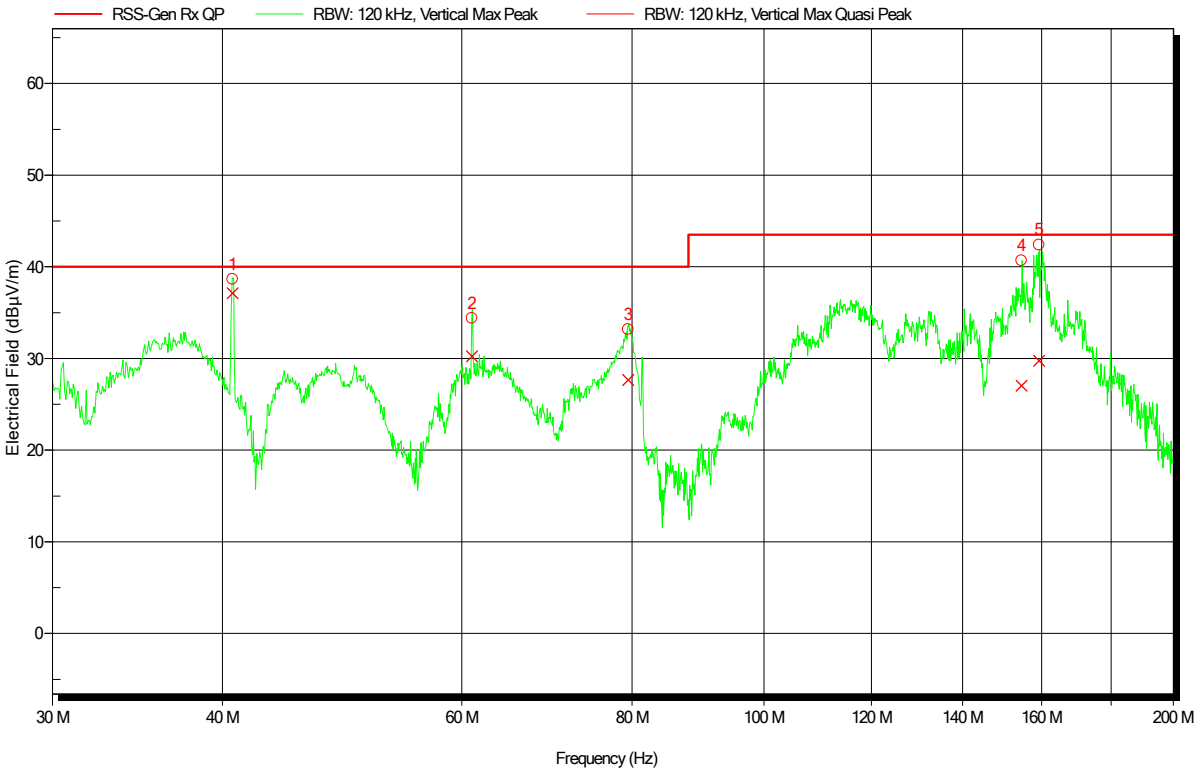

Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	Angle	Height
40.6948 MHz	37.1 dBµV/m	40 dBµV/m	-2.88 dB	Pass	0 Degree	1 m
61.0215 MHz	30.2 dBµV/m	40 dBµV/m	-9.77 dB	Pass	0 Degree	1 m
79.4807 MHz	27.7 dBµV/m	40 dBµV/m	-12.34 dB	Pass	0 Degree	1 m
154.7047 MHz	27 dBµV/m	43.5 dBµV/m	-16.48 dB	Pass	0 Degree	1 m
159.3465 MHz	29.8 dBµV/m	43.5 dBµV/m	-13.74 dB	Pass	0 Degree	1 m

Spurious emissions according to ISED RSS-247, Issue 2

Project number:	G0M-2003-8874
Applicant:	NewTec GmbH
EUT Name:	Industrial Gateway
Model:	NTSecureGateway
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Voigt
Measurement software:	RadiMation, version 2016.1.10
Test Conditions:	Tnom: 25.3°C, Vnom: 24 VDC
Antenna:	Rohde & Schwarz HL 223, Horizontal
Measurement distance:	3 m
Mode:	RX; BTLE, 2440MHz
Test Date:	2020-07-27
Note:	

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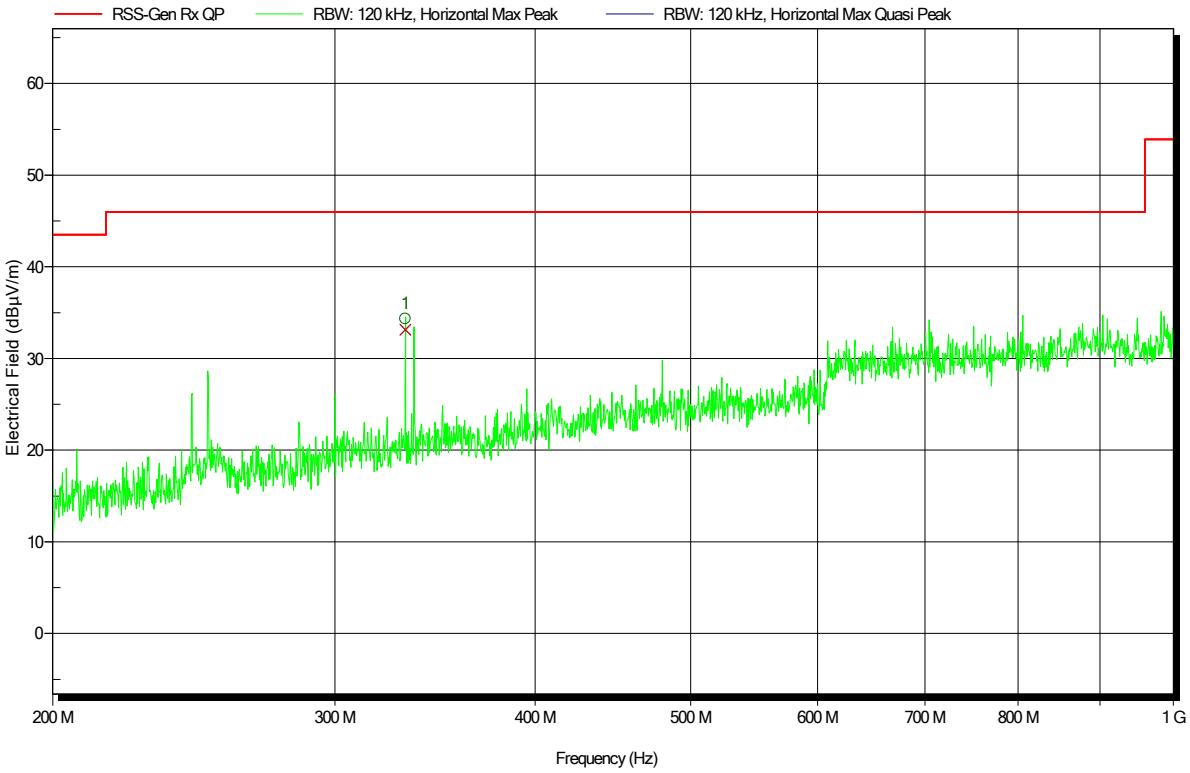

Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	Angle	Height
331.9963 MHz	33.1 dBµV/m	46 dBµV/m	-12.86 dB	Pass	0 Degree	1 m

Spurious emissions according to ISED RSS-247, Issue 2

Project number:	G0M-2003-8874
Applicant:	NewTec GmbH
EUT Name:	Industrial Gateway
Model:	NTSecureGateway
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Voigt
Measurement software:	RadiMation, version 2016.1.10
Test Conditions:	Tnom: 25.3°C, Vnom: 24 VDC
Antenna:	Rohde & Schwarz HL 223, Vertical
Measurement distance:	3 m
Mode:	RX; BTLE, 2440MHz
Test Date:	2020-07-27
Note:	

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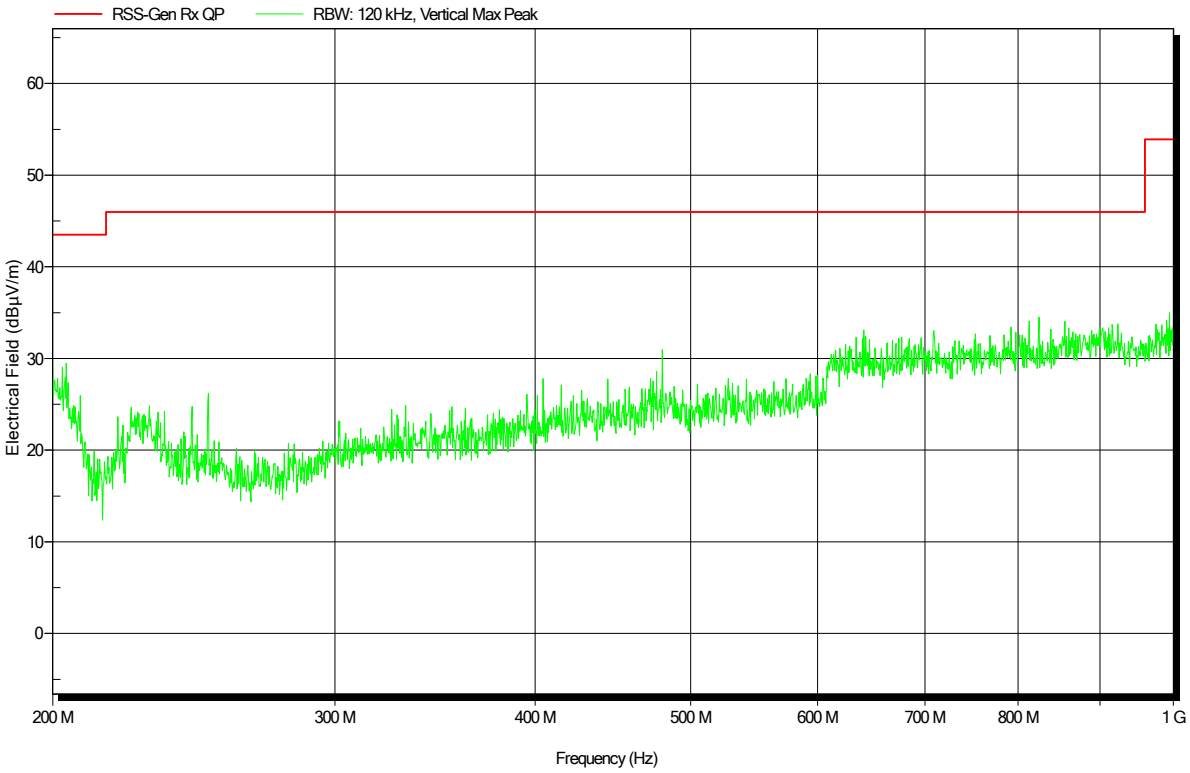

Spurious emissions according to ISED RSS-247, Issue 2

Project number:	G0M-2003-8874
Applicant:	NewTec GmbH
EUT Name:	Industrial Gateway
Model:	NTSecureGateway
Test Site:	Eurofins Product Service GmbH
Operator:	Florian Voigt
Test Conditions:	Tnom: 25.3°C, Vnom: 24 VDC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	RX; BTLE, 2440MHz
Test Date:	2020-07-23
Note:	

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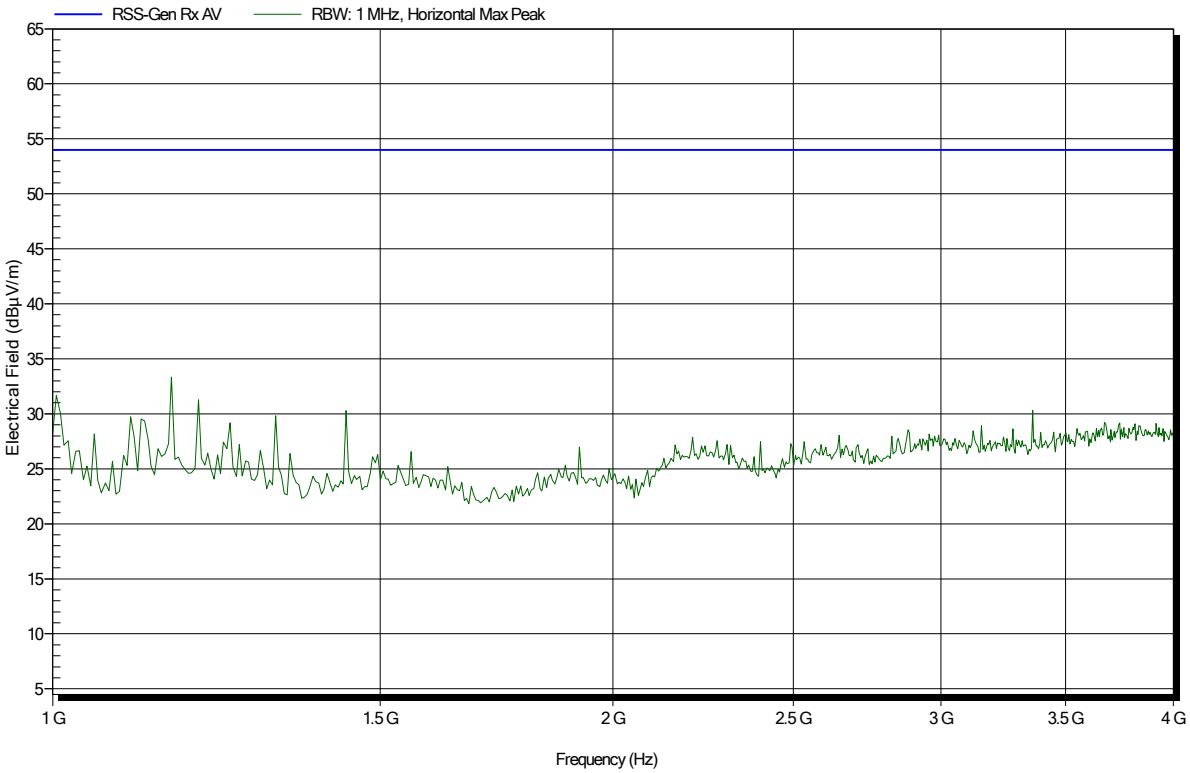

Spurious emissions according to ISED RSS-247, Issue 2

Project number:	G0M-2003-8874
Applicant:	NewTec GmbH
EUT Name:	Industrial Gateway
Model:	NTSecureGateway
Test Site:	Eurofins Product Service GmbH
Operator:	Florian Voigt
Test Conditions:	Tnom: 25.3°C, Vnom: 24 VDC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	1 m converted to 3m
Mode:	RX; BTLE, 2440MHz
Test Date:	2020-07-23
Note:	

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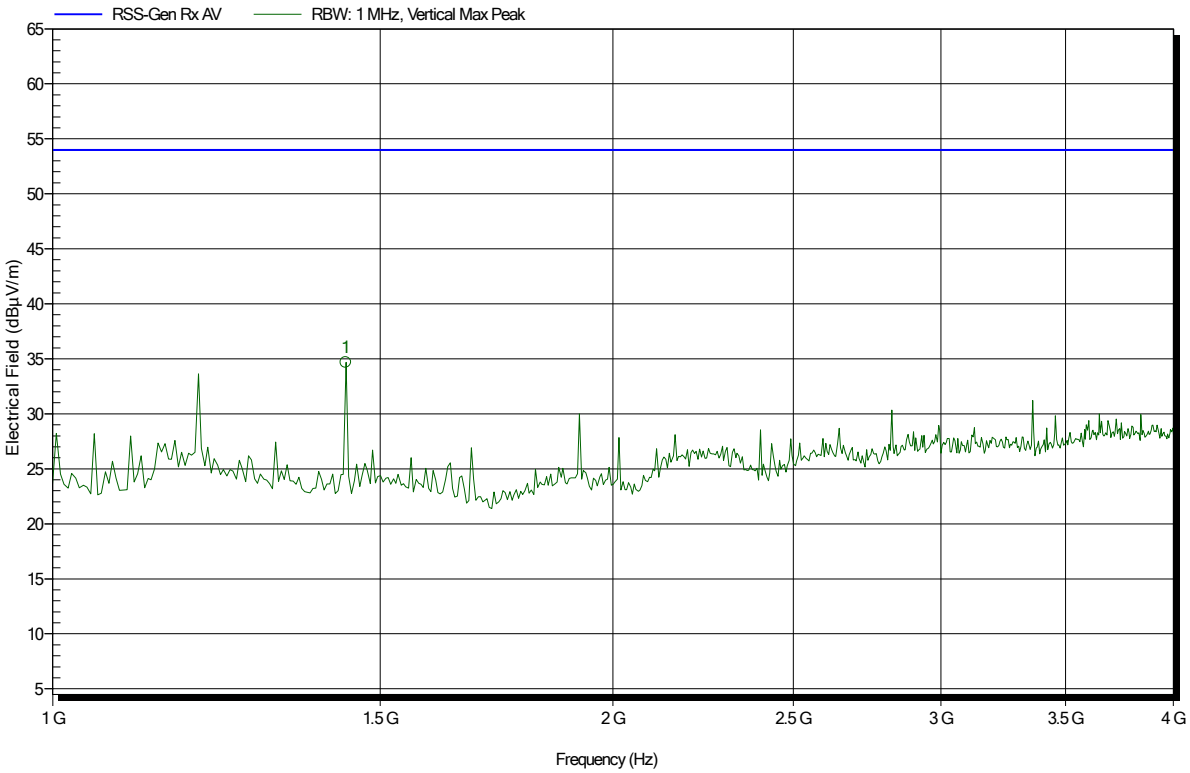

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
1.438 GHz	34.67 dBµV/m	53.98 dBµV/m	-19.31 dB	Pass

Spurious emissions according to ISED RSS-247, Issue 2

Project number:	G0M-2003-8874
Applicant:	NewTec GmbH
EUT Name:	Industrial Gateway
Model:	NTSecureGateway
Test Site:	Eurofins Product Service GmbH
Operator:	Florian Voigt
Test Conditions:	Tnom: 25.3°C, Vnom: 24 VDC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	RX; BTLE, 2440MHz
Test Date:	2020-07-23
Note:	

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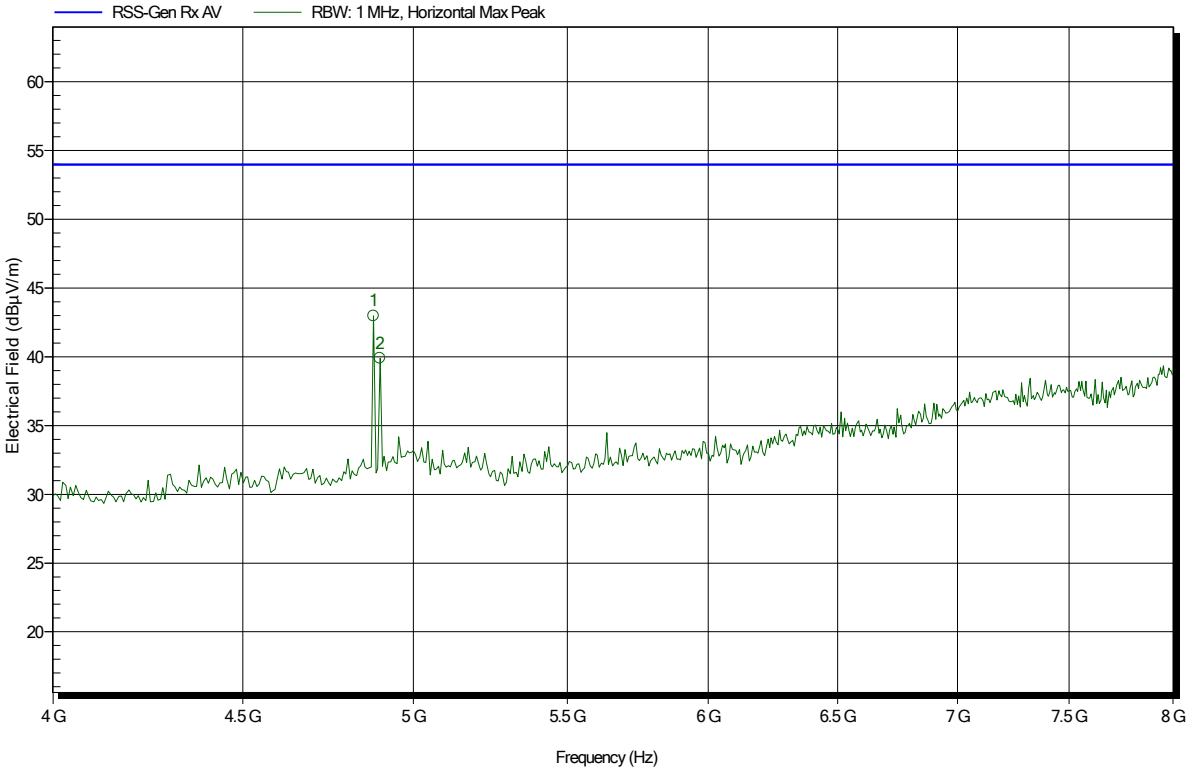

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
4.878 GHz	42.98 dBµV/m	53.98 dBµV/m	-11 dB	Pass
4.897 GHz	39.91 dBµV/m	53.98 dBµV/m	-14.07 dB	Pass

Spurious emissions according to ISED RSS-247, Issue 2

Project number:	G0M-2003-8874
Applicant:	NewTec GmbH
EUT Name:	Industrial Gateway
Model:	NTSecureGateway
Test Site:	Eurofins Product Service GmbH
Operator:	Florian Voigt
Test Conditions:	Tnom: 25.3°C, Vnom: 24 VDC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	1 m converted to 3m
Mode:	RX; BTLE, 2440MHz
Test Date:	2020-07-23
Note:	

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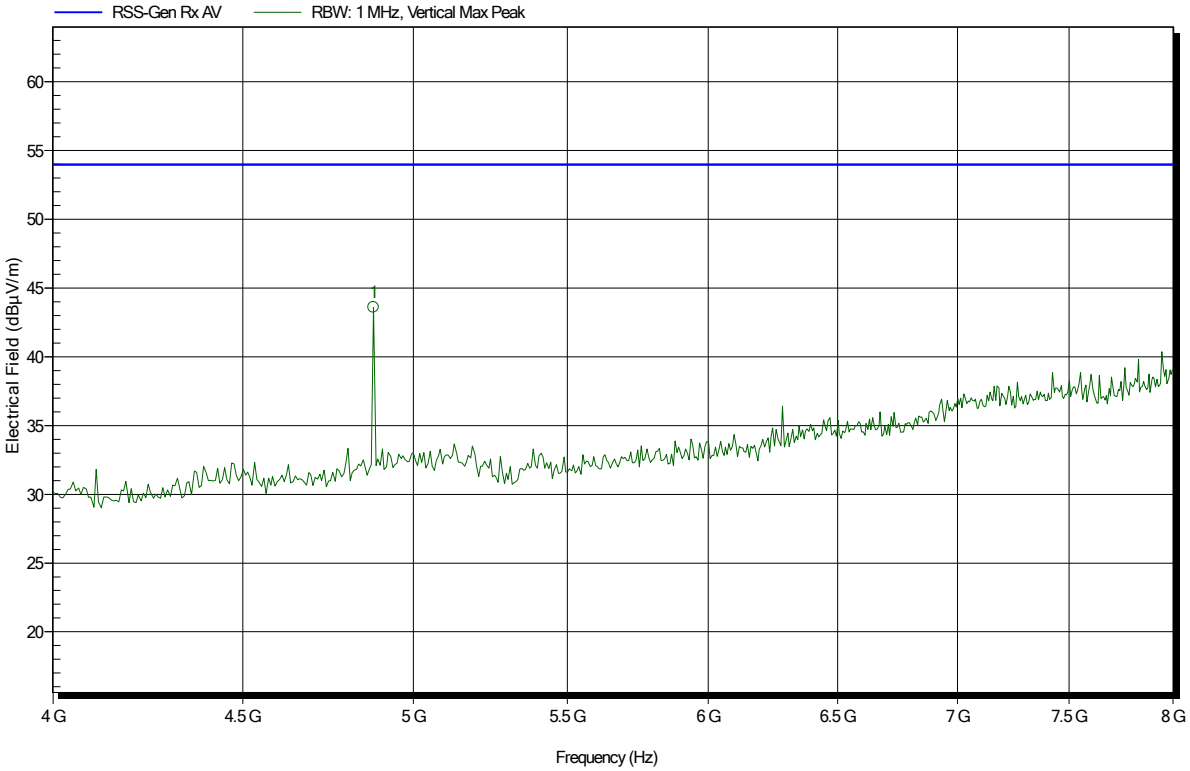

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
4.878 GHz	43.59 dBµV/m	53.98 dBµV/m	-10.39 dB	Pass

Spurious emissions according to ISED RSS-247, Issue 2

Project number:	G0M-2003-8874
Applicant:	NewTec GmbH
EUT Name:	Industrial Gateway
Model:	NTSecureGateway
Test Site:	Eurofins Product Service GmbH
Operator:	Florian Voigt
Test Conditions:	Tnom: 25.3°C, Vnom: 24 VDC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	RX; BTLE, 2440MHz
Test Date:	2020-07-23
Note:	

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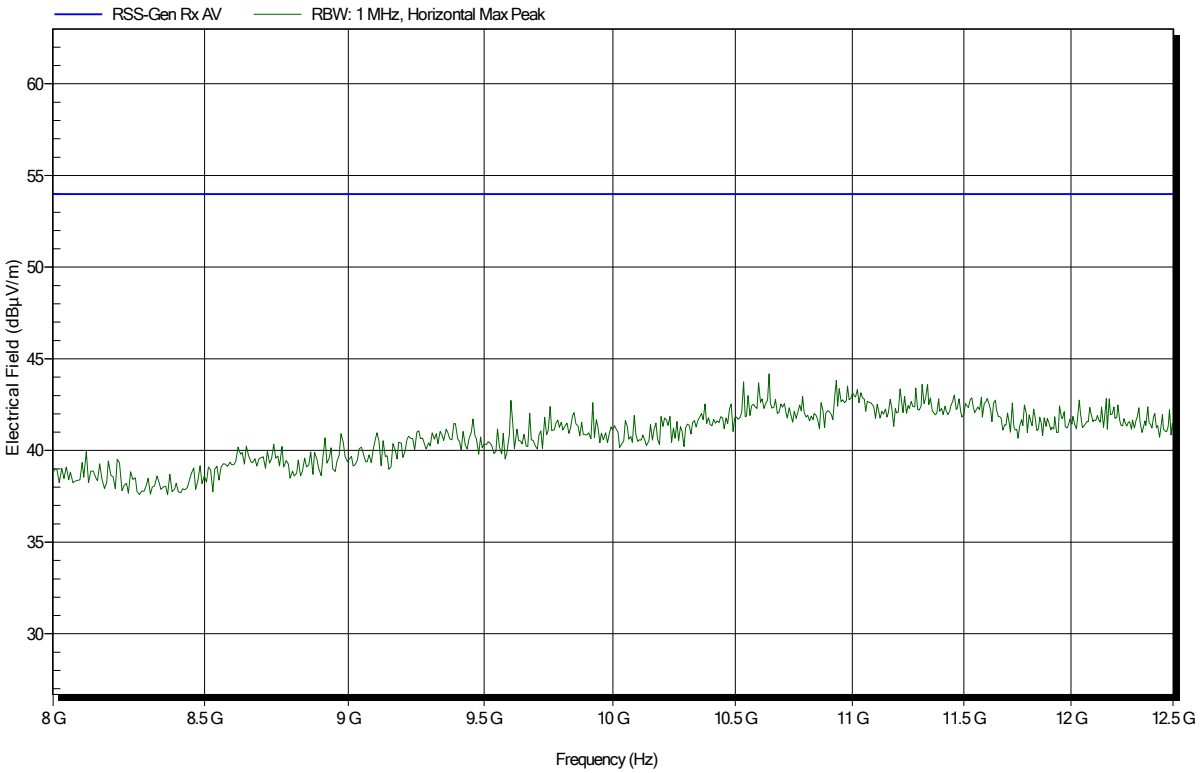
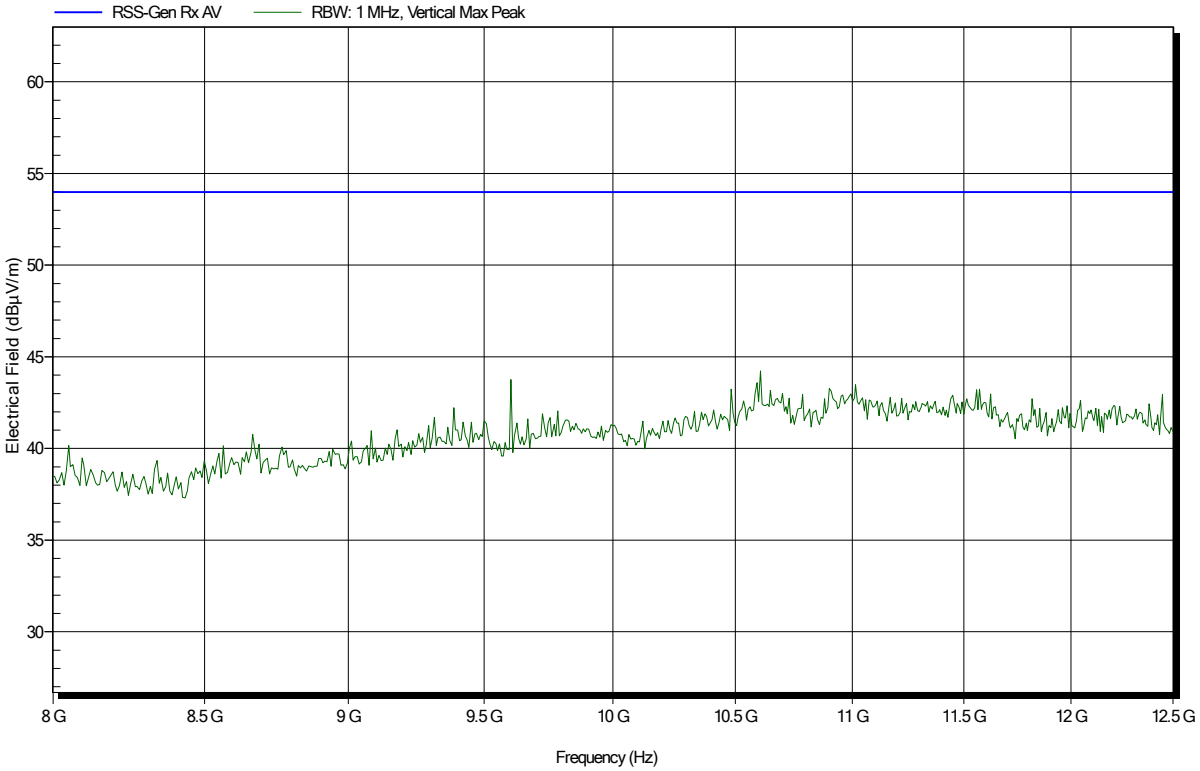


Spurious emissions according to ISED RSS-247, Issue 2

Project number:	G0M-2003-8874
Applicant:	NewTec GmbH
EUT Name:	Industrial Gateway
Model:	NTSecureGateway
Test Site:	Eurofins Product Service GmbH
Operator:	Florian Voigt
Test Conditions:	Tnom: 25.3°C, Vnom: 24 VDC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	1 m converted to 3m
Mode:	RX; BTLE, 2440MHz
Test Date:	2020-07-23
Note:	

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