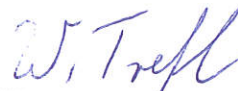


RADIO REPORT FCC 47 CFR Part 15C ISED Canada RSS-247 Digital transmission systems operating within the 2400 – 2483.5 MHz band	
Report Reference No	G0M-1912-8654-TFC247BL-V01
Testing Laboratory	Eurofins Product Service GmbH
Address	Storkower Str. 38c 15526 Reichenwalde Germany
Accreditation	    DAkks - 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	wh Münzprüfer Dietmar Trenner GmbH
Address	Teltower Damm 276 14167 Berlin GERMANY
Test Specification	According to FCC/ISED rules
Standard	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	Coin selector
Model(s)	EMP 500 v7 /CLB
Additional Model(s)	None
Brand Name(s)	None
Hardware Version(s)	EMP500 E4
Software Version(s)	EMP7.50.18; BLE1.00.18
FCC-ID	2AVM3EMP500V7CLB
IC	25831-EMP500V7CLB
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 - 23 °C	
Test Lab Humidity	32 – 38 %	
Date of receipt of test item	2020-01-16	
Report:		
Compiled by	Wilfried Treffke	
Tested by (+ signature) (Responsible for Test)	Wilfried Treffke	
Approved by (+ signature) (Head of Lab)	Christian Weber	
Date of Issue	2020-02-05	
Total number of pages	75	
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	2020-02-05	Initial Release	

ABBREVIATIONS AND ACRONYMS

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

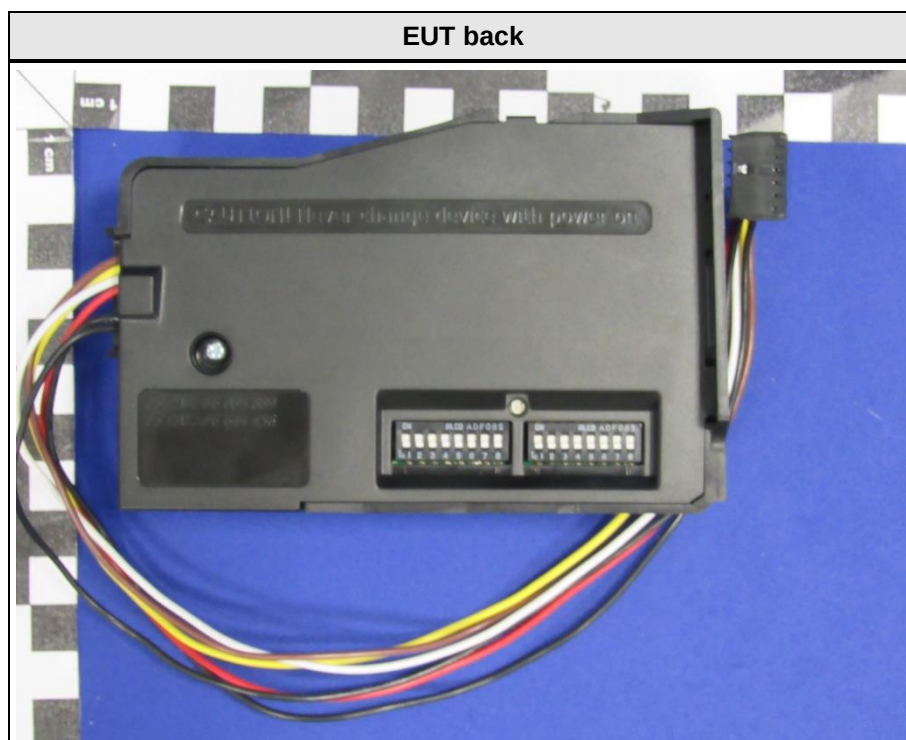
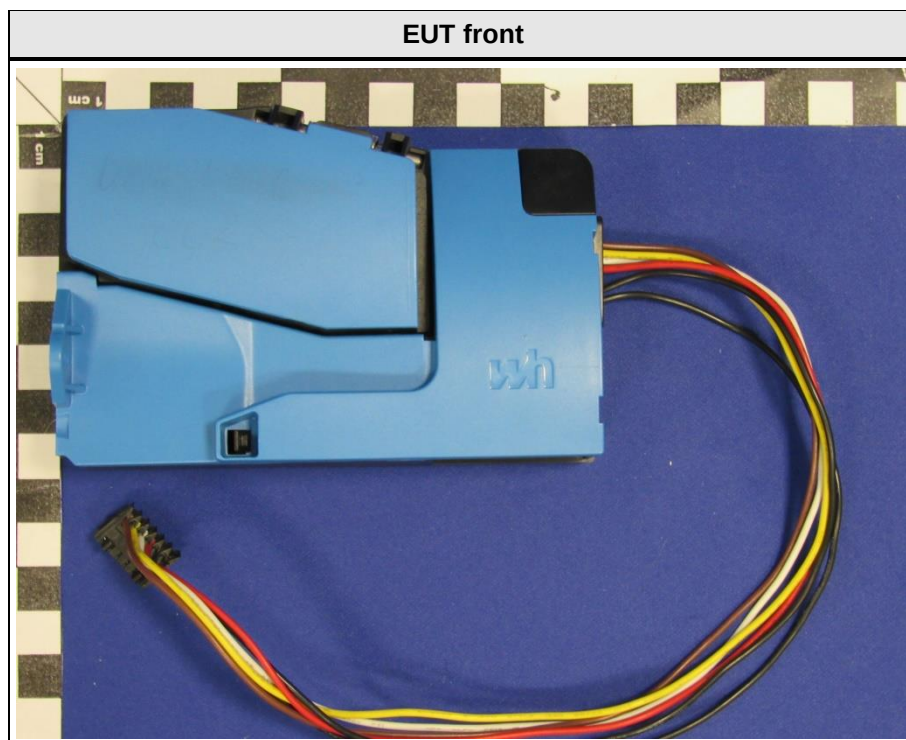
REPORT INDEX

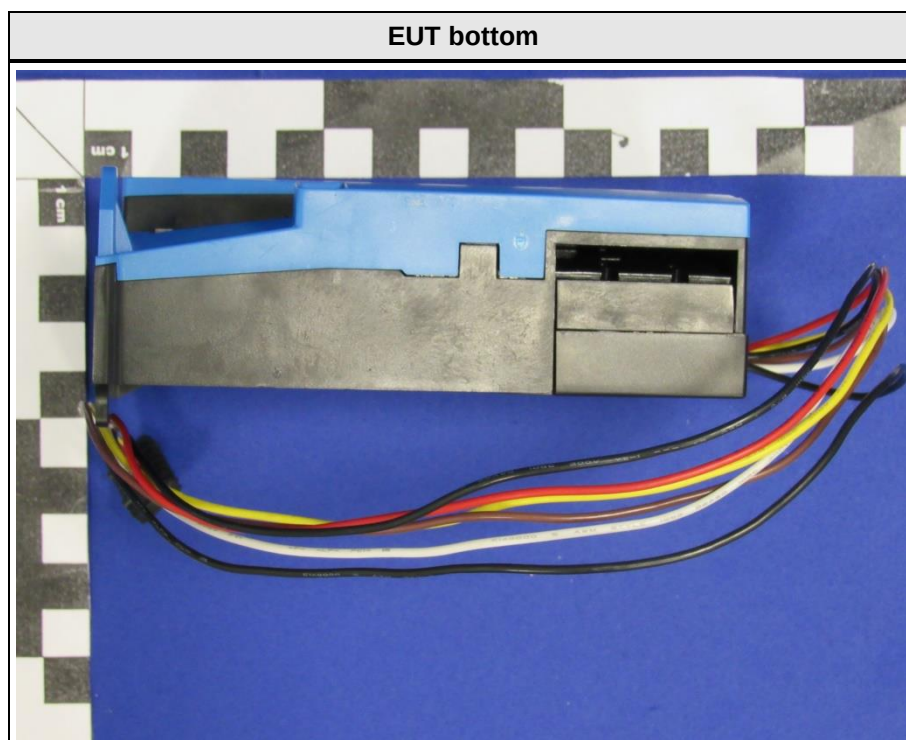
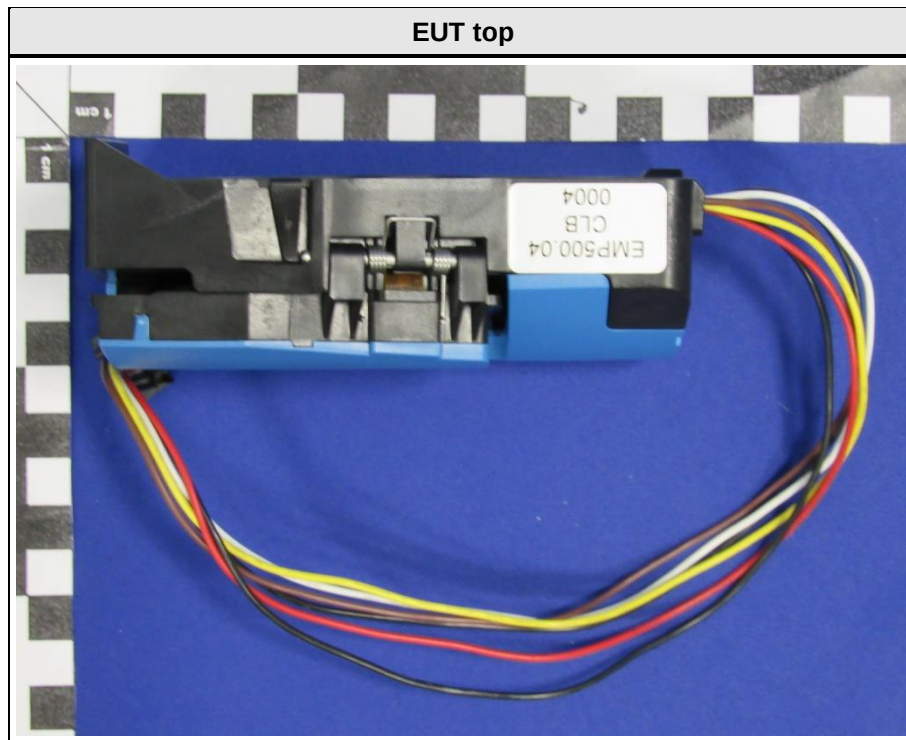
1	Equipment (Test Item) Under Test.....	6
1.1	Photos – Equipment External	7
1.2	Photos – Equipment Internal	10
1.3	Photos – Test Setup.....	13
1.4	Support Equipment.....	15
1.5	Test Modes	16
1.6	Test Frequencies.....	17
1.7	Sample emission level calculation.....	18
2	Result Summary.....	19
3	Test Conditions and Results.....	20
3.1	Test Conditions and Results - Occupied bandwidth.....	20
3.2	Test Conditions and Results - AC powerline conducted emissions.....	25
3.3	Test Conditions and Results - Transmitter radiated emissions	28
3.4	Test Conditions and Results - Receiver radiated emissions	31
ANNEX A	Transmitter spurious emissions	34
ANNEX B	Receiver spurious emissions	66

1 Equipment (Test Item) Under Test

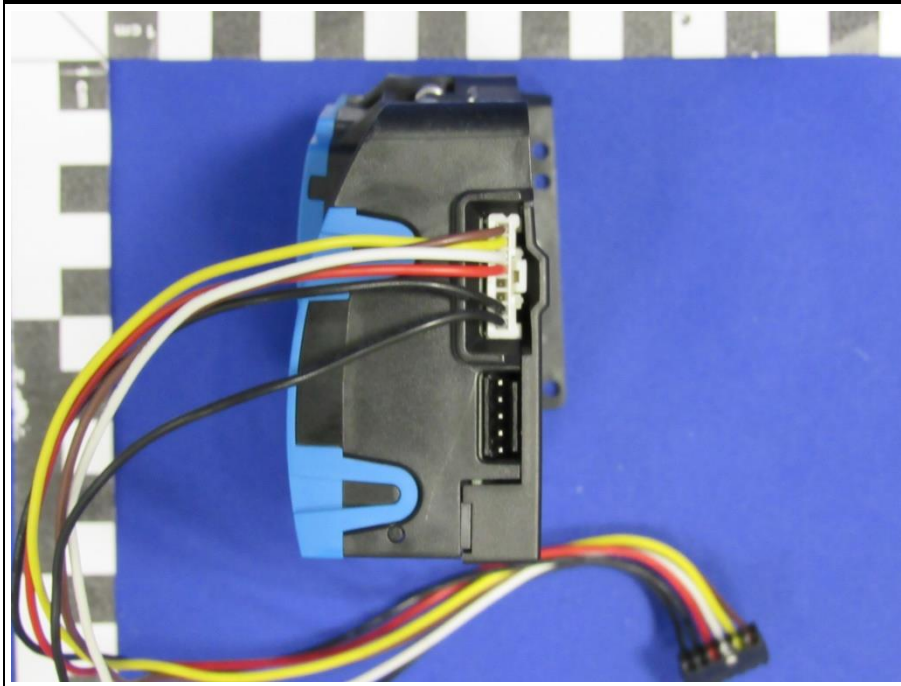
Description	Coin selector	
Model	EMP 500 v7 /CLB	
Additional Model(s)	None	
Brand Name(s)	None	
Serial Number(s)	None	
Hardware Version(s)	EMP500 E4	
Software Version(s)	EMP7.50.18; BLE1.00.18	
PMN	EMP 500 v7 /CLB	
HVIN	EMP 500 v7 /CLB	
FVIN	EMP7.50.18; BLE1.00.18	
HMN	N/A	
FCC-ID	2AVM3EMP500V7CLB	
IC	25831-EMP500V7CLB	
Equipment type	End Product	
Radio type	Transceiver	
Assigned frequency bands	2400 - 2483.5 MHz	
Radio technology	Bluetooth LE	
Modulation	GFSK	
Number of antenna ports	1	
Radio Module	Type	Bluetooth
	Model	CYBLE-222014-01
	Manufacturer	Cypress
	HW Version	WAP2005
	SW Version	7922A-2005
Antenna	Type	Integrated ceramic antenna
	Model	2450AT18B100
	Manufacturer	Johanson Technology
	Gain	-0.5 dBi (manufacturer declaration)
Supply Voltage	V _{NOM}	12 VDC
Operating Temperature	T _{NOM}	25 °C
AC/DC-Adaptor	Model	None
	Vendor	None
	Input	None
	Output	None
Manufacturer	wh Münzprüfer Dietmar Trenner GmbH Teltower Damm 276 14167 Berlin GERMANY	

1.1 Photos – Equipment External

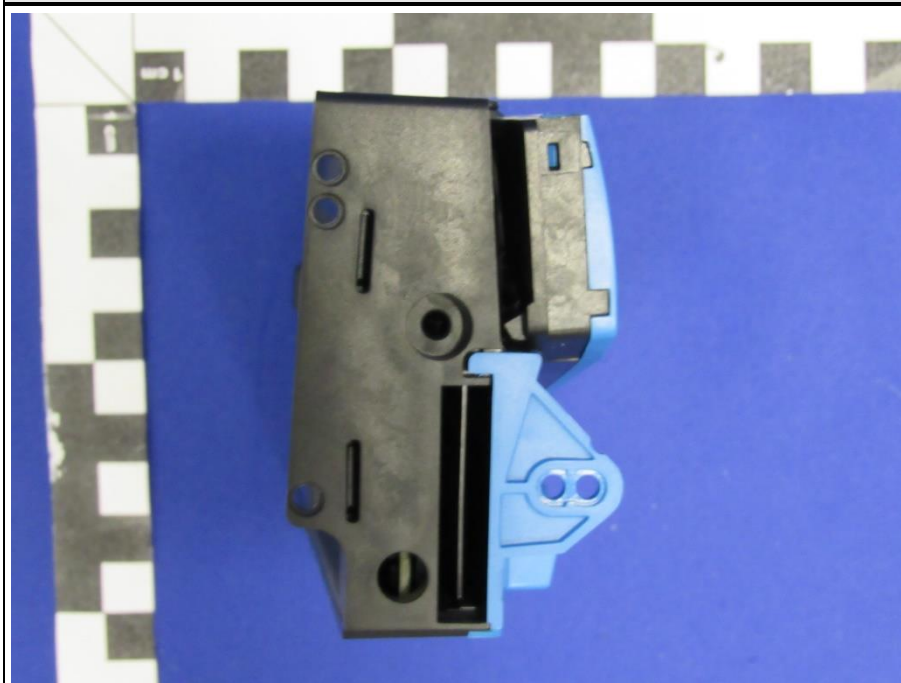




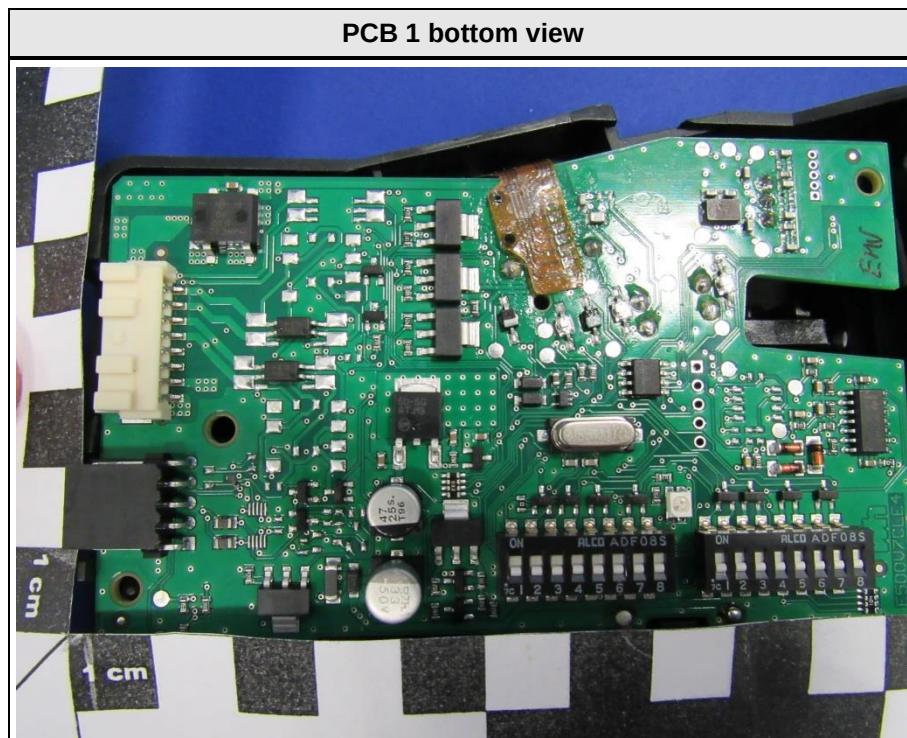
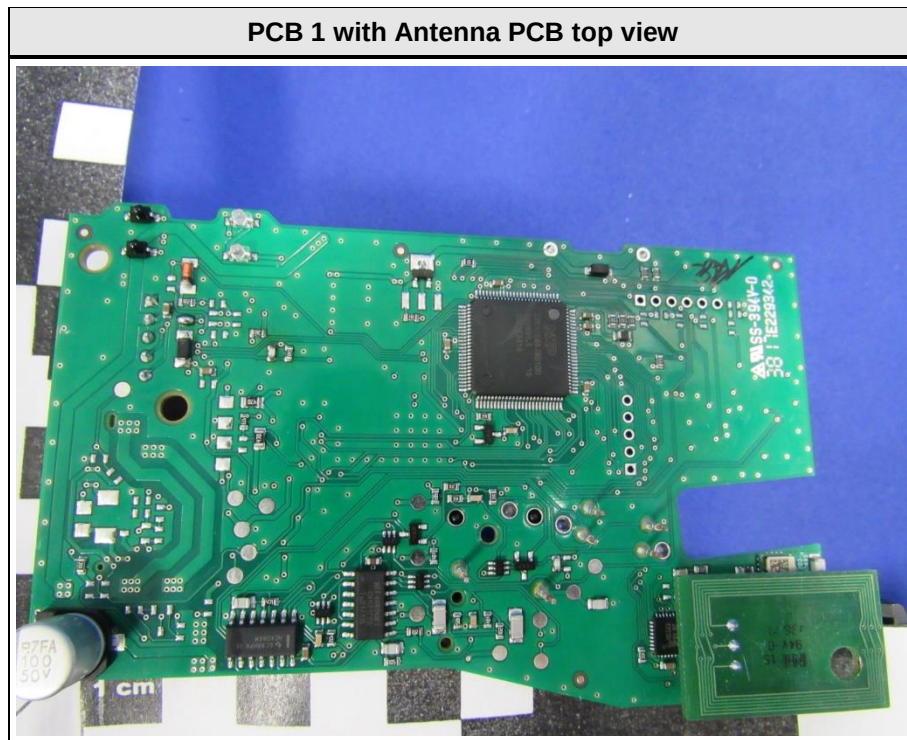
EUT right side



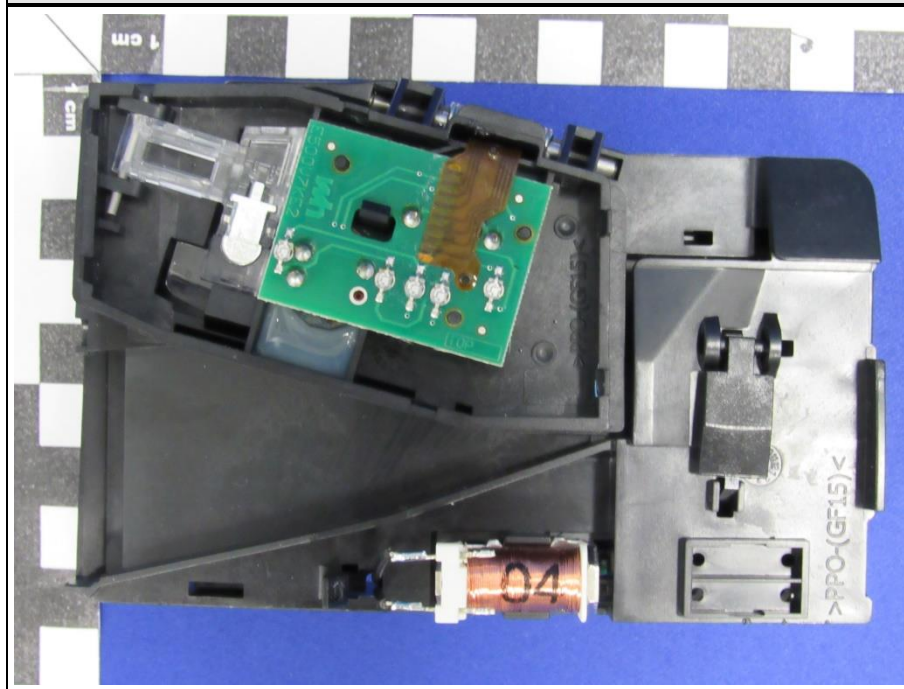
EUT left side



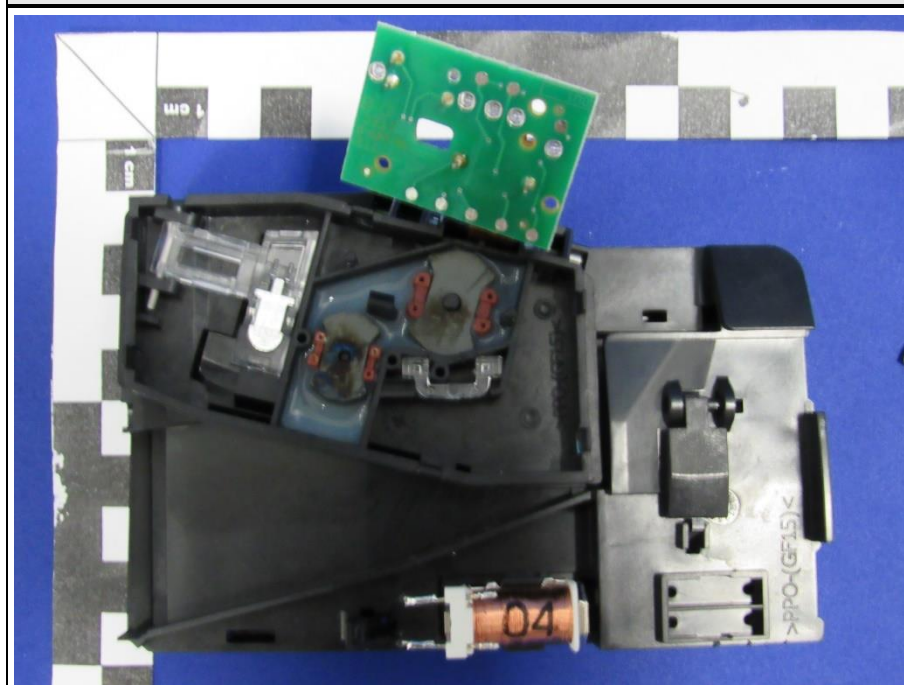
1.2 Photos – Equipment Internal



PCB 2 top view



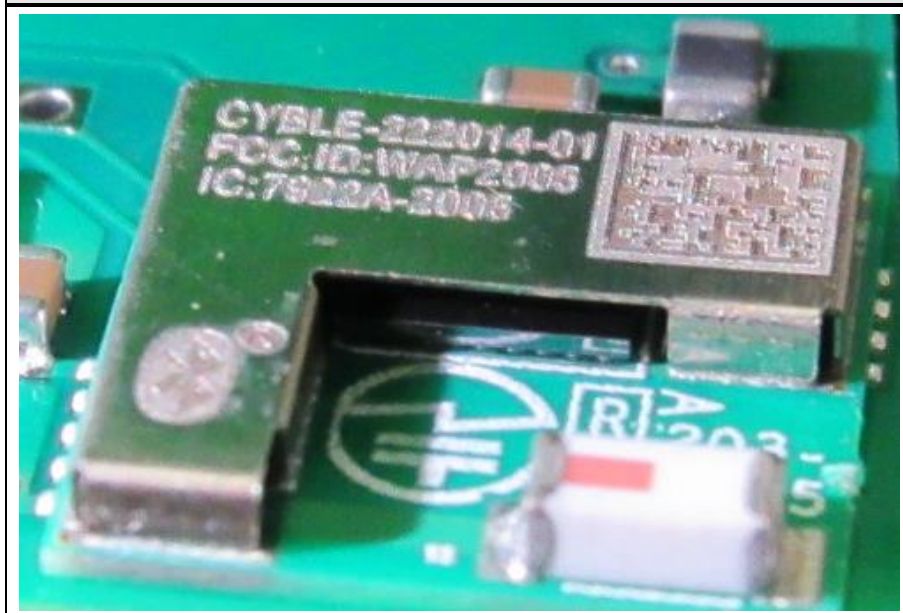
PCB 2 bottom view



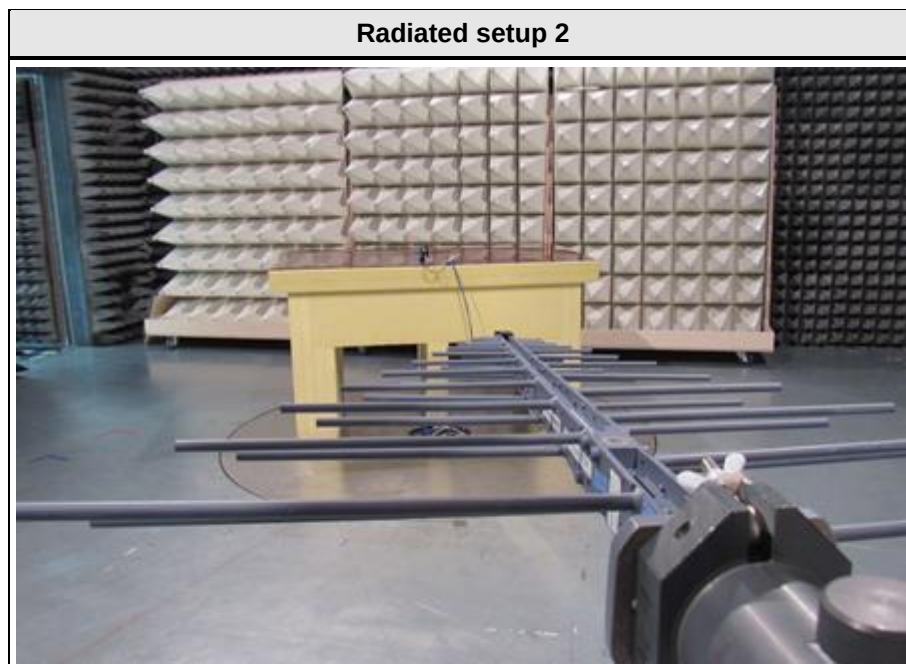
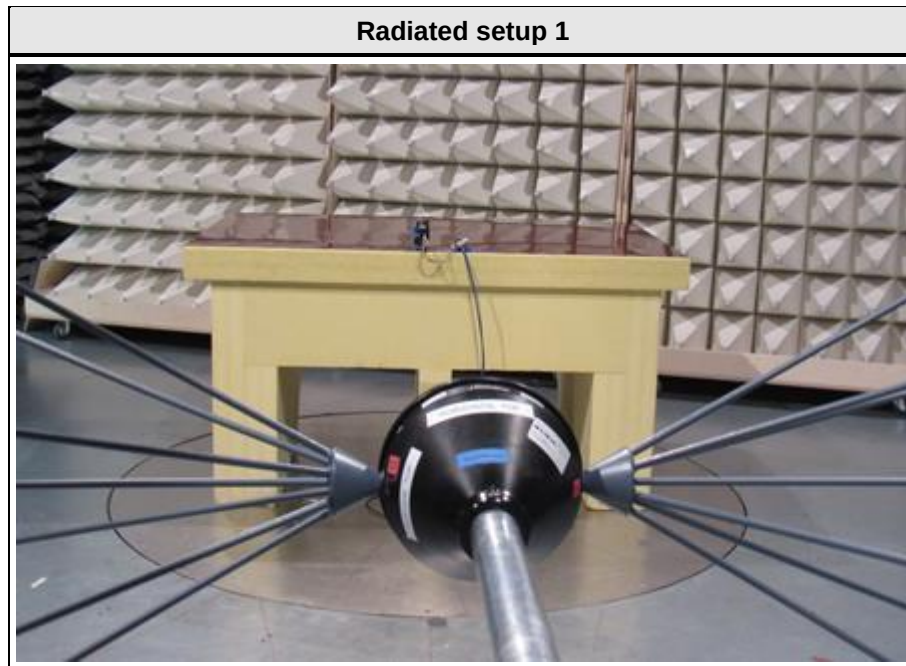
RFID PCB



Bluetooth module



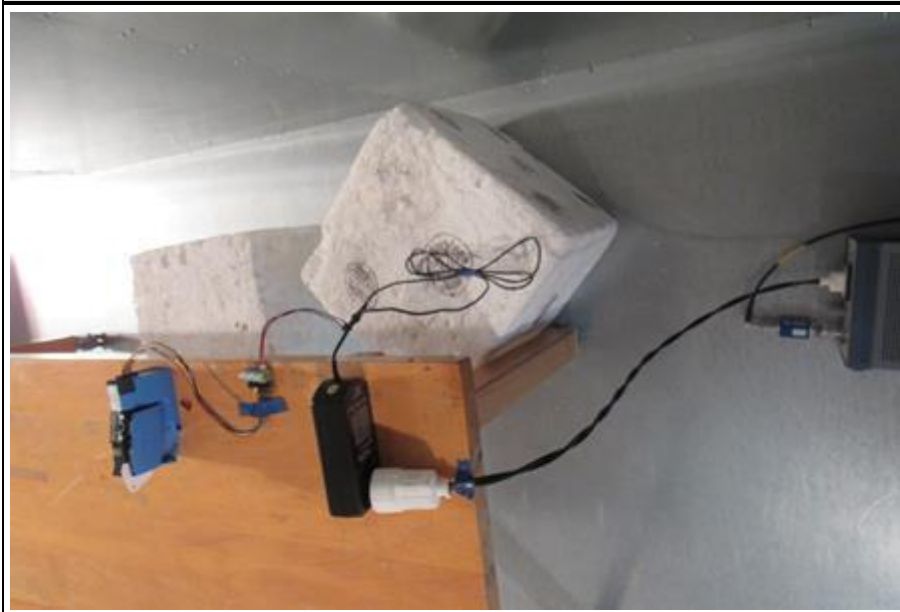
1.3 Photos – Test Setup



Radiated setup 3



Conducted Setup



1.4 Support Equipment

Product Type	Device	Manufacturer	Model	Comment
AE	Wideband radio communication tester	R&S	CMW 270	Test mode control
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%
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:

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

Net:

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

Limit:

This is the FCC Class B radiated emission limit (in units of dBμV/m). The FCC limits are given in units of μV/m. The following formula is used to convert the units of μV/m to dBμV/m:

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

Margin:

This is the margin of compliance below the FCC limit. The units are given in dB. A negative margin indicates the emission was below the limit. A positive margin indicates that the emission exceeds the limit.

Example only:

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

2 Result Summary

FCC 47 CFR Part 15C, ISED RSS-247				
Product Standard Reference	Requirement	Reference Method	Result	Remarks
ISED RSS-Gen, Issue 5 (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 - Occupied bandwidth

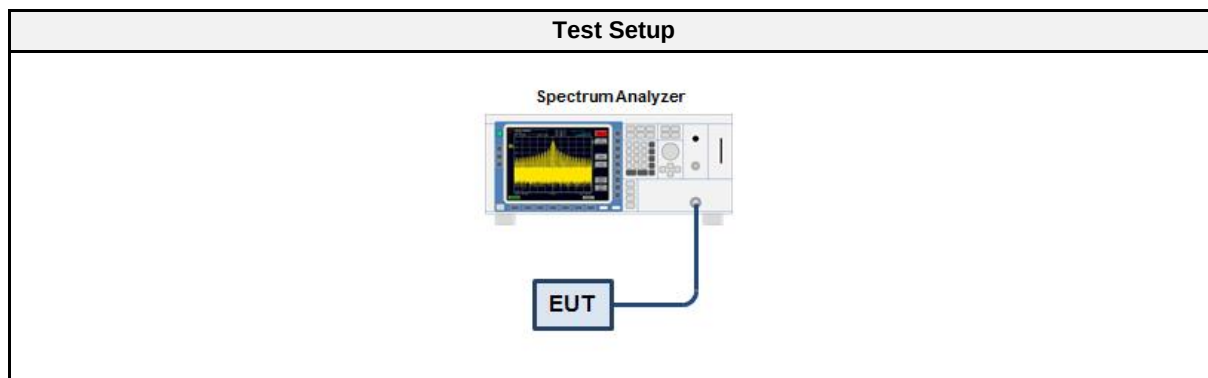
3.1.1 Information

Test Information	
Reference	ISED RSS-Gen, Issue 5 (section 6.6)
Measurement Method	ANSI C63.10 6.9.3
Operator	Wilfried Treffke
Date	2020-01-23

3.1.2 Limits

Limits
None (Informational only)

3.1.3 Setup



3.1.4 Equipment

Test Equipment					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyzer	R&S	FSU 26	EF01407	2019-07	2020-07

3.1.5 Procedure

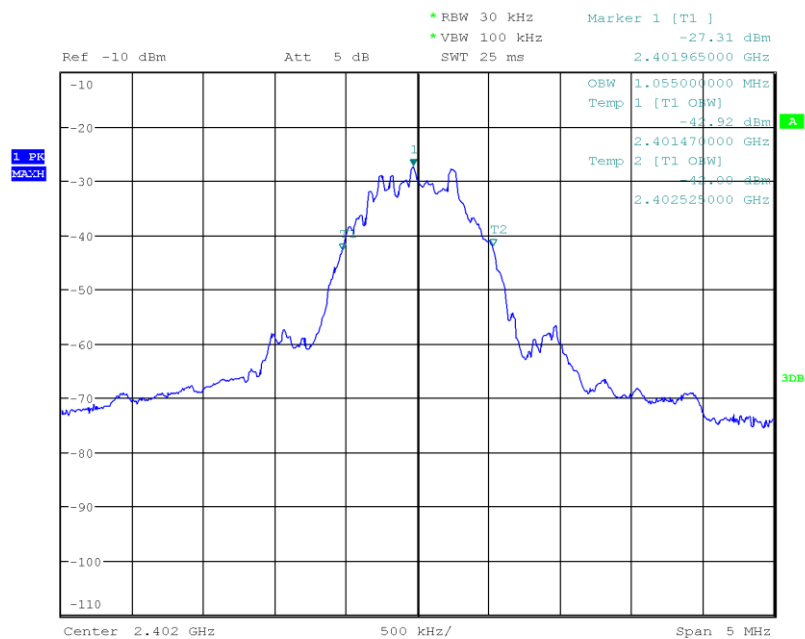
Test Procedure
1. EUT transmitter is activated in test mode under normal conditions 2. The spectrum analyzer is set to peak detection and maximum hold with a span twice the emission spectrum 3. The resolution bandwidth is set to the range of 1 % to 5 % of the occupied bandwidth 4. The occupied bandwidth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

3.1.6 Results

Test Results		
Mode	Frequency [MHz]	Bandwidth [MHz]
GFSK	2402	1.055
GFSK	2440	1.055
GFSK	2480	1.055

Occupied Bandwidth

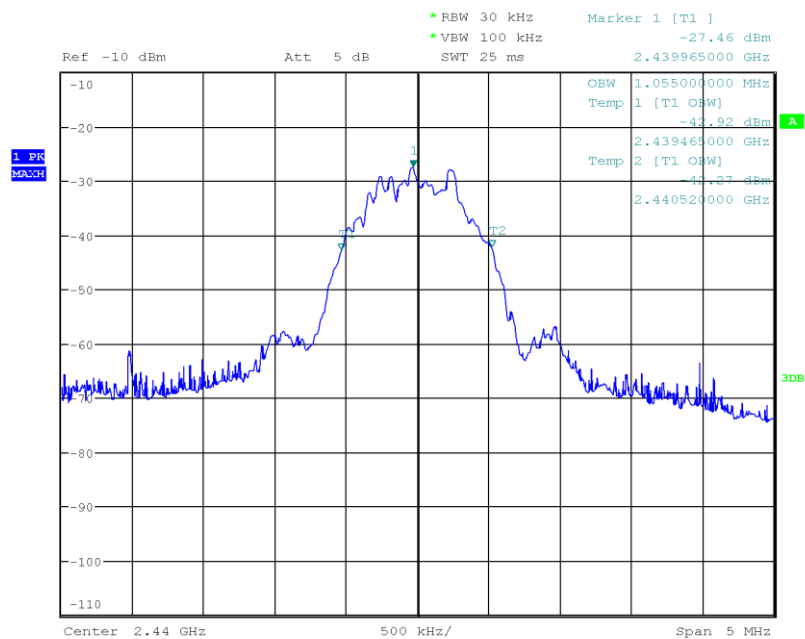
Project Number: G0M-1912-8654
 Applicant: wh Münzprüfer Dietmar Trenner GmbH
 Model Description: Coin selector
 Model: EMP 500 v7 /CLB
 Test Sample ID: 27373
 Reference Standards: FCC 15.247, RSS-247
 Reference Method: ANSI C63.10:2013, Section 6.9.3
 Operational Mode: GFSK, Channel: 0, 2402 MHz
 Operating Conditions: Tnom/Vnom
 Operator: Wilfried Treffke
 Test Site: Eurofins Product Service GmbH
 Test Date: 2020-01-23
 Occupied Bandwidth [MHz]: 1.055



Date: 23.JAN.2020 11:30:03

Occupied Bandwidth

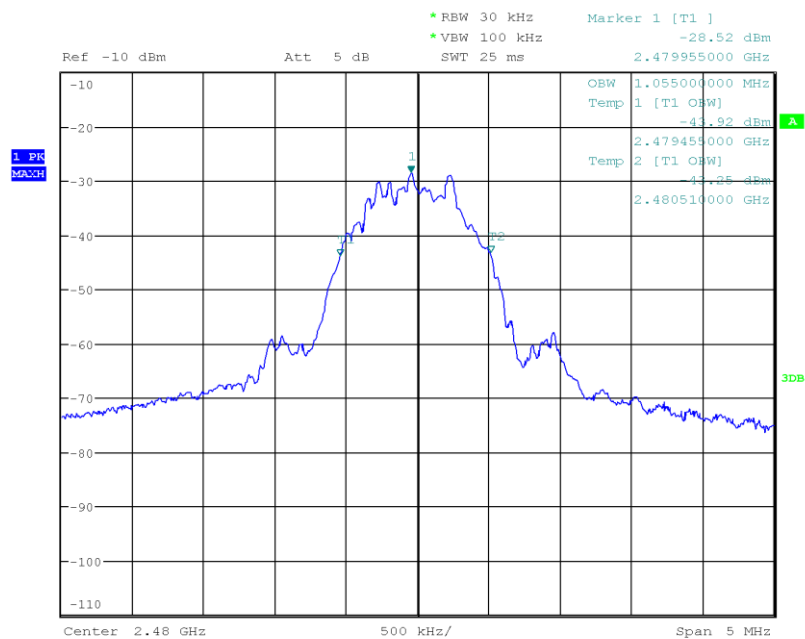
Project Number: G0M-1912-8654
 Applicant: wh Münzprüfer Dietmar Trenner GmbH
 Model Description: Coin selector
 Model: EMP 500 v7 /CLB
 Test Sample ID: 27373
 Reference Standards: FCC 15.247, RSS-247
 Reference Method: ANSI C63.10:2013, Section 6.9.3
 Operational Mode: GFSK, Channel: 19, 2440 MHz
 Operating Conditions: Tnom/Vnom
 Operator: Wilfried Treffke
 Test Site: Eurofins Product Service GmbH
 Test Date: 2020-01-23
 Occupied Bandwidth [MHz]: 1.055



Date: 23.JAN.2020 11:32:33

Occupied Bandwidth

Project Number: G0M-1912-8654
 Applicant: wh Münzprüfer Dietmar Trenner GmbH
 Model Description: Coin selector
 Model: EMP 500 v7 /CLB
 Test Sample ID: 27373
 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: Wilfried Treffke
 Test Site: Eurofins Product Service GmbH
 Test Date: 2020-01-23
 Occupied Bandwidth [MHz]: 1.055



Date: 23.JAN.2020 11:34:18

3.2 Test Conditions and Results - AC powerline conducted emissions

3.2.1 Information

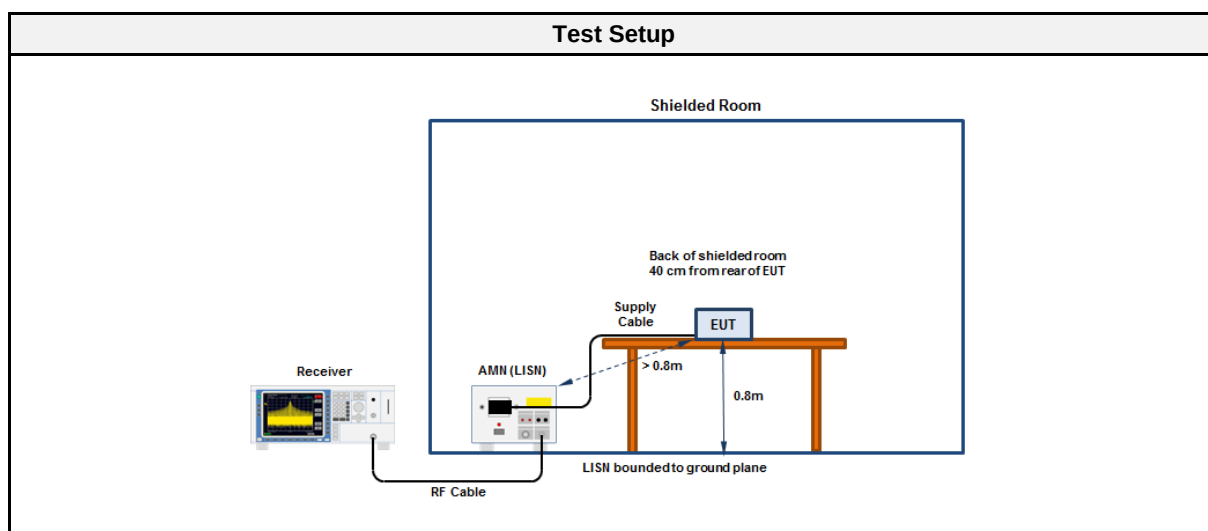
Test Information	
Reference	FCC § 15.207; ISED RSS-247, Issue 2 (section 3.1)
Measurement Method	ANSI C63.10 6.2
Operator	Wilfried Treffke
Date	2020-01-15

3.2.2 Limits

Limits		
Frequency [MHz]	Quasi-Peak [dBμV]	Average [dBμV]
0.15 - 0.5	66 - 56*	56 - 46*
0.5 - 5	56	46
5 - 30	60	50

* Limit decreases linearly with the logarithm of the frequency

3.2.3 Setup



3.2.4 Equipment

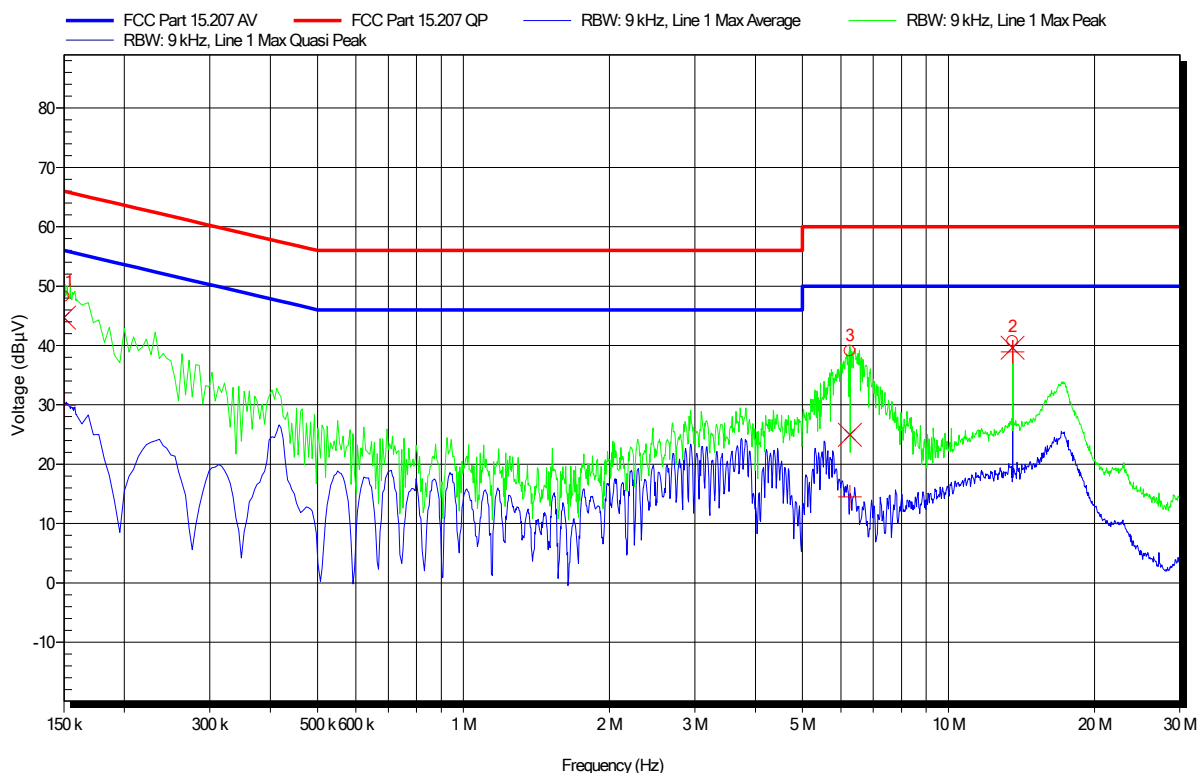
Test Software			
Description	Manufacturer	Name	Version
EMC Software	DARE Instruments	RadiMation	2016.1.10

Test Equipment					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
EMI Test Receiver	R&S	ESR7	EF00943	2019-10	2020-10
LISN	R&S	ESH3-Z5	EF00036	2019-07	2021-07

Conducted emissions at the mains power port according to FCC Part 15 B

Project Number: G0M-1912-8654
 Applicant: wh Münzprüfer Berlin GmbH
 Model Description: Coin selector
 Model: EMP 500 v7 /CLB
 Test Sample ID: 27373
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Date: 2020-01-15
 Operating Conditions: ambient temperature: 23
 power input: 120 V 60 Hz
 LISN: ESH3-Z5 (L)
 Mode: BLE + NFC

Index 8



Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	LISN
1	150 kHz	44.7 dBμV	66 dBμV	-21.3 dB	Pass	Line 1
2	13.561 MHz	39.6 dBμV	60 dBμV	-20.4 dB	Pass	Line 1
3	6.262 MHz	24.96 dBμV	60 dBμV	-35.04 dB	Pass	Line 1

Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status	LISN
1	150 kHz	29.93 dBμV	56 dBμV	-26.07 dB	Pass	Line 1
2	13.561 MHz	38.92 dBμV	50 dBμV	-11.08 dB	Pass	Line 1
3	6.262 MHz	14.46 dBμV	50 dBμV	-35.54 dB	Pass	Line 1

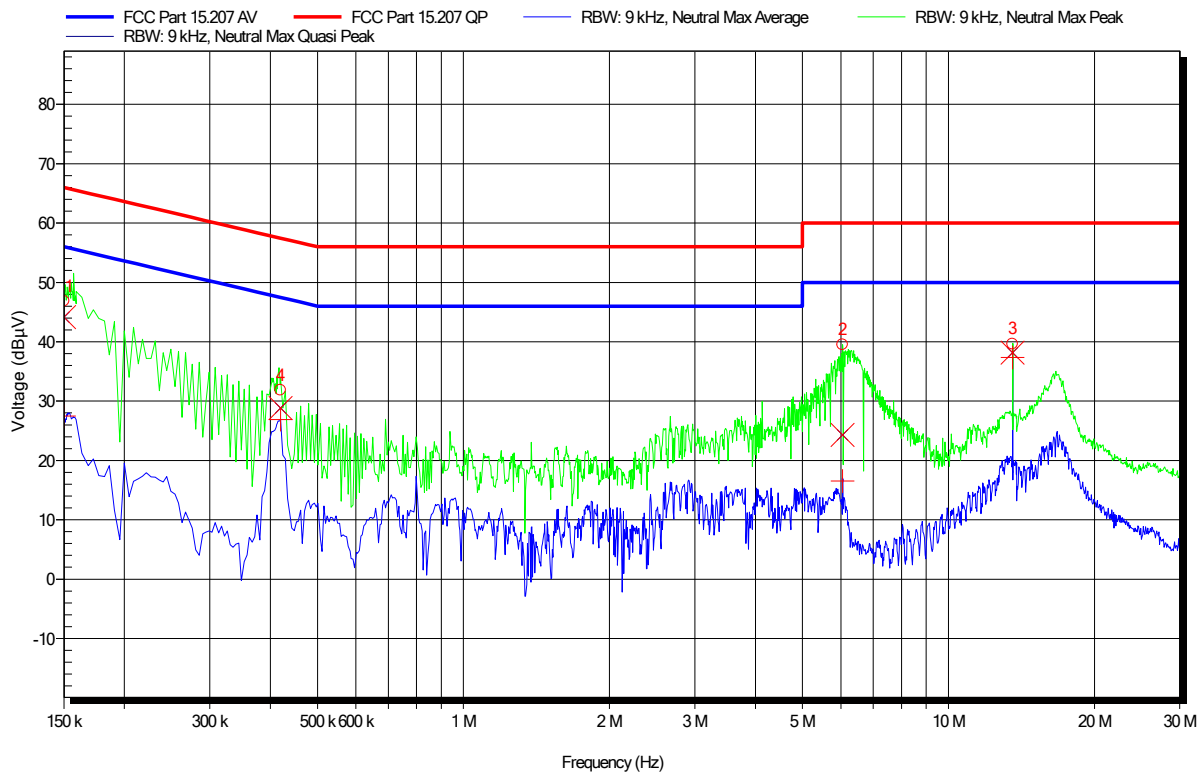
Test Report No.: G0M-1912-8654-TFC247BL-V01

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

Conducted emissions at the mains power port according to FCC Part 15 B

Project Number: G0M-1912-8654
 Applicant: wh Münzprüfer Berlin GmbH
 Model Description: Coin selector
 Model: EMP 500 v7 /CLB
 Test Sample ID: 27373
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Date: 2020-01-15
 Operating Conditions: ambient temperature: 23
 power input: 120 V 60 Hz
 LISN: ESH3-Z5 (N)
 Mode: BLE + NFC

Index 9



Peak Number	Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status	LISN
1	150 kHz	44.16 dBµV	66 dBµV	-21.84 dB	Pass	Neutral
2	6.048 MHz	24.28 dBµV	60 dBµV	-35.72 dB	Pass	Neutral
3	13.561 MHz	38.17 dBµV	60 dBµV	-21.83 dB	Pass	Neutral
4	420 kHz	28.85 dBµV	57.45 dBµV	-28.6 dB	Pass	Neutral

Peak Number	Frequency	Average	Average Limit	Average Difference	Average Status	LISN
1	150 kHz	27.51 dBµV	56 dBµV	-28.49 dB	Pass	Neutral
2	6.048 MHz	16.54 dBµV	50 dBµV	-33.46 dB	Pass	Neutral
3	13.561 MHz	37.34 dBµV	50 dBµV	-12.66 dB	Pass	Neutral
4	420 kHz	26.88 dBµV	47.45 dBµV	-20.57 dB	Pass	Neutral

Test Report No.: G0M-1912-8654-TFC247BL-V01

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

3.3 Test Conditions and Results - Transmitter radiated emissions

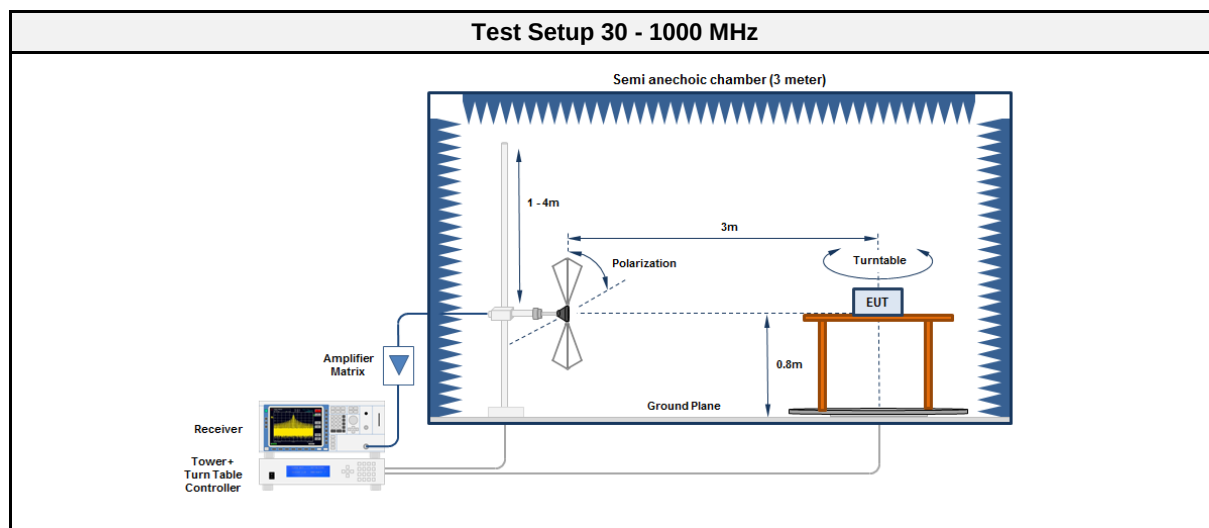
3.3.1 Information

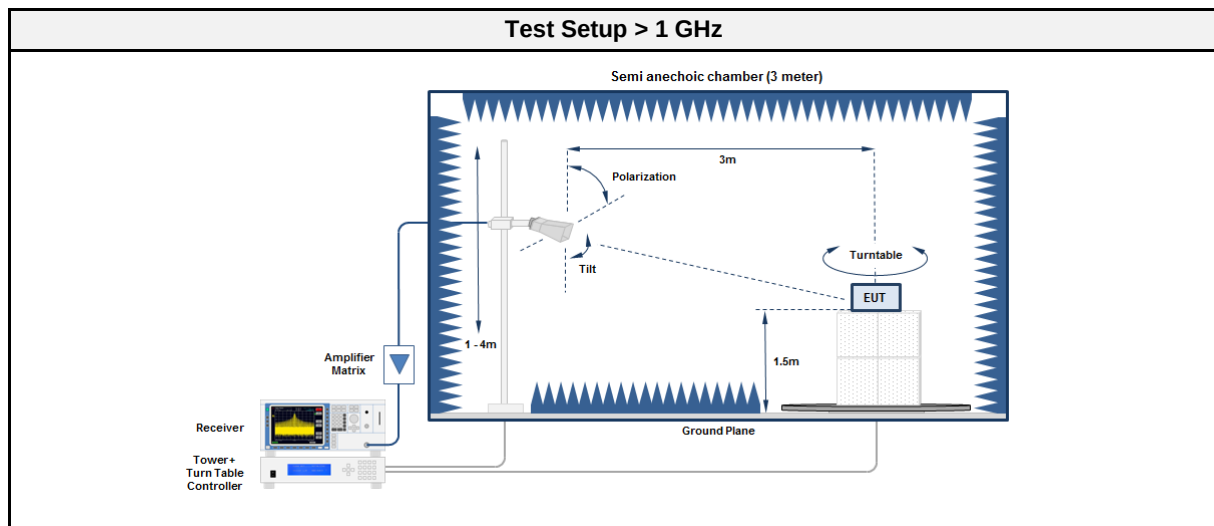
Test Information	
Reference	FCC § 15.247(d); FCC § 15.209; ISSED RSS-Gen, Issue 5 (section 6.13)
Measurement Method	ANSI C63.10 6.4, 6.5, 6.6, 11.12
Operator	Wilfried Treffke
Date	2020-01-15

3.3.2 Limits

Limits			
Frequency [MHz]	Detector	Field strength [$\mu\text{V/m}$]	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

3.3.3 Setup





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	2019-09	2020-09
Antenna	R&S	HK 116	EF00030	2019-04	2022-04
Antenna	R&S	HL 223	EF00212	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
Measurement Receiver	Agilent	N9038A-526/WXP	EF01070	2019-09	2020-09
Antenna	Schwarzbeck	BBHA 9120D	EF00018	2019-10	2022-10
Antenna	Amplifier Research	AT4560	EF00302	2019-05	2020-05

3.3.5 Procedure

Test Procedure < 30 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 EUT is rotated through 360° 4. The emissions are measured with peak detector and max hold 5. All significant emissions are measured again using the corresponding final detector	

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]
2402	2390	52.46	pk	hor	74.00	-21.54
2402	2390	38.49	RMS	hor	54.00	-15.51
2402	4803	44.74	pk	hor	74.00	-29.26
2402	4803	40.18	RMS	hor	54.00	-13.82
2402	4803	42.44	pk	ver	74.00	-31.56
2402	4803	37.50	RMS	ver	54.00	-16.50
2440	4879	43.77	pk	ver	74.00	-30.23
2440	4879	38.96	RMS	ver	54.00	-15.04
2440	4881	44.80	pk	hor	74.00	-29.20
2440	4881	40.70	RMS	hor	54.00	-13.30
2480	2483.5	58.77	pk	hor	74.00	-15.23
2480	2483.5	39.36	RMS	hor	54.00	-14.64
2480	2483.9	53.79	pk	ver	74.00	-20.21
2480	2483.9	39.33	RMS	ver	54.00	-14.67
2480	4960	47.86	pk	hor	74.00	-26.14
2480	4960	43.76	RMS	hor	54.00	-10.24

3.4 Test Conditions and Results - Receiver radiated emissions

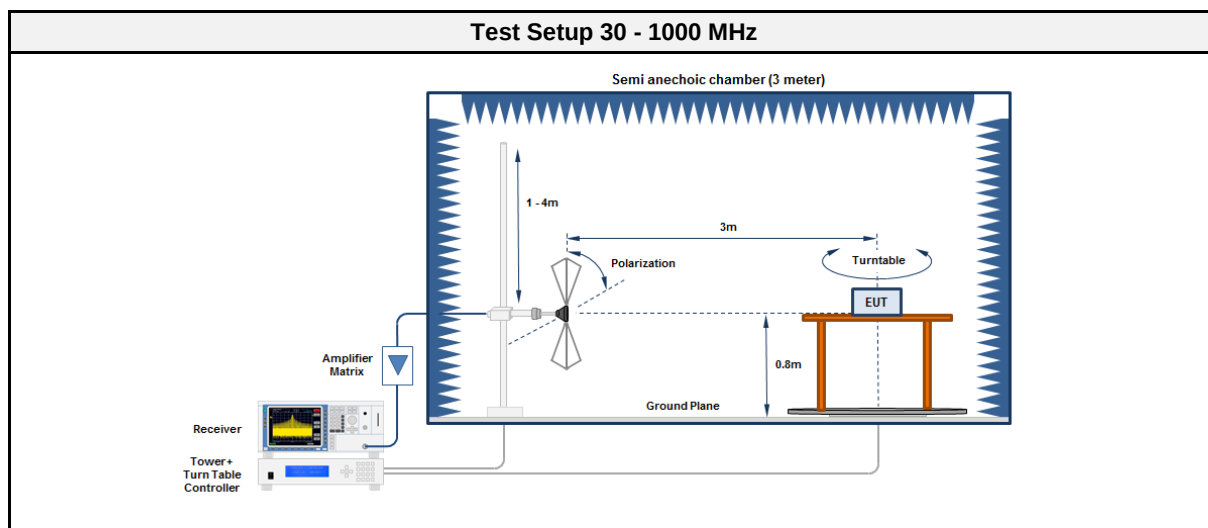
3.4.1 Information

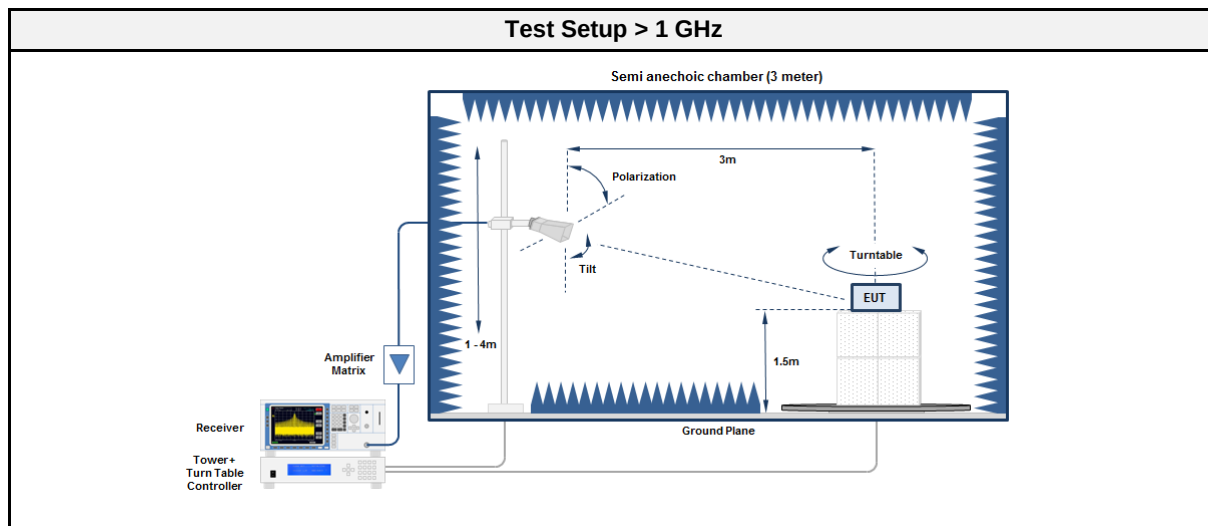
Test Information	
Reference	ISED RSS-247, Issue 2 (section 3.1)
Measurement Method	ANSI C63.10 6.5, 6.6, 11.12
Operator	Wilfried Treffke
Date	2020-01-16

3.4.2 Limits

Limits			
Frequency [MHz]	Detector	Field strength [dB μ V/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

3.4.3 Setup





3.4.4 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	2019-09	2020-09
Antenna	R&S	HK 116	EF00030	2019-04	2022-04
Antenna	R&S	HL 223	EF00212	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
Measurement Receiver	Agilent	N9038A-526/WXP	EF01070	2019-09	2020-09
Antenna	Schwarzbeck	BBHA 9120D	EF00018	2019-10	2022-10
Antenna	Amplifier Research	AT4560	EF00302	2019-05	2020-05

3.4.5 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						

3.4.6 Results

Test Results						
Channel [MHz]	Emission [MHz]	Level [dBμV/m]	Det.	Pol.	Limit [dBμV/m]	Margin [dB]
2440	3702	29.34	pk	ver	53.98	-24.64
2440	4878	46.14	pk	hor	53.98	-07.84
2440	4878	45.64	avg	hor	53.98	-08.34
2440	4878	43.30	pk	ver	53.98	-10.68
2440	4878	41.17	avg	ver	53.98	-12.81
2440	11570	44.14	pk	ver	53.98	-09.84

ANNEX A Transmitter spurious emissions

Spurious emissions according to FCC 47 e-CFR §15.247

Project number: G0M-1912-8654

Applicant: wh Münzprüfer Berlin GmbH

EUT Name: Coin selector

Model: EMP 500 v7 /CLB

Test Site:

Operator: Wilfried Treffke

Test Conditions: Tnom: 23°C, Vnom: 12 VDC (AC/DC adaptor)

Antenna: Rohde & Schwarz HK 116, Horizontal

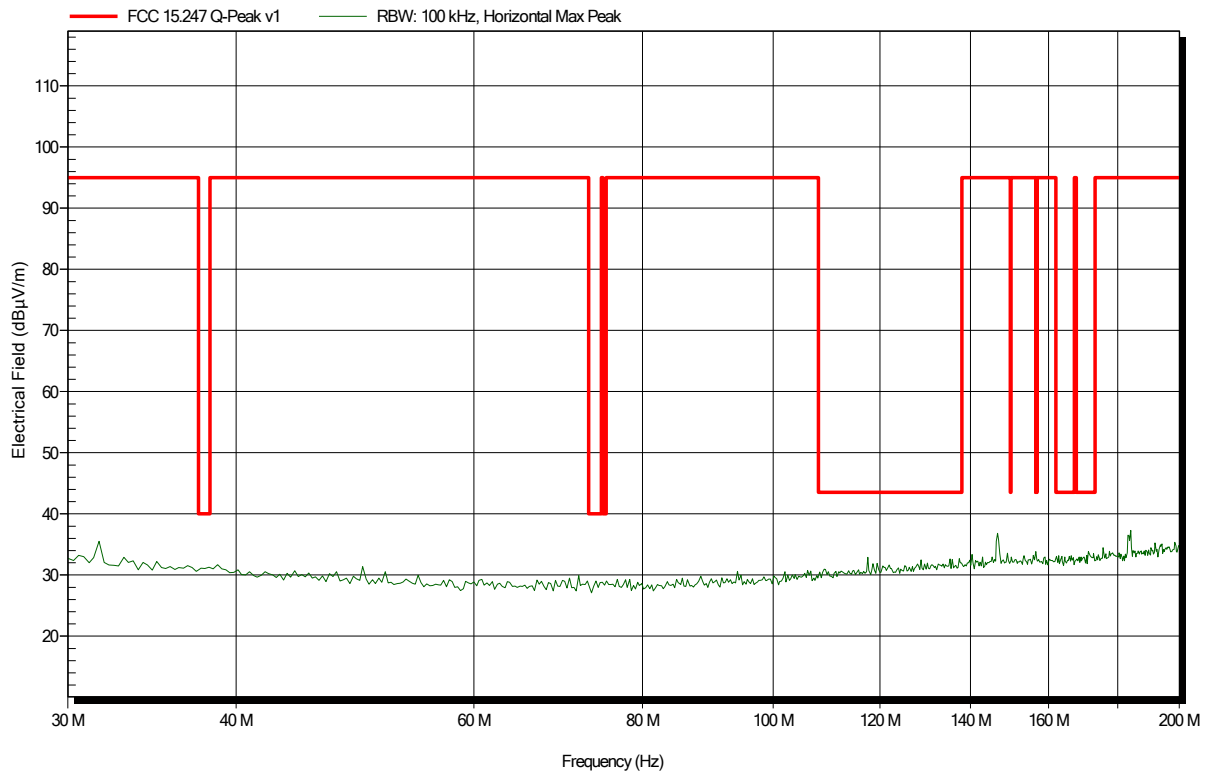
Measurement distance: 3 m

Mode: TX; BLE; GFSK; 2402 MHz

Test Date: 2020-01-15

Note:

Index 13



Spurious emissions according to FCC 47 e-CFR §15.247

Project number: G0M-1912-8654

Applicant: wh Münzprüfer Berlin GmbH

EUT Name: Coin selector

Model: EMP 500 v7 /CLB

Test Site:

Operator: Wilfried Treffke

Test Conditions: Tnom: 23°C, Vnom: 12 VDC (AC/DC adaptor)

Antenna: Rohde & Schwarz HK 116, Vertical

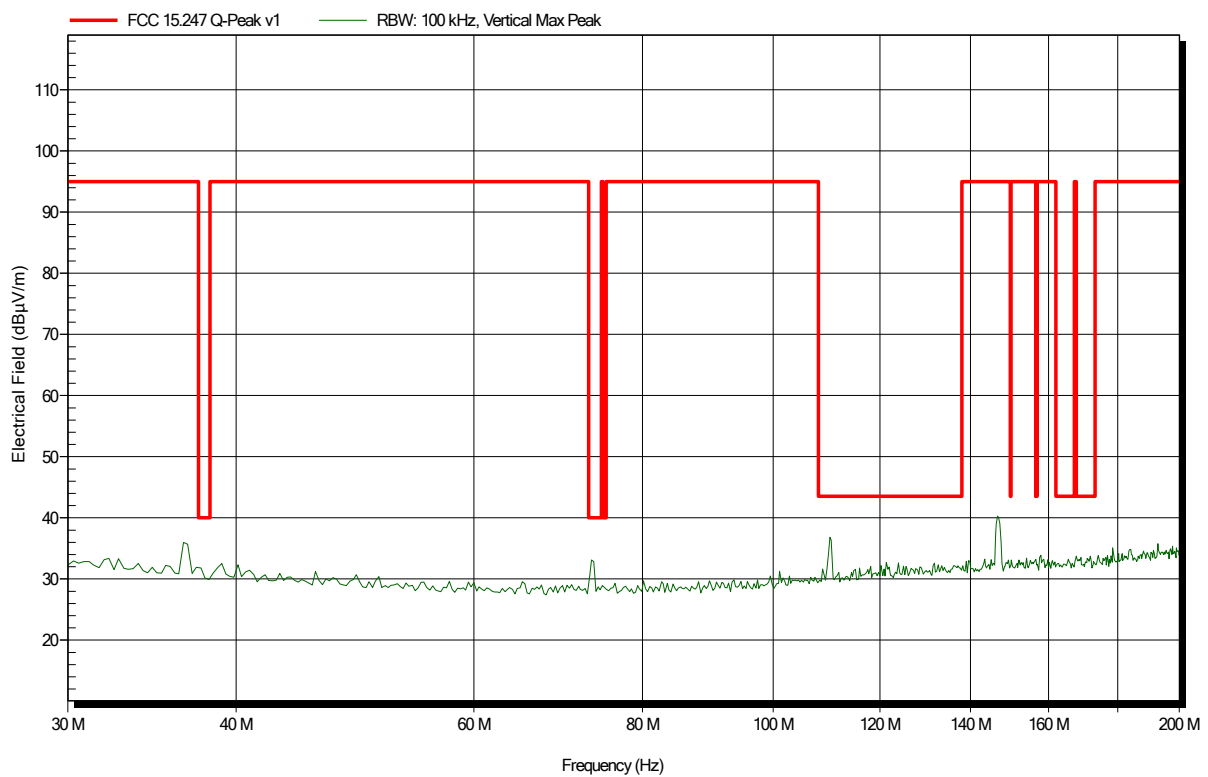
Measurement distance: 3 m

Mode: TX; BLE; GFSK; 2402 MHz

Test Date: 2020-01-15

Note:

Index 14



Spurious emissions according to FCC 47 e-CFR §15.247

Project number: G0M-1912-8654

Applicant: wh Münzprüfer Berlin GmbH

EUT Name: Coin selector

Model: EMP 500 v7 /CLB

Test Site:

Operator: Wilfried Treffke

Test Conditions: Tnom: 23°C, Vnom: 12 VDC (AC/DC adaptor)

Antenna: Rohde & Schwarz HL 223, Horizontal

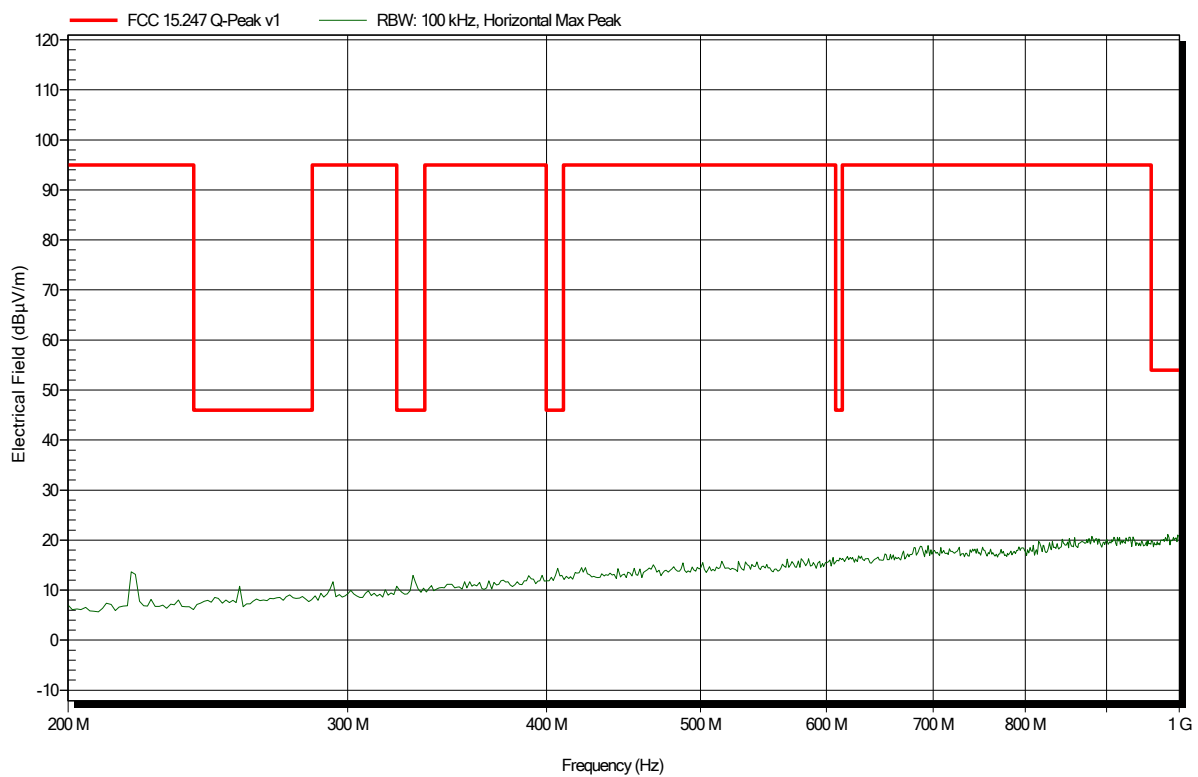
Measurement distance: 3 m

Mode: TX; BLE; GFSK; 2402 MHz

Test Date: 2020-01-15

Note:

Index 11



Spurious emissions according to FCC 47 e-CFR §15.247

Project number: G0M-1912-8654

Applicant: wh Münzprüfer Berlin GmbH

EUT Name: Coin selector

Model: EMP 500 v7 /CLB

Test Site:

Operator: Wilfried Treffke

Test Conditions: Tnom: 23°C, Vnom: 12 VDC (AC/DC adaptor)

Antenna: Rohde & Schwarz HL 223, Vertical

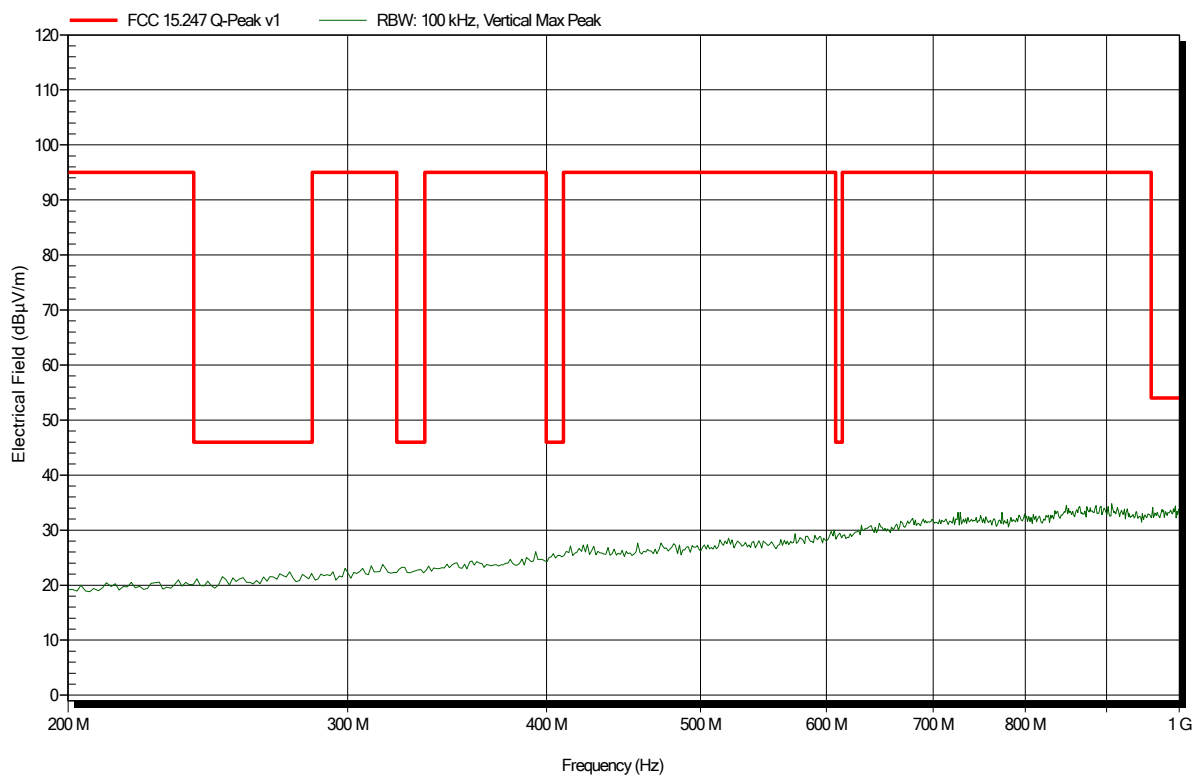
Measurement distance: 3 m

Mode: TX; BLE; GFSK; 2402 MHz

Test Date: 2020-01-15

Note:

Index 12



Spurious emissions according to FCC 47 e-CFR §15.247

Project number: G0M-1912-8654

Applicant: wh Münzprüfer Berlin GmbH

EUT Name: Coin selector

Model: EMP 500 v7 /CLB

Test Site:

Operator: Wilfried Treffke

Test Conditions: Tnom: 23°C, Vnom: 12 VDC (AC/DC adaptor)

Antenna: Schwarzbeck BBHA 9120D, Horizontal

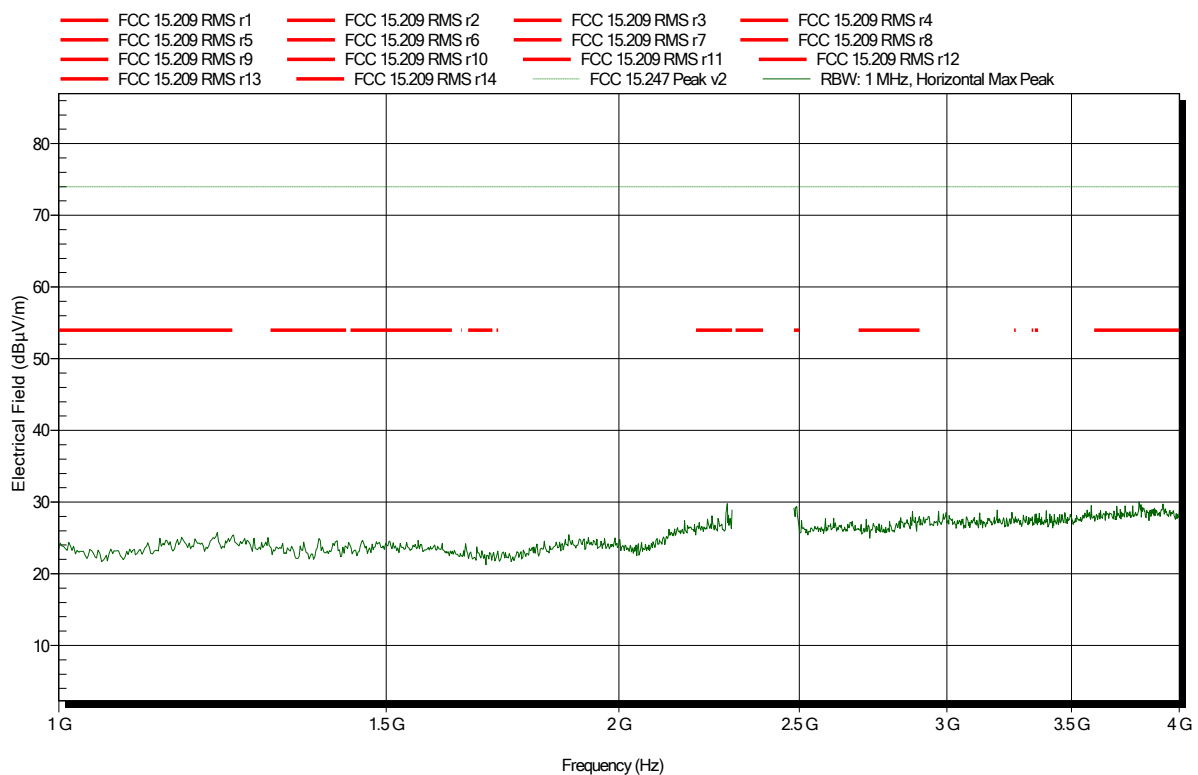
Measurement distance: 1 m converted to 3m

Mode: TX; BLE; GFSK; 2402 MHz

Test Date: 2020-01-15

Note:

Index 15



Spurious emissions according to FCC 47 e-CFR §15.247

Project number: G0M-1912-8654

Applicant: wh Münzprüfer Berlin GmbH

EUT Name: Coin selector

Model: EMP 500 v7 /CLB

Test Site:

Operator: Wilfried Treffke

Test Conditions: Tnom: 23°C, Vnom: 12 VDC (AC/DC adaptor)

Antenna: Schwarzbeck BBHA 9120D, Vertical

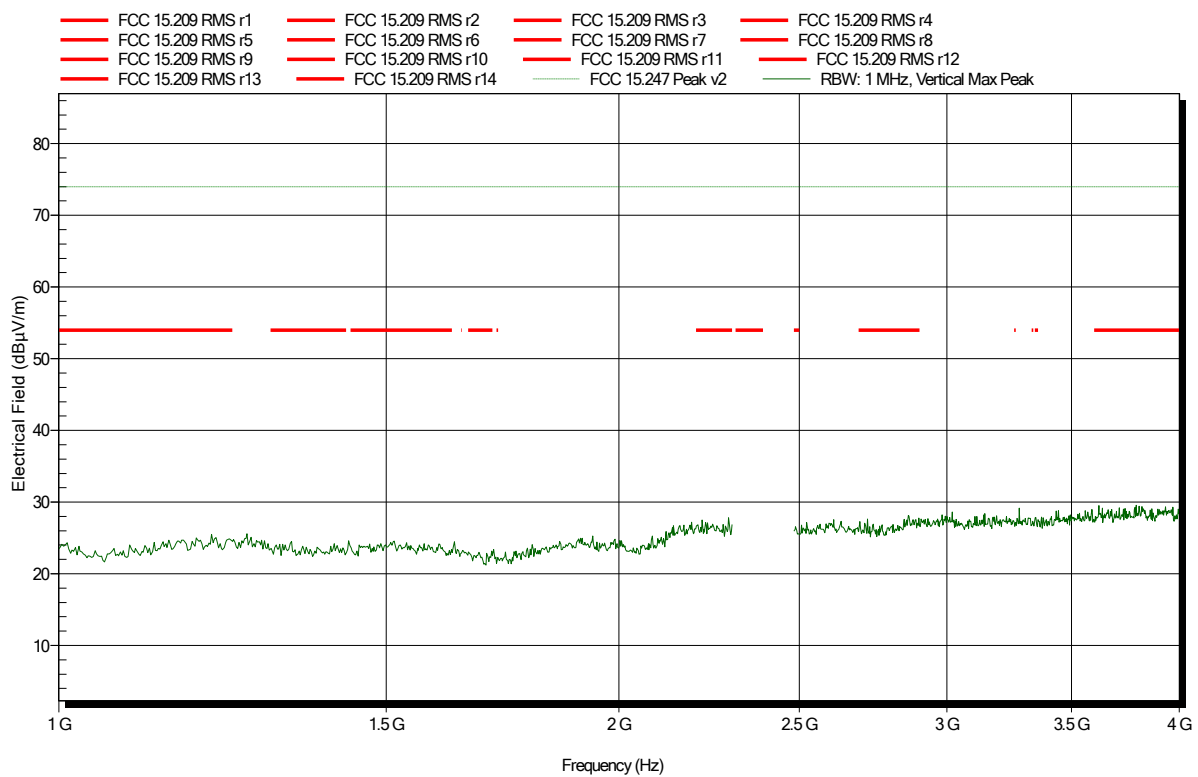
Measurement distance: 1 m converted to 3m

Mode: TX; BLE; GFSK; 2402 MHz

Test Date: 2020-01-15

Note:

Index 19

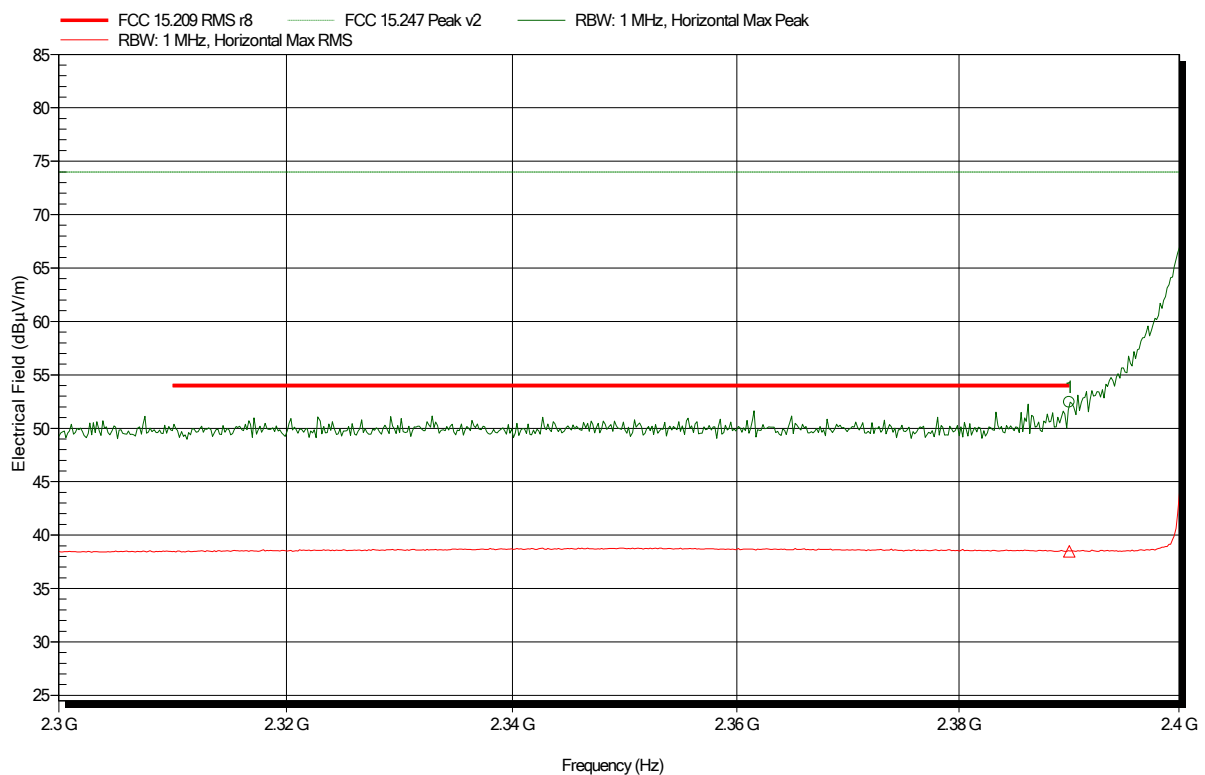


Spurious emissions according to FCC 47 e-CFR §15.247

Project number: G0M-1912-8654

Applicant: wh Münzprüfer Berlin GmbH
EUT Name: Coin selector
Model: EMP 500 v7 /CLB
Test Site:
Operator: Wilfried Treffke
Test Conditions: Tnom: 23°C, Vnom: 12 VDC (AC/DC adaptor)
Antenna: Schwarzbeck BBHA 9120D, Horizontal
Measurement distance: 1 m converted to 3m
Mode: TX; BLE; GFSK; 2402 MHz
Test Date: 2020-01-15
Note: lower bandedge

Index 24



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
2.39 GHz	52.46 dBµV/m	74 dBµV/m	-21.54 dB	Pass
Frequency	RMS	RMS Limit	RMS Difference	RMS Status
2.39 GHz	38.49 dBµV/m	54 dBµV/m	-15.51 dB	Pass

Spurious emissions according to FCC 47 e-CFR §15.247

Project number: G0M-1912-8654

Applicant: wh Münzprüfer Berlin GmbH

EUT Name: Coin selector

Model: EMP 500 v7 /CLB

Test Site:

Operator: Wilfried Treffke

Test Conditions: Tnom: 23°C, Vnom: 12 VDC (AC/DC adaptor)

Antenna: Schwarzbeck BBHA 9120D, Vertical

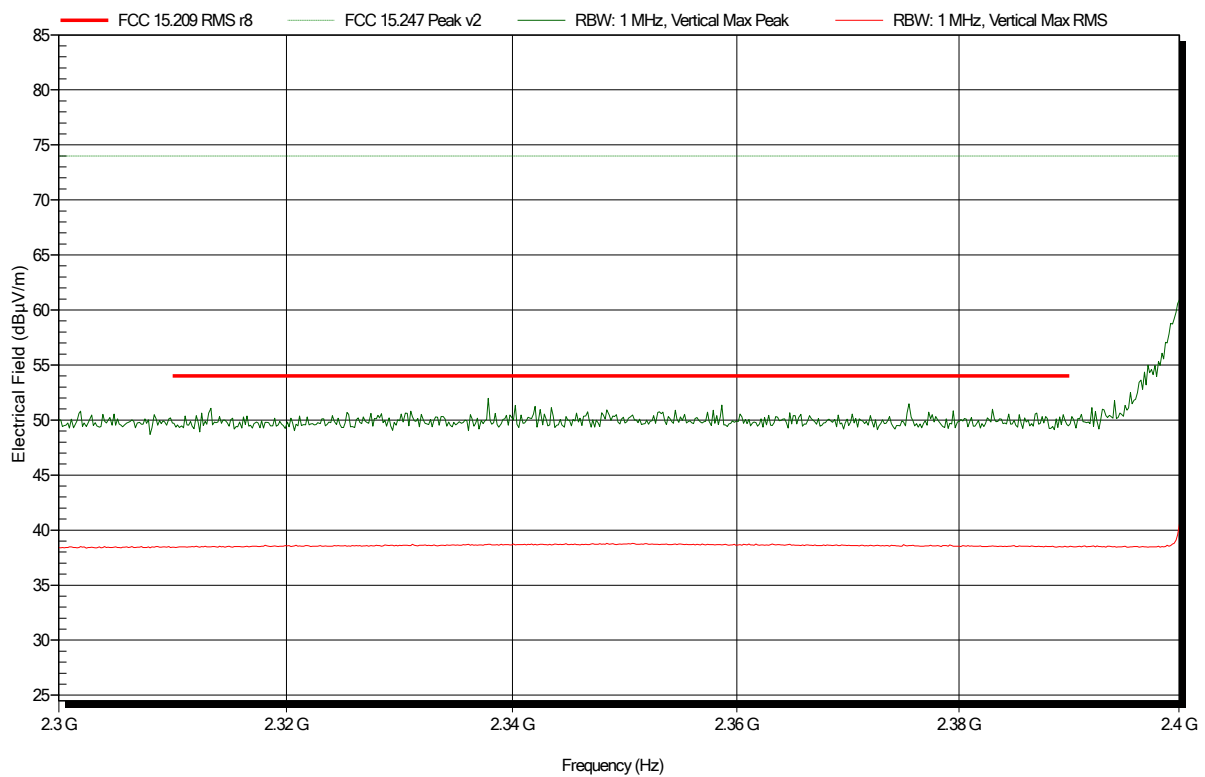
Measurement distance: 1 m converted to 3m

Mode: TX; BLE; GFSK; 2402 MHz

Test Date: 2020-01-15

Note: lower bandedge

Index 20

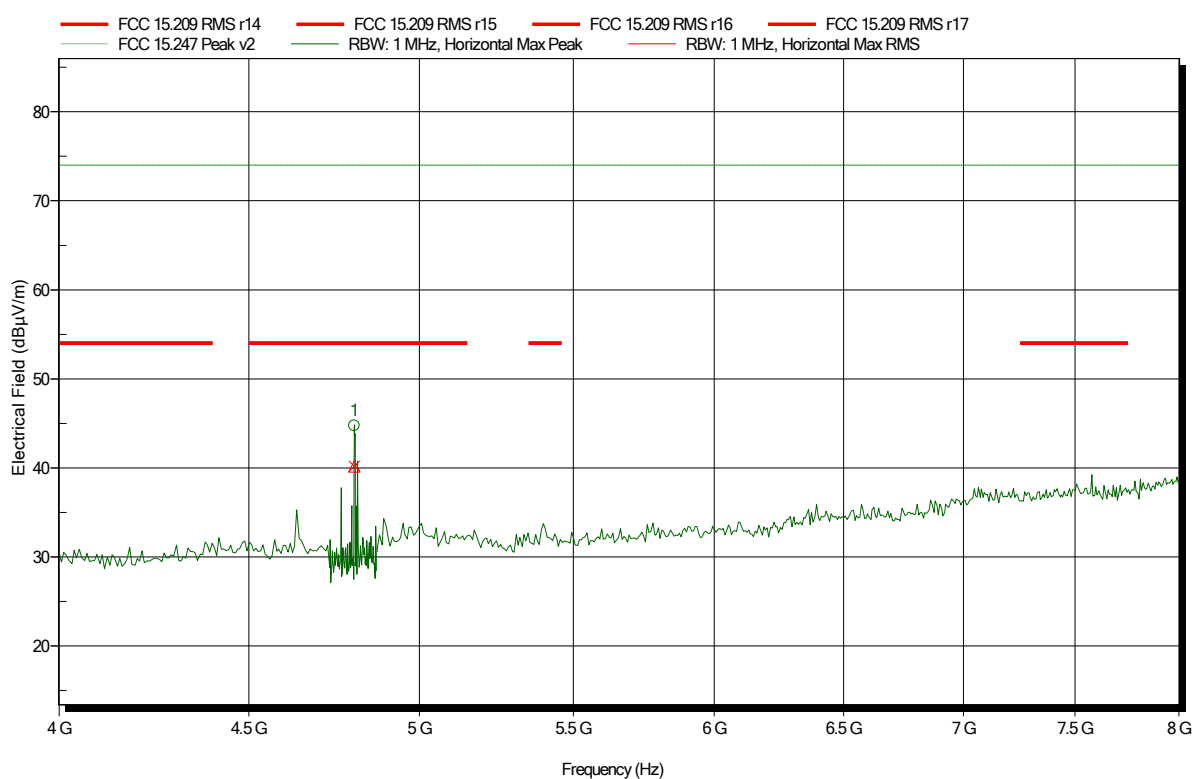


Spurious emissions according to FCC 47 e-CFR §15.247

Project number: G0M-1912-8654

Applicant: wh Münzprüfer Berlin GmbH
 EUT Name: Coin selector
 Model: EMP 500 v7 /CLB
 Test Site:
 Operator: Wilfried Treffke
 Test Conditions: Tnom: 23°C, Vnom: 12 VDC (AC/DC adaptor)
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 1 m converted to 3m
 Mode: TX; BLE; GFSK; 2402 MHz
 Test Date: 2020-01-15
 Note:

Index 16



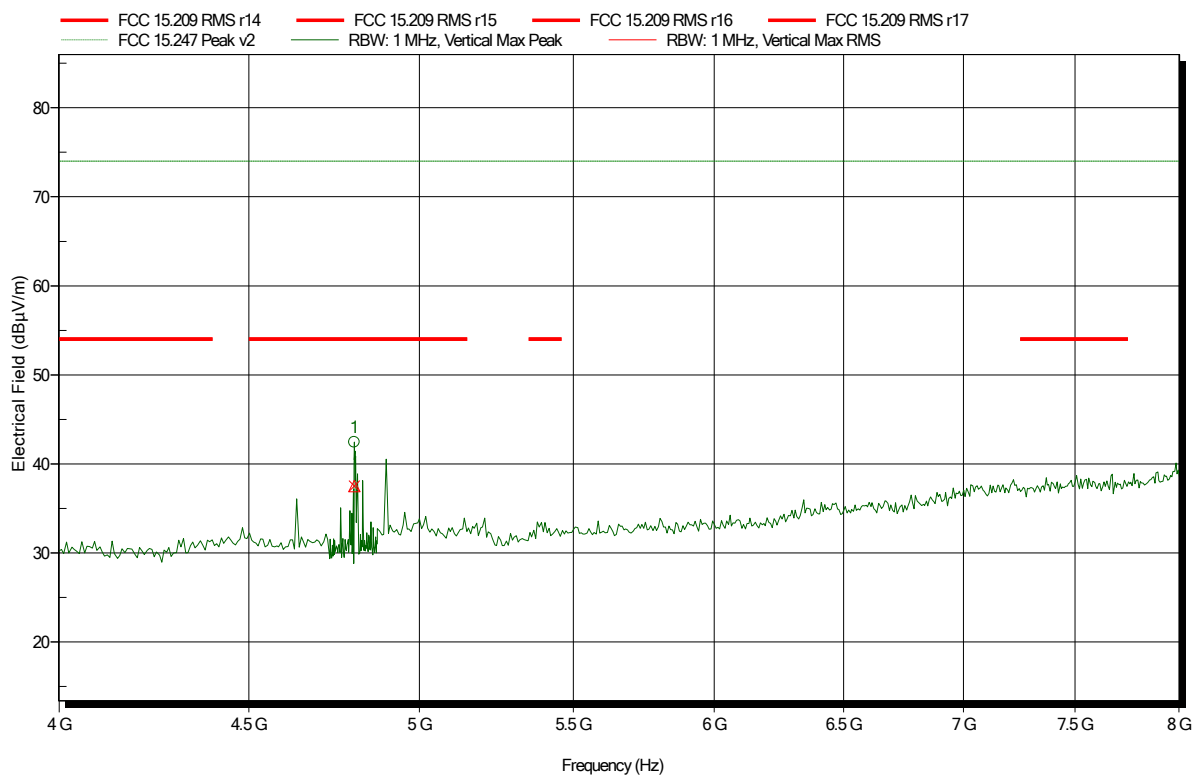
Frequency	Peak	Peak Limit	Peak Difference	Peak Status
4.803 GHz	44.74 dBµV/m	74 dBµV/m	-29.26 dB	Pass
Frequency	RMS	RMS Limit	RMS Difference	RMS Status
4.803 GHz	40.18 dBµV/m	54 dBµV/m	-13.82 dB	Pass

Spurious emissions according to FCC 47 e-CFR §15.247

Project number: G0M-1912-8654

Applicant: wh Münzprüfer Berlin GmbH
EUT Name: Coin selector
Model: EMP 500 v7 /CLB
Test Site:
Operator: Wilfried Treffke
Test Conditions: Tnom: 23°C, Vnom: 12 VDC (AC/DC adaptor)
Antenna: Schwarzbeck BBHA 9120D, Vertical
Measurement distance: 1 m converted to 3m
Mode: TX; BLE; GFSK; 2402 MHz
Test Date: 2020-01-15
Note:

Index 21



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
4.803 GHz	42.44 dBµV/m	74 dBµV/m	-31.56 dB	Pass
Frequency	RMS	RMS Limit	RMS Difference	RMS Status
4.803 GHz	37.5 dBµV/m	54 dBµV/m	-16.5 dB	Pass

Spurious emissions according to FCC 47 e-CFR §15.247

Project number: G0M-1912-8654

Applicant: wh Münzprüfer Berlin GmbH

EUT Name: Coin selector

Model: EMP 500 v7 /CLB

Test Site:

Operator: Wilfried Treffke

Test Conditions: Tnom: 23°C, Vnom: 12 VDC (AC/DC adaptor)

Antenna: Schwarzbeck BBHA 9120D, Horizontal

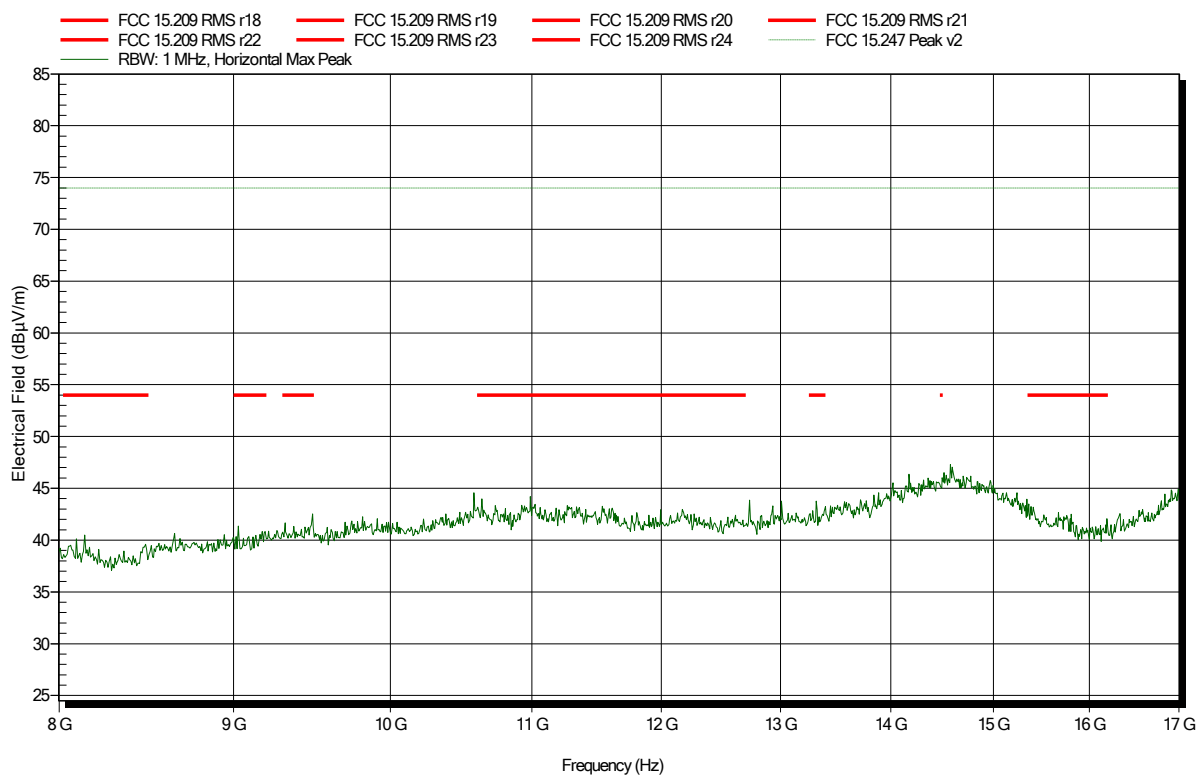
Measurement distance: 1 m converted to 3m

Mode: TX; BLE; GFSK; 2402 MHz

Test Date: 2020-01-15

Note:

Index 17



Spurious emissions according to FCC 47 e-CFR §15.247

Project number: G0M-1912-8654

Applicant: wh Münzprüfer Berlin GmbH

EUT Name: Coin selector

Model: EMP 500 v7 /CLB

Test Site:

Operator: Wilfried Treffke

Test Conditions: Tnom: 23°C, Vnom: 12 VDC (AC/DC adaptor)

Antenna: Schwarzbeck BBHA 9120D, Vertical

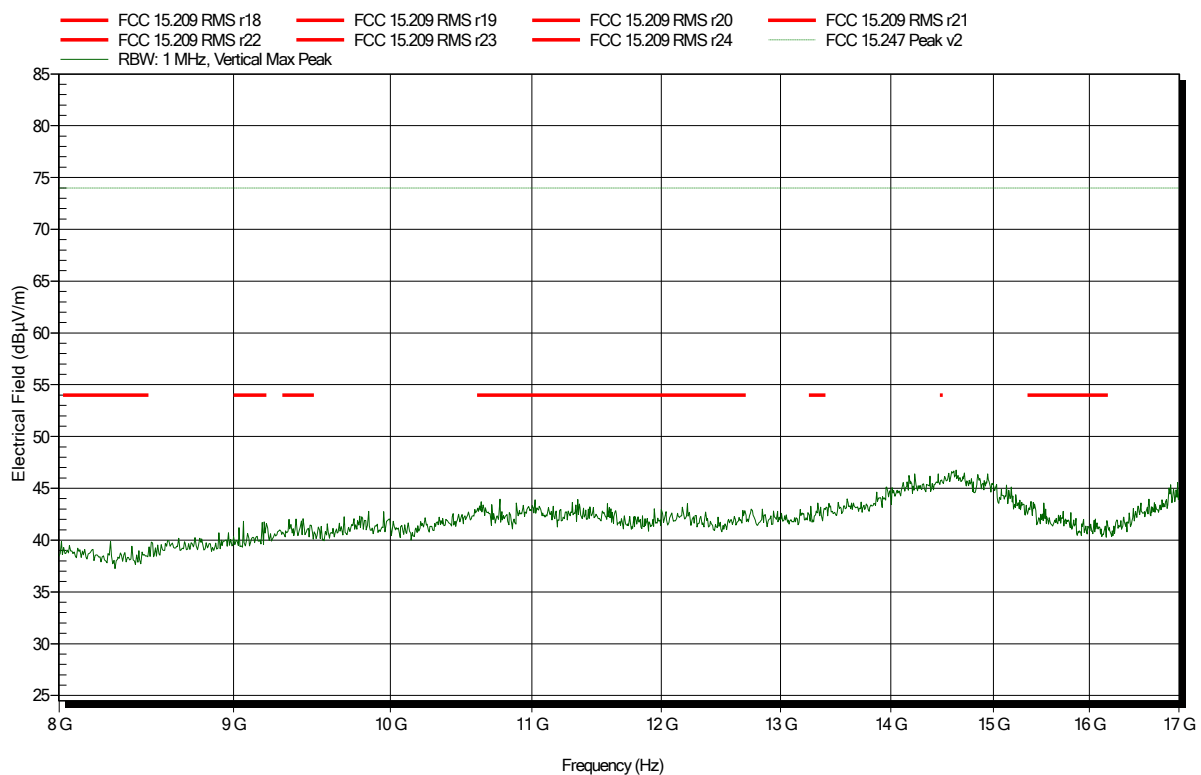
Measurement distance: 1 m converted to 3m

Mode: TX; BLE; GFSK; 2402 MHz

Test Date: 2020-01-15

Note:

Index 22



Spurious emissions according to FCC 47 e-CFR §15.247

Project number: G0M-1912-8654

Applicant: wh Münzprüfer Berlin GmbH

EUT Name: Coin selector

Model: EMP 500 v7 /CLB

Test Site:

Operator: Wilfried Treffke

Test Conditions: Tnom: 23°C, Vnom: 12 VDC (AC/DC adaptor)

Antenna: Amplifier Research AT4560, Horizontal

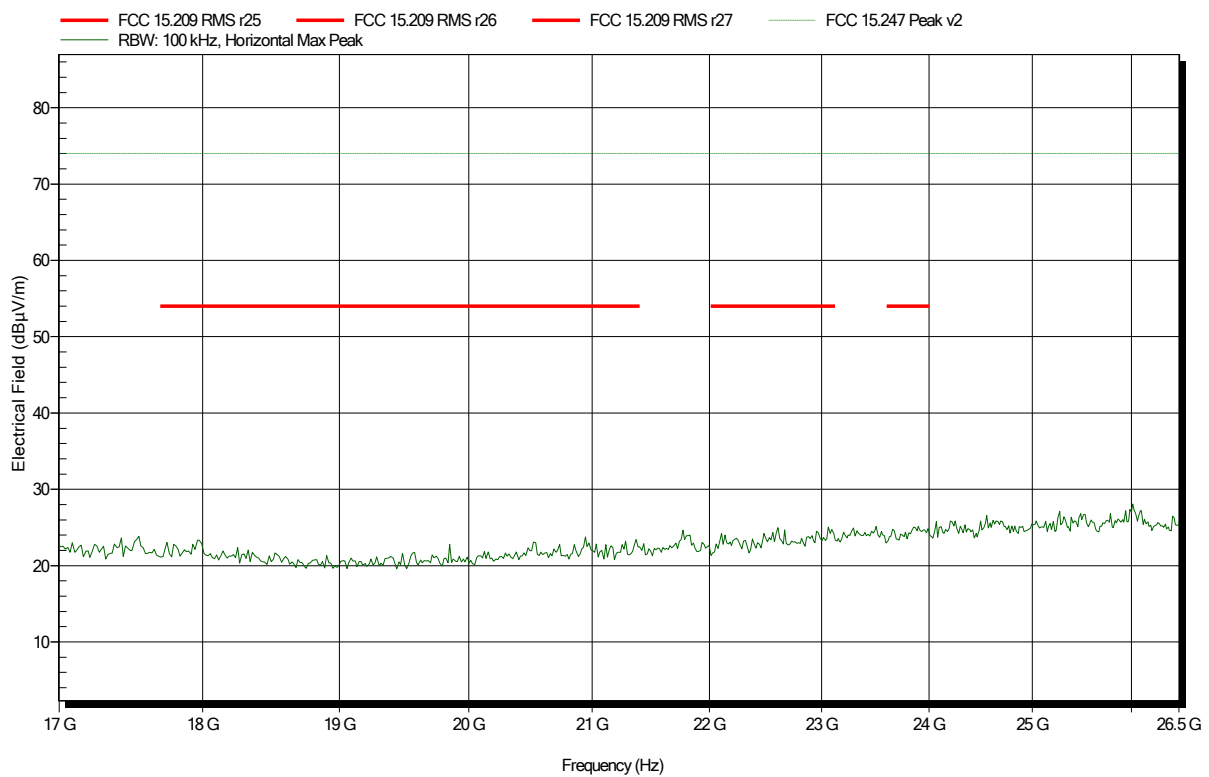
Measurement distance: 1 m converted to 3m

Mode: TX; BLE; GFSK; 2402 MHz

Test Date: 2020-01-15

Note:

Index 18



Spurious emissions according to FCC 47 e-CFR §15.247

Project number: G0M-1912-8654

Applicant: wh Münzprüfer Berlin GmbH

EUT Name: Coin selector

Model: EMP 500 v7 /CLB

Test Site:

Operator: Wilfried Treffke

Test Conditions: Tnom: 23°C, Vnom: 12 VDC (AC/DC adaptor)

Antenna: Amplifier Research AT4560, Vertical

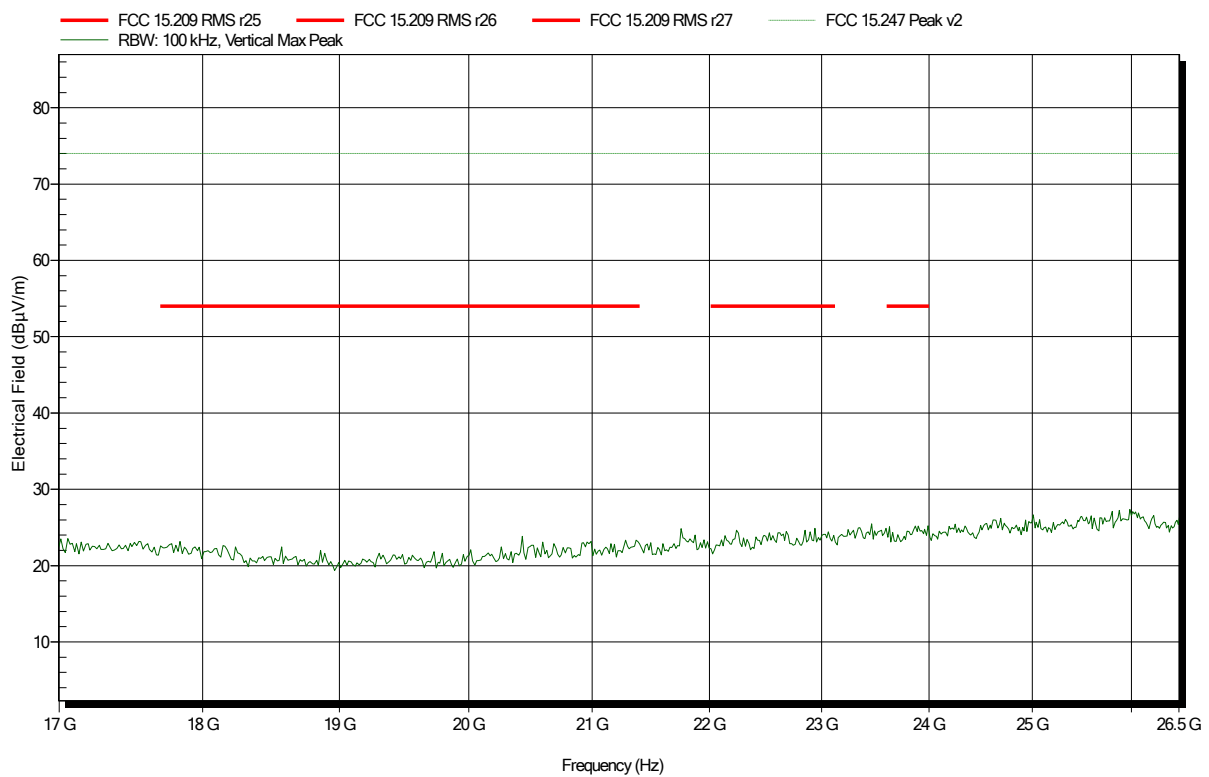
Measurement distance: 1 m converted to 3m

Mode: TX; BLE; GFSK; 2402 MHz

Test Date: 2020-01-15

Note:

Index 23



Spurious emissions according to FCC 47 e-CFR §15.247

Project number: G0M-1912-8654

Applicant: wh Münzprüfer Berlin GmbH

EUT Name: Coin selector

Model: EMP 500 v7 /CLB

Test Site:

Operator: Wilfried Treffke

Test Conditions: Tnom: 22°C, Vnom: 12 VDC (AC/DC adaptor)

Antenna: Schwarzbeck BBHA 9120D, Horizontal

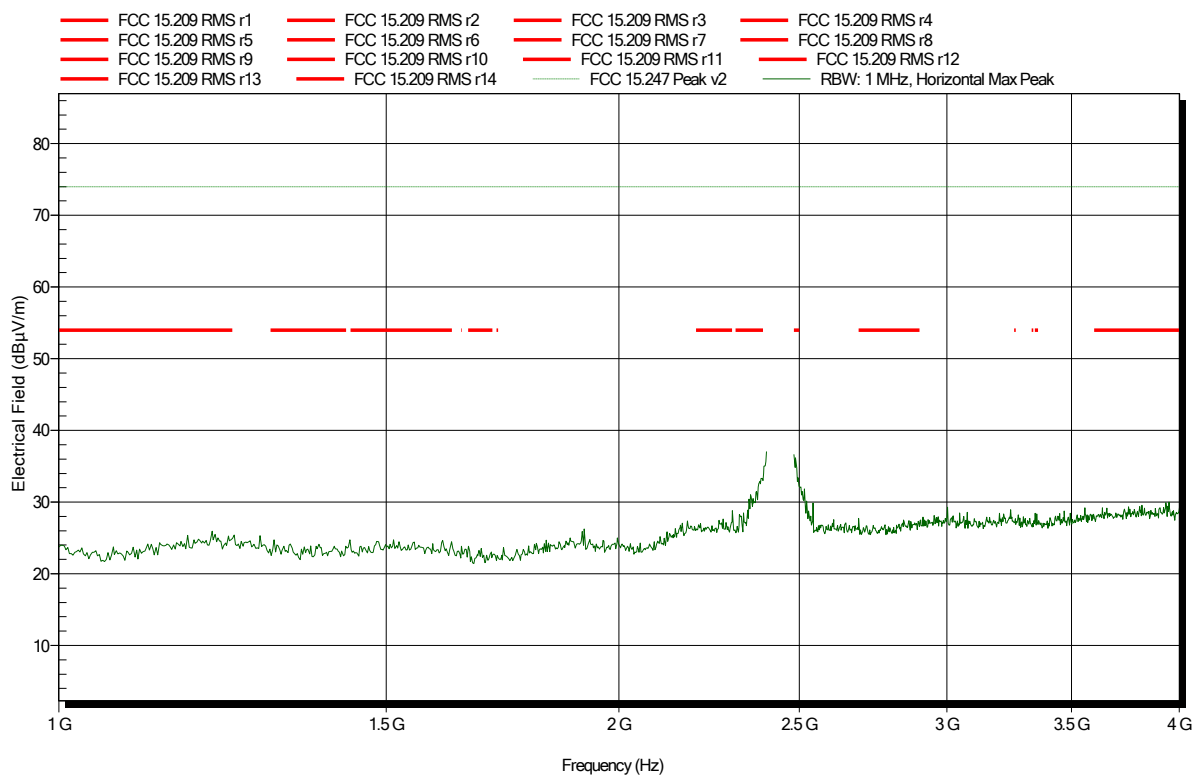
Measurement distance: 1 m converted to 3m

Mode: TX; BLE; GFSK; 2440 MHz

Test Date: 2020-01-16

Note:

Index 25



Spurious emissions according to FCC 47 e-CFR §15.247

Project number: G0M-1912-8654

Applicant: wh Münzprüfer Berlin GmbH

EUT Name: Coin selector

Model: EMP 500 v7 /CLB

Test Site:

Operator: Wilfried Treffke

Test Conditions: Tnom: 22°C, Vnom: 12 VDC (AC/DC adaptor)

Antenna: Schwarzbeck BBHA 9120D, Vertical

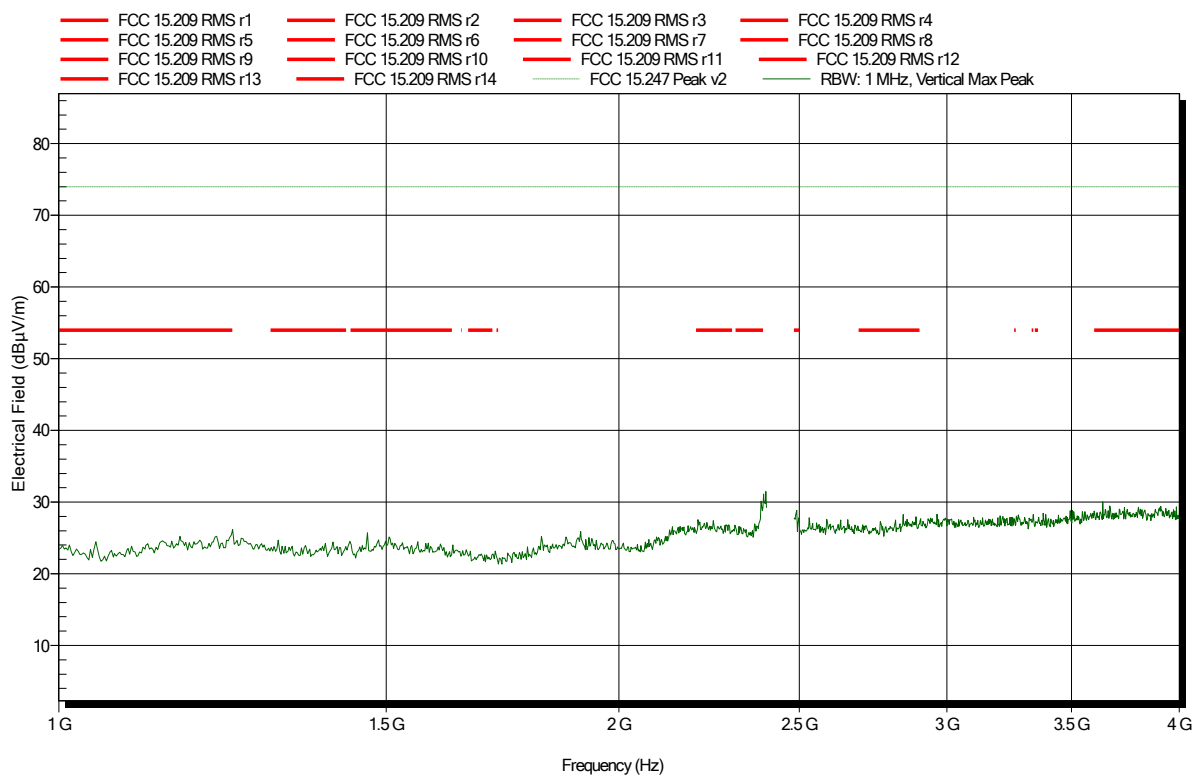
Measurement distance: 1 m converted to 3m

Mode: TX; BLE; GFSK; 2440 MHz

Test Date: 2020-01-16

Note:

Index 29



Spurious emissions according to FCC 47 e-CFR §15.247

Project number: G0M-1912-8654

Applicant: wh Münzprüfer Berlin GmbH

EUT Name: Coin selector

Model: EMP 500 v7 /CLB

Test Site:

Operator: Wilfried Treffke

Test Conditions: Tnom: 22°C, Vnom: 12 VDC (AC/DC adaptor)

Antenna: Schwarzbeck BBHA 9120D, Horizontal

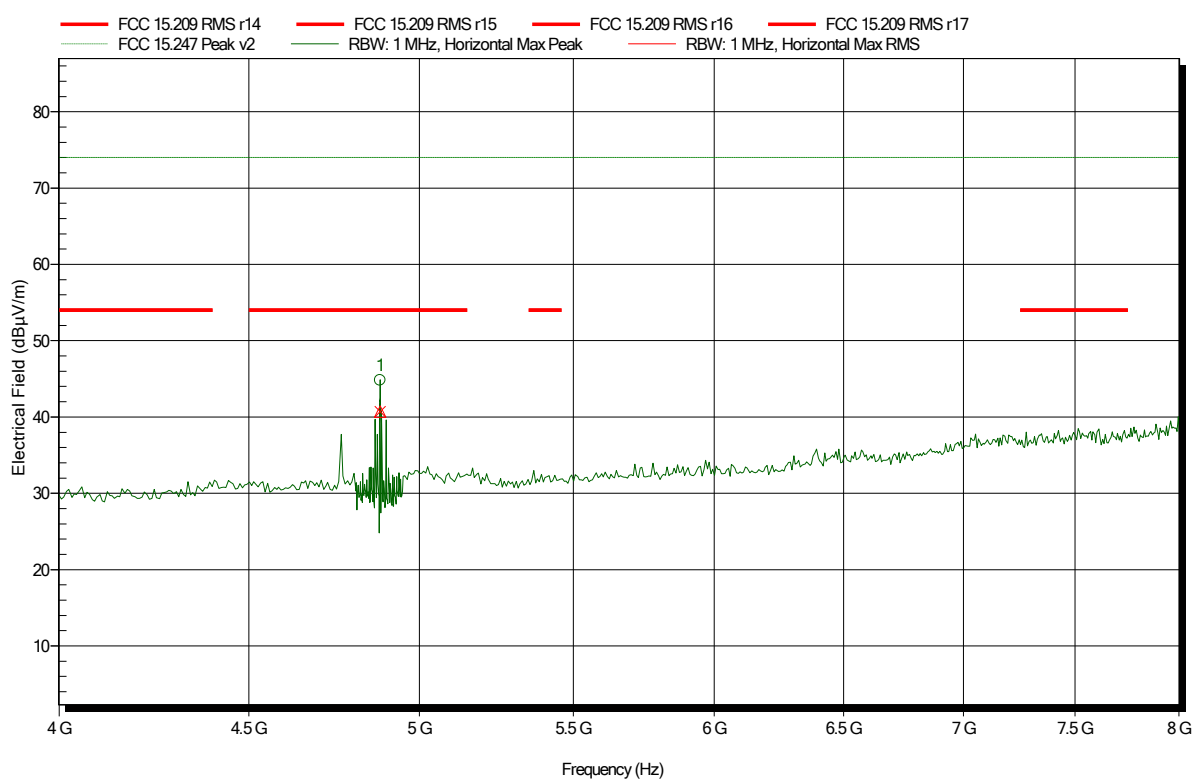
Measurement distance: 1 m converted to 3m

Mode: TX; BLE; GFSK; 2440 MHz

Test Date: 2020-01-16

Note:

Index 26



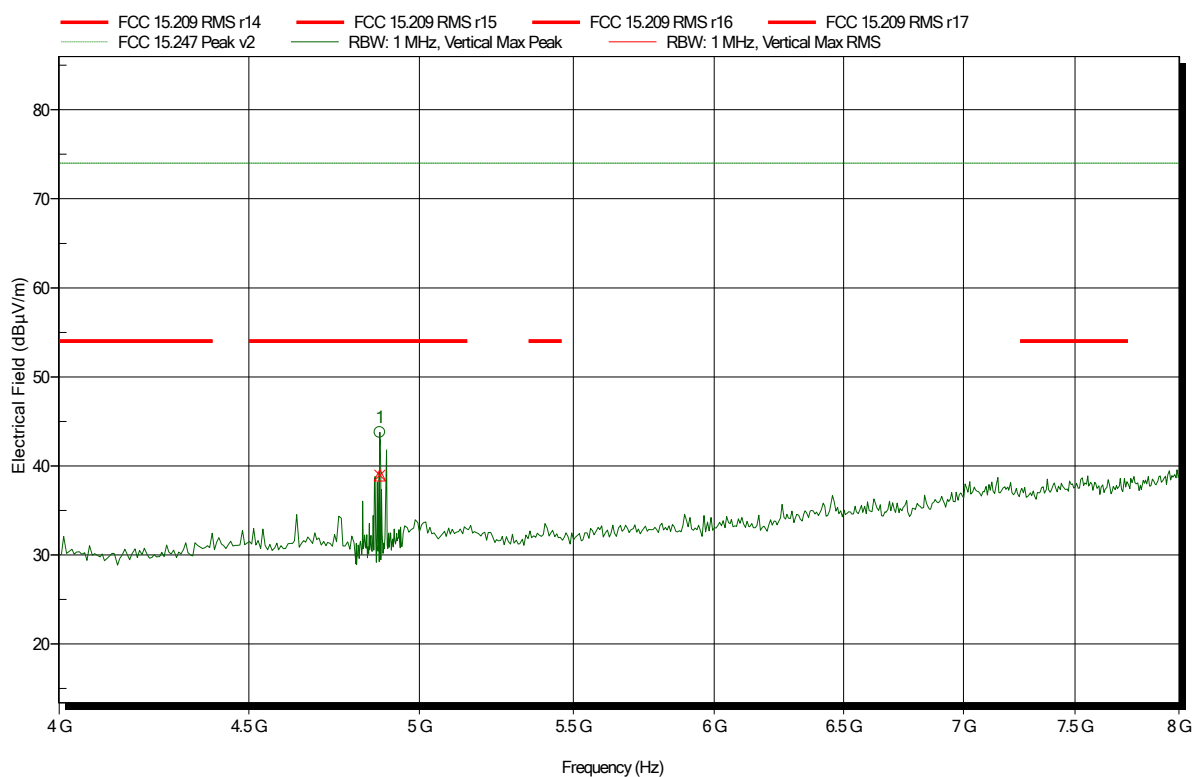
Frequency	Peak	Peak Limit	Peak Difference	Peak Status
4.881 GHz	44.8 dBµV/m	74 dBµV/m	-29.2 dB	Pass
Frequency	RMS	RMS Limit	RMS Difference	RMS Status
4.881 GHz	40.7 dBµV/m	54 dBµV/m	-13.3 dB	Pass

Spurious emissions according to FCC 47 e-CFR §15.247

Project number: G0M-1912-8654

Applicant: wh Münzprüfer Berlin GmbH
 EUT Name: Coin selector
 Model: EMP 500 v7 /CLB
 Test Site:
 Operator: Wilfried Treffke
 Test Conditions: Tnom: 22°C, Vnom: 12 VDC (AC/DC adaptor)
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 1 m converted to 3m
 Mode: TX; BLE; GFSK; 2440 MHz
 Test Date: 2020-01-16
 Note:

Index 30



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
4.879 GHz	43.77 dBµV/m	74 dBµV/m	-30.23 dB	Pass
Frequency	RMS	RMS Limit	RMS Difference	RMS Status
4.879 GHz	38.96 dBµV/m	54 dBµV/m	-15.04 dB	Pass

Spurious emissions according to FCC 47 e-CFR §15.247

Project number: G0M-1912-8654

Applicant: wh Münzprüfer Berlin GmbH

EUT Name: Coin selector

Model: EMP 500 v7 /CLB

Test Site:

Operator: Wilfried Treffke

Test Conditions: Tnom: 22°C, Vnom: 12 VDC (AC/DC adaptor)

Antenna: Schwarzbeck BBHA 9120D, Horizontal

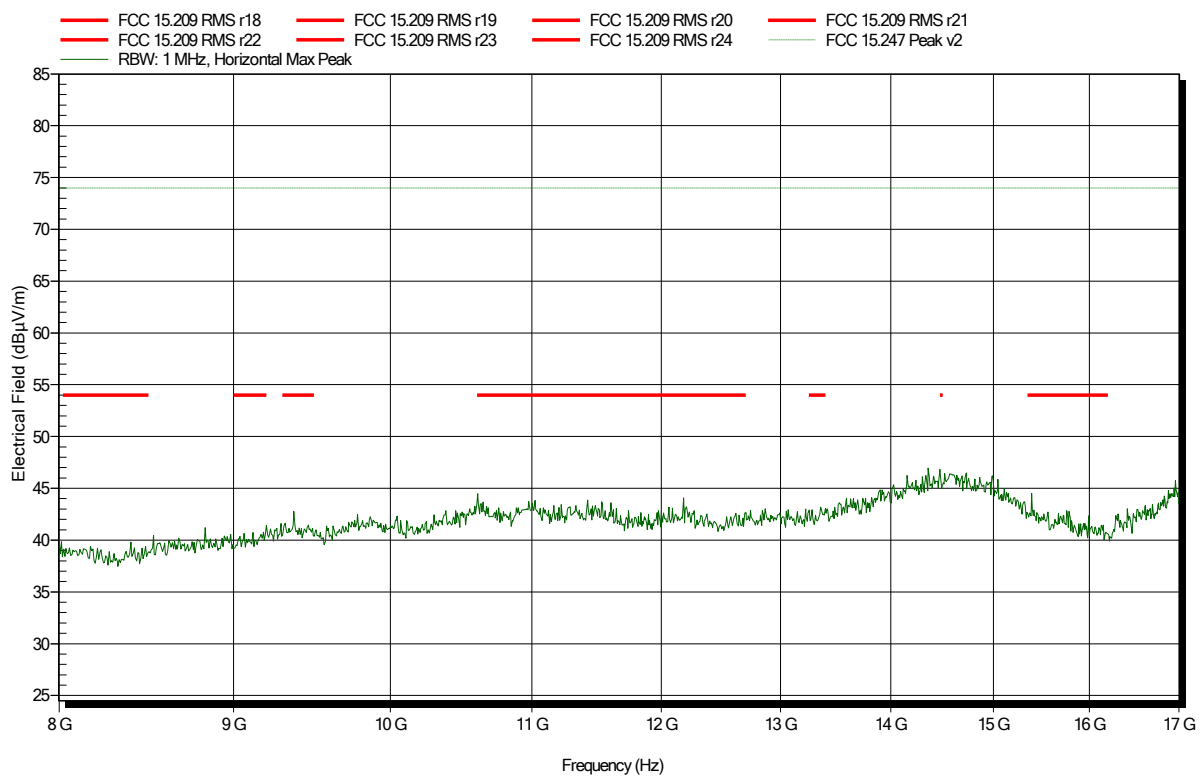
Measurement distance: 1 m converted to 3m

Mode: TX; BLE; GFSK; 2440 MHz

Test Date: 2020-01-16

Note:

Index 27



Spurious emissions according to FCC 47 e-CFR §15.247

Project number: G0M-1912-8654

Applicant: wh Münzprüfer Berlin GmbH

EUT Name: Coin selector

Model: EMP 500 v7 /CLB

Test Site:

Operator: Wilfried Treffke

Test Conditions: Tnom: 22°C, Vnom: 12 VDC (AC/DC adaptor)

Antenna: Schwarzbeck BBHA 9120D, Vertical

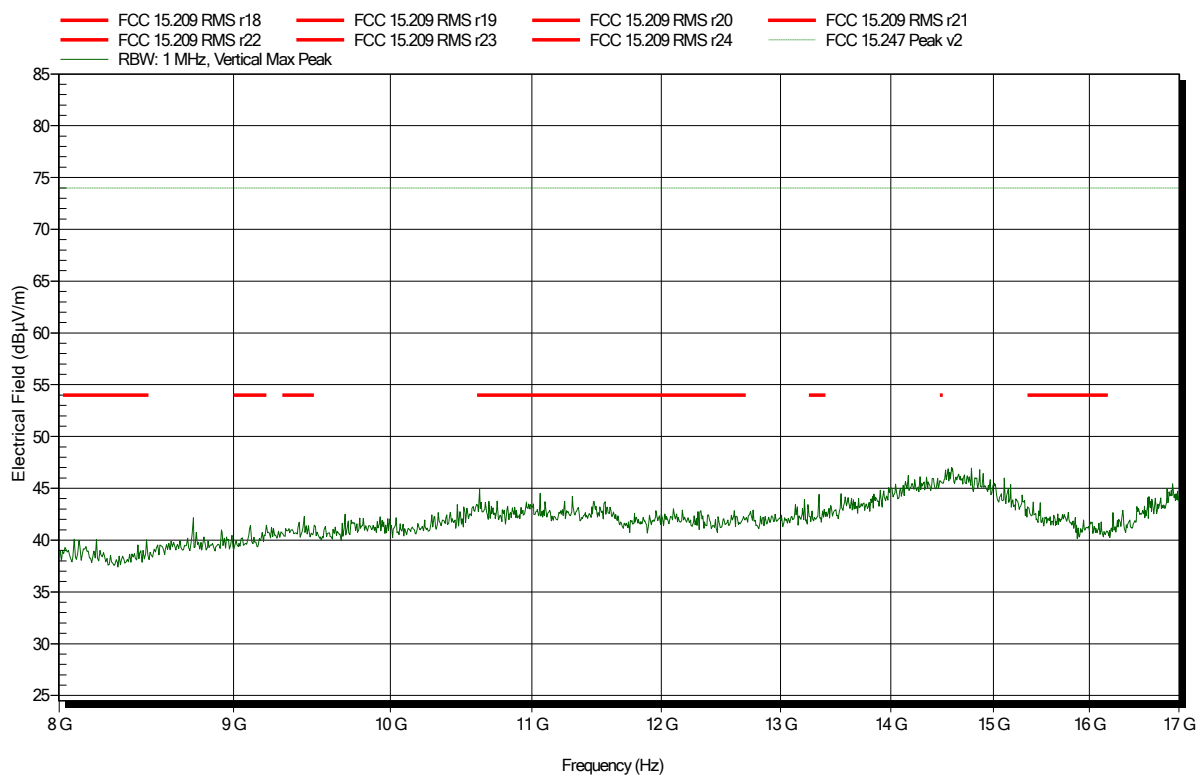
Measurement distance: 1 m converted to 3m

Mode: TX; BLE; GFSK; 2440 MHz

Test Date: 2020-01-16

Note:

Index 31



Spurious emissions according to FCC 47 e-CFR §15.247

Project number: G0M-1912-8654

Applicant: wh Münzprüfer Berlin GmbH

EUT Name: Coin selector

Model: EMP 500 v7 /CLB

Test Site:

Operator: Wilfried Treffke

Test Conditions: Tnom: 22°C, Vnom: 12 VDC (AC/DC adaptor)

Antenna: Amplifier Research AT4560, Horizontal

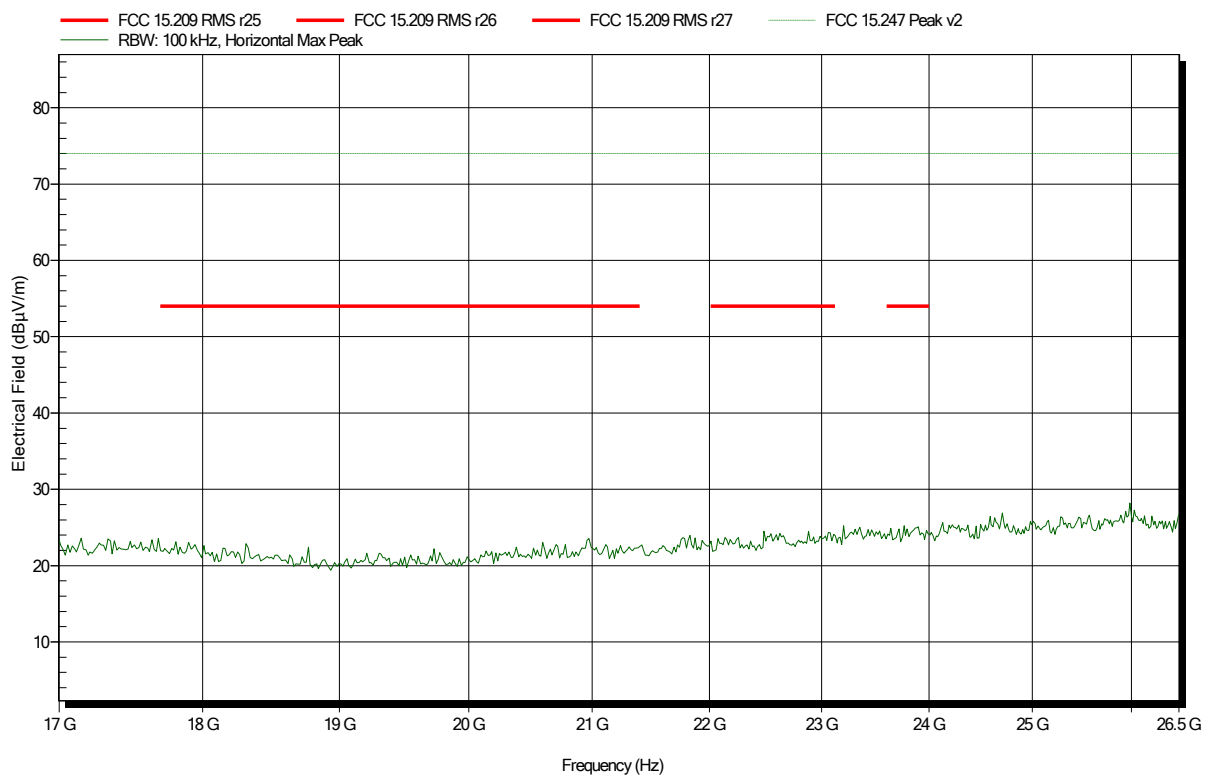
Measurement distance: 1 m converted to 3m

Mode: TX; BLE; GFSK; 2440 MHz

Test Date: 2020-01-16

Note:

Index 28



Spurious emissions according to FCC 47 e-CFR §15.247

Project number: G0M-1912-8654

Applicant: wh Münzprüfer Berlin GmbH

EUT Name: Coin selector

Model: EMP 500 v7 /CLB

Test Site:

Operator: Wilfried Treffke

Test Conditions: Tnom: 22°C, Vnom: 12 VDC (AC/DC adaptor)

Antenna: Amplifier Research AT4560, Vertical

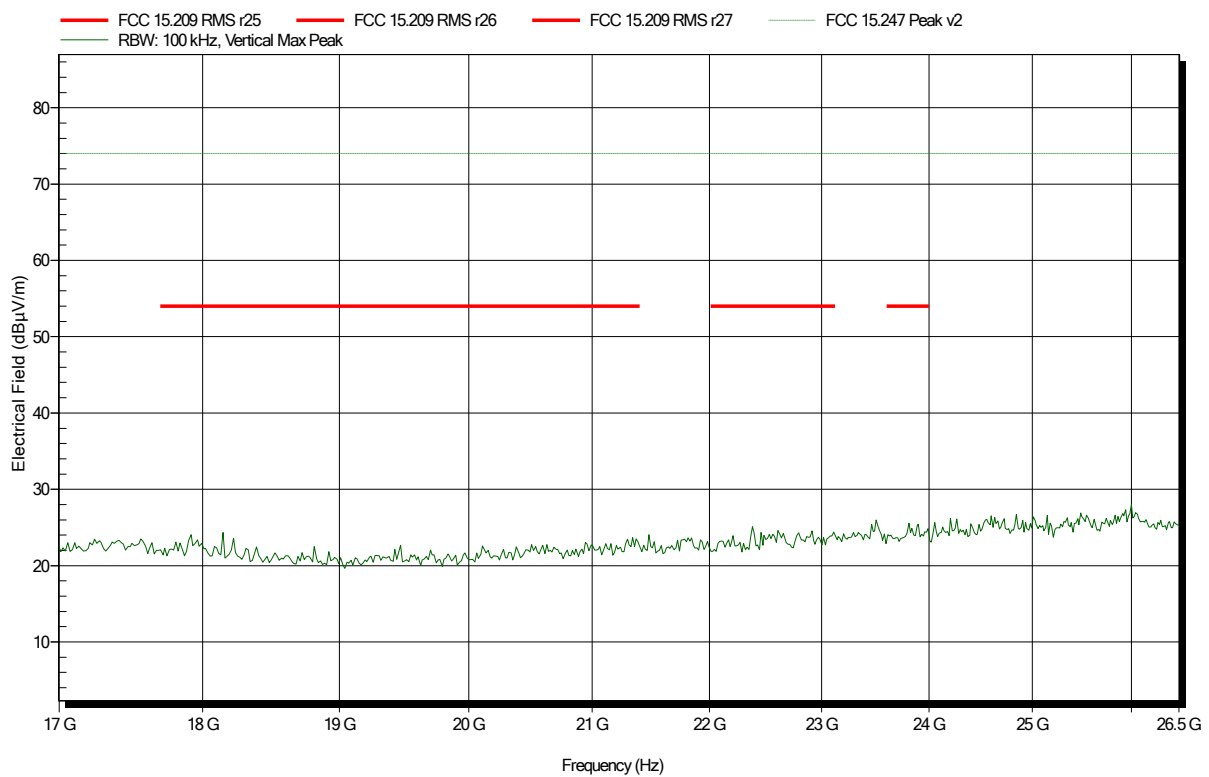
Measurement distance: 1 m converted to 3m

Mode: TX; BLE; GFSK; 2440 MHz

Test Date: 2020-01-16

Note:

Index 32



Spurious emissions according to FCC 47 e-CFR §15.247

Project number: G0M-1912-8654

Applicant: wh Münzprüfer Berlin GmbH

EUT Name: Coin selector

Model: EMP 500 v7 /CLB

Test Site:

Operator: Wilfried Treffke

Test Conditions: Tnom: 22°C, Vnom: 12 VDC (AC/DC adaptor)

Antenna: Schwarzbeck BBHA 9120D, Horizontal

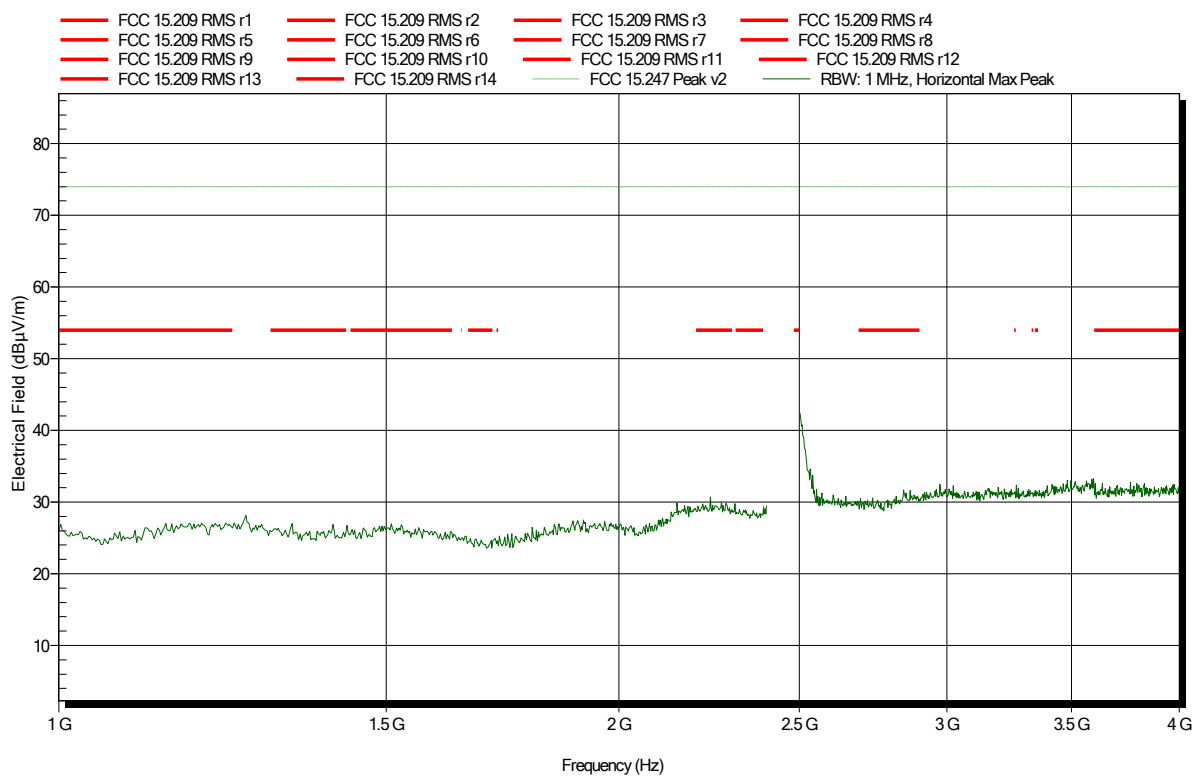
Measurement distance: 1 m converted to 3m

Mode: TX; BLE; GFSK; 2480 MHz

Test Date: 2020-01-16

Note:

Index 33



Spurious emissions according to FCC 47 e-CFR §15.247

Project number: G0M-1912-8654

Applicant: wh Münzprüfer Berlin GmbH

EUT Name: Coin selector

Model: EMP 500 v7 /CLB

Test Site:

Operator: Wilfried Treffke

Test Conditions: Tnom: 22°C, Vnom: 12 VDC (AC/DC adaptor)

Antenna: Schwarzbeck BBHA 9120D, Vertical

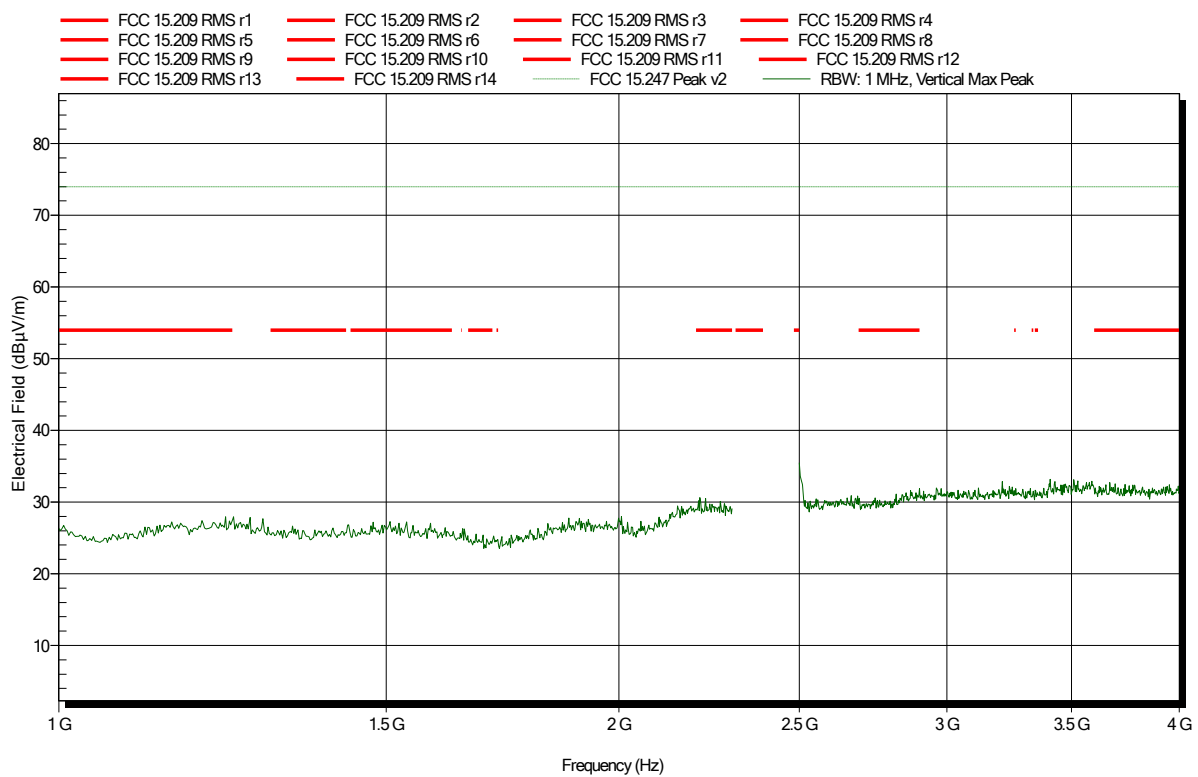
Measurement distance: 1 m converted to 3m

Mode: TX; BLE; GFSK; 2480 MHz

Test Date: 2020-01-16

Note:

Index 38

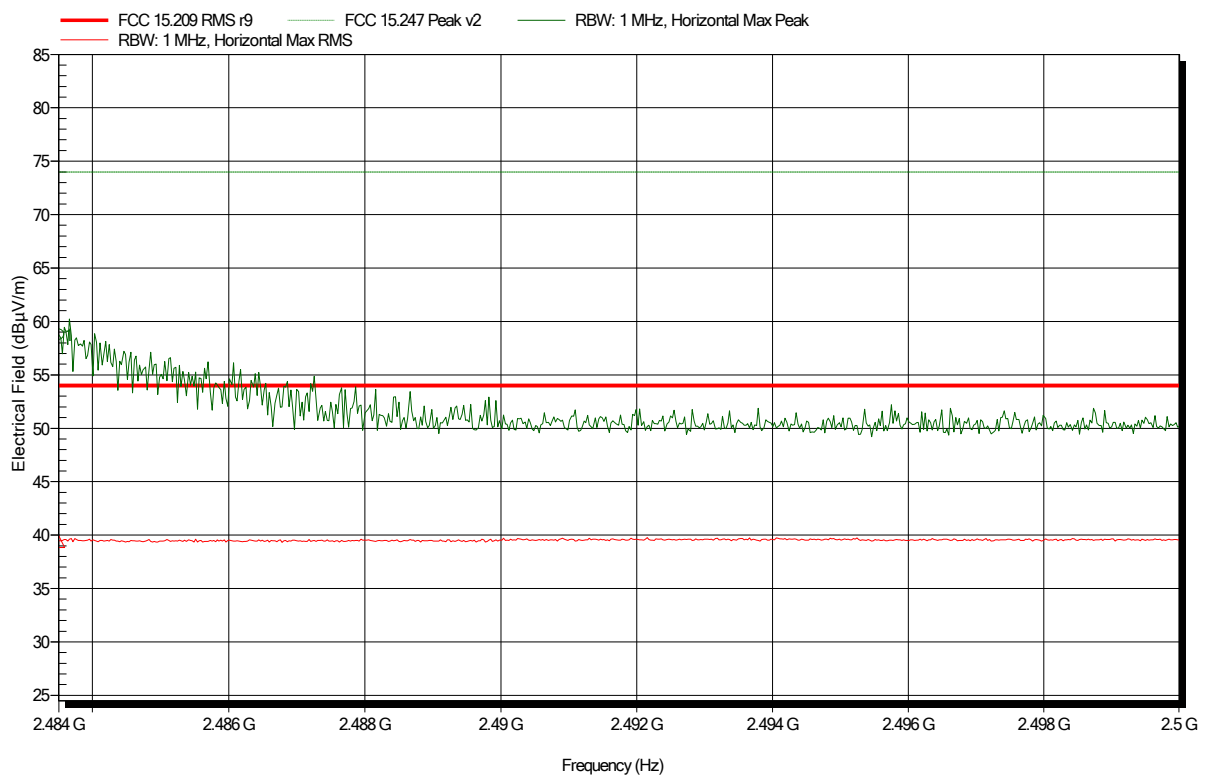


Spurious emissions according to FCC 47 e-CFR §15.247

Project number: G0M-1912-8654

Applicant: wh Münzprüfer Berlin GmbH
EUT Name: Coin selector
Model: EMP 500 v7 /CLB
Test Site:
Operator: Wilfried Treffke
Test Conditions: Tnom: 22°C, Vnom: 12 VDC (AC/DC adaptor)
Antenna: Schwarzbeck BBHA 9120D, Horizontal
Measurement distance: 1 m converted to 3m
Mode: TX; BLE; GFSK; 2480 MHz
Test Date: 2020-01-16
Note: upper bandedge

Index 34



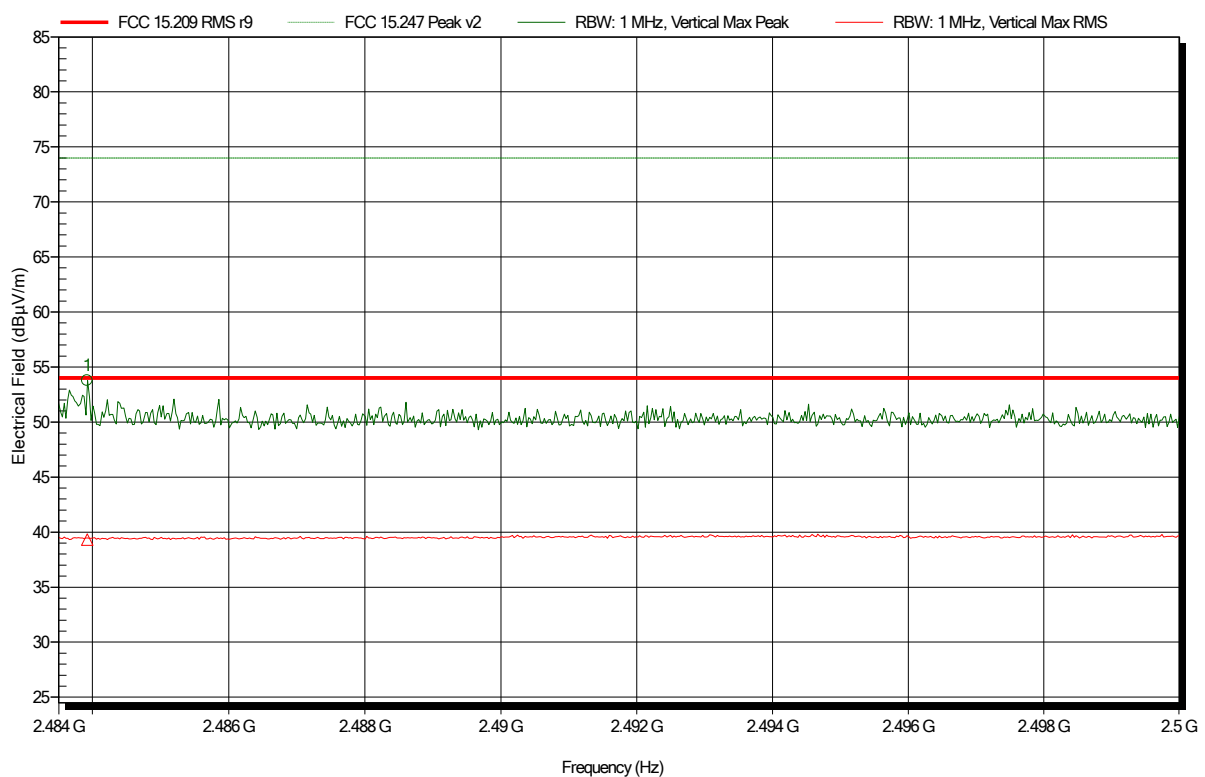
Frequency	Peak	Peak Limit	Peak Difference	Peak Status
2.4835 GHz	58.77 dBµV/m	74 dBµV/m	-15.23 dB	Pass
Frequency	RMS	RMS Limit	RMS Difference	RMS Status
2.4835 GHz	39.36 dBµV/m	54 dBµV/m	-14.64 dB	Pass

Spurious emissions according to FCC 47 e-CFR §15.247

Project number: G0M-1912-8654

Applicant: wh Münzprüfer Berlin GmbH
EUT Name: Coin selector
Model: EMP 500 v7 /CLB
Test Site:
Operator: Wilfried Treffke
Test Conditions: Tnom: 22°C, Vnom: 12 VDC (AC/DC adaptor)
Antenna: Schwarzbeck BBHA 9120D, Vertical
Measurement distance: 1 m converted to 3m
Mode: TX; BLE; GFSK; 2480 MHz
Test Date: 2020-01-16
Note: upper bandedge

Index 39



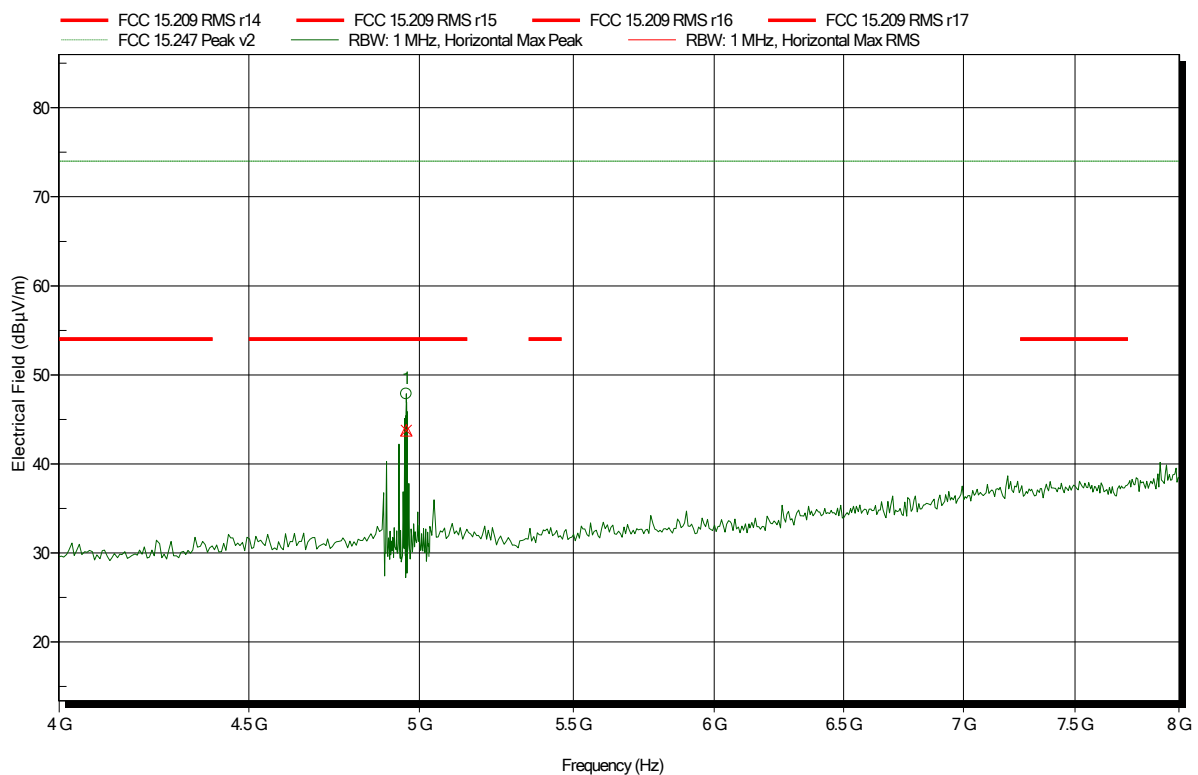
Frequency	Peak	Peak Limit	Peak Difference	Peak Status
2.4839 GHz	53.79 dBµV/m	74 dBµV/m	-20.21 dB	Pass
Frequency	RMS	RMS Limit	RMS Difference	RMS Status
2.4839 GHz	39.33 dBµV/m	54 dBµV/m	-14.67 dB	Pass

Spurious emissions according to FCC 47 e-CFR §15.247

Project number: G0M-1912-8654

Applicant: wh Münzprüfer Berlin GmbH
 EUT Name: Coin selector
 Model: EMP 500 v7 /CLB
 Test Site:
 Operator: Wilfried Treffke
 Test Conditions: Tnom: 22°C, Vnom: 12 VDC (AC/DC adaptor)
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 1 m converted to 3m
 Mode: TX; BLE; GFSK; 2480 MHz
 Test Date: 2020-01-16
 Note:

Index 35



Frequency 4.96 GHz	Peak 47.86 dBµV/m	Peak Limit 74 dBµV/m	Peak Difference -26.14 dB	Peak Status Pass
Frequency 4.96 GHz	RMS 43.76 dBµV/m	RMS Limit 54 dBµV/m	RMS Difference -10.24 dB	RMS Status Pass

Spurious emissions according to FCC 47 e-CFR §15.247

Project number: G0M-1912-8654

Applicant: wh Münzprüfer Berlin GmbH

EUT Name: Coin selector

Model: EMP 500 v7 /CLB

Test Site:

Operator: Wilfried Treffke

Test Conditions: Tnom: 22°C, Vnom: 12 VDC (AC/DC adaptor)

Antenna: Schwarzbeck BBHA 9120D, Vertical

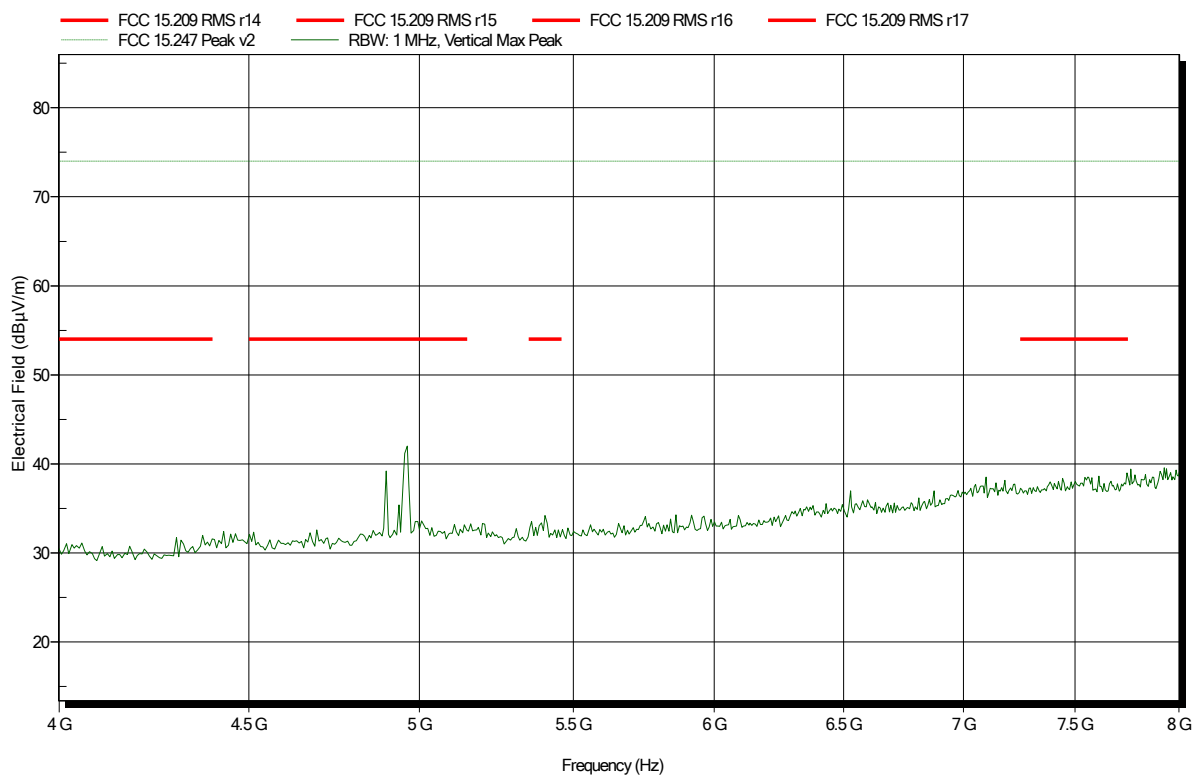
Measurement distance: 1 m converted to 3m

Mode: TX; BLE; GFSK; 2480 MHz

Test Date: 2020-01-16

Note:

Index 40



Spurious emissions according to FCC 47 e-CFR §15.247

Project number: G0M-1912-8654

Applicant: wh Münzprüfer Berlin GmbH

EUT Name: Coin selector

Model: EMP 500 v7 /CLB

Test Site:

Operator: Wilfried Treffke

Test Conditions: Tnom: 22°C, Vnom: 12 VDC (AC/DC adaptor)

Antenna: Schwarzbeck BBHA 9120D, Horizontal

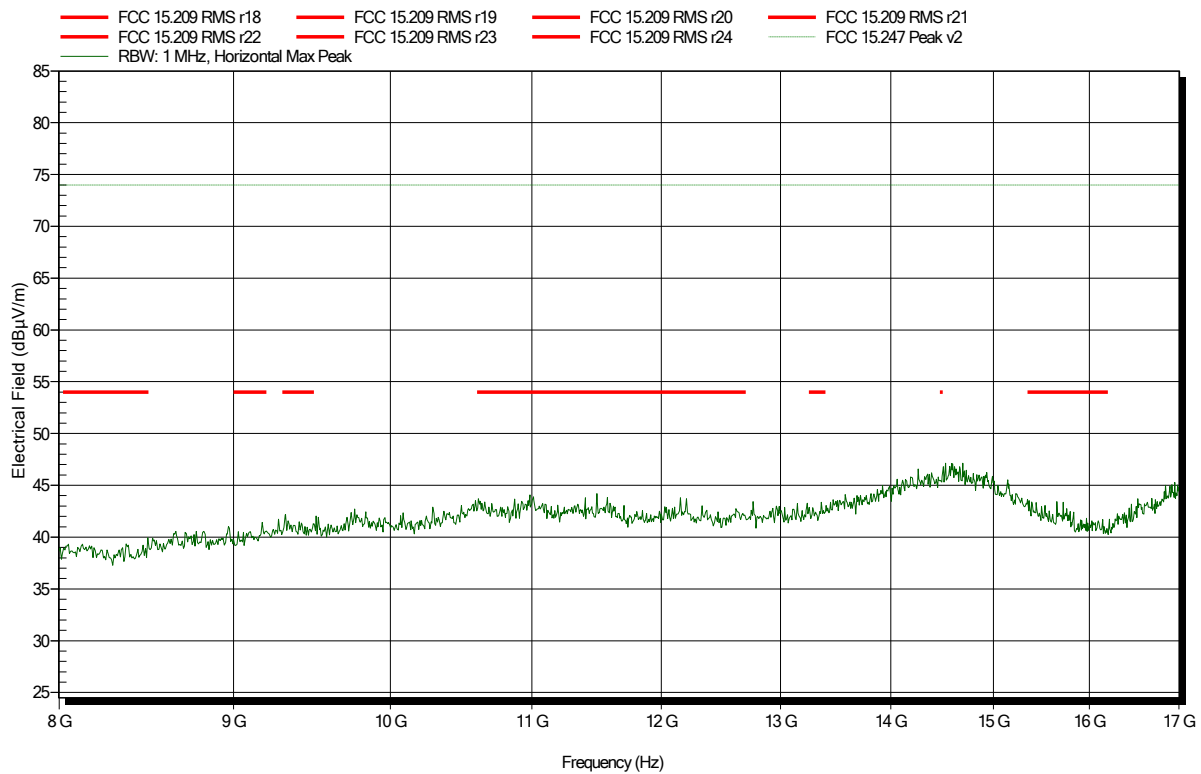
Measurement distance: 1 m converted to 3m

Mode: TX; BLE; GFSK; 2480 MHz

Test Date: 2020-01-16

Note:

Index 36



Spurious emissions according to FCC 47 e-CFR §15.247

Project number: G0M-1912-8654

Applicant: wh Münzprüfer Berlin GmbH

EUT Name: Coin selector

Model: EMP 500 v7 /CLB

Test Site:

Operator: Wilfried Treffke

Test Conditions: Tnom: 22°C, Vnom: 12 VDC (AC/DC adaptor)

Antenna: Schwarzbeck BBHA 9120D, Vertical

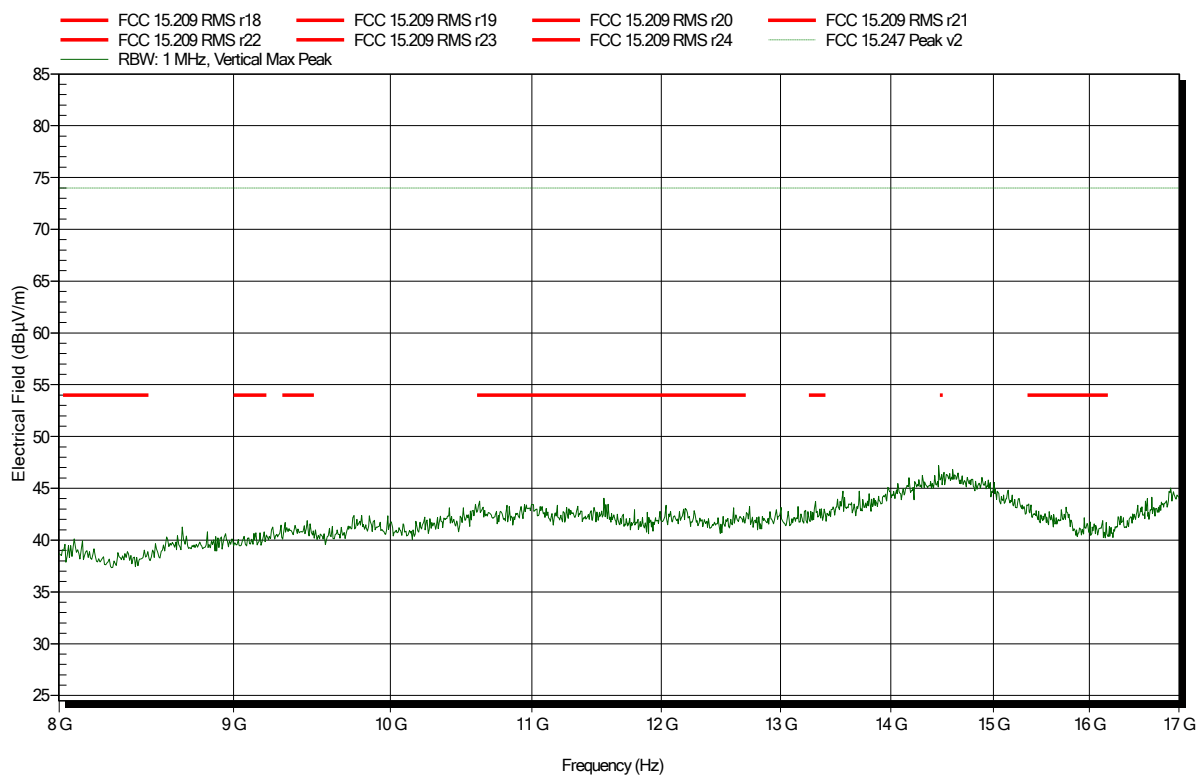
Measurement distance: 1 m converted to 3m

Mode: TX; BLE; GFSK; 2480 MHz

Test Date: 2020-01-16

Note:

Index 41



Spurious emissions according to FCC 47 e-CFR §15.247

Project number: G0M-1912-8654

Applicant: wh Münzprüfer Berlin GmbH

EUT Name: Coin selector

Model: EMP 500 v7 /CLB

Test Site:

Operator: Wilfried Treffke

Test Conditions: Tnom: 22°C, Vnom: 12 VDC (AC/DC adaptor)

Antenna: Amplifier Research AT4560, Horizontal

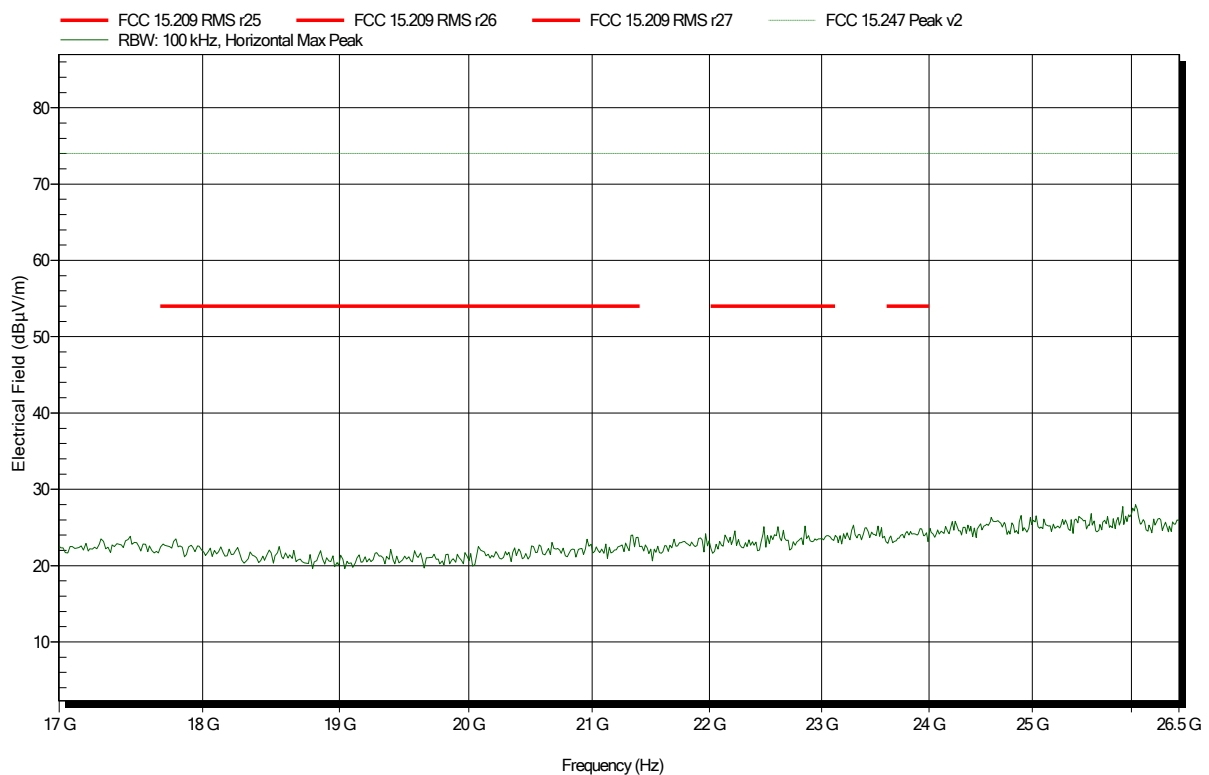
Measurement distance: 1 m converted to 3m

Mode: TX; BLE; GFSK; 2480 MHz

Test Date: 2020-01-16

Note:

Index 37



Spurious emissions according to FCC 47 e-CFR §15.247

Project number: G0M-1912-8654

Applicant: wh Münzprüfer Berlin GmbH

EUT Name: Coin selector

Model: EMP 500 v7 /CLB

Test Site:

Operator: Wilfried Treffke

Test Conditions: Tnom: 22°C, Vnom: 12 VDC (AC/DC adaptor)

Antenna: Amplifier Research AT4560, Vertical

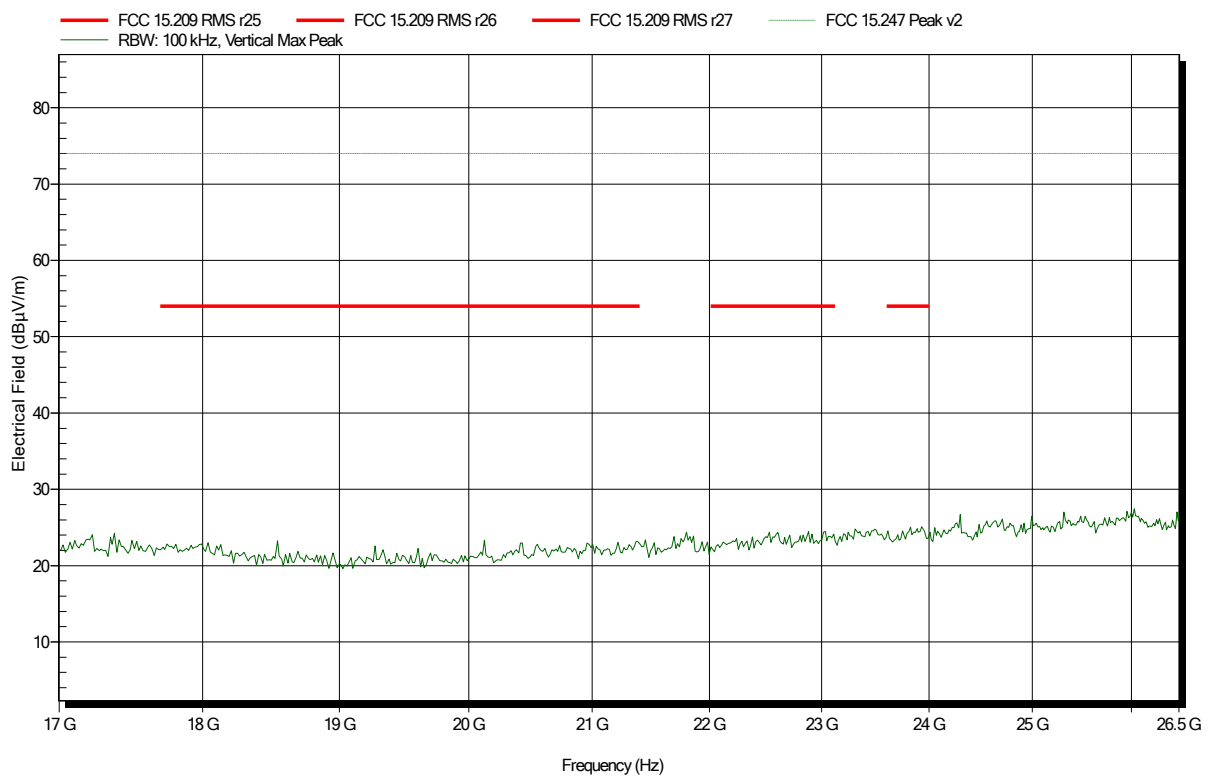
Measurement distance: 1 m converted to 3m

Mode: TX; BLE; GFSK; 2480 MHz

Test Date: 2020-01-16

Note:

Index 42



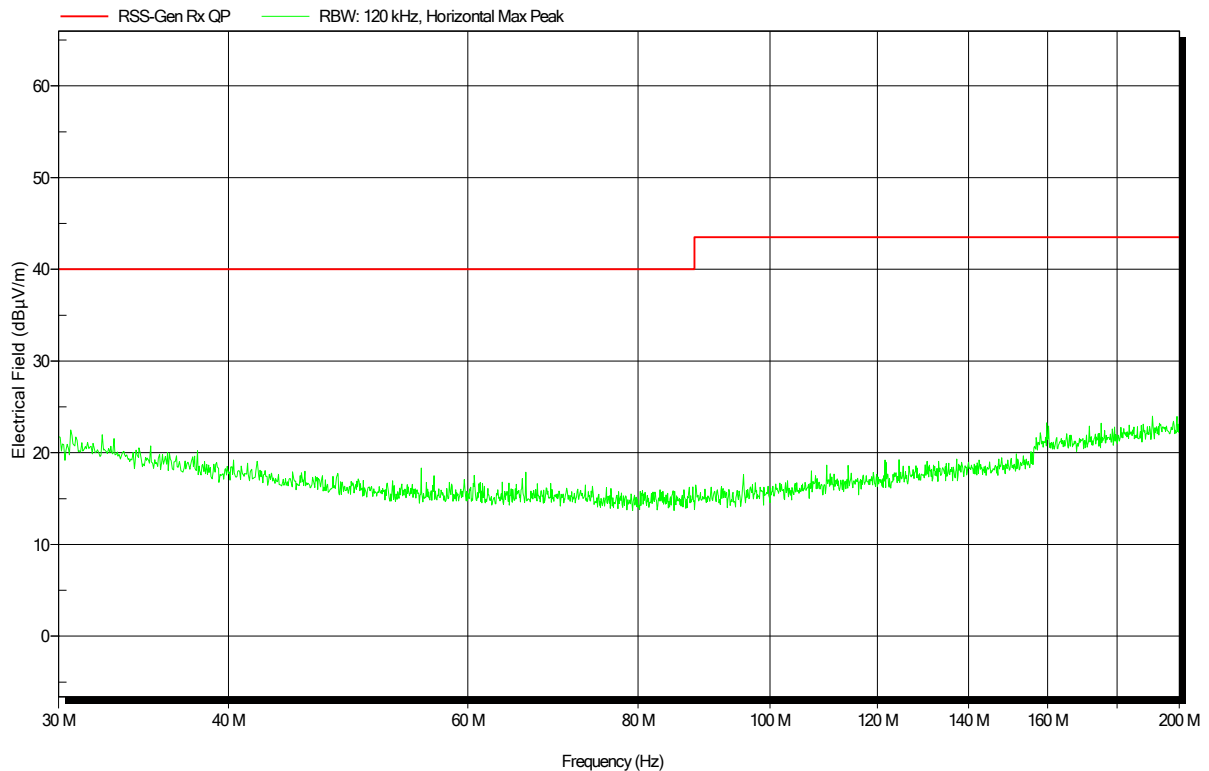
ANNEX B Receiver spurious emissions

Spurious emissions according to ISSED RSS-247 Issue 2 (February 2017)

Project number: G0M-1912-8654

Applicant: wh Münzprüfer Berlin GmbH
 EUT Name: Coin selector
 Model: EMP 500 v7 /CLB
 Test Site:
 Operator: W. Treffke
 Test Conditions: Tnom: 22°C, Vnom: 12 VDC (AC/DC adaptor)
 Antenna: Rohde & Schwarz HK 116, Horizontal
 Measurement distance: 3 m
 Mode: RX; BLE; 2440 MHz
 Test Date: 2020-01-16
 Note:

Index 53



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

Project number: G0M-1912-8654

Applicant: wh Münzprüfer Berlin GmbH

EUT Name: Coin selector

Model: EMP 500 v7 /CLB

Test Site:

Operator: W. Treffke

Test Conditions: Tnom: 22°C, Vnom: 12 VDC (AC/DC adaptor)

Antenna: Rohde & Schwarz HK 116, Vertical

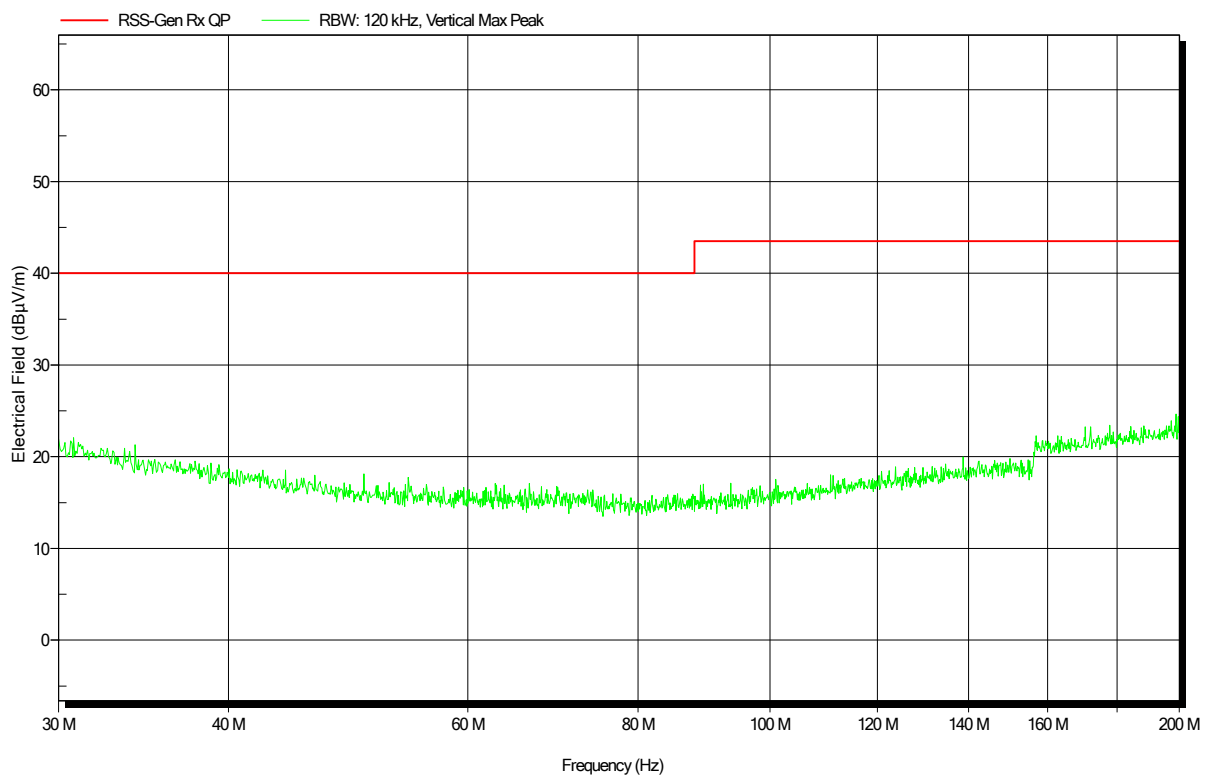
Measurement distance: 3 m

Mode: RX; BLE; 2440 MHz

Test Date: 2020-01-16

Note:

Index 54

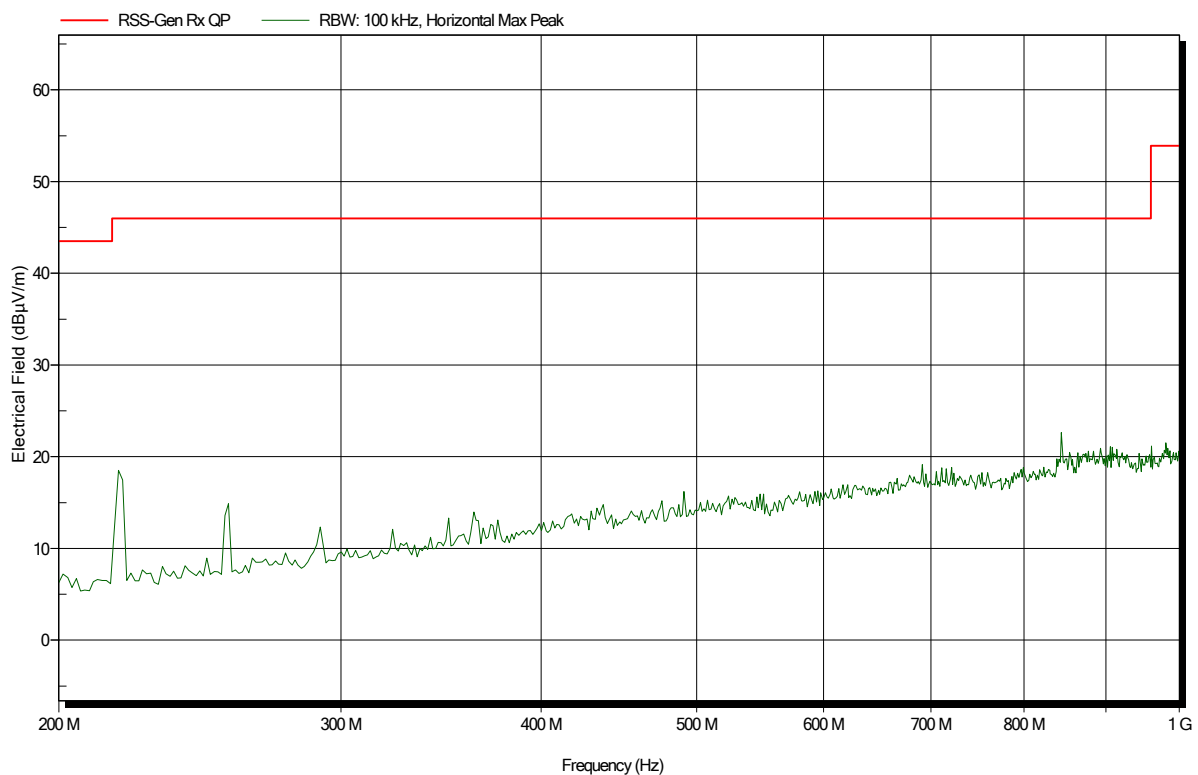


Spurious emissions according to ISED RSS-247 Issue 2 (February 2017)

Project number: G0M-1912-8654

Applicant: wh Münzprüfer Berlin GmbH
 EUT Name: Coin selector
 Model: EMP 500 v7 /CLB
 Test Site:
 Operator: Wilfried Treffke
 Test Conditions: Tnom: 22°C, Vnom: 12 VDC (AC/DC adaptor)
 Antenna: Rohde & Schwarz HL 223, Horizontal
 Measurement distance: 3 m
 Mode: RX; BLE; 2440 MHz
 Test Date: 2020-01-16
 Note:

Index 51



Spurious emissions according to ISSED RSS-247 Issue 2 (February 2017)

Project number: G0M-1912-8654

Applicant: wh Münzprüfer Berlin GmbH

EUT Name: Coin selector

Model: EMP 500 v7 /CLB

Test Site:

Operator: Wilfried Treffke

Test Conditions: Tnom: 22°C, Vnom: 12 VDC (AC/DC adaptor)

Antenna: Rohde & Schwarz HL 223, Vertical

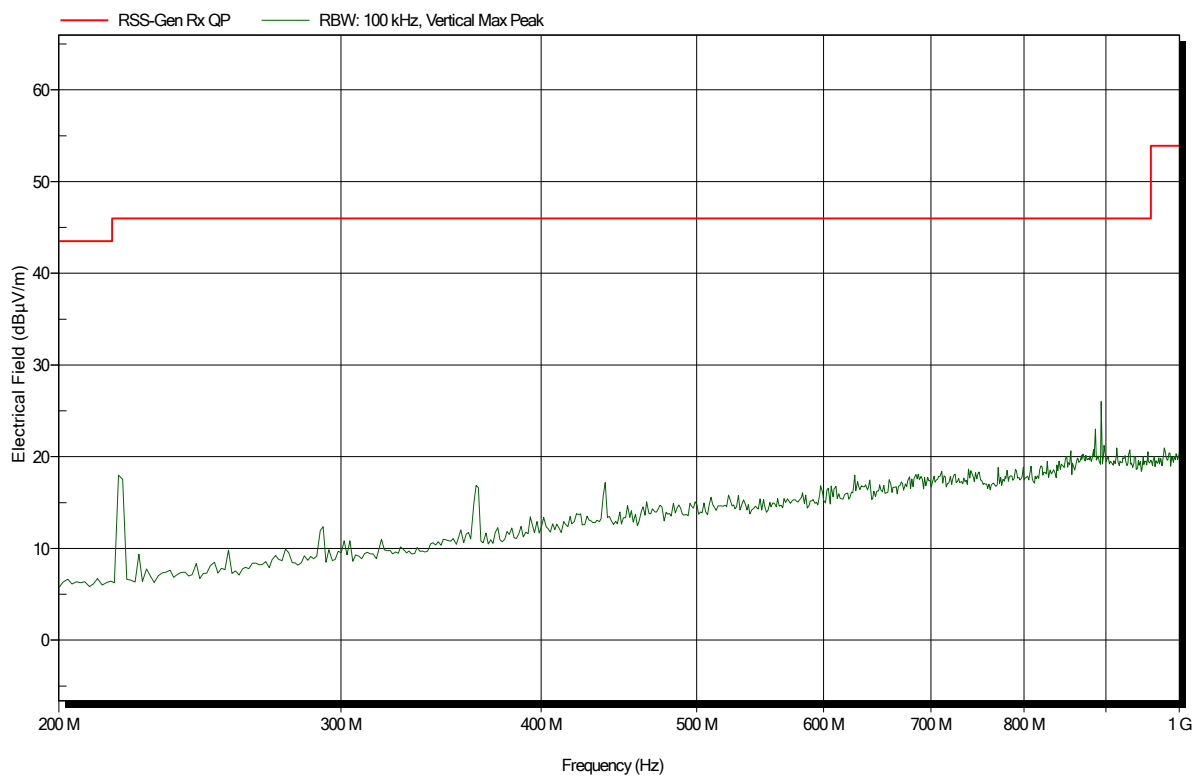
Measurement distance: 3 m

Mode: RX; BLE; 2440 MHz

Test Date: 2020-01-16

Note:

Index 52



Spurious emissions according to ISSED RSS-247 Issue 2 (February 2017)

Project number: G0M-1912-8654

Applicant: wh Münzprüfer Berlin GmbH

EUT Name: Coin selector

Model: EMP 500 v7 /CLB

Test Site:

Operator: Wilfried Treffke

Test Conditions: Tnom: 22°C, Vnom: 12 VDC (AC/DC adaptor)

Antenna: Schwarzbeck BBHA 9120D, Horizontal

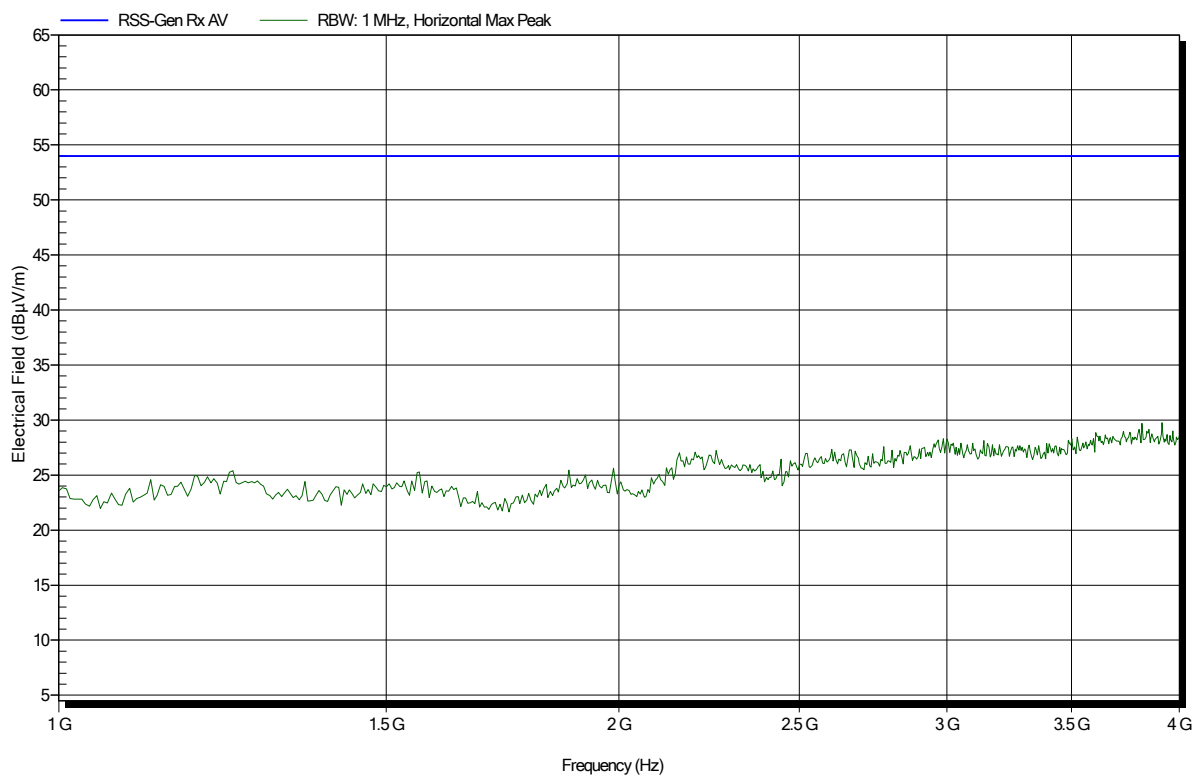
Measurement distance: 1 m

Mode: RX; BLE; 2440 MHz

Test Date: 2020-01-16

Note:

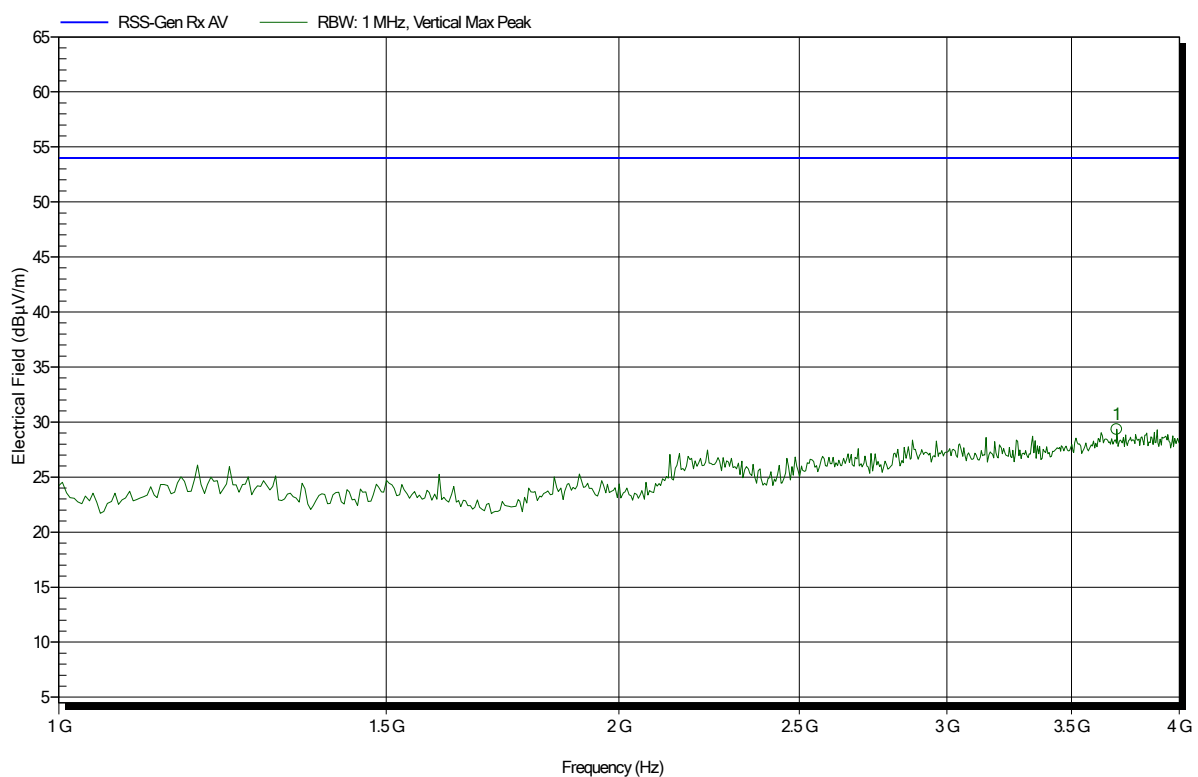
Index 43



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

Project number: G0M-1912-8654
 Applicant: wh Münzprüfer Berlin GmbH
 EUT Name: Coin selector
 Model: EMP 500 v7 /CLB
 Test Site:
 Operator: Wilfried Treffke
 Test Conditions: Tnom: 22°C, Vnom: 12 VDC (AC/DC adaptor)
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 1 m
 Mode: RX; BLE; 2440 MHz
 Test Date: 2020-01-16
 Note:

Index 46



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
3.702 GHz	29.34 dBµV/m	53.98 dBµV/m	-24.64 dB	Pass

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

Project number: G0M-1912-8654

Applicant: wh Münzprüfer Berlin GmbH

EUT Name: Coin selector

Model: EMP 500 v7 /CLB

Test Site:

Operator: Wilfried Treffke

Test Conditions: Tnom: 22°C, Vnom: 12 VDC (AC/DC adaptor)

Antenna: Schwarzbeck BBHA 9120D, Horizontal

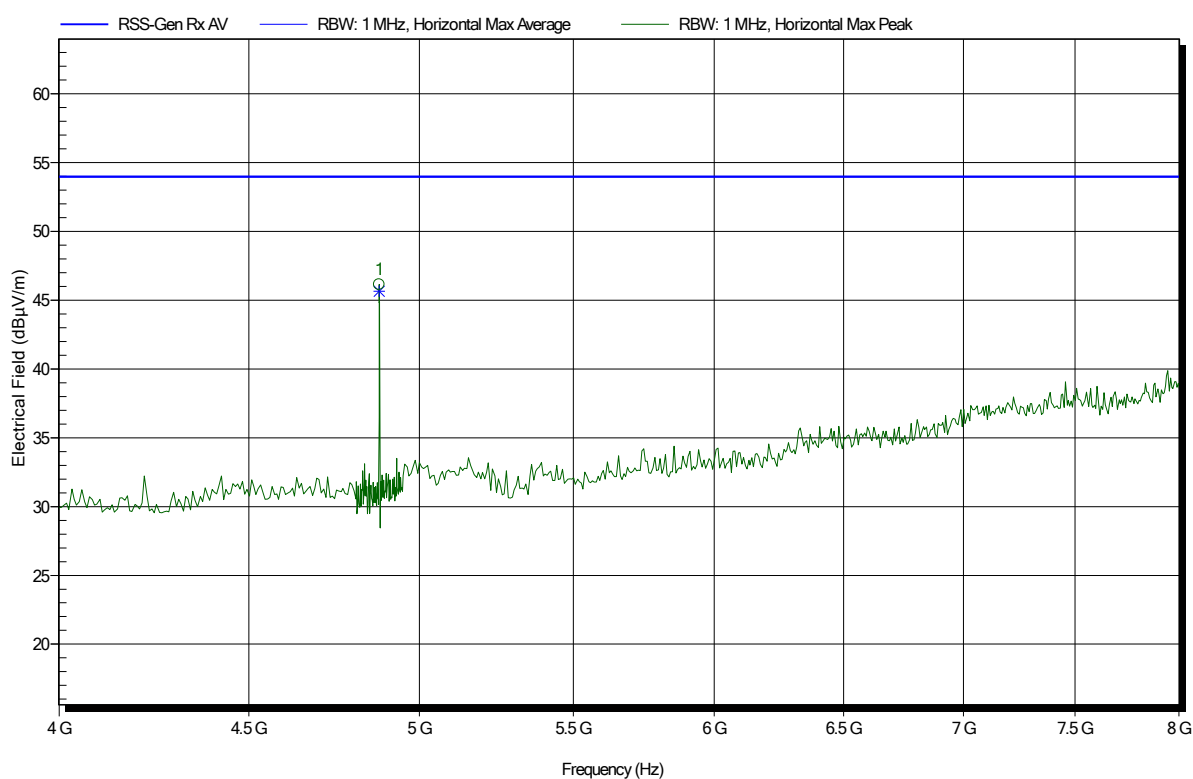
Measurement distance: 1 m

Mode: RX; BLE; 2440 MHz

Test Date: 2020-01-16

Note:

Index 44



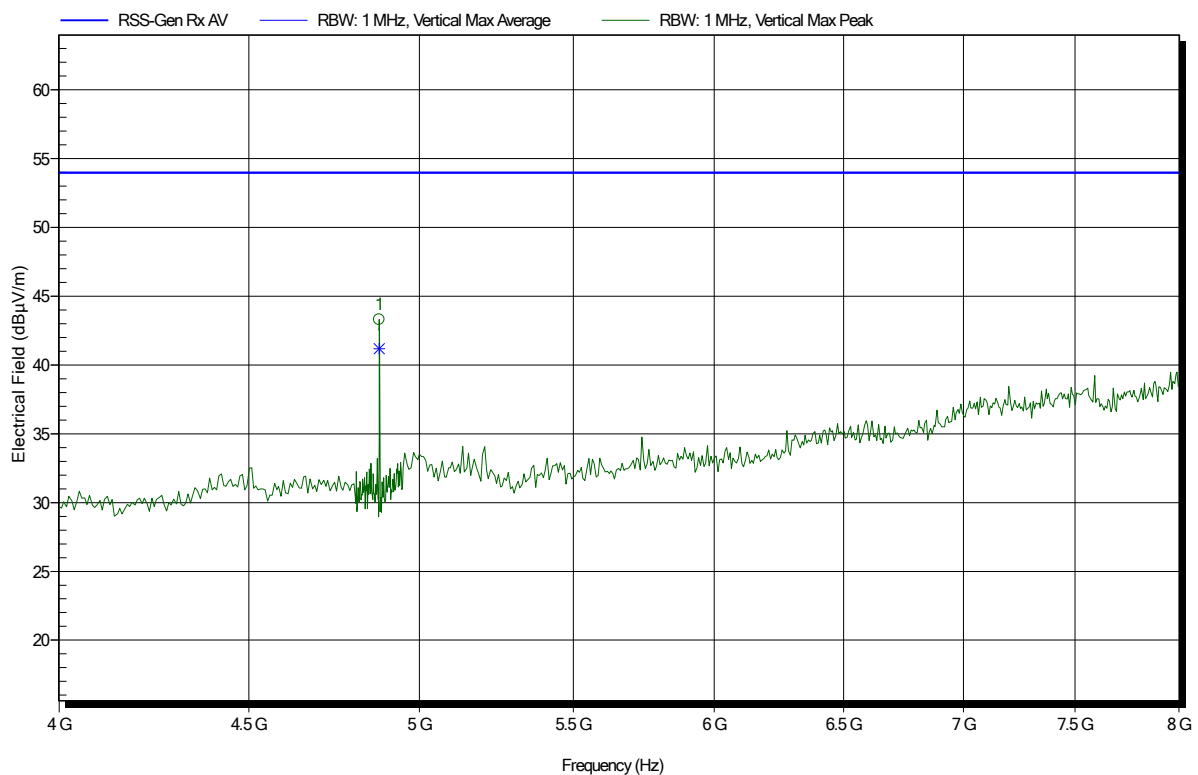
Frequency	Peak	Peak Limit	Peak Difference	Peak Status
4.878 GHz	46.14 dBµV/m	53.98 dBµV/m	-7.84 dB	Pass
Frequency	Average	Average Limit	Average Difference	Average Status
4.878 GHz	45.64 dBµV/m	53.98 dBµV/m	-8.34 dB	Pass

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

Project number: G0M-1912-8654

Applicant: wh Münzprüfer Berlin GmbH
 EUT Name: Coin selector
 Model: EMP 500 v7 /CLB
 Test Site:
 Operator: Wilfried Treffke
 Test Conditions: Tnom: 22°C, Vnom: 12 VDC (AC/DC adaptor)
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 1 m
 Mode: RX; BLE; 2440 MHz
 Test Date: 2020-01-16
 Note:

Index 47



Frequency 4.878 GHz	Peak 43.3 dBµV/m	Peak Limit 53.98 dBµV/m	Peak Difference -10.68 dB	Peak Status Pass
Frequency 4.878 GHz	Average 41.17 dBµV/m	Average Limit 53.98 dBµV/m	Average Difference -12.81 dB	Average Status Pass

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

Project number: G0M-1912-8654

Applicant: wh Münzprüfer Berlin GmbH

EUT Name: Coin selector

Model: EMP 500 v7 /CLB

Test Site:

Operator: Wilfried Treffke

Test Conditions: Tnom: 22°C, Vnom: 12 VDC (AC/DC adaptor)

Antenna: Schwarzbeck BBHA 9120D, Horizontal

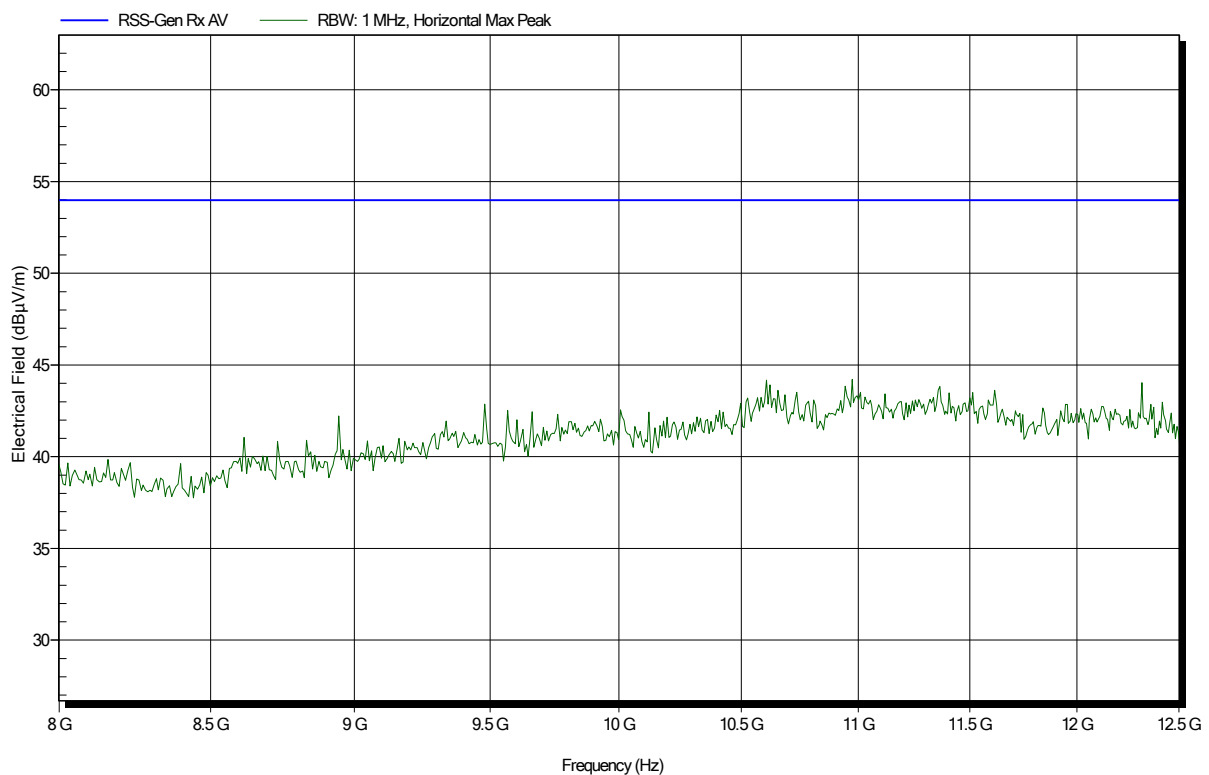
Measurement distance: 1 m converted to 3m

Mode: RX; BLE; 2440 MHz

Test Date: 2020-01-16

Note:

Index 45



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

Project number: G0M-1912-8654

Applicant: wh Münzprüfer Berlin GmbH

EUT Name: Coin selector

Model: EMP 500 v7 /CLB

Test Site:

Operator: Wilfried Treffke

Test Conditions: Tnom: 22°C, Vnom: 12 VDC (AC/DC adaptor)

Antenna: Schwarzbeck BBHA 9120D, Vertical

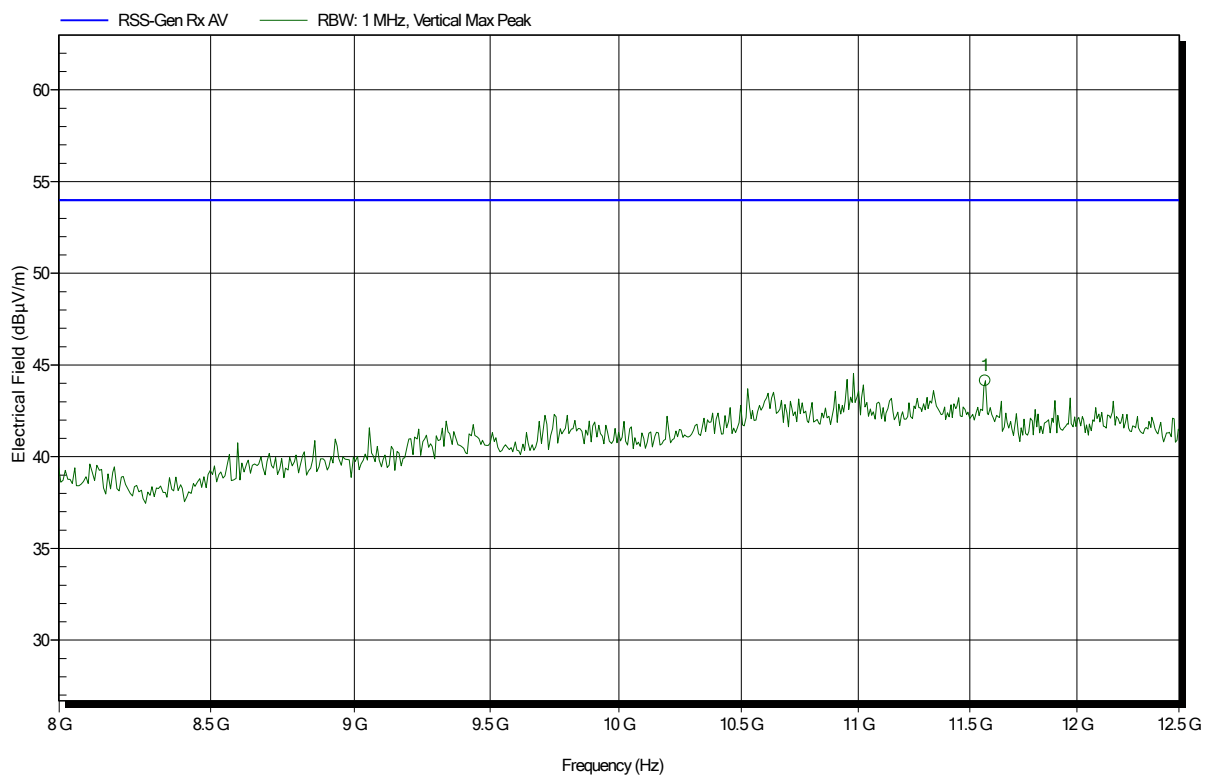
Measurement distance: 1 m converted to 3m

Mode: RX; BLE; 2440 MHz

Test Date: 2020-01-16

Note:

Index 48



Frequency	Peak	Peak Limit	Peak Difference	Status
11.57 GHz	44.14 dBµV/m	53.98 dBµV/m	-9.84 dB	Pass