

FCC TEST REPORT FCC 47 CFR Part 15C Industry Canada RSS-210 Frequency hopping systems operating within the 2400 – 2483.5 MHz band	
Report Reference No.	G0M-1406-3933-TFC247BT-V01
Testing Laboratory	Eurofins Product Service GmbH
Address	Storkower Str. 38c 15526 Reichenwalde Germany
Accreditation	  A2LA Accredited Testing Laboratory, Certificate No.: 1983.01 FCC Filed Test Laboratory, Reg.-No.: 96970 IC OATS Filing assigned code: 3470A
Applicant's name	Kamstrup A/S
Address	Industrivej 28 8660 Skanderborg DENMARK
Test specification: Standard 47 CFR Part 15C RSS-210, Issue 8, 2010-12 RSS-Gen, Issue 3, 2010-12 ANSI C63.4:2009	
Equipment under test (EUT): Product description READY Converter for the US market Model No. READY Converter Additional Model(s) None Brand Name(s) None Hardware version 5535 1377 B1 Firmware / Software version 50981119 B1, Eeprom config : 55141211 B1 FCC-ID: OUY-READYAMR1 IC: N/A Test result Passed	

Test Report No.: G0M-1406-3933-TFC247BT-V01

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

Possible test case verdicts:

- neither assessed nor tested: N/N
- required by standard but not appl. to test object.....: N/A
- required by standard but not tested.....: N/T
- not required by standard for the test object: N/R
- 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: 2014-09-08

Date (s) of performance of tests: 2014-09-08

Compiled by: Wilfried Treffke

Tested by (+ signature).....: Wilfried Treffke

(Responsible for Test)

Approved by (+ signature): Christian Weber

Date of issue: 2014-11-10

Total number of pages: 59

W. Treffke

C. Weber

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:

Partial test based on a modular approval.

The Bluetooth transceiver uses an integrated chip antenna, Model Murata LDA21K, the external smarteq antenna RA3156.03.00.00 + midmag base is used for the the 916 MHz radio only.

Version History

Version	Issue Date	Remarks	Revised by
01	2014-11-10	Initial Release	

REPORT INDEX

1	EQUIPMENT (TEST ITEM) DESCRIPTION	5
1.1	Photos – Equipment External	7
1.2	Photos – Equipment internal	10
1.3	Photos – Test setup	13
1.4	Supporting Equipment Used During Testing	14
1.5	Test Modes	15
1.6	Test Equipment Used During Testing	16
1.7	Sample emission level calculation	17
2	RESULT SUMMARY	18
3	TEST CONDITIONS AND RESULTS	19
3.1	Test Conditions and Results – AC power line conducted emissions	19
3.2	Test Conditions and Results – Transmitter radiated emissions	22
ANNEX A	Transmitter radiated spurious emissions	24

1 Equipment (Test item) Description

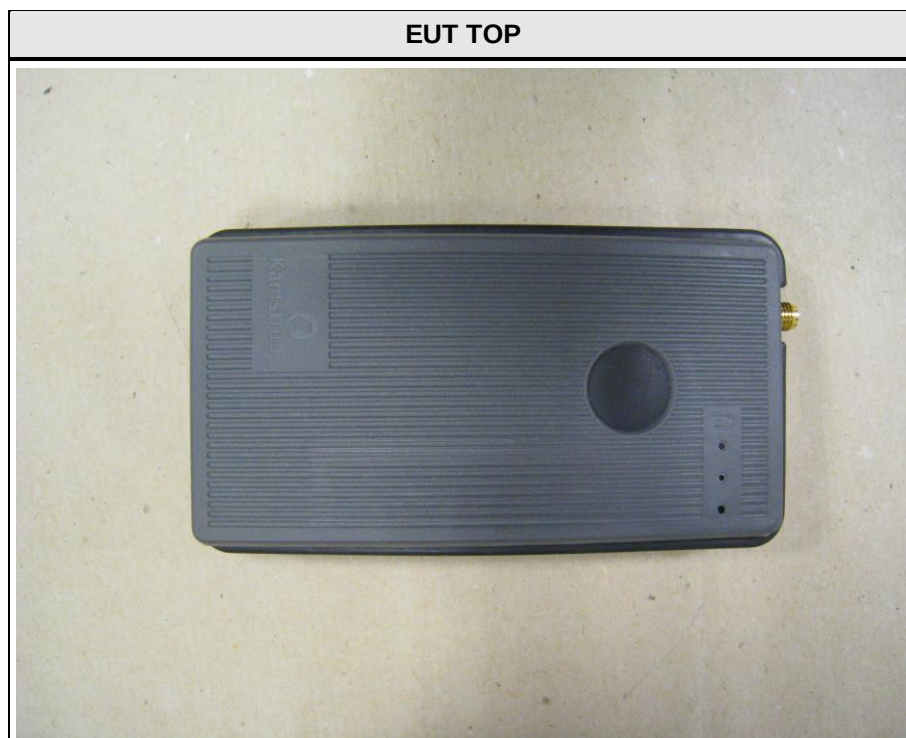
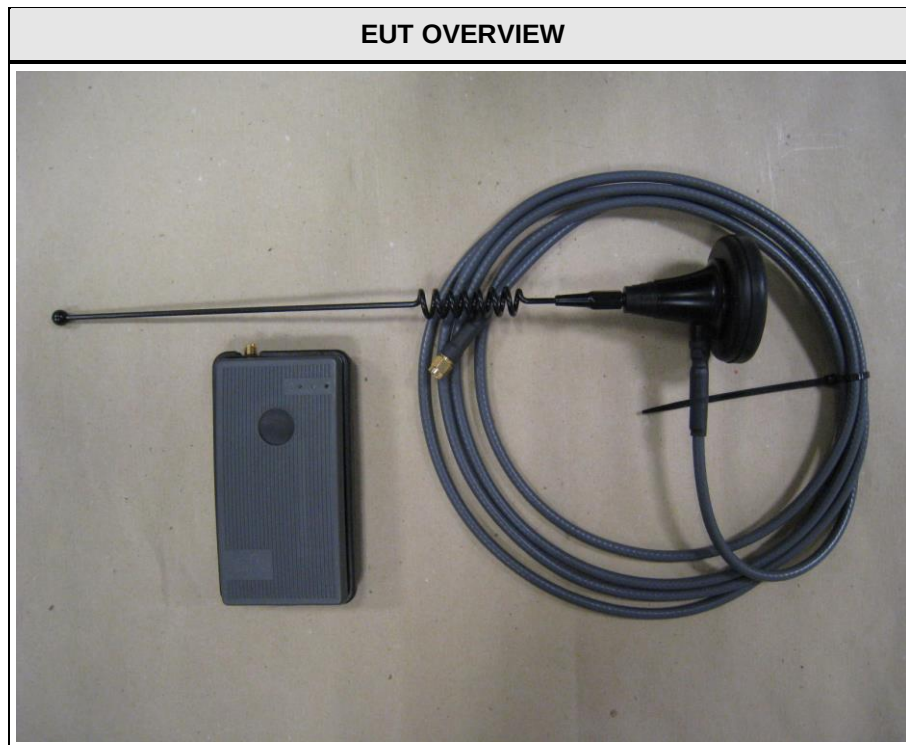
Description	READY Converter for the US market	
Model	READY Converter	
Additional Model(s)	None	
Brand Name(s)	None	
Serial number	None	
Hardware version	5535 1377 B1	
Software / Firmware version	50981119 B1, Eeprom config : 55141211 B1	
FCC-ID	OUY-REDY AMR1	
IC	N/A	
Equipment type	End product	
Radio type	Transceiver	
Radio technology	Bluetooth	
Operating frequency range	2402 - 2480 MHz	
Assigned frequency band	2400 - 2483.5 MHz	
Main test frequencies	F _{LOW}	2402 MHz
	F _{MID}	2441 MHz
	F _{HIGH}	2480 MHz
Spreading	FHSS	
Modulations	GFSK, PI/4-DQPSK, 8-PSK	
Number of channels	79 hopping channels at all	
Channel spacing	1 MHz	
Number of antennas	1	
Antenna	Type	integrated
	Model	LDA21K
	Manufacturer	Murata
	Gain	0.9
Radio module	Type	Panasonic
	Model	PAN 1322 (FCC-ID T7VEBMU)
	Manufacturer	Panasonic
	HW Version	02
	SW Version	1.3
Manufacturer	Kamstrup A/S Industrivej 28 8660 Skanderborg DENMARK	
Power supply	V _{NOM}	3.0 VDC
	V _{MIN}	2.55 VDC
	V _{MIN}	3.45 VDC

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AC/DC-Adaptor	Model	dch5-050us
	Vendor	Emerson
	Input	110 V AC
	Output	5.0 V DC

1.1 Photos – Equipment External



EUT BACK



EUT RF CONNECTOR

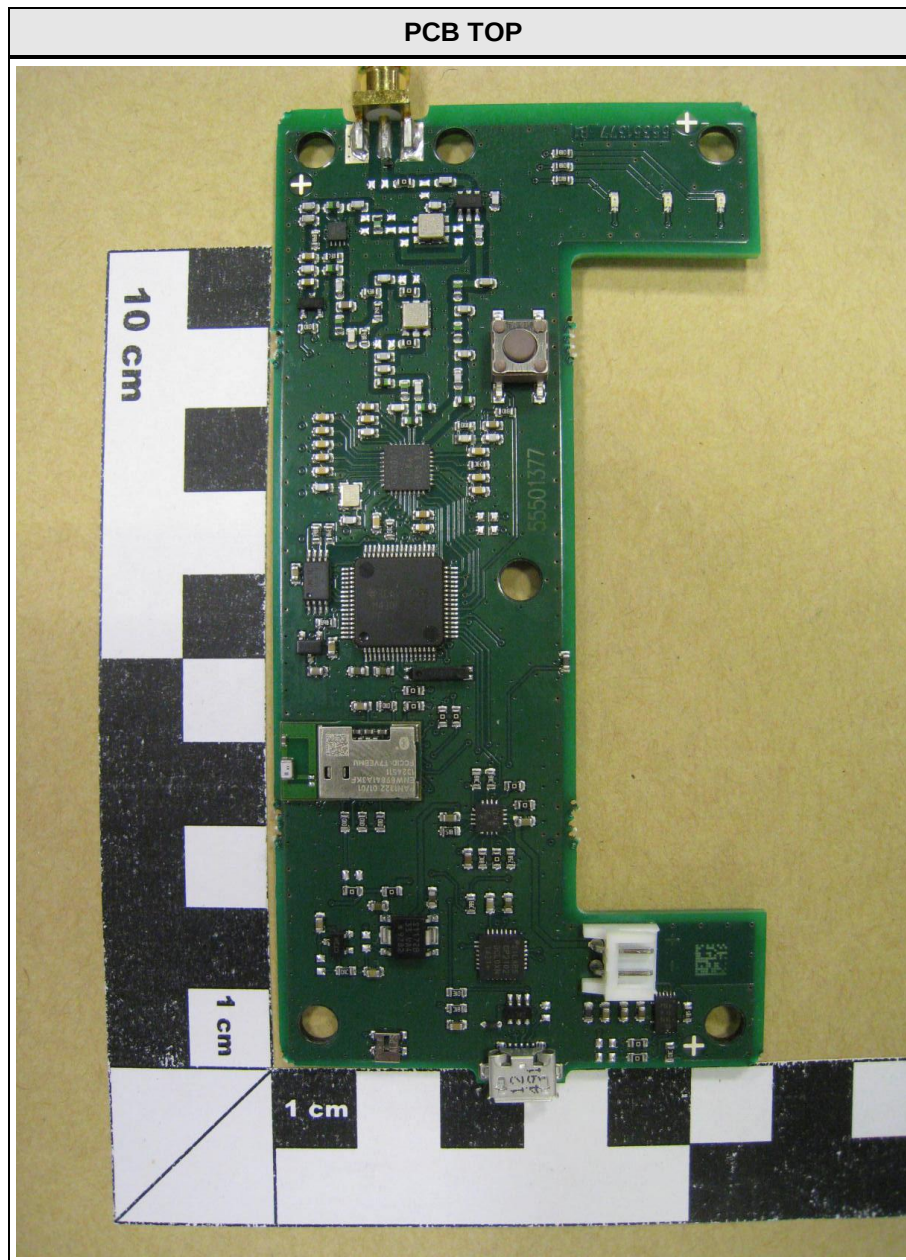


EUT USB CONNECTOR

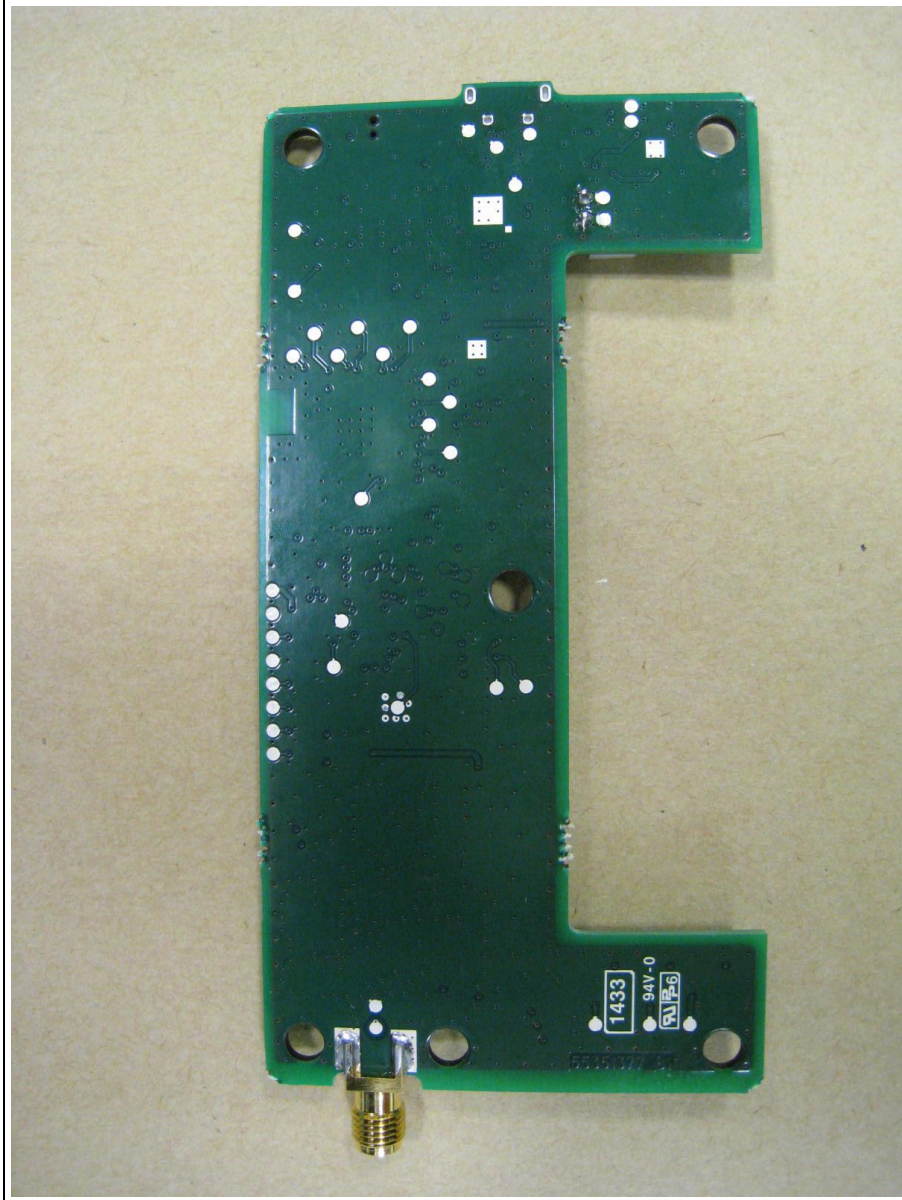


1.2 Photos – Equipment internal

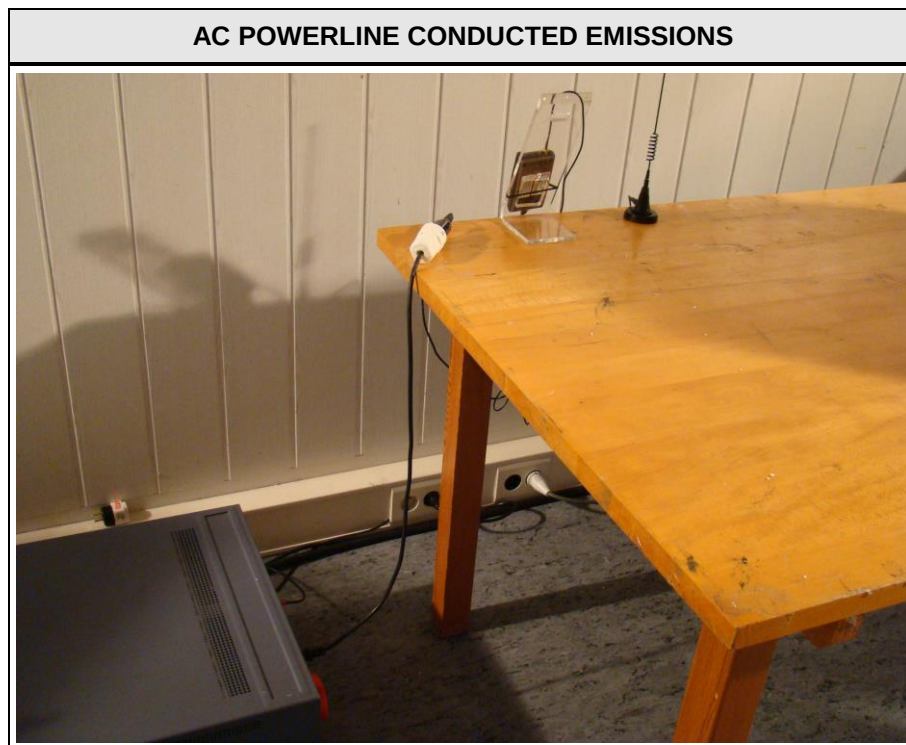
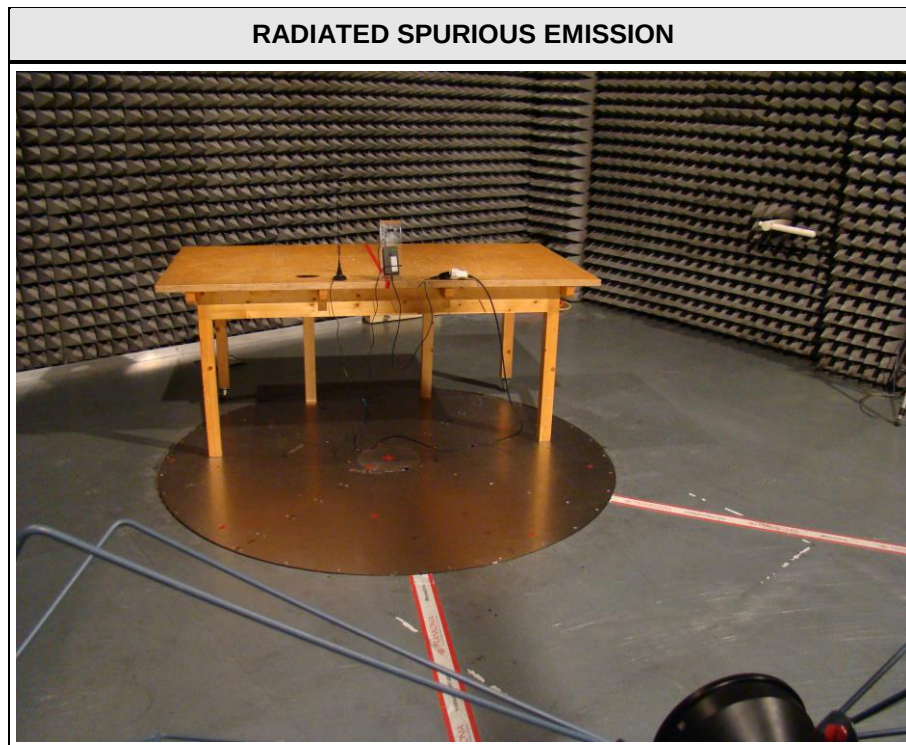




PCB BOTTOM



1.3 Photos – Test setup



1.4 Supporting Equipment Used During Testing

Product Type*	Device	Manufacturer	Model No.	Comments
AE	Bluetooth Tester	R & S	CBT	BT Signaling
*Note: Use the following abbreviations: AE : Auxiliary/Associated Equipment, or SIM : Simulator (Not Subjected to Test) CABL : Connecting cables				

1.5 Test Modes

Mode #	Description	
DH5-Sngl	General conditions:	EUT powered by dedicated AC/DC adaptor..
	Radio conditions:	Mode = standalone transmit Spreading = Hopping stopped (single hopping channel) Modulation = GFSK Packet type = DH5 Data rate = 1 Mbps Duty cycle = 77 % Power level = Maximum
AC-Powerline	General conditions:	EUT powered by dedicated AC/DC adaptor..
	Radio conditions:	Mode = standalone transmit Spreading = Hopping Power level = Maximum

1.6 Test Equipment Used During Testing

Measurement Software			
Description	Manufacturer	Name	Version
EMC Test Software	Dare Instruments	Radimation	2014.1.15

Radiated spurious emissions					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Semi-anechoic chamber	Frankonia	AC 1	EF00062	-	-
Spectrum Analyzer	R&S	FSIQ26	EF00242	2014-03	2015-03
Biconical Antenna	R&S	HK 116	EF00012	2013-02	2016-02
LPD Antenna	R&S	HL 223	EF00187	2014-03	2017-03
LPD Antenna	R&S	HL 025	EF00327	2013-02	2016-02

AC powerline conducted emissions					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
AMN	R&S	ESH2-Z5	EF00182	2012-10	2014-10
EMI Test Receiver	R&S	ESCS 30	EF00295	2013-10	2014-10

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 dB μ V. 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:

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

Net:

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

Limit:

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

$$\begin{array}{rclclcl} \text{Reading} & + & \text{AF} & = & \text{Net Reading} & : & \text{Net reading - FCC limit} & = & \text{Margin} \\ 21.5 \text{ dB}\mu\text{V} & + & 26 \text{ dB} & = & 47.5 \text{ dB}\mu\text{V/m} & : & 47.5 \text{ dB}\mu\text{V/m} - 57.0 \text{ dB}\mu\text{V/m} & = & -9.5 \text{ dB} \end{array}$$

2 Result Summary

FCC 47 CFR Part 15C, IC RSS-210				
Product Specific Standard Section	Requirement – Test	Reference Method	Result	Remarks
RSS-Gen 4.6.1	Occupied Bandwidth	RSS-Gen 4.6.1	N/R	
FCC § 15.247(a)(1) IC RSS-210 § A8.1	20 dB Bandwidth	Public notice DA 00-705	N/N	See 15.247 test report FCC-ID T7VEBMU
FCC § 15.247(a)(1)(iii) IC RSS-210 § A8.1	Number of hopping frequencies	Public notice DA 00-705	N/N	See 15.247 test report FCC-ID T7VEBMU
FCC § 15.247(a)(1) IC RSS-210 § A8.1	Frequency hopping channel separation	Public notice DA 00-705	N/N	See 15.247 test report FCC-ID T7VEBMU
FCC § 15.247(a)(1)(iii) IC RSS-210 § A8.1	Time of occupancy (Dwell time)	Public notice DA 00-705	N/N	See 15.247 test report FCC-ID T7VEBMU
FCC § 15.247(b)(1) IC RSS-210 § A8.4	Maximum peak conducted power	Public notice DA 00-705	N/N	See 15.247 test report FCC-ID T7VEBMU
47 CFR 15.207 RSS-Gen 7.2.4	AC power line conducted emissions	ANSI C63.4	PASS	
FCC § 15.247(d) IC RSS-210 § A8.5	Band edge compliance	Public notice DA 00-705	N/N	See 15.247 test report FCC-ID T7VEBMU
FCC § 15.247(d) IC RSS-210 § A8.5	Conducted spurious emissions	Public notice DA 00-705	N/N	See 15.247 test report FCC-ID T7VEBMU
FCC § 15.247(d) FCC § 15.209 IC RSS-210 A8.5 IC RSS-Gen 4.9 IC RSS-Gen 7.2.5	Transmitter radiated spurious emissions	Public notice DA 00-705 / ANSI C 63.4	PASS	
IC RSS-Gen 4.10 IC RSS-Gen 6.1	Receiver radiated spurious emissions	ANSI C 63.4	N/R	
Remarks:				

3 Test Conditions and Results

3.1 Test Conditions and Results – AC power line conducted emissions

Power line conducted emissions acc. FCC 47 CFR 15.207 / IC RSS-Gen				Verdict: PASS
Test according referenced standards		Reference Method		
		ANSI C63.4		
Fully configured sample scanned over the following frequency range		Frequency range		
		0.15 MHz to 30 MHz		
Points of Application		Application Interface		
AC Mains		LISN		
EUT test mode		AC-Powerline		
Limits and results				
Frequency [MHz]	Quasi-Peak [dBμV]	Result	Average [dBμV]	Result
0.15 to 5	66 to 56*	PASS	56 to 46*	PASS
0.5 to 5	56	PASS	46	PASS
5 to 30	60	PASS	50	PASS
Comments:				
* Limit decreases linearly with the logarithm of the frequency.				

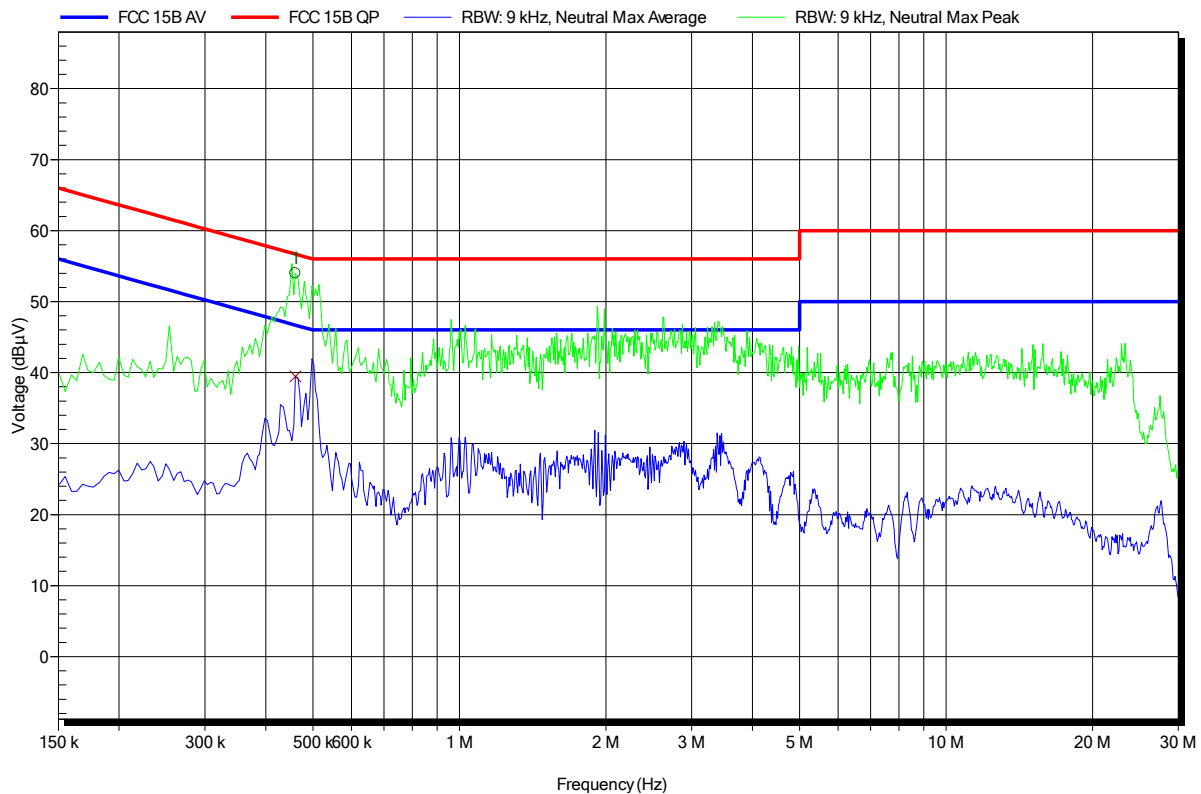
Conducted Emissions

EMI voltage test in the ac-mains according to FCC Part 15b

Project number: G0M-1406-3933

Manufacturer: Kamstrup A/S
 EUT Name: READY Converter
 Model: READY US (walk-by-configuration)
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pflug
 Test Conditions: Tnom: 23°C, Unom: 13.5VDC
 LISN: ESH2-Z5 N
 Mode: charging + link + RX-mode
 var. 4
 Test Date: 2014-09-08
 Note:

Index 33



Frequency 460.5 kHz	Average 39.46 dBμV	Average Limit 46.68 dBμV	Average Difference -7.23 dB	Average Status Pass
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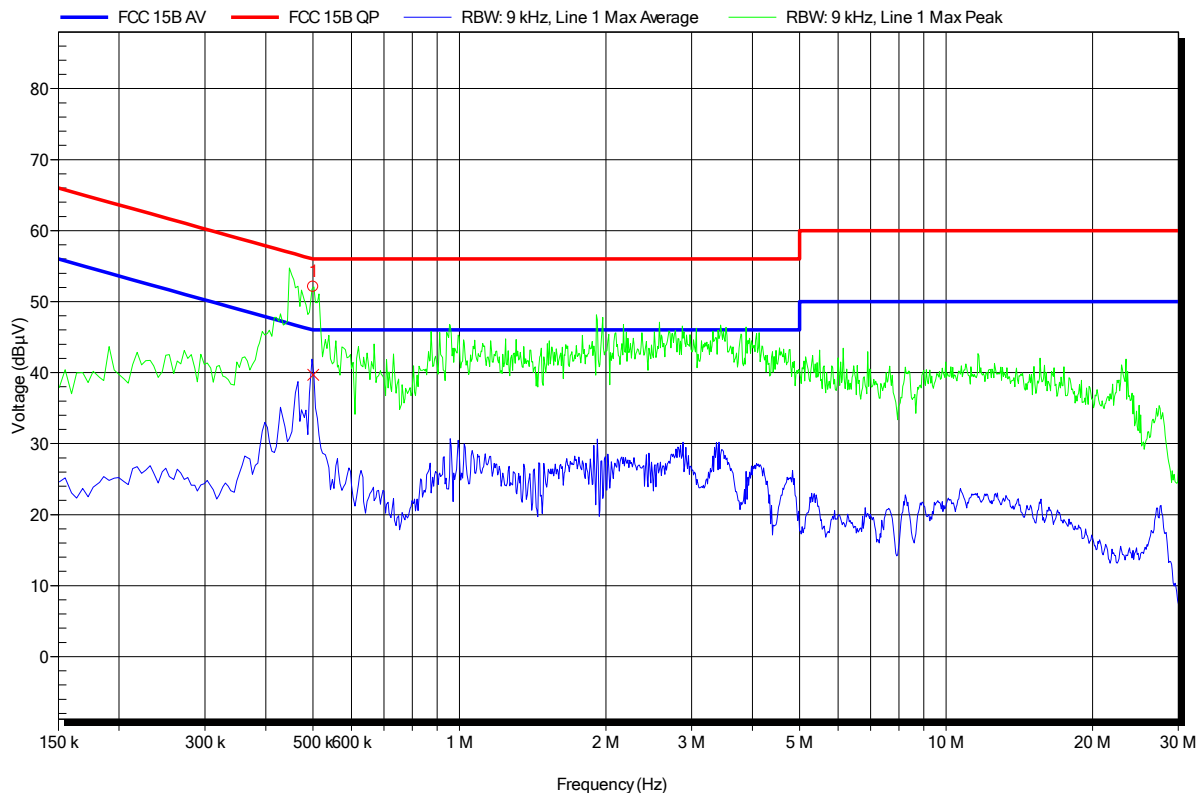
Conducted Emissions

EMI voltage test in the ac-mains according to FCC Part 15b

Project number: G0M-1406-3933

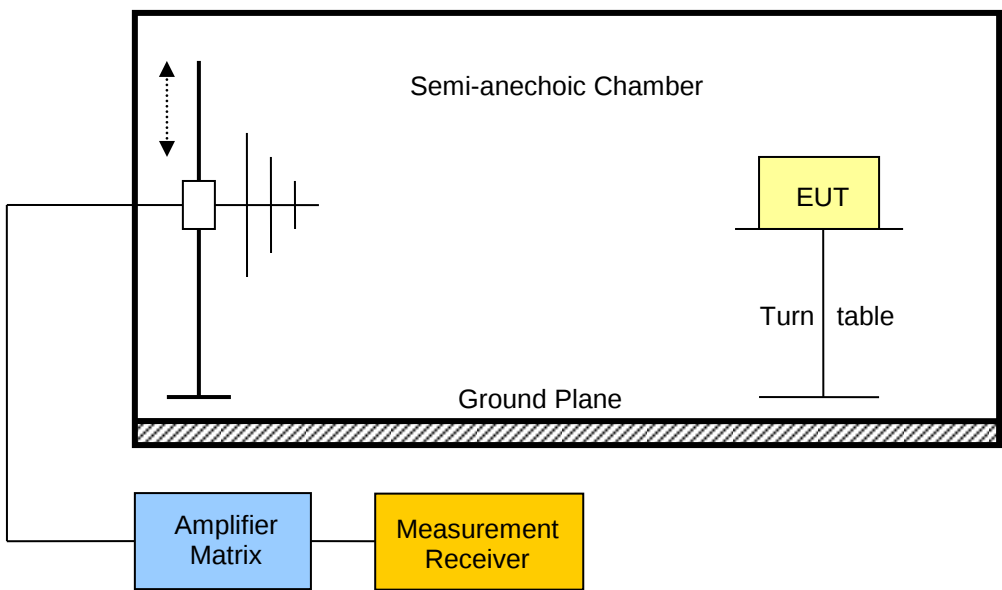
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 EUT Name: READY Converter
 Model: READY US (walk-by-configuration)
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pflug
 Test Conditions: Tnom: 23°C, Unom: 13.5VDC
 LISN: ESH2-Z5 L
 Mode: charging + link + RX-mode
 var. 4
 Test Date: 2014-09-08
 Note:

Index 34



Frequency	Average	Average Limit	Average Difference	Average Status
501 kHz	39.67 dBμV	46 dBμV	-6.33 dB	Pass

3.2 Test Conditions and Results – Transmitter radiated emissions

Transmitter radiated emissions acc. FCC 47 CFR 15.247 / IC RSS-210				Verdict: PASS	
Test according referenced standards		Reference Method			
		FCC 15.247(d)			
Test according to measurement reference		Reference Method			
		FCC Public Notice DA 00-705 / ANSI C63.4			
Test frequency range		Tested frequencies F _{LOW} , F _{MID} , F _{HIGH}			
		30 MHz – 10 th Harmonic			
Limits					
Frequency range [MHz]	Detector	Limit [μV/m]	Limit [dBμV/m]	Limit Distance [m]	
30 – 88	Quasi-Peak	100	40	3	
88 – 216	Quasi-Peak	150	43.5	3	
216 – 960	Quasi-Peak	200	46	3	
960 – 1000	Quasi-Peak	500	54	3	
> 1000	Average	500	54	3	
Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)). When average radiated emission measurements are specified, including average emission measurements below 1000 MHz, there also is a limit on the peak level of the radio frequency emissions. The limit on peak radio frequency emissions is 20 dB above the maximum permitted average emission limit applicable to the equipment under test.					
Test setup					
					

Test procedure									
1. EUT set to test mode (Communication tester is used if needed) 2. Span it set according to measurement range 3. Resolution bandwidth below 1 GHz is set according to CISPR 16 with peak/quasi-peak detector and RBW of 1 MHz with peak/average detector is used above 1 GHz 4. Markers are set to peak emission levels within restricted bands									
Test results – Internal Antenna									
Channel	Frequency [MHz]	Mode	Emission [MHz]	Level [dBμV/m]	Det.	Pol.	Limit [dBμV/m]	Limit dist. [m]*	Margin [dB]
F _{LOW}	2402	DH5-Sngl	2376	42.80	pk	hor	74.00	3	-31.20
F _{LOW}	2402	DH5-Sngl	2376	31.18	RMS	hor	54.00	3	-22.82
F _{LOW}	2402	DH5-Sngl	2390	40.10	pk	ver	74.00	3	-33.90
F _{LOW}	2402	DH5-Sngl	2390	24.56	RMS	ver	54.00	3	-29.44
F _{HIGH}	2480	DH5-Sngl	2483.5	53.48	pk	hor	74.00	3	-20.52
F _{HIGH}	2480	DH5-Sngl	2483.5	48.14	RMS	hor	54.00	3	-05.86
F _{HIGH}	2480	DH5-Sngl	2483.5	46.14	pk	ver	74.00	3	-27.86
F _{HIGH}	2480	DH5-Sngl	2483.5	36.13	RMS	ver	54.00	3	-17.87
F _{LOW}	2402	3DH5-Sngl	2376	41.80	pk	hor	74.00	3	-32.20
F _{LOW}	2402	3DH5-Sngl	2376	29.85	RMS	hor	54.00	3	-24.15
F _{LOW}	2402	3DH5-Sngl	2390	41.30	pk	ver	74.00	3	-32.70
F _{LOW}	2402	3DH5-Sngl	2390	24.62	RMS	ver	54.00	3	-29.38
F _{HIGH}	2480	3DH5-Sngl	2483.6	53.40	pk	hor	74.00	3	-20.60
F _{HIGH}	2480	3DH5-Sngl	2483.6	46.56	RMS	hor	54.00	3	-07.44
F _{HIGH}	2480	3DH5-Sngl	2483.6	46.69	pk	ver	74.00	3	-27.31
F _{HIGH}	2480	3DH5-Sngl	2483.6	31.23	RMS	ver	54.00	3	-22.77
Comments: * Physical distance between EUT and measurement antenna.									

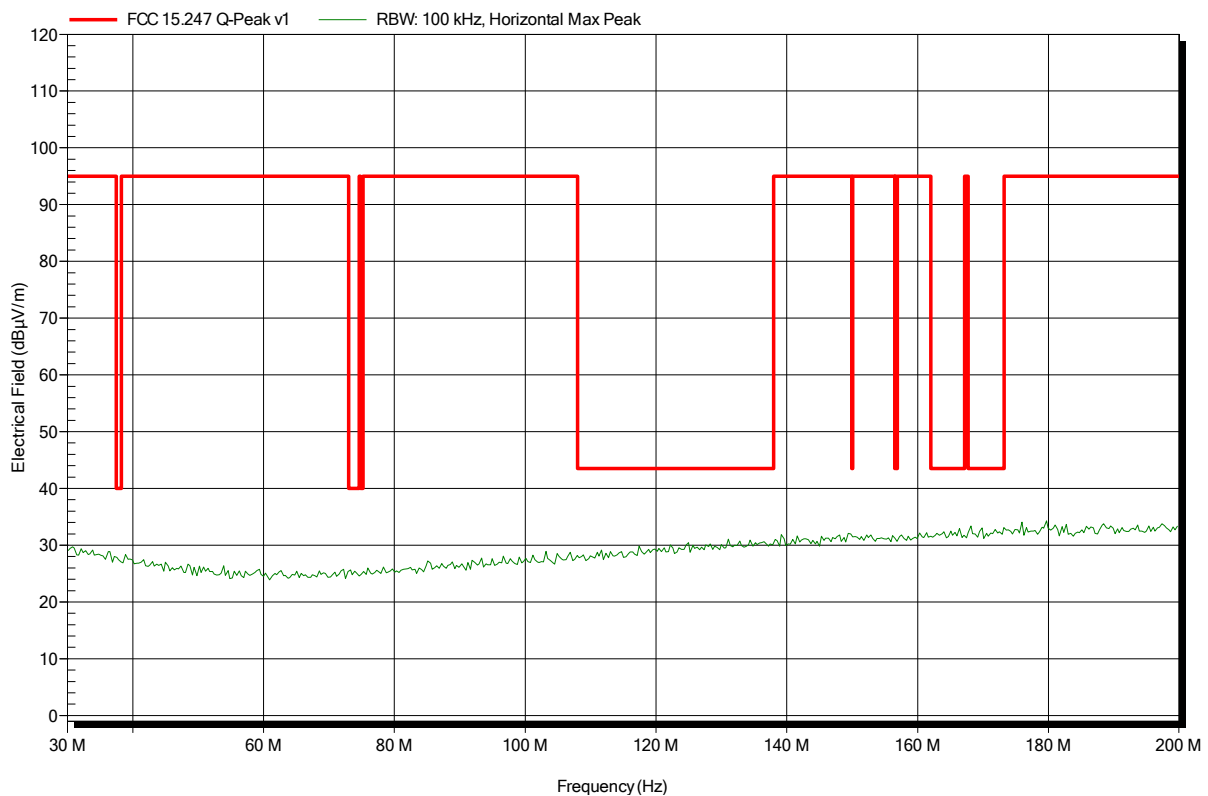
ANNEX A Transmitter radiated spurious emissions

Spurious emissions according to FCC 15.247

Project number: G0M-1406-3933

Applicant:	Kampstrup
EUT Name:	READY Converter for US maket
Model:	READY Converter
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: 5.0 V DC (adaptor)
Antenna:	Rohde & Schwarz HK 116, Horizontal
Measurement distance:	3 m
Mode:	TX; GFSK; DH5; 2402 MHz
Test Date:	2014-09-08
Note:	worst case

Index 23

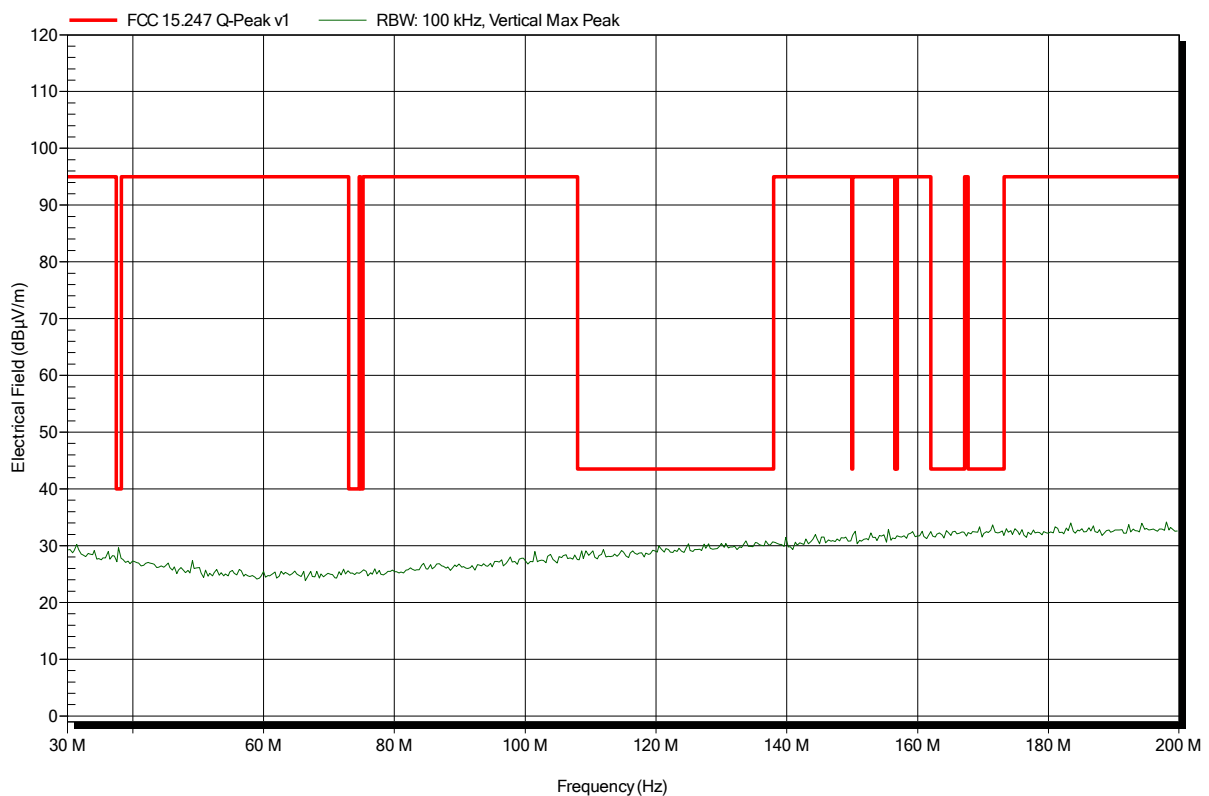


Spurious emissions according to FCC 15.247

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EUT Name:	READY Converter for US maket
Model:	READY Converter
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: 5.0 V DC (adaptor)
Antenna:	Rohde & Schwarz HK 116, Vertical
Measurement distance:	3 m
Mode:	TX; GFSK; DH5; 2402 MHz
Test Date:	2014-09-08
Note:	worst case

Index 24

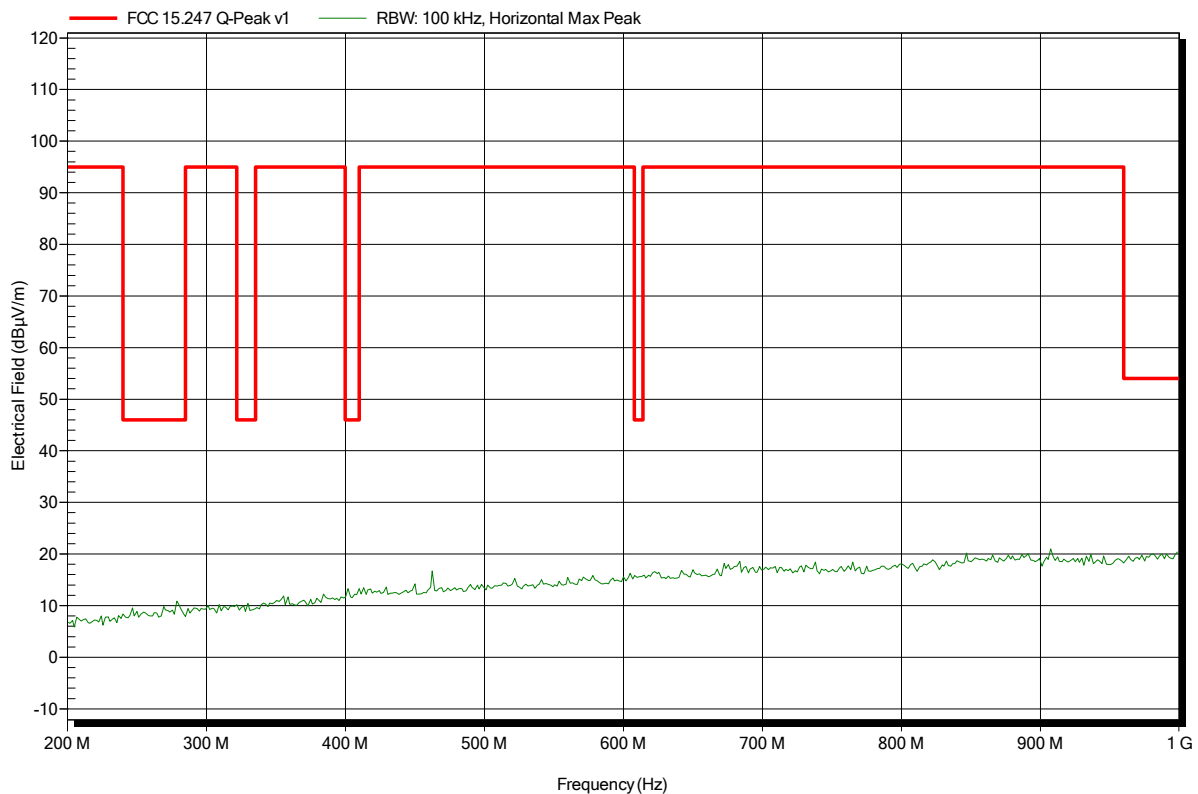


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EUT Name:	READY Converter for US maket
Model:	READY Converter
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: 5.0 V DC (adaptor)
Antenna:	Rohde & Schwarz HL 223, Horizontal
Measurement distance:	3 m
Mode:	TX; GFSK; DH5; 2402 MHz
Test Date:	2014-09-08
Note:	worst case

Index 25

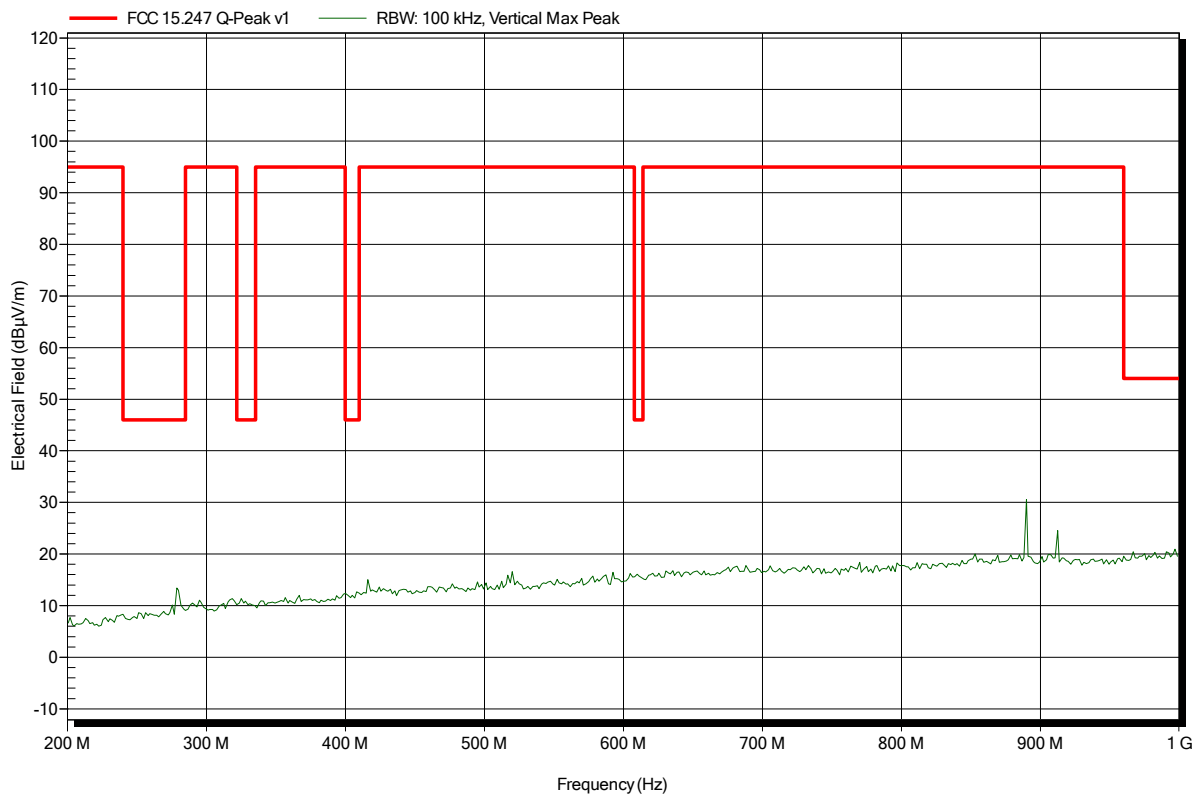


Spurious emissions according to FCC 15.247

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EUT Name:	READY Converter for US maket
Model:	READY Converter
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: 5.0 V DC (adaptor)
Antenna:	Rohde & Schwarz HL 223, Vertical
Measurement distance:	3 m
Mode:	TX; GFSK; DH5; 2402 MHz
Test Date:	2014-09-08
Note:	worst case

Index 26

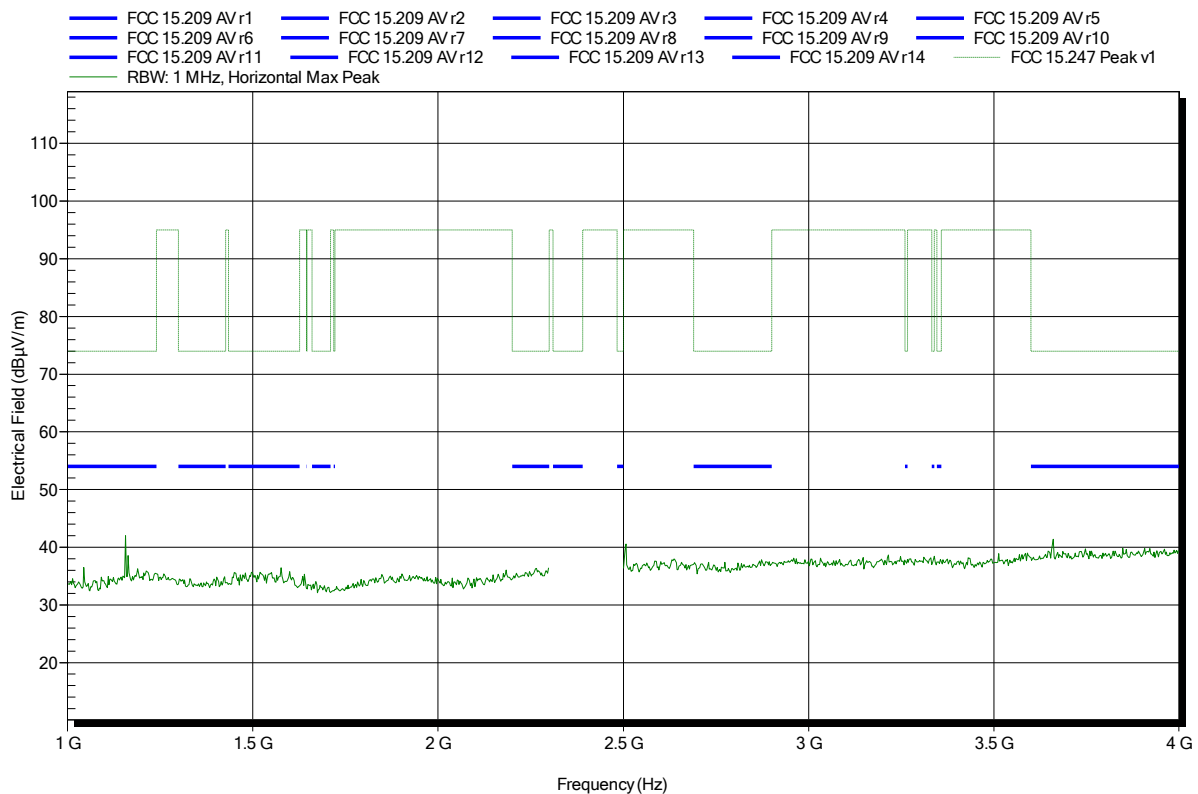


Spurious emissions according to FCC 15.247

Project number: GOM-1406-3933

Applicant: Kampstrup
 EUT Name: READy Converter for US maket
 Model: READy Converter
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 5.0 V DC (adaptor)
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 3 m
 Mode: TX; GFSK; DH5; 2402 MHz
 Test Date: 2014-09-08
 Note:

Index 3

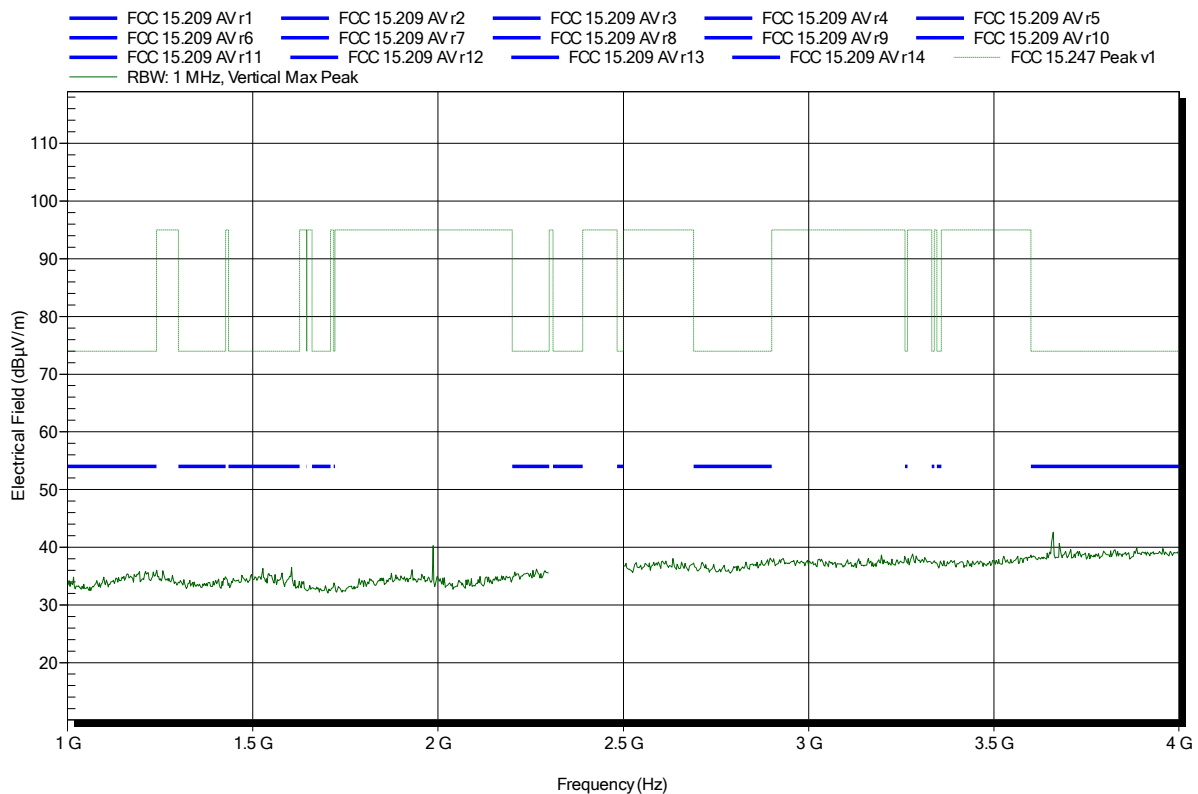


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 Model: READY Converter
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 5.0 V DC (adaptor)
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 3 m
 Mode: TX; GFSK; DH5; 2402 MHz
 Test Date: 2014-09-08
 Note:

Index 6

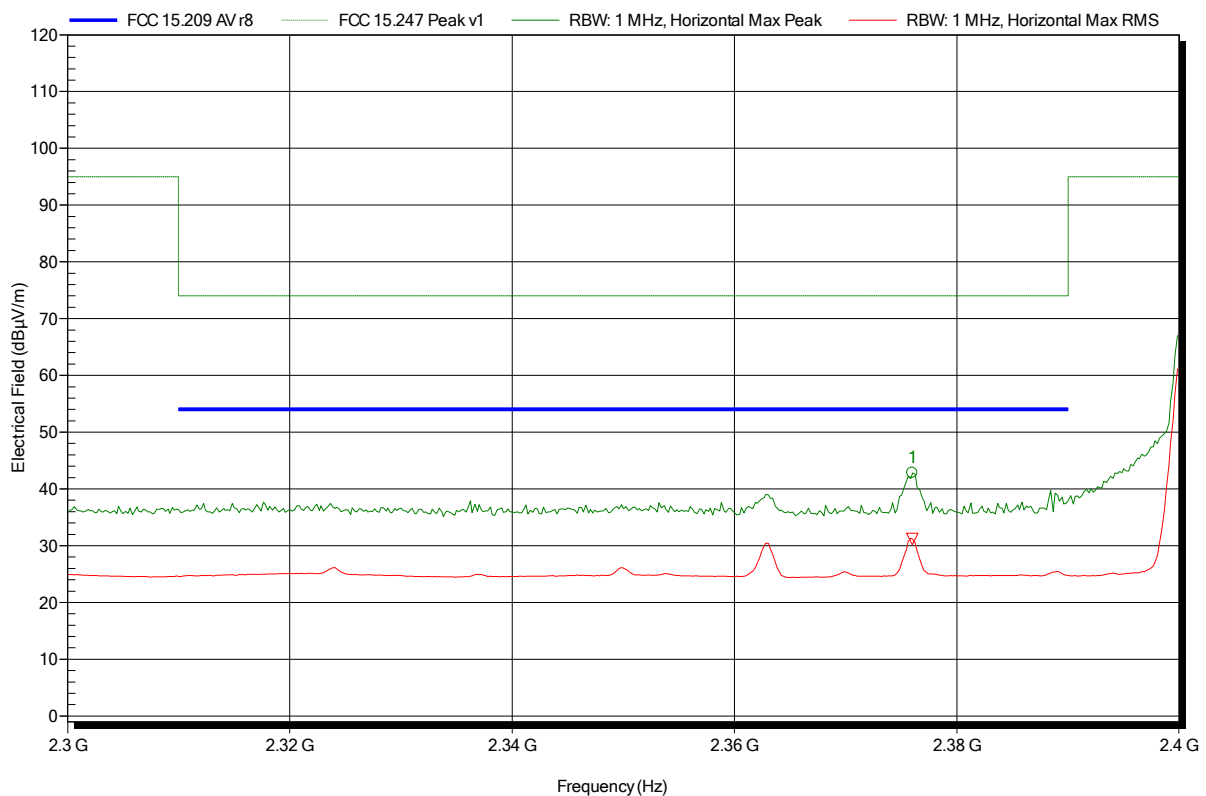


Spurious emissions according to FCC 15.247

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 Model: READY Converter
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 5.0 V DC (adaptor)
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 3 m
 Mode: TX; GFSK; DH5; 2402 MHz
 Test Date: 2014-09-08
 Note: lower bandedge

Index 5



Frequency 2.376 GHz	Peak 42.8 dBµV/m	Peak Limit 74 dBµV/m	Peak Difference -31.2 dB	Peak Status Pass
Frequency 2.376 GHz	RMS 31.18 dBµV/m	RMS Limit 54 dBµV/m	RMS Difference -22.82 dB	RMS Status Pass

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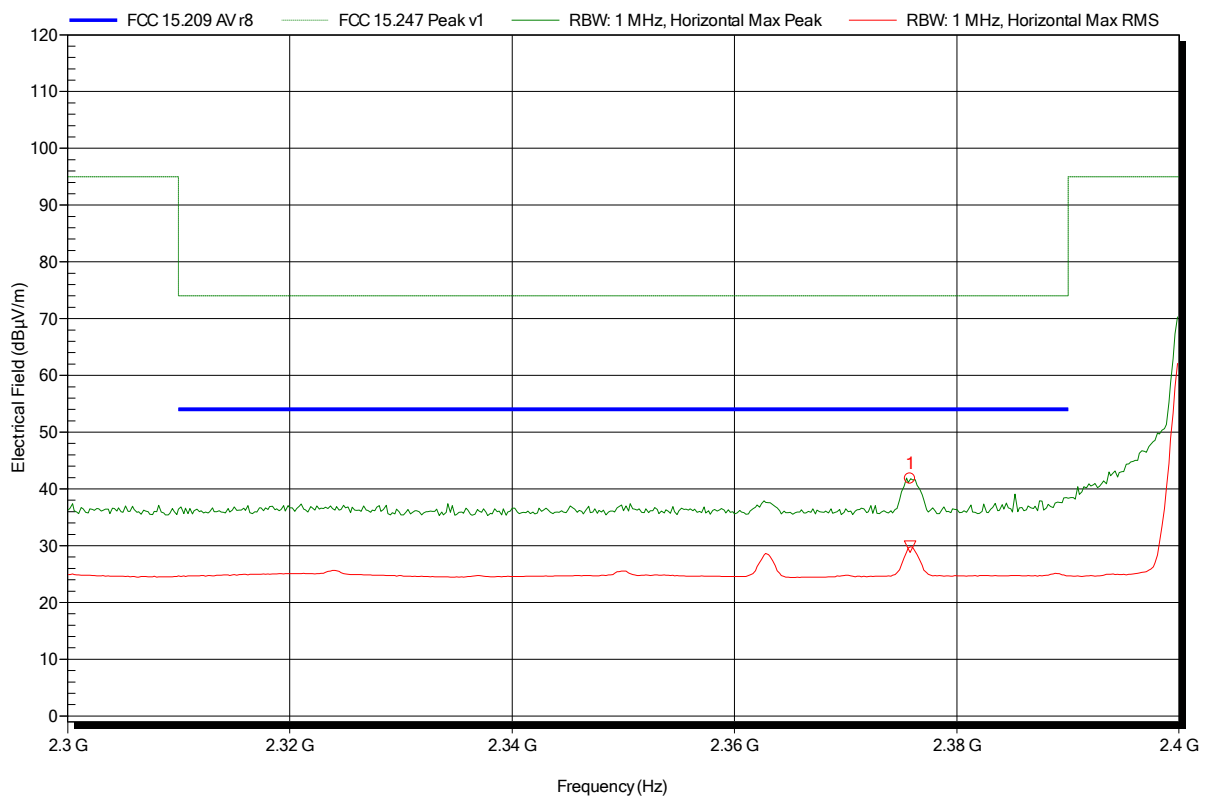
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 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 3 m
 Mode: TX; 8DPSK; 3DH5; 2402 MHz
 Test Date: 2014-09-08
 Note: lower bandedge

Index 21



Frequency 2.376 GHz	Peak 41.8 dBµV/m	Peak Limit 74 dBµV/m	Peak Difference -32.2 dB	Peak Status Pass
Frequency 2.376 GHz	RMS 29.85 dBµV/m	RMS Limit 54 dBµV/m	RMS Difference -24.15 dB	RMS Status Pass

Test Report No.: G0M-1406-3933-TFC247BT-V01

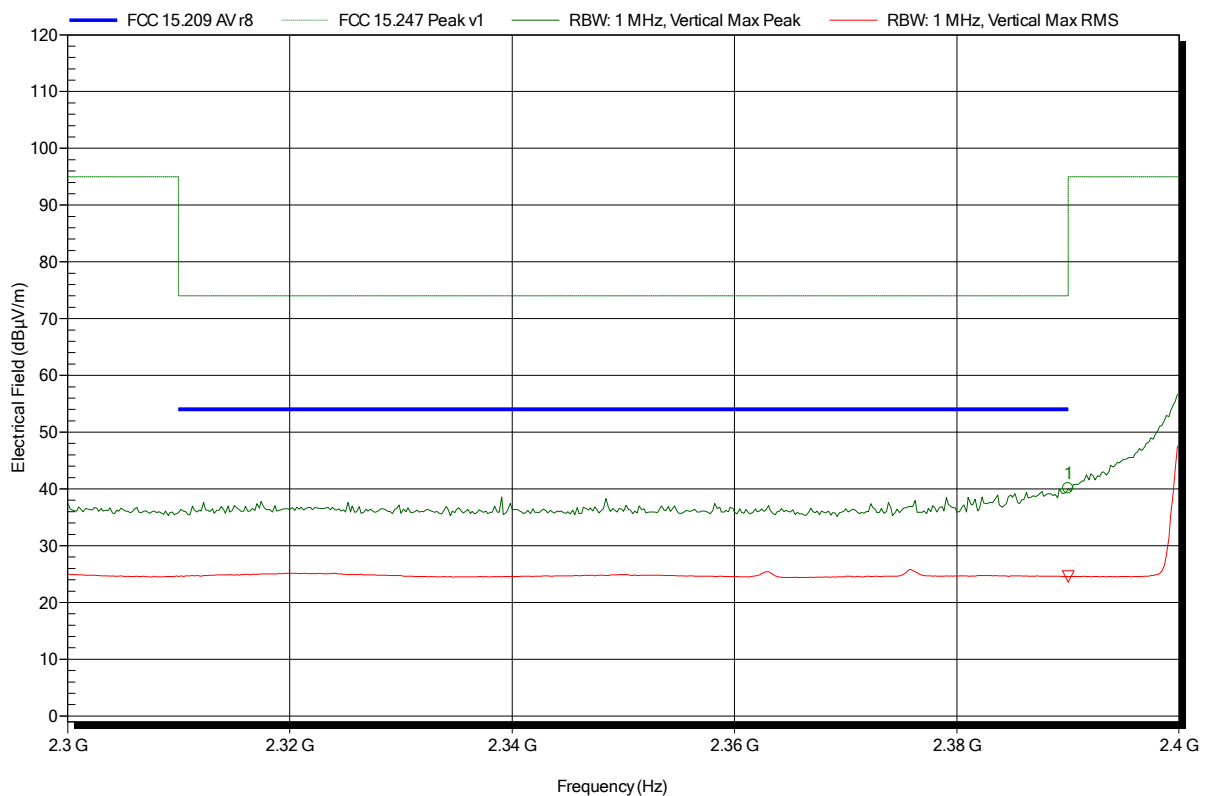
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 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 5.0 V DC (adaptor)
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 3 m
 Mode: TX; GFSK; DH5; 2402 MHz
 Test Date: 2014-09-08
 Note: lower bandedge

Index 7



Frequency 2.39 GHz	Peak 40.1 dBµV/m	Peak Limit 74 dBµV/m	Peak Difference -33.9 dB	Peak Status Pass
Frequency 2.39 GHz	RMS 24.56 dBµV/m	RMS Limit 54 dBµV/m	RMS Difference -29.44 dB	RMS Status Pass

Test Report No.: G0M-1406-3933-TFC247BT-V01

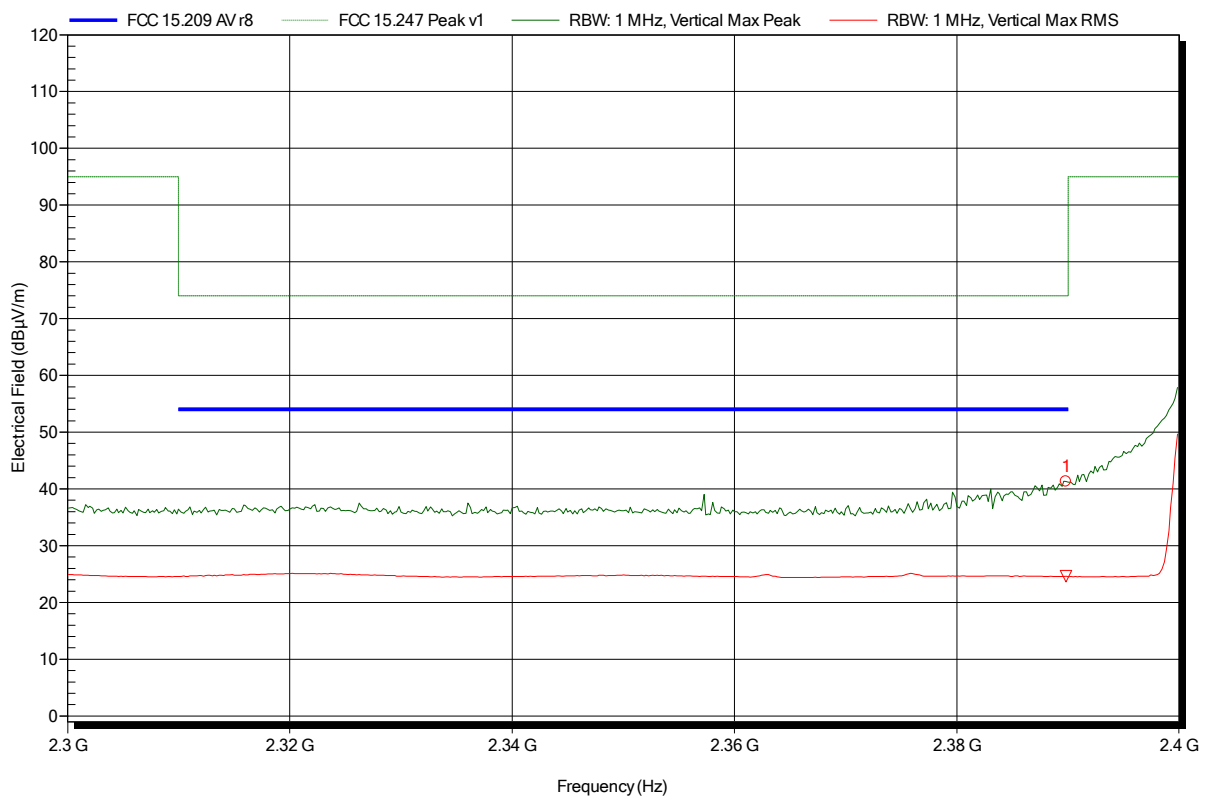
Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Spurious emissions according to FCC 15.247

Project number: G0M-1406-3933

Applicant: Kampstrup
 EUT Name: READY Converter for US maket
 Model: READY Converter
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 5.0 V DC (adaptor)
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 3 m
 Mode: TX; 8DPSK; 3DH5; 2402 MHz
 Test Date: 2014-09-08
 Note: lower bandedge

Index 22



Frequency 2.39 GHz	Peak 41.3 dBµV/m	Peak Limit 74 dBµV/m	Peak Difference -32.7 dB	Peak Status Pass
Frequency 2.39 GHz	RMS 24.62 dBµV/m	RMS Limit 54 dBµV/m	RMS Difference -29.38 dB	RMS Status Pass

Test Report No.: G0M-1406-3933-TFC247BT-V01

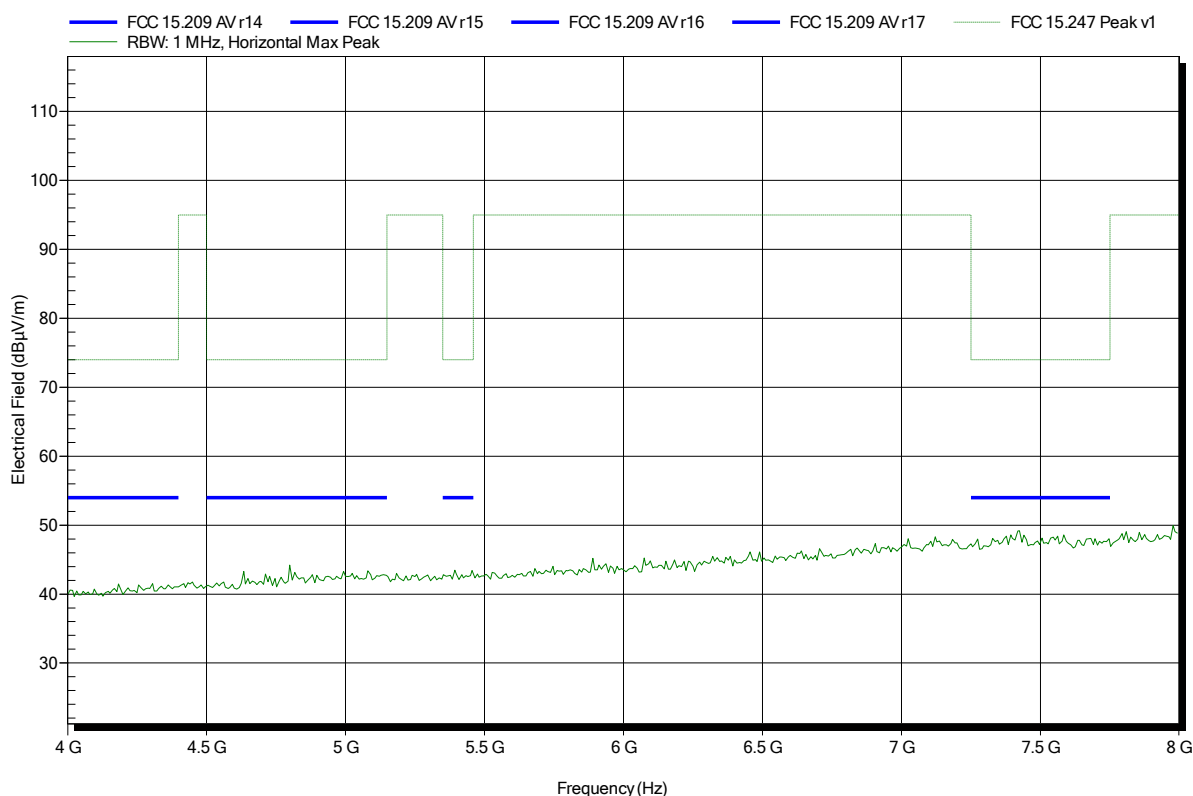
Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Spurious emissions according to FCC 15.247

Project number: G0M-1406-3933

Applicant:	Kampstrup
EUT Name:	READy Converter for US maket
Model:	READY Converter
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: 5.0 V DC (adaptor)
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	3 m
Mode:	TX; GFSK; DH5; 2402 MHz
Test Date:	2014-09-08
Note:	

Index 4

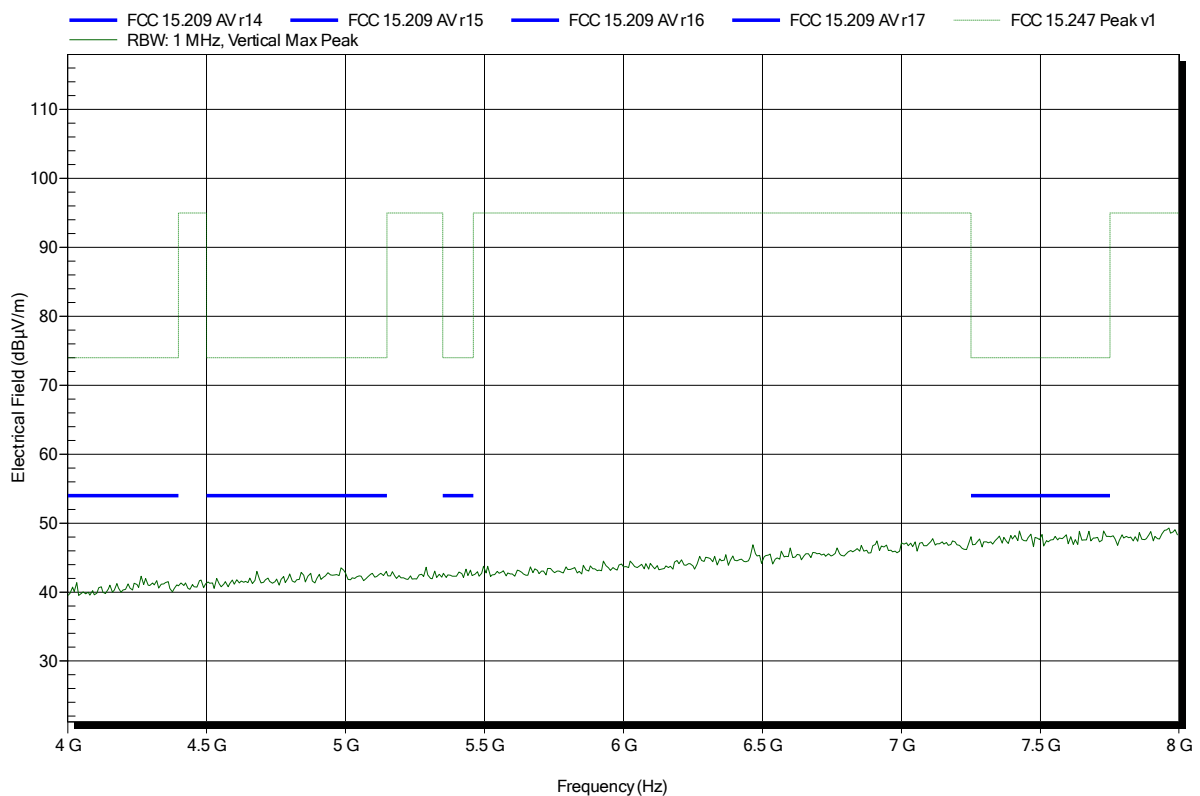


Spurious emissions according to FCC 15.247

Project number: G0M-1406-3933

Applicant: Kampstrup
 EUT Name: READY Converter for US maket
 Model: READY Converter
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 5.0 V DC (adaptor)
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 3 m
 Mode: TX; GFSK; DH5; 2402 MHz
 Test Date: 2014-09-08
 Note:

Index 8

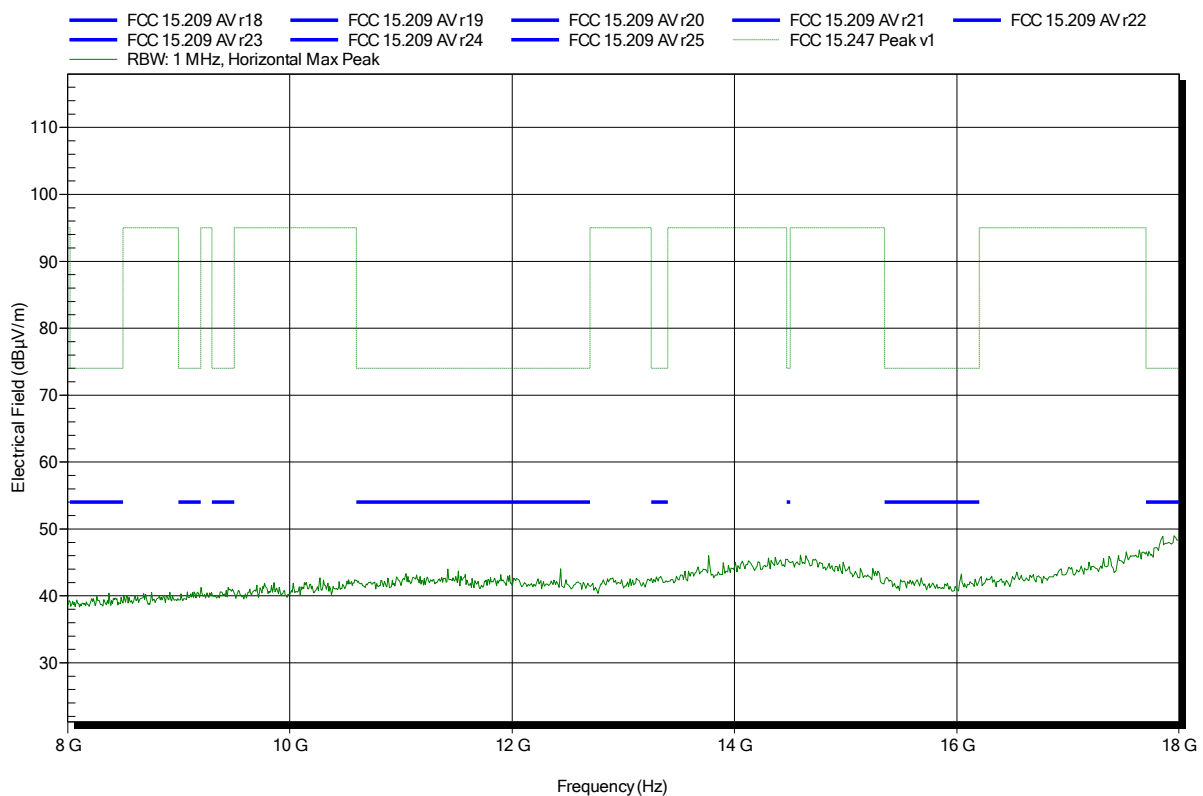


Spurious emissions according to FCC 15.247

Project number: G0M-1406-3933

Applicant: Kampstrup
 EUT Name: READY Converter for US maket
 Model: READY Converter
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 5.0 V DC (adaptor)
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 1 m converted to 3m
 Mode: TX; GFSK; DH5; 2402 MHz
 Test Date: 2014-09-08
 Note:

Index 27

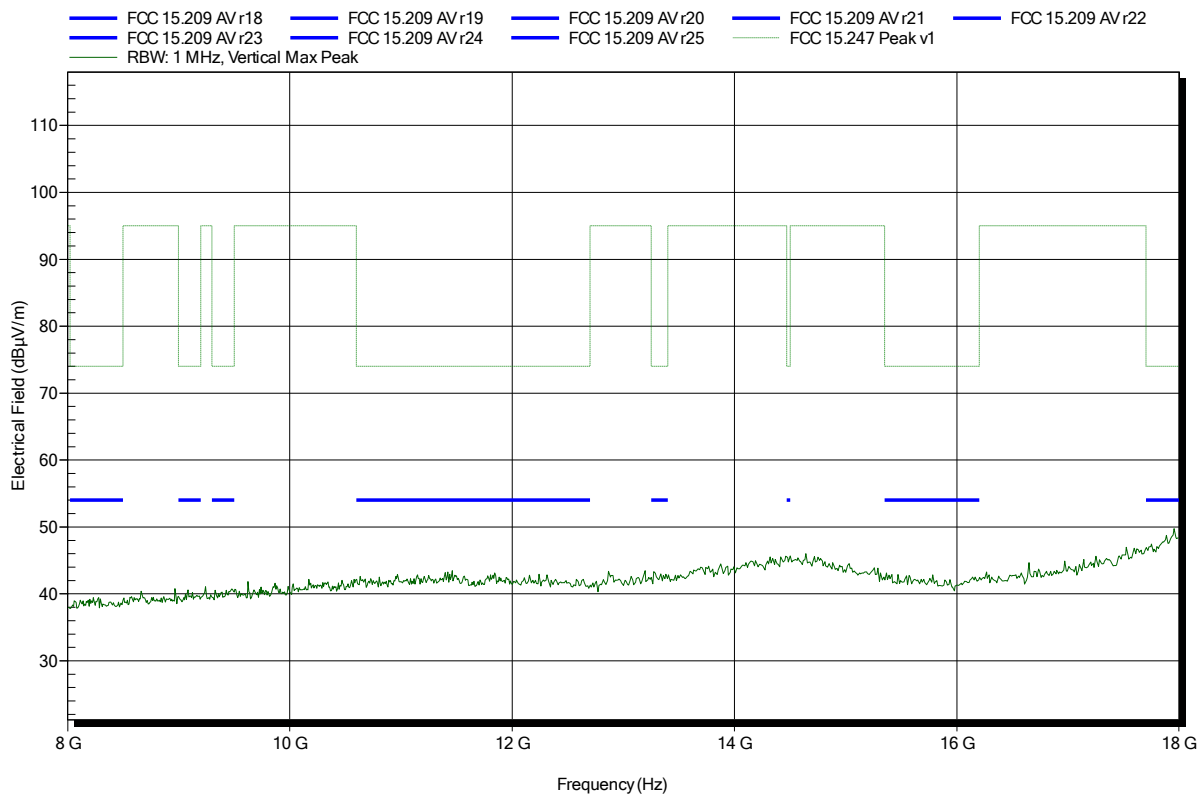


Spurious emissions according to FCC 15.247

Project number: G0M-1406-3933

Applicant: Kampstrup
 EUT Name: READY Converter for US maket
 Model: READY Converter
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 5.0 V DC (adaptor)
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 1 m converted to 3m
 Mode: TX; GFSK; DH5; 2402 MHz
 Test Date: 2014-09-08
 Note:

Index 29

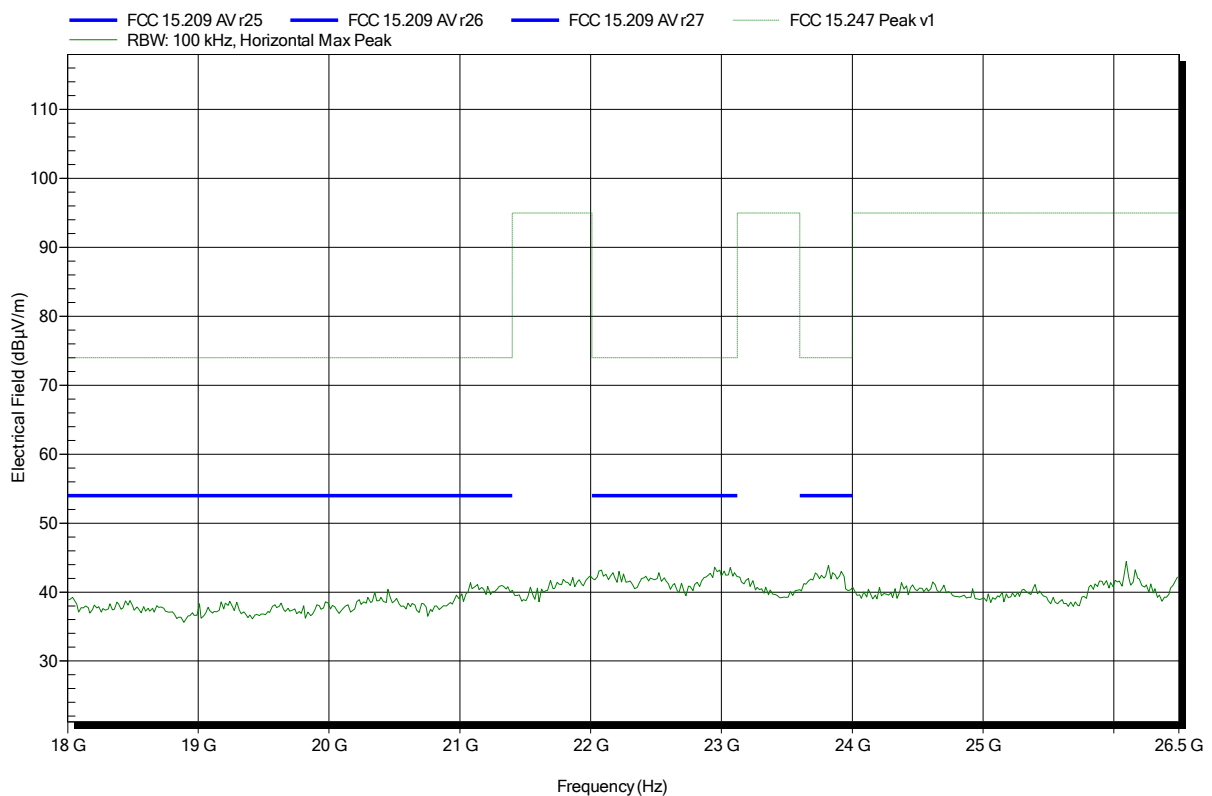


Spurious emissions according to FCC 15.247

Project number: G0M-1406-3933

Applicant: Kampstrup
 EUT Name: READY Converter for US maket
 Model: READY Converter
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 5.0 V DC (adaptor)
 Antenna: Rohde & Schwarz HL 025, Horizontal
 Measurement distance: 1 m
 Mode: TX; GFSK; DH5; 2402 MHz
 Test Date: 2014-09-08
 Note:

Index 28



Test Report No.: G0M-1406-3933-TFC247BT-V01

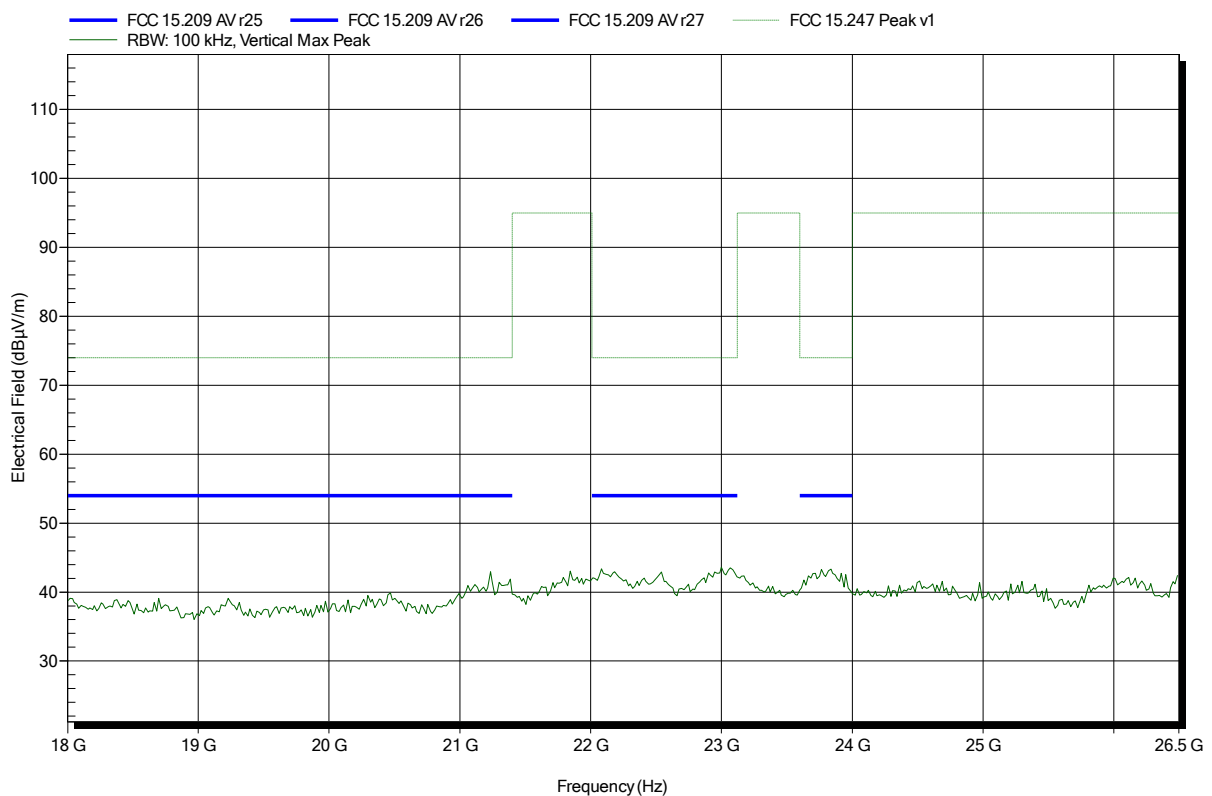
Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Spurious emissions according to FCC 15.247

Project number: G0M-1406-3933

Applicant: Kampstrup
 EUT Name: READY Converter for US maket
 Model: READY Converter
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 5.0 V DC (adaptor)
 Antenna: Rohde & Schwarz HL 025, Vertical
 Measurement distance: 1 m
 Mode: TX; GFSK; DH5; 2402 MHz
 Test Date: 2014-09-08
 Note:

Index 30

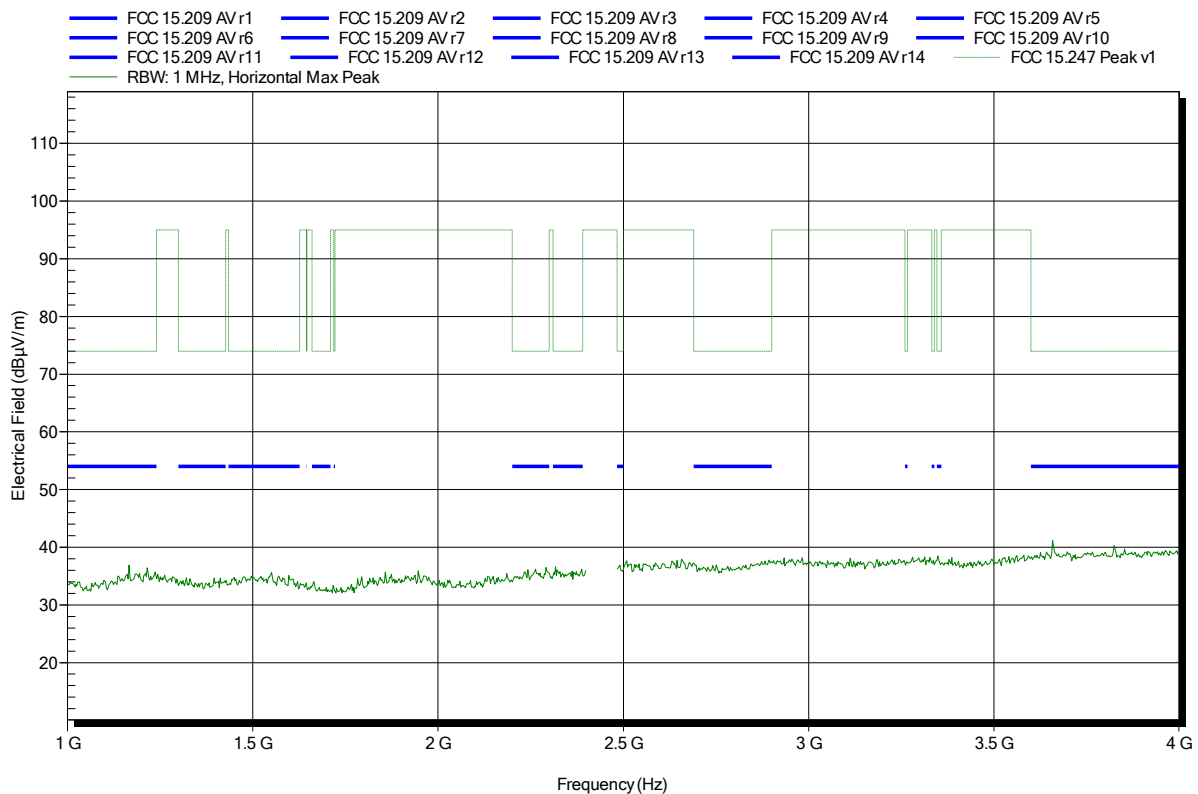


Spurious emissions according to FCC 15.247

Project number: GOM-1406-3933

Applicant: Kampstrup
 EUT Name: READY Converter for US maket
 Model: READY Converter
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 5.0 V DC (adaptor)
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 3 m
 Mode: TX; GFSK; DH5; 2441 MHz
 Test Date: 2014-09-08
 Note:

Index 9

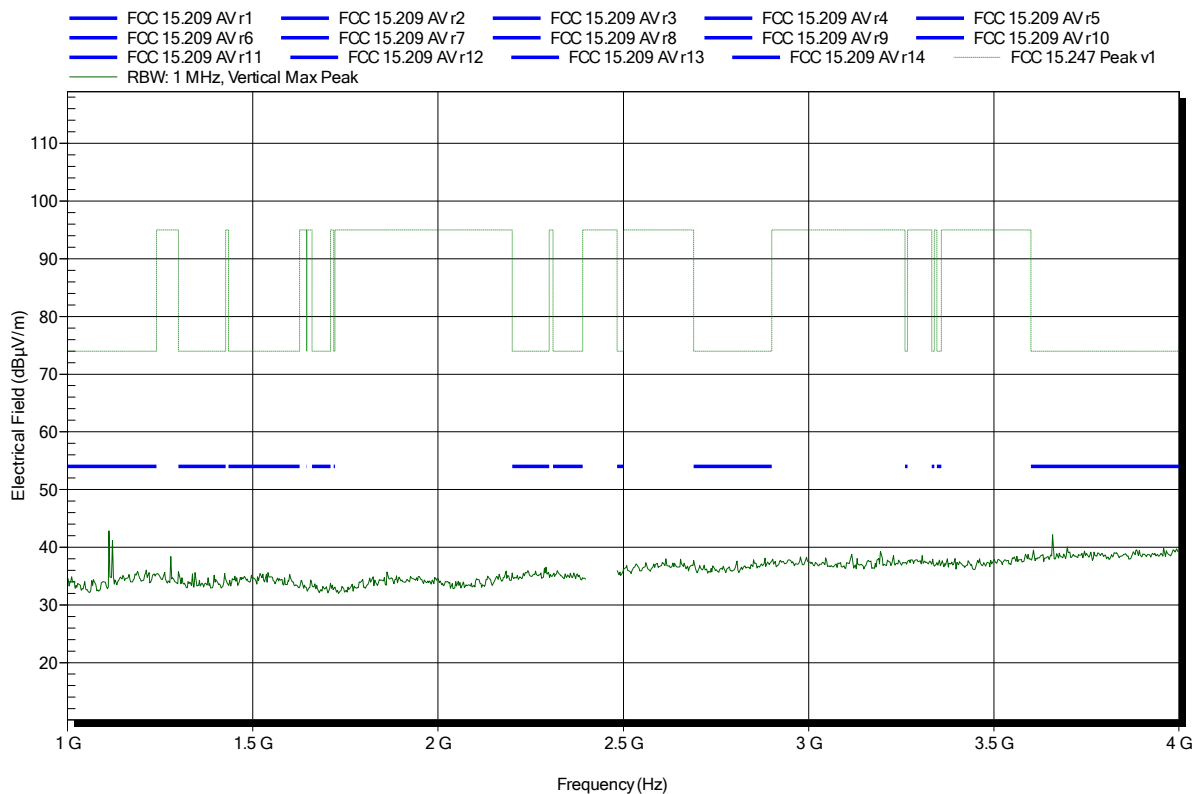


Spurious emissions according to FCC 15.247

Project number: GOM-1406-3933

Applicant: Kampstrup
 EUT Name: READY Converter for US maket
 Model: READY Converter
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 5.0 V DC (adaptor)
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 3 m
 Mode: TX; GFSK; DH5; 2441 MHz
 Test Date: 2014-09-08
 Note:

Index 11

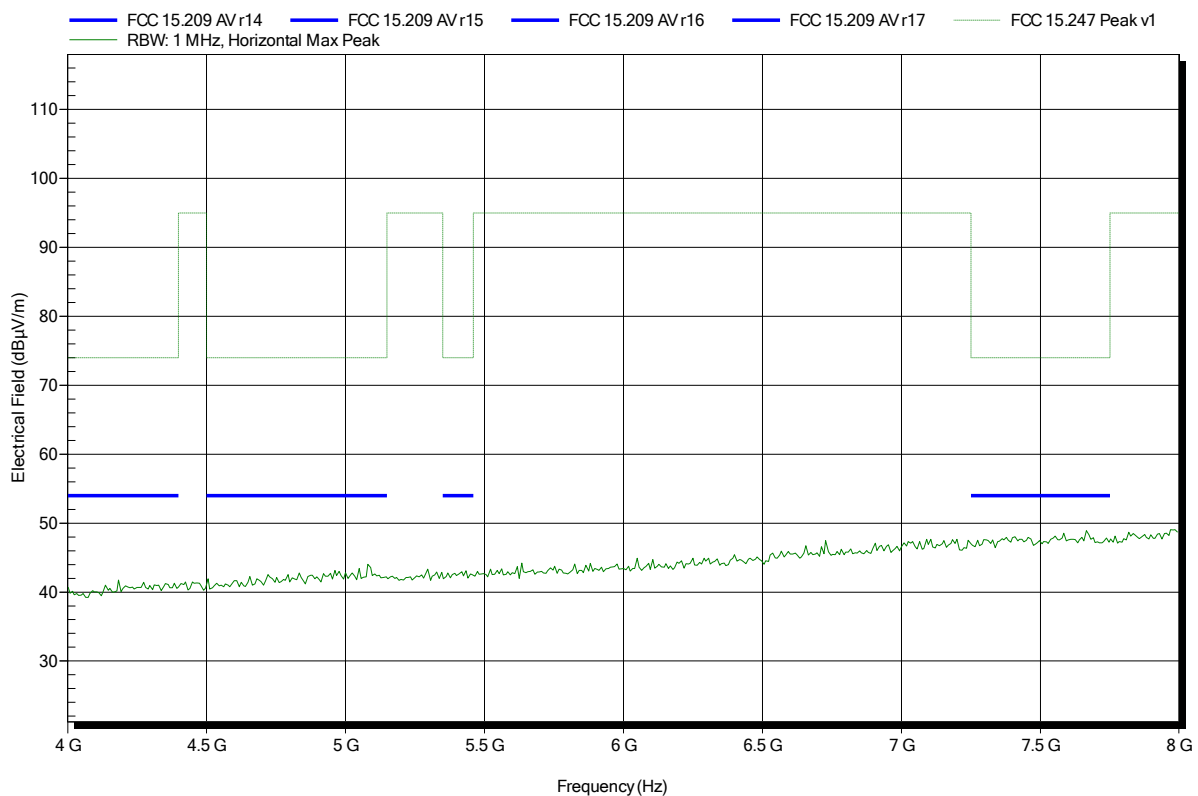


Spurious emissions according to FCC 15.247

Project number: G0M-1406-3933

Applicant: Kampstrup
 EUT Name: READY Converter for US maket
 Model: READY Converter
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 5.0 V DC (adaptor)
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 3 m
 Mode: TX; GFSK; DH5; 2441 MHz
 Test Date: 2014-09-08
 Note:

Index 10

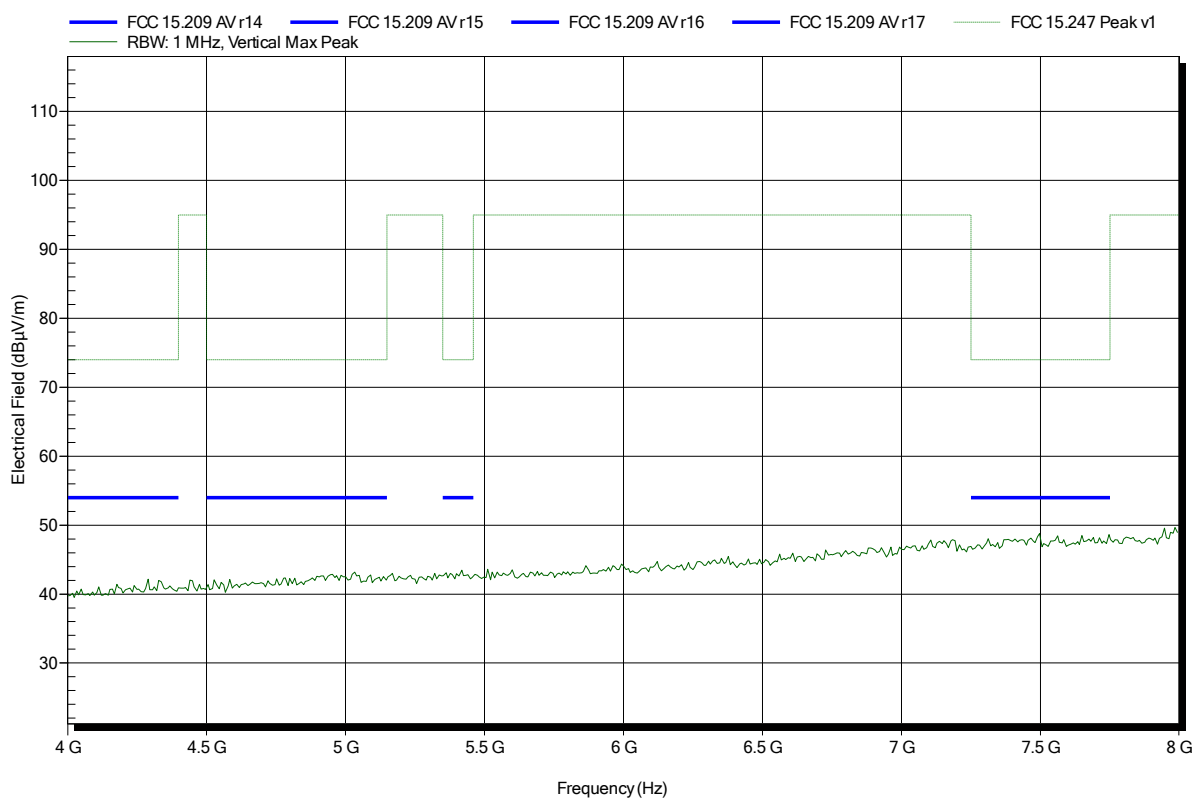


Spurious emissions according to FCC 15.247

Project number: G0M-1406-3933

Applicant: Kampstrup
 EUT Name: READy Converter for US maket
 Model: READy Converter
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 5.0 V DC (adaptor)
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 3 m
 Mode: TX; GFSK; DH5; 2441 MHz
 Test Date: 2014-09-08
 Note:

Index 12

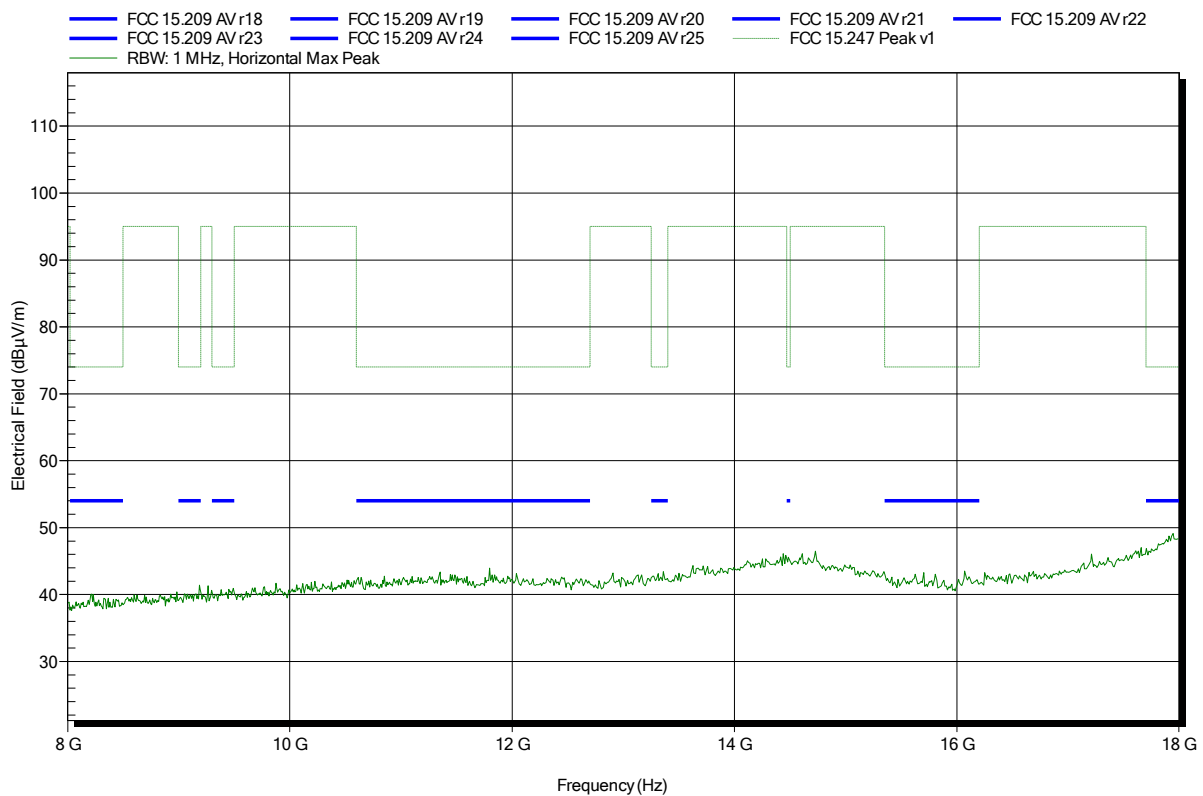


Spurious emissions according to FCC 15.247

Project number: G0M-1406-3933

Applicant: Kampstrup
 EUT Name: READY Converter for US maket
 Model: READY Converter
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 5.0 V DC (adaptor)
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 1 m converted to 3m
 Mode: TX; GFSK; DH5; 2441
 MHz
 Test Date: 2014-09-08
 Note:

Index 31

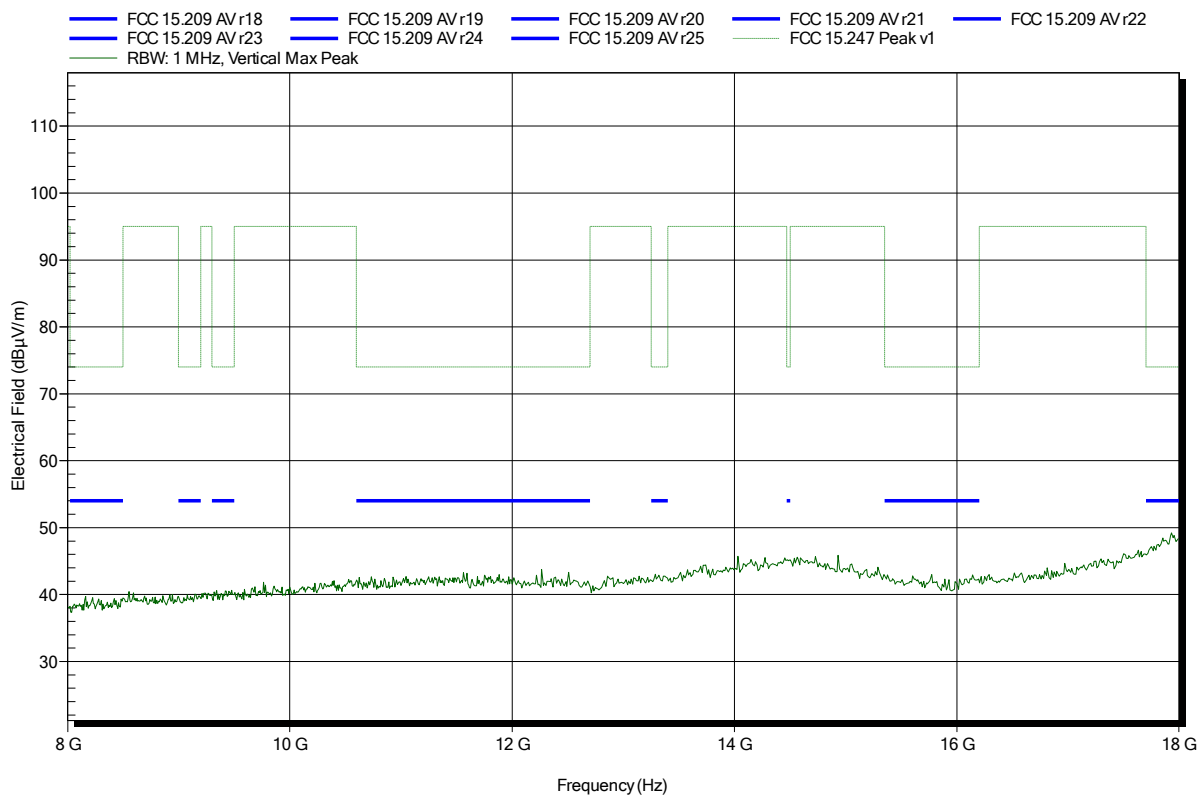


Spurious emissions according to FCC 15.247

Project number: G0M-1406-3933

Applicant: Kampstrup
 EUT Name: READY Converter for US maket
 Model: READY Converter
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 5.0 V DC (adaptor)
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 1 m converted to 3m
 Mode: TX; GFSK; DH5; 2441
 MHz
 Test Date: 2014-09-08
 Note:

Index 33

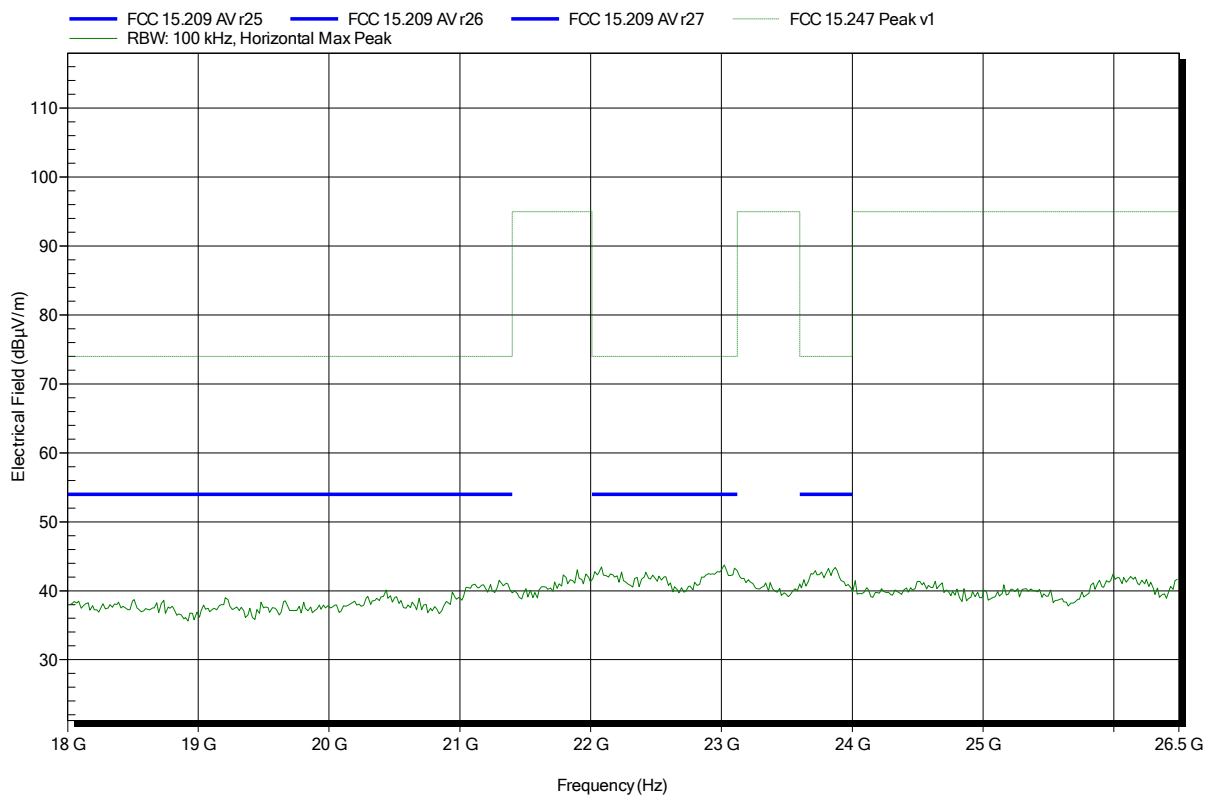


Spurious emissions according to FCC 15.247

Project number: GOM-1406-3933

Applicant: Kampstrup
 EUT Name: READy Converter for US maket
 Model: READy Converter
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 5.0 V DC (adaptor)
 Antenna: Rohde & Schwarz HL 025, Horizontal
 Measurement distance: 1 m
 Mode: TX; GFSK; DH5; 2441
 MHz
 Test Date: 2014-09-08
 Note:

Index 32

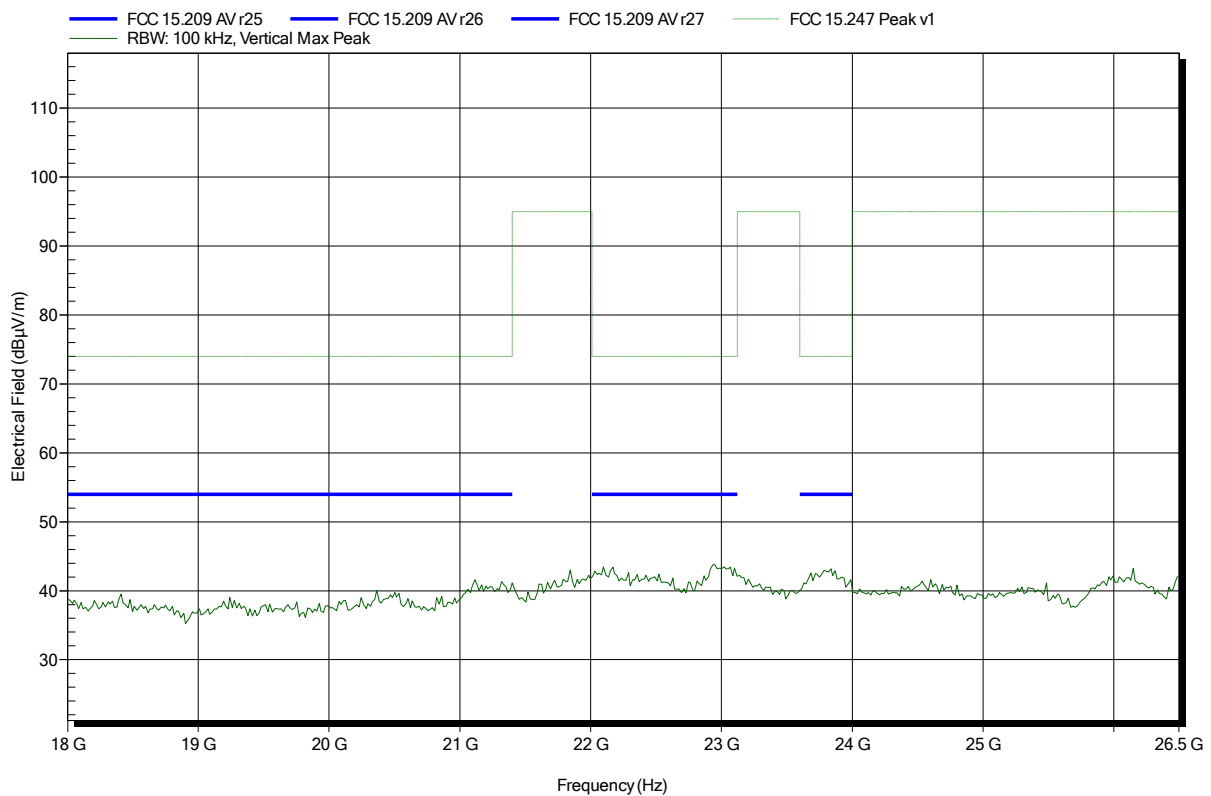


Spurious emissions according to FCC 15.247

Project number: G0M-1406-3933

Applicant: Kampstrup
 EUT Name: READy Converter for US maket
 Model: READy Converter
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 5.0 V DC (adaptor)
 Antenna: Rohde & Schwarz HL 025, Vertical
 Measurement distance: 1 m
 Mode: TX; GFSK; DH5; 2441
 MHz
 Test Date: 2014-09-08
 Note:

Index 34



Test Report No.: G0M-1406-3933-TFC247BT-V01

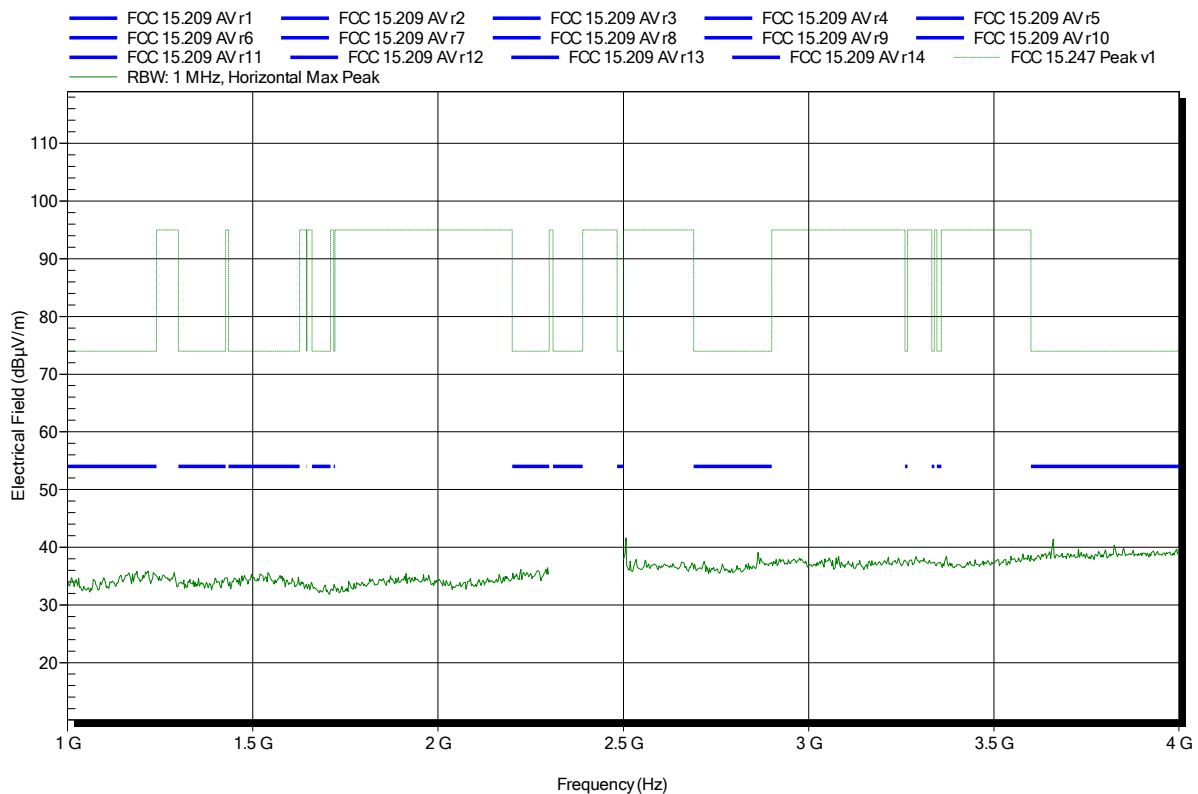
Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Spurious emissions according to FCC 15.247

Project number: GOM-1406-3933

Applicant: Kampstrup
 EUT Name: READy Converter for US maket
 Model: READy Converter
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 5.0 V DC (adaptor)
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 3 m
 Mode: TX; GFSK; DH5; 2480 MHz
 Test Date: 2014-09-08
 Note:

Index 13

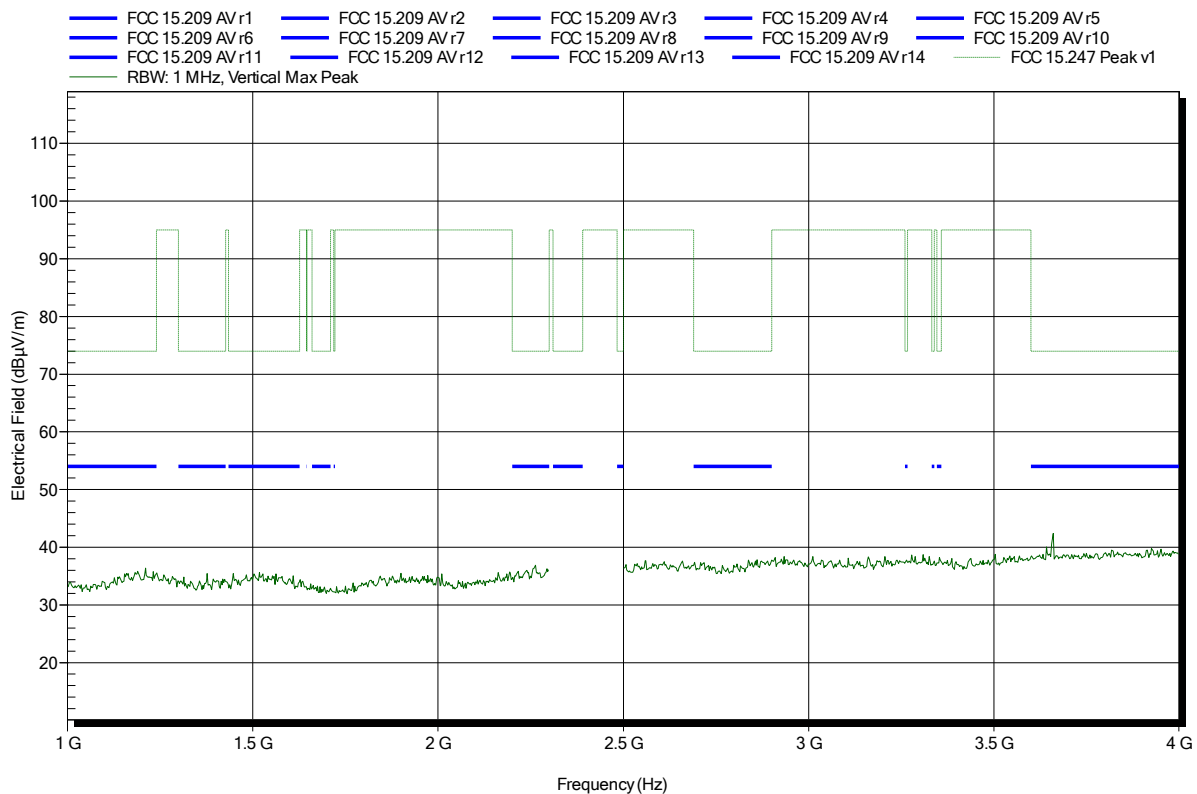


Spurious emissions according to FCC 15.247

Project number: GOM-1406-3933

Applicant: Kampstrup
 EUT Name: READY Converter for US maket
 Model: READY Converter
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 5.0 V DC (adaptor)
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 3 m
 Mode: TX; GFSK; DH5; 2480 MHz
 Test Date: 2014-09-08
 Note:

Index 16

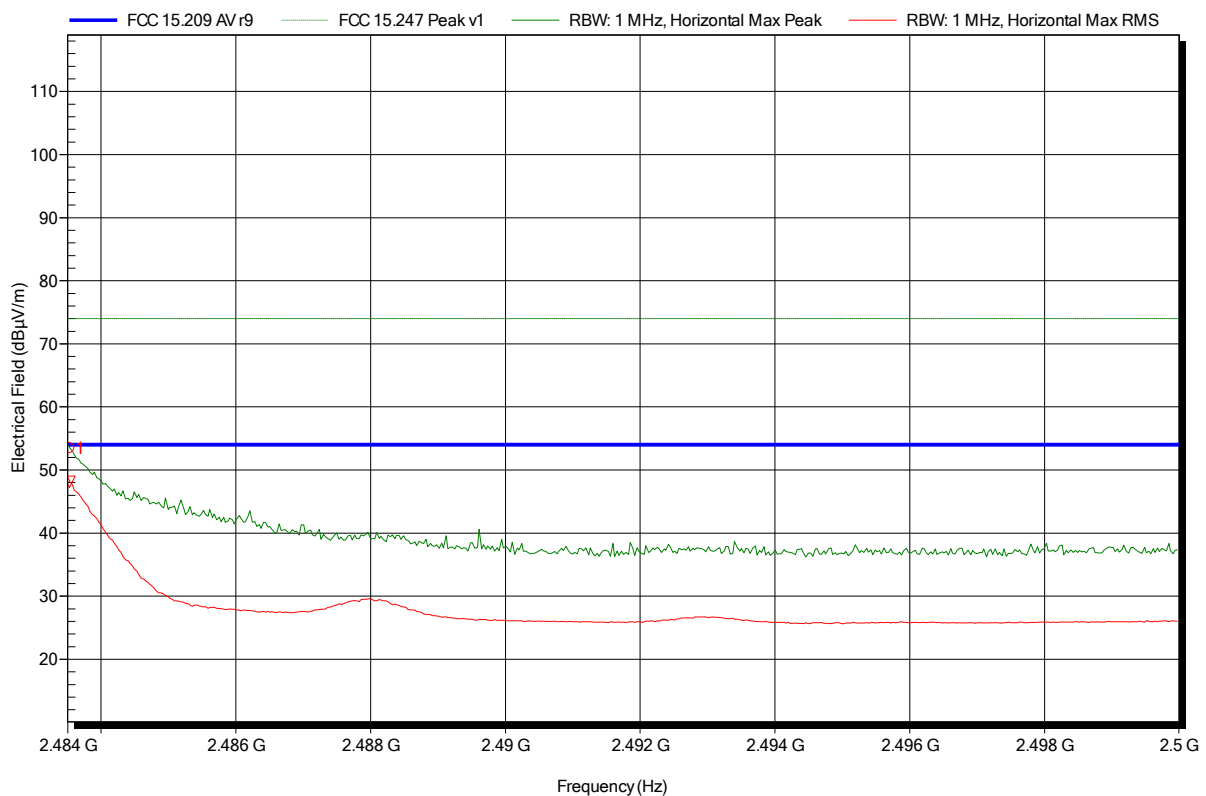


Spurious emissions according to FCC 15.247

Project number: G0M-1406-3933

Applicant: Kampstrup
 EUT Name: READY Converter for US maket
 Model: READY Converter
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 5.0 V DC (adaptor)
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 3 m
 Mode: TX; GFSK; DH5; 2480 MHz
 Test Date: 2014-09-08
 Note: upper bandedge

Index 14



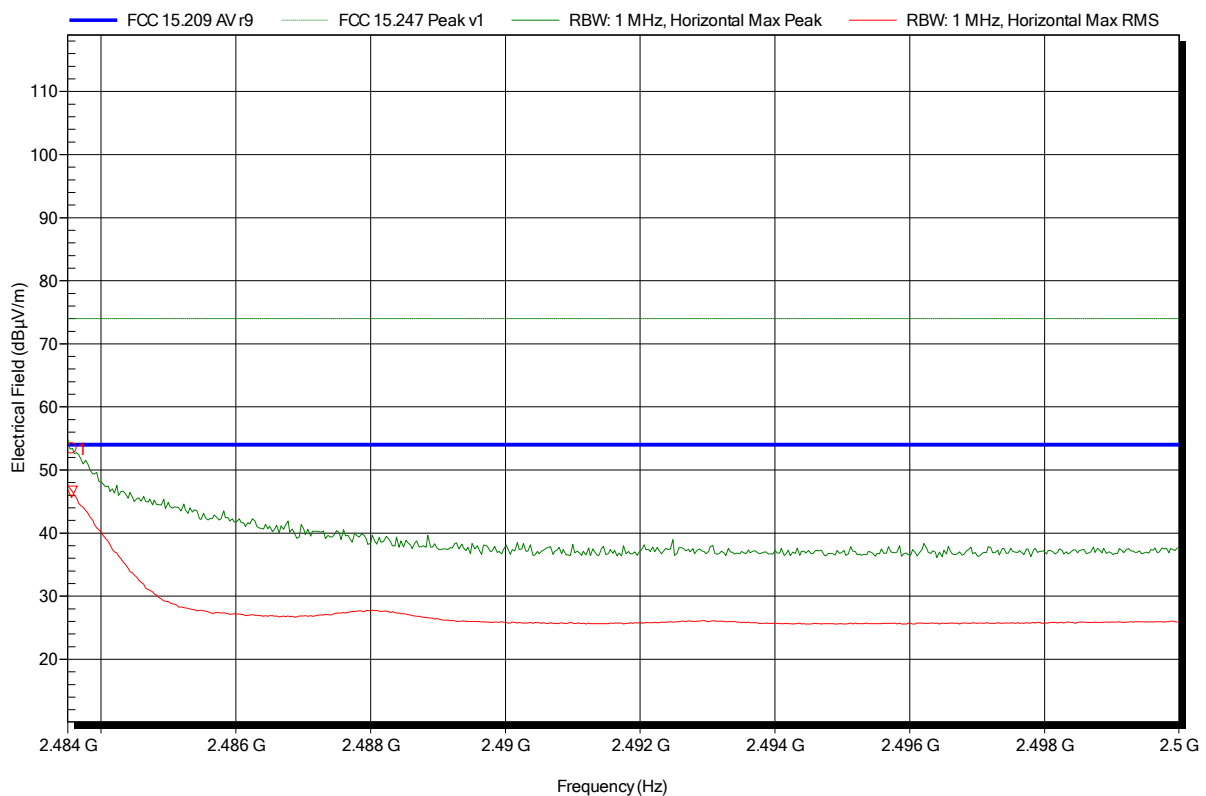
Frequency 2.4835 GHz	Peak 53.48 dBµV/m	Peak Limit 74 dBµV/m	Peak Difference -20.52 dB	Peak Status Pass
Frequency 2.4835 GHz	RMS 48.14 dBµV/m	RMS Limit 54 dBµV/m	RMS Difference -5.86 dB	RMS Status Pass

Spurious emissions according to FCC 15.247

Project number: GOM-1406-3933

Applicant: Kampstrup
 EUT Name: READY Converter for US maket
 Model: READY Converter
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 5.0 V DC (adaptor)
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 3 m
 Mode: TX; 8DPSK; 3DH5; 2480 MHz
 Test Date: 2014-09-08
 Note: upper bandedge

Index 20



Frequency 2.4836 GHz	Peak 53.4 dBµV/m	Peak Limit 74 dBµV/m	Peak Difference -20.6 dB	Peak Status Pass
Frequency 2.4836 GHz	RMS 46.56 dBµV/m	RMS Limit 54 dBµV/m	RMS Difference -7.44 dB	RMS Status Pass

Test Report No.: GOM-1406-3933-TFC247BT-V01

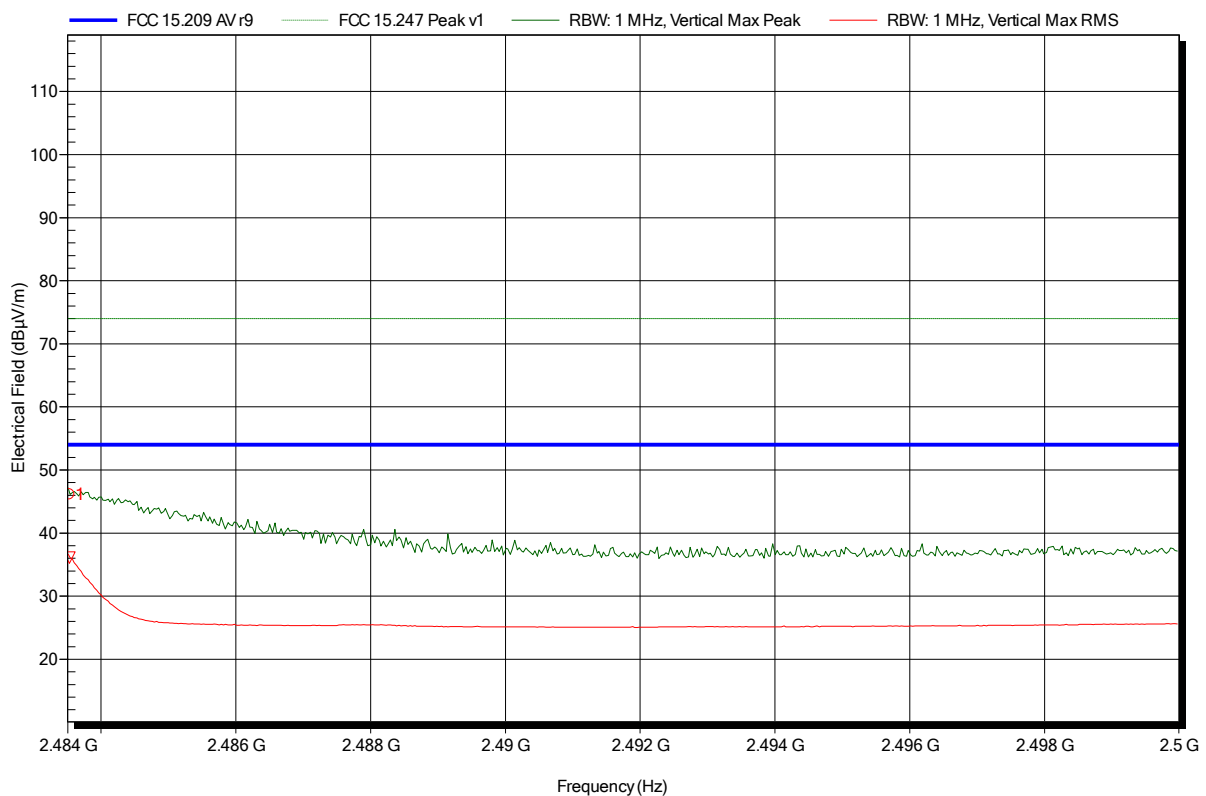
Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Spurious emissions according to FCC 15.247

Project number: G0M-1406-3933

Applicant: Kampstrup
 EUT Name: READY Converter for US maket
 Model: READY Converter
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 5.0 V DC (adaptor)
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 3 m
 Mode: TX; GFSK; DH5; 2480 MHz
 Test Date: 2014-09-08
 Note: upper bandedge

Index 17



Frequency	Peak	Peak Limit	Peak Difference	Peak Status
2.4835 GHz	46.14 dBµV/m	74 dBµV/m	-27.86 dB	Pass

Frequency	RMS	RMS Limit	RMS Difference	RMS Status
2.4835 GHz	36.13 dBµV/m	54 dBµV/m	-17.87 dB	Pass

Test Report No.: G0M-1406-3933-TFC247BT-V01

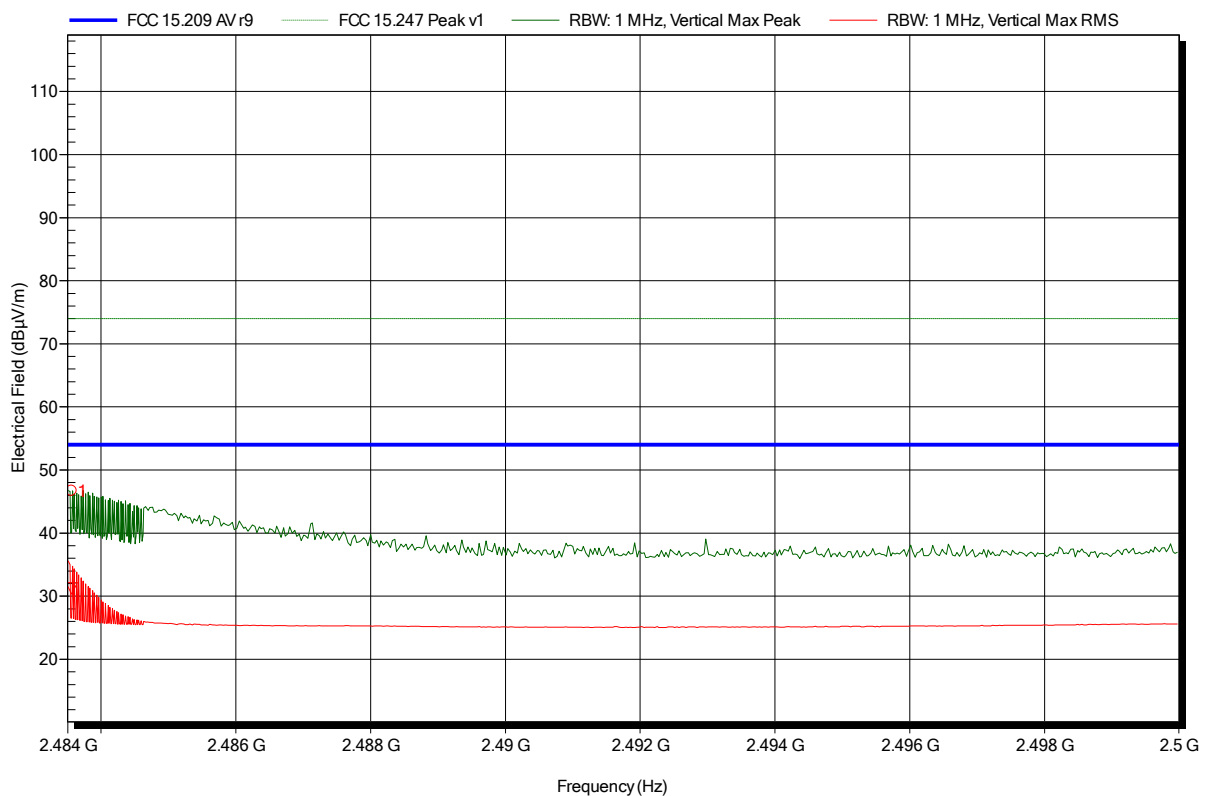
Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Spurious emissions according to FCC 15.247

Project number: GOM-1406-3933

Applicant: Kampstrup
 EUT Name: READY Converter for US maket
 Model: READY Converter
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 5.0 V DC (adaptor)
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 3 m
 Mode: TX; 8DPSK; 3DH5; 2480 MHz
 Test Date: 2014-09-08
 Note: upper bandedge

Index 19



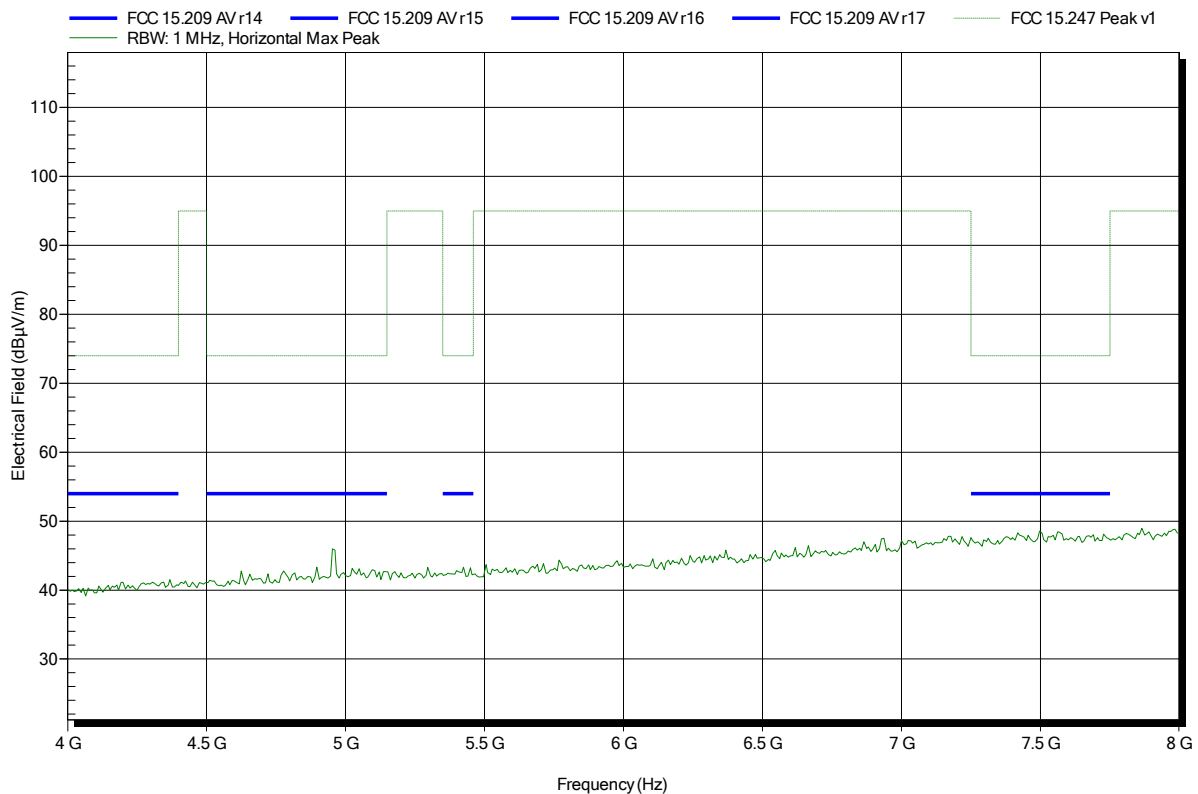
Frequency 2.4836 GHz	Peak 46.69 dBµV/m	Peak Limit 74 dBµV/m	Peak Difference -27.31 dB	Peak Status Pass
Frequency 2.4836 GHz	RMS 31.23 dBµV/m	RMS Limit 54 dBµV/m	RMS Difference -22.77 dB	RMS Status Pass

Spurious emissions according to FCC 15.247

Project number: G0M-1406-3933

Applicant: Kampstrup
 EUT Name: READY Converter for US maket
 Model: READY Converter
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 5.0 V DC (adaptor)
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 3 m
 Mode: TX; GFSK; DH5; 2480 MHz
 Test Date: 2014-09-08
 Note:

Index 15

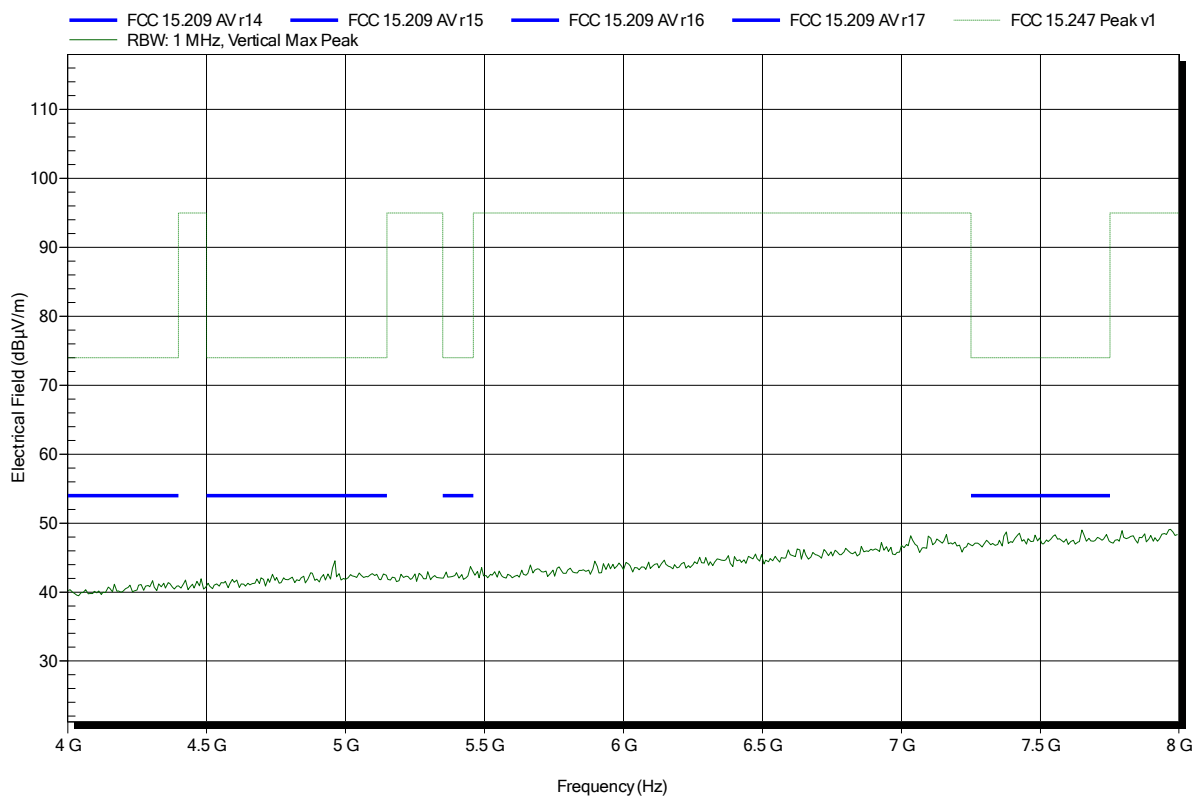


Spurious emissions according to FCC 15.247

Project number: G0M-1406-3933

Applicant: Kampstrup
 EUT Name: READy Converter for US maket
 Model: READy Converter
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 5.0 V DC (adaptor)
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 3 m
 Mode: TX; GFSK; DH5; 2480 MHz
 Test Date: 2014-09-08
 Note:

Index 18

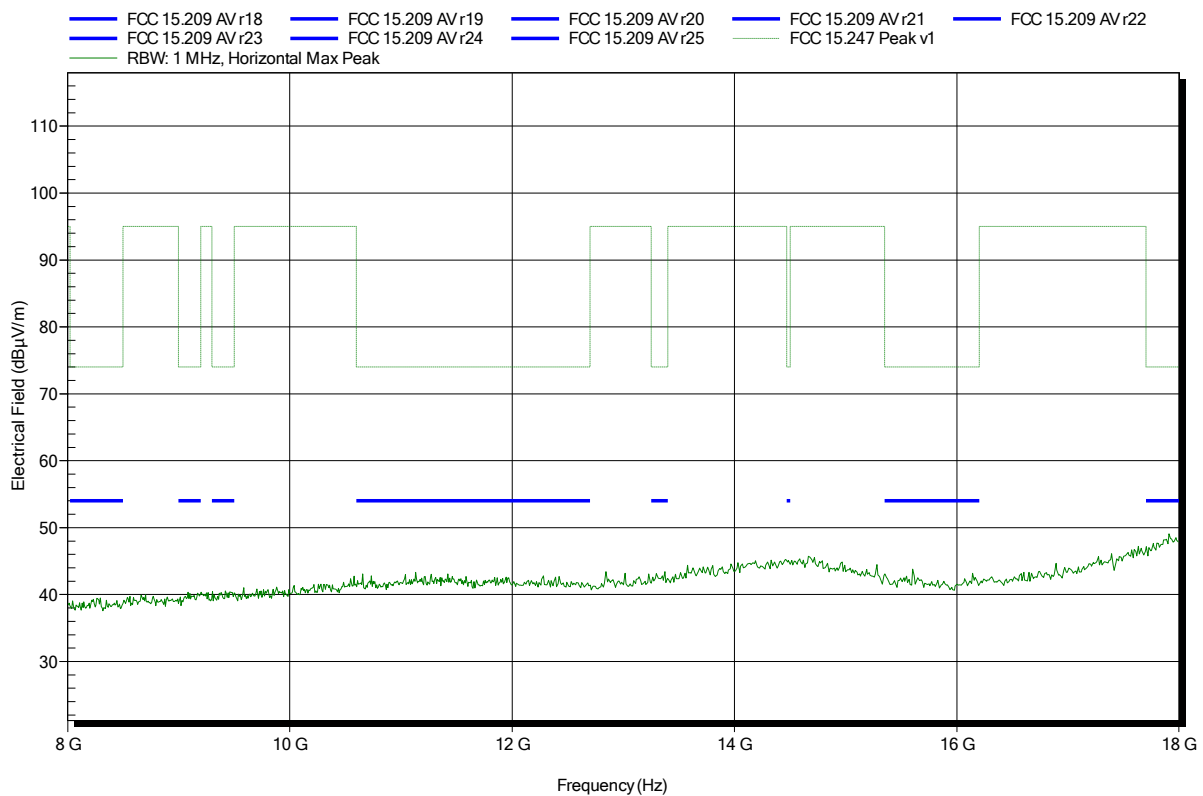


Spurious emissions according to FCC 15.247

Project number: G0M-1406-3933

Applicant: Kampstrup
 EUT Name: READY Converter for US maket
 Model: READY Converter
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 5.0 V DC (adaptor)
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 1 m converted to 3m
 Mode: TX; GFSK; DH5; 2480
 MHz
 Test Date: 2014-09-08
 Note:

Index 35

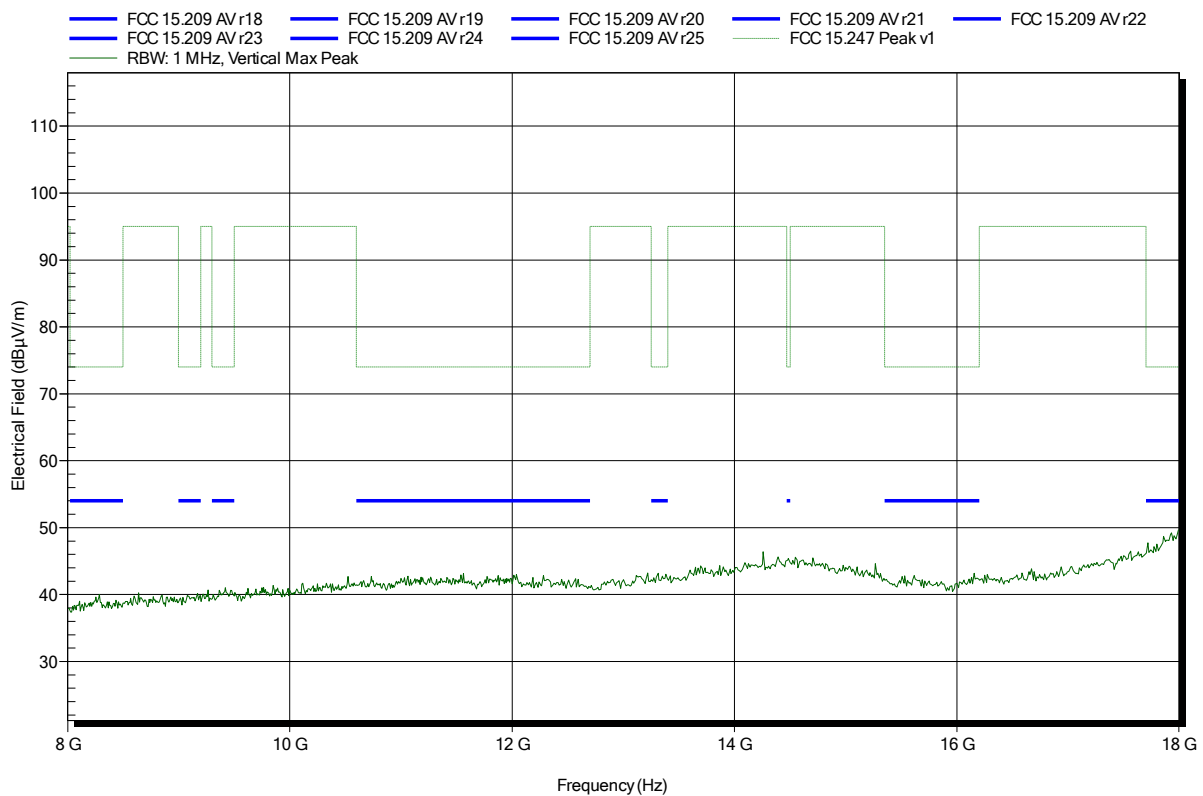


Spurious emissions according to FCC 15.247

Project number: GOM-1406-3933

Applicant: Kampstrup
 EUT Name: READY Converter for US maket
 Model: READY Converter
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 5.0 V DC (adaptor)
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 1 m converted to 3m
 Mode: TX; GFSK; DH5; 2480
 MHz
 Test Date: 2014-09-08
 Note:

Index 37

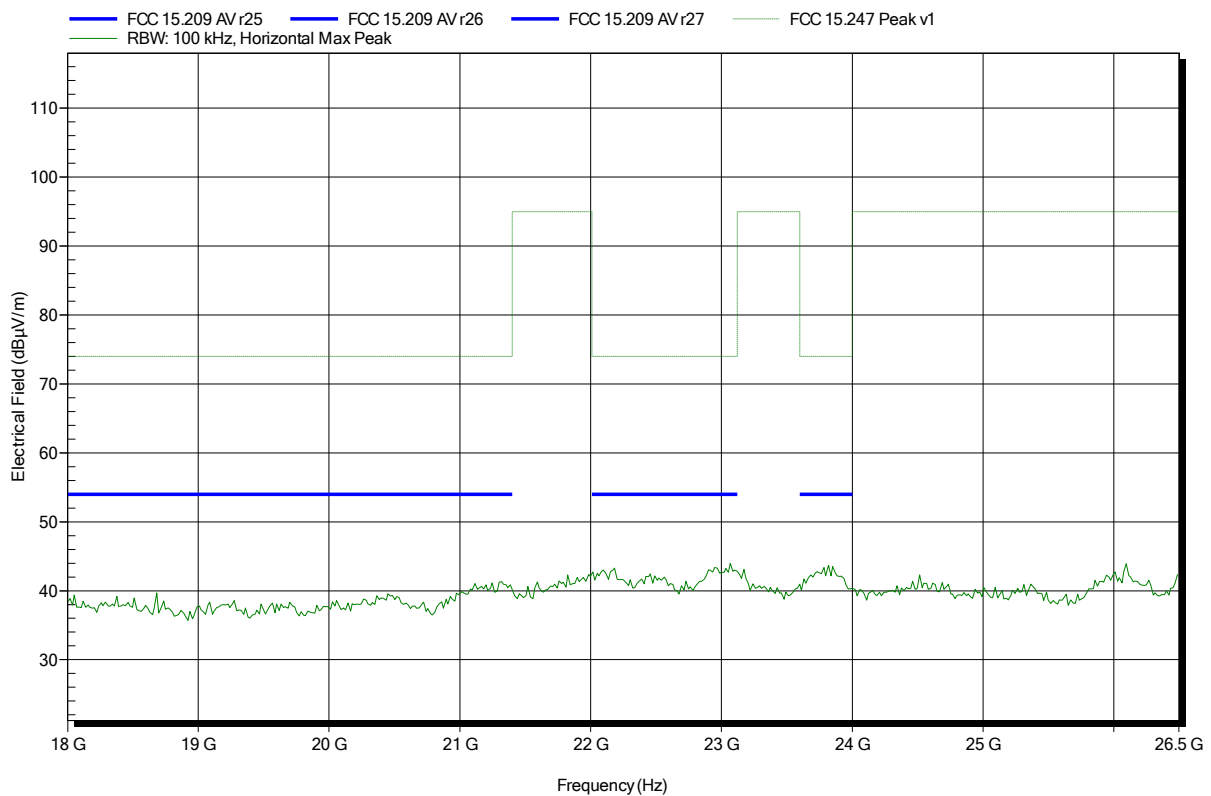


Spurious emissions according to FCC 15.247

Project number: GOM-1406-3933

Applicant: Kampstrup
 EUT Name: READY Converter for US maket
 Model: READY Converter
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 5.0 V DC (adaptor)
 Antenna: Rohde & Schwarz HL 025, Horizontal
 Measurement distance: 1 m
 Mode: TX; GFSK; DH5; 2480
 MHz
 Test Date: 2014-09-08
 Note:

Index 36

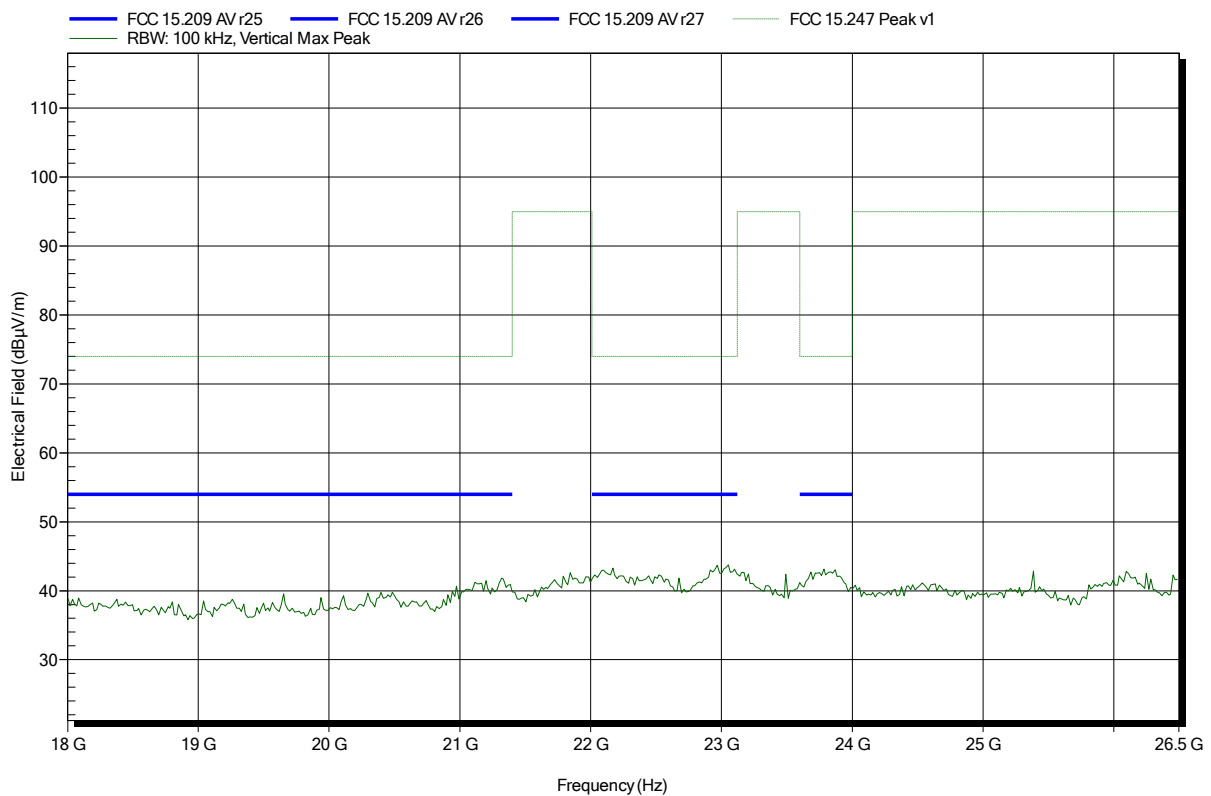


Spurious emissions according to FCC 15.247

Project number: G0M-1406-3933

Applicant: Kampstrup
 EUT Name: READy Converter for US maket
 Model: READy Converter
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 5.0 V DC (adaptor)
 Antenna: Rohde & Schwarz HL 025, Vertical
 Measurement distance: 1 m
 Mode: TX; GFSK; DH5; 2480 MHz
 Test Date: 2014-09-08
 Note:

Index 38



Test Report No.: G0M-1406-3933-TFC247BT-V01

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