eurofins | Product Service

FCC TEST REPORT

FCC 47 CFR Part 15C
Industry Canada RSS-247

Frequency hopping systems operating within the 2400 – 2483.5 MHz band

Report Reference No. ..... :	G0M-1511-5232-TFC247BT-V02
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-247, Issue 1, 2015-05 RSS-Gen, Issue 4, 2014-11 ANSI C63.10:2013 ANSI C63.4:2014
Test scope…….. ..... :	complete Radio compliance test
Equipment under test (EUT):	
Product description	READy Converter for Australia
Model No.	READy Converter
Additional Model(s)	None
Brand Name(s)	READy Converter
Hardware version	5550 1413 A3
Firmware / Software version	50981118 D1 / 5514 1447 A1
	FCC-ID: OUY-READYAMR2 IC: N/R
Test result	**Passed**

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 ..... : 2016-01-18

Date (s) of performance of tests ..... : 2016-01-18 – 2016-01-20

Compiled by ..... : Wilfried Treffke

Tested by (+ signature) ..... : Wilfried Treffke .....
(Responsible for Test)

Approved by (+ signature) ..... : Christian Weber .....
(Head of Lab)

Date of issue ..... : 2016-03-04

Total number of pages ..... : 64

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	Issue Date	Remarks	Revised by
01	2016-02-05	Initial Release	
02	2016-03-04	Result summary corrected.	W. Treffke

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1 Equipment (Test item) Description

Description	READy Converter for Australia	
Model	READy Converter	
Additional Model(s)	None	
Brand Name(s)	READy Converter	
Serial number	None	
Hardware version	5550 1413 A3	
Software / Firmware version	50981118 D1 / 5514 1447 A1	
FCC-ID	OUY-READYAMR2	
IC	N/R	
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-DPSK	
Number of channels	79 hopping channels at all	
Channel spacing	1 MHz	
Number of antennas	1	
Radio module	Type	Bluetooth Module
	Model	PAN1322
	Manufacturer	Panasonic
	HW Version	02
	SW Version	3.1
	FCC-ID	T7VEBMU
	IC	216QEBMU
Antenna	Type	integrated
	Model	LDA21K
	Manufacturer	Murata
	Gain	0.9 dBi (declared by customer)

Manufacturer	Kamstrup A/S Industrivej 28 8660 Skanderborg DENMARK	
Power supply	V_{NOM}	5.0 VDC
	V_{MIN}	N/R
	V_{MIN}	N/R
AC/DC-Adaptor	Model	N/A
	Vendor	N/A
	Input	N/A
	Output	N/A

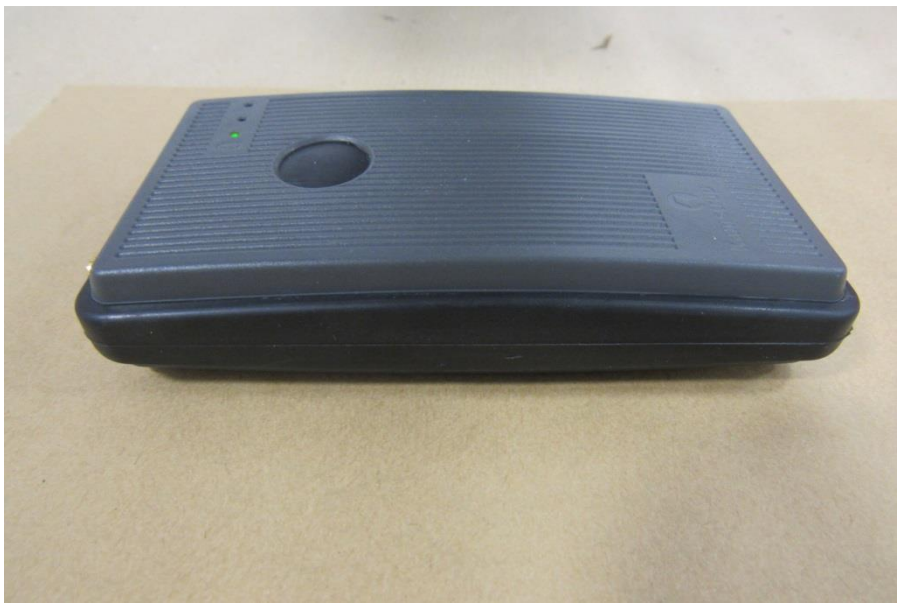
1.1 Photos – Equipment External

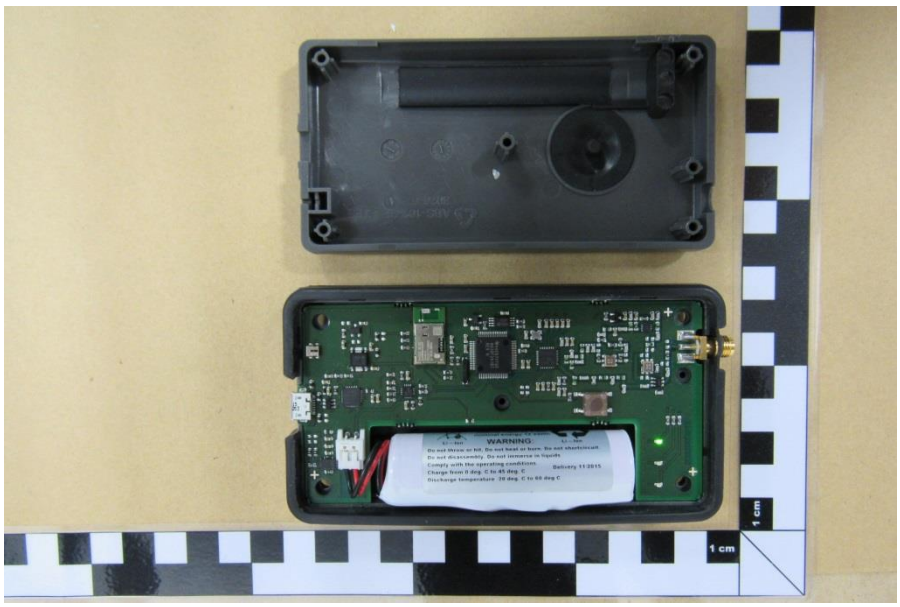
EUT TOP

EUT BOTTOM

EUT ANTENNA CONNECTOR

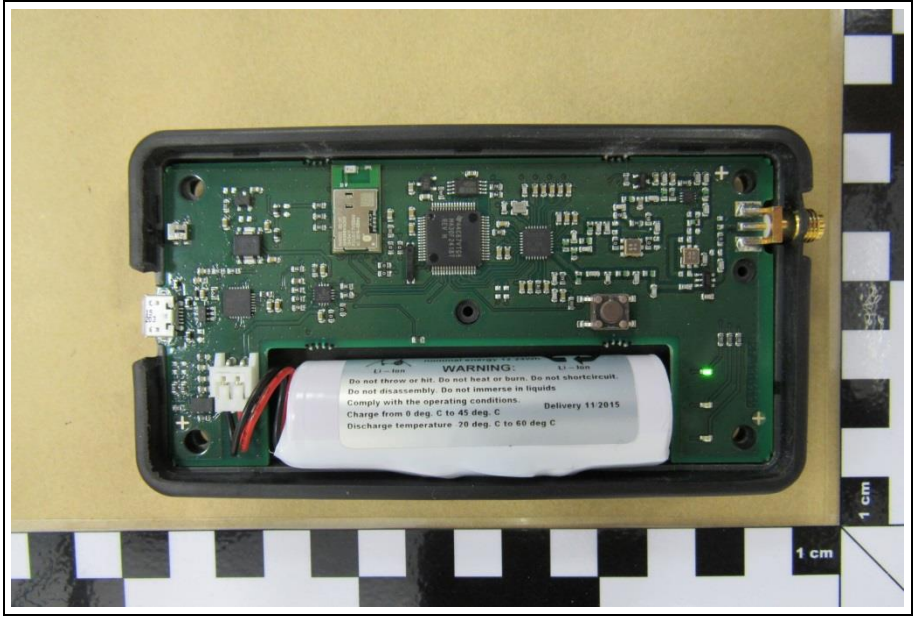
EUT USB CONNECTOR

EUT SIDE


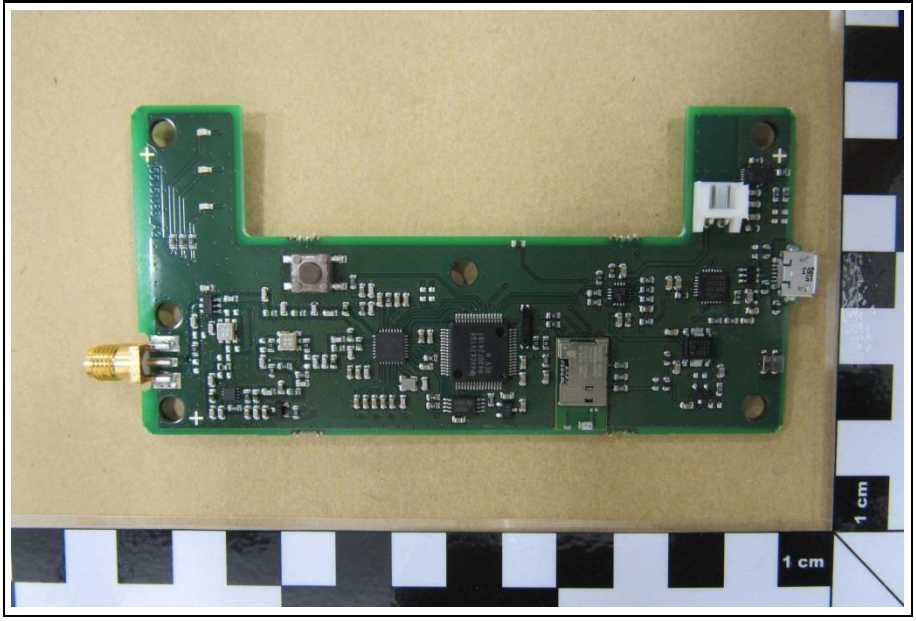
EUT OPEN


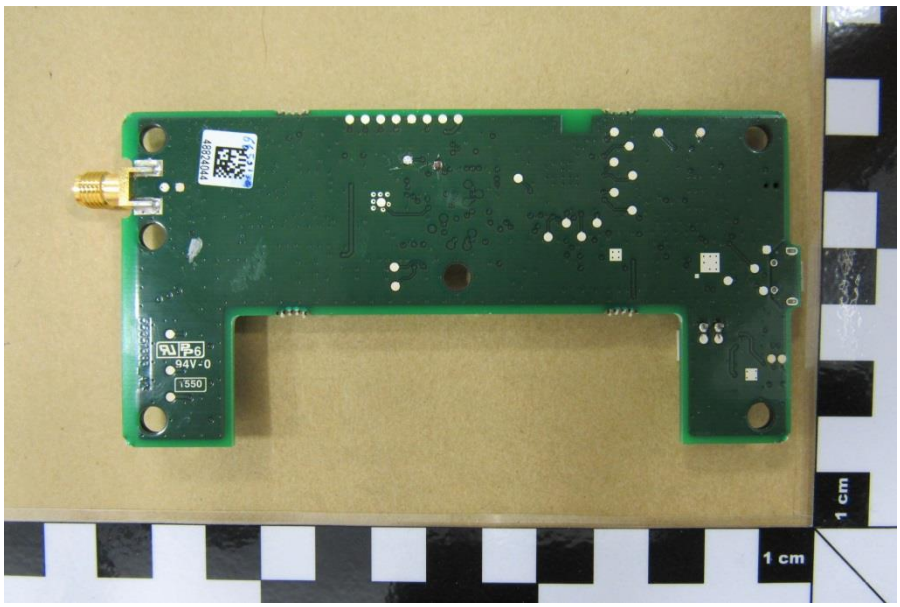
1.2 Photos – Equipment internal

EUT OPEN TOP



PCB TOP

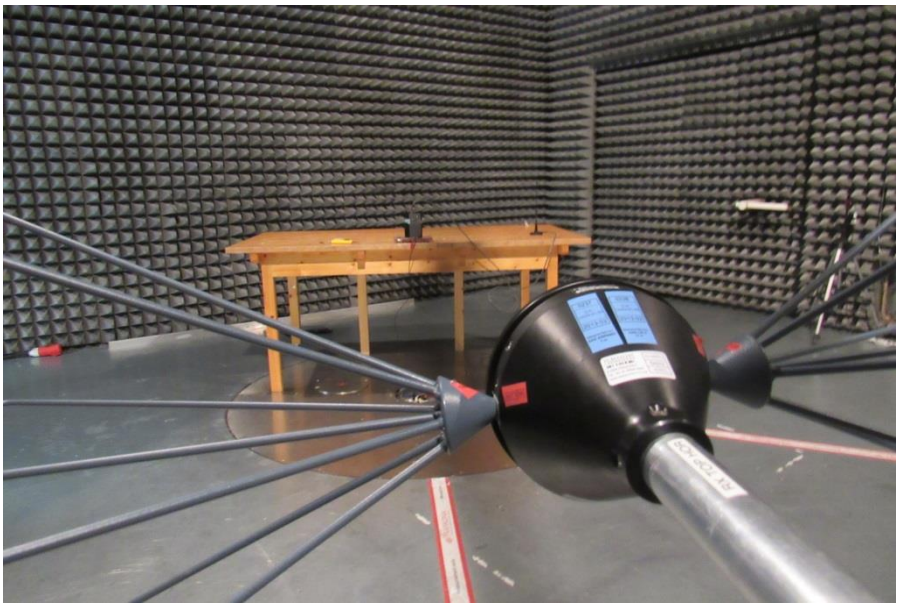


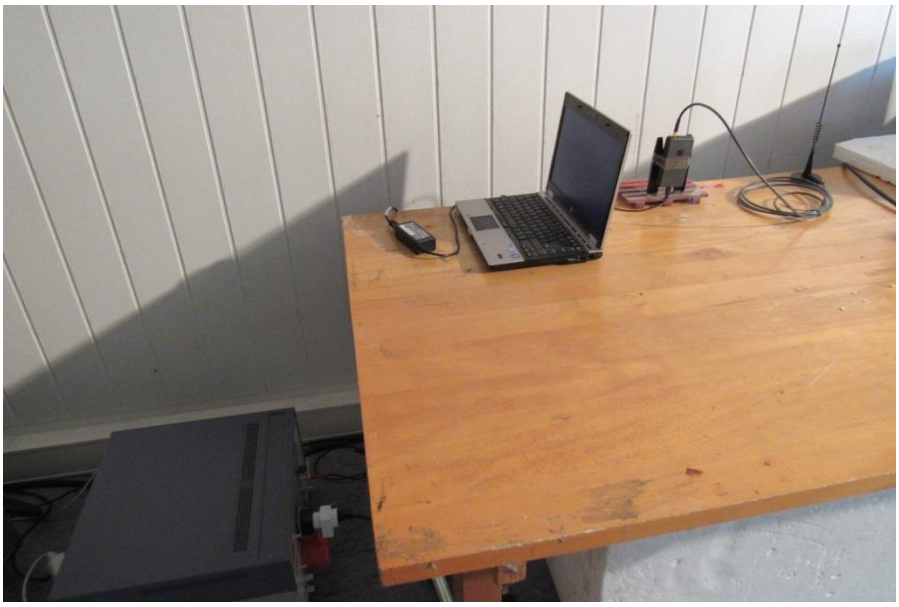
PCB BOTTOM


ANTENNA VARIANT 1

ANTENNA VARIANT 2

1.3 Photos – Test setup

RADIATED TEST SETUP


CONDUCTED TEST SETUP


1.4 Supporting Equipment Used During Testing

Product Type*	Device	Manufacturer	Model No.	Comments
AE	Notebook	HP	Elitebook 8440p	Serial: CZC0506398
SIM	Communication tester	Rohde & Schwarz	CBT	BT signalling

***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 laboratory power supply.
	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
2DH5-Sngl	General conditions:	EUT powered by laboratory power supply.
	Radio conditions:	Mode = standalone transmit Spreading = Hopping stopped (single hopping channel) Modulation = π/4-DQPSK Packet type = 2DH5 Data rate = 2 Mbps Duty cycle = 77 % Power level = Maximum
3DH5-Sngl	General conditions:	EUT powered by laboratory power supply.
	Radio conditions:	Mode = standalone transmit Spreading = Hopping stopped (single hopping channel) Modulation = 8-DPSK Packet type = 3DH5 Data rate = 3 Mbps Duty cycle = 77 % Power level = Maximum
AC-Powerline	General conditions:	EUT powered by commercial AC/DC-Adapter
	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	2015-04	2016-04
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	2015-10	2018-10

AC powerline conducted emissions					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
AMN	R&S	ESH2-Z5	EF00182	2014-11	2016-11
EMI Test Receiver	R&S	ESCS 30	EF00295	2015-10	2016-10

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 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) = 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	=	47.5 dBµV/m	:	47.5 dBµV/m - 57.0 dBµV/m = -9.5 dB

2 Result Summary

FCC 47 CFR Part 15C, IC RSS-247				
Product Specific Standard Section	**Requirement – Test**	**Reference Method**	**Result**	**Remarks**
RSS-Gen 6.6	Occupied Bandwidth	ANSI C63.10	N/R	Informational only
FCC § 15.247(a)(1) IC RSS-247 § 5.1	20 dB Bandwidth	ANSI C63.10	PASS	See FCC-ID: T7VEBMU
FCC § 15.247(a)(1)(iii) IC RSS-247 § 5.1	Number of hopping frequencies	ANSI C63.10	PASS	See FCC-ID: T7VEBMU
FCC § 15.247(a)(1) IC RSS-247 § 5.1	Frequency hopping channel separation	ANSI C63.10	PASS	See FCC-ID: T7VEBMU
FCC § 15.247(a)(1)(iii) IC RSS-247 § 5.1	Time of occupancy (Dwell time)	ANSI C63.10	PASS	See FCC-ID: T7VEBMU
FCC § 15.247(b)(1) IC RSS-247 § 5.4	Maximum peak conducted power	ANSI C63.10	PASS	See FCC-ID: T7VEBMU
47 CFR 15.207 IC RSS-247 § 3.1	AC power line conducted emissions	ANSI C63.4	PASS	
FCC § 15.247(d) IC RSS-247 § 5.5	Band edge compliance	ANSI C63.10	PASS	See FCC-ID: T7VEBMU
FCC § 15.247(d) IC RSS-247 § 5.5	Conducted spurious emissions	ANSI C63.10	PASS	See FCC-ID: T7VEBMU
FCC § 15.247(d) FCC § 15.209 IC RSS-247 § 5.5	Transmitter radiated spurious emissions	ANSI C63.10	PASS	
IC RSS-247 § 3.1	Receiver radiated spurious emissions	ANSI C63.10	N/R	
Remarks:				

3 Test Conditions and Results

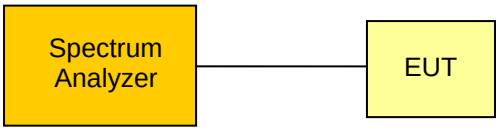
3.1 Test Conditions and Results – Occupied Bandwidth

Occupied Bandwidth acc. to IC RSS-Gen	**Verdict: PASS**
Test according to measurement reference	Reference Method
	ANSI C63.10
Test frequency range	Tested frequencies
	F_{LOW} / F_{MID} / F_{HIGH}

Limits

None (Informational only)

Test setup



Test procedure

1. EUT set to test mode (Communication tester is used if needed)
2. Span set to at least twice the emission spectrum
3. Resolution bandwidth set to 1 % of span
4. Occupied Bandwidth (99 %) measurement with spectrum analyzer built in measurement function

Test results

Channel	Frequency [MHz]	Mode	Occupied Bandwidth [MHz]
F_{LOW}	2402	DH5-Sngl	922.5
F_{MID}	2441	DH5-Sngl	928.8
F_{HIGH}	2480	DH5-Sngl	926.2
F_{LOW}	2402	2DH5-Sngl	1228.8
F_{MID}	2441	2DH5-Sngl	1226.2
F_{HIGH}	2480	2DH5-Sngl	1228.8
F_{LOW}	2402	3DH5-Sngl	1237.5
F_{MID}	2441	3DH5-Sngl	1241.2
F_{HIGH}	2480	3DH5-Sngl	1240.0

Comments:

3.2 Test Conditions and Results – AC power line conducted emissions

Power line conducted emissions acc. to 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 1

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

Project number: G0M-1512-5232

Applicant:	Kamstrup A/S
EUT Name:	READy Converter for Australia
Model:	READy Converter
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Marquardt
Test Conditions:	Tnom: 23°C, Unom: 120 VAC
LISN:	ESH2-Z5 N
Mode:	tx (sendemodus) with external antenna
Test Date:	2016-01-19
Note:	

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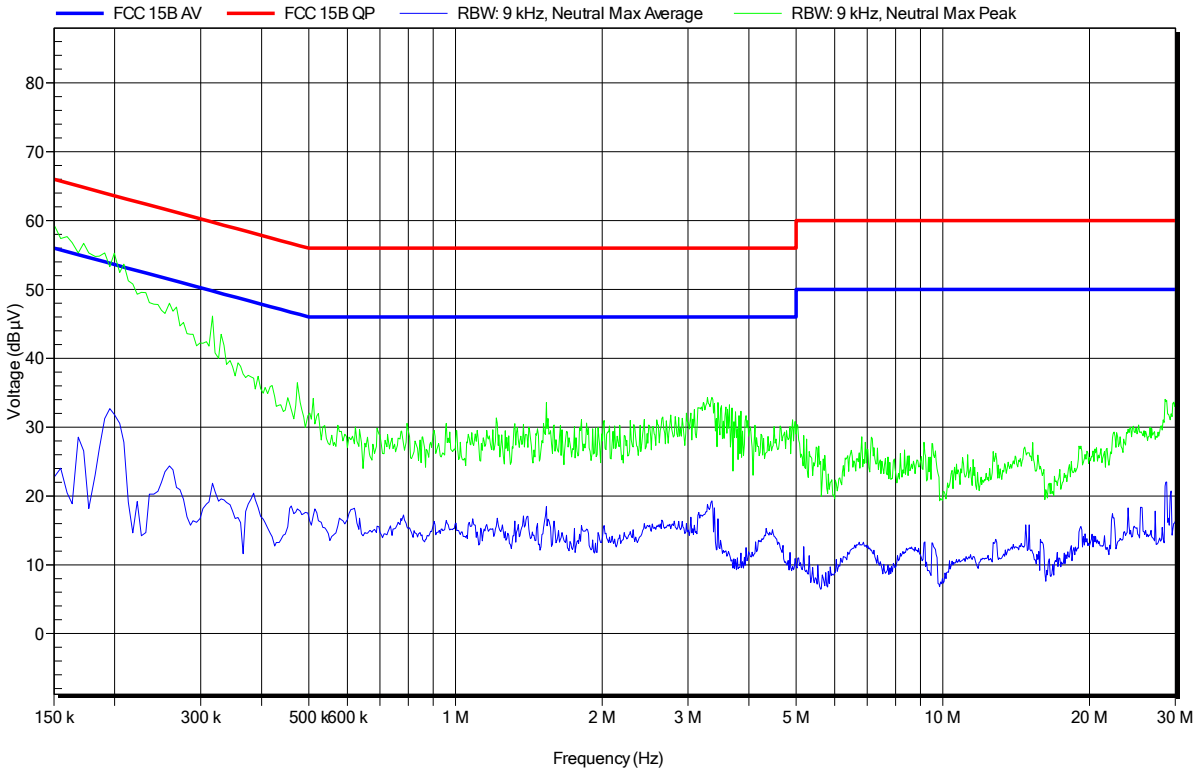

Conducted Emissions 2

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

Project number: G0M-1512-5232

Applicant:	Kamstrup A/S
EUT Name:	READy Converter for Australia
Model:	READy Converter
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Marquardt
Test Conditions:	Tnom: 23°C, Unom: 120 VAC
LISN:	ESH2-Z5 L
Mode:	tx (sendemodus) with external antenna
Test Date:	2016-01-19
Note:	

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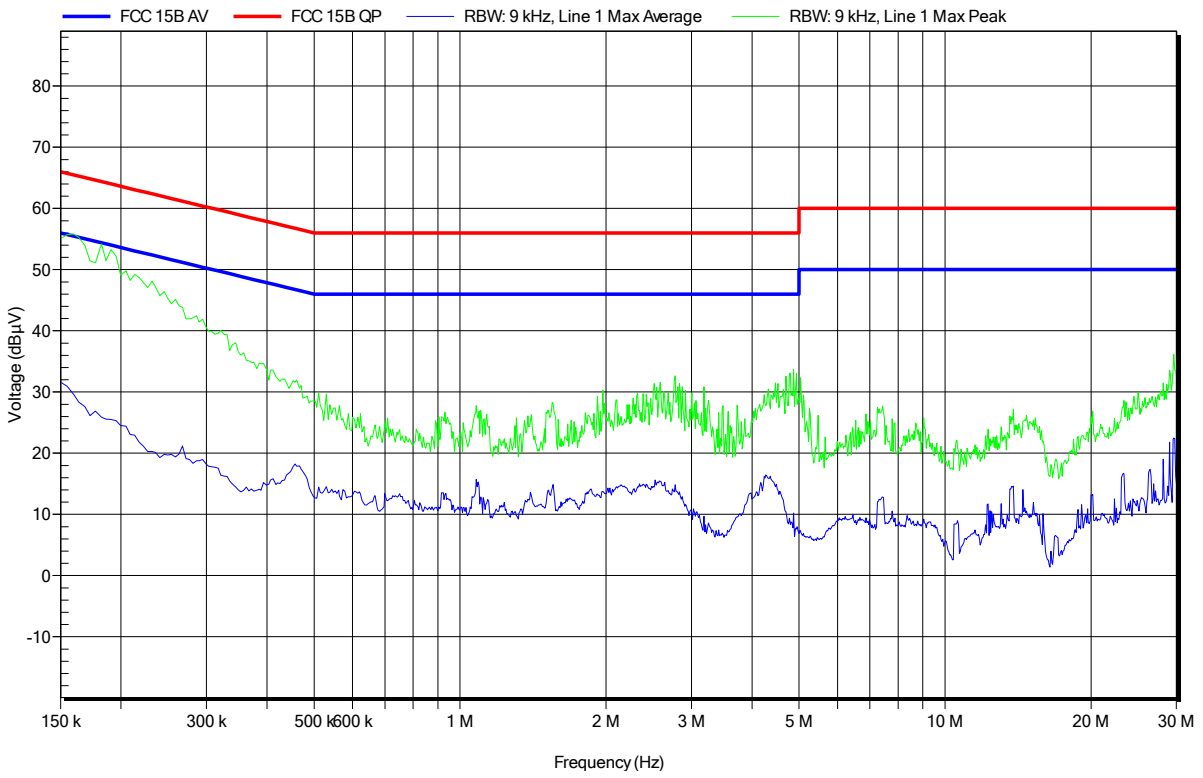
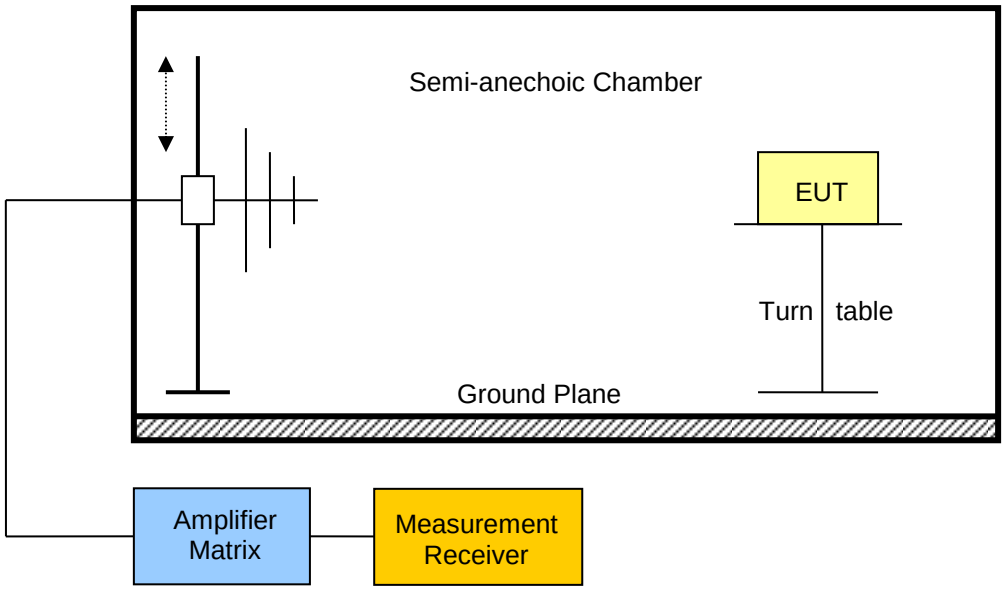


3.3 Test Conditions and Results – Transmitter radiated emissions

Transmitter radiated emissions acc. to FCC 47 CFR 15.247 / IC RSS-247				**Verdict: PASS**
Test according referenced standards		Reference Method		
		FCC 15.247(d) / IC RSS-247 5.5		
Test according to measurement reference		Reference Method		
		ANSI C63.10		
Test frequency range		Tested frequencies		
		30 MHz – 10th 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	2389	51.73	pk	hor	74.00	3	-22.27
F_{LOW}	2402	DH5-Sngl	2389	39.63	RMS	hor	54.00	3	-14.37
F_{LOW}	2402	DH5-Sngl	2389	51.36	pk	ver	74.00	3	-22.64
F_{LOW}	2402	DH5-Sngl	2389	39.20	RMS	ver	54.00	3	-14.80
F_{LOW}	2402	DH5-Sngl	4798	37.48	pk	ver	74.00	3	-36.52
F_{MID}	2441	DH5-Sngl	4878	36.26	pk	ver	74.00	3	-37.74
F_{MID}	2441	DH5-Sngl	2483.5	54.20	pk	hor	74.00	3	-19.80
F_{MID}	2441	DH5-Sngl	2483.5	40.12	RMS	hor	54.00	3	-13.88
F_{MID}	2441	DH5-Sngl	2483.5	56.21	pk	ver	74.00	3	-17.79
F_{MID}	2441	DH5-Sngl	2483.5	50.65	RMS	ver	54.00	3	-03.35
F_{MID}	2441	DH5-Sngl	4958	38.99	pk	ver	74.00	3	-35.01

Comments: * Physical distance between EUT and measurement antenna.
No significant spurious emissions for 2DH5-Sngl and 3DH5-Sngl.

ANNEX A Transmitter radiated spurious emissions

Spurious emissions according to FCC 15.247

Project number: G0M-1511-5232

Applicant:	Kamstrup A/S
EUT Name:	READy Converter for India
Model:	READy Converter
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 25°C, Vnom: 5 V DC (lithium battery)
Antenna:	Rohde & Schwarz HK 116, Horizontal
Measurement distance:	3 m
Mode:	TX; BT basic; DH5; 2402 MHz
Test Date:	2016-01-21
Note:	

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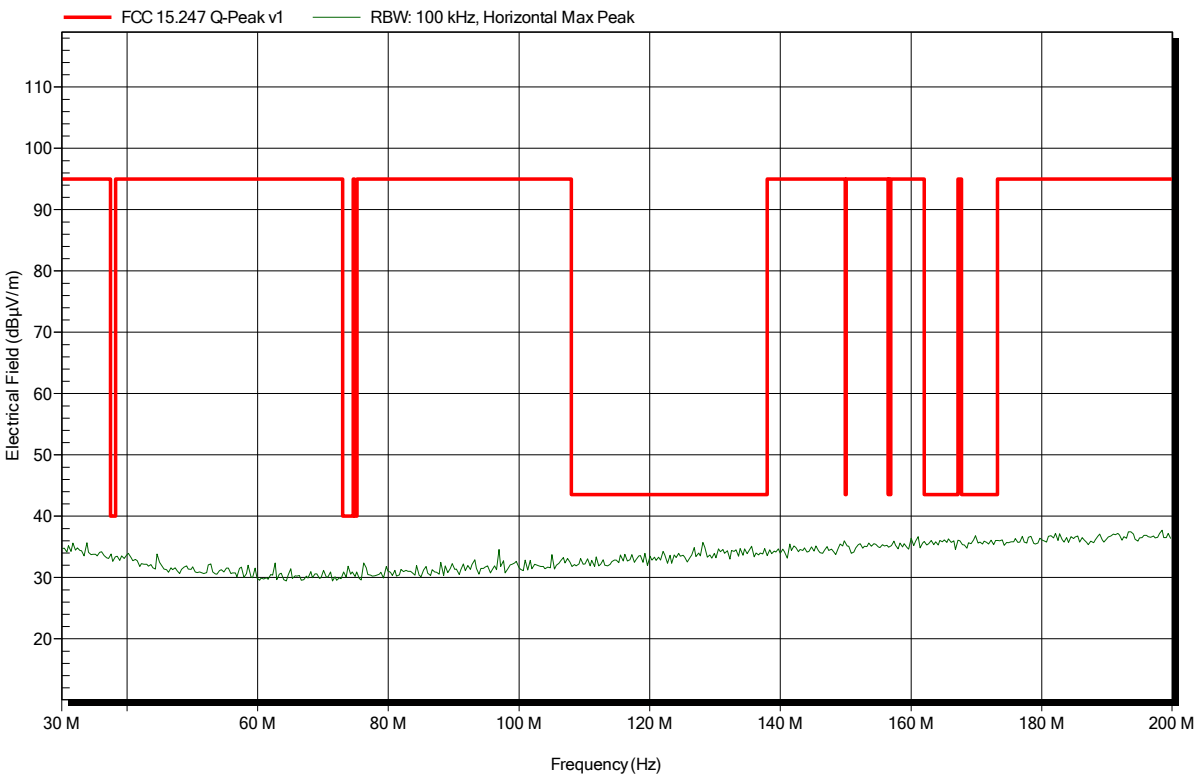

Spurious emissions according to FCC 15.247

Project number: G0M-1511-5232

Applicant:	Kamstrup A/S
EUT Name:	READy Converter for India
Model:	READy Converter
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 25°C, Vnom: 5 V DC (lithium battery)
Antenna:	Rohde & Schwarz HK 116, Vertical
Measurement distance:	3 m
Mode:	TX; BT basic; DH5; 2402 MHz
Test Date:	2016-01-21
Note:	

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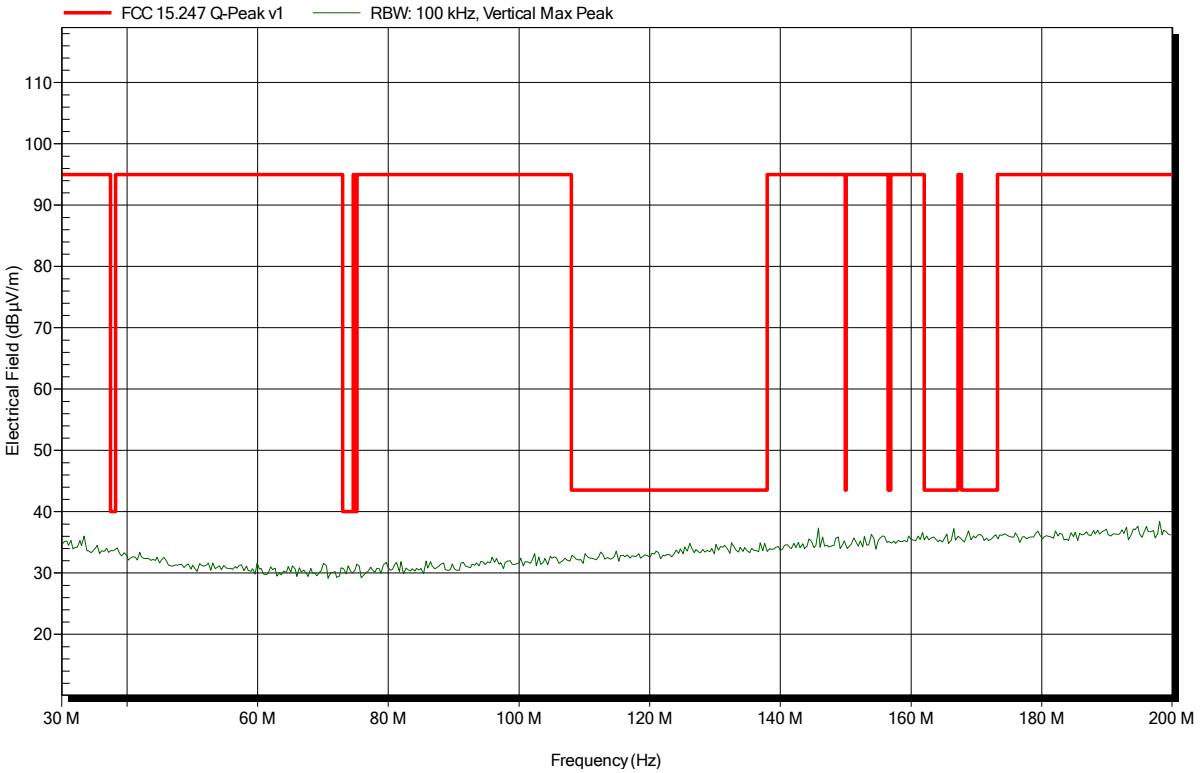

Spurious emissions according to FCC 15.247

Project number: G0M-1511-5232

Applicant:	Kamstrup A/S
EUT Name:	READy Converter for India
Model:	READy Converter
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 25°C, Vnom: 5 V DC (lithium battery)
Antenna:	Rohde & Schwarz HL 223, Horizontal
Measurement distance:	3 m
Mode:	TX; BT basic; DH5; 2402 MHz
Test Date:	2016-01-21
Note:	

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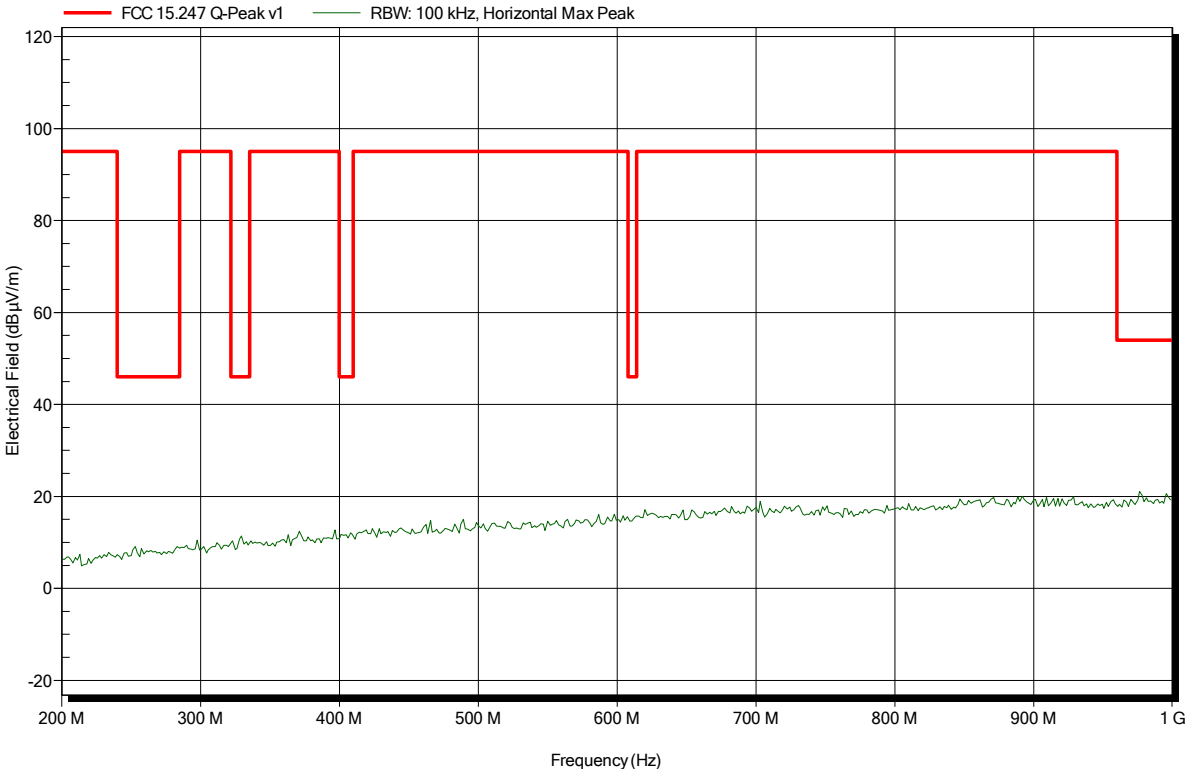

Spurious emissions according to FCC 15.247

Project number: G0M-1511-5232

Applicant:	Kamstrup A/S
EUT Name:	READy Converter for India
Model:	READy Converter
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 25°C, Vnom: 5 V DC (lithium battery)
Antenna:	Rohde & Schwarz HL 223, Vertical
Measurement distance:	3 m
Mode:	TX; BT basic; DH5; 2402 MHz
Test Date:	2016-01-21
Note:	

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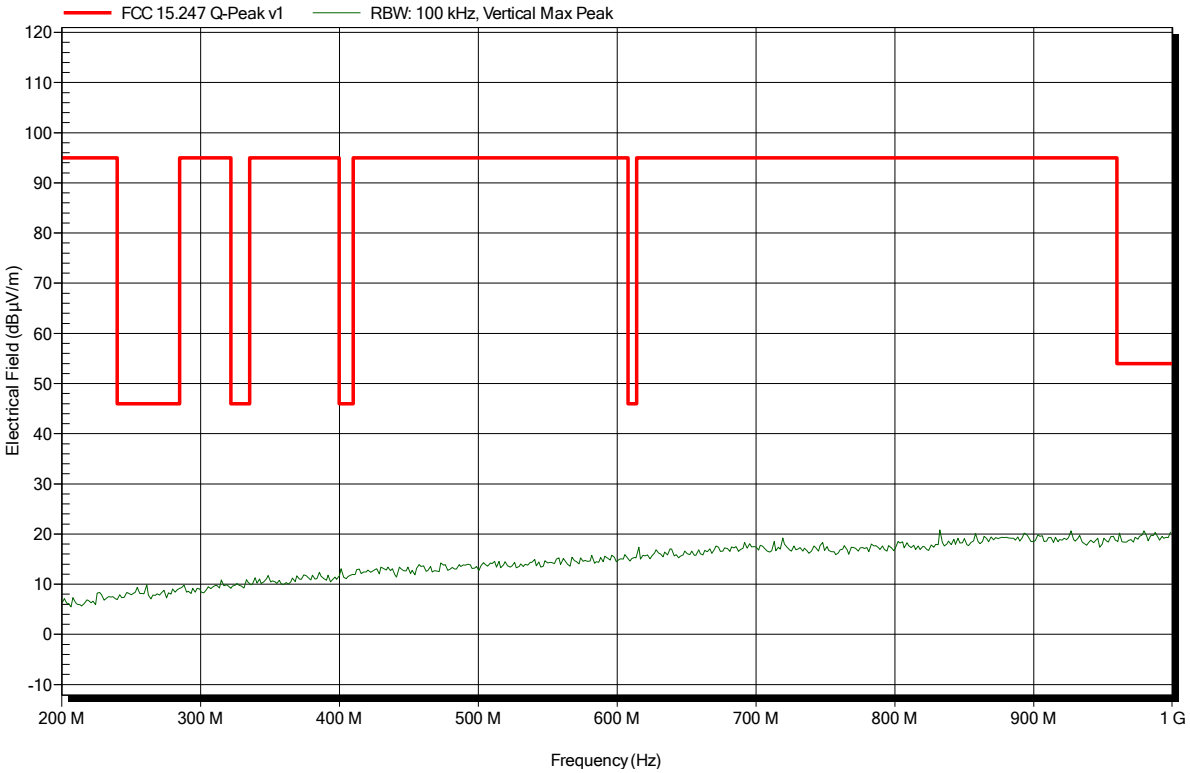

Spurious emissions according to FCC 15.247

Project number: G0M-1511-5232

Applicant:	Kamstrup A/S
EUT Name:	READy Converter for India
Model:	READy Converter
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 25°C, Vnom: 5 V DC (lithium battery)
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	3 m
Mode:	TX; BT basic; DH5; 2402 MHz
Test Date:	2016-01-21
Note:	

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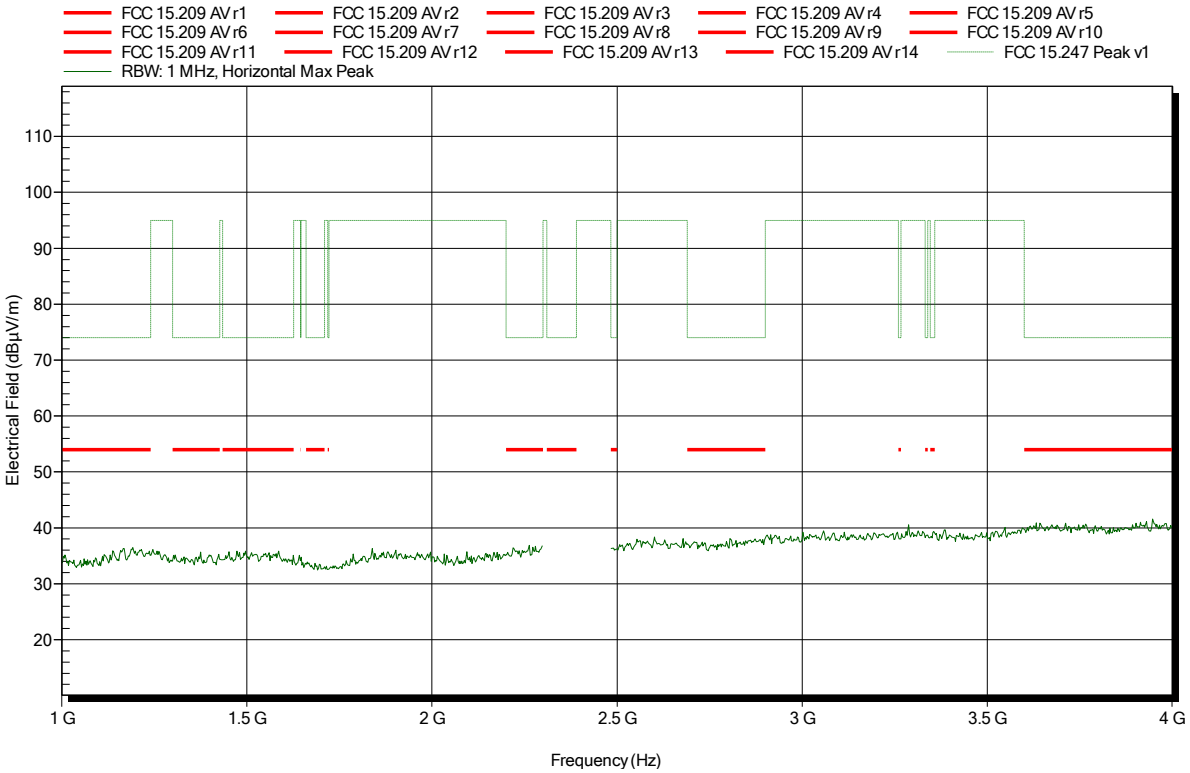

Spurious emissions according to FCC 15.247

Project number: G0M-1511-5232

Applicant:	Kamstrup A/S
EUT Name:	READy Converter for India
Model:	READy Converter
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 25°C, Vnom: 5 V DC (lithium battery)
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	3 m
Mode:	TX; BT basic; DH5; 2402 MHz
Test Date:	2016-01-21
Note:	

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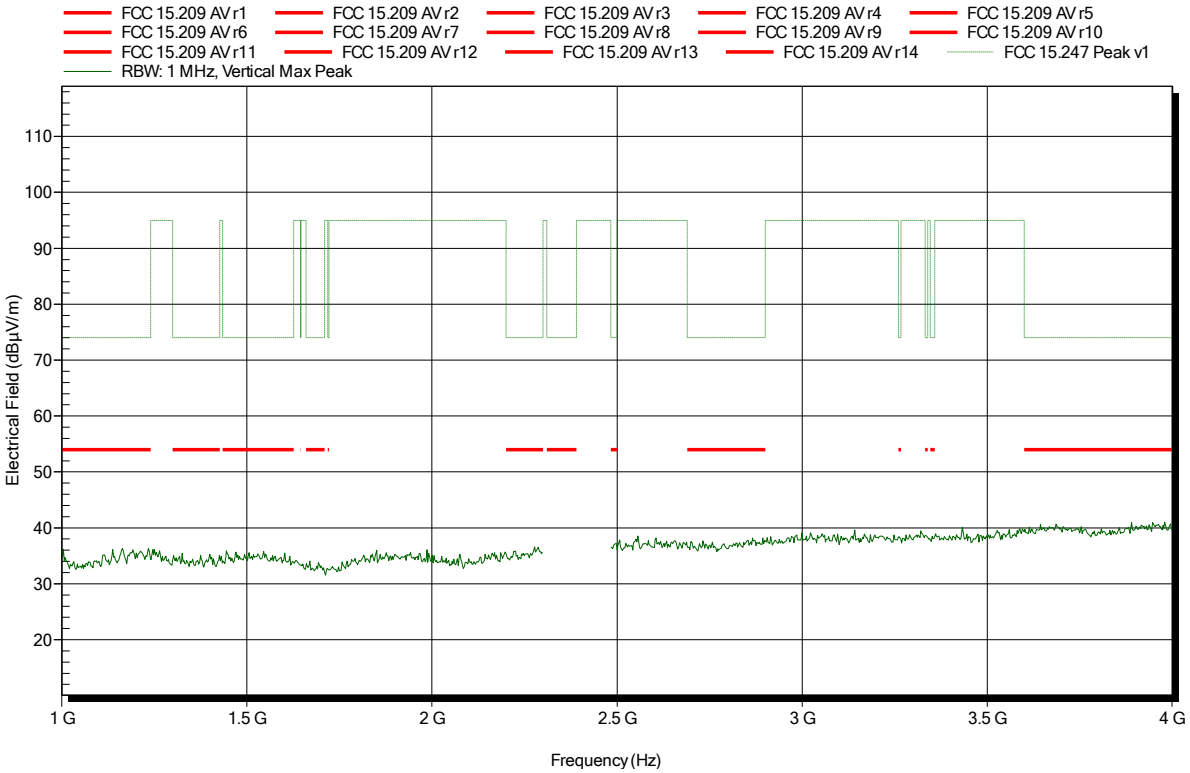

Spurious emissions according to FCC 15.247

Project number: G0M-1511-5232

Applicant:	Kamstrup A/S
EUT Name:	READy Converter for India
Model:	READy Converter
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 25°C, Vnom: 5 V DC (lithium battery)
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; BT basic; DH5; 2402 MHz
Test Date:	2016-01-21
Note:	lower bandedge

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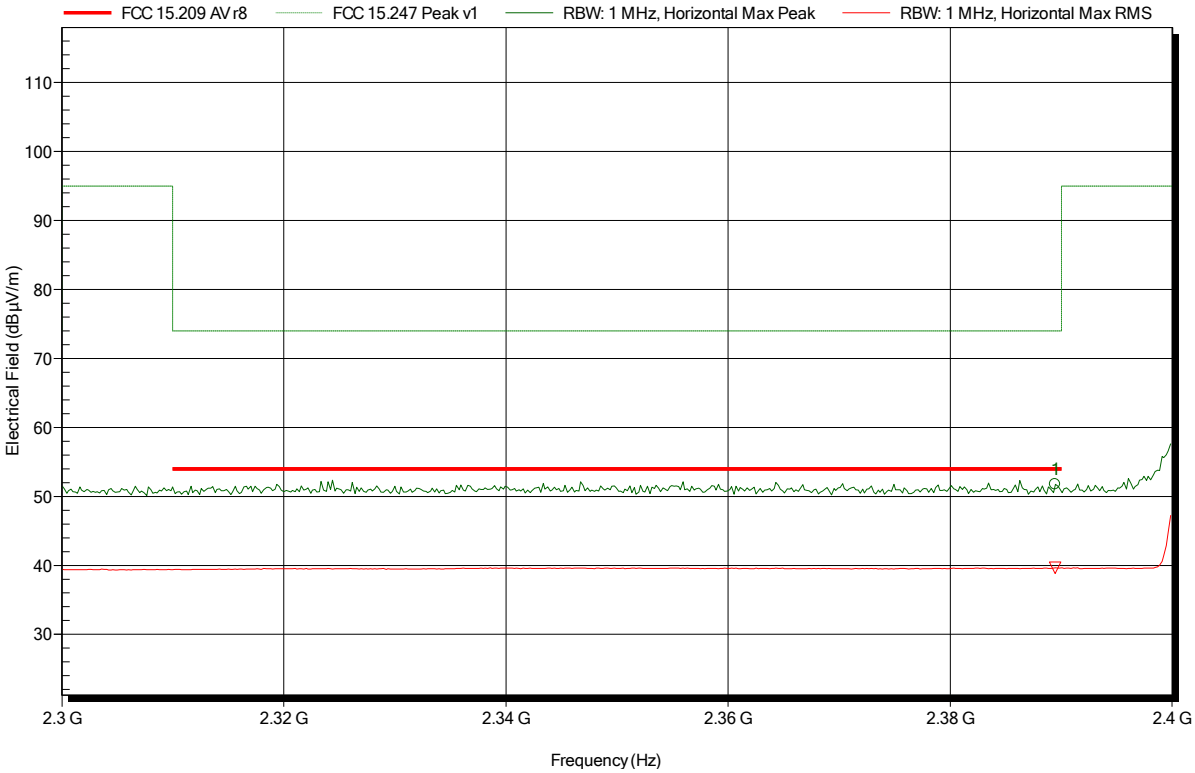

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
2.389 GHz	51.73 dBµV/m	74 dBµV/m	-22.27 dB	Pass

Frequency	RMS	RMS Limit	RMS Difference	RMS Status
2.389 GHz	39.63 dBµV/m	54 dBµV/m	-14.37 dB	Pass

Spurious emissions according to FCC 15.247

Project number: G0M-1511-5232

Applicant:	Kamstrup A/S
EUT Name:	READy Converter for India
Model:	READy Converter
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 25°C, Vnom: 5 V DC (lithium battery)
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; BT basic; DH5; 2402 MHz
Test Date:	2016-01-21
Note:	lower bandedge

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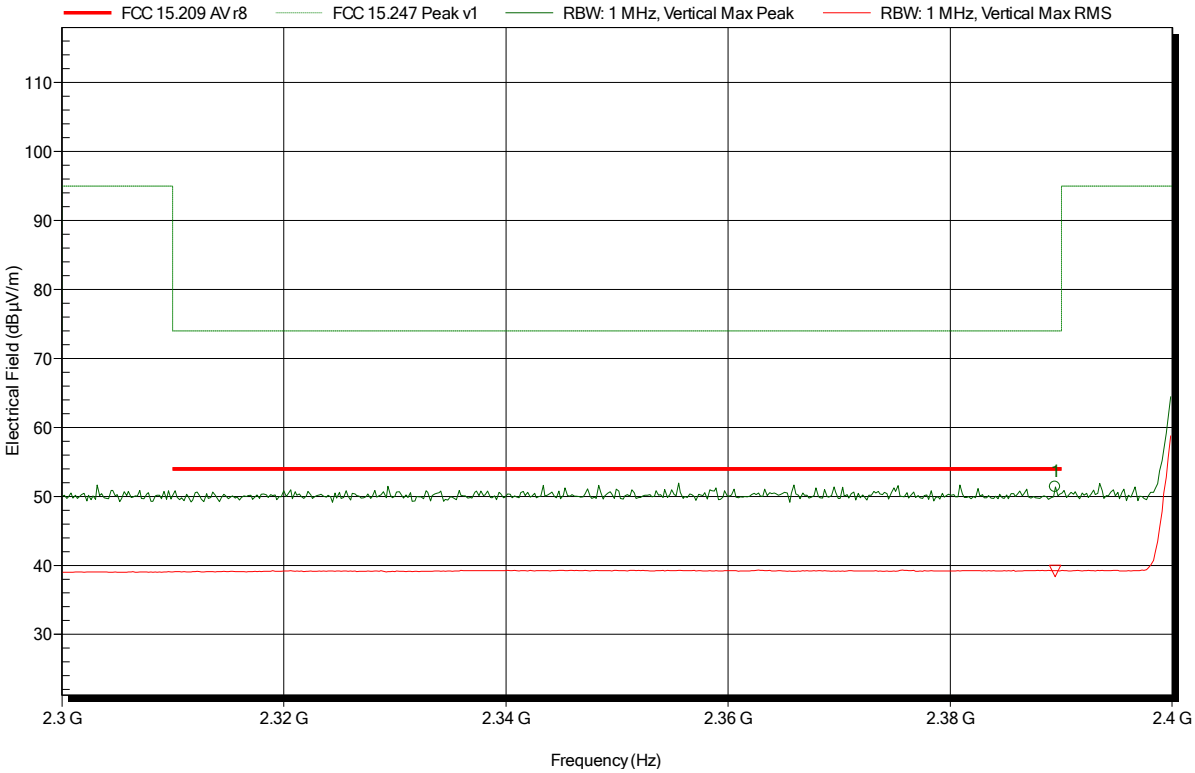

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
2.389 GHz	51.36 dBµV/m	74 dBµV/m	-22.64 dB	Pass

Frequency	RMS	RMS Limit	RMS Difference	RMS Status
2.389 GHz	39.2 dBµV/m	54 dBµV/m	-14.8 dB	Pass

Spurious emissions according to FCC 15.247

Project number: G0M-1511-5232

Applicant:	Kamstrup A/S
EUT Name:	READy Converter for India
Model:	READy Converter
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 25°C, Vnom: 5 V DC (lithium battery)
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; BT basic; DH5; 2402 MHz
Test Date:	2016-01-21
Note:	

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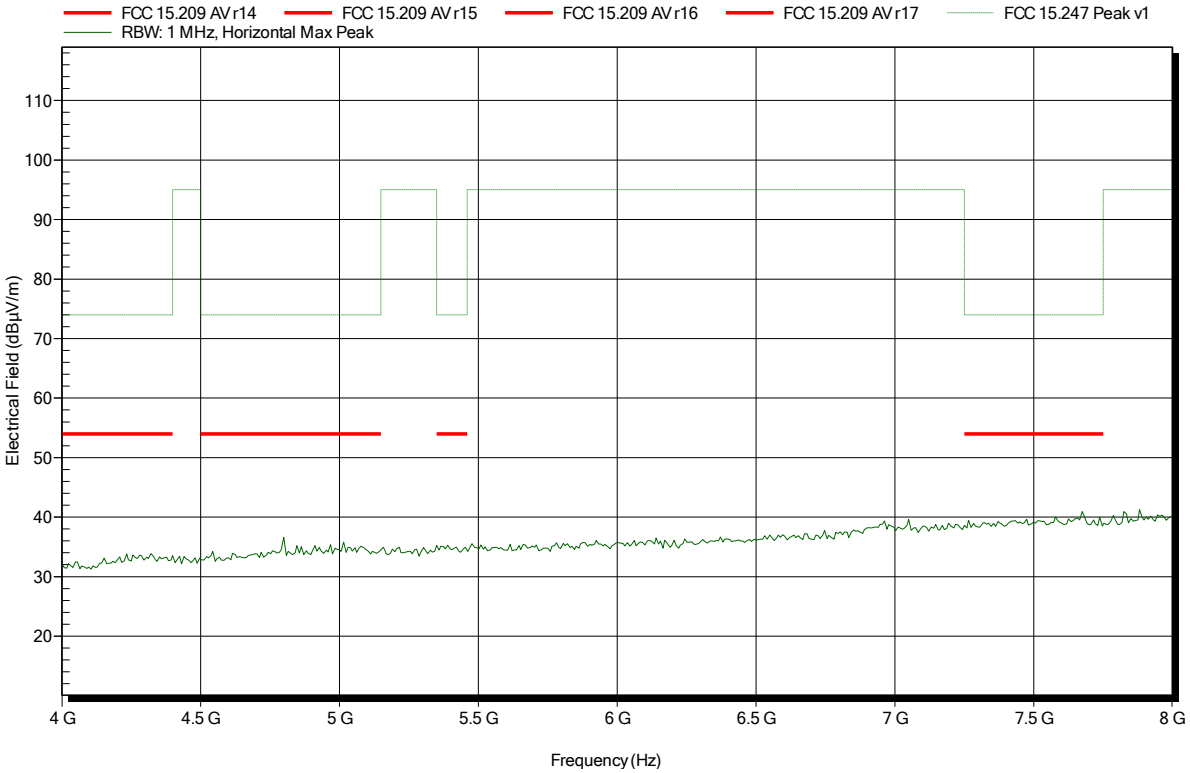

Spurious emissions according to FCC 15.247

Project number: G0M-1511-5232

Applicant:	Kamstrup A/S
EUT Name:	READy Converter for India
Model:	READy Converter
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 25°C, Vnom: 5 V DC (lithium battery)
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; BT basic; DH5; 2402 MHz
Test Date:	2016-01-21
Note:	

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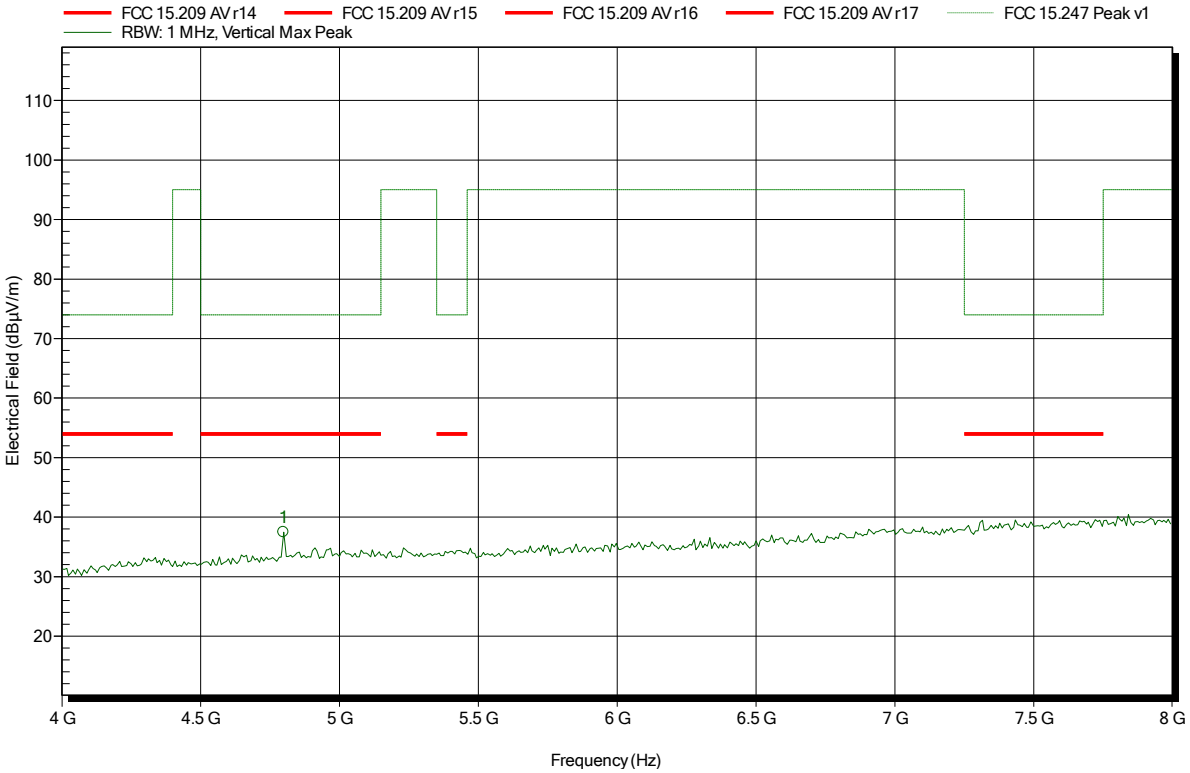

Frequency	Peak	Peak Limit	Peak Difference	Status
4.798 GHz	37.48 dBµV/m	74 dBµV/m	-36.52 dB	Pass

Spurious emissions according to FCC 15.247

Project number: G0M-1511-5232

Applicant:	Kamstrup A/S
EUT Name:	READy Converter for India
Model:	READy Converter
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 25°C, Vnom: 5 V DC (lithium battery)
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; BT basic; DH5; 2402 MHz
Test Date:	2016-01-21
Note:	

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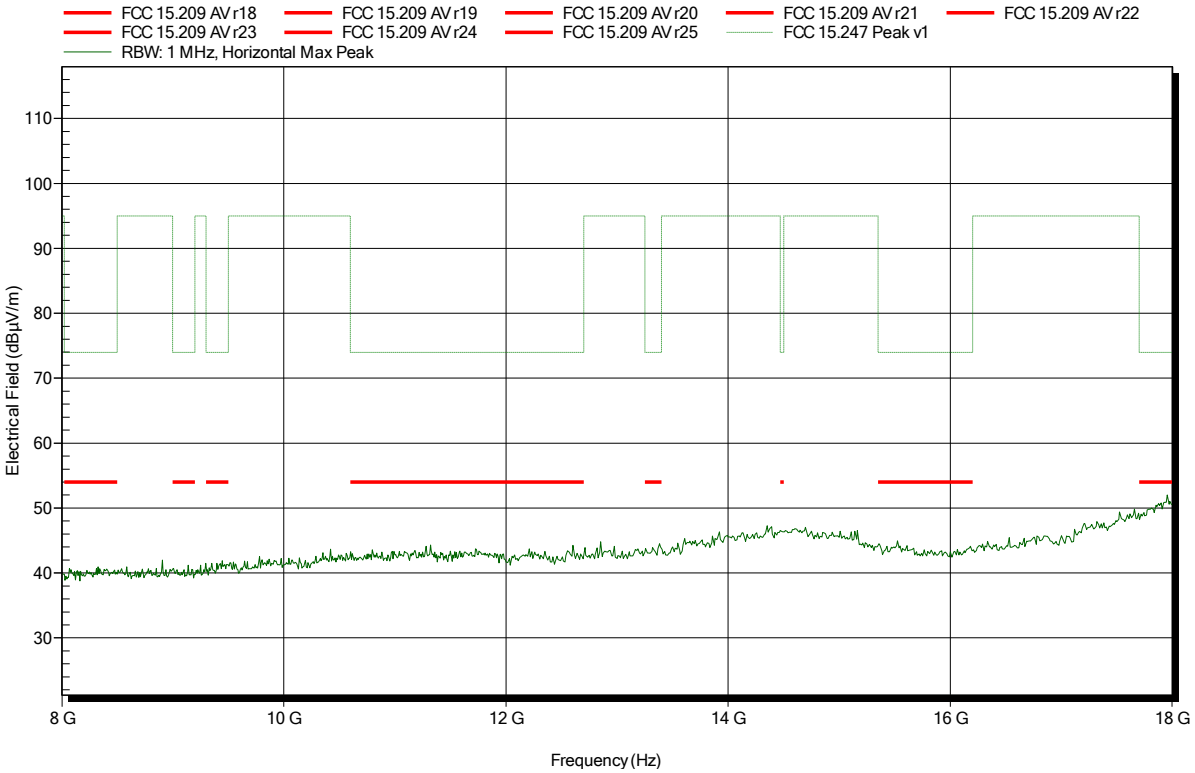

Spurious emissions according to FCC 15.247

Project number: G0M-1511-5232

Applicant:	Kamstrup A/S
EUT Name:	READy Converter for India
Model:	READy Converter
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 25°C, Vnom: 5 V DC (lithium battery)
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; BT basic; DH5; 2402 MHz
Test Date:	2016-01-21
Note:	

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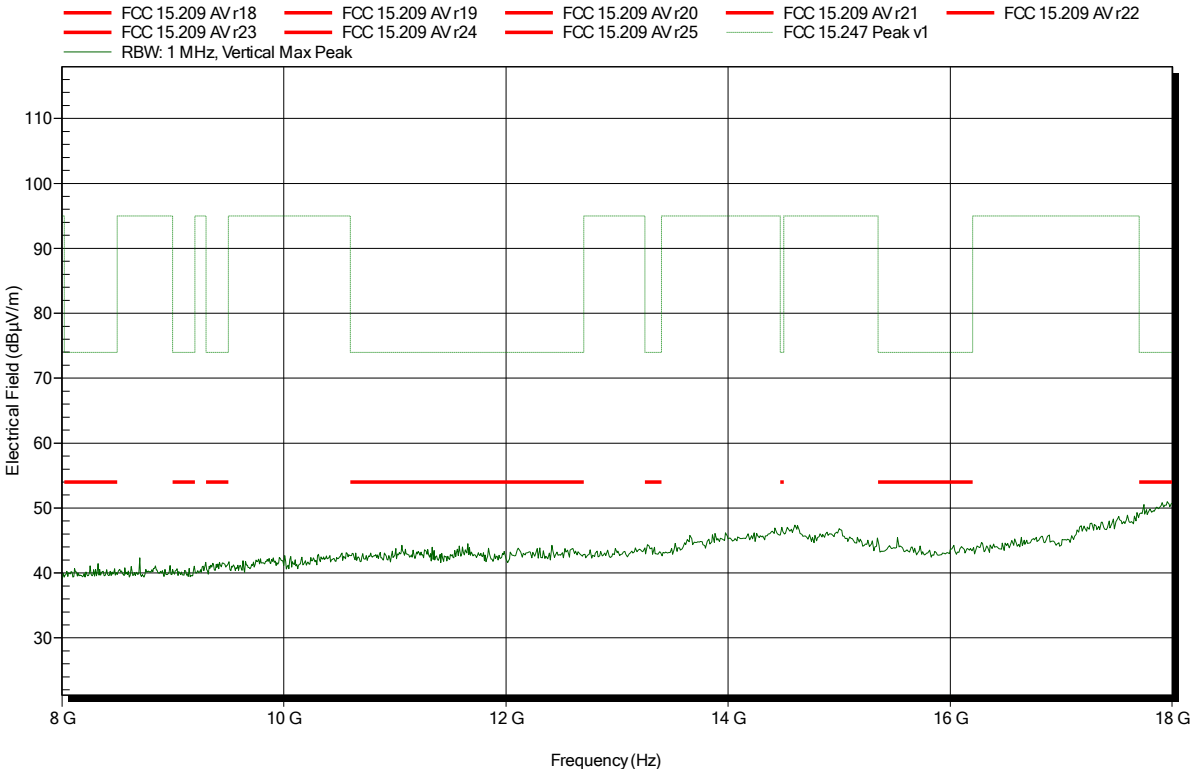

Spurious emissions according to FCC 15.247

Project number: G0M-1511-5232

Applicant:	Kamstrup A/S
EUT Name:	READy Converter for India
Model:	READy Converter
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 25°C, Vnom: 5 V DC (lithium battery)
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; BT basic; DH5; 2402 MHz
Test Date:	2016-01-21
Note:	

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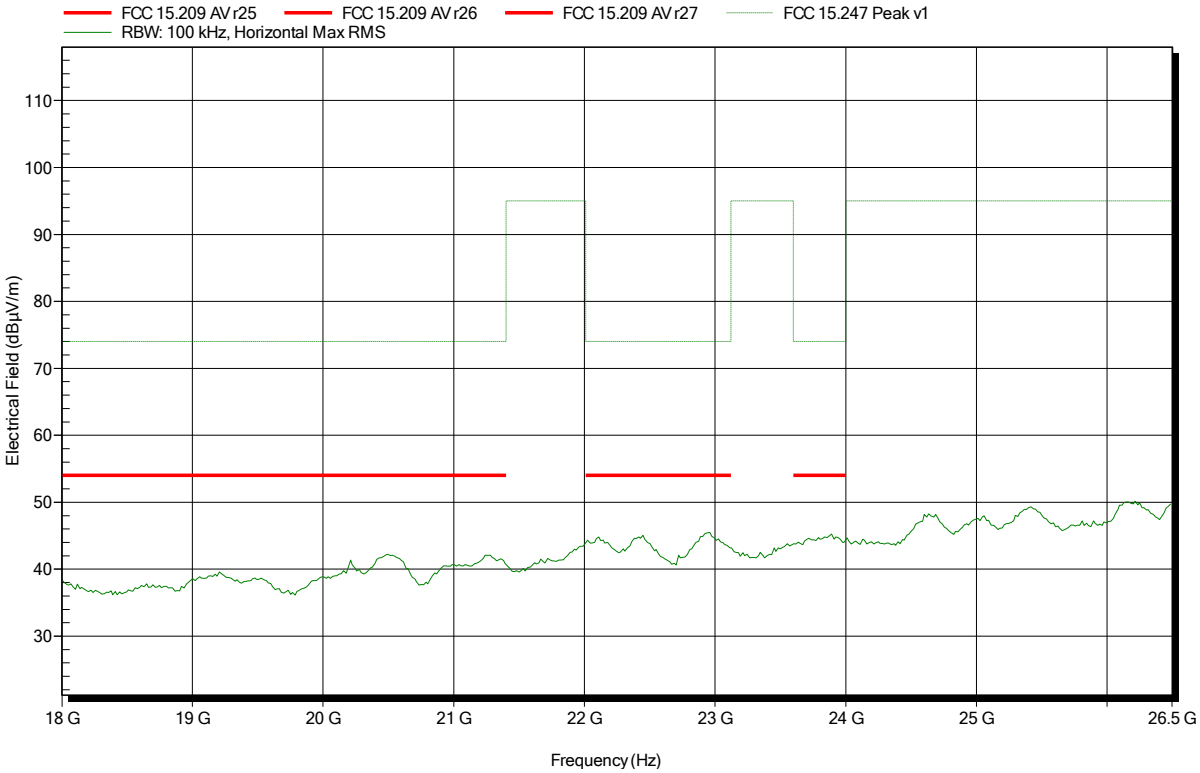

Spurious emissions according to FCC 15.247

Project number: G0M-1511-5232

Applicant:	Kamstrup A/S
EUT Name:	READy Converter for India
Model:	READy Converter
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 25°C, Vnom: 5 V DC (lithium battery)
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; BT basic; DH5; 2402 MHz
Test Date:	2016-01-21
Note:	

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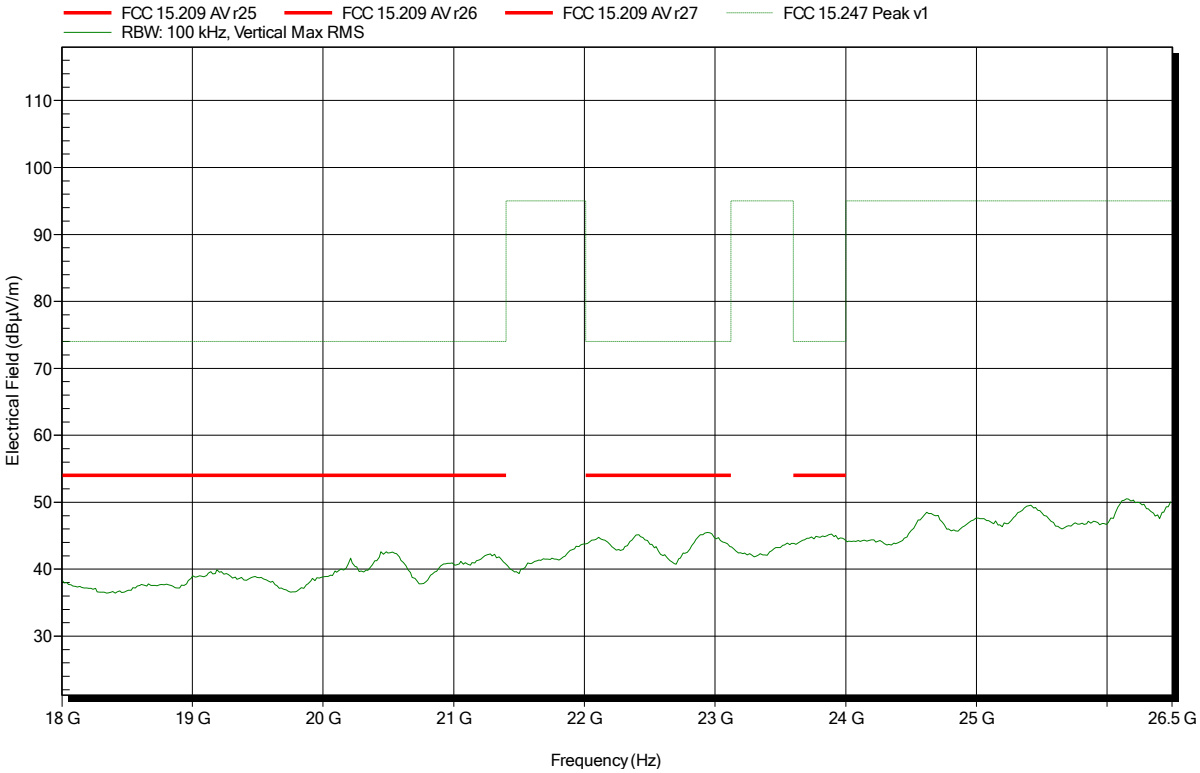

Spurious emissions according to FCC 15.247

Project number: G0M-1511-5232

Applicant:	Kamstrup A/S
EUT Name:	READy Converter for India
Model:	READy Converter
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 25°C, Vnom: 5 V DC (lithium battery)
Antenna:	Rohde & Schwarz HK 116, Horizontal
Measurement distance:	3 m
Mode:	TX; BT basic; DH5; 2441 MHz
Test Date:	2016-01-21
Note:	

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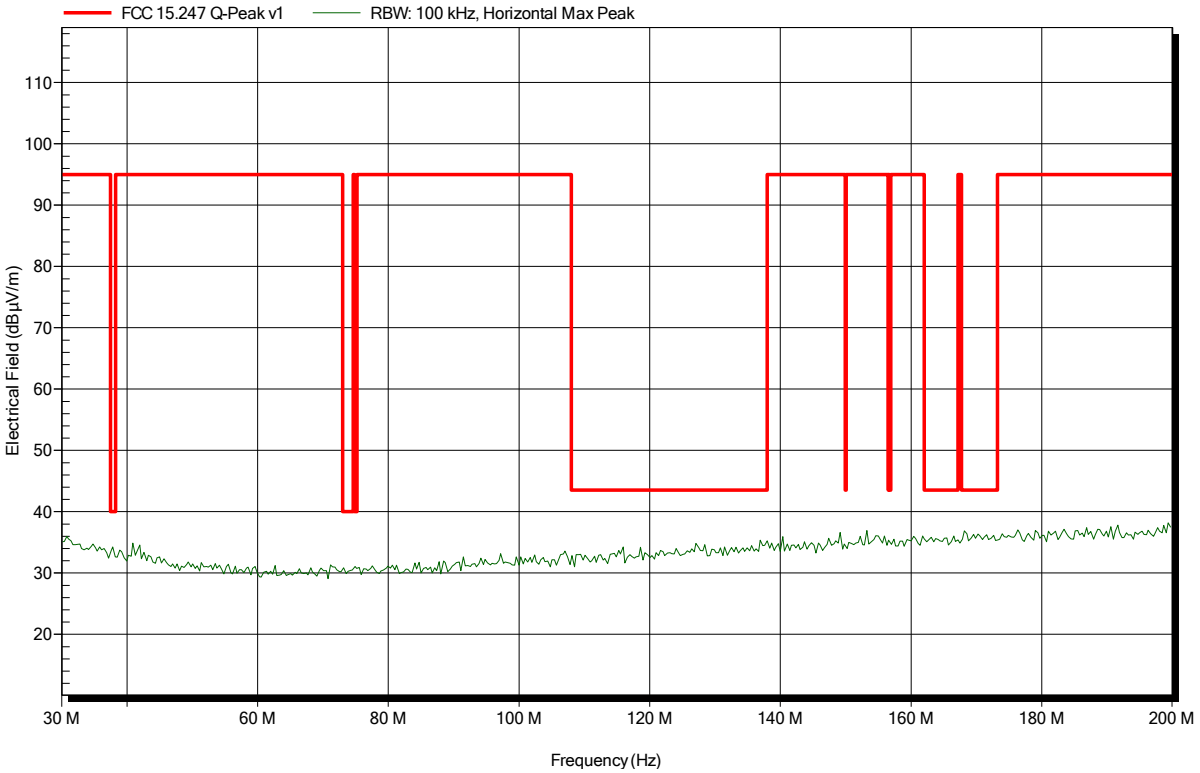

Spurious emissions according to FCC 15.247

Project number: G0M-1511-5232

Applicant:	Kamstrup A/S
EUT Name:	READy Converter for India
Model:	READy Converter
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 25°C, Vnom: 5 V DC (lithium battery)
Antenna:	Rohde & Schwarz HK 116, Vertical
Measurement distance:	3 m
Mode:	TX; BT basic; DH5; 2441 MHz
Test Date:	2016-01-21
Note:	

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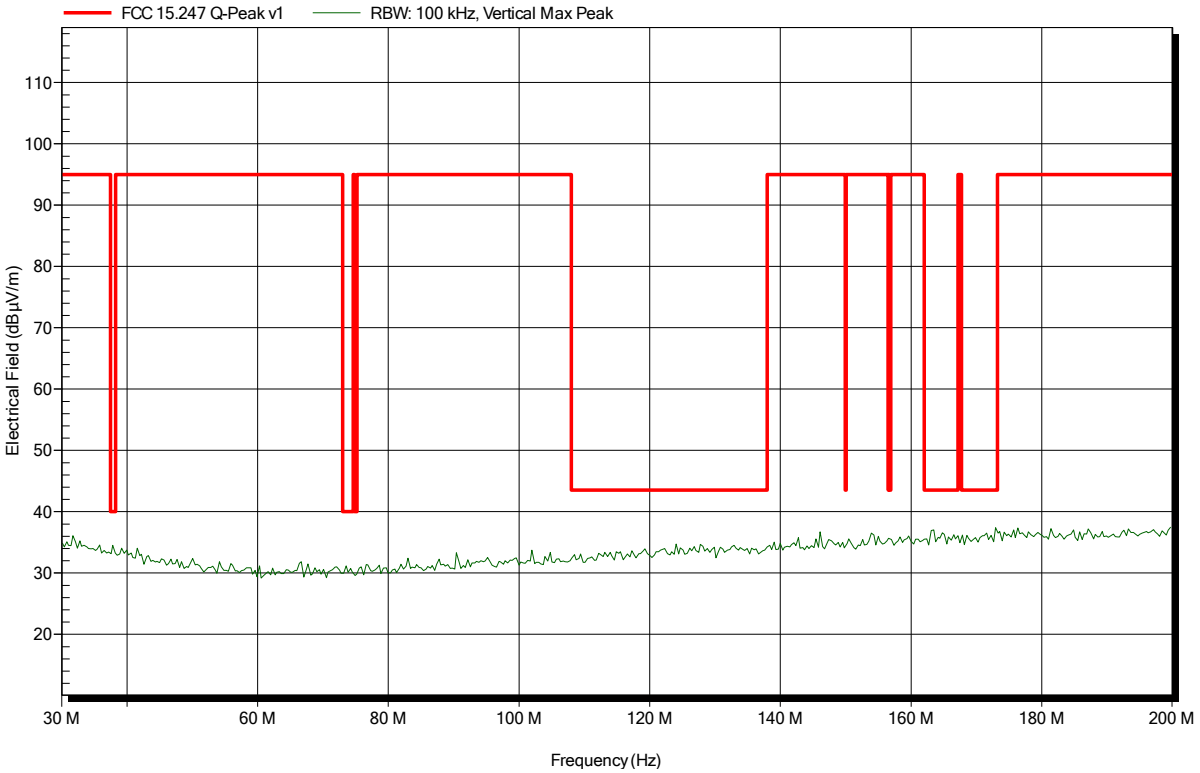

Spurious emissions according to FCC 15.247

Project number: G0M-1511-5232

Applicant:	Kamstrup A/S
EUT Name:	READy Converter for India
Model:	READy Converter
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 25°C, Vnom: 5 V DC (lithium battery)
Antenna:	Rohde & Schwarz HL 223, Horizontal
Measurement distance:	3 m
Mode:	TX; BT basic; DH5; 2441 MHz
Test Date:	2016-01-21
Note:	

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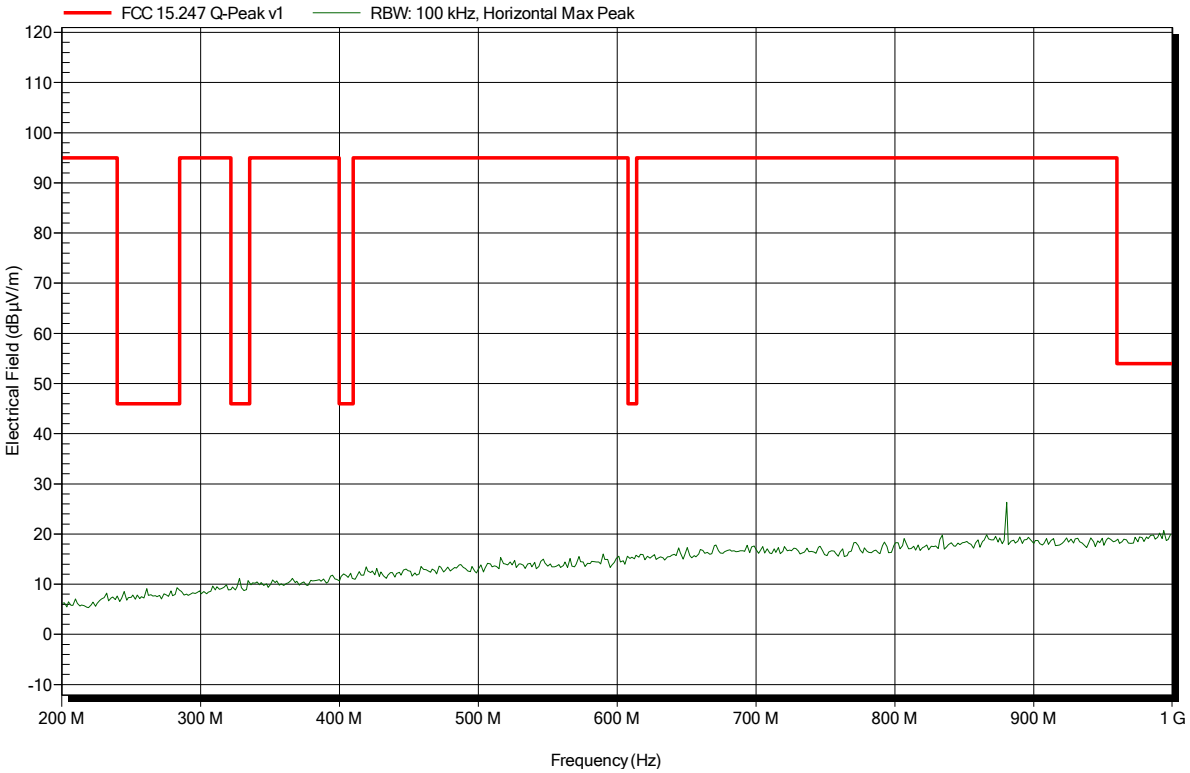

Spurious emissions according to FCC 15.247

Project number: G0M-1511-5232

Applicant:	Kamstrup A/S
EUT Name:	READy Converter for India
Model:	READy Converter
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 25°C, Vnom: 5 V DC (lithium battery)
Antenna:	Rohde & Schwarz HL 223, Vertical
Measurement distance:	3 m
Mode:	TX; BT basic; DH5; 2441 MHz
Test Date:	2016-01-21
Note:	

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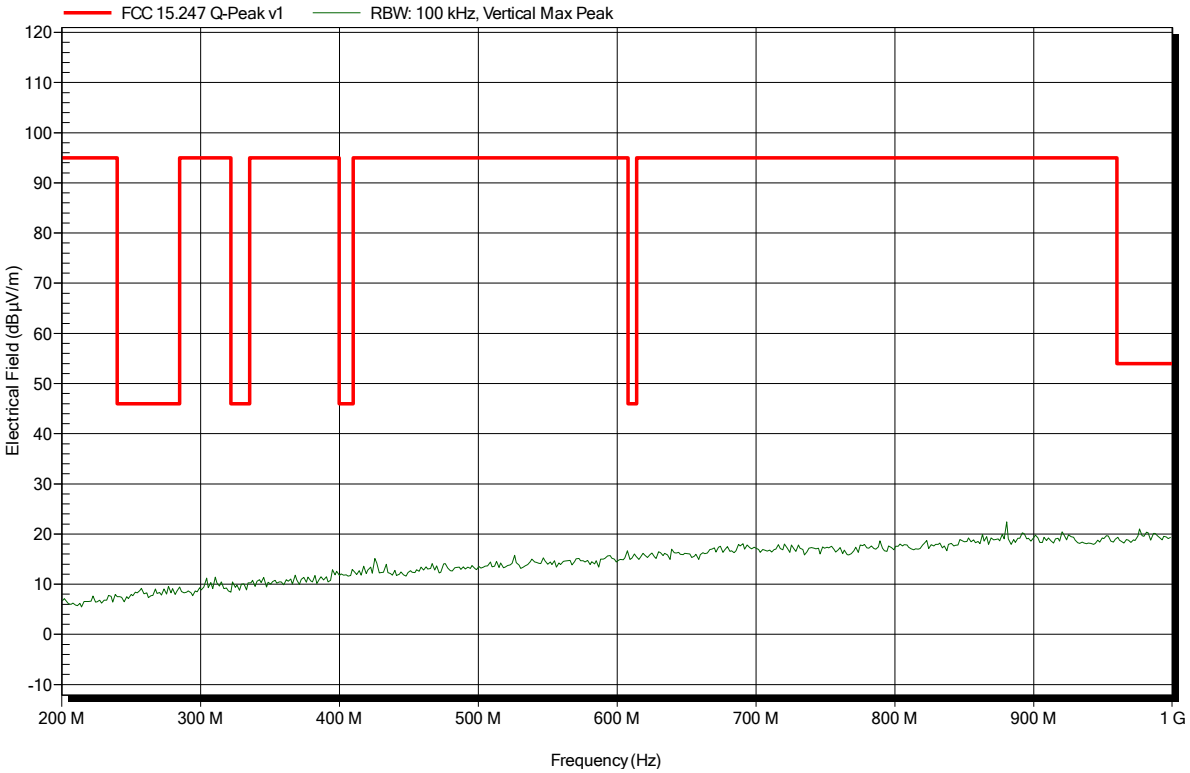

Spurious emissions according to FCC 15.247

Project number: G0M-1511-5232

Applicant:	Kamstrup A/S
EUT Name:	READy Converter for India
Model:	READy Converter
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 25°C, Vnom: 5 V DC (lithium battery)
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	3 m
Mode:	TX; BT basic; DH5; 2441 MHz
Test Date:	2016-01-21
Note:	

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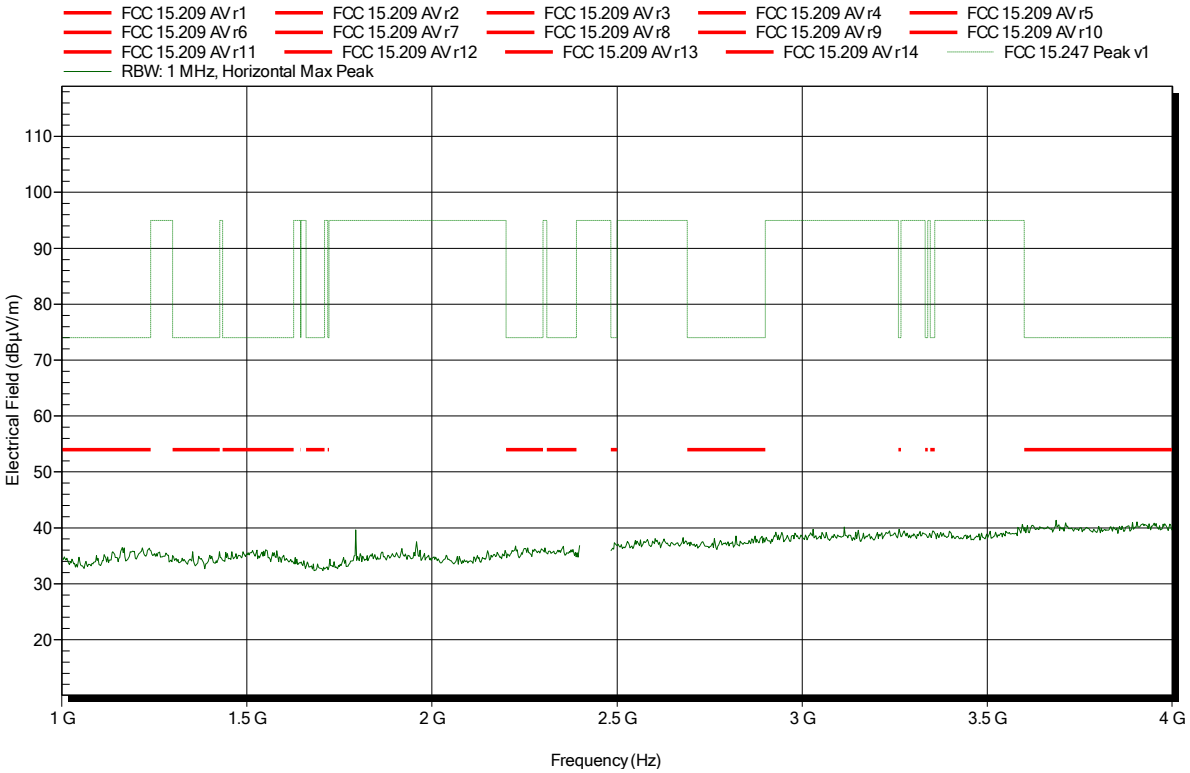

Spurious emissions according to FCC 15.247

Project number: G0M-1511-5232

Applicant:	Kamstrup A/S
EUT Name:	READy Converter for India
Model:	READy Converter
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 25°C, Vnom: 5 V DC (lithium battery)
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	3 m
Mode:	TX; BT basic; DH5; 2441 MHz
Test Date:	2016-01-21
Note:	

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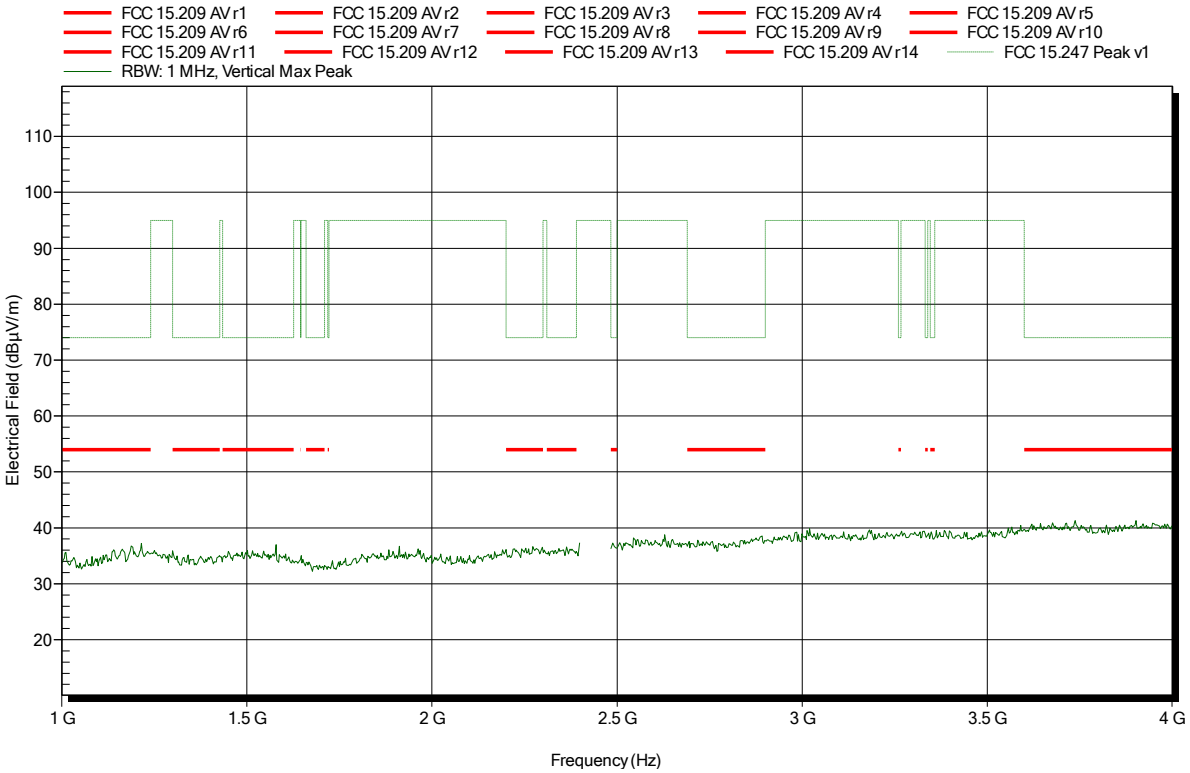

Spurious emissions according to FCC 15.247

Project number: G0M-1511-5232

Applicant:	Kamstrup A/S
EUT Name:	READy Converter for India
Model:	READy Converter
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 25°C, Vnom: 5 V DC (lithium battery)
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; BT basic; DH5; 2441 MHz
Test Date:	2016-01-21
Note:	

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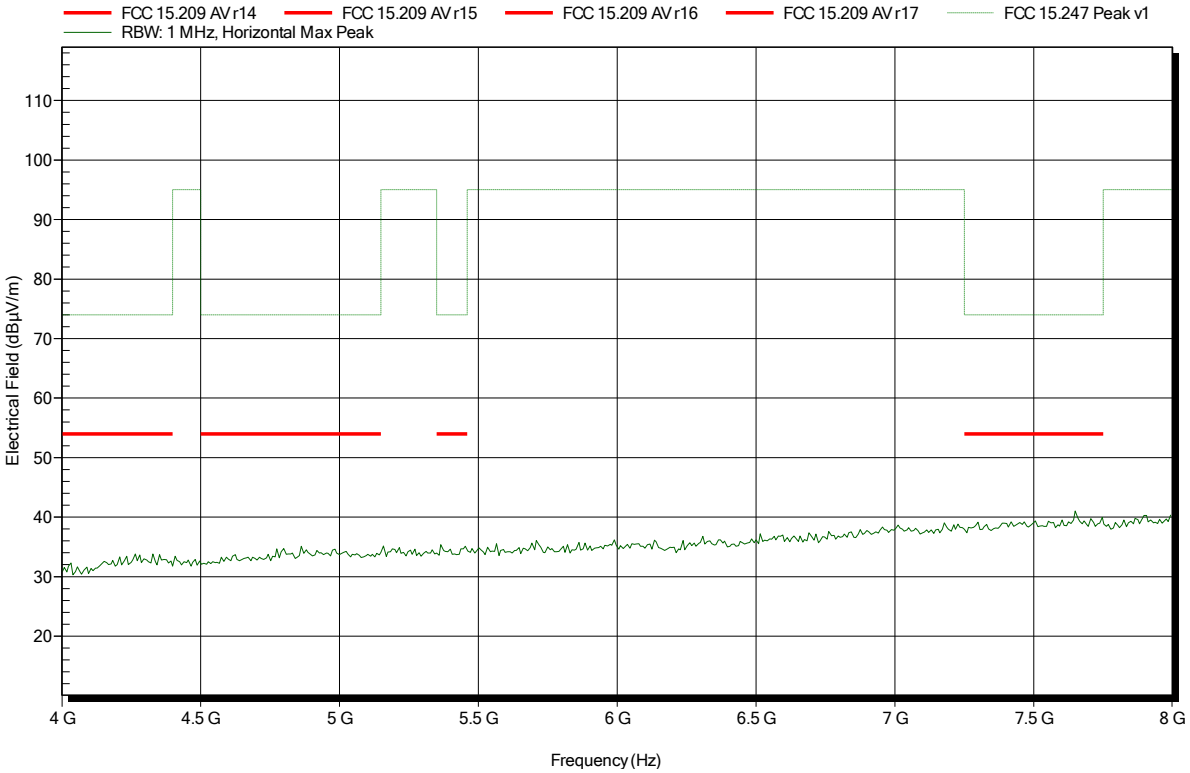

Spurious emissions according to FCC 15.247

Project number: G0M-1511-5232

Applicant:	Kamstrup A/S
EUT Name:	READy Converter for India
Model:	READy Converter
Test Site:	Eurofins Product Service GmbH
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Test Conditions:	Tnom: 25°C, Vnom: 5 V DC (lithium battery)
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; BT basic; DH5; 2441 MHz
Test Date:	2016-01-21
Note:	

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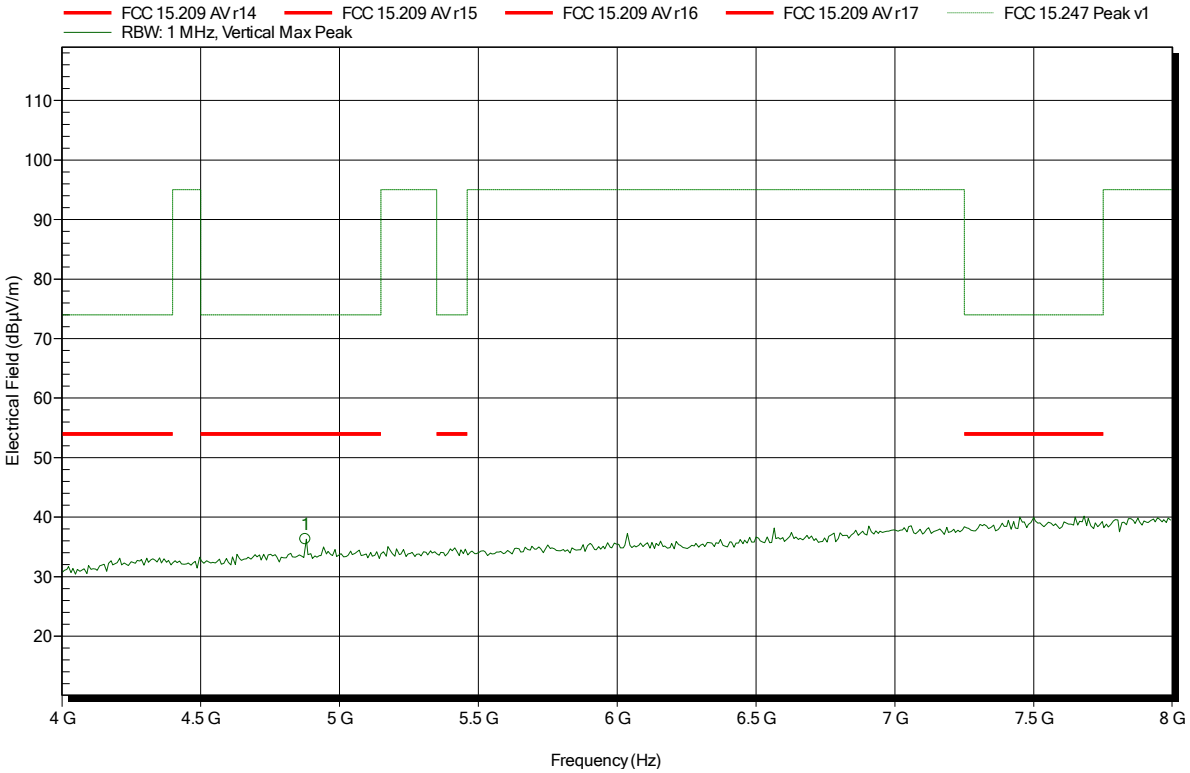

Frequency	Peak	Peak Limit	Peak Difference	Status
4.878 GHz	36.26 dBµV/m	74 dBµV/m	-37.74 dB	Pass

Spurious emissions according to FCC 15.247

Project number: G0M-1511-5232

Applicant:	Kamstrup A/S
EUT Name:	READy Converter for India
Model:	READy Converter
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 25°C, Vnom: 5 V DC (lithium battery)
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; BT basic; DH5; 2441 MHz
Test Date:	2016-01-21
Note:	

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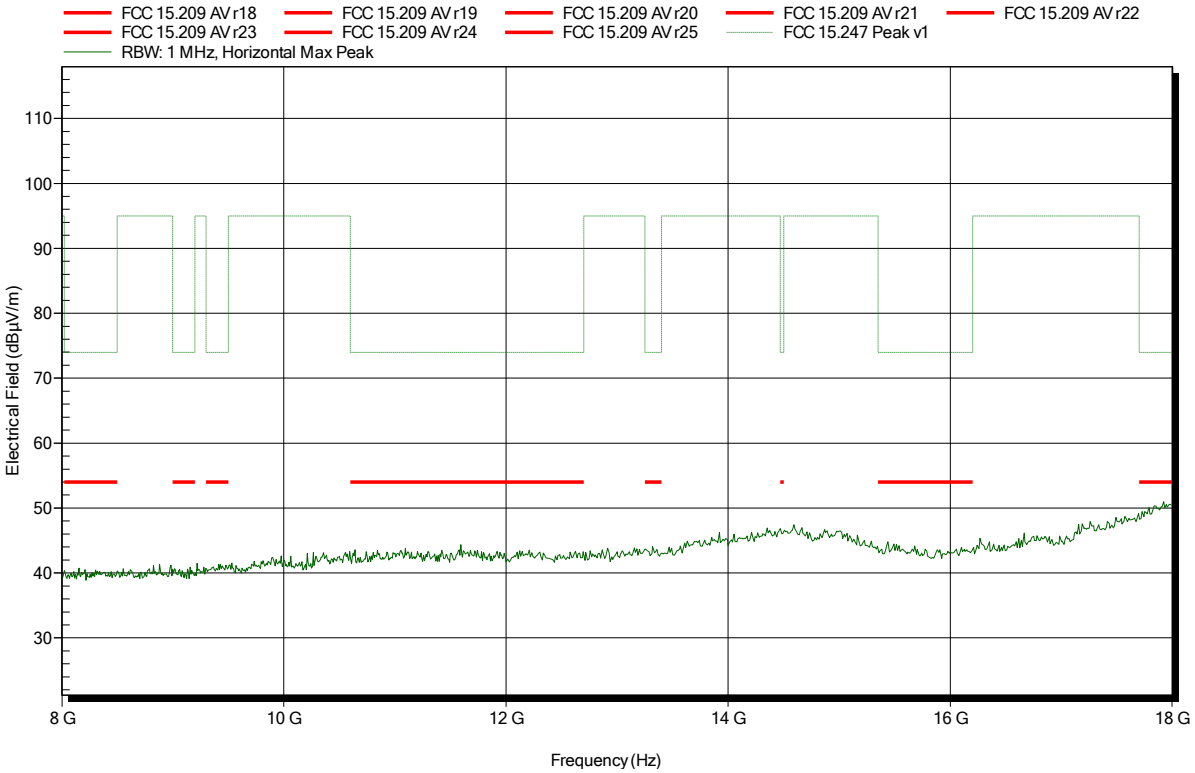

Spurious emissions according to FCC 15.247

Project number: G0M-1511-5232

Applicant:	Kamstrup A/S
EUT Name:	READy Converter for India
Model:	READy Converter
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 25°C, Vnom: 5 V DC (lithium battery)
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; BT basic; DH5; 2441 MHz
Test Date:	2016-01-21
Note:	

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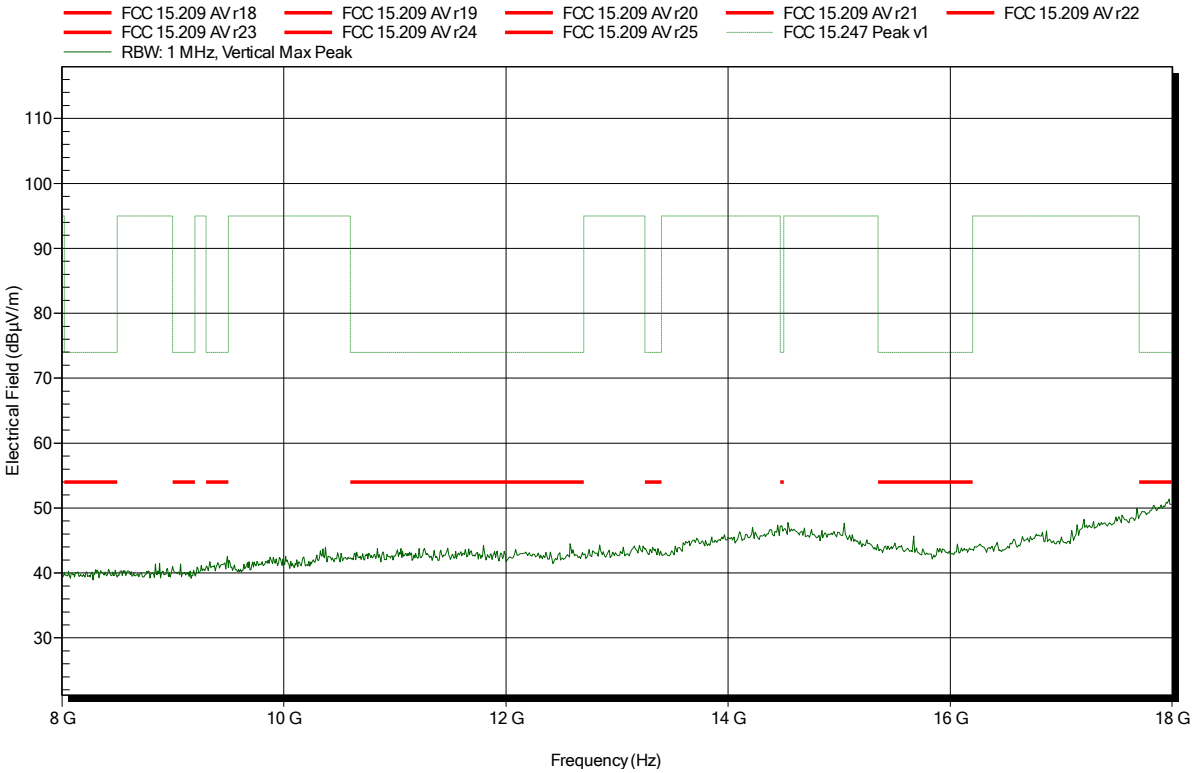

Spurious emissions according to FCC 15.247

Project number: G0M-1511-5232

Applicant:	Kamstrup A/S
EUT Name:	READy Converter for India
Model:	READy Converter
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 25°C, Vnom: 5 V DC (lithium battery)
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; BT basic; DH5; 2441 MHz
Test Date:	2016-01-21
Note:	

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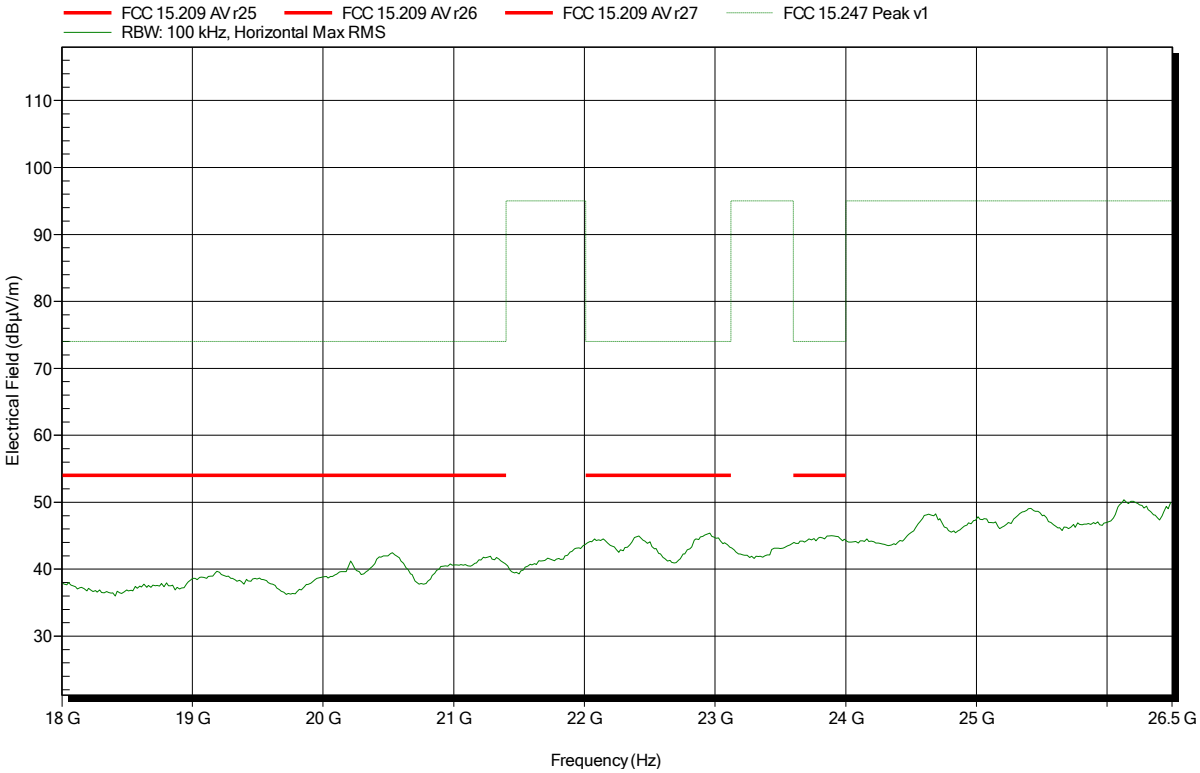

Spurious emissions according to FCC 15.247

Project number: G0M-1511-5232

Applicant:	Kamstrup A/S
EUT Name:	READy Converter for India
Model:	READy Converter
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 25°C, Vnom: 5 V DC (lithium battery)
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; BT basic; DH5; 2441 MHz
Test Date:	2016-01-21
Note:	

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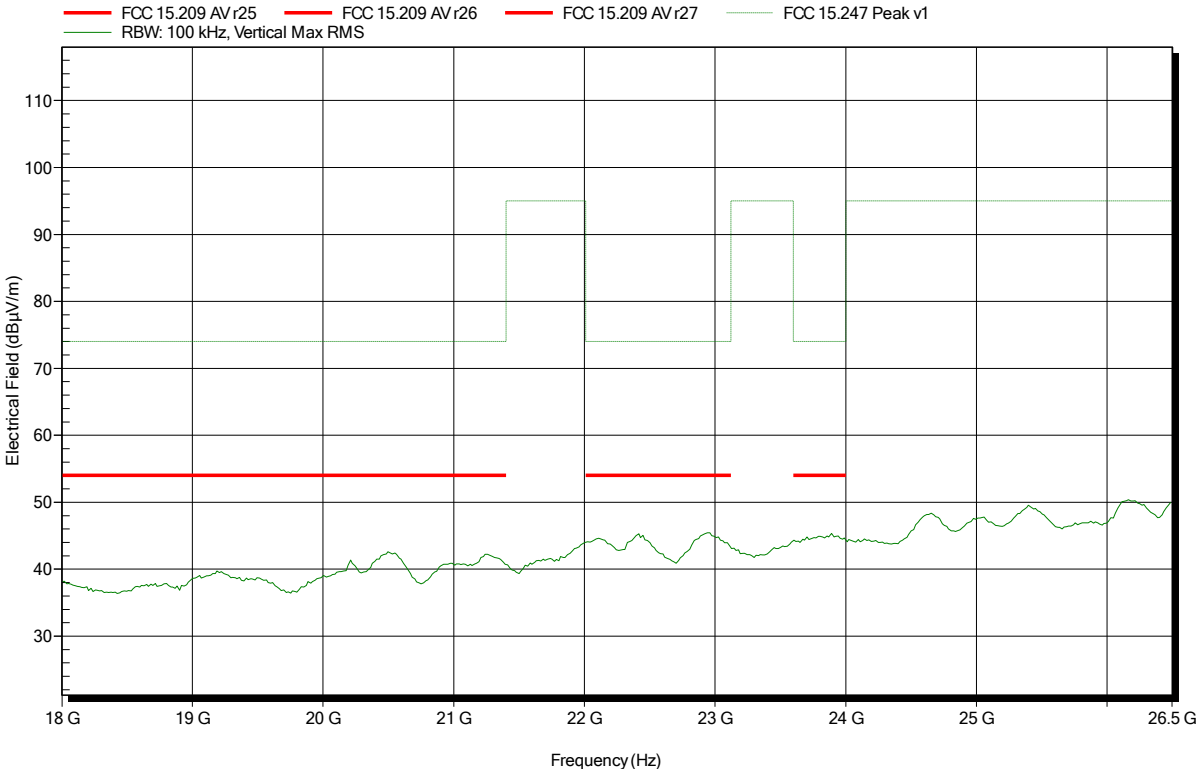

Spurious emissions according to FCC 15.247

Project number: G0M-1511-5232

Applicant:	Kamstrup A/S
EUT Name:	READy Converter for India
Model:	READy Converter
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 25°C, Vnom: 5 V DC (lithium battery)
Antenna:	Rohde & Schwarz HK 116, Horizontal
Measurement distance:	3 m
Mode:	TX; BT basic; DH5; 2480 MHz
Test Date:	2016-01-21
Note:	

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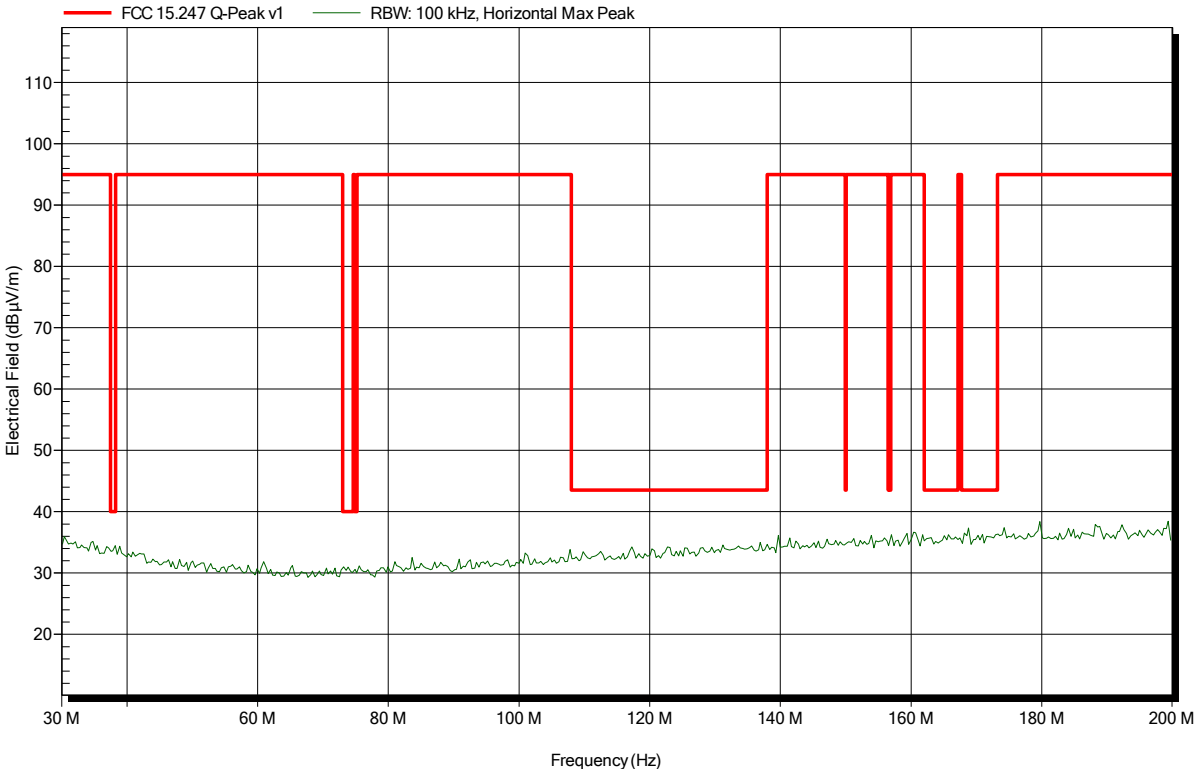

Spurious emissions according to FCC 15.247

Project number: G0M-1511-5232

Applicant:	Kamstrup A/S
EUT Name:	READy Converter for India
Model:	READy Converter
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 25°C, Vnom: 5 V DC (lithium battery)
Antenna:	Rohde & Schwarz HK 116, Vertical
Measurement distance:	3 m
Mode:	TX; BT basic; DH5; 2480 MHz
Test Date:	2016-01-21
Note:	

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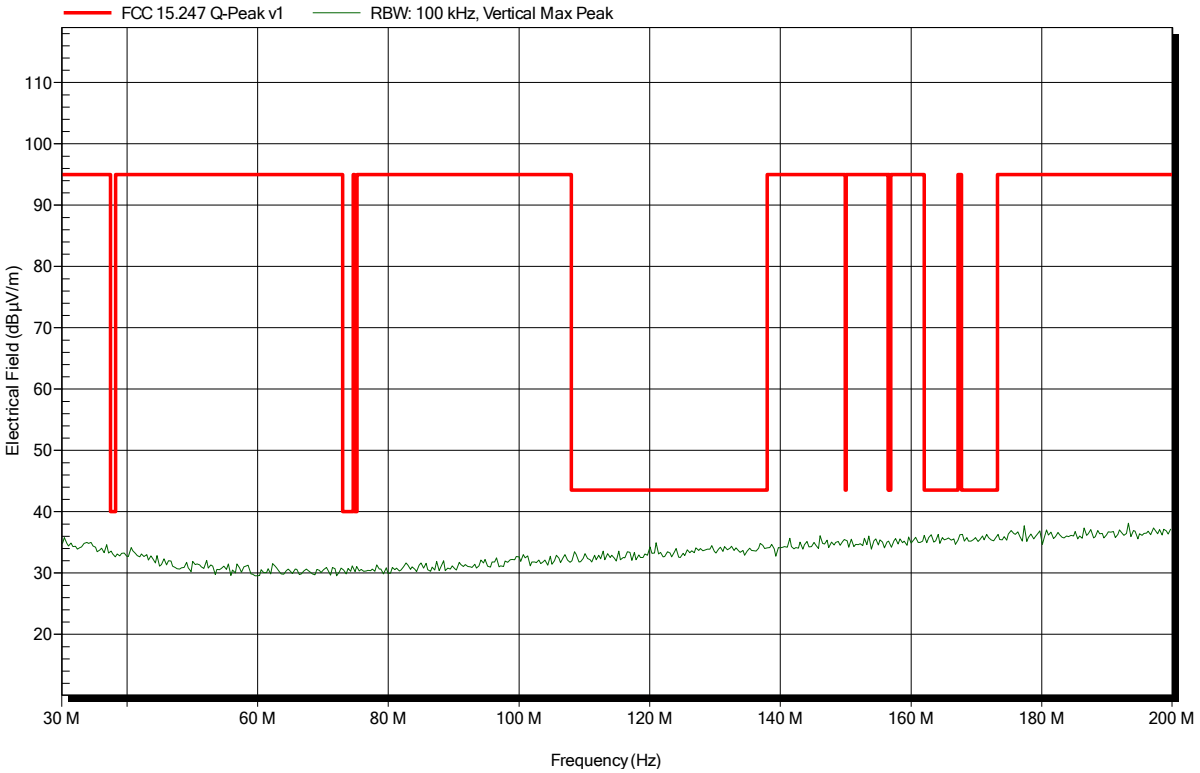

Spurious emissions according to FCC 15.247

Project number: G0M-1511-5232

Applicant:	Kamstrup A/S
EUT Name:	READy Converter for India
Model:	READy Converter
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 25°C, Vnom: 5 V DC (lithium battery)
Antenna:	Rohde & Schwarz HL 223, Horizontal
Measurement distance:	3 m
Mode:	TX; BT basic; DH5; 2480 MHz
Test Date:	2016-01-21
Note:	

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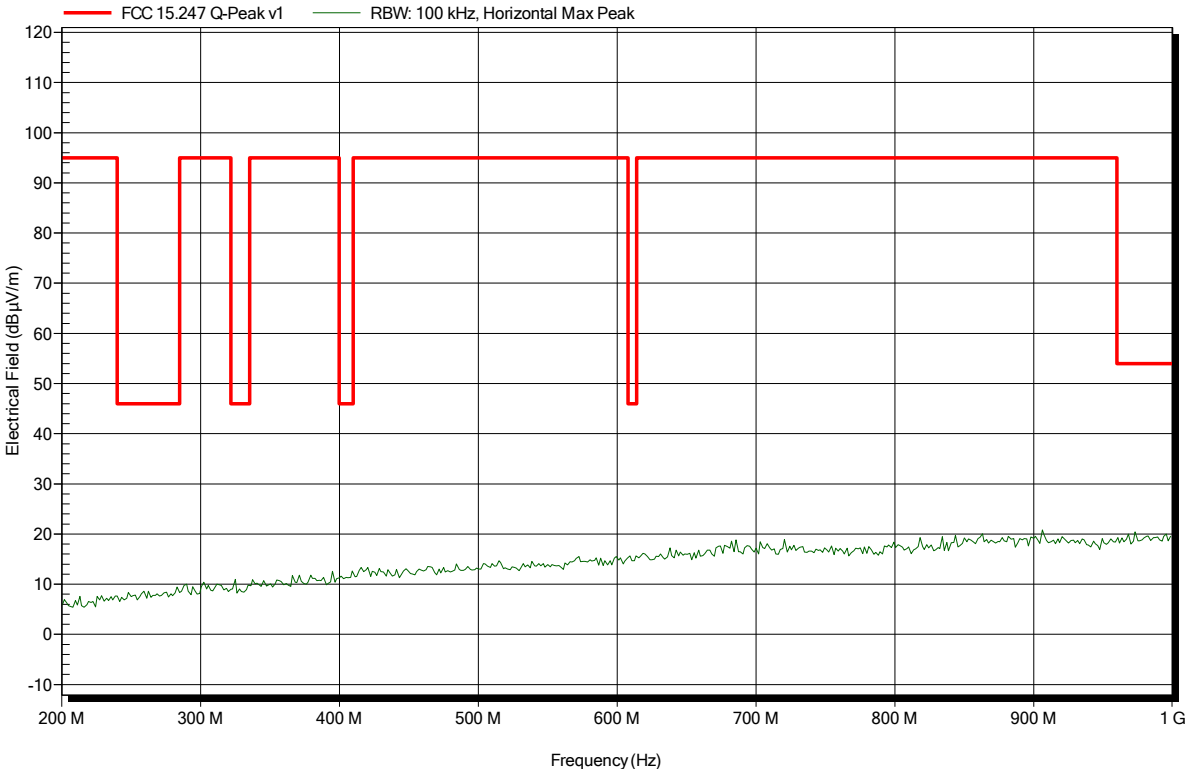

Spurious emissions according to FCC 15.247

Project number: G0M-1511-5232

Applicant:	Kamstrup A/S
EUT Name:	READy Converter for India
Model:	READy Converter
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 25°C, Vnom: 5 V DC (lithium battery)
Antenna:	Rohde & Schwarz HL 223, Vertical
Measurement distance:	3 m
Mode:	TX; BT basic; DH5; 2480 MHz
Test Date:	2016-01-21
Note:	

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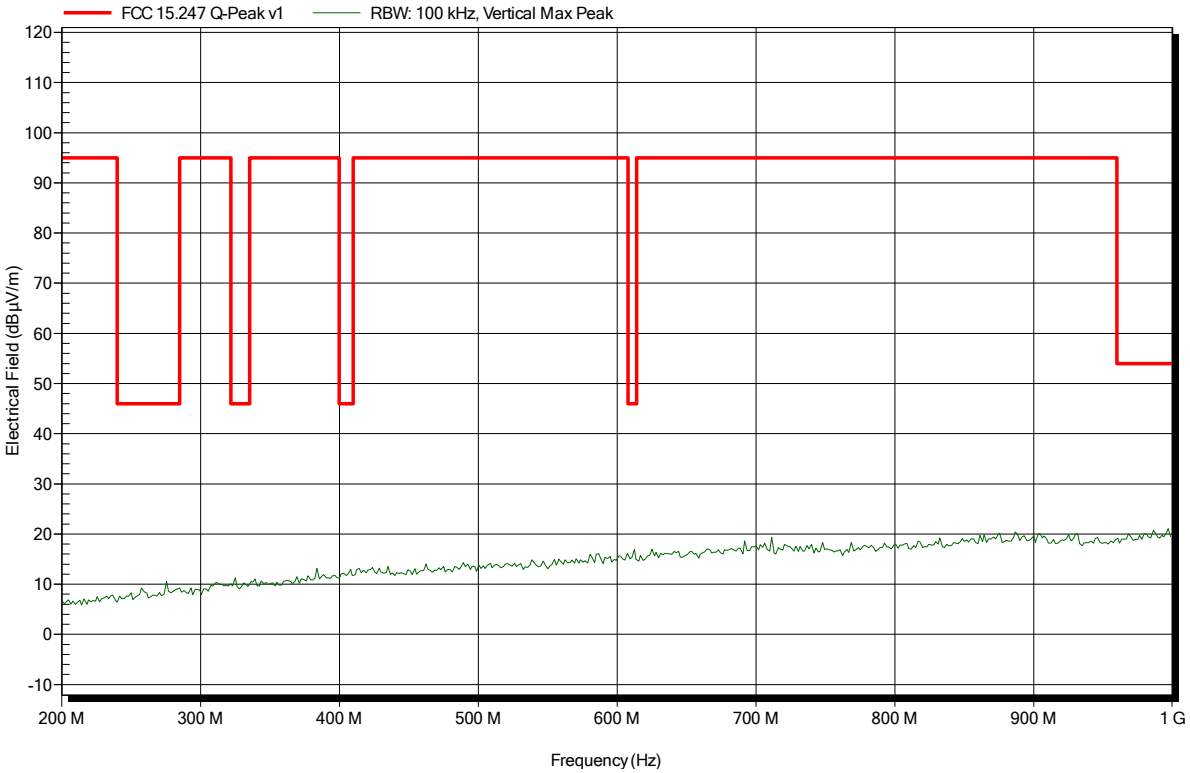

Spurious emissions according to FCC 15.247

Project number: G0M-1511-5232

Applicant:	Kamstrup A/S
EUT Name:	READy Converter for India
Model:	READy Converter
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 25°C, Vnom: 5 V DC (lithium battery)
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	3 m
Mode:	TX; BT basic; DH5; 2480 MHz
Test Date:	2016-01-21
Note:	

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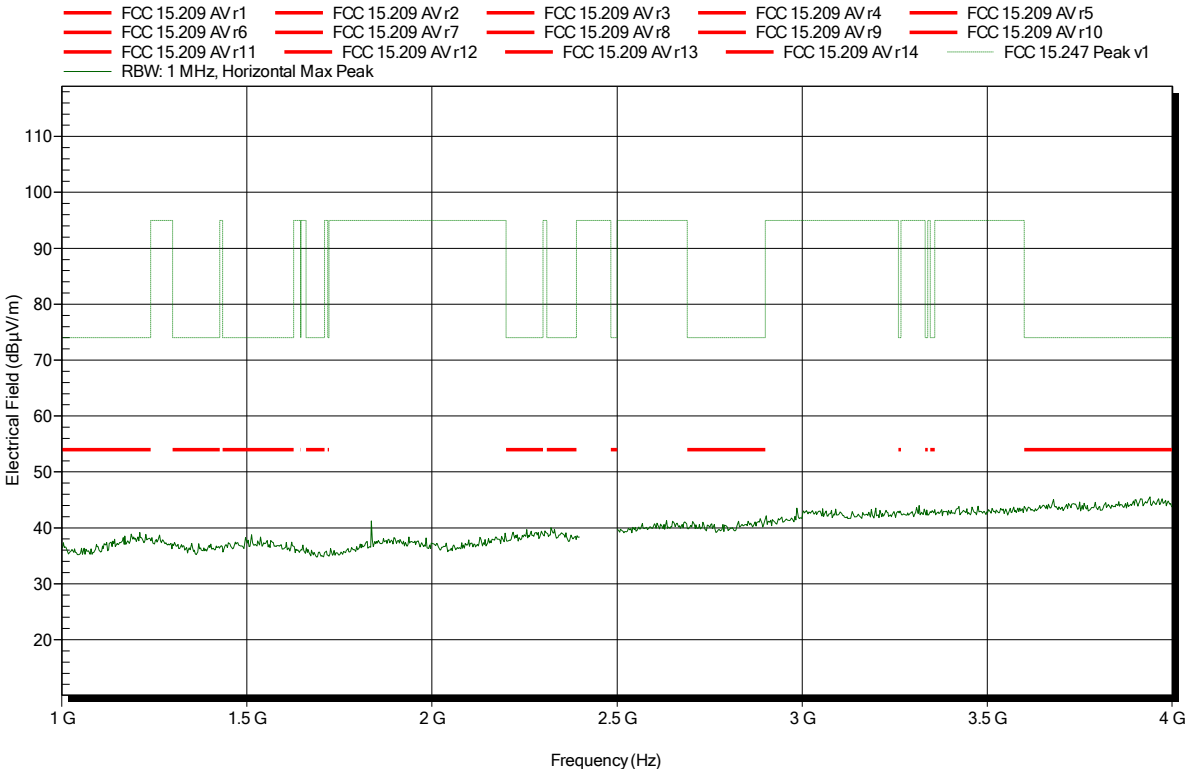

Spurious emissions according to FCC 15.247

Project number: G0M-1511-5232

Applicant:	Kamstrup A/S
EUT Name:	READy Converter for India
Model:	READy Converter
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 25°C, Vnom: 5 V DC (lithium battery)
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	3 m
Mode:	TX; BT basic; DH5; 2480 MHz
Test Date:	2016-01-21
Note:	

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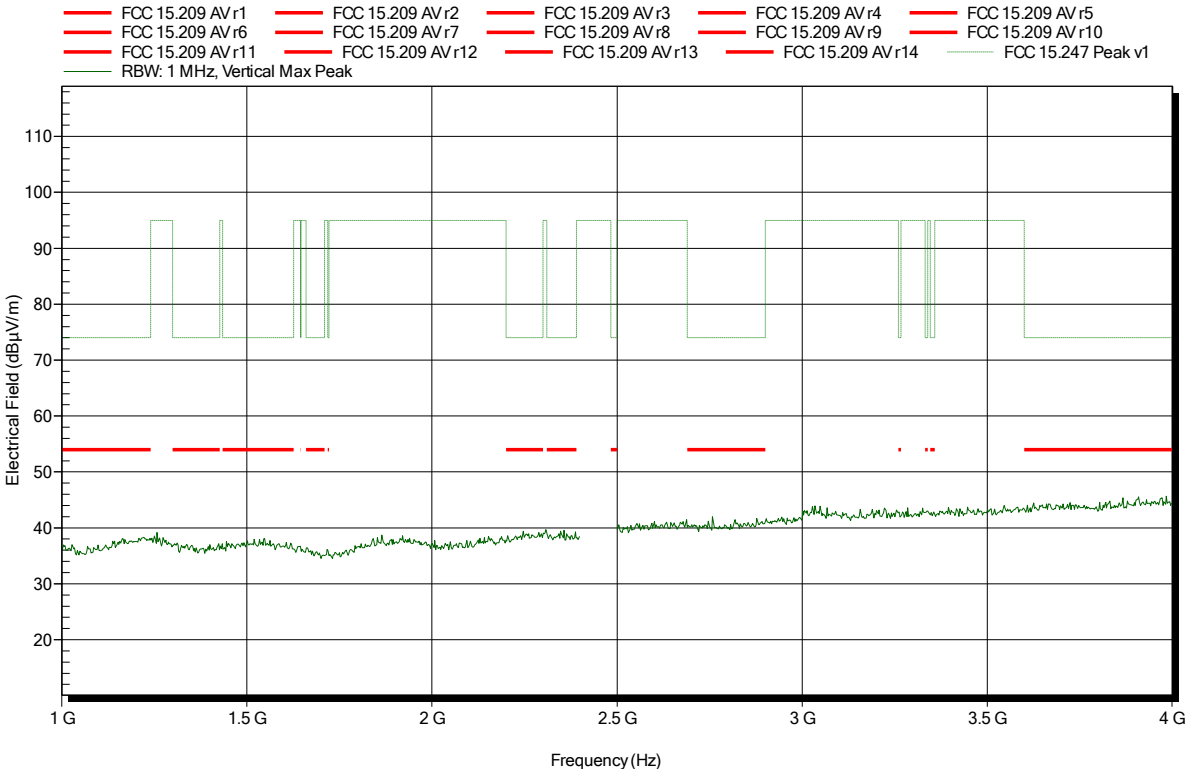

Spurious emissions according to FCC 15.247

Project number: G0M-1511-5232

Applicant:	Kamstrup A/S
EUT Name:	READy Converter for India
Model:	READy Converter
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 25°C, Vnom: 5 V DC (lithium battery)
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; BT basic; DH5; 2480 MHz
Test Date:	2016-01-21
Note:	upper bandedge

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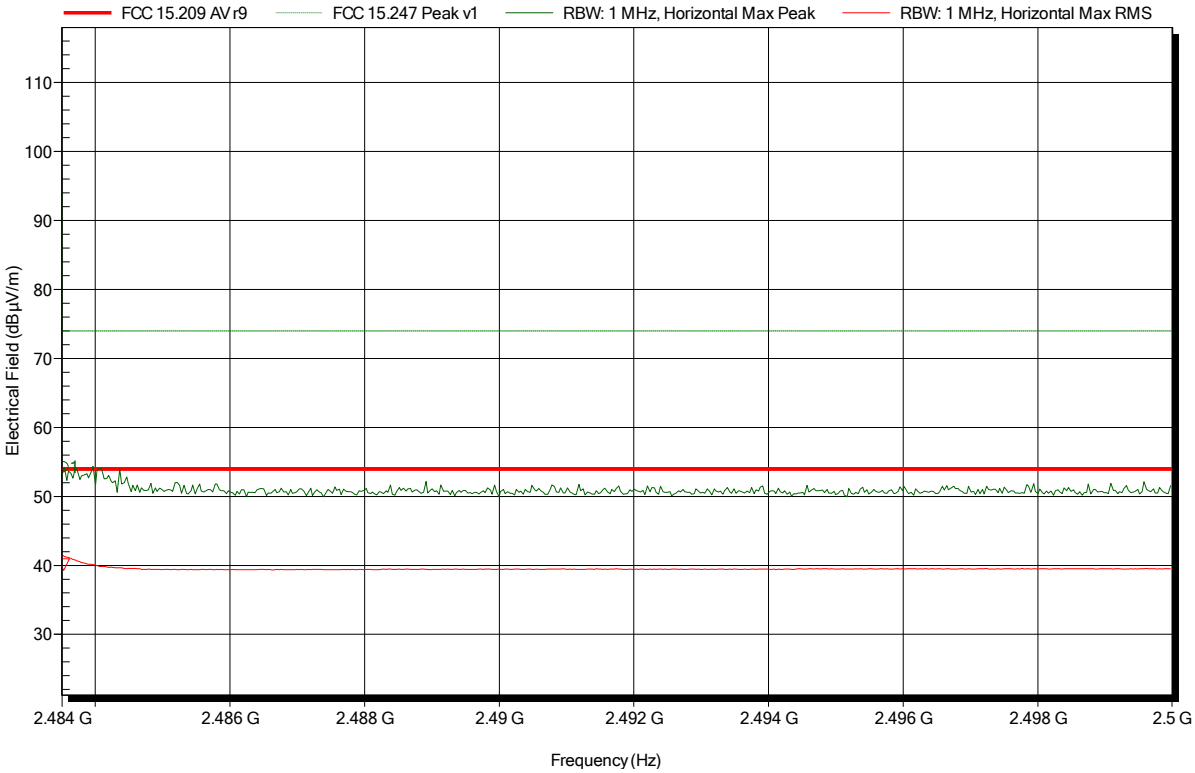

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
2.4835 GHz	54.2 dBµV/m	74 dBµV/m	-19.8 dB	Pass

Frequency	RMS	RMS Limit	RMS Difference	RMS Status
2.4835 GHz	40.12 dBµV/m	54 dBµV/m	-13.88 dB	Pass

Spurious emissions according to FCC 15.247

Project number: G0M-1511-5232

Applicant:	Kamstrup A/S
EUT Name:	READy Converter for India
Model:	READy Converter
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 25°C, Vnom: 5 V DC (lithium battery)
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; BT basic; DH5; 2480 MHz
Test Date:	2016-01-21
Note:	upper bandedge

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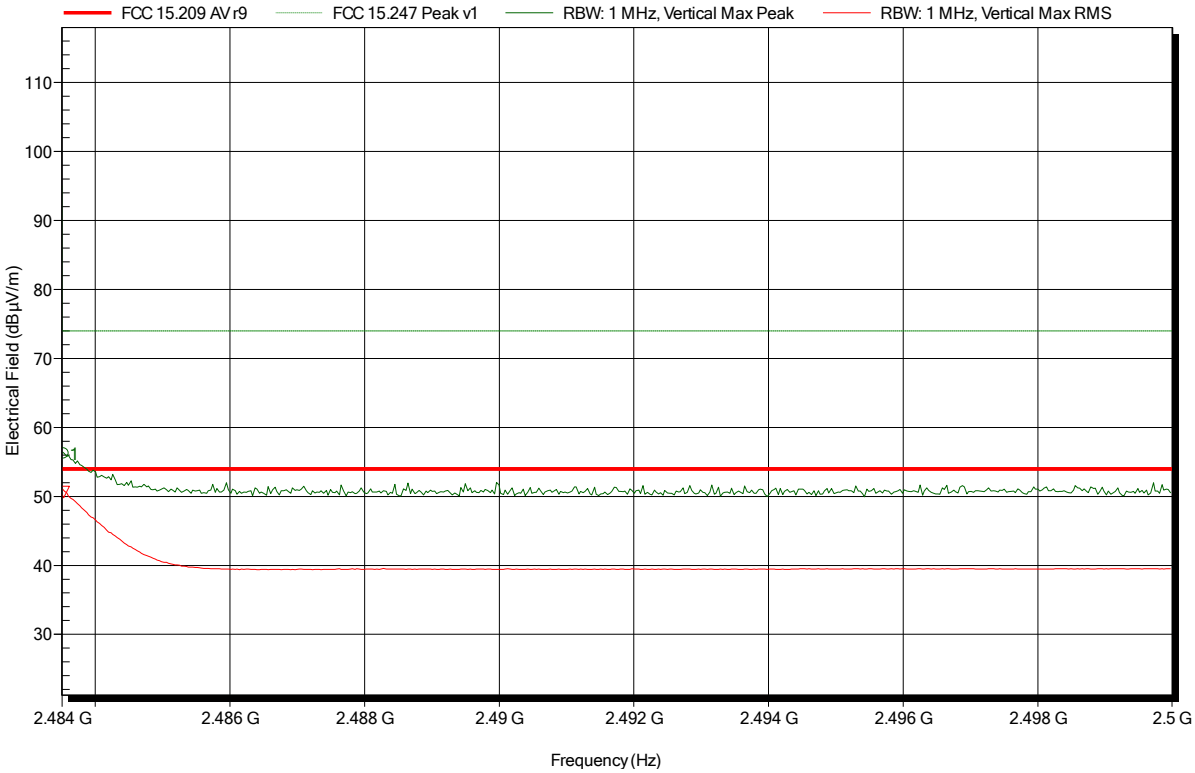

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
2.4835 GHz	56.21 dBµV/m	74 dBµV/m	-17.79 dB	Pass

Frequency	RMS	RMS Limit	RMS Difference	RMS Status
2.4835 GHz	50.65 dBµV/m	54 dBµV/m	-3.35 dB	Pass

Spurious emissions according to FCC 15.247

Project number: G0M-1511-5232

Applicant:	Kamstrup A/S
EUT Name:	READy Converter for India
Model:	READy Converter
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 25°C, Vnom: 5 V DC (lithium battery)
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; BT basic; DH5; 2480 MHz
Test Date:	2016-01-21
Note:	

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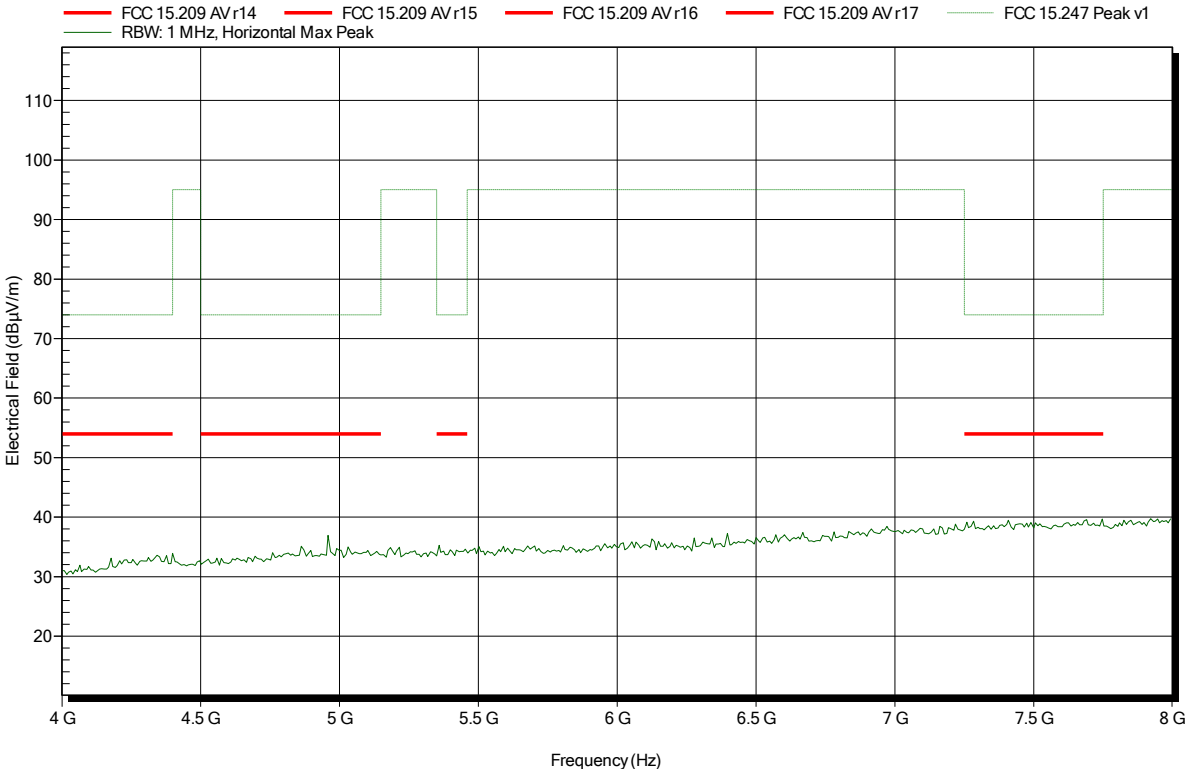

Spurious emissions according to FCC 15.247

Project number: G0M-1511-5232

Applicant:	Kamstrup A/S
EUT Name:	READy Converter for India
Model:	READy Converter
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 25°C, Vnom: 5 V DC (lithium battery)
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; BT basic; DH5; 2480 MHz
Test Date:	2016-01-21
Note:	

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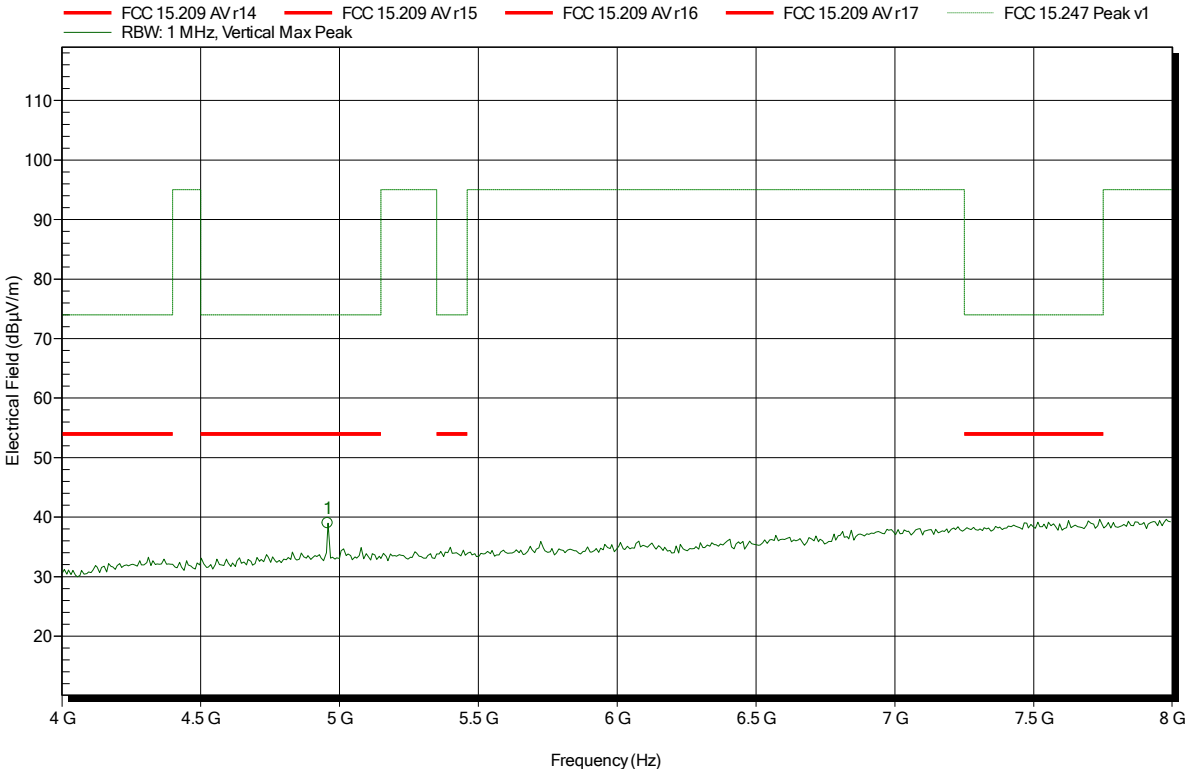

Frequency	Peak	Peak Limit	Peak Difference	Status
4.958 GHz	38.99 dBµV/m	74 dBµV/m	-35.01 dB	Pass

Spurious emissions according to FCC 15.247

Project number: G0M-1511-5232

Applicant:	Kamstrup A/S
EUT Name:	READy Converter for India
Model:	READy Converter
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 25°C, Vnom: 5 V DC (lithium battery)
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; BT basic; DH5; 2480 MHz
Test Date:	2016-01-21
Note:	

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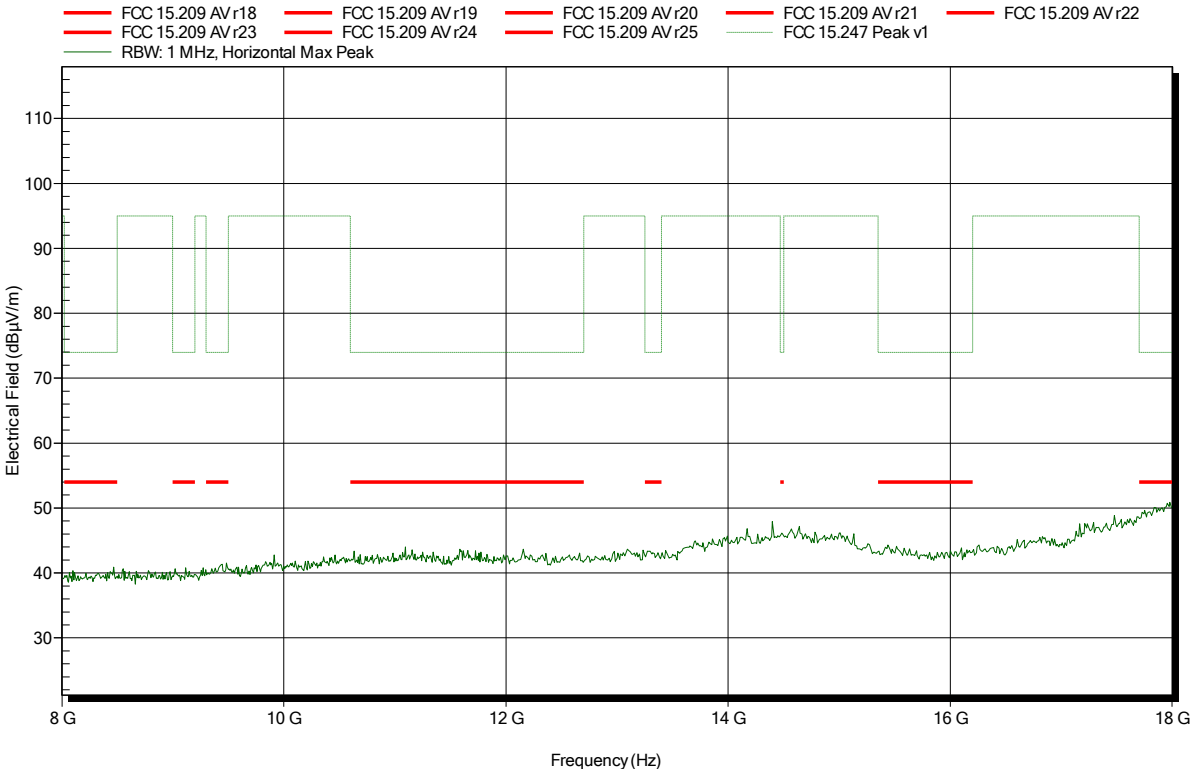

Spurious emissions according to FCC 15.247

Project number: G0M-1511-5232

Applicant:	Kamstrup A/S
EUT Name:	READy Converter for India
Model:	READy Converter
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 25°C, Vnom: 5 V DC (lithium battery)
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; BT basic; DH5; 2480 MHz
Test Date:	2016-01-21
Note:	

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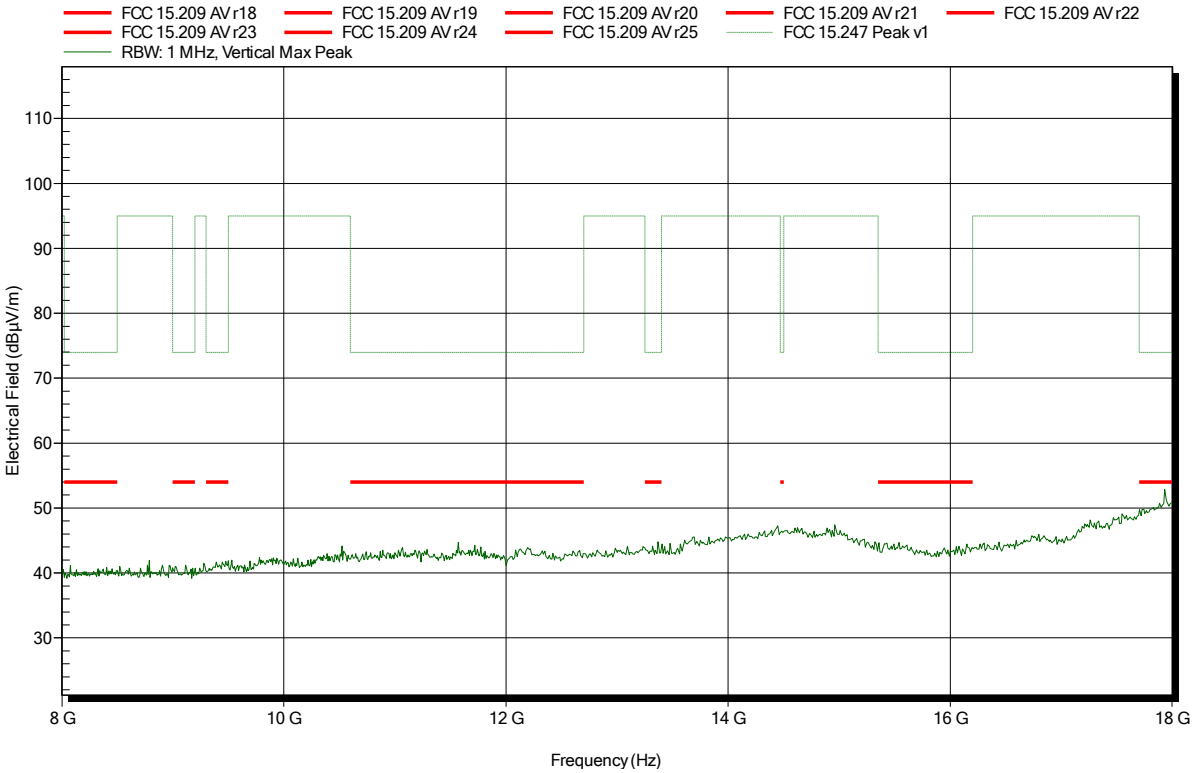

Spurious emissions according to FCC 15.247

Project number: G0M-1511-5232

Applicant:	Kamstrup A/S
EUT Name:	READy Converter for India
Model:	READy Converter
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 25°C, Vnom: 5 V DC (lithium battery)
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	1 m converted to 3m
Mode:	TX; BT basic; DH5; 2480 MHz
Test Date:	2016-01-21
Note:	

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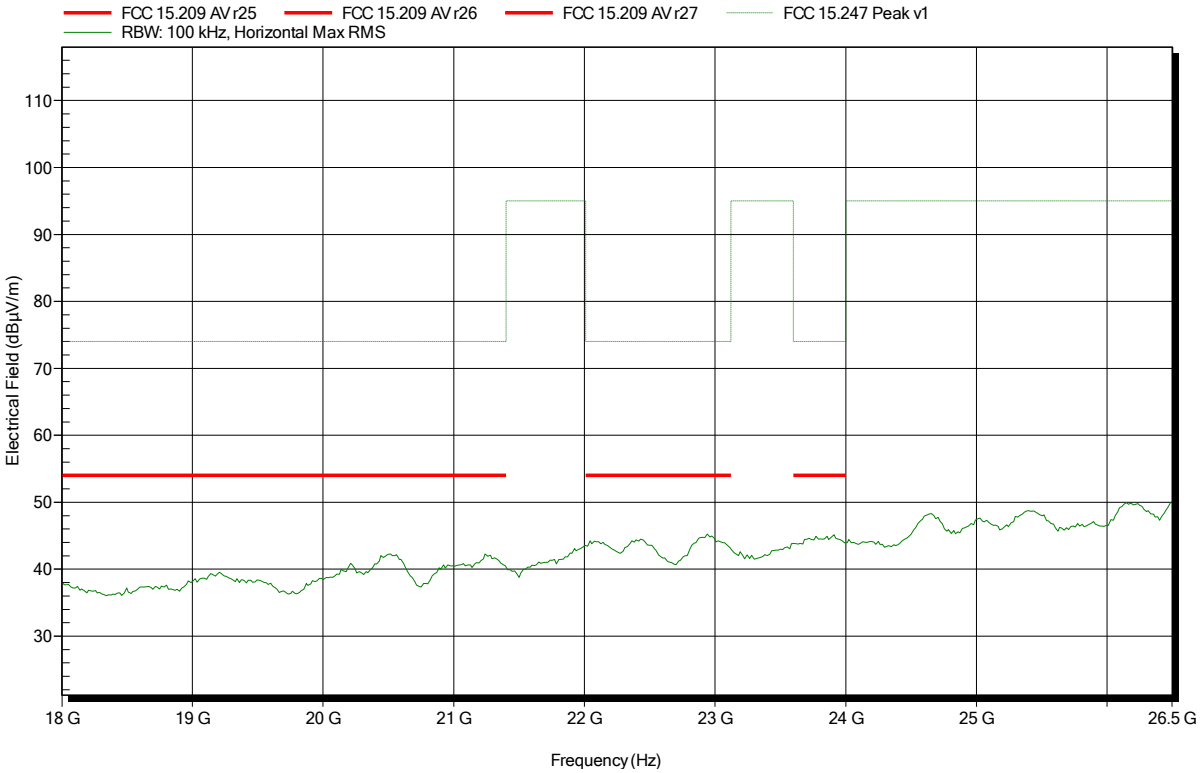
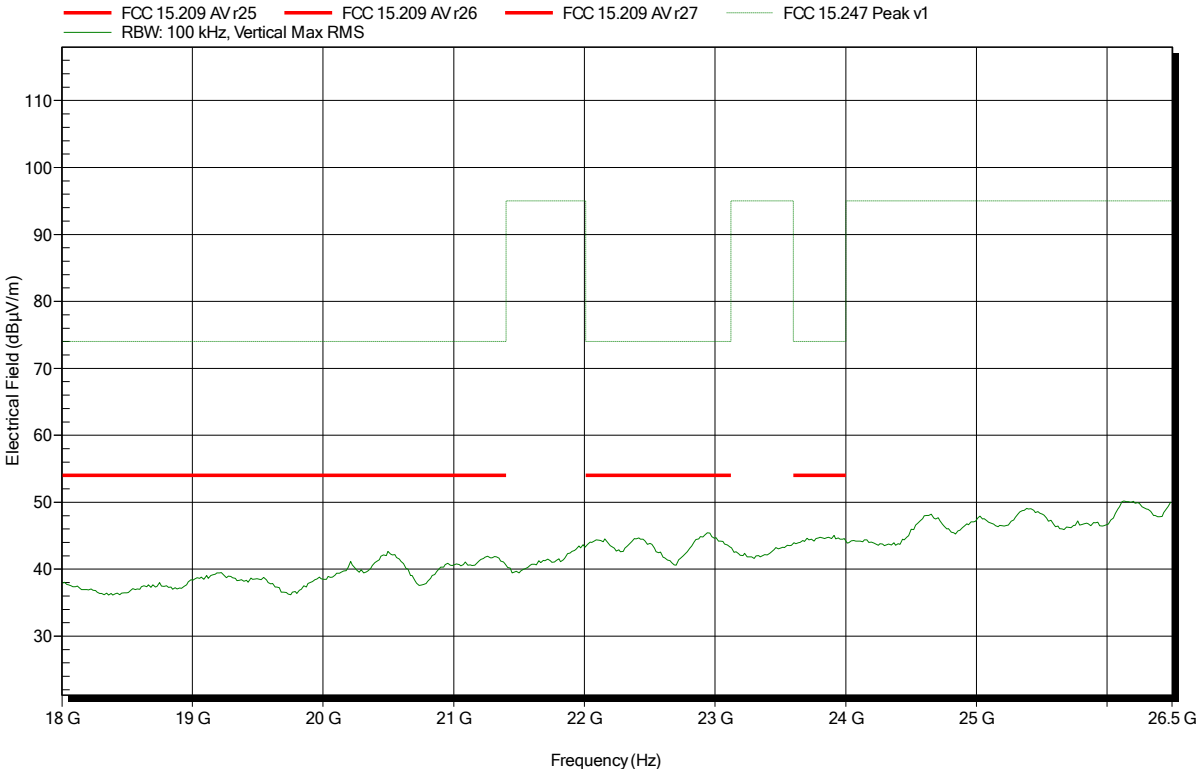


Spurious emissions according to FCC 15.247

Project number: G0M-1511-5232

Applicant:	Kamstrup A/S
EUT Name:	READy Converter for India
Model:	READy Converter
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 25°C, Vnom: 5 V DC (lithium battery)
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	1 m converted to 3m
Mode:	TX; BT basic; DH5; 2480 MHz
Test Date:	2016-01-21
Note:	

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