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FCC TEST REPORT

FCC 47 CFR Part 15C
Industry Canada RSS-210

Digital transmission systems operating within the 2400 – 2483.5 MHz band

Report Reference No. ..... :	G0M-1305-2854-TFC247Z-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 ..... :	dresden elektronik ingenieurtechnik gmbh
Address ..... :	Enno-Heidebroek-Straße 12 01237 Dresden GERMANY
Test specification:	
Standard..... :	47 CFR Part 15C KDB Publication No. 558074 RSS-210, Issue 8, 2010-12 RSS-Gen, Issue 3, 2010-12 ANSI C63.4:2009
Equipment under test (EUT):	
Product description	2.4 GHz IEEE 802.15.4 compliant radio module
Model No.	deRFmega256-23M12
Hardware version	REV0
Firmware / Software version	REV1
	FCC-ID: XVV-MEGA23M12 IC: N/A
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:

Date of receipt of test item ..... :	2013-06-12	
Date (s) of performance of tests ..... :	2013-07-08 - 2013-07-09	
Compiled by ..... :	Antje Bartusch	
Tested by (+ signature)..... : (Testing Manager)	Wilfried Treffke	i.V. C. Loeber .....
Approved by (+ signature) ..... : (Test Lab Manager)	Jens Zimmermann	.....
Date of issue ..... :	2013-08-02	
Total number of pages ..... :	133	

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.

Additional comments:

Version History

Version	Issue Date	Remarks	Revised by
01	2013-08-02	Initial Release	

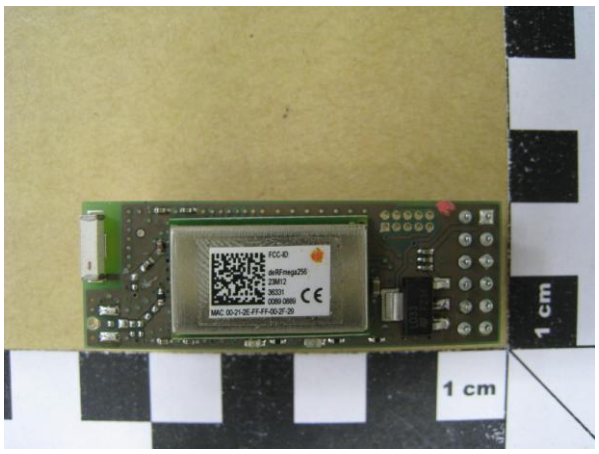
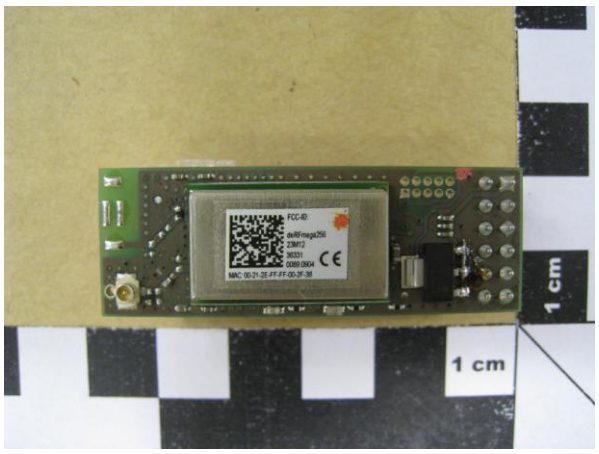
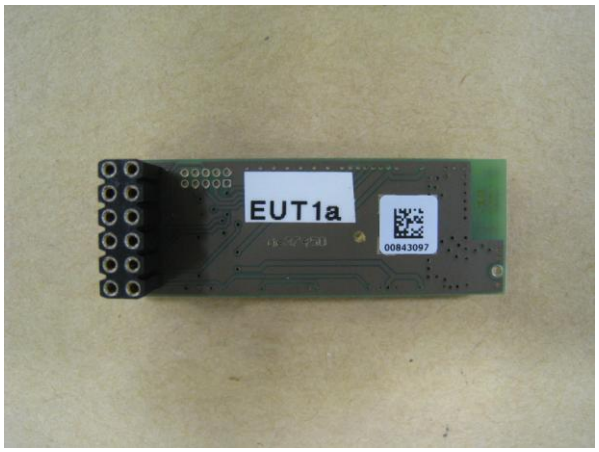
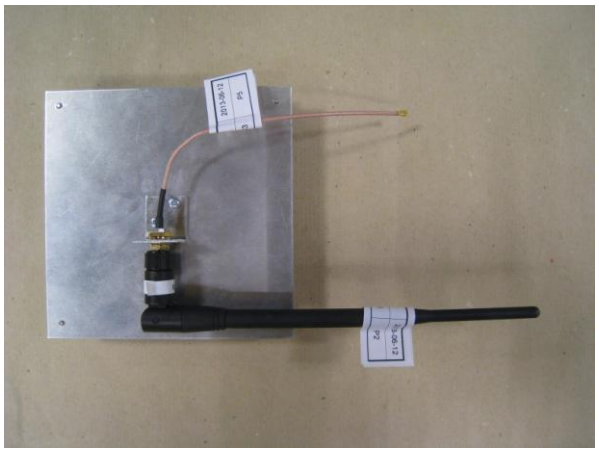
REPORT INDEX

1 Equipment (Test item) Description

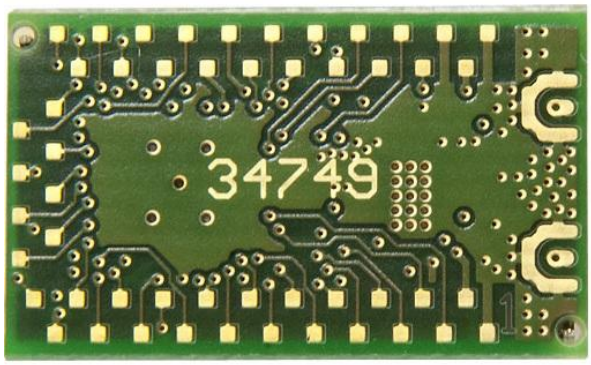
Description	2.4 GHz IEEE 802.15.4 compliant radio module	
Model	deRFmega256-23M12	
Serial number	None	
Hardware version	REV0	
Software / Firmware version	REV1	
FCC-ID	XVV-MEGA23M12	
IC	N/A	
Equipment type	Radio module	
Radio type	Transceiver	
Radio technology	IEEE 802.15.4 (Zigbee)	
Operating frequency range	2405 - 2480 MHz (Antenna 1) 2405 - 2475 MHz (Antenna 2)	
Assigned frequency band	2400 - 2483.5 MHz	
Main test frequencies	F_{LOW}	2405 MHz
	F_{MID}	2440 MHz
	F_{HIGH}	2480 MHz (Antenna 1) 2475 MHz (Antenna 2)
Spreading	DSSS	
Modulations	O-QPSK	
Number of channels	16 (11-26) (Antenna 1) 15 (11-25) (Antenna 2)	
Channel spacing	5MHz	
Number of antennas	1	
Antenna 1	Type	integrated
	Model	2450AT43B100
	Manufacturer	Johanson Technology
	Gain	1.3dBi (declared by customer)
	Power level table	DAAA AAAA AAAA ADFF
Antenna 2	Type	external dedicated
	Model	17013.RSMA
	Manufacturer	WiMo
	Gain	5.0dBi (declared by customer)
	Power level table	DBBB BBBB BBBB BDFF
Manufacturer	dresden elektronik ingenieurtechnik gmbh Enno-Heidebroek-Straße 12 01237 Dresden GERMANY	

Power supply	V_{NOM}	3.3 VDC
	V_{MIN}	2.0 VDC
	V_{MAX}	3.6 VDC
AC/DC-Adaptor	Model	SYS 1196-0605-W2E
	Vendor	Sunny
	Input	100-240VAC; 0.3A; 50-60MHz
	Output	5 V

1.1 Photos – Equipment External

EUT ON REFERENCE DESIGN WITH INTERNAL CHIP ANTENNA TOP	EUT ON REFERENCE DESIGN WITH ANTENNA CONNECTOR TOP
	
REFERENCE DESIGN BOTTOM	**EXTERNAL ANTENNA WIMO**
	

1.2 Photos – Equipment internal

MODULE TOP	MODULE BOTTOM
	

1.3 Photos – Test setup

TEST SETUP RADIATED MEASUREMENTS	TEST SETUP CONDUCTED MEASUREMENTS
	

1.4 Supporting Equipment Used During Testing

Product Type*	Device	Manufacturer	Model No.	Comments
None				

***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	
ZIGBEE	General conditions:	EUT powered by laboratory power supply.
	Radio conditions:	Mode = standalone transmit Spreading = DSSS Modulation = O-QPSK Data rate = 250 kbps Chiprate = 2 Mcps Duty cycle = 100 % Power level = Maximum
Receive	General conditions:	EUT powered by laboratory power supply.
	Radio conditions:	Mode = standalone receive Spreading = DSSS
AC-Powerline	General conditions:	EUT powered by commercial AC/DC-Adapter
	Radio conditions:	Mode = standalone transmit Spreading = DSSS Power level = Maximum

1.6 Test Equipment Used During Testing

Occupied Bandwidth					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyzer	R&S	FSP 30	EF00312	2013-01	2014-01

6dB Bandwidth					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyzer	R&S	FSP 30	EF00312	2013-01	2014-01

Maximum peak conducted power					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyzer	R&S	FSP 30	EF00312	2013-01	2014-01

Power spectral density					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyzer	R&S	FSP 30	EF00312	2013-01	2014-01

Band edge compliance					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyzer	R&S	FSP 30	EF00312	2013-01	2014-01

Conducted spurious emissions					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyzer	R&S	FSP 30	EF00312	2013-01	2014-01

Radiated spurious emissions					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Semi-anechoic chamber	Frankonia	AC 5	EF00395	-	-
Spectrum Analyzer	R&S	FSIQ26	EF00151	2012-12	2013-12
Biconical Antenna	R&S	HK 116	EF00012	2013-02	2016-02
LPD Antenna	R&S	HL 223	EF00187	2011-02	2014-02
LPD Antenna	R&S	HL 025	EF00327	2013-02	2016-02

AC power line conducted emissions					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
AMN	R&S	ESH2-Z5	EF00182	2012-10	2014-10
AMN	R&S	ESH3-Z5	EF00036	2012-11	2014-11
EMI Test Receiver	R&S	ESCS 30	EF00295	2012-08	2013-08

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:

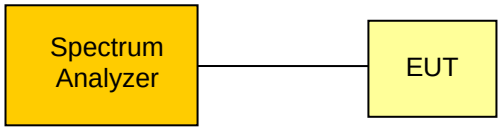
Reading	+	AF	=	Net Reading	:	Net reading - FCC limit	= Margin
21.5 dBµV	+	26 dB	=	47.5 dBµV/m	:	47.5 dBµV/m - 57.0 dBµV/m	= -9.5 dB

2 Result Summary

FCC 47 CFR Part 15C, IC RSS-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	Informational only
FCC § 15.247(a)(2) IC RSS-210 § A8.2	6dB Bandwidth	KDB Publication No. 558074	PASS	
FCC § 15.247(b)(3) IC RSS-210 § A8.4	Maximum peak conducted power	KDB Publication No. 558074	PASS	
FCC § 15.247(e) IC RSS-210 § A8.2	Power spectral density	KDB Publication No. 558074	PASS	
47 CFR 15.207 RSS-Gen 7.2.4	AC power line conducted emissions	KDB Publication No. 558074 / ANSI C63.4	PASS	
FCC § 15.247(d) IC RSS-210 § A8.5	Band edge compliance	KDB Publication No. 558074	PASS	
FCC § 15.247(d) IC RSS-210 § A8.5	Conducted spurious emissions	KDB Publication No. 558074	PASS	
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	KDB Publication No. 558074 / ANSI C 63.4	PASS	
IC RSS-Gen 4.10 IC RSS-Gen 6.1	Receiver radiated spurious emissions	ANSI C 63.4	PASS	
Remarks:				

3 Test Conditions and Results

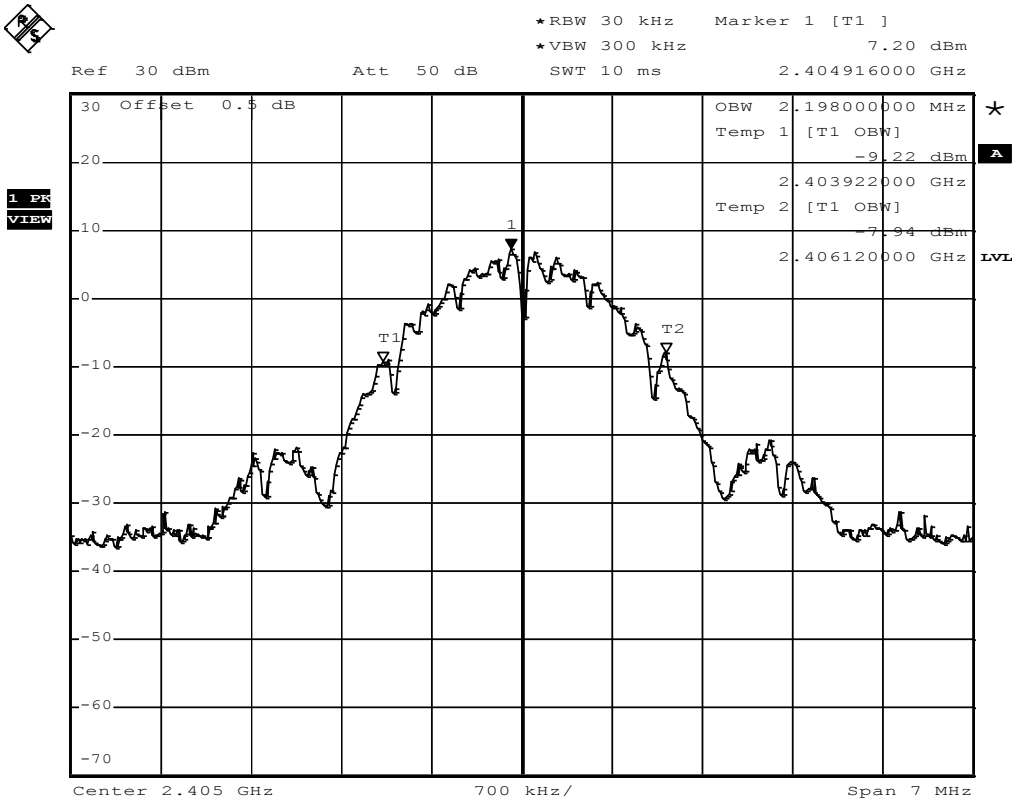
3.1 Test Conditions and Results – Occupied Bandwidth

Occupied Bandwidth acc. IC RSS-Gen			**Verdict: PASS**
Test according to measurement reference	Reference Method		
	RSS-Gen 4.6.1		
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 – Antenna 1			
Channel	Frequency [MHz]	Mode	Occupied Bandwidth [MHz]
F_{LOW}	2405	ZIGBEE	2.198
F_{MID}	2440	ZIGBEE	2.184
F_{HIGH}	2480	ZIGBEE	2.226
Test results – Antenna 2			
Channel	Frequency [MHz]	Mode	Occupied Bandwidth [MHz]
F_{LOW}	2405	ZIGBEE	2.170
F_{MID}	2440	ZIGBEE	2.184
F_{HIGH}	2475	ZIGBEE	2.198
Comments:			

Occupied Bandwidth – ZIGBEE F_{LOW} - Antenna 1

RSS Gen
Occupied Bandwidth

EUT	2.4GHz IEEE 802.15.04 compliant radio module
Model	deRFmega256-23M12
Approval Holder	dresden elektronik ingenieurtechnik gmbh / Ord.: G0M-1305-2854
Temperature / Voltage	Tnom / Vnom
Test Site / Operator	Eurofins Product Service GmbH / Mr. Treffke
Test Specification	4.4.1 Occupied Bandwidth
Comment 1	Channel.: 2405 MHz
Comment 2	A spectrum analyzer with an integrated 99% power bandwidth function is used

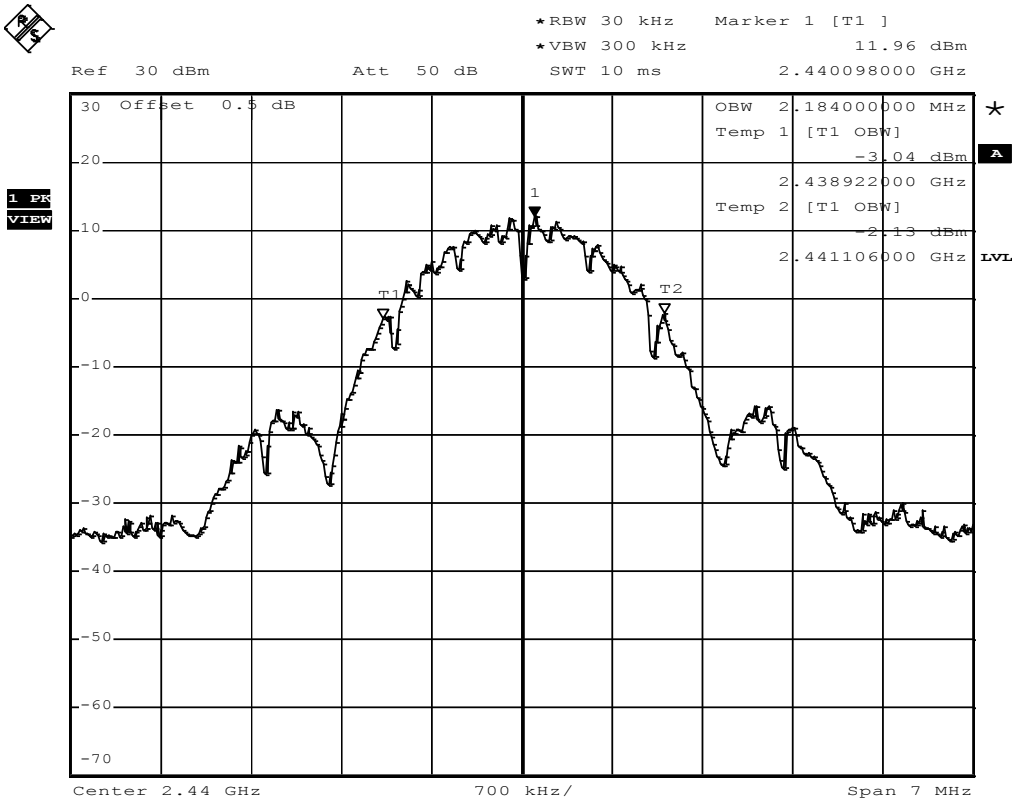


Comment: Occupied bandwidth: 2198 KHz
Date: 9.JUL.2013 12:57:57

Occupied Bandwidth – ZIGBEE F_{MID} - Antenna 1

RSS Gen
Occupied Bandwidth

EUT	2.4GHz IEEE 802.15.04 compliant radio module
Model	deRFmega256-23M12
Approval Holder	dresden elektronik ingenieurtechnik gmbh / Ord.: G0M-1305-2854
Temperature / Voltage	Tnom / Vnom
Test Site / Operator	Eurofins Product Service GmbH / Mr. Treffke
Test Specification	4.4.1 Occupied Bandwidth
Comment 1	Channel.: 2440 MHz
Comment 2	A spectrum analyzer with an integrated 99% power bandwidth function is used

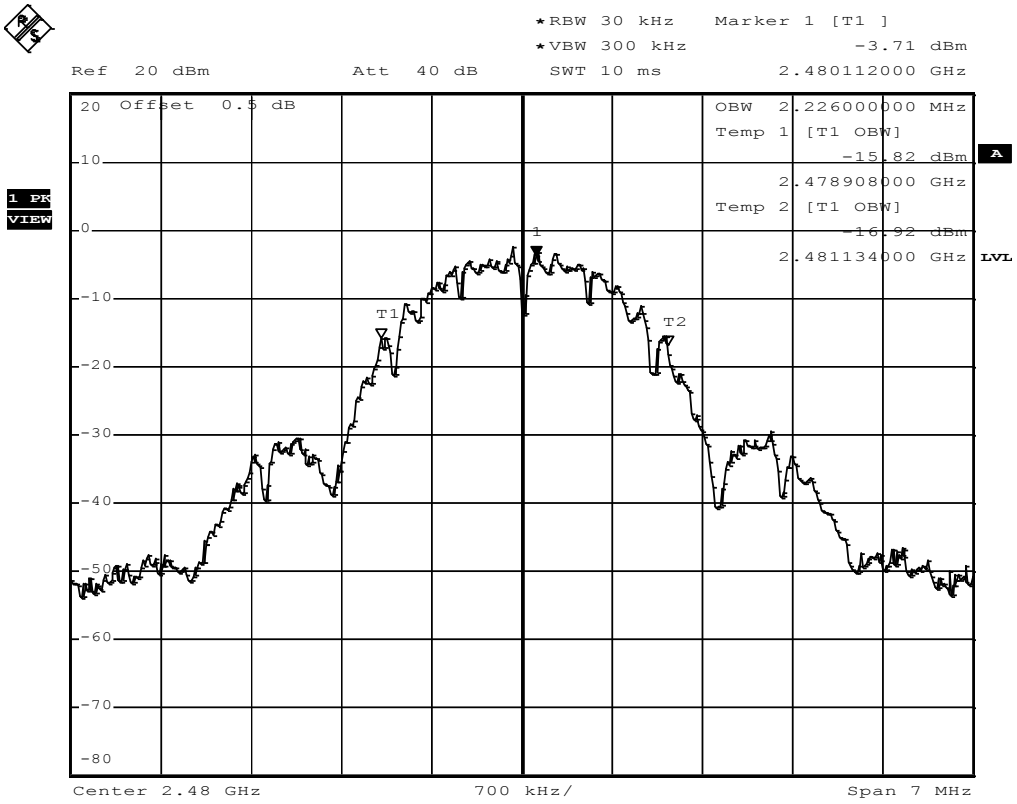


Comment: Occupied bandwidth: 2184 KHz
Date: 9.JUL.2013 13:00:53

Occupied Bandwidth – ZIGBEE F_{HIGH} - Antenna 1

RSS Gen
Occupied Bandwidth

EUT	2.4GHz IEEE 802.15.04 compliant radio module
Model	deRFmega256-23M12
Approval Holder	dresden elektronik ingenieurtechnik gmbh / Ord.: G0M-1305-2854
Temperature / Voltage	Tnom / Vnom
Test Site / Operator	Eurofins Product Service GmbH / Mr. Treffke
Test Specification	4.4.1 Occupied Bandwidth
Comment 1	Channel.: 2480 MHz
Comment 2	A spectrum analyzer with an integrated 99% power bandwidth function is used

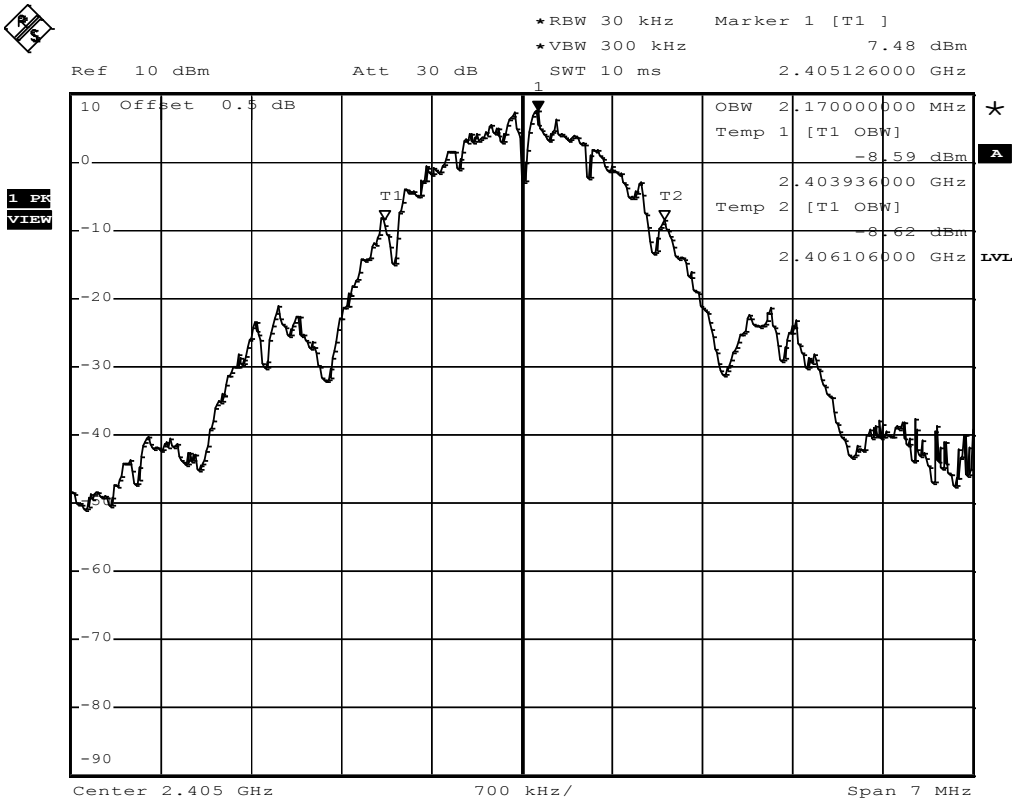


Comment: Occupied bandwidth: 2324 KHz
Date: 9.JUL.2013 13:04:24

Occupied Bandwidth – ZIGBEE F_{LOW} - Antenna 2

RSS Gen
Occupied Bandwidth

EUT	2.4GHz IEEE 802.15.04 compliant radio module
Model	deRFmega256-23M12
Approval Holder	dresden elektronik ingenieurtechnik gmbh / Ord.: G0M-1305-2854
Temperature / Voltage	Tnom / Vnom
Test Site / Operator	Eurofins Product Service GmbH / Mr. Treffke
Test Specification	4.4.1 Occupied Bandwidth
Comment 1	Channel.: 2405 MHz
Comment 2	A spectrum analyzer with an integrated 99% power bandwidth function is used
Comment 3	0QPSK 250

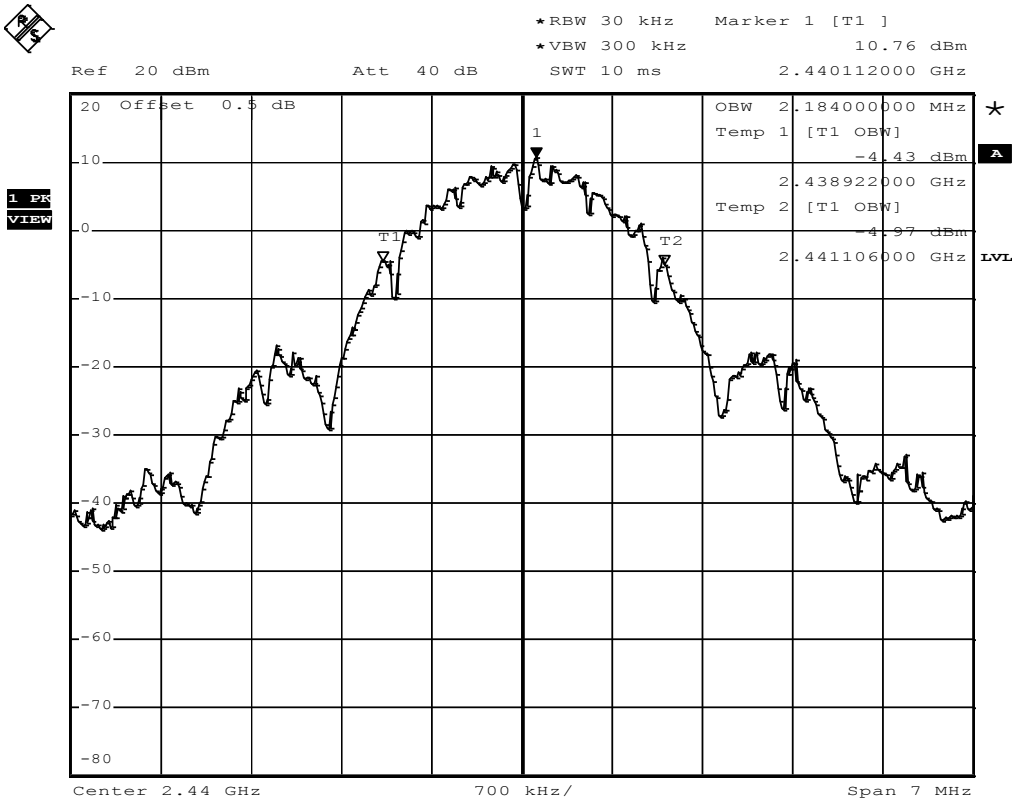


Comment: Occupied bandwidth: 2170 KHz
Date: 9.JUL.2013 14:33:46

Occupied Bandwidth – ZIGBEE F_{MID} - Antenna 2

RSS Gen
Occupied Bandwidth

EUT	2.4GHz IEEE 802.15.04 compliant radio module
Model	deRFmega256-23M12
Approval Holder	dresden elektronik ingenieurtechnik gmbh / Ord.: G0M-1305-2854
Temperature / Voltage	Tnom / Vnom
Test Site / Operator	Eurofins Product Service GmbH / Mr. Treffke
Test Specification	4.4.1 Occupied Bandwidth
Comment 1	Channel.: 2440 MHz
Comment 2	A spectrum analyzer with an integrated 99% power bandwidth function is used
Comment 3	0QPSK 250

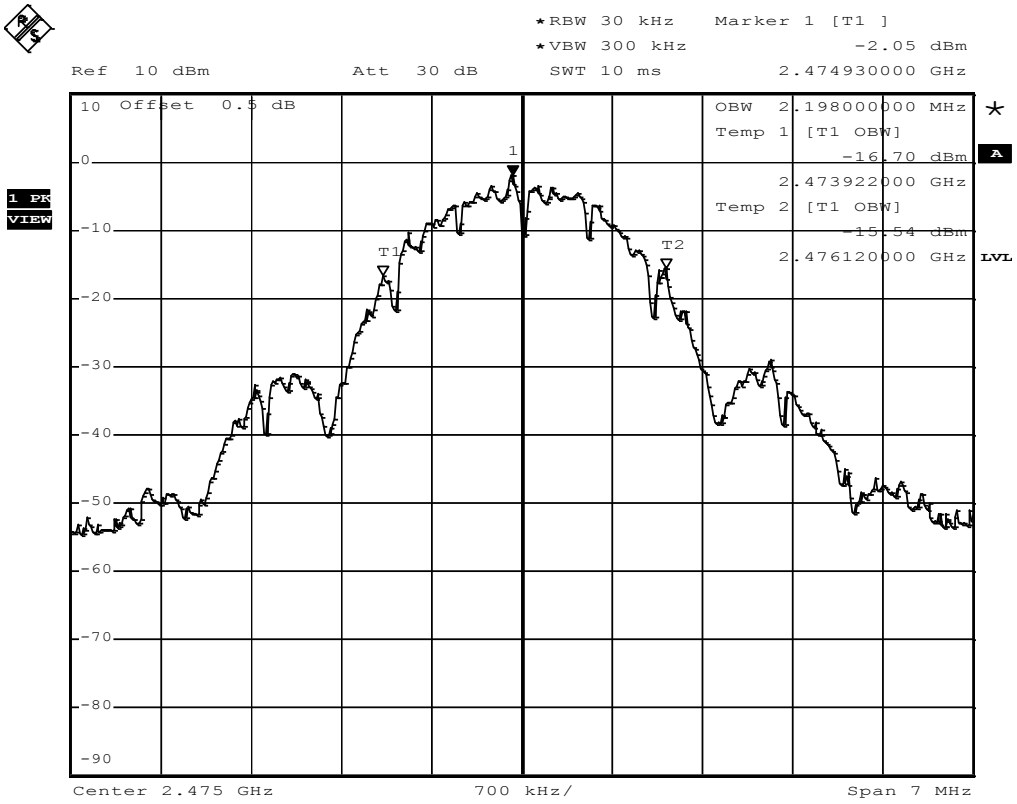


Comment: Occupied bandwidth: 2184 KHz
Date: 9.JUL.2013 14:35:52

Occupied Bandwidth – ZIGBEE F_{HIGH} - Antenna 2

RSS Gen
Occupied Bandwidth

EUT	2.4GHz IEEE 802.15.04 compliant radio module
Model	deRFmega256-23M12
Approval Holder	dresden elektronik ingenieurtechnik gmbh / Ord.: G0M-1305-2854
Temperature / Voltage	Tnom / Vnom
Test Site / Operator	Eurofins Product Service GmbH / Mr. Treffke
Test Specification	4.4.1 Occupied Bandwidth
Comment 1	Channel.: 2475 MHz
Comment 2	A spectrum analyzer with an integrated 99% power bandwidth function is used
Comment 3	0QPSK 250



Comment: Occupied bandwidth: 2198 KHz
Date: 9.JUL.2013 14:31:30

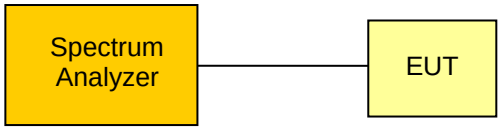
3.2 Test Conditions and Results – 6 dB Bandwidth

6dB Bandwidth acc. FCC 15.247 / IC RSS-210	Verdict: PASS
EUT requirement rule parts and clause	Reference
	FCC 15.247(a)(2) / IC RSS-210 A8.2
Test according to measurement reference	Reference Method
	FCC KDB Publication No. 558074
Test frequency range	Tested frequencies
	F_{LOW} / F_{MID} / F_{HIGH}

Limits

≥ 500kHz

Test setup



Test procedure

1. EUT set to test mode
2. Span set to at least twice the emission spectrum
3. Detector set to peak and max hold and RBW is set to 100 kHz
4. Envelope peak value of emission spectrum is selected
5. Marker on envelope of spectrum is set to level of -6 dB to the left of the peak
6. Marker on envelope of spectrum is set to level of -6 dB to the right of the peak
7. 6 dB Bandwidth is determined by marker frequency separation

Test results – Antenna 1

Channel	Frequency [MHz]	Mode	6 dB Bandwidth [kHz]	Limit [kHz]	Result
F_{LOW}	2405	ZIGBEE	1.389	500	PASS
F_{MID}	2440	ZIGBEE	1.437	500	PASS
F_{HIGH}	2480	ZIGBEE	1.602	500	PASS

Test results – Antenna 2

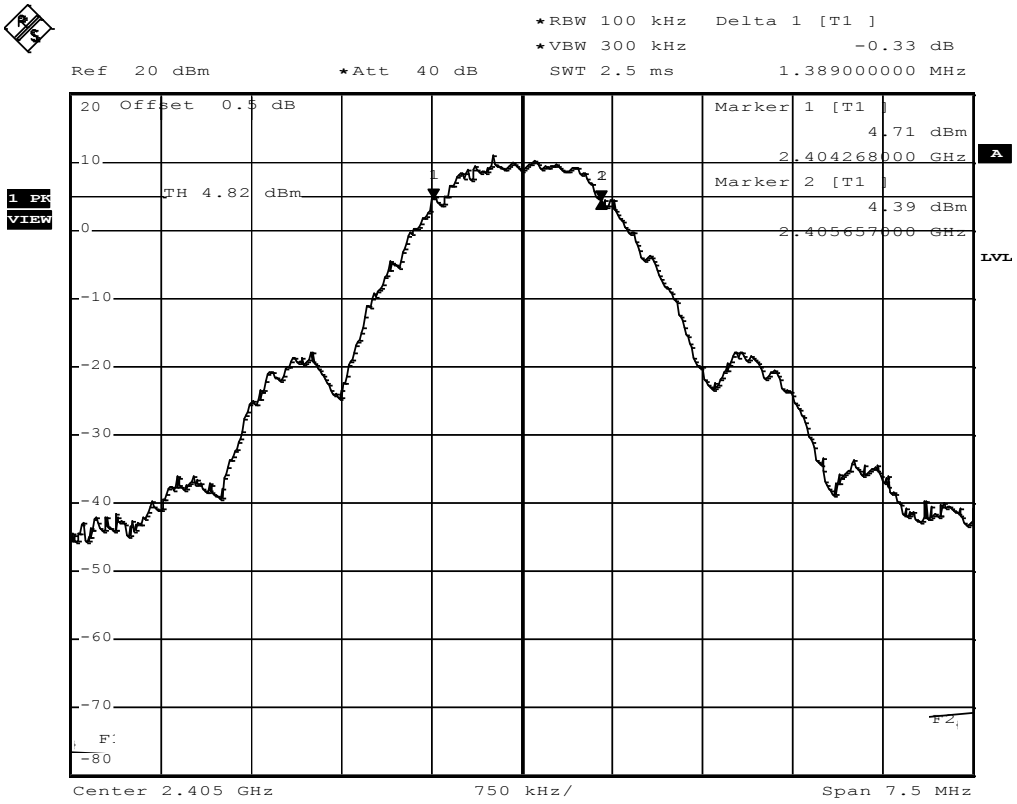
Channel	Frequency [MHz]	Mode	6 dB Bandwidth [kHz]	Limit [kHz]	Result
F_{LOW}	2405	ZIGBEE	1.560	500	PASS
F_{MID}	2440	ZIGBEE	1.533	500	PASS
F_{HIGH}	2475	ZIGBEE	1.593	500	PASS

Comments:

6 dB Bandwidth – ZIGBEE F_{LOW} - Antenna 1

FCC part 15.247 (a)2
Minimum 6 dB Bandwidth

EUT	2.4GHz IEEE 802.15.04 compliant radio module
Model	deRFmega256-23M12
Approval Holder	dresden elektronik ingenieurtechnik gmbh / Ord.: G0M-1305-2854
Temperature / Voltage	Tnom / Vnom
Test Site / Operator	Eurofins Product Service GmbH / Mr. Treffke
Test Specification	FCC part 15.247 (a)2
Comment 1	Minimum 6 dB Bandwidth
Comment 2	Channel: 2405 MHz , 0QPSK
Comment 3	procedure 8.1 DTS BW (558074 D01 DTS)

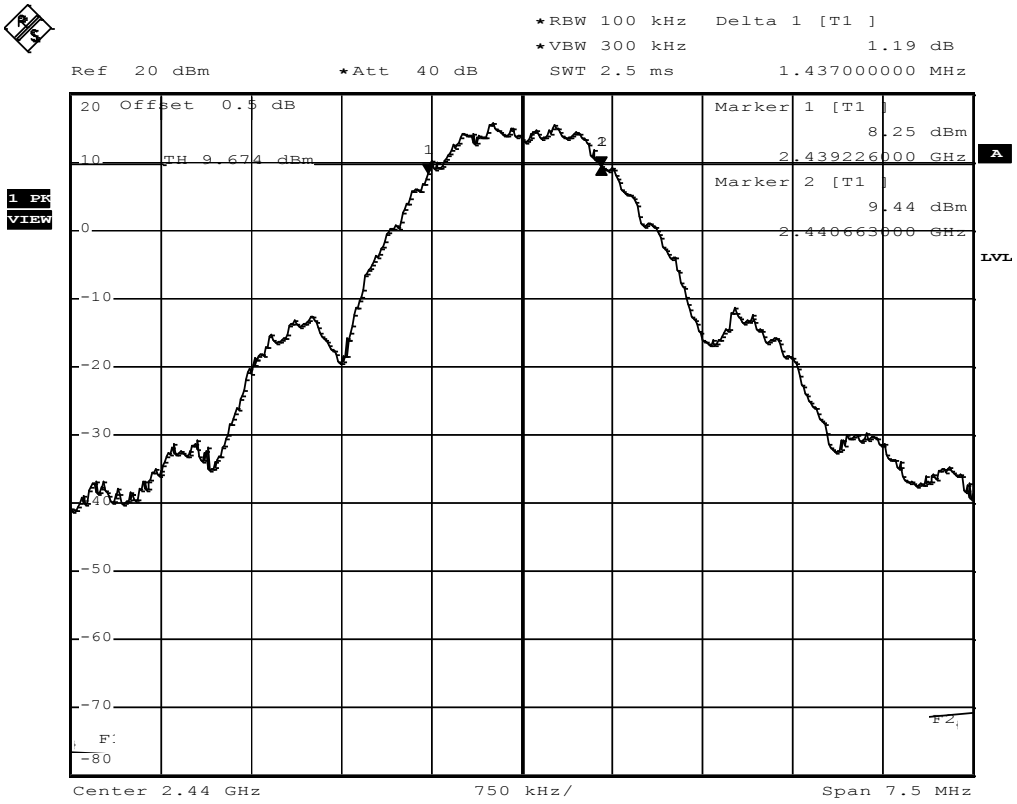


Comment: 6 dB bandwidth: 1389 KHz > 500 KHz; verdict: PASS
Date: 9.JUL.2013 11:35:10

6 dB Bandwidth – ZIGBEE F_{MID} - Antenna 1

FCC part 15.247 (a)2
Minimum 6 dB Bandwidth

EUT	2.4GHz IEEE 802.15.04 compliant radio module
Model	deRFmega256-23M12
Approval Holder	dresden elektronik ingenieurtechnik gmbh / Ord.: G0M-1305-2854
Temperature / Voltage	Tnom / Vnom
Test Site / Operator	Eurofins Product Service GmbH / Mr. Treffke
Test Specification	FCC part 15.247 (a)2
Comment 1	Minimum 6 dB Bandwidth
Comment 2	Channel: 2440 MHz, 0QPSK
Comment 3	procedure 8.1 DTS BW (558074 D01 DTS)

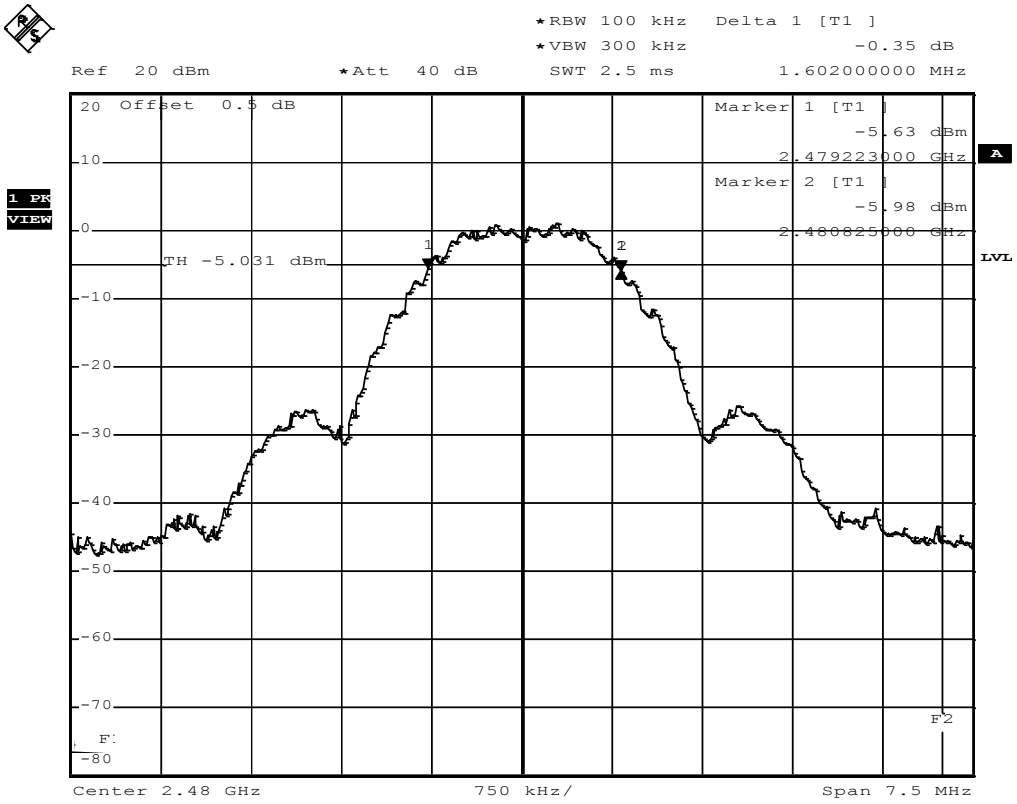


Comment: 6 dB bandwidth: 1437 KHz > 500 KHz; verdict: PASS
Date: 9.JUL.2013 11:37:56

6 dB Bandwidth – ZIGBEE F_{HIGH} - Antenna 1

FCC part 15.247 (a)2
Minimum 6 dB Bandwidth

EUT	2.4GHz IEEE 802.15.04 compliant radio module
Model	deRFmega256-23M12
Approval Holder	dresden elektronik ingenieurtechnik gmbh / Ord.: G0M-1305-2854
Temperature / Voltage	Tnom / Vnom
Test Site / Operator	Eurofins Product Service GmbH / Mr. Treffke
Test Specification	FCC part 15.247 (a)2
Comment 1	Minimum 6 dB Bandwidth
Comment 2	Channel: 2480 MHz, 0QPSK
Comment 3	procedure 8.1 DTS BW (558074 D01 DTS)

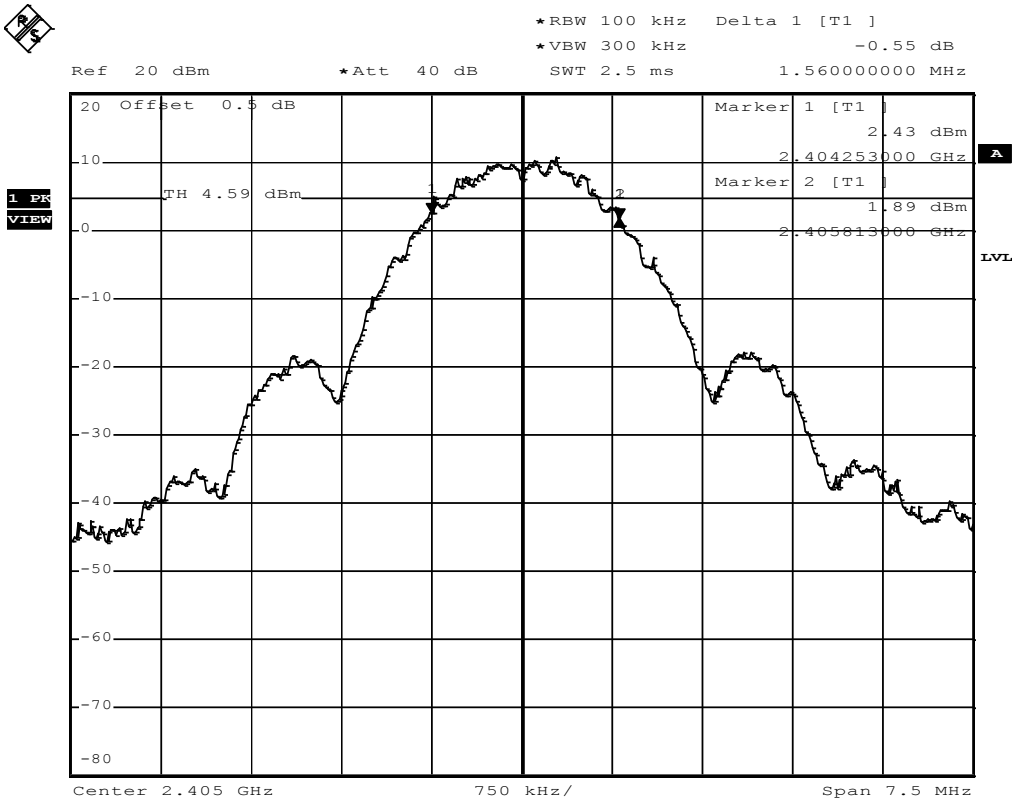


Comment: 6 dB bandwidth: 1602 KHz > 500 KHz; verdict: PASS
Date: 9.JUL.2013 11:39:37

6 dB Bandwidth – ZIGBEE F_{LOW} - Antenna 2

FCC part 15.247 (a)2
Minimum 6 dB Bandwidth

EUT	2.4GHz IEEE 802.15.04 compliant radio module
Model	deRFmega256-23M12
Approval Holder	dresden elektronik ingenieurtechnik gmbh / Ord.: G0M-1305-2854
Temperature / Voltage	Tnom / Vnom
Test Site / Operator	Eurofins Product Service GmbH / Mr. Treffke
Test Specification	FCC part 15.247 (a)2
Comment 1	Minimum 6 dB Bandwidth
Comment 2	Channel 2405 MHz, 0QPSK 250
Comment 3	procedure 8.1 DTS BW (558074 D01 DTS)

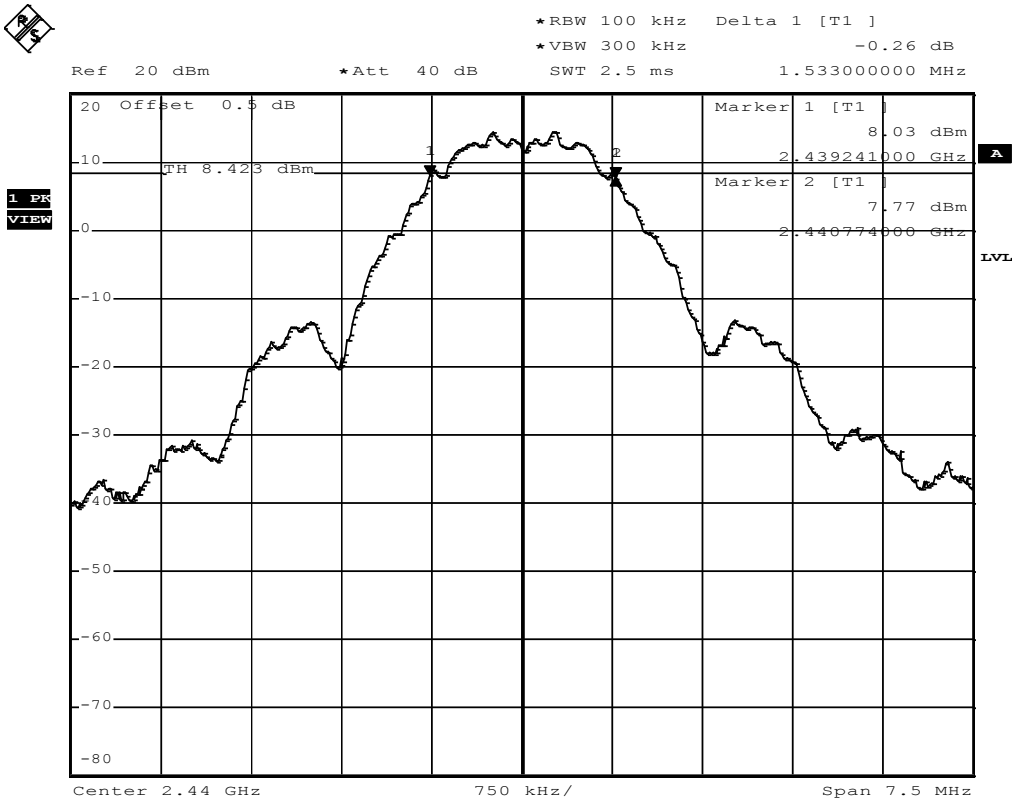


Comment: 6 dB bandwidth: 1560 KHz > 500 KHz; verdict: PASS
Date: 9.JUL.2013 14:10:41

6 dB Bandwidth – ZIGBEE F_{MID} - Antenna 2

FCC part 15.247 (a)2
Minimum 6 dB Bandwidth

EUT	2.4GHz IEEE 802.15.04 compliant radio module
Model	deRFmega256-23M12
Approval Holder	dresden elektronik ingenieurtechnik gmbh / Ord.: G0M-1305-2854
Temperature / Voltage	Tnom / Vnom
Test Site / Operator	Eurofins Product Service GmbH / Mr. Treffke
Test Specification	FCC part 15.247 (a)2
Comment 1	Minimum 6 dB Bandwidth
Comment 2	Channel 2440 MHz, 0QPSK 250
Comment 3	procedure 8.1 DTS BW (558074 D01 DTS)

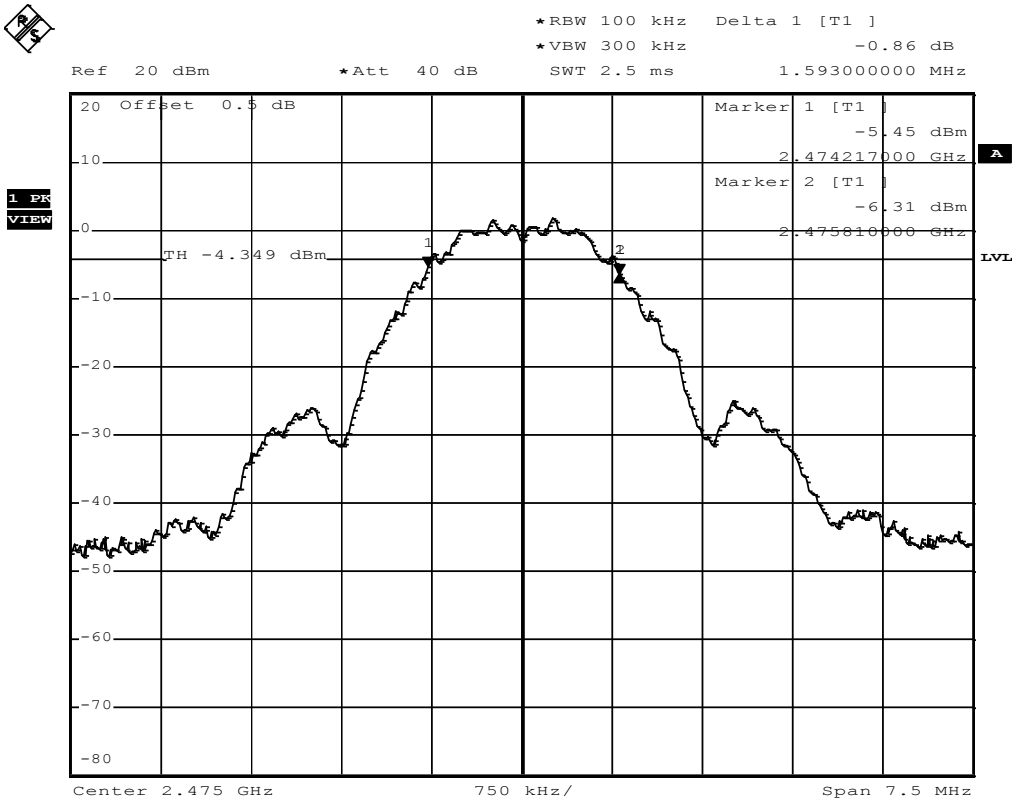


Comment: 6 dB bandwidth: 1533 KHz > 500 KHz; verdict: PASS
Date: 9.JUL.2013 14:03:37

6 dB Bandwidth – ZIGBEE F_{HIGH} - Antenna 2

FCC part 15.247 (a)2
Minimum 6 dB Bandwidth

EUT	2.4GHz IEEE 802.15.04 compliant radio module
Model	deRFmega256-23M12
Approval Holder	dresden elektronik ingenieurtechnik gmbh / Ord.: G0M-1305-2854
Temperature / Voltage	Tnom / Vnom
Test Site / Operator	Eurofins Product Service GmbH / Mr. Treffke
Test Specification	FCC part 15.247 (a)2
Comment 1	Minimum 6 dB Bandwidth
Comment 2	Channel 2475 MHz, 0QPSK 250
Comment 3	procedure 8.1 DTS BW (558074 D01 DTS)



Comment: 6 dB bandwidth: 1593 KHz > 500 KHz; verdict: PASS
Date: 9.JUL.2013 14:08:56

3.3 Test Conditions and Results – Maximum peak conducted power

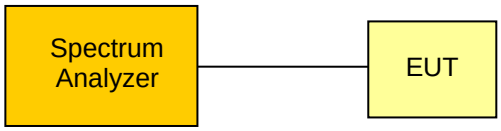
Maximum peak conducted power acc. FCC 15.247 / IC RSS-210	**Verdict: PASS**
EUT requirement rule parts and clause	Reference
	FCC 15.247(b)(3) / IC RSS-210 A8.4
Test according to measurement reference	Reference Method
	FCC KDB Publication No. 558074
Test frequency range	Tested frequencies
	F_{LOW} / F_{MID} / F_{HIGH}
Measurement mode	Peak
Maximum antenna gain chip antenna	1.3 dBi ⇒ Limit correction = 0 dB
Maximum antenna gain external antenna	5.0 dBi ⇒ Limit correction = 0 dB

Limits

1 W (30 dBm)

The conducted output power limit specified above is based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in the table, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Test setup



Test procedure

1. EUT set to test mode (Communication tester is used if needed)
2. Center frequency set to test channel center frequency
3. Span set to twice the 20 dB bandwidth and detector to peak and max hold
4. Resolution bandwidth is set to 3 MHz
5. Peak conducted power is determined from peak of spectrum envelope

Test results – Antenna 1							
Channel	Frequency [MHz]	Voltage [VDC]	Mode	Peak power [dbm]	Peak power [W]	Limit [dBm]	Margin [dB]
F_{LOW}	2405	V_{NOM} = 3.3	ZIGBEE	13.3	0.021	30	-16.70
F_{LOW}	2405	V_{MIN} = 2.0	ZIGBEE	13.7	0.023	30	-16.30
F_{LOW}	2405	V_{MAX} =3.6	ZIGBEE	6.2	0.004	30	-23.80
F_{MID}	2440	V_{NOM} = 3.3	ZIGBEE	19.0	0.079	30	-11.00
F_{MID}	2440	V_{MIN} = 2.0	ZIGBEE	18.7	0.074	30	-11.30
F_{MID}	2440	V_{MAX} =3.6	ZIGBEE	13.3	0.021	30	-16.70
F_{HIGH}	2480	V_{NOM} = 3.3	ZIGBEE	4.9	0.003	30	-25.10
F_{HIGH}	2480	V_{MIN} = 2.0	ZIGBEE	4.7	0.003	30	-25.30
F_{HIGH}	2480	V_{MAX} =3.6	ZIGBEE	-2.1	0.001	30	-32.10
Test results – Antenna 2							
Channel	Frequency [MHz]	Voltage [VDC]	Mode	Peak power [dbm]	Peak power [W]	Limit [dBm]	Margin [dB]
F_{LOW}	2405	V_{NOM} = 3.3	ZIGBEE	13.3	0.021	30	-16.70
F_{LOW}	2405	V_{MIN} = 2.0	ZIGBEE	13.7	0.023	30	-16.30
F_{LOW}	2405	V_{MAX} =3.6	ZIGBEE	6.2	0.004	30	-23.80
F_{MID}	2440	V_{NOM} = 3.3	ZIGBEE	17.8	0.060	30	-12.20
F_{MID}	2440	V_{MIN} = 2.0	ZIGBEE	17.9	0.062	30	-12.10
F_{MID}	2440	V_{MAX} =3.6	ZIGBEE	12.4	0.017	30	-17.60
F_{HIGH}	2475	V_{NOM} = 3.3	ZIGBEE	4.8	0.003	30	-25.20
F_{HIGH}	2475	V_{MIN} = 2.0	ZIGBEE	4.6	0.003	30	-25.40
F_{HIGH}	2475	V_{MAX} =3.6	ZIGBEE	-2.0	0.001	30	-32.00
Comments:							

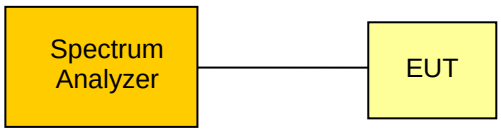
3.4 Test Conditions and Results – Power spectral density

Power spectral density acc. FCC 15.247 / IC RSS-210	**Verdict: PASS**
EUT requirement rule parts and clause	Reference
	FCC 15.247(e) / IC RSS-210 A8.2
Test according to measurement reference	Reference Method
	FCC KDB Publication No. 558074
Test frequency range	Tested frequencies
	F_{LOW} / F_{MID} / F_{HIGH}
Measurement mode	Peak

Limits

8 dBm / 3 kHz

Test setup



Test procedure

1. EUT set to test mode (Communication tester is used if needed)
2. Center frequency set to test channel center frequency
3. Span is set large enough to capture maximum emissions in passband, RBW is set to 3kHz
4. Peak power density is determined from peak emission of envelope

Test results – Antenna 1

Channel	Frequency [MHz]	Test mode	Peak frequency [MHz]	Peak power density [dBm]	Limit [dBm/3kHz]	Margin [dB]
F_{LOW}	2405	ZIGBEE	2404.76	-4.37	8.0	-12.37
F_{MID}	2440	ZIGBEE	2440.27	0.85	8.0	-07.15
F_{HIGH}	2480	ZIGBEE	2479.77	-13.7	8.0	-21.70

Test results – Antenna 2

Channel	Frequency [MHz]	Test mode	Peak frequency [MHz]	Peak power density [dBm]	Limit [dBm/3kHz]	Margin [dB]
F_{LOW}	2405	ZIGBEE	2404.76	-4.37	8.0	-12.37
F_{MID}	2440	ZIGBEE	2440.27	-0.68	8.0	-08.68
F_{HIGH}	2475	ZIGBEE	2479.77	-13.5	8.0	-21.50

Comments:

3.5 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.

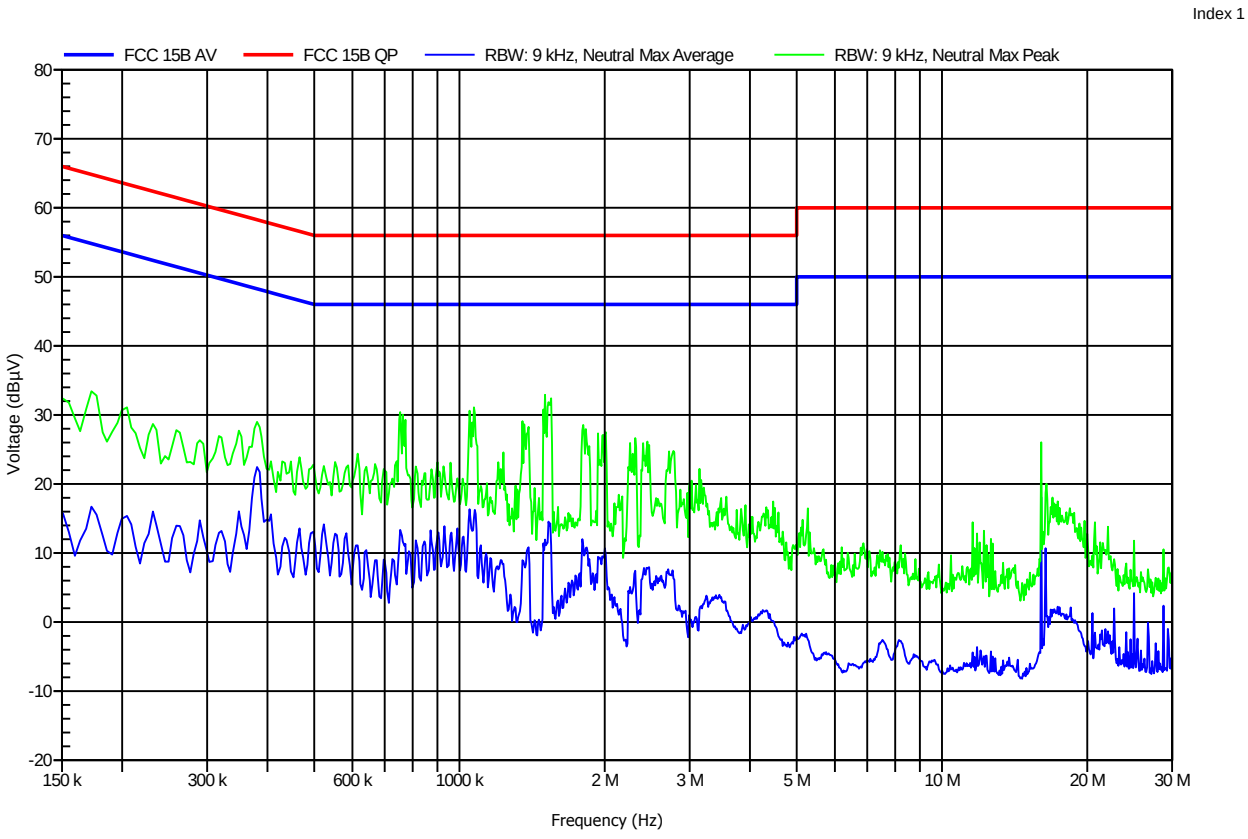
Measurements with the external antenna as worst case.

Conducted Emissions

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

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4 GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Handrik
Test Conditions:	Tnom: 22°C, Unom: 5 V DC (AC/DC adaptor: SYS 1196-0605-W2E)
LISN:	ESH2-Z5 N
Mode:	active; RX
Test Date:	2013-07-01
Note:	Ant.: ext.



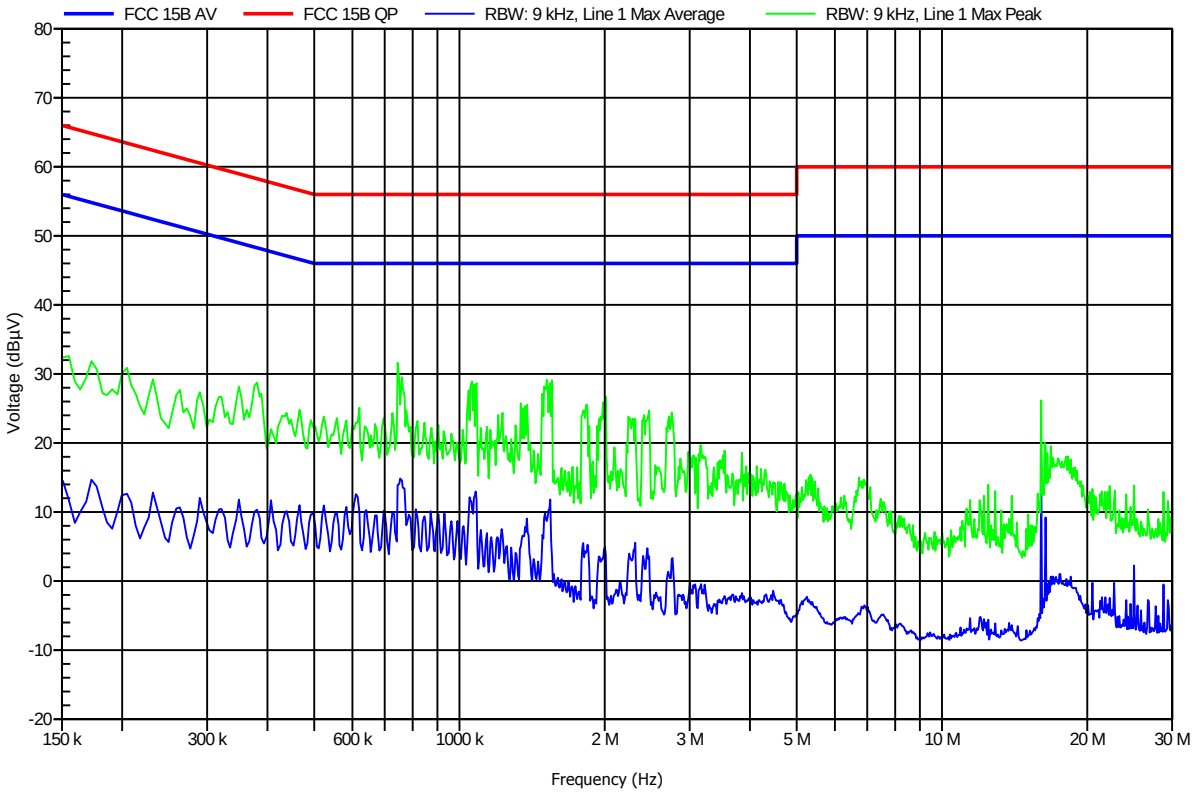
Conducted Emissions

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

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4 GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Handrik
Test Conditions:	Tnom: 22°C, Unom: 5 V DC (AC/DC adaptor: SYS 1196-0605-W2E)
LISN:	ESH2-Z5 L
Mode:	active; RX
Test Date:	2013-07-01
Note:	Ant.: ext.

Index 2

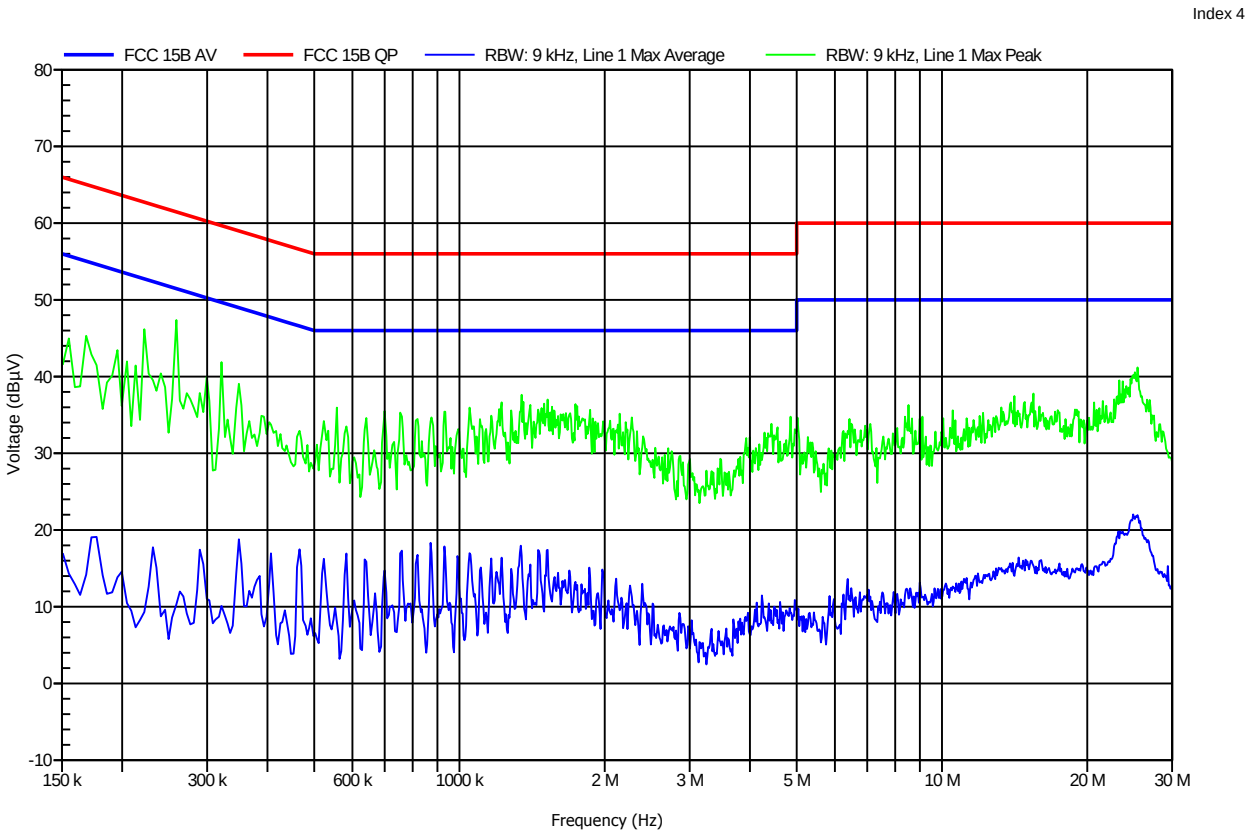


Conducted Emissions

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

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4 GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Handrik
Test Conditions:	Tnom: 22°C, Unom: 5 V DC (AC/DC adaptor: SYS 1196-0605-W2E)
LISN:	ESH2-Z5 L
Mode:	active; TX
Test Date:	2013-07-01
Note:	Ant.: ext.

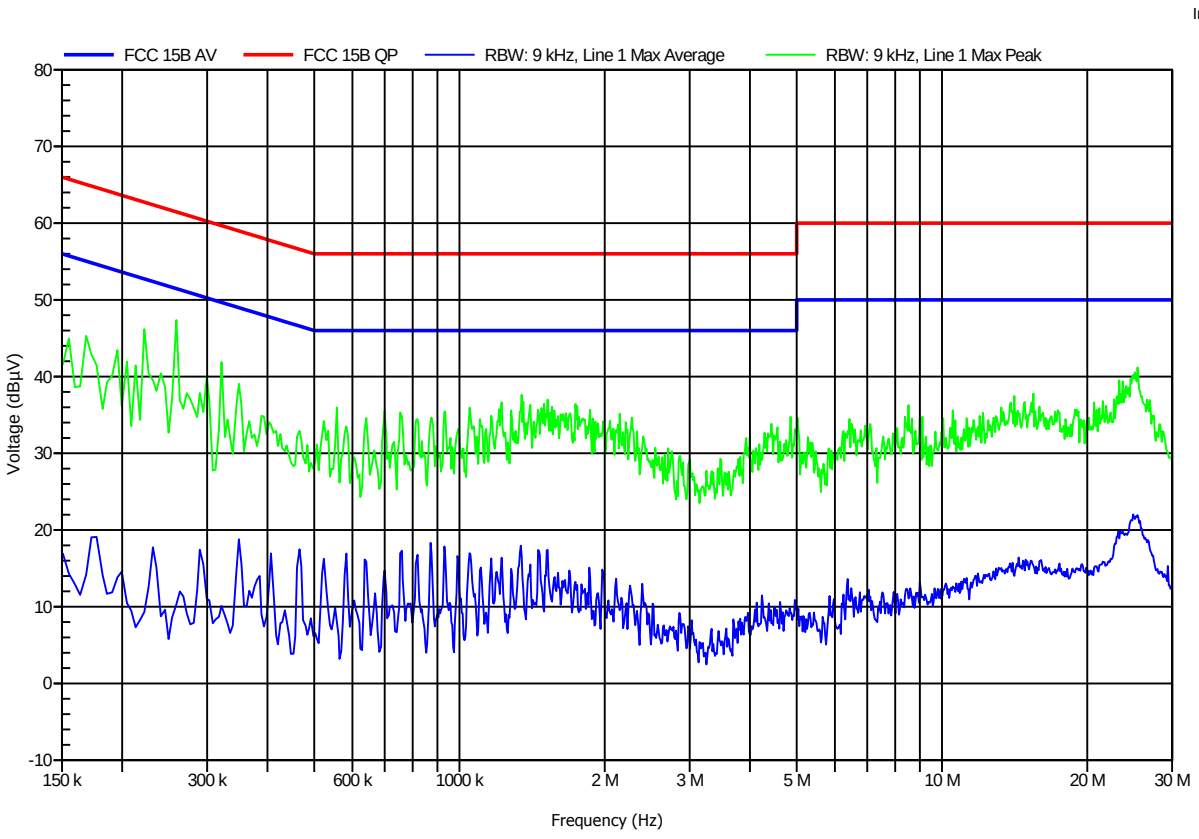


Conducted Emissions

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

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4 GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Handrik
Test Conditions:	Tnom: 22°C, Unom: 5 V DC (AC/DC adaptor: SYS 1196-0605-W2E)
LISN:	ESH2-Z5 L
Mode:	active; TX
Test Date:	2013-07-01
Note:	Ant.: ext.



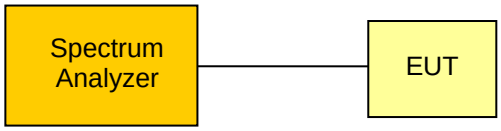
3.6 Test Conditions and Results – Band edge compliance

Band-edge compliance acc. FCC 15.247 / IC RSS-210	**Verdict: PASS**
EUT requirement rule parts and clause	Reference
	FCC 15.247(d) / IC RSS-210 A8.5
Test according to measurement reference	Reference Method
	FCC KDB Publication No. 558074
Test frequency range	Tested frequencies
	F_{LOW} / F_{HIGH}
Measurement mode	Peak

Limits

Limit	Condition
≤ -20 dB / 100 kHz	Peak power measurement detector = Peak
≤ -30 dB / 100 kHz	Peak power measurement detector = RMS

Test setup



Test procedure

1. EUT set to test mode (Communication tester is used if needed)
2. Span set around lower band edge and detector is set to peak and max hold
3. Resolution bandwidth is set to 100 kHz
4. Markers are set to peak emission levels within frequency band and outside frequency band
5. Band edge attenuation is determined from level difference

Test results – Antenna 1

Channel	Frequency [MHz]	Mode	Level [dBc]	Limit [dBc]	Margin [dB]
F_{LOW}	2405	ZIGBEE	-50.25	-20	-30.25
F_{HIGH}	2480	ZIGBEE	-40.17	-20	-20.17

Test results – Antenna 2

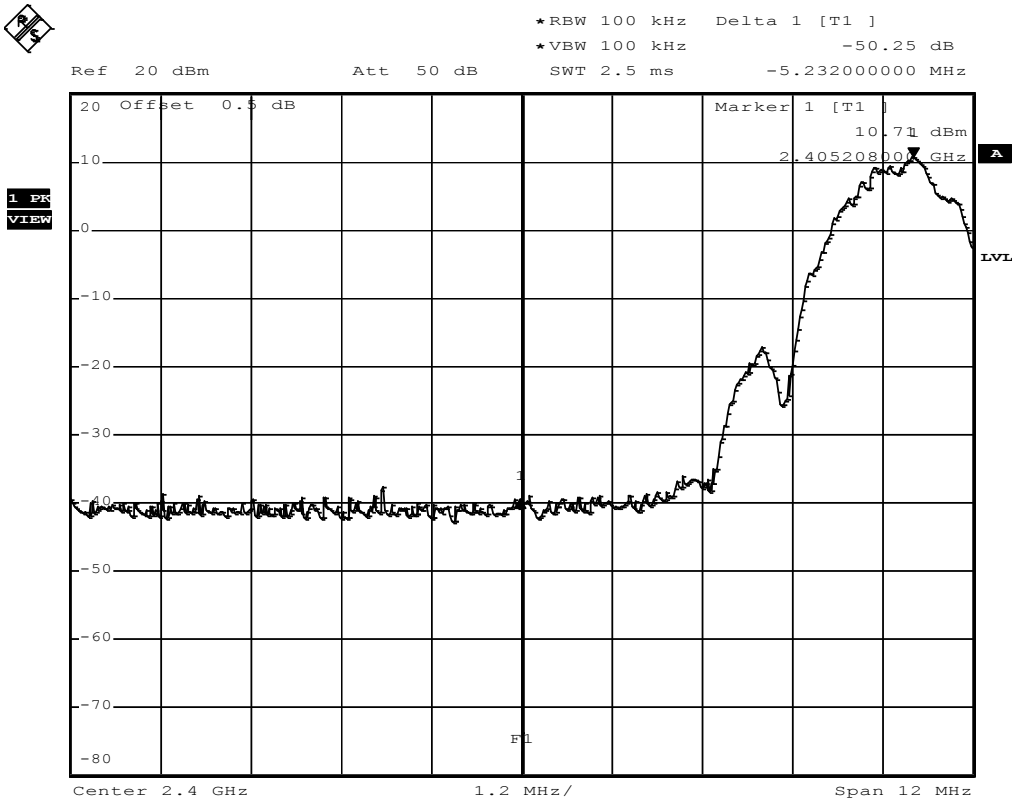
Channel	Frequency [MHz]	Mode	Level [dBc]	Limit [dBc]	Margin [dB]
F_{LOW}	2405	ZIGBEE	-49.51	-20	-29.51
F_{HIGH}	2475	ZIGBEE	-49.86	-20	-29.86

Comments:

Band-edge compliance – ZIGBEE F_{LOW} - Antenna 1

FCC part 15.247
Band-edge compliance of RF conducted emissions

EUT	2.4GHz IEEE 802.15.04 compliant radio module
Model	deRFmega256-23M12
Approval Holder	dresden elektronik ingenieurtechnik gmbh / Ord.: G0M-1305-2854
Temperature / Voltage	Tnom / Vnom
Test Site / Operator	Eurofins Product Service GmbH / Mr. Treffke
Test Specification	FCC part 15 section 247(c)
Comment 1	Band-edge compliance
Comment 2	Channel.: 2405 MHz
Comment 3	pass

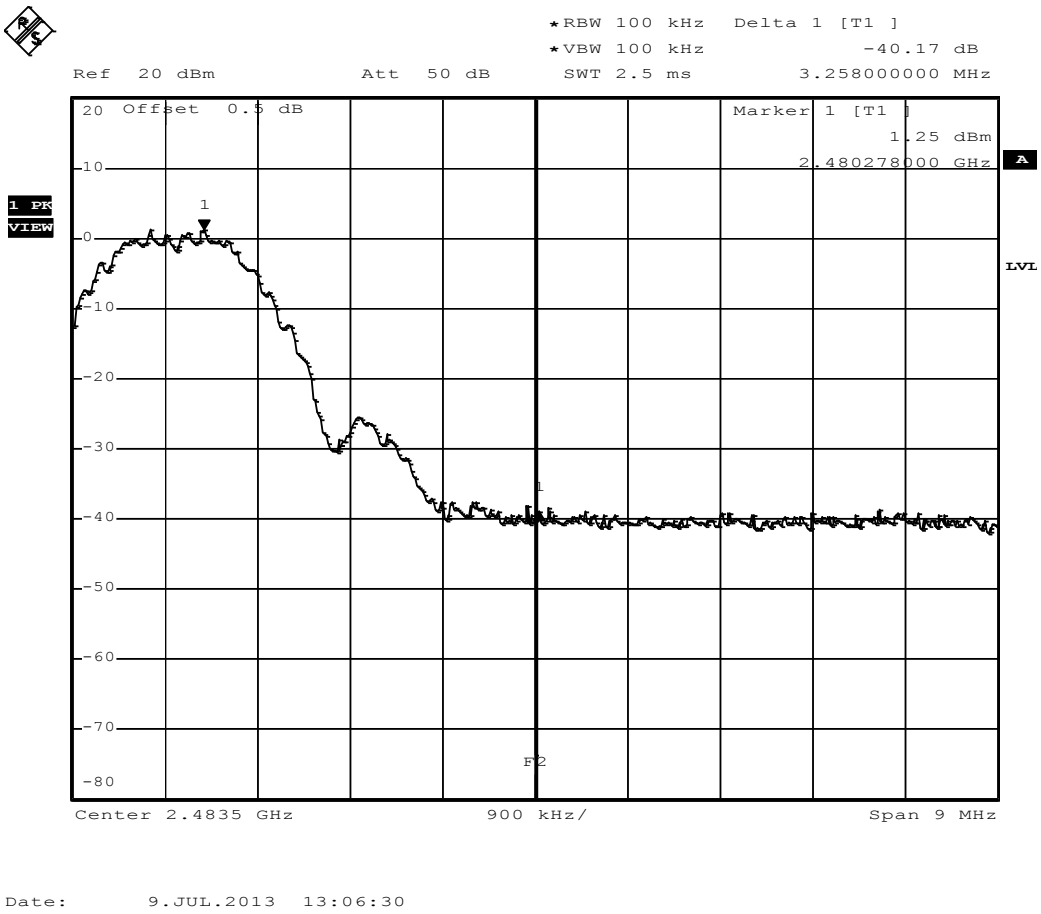


Comment: Limit: Marker Delta value >20 dB; Result: PASS
Date: 9.JUL.2013 14:44:54

Band-edge compliance – ZIGBEE F_{HIGH} - Antenna 1

FCC part 15.247
Band-edge compliance of RF conducted emissions

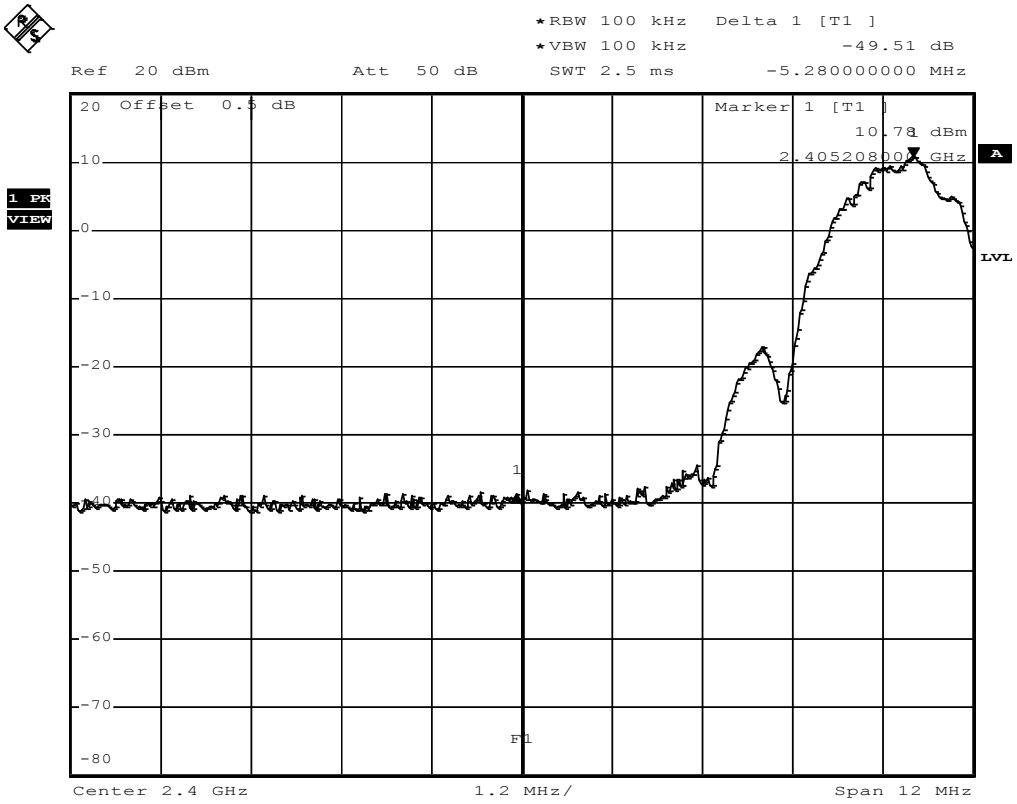
EUT	2.4GHz IEEE 802.15.04 compliant radio module
Model	deRFmega256-23M12
Approval Holder	dresden elektronik ingenieurtechnik gmbh / Ord.: G0M-1305-2854
Temperature / Voltage	Tnom / Vnom
Test Site / Operator	Eurofins Product Service GmbH / Mr. Treffke
Test Specification	FCC part 15 section 247(c)
Comment 1	Band-edge compliance
Comment 2	Channel.: 2480 MHz
Comment 3	pass



Band-edge compliance – ZIGBEE F_{LOW} - Antenna 2

FCC part 15.247
Band-edge compliance of RF conducted emissions

EUT	2.4GHz IEEE 802.15.04 compliant radio module
Model	deRFmega256-23M12
Approval Holder	dresden elektronik ingenieurtechnik gmbh / Ord.: G0M-1305-2854
Temperature / Voltage	Tnom / Vnom
Test Site / Operator	Eurofins Product Service GmbH / Mr. Treffke
Test Specification	FCC part 15 section 247(c)
Comment 1	Band-edge compliance
Comment 2	Channel.: 2405 MHz
Comment 3	pass

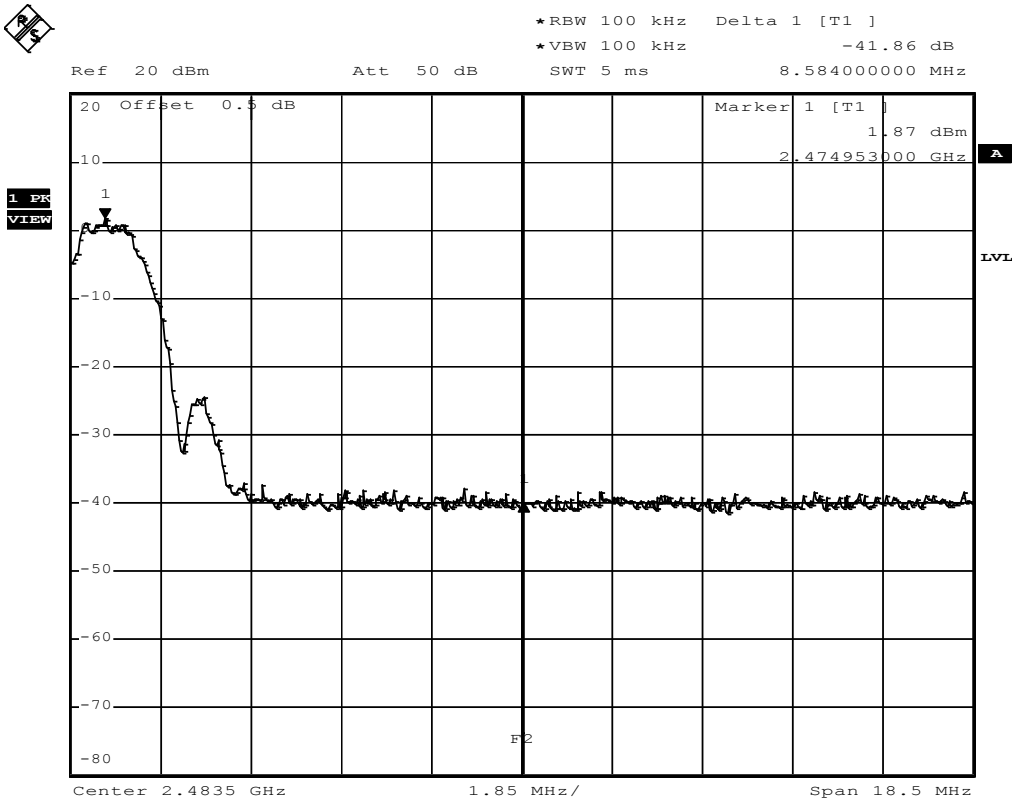


Comment: Limit: Marker Delta value >20 dB; Result: PASS
Date: 9.JUL.2013 14:43:05

Band-edge compliance – ZIGBEE F_{HIGH} - Antenna 2

FCC part 15.247
Band-edge compliance of RF conducted emissions

EUT	2.4GHz IEEE 802.15.04 compliant radio module
Model	deRFmega256-23M12
Approval Holder	dresden elektronik ingenieurtechnik gmbh / Ord.: G0M-1305-2854
Temperature / Voltage	Tnom / Vnom
Test Site / Operator	Eurofins Product Service GmbH / Mr. Treffke
Test Specification	FCC part 15 section 247(c)
Comment 1	Band-edge compliance
Comment 2	Channel.: 2475 MHz
Comment 3	pass



Comment: Limit: Marker Delta value >20 dB; Result: PASS
Date: 9.JUL.2013 14:47:12

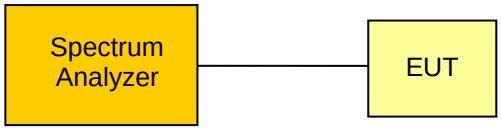
3.7 Test Conditions and Results – Conducted spurious emissions

Conducted spurious emissions acc. FCC 15.247 / IC RSS-210	**Verdict: PASS**
EUT requirement rule parts and clause	Reference
	FCC 15.247(d) / IC RSS-210 A8.5
Test according to measurement reference	Reference Method
	FCC KDB Publication No. 558074
Test frequency range	Tested frequencies
	10 MHz – 10th Harmonic
Measurement mode	Peak

Limits

Limit	Condition
≤ -20 dB / 100 kHz	Peak power measurement detector = Peak
≤ -30 dB /100 kHz	Peak power measurement detector = RMS

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 is set to 100 kHz and detector to peak and max hold
4. Markers are set to peak emission levels within frequency band
5. Emission level is determined by second marker on emission peak
6. Attenuation is determined from level difference

Test results – antenna 1

Channel	Frequency [MHz]	Mode	Emission [MHz]	Emission Level [dbm]	Peak power [dBm]	Limit [dBm]	Margin [dB]
No significant spurious emissions							

Test results – antenna 2

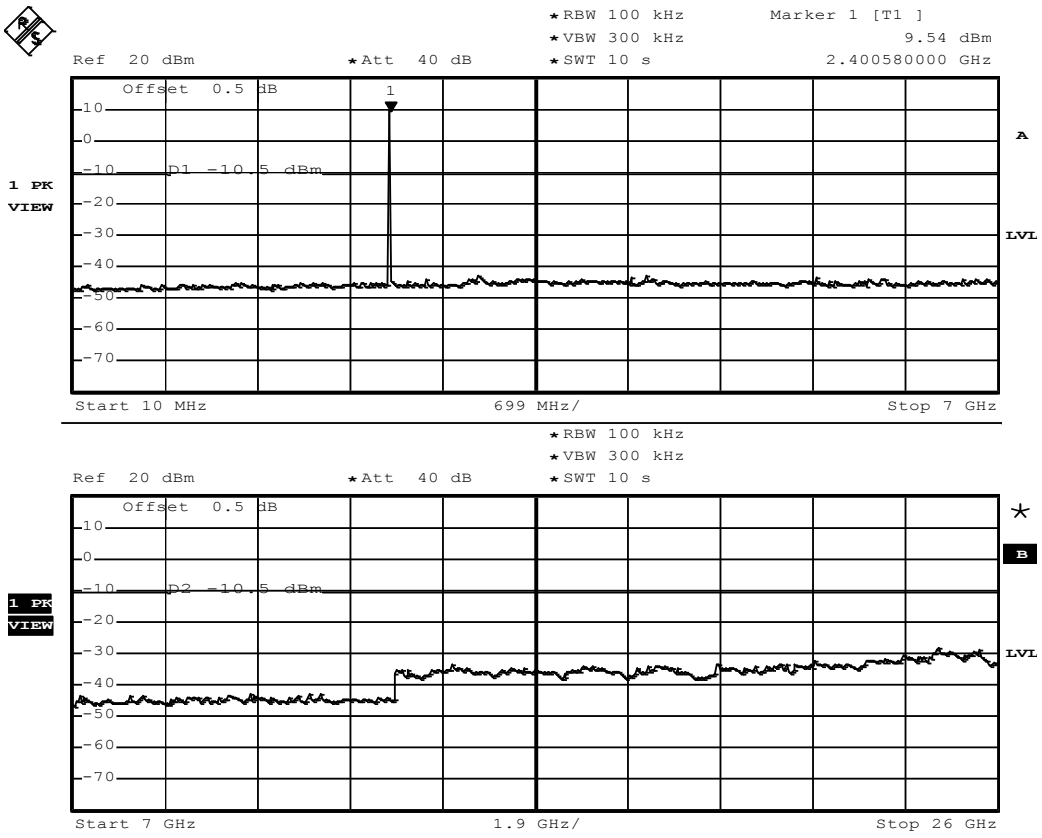
Channel	Frequency [MHz]	Mode	Emission [MHz]	Emission Level [dbm]	Peak power [dBm]	Limit [dBm]	Margin [dB]
No significant spurious emissions							

Comments:

Conducted spurious emissions – ZIGBEE F_{LOW} – Module for Antenna 1

FCC part 15.247 (d)
Spurious Emissions

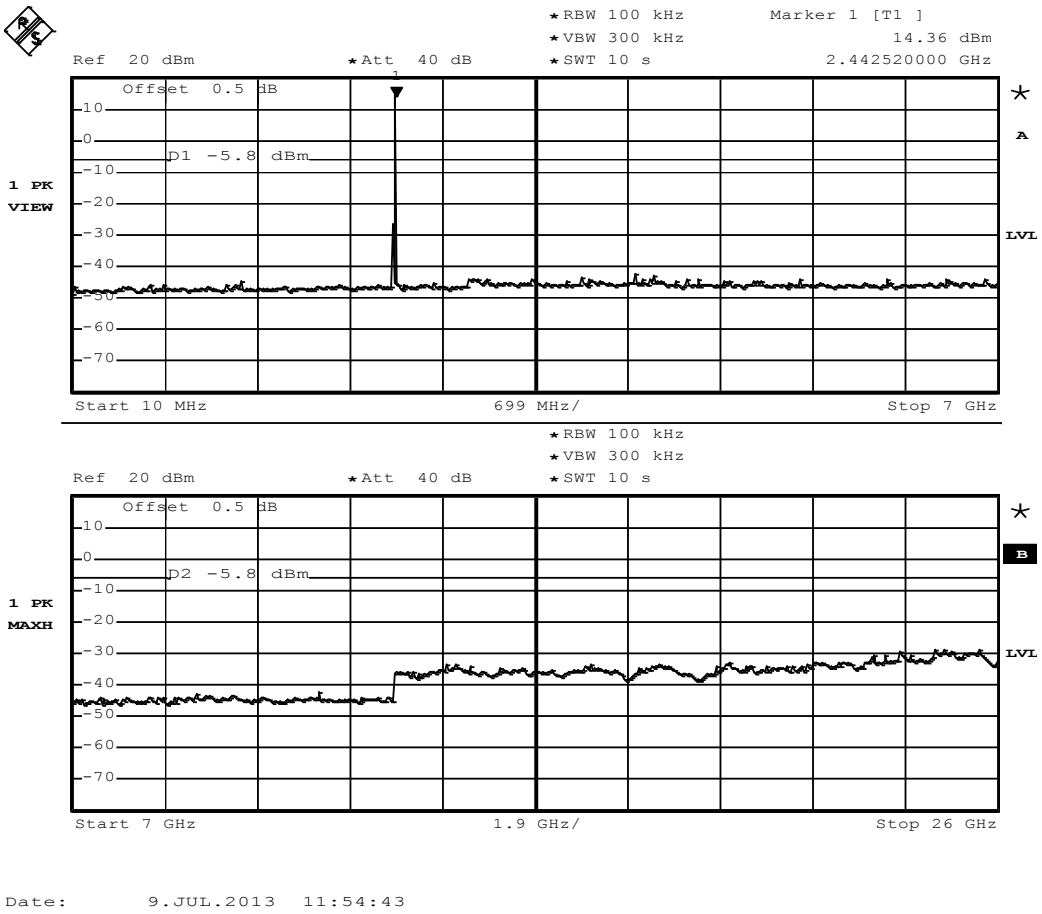
EUT	2.4GHz IEEE 802.15.04 compliant radio module
Model	deRFmega256-23M12
Approval Holder	dresden elektronik ingenieurtechnik gmbh / Ord.: G0M-1305-2854
Temperature / Voltage	Tnom / Vnom
Test Site / Operator	Eurofins Product Service GmbH / Mr. Treffke
Test Specification	FCC part 15.247 (d)
Comment 1	Spurious Emissions conducted
Comment 2	Channel: 2405 MHz
Comment 3	Emissions in non-restricted frequency bands 558074 D01 Meas Guidance



Conducted spurious emissions – ZIGBEE F_{MID} – Module for Antenna 1

FCC part 15.247 (d)
Spurious Emissions

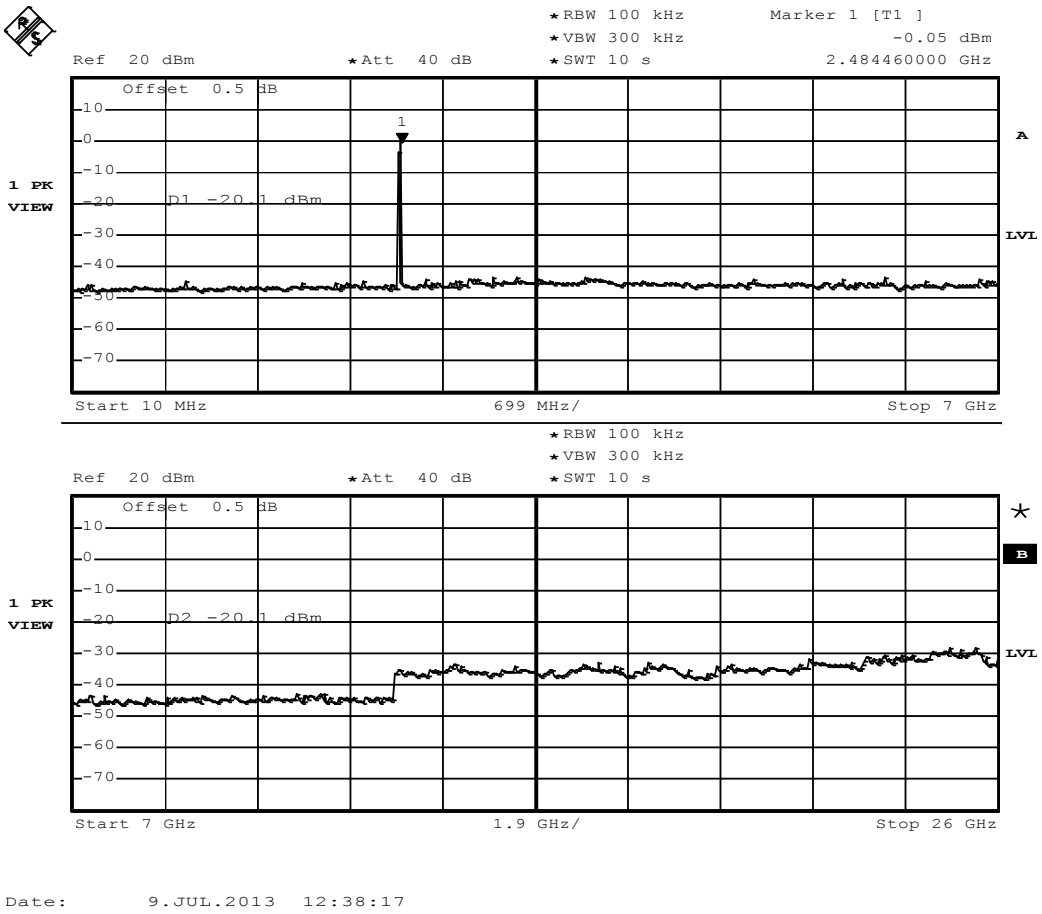
EUT	2.4GHz IEEE 802.15.04 compliant radio module
Model	deRFmega256-23M12
Approval Holder	dresden elektronik ingenieurtechnik gmbh / Ord.: G0M-1305-2854
Temperature / Voltage	Tnom / Vnom
Test Site / Operator	Eurofins Product Service GmbH / Mr. Treffke
Test Specification	FCC part 15.247 (d)
Comment 1	Spurious Emissions conducted
Comment 2	Channel: 2440 MHz
Comment 3	Emissions in non-restricted frequency bands 558074 D01 Meas Guidance



Conducted spurious emissions – ZIGBEE F_{HIGH} – Module for Antenna 1

FCC part 15.247 (d)
Spurious Emissions

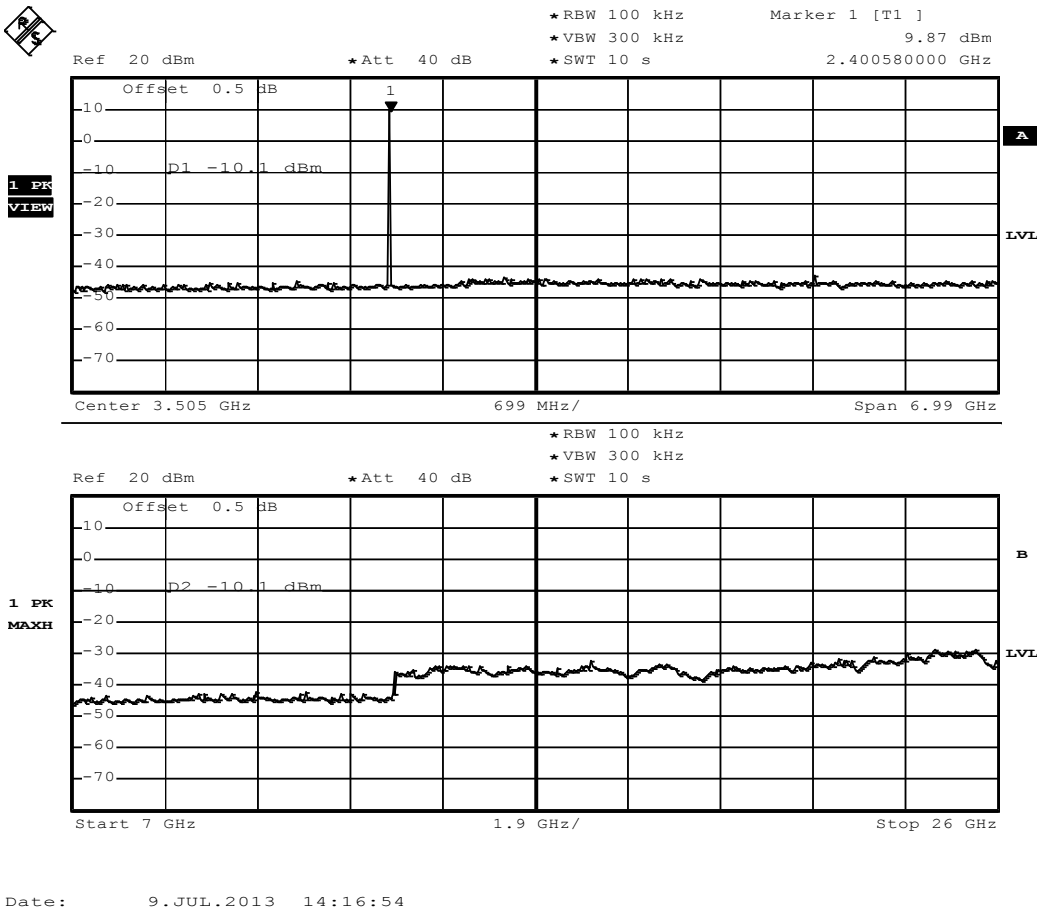
EUT	2.4GHz IEEE 802.15.04 compliant radio module
Model	deRFmega256-23M12
Approval Holder	dresden elektronik ingenieurtechnik gmbh / Ord.: G0M-1305-2854
Temperature / Voltage	Tnom / Vnom
Test Site / Operator	Eurofins Product Service GmbH / Mr. Treffke
Test Specification	FCC part 15.247 (d)
Comment 1	Spurious Emissions conducted
Comment 2	Channel: 2480 MHz
Comment 3	Emissions in non-restricted frequency bands 558074 D01 Meas Guidance



Conducted spurious emissions – ZIGBEE F_{LOW} – Module for Antenna 2

FCC part 15.247 (d)
Spurious Emissions

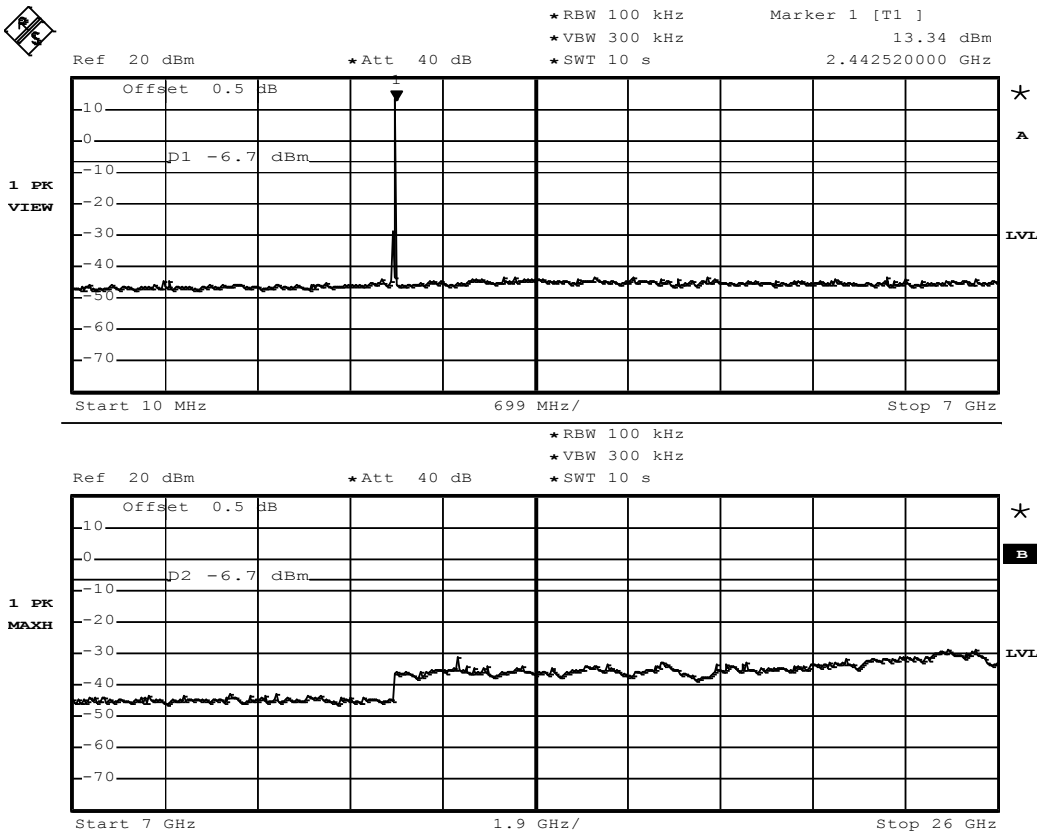
EUT	2.4GHz IEEE 802.15.04 compliant radio module
Model	deRFmega256-23M12
Approval Holder	dresden elektronik ingenieurtechnik gmbh / Ord.: G0M-1305-2854
Temperature / Voltage	Tnom / Vnom
Test Site / Operator	Eurofins Product Service GmbH / Mr. Treffke
Test Specification	FCC part 15.247 (d)
Comment 1	Spurious Emissions conducted
Comment 2	Channel 2405 MHz
Comment 3	Emissions in non-restricted frequency bands 558074 D01 Meas Guidance



Conducted spurious emissions – ZIGBEE F_{LOW} – Module for Antenna 2

FCC part 15.247 (d)
Spurious Emissions

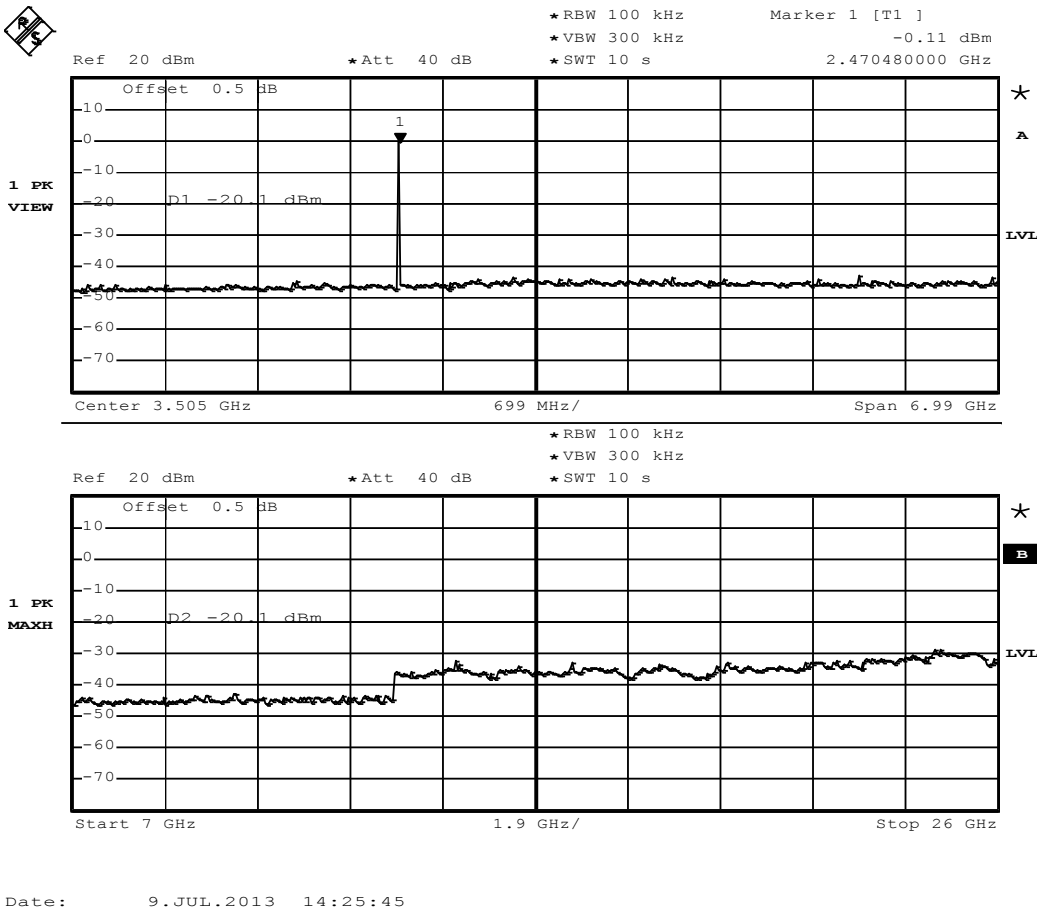
EUT	2.4GHz IEEE 802.15.04 compliant radio module
Model	deRFmega256-23M12
Approval Holder	dresden elektronik ingenieurtechnik gmbh / Ord.: G0M-1305-2854
Temperature / Voltage	Tnom / Vnom
Test Site / Operator	Eurofins Product Service GmbH / Mr. Treffke
Test Specification	FCC part 15.247 (d)
Comment 1	Spurious Emissions conducted
Comment 2	Channel 2440 MHz
Comment 3	Emissions in non-restricted frequency bands 558074 D01 Meas Guidance



Conducted spurious emissions – ZIGBEE F_{LOW} – Module for Antenna 2

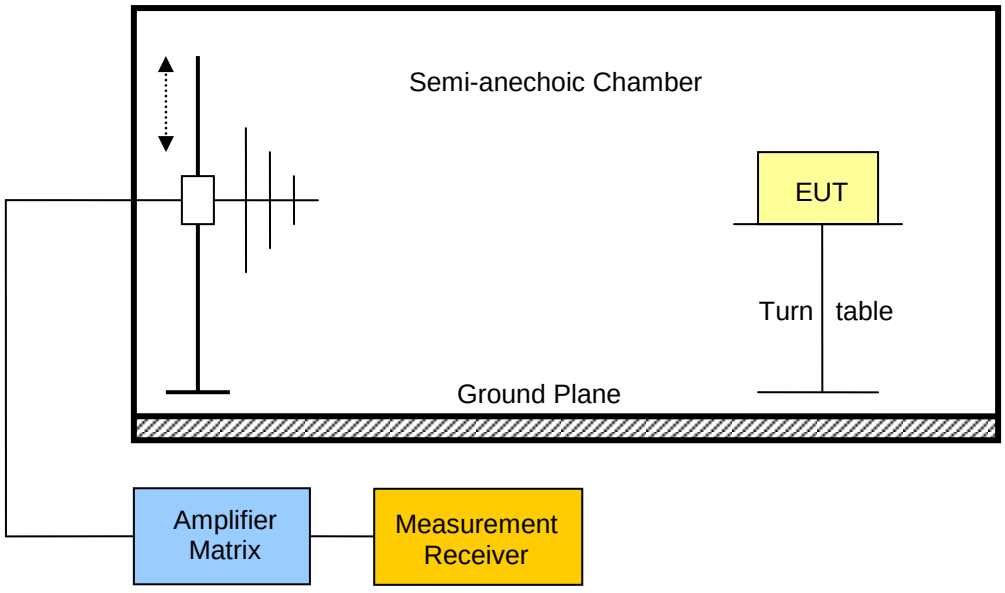
FCC part 15.247 (d)
Spurious Emissions

EUT	2.4GHz IEEE 802.15.04 compliant radio module
Model	deRFmega256-23M12
Approval Holder	dresden elektronik ingenieurtechnik gmbh / Ord.: G0M-1305-2854
Temperature / Voltage	Tnom / Vnom
Test Site / Operator	Eurofins Product Service GmbH / Mr. Treffke
Test Specification	FCC part 15.247 (d)
Comment 1	Spurious Emissions conducted
Comment 2	Channel 2475 MHz
Comment 3	Emissions in non-restricted frequency bands 558074 D01 Meas Guidance



3.8 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) / IC RSS-210 A8.5		
Test according to measurement reference		Reference Method		
		FCC KDB Publication No. 558074 / ANSI C63.4		
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 – Antenna 1

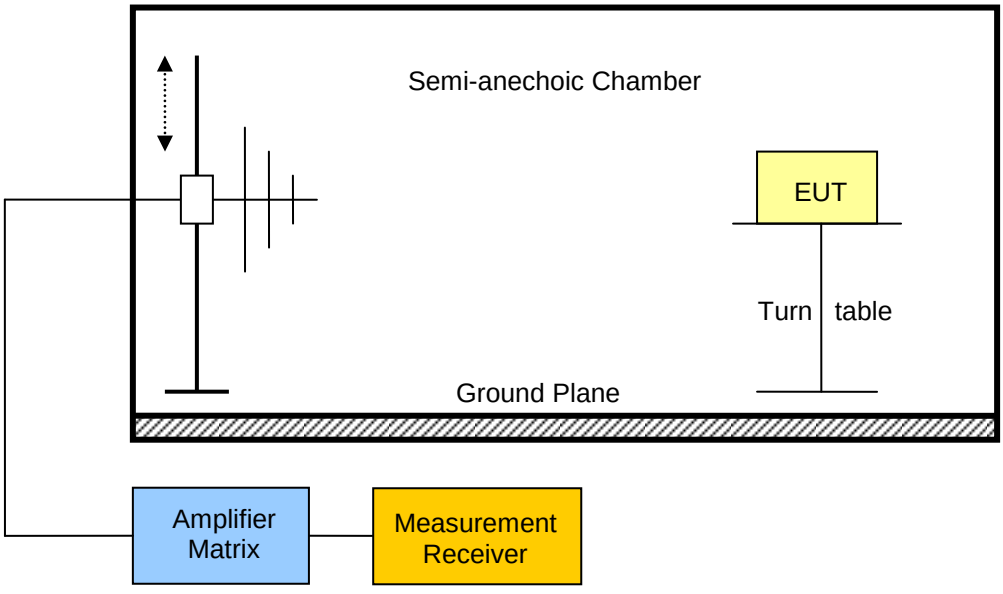
Channel	Frequency [MHz]	Mode	Emission [MHz]	Level [dbµV/m]	Det.	Pol.	Limit [dbµV/m]	Limit dist. [m]*	Margin [dB]
F_{LOW}	2405	ZIGBEE	2389	45.62	pk	hor	74.00	3	-28.38
F_{LOW}	2405	ZIGBEE	4809	56.35	pk	ver	74.00	3	-17.65
F_{LOW}	2405	ZIGBEE	4809	49.19	avg	ver	54.00	3	-04.81
F_{LOW}	2405	ZIGBEE	4811	55.02	pk	hor	74.00	3	-18.98
F_{LOW}	2405	ZIGBEE	4811	47.48	avg	hor	54.00	3	-06.52
F_{MID}	2440	ZIGBEE	4881	56.73	pk	hor	74.00	3	-17.27
F_{MID}	2440	ZIGBEE	4881	49.64	avg	hor	54.00	3	-04.36
F_{MID}	2440	ZIGBEE	4881	59.57	pk	ver	74.00	3	-14.43
F_{MID}	2440	ZIGBEE	4881	52.88	avg	ver	54.00	3	-01.12
F_{HIGH}	2480	ZIGBEE	2483.5	61.19	pk	hor	74.00	3	-12.81
F_{HIGH}	2480	ZIGBEE	2483.5	53.52	RMS	hor	54.00	3	-00.48
F_{HIGH}	2480	ZIGBEE	2483.5	57.85	pk	ver	74.00	3	-16.15

Comments: * Physical distance between EUT and measurement antenna.

Test results – Antenna 2									
Channel	Frequency [MHz]	Mode	Emission [MHz]	Level [dbµV/m]	Det.	Pol.	Limit [dbµV/m]	Limit dist. [m]*	Margin [dB]
F_{LOW}	2405	ZIGBEE	2388	47.76	pk	ver	74.00	3	-26.24
F_{LOW}	2405	ZIGBEE	4809	53.63	pk	hor	74.00	3	-20.37
F_{LOW}	2405	ZIGBEE	4809	44.90	avg	hor	54.00	3	-09.10
F_{LOW}	2405	ZIGBEE	4809	54.70	pk	ver	74.00	3	-19.30
F_{LOW}	2405	ZIGBEE	4809	47.38	avg	ver	54.00	3	-06.62
F_{MID}	2440	ZIGBEE	4879	54.24	pk	hor	74.00	3	-19.76
F_{MID}	2440	ZIGBEE	4879	45.85	avg	hor	54.00	3	-08.15
F_{MID}	2440	ZIGBEE	4881	58.81	pk	ver	74.00	3	-15.19
F_{MID}	2440	ZIGBEE	4881	52.29	avg	ver	54.00	3	-01.71
F_{MID}	2440	ZIGBEE	7318	61.68	pk	ver	74.00	3	-12.32
F_{MID}	2440	ZIGBEE	7318	53.10	avg	ver	54.00	3	-00.90
F_{MID}	2440	ZIGBEE	7319	61.09	pk	hor	74.00	3	-12.91
F_{MID}	2440	ZIGBEE	7319	53.11	avg	hor	54.00	3	-00.89
F_{HIGH}	2475	ZIGBEE	2490.9	44.87	pk	ver	74.00	3	-29.13
F_{HIGH}	2475	ZIGBEE	2490.9	37.14	avg	ver	54.00	3	-16.86
Comments: * Physical distance between EUT and measurement antenna.									

3.9 Test Conditions and Results – Receiver radiated emissions

Receiver radiated emissions acc. IC RSS-210				**Verdict: PASS**
Test according referenced standards	Reference Method			
	IC RSS-210 A8.5			
Test according to measurement reference	Reference Method			
	ANSI C63.4			
Test frequency range	Tested frequencies			
	30 MHz – 3th Harmonic			
EUT test mode	Receive			
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
Test setup				



Test procedure
1. EUT set to receive 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

Test results – Antenna 1

Channel	Frequency [MHz]	Emission [MHz]	Emission Level [dbµV/m]	Emission Level [µV/m]	Det.	Limit [µV/m]	Margin [µV/m]
All	Scan	2437	39.67	96.27	pk	500	-403.73

Test results – Antenna 2

Channel	Frequency [MHz]	Emission [MHz]	Emission Level [dbµV/m]	Emission Level [µV/m]	Det.	Limit [µV/m]	Margin [µV/m]
All	Scan	2437	43.58	151.01	pk	500	-348.99
All	Scan	2437	42.41	131.98	pk	500	-368.02

Comments:
* Physical distance between EUT and measurement antenna.
** Emission level corresponds to ambient noise floor

ANNEX A Transmitter radiated spurious emissions

Spurious emissions according to FCC 15.247

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Rohde & Schwarz HK 116, Horizontal
Measurement distance:	3 m
Mode:	TX; chip-ant., ch.11, 18, 26
Test Date:	2013-07-08
Note:	

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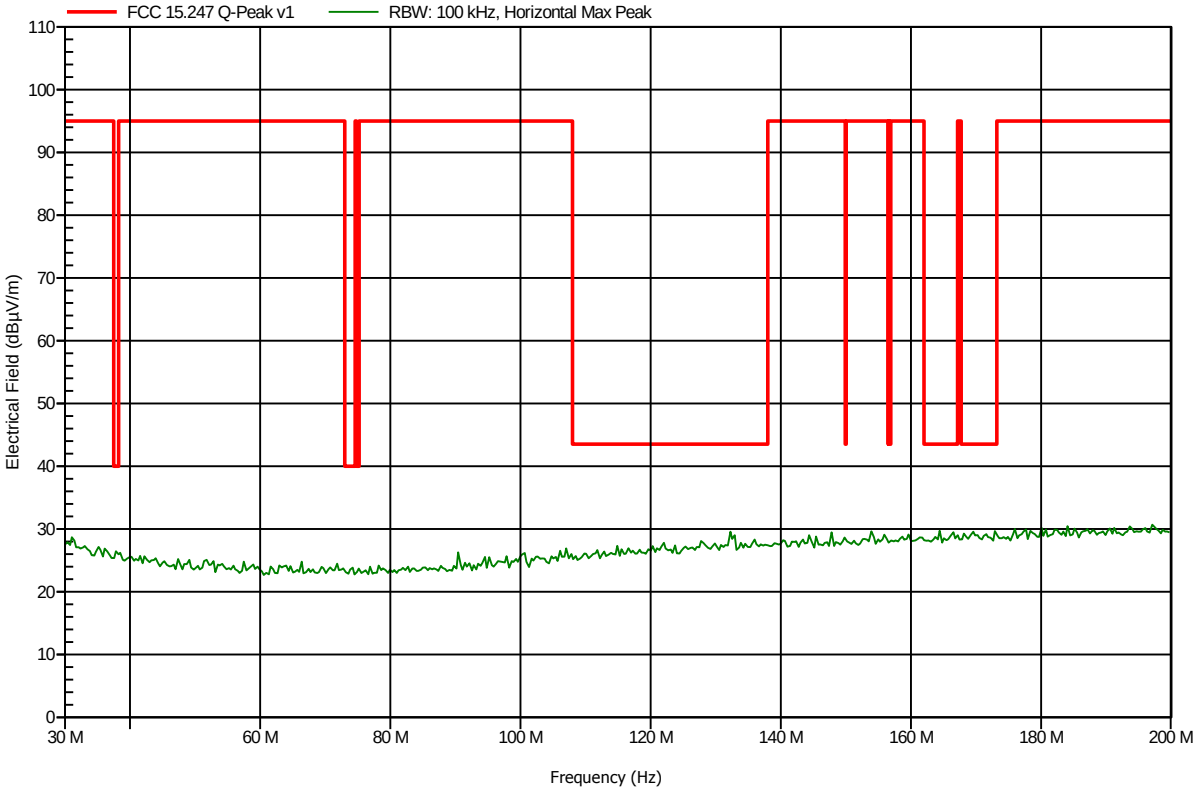

Spurious emissions according to FCC 15.247

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Rohde & Schwarz HK 116, Vertical
Measurement distance:	3 m
Mode:	TX; chip-ant., ch.11, 18, 26
Test Date:	2013-07-08
Note:	

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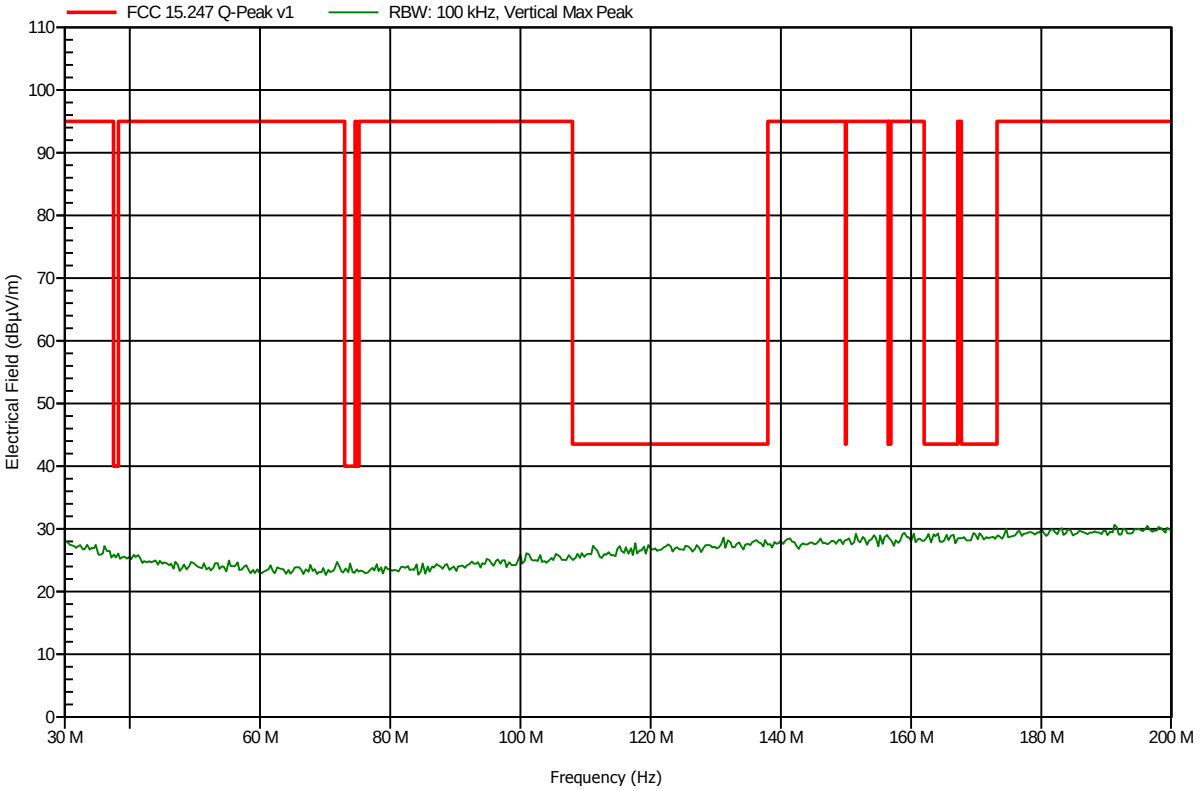

Spurious emissions according to FCC 15.247

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Rohde & Schwarz HL 223, Horizontal
Measurement distance:	3 m
Mode:	TX; chip-ant., ch.11, 18, 26
Test Date:	2013-07-08
Note:	

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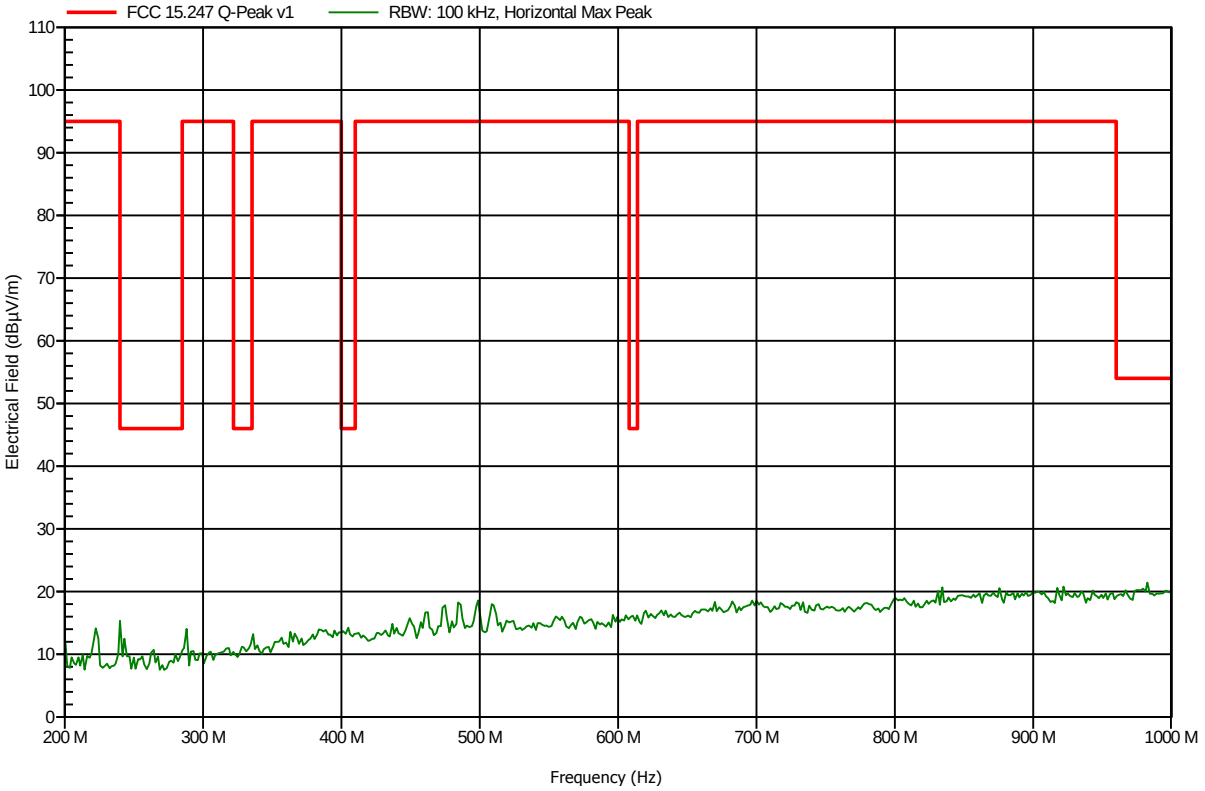

Spurious emissions according to FCC 15.247

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Rohde & Schwarz HL 223, Vertical
Measurement distance:	3 m
Mode:	TX; chip-ant., ch.11, 18, 26
Test Date:	2013-07-08
Note:	

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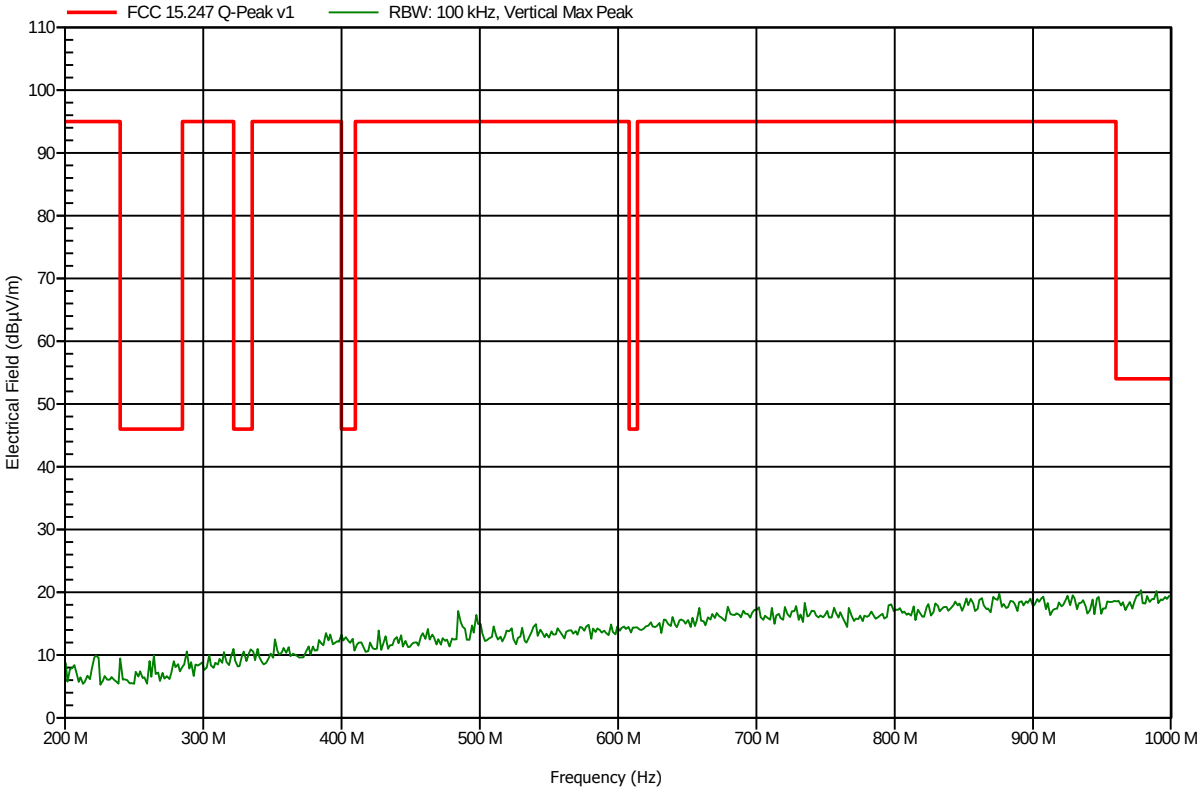

Spurious emissions according to FCC 15.247

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	3 m
Mode:	TX; chip-ant., ch.11
Test Date:	2013-07-08
Note:	

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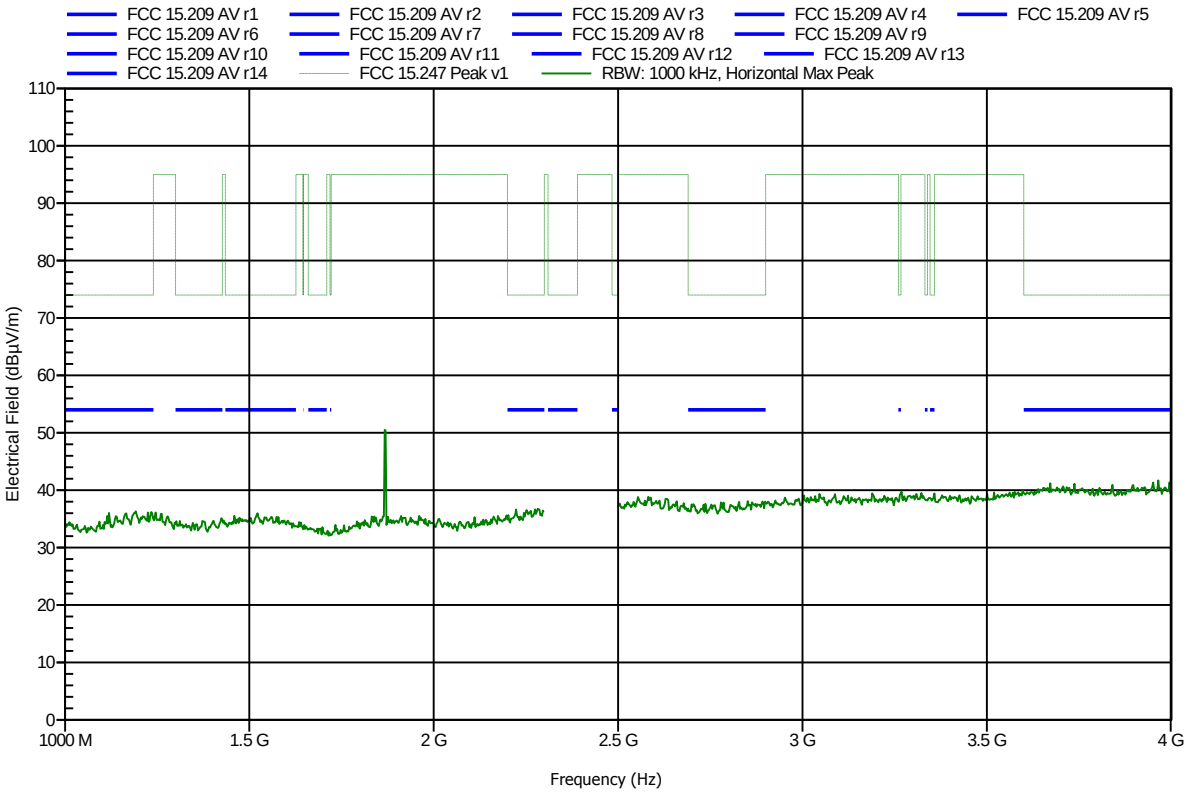

Spurious emissions according to FCC 15.247

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	3 m
Mode:	TX; chip-ant., ch.11
Test Date:	2013-07-08
Note:	

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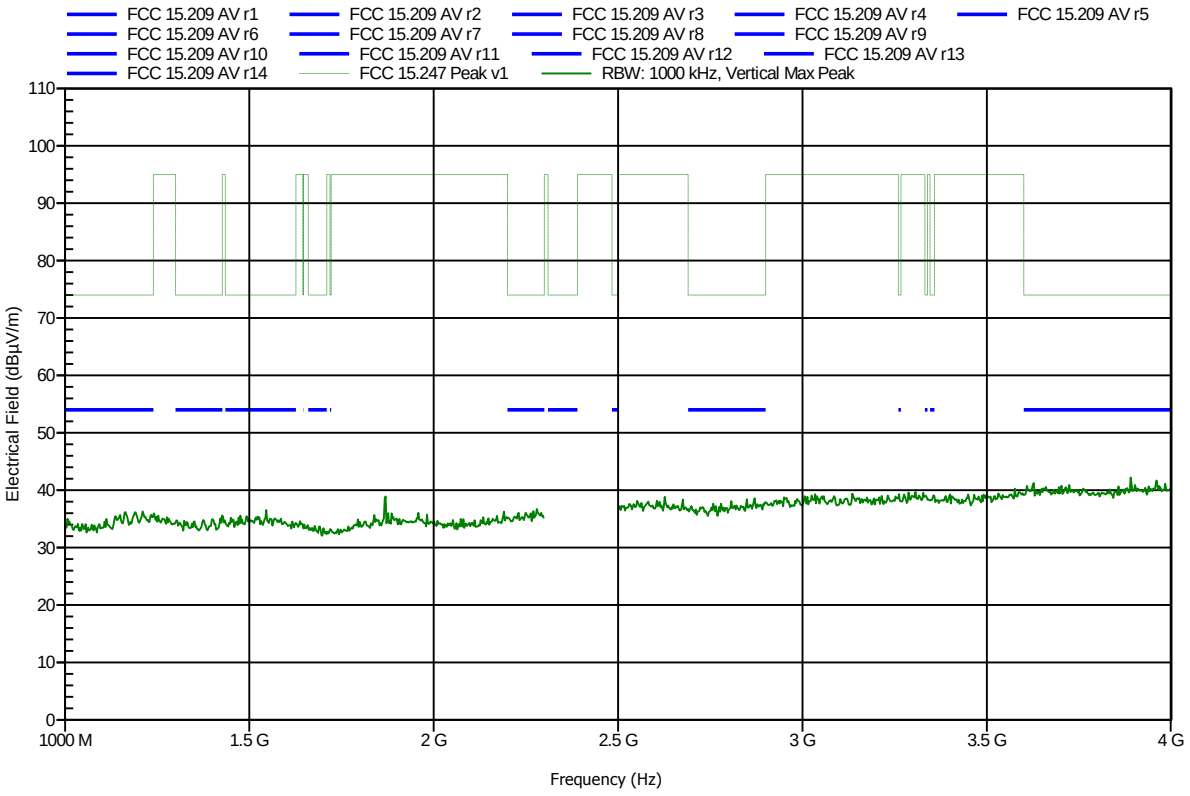

Spurious emissions according to FCC 15.247

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	3 m
Mode:	TX; chip-ant., ch.11
Test Date:	2013-07-08
Note:	lower bandedge

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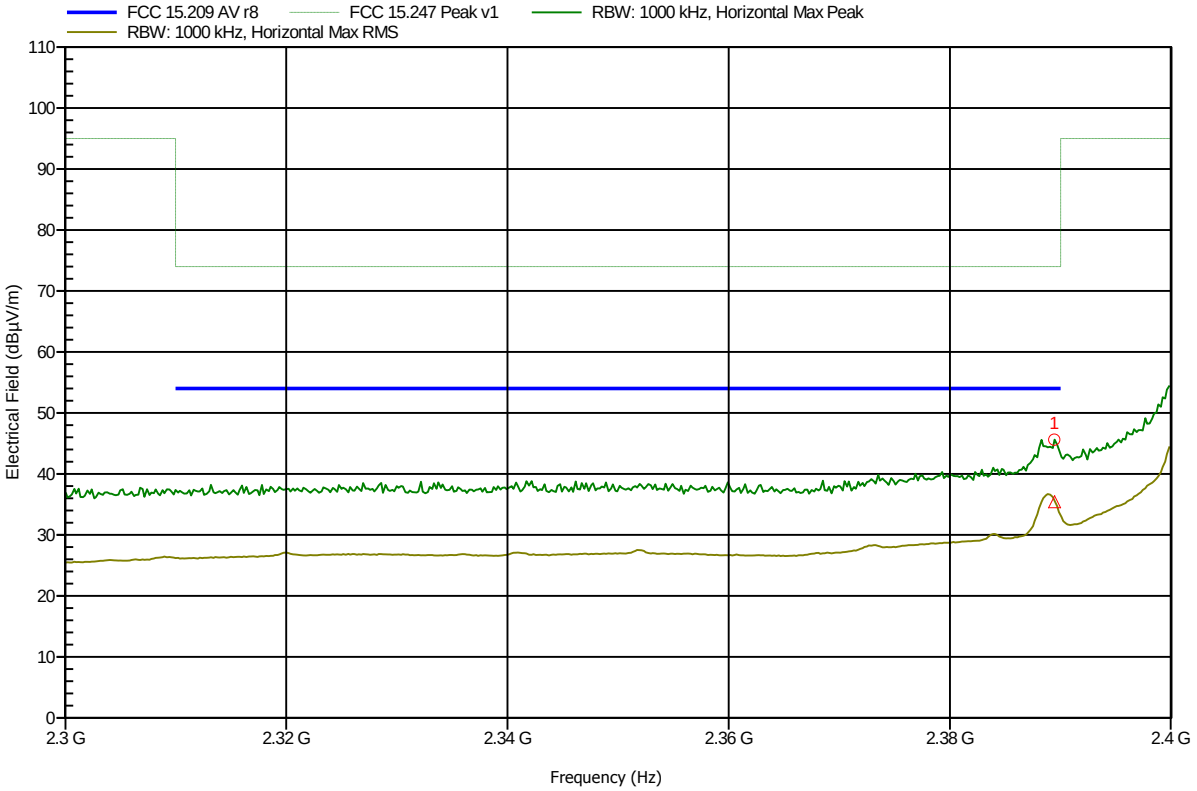

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
2.389 GHz	45.62 dBµV/m	74 dBµV/m	-28.38 dB	Pass

Spurious emissions according to FCC 15.247

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	3 m
Mode:	TX; chip-ant., ch.11
Test Date:	2013-07-08
Note:	lower bandedge

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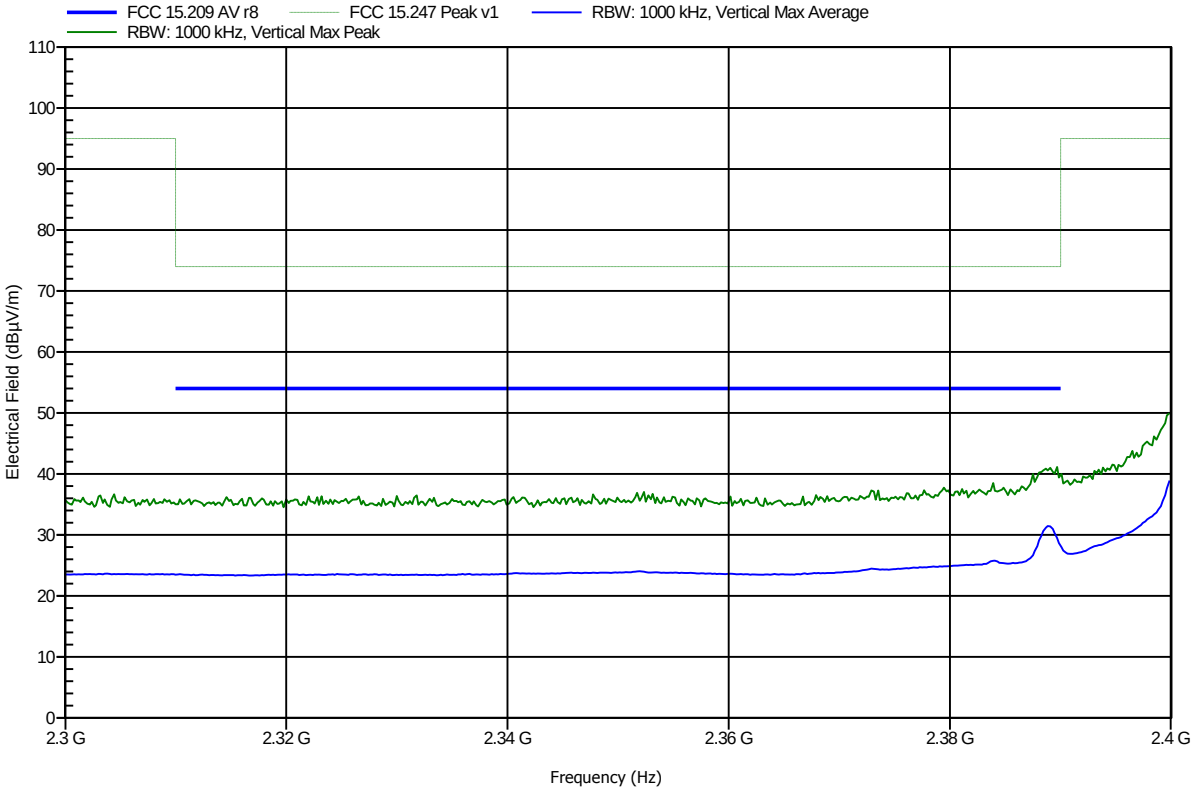

Spurious emissions according to FCC 15.247

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	3 m
Mode:	TX; chip-ant., ch.11
Test Date:	2013-07-08
Note:	

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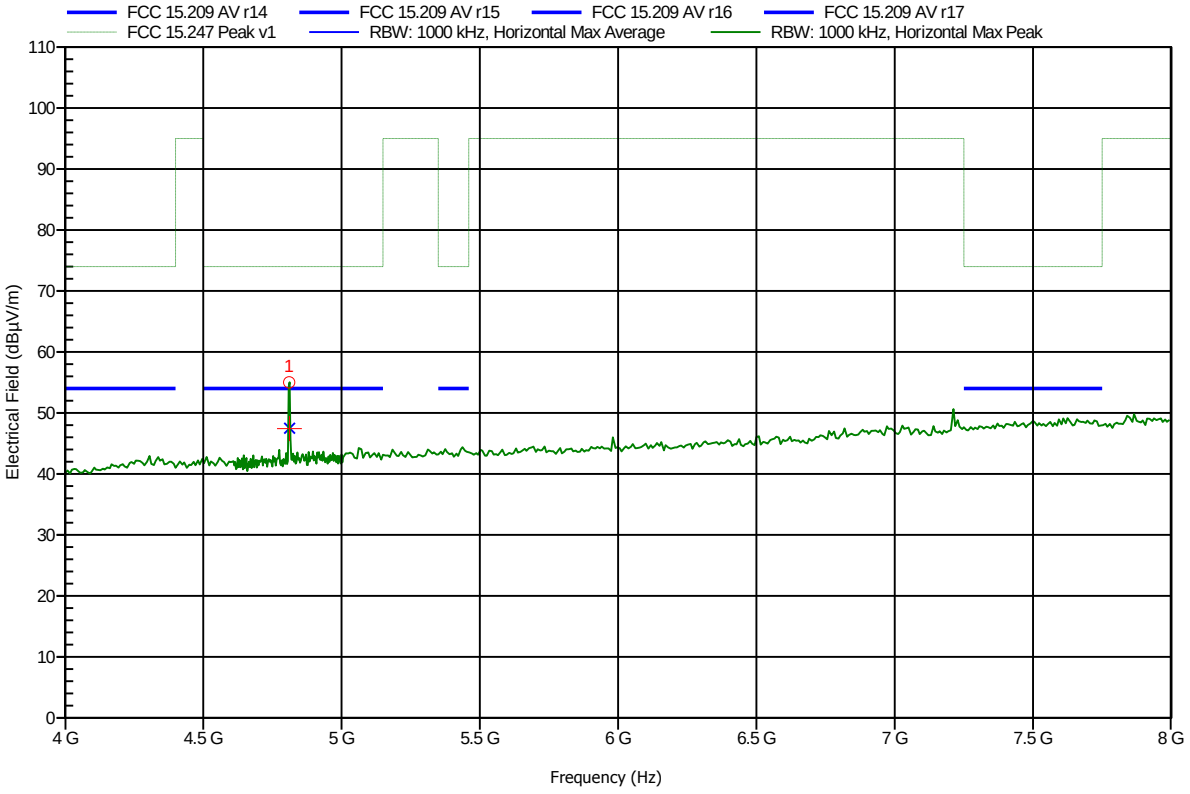

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
4.811 GHz	55.02 dBµV/m	74 dBµV/m	-18.98 dB	Pass

Frequency	Average	Average Limit	Average Difference	Average Status
4.811 GHz	47.48 dBµV/m	54 dBµV/m	-6.52 dB	Pass

Spurious emissions according to FCC 15.247

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	3 m
Mode:	TX; chip-ant., ch.11
Test Date:	2013-07-08
Note:	

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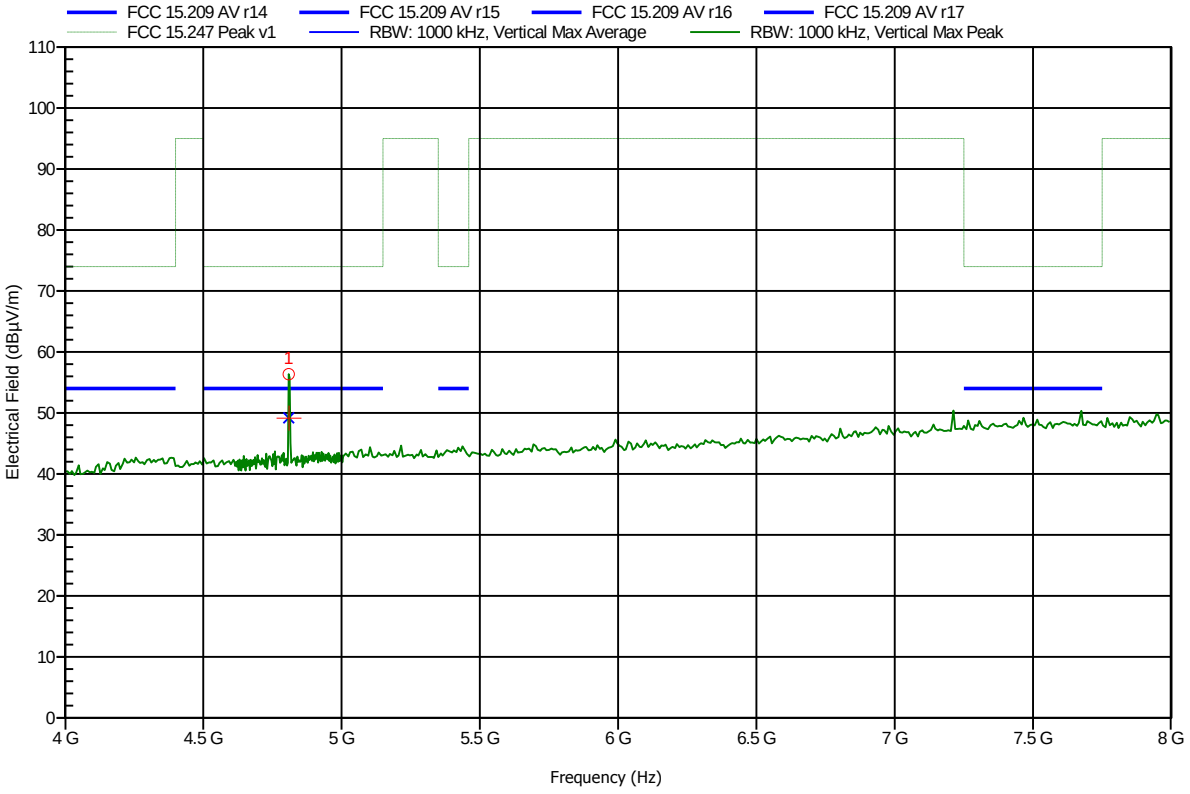

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
4.809 GHz	56.35 dBµV/m	74 dBµV/m	-17.65 dB	Pass

Frequency	Average	Average Limit	Average Difference	Average Status
4.809 GHz	49.19 dBµV/m	54 dBµV/m	-4.81 dB	Pass

Spurious emissions according to FCC 15.247

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	100 cm converted to 3m
Mode:	TX; chip-ant., ch.11
Test Date:	2013-07-08
Note:	

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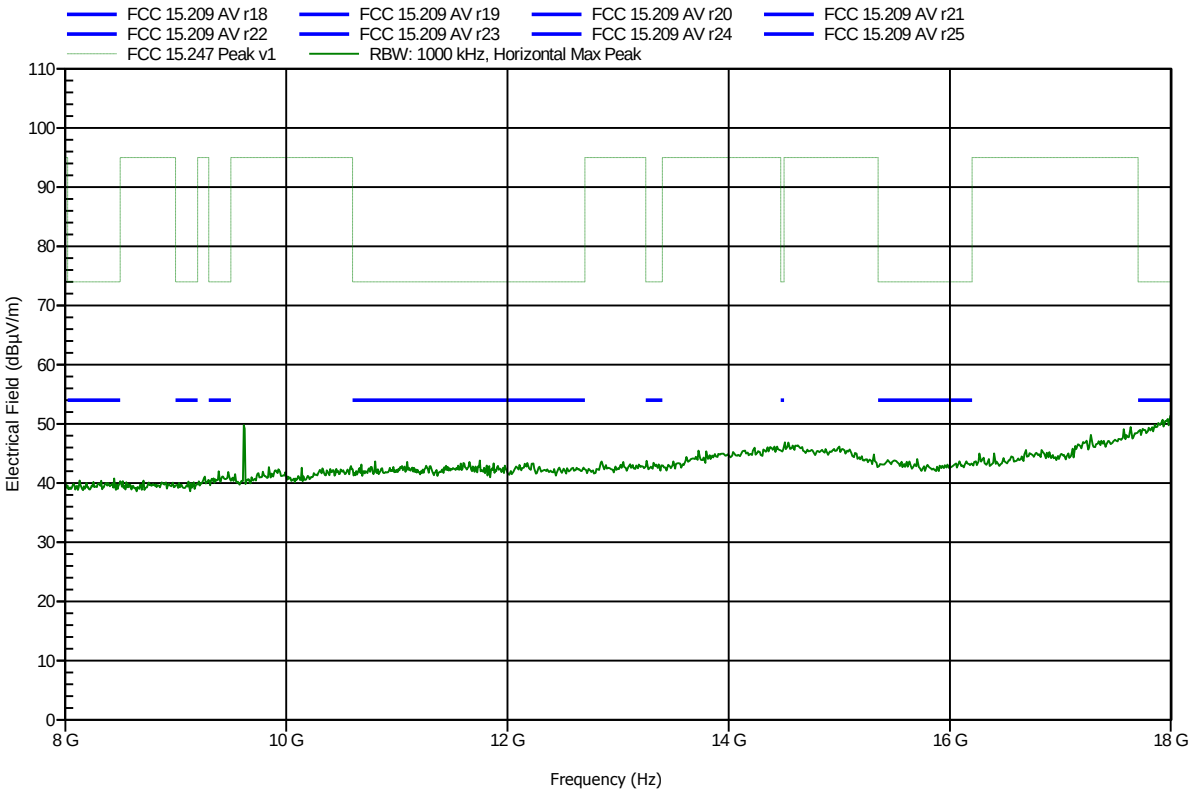

Spurious emissions according to FCC 15.247

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	100 cm converted to 3m
Mode:	TX; chip-ant., ch.11
Test Date:	2013-07-08
Note:	

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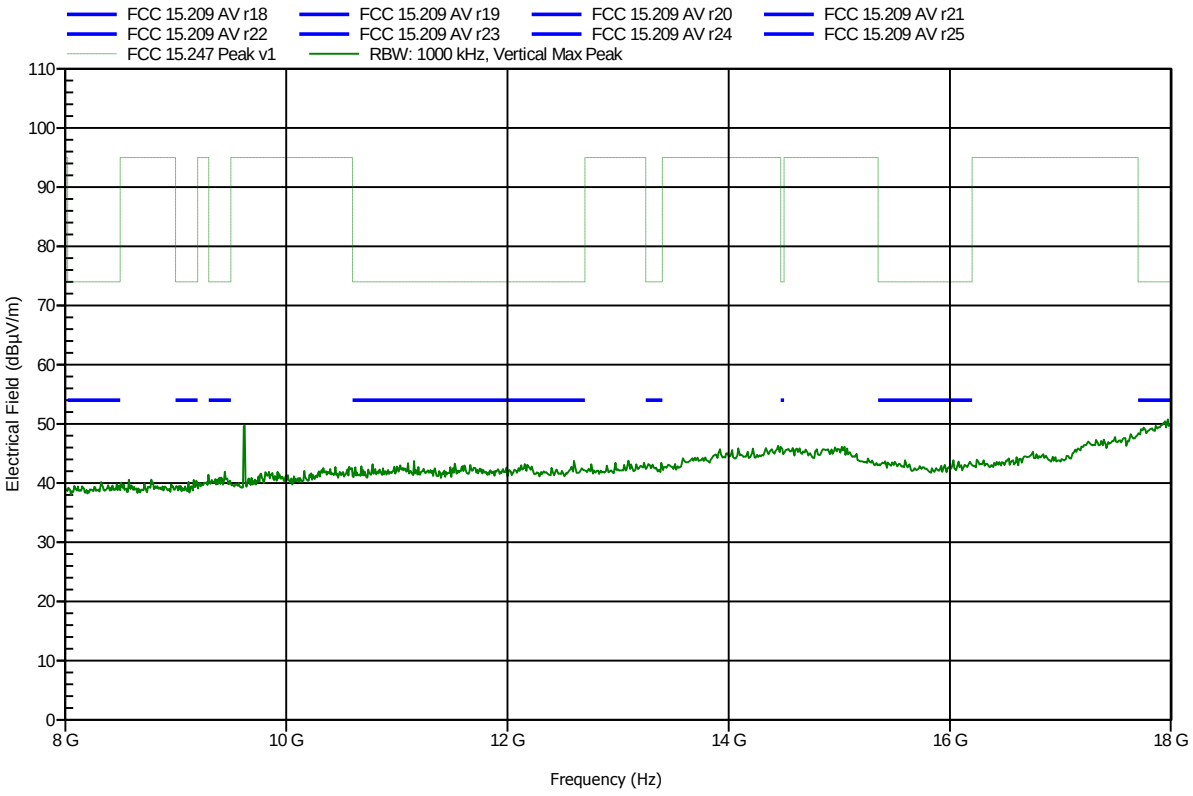

Spurious emissions according to FCC 15.247

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	100 cm
Mode:	TX; chip-ant., ch.11
Test Date:	2013-07-08
Note:	

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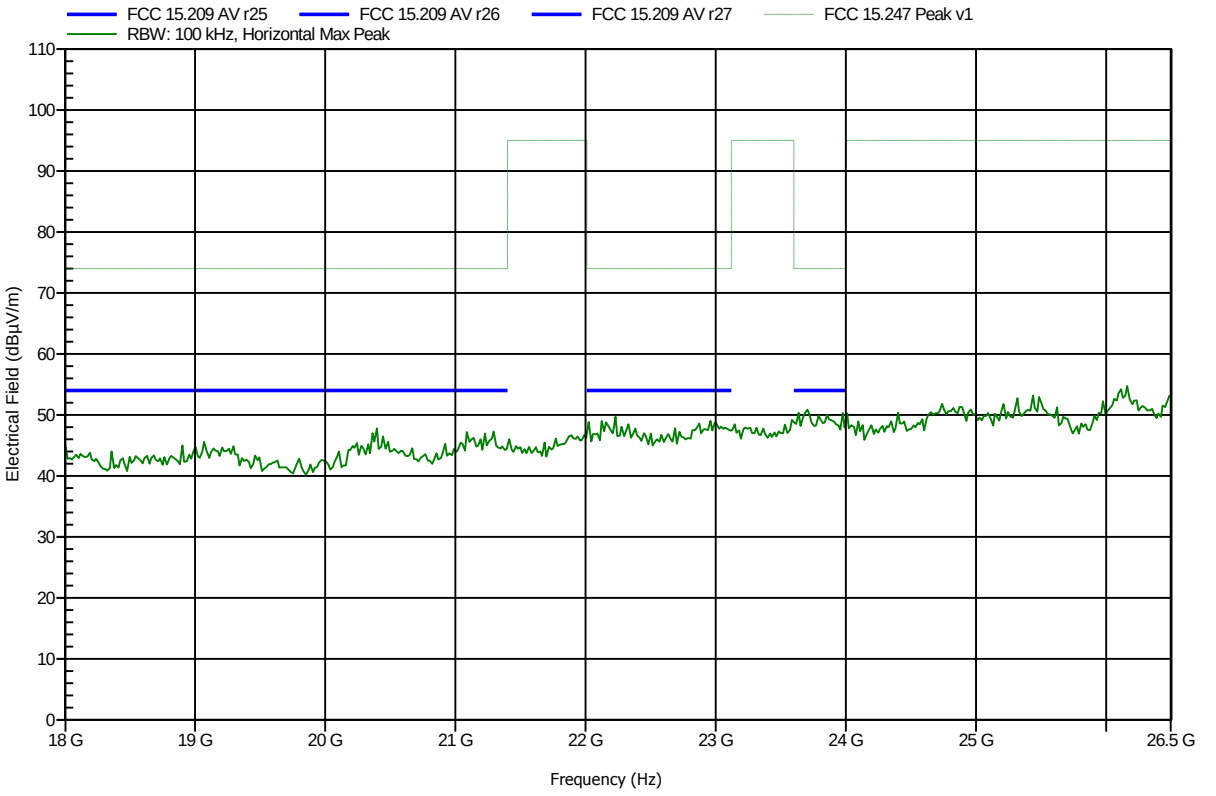

Spurious emissions according to FCC 15.247

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	100 cm
Mode:	TX; chip-ant., ch.11
Test Date:	2013-07-08
Note:	

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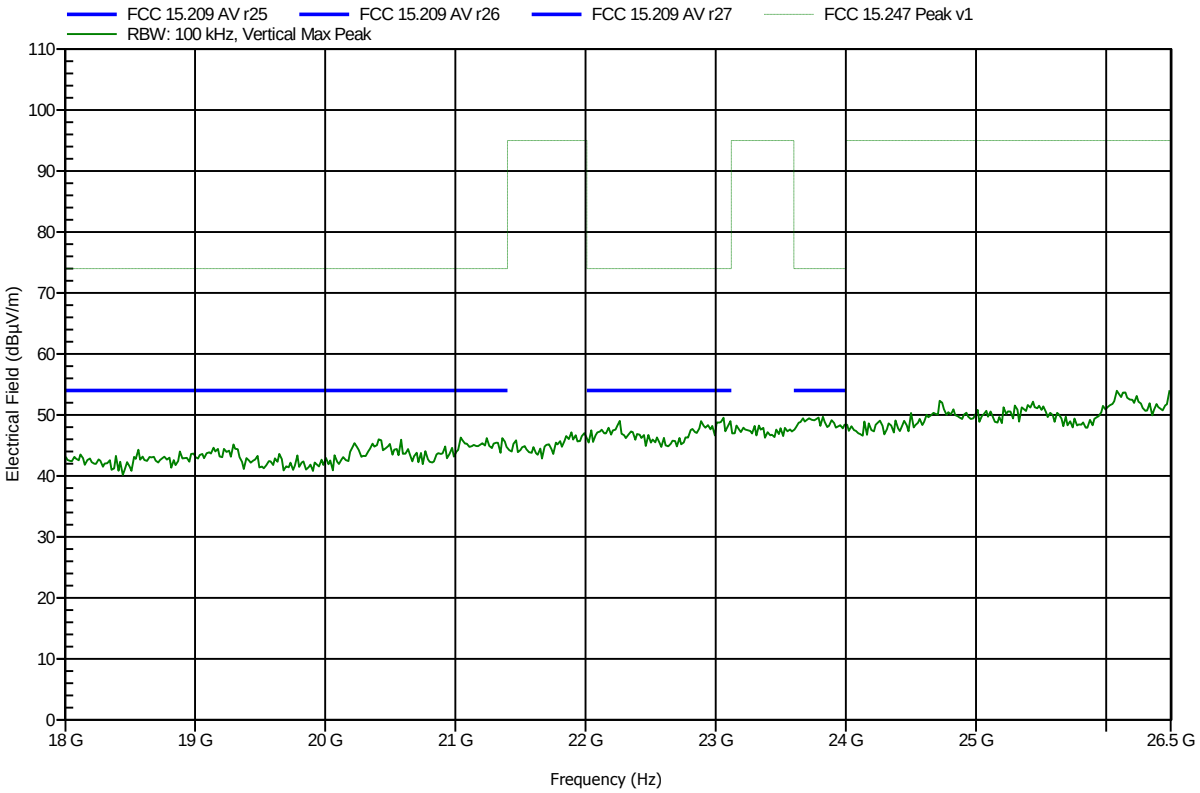

Spurious emissions according to FCC 15.247

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	3 m
Mode:	TX; chip-ant., ch.18
Test Date:	2013-07-08
Note:	

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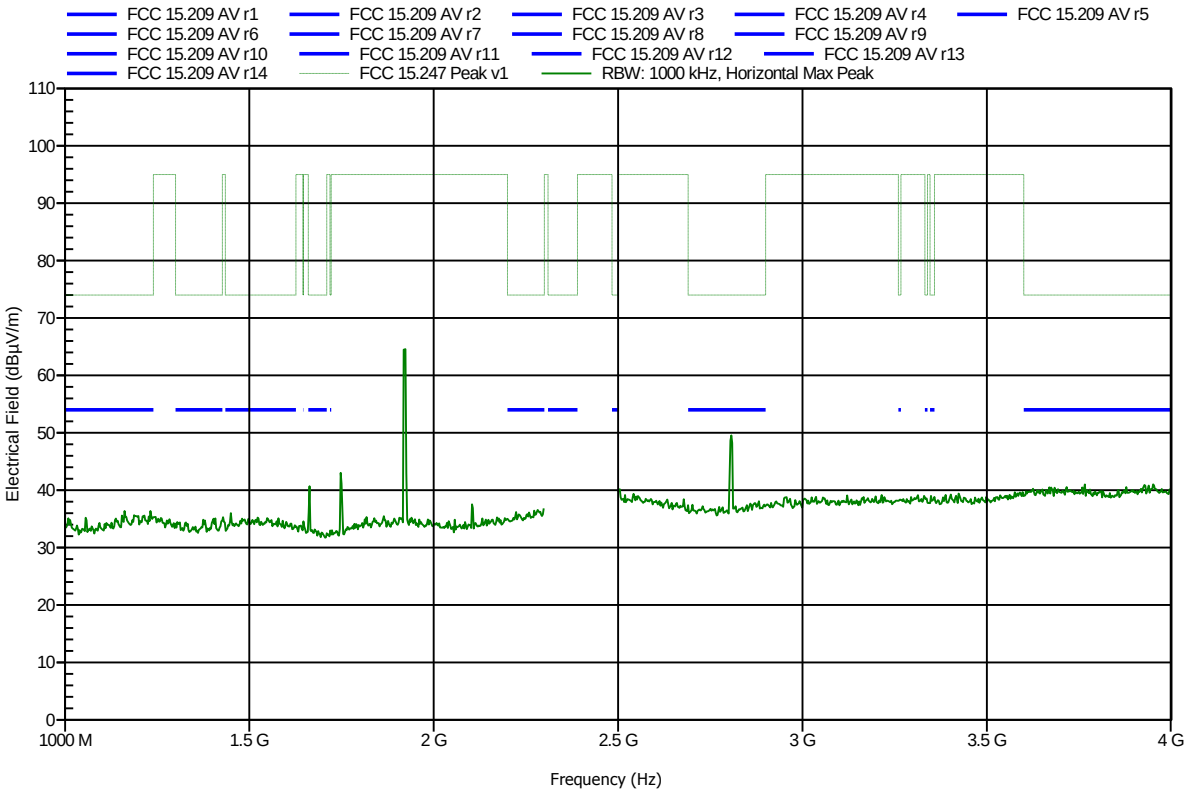

Spurious emissions according to FCC 15.247

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	3 m
Mode:	TX; chip-ant., ch.18
Test Date:	2013-07-08
Note:	

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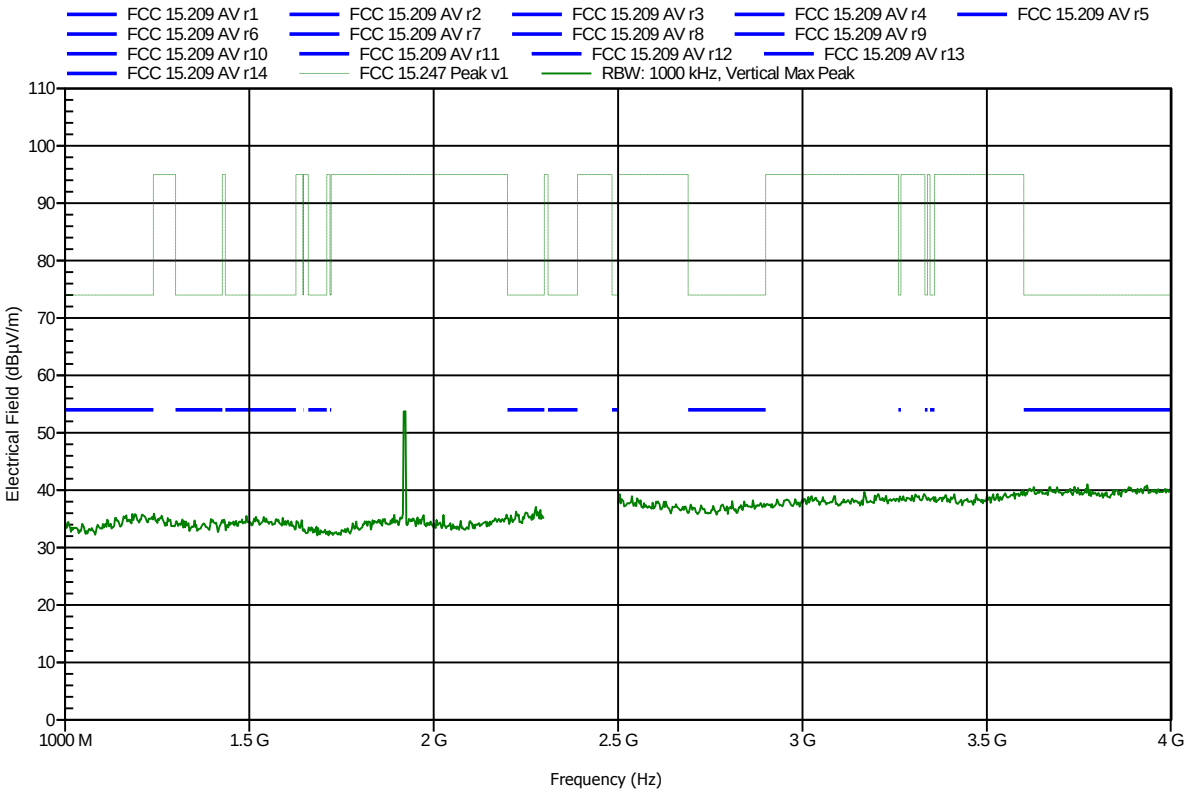

Spurious emissions according to FCC 15.247

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	3 m
Mode:	TX; chip-ant., ch.18
Test Date:	2013-07-08
Note:	

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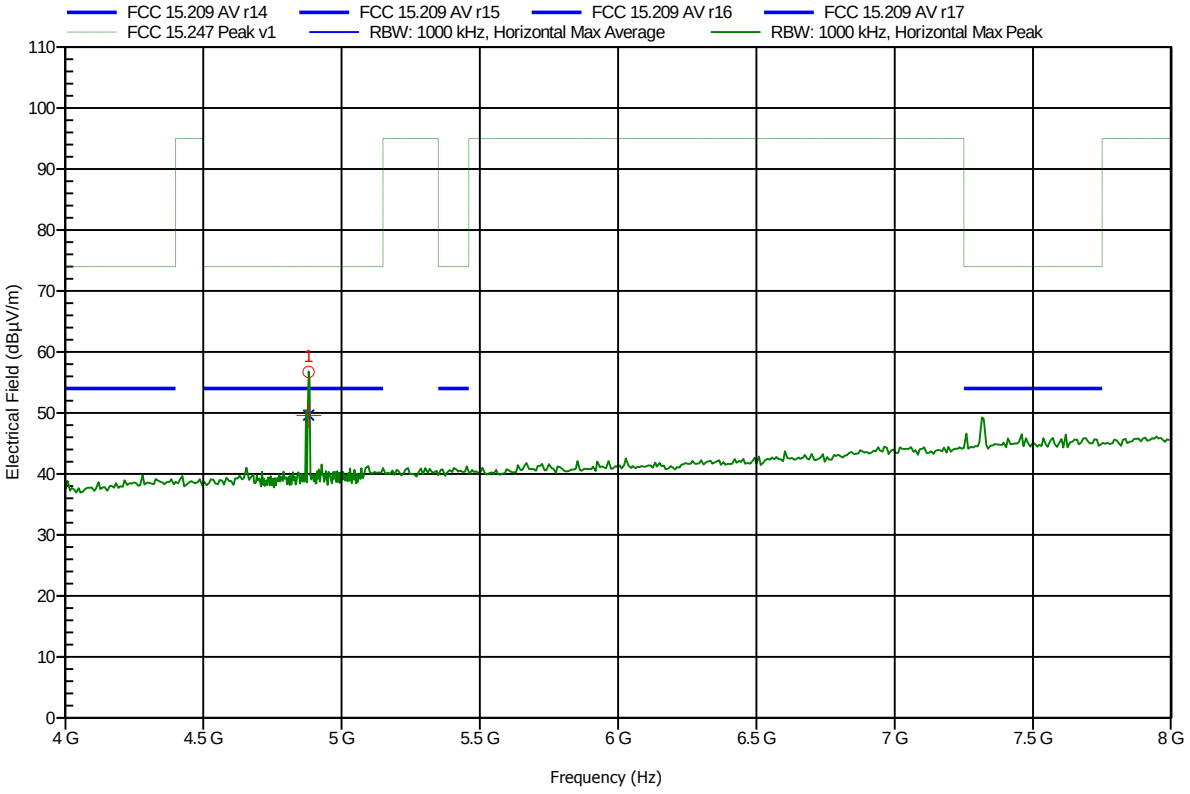

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
4.881 GHz	56.73 dBµV/m	74 dBµV/m	-17.27 dB	Pass

Frequency	Average	Average Limit	Average Difference	Average Status
4.881 GHz	49.64 dBµV/m	54 dBµV/m	-4.36 dB	Pass

Spurious emissions according to FCC 15.247

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	3 m
Mode:	TX; chip-ant., ch.18
Test Date:	2013-07-08
Note:	

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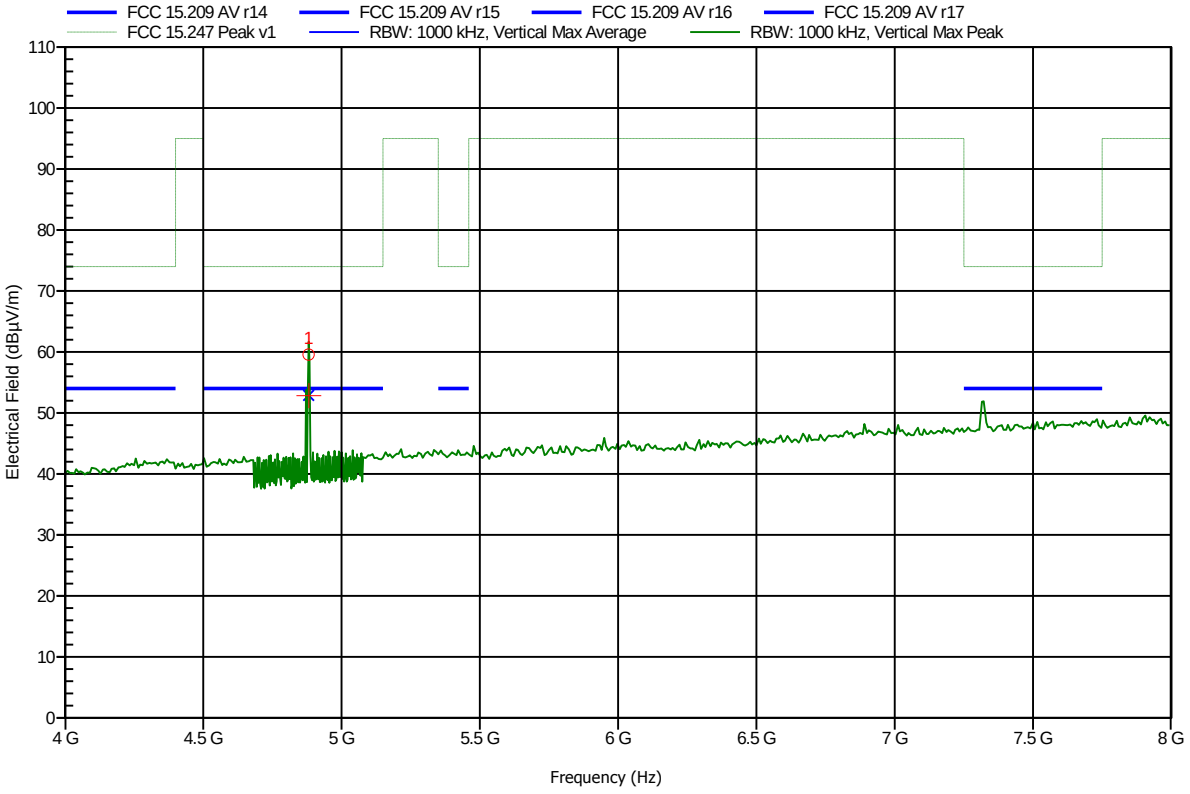

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
4.881 GHz	59.57 dBµV/m	74 dBµV/m	-14.43 dB	Pass

Frequency	Average	Average Limit	Average Difference	Average Status
4.881 GHz	52.88 dBµV/m	54 dBµV/m	-1.12 dB	Pass

Spurious emissions according to FCC 15.247

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	100 cm converted to 3m
Mode:	TX; chip-ant., ch.18
Test Date:	2013-07-08
Note:	

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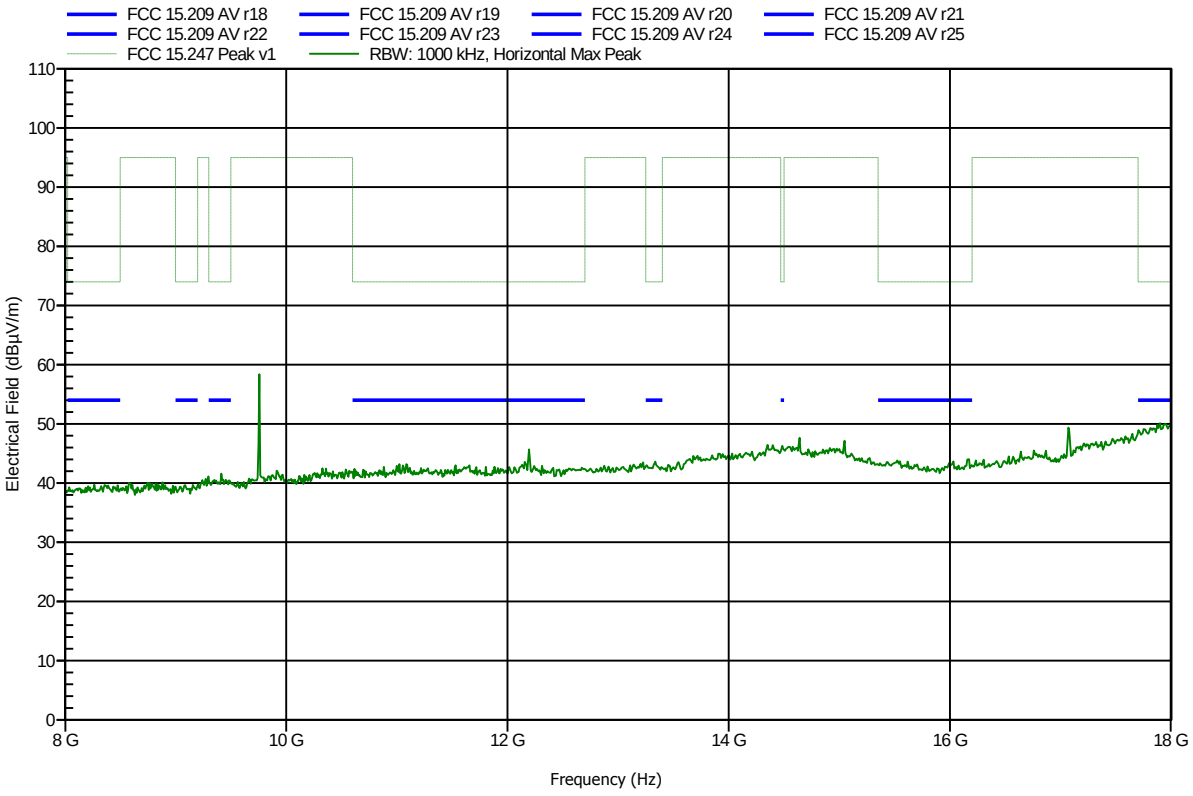

Spurious emissions according to FCC 15.247

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	100 cm converted to 3m
Mode:	TX; chip-ant., ch.18
Test Date:	2013-07-08
Note:	

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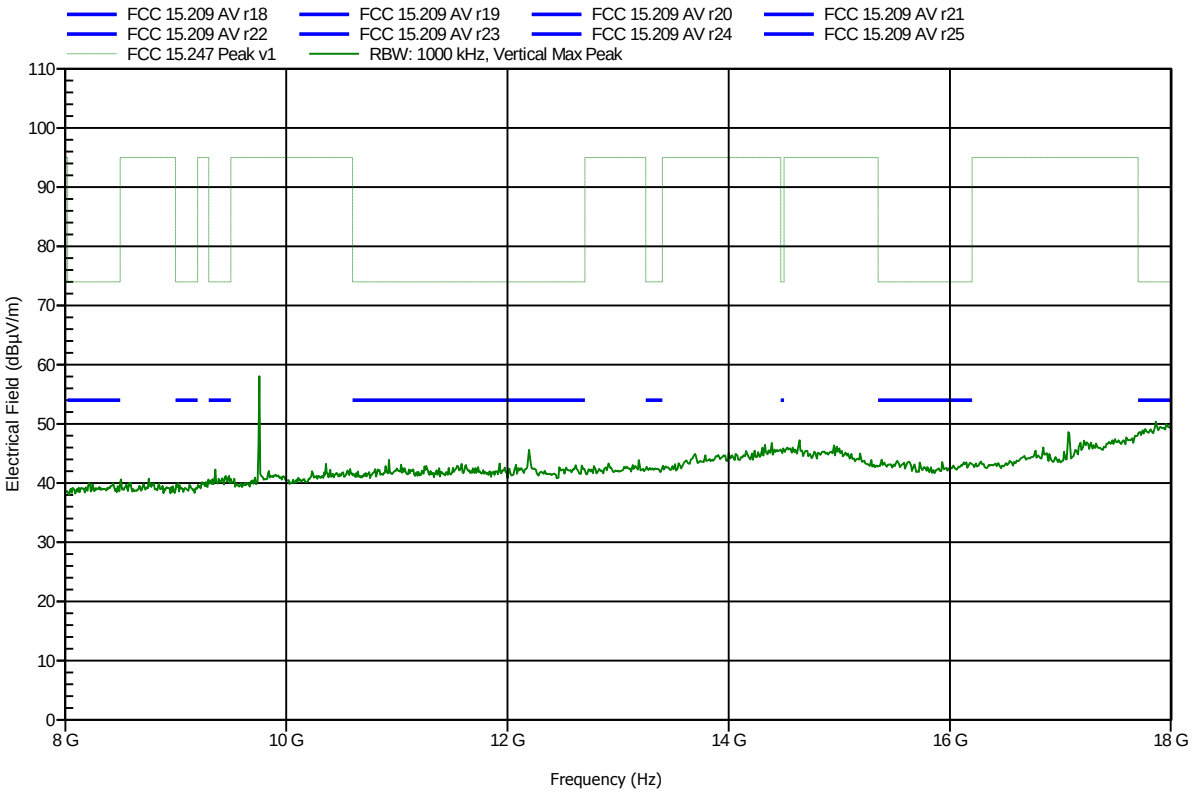

Spurious emissions according to FCC 15.247

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	100 cm
Mode:	TX; chip-ant., ch.18
Test Date:	2013-07-08
Note:	

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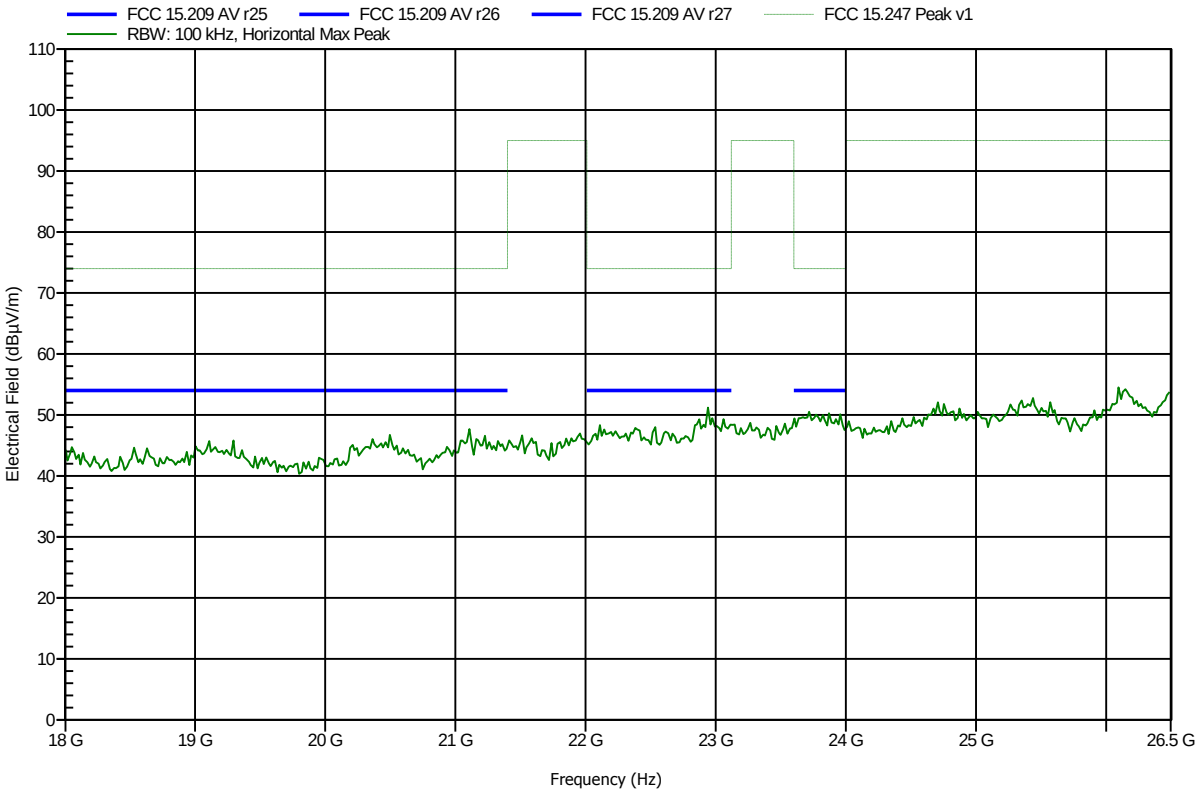

Spurious emissions according to FCC 15.247

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
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Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	100 cm
Mode:	TX; chip-ant., ch.18
Test Date:	2013-07-08
Note:	

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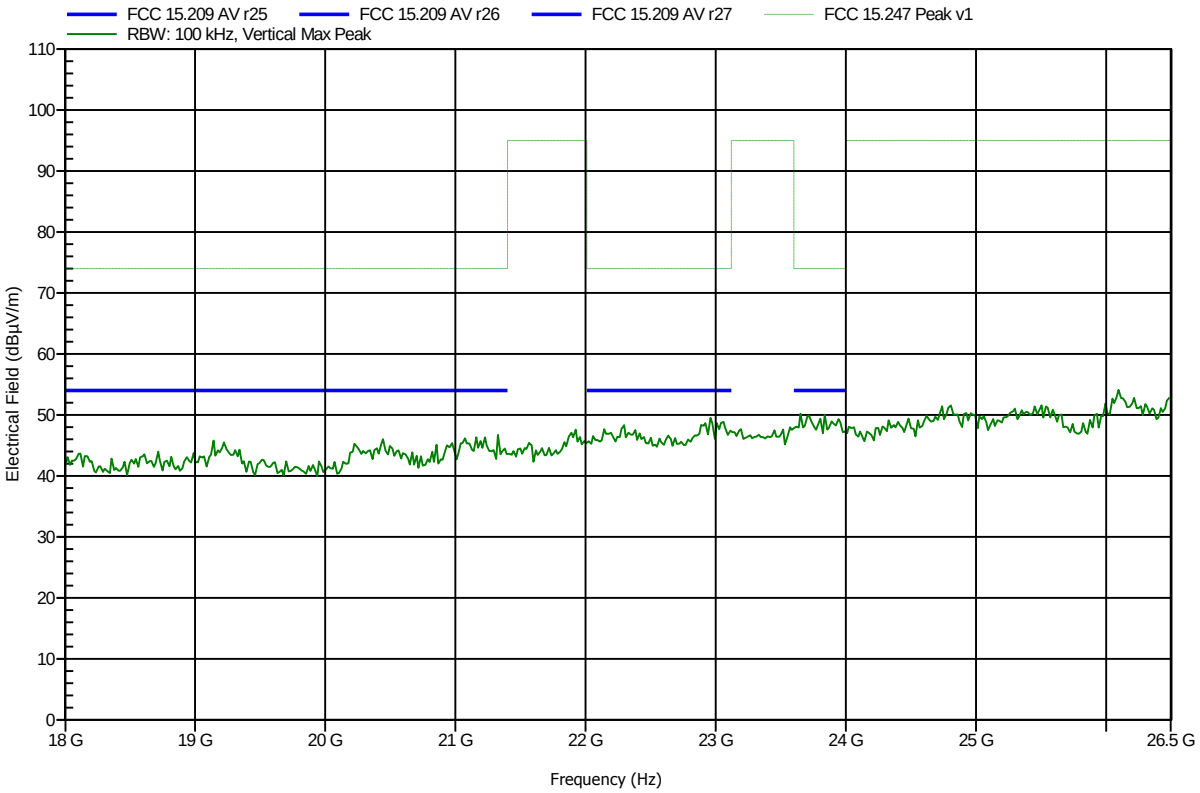

Spurious emissions according to FCC 15.247

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	3 m
Mode:	TX; chip-ant., ch.26
Test Date:	2013-07-08
Note:	

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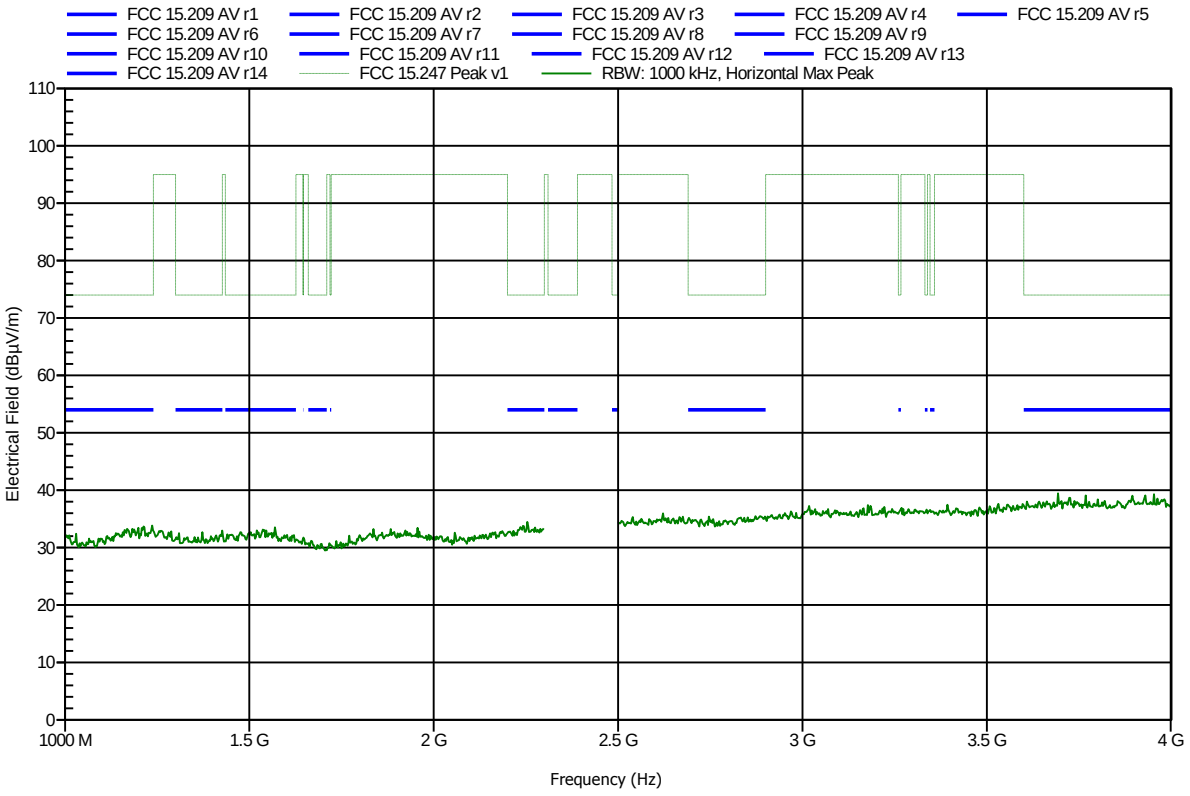

Spurious emissions according to FCC 15.247

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	3 m
Mode:	TX; chip-ant., ch.26
Test Date:	2013-07-08
Note:	

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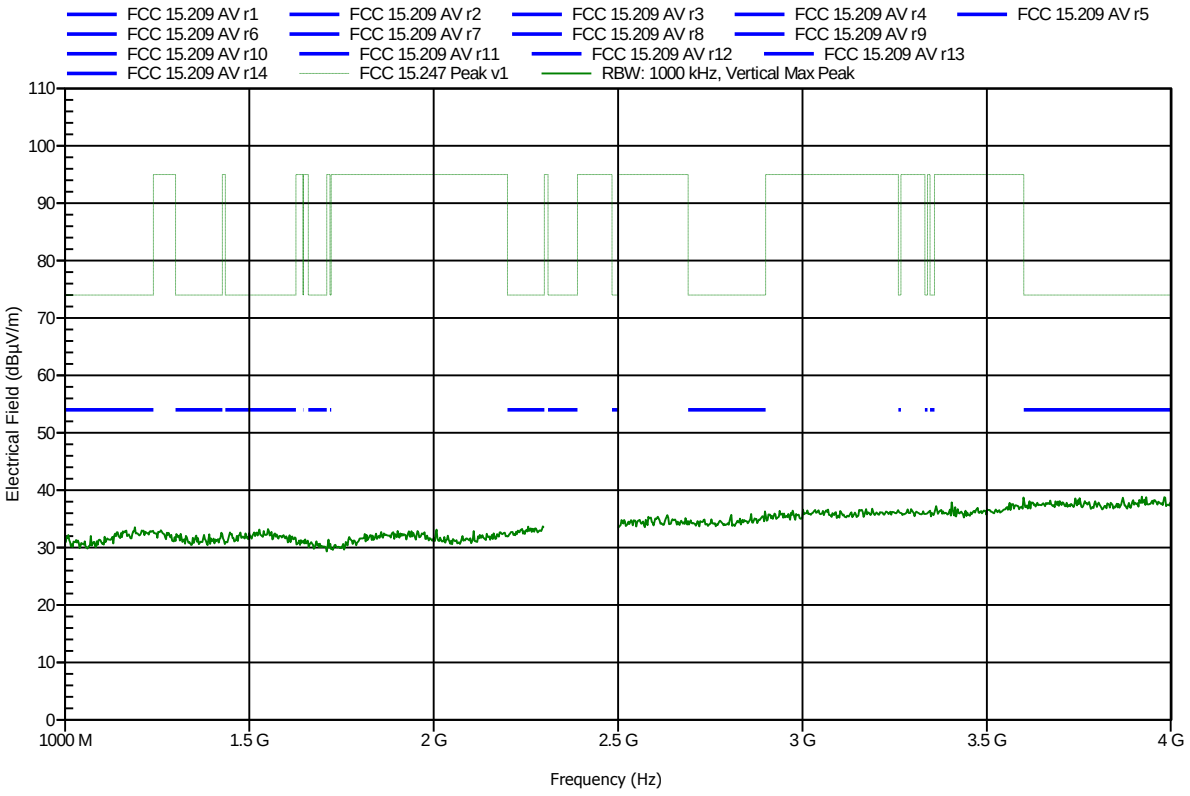

Spurious emissions according to FCC 15.247

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	3 m
Mode:	TX; chip-ant., ch.26
Test Date:	2013-07-08
Note:	upper bandedge

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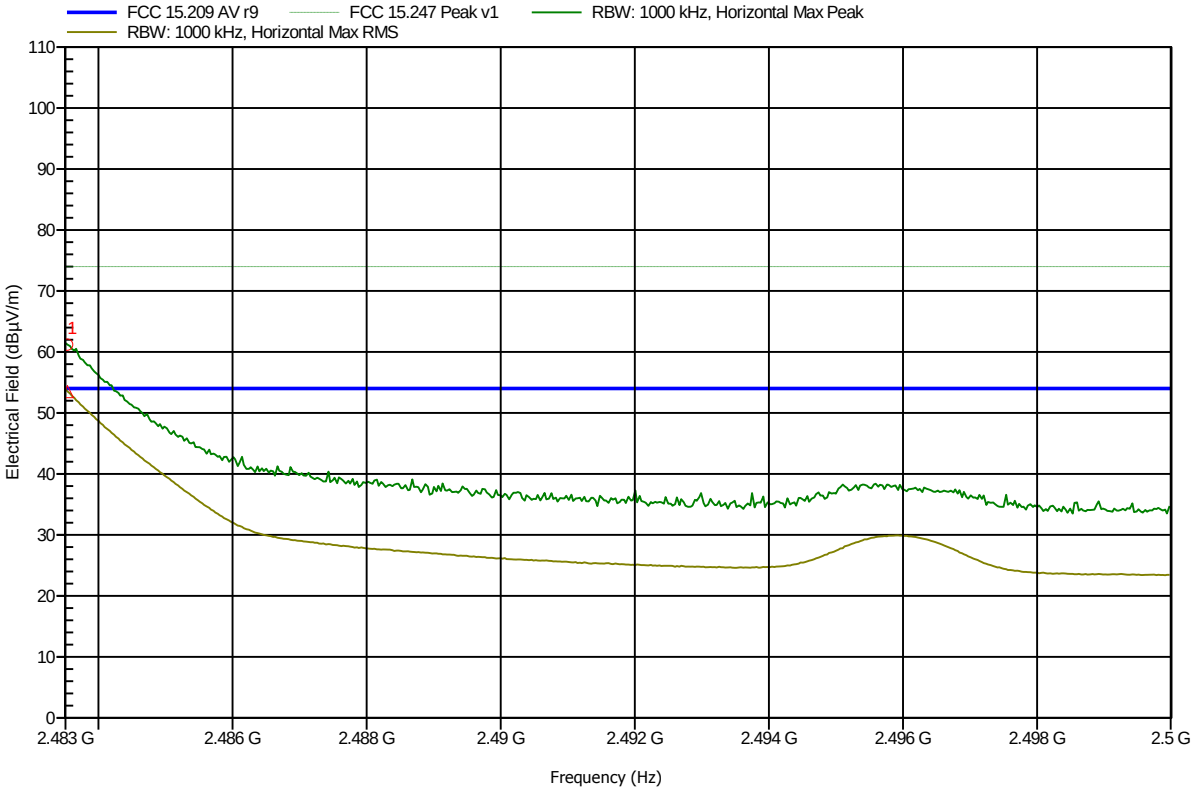

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
2.4835 GHz	61.19 dBµV/m	74 dBµV/m	-12.81 dB	Pass

Frequency	RMS	RMS Limit	RMS Difference	RMS Status
2.4835 GHz	53.52 dBµV/m	54 dBµV/m	-0.48 dB	Pass

Spurious emissions according to FCC 15.247

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	3 m
Mode:	TX; chip-ant., ch.26
Test Date:	2013-07-08
Note:	upper bandedge

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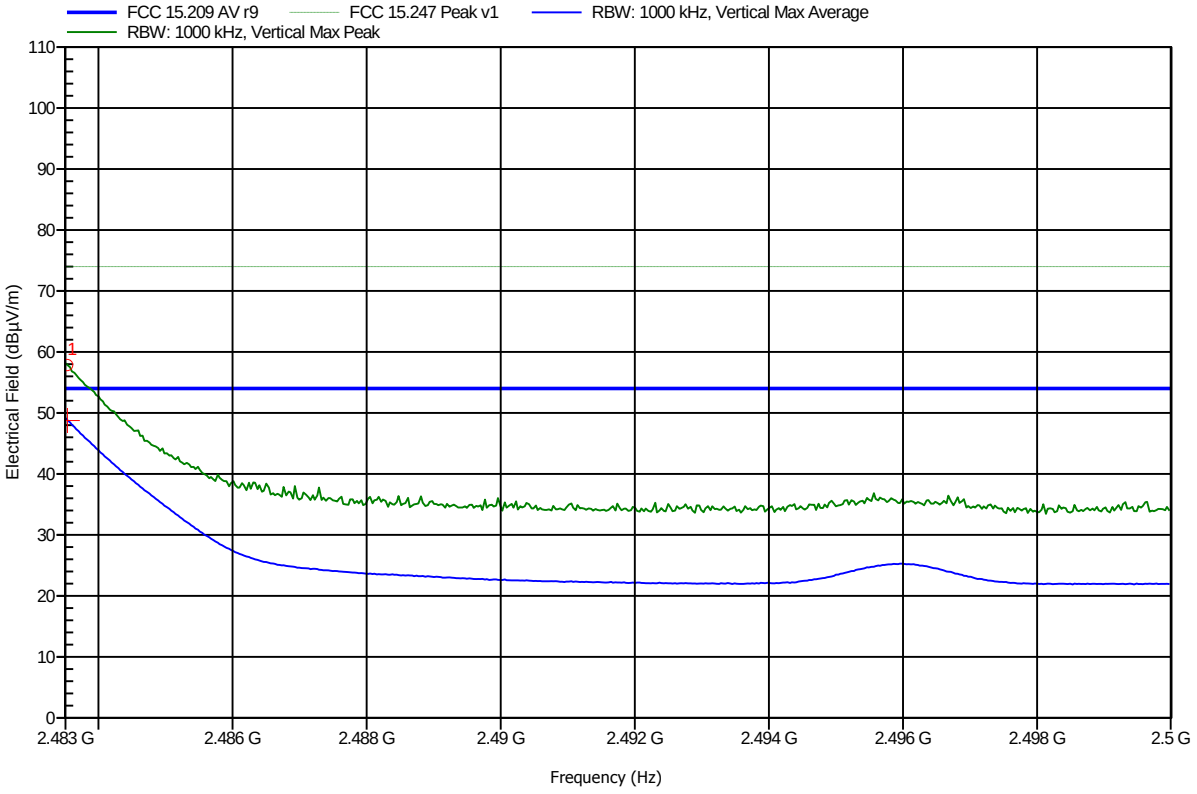

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
2.4835 GHz	57.85 dBµV/m	74 dBµV/m	-16.15 dB	Pass

Frequency	RMS	RMS Limit	RMS Difference	RMS Status
2.4835 GHz	48.50 dBµV/m	54 dBµV/m	-5.50 dB	Pass

Spurious emissions according to FCC 15.247

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	3 m
Mode:	TX; chip-ant., ch.26
Test Date:	2013-07-08
Note:	

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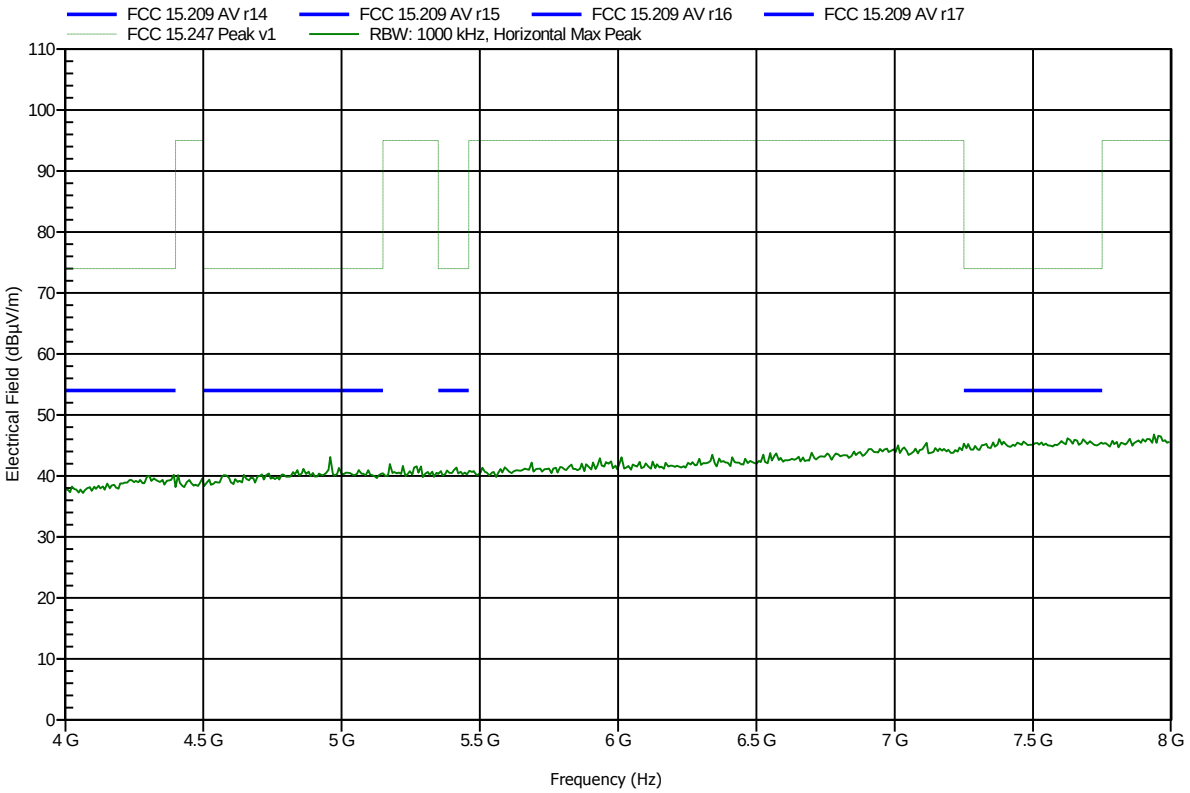

Spurious emissions according to FCC 15.247

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
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Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	3 m
Mode:	TX; chip-ant., ch.26
Test Date:	2013-07-08
Note:	

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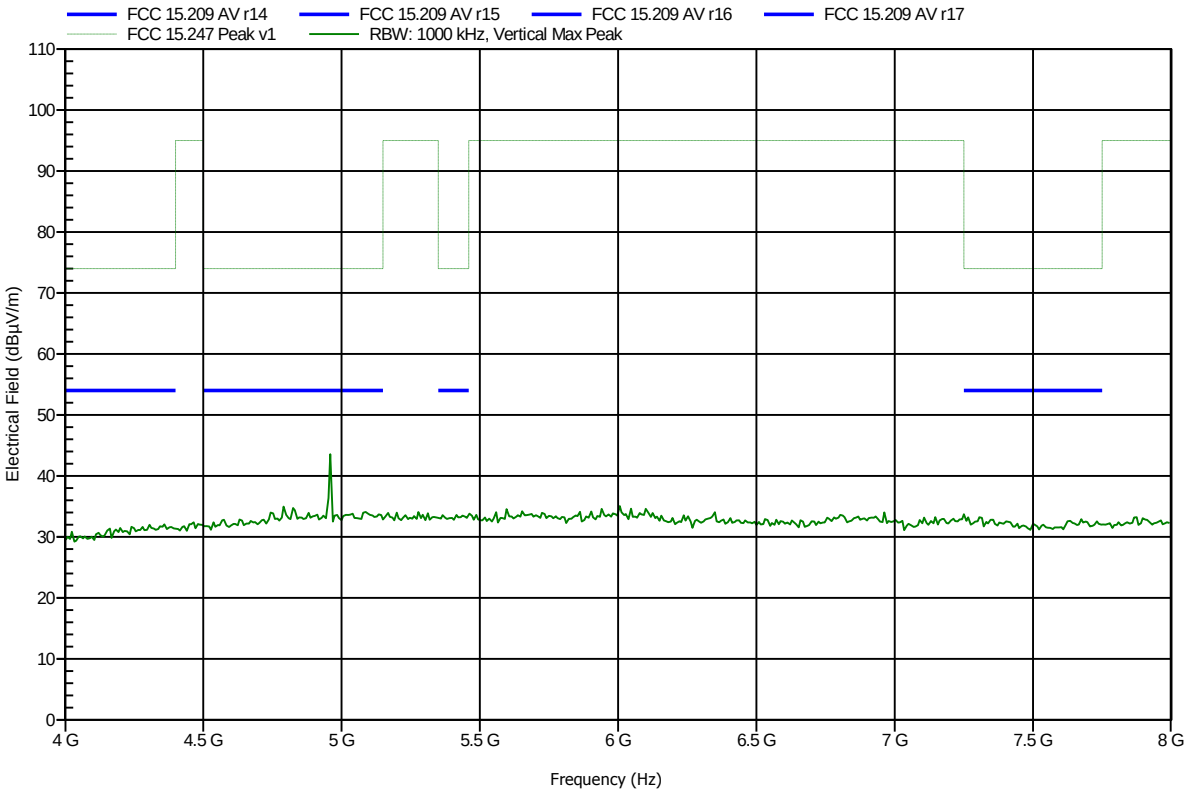

Spurious emissions according to FCC 15.247

Project number: G0M-1305-2854

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EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
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Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	100 cm converted to 3m
Mode:	TX; chip-ant., ch.26
Test Date:	2013-07-08
Note:	

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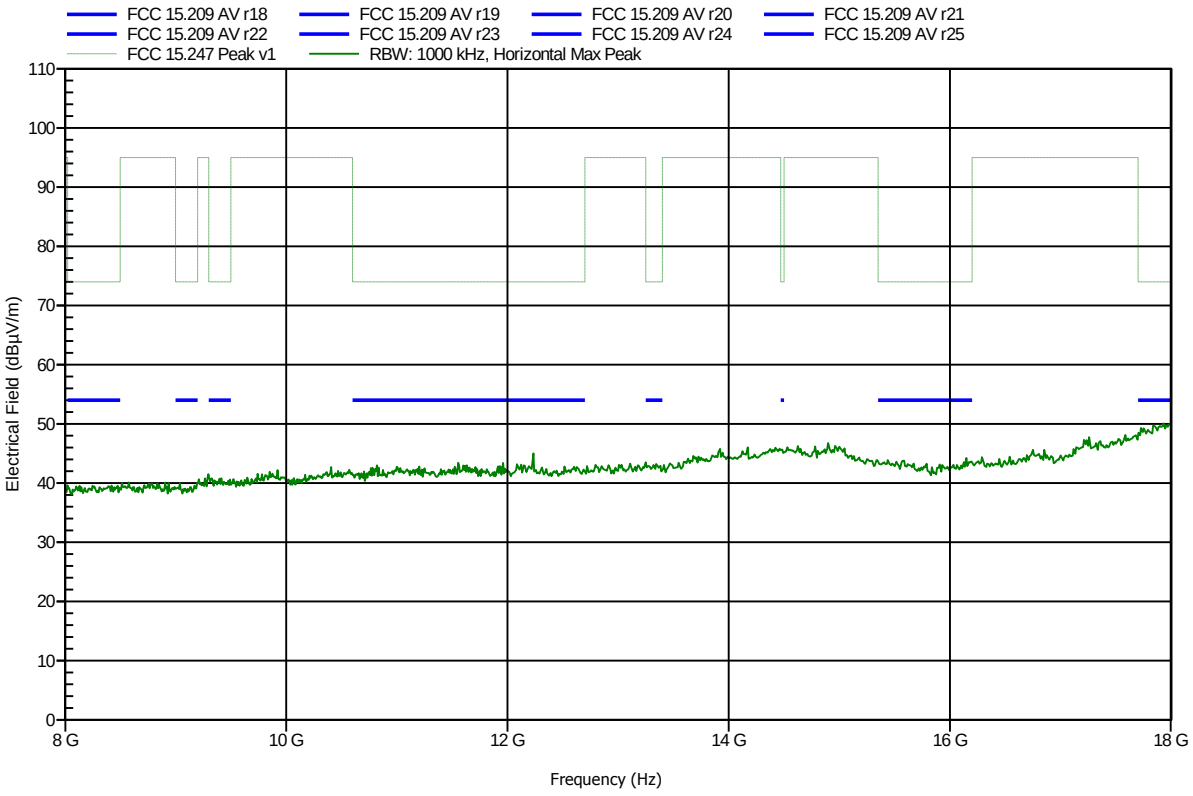

Spurious emissions according to FCC 15.247

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
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Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	100 cm converted to 3m
Mode:	TX; chip-ant., ch.26
Test Date:	2013-07-08
Note:	

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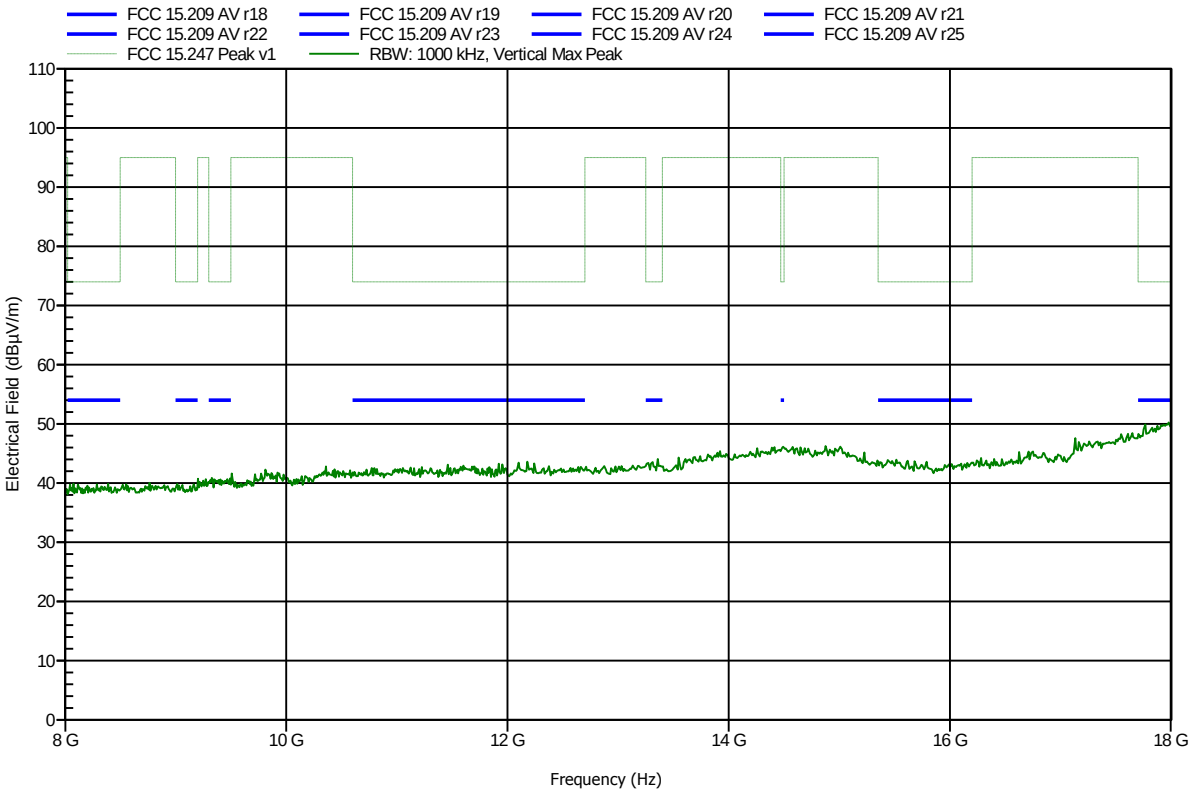

Spurious emissions according to FCC 15.247

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	100 cm
Mode:	TX; chip-ant., ch.26
Test Date:	2013-07-08
Note:	

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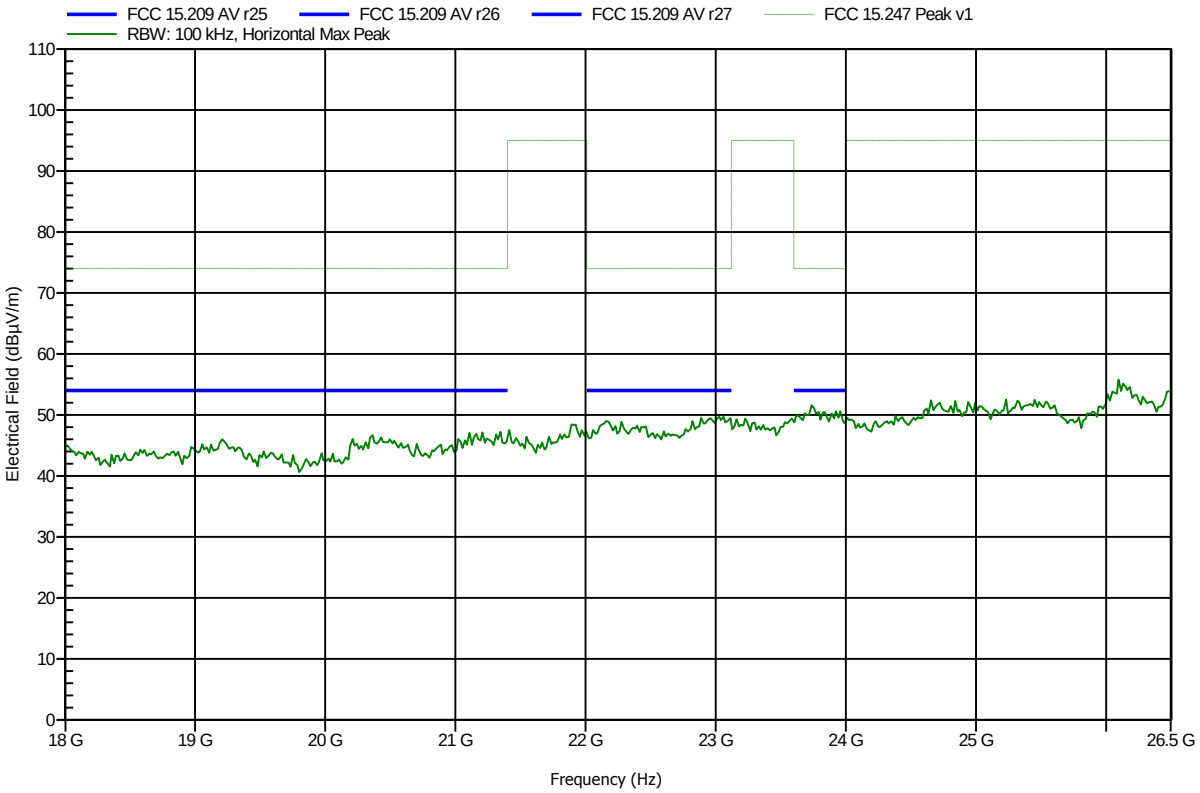

Spurious emissions according to FCC 15.247

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
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Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	100 cm
Mode:	TX; chip-ant., ch.26
Test Date:	2013-07-08
Note:	

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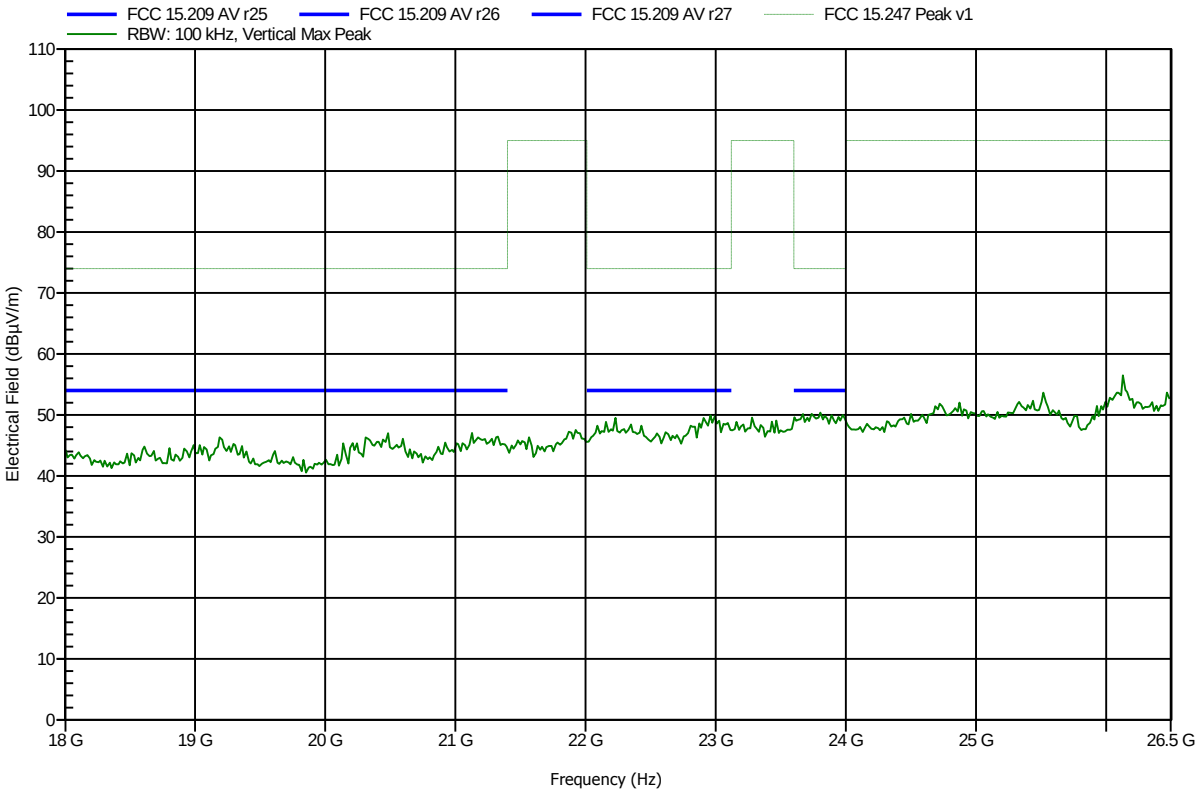

Spurious emissions according to FCC 15.247

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Rohde & Schwarz HK 116, Horizontal
Measurement distance:	3 m
Mode:	TX; WiMo-ant., ch.11, 18, 25
Test Date:	2013-07-09
Note:	

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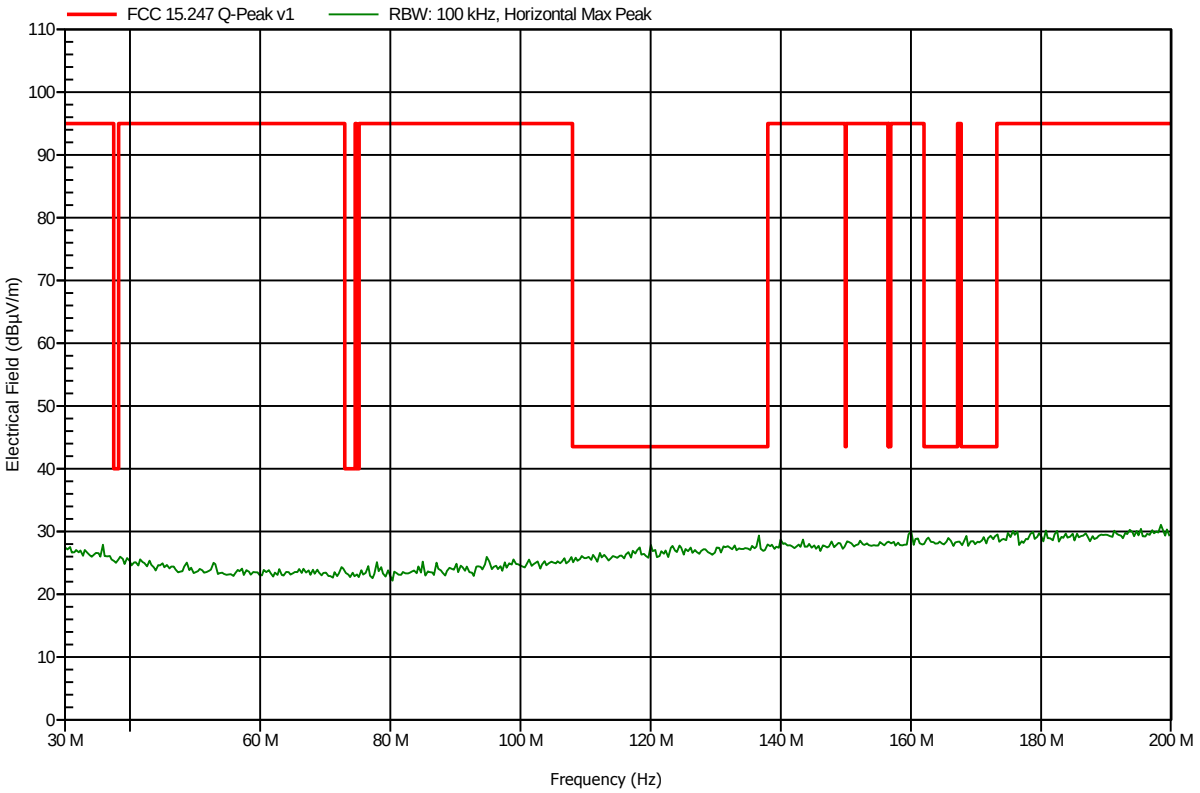

Spurious emissions according to FCC 15.247

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EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
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Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Rohde & Schwarz HK 116, Vertical
Measurement distance:	3 m
Mode:	TX; WiMo-ant., ch.11, 18, 25
Test Date:	2013-07-09
Note:	

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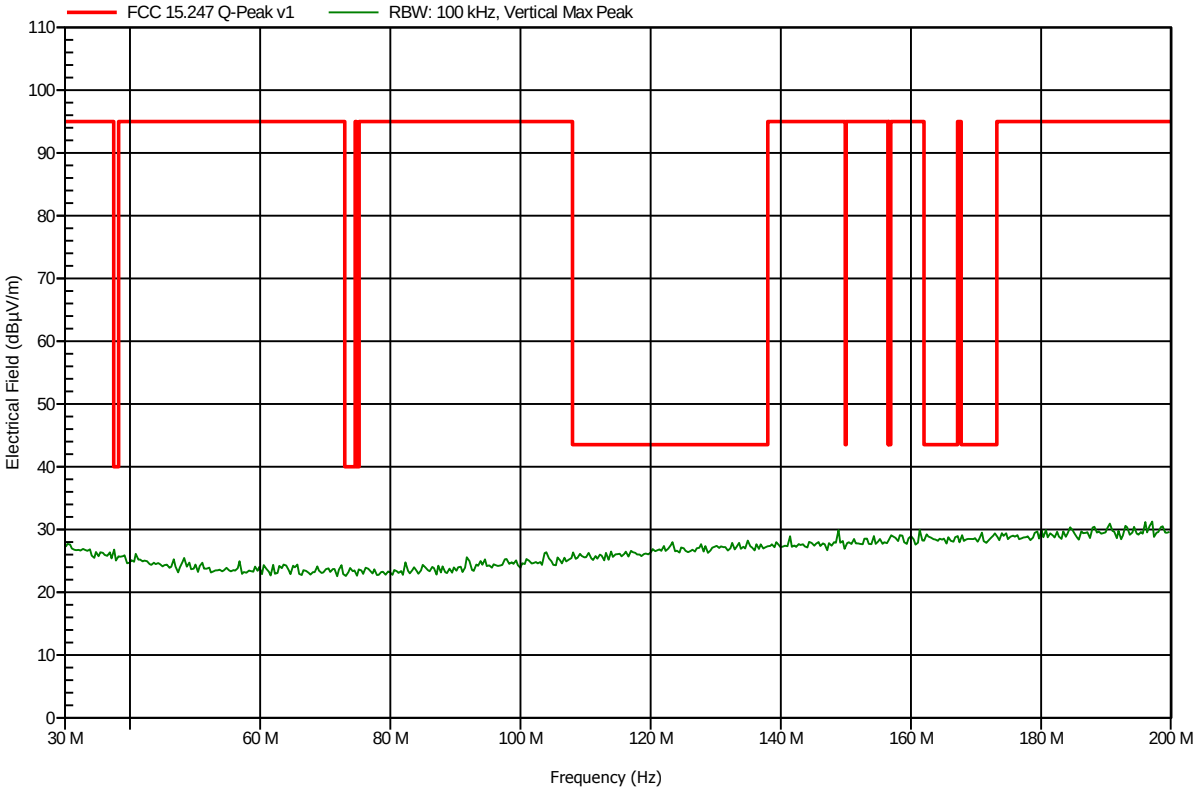

Spurious emissions according to FCC 15.247

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Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Rohde & Schwarz HL 223, Horizontal
Measurement distance:	3 m
Mode:	TX; WiMo-ant., ch.11, 18, 25
Test Date:	2013-07-09
Note:	

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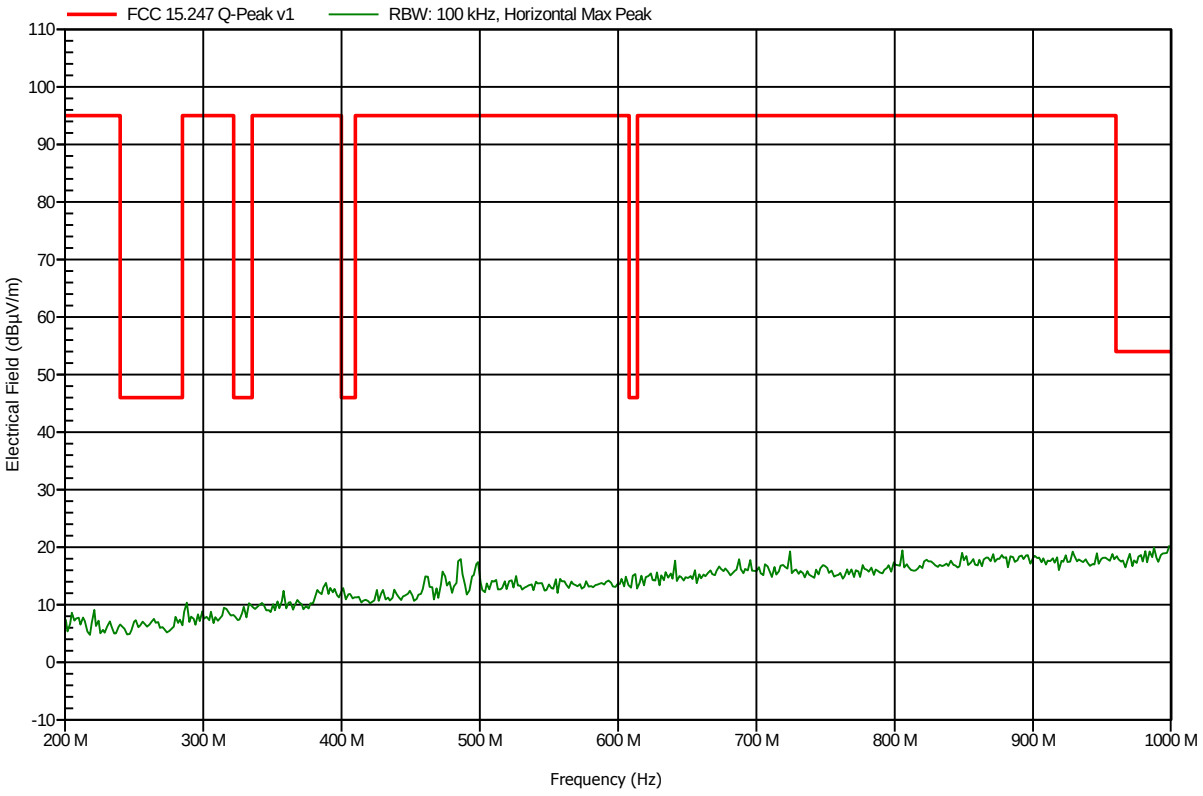

Spurious emissions according to FCC 15.247

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EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
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Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Rohde & Schwarz HL 223, Vertical
Measurement distance:	3 m
Mode:	TX; WiMo-ant., ch.11, 18, 25
Test Date:	2013-07-09
Note:	

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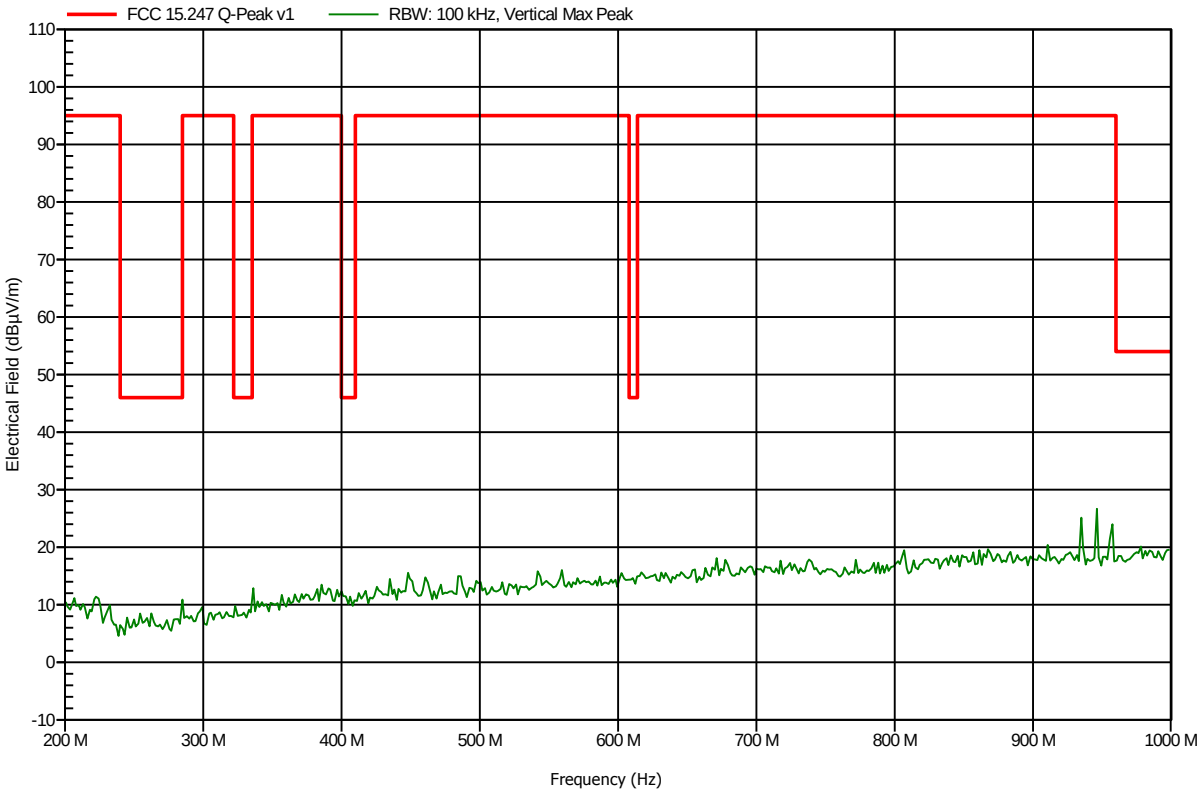

Spurious emissions according to FCC 15.247

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Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	3 m
Mode:	TX; WiMo-ant., ch.11
Test Date:	2013-07-08
Note:	

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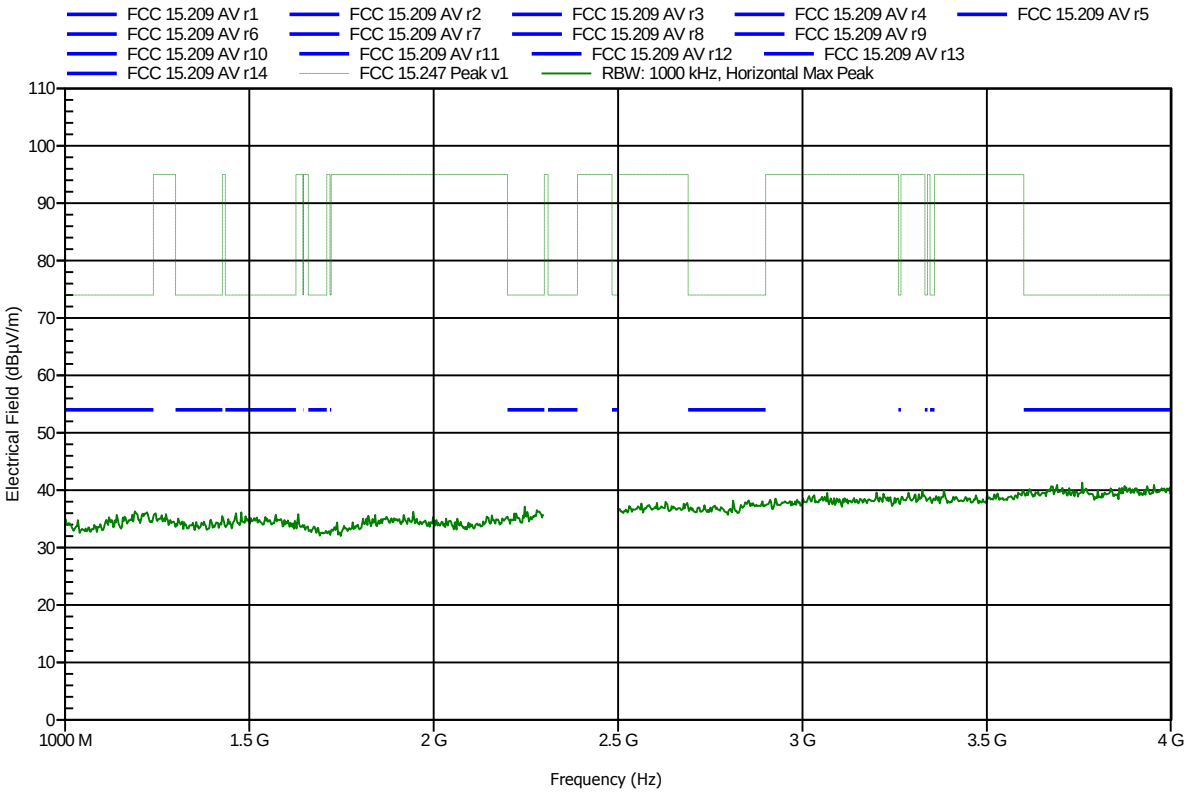

Spurious emissions according to FCC 15.247

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
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Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	3 m
Mode:	TX; WiMo-ant., ch.11
Test Date:	2013-07-08
Note:	

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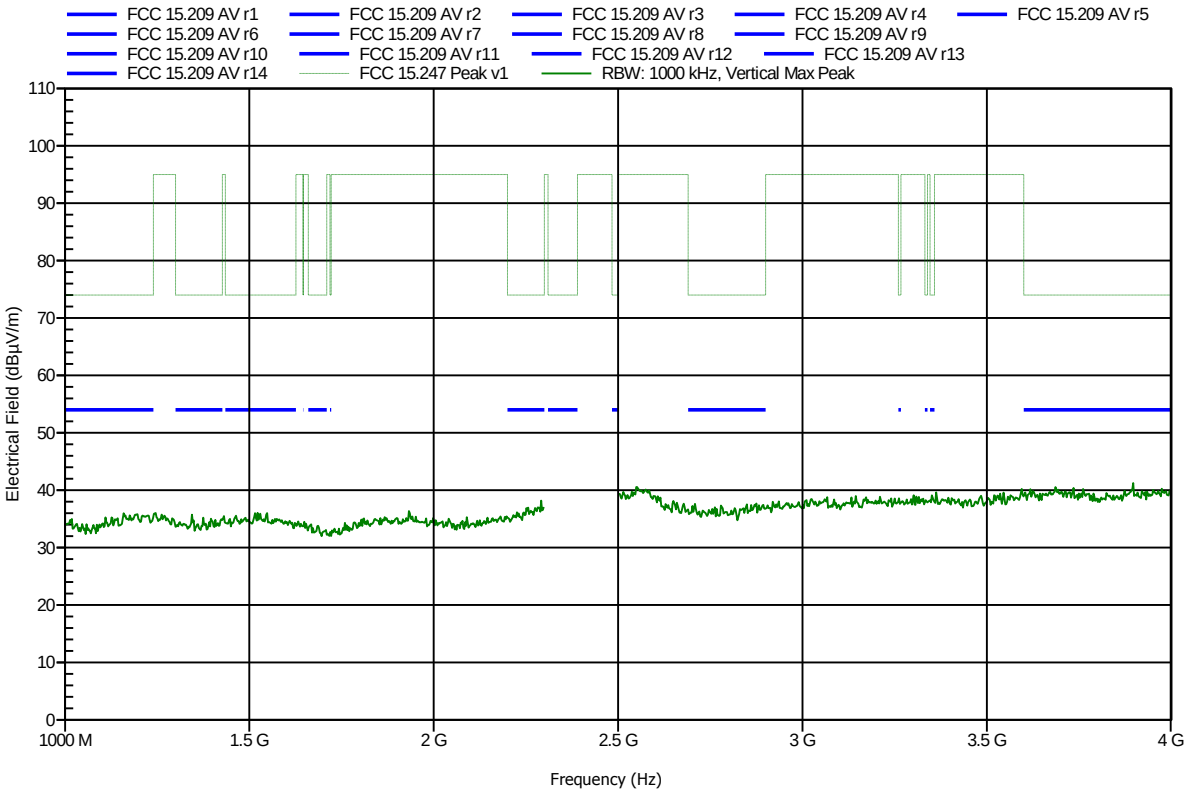

Spurious emissions according to FCC 15.247

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	3 m
Mode:	TX; WiMo-ant., ch.11
Test Date:	2013-07-08
Note:	lower bandedge

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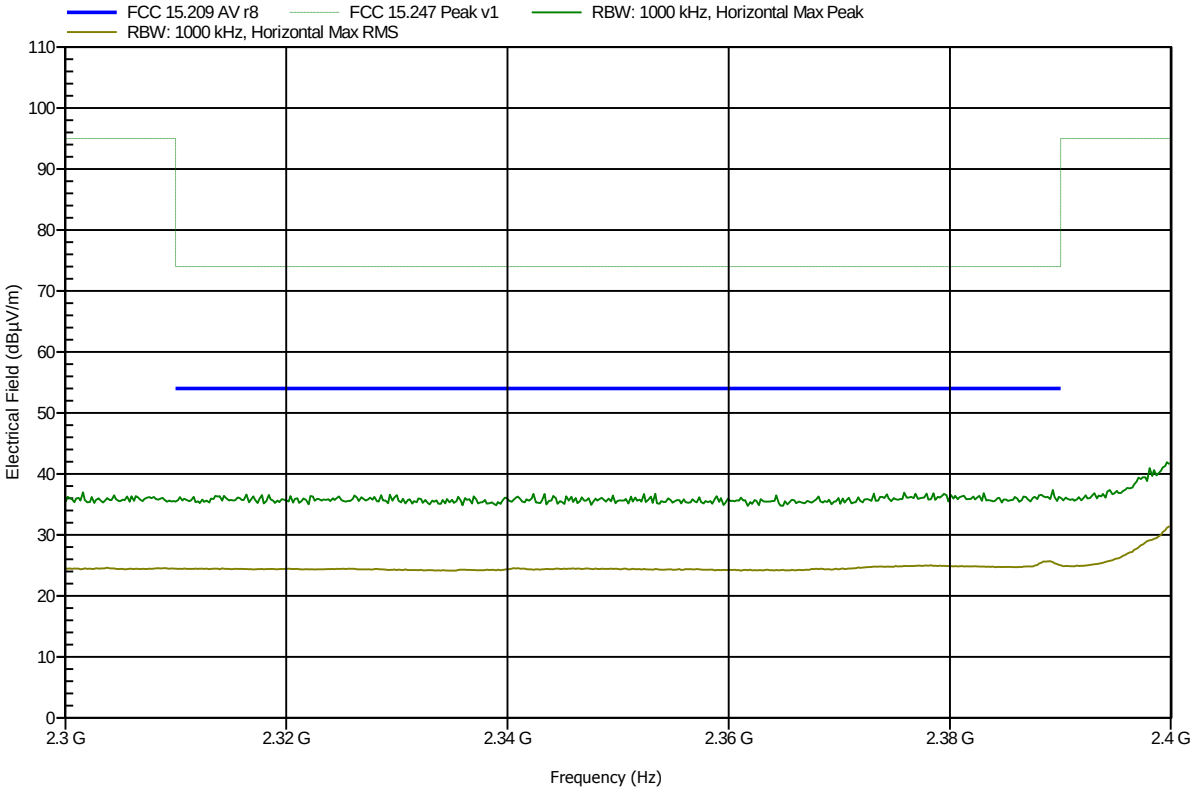

Spurious emissions according to FCC 15.247

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	3 m
Mode:	TX; WiMo-ant., ch.11
Test Date:	2013-07-08
Note:	lower bandedge

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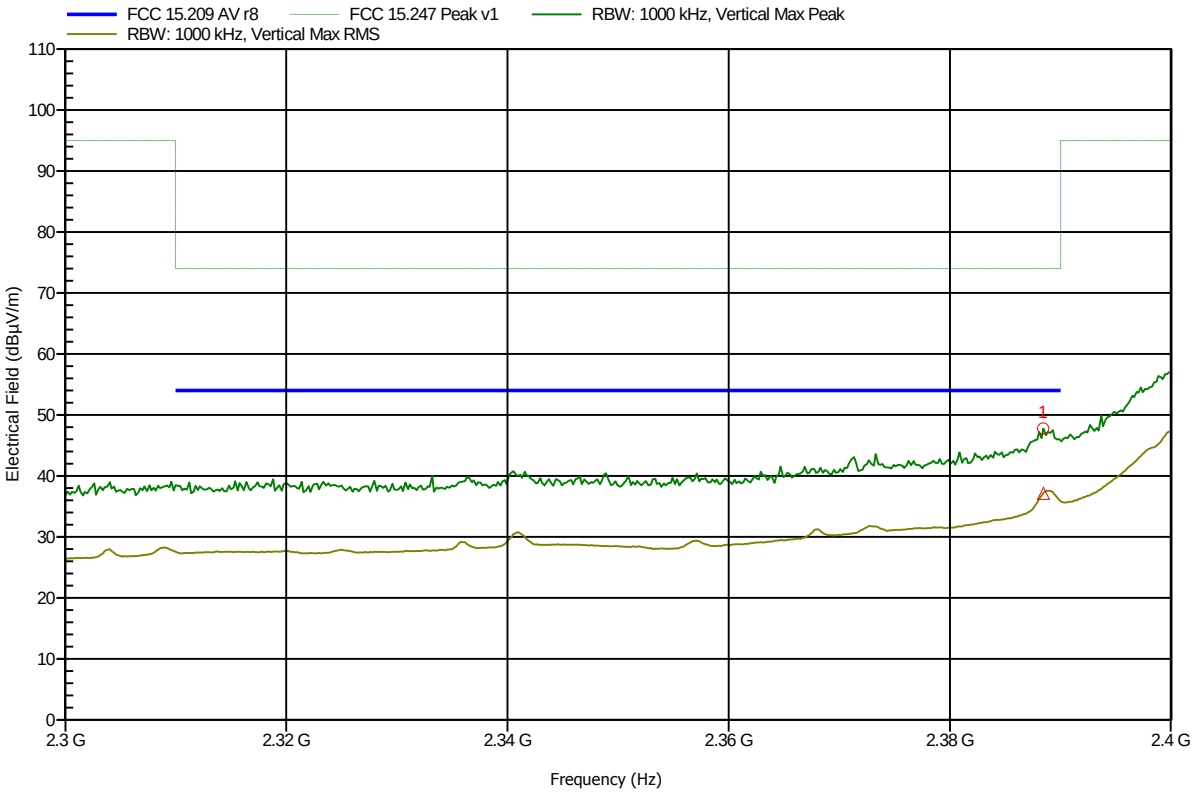

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
2.388 GHz	47.76 dBµV/m	74 dBµV/m	-26.24 dB	Pass

Spurious emissions according to FCC 15.247

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	3 m
Mode:	TX; WiMo-ant., ch.11
Test Date:	2013-07-09
Note:	

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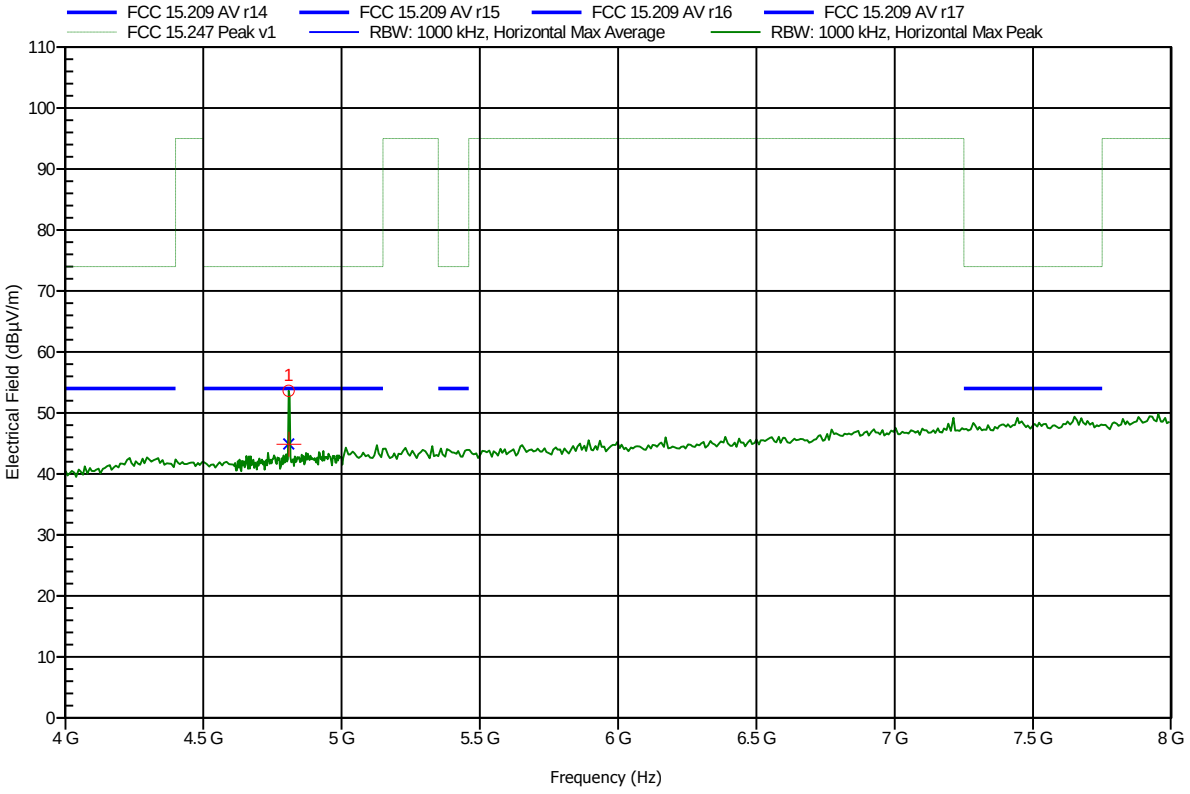

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
4.809 GHz	53.63 dBµV/m	74 dBµV/m	-20.37 dB	Pass

Frequency	Average	Average Limit	Average Difference	Average Status
4.809 GHz	44.9 dBµV/m	54 dBµV/m	-9.1 dB	Pass

Spurious emissions according to FCC 15.247

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	3 m
Mode:	TX; WiMo-ant., ch.11
Test Date:	2013-07-09
Note:	

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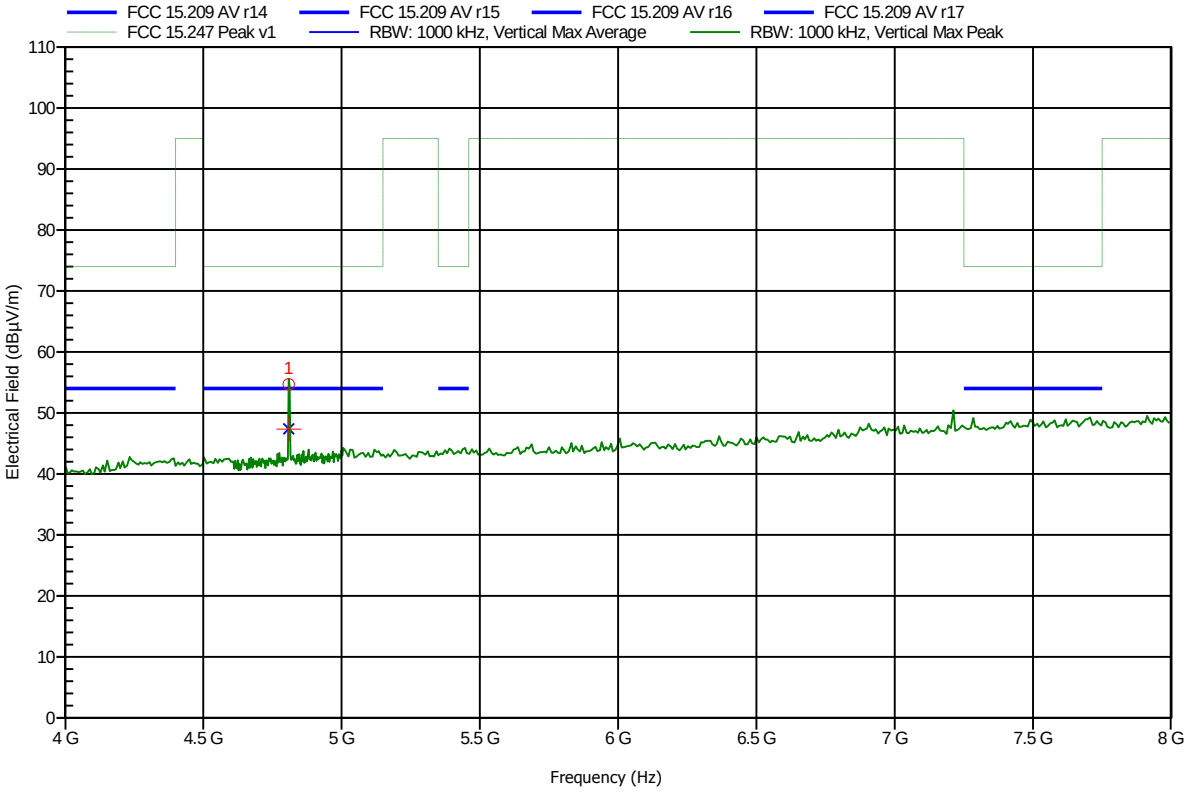

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
4.809 GHz	54.7 dBµV/m	74 dBµV/m	-19.3 dB	Pass

Frequency	Average	Average Limit	Average Difference	Average Status
4.809 GHz	47.38 dBµV/m	54 dBµV/m	-6.62 dB	Pass

Spurious emissions according to FCC 15.247

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	100 cm converted to 3m
Mode:	TX; WiMo-ant., ch.11
Test Date:	2013-07-09
Note:	

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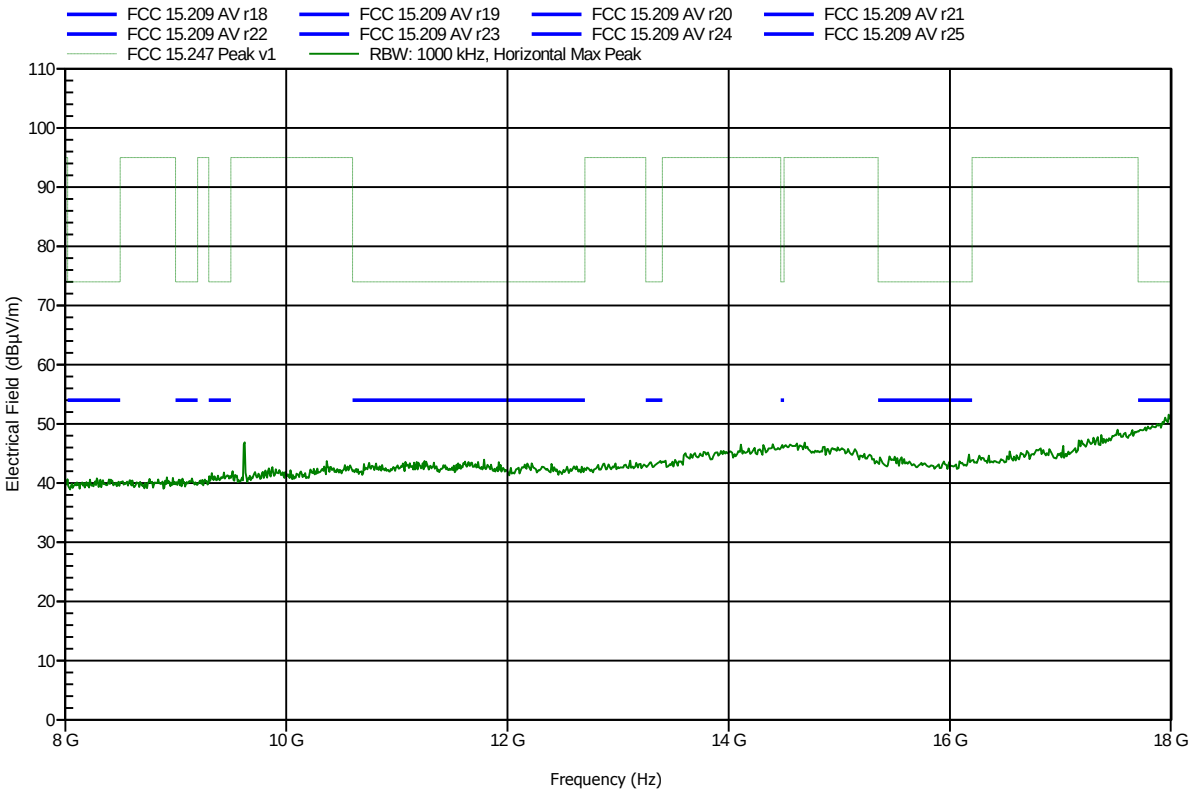

Spurious emissions according to FCC 15.247

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	100 cm converted to 3m
Mode:	TX; WiMo-ant., ch.11
Test Date:	2013-07-09
Note:	

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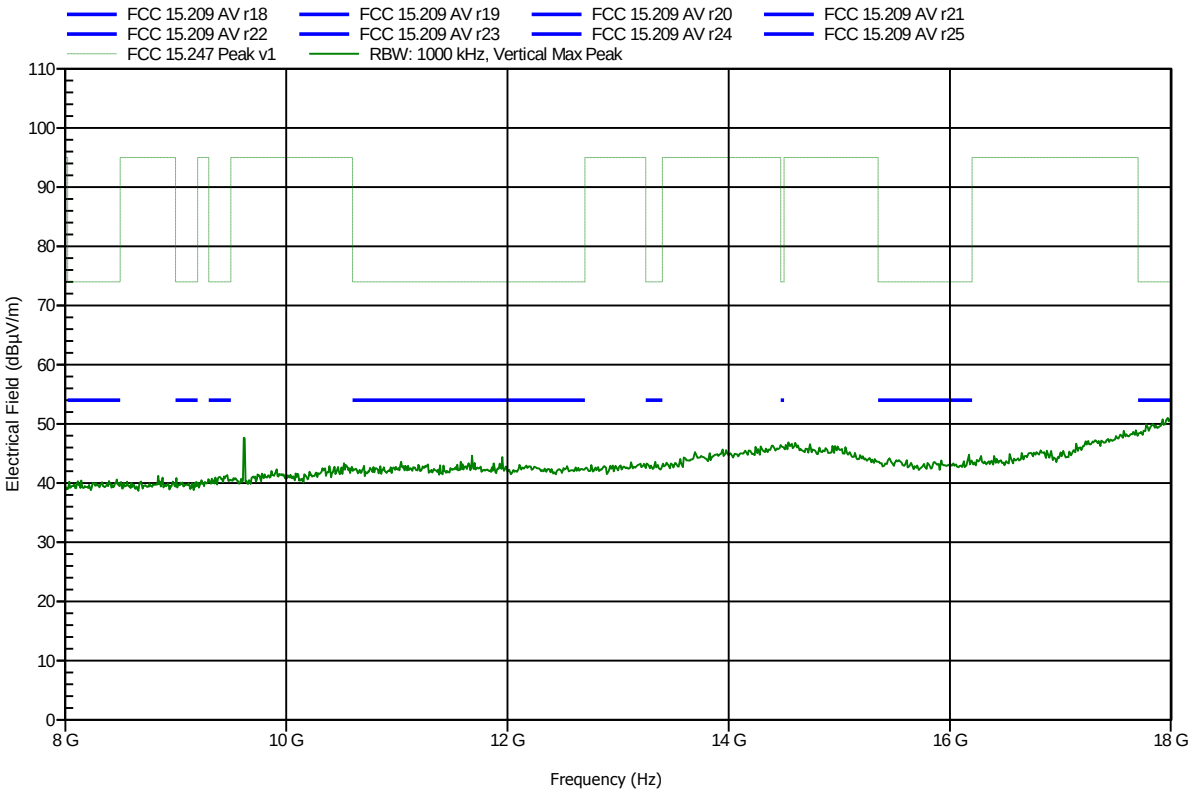

Spurious emissions according to FCC 15.247

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	100 cm
Mode:	TX; WiMo-ant., ch.11
Test Date:	2013-07-09
Note:	

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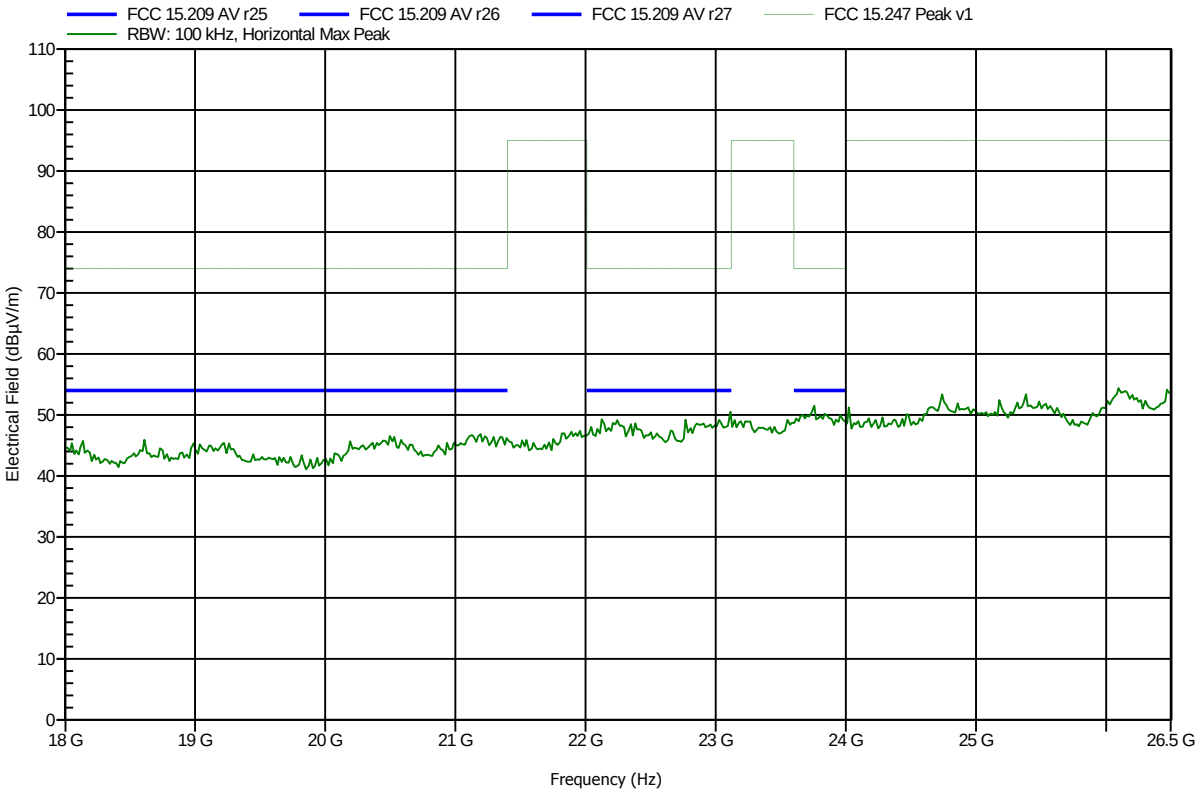

Spurious emissions according to FCC 15.247

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	100 cm
Mode:	TX; WiMo-ant., ch.11
Test Date:	2013-07-09
Note:	

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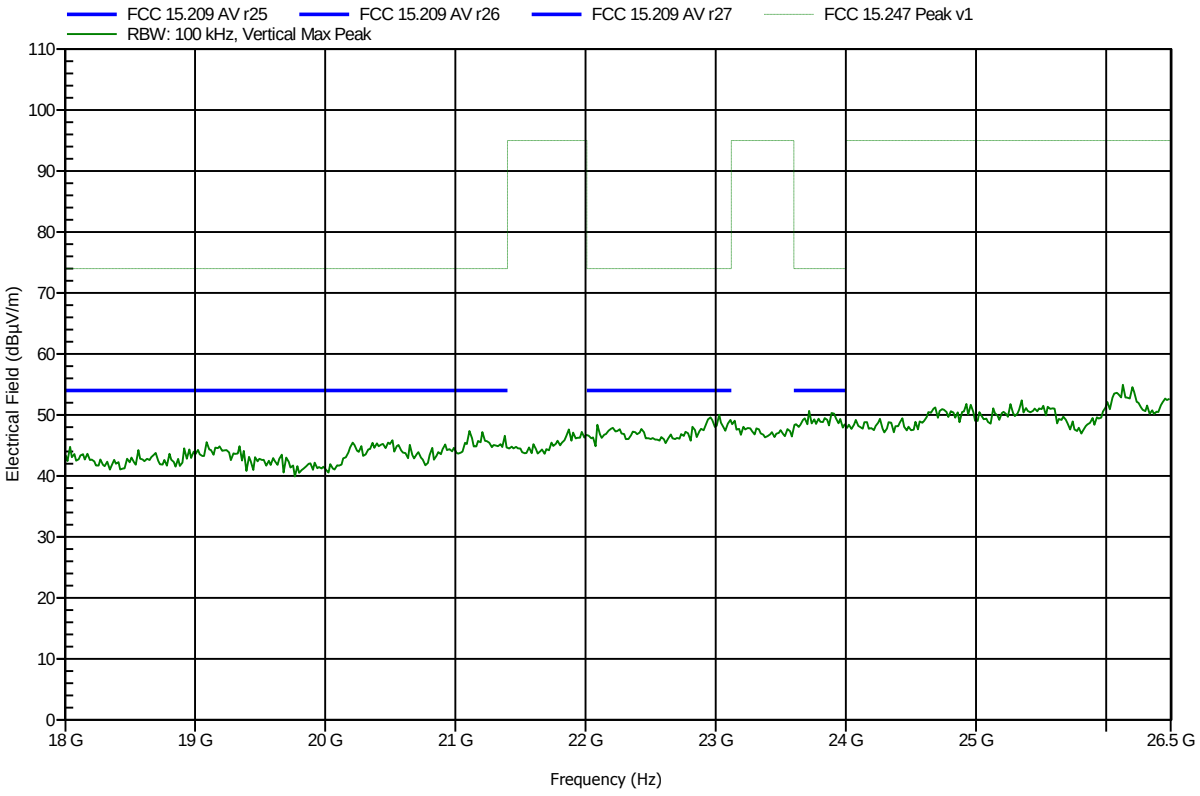

Spurious emissions according to FCC 15.247

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	3 m
Mode:	TX; WiMo-ant., ch.18
Test Date:	2013-07-08
Note:	

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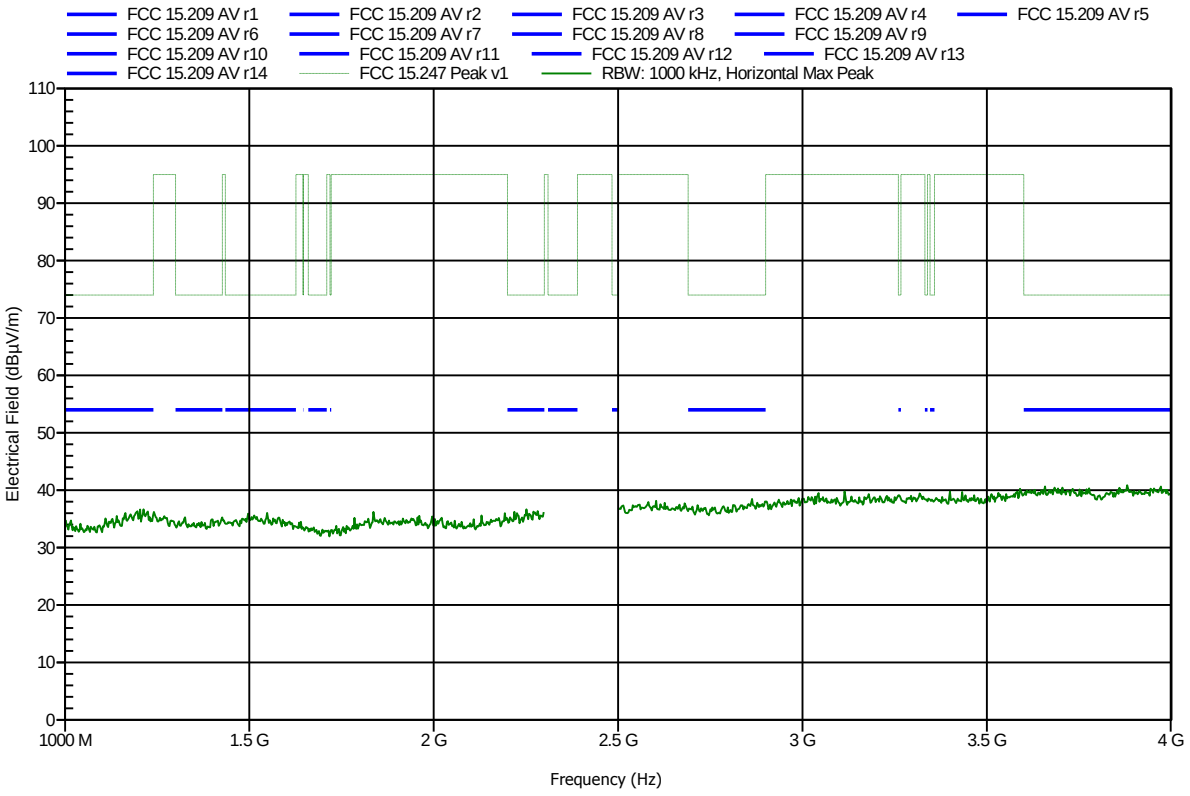

Spurious emissions according to FCC 15.247

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	3 m
Mode:	TX; WiMo-ant., ch.18
Test Date:	2013-07-08
Note:	

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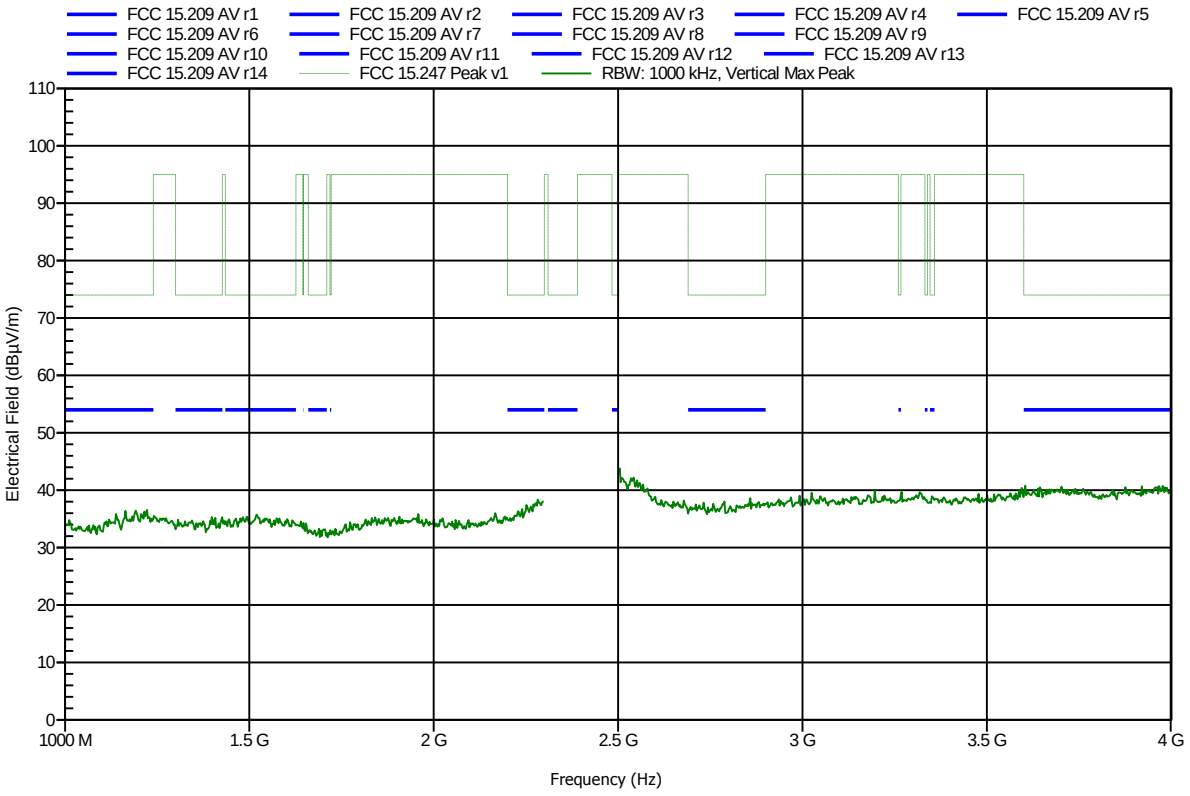

Spurious emissions according to FCC 15.247

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	3 m
Mode:	TX; WiMo-ant., ch.18
Test Date:	2013-07-09
Note:	

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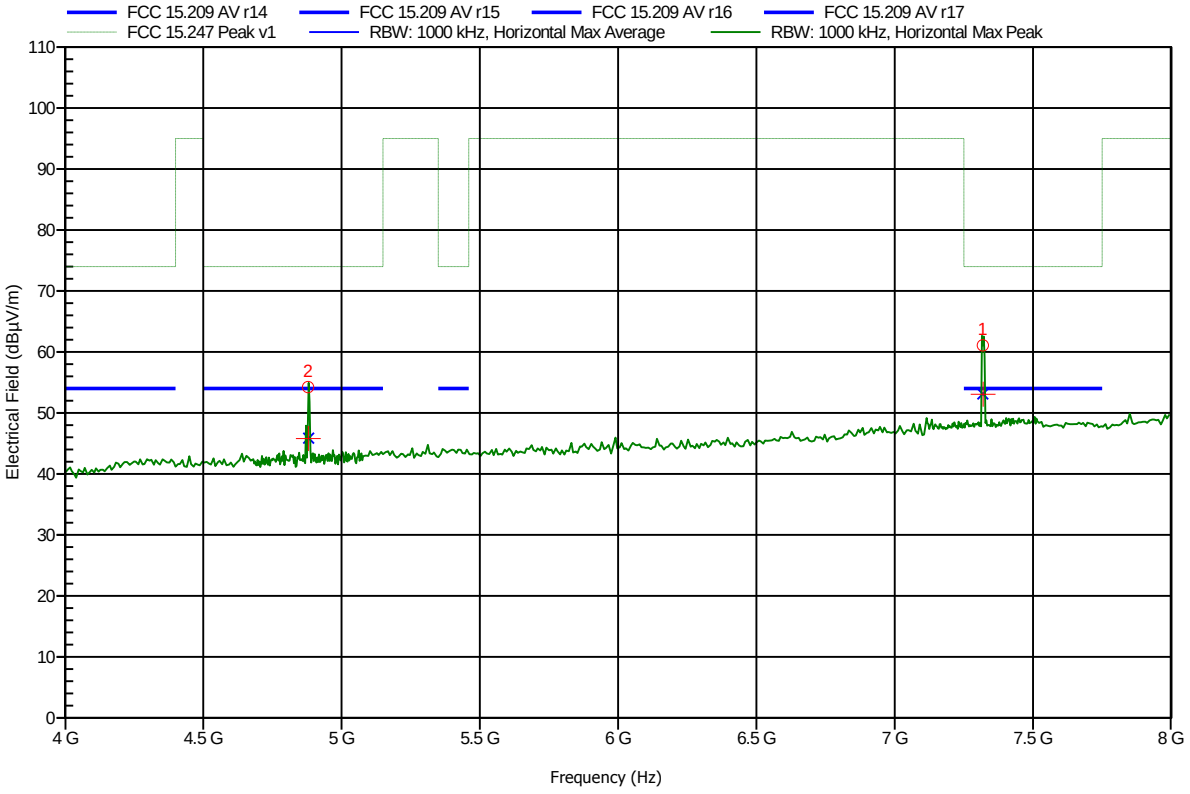

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
4.879 GHz	54.24 dBµV/m	74 dBµV/m	-19.76 dB	Pass
7.319 GHz	61.09 dBµV/m	74 dBµV/m	-12.91 dB	Pass

Frequency	Average	Average Limit	Average Difference	Average Status
4.879 GHz	45.85 dBµV/m	54 dBµV/m	-8.15 dB	Pass
7.319 GHz	53.11 dBµV/m	54 dBµV/m	-0.89 dB	Pass

Spurious emissions according to FCC 15.247

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	3 m
Mode:	TX; WiMo-ant., ch.18
Test Date:	2013-07-09
Note:	

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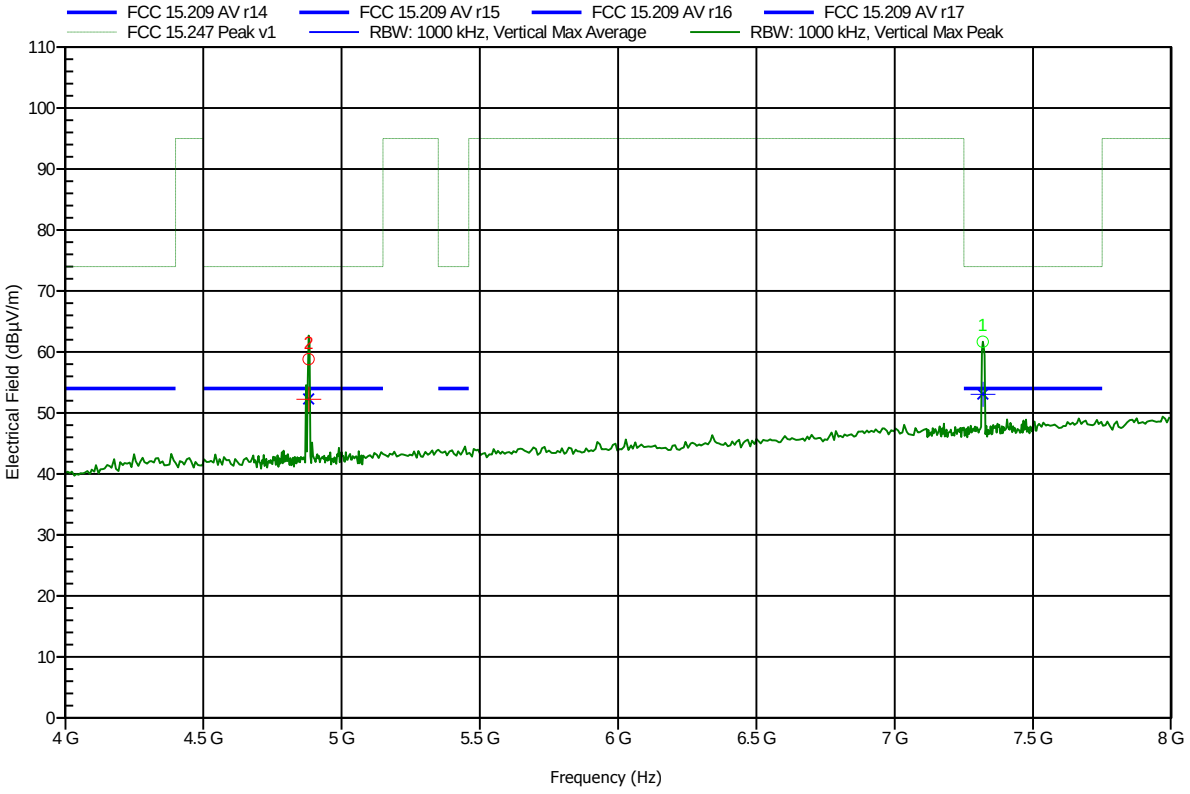

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
4.881 GHz	58.81 dBµV/m	74 dBµV/m	-15.19 dB	Pass
7.318 GHz	61.68 dBµV/m	74 dBµV/m	-12.32 dB	Pass

Frequency	Average	Average Limit	Average Difference	Average Status
4.881 GHz	52.29 dBµV/m	54 dBµV/m	-1.71 dB	Pass
7.318 GHz	53.1 dBµV/m	54 dBµV/m	-0.9 dB	Pass

Spurious emissions according to FCC 15.247

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	100 cm converted to 3m
Mode:	TX; WiMo-ant., ch.18
Test Date:	2013-07-09
Note:	

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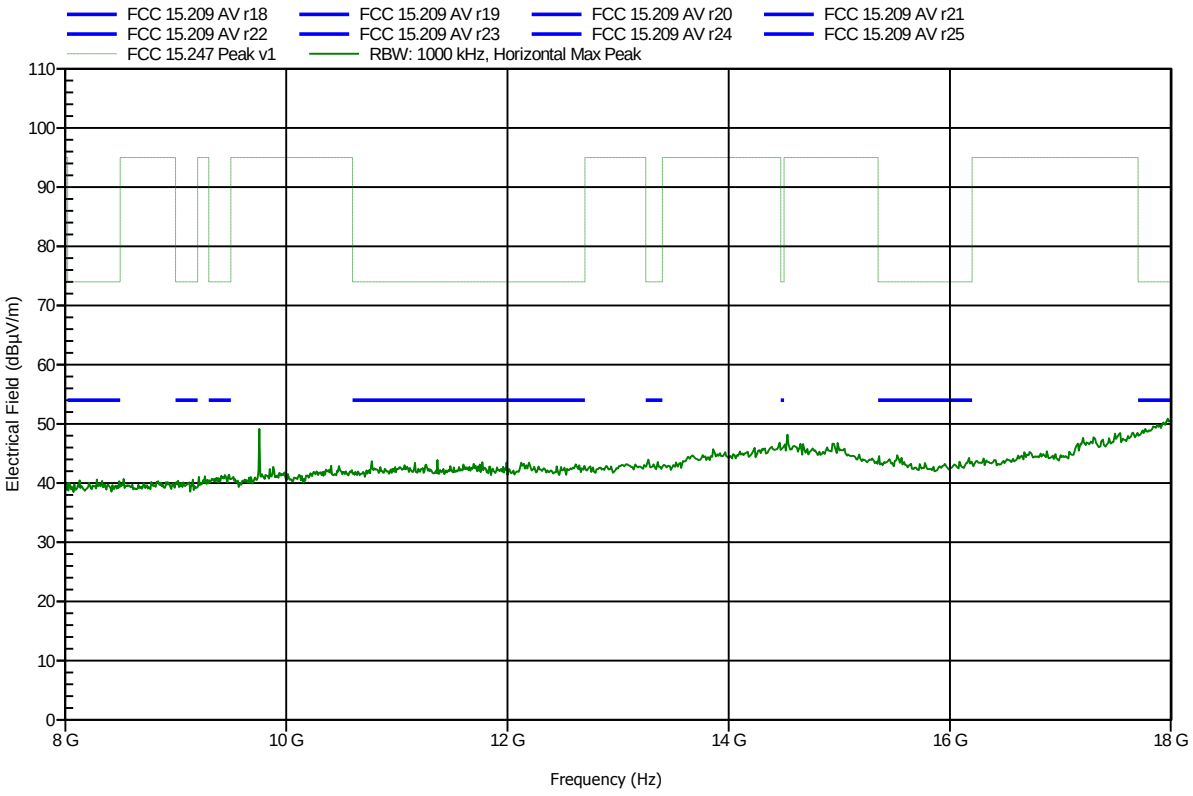

Spurious emissions according to FCC 15.247

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	100 cm converted to 3m
Mode:	TX; WiMo-ant., ch.18
Test Date:	2013-07-09
Note:	

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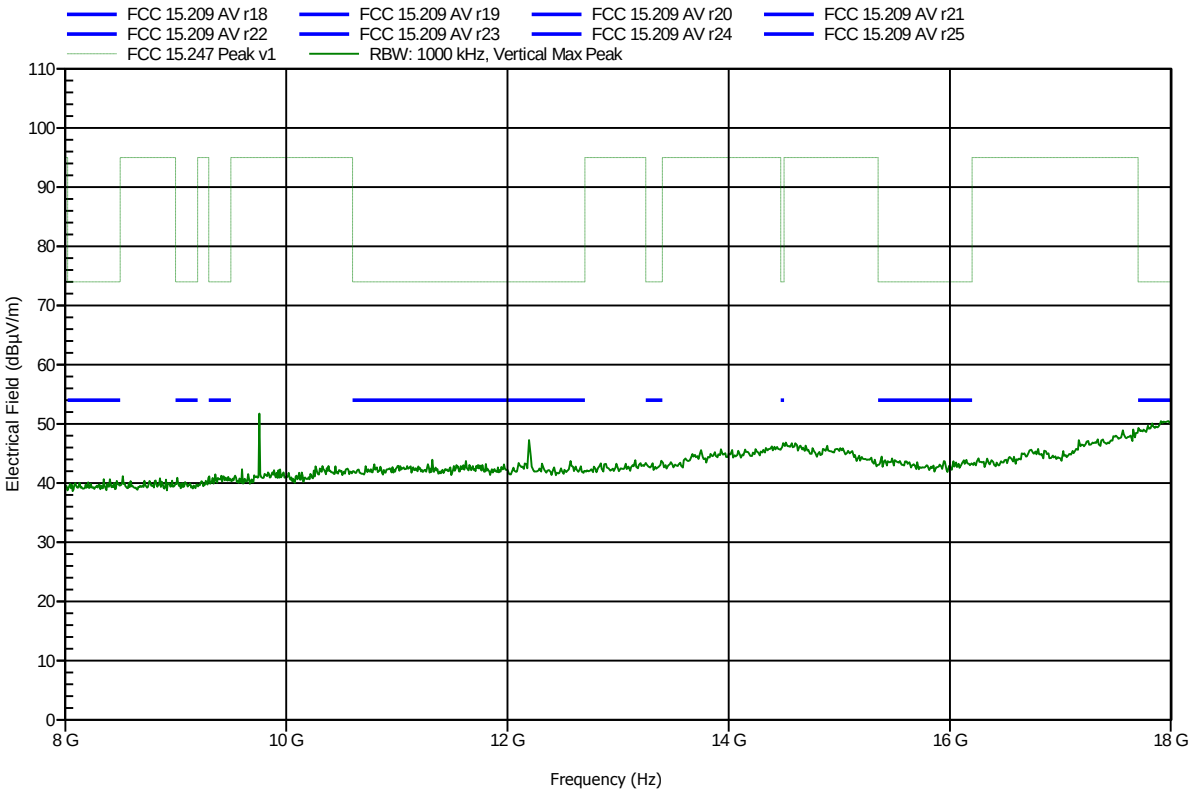

Spurious emissions according to FCC 15.247

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	100 cm
Mode:	TX; WiMo-ant., ch.18
Test Date:	2013-07-09
Note:	

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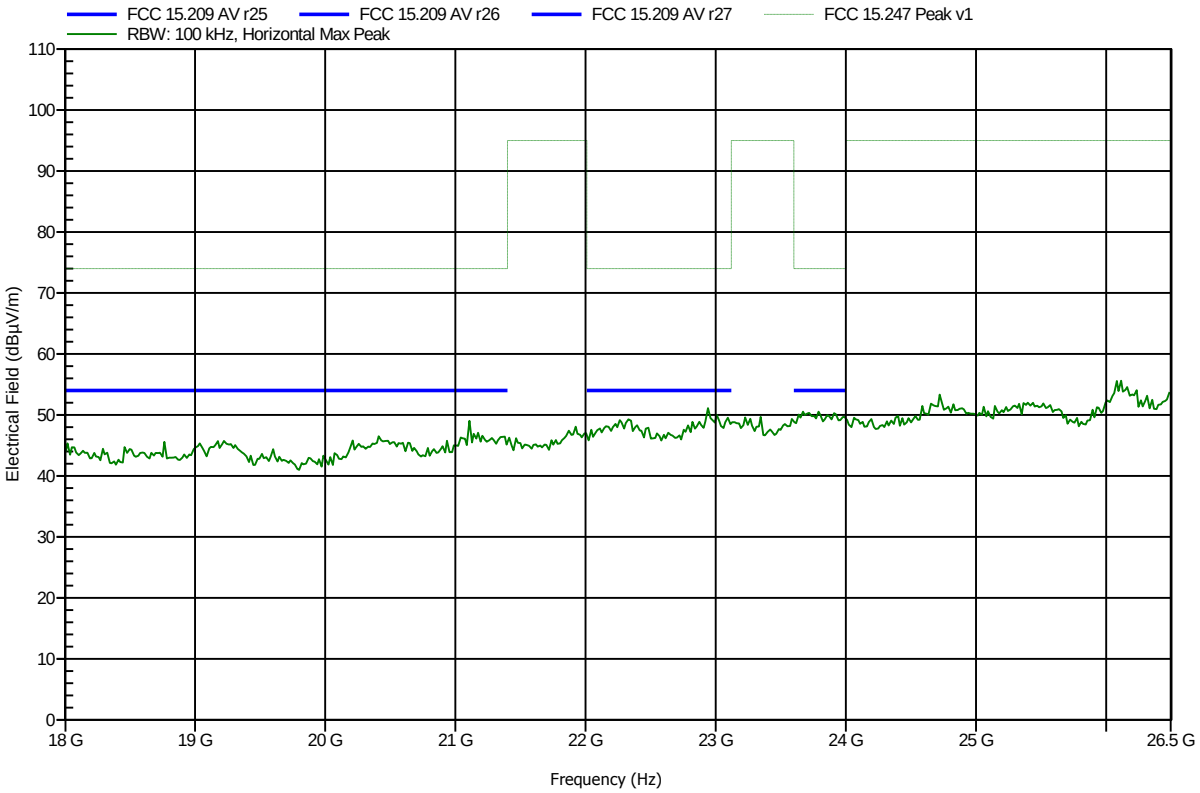

Spurious emissions according to FCC 15.247

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
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Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	100 cm
Mode:	TX; WiMo-ant., ch.18
Test Date:	2013-07-09
Note:	

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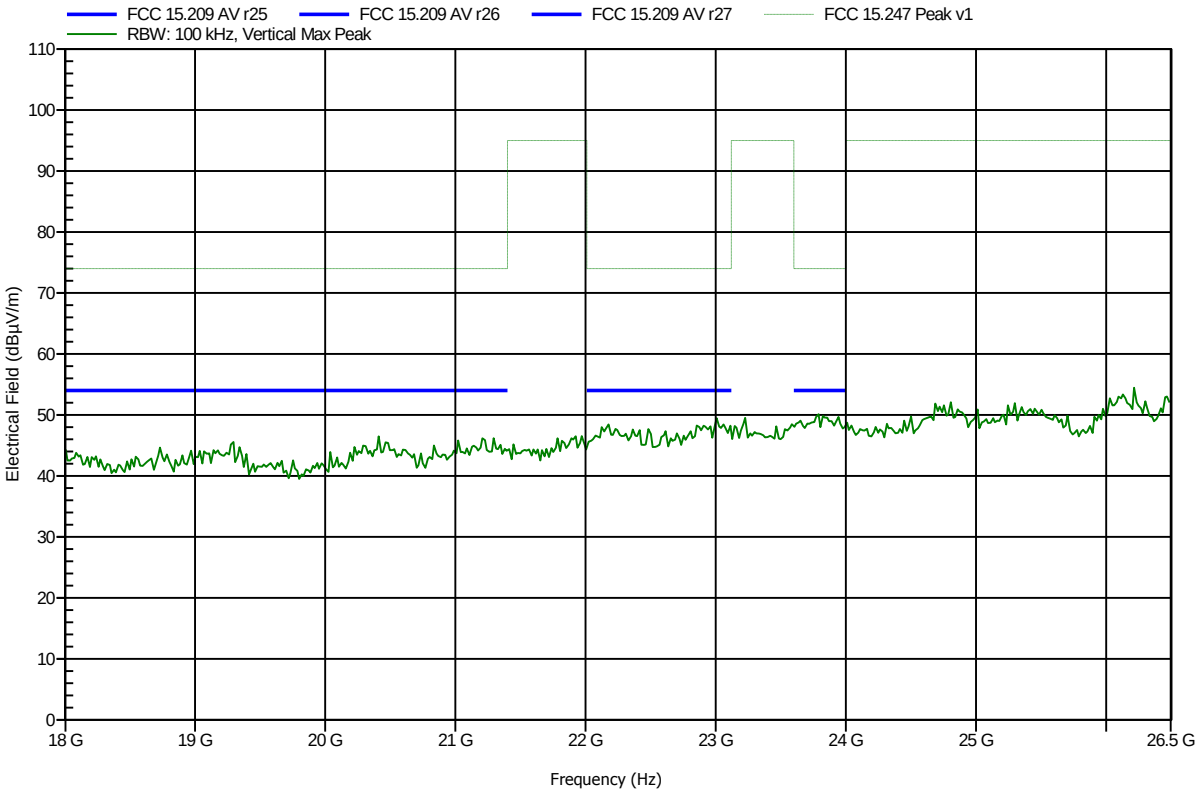

Spurious emissions according to FCC 15.247

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	3 m
Mode:	TX; WiMo-ant., ch.25
Test Date:	2013-07-08
Note:	

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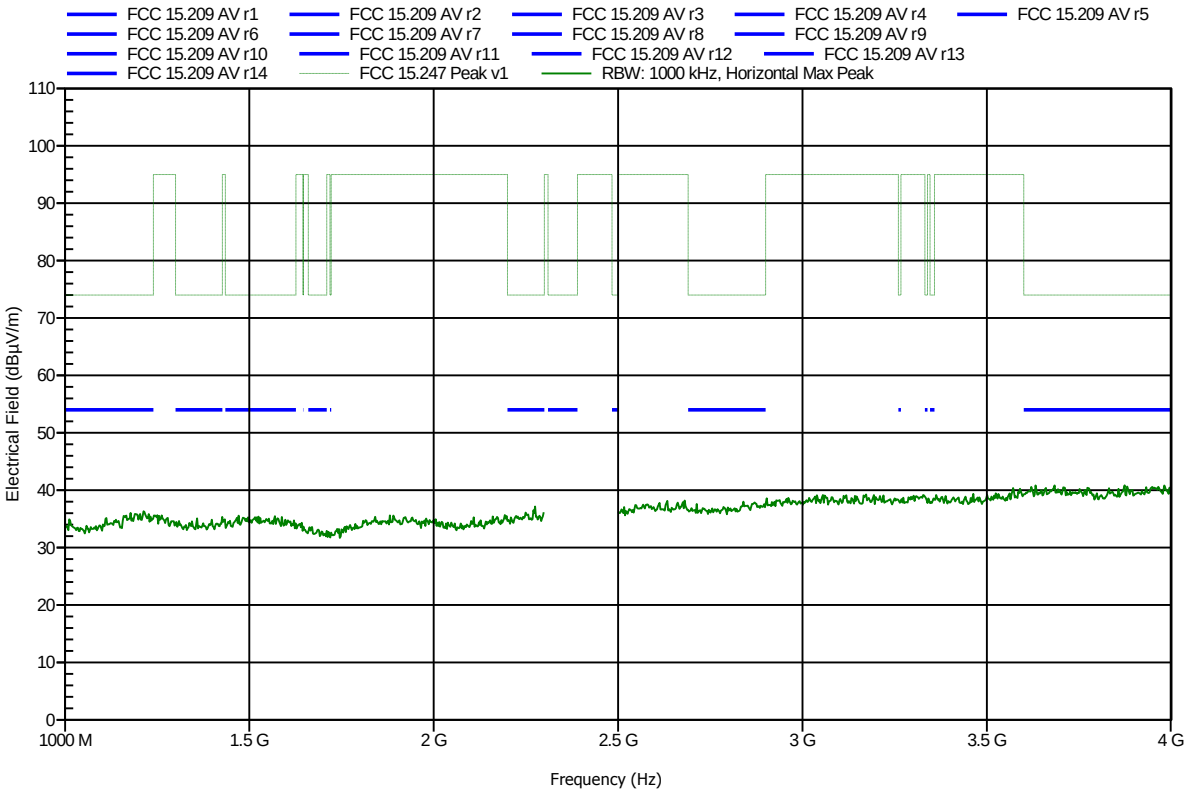

Spurious emissions according to FCC 15.247

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	3 m
Mode:	TX; WiMo-ant., ch.25
Test Date:	2013-07-08
Note:	

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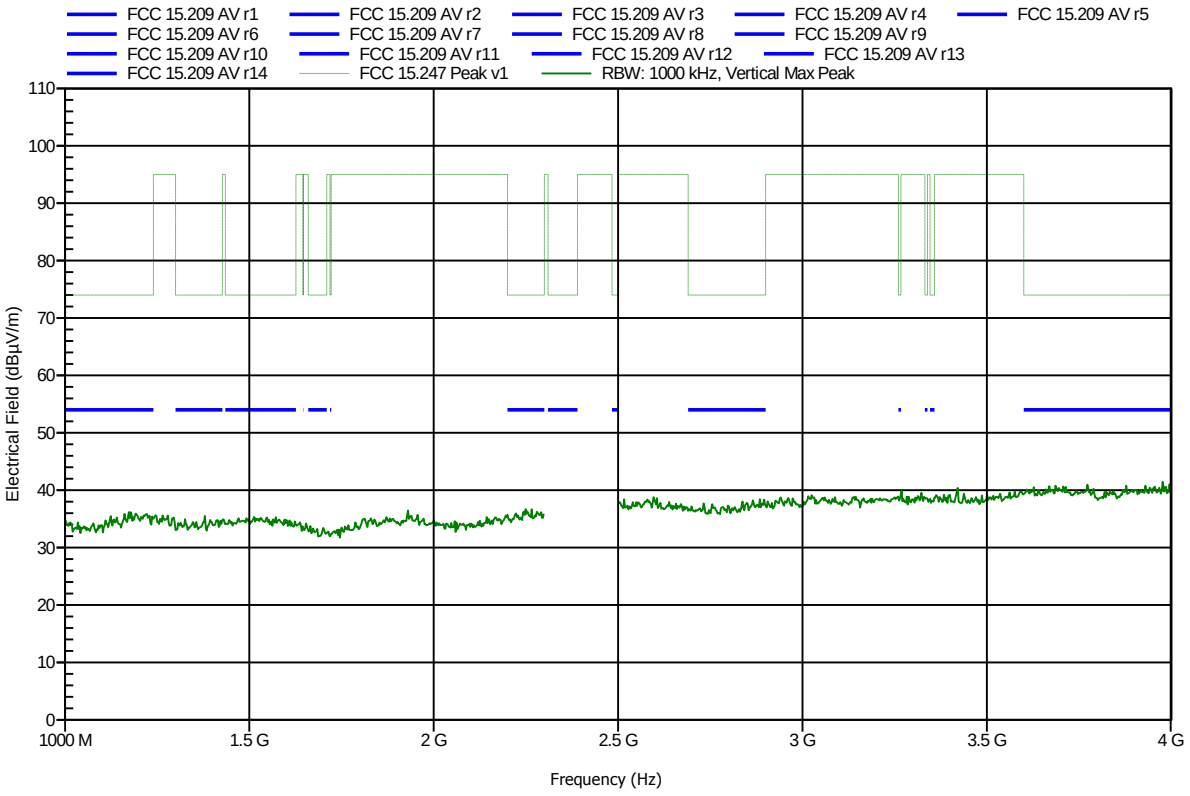

Spurious emissions according to FCC 15.247

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	3 m
Mode:	TX; WiMo-ant., ch.25
Test Date:	2013-07-08
Note:	upper bandedge

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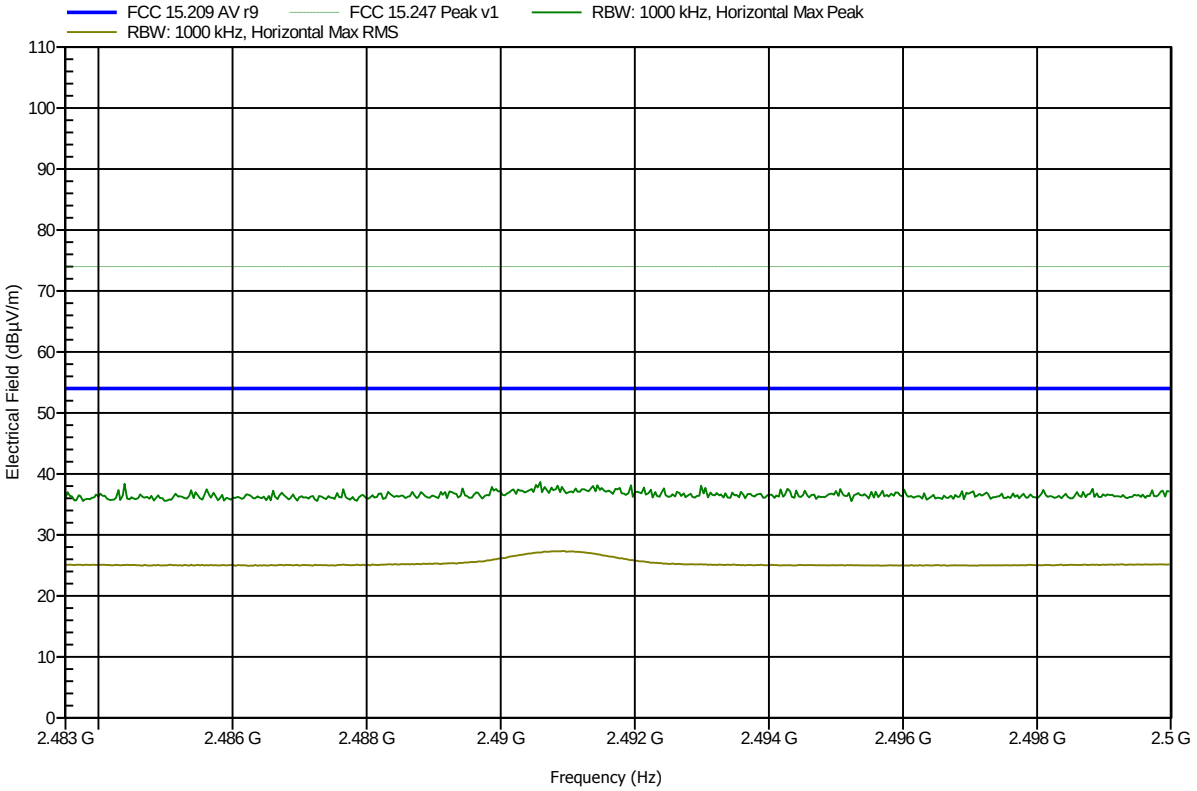

Spurious emissions according to FCC 15.247

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	3 m
Mode:	TX; WiMo-ant., ch.25
Test Date:	2013-07-08
Note:	upper bandedge

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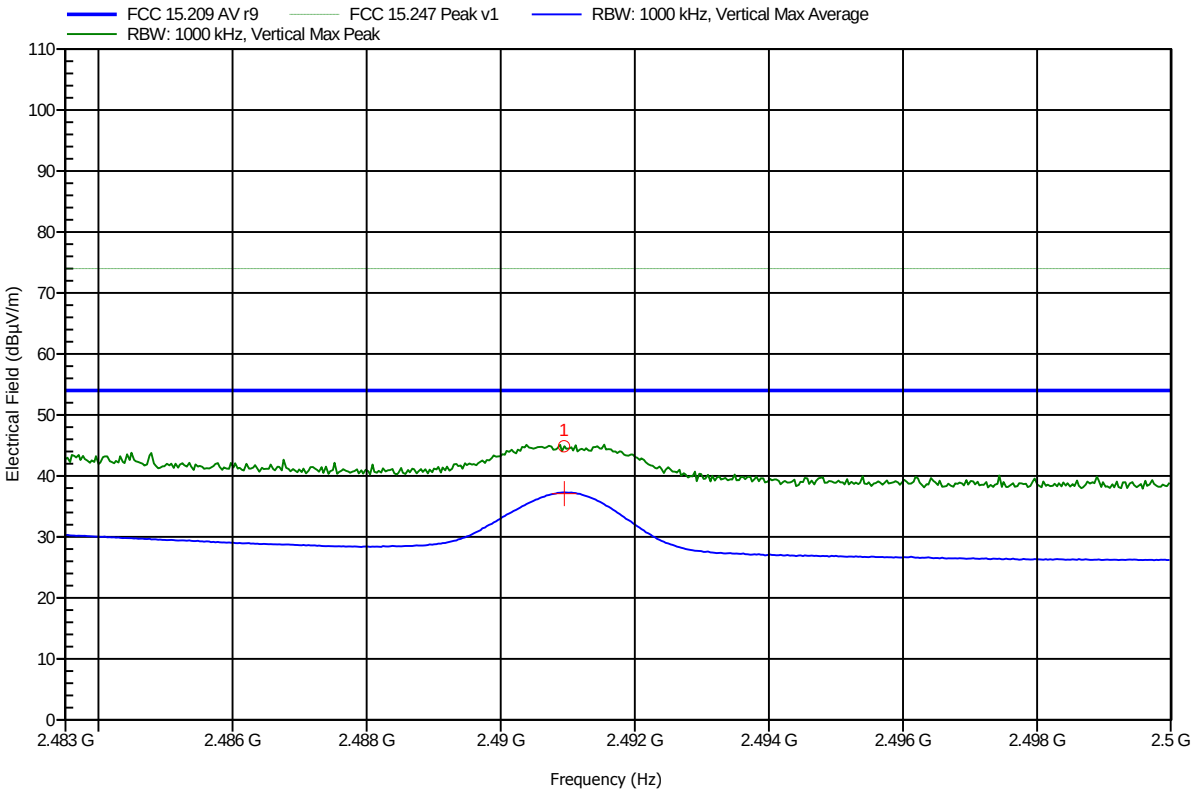

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
2.4909 GHz	44.87 dBµV/m	74 dBµV/m	-29.13 dB	Pass

Frequency	Average	Average Limit	Average Difference	Average Status
2.4909 GHz	37.14 dBµV/m	54 dBµV/m	-16.86 dB	Pass

Spurious emissions according to FCC 15.247

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	3 m
Mode:	TX; WiMo-ant., ch.25
Test Date:	2013-07-09
Note:	

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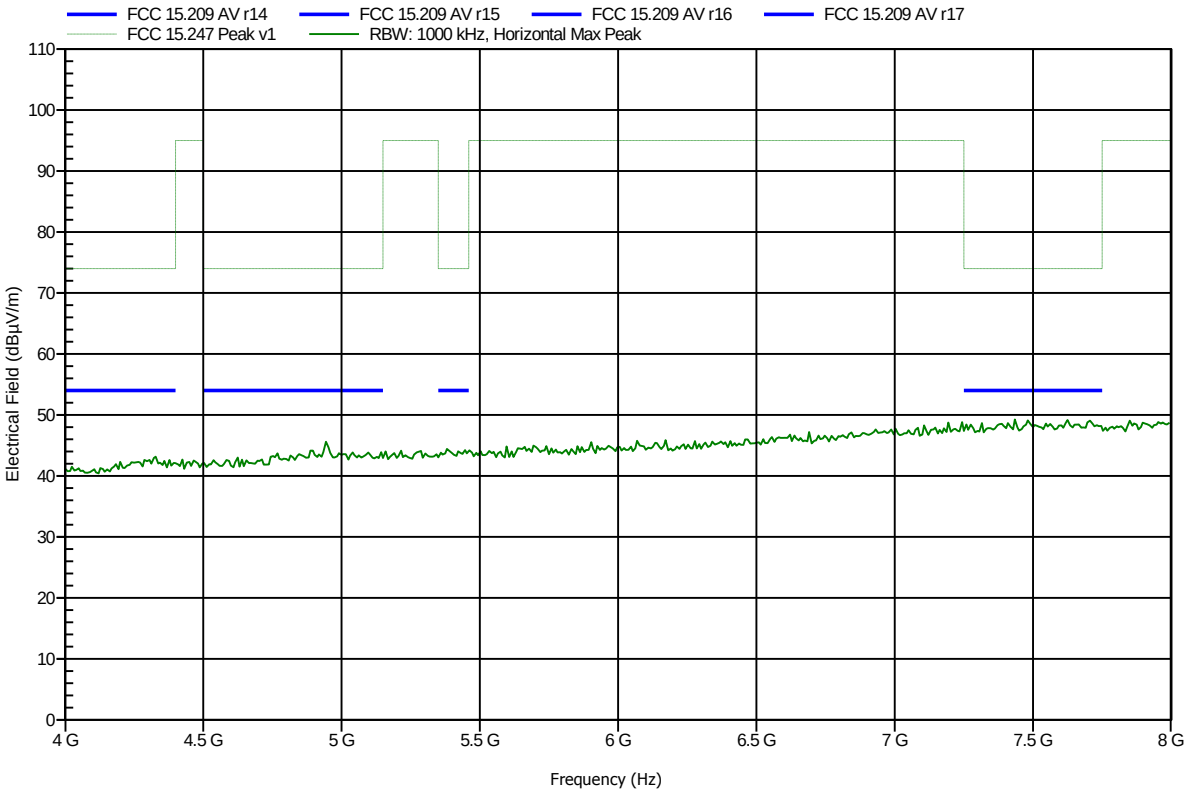

Spurious emissions according to FCC 15.247

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	3 m
Mode:	TX; WiMo-ant., ch.25
Test Date:	2013-07-09
Note:	

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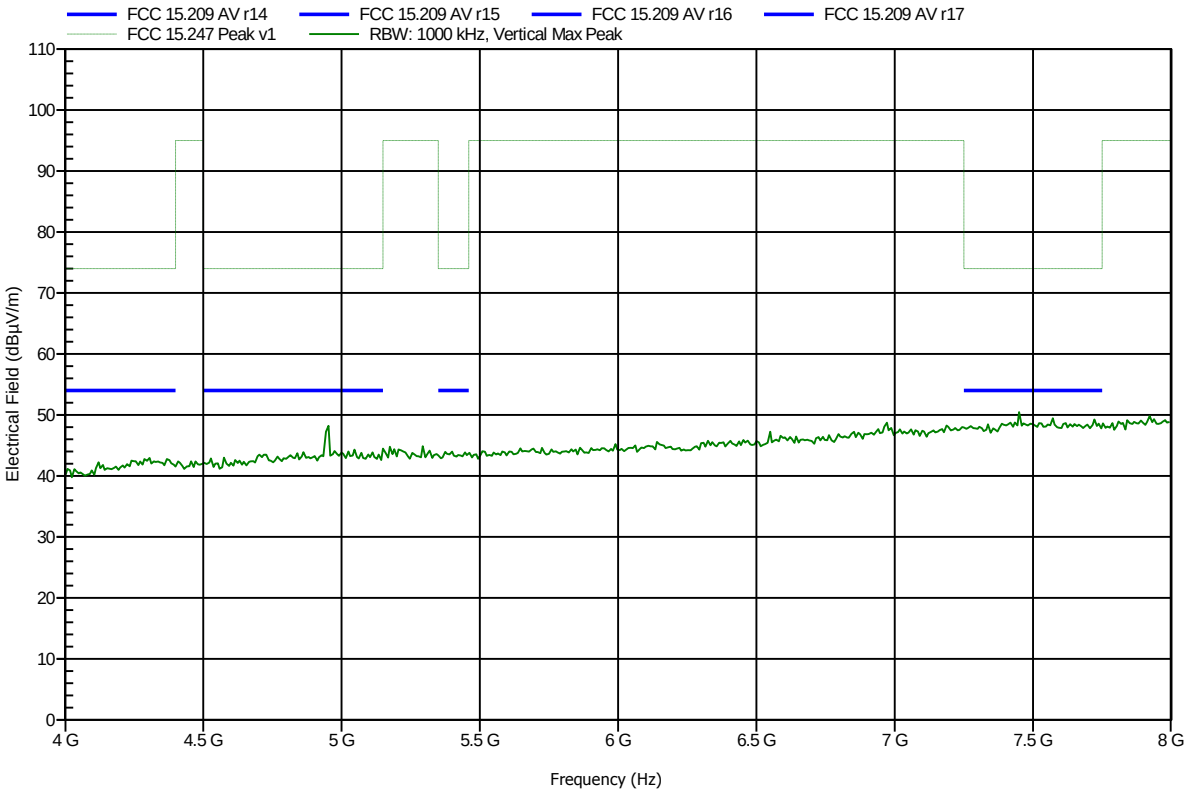

Spurious emissions according to FCC 15.247

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	100 cm converted to 3m
Mode:	TX; WiMo-ant., ch.25
Test Date:	2013-07-09
Note:	

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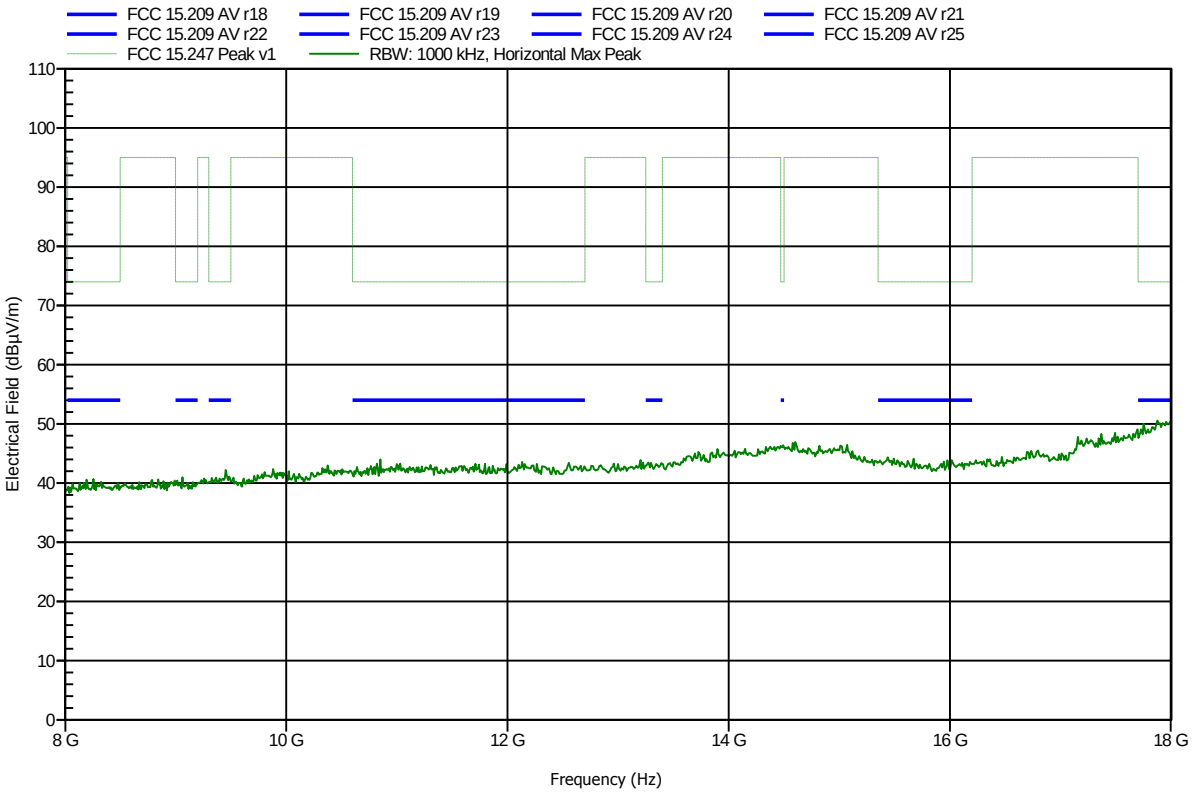

Spurious emissions according to FCC 15.247

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	100 cm converted to 3m
Mode:	TX; WiMo-ant., ch.25
Test Date:	2013-07-09
Note:	

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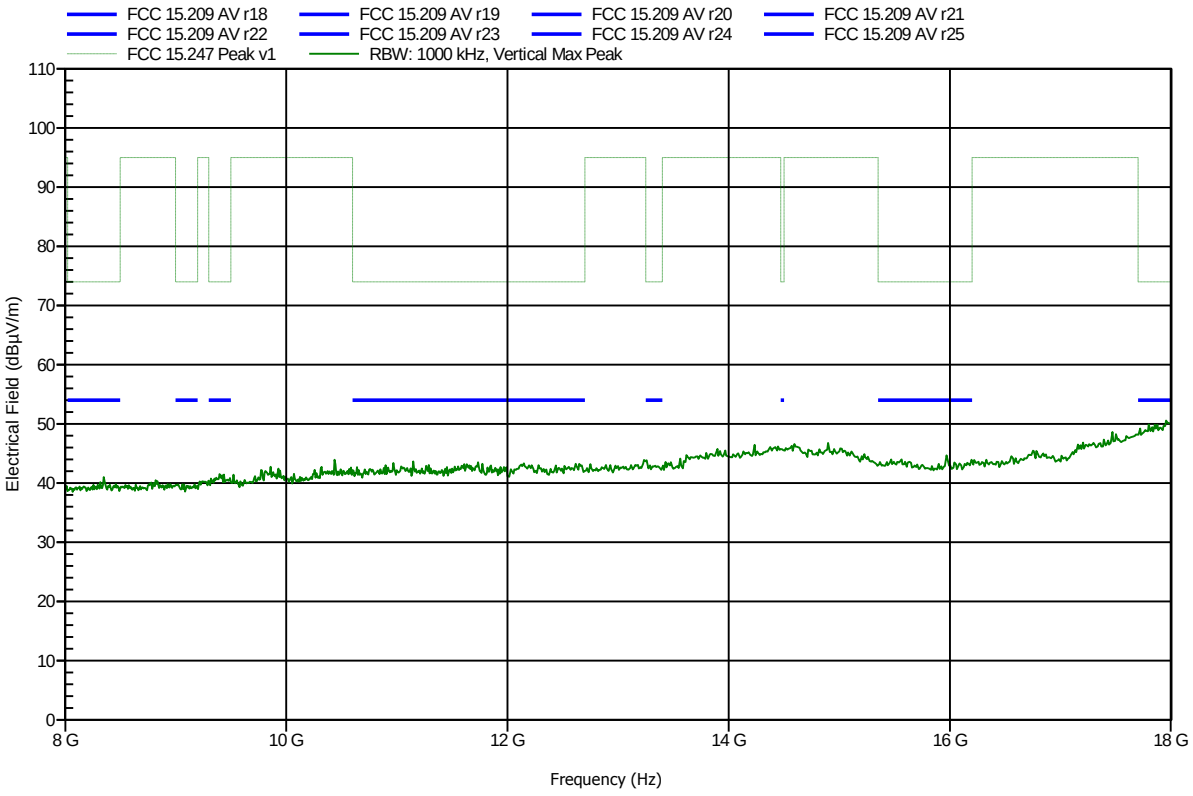

Spurious emissions according to FCC 15.247

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	100 cm
Mode:	TX; WiMo-ant., ch.25
Test Date:	2013-07-09
Note:	

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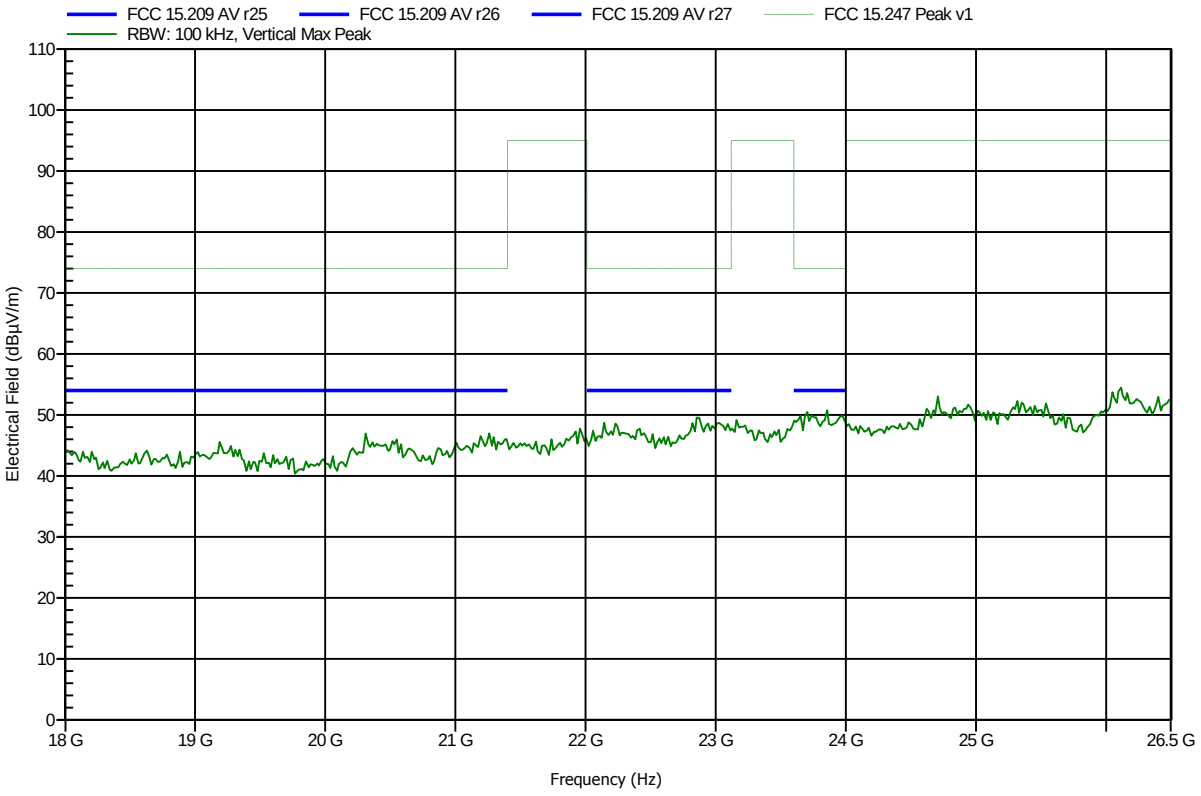

Spurious emissions according to FCC 15.247

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	100 cm
Mode:	TX; WiMo-ant., ch.25
Test Date:	2013-07-09
Note:	

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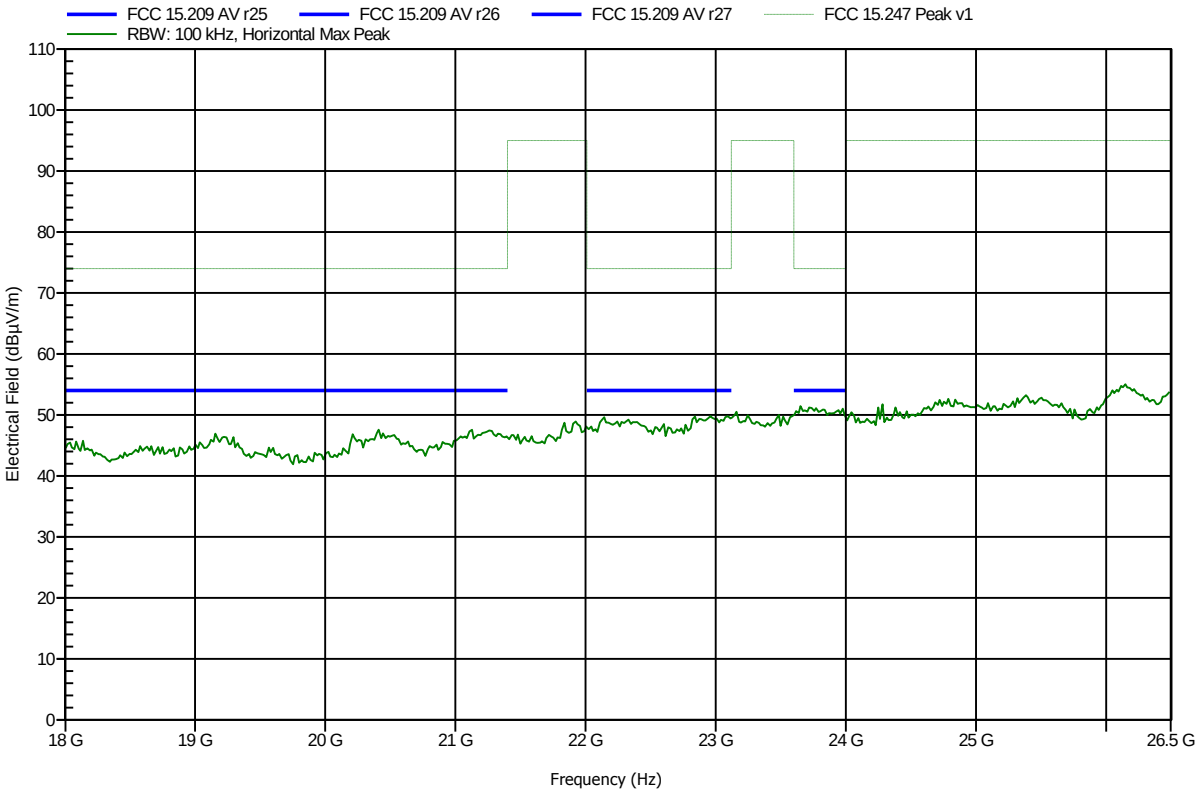

ANNEX B Receiver radiated spurious emissions

Spurious emissions according to RSS-GEN

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Rohde & Schwarz HK 116, Horizontal
Measurement distance:	3 m
Mode:	RX; chip-ant., ch.18
Test Date:	2013-07-08
Note:	

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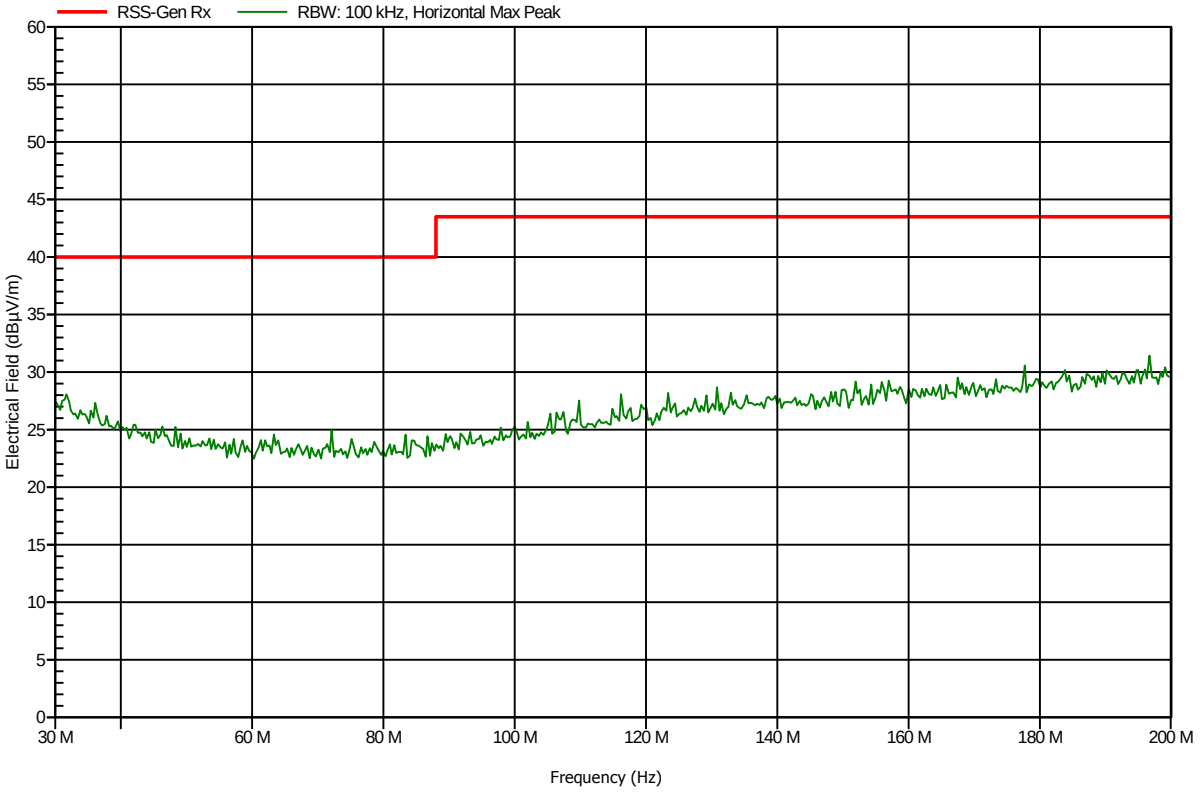

Spurious emissions according to RSS-GEN

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Rohde & Schwarz HK 116, Vertical
Measurement distance:	3 m
Mode:	RX; chip-ant., ch.18
Test Date:	2013-07-08
Note:	

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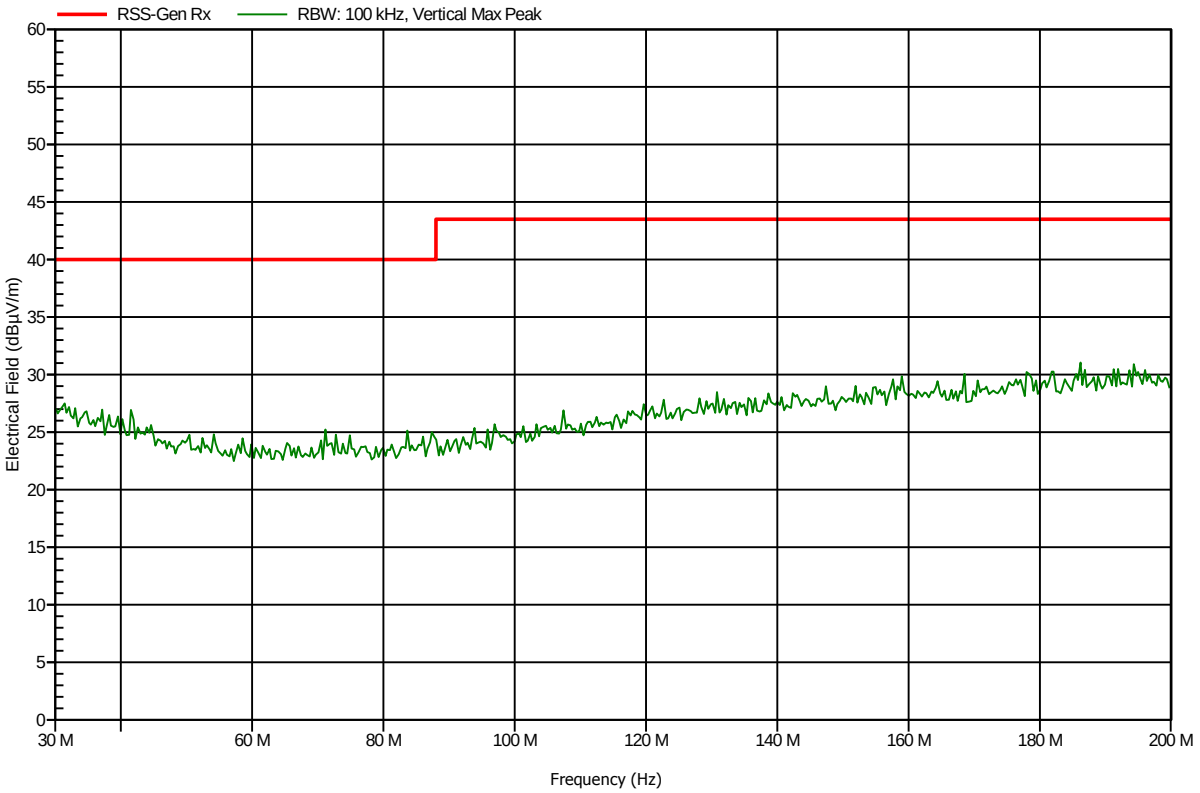

Spurious emissions according to RSS-GEN

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Rohde & Schwarz HL 223, Horizontal
Measurement distance:	3 m
Mode:	RX; chip-ant., ch.18
Test Date:	2013-07-08
Note:	

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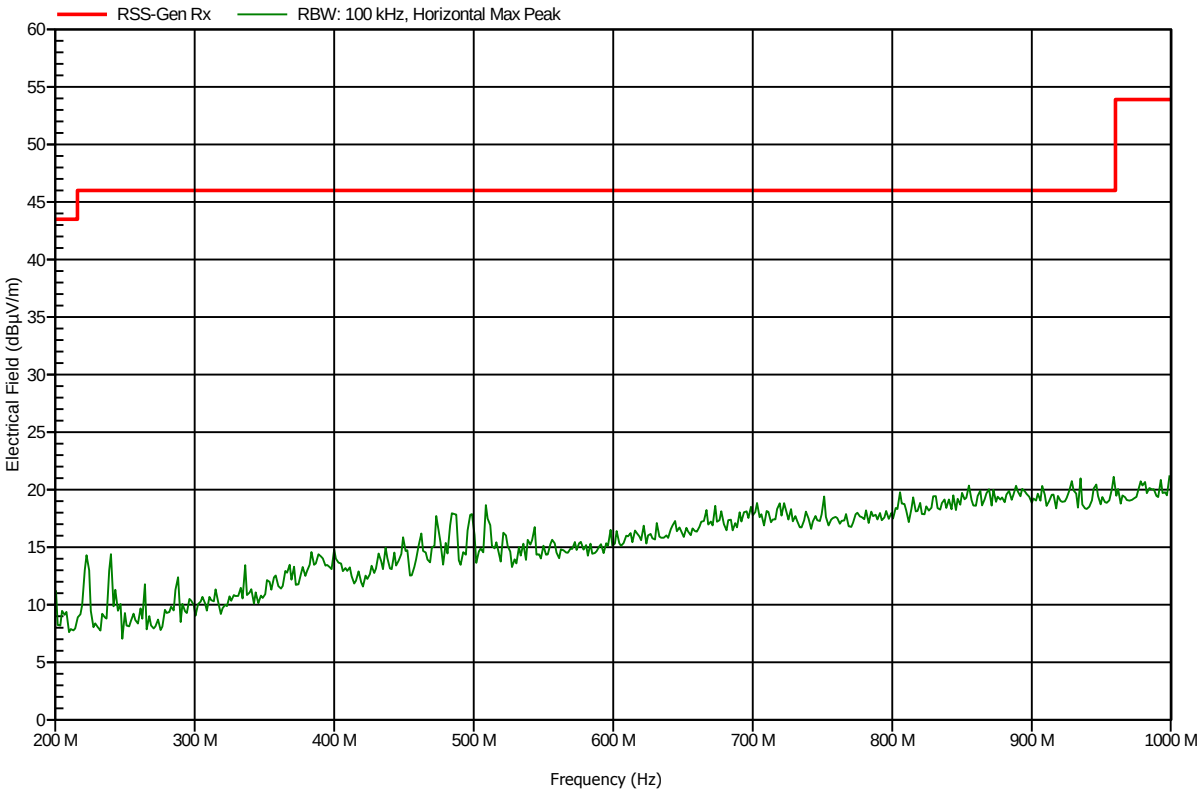

Spurious emissions according to RSS-GEN

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Rohde & Schwarz HL 223, Vertical
Measurement distance:	3 m
Mode:	RX; chip-ant., ch.18
Test Date:	2013-07-08
Note:	

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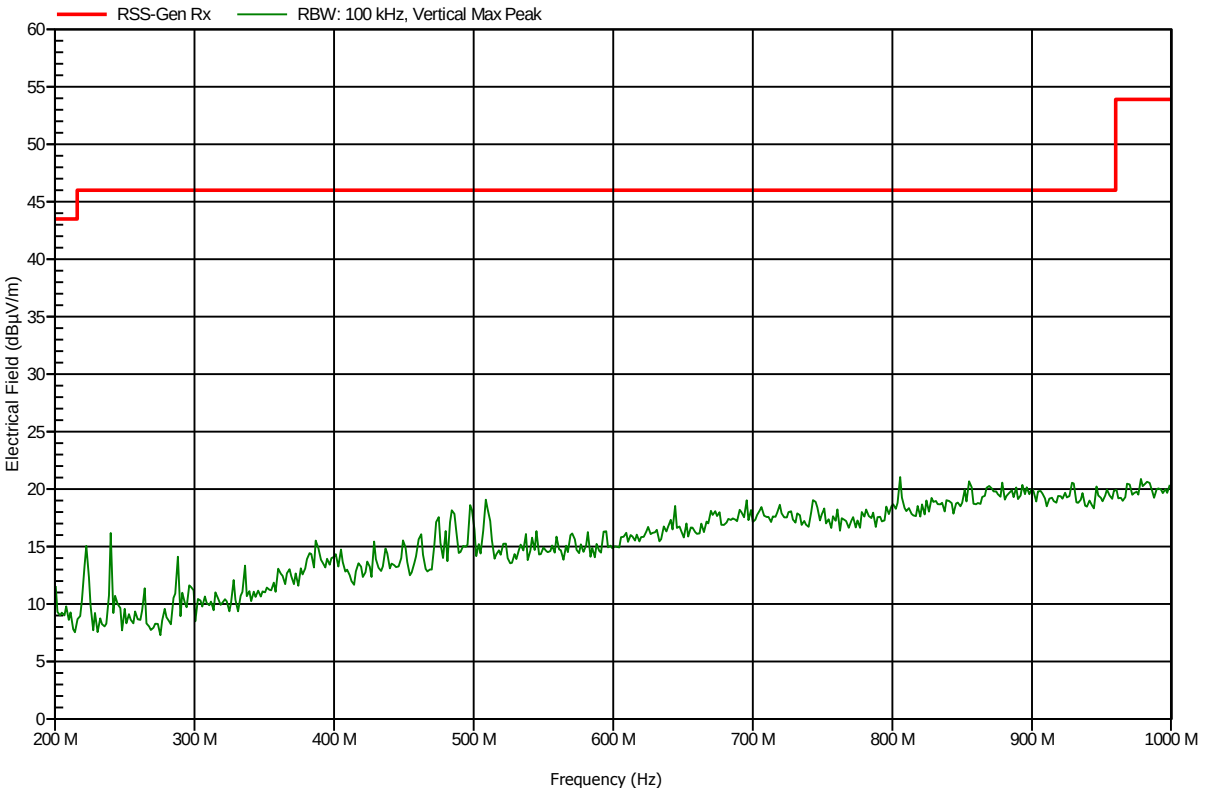

Spurious emissions according to RSS-GEN

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	3 m
Mode:	RX; chip-ant., ch.18
Test Date:	2013-07-08
Note:	

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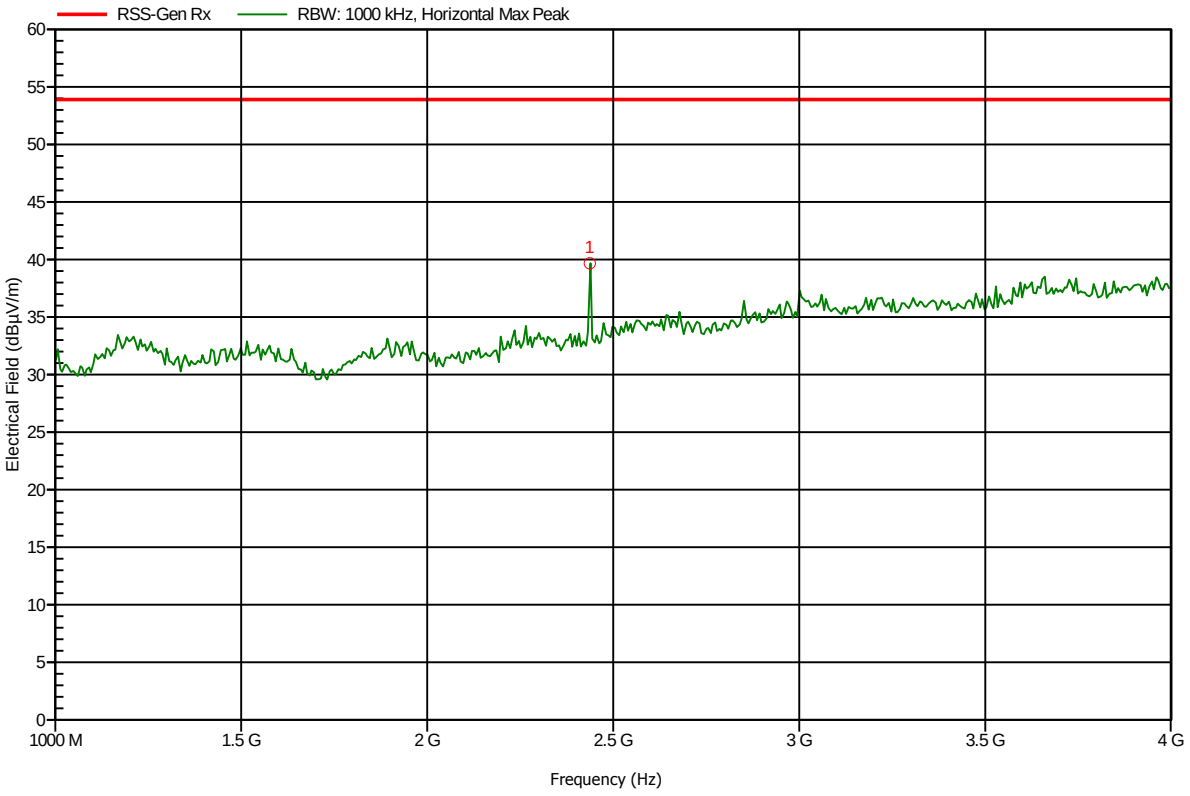

Frequency	Peak	Peak Limit	Peak Difference	Status
2.437 GHz	39.67 dBµV/m	53.9 dBµV/m	-14.23 dB	Pass

Spurious emissions according to RSS-GEN

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	3 m
Mode:	RX; chip-ant., ch.18
Test Date:	2013-07-08
Note:	

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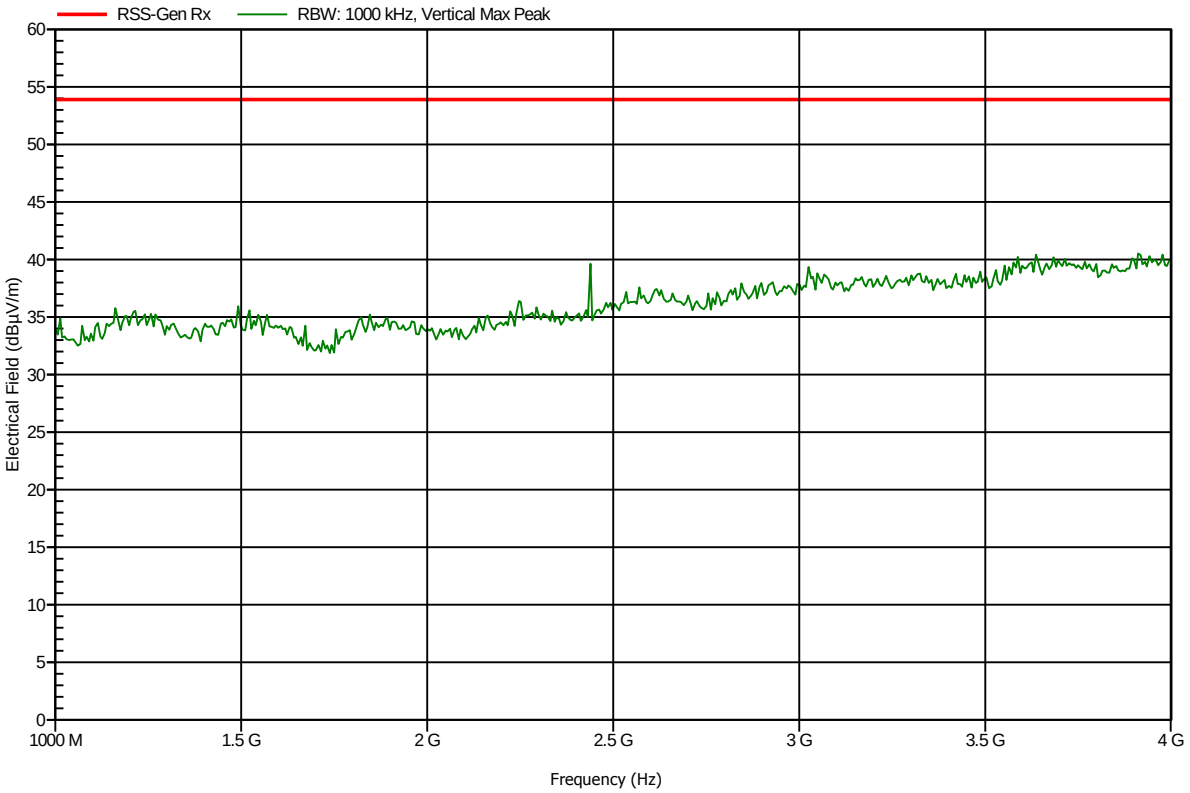

Spurious emissions according to RSS-GEN

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	3 m
Mode:	RX; chip-ant., ch.18
Test Date:	2013-07-08
Note:	

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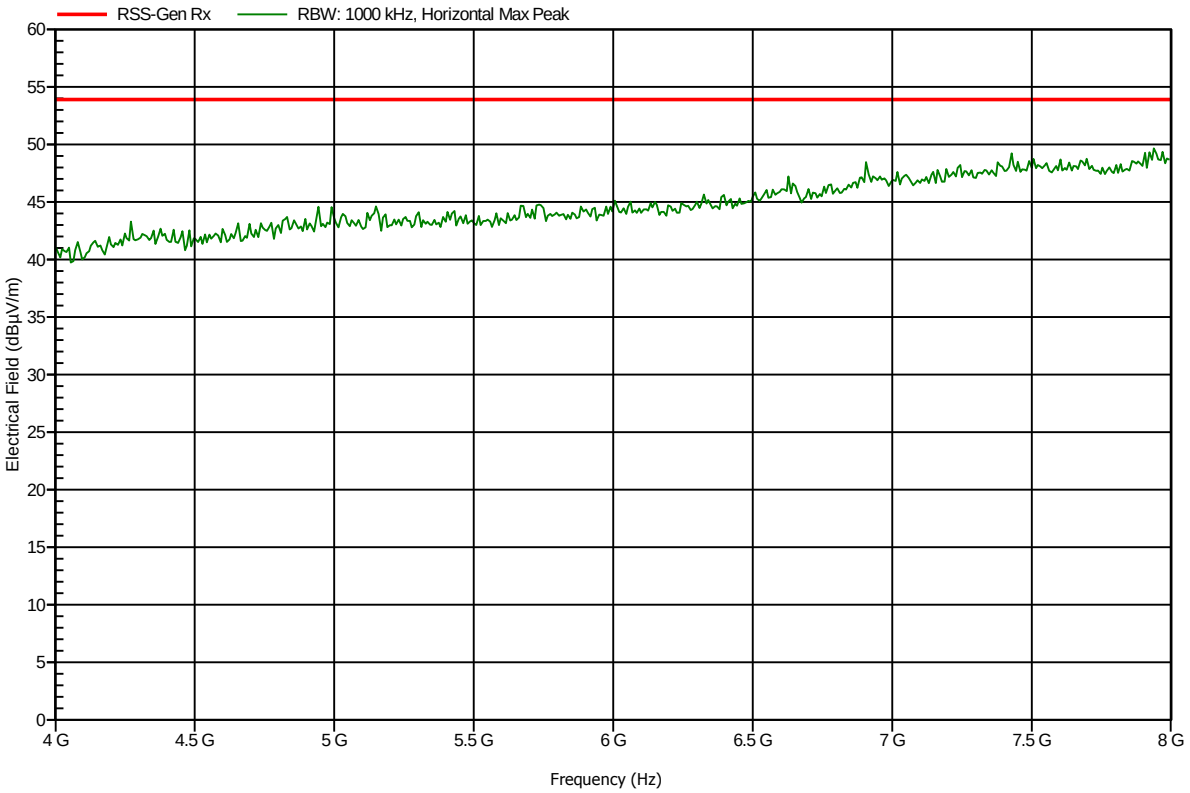

Spurious emissions according to RSS-GEN

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	3 m
Mode:	RX; chip-ant., ch.18
Test Date:	2013-07-08
Note:	

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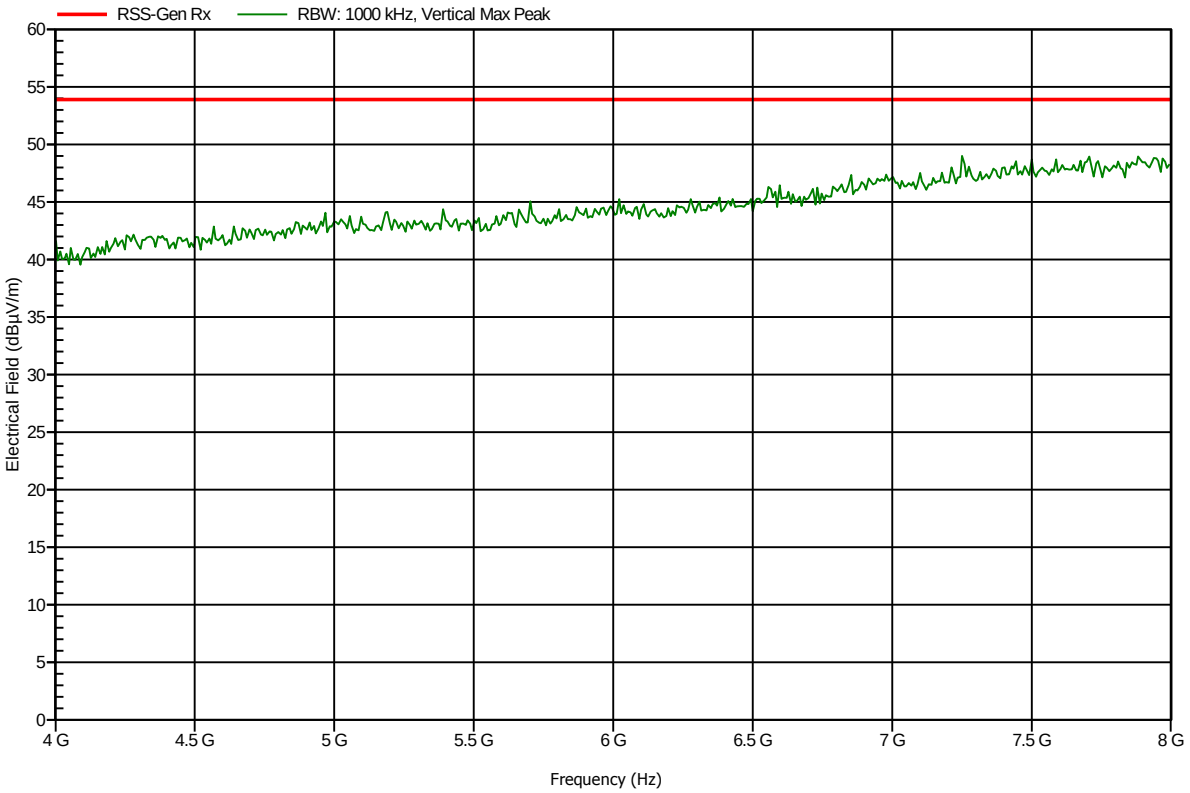

Spurious emissions according to RSS-GEN

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Rohde & Schwarz HK 116, Horizontal
Measurement distance:	3 m
Mode:	RX; WiMo-ant., ch.18
Test Date:	2013-07-09
Note:	

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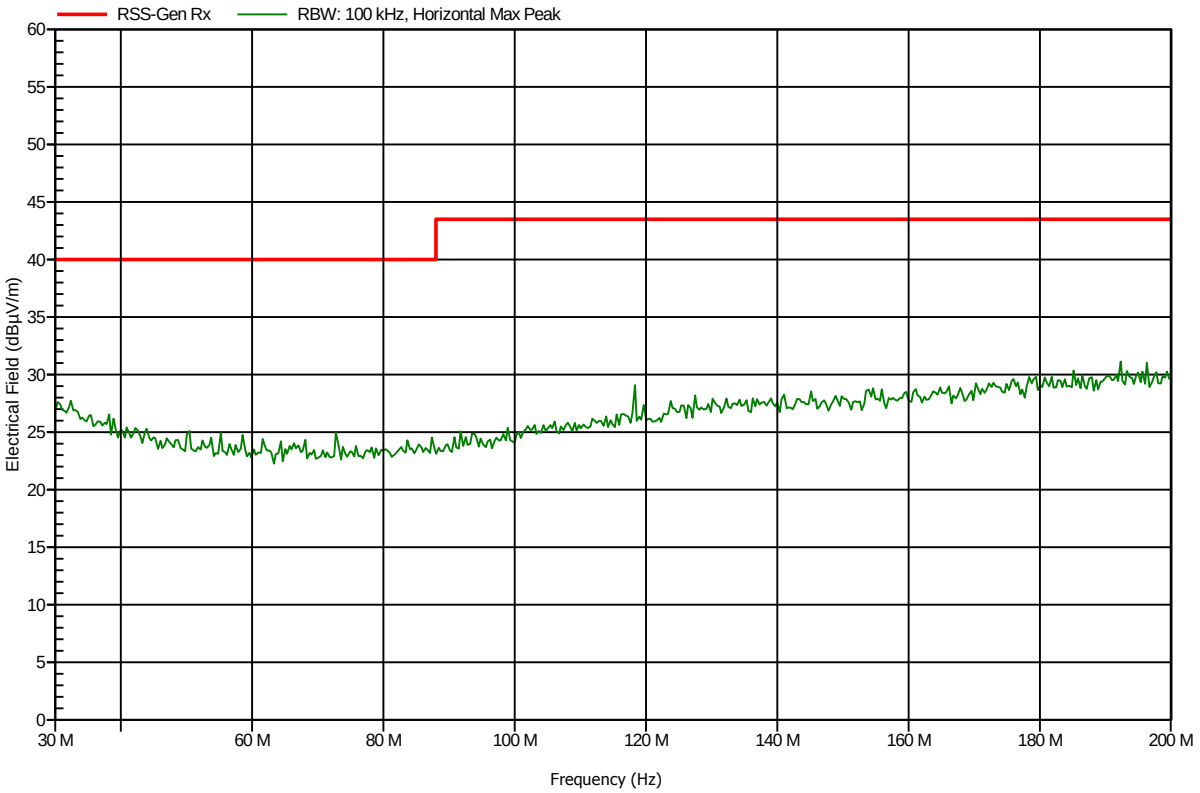

Spurious emissions according to RSS-GEN

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Rohde & Schwarz HK 116, Vertical
Measurement distance:	3 m
Mode:	RX; WiMo-ant., ch.18
Test Date:	2013-07-09
Note:	

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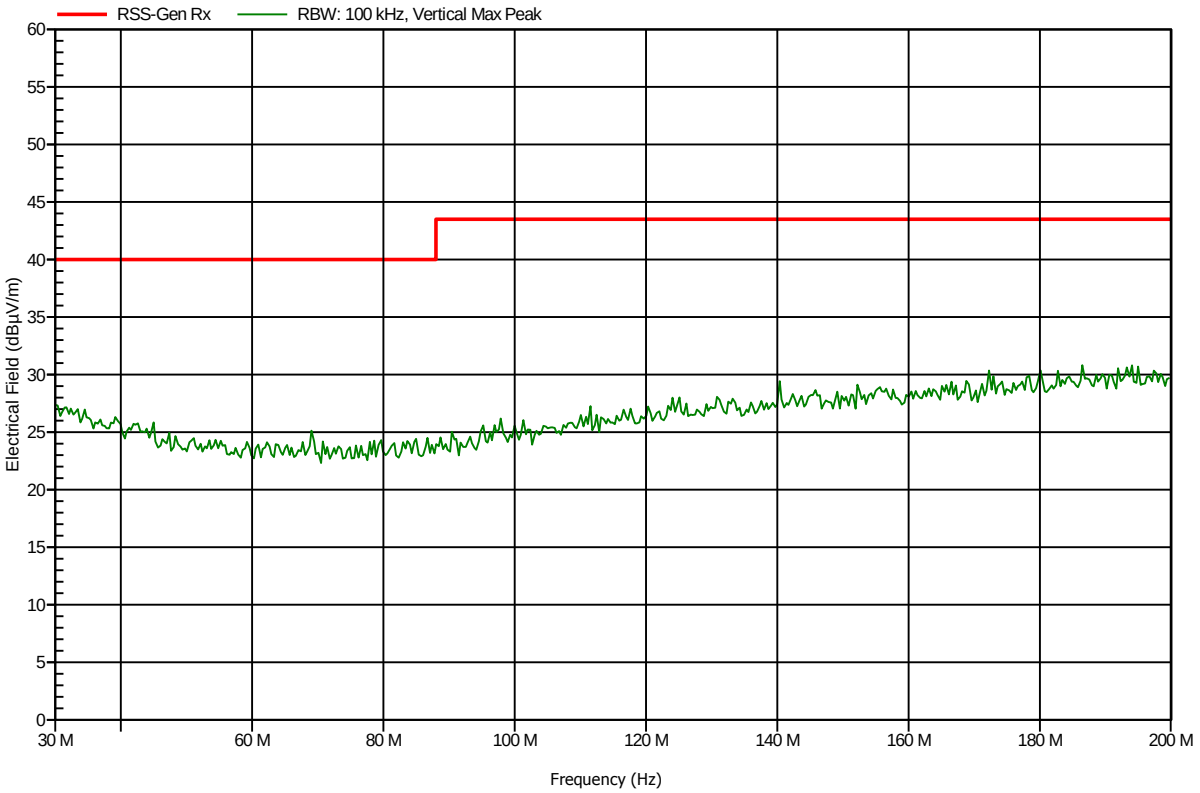

Spurious emissions according to RSS-GEN

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Rohde & Schwarz HL 223, Horizontal
Measurement distance:	3 m
Mode:	RX; WiMo-ant., ch.18
Test Date:	2013-07-09
Note:	

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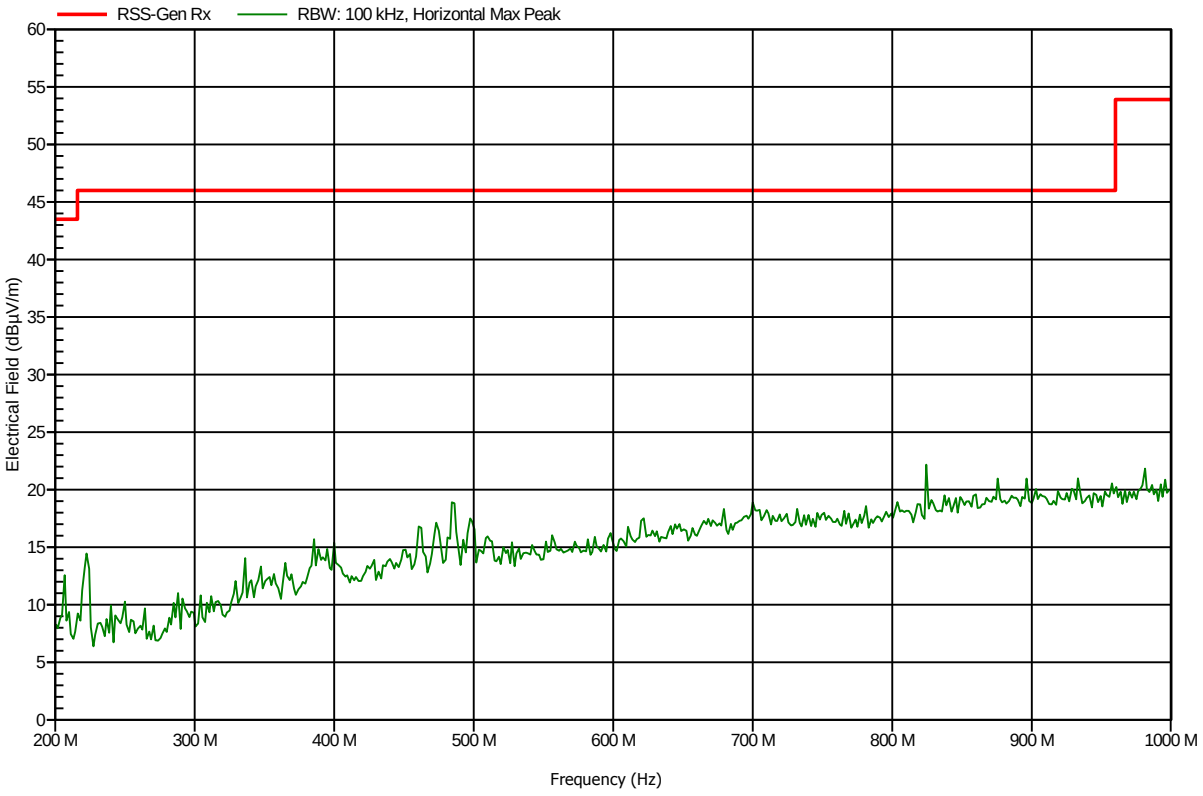

Spurious emissions according to RSS-GEN

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Rohde & Schwarz HL 223, Vertical
Measurement distance:	3 m
Mode:	RX; WiMo-ant., ch.18
Test Date:	2013-07-09
Note:	

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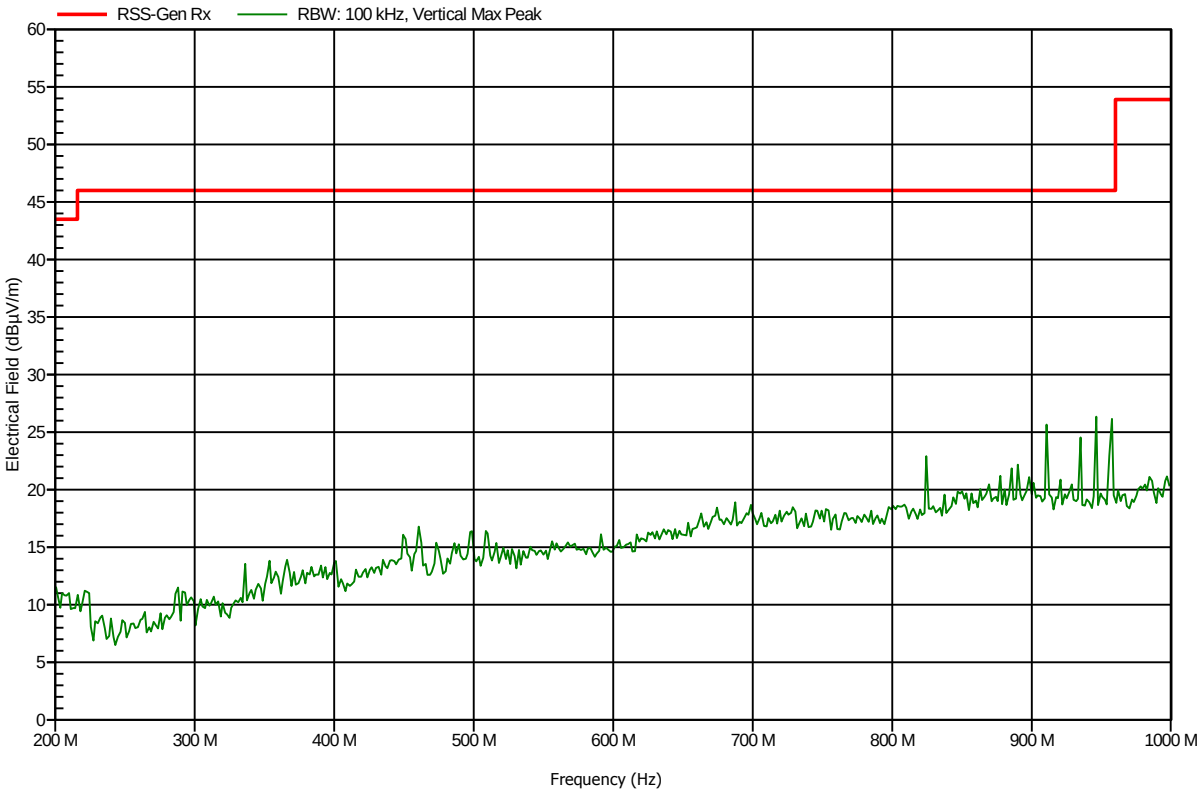

Spurious emissions according to RSS-GEN

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	3 m
Mode:	RX; WiMo-ant., ch.18
Test Date:	2013-07-09
Note:	

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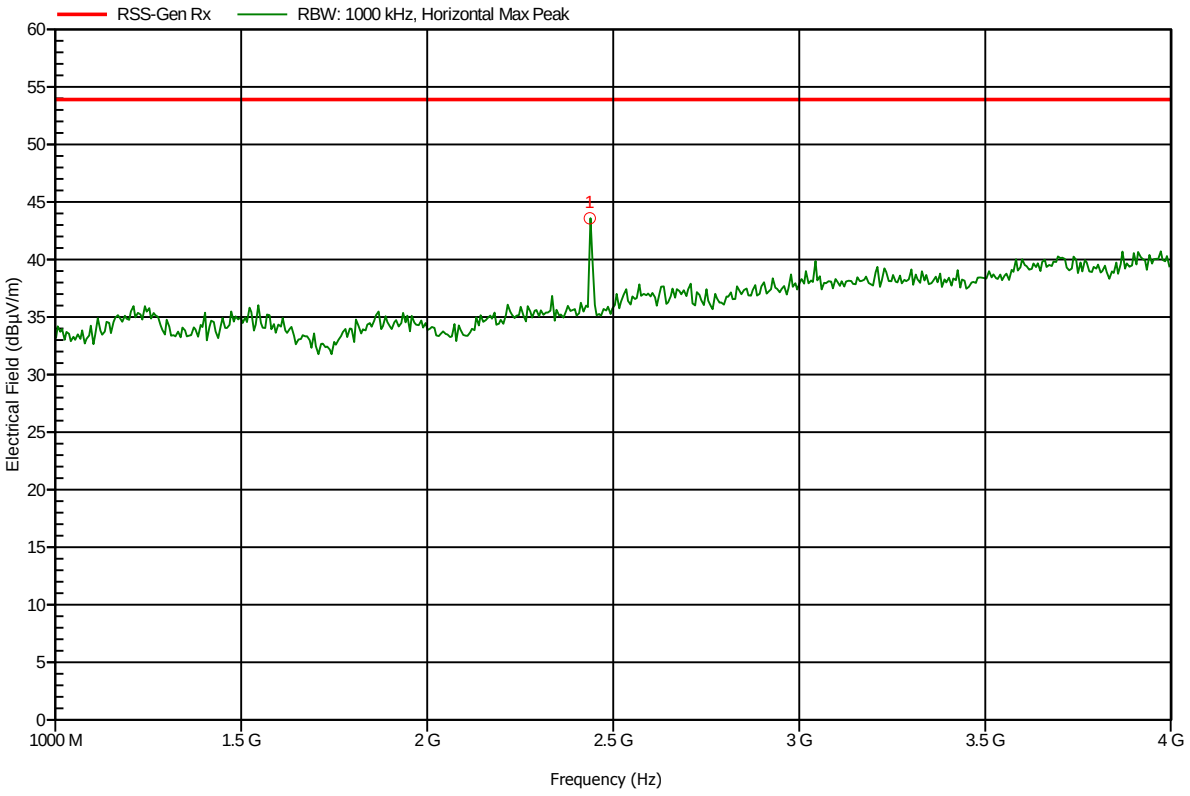

Frequency	Peak	Peak Limit	Peak Difference	Status
2.437 GHz	43.58 dBµV/m	53.9 dBµV/m	-10.32 dB	Pass

Spurious emissions according to RSS-GEN

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	3 m
Mode:	RX; WiMo-ant., ch.18
Test Date:	2013-07-09
Note:	

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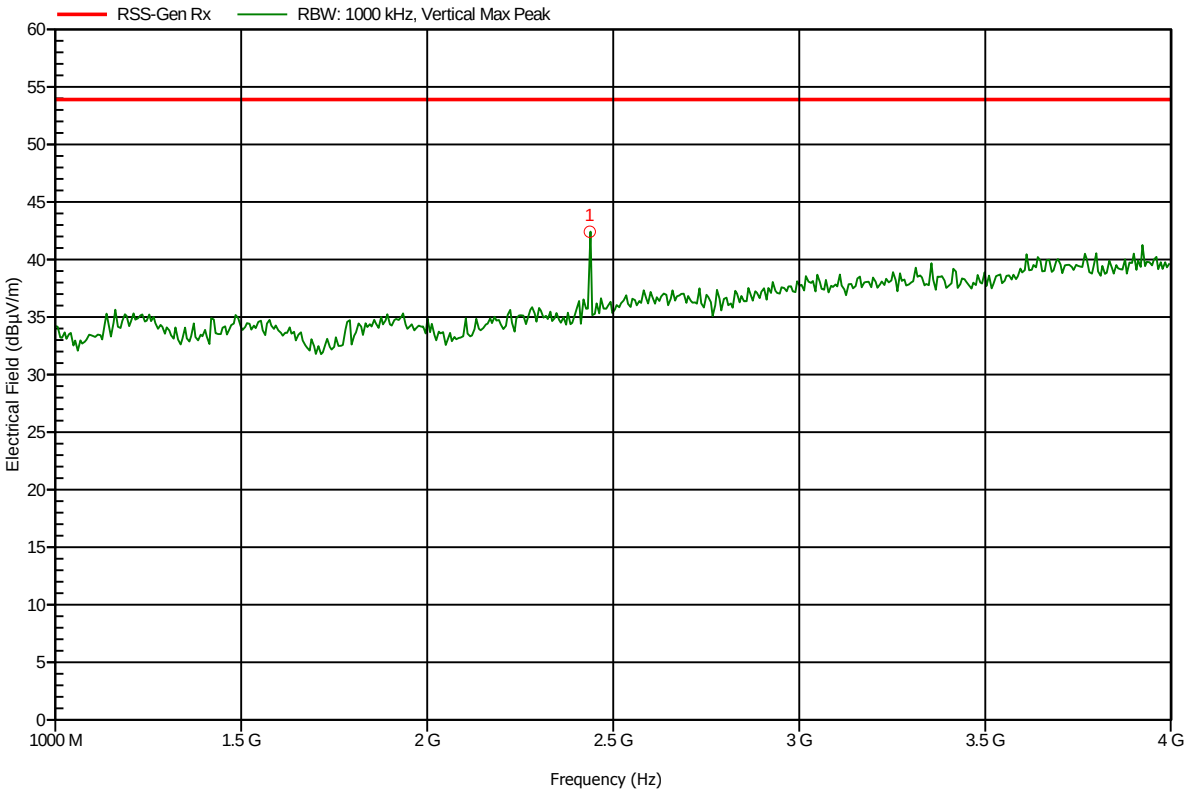

Frequency	Peak	Peak Limit	Peak Difference	Status
2.437 GHz	42.41 dBµV/m	53.9 dBµV/m	-11.49 dB	Pass

Spurious emissions according to RSS-GEN

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	3 m
Mode:	RX; WiMo-ant., ch.18
Test Date:	2013-07-09
Note:	

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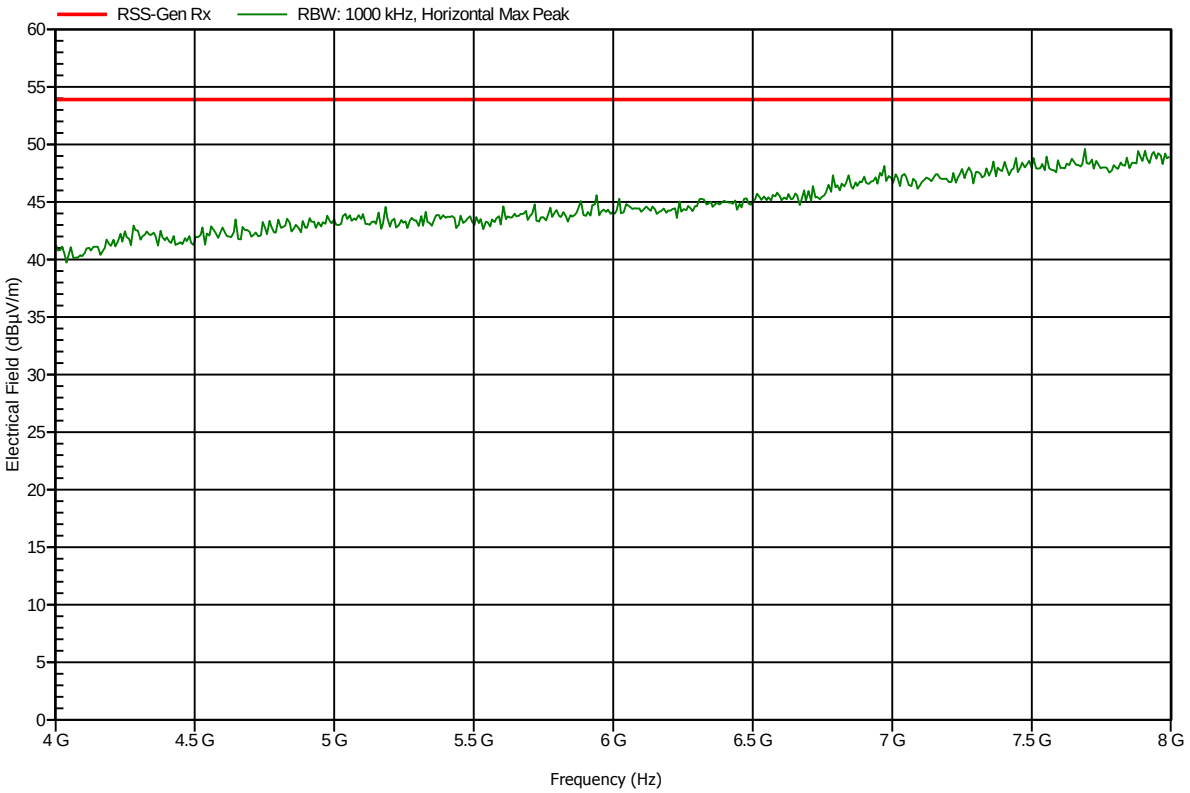

Spurious emissions according to RSS-GEN

Project number: G0M-1305-2854

Manufacturer:	dresden elektronik ingenieurtechnik gmbh
EUT Name:	2.4GHz IEEE 802.15.4 compliant radio module
Model:	deRFmega256-23M12
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: V=3V DC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	3 m
Mode:	RX; WiMo-ant., ch.18
Test Date:	2013-07-09
Note:	

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