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FCC TEST REPORT

FCC 47 CFR Part 15C
Industry Canada RSS-210

Intentional radiator operating within the 2400 – 2483.5 MHz band

Report Reference No. ..... :	G0M-1309-3213-TFC249D-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 ..... :	inmotiotec GmbH
Address ..... :	Oberregauer Straße 48 4844 Regau AUSTRIA
Test specification:	
Standard..... :	47 CFR Part 15C RSS-210, Issue 8, 2010-12 RSS-Gen, Issue 3, 2010-12 ANSI C63.4:2009
Equipment under test (EUT):	
Product description	Transponder
Model No.	LPM Ref.Tp. Compact
Hardware version	H2.3
Firmware / Software version	fcc0
FCC-ID:	2AATD-REFTPV23
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 ..... :	2013-08-05	
Date (s) of performance of tests ..... :	2013-08-26 – 2013-08-27	
Compiled by..... :	Antje Bartusch	
Tested by (+ signature)..... : (Testing Manager)	Wilfried Treffke	.....
Approved by (+ signature) ..... : (Test Lab Manager)	Jens Zimmermann	.....
Date of issue..... :	2013-09-17	
Total number of pages..... :	35	

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

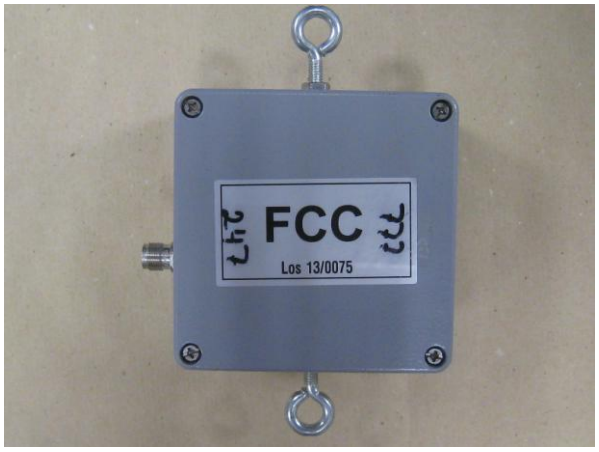
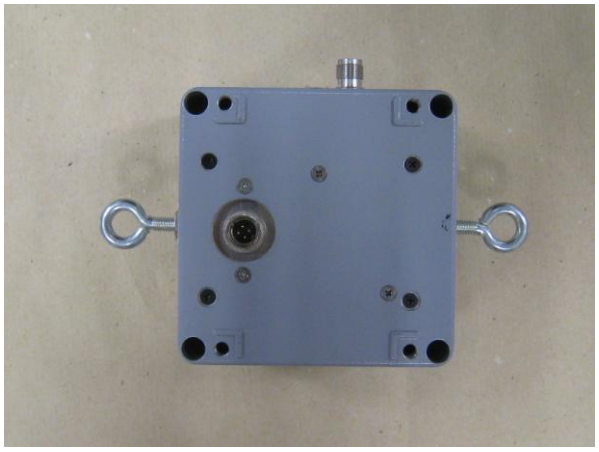
Version	Issue Date	Remarks	Revised by
01	2013-09-17	Initial Release	

REPORT INDEX

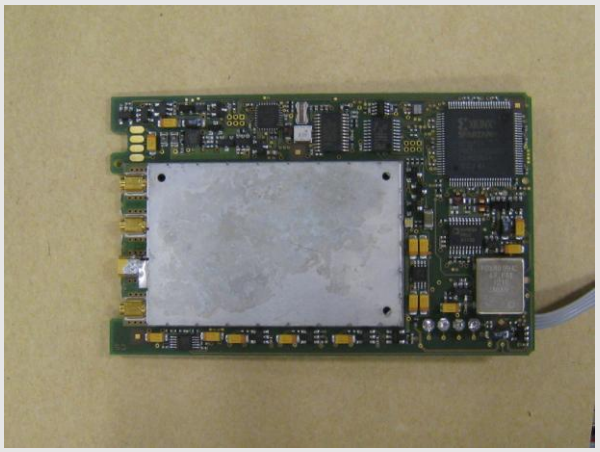
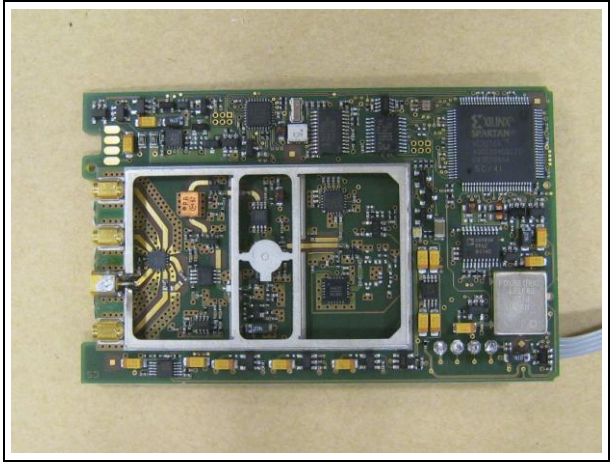
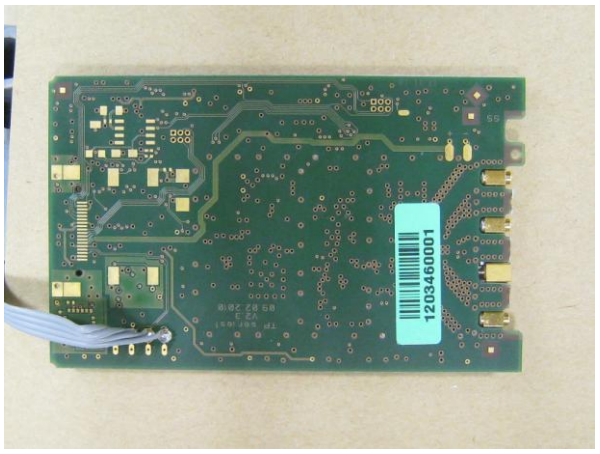
1 Equipment (Test item) Description:

Description	Transponder	
Model	LPM Ref.Tp. Compact	
Serial number	None	
Hardware version	H2.3	
Software / Firmware version	fcc0	
FCC-ID	2AATD-REFTPV23	
Equipment type	End product	
Radio type	Transceiver	
Radio technology	custom	
Operating frequency range	5735 - 5865 MHz	
Assigned frequency band	5725 - 5875 MHz	
Frequency range	F_{MID}	5735 - 5865 MHz
Spreading	Chirp	
Modulations	None	
Channel spacing	None	
Number of antennas	2	
Antenna 1	Type	external dedicated Sencity® OMNI-S Omni-directional WiFi-Antenna
	Model	SOA-5600/360/5/0/V
	Manufacturer	HUBER+SUHNER
	Gain	5 dBi
Antenna 2	Type	external dedicated Sencity® OMNI-S Antenna Omni-directional WiFi-Antenna
	Model	SWA-2459/360/4/45/V
	Manufacturer	HUBER+SUHNER
	Gain	4 dBi
Manufacturer	Abatec Group AG Oberregauerstraße 48 4844 Regau Austria	
Power supply	V_{NOM}	120 VAC
	V_{MIN}	N/A
	V_{MIN}	N/A
AC/DC-Adaptor	Model	MW3H36GS
	Vendor	MW
	Input	100-240VAC, 50-60Hz, 800mA
	Output	12V; 3A

1.1 Photos – Equipment External

EUT TOP	EUT BOTTOM
	
EUT FRONT	**AC/DC ADAPTER**
	
Antenna 1 (SOA-5600/360/5/0/V)	**Antenna 2 (SWA-2459/360/4/45/V)**
	

1.2 Photos – Equipment internal

EUT OPEN	PCB TOP
	
PCB WITHOUT SHEILDING	**PCB BOTTOM**
	

1.3 Photos – Test setup

TESTSETUP RADIATED MEASUREMENTS

TESTSETUP 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	
Single	General conditions:	EUT powered by fully charged battery
	Radio conditions:	Mode = standalone transmit Spreading = Chirp Modulation = None Power level = Maximum

1.6 Test Equipment Used During Testing

Field strength emissions					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Semi-anechoic chamber	Frankonia	AC 5	EF00395	calibration	calibration
Spectrum Analyzer	R&S	FSIQ26	EF00242	2013-06	2014-06
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 powerline 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	EF00297	2012-09	2013-09

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

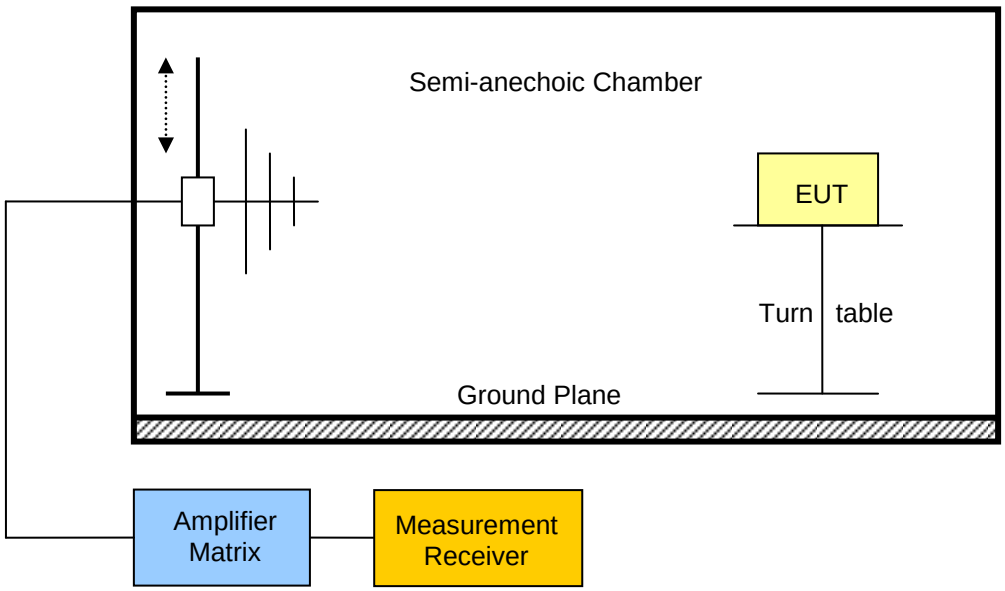
2 Result Summary

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/N	
FCC 15.249(a),(c),(e) IC RSS-210 A2.9(a)	Fundamental field strength emissions	ANSI C63.4	PASS	
FCC 15.249(a),(c),(d),(e) IC RSS-210 A2.9(a),(b)	Emission radiated outside the specified frequency band	ANSI C63.4	PASS	
IC RSS-210 Section 2.3 IC RSS-Gen 4.10 6.1	Receiver radiated spurious emissions	ANSI C63.4	N/N	
FCC § 15.207 IC RSS-Gen 7.2.4	AC power line conducted emissions	ANSI C63.4	PASS	
Remarks:				

3 Test Conditions and Results

3.1 Test Conditions and Results – Fundamental field strength emissions

Field strength emissions acc. FCC 47 CFR 15.249 / IC RSS-210				**Verdict: PASS**
Test according referenced standards		Reference Method		
		FCC 15.249(a),(c),(e) / IC RSS-210 A2.9(a)		
Test according to measurement reference		Reference Method		
		ANSI C63.4		
Test frequency range		Tested frequencies		
		F_{MID}		
EUT test mode		Single		
Limits				
Frequency range [MHz]	Detector	Limit [mV/m]	Limit [dBµV/m]	Limit Distance [m]
902 – 928	Quasi-Peak	50	94	3
2400 – 2483.5	Average	50	94	3
5725 - 5875	Average	50	94	3
FCC 15.249(e) : for frequencies above 1000 MHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. Below 1GHz a CISPR quasi-peak detector is used.				
Test setup				



Test procedure
1. EUT set to test mode 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 maximum emission levels

Test results – Antenna 1

Channel	Frequency [MHz]	Emission [MHz]	Level [dbµV/m]	Detector	Pol.	Limit [dbµV/m]	Limit distance [m]*	Margin [dB]
F_{MID}	5735 - 5865	5735	106.16	pk	hor	114.00	3	-07.84
F_{MID}	5735 - 5865	5735	71.08	avg	hor	94.00	3	-22.92
F_{MID}	5735 - 5865	5735	103.95	pk	ver	114.00	3	-10.05
F_{MID}	5735 - 5865	5735	69.28	avg	ver	94.00	3	-24.72
F_{MID}	5735 - 5865	5768	106.00	pk	hor	114.00	3	-08.00
F_{MID}	5735 - 5865	5768	66.59	avg	hor	94.00	3	-27.41
F_{MID}	5735 - 5865	5840	104.55	pk	ver	114.00	3	-09.45
F_{MID}	5735 - 5865	5840	65.95	avg	ver	94.00	3	-28.05
F_{MID}	5735 - 5865	5852	104.30	pk	ver	114.00	3	-09.70
F_{MID}	5735 - 5865	5852	65.87	avg	ver	94.00	3	-28.13

Test results – Antenna 2

Channel	Frequency [MHz]	Emission [MHz]	Level [dbµV/m]	Detector	Pol.	Limit [dbµV/m]	Limit distance [m]*	Margin [dB]
F_{MID}	5735 - 5865	5735	96.17	pk	hor	114.00	3	-17.83
F_{MID}	5735 - 5865	5735	64.50	avg	hor	94.00	3	-29.50
F_{MID}	5735 - 5865	5735	112.85	pk	ver	114.00	3	-01.15
F_{MID}	5735 - 5865	5735	76.67	avg	ver	94.00	3	-17.33
F_{MID}	5735 - 5865	5739	112.72	pk	ver	114.00	3	-01.28
F_{MID}	5735 - 5865	5739	71.43	avg	ver	94.00	3	-22.57
F_{MID}	5735 - 5865	5799	96.22	pk	hor	114.00	3	-17.78
F_{MID}	5735 - 5865	5799	62.08	avg	hor	94.00	3	-31.92
F_{MID}	5735 - 5865	5806	112.89	pk	ver	114.00	3	-01.11
F_{MID}	5735 - 5865	5806	71.53	avg	ver	94.00	3	-22.47
F_{MID}	5735 - 5865	5850	95.92	pk	hor	114.00	3	-18.08
F_{MID}	5735 - 5865	5850	62.03	avg	hor	94.00	3	-31.97

Comments: * Physical distance between EUT and measurement antenna.

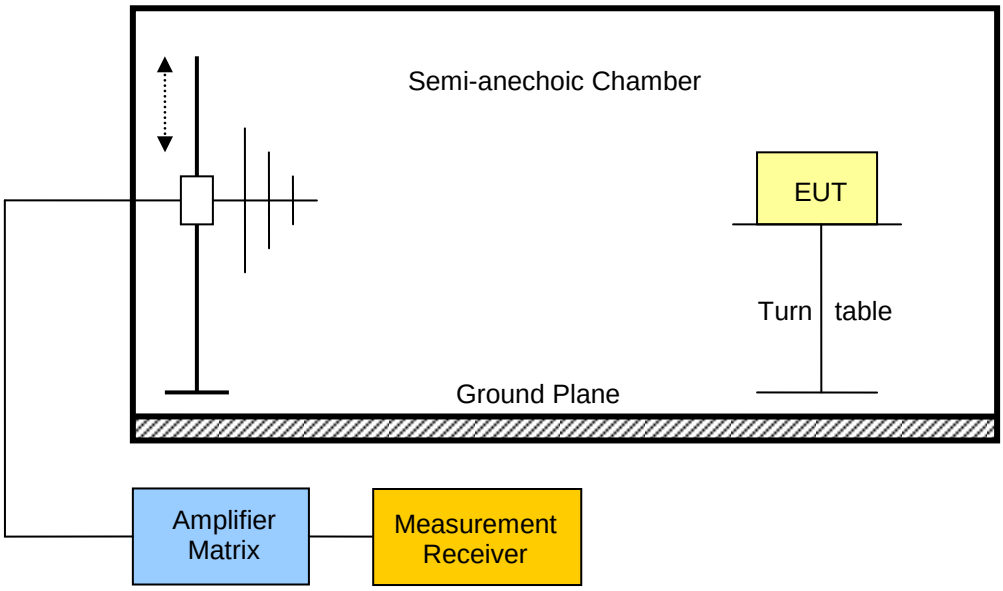
3.2 Test Conditions and Results – Emissions radiated outside the specified frequency band

Radiated out-of-band band emissions acc. FCC 47 CFR 15.249 / IC RSS-210				**Verdict: PASS**
Test according referenced standards		Reference Method		
		FCC 15.249(a),(c),(d),(e) / IC RSS-210 A2.9(a),(b)		
Test according to measurement reference		Reference Method		
		ANSI C63.4		
Test frequency range		Tested frequencies		
		30 MHz – 10th hamonic		
EUT test mode		Single		
Limits - Harmonics				
Frequency range [MHz]	Detector	Limit [µV/m]	Limit [dBµV/m]	Limit Distance [m]
902 – 928	Quasi-Peak	500	54	3
2400 – 2483.5	Average	500	54	3
5725 - 5875	Average	500	54	3
Limits - General				
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

FCC 15.249(e) : for frequencies above 1000 MHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

Except the higher order harmonics, emission radiated outside the specified frequency band shall be attenuated by at least 50 dB below the level of the fundamental or to the general field strength limits listed in 15.209 / RSS-Gen, whichever is less stringent.

Test setup



Test procedure

5. EUT set to test mode
6. Span it set according to measurement range
7. 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
8. Markers are set to maximum emission levels

Test results – Antenna 1 (worst case)

Channel	Frequency [MHz]	Emission [MHz]	Level [dbµV/m]	Detector	Pol.	Limit [dbµV/m]	Limit distance [m]*	Margin [dB]
F_{MID}	5730 - 5865	59.22	30.78	pk	ver	40.00	3	-09.22
F_{MID}	5730 - 5865	59.52	37.22	pk	hor	40.00	3	-02.78
F_{MID}	5730 - 5865	70.68	27.17	pk	ver	40.00	3	-12.83
F_{MID}	5730 - 5865	71.4	35.34	pk	hor	40.00	3	-04.66
F_{MID}	5730 - 5865	220.8	18.37	pk	hor	46.00	3	-27.63
F_{MID}	5730 - 5865	1762	43.63	pk	ver	74.00	3	-30.37
F_{MID}	5730 - 5865	5725	53.75	pk	hor	74.00	3	-20.25
F_{MID}	5730 - 5865	5725	31.35	avg	hor	54.00	3	-22.65
F_{MID}	5730 - 5865	5725	67.26	pk	ver	74.00	3	-06.74
F_{MID}	5730 - 5865	5725	33.00	avg	ver	54.00	3	-21.00
F_{MID}	5730 - 5865	5875	73.77	pk	ver	74.00	3	-00.23
F_{MID}	5730 - 5865	5875	33.29	avg	ver	54.00	3	-20.71
F_{MID}	5730 - 5865	5876	58.51	pk	hor	74.00	3	-15.49
F_{MID}	5730 - 5865	5876	31.65	avg	hor	54.00	3	-22.35

F_{MID}	5730 - 5865	11520	57.08	pk	ver	74.00	3	-16.92
F_{MID}	5730 - 5865	11520	30.93	avg	ver	54.00	3	-23.07
F_{MID}	5730 - 5865	11716	55.92	pk	hor	74.00	3	-18.08
F_{MID}	5730 - 5865	11716	30.53	avg	hor	54.00	3	-23.47
Comments: * Physical distance between EUT and measurement antenna.								

3.4 Test Conditions and Results – AC power line conducted emissions

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

Conducted Emissions

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

Project number: G0M-1309-3213

Manufacturer:	inmotiotec GmbH
EUT Name:	Transponder
Model:	LPM Ref.Tp. Compact
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Handrik
Test Conditions:	Tnom: 23°C, Unom: 120 V AC (AC/DC adaptor)
LISN:	ESH2-Z5 N
Mode:	Powered by AC/DC Adaptor
Test Date:	2013-08-26
Note:	

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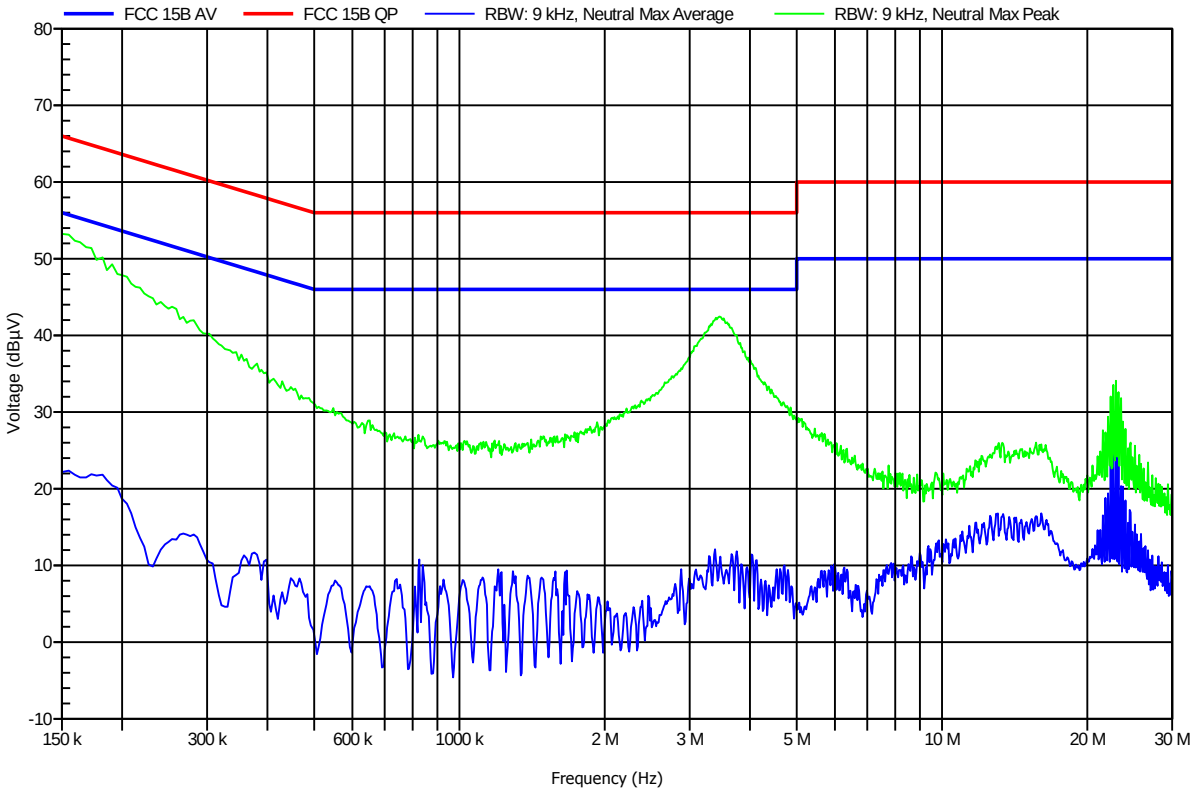

Conducted Emissions

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

Project number: G0M-1309-3213

Manufacturer:	inmotiotec GmbH
EUT Name:	Transponder
Model:	LPM Ref.Tp. Compact
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Handrik
Test Conditions:	Tnom: 23°C, Unom: 120 V AC (AC/DC adaptor)
LISN:	ESH2-Z5 L
Mode:	Powered by AC/DC Adaptor
Test Date:	2013-08-26
Note:	

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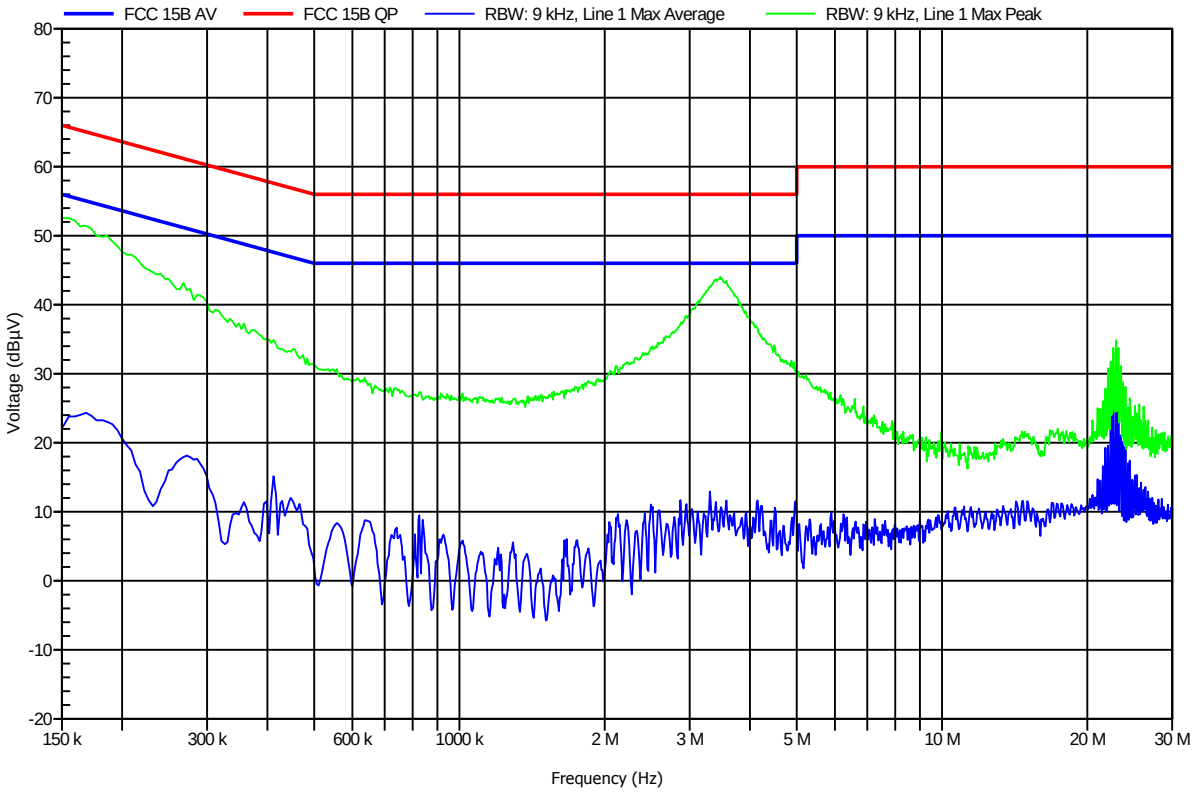

ANNEX A Fundamental field strength emissions

Field Strength of Emissions according to FCC 15.249

Project number: G0M-1309-3213

Manufacturer:	inmotiotec GmbH
EUT Name:	Transponder
Model:	LPM Ref.Tp. Compact
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 25°C, Vnom: 120 V AC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	3 m
Mode:	TX; Chirp, ant. SOA S600/360/5/0/V
Test Date:	2013-08-26
Note:	

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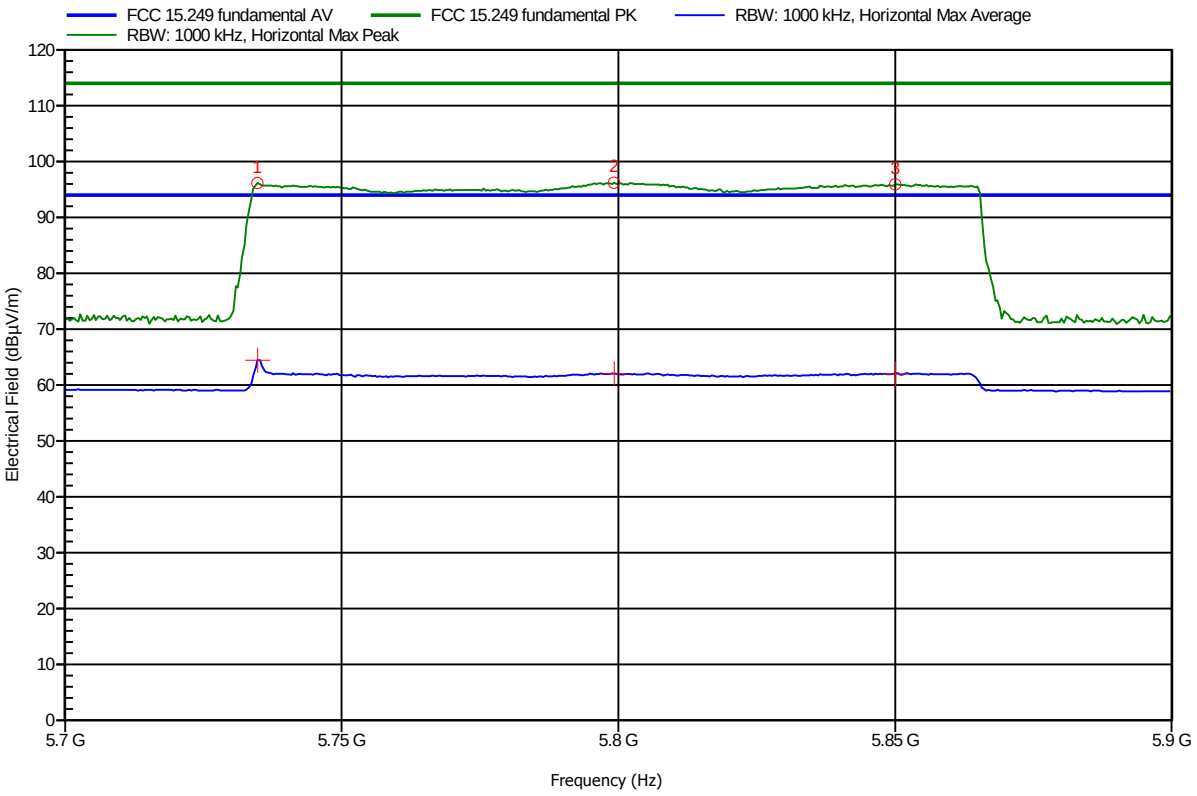

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
5.735 GHz	96.17 dBµV/m	114 dBµV/m	-17.83 dB	Pass
5.799 GHz	96.22 dBµV/m	114 dBµV/m	-17.78 dB	Pass
5.85 GHz	95.92 dBµV/m	114 dBµV/m	-18.08 dB	Pass

Frequency	Average	Average Limit	Average Difference	Average Status
5.735 GHz	64.5 dBµV/m	94 dBµV/m	-29.5 dB	Pass
5.799 GHz	62.08 dBµV/m	94 dBµV/m	-31.92 dB	Pass
5.85 GHz	62.03 dBµV/m	94 dBµV/m	-31.97 dB	Pass

Field Strength of Emissions according to FCC 15.249

Project number: G0M-1309-3213

Manufacturer:	inmotiotec GmbH
EUT Name:	Transponder
Model:	LPM Ref.Tp. Compact
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 25°C, Vnom: 120 V AC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	3 m
Mode:	TX; Chirp, ant. SOA S600/360/5/0/V
Test Date:	2013-08-26
Note:	

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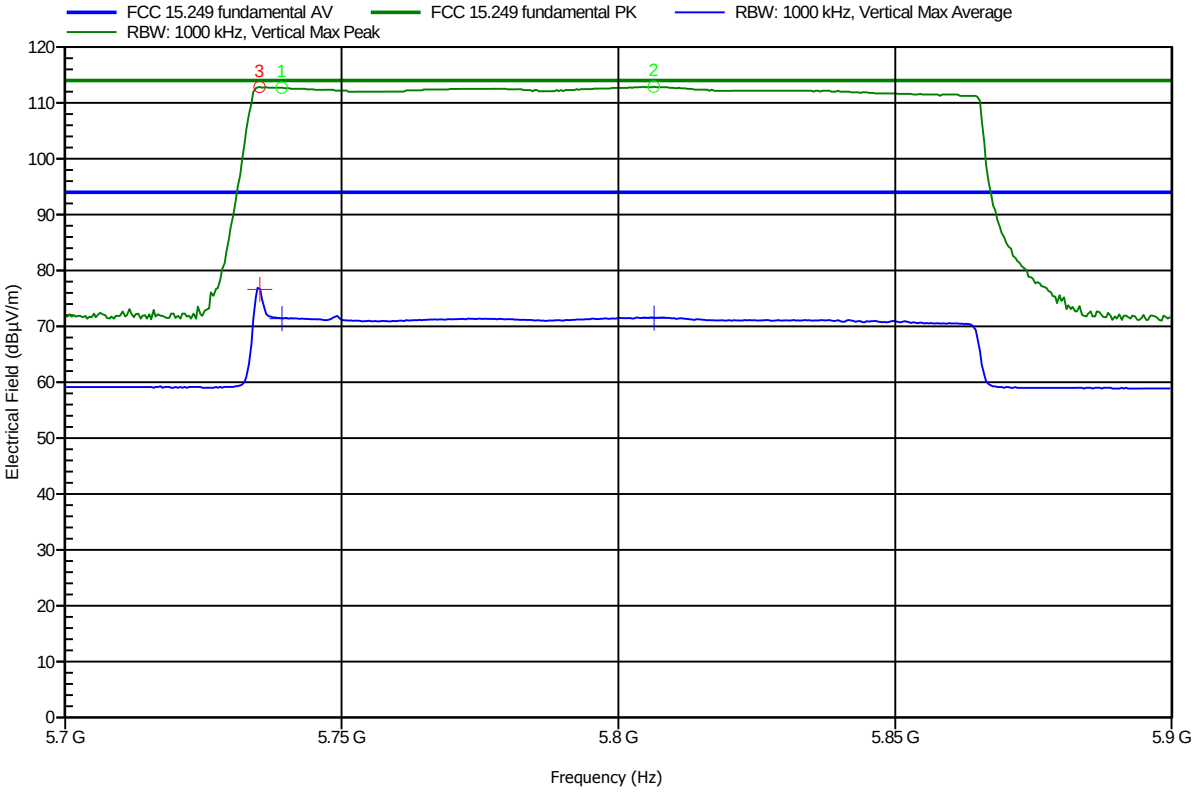

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
5.735 GHz	112.85 dBµV/m	114 dBµV/m	-1.15 dB	Pass
5.739 GHz	112.72 dBµV/m	114 dBµV/m	-1.28 dB	Pass
5.806 GHz	112.89 dBµV/m	114 dBµV/m	-1.11 dB	Pass

Frequency	Average	Average Limit	Average Difference	Average Status
5.735 GHz	76.67 dBµV/m	94 dBµV/m	-17.33 dB	Pass
5.739 GHz	71.43 dBµV/m	94 dBµV/m	-22.57 dB	Pass
5.806 GHz	71.53 dBµV/m	94 dBµV/m	-22.47 dB	Pass

Field Strength of Emissions according to FCC 15.249

Project number: G0M-1309-3213

Manufacturer:	inmotiotec GmbH
EUT Name:	Transponder
Model:	LPM Ref.Tp. Compact
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 25°C, Vnom: 120 V AC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	3 m
Mode:	TX; Chirp, ant. SWA-2459/360/4/45/V
Test Date:	2013-08-26
Note:	

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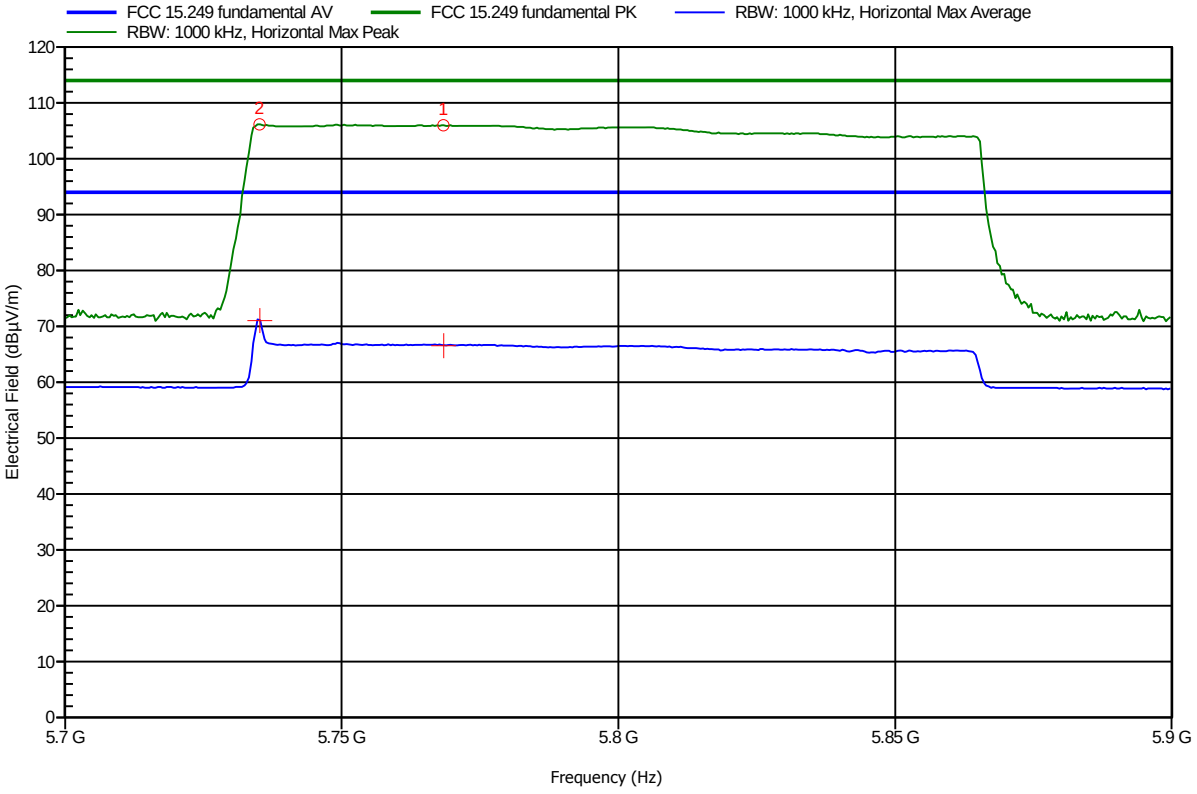

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
5.735 GHz	106.16 dBµV/m	114 dBµV/m	-7.84 dB	Pass
5.768 GHz	106 dBµV/m	114 dBµV/m	-8 dB	Pass

Frequency	Average	Average Limit	Average Difference	Average Status
5.735 GHz	71.08 dBµV/m	94 dBµV/m	-22.92 dB	Pass
5.768 GHz	66.59 dBµV/m	94 dBµV/m	-27.41 dB	Pass

Field Strength of Emissions according to FCC 15.249

Project number: G0M-1309-3213

Manufacturer:	inmotiotec GmbH
EUT Name:	Transponder
Model:	LPM Ref.Tp. Compact
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 25°C, Vnom: 120 V AC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	3 m
Mode:	TX; Chirp, ant. SWA-2459/360/4/45/V
Test Date:	2013-08-26
Note:	

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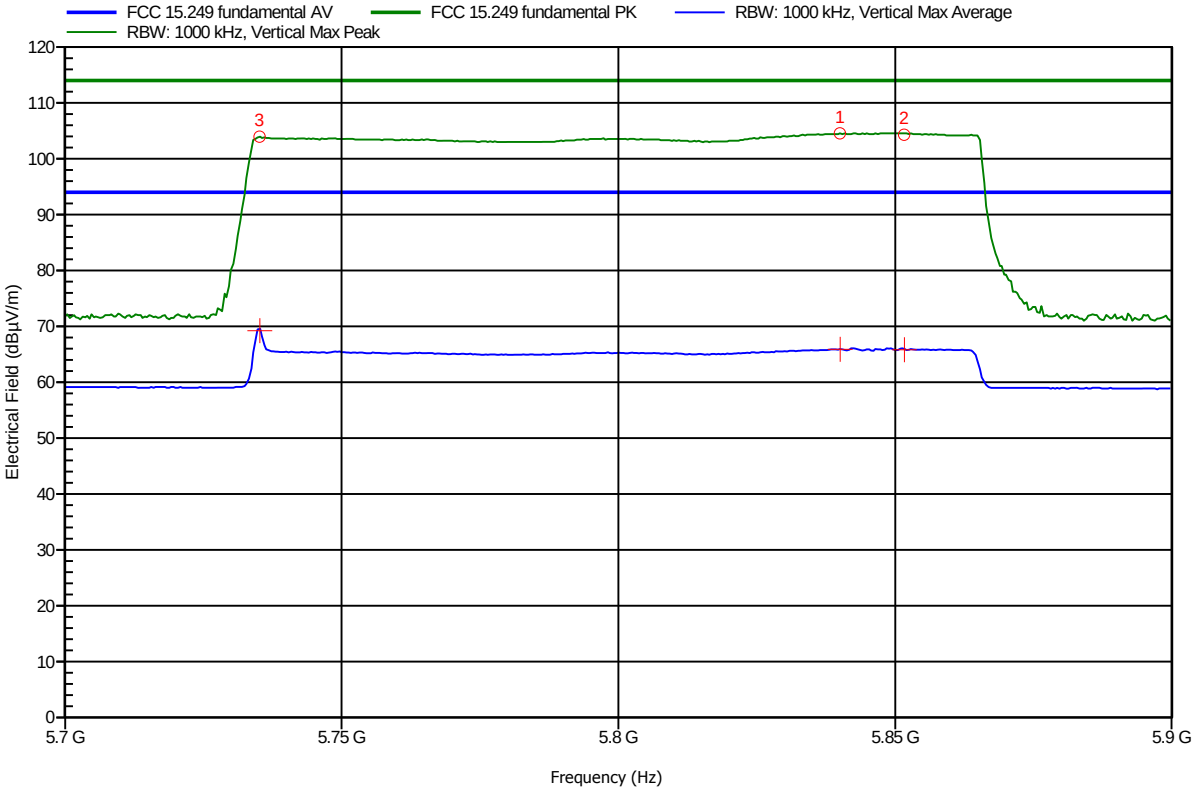

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
5.735 GHz	103.95 dBµV/m	114 dBµV/m	-10.05 dB	Pass
5.84 GHz	104.55 dBµV/m	114 dBµV/m	-9.45 dB	Pass
5.852 GHz	104.3 dBµV/m	114 dBµV/m	-9.7 dB	Pass

Frequency	Average	Average Limit	Average Difference	Average Status
5.735 GHz	69.28 dBµV/m	94 dBµV/m	-24.72 dB	Pass
5.84 GHz	65.95 dBµV/m	94 dBµV/m	-28.05 dB	Pass
5.852 GHz	65.87 dBµV/m	94 dBµV/m	-28.13 dB	Pass

ANNEX B Transmitter radiated spurious emissions

Spurious emissions according to FCC 15.249

Project number: G0M-1309-3213

Manufacturer:	inmotiotec GmbH
EUT Name:	Transponder
Model:	LPM Ref.Tp. Compact
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 25°C, Vnom: 120 V AC
Antenna:	Rohde & Schwarz HK 116, Horizontal
Measurement distance:	3 m
Mode:	TX; Chirp, ant. SOA S600/360/5/0/V
Test Date:	2013-08-26
Note:	

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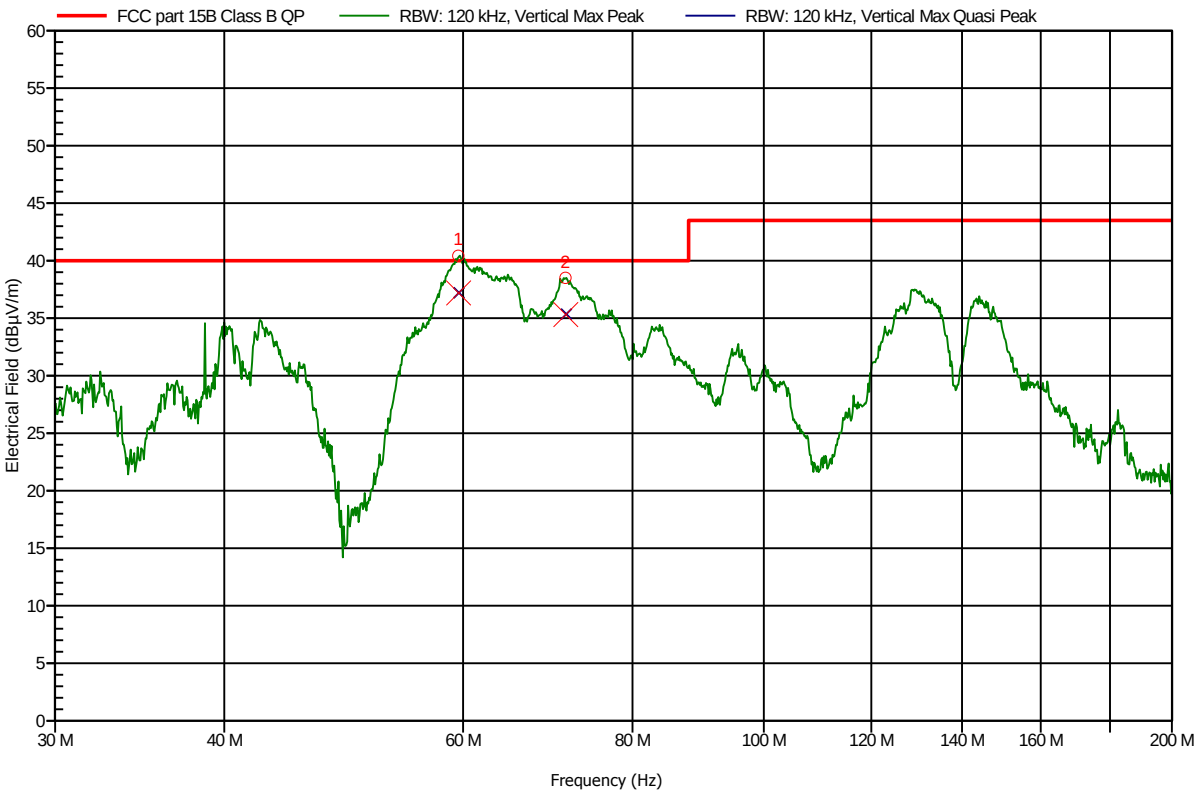

Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status
59.52 MHz	37.22 dBµV/m	40 dBµV/m	-2.78 dB	Pass
71.4 MHz	35.34 dBµV/m	40 dBµV/m	-4.66 dB	Pass

Spurious emissions according to FCC 15.249

Project number: G0M-1309-3213

Manufacturer:	inmotiotec GmbH
EUT Name:	Transponder
Model:	LPM Ref.Tp. Compact
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 25°C, Vnom: 120 V AC
Antenna:	Rohde & Schwarz HK 116, Vertical
Measurement distance:	3 m
Mode:	TX; Chirp, ant. SOA S600/360/5/0/V
Test Date:	2013-08-26
Note:	

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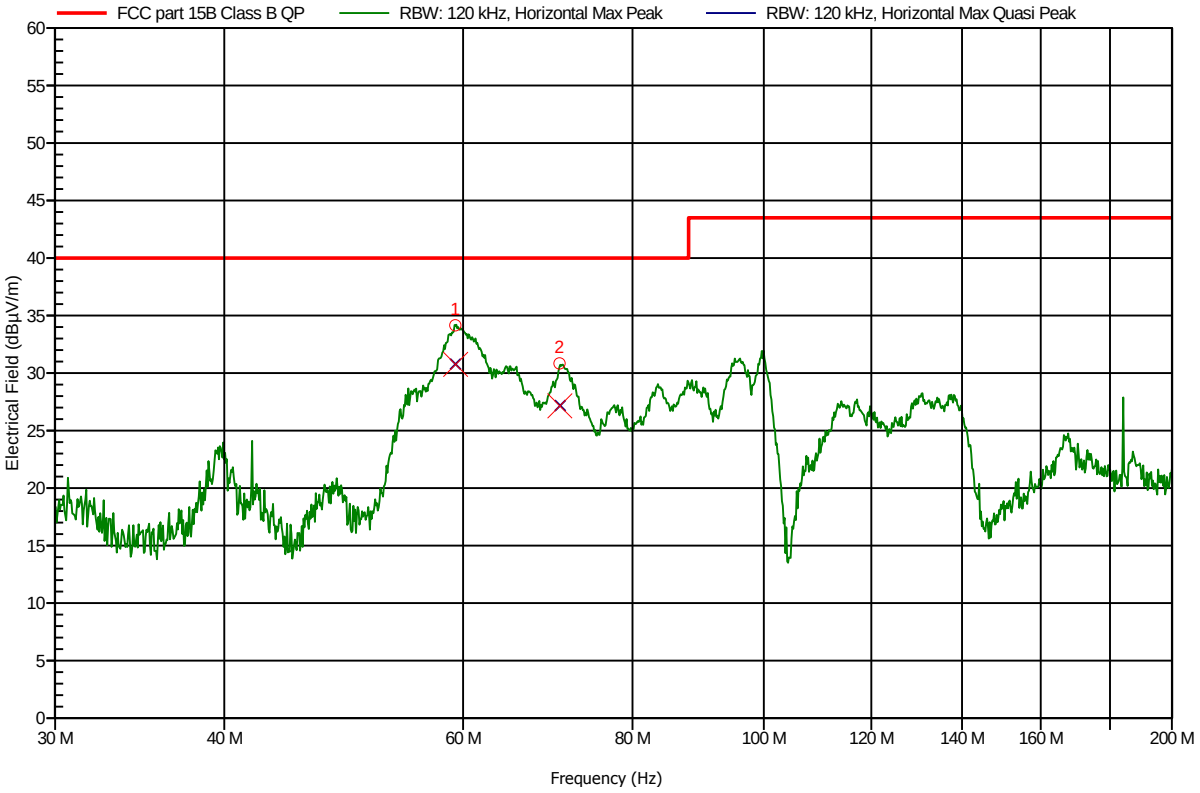

Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status
59.22 MHz	30.78 dBµV/m	40 dBµV/m	-9.22 dB	Pass
70.68 MHz	27.17 dBµV/m	40 dBµV/m	-12.83 dB	Pass

Spurious emissions according to FCC 15.249

Project number: G0M-1309-3213

Manufacturer:	inmotiotec GmbH
EUT Name:	Transponder
Model:	LPM Ref.Tp. Compact
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 25°C, Vnom: 120 V AC
Antenna:	Rohde & Schwarz HL 223, Horizontal
Measurement distance:	3 m
Mode:	TX; Chirp, ant. SOA S600/360/5/0/V
Test Date:	2013-08-27
Note:	

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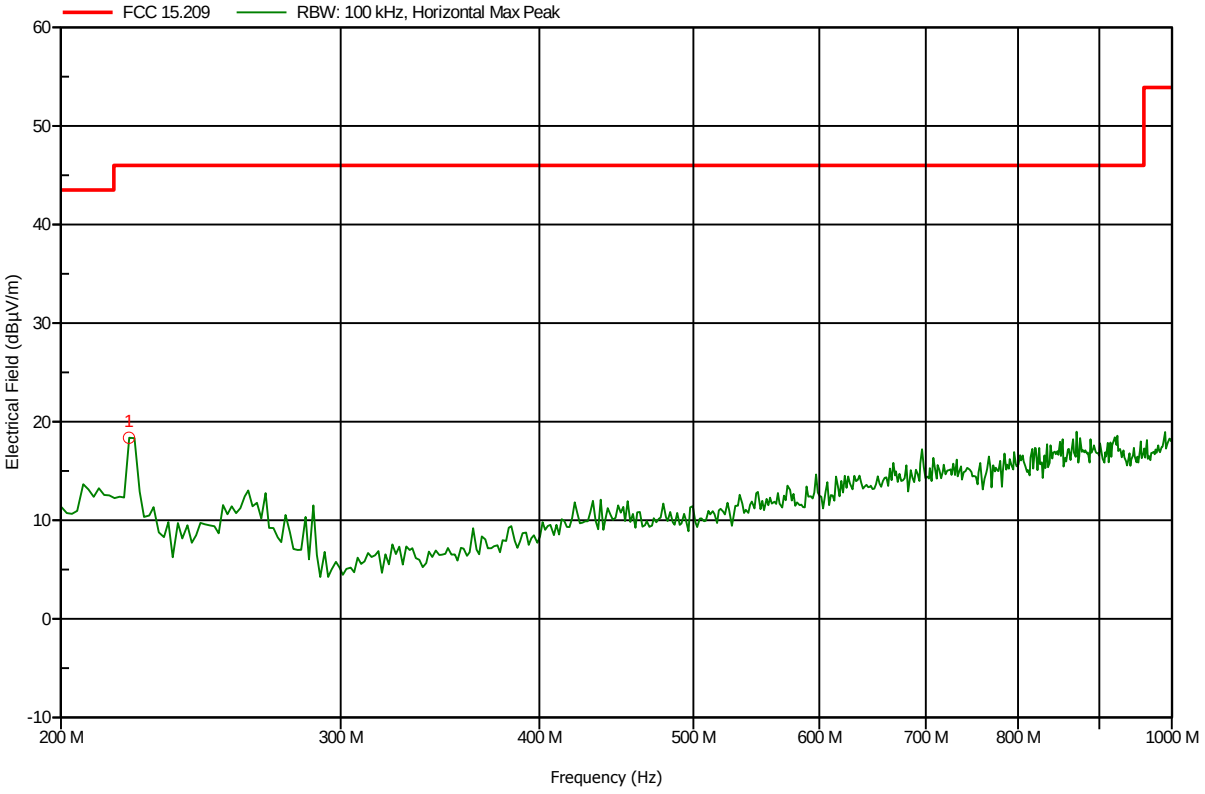

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
220.8 MHz	18.37 dBµV/m	46 dBµV/m	-27.63 dB	Pass

Spurious emissions according to FCC 15.249

Project number: G0M-1309-3213

Manufacturer:	inmotiotec GmbH
EUT Name:	Transponder
Model:	LPM Ref.Tp. Compact
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 25°C, Vnom: 120 V AC
Antenna:	Rohde & Schwarz HL 223, Horizontal
Measurement distance:	3 m
Mode:	TX; Chirp, ant. SOA S600/360/5/0/V
Test Date:	2013-08-27
Note:	

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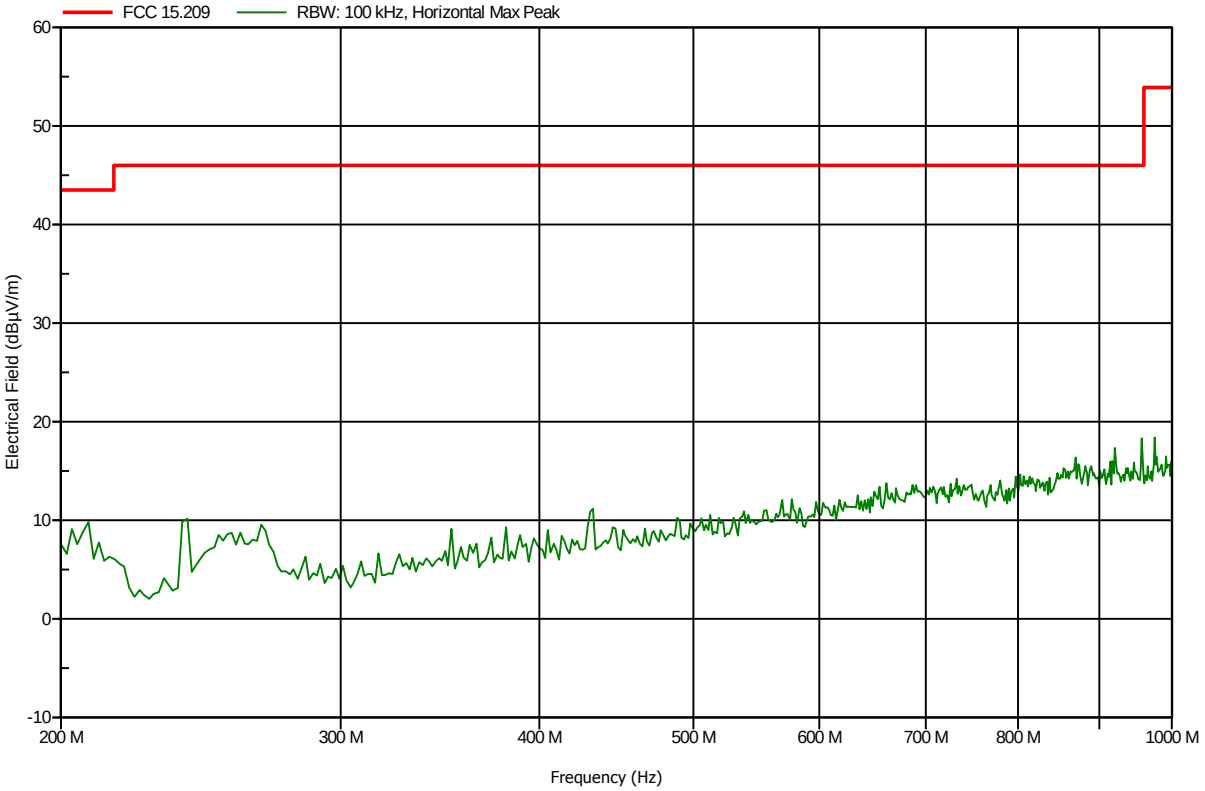

Spurious emissions according to FCC 15.249

Project number: G0M-1309-3213

Manufacturer:	inmotiotec GmbH
EUT Name:	Transponder
Model:	LPM Ref.Tp. Compact
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 25°C, Vnom: 120 V AC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	3 m
Mode:	TX; Chirp, ant. SOA S600/360/5/0/V
Test Date:	2013-08-27
Note:	

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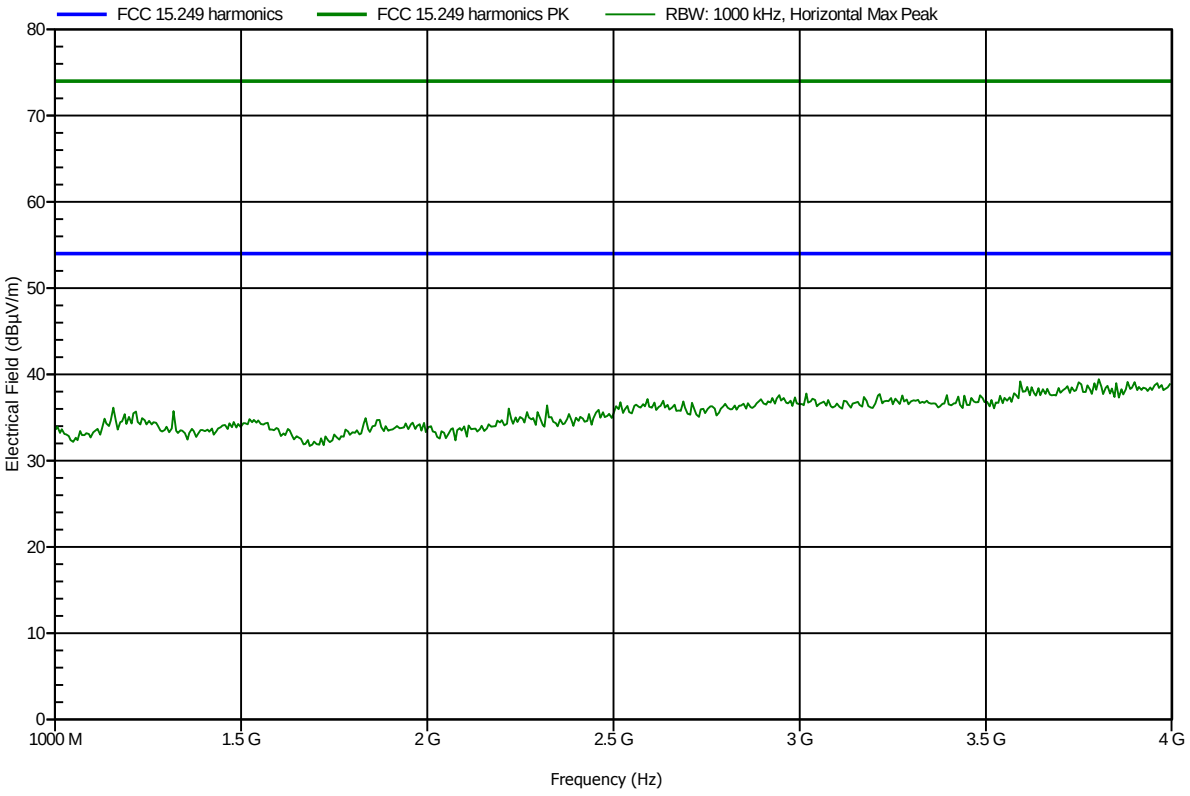

Spurious emissions according to FCC 15.249

Project number: G0M-1309-3213

Manufacturer:	inmotiotec GmbH
EUT Name:	Transponder
Model:	LPM Ref.Tp. Compact
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 25°C, Vnom: 120 V AC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	3 m
Mode:	TX; Chirp, ant. SOA S600/360/5/0/V
Test Date:	2013-08-26
Note:	

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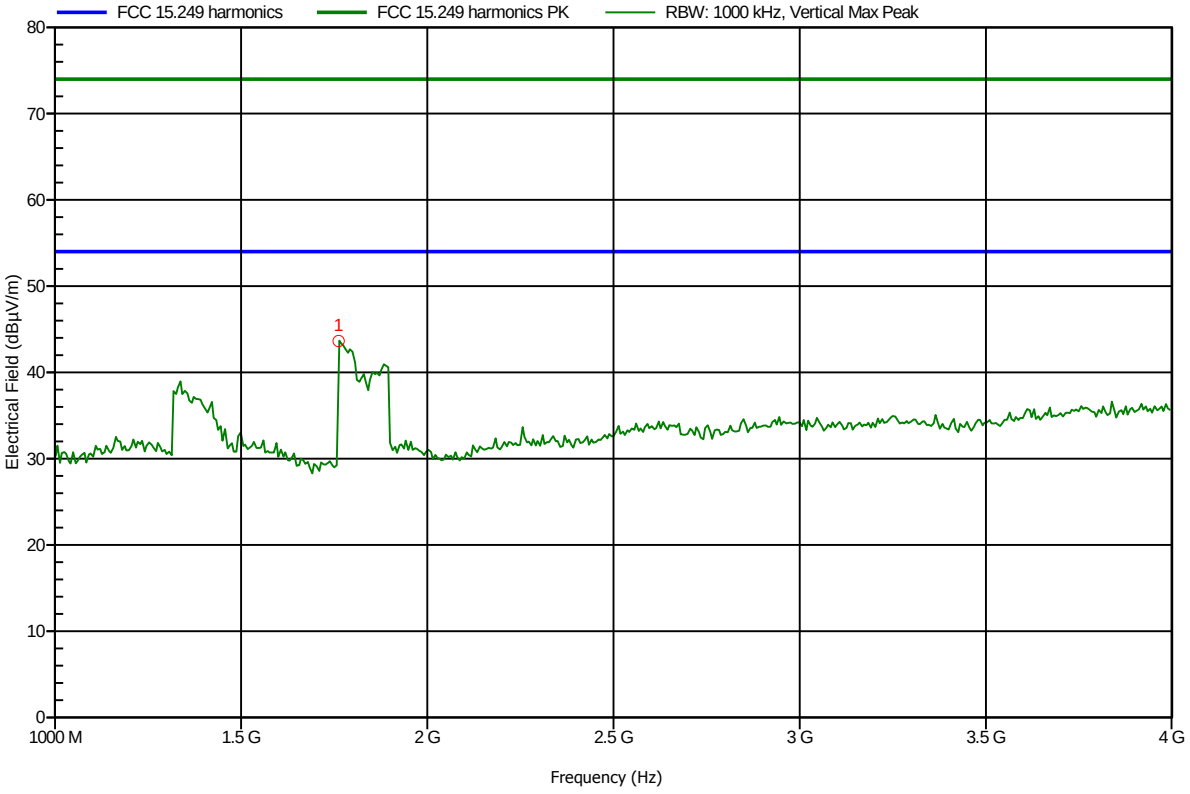

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
1.762 GHz	43.63 dBµV/m	74 dBµV/m	-30.37 dB	Pass

Spurious emissions according to FCC 15.249

Project number: G0M-1309-3213

Manufacturer:	inmotiotec GmbH
EUT Name:	Transponder
Model:	LPM Ref.Tp. Compact
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 25°C, Vnom: 120 V AC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	3 m
Mode:	TX; Chirp, ant. SOA S600/360/5/0/V
Test Date:	2013-08-27
Note:	

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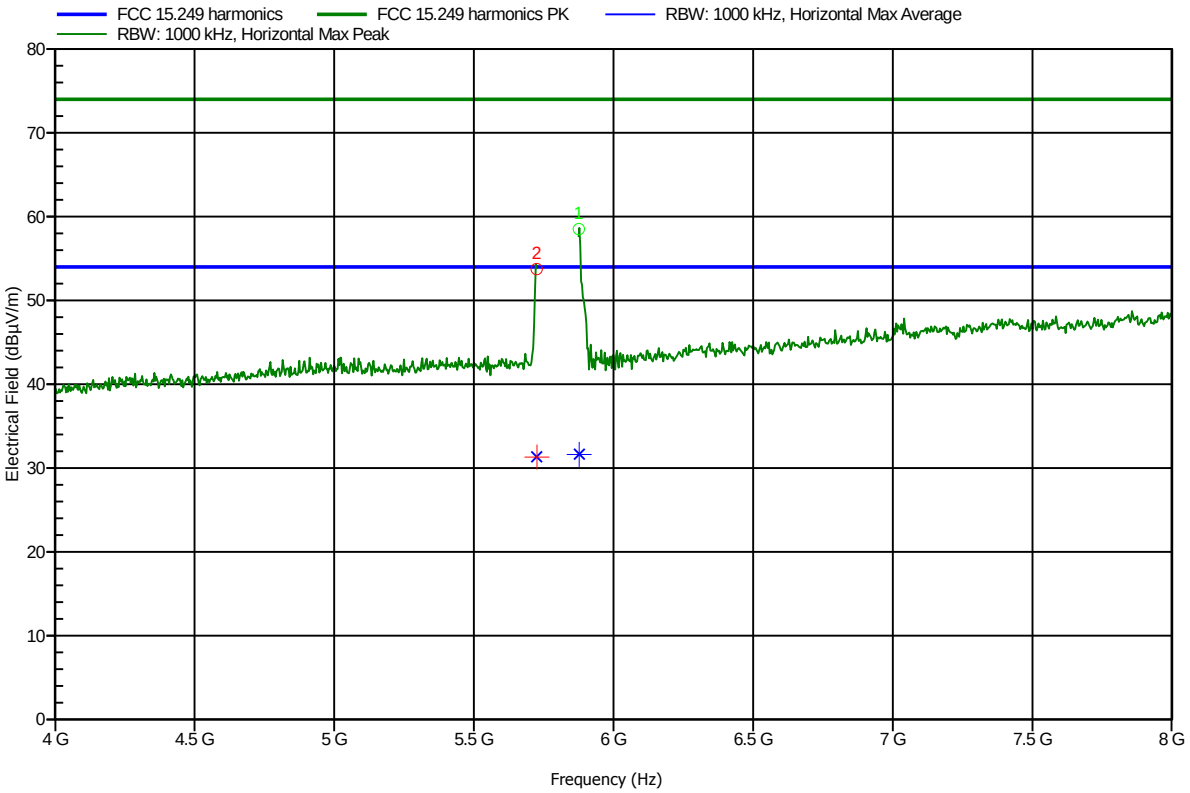

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
5.725 GHz	53.75 dBµV/m	74 dBµV/m	-20.25 dB	Pass
5.876 GHz	58.51 dBµV/m	74 dBµV/m	-15.49 dB	Pass

Frequency	Average	Average Limit	Average Difference	Average Status
5.725 GHz	31.35 dBµV/m	54 dBµV/m	-22.65 dB	Pass
5.876 GHz	31.65 dBµV/m	54 dBµV/m	-22.35 dB	Pass

Spurious emissions according to FCC 15.249

Project number: G0M-1309-3213

Manufacturer:	inmotiotec GmbH
EUT Name:	Transponder
Model:	LPM Ref.Tp. Compact
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 25°C, Vnom: 120 V AC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	3 m
Mode:	TX; Chirp, ant. SOA S600/360/5/0/V
Test Date:	2013-08-27
Note:	

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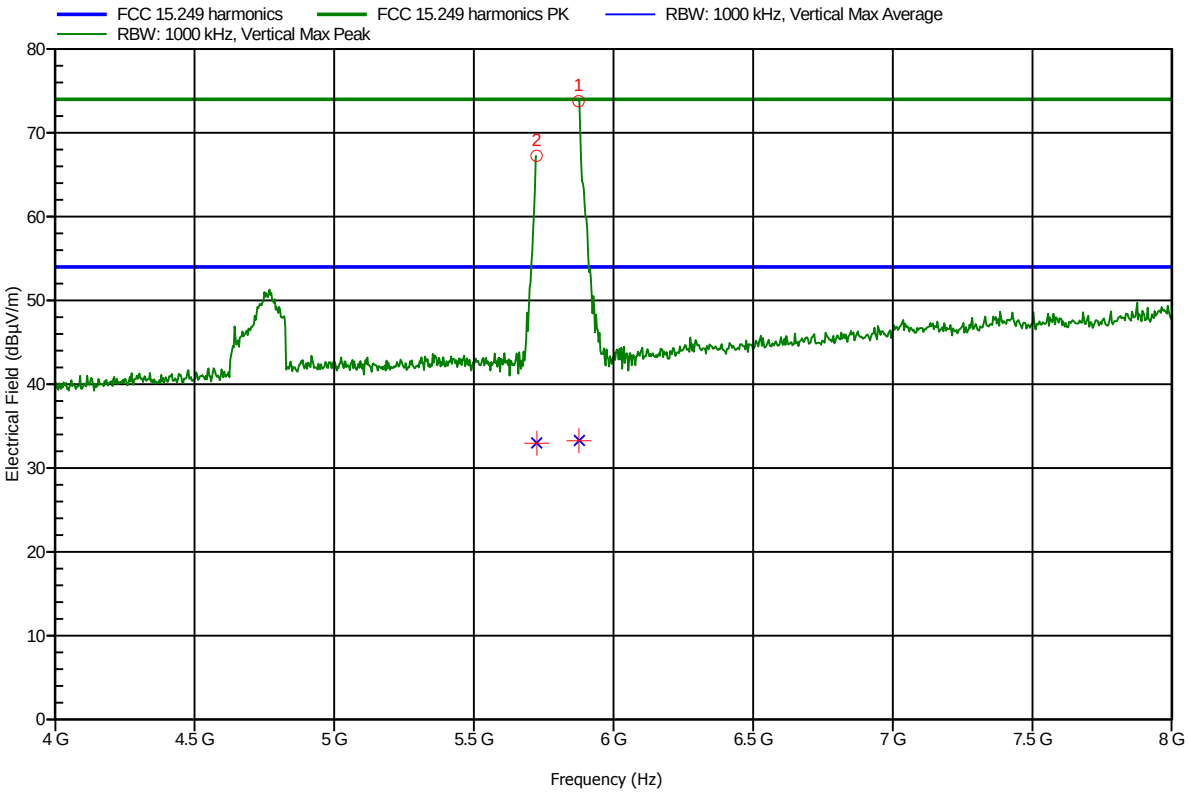

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
5.725 GHz	67.26 dBµV/m	74 dBµV/m	-6.74 dB	Pass
5.875 GHz	73.77 dBµV/m	74 dBµV/m	-0.23 dB	Pass

Frequency	Average	Average Limit	Average Difference	Average Status
5.725 GHz	33 dBµV/m	54 dBµV/m	-21 dB	Pass
5.875 GHz	33.29 dBµV/m	54 dBµV/m	-20.71 dB	Pass

Spurious emissions according to FCC 15.249

Project number: G0M-1309-3213

Manufacturer:	inmotiotec GmbH
EUT Name:	Transponder
Model:	LPM Ref.Tp. Compact
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 25°C, Vnom: 120 V AC
Antenna:	Schwarzbeck BBHA 9120D, Horizontal
Measurement distance:	100 cm converted to 3m
Mode:	TX; Chirp, ant. SOA S600/360/5/0/V
Test Date:	2013-08-27
Note:	

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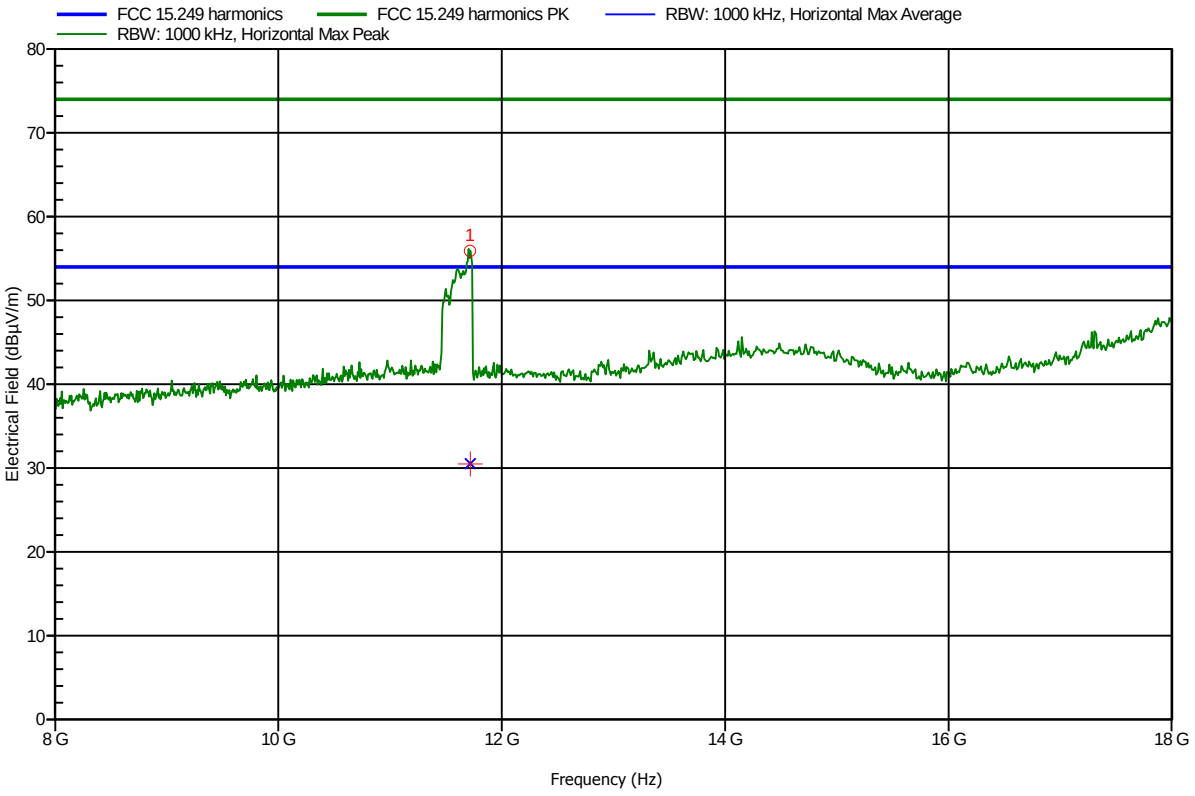

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
11.716 GHz	55.92 dBµV/m	74 dBµV/m	-18.08 dB	Pass

Frequency	Average	Average Limit	Average Difference	Average Status
11.716 GHz	30.53 dBµV/m	54 dBµV/m	-23.47 dB	Pass

Spurious emissions according to FCC 15.249

Project number: G0M-1309-3213

Manufacturer:	inmotiotec GmbH
EUT Name:	Transponder
Model:	LPM Ref.Tp. Compact
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 25°C, Vnom: 120 V AC
Antenna:	Schwarzbeck BBHA 9120D, Vertical
Measurement distance:	100 cm converted to 3m
Mode:	TX; Chirp, ant. SOA S600/360/5/0/V
Test Date:	2013-08-27
Note:	

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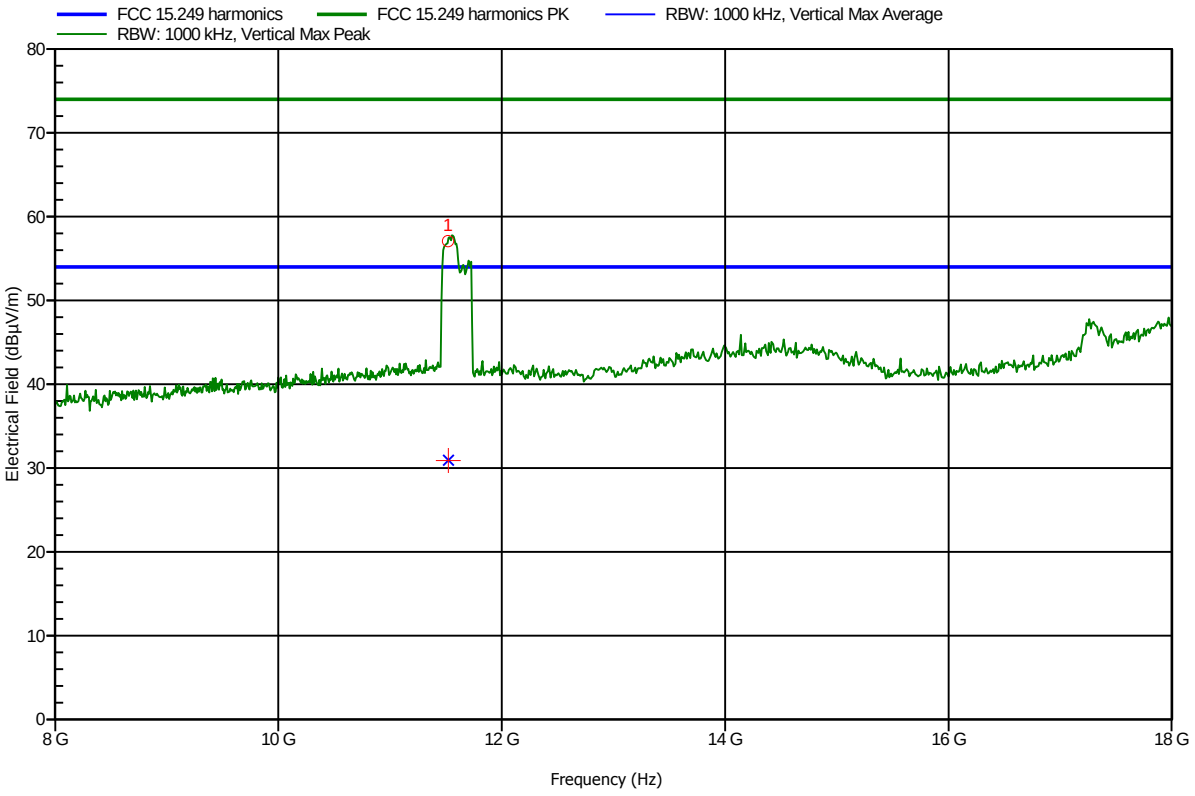

Frequency	Peak	Peak Limit	Peak Difference	Peak Status
11.52 GHz	57.08 dBµV/m	74 dBµV/m	-16.92 dB	Pass

Frequency	Average	Average Limit	Average Difference	Average Status
11.52 GHz	30.93 dBµV/m	54 dBµV/m	-23.07 dB	Pass