

FCC TEST REPORT FCC 47 CFR Part 15C Industry Canada RSS-247 Digital transmission systems operating within the 2400 – 2483.5 MHz band	
Report Reference No.	G0M-1507-4921-TFC247WF-V02
Testing Laboratory	Eurofins Product Service GmbH
Address	Storkower Str. 38c 15526 Reichenwalde Germany
Accreditation	  A2LA Accredited Testing Laboratory, Certificate No.: 1983.01 FCC Filed Test Laboratory, Reg.-No.: 96970 IC OATS Filing assigned code: 3470A
Applicant's name	Panono GmbH
Address	Französische Straße 9-12 10117 Berlin GERMANY
Test specification:	
Standard	47 CFR Part 15C RSS-247, Issue 1, 2015-05 RSS-Gen, Issue 4, 2014-11 ANSI C63.10:2013 ANSI C63.4:2014
Test scope	partial Radio compliance test
Equipment under test (EUT):	
Product description	Panono Camera
Model No.	MVP15
Additional Model(s)	None
Brand Name(s)	None
Hardware version	1
Firmware / Software version	1.1.0
	FCC-ID: 2AFGVMVP15 IC: 20441-MVP15
Test result	Passed

Possible test case verdicts:

- neither assessed nor tested : N/N
- required by standard but not appl. to test object : N/A
- required by standard but not tested : N/T
- not required by standard for the test object : N/R
- test object does meet the requirement : P (Pass)
- test object does not meet the requirement : F (Fail)

Testing:

Test Lab Temperature : 20 – 23 °C

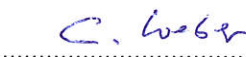
Test Lab Humidity : 32 – 38 %

Date of receipt of test item : 2015-07-20

Date (s) of performance of tests : 2015-07-22 - 2015-07-23

Compiled by : Wilfried Treffke

Tested by (+ signature) : Matthias Handrik
(Responsible for Test) 

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

Date of issue : 2015-10-16

Total number of pages : 100

General remarks:

The test results presented in this report relate only to the object tested.

The results contained in this report reflect the results for this particular model and serial number. It is the responsibility of the manufacturer to ensure that all production models meet the intent of the requirements detailed within this report.

This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.

Additional comments:

Version History

Version	Issue Date	Remarks	Revised by
01	2015-09-10	Initial Release	
02	2015-10-15	Antenna gain corrected	C. Weber

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1 Equipment (Test item) Description

Description	Panono Camera			
Model	MVP15			
Additional Model(s)	None			
Brand Name(s)	None			
Serial number	None			
Hardware version	1			
Software / Firmware version	1.1.0			
FCC-ID	2AFGVMVP15			
IC	20441-MVP15			
Equipment type	End product			
Radio type	Transceiver			
Radio technology	IEEE 802.11 b/g/n			
Operating frequency range	2412 - 2462 MHz			
Assigned frequency band	2400 - 2483.5 MHz			
Main test frequencies	F _{LOW20}	2412 MHz	F _{LOW40}	2422 MHz
	F _{MID20}	2437 MHz	F _{MID40}	2437 MHz
	F _{HIGH20}	2462 MHz	F _{HIGH40}	2452 MHz
Spreading	CCK, DSSS, OFDM			
Modulations	BPSK, QPSK, 16-QAM, 64-QAM			
Number of channels	11			
Channel spacing	5 MHz			
Number of antennas	2			
Radio module	Type	WiFi and Bluetooth Module		
	Model	WL1805MODGBMOC		
	Manufacturer	Texas Instruments Incorporated		
	HW Version	1st revision (ROM 0x11)		
	SW Version	ol_r8.a8.10		
	FCC-ID	Z64-WL18SBMOD		
	IC	451I-WL18SBMOD		
Antenna	Type	integrated		
	Model	ANT016008LCD2 442MA1		
	Manufacturer	TDK		
	Gain	2.27 dBi (from declaration)		
Manufacturer	Panono GmbH Französische Straße 9-12 10117 Berlin GERMANY			

Power supply	V _{NOM}	3.7 VDC lithium battery
	V _{MIN}	N/A
	V _{MAX}	N/A
AC/DC-Adaptor	Model	N/A
	Vendor	N/A
	Input	N/A
	Output	N/A

1.2 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				

1.3 Test Modes

Mode #	Description	
DSSS	General conditions:	EUT powered by fully charged battery
	Radio conditions:	Mode = standalone transmit Spreading = DSSS Modulation = BPSK Data rate = 1 Mbps Bandwidth = 20 MHz Duty cycle = 100 % Power level = 20 (Test mode setting)
HT20	General conditions:	EUT powered by fully charged battery
	Radio conditions:	Mode = standalone transmit Spreading = OFDM Modulation = 64-QAM MCS index = 13 Guard Interval = long Bandwidth = 20 MHz Data rate = 115.6 Mbps Duty cycle = 100 % Power level = 20 (Test mode setting)
HT40	General conditions:	EUT powered by fully charged battery
	Radio conditions:	Mode = standalone transmit Spreading = OFDM Modulation = BPSK MCS index = 13 Guard Interval = long Bandwidth = 20 MHz Data rate = 240.0 Mbps Duty cycle = 100 % Power level = 20 (Test mode setting)
Receive	General conditions:	EUT powered by fully charged battery
	Radio conditions:	Mode = standalone receive
AC-Powerline	General conditions:	EUT powered by commercial AC/DC-Adapter
	Radio conditions:	Mode = charging mode, no radio activity

1.4 Test Equipment Used During Testing

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

Occupied Bandwidth					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyzer	R&S	FSP 30	EF00312	2015-02	2016-02

Radiated spurious emissions					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Semi-anechoic chamber	Frankonia	AC 1	EF00062	-	-
Spectrum Analyzer	R&S	FSEK30	EF00168	2015-01	2016-01
Biconical Antenna	R&S	HK 116	EF00012	2013-02	2016-02
LPD Antenna	R&S	HL 223	EF00187	2014-03	2017-03
LPD Antenna	R&S	HL 025	EF00327	2013-02	2016-02

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

1.5 Sample emission level calculation

The following is a description of terms and a sample calculation, as appears in the radiated emissions data table. The numbers used in the calculation are for example only. There is no direct correlation to the specific data taken for the product described in this document:

Reading:

This is the reading obtained on the spectrum analyzer in dBμV. Any external preamplifiers used are taken into account through internal analyzer settings.

A.F.:

This is the antenna factor for the receiving antenna. It is a conversion factor, which converts electric fields strengths to voltages, which can be measured directly on the spectrum analyzer. It is treated as a loss in dB. Cable losses have been included with the A.F. to simplify the calculations. The antenna factor is used in calculations as follows:

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

Net:

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

Limit:

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

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

Margin:

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

Example only:

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

2 Result Summary

FCC 47 CFR Part 15C, IC RSS-247				
Product Specific Standard Section	Requirement – Test	Reference Method	Result	Remarks
RSS-Gen 6.6	Occupied Bandwidth	ANSI C63.10	N/R	Informational only
FCC § 15.247(a)(2) IC RSS-247 § 5.2	6dB Bandwidth	ANSI C63.10	N/R	integration of certified module
FCC § 15.247(b)(3) IC RSS-247 § 5.4	Maximum peak conducted power	ANSI C63.10	N/R	integration of certified module
FCC § 15.247(e) IC RSS-247 § 5.2	Power spectral density	ANSI C63.10	N/R	integration of certified module
47 CFR 15.207 IC RSS-247 § 3.1	AC power line conducted emissions	ANSI C63.4	PASS	
FCC § 15.247(d) IC RSS-247 § 5.5	Band edge compliance	ANSI C63.10	N/R	integration of certified module
FCC § 15.247(d) IC RSS-247 § 5.5	Conducted spurious emissions	ANSI C63.10	N/R	integration of certified module
FCC § 15.247(d) FCC § 15.209 IC RSS-247 § 5.5	Transmitter radiated spurious emissions	ANSI C63.10	PASS	
IC RSS-247 § 3.1	Receiver radiated spurious emissions	ANSI C63.10	PASS	
Remarks:				

3 Test Conditions and Results

3.1 Test Conditions and Results – Occupied Bandwidth

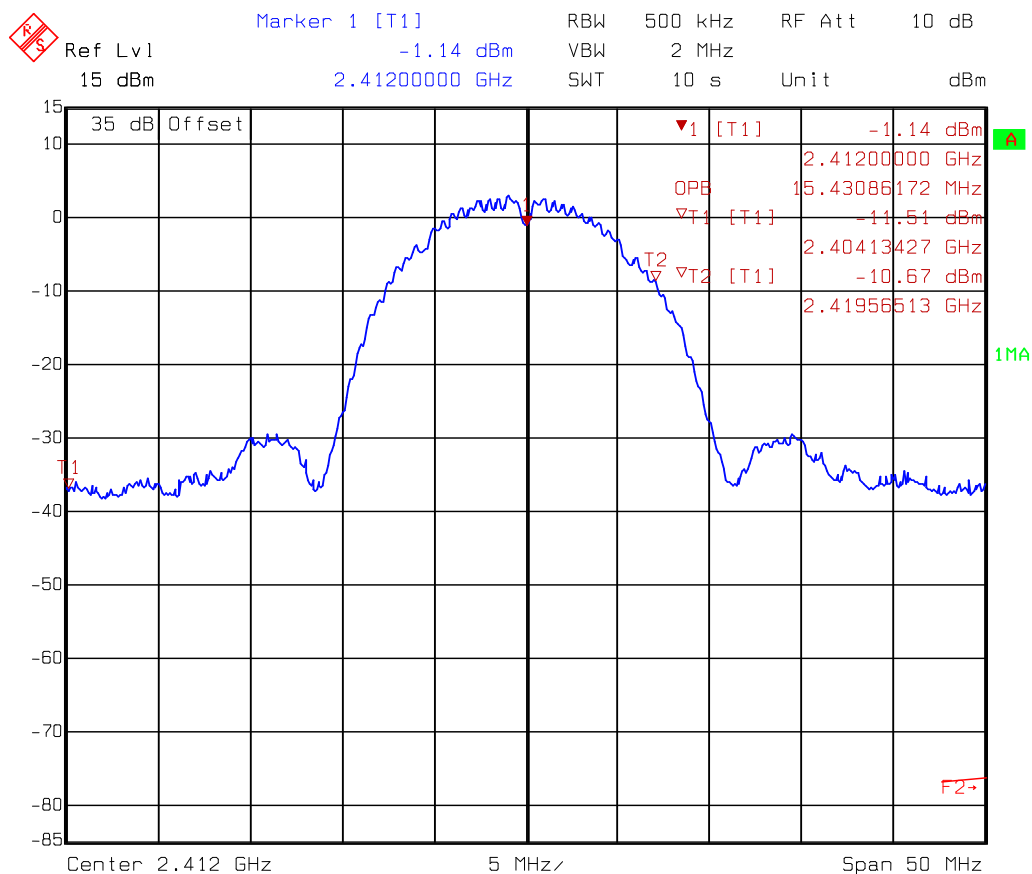
Occupied Bandwidth acc. to IC RSS-Gen				Verdict: N/R
Test according to measurement reference		Reference Method		
		ANSI C63.10		
Test frequency range		Tested frequencies		
		F _{LOW} / F _{MID} / F _{HIGH}		
Limits				
None (Informational only)				
Test setup				
Spectrum Analyzer EUT				
Test procedure				
1. EUT set to test mode (Communication tester is used if needed) 2. Span set to at least twice the emission spectrum 3. Resolution bandwidth set to 1 % of span 4. Occupied Bandwidth (99 %) measurement with spectrum analyzer built in measurement function				
Test results				
Channel	Frequency [MHz]	Mode	Occupied Bandwidth [kHz]	
F _{LOW20}	2412	DSSS	15.43	
F _{MID20}	2437	DSSS	15.03	
F _{HIGH20}	2462	DSSS	10.92	
F _{LOW20}	2412	HT20	18.84	
F _{MID20}	2437	HT20	18.84	
F _{HIGH20}	2462	HT20	19.54	
F _{LOW40}	2422	HT40	36.87	
F _{MID40}	2437	HT40	36.67	
F _{HIGH40}	2452	HT40	37.07	
Comments:				

Occupied Bandwidth – DSSS F_{LOW}

Occupied Bandwidth acc. to RSS-Gen

Project Number: G0M-1507-4921

Applicant:	Panono GmbH
EUT Name:	Panono Camera
Model:	MVP15
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom / Vnom
Mode:	Tx, IEEE 802.11b, 1 Mbps, 2412 MHz
Test Date:	2015-07-23
Verdict:	NONE (INFORMATION ONLY)
Note 1:	A spectrum analyzer with an integrated 99% power bandwidth function is used
Note 2:	radiated measurement



Date: 23.JUL.2015 08:42:57

Test Report No.: G0M-1507-4921-TFC247WF-V02

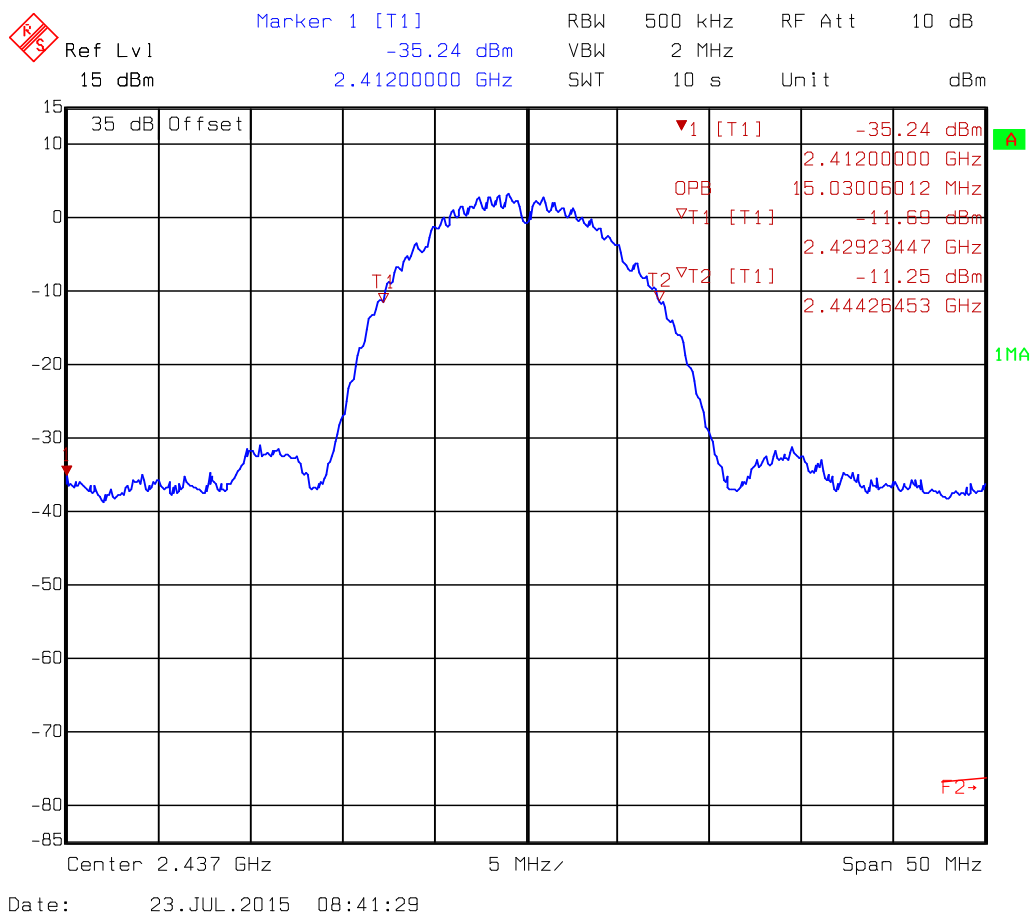
Eurofins Product Service GmbH
Storkower Str. 38c, D-15526 Reichenwalde, Germany

Occupied Bandwidth – DSSS F_{MID}

Occupied Bandwidth acc. to RSS-Gen

Project Number: G0M-1507-4921

Applicant: Panono GmbH
EUT Name: Panono Camera
Model: MVP15
Test Site: Eurofins Product Service GmbH
Operator: Wilfried Treffke
Test Conditions: Tnom / Vnom
Mode: Tx, IEEE 802.11b, 1 Mbps, 2437 MHz
Test Date: 2015-07-23
Verdict: NONE (INFORMATION ONLY)
Note 1: A spectrum analyzer with an integrated 99% power bandwidth function is used
Note 2: radiated measurement



Test Report No.: G0M-1507-4921-TFC247WF-V02

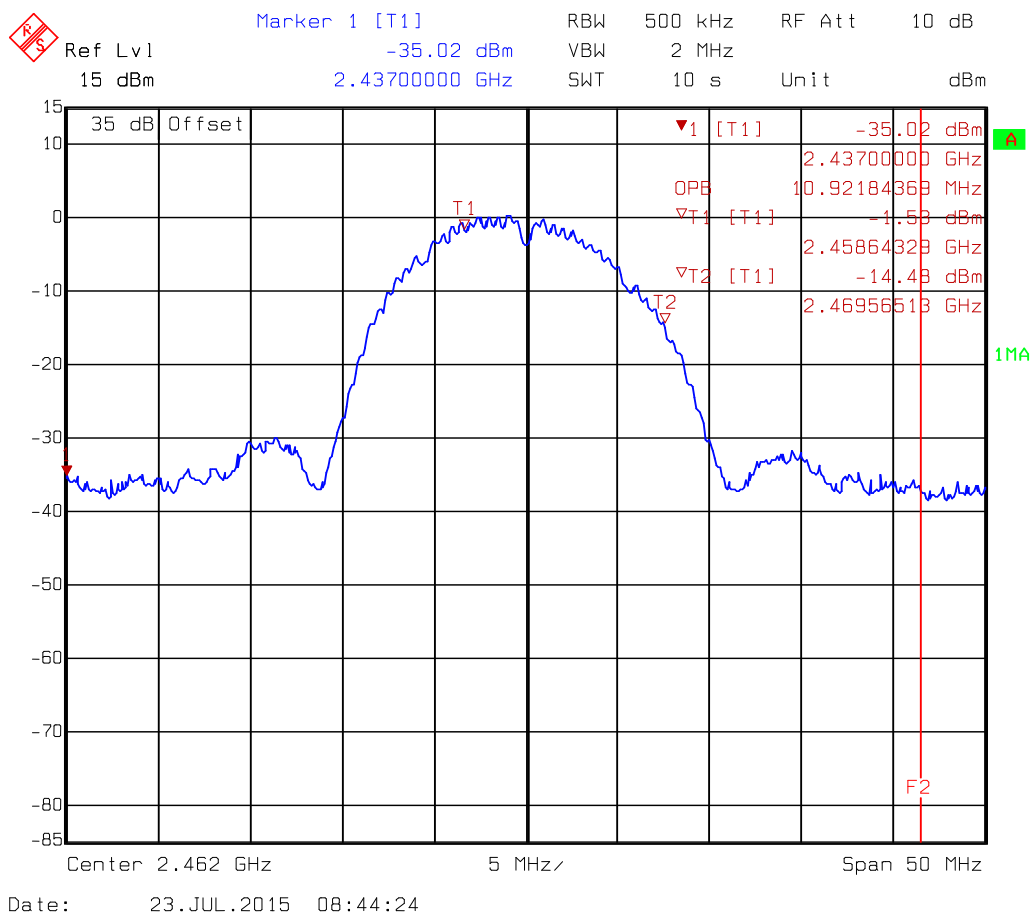
Eurofins Product Service GmbH
Storkower Str. 38c, D-15526 Reichenwalde, Germany

Occupied Bandwidth – DSSS F_{HIGH}

Occupied Bandwidth acc. to RSS-Gen

Project Number: G0M-1507-4921

Applicant: Panono GmbH
EUT Name: Panono Camera
Model: MVP15
Test Site: Eurofins Product Service GmbH
Operator: Wilfried Treffke
Test Conditions: Tnom / Vnom
Mode: Tx, IEEE 802.11b, 1 Mbps, 2462 MHz
Test Date: 2015-07-23
Verdict: NONE (INFORMATION ONLY)
Note 1: A spectrum analyzer with an integrated 99% power bandwidth function is used
Note 2: radiated measurement



Test Report No.: G0M-1507-4921-TFC247WF-V02

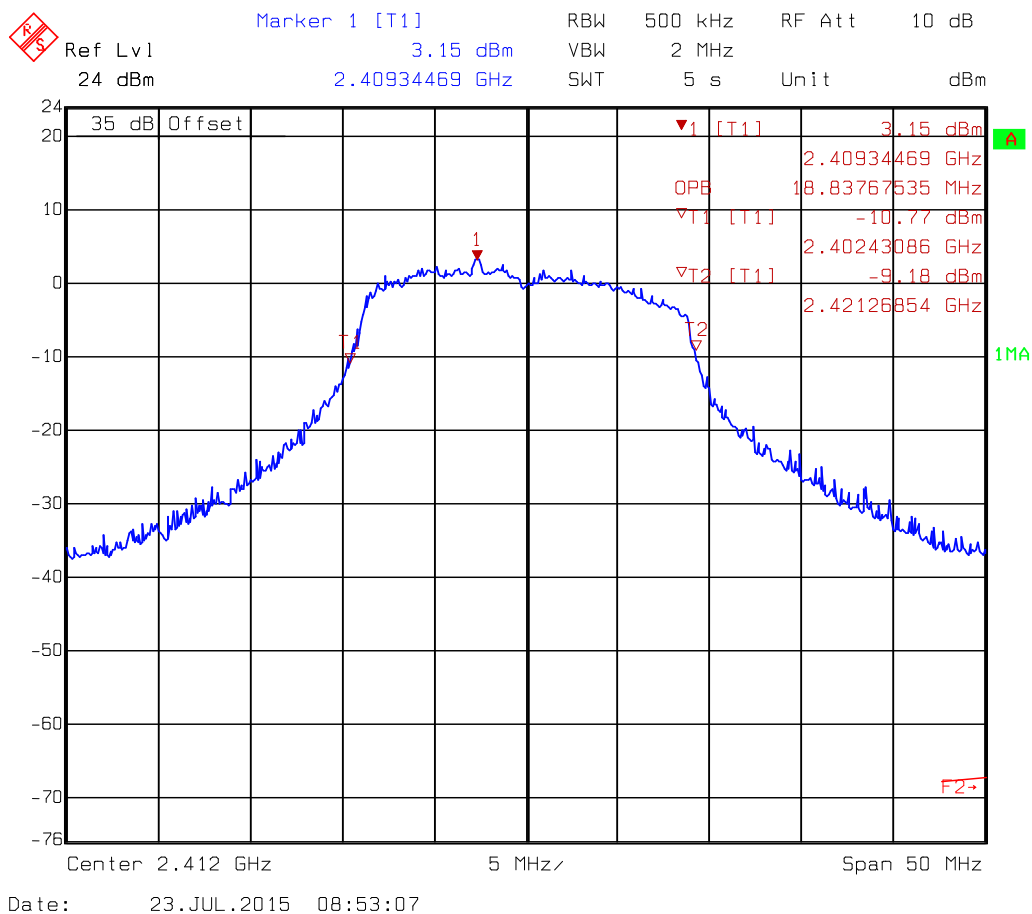
Eurofins Product Service GmbH
Storkower Str. 38c, D-15526 Reichenwalde, Germany

Occupied Bandwidth – HT20 F_{LOW}

Occupied Bandwidth acc. to RSS-Gen

Project Number: G0M-1507-4921

Applicant: Panono GmbH
EUT Name: Panono Camera
Model: MVP15
Test Site: Eurofins Product Service GmbH
Operator: Wilfried Treffke
Test Conditions: T_{nom} / V_{nom}
Mode: Tx, IEEE 802.11n, HT20 MSC13, 2412 MHz
Test Date: 2015-07-23
Verdict: NONE (INFORMATION ONLY)
Note 1: A spectrum analyzer with an integrated 99% power bandwidth function is used
Note 2: radiated measurement



Test Report No.: G0M-1507-4921-TFC247WF-V02

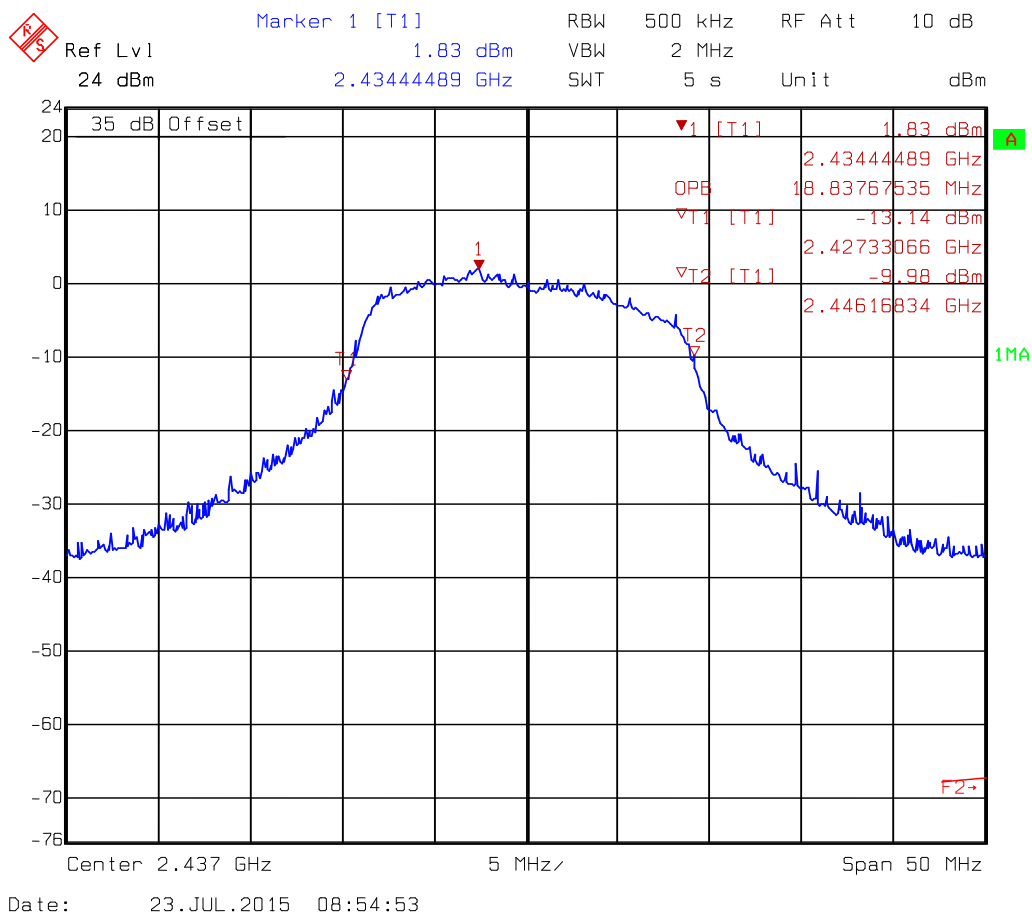
Eurofins Product Service GmbH
Storkower Str. 38c, D-15526 Reichenwalde, Germany

Occupied Bandwidth – HT20 F_{MID}

Occupied Bandwidth acc. to RSS-Gen

Project Number: G0M-1507-4921

Applicant: Panono GmbH
EUT Name: Panono Camera
Model: MVP15
Test Site: Eurofins Product Service GmbH
Operator: Wilfried Treffke
Test Conditions: Tnom / Vnom
Mode: Tx, IEEE 802.11n, HT20 MSC13, 2437 MHz
Test Date: 2015-07-23
Verdict: NONE (INFORMATION ONLY)
Note 1: A spectrum analyzer with an integrated 99% power bandwidth function is used
Note 2: radiated measurement



Test Report No.: G0M-1507-4921-TFC247WF-V02

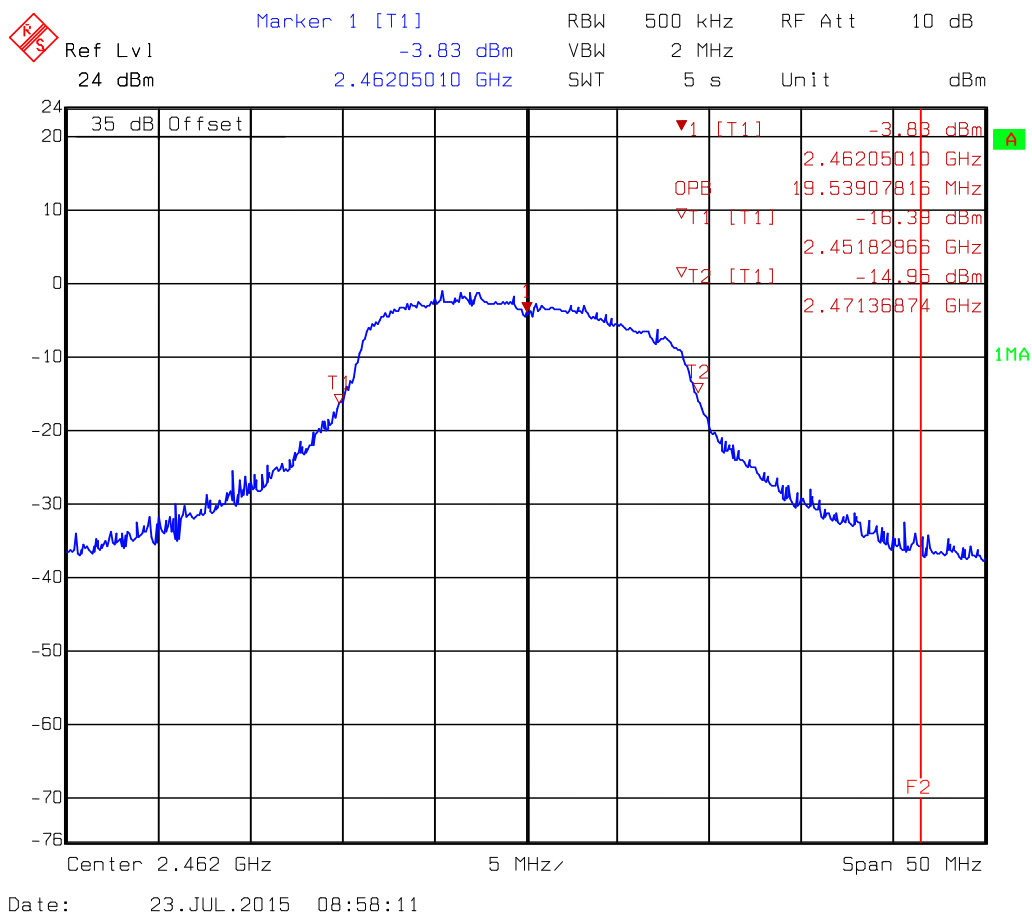
Eurofins Product Service GmbH
Storkower Str. 38c, D-15526 Reichenwalde, Germany

Occupied Bandwidth – HT20 F_{HIGH}

Occupied Bandwidth acc. to RSS-Gen

Project Number: G0M-1507-4921

Applicant:	Panono GmbH
EUT Name:	Panono Camera
Model:	MVP15
Test Site:	Eurofins Product Service GmbH
Operator:	Wilfried Treffke
Test Conditions:	Tnom / Vnom
Mode:	Tx, IEEE 802.11n, HT20 MSC13, 2462 MHz
Test Date:	2015-07-23
Verdict:	NONE (INFORMATION ONLY)
Note 1:	A spectrum analyzer with an integrated 99% power bandwidth function is used
Note 2:	radiated measurement

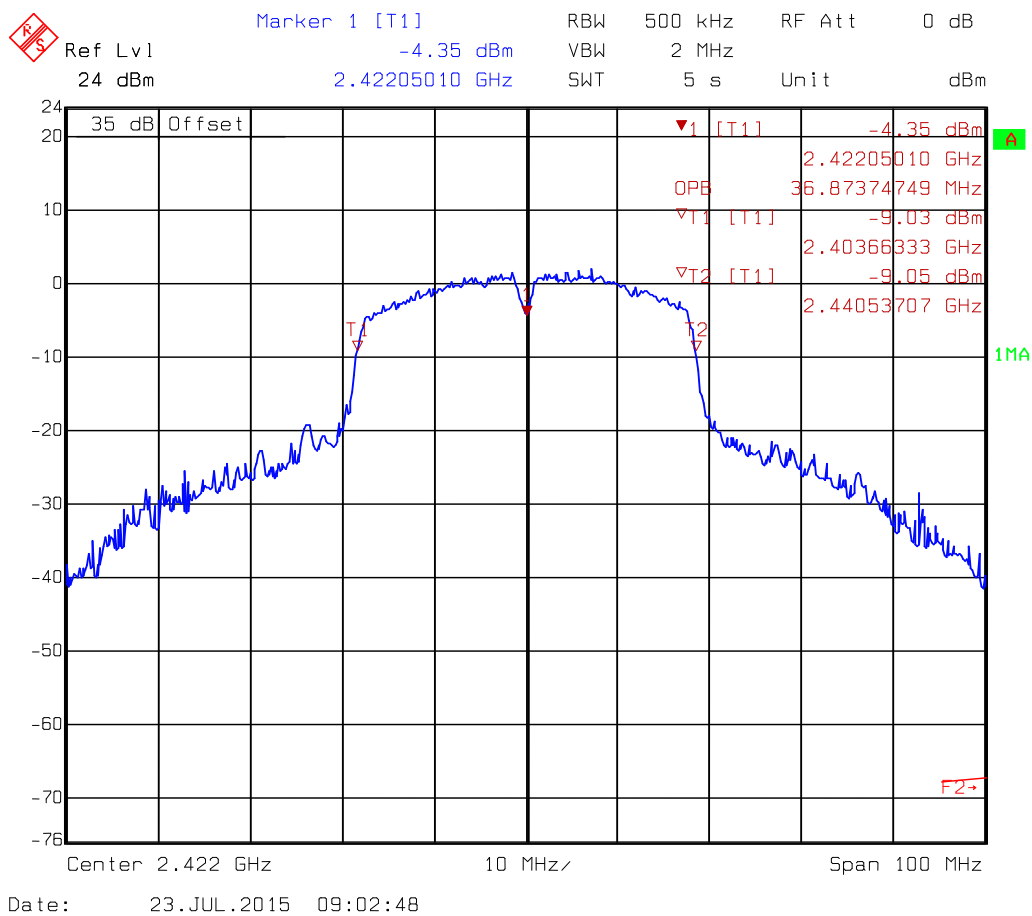


Occupied Bandwidth – HT40 F_{LOW}

Occupied Bandwidth acc. to RSS-Gen

Project Number: G0M-1507-4921

Applicant: Panono GmbH
EUT Name: Panono Camera
Model: MVP15
Test Site: Eurofins Product Service GmbH
Operator: Wilfried Treffke
Test Conditions: Tnom / Vnom
Mode: Tx, IEEE 802.11n, HT40 MSC0, 2422 MHz
Test Date: 2015-07-23
Verdict: NONE (INFORMATION ONLY)
Note 1: A spectrum analyzer with an integrated 99% power bandwidth function is used
Note 2: radiated measurement



Test Report No.: G0M-1507-4921-TFC247WF-V02

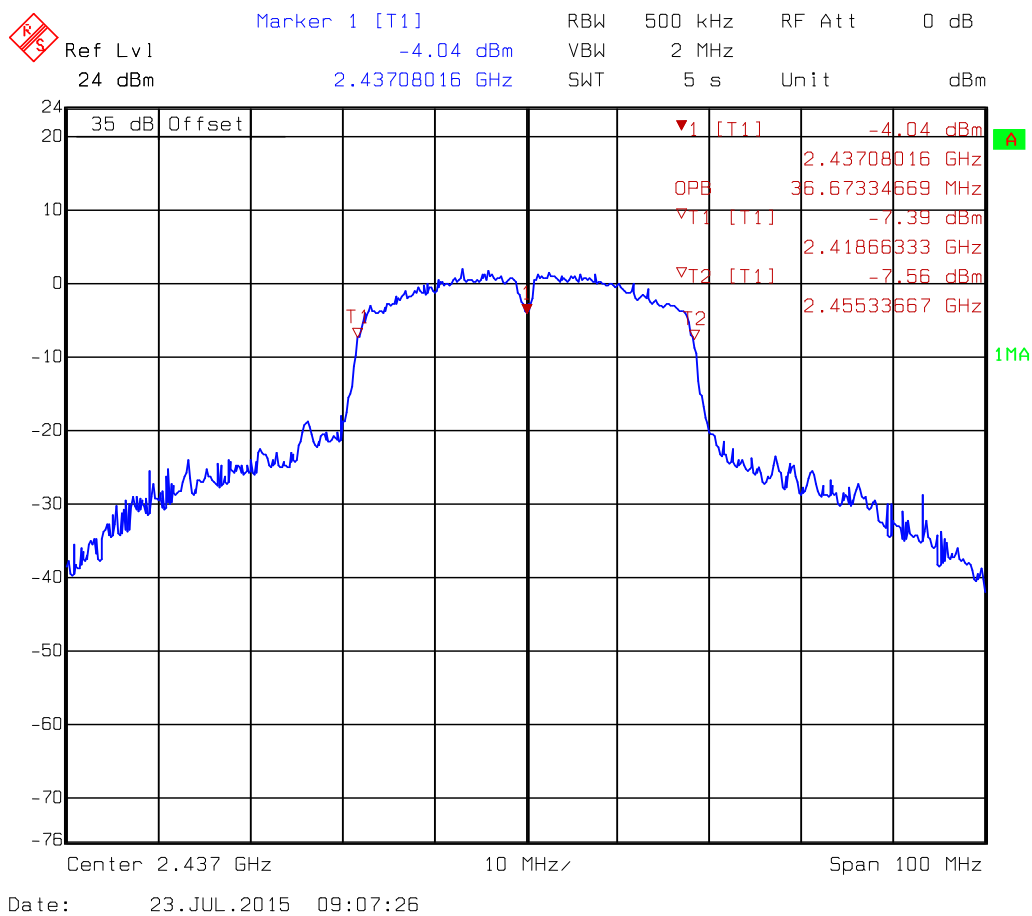
Eurofins Product Service GmbH
Storkower Str. 38c, D-15526 Reichenwalde, Germany

Occupied Bandwidth – HT40 F_{MID}

Occupied Bandwidth acc. to RSS-Gen

Project Number: G0M-1507-4921

Applicant: Panono GmbH
EUT Name: Panono Camera
Model: MVP15
Test Site: Eurofins Product Service GmbH
Operator: Wilfried Treffke
Test Conditions: Tnom / Vnom
Mode: Tx, IEEE 802.11n, HT40 MSC0, 2437 MHz
Test Date: 2015-07-23
Verdict: NONE (INFORMATION ONLY)
Note 1: A spectrum analyzer with an integrated 99% power bandwidth function is used
Note 2: radiated measurement

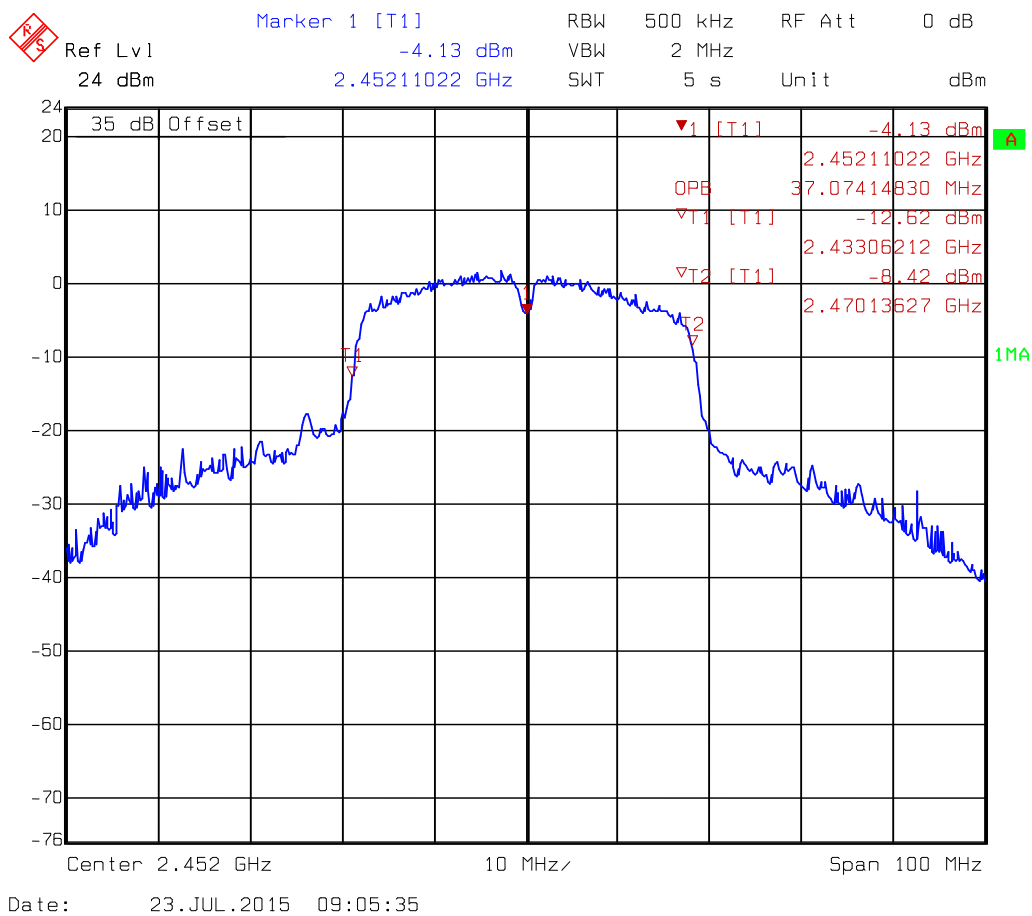


Occupied Bandwidth – HT40 F_{HIGH}

Occupied Bandwidth acc. to RSS-Gen

Project Number: G0M-1507-4921

Applicant: Panono GmbH
EUT Name: Panono Camera
Model: MVP15
Test Site: Eurofins Product Service GmbH
Operator: Wilfried Treffke
Test Conditions: Tnom / Vnom
Mode: Tx, IEEE 802.11n, HT40 MSC0, 2452 MHz
Test Date: 2015-07-23
Verdict: NONE (INFORMATION ONLY)
Note 1: A spectrum analyzer with an integrated 99% power bandwidth function is used
Note 2: radiated measurement



3.2 Test Conditions and Results – AC power line conducted emissions

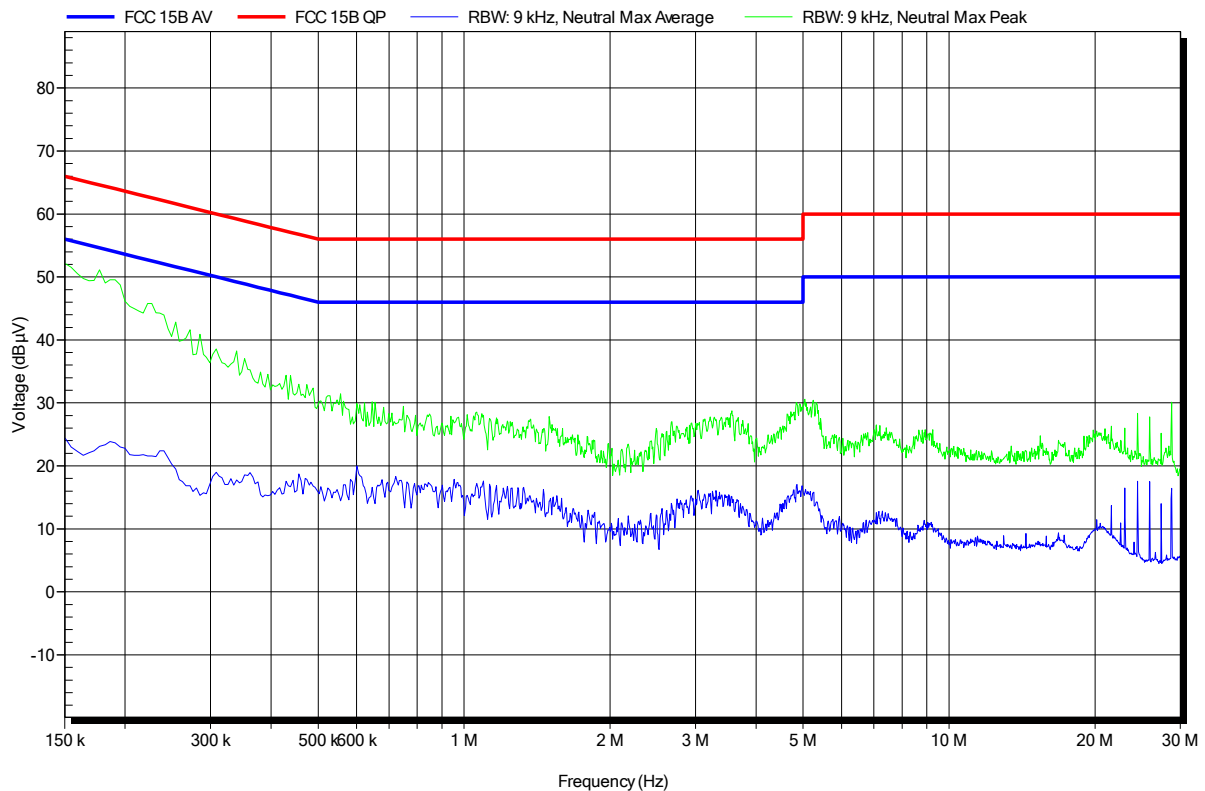
Power line conducted emissions acc. to FCC 47 CFR 15.207 / IC RSS-Gen				Verdict: PASS	
Test according referenced standards		Reference Method			
		ANSI C63.4			
Fully configured sample scanned over the following frequency range		Frequency range			
		0.15 MHz to 30 MHz			
Points of Application		Application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

Conducted Emissions 1
EMI voltage test in the ac-mains according to FCC Part 15b

Project number: G0M-1507-4921

Applicant: Panono GmbH
 EUT Name: Panono Camera
 Model: MVP15
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Zunke
 Test Conditions: Tnom: 23°C, Unom: 5VDC via AC/DC Adapter
 LISN: ESH2-Z5 N
 Mode: EUT in charging mode
 Test Date: 2015-08-04
 Note:

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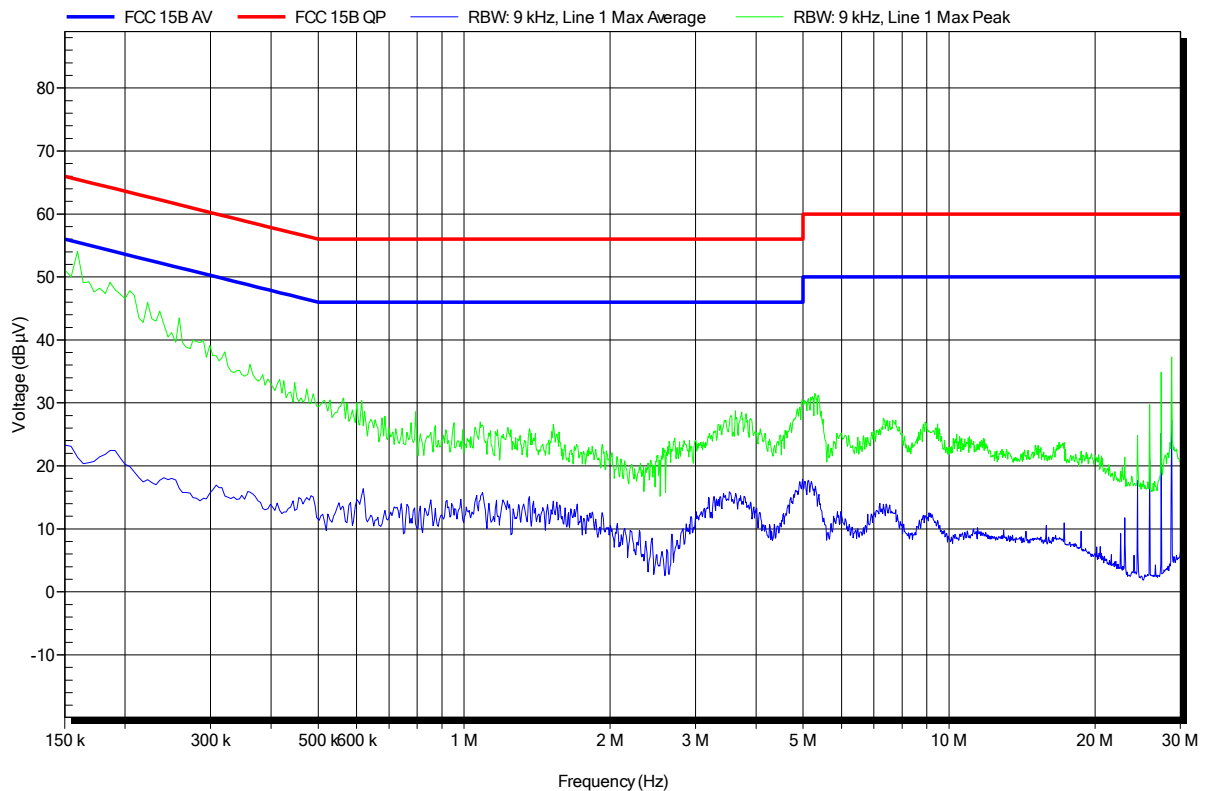


Conducted Emissions 2
EMI voltage test in the ac-mains according to FCC Part 15b

Project number: G0M-1507-4921

Applicant: Panono GmbH
 EUT Name: Panono Camera
 Model: MVP15
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Zunke
 Test Conditions: Tnom: 23°C, Unom: 5VDC via AC/DC Adapter
 LISN: ESH2-Z5 L
 Mode: EUT in charging mode
 Test Date: 2015-08-04
 Note:

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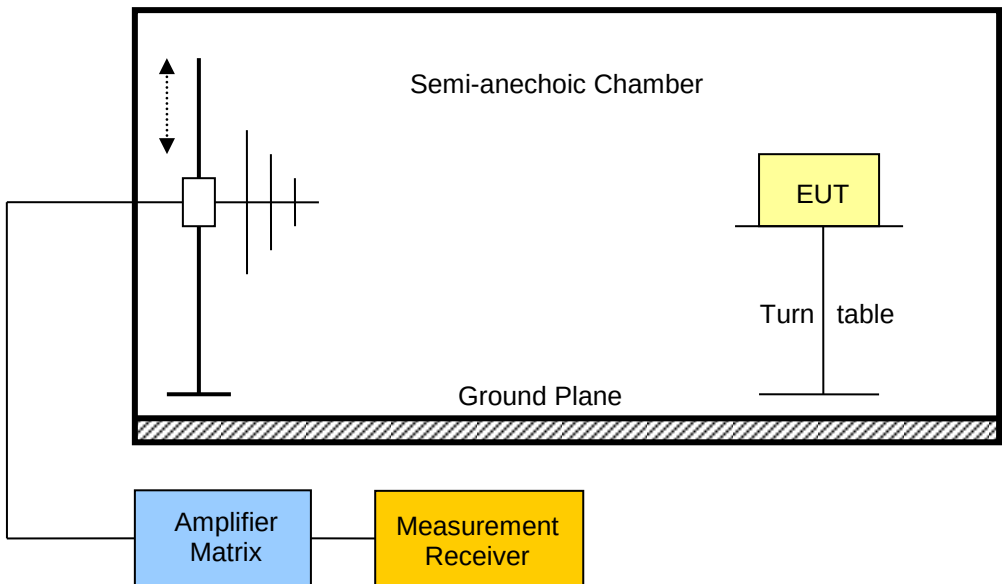


Test procedure									
1. EUT set to test mode (Communication tester is used if needed) 2. Span it set according to measurement range 3. Resolution bandwidth below 1 GHz is set according to CISPR 16 with peak/quasi-peak detector and RBW of 1 MHz with peak/average detector is used above 1 GHz 4. Markers are set to peak emission levels within restricted bands									
Test results DSSS									
Channel	Frequency [MHz]	Mode	Emission [MHz]	Level [dB μ V/m]	Det.	Pol.	Limit [dB μ V/m]	Limit dist. [m]*	Margin [dB]
F _{LOW}	2412	DSSS	240.124	27.40	pk	hor	46.00	3	-18.60
F _{LOW}	2412	DSSS	2386	55.63	pk	hor	74.00	3	-18.37
F _{LOW}	2412	DSSS	2386	48.78	RMS	hor	54.00	3	-05.22
F _{LOW}	2412	DSSS	2386	52.39	pk	ver	74.00	3	-21.61
F _{LOW}	2412	DSSS	2386	44.75	RMS	ver	54.00	3	-09.25
F _{LOW}	2412	DSSS	4816	38.50	pk	ver	74.00	3	-35.50
F _{LOW}	2412	DSSS	4824	39.48	pk	hor	74.00	3	-34.52
F _{MID}	2437	DSSS	4872	39.16	pk	hor	74.00	3	-34.84
F _{MID}	2437	DSSS	4872	39.31	pk	ver	74.00	3	-34.69
F _{HIGH}	2462	DSSS	2483.6	54.99	pk	hor	74.00	3	-19.01
F _{HIGH}	2462	DSSS	2483.6	48.34	RMS	hor	54.00	3	-05.66
F _{HIGH}	2462	DSSS	2487.4	57.45	pk	hor	74.00	3	-16.55
F _{HIGH}	2462	DSSS	2487.4	50.46	RMS	hor	54.00	3	-03.54
F _{HIGH}	2462	DSSS	2487.6	55.39	pk	ver	74.00	3	-18.61
F _{HIGH}	2462	DSSS	2487.6	47.67	RMS	ver	54.00	3	-06.33
F _{HIGH}	2462	DSSS	4920	39.55	pk	hor	74.00	3	-34.45
F _{HIGH}	2462	DSSS	4920	38.64	pk	ver	74.00	3	-35.36
F _{HIGH}	2462	DSSS	7384	43.12	pk	hor	74.00	1	-30.88
Comments: * Physical distance between EUT and measurement antenna.									

Test results HT20									
Channel	Frequency [MHz]	Mode	Emission [MHz]	Level [dBμV/m]	Det.	Pol.	Limit [dBμV/m]	Limit dist. [m]*	Margin [dB]
F _{LOW}	2412	HT20	2390	62.79	pk	hor	74.00	3	-11.21
F _{LOW}	2412	HT20	2390	42.54	RMS	hor	54.00	3	-11.46
F _{LOW}	2412	HT20	2390	58.35	pk	ver	74.00	3	-15.65
F _{LOW}	2412	HT20	2390	40.85	RMS	ver	54.00	3	-13.15
F _{LOW}	2412	HT20	4824	34.17	pk	hor	74.00	3	-39.83
F _{MID}	2437	HT20	4872	40.46	pk	hor	74.00	3	-33.54
F _{MID}	2437	HT20	4872	38.80	pk	ver	74.00	3	-35.20
F _{HIGH}	2462	HT20	2483.5	68.10	pk	hor	74.00	3	-05.90
F _{HIGH}	2462	HT20	2483.5	46.13	RMS	hor	54.00	3	-07.87
F _{HIGH}	2462	HT20	2483.5	64.36	pk	ver	74.00	3	-09.64
F _{HIGH}	2462	HT20	2483.5	43.15	RMS	ver	54.00	3	-10.85
F _{HIGH}	2462	HT20	4920	38.92	pk	hor	74.00	3	-35.08
F _{HIGH}	2462	HT20	4928	40.29	pk	ver	74.00	3	-33.71
Comments: * Physical distance between EUT and measurement antenna.									

Test results HT40									
Channel	Frequency [MHz]	Mode	Emission [MHz]	Level [dBμV/m]	Det.	Pol.	Limit [dBμV/m]	Limit dist. [m]*	Margin [dB]
F _{LOW}	2422	DSSS	2390	67.36	pk	hor	74.00	3	-06.64
F _{LOW}	2422	DSSS	2390	50.60	RMS	hor	54.00	3	-03.40
F _{LOW}	2422	DSSS	2390	70.14	pk	ver	74.00	3	-03.86
F _{LOW}	2422	DSSS	2390	50.99	RMS	ver	54.00	3	-03.01
F _{HIGH}	2452	DSSS	2483.6	69.87	pk	hor	74.00	3	-04.13
F _{HIGH}	2452	DSSS	2483.6	52.82	RMS	hor	54.00	3	-01.18
F _{HIGH}	2452	DSSS	2483.7	70.12	pk	ver	74.00	3	-03.88
F _{HIGH}	2452	DSSS	2483.7	52.15	RMS	ver	54.00	3	-01.85
Comments: * Physical distance between EUT and measurement antenna.									

3.4 Test Conditions and Results – Receiver radiated emissions

Receiver radiated emissions acc. to IC RSS-247				Verdict: PASS
Test according referenced standards	Reference Method			
	IC RSS-247 3.1			
Test according to measurement reference	Reference Method			
	ANSI C63.10			
Test frequency range	Tested frequencies			
	30 MHz – 5 th 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							
Channel	Frequency [MHz]	Emission [MHz]	Emission Level [dBμV/m]	Det.	Pol.	Limit [dBμV/m]	Margin [dBμV/m]
F _{MID}	2437	398.4	20.44	pk	ver	46.00	-25.56 dB
F _{MID}	2437	905.6	30.29	pk	hor	46.00	-15.71 dB
F _{MID}	2437	960	27.33	pk	hor	46.00	-18.67 dB
F _{MID}	2437	960	23.87	pk	ver	46.00	-22.13 dB
F _{MID}	2437	1198	40.79	pk	ver	53.98	-13.19 dB
F _{MID}	2437	7824	49.11	pk	hor	53.98	-4.87 dB
F _{MID}	2437	1198	41.57	pk	hor	53.98	-12.41 dB
F _{MID}	2437	1876	38.41	pk	hor	53.98	-15.57 dB
Comments:							

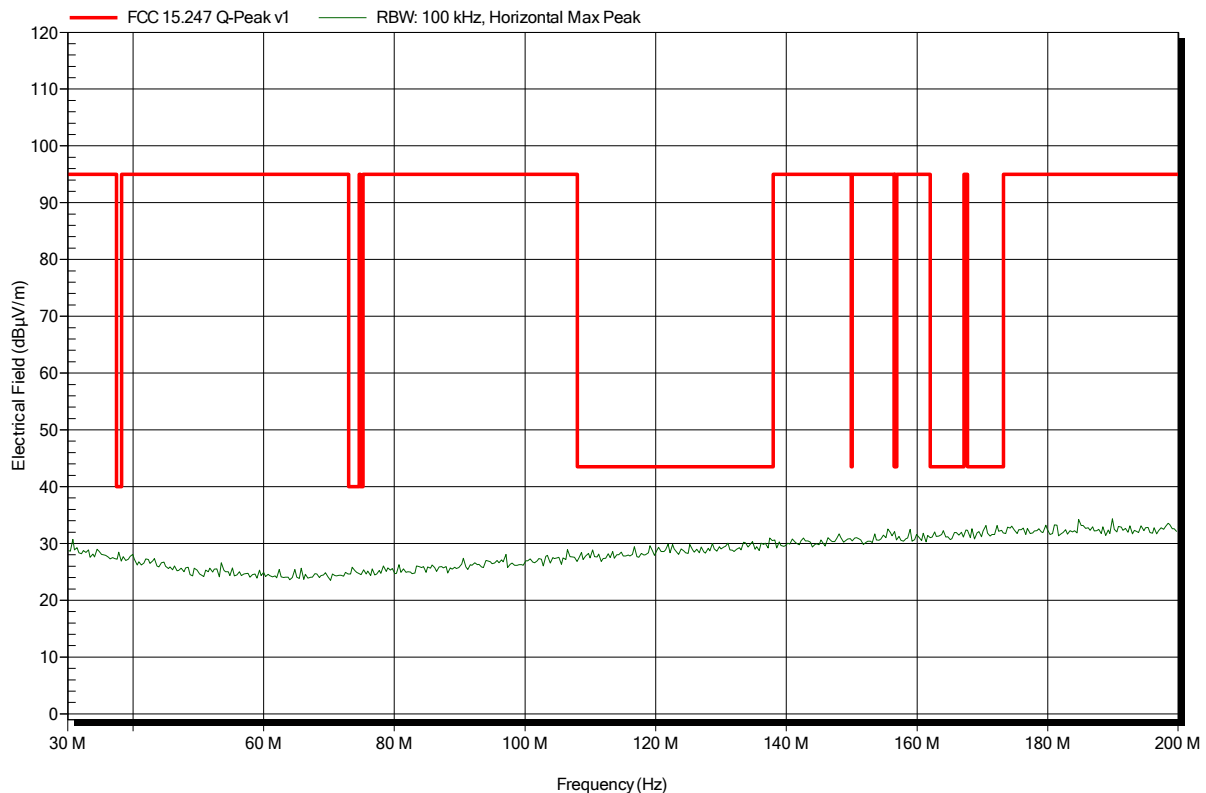
ANNEX A Transmitter radiated spurious emissions

Spurious emissions according to FCC 15.247

Project number: G0M-1507-4921

Applicant:	Panono GmbH
EUT Name:	Panono Camera
Model:	MVP15
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: 3.7 VDC lithium battery
Antenna:	Rohde & Schwarz HK 116, Horizontal
Measurement distance:	3 m
Mode:	TX; 802.11b; DSSS; 1Mbps; 2412MHz
Test Date:	2015-07-23
Note:	

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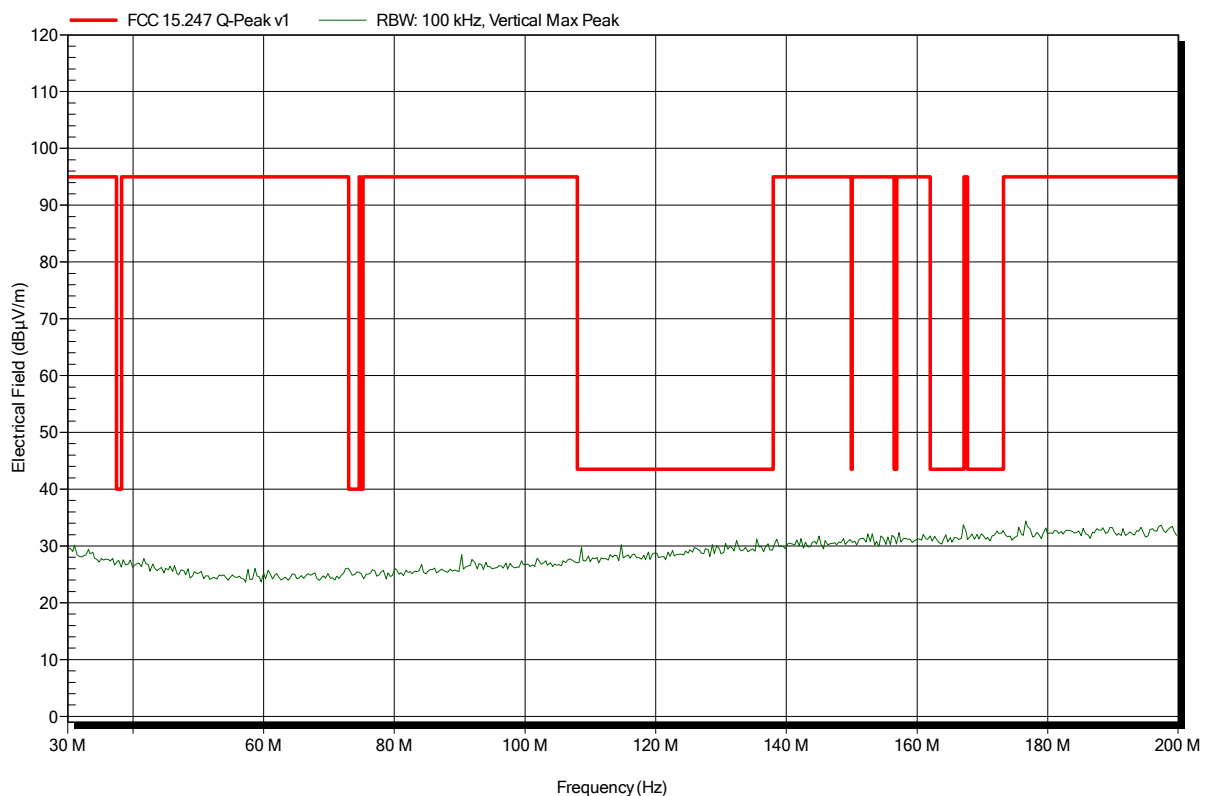


Spurious emissions according to FCC 15.247

Project number: G0M-1507-4921

Applicant: Panono GmbH
 EUT Name: Panono Camera
 Model: MVP15
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery
 Antenna: Rohde & Schwarz HK 116, Vertical
 Measurement distance: 3 m
 Mode: TX; 802.11b; DSSS; 1Mbps; 2412MHz
 Test Date: 2015-07-23
 Note:

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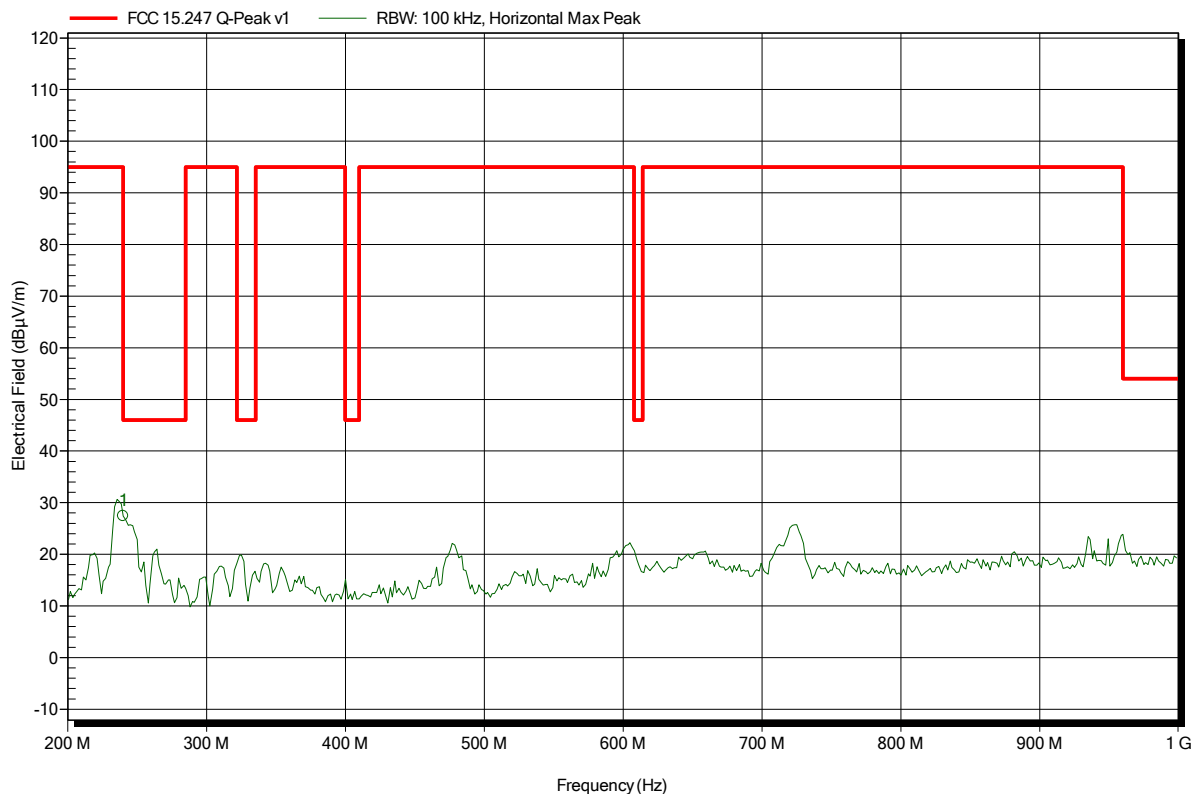


Spurious emissions according to FCC 15.247

Project number: G0M-1507-4921

Applicant: Panono GmbH
 EUT Name: Panono Camera
 Model: MVP15
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery
 Antenna: Rohde & Schwarz HL 223, Horizontal
 Measurement distance: 3 m
 Mode: TX; 802.11b; DSSS; 1Mbps; 2412MHz
 Test Date: 2015-07-23
 Note:

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Frequency	Peak	Peak Limit	Peak Difference	Peak Status
240.124 MHz	27.4 dBµV/m	46 dBµV/m	-18.6 dB	Pass

Test Report No.: G0M-1507-4921-TFC247WF-V02

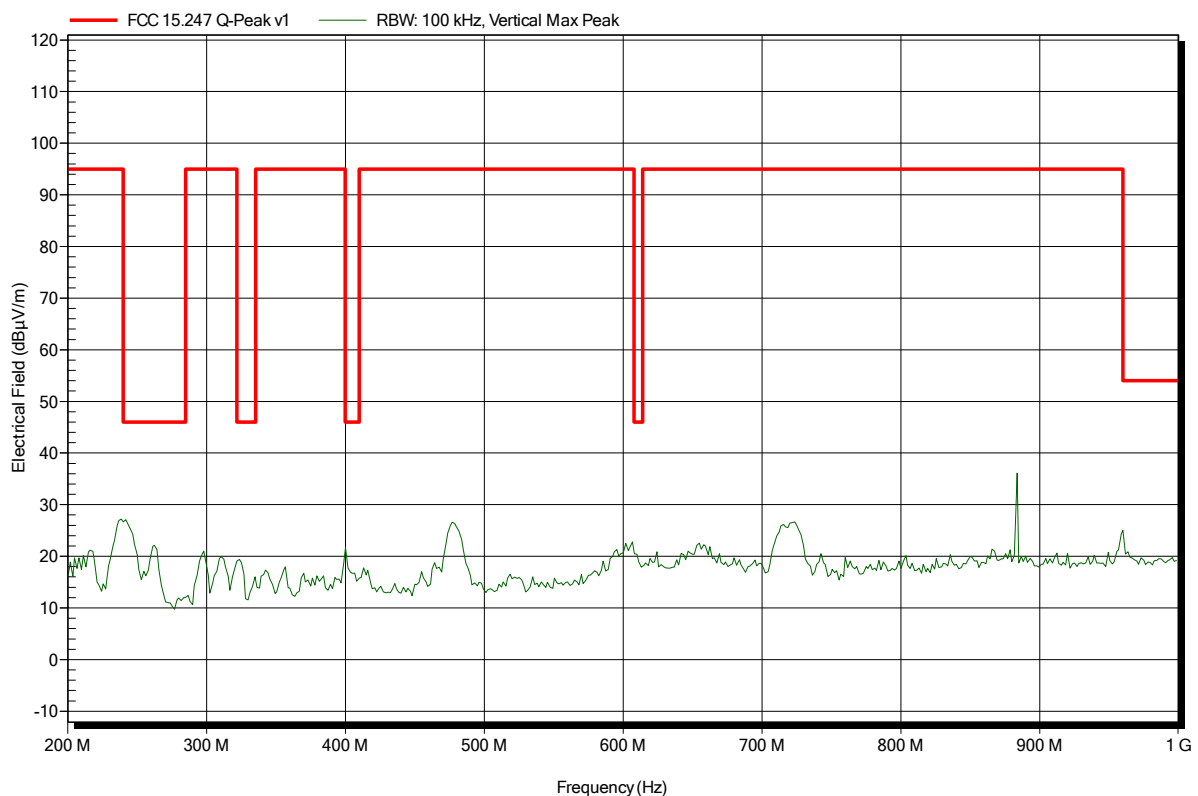
Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Spurious emissions according to FCC 15.247

Project number: G0M-1507-4921

Applicant:	Panono GmbH
EUT Name:	Panono Camera
Model:	MVP15
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: 3.7 VDC lithium battery
Antenna:	Rohde & Schwarz HL 223, Vertical
Measurement distance:	3 m
Mode:	TX; 802.11b; DSSS; 1Mbps; 2412MHz
Test Date:	2015-07-23
Note:	

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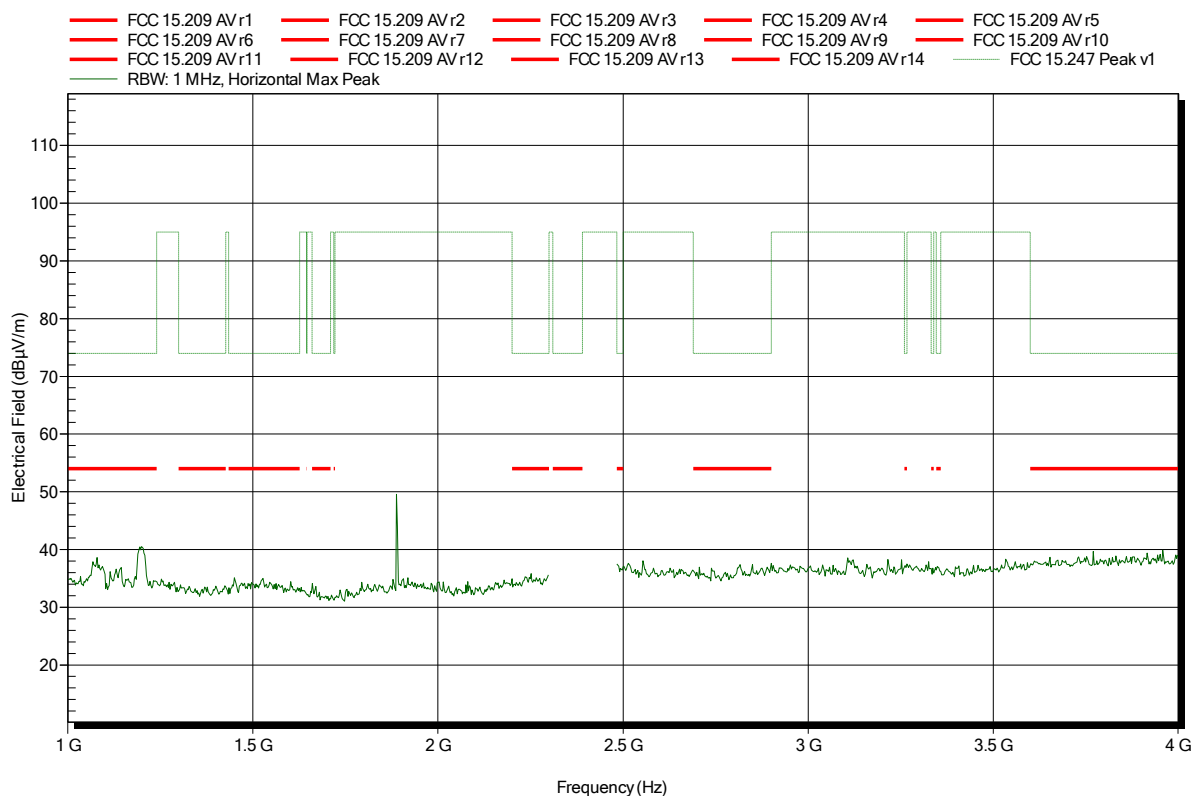


Spurious emissions according to FCC 15.247

Project number: G0M-1507-4921

Applicant: Panono GmbH
 EUT Name: Panono Camera
 Model: MVP15
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 3 m
 Mode: TX; 802.11b; DSSS; 1Mbps; 2412MHz
 Test Date: 2015-07-22
 Note:

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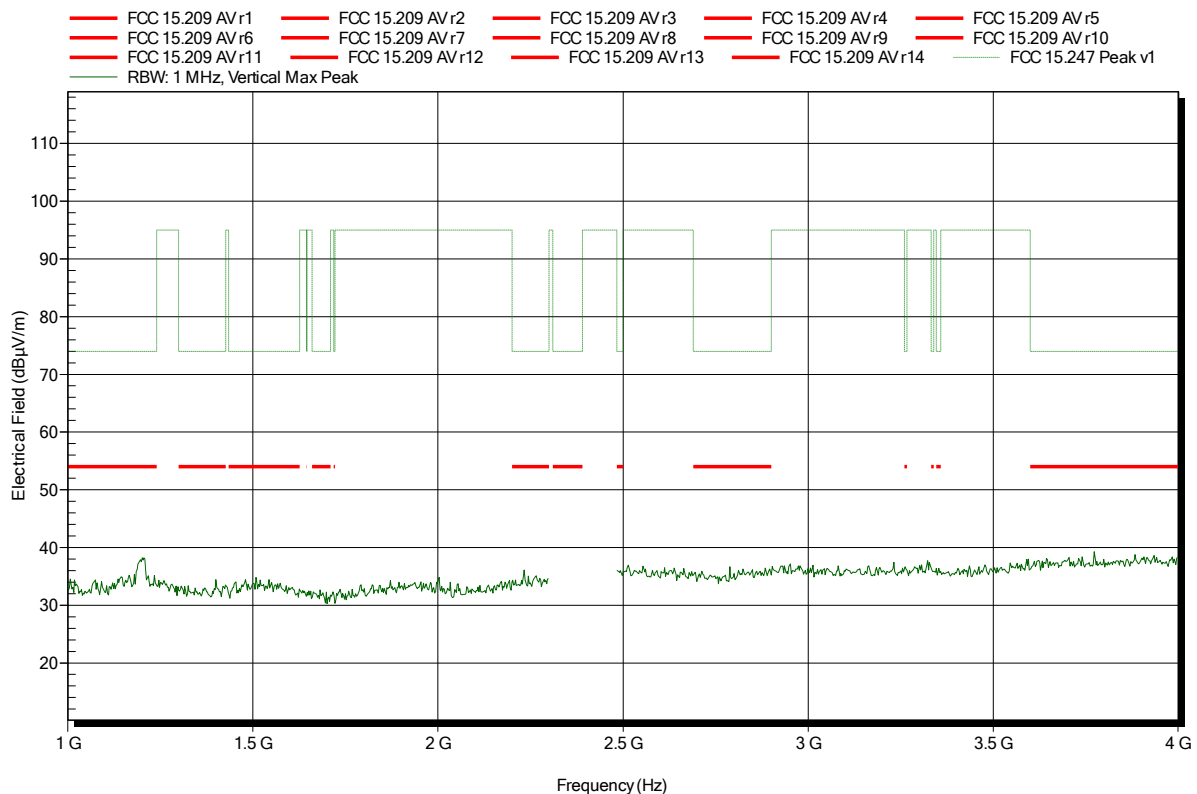


Spurious emissions according to FCC 15.247

Project number: G0M-1507-4921

Applicant: Panono GmbH
 EUT Name: Panono Camera
 Model: MVP15
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 3 m
 Mode: TX; 802.11b; DSSS; 1Mbps; 2412MHz
 Test Date: 2015-07-22
 Note:

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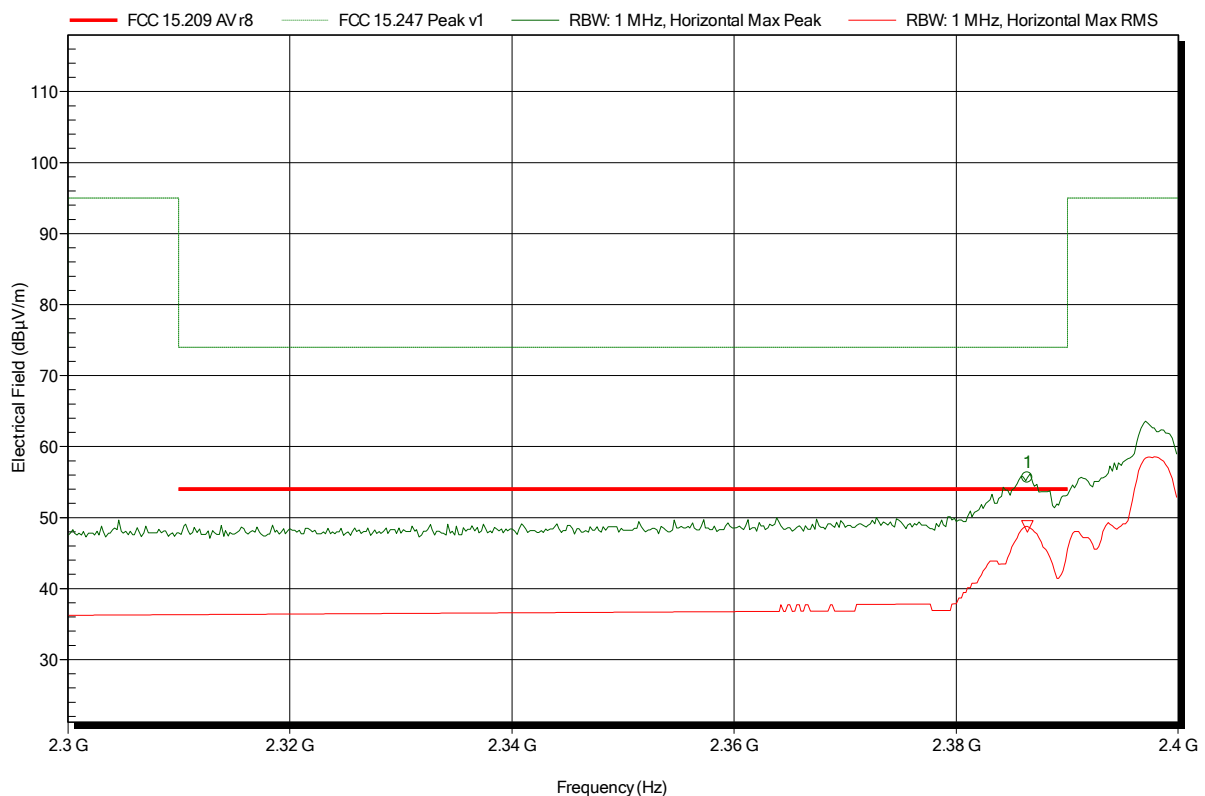


Spurious emissions according to FCC 15.247

Project number: G0M-1507-4921

Applicant: Panono GmbH
 EUT Name: Panono Camera
 Model: MVP15
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 1 m converted to 3m
 Mode: TX; 802.11b; DSSS; 1Mbps; 2412MHz
 Test Date: 2015-07-22
 Note: lower bandedge

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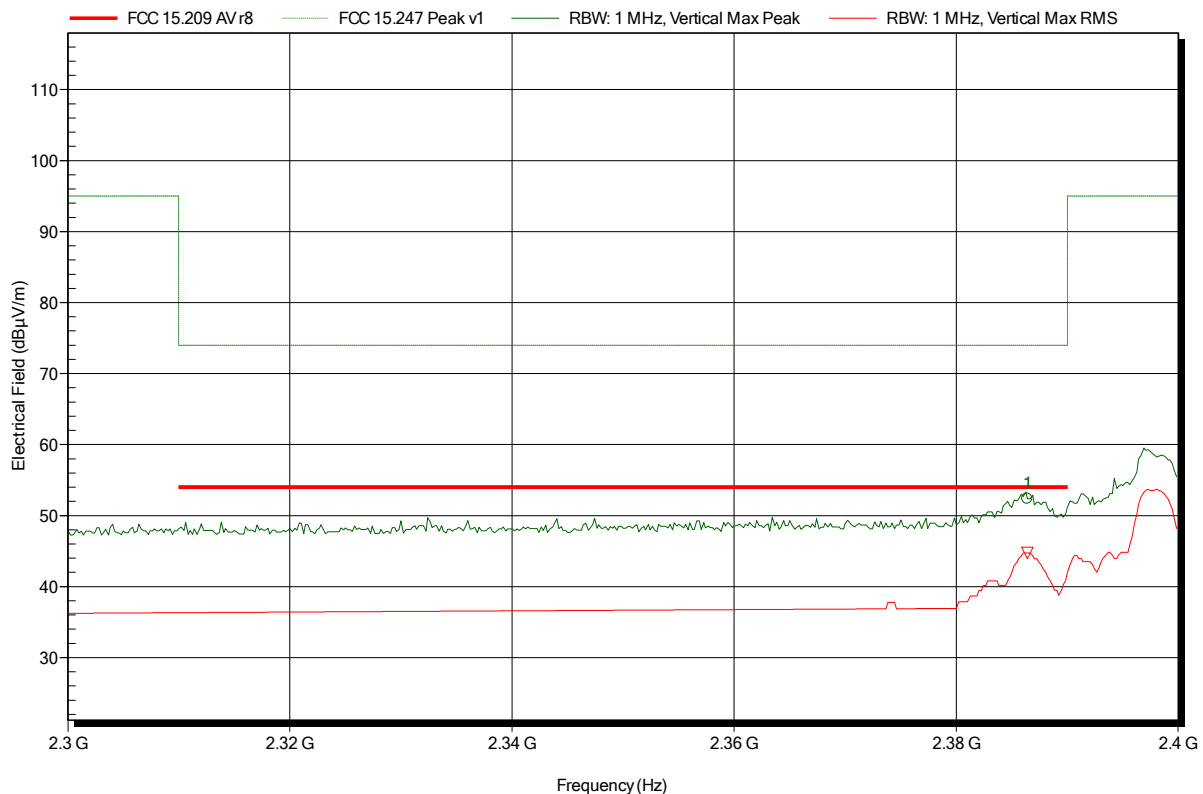
Frequency 2.386 GHz	Peak 55.63 dBµV/m	Peak Limit 74 dBµV/m	Peak Difference -18.37 dB	Peak Status Pass
Frequency 2.386 GHz	RMS 48.78 dBµV/m	RMS Limit 54 dBµV/m	RMS Difference -5.22 dB	RMS Status Pass

Spurious emissions according to FCC 15.247

Project number: G0M-1507-4921

Applicant: Panono GmbH
 EUT Name: Panono Camera
 Model: MVP15
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 1 m converted to 3m
 Mode: TX; 802.11b; DSSS; 1Mbps; 2412MHz
 Test Date: 2015-07-22
 Note: lower bandedge

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Frequency	Peak	Peak Limit	Peak Difference	Peak Status
2.386 GHz	52.39 dBµV/m	74 dBµV/m	-21.61 dB	Pass

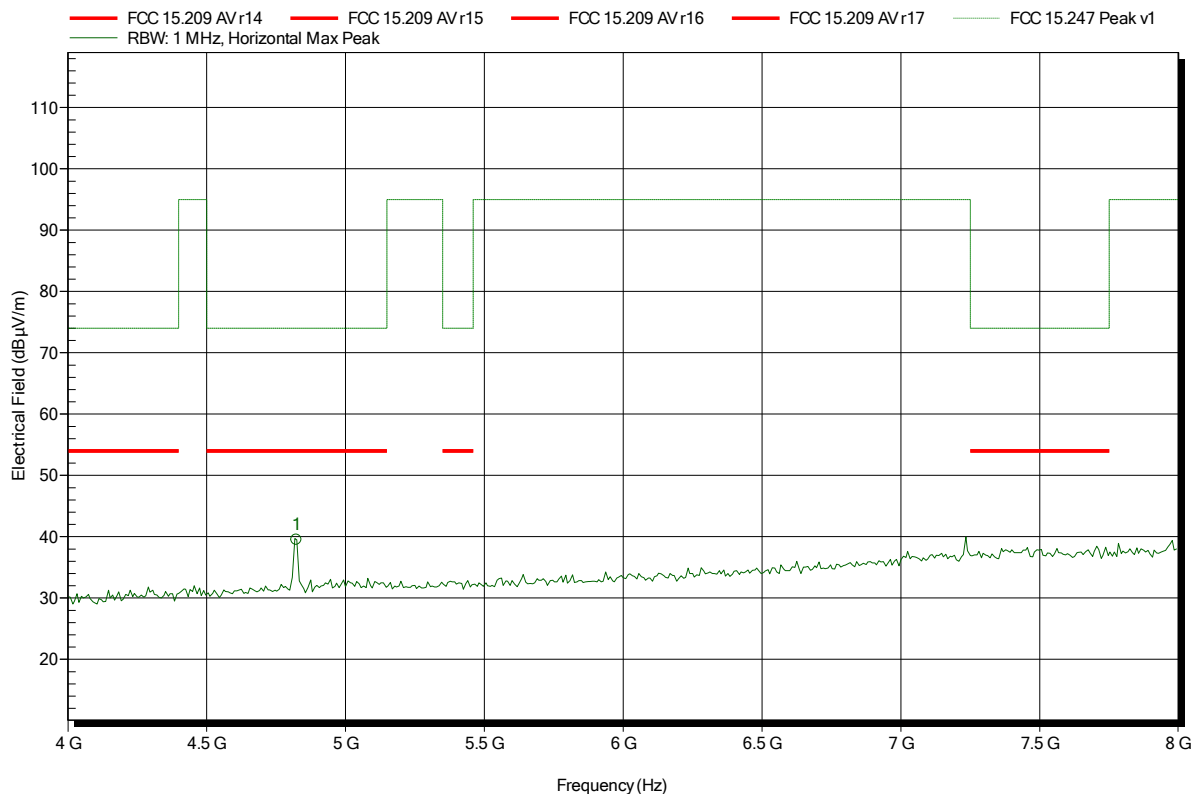
Frequency	RMS	RMS Limit	RMS Difference	RMS Status
2.386 GHz	44.75 dBµV/m	54 dBµV/m	-9.25 dB	Pass

Spurious emissions according to FCC 15.247

Project number: G0M-1507-4921

Applicant: Panono GmbH
 EUT Name: Panono Camera
 Model: MVP15
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 1 m converted to 3m
 Mode: TX; 802.11b; DSSS; 1Mbps; 2412MHz
 Test Date: 2015-07-22
 Note:

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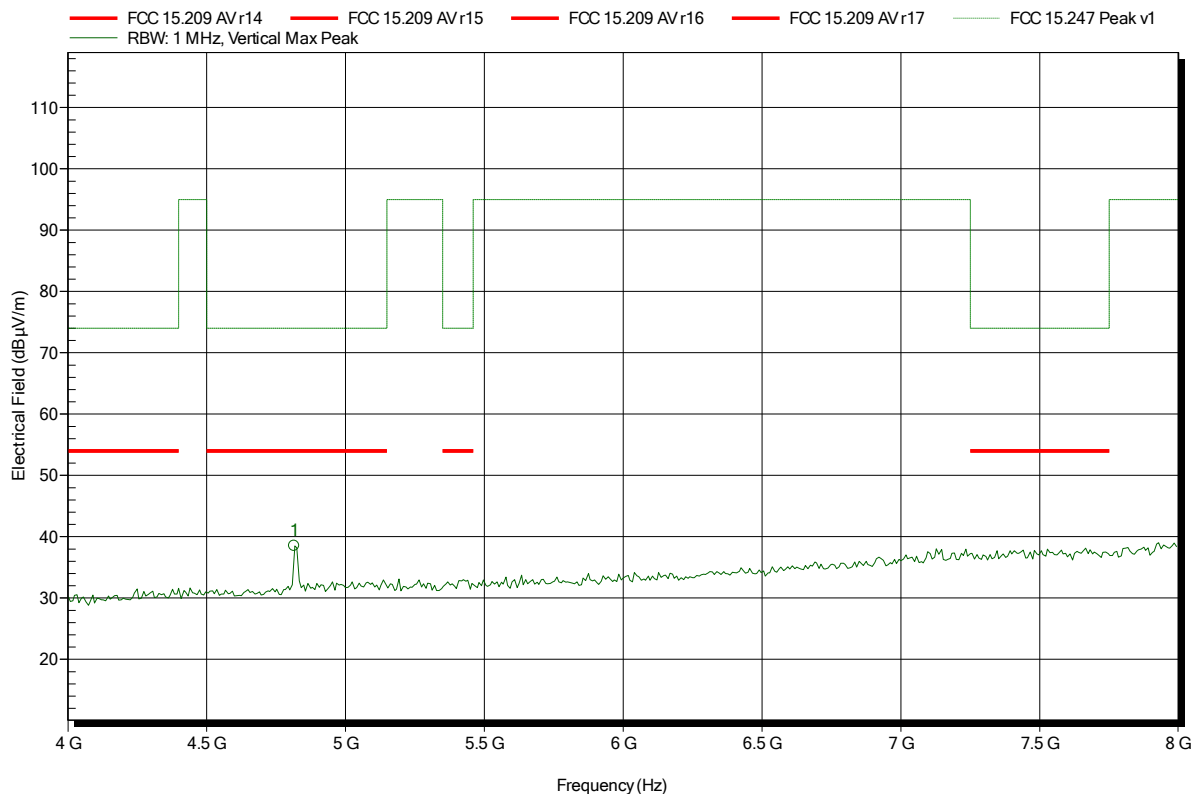
Frequency	Peak	Peak Limit	Peak Difference	Status
4.824 GHz	39.48 dBµV/m	74 dBµV/m	-34.52 dB	Pass

Spurious emissions according to FCC 15.247

Project number: G0M-1507-4921

Applicant: Panono GmbH
 EUT Name: Panono Camera
 Model: MVP15
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 1 m converted to 3m
 Mode: TX; 802.11b; DSSS; 1Mbps; 2412MHz
 Test Date: 2015-07-22
 Note:

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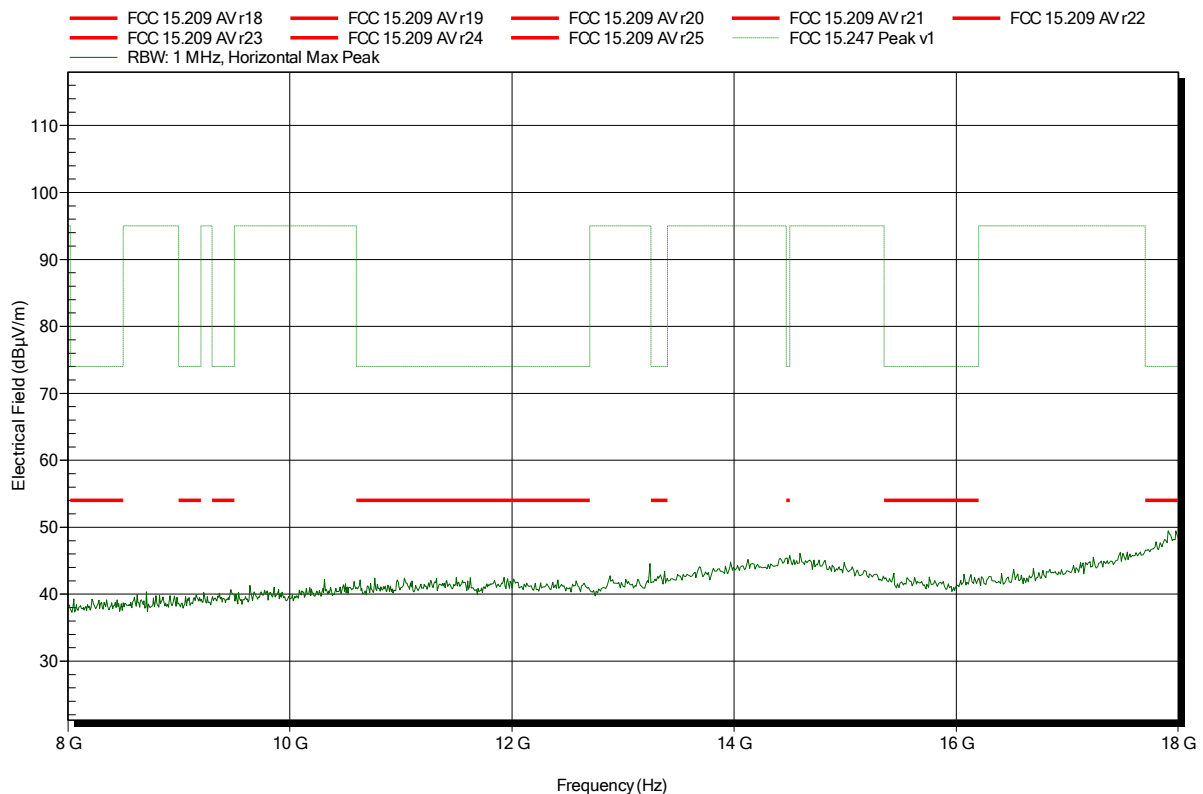
Frequency	Peak	Peak Limit	Peak Difference	Status
4.816 GHz	38.5 dBµV/m	74 dBµV/m	-35.5 dB	Pass

Spurious emissions according to FCC 15.247

Project number: G0M-1507-4921

Applicant: Panono GmbH
 EUT Name: Panono Camera
 Model: MVP15
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 1 m converted to 3m
 Mode: TX; 802.11b; DSSS; 1Mbps; 2412MHz
 Test Date: 2015-07-22
 Note:

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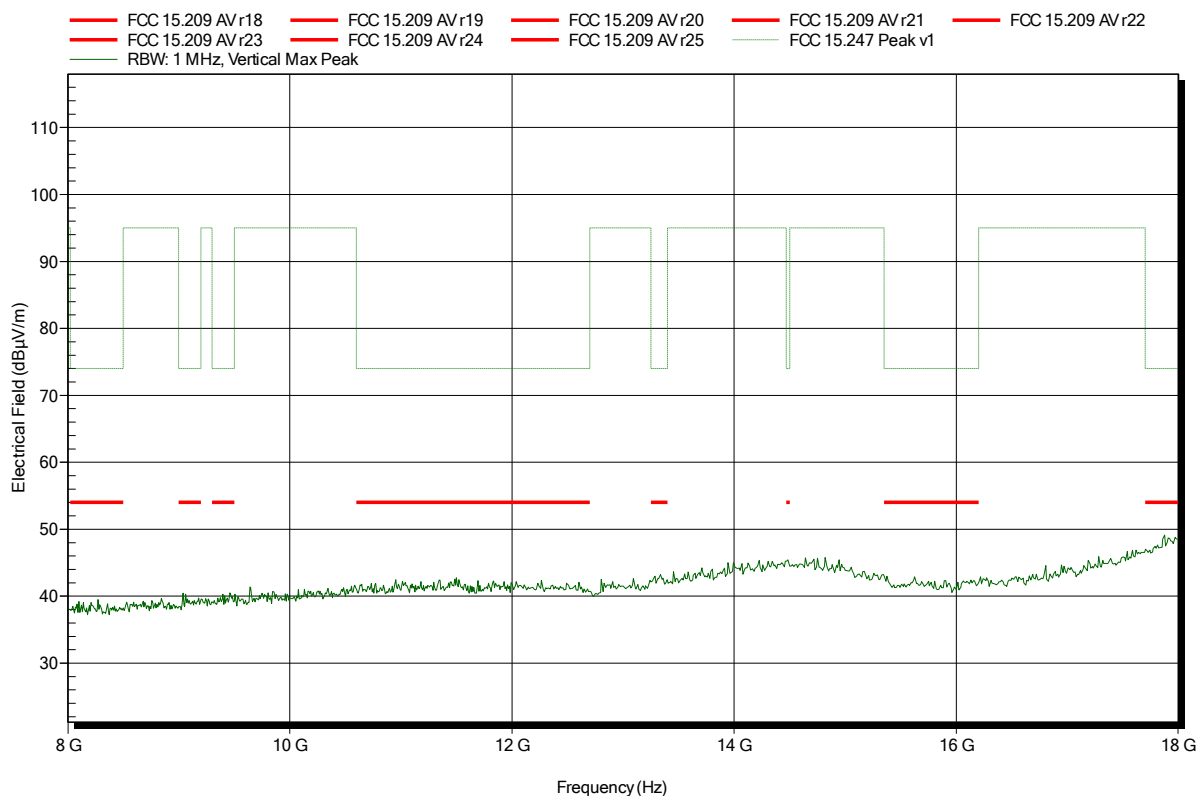


Spurious emissions according to FCC 15.247

Project number: G0M-1507-4921

Applicant: Panono GmbH
 EUT Name: Panono Camera
 Model: MVP15
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 1 m converted to 3m
 Mode: TX; 802.11b; DSSS; 1Mbps; 2412MHz
 Test Date: 2015-07-22
 Note:

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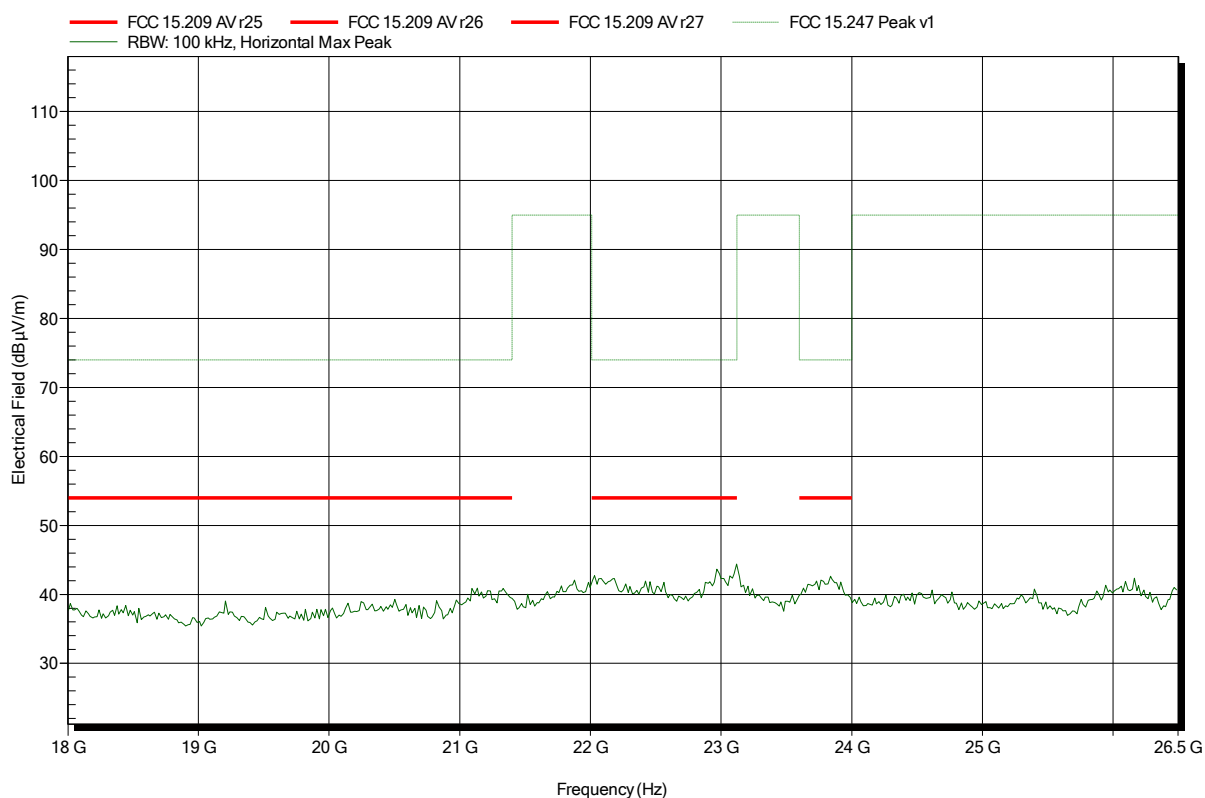


Spurious emissions according to FCC 15.247

Project number: G0M-1507-4921

Applicant: Panono GmbH
 EUT Name: Panono Camera
 Model: MVP15
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery
 Antenna: Rohde & Schwarz HL 025, Horizontal
 Measurement distance: 1 m converted to 3m
 Mode: TX; 802.11b; DSSS; 1Mbps; 2412MHz
 Test Date: 2015-07-22
 Note:

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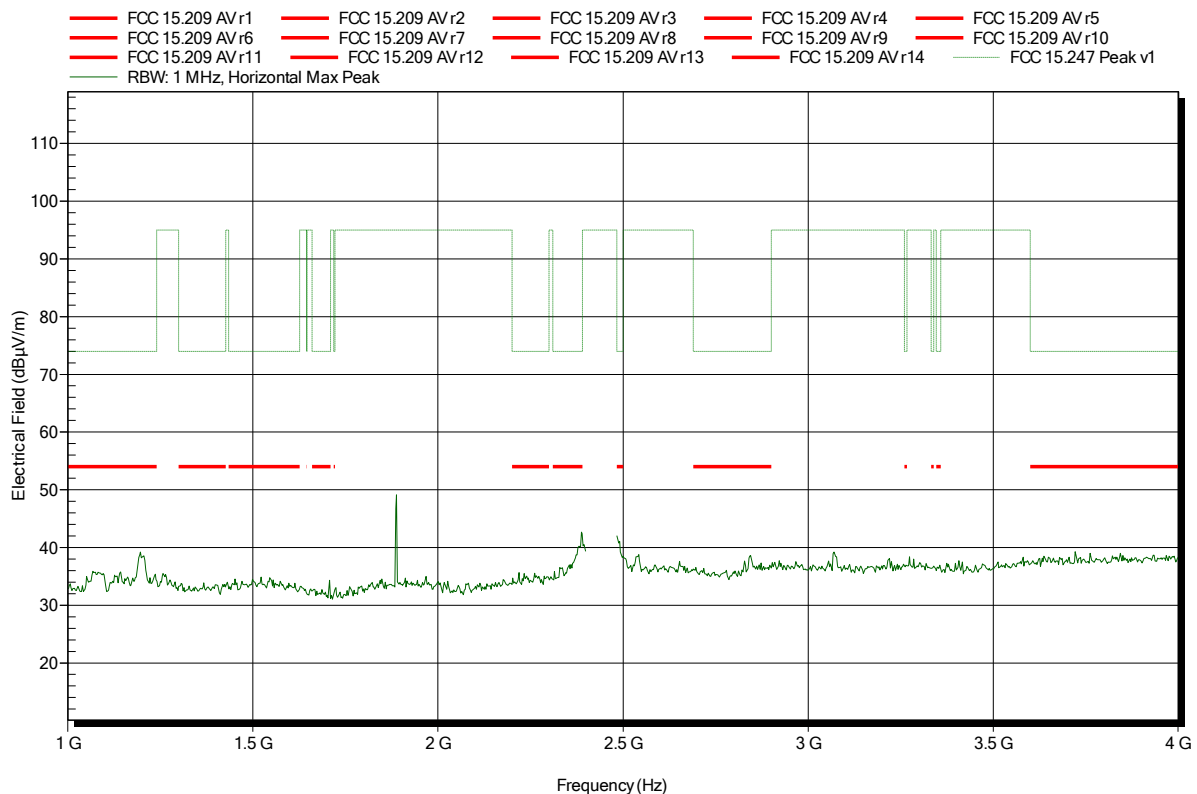


Spurious emissions according to FCC 15.247

Project number: G0M-1507-4921

Applicant: Panono GmbH
 EUT Name: Panono Camera
 Model: MVP15
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 3 m
 Mode: TX; 802.11b; DSSS; 1Mbps; 2437MHz
 Test Date: 2015-07-22
 Note:

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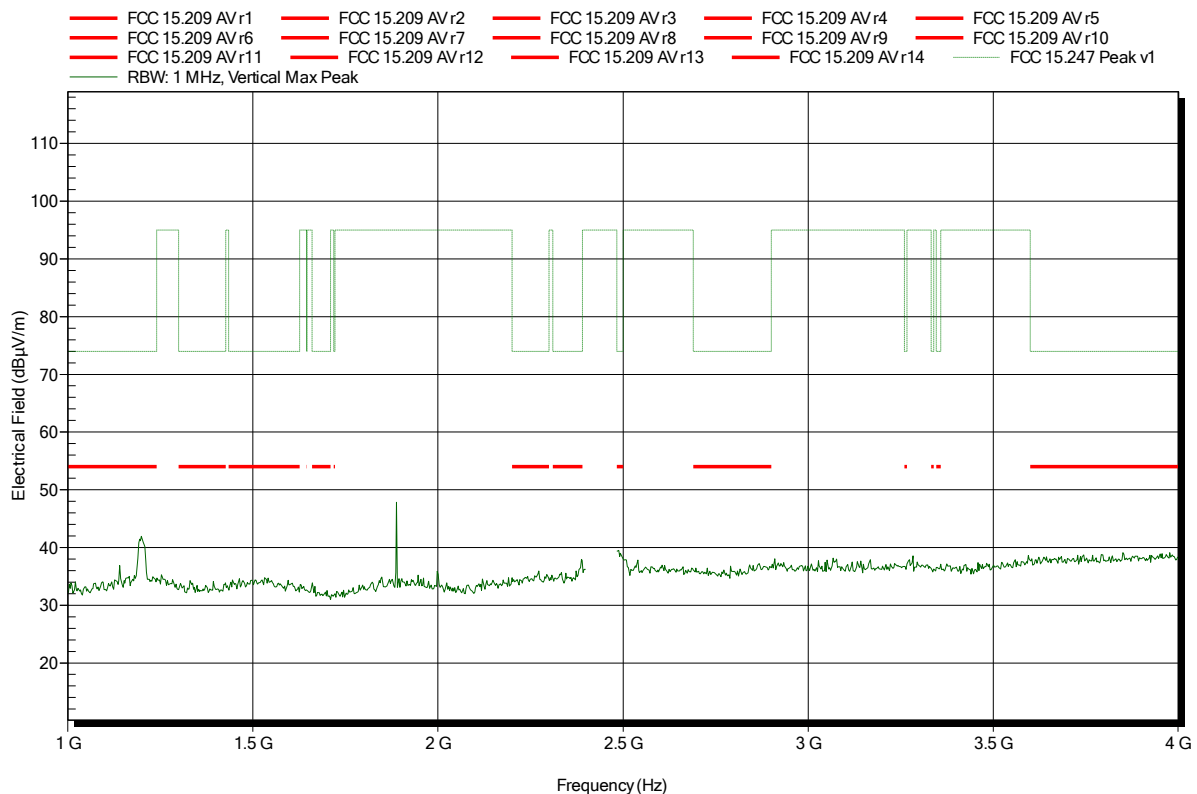


Spurious emissions according to FCC 15.247

Project number: G0M-1507-4921

Applicant: Panono GmbH
 EUT Name: Panono Camera
 Model: MVP15
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 3 m
 Mode: TX; 802.11b; DSSS; 1Mbps; 2437MHz
 Test Date: 2015-07-22
 Note:

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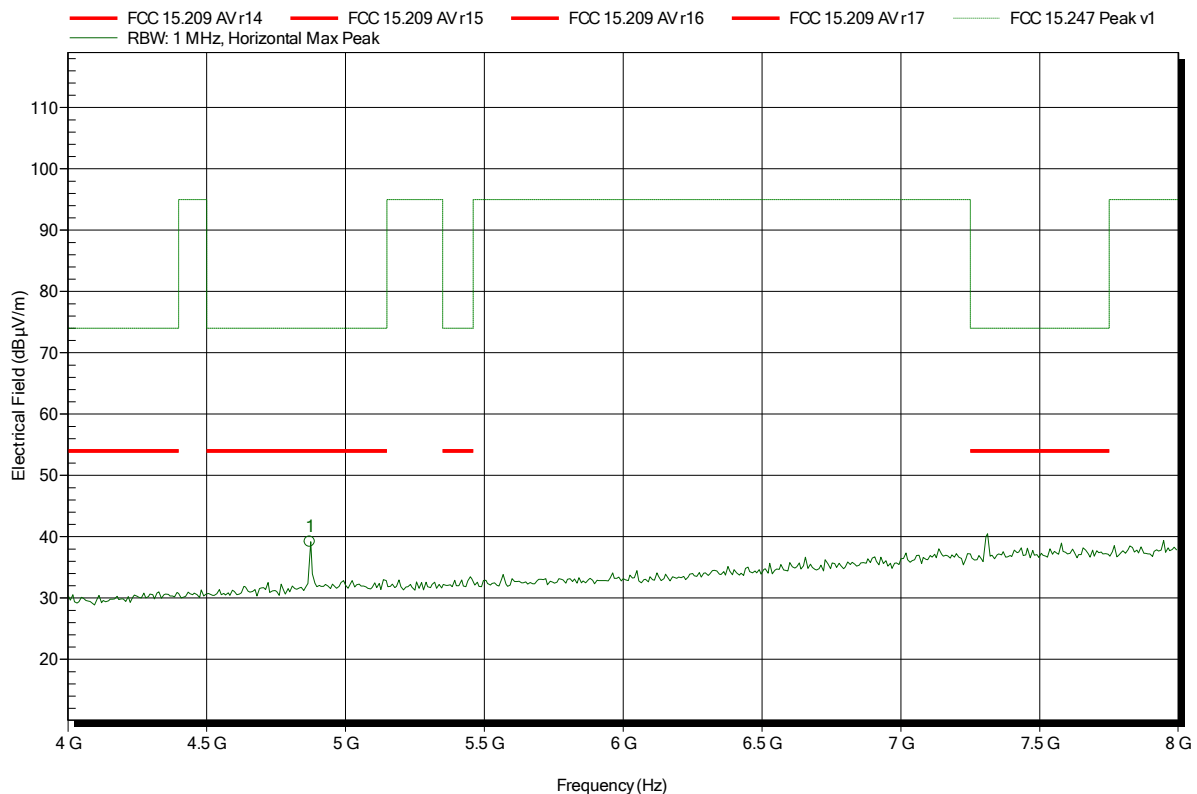


Spurious emissions according to FCC 15.247

Project number: G0M-1507-4921

Applicant: Panono GmbH
 EUT Name: Panono Camera
 Model: MVP15
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 1 m converted to 3m
 Mode: TX; 802.11b; DSSS; 1Mbps; 2437MHz
 Test Date: 2015-07-22
 Note:

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Frequency	Peak	Peak Limit	Peak Difference	Status
4.872 GHz	39.16 dBµV/m	74 dBµV/m	-34.84 dB	Pass

Test Report No.: G0M-1507-4921-TFC247WF-V02

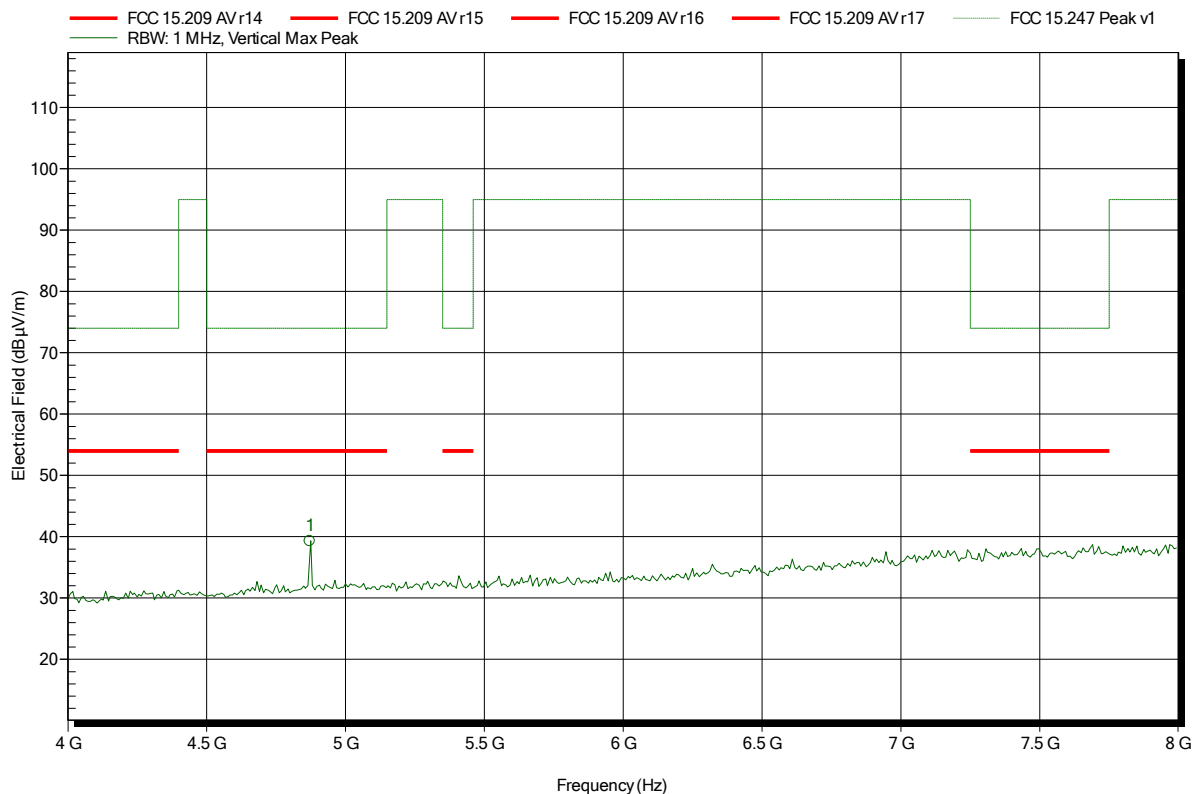
Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Spurious emissions according to FCC 15.247

Project number: G0M-1507-4921

Applicant: Panono GmbH
 EUT Name: Panono Camera
 Model: MVP15
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 1 m converted to 3m
 Mode: TX; 802.11b; DSSS; 1Mbps; 2437MHz
 Test Date: 2015-07-22
 Note:

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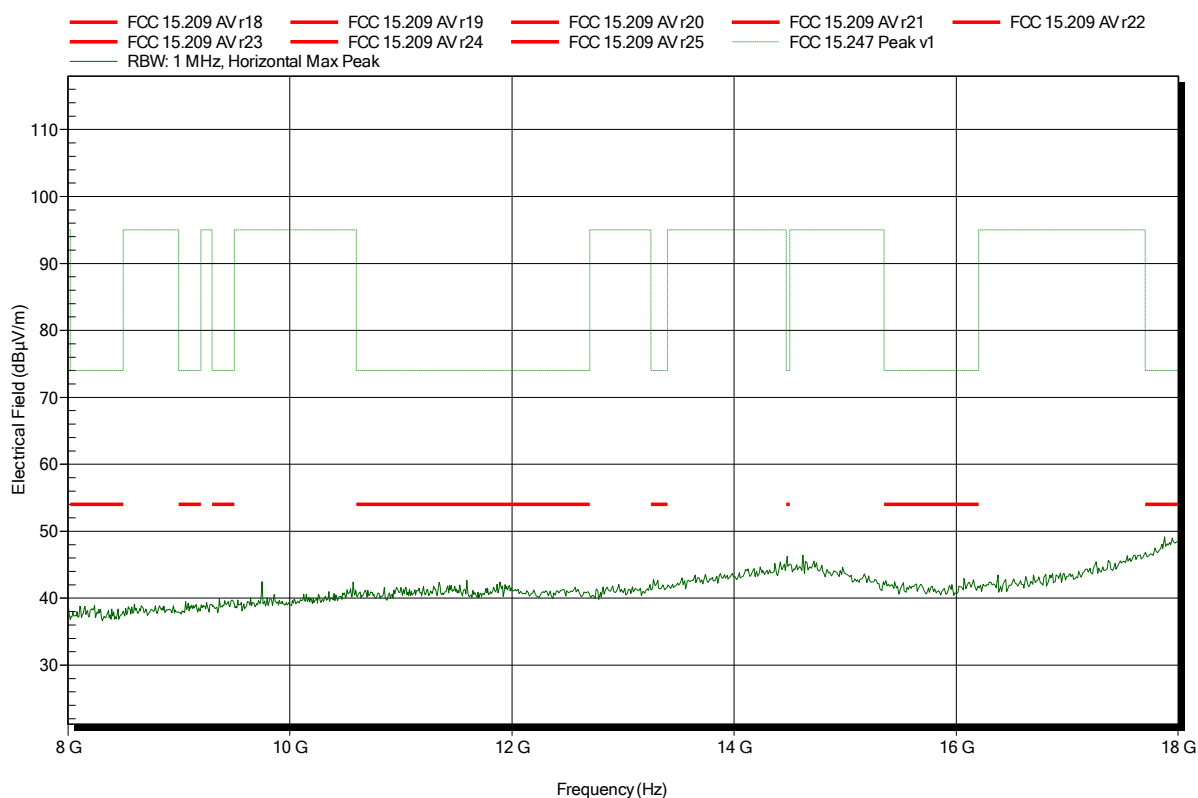
Frequency	Peak	Peak Limit	Peak Difference	Status
4.872 GHz	39.31 dBµV/m	74 dBµV/m	-34.69 dB	Pass

Spurious emissions according to FCC 15.247

Project number: G0M-1507-4921

Applicant: Panono GmbH
 EUT Name: Panono Camera
 Model: MVP15
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 1 m converted to 3m
 Mode: TX; 802.11b; DSSS; 1Mbps; 2437MHz
 Test Date: 2015-07-22
 Note:

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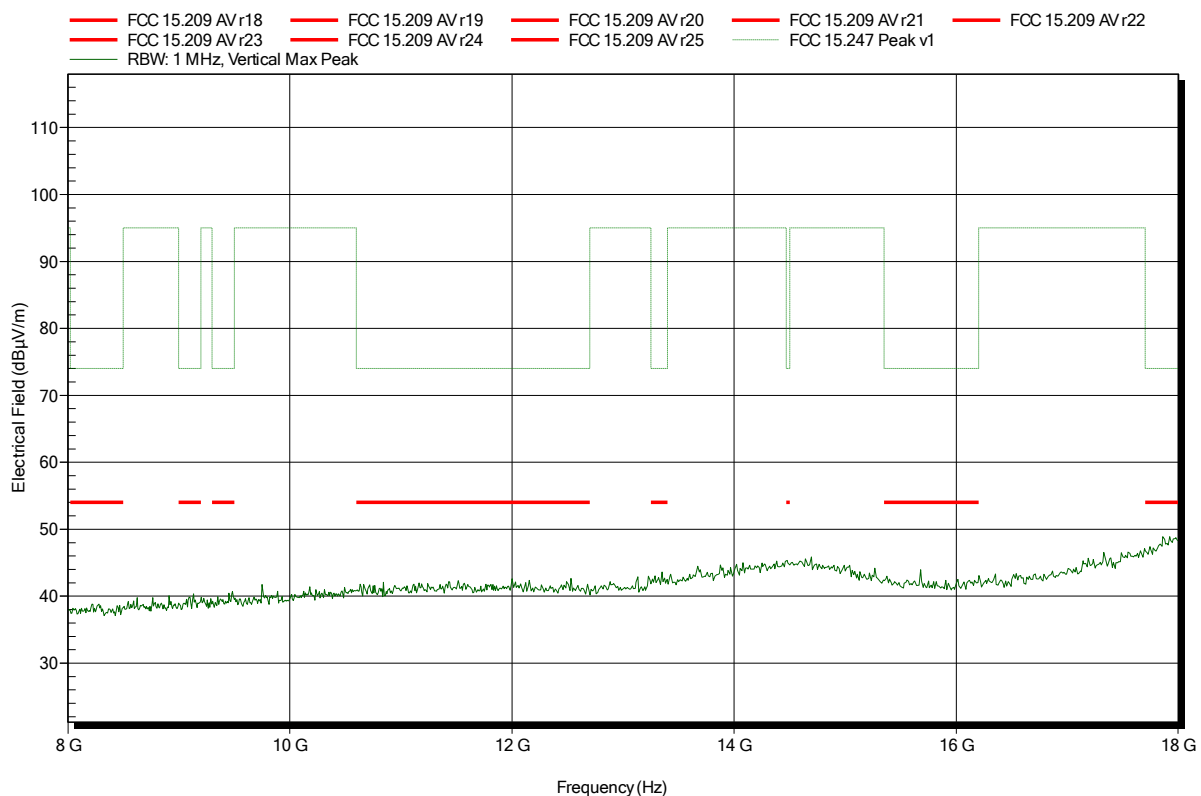


Spurious emissions according to FCC 15.247

Project number: G0M-1507-4921

Applicant: Panono GmbH
 EUT Name: Panono Camera
 Model: MVP15
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 1 m converted to 3m
 Mode: TX; 802.11b; DSSS; 1Mbps; 2437MHz
 Test Date: 2015-07-22
 Note:

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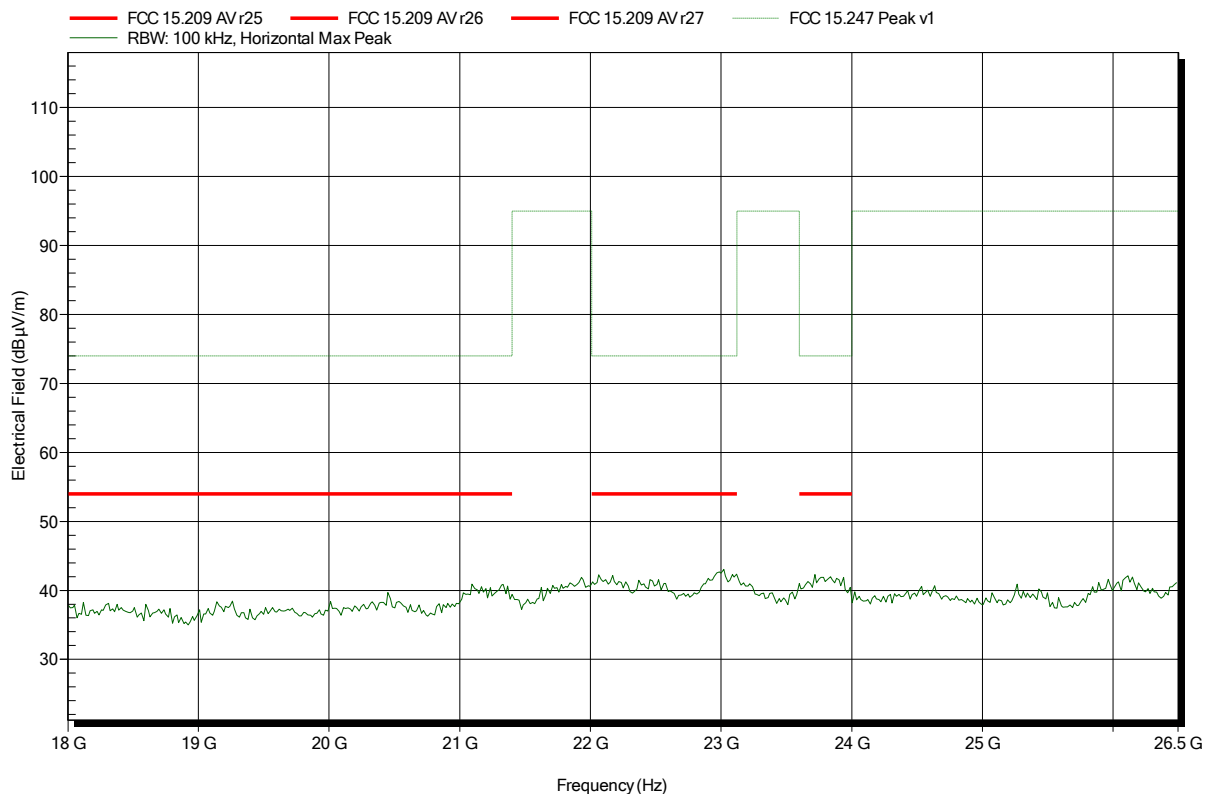


Spurious emissions according to FCC 15.247

Project number: G0M-1507-4921

Applicant: Panono GmbH
 EUT Name: Panono Camera
 Model: MVP15
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery
 Antenna: Rohde & Schwarz HL 025, Horizontal
 Measurement distance: 1 m converted to 3m
 Mode: TX; 802.11b; DSSS; 1Mbps; 2437MHz
 Test Date: 2015-07-22
 Note:

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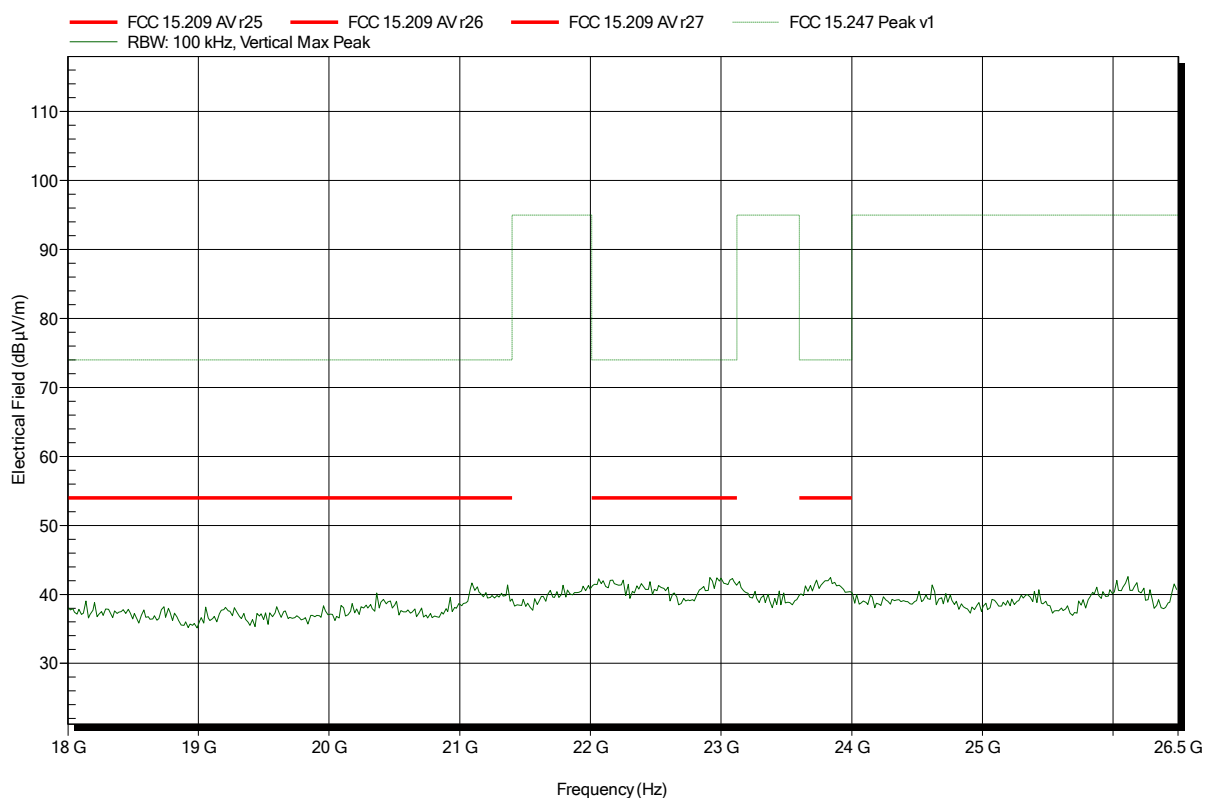


Spurious emissions according to FCC 15.247

Project number: G0M-1507-4921

Applicant: Panono GmbH
 EUT Name: Panono Camera
 Model: MVP15
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery
 Antenna: Rohde & Schwarz HL 025, Vertical
 Measurement distance: 1 m converted to 3m
 Mode: TX; 802.11b; DSSS; 1Mbps; 2437MHz
 Test Date: 2015-07-22
 Note:

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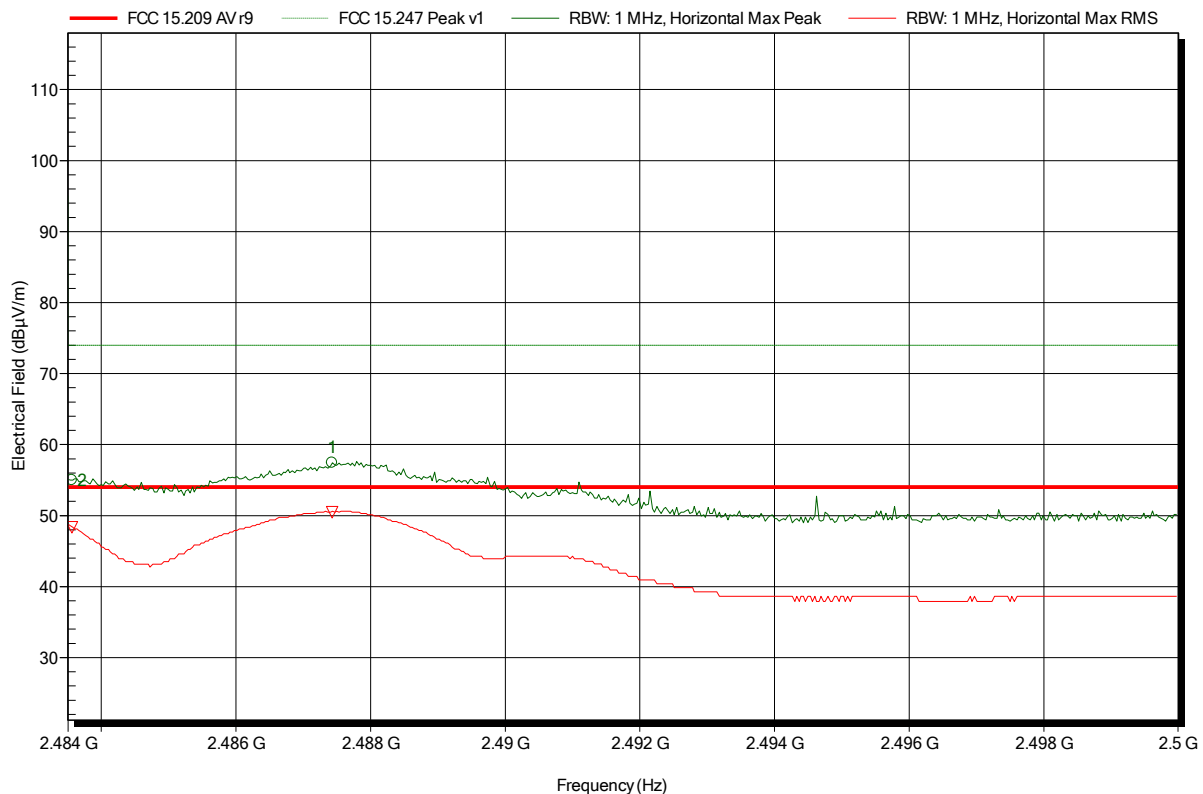


Spurious emissions according to FCC 15.247

Project number: G0M-1507-4921

Applicant: Panono GmbH
 EUT Name: Panono Camera
 Model: MVP15
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 1 m converted to 3m
 Mode: TX; 802.11b; DSSS; 1Mbps; 2462MHz
 Test Date: 2015-07-22
 Note: upper bandedge

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Frequency	Peak	Peak Limit	Peak Difference	Peak Status
2.4836 GHz	54.99 dBμV/m	74 dBμV/m	-19.01 dB	Pass
2.4874 GHz	57.45 dBμV/m	74 dBμV/m	-16.55 dB	Pass

Frequency	RMS	RMS Limit	RMS Difference	RMS Status
2.4836 GHz	48.34 dBμV/m	54 dBμV/m	-5.66 dB	Pass
2.4874 GHz	50.46 dBμV/m	54 dBμV/m	-3.54 dB	Pass

Test Report No.: G0M-1507-4921-TFC247WF-V02

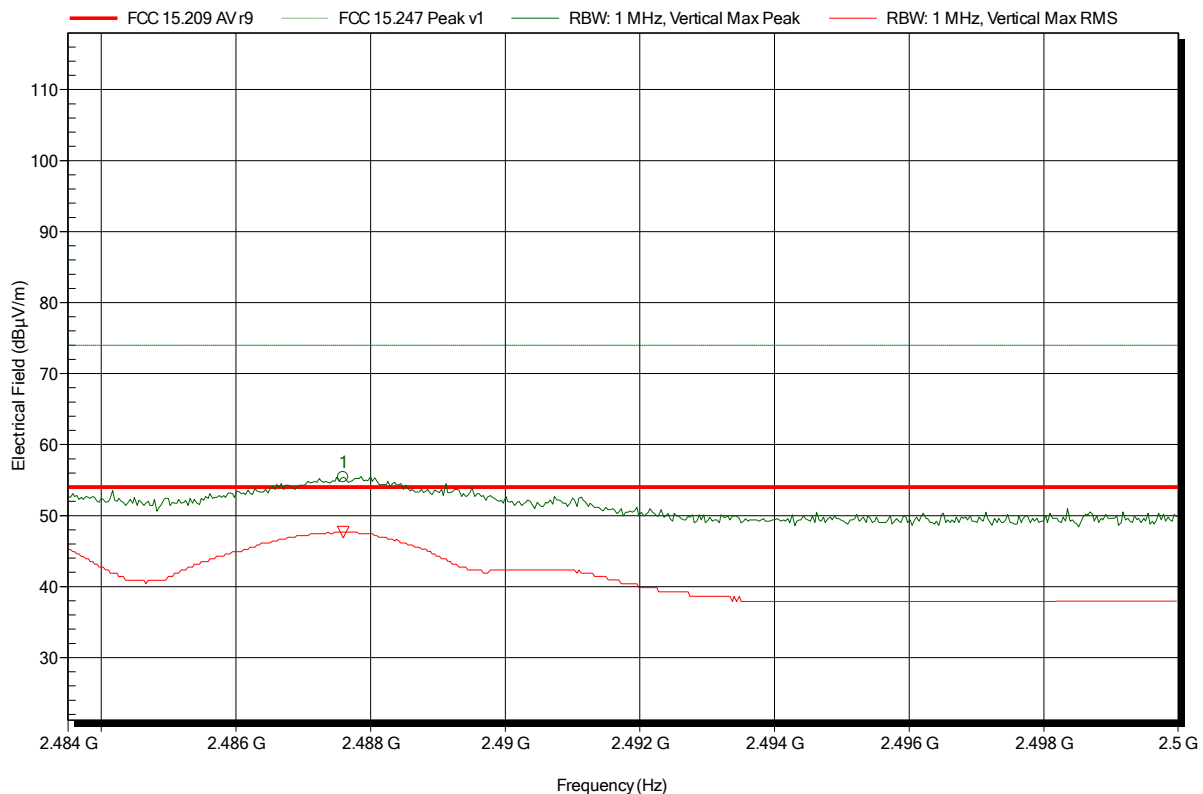
Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Spurious emissions according to FCC 15.247

Project number: G0M-1507-4921

Applicant: Panono GmbH
 EUT Name: Panono Camera
 Model: MVP15
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 1 m converted to 3m
 Mode: TX; 802.11b; DSSS; 1Mbps; 2462MHz
 Test Date: 2015-07-22
 Note: upper bandedge

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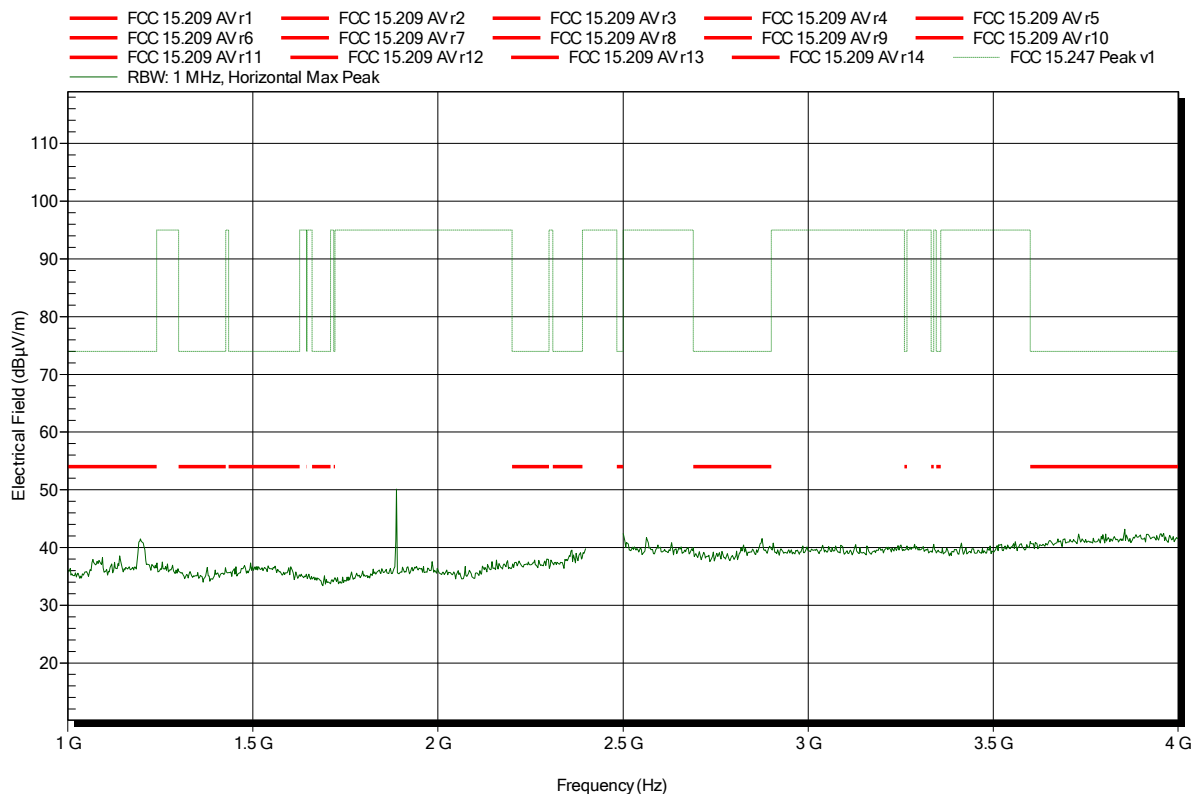
Frequency	Peak	Peak Limit	Peak Difference	Peak Status
2.4876 GHz	55.39 dBµV/m	74 dBµV/m	-18.61 dB	Pass
Frequency	RMS	RMS Limit	RMS Difference	RMS Status
2.4876 GHz	47.67 dBµV/m	54 dBµV/m	-6.33 dB	Pass

Spurious emissions according to FCC 15.247

Project number: G0M-1507-4921

Applicant: Panono GmbH
 EUT Name: Panono Camera
 Model: MVP15
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 3 m
 Mode: TX; 802.11b; DSSS; 1Mbps; 2462MHz
 Test Date: 2015-07-22
 Note:

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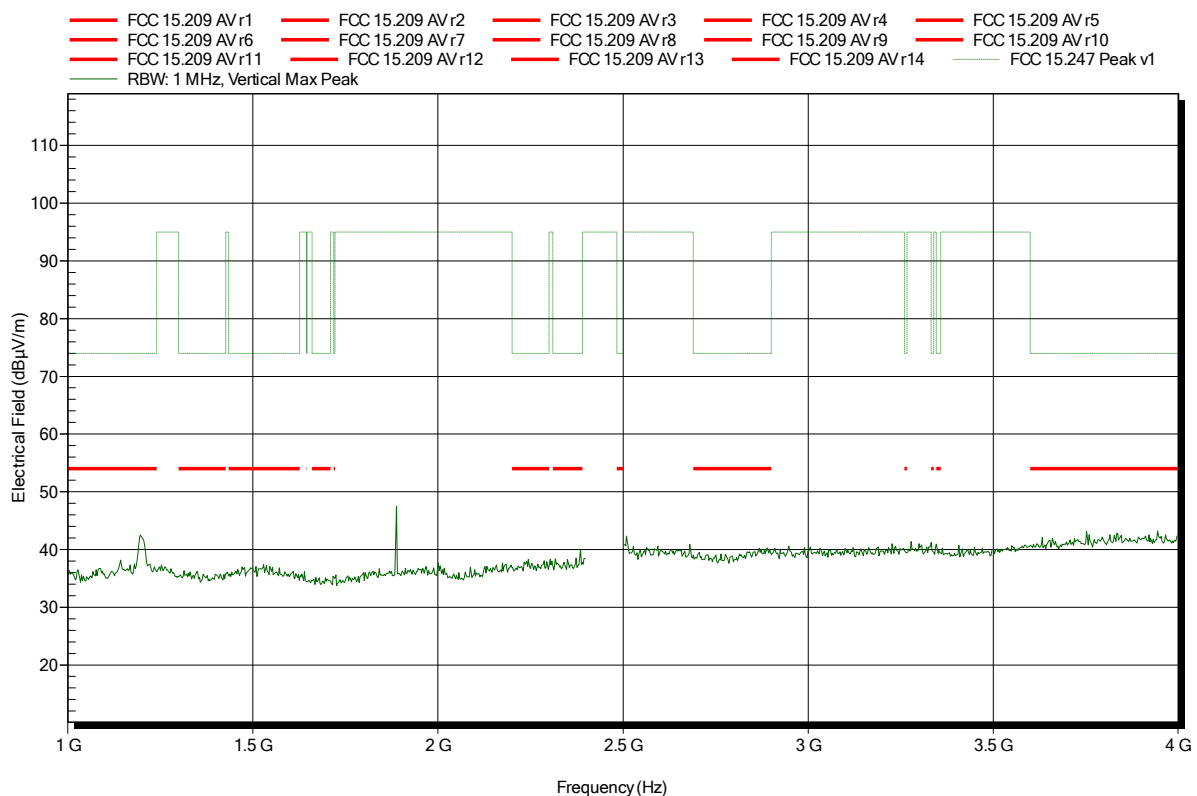


Spurious emissions according to FCC 15.247

Project number: G0M-1507-4921

Applicant: Panono GmbH
 EUT Name: Panono Camera
 Model: MVP15
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 3 m
 Mode: TX; 802.11b; DSSS; 1Mbps; 2462MHz
 Test Date: 2015-07-22
 Note:

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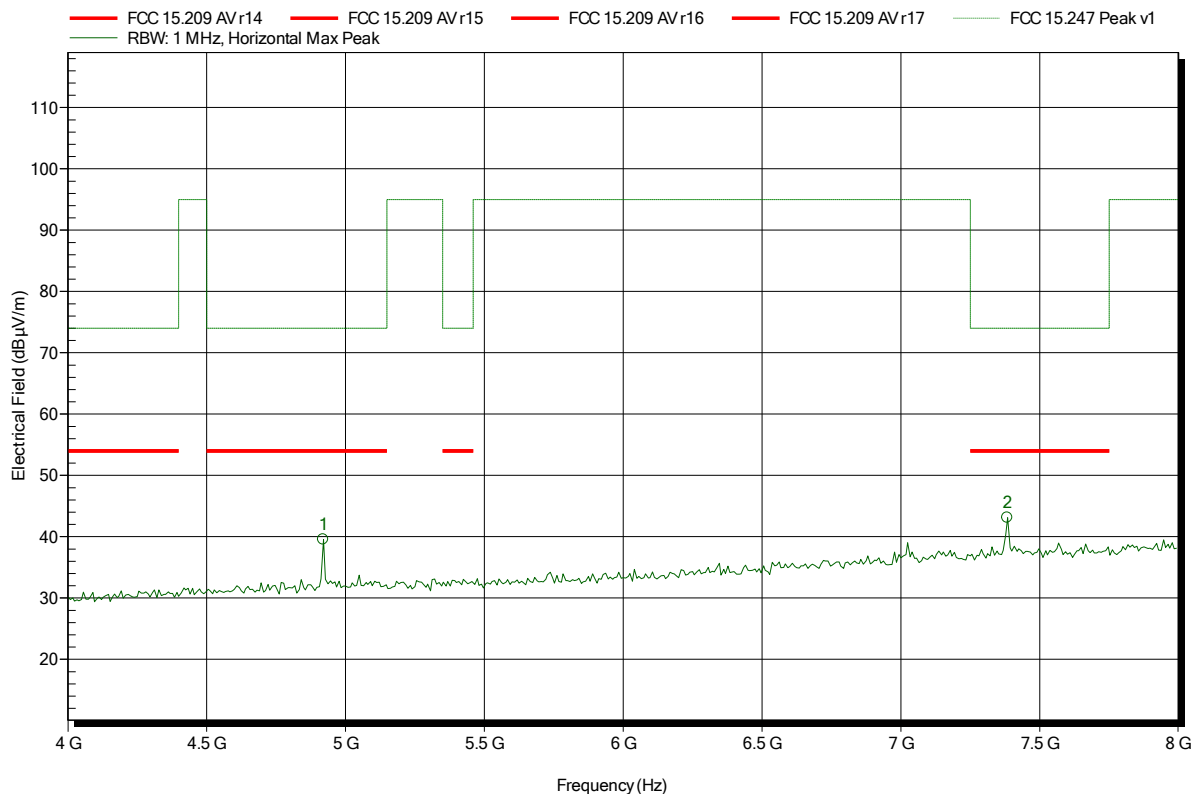


Spurious emissions according to FCC 15.247

Project number: G0M-1507-4921

Applicant: Panono GmbH
 EUT Name: Panono Camera
 Model: MVP15
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 1 m converted to 3m
 Mode: TX; 802.11b; DSSS; 1Mbps; 2462MHz
 Test Date: 2015-07-22
 Note:

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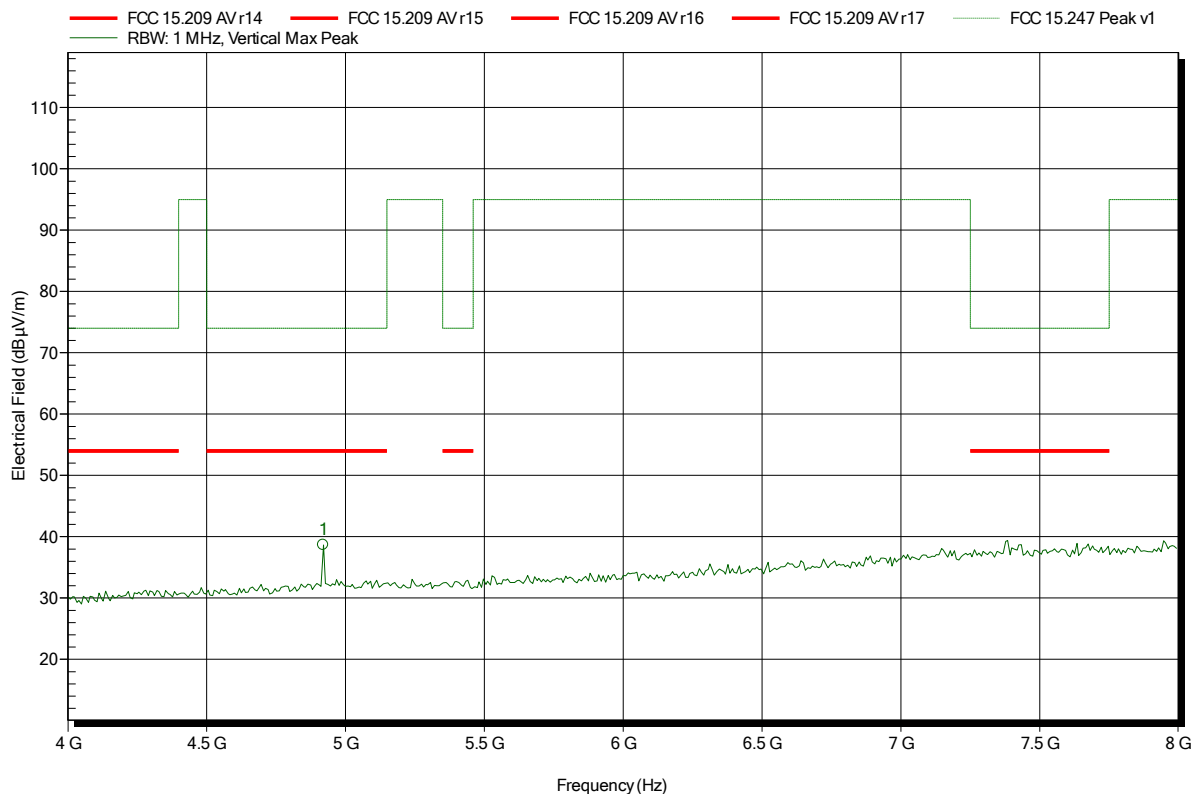
Frequency	Peak	Peak Limit	Peak Difference	Status
4.92 GHz	39.55 dBµV/m	74 dBµV/m	-34.45 dB	Pass
7.384 GHz	43.12 dBµV/m	74 dBµV/m	-30.88 dB	Pass

Spurious emissions according to FCC 15.247

Project number: G0M-1507-4921

Applicant: Panono GmbH
 EUT Name: Panono Camera
 Model: MVP15
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 1 m converted to 3m
 Mode: TX; 802.11b; DSSS; 1Mbps; 2462MHz
 Test Date: 2015-07-22
 Note:

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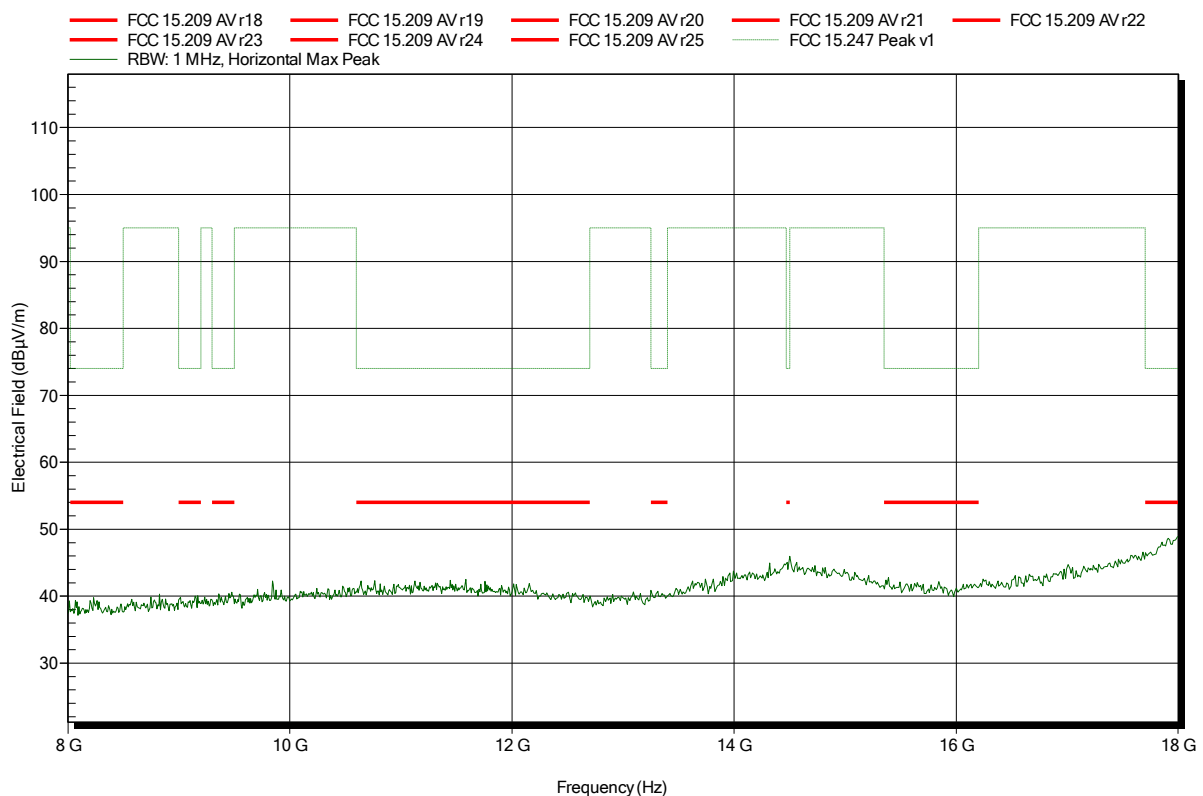
Frequency	Peak	Peak Limit	Peak Difference	Status
4.92 GHz	38.64 dBµV/m	74 dBµV/m	-35.36 dB	Pass

Spurious emissions according to FCC 15.247

Project number: G0M-1507-4921

Applicant: Panono GmbH
 EUT Name: Panono Camera
 Model: MVP15
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 1 m converted to 3m
 Mode: TX; 802.11b; DSSS; 1Mbps; 2462MHz
 Test Date: 2015-07-22
 Note:

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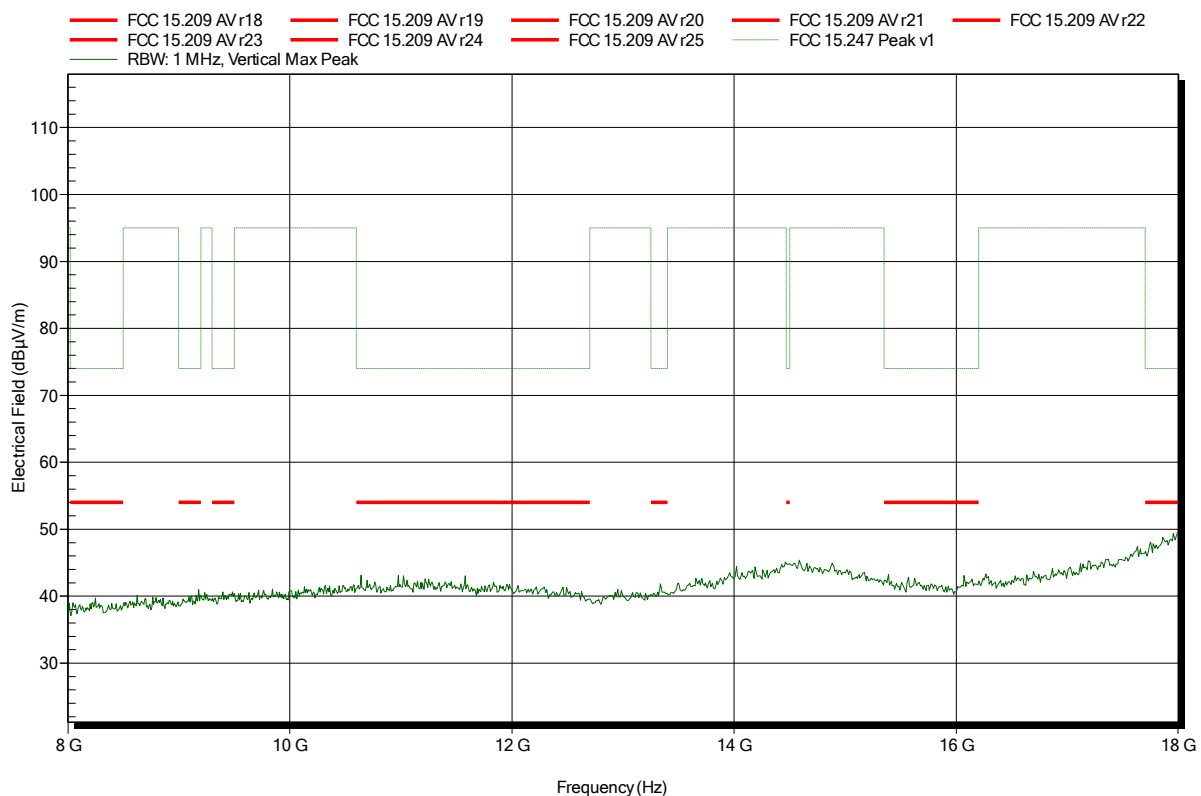


Spurious emissions according to FCC 15.247

Project number: G0M-1507-4921

Applicant: Panono GmbH
 EUT Name: Panono Camera
 Model: MVP15
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 1 m converted to 3m
 Mode: TX; 802.11b; DSSS; 1Mbps; 2462MHz
 Test Date: 2015-07-22
 Note:

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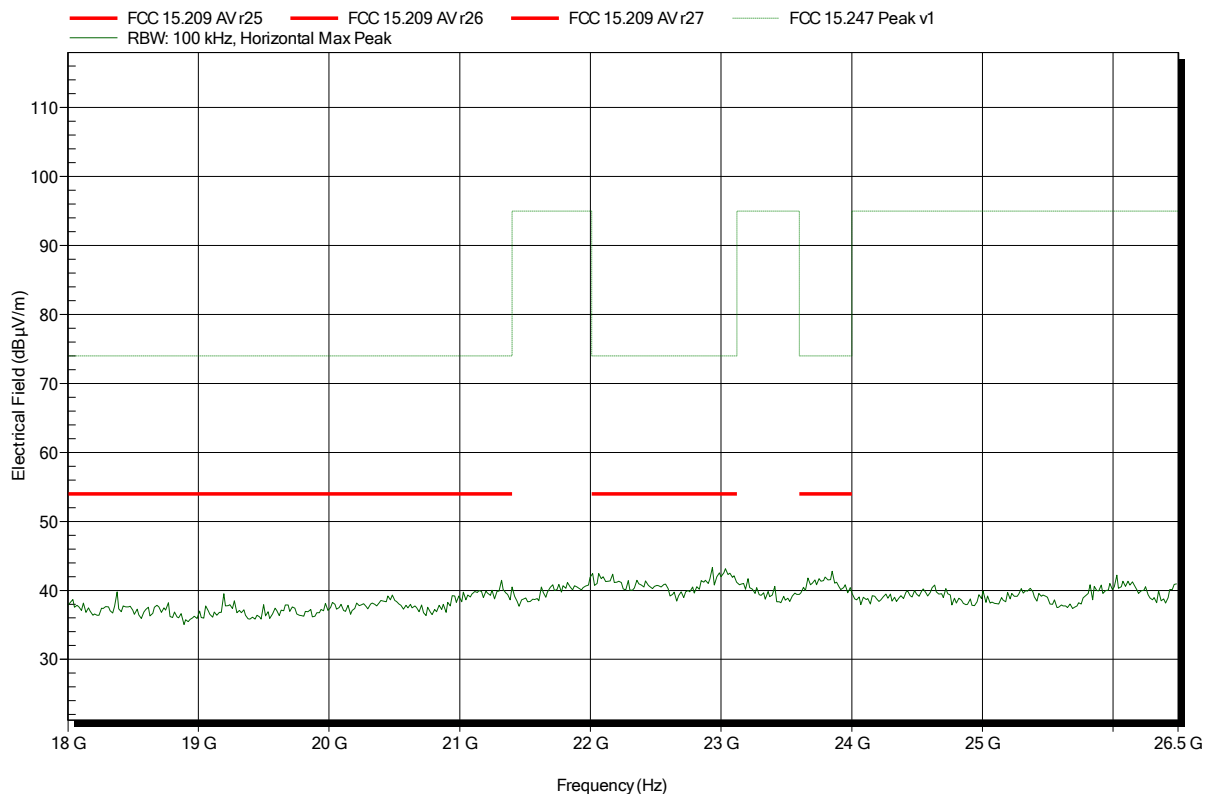


Spurious emissions according to FCC 15.247

Project number: G0M-1507-4921

Applicant: Panono GmbH
 EUT Name: Panono Camera
 Model: MVP15
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery
 Antenna: Rohde & Schwarz HL 025, Horizontal
 Measurement distance: 1 m converted to 3m
 Mode: TX; 802.11b; DSSS; 1Mbps; 2462MHz
 Test Date: 2015-07-22
 Note:

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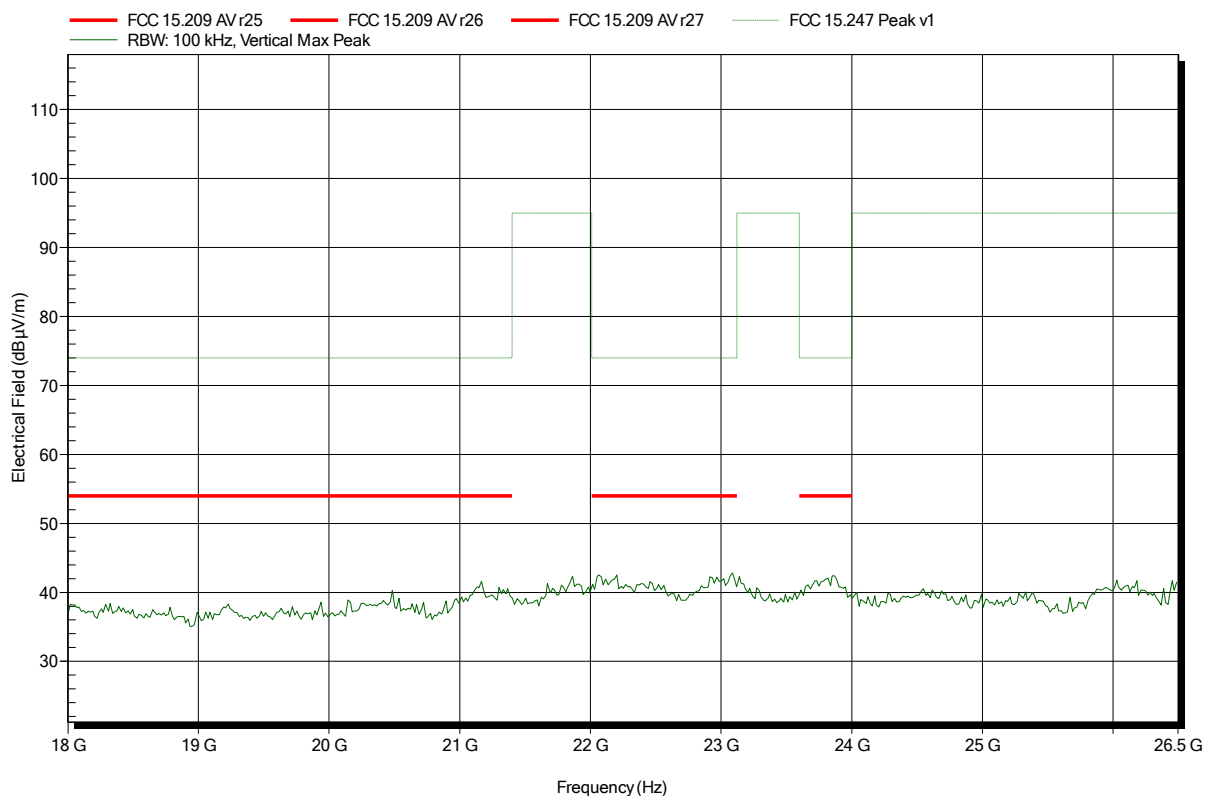


Spurious emissions according to FCC 15.247

Project number: G0M-1507-4921

Applicant: Panono GmbH
 EUT Name: Panono Camera
 Model: MVP15
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery
 Antenna: Rohde & Schwarz HL 025, Vertical
 Measurement distance: 1 m converted to 3m
 Mode: TX; 802.11b; DSSS; 1Mbps; 2462MHz
 Test Date: 2015-07-22
 Note:

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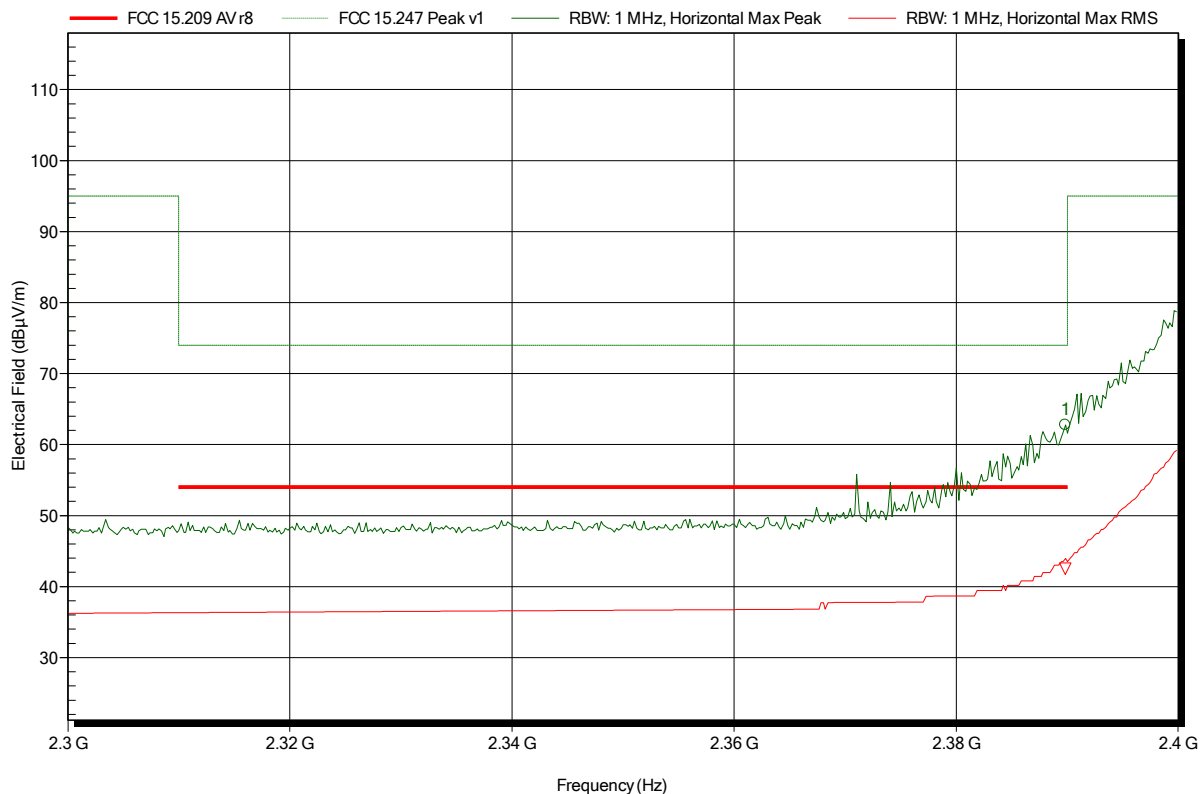


Spurious emissions according to FCC 15.247

Project number: G0M-1507-4921

Applicant: Panono GmbH
 EUT Name: Panono Camera
 Model: MVP15
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 1 m converted to 3m
 Mode: TX; 802.11n; HT20; MCS13; 2412MHz; ant.1+2
 Test Date: 2015-07-22
 Note: lower bandedge

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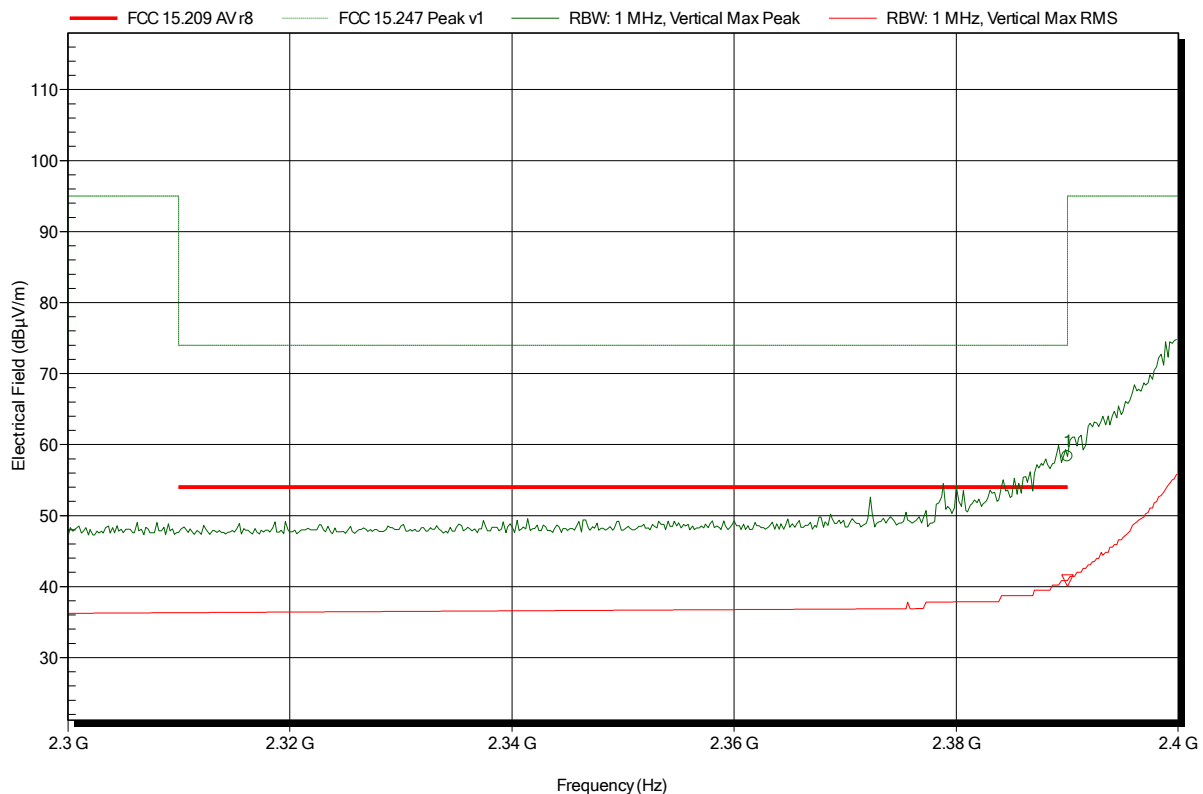
Frequency 2.39 GHz	Peak 62.79 dBμV/m	Peak Limit 74 dBμV/m	Peak Difference -11.21 dB	Peak Status Pass
Frequency 2.39 GHz	RMS 42.54 dBμV/m	RMS Limit 54 dBμV/m	RMS Difference -11.46 dB	RMS Status Pass

Spurious emissions according to FCC 15.247

Project number: G0M-1507-4921

Applicant: Panono GmbH
 EUT Name: Panono Camera
 Model: MVP15
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 1 m converted to 3m
 Mode: TX; 802.11n; HT20; MCS13; 2412MHz; ant.1+2
 Test Date: 2015-07-22
 Note: lower bandedge

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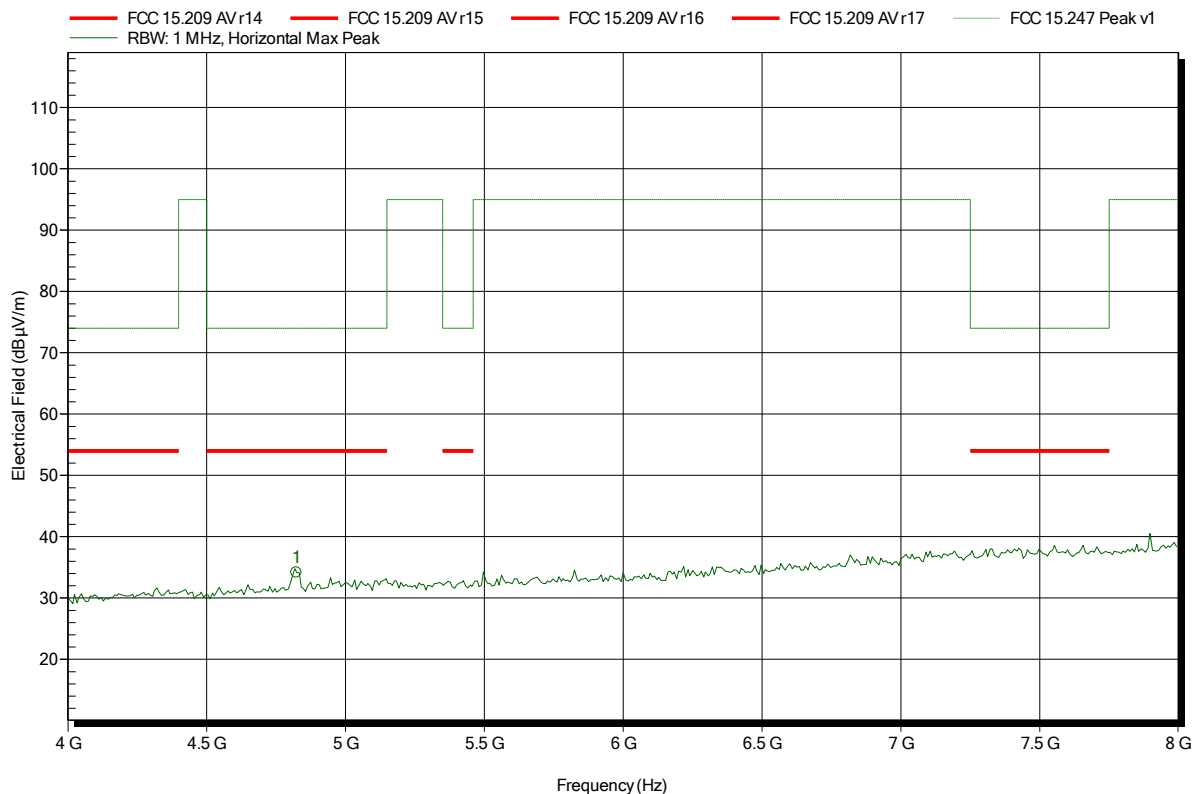
Frequency 2.39 GHz	Peak 58.35 dBµV/m	Peak Limit 74 dBµV/m	Peak Difference -15.65 dB	Peak Status Pass
Frequency 2.39 GHz	RMS 40.85 dBµV/m	RMS Limit 54 dBµV/m	RMS Difference -13.15 dB	RMS Status Pass

Spurious emissions according to FCC 15.247

Project number: G0M-1507-4921

Applicant: Panono GmbH
 EUT Name: Panono Camera
 Model: MVP15
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 1 m converted to 3m
 Mode: TX; 802.11n; HT20; MCS13; 2412MHz; ant.1+2
 Test Date: 2015-07-22
 Note:

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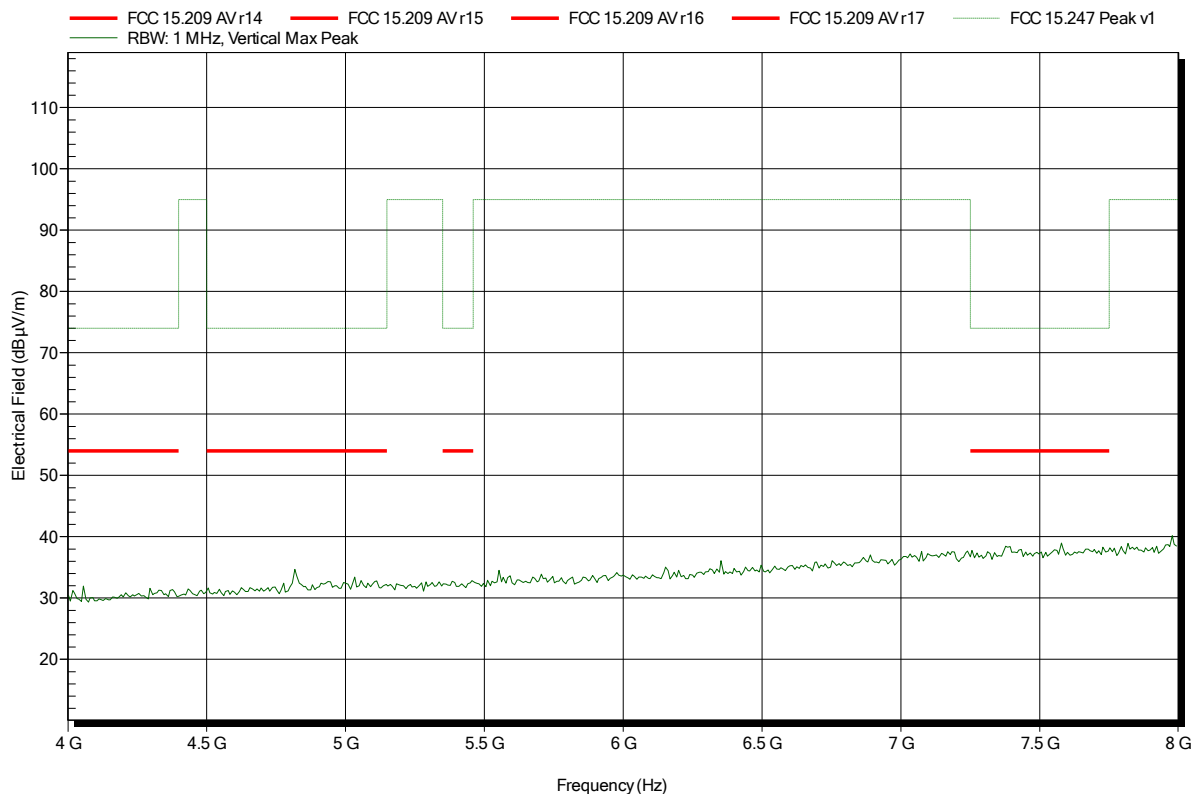
Frequency	Peak	Peak Limit	Peak Difference	Status
4.824 GHz	34.17 dBµV/m	74 dBµV/m	-39.83 dB	Pass

Spurious emissions according to FCC 15.247

Project number: G0M-1507-4921

Applicant: Panono GmbH
 EUT Name: Panono Camera
 Model: MVP15
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 1 m converted to 3m
 Mode: TX; 802.11n; HT20; MCS13; 2412MHz; ant.1+2
 Test Date: 2015-07-22
 Note:

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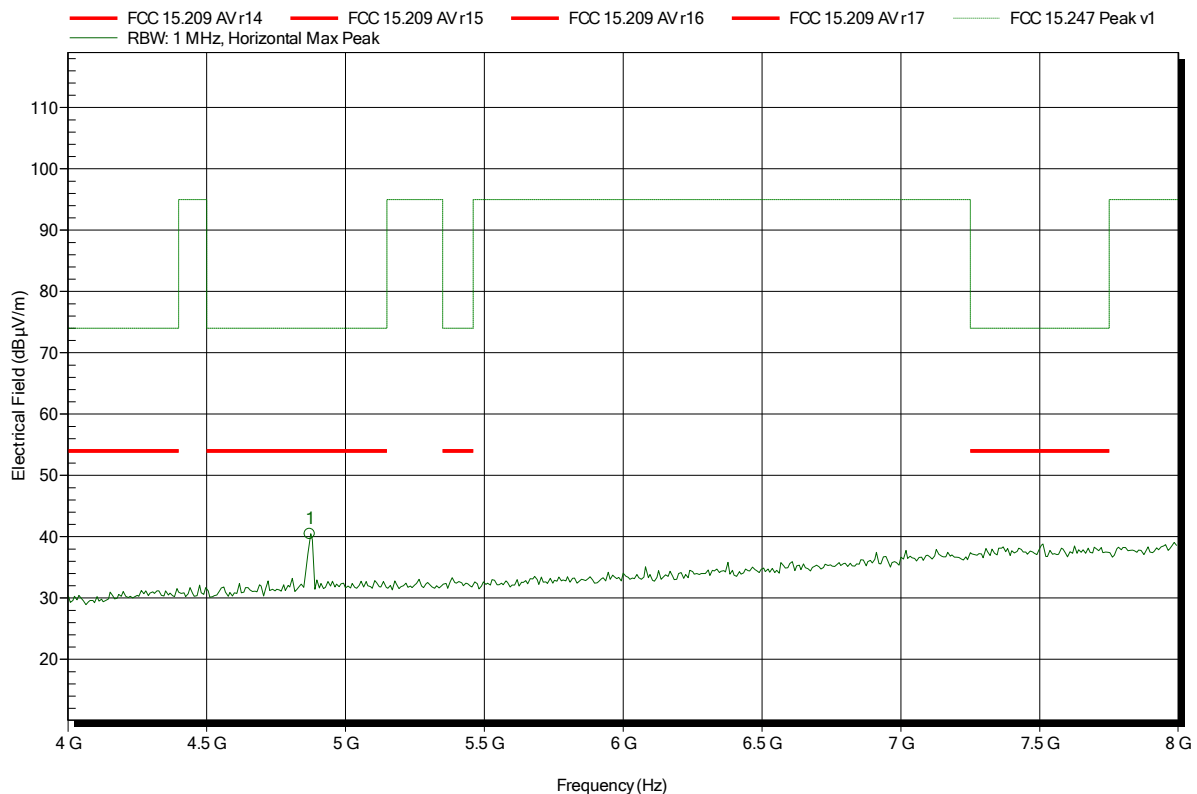


Spurious emissions according to FCC 15.247

Project number: G0M-1507-4921

Applicant: Panono GmbH
 EUT Name: Panono Camera
 Model: MVP15
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 1 m converted to 3m
 Mode: TX; 802.11n; HT20; MCS13; 2437MHz; ant.1+2
 Test Date: 2015-07-22
 Note:

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Frequency	Peak	Peak Limit	Peak Difference	Status
4.872 GHz	40.46 dBµV/m	74 dBµV/m	-33.54 dB	Pass

Test Report No.: G0M-1507-4921-TFC247WF-V02

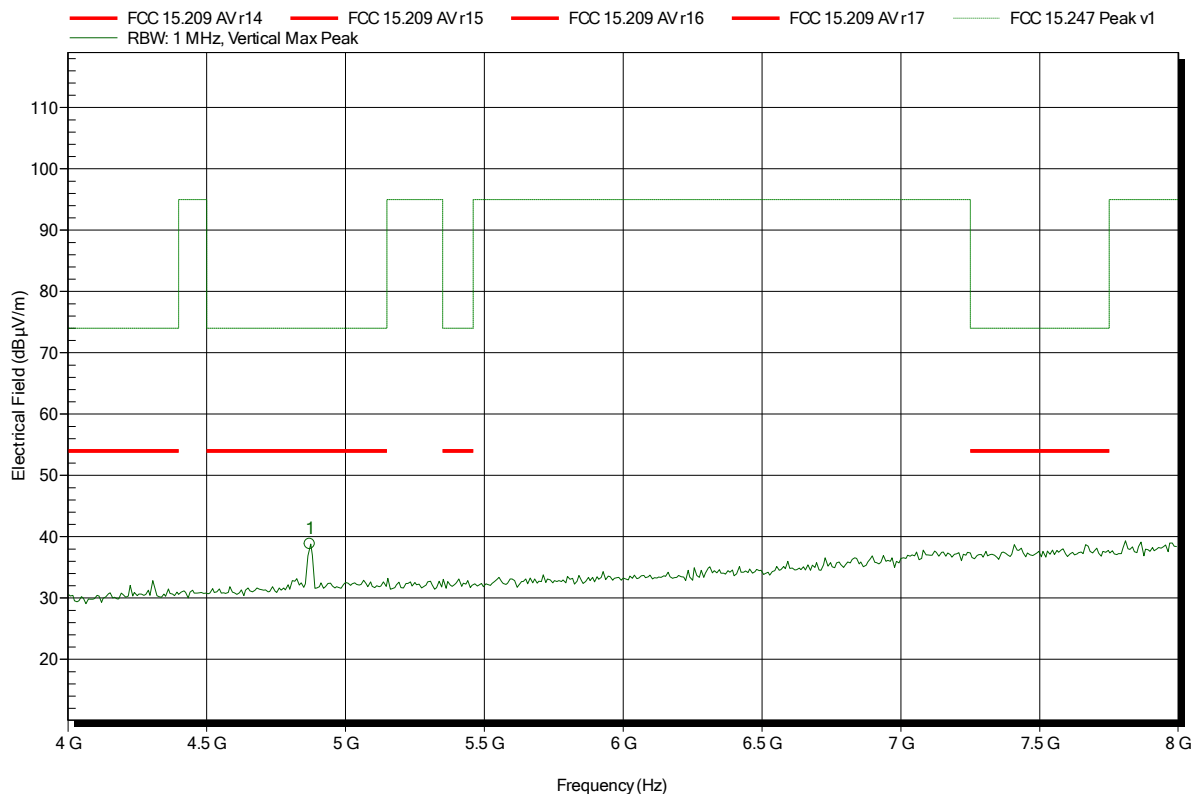
Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Spurious emissions according to FCC 15.247

Project number: G0M-1507-4921

Applicant: Panono GmbH
 EUT Name: Panono Camera
 Model: MVP15
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 1 m converted to 3m
 Mode: TX; 802.11n; HT20; MCS13; 2437MHz; ant.1+2
 Test Date: 2015-07-22
 Note:

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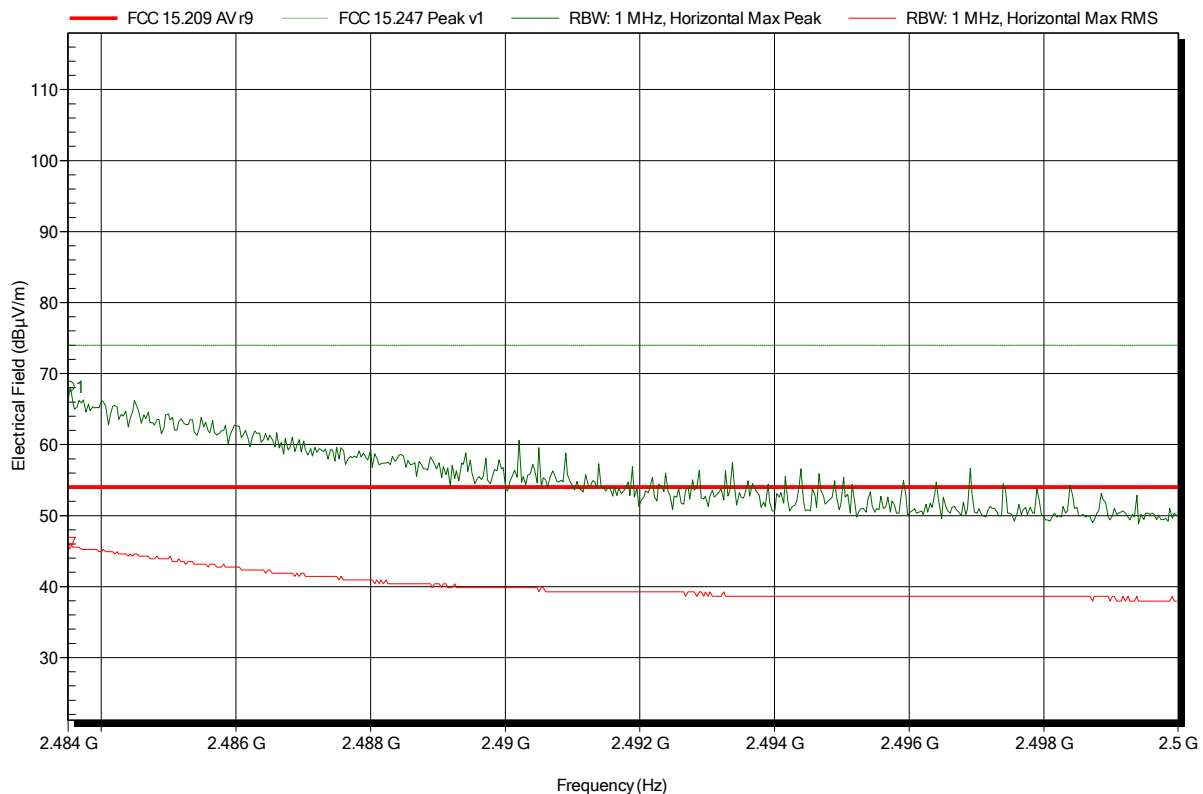
Frequency	Peak	Peak Limit	Peak Difference	Status
4.872 GHz	38.8 dBµV/m	74 dBµV/m	-35.2 dB	Pass

Spurious emissions according to FCC 15.247

Project number: G0M-1507-4921

Applicant: Panono GmbH
 EUT Name: Panono Camera
 Model: MVP15
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 1 m converted to 3m
 Mode: TX; 802.11n; HT20; MCS13; 2462MHz; ant.1+2
 Test Date: 2015-07-22
 Note: upper bandedge

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Frequency 2.4835 GHz	Peak 68.1 dBμV/m	Peak Limit 74 dBμV/m	Peak Difference -5.9 dB	Peak Status Pass
Frequency 2.4835 GHz	RMS 46.13 dBμV/m	RMS Limit 54 dBμV/m	RMS Difference -7.87 dB	RMS Status Pass

Test Report No.: G0M-1507-4921-TFC247WF-V02

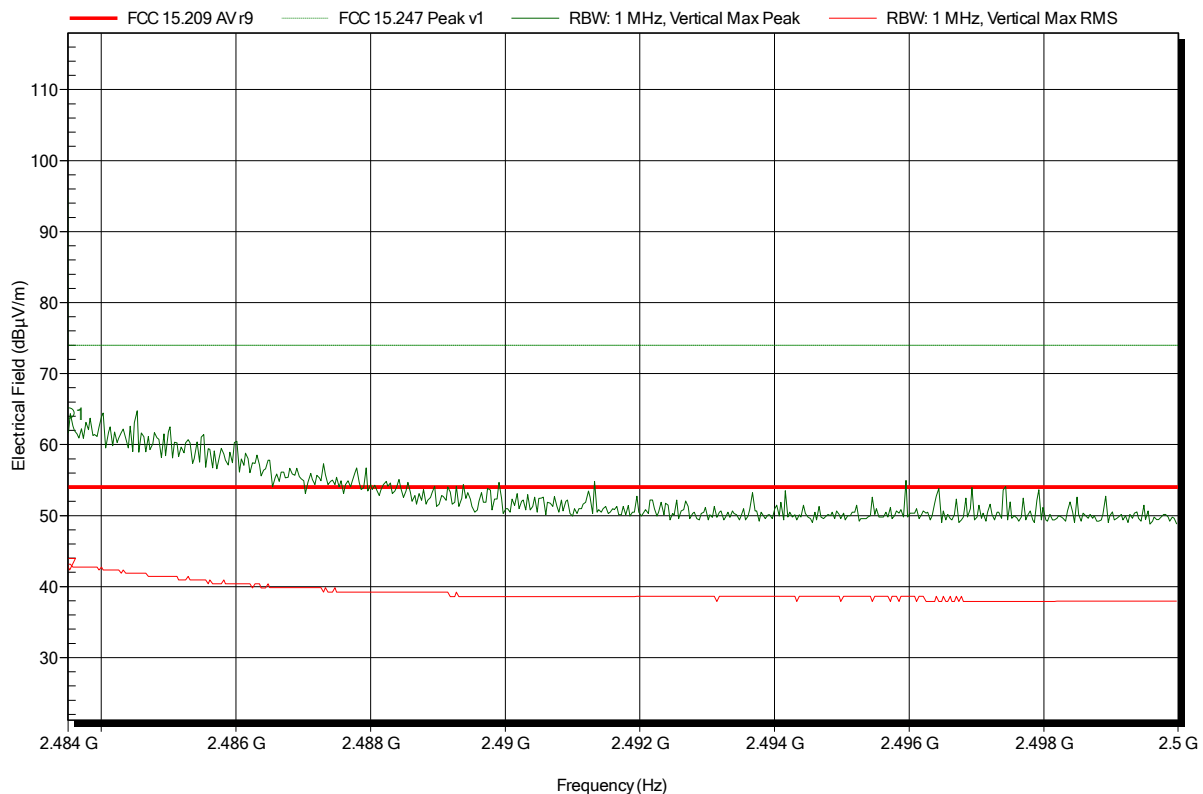
Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Spurious emissions according to FCC 15.247

Project number: G0M-1507-4921

Applicant: Panono GmbH
 EUT Name: Panono Camera
 Model: MVP15
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 1 m converted to 3m
 Mode: TX; 802.11n; HT20; MCS13; 2462MHz; ant.1+2
 Test Date: 2015-07-22
 Note: upper bandedge

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Frequency	Peak	Peak Limit	Peak Difference	Peak Status
2.4835 GHz	64.36 dBµV/m	74 dBµV/m	-9.64 dB	Pass
Frequency	RMS	RMS Limit	RMS Difference	RMS Status
2.4835 GHz	43.15 dBµV/m	54 dBµV/m	-10.85 dB	Pass

Test Report No.: G0M-1507-4921-TFC247WF-V02

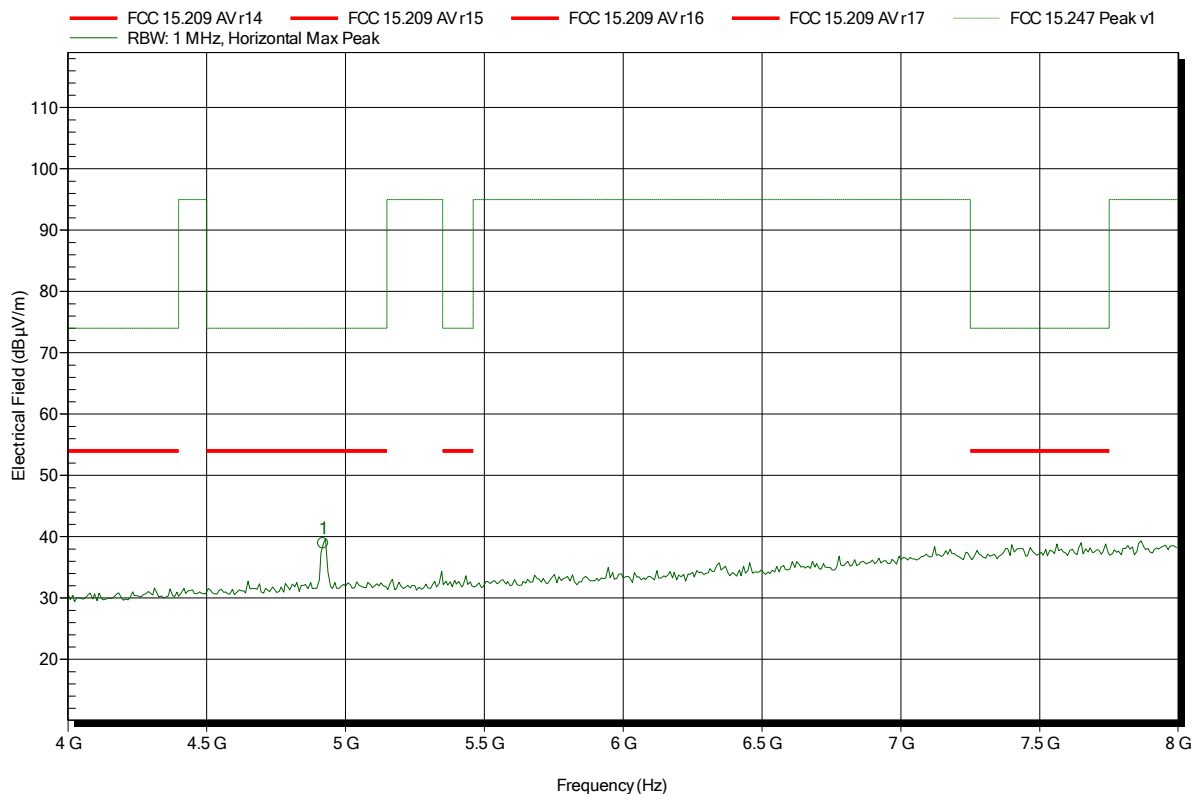
Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Spurious emissions according to FCC 15.247

Project number: G0M-1507-4921

Applicant: Panono GmbH
 EUT Name: Panono Camera
 Model: MVP15
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 1 m converted to 3m
 Mode: TX; 802.11n; HT20; MCS13; 2462MHz; ant.1+2
 Test Date: 2015-07-22
 Note:

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Frequency	Peak	Peak Limit	Peak Difference	Status
4.92 GHz	38.92 dBµV/m	74 dBµV/m	-35.08 dB	Pass

Test Report No.: G0M-1507-4921-TFC247WF-V02

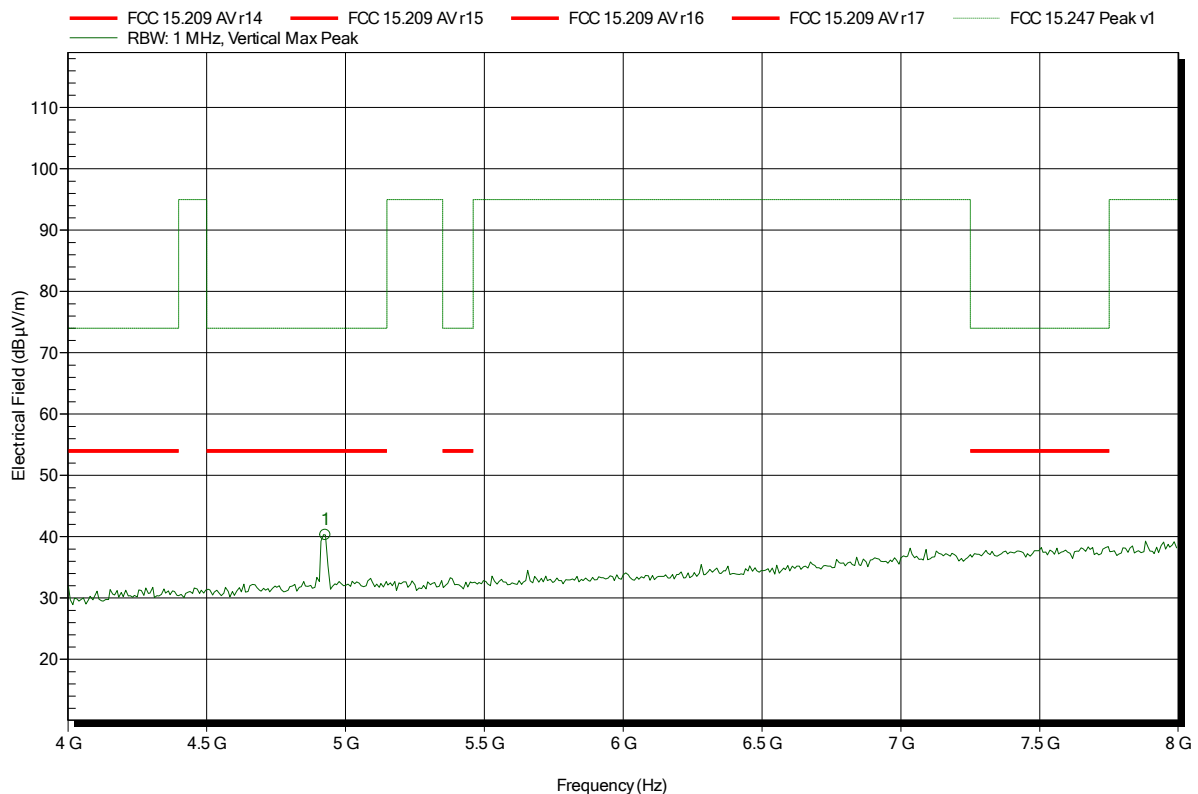
Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Spurious emissions according to FCC 15.247

Project number: G0M-1507-4921

Applicant: Panono GmbH
 EUT Name: Panono Camera
 Model: MVP15
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 1 m converted to 3m
 Mode: TX; 802.11n; HT20; MCS13; 2462MHz; ant.1+2
 Test Date: 2015-07-22
 Note:

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Frequency	Peak	Peak Limit	Peak Difference	Status
4.928 GHz	40.29 dBµV/m	74 dBµV/m	-33.71 dB	Pass

Test Report No.: G0M-1507-4921-TFC247WF-V02

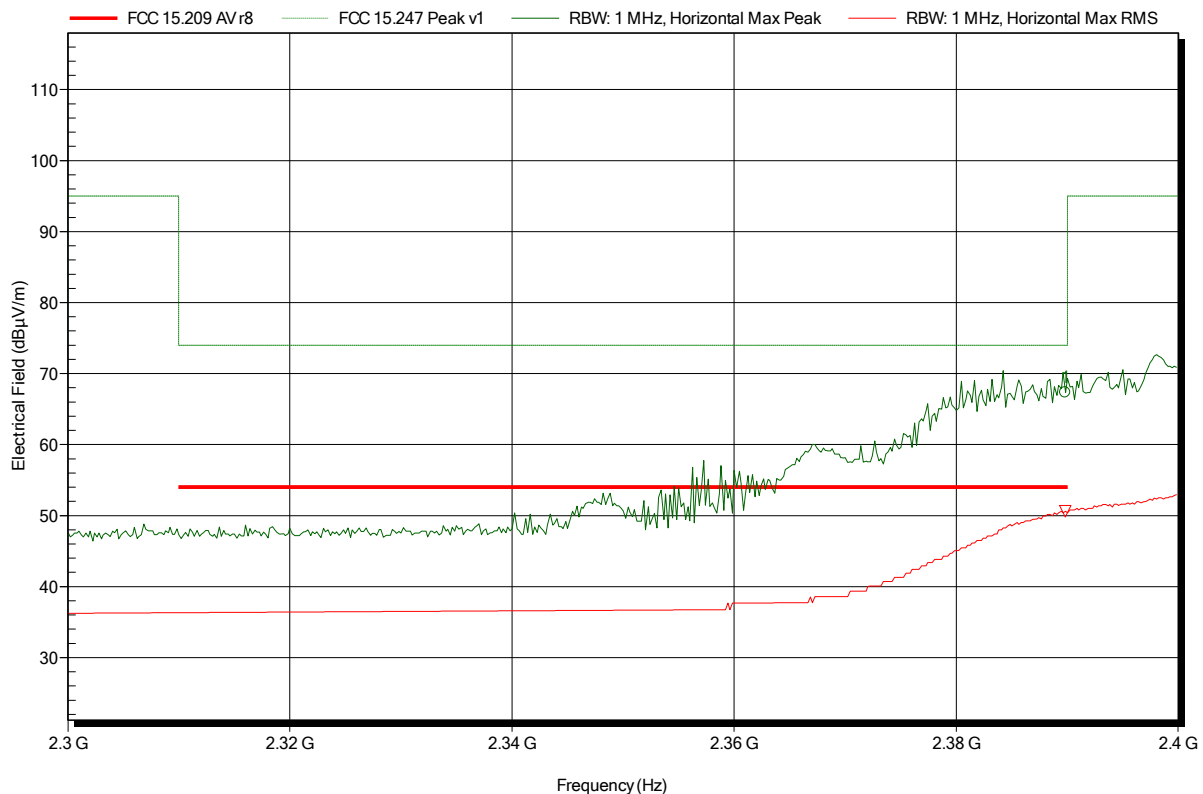
Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Spurious emissions according to FCC 15.247

Project number: G0M-1507-4921

Applicant: Panono GmbH
 EUT Name: Panono Camera
 Model: MVP15
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 1 m converted to 3m
 Mode: TX; 802.11n; HT40; MCS0; 2422MHz; ant.1
 Test Date: 2015-07-22
 Note: lower bandedge

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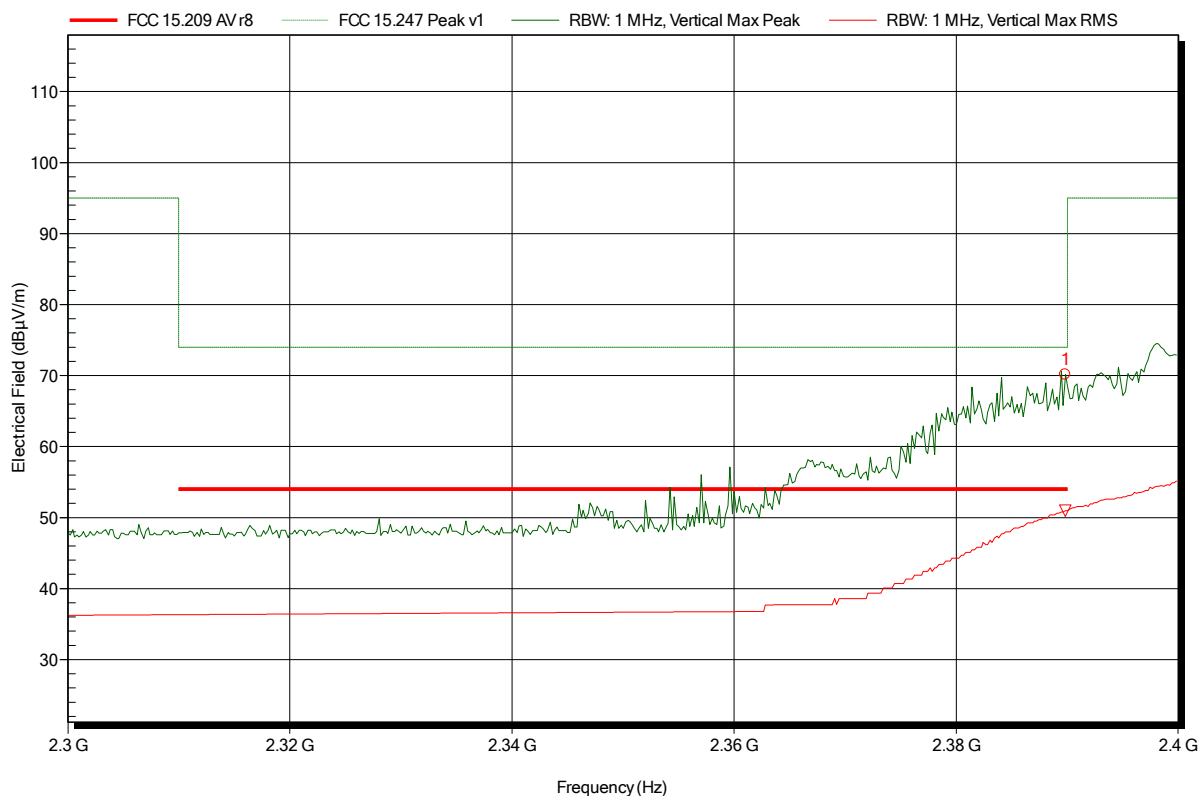
Frequency 2.39 GHz	Peak 67.36 dBµV/m	Peak Limit 74 dBµV/m	Peak Difference -6.64 dB	Peak Status Pass
Frequency 2.39 GHz	RMS 50.6 dBµV/m	RMS Limit 54 dBµV/m	RMS Difference -3.4 dB	RMS Status Pass

Spurious emissions according to FCC 15.247

Project number: G0M-1507-4921

Applicant: Panono GmbH
 EUT Name: Panono Camera
 Model: MVP15
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 1 m converted to 3m
 Mode: TX; 802.11n; HT40; MCS0; 2422MHz; ant.1
 Test Date: 2015-07-22
 Note: lower bandedge

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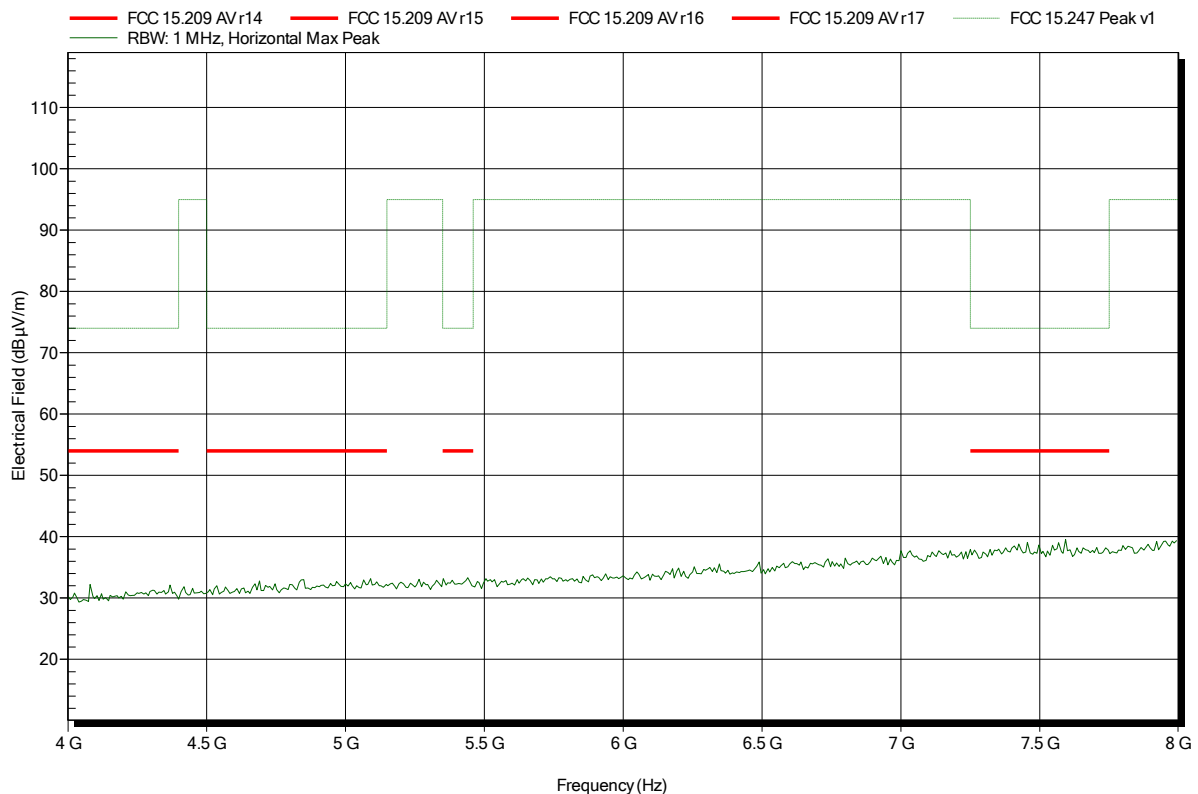
Frequency 2.39 GHz	Peak 70.14 dBµV/m	Peak Limit 74 dBµV/m	Peak Difference -3.86 dB	Peak Status Pass
Frequency 2.39 GHz	RMS 50.99 dBµV/m	RMS Limit 54 dBµV/m	RMS Difference -3.01 dB	RMS Status Pass

Spurious emissions according to FCC 15.247

Project number: G0M-1507-4921

Applicant: Panono GmbH
 EUT Name: Panono Camera
 Model: MVP15
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 1 m converted to 3m
 Mode: TX; 802.11n; HT40; MCS0; 2422MHz; ant.1
 Test Date: 2015-07-22
 Note:

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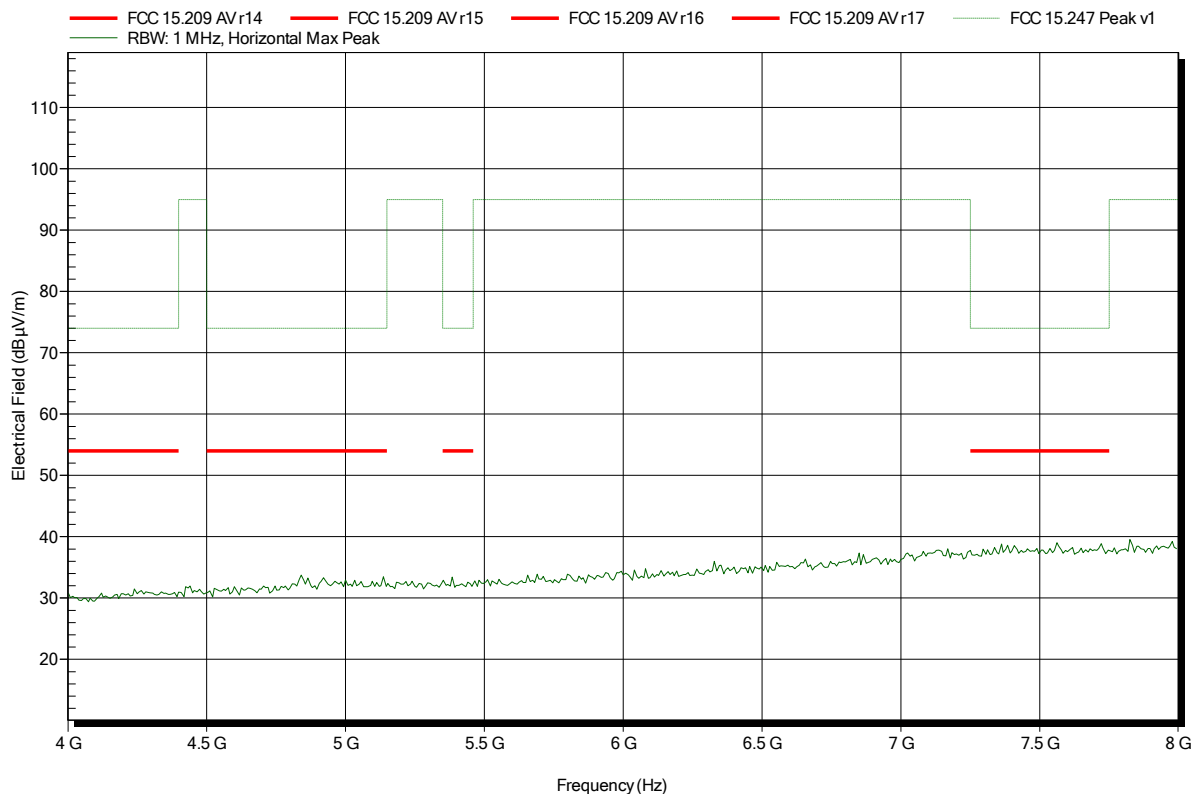


Spurious emissions according to FCC 15.247

Project number: G0M-1507-4921

Applicant: Panono GmbH
 EUT Name: Panono Camera
 Model: MVP15
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 1 m converted to 3m
 Mode: TX; 802.11n; HT40; MCS0; 2422MHz; ant.1
 Test Date: 2015-07-22
 Note:

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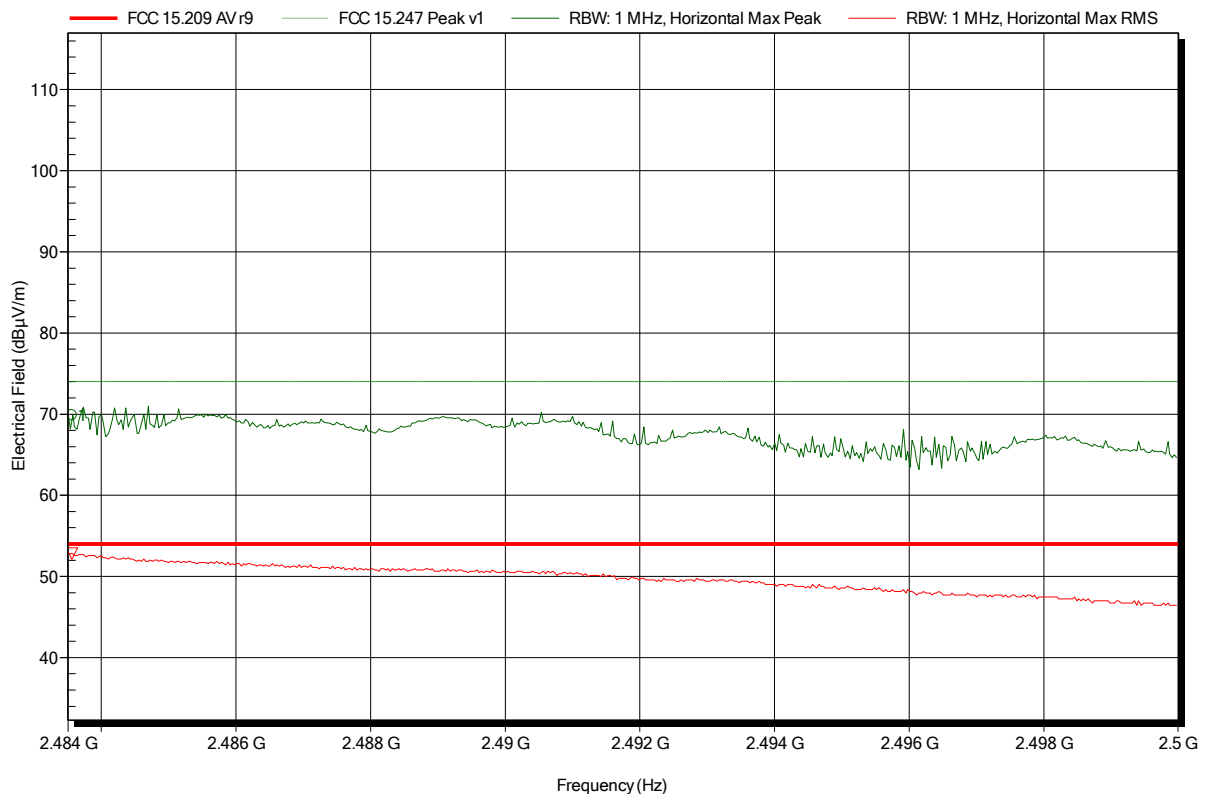


Spurious emissions according to FCC 15.247

Project number: G0M-1507-4921

Applicant: Panono GmbH
 EUT Name: Panono Camera
 Model: MVP15
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 1 m converted to 3m
 Mode: TX; 802.11n; HT40; MCS0; 2452MHz; ant.1
 Test Date: 2015-07-22
 Note: upper bandedge

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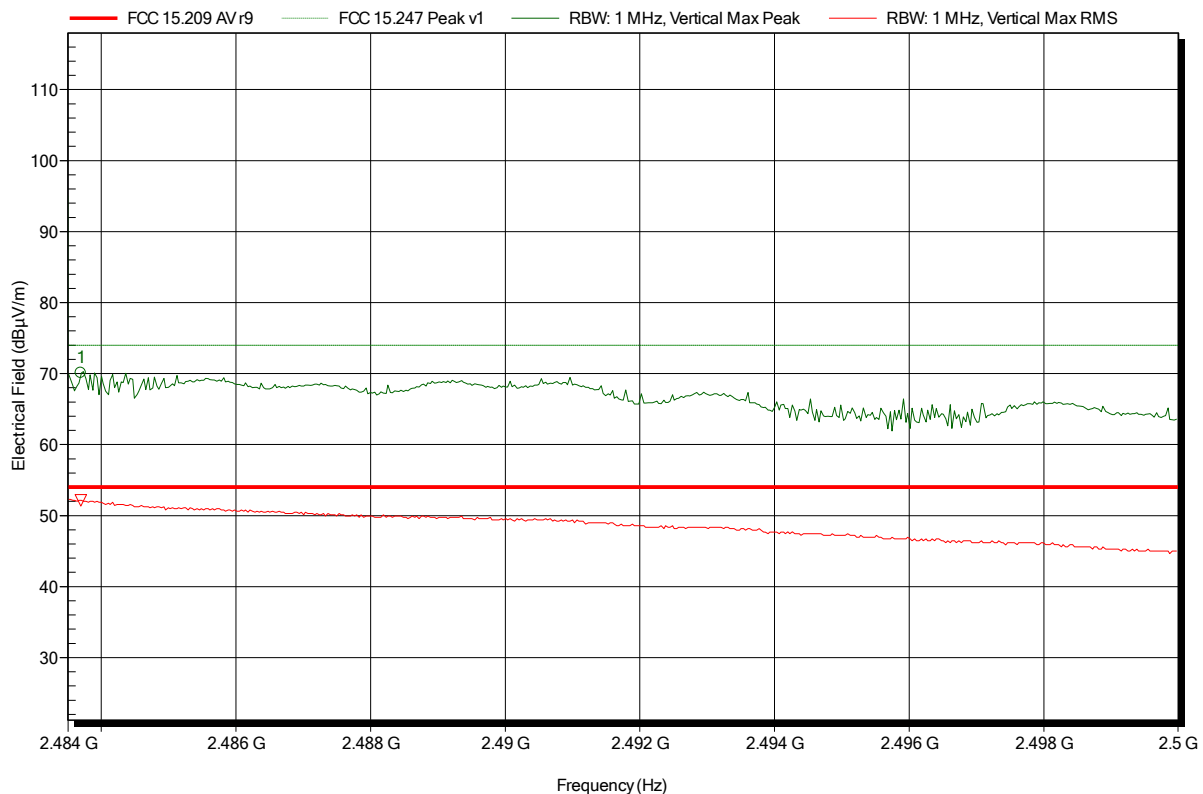
Frequency 2.4836 GHz	Peak 69.87 dBμV/m	Peak Limit 74 dBμV/m	Peak Difference -4.13 dB	Peak Status Pass
Frequency 2.4836 GHz	RMS 52.82 dBμV/m	RMS Limit 54 dBμV/m	RMS Difference -1.18 dB	RMS Status Pass

Spurious emissions according to FCC 15.247

Project number: G0M-1507-4921

Applicant: Panono GmbH
 EUT Name: Panono Camera
 Model: MVP15
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 1 m converted to 3m
 Mode: TX; 802.11n; HT40; MCS0; 2452MHz; ant.1
 Test Date: 2015-07-22
 Note: upper bandedge

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Test Report No.: G0M-1507-4921-TFC247WF-V02

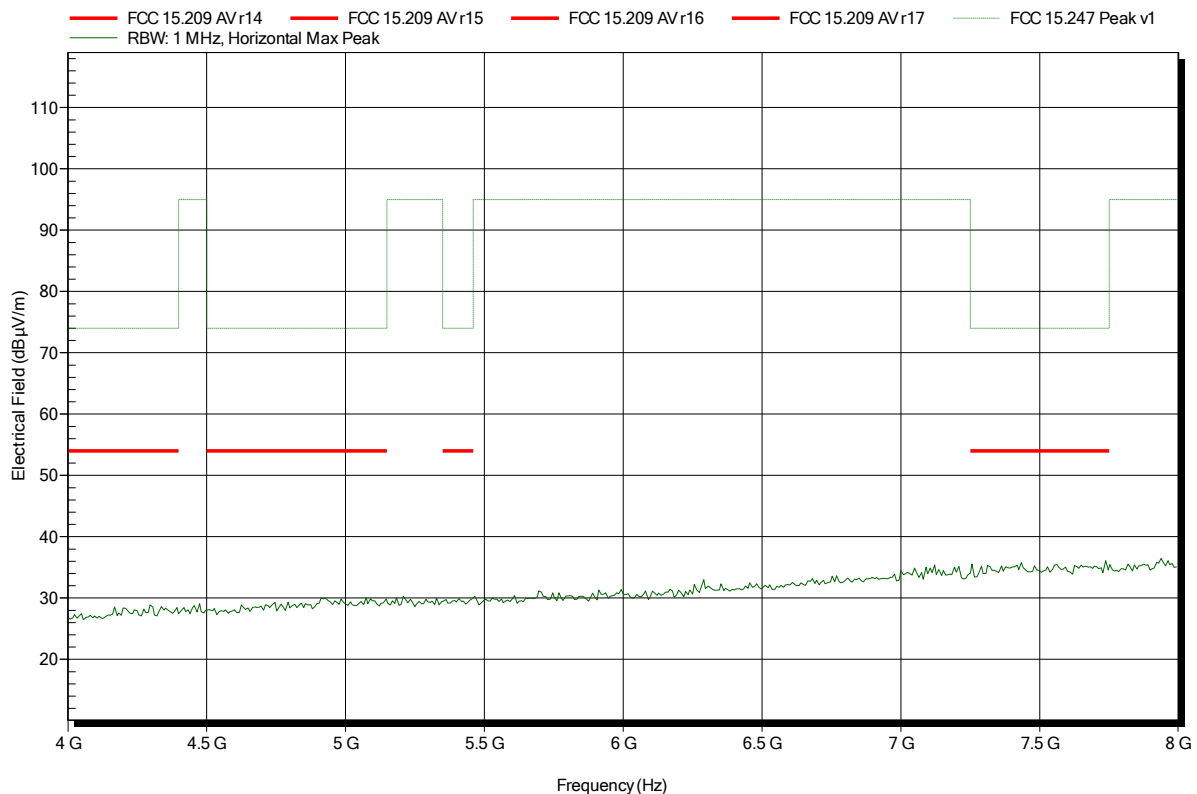
Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Spurious emissions according to FCC 15.247

Project number: G0M-1507-4921

Applicant: Panono GmbH
 EUT Name: Panono Camera
 Model: MVP15
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 1 m converted to 3m
 Mode: TX; 802.11n; HT40; MCS0; 2452MHz; ant.1
 Test Date: 2015-07-22
 Note:

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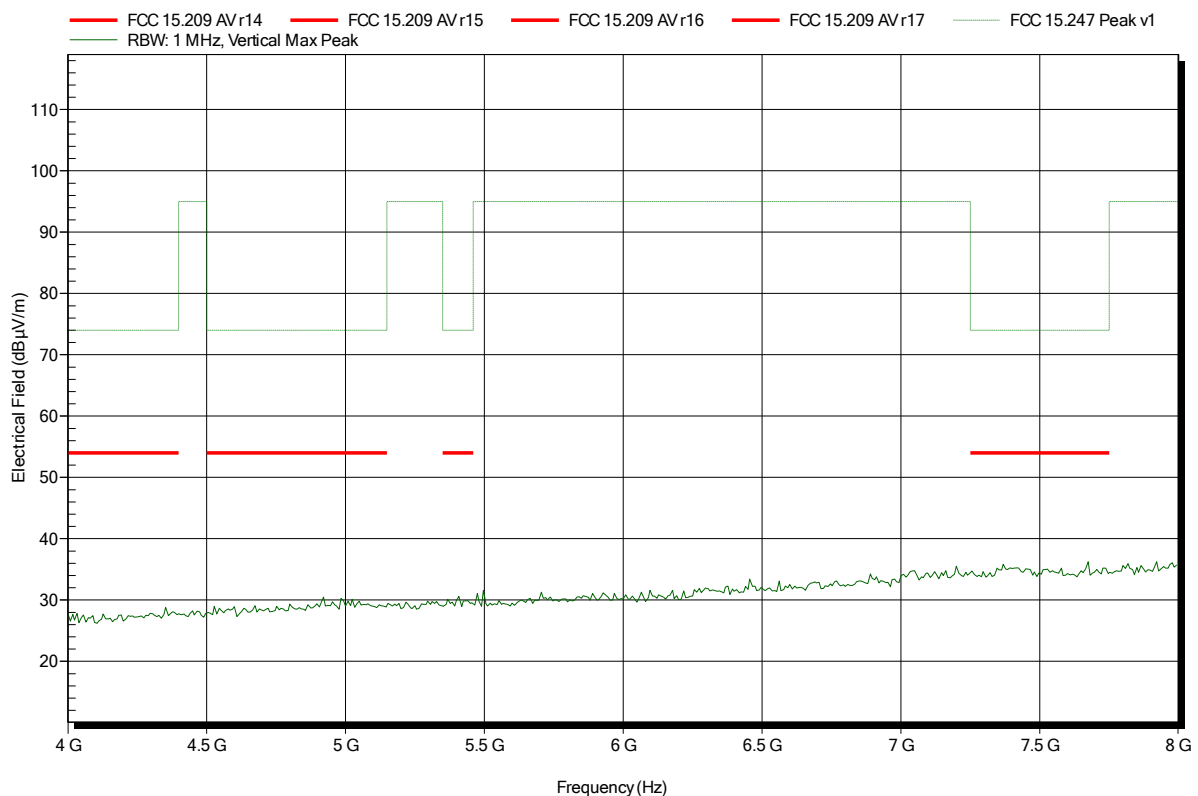


Spurious emissions according to FCC 15.247

Project number: G0M-1507-4921

Applicant: Panono GmbH
 EUT Name: Panono Camera
 Model: MVP15
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 1 m converted to 3m
 Mode: TX; 802.11n; HT40; MCS0; 2452MHz; ant.1
 Test Date: 2015-07-22
 Note:

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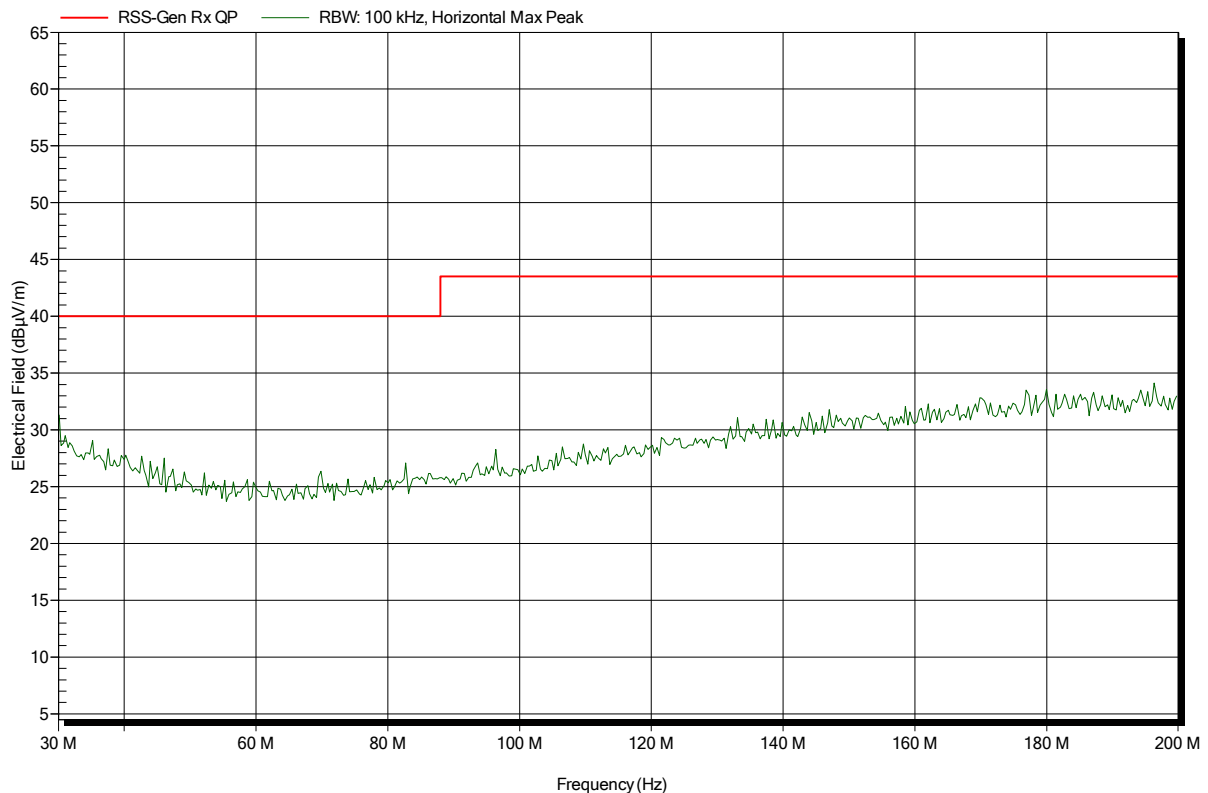
ANNEX B Receiver radiated spurious emissions

Spurious emissions according to RSS-GEN

Project number: G0M-1507-4921

Applicant:	Panono GmbH
EUT Name:	Panono Camera
Model:	MVP15
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: 3.7 VDC lithium battery
Antenna:	Rohde & Schwarz HK 116, Horizontal
Measurement distance:	3 m
Mode:	RX; 2437 MHz
Test Date:	2015-07-23
Note:	

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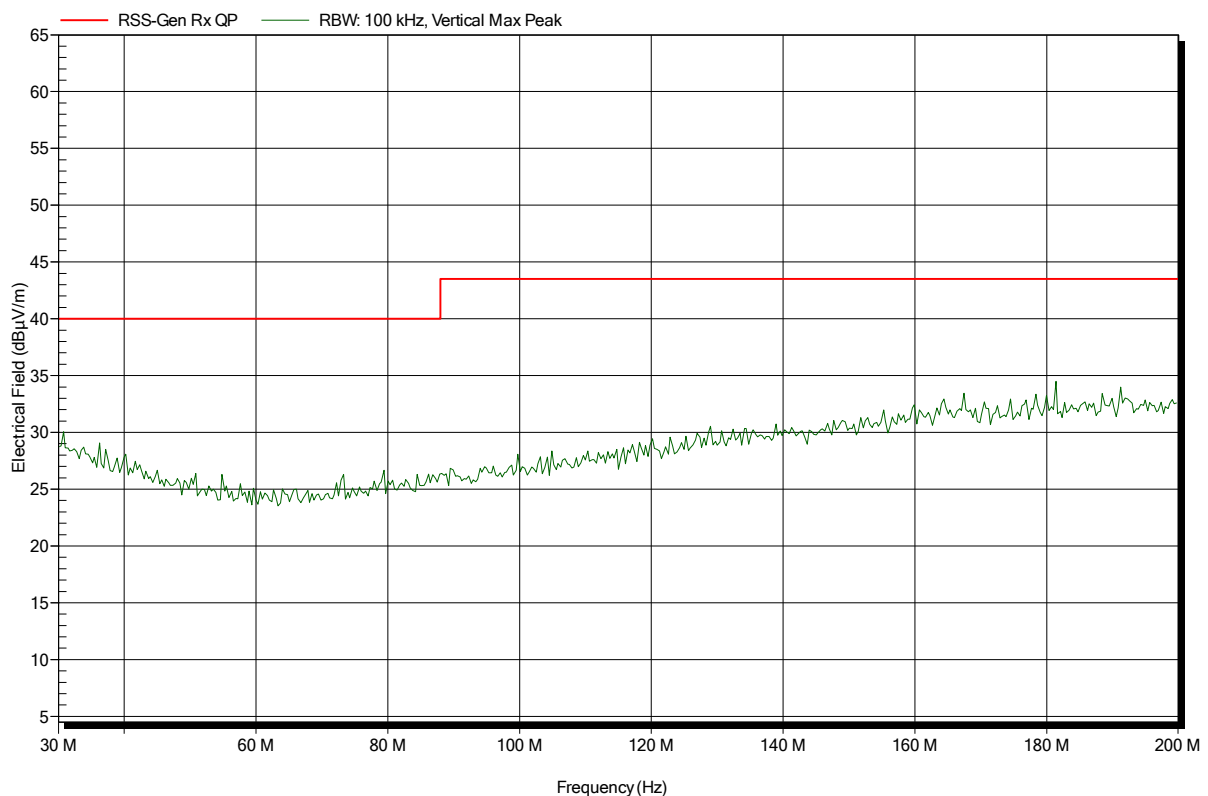


Spurious emissions according to RSS-GEN

Project number: G0M-1507-4921

Applicant:	Panono GmbH
EUT Name:	Panono Camera
Model:	MVP15
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Treffke
Test Conditions:	Tnom: 24°C, Vnom: 3.7 VDC lithium battery
Antenna:	Rohde & Schwarz HK 116, Vertical
Measurement distance:	3 m
Mode:	RX; 2437 MHz
Test Date:	2015-07-23
Note:	

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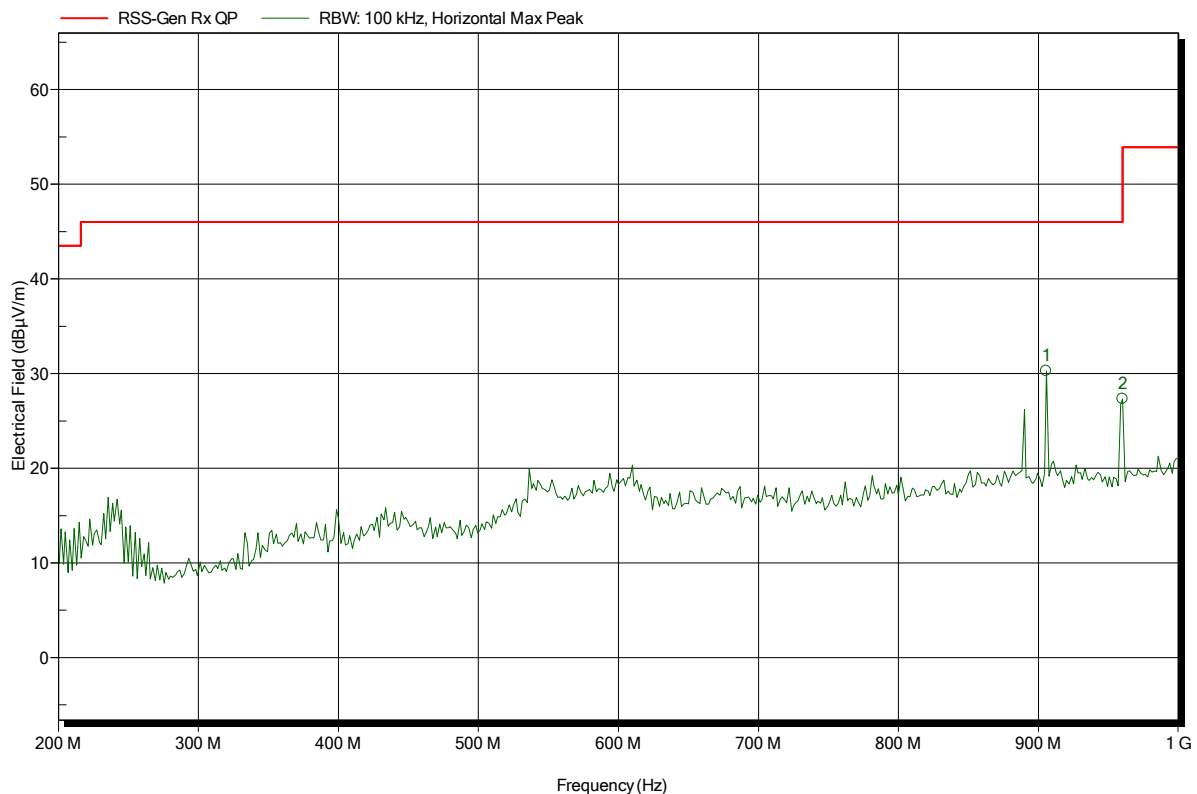


Spurious emissions according to RSS-GEN

Project number: G0M-1507-4921

Applicant: Panono GmbH
 EUT Name: Panono Camera
 Model: MVP15
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery
 Antenna: Rohde & Schwarz HL 223, Horizontal
 Measurement distance: 3 m
 Mode: RX; 2437 MHz
 Test Date: 2015-07-23
 Note:

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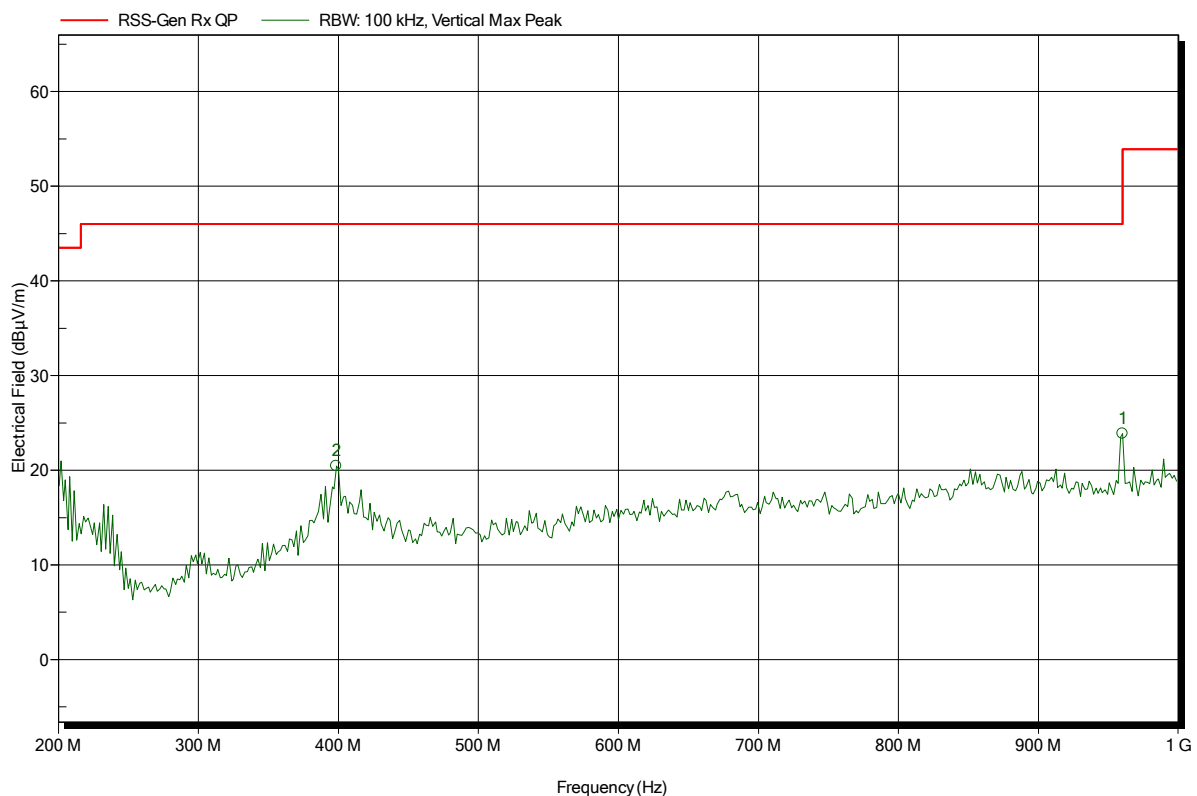
Frequency	Peak	Peak Limit	Peak Difference	Status
905.6 MHz	30.29 dBµV/m	46 dBµV/m	-15.71 dB	Pass
960 MHz	27.33 dBµV/m	46 dBµV/m	-18.67 dB	Pass

Spurious emissions according to RSS-GEN

Project number: G0M-1507-4921

Applicant: Panono GmbH
 EUT Name: Panono Camera
 Model: MVP15
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery
 Antenna: Rohde & Schwarz HL 223, Vertical
 Measurement distance: 3 m
 Mode: RX; 2437 MHz
 Test Date: 2015-07-23
 Note:

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Frequency	Peak	Peak Limit	Peak Difference	Status
398.4 MHz	20.44 dBµV/m	46 dBµV/m	-25.56 dB	Pass
960 MHz	23.87 dBµV/m	46 dBµV/m	-22.13 dB	Pass

Test Report No.: G0M-1507-4921-TFC247WF-V02

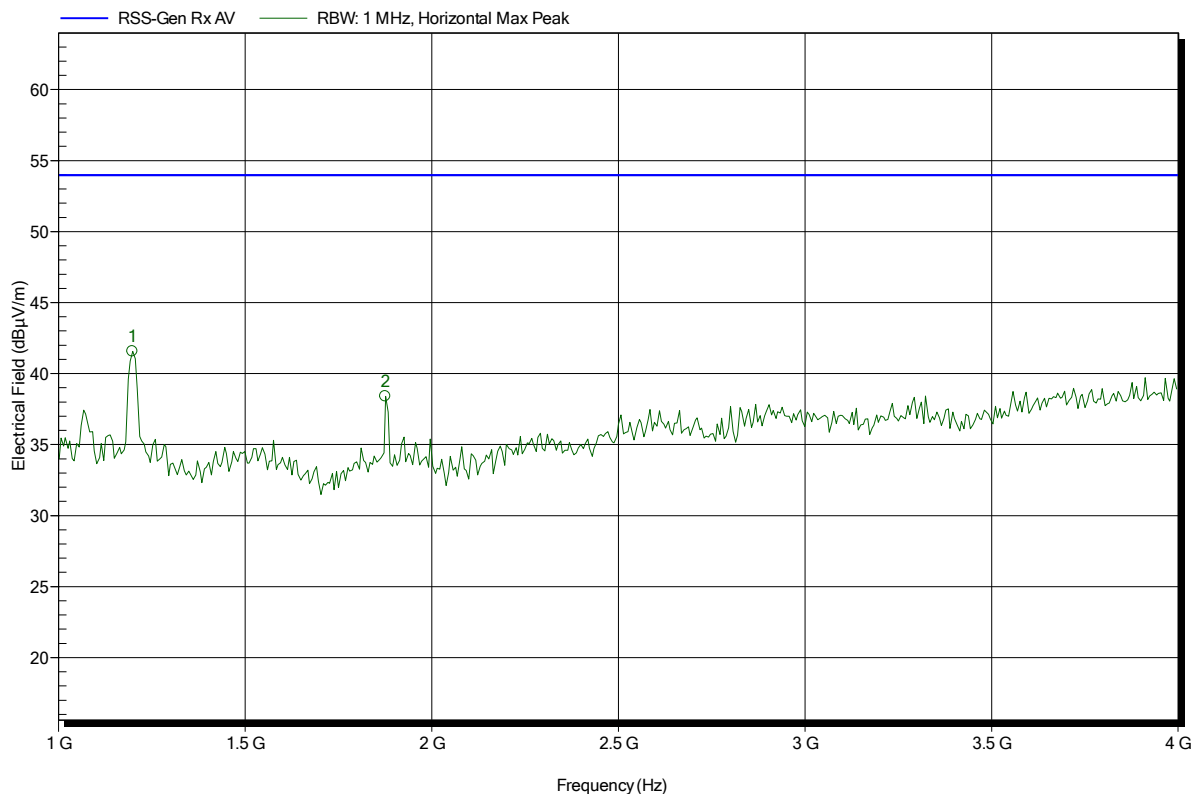
Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Spurious emissions according to RSS-GEN

Project number: G0M-1507-4921

Applicant: Panono GmbH
 EUT Name: Panono Camera
 Model: MVP15
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 3 m
 Mode: RX; 2037 MHz
 Test Date: 2015-07-23
 Note:

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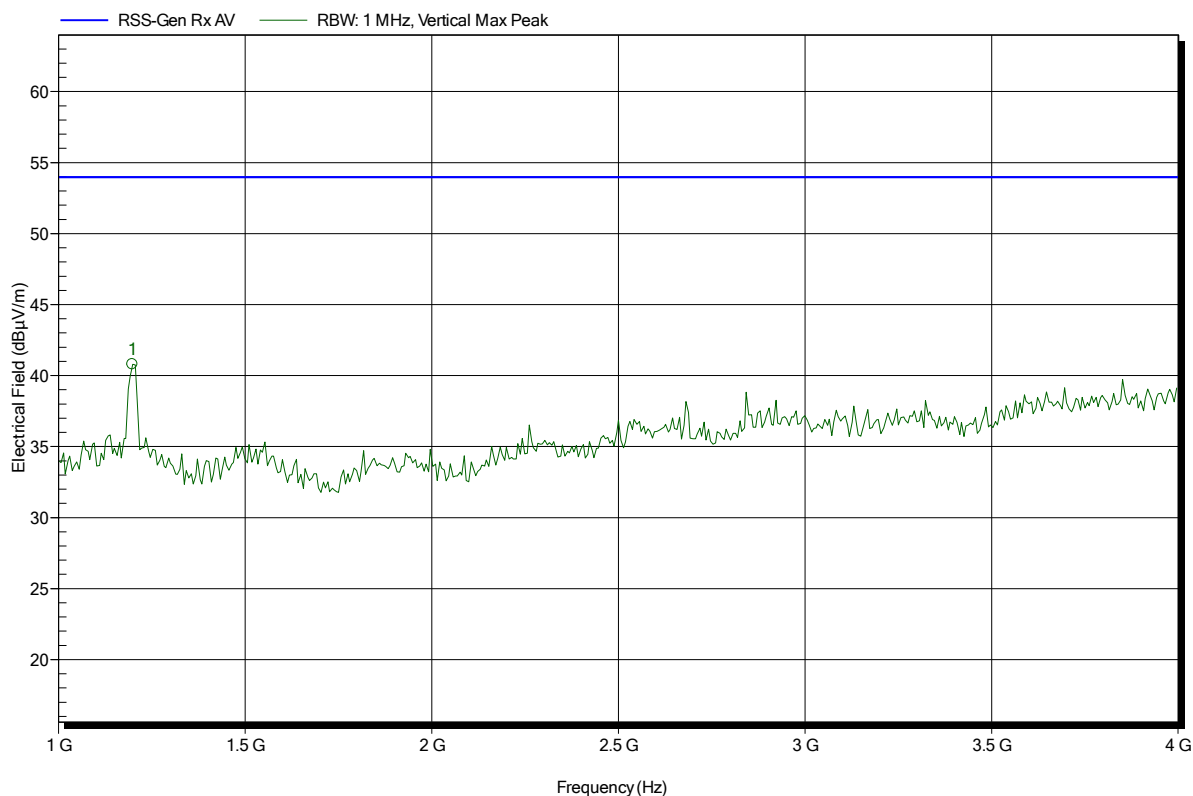
Frequency	Peak	Peak Limit	Peak Difference	Peak Status
1.198 GHz	41.57 dBµV/m	53.98 dBµV/m	-12.41 dB	Pass
1.876 GHz	38.41 dBµV/m	53.98 dBµV/m	-15.57 dB	Pass

Spurious emissions according to RSS-GEN

Project number: G0M-1507-4921

Applicant: Panono GmbH
 EUT Name: Panono Camera
 Model: MVP15
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 3 m
 Mode: RX; 2437 MHz
 Test Date: 2015-07-23
 Note:

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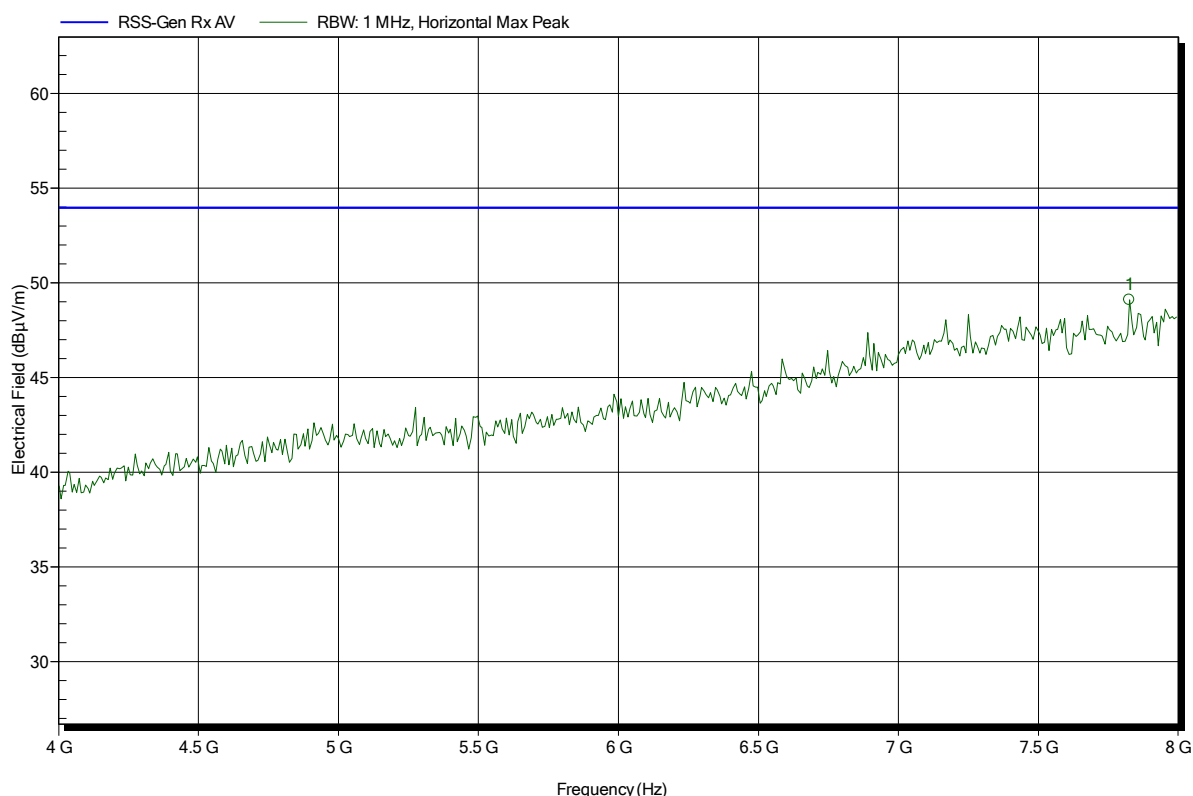
Frequency	Peak	Peak Limit	Peak Difference	Peak Status
1.198 GHz	40.79 dBµV/m	53.98 dBµV/m	-13.19 dB	Pass

Spurious emissions according to RSS-GEN

Project number: G0M-1507-4921

Applicant: Panono GmbH
 EUT Name: Panono Camera
 Model: MVP15
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 3 m
 Mode: RX; 2437 MHz
 Test Date: 2015-07-23
 Note:

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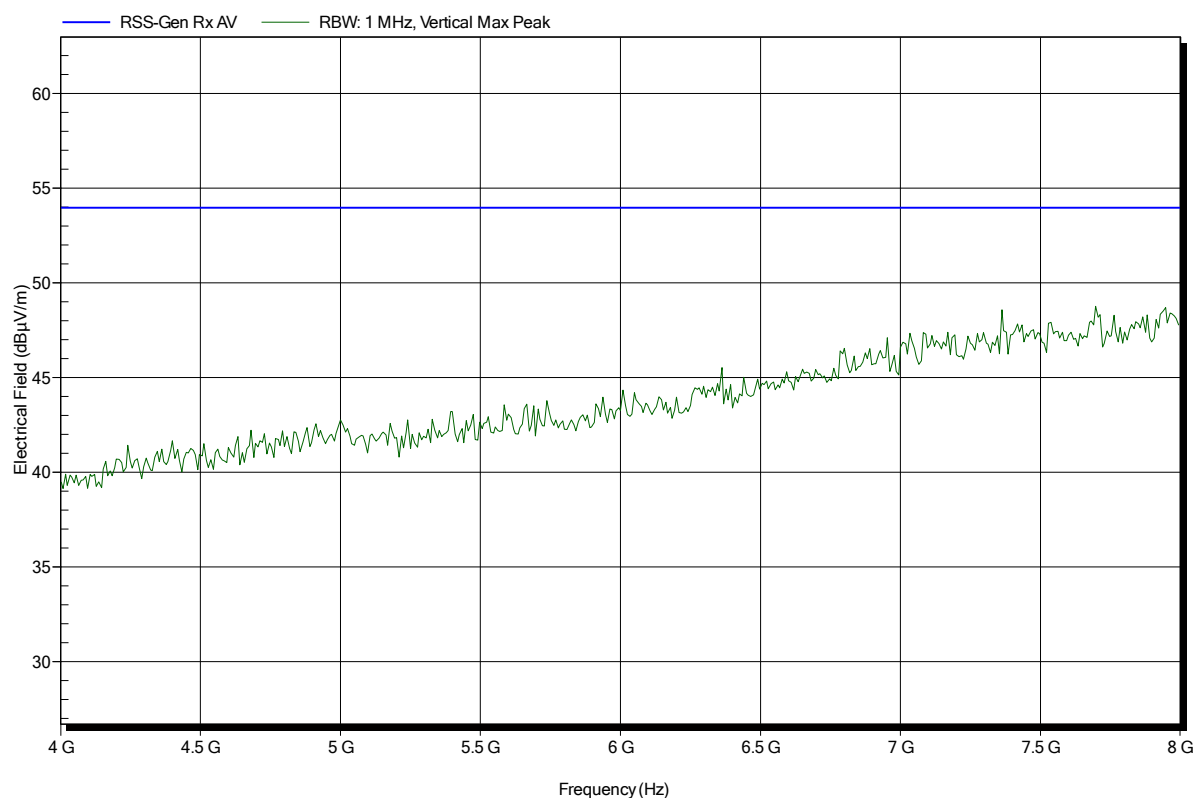
Frequency	Peak	Peak Limit	Peak Difference	Peak Status
7.824 GHz	49.11 dBµV/m	53.98 dBµV/m	-4.87 dB	Pass

Spurious emissions according to RSS-GEN

Project number: G0M-1507-4921

Applicant: Panono GmbH
 EUT Name: Panono Camera
 Model: MVP15
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 3 m
 Mode: RX; 2437 MHz
 Test Date: 2015-07-23
 Note:

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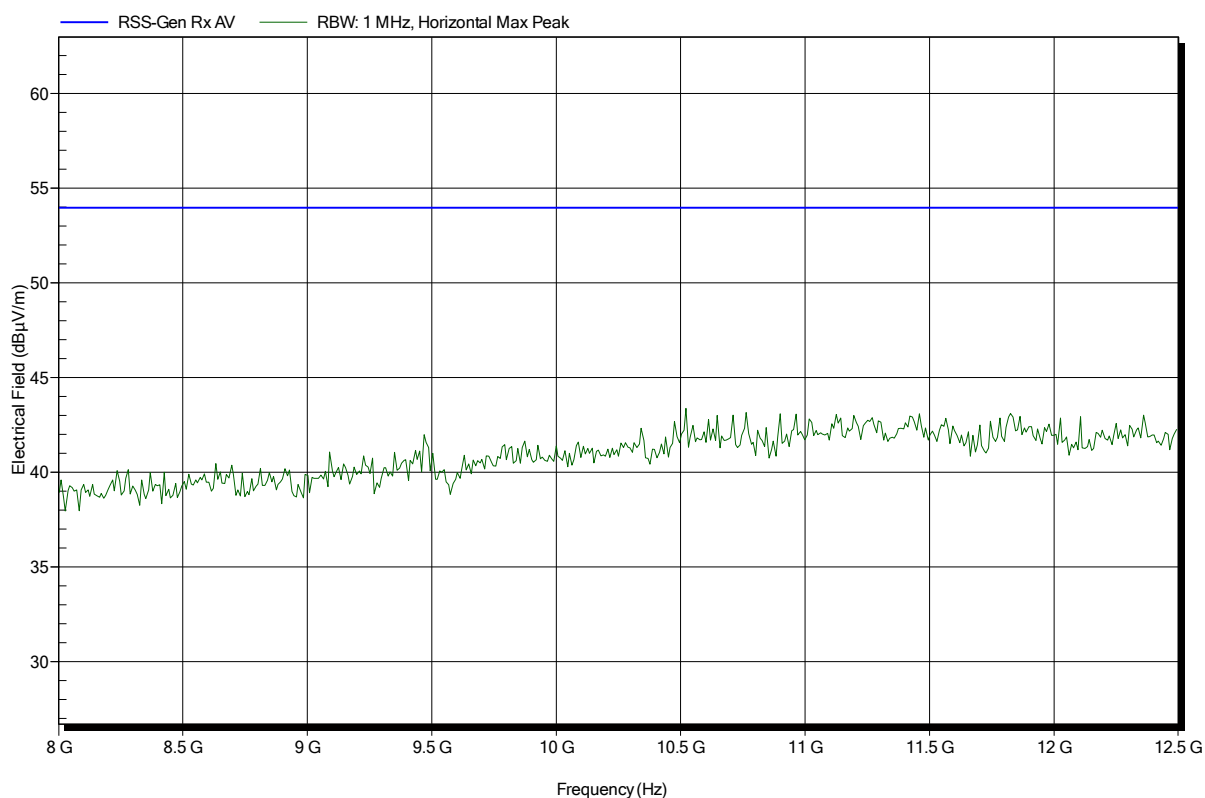


Spurious emissions according to RSS-GEN

Project number: G0M-1507-4921

Applicant: Panono GmbH
 EUT Name: Panono Camera
 Model: MVP15
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery
 Antenna: Schwarzbeck BBHA 9120D, Horizontal
 Measurement distance: 1 m converted to 3m
 Mode: RX; 2037 MHz
 Test Date: 2015-07-23
 Note:

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Spurious emissions according to RSS-GEN

Project number: G0M-1507-4921

Applicant: Panono GmbH
 EUT Name: Panono Camera
 Model: MVP15
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Treffke
 Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery
 Antenna: Schwarzbeck BBHA 9120D, Vertical
 Measurement distance: 1 m converted to 3m
 Mode: RX; 2037 MHz
 Test Date: 2015-07-23
 Note:

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