

FCC TEST REPORT

FCC 47 CFR Part 15C Industry Canada RSS-247

Digital transmission systems operating within the 2400 - 2483.5 MHz band

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



r	
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)	ik ford
Approved by (+ signature) (Head of Lab) Christian Webe	c. 60-62
Date of issue 2015-10-16	

General remarks:

Total number of pages 100

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



REPORT INDEX

EQUIPMENT (TEST ITEM) DESCRIPTION	5
Photos – Equipment External	7
Photos – Equipment internal	9
Photos – Test setup	18
Supporting Equipment Used During Testing	19
Test Modes	20
Test Equipment Used During Testing	21
Sample emission level calculation	22
RESULT SUMMARY	23
TEST CONDITIONS AND RESULTS	24
Test Conditions and Results – Occupied Bandwidth	24
Test Conditions and Results – AC power line conducted emissions	34
Test Conditions and Results – Transmitter radiated emissions	37
Test Conditions and Results – Receiver radiated emissions	40
EX A Transmitter radiated spurious emissions EX B Receiver radiated spurious emissions	42 91
	Photos – Equipment internal Photos – Test setup Supporting Equipment Used During Testing Test Modes Test Equipment Used During Testing Sample emission level calculation RESULT SUMMARY TEST CONDITIONS AND RESULTS Test Conditions and Results – Occupied Bandwidth Test Conditions and Results – AC power line conducted emissions Test Conditions and Results – Transmitter radiated emissions Test Conditions and Results – Receiver radiated emissions



1 Equipment (Test item) Description

Description	Panono Camera	<u> </u>				
Model	MVP15					
Additional Model(s)	None	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	ı/n				
Operating frequency range	2412 - 2462 MH	Z				
Assigned frequency band	2400 - 2483.5 M	lHz				
	F _{LOW20}	2412 MHz	F _{LOW40}	2422 MHz		
Main test frequencies	F _{MID20}	2437 MHz	F _{MID40}	2437 MHz		
	F _{HIGH20}	2462 MHz F _{HIGH40} 2452 MHz				
Spreading	CCK, DSSS, OF	DM				
Modulations	BPSK, QPSK, 16-QAM, 64-QAM					
Number of channels	11					
Channel spacing	5 MHz					
Number of antennas	2					
	Туре	WiFi and Bluet	tooth Module			
	Model	WL1805MODO	SBMOC			
	Manufacturer	Texas Instrum	ents Incorporate	ed		
Radio module	HW Version	1st revision (R	OM 0x11)			
	SW Version	ol_r8.a8.10				
	FCC-ID	Z64-WL18SBN	ИOD			
	IC	451I-WL18SBI	MOD			
	Туре	integrated				
Antenna	Model	ANT016008LCD2 442MA1				
Antonia	Manufacturer	TDK				
	Gain	2.27 dBi (from declaration)				
Panono GmbH						
Manufacturer	Französische Straße 9-12					
	10117 Berlin					
	GERMANY					



	V _{NOM}	3.7 VDC lithium battery
Power supply	V _{MIN}	N/A
	V _{MAX}	N/A
	Model	N/A
AC/DC-Adaptor	Vendor	N/A
AC/DC-Adaptor	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 : 0	Connecting cables					



1.3 Test Modes

Mode #		Description	
	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)	
	General conditions:	EUT powered by fully charged battery	
HT20	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)	
	General conditions:	EUT powered by fully charged battery	
HT40	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)	
ъ .	General conditions:	s: EUT powered by fully charged battery	
Receive	Radio conditions:	Mode = standalone receive	
AC Downstin -	General conditions:	EUT powered by commercial AC/DC-Adapter	
AC-Powerline	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:

Reading on Analyzer (dB μ V) + A.F. (dB) = Net field strength (dB μ V/m)

Net:

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

Limit:

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

Limit (dB μ V/m) = 20*log (μ 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 dB μ V + 26 dB = 47.5 dB μ V/m : 47.5 dB μ V/m - 57.0 dB μ V/m = -9.5 dB



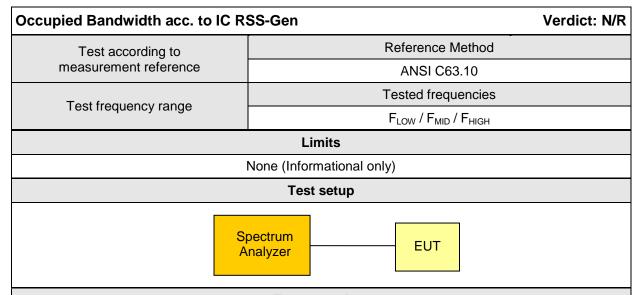
2 Result Summary

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



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 FLOW

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

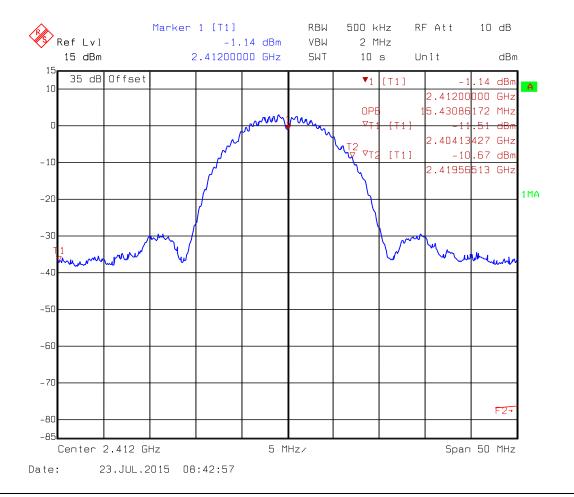
Operator: Wilfried Treffke Test Conditions: Tnom / Vnom

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





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

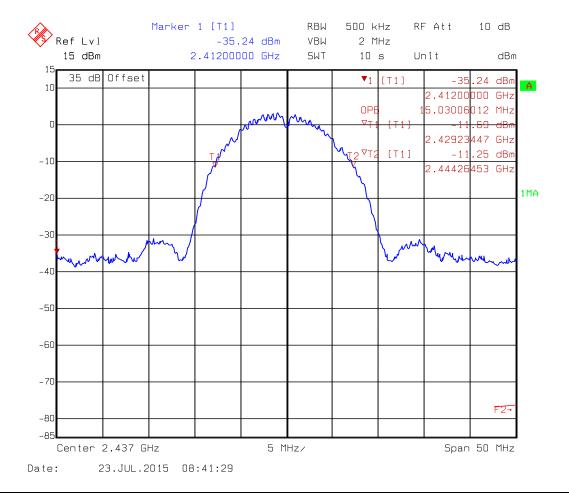
Operator: Wilfried Treffke Test Conditions: Tnom / Vnom

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





Occupied Bandwidth - DSSS FHIGH

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

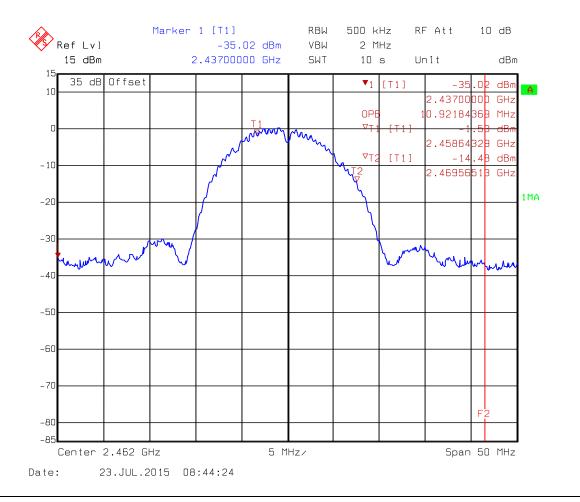
Operator: Wilfried Treffke Test Conditions: Tnom / Vnom

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





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: Tnom / Vnom

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





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

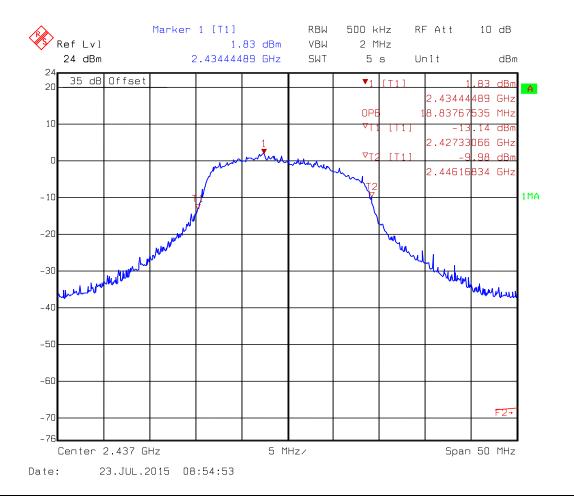
Operator: Wilfried Treffke Test Conditions: Tnom / Vnom

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





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

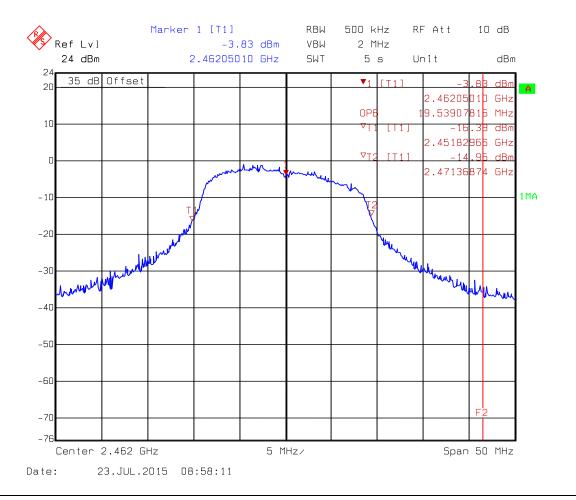
Operator: Wilfried Treffke Test Conditions: Tnom / Vnom

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





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

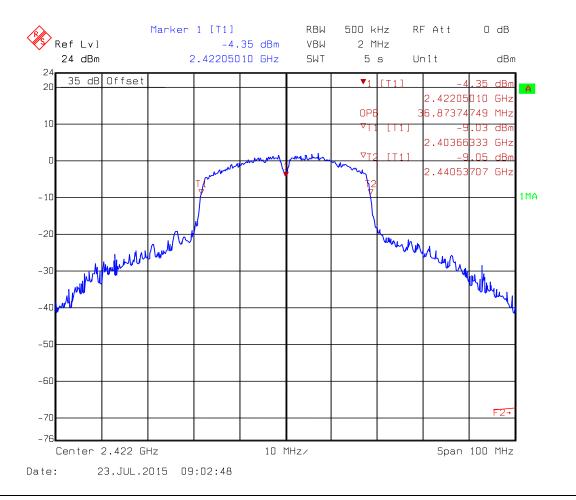
Operator: Wilfried Treffke Test Conditions: Tnom / Vnom

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





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

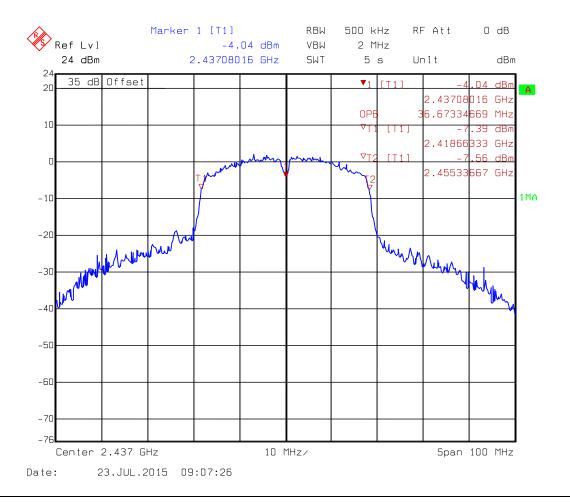
Operator: Wilfried Treffke Test Conditions: Tnom / Vnom

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





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

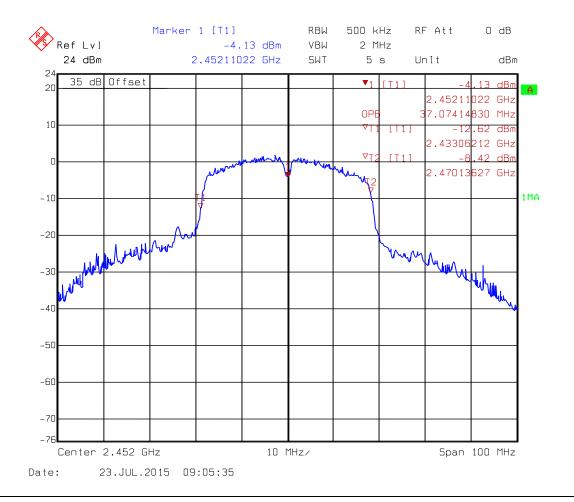
Operator: Wilfried Treffke Test Conditions: Tnom / Vnom

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





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 re		Reference Method						
standard				ANSI C63.4				
Fully configured sample	e scanned over		Fi	requency range				
the following freque	ency range		0.15 MHz to 30 MHz					
Points of Appli		Application Interface						
AC Main	LISN							
EUT test m	ode	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	56 PASS 46						
5 to 30	60	PASS 50 P						
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

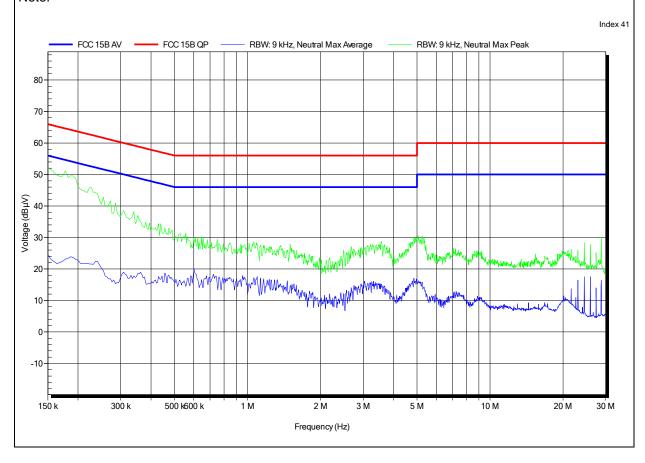
Test Conditions: Tnom: 23°C, Unom: 5VDC via AC/DC Adapter

LISN: ESH2-Z5 N

Mode: EUT in charging mode

Test Date: 2015-08-04

Note:





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

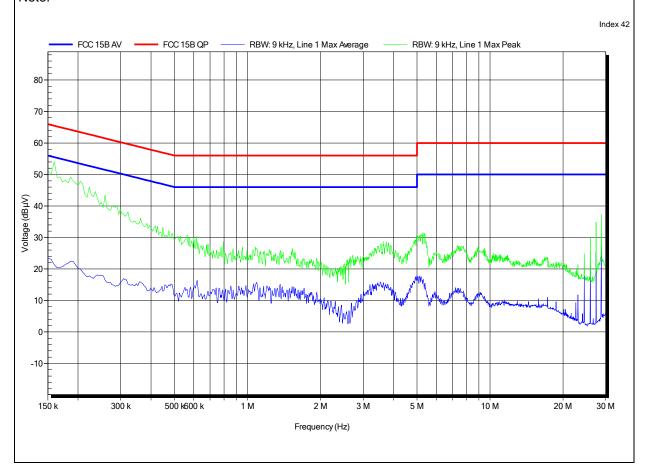
Test Conditions: Tnom: 23°C, Unom: 5VDC via AC/DC Adapter

LISN: ESH2-Z5 L

Mode: EUT in charging mode

Test Date: 2015-08-04

Note:

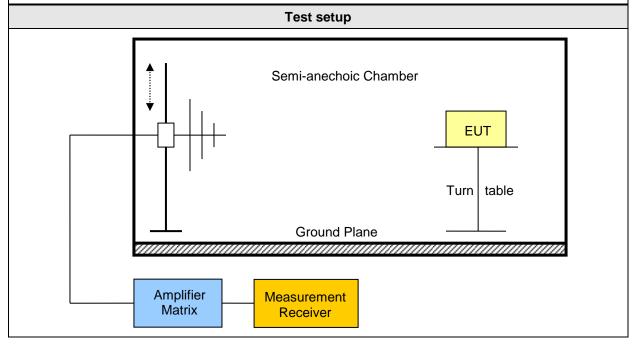




3.3 Test Conditions and Results - Transmitter radiated emissions

Transmitter radiated er FCC 47 CFR 15.247 / IC		to		Verdict: PASS			
Test according refe	renced	Reference Method					
standards		FCC 15.2	247(d) / IC R	SS-247 5.5			
Test according	to	R	eference Me	thod			
measurement refe	rence		ANSI C63.1	10			
Took from a company		Tested frequencies					
Test frequency ra	ange	30 MHz – 10 th Harmonic					
		Limits					
Frequency range [MHz]	Detector	Limit [µV/m]	Limit [dBµV/m]	Limit Distance [m]			
30 – 88	Quasi-Peak	100	40	3			
88 – 216	Quasi-Peak	150	43.5	3			
216 – 960	Quasi-Peak	200	3				
960 – 1000	Quasi-Peak	500	54	3			
> 1000	Average	500	54	3			

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)). When average radiated emission measurements are specified, including average emission measurements below 1000 MHz, there also is a limit on the peak level of the radio frequency emissions. The limit on peak radio frequency emissions is 20 dB above the maximum permitted average emission limit applicable to the equipment under test.





Product Service

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 [dbµV/m]	Det.	Pol.	Limit [dbµV/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.



Product Service

	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 di	stance betweer	n EUT and me	easurement a	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 di	stance betweer	n EUT and me	asurement a	antenna.		•			



3.4 Test Conditions and Results - Receiver radiated emissions

Receiver radiated emissions acc. to IC RSS-247 Verdict: PASS								
Test according refere	enced	Reference Method						
standards			IC RSS-247 3.1					
Test according t	0			Reference	Method			
measurement refer	ence			ANSI C6	3.10			
Test frequency rar	nge			Tested freq	uencies			
rest frequency far	ige		3	0 MHz – 5 th	Harmonic	;		
EUT test mode				Recei	ve			
			Limits					
Frequency range [MHz]	Detector		Limit [µV/m]	Limit [dE	βμV/m]	Limit Distance [m]		
30 – 88	Quasi-Pea	k	100	40)	3		
88 – 216	Quasi-Pea	k	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					
] 	Š	Semi-anechoic Ch		EUT Turn tab	ole		
	nplifier latrix	M	leasurement Receiver					



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

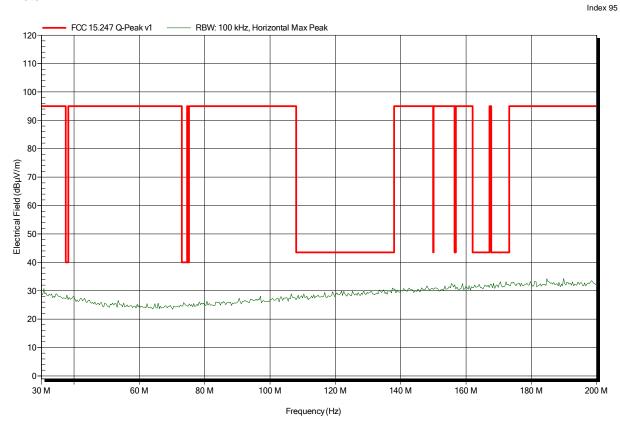
Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery Antenna: Rohde & Schwarz HK 116, Horizontal

Measurement distance: 3 m

Mode: TX; 802.11b; DSSS; 1Mbps; 2412MHz

Test Date: 2015-07-23

Note:





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

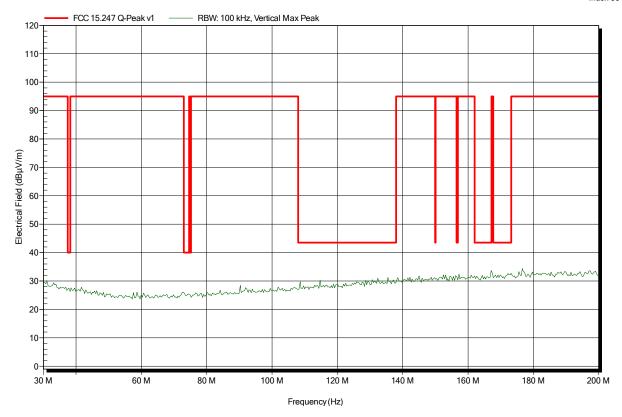
Measurement distance: 3 n

Mode: TX; 802.11b; DSSS; 1Mbps; 2412MHz

Test Date: 2015-07-23

Note:

Index 96





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

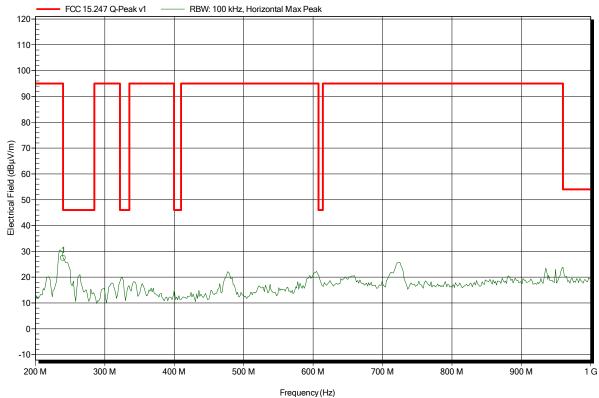
Measurement distance: 3 m

Mode: TX; 802.11b; DSSS; 1Mbps; 2412MHz

Test Date: 2015-07-23

Note:

Index 97



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



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

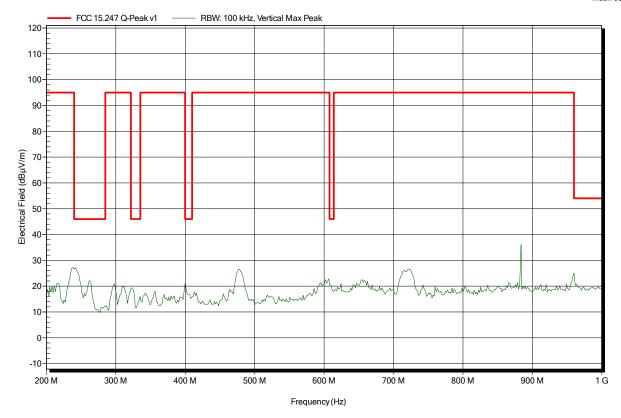
Measurement distance: 3 m

Mode: TX; 802.11b; DSSS; 1Mbps; 2412MHz

Test Date: 2015-07-23

Note:

Index 98





Project number: G0M-1507-4921

Applicant: Panono GmbH EUT Name: Panono Camera

Model: MVP15

Test Site: Eurofins Product Service GmbH

Operator: Mr. Treffke

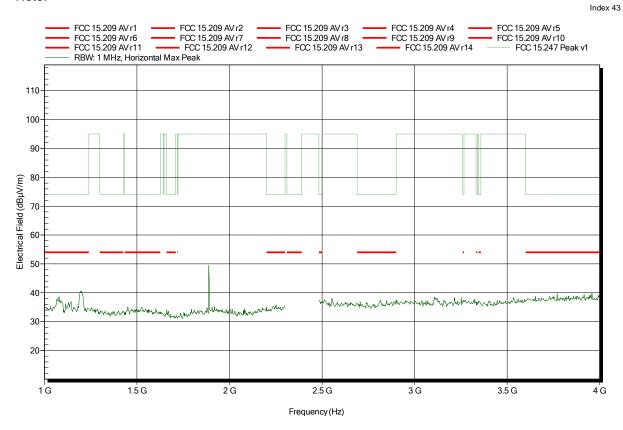
Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery Antenna: Schwarzbeck BBHA 9120D, Horizontal

Measurement distance: 3 n

Mode: TX; 802.11b; DSSS; 1Mbps; 2412MHz

Test Date: 2015-07-22

Note:





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

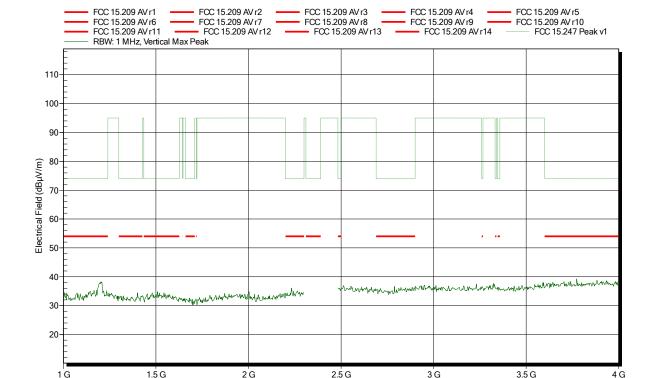
Antenna: Schwarzbeck BBHA 9120D, Vertical

Measurement distance: 3 n

Mode: TX; 802.11b; DSSS; 1Mbps; 2412MHz

Test Date: 2015-07-22

Note:



Frequency (Hz)

Index 44



Project number: G0M-1507-4921

Applicant: Panono GmbH EUT Name: Panono Camera

Model: MVP15

Test Site: Eurofins Product Service GmbH

Operator: Mr. Treffke

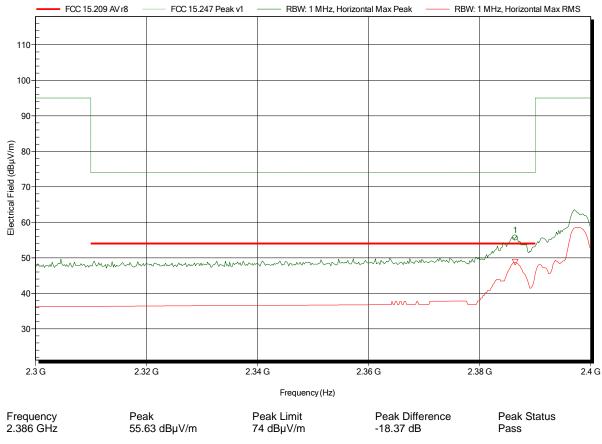
Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery Antenna: Schwarzbeck BBHA 9120D, Horizontal

Measurement distance: 1 m converted to 3m

Mode: TX; 802.11b; DSSS; 1Mbps; 2412MHz

Test Date: 2015-07-22 Note: lower bandedge

Index 50





Project number: G0M-1507-4921

Frequency 2.386 GHz

Panono GmbH Applicant: **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

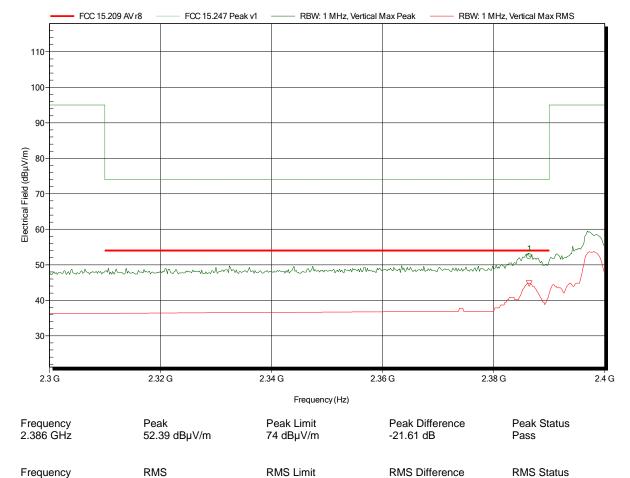
Measurement distance: 1 m converted to 3m

44.75 dBµV/m

TX; 802.11b; DSSS; 1Mbps; 2412MHz Mode:

Test Date: 2015-07-22 Note: lower bandedge

Index 54



-9.25 dB

54 dBµV/m

Pass



Project number: G0M-1507-4921

Applicant: Panono GmbH EUT Name: Panono Camera

Model: MVP15

Test Site: Eurofins Product Service GmbH

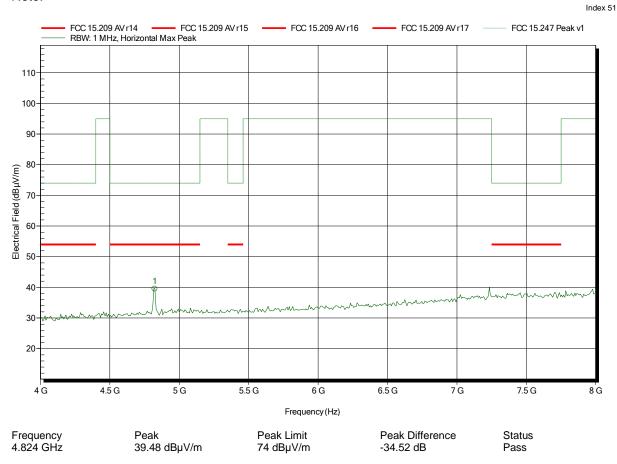
Operator: Mr. Treffke

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





Project number: G0M-1507-4921

Applicant: Panono GmbH EUT Name: Panono Camera

Model: MVP15

Test Site: Eurofins Product Service GmbH

Operator: Mr. Treffke

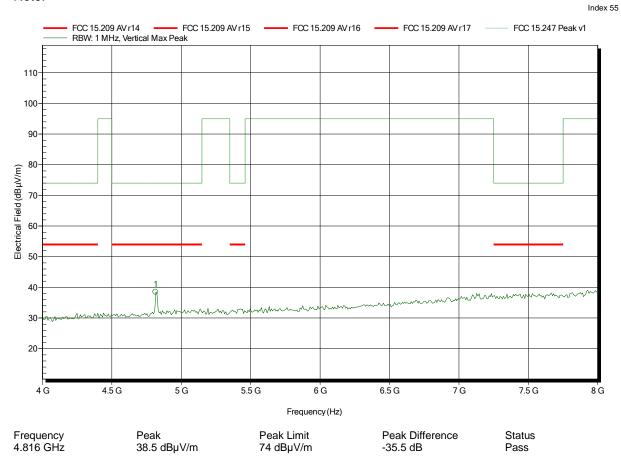
Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery

Antenna: Schwarzbeck BBHA 9120D, Vertical

Measurement distance: 1 m converted to 3m

Mode: TX; 802.11b; DSSS; 1Mbps; 2412MHz

Test Date: 2015-07-22





Project number: G0M-1507-4921

Applicant: Panono GmbH EUT Name: Panono Camera

Model: MVP15

Test Site: Eurofins Product Service GmbH

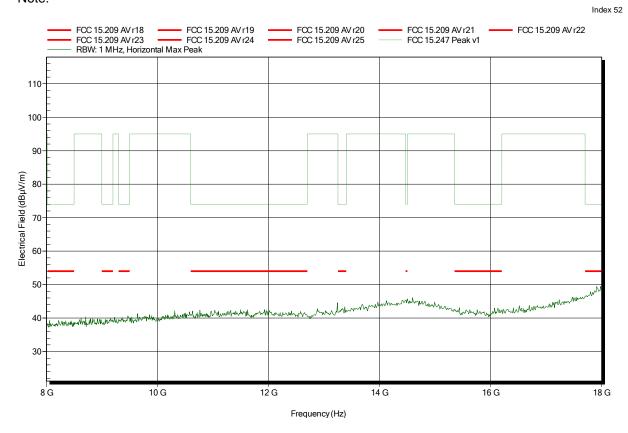
Operator: Mr. Treffke

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





Project number: G0M-1507-4921

Applicant: Panono GmbH EUT Name: Panono Camera

Model: MVP15

Test Site: Eurofins Product Service GmbH

Operator: Mr. Treffke

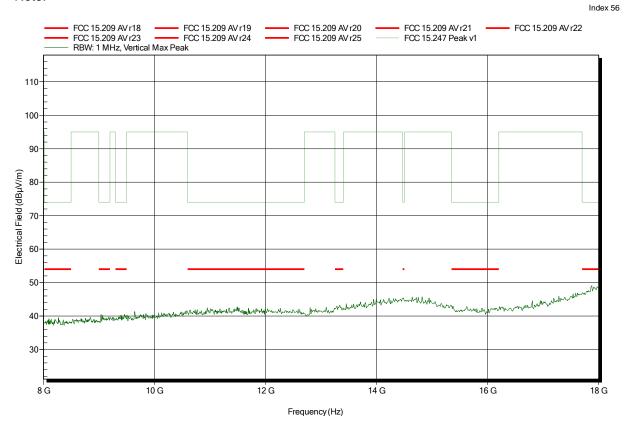
Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery

Antenna: Schwarzbeck BBHA 9120D, Vertical

Measurement distance: 1 m converted to 3m

Mode: TX; 802.11b; DSSS; 1Mbps; 2412MHz

Test Date: 2015-07-22





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

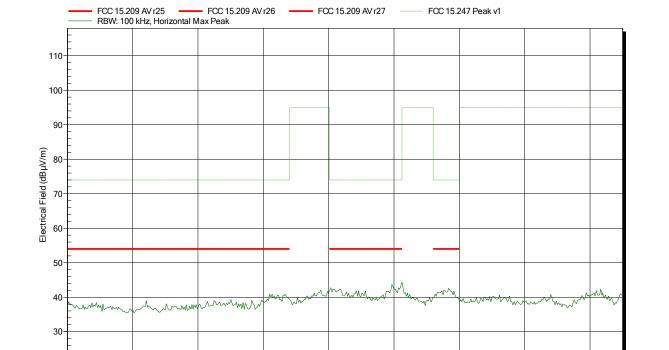
19 G

18 G

20 G

21 G

Note:



22 G

Frequency (Hz)

23 G

24 G

25 G

Index 53

26.5 G



Project number: G0M-1507-4921

Applicant: Panono GmbH EUT Name: Panono Camera

Model: MVP15

Test Site: Eurofins Product Service GmbH

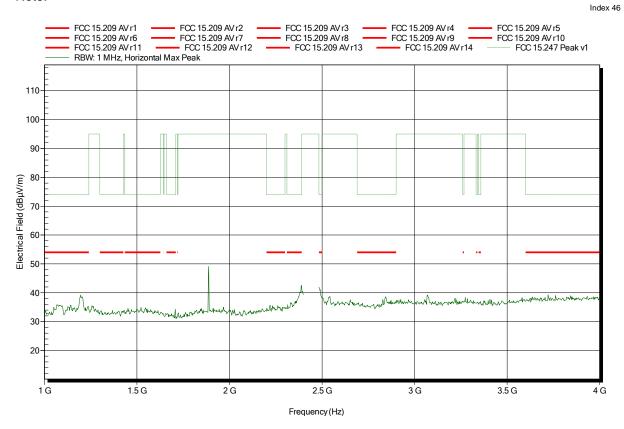
Operator: Mr. Treffke

Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery Antenna: Schwarzbeck BBHA 9120D, Horizontal

Measurement distance: 3 n

Mode: TX; 802.11b; DSSS; 1Mbps; 2437MHz

Test Date: 2015-07-22





Project number: G0M-1507-4921

Applicant: Panono GmbH EUT Name: Panono Camera

Model: MVP15

Test Site: Eurofins Product Service GmbH

Operator: Mr. Treffke

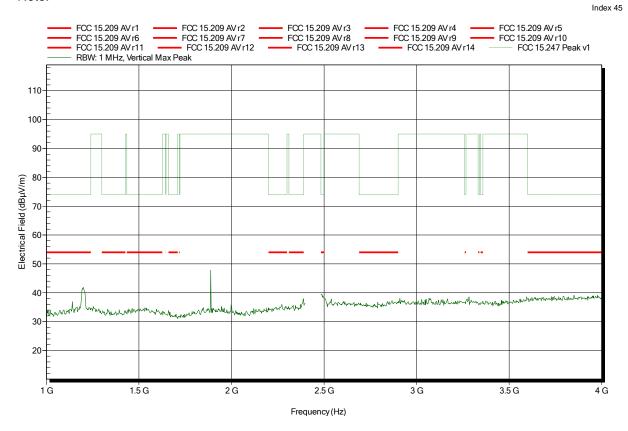
Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery

Antenna: Schwarzbeck BBHA 9120D, Vertical

Measurement distance: 3 m

Mode: TX; 802.11b; DSSS; 1Mbps; 2437MHz

Test Date: 2015-07-22





Project number: G0M-1507-4921

Applicant: Panono GmbH EUT Name: Panono Camera

Model: MVP15

Test Site: Eurofins Product Service GmbH

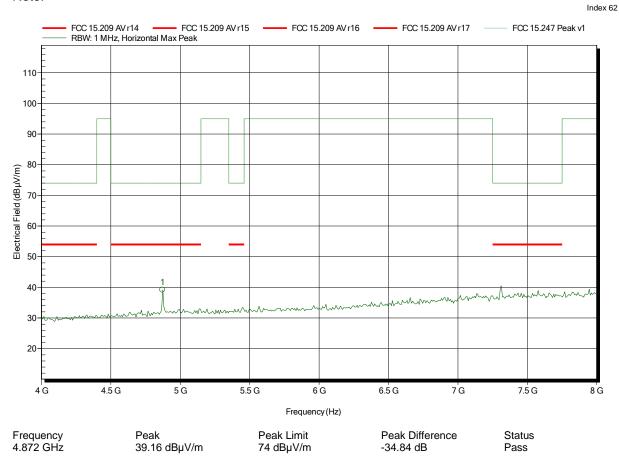
Operator: Mr. Treffke

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





Project number: G0M-1507-4921

Applicant: Panono GmbH EUT Name: Panono Camera

Model: MVP15

Test Site: Eurofins Product Service GmbH

Operator: Mr. Treffke

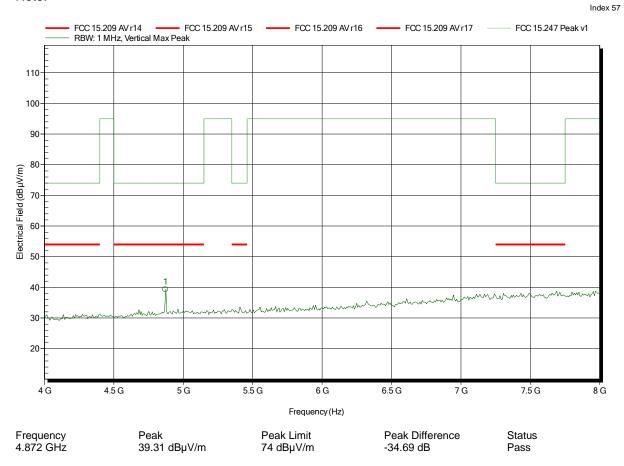
Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery

Antenna: Schwarzbeck BBHA 9120D, Vertical

Measurement distance: 1 m converted to 3m

Mode: TX; 802.11b; DSSS; 1Mbps; 2437MHz

Test Date: 2015-07-22





Project number: G0M-1507-4921

Applicant: Panono GmbH EUT Name: Panono Camera

Model: MVP15

Test Site: Eurofins Product Service GmbH

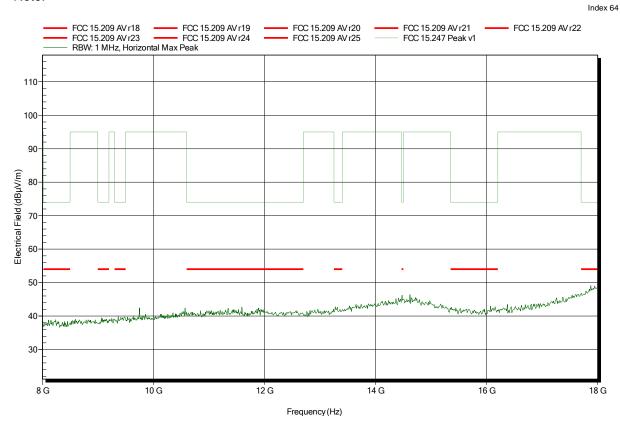
Operator: Mr. Treffke

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





Project number: G0M-1507-4921

Applicant: Panono GmbH EUT Name: Panono Camera

Model: MVP15

Test Site: Eurofins Product Service GmbH

Operator: Mr. Treffke

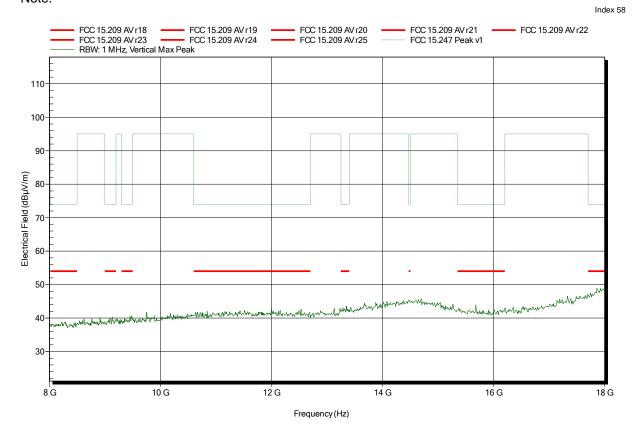
Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery

Antenna: Schwarzbeck BBHA 9120D, Vertical

Measurement distance: 1 m converted to 3m

Mode: TX; 802.11b; DSSS; 1Mbps; 2437MHz

Test Date: 2015-07-22





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

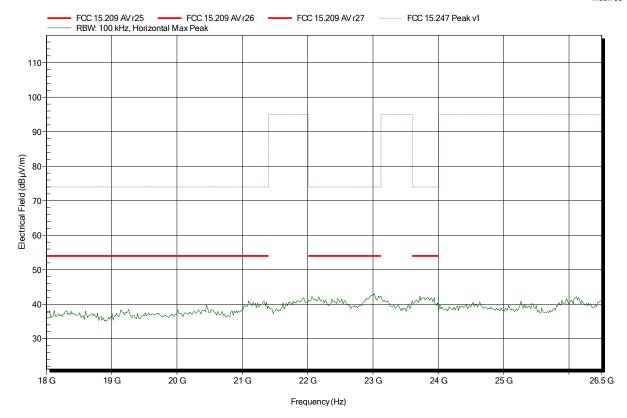
Antenna: Rohde & Schwarz HL 025, Horizontal

Measurement distance: 1 m converted to 3m

Mode: TX; 802.11b; DSSS; 1Mbps; 2437MHz

Test Date: 2015-07-22

Note:





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

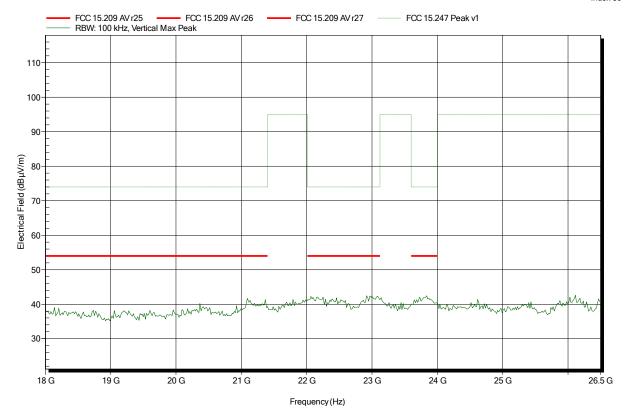
Antenna: Rohde & Schwarz HL 025, Vertical

Measurement distance: 1 m converted to 3m

Mode: TX; 802.11b; DSSS; 1Mbps; 2437MHz

Test Date: 2015-07-22

Note:





Project number: G0M-1507-4921

Applicant: Panono GmbH EUT Name: Panono Camera

Model: MVP15

Test Site: Eurofins Product Service GmbH

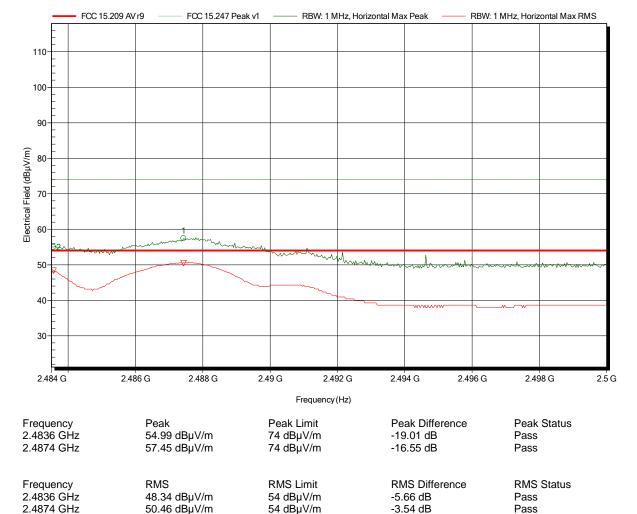
Operator: Mr. Treffke

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





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

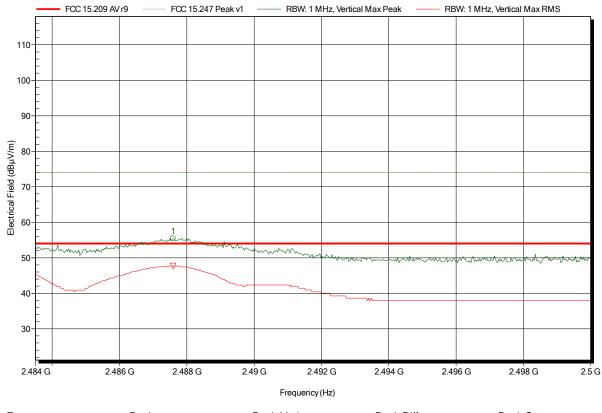
Antenna: Schwarzbeck BBHA 9120D, Vertical

Measurement distance: 1 m converted to 3m

Mode: TX; 802.11b; DSSS; 1Mbps; 2462MHz

Test Date: 2015-07-22 Note: upper bandedge

Index 69



Peak Difference Peak Status Frequency Peak Peak Limit 2.4876 GHz 55.39 dBµV/m $74 \text{ dB}\mu\text{V/m}$ -18.61 dB **Pass** Frequency 2.4876 GHz **RMS** RMS Limit **RMS Difference RMS Status** $47.67 dB\mu V/m$ 54 dBµV/m -6.33 dB Pass



Project number: G0M-1507-4921

Applicant: Panono GmbH EUT Name: Panono Camera

Model: MVP15

Test Site: Eurofins Product Service GmbH

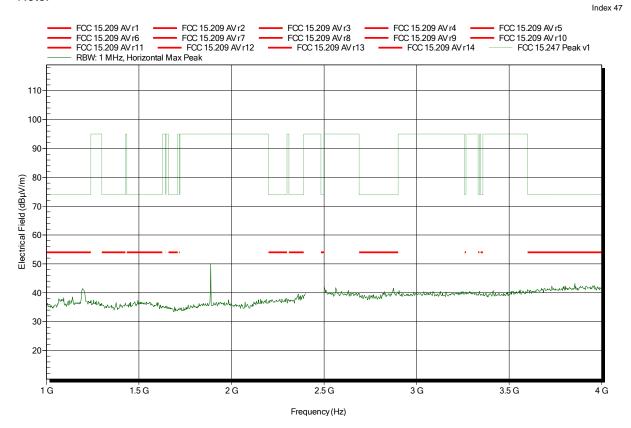
Operator: Mr. Treffke

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





Project number: G0M-1507-4921

Applicant: Panono GmbH EUT Name: Panono Camera

Model: MVP15

Test Site: Eurofins Product Service GmbH

Operator: Mr. Treffke

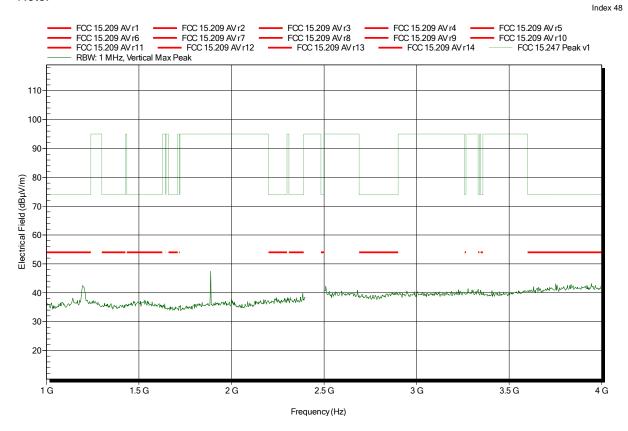
Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery

Antenna: Schwarzbeck BBHA 9120D, Vertical

Measurement distance: 3 m

Mode: TX; 802.11b; DSSS; 1Mbps; 2462MHz

Test Date: 2015-07-22





Project number: G0M-1507-4921

Applicant: Panono GmbH EUT Name: Panono Camera

Model: MVP15

Test Site: Eurofins Product Service GmbH

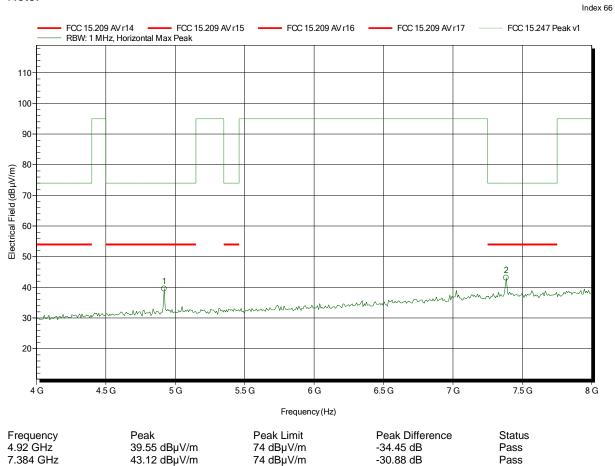
Operator: Mr. Treffke

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





Project number: G0M-1507-4921

Applicant: Panono GmbH EUT Name: Panono Camera

Model: MVP15

Test Site: Eurofins Product Service GmbH

Operator: Mr. Treffke

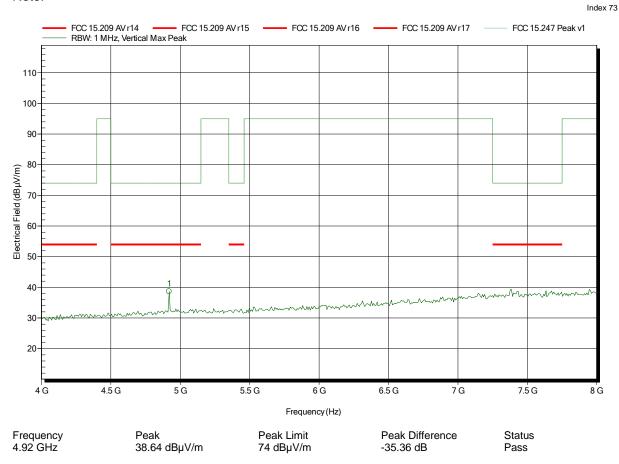
Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery

Antenna: Schwarzbeck BBHA 9120D, Vertical

Measurement distance: 1 m converted to 3m

Mode: TX; 802.11b; DSSS; 1Mbps; 2462MHz

Test Date: 2015-07-22





Project number: G0M-1507-4921

Applicant: Panono GmbH EUT Name: Panono Camera

Model: MVP15

Test Site: Eurofins Product Service GmbH

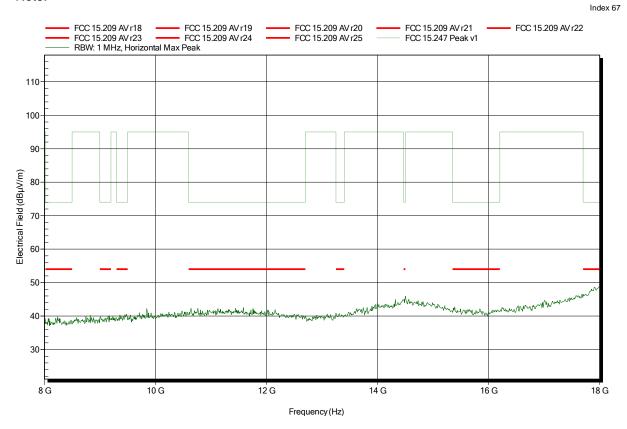
Operator: Mr. Treffke

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





Project number: G0M-1507-4921

Applicant: Panono GmbH EUT Name: Panono Camera

Model: MVP15

Test Site: Eurofins Product Service GmbH

Operator: Mr. Treffke

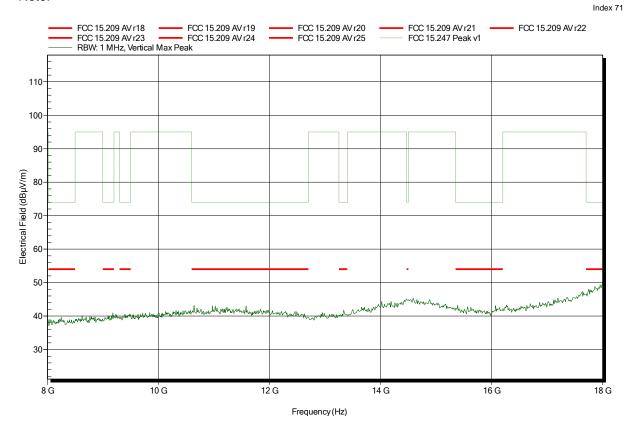
Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery

Antenna: Schwarzbeck BBHA 9120D, Vertical

Measurement distance: 1 m converted to 3m

Mode: TX; 802.11b; DSSS; 1Mbps; 2462MHz

Test Date: 2015-07-22





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

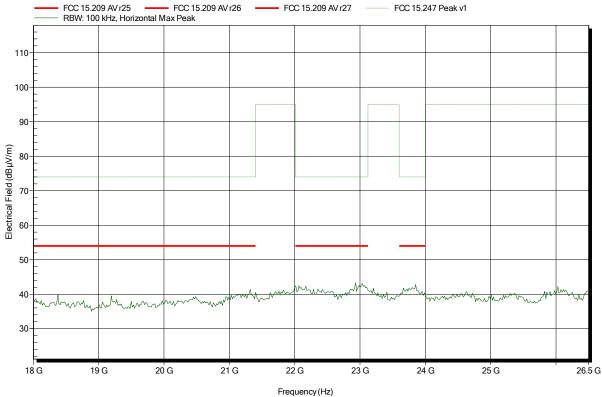
Rohde & Schwarz HL 025, Horizontal Antenna:

Measurement distance: 1 m converted to 3m

Mode: TX; 802.11b; DSSS; 1Mbps; 2462MHz

Test Date: 2015-07-22

Note:





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

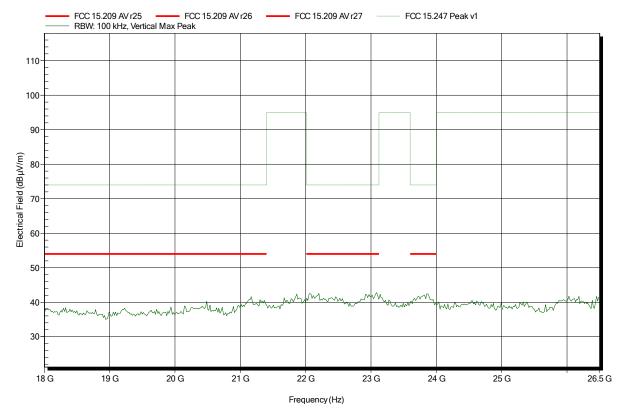
Antenna: Rohde & Schwarz HL 025, Vertical

Measurement distance: 1 m converted to 3m

Mode: TX; 802.11b; DSSS; 1Mbps; 2462MHz

Test Date: 2015-07-22

Note:





Project number: G0M-1507-4921

Applicant: Panono GmbH EUT Name: Panono Camera

Model: MVP15

Test Site: Eurofins Product Service GmbH

Operator: Mr. Treffke

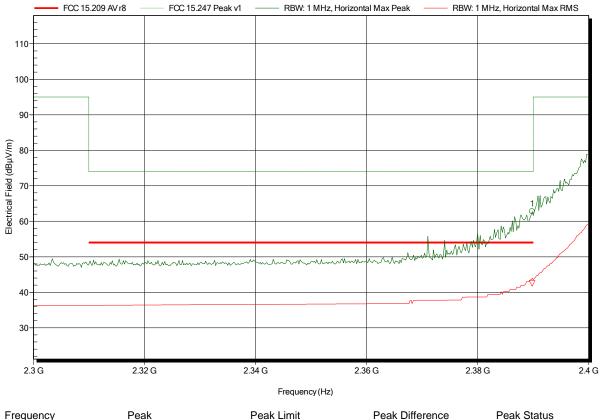
Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery Antenna: Schwarzbeck BBHA 9120D, Horizontal

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

Index 74



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



Project number: G0M-1507-4921

Panono GmbH Applicant: **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

Schwarzbeck BBHA 9120D, Vertical Antenna:

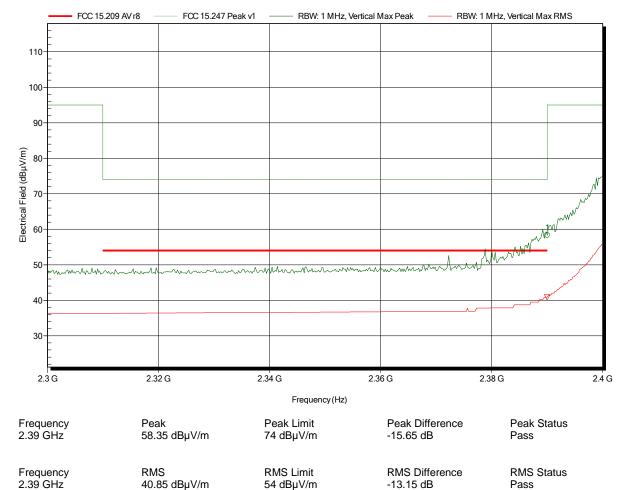
Measurement distance: 1 m converted to 3m

 $40.85 dB\mu V/m$

Mode: TX; 802.11n; HT20; MCS13; 2412MHz; ant.1+2

Test Date: 2015-07-22 Note: lower bandedge

Index 76



-13.15 dB

54 dBµV/m

Pass



Project number: G0M-1507-4921

Applicant: Panono GmbH EUT Name: Panono Camera

Model: MVP15

Test Site: Eurofins Product Service GmbH

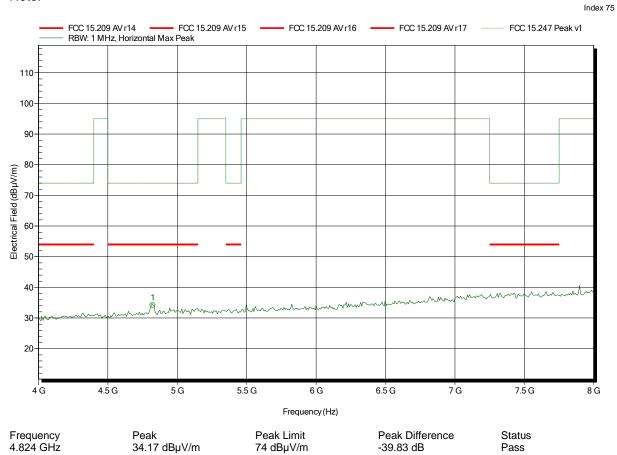
Operator: Mr. Treffke

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





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

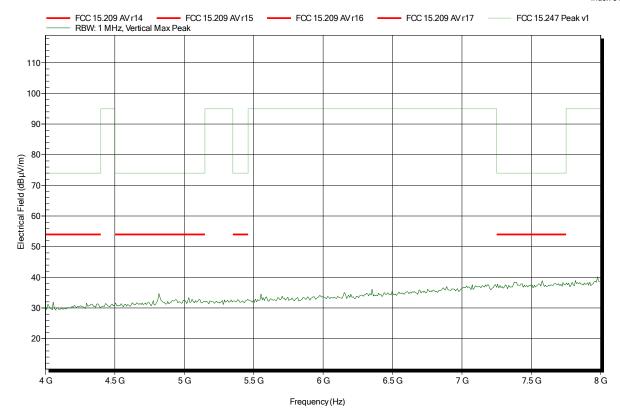
Antenna: Schwarzbeck BBHA 9120D, Vertical

Measurement distance: 1 m converted to 3m

Mode: TX; 802.11n; HT20; MCS13; 2412MHz; ant.1+2

Test Date: 2015-07-22

Note:





Project number: G0M-1507-4921

Applicant: Panono GmbH EUT Name: Panono Camera

Model: MVP15

Test Site: Eurofins Product Service GmbH

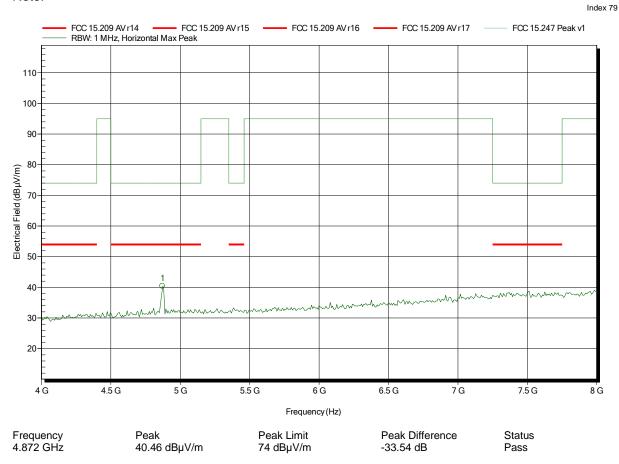
Operator: Mr. Treffke

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





Project number: G0M-1507-4921

Applicant: Panono GmbH EUT Name: Panono Camera

Model: MVP15

Test Site: Eurofins Product Service GmbH

Operator: Mr. Treffke

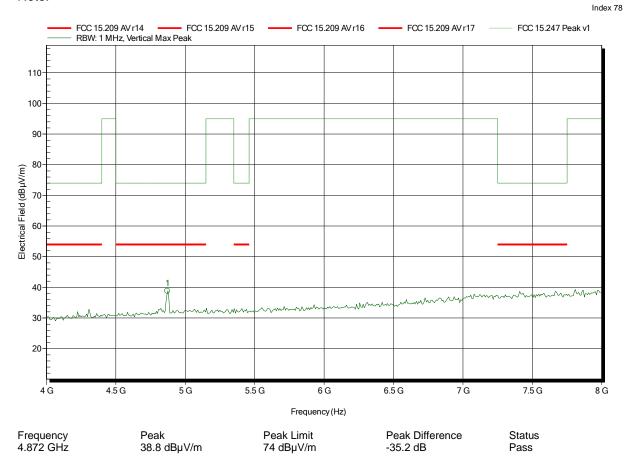
Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery

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





Project number: G0M-1507-4921

Applicant: Panono GmbH EUT Name: Panono Camera

Model: MVP15

Test Site: Eurofins Product Service GmbH

Operator: Mr. Treffke

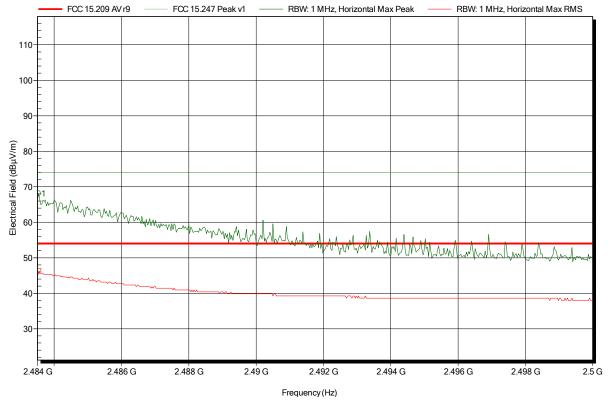
Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery Antenna: Schwarzbeck BBHA 9120D, Horizontal

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

Index 84



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



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

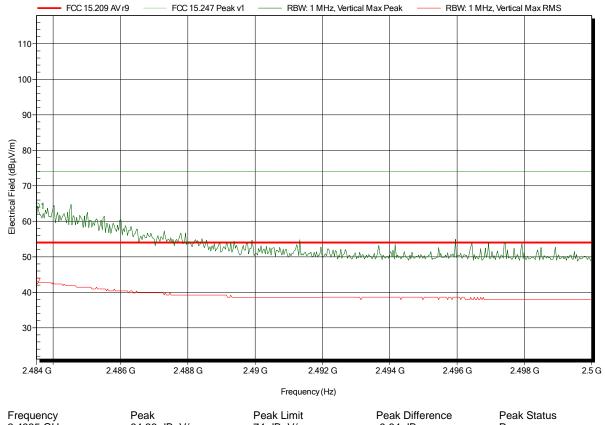
Antenna: Schwarzbeck BBHA 9120D, Vertical

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

Index 82





Project number: G0M-1507-4921

Applicant: Panono GmbH EUT Name: Panono Camera

Model: MVP15

Test Site: Eurofins Product Service GmbH

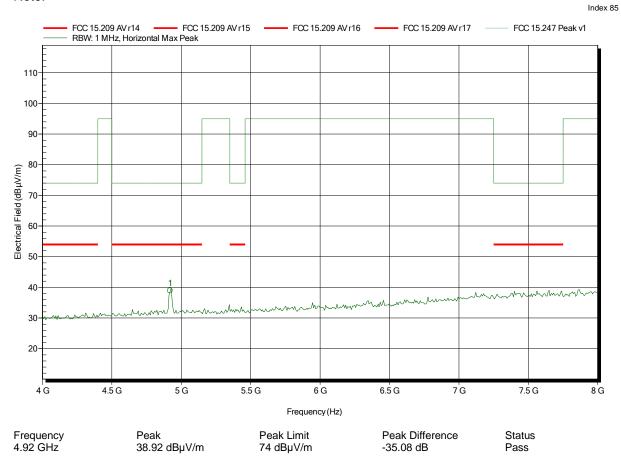
Operator: Mr. Treffke

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





Project number: G0M-1507-4921

Applicant: Panono GmbH EUT Name: Panono Camera

Model: MVP15

Test Site: Eurofins Product Service GmbH

Operator: Mr. Treffke

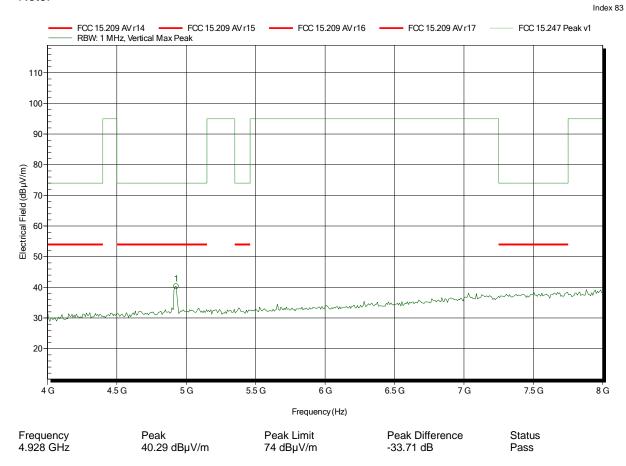
Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery

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





Project number: G0M-1507-4921

Applicant: Panono GmbH EUT Name: Panono Camera

Model: MVP15

Test Site: Eurofins Product Service GmbH

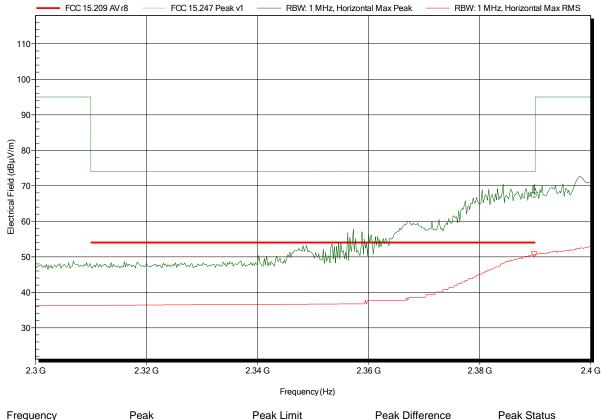
Operator: Mr. Treffke

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





Project number: G0M-1507-4921

Applicant: Panono GmbH EUT Name: Panono Camera

Model: MVP15

Test Site: Eurofins Product Service GmbH

Operator: Mr. Treffke

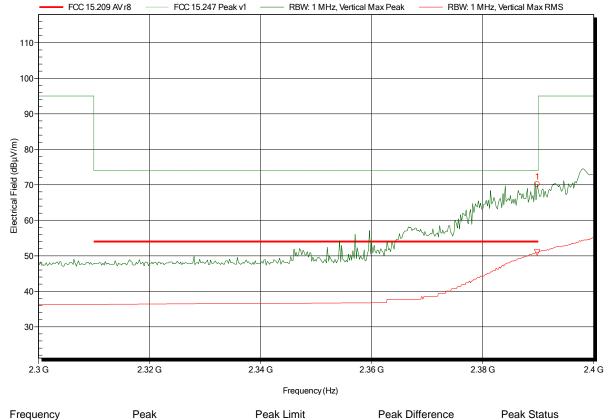
Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery

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





Project number: G0M-1507-4921

Applicant: Panono GmbH EUT Name: Panono Camera

Model: MVP15

Test Site: Eurofins Product Service GmbH

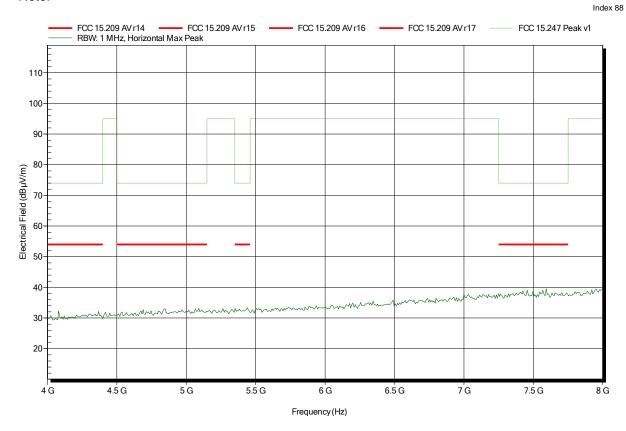
Operator: Mr. Treffke

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





Project number: G0M-1507-4921

Applicant: Panono GmbH EUT Name: Panono Camera

Model: MVP15

Test Site: Eurofins Product Service GmbH

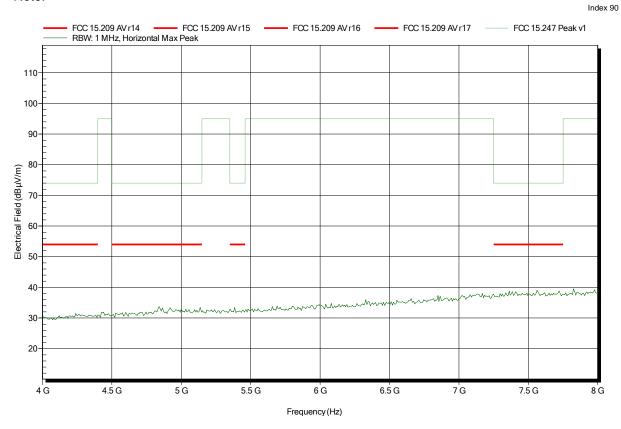
Operator: Mr. Treffke

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





Project number: G0M-1507-4921

Applicant: Panono GmbH EUT Name: Panono Camera

Model: MVP15

Test Site: Eurofins Product Service GmbH

Operator: Mr. Treffke

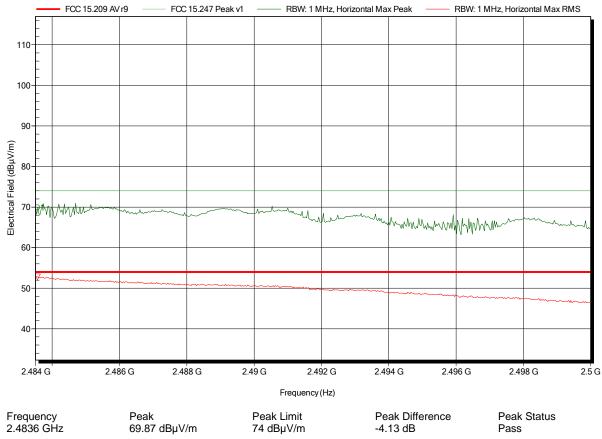
Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery Antenna: Schwarzbeck BBHA 9120D, Horizontal

Measurement distance: 1 m converted to 3m

Mode: TX; 802.11n; HT40; MCS0; 2452MHz; ant.1

Test Date: 2015-07-22 Note: upper bandedge

Index 93



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



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

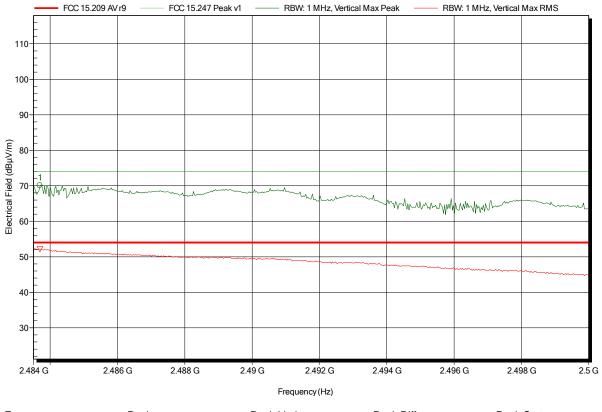
Antenna: Schwarzbeck BBHA 9120D, Vertical

Measurement distance: 1 m converted to 3m

Mode: TX; 802.11n; HT40; MCS0; 2452MHz; ant.1

Test Date: 2015-07-22 Note: upper bandedge

Index 91



Peak Difference Peak Status Frequency Peak Peak Limit 2.4837 GHz 70.12 dBµV/m 74 dBµV/m -3.88 dB **Pass** RMS RMS Limit **RMS Difference RMS Status** Frequency 2.4837 GHz 52.15 dBµV/m 54 dBµV/m -1.85 dB Pass



Project number: G0M-1507-4921

Applicant: Panono GmbH EUT Name: Panono Camera

Model: MVP15

Test Site: Eurofins Product Service GmbH

Operator: Mr. Treffke

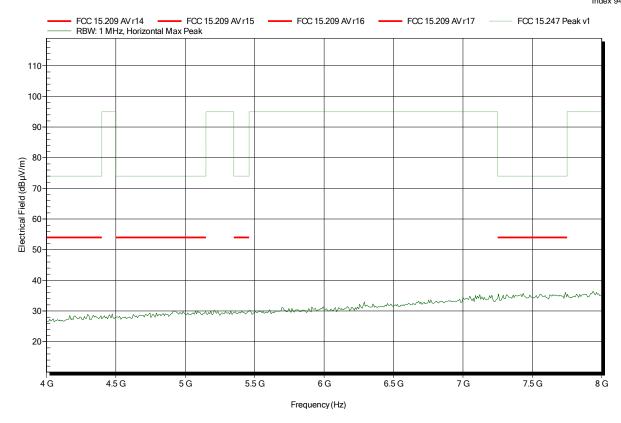
Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery Antenna: Schwarzbeck BBHA 9120D, Horizontal

Measurement distance: 1 m converted to 3m

Mode: TX; 802.11n; HT40; MCS0; 2452MHz; ant.1

Test Date: 2015-07-22

Note:





Project number: G0M-1507-4921

Applicant: Panono GmbH EUT Name: Panono Camera

Model: MVP15

Test Site: Eurofins Product Service GmbH

Operator: Mr. Treffke

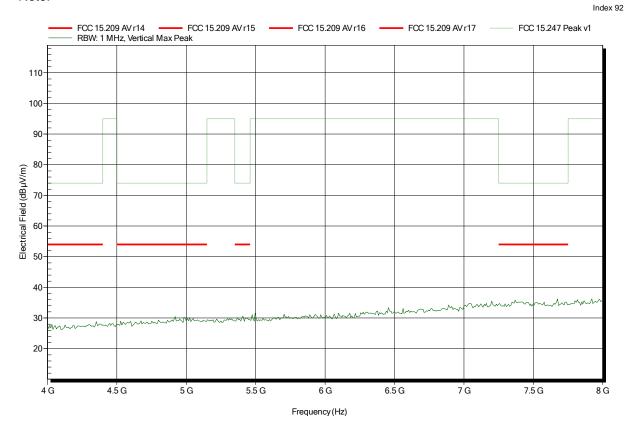
Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery

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





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

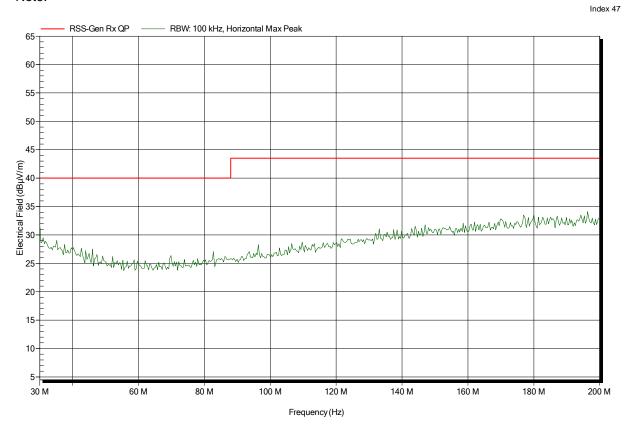
Test Site: Eurofins Product Service GmbH

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





Project number: G0M-1507-4921

Applicant: Panono GmbH EUT Name: Panono Camera

Model: MVP15

Test Site: Eurofins Product Service GmbH

Operator: Mr. Treffke

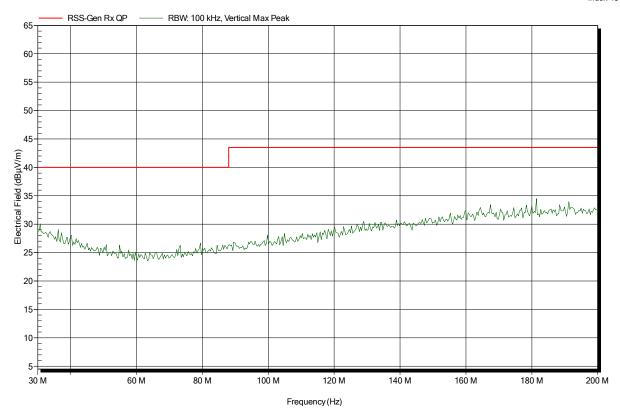
Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery

Antenna: Rohde & Schwarz HK 116, Vertical

Measurement distance: 3 m

Mode: RX; 2437 MHz Test Date: 2015-07-23

Note:





Project number: G0M-1507-4921

Applicant: Panono GmbH EUT Name: Panono Camera

Model: MVP15

Test Site: Eurofins Product Service GmbH

Operator: Mr. Treffke

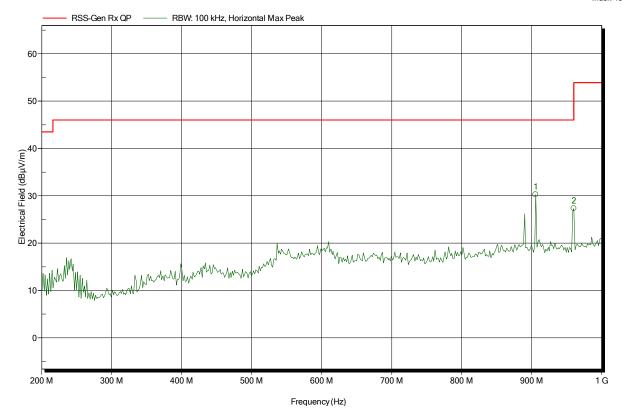
Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery Antenna: Rohde & Schwarz HL 223, Horizontal

Measurement distance: 3 m

Mode: RX; 2437 MHz Test Date: 2015-07-23

Note:

Index 49



Frequency 905.6 MHz 960 MHz

Peak 30.29 dBμV/m 27.33 dBμV/m Peak Limit 46 dBµV/m 46 dBµV/m Peak Difference -15.71 dB -18.67 dB Status Pass Pass



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

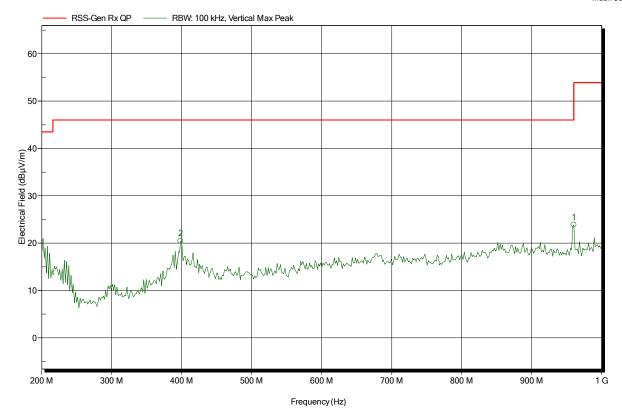
Antenna: Rohde & Schwarz HL 223, Vertical

Measurement distance: 3 m

Mode: RX; 2437 MHz Test Date: 2015-07-23

Note:

Index 50



Frequency 398.4 MHz 960 MHz

Peak 20.44 dBμV/m 23.87 dBμV/m Peak Limit 46 dBµV/m 46 dBµV/m Peak Difference -25.56 dB -22.13 dB Status Pass Pass



Project number: G0M-1507-4921

Applicant: Panono GmbH EUT Name: Panono Camera

Model: MVP15

Test Site: Eurofins Product Service GmbH

Operator: Mr. Treffke

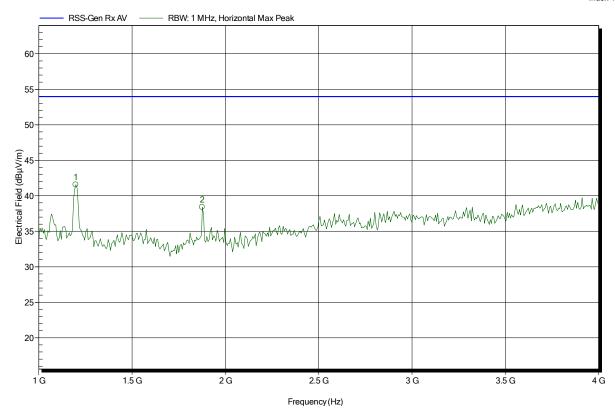
Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery Antenna: Schwarzbeck BBHA 9120D, Horizontal

Measurement distance: 3 m

Mode: RX; 2037 MHz Test Date: 2015-07-23

Note:

Index 43



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



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

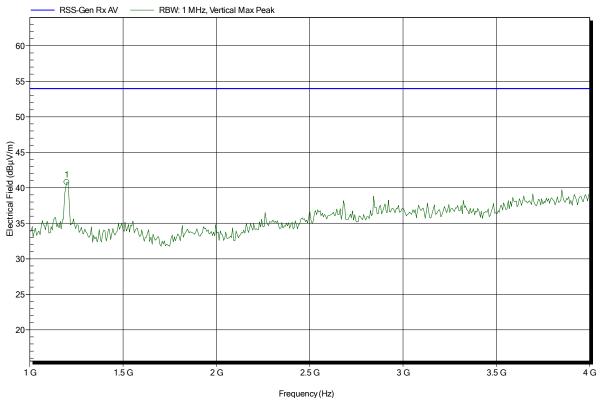
Antenna: Schwarzbeck BBHA 9120D, Vertical

Measurement distance: 3 m

Mode: RX; 2437 MHz Test Date: 2015-07-23

Note:

Index 45



1.198 GHz

Frequency

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



Project number: G0M-1507-4921

Applicant: Panono GmbH EUT Name: Panono Camera

Model: MVP15

Test Site: Eurofins Product Service GmbH

Operator: Mr. Treffke

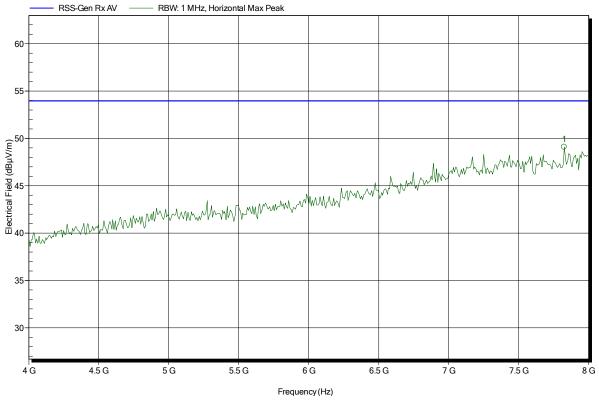
Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery Antenna: Schwarzbeck BBHA 9120D, Horizontal

Measurement distance: 3 m

Mode: RX; 2437 MHz Test Date: 2015-07-23

Note:

Index 44



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



Project number: G0M-1507-4921

Applicant: Panono GmbH EUT Name: Panono Camera

Model: MVP15

Test Site: Eurofins Product Service GmbH

Operator: Mr. Treffke

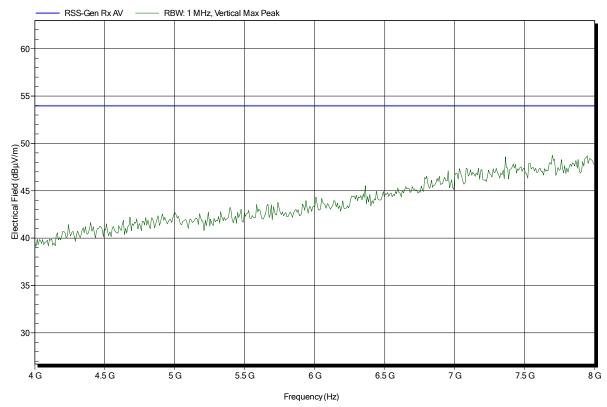
Test Conditions: Tnom: 24°C, Vnom: 3.7 VDC lithium battery

Antenna: Schwarzbeck BBHA 9120D, Vertical

Measurement distance: 3 m

Mode: RX; 2437 MHz Test Date: 2015-07-23

Note:





Project number: G0M-1507-4921

Applicant: Panono GmbH EUT Name: Panono Camera

Model: MVP15

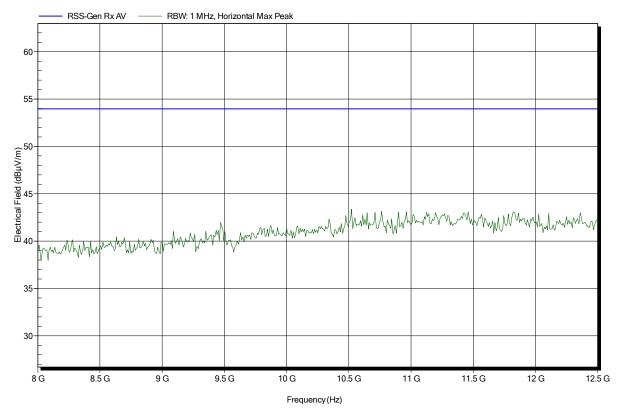
Test Site: Eurofins Product Service GmbH

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:





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:

