FCC Radio Test Report

FCC ID: 2AGLQ-RUNCAM2

Original Grant

Report No.	:	TB-FCC146023
Applicant	:	CAMERA2000 LIMITED
Equipment Under Test (EUT)		
EUT Name	:	Camera
Model No.	:	RunCam2
Brand Name	:	RunCam
Serial No.	:	Please see the page of 4
Receipt Date	:	2015-11-16
Test Date	:	2015-11-16 to 2015-11-18
Issue Date	:	2015-11-19
Standards	:	FCC Part 15, Subpart C (15.247:2015)
Test Method	:	ANSI C63.10: 2013
Conclusions	:	**PASS**
		In the configuration tested, the EUT complied with the standards specified above, The EUT technically complies with the FCC and IC requirements
Test/Witness Engineer	:	WAN SU
Approved& Authorized	:	Ray Li

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in the report.

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1. General Information about EUT

1.1 Client Information

Applicant	:	CAMERA2000 LIMITED
Address	:	Room 16E, B block, World Trade Plaza, Fuhong Road, Fu Tian District, Shenzhen, China
Manufacturer	:	CAMERA2000 LIMITED
Address	:	Room 16E, B block, World Trade Plaza, Fuhong Road, Fu Tian District, Shenzhen, China

1.2 General Description of EUT (Equipment Under Test)

EUT Name	:	Camera	
Models No.	:	RunCam2, RunCam2S, RunCam*, SKY*, PZ0420*(* represents 18-digit characters, and each character can be anything ranging from 0 to 9, A to Z, and symbols like “- “or “space” and different product models. And * is targeted at different sales territories, sales regions, sales methods, varied client groups, different market positioning and different product colors, and won’t affect the product safety and electromagnetic compatibility)	
Model Difference	:	All models are identical in the same PCB layout, interior structure and electrical circuits, the only difference is model name for commercial purpose.	
Product Description	:	Operation Frequency:	802.11b/g/n(HT20): 2412MHz~2462MHz 802.11n(HT40): 2422MHz~2452MHz
		Number of Channel:	802.11b/g/n(HT20): 11 channels **See Note 3** 802.11n(HT40): 7 channels **See Note 3**
		Max Peak Output Power:	802.11b: 9.16 dBm 802.11g: 9.08 dBm 802.11n (HT20): 9.11 dBm 802.11n (HT40): 9.12 dBm
		Antenna Gain:	0.44 dBi (PCB Antenna)
		Modulation Type:	802.11b: DSSS (CCK, DQPSK, DBPSK) 802.11g/n: OFDM(64QAM, 16QAM, QPSK, BPSK)
Power Supply	:	DC Voltage supplied from Host System by USB cable. DC power by Li-ion Battery.	
Power Rating	:	DC 5.0V by USB cable. DC 3.7V 850mAh Li-ion Battery.	
Connecting I/O Port(S)	:	Please refer to the User's Manual。	

Note:

(1) This Test Report is FCC Part 15.247 for 802.11b/g/n, the test procedure follows the FCC KDB 558074 D01 DTS Meas Guidance v03r03.

(2) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

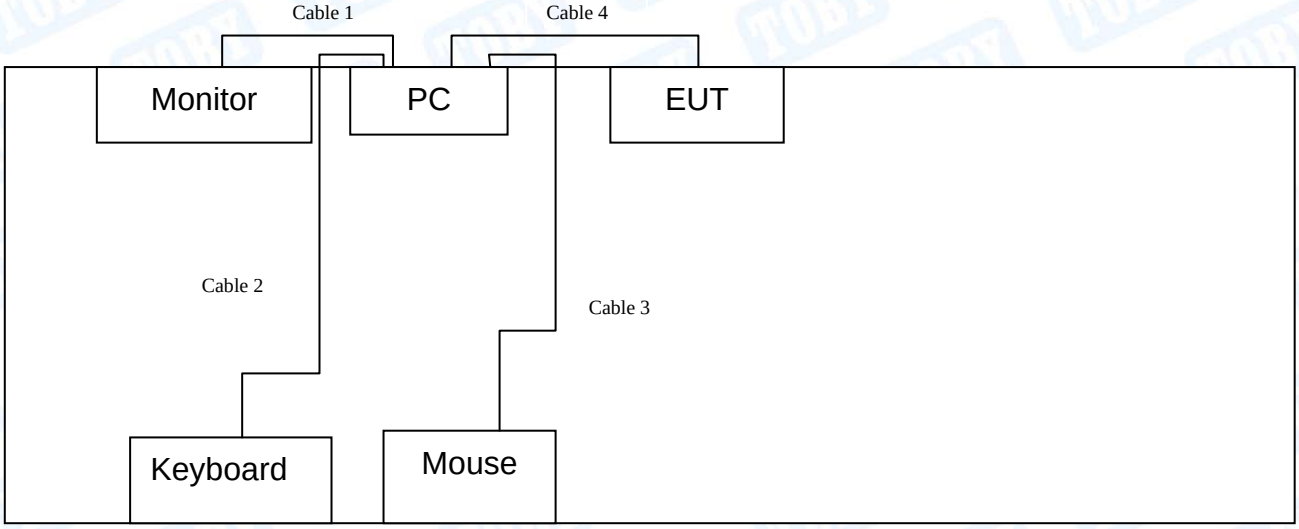
(3) Channel List:

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	**2412**	05	2432	09	2452
02	2417	**06**	**2437**	10	2457
03	2422	07	2442	**11**	**2462**
04	2427	08	2447		
Note:CH 01~CH 11 for 802.11b/g/n(HT20) CH 03~CH 09 for 802.11n(HT40)					

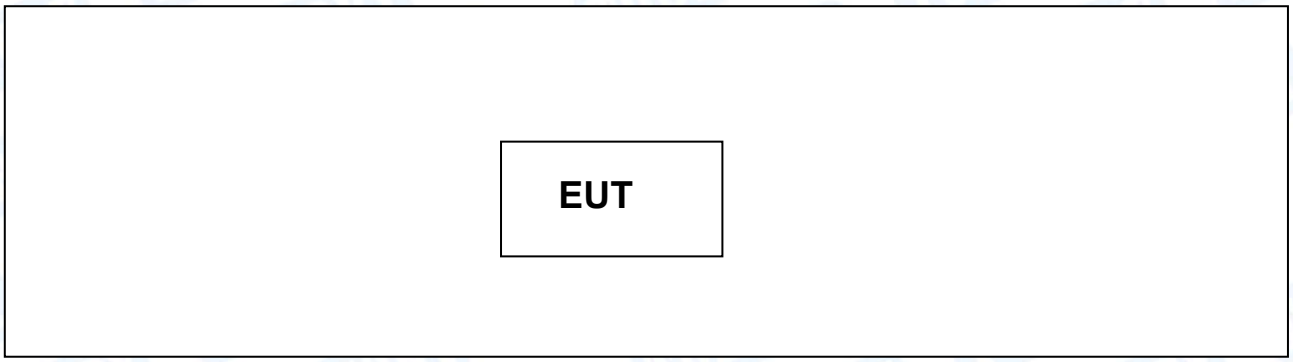
(4) The Antenna information about the equipment is provided by the applicant.

1.3 Block Diagram Showing the Configuration of System Tested

USB Charging with TX Mode



TX Mode



1.4 Description of Support Units

Equipment Information				
Name	**Model**	**FCC ID/DOC**	**Manufacturer**	**Used "√"**
LCD Monitor	E170Sc	DOC	DELL	√
PC	OPTIPLEX380	DOC	DELL	√
Keyboard	L100	DOC	DELL	√
Mouse	M-UARDEL7	DOC	DELL	√
Cable Information				
Number	**Shielded Type**	**Ferrite Core**	**Length**	**Note**
Cable 1	YES	YES	1.5M	
Cable 2	YES	YES	1.5M	
Cable 3	YES	NO	1.5M	
Cable 4	YES	NO	0.25M	**Provided by the applicant**

1.5 Description of Test Mode

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned follow was evaluated respectively.

For Conducted Test	
Final Test Mode	**Description**
Mode 1	USB Charging with TX B Mode

For Radiated Test	
Final Test Mode	**Description**
Mode 2	TX Mode B Mode Channel 01/06/11
Mode 3	TX Mode G Mode Channel 01/06/11
Mode 4	TX Mode N(HT20) Mode Channel 01/06/11
Mode 5	TX Mode N(HT40) Mode Channel 03/06/09

Note:

(1) For all test, we have verified the construction and function in typical operation. And all the test modes were carried out with the EUT in transmitting operation in maximum power with

all kinds of data rate.

According to ANSI C63.10 standards, the measurements are performed at the highest, middle, lowest available channels, and the worst case data rate as follows:

802.11b Mode: CCK (1 Mbps)
802.11g Mode: OFDM (6 Mbps)
802.11n (HT20) Mode: MCS 0 (6.5 Mbps)
802.11n (HT40) Mode: MCS 0 (13 Mbps)

(2) During the testing procedure, the continuously transmitting with the maximum power mode was programmed by the customer.

(3) The EUT is considered a mobile unit; in normal use it was positioned on X-plane. The worst case was found positioned on X-plane. Therefore only the test data of this X-plane was used for radiated emission measurement test.

1.6 Description of Test Software Setting

During testing channel& Power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product power parameters of WLAN.

Test Software Version	**SecureCRT**		
Channel	**CH 01**	**CH 06**	**CH 11**
IEEE 802.11b DSSS	25	24	23
IEEE 802.11g OFDM	29	28	27
IEEE 802.11n (HT20)	28	27	26
	CH 03	**CH 06**	**CH 09**
IEEE 802.11n (HT40)	29	28	28

1.7 Measurement Uncertainty

The reported uncertainty of measurement y ± U, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95 %.

Test Item	Parameters	Expanded Uncertainty (U_{Lab})
Conducted Emission	Level Accuracy: 9kHz~150kHz 150kHz to 30MHz	 ±3.42 dB ±3.42 dB
Radiated Emission	Level Accuracy: 9kHz to 30 MHz	±4.60 dB
Radiated Emission	Level Accuracy: 30MHz to 1000 MHz	±4.40 dB
Radiated Emission	Level Accuracy: Above 1000MHz	±4.20 dB

1.8 Test Facility

The testing report were performed by the Shenzhen Toby Technology Co., Ltd., in their facilities located at 1A/F., Bldg.6, Yusheng Industrial Zone, The National Road No.107 Xixiang Section 467, Xixiang, Bao'an, Shenzhen, Guangdong, China. At the time of testing, the following bodies accredited the Laboratory:

CNAS (L5813)

The Laboratory has been accredited by CNAS to ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories for the competence in the field of testing. And the Registration No.: CNAS L5813.

FCC List No.: (811562)

The Laboratory is listed in the United States of American Federal Communications Commission (FCC), and the registration number is 811562.

IC Registration No.: (11950A-1)

The Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing. The site registration: Site# 11950A-1.

May 22, 2014 certificated by TUV Rheinland(China) Co., Ltd. with TUV certificate No.: UA 50282953 0001 and report No.: 17026822 002. The certificate is valid until the next scheduled audit or up to 18 months, at the discretion of TUV Rhineland.

2. Test Summary

FCC Part 15 Subpart C(15.247)/ RSS 247 Issue 1				
Standard Section		Test Item	Judgment	Remark
FCC	IC			
15.203	/	Antenna Requirement	PASS	N/A
15.207	RSS-GEN 7.2.4	Conducted Emission	PASS	N/A
15.205	RSS-GEN 7.2.2	Restricted Bands	PASS	N/A
15.247(a)(2)	RSS 247 5.2 (1)	6dB Bandwidth	PASS	N/A
15.247(b)	RSS 247 5.4 (4)	Peak Output Power	PASS	N/A
15.247(e)	RSS 247 5.2 (2)	Power Spectral Density	PASS	N/A
15.247(d)	RSS 247 5.5	Transmitter Radiated Spurious Emission	PASS	N/A
Note: "/" for no requirement for this test item. N/A is an abbreviation for Not Applicable.				

3. Test Equipment

Conducted Emission Test					
Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Last Cal.**	**Cal. Due Date**
EMI Test Receiver	Rohde & Schwarz	ESCI	100321	Aug. 07, 2015	Aug. 06, 2016
RF Switching Unit	Compliance Direction Systems Inc	RSU-A4	34403	Aug. 07, 2015	Aug. 06, 2016
AMN	SCHWARZBECK	NNBL 8226-2	8226-2/164	Aug. 07, 2015	Aug. 06, 2016
LISN	Rohde & Schwarz	ENV216	101131	Aug. 07, 2015	Aug. 06, 2016
Radiation Emission Test					
Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Last Cal.**	**Cal. Due Date**
Spectrum Analyzer	Agilent	E4407B	MY45106456	Aug. 29, 2015	Aug. 28, 2016
EMI Test Receiver	Rohde & Schwarz	ESCI	100010/007	Aug. 07, 2015	Aug. 06, 2016
Bilog Antenna	ETS-LINDGREN	3142E	00117537	Mar. 28, 2015	Mar. 27, 2016
Bilog Antenna	ETS-LINDGREN	3142E	00117542	Mar. 28, 2015	Mar. 27, 2016
Horn Antenna	ETS-LINDGREN	3117	00143207	Mar. 28, 2015	Mar. 27, 2016
Horn Antenna	ETS-LINDGREN	3117	00143209	Mar. 28, 2015	Mar. 27, 2016
Pre-amplifier	Sonoma	310N	185903	Mar. 28, 2015	Mar. 27, 2016
Pre-amplifier	HP	8447B	3008A00849	Mar. 28, 2015	Mar. 27, 2016
Cable	HUBER+SUHNER	100	SUCOFLEX	Mar. 28, 2015	Mar. 27, 2016
Positioning Controller	ETS-LINDGREN	2090	N/A	N/A	N/A

4. Conducted Emission Test

4.1 Test Standard and Limit

4.1.1Test Standard

FCC Part 15.207

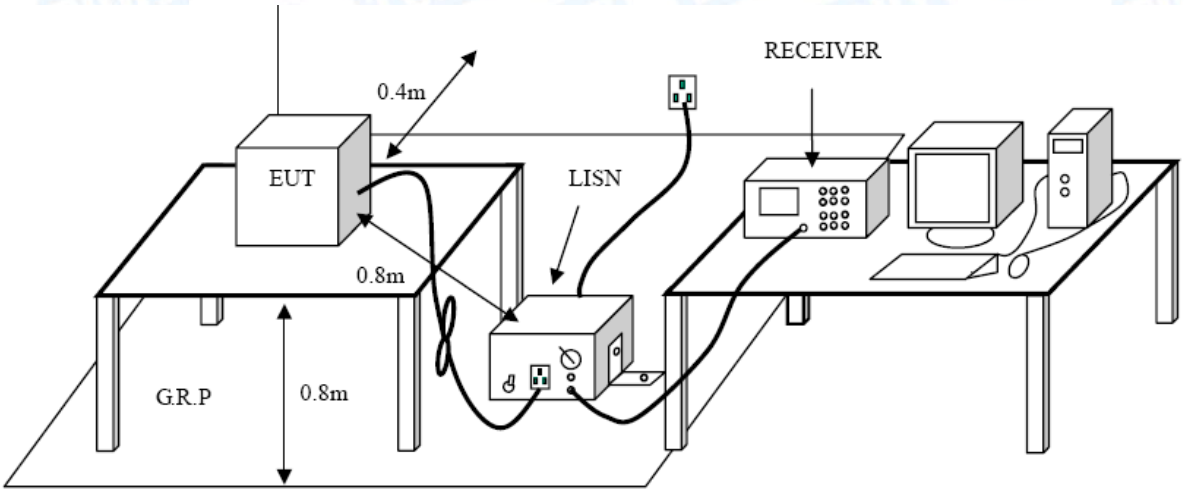
4.1.2 Test Limit

Conducted Emission Test Limit

Frequency	Maximum RF Line Voltage (dBμV)	
	Quasi-peak Level	Average Level
150kHz~500kHz	66 ~ 56 *	56 ~ 46 *
500kHz~5MHz	56	46
5MHz~30MHz	60	50

Notes:
(1) *Decreasing linearly with logarithm of the frequency.
(2) The lower limit shall apply at the transition frequencies.
(3) The limit decrease in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

4.2 Test Setup



4.3 Test Procedure

The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.

Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.

I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.

LISN at least 80 cm from nearest part of EUT chassis.

The bandwidth of EMI test receiver is set at 9kHz, and the test frequency band is from 0.15MHz to 30MHz.

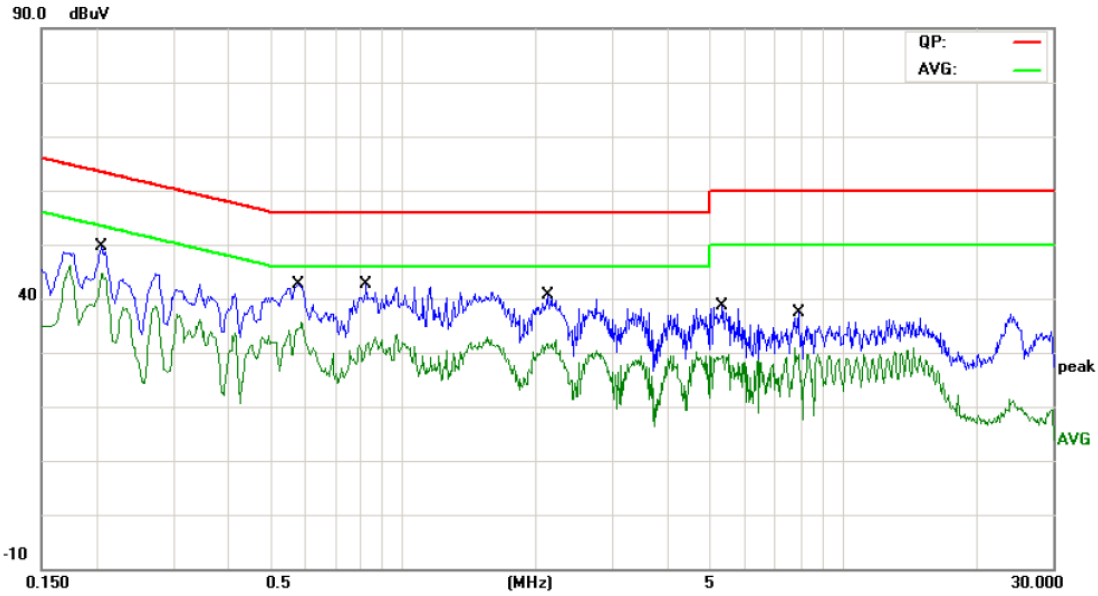
4.4 EUT Operating Mode

Please refer to the description of test mode.

4.5 Test Data

Please see the next page.

EUT:	Camera	**Model Name :**	RunCam2
Temperature:	25 ℃	**Relative Humidity:**	55%
Test Voltage:	AC 120V/60Hz		
Terminal:	Line		
Test Mode:	USB Charging with TX B Mode		
Remark:	Only worse case is reported		

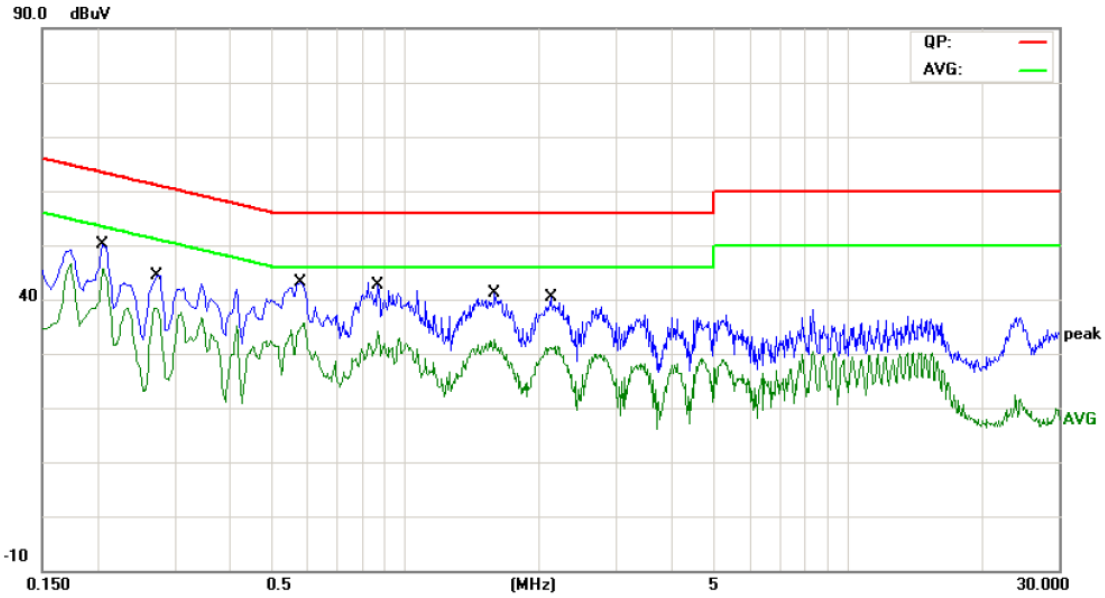


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.2060	37.93	10.02	47.95	63.36	-15.41	QP
2	*	0.2060	34.99	10.02	45.01	53.36	-8.35	AVG
3		0.5780	31.82	10.06	41.88	56.00	-14.12	QP
4		0.5780	24.60	10.06	34.66	46.00	-11.34	AVG
5		0.8220	28.85	10.10	38.95	56.00	-17.05	QP
6		0.8220	21.47	10.10	31.57	46.00	-14.43	AVG
7		2.1220	25.11	10.06	35.17	56.00	-20.83	QP
8		2.1220	20.64	10.06	30.70	46.00	-15.30	AVG
9		5.3060	22.89	9.98	32.87	60.00	-27.13	QP
10		5.3060	18.29	9.98	28.27	50.00	-21.73	AVG
11		7.9060	20.91	10.09	31.00	60.00	-29.00	QP
12		7.9060	18.27	10.09	28.36	50.00	-21.64	AVG

*:Maximum data x:Over limit !:over margin

Emission Level= Read Level+ Correct Factor

EUT:	Camera	**Model Name :**	RunCam2
Temperature:	25 ℃	**Relative Humidity:**	55%
Test Voltage:	AC 120V/60Hz		
Terminal:	Neutral		
Test Mode:	USB Charging with TX B Mode		
Remark:	Only worse case is reported		

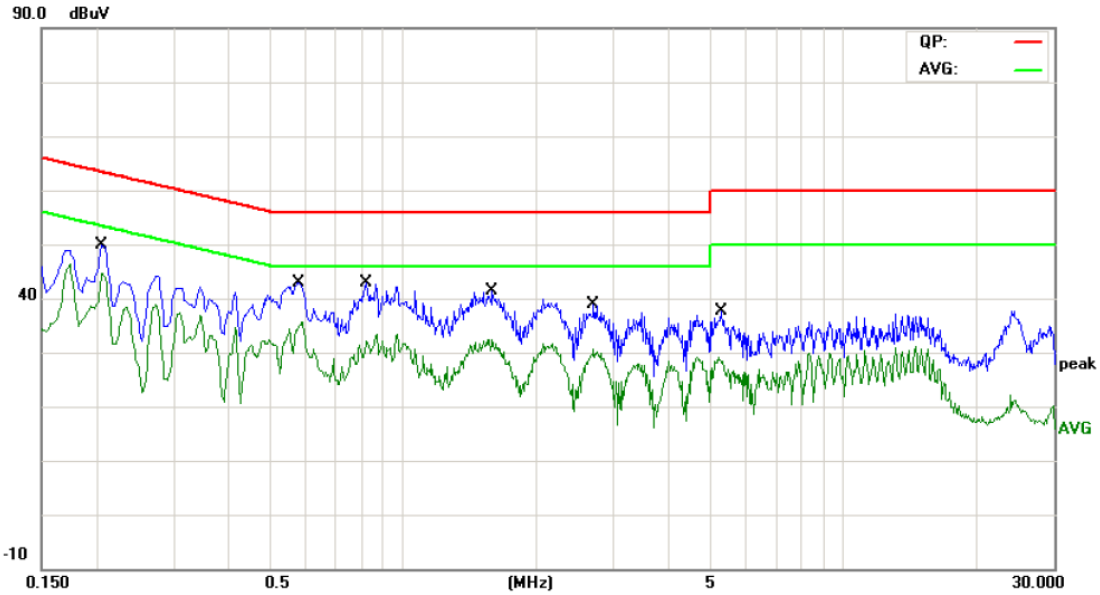


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.2060	37.99	10.12	48.11	63.36	-15.25	QP
2	*	0.2060	34.99	10.12	45.11	53.36	-8.25	AVG
3		0.2740	33.10	10.10	43.20	60.99	-17.79	QP
4		0.2740	28.11	10.10	38.21	50.99	-12.78	AVG
5		0.5780	31.99	10.02	42.01	56.00	-13.99	QP
6		0.5780	24.86	10.02	34.88	46.00	-11.12	AVG
7		0.8660	28.76	10.10	38.86	56.00	-17.14	QP
8		0.8660	23.17	10.10	33.27	46.00	-12.73	AVG
9		1.5859	27.31	10.10	37.41	56.00	-18.59	QP
10		1.5859	22.27	10.10	32.37	46.00	-13.63	AVG
11		2.1220	25.42	10.06	35.48	56.00	-20.52	QP
12		2.1220	20.95	10.06	31.01	46.00	-14.99	AVG

*:Maximum data x:Over limit !:over margin

Emission Level= Read Level+ Correct Factor

EUT:	Camera	**Model Name :**	RunCam2
Temperature:	25 ℃	**Relative Humidity:**	55%
Test Voltage:	AC 240V/60Hz		
Terminal:	Line		
Test Mode:	USB Charging with TX B Mode		
Remark:	Only worse case is reported		

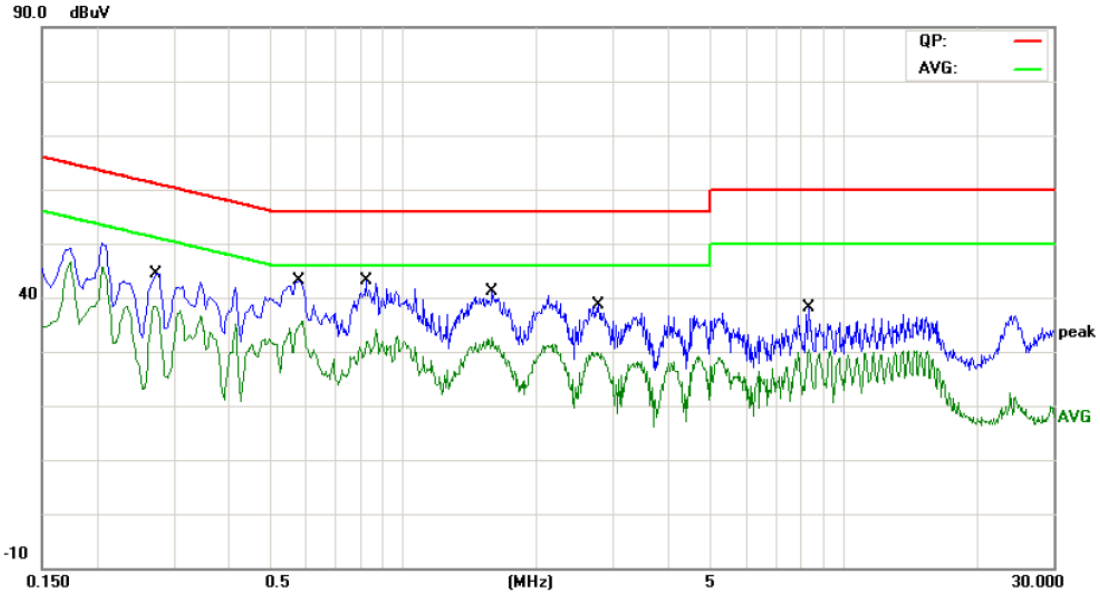


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.2060	37.79	10.12	47.91	63.36	-15.45	QP
2	*	0.2060	34.79	10.12	44.91	53.36	-8.45	AVG
3		0.5780	32.04	10.02	42.06	56.00	-13.94	QP
4		0.5780	24.91	10.02	34.93	46.00	-11.07	AVG
5		0.8180	29.05	10.08	39.13	56.00	-16.87	QP
6		0.8180	21.39	10.08	31.47	46.00	-14.53	AVG
7		1.5900	27.05	10.10	37.15	56.00	-18.85	QP
8		1.5900	21.94	10.10	32.04	46.00	-13.96	AVG
9		2.7020	24.29	10.06	34.35	56.00	-21.65	QP
10		2.7020	20.17	10.06	30.23	46.00	-15.77	AVG
11		5.2500	21.91	10.06	31.97	60.00	-28.03	QP
12		5.2500	18.17	10.06	28.23	50.00	-21.77	AVG

*:Maximum data x:Over limit !:over margin

Emission Level= Read Level+ Correct Factor

EUT:	Camera	**Model Name :**	RunCam2
Temperature:	25 ℃	**Relative Humidity:**	55%
Test Voltage:	AC 240V/60Hz		
Terminal:	Neutral		
Test Mode:	USB Charging with TX B Mode		
Remark:	Only worse case is reported		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.2740	32.67	10.09	42.76	60.99	-18.23	QP
2		0.2740	28.32	10.09	38.41	50.99	-12.58	AVG
3		0.5780	31.99	10.02	42.01	56.00	-13.99	QP
4	*	0.5780	24.86	10.02	34.88	46.00	-11.12	AVG
5		0.8180	28.84	10.08	38.92	56.00	-17.08	QP
6		0.8180	21.30	10.08	31.38	46.00	-14.62	AVG
7		1.5859	27.49	10.10	37.59	56.00	-18.41	QP
8		1.5859	22.32	10.10	32.42	46.00	-13.58	AVG
9		2.7659	22.87	10.06	32.93	56.00	-23.07	QP
10		2.7659	19.52	10.06	29.58	46.00	-16.42	AVG
11		8.3420	23.39	10.10	33.49	60.00	-26.51	QP
12		8.3420	19.91	10.10	30.01	50.00	-19.99	AVG

*:Maximum data x:Over limit !:over margin

Emission Level= Read Level+ Correct Factor

5. Radiated Emission Test

5.1 Test Standard and Limit

5.1.1 Test Standard

FCC Part 15.209

5.1.2 Test Limit

Radiated Emission Limits (9kHz~1000MHz)

Frequency (MHz	Field Strength (microvolt/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

Radiated Emission Limit (Above 1000MHz)

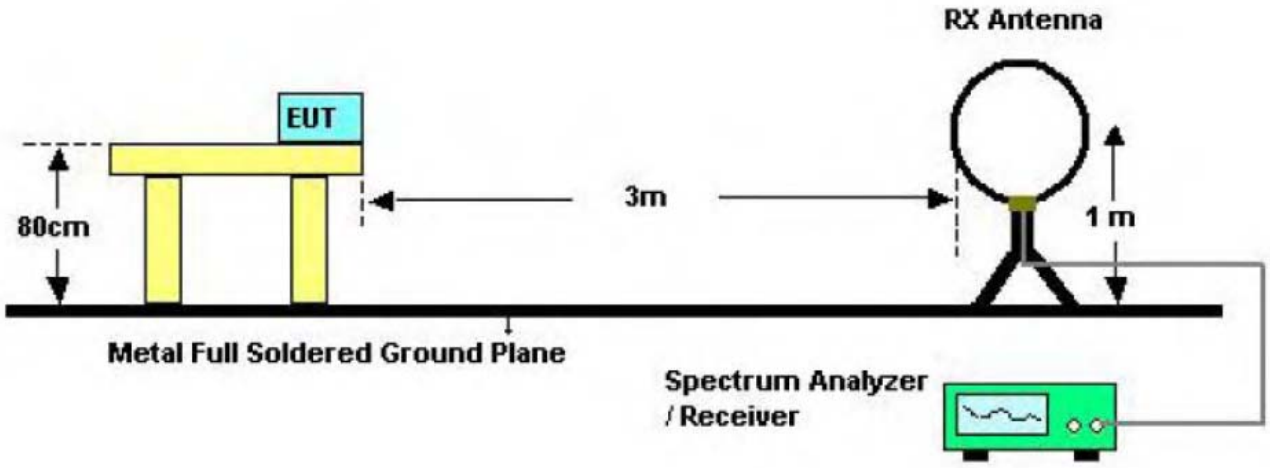
Frequency (MHz)	Class A (dBuV/m)(at 3 M)		Class B (dBuV/m)(at 3 M)	
	Peak	Average	Peak	Average
Above 1000	80	60	74	54

Note:

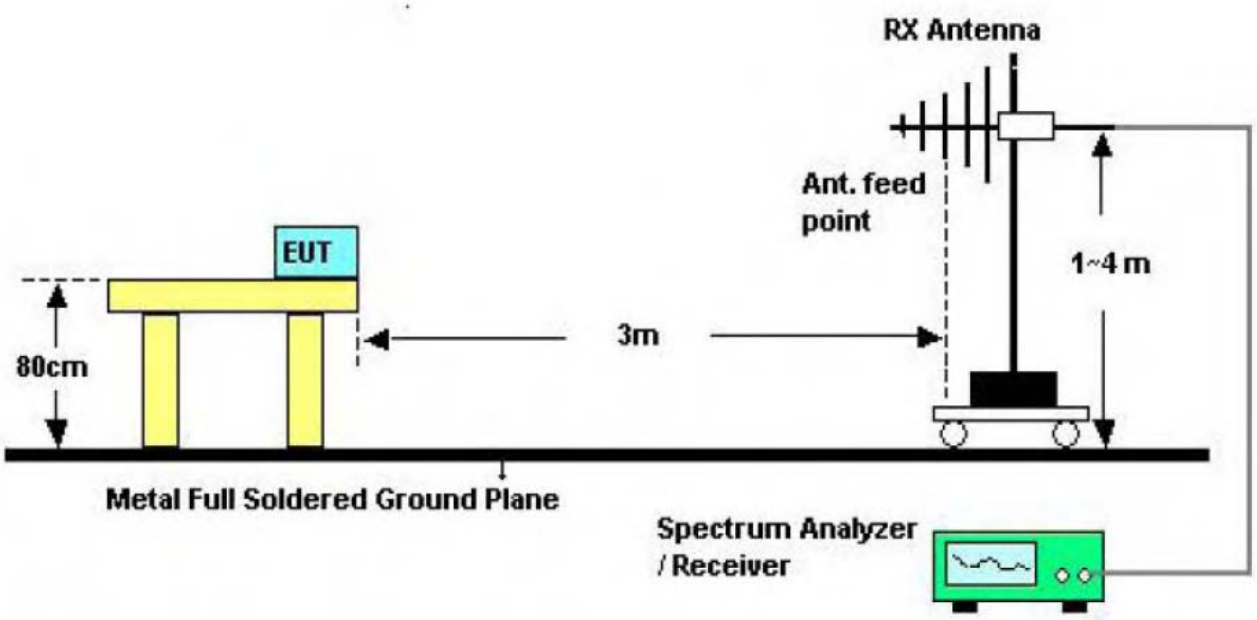
(1) The tighter limit applies at the band edges.

(2) Emission Level(dBuV/m)=20log Emission Level(uV/m)

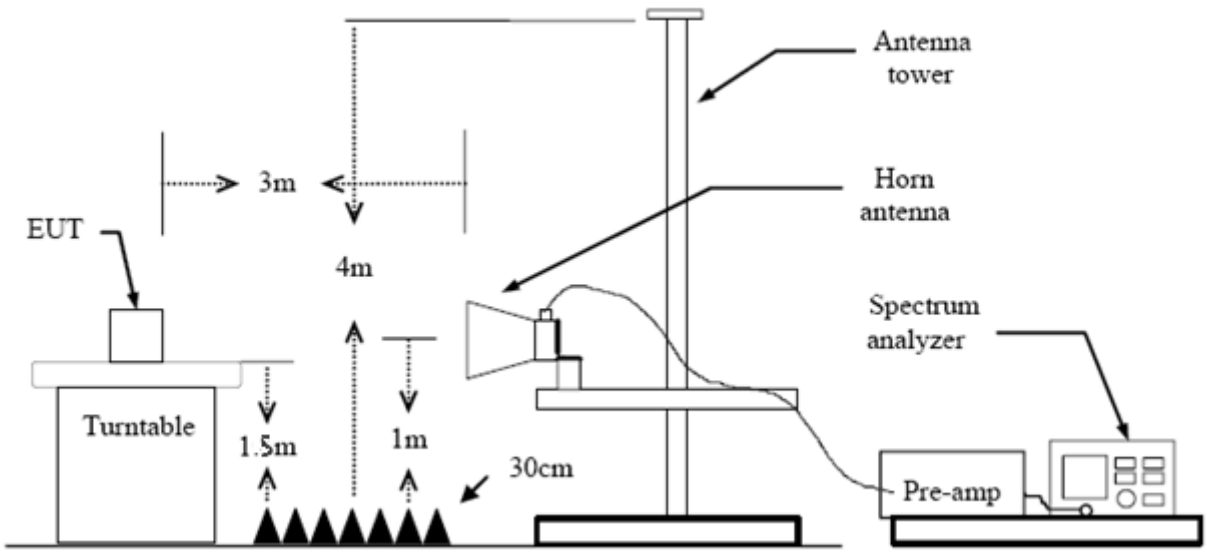
5.2 Test Setup



Below 30MHz Test Setup



Below 1000MHz Test Setup



Above 1GHz Test Setup

5.3 Test Procedure

(1) The measuring distance of 3m shall be used for measurements at frequency up to 1GHz and above 1 GHz. The EUT was placed on a rotating 0.8m high above ground, the table was rotated 360 degrees to determine the position of the highest radiation.

(2) Measurements at frequency above 1GHz. The EUT was placed on a rotating 1.5m high above the ground. RF absorbers covered the ground plane with a minimum area of 3.0m by 3.0m between the EUT and measurement receiver antenna. The RF absorber shall not exceed 30cm in high above the conducting floor. The table was rotated 360 degrees to determine the position of the highest radiation.

(3) The Test antenna shall vary between 1m and 4m, Both Horizontal and Vertical antenna are set to make measurement.

(4) The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.

(5) If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit Bellow 1 GHz, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed. But the Peak Value and average value both need to comply with applicable limit above 1 GHz.

(6) Testing frequency range below 1GHz the measuring instrument use VBW=120 kHz with Quasi-peak detection.

(7) Testing frequency range above 1GHz the measuring instrument use RBW=1 MHz and VBW=3 MHz with Peak Detector for Peak Values, and use RBW=1 MHz and VBW=10 Hz with Peak Detector for Average Values.

(8) For the actual test configuration, please see the test setup photo.

5.4 EUT Operating Condition

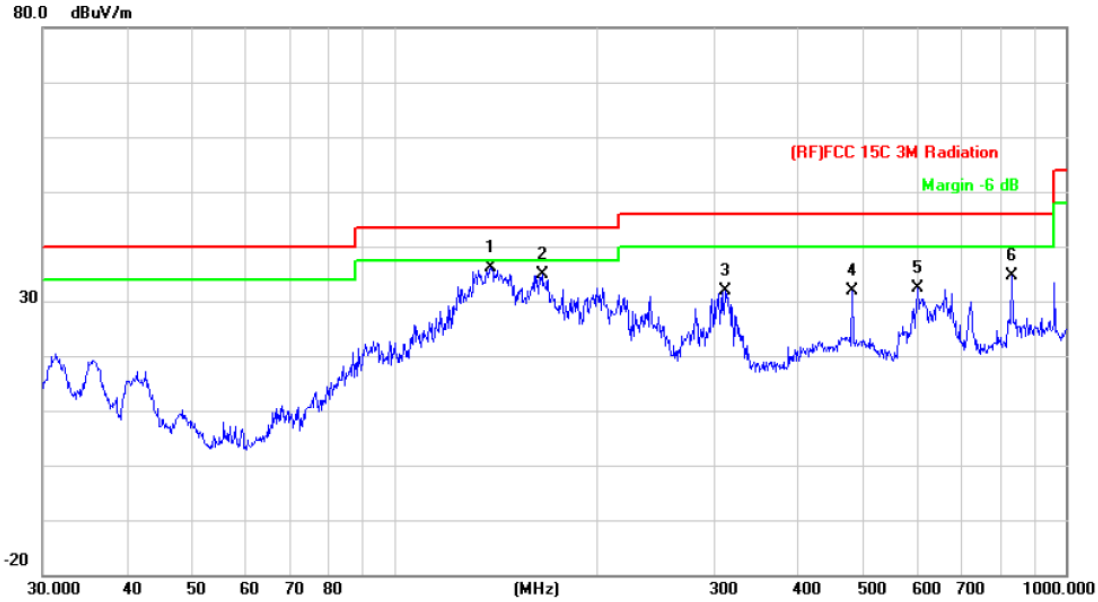
The Equipment Under Test was set to Continual Transmitting in maximum power.

5.5 Test Data

Remark: During testing above 1GHz the measuring instrument use RBW=1 MHz and VBW=3 MHz with Peak Detector for Peak Values, and use RBW=1 MHz and VBW=10 Hz with Peak Detector for Average Values.

Test data please refer the following pages.

EUT:	Camera	**Model:**	RunCam2
Temperature:	25 ℃	**Relative Humidity:**	55%
Test Voltage:	DC 3.7V		
Ant. Pol.	Horizontal		
Test Mode:	TX B Mode 2412MHz		
Remark:	Only worse case is reported		

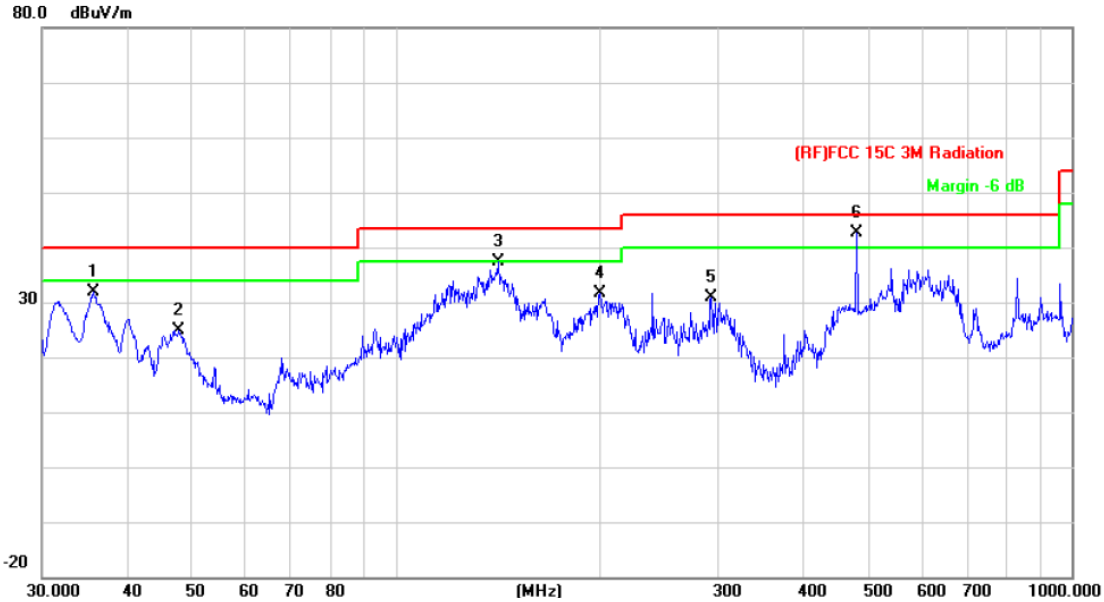


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	139.3611	58.01	-22.00	36.01	43.50	-7.49	peak
2		166.0680	55.73	-20.91	34.82	43.50	-8.68	peak
3		311.0867	48.57	-16.66	31.91	46.00	-14.09	peak
4		480.5276	43.53	-11.62	31.91	46.00	-14.09	peak
5		601.4265	41.87	-9.41	32.46	46.00	-13.54	peak
6		830.4002	41.06	-6.38	34.68	46.00	-11.32	peak

*:Maximum data x:Over limit !:over margin

Emission Level= Read Level+ Correct Factor

EUT:	Camera	**Model:**	RunCam2
Temperature:	25 ℃	**Relative Humidity:**	55%
Test Voltage:	DC 3.7V		
Ant. Pol.	Vertical		
Test Mode:	TX B Mode 2412MHz		
Remark:	Only worse case is reported		

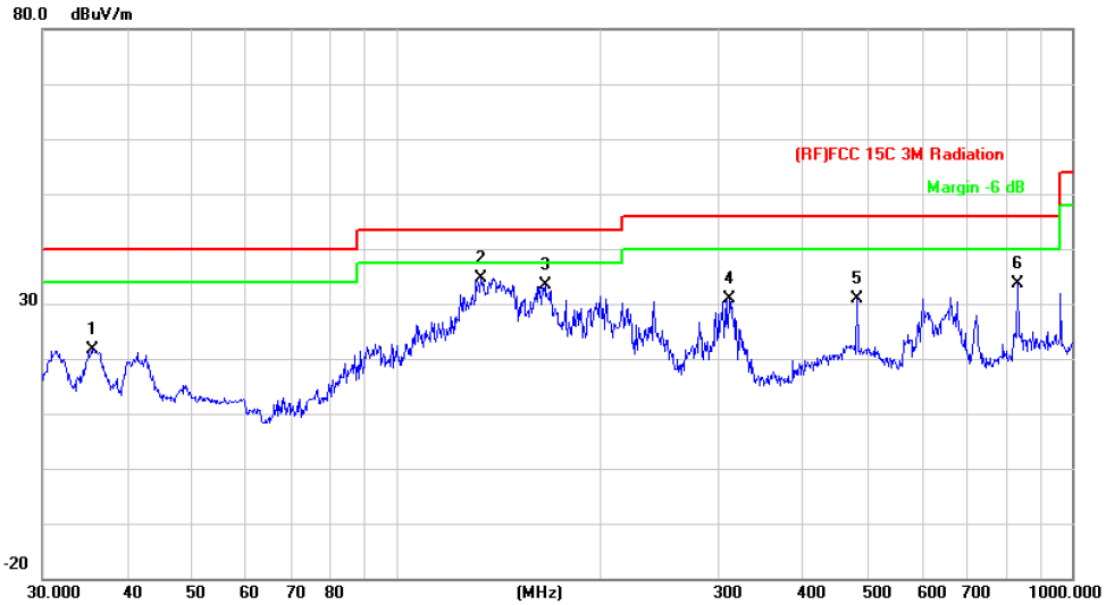


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		35.7490	49.41	-17.53	31.88	40.00	-8.12	peak
2		47.8260	48.28	-23.48	24.80	40.00	-15.20	peak
3		141.8262	59.27	-21.84	37.43	43.50	-6.07	peak
4		200.6880	51.97	-20.36	31.61	43.50	-11.89	peak
5		293.0842	48.15	-17.22	30.93	46.00	-15.07	peak
6	*	480.5276	54.20	-11.62	42.58	46.00	-3.42	peak

*:Maximum data x:Over limit !:over margin

Emission Level= Read Level+ Correct Factor

EUT:	Camera	**Model:**	RunCam2
Temperature:	25 ℃	**Relative Humidity:**	55%
Test Voltage:	DC 3.7V		
Ant. Pol.	Horizontal		
Test Mode:	TX B Mode 2437MHz		
Remark:	Only worse case is reported		

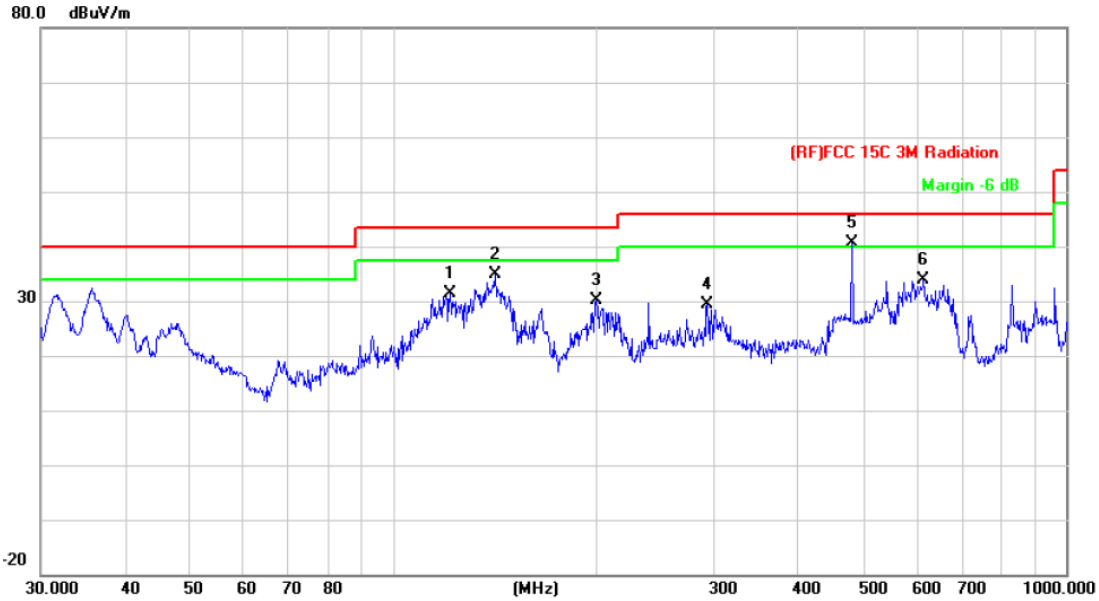


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		35.4992	38.89	-17.37	21.52	40.00	-18.48	peak
2	*	133.6184	56.71	-22.10	34.61	43.50	-8.89	peak
3		166.0680	54.23	-20.91	33.32	43.50	-10.18	peak
4		311.0867	47.57	-16.66	30.91	46.00	-15.09	peak
5		480.5276	42.53	-11.62	30.91	46.00	-15.09	peak
6		830.4002	40.06	-6.38	33.68	46.00	-12.32	peak

*:Maximum data x:Over limit !:over margin

Emission Level= Read Level+ Correct Factor

EUT:	Camera	**Model:**	RunCam2
Temperature:	25 ℃	**Relative Humidity:**	55%
Test Voltage:	DC 3.7V		
Ant. Pol.	Vertical		
Test Mode:	TX B Mode 2437MHz		
Remark:	Only worse case is reported		

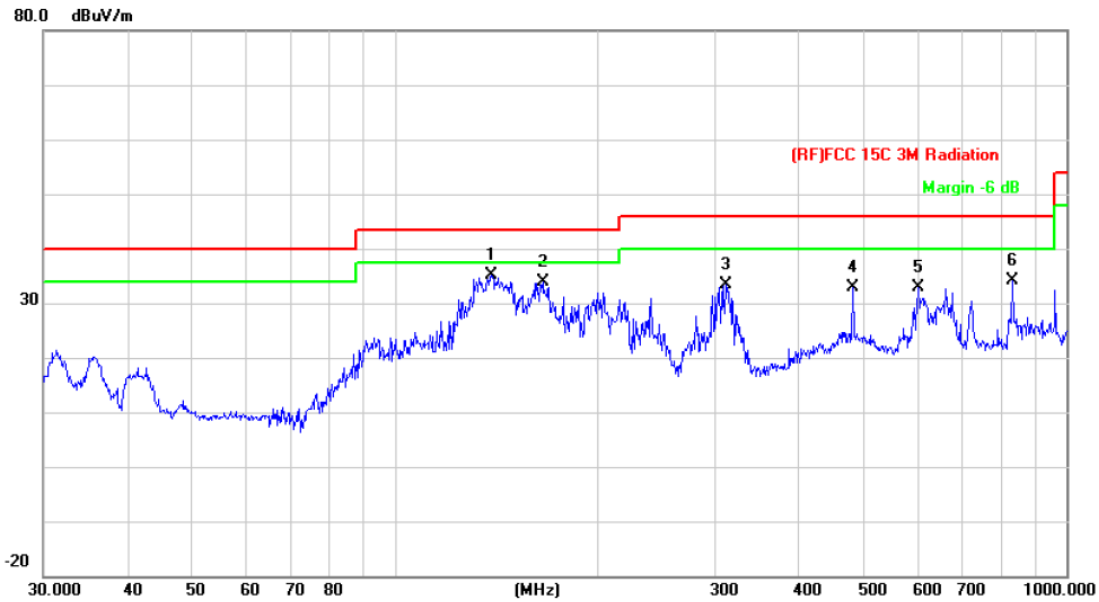


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		121.5485	53.73	-22.45	31.28	43.50	-12.22	peak
2		141.8262	56.77	-21.84	34.93	43.50	-8.57	peak
3		200.6879	50.47	-20.36	30.11	43.50	-13.39	peak
4		293.0842	46.65	-17.22	29.43	46.00	-16.57	peak
5	*	480.5276	52.20	-11.62	40.58	46.00	-5.42	peak
6		614.2142	42.80	-8.93	33.87	46.00	-12.13	peak

*:Maximum data x:Over limit !:over margin

Emission Level= Read Level+ Correct Factor

EUT:	Camera	**Model:**	RunCam2
Temperature:	25 ℃	**Relative Humidity:**	55%
Test Voltage:	DC 3.7V		
Ant. Pol.	Horizontal		
Test Mode:	TX B Mode 2462MHz		
Remark:	Only worse case is reported		

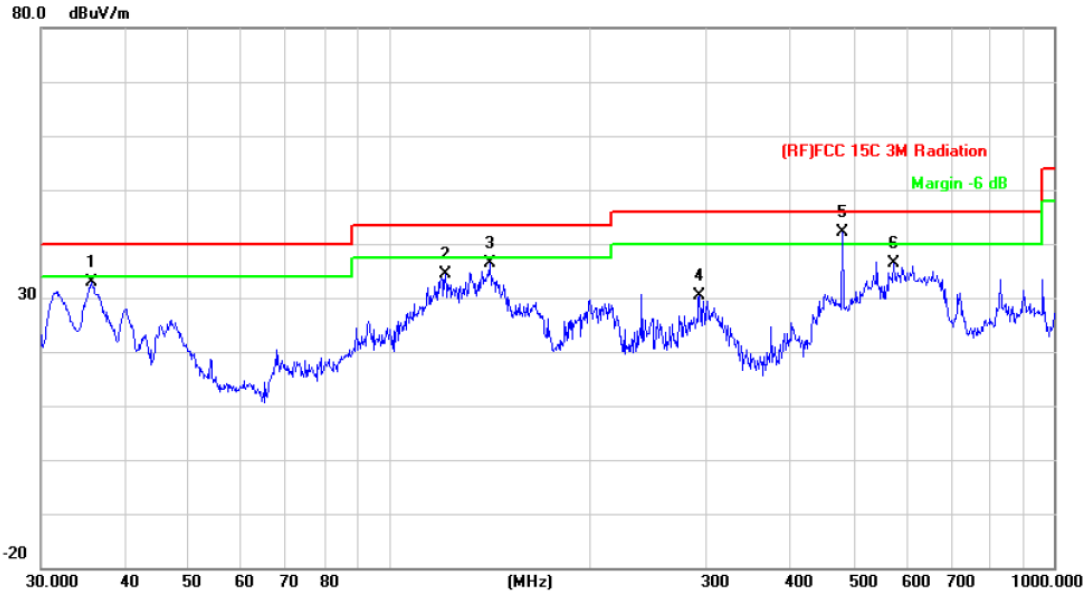


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	139.3609	57.01	-22.00	35.01	43.50	-8.49	peak
2		166.0680	54.73	-20.91	33.82	43.50	-9.68	peak
3		311.0867	50.07	-16.66	33.41	46.00	-12.59	peak
4		480.5276	44.53	-11.62	32.91	46.00	-13.09	peak
5		601.4265	42.37	-9.41	32.96	46.00	-13.04	peak
6		830.4002	40.56	-6.38	34.18	46.00	-11.82	peak

*:Maximum data x:Over limit !:over margin

Emission Level= Read Level+ Correct Factor

EUT:	Camera	**Model:**	RunCam2
Temperature:	25 ℃	**Relative Humidity:**	55%
Test Voltage:	DC 3.7V		
Ant. Pol.	Vertical		
Test Mode:	TX B Mode 2462MHz		
Remark:	Only worse case is reported		

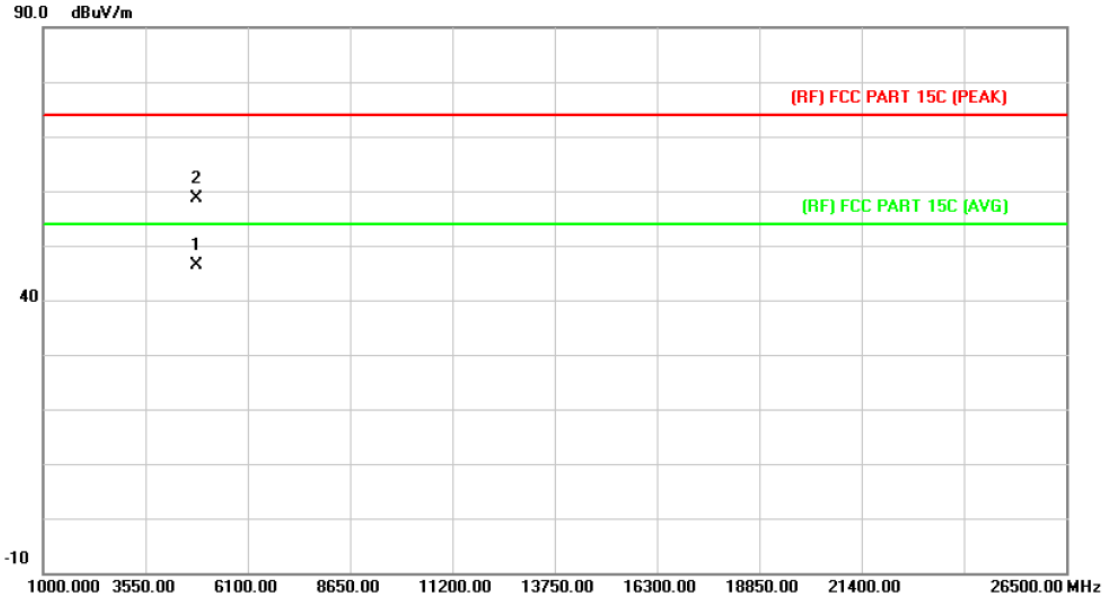


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		35.7490	50.41	-17.53	32.88	40.00	-7.12	peak
2		121.5485	56.73	-22.45	34.28	43.50	-9.22	peak
3		141.8262	58.27	-21.84	36.43	43.50	-7.07	peak
4		293.0842	47.65	-17.22	30.43	46.00	-15.57	peak
5	*	480.5276	53.70	-11.62	42.08	46.00	-3.92	peak
6		574.6258	46.43	-10.13	36.30	46.00	-9.70	peak

*:Maximum data x:Over limit !:over margin

Emission Level= Read Level+ Correct Factor

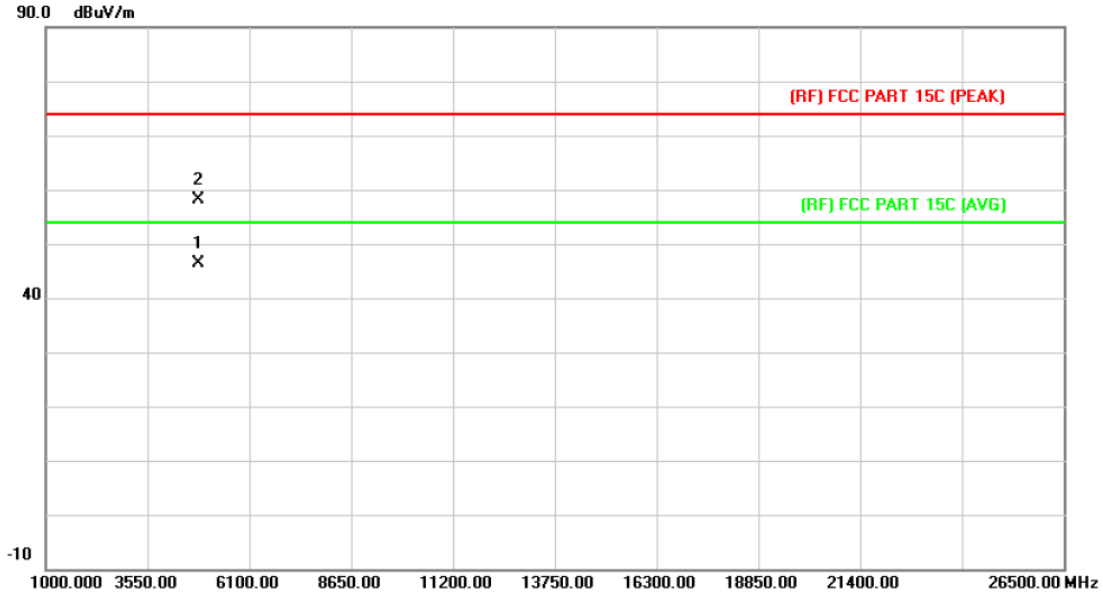
EUT:	Camera	**Model:**	RunCam2
Temperature:	25 ℃	**Relative Humidity:**	55%
Test Voltage:	DC 3.7V		
Ant. Pol.	Horizontal		
Test Mode:	TX B Mode 2412MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4823.888	32.92	13.56	46.48	54.00	-7.52	AVG
2		4824.414	45.12	13.56	58.68	74.00	-15.32	peak

Emission Level= Read Level+ Correct Factor

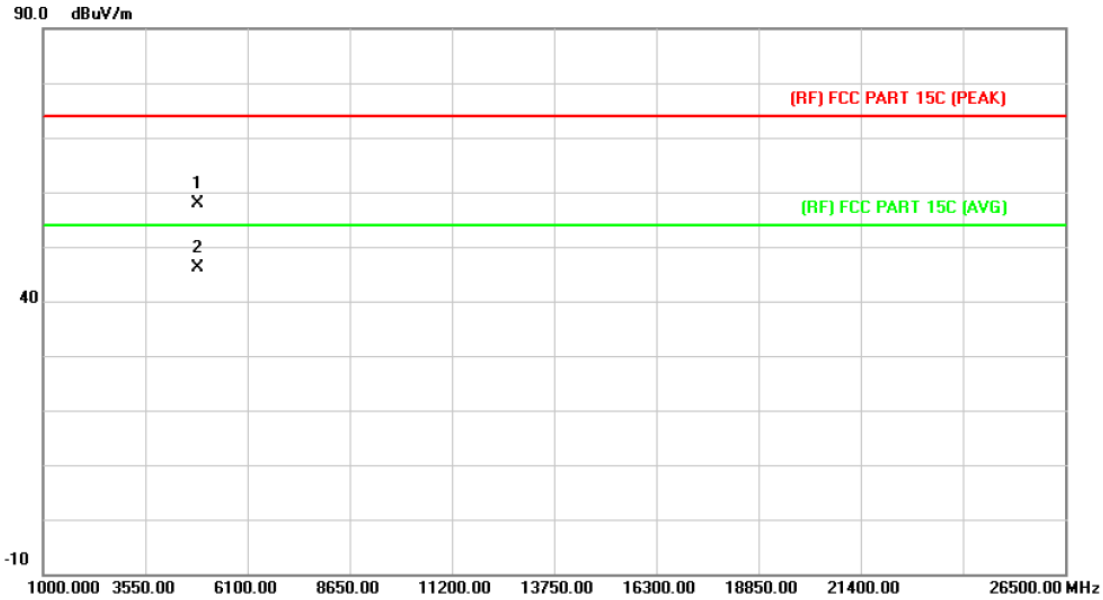
EUT:	Camera	**Model:**	RunCam2
Temperature:	25 ℃	**Relative Humidity:**	55%
Test Voltage:	DC 3.7V		
Ant. Pol.	Vertical		
Test Mode:	TX B Mode 2412MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4823.500	32.75	13.56	46.31	54.00	-7.69	AVG
2		4824.058	44.65	13.56	58.21	74.00	-15.79	peak

Emission Level= Read Level+ Correct Factor

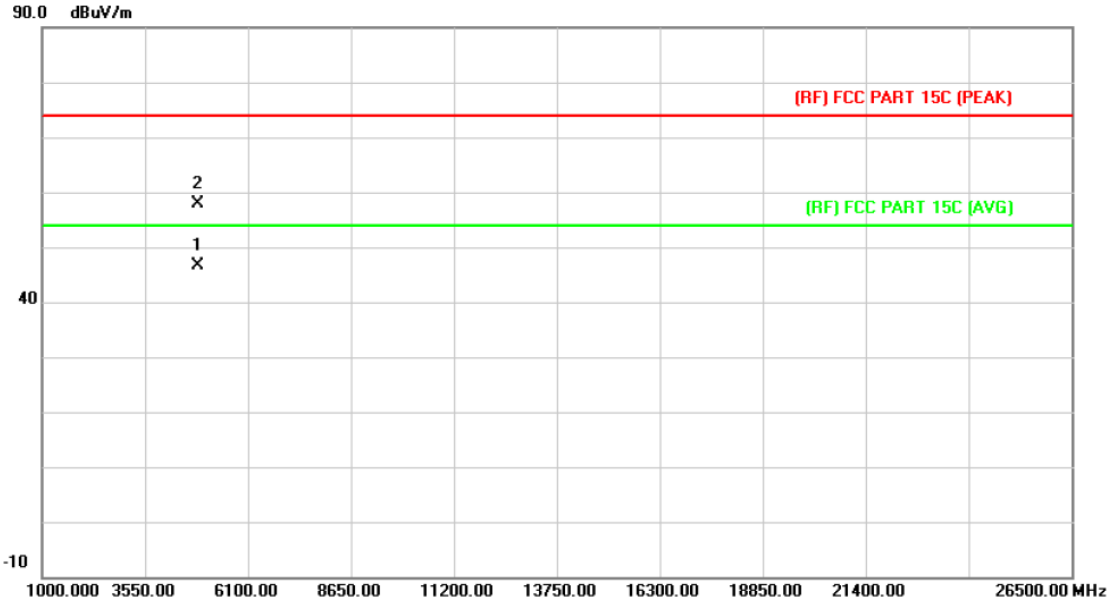
EUT:	Camera	**Model:**	RunCam2
Temperature:	25 ℃	**Relative Humidity:**	55%
Test Voltage:	DC 3.7V		
Ant. Pol.	Horizontal		
Test Mode:	TX B Mode 2437MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4873.784	44.12	13.86	57.98	74.00	-16.02	peak
2	*	4874.316	32.26	13.86	46.12	54.00	-7.88	AVG

Emission Level= Read Level+ Correct Factor

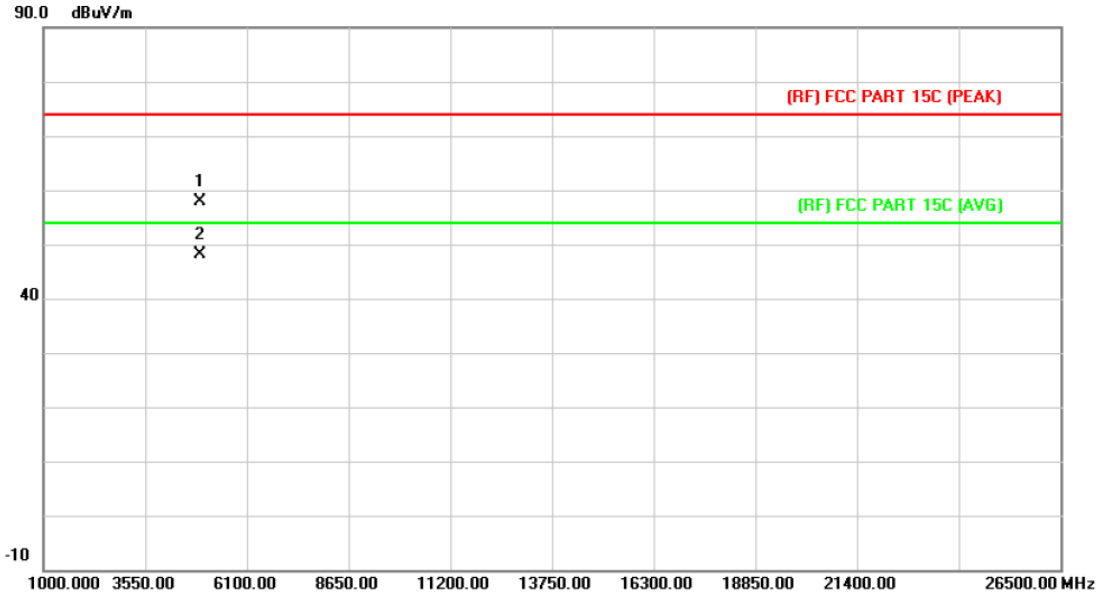
EUT:	Camera	**Model:**	RunCam2
Temperature:	25 ℃	**Relative Humidity:**	55%
Test Voltage:	DC 3.7V		
Ant. Pol.	Vertical		
Test Mode:	TX B Mode 2437MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4873.581	32.81	13.86	46.67	54.00	-7.33	AVG
2		4874.140	44.08	13.86	57.94	74.00	-16.06	peak

Emission Level= Read Level+ Correct Factor

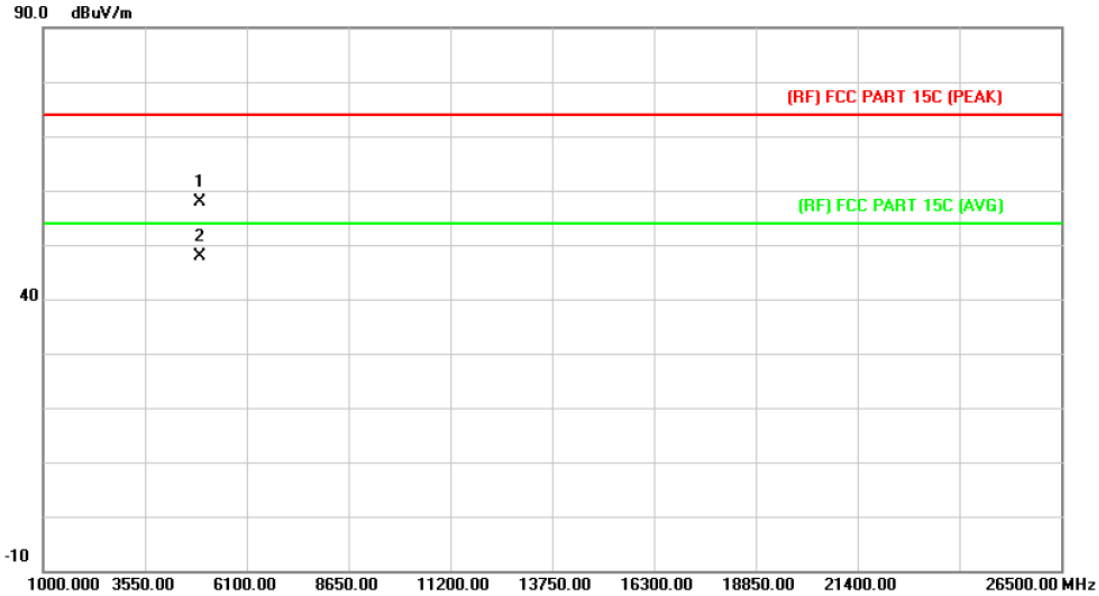
EUT:	Camera	**Model:**	RunCam2
Temperature:	25 ℃	**Relative Humidity:**	55%
Test Voltage:	DC 3.7V		
Ant. Pol.	Horizontal		
Test Mode:	TX B Mode 2462MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4924.247	43.68	14.15	57.83	74.00	-16.17	peak
2	*	4924.255	33.89	14.15	48.04	54.00	-5.96	AVG

Emission Level= Read Level+ Correct Factor

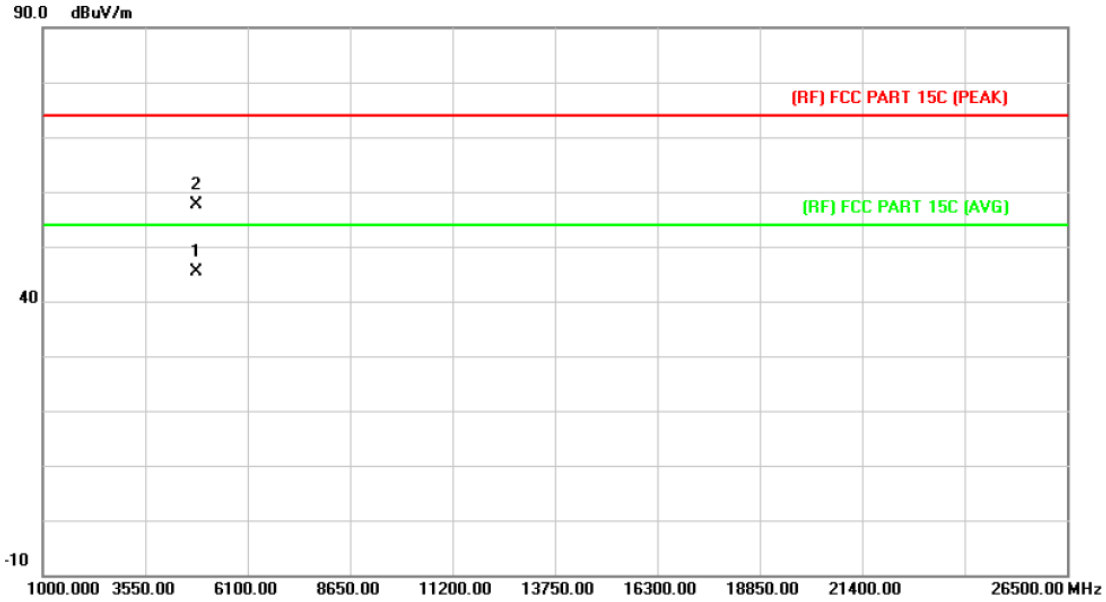
EUT:	Camera	**Model:**	RunCam2
Temperature:	25 ℃	**Relative Humidity:**	55%
Test Voltage:	DC 3.7V		
Ant. Pol.	Vertical		
Test Mode:	TX B Mode 2462MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4923.840	43.83	14.15	57.98	74.00	-16.02	peak
2	*	4924.357	33.71	14.15	47.86	54.00	-6.14	AVG

Emission Level= Read Level+ Correct Factor

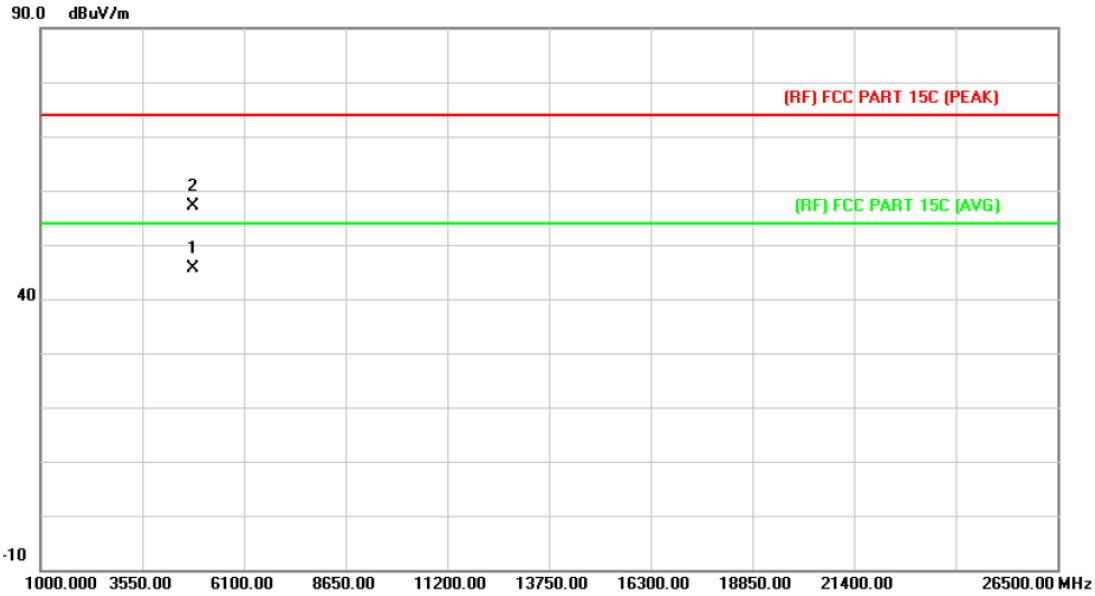
EUT:	Camera	**Model:**	RunCam2
Temperature:	25 ℃	**Relative Humidity:**	55%
Test Voltage:	DC 3.7V		
Ant. Pol.	Horizontal		
Test Mode:	TX G Mode 2412MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4823.674	31.75	13.56	45.31	54.00	-8.69	AVG
2		4824.374	44.12	13.56	57.68	74.00	-16.32	peak

Emission Level= Read Level+ Correct Factor

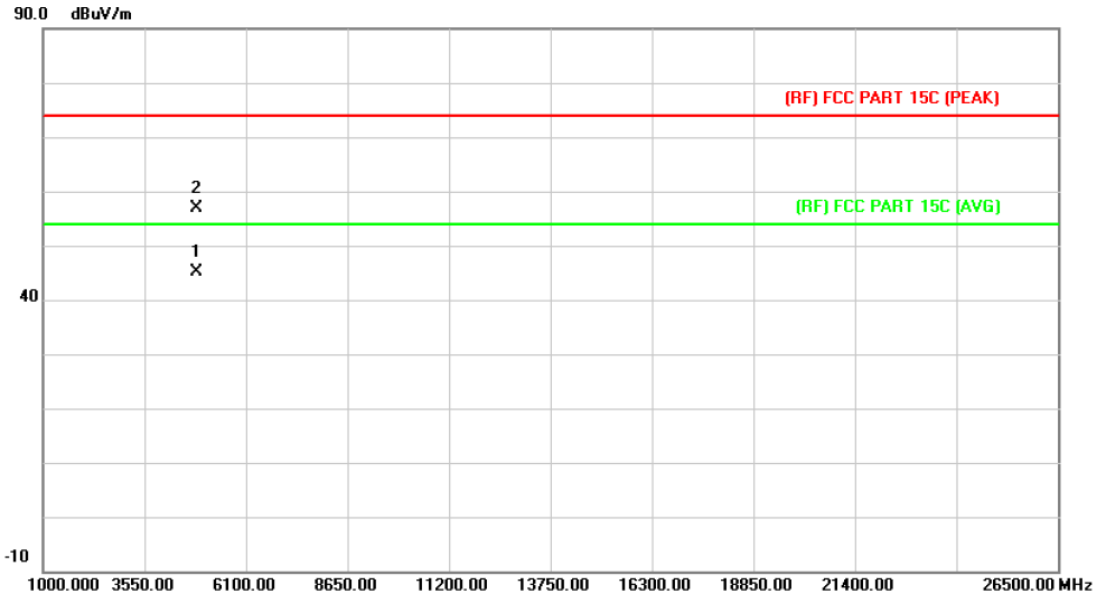
EUT:	Camera	**Model:**	RunCam2
Temperature:	25 ℃	**Relative Humidity:**	55%
Test Voltage:	DC 3.7V		
Ant. Pol.	Vertical		
Test Mode:	TX G Mode 2412MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4823.641	32.05	13.56	45.61	54.00	-8.39	AVG
2		4824.541	43.58	13.56	57.14	74.00	-16.86	peak

Emission Level= Read Level+ Correct Factor

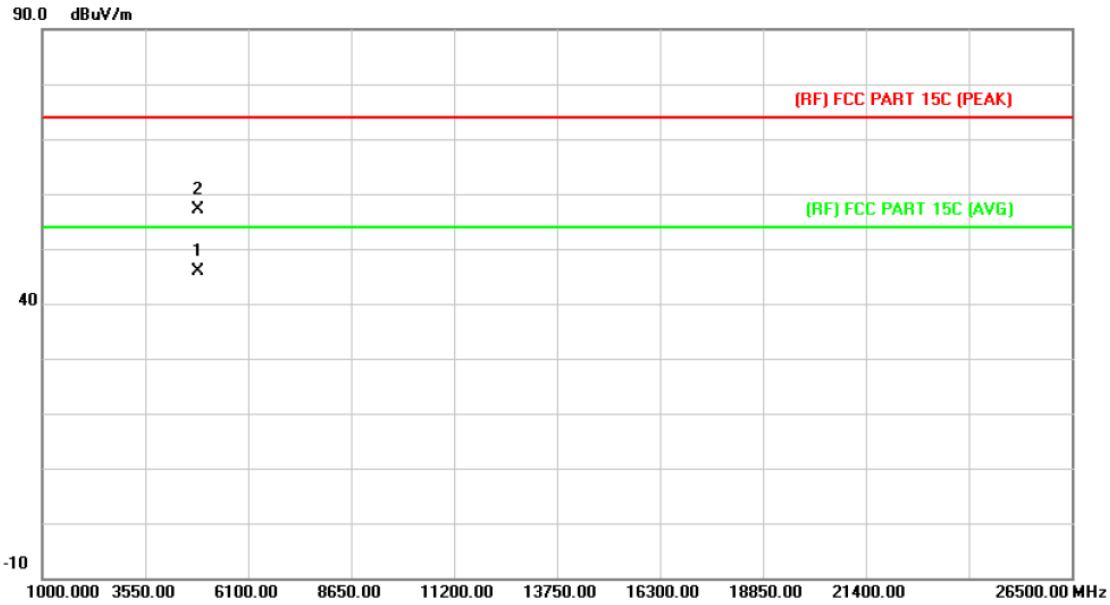
EUT:	Camera	**Model:**	RunCam2
Temperature:	25 ℃	**Relative Humidity:**	55%
Test Voltage:	DC 3.7V		
Ant. Pol.	Horizontal		
Test Mode:	TX G Mode 2437MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detecto
1	*	4873.241	31.27	13.86	45.13	54.00	-8.87	AVG
2		4873.954	43.11	13.86	56.97	74.00	-17.03	peak

Emission Level= Read Level+ Correct Factor

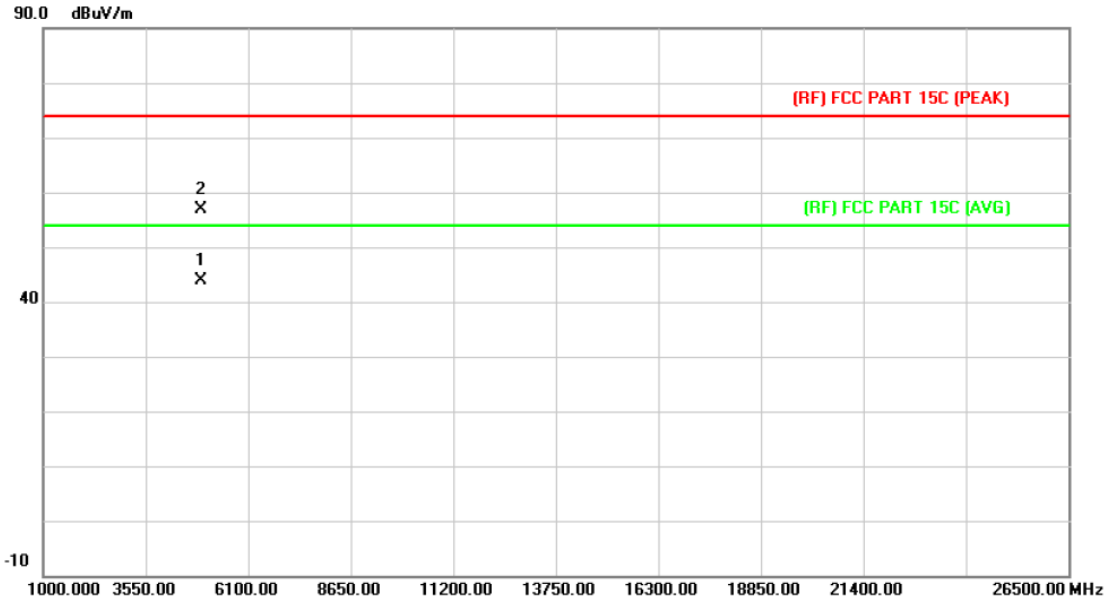
EUT:	Camera	**Model:**	RunCam2
Temperature:	25 ℃	**Relative Humidity:**	55%
Test Voltage:	DC 3.7V		
Ant. Pol.	Vertical		
Test Mode:	TX G Mode 2437MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4873.874	31.90	13.86	45.76	54.00	-8.24	AVG
2		4874.142	43.25	13.86	57.11	74.00	-16.89	peak

Emission Level= Read Level+ Correct Factor

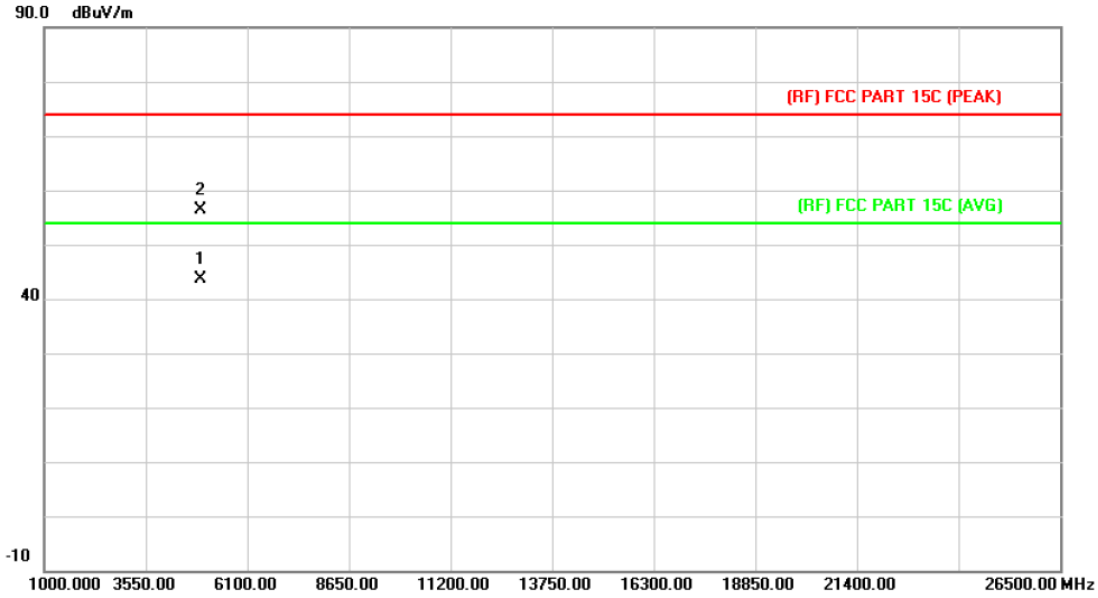
EUT:	Camera	**Model:**	RunCam2
Temperature:	25 ℃	**Relative Humidity:**	55%
Test Voltage:	DC 3.7V		
Ant. Pol.	Horizontal		
Test Mode:	TX G Mode 2462MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4923.398	29.82	14.15	43.97	54.00	-10.03	AVG
2		4924.054	42.83	14.15	56.98	74.00	-17.02	peak

Emission Level= Read Level+ Correct Factor

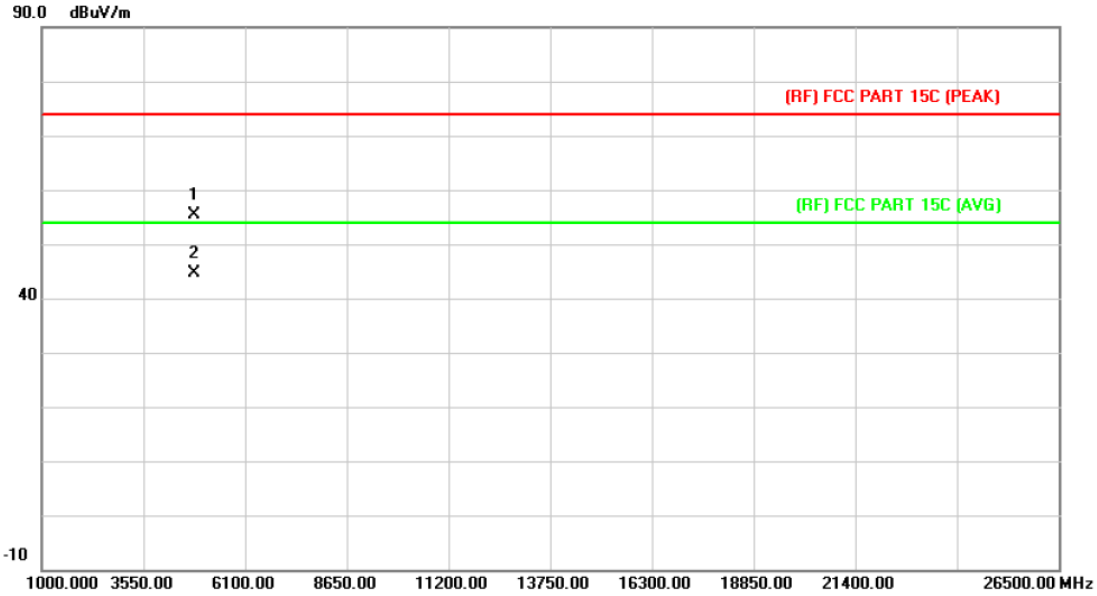
EUT:	Camera	**Model:**	RunCam2
Temperature:	25 ℃	**Relative Humidity:**	55%
Test Voltage:	DC 3.7V		
Ant. Pol.	Vertical		
Test Mode:	TX G Mode 2462MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4923.686	29.49	14.15	43.64	54.00	-10.36	AVG
2		4924.134	42.26	14.15	56.41	74.00	-17.59	peak

Emission Level= Read Level+ Correct Factor

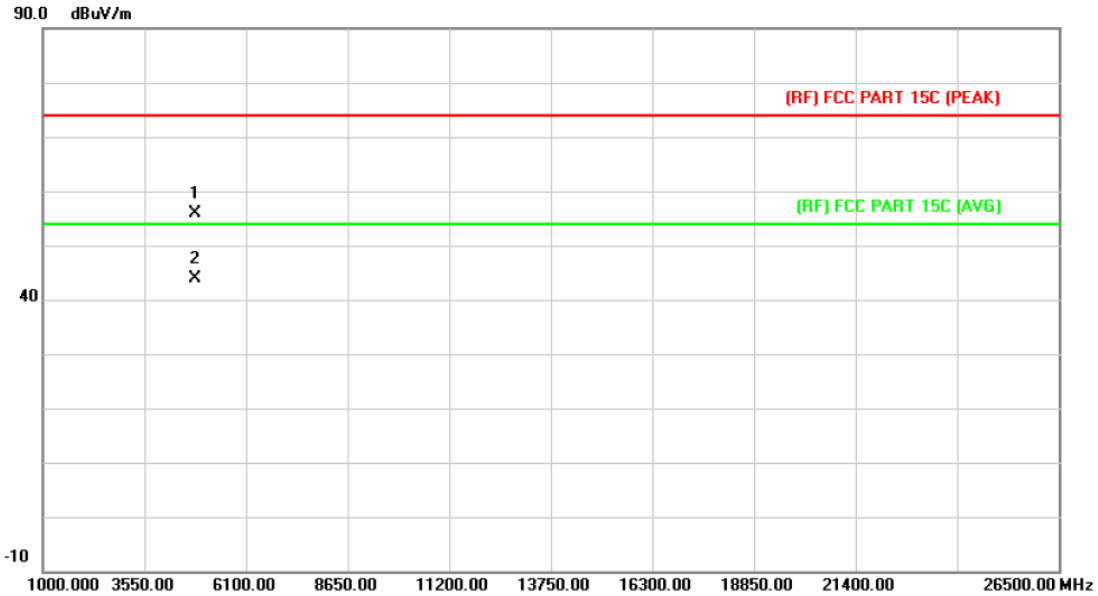
EUT:	Camera	**Model:**	RunCam2
Temperature:	25 ℃	**Relative Humidity:**	55%
Test Voltage:	DC 3.7V		
Ant. Pol.	Horizontal		
Test Mode:	TX N(HT20) Mode 2412MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4823.887	41.90	13.56	55.46	74.00	-18.54	peak
2	*	4823.981	31.15	13.56	44.71	54.00	-9.29	AVG

Emission Level= Read Level+ Correct Factor

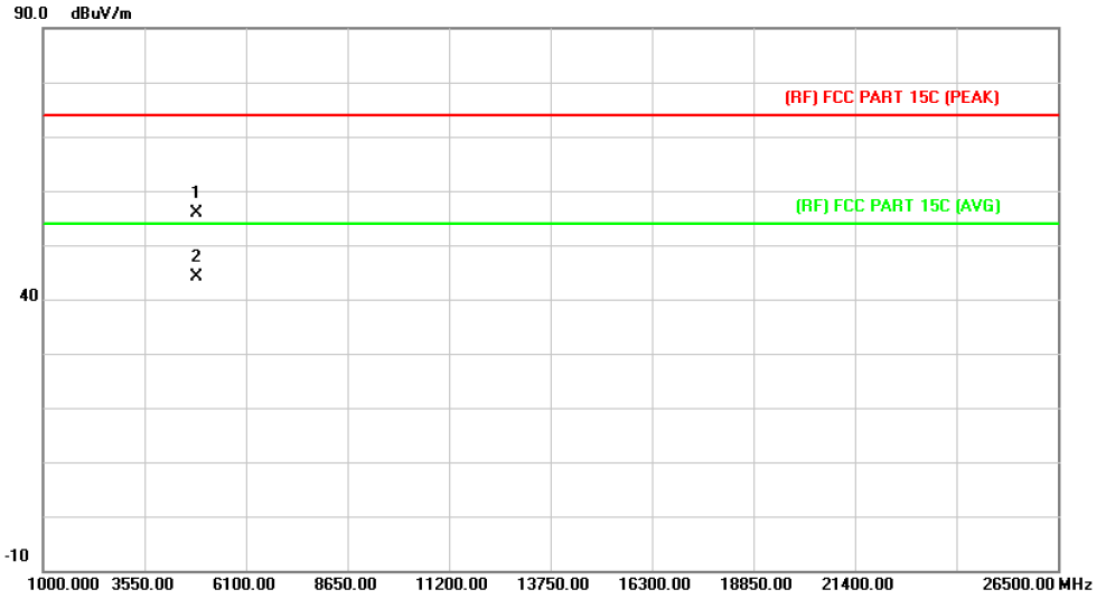
EUT:	Camera	**Model:**	RunCam2
Temperature:	25 ℃	**Relative Humidity:**	55%
Test Voltage:	DC 3.7V		
Ant. Pol.	Vertical		
Test Mode:	TX N(HT20) Mode 2412MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4823.567	42.28	13.56	55.84	74.00	-18.16	peak
2	*	4824.041	30.31	13.56	43.87	54.00	-10.13	AVG

Emission Level= Read Level+ Correct Factor

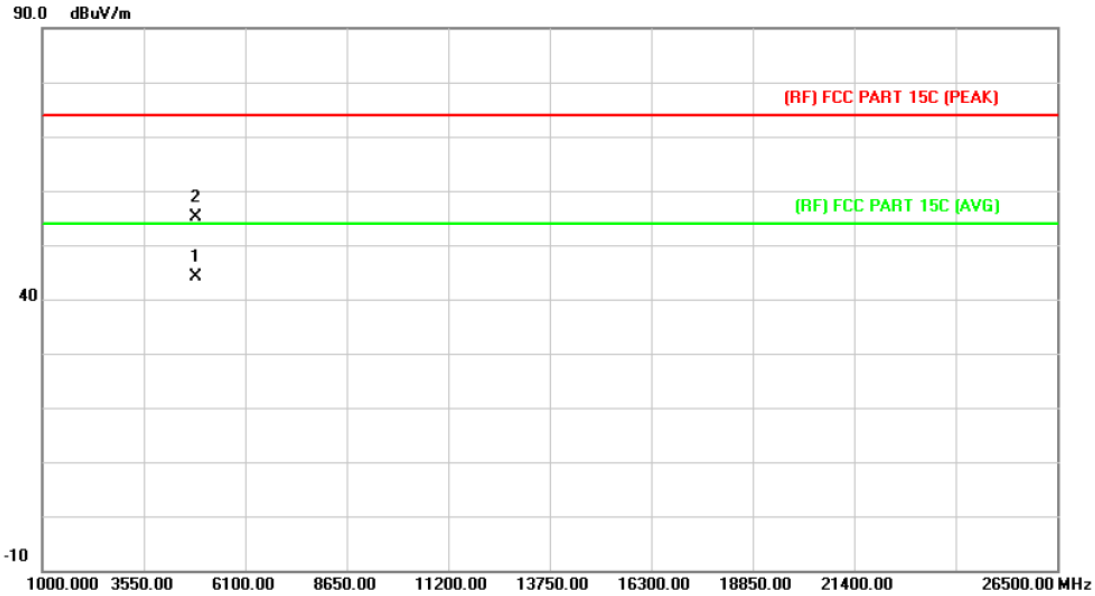
EUT:	Camera	**Model:**	RunCam2
Temperature:	25 ℃	**Relative Humidity:**	55%
Test Voltage:	DC 3.7V		
Ant. Pol.	Horizontal		
Test Mode:	TX N(HT20) Mode 2437MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4873.645	41.97	13.86	55.83	74.00	-18.17	peak
2	*	4874.381	30.36	13.86	44.22	54.00	-9.78	AVG

Emission Level= Read Level+ Correct Factor

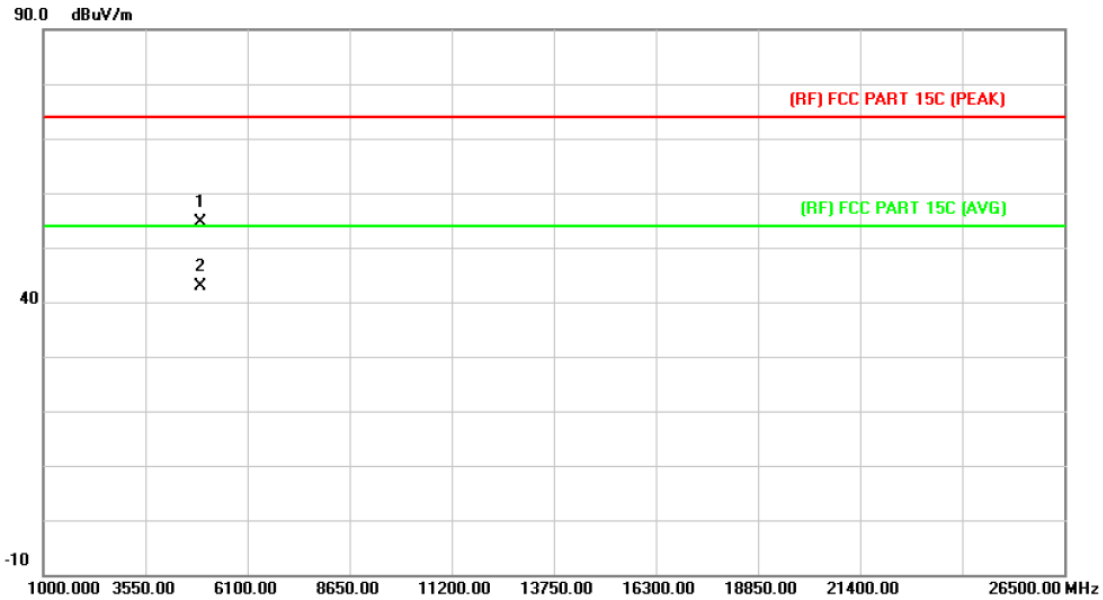
EUT:	Camera	**Model:**	RunCam2
Temperature:	25 ℃	**Relative Humidity:**	55%
Test Voltage:	DC 3.7V		
Ant. Pol.	Vertical		
Test Mode:	TX N(HT20) Mode 2437MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4873.921	30.22	13.86	44.08	54.00	-9.92	AVG
2		4874.354	41.19	13.86	55.05	74.00	-18.95	peak

Emission Level= Read Level+ Correct Factor

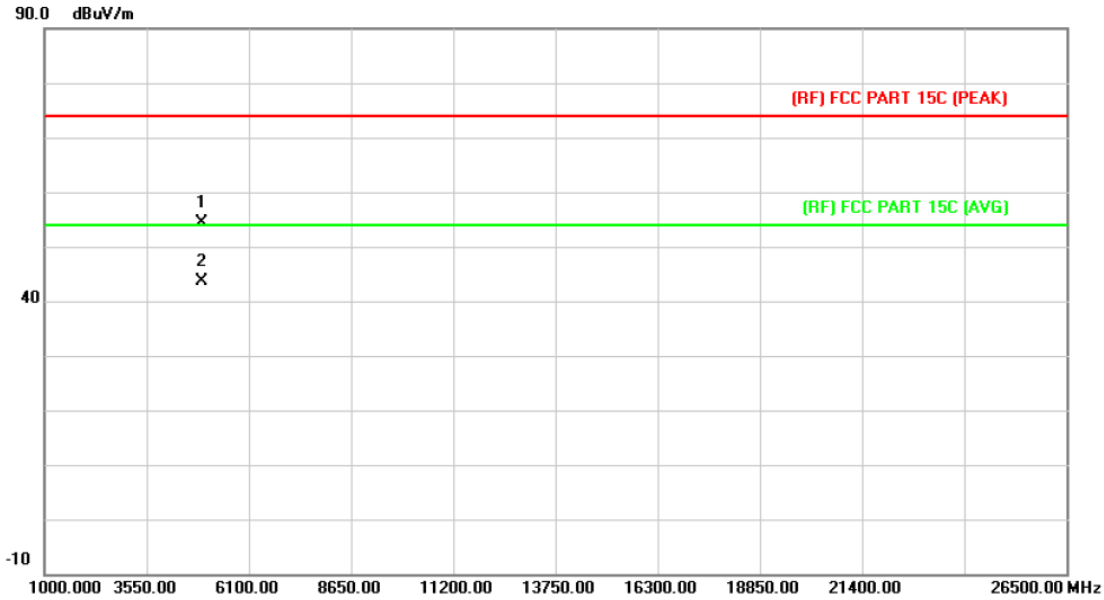
EUT:	Camera	**Model:**	RunCam2
Temperature:	25 ℃	**Relative Humidity:**	55%
Test Voltage:	DC 3.7V		
Ant. Pol.	Horizontal		
Test Mode:	TX N(HT20) Mode 2462MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4924.024	40.58	14.15	54.73	74.00	-19.27	peak
2	*	4924.134	28.83	14.15	42.98	54.00	-11.02	AVG

Emission Level= Read Level+ Correct Factor

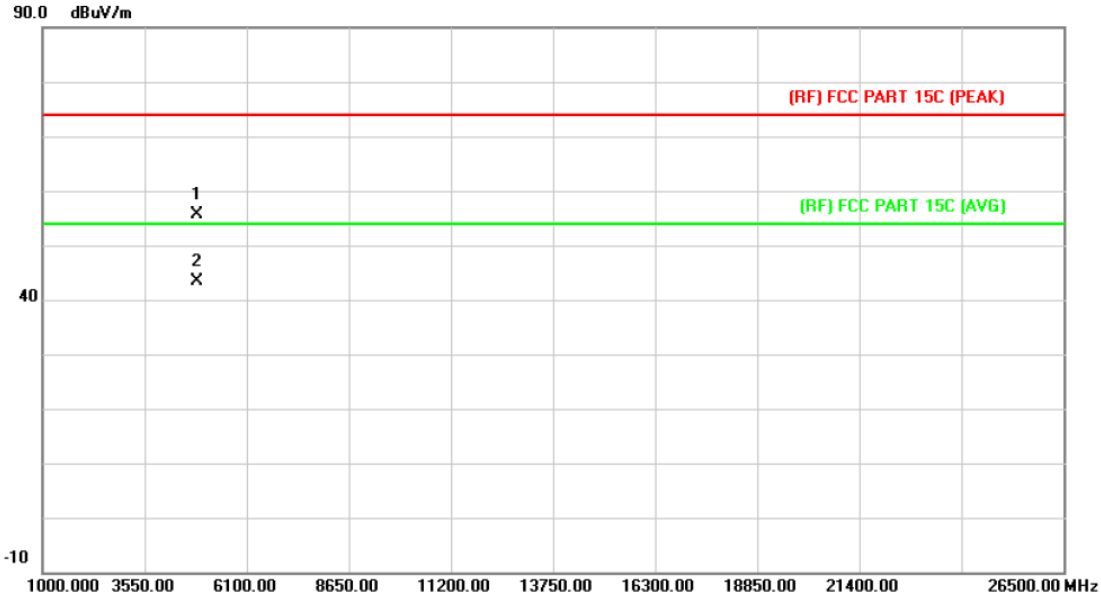
EUT:	Camera	**Model:**	RunCam2
Temperature:	25 ℃	**Relative Humidity:**	55%
Test Voltage:	DC 3.7V		
Ant. Pol.	Vertical		
Test Mode:	TX N(HT20) Mode 2462MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4923.840	40.19	14.15	54.34	74.00	-19.66	peak
2	*	4924.357	29.53	14.15	43.68	54.00	-10.32	AVG

Emission Level= Read Level+ Correct Factor

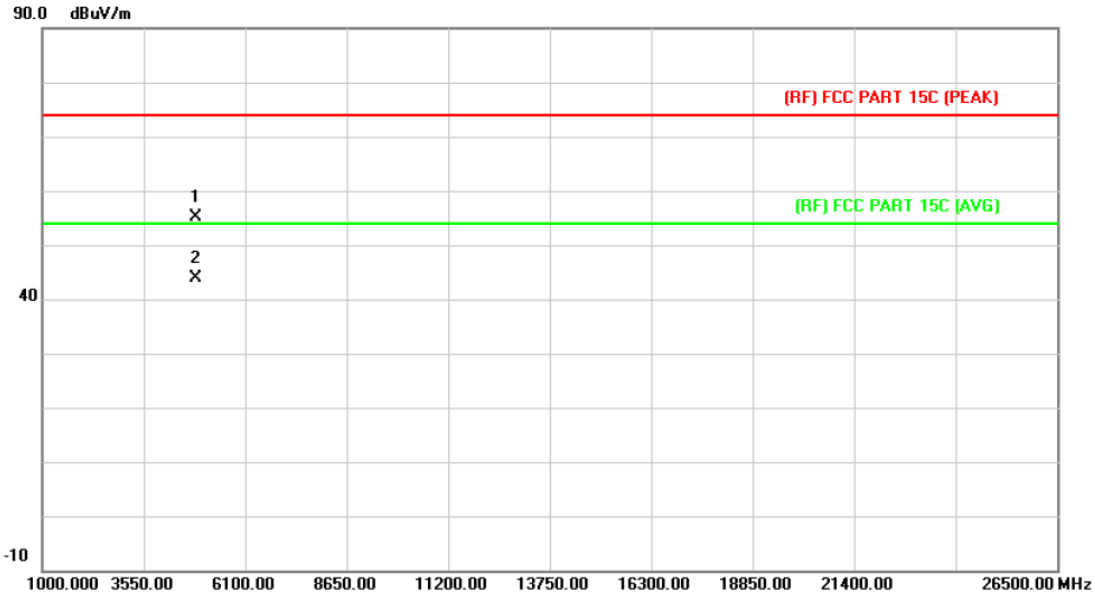
EUT:	Camera	**Model:**	RunCam2
Temperature:	25 ℃	**Relative Humidity:**	55%
Test Voltage:	DC 3.7V		
Ant. Pol.	Horizontal		
Test Mode:	TX N(HT40) Mode 2422MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4843.875	42.00	13.68	55.68	74.00	-18.32	peak
2	*	4844.378	29.71	13.68	43.39	54.00	-10.61	AVG

Emission Level= Read Level+ Correct Factor

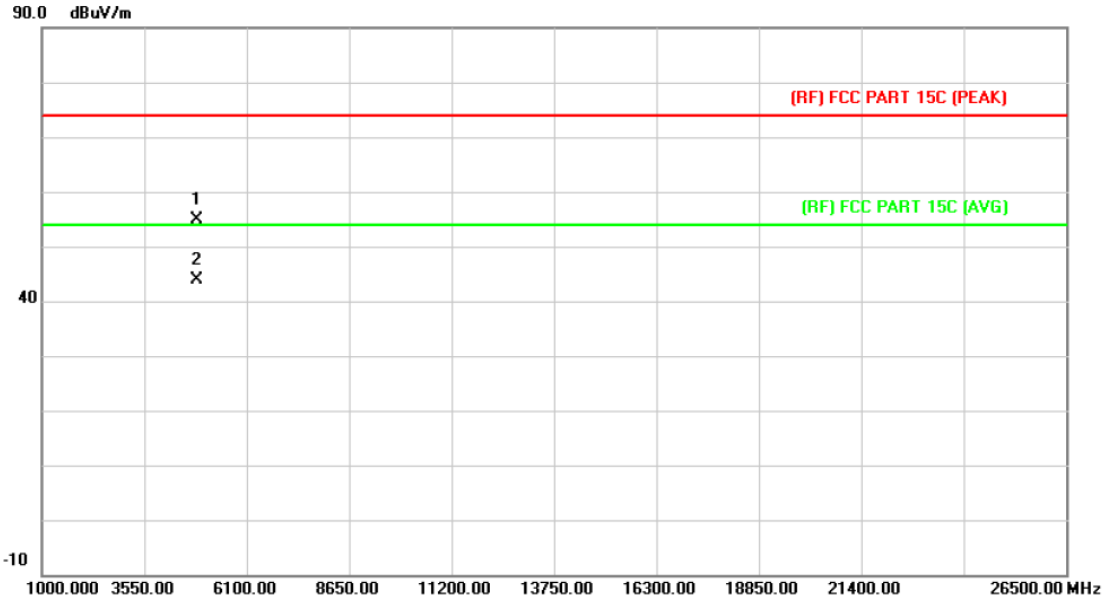
EUT:	Camera	**Model:**	RunCam2
Temperature:	25 ℃	**Relative Humidity:**	55%
Test Voltage:	DC 3.7V		
Ant. Pol.	Vertical		
Test Mode:	TX N(HT40) Mode 2422MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4843.855	41.41	13.68	55.09	74.00	-18.91	peak
2	*	4844.367	30.29	13.68	43.97	54.00	-10.03	AVG

Emission Level= Read Level+ Correct Factor

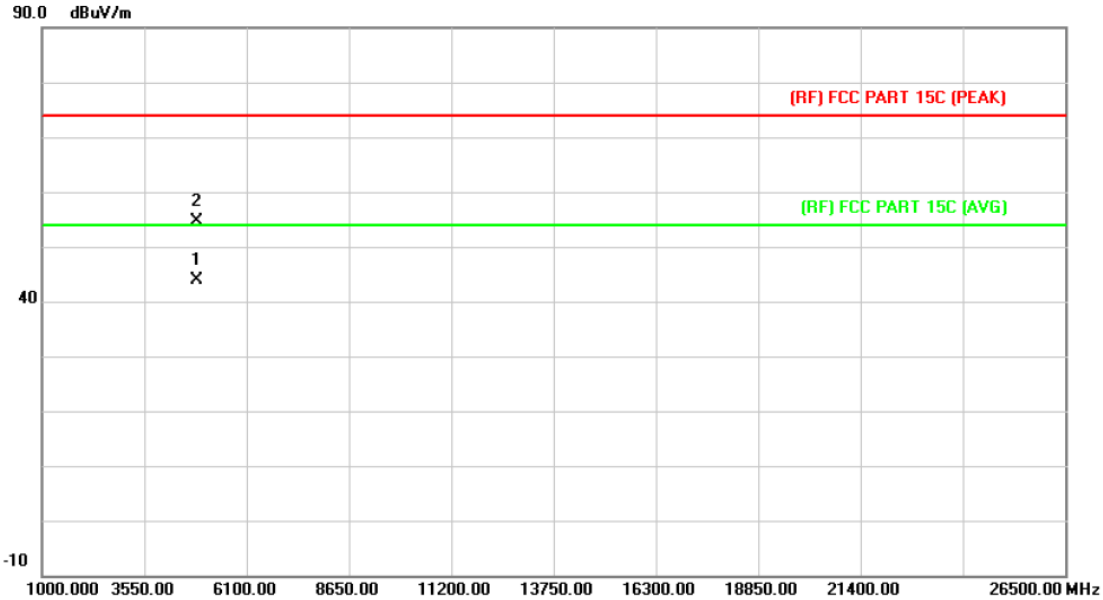
EUT:	Camera	**Model:**	RunCam2
Temperature:	25 ℃	**Relative Humidity:**	55%
Test Voltage:	DC 3.7V		
Ant. Pol.	Horizontal		
Test Mode:	TX N(HT40) Mode 2437MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4873.374	41.01	13.86	54.87	74.00	-19.13	peak
2	*	4874.312	29.92	13.86	43.78	54.00	-10.22	AVG

Emission Level= Read Level+ Correct Factor

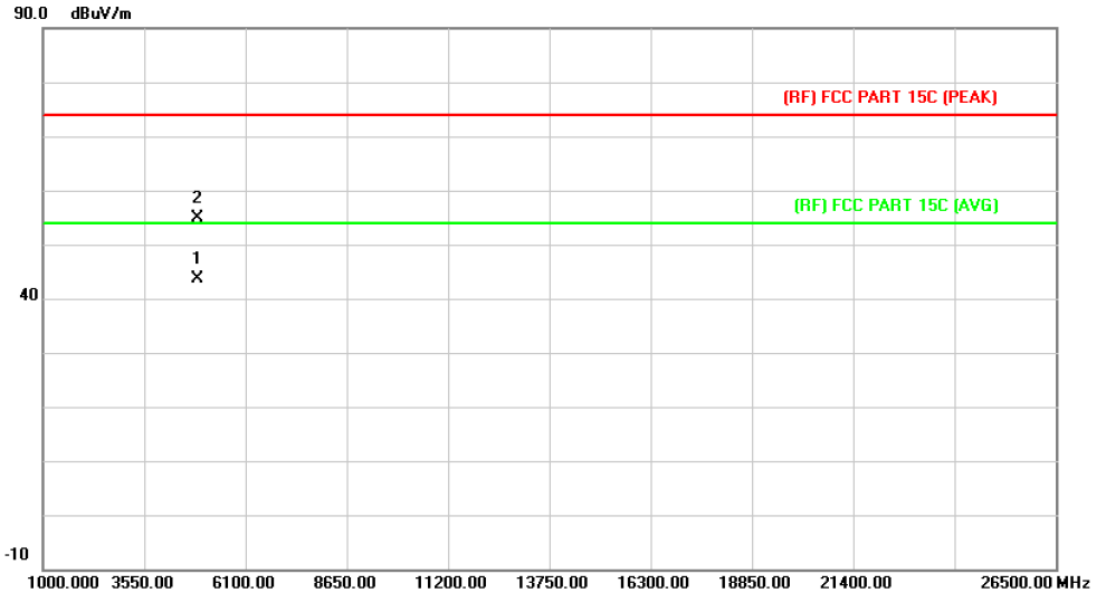
EUT:	Camera	**Model:**	RunCam2
Temperature:	25 ℃	**Relative Humidity:**	55%
Test Voltage:	DC 3.7V		
Ant. Pol.	Vertical		
Test Mode:	TX N(HT40) Mode 2437MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4873.867	29.99	13.86	43.85	54.00	-10.15	AVG
2		4874.134	40.66	13.86	54.52	74.00	-19.48	peak

Emission Level= Read Level+ Correct Factor

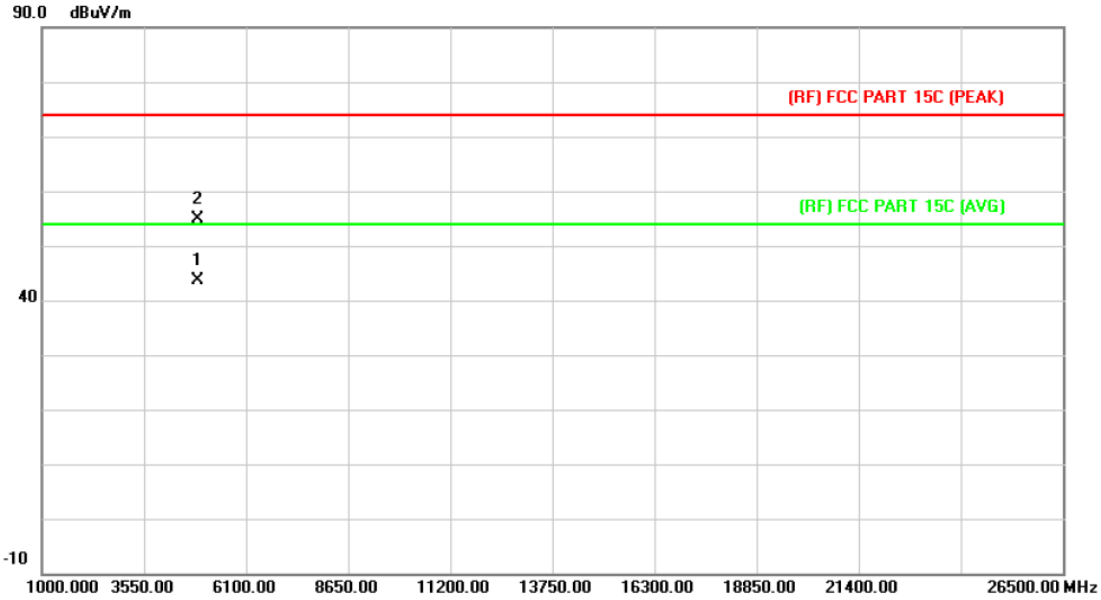
EUT:	Camera	**Model:**	RunCam2
Temperature:	25 ℃	**Relative Humidity:**	55%
Test Voltage:	DC 3.7V		
Ant. Pol.	Horizontal		
Test Mode:	TX N(HT40) Mode 2452MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4903.875	29.56	14.03	43.59	54.00	-10.41	AVG
2		4904.321	40.80	14.03	54.83	74.00	-19.17	peak

Emission Level= Read Level+ Correct Factor

EUT:	Camera	**Model:**	RunCam2
Temperature:	25 ℃	**Relative Humidity:**	55%
Test Voltage:	DC 3.7V		
Ant. Pol.	Vertical		
Test Mode:	TX N(HT40) Mode 2452MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4904.257	29.66	14.03	43.69	54.00	-10.31	AVG
2		4904.674	40.75	14.03	54.78	74.00	-19.22	peak

Emission Level= Read Level+ Correct Factor

6. Restricted Bands Requirement

6.1 Test Standard and Limit

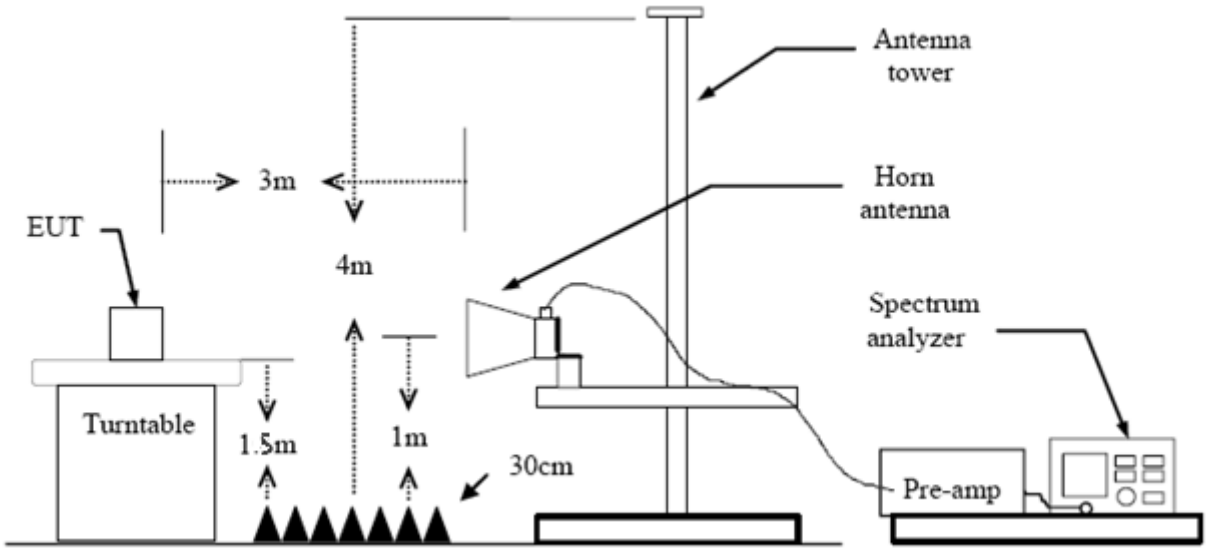
6.1.1 Test Standard

FCC Part 15.209 FCC Part 15.205

6.1.2 Test Limit

Restricted Frequency Band (MHz)	Class B (dBuV/m)(at 3 M)	
	Peak	Average
2310 ~2390	74	54
2483.5 ~2500	74	54

6.2 Test Setup



6.3 Test Procedure

(1) The measuring distance of 3m shall be used for measurements at frequency up to 1GHz and above 1 GHz. The EUT was placed on a rotating 0.8m high above ground, the table was rotated 360 degrees to determine the position of the highest radiation.

(2) Measurements at frequency above 1GHz. The EUT was placed on a rotating 1.5m high above the ground. RF absorbers covered the ground plane with a minimum area of 3.0m by 3.0m between the EUT and measurement receiver antenna. The RF absorber shall not exceed 30cm in high above the conducting floor. The table was rotated 360 degrees to determine the position of the highest radiation.

(3) The Test antenna shall vary between 1m and 4m, Both Horizontal and Vertical antenna are set to make measurement.

(4) The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
(5) If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit Bellow 1 GHz, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed. But the Peak Value and average value both need to comply with applicable limit above 1 GHz.
(6) Testing frequency range below 1GHz the measuring instrument use VBW=120 kHz with Quasi-peak detection.
(7) Testing frequency range above 1GHz the measuring instrument use RBW=1 MHz and VBW=3 MHz with Peak Detector for Peak Values, and use RBW=1 MHz and VBW=10 Hz with Peak Detector for Average Values.
(8) For the actual test configuration, please see the test setup photo.

6.4 EUT Operating Condition

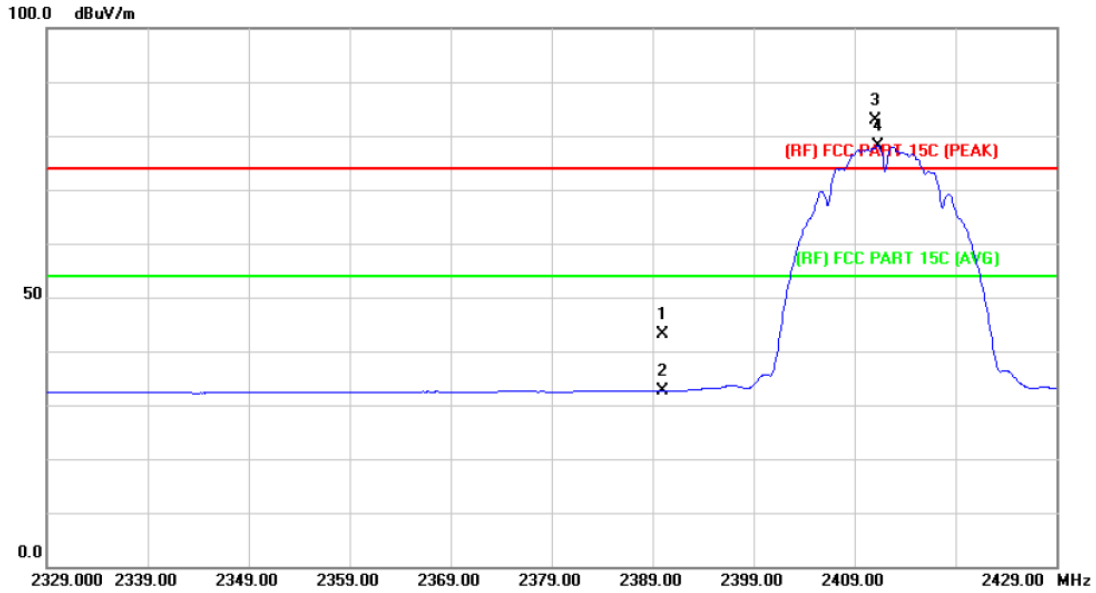
The Equipment Under Test was set to Continual Transmitting in maximum power.

6.5 Test Data

Please see the next page.

(1) Radiation Test

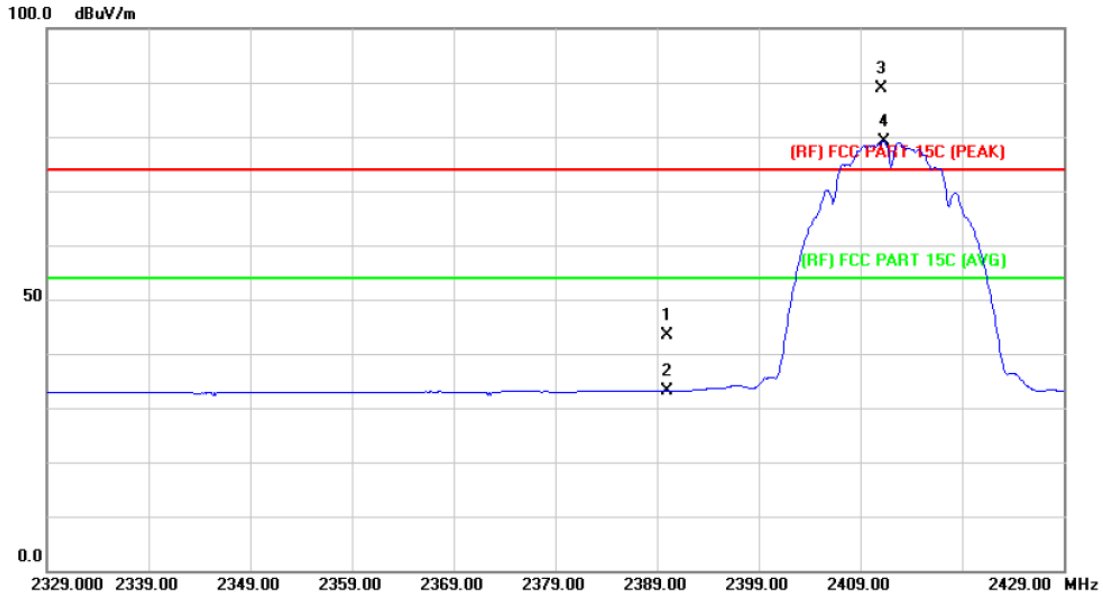
EUT:	Camera	**Model:**	RunCam2
Temperature:	25 ℃	**Relative Humidity:**	55%
Test Voltage:	DC 3.7V		
Ant. Pol.	Horizontal		
Test Mode:	TX B Mode 2412MHz		
Remark:	N/A		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		2390.000	42.24	0.77	43.01	74.00	-30.99	peak
2		2390.000	31.83	0.77	32.60	54.00	-21.40	AVG
3	X	2411.000	82.08	0.86	82.94	Fundamental Frequency		peak
4	*	2411.300	77.37	0.86	78.23	Fundamental Frequency		AVG

Emission Level= Read Level+ Correct Factor

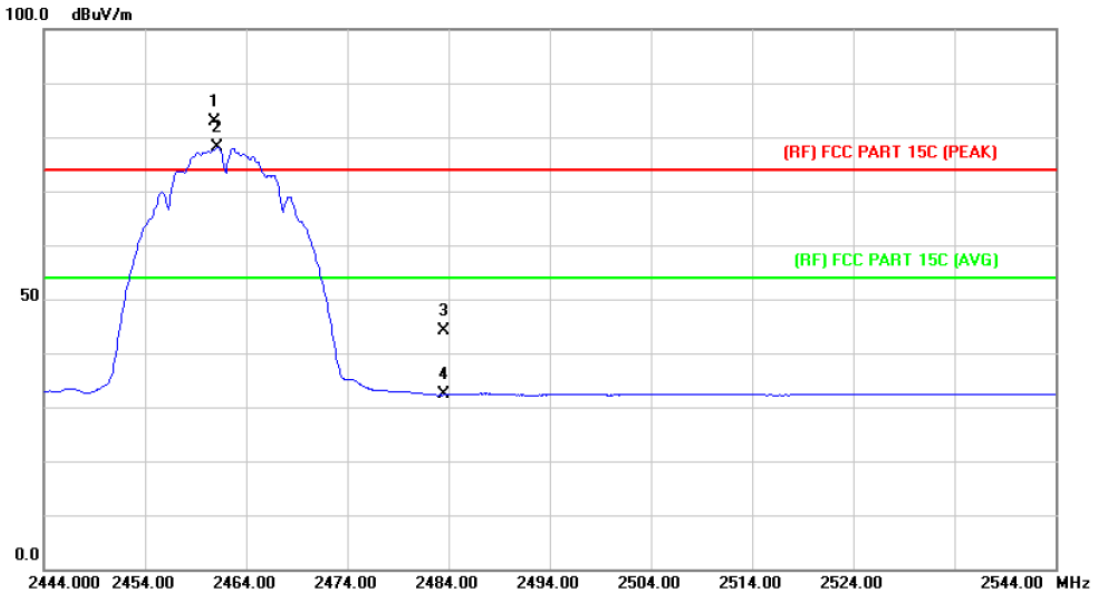
EUT:	Camera	**Model:**	RunCam2
Temperature:	25 ℃	**Relative Humidity:**	55%
Test Voltage:	DC 3.7V		
Ant. Pol.	Vertical		
Test Mode:	TX B Mode 2412MHz		
Remark:	N/A		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		2390.000	42.60	0.77	43.37	74.00	-30.63	peak
2		2390.000	32.33	0.77	33.10	54.00	-20.90	AVG
3	X	2411.000	88.08	0.86	88.94	Fundamental Frequency		peak
4	*	2411.300	78.37	0.86	79.23	Fundamental Frequency		AVG

Emission Level= Read Level+ Correct Factor

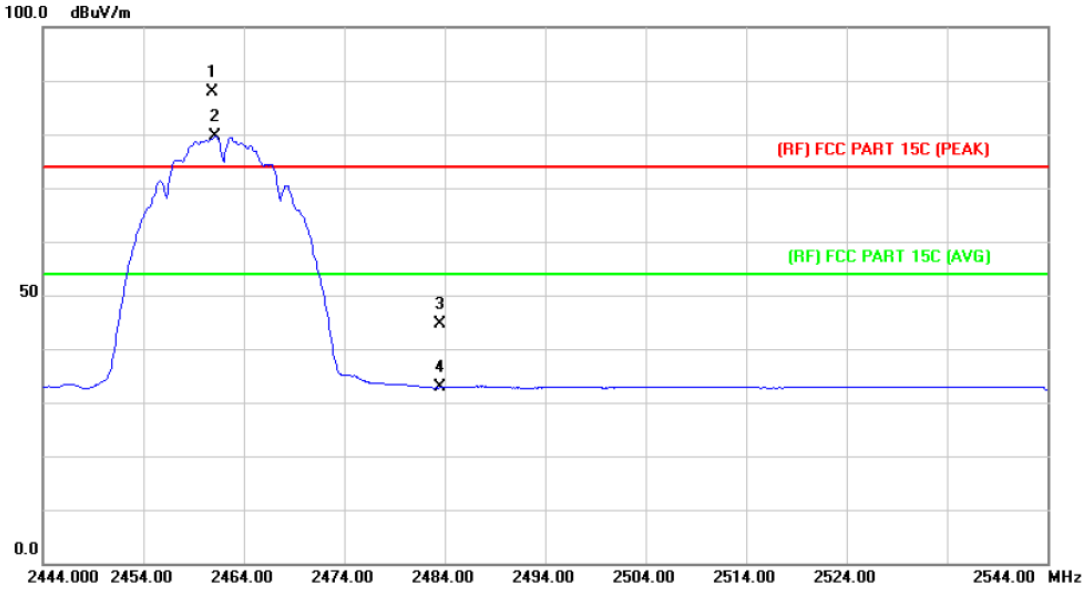
EUT:	Camera	**Model:**	RunCam2
Temperature:	25 ℃	**Relative Humidity:**	55%
Test Voltage:	DC 3.7V		
Ant. Pol.	Horizontal		
Test Mode:	TX B Mode 2462MHz		
Remark:	N/A		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	X	2460.800	81.70	1.06	82.76	Fundamental Frequency		peak
2	*	2461.200	77.09	1.07	78.16	Fundamental Frequency		AVG
3		2483.500	42.91	1.17	44.08	74.00	-29.92	peak
4		2483.500	31.09	1.17	32.26	54.00	-21.74	AVG

Emission Level= Read Level+ Correct Factor

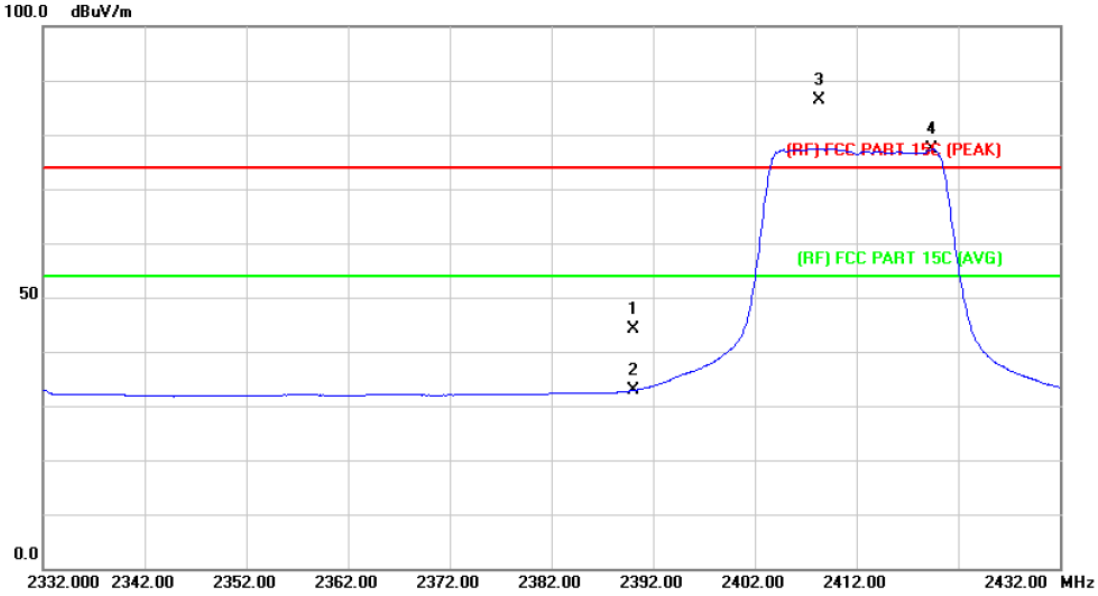
EUT:	Camera	Model:	RunCam2
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	DC 3.7V		
Ant. Pol.	Vertical		
Test Mode:	TX B Mode 2462MHz		
Remark:	N/A		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	X	2460.800	86.70	1.06	87.76	Fundamental Frequency		peak
2	*	2461.200	78.59	1.07	79.66	Fundamental Frequency		AVG
3		2483.500	43.39	1.17	44.56	74.00	-29.44	peak
4		2483.500	31.59	1.17	32.76	54.00	-21.24	AVG

Emission Level= Read Level+ Correct Factor

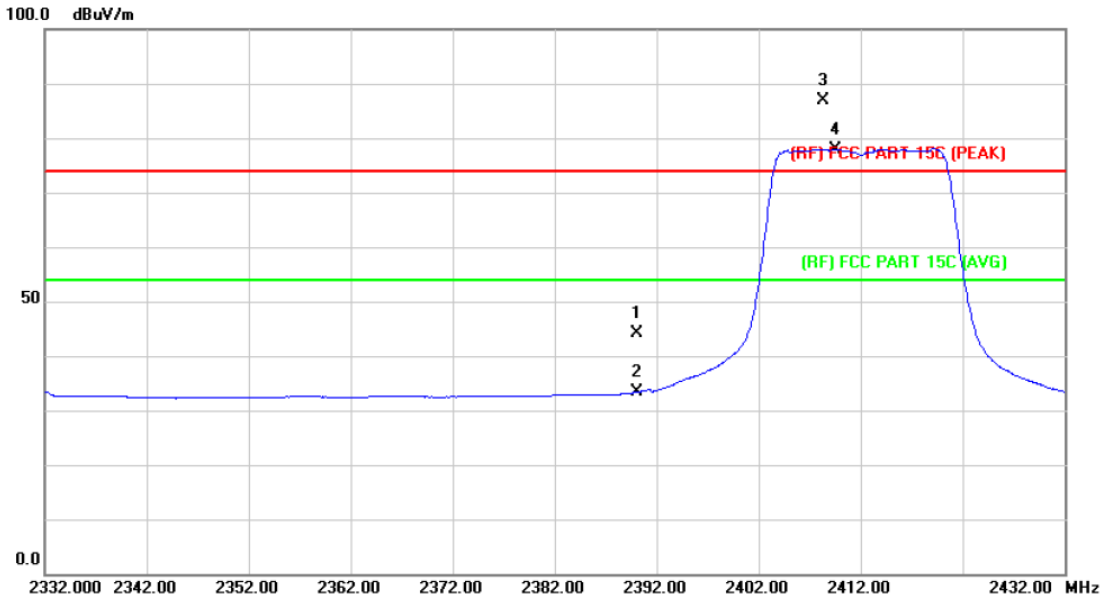
EUT:	Camera	**Model:**	RunCam2
Temperature:	25 ℃	**Relative Humidity:**	55%
Test Voltage:	DC 3.7V		
Ant. Pol.	Horizontal		
Test Mode:	TX G Mode 2412MHz		
Remark:	N/A		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		2390.000	43.32	0.77	44.09	74.00	-29.91	peak
2		2390.000	32.06	0.77	32.83	54.00	-21.17	AVG
3	X	2408.300	85.53	0.85	86.38	Fundamental Frequency		peak
4	*	2419.400	76.61	0.89	77.50	Fundamental Frequency		AVG

Emission Level= Read Level+ Correct Factor

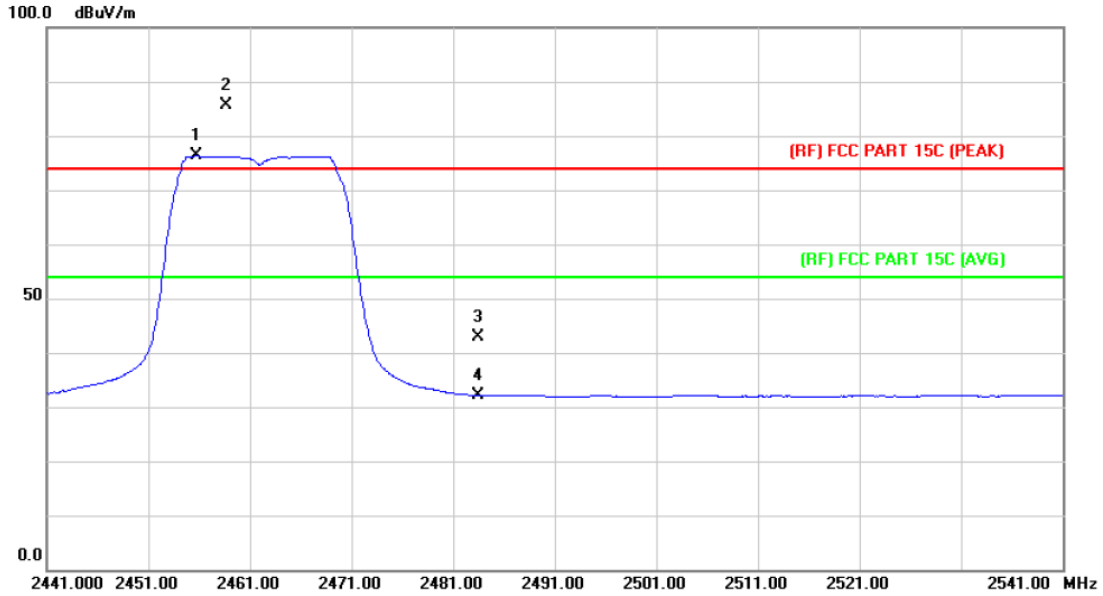
EUT:	Camera	Model:	RunCam2
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	DC 3.7V		
Ant. Pol.	Vertical		
Test Mode:	TX G Mode 2412MHz		
Remark:	N/A		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		2390.000	43.47	0.77	44.24	74.00	-29.76	peak
2		2390.000	32.56	0.77	33.33	54.00	-20.67	AVG
3	X	2408.300	86.13	0.85	86.98	Fundamental Frequency		peak
4	*	2409.500	77.14	0.85	77.99	Fundamental Frequency		AVG

Emission Level= Read Level+ Correct Factor

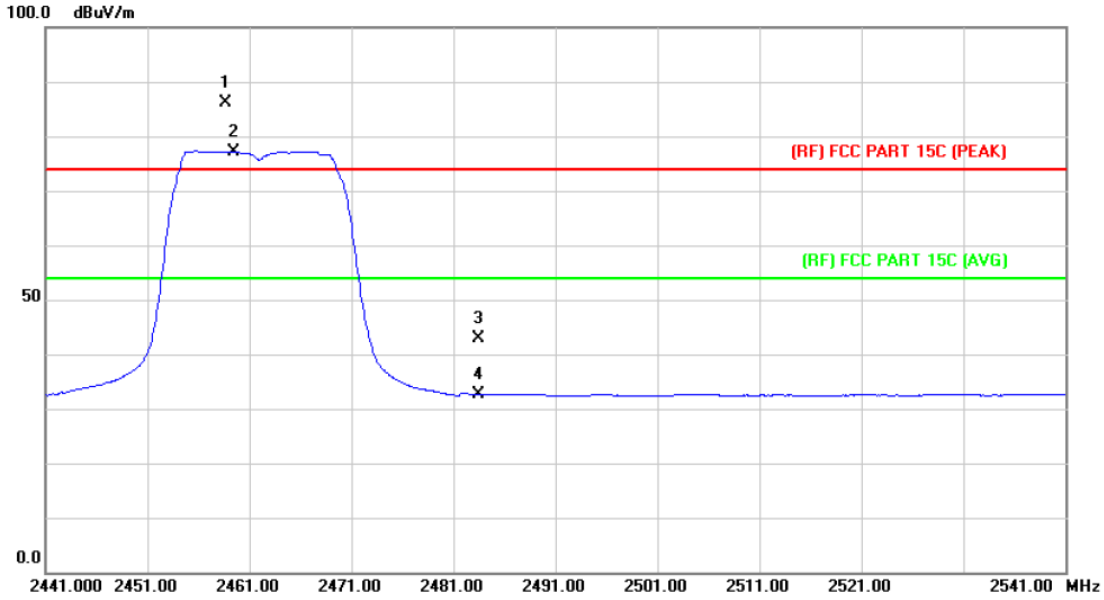
EUT:	Camera	**Model:**	RunCam2
Temperature:	25 ℃	**Relative Humidity:**	55%
Test Voltage:	DC 3.7V		
Ant. Pol.	Horizontal		
Test Mode:	TX G Mode 2462MHz		
Remark:	N/A		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	2455.700	75.23	1.05	76.28	Fundamental Frequency		AVG
2	X	2458.674	84.52	1.06	85.58	Fundamental Frequency		peak
3		2483.500	41.73	1.17	42.90	74.00	-31.10	peak
4		2483.500	31.00	1.17	32.17	54.00	-21.83	AVG

Emission Level= Read Level+ Correct Factor

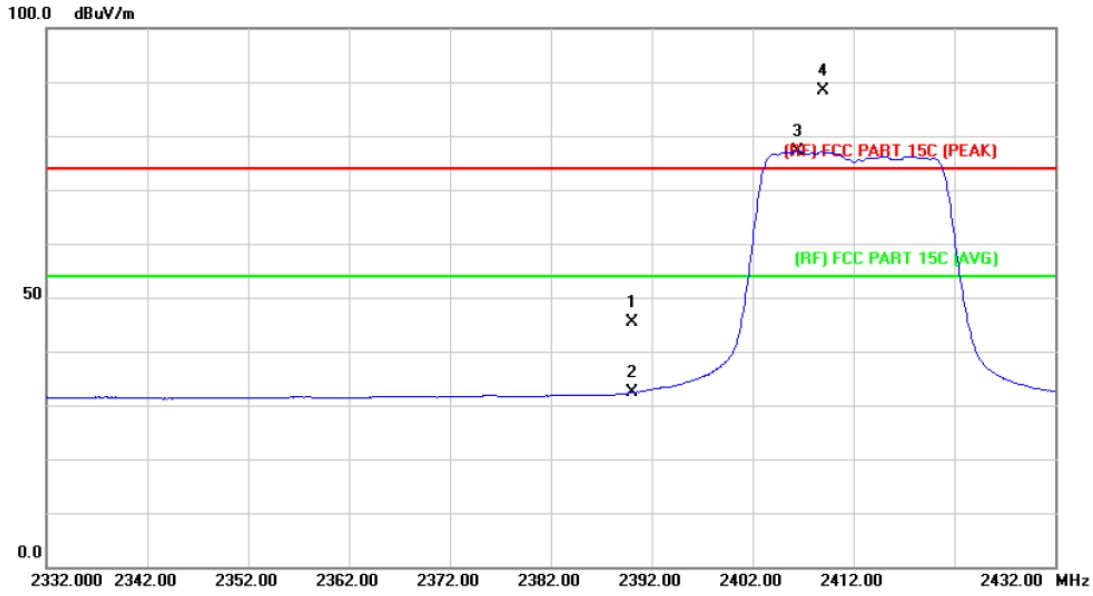
EUT:	Camera	**Model:**	RunCam2
Temperature:	25 ℃	**Relative Humidity:**	55%
Test Voltage:	DC 3.7V		
Ant. Pol.	Vertical		
Test Mode:	TX G Mode 2462MHz		
Remark:	N/A		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	X	2458.674	85.07	1.06	86.13	Fundamental Frequency		peak
2	*	2459.500	76.13	1.06	77.19	Fundamental Frequency		AVG
3		2483.500	41.81	1.17	42.98	74.00	-31.02	peak
4		2483.500	31.50	1.17	32.67	54.00	-21.33	AVG

Emission Level= Read Level+ Correct Factor

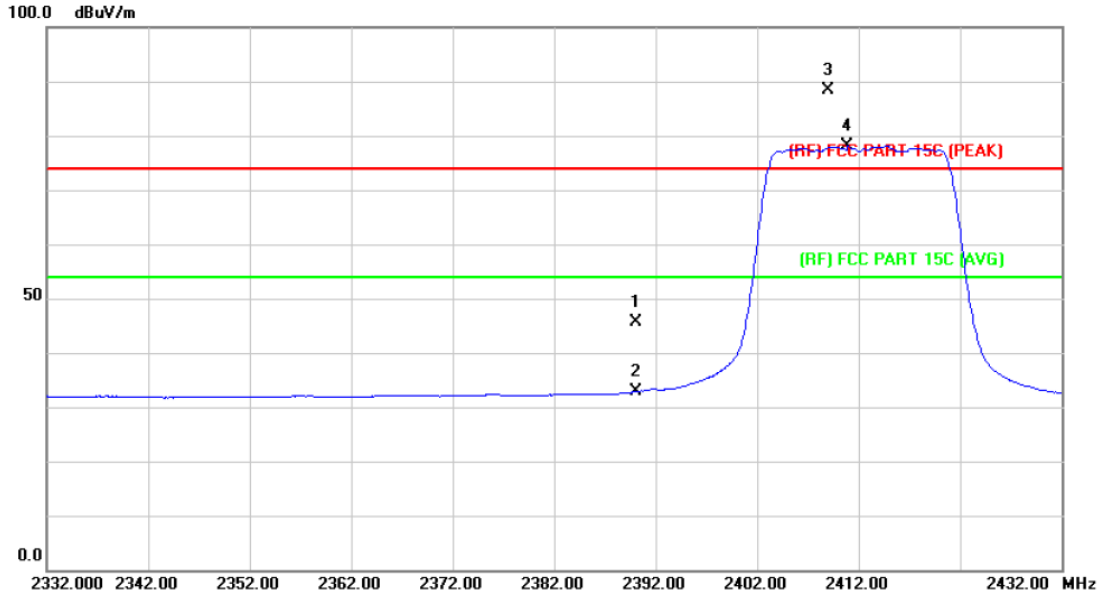
EUT:	Camera	Model:	RunCam2
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	DC 3.7V		
Ant. Pol.	Horizontal		
Test Mode:	TX N(HT20) Mode 2412MHz		
Remark:	N/A		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		2390.000	44.71	0.77	45.48	74.00	-28.52	peak
2		2390.000	31.52	0.77	32.29	54.00	-21.71	AVG
3	*	2406.400	76.26	0.84	77.10	Fundamental Frequency		AVG
4	X	2409.000	87.61	0.85	88.46	Fundamental Frequency		peak

Emission Level= Read Level+ Correct Factor

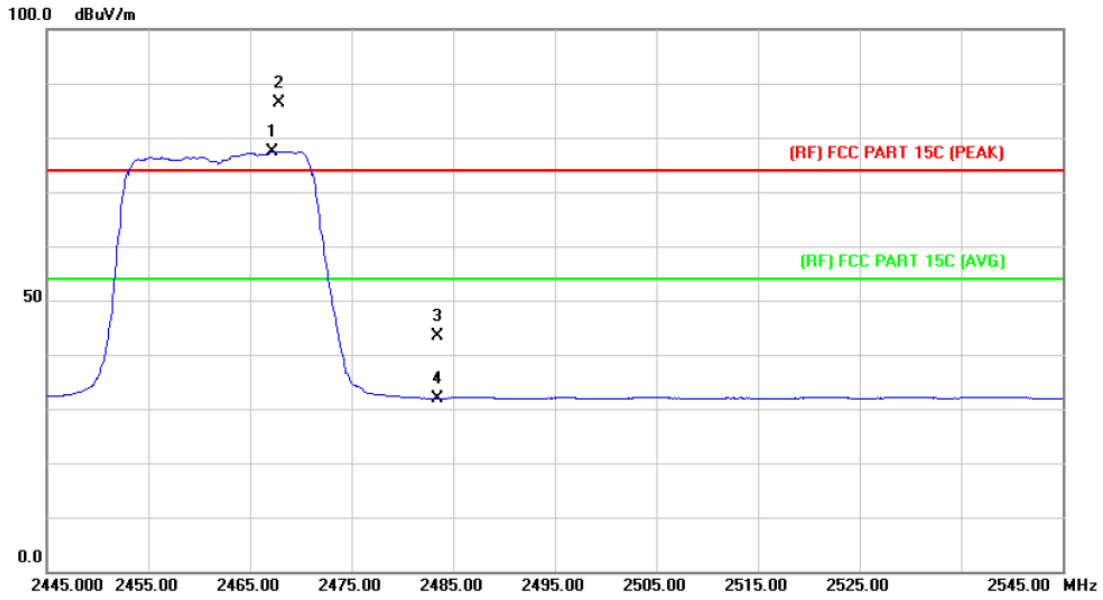
EUT:	Camera	Model:	RunCam2
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	DC 3.7V		
Ant. Pol.	Vertical		
Test Mode:	TX N(HT20) Mode 2412MHz		
Remark:	N/A		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		2390.000	44.75	0.77	45.52	74.00	-28.48	peak
2		2390.000	32.02	0.77	32.79	54.00	-21.21	AVG
3	X	2409.000	87.63	0.85	88.48	Fundamental Frequency		peak
4	*	2410.900	77.34	0.86	78.20	Fundamental Frequency		AVG

Emission Level= Read Level+ Correct Factor

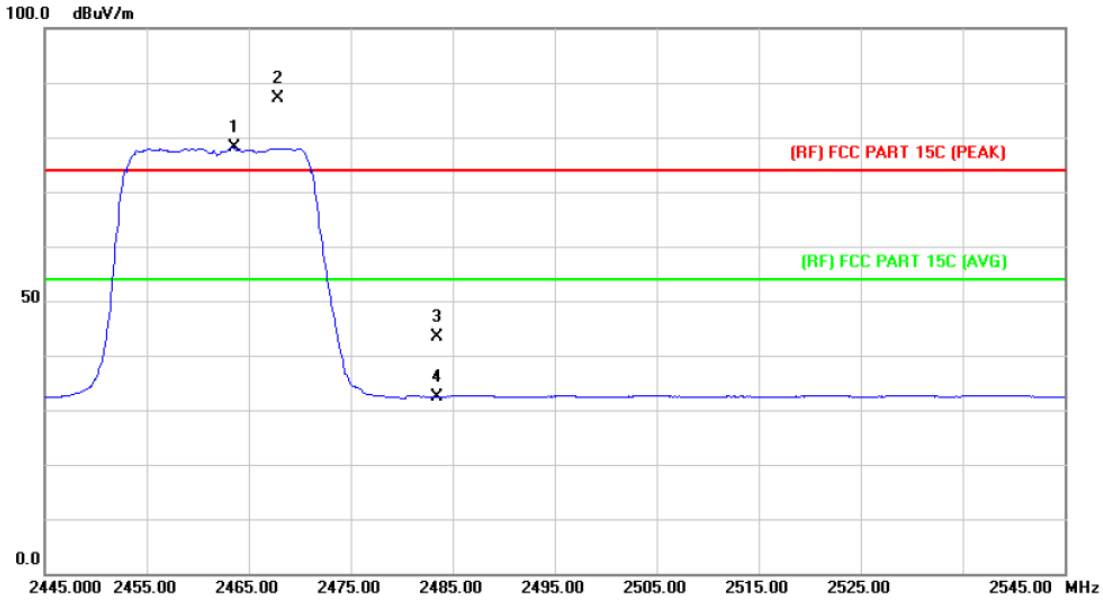
EUT:	Camera	**Model:**	RunCam2
Temperature:	25 ℃	**Relative Humidity:**	55%
Test Voltage:	DC 3.7V		
Ant. Pol.	Horizontal		
Test Mode:	TX N(HT20) Mode 2462MHz		
Remark:	N/A		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	2467.200	76.39	1.10	77.49	Fundamental Frequency		AVG
2	X	2467.900	85.39	1.10	86.49	Fundamental Frequency		peak
3		2483.500	42.11	1.17	43.28	74.00	-30.72	peak
4		2483.500	30.73	1.17	31.90	54.00	-22.10	AVG

Emission Level= Read Level+ Correct Factor

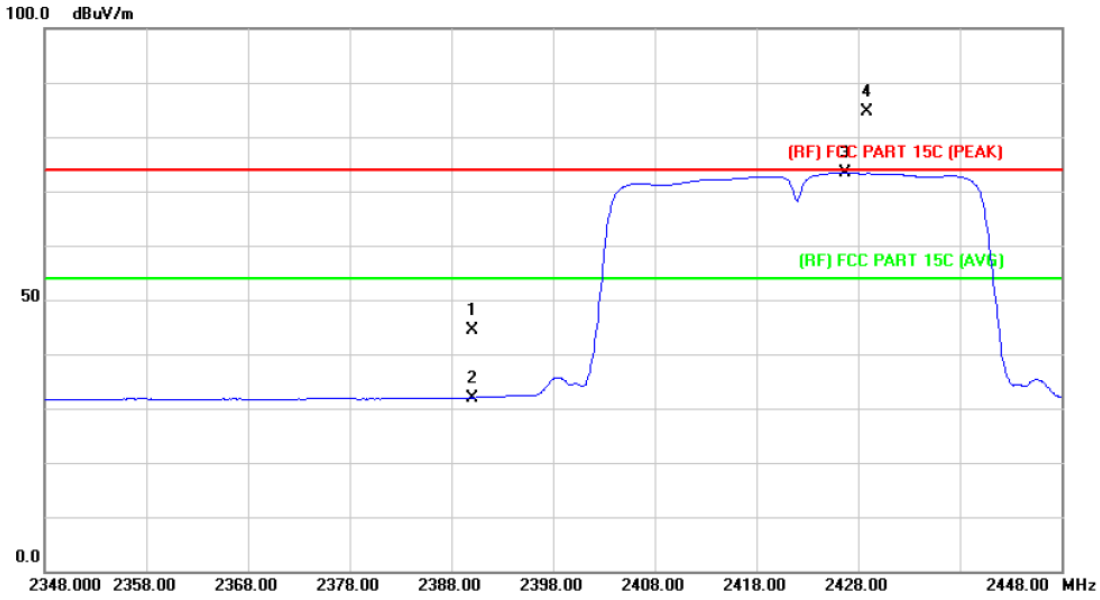
EUT:	Camera	Model:	RunCam2
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	DC 3.7V		
Ant. Pol.	Vertical		
Test Mode:	TX N(HT20) Mode 2462MHz		
Remark:	N/A		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	2463.600	77.16	1.08	78.24	Fundamental Frequency		AVG
2	X	2467.900	86.08	1.10	87.18	Fundamental Frequency		peak
3		2483.500	42.27	1.17	43.44	74.00	-30.56	peak
4		2483.500	31.23	1.17	32.40	54.00	-21.60	AVG

Emission Level= Read Level+ Correct Factor

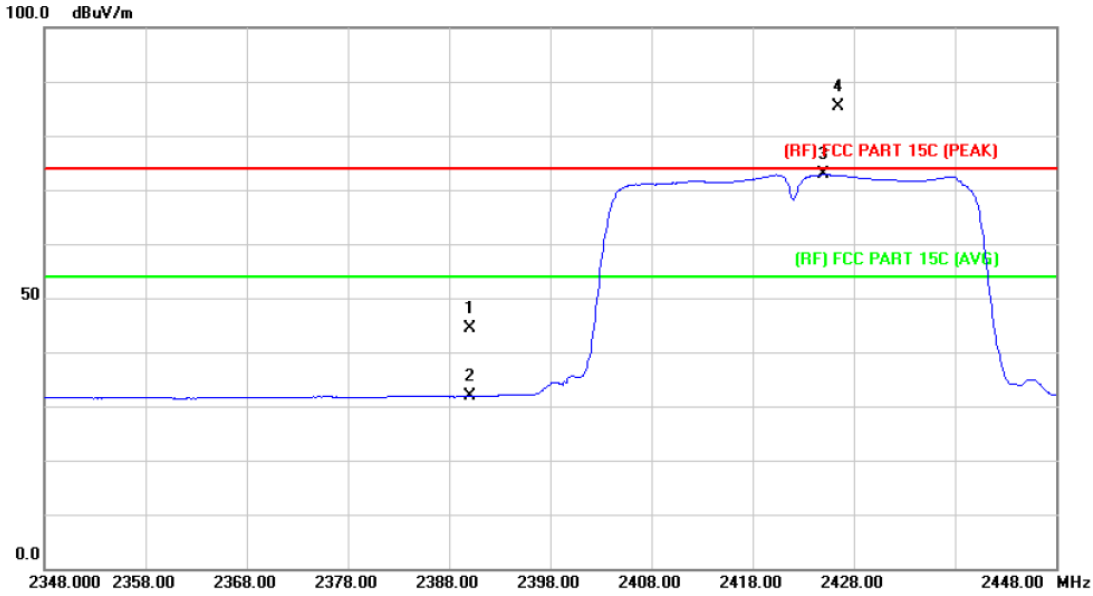
EUT:	Camera	**Model:**	RunCam2
Temperature:	25 ℃	**Relative Humidity:**	55%
Test Voltage:	DC 3.7V		
Ant. Pol.	Horizontal		
Test Mode:	TX N(HT40) Mode 2422MHz		
Remark:	N/A		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		2390.000	43.57	0.77	44.34	74.00	-29.66	peak
2		2390.000	31.21	0.77	31.98	54.00	-22.02	AVG
3	*	2426.700	72.41	0.93	73.34	Fundamental Frequency		AVG
4	X	2428.800	83.70	0.94	84.64	Fundamental Frequency		peak

Emission Level= Read Level+ Correct Factor

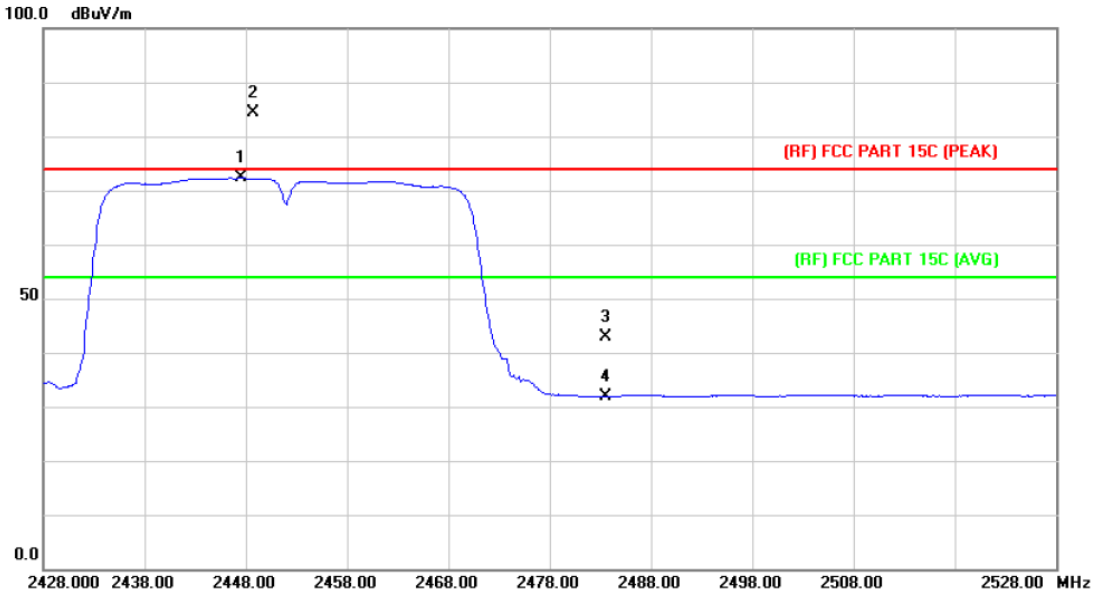
EUT:	Camera	Model:	RunCam2
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	DC 3.7V		
Ant. Pol.	Vertical		
Test Mode:	TX N(HT40) Mode 2422MHz		
Remark:	N/A		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		2390.000	43.72	0.77	44.49	74.00	-29.51	peak
2		2390.000	31.08	0.77	31.85	54.00	-22.15	AVG
3	*	2425.000	71.87	0.93	72.80	Fundamental Frequency		AVG
4	X	2426.500	84.41	0.93	85.34	Fundamental Frequency		peak

Emission Level= Read Level+ Correct Factor

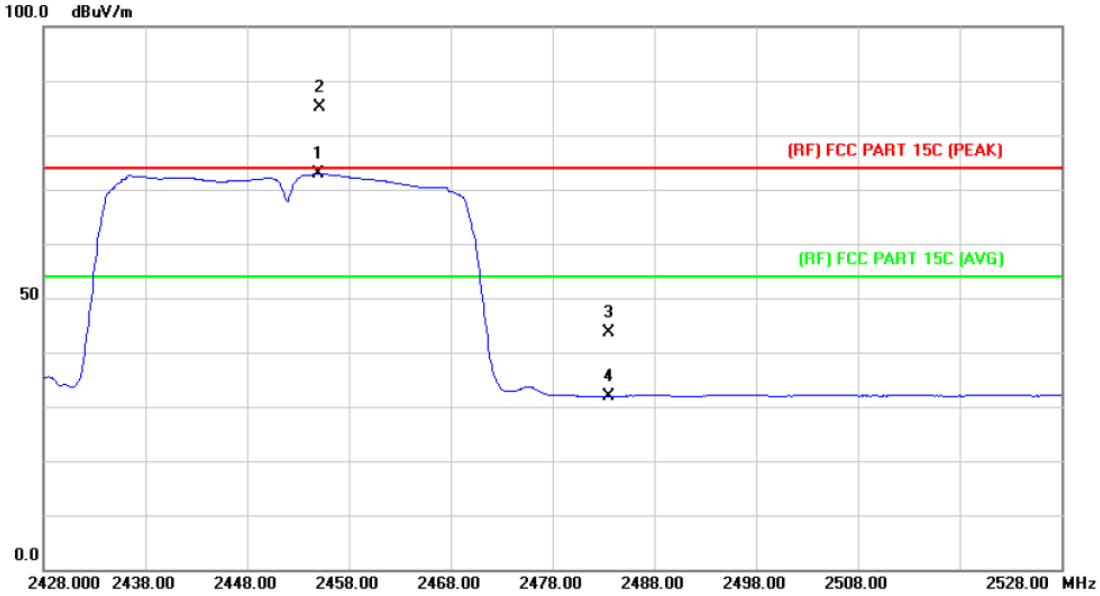
EUT:	Camera	Model:	RunCam2
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	DC 3.7V		
Ant. Pol.	Horizontal		
Test Mode:	TX N(HT40) Mode 2452MHz		
Remark:	N/A		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	2447.500	71.28	1.01	72.29	Fundamental Frequency		AVG
2	X	2448.700	83.34	1.02	84.36	Fundamental Frequency		peak
3		2483.500	41.70	1.17	42.87	74.00	-31.13	peak
4		2483.500	30.74	1.17	31.91	54.00	-22.09	AVG

Emission Level= Read Level+ Correct Factor

EUT:	Camera	Model:	RunCam2
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	DC 3.7V		
Ant. Pol.	Vertical		
Test Mode:	TX N(HT40) Mode 2452MHz		
Remark:	N/A		

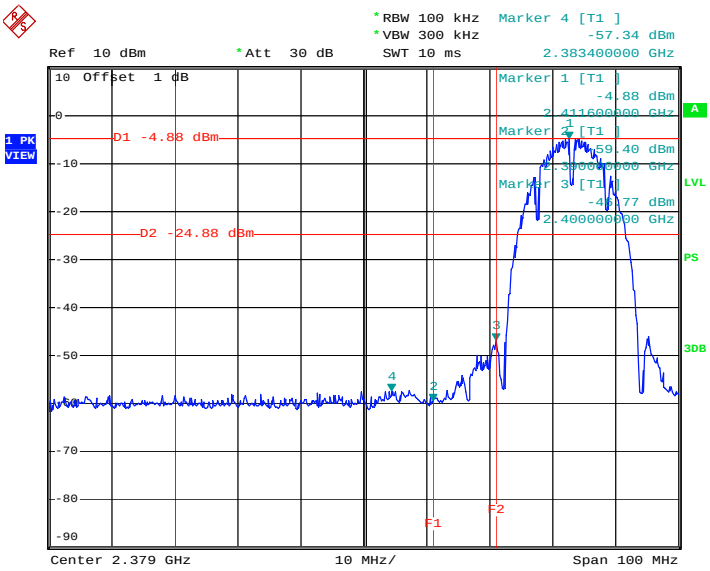


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	2455.000	71.80	1.05	72.85	Fundamental Frequency		AVG
2	X	2455.200	83.99	1.05	85.04	Fundamental Frequency		peak
3		2483.500	42.58	1.17	43.75	74.00	-30.25	peak
4		2483.500	30.74	1.17	31.91	54.00	-22.09	AVG

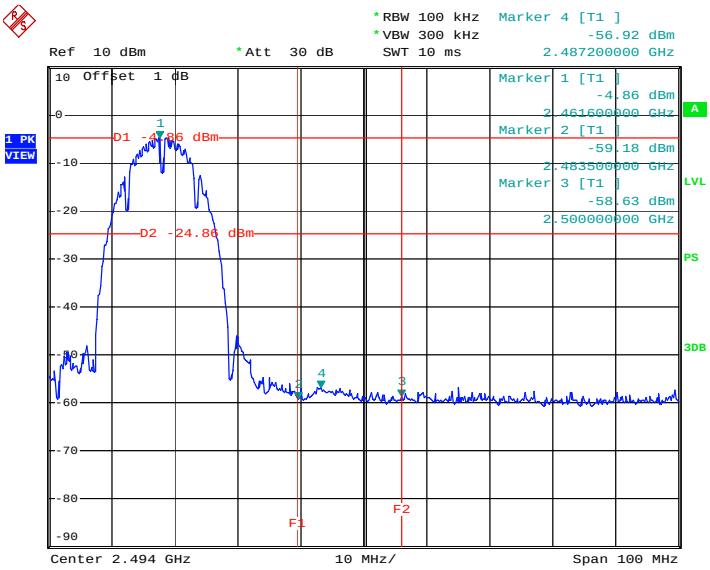
Emission Level= Read Level+ Correct Factor

(2) Conducted Test

EUT:	Camera	Model:	RunCam2
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	DC 3.7V		
Test Mode:	TX B Mode 2412MHz / TX B Mode 2462MHz		
Remark:	The EUT is programed in continuously transmitting mode		

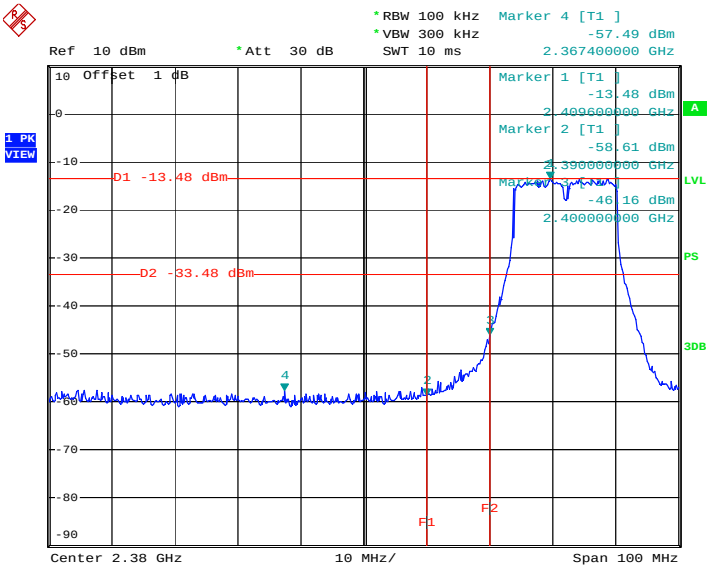


Date: 18.NOV.2015 13:34:33

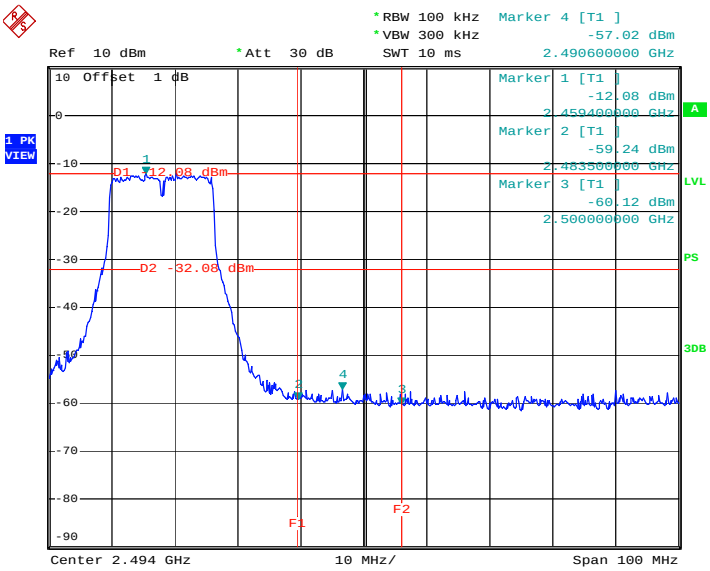


Date: 18.NOV.2015 13:38:54

EUT:	Camera	Model:	RunCam2
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	DC 3.7V		
Test Mode:	TX G Mode 2412MHz / TX G Mode 2462MHz		
Remark:	The EUT is programed in continuously transmitting mode		

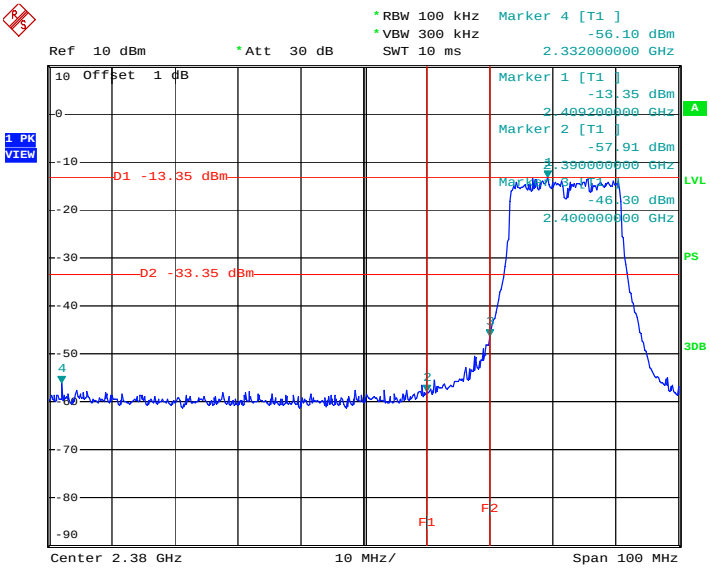


Date: 18.NOV.2015 13:45:14

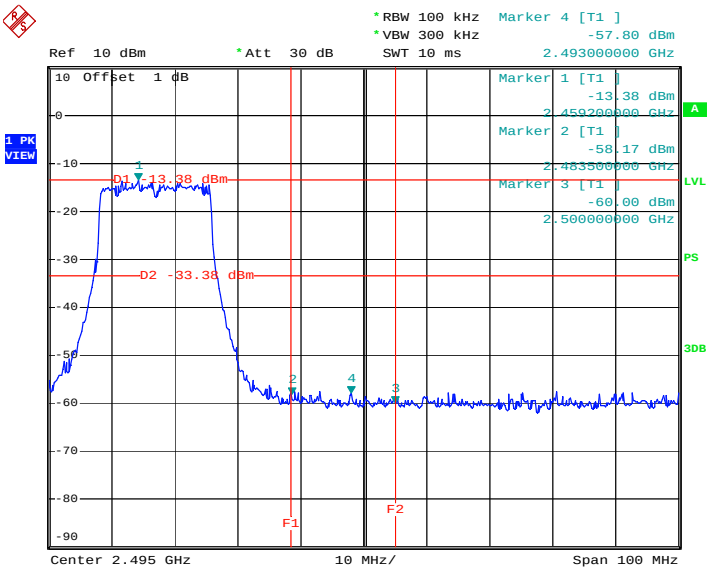


Date: 18.NOV.2015 13:40:23

EUT:	Camera	Model:	RunCam2
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	DC 3.7V		
Test Mode:	TX N(HT20) Mode 2412MHz / TX N(HT20) Mode 2462MHz		
Remark:	The EUT is programed in continuously transmitting mode		

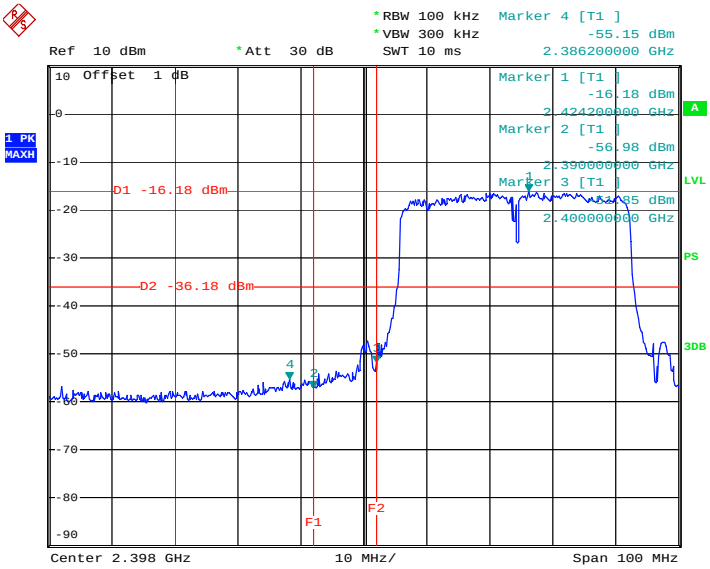


Date: 18.NOV.2015 13:46:59

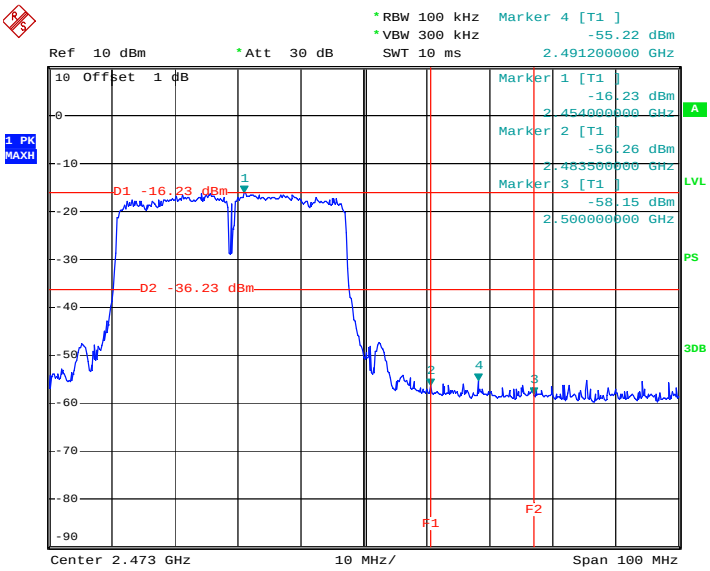


Date: 18.NOV.2015 13:50:20

EUT:	Camera	Model:	RunCam2
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	DC 3.7V		
Test Mode:	TX N(HT40) Mode 2422MHz / TX N(HT40) Mode 2452MHz		
Remark:	The EUT is programed in continuously transmitting mode		



Date: 18.NOV.2015 13:25:36



Date: 18.NOV.2015 13:17:52

7. Bandwidth Test

7.1 Test Standard and Limit

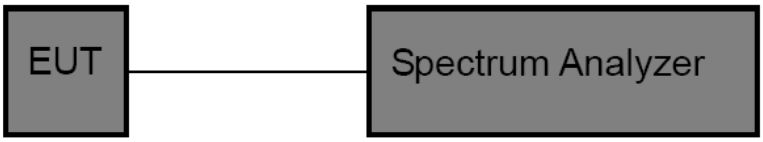
7.1.1 Test Standard

FCC Part 15.247 (a)(2)

7.1.2 Test Limit

FCC Part 15 Subpart C(15.247)/RSS 247		
Test Item	**Limit**	**Frequency Range(MHz)**
Bandwidth	>=500 KHz (6dB bandwidth)	2400~2483.5

7.2 Test Setup



7.3 Test Procedure

(1) The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.

(2) The bandwidth is measured at an amplitude level reduced 6dB from the reference level. The reference level is the level of the highest amplitude signal observed from the transmitter at the fundamental frequency. Once the reference level is established, the equipment is conditioned with typical modulating signal to produce the worst –case (i.e the widest) bandwidth.

(3)Measure the channel separation the spectrum analyzer was set to Resolution Bandwidth:100 kHz, and Video Bandwidth:300 kHz, Detector: Peak, Sweep Time set auto.

7.4 EUT Operating Condition

The EUT was set to continuously transmitting in each mode and low, middle and high channel for the test.

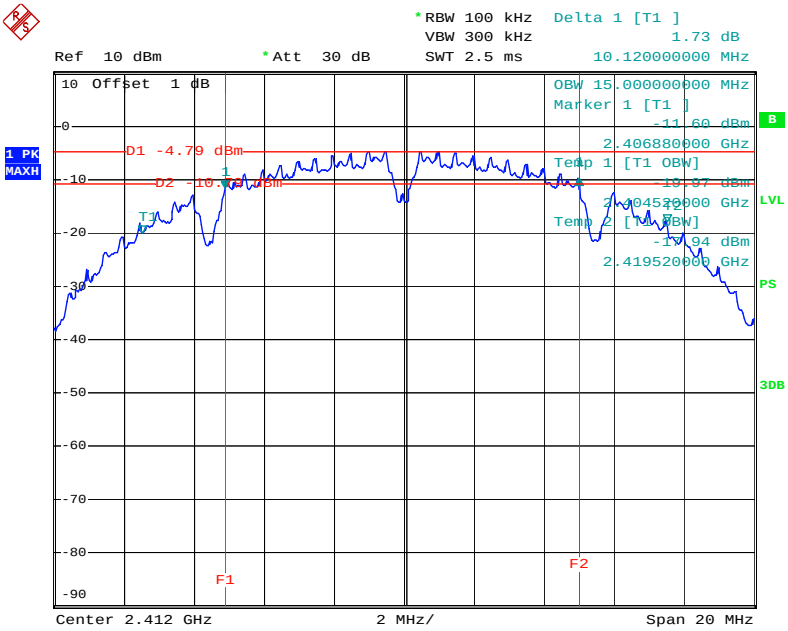
7.5 Test Data

EUT:	Camera	Model:	RunCam2
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	DC 3.7V		
Test Mode:	TX 802.11B Mode		

Channel frequency (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)	Limit (MHz)
2412	10.12	15.00	>=0.5
2437	10.12	15.04	
2462	10.12	15.00	

802.11B Mode

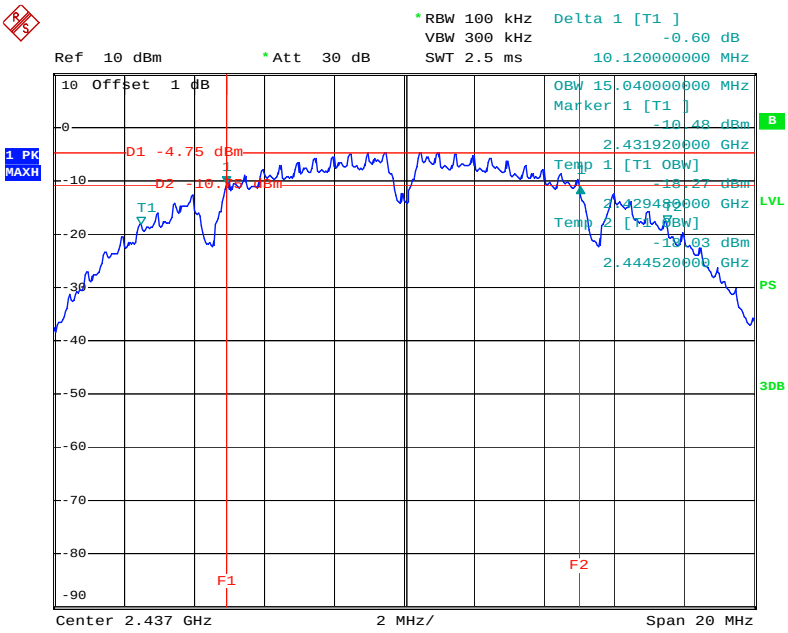
2412 MHz



Date: 18.NOV.2015 12:30:45

802.11B Mode

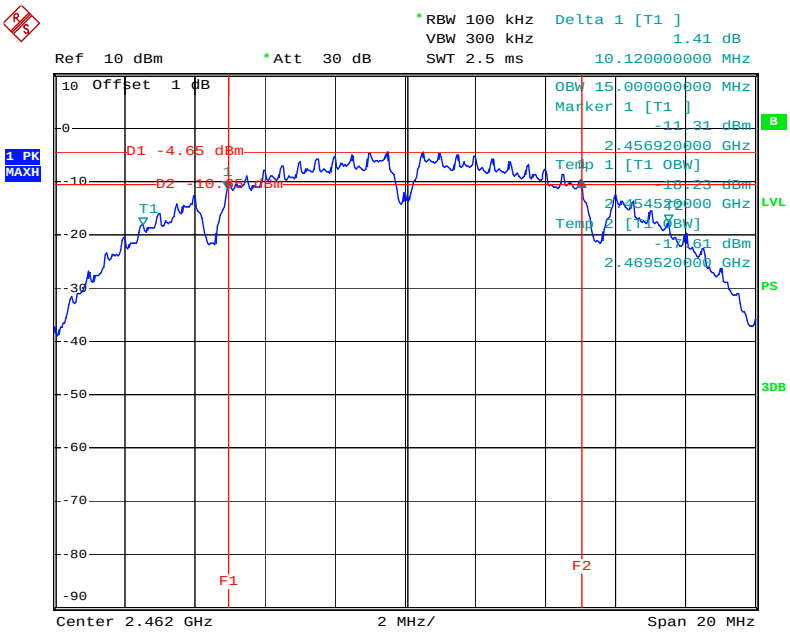
2437 MHz



Date: 18.NOV.2015 12:34:27

802.11B Mode

2462 MHz



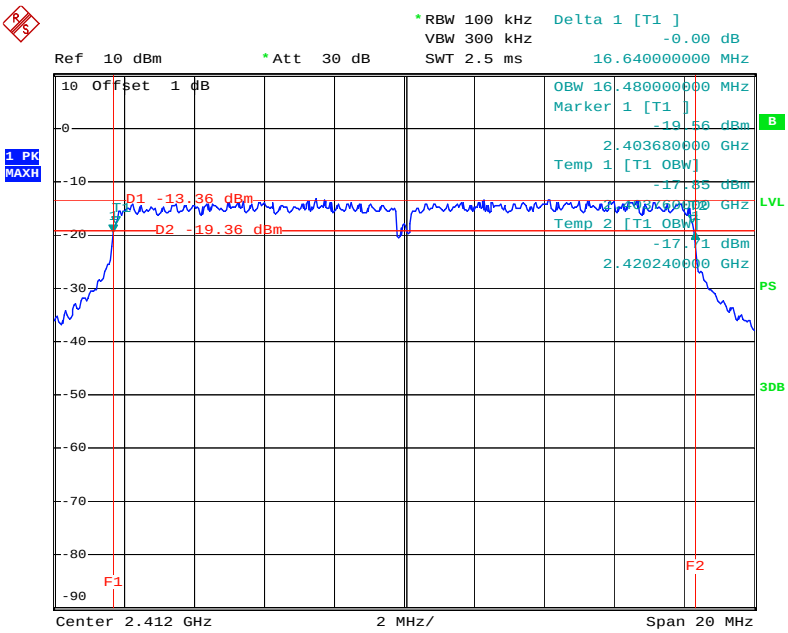
Date: 18.NOV.2015 12:39:24

EUT:	Camera	Model:	RunCam2
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	DC 3.7V		
Test Mode:	TX 802.11G Mode		

Channel frequency (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)	Limit (MHz)
2412	16.64	16.48	>=0.5
2437	16.60	16.48	
2462	16.64	16.52	

802.11G Mode

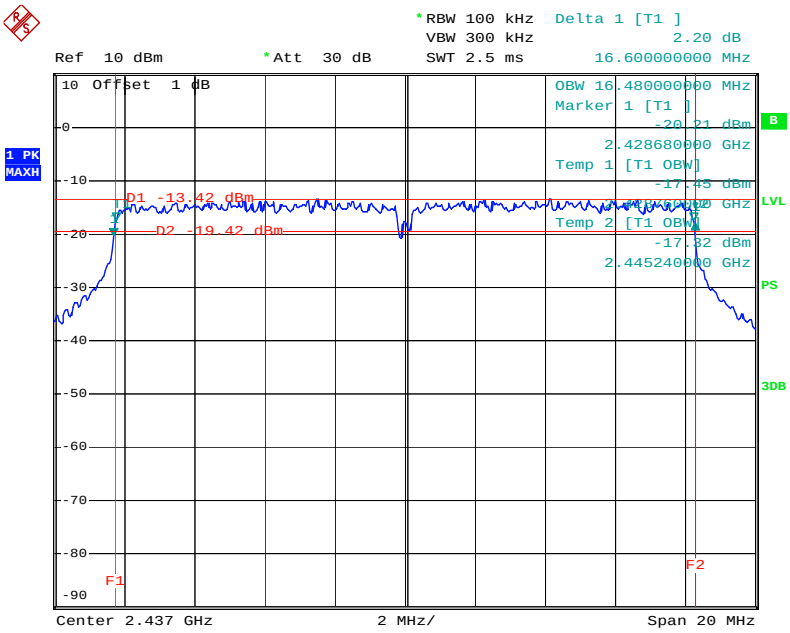
2412 MHz



Date: 18.NOV.2015 12:44:44

802.11G Mode

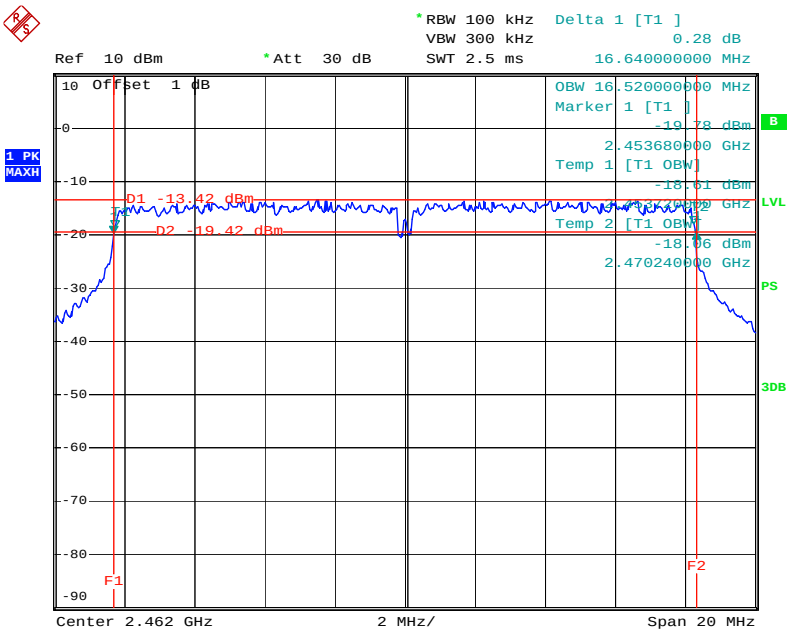
2437 MHz



Date: 18.NOV.2015 12:49:46

802.11G Mode

2462 MHz



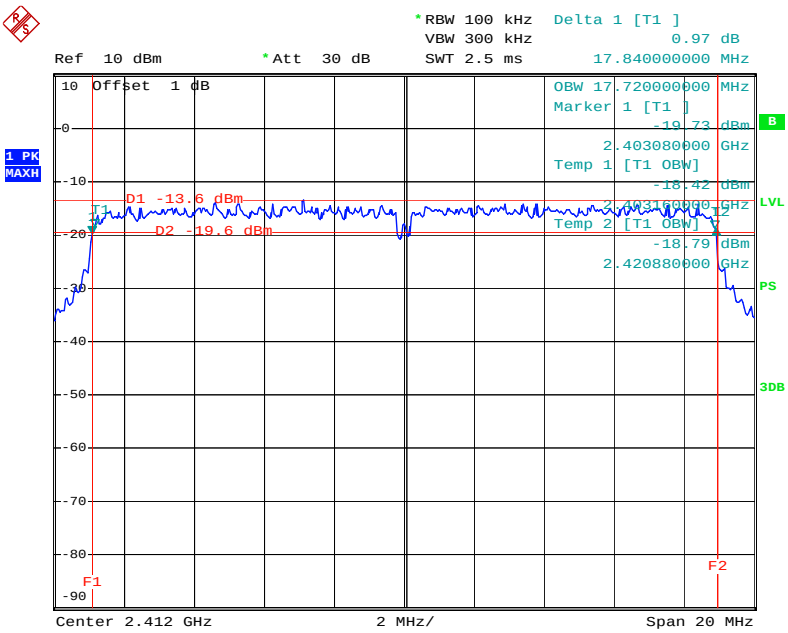
Date: 18.NOV.2015 12:51:58

EUT:	Camera	Model:	RunCam2
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	DC 3.7V		
Test Mode:	TX 802.11N(HT20) Mode		

Channel frequency (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)	Limit (MHz)
2412	17.84	17.72	>=0.5
2437	17.84	17.72	
2462	17.84	17.68	

802.11N(HT20) Mode

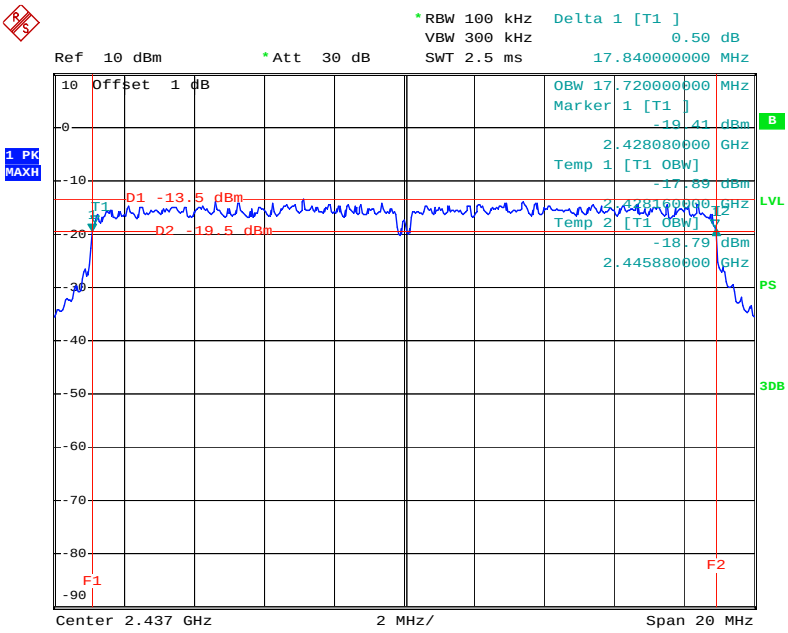
2412 MHz



Date: 18.NOV.2015 12:55:39

802.11N(HT20) Mode

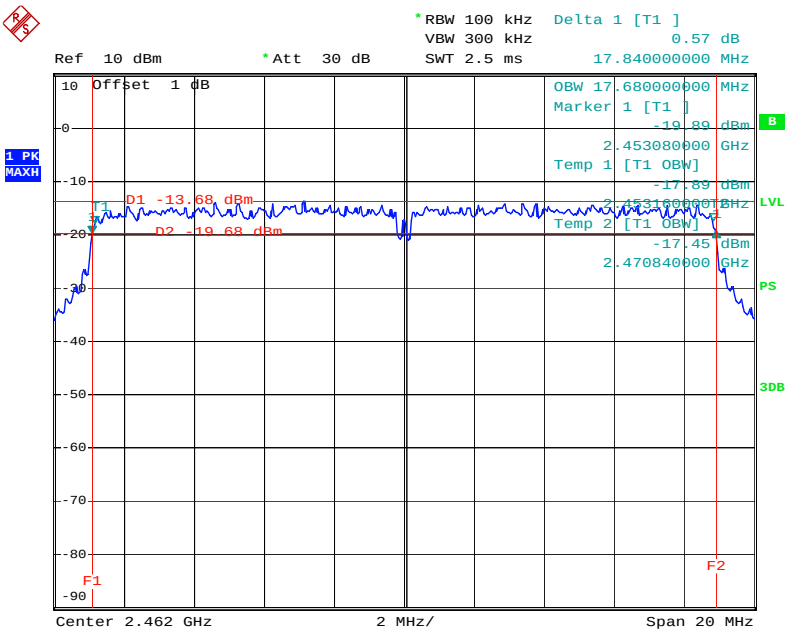
2437 MHz



Date: 18.NOV.2015 12:58:09

802.11N(HT20) Mode

2462 MHz



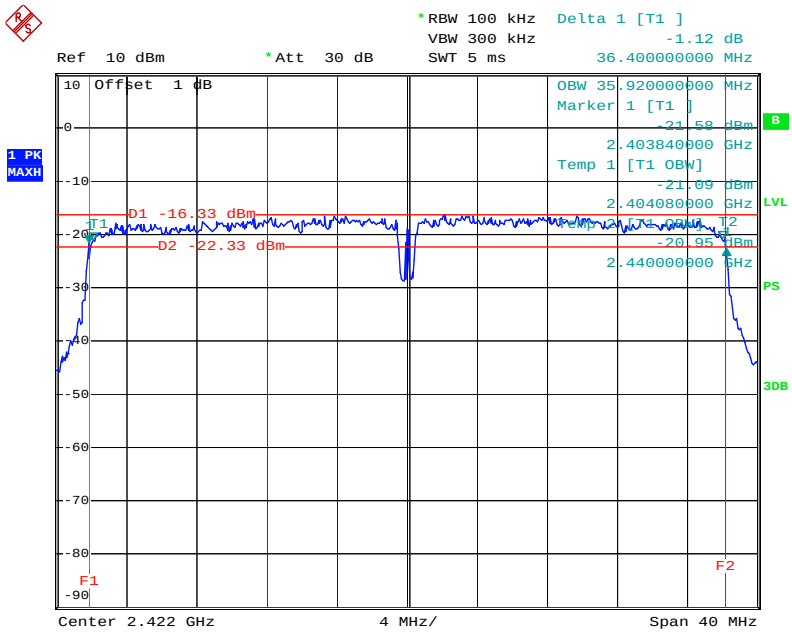
Date: 18.NOV.2015 13:00:55

EUT:	Camera	Model:	RunCam2
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	DC 3.7V		
Test Mode:	TX 802.11N(HT40) Mode		

Channel frequency (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)	Limit (MHz)
2422	36.40	35.92	>=0.5
2437	36.40	35.92	
2452	36.48	35.92	

802.11N(HT40) Mode

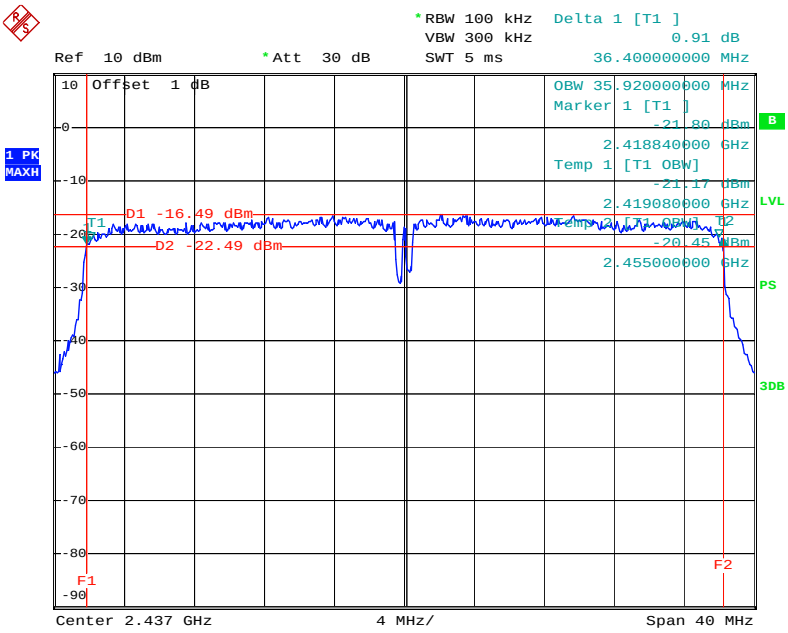
2422 MHz



Date: 18.NOV.2015 13:08:29

802.11N(HT40) Mode

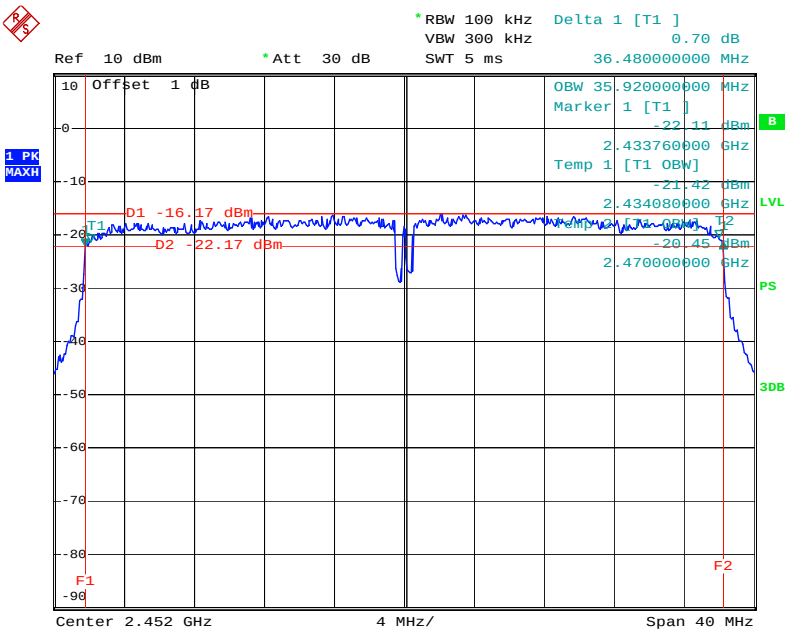
2437 MHz



Date: 18.NOV.2015 13:10:57

802.11N(HT40) Mode

2452 MHz



Date: 18.NOV.2015 13:14:01

8. Peak Output Power Test

8.1 Test Standard and Limit

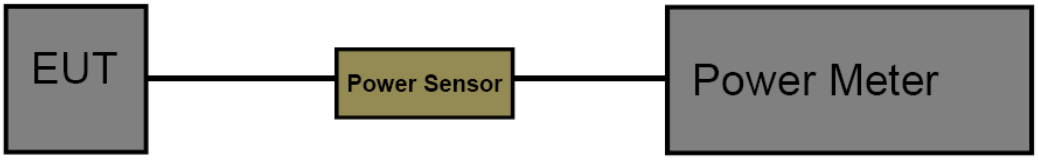
8.1.1 Test Standard

FCC Part 15.247 (b)

8.1.2 Test Limit

FCC Part 15 Subpart C(15.247)/RSS 247		
Test Item	**Limit**	**Frequency Range(MHz)**
Peak Output Power	1 Watt or 30 dBm	2400~2483.5

8.2 Test Setup



8.3 Test Procedure

The measurement is according to section 9.1.2 of KDB 558074 D01 DTS Meas Guidance v03r03.
The EUT was connected to RF power meter via a broadband power sensor as show the block above. The power sensor video bandwidth is greater than or equal to the DTS bandwidth of the equipment.

8.4 EUT Operating Condition

The EUT was set to continuously transmitting in the max power during the test.

8.5 Test Data

EUT:	Camera	Model Name :	RunCam2
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	DC 3.7V		

Mode	Channel frequency (MHz)	Test Result (dBm)	Limit (dBm)
802.11b	2412	9.12	30
	2437	9.15	
	2462	9.16	
802.11g	2412	9.08	
	2437	9.04	
	2462	9.07	
802.11n (HT20)	2412	9.11	
	2437	9.06	
	2462	9.02	
802.11n (HT40)	2422	9.10	
	2437	9.12	
	2452	9.01	
Result: PASS			

9. Power Spectral Density Test

9.1 Test Standard and Limit

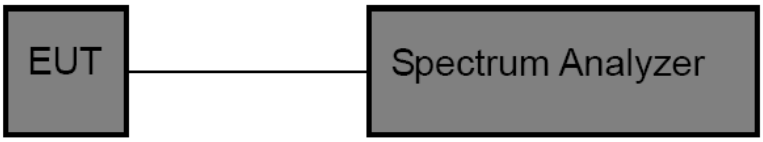
9.1.1 Test Standard

FCC Part 15.247 (e)

9.1.2 Test Limit

FCC Part 15 Subpart C(15.247)		
Test Item	**Limit**	**Frequency Range(MHz)**
Power Spectral Density	8dBm(in any 3 kHz)	2400~2483.5

9.2 Test Setup



9.3 Test Procedure

The EUT was directly connected to the Spectrum Analyzer and antenna output port as show in the block diagram above. The measurement according to section 10.2 of KDB 558074 D01 DTS Meas Guidance v03r03.

(1) The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
(2) Set analyser center frequency to DTS channel center frequency.
(3) Set the span to 1.5 times the DTS bandwidth.
(4) Set the RBW to: 3 kHz
(5) Set the VBW to: 10 kHz
(6) Detector: peak
(7) Sweep time: auto
(8) Allow trace to fully stabilize. Then use the peak marker function to determine the maximum amplitude level.

9.4 EUT Operating Condition

The EUT was set to continuously transmitting in each mode and low, middle and high channel for the test.

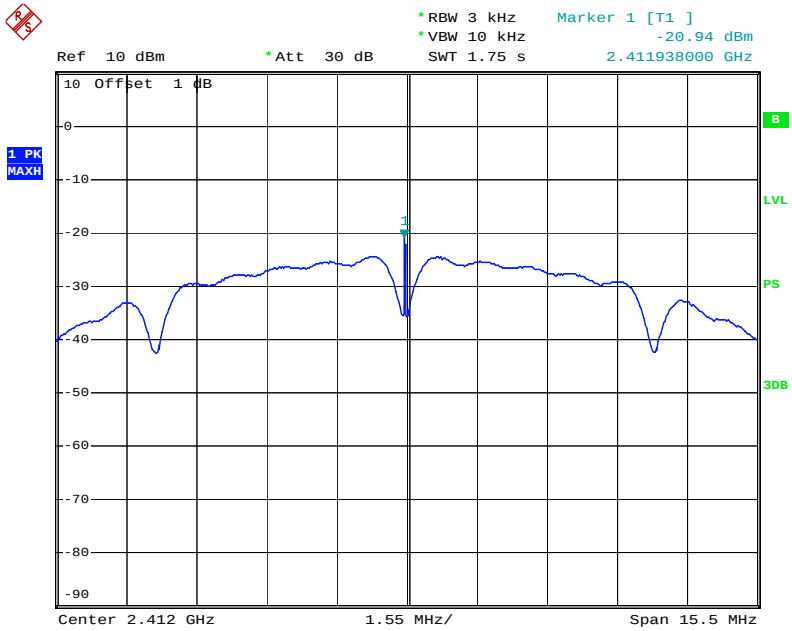
9.5 Test Data

EUT:	Camera	Model:	RunCam2
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	DC 3.7V		
Test Mode:	TX 802.11B Mode		

Channel Frequency (MHz)	Power Density (3 kHz/dBm)	Limit (dBm)
2412	-20.94	8
2437	-20.60	
2462	-20.08	

802.11B Mode

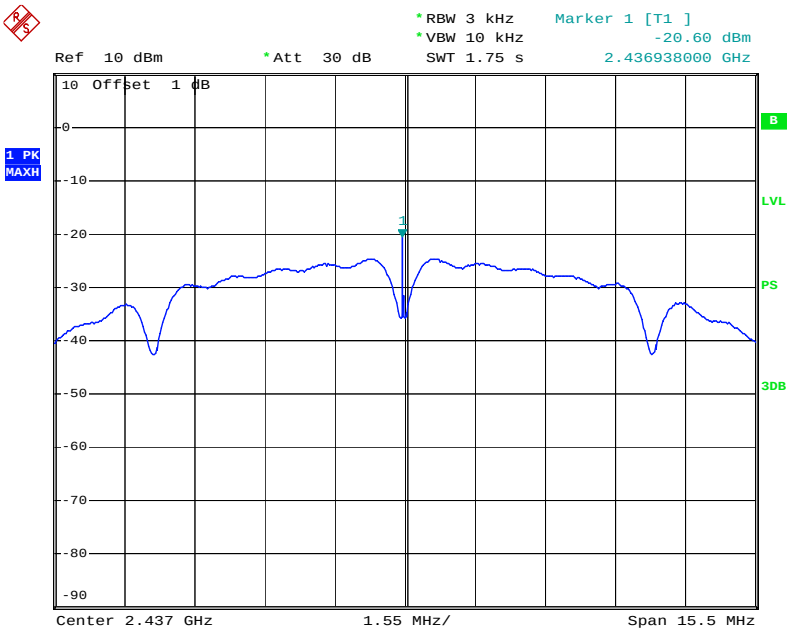
2412 MHz



Date: 18.NOV.2015 13:36:20

802.11B Mode

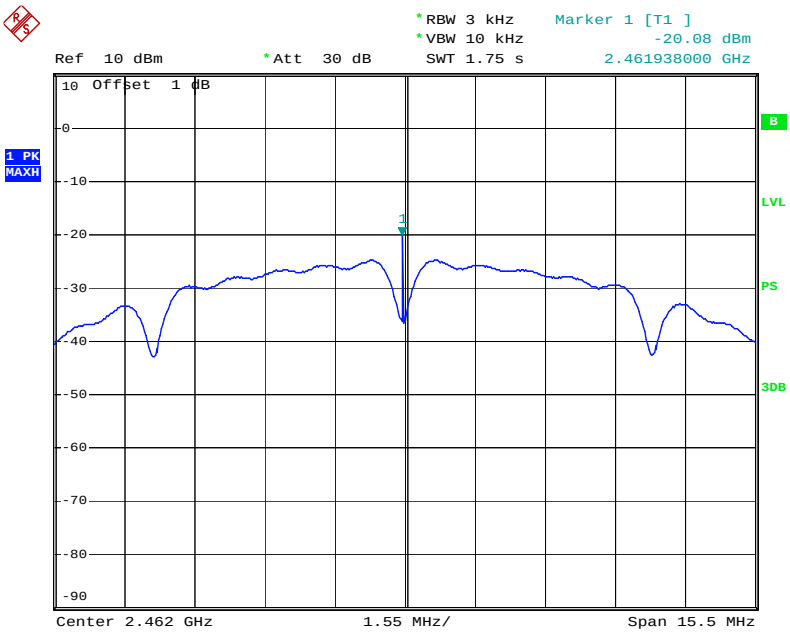
2437 MHz



Date: 18.NOV.2015 13:35:44

802.11B Mode

2462 MHz



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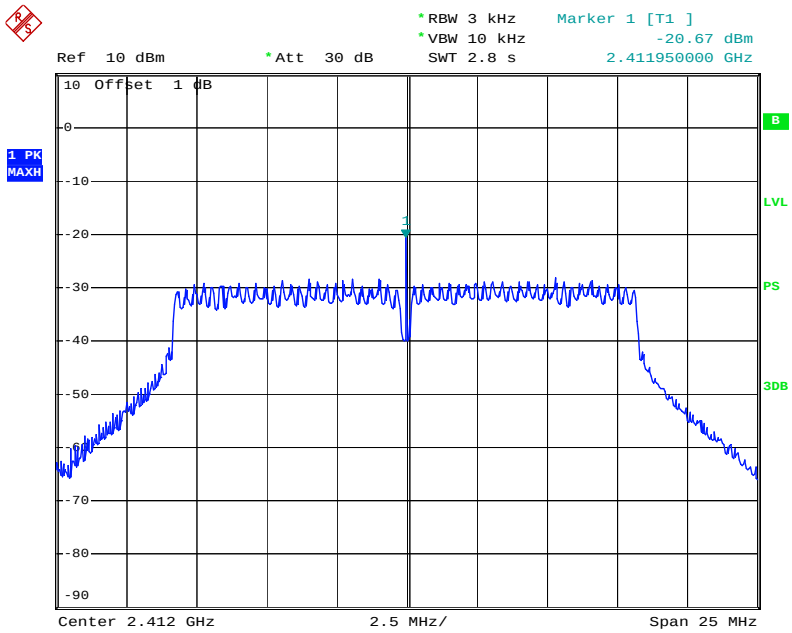
EUT:	Camera	Model:	RunCam2
Temperature:	25 ℃	Temperature:	25 ℃
Test Voltage:	DC 3.7V		
Test Mode:	TX 802.11G Mode		

Channel Frequency (MHz)	Power Density (3 kHz/dBm)	Limit (dBm)
2412	-20.67	8
2437	-20.30	
2462	-20.06	

802.11G Mode

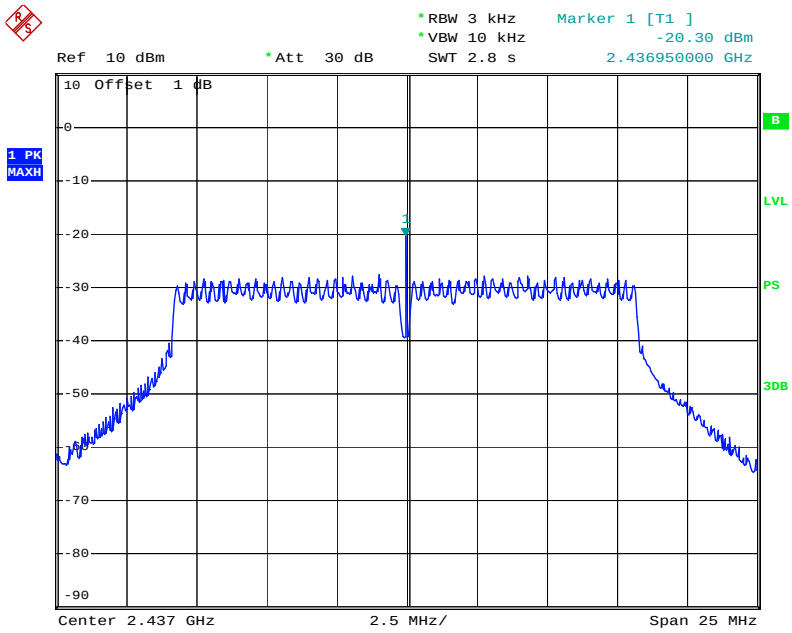
2412 MHz



Date: 18.NOV.2015 13:43:13

802.11G Mode

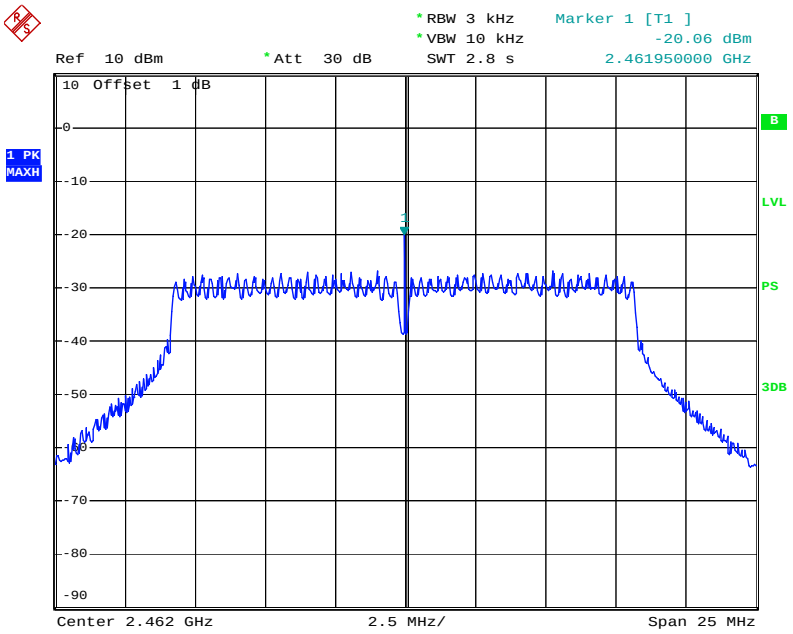
2437 MHz



Date: 18.NOV.2015 13:41:51

802.11G Mode

2462 MHz



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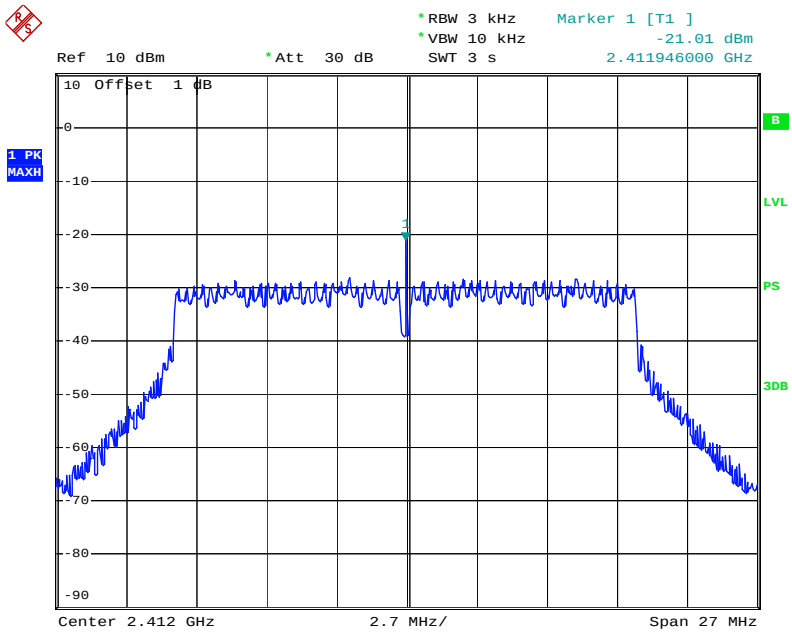
C

EUT:	Camera	Model:	RunCam2
Temperature:	25 ℃	Temperature:	25 ℃
Test Voltage:	DC 3.7V		
Test Mode:	TX 802.11N(HT20) Mode		

Channel Frequency (MHz)	Power Density (3 kHz/dBm)	Limit (dBm)
2412	-21.01	8
2437	-20.27	
2462	-19.88	

802.11N(HT20) Mode

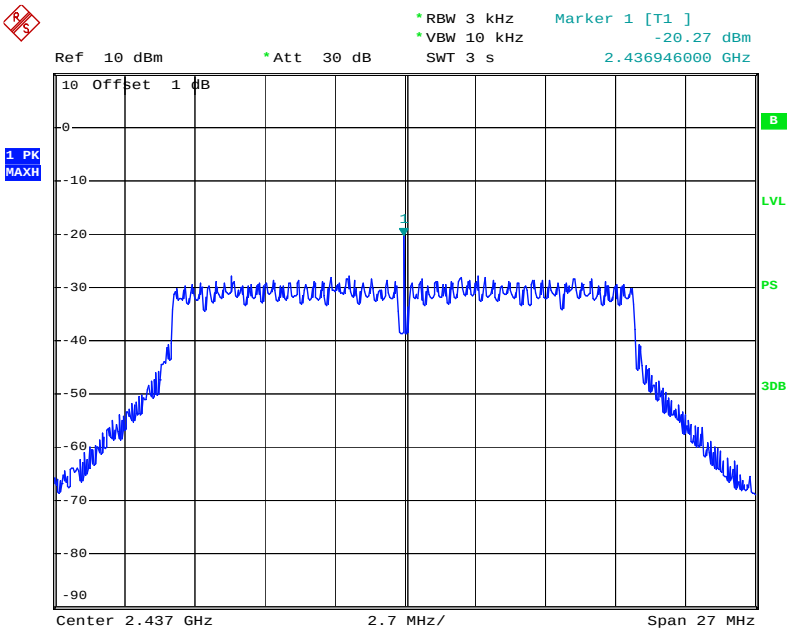
2412 MHz



Date: 18.NOV.2015 13:47:24

802.11N(HT20) Mode

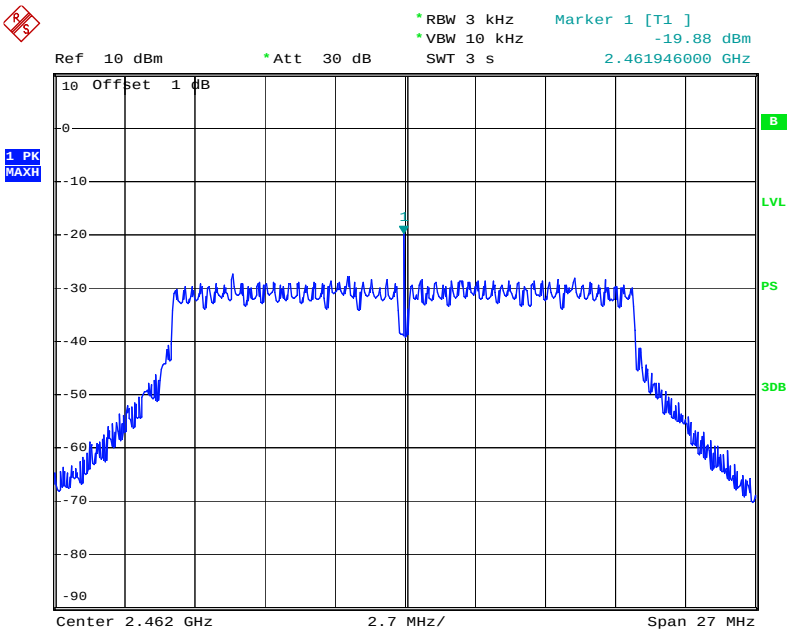
2437 MHz



Date: 18.NOV.2015 13:48:21

802.11N(HT20) Mode

2462 MHz



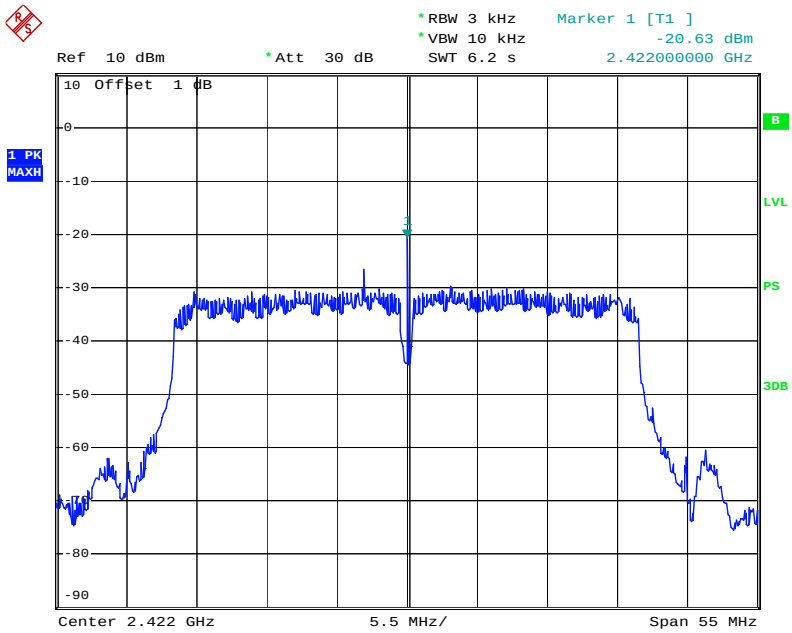
Date: 18.NOV.2015 13:49:06

EUT:	Camera	Model:	RunCam2
Temperature:	25 ℃	Temperature:	25 ℃
Test Voltage:	DC 3.7V		
Test Mode:	TX 802.11N(HT40) Mode		

Channel Frequency (MHz)	Power Density (3 kHz/dBm)	Limit (dBm)
2422	-20.63	8
2437	-20.32	
2452	-20.21	

802.11N(HT40) Mode

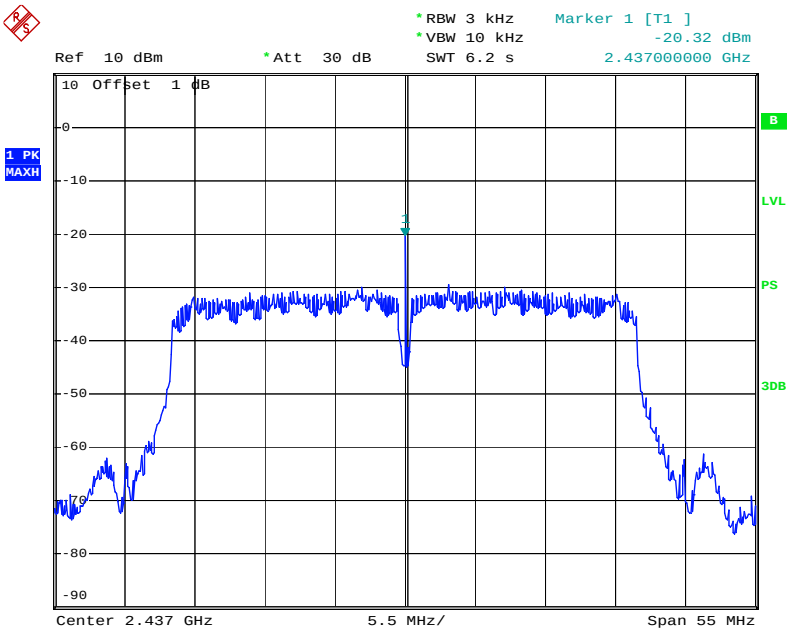
2422 MHz



Date: 18.NOV.2015 13:24:15

802.11N(HT40) Mode

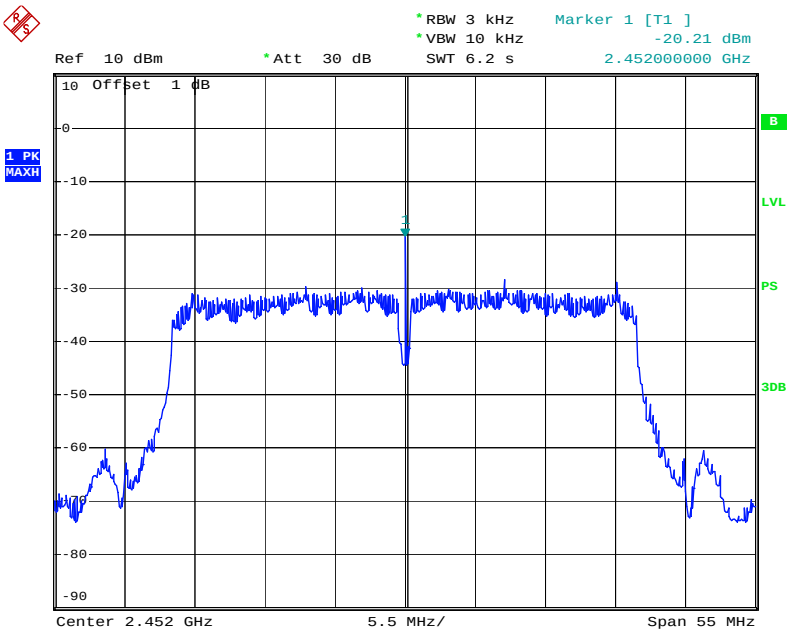
2437 MHz



Date: 18.NOV.2015 13:22:48

802.11N(HT40) Mode

2452 MHz



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10. Antenna Requirement

10.1 Standard Requirement

10.1.1 Standard

FCC Part 15.203

10.1.2 Requirement

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

10.2 Antenna Connected Construction

The directional gains of the antenna used for transmitting is 0.44 dBi, and the antenna de-signed with permanent attachment and no consideration of replacement. Please see the EUT photo for details.

10.3 Result

The EUT antenna is a PCB Antenna. It complies with the standard requirement.

Antenna Type
☑ Permanent attached antenna
☐ Unique connector antenna
☐ Professional installation antenna