

FCC PART 15C TEST REPORT FOR CERTIFICATION
On Behalf of

Lorex Technology Inc.

2.4G wireless camera product

Model Number: LW3211-C

FCC ID: UCZ-LW3211

Prepared for : Lorex Technology Inc.
250 Royal Crest Court Markham, ON L3R 3S1 Canada

Prepared By : EST Technology Co., Ltd.
Santun(guantai Road), Houjie Town, DongGuan City, GuangDong,
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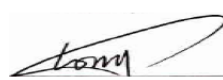
Report Number : ESTE-R1511004
Date of Test : October 24 ~ November 13,2015
Date of Report : November 14, 2015

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Test Report Verification

Applicant:	Lorex Technology Inc.		
Address:	250 Royal Crest Court Markham, ON L3R 3S1 Canada		
Manufacturer Address:	OPCOM O.E.(DONG GUAN)INC. Gu Cun Industry Estate Dajing Countryside Committee Houjie Town, Dongguan City Guangdong, China 523958		
E.U.T:	2.4G wireless camera product		
Model Number:	LW3211-C		
Power Supply:	DC 12V From Adapter Input AC 100-240V~50/60Hz		
Test Voltage:	AC 120V/AC 240V		
Trade Name:	-----	Serial No.:	-----
Date of Receipt:	October 24 ,2015	Date of Test:	October 24 ~ November 13,2015
Test Specification:	FCC Rules and Regulations Part 15 Subpart C:2015 ANSI C63.10:2013		
Test Result:	The device described above is tested by EST Technology Co., Ltd.. The measurement results were contained in this test report and EST Technology Co., Ltd. was assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT to be technically compliance with the FCC Rules and Regulations Part 15 Subpart C requirements. This report applies to above tested sample only and shall not be reproduced in part without written approval of EST Technology Co., Ltd. Date: November 14,2015		
Prepared by:	Tested by:	Approved by:	
 Ada / Assistant	 Tony.Tang/ Engineer	 IcemanHu / Manager	
Other Aspects:	None.		
Abbreviations: OK/P=passed fail/F=failed n.a/N=not applicable E.U.T=equipment under tested			
This test report is based on a single evaluation of one sample of above mentioned products ,It is not permitted to be duplicated in extracts without written approval of EST Technology Co., Ltd.			

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

Product Name : 2.4G wireless camera product
Model Number : LW3211-C
FCC ID : UCZ-LW3211
Operation frequency : 2408MHz~2468MHz
Number of channel : 16
Antenna : Integral antenna, 3.00 dBi gain
Modulation : FHSS(GFSK) --- Only TX
Sample Type : Prototype production

2. SUMMARY OF TEST

2.1. Summary of test result

Description of Test Item	Standard	Results
Maximum Peak Output Power	FCC Part 15: 15.247(b)(1) DA 00-705	PASS
20dB Bandwidth	FCC Part 15: 15.215 DA 00-705	PASS
Carrier Frequency Separation	FCC Part 15: 15.247(a)(1) DA 00-705	PASS
Number Of Hopping Channel	FCC Part 15: 15.247(a)(1)(iii) DA 00-705	PASS
Dwell Time	FCC Part 15: 15.247(a)(1)(iii) DA 00-705	PASS
Radiated Emission	FCC Part 15: 15.209 FCC Part 15: 15.247(d) ANSI C63.10: 2013 DA 00-705	PASS
Band Edge Compliance	FCC Part 15: 15.247(d) DA 00-705	PASS
Power Line Conducted Emissions	FCC Part 15: 15.207 ANSI C63.4: 2003 DA 00-705	PASS
Antenna requirement	FCC Part 15: 15.203	PASS

2.2. Test Facilities

EMC Lab : Certificated by CNAL, CHINA
Registration No.: L5288
Date of registration: November 13, 2014

Certificated by FCC, USA
Registration No.: 989591
Date of registration: November 20, 2013

Certificated by Industry Canada
Registration No.: 46405-9405
Test Side Number: 9405A-1
Date of registration: January 03, 2013

Certificated by VCCI, Japan
Registration No.: R-3663 & C-4103
Date of registration: July 25, 2011

Certificated by TUV Rheinland, Germany
Registration No.: UA 50195514 0001
Date of registration: January 07, 2011

Certificated by TUV/PS, Shenzhen
Registration No.: SCN1017
Date of registration: January 27, 2011

Certificated by Intertek ETL SEMKO
Registration No.: 2011-RTL-L1-18
Date of registration: April 28, 2011

Certificated by Siemic, Inc.
Registration No.: SLCN021
Date of registration: November 8, 2011

Certificated by Nemko, Hong Kong
Registration No.: 175193
Date of registration: May 4, 2011

Name of Firm : EST Technology Co., Ltd.

Site Location : San Tun Management Zone, Houjie Town, Dongguan, Guangdong, China

2.3. Measurement uncertainty

Test Item	Uncertainty
Uncertainty for Conduction emission test	2.54dB
Uncertainty for Radiation Emission test (30MHz-1GHz)	3.62
Uncertainty for Radiation Emission test (1GHz to 18GHz)	4.86
Uncertainty for radio frequency	7×10^{-8}
Uncertainty for conducted RF Power	0.20dB
Uncertainty for Power density test	0.26dB

Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

2.4. Assistant equipment used for test

2.4.1. Adapter

M / N : DSA-6PFE-12 FUS 120050
 Manufacturer : DVE
 INPUT : AC 100-240V, 50/60Hz, 0.2A Max.
 OUTPUT : DC 12V, 0.5A

2.5. Block Diagram

For radiated emissions test: EUT was placed on a turn table, which is 0.8 (or 1.5) meter high above ground. EUT was be set into RF test mode by software before test.



(EUT: 2.4G wireless camera product)

2.6. Test mode

The test software was used to control EUT work in Continuous TX mode, and select test channel, wireless mode

Mode	Channel	Frequency
GFSK	Low	2408MHz
	Middle	2440MHz
	High	2468MHz

2.7. Channel List

Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
1	2408	2	2412	3	2416	4	2420
5	2424	6	2428	7	2432	8	2436
9	2440	10	2444	11	2448	12	2452
13	2456	14	2460	15	2464	16	2468

2.8. Test Equipment

2.8.1. For conducted emission test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde & Schwarz	ESHS30	832354	June,28,15	1 Year
Artificial Mains Networ	Rohde & Schwarz	ENV216	101260	June,28,15	1 Year
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	101100	June,28,15	1 Year

2.8.2. For radiated emission test(30-1000MHz)

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde & Schwarz	ESVS10	100004	June,28,15	1 Year
Spectrum Analyzer	Agilent	E4411B	MY50140697	June,28,15	1 Year
Bilog Antenna	Teseq	CBL 6111D	27090	June,28,15	1 Year
Signal Amplifier	Agilent	310N	187037	June,28,15	1 Year

2.8.3. For radiated emission test(above 1GHz)

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Horn Antenna	SCHWARZBECK	BBHA 9120 D	BBHA9120D1002	June,28,15	1 Year
Signal Amplifier	SCHWARZBECK	BBV9718	9718-212	June,28,15	1 Year
Spectrum Analyzer	Agilent	E4408B	MY44211139	June,28,15	1 Year
Signal and Spectrum Analyzer	Rohde &Schwarz	FSV	103173	June,28,15	1 Year

3. MAXIMUM PEAK OUTPUT POWER

3.1. Limit

For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts, the e.i.r.p shall not exceed 4W

3.2. Test Procedure

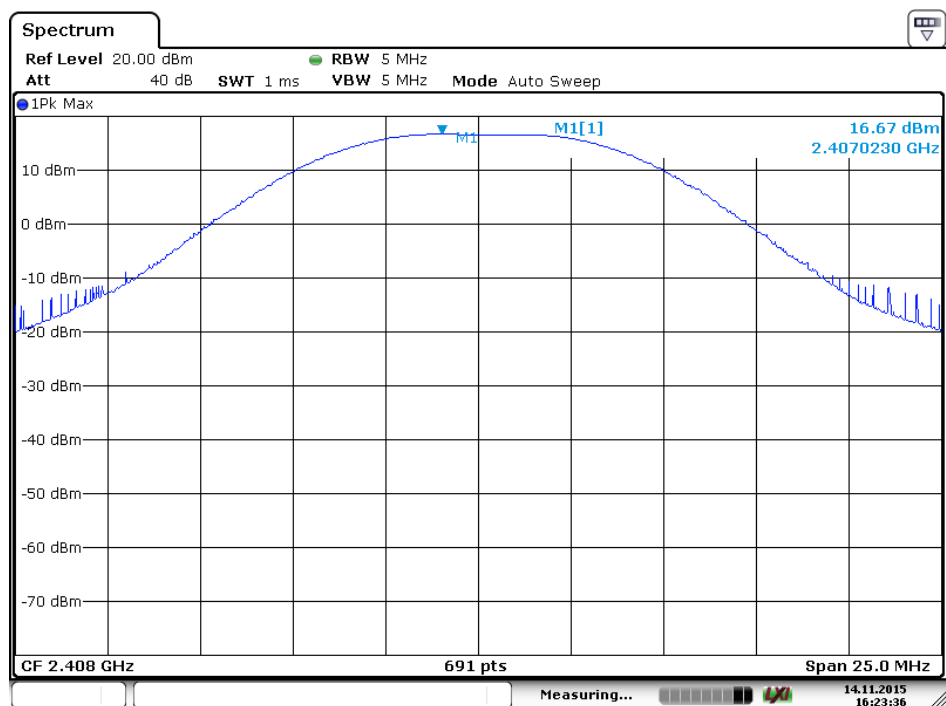
The transmitter output (antenna port) was connected to the spectrum analyzer

3.3. Test Result

EUT: 2.4G wireless camera product					
M/N: LW3211-C					
Test date: 2015-11-01		Test site: RF site		Tested by: Tony Tang	
Mode	Freq (MHz)	Result (dBm)	Limit		Margin (dB)
			dBm	W	
GFSK	2408	16.67	21.00	0.125	4.33
	2440	16.46	21.00	0.125	4.54
	2468	16.41	21.00	0.125	4.59
Conclusion: PASS					

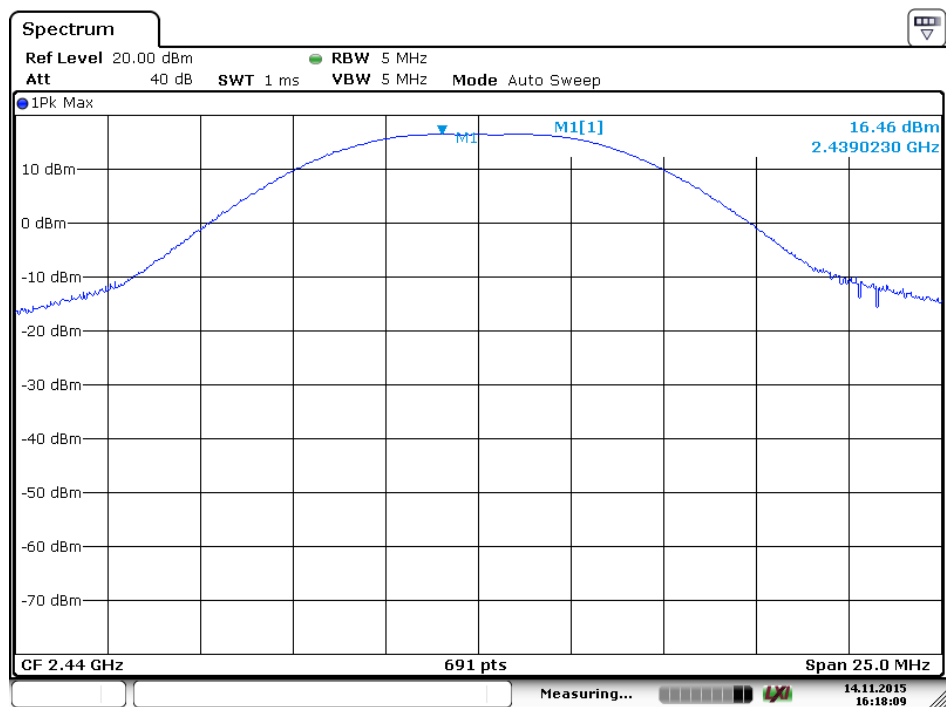
3.4. Test Data

GFSK 2408 MHz



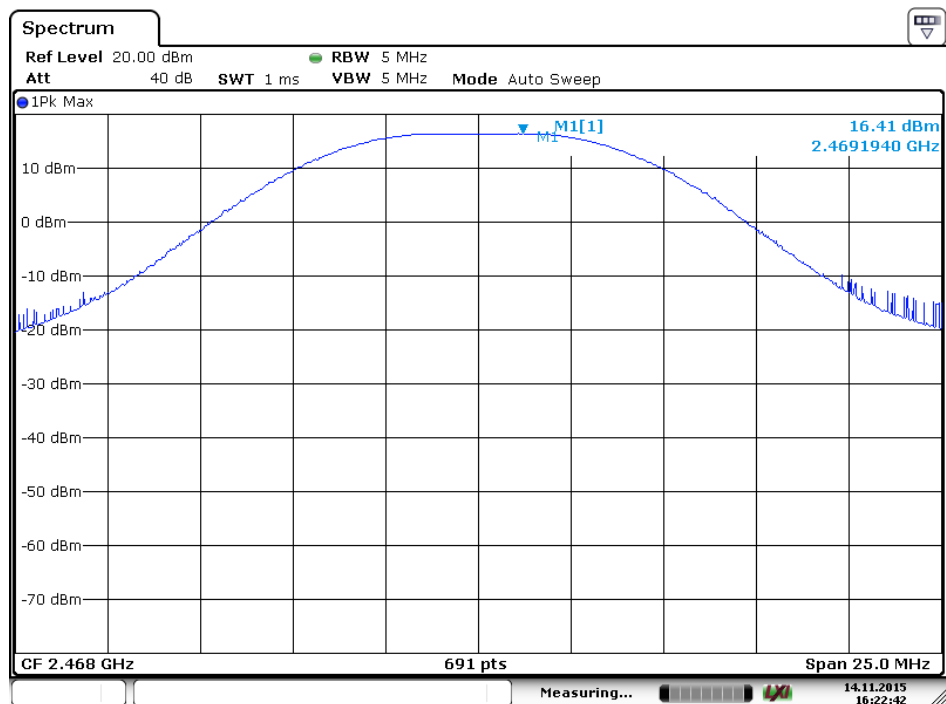
Date:14 NOV 2015 16:23:36

GFSK 2440 MHz



Date:14 NOV 2015 16:18:09

GFSK 2468 MHz



Date: 14.NOV.2015 16:22:43

4. 20 DB BANDWIDTH

4.1. Limit

Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§ 15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

4.2. Test Procedure

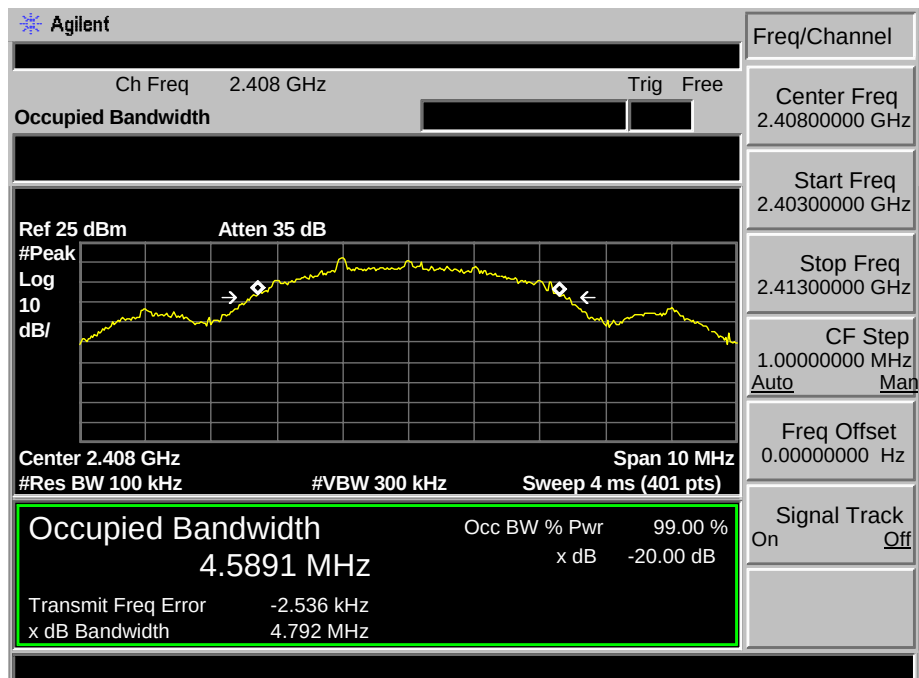
The transmitter output was coupled to a spectrum analyzer via a antenna. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100kHz RBW and 300kHz VBW. The 20dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20dB.

4.3. Test Result

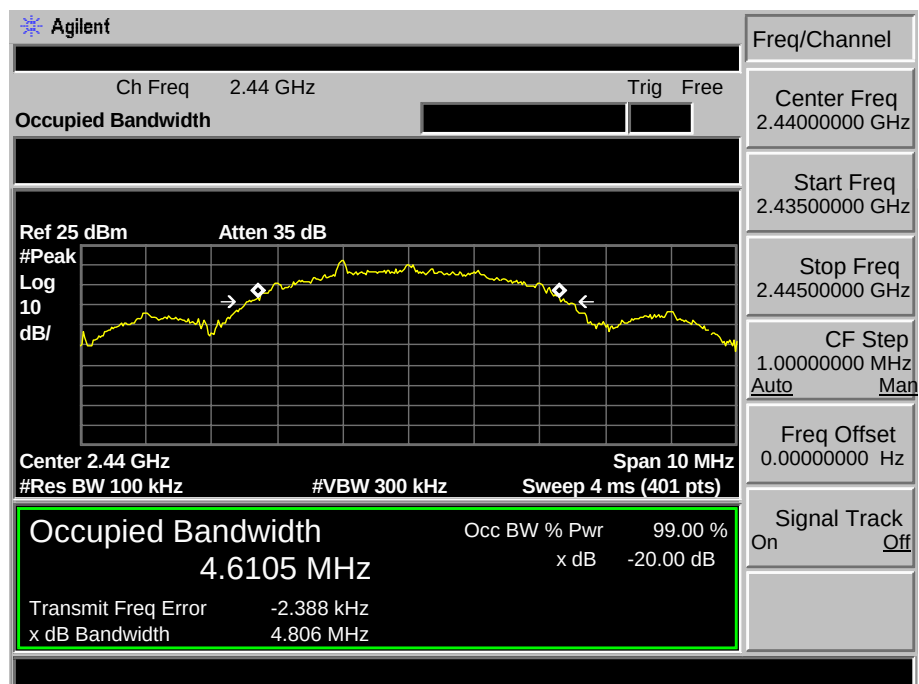
EUT: 2.4G wireless camera product				
M/N: LW3211-C				
Test date: 2015-11-01		Test site: RF site		Tested by: Tony Tang
Mode	Freq (MHz)	20dB Bandwidth (MHz)	Limit (kHz)	Conclusion
GFSK	2408	4.792	/	PASS
	2440	4.806	/	PASS
	2468	4.768	/	PASS

4.4. Test Data

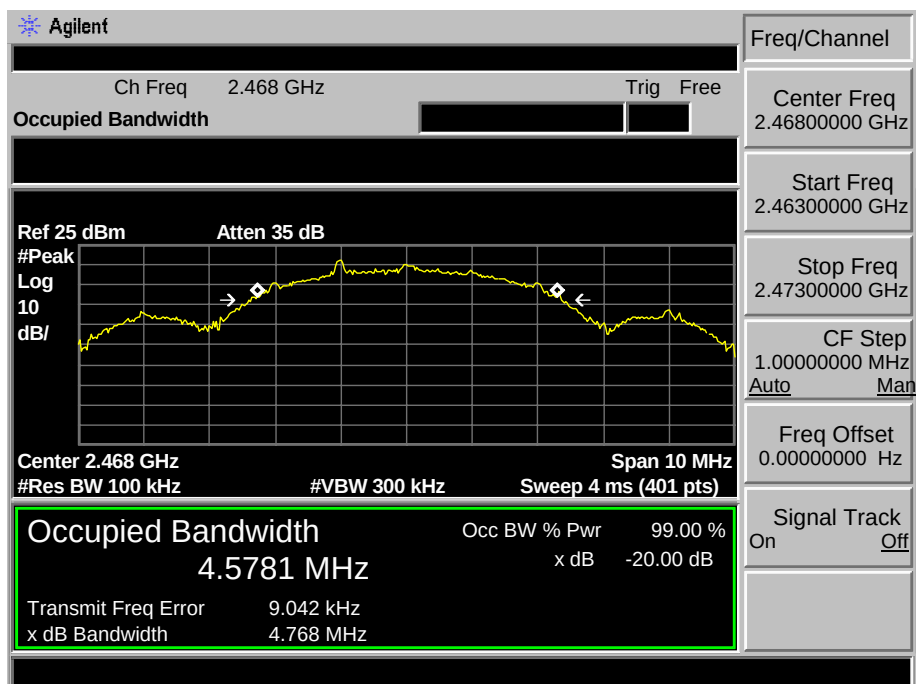
GFSK 2408MHz



GFSK 24401MHz



GFSK 2468MHz



5. CARRIER FREQUENCY SEPARATION

5.1. Limit

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW

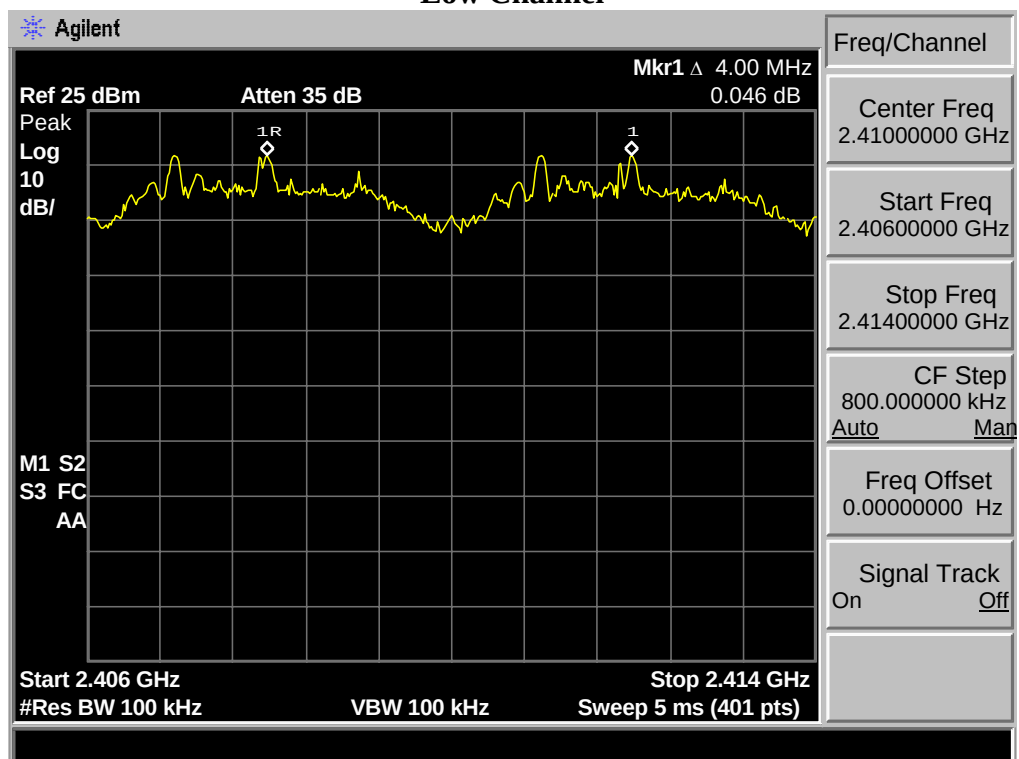
5.2. Test Procedure

The transmitter output was coupled to a spectrum analyzer via a antenna. The carrier frequency was measured by spectrum analyzer with 100kHz RBW and 100kHz VBW.

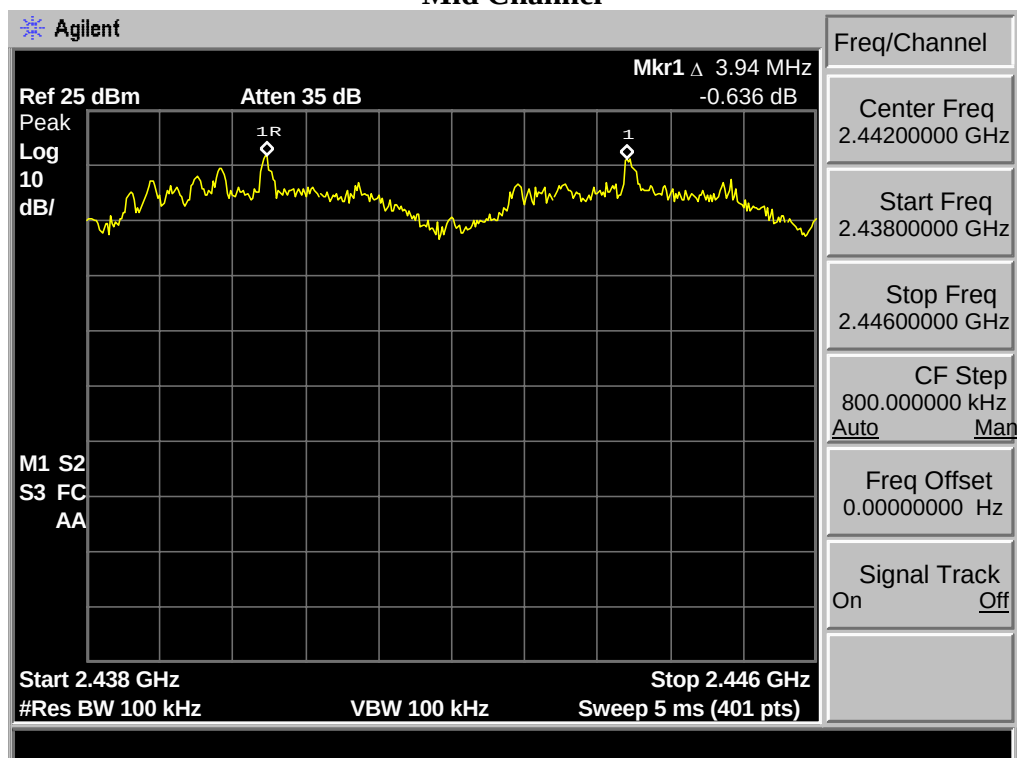
5.3. Test Result

EUT: 2.4G wireless camera product M/N: LW3211-C				
Test date: 2015-11-01			Test site: RF site	Tested by: Tony Tang
Mode	Channel	Channel separation (MHz)	Limit	Conclusion
GFSK	Low CH	4.00	> 2/3 of the 20dB Bandwidth or 25[kHz](whichever is greater)	PASS
	Mid CH	3.94		PASS
	High CH	4.00		PASS

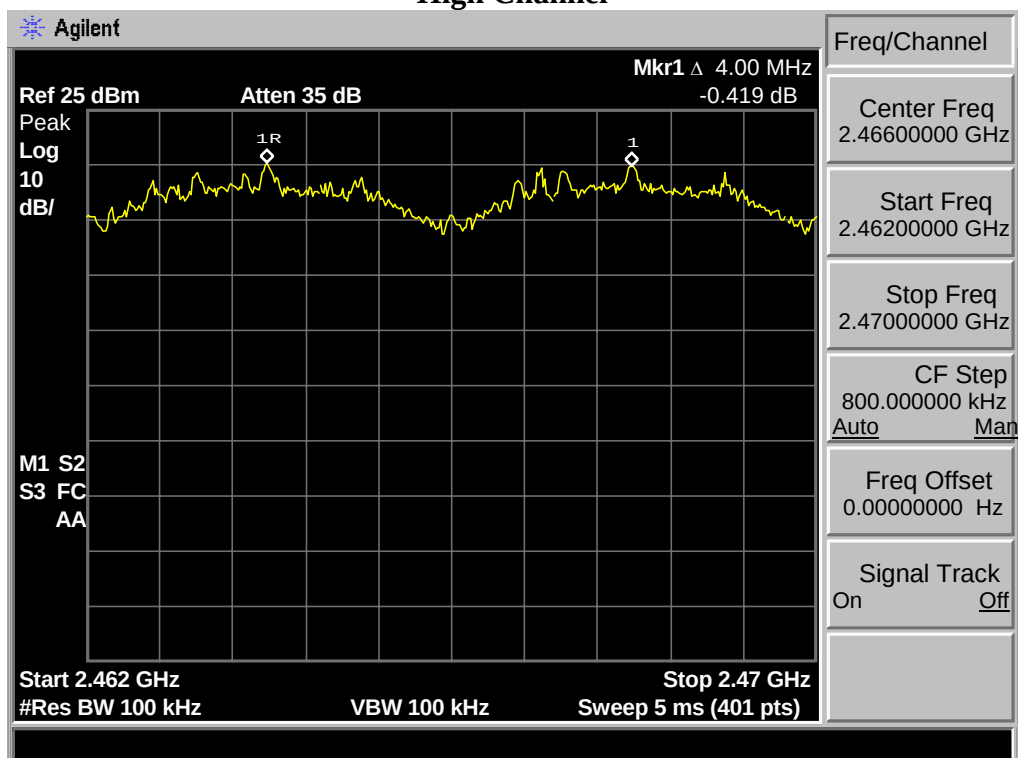
5.4. Test Data

GFSK
Low Channel

Mid Channel



High Channel



6. NUMBER OF HOPPING CHANNEL

6.1. Limit

Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels

6.2. Test Procedure

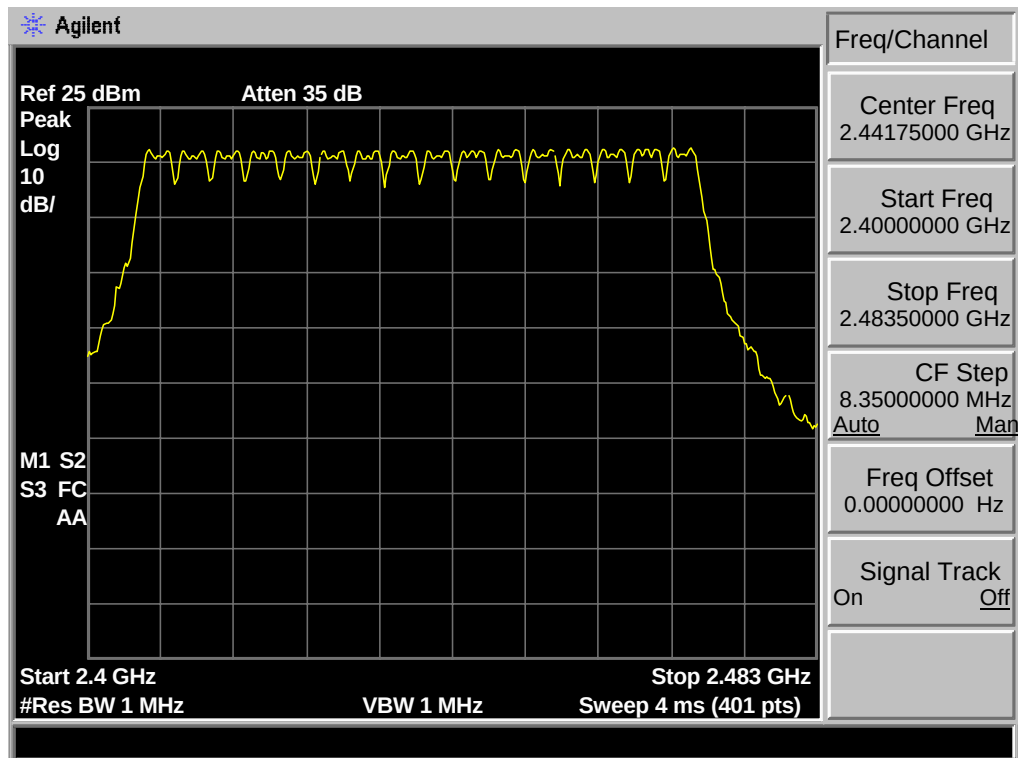
The transmitter output was coupled to a spectrum analyzer via a antenna. The number of hopping channel was measured by spectrum analyzer with 1MHz RBW and 1MHz VBW.

6.3. Test Result

EUT: 2.4G wireless camera product			
M/N: LW3211-C			
Test date: 2015-11-01		Test site: RF site	Tested by: Tony.Tang
Mode	Number of hopping channel	Limit	Conclusion
GFSK	16	>15	PASS

6.4. Test Data

GFSK



7. DWELL TIME

7.1. Limit

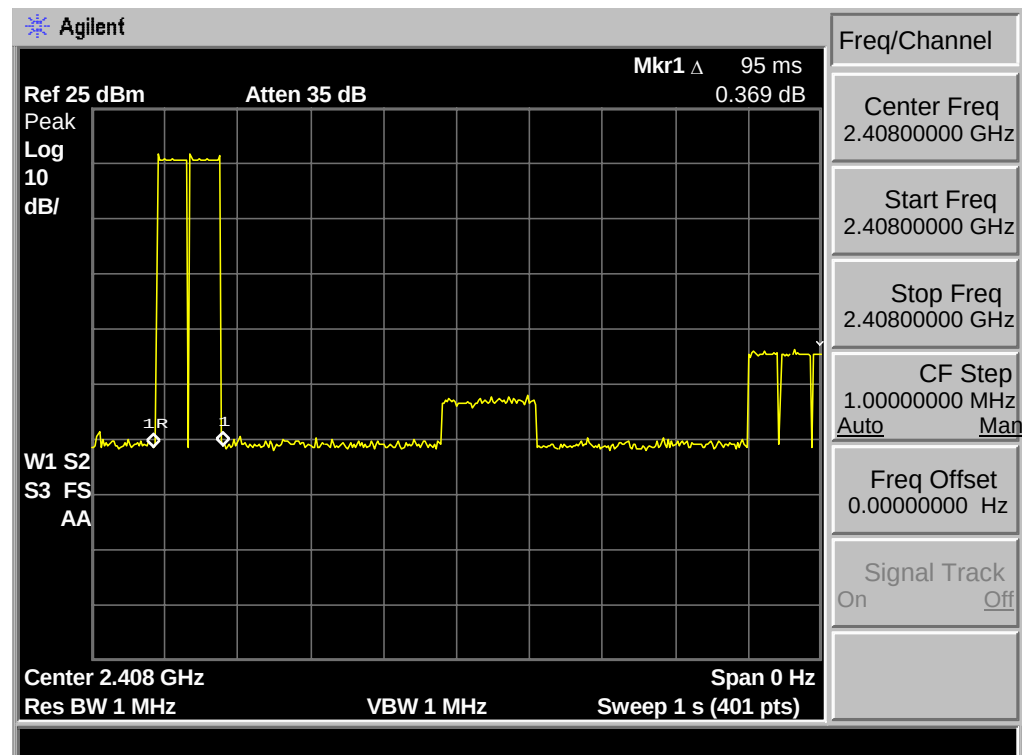
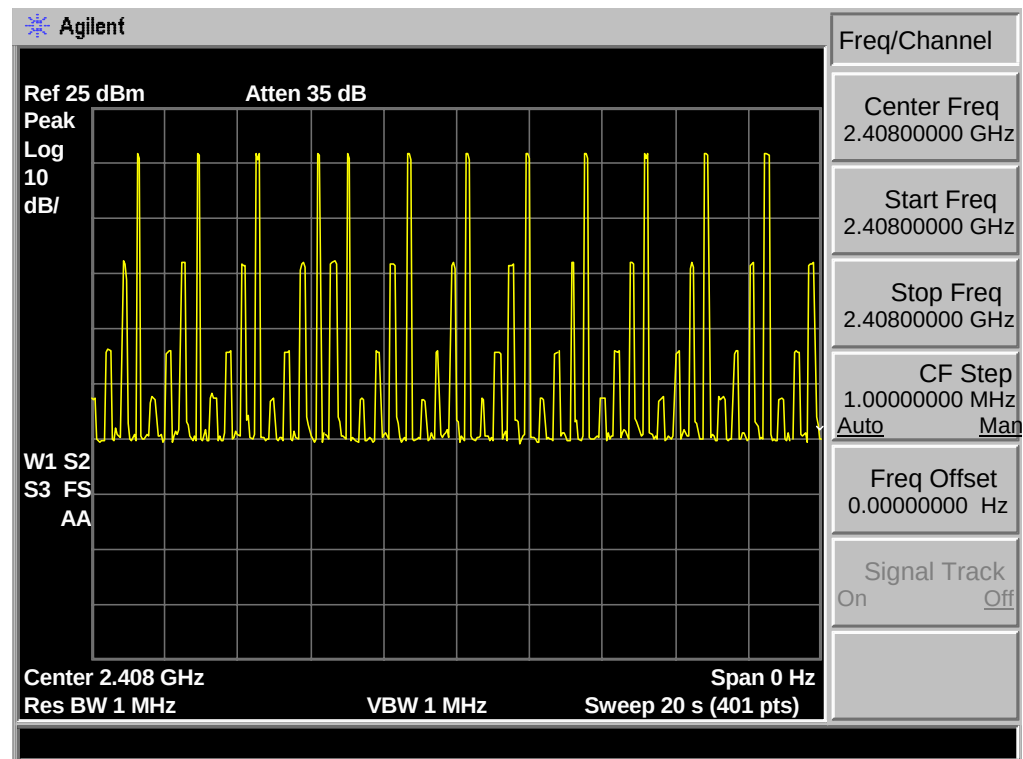
The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.

7.2. Test Result

EUT: 2.4G wireless camera product			
M/N: LW3211-C			
Test date: 2015-11-01		Test site: RF site	Tested by: Tony Tang
Mode	Dwell time (ms)	Limit	Conclusion
GFSK	364.80	<400ms	PASS

7.3. Test Data

GFSK : 12hop/20s * 0.4 * 16 * 95ms = 364.80ms



8. RADIATED EMISSIONS

8.1. Limit

All the emissions appearing within 15.205 restricted frequency bands shall not exceed the limits shown in 15.209, all the other emissions shall be at least 20dB below the fundamental emissions, or comply with 15.209 limits.

15.205 Restricted frequency band

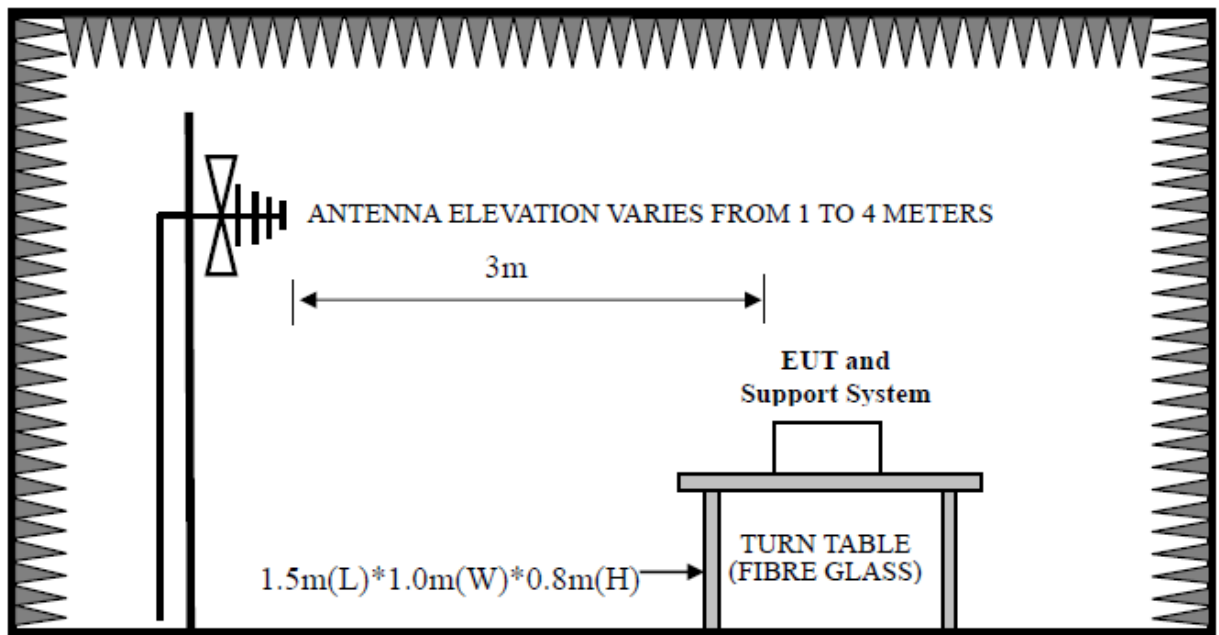
MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
¹ 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	(²)

15.209 Limit

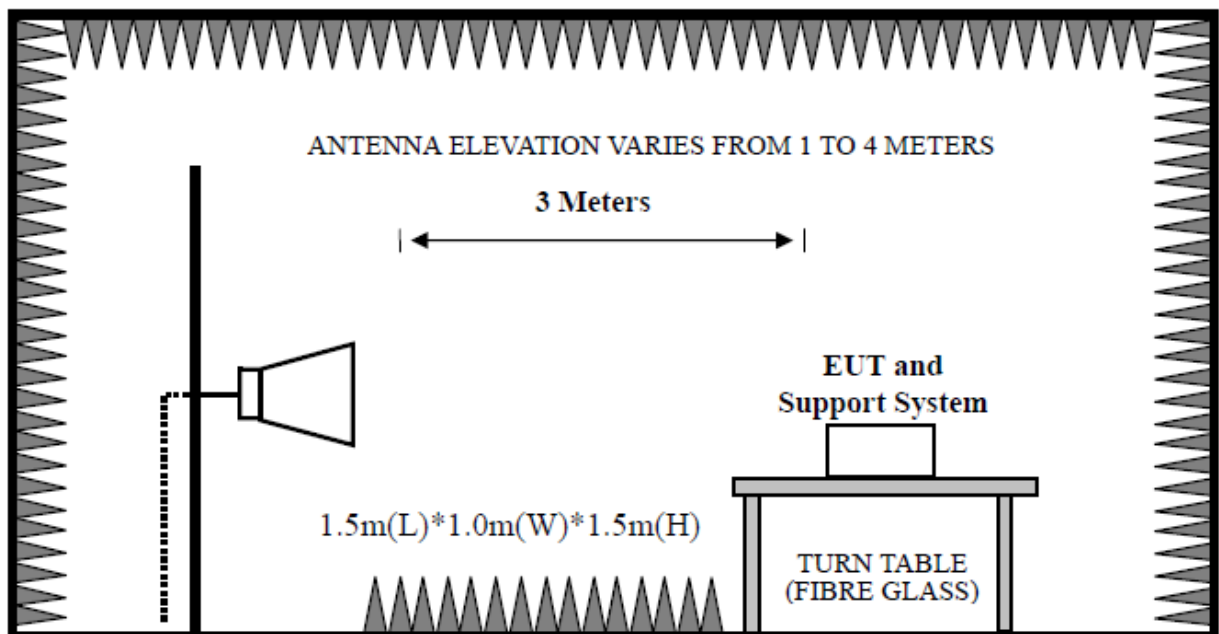
FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT	
		μV/m	dB(μV)/m
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
960 ~ 1000	3	500	54.0
Above 1000	3	74.0 dB(μV)/m (Peak) 54.0 dB(μV)/m (Average)	

8.2. Block Diagram of Test setup

30~1000MHz



Above 1GHz



8.3. Test Procedure

EUT was placed on a turn table, which is 0.8 meter high above ground for 30~1000MHz test, and which is 1.5 meter high above ground for above 1GHz test. The turn table can rotate 360 degrees to determine the position of the maximum emission level. Power on the EUT and let it working in test mode, then test it. EUT is set 3 meters away from the receiving antenna, which is mounted on a antenna tower. The antenna can be moved up and down between 1 meter and 4 meters to find out the maximum emission level. Both horizontal and vertical polarization of the antenna are set on test.

The bandwidth of the EMI test receiver (R&S ESVS10) is set at 120kHz for frequency range from 30MHz to 1000 MHz.

The bandwidth of the Spectrum's VBW is set at 1MHz and RBW is set at 1MHz for peak emissions measurement above 1GHz and 1MHz RBW, 10Hz VBW for average emissions measure above 1GHz

PEAK detector, 1MHz/1MHz for PAEK measurement,

PEAK detector, 1MHz/10Hz for Average measurement

The frequency range from 30MHz to 10th harmonic (25GHz) are checked.

8.4. Test Result

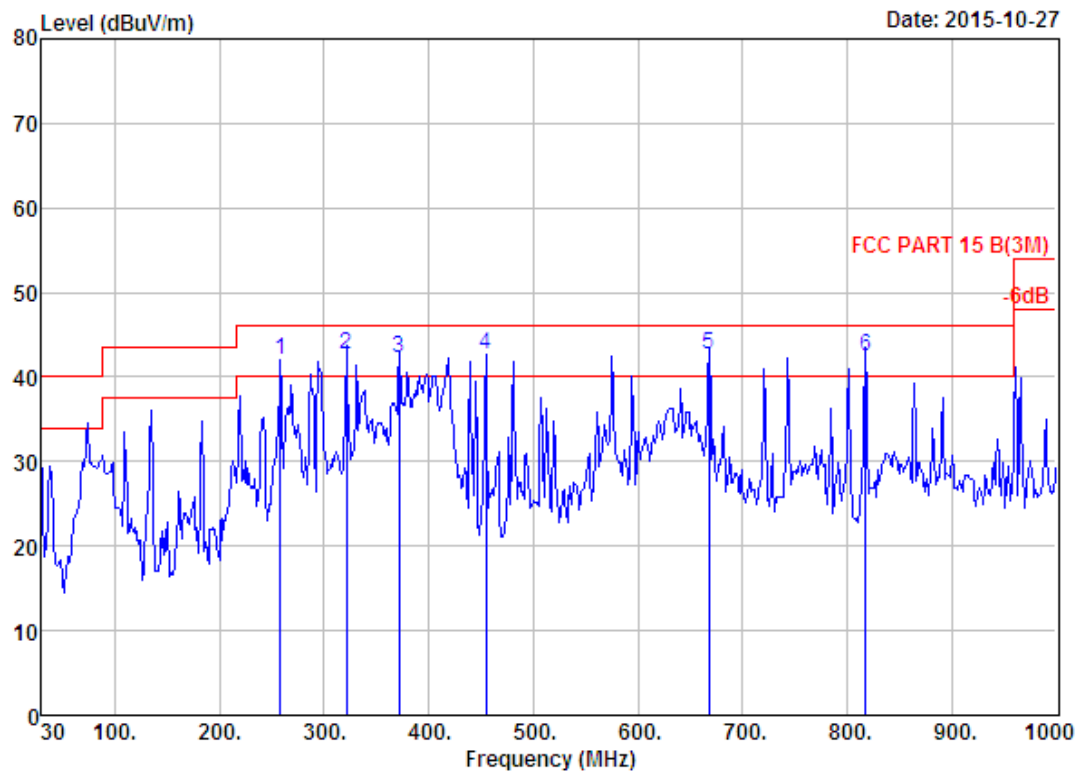
30MHz—25GHz Radiated emission Test result		
EUT: 2.4G wireless camera product		
M/N: LW3211-C		
Power: AC 120V/60Hz		
Test date: 2015-10-27~29	Test site: 3m Chamber	Tested by: Tony Tang
Test mode: Tx Mode		
Pass		

Note: 1、 For emissions above 1GHz, if peak level comply with average limit, then the average level is deemed to comply with average limit.

2、 The frequency 2408MHz 、 2440MHz and 2468MHz is fundamental frequency which no limit, the limit on plots is automatically generated by the software, it's not fundamental limit, we can't remove it.

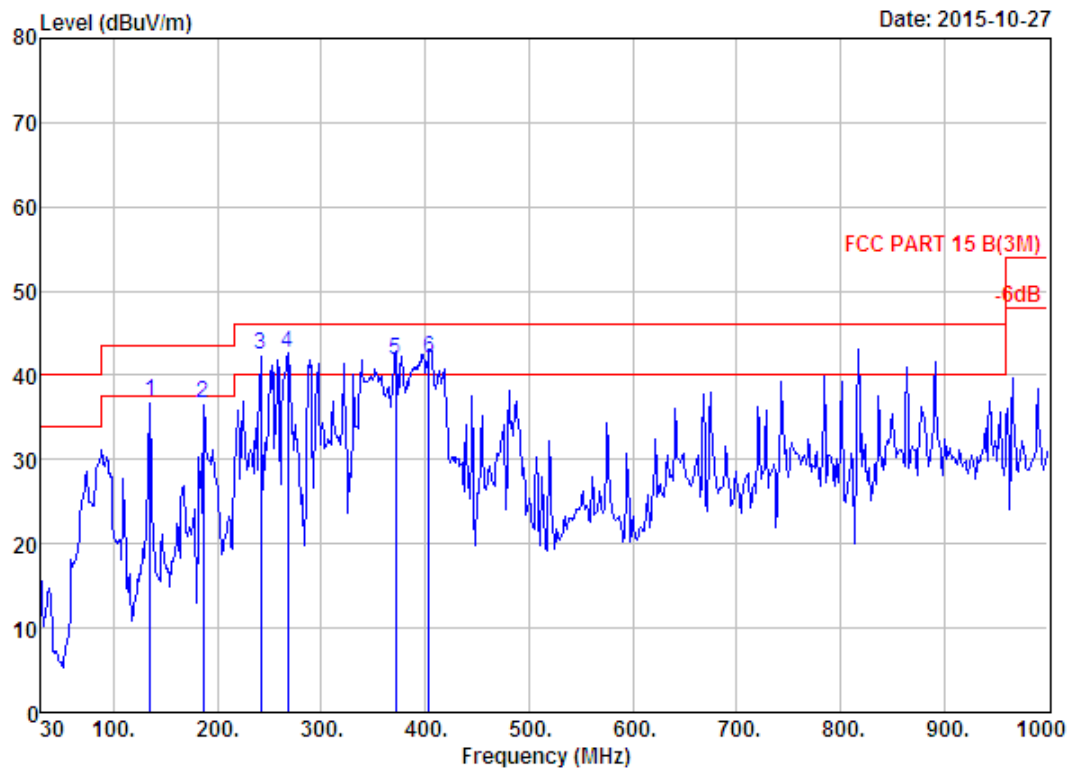
8.5. Test Data

30 MHz – 1000 MHz



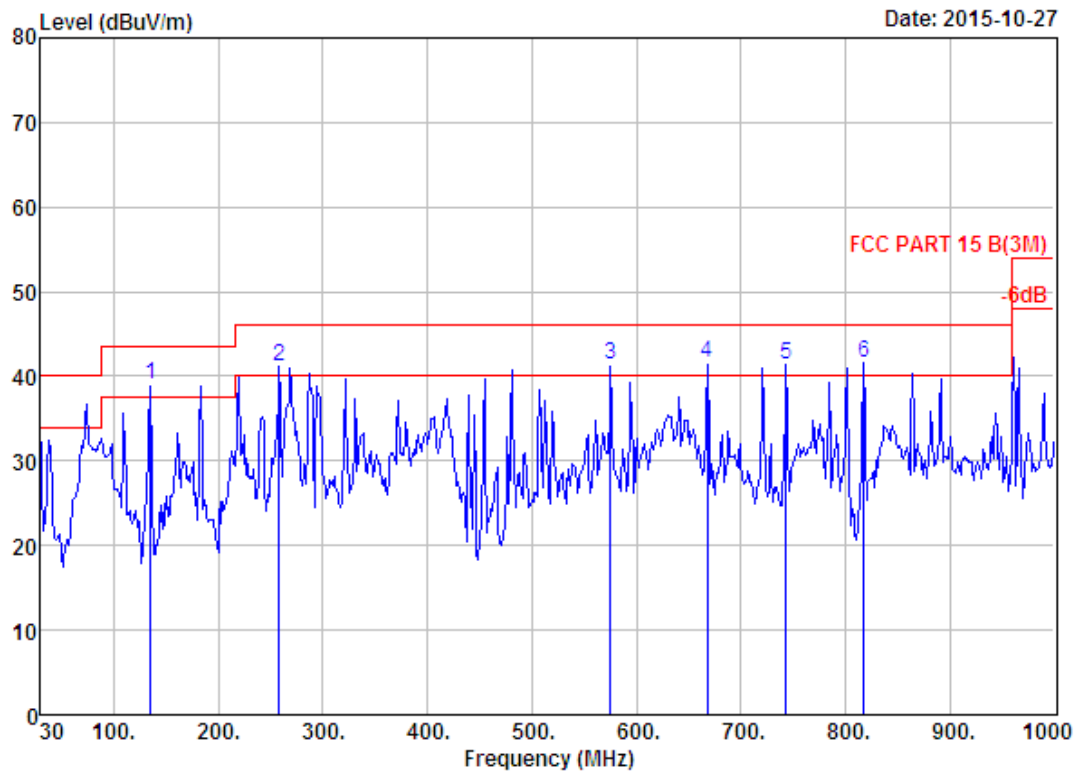
Site no. : 966 1# chamber Data no. : 262
 Dis. / Ant. : 3m 27137 Ant. pol. : VERTICAL
 Limit : FCC PART 15 B(3M)
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa
 Engineer : Dick
 EUT : 2.4G wireless camera product
 Power : DC 12V From Adapter AC 120V/60Hz
 M/N : LW3211-C
 Test Mode : TX 2408MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	257.95	12.75	2.19	27.14	42.08	46.00	3.92	QP
2	321.00	13.60	2.41	26.62	42.63	46.00	3.37	QP
3	371.44	14.89	2.67	24.63	42.19	46.00	3.81	QP
4	454.86	16.65	2.94	22.99	42.58	46.00	3.42	QP
5	668.26	20.19	3.65	18.77	42.61	46.00	3.39	QP
6	817.64	22.35	3.81	16.37	42.53	46.00	3.47	QP



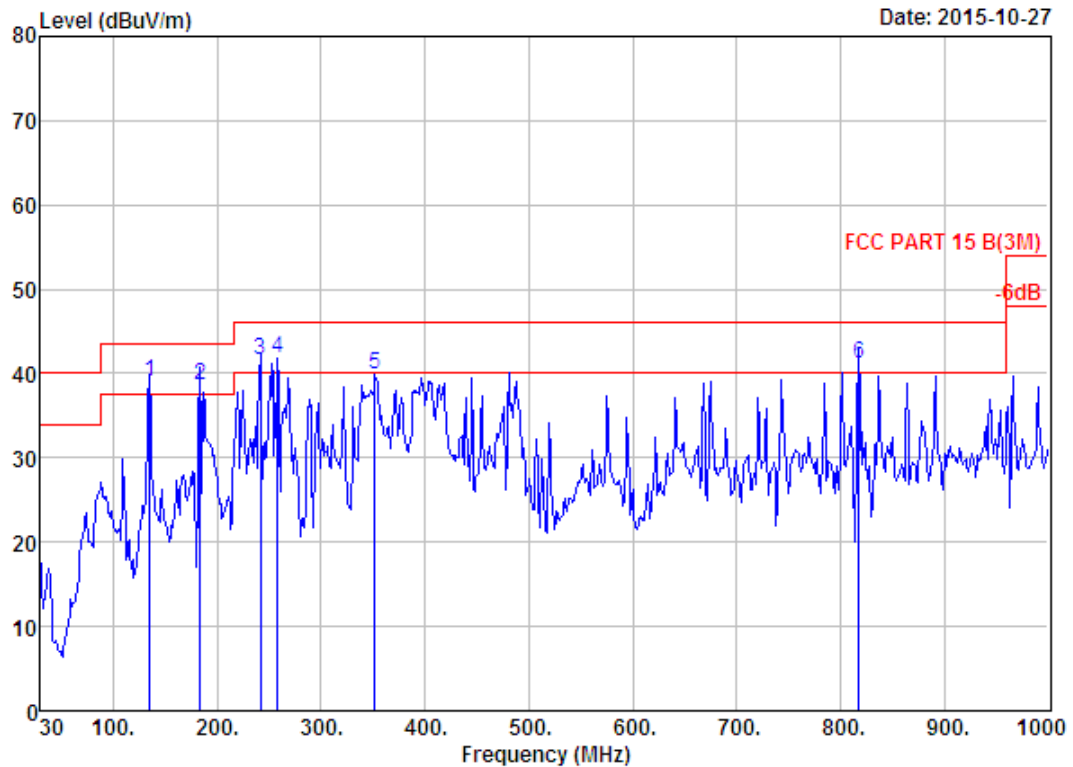
Site no. : 966 1# chamber Data no. : 263
 Dis. / Ant. : 3m 27137 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15 B(3M)
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa
 Engineer : Dick
 EUT : 2.4G wireless camera product
 Power : DC 12V From Adapter AC 120V/60Hz
 M/N : LW3211-C
 Test Mode : TX 2408MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	134.76	11.37	1.57	24.06	37.00	43.50	6.50	QP
2	186.17	8.37	1.79	26.58	36.74	43.50	6.76	QP
3	241.46	10.50	2.14	29.92	42.56	46.00	3.44	QP
4	267.65	12.71	2.26	27.70	42.67	46.00	3.33	QP
5	371.44	14.89	2.67	24.32	41.88	46.00	4.12	QP
6	403.45	16.14	2.69	23.26	42.09	46.00	3.91	QP



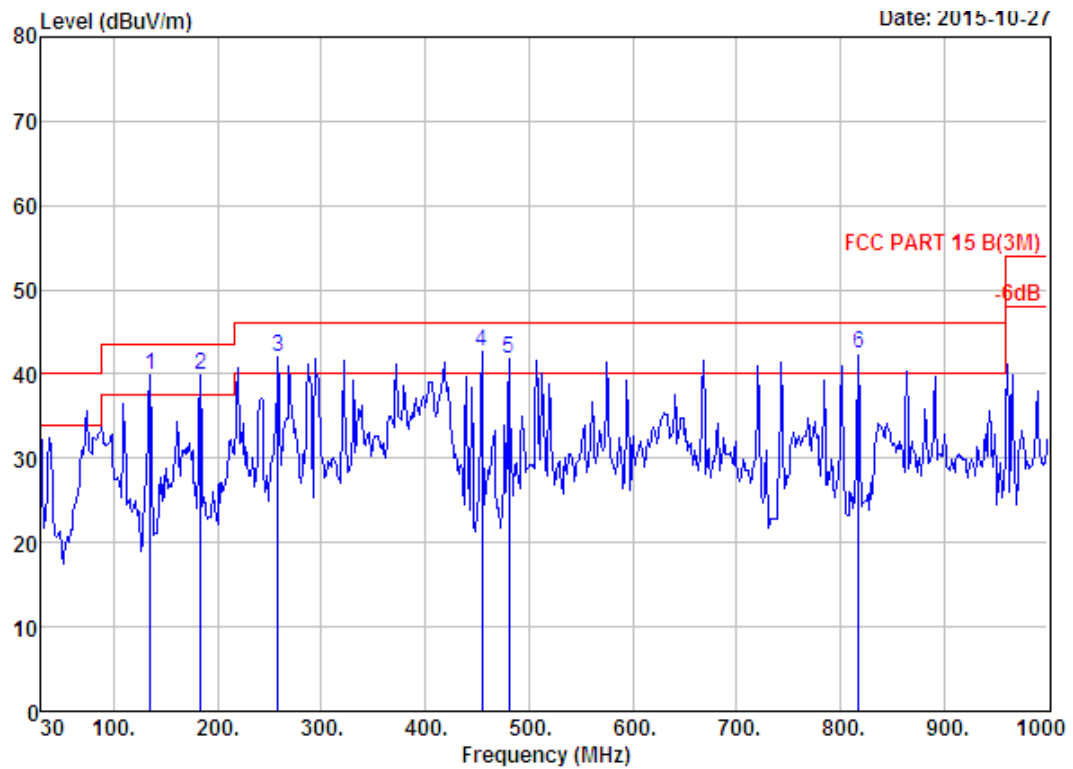
Site no. : 966 1# chamber Data no. : 264
 Dis. / Ant. : 3m 27137 Ant. pol. : VERTICAL
 Limit : FCC PART 15 B(3M)
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa
 Engineer : Dick
 EUT : 2.4G wireless camera product
 Power : DC 12V From Adapter AC 120V/60Hz
 M/N : LW3211-C
 Test Mode : TX 2440MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	134.76	11.37	1.57	26.03	38.97	43.50	4.53	QP
2	257.95	12.75	2.19	26.14	41.08	46.00	4.92	QP
3	575.14	19.55	3.40	18.51	41.46	46.00	4.54	QP
4	668.26	20.19	3.65	17.77	41.61	46.00	4.39	QP
5	742.95	22.31	3.86	15.12	41.29	46.00	4.71	QP
6	817.64	22.35	3.81	15.37	41.53	46.00	4.47	QP



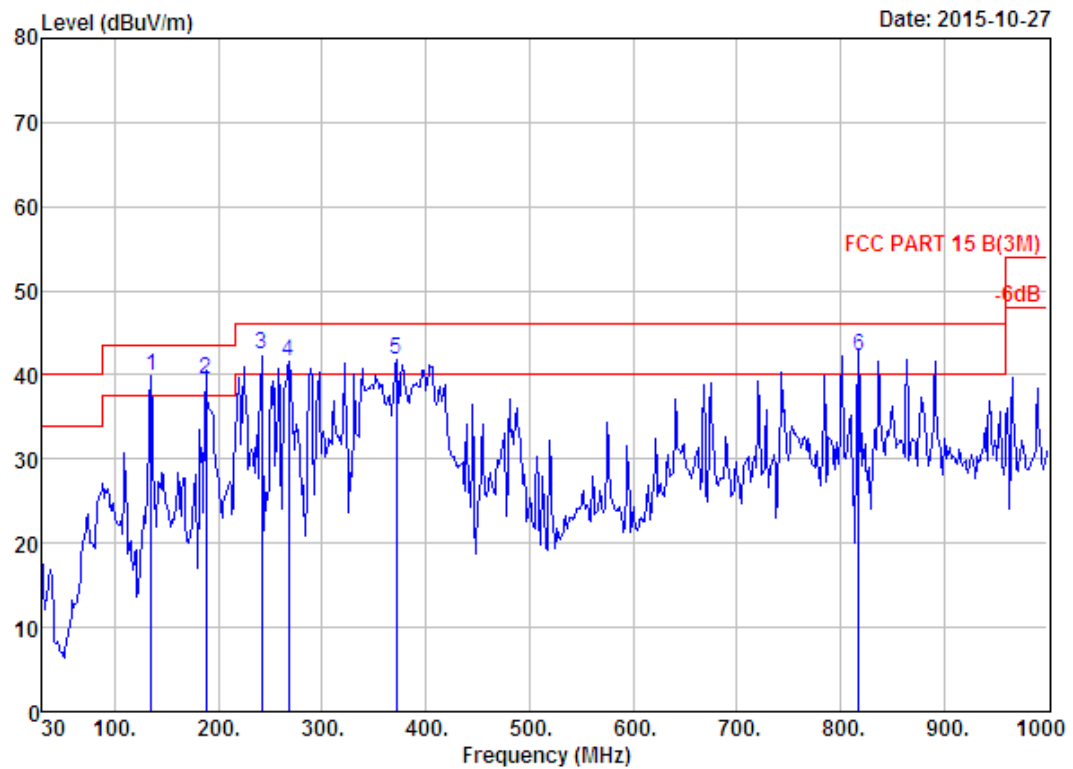
Site no. : 966 1# chamber Data no. : 265
 Dis. / Ant. : 3m 27137 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15 B(3M)
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa
 Engineer : Dick
 EUT : 2.4G wireless camera product
 Power : DC 12V From Adapter AC 120V/60Hz
 M/N : LW3211-C
 Test Mode : TX 2440MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	134.76	11.37	1.57	26.06	39.00	43.50	4.50	QP
2	183.26	8.67	1.69	28.35	38.71	43.50	4.79	QP
3	241.46	10.50	2.14	28.92	41.56	46.00	4.44	QP
4	257.95	12.75	2.19	26.77	41.71	46.00	4.29	QP
5	352.04	14.47	2.53	22.83	39.83	46.00	6.17	QP
6	817.64	22.35	3.81	15.02	41.18	46.00	4.82	QP



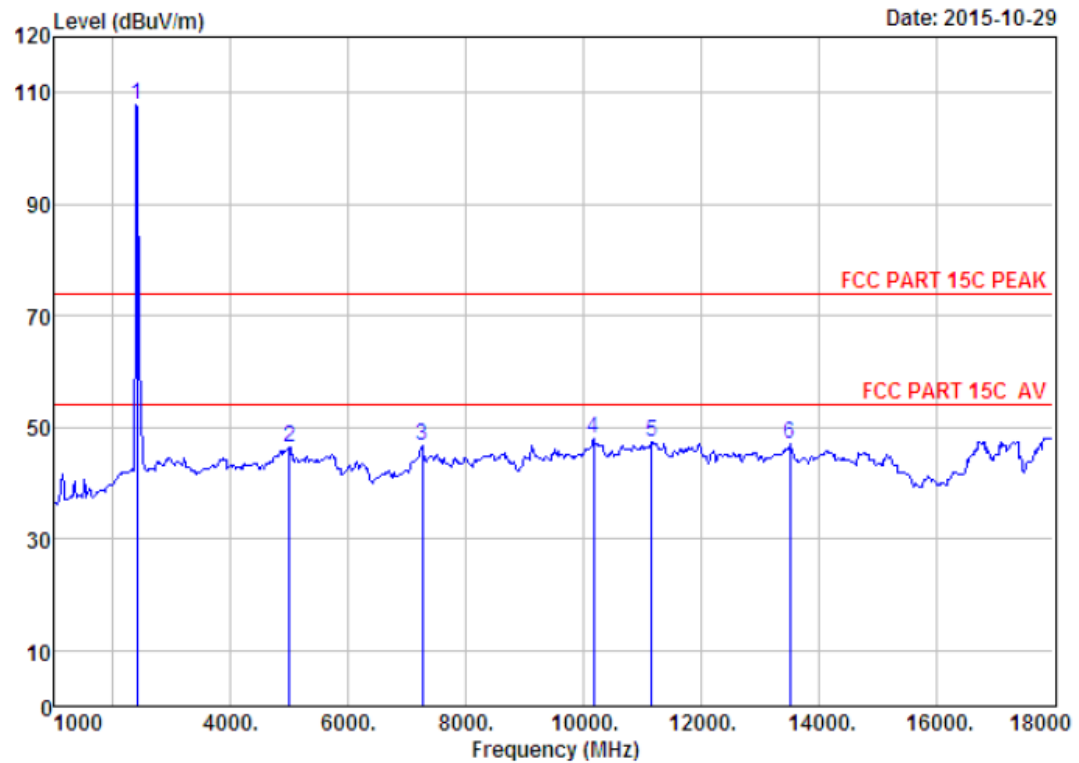
Site no. : 966 1# chamber Data no. : 266
 Dis. / Ant. : 3m 27137 Ant. pol. : VERTICAL
 Limit : FCC PART 15 B(3M)
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa
 Engineer : Dick
 EUT : 2.4G wireless camera product
 Power : DC 12V From Adapter AC 120V/60Hz
 M/N : LW3211-C
 Test Mode : TX 2468MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	134.76	11.37	1.57	27.03	39.97	43.50	3.53	QP
2	183.26	8.67	1.69	29.51	39.87	43.50	3.63	QP
3	257.95	12.75	2.19	27.14	42.08	46.00	3.92	QP
4	454.86	16.65	2.94	22.99	42.58	46.00	3.42	QP
5	481.05	17.49	3.09	21.18	41.76	46.00	4.24	QP
6	817.64	22.35	3.81	16.37	42.53	46.00	3.47	QP



Site no. : 966 1# chamber Data no. : 267
 Dis. / Ant. : 3m 27137 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15 B(3M)
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa
 Engineer : Dick
 EUT : 2.4G wireless camera product
 Power : DC 12V From Adapter AC 120V/60Hz
 M/N : LW3211-C
 Test Mode : TX 2468MHz

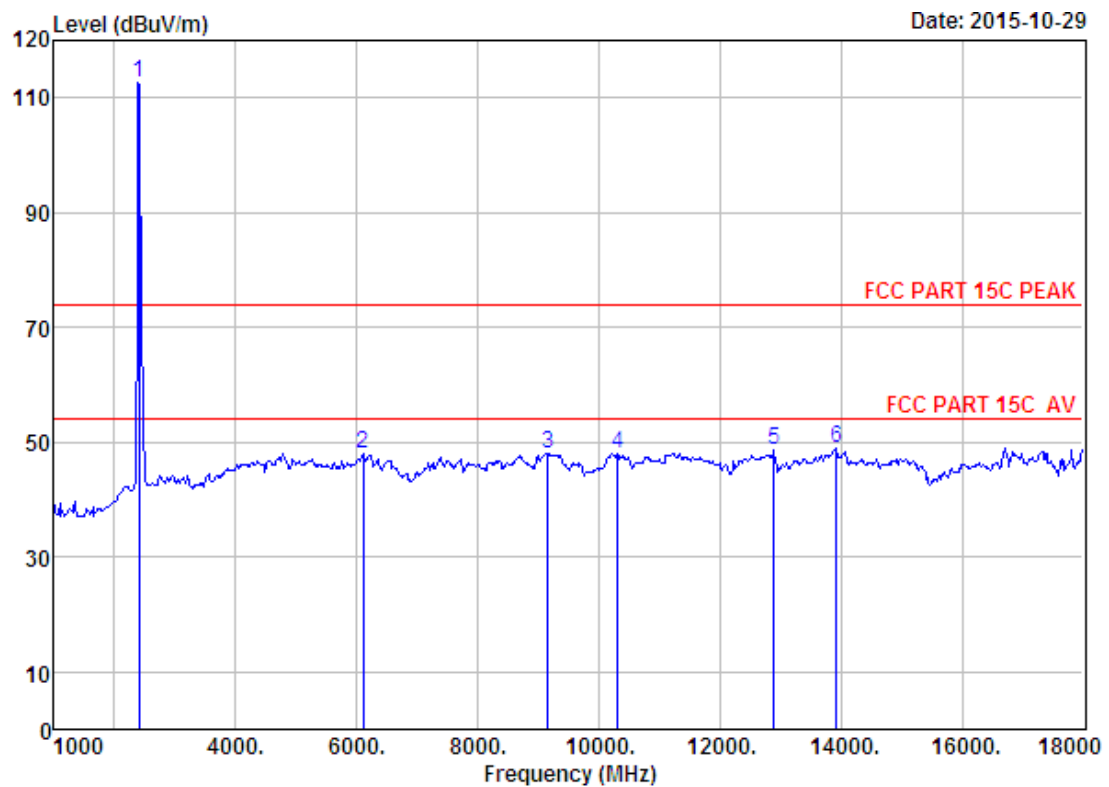
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	134.76	11.37	1.57	27.06	40.00	43.50	3.50	QP
2	188.11	8.16	1.79	29.59	39.54	43.50	3.96	QP
3	241.46	10.50	2.14	29.92	42.56	46.00	3.44	QP
4	267.65	12.71	2.26	26.70	41.67	46.00	4.33	QP
5	371.44	14.89	2.67	24.32	41.88	46.00	4.12	QP
6	817.64	22.35	3.81	16.02	42.18	46.00	3.82	QP

1000 MHz – 18000MHz

Site no. : 1# 966 chamber Data no. : 232
 Dis. / Ant. : 3m ANT 1-18G Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa
 Engineer : Dick
 EUT : 2.4G wireless camera product
 Power : DC 12V From Adapter Input AC 120V/60Hz
 M/N : LW3211-C
 Test Mode : TX 2408MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2408.00	27.61	6.64	34.64	108.08	107.69	74.00	-33.69	Peak
2	4995.00	31.54	12.59	36.11	38.39	46.41	74.00	27.59	Peak
3	7256.00	36.53	11.55	34.02	32.69	46.75	74.00	27.25	Peak
4	10180.00	38.42	11.49	34.53	32.71	48.09	74.00	25.91	Peak
5	11166.00	39.41	11.17	33.31	30.10	47.37	74.00	26.63	Peak
6	13512.00	40.12	11.48	32.64	28.00	46.96	74.00	27.04	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

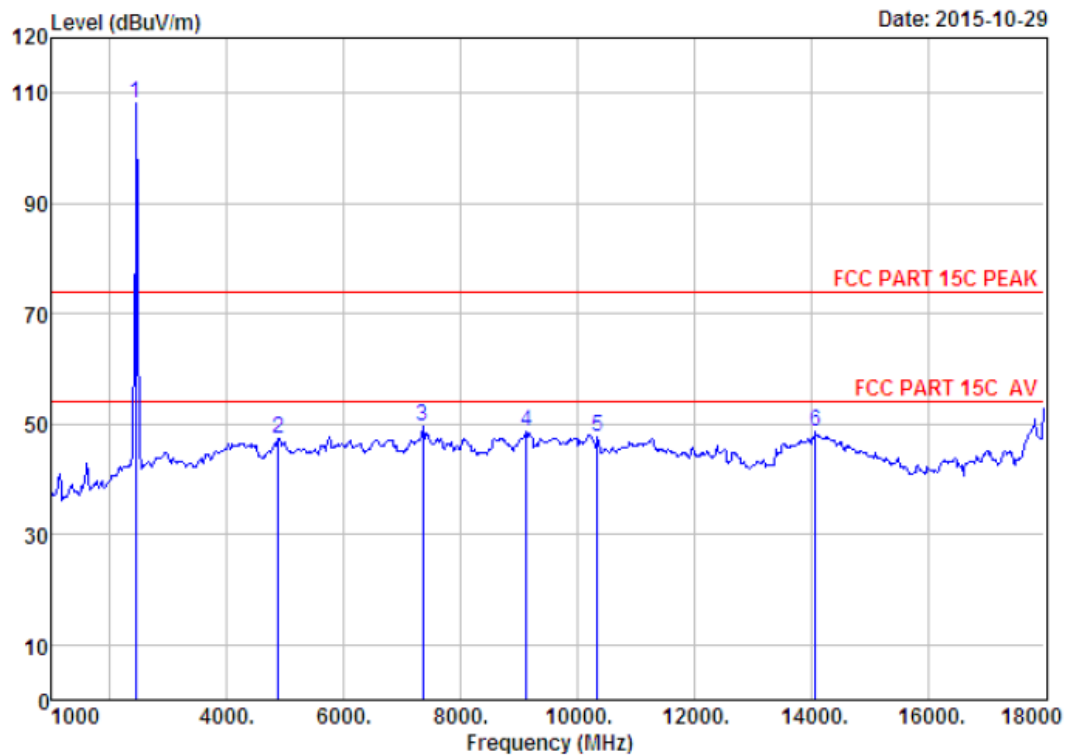


Site no. : 1# 966 chamber
 Dis. / Ant. : 3m ANT 1-18G
 Limit : FCC PART 15C PEAK
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa
 Engineer : Dick
 EUT : 2.4G wireless camera product
 Power : DC 12V From Adapter Input AC 120V/60Hz
 M/N : LW3211-C
 Test Mode : TX 2408MHz

Data no. : 233
Ant. pol. : HORIZONTAL

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2408.00	27.61	6.64	34.64	113.02	112.63	74.00	-38.63	Peak
2	6100.00	33.00	12.14	35.14	37.85	47.85	74.00	26.15	Peak
3	9160.00	37.69	11.54	34.07	32.89	48.05	74.00	25.95	Peak
4	10316.00	38.65	11.41	34.51	32.51	48.06	74.00	25.94	Peak
5	12900.00	38.86	11.32	33.33	31.80	48.65	74.00	25.35	Peak
6	13920.00	41.26	11.00	33.00	29.59	48.85	74.00	25.15	Peak

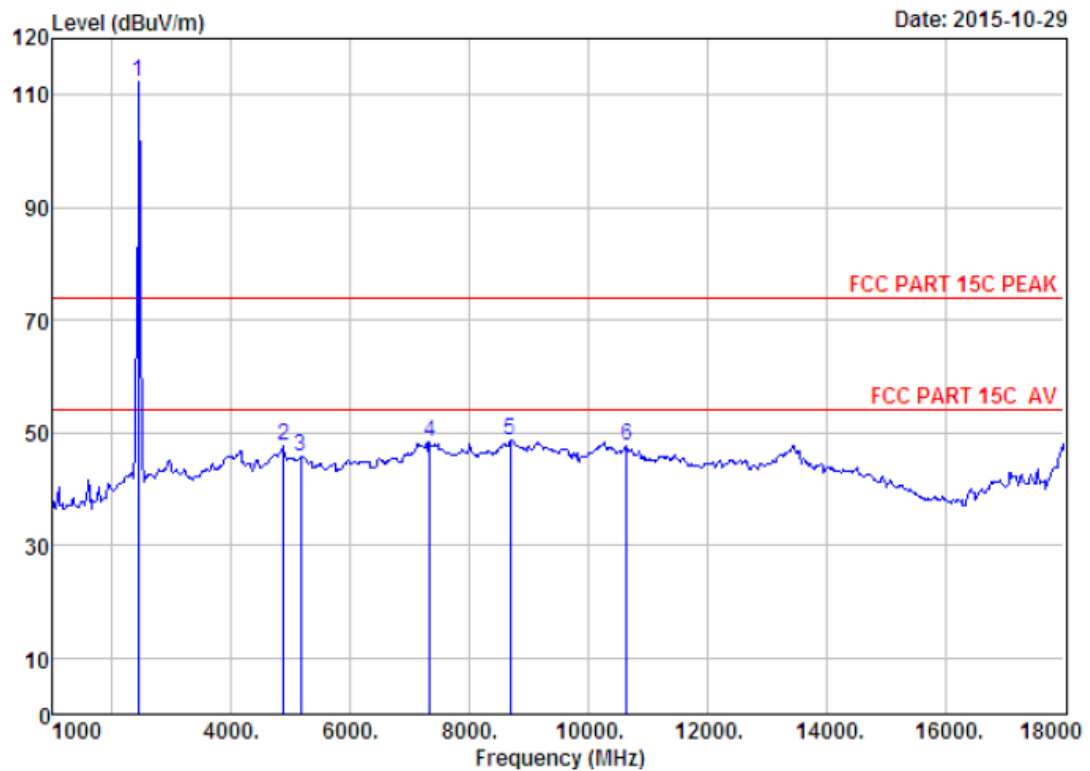
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 1# 966 chamber Data no. : 236
 Dis. / Ant. : 3m ANT 1-18G Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa
 Engineer : Dick
 EUT : 2.4G wireless camera product
 Power : DC 12V From Adapter Input AC 120V/60Hz
 M/N : LW3211-C
 Test Mode : TX 2440MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2440.00	27.60	6.67	34.85	108.61	108.03	74.00	-34.03	Peak
2	4876.00	31.37	12.07	35.76	39.75	47.43	74.00	26.57	Peak
3	7358.00	36.56	11.58	34.19	35.74	49.69	74.00	24.31	Peak
4	9126.00	37.62	11.52	34.09	33.46	48.51	74.00	25.49	Peak
5	10350.00	38.71	11.39	34.53	32.25	47.82	74.00	26.18	Peak
6	14073.00	41.52	10.90	33.09	29.22	48.55	74.00	25.45	Peak

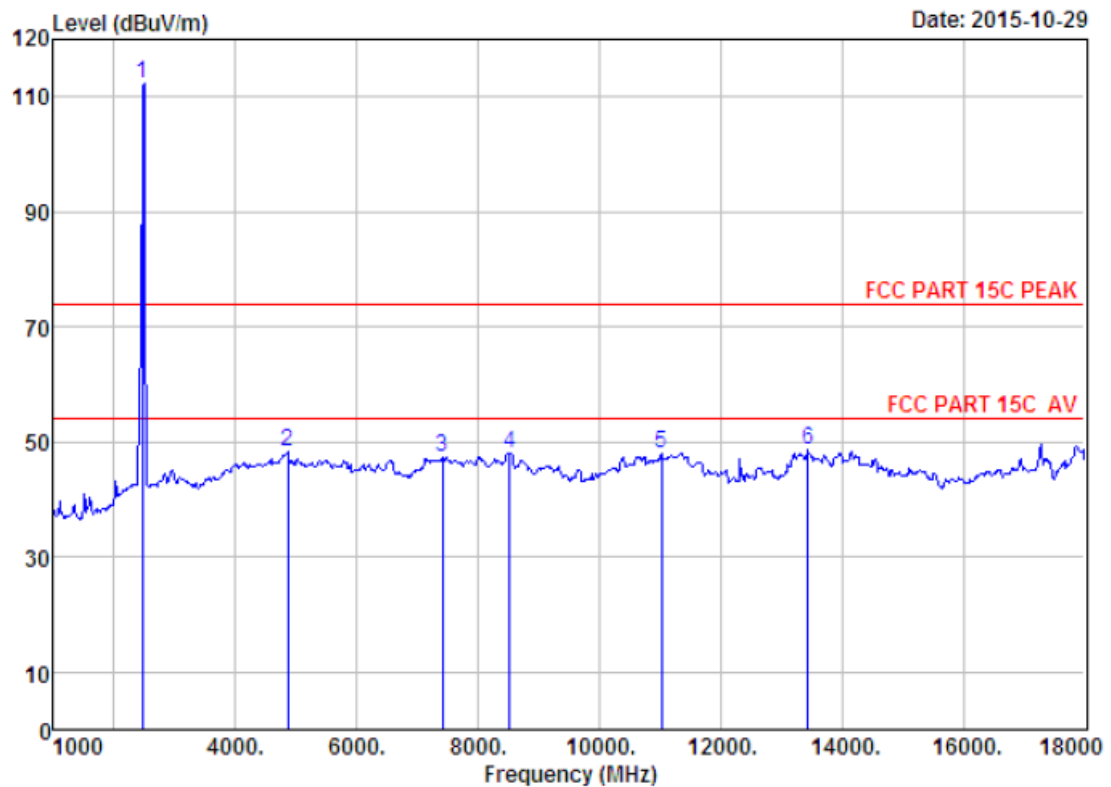
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 1# 966 chamber Data no. : 237
 Dis. / Ant. : 3m ANT 1-18G Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa
 Engineer : Dick
 EUT : 2.4G wireless camera product
 Power : DC 12V From Adapter Input AC 120V/60Hz
 M/N : LW3211-C
 Test Mode : TX 2440MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2440.00	27.60	6.67	34.85	112.98	112.40	74.00	-38.40	Peak
2	4876.00	31.37	12.07	35.76	39.96	47.64	74.00	26.36	Peak
3	5165.00	31.65	12.39	36.00	37.68	45.72	74.00	28.28	Peak
4	7341.00	36.56	11.58	34.17	34.49	48.46	74.00	25.54	Peak
5	8684.00	37.32	11.45	33.66	33.68	48.79	74.00	25.21	Peak
6	10639.00	39.13	11.30	34.35	31.52	47.60	74.00	26.40	Peak

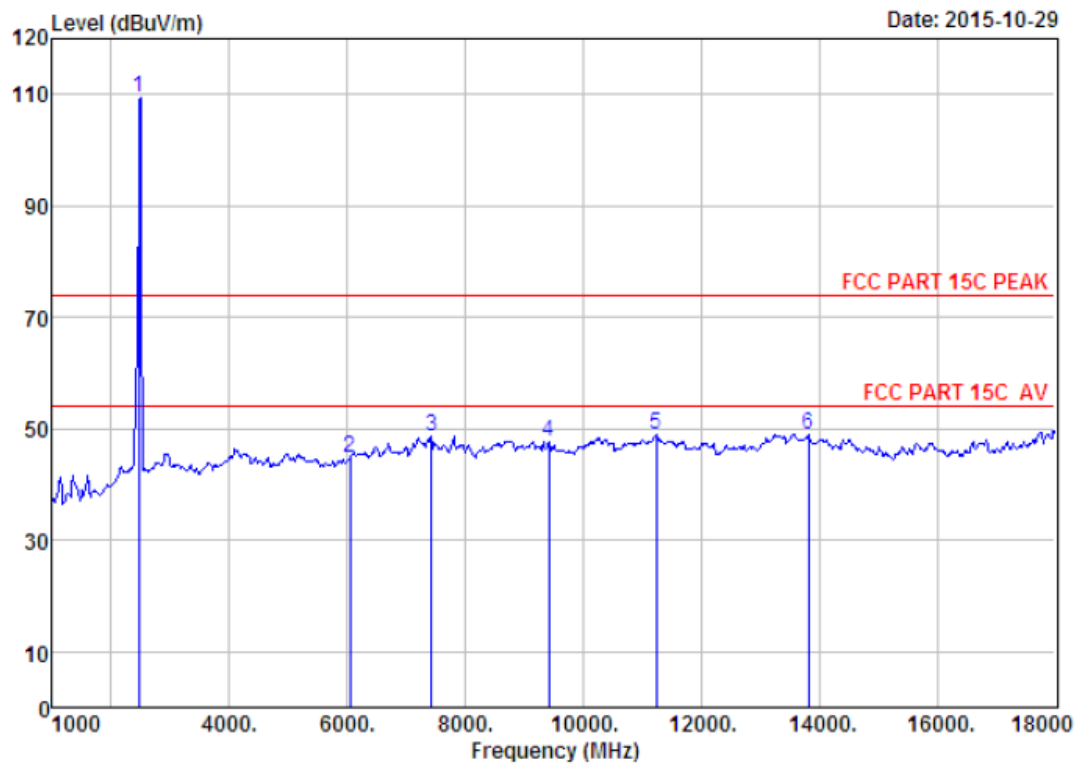
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 1# 966 chamber Data no. : 238
 Dis. / Ant. : 3m ANT 1-18G Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa
 Engineer : Dick
 EUT : 2.4G wireless camera product
 Power : DC 12V From Adapter Input AC 120V/60Hz
 M/N : LW3211-C
 Test Mode : TX 2468MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2468.00	27.58	6.69	34.98	112.96	112.25	74.00	-38.25	Peak
2	4859.00	31.34	11.99	35.70	40.64	48.27	74.00	25.73	Peak
3	7409.00	36.58	11.60	34.23	33.42	47.37	74.00	26.63	Peak
4	8514.00	36.96	11.45	34.07	33.63	47.97	74.00	26.03	Peak
5	11030.00	39.50	11.27	33.98	31.22	48.01	74.00	25.99	Peak
6	13444.00	39.95	11.49	32.74	29.81	48.51	74.00	25.49	Peak

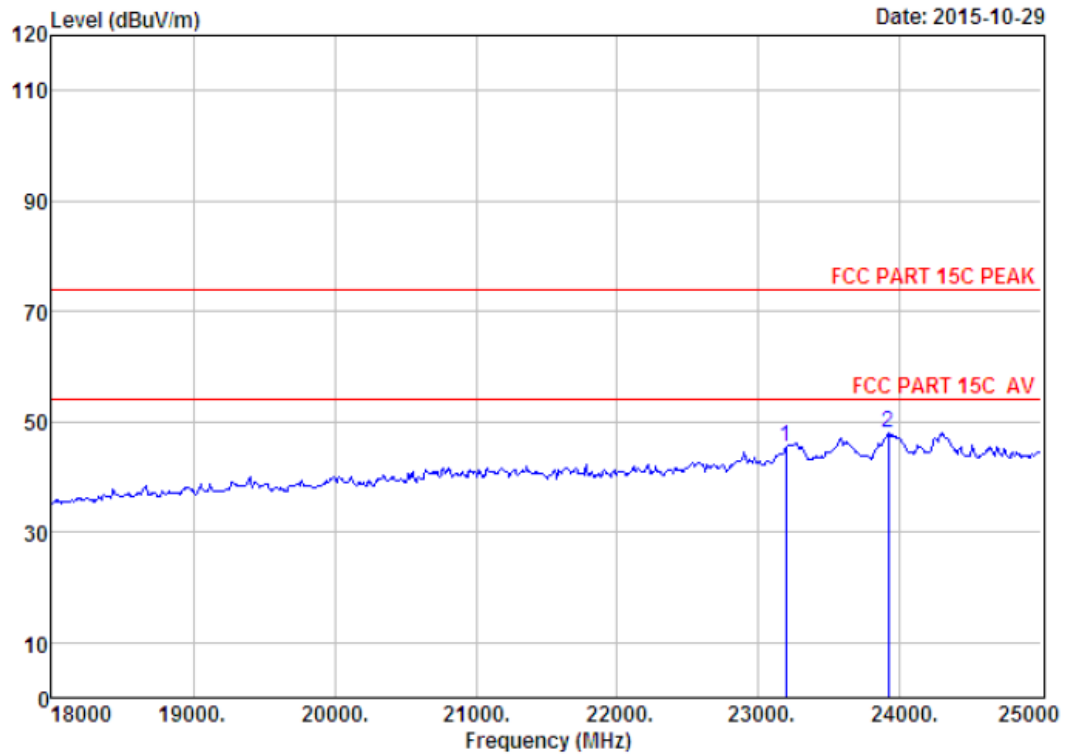
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 1# 966 chamber Data no. : 239
 Dis. / Ant. : 3m ANT 1-18G Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa
 Engineer : Dick
 EUT : 2.4G wireless camera product
 Power : DC 12V From Adapter Input AC 120V/60Hz
 M/N : LW3211-C
 Test Mode : TX 2468MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2468.00	27.58	6.69	34.98	110.24	109.53	74.00	-35.53	Peak
2	6049.00	32.88	12.13	35.28	35.03	44.76	74.00	29.24	Peak
3	7426.00	36.56	11.60	34.22	34.70	48.64	74.00	25.36	Peak
4	9415.00	38.07	11.67	34.83	32.86	47.77	74.00	26.23	Peak
5	11234.00	39.37	11.12	33.25	31.74	48.98	74.00	25.02	Peak
6	13818.00	40.97	11.12	33.07	30.00	49.02	74.00	24.98	Peak

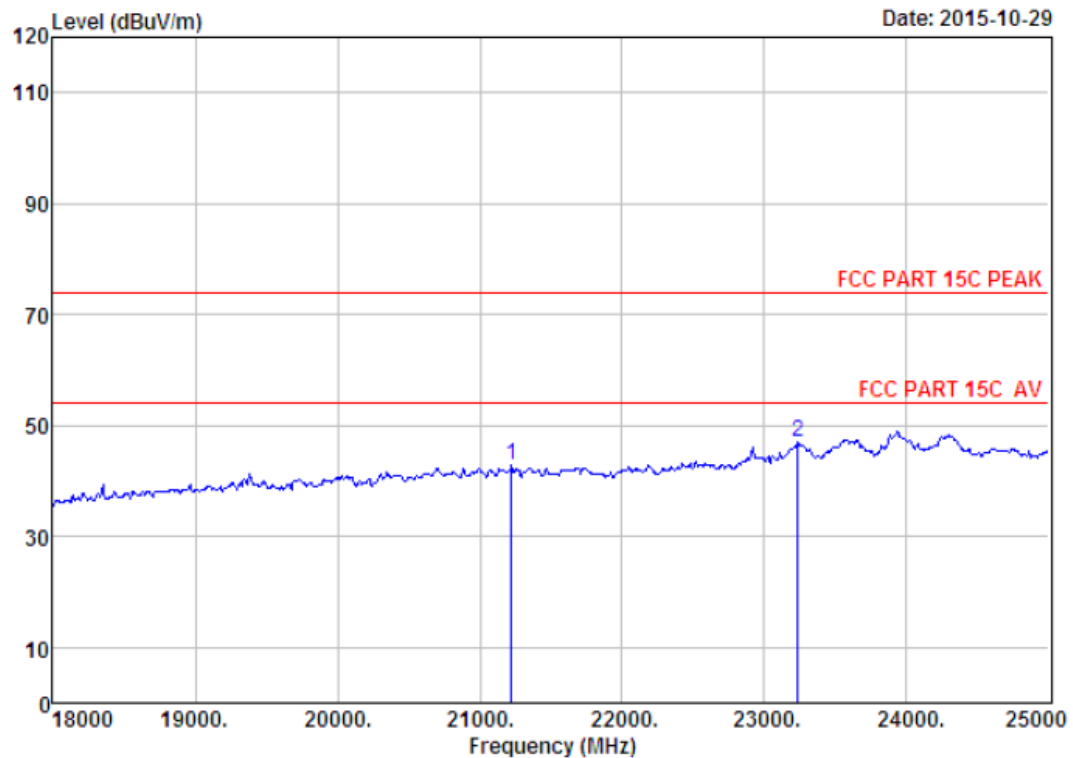
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

18000MHz – 25000MHz

Site no. : 1# 966 chamber Data no. : 244
 Dis. / Ant. : 3m ANT ABOVE 18G Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa
 Engineer : Dick
 EUT : 2.4G wireless camera product
 Power : DC 12V From Adapter Input AC 120V/60Hz
 M/N : LW3211-C
 Test Mode : TX 2408MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBUV)	Emission Level (dBUV/m)	Limits (dBUV/m)	Margin (dB)	Remark
1	23194.00	45.64	21.32	33.64	12.26	45.58	74.00	28.42	Peak
2	23915.00	45.62	21.97	32.88	13.19	47.90	74.00	26.10	Peak

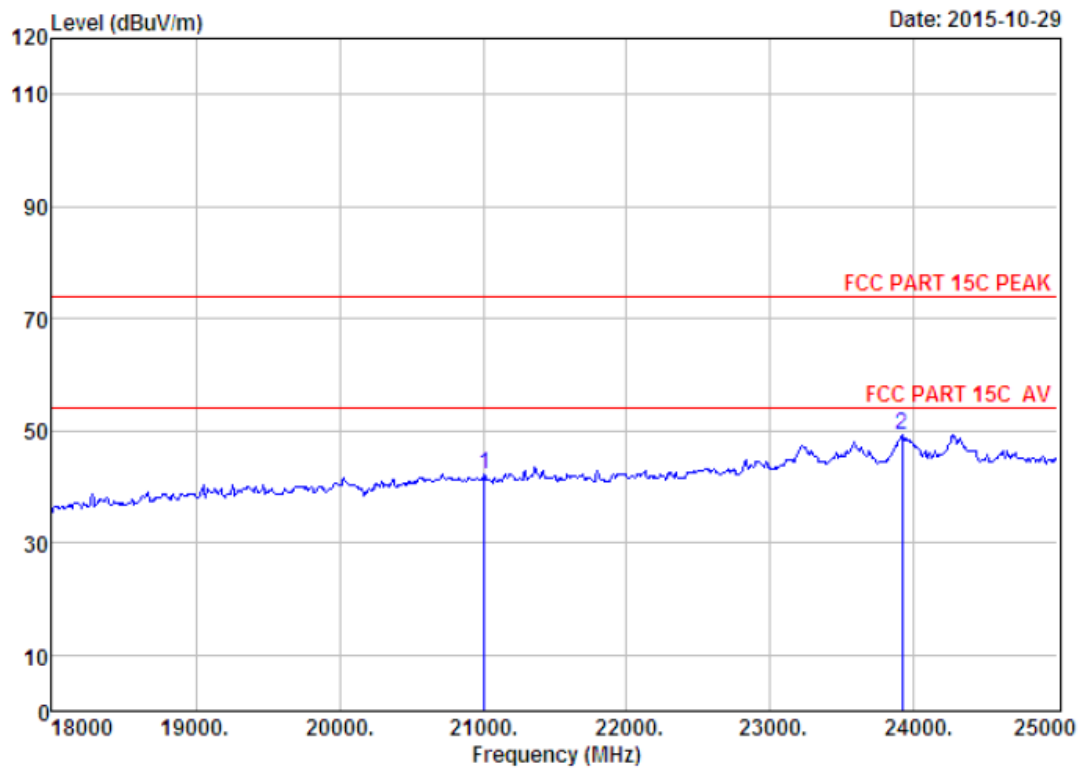
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 1# 966 chamber Data no. : 245
 Dis. / Ant. : 3m ANT ABVOE 18G Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa
 Engineer : Dick
 EUT : 2.4G wireless camera product
 Power : DC 12V From Adapter Input AC 120V/60Hz
 M/N : LW3211-C
 Test Mode : TX 2408MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	21220.00	46.17	20.23	35.60	12.00	42.80	74.00	31.20	Peak
2	23236.00	45.65	21.36	33.61	13.57	46.97	74.00	27.03	Peak

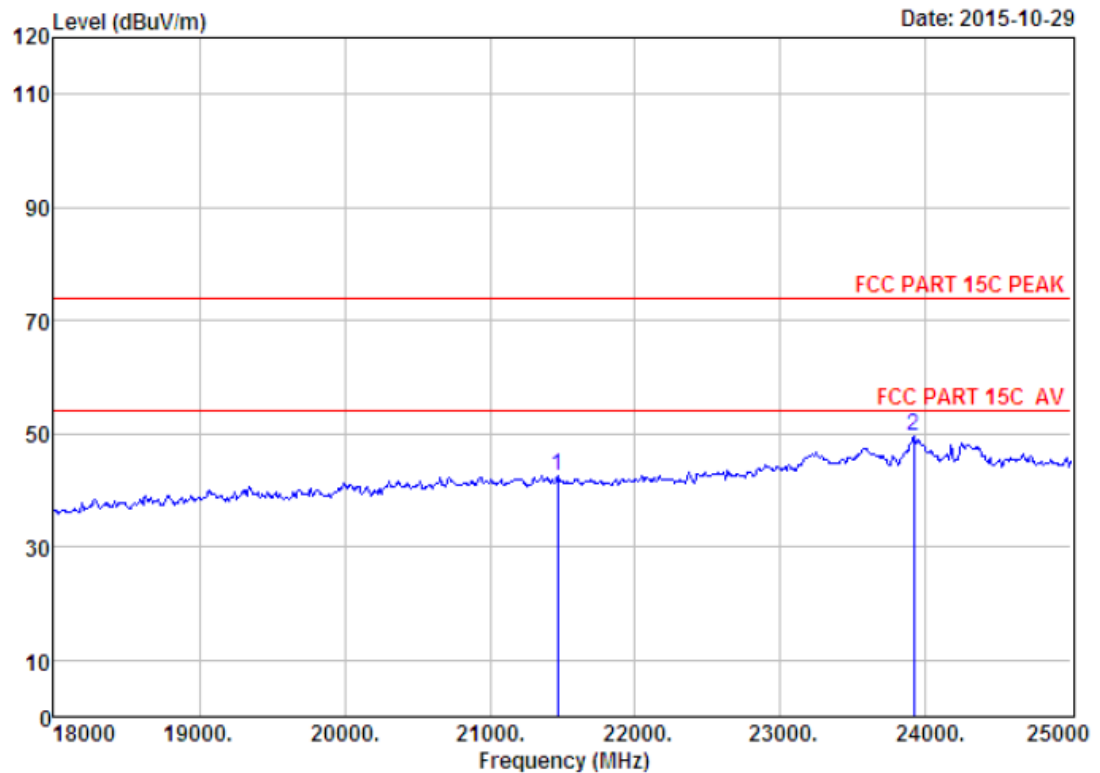
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 1# 966 chamber Data no. : 246
 Dis. / Ant. : 3m ANT ABVOE 18G Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa
 Engineer : Dick
 EUT : 2.4G wireless camera product
 Power : DC 12V From Adapter Input AC 120V/60Hz
 M/N : LW3211-C
 Test Mode : TX 2440MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	21010.00	46.29	20.13	35.80	11.76	42.38	74.00	31.62	Peak
2	23915.00	45.62	21.97	32.88	14.52	49.23	74.00	24.77	Peak

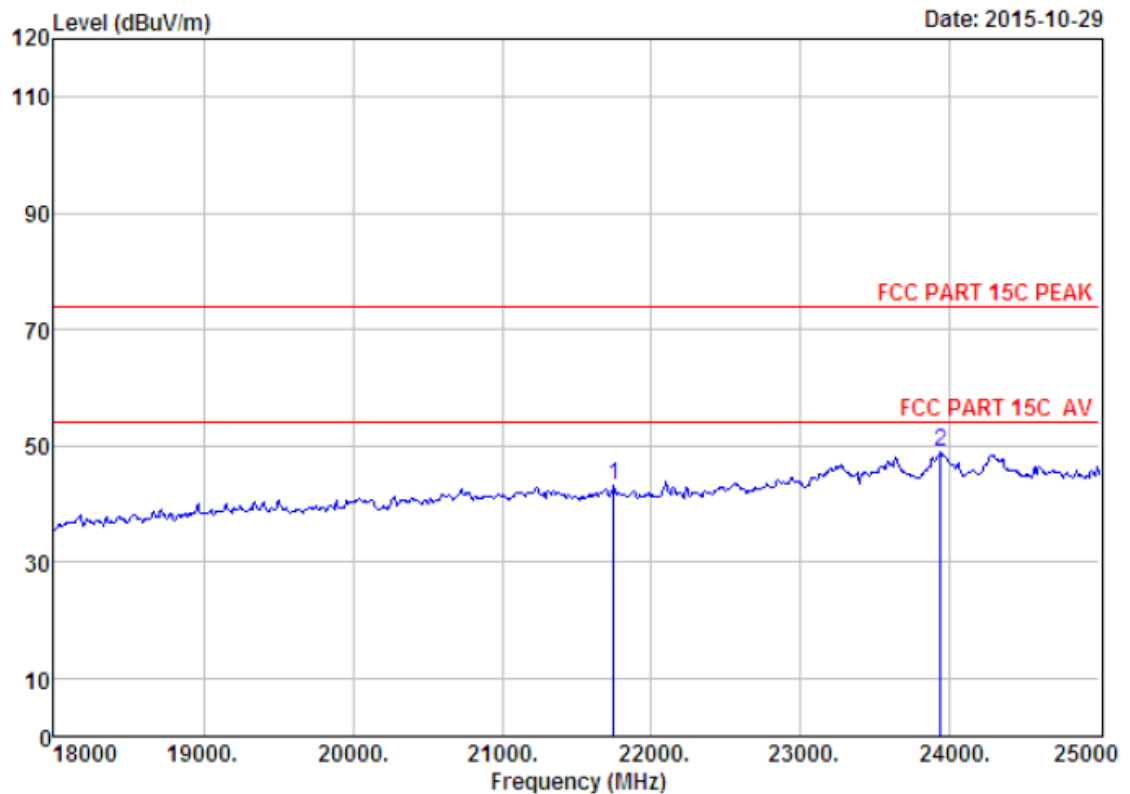
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 1# 966 chamber Data no. : 247
 Dis. / Ant. : 3m ANT ABOVE 18G Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa
 Engineer : Dick
 EUT : 2.4G wireless camera product
 Power : DC 12V From Adapter Input AC 120V/60Hz
 M/N : LW3211-C
 Test Mode : IX 2440MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	21465.00	46.01	20.33	35.37	11.56	42.53	74.00	31.47	Peak
2	23915.00	45.62	21.97	32.88	14.85	49.56	74.00	24.44	Peak

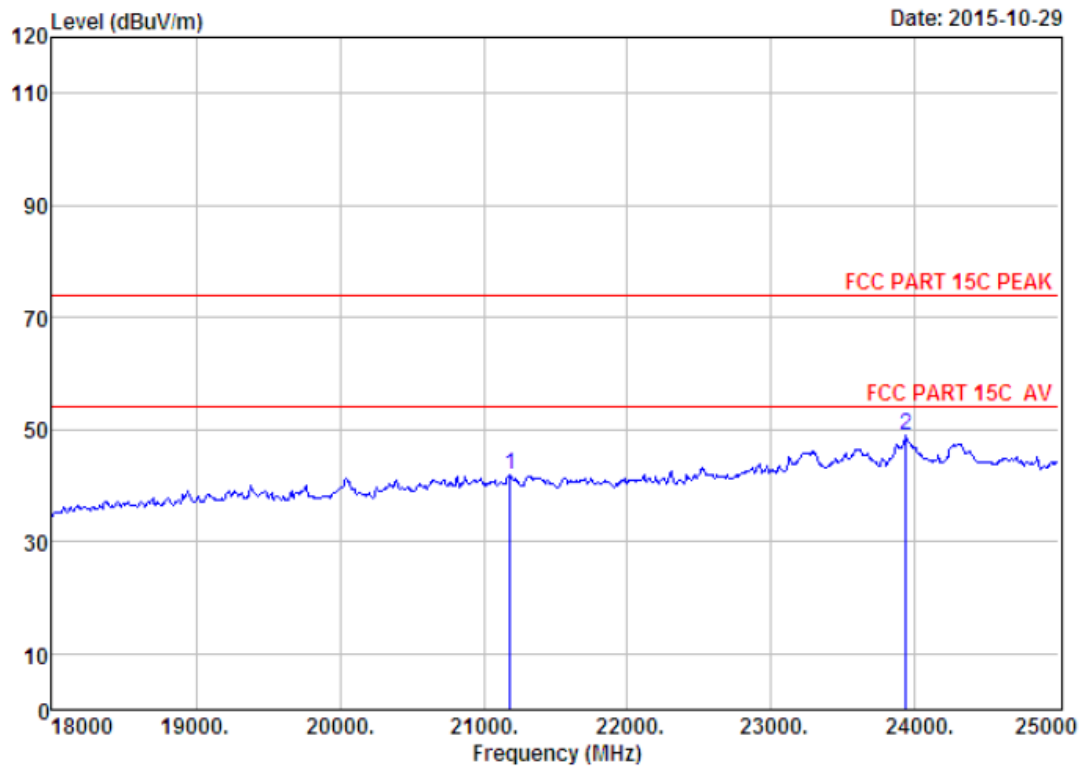
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 1# 966 chamber Data no. : 248
 Dis. / Ant. : 3m ANT ABOVE 18G Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa
 Engineer : Dick
 EUT : 2.4G wireless camera product
 Power : DC 12V From Adapter Input AC 120V/60Hz
 M/N : LW3211-C
 Test Mode : TX 2468MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	21745.00	45.86	20.45	35.12	11.85	43.04	74.00	30.96	Peak
2	23936.00	45.61	21.99	32.88	14.19	48.91	74.00	25.09	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 1# 966 chamber Data no. : 249
 Dis. / Ant. : 3m ANT ABOVE 18G Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa
 Engineer : Dick
 EUT : 2.4G wireless camera product
 Power : DC 12V From Adapter Input AC 120V/60Hz
 M/N : LW3211-C
 Test Mode : TX 2468MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	21185.00	46.18	20.21	35.64	11.04	41.79	74.00	32.21	Peak
2	23936.00	45.61	21.99	32.88	14.18	48.90	74.00	25.10	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

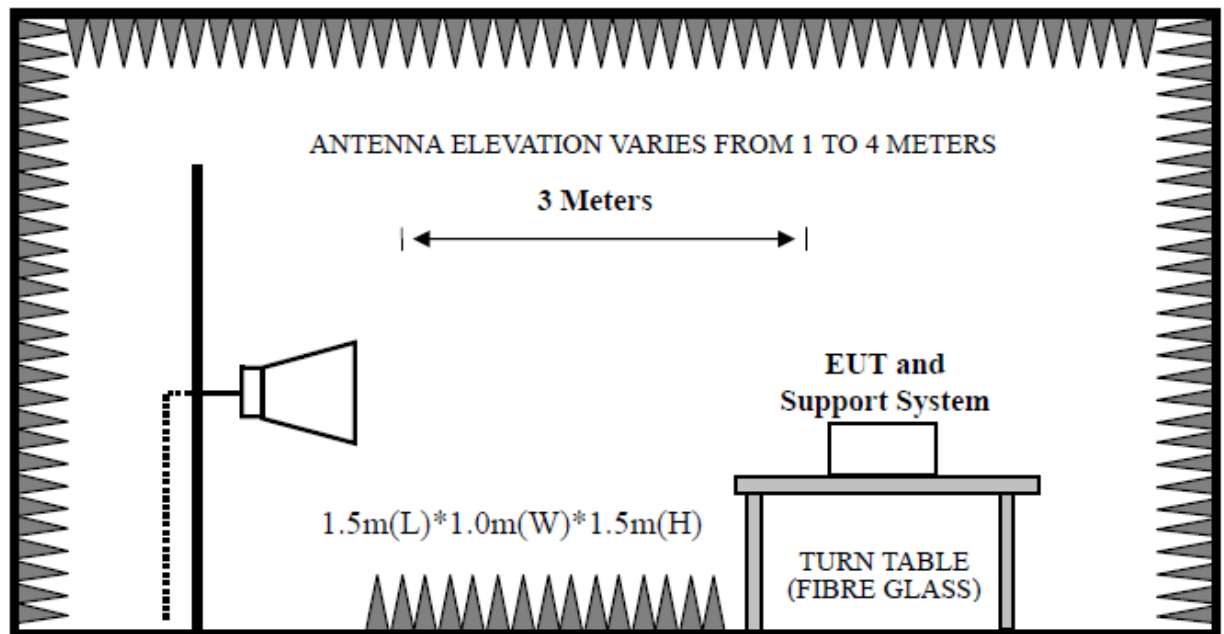
9. BAND EDGE COMPLIANCE

9.1. Limit

All the lower and upper band-edges emissions appearing within 2310MHz to 2390MHz and 2483.5MHz to 2500MHz restricted frequency bands shall not exceed the limits shown in 15.209, all the other emissions outside operation frequency band 2400MHz to 2483.5MHz shall be at least 20dB below the fundamental emissions, or comply with 15.209 limits.

9.2. Block Diagram of Test setup

Above 1GHz



9.3. Test Procedure

EUT was placed on a turn table, which is 1.5 meter high above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. Power on the EUT and let it working in test mode, then test it. EUT is set 3 meters away from the receiving antenna, which is mounted on a antenna tower. The antenna can be moved up and down between 1 meter and 4 meters to find out the maximum emission level. Both horizontal and vertical polarization of the antenna are set on test.

Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of emissions

(a) Peak : RBW = 1MHz, VBW = 1MHz, Detector=PEAK detector, Sweep time = auto

(b) AV : RBW = 1MHz, VBW = 10Hz, Detector=PEAK detector, Sweep time = auto .

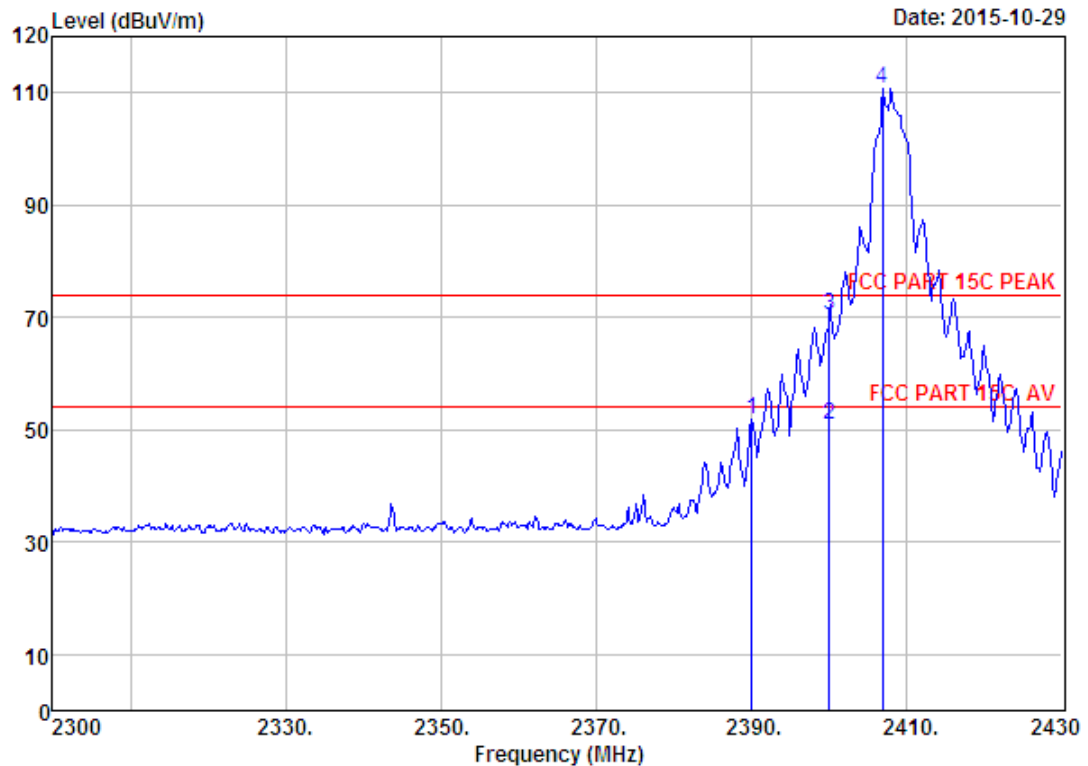
9.4. Test Result

EUT: 2.4G wireless camera product
M/N: LW3211-C
Power: AC 120V/60Hz
Test date: 2015-10-29 Test site: 3m Chamber Tested by: Tony Tang
Test mode: Tx Mode (Hopping On & No Hopping)
Pass

Note: 1、 For emissions above 1GHz, if peak level comply with average limit, then the average level is deemed to comply with average limit.

2、 The frequency 2408MHz 、2440MHz and 2468MHz is fundamental frequency which no limit, the limit on plots is automatically generated by the software, it's not fundamental limit, we can't remove it.

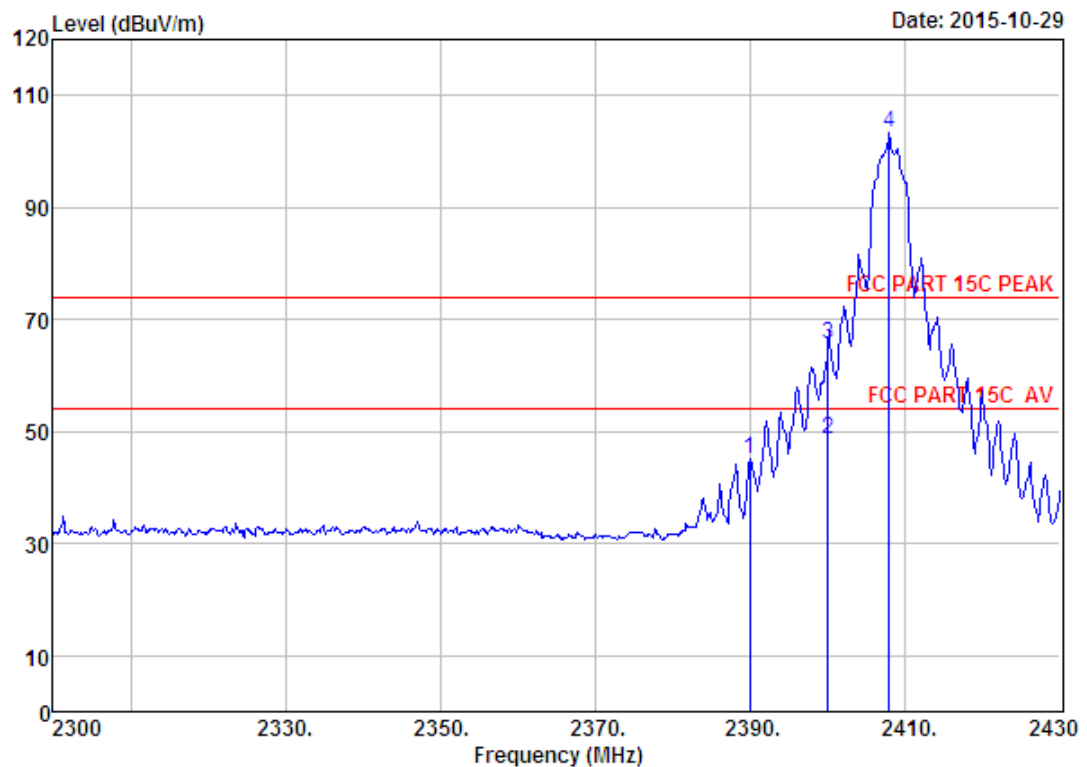
9.5. Test Data



Site no. : 1# 966 chamber Data no. : 234
 Dis. / Ant. : 3m ANT 1-18G Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa
 Engineer : Dick
 EUT : 2.4G wireless camera product
 Power : DC 12V From Adapter Input AC 120V/60Hz
 M/N : LW3211-C
 Test Mode : TX 2408MHz(No Hopping)

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	27.64	6.62	34.62	52.26	51.90	74.00	22.10	Peak
2	2400.00	27.61	6.62	34.64	51.40	50.99	54.00	3.01	Average
3	2400.00	27.61	6.62	34.64	70.82	70.41	74.00	3.59	Peak
4	2406.86	27.61	6.64	34.64	110.99	110.60	74.00	-36.60	Peak

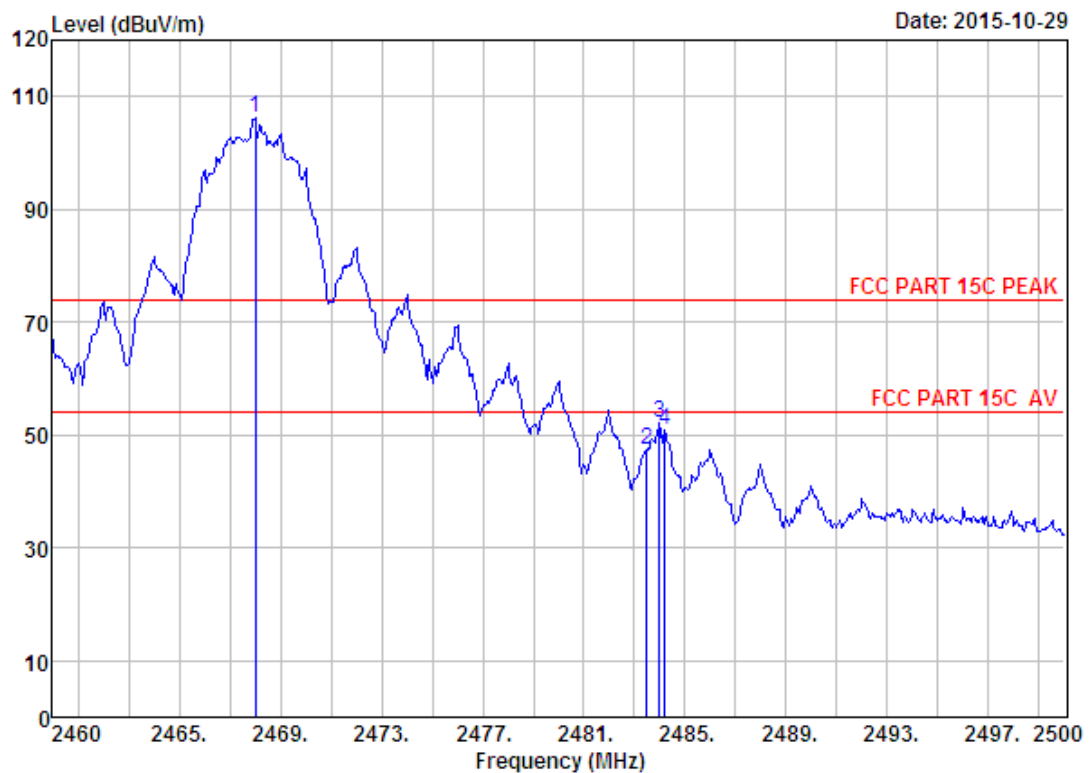
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 1# 966 chamber Data no. : 235
 Dis. / Ant. : 3m ANT 1-18G Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa
 Engineer : Dick
 EUT : 2.4G wireless camera product
 Power : DC 12V From Adapter Input AC 120V/60Hz
 M/N : LW3211-C
 Test Mode : TX 2408MHz (No Hopping)

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2389.96	27.64	6.62	34.62	45.63	45.27	74.00	28.73	Peak
2	2400.00	27.61	6.62	34.64	49.03	48.62	54.00	5.38	Average
3	2400.00	27.61	6.62	34.64	65.98	65.57	74.00	8.43	Peak
4	2407.90	27.61	6.64	34.64	103.88	103.49	74.00	-29.49	Peak

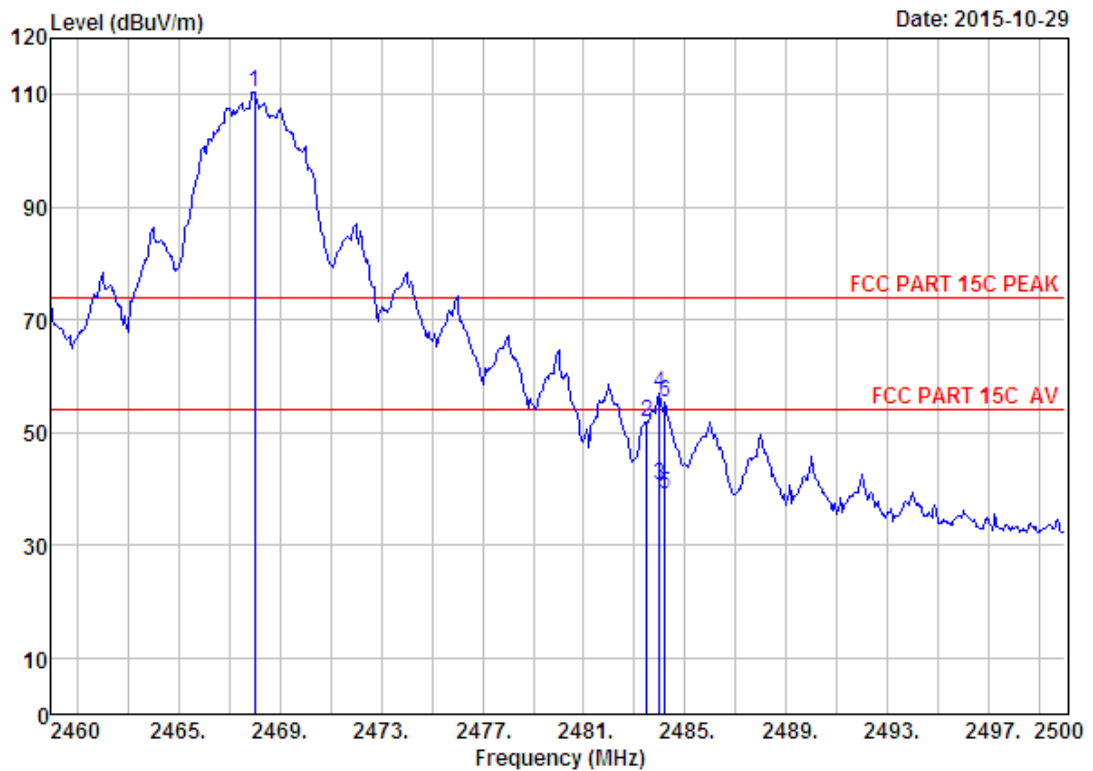
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 1# 966 chamber Data no. : 240
 Dis. / Ant. : 3m ANT 1-18G Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa
 Engineer : Dick
 EUT : 2.4G wireless camera product
 Power : DC 12V From Adapter Input AC 120V/60Hz
 M/N : LW3211-C
 Test Mode : TX 2468MHz(No Hopping)

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2468.00	27.58	6.69	34.98	106.98	106.27	74.00	-32.27	Peak
2	2483.50	27.58	6.71	35.11	48.30	47.48	74.00	26.52	Peak
3	2484.00	27.58	6.71	35.11	53.01	52.19	74.00	21.81	Peak
4	2484.20	27.58	6.71	35.11	51.79	50.97	74.00	23.03	Peak

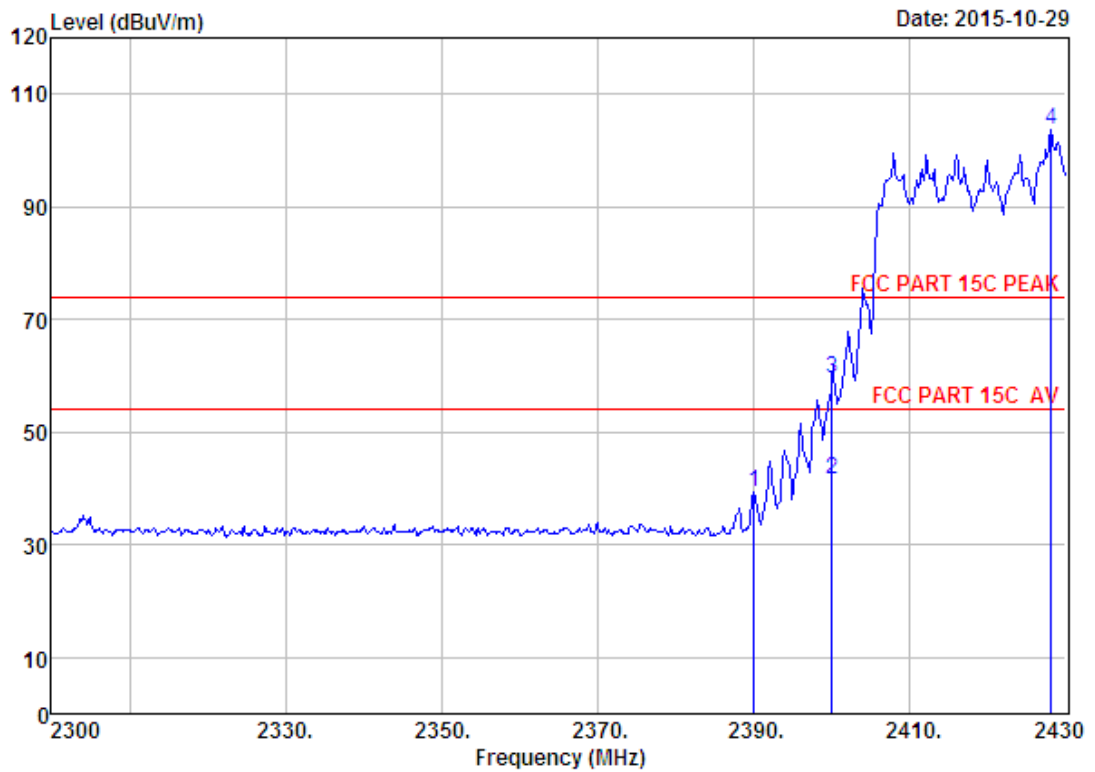
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 1# 966 chamber Data no. : 241
 Dis. / Ant. : 3m ANT 1-18G Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa
 Engineer : Dick
 EUT : 2.4G wireless camera product
 Power : DC 12V From Adapter Input AC 120V/60Hz
 M/N : LW3211-C
 Test Mode : TX 2468MHz(No Hopping)

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBUV)	Emission Level (dBUV/m)	Limits (dBUV/m)	Margin (dB)	Remark
1	2468.00	27.58	6.69	34.98	111.10	110.39	74.00	-36.39	Peak
2	2483.50	27.58	6.71	35.11	52.70	51.88	74.00	22.12	Peak
3	2484.00	27.58	6.71	35.11	41.50	40.68	54.00	13.32	Average
4	2484.00	27.58	6.71	35.11	57.79	56.97	74.00	17.03	Peak
5	2484.20	27.58	6.71	35.11	40.00	39.18	54.00	14.82	Average
6	2484.20	27.58	6.71	35.11	56.20	55.38	74.00	18.62	Peak

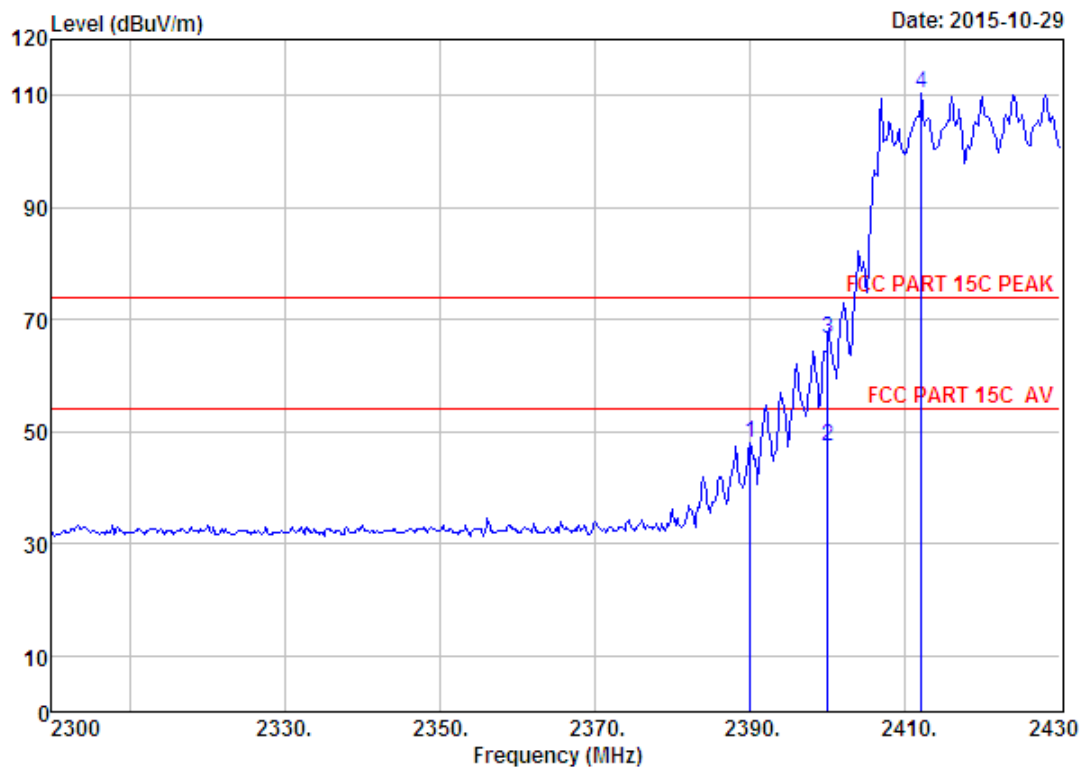
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 1# 966 chamber Data no. : 258
 Dis. / Ant. : 3m ANT 1-18G Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa
 Engineer : Dick
 EUT : 2.4G wireless camera product
 Power : DC 12V From Adapter Input AC 120V/60Hz
 M/N : LW3211-C
 Test Mode : TX 2408MHz(Hopping On)

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	27.64	6.62	34.62	39.77	39.41	74.00	34.59	Peak
2	2400.00	27.61	6.62	34.64	42.00	41.59	54.00	12.41	Average
3	2400.00	27.61	6.62	34.64	59.90	59.49	74.00	14.51	Peak
4	2428.05	27.60	6.66	34.74	104.05	103.57	74.00	-29.57	Peak

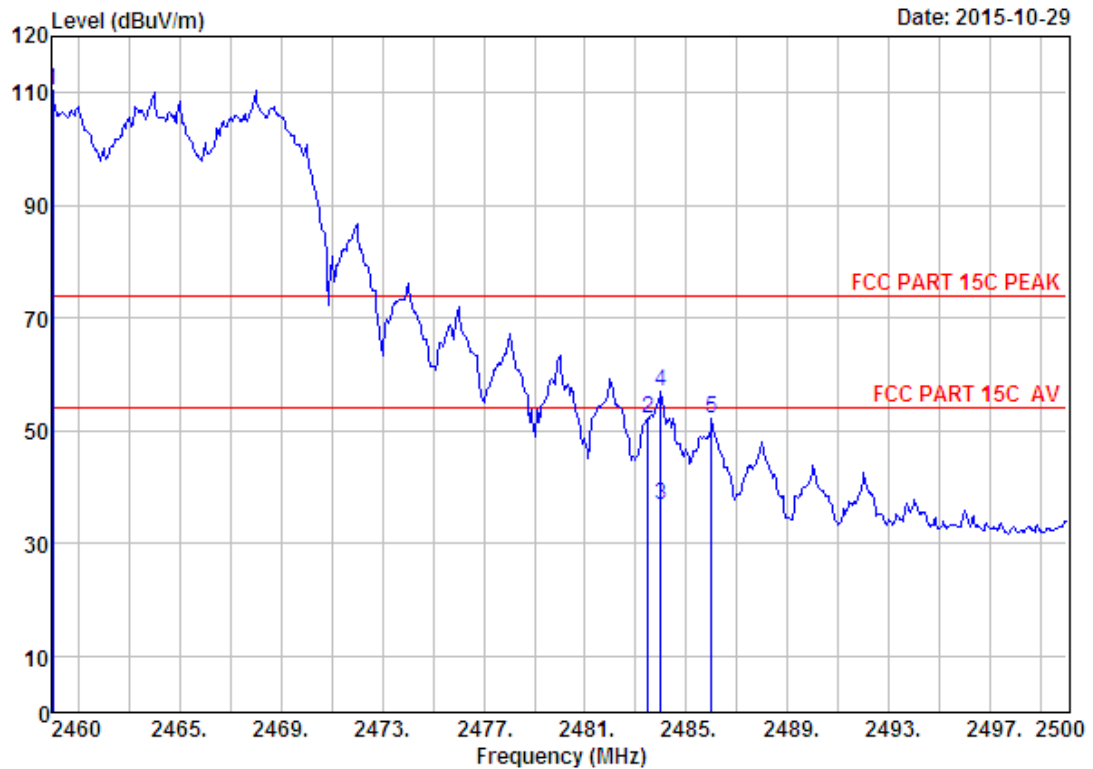
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 1# 966 chamber Data no. : 259
 Dis. / Ant. : 3m ANT 1-18G Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa
 Engineer : Dick
 EUT : 2.4G wireless camera product
 Power : DC 12V From Adapter Input AC 120V/60Hz
 M/N : LW3211-C
 Test Mode : TX 2408MHz(Hopping On)

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	27.64	6.62	34.62	48.38	48.02	74.00	25.98	Peak
2	2400.00	27.61	6.62	34.64	47.80	47.39	54.00	6.61	Average
3	2400.00	27.61	6.62	34.64	67.01	66.60	74.00	7.40	Peak
4	2412.06	27.60	6.64	34.64	110.91	110.51	74.00	-36.51	Peak

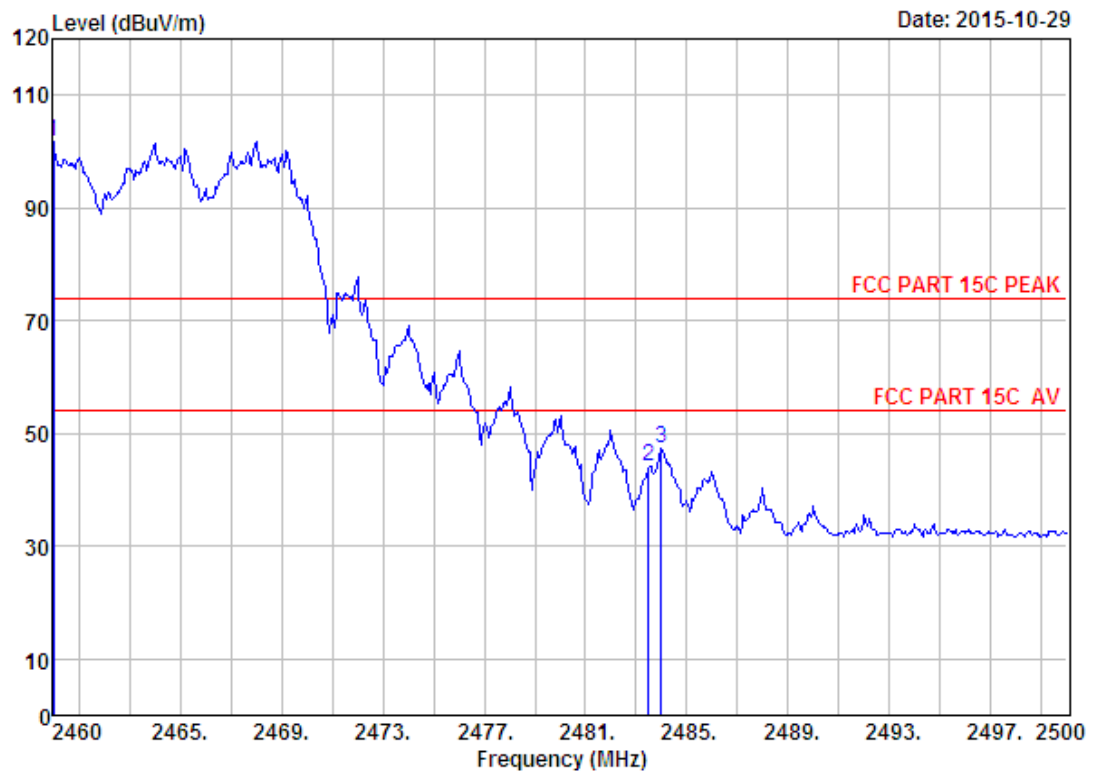
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 1# 966 chamber Data no. : 260
 Dis. / Ant. : 3m ANT 1-18G Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa
 Engineer : Dick
 EUT : 2.4G wireless camera product
 Power : DC 12V From Adapter Input AC 120V/60Hz
 M/N : LW3211-C
 Test Mode : TX 2468MHz(Hopping On)

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2460.00	27.58	6.69	34.98	111.03	110.32	74.00	-36.32	Peak
2	2483.50	27.58	6.71	35.11	52.92	52.10	74.00	21.90	Peak
3	2484.00	27.58	6.71	35.11	37.60	36.78	54.00	17.22	Average
4	2484.00	27.58	6.71	35.11	57.91	57.09	74.00	16.91	Peak
5	2486.00	27.58	6.71	35.11	52.89	52.07	74.00	21.93	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 1# 966 chamber Data no. : 261
 Dis. / Ant. : 3m ANT 1-18G Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa
 Engineer : Dick
 EUT : 2.4G wireless camera product
 Power : DC 12V From Adapter Input AC 120V/60Hz
 M/N : LW3211-C
 Test Mode : TX 2468MHz(Hopping On)

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2460.00	27.58	6.69	34.98	102.55	101.84	74.00	-27.84	Peak
2	2483.50	27.58	6.71	35.11	44.92	44.10	74.00	29.90	Peak
3	2484.00	27.58	6.71	35.11	48.28	47.46	74.00	26.54	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

10. POWER LINE CONDUCTED EMISSION TEST

10.1. Limit

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

Notes: 1. * Decreasing linearly with logarithm of frequency.
2. The lower limit shall apply at the transition frequencies.

10.2. Test Procedure

The EUT was placed on a non-metallic table, 80cm above the ground plane. The EUT Power connected to the power mains through a line impedance stabilization network (L.I.S.N. 1#). This provides a 50 ohm coupling impedance for the EUT (Please refer the block diagram of the test setup and photographs). The AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.10: 2013 on Conducted Emission Test.

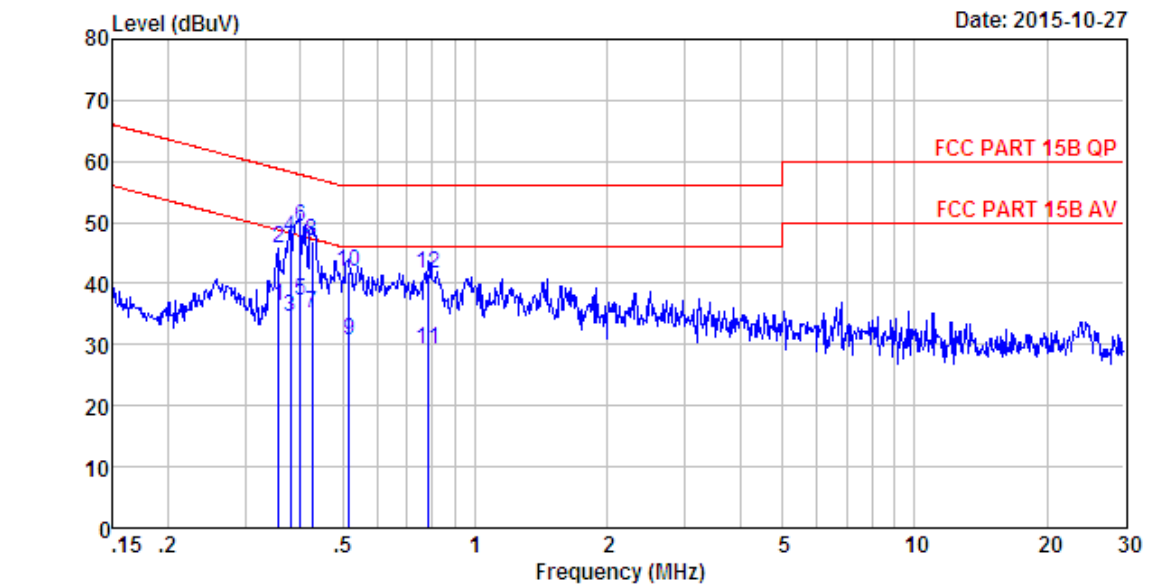
The bandwidth of test receiver (R & S ESHS30) is set at 10kHz.

The frequency range from 150kHz to 30MHz is checked.

10.3. Result

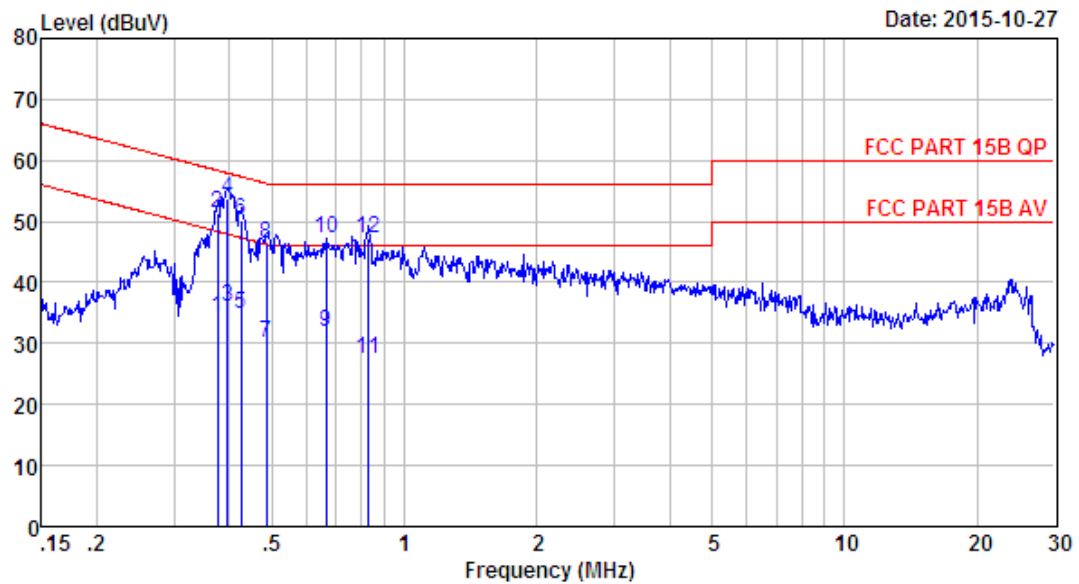
PASS. (All emissions not reported below are too low against the prescribed limits.)

10.4.Data



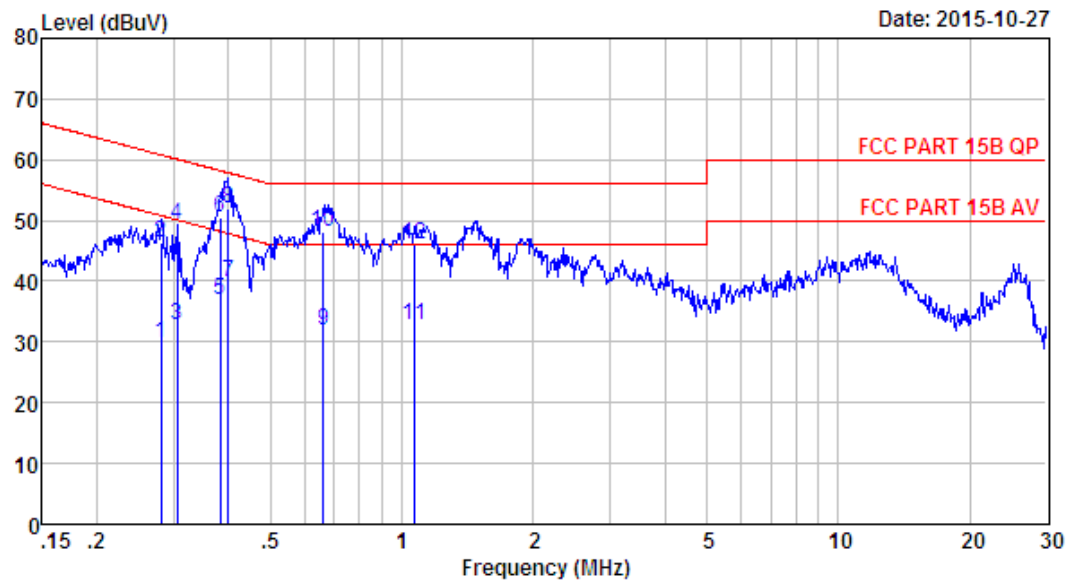
Site no : 844 Shield Room Data no. : 25
 Env. / Ins. : Temp:25.3'C Humi:58% Press:101.50kPa LINE Phase : LINE
 Limit : FCC PART 15B QP
 Engineer : Dick
 EUT : 2.4G wireless camera product
 Power : DC 12V From Adapter Input AC 240V/50Hz
 M/N : LW3211-C
 Test Mode : TX Mode

	Freq. (MHz)	LISN Factor (db)	Cable Loss (db)	Reading dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.358	9.61	9.82	17.00	36.43	48.78	12.35	Average
2	0.358	9.61	9.82	26.23	45.66	58.78	13.12	QP
3	0.379	9.61	9.82	15.17	34.60	48.30	13.70	Average
4	0.379	9.61	9.82	28.16	47.59	58.30	10.71	QP
5	0.400	9.61	9.82	17.77	37.20	47.86	10.66	Average
6	0.400	9.61	9.82	29.91	49.34	57.86	8.52	QP
7	0.426	9.61	9.81	15.78	35.20	47.33	12.13	Average
8	0.426	9.61	9.81	27.45	46.87	57.33	10.46	QP
9	0.516	9.61	9.81	11.18	30.60	46.00	15.40	Average
10	0.516	9.61	9.81	22.61	42.03	56.00	13.97	QP
11	0.779	9.60	9.81	9.69	29.10	46.00	16.90	Average
12	0.779	9.60	9.81	22.18	41.59	56.00	14.41	QP



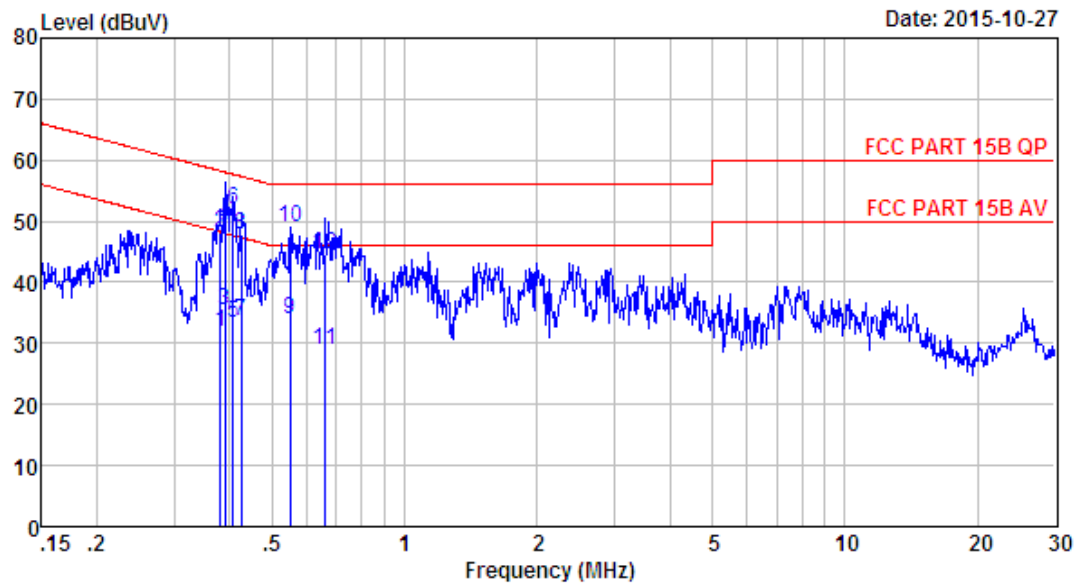
Site no : 844 Shield Room Data no. : 27
 Env. / Ins. : Temp:25.3'C Humi:58% Press:101.50kPa LINE Phase : NEUTRAL
 Limit : FCC PART 15B QP
 Engineer : Dick
 EUT : 2.4G wireless camera product
 Power : DC 12V From Adapter Input AC 240V/50Hz
 M/N : LW3211-C
 Test Mode : TX Mode

	Freq. (MHz)	LISN Factor (db)	Cable Loss (db)	Reading dBuV	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.377	9.59	9.82	14.69	34.10	48.34	14.24	Average
2	0.377	9.59	9.82	32.05	51.46	58.34	6.88	QP
3	0.396	9.59	9.82	16.49	35.90	47.95	12.05	Average
4	0.396	9.59	9.82	34.18	53.59	57.95	4.36	QP
5	0.426	9.59	9.81	15.40	34.80	47.33	12.53	Average
6	0.426	9.59	9.81	30.74	50.14	57.33	7.19	QP
7	0.486	9.59	9.81	10.80	30.20	46.23	16.03	Average
8	0.486	9.59	9.81	26.82	46.22	56.23	10.01	QP
9	0.665	9.62	9.81	12.51	31.94	46.00	14.06	Average
10	0.665	9.62	9.81	27.78	47.21	56.00	8.79	QP
11	0.826	9.62	9.81	7.97	27.40	46.00	18.60	Average
12	0.826	9.62	9.81	27.79	47.22	56.00	8.78	QP



Site no : 844 Shield Room Data no. : 29
 Env. / Ins. : Temp:25.3'C Humi:58% Press:101.50kPa LINE Phase : LINE
 Limit : FCC PART 15B QP
 Engineer : Dick
 EUT : 2.4G wireless camera product
 Power : DC 12V From Adapter Input AC 120V/60Hz
 M/N : LW3211-C
 Test Mode : TX Mode

	Freq. (MHz)	LISN Factor (db)	Cable Loss (db)	Reading dBuV	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.280	9.61	9.83	10.36	29.80	50.81	21.01	Average
2	0.280	9.61	9.83	26.89	46.33	60.81	14.48	QP
3	0.305	9.61	9.83	13.30	32.74	50.10	17.36	Average
4	0.305	9.61	9.83	30.00	49.44	60.10	10.66	QP
5	0.383	9.61	9.82	17.47	36.90	48.21	11.31	Average
6	0.383	9.61	9.82	31.05	50.48	58.21	7.73	QP
7	0.400	9.61	9.82	20.57	40.00	47.86	7.86	Average
8	0.400	9.61	9.82	32.48	51.91	57.86	5.95	QP
9	0.661	9.59	9.81	12.60	32.00	46.00	14.00	Average
10	0.661	9.59	9.81	28.59	47.99	56.00	8.01	QP
11	1.065	9.64	9.84	13.32	32.80	46.00	13.20	Average
12	1.065	9.64	9.84	26.54	46.02	56.00	9.98	QP



Site no : 844 Shield Room Data no. : 31
 Env. / Ins. : Temp:25.3'C Humi:58% Press:101.50kPa LINE Phase : NEUTRAL
 Limit : FCC PART 15B QP
 Engineer : Dick
 EUT : 2.4G wireless camera product
 Power : DC 12V From Adapter Input AC 120V/60Hz
 M/N : LW3211-C
 Test Mode : TX Mode

	Freq. (MHz)	LISN Factor (db)	Cable Loss (db)	Reading dBuV	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.381	9.59	9.82	12.59	32.00	48.25	16.25	Average
2	0.381	9.59	9.82	28.63	48.04	58.25	10.21	QP
3	0.391	9.59	9.82	16.09	35.50	48.03	12.53	Average
4	0.391	9.59	9.82	29.86	49.27	58.03	8.76	QP
5	0.408	9.59	9.82	13.89	33.30	47.68	14.38	Average
6	0.408	9.59	9.82	32.57	51.98	57.68	5.70	QP
7	0.426	9.59	9.81	14.30	33.70	47.33	13.63	Average
8	0.426	9.59	9.81	28.56	47.96	57.33	9.37	QP
9	0.549	9.60	9.82	14.50	33.92	46.00	12.08	Average
10	0.549	9.60	9.82	29.56	48.98	56.00	7.02	QP
11	0.661	9.62	9.81	9.37	28.80	46.00	17.20	Average
12	0.661	9.62	9.81	25.15	44.58	56.00	11.42	QP

11.ANTENNA REQUIREMENTS

11.1.Limit

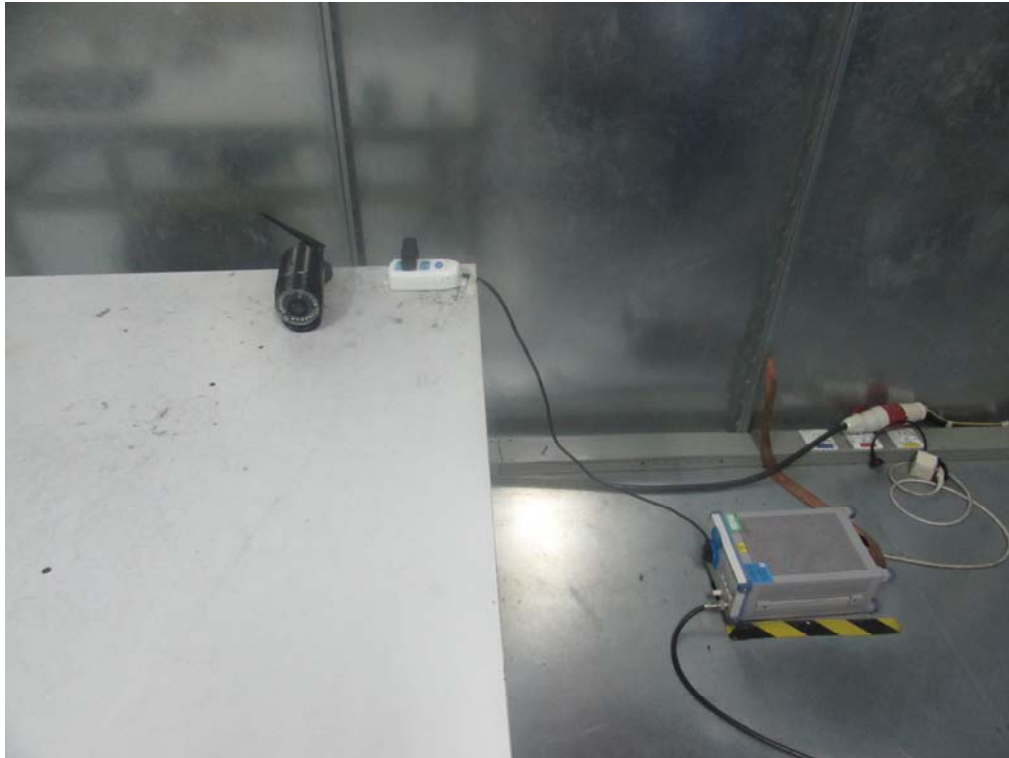
For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

11.2.Result

The antennas used for this product are Integral antenna and that no antenna other than that furnished by the responsible party shall be used with the device, the maximum peak gain of the transmit antenna is only 3.00 dBi.

12. TEST SETUP PHOTO

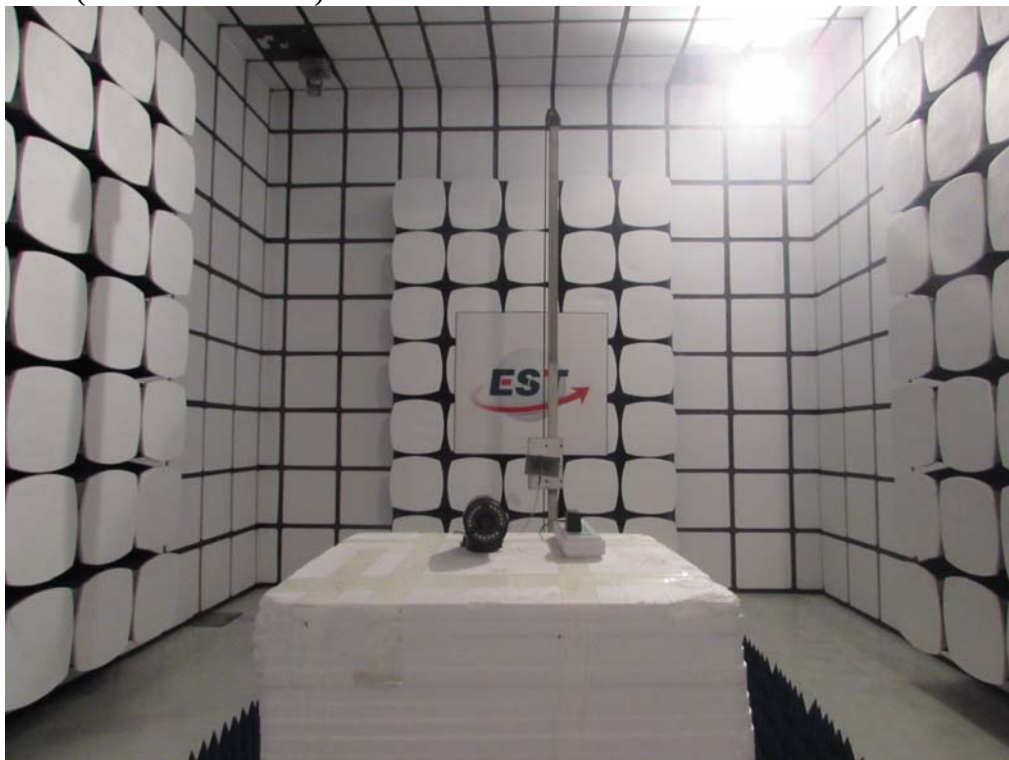
Conducted Test



Radiated Test (30-1000 MHz)



Radiated Test (1000-25000 MHz)



13. PHOTOS OF EUT

External Photos
M/N: LW3211-C



External Photos
M/N: LW3211-C

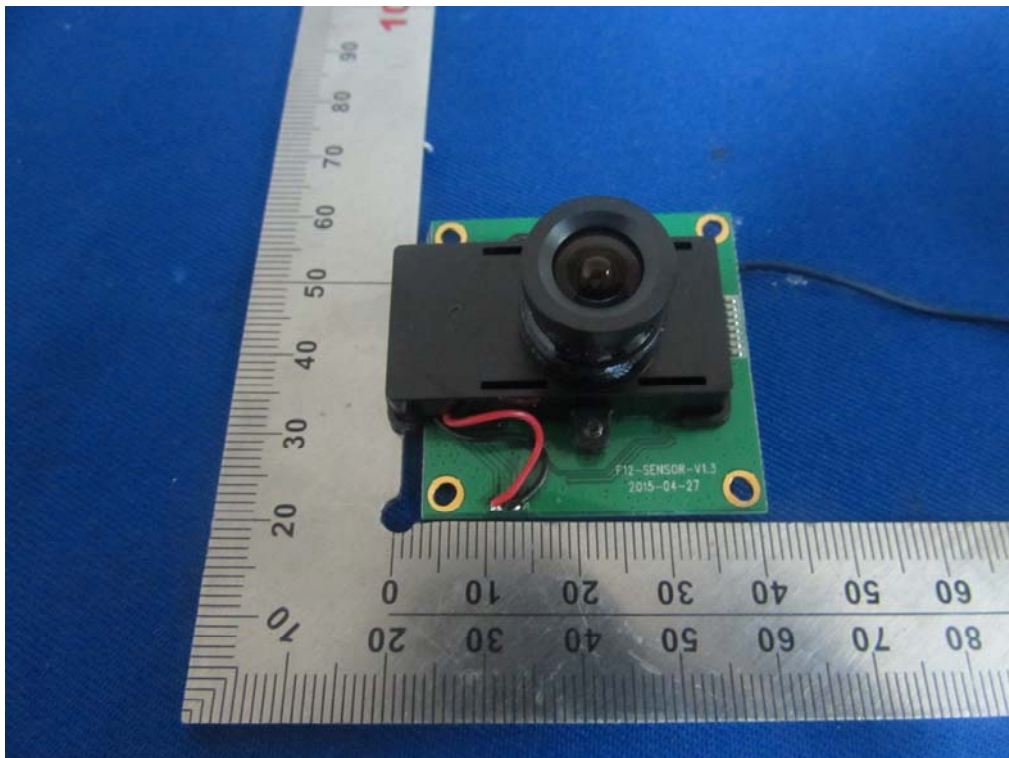


External Photos

M/N: LW3211-C

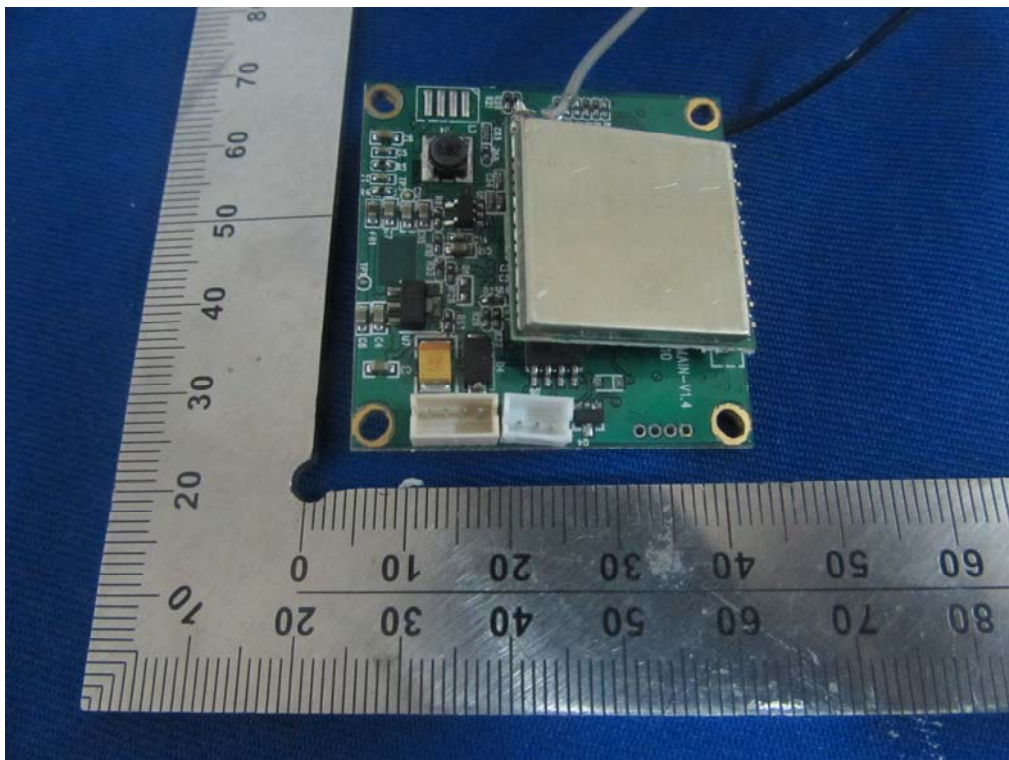
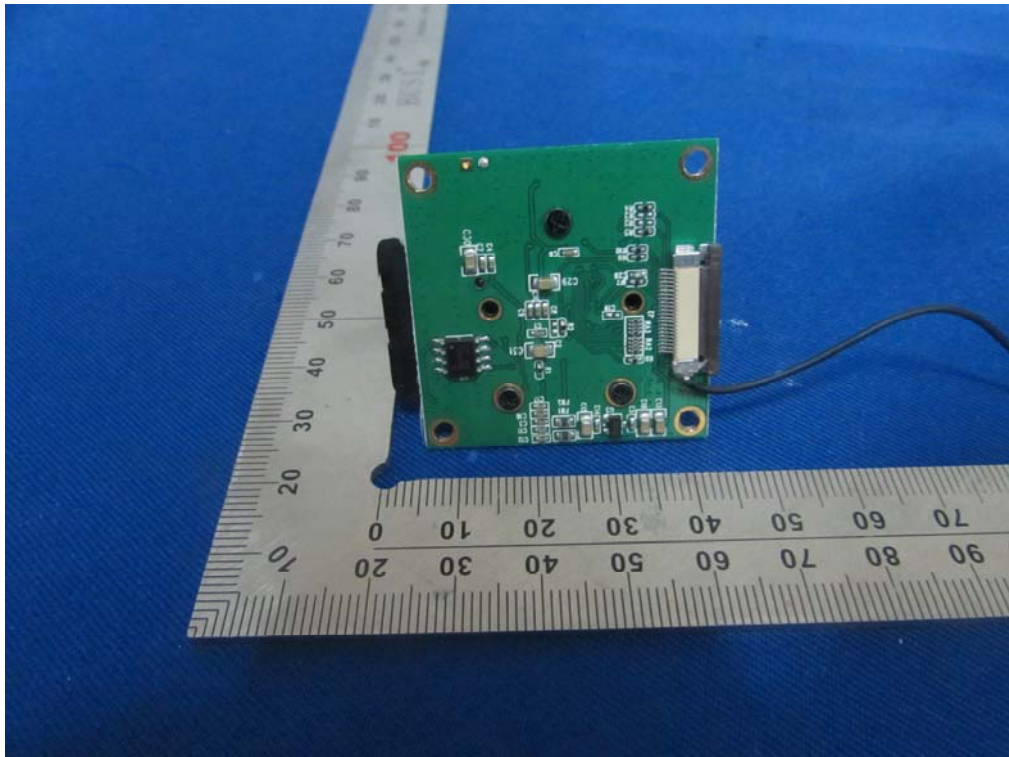


Internal Photos
M/N: LW3211-C



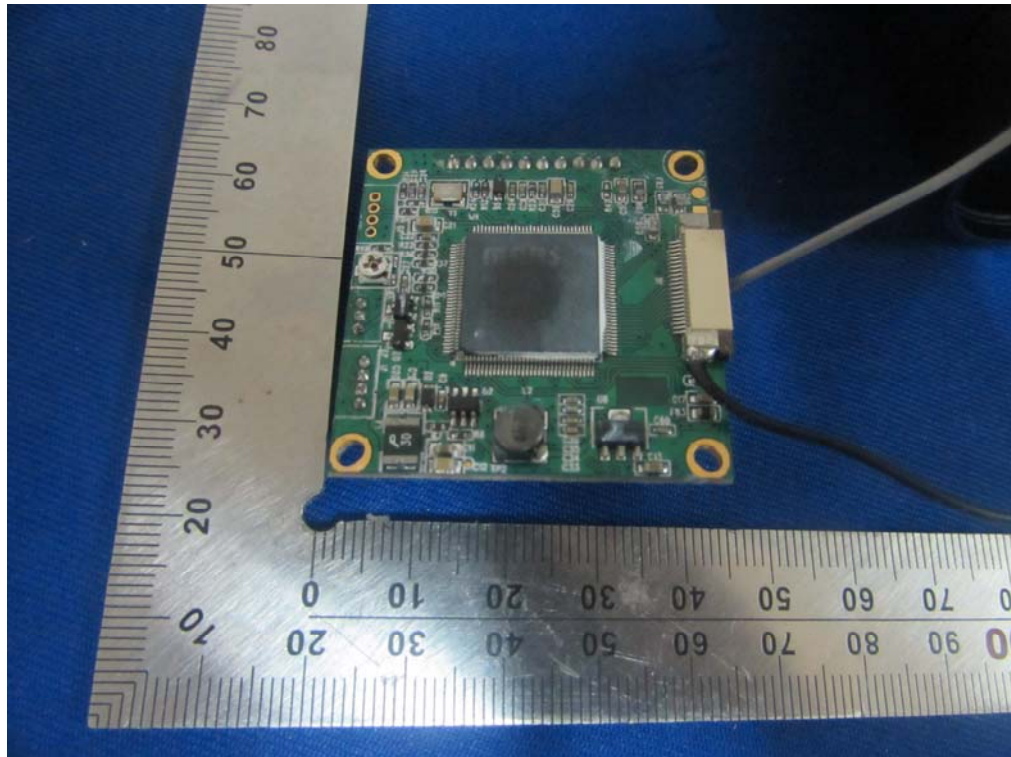
Internal Photos

M/N: LW3211-C



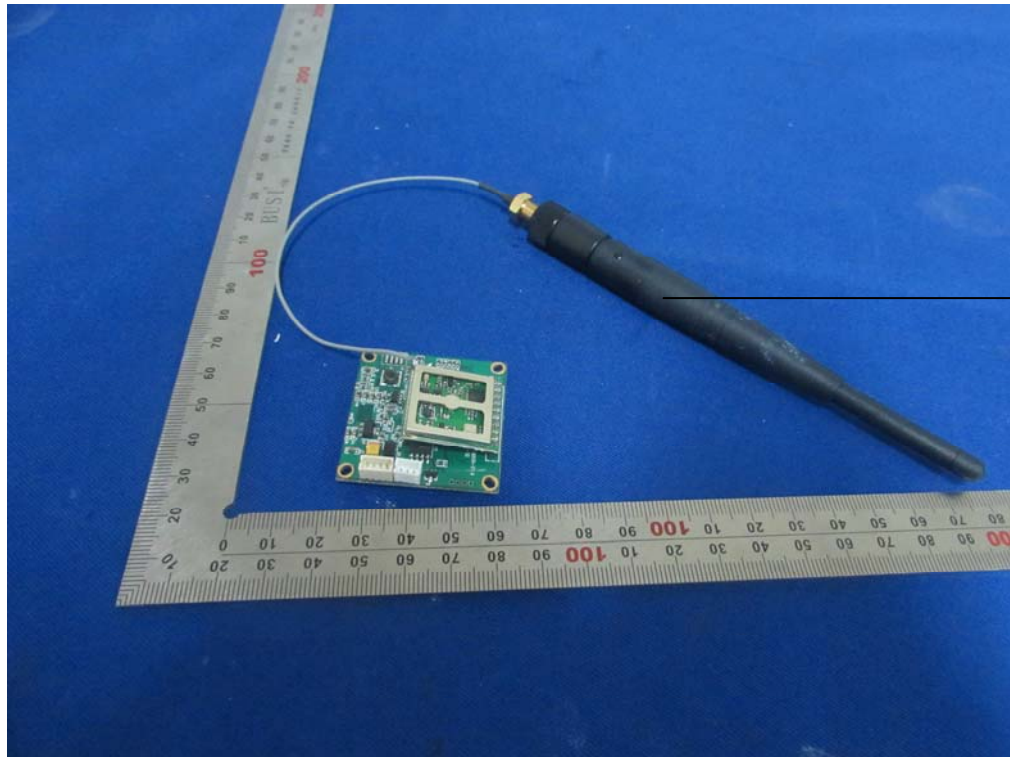
Internal Photos

M/N: LW3211-C



Internal Photos

M/N: LW3211-C



Antenna

Adapter Photos

