

FCC Test Report

Product Name	Digital Camera
Model No	VSF1200Z
FCC ID.	2AAD31200

Applicant	ABILITY ENTERPRISE CO., LTD.
Address	4 Fl., No.8, Lane7, Wuchiuan Rd, Wugu Dist., New Taipei City 248, Taiwan, (R.O.C.)

Date of Receipt	July 25, 2017
Issue Date	Aug. 21, 2017
Report No.	1770378R-RFUSP26V00
Report Version	V1.0



The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration report of the equipment and evaluated measurement uncertainty herein.

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Test Report

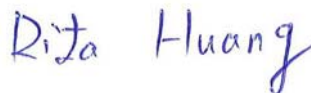
Issue Date: Aug. 21, 2017

Report No.: 1770378R-RFUSP26V00



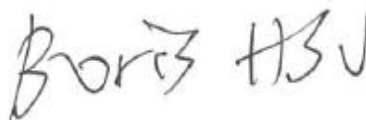
Product Name	Digital Camera
Applicant	ABILITY ENTERPRISE CO., LTD.
Address	4 Fl., No.8, Lane7, Wuchiuan Rd, Wugu Dist., New Taipei City 248, Taiwan, (R.O.C.)
Manufacturer	ABILITY ENTERPRISE CO., LTD.
Model No.	VSF1200Z
FCC ID.	2AAD31200
EUT Rated Voltage	DC 3.7V By Battery
EUT Test Voltage	AC 120V/60Hz
Trade Name	ABILITY
Applicable Standard	FCC CFR Title 47 Part 15 Subpart C: 2016 ANSI C63.4: 2014, ANSI C63.10: 2013 KDB 558074 D01 DTS Meas Guidance v04
Test Result	Complied

Documented By :



(Senior Adm. Specialist / Rita Huang)

Tested By :



(Engineer / Boris Hsu)

Approved By :



(Director / Vincent Lin)

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1. GENERAL INFORMATION

1.1. EUT Description

Product Name	Digital Camera
Trade Name	ABILITY
Model No.	VSF1200Z
FCC ID.	2AAD31200
Frequency Range	802.11b/g/n-20BW: 2412-2462MHz
Number of Channels	802.11b/g/n-20MHz: 11
Data Speed	802.11b: 1-11Mbps, 802.11g: 6-54Mbps, 802.11n: 6.5-65Mbps
Type of Modulation	802.11b:DSSS (DBPSK, DQPSK, CCK) 802.11g/n: OFDM (BPSK, QPSK, 16QAM, 64QAM)
Antenna Type	Chip Antenna
Antenna Gain	Refer to the table "Antenna List"
Channel Control	Auto
USB Cable	Shielded, 0.6m, with one ferrite core bonded.
Power Adapter (1)	MFR: DARFON, M/N: B105-52 Input: AC 100-240V, 50/60Hz, 0.2A Output: DC 5.0V, 1A
Power Adapter (2)	MFR: DVE, M/N: DSA-5PFU1-05 FCA 050100 Input: AC 100-240V, 50/60Hz, 0.2A Output: DC 5.0V, 1A

Antenna List

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	Yageo	ANT8010LL04R2400A	Chip	-3.60 dBi for 2.4 GHz

Note:

1. The antenna of EUT conforms to FCC 15.203.

802.11b/g/n-20MHz Center Frequency of Each Channel:

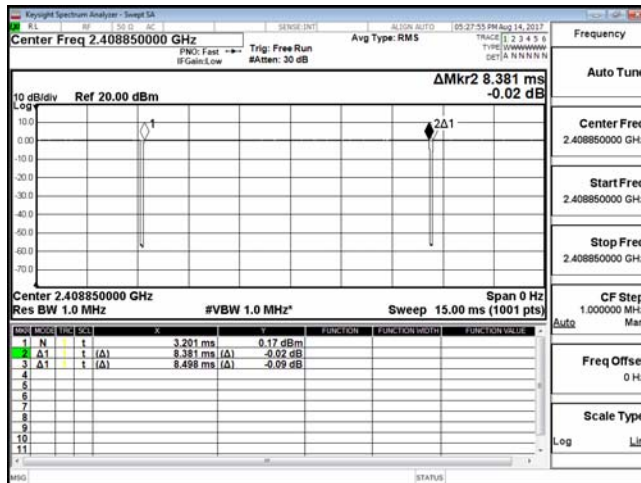
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 01:	2412 MHz	Channel 02:	2417 MHz	Channel 03:	2422 MHz	Channel 04:	2427 MHz
Channel 05:	2432 MHz	Channel 06:	2437 MHz	Channel 07:	2442 MHz	Channel 08:	2447 MHz
Channel 09:	2452 MHz	Channel 10:	2457 MHz	Channel 11:	2462 MHz		

Duty Cycle:

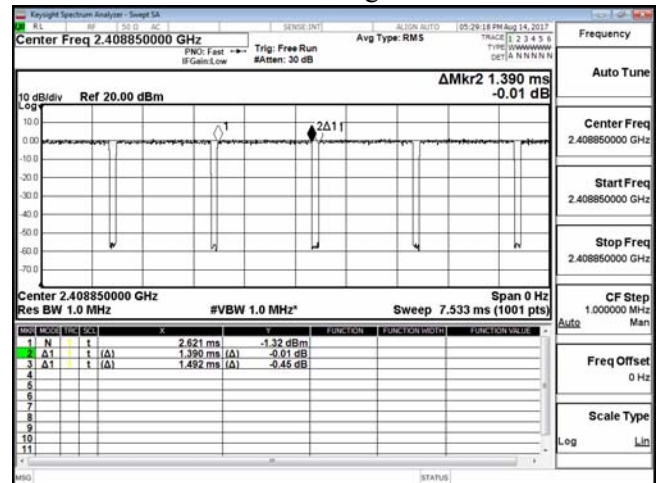
802.11b	0.986
802.11g	0.932
802.11n-20	0.923

*Duty cycle = Ton / (Ton + Toff)

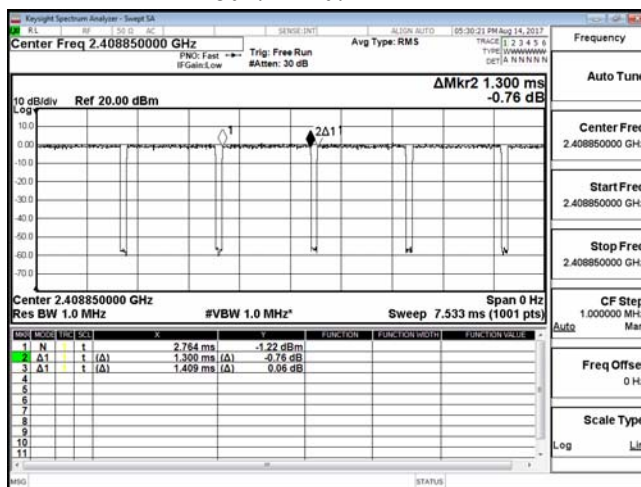
802.11b:



802.11g:



802.11n20:



Note:

1. The EUT is a Digital Camera with a built-in 2.4GHz WLAN transceiver.
2. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.
3. Lowest and highest data rates are tested in each mode. Only worst case is shown in the report. (802.11b is 1Mbps 、 802.11g is 6Mbps 、 802.11n(20M-BW) is 6.5Mbps.
4. These tests are conducted on a sample for the purpose of demonstrating compliance of 802.11b/g/n transmitter with Part 15 Subpart C Paragraph 15.247 of spread spectrum devices.
5. The radiation measurements are performed in X, Y, Z axis positioning. Only the worst case is shown in the report.

Test Mode:	Mode 1: Transmit (802.11b 1Mbps)
	Mode 2: Transmit (802.11g 6Mbps)
	Mode 3: Transmit (802.11n MCS0 6.5Mbps 20M-BW)
	Mode 4: Charge Mode

1.3. Tested System Details

The types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

TX Mode

Product		Manufacturer	Model No.	Serial No.	Power Cord
1	Notebook PC	DELL	Latitude E5440	FS9TK32	Non-Shielded, 0.8m

TX Mode

Signal Cable Type		Signal cable Description
A	USB Cable	Non-Shielded, 0.6, with one ferrite core bonded.

Charge Mode

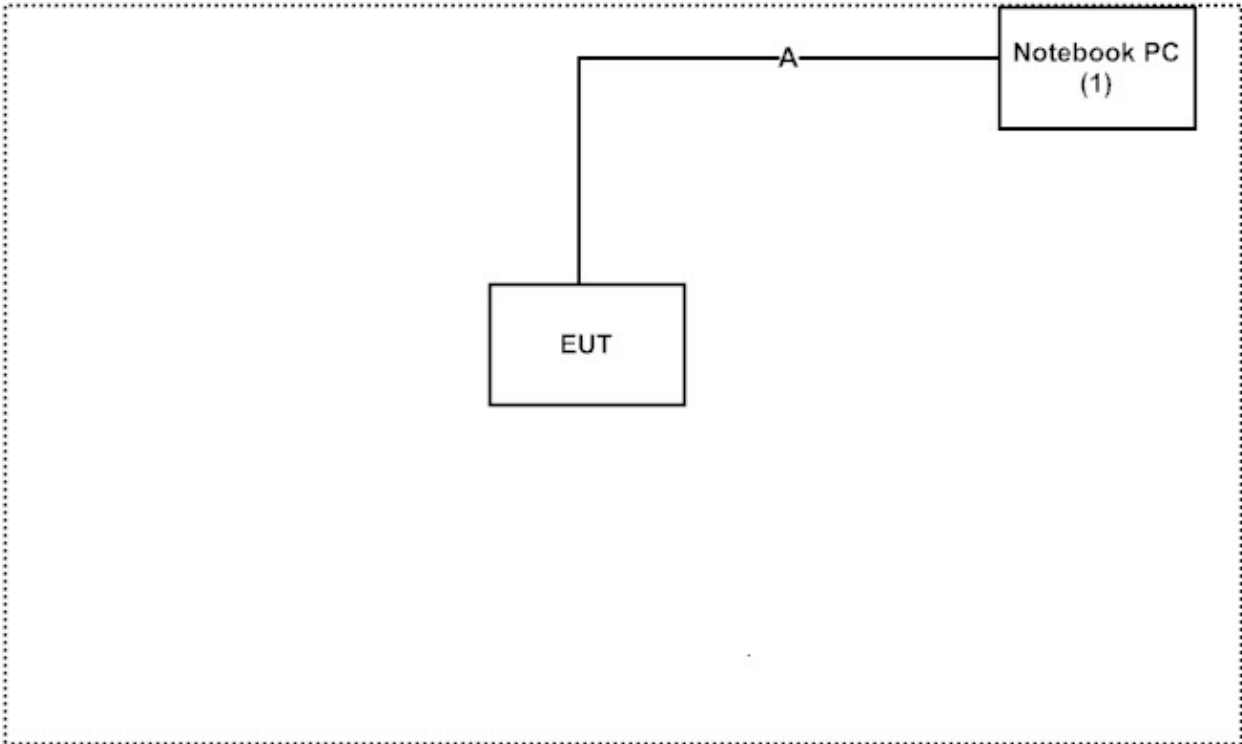
Product	Manufacturer	Model No.	Serial No.	Power Cord
N/A				

Charge Mode

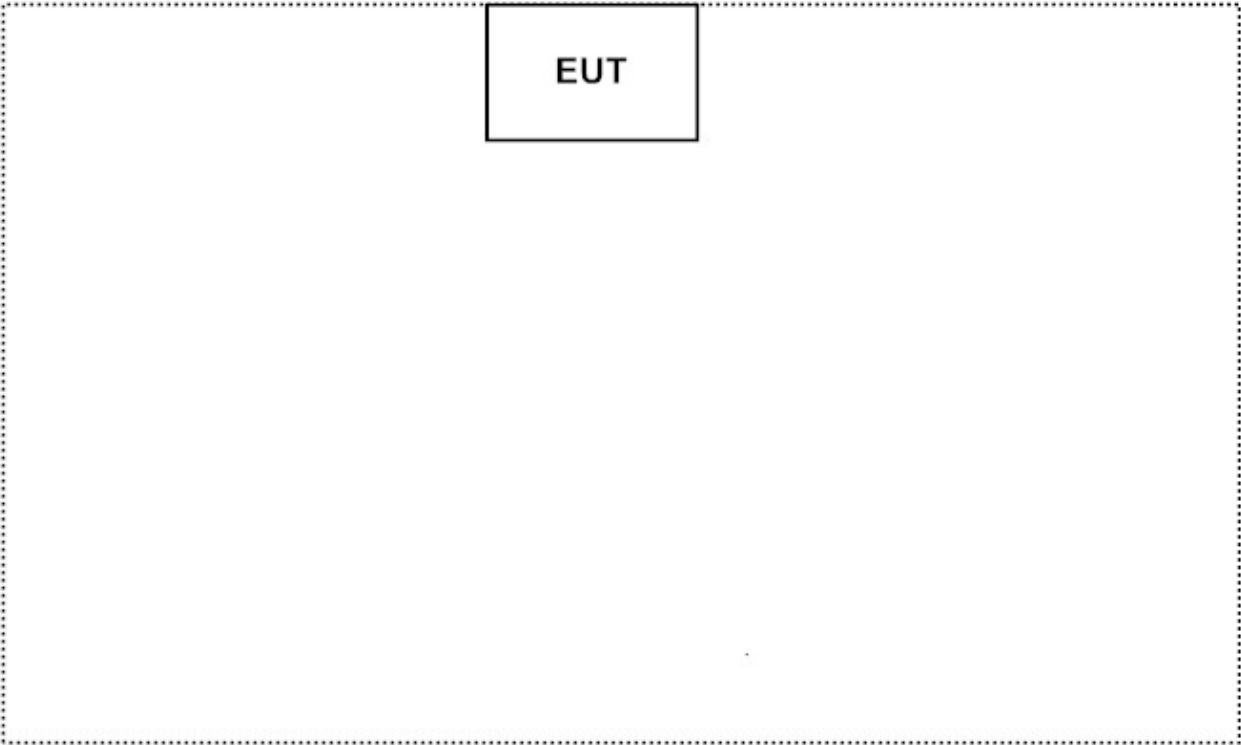
Signal Cable Type	Signal cable Description
N/A	

1.4. Configuration of Tested System

TX Mode



Charge Mode



1.5. EUT Exercise Software

1. Setup the EUT as shown in Section 1.4.
2. Execute software “Sample-Project V1.1.0.1” on the Notebook.
3. Configure the test mode, the test channel, and the data rate.
4. Press “OK” to start the continuous Transmit.
5. Verify that the EUT works properly.

1.6. Test Facility

Ambient conditions in the laboratory:

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	20-35
Humidity (%RH)	25-75	50-65
Barometric pressure (mbar)	860-1060	950-1000

The related certificate for our laboratories about the test site and management system can be downloaded from DEKRA Testing and Certification Co., Ltd. Web Site:

<http://www.dekra.com.tw/english/about/certificates.aspx?bval=5>

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 Accredited Number: 3023

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 E-Mail : info.tw@dekra.com

FCC Accreditation Number: TW1014

1.7. List of Test Equipment

For Conducted measurements / CB3 / SR8

	Equipment	Manufacturer	Model No.	Serial No.	Cali. Data	Due. Data
	Temperature Chamber	WIT GROUP	TH-1S-B	EQ-201-00146	2016/11/28	2017/11/27
X	Spectrum Analyzer	Agilent	N9010A	MY48030495	2017/7/22	2018/7/21
X	Power Meter	Anritsu	ML2495A	6K00003357	2017/6/23	2018/6/22
X	Pulse power sensor	Anritsu	MA2411B	0846193	2017/6/23	2018/6/22
X	EMI Test Receiver	R&S	ESCS 30	100369	2016/10/13	2017/10/12
X	LISN	R&S	ESH3-Z5	836679/017	2017/1/7	2018/1/6
X	LISN	R&S	ENV216	100097	2017/1/7	2018/1/6
X	Coaxial Cable	QTK(Arnist)	RG 400	LC018-RG	2017/6/25	2018/6/24

For Radiated measurements / Site3 / CB8

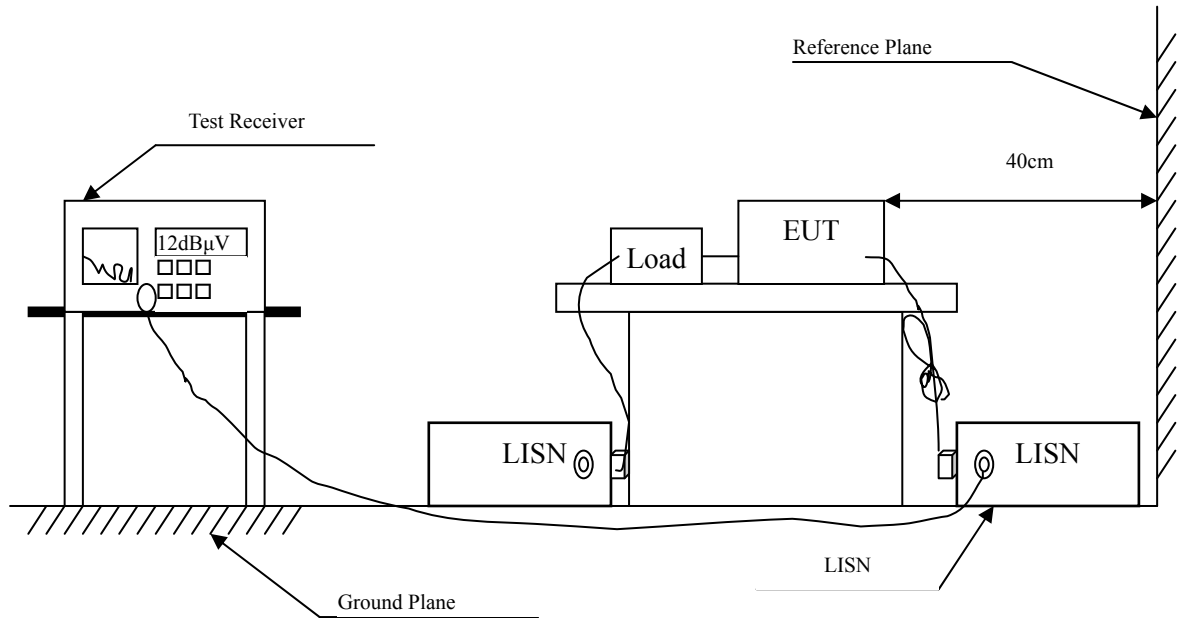
	Equipment	Manufacturer	Model No.	Serial No.	Cali. Data	Due. Data
X	Spectrum Analyzer	R&S	FSP40	100170	2017/1/5	2018/1/4
X	Loop Antenna	Teseq	HLA6121	37133	2017/3/18	2018/3/17
X	Bi-Log Antenna	Schaffner Chase	CBL6112B	2707	2017/6/11	2018/6/10
X	Horn Antenna	ETS-Lindgren	3117	00135205	2017/4/6	2018/4/5
	Horn Antenna	Schwarzbeck	BBHA9170	9170430	2017/1/11	2018/1/10
X	Pre-Amplifier	QTK	AP/0100A	CHM/0901069	2017/6/23	2018/6/22
X	Pre-Amplifier	EMCI	EMC012630SE	980210	2017/1/26	2018/1/24
	Pre-Amplifier	NARDA WE	DBL-1840N506	013	2016/9/30	2017/9/29
X	Filter	MicroTRON	BRM50701	019	2016/11/2	2017/11/1
	Filter	Microwave Circuits	N0257881	36681	2016/12/7	2017/12/6
X	EMI Test Receiver	R&S	ESR26	101385	2016/9/29	2017/9/28
X	Coaxial Cable	QTK(Arnist)	SUCOFLEX 106	L1606-015C	2017/6/23	2018/6/22
X	EMI Test Receiver	R&S	ESCS 30	838251/001	2017/7/21	2018/7/20
X	Coaxial Cable	QTK(Arnist)	RG 214	LC003-RG	2017/6/16	2018/6/15
X	Coaxial signal switch	Anritsu	MP59B	6201415889	2017/6/16	2018/6/15

Note:

1. All equipments are calibrated every one year.
2. The test instruments marked with "X" are used to measure the final test results.
3. Test Software version :QuieTek EMI 2.0 V2.1.113.

2. Conducted Emission

2.1. Test Setup



2.2. Limits

FCC Part 15 Subpart C Paragraph 15.207 (dBμV) Limit		
Frequency MHz	Limits	
	QP	AVG
0.15 - 0.50	66-56	56-46
0.50-5.0	56	46
5.0 - 30	60	50

2.3. Test Procedure

The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm /50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs.)

Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2014 on conducted measurement.

Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

2.4. Uncertainty

± 2.26 dB

2.5. Test Result of Conducted Emission

Product : Digital Camera
 Test Item : Conducted Emission Test
 Power Line : Line 1
 Test Date : 2017/08/10
 Test Mode : Mode 3: Transmit (802.11n MCS0 6.5Mbps 20M-BW) (2437MHz)

Frequency MHz	Correct Factor dB	Reading Level dB μ V	Measurement Level dB μ V	Margin dB	Limit dB μ V
Line 1					
Quasi-Peak					
0.173	9.760	36.420	46.180	-19.163	65.343
0.220	9.773	29.890	39.663	-24.337	64.000
0.341	9.750	23.340	33.090	-27.453	60.543
0.404	9.735	22.260	31.995	-26.748	58.743
3.466	9.859	24.490	34.349	-21.651	56.000
8.990	9.952	25.540	35.492	-24.508	60.000
Average					
0.173	9.760	21.980	31.740	-23.603	55.343
0.220	9.773	22.470	32.243	-21.757	54.000
0.341	9.750	8.370	18.120	-32.423	50.543
0.404	9.735	5.980	15.715	-33.028	48.743
3.466	9.859	14.380	24.239	-21.761	46.000
8.990	9.952	20.330	30.282	-19.718	50.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. “ ” means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Digital Camera
 Test Item : Conducted Emission Test
 Power Line : Line 2
 Test Date : 2017/08/10
 Test Mode : Mode 3: Transmit (802.11n MCS0 6.5Mbps 20M-BW) (2437MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dB μ V	dB μ V	dB	dB μ V
Line 2					
Quasi-Peak					
0.173	9.719	36.920	46.640	-18.703	65.343
0.220	9.753	28.350	38.103	-25.897	64.000
0.267	9.756	24.060	33.816	-28.841	62.657
0.482	9.780	27.470	37.250	-19.264	56.514
3.568	9.941	25.290	35.231	-20.769	56.000
9.740	10.018	20.980	30.998	-29.002	60.000
Average					
0.173	9.719	26.250	35.970	-19.373	55.343
0.220	9.753	14.240	23.993	-30.007	54.000
0.267	9.756	9.970	19.726	-32.931	52.657
0.482	9.780	20.130	29.910	-16.604	46.514
3.568	9.941	13.700	23.641	-22.359	46.000
9.740	10.018	15.230	25.248	-24.752	50.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. “ ” means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Digital Camera
 Test Item : Conducted Emission Test
 Power Line : Line 1
 Test Date : 2017/08/18
 Test Mode : Mode 4: Charge Mode _(Adapter: B105-52)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dB μ V	dB μ V	dB	dB μ V
Line 1					
Quasi-Peak					
0.416	9.736	25.130	34.866	-23.534	58.400
0.521	9.743	33.600	43.343	-12.657	56.000
1.037	9.772	22.620	32.393	-23.607	56.000
2.650	9.780	29.400	39.180	-16.820	56.000
5.521	9.927	30.450	40.377	-19.623	60.000
10.955	9.970	28.210	38.180	-21.820	60.000
Average					
0.416	9.736	15.230	24.966	-23.434	48.400
0.521	9.743	29.280	39.023	-6.977	46.000
1.037	9.772	12.020	21.793	-24.207	46.000
2.650	9.780	20.620	30.400	-15.600	46.000
5.521	9.927	21.740	31.667	-18.333	50.000
10.955	9.970	18.750	28.720	-21.280	50.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. “ ” means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Digital Camera
 Test Item : Conducted Emission Test
 Power Line : Line 2
 Test Date : 2017/08/18
 Test Mode : Mode 4: Charge Mode _(Adapter: B105-52)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dB μ V	dB μ V	dB	dB μ V
Line 2					
Quasi-Peak					
0.525	9.793	31.640	41.433	-14.567	56.000
1.396	9.855	24.620	34.476	-21.524	56.000
2.732	9.872	28.580	38.452	-17.548	56.000
5.466	9.994	29.260	39.254	-20.746	60.000
11.494	10.057	28.080	38.137	-21.863	60.000
18.353	10.217	26.360	36.577	-23.423	60.000
Average					
0.525	9.793	31.030	40.823	-5.177	46.000
1.396	9.855	17.170	27.026	-18.974	46.000
2.732	9.872	19.120	28.992	-17.008	46.000
5.466	9.994	20.750	30.744	-19.256	50.000
11.494	10.057	19.530	29.587	-20.413	50.000
18.353	10.217	15.770	25.987	-24.013	50.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. “ ” means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Digital Camera
 Test Item : Conducted Emission Test
 Power Line : Line 1
 Test Date : 2017/08/18
 Test Mode : Mode 4: Charge Mode _ (Adapter: DSA-5PFU1-05 FCA 050100)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dB μ V	dB μ V	dB	dB μ V
Line 1					
Quasi-Peak					
0.545	9.744	30.820	40.564	-15.436	56.000
1.173	9.764	27.310	37.074	-18.926	56.000
1.970	9.711	29.930	39.641	-16.359	56.000
2.537	9.767	29.240	39.007	-16.993	56.000
5.646	9.927	26.120	36.047	-23.953	60.000
12.357	9.988	26.100	36.088	-23.912	60.000
Average					
0.545	9.744	25.980	35.724	-10.276	46.000
1.173	9.764	20.190	29.954	-16.046	46.000
1.970	9.711	18.880	28.591	-17.409	46.000
2.537	9.767	21.980	31.747	-14.253	46.000
5.646	9.927	19.530	29.457	-20.543	50.000
12.357	9.988	16.810	26.798	-23.202	50.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. “ ” means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Digital Camera
 Test Item : Conducted Emission Test
 Power Line : Line 2
 Test Date : 2017/08/18
 Test Mode : Mode 4: Charge Mode _(Adapter: DSA-5PFU1-05 FCA 050100)

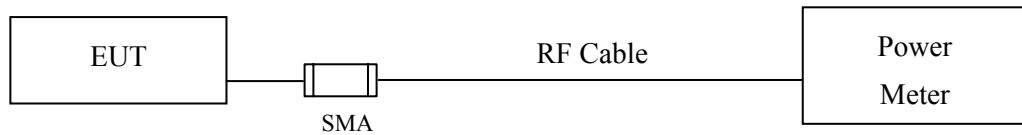
Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dB μ V	dB μ V	dB	dB μ V
Line 2					
Quasi-Peak					
0.548	9.794	28.690	38.484	-17.516	56.000
0.861	9.864	28.590	38.454	-17.546	56.000
1.490	9.844	30.330	40.174	-15.826	56.000
4.662	9.993	23.440	33.433	-22.567	56.000
5.599	9.996	23.630	33.626	-26.374	60.000
16.568	10.181	21.790	31.971	-28.029	60.000
Average					
0.548	9.794	25.460	35.254	-10.746	46.000
0.861	9.864	20.370	30.234	-15.766	46.000
1.490	9.844	20.220	30.064	-15.936	46.000
4.662	9.993	13.460	23.453	-22.547	46.000
5.599	9.996	17.210	27.206	-22.794	50.000
16.568	10.181	9.210	19.391	-30.609	50.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. “ ” means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

3. Peak Power Output

3.1. Test Setup



3.2. Limits

The maximum peak power shall be less 1 Watt.

3.3. Test Procedure

Tested according to DTS test procedure of KDB 558074 for compliance to FCC 47CFR 15.247 requirements. The maximum peak conducted output power using KDB 558074 section 9.1.3 PKPM1 Peak power meter method.

3.4. Uncertainty

± 1.19 dB

3.5. Test Result of Peak Power Output

Product : Digital Camera
 Test Item : Peak Power Output Data
 Test Site : No.3 OATS
 Test Date : 2017/08/04
 Test Mode : Mode 1: Transmit (802.11b 1Mbps)

Channel No	Frequency (MHz)	Average Power For different Data Rate (Mbps)				Peak Power	Required Limit	Result
		1	2	5.5	11	1		
		Measurement Level (dBm)						
01	2412	12.18	--	--	--	15.4	<30dBm	Pass
06	2437	12.07	12.01	11.97	11.95	15.24	<30dBm	Pass
11	2462	11.84	--	--	--	15.03	<30dBm	Pass

Note: Peak Power Output Value = Reading value on power meter + cable loss

Product : Digital Camera
 Test Item : Peak Power Output Data
 Test Site : No.3 OATS
 Test Date : 2017/08/04
 Test Mode : Mode 2: Transmit (802.11g 6Mbps)

Channel No	Frequency (MHz)	Average Power For different Data Rate (Mbps)								Peak Power	Required Limit	Result
		6	9	12	18	24	36	48	54	6		
		Measurement Level (dBm)										
01	2412	12.24	--	--	--	--	--	--	--	22.72	<30dBm	Pass
06	2437	12.11	12.12	12.08	12.03	11.99	11.92	11.85	11.81	22.66	<30dBm	Pass
11	2462	11.87	--	--	--	--	--	--	--	22.51	<30dBm	Pass

Note: Peak Power Output Value = Reading value on power meter + cable loss

Product : Digital Camera
 Test Item : Peak Power Output Data
 Test Site : No.3 OATS
 Test Date : 2017/08/04
 Test Mode : Mode 3: Transmit (802.11n MCS0 6.5Mbps 20M-BW)

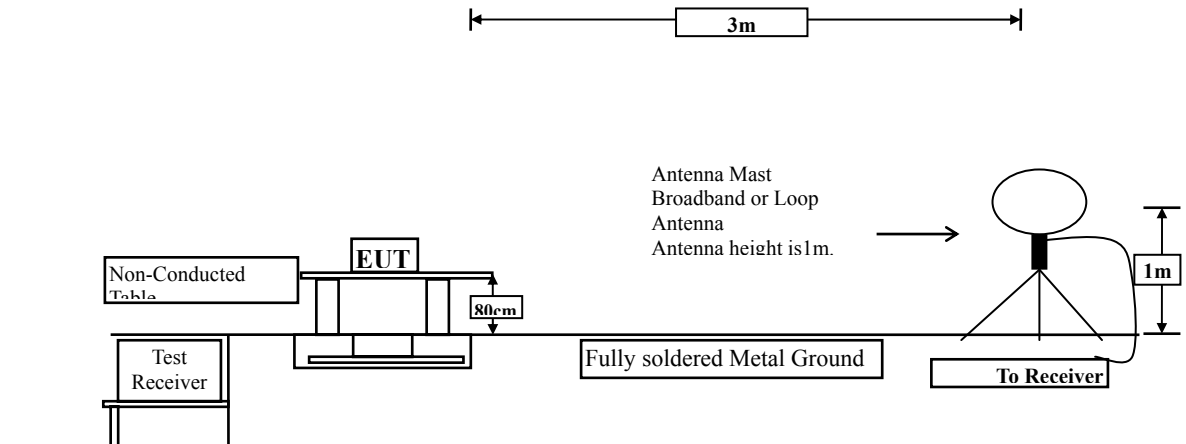
Channel No	Frequency (MHz)	Average Power For different Data Rate (Mbps)								Peak Power	Required Limit	Result
		6.5	13	19.5	26	39	52	58	65	6.5		
		Measurement Level (dBm)										
01	2412	12.18	--	--	--	--	--	--	--	22.58	<30dBm	Pass
06	2437	11.87	11.82	11.76	11.73	11.69	11.65	11.57	11.52	22.41	<30dBm	Pass
11	2462	11.75	--	--	--	--	--	--	--	22.25	<30dBm	Pass

Note: Peak Power Output Value = Reading value on power meter + cable loss

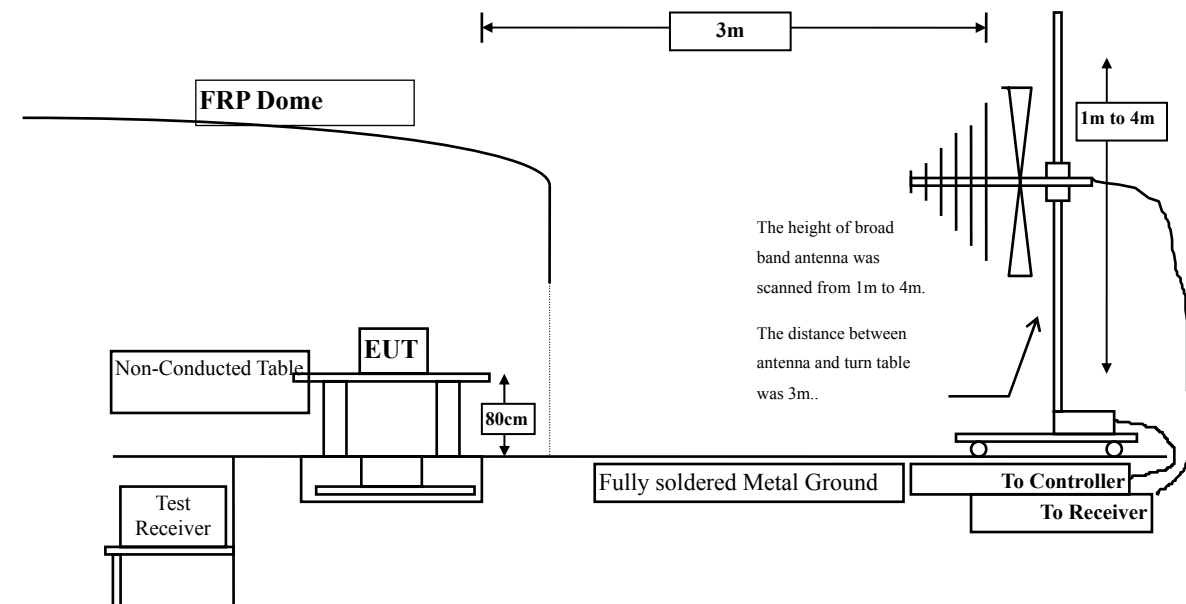
4. Radiated Emission

4.1. Test Setup

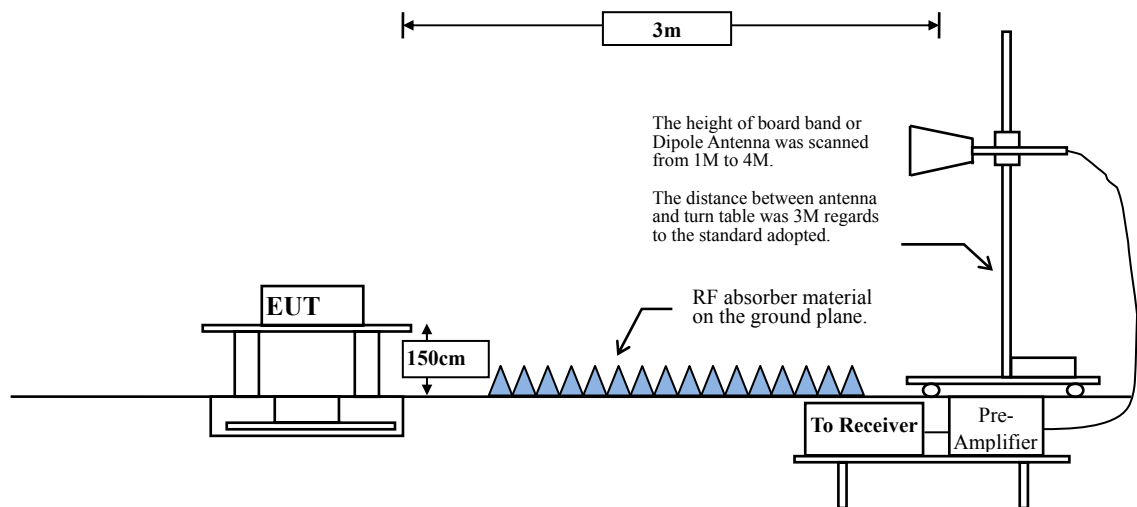
Radiated Emission Under 30MHz



Radiated Emission Below 1GHz



Radiated Emission Above 1GHz



4.2. Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 20dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

FCC Part 15 Subpart C Paragraph 15.209(a) Limits		
Frequency MHz	Field strength (microvolts/meter)	Measurement distance (meter)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Remarks: E field strength (dB μ V/m) = 20 log E field strength (uV/m)

4.3. Test Procedure

The EUT was setup according to ANSI C63.10: 2013 and tested according to DTS test procedure of KDB558074 for compliance to FCC 47CFR 15.247 requirements.

Measuring the frequency range below 1GHz, the EUT is placed on a turn table which is 0.8 meter above ground, when measuring the frequency range above 1GHz, the EUT is placed on a turn table which is 1.5 meter above ground.

The turn table is rotated 360 degrees to determine the position of the maximum emission level.

The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna is scanned between 1 meter and 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10: 2013 on radiated measurement.

The resolution bandwidth below 30MHz setting on the field strength meter is 9kHz and 30MHz~1GHz is 120kHz and above 1GHz is 1MHz.

Radiated emission measurements below 30MHz are made using Loop Antenna and 30MHz~1GHz are made using broadband Bilog antenna and above 1GHz are made using Horn Antennas.

The measurement is divided into the Preliminary Measurement and the Final Measurement.

The suspected frequencies are searched for in Preliminary Measurement with the measurement antenna kept pointed at the source of the emission both in azimuth and elevation, with the polarization of the antenna oriented for maximum response. The antenna is pointed at an angle towards the source of the emission, and the EUT is rotated in both height and polarization to maximize the measured emission. The emission is kept within the illumination area of the 3 dB bandwidth of the antenna.

The worst radiated emission is measured in the Open Area Test Site on the Final Measurement.

The measurement frequency range from 9kHz - 10th Harmonic of fundamental was investigated.

The average measurement tested according to KDB 558074 section 12.2.5.3. Reduced VBW averaging across on- and off-times of the EUT transmissions with max hold.

VBW $\geq 1/T$:

Mode	Duty Cycle	T	1/T	VBW Setting
802.11b	0.986	--	--	10 Hz
802.11g	0.932	1.39 ms	719 Hz	1 KHz
802.11n20	0.923	1.3 ms	769 Hz	1 KHz

4.4. Uncertainty

± 4.08 dB above 1GHz

± 4.22 dB below 1GHz

4.5. Test Result of Radiated Emission

Product : Digital Camera
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Date : 2017/08/02
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2412MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dB μ V	dB μ V/m	dB	dB μ V/m

Horizontal

Peak Detector:

4824.000	2.428	39.726	42.155	-31.845	74.000
7236.000	9.177	38.156	47.333	-26.667	74.000
9648.000	10.019	37.847	47.867	-26.133	74.000

Average Detector:

--

Vertical

Peak Detector:

4824.000	2.836	39.910	42.747	-31.253	74.000
7236.000	9.676	38.534	48.210	-25.790	74.000
9648.000	10.556	37.852	48.409	-25.591	74.000

Average Detector:

--

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Digital Camera
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Date : 2017/08/02
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2437 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBμV	Measurement Level dBμV/m	Margin dB	Limit dBμV/m
Horizontal					
Peak Detector:					
4874.000	2.076	40.221	42.298	-31.702	74.000
7311.000	9.512	37.707	47.219	-26.781	74.000
9748.000	9.630	37.293	46.923	-27.077	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4874.000	2.532	40.053	42.585	-31.415	74.000
7311.000	10.089	37.548	47.637	-26.363	74.000
9748.000	10.266	37.699	47.966	-26.034	74.000
Average Detector:					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Digital Camera
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Date : 2017/08/02
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2462 MHz)

Frequency MHz	Correct Factor dB	Reading Level dB μ V	Measurement Level dB μ V/m	Margin dB	Limit dB μ V/m
Horizontal					
Peak Detector:					
4924.000	2.191	39.644	41.835	-32.165	74.000
7386.000	10.373	37.143	47.517	-26.483	74.000
9848.000	9.964	37.477	47.441	-26.559	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4924.000	2.805	38.752	41.557	-32.443	74.000
7386.000	11.180	38.022	49.202	-24.798	74.000
9848.000	10.801	37.907	48.708	-25.292	74.000
Average Detector:					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Digital Camera
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Date : 2017/08/02
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2412MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dB μ V	dB μ V/m	dB	dB μ V/m
Horizontal					
Peak Detector:					
4824.000	2.428	39.866	42.295	-31.705	74.000
7236.000	9.177	38.266	47.443	-26.557	74.000
9648.000	10.019	38.002	48.022	-25.978	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4824.000	2.836	39.152	41.989	-32.011	74.000
7236.000	9.676	37.709	47.385	-26.615	74.000
9648.000	10.556	37.879	48.436	-25.564	74.000
Average Detector:					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 1kHz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Digital Camera
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Date : 2017/08/02
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2437 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBμV	Measurement Level dBμV/m	Margin dB	Limit dBμV/m
Horizontal					
Peak Detector:					
4874.000	2.076	40.113	42.190	-31.810	74.000
7311.000	9.512	38.039	47.551	-26.449	74.000
9748.000	9.630	38.685	48.315	-25.685	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4874.000	2.532	40.545	43.077	-30.923	74.000
7311.000	10.089	38.021	48.110	-25.890	74.000
9748.000	10.266	38.205	48.472	-25.528	74.000
Average Detector:					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 1kHz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Digital Camera
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Date : 2017/08/02
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2462 MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dB μ V	dB μ V/m	dB	dB μ V/m
Horizontal					
Peak Detector:					
4924.000	2.191	40.607	42.798	-31.202	74.000
7386.000	10.373	37.573	47.947	-26.053	74.000
9848.000	9.964	38.612	48.576	-25.424	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4924.000	2.805	40.966	43.771	-30.229	74.000
7386.000	11.180	38.759	49.939	-24.061	74.000
9848.000	10.801	39.211	50.012	-23.988	74.000
Average Detector:					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 1kHz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Digital Camera
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Date : 2017/08/02
 Test Mode : Mode 3: Transmit (802.11n MCS0 6.5Mbps 20M-BW)(2412MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dB μ V	dB μ V/m	dB	dB μ V/m
Horizontal					
Peak Detector:					
4824.000	2.428	39.520	41.949	-32.051	74.000
7236.000	9.177	38.501	47.678	-26.322	74.000
9648.000	10.019	38.797	48.817	-25.183	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4824.000	2.836	39.839	42.676	-31.324	74.000
7236.000	9.676	38.339	48.015	-25.985	74.000
9648.000	10.556	39.018	49.575	-24.425	74.000
Average Detector:					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 1kHz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Digital Camera
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Date : 2017/08/02
 Test Mode : Mode 3: Transmit (802.11n MCS0 6.5Mbps 20M-BW) (2437 MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dB μ V	dB μ V/m	dB	dB μ V/m

Horizontal**Peak Detector:**

4874.000	2.076	40.345	42.422	-31.578	74.000
7311.000	9.512	38.325	47.837	-26.163	74.000
9748.000	9.630	38.626	48.256	-25.744	74.000

Average Detector:

--

Vertical**Peak Detector:**

4874.000	2.532	40.209	42.741	-31.259	74.000
7311.000	10.089	38.034	48.123	-25.877	74.000
9748.000	10.266	38.364	48.631	-25.369	74.000

Average Detector:

--

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 1kHz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Digital Camera
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Date : 2017/08/02
 Test Mode : Mode 3: Transmit (802.11n MCS0 6.5Mbps 20M-BW) (2462 MHz)

Frequency MHz	Correct Factor dB	Reading Level dB μ V	Measurement Level dB μ V/m	Margin dB	Limit dB μ V/m
Horizontal					
Peak Detector:					
4924.000	2.191	39.716	41.907	-32.093	74.000
7386.000	10.373	37.122	47.496	-26.504	74.000
9848.000	9.964	37.614	47.578	-26.422	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4924.000	2.805	39.362	42.167	-31.833	74.000
7386.000	11.180	37.030	48.210	-25.790	74.000
9848.000	10.801	38.819	49.620	-24.380	74.000
Average Detector:					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 1kHz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Digital Camera
 Test Item : General Radiated Emission Data
 Test Site : No.3 OATS
 Test Date : 2017/08/05
 Test Mode : Mode 1: Transmit (802.11b 1Mbps)(2437 MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dB μ V	dB μ V/m	dB	dB μ V/m
Horizontal					
61.040	-12.057	39.604	27.547	-12.453	40.000
241.460	-6.590	32.772	26.182	-19.818	46.000
352.040	-1.282	34.438	33.156	-12.844	46.000
492.690	1.502	33.446	34.948	-11.052	46.000
801.150	6.391	29.943	36.335	-9.665	46.000
999.030	9.196	30.858	40.054	-13.946	54.000
Vertical					
48.430	-11.833	42.662	30.829	-9.171	40.000
182.290	-2.827	39.350	36.523	-6.977	43.500
338.460	-1.640	38.439	36.798	-9.202	46.000
598.420	1.114	30.625	31.739	-14.261	46.000
796.300	2.639	26.246	28.885	-17.115	46.000
927.250	3.490	26.381	29.871	-16.129	46.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.
8. Emission found between 9kHz to 30MHz is less than 20dB from the limit, and therefore, reporting can be omitted.

Product : Digital Camera
 Test Item : General Radiated Emission Data
 Test Site : No.3 OATS
 Test Date : 2017/08/05
 Test Mode : Mode 2: Transmit (802.11g 6Mbps)(2437 MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dB μ V	dB μ V/m	dB	dB μ V/m
Horizontal					
62.980	-12.319	40.512	28.193	-11.807	40.000
352.040	-1.282	34.622	33.340	-12.660	46.000
492.690	1.502	33.283	34.785	-11.215	46.000
714.820	3.801	25.438	29.239	-16.761	46.000
833.160	6.616	31.850	38.466	-7.534	46.000
999.030	9.196	29.075	38.271	-15.729	54.000
Vertical					
48.430	-11.833	43.593	31.760	-8.240	40.000
192.960	-5.655	39.658	34.003	-9.497	43.500
353.010	-1.207	38.893	37.685	-8.315	46.000
597.450	1.030	29.589	30.618	-15.382	46.000
782.720	2.757	26.335	29.092	-16.908	46.000
947.620	3.231	26.916	30.147	-15.853	46.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 1kHz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.
8. Emission found between 9kHz to 30MHz is less than 20dB from the limit, and therefore, reporting can be omitted.

Product : Digital Camera
 Test Item : General Radiated Emission Data
 Test Site : No.3 OATS
 Test Date : 2017/08/05
 Test Mode : Mode 3: Transmit (802.11n MCS0 6.5Mbps 20M-BW)(2437 MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
62.980	-12.319	39.780	27.461	-12.539	40.000
229.820	-8.001	34.262	26.261	-19.739	46.000
352.040	-1.282	33.943	32.661	-13.339	46.000
494.630	1.458	33.057	34.516	-11.484	46.000
833.160	6.616	31.265	37.881	-8.119	46.000
997.090	8.467	33.486	41.953	-12.047	54.000
Vertical					
48.430	-11.833	42.654	30.821	-9.179	40.000
273.470	-6.212	38.869	32.657	-13.343	46.000
494.630	-1.452	33.670	32.219	-13.781	46.000
599.390	1.198	34.949	36.147	-9.853	46.000
719.670	-0.818	30.701	29.883	-16.117	46.000
833.160	1.716	29.361	31.077	-14.923	46.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 1kHz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.
8. Emission found between 9kHz to 30MHz is less than 20dB from the limit, and therefore, reporting can be omitted.

Product : Digital Camera
 Test Item : General Radiated Emission Data
 Test Site : No.3 OATS
 Test Date : 2017/08/16
 Test Mode : Mode 4: Charge Mode (2437 MHz)

Frequency MHz	Correct Factor dB	Reading Level dB μ V	Measurement Level dB μ V/m	Margin dB	Limit dB μ V/m
Horizontal					
116.330	-7.364	35.220	27.855	-15.645	43.500
371.440	0.860	28.778	29.638	-16.362	46.000
462.620	3.589	24.597	28.186	-17.814	46.000
547.980	4.028	24.937	28.965	-17.035	46.000
607.150	4.066	24.259	28.325	-17.675	46.000
820.550	7.044	25.083	32.127	-13.873	46.000
Vertical					
90.140	-4.175	37.384	33.209	-10.291	43.500
178.410	-0.966	30.421	29.455	-14.045	43.500
381.140	0.816	26.466	27.282	-18.718	46.000
528.580	1.164	25.258	26.422	-19.578	46.000
743.920	0.718	29.866	30.584	-15.416	46.000
947.620	3.231	25.046	28.277	-17.723	46.000

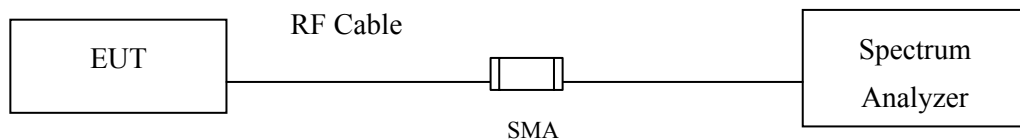
Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 1kHz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.
8. Emission found between 9kHz to 30MHz is less than 20dB from the limit, and therefore, reporting can be omitted.

5. RF antenna conducted test

5.1. Test Setup

RF antenna Conducted Measurement:



5.2. Limits

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

5.3. Test Procedure

The EUT was tested according to DTS test procedure of KDB558074 for compliance to FCC 47CFR 15.247 requirements.

Set RBW = 100 kHz, Set VBW > RBW, scan up through 10th harmonic.

5.4. Uncertainty

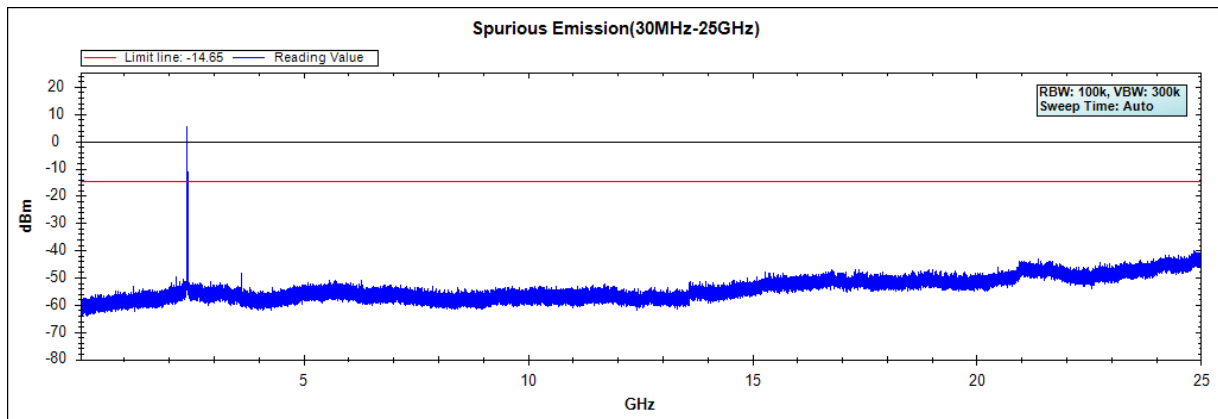
The measurement uncertainty

Conducted is defined as $\pm 1.20\text{dB}$

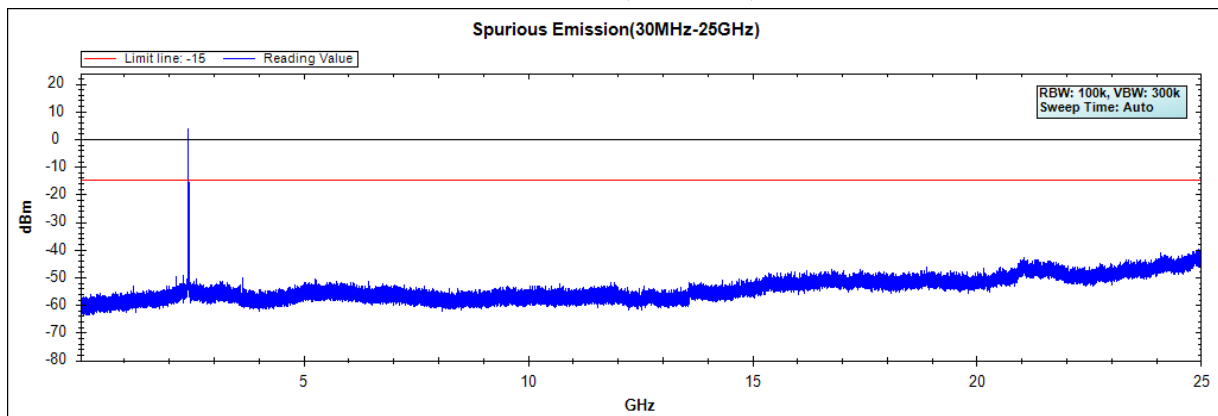
6. Test Result of RF antenna conducted test

Product : Digital Camera
Test Item : RF antenna conducted test
Test Site : No.3 OATS
Test Date : 2017/08/05
Test Mode : Mode 1: Transmit (802.11b 1Mbps)

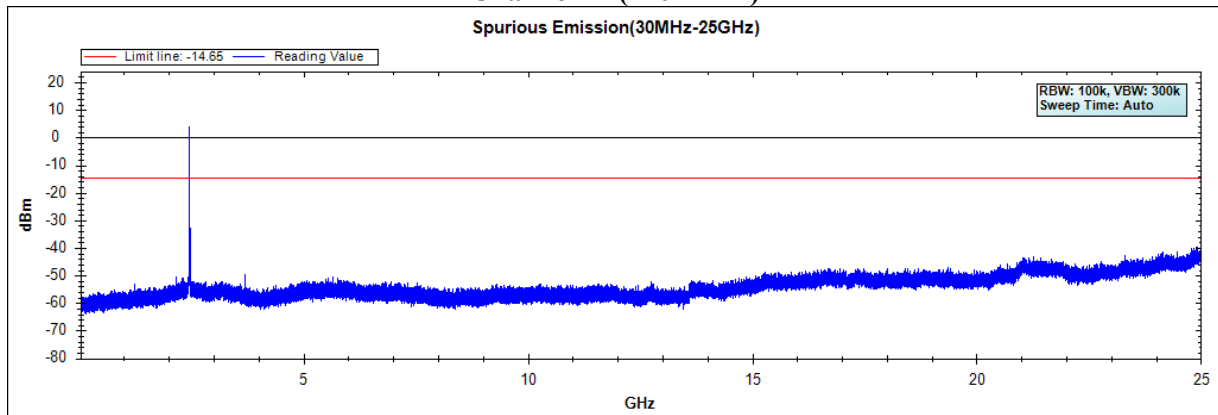
Channel 01 (2412MHz)



Channel 06 (2437MHz)



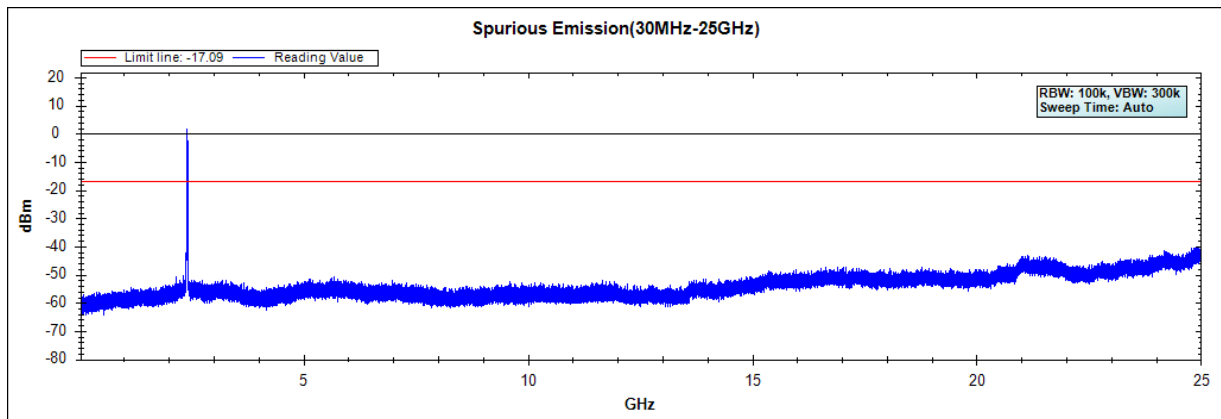
Channel 11 (2462MHz)



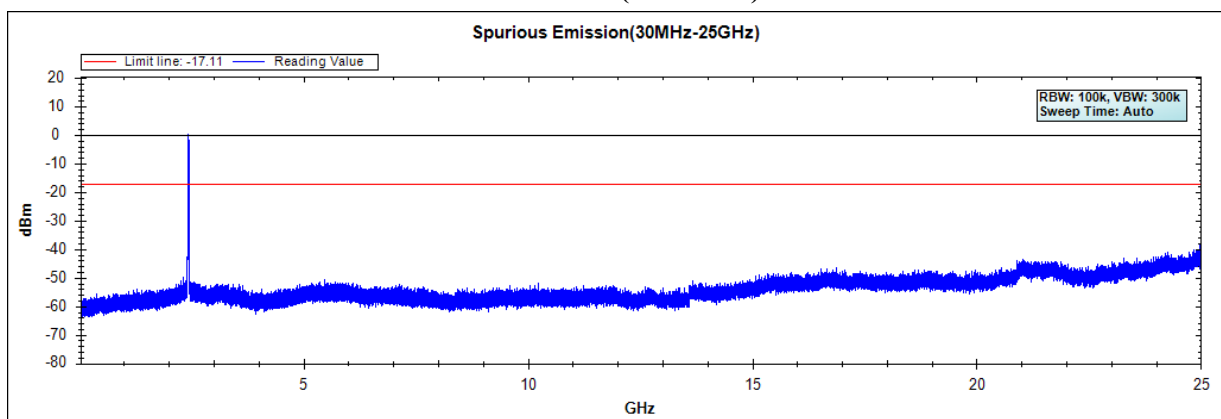
Note: The above test pattern is synthesized by multiple of the frequency range.

Product : Digital Camera
Test Item : RF Antenna Conducted Spurious
Test Site : No.3 OATS
Test Date : 2017/08/05
Test Mode : Mode 2: Transmit (802.11g 6Mbps)

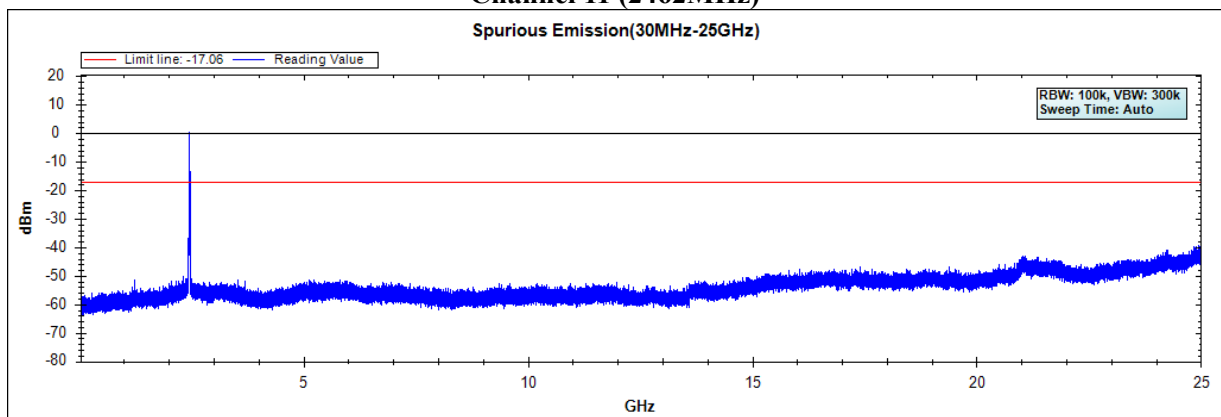
Channel 01 (2412MHz)



Channel 06 (2437MHz)



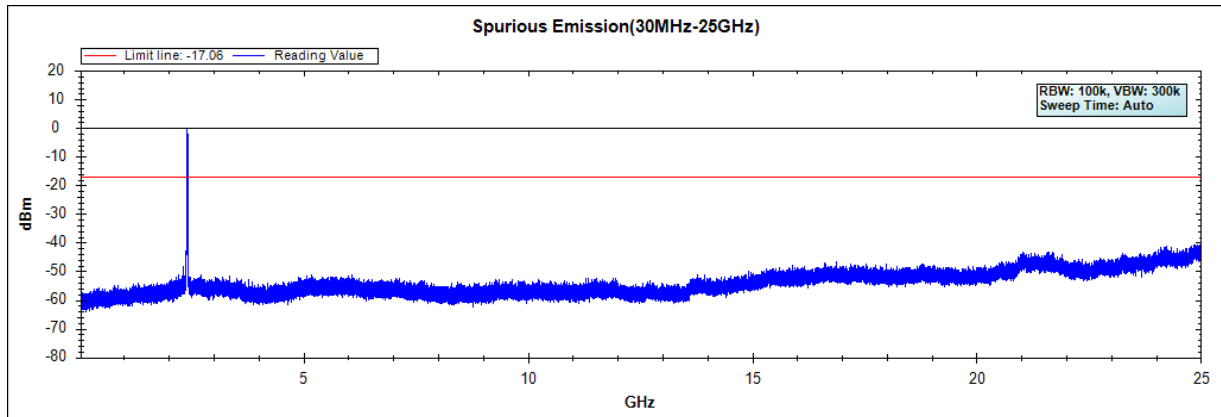
Channel 11 (2462MHz)



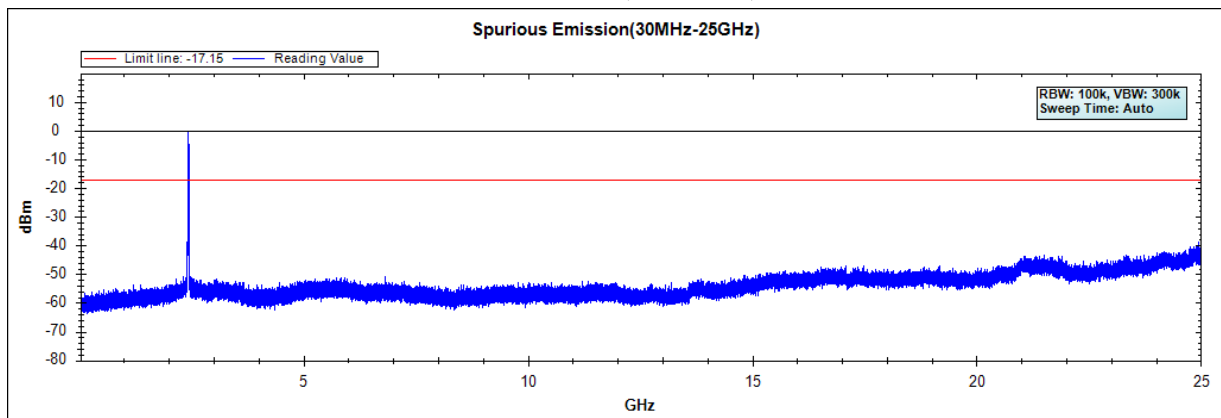
Note: The above test pattern is synthesized by multiple of the frequency range.

Product : Digital Camera
Test Item : RF Antenna Conducted Spurious
Test Site : No.3 OATS
Test Date : 2017/08/05
Test Mode : Mode 3: Transmit (802.11n MCS0 6.5Mbps 20M-BW)

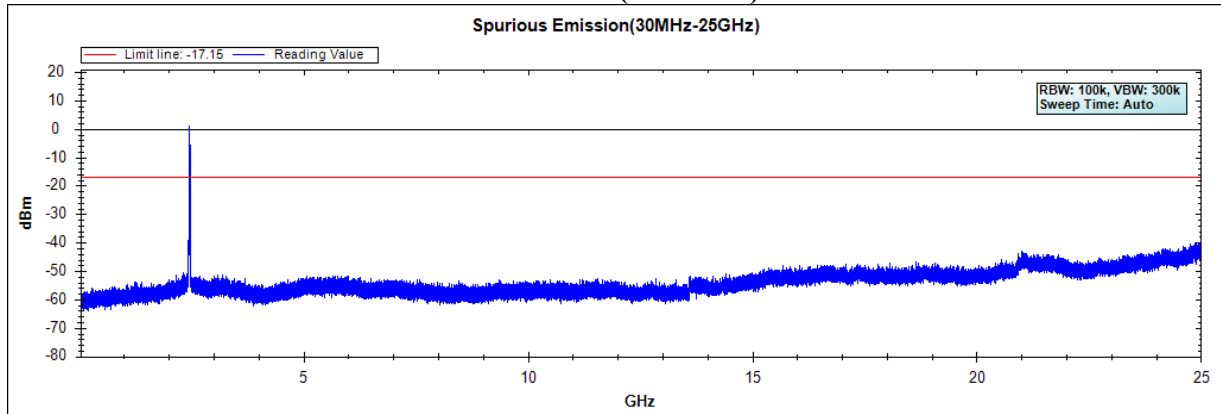
Channel 01 (2412MHz)



Channel 06 (2437MHz)



Channel 11 (2462MHz)

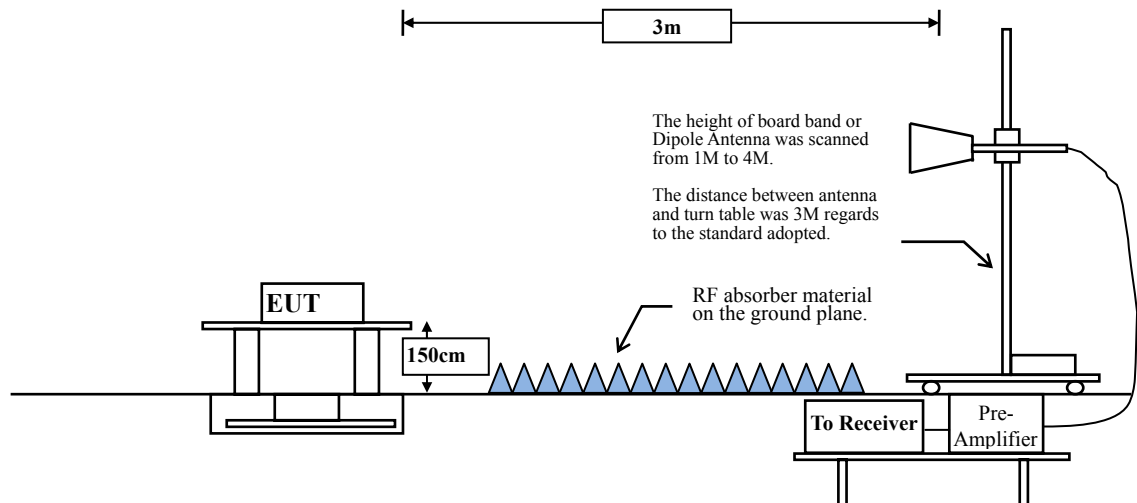


Note: The above test pattern is synthesized by multiple of the frequency range.

7. Band Edge

7.1. Test Setup

RF Radiated Measurement:



7.2. Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 20dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

7.3. Test Procedure

The EUT was setup according to ANSI C63.10, 2013 and tested according to DTS test procedure of KDB558074 for compliance to FCC 47CFR 15.247 requirements.

The EUT is placed on a turn table which is 1.5 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10:2013 on radiated measurement.

The average measurement tested according to KDB 558074 section 12.2.5.3. Reduced VBW averaging across on- and off-times of the EUT transmissions with max hold.

VBW $\geq 1/T$:

Mode	Duty Cycle	T	1/T	VBW Setting
802.11b	0.986	--	--	10 Hz
802.11g	0.932	1.39 ms	719 Hz	1 KHz
802.11n20	0.923	1.3 ms	769 Hz	1 KHz

7.4. Uncertainty

± 4.08 dB above 1GHz

± 4.22 dB below 1GHz

7.5. Test Result of Band Edge

Product : Digital Camera
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Date : 2017/08/03
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2412MHz)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
01 (Peak)	2390.000	6.474	39.134	45.609	74.00	54.00	Pass
01 (Peak)	2397.536	6.514	43.257	49.770	--	--	--
01 (Peak)	2400.000	6.528	43.049	49.577	--	--	--
01 (Peak)	2412.029	6.603	84.861	91.464	--	--	--
01 (Average)	2390.000	6.474	25.296	31.771	74.00	54.00	Pass
01 (Average)	2397.971	6.516	32.096	38.612	--	--	--
01 (Average)	2400.000	6.528	30.549	37.077	--	--	--
01 (Average)	2412.754	6.608	83.032	89.640	--	--	--

Figure Channel 01:

Horizontal (Peak)

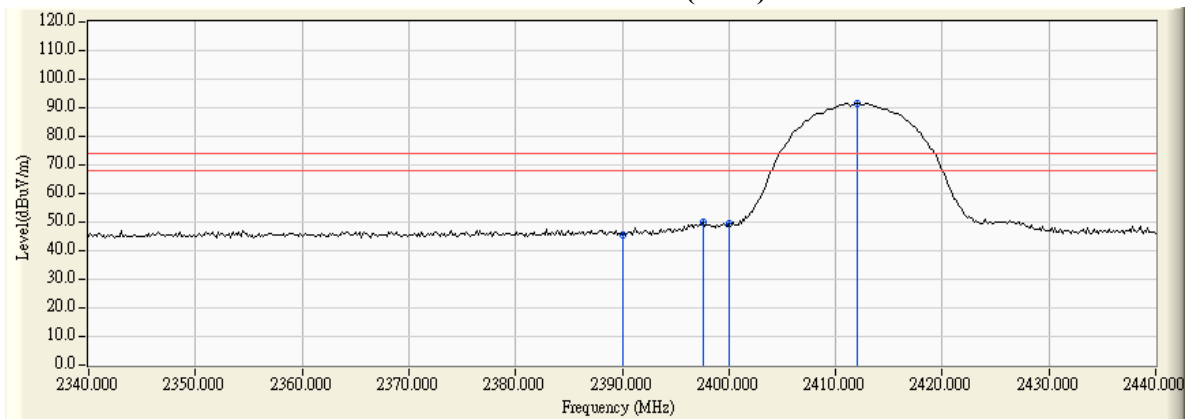
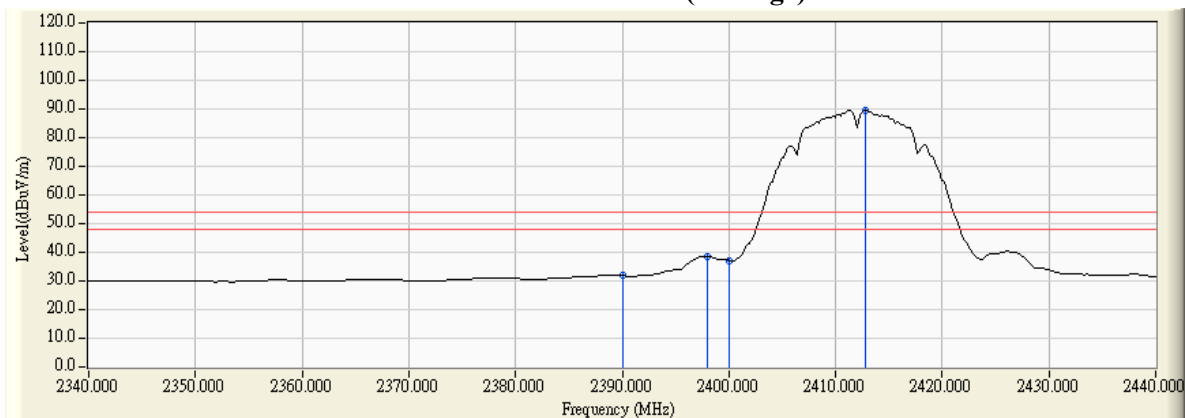


Figure Channel 01:

Horizontal (Average)

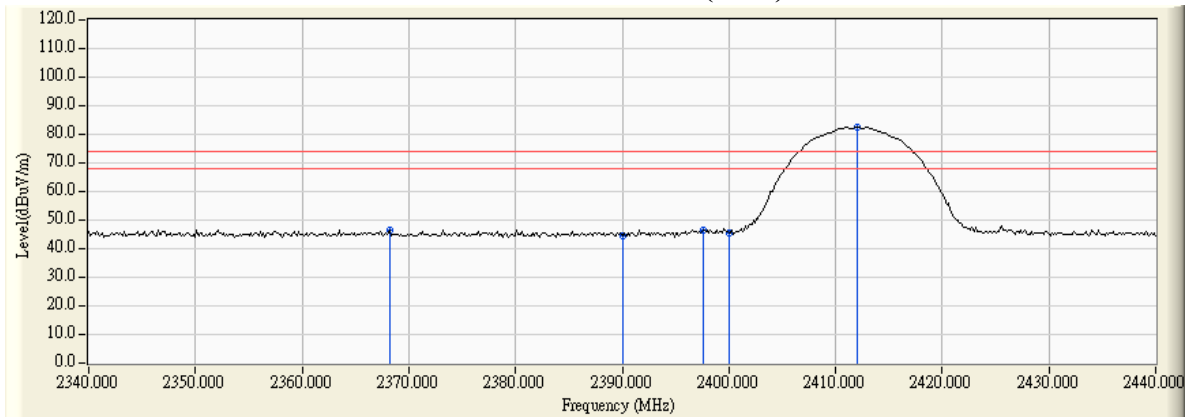
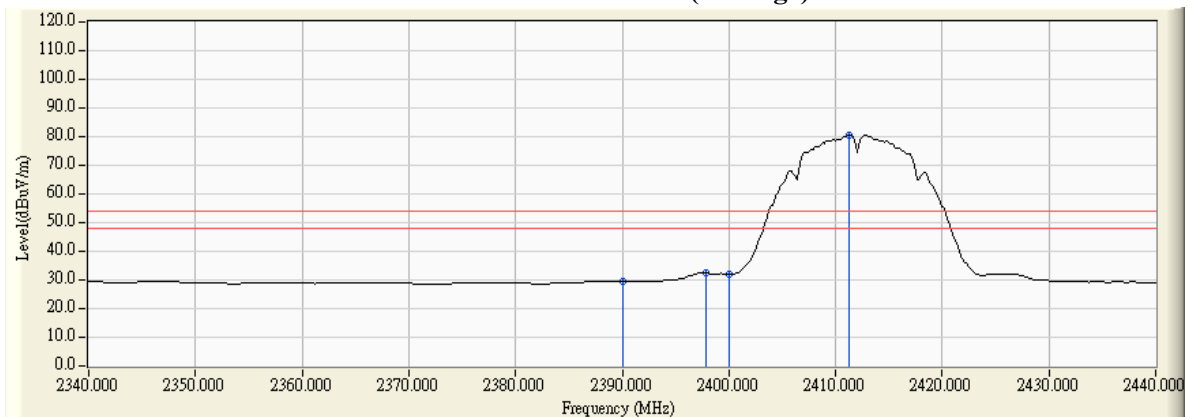


- Note: 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
 4. “ * ”, means this data is the worst emission level.
 5. Measurement Level = Reading Level + Correct Factor.
 6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Digital Camera
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Date : 2017/08/03
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2412MHz)

RF Radiated Measurement (VERTICAL):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
01 (Peak)	2368.261	5.970	40.282	46.252	74.00	54.00	Pass
01 (Peak)	2390.000	5.880	38.740	44.621	74.00	54.00	Pass
01 (Peak)	2397.536	5.873	40.580	46.453	--	--	--
01 (Peak)	2400.000	5.879	39.578	45.457	--	--	--
01 (Peak)	2412.029	5.914	76.606	82.520	--	--	--
01 (Average)	2390.000	5.880	23.415	29.296	74.00	54.00	Pass
01 (Average)	2397.826	5.874	26.475	32.349	--	--	--
01 (Average)	2400.000	5.879	26.075	31.954	--	--	--
01 (Average)	2411.304	5.910	74.837	80.746	--	--	--

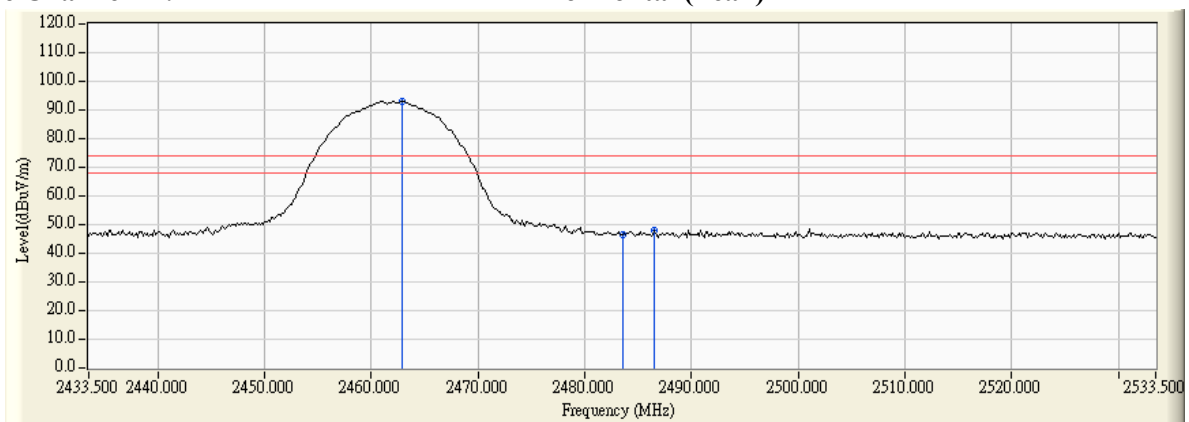
Figure Channel 01:**VERTICAL (Peak)****Figure Channel 01:****VERTICAL (Average)**

- Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
 4. “ * ”, means this data is the worst emission level.
 5. Measurement Level = Reading Level + Correct Factor.
 6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Digital Camera
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Date : 2017/08/03
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2462MHz)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dB μ V)	Emission Level (dB μ V/m)	Peak Limit (dB μ V/m)	Average Limit (dB μ V/m)	Result
11 (Peak)	2462.920	6.965	85.912	92.877	--	--	--
11 (Peak)	2483.500	7.110	39.303	46.413	74.00	54.00	Pass
11 (Peak)	2486.543	7.132	41.002	48.134	74.00	54.00	Pass
11 (Average)	2462.775	6.964	84.401	91.365	--	--	--
11 (Average)	2483.500	7.110	25.134	32.244	74.00	54.00	Pass

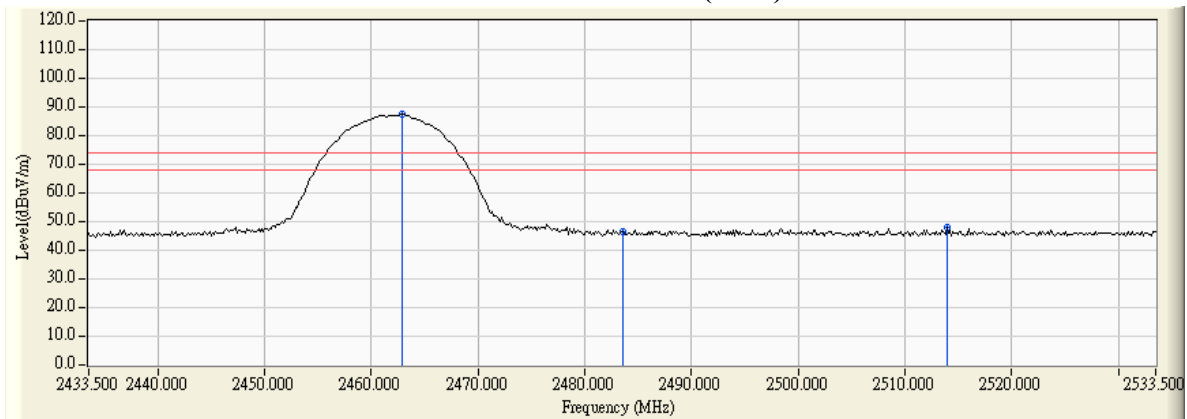
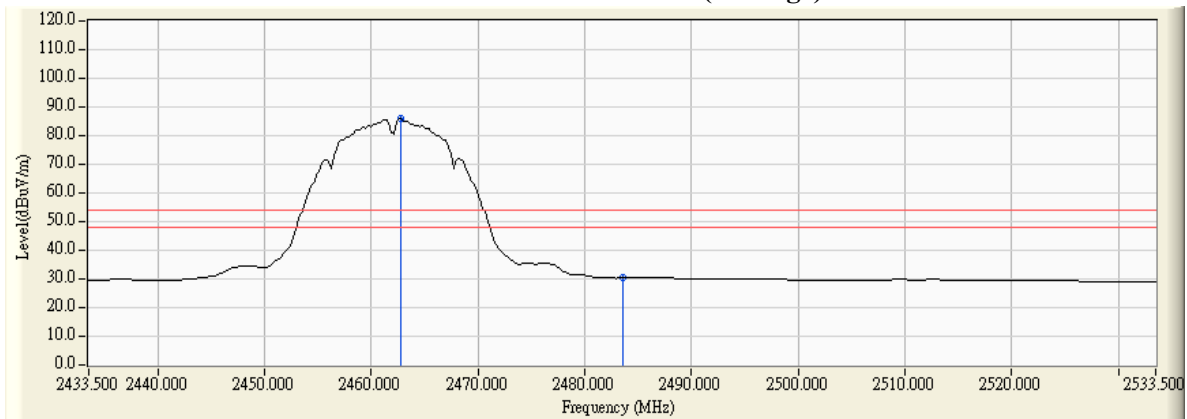
Figure Channel 11: Horizontal (Peak)**Figure Channel 11: Horizontal (Average)**

- Note: 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
 4. “ * ”, means this data is the worst emission level.
 5. Measurement Level = Reading Level + Correct Factor.
 6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Digital Camera
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Date : 2017/08/03
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2462MHz)

RF Radiated Measurement (VERTICAL):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dB μ V)	Emission Level (dB μ V/m)	Peak Limit (dB μ V/m)	Average Limit (dB μ V/m)	Result
11 (Peak)	2462.920	6.235	81.178	87.413	--	--	--
11 (Peak)	2483.500	6.363	40.301	46.664	74.00	54.00	Pass
11 (Peak)	2513.935	6.466	41.574	48.041	74.00	54.00	Pass
11 (Average)	2462.775	6.234	79.622	85.856	--	--	--
11 (Average)	2483.500	6.363	23.892	30.255	74.00	54.00	Pass

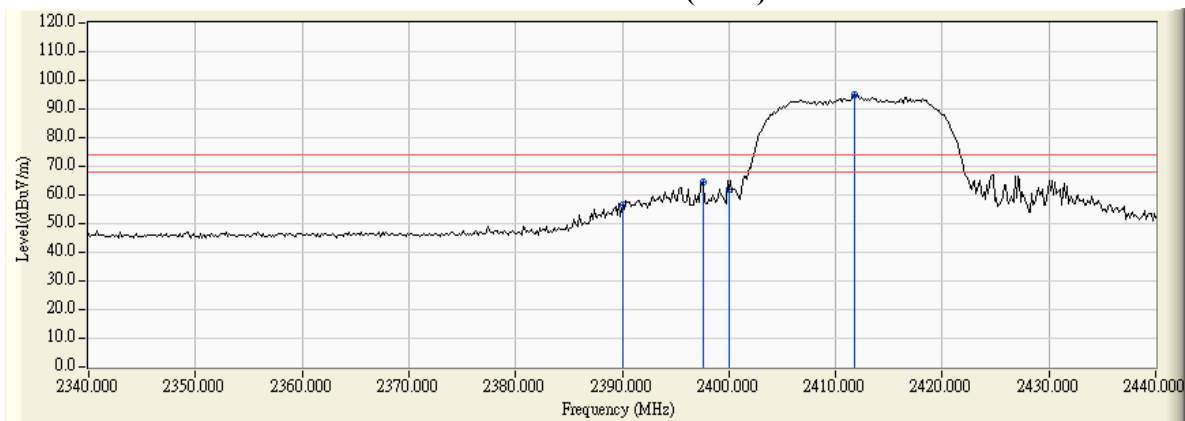
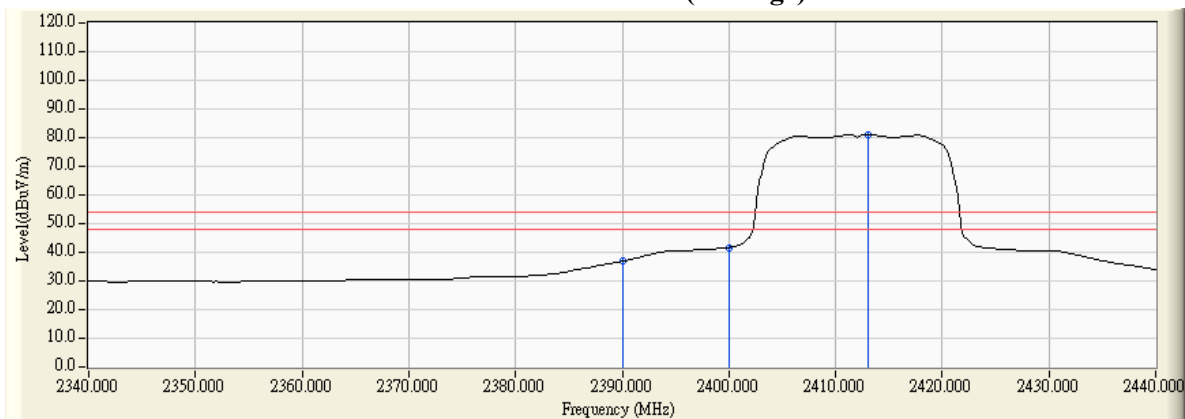
Figure Channel 11: VERTICAL (Peak)

Figure Channel 11: VERTICAL (Average)


- Note: 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
 4. “ * ”, means this data is the worst emission level.
 5. Measurement Level = Reading Level + Correct Factor.
 6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Digital Camera
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Date : 2017/08/03
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2412MHz)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dB μ V)	Emission Level (dB μ V/m)	Peak Limit (dB μ V/m)	Average Limit (dB μ V/m)	Result
01 (Peak)	2390.000	6.474	49.950	56.425	74.00	54.00	Pass
01 (Peak)	2397.536	6.514	58.166	64.679	--	--	--
01 (Peak)	2400.000	6.528	55.564	62.092	--	--	--
01 (Peak)	2411.739	6.601	88.615	95.216	--	--	--
01 (Average)	2390.000	6.474	30.347	36.822	74.00	54.00	Pass
01 (Average)	2400.000	6.528	35.181	41.709	--	--	--
01 (Average)	2413.043	6.610	74.622	81.232	--	--	--

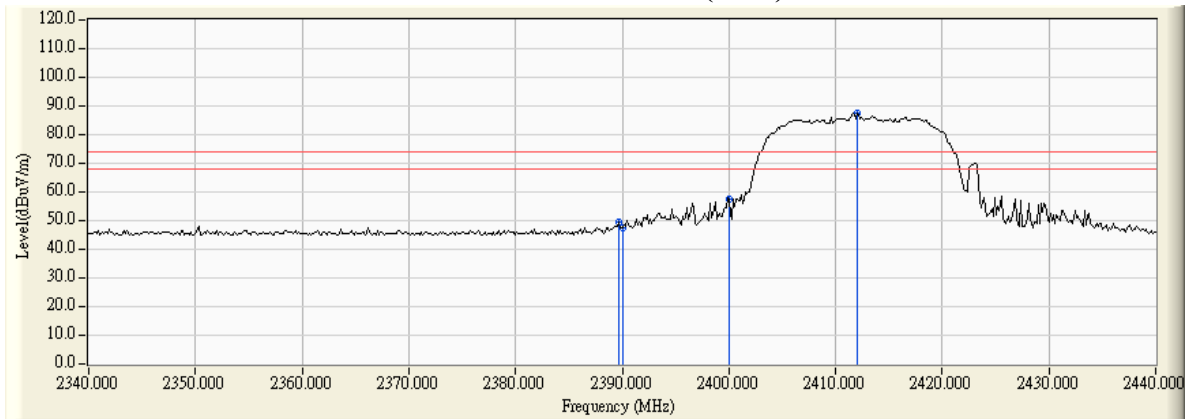
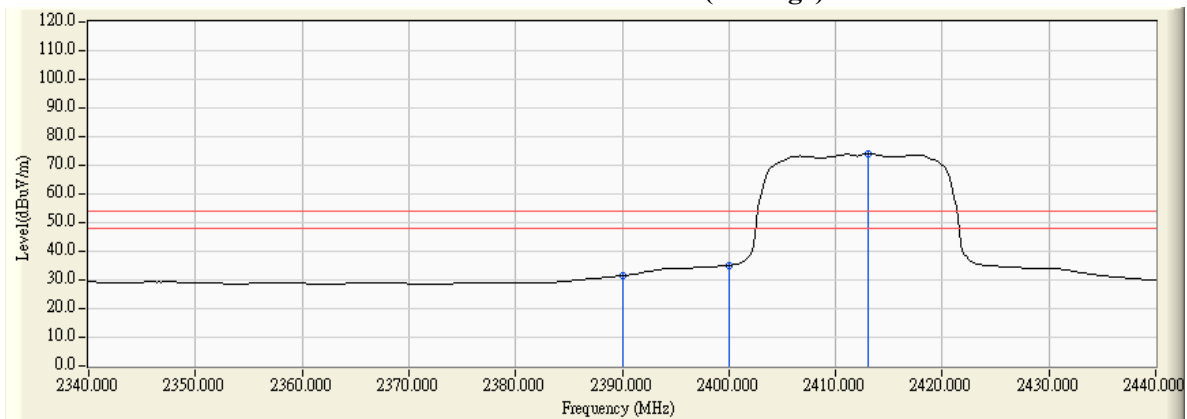
Figure Channel 01:**Horizontal (Peak)****Figure Channel 01:****Horizontal (Average)**

- Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
 3. Average measurements: RBW = 1MHz, VBW = 1kHz, Sweep: Auto.
 4. “ * ”, means this data is the worst emission level.
 5. Measurement Level = Reading Level + Correct Factor.
 6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Digital Camera
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Date : 2017/08/05
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2412MHz)

RF Radiated Measurement (VERTICAL):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
01 (Peak)	2389.710	5.882	43.801	49.683	74.00	54.00	Pass
01 (Peak)	2390.000	5.880	41.564	47.445	74.00	54.00	Pass
01 (Peak)	2400.000	5.879	51.511	57.390	--	--	--
01 (Peak)	2412.029	5.914	81.681	87.595	--	--	--
01 (Average)	2390.000	5.880	25.603	31.484	74.00	54.00	Pass
01 (Average)	2400.000	5.879	29.192	35.071	--	--	--
01 (Average)	2413.043	5.921	68.107	74.027	--	--	--

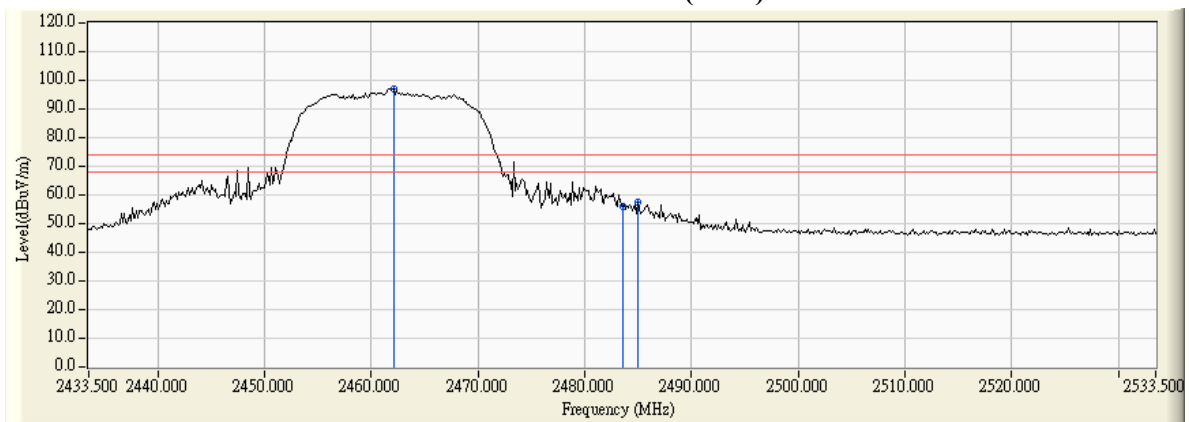
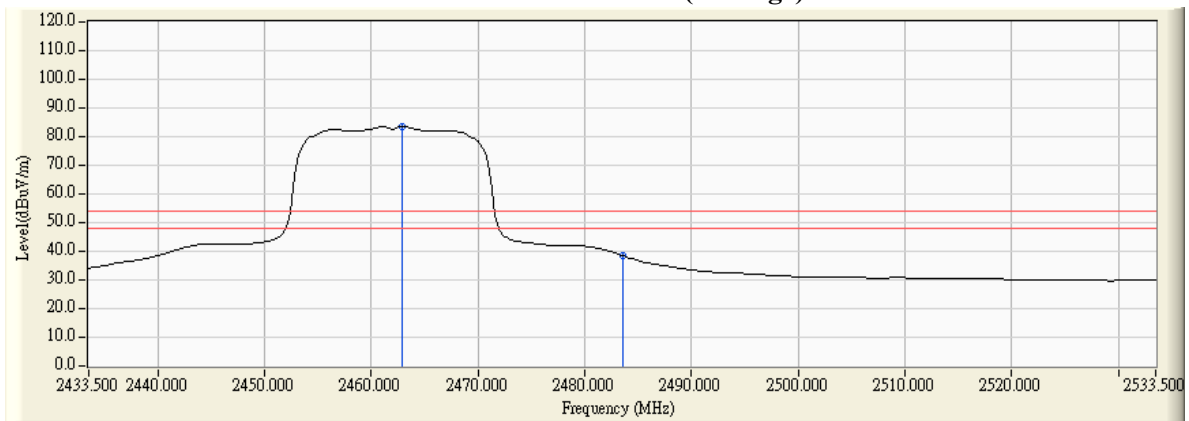
Figure Channel 01:**VERTICAL (Peak)****Figure Channel 01:****VERTICAL (Average)**

- Note: 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
 3. Average measurements: RBW = 1MHz, VBW = 1kHz, Sweep: Auto.
 4. “ * ”, means this data is the worst emission level.
 5. Measurement Level = Reading Level + Correct Factor.
 6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Digital Camera
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Date : 2017/08/03
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2462MHz)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dB μ V)	Emission Level (dB μ V/m)	Peak Limit (dB μ V/m)	Average Limit (dB μ V/m)	Result
11 (Peak)	2462.051	6.958	90.153	97.112	--	--	--
11 (Peak)	2483.500	7.110	48.920	56.030	74.00	54.00	Pass
11 (Peak)	2484.949	7.120	50.212	57.332	74.00	54.00	Pass
11 (Average)	2462.920	6.965	76.567	83.532	--	--	--
11 (Average)	2483.500	7.110	31.381	38.491	74.00	54.00	Pass

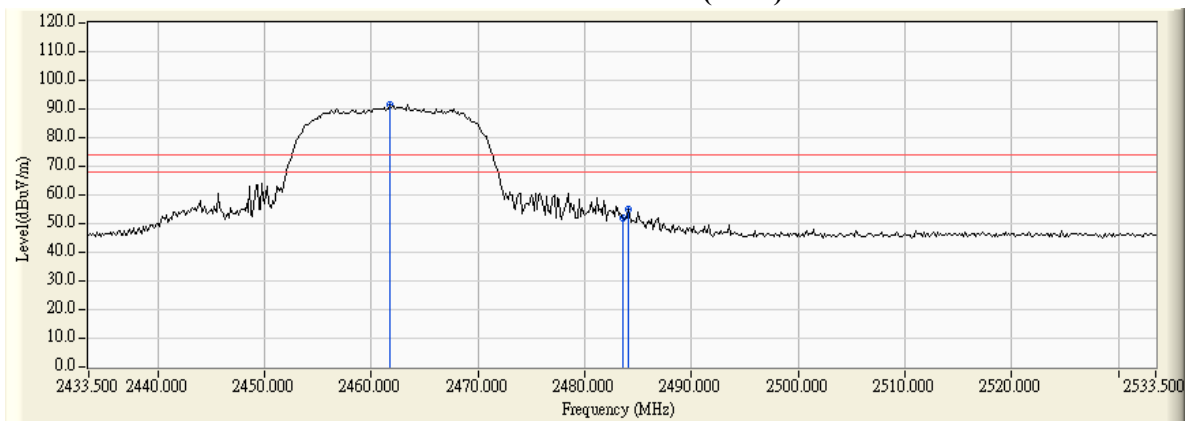
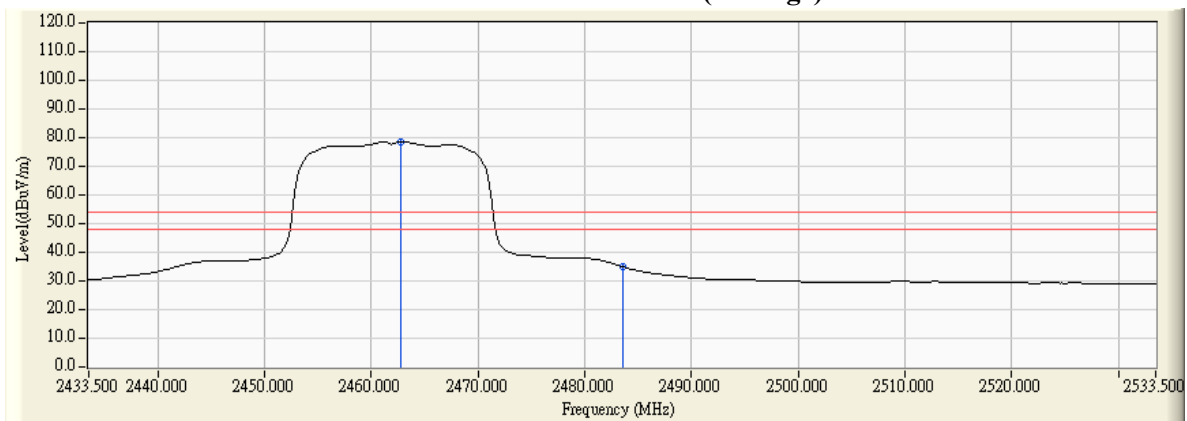
Figure Channel 11: Horizontal (Peak)**Figure Channel 11: Horizontal (Average)**

- Note: 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
 3. Average measurements: RBW = 1MHz, VBW = 1kHz, Sweep: Auto.
 4. “ * ”, means this data is the worst emission level.
 5. Measurement Level = Reading Level + Correct Factor.
 6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Digital Camera
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Date : 2017/08/05
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2462MHz)

RF Radiated Measurement (VERTICAL):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dB μ V)	Emission Level (dB μ V/m)	Peak Limit (dB μ V/m)	Average Limit (dB μ V/m)	Result
11 (Peak)	2461.761	6.228	85.401	91.629	--	--	--
11 (Peak)	2483.500	6.363	45.543	51.906	74.00	54.00	Pass
11 (Peak)	2484.080	6.367	48.416	54.783	74.00	54.00	Pass
11 (Average)	2462.775	6.234	72.375	78.609	--	--	--
11 (Average)	2483.500	6.363	28.620	34.983	74.00	54.00	Pass

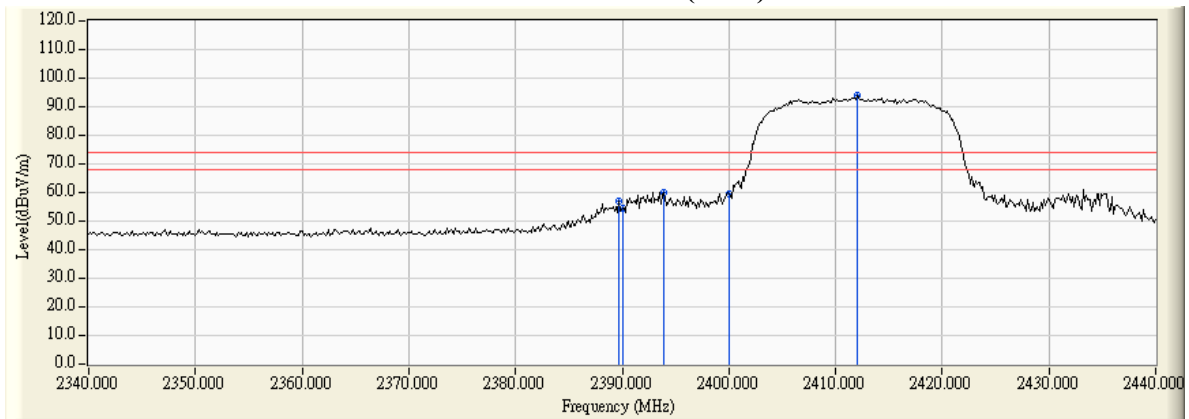
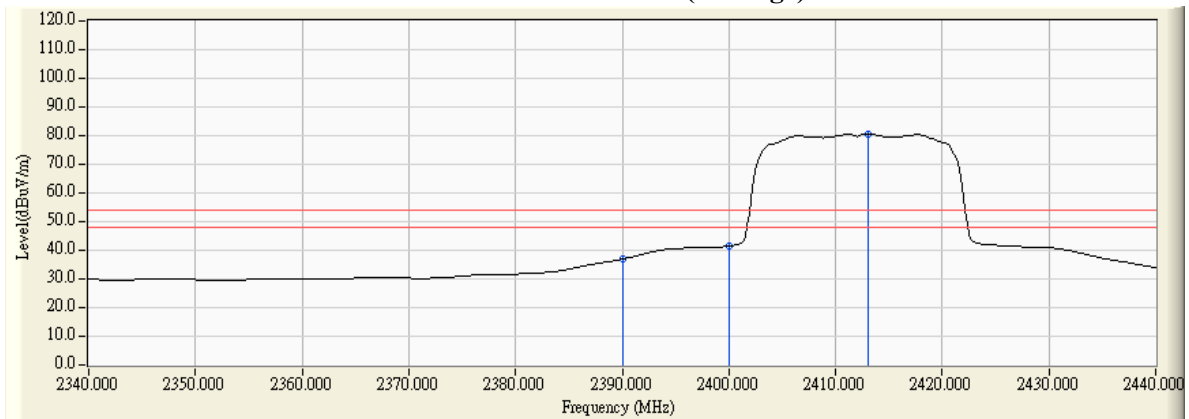
Figure Channel 11: VERTICAL (Peak)

Figure Channel 11: VERTICAL (Average)


- Note: 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
 3. Average measurements: RBW = 1MHz, VBW = 1kHz, Sweep: Auto.
 4. “ * ”, means this data is the worst emission level.
 5. Measurement Level = Reading Level + Correct Factor.
 6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Digital Camera
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Date : 2017/08/03
 Test Mode : Mode 3: Transmit (802.11n MCS0 6.5Mbps 20M-BW) (2412MHz)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
01 (Peak)	2389.710	6.473	50.334	56.807	74.00	54.00	Pass
01 (Peak)	2390.000	6.474	48.203	54.678	74.00	54.00	Pass
01 (Peak)	2393.913	6.492	53.355	59.847	--	--	--
01 (Peak)	2400.000	6.528	53.183	59.711	--	--	--
01 (Peak)	2412.029	6.603	87.312	93.915	--	--	--
01 (Average)	2390.000	6.474	30.473	36.948	74.00	54.00	Pass
01 (Average)	2400.000	6.528	34.925	41.453	--	--	--
01 (Average)	2413.043	6.610	73.973	80.583	--	--	--

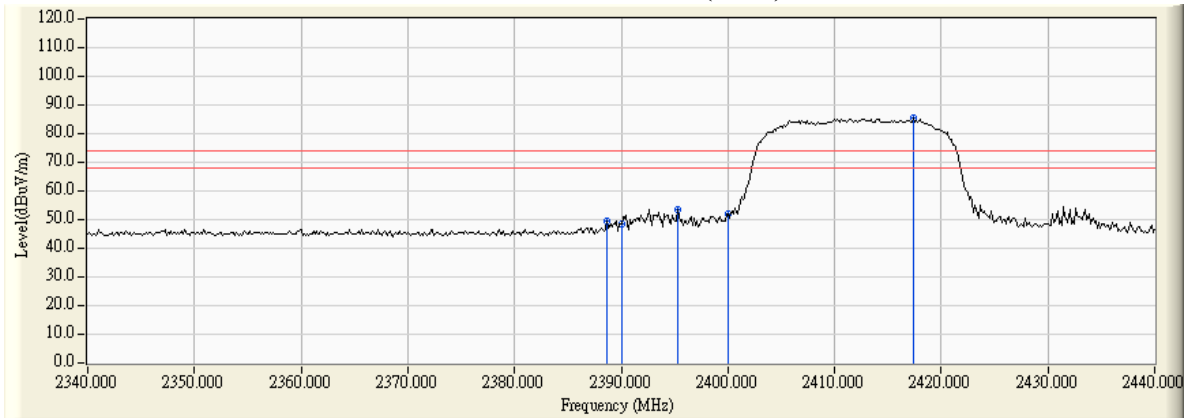
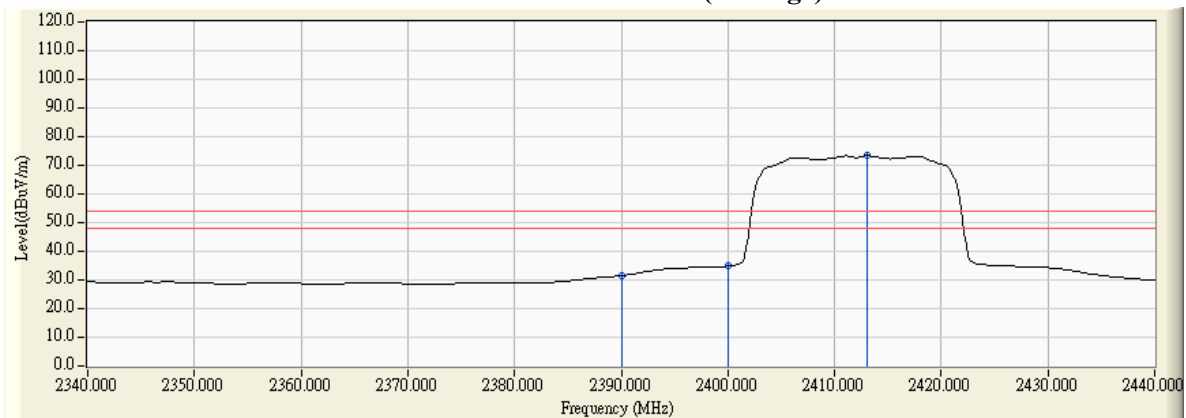
Figure Channel 01:
Horizontal (Peak)

Figure Channel 01:
Horizontal (Average)


- Note: 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
 3. Average measurements: RBW = 1MHz, VBW = 1kHz, Sweep: Auto.
 4. “ * ”, means this data is the worst emission level.
 5. Measurement Level = Reading Level + Correct Factor.
 6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Digital Camera
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Date : 2017/08/03
 Test Mode : Mode 3: Transmit (802.11n MCS0 6.5Mbps 20M-BW) (2412MHz)

RF Radiated Measurement (VERTICAL):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
01 (Peak)	2388.696	5.886	43.389	49.275	74.00	54.00	Pass
01 (Peak)	2390.000	5.880	42.850	48.731	74.00	54.00	Pass
01 (Peak)	2395.362	5.867	47.432	53.299	--	--	--
01 (Peak)	2400.000	5.879	45.999	51.878	--	--	--
01 (Peak)	2417.391	5.947	79.319	85.266	--	--	--
01 (Average)	2390.000	5.880	25.604	31.485	74.00	54.00	Pass
01 (Average)	2400.000	5.879	28.952	34.831	--	--	--
01 (Average)	2413.043	5.921	67.449	73.369	--	--	--

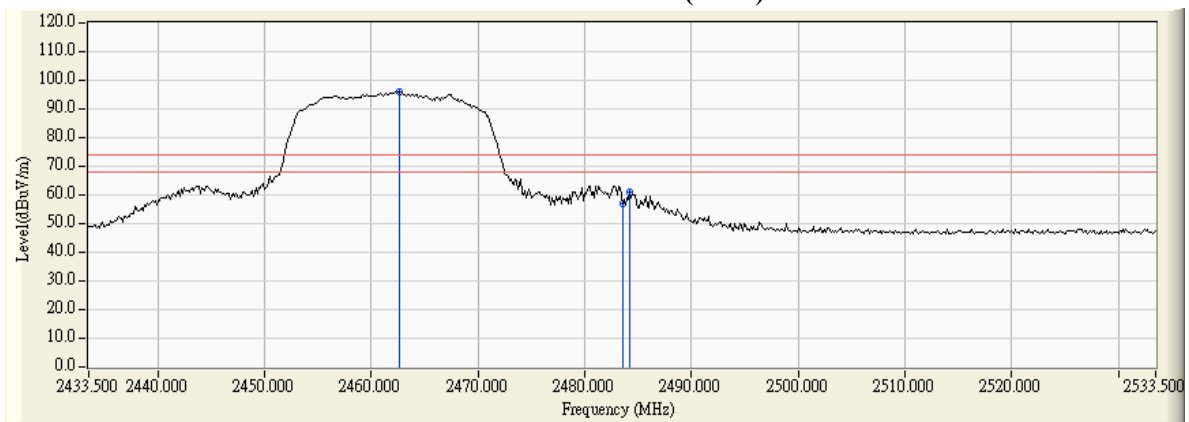
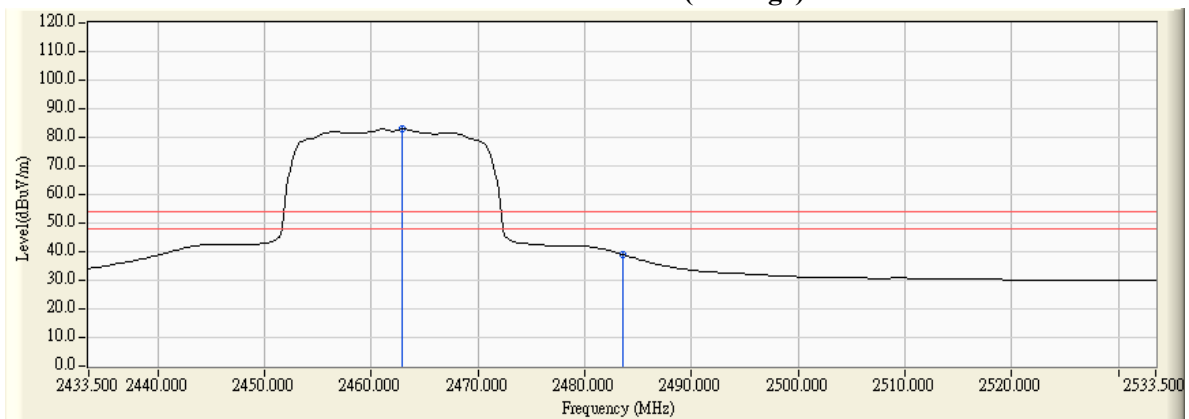
Figure Channel 01:**VERTICAL (Peak)****Figure Channel 01:****VERTICAL (Average)**

- Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
 3. Average measurements: RBW = 1MHz, VBW = 1kHz, Sweep: Auto.
 4. “ * ”, means this data is the worst emission level.
 5. Measurement Level = Reading Level + Correct Factor.
 6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Digital Camera
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Date : 2017/08/03
 Test Mode : Mode 3: Transmit (802.11n MCS0 6.5Mbps 20M-BW) (2462MHz)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
11 (Peak)	2462.630	6.963	88.891	95.854	--	--	--
11 (Peak)	2483.500	7.110	50.085	57.195	74.00	54.00	Pass
11 (Peak)	2484.225	7.115	53.785	60.900	74.00	54.00	Pass
11 (Average)	2462.920	6.965	75.858	82.823	--	--	--
11 (Average)	2483.500	7.110	31.907	39.017	74.00	54.00	Pass

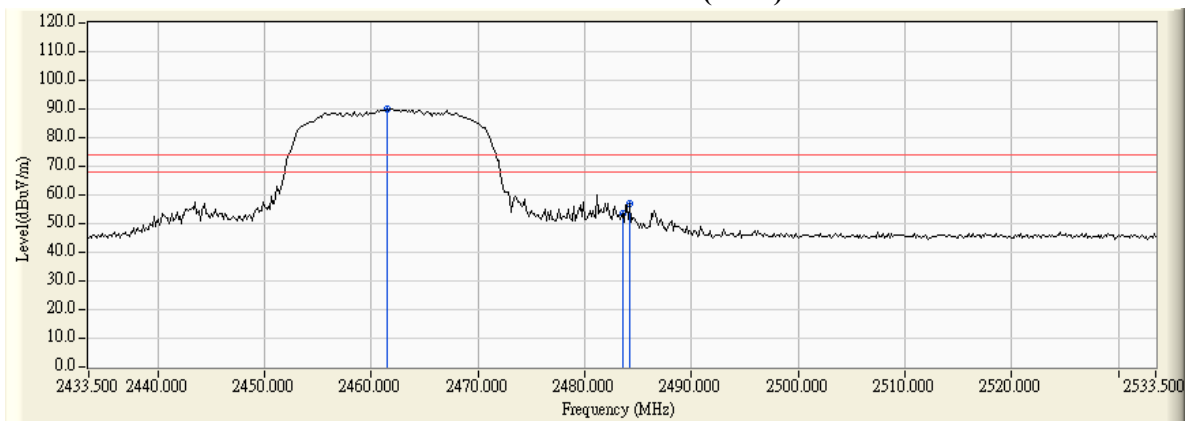
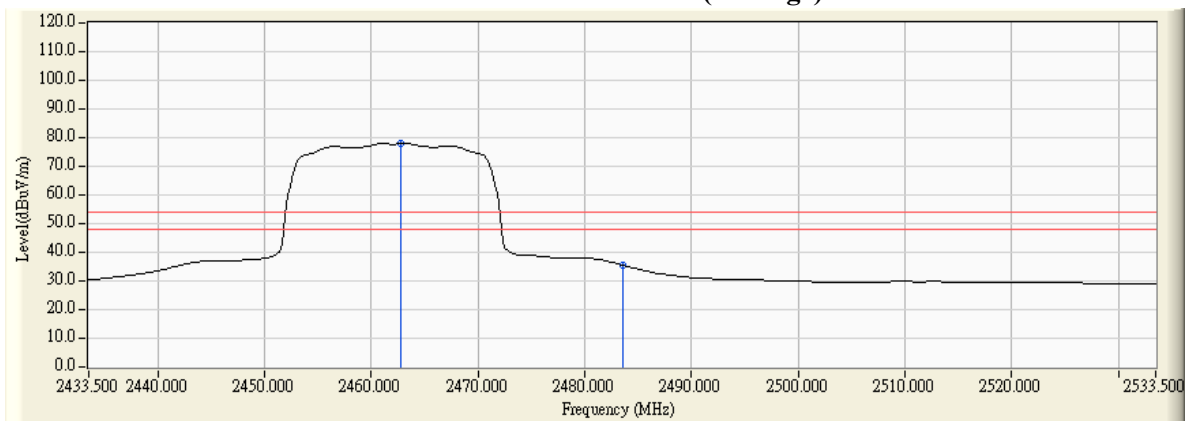
Figure Channel 11: Horizontal (Peak)**Figure Channel 11: Horizontal (Average)**

- Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
 3. Average measurements: RBW = 1MHz, VBW = 1kHz, Sweep: Auto.
 4. “ * ”, means this data is the worst emission level.
 5. Measurement Level = Reading Level + Correct Factor.
 6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Digital Camera
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Date : 2017/08/03
 Test Mode : Mode 3: Transmit (802.11n MCS0 6.5Mbps 20M-BW) (2462MHz)

RF Radiated Measurement (VERTICAL):

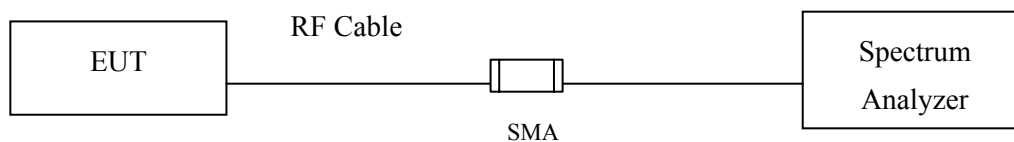
Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
11 (Peak)	2461.471	6.226	83.711	89.937	--	--	--
11 (Peak)	2483.500	6.363	47.103	53.466	74.00	54.00	Pass
11 (Peak)	2484.225	6.368	50.526	56.894	74.00	54.00	Pass
11 (Average)	2462.775	6.234	71.975	78.209	--	--	--
11 (Average)	2483.500	6.363	29.186	35.549	74.00	54.00	Pass

Figure Channel 11: VERTICAL (Peak)**Figure Channel 11: VERTICAL (Average)**

- Note: 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
 3. Average measurements: RBW = 1MHz, VBW = 1kHz, Sweep: Auto.
 4. “ * ”, means this data is the worst emission level.
 5. Measurement Level = Reading Level + Correct Factor.
 6. The average measurement was not performed when the peak measured data under the limit of average detection.

8. 6dB Bandwidth

8.1. Test Setup



8.2. Limits

The minimum bandwidth shall be at least 500 kHz.

8.3. Test Procedure

The EUT was setup according to ANSI C63.4: 2014; tested according to DTS test procedure of Jan KDB558074 for compliance to FCC 47CFR 15.247 requirements.

8.4. Uncertainty

$\pm 283\text{Hz}$

8.5. Test Result of 6dB Bandwidth

Product : Digital Camera
 Test Item : 6dB Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11b 1Mbps)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
01	2412	8100	>500	Pass
06	2437	8150	>500	Pass
11	2462	8150	>500	Pass

Figure Channel 01:

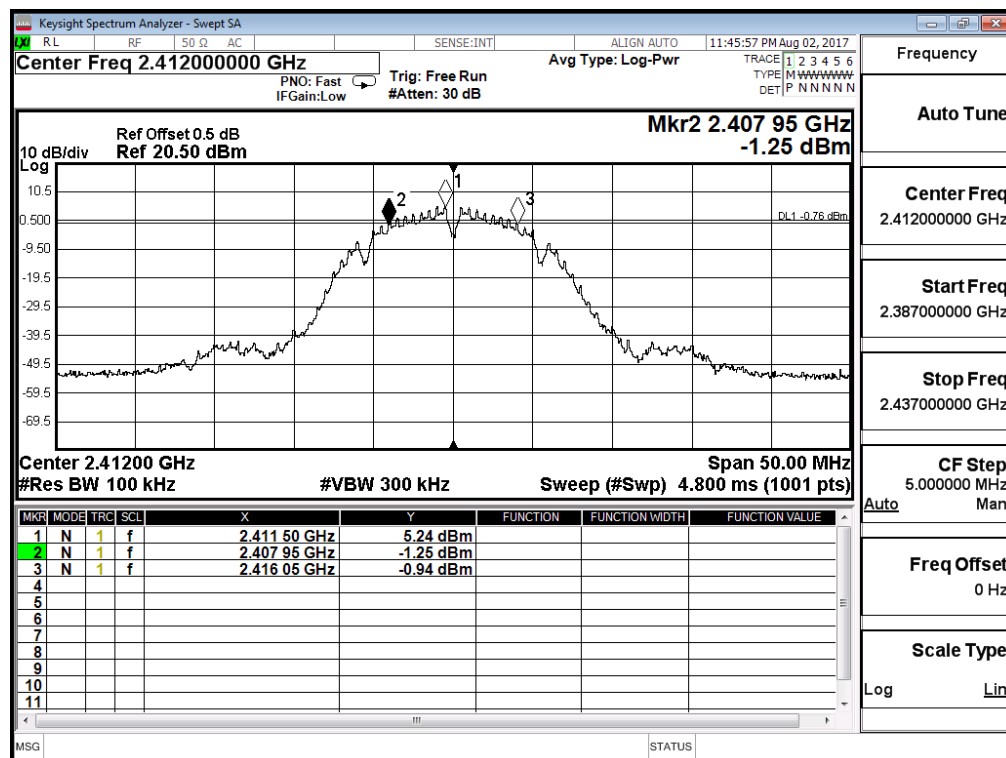


Figure Channel 06:

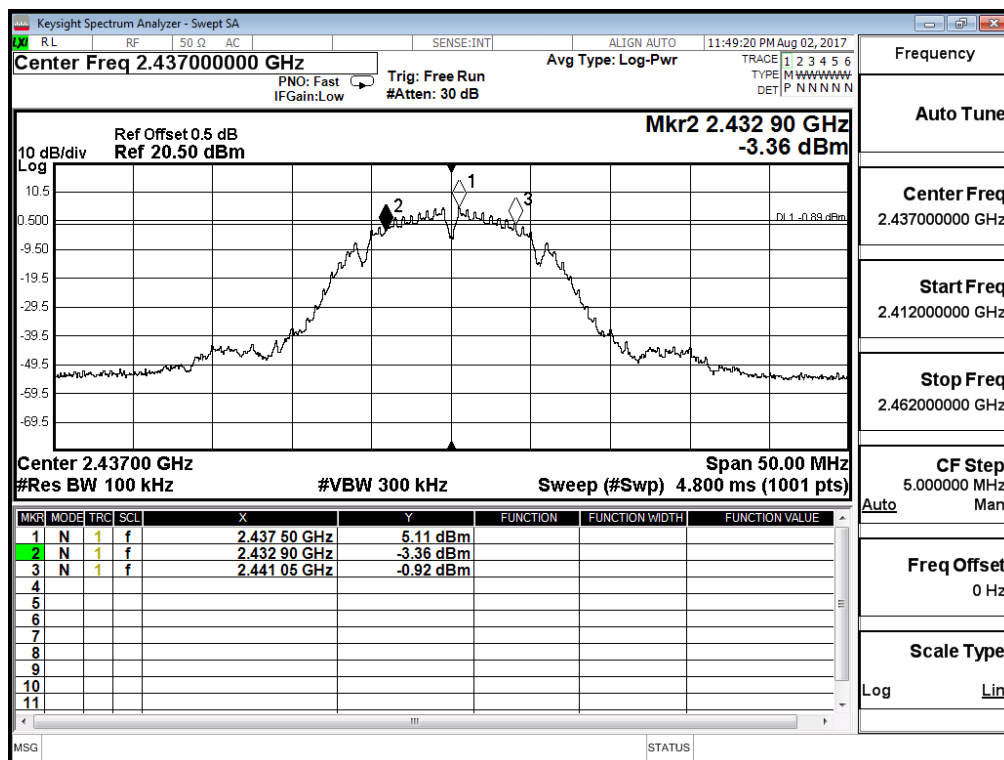
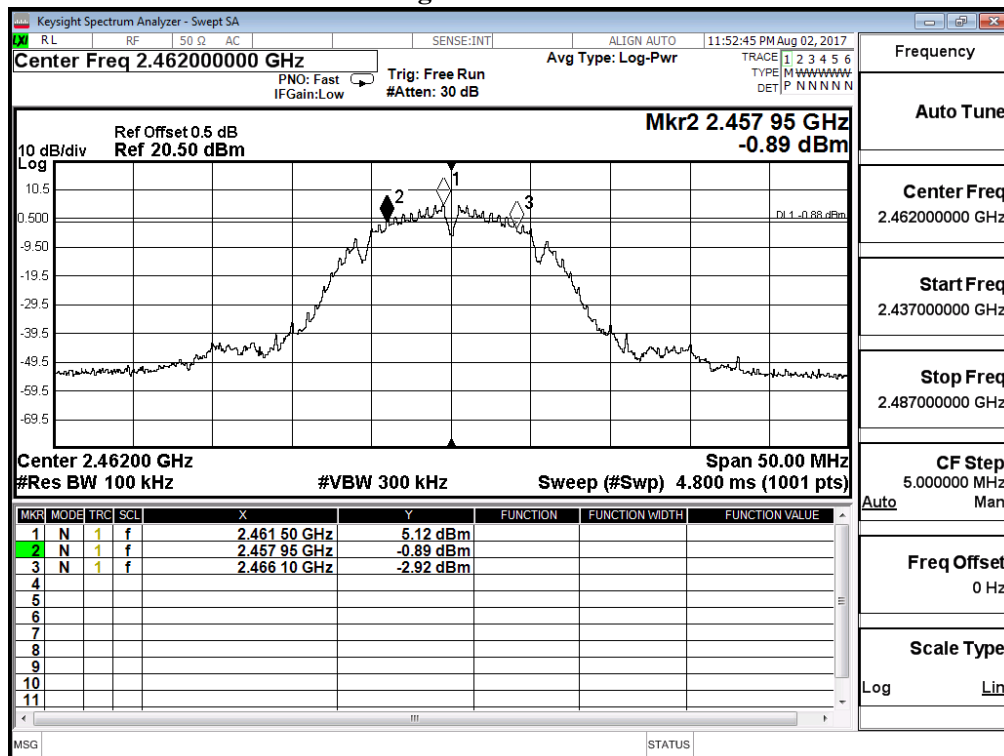


Figure Channel 11:



Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
01	2412	15200	>500	Pass
06	2437	15200	>500	Pass
11	2462	15200	>500	Pass

Keysight Spectrum Analyzer - Swept SA

RL RF 50 Ω AC SENSE:INT ALIGN: AUTO 11:56:18 PM Aug 02, 2017

Center Freq 2.41200000 GHz PNO: Fast Trig: Free Run Avg Type: Log-Pwr
IFGain:Low #Atten: 30 dB

TRACE 1 2 3 4 5 6
TYPE M M M M M M M M
DET P N N N N N

Ref Offset 0.5 dB
Ref 20.50 dBm

Mkr2 2.404 40 GHz -4.38 dBm

10 dB/div Log

CLT -3.13 dBm

Center 2.41200 GHz **Span 50.00 MHz**
#Res BW 100 kHz #VBW 300 kHz Sweep (#Swp) 4.800 ms (1001 pts)

MRK	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.413 25 GHz	2.87 dBm			
2	N	1	f	2.404 40 GHz	-4.38 dBm			
3	N	1	f	2.419 60 GHz	-4.89 dBm			
4								
5								
6								
7								
8								
9								
10								
11								

MSG STATUS

Frequency

Auto Tune

Center Freq 2.41200000 GHz

Start Freq 2.387000000 GHz

Stop Freq 2.437000000 GHz

CF Step 5.000000 MHz

Auto Man

Freq Offset 0 Hz

Scale Type Lin

Log

Figure Channel 06:

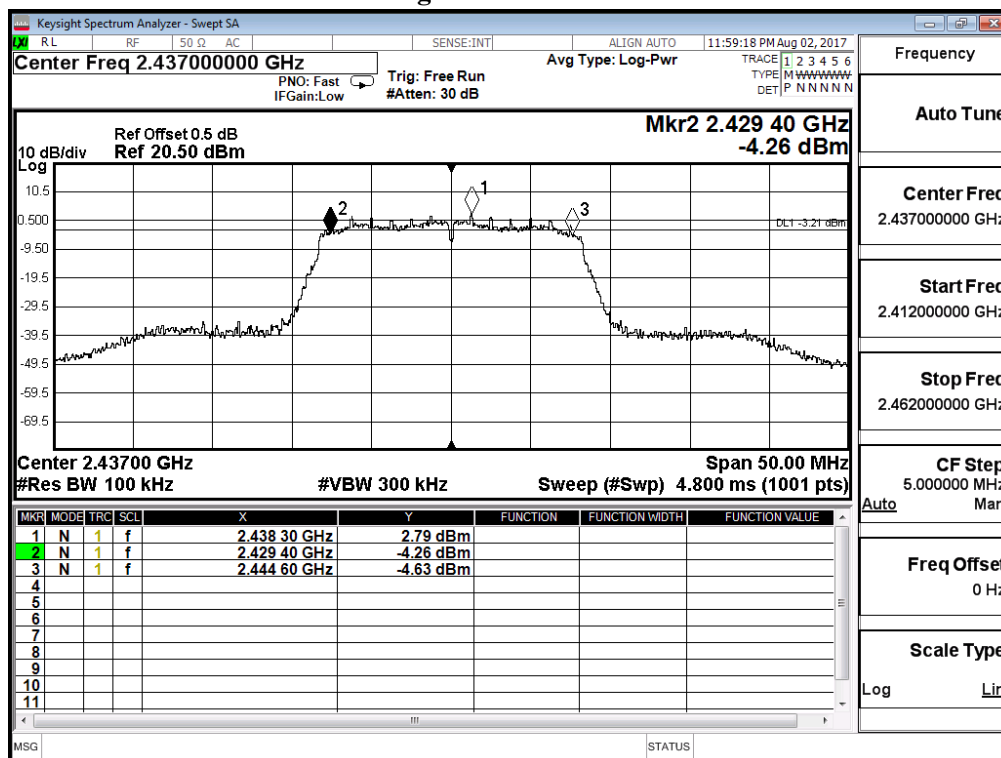
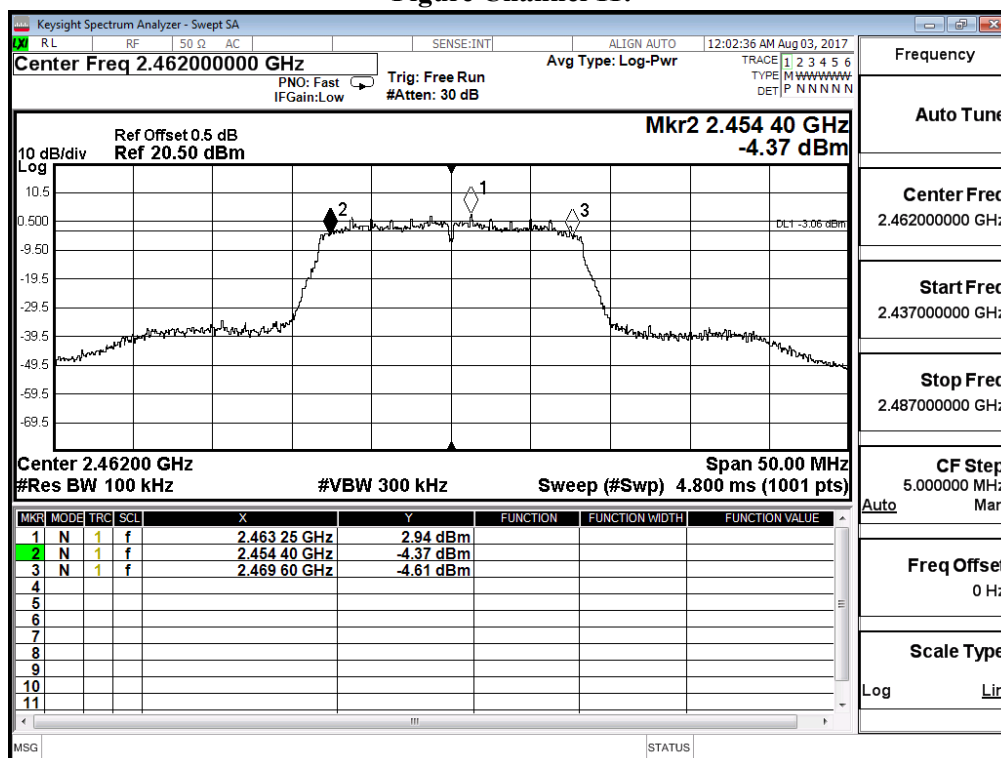


Figure Channel 11:



Product : Digital Camera
 Test Item : 6dB Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmit (802.11n MCS0 6.5Mbps 20M-BW)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
01	2412	15200	>500	Pass
06	2437	15200	>500	Pass
11	2462	15200	>500	Pass

Figure Channel 01:

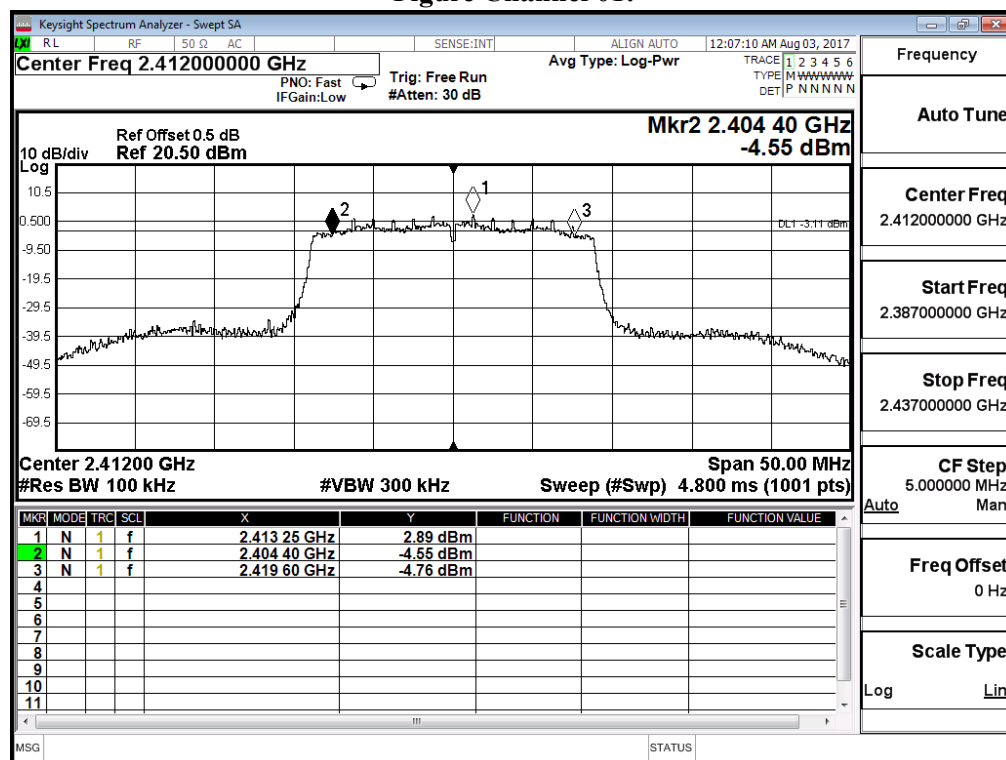


Figure Channel 06:

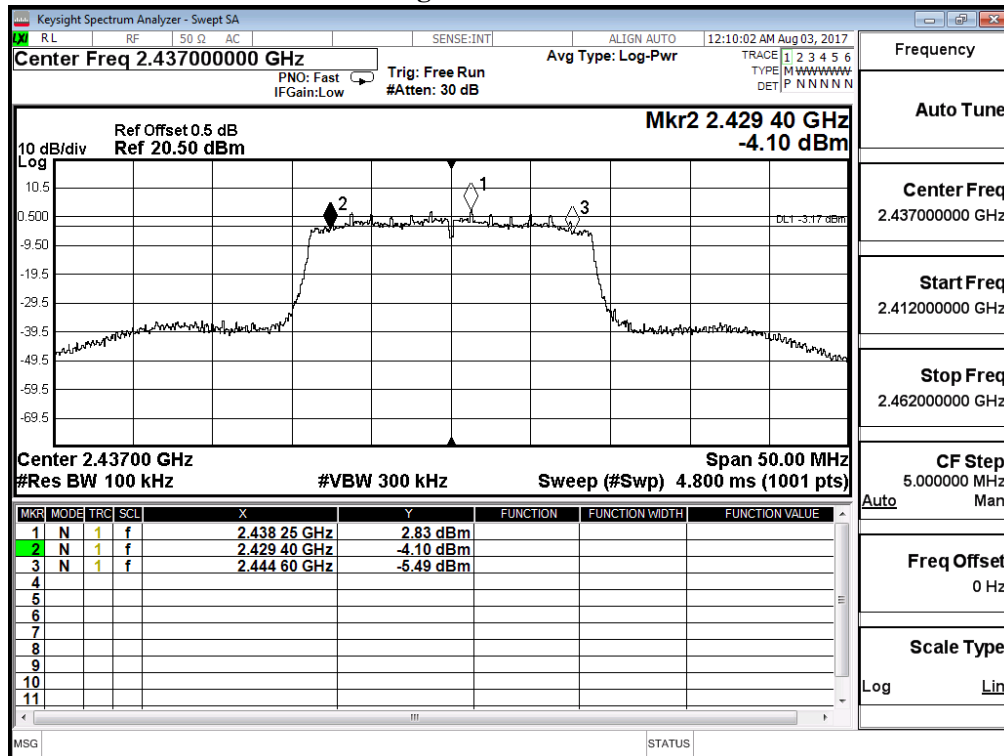
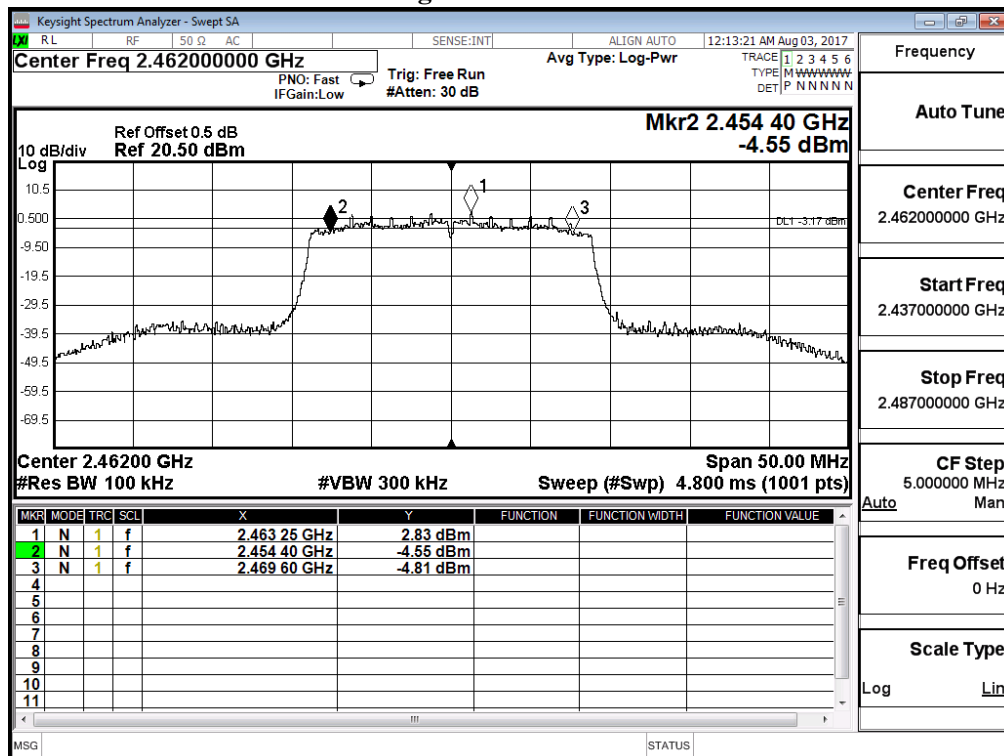
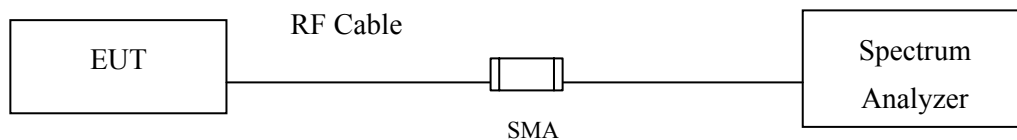


Figure Channel 11:



9. Power Density

9.1. Test Setup



9.2. Limits

The transmitted power density averaged over any 1 second interval shall not be greater +8dBm in any 3kHz bandwidth.

9.3. Test Procedure

The EUT was setup according to ANSI C63.10, 2013; tested according to DTS test procedure of KDB 558074 for compliance to FCC 47CFR 15.247 requirements.

The maximum power spectral density using KDB 558074 section 10.2 PKPSD (peak PSD) method.

9.4. Uncertainty

± 1.20 dB

9.5. Test Result of Power Density

Product : Digital Camera
 Test Item : Power Density Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11b 1Mbps)

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
01	2412	5.350	$\leq 8\text{dBm}$	Pass
06	2437	5.000	$\leq 8\text{dBm}$	Pass
11	2462	5.350	$\leq 8\text{dBm}$	Pass

Figure Channel 01:

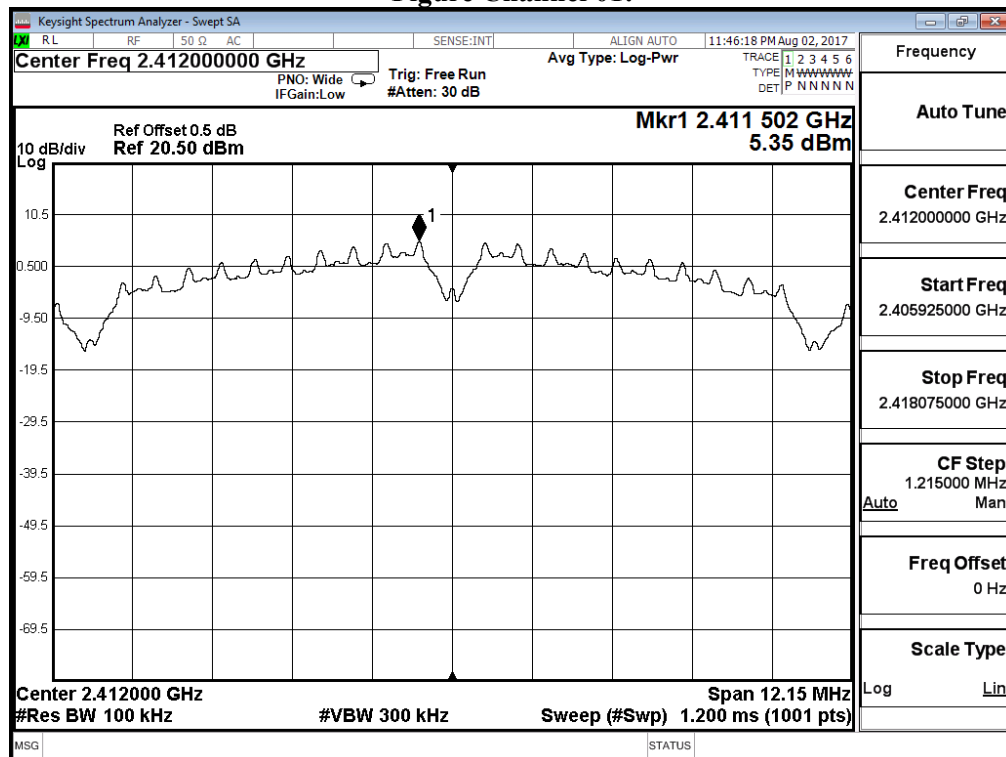


Figure Channel 06:

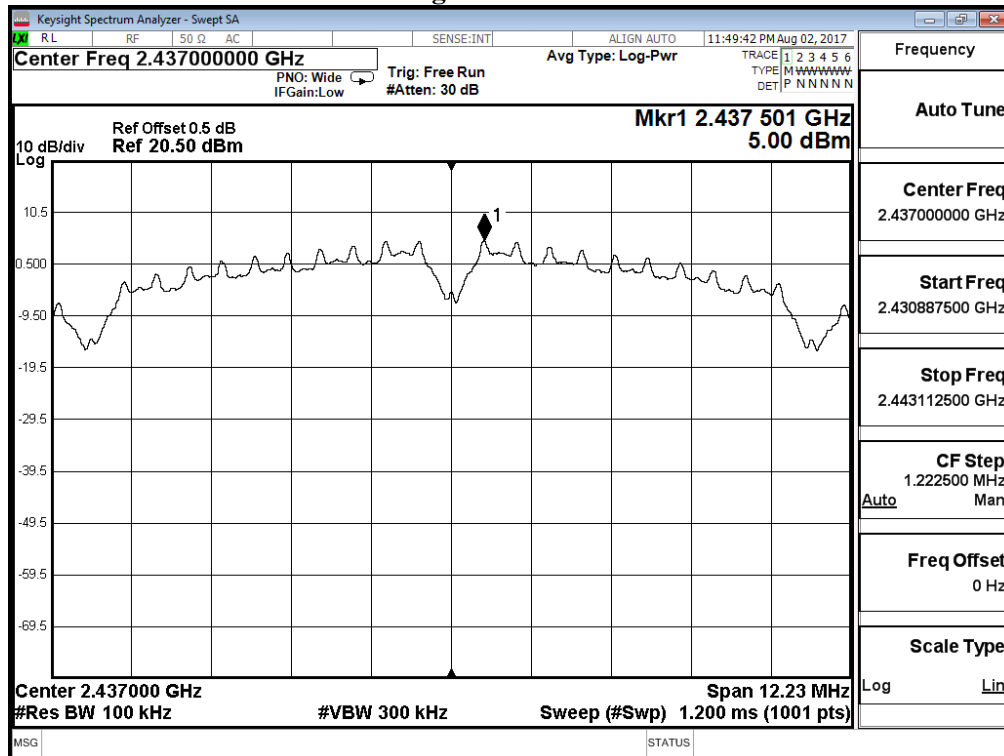
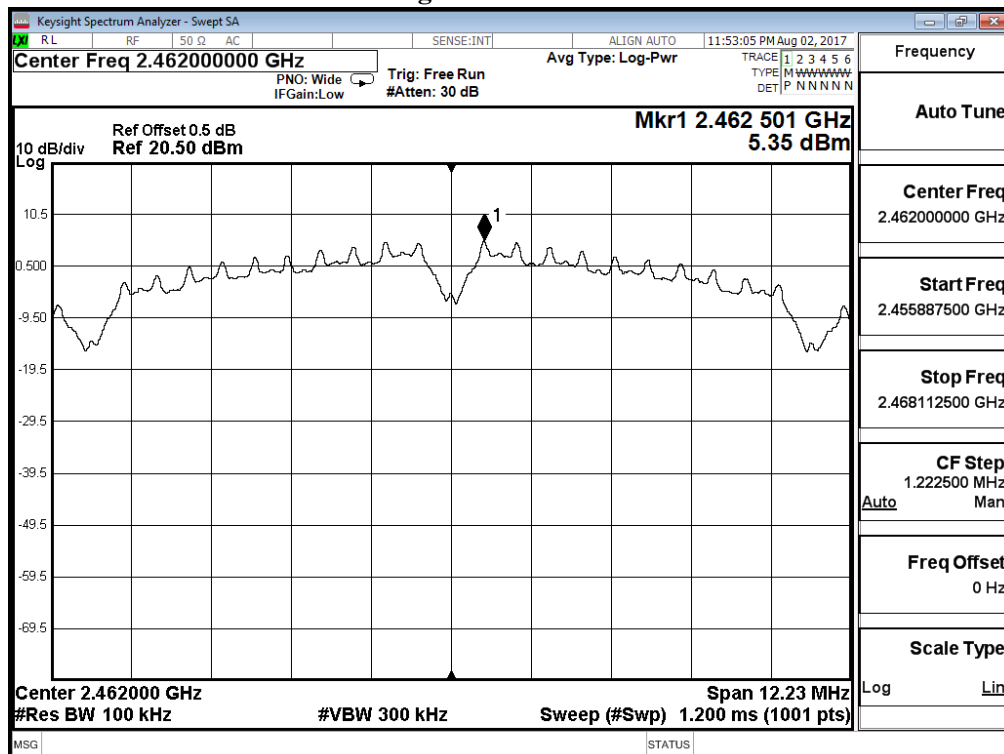


Figure Channel 11:



Product : Digital Camera
 Test Item : Power Density Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11g 6Mbps)

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
01	2412	2.910	≤ 8 dBm	Pass
06	2437	2.890	≤ 8 dBm	Pass
11	2462	2.940	≤ 8 dBm	Pass

Figure Channel 01:

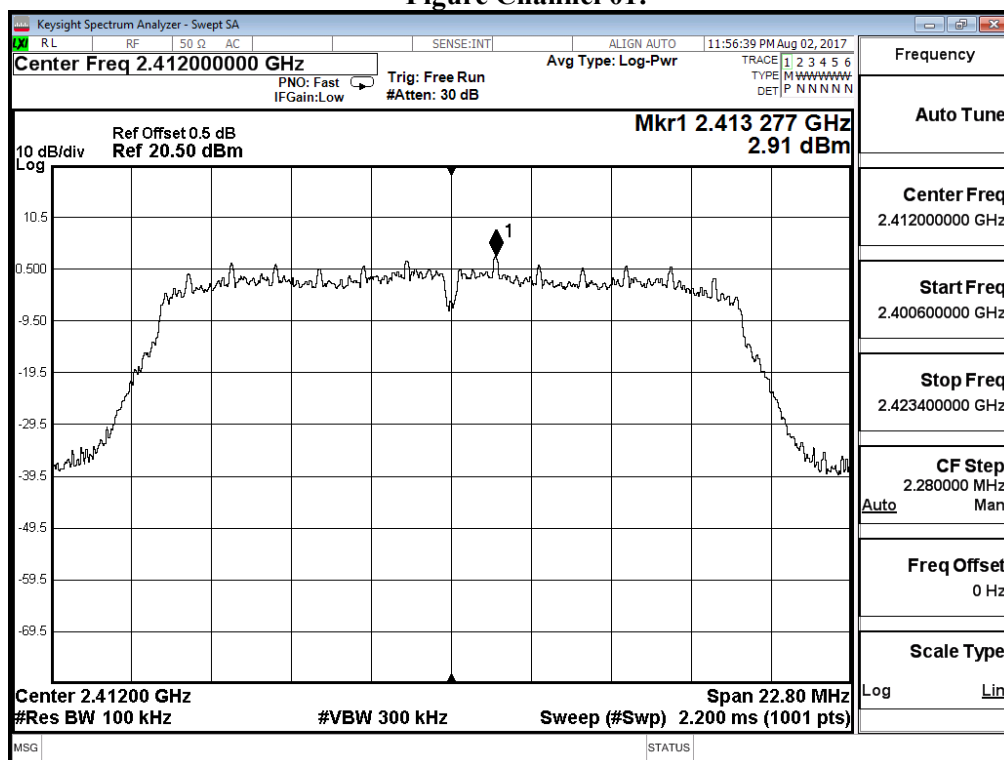


Figure Channel 06:

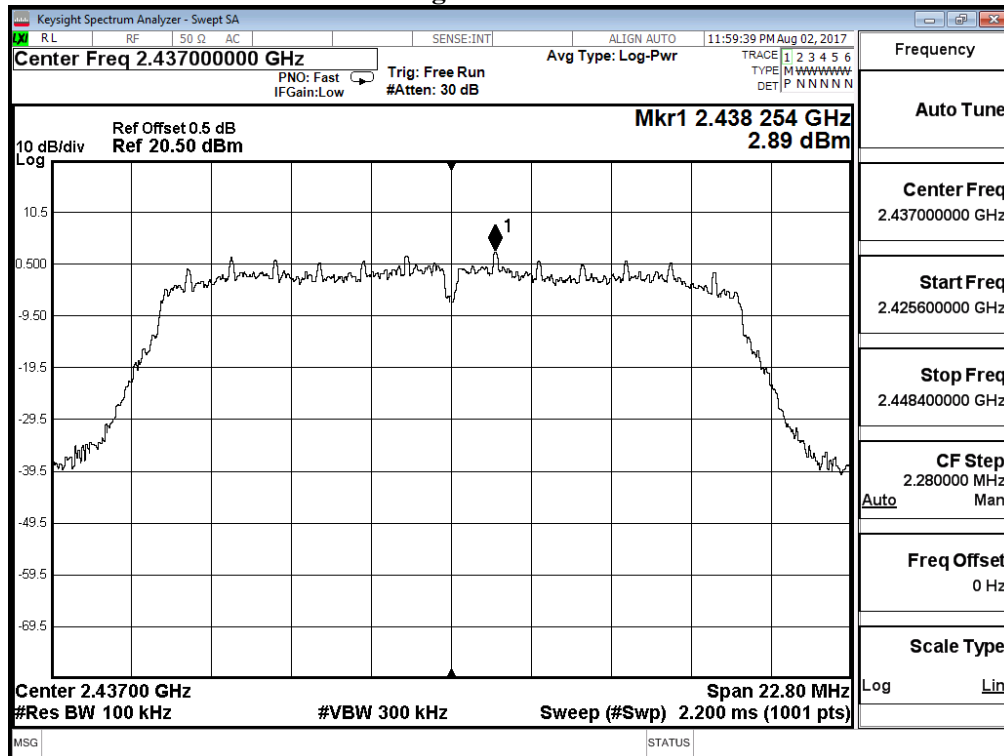
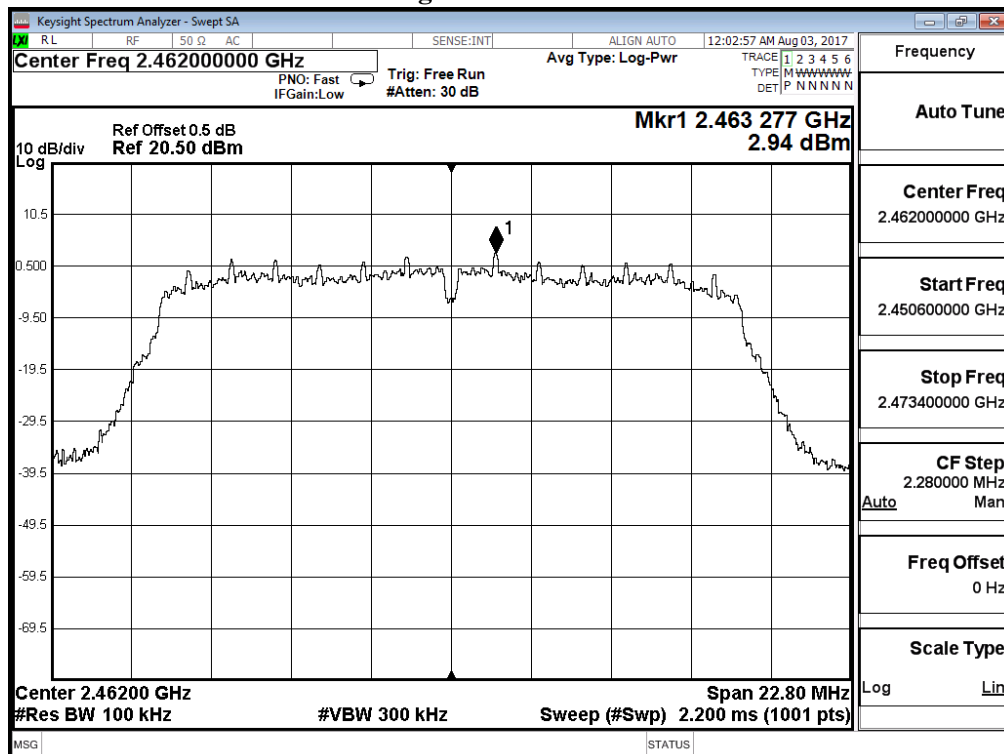


Figure Channel 11:



Product : Digital Camera
 Test Item : Power Density Data
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmit (802.11n MCS0 6.5Mbps 20M-BW)

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
01	2412	2.940	$\leq 8\text{dBm}$	Pass
06	2437	2.850	$\leq 8\text{dBm}$	Pass
11	2462	2.850	$\leq 8\text{dBm}$	Pass

Figure Channel 01:

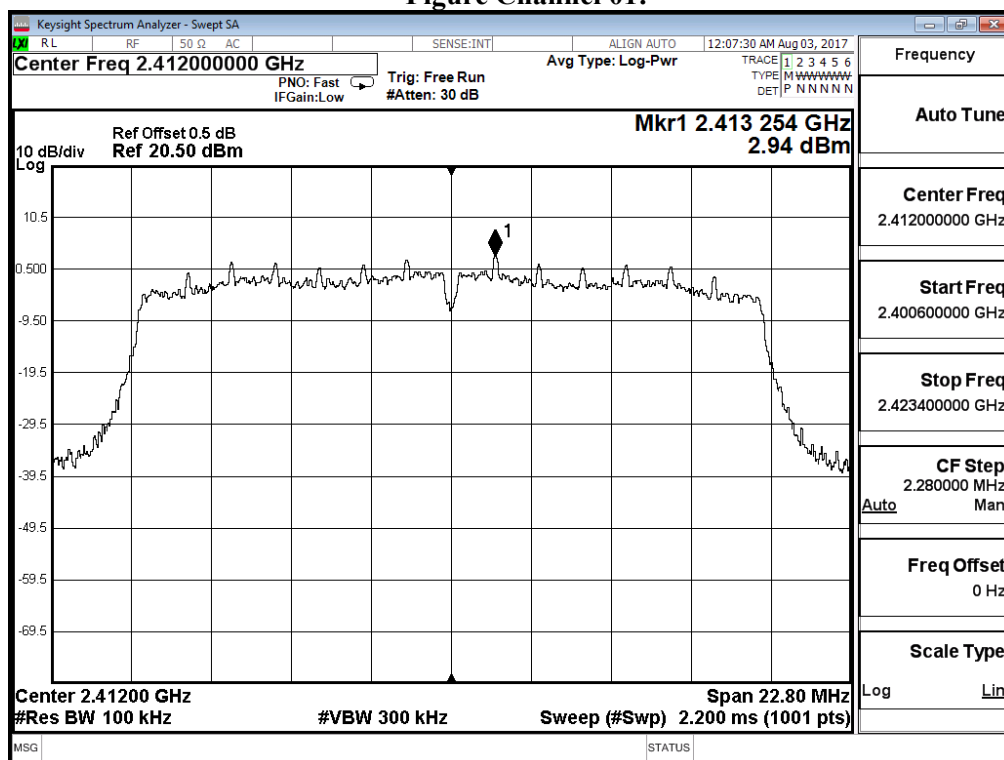


Figure Channel 06:

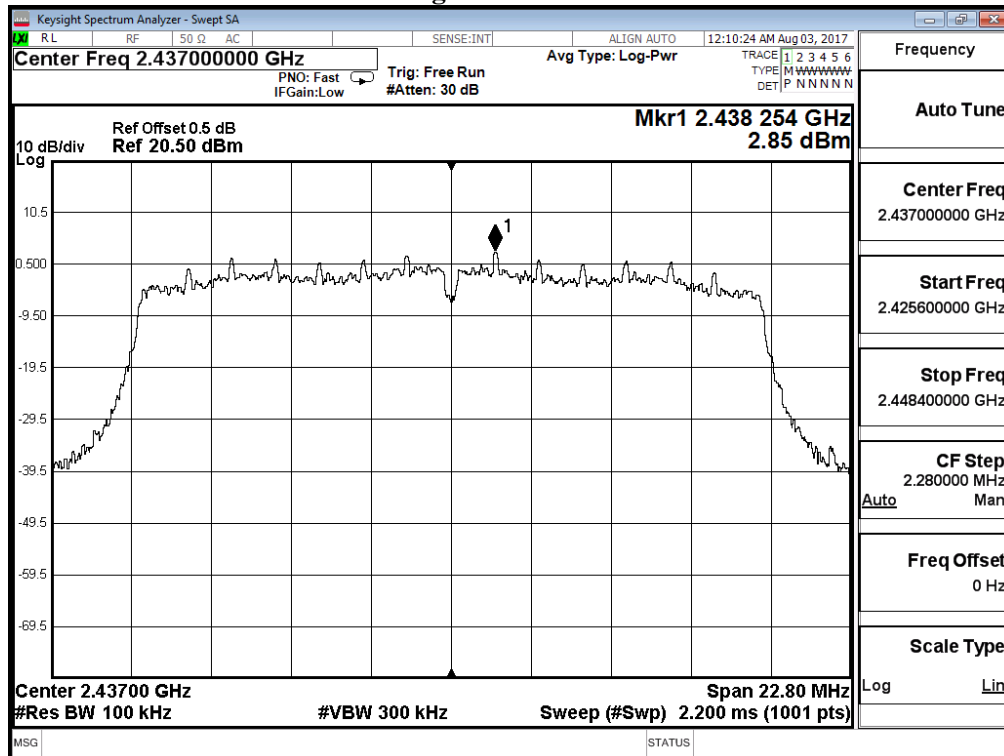
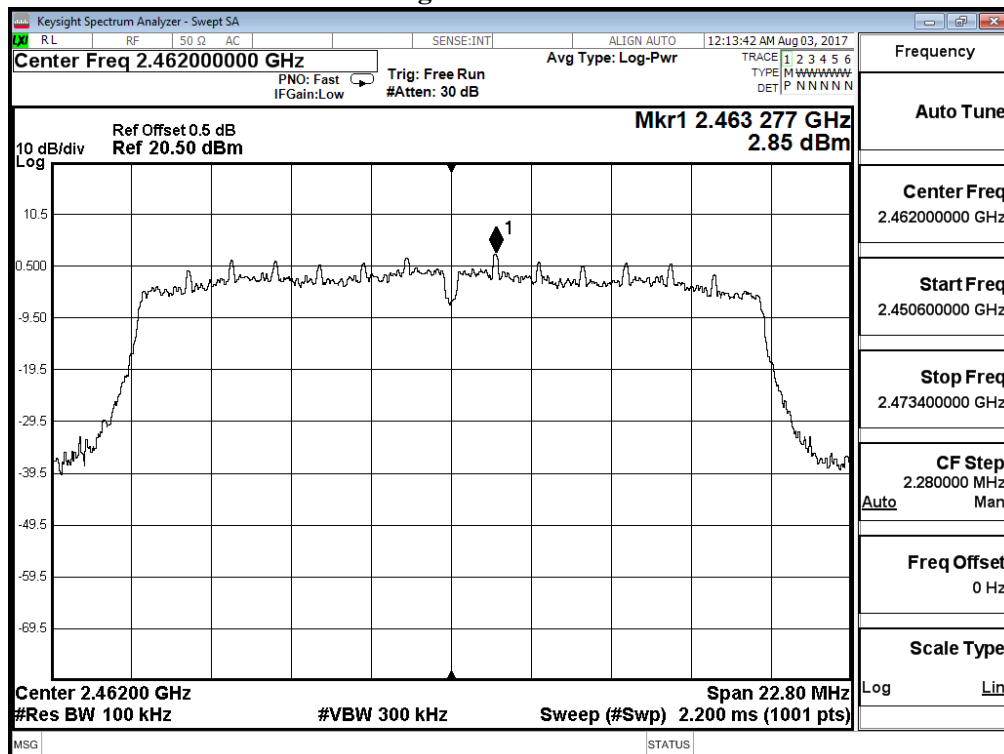


Figure Channel 11:



10. EMI Reduction Method During Compliance Testing

No modification was made during testing.

Attachment 1: EUT Test Photographs

Attachment 2: EUT Detailed Photographs