FCC Test Report

Product Name	Digital Camera
Model No	N1721
FCC ID.	CGJ1155EB

Applicant	NIKON CORPORATION
Address	Shinagawa Intercity Tower C, 2-15-3,Konan Minato-ku, Tokyo 108-6290 Japan

Date of Receipt	Mar. 28, 2018
Issue Date	Apr. 23, 2018
Report No.	1830420R-RFUSP04V00-A
Report Version	V1.0

Testing Laboratory
3023

Test Report

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Product Name	Digital Camera
Applicant	NIKON CORPORATION
Address	Shinagawa Intercity Tower C, 2-15-3,Konan Minato-ku, Tokyo 108-6290 Japan
Manufacturer	NIKON CORPORATION
Model No.	N1721
FCC ID.	CGJ1155EB
EUT Rated Voltage	DC3.7V by Battery
EUT Test Voltage	AC 120 V / 60 Hz(Adapter) or DC3.7V by Battery
Trade Name	Nikon
Applicable Standard	FCC CFR Title 47 Part 15 Subpart C: 2017 ANSI C63.4: 2014, ANSI C63.10: 2013 KDB 558074 D01 DTS Meas Guidance v04
Test Result	Complied

Documented By : Genie Chang

(Senior Adm. Specialist / Genie Chang)

Tested By : Jason Tuan

(Engineer / Jason Tuan)

Approved By :

(Director / Vincent Lin)

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1. GENERAL INFORMATION

1.1. EUT Description

Product Name	Digital Camera
Trade Name	Nikon
Model No.	N1721
FCC ID.	CGJ1155EB
Frequency Range	2412-2462MHz for 802.11b/g/n-20BW, 2422-2452MHz for 802.11n-40BW
Number of Channels	802.11b/g/n-20MHz: 11, n-40MHz: 7
Data Speed	802.11b: 1-11Mbps, 802.11g: 6-54Mbps, 802.11n: up to 150Mbps
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, 0.8m, with one ferrite core bonded.
Power Adapter	MFR: MITSUMI, M/N: EH-73P Input: AC 100-240V~50/60Hz 0.14A-0.08A Output: DC 5V⎓1.5A

Antenna List

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	YAGEO	ANT3216LL11R2400A	Chip Antenna	-1.44dBi for 2.4 GHz

Note:

1. The antenna of EUT conforms to FCC 15.203.
2. Only the higher gain antenna was tested and recorded in this report

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		

802.11n-40MHz Center Frequency of Each Channel:

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
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		

Note:

1. The EUT is a Digital Camera with a built-in WLAN and Bluetooth transceiver, this report for WLAN.
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 7.2Mbps .
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 7.2Mbps 20M-BW)
	Mode 4: Charger 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	HG26TZ1	Non-Shielded, 0.8m
2	SD Card 2GB	Transcend	TS2GSDC	205380-8144	N/A
3	LED Monitor	ViewSonic	VX2257-mhd	UFY163502150	Non-Shielded, 1.8m

TX Mode

Signal Cable Type		Signal cable Description
A	USB Cable	Non-shielded, 0.8m, with one ferrite core bonded.
B	Signal Cable	Non-shielded, 1.0m

Charger Mode

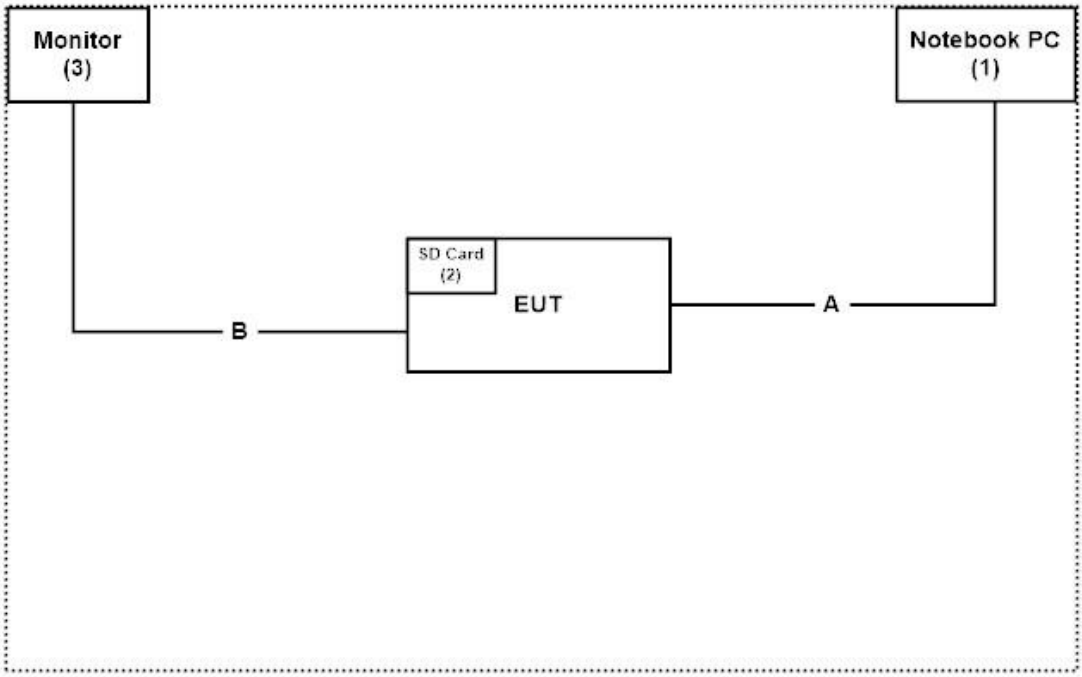
Product		Manufacturer	Model No.	Serial No.	Power Cord
1	LED Monitor	ViewSonic	VX2257-mhd	UFY163502150	Non-Shielded, 1.8m
2	SD Card 2GB	Transcend	TS2GSDC	205380-8144	N/A

Charger Mode

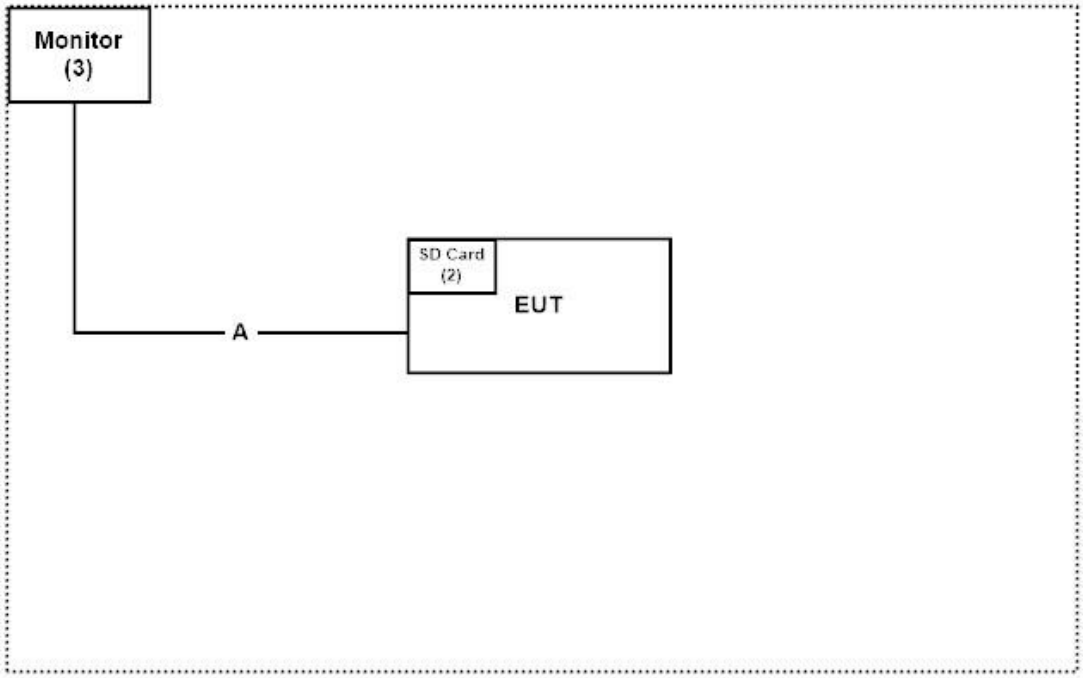
Signal Cable Type		Signal cable Description
A	HDMI Cable	Non-shielded, 1.0m

1.4. Configuration of Tested System

TX Mode



Charger Mode



1.5. EUT Exercise Software

1. Setup the EUT as shown in Section 1.4.
2. Execute software “Sample Project 01.05.20060915” on the EUT.
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
The address and introduction of DEKRA Testing and Certification Co., Ltd. laboratories can be founded in our Web site: http://www.dekra.com.tw/index_en.aspx

Site Description: Accredited by TAF
Accredited Number: 3023

Site Name: DEKRA Testing and Certification Co., Ltd
Site Address: No.5-22, Ruishukeng, Linkou Dist., New Taipei City 24451, Taiwan, R.O.C.
TEL : 886-2-8601-3788 / FAX : 886-2-8601-3789
E-Mail : info.tw@dekra.com

FCC Accreditation Number: TW3023

1.7. List of Test Equipment

For Conducted measurements /CB3/SR8

	Equipment	Manufacturer	Model No.	Serial No.	Cali. Date	Due. Date
	Temperature Chamber	WIT GROUP	TH-1S-B	EQ-201-00146	2018/2/12	2019/2/11
X	Spectrum Analyzer	Agilent	N9010A	MY48030495	2017/10/13	2018/10/12
X	Power Meter	Anritsu	ML2495A	6K00003357	2017/8/7	2018/8/6
X	Pulse power sensor	Anritsu	MA2411B	0846193	2017/8/7	2018/8/6
X	EMI Test Receiver	R&S	ESCS 30	100369	2017/11/7	2018/11/6
X	LISN	R&S	ESH3-Z5	836679/017	2018/2/9	2019/2/8
X	LISN	R&S	ENV216	100097	2018/2/9	2019/2/8
X	Coaxial Cable	DEKRA	RG 400	LC018-RG	2017/6/22	2018/6/21

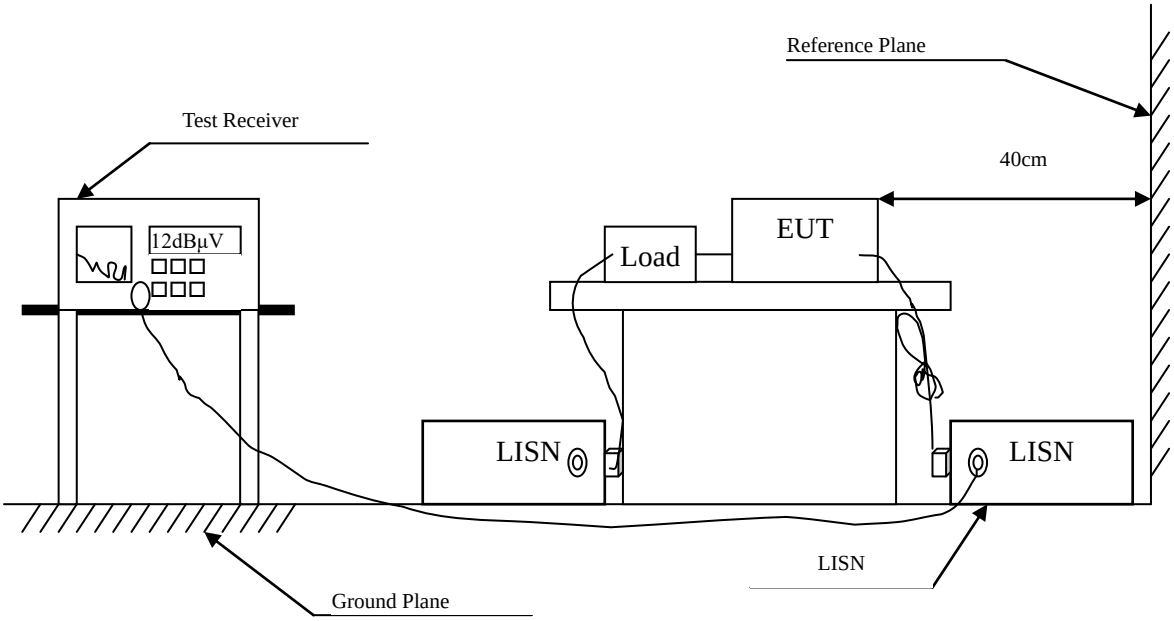
For Radiated measurements /Site3/CB8

	Equipment	Manufacturer	Model No.	Serial No.	Cali. Date	Due. Date
X	Spectrum Analyzer	R&S	FSP40	100170	2018/3/12	2019/3/11
X	Loop Antenna	Teseq	HLA6121	37133	2017/10/13	2018/10/12
X	Bilog Antenna	Schaffner Chase	CBL6112B	2707	2017/06/25	2018/06/24
X	Coaxial Cable	DEKRA	RG 214	LC003-RG	2017/06/15	2018/06/14
X	Pre-Amplifier	Jet-Power	JPA-10M1G33	170101000330	2017/07/19	2018/07/18
X	Coaxial Cable	QuieTek	SF-106	LC035/37/41-	2017/6/21	2018/6/20
X	Horn Antenna	ETS-Lindgren	3117	00135205	2017/04/28	2018/04/27
X	Pre-Amplifier	EMCI	EMC012630SE	980210	2017/02/24	2018/02/23
	Amplifier + Cable	EMCI	EMC184045SE	980370	2018/03/21	2019/03/20
	Horn Antenna	Com-Power	AH-840	101043	2018/01/09	2019/01/08
X	Filter	MicroTRON	BRM50701	019	2017/11/21	2018/11/20
	Filter	Microwave Circuits	N0257881	36681	2018/1/22	2019/1/21

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 invested 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 : 2018/04/10
Test Mode : Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBµV	dBµV	dB	dBµV
Line 1					
Quasi-Peak					
0.189	9.671	38.560	48.231	-16.655	64.886
0.584	9.697	31.120	40.817	-15.183	56.000
3.716	9.864	25.980	35.844	-20.156	56.000
9.502	9.986	23.680	33.666	-26.334	60.000
20.377	10.115	18.360	28.475	-31.525	60.000
27.029	10.126	19.680	29.806	-30.194	60.000
Average					
0.189	9.671	33.410	43.081	-11.805	54.886
0.584	9.697	11.130	20.827	-25.173	46.000
3.716	9.864	13.450	23.314	-22.686	46.000
9.502	9.986	18.040	28.026	-21.974	50.000
20.377	10.115	10.190	20.305	-29.695	50.000
27.029	10.126	14.250	24.376	-25.624	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 : 2018/04/10
Test Mode : Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBµV	dBµV	dB	dBµV
Line 2					
Quasi-Peak					
0.162	9.670	31.120	40.790	-24.867	65.657
0.427	9.677	22.820	32.497	-25.589	58.086
0.920	9.718	22.900	32.618	-23.382	56.000
3.529	9.850	27.840	37.690	-18.310	56.000
9.556	9.997	19.800	29.797	-30.203	60.000
27.025	10.336	19.800	30.136	-29.864	60.000
Average					
0.162	9.670	2.680	12.350	-43.307	55.657
0.427	9.677	11.420	21.097	-26.989	48.086
0.920	9.718	10.030	19.748	-26.252	46.000
3.529	9.850	14.250	24.100	-21.900	46.000
9.556	9.997	15.160	25.157	-24.843	50.000
27.025	10.336	16.850	27.186	-22.814	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 : 2018/04/10
Test Mode : Mode 4: Charger Mode

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBµV	dBµV	dB	dBµV
Line 1					
Quasi-Peak					
0.408	9.685	36.960	46.645	-11.984	58.629
0.509	9.692	38.600	48.292	-7.708	56.000
1.134	9.742	34.920	44.662	-11.338	56.000
1.400	9.759	37.000	46.759	-9.241	56.000
2.541	9.828	37.860	47.688	-8.312	56.000
8.494	9.967	36.060	46.027	-13.973	60.000
Average					
0.408	9.685	28.360	38.045	-10.584	48.629
0.509	9.692	25.340	35.032	-10.968	46.000
1.134	9.742	21.840	31.582	-14.418	46.000
1.400	9.759	33.280	43.039	-2.961	46.000
2.541	9.828	23.970	33.798	-12.202	46.000
8.494	9.967	34.110	44.077	-5.923	50.000

Note:

4. All Reading Levels are Quasi-Peak and average value.
5. “ “ means the worst emission level.
6. Measurement Level = Reading Level + Correct Factor

Product : Digital Camera
Test Item : Conducted Emission Test
Power Line : Line 2
Test Date : 2018/04/10
Test Mode : Mode 4: Charger Mode

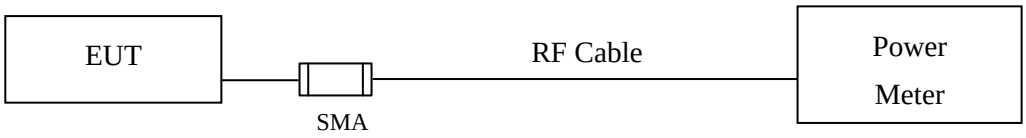
Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBµV	dBµV	dB	dBµV
Line 2					
Quasi-Peak					
0.298	9.671	25.380	35.052	-26.719	61.771
0.498	9.681	36.320	46.001	-10.056	56.057
0.685	9.693	32.300	41.993	-14.007	56.000
1.744	9.780	34.640	44.420	-11.580	56.000
2.572	9.818	40.400	50.218	-5.782	56.000
8.490	9.977	40.000	49.977	-10.023	60.000
Average					
0.298	9.671	18.170	27.842	-23.929	51.771
0.498	9.681	31.280	40.961	-5.096	46.057
0.685	9.693	23.740	33.433	-12.567	46.000
1.744	9.780	22.660	32.440	-13.560	46.000
2.572	9.818	32.580	42.398	-3.602	46.000
8.490	9.977	33.410	43.387	-6.613	50.000

Note:

4. All Reading Levels are Quasi-Peak and average value.
5. “ “ means the worst emission level.
6. 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 : 2018/03/30
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	10.41	--	--	--	12.65	<30dBm	Pass
06	2437	10.65	10.53	10.46	10.33	12.82	<30dBm	Pass
11	2462	10.96	--	--	--	13.13	<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 : 2018/03/30
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	10.78	--	--	--	--	--	--	--	19.25	<30dBm	Pass
06	2437	11.32	11.24	11.11	11.05	10.93	10.84	10.72	10.63	19.68	<30dBm	Pass
11	2462	11.4	--	--	--	--	--	--	--	19.85	<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 : 2018/03/30
Test Mode : Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW)

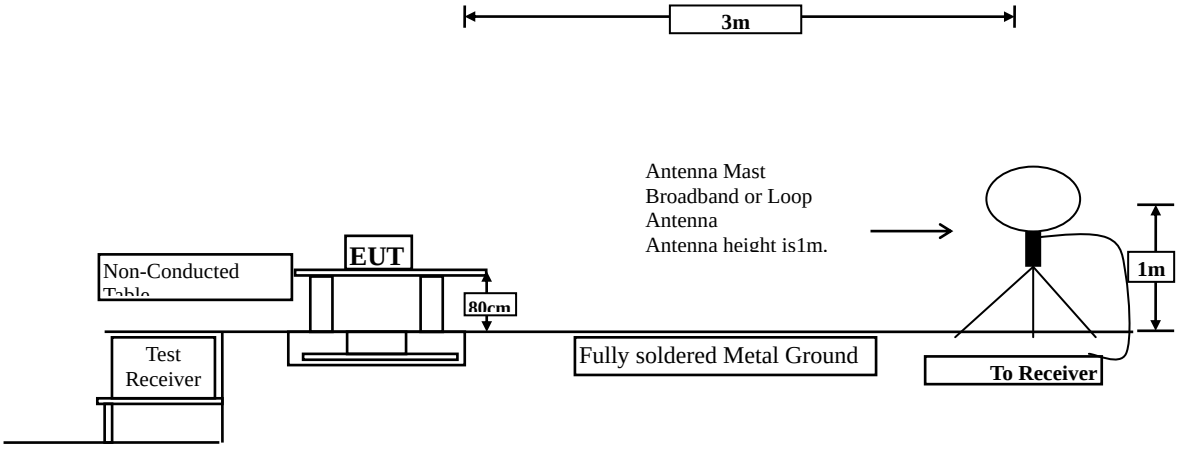
Channel No	Frequency (MHz)	Average Power For different Data Rate (Mbps)								Peak Power	Required Limit	Result
		7.2	14.4	21.7	28.9	43.3	57.8	65	72.2	7.2		
		Measurement Level (dBm)										
01	2412	10.7	--	--	--	--	--	--	--	19.3	<30dBm	Pass
06	2437	10.98	10.84	10.72	10.63	10.52	10.44	10.36	10.21	19.54	<30dBm	Pass
11	2462	11.21	--	--	--	--	--	--	--	19.83	<30dBm	Pass

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

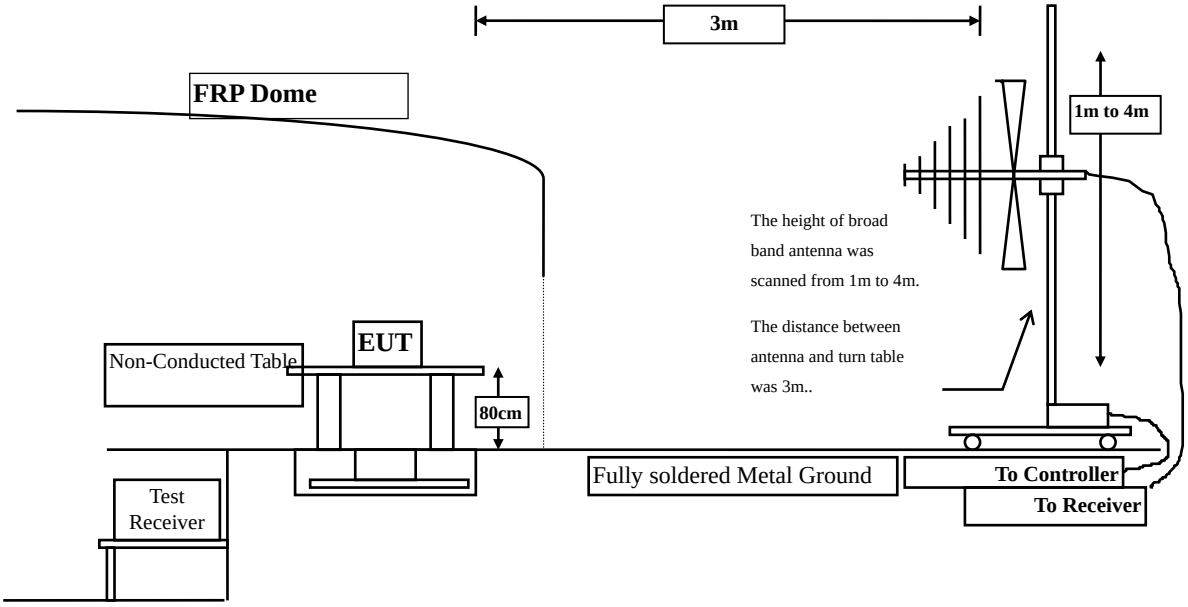
4. Radiated Emission

4.1. Test Setup

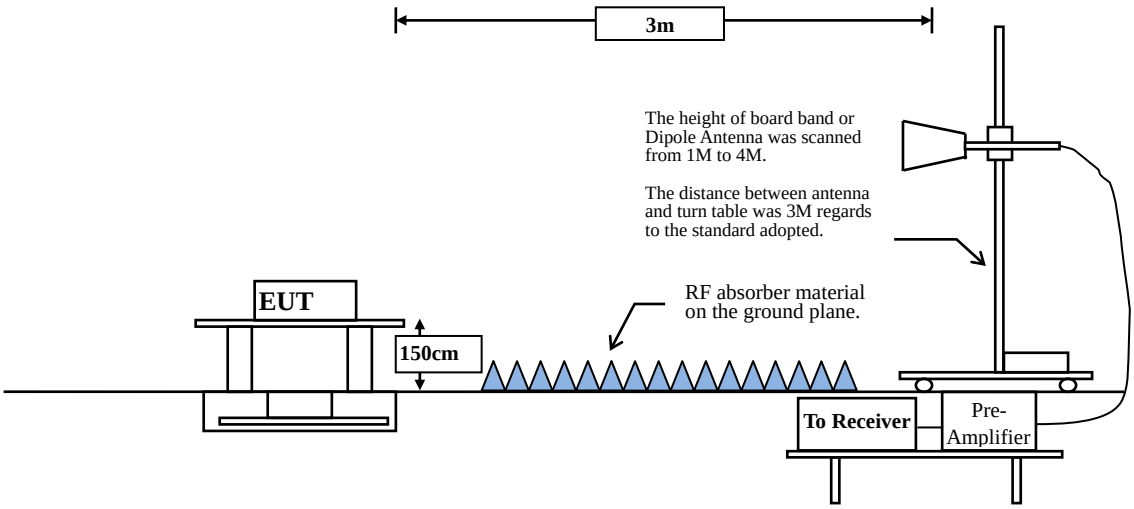
Radiated Emission Under 30MHz



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 (dBμV/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 form 9kHz - 10th Harmonic of fundamental was investigated.

RBW and VBW Parameter setting:

According to KDB 558074 section 12.2.4. Peak power measurement procedure

RBW = as specified in Table 1.

VBW ≥ 3 x RBW.

Table 1 —RBW as a function of frequency

Frequency	RBW
9-150 kHz	200-300 Hz
0.15-30 MHz	9-10 kHz
30-1000 MHz	100-120 kHz
> 1000 MHz	1 MHz

According to KDB 558074 section 12.2.5. Average power measurement procedure

RBW = 1MHz.

VBW = 10Hz, when duty cycle ≥ 98 %

VBW ≥ 1/T, when duty cycle < 98 %

(T refers to the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.)

2.4GHz band	Duty Cycle (%)	T (ms)	1/T (Hz)	VBW (Hz)
802.11b	98.82	--	--	10
802.11g	93.29	1.3900	719	1k
802.11n20	92.91	1.3100	763	1k

Note: Duty Cycle Refer to Section 9

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 : 2018/04/11
Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2412MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
4824.000	-9.979	52.000	42.021	-31.979	74.000
7236.000	-4.641	49.090	44.450	-29.550	74.000
9648.000	-1.835	44.280	42.444	-31.556	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4824.000	-6.819	59.380	52.562	-21.438	74.000
7236.000	-3.796	48.570	44.774	-29.226	74.000
9648.000	-1.365	44.160	42.795	-31.205	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. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. 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	:	2018/04/11
Test Mode	:	Mode 1: Transmit (802.11b 1Mbps) (2437 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
4874.000	-10.271	56.050	45.778	-28.222	74.000
7311.000	-3.853	50.470	46.616	-27.384	74.000
9748.000	-2.526	44.030	41.504	-32.496	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4874.000	-7.497	58.590	51.092	-22.908	74.000
7311.000	-3.018	47.480	44.461	-29.539	74.000
9748.000	-2.035	46.030	43.995	-30.005	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. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. 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 : 2018/04/11
Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2462 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
4924.000	-10.519	56.070	45.550	-28.450	74.000
7386.000	-3.876	48.120	44.244	-29.756	74.000
9848.000	-2.581	45.410	42.829	-31.171	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4924.000	-7.856	56.580	48.723	-25.277	74.000
7386.000	-2.749	47.540	44.791	-29.209	74.000
9848.000	-2.066	45.350	43.284	-30.716	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. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. 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 : 2018/04/11
Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2412MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
4824.000	-9.979	47.480	37.501	-36.499	74.000
7236.000	-4.641	48.680	44.040	-29.960	74.000
9648.000	-1.835	44.860	43.024	-30.976	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4824.000	-6.819	47.500	40.682	-33.318	74.000
7236.000	-3.796	48.090	44.294	-29.706	74.000
9648.000	-1.365	44.410	43.045	-30.955	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. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. 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	:	2018/04/11
Test Mode	:	Mode 2: Transmit (802.11g 6Mbps) (2437 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
4874.000	-10.271	47.570	37.298	-36.702	74.000
7311.000	-3.853	49.690	45.836	-28.164	74.000
9748.000	-2.526	43.980	41.454	-32.546	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4874.000	-7.497	47.810	40.312	-33.688	74.000
7311.000	-3.018	47.780	44.761	-29.239	74.000
9748.000	-2.035	44.310	42.275	-31.725	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. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. 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 : 2018/04/11
Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2462 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
4924.000	-10.519	46.930	36.410	-37.590	74.000
7386.000	-3.876	48.130	44.254	-29.746	74.000
9848.000	-2.581	46.260	43.679	-30.321	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4924.000	-7.856	46.850	38.993	-35.007	74.000
7386.000	-2.749	46.910	44.161	-29.839	74.000
9848.000	-2.066	45.460	43.394	-30.606	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. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. 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 : 2018/04/11
Test Mode : Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW)(2412MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
4824.000	-9.979	49.250	39.271	-34.729	74.000
7236.000	-4.641	49.230	44.590	-29.410	74.000
9648.000	-1.835	44.210	42.374	-31.626	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4824.000	-6.819	47.020	40.202	-33.798	74.000
7236.000	-3.796	48.200	44.404	-29.596	74.000
9648.000	-1.365	44.690	43.325	-30.675	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. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. 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	:	2018/04/11
Test Mode	:	Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW) (2437 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
4874.000	-10.271	49.180	38.908	-35.092	74.000
7311.000	-3.853	48.530	44.676	-29.324	74.000
9748.000	-2.526	44.550	42.024	-31.976	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4874.000	-7.497	46.670	39.172	-34.828	74.000
7311.000	-3.018	47.550	44.531	-29.469	74.000
9748.000	-2.035	44.440	42.405	-31.595	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. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. 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 : 2018/04/11
Test Mode : Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW) (2462 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
4924.000	-10.519	48.960	38.440	-35.560	74.000
7386.000	-3.876	47.910	44.034	-29.966	74.000
9848.000	-2.581	45.710	43.129	-30.871	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4924.000	-7.856	46.990	39.133	-34.867	74.000
7386.000	-2.749	47.170	44.421	-29.579	74.000
9848.000	-2.066	45.730	43.664	-30.336	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. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. 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 : 2018/04/18
Test Mode : Mode 1: Transmit (802.11b 1Mbps)(2437 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
121.715	-9.600	38.834	29.234	-14.266	43.500
244.519	-5.953	32.844	26.890	-19.110	46.000
404.631	1.541	33.730	35.271	-10.729	46.000
575.625	5.905	26.476	32.381	-13.619	46.000
793.253	7.677	27.014	34.690	-11.310	46.000
864.760	7.748	26.664	34.412	-11.588	46.000
Vertical					
93.734	-5.009	29.523	24.514	-18.986	43.500
216.538	-0.115	28.037	27.922	-18.078	46.000
504.119	1.218	29.186	30.403	-15.597	46.000
575.625	3.065	26.634	29.699	-16.301	46.000
793.253	5.805	24.063	29.868	-16.132	46.000
936.266	9.030	24.464	33.494	-12.506	46.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
4. The emission levels of other frequencies are very lower than the limit and not show in test report.
5. No emission found between lowest internal used/generated frequency to 30MHz.

Product : Digital Camera
Test Item : General Radiated Emission Data
Test Site : No.3 OATS
Test Date : 2018/04/18
Test Mode : Mode 2: Transmit (802.11g 6Mbps)(2437 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
120.160	-9.426	36.156	26.730	-16.770	43.500
242.965	-6.076	32.173	26.097	-19.903	46.000
432.612	1.773	33.942	35.715	-10.285	46.000
575.625	5.905	26.046	31.951	-14.049	46.000
793.253	7.677	26.905	34.581	-11.419	46.000
864.760	7.748	26.536	34.284	-11.716	46.000
Vertical					
93.734	-5.009	29.359	24.350	-19.150	43.500
214.984	-0.085	27.093	27.008	-16.492	43.500
504.119	1.218	30.011	31.228	-14.772	46.000
575.625	3.065	26.083	29.148	-16.852	46.000
793.253	5.805	23.523	29.328	-16.672	46.000
936.266	9.030	23.699	32.729	-13.271	46.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
4. The emission levels of other frequencies are very lower than the limit and not show in test report.
5. No emission found between lowest internal used/generated frequency to 30MHz.

Product : Digital Camera
Test Item : General Radiated Emission Data
Test Site : No.3 OATS
Test Date : 2018/04/18
Test Mode : Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW)(2437 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
121.715	-9.600	37.282	27.682	-15.818	43.500
244.519	-5.953	32.935	26.981	-19.019	46.000
404.631	1.541	31.225	32.766	-13.234	46.000
575.625	5.905	26.291	32.196	-13.804	46.000
793.253	7.677	27.185	34.861	-11.139	46.000
864.760	7.748	26.352	34.100	-11.900	46.000
Vertical					
45.545	-7.901	39.319	31.418	-8.582	40.000
216.538	-0.115	26.968	26.853	-19.147	46.000
504.119	1.218	29.910	31.127	-14.873	46.000
575.625	3.065	27.256	30.321	-15.679	46.000
793.253	5.805	24.853	30.658	-15.342	46.000
936.266	9.030	23.385	32.415	-13.585	46.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
4. The emission levels of other frequencies are very lower than the limit and not show in test report.
5. No emission found between lowest internal used/generated frequency to 30MHz.

Product : Digital Camera
Test Item : General Radiated Emission Data
Test Site : No.3 OATS
Test Date : 2018/04/18
Test Mode : Mode 4: Charger Mode

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
33.109	4.338	25.146	29.484	-10.516	40.000
98.397	-3.649	23.351	19.703	-23.797	43.500
213.429	-8.357	36.742	28.385	-15.115	43.500
404.631	1.541	23.446	24.987	-21.013	46.000
602.051	7.017	21.653	28.671	-17.329	46.000
793.253	7.677	21.534	29.210	-16.790	46.000
Vertical					
50.208	-11.550	40.625	29.075	-10.925	40.000
110.833	-5.380	30.370	24.990	-18.510	43.500
210.321	-0.027	28.713	28.686	-14.814	43.500
465.256	0.984	22.738	23.722	-22.278	46.000
603.606	3.698	22.578	26.276	-19.724	46.000
970.465	9.199	21.462	30.660	-23.340	54.000

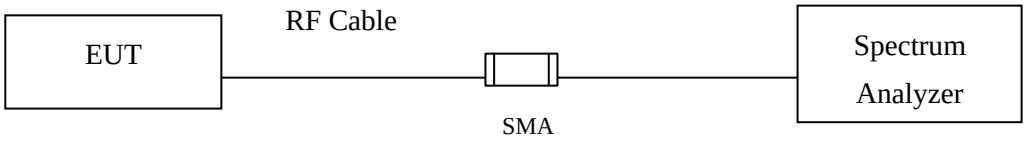
Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
4. The emission levels of other frequencies are very lower than the limit and not show in test report.
5. No emission found between lowest internal used/generated frequency to 30MHz.

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.

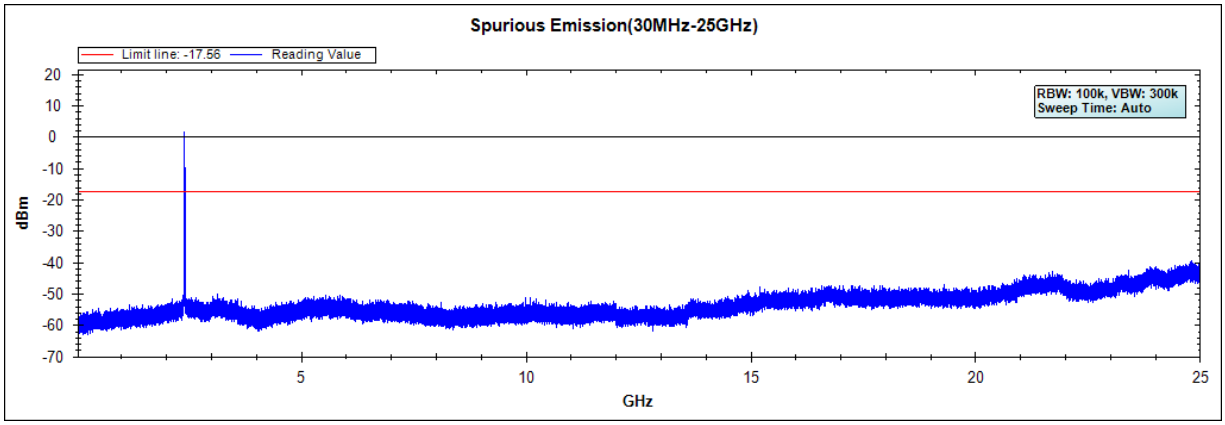
5.4. Uncertainty

The measurement uncertainty
Conducted is defined as ± 1.20dB

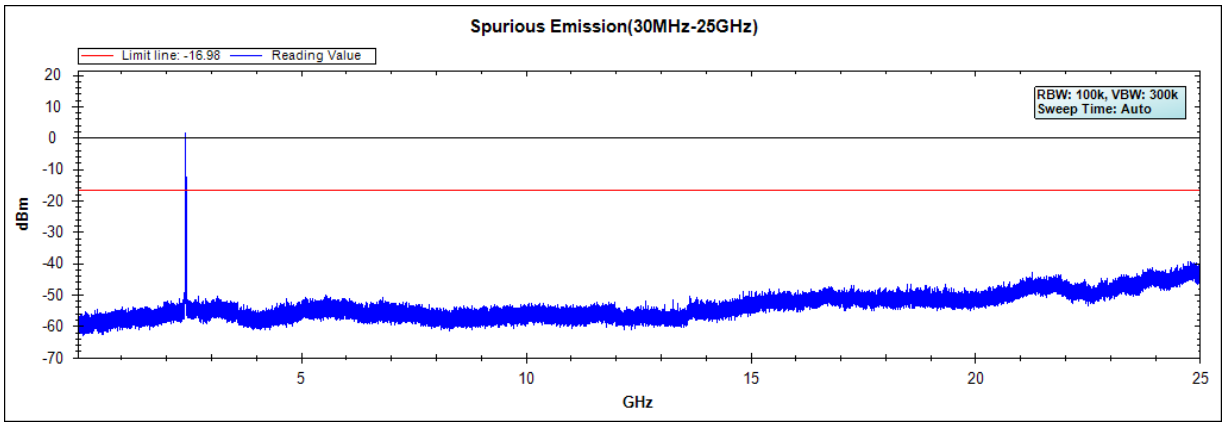
5.5. Test Result of RF antenna conducted test

Product	:	Digital Camera
Test Item	:	RF antenna conducted test
Test Site	:	No.3 OATS
Test Date	:	2018/03/30
Test Mode	:	Mode 1: Transmit (802.11b 1Mbps)

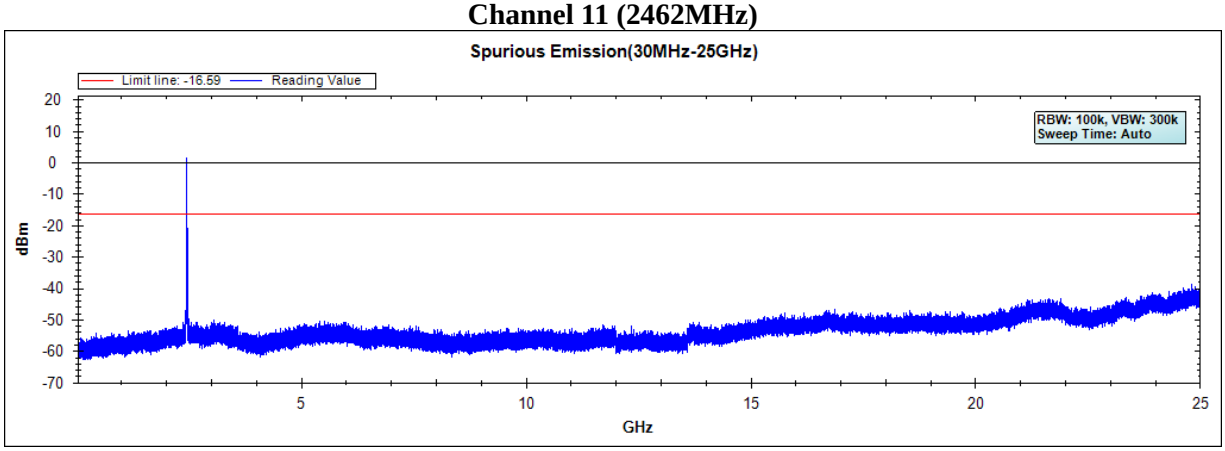
Channel 01 (2412MHz)



Channel 06 (2437MHz)



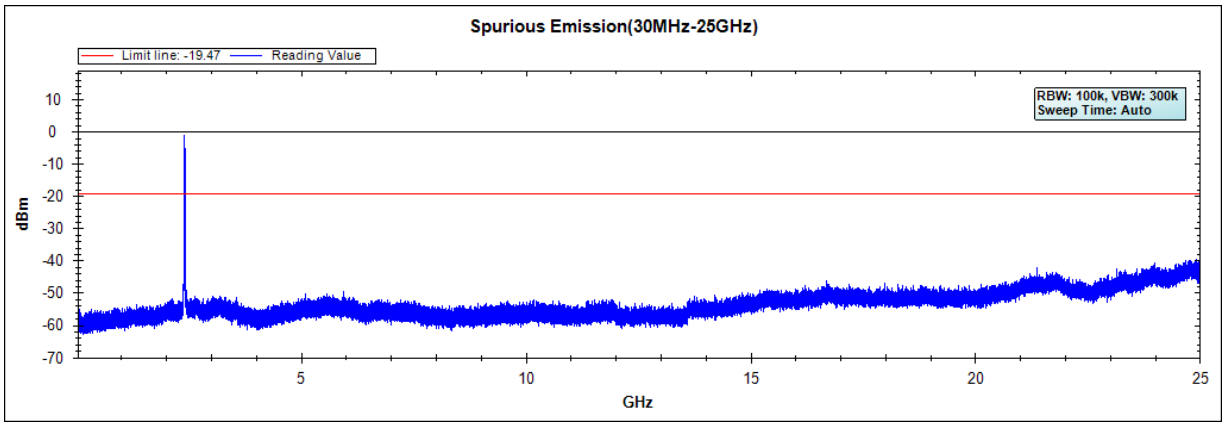
Channel 11 (2462MHz)



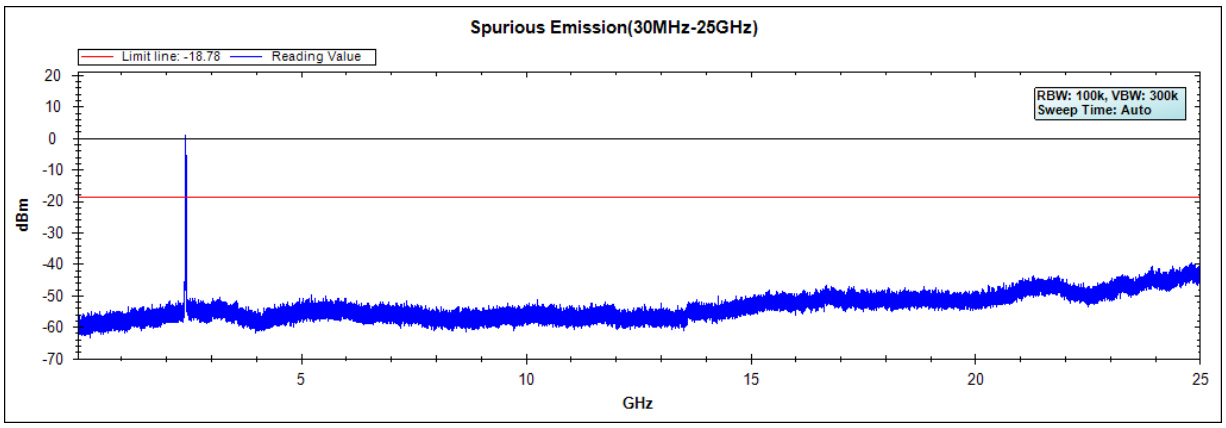
Note: The above test pattern is synthesized by multiple of the frequency range.

Product	:	Digital Camera
Test Item	:	RF Antenna Conducted Spurious
Test Site	:	No.3 OATS
Test Date	:	2018/03/30
Test Mode	:	Mode 2: Transmit (802.11g 6Mbps)

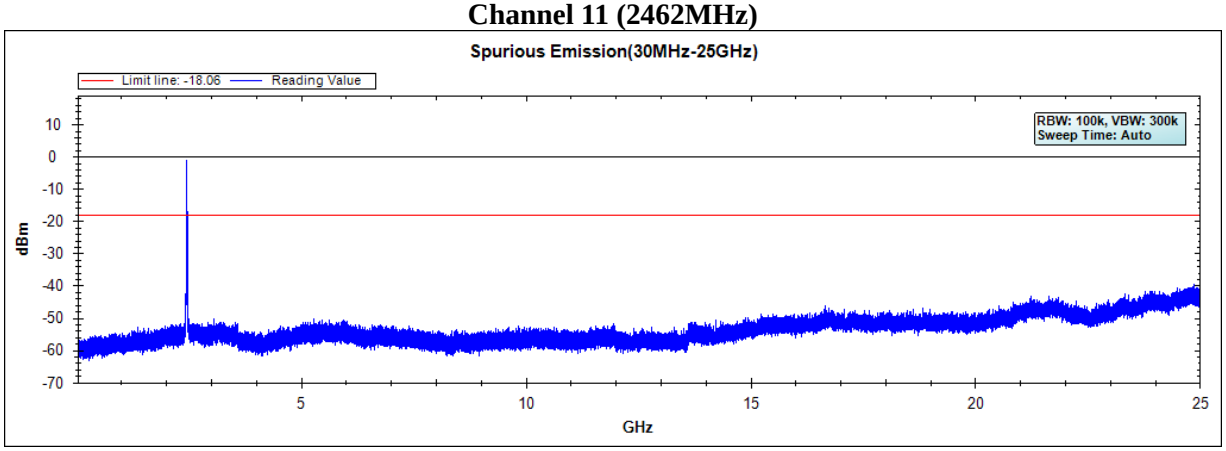
Channel 01 (2412MHz)



Channel 06 (2437MHz)



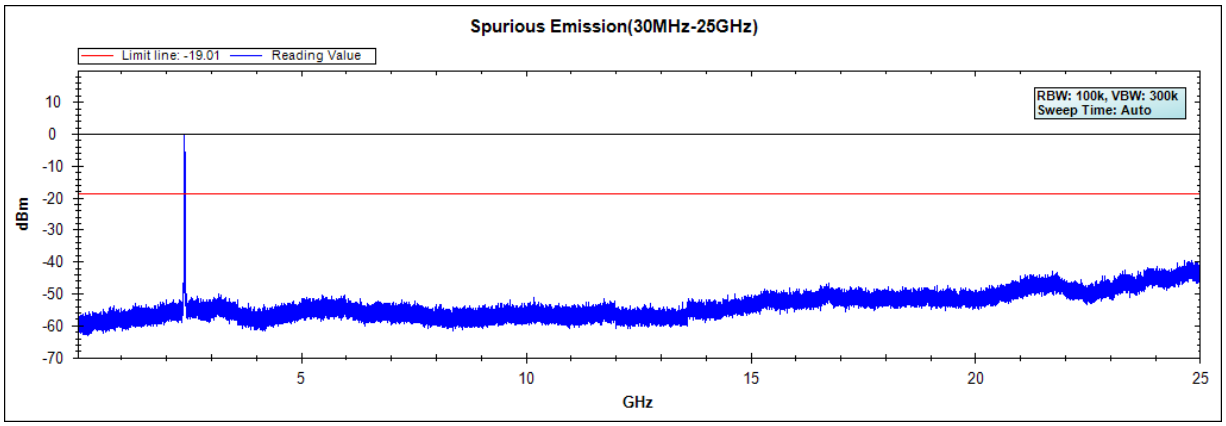
Channel 11 (2462MHz)



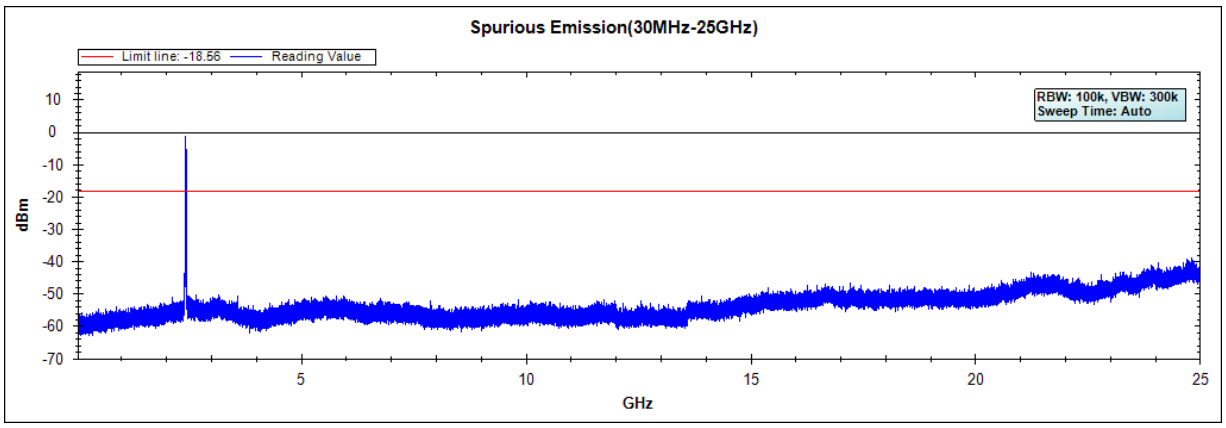
Note: The above test pattern is synthesized by multiple of the frequency range.

Product	:	Digital Camera
Test Item	:	RF Antenna Conducted Spurious
Test Site	:	No.3 OATS
Test Date	:	2018/03/30
Test Mode	:	Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW)

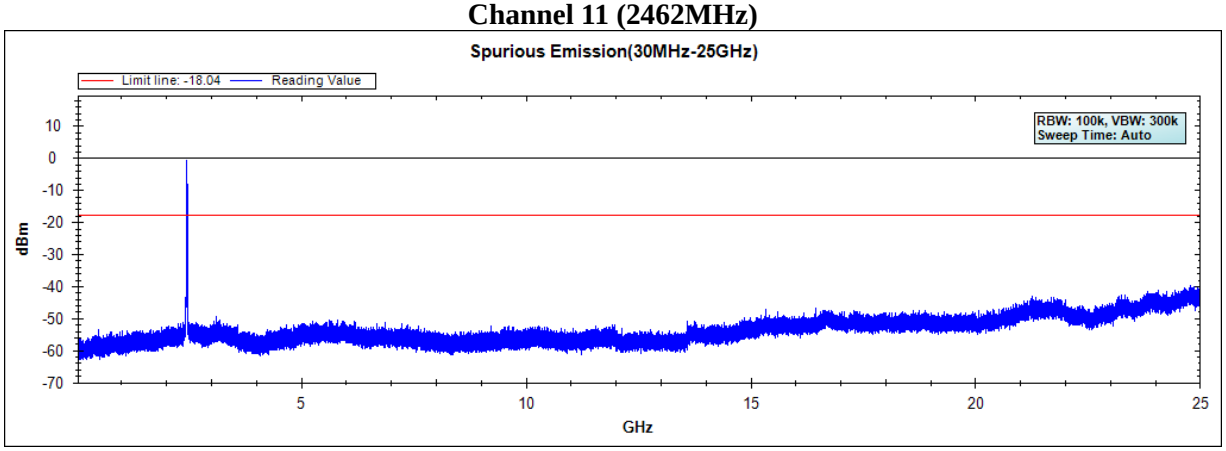
Channel 01 (2412MHz)



Channel 06 (2437MHz)



Channel 11 (2462MHz)

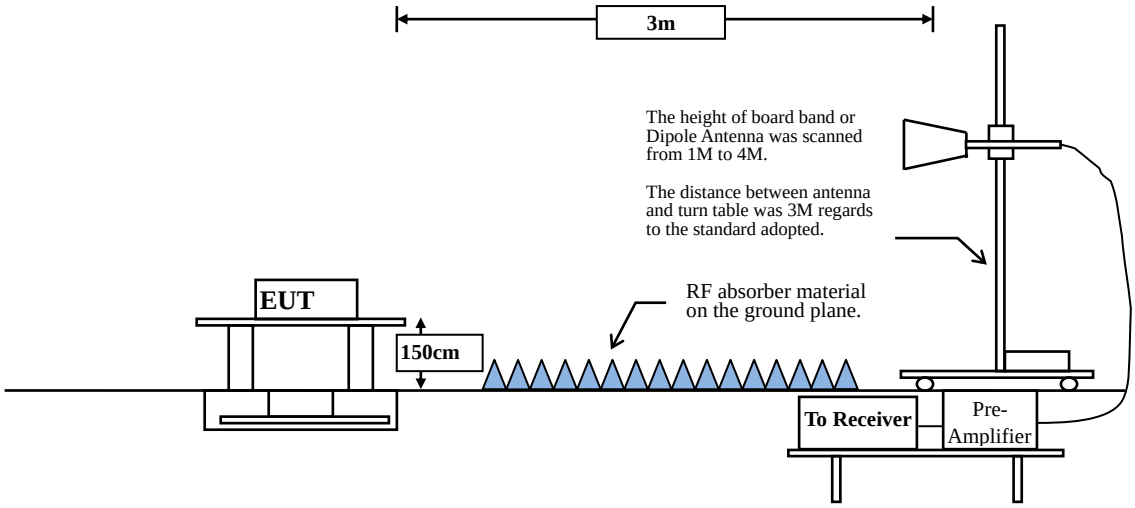


Note: The above test pattern is synthesized by multiple of the frequency range.

6. Band Edge

6.1. Test Setup

RF Radiated Measurement:



6.2. 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.

6.3. 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.

RBW and VBW Parameter setting:

According to KDB 558074 section 12.2.4. Peak power measurement procedure

RBW = as specified in Table 1.

VBW ≥ 3 x RBW.

Table 1 —RBW as a function of frequency

Frequency	RBW
9-150 kHz	200-300 Hz
0.15-30 MHz	9-10 kHz
30-1000 MHz	100-120 kHz
> 1000 MHz	1 MHz

According to KDB 558074 section 12.2.5. Average power measurement procedure

RBW = 1MHz.

VBW = 10Hz, when duty cycle ≥ 98 %

VBW ≥ 1/T, when duty cycle < 98 %

(T refers to the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.)

2.4GHz band	Duty Cycle (%)	T (ms)	1/T (Hz)	VBW (Hz)
802.11b	98.82	--	--	10
802.11g	93.29	1.3900	719	1k
802.11n20	92.91	1.3100	763	1k

Note: Duty Cycle Refer to Section 9

6.4. Uncertainty

± 4.08 dB above 1GHz

± 4.22 dB below 1GHz

6.5. Test Result of Band Edge

Product	:	Digital Camera
Test Item	:	Band Edge Data
Test Site	:	No.3 OATS
Test Date	:	2018/03/29
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)	2388.700	-2.692	50.734	48.041	74.00	54.00	Pass
01 (Peak)	2390.000	-2.687	48.867	46.180	74.00	54.00	Pass
01 (Peak)	2397.600	-2.664	57.084	54.420	74.00	54.00	Pass
01 (Peak)	2400.000	-2.660	56.998	54.338	74.00	54.00	Pass
01 (Peak)	2411.000	-2.644	98.314	95.670	--	--	--
01 (Average)	2386.200	-2.704	38.031	35.327	74.00	54.00	Pass
01 (Average)	2390.000	-2.687	37.063	34.376	74.00	54.00	Pass
01 (Average)	2398.000	-2.663	50.518	47.855	74.00	54.00	Pass
01 (Average)	2400.000	-2.660	50.090	47.430	74.00	54.00	Pass
01 (Average)	2411.300	-2.643	95.301	92.658	--	--	--

Figure Channel 01: Horizontal (Peak)

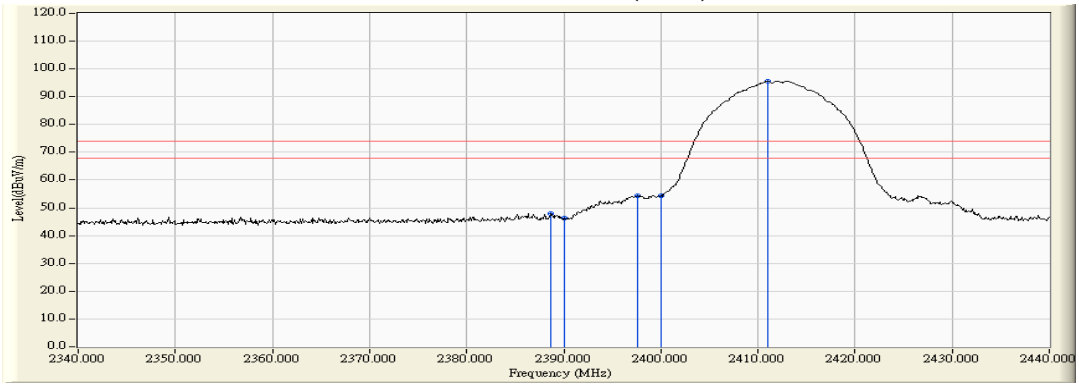
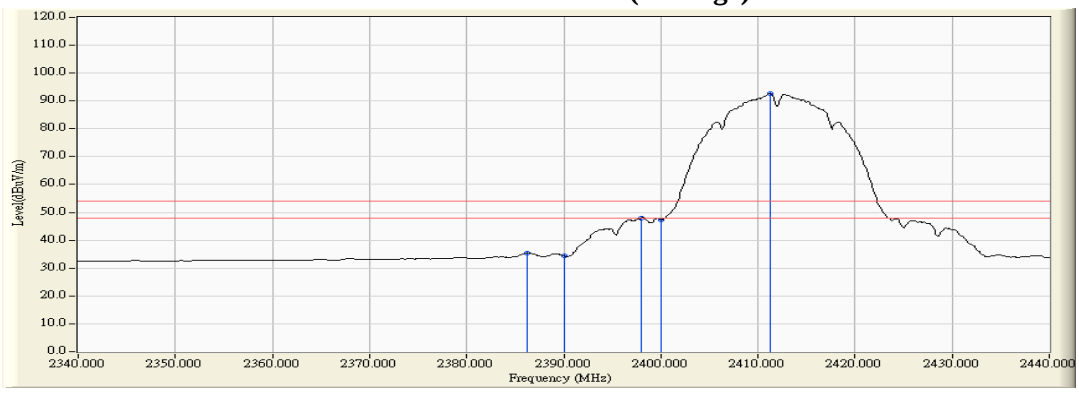


Figure Channel 01: Horizontal (Average)



Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. 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 : 2018/03/29
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)	2385.500	-4.143	50.179	46.035	74.00	54.00	Pass
01 (Peak)	2390.000	-4.159	48.951	44.792	74.00	54.00	Pass
01 (Peak)	2397.700	-4.171	57.925	53.754	74.00	54.00	Pass
01 (Peak)	2400.000	-4.171	57.703	53.532	74.00	54.00	Pass
01 (Peak)	2413.000	-4.163	99.888	95.724	--	--	--
01 (Average)	2389.000	-4.156	38.369	34.214	74.00	54.00	Pass
01 (Average)	2390.000	-4.159	37.255	33.096	74.00	54.00	Pass
01 (Average)	2399.600	-4.171	51.864	47.693	74.00	54.00	Pass
01 (Average)	2400.000	-4.171	51.243	47.072	74.00	54.00	Pass
01 (Average)	2411.300	-4.167	96.726	92.558	--	--	--

Figure Channel 01: VERTICAL (Peak)

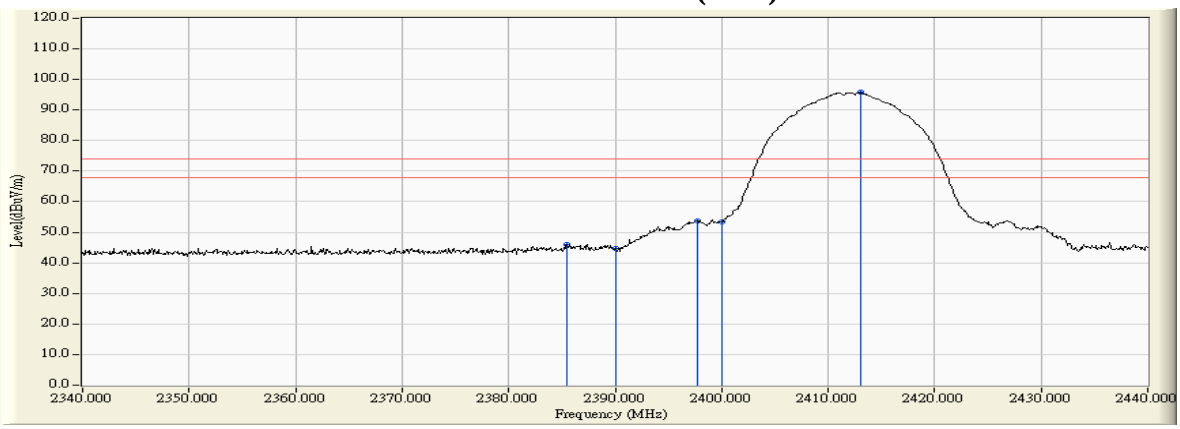
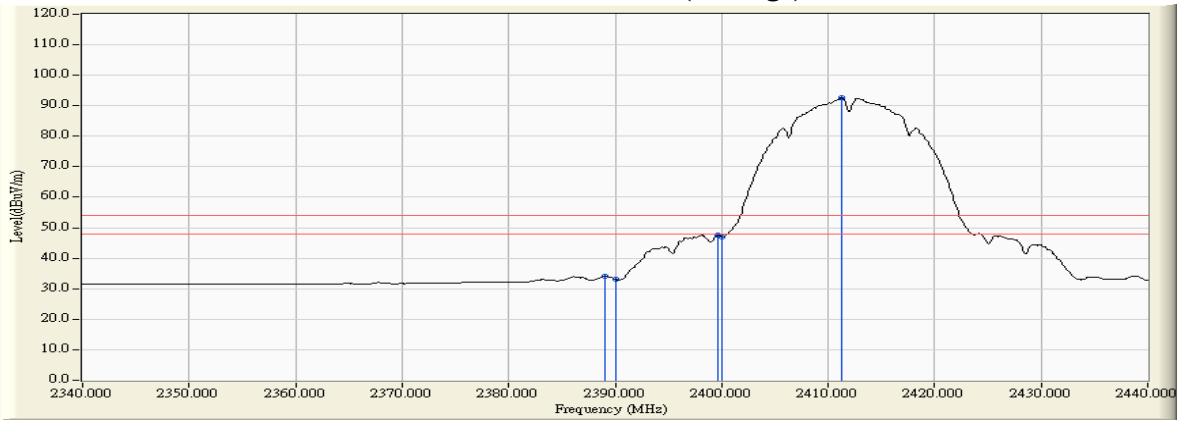


Figure Channel 01: VERTICAL (Average)



Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. 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 : 2018/03/29
Test Mode : Mode 1: Transmit (802.11b 1Mbps) (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)	2461.000	-2.623	98.049	95.426	--	--	--
11 (Peak)	2483.500	-2.601	47.917	45.315	74.00	54.00	Pass
11 (Peak)	2486.000	-2.600	50.656	48.056	74.00	54.00	Pass
11 (Average)	2461.200	-2.623	95.117	92.494	--	--	--
11 (Average)	2483.500	-2.601	36.979	34.377	74.00	54.00	Pass
11 (Average)	2485.300	-2.600	38.139	35.539	74.00	54.00	Pass

Figure Channel 11: Horizontal (Peak)

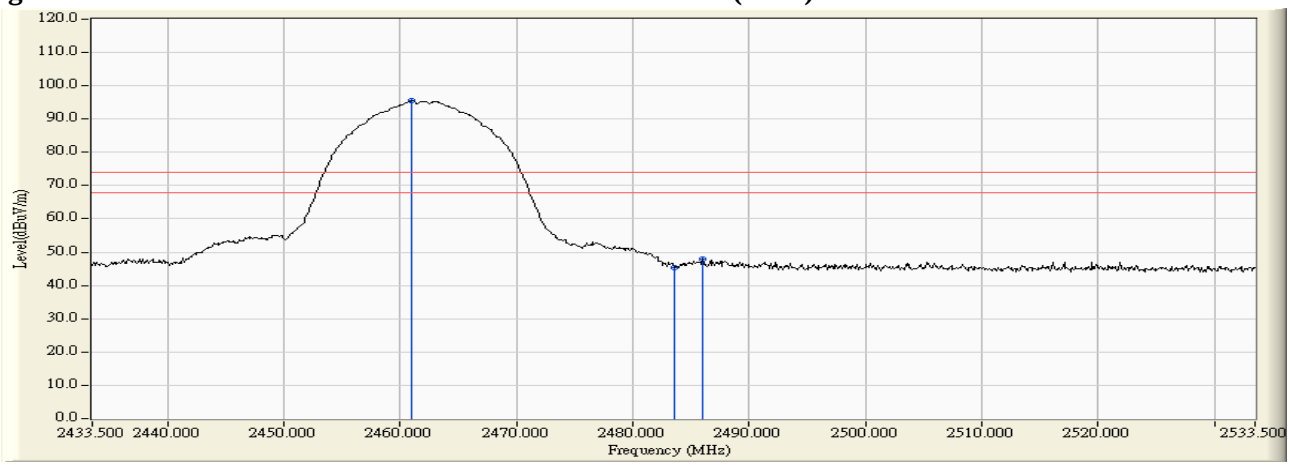
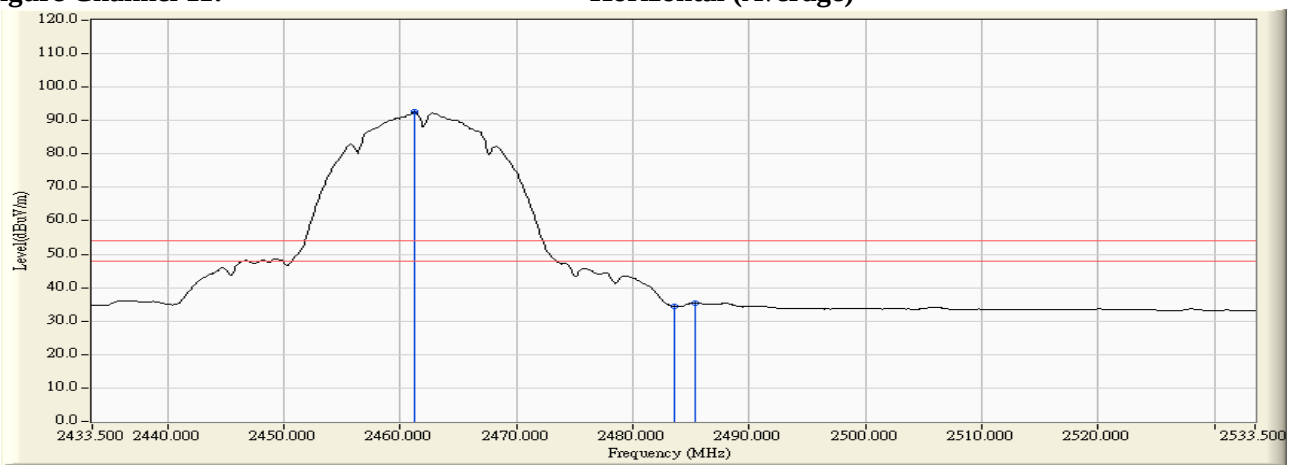


Figure Channel 11: Horizontal (Average)



Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. 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 : 2018/03/29
Test Mode : Mode 1: Transmit (802.11b 1Mbps) (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)	2461.000	-4.037	98.282	94.244	--	--	--
11 (Peak)	2483.500	-3.966	48.894	44.927	74.00	54.00	Pass
11 (Peak)	2488.000	-3.952	50.916	46.963	74.00	54.00	Pass
11 (Average)	2461.200	-4.036	95.341	91.304	--	--	--
11 (Average)	2483.500	-3.966	37.172	33.205	74.00	54.00	Pass
11 (Average)	2485.600	-3.961	38.217	34.257	74.00	54.00	Pass

Figure Channel 11: VERTICAL (Peak)

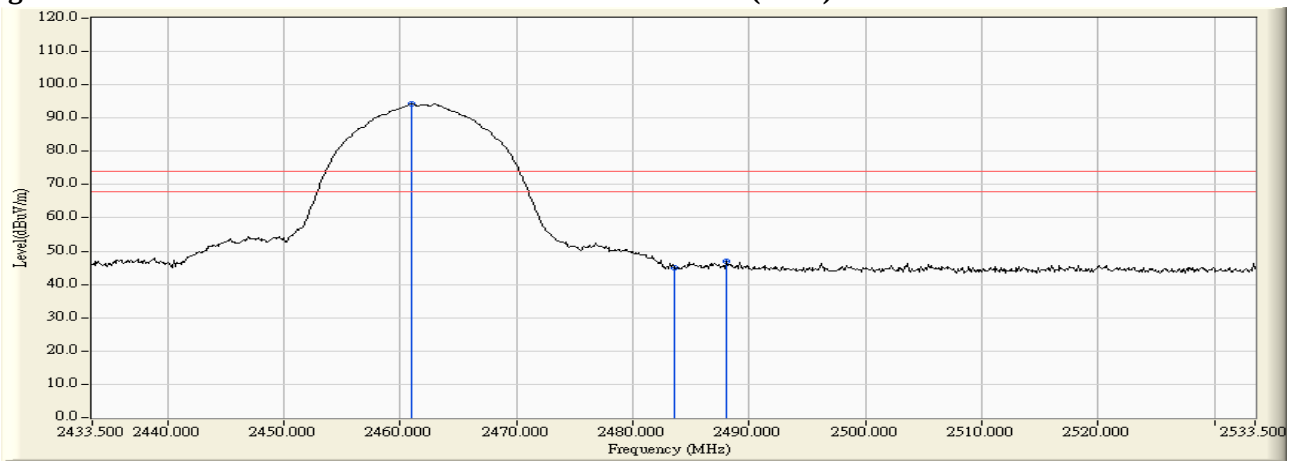
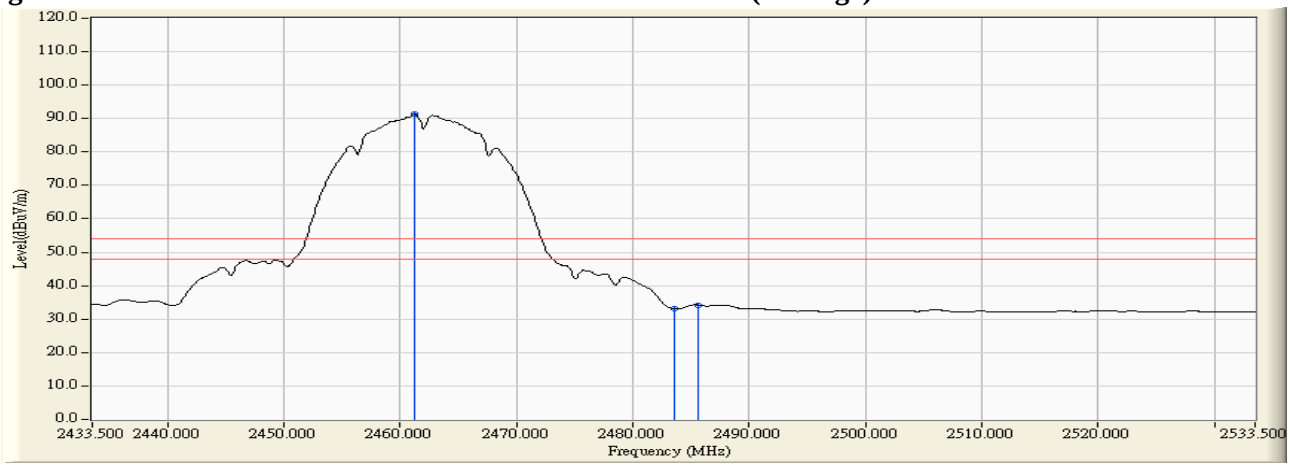


Figure Channel 11: VERTICAL (Average)



Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. 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 : 2018/03/29
Test Mode : Mode 2: Transmit (802.11g 6Mbps) (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)	2388.500	-2.694	64.817	62.124	74.00	54.00	Pass
01 (Peak)	2390.000	-2.687	62.385	59.698	74.00	54.00	Pass
01 (Peak)	2400.000	-2.660	77.358	74.698	--	--	--
01 (Peak)	2411.900	-2.644	103.207	100.564	--	--	--
01 (Average)	2390.000	-2.687	43.068	40.381	74.00	54.00	Pass
01 (Average)	2400.000	-2.660	55.954	53.294	74.00	54.00	Pass
01 (Average)	2412.900	-2.642	92.643	90.000	--	--	--

Figure Channel 01: Horizontal (Peak)

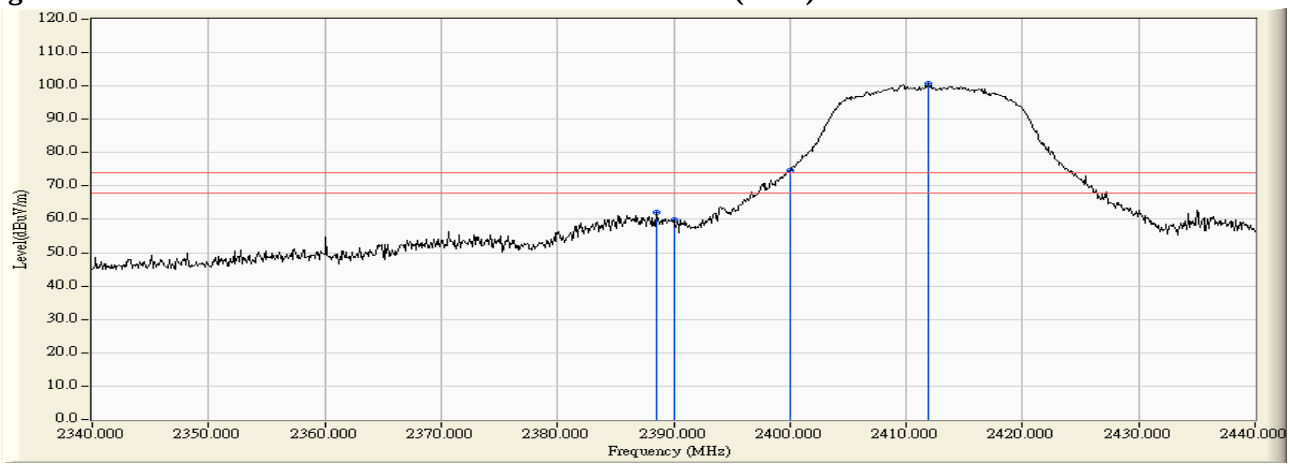
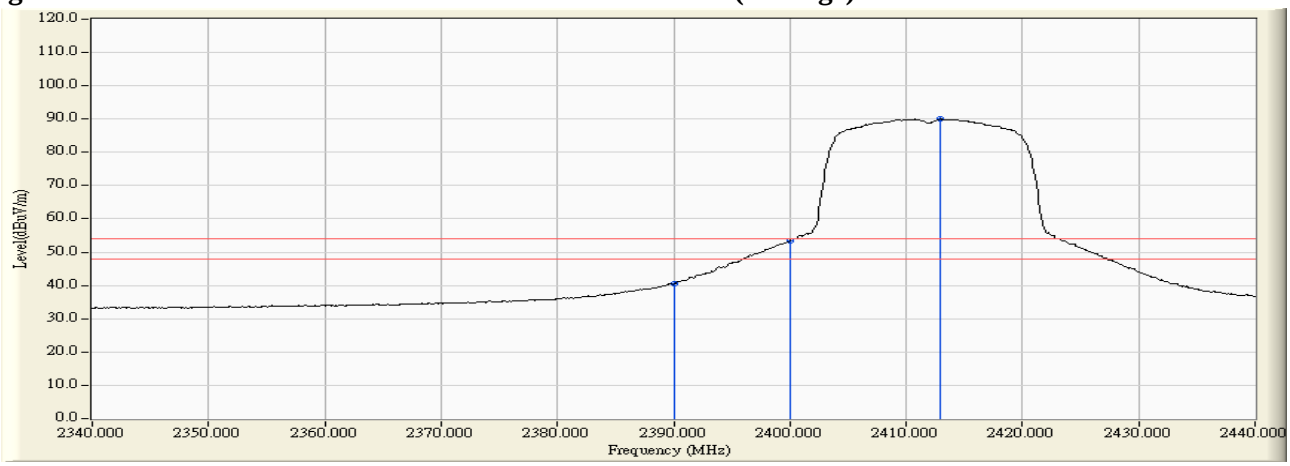


Figure Channel 01: Horizontal (Average)



Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. 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 : 2018/03/29
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)	2386.300	-4.147	65.802	61.656	74.00	54.00	Pass
01 (Peak)	2390.000	-4.159	62.056	57.897	74.00	54.00	Pass
01 (Peak)	2400.000	-4.171	78.894	74.723	--	--	--
01 (Peak)	2411.800	-4.167	105.055	100.888	--	--	--
01 (Average)	2390.000	-4.159	43.912	39.753	74.00	54.00	Pass
01 (Average)	2400.000	-4.171	57.369	53.198	74.00	54.00	Pass
01 (Average)	2413.100	-4.163	94.147	89.983	--	--	--

Figure Channel 01: VERTICAL (Peak)

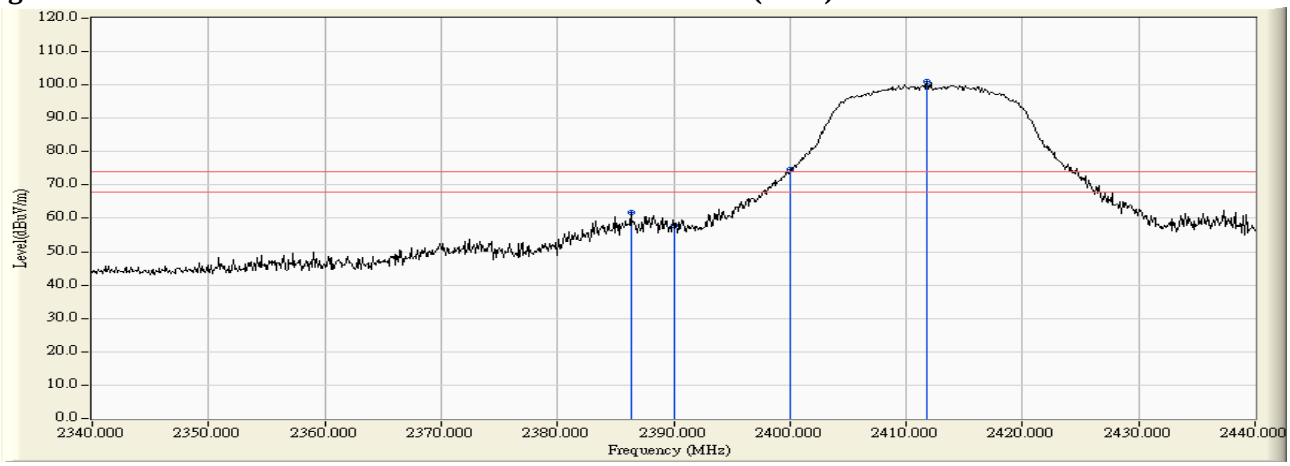
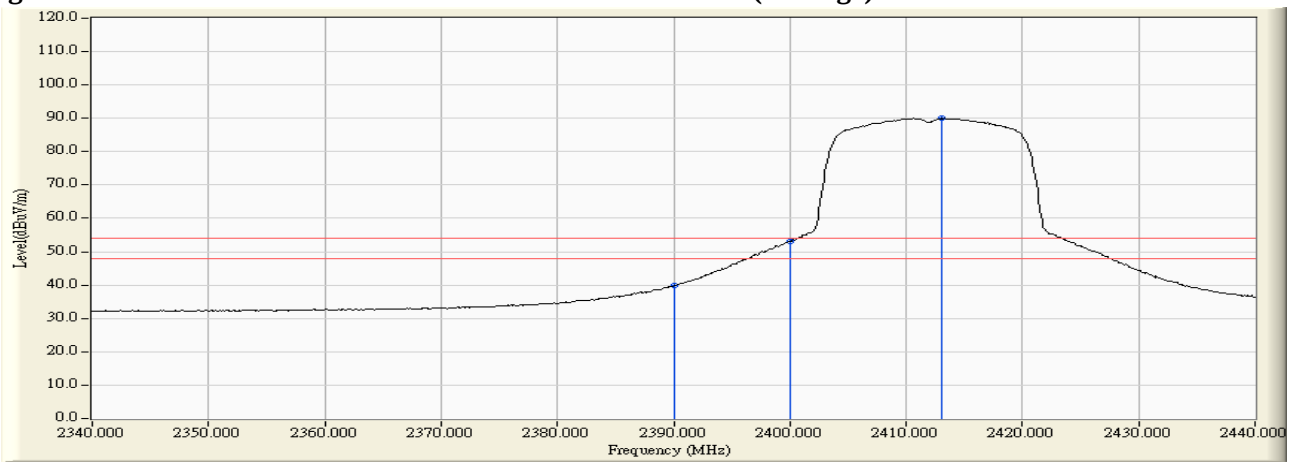


Figure Channel 01: VERTICAL (Average)



Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. 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 : 2018/03/29
Test Mode : Mode 2: Transmit (802.11g 6Mbps) (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)	2462.100	-2.623	103.361	100.738	--	--	--
11 (Peak)	2483.500	-2.601	58.771	56.169	74.00	54.00	Pass
11 (Peak)	2487.400	-2.599	65.935	63.337	74.00	54.00	Pass
11 (Average)	2459.800	-2.625	92.892	90.268	--	--	--
11 (Average)	2483.500	-2.601	42.332	39.730	74.00	54.00	Pass

Figure Channel 11: Horizontal (Peak)

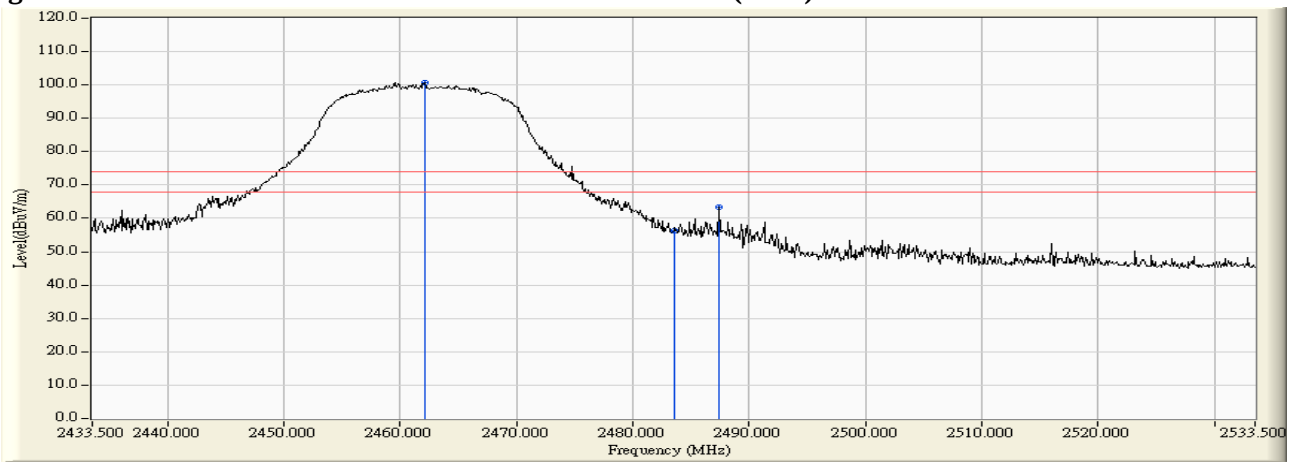
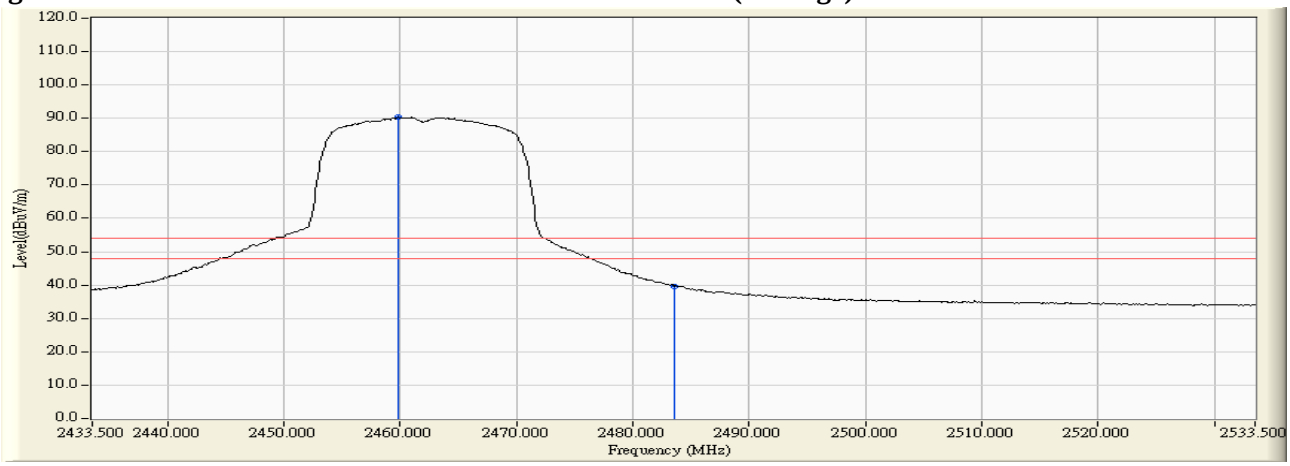


Figure Channel 11: Horizontal (Average)



Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. 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	:	2018/03/29
Test Mode	:	Mode 2: Transmit (802.11g 6Mbps) (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)	2461.900	-4.035	103.597	99.562	--	--	--
11 (Peak)	2483.500	-3.966	58.848	54.881	74.00	54.00	Pass
11 (Peak)	2486.000	-3.959	64.233	60.274	74.00	54.00	Pass
11 (Average)	2460.100	-4.041	92.686	88.646	--	--	--
11 (Average)	2483.500	-3.966	42.202	38.235	74.00	54.00	Pass

Figure Channel 11: VERTICAL (Peak)

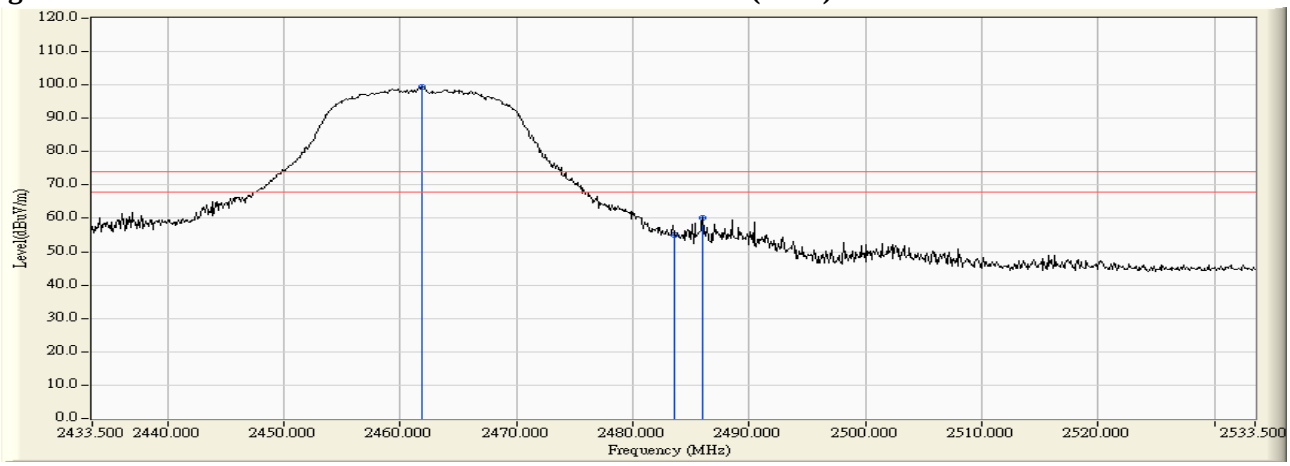
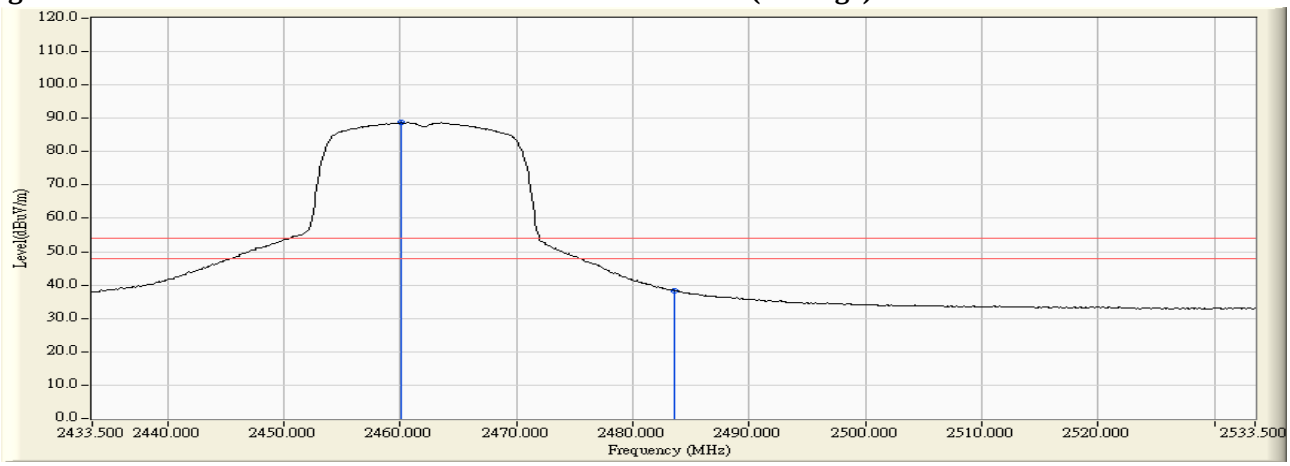


Figure Channel 11: VERTICAL (Average)



Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. 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 : 2018/03/29
Test Mode : Mode 3: Transmit (802.11n MCS0 7.2Mbps 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)	2389.500	-2.688	61.168	58.479	74.00	54.00	Pass
01 (Peak)	2390.000	-2.687	59.917	57.230	74.00	54.00	Pass
01 (Peak)	2400.000	-2.660	78.670	76.010	--	--	--
	2410.100	-2.645	103.236	100.591	--	--	--
01 (Average)	2390.000	-2.687	44.083	41.396	74.00	54.00	Pass
01 (Average)	2400.000	-2.660	56.471	53.811	74.00	54.00	Pass
01 (Average)	2410.900	-2.644	92.449	89.805	--	--	--

Figure Channel 01: Horizontal (Peak)

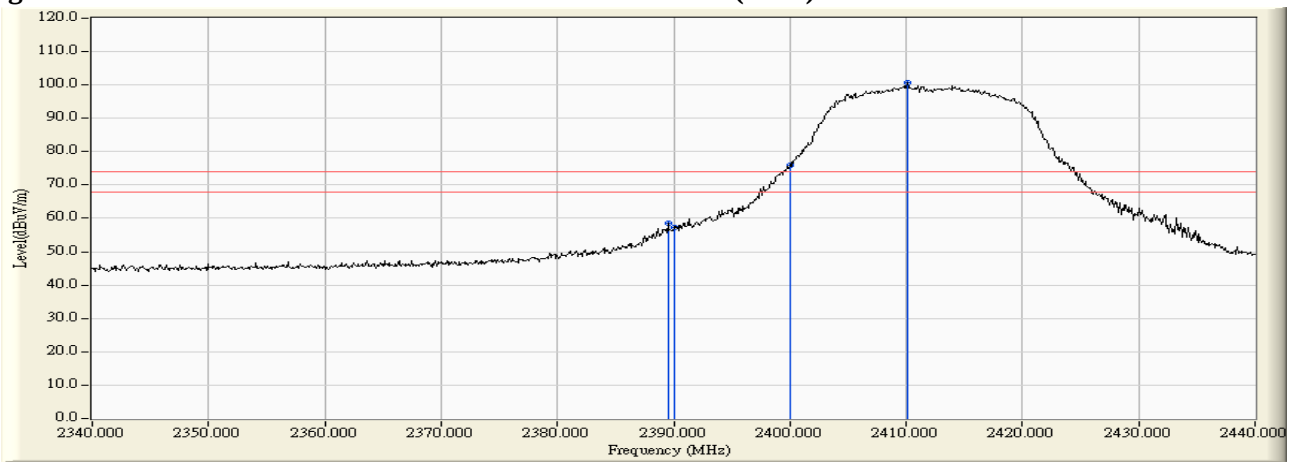
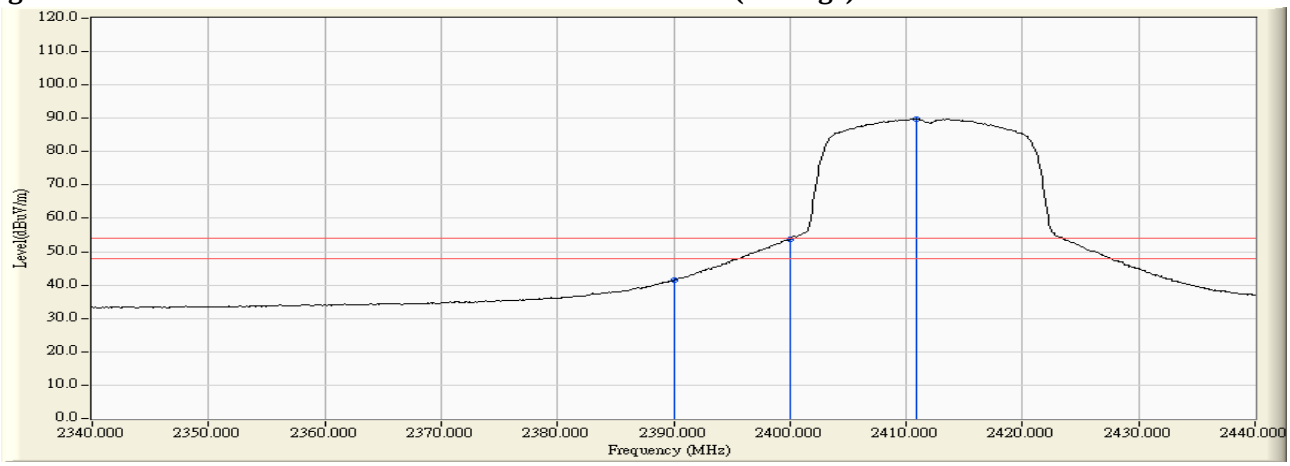


Figure Channel 01: Horizontal (Average)



Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. 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 : 2018/03/29
Test Mode : Mode 3: Transmit (802.11n MCS0 7.2Mbps 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)	2389.300	-4.156	60.977	56.821	74.00	54.00	Pass
01 (Peak)	2390.000	-4.159	60.824	56.665	74.00	54.00	Pass
01 (Peak)	2400.000	-4.171	80.452	76.281	--	--	--
01 (Peak)	2410.000	-4.169	104.888	100.719	--	--	--
01 (Average)	2390.000	-4.159	45.076	40.917	74.00	54.00	Pass
01 (Average)	2400.000	-4.171	57.748	53.577	74.00	54.00	Pass
01 (Average)	2413.400	-4.163	94.172	90.009	--	--	--

Figure Channel 01: VERTICAL (Peak)

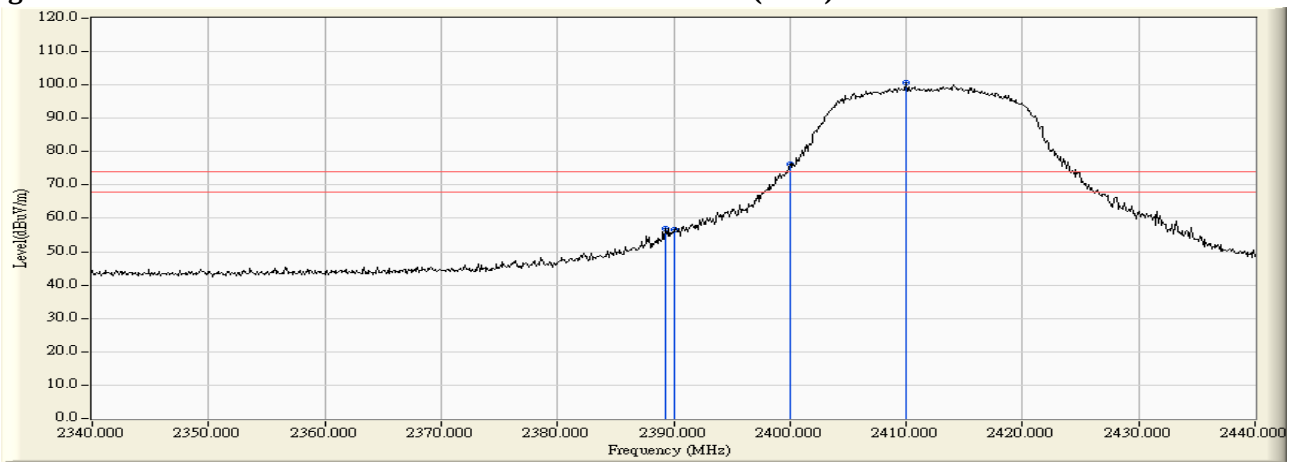
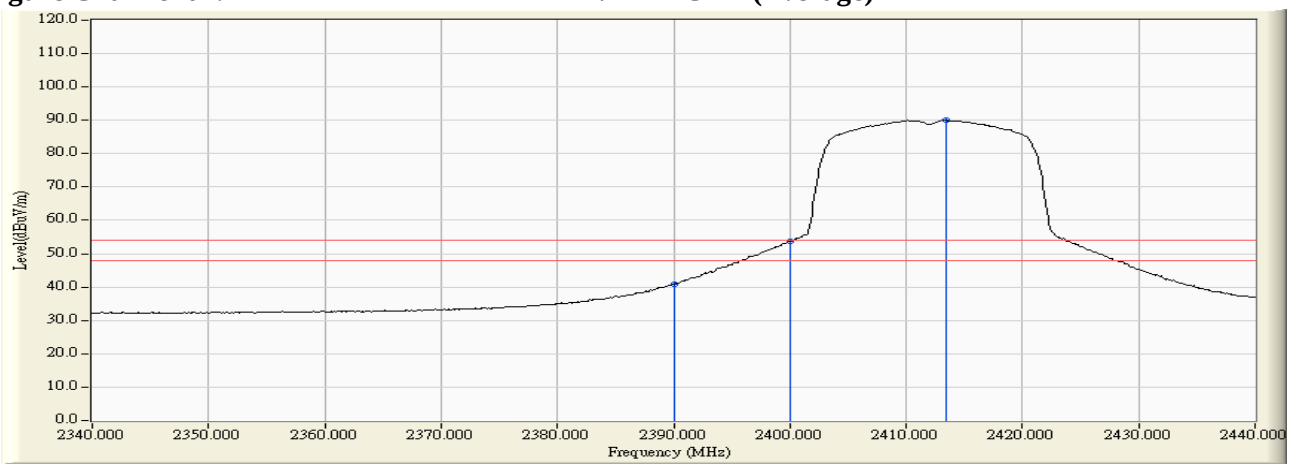


Figure Channel 01: VERTICAL (Average)



Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. 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	:	2018/03/29
Test Mode	:	Mode 3: Transmit (802.11n MCS0 7.2Mbps 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)	2459.800	-2.625	103.157	100.533	--	--	--
11 (Peak)	2483.500	-2.601	58.094	55.492	74.00	54.00	Pass
11 (Peak)	2484.400	-2.602	60.798	58.197	74.00	54.00	Pass
11 (Average)	2460.600	-2.623	92.502	89.878	--	--	--
11 (Average)	2483.500	-2.601	42.956	40.354	74.00	54.00	Pass

Figure Channel 11: Horizontal (Peak)

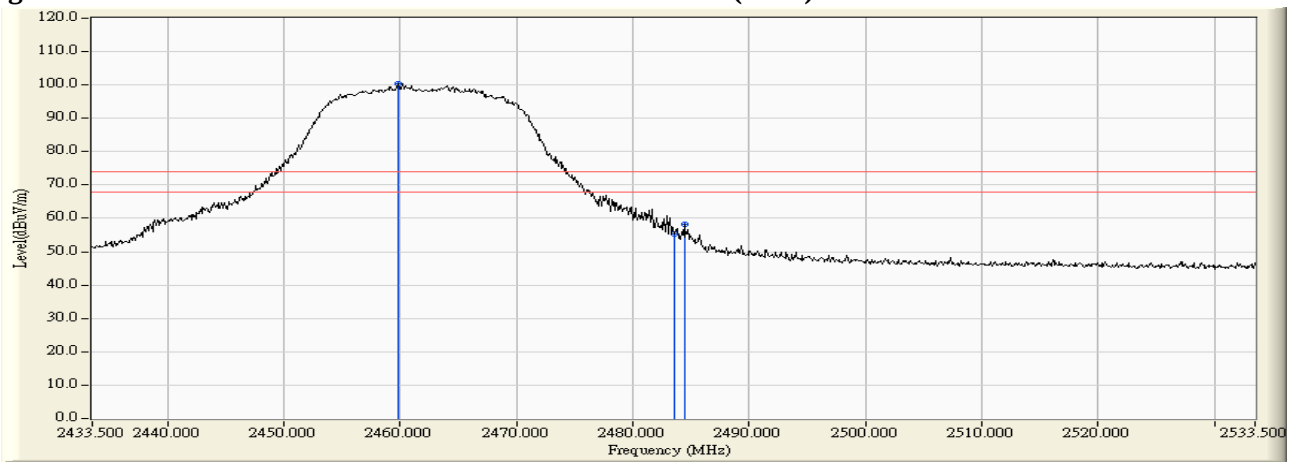
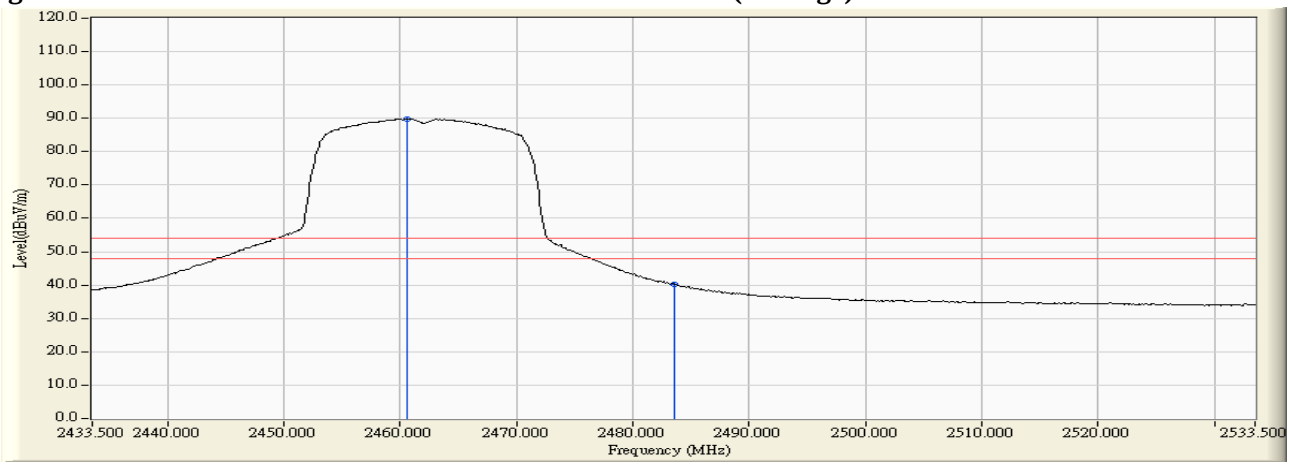


Figure Channel 11: Horizontal (Average)



Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. 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 : 2018/03/29
Test Mode : Mode 3: Transmit (802.11n MCS0 7.2Mbps 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)	2459.700	-4.042	103.111	99.069	--	--	--
11 (Peak)	2483.500	-3.966	58.315	54.348	74.00	54.00	Pass
11 (Peak)	2483.800	-3.965	61.725	57.759	74.00	54.00	Pass
11 (Average)	2460.900	-4.037	92.515	88.477	--	--	--
11 (Average)	2483.500	-3.966	42.899	38.932	74.00	54.00	Pass

Figure Channel 11: VERTICAL (Peak)

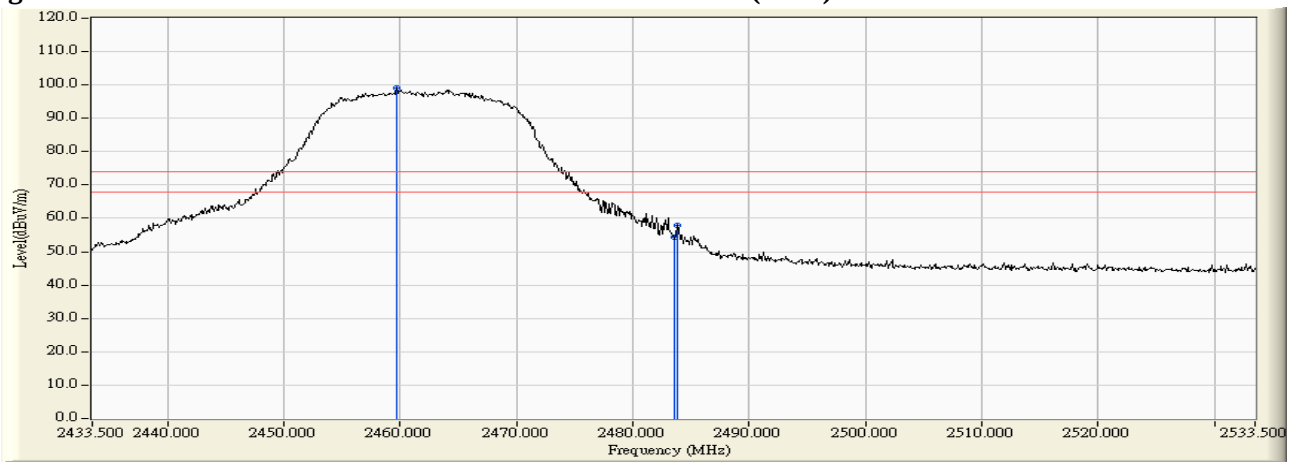
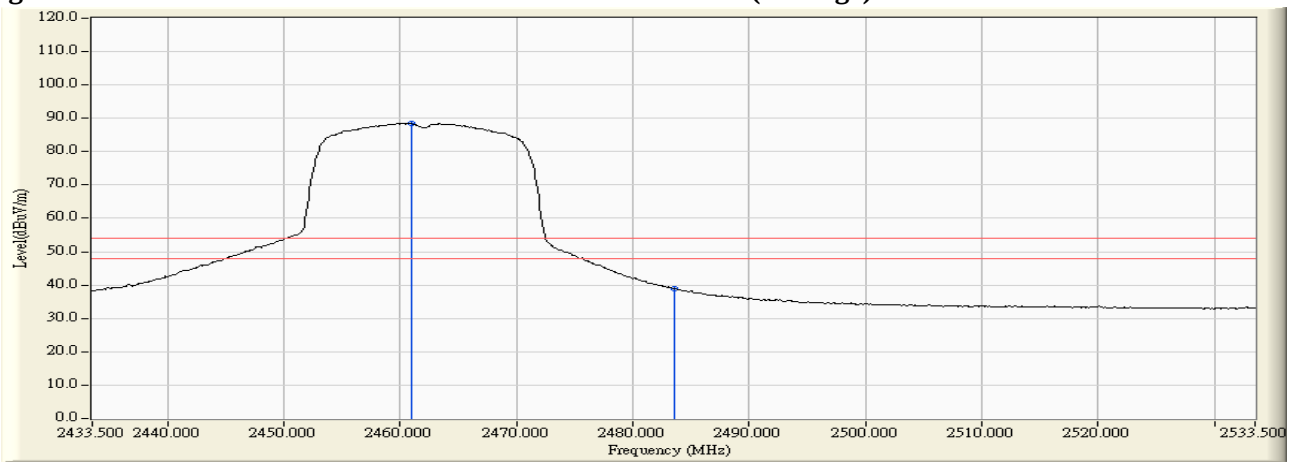


Figure Channel 11: VERTICAL (Average)

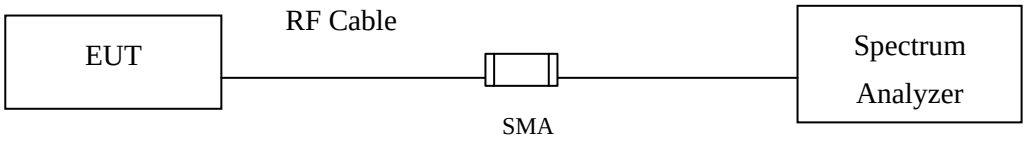


Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

7. 6dB Bandwidth

7.1. Test Setup



7.2. Limits

The minimum bandwidth shall be at least 500 kHz.

7.3. 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.

7.4. Uncertainty

± 283Hz

7.5. 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	9100	>500	Pass
06	2437	9100	>500	Pass
11	2462	9150	>500	Pass

Figure Channel 01:

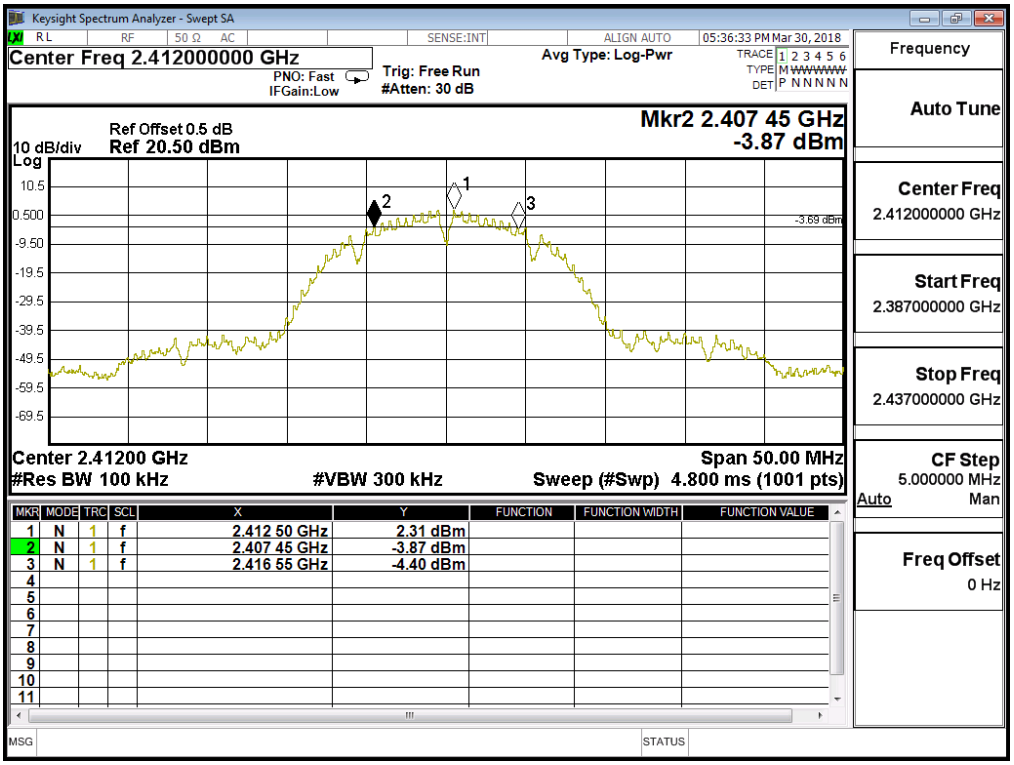


Figure Channel 06:

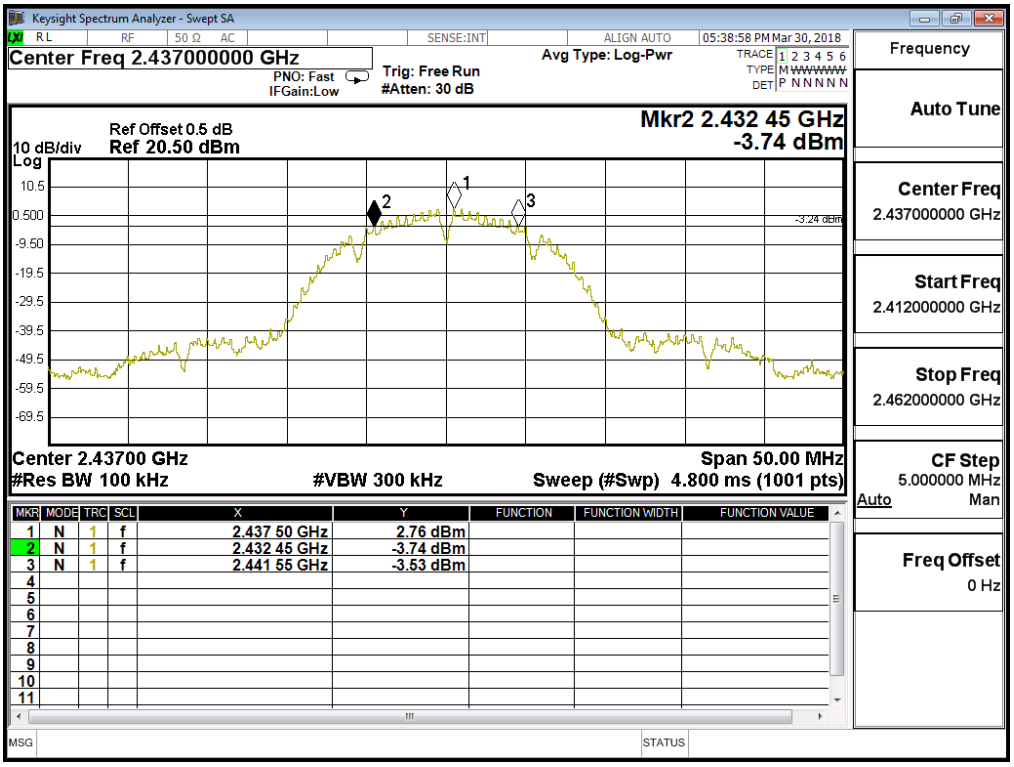
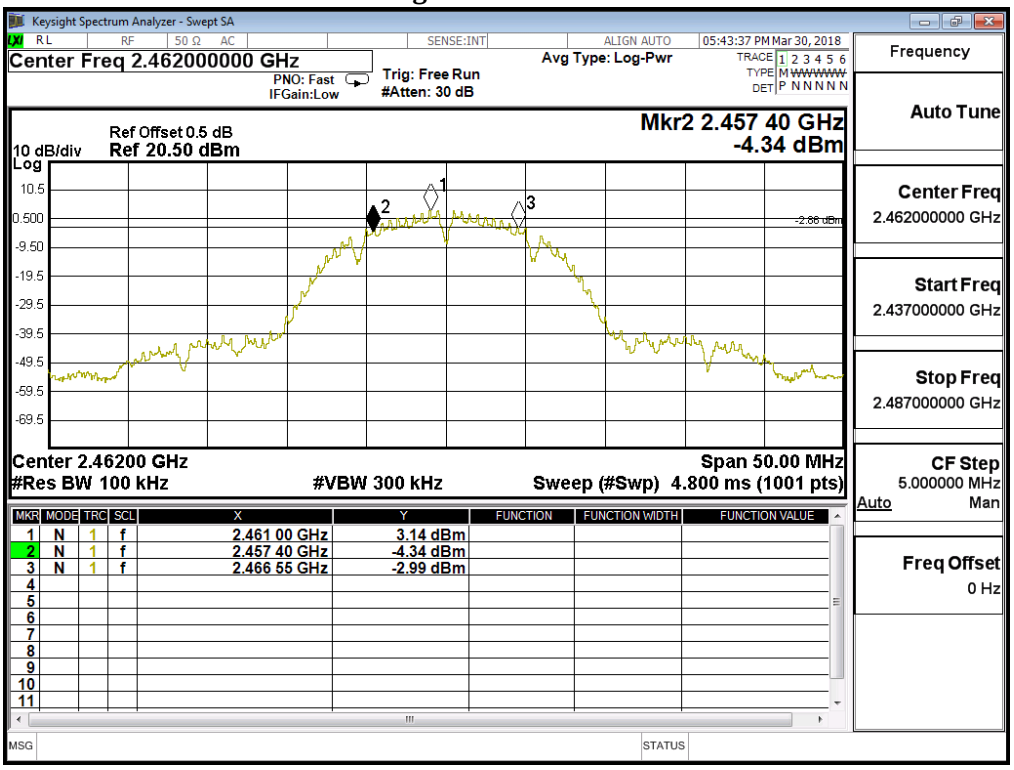


Figure Channel 11:



Product : Digital Camera
Test Item : 6dB Bandwidth Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2412MHz)

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:

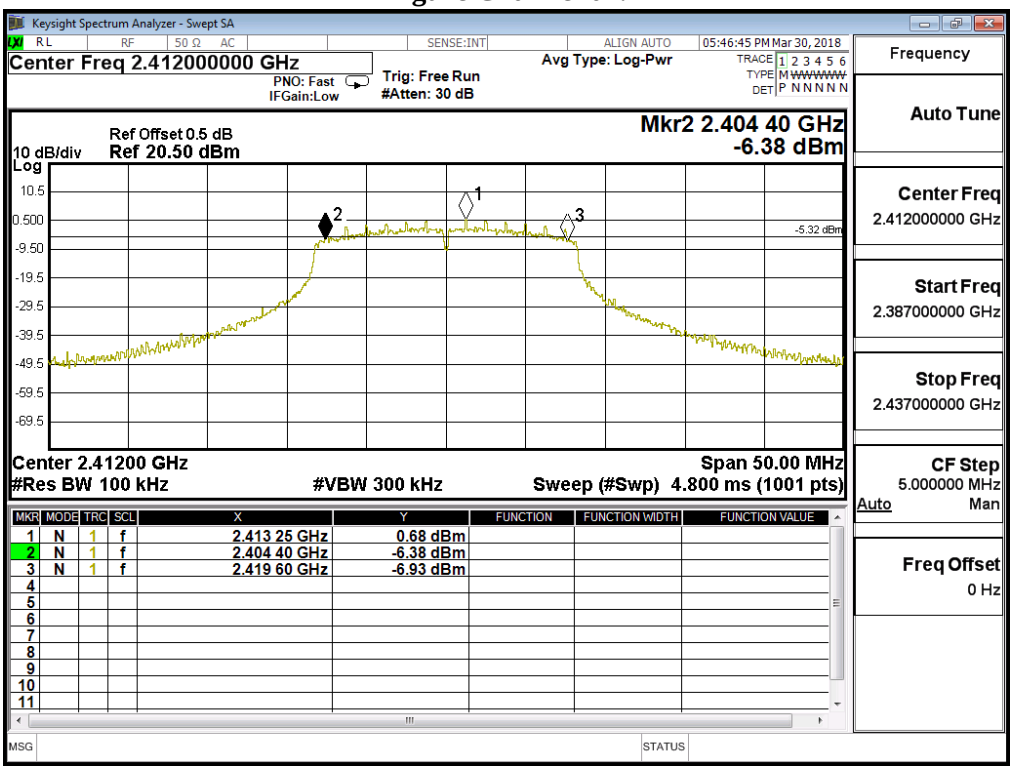


Figure Channel 06:

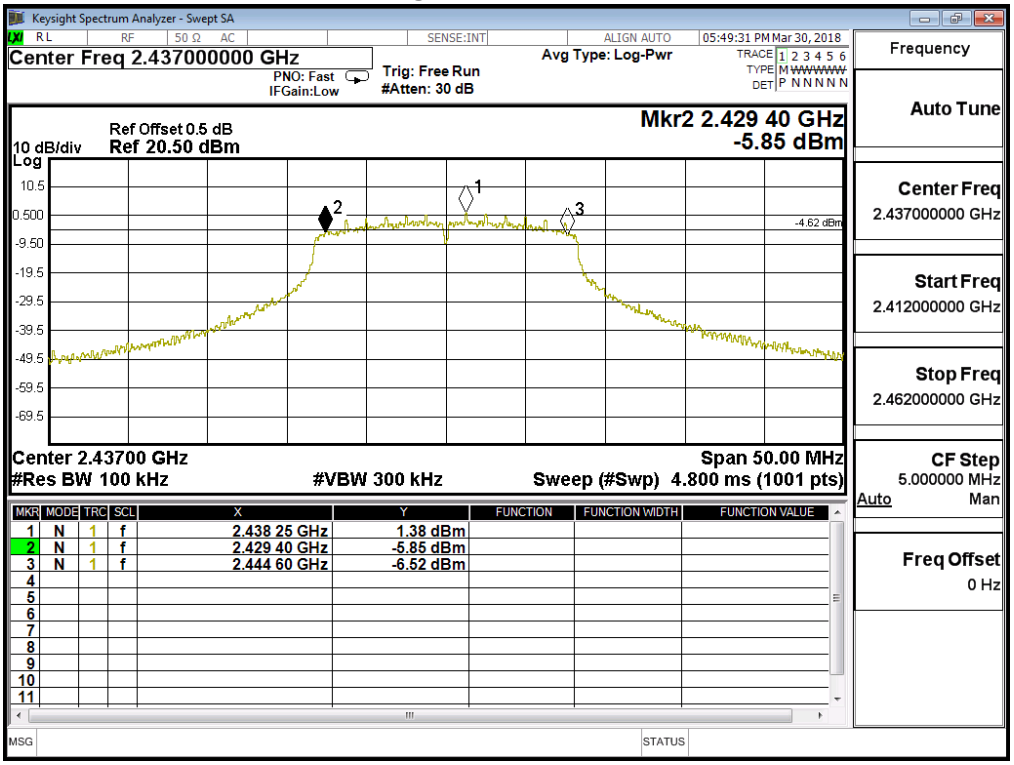
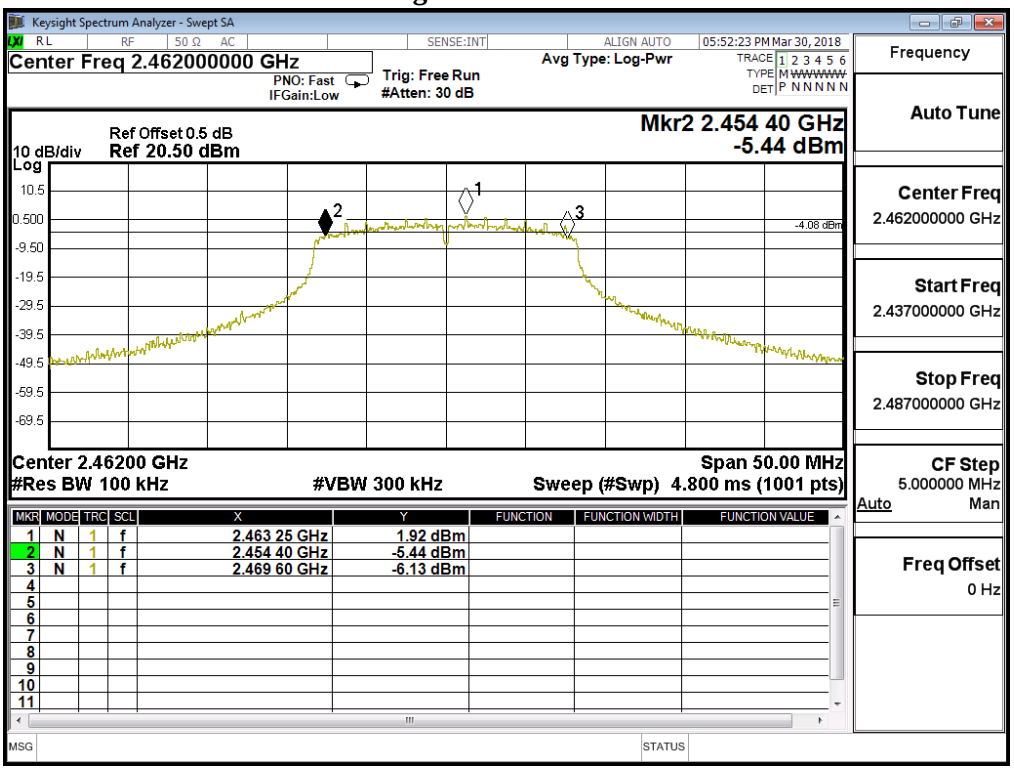


Figure Channel 11:



Product : Digital Camera
Test Item : 6dB Bandwidth Data
Test Site : No.3 OATS
Test Mode : Mode 3: Transmit (802.11n MCS0 7.2Mbps 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:

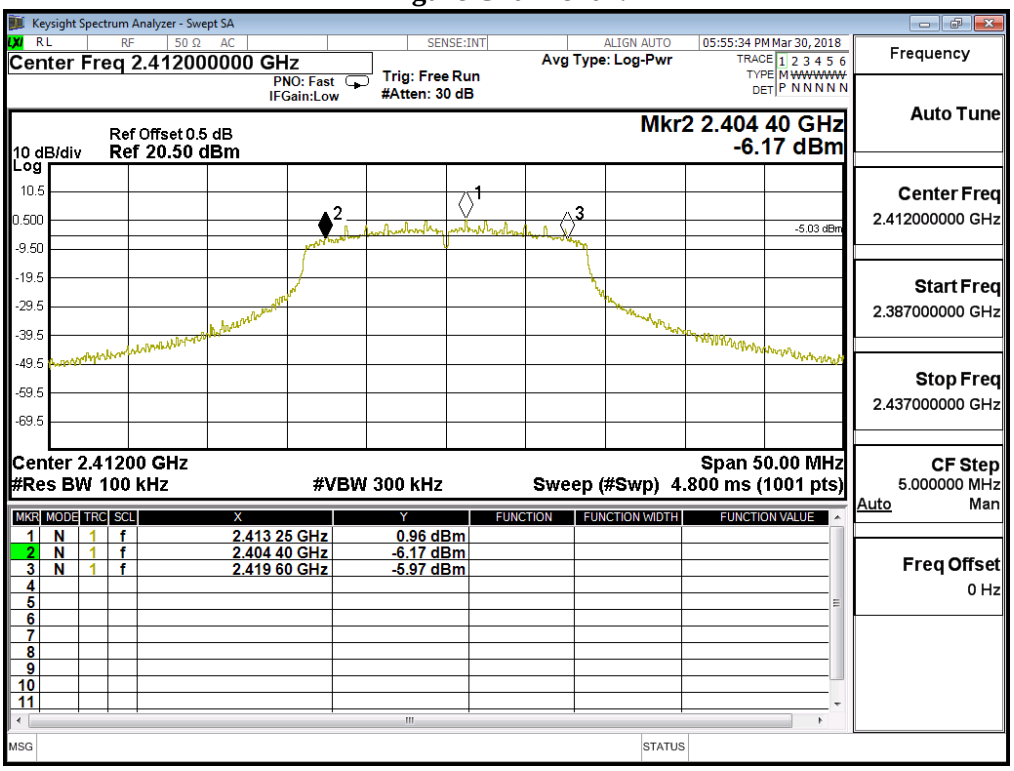


Figure Channel 06:

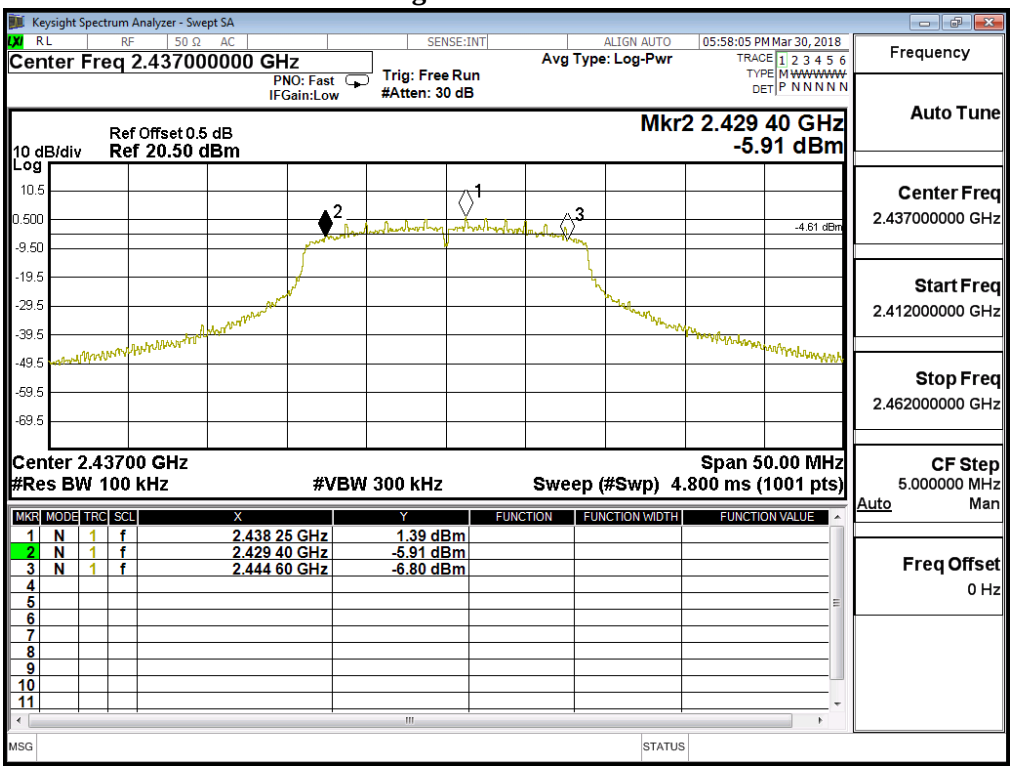
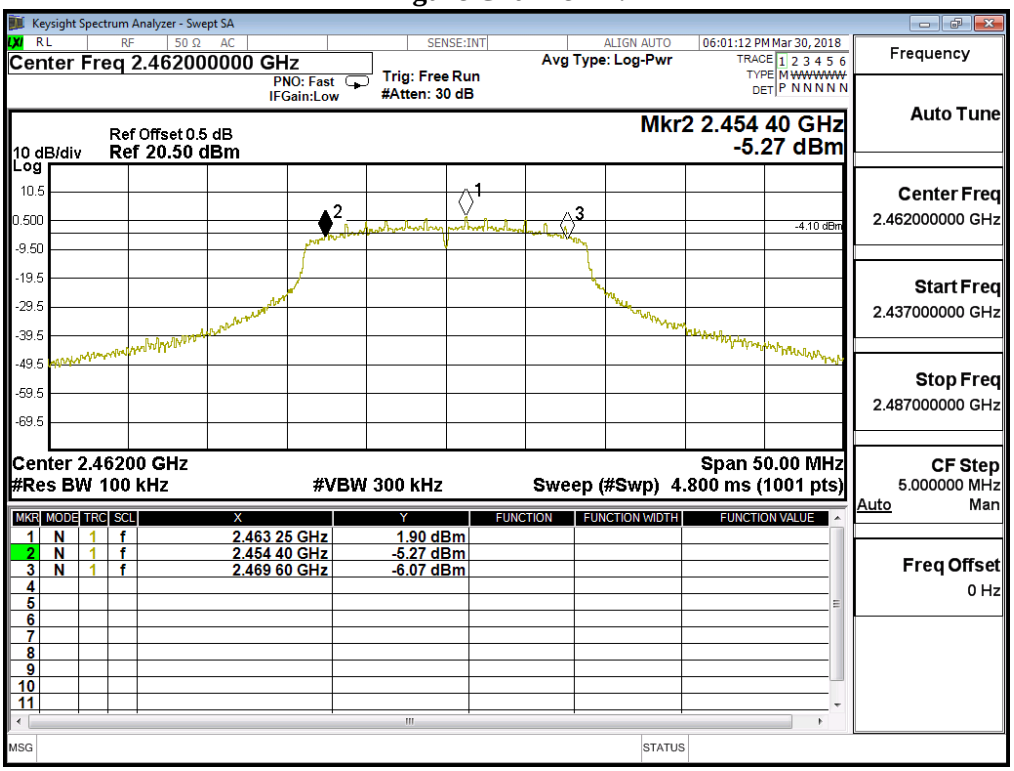
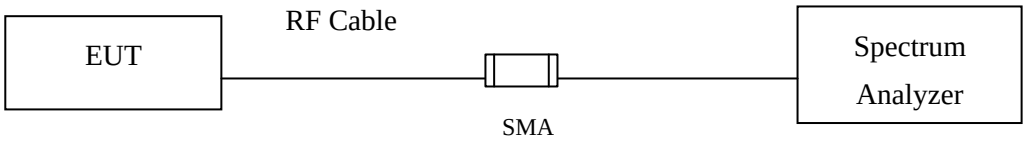


Figure Channel 11:



8. Power Density

8.1. Test Setup



8.2. Limits

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

8.3. 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.

8.4. Uncertainty

± 1.20 dB

8.5. 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	2.440	≦8dBm	Pass
06	2437	3.020	≦8dBm	Pass
11	2462	3.410	≦8dBm	Pass

Figure Channel 01:

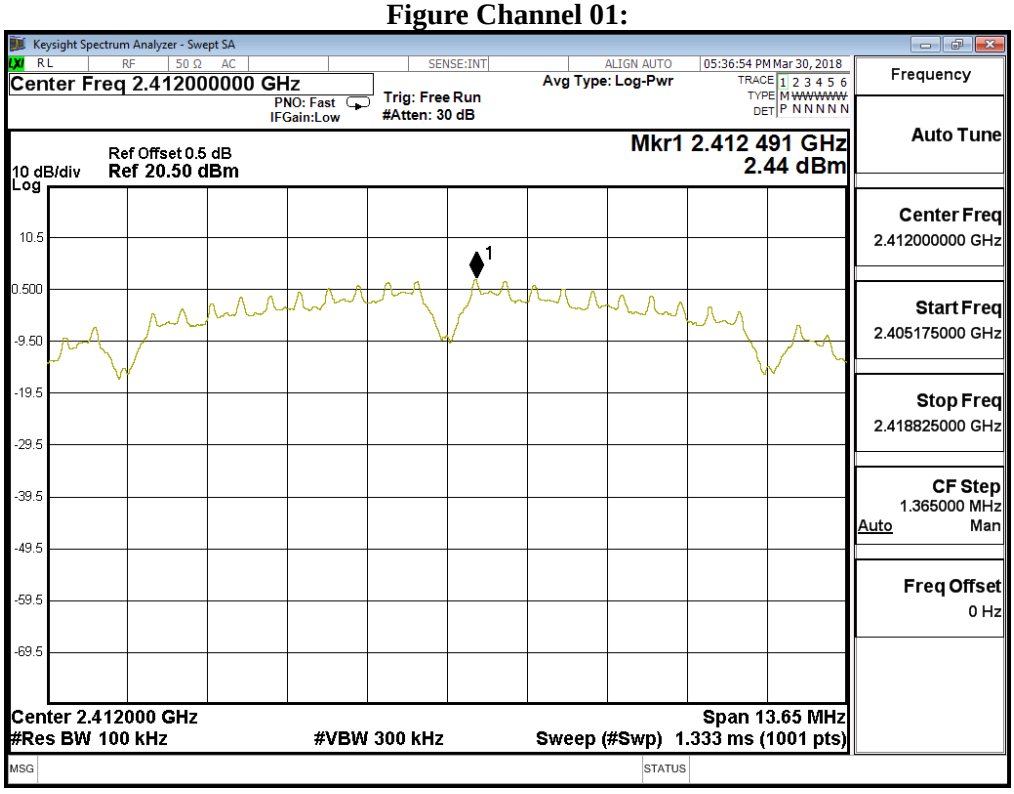


Figure Channel 06:

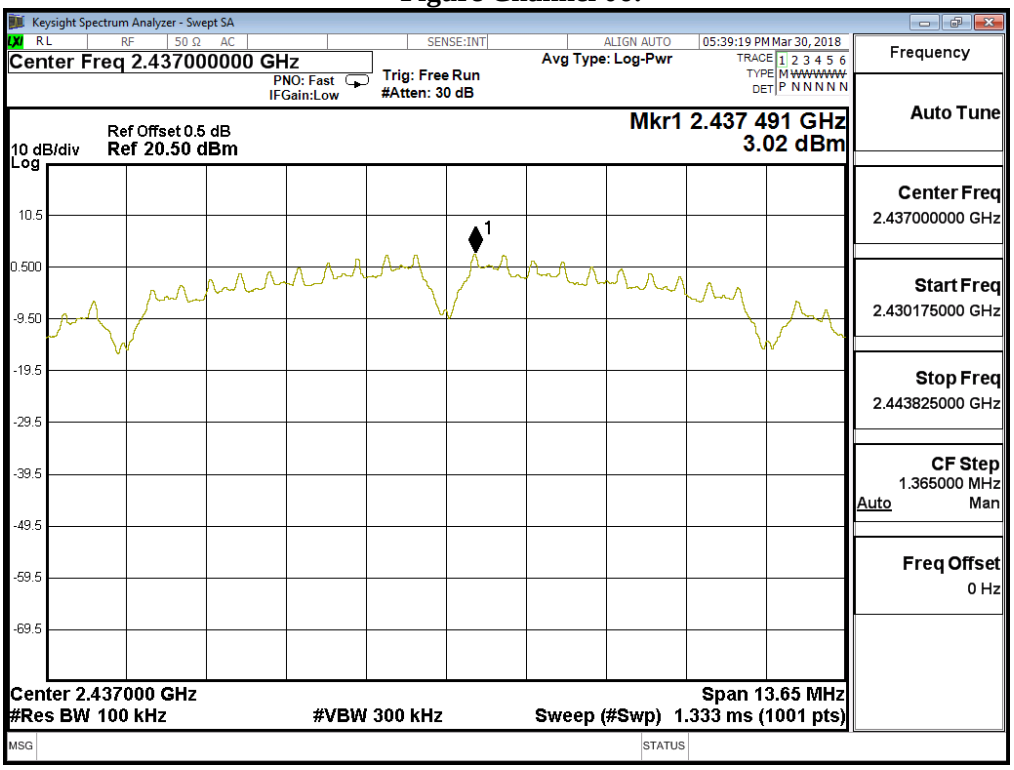
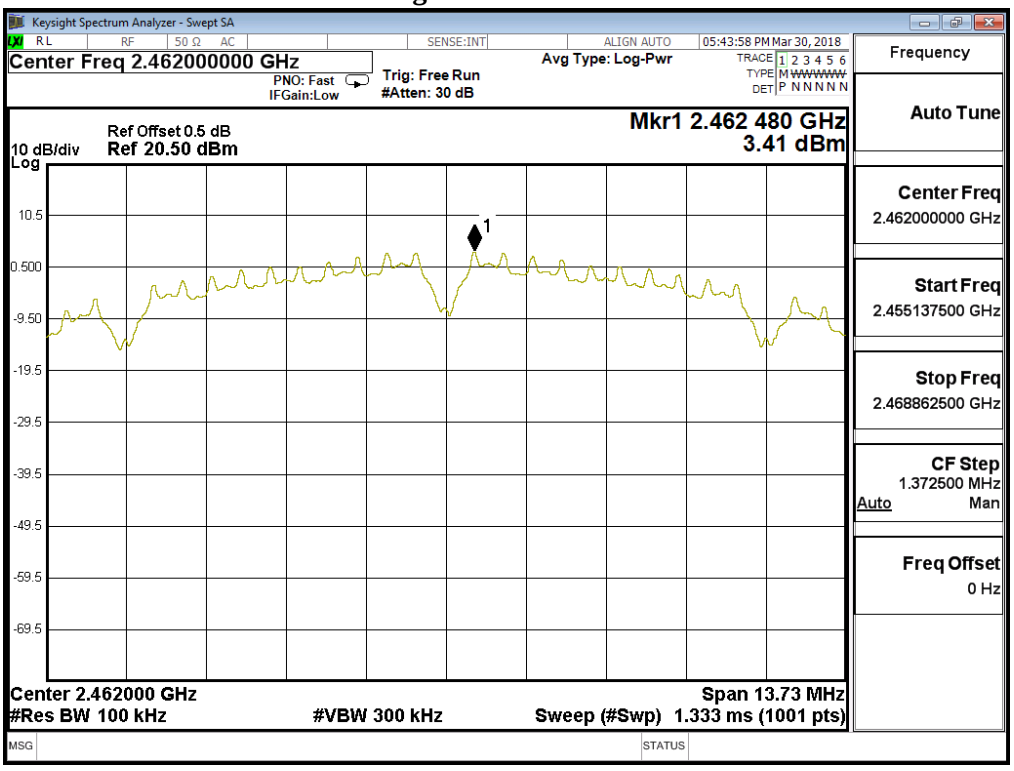


Figure Channel 11:



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	0.530	≦8dBm	Pass
06	2437	1.220	≦8dBm	Pass
11	2462	1.940	≦8dBm	Pass

Figure Channel 01:

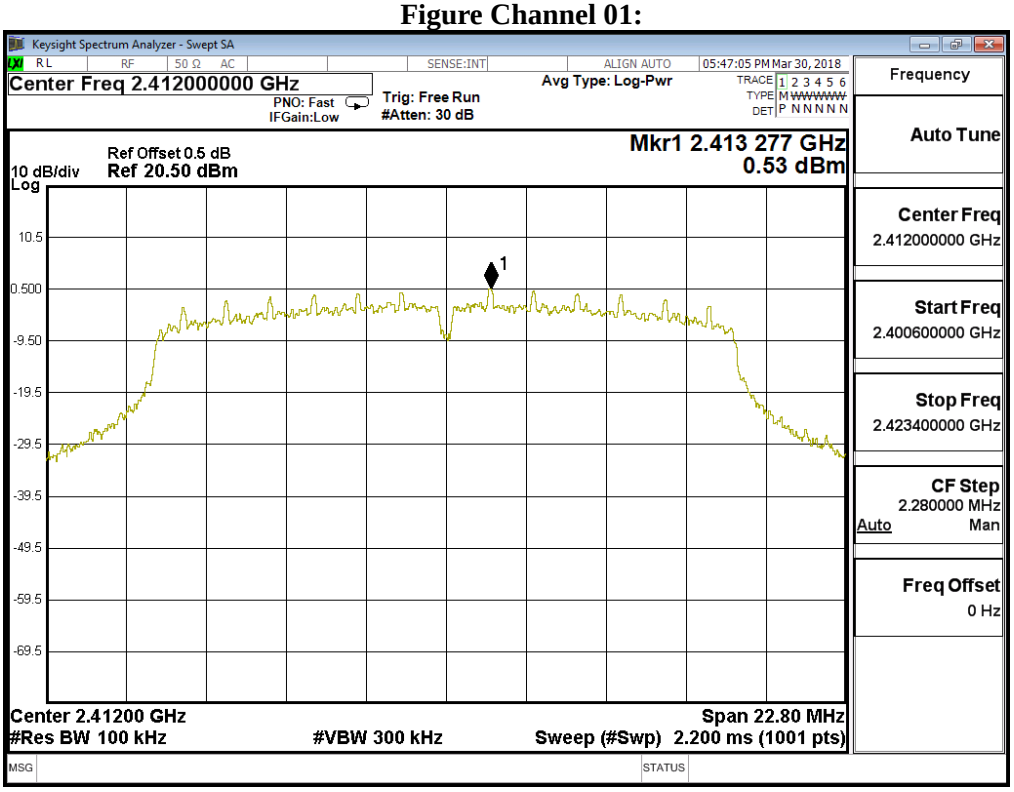


Figure Channel 06:

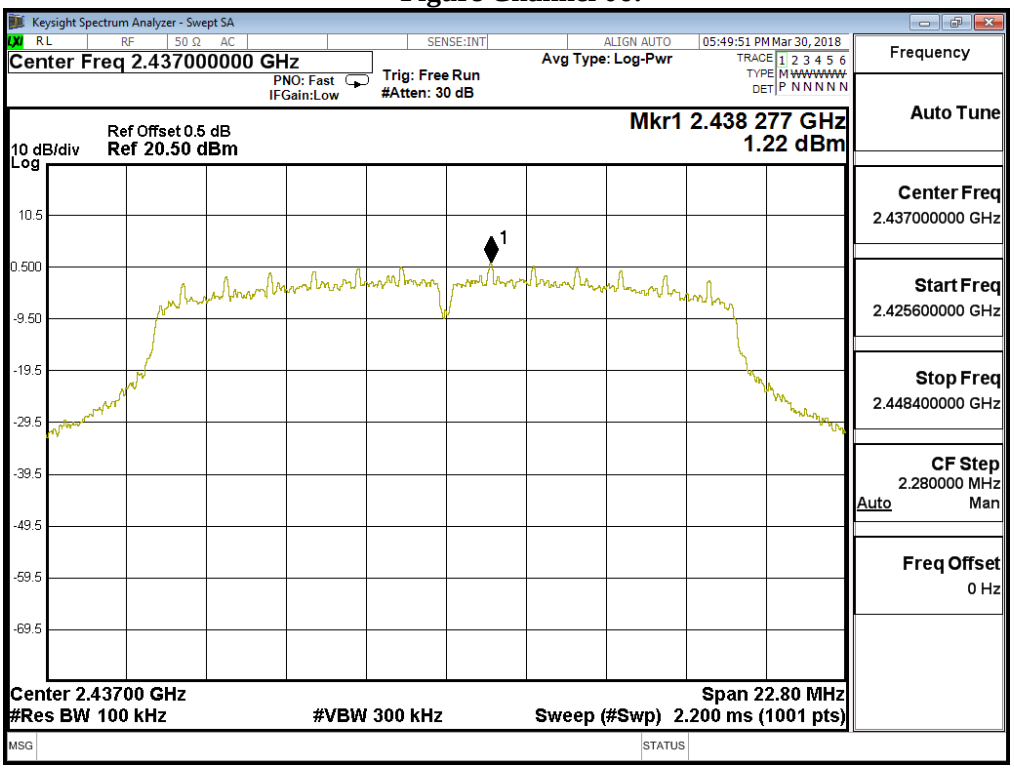
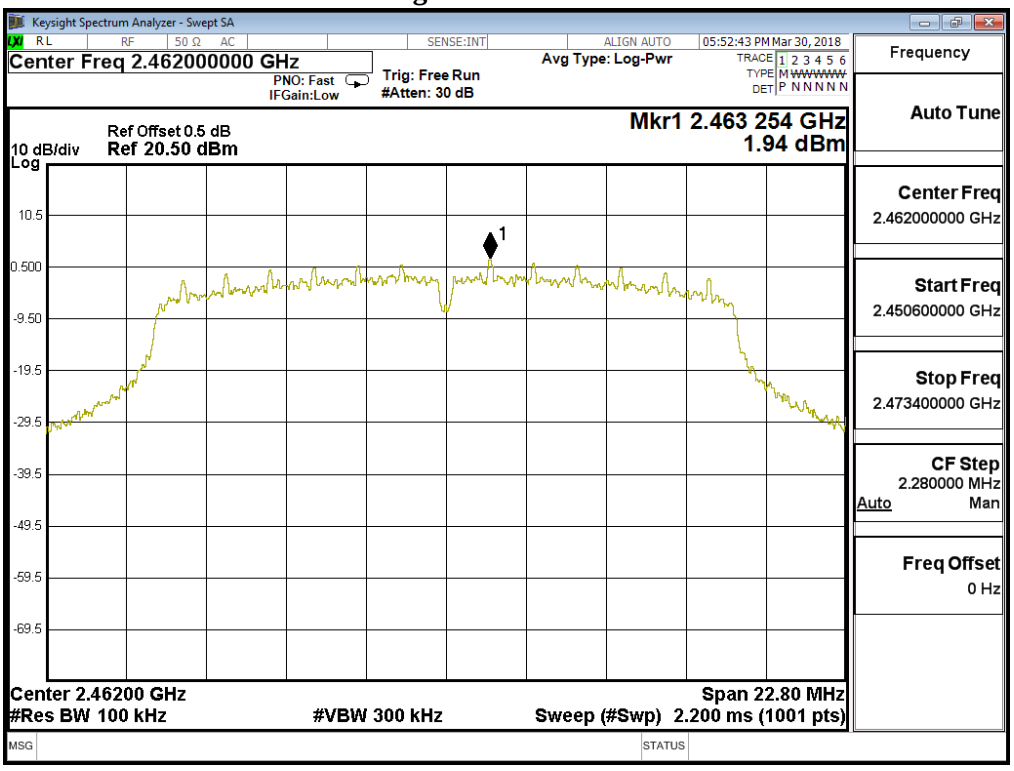


Figure Channel 11:



Product : Digital Camera
Test Item : Power Density Data
Test Site : No.3 OATS
Test Mode : Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW)

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
01	2412	0.990	≦8dBm	Pass
06	2437	1.440	≦8dBm	Pass
11	2462	1.960	≦8dBm	Pass

Figure Channel 01:

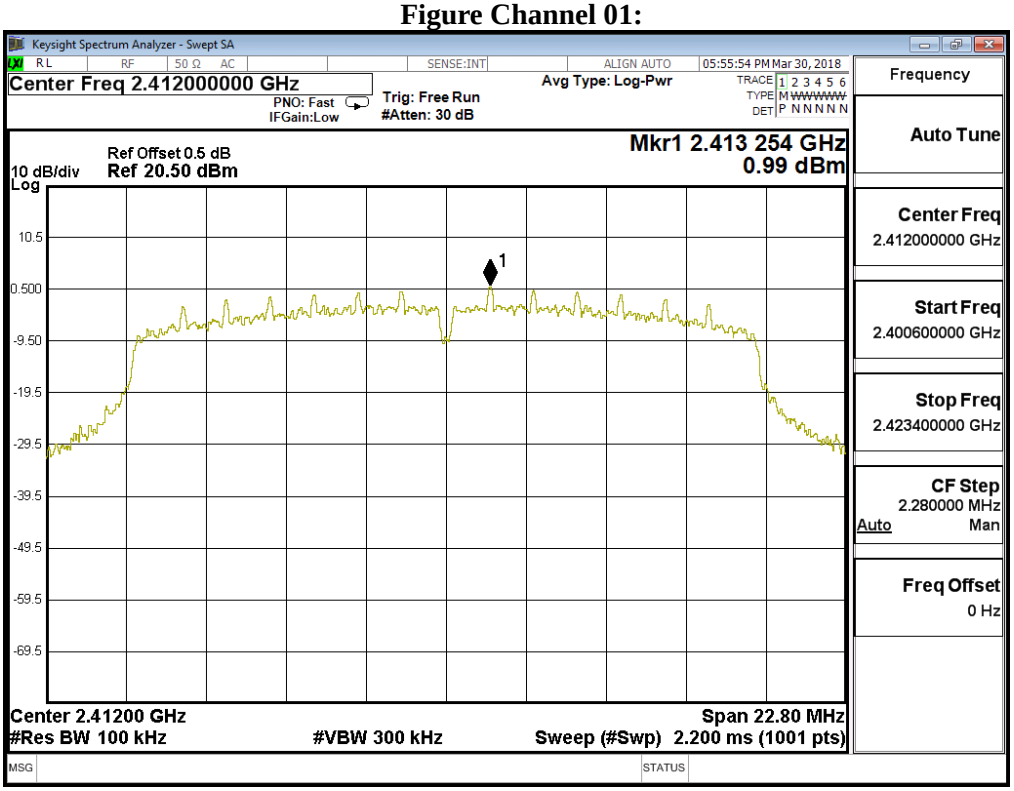


Figure Channel 06:

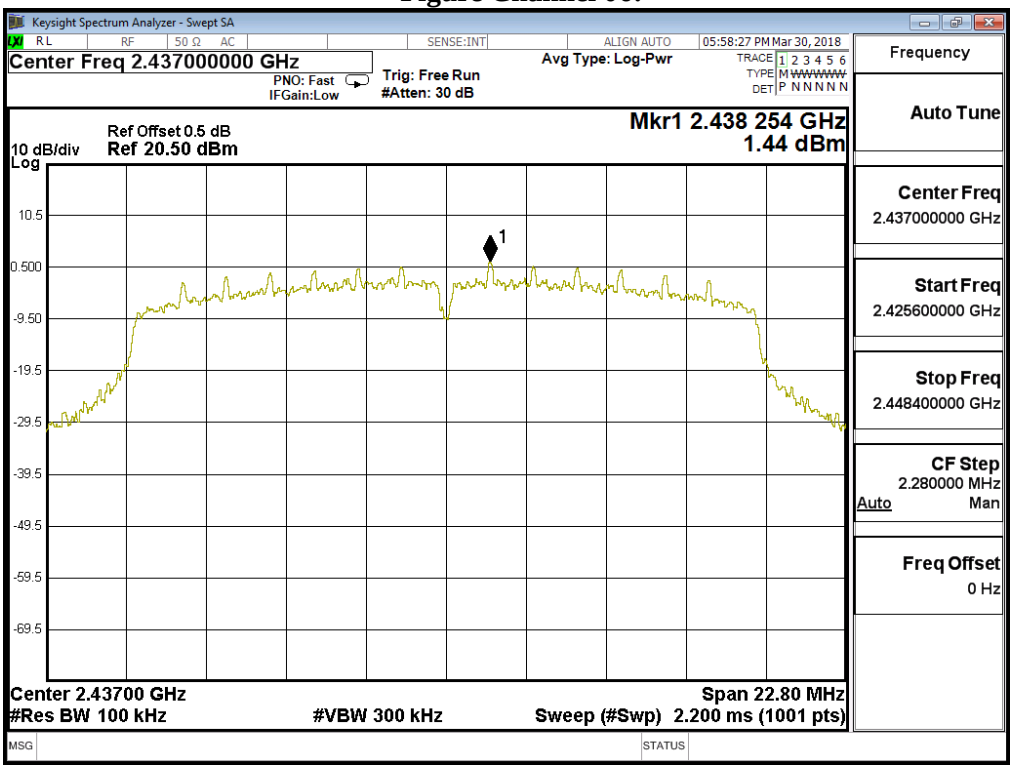
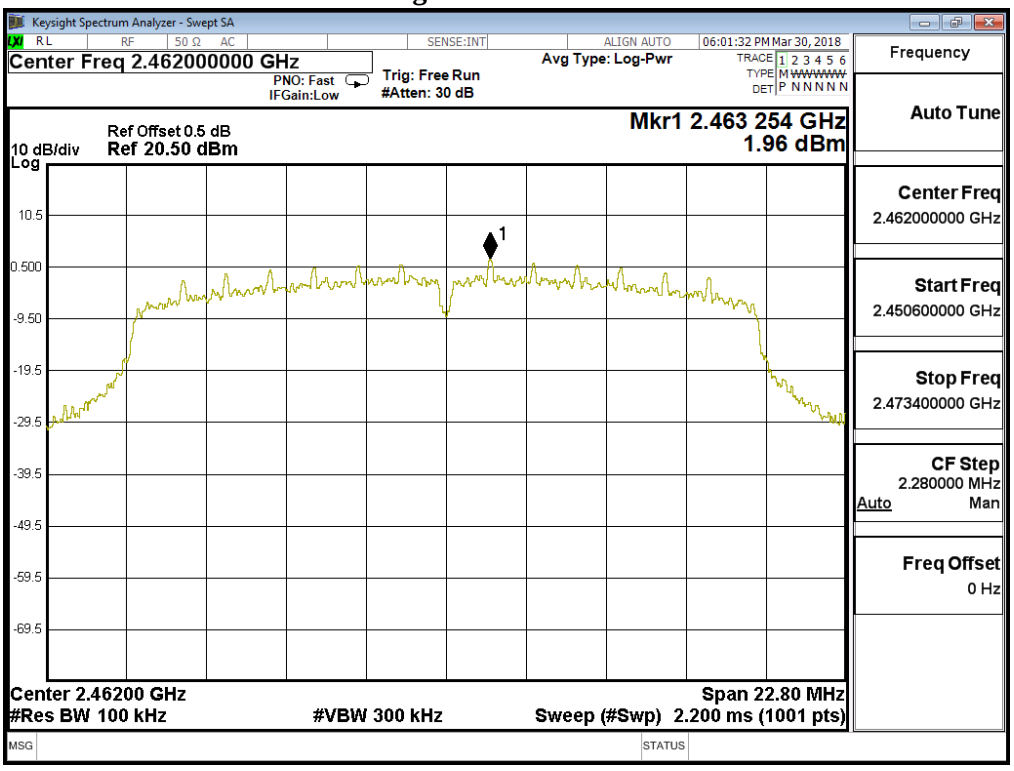
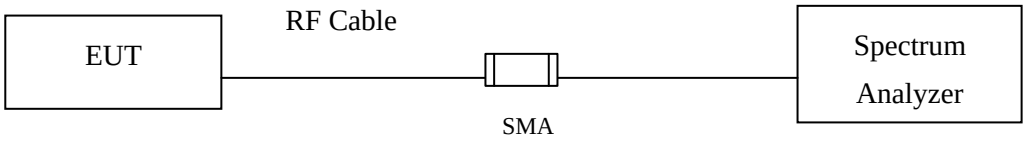


Figure Channel 11:



9. Duty Cycle

9.1. Test Setup



9.2. Test Procedure

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

9.3. Uncertainty

± 2.31msec

9.4. Test Result of Duty Cycle

Product : Digital Camera
Test Item : Duty Cycle
Test Mode : Transmit

Duty Cycle Formula:

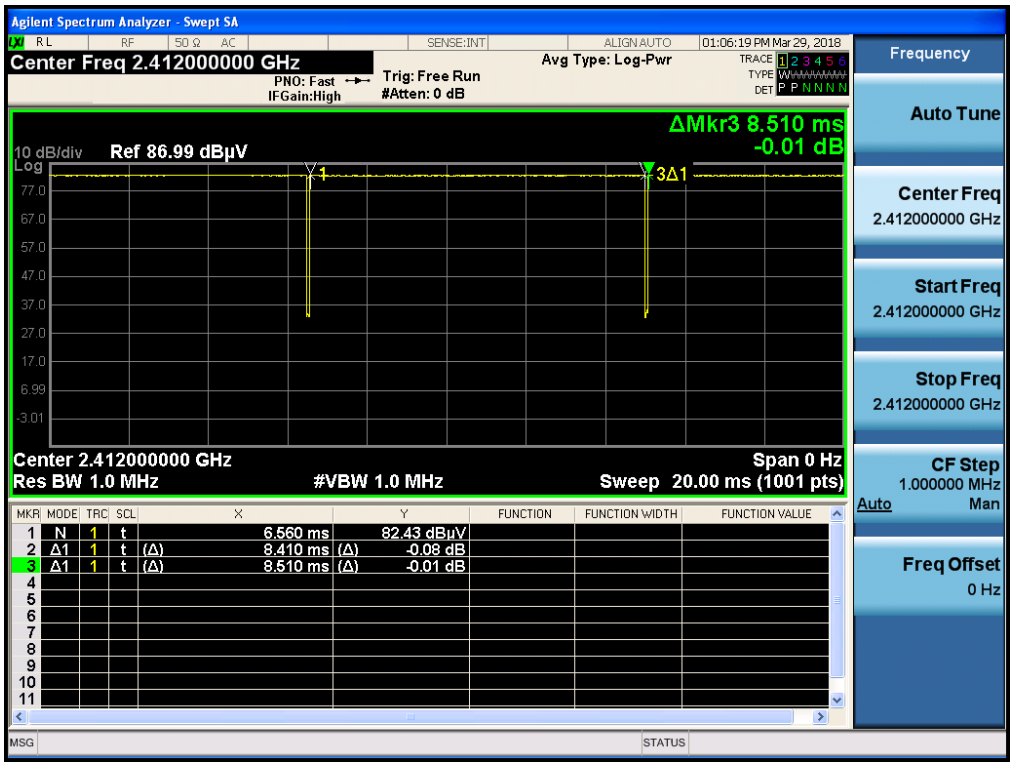
Duty Cycle = Ton / (Ton + Toff)

Duty Factor = 10 Log (1/Duty Cycle)

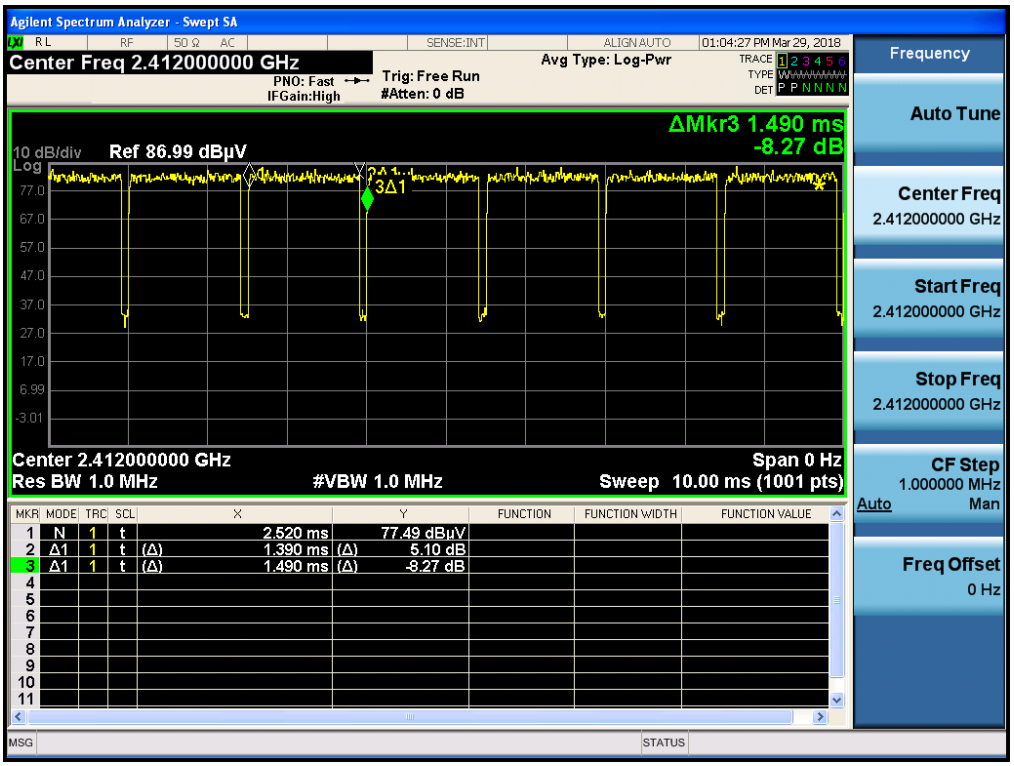
Results:

2.4GHz band	Ton (ms)	Ton + Toff (ms)	Duty Cycle (%)	Duty Factor (dB)
802.11b	8.4100	8.5100	98.82	0.05
802.11g	1.3900	1.4900	93.29	0.30
802.11n20	1.3100	1.4100	92.91	0.32

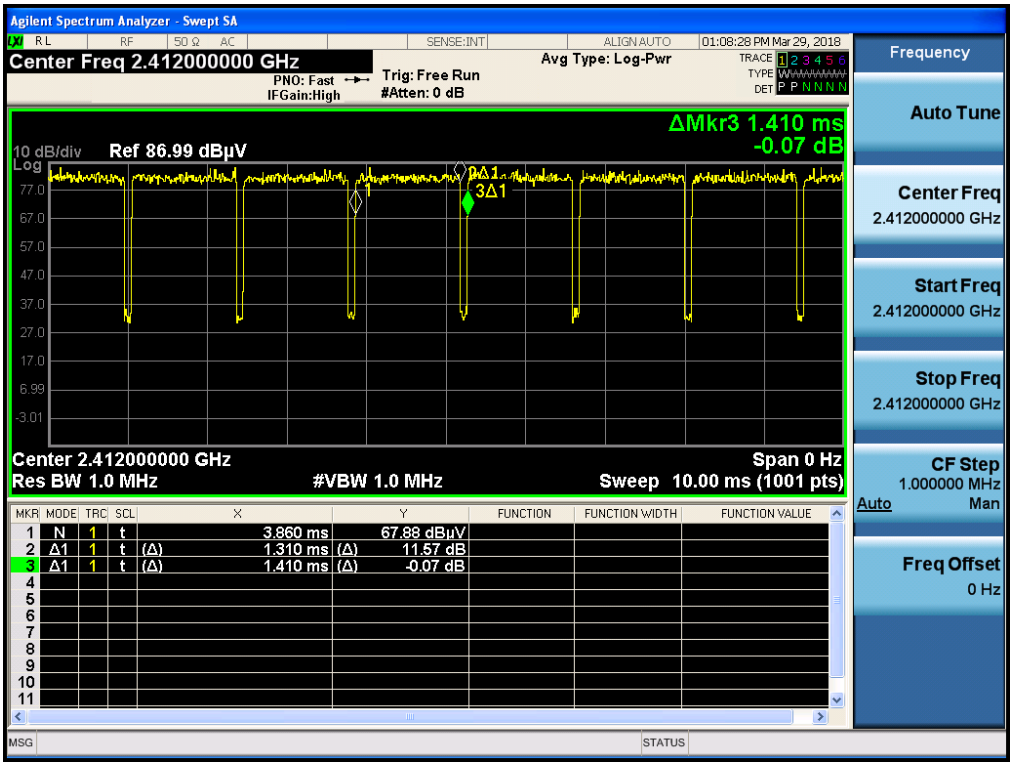
802.11b



802.11g



802.11n20



10. EMI Reduction Method During Compliance Testing

No modification was made during testing.

Attachment 1: EUT Test Photographs

Attachment 2: EUT Detailed Photographs