FCC Test Report

Product Name	FLIC HUB
Model No	FLIC HUB
FCC ID.	2ACR9-FLHB

Applicant	Shortcut Labs AB
Address	Drottning Kristinas Vag 41, 11428, Stockholm, Sweden

Date of Receipt	Jan. 15, 2018
Issue Date	Feb. 02, 2018
Report No.	1810194R-RFUSP04V00-A
Report Version	V1.0

Testing Laboratory
3023

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: Feb. 02, 2018
Report No.: 1810194R-RFUSP04V00-A

Product Name	FLIC HUB
Applicant	Shortcut Labs AB
Address	Drottning Kristinas Vag 41, 11428, Stockholm, Sweden
Manufacturer	DEXATEK TECHNOLOGY
Model No.	FLIC HUB
FCC ID.	2ACR9-FLHB
EUT Rated Voltage	DC 5V
EUT Test Voltage	AC 120V/60Hz
Trade Name	FLIC HUB
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 : Rita Huang

(Senior Adm. Specialist / Rita Huang)

Tested By : Tom chiu

(Engineer / Tom Chiu)

Approved By :

(Director / Vincent Lin)

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1. GENERAL INFORMATION

1.1. EUT Description

Product Name	FLIC HUB
Trade Name	FLIC HUB
Model No.	FLIC HUB
FCC ID.	2ACR9-FLHB
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
Contain Module	Realtek / RTL8723DS-CG

Antenna List

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	ACX	AT3216-T2R4PAA	Chip Antenna	1.8 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		

802.11n-40MHz Center Frequency of Each Channel:

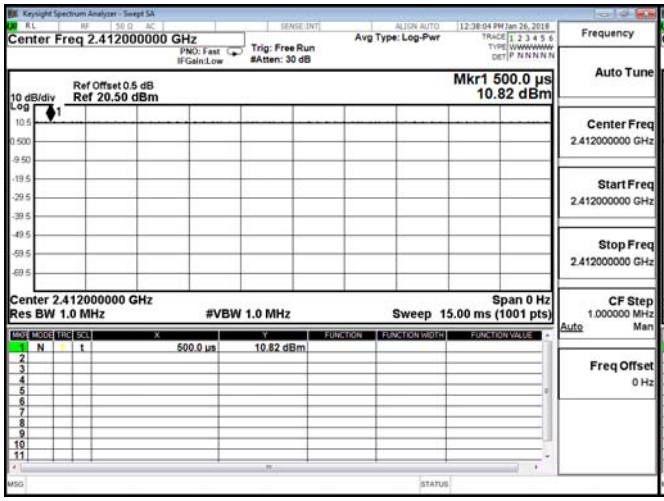
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 03:	2422 MHz	Channel 04:	2427 MHz	Channel 05:	2432 MHz	Channel 06:	2437 MHz
Channel 07:	2442 MHz	Channel 08:	2447 MHz	Channel 09:	2452 MHz		

Duty Cycle:

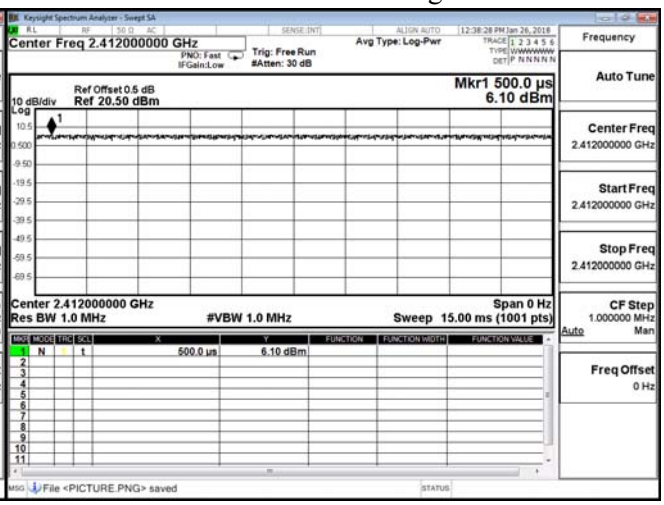
802.11b	100.00
802.11g	100.00
802.11n-20	100.00
802.11n-40	100.00

*Duty cycle = Ton / (Ton + Toff)

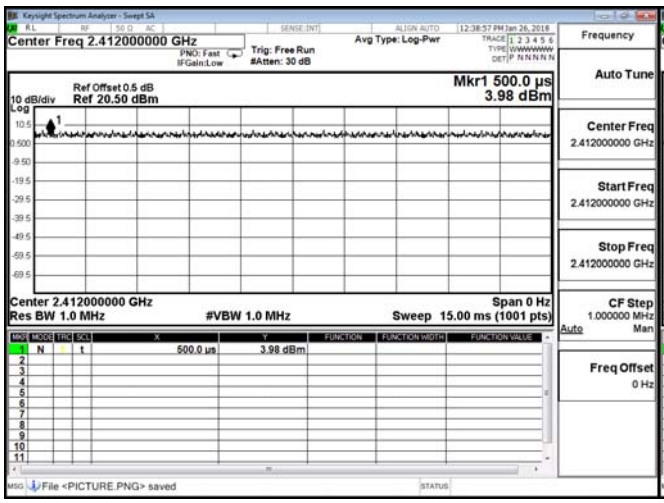
802.11b:



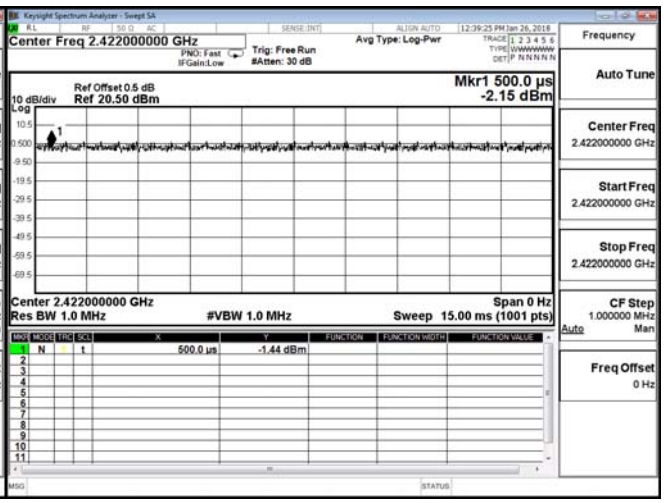
802.11g:



802.11n20:



802.11n40:



Note:

1. The EUT is a FLIC HUB 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. At result of pretests, module supports dual-channel transmission, only the worst case is shown in the report.
4. 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 and 802.11n(40M-BW) is 15Mbps)
5. 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.
6. 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: Transmit (802.11n MCS0 15Mbps 40M-BW)

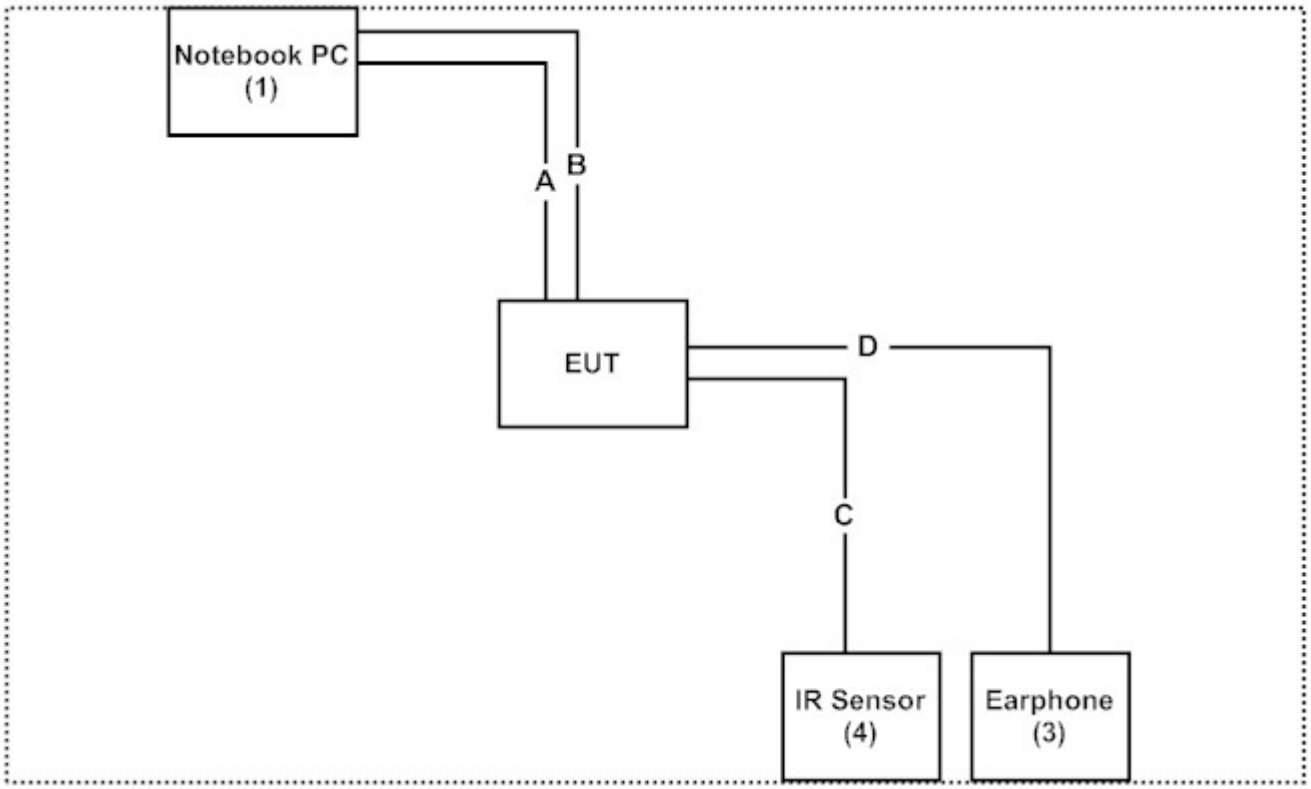
1.3. Tested System Details

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

Product		Manufacturer	Model No.	Serial No.	Power Cord
1	Notebook PC	DELL	Latitude E5440	74BTK32	Non-Shielded, 0.8m
2	Earphone	AIWA	N/A	N/A	N/A
3	IR Sensor	N/A	N/A	N/A	N/A

Signal Cable Type		Signal cable Description
A	USB Cable	Non-Shielded, 0.5m
B	LAN Cable	Non-Shielded, 1.0m
C	Single Cable	Non-Shielded, 1.0m
D	Audio Cable	Non-Shielded, 1.7m

1.4. Configuration of Tested System



1.5. EUT Exercise Software

1. Setup the EUT as shown in Section 1.4.
2. Execute software “Putty V0.63” 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	2017/11/28	2018/11/27
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	2017/10/13	2018/10/12
X	LISN	R&S	ESH3-Z5	836679/017	2018/1/18	2019/1/17
X	LISN	R&S	ENV216	100097	2018/1/18	2019/1/17
X	Coaxial Cable	QTK(Arnist)	RG 400	LC018-RG	2017/6/25	2018/6/24

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 Conduction Test System V8.0.113.

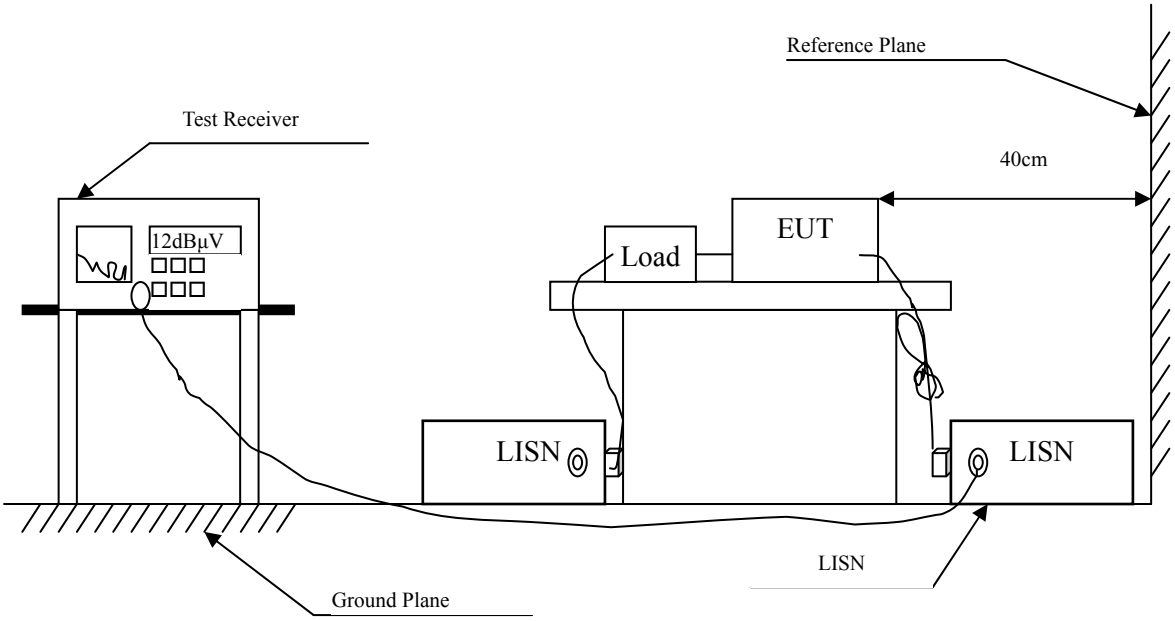
For Radiated measurements /Site3/CB8

	Equipment	Manufacturer	Model No.	Serial No.	Cali. Date	Due. Date
X	Spectrum Analyzer	R&S	FSP40	100170	2018/1/18	2019/1/17
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
X	Horn Antenna	Schwarzbeck	BBHA9170	9170430	2017/4/14	2018/4/13
X	Pre-Amplifier	QTK	AP/0100A	CHM/0901069	2017/6/23	2018/6/22
X	Pre-Amplifier	EMCI	EMC012630SE	980210	2018/1/26	2018/1/24
X	Pre-Amplifier	NARDA WE	DBL-1840N506	013	2017/9/30	2018/9/29
X	Filter	MicroTRON	BRM50701	019	2017/11/2	2018/11/1
X	Filter	Microwave Circuits	N0257881	36681	2018/1/3	2019/1/2
X	EMI Test Receiver	R&S	ESR26	101385	2017/9/29	2018/9/28
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 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 : FLIC HUB
Test Item : Conducted Emission Test
Power Line : Line 1
Test Date : 2018/01/17
Test Mode : Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW) (2437MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBµV	dBµV	dB	dBµV
Line 1					
Quasi-Peak					
0.205	9.772	32.060	41.832	-22.597	64.429
0.306	9.750	25.960	35.710	-25.833	61.543
0.603	9.748	21.220	30.968	-25.032	56.000
1.877	9.716	13.040	22.756	-33.244	56.000
7.025	9.944	14.760	24.704	-35.296	60.000
23.923	10.089	5.780	15.869	-44.131	60.000
Average					
0.205	9.772	24.540	34.312	-20.117	54.429
0.306	9.750	17.250	27.000	-24.543	51.543
0.603	9.748	14.650	24.398	-21.602	46.000
1.877	9.716	6.970	16.686	-29.314	46.000
7.025	9.944	8.830	18.774	-31.226	50.000
23.923	10.089	0.070	10.159	-39.841	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 : FLIC HUB
Test Item : Conducted Emission Test
Power Line : Line 2
Test Date : 2018/01/17
Test Mode : Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW) (2437MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBµV	dBµV	dB	dBµV
Line 2					
Quasi-Peak					
0.197	9.745	31.220	40.965	-23.692	64.657
0.291	9.758	24.120	33.878	-28.093	61.971
0.556	9.797	22.440	32.237	-23.763	56.000
0.994	9.893	17.400	27.293	-28.707	56.000
7.052	10.004	19.860	29.864	-30.136	60.000
23.923	10.259	22.880	33.139	-26.861	60.000
Average					
0.197	9.745	23.320	33.065	-21.592	54.657
0.291	9.758	13.300	23.058	-28.913	51.971
0.556	9.797	12.500	22.297	-23.703	46.000
0.994	9.893	7.660	17.553	-28.447	46.000
7.052	10.004	13.820	23.824	-26.176	50.000
23.923	10.259	20.060	30.319	-19.681	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 : FLIC HUB
Test Item : Peak Power Output Data
Test Site : No.3 OATS
Test Date : 2018/01/17
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	16.58	--	--	--	18.86	<30dBm	Pass
06	2437	15.88	15.78	15.66	15.54	18.22	<30dBm	Pass
11	2462	15.7	--	--	--	18.12	<30dBm	Pass

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

Product : FLIC HUB
Test Item : Peak Power Output Data
Test Site : No.3 OATS
Test Date : 2018/01/17
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	16.52	--	--	--	--	--	--	--	22.39	<30dBm	Pass
06	2437	15.68	15.59	15.45	15.38	15.31	15.27	15.2	15.15	22.4	<30dBm	Pass
11	2462	14.74	--	--	--	--	--	--	--	22.07	<30dBm	Pass

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

Product : FLIC HUB
Test Item : Peak Power Output Data
Test Site : No.3 OATS
Test Date : 2018/01/17
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	16.36	--	--	--	--	--	--	--	22.45	<30dBm	Pass
06	2437	15.59	15.48	15.36	15.28	15.2	15.18	15.11	15.04	22.07	<30dBm	Pass
11	2462	14.44	--	--	--	--	--	--	--	21.95	<30dBm	Pass

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

Product : FLIC HUB
Test Item : Peak Power Output Data
Test Site : No.3 OATS
Test Date : 2018/01/17
Test Mode : Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW)

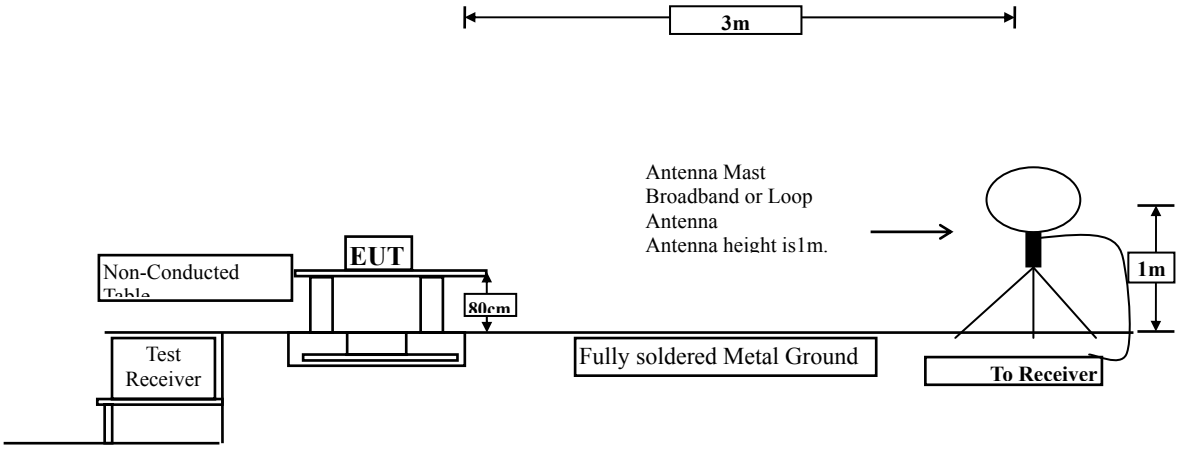
Channel No	Frequency (MHz)	Average Power For different Data Rate (Mbps)								Peak Power	Required Limit	Result
		15	30	45	60	90	120	135	150	15		
		Measurement Level (dBm)										
03	2422	13.24	--	--	--	--	--	--	--	21.79	<30dBm	Pass
06	2437	14.29	14.22	14.18	14.11	14.08	13.98	13.85	13.78	21.99	<30dBm	Pass
09	2452	14.31	--	--	--	--	--	--	--	22.05	<30dBm	Pass

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

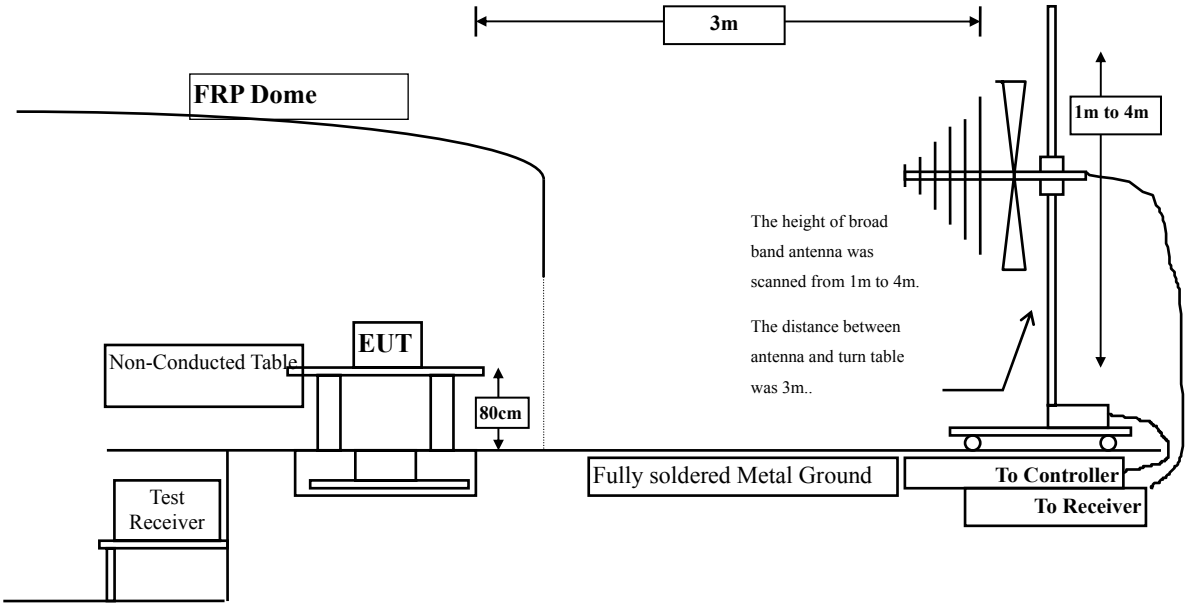
4. Radiated Emission

4.1. Test Setup

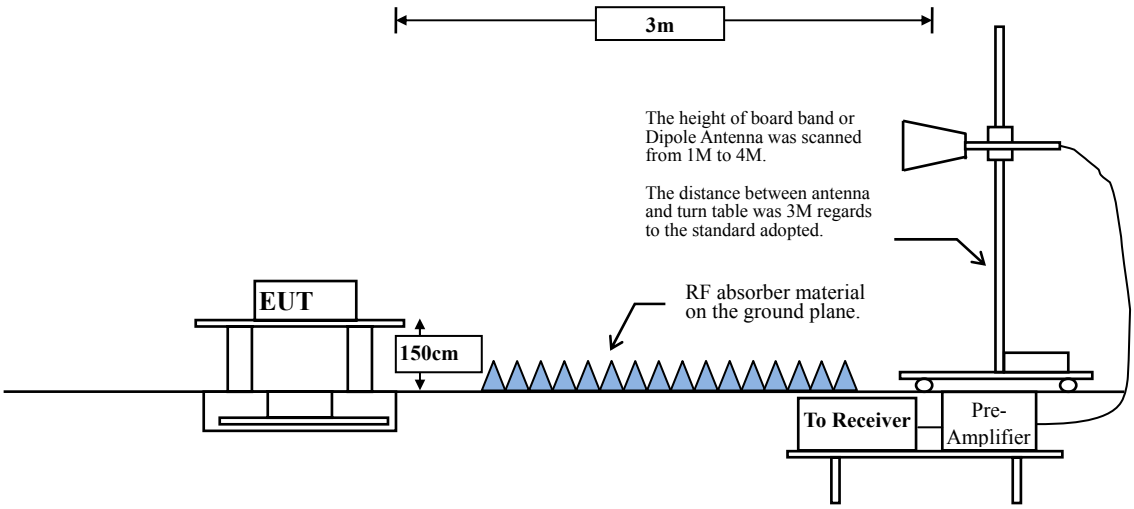
Radiated Emission Under 30MHz



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.

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 ≥ 1/T:

Mode	Duty Cycle	T	1/T	VBW Setting
802.11b	100.00	--	--	10 Hz
802.11g	100.00	--	--	10 Hz
802.11n20	100.00	--	--	10 Hz
802.11n40	100.00	--	--	10 Hz

4.4. Uncertainty

± 4.08 dB above 1GHz

± 4.22 dB below 1GHz

4.5. Test Result of Radiated Emission

Product : FLIC HUB
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Date : 2018/01/09
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	2.428	44.990	47.419	-26.581	74.000
7236.000	9.177	45.020	54.197	-19.803	74.000
9648.000	10.019	39.920	49.940	-24.060	74.000
Average Detector:					
7236.000	9.177	37.300	46.477	-7.523	54.000
Vertical					
Peak Detector:					
4824.000	2.836	42.140	44.977	-29.023	74.000
7236.000	9.676	49.190	58.866	-15.134	74.000
9648.000	10.556	39.970	50.527	-23.473	74.000
Average Detector:					
7236.000	9.676	43.520	53.196	-0.804	54.000

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.

Product	:	FLIC HUB
Test Item	:	Harmonic Radiated Emission Data
Test Site	:	No.3 OATS
Test Date	:	2018/01/09
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	2.076	44.790	46.867	-27.133	74.000
7311.000	9.512	44.070	53.582	-20.418	74.000
9748.000	9.630	41.220	50.850	-23.150	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4874.000	2.532	42.800	45.332	-28.668	74.000
7311.000	10.089	49.220	59.309	-14.691	74.000
9748.000	10.266	39.940	50.207	-23.793	74.000
Average Detector:					
7311.000	10.089	43.650	53.739	-0.261	54.000

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.

Product : FLIC HUB
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Date : 2018/01/09
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	2.191	45.040	47.231	-26.769	74.000
7386.000	10.373	45.010	55.384	-18.616	74.000
9848.000	9.964	39.510	49.474	-24.526	74.000
Average Detector:					
7386.000	10.373	38.300	48.674	-5.326	54.000
Vertical					
Peak Detector:					
4924.000	2.805	42.730	45.535	-28.465	74.000
7386.000	11.180	48.030	59.210	-14.790	74.000
9848.000	10.801	40.210	51.011	-22.989	74.000
Average Detector:					
7386.000	11.180	42.440	53.620	-0.380	54.000

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.

Product : FLIC HUB
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Date : 2018/01/09
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	2.428	42.880	45.309	-28.691	74.000
7236.000	9.676	47.020	56.696	-22.696	74.000
9648.000	10.019	39.150	49.170	-24.830	74.000
Average Detector:					
7236.000	9.676	32.870	42.546	-11.454	54.000
Vertical					
Peak Detector:					
4824.000	2.836	41.820	44.657	-29.343	74.000
7236.000	9.676	51.100	60.776	-13.224	74.000
9648.000	10.556	39.820	50.377	-23.623	74.000
Average Detector:					
7236.000	9.676	36.980	46.656	-7.344	54.000

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.

Product : FLIC HUB
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Date : 2018/01/09
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	2.076	45.510	47.587	-26.413	74.000
7311.000	9.512	50.460	59.972	-14.028	74.000
9748.000	9.630	39.790	49.420	-24.580	74.000
Average Detector:					
7311.000	9.512	36.940	46.452	-7.548	54.000
Vertical					
Peak Detector:					
4874.000	2.532	42.790	45.322	-28.678	74.000
7311.000	10.089	55.620	65.709	-8.291	74.000
9748.000	10.266	40.040	50.307	-23.693	74.000
Average Detector:					
7311.000	10.089	42.400	52.489	-1.511	54.000

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.

Product : FLIC HUB
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Date : 2018/01/09
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	2.191	42.110	44.301	-29.699	74.000
7386.000	10.373	44.980	55.354	-18.646	74.000
9848.000	9.964	39.350	49.314	-24.686	74.000
Average Detector:					
7386.000	10.373	30.100	40.474	-13.526	54.000
Vertical					
Peak Detector:					
4924.000	2.805	41.530	44.335	-29.665	74.000
7386.000	11.180	47.570	58.750	-15.250	74.000
9848.000	10.801	39.600	50.401	-23.599	74.000
Average Detector:					
7386.000	11.180	33.110	44.290	-9.710	54.000

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.

Product : FLIC HUB
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Date : 2018/01/09
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	2.428	42.550	44.979	-29.021	74.000
7236.000	9.177	47.100	56.277	-17.723	74.000
9648.000	10.019	39.820	49.840	-24.160	74.000
Average Detector:					
7236.000	9.177	31.280	40.457	-13.543	54.000
Vertical					
Peak Detector:					
4824.000	2.836	41.280	44.117	-29.883	74.000
7236.000	9.676	52.750	62.426	-11.574	74.000
9648.000	10.556	39.900	50.457	-23.543	74.000
Average Detector:					
7236.000	9.676	36.470	46.146	-7.854	54.000

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.

Product	:	FLIC HUB
Test Item	:	Harmonic Radiated Emission Data
Test Site	:	No.3 OATS
Test Date	:	2018/01/09
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	2.076	45.890	47.967	-26.033	74.000
7311.000	9.512	50.920	60.432	-13.568	74.000
9748.000	9.630	39.710	49.340	-24.660	74.000
Average Detector:					
7311.000	9.512	36.100	45.612	-8.388	54.000
Vertical					
Peak Detector:					
4874.000	2.532	43.520	46.052	-27.948	74.000
7311.000	10.089	55.670	65.759	-8.241	74.000
9748.000	10.266	39.900	50.167	-23.833	74.000
Average Detector:					
7311.000	10.089	39.880	49.969	-4.031	54.000

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.

Product : FLIC HUB
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Date : 2018/01/09
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	2.191	42.120	44.311	-29.689	74.000
7386.000	10.373	45.470	55.844	-18.156	74.000
9848.000	9.964	39.270	49.234	-24.766	74.000
Average Detector:					
7386.000	10.373	29.830	40.204	-13.796	54.000
Vertical					
Peak Detector:					
4924.000	2.805	41.750	44.555	-29.445	74.000
7386.000	11.180	48.290	59.470	-14.530	74.000
9848.000	10.801	39.640	50.441	-23.559	74.000
Average Detector:					
7386.000	11.180	31.960	43.140	-10.860	54.000

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.

Product : FLIC HUB
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Date : 2018/01/09
Test Mode : Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW)(2422MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
4844.000	2.280	41.490	43.771	-30.229	74.000
7266.000	9.106	41.170	50.276	-23.724	74.000
9688.000	9.663	39.760	49.423	-24.577	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4844.000	2.707	41.490	44.198	-29.802	74.000
7266.000	9.626	44.350	53.976	-20.024	74.000
9688.000	10.284	39.250	49.534	-24.466	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	:	FLIC HUB
Test Item	:	Harmonic Radiated Emission Data
Test Site	:	No.3 OATS
Test Date	:	2018/01/09
Test Mode	:	Mode 4: Transmit (802.11n MCS0 15Mbps 40M-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	2.076	43.540	45.617	-28.383	74.000
7311.000	9.512	46.810	56.322	-17.678	74.000
9748.000	9.630	40.140	49.770	-24.230	74.000
Average Detector:					
7311.000	9.512	33.940	43.452	-10.548	54.000
Vertical					
Peak Detector:					
4874.000	2.532	41.850	44.382	-29.618	74.000
7311.000	10.089	51.230	61.319	-12.681	74.000
9748.000	10.266	39.950	50.217	-23.783	74.000
Average Detector:					
7311.000	10.089	38.860	48.949	-5.051	54.000

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.

Product : FLIC HUB
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Date : 2018/01/09
Test Mode : Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW)(2452 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
4904.000	2.000	42.070	44.071	-29.929	74.000
7356.000	10.308	41.400	51.708	-22.292	74.000
9808.000	9.850	38.790	48.640	-25.360	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4904.000	2.513	41.700	44.214	-29.786	74.000
7356.000	11.022	42.760	53.782	-20.218	74.000
9808.000	10.512	38.650	49.162	-24.838	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 : FLIC HUB
Test Item : General Radiated Emission Data
Test Site : No.3 OATS
Test Date : 2018/01/08
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					
62.980	-12.319	44.894	32.575	-7.425	40.000
198.780	-9.958	41.769	31.811	-11.689	43.500
350.100	-1.298	41.463	40.165	-5.835	46.000
450.980	0.835	42.202	43.037	-2.963	46.000
549.920	3.662	39.779	43.440	-2.560	46.000
701.240	2.759	33.320	36.079	-9.921	46.000
Vertical					
86.260	-4.042	36.663	32.621	-7.379	40.000
198.780	-5.708	37.351	31.643	-11.857	43.500
350.100	-1.278	36.544	35.266	-10.734	46.000
450.980	-5.625	42.103	36.478	-9.522	46.000
549.920	-0.478	38.619	38.140	-7.860	46.000
800.180	2.637	24.301	26.938	-19.062	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. No emission found between lowest internal used/generated frequency to 30MHz.

Product : FLIC HUB
Test Item : General Radiated Emission Data
Test Site : No.3 OATS
Test Date : 2018/01/08
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					
61.040	-12.057	44.710	32.653	-7.347	40.000
198.780	-9.958	41.714	31.756	-11.744	43.500
350.100	-1.298	41.231	39.933	-6.067	46.000
450.980	0.835	41.559	42.394	-3.606	46.000
549.920	3.662	38.308	41.969	-4.031	46.000
699.300	2.956	40.452	43.408	-2.592	46.000
Vertical					
88.200	-4.076	36.662	32.586	-10.914	43.500
198.780	-5.708	37.364	31.656	-11.844	43.500
350.100	-1.278	36.436	35.158	-10.842	46.000
450.980	-5.625	41.876	36.251	-9.749	46.000
549.920	-0.478	38.412	37.933	-8.067	46.000
749.740	2.023	24.403	26.426	-19.574	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. No emission found between lowest internal used/generated frequency to 30MHz.

Product : FLIC HUB
Test Item : General Radiated Emission Data
Test Site : No.3 OATS
Test Date : 2018/01/08
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					
61.040	-12.057	44.419	32.362	-7.638	40.000
198.780	-9.958	41.386	31.428	-12.072	43.500
350.100	-1.298	41.633	40.335	-5.665	46.000
450.980	0.835	41.516	42.351	-3.649	46.000
549.920	3.662	38.285	41.946	-4.054	46.000
699.300	2.956	39.836	42.792	-3.208	46.000
Vertical					
86.260	-4.042	36.806	32.764	-7.236	40.000
198.780	-5.708	37.082	31.374	-12.126	43.500
350.100	-1.278	36.558	35.280	-10.720	46.000
450.980	-5.625	41.570	35.945	-10.055	46.000
549.920	-0.478	38.168	37.689	-8.311	46.000
600.360	1.302	28.729	30.031	-15.969	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. No emission found between lowest internal used/generated frequency to 30MHz.

Product : FLIC HUB
Test Item : General Radiated Emission Data
Test Site : No.3 OATS
Test Date : 2018/01/08
Test Mode : Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW)(2437 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBµV	dBµV/m	dB	dBµV/m
Horizontal					
61.040	-12.057	45.052	32.995	-7.005	40.000
198.780	-9.958	41.672	31.714	-11.786	43.500
350.100	-1.298	40.465	39.167	-6.833	46.000
450.980	0.835	41.217	42.052	-3.948	46.000
549.920	3.662	38.075	41.736	-4.264	46.000
697.360	3.231	37.141	40.372	-5.628	46.000
Vertical					
86.260	-4.042	36.902	32.860	-7.140	40.000
198.780	-5.708	37.319	31.611	-11.889	43.500
350.100	-1.278	36.585	35.307	-10.693	46.000
450.980	-5.625	41.491	35.866	-10.134	46.000
549.920	-0.478	38.113	37.634	-8.366	46.000
749.740	2.023	24.863	26.886	-19.114	46.000

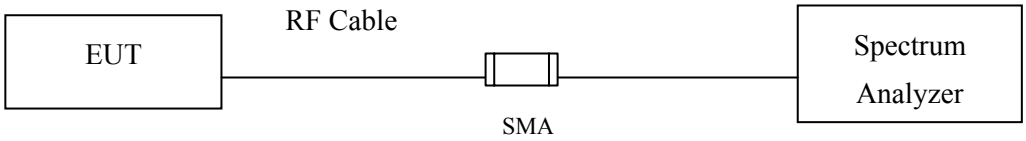
Note:

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. 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.

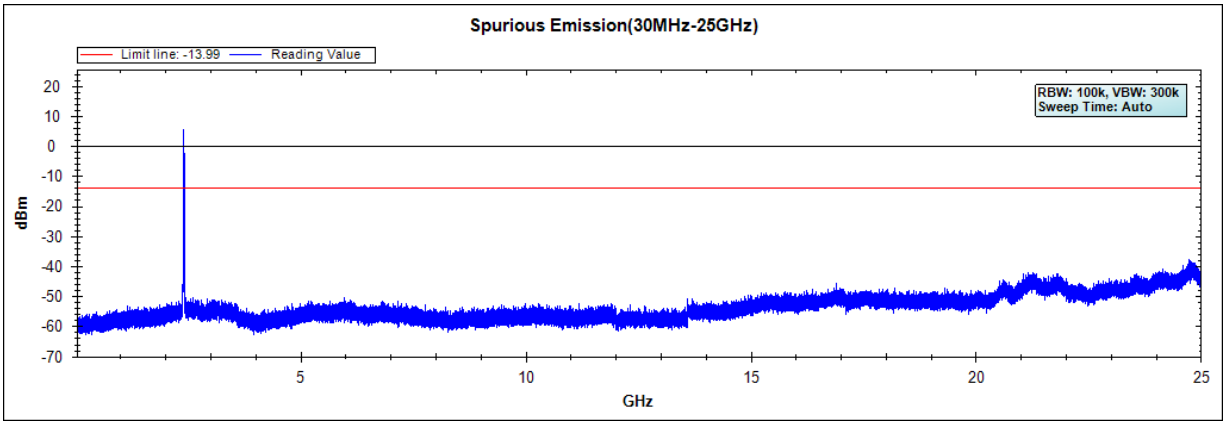
5.4. Uncertainty

The measurement uncertainty
Conducted is defined as ± 1.20dB

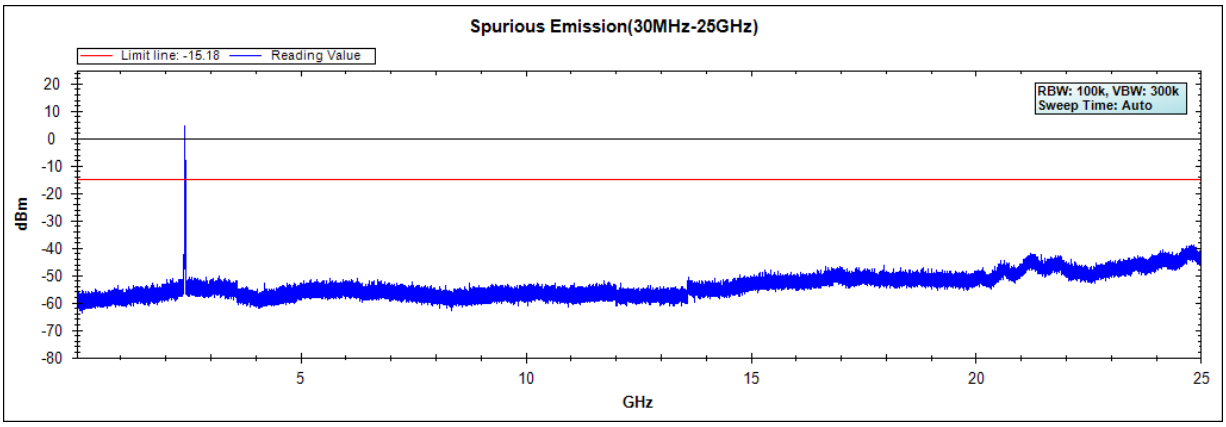
5.5. Test Result of RF antenna conducted test

Product	:	FLIC HUB
Test Item	:	RF antenna conducted test
Test Site	:	No.3 OATS
Test Date	:	2018/01/08
Test Mode	:	Mode 1: Transmit (802.11b 1Mbps)

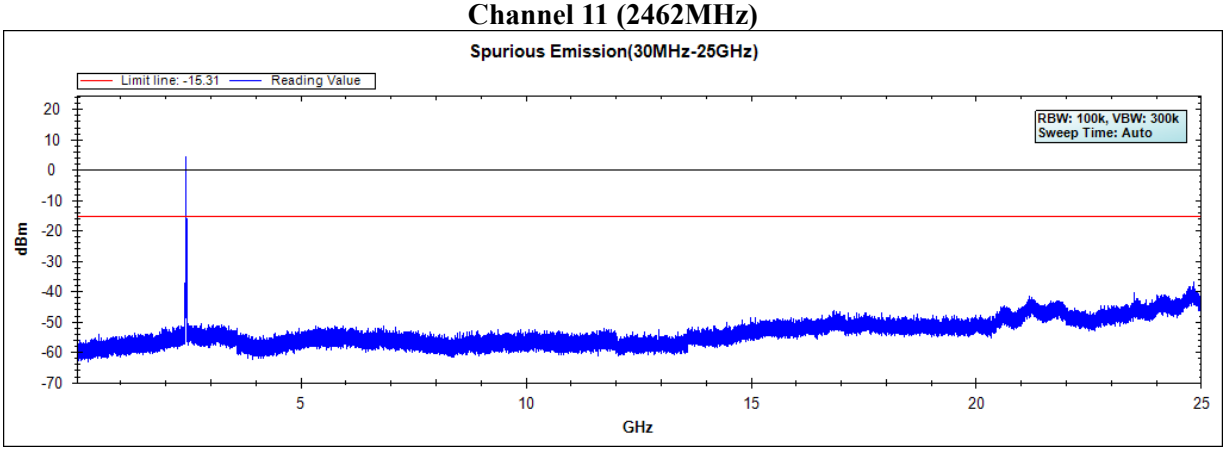
Channel 01 (2412MHz)



Channel 06 (2437MHz)



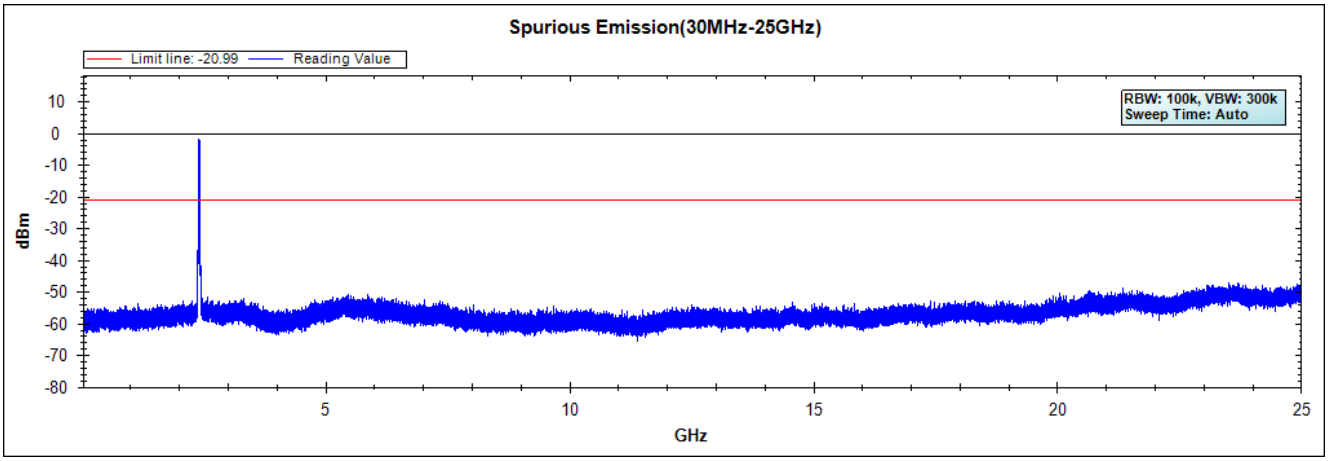
Channel 11 (2462MHz)



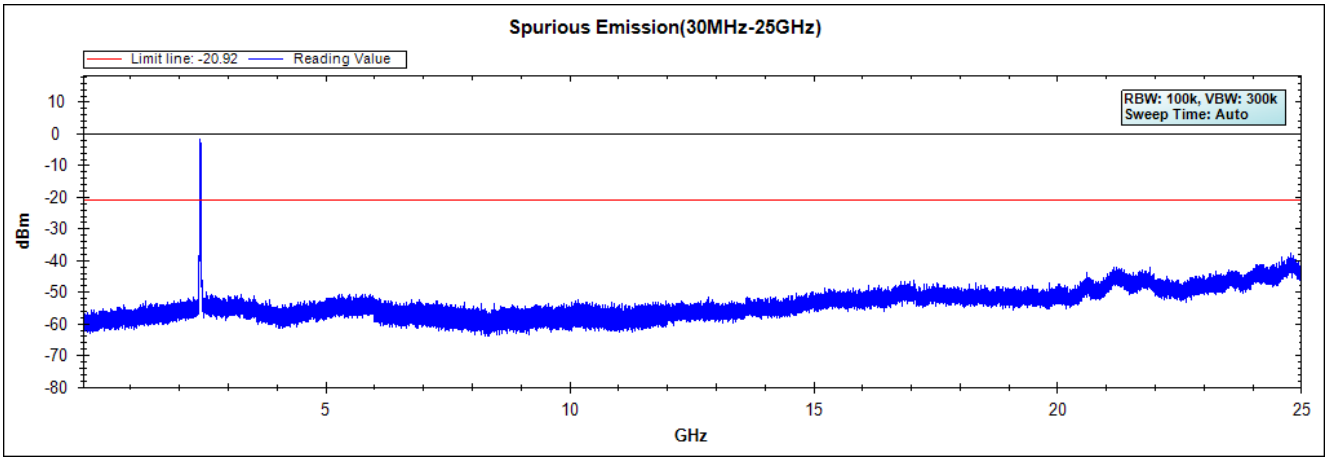
Note: The above test pattern is synthesized by multiple of the frequency range.

Product	:	FLIC HUB
Test Item	:	RF Antenna Conducted Spurious
Test Site	:	No.3 OATS
Test Date	:	2018/01/08
Test Mode	:	Mode 2: Transmit (802.11g 6Mbps)

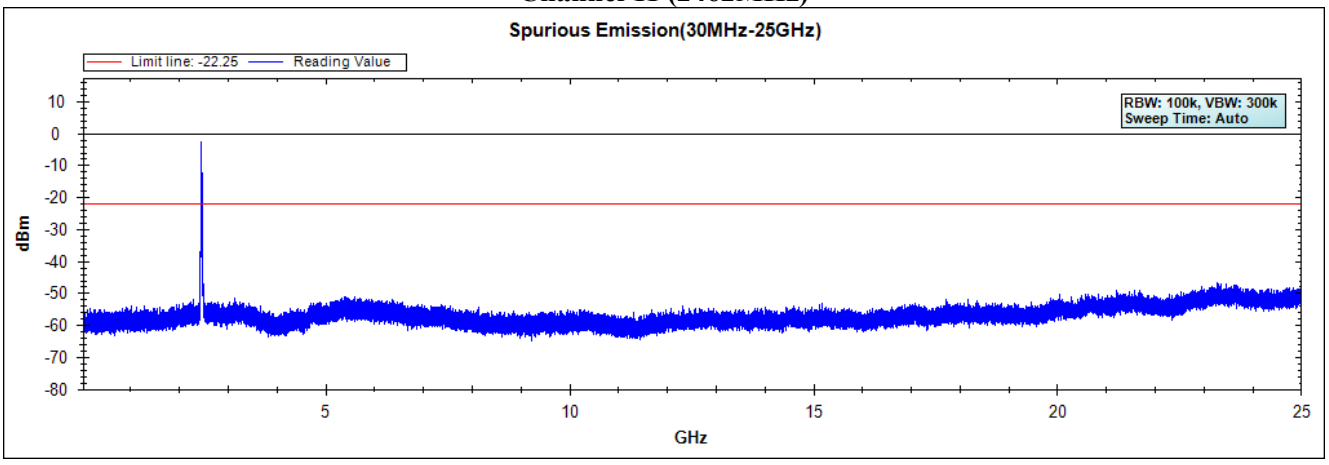
Channel 01 (2412MHz)



Channel 06 (2437MHz)



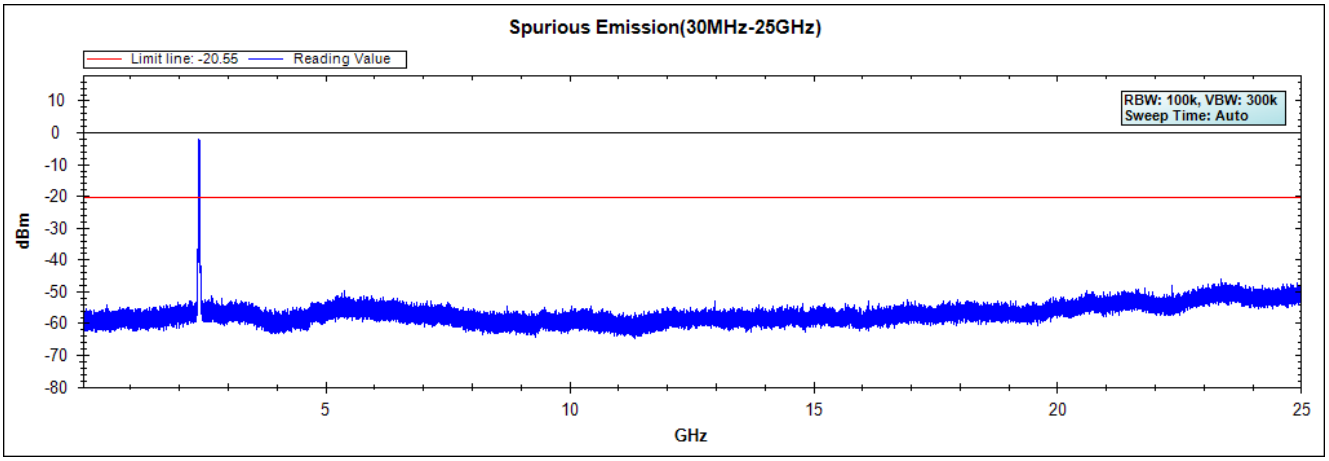
Channel 11 (2462MHz)



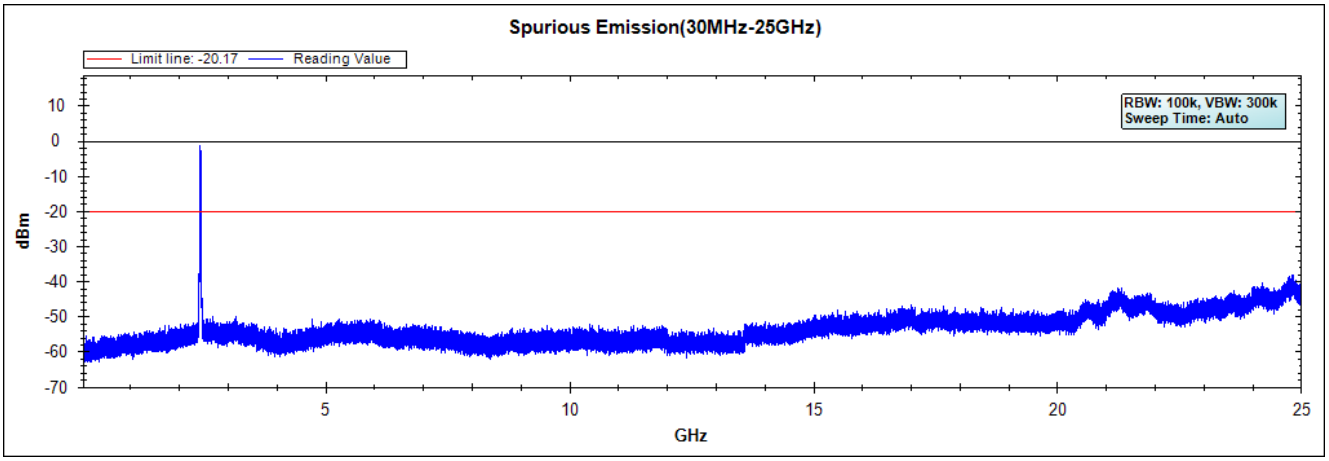
Note: The above test pattern is synthesized by multiple of the frequency range.

Product	:	FLIC HUB
Test Item	:	RF Antenna Conducted Spurious
Test Site	:	No.3 OATS
Test Date	:	2018/01/08
Test Mode	:	Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW)

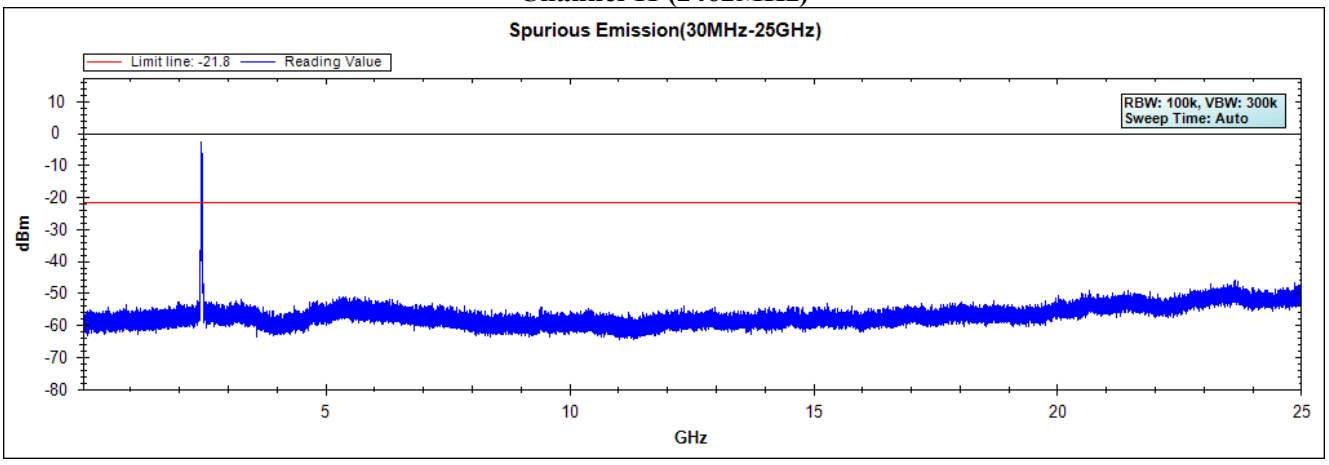
Channel 01 (2412MHz)



Channel 06 (2437MHz)



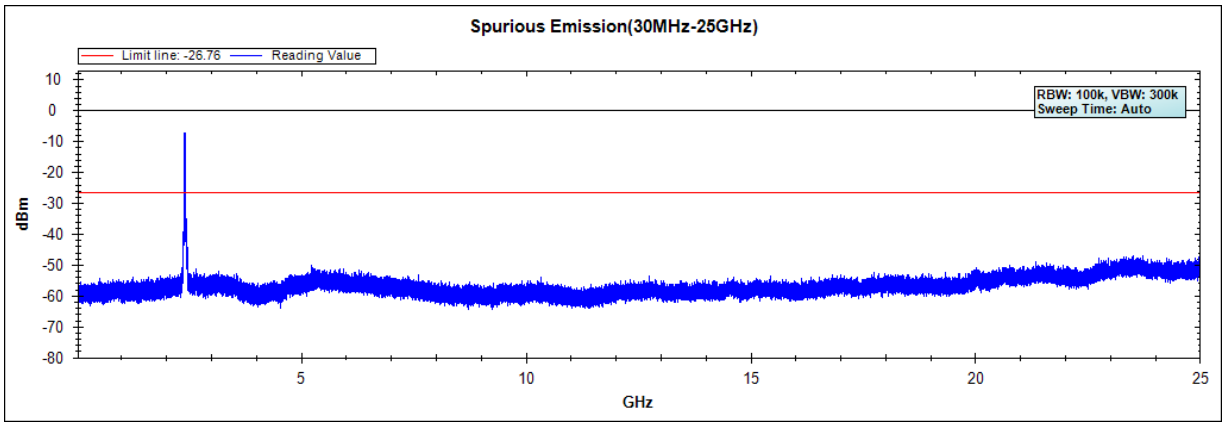
Channel 11 (2462MHz)



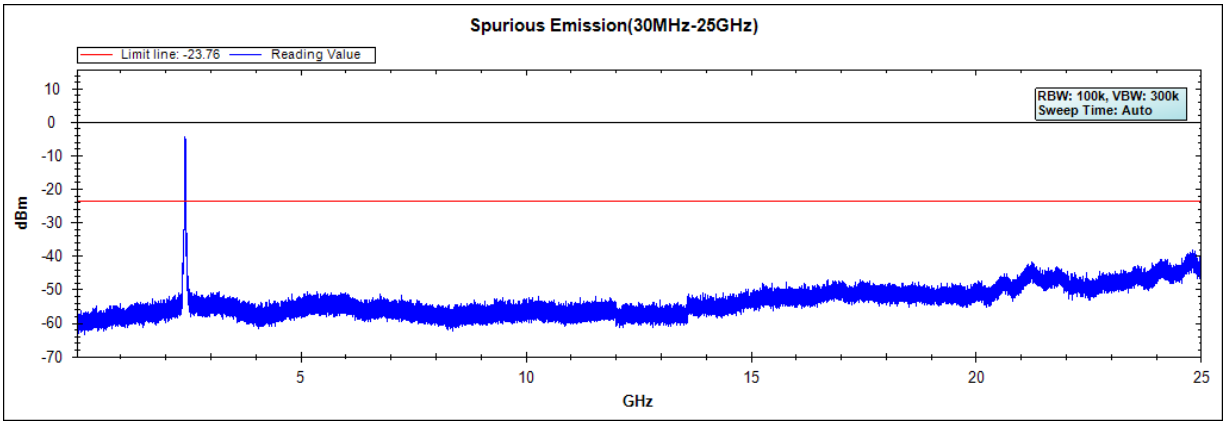
Note: The above test pattern is synthesized by multiple of the frequency range.

Product	:	FLIC HUB
Test Item	:	RF Antenna Conducted Spurious
Test Site	:	No.3 OATS
Test Date	:	2018/01/08
Test Mode	:	Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW)

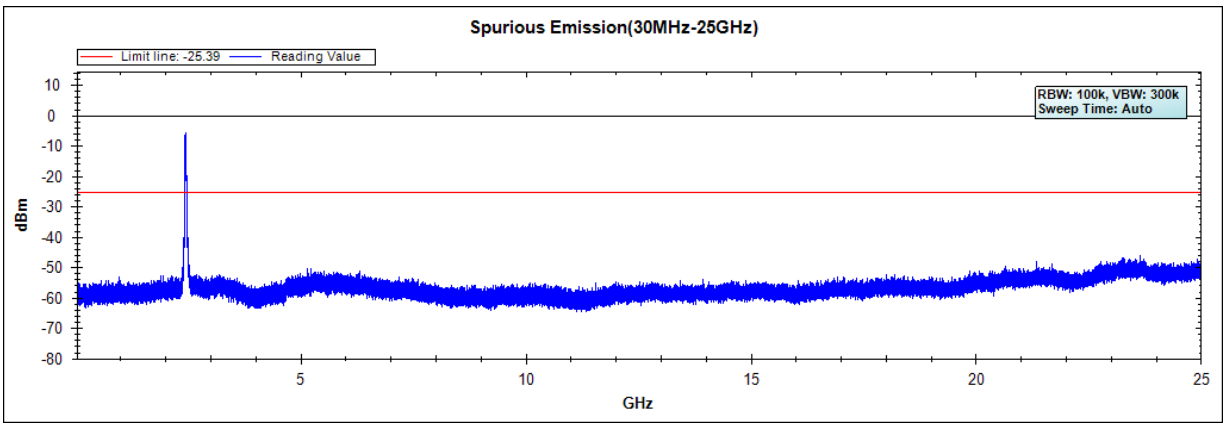
Channel 03 (2422MHz)



Channel 06 (2437MHz)



Channel 09 (2452MHz)

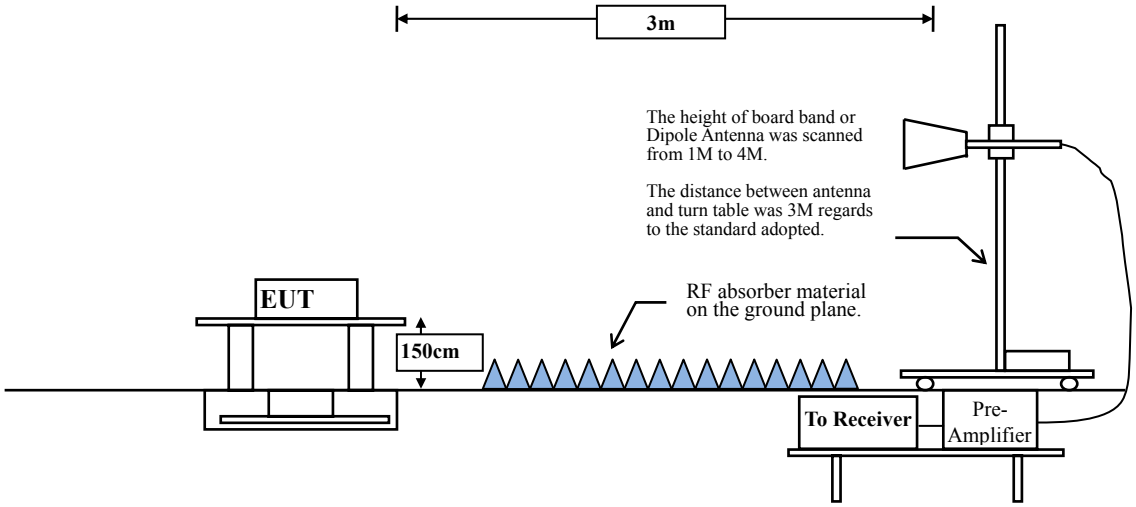


Note: The above test pattern is synthesized by multiple of the frequency range.

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.

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 ≥ 1/T:

Mode	Duty Cycle	T	1/T	VBW Setting
802.11b	100.00	--	--	10 Hz
802.11g	100.00	--	--	10 Hz
802.11n20	100.00	--	--	10 Hz
802.11n40	100.00	--	--	10 Hz

6.4. Uncertainty

± 4.08 dB above 1GHz

± 4.22 dB below 1GHz

6.5. Test Result of Band Edge

Product : FLIC HUB
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Date : 2018/01/04
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)	2386.957	6.461	51.008	57.469	74.00	54.00	Pass
01 (Peak)	2390.000	6.474	46.814	53.289	74.00	54.00	Pass
01 (Peak)	2397.536	6.514	62.980	69.493	--	--	--
01 (Peak)	2400.000	6.528	56.056	62.584	--	--	--
01 (Peak)	2413.188	6.611	97.791	104.402	--	--	--
01 (Average)	2387.246	6.462	45.536	51.999	74.00	54.00	Pass
01 (Average)	2390.000	6.474	36.082	42.557	74.00	54.00	Pass
01 (Average)	2396.377	6.506	59.679	66.185	--	--	--
01 (Average)	2400.000	6.528	49.941	56.469	--	--	--
01 (Average)	2412.899	6.609	94.852	101.461	--	--	--

Figure Channel 01: Horizontal (Peak)

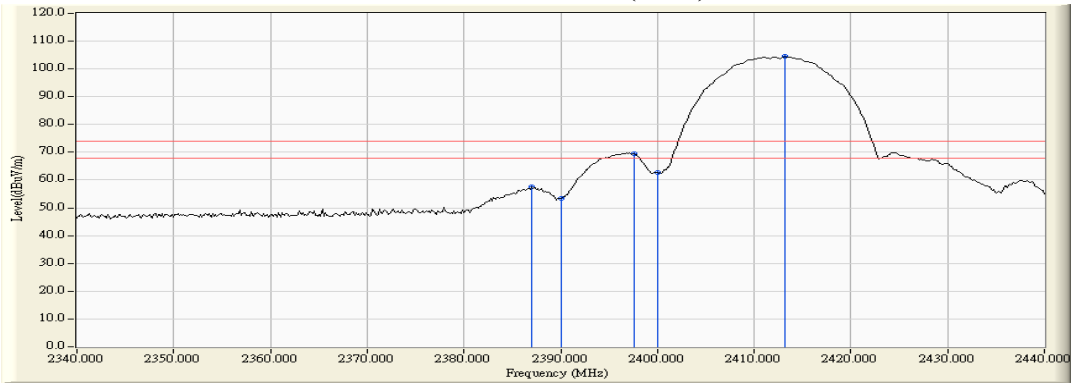
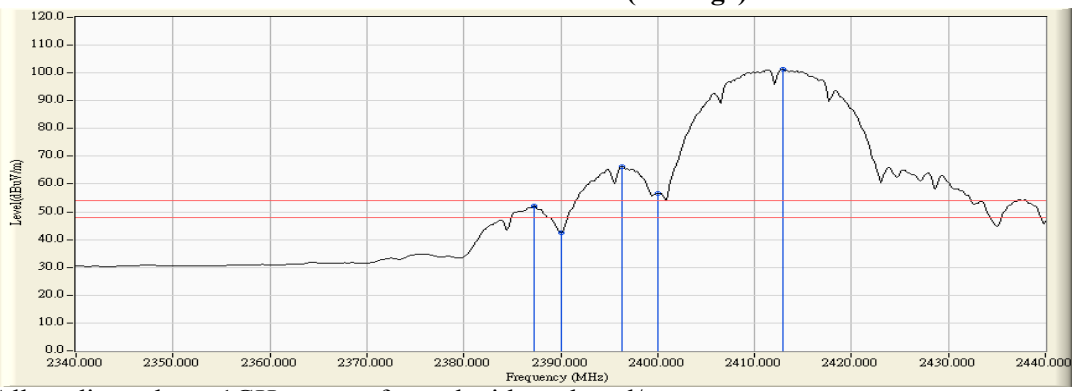


Figure Channel 01: Horizontal (Average)



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 : FLIC HUB
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Date : 2018/01/04
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)	2387.246	5.892	47.147	53.039	74.00	54.00	Pass
01 (Peak)	2390.000	5.880	43.583	49.464	74.00	54.00	Pass
01 (Peak)	2396.957	5.872	58.539	64.410	--	--	--
01 (Peak)	2400.000	5.879	52.555	58.434	--	--	--
01 (Peak)	2413.188	5.921	91.897	97.818	--	--	--
01 (Average)	2387.246	5.892	39.444	45.336	74.00	54.00	Pass
01 (Average)	2390.000	5.880	30.565	36.446	74.00	54.00	Pass
01 (Average)	2396.377	5.870	54.635	60.505	--	--	--
01 (Average)	2400.000	5.879	45.539	51.418	--	--	--
01 (Average)	2412.899	5.920	88.900	94.819	--	--	--

Figure Channel 01: VERTICAL (Peak)

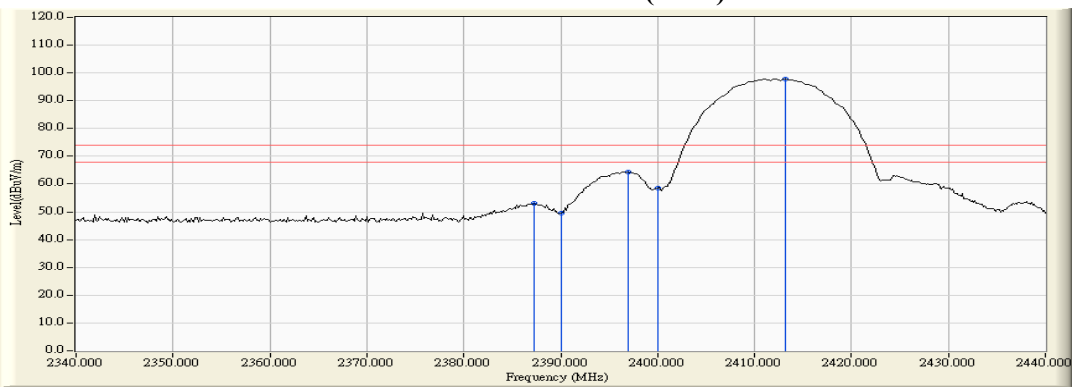
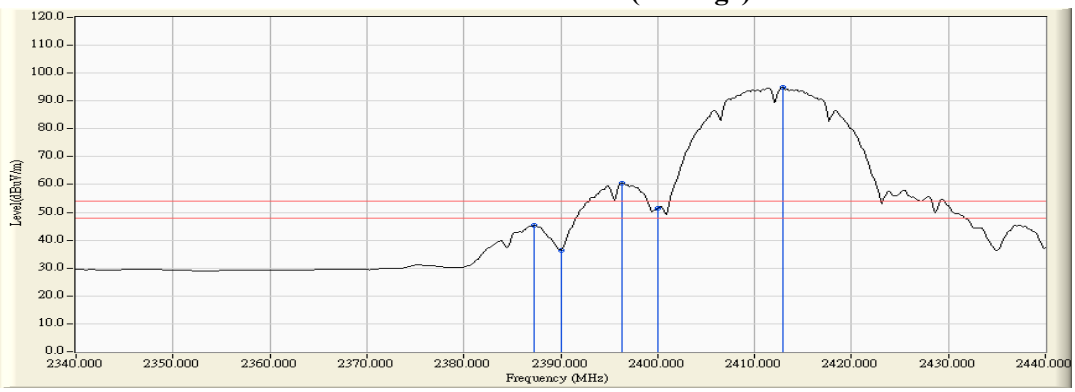


Figure Channel 01: VERTICAL (Average)



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 : FLIC HUB
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Date : 2018/01/04
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)	2463.065	6.966	99.448	106.414	--	--	--
11 (Peak)	2483.500	7.110	50.973	58.083	74.00	54.00	Pass
11 (Peak)	2487.993	7.142	51.300	58.442	74.00	54.00	Pass
11 (Average)	2462.775	6.964	96.263	103.227	--	--	--
11 (Average)	2483.500	7.110	44.259	51.369	74.00	54.00	Pass

Figure Channel 11: Horizontal (Peak)

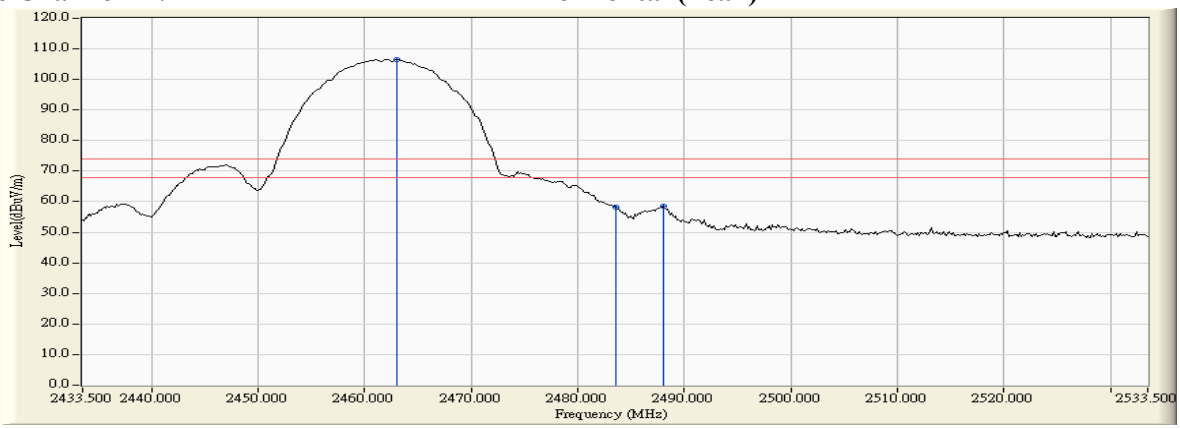
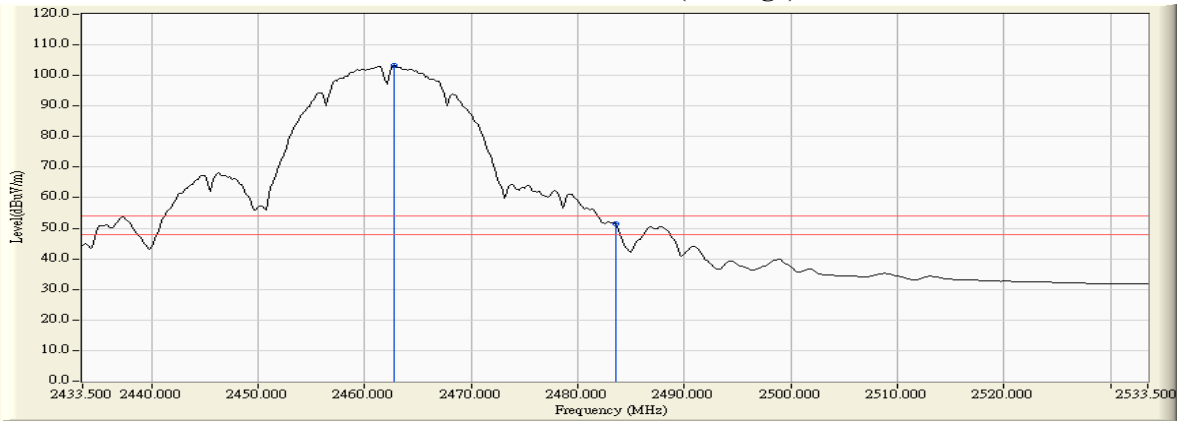


Figure Channel 11: Horizontal (Average)



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 : FLIC HUB
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Date : 2018/01/04
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)	2462.196	6.230	92.796	99.027	--	--	--
11 (Peak)	2483.500	6.363	46.367	52.730	74.00	54.00	Pass
11 (Average)	2462.775	6.234	89.837	96.071	--	--	--
11 (Average)	2483.500	6.363	37.080	43.443	74.00	54.00	Pass

Figure Channel 11: VERTICAL (Peak)

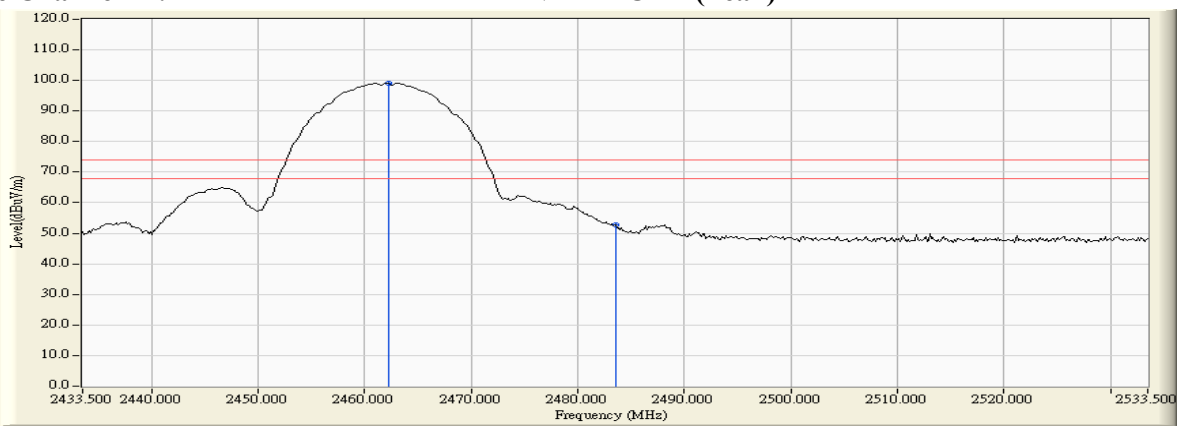


Figure Channel 11: VERTICAL (Average)

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 : FLIC HUB
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Date : 2018/01/04
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)	2390.000	6.474	60.718	67.193	74.00	54.00	Pass
01 (Peak)	2400.000	6.528	72.941	79.469	--	--	--
01 (Peak)	2417.391	6.641	97.697	104.338	--	--	--
01 (Average)	2390.000	6.474	44.858	51.333	74.00	54.00	Pass
01 (Average)	2400.000	6.528	53.317	59.845	--	--	--
01 (Average)	2417.391	6.641	88.243	94.884	--	--	--

Figure Channel 01: Horizontal (Peak)

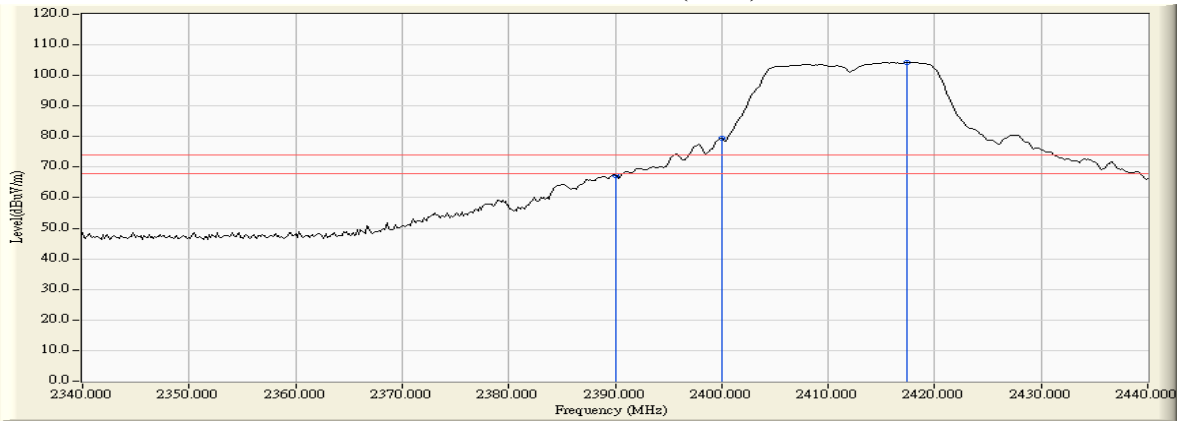
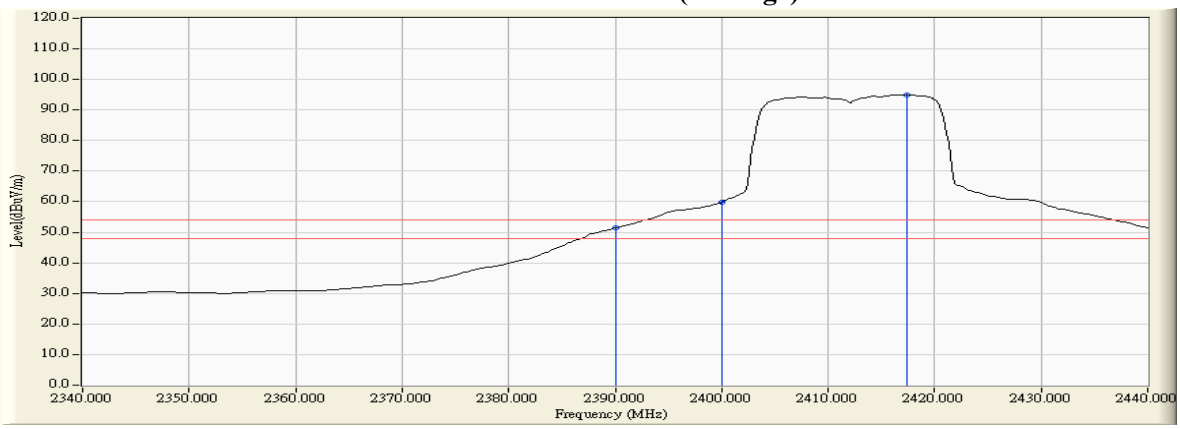


Figure Channel 01: Horizontal (Average)



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 : FLIC HUB
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Date : 2018/01/04
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)	2390.000	5.880	55.801	61.682	74.00	54.00	Pass
01 (Peak)	2400.000	5.879	67.663	73.542	--	--	--
01 (Peak)	2417.391	5.947	92.398	98.345	--	--	--
01 (Average)	2390.000	5.880	39.279	45.160	74.00	54.00	Pass
01 (Average)	2400.000	5.879	48.142	54.021	--	--	--
01 (Average)	2417.391	5.947	82.982	88.929	--	--	--

Figure Channel 01: VERTICAL (Peak)

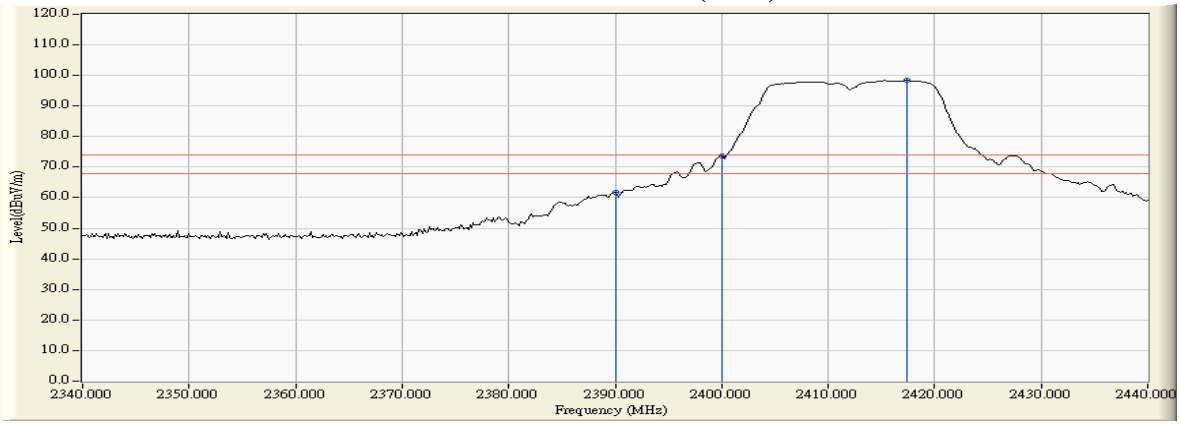
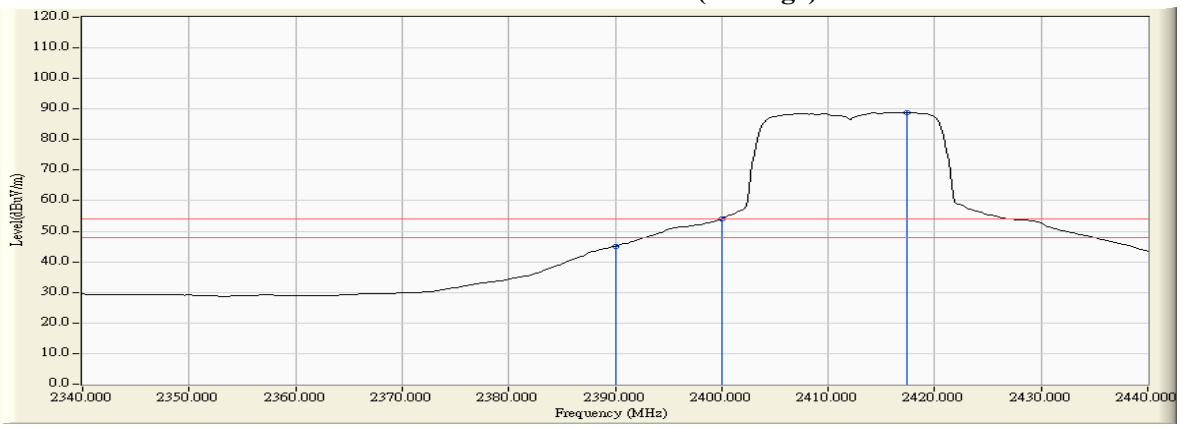


Figure Channel 01: VERTICAL (Average)



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 : FLIC HUB
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Date : 2018/01/04
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)	2465.094	6.980	97.837	104.817	--	--	--
11 (Peak)	2483.500	7.110	62.898	70.008	74.00	54.00	Pass
11 (Peak)	2487.993	7.142	63.282	70.424	74.00	54.00	Pass
11 (Average)	2464.080	6.973	88.281	95.254	--	--	--
11 (Average)	2483.500	7.110	42.616	49.726	74.00	54.00	Pass

Figure Channel 11: Horizontal (Peak)

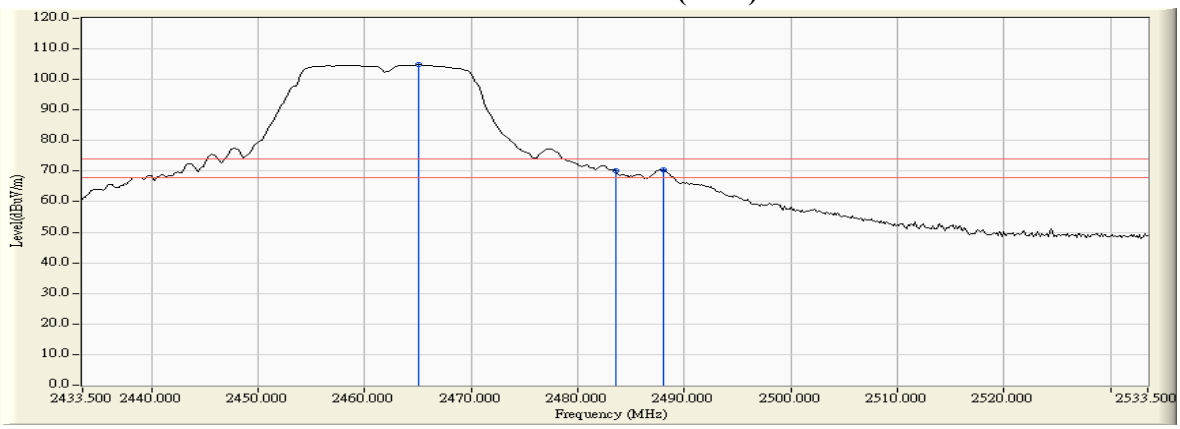
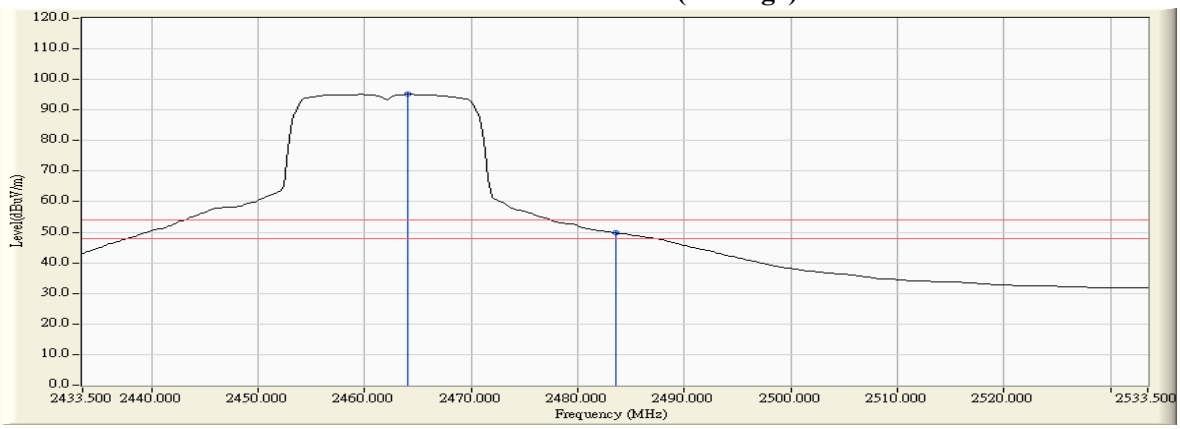


Figure Channel 11: Horizontal (Average)



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 : FLIC HUB
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Date : 2018/01/04
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)	2458.862	6.210	91.135	97.344	--	--	--
11 (Peak)	2483.500	6.363	55.433	61.796	74.00	54.00	Pass
11 (Average)	2464.080	6.243	81.696	87.938	--	--	--
11 (Average)	2483.500	6.363	35.309	41.672	74.00	54.00	Pass

Figure Channel 11: VERTICAL (Peak)

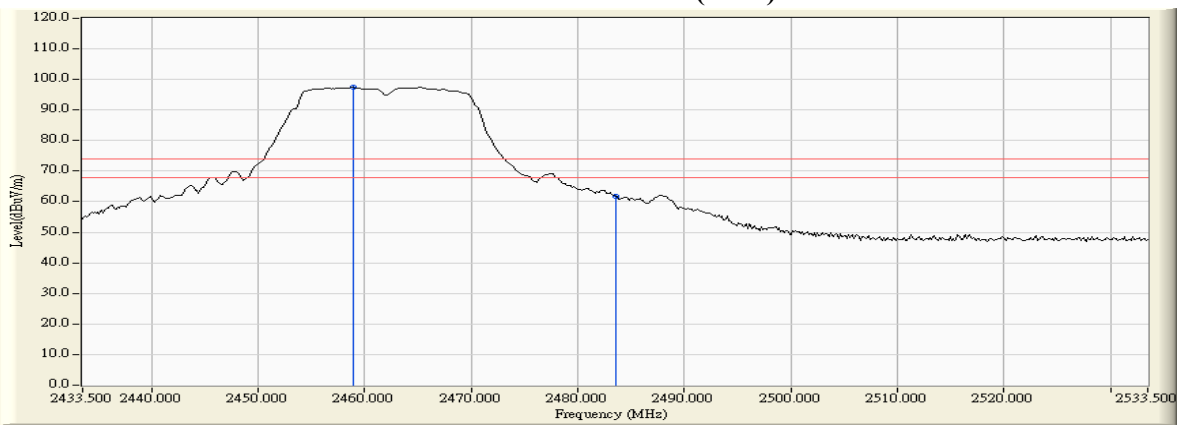
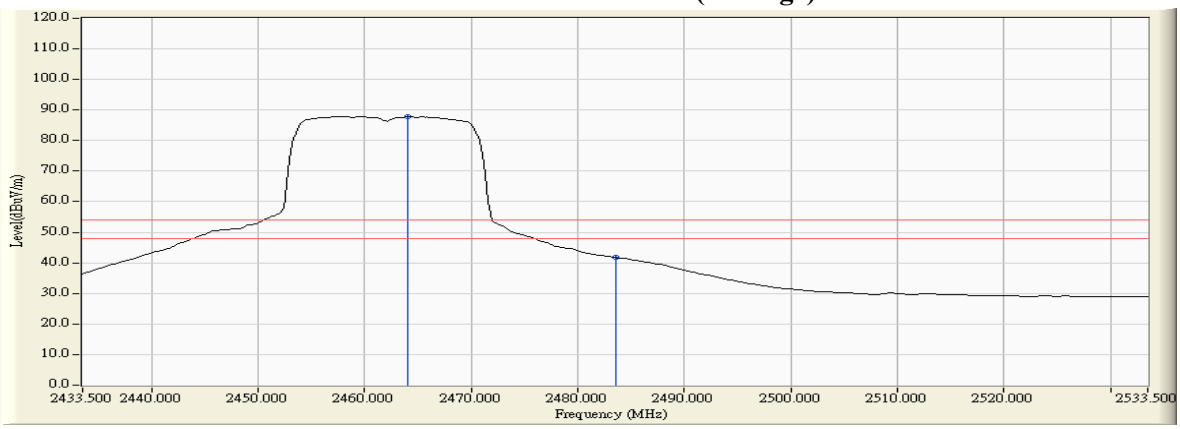


Figure Channel 11: VERTICAL (Average)



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 : FLIC HUB
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Date : 2018/01/04
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)	2390.000	6.474	61.907	68.382	74.00	54.00	Pass
01 (Peak)	2400.000	6.528	71.699	78.227	--	--	--
01 (Peak)	2417.681	6.644	97.425	104.068	--	--	--
01 (Average)	2390.000	6.474	45.485	51.960	74.00	54.00	Pass
01 (Average)	2400.000	6.528	53.198	59.726	--	--	--
01 (Average)	2417.391	6.641	87.867	94.508	--	--	--

Figure Channel 01: Horizontal (Peak)

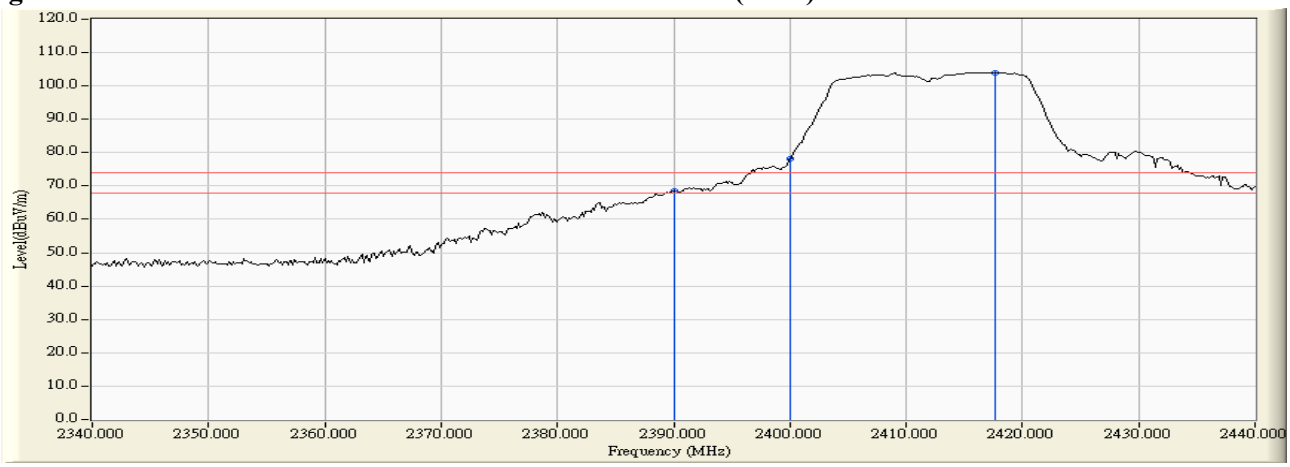
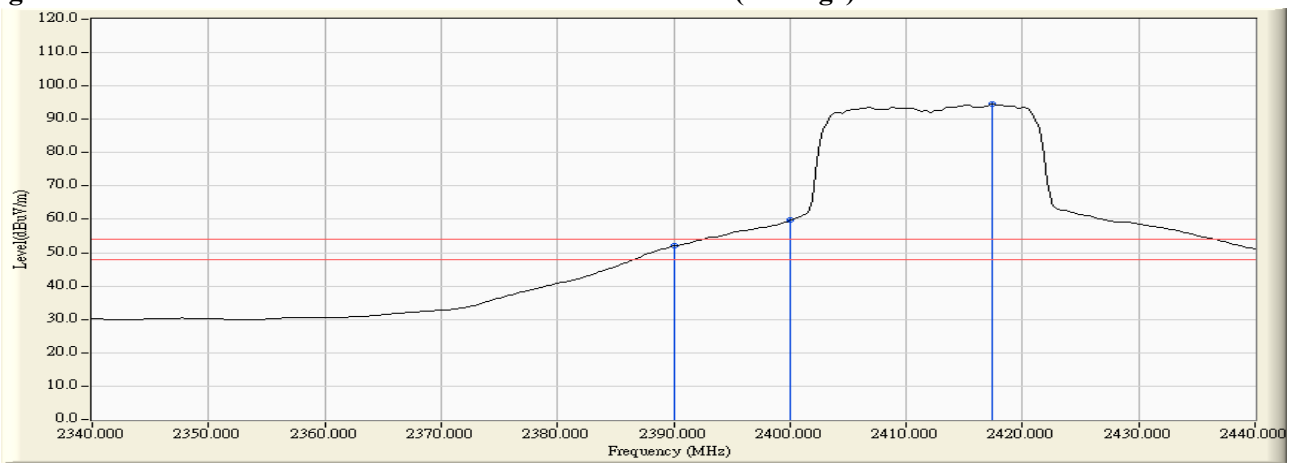


Figure Channel 01: Horizontal (Average)



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 : FLIC HUB
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Date : 2018/01/04
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)	2389.710	5.882	56.743	62.625	74.00	54.00	Pass
01 (Peak)	2390.000	5.880	56.012	61.893	74.00	54.00	Pass
01 (Peak)	2400.000	5.879	67.157	73.036	--	--	--
01 (Peak)	2408.986	5.902	92.422	98.324	--	--	--
01 (Average)	2390.000	5.880	40.291	46.172	74.00	54.00	Pass
01 (Average)	2400.000	5.879	48.260	54.139	--	--	--
01 (Average)	2417.391	5.947	82.703	88.650	--	--	--

Figure Channel 01: VERTICAL (Peak)

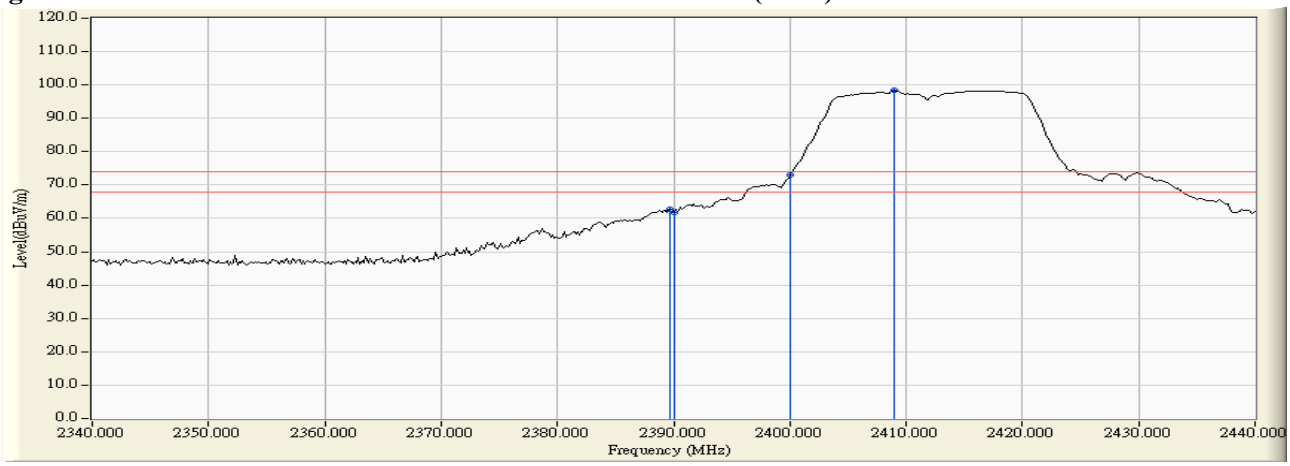
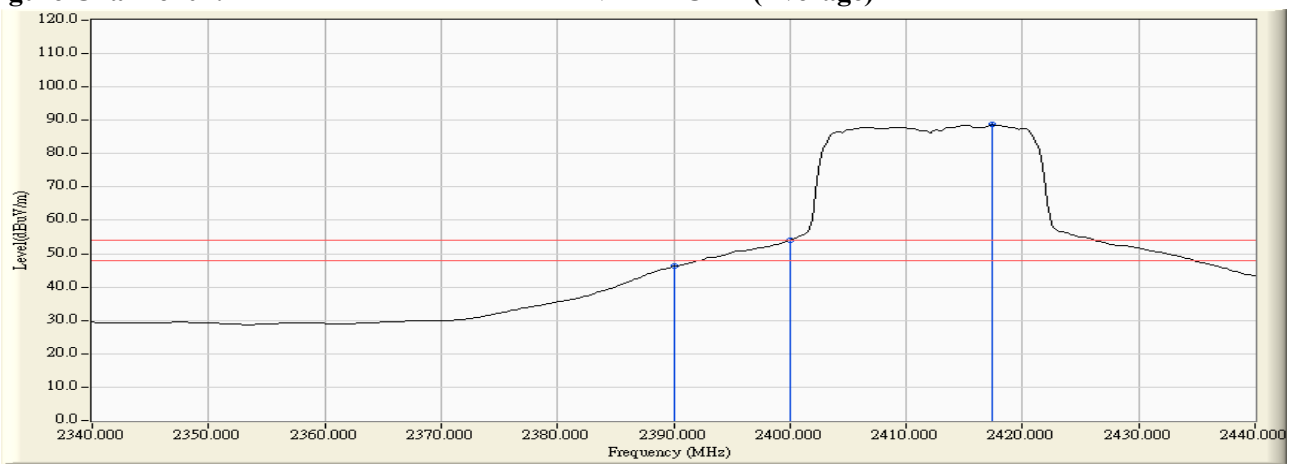


Figure Channel 01: VERTICAL (Average)



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 : FLIC HUB
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Date : 2018/01/04
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)	2459.007	6.937	98.526	105.463	--	--	--
11 (Peak)	2483.500	7.110	64.342	71.452	74.00	54.00	Pass
11 (Peak)	2484.370	7.116	64.816	71.932	74.00	54.00	Pass
11 (Average)	2465.094	6.980	87.802	94.782	--	--	--
11 (Average)	2483.500	7.110	41.757	48.867	74.00	54.00	Pass

Figure Channel 11: Horizontal (Peak)

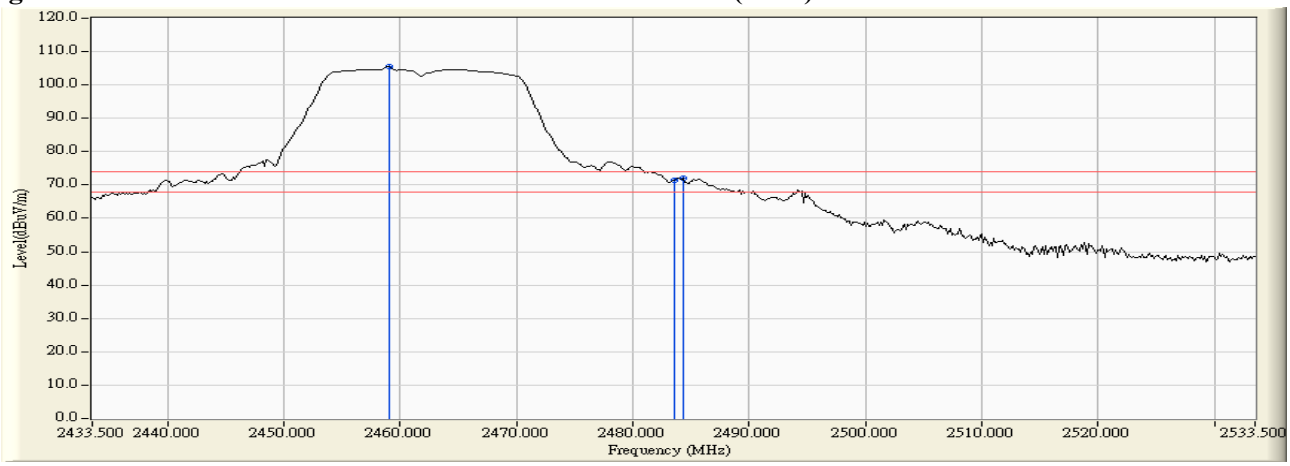
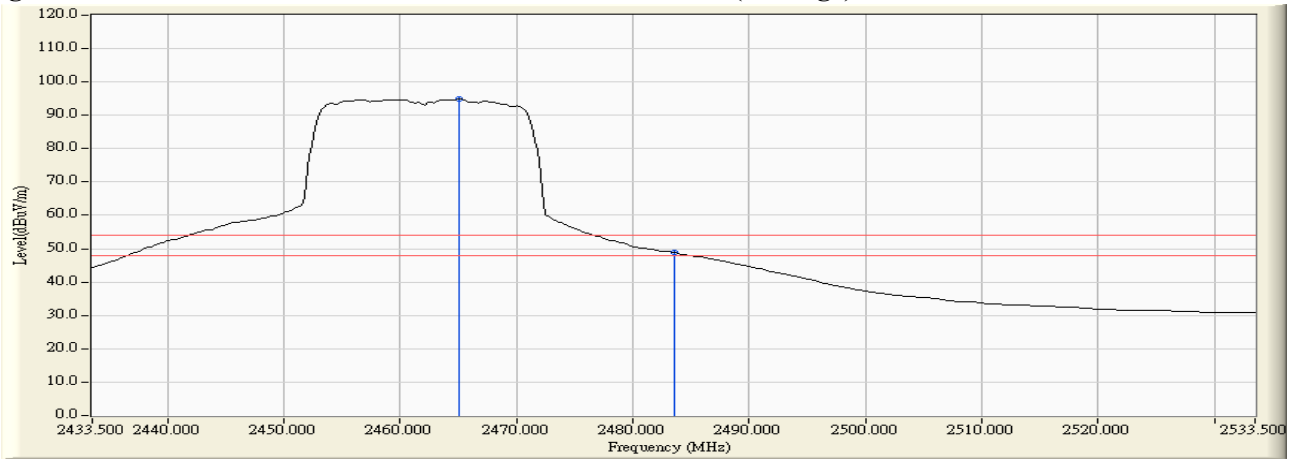


Figure Channel 11: Horizontal (Average)



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 : FLIC HUB
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Date : 2018/01/04
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)	2459.007	6.211	91.568	97.778	--	--	--
11 (Peak)	2483.500	6.363	57.049	63.412	74.00	54.00	Pass
11 (Average)	2456.833	6.196	80.989	87.185	--	--	--
11 (Average)	2483.500	6.363	34.466	40.829	74.00	54.00	Pass

Figure Channel 11: VERTICAL (Peak)

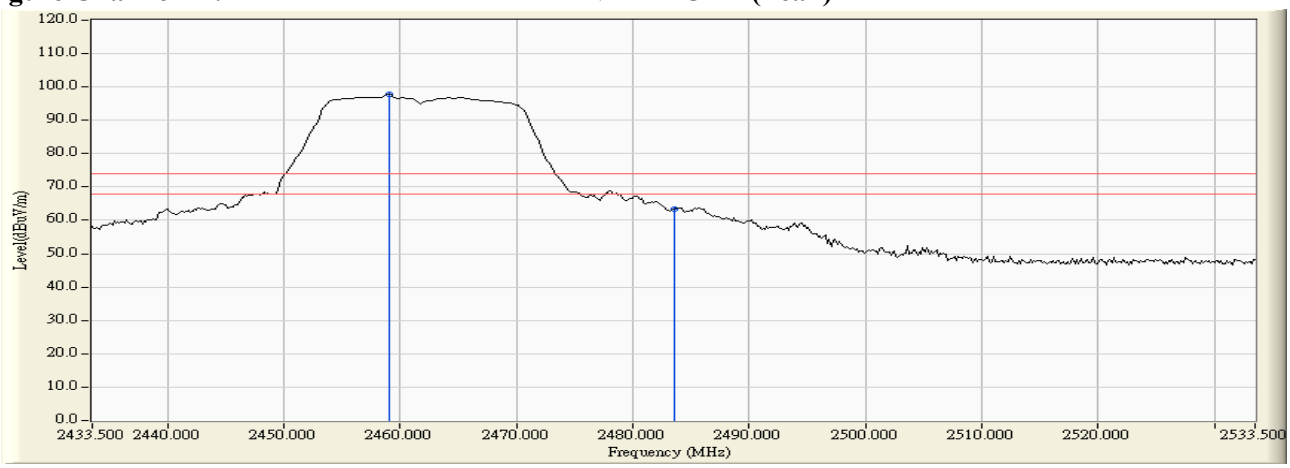
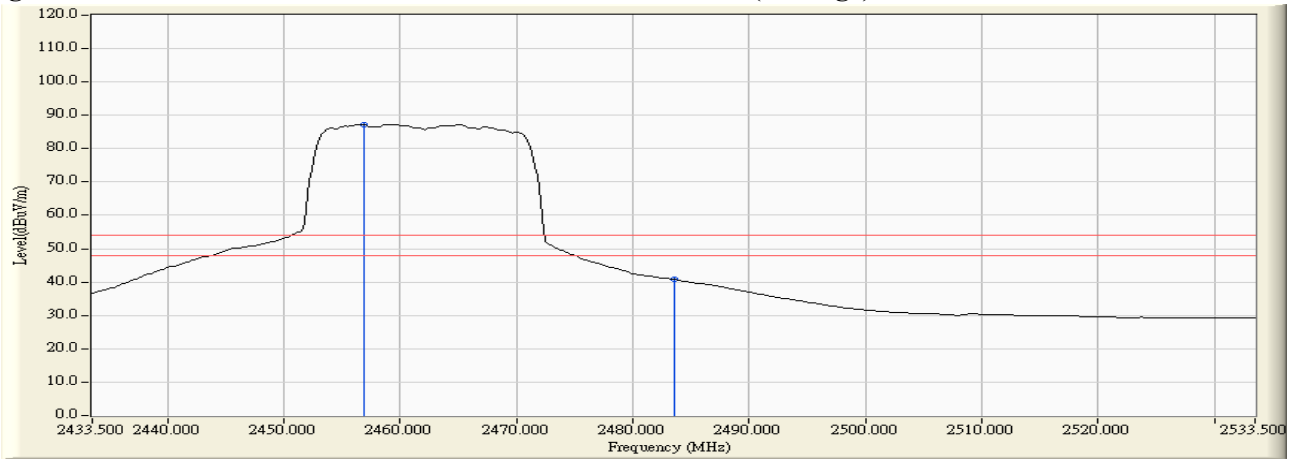


Figure Channel 11: VERTICAL (Average)



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 : FLIC HUB
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Date : 2018/01/04
Test Mode : Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW) (2422MHz)

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
03 (Peak)	2388.696	6.469	59.373	65.842	74.00	54.00	Pass
03 (Peak)	2390.000	6.474	57.240	63.715	74.00	54.00	Pass
03 (Peak)	2397.971	6.516	62.165	68.681	--	--	--
03 (Peak)	2400.000	6.528	61.015	67.543	--	--	--
03 (Peak)	2428.841	6.722	93.152	99.875	--	--	--
03 (Average)	2390.000	6.474	45.257	51.732	74.00	54.00	Pass
03 (Average)	2400.000	6.528	47.914	54.442	--	--	--
03 (Average)	2426.812	6.708	82.812	89.520	--	--	--

Figure Channel 03: Horizontal (Peak)

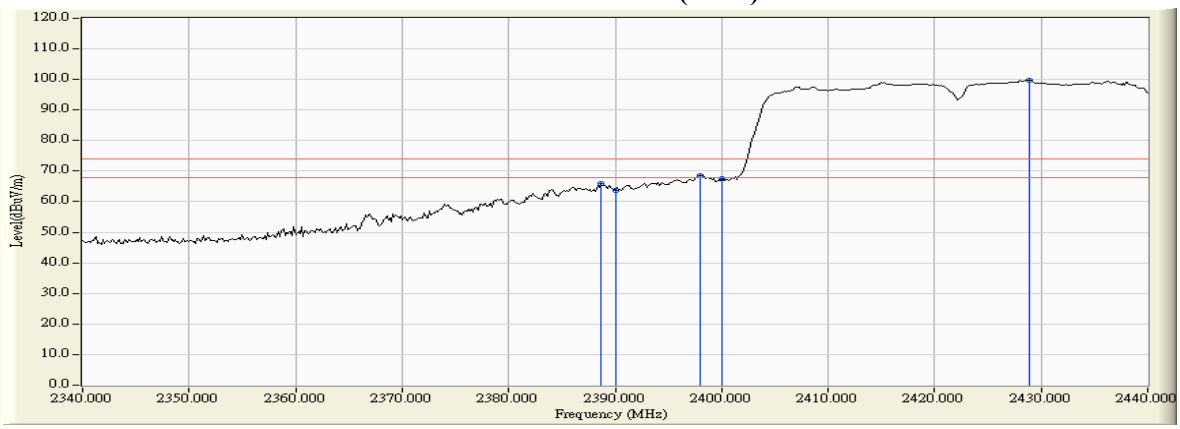
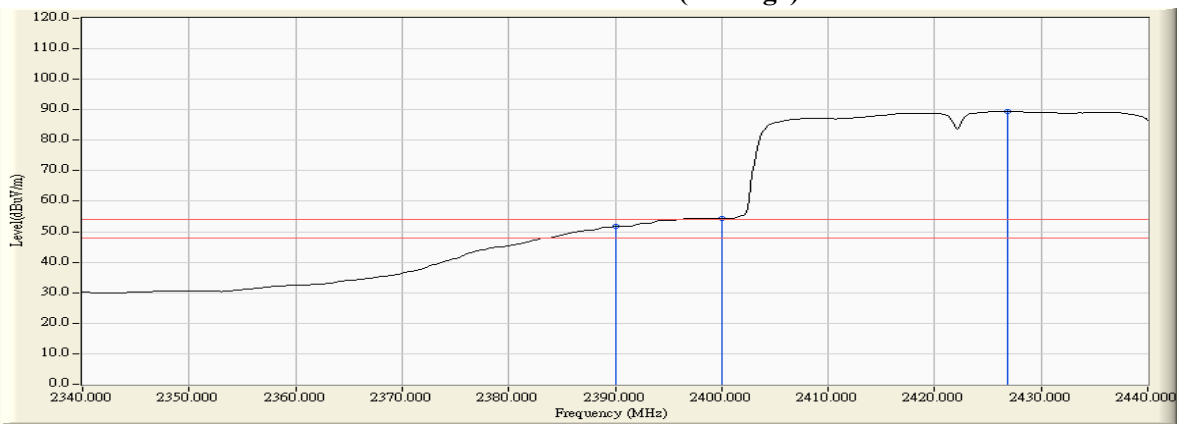


Figure Channel 03: Horizontal (Average)



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 : FLIC HUB
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Date : 2018/01/04
Test Mode : Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW) (2422MHz)

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
03 (Peak)	2388.696	5.886	54.123	60.009	74.00	54.00	Pass
03 (Peak)	2390.000	5.880	52.603	58.484	74.00	54.00	Pass
03 (Peak)	2397.826	5.874	57.215	63.089	--	--	--
03 (Peak)	2400.000	5.879	55.870	61.749	--	--	--
03 (Peak)	2428.841	6.019	87.192	93.211	--	--	--
03 (Average)	2390.000	5.880	39.395	45.276	74.00	54.00	Pass
03 (Average)	2400.000	5.879	42.214	48.093	--	--	--
03 (Average)	2426.812	6.006	76.937	82.943	--	--	--

Figure Channel 03: VERTICAL (Peak)

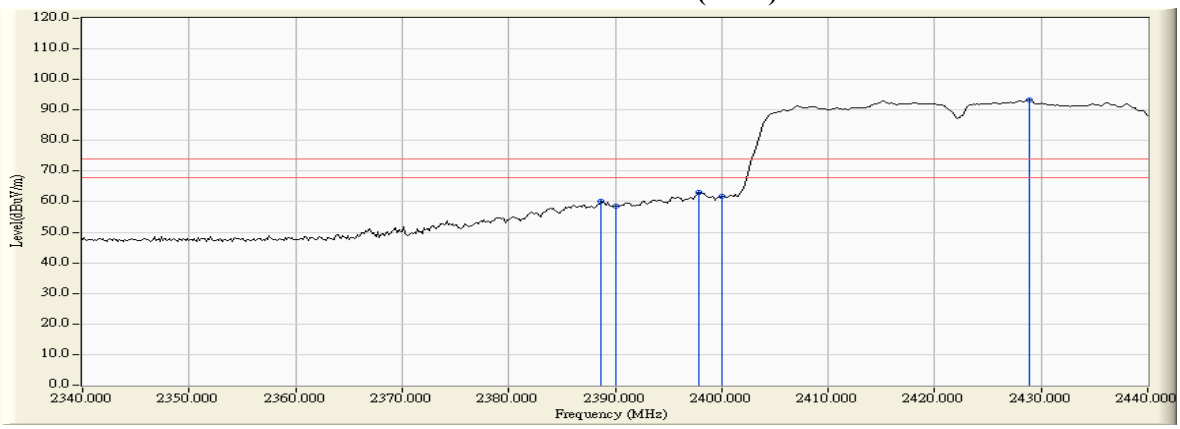
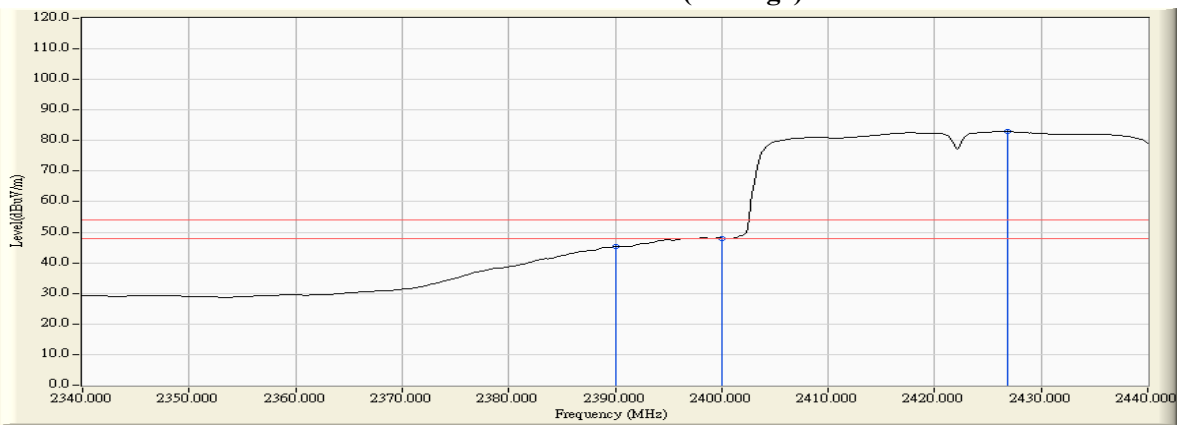


Figure Channel 03: VERTICAL (Average)



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 : FLIC HUB
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Date : 2018/01/04
Test Mode : Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW) (2452MHz)

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
09 (Peak)	2458.717	6.936	94.713	101.648	--	--	--
09 (Peak)	2483.500	7.110	63.424	70.534	74.00	54.00	Pass
09 (Peak)	2485.819	7.126	64.927	72.053	74.00	54.00	Pass
09 (Average)	2456.978	6.923	84.399	91.322	--	--	--
09 (Average)	2483.500	7.110	42.738	49.848	74.00	54.00	Pass

Figure Channel 09: Horizontal (Peak)

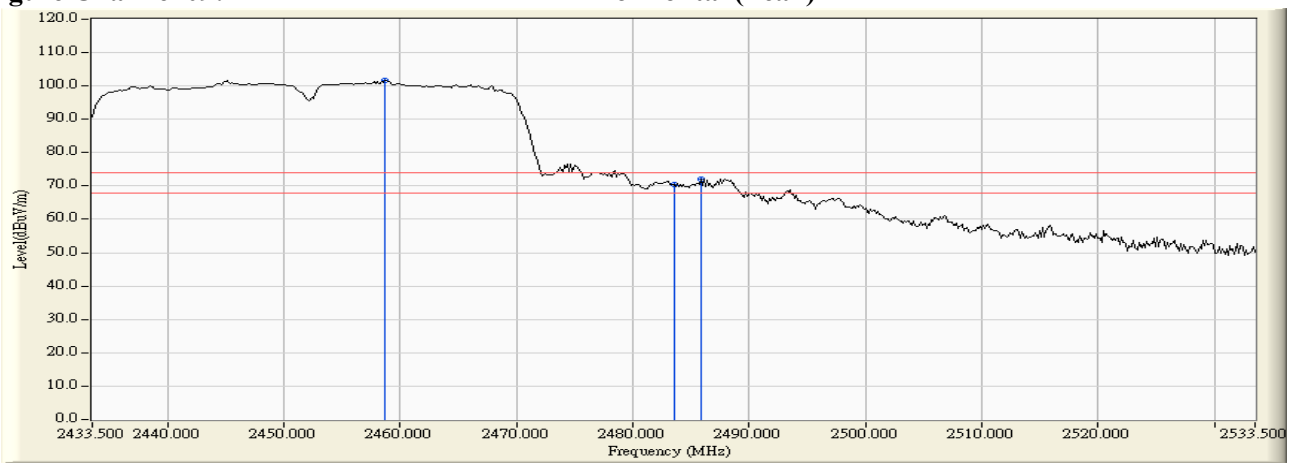
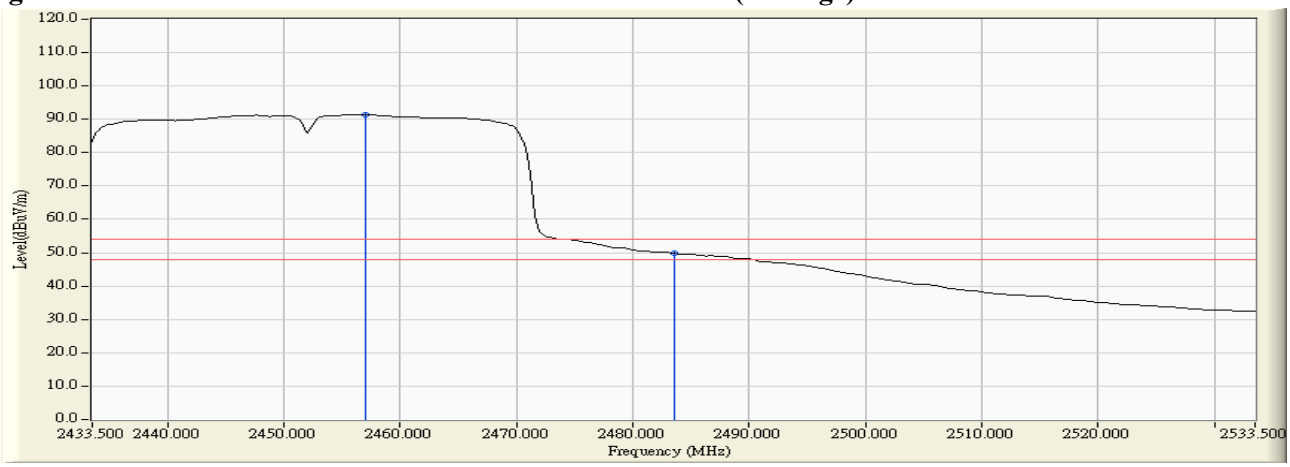


Figure Channel 09: Horizontal (Average)



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 : FLIC HUB
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Date : 2018/01/04
Test Mode : Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW) (2452MHz)

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
09 (Peak)	2444.949	6.120	88.319	94.439	--	--	--
09 (Peak)	2483.500	6.363	57.196	63.559	74.00	54.00	Pass
09 (Peak)	2486.109	6.379	58.552	64.932	74.00	54.00	Pass
09 (Average)	2446.688	6.131	77.820	83.951	--	--	--
09 (Average)	2483.500	6.363	36.320	42.683	74.00	54.00	Pass

Figure Channel 09: VERTICAL (Peak)

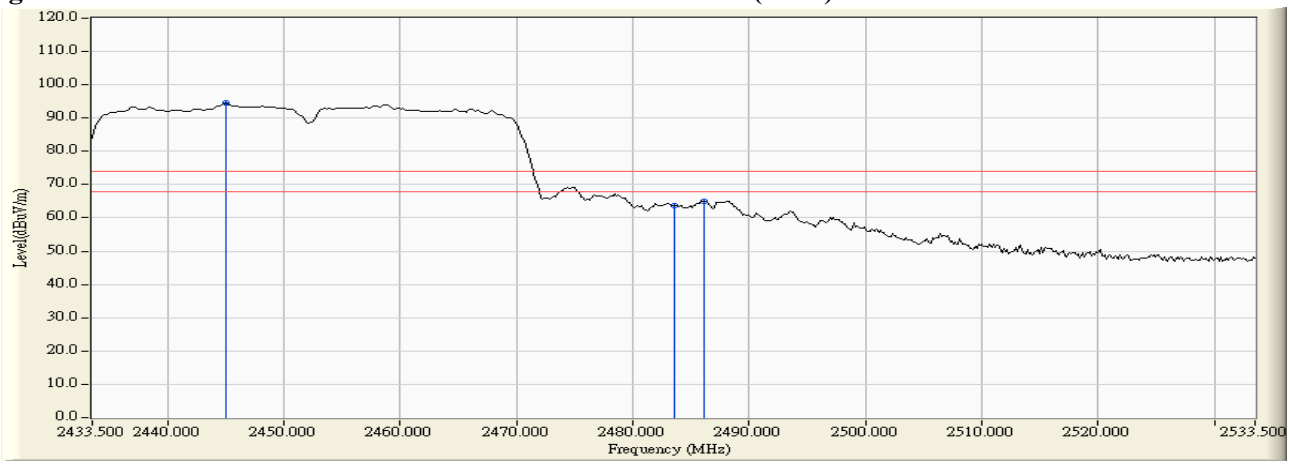
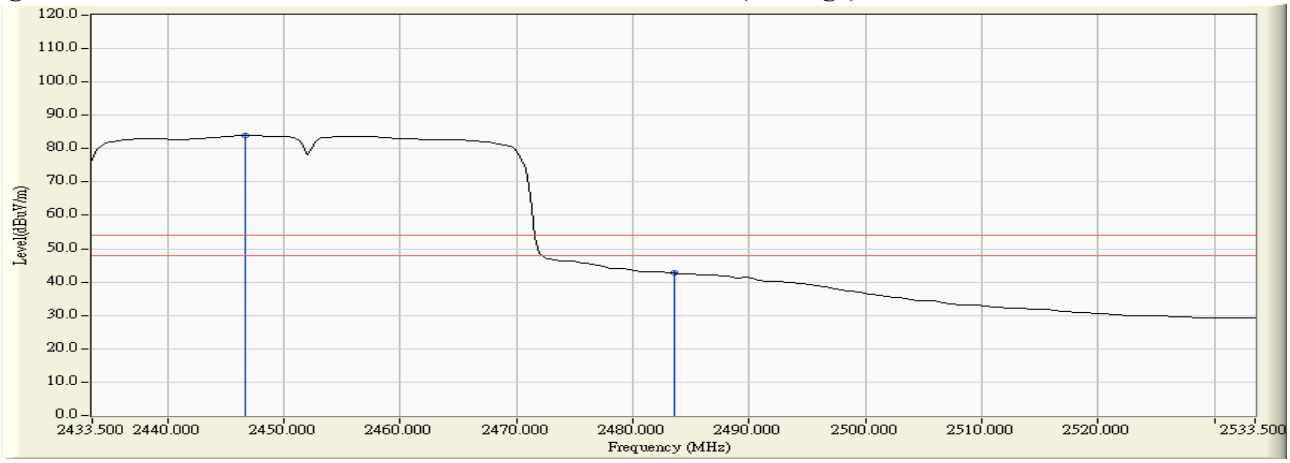


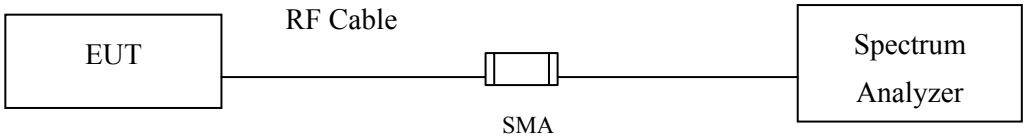
Figure Channel 09: VERTICAL (Average)



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.

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 : FLIC HUB
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	10150	>500	Pass
06	2437	10150	>500	Pass
11	2462	10150	>500	Pass

Figure Channel 01:

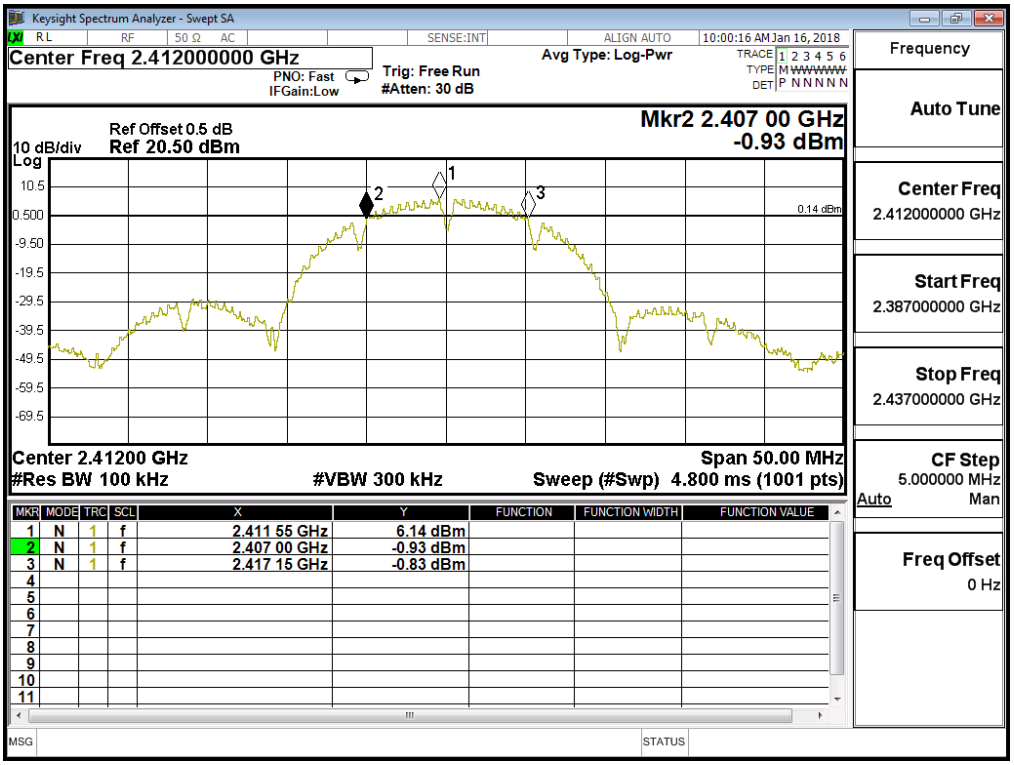


Figure Channel 06:

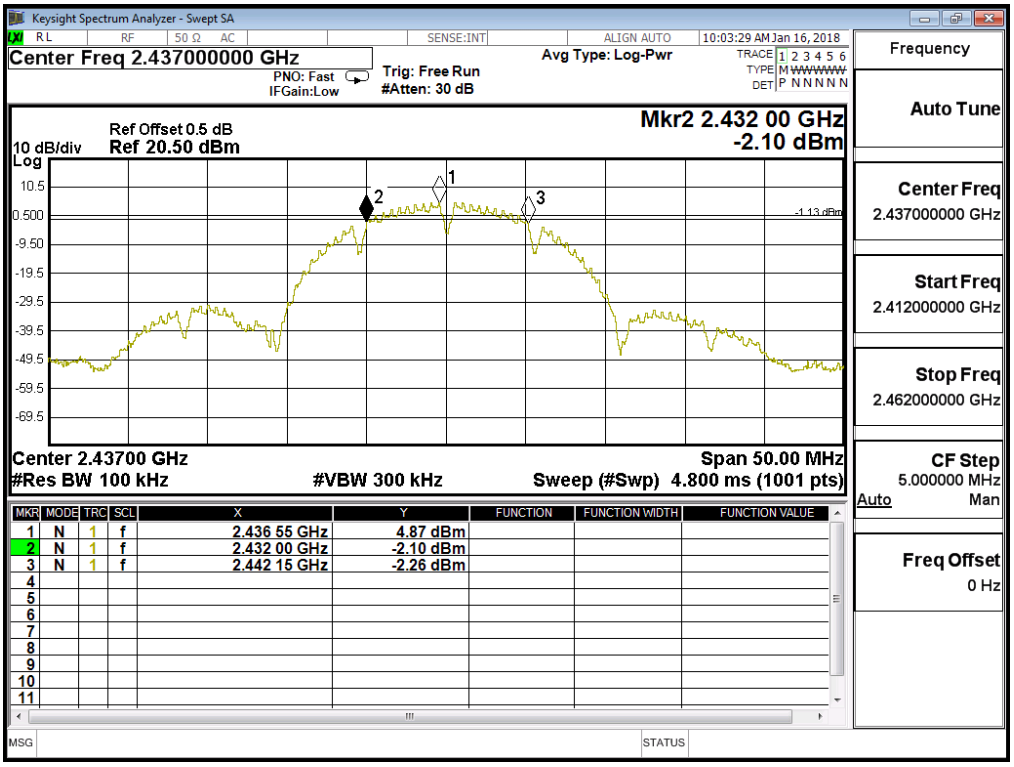
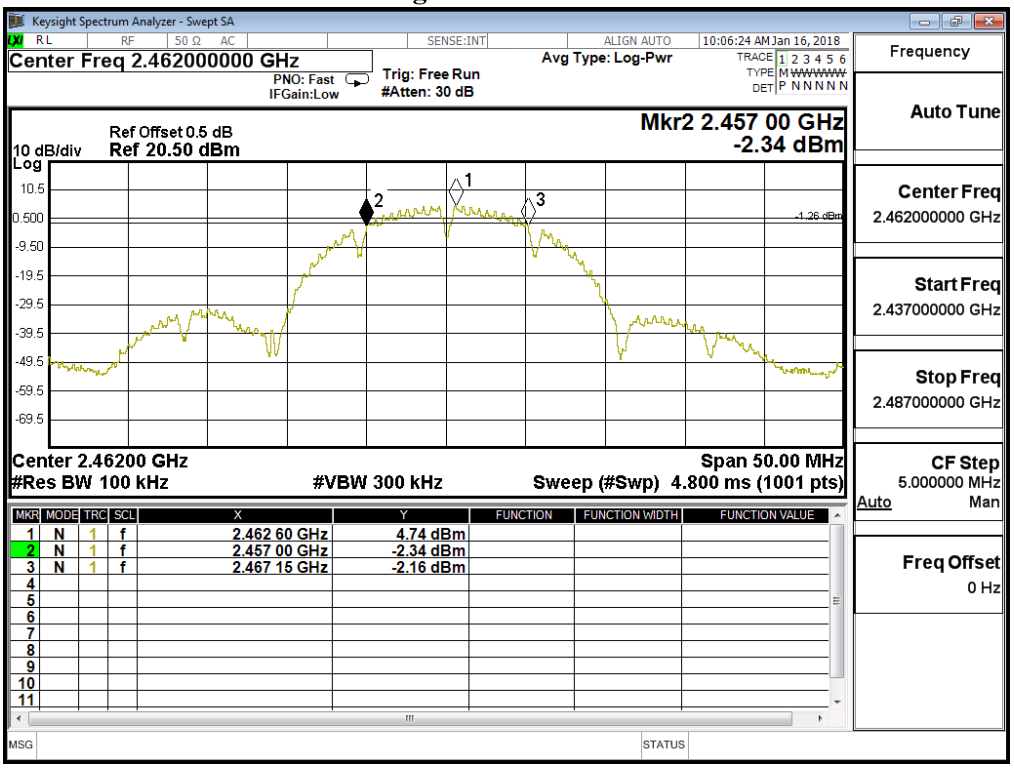


Figure Channel 11:



Product : FLIC HUB
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	16650	>500	Pass
06	2437	16650	>500	Pass
11	2462	16650	>500	Pass

Figure Channel 01:

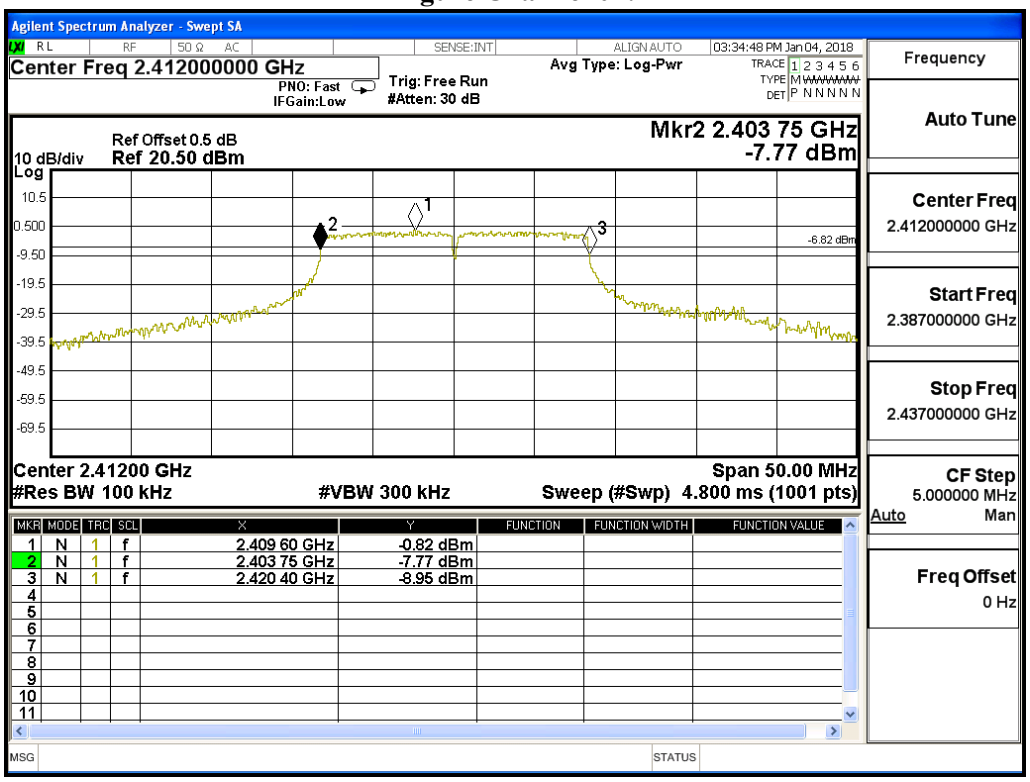


Figure Channel 06:

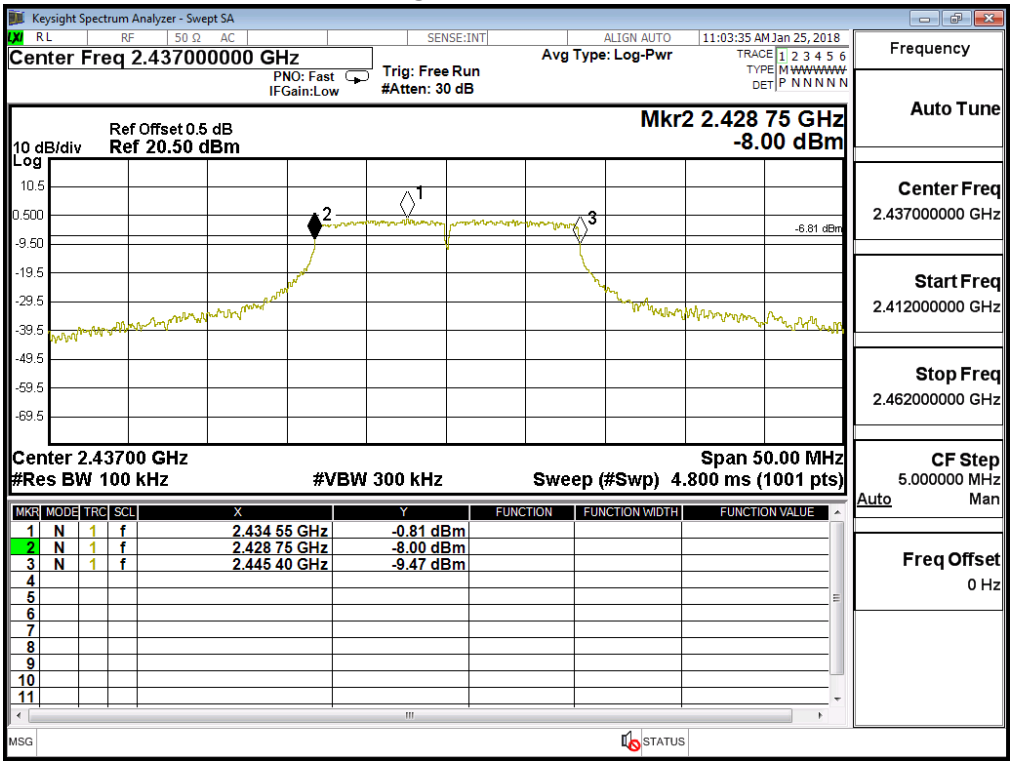
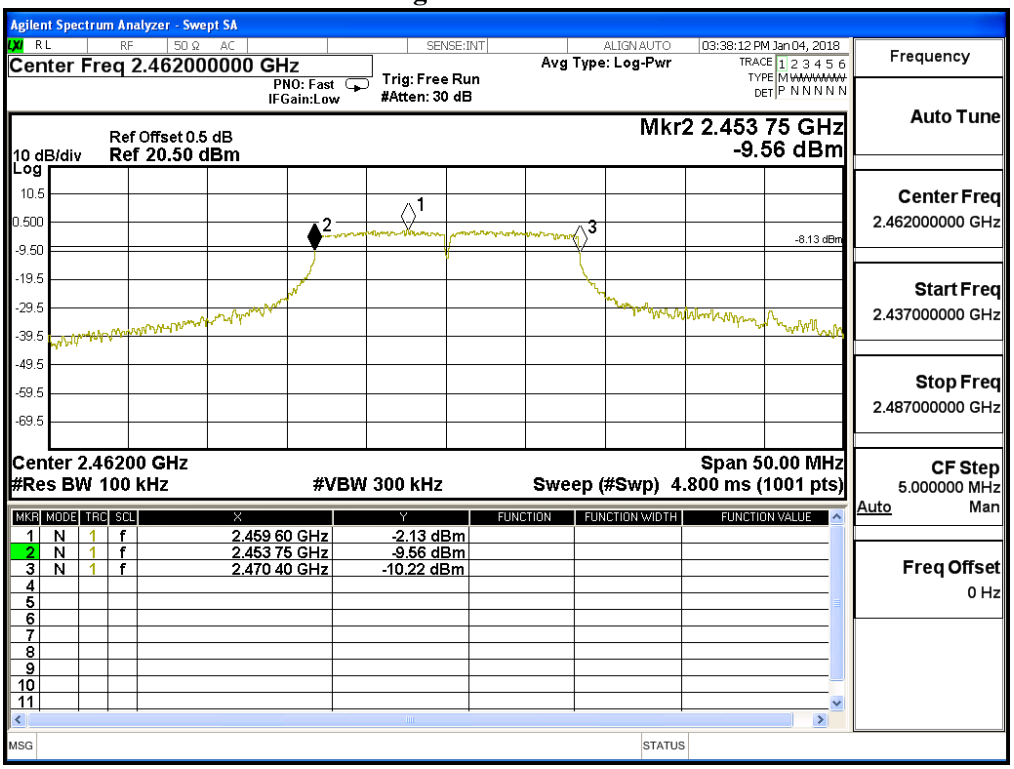


Figure Channel 11:



Product : FLIC HUB
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	17800	>500	Pass
06	2437	17750	>500	Pass
11	2462	17750	>500	Pass

Figure Channel 01:

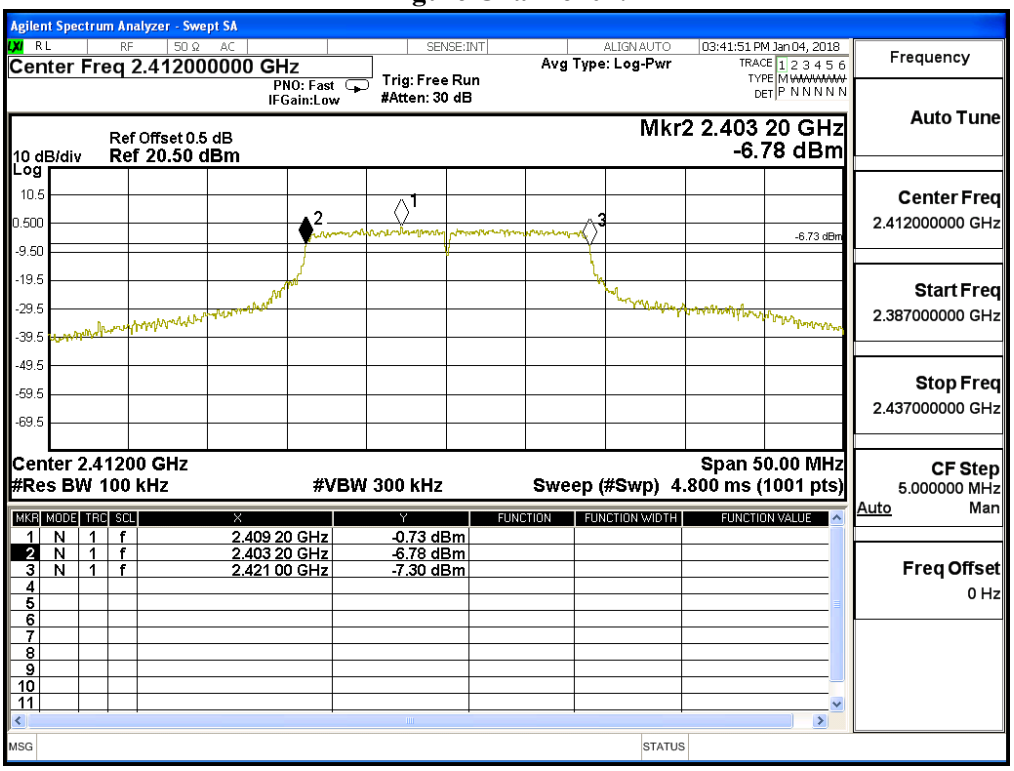


Figure Channel 06:

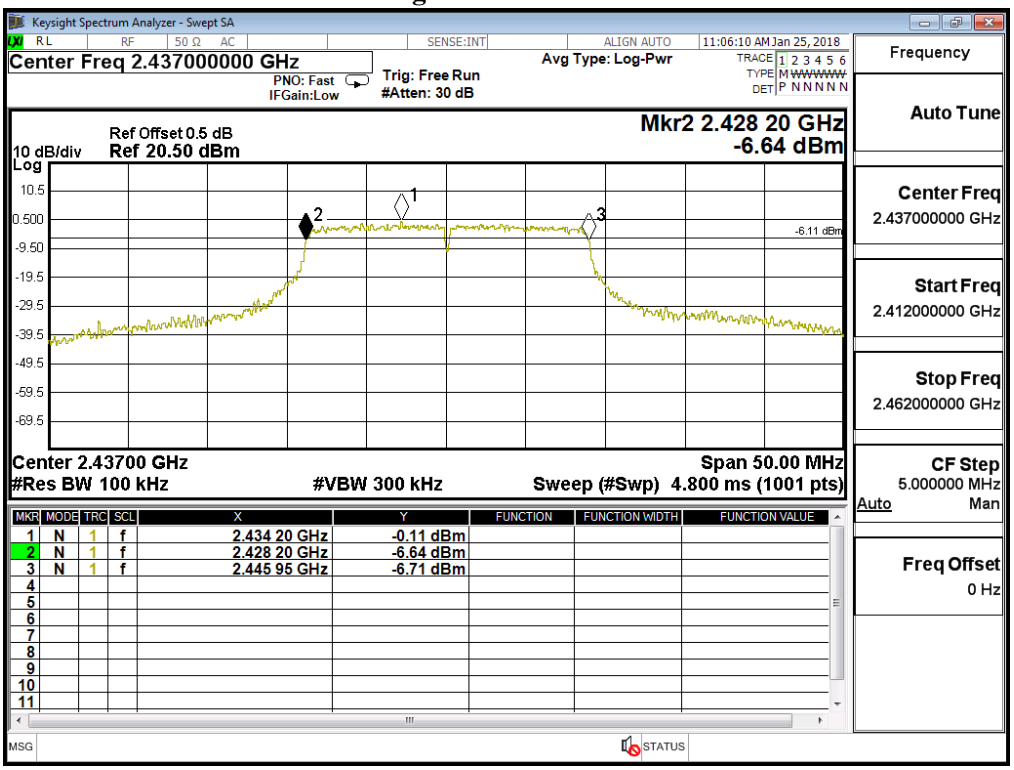
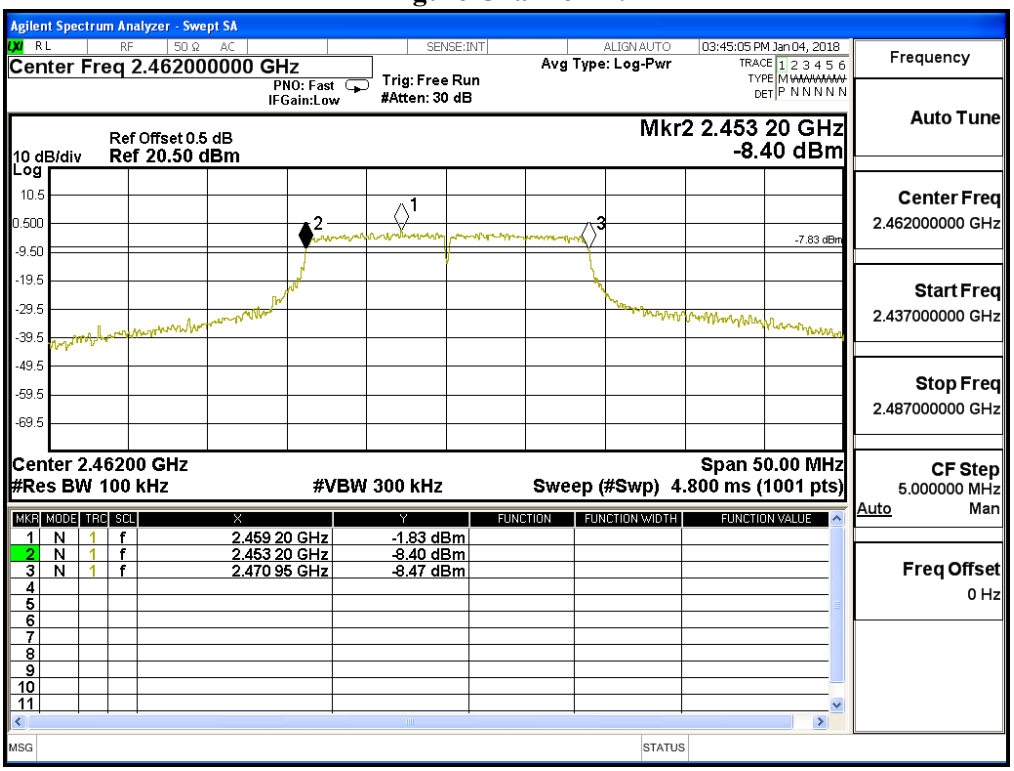


Figure Channel 11:



Product : FLIC HUB
Test Item : 6dB Bandwidth Data
Test Site : No.3 OATS
Test Mode : Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
03	2422	36600	>500	Pass
06	2437	36500	>500	Pass
09	2452	36600	>500	Pass

Figure Channel 03:

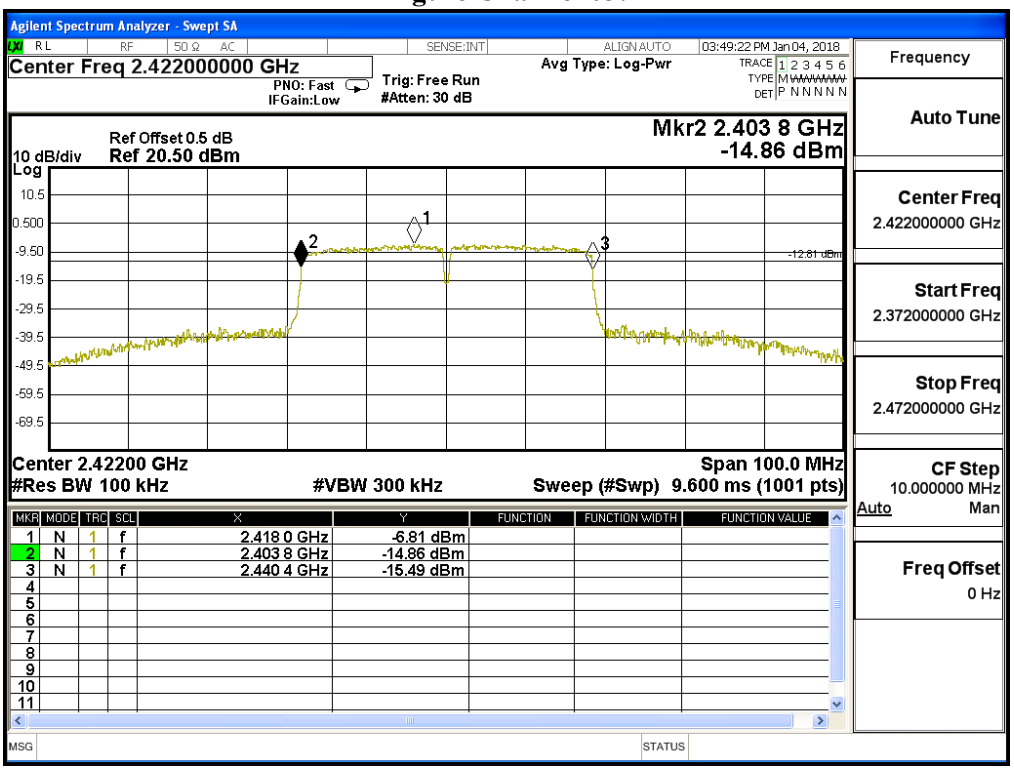


Figure Channel 06:

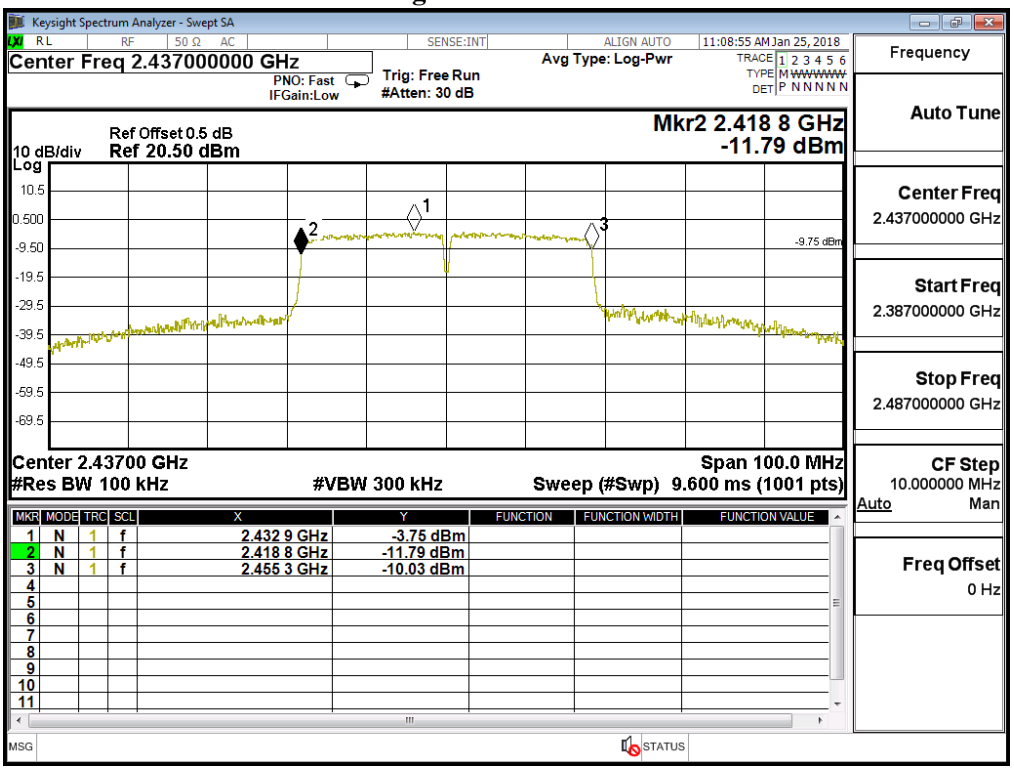
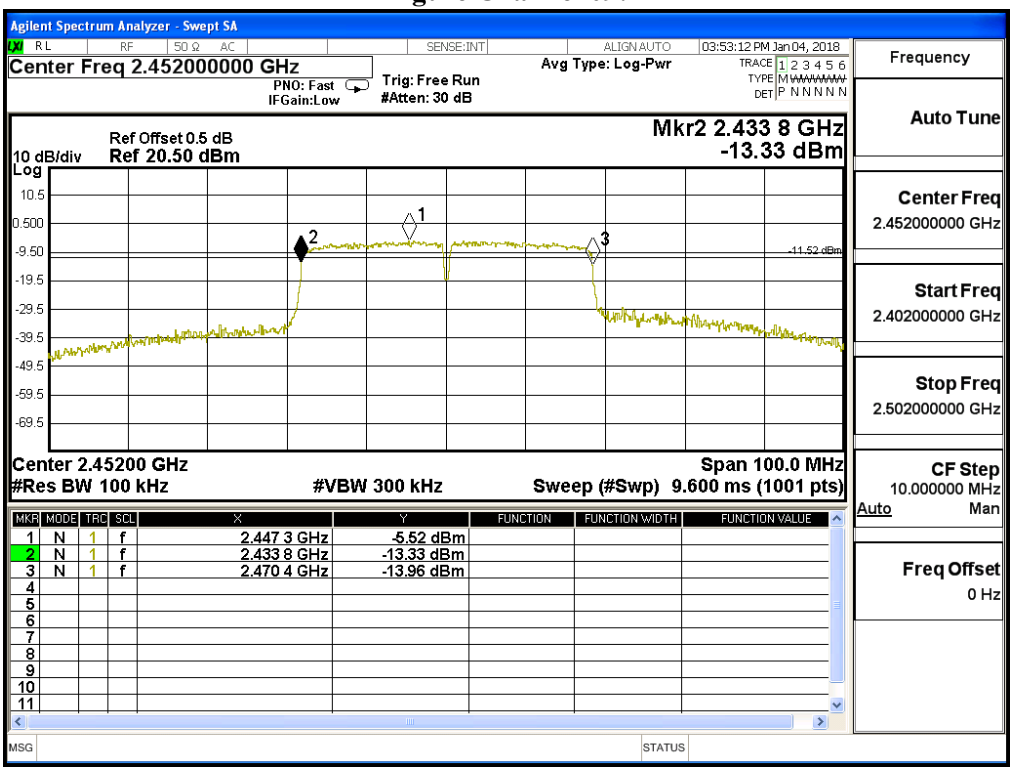
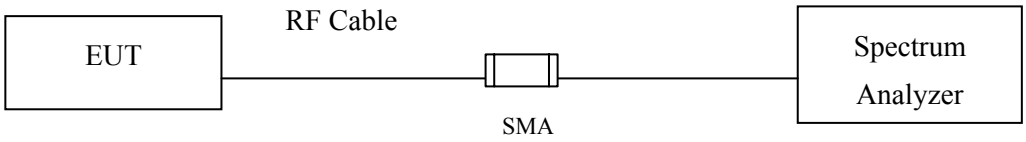


Figure Channel 09:



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 : FLIC HUB
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	6.010	≦8dBm	Pass
06	2437	4.820	≦8dBm	Pass
11	2462	4.690	≦8dBm	Pass

Figure Channel 01:

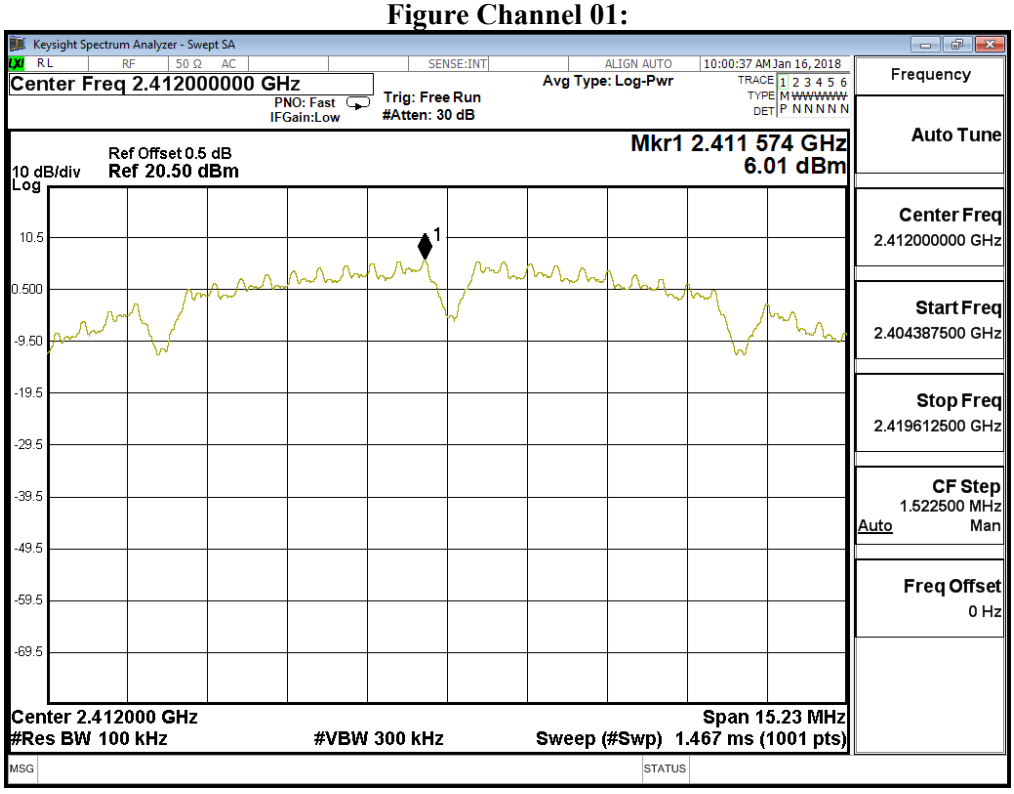


Figure Channel 06:

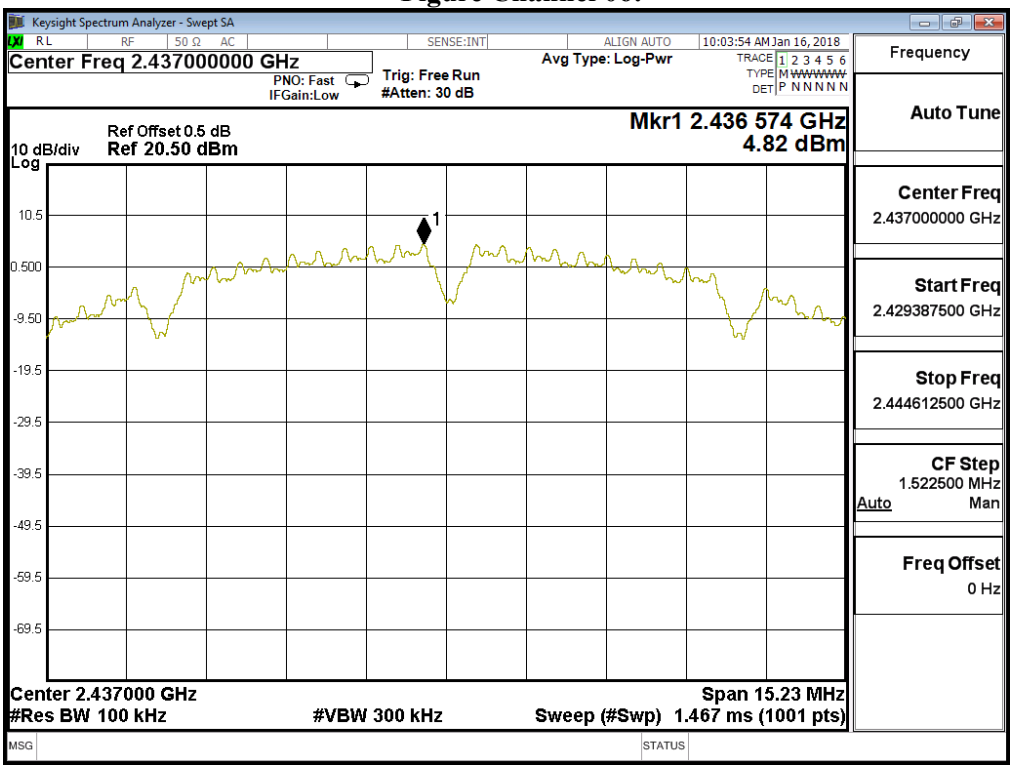
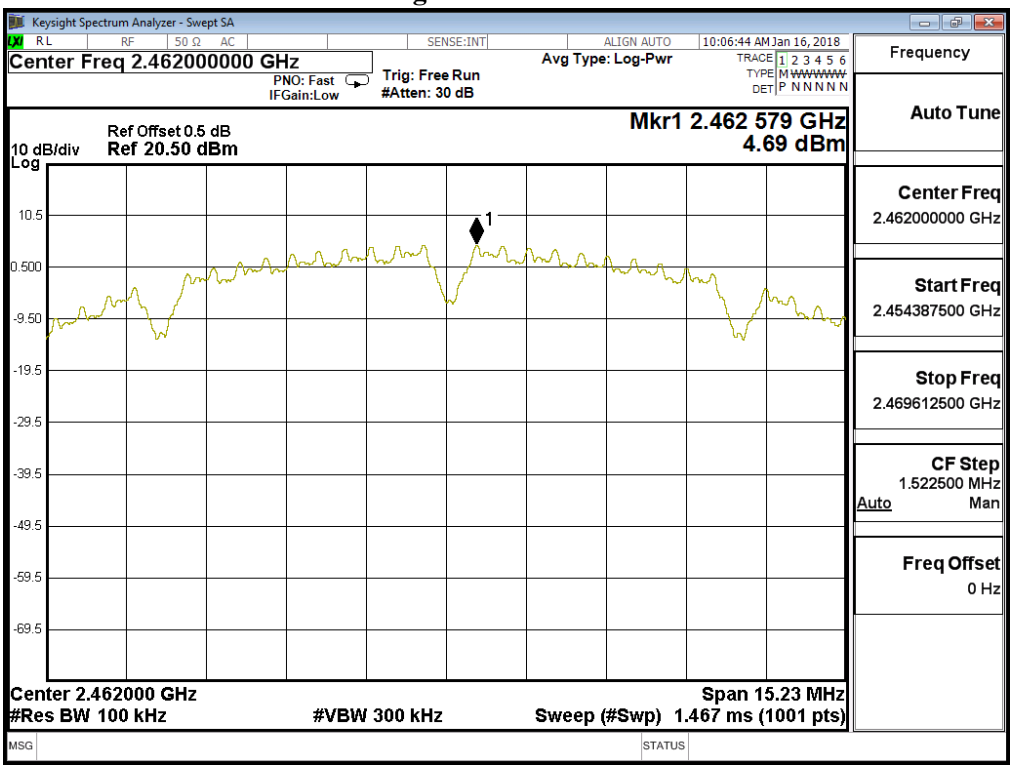


Figure Channel 11:



Product : FLIC HUB
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	-0.990	≦8dBm	Pass
06	2437	-0.920	≦8dBm	Pass
11	2462	-2.250	≦8dBm	Pass

Figure Channel 01:

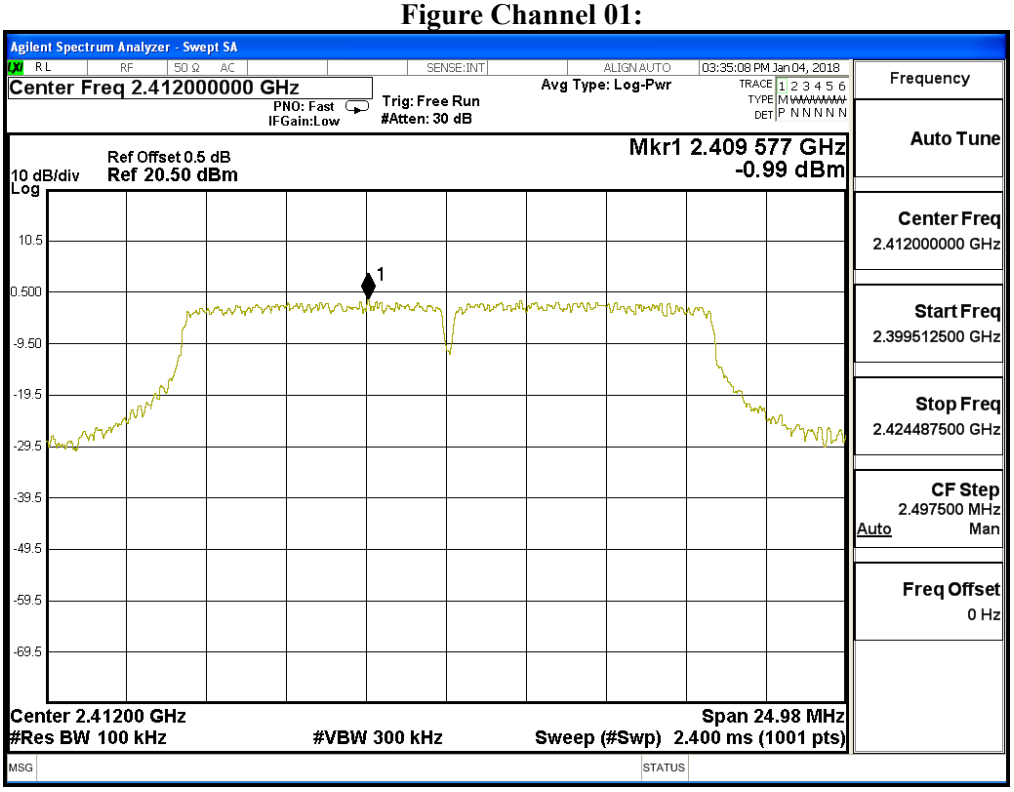


Figure Channel 06:

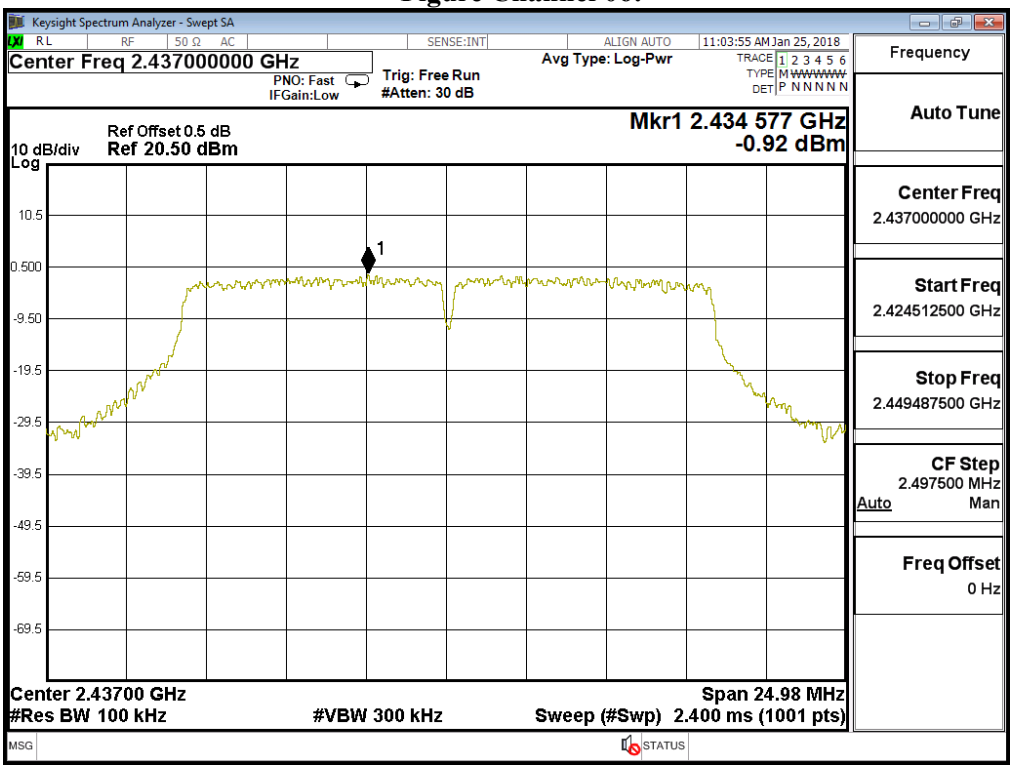
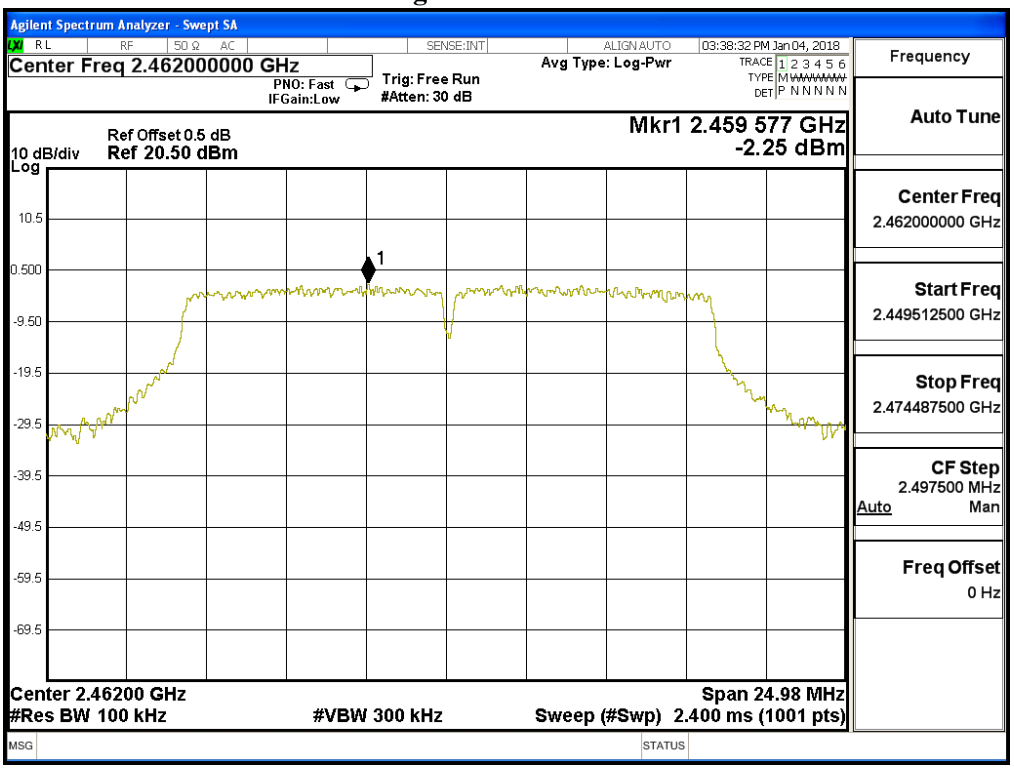


Figure Channel 11:



Product : FLIC HUB
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	-0.550	≦8dBm	Pass
06	2437	-0.170	≦8dBm	Pass
11	2462	-1.790	≦8dBm	Pass

Figure Channel 01:

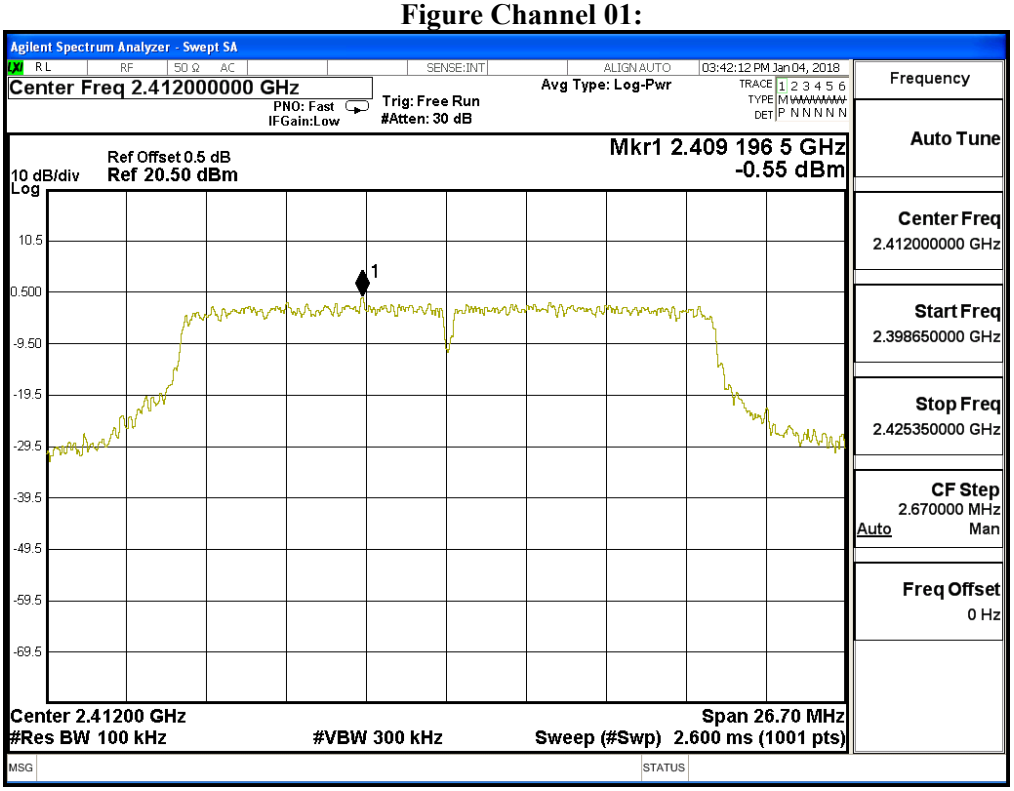


Figure Channel 06:

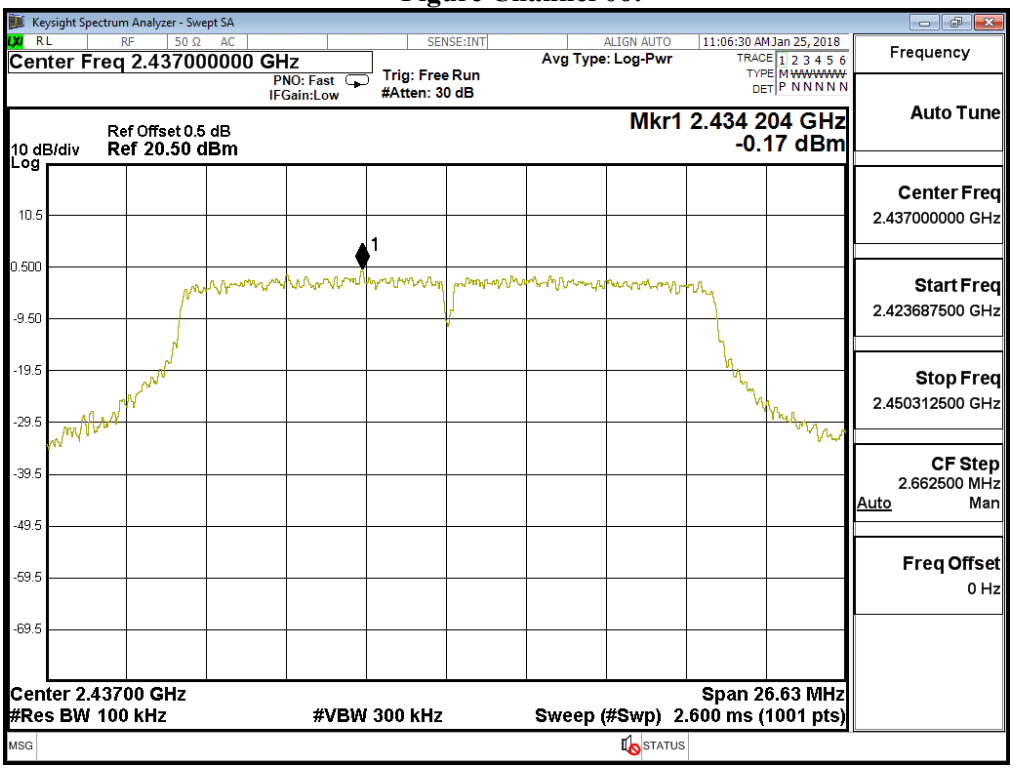
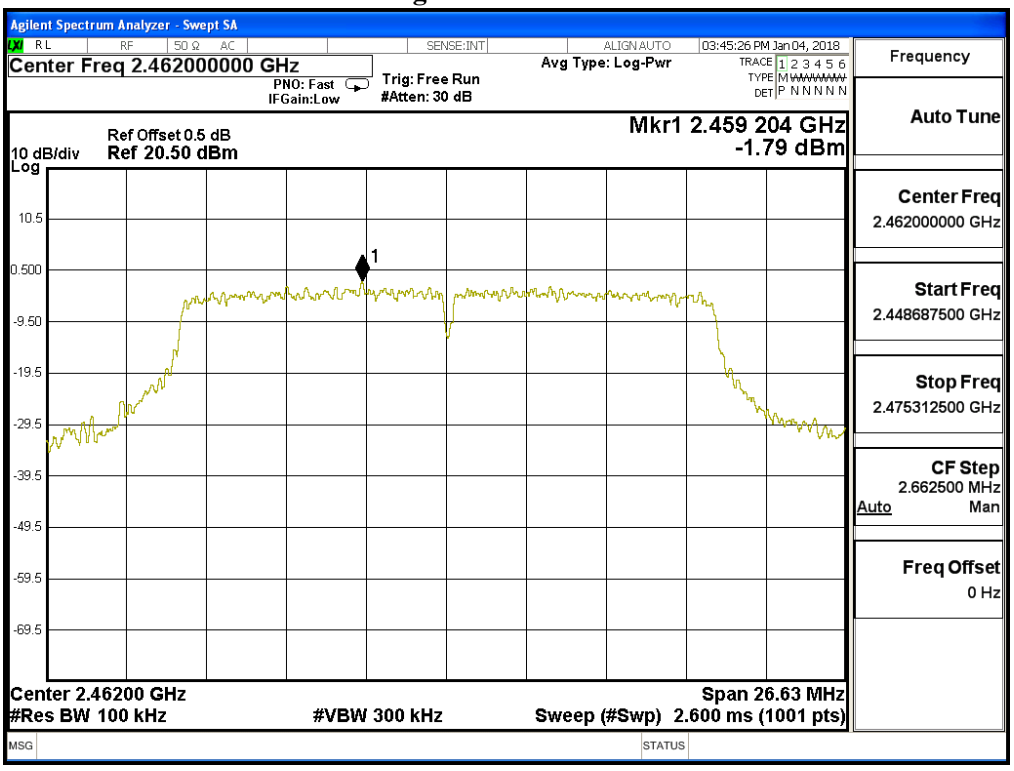


Figure Channel 11:



Product : FLIC HUB
Test Item : Power Density Data
Test Site : No.3 OATS
Test Mode : Mode 4: Transmit (802.11n MCS0 15Mbps 40M-BW)

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
03	2422	-6.760	≦8dBm	Pass
06	2437	-3.760	≦8dBm	Pass
09	2452	-5.390	≦8dBm	Pass

Figure Channel 03:

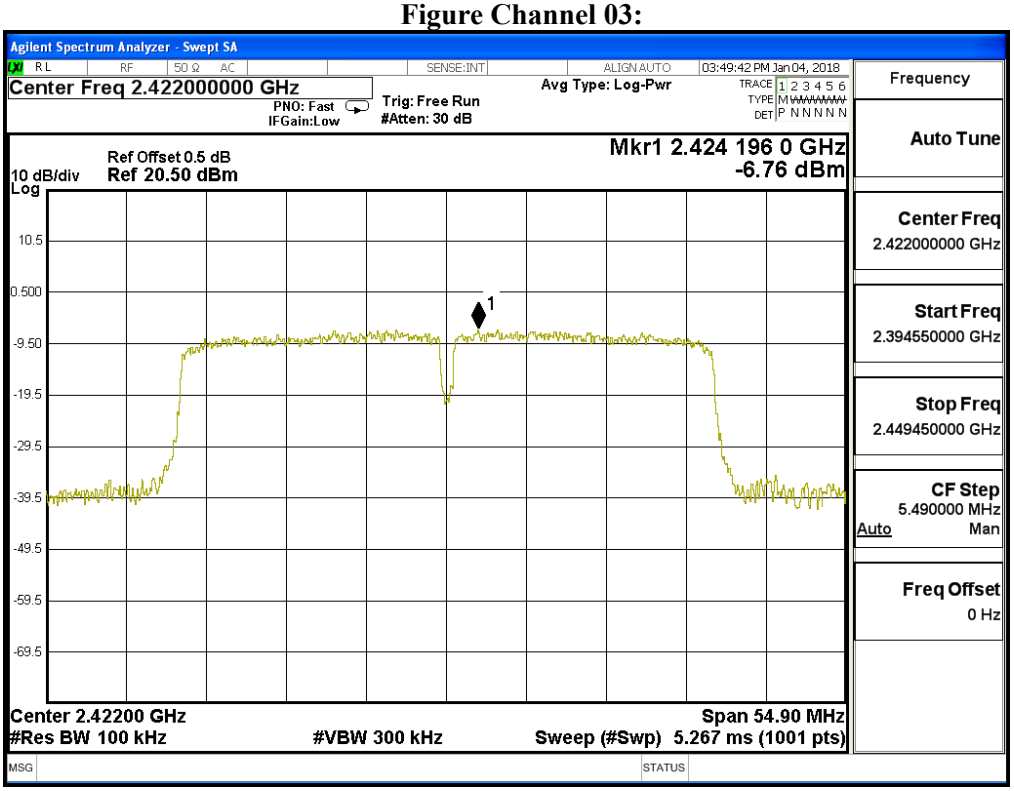


Figure Channel 06:

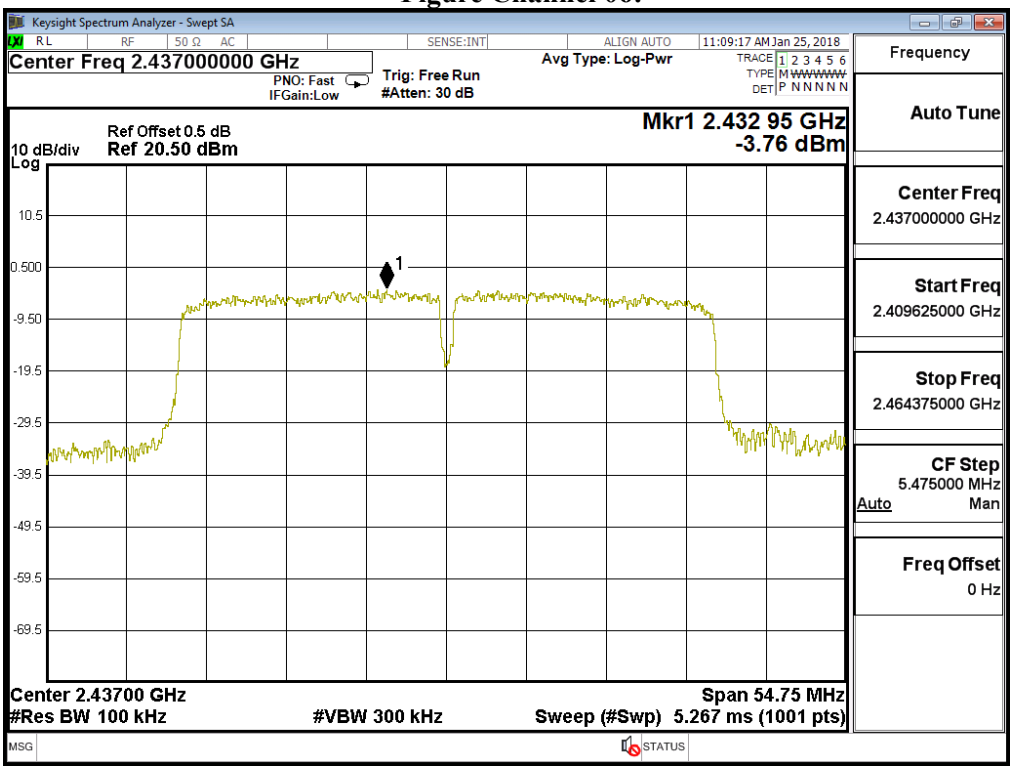
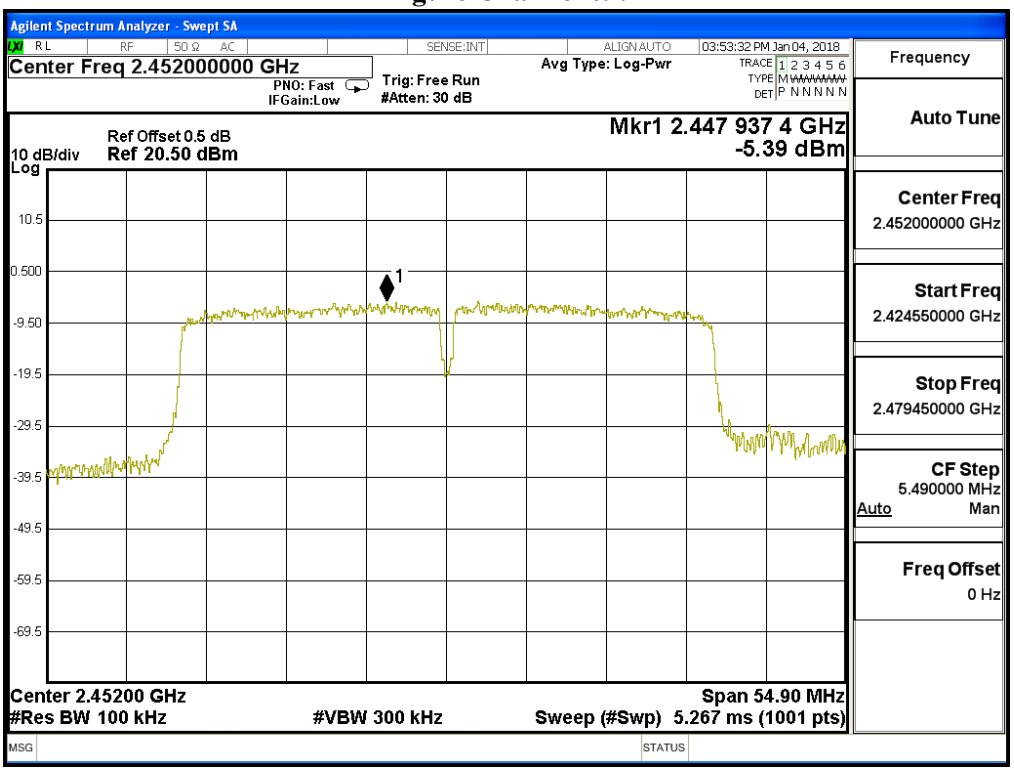


Figure Channel 09:



9. EMI Reduction Method During Compliance Testing

No modification was made during testing.