

FCC Test Report

Product Name	:	LIFX Module Board
Model No.	:	LMB
FCC ID.	:	2AA53-LIFX01

Applicant : LIFI LABS INC.

Address : 524 UNION STREET #309, SAN FRANCISCO, CA, USA 94133

Date of Receipt	:	2013/09/25
Issued Date	:	2013/10/23
Report No.	:	139516R-RFUSP42V01
Report Version	:	V1.0
ilac-m	A A A	Testing Laboratory 1313

The test results relate only to the samples tested.

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Test Report Certification Issued Date : 2013/10/23 Report No. : 139516R-RFUSP42V01							
	QuieTek						
Product Name	: LIFX Module Board						
Applicant	: LIFI LABS INC.						
Address	 524 UNION STREET #309, SAN FRANCISCO, CA, USA 94133 						
Manufacturer	: LIFI LABS INC.						
Model No.	: LMB						
FCC ID.	: 2AA53-LIFX01						
EUT Test Voltage	: AC 100-240V, 50/60Hz						
Trade Name	: LIFX						
Applicable Standard	: FCC CFR Title 47 Part 15 Subpart C Section 15.247: 2012						
	ANSI C63.4: 2009						
Test Result	Complied						
The test results relate only to The test report shall not be rep	the samples tested. produced except in full without the written approval of QuieTek Corporation.						
Documented By	Conol Tani						
	(Carol Tsai / Engineering Adm. Assistant)						
Reviewed By	Quale Tang						
	(Quale Tang n / Senior Engineer)						
Approved By	Roy Wang						
	(Roy Wang / Manager)						

Laboratory Information

We, **QuieTek Corporation**, are an independent RF consultancy that was established the whole facility in our laboratories. The test facility has been accredited/accepted (audited or listed) by the following related bodies in compliance with ISO 17025 specified testing scopes:

Taiwan R.O.C.	:	TAF, Accreditation Number: 1313 NCC, Certificate No : NCC-RCB-07
USA	:	FCC, Registration Number: 365520
Canada	:	IC, Submission No: 150981

The related certificate for our laboratories about the test site and management system can be downloaded from QuieTek Corporation's Web Site:<u>http://www.quietek.com/tw/ctg/cts/accreditations.htm</u>

The address and introduction of QuieTek Corporation's laboratories can be founded in our Web site : http://www.quietek.com/

If you have any comments, Please don't hesitate to contact us. Our contact information is as below:

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1. General Information

1.1. EUT Description

Product Name	LIFX Module Board
Product Type	WLAN (1TX, 1RX)
Trade Name	LIFX
Model No.	LMB
Frequency Range/Channel Number	2412~2462MHz / 11 Channels
Type of Modulation (IEEE 802.11b)	Direct Sequence Spread Spectrum (DSSS)
Type of Modulation (IEEE 802.11g/n)	Orthogonal Frequency Division Multiplexing (OFDM)
Data Speed (IEEE 802.11b)	1Mbps, 2Mbps, 5.5Mbps, 11Mbps
Data Speed (IEEE 802.11g)	6Mbps, 9Mbps, 12Mbps, 18Mbps, 24Mbps, 36Mbps, 48Mbps,
	54Mbps
Data Speed (IEEE 802.11n(20MHz))	Support a subset of the combination of GI, MCS 0~MCS 7 and
	bandwidth defined in 802.11n(20MHz)
Antenna Gain	1.92dBi
Antenna Type	PCB Antenna



ANT-TX / RX & Bandwidth

ANT-TX / RX	ТХ		RX	
Mode/ Channel Bandwidth	20MHz	40MHz	20MHz	40MHz
IEEE802.11b	\checkmark		\checkmark	
IEEE802.11g	\checkmark		\checkmark	
IEEE802.11n(20MHz)	\checkmark		\checkmark	



IEEE 802.11n(20MHz)

				N _{CBPS}	N _{CBPS} N _{DBPS}		Data Rate(Mb/s)		
MCS	Modulation	R	N _{BPSCS}	0000	00000	800ns GI	400ns GI		
Index				20MHz	20MHz	20MHz	20MHz		
0	BPSK	1/2	1	52	26	6.5	7.2		
1	QPSK	1/2	2	104	52	13.0	14.4		
2	QPSK	3/4	2	104	78	19.5	21.7		
3	16-QAM	1/2	4	208	104	26.0	28.9		
4	16-QAM	3/4	4	208	156	39.0	43.3		
5	64-QAM	2/3	6	312	208	52.0	57.8		
6	64-QAM	3/4	6	312	234	58.5	65.0		
7	64-QAM	5/6	6	312	260	65.0	72.2		
Note 1: Support of 400ns GI is optional on transmit and receive.									

Table 1 – MCS parameters for TX Antenna number = 1

Symbol	Explanation
R	Code rate
N _{BPSC}	Number of coded bits per single carrier
N _{CBPS}	Number of coded bits per symbol
N _{DBPS}	Number of data bits per symbol
GI	guard interval

IEEE 802.11b/g & IEEE 802.11n (20MHz)

Working	Working Frequency of Each Channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency	
001	2412 MHz	002	2417 MHz	003	2422 MHz	004	2427 MHz	
005	2432 MHz	006	2437 MHz	007	2442 MHz	008	2447 MHz	
009	2452 MHz	010	2457 MHz	011	2462 MHz			

- 1. This device is the LIFX Module Board, including 2.4GHz b/g/n (1x1) transmitting and receiving function.
- 2. The model difference is as follows:

Item	System Model	Module Model	Externals Color	Strateg	y of Fitting
1	BUL-11-A21E26-W	LMB	White	E26	
2	BUL-11-A21E26-G	LMB	Gray	E26	
3	BUL-11-A21E27-W	LMB	White	E27	
4	BUL-11-A21E27-G	LMB	Gray	E27	
5	BUL-11-A21B22-W	LMB	White	B22	Ó
6	BUL-11-A21B22-G	LMB	Gray	B22	Y

- These test results on a sample of the device are for the purpose of demonstrating Compliance with Part 15 Subpart C Paragraph 15.247.
- 4. Regards to the frequency band operation; the lowest

 middle and highest frequency of channel were selected to perform the test, and then shown on this report.
- This device is a wirelesss device in accordance with Part 15 regulations. The receiving function receiving was tested and its test report number is 139516R-RFUSP37V02 under Declaration of Conformity.

1.3. **Test Mode**

QuieTek

QuieTek has verified the construction and function in typical operation. The preliminary tests were performed in different data rate, and to find the worst condition, which was shown in this test report. The following table is the final test mode.

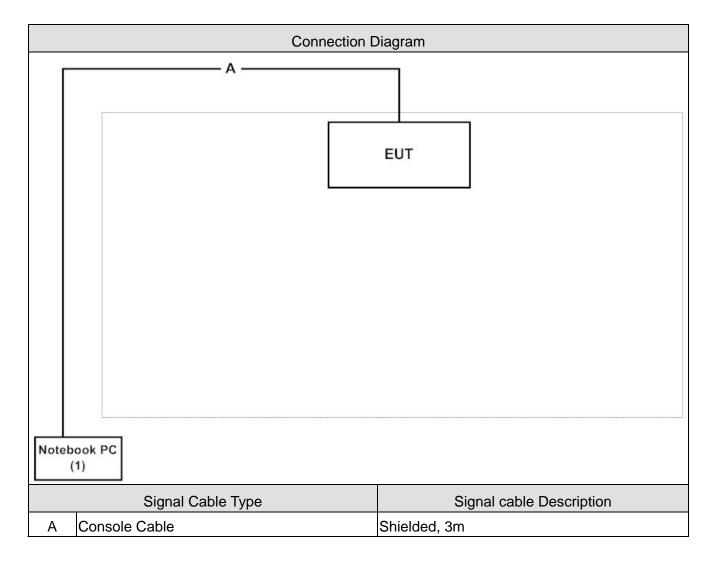
ТХ	Mode 1: Transmit						
Test Items	Modulation	Channel	Antenna	Result			
Conducted Emission	11n(20MHz)	6	0	Complies			
Peak Power Output	b/g	1/ 6/ 11	0	Complies			
	11n(20MHz)	1/ 6/ 11	0	Complies			
Radiated Emission	b/g	1/ 6/ 11	0	Complies			
	11n(20MHz)	1/ 6/ 11	0	Complies			
RF antenna conducted test	b/g	1/ 11	0	Complies			
	11n(20MHz)	1/ 11	0	Complies			
Radiated Emission Band Edge	b/g	1/ 11	0	Complies			
	11n(20MHz)	1/ 11	0	Complies			
Occupied Bandwidth	b/g	1/ 6/ 11	0	Complies			
	11n(20MHz)	1/ 6/ 11	0	Complies			
Power Density	b/g	1/ 6/ 11	0	Complies			
	11n(20MHz)	1/ 6/ 11	0	Complies			

1.4. Tested System Details

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

Produc	ct	Manufacturer	Model No.	Serial No.	FCC ID	Power Cord
1	Notebook PC	DELL	Vostro3400	7F808N1	DoC	Non-Shielded, 1.8m

1.5. Configuration of tested System



1.6. EUT Exercise Software

1	Setup the EUT as shown in Section 1.5.
2	Execute the control program "WICEO FCC Test Tool" to control the EUT.
3	Configure the test mode, the test channel, and the data rate.
4	Press "Start TX" to start the continuous transmitting.
5	Verify that the EUT works properly.

1.7. Test Facility

Ambient conditions in the laboratory:

Items	Test Item	Required (IEC 68-1)	Actual
Temperature (°C)		15 - 35	20
Humidity (%RH)	FCC PART 15 C 15.207 Conducted Emission	25 - 75	50
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)		15 - 35	25
Humidity (%RH)	FCC PART 15 C 15.247	25 - 75	45
Barometric pressure (mbar)	Peak Power Output	860 - 1060	950-1000
Temperature (°C)		15 - 35	20
Humidity (%RH)	FCC PART 15 C 15.247	25 - 75	50
Barometric pressure (mbar)	Radiated Emission	860 - 1060	950-1000
Temperature (°C)		15 - 35	25
Humidity (%RH)	FCC PART 15 C 15.247	25 - 75	45
Barometric pressure (mbar)	RF antenna conducted test	860 - 1060	950-1000
Temperature (°C)		15 - 35	20
Humidity (%RH)	FCC PART 15 C 15.247	25 - 75	50
Barometric pressure (mbar)	Band Edge	860 - 1060	950-1000
Temperature (°C)		15 - 35	25
Humidity (%RH)	FCC PART 15 C 15.247	25 - 75	45
Barometric pressure (mbar)	Occupied Bandwidth	860 - 1060	950-1000
Temperature (°C)		15 - 35	25
Humidity (%RH)	FCC PART 15 C 15.247	25 - 75	45
Barometric pressure (mbar)	Power Density	860 - 1060	950-1000

2. Conducted Emission

2.1. Test Equipment

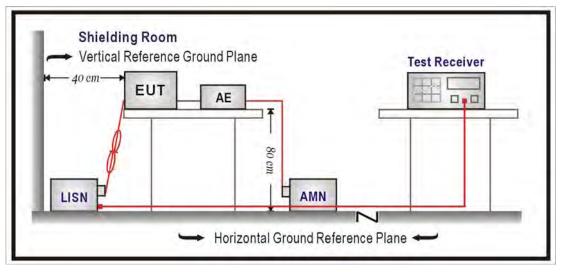
The following test equipments are used during the test:

Conducted	Emission /	SR3

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
LISN	R&S	ENV216	100096	2014/08/01
LISN	R&S	ESH3-Z5	836679/022	2014/01/20
Test Receiver	R&S	ESCS 30	825442/017	2014/01/01

Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

2.2. Test Setup





2.3. Limits

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

Remarks: In the above table, the tighter limit applies at the band edges.

2.4. Test Procedure

The EUT was setup according to ANSI C63.4: 2009 and tested according to DTS test procedure of KDB558074 for compliance to FCC 47CFR 15.247 requirements. The EUT was placed on a platform of nominal size, 1 m by 1.5 m, raised 80 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 80 cm from any other grounded conducting surface. The EUT and simulators are connected to the main power through a line impedance stabilization network (LISN). The LISN provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN. (Please refer to the block diagram of the test setup and photographs.)

Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor, was individually connected through a LISN to the input power source.

The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length. Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz.

2.5. Test Specification

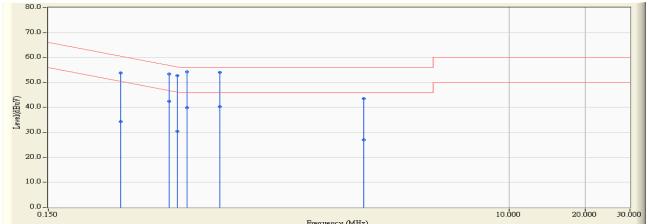
According to FCC Part 15 Subpart C Paragraph 15.207: 2012

2.6. Uncertainty

The measurement uncertainty is defined as ± 2.26 dB.

2.7. Test Result

Site : SR3	Time : 2013/10/01 - 16:53
Limit : CISPR_B_00M_QP	Margin : 10
Probe : SR3_LISN(16A)-3_0813 - Line1	Power : AC 120V/60Hz
EUT : LIFX Module Board	Note : 802.11n(20MHz)_2437MHz



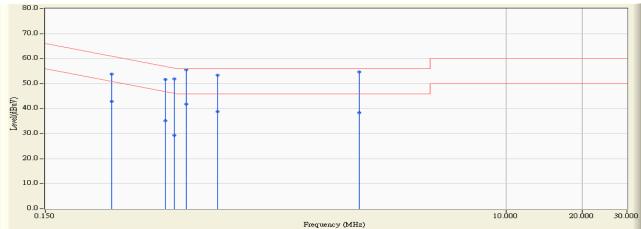
· · · · ·	Frequency (MHz)							
		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV)	(dB)	(dBuV)	
1		0.291	9.708	44.210	53.918	-6.589	60.507	QUASIPEAK
2		0.291	9.708	24.610	34.318	-16.189	50.507	AVERAGE
3		0.451	9.805	43.610	53.415	-3.446	56.861	QUASIPEAK
4		0.451	9.805	32.760	42.565	-4.296	46.861	AVERAGE
5		0.486	9.819	42.980	52.799	-3.438	56.237	QUASIPEAK
6		0.486	9.819	20.540	30.359	-15.878	46.237	AVERAGE
7	*	0.529	9.833	44.340	54.173	-1.827	56.000	QUASIPEAK
8		0.529	9.833	30.060	39.893	-6.107	46.000	AVERAGE
9		0.716	9.882	44.120	54.001	-1.999	56.000	QUASIPEAK
10		0.716	9.882	30.450	40.331	-5.669	46.000	AVERAGE
11		2.662	10.000	33.480	43.480	-12.520	56.000	QUASIPEAK
12		2.662	10.000	16.920	26.920	-19.080	46.000	AVERAGE

Note:

1. All Reading Levels are Quasi-Peak and average value.

- 2. " * ", means this data is the worst emission level.
- 3. Measure Level = Reading Level + Correct Factor •

Site : SR3	Time : 2013/10/01 - 16:56
Limit : CISPR_B_00M_QP	Margin : 10
Probe : SR3_LISN(16A)-3_0813 - Line2	Power : AC 120V/60Hz
EUT : LIFX Module Board	Note : 802.11n(20MHz)_2437MHz



	rrequency (MHz)							
		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV)	(dB)	(dBuV)	
1		0.275	9.699	44.170	53.869	-7.097	60.966	QUASIPEAK
2		0.275	9.699	33.180	42.879	-8.087	50.966	AVERAGE
3		0.447	9.792	41.790	51.582	-5.351	56.933	QUASIPEAK
4		0.447	9.792	25.370	35.162	-11.771	46.933	AVERAGE
5		0.486	9.809	42.130	51.939	-4.298	56.237	QUASIPEAK
6		0.486	9.809	19.670	29.479	-16.758	46.237	AVERAGE
7	*	0.541	9.827	45.770	55.597	-0.403	56.000	QUASIPEAK
8		0.541	9.827	31.990	41.817	-4.183	46.000	AVERAGE
9		0.720	9.874	43.610	53.484	-2.516	56.000	QUASIPEAK
10		0.720	9.874	29.010	38.884	-7.116	46.000	AVERAGE
11		2.627	9.970	44.630	54.600	-1.400	56.000	QUASIPEAK
12		2.627	9.970	28.450	38.420	-7.580	46.000	AVERAGE

Note:

1. All Reading Levels are Quasi-Peak and average value.

- 2. " * ", means this data is the worst emission level.
- 3. Measure Level = Reading Level + Correct Factor \circ

3. Peak Power Output

3.1. Test Equipment

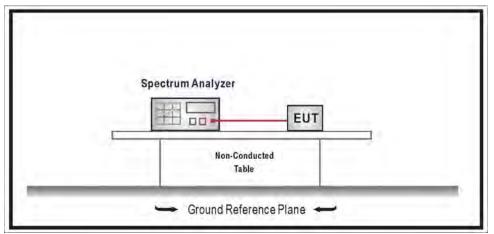
The following test equipments are used during the test:

Р	eak	Power	/	SR7
•	00.11			0.0

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Spectrum Analyzer A	Agilent	N9010A-EXA	US47140172	2014/08/05

Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

3.2. Test Setup



3.3. Test procedures

The EUT was tested according to DTS test procedure of KDB558074, Section 5.2.1.2 Measurement Procedure PK2 for compliance to FCC 47CFR 15.247 requirements.

3.4. Limits

The maximum peak power shall be less 1 Watt.

3.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247: 2012

3.6. Uncertainty

The measurement uncertainty is defined as \pm 1.27 dB.

3.7. Test Result

Product	LIFX Module Board		
Test Item	Peak Power Output		
Test Mode	Mode 1: Transmit		
Date of Test	2013/08/20	Test Site	SR7

IEEE 802.11b, ANT 0								
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result				
1	2412	17.94	≦30	Pass				
6	2437	18.30	≦30	Pass				
11	2462	17.99	≦30	Pass				

The worst emission of data rate is 1Mbps.

Peak Power Output (dBm)							
Channel No.	Frequency		Data Rat	e (Mbps)		Required	
Channel No.	(MHz)	1	2	5.5	11	Limit	
1	2412	17.94				1 Watt=30dBm	
6	2437	18.30	18.20	18.10	18.00	1 Watt=30dBm	
11	2462	17.99				1 Watt=30dBm	

Note: Measure Level =Reading value + cable loss



Channel 1 🔰 Agilent Spectrum Analyzer - Channel Power 50 Ω 04:53:14 PM Aug 20, 2013 SENSE:INT A ALIGN AUTO Screen Image Center Freq: 2.412000000 GHz Radio Std: None Center Freq 2.412000000 GHz Trig: Free Run Avg|Hold:>10/10 Input: RF 9 #Atten: 30 dB Ext Gain: -1.00 dB Radio Device: BTS #IFGain:Low Themes Flat Monochrome 10 dB/div Ref 30 dBm Log 20 Save As ... 10 £ -10 -20 -30 ma -40 -50 -60 Span 26 MHz Center 2.412 GHz #Res BW 1 MHz #VBW 3 MHz Sweep 1 ms **Power Spectral Density Channel Power** -51.16 dBm/Hz 17.94 dBm/ 8.141 MHz MSG STATUS



🗊 Agilent Spec		Channel Power								
Center Fre			AC IZ	SENSE Center Fred Trig: Free R	: 2.43700000			04:54:09F Radio Std	M Aug 20, 2013 : None	Screen Image
10 dB/div	Ref 30 (#Atten: 30 d		ixt Gain:		Radio Dev	vice: BTS	Themes Flat Monochrome
20 10				uz.m.,u_						Save As
-10						1	-			
-20								1		
-40	~								Marker and	
-60										
Center 2.4 #Res BW			1 2 01	#VBN	/ 3 MHz				n 26 MHz eep 1 ms	
Chann	el Power 18.30		8.142 M		Power S		al Dens 30 dB			
MSG							STATUS	i		



Agilent Spect	trum Analyzer -	Channel Power						
Center Fre	50 Ω eq 2.4620	00000 GHz		q: 2.462000000 GHz		04:56:51 Radio Sto	PM Aug 20, 2013 d: None	Screen Image
0 dB/div	Ref 30 (put: RF #IFGain:Lov	+Atten: 30 d		ld:>10/10 n: -1.00 dB	Radio De	vice: BTS	Themes Flat Monochrome
og 20 10								Save As
-10					There			
-20	Martin						Magreener	
-40							- Verent	
-60 enter 2.4	62 CH7					Sn	an 26 MHz	
Res BW			#VBW	V 3 MHz			eep 1 ms	
Chann	el Power			Power Spec				
	17.9	9 dBm/ 8.13	8 MHz	-51	.11 de	3m/Hz		
G					STATU	IS		

Product	LIFX Module Board		
Test Item	Peak Power Output		
Test Mode	Mode 1: Transmit		
Date of Test	2013/08/20	Test Site	SR7

IEEE 802.11g, ANT 0								
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result				
1	2412	14.87	≦30	Pass				
6	2437	15.32	≦30	Pass				
11	2462	14.91	≦30	Pass				

The worst emission of data rate is 6Mbps.

	Peak Power Output (dBm)											
Channel	Channel Frequency Data Rate						Required					
No	(MHz)	6	12	18	24	36	48	54	Limit			
1	2412	14.87							1 Watt=30dBm			
6	2437	15.32	15.12	15.02	14.92	14.80	14.56	14.32	1 Watt=30dBm			
11	2462	14.91							1 Watt=30dBm			

Note: Measure Level =Reading value + cable loss



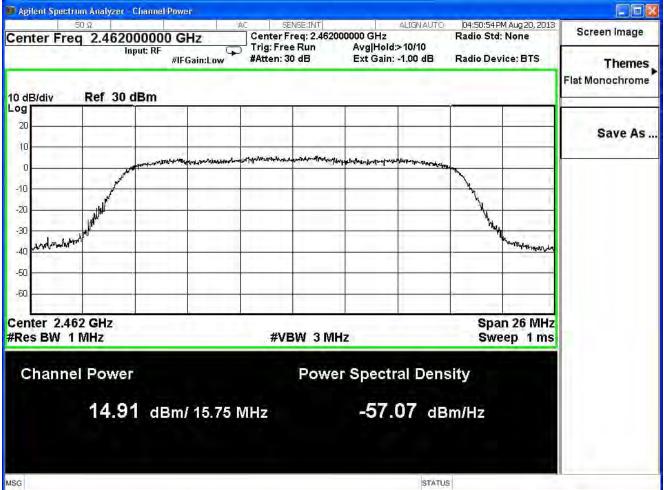
Channel 1 🗊 Agilent Spectrum Analyzer - Channel Power 04:49:10 PM Aug 20, 2013 50 Ω SENSE:INT A ALIGN AUTO Screen Image Center Freq: 2.412000000 GHz Radio Std: None Center Freq 2.412000000 GHz Trig: Free Run Avg|Hold:>10/10 Input: RF 9 Ext Gain: -1.00 dB #Atten: 30 dB Radio Device: BTS #IFGain:Low Themes Flat Monochrome 10 dB/div Ref 30 dBm Log 20 Save As ... 10 £ -10 -20 N -30 moderately howard -40 -50 -60 Span 26 MHz Center 2.412 GHz #Res BW 1 MHz #VBW 3 MHz Sweep 1 ms **Power Spectral Density Channel Power** 14.87 dBm/ 15.9 MHz -57.15 dBm/Hz MSG STATUS



<u>Channel 6</u>

D Agilent Spect		Channel Power						
Center Fre		000000 GHz	Center Free Trig: Free R	: 2.437000000 GH	ALIGNAUTO z old:>10/10	D4:49:54F Radio Std	M Aug 20, 2013 : None	Screen Image
10 dB/div	Ref 30	iput: RF ///////////////////////////////////	#Atten: 30 d		in: -1.00 dB	Radio Dev	vice: BTS	Themes Flat Monochrome
20								Save As
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-60								
Center 2.4 #Res BW 1			#VBW	/ 3 MHz	free f	Spa Swe	n 26 MHz eep 1 ms	
Channe	el Power 15.3	2 dBm/ 16.02		Power Spec	tral Den 6.73 de			
MSG					STATU	2		





Product	LIFX Module Board		
Test Item	Peak Power Output		
Test Mode	Mode 1: Transmit		
Date of Test	2013/08/20	Test Site	SR7

IEEE 802.11n(20MHz), ANT 0

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
1	2412	12.72	≦30	Pass
6	2437	13.18	≦30	Pass
11	2462	12.96	≦30	Pass

The worst emission of data rate is 6.5 Mbps.

	Peak Power Output (dBm)									
MCS	MCS Index		1	2	3	4	5	6	7	Required
Channel	Frequency		Data Rate							Limit
No	(MHz)	6.5	13.0	19.5	26.0	39.0	52.0	58.5	65.0	
1	2412	12.72								30dBm
6	2437	13.18	12.98	12.78	12.68	12.48	12.24	12.12	11.88	30dBm
11	2462	12.96								30dBm

Note: Measure Level =Reading value + cable loss



D Agilent Spect		Channel Power							
Center Fre		00000 GHz	Center	ENSE:INT		ALIGNAUTO	04:58:00 Radio Sto	PM Aug 20, 2013 d: None	Screen Image
10 dB/div	In Ref 30 (put: RF #IFGain:	Low #Atten: 3		Avg Hold: Ext Gain:		Radio De	vice: BTS	Themes Flat Monochrome
20									Save As
-10	-	oversigh to give see your garget on an	าร.1.477-ค.ประการเคราะการสาขีสาราชาตร	han a sea that have a sea of the second	(Haware and a second	at marked worthworth	Martin Bally	-	
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-30 -40 \\	n M							May war and a start of the star	
-50									
Center 2.4 #Res BW 1		<u></u>	#V	BW 3MH	łz		Spa Sw	an 26 MHz eep 1 ms	
Channe	el Power 12.72	2 dBm/ 16	66 MHz	Powe	r Spectr -59.	al Den 50 dB			
MSG						STATU	s		



Agilent Spectru	m Analyzer - 0 Ω	Channel Powe		AC SEI	NSE:INT	T	ALIGNIAUTO	04:59:048	PM Aug 20, 2013	
enter Freq	2.4370			Center Fr	eq: 2.43700			Radio Std		Screen Image
) dB/div	Ref 30		ain:Low	Trig: Free #Atten: 30		Avg Hold: Ext Gain:		Radio Dev	vice: BTS	Themes Flat Monochrome
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							STATU	S	_	1



Agilent Spectru		- Channel Powe	P							
enter Fred			Hz	Center Fr	NSE:INT req: 2.46200		ALIGNAUTO	04:59:58 Radio Sto	PM Aug 20, 2013 1: None	Screen Image
dB/div	Ref 30	and in	Gain:Low	Trig: Free #Atten: 30		Avg Hold: Ext Gain:		Radio De	vice: BTS	Themes Flat Monochrome
20							1			Save As
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0									Unangli sovernanski	
nter 2.46	2 GHz							Spa	an 26 MHz	
es BW 11		_		#VE	SW 3 MH	z	_		eep 1 ms	
Channel		r 6 dBm/	17.1 M⊦	łz	Powe	-59.	al Dens 37 dB			
							STATU	S		

4. Radiated Emission

4.1. Test Equipment

The following test equipments are used during the test:

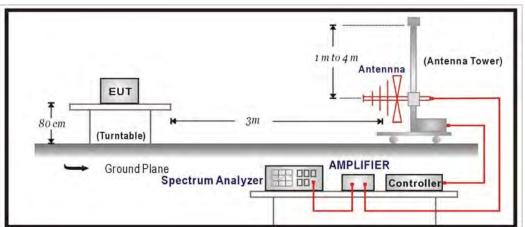
Radiated Emission / CB1

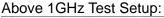
Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Bilog Antenna	SCHAFFNER	CBL6112B	2895(CB1)	2014/08/14
Double Ridged				
Guide Horn Antenna	Schwarzback	BBHA 9120	D743	2014/02/17
Pre-Amplifier	MITEQ	AMF-4D-005180-24-10P	888003	2014/06/09
Pre-Amplifier	QuieTek	AP-025C	CHM-0706049	2014/02/19
Spectrum Analyzer	Agilent	E4440A	MY46187335	2014/01/27
k Type Cable	Huber Suhner	Sucoflex 102	25623/2	2014/02/21

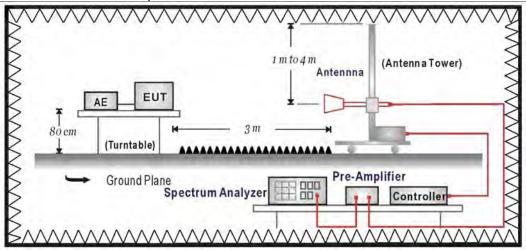
Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

4.2. Test Setup

Under 1GHz Test Setup:







4.3. 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 Limits							
Frequency MHz	uV/m	dBuV/m	Measurement Distance(meter)				
0.009-0.490	2400/F(KHz)	67.60	300				
0.490-1.705	2400/F(KHz)	87.60	30				
1.705-30.0	30	29.5	30				
30-88	100	40	3				
88-216	150	43.5	3				
216-960	200	46	3				
Above 960	500	54	3				

Remarks: E field strength (dBuV/m) = 20 log E field strength (uV/m)

4.4. Test Procedure

The EUT was setup according to ANSI C63.4: 2009 and tested according to DTS test procedure of KDB558074 for compliance to FCC 47CFR 15.247 requirements.

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.4: 2009 on radiated measurement.

On any frequency or frequencies below or equal to 1000 MHz, the limits shown are based on measuring equipment employing a quasi-peak detector function and on any frequency or frequencies above 1000 MHz the radiated limits shown are based upon the use of measurement instrumentation employing an average detector function. When average radiated emission measurement are included emission measurement below 1000 MHz, there also is a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit. The bandwidth below 1GHz setting on the field strength meter is 120 kHz and above 1GHz is 1MHz.

4.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247: 2012

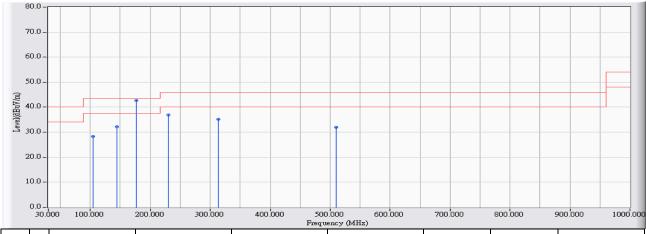
4.6. Uncertainty

The measurement uncertainty $30MHz \sim 1GHz$ as $\pm 3.43dB$ $1GHz \sim 26.5Ghz$ as $\pm 3.65dB$

4.7. Test Result

30MHz-1GHz Spurious

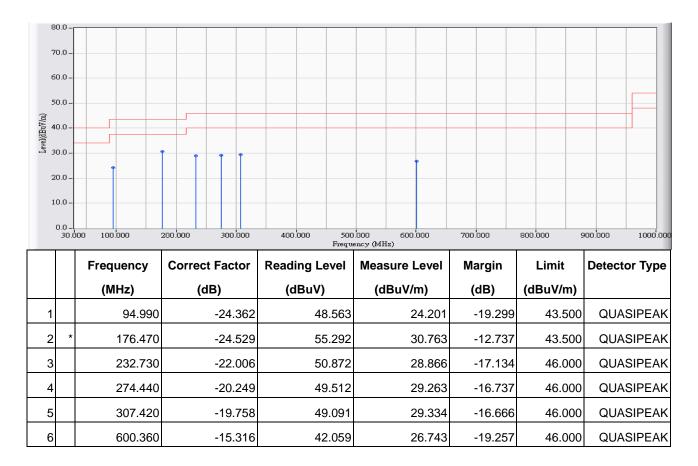
Site : CB1	Time : 2013/09/25 - 16:02
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : CB1_FCC_EFS_30-1G-2_1011 - HORIZONTAL	Power : AC 120V/60Hz
EUT : LIFX Module Board	Note : 802.11b_2437MHz



		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1		104.690	-22.943	51.276	28.333	-15.167	43.500	QUASIPEAK
2		144.460	-23.061	55.327	32.266	-11.234	43.500	QUASIPEAK
3	*	176.470	-24.529	67.114	42.585	-0.915	43.500	QUASIPEAK
4		229.820	-22.252	59.051	36.798	-9.202	46.000	QUASIPEAK
5		313.240	-19.610	54.786	35.176	-10.824	46.000	QUASIPEAK
6		510.150	-15.448	47.310	31.862	-14.138	46.000	QUASIPEAK

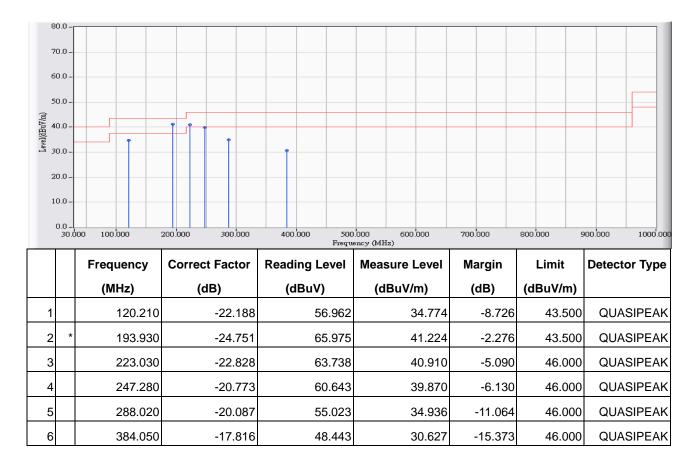
- 1. All Reading Levels are Quasi-Peak value.
- 2. " * ", means this data is the worst emission level.
- 3. Measure Level = Reading Level + Correct Factor •

Site : CB1	Time : 2013/09/25 - 16:05
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : CB1_FCC_EFS_30-1G-2_1011 - VERTICAL	Power : AC 120V/60Hz
EUT : LIFX Module Board	Note : 802.11b_2437MHz



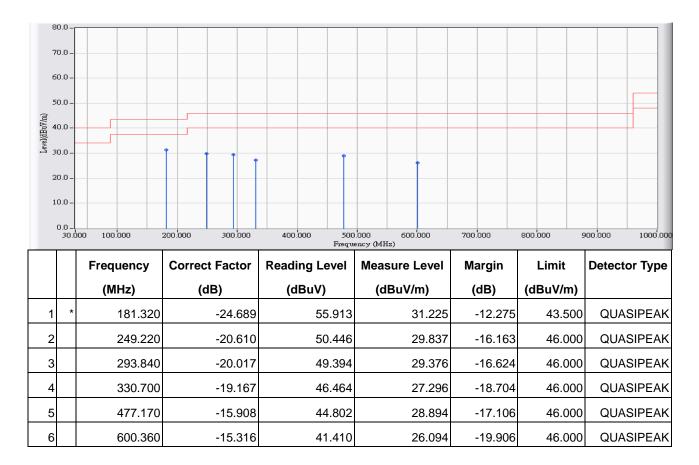
- 1. All Reading Levels are Quasi-Peak value.
- 2. "*", means this data is the worst emission level.
- 3. Measure Level = Reading Level + Correct Factor

Site : CB1	Time : 2013/09/25 - 16:20
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : CB1_FCC_EFS_30-1G-2_1011 - HORIZONTAL	Power : AC 120V/60Hz
EUT : LIFX Module Board	Note : 802.11g_2437MHz



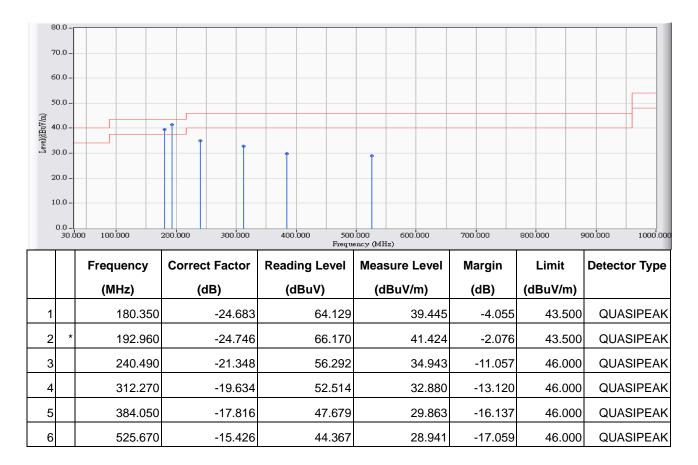
- 1. All Reading Levels are Quasi-Peak value.
- 2. "*", means this data is the worst emission level.
- 3. Measure Level = Reading Level + Correct Factor

Site : CB1	Time : 2013/09/25 - 16:24
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : CB1_FCC_EFS_30-1G-2_1011 - VERTICAL	Power : AC 120V/60Hz
EUT : LIFX Module Board	Note : 802.11g_2437MHz



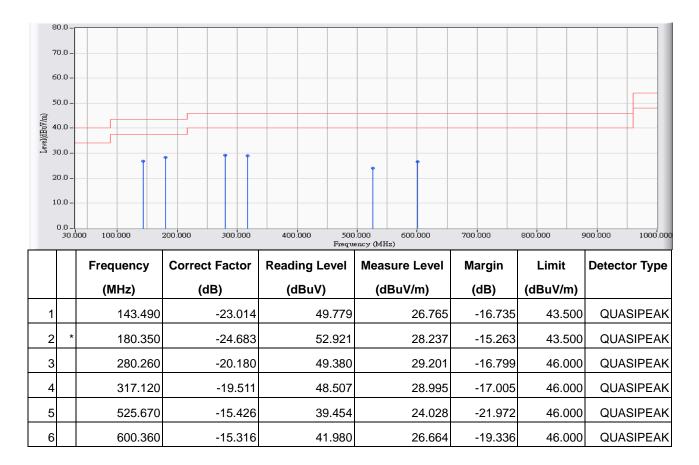
- 1. All Reading Levels are Quasi-Peak value.
- 2. "*", means this data is the worst emission level.
- 3. Measure Level = Reading Level + Correct Factor

Site : CB1	Time : 2013/09/25 - 17:06
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : CB1_FCC_EFS_30-1G-2_1011 - HORIZONTAL	Power : AC 120V/60Hz
EUT : LIFX Module Board	Note : 802.11n_2437MHz



- 1. All Reading Levels are Quasi-Peak value.
- 2. "*", means this data is the worst emission level.
- 3. Measure Level = Reading Level + Correct Factor

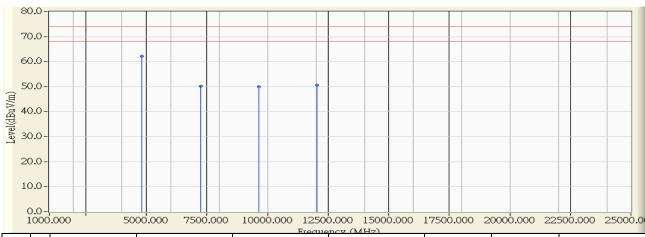
Site : CB1	Time : 2013/09/25 - 17:09
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : CB1_FCC_EFS_30-1G-2_1011 - VERTICAL	Power : AC 120V/60Hz
EUT : LIFX Module Board	Note : 802.11n_2437MHz



- 1. All Reading Levels are Quasi-Peak value.
- 2. "*", means this data is the worst emission level.
- 3. Measure Level = Reading Level + Correct Factor

Above 1GHz Spurious

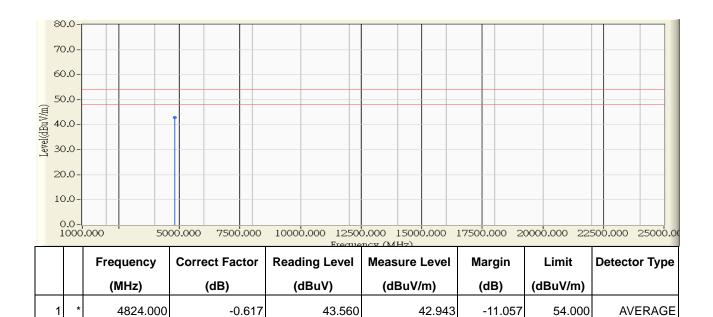
Site : CB1	Time : 2013/09/28 - 14:51
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : LIFX Module Board	Note : 802.11b_2412MHz



		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1	*	4824.000	-0.617	62.870	62.253	-11.747	74.000	PEAK
2		7236.000	5.445	44.660	50.105	-23.895	74.000	PEAK
3		9648.000	9.226	40.730	49.956	-24.044	74.000	PEAK
4		12060.000	11.115	39.530	50.645	-23.355	74.000	PEAK

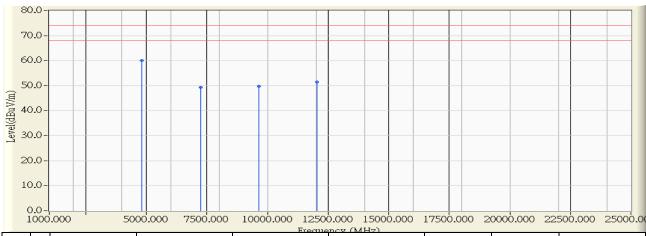
- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "*", means this data is the worst emission level.
- 5. Measure Level = Reading Level + Correct Factor •
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The Emission above 18GHz were not included is because their levels are too low.

Site : CB1	Time : 2013/09/28 - 14:52
Limit : FCC_SpartC_15.247_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : LIFX Module Board	Note : 802.11b_2412MHz



- 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. Measure Level = Reading Level + Correct Factor •
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The Emission above 18GHz were not included is because their levels are too low.

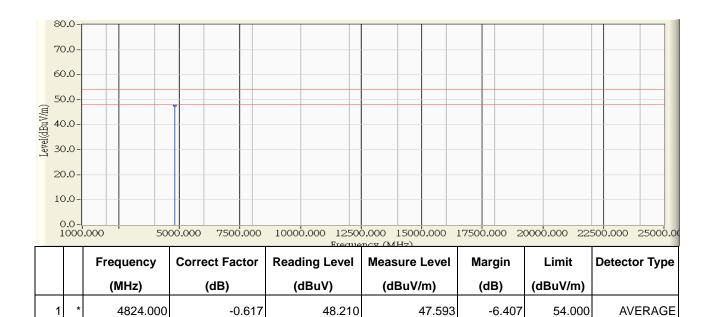
Site : CB1	Time : 2013/09/28 - 15:00
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : LIFX Module Board	Note : 802.11b_2412MHz



		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1	*	4824.000	-0.617	60.640	60.023	-13.977	74.000	PEAK
2		7236.000	5.445	43.880	49.325	-24.675	74.000	PEAK
3		9648.000	9.226	40.610	49.836	-24.164	74.000	PEAK
4		12060.000	11.115	40.340	51.455	-22.545	74.000	PEAK

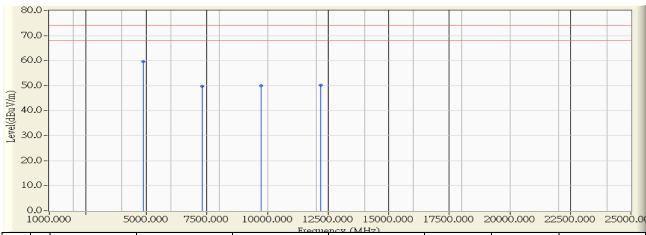
- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "*", means this data is the worst emission level.
- 5. Measure Level = Reading Level + Correct Factor •
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The Emission above 18GHz were not included is because their levels are too low.

Site : CB1	Time : 2013/09/28 - 15:01
Limit : FCC_SpartC_15.247_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : LIFX Module Board	Note : 802.11b_2412MHz



- 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. Measure Level = Reading Level + Correct Factor •
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The Emission above 18GHz were not included is because their levels are too low.

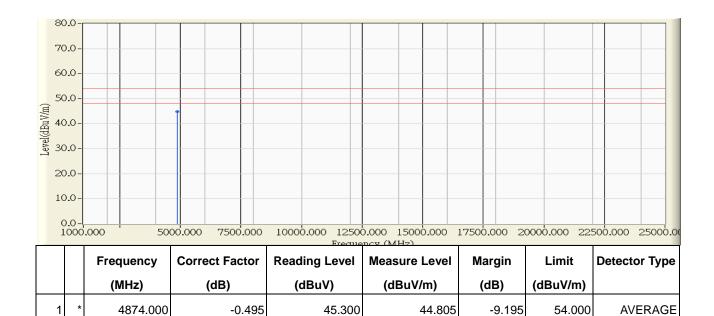
Site : CB1	Time : 2013/09/28 - 15:04
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : LIFX Module Board	Note : 802.11b_2437MHz



		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1	*	4874.000	-0.495	60.060	59.565	-14.435	74.000	PEAK
2		7311.000	5.608	44.250	49.857	-24.143	74.000	PEAK
3		9748.000	9.873	40.180	50.053	-23.947	74.000	PEAK
4		12185.000	11.058	39.120	50.178	-23.822	74.000	PEAK

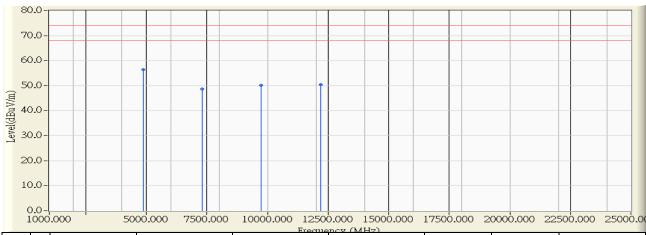
- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "*", means this data is the worst emission level.
- 5. Measure Level = Reading Level + Correct Factor •
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The Emission above 18GHz were not included is because their levels are too low.

Site : CB1	Time : 2013/09/28 - 15:06
Limit : FCC_SpartC_15.247_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : LIFX Module Board	Note : 802.11b_2437MHz



- 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. Measure Level = Reading Level + Correct Factor •
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The Emission above 18GHz were not included is because their levels are too low.

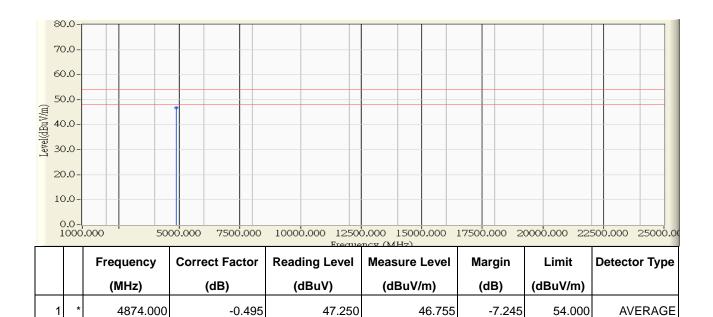
Site : CB1	Time : 2013/09/28 - 15:18
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : LIFX Module Board	Note : 802.11b_2437MHz



		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1	*	4874.000	-0.495	56.820	56.325	-17.675	74.000	PEAK
2		7311.000	5.608	43.020	48.627	-25.373	74.000	PEAK
3		9748.000	9.873	40.240	50.113	-23.887	74.000	PEAK
4		12185.000	11.058	39.350	50.408	-23.592	74.000	PEAK

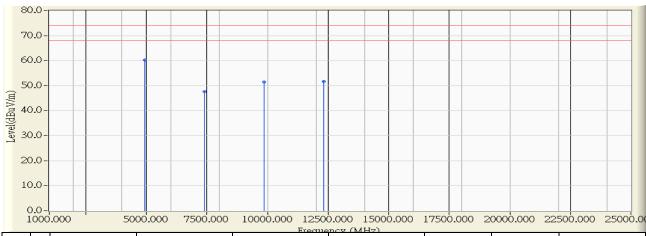
- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "*", means this data is the worst emission level.
- 5. Measure Level = Reading Level + Correct Factor •
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The Emission above 18GHz were not included is because their levels are too low.

Site : CB1	Time : 2013/09/28 - 15:18
Limit : FCC_SpartC_15.247_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : LIFX Module Board	Note : 802.11b_2437MHz



- 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. Measure Level = Reading Level + Correct Factor •
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The Emission above 18GHz were not included is because their levels are too low.

Site : CB1	Time : 2013/09/28 - 15:22
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : LIFX Module Board	Note : 802.11b_2462MHz



		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1	*	4924.000	-0.373	60.600	60.227	-13.773	74.000	PEAK
2		7386.000	5.770	41.790	47.560	-26.440	74.000	PEAK
3		9848.000	10.521	40.880	51.401	-22.599	74.000	PEAK
4		12310.000	11.001	40.680	51.681	-22.319	74.000	PEAK

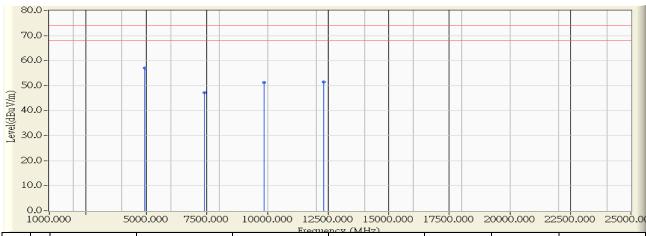
- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "*", means this data is the worst emission level.
- 5. Measure Level = Reading Level + Correct Factor •
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The Emission above 18GHz were not included is because their levels are too low.

Site : CB1	Time : 2013/09/28 - 15:23
Limit : FCC_SpartC_15.247_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : LIFX Module Board	Note : 802.11b_2462MHz



- 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. Measure Level = Reading Level + Correct Factor •
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The Emission above 18GHz were not included is because their levels are too low.

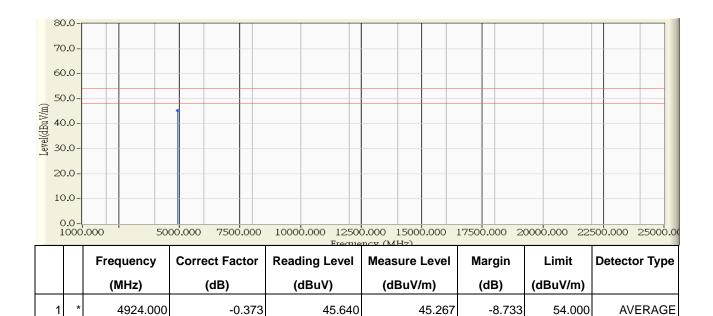
Site : CB1	Time : 2013/09/28 - 15:28
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : LIFX Module Board	Note : 802.11b_2462MHz



		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1	*	4924.000	-0.373	57.420	57.047	-16.953	74.000	PEAK
2		7386.000	5.770	41.370	47.140	-26.860	74.000	PEAK
3		9848.000	10.521	40.820	51.341	-22.659	74.000	PEAK
4		12310.000	11.001	40.560	51.561	-22.439	74.000	PEAK

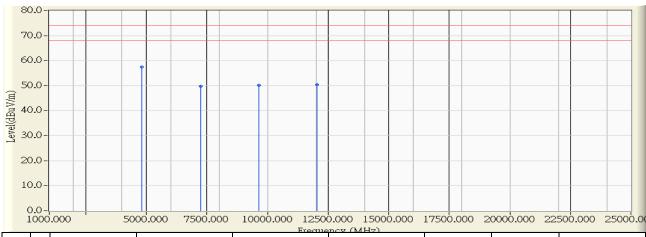
- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "*", means this data is the worst emission level.
- 5. Measure Level = Reading Level + Correct Factor •
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The Emission above 18GHz were not included is because their levels are too low.

Site : CB1	Time : 2013/09/28 - 15:28
Limit : FCC_SpartC_15.247_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : LIFX Module Board	Note : 802.11b_2462MHz



- 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. Measure Level = Reading Level + Correct Factor •
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The Emission above 18GHz were not included is because their levels are too low.

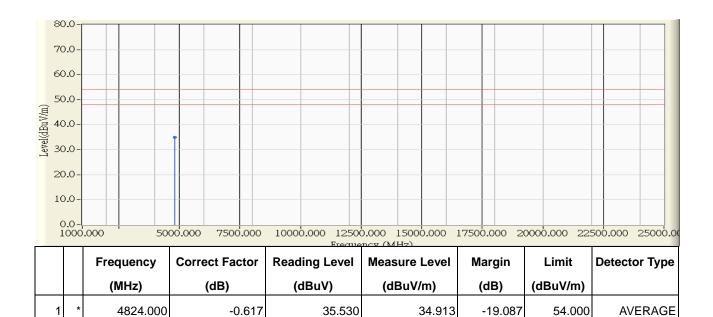
Site : CB1	Time : 2013/09/28 - 15:32
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : LIFX Module Board	Note : 802.11g_2412MHz



		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1	*	4824.000	-0.617	58.020	57.403	-16.597	74.000	PEAK
2		7236.000	5.445	44.310	49.755	-24.245	74.000	PEAK
3		9648.000	9.226	40.930	50.156	-23.844	74.000	PEAK
4		12060.000	11.115	39.240	50.355	-23.645	74.000	PEAK

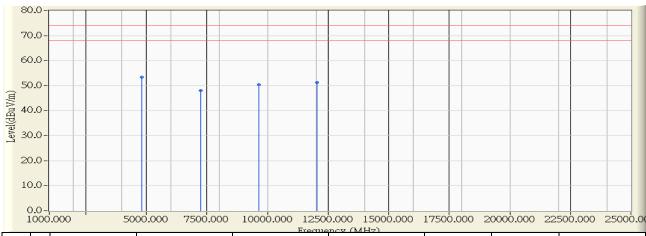
- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "*", means this data is the worst emission level.
- 5. Measure Level = Reading Level + Correct Factor •
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The Emission above 18GHz were not included is because their levels are too low.

Site : CB1	Time : 2013/09/28 - 15:32
Limit : FCC_SpartC_15.247_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : LIFX Module Board	Note : 802.11g_2412MHz



- 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. Measure Level = Reading Level + Correct Factor •
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The Emission above 18GHz were not included is because their levels are too low.

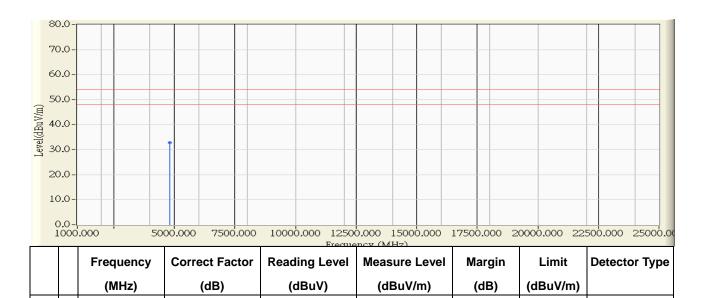
Site : CB1	Time : 2013/09/28 - 15:40
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : LIFX Module Board	Note : 802.11g_2412MHz



		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1	*	4824.000	-0.617	53.960	53.343	-20.657	74.000	PEAK
2		7236.000	5.445	42.530	47.975	-26.025	74.000	PEAK
3		9648.000	9.226	41.260	50.486	-23.514	74.000	PEAK
4		12060.000	11.115	40.070	51.185	-22.815	74.000	PEAK

- 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. Measure Level = Reading Level + Correct Factor •
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The Emission above 18GHz were not included is because their levels are too low.

Site : CB1	Time : 2013/09/28 - 15:41
Limit : FCC_SpartC_15.247_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : LIFX Module Board	Note : 802.11g_2412MHz



1 * 4824.000

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.

32.883

-21.117

54.000

AVERAGE

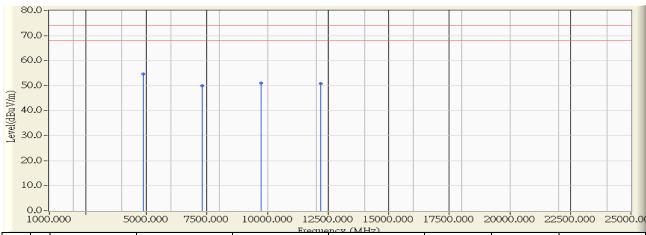
33.500

- 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.

-0.617

- 5. Measure Level = Reading Level + Correct Factor •
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The Emission above 18GHz were not included is because their levels are too low.

Site : CB1	Time : 2013/09/28 - 15:44
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : LIFX Module Board	Note : 802.11g_2437MHz



		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1	*	4874.000	-0.495	55.240	54.745	-19.255	74.000	PEAK
2		7311.000	5.608	44.290	49.897	-24.103	74.000	PEAK
3		9748.000	9.873	41.140	51.013	-22.987	74.000	PEAK
4		12185.000	11.058	39.850	50.908	-23.092	74.000	PEAK

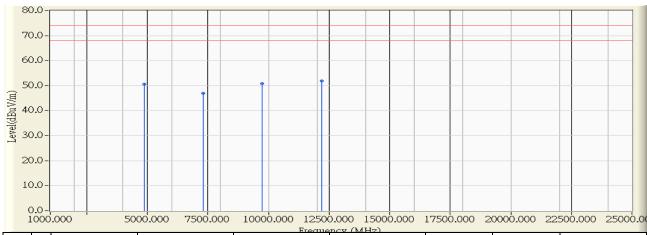
- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "*", means this data is the worst emission level.
- 5. Measure Level = Reading Level + Correct Factor •
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The Emission above 18GHz were not included is because their levels are too low.

Site : CB1	Time : 2013/09/28 - 15:45
Limit : FCC_SpartC_15.247_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : LIFX Module Board	Note : 802.11g_2437MHz



- 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. Measure Level = Reading Level + Correct Factor •
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The Emission above 18GHz were not included is because their levels are too low.

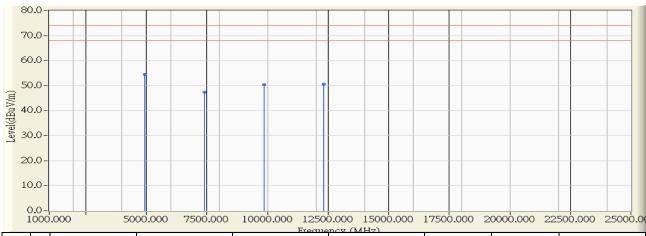
Site : CB1	Time : 2013/09/28 - 15:53
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : LIFX Module Board	Note : 802.11g_2437MHz



		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1		4874.000	-0.495	51.110	50.615	-23.385	74.000	PEAK
2		7311.000	5.608	41.330	46.937	-27.063	74.000	PEAK
3		9748.000	9.873	40.980	50.853	-23.147	74.000	PEAK
4	*	12185.000	11.058	40.780	51.838	-22.162	74.000	PEAK

- 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. Measure Level = Reading Level + Correct Factor •
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The Emission above 18GHz were not included is because their levels are too low.

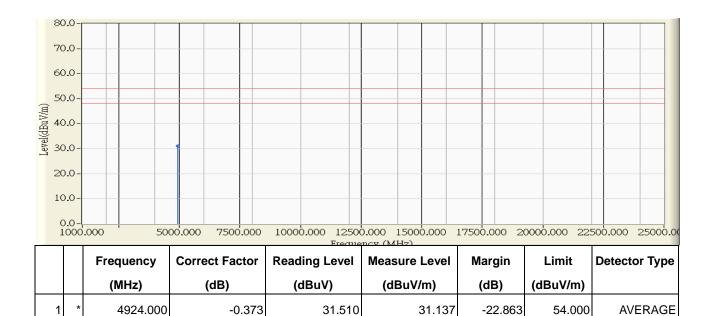
Site : CB1	Time : 2013/09/28 - 16:13
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : LIFX Module Board	Note : 802.11g_2462MHz



		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1	*	4924.000	-0.373	54.750	54.377	-19.623	74.000	PEAK
2		7386.000	5.770	41.590	47.360	-26.640	74.000	PEAK
3		9848.000	10.521	39.800	50.321	-23.679	74.000	PEAK
4		12310.000	11.001	39.590	50.591	-23.409	74.000	PEAK

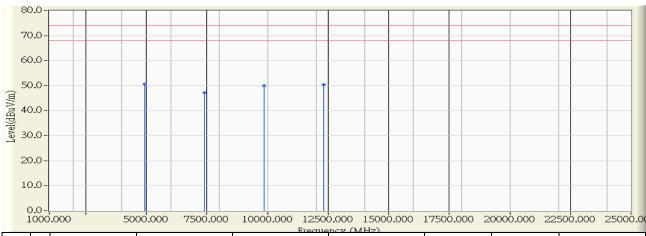
- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "*", means this data is the worst emission level.
- 5. Measure Level = Reading Level + Correct Factor •
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The Emission above 18GHz were not included is because their levels are too low.

Site : CB1	Time : 2013/09/28 - 16:13
Limit : FCC_SpartC_15.247_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : LIFX Module Board	Note : 802.11g_2462MHz



- 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. Measure Level = Reading Level + Correct Factor •
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The Emission above 18GHz were not included is because their levels are too low.

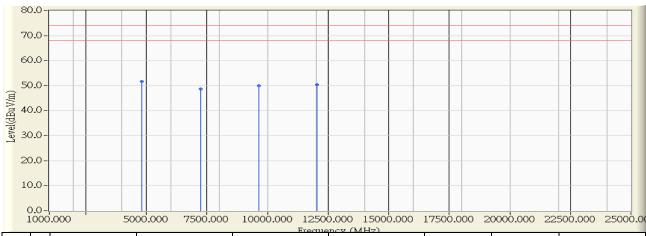
Site : CB1	Time : 2013/09/28 - 16:17
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : LIFX Module Board	Note : 802.11g_2462MHz



		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1	*	4924.000	-0.373	51.020	50.647	-23.353	74.000	PEAK
2		7386.000	5.770	41.340	47.110	-26.890	74.000	PEAK
3		9848.000	10.521	39.480	50.001	-23.999	74.000	PEAK
4		12310.000	11.001	39.390	50.391	-23.609	74.000	PEAK

- 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. Measure Level = Reading Level + Correct Factor •
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The Emission above 18GHz were not included is because their levels are too low.

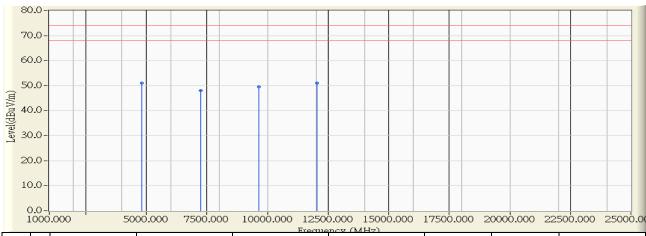
Site : CB1	Time : 2013/09/28 - 16:21
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : LIFX Module Board	Note : 802.11n(20MHz)_2412MHz



		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1	*	4824.000	-0.617	52.200	51.583	-22.417	74.000	PEAK
2		7236.000	5.445	43.170	48.615	-25.385	74.000	PEAK
3		9648.000	9.226	40.820	50.046	-23.954	74.000	PEAK
4		12060.000	11.115	39.200	50.315	-23.685	74.000	PEAK

- 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. Measure Level = Reading Level + Correct Factor •
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The Emission above 18GHz were not included is because their levels are too low.

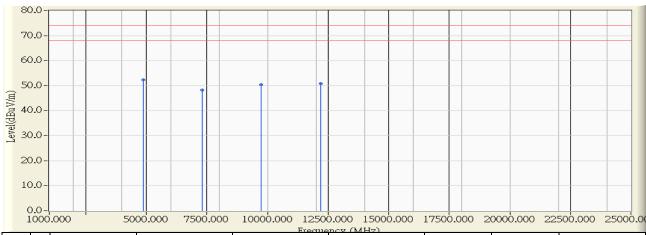
Site : CB1	Time : 2013/09/28 - 16:22
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : LIFX Module Board	Note : 802.11n(20MHz)_2412MHz



		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1	*	4824.000	-0.617	51.620	51.003	-22.997	74.000	PEAK
2		7236.000	5.445	42.560	48.005	-25.995	74.000	PEAK
3		9648.000	9.226	40.300	49.526	-24.474	74.000	PEAK
4		12060.000	11.115	39.870	50.985	-23.015	74.000	PEAK

- 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. Measure Level = Reading Level + Correct Factor •
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The Emission above 18GHz were not included is because their levels are too low.

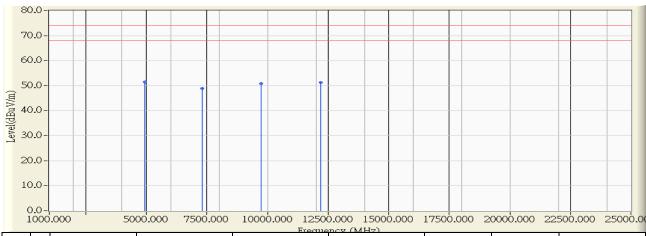
Site : CB1	Time : 2013/09/28 - 16:27
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : LIFX Module Board	Note : 802.11n(20MHz)_2437MHz



		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1	*	4874.000	-0.495	52.760	52.265	-21.735	74.000	PEAK
2		7311.000	5.608	42.700	48.307	-25.693	74.000	PEAK
3		9748.000	9.873	40.530	50.403	-23.597	74.000	PEAK
4		12185.000	11.058	39.860	50.918	-23.082	74.000	PEAK

- 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. Measure Level = Reading Level + Correct Factor •
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The Emission above 18GHz were not included is because their levels are too low.

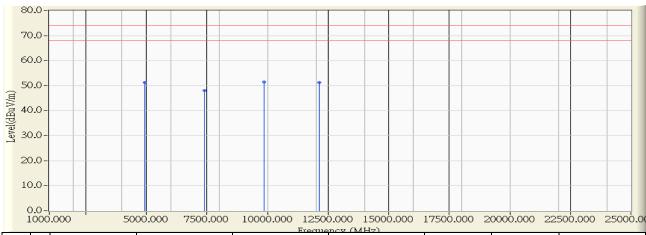
Site : CB1	Time : 2013/09/28 - 16:29
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : LIFX Module Board	Note : 802.11n(20MHz)_2437MHz



		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1	*	4947.000	-0.317	51.880	51.563	-22.437	74.000	PEAK
2		7311.000	5.608	43.200	48.807	-25.193	74.000	PEAK
3		9748.000	9.873	40.900	50.773	-23.227	74.000	PEAK
4		12185.000	11.058	40.110	51.168	-22.832	74.000	PEAK

- 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. Measure Level = Reading Level + Correct Factor •
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The Emission above 18GHz were not included is because their levels are too low.

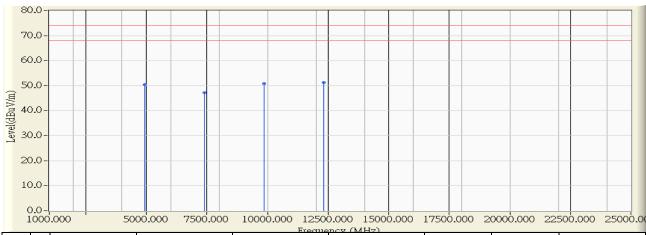
Site : CB1	Time : 2013/09/28 - 16:33
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : LIFX Module Board	Note : 802.11n(20MHz)_2462MHz



		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1		4924.000	-0.373	51.530	51.157	-22.843	74.000	PEAK
2		7386.000	5.770	42.260	48.030	-25.970	74.000	PEAK
3	*	9848.000	10.521	40.900	51.421	-22.579	74.000	PEAK
4		12130.000	11.083	40.140	51.223	-22.777	74.000	PEAK

- 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. Measure Level = Reading Level + Correct Factor •
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The Emission above 18GHz were not included is because their levels are too low.

Site : CB1	Time : 2013/09/28 - 16:36
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : LIFX Module Board	Note : 802.11n(20MHz)_2462MHz



	Frequency Correct Factor Reading Level			Measure Level	Margin	Limit	Detector Type	
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1		4924.000	-0.373	50.720	50.347	-23.653	74.000	PEAK
2		7386.000	5.770	41.500	47.270	-26.730	74.000	PEAK
3		9848.000	10.521	40.370	50.891	-23.109	74.000	PEAK
4	*	12310.000	11.001	40.170	51.171	-22.829	74.000	PEAK

- 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. Measure Level = Reading Level + Correct Factor •
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The Emission above 18GHz were not included is because their levels are too low.

5. RF antenna conducted test

5.1. Test Equipment

The following test equipments are used during the test:

RF antenna conducted test / SR7

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Spectrum Analyzer	Agilent	N9010A-EXA	US47140172	2014/08/05

Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

5.2. Test Setup

RF Antenna Conducted Measurement:

ectrum Analyzer	
EUT	
Non-Conducted Table	2
	Non-Conducted

5.3. 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 an RF conducted or 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)).

5.4. Test Procedure

The EUT was setup according to ANSI C63.4: 2009 and 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.

5.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247: 2012

5.6. Uncertainty

Conducted is defined as ± 1.27 dB



5.7. Test Result

Product	LIFX Module Board										
Test Item	RF antenna conducted test										
Test Mode	Mode 1: Transmit										
Date of Test	2013/08/20 Test Site SR7										

IEEE 802.11b, ANT 0, Duty Cycle: 1												
Channel No	Frequency	Measure Level	Limit	Result								
Channel No.	(MHz)	(dBc)	(dBc)	IXeSuit								
1	2412	48.08	≧20	Pass								
11	2462	60.91	≧20	Pass								

Channel 1 (2412MHz)

The second s	M Aug 20, 2013	05:02:13 Pf	ALIGN AUTO		NSE:INT	C SE	AC			2	50 \$			
Screen Image		Log-Pwr TRACE 1 2 3 4 5 6 100/100 TYPE MWWAWA			Avg Type: Log- Trig: Free Run Avg Hold: >100/			Center Freq 2.400000000 GHz Input: RF PNO: Fast 🖵						
Theme	IFGain:Low #Atten: 30 dB Ext Gain: -1.00 dB DETIPINNNN													
Flat Monochrom	.5 MHz .083 dB		ΔΙ						dBm	19.00	Ref	v	B/div) dE
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				-		-	-		-			-	-	1.0
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					-									7
	-				_									9
	-						3							1
														2



Channel 11 (2462MHz)

		50 \$			AC SEN	SE:INT		ALIGNAUTO	05:02:45 PM	1 Aug 20, 2013	
ente	nter Freq 2.483500000 GHz						ype: Log-Pwr old: >100/100	TRACI TYP	123456 EM WAMAN	Screen Image	
			Input: RF	PNO: Fast IFGain:Low	#Atten: 30			in: -1.00 dB	DE	TPNNNNN	Themes
0 dB/d	iv	Ref	19.00 dBm					ΔΝ	1kr1 -21 60.	.0 MHz 905 dB	Flat Monochrome
. og 9.00				1Δ2			*				30.34
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1.0			1	- Vi						-	
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ente			0 GHz			_	1	- 100.000		00.0 MHz	
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5											
7 8 9	1										
10 11											
						- +					



Product	LIFX Module Board									
Test Item	RF antenna conducted test									
Test Mode	Mode 1: Transmit	Mode 1: Transmit								
Date of Test	2013/08/20 Test Site SR7									

IEEE 802.11g, ANT 0,	IEEE 802.11g, ANT 0, Duty Cycle: 1												
Channel No.	Frequency	Measure Level	Limit	Result									
Channel No.	(MHz)	(dBc)	(dBc)	rtooun									
1	2412	41.71	≧20	Pass									
11	2462	50.08	≧20	Pass									

Channel 1 (2412MHz)

D Ag	gilent (Spect	rum	Analyzer - S	Swept SA									
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			-	Int	put: RF P IFI	NO: Fast Gain:Low		tten: 30			in: -1.00 dB		PE MWWWWWW DET P N N N N N	Themes
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-21.0	1.1.1						_		1	-	<u>\</u>			
-31.0	1111							New Y	nd -		- the			
-41.0 -51.0					a standborge	مرد مرد المرد الم	and a start and a start	- sale land	1/2		1 THINK THE WE	when when the	or the weather	
-61.0			nut and	Palan Landor III II	allo-under-station ^{ere}						-		· · · · · · · · · · · · · · · · · · ·	
-71.0				1.45									1	
	nter es B			0 GHz kHz		#V	BW 30	0 kHz			Sweep		100.0 MHz (1001 pts)	
MKR	MODE	TRC	SCL	-	X			Y		JNCTION	FUNCTION WIDTH	FUNCT	ON VALUE	
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7 8 9														
10														
11 12	_											-	-	,
MSG											STATUS			



Channel 11 (2462MHz)

🗖 Agi	lent S	pect	rum .	Analyzer -	Swept SA												
Cen	ter	Fre	50 Ω	2.4835	00000 G		A	C SE] Trig: Fre	NSE:INT			ALIG ype: Log old: >10		TR	ACE	ug20,2013	Screen Image
				In	put: RF P IF	NO: Fast Gain:Lov	i 🌩 N	#Atten: 3		1		ain: -1.00	dB			NWWWWW NNNNN	Themes
10 dE	3/div		Ref	19.00 0	dBm								ΔN			2 MHz 78 dB	Flat Monochrome
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Product	LIFX Module Board		
Test Item	RF antenna conducted test		
Test Mode	Mode 1: Transmit		
Date of Test	2013/08/20	Test Site	SR7

IEEE 802.11n (20MHz	IEEE 802.11n (20MHz), ANT 0, Duty Cycle: 1											
Channel No	Frequency Measure Level Limit											
Channel No.	(MHz)	(dBc)	(dBc)	Result								
1	2412	44.36	≧20	Pass								
11	2462	48.65	≧20	Pass								

Channel 1 (2412MHz)

20,2013	05:04:50 PM Aug 20, 2013	ALIGN AUTO		NSE:INT	C SE	A		2	50 0		
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									1	1	1.0 -
								1.46		1.0	
	Span 100.0 MHz 9.60 ms (1001 pts)	Sweep 9	÷		300 kHz	#VBW		0 GHz kHz		er 2.4 BW 1	
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Channel 11 (2462MHz)

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-21.0	-	_					++		-		-	-			
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Agilent	Spectru	um Analyze	r - Swept SA								
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IKR MODE	TRC	SCL	×		Y	E FI	INCTION	FUNCTION WIDTH	FUNCTIO	ON VALUE	Auto Ma
1 Δ2 2 F	1	f (Δ)		422 GHz (Δ) <u>48.5</u> -45.411	34 dB			-		
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4						-				1.1	0H
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12					_			1	-		
G								STATUS			

2412MHz (30MHz-25GHz)-802.11b

2462MHz (30MHz-25GHz) -802.11b

	M Oct 15, 2013	07:25:22.0	ALIGN AUTO	T	SE:INT	C SEI	1	Nept Sk	nalyzer -	50 Ω	peer	mente a	AB
Frequency	E 123456	TRAC	: Log-Pwr	Avg Typ Avg Hold	19. 1 T	Trig: Free	: Fast		.00000		req	rt Fi	tar
Auto Tur	50 MHz 400 dB	Mkr1 1	Δ		dB	#Atten: 30	n:Low	IFGa	20.00	Ref		B/div	
Center Fre 12.515000000 GF									Δ2	•		i	og 10.0 0.00
Start Fre 30.000000 MF												-	20.0 30.0
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													7 8
							-						9



2412MHz (30MHz-25GHz)-802.11g

	PM Oct 15, 2013	07:37:30.8	ALIGN AUTO	ri i	SENSE:	1	Shispion	Analyzer -	50	nisitie a	
Frequency	ACE 1 2 3 4 5 6 YPE MWWWWWW	TRAC	e: Log-Pwr d:>10/10	Avg	rig: Free Ru	Fast G	put: RF PNO: I	0.00000		rt Fi	ta
Auto Tun	924 MHz 0.826 dB	Mkr1 -9	Δ		Atten: 30 dB	n:Low	IFGain	f 20.00 d	Re	B/div	
Center Fre 12.515000000 GH								ΙΔ2	•		. og 10.0 0.00
Start Fre 30.000000 MH										-	20.0 30.0 40.0
terms Calve Sch	na summer .	متوطلة محرورية فترييه	when we have been as		anguan and and	Mana	angue and and the for	-)/2	mark	malin	50.0 60.0
										1	70.0
25.00000000 GH	25.00 GHz (1001 pts)		Sweep		00 kHz	#VBV		kHz	MHz / 100	rt 30	star
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25.00000000 GF CF Ste 2.497000000 GF Auto Ma Freq Offso	(1001 pts)	2.39 s (and the second second second	FUNCTION	Y	AHz (Δ)	×			rt 30 s B1	tai Re
Stop Fre 25.00000000 GH CF Ste 2.497000000 GH Auto Ma Freq Offsa 0 H	(1001 pts)	2.39 s (and the second second second	FUNCTION	Y 50.826 dB	AHz (Δ)	× -924 M		/ 100 180 SO 1 f	rt 30 s Β1 Δ2	Re Re 1 2 3 4 5

2462MHz (30MHz-25GHz) -802.11g

ent Spectrum Analyzer - Swept SA	
50 Ω AC SENSE:INT ALIGNAUTO 07:3 t Freq 30.000000 MHz Avg Type: Log-Pwr	TRACE 1 2 3 4 5 6 Frequency
Input: RF PNO: Fast C Trig: Free Run Avg Hold>10/10 IFGain:Low #Atten: 30 dB	DET P N N N N N
ΔMkr1 · אdiv Ref 20.00 dBm	4.095 GHz Auto Tune 49.913 dB
	Center Free
	12.515000000 GH
	Start Free
	30.000000 MH
- to constant with have a state to a state to a state to a state of the state of th	Stop Fre
	25.000000000 GH
	p 25.00 GHz s (1001 pts) CF Step 2.497000000 GH
Δ2 1 f (Δ) -4.095 GHz (Δ) 49.913 dB	NETION VALUE Ma
F 1 f 6.547 GHz -51.193 dBm	Freq Offse



									Swept SA			lent Sp	
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2412MHz (30MHz-25GHz)- 802.11n(20MHz) Ant0

2462MHz (30MHz-25GHz) -802.11n(20MHz) Ant0

			50 Ω				AC	SEN	SE:INT	Aug To	ALIGN AUTO		M Oct 15, 2013	Frequency
star	t Fr	eq	30.0	10000 Ing	0 MHz	PNO: Fast	9	Trig: Free		Avg Iv Avg Hol	pe: Log-Pwr d:>10/10	TY		
_	_	_	-			IFGain:Lov	v	#Atten: 30	dB					Auto Tun
IO dE	3/div		Ref 2	0.00 c	IBm								42 GHz .343 dB	
.og			A 10	<u>.</u>			1					1000		-
0.00			¢۱۵	2									- P	Center Fre
10.0					11				-					12.515000000 GH
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70.0			-	-		_			_					25.00000000 GH
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			io kl	z		#∖	BW 3	300 kHz			Sweep		1001 pts)	CF Ste 2.497000000 GH
MKR M					X			Ý		INCTION	UNCTION WIDTH	FUNCTION	ON VALUE	Auto Ma
1 /	Δ <u>2</u> F	1	f (Z	9		.042 GHz		52.343 (52.220 dB					-	
	-	1				- 30.34					_			Freq Offs
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4 5 6 7 8		-							-					
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4 5 6 7 8 9									-				-	

6. Band Edge

6.1. Test Equipment

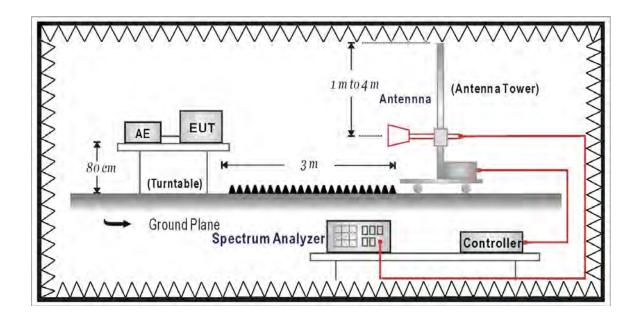
The following test equipments are used during the test:

Band Edge / CB1

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Double Ridged Guide	Schwarzback	BBHA 9120	D743	2014/02/17
Horn Antenna				
Spectrum Analyzer	Agilent	E4440A	MY46187335	2014/01/27
k Type Cable	Huber Suhner	Sucoflex 102	25623/2	2014/02/21

Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

6.2. Test Setup





6.3. 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.

6.4. Test Procedure

The EUT was setup according to ANSI C63.4: 2009 and tested according to DTS test procedure of KDB558074 for compliance to FCC 47CFR 15.247 requirements. The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 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 can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.4: 2009 on radiated measurement.

6.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247: 2012

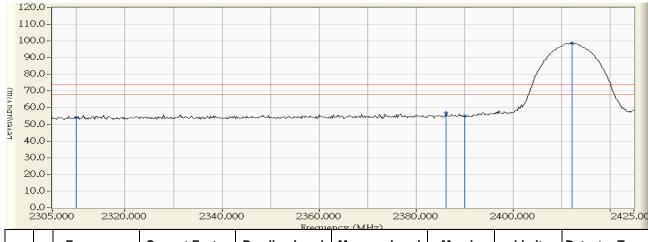
6.6. Uncertainty

The measurement uncertainty ± 3.9 dB above 1GHz

6.7. Test Result

Radiated is defined as

Site : CB1	Time : 2013/09/28 - 11:00
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : LIFX Module Board	Note : 802.11b_2412MHz



		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1		2310.000	30.059	23.952	54.011	-19.989	74.000	PEAK
2		2386.200	30.849	26.122	56.971	-17.029	74.000	PEAK
3		2390.000	30.888	23.987	54.875	-19.125	74.000	PEAK
4	*	2412.200	31.118	67.584	98.703	24.703	74.000	PEAK

- 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. If the readings given are average, peak measurement should also be supplied.

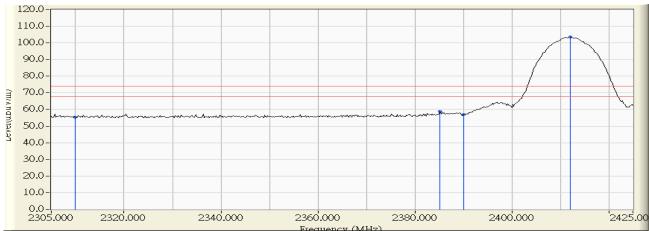
Site : CB1	Time : 2013/09/28 - 11:00
Limit : FCC_SpartC_15.209_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : LIFX Module Board	Note : 802.11b_2412MHz



		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1		2310.000	30.059	12.140	42.199	-11.801	54.000	AVERAGE
2		2389.600	30.884	12.784	43.668	-10.332	54.000	AVERAGE
3		2390.000	30.888	12.743	43.631	-10.369	54.000	AVERAGE
4	*	2411.200	31.108	64.706	95.814	41.814	54.000	AVERAGE

- 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. If the readings given are average, peak measurement should also be supplied.

Site : CB1	Time : 2013/09/28 - 11:04
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : LIFX Module Board	Note : 802.11b_2412MHz



		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1		2310.000	30.059	25.360	55.419	-18.581	74.000	PEAK
2		2385.200	30.839	28.160	58.999	-15.001	74.000	PEAK
3		2390.000	30.888	26.046	56.934	-17.066	74.000	PEAK
4	*	2412.000	31.116	72.319	103.435	29.435	74.000	PEAK

- 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.
- The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

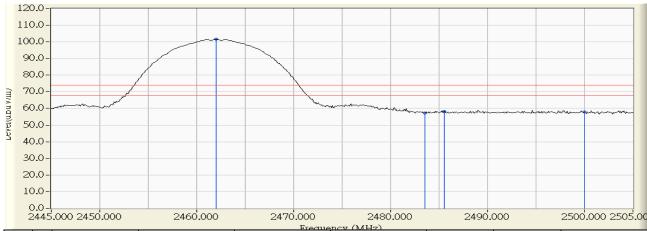
Site : CB1	Time : 2013/09/28 - 11:04
Limit : FCC_SpartC_15.209_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : LIFX Module Board	Note : 802.11b_2412MHz



		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1		2310.000	30.059	12.908	42.967	-11.033	54.000	AVERAGE
2		2386.800	30.856	15.061	45.916	-8.084	54.000	AVERAGE
3		2390.000	30.888	14.057	44.945	-9.055	54.000	AVERAGE
4	*	2411.200	31.108	69.388	100.496	46.496	54.000	AVERAGE

- 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.
- The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Site : CB1	Time : 2013/09/28 - 11:10
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : LIFX Module Board	Note : 802.11b_2462MHz



		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1	*	2462.000	31.635	69.906	101.541	27.541	74.000	PEAK
2		2483.500	31.858	25.328	57.186	-16.814	74.000	PEAK
3		2485.500	31.879	26.380	58.259	-15.741	74.000	PEAK
4		2500.000	31.988	25.825	57.814	-16.186	74.000	PEAK

- 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.
- The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

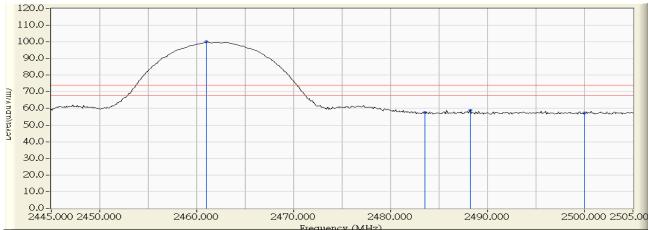
Site : CB1	Time : 2013/09/28 - 11:10
Limit : FCC_SpartC_15.209_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : LIFX Module Board	Note : 802.11b_2462MHz



		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1	*	2461.300	31.628	67.080	98.708	44.708	54.000	AVERAGE
2		2483.500	31.858	13.195	45.053	-8.947	54.000	AVERAGE
3		2483.600	31.859	13.164	45.023	-8.977	54.000	AVERAGE
4		2500.000	31.988	12.536	44.525	-9.475	54.000	AVERAGE

- 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. If the readings given are average, peak measurement should also be supplied.

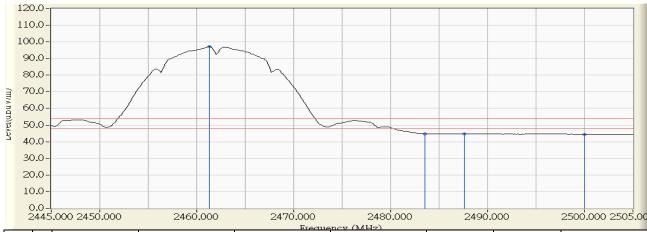
Site : CB1	Time : 2013/09/28 - 11:13
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : LIFX Module Board	Note : 802.11b_2462MHz



		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1	*	2461.000	31.624	68.291	99.916	25.916	74.000	PEAK
2		2483.500	31.858	25.777	57.635	-16.365	74.000	PEAK
3		2488.200	31.906	27.036	58.943	-15.057	74.000	PEAK
4		2500.000	31.988	25.350	57.339	-16.661	74.000	PEAK

- 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.
- The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Site : CB1	Time : 2013/09/28 - 11:14
Limit : FCC_SpartC_15.209_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : LIFX Module Board	Note : 802.11b_2462MHz



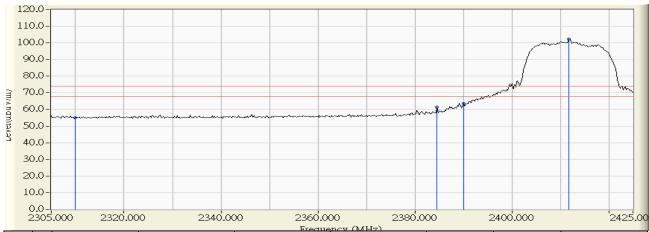
		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1	*	2461.300	31.628	65.531	97.159	43.159	54.000	AVERAGE
2		2483.500	31.858	12.992	44.850	-9.150	54.000	AVERAGE
3		2487.600	31.901	12.888	44.788	-9.212	54.000	AVERAGE
4		2500.000	31.988	12.528	44.517	-9.483	54.000	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. If the readings given are average, peak measurement should also be supplied.

Site : CB1	Time : 2013/09/28 - 11:27
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : LIFX Module Board	Note : 802.11g_2412MHz



		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1		2310.000	30.059	24.948	55.007	-18.993	74.000	PEAK
2		2384.600	30.832	30.763	61.595	-12.405	74.000	PEAK
3		2390.000	30.888	32.896	63.784	-10.216	74.000	PEAK
4	*	2411.800	31.115	71.291	102.405	28.405	74.000	PEAK

- 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. Measure Level = Reading Level + Correct Factor •
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.

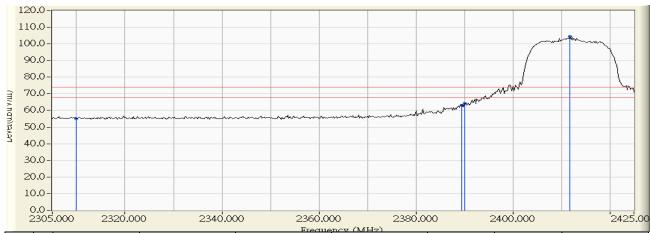
Site : CB1	Time : 2013/09/28 - 11:28
Limit : FCC_SpartC_15.209_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : LIFX Module Board	Note : 802.11g_2412MHz



		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1		2310.000	30.059	12.006	42.065	-11.935	54.000	AVERAGE
2		2389.800	30.886	15.584	46.470	-7.530	54.000	AVERAGE
3		2390.000	30.888	15.676	46.564	-7.436	54.000	AVERAGE
4	*	2411.000	31.106	58.438	89.544	35.544	54.000	AVERAGE

- 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. Measure Level = Reading Level + Correct Factor •
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	Time : 2013/09/28 - 11:32
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : LIFX Module Board	Note : 802.11g_2412MHz



		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1		2310.000	30.059	24.937	54.996	-19.004	74.000	PEAK
2		2389.400	30.882	32.199	63.081	-10.919	74.000	PEAK
3		2390.000	30.888	33.386	64.274	-9.726	74.000	PEAK
4	*	2411.800	31.115	73.492	104.606	30.606	74.000	PEAK

- 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. Measure Level = Reading Level + Correct Factor •
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.

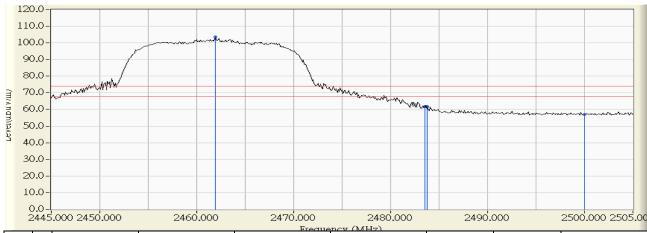
Site : CB1	Time : 2013/09/28 - 11:32
Limit : FCC_SpartC_15.209_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : LIFX Module Board	Note : 802.11g_2412MHz



		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1		2310.000	30.059	12.531	42.590	-11.410	54.000	AVERAGE
2		2389.800	30.886	17.179	48.065	-5.935	54.000	AVERAGE
3		2390.000	30.888	17.275	48.163	-5.837	54.000	AVERAGE
4	*	2411.000	31.106	60.841	91.947	37.947	54.000	AVERAGE

- 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. Measure Level = Reading Level + Correct Factor •
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.

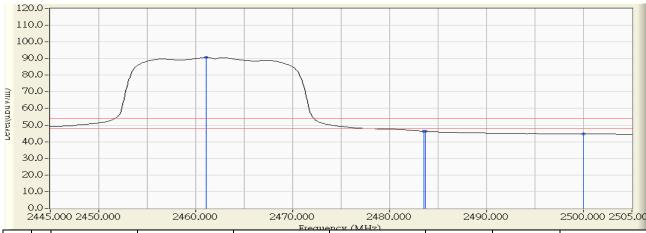
Site : CB1	Time : 2013/09/28 - 11:17
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : LIFX Module Board	Note : 802.11g_2462MHz



		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1	*	2461.900	31.633	71.898	103.532	29.532	74.000	PEAK
2		2483.500	31.858	29.800	61.658	-12.342	74.000	PEAK
3		2483.800	31.861	29.810	61.671	-12.329	74.000	PEAK
4		2500.000	31.988	25.049	57.038	-16.962	74.000	PEAK

- 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. Measure Level = Reading Level + Correct Factor •
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.

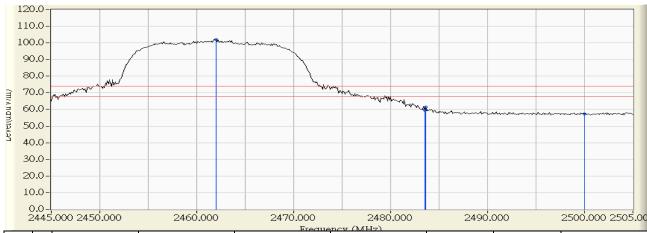
Site : CB1	Time : 2013/09/28 - 11:18
Limit : FCC_SpartC_15.209_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : LIFX Module Board	Note : 802.11g_2462MHz



		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1	*	2461.100	31.626	59.024	90.650	36.650	54.000	AVERAGE
2		2483.500	31.858	14.450	46.308	-7.692	54.000	AVERAGE
3		2483.700	31.860	14.439	46.299	-7.701	54.000	AVERAGE
4		2500.000	31.988	12.612	44.601	-9.399	54.000	AVERAGE

- 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. Measure Level = Reading Level + Correct Factor •
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.

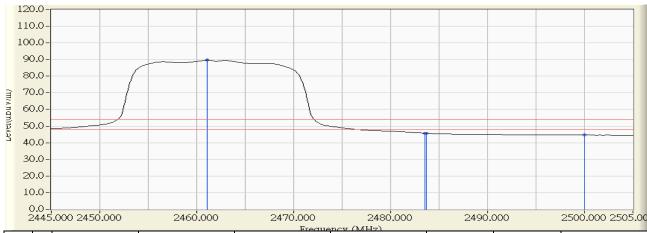
Site : CB1	Time : 2013/09/28 - 11:21
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : LIFX Module Board	Note : 802.11g_2462MHz



		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1	*	2462.000	31.635	70.351	101.986	27.986	74.000	PEAK
2		2483.500	31.858	27.638	59.496	-14.504	74.000	PEAK
3		2483.600	31.859	29.636	61.495	-12.505	74.000	PEAK
4		2500.000	31.988	25.319	57.308	-16.692	74.000	PEAK

- 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. Measure Level = Reading Level + Correct Factor •
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.

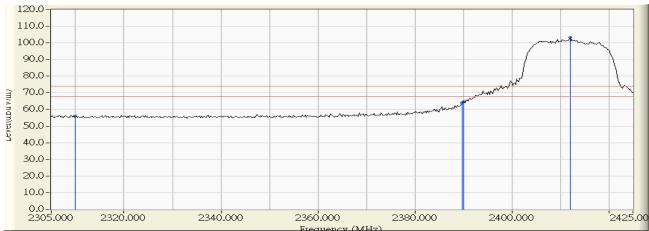
Site : CB1	Time : 2013/09/28 - 11:22
Limit : FCC_SpartC_15.209_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : LIFX Module Board	Note : 802.11g_2462MHz



		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1	*	2461.100	31.626	57.973	89.599	35.599	54.000	AVERAGE
2		2483.500	31.858	13.894	45.752	-8.248	54.000	AVERAGE
3		2483.700	31.860	13.818	45.678	-8.322	54.000	AVERAGE
4		2500.000	31.988	12.598	44.587	-9.413	54.000	AVERAGE

- 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. Measure Level = Reading Level + Correct Factor •
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	Time : 2013/09/28 - 11:36
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : LIFX Module Board	Note : 802.11n(20MHz)_2412MHz



		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1		2310.000	30.059	25.839	55.898	-18.102	74.000	PEAK
2		2389.800	30.886	33.229	64.115	-9.885	74.000	PEAK
3		2390.000	30.888	33.918	64.806	-9.194	74.000	PEAK
4	*	2412.000	31.116	72.192	103.308	29.308	74.000	PEAK

- 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. Measure Level = Reading Level + Correct Factor •
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.

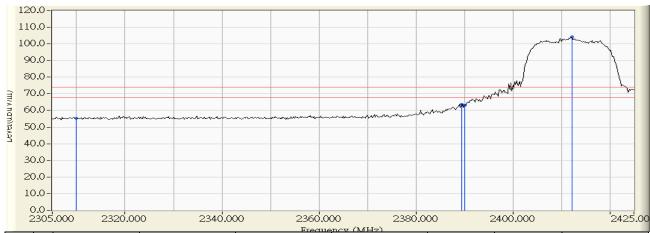
Site : CB1	Time : 2013/09/28 - 11:37
Limit : FCC_SpartC_15.209_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : LIFX Module Board	Note : 802.11n(20MHz)_2412MHz



		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1		2310.000	30.059	12.148	42.207	-11.793	54.000	AVERAGE
2		2389.800	30.886	16.970	47.856	-6.144	54.000	AVERAGE
3		2390.000	30.888	17.074	47.962	-6.038	54.000	AVERAGE
4	*	2411.000	31.106	59.215	90.321	36.321	54.000	AVERAGE

- 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. Measure Level = Reading Level + Correct Factor •
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	Time : 2013/09/28 - 11:40
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : LIFX Module Board	Note : 802.11n(20MHz)_2412MHz



		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1		2310.000	30.059	25.209	55.268	-18.732	74.000	PEAK
2		2389.400	30.882	32.744	63.626	-10.374	74.000	PEAK
3		2390.000	30.888	32.067	62.955	-11.045	74.000	PEAK
4	*	2412.200	31.118	73.050	104.169	30.169	74.000	PEAK

- 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. Measure Level = Reading Level + Correct Factor •
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.

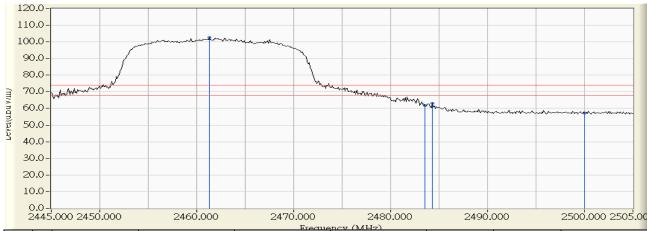
Site : CB1	Time : 2013/09/28 - 11:41
Limit : FCC_SpartC_15.209_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : LIFX Module Board	Note : 802.11n(20MHz)_2412MHz



		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1		2310.000	30.059	12.027	42.086	-11.914	54.000	AVERAGE
2		2389.800	30.886	16.862	47.748	-6.252	54.000	AVERAGE
3		2390.000	30.888	16.965	47.853	-6.147	54.000	AVERAGE
4	*	2411.200	31.108	60.211	91.319	37.319	54.000	AVERAGE

- 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. Measure Level = Reading Level + Correct Factor •
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	Time : 2013/09/28 - 11:44
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : LIFX Module Board	Note : 802.11n(20MHz)_2462MHz



		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1	*	2461.300	31.628	70.875	102.503	28.503	74.000	PEAK
2		2483.500	31.858	29.887	61.745	-12.255	74.000	PEAK
3		2484.300	31.867	31.089	62.955	-11.045	74.000	PEAK
4		2500.000	31.988	25.269	57.258	-16.742	74.000	PEAK

- 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. Measure Level = Reading Level + Correct Factor •
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.

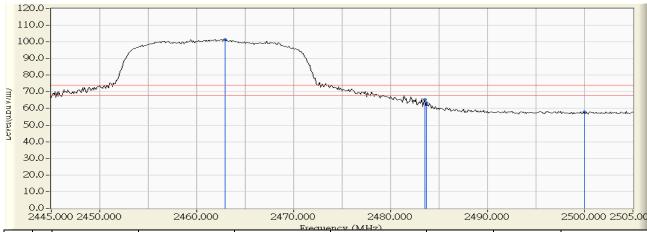
Site : CB1	Time : 2013/09/28 - 11:45
Limit : FCC_SpartC_15.209_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : LIFX Module Board	Note : 802.11n(20MHz)_2462MHz



		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1	*	2461.100	31.626	58.662	90.288	36.288	54.000	AVERAGE
2		2483.500	31.858	14.299	46.157	-7.843	54.000	AVERAGE
3		2483.700	31.860	14.195	46.055	-7.945	54.000	AVERAGE
4		2500.000	31.988	12.224	44.213	-9.787	54.000	AVERAGE

- 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. Measure Level = Reading Level + Correct Factor •
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.

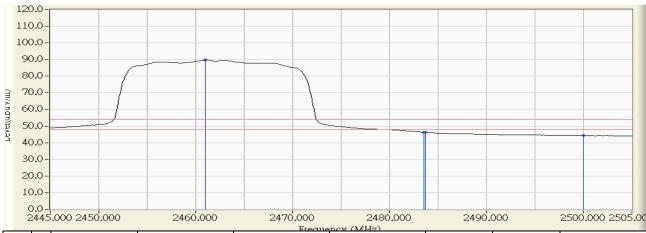
Site : CB1	Time : 2013/09/28 - 11:48
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : LIFX Module Board	Note : 802.11n(20MHz)_2462MHz



		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1	*	2462.900	31.645	69.705	101.349	27.349	74.000	PEAK
2		2483.500	31.858	33.343	65.201	-8.799	74.000	PEAK
3		2483.700	31.860	31.674	63.534	-10.466	74.000	PEAK
4		2500.000	31.988	25.866	57.855	-16.145	74.000	PEAK

- 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. Measure Level = Reading Level + Correct Factor •
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	Time : 2013/09/28 - 11:49
Limit : FCC_SpartC_15.209_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : LIFX Module Board	Note : 802.11n(20MHz)_2462MHz



		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1	*	2461.000	31.624	58.046	89.671	35.671	54.000	AVERAGE
2		2483.500	31.858	14.467	46.325	-7.675	54.000	AVERAGE
3		2483.700	31.860	14.391	46.251	-7.749	54.000	AVERAGE
4		2500.000	31.988	12.293	44.282	-9.718	54.000	AVERAGE

- 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. Measure Level = Reading Level + Correct Factor •
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.

7. Occupied Bandwidth

7.1. Test Equipment

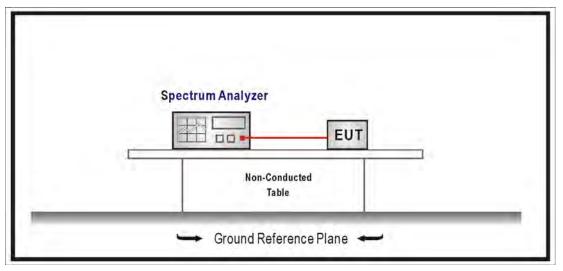
The following test equipments are used during the test:

Occupied Bandwidth / SR7

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Spectrum Analyzer	Agilent	N9010A-EXA	US47140172	2014/08/05

Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

7.2. Test Setup



7.3. Test Procedures

The EUT was setup according to ANSI C63.4: 2009; tested according to DTS test procedure of KDB558074 for compliance to FCC 47CFR 15.247 requirements. Set RBW = 1% of EBW, Span greater than RBW.

7.4. Limits

The 6 dB bandwidth must be greater than 500 kHz.

7.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247: 2012

7.6. Uncertainty

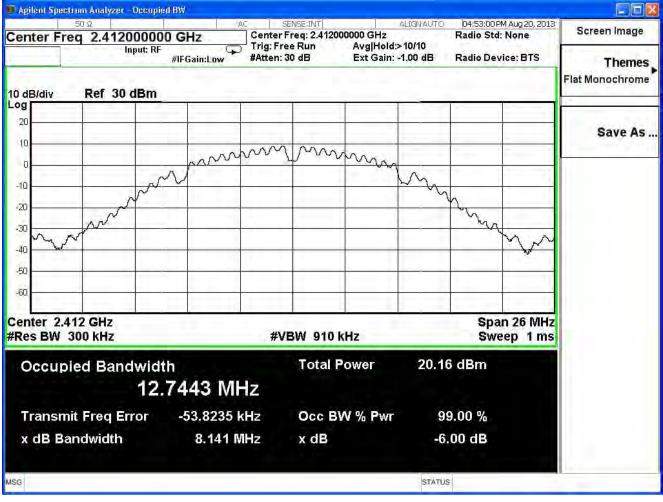
The measurement uncertainty is defined as ± 150 Hz

7.7. Test Result

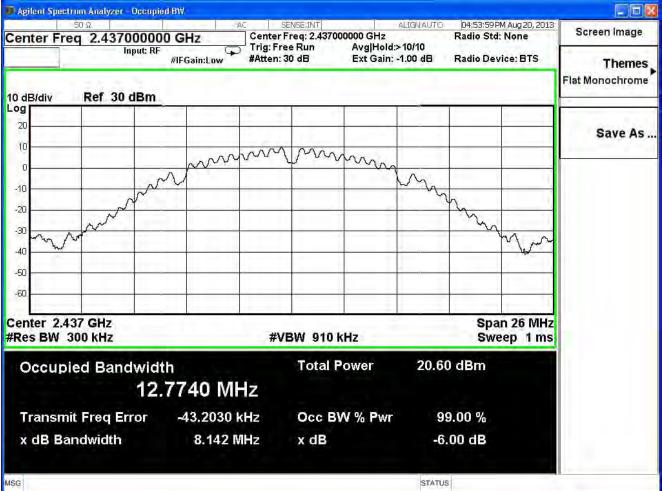
Product	LIFX Module Board				
Test Item	Occupied Bandwidth				
Test Mode	Mode 1: Transmit				
Date of Test	2013/08/20	Test Site	SR7		

802.11 b, ANT 0						
Channel No.	Frequency (MHz)	Measure Level (MHz)	Required Limit (MHz)	Result		
1	2412	8.14	≧0.5	Pass		
6	2437	8.14	≧0.5	Pass		
11	2462	8.14	≧0.5	Pass		

Channel 1



Channel 6



Channel 11

	um Analyzer - Occupi								
	^{50 Ω} q 2.4620000	00 GHz	Center F	NSE:INT req: 2.462000		ALIGNAUTO	D4:56:37F Radio Std	PM Aug 20, 2013 I: None	Screen Image
Input: RF Trig: Free Run Avg Hold>10/10 #IFGain:Low #Atten: 30 dB Ext Gain: -1.00 dB Radio Device: BTS							Themes Flat Monochrome		
20									Save As
0		m	m	m	m	M.			
20						- vy	Son .		
10 ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~								~~~	
o ———									
nter 2.462 GHz Span 26 MHz Span 26 MHz es BW 300 kHz Sweep 1 ms									
Occupied Bandwidth 12.6941 MHz			Total Power 20.10		dBm				
	Fransmit Freq Error -4.5916 kH dB Bandwidth 8.138 MH			Occ BW % Pwr x dB			99.00 % -6.00 dB		
						STATUS	3		



Product	LIFX Module Board		
Test Item	Occupied Bandwidth		
Test Mode	Mode 1: Transmit		
Date of Test	2013/08/20	Test Site	SR7

IEEE 802.11g, ANT 0								
Channel No.	Frequency (MHz)	Measure Level (MHz)	Required Limit (MHz)	Result				
1	2412	15.90	≧0.5	Pass				
6	2437	16.02	≧0.5	Pass				
11	2462	15.75	≧0.5	Pass				

🗊 Agilent Sp	ectrum Analyzer - Occupi	the second s					
Center F	50 Q Freg 2.41200000		Center Freq: 2.4		Radi	48:52 PM Aug 20, 2013 o Std: None	Screen Image
	Input: RF	#IFGain:Low	#Atten: 30 dB	Ext Gain: -		o Device: BTS	Themes Flat Monochrome
10 dB/div Log	Ref 20 dBm	1 1		-1 1		-	
10		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	well-row of Armon	4 mary man and a second	nur Adure .		Save As
-10					- and the		
-20	N N				`	hy .	
-30	withwith					hile Murrall mouse	
-40							
-60				_			
-70					- 0 	-1-1	
	2.412 GHz / 300 kHz	0.0	#VBW 9	10 kHz	-	Span 26 MHz Sweep 1 ms	
Occupied Bandwidth				al Power	19.62 dB	m	
		.4505 MF					
		-42.9155 k				%	
хав	Banuwiuth	15.903 M	IHz xde		-6.00 d	в	
ISG					STATUS	_	

<u>Channel 6</u>

🗊 Agilent Spe	ectrum Analyzer - Occi	ipied BW							
Center F	50 Ω req 2.437000	000 GHz	Center	ENSE:INT Freq: 2.43700		ALIGNAUTO	04:49:38 Radio St	PM Aug 20, 2013 d: None	Screen Image
10 dB/div	Ref 20 dBr	#IFGain:Low	Trig: Fre #Atten: \$		Avg Hold: Ext Gain:		Radio De	vice: BTS	Themes Flat Monochrome
10		wowners and the stand and and and and and and and and and	-		1001-Jane Jahe James	man			Save As
-10	- And						No No		
-20 -30 umb/	www.						L.	Mannal and	
-40 -50									
-60									
Center 2 #Res BW			#V	BW 910 k	Hz			an 26 MHz eep 1 ms	
Occu	pied Bandwi 1	^{dth} 6.4690 M	Hz	Total P	ower	19.9	8 dBm		
	mit Freq Error Sandwidth	-44.0238 16.018 I		Occ BV x dB	V % Pwr		9.00 % .00 dB		
MSG						STATU	s		

🗖 Agilent Spe	etrum Analyzer - Occup	ied BW						
Center F	50 Ω req 2.4620000	00 GHz	The state of the second second	2.462000000 GHz	ALIGNAUTO	04:50:38 Radio St	PM Aug20, 2013 d: None	Screen Image
10 dB/div	Ref 20 dBm	#IFGain:Low	¦ ⁻¹ Trig: Free Ru #Atten: 30 dE		a:>10/10 h: -1.00 dB	Radio De	vice: BTS	Themes Flat Monochrome
10 0		with many white	where a lage willing law	Anony the Sharing Harrow	www.			Save As .
-10						1		
-30 -40	wall would					<u> </u>	winder William	
-50								
-70								
Center 2. #Res BW	.462 GHZ 300 kHz		#VBW	910 kHz			an 26 MHz reep 1 ms	
Occu	pied Bandwid 16	th .4491 Mł		otal Power	19.7	7 dBm		
	nit Freq Error Sandwidth	-22.0648 15.752 N		cc BW % Pw dB		9.00 % .00 dB		
MSG					STATUS	8		



Product	LIFX Module Board		
Test Item	Occupied Bandwidth		
Test Mode	Mode 1: Transmit		
Date of Test	2013/08/20	Test Site	SR7

IEEE 802.11n (20MHz), ANT 0								
Channel No.	Frequency	Measure Level	Required Limit	Result				
	(MHZ)	(MHz) (MHz) (MHz)						
1	2412	16.66	≧0.5	Pass				
6	2437	17.27	≧0.5	Pass				
11	2462	17.10	≧0.5	Pass				

Agilent Spec	trum Analyzer - Occup	the second s	-				
Center Fr	50Ω eq 2.4120000		SENSE:INT Center Freq: 2.412 Trig: Free Run	000000 GHz	Radio Sto	PM Aug 20, 2013 1: None	Screen Image
10 dB/div	Input Ri Ref 20 dBm	#IFGain:Low	#Atten: 30 dB	Ext Gain: -1.0		vice: BTS	Themes Flat Monochrome
og 10		Land and a more	men may man man				Save As .
-10							
-30 -40	handre				<u> </u>	Winner	
-50						_	
enter 2.4			#\/D\// 040	1		an 26 MHz	
	ied Bandwid	^{ith} .4443 MH		Power	17.66 dBm	eep 1 ms	
	nit Freq Error andwidth	-24.4652 kl 16.655 MI	Hz Occ E	3W % Pwr	99.00 % -6.00 dB		
SG					STATUS		

<u>Channel 6</u>

D Agilent	Spectrum /	Inalyzer - (Occupied B	W							
Center	Freq	2.4370	00000	GHz	Center	SENSE:INT		ALIGNAUTO	04:58:51 Radio St	PM Aug 20, 2013 d: None	Screen Image
10 dB/di	iv R	Ing ef 20 c		FGain:Low	#Atten:	ree Run 30 dB	Avg Hold: Ext Gain:		Radio De	evice: BTS	Themes Flat Monochrome
10 10			and the second	بالمريد المستحد والم	- pauplikertim	-		al - al me	multy		Save As
-10 — -20 —	-										
-40	Man									No Maria	
-50 — -60 —					-						
	2.437 (W 300				#\	/BW 910	kHz			an 26 MHz /eep 1 ms	
Occ	upied	Band		604 M	Hz	Total I	Power	18.0	4 dBm		
	nsmit Fi 8 Bandv			-26.3334 17.268	kHz	Occ B x dB	W % Pwr		9.00 % .00 dB		
MSG								STATU	S	_	



D Agilent Spec	trum Analyzer - Occupi	ed B₩							
Center Fro	50 Ω eq 2.46200000	0 GHz	Center F	NSE:INT req: 2.46200	00000 GHz		04:59:45 Radio Ste	PM Aug 20, 2013 d: None	Screen Image
10 dB/div	Input: RF	#IFGain:Low	#Atten: 3	e Run 0 dB	Avg Hold≫ Ext Gain: -1		Radio De	vice: BTS	Themes Flat Monochrome
		- marga and		Marill Gameration	-Maria and and	wanew Marc			Save As
-10 -20 -20 -20 -20 -20 -20							1		
-30 -40 and and inthe	RUna Barra						4	WWW When we want	
-50				-			-		
-70 Center 2.4	62 GHz		1				Sp	an 26 MHz	
#Res BW			#VE	3W 910 H	KHz			eep 1 ms	
Occup	ied Bandwid 17	th .4565 MI	Ηz	Total P	ower	17.5	5 dBm		
	it Freq Error andwidth	-267.2037 17.102 N		Occ Bl x dB	N % Pwr		9.00 % .00 dB		
MSG						STATUS	6		

8. Power Density

8.1. Test Equipment

The following test equipment is used during the test:

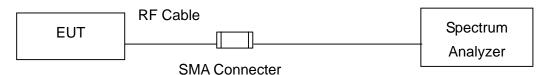
Power Density / SR7

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date				
Spectrum Analyzer Agilent N9010A-EXA US47140172 2014/08/05								
Note: 1 All equipment	Note: 1 All aquipments that people to calibrate are with calibration period of 1 year							

Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

8.2. Test Setup

IEEE 802.11 b / g / a / n (20M) MODE



8.3. Limits

The peak power spectral density conducted from the intentional radiated to the antenna shall not be greater than +8dBm in any 3kHz band during any time interval of continuous transmission.

8.4. Test Procedures

The EUT was setup according to ANSI C63.4: 2009; tested according to DTS test procedure of KDB558074 for compliance to FCC 47CFR 15.247 requirements. Set RBW= 100 kHz, Set VBW= 300 kHz, Sweep time=Auto, Set detector=Peak detector

8.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247: 2012

8.6. Uncertainty

The measurement uncertainty is defined as ±1.27dB.

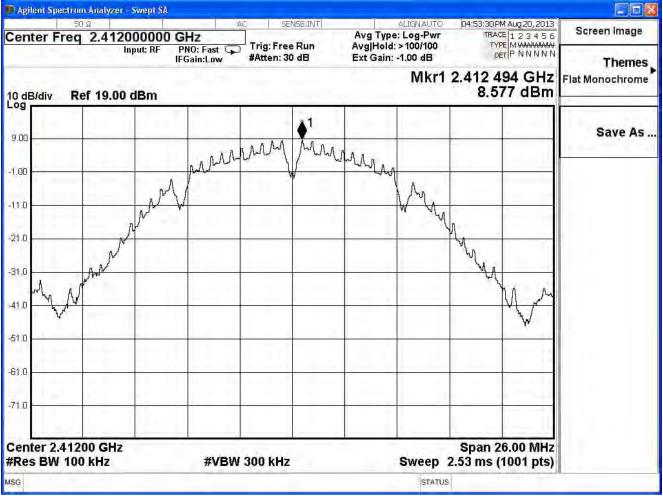
8.7. Test Result

Product	LIFX Module Board		
Test Item	Power Density		
Test Mode	Mode 1: Transmit		
Date of Test	2013/08/20	Test Site	SR7

IEEE 802.11b, ANT 0					
Channel No.	Frequency	Reading Level	Measure Level	Limit	Result
	(MHz)	(dBm)	(dBm)	(dBm)	
1	2412	8.58	-6.62	≦8	Pass
6	2437	8.63	-6.57	≦8	Pass
11	2462	8.59	-6.61	≦8	Pass

Note: Measure Level = Reading level + BWCF = Reading level -15.2 dB

Bandwidth correction factor (BWCF) = 10log (3 kHz/100kHz)





Channel 6 🗊 Agilent Spectrum Analyzer - Swept SA 50 Q SENSE:INT ALIGN AUTO 04:54:17 PM Aug 20, 2013 Screen Image Center Freq 2.437000000 GHz Avg Type: Log-Pwr TRACE 1 2 3 4 5 6 TYPE MWWWWW DET P N N N N N Trig: Free Run Avg|Hold: >100/100 PNO: Fast 😱 IFGain:Low Input: RF Themes #Atten: 30 dB Ext Gain: -1.00 dB Mkr1 2.437 988 GHz 8.625 dBm Flat Monochrome 10 dB/div Log Ref 19.00 dBm **∮**¹ Save As ... MANAMA marahara 9.00 -1.00 MA -11.0 -21.0 -31.0 -41.0 -51.0 -61.0 -71.0 Span 26.00 MHz Center 2.43700 GHz #Res BW 100 kHz **#VBW 300 kHz** Sweep 2.53 ms (1001 pts) MSG STATUS



Channel 11 🗊 Agilent Spectrum Analyzer - Swept SA 50 Q SENSE:INT ALIGN AUTO 04:57:01 PM Aug 20, 2013 Screen Image Center Freq 2.462000000 GHz Avg Type: Log-Pwr TRACE 1 2 3 4 5 6 TYPE MWWWWW DET P N N N N N Trig: Free Run Avg|Hold: >100/100 PNO: Fast 😱 IFGain:Low Input: RF Themes #Atten: 30 dB Ext Gain: -1.00 dB Mkr1 2.461 506 GHz 8.589 dBm Flat Monochrome 10 dB/div Log Ref 19.00 dBm Save As ... marinhard MAMAN 9.00 -1.00 -11.0 -21.0 R ٨. -31.0 M -41.0 -51.0 -61.0 -71.0 Span 26.00 MHz Center 2.46200 GHz #Res BW 100 kHz **#VBW 300 kHz** Sweep 2.53 ms (1001 pts) MSG STATUS

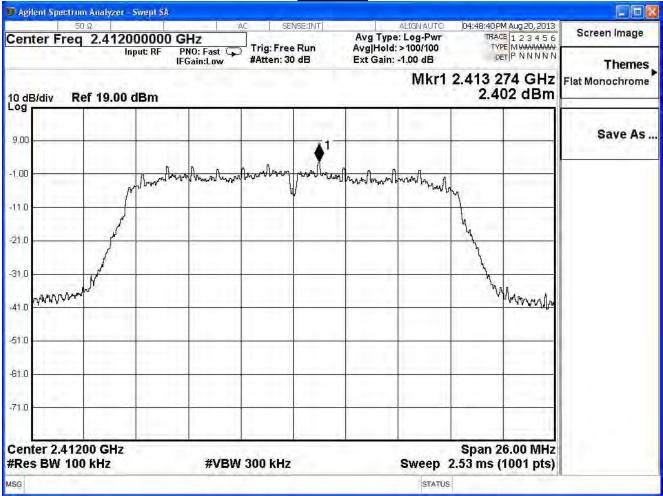
QuieTek

Product	LIFX Module Board		
Test Item	Power Density		
Test Mode	Mode 1: Transmit		
Date of Test	2013/08/20	Test Site	SR7

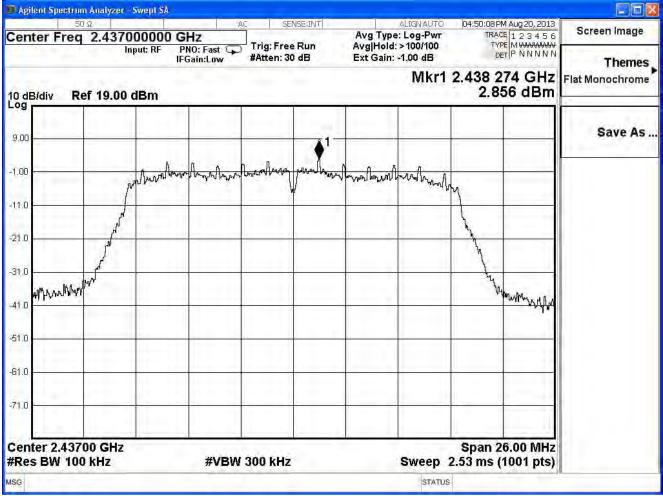
IEEE 802.11g, ANT 0					
Channel No.	Frequency	Reading Level	Measure Level	Limit	Deput
	(MHz)	(dBm)	(dBm)	(dBm)	Result
1	2412	2.40	-12.80	≦8	Pass
6	2437	2.86	-12.34	≦8	Pass
11	2462	2.55	-12.65	≦8	Pass

Note: Measure Level = Reading level + BWCF = Reading level -15.2 dB

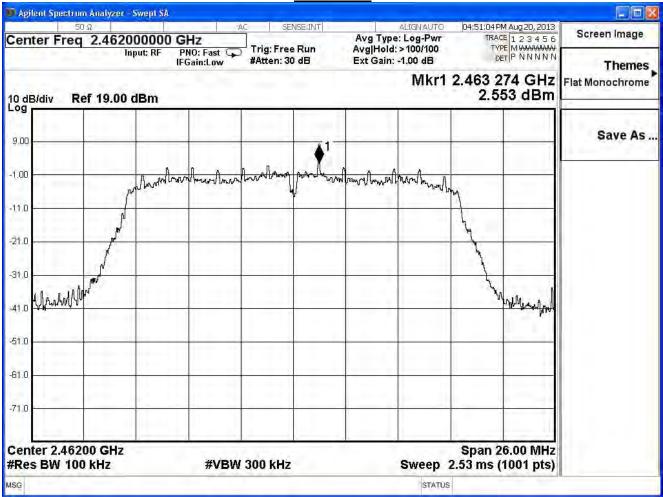
Bandwidth correction factor (BWCF) = 10log (3 kHz/100kHz)











QuieTek

Product	LIFX Module Board		
Test Item	Power Density		
Test Mode	Mode 1: Transmit		
Date of Test	2013/08/20	Test Site	SR7

IEEE802.11n_20MHz, ANT 0					
Channel No.	Frequency (MHz)	Reading Level (dBm)	Measure Level (dBm)	Limit (dBm)	Result
1	2412	0.47	-14.73	≦8	Pass
6	2437	0.78	-14.42	≦8	Pass
11	2462	0.72	-14.48	≦8	Pass

Note: Measure Level = Reading level + BWCF = Reading level -15.2 dB

Bandwidth correction factor (BWCF) = 10log (3 kHz/100kHz)

