



Product Name	JukeBlox Networked Media Module
Model No	CR870-2K
FCC ID.	PPQ-CR8702K

Applicant	Lite-On Technology Corp.
Address	4F, 90 ,Chien 1 Road,Chung-Ho,Taipei Hsien 235,Taiwan,R.O.C.

Date of Receipt	Feb. 01, 2010
Issue Date	Mar. 01, 2011
Report No.	112320R-RFUSP42V01
Report Version	V1.0

The test results relate only to the samples tested.

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# Test Report Certification

Issue Date: Mar. 01, 2011

Report No.: 112320R-RFUSP42V01



Accredited by NIST (NVLAP) NVLAP Lab Code: 200533-0

Product Name	JukeBlox Networked Media Module		
Applicant	Lite-On Technology Corp.		
Address	4F, 90 ,Chien 1 Road,Chung-Ho,Taipei Hsien 235,Taiwan,R.O.C.		
Manufacturer	DONG GUAN G-COM COMPUTER CO., LTD.		
Model No.	CR870-2K		
EUT Rated Voltage	DC 3.3V		
EUT testing Voltage	AC 120V/60Hz		
Trade Name	Micro Module		
Applicable Standard	FCC CFR Title 47 Part 15 Subpart C: 2010		
	ANSI C63.4: 2009  NVLAP Lab Code: 200533-0		
Test Result	Complied		

The test results relate only to the samples tested.

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Anita Chon Documented By:

(Senior Engineering Adm. Specialist /

Anita Chou)

Henk Huma Tested By

(Engineer / Henk Huang)

Approved By

( Manager / Vincent Lin)







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# 1. GENERAL INFORMATION

# 1.1. EUT Description

Product Name	JukeBlox Networked Media Module		
Trade Name	Micro Module		
Model No.	CR870-2K		
FCC ID.	PPQ-CR8702K		
Frequency Range	2412-2462MHz for 802.11b/g		
Number of Channels	802.11b/g: 11		
Data Speed	802.11b: 1-11Mbps, 802.11g: 6-54Mbps		
Type of Modulation	802.11b:DSSS (DBPSK, DQPSK, CCK)		
	802.11g:OFDM (BPSK, QPSK, 16QAM, 64QAM)		
Antenna Type	PIFA		
Antenna Gain	Refer to the table "Antenna List"		
Channel Control	Auto		
Adapter	MFR: JPC, M/N: ACW024A2-12U		
	Input: AC 100-240V~50-60Hz, 0.8A		
	Output: DC 12V, 2A		
	Cable Out: Non-shielded, 1.8m		

# **Antenna List**

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	LITEON	N/A	PIFA	3.04 dBi in 2.4 GHz

Note: The antenna of EUT is conform to FCC 15.203



## 802.11b/g Center Frequency of Each Channel:

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

- 1. The EUT is JukeBlox Networked Media Module with a built-in 2.4GHz WLAN transceiver.
- 2. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.
- 3. Lowest and highest data rates are tested in each mode. Only worst case is shown in the report. (802.11b is 1Mbps \( \cdot 802.11g \) is 6Mbps)
- 4. These tests are conducted on a sample for the purpose of demonstrating compliance of 802.11b/g transmitter with Part 15 Subpart C Paragraph 15.247 of spread spectrum devices



## 1.2. Operational Description

The EUT is an JukeBlox Networked Media Module with 11 channels. This device provided four kinds of transmitting speed 1, 2, 5.5 and 11Mbps and the device of RF carrier is DBPSK, DQPSK and CCK (IEEE 802.11b). The device provided of eight kinds of transmitting speed 6, 9, 12, 18, 24, 36, 48 and 54Mbps the device of RF carrier is BPSK, QPSK, 16QAM and 64QAM (IEEE 802.11g).

This JukeBlox Networked Media Module, compliant with IEEE 802.11b and IEEE 802.11g, is a high-efficiency Wireless LAN adapter. It allows your computer to connect to a wireless network and to share resources, such as files or printers without being bound to the network wires. Operation in 2.4GHz Direst Sequence Spread Spectrum (DSSS) and Orthogonal Frequency Division Multiplexing (OFDM) radio transmission, the JukeBlox Networked Media Module Wired Equivalent Protection (WEP) algorithm is used. In addition, its standard compliance ensures that it can communicate with any IEEE 802.11b and IEEE 802.11g network.

Test Mode:	Mode 1: Transmit (802.11b 1Mbps)
	Mode 2: Transmit (802.11g 6Mbps)



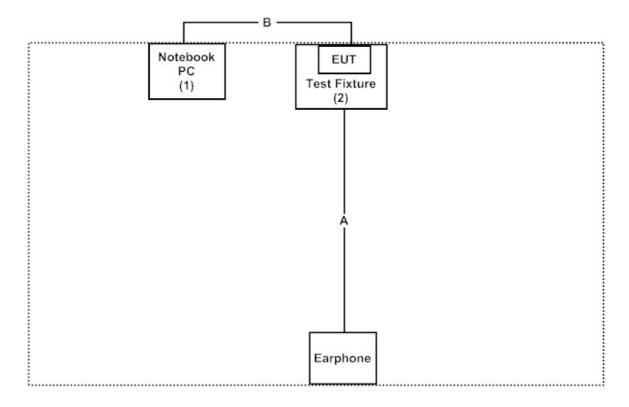
# 1.3. Tested System Details

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

	Product	Manufacturer	Model No.	Serial No.	Power Cord
1.	Notebook PC	DELL	PP18L	42649348672	Non-Shielded, 0.8m
2.	Test Fixture	LITEON	N/A	N/A	N/A

Signa	ıl Cable Type	Signal cable Description
A	Earphone Cable	Non-Shielded, 1.5m
В	RS-232 Cable	Non-Shielded, 1.2m

# 1.4. Configuration of Tested System



# 1.5. EUT Exercise Software

- (1) Setup the EUT as shown in Section 1.4
- (2) Execute command on the Notebook.
- (3) Configure the test mode, the test channel, and the data rate.
- (4) Press "OK" to start the continuous transmission.
- (5) Verify that the EUT works properly.



# 1.6. Test Facility

Ambient conditions in the laboratory:

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

The related certificate for our laboratories about the test site and management system can be downloaded from

QuieTek Corporation's Web Site: <a href="http://www.quietek.com/tw/ctg/cts/accreditations.htm">http://www.quietek.com/tw/ctg/cts/accreditations.htm</a>

The address and introduction of QuieTek Corporation's laboratories can be founded in our Web

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Site Description: File on

Federal Communications Commission

FCC Engineering Laboratory 7435 Oakland Mills Road Columbia, MD 21046

Registration Number: 92195

Accreditation on NVLAP NVLAP Lab Code: 200533-0

Site Name: Quietek Corporation Site Address: No.5-22, Ruishukeng,

Linkou Dist. New Taipei City 24451,

Taiwan, R.O.C.

TEL: 886-2-8601-3788 / FAX: 886-2-8601-3789

E-Mail: service@quietek.com

FCC Accreditation Number: TW1014









## 2. Conducted Emission

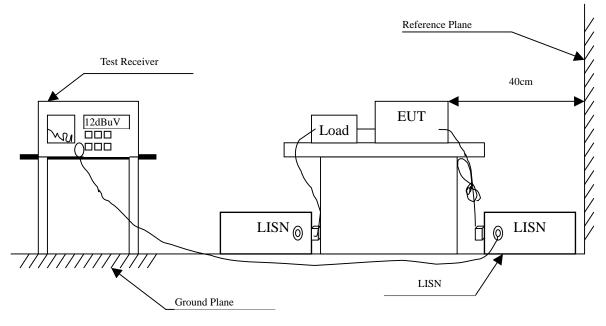
# 2.1. Test Equipment

The following test equipment are used during the conducted emission test:

Item	Instrument	Manufacturer	Type No./Serial No	Last Cal.	Remark
1	Test Receiver	R & S	ESCS 30/825442/17	May, 2010	
2	L.I.S.N.	R & S	ESH3-Z5/825016/6	May, 2010	EUT
3	L.I.S.N.	Kyoritsu	KNW-407/8-1420-3	May, 2010	Peripherals
4	Pulse Limiter	R & S	ESH3-Z2	May, 2010	
5	No.1 Shielded Room	n		N/A	

Note: All instruments are calibrated every one year.

# 2.2. Test Setup





#### 2.3. Limits

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

### 2.4. Test Procedure

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

Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2009 on conducted measurement.

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

## 2.5. Uncertainty

± 2.26 dB



## 2.6. Test Result of Conducted Emission

Product : JukeBlox Networked Media Module

Test Item : Conducted Emission Test

Power Line : Line 1

Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2437MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV	dB	dBuV
Line 1					
Quasi-Peak					
0.236	9.682	27.130	36.812	-26.731	63.543
0.287	9.654	28.890	38.544	-23.542	62.086
0.779	9.650	24.730	34.380	-21.620	56.000
1.009	9.670	21.130	30.800	-25.200	56.000
3.291	9.690	20.390	30.080	-25.920	56.000
19.443	9.930	27.530	37.460	-22.540	60.000
Average					
0.236	9.682	15.920	25.602	-27.941	53.543
0.287	9.654	23.450	33.104	-18.982	52.086
0.779	9.650	17.590	27.240	-18.760	46.000
1.009	9.670	15.750	25.420	-20.580	46.000
3.291	9.690	11.240	20.930	-25.070	46.000
19.443	9.930	19.640	29.570	-20.430	50.000

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



Product : JukeBlox Networked Media Module

Test Item : Conducted Emission Test

Power Line : Line 2

Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2437MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV	dB	dBuV
Line 2					
Quasi-Peak					
0.240	9.690	28.100	37.790	-25.639	63.429
0.287	9.664	26.480	36.144	-25.942	62.086
0.935	9.670	19.320	28.990	-27.010	56.000
3.080	9.690	17.890	27.580	-28.420	56.000
7.447	9.760	14.920	24.680	-35.320	60.000
20.279	10.021	28.710	38.731	-21.269	60.000
Average					
0.240	9.690	20.040	29.730	-23.699	53.429
0.287	9.664	19.860	29.524	-22.562	52.086
0.935	9.670	11.540	21.210	-24.790	46.000
3.080	9.690	7.880	17.570	-28.430	46.000
7.447	9.760	9.150	18.910	-31.090	50.000
20.279	10.021	19.600	29.621	-20.379	50.000

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



# 3. Peak Power Output

# 3.1. Test Equipment

The following test equipments are used during the radiated emission tests:

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X	Power Meter	Anritsu	ML2495A/6K00003357	May, 2010
X	Power Sensor	Anritsu	MA2411B/0738448	Jun, 2010

#### Note:

- 1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
- 2. The test instruments marked with "X" are used to measure the final test results.

# 3.2. Test Setup

Conducted Measurement



# 3.3. Limits

The maximum peak power shall be less 1 Watt.

### 3.4. Test Procedure

The EUT was tested according to DTS test procedure of Mar. 2005 KDB558074 for compliance to FCC 47CFR 15.247 requirements.

# 3.5. Uncertainty

 $\pm$  1.27 dB



# 3.6. Test Result of Peak Power Output

Product : JukeBlox Networked Media Module

Test Item : Peak Power Output Data

Test Site : No.3 OATS

Test Mode : Mode 1: Transmit (802.11b 1Mbps)

Channel No		Peak Power Output (dBm)								
	Frequency (MHz)	Average Power For different Data Rate (Mbps)				Peak Power	Required Limit	Result		
		1	2	5.5	11	1	Lillit			
01	2412	12.65				14.95	<30dBm	Pass		
06	2437	13.02	12.86	12.67	12.52	15.59	<30dBm	Pass		
11	2462	13.11				15.78	<30dBm	Pass		

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



Product : JukeBlox Networked Media Module

Test Item : Peak Power Output Data

Test Site : No.3 OATS

Test Mode : Mode 2: Transmit (802.11g 6Mbps)

Channel No			Peak Power Output (dBm)									
	Frequency (MHz)		Average Power For different Data Rate (Mbps)							Peak Power	Required	Result
		6	9	12	18	24	36	48	54	6	Limit	Result
01	2412	11.21	1	I	1		1		-	21.51	<30dBm	Pass
06	2437	11.38	10.69	10.11	9.87	9.13	8.74	8.12	7.98	21.70	<30dBm	Pass
11	2462	11.41	1	1	- 1		1		-	21.43	<30dBm	Pass

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



## 4. Radiated Emission

# 4.1. Test Equipment

The following test equipment are used during the radiated emission test:

Test Site		Equipment	Manufacturer	Model No./Serial No.	Last Cal.
Site # 3	X	Bilog Antenna	Schaffner Chase	CBL6112B/2673	Sep., 2010
	X	Horn Antenna	Schwarzbeck	BBHA9120D/D305	Sep., 2010
	X	Horn Antenna	Schwarzbeck	BBHA9170/208	Jul., 2010
	X	Pre-Amplifier	Agilent	8447D/2944A09549	Sep., 2010
	X	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2010
	X	Test Receiver	R & S	ESCS 30/ 825442/018	Sep., 2010
	X	Coaxial Cable	QuieTek	QTK-CABLE/ CAB5	Feb., 2011
	X	Controller	QuieTek	QTK-CONTROLLER/ CTRL3	N/A
	X	Coaxial Switch	Anritsu	MP59B/6200265729	N/A

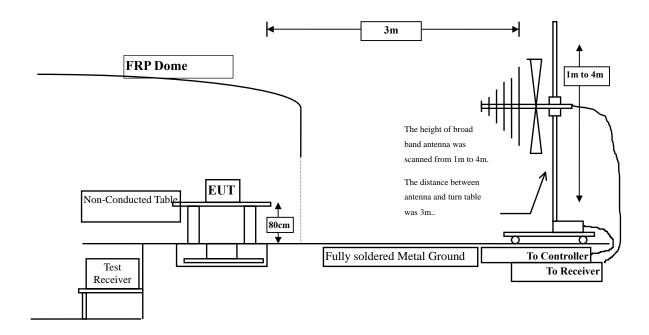
Note: 1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

2. The test instruments marked with "X" are used to measure the final test results.

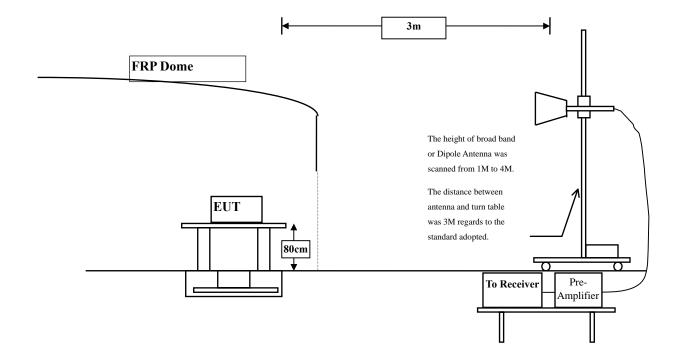


# 4.2. Test Setup

Radiated Emission Below 1GHz



Radiated Emission Above 1GHz





# 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(a) Limits								
Frequency MHz	uV/m @3m	dBuV/m@3m						
30-88	100	40						
88-216	150	43.5						
216-960	200	46						
Above 960	500	54						

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 Mar. 2005 KDB558074 for compliance to FCC 47CFR 15.247 requirements.

The EUT is placed on a turn table which is 0.8 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna is scanned between 1 meter and 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.4:2009 on radiated measurement.

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

Radiated emission measurements below 1GHz are made using broadband Bilog antenna and above 1GHz are made using Horn Antennas.

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

The suspected frequencies are searched for in Preliminary Measurement with the measurement

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

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

The measurement frequency range form 30MHz - 10th Harmonic of fundamental was investigated.

### 4.5. Uncertainty

- ± 3.9 dB above 1GHz
- ± 3.8 dB below 1GHz



#### 4.6. Test Result of Radiated Emission

Product : JukeBlox Networked Media Module Test Item : Harmonic Radiated Emission Data

Test Site : No.3 OATS

Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2412MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4824.000	9.582	37.830	47.412	-26.588	74.000
7236.000	14.401	35.800	50.201	-23.799	74.000
9648.000	19.795	33.435	53.230	-20.770	74.000
Average					
<b>Detector:</b>					
<b>Peak Detector:</b>					
4824.000	8.462	38.500	46.962	-27.038	74.000
7236.000	15.412	36.040	51.452	-22.548	74.000
9648.000	19.005	33.945	52.950	-21.050	74.000
Average					
<b>Detector:</b>					

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "\*", 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.



Test Site : No.3 OATS

Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2437 MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	Db	dBuV	dBuV/m	Db	dBuV/m
Horizontal					
<b>Peak Detector:</b>					
4874.000	9.473	37.530	47.003	-26.997	74.000
7311.000	14.540	34.240	48.779	-25.221	74.000
9748.000	20.024	33.690	53.715	-20.285	74.000
Average					
<b>Detector:</b>					
Vertical					
<b>Peak Detector:</b>					
4874.000	8.882	36.980	45.861	-28.139	74.000
7311.000	15.283	34.970	50.253	-23.747	74.000
9748.000	19.228	33.850	53.079	-20.921	74.000
Average					
Detector					

#### **Detector:**

--

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "\*", 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.



Test Site : No.3 OATS

Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2462 MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	Db	dBuV	dBuV/m	Db	dBuV/m
Horizontal					_
<b>Peak Detector:</b>					
4924.000	9.487	39.290	48.776	-25.224	74.000
7386.000	14.798	35.010	49.808	-24.192	74.000
9848.000	20.005	33.780	53.786	-20.214	74.000
Average					
<b>Detector:</b>					
Vertical					
<b>Peak Detector:</b>					
4924.000	9.415	38.900	48.314	-25.686	74.000
7386.000	15.269	33.830	49.099	-24.901	74.000
9848.000	19.191	33.690	52.881	-21.119	74.000
Average					

Average

**Detector:** 

--

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "\*", 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.



Test Site : No.3 OATS

Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2412MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	Db	dBuV	dBuV/m	Db	dBuV/m
Horizontal					
Peak Detector:					
4824.000	9.582	37.340	46.922	-27.078	74.000
7236.000	14.401	34.480	48.881	-25.119	74.000
9648.000	19.795	33.250	53.045	-20.955	74.000
Ανονοσο					
Average					
<b>Detector:</b>					
Vertical					
<b>Peak Detector:</b>					
4824.000	8.462	36.550	45.012	-28.988	74.000
7236.000	15.412	35.200	50.612	-23.388	74.000
9648.000	19.005	36.280	55.285	-18.715	74.000
<b>A</b>					
Average					
<b>Detector:</b>					
9648.000	19.005	26.260	45.265	-8.735	54.000

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "\*", 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.



Test Site : No.3 OATS

Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2437 MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	Db	dBuV	dBuV/m	Db	dBuV/m
Horizontal					
<b>Peak Detector:</b>					
4874.000	9.473	36.390	45.863	-28.137	74.000
7311.000	14.540	34.660	49.199	-24.801	74.000
9748.000	20.024	33.660	53.685	-20.315	74.000
Average					
<b>Detector:</b>					
Vertical					
<b>Peak Detector:</b>					
4874.000	8.882	36.910	45.791	-28.209	74.000
7311.000	15.283	34.720	50.003	-23.997	74.000
9748.000	19.228	36.450	55.679	-18.321	74.000
Average					
<b>Detector:</b>					
9748.000	19.228	26.940	46.169	-7.831	54.000

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "\*", 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.



Test Site : No.3 OATS

Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2462 MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	Db	dBuV	dBuV/m	Db	dBuV/m
Horizontal					_
<b>Peak Detector:</b>					
4924.000	9.487	36.770	46.256	-27.744	74.000
7386.000	14.798	34.880	49.678	-24.322	74.000
9848.000	20.005	33.680	53.686	-20.314	74.000
Average					
<b>Detector:</b>					
Vertical					
Peak Detector:					
4924.000	9.415	36.770	46.184	-27.816	74.000
7386.000	15.269	34.860	50.129	-23.871	74.000
9848.000	19.191	36.550	55.741	-18.259	74.000
Average					
Detector:					
9848.000	19.191	26.780	45.971	-8.029	54.000

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "\*", 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.



Test Site : No.3 OATS

Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2437 MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
39.700	0.490	25.824	26.314	-13.686	40.000
239.520	-9.380	36.307	26.927	-19.073	46.000
299.660	-8.430	36.330	27.900	-18.100	46.000
348.160	-5.090	36.350	31.260	-14.740	46.000
431.580	-1.380	29.658	28.278	-17.722	46.000
1000.000	5.340	33.518	38.858	-15.142	54.000
Vertical					
142.520	-8.080	42.046	33.966	-9.534	43.500
239.520	-3.460	37.505	34.045	-11.955	46.000
474.260	-2.190	33.518	31.328	-14.672	46.000
528.580	-1.330	32.556	31.226	-14.774	46.000
747.800	1.670	32.439	34.109	-11.891	46.000
1000.000	5.830	39.525	45.355	-8.645	54.000

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "\*", 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.



Test Site : No.3 OATS

Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2437 MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
31.940	1.360	24.912	26.272	-13.728	40.000
239.520	-9.380	37.327	27.947	-18.053	46.000
342.340	-5.490	33.929	28.439	-17.561	46.000
431.580	-1.380	29.485	28.105	-17.895	46.000
600.360	3.930	27.283	31.213	-14.787	46.000
996.120	5.290	32.182	37.472	-16.528	54.000
Vertical					
47.460	-12.560	44.846	32.286	-7.714	40.000
99.840	-5.870	38.732	32.862	-10.638	43.500
239.520	-3.460	37.150	33.690	-12.310	46.000
528.580	-1.330	31.681	30.351	-15.649	46.000
747.800	1.670	31.617	33.287	-12.713	46.000
996.120	5.800	38.347	44.147	-9.853	54.000

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "\*", 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.



### 5. RF antenna conducted test

### 5.1. Test Equipment

The following test equipments are used during the radiated emission tests:

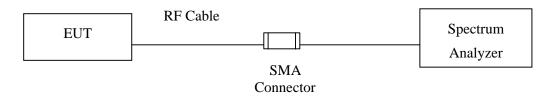
	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2010
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2010
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2010

Note: 1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

2. The test instruments marked with "X" are used to measure the final test results.

### 5.2. Test Setup

#### RF antenna Conducted Measurement:



#### 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 either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).



# **5.4.** Test Procedure

The EUT was tested according to DTS test procedure of Mar. 2005 KDB558074 for compliance to FCC 47CFR 15.247 requirements.

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

# 5.5. Uncertainty

The measurement uncertainty

Conducted is defined as  $\pm$  1.27dB



## 5.6. Test Result of RF antenna conducted test

Product : JukeBlox Networked Media Module

Test Item : RF antenna conducted test

Test Site : No.3 OATS

Test Mode : Mode 1: Transmit (802.11b 1Mbps)

# Channel 01 (2412MHz) 30-25GHz

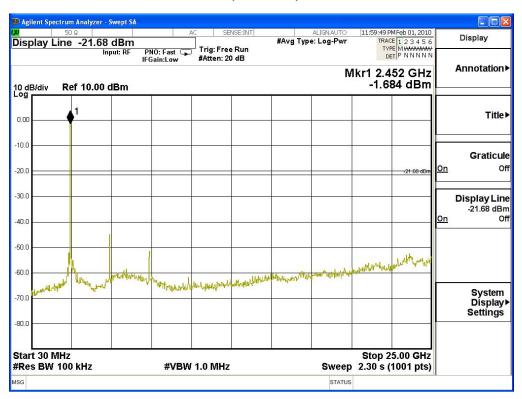




### Channel 06 (2437MHz) 30-25GHz



### Channel 11 (2462MHz) 30-25GHz



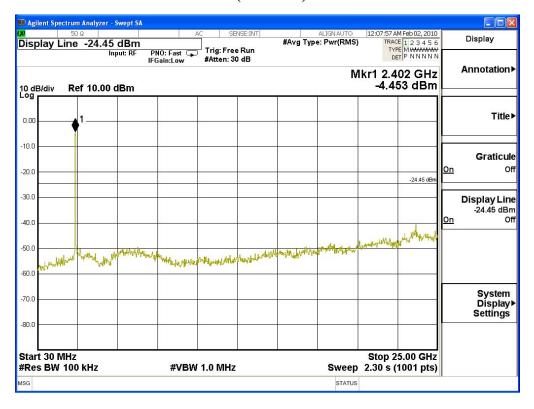


Product : JukeBlox Networked Media Module Test Item : RF Antenna Conducted Spurious

Test Site : No.3 OATS

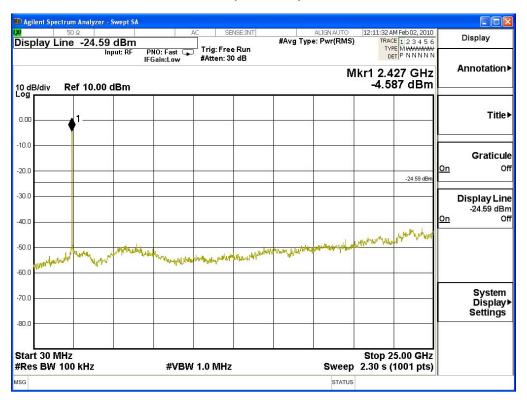
Test Mode : Mode 2: Transmit (802.11g 6Mbps)

# Channel 01 (2412MHz) 30-25GHz

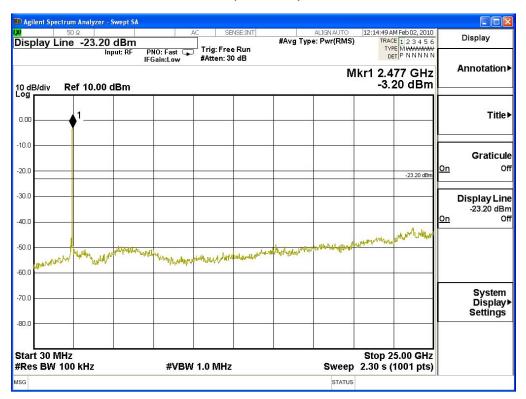




### Channel 06 (2437MHz) 30-25GHz



### Channel 11 (2462MHz) 30-25GHz





# 6. Band Edge

# 6.1. Test Equipment

#### **RF Conducted Measurement**

The following test equipments are used during the band edge tests:

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2010
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2010
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2010

#### Note:

- 1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
- 2. The test instruments marked with "X" are used to measure the final test results.

### **RF Radiated Measurement:**

The following test equipments are used during the band edge tests:

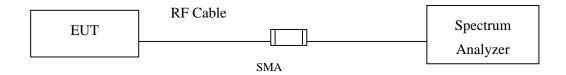
Test Site		Equipment	Manufacturer	Model No./Serial No.	Last Cal.
⊠Site # 3		Bilog Antenna	Schaffner Chase	CBL6112B/2673	Sep., 2010
	X	Horn Antenna	Schwarzbeck	BBHA9120D/D305	Sep., 2010
		Horn Antenna	Schwarzbeck	BBHA9170/208	Jul., 2010
	X	Pre-Amplifier	Agilent	8447D/2944A09549	Sep., 2010
	X	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2010
		Test Receiver	R & S	ESCS 30/ 825442/018	Sep., 2010
	X	Coaxial Cable	QuieTek	QTK-CABLE/ CAB5	Feb., 2011
	X	Controller	QuieTek	QTK-CONTROLLER/ CTRL3	N/A
	X	Coaxial Switch	Anritsu	MP59B/6200265729	N/A

- 1. All instruments are calibrated every one year.
- 2. The test instruments marked by "X" are used to measure the final test results.

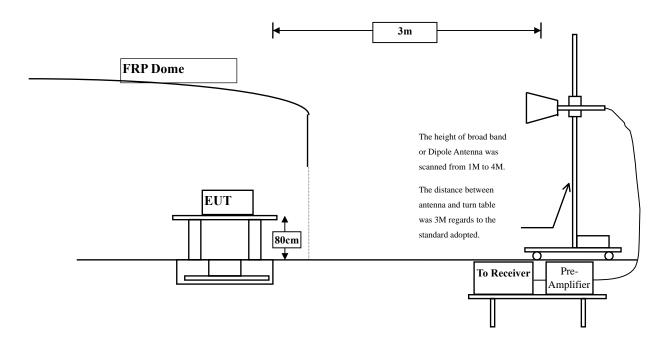


# 6.2. Test Setup

#### **RF Conducted Measurement**



### **RF Radiated Measurement:**



## 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 Mar. 2005 KDB558074 for compliance to FCC 47CFR 15.247 requirements.

The EUT is placed on a turn table which is 0.8 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.4:2009 on radiated measurement.

# 6.5. Uncertainty

- ± 3.9 dB above 1GHz
- ± 3.8 dB below 1GHz



# 6.6. Test Result of Band Edge

Product : JukeBlox Networked Media Module

Test Item : Band Edge Data
Test Site : No.3 OATS

Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2412MHz)

#### Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Correction Factor [dB/m]	Reading Level [dBuV]	Emission Level [dBuV/m]	Detector
Horizontal	2413.1	36.613	69.127	105.74	Peak
Horizontal	2412.8	36.613	63.352	99.965	Average
Vertical	2413	35.636	70.182	105.818	Peak
Vertical	2412.8	35.635	66.255	101.89	Average

Note: 1:Spectrum Analyzer setting:

Peak detector: RBW=1MHz, VBW=1MHz Average detector: RBW=1MHz, VBW=10Hz

#### Band Edge Test Data

Antenna Pole	Test Frequency (MHz)	Fundamental (dBuV/m)	Δ (dB)	Band Edge Field Strength (dBuV/m)	Detector
Horizontal	2384.8	105.74	51.037	54.703	Peak
Horizontal	2390	99.965	60.9	39.065	Average
Vertical	2384.8	105.818	51.037	54.781	Peak
Vertical	2390	101.89	60.9	40.99	Average

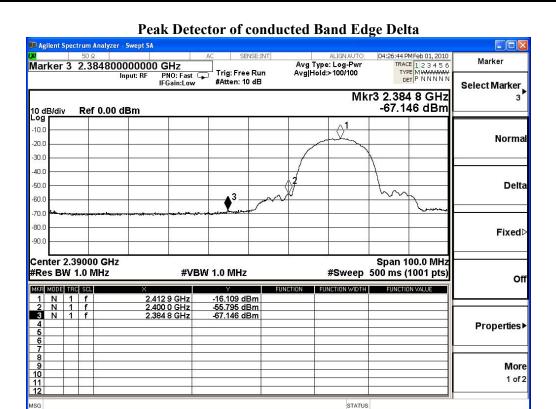
## Note:

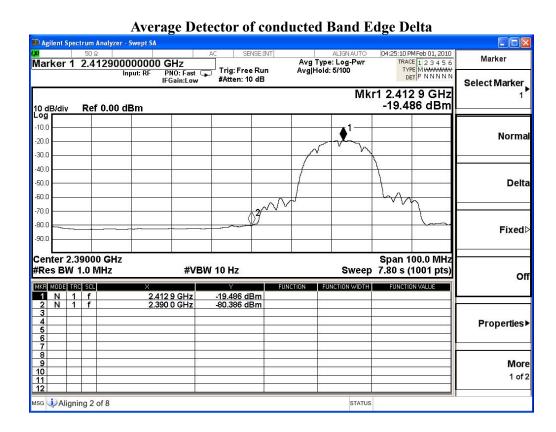
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

Band Edge field Strength =  $F - \Delta$ 

F = Fundamental field Strength (Peak or Average)









Test Item : Band Edge Data
Test Site : No.3 OATS

Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2462MHz)

#### Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Correction Factor [dB/m]	Reading Level [dBuV]	Emission Level [dBuV/m]	Detector
Horizontal	2462.9	36.699	67.372	104.072	Peak
Horizontal	2461.2	35.029	62.992	99.687	Average
Vertical	2463	36.046	69.759	105.805	Peak
Vertical	2461.2	36.03	65.696	101.725	Average

Note: 1:Spectrum Analyzer setting:

Peak detector: RBW=1MHz, VBW=1MHz Average detector: RBW=1MHz, VBW=10Hz

# Band Edge Test Data

Antenna Pole	Test Frequency (MHz)	Fundamental (dBuV/m)	Δ (dB)	Band Edge Field Strength (dBuV/m)	Detector
Horizontal	2485.6	104.072	52.117	51.955	Peak
Horizontal	2485.6	99.687	60.827	38.86	Average
Vertical	2485.6	105.805	52.117	53.688	Peak
Vertical	2485.6	101.725	60.827	40.898	Average

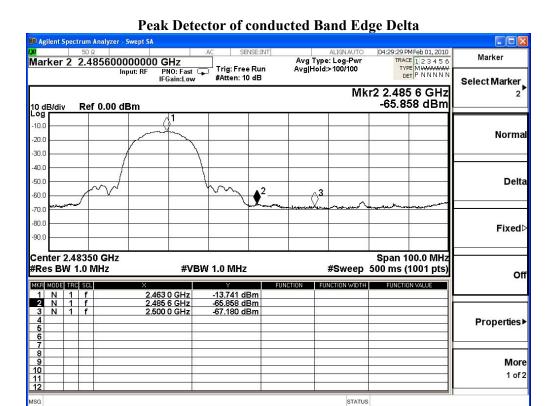
#### Note:

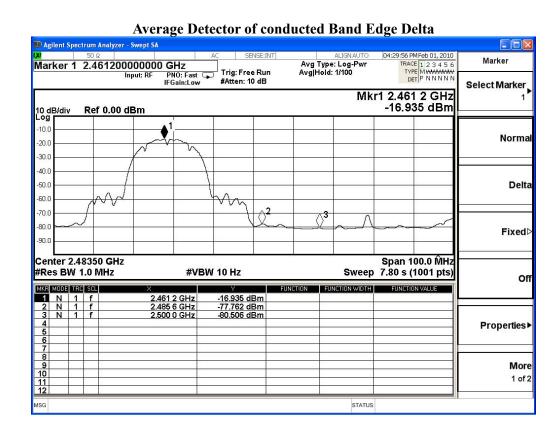
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

Band Edge field Strength =  $F - \Delta$ 

F = Fundamental field Strength (Peak or Average)









Test Item : Band Edge Data
Test Site : No.3 OATS

Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2412MHz)

#### Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Correction Factor [dB/m]	Reading Level [dBuV]	Emission Level [dBuV/m]	Detector
Horizontal	2416.1	34.97	72.358	108.971	Peak
	2410.1	34.97	12.556	100.971	1 cak
Horizontal	2406.4	36.606	55.195	91.801	Average
Vertical	2415.9	35.655	72.399	108.054	Peak
Vertical	2408	35.612	56.287	91.898	Average

Note: 1:Spectrum Analyzer setting:

Peak detector: RBW=1MHz, VBW=1MHz Average detector: RBW=1MHz, VBW=10Hz

#### Band Edge Test Data

Antenna Pole	Test Frequency (MHz)	Fundamental (dBuV/m)	Δ (dB)	Band Edge Field Strength (dBuV/m)	Detector
Horizontal	2390	108.971	40.092	68.879	Peak
Horizontal	2390	91.801	44.478	47.323	Average
Vertical	2390	108.054	40.092	67.962	Peak
Vertical	2390	91.898	44.478	47.42	Average

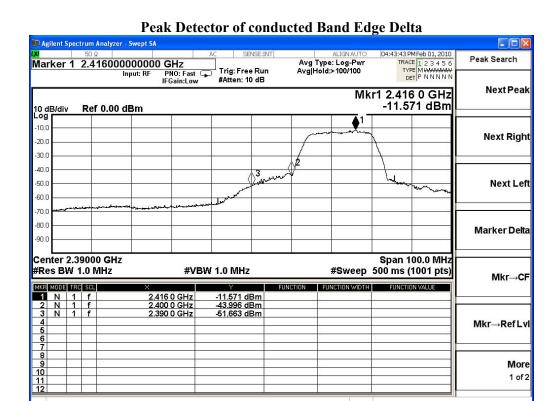
#### Note:

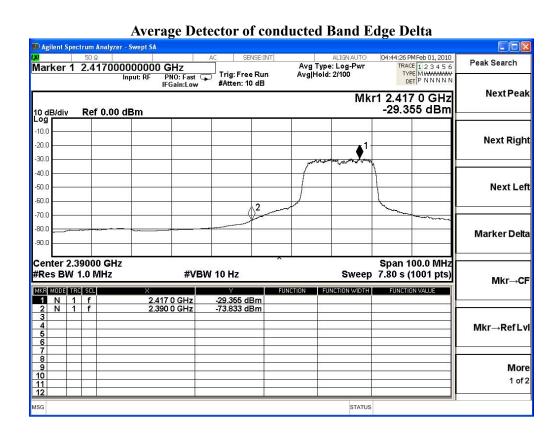
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

Band Edge field Strength =  $F - \Delta$ 

F = Fundamental field Strength (Peak or Average)









Test Item : Band Edge Data
Test Site : No.3 OATS

Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2462MHz)

#### Fundamental Filed Strength

Antenna	Frequency	<b>Correction Factor</b>	Reading Level [dBuV]	<b>Emission Level</b>	Detector
Pole	[MHz]	[dB/m]	Reading Level [ubuv]	[dBuV/m]	
Horizontal	2465.7	36.701	71.102	107.804	Peak
Horizontal	2463.4	36.7	54.951	91.651	Average
Vertical	2460.1	36.017	72.378	108.394	Peak
Vertical	2467.3	36.077	53.443	89.52	Average

Note: 1:Spectrum Analyzer setting:

Peak detector: RBW=1MHz, VBW=1MHz Average detector: RBW=1MHz, VBW=10Hz

#### Band Edge Test Data

Antenna Pole	Test Frequency (MHz)	Fundamental (dBuV/m)	Δ (dB)	Band Edge Field Strength (dBuV/m)	Detector
Horizontal	2483.5	107.804	41.559	66.245	Peak
Horizontal	2483.5	91.651	44.336	47.315	Average
Vertical	2483.5	108.394	41.559	66.835	Peak
Vertical	2483.5	89.52	44.336	45.184	Average

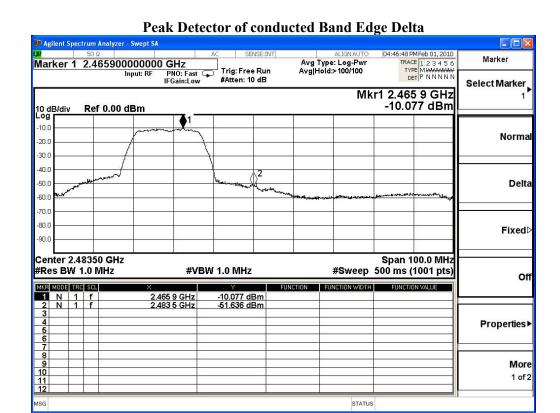
#### Note:

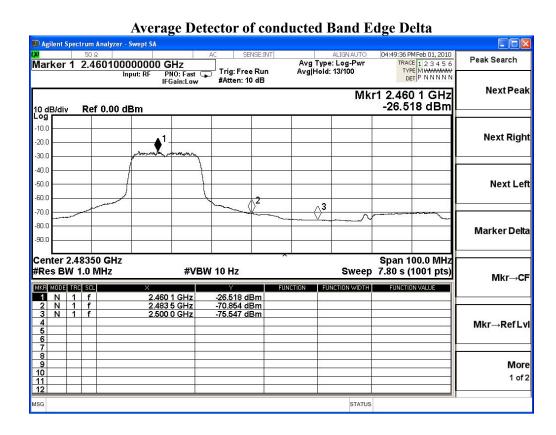
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

Band Edge field Strength =  $F - \Delta$ 

F = Fundamental field Strength (Peak or Average)









# 7. Occupied Bandwidth

# 7.1. Test Equipment

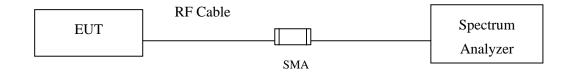
The following test equipments are used during the radiated emission tests:

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2010
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2010
X	Spectrum Analyzer	Agilent	N9010A/MY48030495	Apr., 2010

#### Note:

- 1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
- 2. The test instruments marked with "X" are used to measure the final test results.

# 7.2. Test Setup



#### 7.3. Limits

The minimum bandwidth shall be at least 500 kHz.

# 7.4. Test Procedure

The EUT was setup according to ANSI C63.4, 2003; tested according to DTS test procedure of Mar. 2005 KDB558074 for compliance to FCC 47CFR 15.247 requirements.

Set RBW = 100 kHz, Span greater than RBW.

# 7.5. Uncertainty

± 150Hz



# 7.6. Test Result of Occupied Bandwidth

Product : JukeBlox Networked Media Module

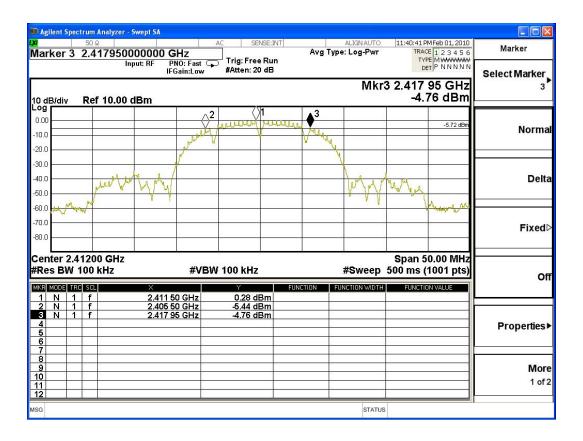
Test Item : Occupied Bandwidth Data

Test Site : No.3 OATS

Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2412MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
1	2412.00	12450	>500	Pass

# Figure Channel 1:





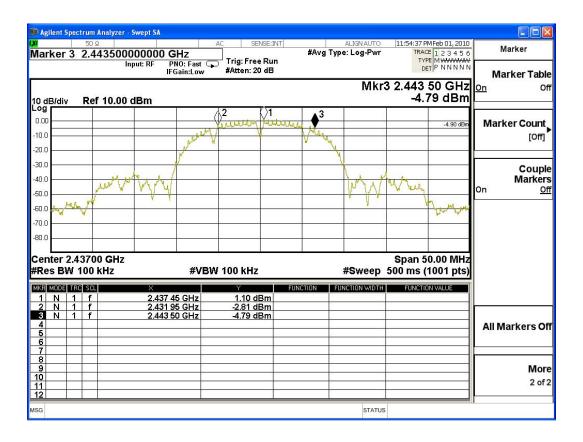
Test Item : Occupied Bandwidth Data

Test Site : No.3 OATS

Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2437MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
6	2437.00	11550	>500	Pass

#### **Figure Channel 6:**





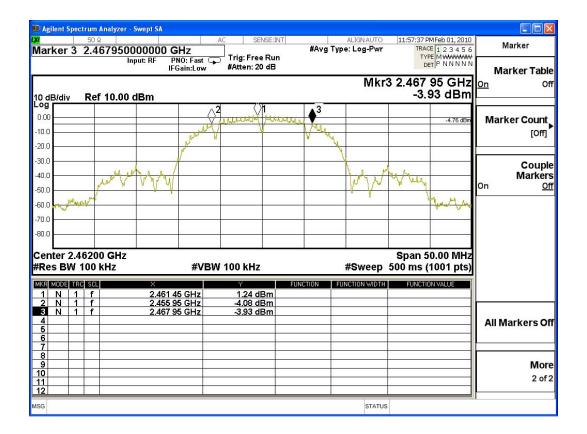
Test Item : Occupied Bandwidth Data

Test Site : No.3 OATS

Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2462MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
11	2462.00	12000	>500	Pass

# **Figure Channel 11:**





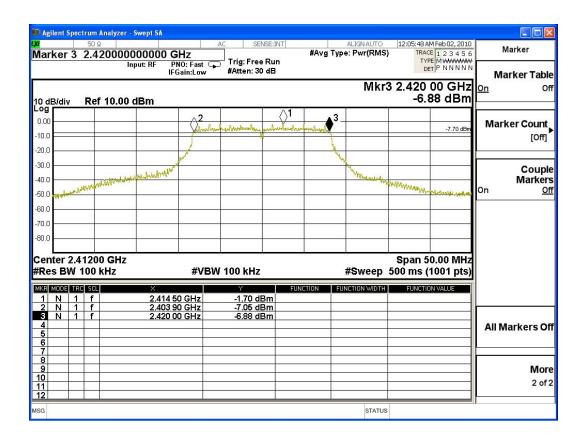
Test Item : Occupied Bandwidth Data

Test Site : No.3 OATS

Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2412MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
1	2412.00	16100	>500	Pass

# **Figure Channel 1:**





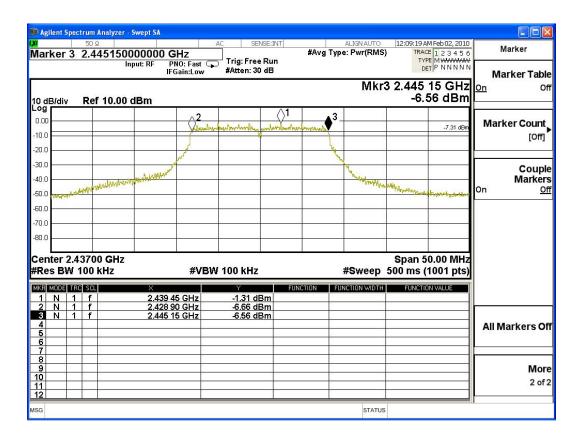
Test Item : Occupied Bandwidth Data

Test Site : No.3 OATS

Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2437MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
6	2437.00	16250	>500	Pass

# **Figure Channel 6:**





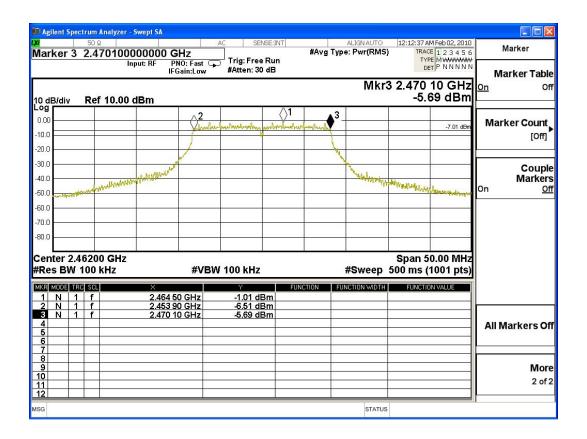
Test Item : Occupied Bandwidth Data

Test Site : No.3 OATS

Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2462MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
11	2462.00	16200	>500	Pass

# Figure Channel 11:





# 8. Power Density

# 8.1. Test Equipment

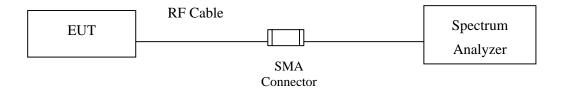
The following test equipments are used during the radiated emission tests:

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2010
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2010
X	Spectrum Analyzer	Agilent	N9010A/MY48030495	Apr., 2010

#### Note:

- 1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
- 2. The test instruments marked with "X" are used to measure the final test results.

# 8.2. Test Setup



#### 8.3. Limits

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



#### **8.4.** Test Procedure

The EUT was setup according to ANSI C63.4, 2003; tested according to DTS test procedure of Mar. 2005 KDB558074 for compliance to FCC 47CFR 15.247 requirements.

Set RBW= 3 kHz, VBW=10KHz, Sweep time=(SPAN/3KHz), detector=Peak detector

# 8.5. Uncertainty

 $\pm$  1.27 dB



# **8.6.** Test Result of Power Density

Product : JukeBlox Networked Media Module

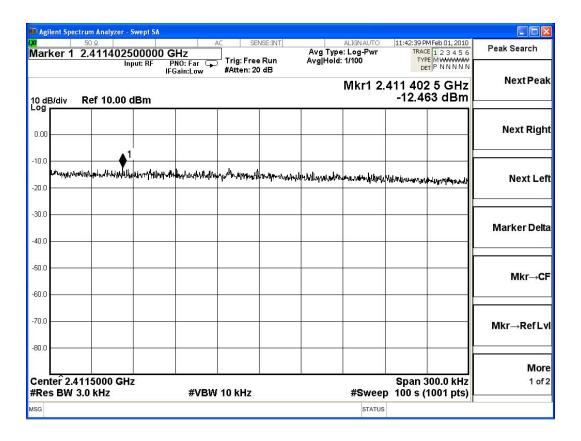
Test Item : Power Density Data

Test Site : No.3 OATS

Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2412MHz)

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
1	2412.00	-12.463	< 8dBm	Pass

# Figure Channel 1:





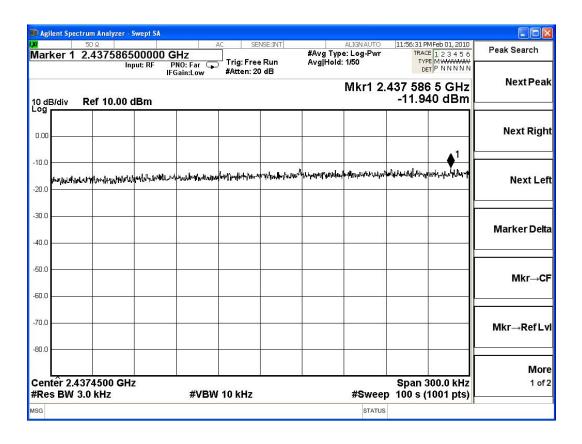
Test Item : Power Density Data

Test Site : No.3OATS

Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2437MHz)

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
6	2437.000	-11.940	< 8dBm	Pass

# **Figure Channel 6:**





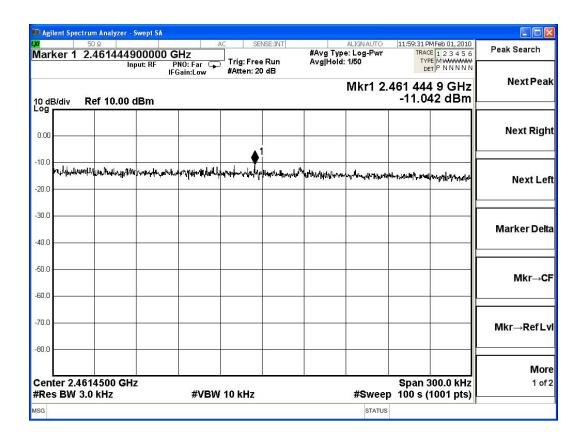
Test Item : Power Density Data

Test Site : No.3 OATS

Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2462MHz)

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
11	2462.00	-11.042	< 8dBm	Pass

# **Figure Channel 11:**





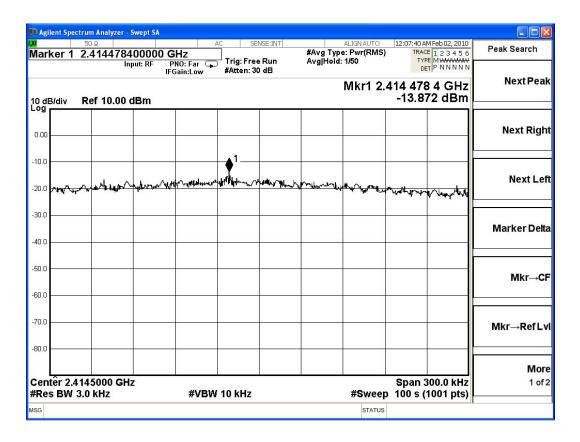
Test Item : Power Density Data

Test Site : No.3 OATS

Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2412MHz)

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
1	2412.00	-13.872	< 8dBm	Pass

# Figure Channel 1:





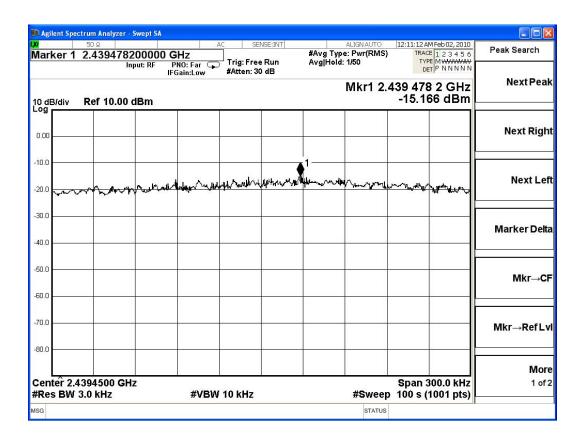
Test Item : Power Density Data

Test Site : No.3OATS

Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2437MHz)

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
6	2437.000	-15.166	< 8dBm	Pass

# **Figure Channel 6:**



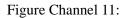


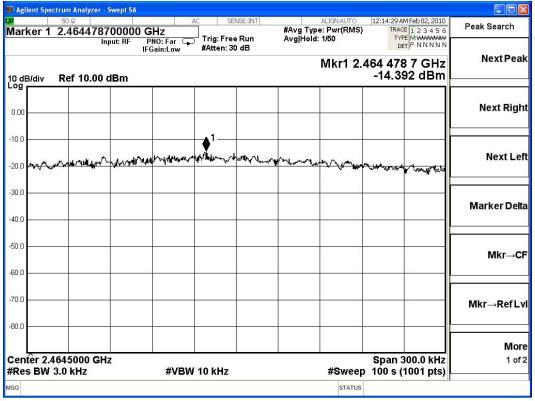
Test Item : Power Density Data

Test Site : No.3 OATS

Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2462MHz)

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
11	2462.00	-14.392	< 8dBm	Pass







# 9. EMI Reduction Method During Compliance Testing

No modification was made during testing.