

Product Name	McAire
Model No	CR870-2Q
FCC ID.	BWY-CR870-2Q

Applicant	McIntosh Laboratory Inc.
Address	2 Chambers Street, Binghamton NY. USA

Date of Receipt	July 05, 2012
Issue Date	July 26, 2012
Report No.	127185R-RFUSP42V01
Report Version	V1.0



The test results relate only to the samples tested.

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Test Report Certification

Issue Date: July 26, 2012 Report No.: 127185R-RFUSP42V01



Accredited by NIST (NVLAP)

NVLAP Lab Code: 200533-0

Product Name	McAire		
Applicant	McIntosh Laboratory Inc.		
Address	8500 Balboa Blvd, Northridge, CA 91329, UNITED STATES		
Manufacturer	DONG GUAN G-COM COMPUTER CO., LTD.		
Model No.	CR870-2Q		
FCC ID.	BWY-CR870-2Q		
EUT Rated Voltage	DC 3.3V		
EUT Test Voltage	AC 120V/60Hz		
Trade Name	McAire		
Applicable Standard	FCC CFR Title 47 Part 15 Subpart C: 2010		
	FCC KDB 558074, ANSI C63.4: 2003		
Test Result	Complied		

The test results relate only to the samples tested.

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Attachment 1: EUT Test Photographs

Attachment 2: EUT Detailed Photographs

1. GENERAL INFORMATION

1.1. EUT Description

Product Name	McAire	
Trade Name	McAire	
Model No.	CR870-2Q	
FCC ID.	BWY-CR870-2Q	
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 Dipole		
Antenna Gain	Refer to the table "Antenna List"	
Channel Control	Auto	

Antenna List

No.	Manufacturer	Part No.	Peak Gain
1	RF Antenna Technology Corp.	EA-79B_2E	2.81 dBi for 2.4GHz

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 a McAire 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.
- Lowest and highest data rates are tested in each mode. Only worst case is shown in the report. (802.11b is 1Mbps 802.11g is 6Mbps)
- 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.

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:

Pro	duct	Manufacturer	Model No.	Serial No.	FCC ID	Power Cord
1	Notebook PC	DELL	РРТ	N/A	DoC	Non-Shielded, 0.8m
2	Test Fixture	LITE-ON	N/A	N/A	N/A	N/A

Signal Cable Type		Signal cable Description	
A RS-232 Cable		Non-Shielded, 2.0m	

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) 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: <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: <u>http://www.quietek.com/</u>

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						
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	Taiwan, R.O.C.						
	TEL: 886-2-8601-3788 / FAX : 886-2-8601-3789						
	E-Mail : <u>service@quietek.com</u>						

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, 2012	
2	L.I.S.N.	R & S	ESH3-Z5/825016/6	May, 2012	EUT
3	L.I.S.N.	Kyoritsu	KNW-407/8-1420-3	May, 2012	Peripherals
4	Pulse Limiter	R & S	ESH3-Z2	May, 2012	
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: 2003 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	:	McAire
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					
0.224	9.670	27.450	37.120	-26.766	63.886
0.373	9.640	30.990	40.630	-18.999	59.629
0.466	9.640	27.630	37.270	-19.701	56.971
0.521	9.640	31.300	40.940	-15.060	56.000
1.115	9.670	16.520	26.190	-29.810	56.000
19.205	9.910	15.520	25.430	-34.570	60.000
Average					
0.224	9.670	27.440	37.110	-16.776	53.886
0.373	9.640	25.610	35.250	-14.379	49.629
0.466	9.640	22.070	31.710	-15.261	46.971
0.521	9.640	26.110	35.750	-10.250	46.000
1.115	9.670	11.990	21.660	-24.340	46.000
19.205	9.910	9.010	18.920	-31.080	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	: McAire										
Test Item	: Conducted Emission Test										
Power Line	: Line 2										
Test Mode	: Mode 2	: 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											
0.224	9.670	27.790	37.460	-26.426	63.886						
0.373	9.650	28.990	38.640	-20.989	59.629						
0.431	9.650	33.550	43.200	-14.771	57.971						
0.478	9.650	33.460	43.110	-13.519	56.629						
1.119	9.690	18.940	28.630	-27.370	56.000						
20.005	10.100	13.330	23.430	-36.570	60.000						
Average											
0.224	9.670	27.780	37.450	-16.436	53.886						
0.373	9.650	24.920	34.570	-15.059	49.629						
0.431	9.650	18.570	28.220	-19.751	47.971						
0.478	9.650	21.550	31.200	-15.429	46.629						
1.119	9.690	14.130	23.820	-22.180	46.000						
20.005	10.100	7.870	17.970	-32.030	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

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
Х	Power Meter	Anritsu	ML2495A/6K00003357	May, 2012
Х	Power Sensor	Anritsu	MA2411B/0738448	Jun, 2012
Note:				
1.	All equipments are	calibrated with trac	eable calibrations. Each calibr	ation is traceable to the
	national or internation	onal standards.		

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

3.2. Test Setup



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 Jan. 2012 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	:	McAire
Test Item	:	Peak Power Output Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 1: Transmit (802.11b 1Mbps)

Channel No.	Frequency	For d	Average ifferent Da	e Power ata Rate (N	/lbps)	Peak Power	Required	Result
(MHz	(MHz)	1	2	5.5	11	1	Limit	
			Measur		L			
01	2412	15.73				18.31	<30dBm	Pass
06	2437	15.76	15.64	15.51	15.42	18.31	<30dBm	Pass
11	2462	15.67				18.24	<30dBm	Pass

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

Product	:	McAire
Test Item	:	Peak Power Output Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 2: Transmit (802.11g 6Mbps)

		Average Power							Peak			
	Frequency		F	or diffe	erent Da	ata Rate	e (Mbps	s)		Power	Required	
Channel No	(MHz)	6	9	12	18	24	36	48	54	6	Limit	Result
			Measurement Level (dBm)									
01	2412	13.03			-					23.97	<30dBm	Pass
06	2437	13.21	13.12	13.08	12.95	12.83	12.74	12.66	12.54	23.93	<30dBm	Pass
11	2462	13.17			-					23.75	<30dBm	Pass

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

4. Radiated Emission

4.1. Test Equipment

Test Site		Equipment	Manufacturer	Model No./Serial No.	Last Cal.
\Box Site # 3	Х	Bilog Antenna	Schaffner Chase	CBL6112B/2673	Sep., 2011
	Х	Horn Antenna	Schwarzbeck	BBHA9120D/D305	Sep., 2011
	Х	Horn Antenna	Schwarzbeck	BBHA9170/208	Jul., 2012
	Х	Pre-Amplifier	Agilent	8447D/2944A09549	Sep., 2011
	Х	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2012
	Х	Test Receiver	R & S	ESCS 30/ 825442/018	Sep., 2011
	Х	Coaxial Cable	QuieTek	QTK-CABLE/ CAB5	Feb., 2012
	Х	Controller	QuieTek	QTK-CONTROLLER/ CTRL3	N/A
	X	Coaxial Switch	Anritsu	MP59B/6200265729	N/A

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

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, 2003 and tested according to DTS test procedure of Jan. 2012 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 C63.4:2003 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 frequency range from 30MHz to 10th harminics is checked.

4.5. Uncertainty

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

4.6. Test Result of Radiated Emission

Product	:	McAire
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	0.428	41.470	41.899	-32.101	74.000
7236.000	7.177	39.820	46.997	-27.003	74.000
9648.000	8.019	39.350	47.370	-26.630	74.000
Average Detector:					
Vertical					
Peak Detector:					
4824.000	0.836	40.780	41.617	-32.383	74.000
7236.000	7.676	38.530	46.206	-27.794	74.000
9648.000	8.556	39.550	48.107	-25.893	74.000

Average Detector:

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

Product	: McAire						
Test Item	: Harmonic Radiated Emission Data						
Test Site	: No.3 OATS						
Test Mode	: Mode 1:	Transmit (802.11	b 1Mbps) (2437 MH	z)			
Frequency	Correct	Reading	Measurement	Margin	Limit		
Trequency	Factor	Level	I evel	mangin	Linnt		
MHz	dB	dBuV	dBuV/m	dB	dBuV/m		
Horizontal							
Peak Detector:							
4874.000	0.076	41.500	41.577	-32.423	74.000		
7311.000	7.512	37.730	45.242	-28.758	74.000		
9748.000	7.630	38.900	46.530	-27.470	74.000		
Average Detector:							
Vertical							
Peak Detector:							
4874.000	0.532	40.690	41.222	-32.778	74.000		
7311.000	8.089	38.670	46.759	-27.241	74.000		
9748.000	8.266	38.640	46.907	-27.093	74.000		

- 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. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product	: McAire						
Test Item	: Harmonic Radiated Emission Data						
Test Site	: No.3 OATS						
Test Mode	: Mode 1:	Transmit (802.11	b 1Mbps) (2462 MH	z)			
Frequency	Correct	Reading	Measurement	Margin	Limit		
requeitey	Eactor	Level	Level	Wargin	Linnt		
MILa		dDyW	dDuV/m	dÞ	dDuV/m		
MHZ	dB	dBuv	dBuv/m	ůВ	dBuv/m		
Horizontal							
Peak Detector:							
4924.000	0.191	40.970	41.161	-32.839	74.000		
7386.000	8.373	37.970	46.344	-27.656	74.000		
9848.000	7.964	38.630	46.594	-27.406	74.000		
Average Detector:							
Vertical							
Peak Detector:							
4924.000	0.805	40.520	41.325	-32.675	74.000		
7386.000	9.180	38.150	47.330	-26.670	74.000		
9848.000	8.801	39.290	48.091	-25.909	74.000		

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

Product	: McAire							
Test Item	: Harmonic Radiated Emission Data							
Test Site	: No.3 OATS							
Test Mode	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	0.428	40.920	41.349	-32.651	74.000			
7236.000	7.177	37.860	45.037	-28.963	74.000			
9648.000	8.019	39.820	47.840	-26.160	74.000			
Average Detector:								
Vertical								
Peak Detector:								
4824.000	0.836	40.480	41.317	-32.683	74.000			
7236.000	7.676	38.930	46.606	-27.394	74.000			
9648.000	8.556	38.640	47.197	-26.803	74.000			

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

Product	: McAire						
Test Item	: Harmonic Radiated Emission Data						
Test Site	: No.3 OATS						
Test Mode	: Mode 2:	Transmit (802.11	lg 6Mbps) (2437 MH	z)			
Frequency	Correct	Reading	Measurement	Margin	Limit		
	Factor	Level	Level				
MHz	dB	dBuV	dBuV/m	dB	dBuV/m		
Horizontal							
Peak Detector:							
4874.000	0.076	40.420	40.497	-33.503	74.000		
7311.000	7.512	37.980	45.492	-28.508	74.000		
9748.000	7.630	39.830	47.460	-26.540	74.000		
Average Detector:							
Peak Detector:							
4874.000	0.532	41.280	41.812	-32.188	74.000		
7311.000	8.089	38.460	46.549	-27.451	74.000		
9748.000	8.266	37.900	46.167	-27.833	74.000		

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

Product	: McAire						
Test Item	: Harmonic Radiated Emission Data						
Test Site	: No.3 OATS						
Test Mode	: Mode 2:	Transmit (802.11	g 6Mbps) (2462 MH	z)			
Frequency	Correct	Reading	Measurement	Margin	Limit		
	Factor	Level	Level				
MHz	dB	dBuV	dBuV/m	dB	dBuV/m		
Horizontal							
Peak Detector:							
4924.000	0.191	40.600	40.791	-33.209	74.000		
7386.000	8.373	38.280	46.654	-27.346	74.000		
9848.000	7.964	39.460	47.424	-26.576	74.000		
Average Detector:							
Vertical							
Peak Detector:							
4924.000	0.805	43.090	43.895	-30.105	74.000		
7386.000	9.180	37.670	46.850	-27.150	74.000		
9848.000	8.801	38.980	47.781	-26.219	74.000		

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

Product	: McAire					
Test Item	: General Radiated Emission Data					
Test Site	: No.3 OATS					
Test Mode	: Mode 1:	Transmit (802.11	b 1Mbps)(2437 MHz	z)		
Frequency	Correct	Reading	Measurement	Margin	Limit	
	Factor	Level	Level			
MHz	dB	dBuV	dBuV/m	dB	dBuV/m	
Horizontal						
202.660	-10.889	35.684	24.795	-18.705	43.500	
332.640	-4.184	31.798	27.614	-18.386	46.000	
460.680	1.589	28.157	29.746	-16.254	46.000	
701.240	2.668	30.411	33.079	-12.921	46.000	
809.880	5.049	28.285	33.334	-12.666	46.000	
961.200	6.450	31.045	37.495	-16.505	54.000	
Vertical						
202.660	-7.739	35.340	27.601	-15.899	43.500	
348.160	-3.458	28.786	25.328	-20.672	46.000	
480.080	-4.359	31.807	27.448	-18.552	46.000	
600.360	-2.833	32.779	29.946	-16.054	46.000	
720.640	-0.099	31.306	31.207	-14.793	46.000	
926.280	5.821	27.035	32.856	-13.144	46.000	

- 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. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product	: McAire					
Test Item	: General Radiated Emission Data					
Test Site	: No.3 OATS					
Test Mode	: Mode 2:	Transmit (802.11	g 6Mbps)(2437 MHz	z)		
Frequency	Correct	Reading	Measurement	Margin	Limit	
	Factor	Level	Level			
MHz	dB	dBuV	dBuV/m	dB	dBuV/m	
Horizontal						
328.760	-4.609	32.725	28.116	-17.884	46.000	
480.080	-0.329	31.807	31.478	-14.522	46.000	
549.920	2.943	25.871	28.814	-17.186	46.000	
720.640	3.511	31.468	34.979	-11.021	46.000	
854.500	6.626	24.461	31.087	-14.913	46.000	
965.080	6.852	25.626	32.478	-21.522	54.000	
Vertical						
154.160	-6.221	34.434	28.213	-15.287	43.500	
243.400	-8.451	36.265	27.814	-18.186	46.000	
371.440	-2.737	27.674	24.937	-21.063	46.000	
540.220	0.121	26.358	26.479	-19.521	46.000	
800.180	2.801	31.944	34.745	-11.255	46.000	
930.160	6.477	28.644	35.121	-10.879	46.000	

- 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. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.

5. RF antenna conducted test

5.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2012
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2012
Х	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2012

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 Jan. 2012 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	:	McAire
Test Item	:	RF antenna conducted test
Test Site	:	No.3 OATS
Test Mode	:	Mode 1: Transmit (802.11b 1Mbps)

Channel 01 (2412MHz)

🗊 Agilent	Spectrum	Analyze	r - Swept S <i>l</i>	l .								
LXI RL	50	Ω			AC	SE	NSE:INT		ALIGN AUT	0 06:51:4	10 PM Jul 04, 2012	Frequency
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												Start Freq
-10.0												30.000000 MHz
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-30.0					-							
-40.0								-			_	CF Step
												97.000000 MHz
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-20.0										-17.00 dbm	Stop Freq 12.000000000 GHz
-40.0 -											CF Step 1.100000000 GHz <u>Auto</u> Man
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Cent	ter Freq	າລ 18.500	000000 0	GHz		NSE:INT	Avg Type	ALIGNAUTO : Log-Pwr	06:52:11 TRAC	PM Jul 04, 2012 E 1 2 3 4 5 6	Frequency
10 dB	3/div R	ef 20.00	nput: RF PI IFC dBm	NO: Fast 🖵 Sain:Low	#Atten: 30	dB		Mkr	1 23.07 -48.0	7 3 GHz 02 dBm	Auto Tune
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Channel 06 (2437MHz)



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es BW 100 kHz	#VBW	1.0 MHz	S	Sweep 90).0 ms (1	0001 pts)	
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Channel 11 (2462MHz)





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Cente	50 Ω er Freq 1	18.5000	00000 (GHz _			Avg Type	ALIGNAUTO :: Log-Pwr	07:12:20 TRAC	PM Jul 04, 2012 E 1 2 3 4 5 6	Frequency
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-10.0											Start Freq 12.000000000 GHz
-20.0										17.07 dBm	Stop Freq 25.000000000 GHz
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McAire
RF Antenna Conducted Spurious
No.3 OATS
Mode 2: Transmit (802.11g 6Mbps)

Channel 01 (2412MHz)

💴 Agilent Spec	trum Analyzer	- Swept SA								
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10 dB/div	Ref 20.00	dBm	Gain:Low	#Atten: 30	dB		Mk	r1 973.9 .57.5	07 MHz 90 dBm	Auto Tune
10.0										Center Freq 515.000000 MHz
-10.0										Start Freq 30.000000 MHz
-20.0									-20.87 dBm	Stop Freq 1.000000000 GHz
-40.0										CF Step 97.000000 MHz <u>Auto</u> Man
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0.00 —		♦ ¹									Start Freq
-10.0 —											1.000000000 GHz
-20.0 -30.0										-20.87 dBm	Stop Freq 12.000000000 GHz
-40.0 —											CF Step 1.100000000 GHz Auto Man
-50.0											Freq Offset 0 Hz
-70.0 —											
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Magilen MRL Cente	nt Spectrum A 50 Ω Pr Freq 1	nalyzer - S 18.500(Inp	owept SA	GHz NO: Fast G	AC SE Trig: Free #Atten: 30	NSE:INT e Run) dB	Avg Type	ALIGN AUTO : Log-Pwr	07:18:04 TRAC TYF DE	PM Jul 04, 2012 E 1 2 3 4 5 6 E MWWWW T P N N N N N	Frequency
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10 dB/c	nt Spectrum A 50 Ω er Freq ^ div Ref	18.5000 Inp	iwept SA DOOOOOO (uut: RF P IFi IBM	GHz NO: Fast Gain:Low	AC SE Trig: Free #Atten: 30	NSE:INT ≥ Run) dB	Avg Type	ALIGN AUTO :: Log-Pwr Mkr	07:18:04 TRAC TYP 00 1 23.150 -47.1	1 2 3 4 5 6 E 1 2 3 4 5 6 F NNNN TP NNNN D 1 GHz B0 dBm	Frequency Auto Tune Center Freq 18.50000000 GHz
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Channel 06 (2437MHz)



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20 Ag 27 Ag 27 Ag 20 Ag 20 Ag 10.0 10.0 -10.0 -20.0 -30.0 -40.0	ilent Spectr	am Analyzer - 50 Ω q 6.5000 Ir Ref 20.00 1 1 1 1 1 1 1 1 1 1 1 1 1	Swept 5A	iHz NO: Fast Gain:Low	AC SE Trig:Frew #Atten: 34	NSE:INT	Avg Type	ALIGNAUTO 2: Log-Pwr Mk	10:16:151 TRAC TYF DF r1 2.457 -2.:	м Julo4, 2012 E [1 2 3 4 5 6 E (Мижими T) P NNNN 7 5 GHz 25 dBm	Frequency Frequency Center Freq 6.50000000 GHz Start Freq 1.00000000 GHz 12.00000000 GHz CF Step 1.100000000 GHz
200 Ag 201 R 201 R 201 R 10.0 10.0 -10.0 -20.0 -30.0 -40.0 -50.0	ilent Spectr	am Analyzer - 50 Ω q 6.5000 In Ref 20.00 1 1 1 1 1 1 1 1 1 1 1 1 1	Swept SA	iHz NO: Fast Gain:Low	AC SE Trig:Fre- #Atten: 30	NSE:INT	Avg Type	ALIGNAUTO 2: Log-Pwr Mk	10:16:151 TRAC TVF DF r1 2.457 -2.:	м Julo4, 2012 E [1 2 3 4 5 6 E [M WWWWW T P NNNN 7 5 GHz 25 dBm 	Frequency Frequency Center Freq 6.50000000 GHz Start Freq 1.00000000 GHz I2.00000000 GHz CF Step 1.100000000 GHz Auto Man
₩ Ag XI R Cer 10.0 10.0 -10.0 -20.0 -30.0 -40.0 -50.0 -60.0 70.0	B/div I	um Analyzer - 50 Ω q 6.5000 r Ref 20.00	Swept SA	iHz NO: Fast Gain:Low	AC SE Trig:Fre- #Atten: 34	NSE:INT		ALIGNAUTO E: Log-Pwr Mk	10:16:151 TRAC TYPE per r1 2.457 -2.:	м Julo4, 2012 E [1 2 3 4 5 6 E (Мижими 7 5 GHz 25 dBm 2225 ови	Frequency Auto Tune Center Freq 6.50000000 GHz Start Freq 1.00000000 GHz 12.00000000 GHz CF Step 1.100000000 GHz Auto Man Freq Offset 0 Hz
200 Ag 201 R Cer 10.0 10.0 -10.0 -20.0 -30.0 -40.0 -50.0 -60.0 -70.0	B/div I	um Analyzer - 50 Ω q 6.500(Ir Ref 20.00	Swept SA	iHz NO: Fast Gain:Low	AC SE Trig:Fre- #Atten: 34			ALIGNAUTO E: Log-Pwr Mk	10:16:151 TRAC TYPE pe r1 2.457 -2.:	м 3.004, 2012 E [1 2 3 4 5 6 E [M WWWWW 7 5 GHz 25 dBm 22.25 авм	Frequency Auto Tune Center Freq 6.50000000 GHz Start Freq 1.00000000 GHz CF Step 1.100000000 GHz Auto Man Freq Offset 0 Hz
■ Ag W R Cer 10.0 10.0 -10.0 -20.0 -30.0 -40.0 -50.0 -60.0 -70.0 Stall #Re	B/div I B/div	GHz 00 kHz	Swept SA	#VBW	AC SE Trig:Free #Atten: 30	vse:int		ALIGNAUTO E: Log-Pwr Mk	10:16:151 TRAC TVF DF r1 2.457 -2.:	22225 dBm	Frequency Auto Tune Center Freq 6.50000000 GHz Start Freq 1.00000000 GHz 12.00000000 GHz CF Step 1.10000000 GHz Auto Man Freq Offset 0 Hz

Channel 11 (2462MHz)



D Agile	nt Spectrum Analyzer - S	wept SA							
Cente	50 Ω er Freq 18.5000	000000 GHz		ISE:INT	Avg Type	ALIGNAUTO E: Log-Pwr	10:17:18 PM TRACE	1 2 3 4 5 6	Frequency
10 dB/	div Ref 20.00 d	ut: RF PNO: Fast (J IFGain:Low	#Atten: 30	dB	,	Mkr	Det 1 23.957 -48.10	^{P NNNNN} 4 GHz 6 dBm	Auto Tune
10.0									Center Freq 18.500000000 GHz
0.00									Start Fred 12.000000000 GHz
-20.0								-22:25 aBm	Stop Free 25.00000000 GHz
-40.0 -								1	CF Step 1.30000000 GHz <u>Auto</u> Mar
-60.0	and the second second								Freq Offset 0 Hz
-70.0 Start #Res	12.000 GHz BW 100 kHz	#VBW	1.0 MHz			Sweep	Stop 25.0 1.20 s (10	000 GHz 001 pts)	

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, 2012
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2012
Х	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2012

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., 2011
	Х	Horn Antenna	Schwarzbeck	BBHA9120D/D305	Sep., 2011
		Horn Antenna	Schwarzbeck	BBHA9170/208	Jul., 2012
	Х	Pre-Amplifier	Agilent	8447D/2944A09549	Sep., 2011
	Х	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2012
		Test Receiver	R & S	ESCS 30/ 825442/018	Sep., 2011
	Х	Coaxial Cable	QuieTek	QTK-CABLE/ CAB5	Feb., 2012
	Х	Controller	QuieTek	QTK-CONTROLLER/ CTRL3	N/A
	X	Coaxial Switch	Anritsu	MP59B/6200265729	N/A

Note:

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, 2003 and tested according to DTS test procedure of Jan. 2012 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 C63.4:2003 on radiated measurement.

6.5. Uncertainty

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

6.6. Test Result of Band Edge

Product	:	McAire
Test Item	:	Band Edge Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 1: Transmit (802.11b 1Mbps)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency	Correct Factor	Reading Level	Emission Level	Peak Limit	Average Limit	Degult
Channel No.	(MHz)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dBuV/m)	Kesun
01 (Peak)	2343.500	31.732	25.029	56.760	74.000	54.000	Pass
01 (Peak)	2390.000	31.739	23.900	55.639	74.000	54.000	Pass
01 (Peak)	2413.000	31.775	65.399	97.173			
01 (Average)	2341.250	31.737	13.036	44.773	74.000	54.000	Pass
01 (Average)	2390.000	31.739	11.661	43.400	74.000	54.000	Pass
01 (Average)	2411.250	31.770	61.639	93.409			



Horizontal (Peak)



Figure Channel 01:

Horizontal (Average)



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

Product	:	McAire
Test Item	:	Band Edge Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 1: Transmit (802.11b 1Mbps)

RF Radiated Measurement (Vertical):

Channal No.	Frequency	Correct Factor	Reading Level	Emission Level	Peak Limit	Average Limit	Dogult
Channel No.	(MHz)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dBuV/m)	Result
01 (Peak)	2339.750	30.662	28.552	59.214	74.000	54.000	Pass
01 (Peak)	2390.000	30.267	24.120	54.387	74.000	54.000	Pass
01 (Peak)	2413.000	30.254	74.234	104.487			
01 (Average)	2343.500	30.623	19.129	49.751	74.000	54.000	Pass
01 (Average)	2390.000	30.267	13.480	43.747	74.000	54.000	Pass
01 (Average)	2411.250	30.246	70.509	100.755			

Figure Channel 01:

Vertical (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.

Product	:	McAire
Test Item	:	Band Edge Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 1: Transmit (802.11b 1Mbps)

RF Radiated Measurement (Horizontal):

Channal No.	Frequency	Correct Factor	Reading Level	Emission Level	Peak Limit	Average Limit	Dogult
Channel No.	(MHz)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dBuV/m)	Result
11 (Peak)	2460.900	32.011	60.362	92.373			
11 (Peak)	2483.500	32.182	22.953	55.135	74.000	54.000	Pass
11 (Peak)	2494.900	32.268	25.236	57.504	74.000	54.000	Pass
11 (Average)	2461.100	32.013	56.770	88.783			
11 (Average)	2483.500	32.182	11.639	43.821	74.000	54.000	Pass

Figure Channel 11:

Horizontal (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.



Product	:	McAire
Test Item	:	Band Edge Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 1: Transmit (802.11b 1Mbps)

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Correct Factor	Reading Level	Emission Level	Peak Limit	Average Limit	Result
		(uD)			(uDu v/III)	(uDu v/m)	
11 (Peak)	2462.900	31.296	73.415	104.711			
11 (Peak)	2483.500	31.435	24.479	55.914	74.000	54.000	Pass
11 (Peak)	2503.300	31.533	24.842	56.376	74.000	54.000	Pass
11 (Average)	2461.300	31.286	69.772	101.058			
11 (Average)	2483.500	31.435	13.396	44.831	74.000	54.000	Pass

Figure Channel 11:

Vertical (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.

Product	:	McAire
Test Item	:	Band Edge Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 2: Transmit (802.11g 6Mbps)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency	Correct Factor	Reading Level	Emission Level	Peak Limit	Average Limit	Dogult
	(MHz)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dBuV/m)	Result
01 (Peak)	2340.500	31.740	26.549	58.288	74.000	54.000	Pass
01 (Peak)	2390.000	31.739	27.252	58.991	74.000	54.000	Pass
01 (Peak)	2416.000	31.782	68.351	100.132			
01 (Average)	2344.000	31.730	12.532	44.262	74.000	54.000	Pass
01 (Average)	2390.000	31.739	13.174	44.913	74.000	54.000	Pass
01 (Average)	2405.750	31.760	51.870	83.631			

Figure Channel 01:

Horizontal (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 etection.

Product	:	McAire
Test Item	:	Band Edge Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 2: Transmit (802.11g 6Mbps)

RF Radiated Measurement (Vertical):

Channal No.	Frequency	Correct Factor	Reading Level	Emission Level	Peak Limit	Average Limit	Dogult
Channel No.	(MHz)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dBuV/m)	Result
01 (Peak)	2347.750	30.585	31.123	61.708	74.000	54.000	Pass
01 (Peak)	2390.000	30.267	34.239	64.506	74.000	54.000	Pass
01 (Peak)	2415.750	30.266	76.631	106.897			
01 (Average)	2347.250	30.590	17.760	48.349	74.000	54.000	Pass
01 (Average)	2390.000	30.267	17.553	47.820	74.000	54.000	Pass
01 (Average)	2417.250	30.272	58.975	89.248			

Figure Channel 01:

Vertical (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.

Product	:	McAire
Test Item	:	Band Edge Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 2: Transmit (802.11g 6Mbps)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency	Correct Factor	Reading Level	Emission Level	Peak Limit	Average Limit	Dogult
	(MHz)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dBuV/m)	Result
11 (Peak)	2465.900	32.049	63.349	95.398			
11 (Peak)	2483.500	32.182	24.924	57.106	74.000	54.000	Pass
11 (Average)	2463.100	32.028	47.771	79.799			
11 (Average)	2483.500	32.182	12.242	44.424	74.000	54.000	Pass

Figure Channel 11:

Horizontal (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 etection.

Product	:	McAire
Test Item	:	Band Edge Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 2: Transmit (802.11g 6Mbps)

RF Radiated Measurement (Vertical):

Channel No.	Frequency	Correct Factor	Reading Level	Emission Level	Peak Limit	Average Limit	Dogult
	(MHz)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dBuV/m)	Result
11 (Peak)	2465.700	31.315	76.028	107.343			
11 (Peak)	2483.500	31.435	34.830	66.265	74.000	54.000	Pass
11 (Average)	2467.300	31.326	58.883	90.209			-
11 (Average)	2483.500	31.435	17.933	49.368	74.000	54.000	Pass

Figure Channel 11:

Vertical (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.

7. Occupied Bandwidth

7.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2012
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2012
Х	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2012

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 Jan. 2012 KDB558074 for compliance to FCC 47CFR 15.247 requirements. Set RBW = 1-5% of the emission bandwidth, VBW \geq 3*RBW

7.5. Uncertainty

 \pm 150Hz

7.6. Test Result of Occupied Bandwidth

Product	:	McAire
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	13200	>500	Pass

Figure Channel 1:

D Agilent	Spectrur	n Analyzer -	Swept SA								
Center	Freq	Ω 2.4120	00000 GI	Hz	AC SE	NSE:INT	Avg Typ	ALIGNAUTO e: Log-Pwr	06:50:01 TRAC	PM Jul 04, 2012 E 1 2 3 4 5 6	Frequency
		Inj	put:RF PI IFG	10: Fast 🖵 Gain:Low	#Atten: 30) dB			DE	PNNNNN	Auto Turo
10 dB/di	Mkr2 2.405 40 GHz 10 dB/div Ref 20.00 dBm -1.91 dBm										
Log 10.0						⊘ 1	3				Center Freq
0.00				mo	MANNA	/www.n	Um			-1.18 dBm	2.412000000 GHz
-20.0				ſ			ⁿ u				04
-30.0			mm					hour	hhm		2.387000000 GHz
-50.0 🖘 🛰	Manyon	mont	* * *						1	Lonordwood	
-60.0											Stop Freq 2.437000000 GHz
Contor	2 4 4 2							02 12	Snon 5	0.00 MH-	
#Res B	W 300	kHz		#VBW	/ 1.0 MHz			Sweep	1.00 ms (1001 pts)	CF Step 5.000000 MHz
MKR MOD	TRC SU		× 2.412 5	0 GHz	Y 4.82 dl	FUN	CTION FL	INCTION WIDTH	FUNCTIO	IN VALUE	<u>Auto</u> Man
2 N 3 N	1 f 1 f		2.405 4	0 GHz 0 GHz	-1.91 dl -1.46 dl	Bm Bm					Freq Offset
5											0 Hz
8											
10 11											
12 MSG		<u></u>						STATUS			

:	McAire
:	Occupied Bandwidth Data
:	No.3 OATS
:	Mode 1: Transmit (802.11b 1Mbps) (2437MHz)
	:

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
6	2437	13200	>500	Pass

Figure Channel 6:

	gilent	Spect	rum	Analyzer -	Swept SA								
Cei	RL nter	Fre	50 s eq	2 2.4370	00000 G	Hz	AC SE	NSE:INT	Avg Ty	ALIGNAUTO	06:56:52 TRAC	PM Jul 04, 2012 E 1 2 3 4 5 6	Frequency
10 (B/di	v	Ref	In 5 20.00 (put: RF PI IFC d B m	NO: Fast G Gain:Low	Atten: 3	0 dB		Mkr	2 2.430 -2.	40 GHz 13 dBm	Auto Tune
Log 10.1 0.0 -10.1						- Martin	2 Vorwwy	~1 	20 AM			-1.45 dBm	Center Freq 2.437000000 GHz
-20.0 -30.0 -40.0)))			~~~~	mm					harry	L/M		Start Freq 2.412000000 GHz
-50.1 -60.1 -70.1												Carrie a solut	Stop Freq 2.462000000 GHz
Cer #Ro MM	nter es B MODE	2.43 W 3	370 100	0 GHz kHz	× 2.437 5	#VB	W 1.0 MHz 4.55 d	Bm	JNCTION	Sweep	Span 5 1.00 ms (FUNCIT	0.00 MHz 1001 pts) INVALUE	CF Step 5.000000 MHz <u>Auto</u> Man
2 3 4 5 6 7	N	1	f		2.430 4 2.443 6	0 GHz 0 GHz	-2.13 d -1.81 d	Bm Bm					Freq Offset 0 Hz
8 9 10 11 12													
MSG										STATU	5		

Product	:	McAire
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	13200	>500	Pass

Figure Channel 11:

💴 Agilent Spectrur	n Analyzer - Swept SA							
Center Freq	Ω 2.462000000 C	GHz	SENSE:INT	Avg Type	ALIGNAUTO : Log-Pwr	07:10:11 TRAC	E 1 2 3 4 5 6	Frequency
10 dB/div R (Input: RF	PNO: Fast () FGain:Low 1	#Atten: 30 dB		Mkr	2 2.455 -2.1	40 GHz 11 dBm	Auto Tune
Log 10.0 0.00 -10.0		2 more that	<u>1</u>	Mar As			1.45 dBm	Center Freq 2.462000000 GHz
-20.0 -30.0 -40.0	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~				have	Wmy		Start Freq 2.437000000 GHz
-50.0							- Darley cogner	Stop Freq 2.487000000 GHz
Center 2.462 #Res BW 300 MKR MODE 1170 SO 1 N 1 f	00 GHz) kHz 1 X 2.462	#VBW 1	.0 MHz 4.55 dBm	Function Fu	Sweep ′	Span 5 1.00 ms (0.00 MHz 1001 pts) NVALUE	CF Step 5.000000 MHz <u>Auto</u> Man
2 N 1 f 3 N 1 f 4 5 6 7	2.455 2.468	40 GHz 60 GHz	-2.11 dBm -1.84 dBm					Freq Offset 0 Hz
8 9 10 11 12								

Product	:	McAire
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	16500	>500	Pass

Figure Channel 1:

D Agile	nt Sp	ectru	m Analyz	zer - S	wept S	5A											
Cent	er F	rec	οΩ 1 2.4 1	1200	0000	00 G	Hz	1	AC SE	NSE:IN	Т	Avg T	ype	ALIGNAUTO : Log-Pwr	07:15:53 TRA TY	CE 1 2 3 4 5 6	Frequency
10 dB	Input: RF PNO: Fast Inguiting the read of the read											Auto Tune					
10.0 = 0.00 = -10.0 -) ²	www	man	_	∕ <mark>∕1</mark>	f	3			-1.17 dBm	Center Freq 2.412000000 GHz
-20.0 - -30.0 - -40.0 -	lifeler	Lyw AR	may your	www	ww	w							~~~~	and the second second	and a fland of a flat	W-10-400 - March - Ar	Start Freq 2.387000000 GHz
-50.0 - -60.0 - -70.0 -																	Stop Freq 2.437000000 GHz
Cente #Res MKE MI	er 2 BW	.412 / 30	200 GH 0 kHz	łz	× 2.	414 2	#\ 5 GHz	/BW	1.0 MHz 4.83 d	Bm	FUNC	CTION	FUN	Sweep '	Span (1.00 ms) FUNCT	50.00 MHz (1001 pts)	CF Step 5.000000 MHz <u>Auto</u> Man
2 3 4 5 6 7 8 9	N N		f		2.	403 7	5 GHz 5 GHz		-1.41 d -2.03 d	Bm Bm							Freq Offset 0 Hz
11 12 MSG														STATUS			

Product	:	McAire
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	16450	>500	Pass

Figure Channel 6:

DAgilent Spect	rum Analyzer - Swept SA					
Center Fre	50 Ω eq 2.437000000 G	AC SE	Avg Type	ALIGNAUTO 07:53:18 e: Log-Pwr TRAC	PM Jul 04, 2012	Frequency
10 dB/div	Ref 20.00 dBm	Gain:Low #Atten: 3	0 dB	Mkr2 2.428 -2.1	75 GHz 01 dBm	Auto Tune
Log 10.0 0.00		2	A ¹		-1.21 dBm	Center Freq 2.437000000 GHz
-20.0 -30.0 -40.0	hand the second			a mound manena	them and a solar solar	Start Freq 2.412000000 GHz
-60.0						Stop Freq 2.462000000 GHz
Center 2.43 #Res BW 3 [MK: MODE 1:00 1 N 1	8700 GHz 00 kHz SCL X f 2.439 ;	#VBW 1.0 MHz	Function Fui	Span 5 Sweep 1.00 ms (NCTION WIDTH FUNCTION	0.00 MHz 1001 pts)	CF Step 5.000000 MHz Auto Man
2 N 1 3 N 1 4 5 6 7 8 9 9 10	f 2.428 f 2.445 :	75 GHz -2.01 d 20 GHz -1.60 d	IBm			Freq Offset 0 Hz
11 12 MSG				STATUS		

Product	:	McAire
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	16550	>500	Pass

Figure Channel 11:

DAgilent Spectrum	n Analyzer - Swept SA								
Center Freq	2.462000000 0	GHz		EINT /	vg Type	ALIGNAUTO : Log-Pwr	10:15:07 TRAC	E 1 2 3 4 5 6	Frequency
10 dB/div R	ef 20.00 dBm	PNO: Fast () FGain:Low	#Atten: 30 d	8		Mkr	2 2.453 -2.	75 GHz 74 dBm	Auto Tune
Log 10.0 0.00 -10.0		<u></u> 2		1	3			-2.02 dBm	Center Freq 2.462000000 GHz
-20.0 -30.0 -40.0	a Nunderson and a star and	/				And allowing	themand	MAS MUMANT	Start Freq 2.437000000 GHz
-60.0									Stop Freq 2.487000000 GHz
Center 2.462 #Res BW 300	00 GHz) kHz	#VBW	1.0 MHz	FUNCTIO	N FUN	Sweep '	Span 5 1.00 ms (0.00 MHz 1001 pts)	CF Step 5.000000 MHz Auto Man
I N 1 f 1 N 1 f 2 N 1 f 3 N 1 f 4 - - - 5 - - - 6 - - - 7 - - - 8 - - - 9 - - - 10 - - - 11 - - -	2.464 2.453 2.470	55 GHz 75 GHz 30 GHz	3.98 dBn -2.74 dBn -3.06 dBn						Freq Offset

8. Power Density

8.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2012
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2012
Х	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2012

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 Jan. 2012 KDB558074 for compliance to FCC 47CFR 15.247 requirements. Set RBW= 100 kHz, VBW \geq 300KHz, SPAN to 5-30 % greater than the EBW, Scale the observed power level to an equivalent value in 3 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where BWCF = 10log (3 kHz/100 kHz = -15.2 dB).

8.5. Uncertainty

 \pm 1.27 dB

8.6. Test Result of Power Density

Product	:	McAire
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	-10.687	< 8dBm	Pass

Figure Channel 1:

DAgilent Spectrum	Analyzer - Swept SA		-05						
	2 412000000	GH7	C SEN	ISE:INT	Avg Type	ALIGNAUTO	06:52:43 F	M Jul 04, 2012	Frequency
Ref 10 dB/div Ref	Offset -15.2 dB	PNO: Fast IFGain:Low	┘ Trig: Free #Atten: 30	Run dB	Avg Hold:	∘100/100 Mkr	1 2.412 -10.68	50 GHz 7 dBm	Auto Tune
-5.20			እ ለ በ	1 1					Center Freq 2.412000000 GHz
-15.2 -25.2	m			10000		why V	MAN	W.	Start Freq 2.402000000 GHz
-35.2								- Y	Stop Freq 2.422000000 GHz
-55.2									CF Step 2.000000 MHz <u>Auto</u> Man
-75.2									Freq Offset 0 Hz
Center 2.4120 #Res BW 100	0 GHz kHz	#VBW	300 kHz			Sweep	Span 2 1.93 ms ('	0.00 MHz 1001 pts)	
MSG						STATU	s		

Product	:	McAire
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	-10.751	< 8dBm	Pass

Figure Channel 6:

Agilent Spe	ctrum Analyzer -	Swept SA								
enter F	50Ω reg 2/1370	00000 GI	A	C SE	NSE:INT	Ava Type	ALIGNAUTO	06:59:34 TRAC	PM Jul 04, 2012	Frequency
	lr	nput: RF PI	10: Fast 😱 Gain:Low	Trig: Free #Atten: 30	eRun)dB	Avg Hold:	>100/100 Mkr	1 2.436	50 GHz	Auto Tun
0 dB/div	Ref Offset -1 Ref 4.80 d	5.2 dB Bm						-10.7	51 dBm	
5.20				1						Center Fre 2.437000000 GH
15.2		A-A-I	mm	m	man	LAN A	A.A.			
25.2	m			ſ	/			my	L л	Start Fre 2.427000000 GH
35.2	<i>J</i> .								N N	
45.2									\backslash	2.447000000 GH
										CESt
55.2										2.000000 MH Auto Ma
5.2										
75.2		8								Freq Offs 0 H
35.2										
enter 2.4 Res BW	13700 GHz 100 kHz		#VBW	300 kH7			Sweep	Span 2 1.93 ms (0.00 MHz	
sg							STATUS			

Product	:	McAire
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	-10.702	< 8dBm	Pass

Figure Channel 11:

D Agi	lent Spectrun	n Analyzer - S	Swept SA		-05						
Cen	ter Freq	Ω 2.4620	00000 G	Hz			Avg Type	LIGNAUTO	07:12:53	E 1 2 3 4 5 6	Frequency
10 di	Re B/div R e	f Offset -16 of 4.80 de	out: RF PI IFC 5.2 dB Bm	IO: Fast ↓ Gain:Low	#Atten: 30) dB	Avginoid.	Mkr	1 2.461 -10.70	50 GHz 52 dBm	Auto Tune
-5.20				0.0.0.1	1		A A A A				Center Freq 2.462000000 GHz
-15.2 -25.2	M	www	V						ww	LA A	Start Freq 2.452000000 GHz
-35.2 -45.2	<u></u>									- V	Stop Freq 2.472000000 GHz
-55.2 -65.2											CF Step 2.000000 MHz <u>Auto</u> Man
-75.2											Freq Offset 0 Hz
Cen	ter 2.462	00 GHz							Span 2	0.00 MHz	
#Re ^{мsg}	s BW 100	kHz		#VBW	300 kHz			Sweep Status	1.93 ms (1001 pts)	

Product	:	McAire
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	-13.980	< 8dBm	Pass

Figure Channel 1:

Agilent Sp	ectrum Analyzer -	Swept SA		c	LIGHT AN IT			07.10.00 0	112101 0010	
Center F	req 2.4120	00000 G	Hz	Trig: Free	Run	Avg Type Avg Hold:	: Log-Pwr > 100/100	U7:18:36 P TRACE TYPE	1 2 3 4 5 6 MWWWWW	Frequency
10 dB/div	Ref Offset -15.2 dB 0 dB/div Ref 4.80 dBm Ref 0 dB/div Ref 4.80 dBm									
5.20		3								Center Fre 2.412000000 G⊦
15.2 <u> </u>	mun	Leventren	Murda	mlnny	hundry	mmunt	m france	month		Start Fre 2.402000000 G⊦
35.2										Stop Fre 2.422000000 GH
55.2				-						CF Ste 2.000000 MI <u>Auto</u> M
75.2										Freq Offs 0 F
enter 2. Res BW	41200 GHz 100 kHz		#VBW	300 kHz			Sweep	Span 20 1.93 ms (1	0.00 MHz 1001 pts)	

Product	:	McAire
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	-14.081	< 8dBm	Pass

Figure Channel 6:

RI	50.0	- Swept SA		c 95			ALIGNALITO	07:56:021	M 10104 2012	
enter F	req 2.4370	000000 G nput: RF P IF	Hz NO: Fast 😱 Gain:Low	Trig: Free #Atten: 30	Run dB	Avg Type Avg Hold:	: Log-Pwr >100/100	TRAC TYF DE	E 1 2 3 4 5 6 E MWWWWW T P N N N N N	Frequency
dB/div	Ref Offset - Ref 4.80 c	15.2 dB IBm					Mkr	1 2.438 -14.08	26 GHz 81 dBm	Auto Tui
.20					▲1					Center Fro 2.437000000 Gi
5.2	mon	hourtour	harth	antun	prost	manna	mmhmw	handre	h.	Start Fr 2.427000000 G
5.2 v ^r ^w									Vl vy	Stop Fr 2.447000000 G
.2										CF St 2.000000 N <u>Auto</u> N
.2										Freq Off 0
enter 2. Res BW	43700 GHz 100 kHz		#VBW	300 kHz			Sweep	Span 2 1.93 ms (0.00 MHz 1001 pts)	

Product	:	McAire
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	-14.043	< 8dBm	Pass

Figure Channel 11:

D Agil	ent Spectrur	n Analyzer -	Swept SA								
Cent	ter Freq	2.4620	00000 G	Hz			Avg Type	LIGNAUTO	10:17:50 TRAC	PM Jul 04, 2012 E 1 2 3 4 5 6	Frequency
10 dE	Re 8/div R e	In of Offset -1 ef 4.80 d	put: RF P IF 5.2 dB BM	NO: Fast 🖵 Gain:Low	#Atten: 30) dB	Avginoid.	Mkr	1 2.463 -14.04	26 GHz 43 dBm	Auto Tune
-5.20						♦ ¹					Center Free 2.462000000 GH:
-15.2	^ • •	mMmmM	mmun	Angen Angen	rulunn	Normalia	er/honer/h	www.	Marrien Un		Start Free 2.452000000 GH
-35.2 -45.2	product and									"Wy My	Stop Fre 2.472000000 GH
-55.2											CF Ste 2.000000 MH <u>Auto</u> Ma
-75.2 -											Freq Offse 0 H
Cent #Res	ter 2.462 8 BW 100	00 GHz) kHz		#VBW	300 kHz			Sweep 1	Span 2 1.93 ms (0.00 MHz 1001 pts)	

9. EMI Reduction Method During Compliance Testing

No modification was made during testing.

Attachment 1: EUT Test Photographs

Attachment 2: EUT Detailed Photographs