# FCC Test Report

Product Name	Wireless LAN DSC
Model No	C01
FCC ID.	2ACQ9-16880001

Applicant	altek Corporation
Address	No.12, Li-Hsin Road, Science-based Industrial Park,
	Hsin-Chu City, Taiwan

Date of Receipt	Apr. 24, 2014
Issue Date	Jul. 14, 2014
Report No.	1440543R-RFUSP25V00
Report Version	V1.0



The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration report of the equipment

and evaluated measurement uncertainty herein.

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The test report shall not be reproduced without the written approval of QuieTek Corporation.

# Test Report

Issue Date: Jul. 14, 2014 Report No.: 1440543R-RFUSP25V00



Product Name	Wireless LAN DSC		
Applicant	altek Corporation		
Address	No.12, Li-Hsin Road, Science-based Industrial Park, Hsin-Chu City,		
	Taiwan		
Manufacturer	Altek (Kunshan) Co. Ltd.		
Model No.	C01		
FCC ID.	2ACQ9-16880001		
EUT Rated Voltage	DC 3.7V by Battery		
EUT Test Voltage	AC 120V/60Hz		
Trade Name	altek		
Applicable Standard	FCC CFR Title 47 Part 15 Subpart C: 2014		
	ANSI C63.10: 2009, KDB 558074		
Test Result	Complied		

Documented By :

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Tested By

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(Engineer / Vincent Chu)

Approved By

:

(Director / Vincent Lin)

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Attachment 1: EUT Test Photographs

Attachment 2: EUT Detailed Photographs

# 1. GENERAL INFORMATION

# 1.1. EUT Description

Product Name	Wireless LAN DSC	
Trade Name	altek	
Model No.	C01	
FCC ID.	2ACQ9-16880001	
Frequency Range	2412-2462MHz for 802.11b/g/n-20BW	
Number of Channels	802.11b/g/n-20MHz: 11	
Data Speed	802.11b: 1-11Mbps, 802.11g: 6-54Mbps, 802.11n: up to 72.2Mbps	
Type of Modulation 802.11b:DSSS (DBPSK, DQPSK, CCK)		
	802.11g/n:OFDM (BPSK, QPSK, 16QAM, 64QAM)	
Antenna Type	FPC Antenna	
Antenna Gain	Refer to the table "Antenna List"	
Channel Control Auto		
USB Cable	Shielded, 0.6m, with one ferrite core bonded.	
Battery	altek, NP-45A, DC 3.7V, 700mAh	

## Antenna List

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	MAG.LAYER	FPA-2612-2G4C1-A1	FPC Antenna	-0.89dBi for 2.4 GHz

Note:

1. The antenna of EUT is conform to FCC 15.203.

802.11b/g/n-20MHz Center Frequency of Each Channel:

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

- 1. The EUT is a Wireless LAN DSC with a built-in 2.4GHz WLAN and Z-Wave transceiver, this report for WLAN.
- 2. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.
- 3. Lowest and highest data rates are tested in each mode. Only worst case is shown in the report. (802.11b is 1Mbps > 802.11g is 6Mbps and 802.11n(20M-BW) is 7.2Mbps )
- 4. These tests are conducted on a sample for the purpose of demonstrating compliance of 802.11b/g/n transmitter with Part 15 Subpart C Paragraph 15.247 of spread spectrum devices.
- 5. The radiation measurements are performed in X, Y, Z axis positioning. Only the worst case is shown in the report.

Test Mode:	Mode 1: Transmit (802.11b 1Mbps)
	Mode 2: Transmit (802.11g 6Mbps)
	Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW)

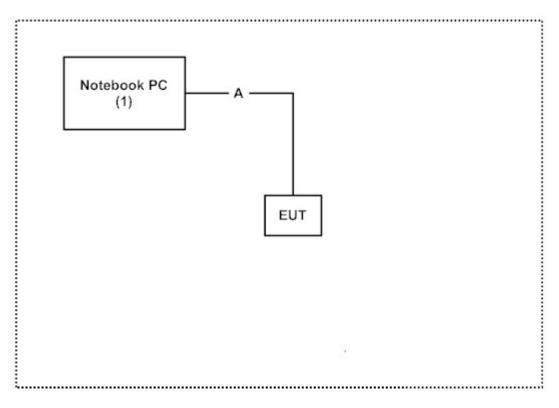
# **1.3.** Tested System Details

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

Prod	uct	Manufacturer	Model No.	Serial No.	Power Cord
1	Notebook PC	DELL	PP04X	7607342512	Non-Shielded, 0.8m

Signa	al Cable Type	Signal cable Description
Α	USB Cable	Shielded, 0.85m, with one ferrite core bonded.

# 1.4. Configuration of Tested System



# 1.5. EUT Exercise Software

- (1) Setup the EUT as shown in Section 1.4.
- (2) Execute software "Chip Test V6.0.0.6.exe" on the Notebook PC.
- (3) Configure the test mode, the test channel, and the data rate.
- (4) Press "OK" to start the continuous Transmit.
- (5) Verify that the EUT works properly.

# 1.6. Test Facility

#### Ambient conditions in the laboratory:

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

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

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

Site Name:	Quietek Corporation
Site Address:	No.5-22, Ruishukeng,
	Linkou Dist. New Taipei City 24451,
	Taiwan, R.O.C.
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	E-Mail : <u>service@quietek.com</u>

FCC Accreditation Number: TW1014

# 2. Conducted Emission

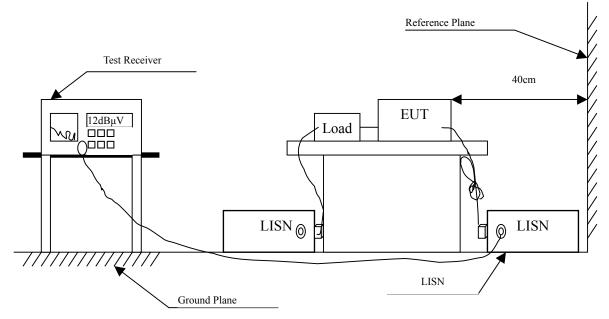
# 2.1. Test Equipment

	Equipment	Manufacturer	Model No. / Serial No.	Last Cal.	Remark
Х	Test Receiver	R & S	ESCS 30 / 825442/018	Sep., 2013	
Х	Artificial Mains Network	R & S	ENV4200 / 848411/10	Feb., 2014	Peripherals
Х	LISN	R & S	ESH3-Z5 / 825562/002	Feb., 2014	EUT
	DC LISN	Schwarzbeck	8226 / 176	Mar, 2014	EUT
Х	Pulse Limiter	R & S	ESH3-Z2 / 357.8810.52	Feb., 2014	
	No.1 Shielded Room				

Note:

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

# 2.2. Test Setup



# 2.3. Limits

FCC Part 15 Subpart C Paragraph 15.207 (dBµV) 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 C63.10: 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	:	Wireless LAN DSC
Test Item	:	Conducted Emission Test
Power Line	:	Line 1
Test Mode	:	Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW) (2437MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBµV	dBµV	dB	dBµV
Line 1					
Quasi-Peak					
0.466	9.665	27.850	37.515	-19.456	56.971
0.502	9.667	21.860	31.527	-24.473	56.000
0.744	9.680	23.790	33.470	-22.530	56.000
1.041	9.696	21.470	31.166	-24.834	56.000
1.373	9.724	21.660	31.384	-24.616	56.000
1.591	9.736	21.110	30.846	-25.154	56.000
Average					
0.466	9.665	15.870	25.535	-21.436	46.971
0.502	9.667	9.900	19.567	-26.433	46.000
0.744	9.680	12.760	22.440	-23.560	46.000
1.041	9.696	10.700	20.396	-25.604	46.000
1.373	9.724	11.480	21.204	-24.796	46.000
1.591	9.736	10.380	20.116	-25.884	46.000

Note:

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

2. " " means the worst emission level.

3. Measurement Level = Reading Level + Correct Factor

Product	: Wireless LAN DSC									
Test Item	: Conducted Emission Test									
Power Line	: Line 2									
Test Mode	: Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW) (2437MHz)									
Frequency	Correct	Reading	Measurement	Margin	Limit					
	Factor	Level	Level							
MHz	dB	dBµV	dBµV	dB	dBµV					
Line 2										
Quasi-Peak										
0.408	9.662	27.650	37.312	-21.317	58.629					
0.435	9.663	26.170	35.833	-22.024	57.857					
0.724	9.687	19.490	29.177	-26.823	56.000					
0.787	9.692	18.650	28.342	-27.658	56.000					
1.361	9.724	18.360	28.084	-27.916	56.000					
1.724	9.754	14.100	23.854	-32.146	56.000					
Average										
0.408	9.662	11.650	21.312	-27.317	48.629					
0.435	9.663	16.220	25.883	-21.974	47.857					
0.724	9.687	11.730	21.417	-24.583	46.000					
0.787	9.692	13.960	23.652	-22.348	46.000					
1.361	9.724	13.950	23.674	-22.326	46.000					
1.724	9.754	3.080	12.834	-33.166	46.000					

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

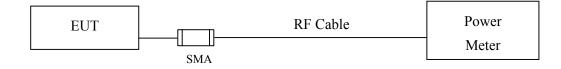
# 3. Peak Power Output

# 3.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.						
Х	Power Meter	Anritsu	ML2495A/6K00003357	May, 2014						
Х	Power Sensor	Anritsu	MA2411B/0738448	Jun, 2014						
Note:										
1.	All equipments are	calibrated with trac	eable calibrations. Each calibrations	ation 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



# 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 KDB 558074 for compliance to FCC 47CFR 15.247 requirements. The maximum peak conducted output power using KDB 558074 section 9.1.3 PKPM1 Peak power meter method.

# 3.5. Uncertainty

 $\pm$  1.27 dB

# **3.6.** Test Result of Peak Power Output

Product	:	Wireless LAN DSC
Test Item	:	Peak Power Output Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 1: Transmit (802.11b 1Mbps)

Channal No.	Frequency	For d	· ·	e Power ata Rate (N	Иbps)	Peak Power	Required	Result
Channel No (MHz)		1	2	5.5	11	1	Limit	Result
			Measur					
01	2412	11.29				14.55	<30dBm	Pass
06	2437	11.43	11.33	11.21	11.13	15.02	<30dBm	Pass
11	2462	11.41				15.23	<30dBm	Pass

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

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

	Fraguarau	Average PowerPeakFor different Data Rate (Mbps)Power									Dequired	
Channel No	Frequency (MHz)	6	9	12	18	24	36	48	54	6	Required Limit	Result
				Measurement Level (dBm)								
01	2412	10.38		-	-		-			20.81	<30dBm	Pass
06	2437	10.73	10.65	10.49	10.38	10.25	10.16	10.08	10.01	21.01	<30dBm	Pass
11	2462	10.96								21.54	<30dBm	Pass

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

Product	:	Wireless LAN DSC
Test Item	:	Peak Power Output Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW)

	Fraguanay		Average PowerPeakFor different Data Rate (Mbps)Power						Required			
Channel No	Frequency (MHz)	7.2	14.4	21.7	28.9	43.3	57.8	65	72.2	7.2	Limit	Result
			Measurement Level (dBm)									
01	2412	10.40								20.63	<30dBm	Pass
06	2437	10.76	10.61	10.54	10.42	10.35	10.25	10.14	10.03	20.9	<30dBm	Pass
11	2462	10.89								21.24	<30dBm	Pass

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

# 4. Radiated Emission

# 4.1. Test Equipment

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

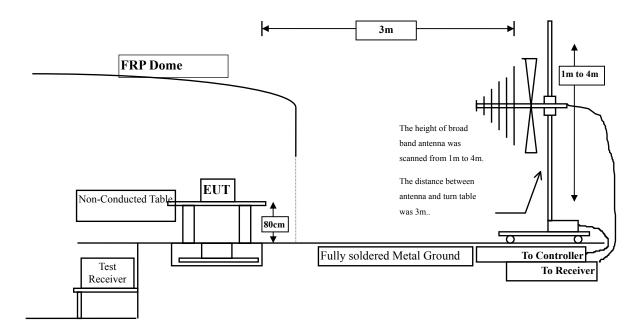
Test Site		Equipment	Manufacturer	Model No./Serial No.	Last Cal.
Site # 3	Х	Loop Antenna	Teseq	HLA6120 / 26739	Jul., 2014
	Х	Bilog Antenna	Schaffner Chase	CBL6112B/2673	Sep., 2013
	Х	Horn Antenna	Schwarzbeck	BBHA9120D/D305	Sep., 2013
	Х	Horn Antenna	Schwarzbeck	BBHA9170/208	Jul., 2014
	Х	Pre-Amplifier	Agilent	8447D/2944A09549	Sep., 2013
	Х	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2014
	Х	Test Receiver	R & S	ESCS 30/ 825442/018	Sep., 2013
	Х	Coaxial Cable	QuieTek	QTK-CABLE/ CAB5	Feb., 2014
	Х	Controller	QuieTek	QTK-CONTROLLER/ CTRL3	N/A
	Х	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.

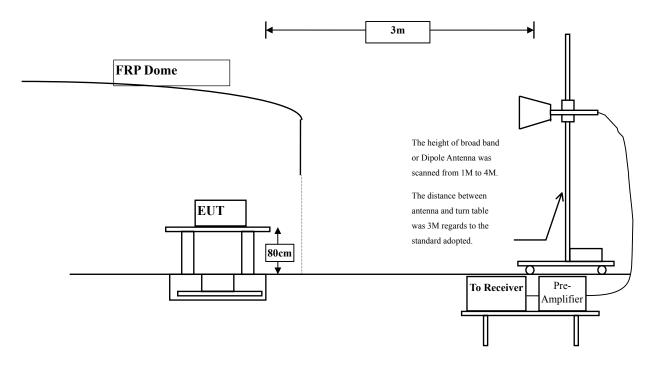
2. The test instruments marked with "X" are used to measure the final test results.

# 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	Field strength	Measurement distance				
	(microvolts/meter)	(meter)				
0.009-0.490	2400/F(kHz)	300				
0.490-1.705	24000/F(kHz)	30				
1.705-30	30	30				
30-88	100	3				
88-216	150	3				
216-960	200	3				
Above 960	500	3				

Remarks: E field strength  $(dB\mu V/m) = 20 \log E$  field strength (uV/m)

# 4.4. Test Procedure

The EUT was setup according to ANSI C63.10: 2009 and tested according to DTS test procedure of KDB558074 for compliance to FCC 47CFR 15.247 requirements.

The EUT is placed on a turn table which is 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 C63.10: 2009 on radiated measurement.

The resolution bandwidth below 30MHz setting on the field strength meter is 9kHz and 30MHz~1GHz is 120kHz and above 1GHz is 1MHz.

Radiated emission measurements below 30MHz are made using Loop Antenna and 30MHz~1GHz are made using broadband Bilog antenna and above 1GHz are made using Horn Antennas.

The measurement is divided into the Preliminary Measurement and the Final Measurement. The suspected frequencies are searched for in Preliminary Measurement with the measurement antenna kept pointed at the source of the emission both in azimuth and elevation, with the polarization of the antenna oriented for maximum response. The antenna is pointed at an angle towards the source of the emission, and the EUT is rotated in both height and polarization to maximize the measured emission. The emission is kept within the illumination area of the 3 dB bandwidth of the antenna. The worst radiated emission is measured in the Open Area Test Site on the Final Measurement. The frequency range from 9kHz to 10th harmonics is checked.

## 4.5. Uncertainty

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

# 4.6. Test Result of Radiated Emission

Product	:	Wireless LAN DSC
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	dBµV	$dB\mu V/m$	dB	$dB\mu V/m$
Horizontal					
Peak Detector:					
4824.000	3.261	34.290	37.551	-36.449	74.000
7236.000	10.650	35.550	46.200	-27.800	74.000
9648.000	13.337	36.800	50.136	-23.864	74.000
Average Detector:					
Vertical					
Peak Detector:					
4824.000	6.421	35.800	42.221	-31.779	74.000
7236.000	11.495	36.150	47.645	-26.355	74.000
9648.000	13.807	36.000	49.806	-24.194	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	: Wireless LAN DSC					
Test Item	: Harmonic Radiated Emission Data					
Test Site	: No.3 OATS					
Test Mode	: Mode 1:	Transmit (802.11	lb 1Mbps) (2437 MH	z)		
Frequency	Correct	Reading	Measurement	Margin	Limit	
	Factor	Level	Level			
MHz	dB	dBµV	$dB\mu V/m$	dB	dBµV/m	
Horizontal						
<b>Peak Detector:</b>						
4874.000	3.038	40.660	43.697	-30.303	74.000	
7311.000	11.795	34.900	46.694	-27.306	74.000	
9748.000	12.635	35.200	47.835	-26.165	74.000	
Average Detector:						
Vertical						
<b>Peak Detector:</b>						
4874.000	5.812	41.200	47.011	-26.989	74.000	
7311.000	12.630	35.420	48.049	-25.951	74.000	
9748.000	13.126	36.120	49.246	-24.754	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	: Wireless LAN DSC						
Test Item	: Harmon	: Harmonic Radiated Emission Data					
Test Site	: No.3 OA	: No.3 OATS					
Test Mode	: Mode 1	Transmit (802.11	b 1Mbps) (2462 MH	z)			
Frequency	Correct	Reading	Measurement	Margin	Limit		
	Factor	Level	Level				
MHz	dB	dBµV	$dB\mu V/m$	dB	dBµV/m		
Horizontal							
<b>Peak Detector:</b>							
4924.000	2.858	37.830	40.687	-33.313	74.000		
7386.000	12.127	34.830	46.958	-27.042	74.000		
9848.000	12.852	35.500	48.353	-25.647	74.000		
Average Detector:							
Vertical							
<b>Peak Detector:</b>							
4924.000	5.521	37.190	42.710	-31.290	74.000		
7386.000	13.254	35.000	48.254	-25.746	74.000		
9848.000	13.367	35.830	49.197	-24.803	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	: Wireless LAN DSC					
Test Item	: Harmonic Radiated Emission Data					
Test Site	: No.3 OATS					
Test Mode	: Mode 2:	Transmit (802.11	g 6Mbps) (2412MHz	:)		
Frequency	Correct	Reading	Measurement	Margin	Limit	
	Factor	Level	Level			
MHz	dB	dBµV	$dB\mu V/m$	dB	dBµV/m	
Horizontal						
<b>Peak Detector:</b>						
4824.000	3.261	35.330	38.591	-35.409	74.000	
7236.000	10.650	36.210	46.860	-27.140	74.000	
9648.000	13.337	35.690	49.026	-24.974	74.000	
Average Detector:						
Vertical						
Peak Detector:						
4824.000	6.421	36.420	42.841	-31.159	74.000	
7236.000	11.495	36.260	47.755	-26.245	74.000	
9648.000	13.807	35.820	49.626	-24.374	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	· Wireless LAN DSC					
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 Factor	Reading Level	Measurement Level	Margin	Limit	
MHz	dB			٩b	dDuV/m	
	dВ	dBµV	dBµV/m	dB	dBµV/m	
Horizontal						
Peak Detector:						
4874.000	3.038	39.870	42.907	-31.093	74.000	
7311.000	11.795	35.010	46.804	-27.196	74.000	
9748.000	12.635	36.230	48.865	-25.135	74.000	
Average Detector:						
Peak Detector:						
4874.000	5.812	40.860	46.671	-27.329	74.000	
7311.000	12.630	35.020	47.649	-26.351	74.000	
9748.000	13.126	36.210	49.336	-24.664	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	: Wireless LAN DSC						
Test Item	: Harmonic Radiated Emission Data						
Test Site	: No.3 OA	: 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	dBµV	dBµV/m	dB	dBµV/m		
Horizontal							
<b>Peak Detector:</b>							
4924.000	2.858	36.280	39.137	-34.863	74.000		
7386.000	12.127	35.690	47.818	-26.182	74.000		
9848.000	12.852	35.940	48.793	-25.207	74.000		
Average Detector:							
Vertical							
<b>Peak Detector:</b>							
4924.000	5.521	36.890	42.410	-31.590	74.000		
7386.000	13.254	35.010	48.264	-25.736	74.000		
9848.000	13.367	36.600	49.967	-24.033	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 Test Item Test Site Test Mode	: Harmoni : No.3 OA		sion Data n MCS0 7.2Mbps 20	M-BW)(2412MF	Hz)
Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBµV	dBµV/m	dB	dBµV/m
Horizontal					
Peak Detector:					
4824.000	3.261	36.380	39.641	-34.359	74.000
7236.000	10.650	36.220	46.870	-27.130	74.000
9648.000	13.337	35.790	49.126	-24.874	74.000
Average Detector:					
_					
Vertical					
Peak Detector:					
4824.000	6.421	36.180	42.601	-31.399	74.000
7236.000	11.495	36.370	47.865	-26.135	74.000
9648.000	13.807	35.310	49.116	-24.884	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.

74.000

Product	:	Wireless LAN DSC
Test Item	:	Harmonic Radiated Emission Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW) (2437 MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBµV	$dB\mu V/m$	dB	$dB\mu V/m$
Horizontal					
<b>Peak Detector:</b>					
4874.000	3.038	36.130	39.167	-34.833	74.000
7311.000	11.795	35.000	46.794	-27.206	74.000
9748.000	12.635	36.060	48.695	-25.305	74.000
Average Detector:					
Vertical					
<b>Peak Detector:</b>					
4874.000	5.812	36.690	42.501	-31.499	74.000
7311.000	12.630	35.490	48.119	-25.881	74.000

#### **Average Detector:**

9748.000

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#### Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.

49.466

-24.534

- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.

36.340

4. Measurement Level = Reading Level + Correct Factor.

13.126

- 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	:	Wireless LAN DSC
Test Item	:	Harmonic Radiated Emission Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW) (2462 MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBµV	$dB\mu V/m$	dB	$dB\mu V/m$
Horizontal					
<b>Peak Detector:</b>					
4924.000	2.858	35.120	37.977	-36.023	74.000
7386.000	12.127	35.380	47.508	-26.492	74.000
9848.000	12.852	36.520	49.373	-24.627	74.000
Average Detector:					
Vertical					
Peak Detector:					
4924.000	5.521	36.210	41.730	-32.270	74.000
7386.000	13.254	35.670	48.924	-25.076	74.000
9848.000	13.367	35.470	48.837	-25.163	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	: Wireless LAN DSC				
Test Item	: General Radiated Emission Data				
Test Site	: No.3 OATS				
Test Mode	: Mode 1	: Transmit (802.11	b 1Mbps)(2437 MHz		
Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBµV	dBµV/m	dB	dBµV/m
Horizontal					
39.700	-3.616	33.327	29.711	-10.289	40.000
258.920	-5.050	41.861	36.811	-9.189	46.000
388.900	-1.684	35.280	33.596	-12.404	46.000
584.840	3.391	31.949	35.340	-10.660	46.000
699.300	2.875	31.138	34.013	-11.987	46.000
802.120	5.091	28.204	33.295	-12.705	46.000
Vertical					
113.420	-1.849	29.713	27.864	-15.636	43.500
258.920	-7.490	40.719	33.229	-12.771	46.000
388.900	-3.064	38.412	35.348	-10.652	46.000
540.220	0.121	24.837	24.958	-21.042	46.000
699.300	0.695	32.887	33.582	-12.418	46.000
802.120	3.161	27.107	30.268	-15.732	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.
- 8. No emission found between lowest internal used/generated frequency to 30MHz.

Product Test Item Test Site Test Mode	: General : No.3 OA		n Data g 6Mbps)(2437 MHz	:)	
Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBµV	$dB\mu V/m$	dB	$dB\mu V/m$
Horizontal					
264.740	-4.991	40.986	35.995	-10.005	46.000
388.900	-1.684	35.725	34.041	-11.959	46.000
584.840	3.391	30.591	33.982	-12.018	46.000
699.300	2.875	29.478	32.353	-13.647	46.000
800.180	5.141	27.974	33.115	-12.885	46.000
928.220	6.893	22.988	29.881	-16.119	46.000
Vertical					
39.700	-1.056	35.233	34.177	-5.823	40.000
198.780	-8.221	36.977	28.756	-14.744	43.500
388.900	-3.064	36.936	33.872	-12.128	46.000
518.880	-0.546	26.399	25.853	-20.147	46.000
699.300	0.695	31.956	32.651	-13.349	46.000
802.120	3.161	25.740	28.901	-17.099	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.
- 8. No emission found between lowest internal used/generated frequency to 30MHz.

Product	: Wireless LAN DSC				
Test Item	: General Radiated Emission Data				
Test Site	: No.3 OATS				
Test Mode	: Mode 3:	Transmit (802.11	n MCS0 7.2Mbps 20	M-BW)(2437 M	Hz)
Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBµV	dBµV/m	dB	dBµV/m
Horizontal					
39.700	-3.616	31.500	27.884	-12.116	40.000
284.140	-4.894	40.108	35.214	-10.786	46.000
388.900	-1.684	36.013	34.329	-11.671	46.000
544.100	3.512	26.739	30.251	-15.749	46.000
646.920	1.793	25.062	26.855	-19.145	46.000
802.120	5.091	32.317	37.408	-8.592	46.000
Vertical					
39.700	-1.056	35.481	34.425	-5.575	40.000
113.420	-1.849	29.880	28.031	-15.469	43.500
286.080	-8.097	37.505	29.408	-16.592	46.000
388.900	-3.064	36.032	32.968	-13.032	46.000
503.360	-0.852	28.296	27.444	-18.556	46.000
699.300	0.695	34.803	35.498	-10.502	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.
- 8. No emission found between lowest internal used/generated frequency to 30MHz.

# 5. **RF** antenna conducted test

#### 5.1. Test Equipment

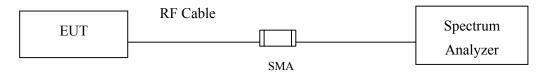
	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2014
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2014
Х	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2014

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 KDB558074 for compliance to FCC 47CFR 15.247 requirements.

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

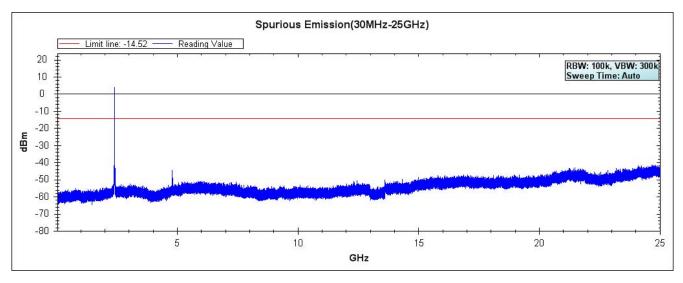
# 5.5. Uncertainty

The measurement uncertainty Conducted is defined as  $\pm$  1.27dB

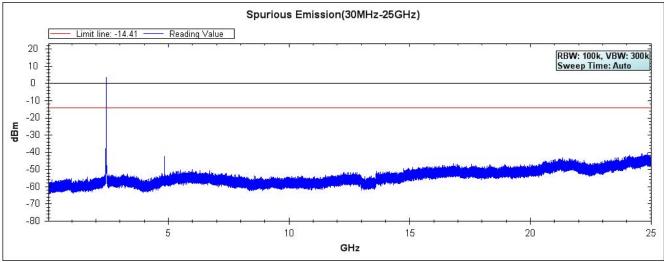
# 5.6. Test Result of RF antenna conducted test

Product	:	Wireless LAN DSC
Test Item	:	RF antenna conducted test
Test Site	:	No.3 OATS
Test Mode	:	Mode 1: Transmit (802.11b 1Mbps)

#### Channel 01 (2412MHz)

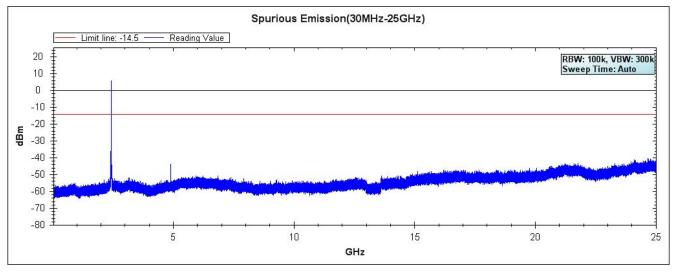


#### Channel 06 (2437MHz)



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

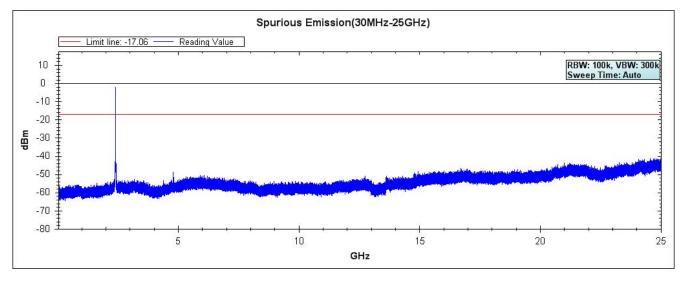
#### Channel 11 (2462MHz)



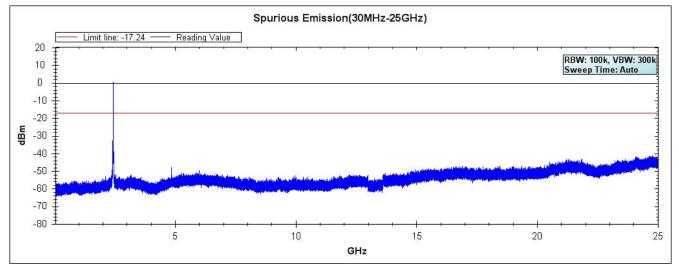
Note: The above test pattern is synthesized by multiple of the frequency range.

:	Wireless LAN DSC
:	RF Antenna Conducted Spurious
:	No.3 OATS
:	Mode 2: Transmit (802.11g 6Mbps)

#### Channel 01 (2412MHz)

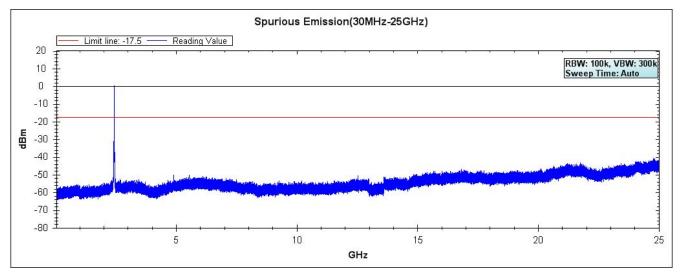


#### Channel 06 (2437MHz)



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

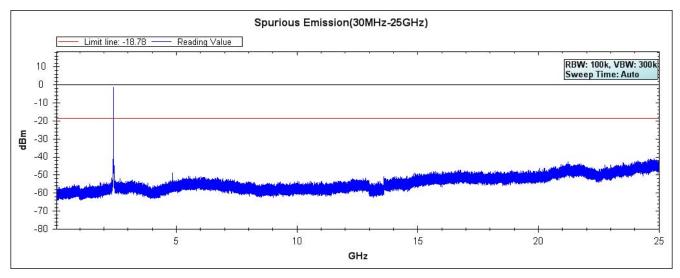
#### Channel 11 (2462MHz)



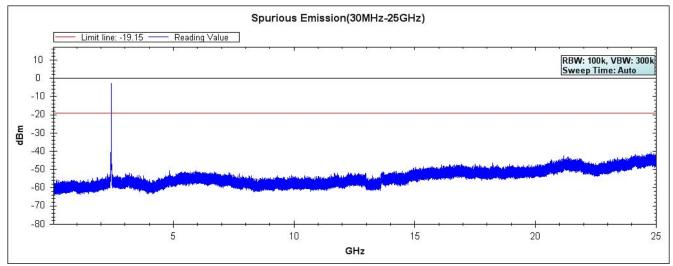
Note: The above test pattern is synthesized by multiple of the frequency range.

Product	:	Wireless LAN DSC
Test Item	:	RF Antenna Conducted Spurious
Test Site	:	No.3 OATS
Test Mode	:	Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW)

### Channel 01 (2412MHz)

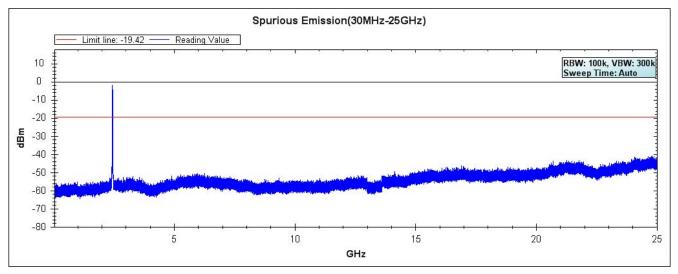


### Channel 06 (2437MHz)



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

### Channel 11 (2462MHz)



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

### 6. Band Edge

### 6.1. Test Equipment

### **RF Radiated Measurement:**

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

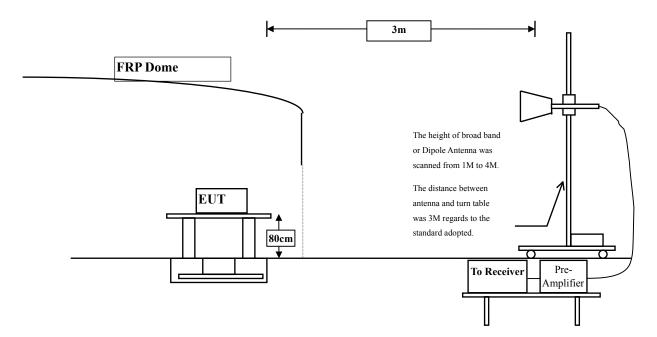
Test Site		Equipment	Equipment Manufacturer Model		Last Cal.
Site # 3		Bilog Antenna	Schaffner Chase	CBL6112B/2673	Sep., 2013
	Х	Horn Antenna	Schwarzbeck	BBHA9120D/D305	Sep., 2013
		Horn Antenna	Schwarzbeck	BBHA9170/208	Jul., 2014
	Х	Pre-Amplifier	Agilent	8447D/2944A09549	Sep., 2013
	Х	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2014
		Test Receiver	R & S	ESCS 30/ 825442/018	Sep., 2013
	Х	Coaxial Cable	QuieTek	QTK-CABLE/ CAB5	Feb., 2014
	Х	Controller	QuieTek	QTK-CONTROLLER/ CTRL3	N/A
	Х	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 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 C63.10: 2009 and tested according to DTS test procedure of KDB558074 for compliance to FCC 47CFR 15.247 requirements.

The EUT is placed on a turn table which is 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 C63.10: 2009 on radiated measurement.

### 6.5. Uncertainty

± 3.9 dB above 1GHz

± 3.8 dB below 1GHz

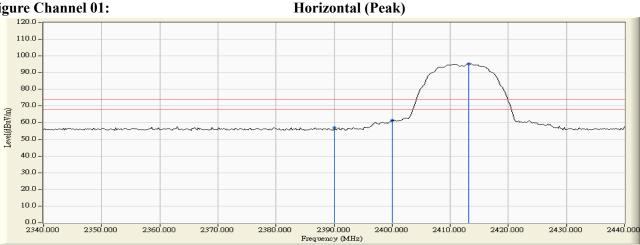
#### 6.6. **Test Result of Band Edge**

Product	:	Wireless LAN DSC
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 (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
01 (Peak)	2390.000	31.509	25.423	56.932	74.00	54.00	Pass
01 (Peak)	2400.000	31.561	29.764	61.325			
01 (Peak)	2413.200	31.647	63.518	95.165			
01 (Average)	2390.000	31.509	11.875	43.384	74.00	54.00	Pass
01 (Average)	2400.000	31.561	18.963	50.524			
01 (Average)	2411.200	31.632	58.474	90.106			

#### **Figure Channel 01:**



#### **Figure Channel 01:**

Horizontal (Average)



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

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

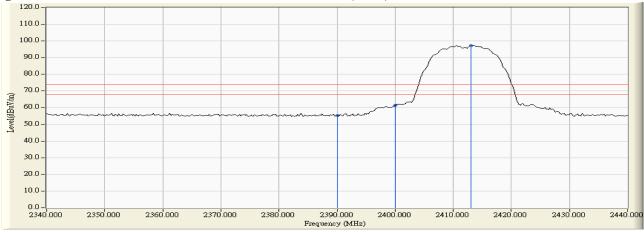
Product	:	Wireless LAN DSC
Test Item	:	Band Edge Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 1: Transmit (802.11b 1Mbps)

#### **RF Radiated Measurement (Vertical):**

Channel No.	Frequency		U	Emission Level		U	Result
Chamier 140.	(MHz)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dBuV/m)	Result
01 (Peak)	2390.000	30.915	24.559	55.474	74.00	54.00	Pass
01 (Peak)	2400.000	30.912	30.634	61.546			
01 (Peak)	2413.000	30.956	66.162	97.118			
01 (Average)	2390.000	30.915	11.886	42.801	74.00	54.00	Pass
01 (Average)	2400.000	30.912	21.888	52.800			
01 (Average)	2411.200	30.944	61.454	92.398			

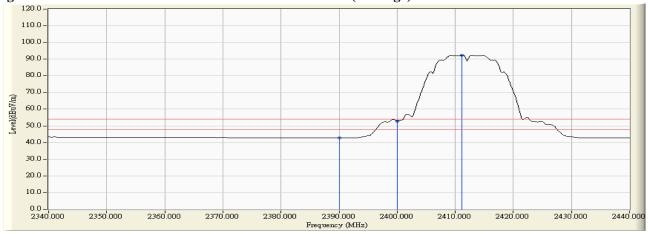
#### Figure Channel 01:

#### Vertical (Peak)





#### Vertical (Average)



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

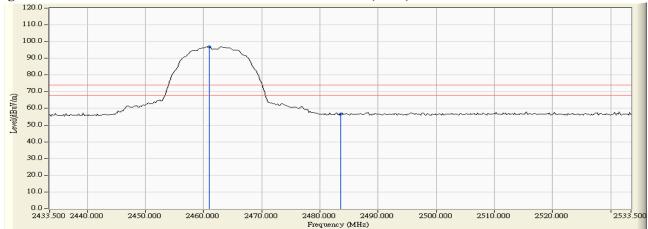
Product	:	Wireless LAN DSC
Test Item	:	Band Edge Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 1: Transmit (802.11b 1Mbps)

#### **RF Radiated Measurement (Horizontal):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
11 (Peak)	2460.900	32.011	64.720	96.731			Pass
11 (Peak)	2483.500	32.182	24.585	56.767	74.00	54.00	Pass
11 (Average)	2461.100	32.013	60.568	92.581			Pass
11 (Average)	2483.500	32.182	11.875	44.057	74.00	54.00	Pass

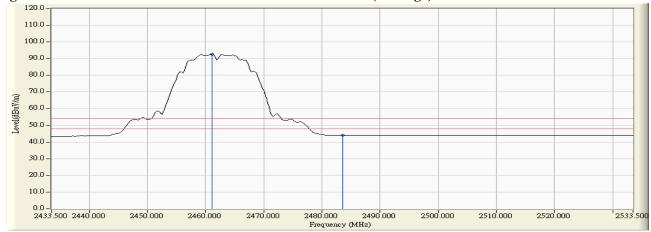
#### Figure Channel 11:

#### Horizontal (Peak)





#### Horizontal (Average)



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

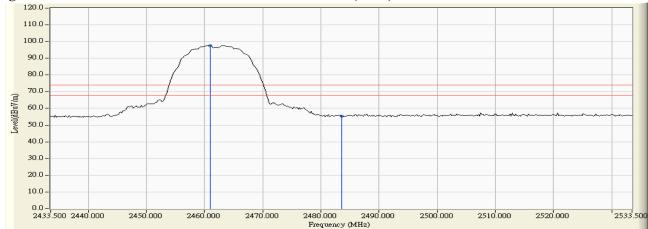
Product	:	Wireless LAN DSC
Test Item	:	Band Edge Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 1: Transmit (802.11b 1Mbps)

#### **RF Radiated Measurement (Vertical):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
11 (Peak)	2460.900	31.283	66.274	97.557			Pass
11 (Peak)	2483.500	31.435	23.968	55.403	74.00	54.00	Pass
11 (Average)	2461.300	31.286	61.478	92.764			Pass
11 (Average)	2483.500	31.435	11.915	43.350	74.00	54.00	Pass

#### Figure Channel 11:

#### Vertical (Peak)





#### Vertical (Average)



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

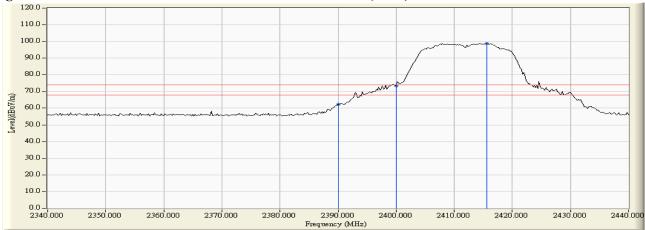
Product	:	Wireless LAN DSC
Test Item	:	Band Edge Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 2: Transmit (802.11g 6Mbps)

#### **RF Radiated Measurement (Horizontal):**

Channel No.	Frequency	Correct Factor	Reading Level	<b>Emission Level</b>	Peak Limit	Average Limit	Result
Channel No.	(MHz)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dBuV/m)	Result
01 (Peak)	2390.000	31.509	30.944	62.453	74.00	54.00	Pass
01 (Peak)	2400.000	31.561	41.878	73.439			
01 (Peak)	2415.600	31.665	67.035	98.701			
01 (Average)	2390.000	31.509	13.855	45.364	74.00	54.00	Pass
01 (Average)	2400.000	31.561	26.920	58.481			
01 (Average)	2408.600	31.616	57.084	88.699			

#### Figure Channel 01:

#### Horizontal (Peak)





#### Horizontal (Average)



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

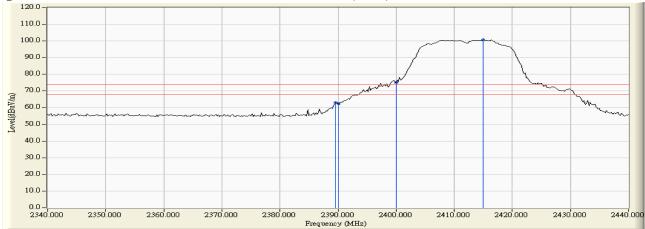
Product	:	Wireless LAN DSC
Test Item	:	Band Edge Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 2: Transmit (802.11g 6Mbps)

#### **RF Radiated Measurement (Vertical):**

Channel No.	Frequency	Correct Factor	Reading Level	<b>Emission Level</b>	Peak Limit	Average Limit	Result
Channel No.	(MHz)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dBuV/m)	Result
01 (Peak)	2389.600	30.917	32.081	62.998	74.00	54.00	Pass
01 (Peak)	2390.000	30.915	31.415	62.330	74.00	54.00	Pass
01 (Peak)	2400.000	30.912	43.908	74.820			
01 (Peak)	2415.000	30.970	69.652	100.622			
01 (Average)	2390.000	30.915	15.126	46.041	74.00	54.00	Pass
01 (Average)	2400.000	30.912	29.375	60.287			
01 (Average)	2415.800	30.975	59.783	90.758			

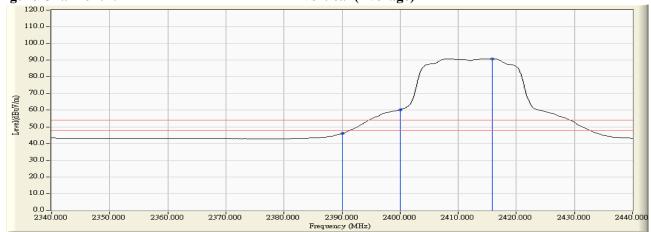


#### Vertical (Peak)





Vertical (Average)



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

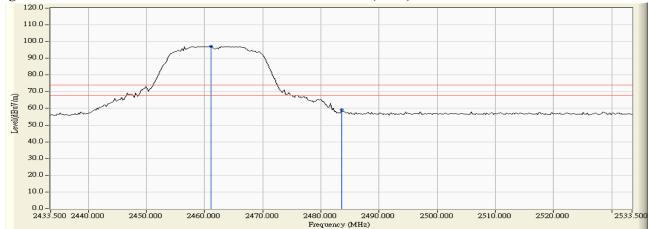
Product	:	Wireless LAN DSC
Test Item	:	Band Edge Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 2: Transmit (802.11g 6Mbps)

#### **RF Radiated Measurement (Horizontal):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
11 (Peak)	2461.100	32.013	65.196	97.209			Pass
11 (Peak)	2483.500	32.182	26.914	59.096	74.00	54.00	Pass
11 (Average)	2460.300	32.006	55.418	87.425			Pass
11 (Average)	2483.500	32.182	12.550	44.732	74.00	54.00	Pass

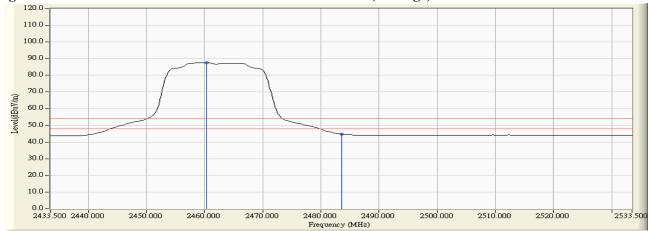
#### Figure Channel 11:

#### Horizontal (Peak)





Horizontal (Average)

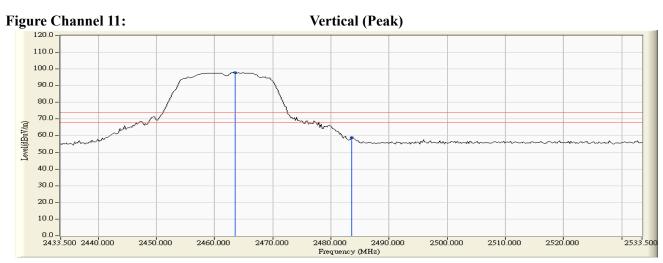


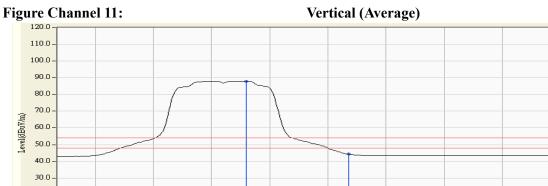
- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "\*", means this data is the worst emission level.
- 5. Measurement Level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

Product	:	Wireless LAN DSC
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	Result
	(MHz)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dBuV/m)	Result
11 (Peak)	2463.500	31.300	66.447	97.747			Pass
11 (Peak)	2483.500	31.435	27.433	58.868	74.00	54.00	Pass
11 (Average)	2465.900	31.317	56.597	87.914			Pass
11 (Average)	2483.500	31.435	12.878	44.313	74.00	54.00	Pass





Note:

20.0 10.0

0.0 -

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

2480,000

Frequency (MHz)

2490.000

2500,000

2510,000

2520,000

2533.500

- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.

2470,000

4. "\*", means this data is the worst emission level.

2450,000

5. Measurement Level = Reading Level + Correct Factor.

2460,000

6. The average measurement was not performed when the peak measured data under the limit of average detection.

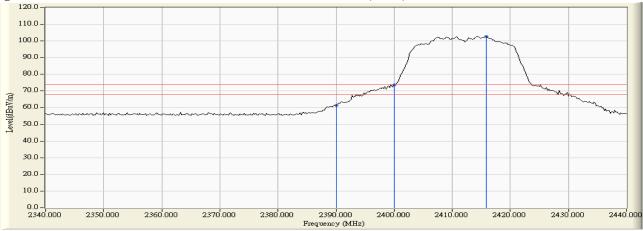
Product	:	Wireless LAN DSC
Test Item	:	Band Edge Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW)

#### **RF Radiated Measurement (Horizontal):**

Channel No.	Frequency	Correct Factor	Reading Level	<b>Emission Level</b>	Peak Limit	Average Limit	Result
Channel No.	(MHz)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dBuV/m)	Result
01 (Peak)	2390.000	31.509	29.871	61.380	74.00	54.00	Pass
01 (Peak)	2400.000	31.561	42.067	73.628			
01 (Peak)	2415.800	31.667	71.054	102.721			
01 (Average)	2390.000	31.509	15.742	47.251	74.00	54.00	Pass
01 (Average)	2400.000	31.561	27.577	59.138			
01 (Average)	2414.800	31.660	58.258	89.918			

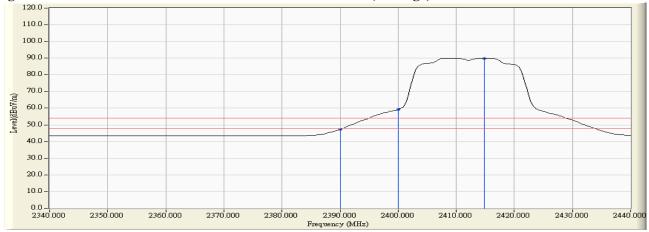
#### Figure Channel 01:

#### Horizontal (Peak)





#### Horizontal (Average)



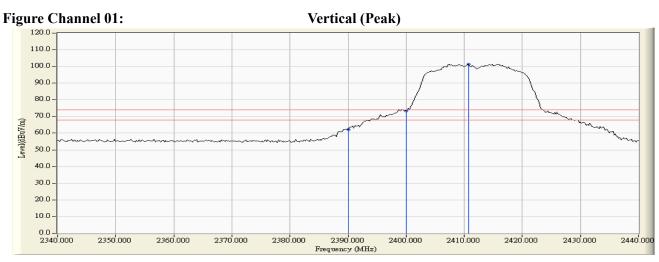
- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "\*", means this data is the worst emission level.
- 5. Measurement Level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

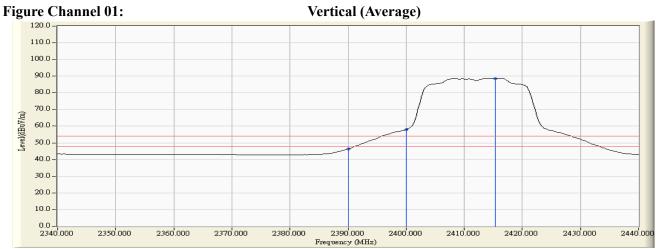


Product	:	Wireless LAN DSC
Test Item	:	Band Edge Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW)

#### **RF Radiated Measurement (Vertical):**

Channel No.	Frequency	Correct Factor	Reading Level	<b>Emission Level</b>	Peak Limit	Average Limit	Result
Channel No.	(MHz)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dBuV/m)	Result
01 (Peak)	2390.000	30.915	31.029	61.944	74.00	54.00	Pass
01 (Peak)	2400.000	30.912	42.288	73.200			
01 (Peak)	2410.800	30.942	70.552	101.494			
01 (Average)	2390.000	30.915	15.355	46.270	74.00	54.00	Pass
01 (Average)	2400.000	30.912	27.053	57.965			
01 (Average)	2415.400	30.972	57.660	88.632			





- 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.

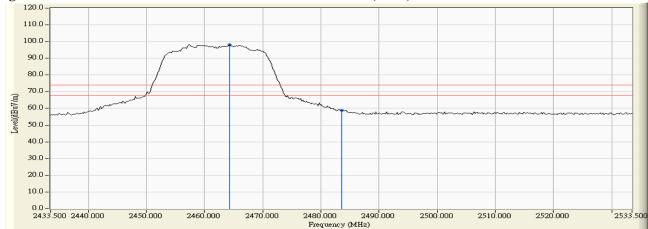
Product	:	Wireless LAN DSC
Test Item	:	Band Edge Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW)

#### **RF Radiated Measurement (Horizontal):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
11 (Peak)	2464.300	32.037	66.086	98.123			Pass
11 (Peak)	2483.500	32.182	26.723	58.905	74.00	54.00	Pass
11 (Average)	2465.900	32.049	53.372	85.421			Pass
11 (Average)	2483.500	32.182	12.883	45.065	74.00	54.00	Pass

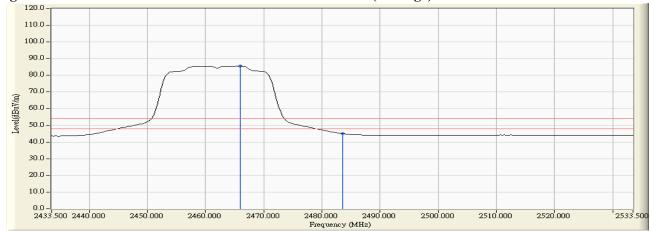
#### **Figure Channel 11:**

#### Horizontal (Peak)





Horizontal (Average)



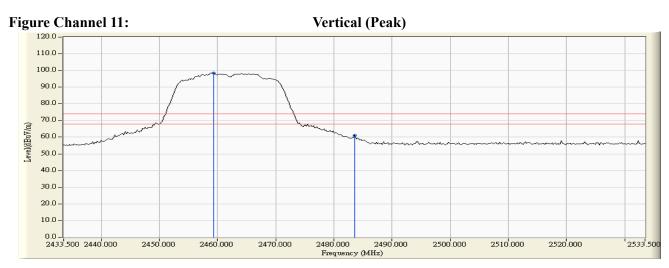
- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "\*", means this data is the worst emission level.
- 5. Measurement Level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



Product	:	Wireless LAN DSC
Test Item	:	Band Edge Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW)

#### **RF Radiated Measurement (Vertical):**

Channel No.	Frequency	Correct Factor	Reading Level	Emission Level	Peak Limit	Average Limit	Result
Channel NO.	(MHz)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dBuV/m)	Result
11 (Peak)	2459.300	31.272	67.333	98.605			Pass
11 (Peak)	2483.500	31.435	29.759	61.194	74.00	54.00	Pass
11 (Average)	2466.100	31.318	55.026	86.344			Pass
11 (Average)	2483.500	31.435	13.363	44.798	74.00	54.00	Pass





Vertical (Average)



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

### 7. Occupied Bandwidth

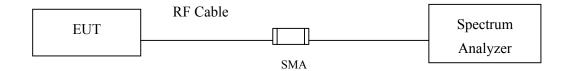
### 7.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2014
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2014
Х	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2014

#### 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 C63.10: 2009; tested according to DTS test procedure of KDB558074 for compliance to FCC 47CFR 15.247 requirements.

### 7.5. Uncertainty

 $\pm$  150Hz

# 7.6. Test Result of Occupied Bandwidth

Product	:	Wireless LAN DSC
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	8200	>500	Pass

### Figure Channel 1:

	AC	SENSE:INT	ALIGNAUTO		Frequency
enter Freq 2.41200	0000 GHz PNO: Fast G IFGain:Low	Trig: Free Run #Atten: 30 dB	Avg Type: Log-Pwr	TRACE 1 2 3 4 5 6 TYPE MWWWWW DET P N N N N N	Auto Tune
0 dB/div Ref 20.00 d	Bm		Mkr	2 2.407 90 GHz -2.68 dBm	
og 10.0					Center Fr
.00		Anny maria	3	-0.82 dBm	2.412000000 G
0.0	weby .		Van		
0.0	and the		N		Start Fr
	all a share		and a sea	000	2.387000000 G
man	- and b		Strange	No manage	
1.0 mphanetal				a manufacture	Stop Fr
0.0					2.437000000 0
enter 2.41200 GHz Res BW 100 kHz	#VBV	V 300 kHz	Sweep	Span 50.00 MHz 4.80 ms (1001 pts)	CF St
R MODE TRC SCL	×	Y FU	NCTION FUNCTION WIDTH		5.000000 N Auto N
1 N 1 f	2.412 50 GHz 2.407 90 GHz	5.18 dBm -2.68 dBm			
		-2.68 dBm			Freq Offs
2 N 1 f 3 N 1 f	2.416 10 GHz				
2 N 1 F 3 N 1 F 4 5	2.416 10 GHz				1.1.1.1.1.0.0000040 00.00000000
2 N 1 F 3 N 1 F 4 5 5 6	2.416 10 GHz				1.1.1.1.1.0.0000040 00.00000000
2 N 1 f 3 N 1 f 5 5 7 8	2.416 10 GHz				0
2 N 1 f	2.416 10 GHz				1.1.1.1.1.0.0000040 00.00000000

Product	:	Wireless LAN DSC
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	8150	>500	Pass

### Figure Channel 6:

RL RF 50	Ω AC	SENSE:INT	ALIGN AUTO		-
enter Freq 2.437	DOOOOO GHz PNO: Fast	Trig: Free Run	Avg Type: Log-Pwr	TRACE 1 2 3 4 5 6 TYPE MWWWWW	Frequency
	IFGain:Low	#Atten: 30 dB		DET P N N N N N	Auto Tur
dB/div Ref 20.00	) dBm		MKr	2 2.432 95 GHz -1.69 dBm	Auto Tu
og 0.0			3		Center Fro
.00		Marshin Mussen	∑¶	-0.51 dBm	2.437000000 G
0.0	- MA		My		
0.0	and the second sec		Y.		Start Fr
0.0	when phi		1 month	UM	2.412000000 G
D.O meneroward /			'V	Just man man and	Oton Fr
D.0 D.0					Stop Fr 2.462000000 G
				On en 60.00 Mile	
enter 2.43700 GHz Res BW 100 kHz		V 300 kHz	Sweep 4	Span 50.00 MHz 4.80 ms (1001 pts)	CF St 5.000000 M
R MODE TRC SCL	X		NCTION FUNCTION WIDTH	FUNCTION VALUE	Auto M
1 N 1 f 2 N 1 f 3 N 1 f	2.436 50 GHz 2.432 95 GHz	5.49 dBm -1.69 dBm			
3 N 1 f 4 5	2.441 10 GHz	-2.02 dBm			Freq Offs 0
5 6 7					U
9					
0					
1					

Product	:	Wireless LAN DSC
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	8150	>500	Pass

### Figure Channel 11:

		Mite		0.9				pt SA	nalyzer - Swe	ipectrum A	Agilent S
Frequency	E123456	TRAC	ALIGNAUTO : Log-Pwr	Avg Typ	NSE:INT	SE	7	AC 0000 GH		er Freg	XI RL Cente
Auto Tune	95 GHz	TYF De	Miles			Trig: Free #Atten: 30	IO: Fast 🕞 Jain:Low	PN	2.102.00		
	95 GHZ 37 dBm							Bm	ef 20.00 d	div Ro	10 dB/
Center Fr						A2					10.0 -
2.462000000 G	-0.52 dBm				Mun	MALANM					.00
				VY			Nor				0.0 — 0.0 —
Start Fr 2.437000000 0				N. K			Jan Martin Star				D.O —
2.437000000 G	-	my me	A Jacop	4			- <sup></sup>	many N	no Just		0.0
Stop Fr	the warden w	& min	¥					Lag Lag	and the second second	to franknyter	0.0
2.487000000											0.0
	0.00 MHz	Span 5							00 GHz	r 2.462	L ente
5.000000 N	1001 pts)	<u> </u>				300 kHz	#VBN			BW 100	
<u>Auto</u> N	IN VALUE	FUNCTIO	NCTION WIDTH	TION FL	Bm	5.48 d	0 GHz	× 2.462 50			1 N
Freq Offs					Bm Bm	-1.87 d -1.97 d	5 GHz 0 GHz	2.457 9 2.466 10			2 N 3 N
0					_						5
											6 7 8
											9 0
					_						1
			STATUS						- 1/2 		G

Product	:	Wireless LAN DSC
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	15200	>500	Pass

### Figure Channel 1:

Agilent Spectrum Analyzer - Swe					
M RL RF 50 Ω Center Freq 2.41200		SENSE:INT	ALIGNAUTO Avg Type: Log-Pwr	TRACE 1 2 3 4 5 6 TYPE MWWWWW DET P N N N N N	Frequency
10 dB/div Ref 20.00 d	IFGain:Low	#Atten: 30 dB	Mkr2	2 2.404 40 GHz -3.89 dBm	Auto Tune
10.0 0.00 -10.0	2 Martin	1	and and a	-2.83 dBm	Center Fre 2.412000000 GH
20.0 30.0 40.0	and the second sec			Mr. Mr. Marine	Start Fre 2.387000000 G⊦
50.0 60.0 70.0					<b>Stop Fre</b> 2.437000000 GH
Center 2.41200 GHz Res BW 100 kHz		300 kHz		Span 50.00 MHz I.80 ms (1001 pts) EUNOTION VALUE	CF Ste 5.000000 MH
MKF MODE FFC SCI   1 N 1 f -   2 N 1 f -   3 N 1 f -   4 - - - -   6 - - - -   7 - - - -   9 - - - -	X 2.413 30 GHz 2.404 40 GHz 2.419 60 GHz	3.17 dBm -3.89 dBm -3.18 dBm			Auto Ma Freq Offse
10 11 12 13 14 14 14 14 14 14 14 14 14 14 14 14 14			STATUS		

Product	:	Wireless LAN DSC
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	15200	>500	Pass

### Figure Channel 6:

Agilent Spectrum Analyzer - Swej	pt SA				
RL RF 50 Ω Center Freq 2.43700	AC 0000 GHz	SENSE:INT	ALIGNAUTO Avg Type: Log-Pwr	TRACE 1 2 3 4 5 6	Frequency
10 dB/div Ref 20.00 d	PNO: Fast 😱 IFGain:Low	J <sup>⊥</sup> Trig: Free Run #Atten: 30 dB	Mkr2	2.429 40 GHz -5.26 dBm	Auto Tun
-99 10.0 0.00	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	had how the offer the advertised	where a start of the start of t	-3.35 dBm	Center Fre 2.437000000 GH
20.0 30.0 40.0	- ALENA MARTIN			WW. Madel marken marken	<b>Start Fre</b> 2.412000000 GH
50.0 60.0 70.0					<b>Stop Fre</b> 2.462000000 GH
Center 2.43700 GHz Res BW 100 kHz	#VBW	300 kHz	Sweep 4.3	Span 50.00 MHz 80 ms (1001 pts) FUNCTION VALUE	CF Ste 5.000000 Mi Auto Mi
Mix Model File <th< td=""><td>2,438 25 GHz 2,429 40 GHz 2,444 60 GHz</td><td>2.65 dBm -5.26 dBm -4.06 dBm</td><td></td><td></td><td>Freq Offs 0 H</td></th<>	2,438 25 GHz 2,429 40 GHz 2,444 60 GHz	2.65 dBm -5.26 dBm -4.06 dBm			Freq Offs 0 H
9 10 11 12 13 14 14 14 14 14 14 14 14 14 14 14 14 14			STATUS		

Product	:	Wireless LAN DSC
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	15200	>500	Pass

### Figure Channel 11:

enter Freq 2.46200		Trig: Free Run #Atten: 30 dB	ALIGN AUTO Avg Type: Log-Pwr	TRACE 1 2 3 4 5 6 TYPE MWWWWW DET P N N N N N	Frequency
dB/div Ref 20.00 d			Mkr2	2.454 40 GHz -4.81 dBm	Auto Tun
<b>Pg</b> 0.0 .00 0.0	2 phantae	hadrandhargen and hard	3	-3:47 dBm	Center Fre 2.462000000 GH
0.0 0.0 0.0 0.0 0.0 0.0 0 0.0	withmailmonipal at			WWW Charles and the second	Start Fre 2.437000000 GH
0.0					<b>Stop Fre</b> 2.487000000 GF
enter 2.46200 GHz Res BW 100 kHz		V 300 kHz	Sweep 4.	Span 50.00 MHz 80 ms (1001 pts)	CF Ste 5.000000 MI
KR MODE TRC SEL   1 N 1 f   2 N 1 f   3 N 1 f   4 - - -   5 - - -   6 - - -   7 - - -   9 - - -   0 - - -   1 - - -	X 2.453 30 GHz 2.454 40 GHz 2.469 60 GHz	2.53 dBm -4.81 dBm -3.87 dBm		FUNCTION VALUE	Auto Ma FreqOffs 01

Product	:	Wireless LAN DSC
Test Item	:	Occupied Bandwidth Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW) (2412MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
1	2412	15200	>500	Pass

### Figure Channel 1:

gilent Spectrum Analyzer - Swept SA						
RL RF 50 Ω AC	CH-7	SENSE		ALIGNAUTO : Log-Pwr	TRACE 1 2 3 4 5 6	Frequency
senter Freq 2.4 1200000	PNO: Fast IFGain:Low	Trig: Free Ru #Atten: 30 dB	un			
0 dB/div Ref 20.00 dBm				Mkr2	2.404 40 GHz -6.62 dBm	Auto Tur
10.0		7	∧ <sup>1</sup> 2			Center Fre
0.00	put 2	Another levelon por	Mula Andrahan Lung		-4.84 dBm	2.412000000 G
0.0						Otort Fr
0.0	Norman			War with the		Start Fr 2.387000000 G
0.0 whyther the description of the second se					www.houthouthouthouthouthouthouthouthouthout	
0.0						Stop Fr 2.437000000 G
enter 2.41200 GHz Res BW 100 kHz	#VBW	/ 300 kHz		Sweep 4.	Span 50.00 MHz 80 ms (1001 pts)	
R MODE TRC SCL X	13 30 GHz	1.16 dBm		NCTION WIDTH	FUNCTION VALUE	Auto N
2 N 1 f 2.4 3 N 1 f 2.4	04 40 GHz 19 60 GHz	-6.62 dBm -5.46 dBm	n l			Freq Offs
4 5 6						0
8						
9 0						
2						
G				STATUS		an 19

Product	:	Wireless LAN DSC
Test Item	:	Occupied Bandwidth Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW) (2437MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
6	2437	15200	>500	Pass

### Figure Channel 6:

Agilent Spectrum Analyzer - Sw	ept SA				
₩ RL RF 50 Ω Center Freq 2,4370		SENSE:INT	ALIGNAUTO Avg Type: Log-Pwr	TRACE 1 2 3 4 5 6	Frequency
center Freq 2.43700	PNO: Fast 🖵 IFGain:Low	Trig: Free Run #Atten: 30 dB	Avg Type. Log+ wi	TYPE MWWWWW DET P N N N N N	. 31 52
10 dB/div Ref 20.00	dBm		Mkr2 2	.429 40 GHz -6.88 dBm	Auto Tun
-og 10.0 0.00 10.0	2 martine	- Antoning miling	3	-5,30 dBm	Center Fre 2.437000000 GH
20.0 30.0 40.0 50.0 (0.4)[1/10/09][1/10/00][1/10/00][1/10][1	www.www.www		honordhanondhan	White Merchanger	Start Fre 2.412000000 GH
50.0 0000000000000000000000000000000000					<b>Stop Fre</b> 2.462000000 Gi
enter 2.43700 GHz Res BW 100 kHz	#VBW	300 kHz		Span 50.00 MHz 0 ms (1001 pts)	<b>CF Ste</b> 5.000000 MI
KR MODE TRC SCL 1 N 1 f 2 N 1 f	× 2.438 30 GHz 2.429 40 GHz	0.70 dBm -6.88 dBm	JNCTION FUNCTION WIDTH	FUNCTION VALUE	Auto M
3 N 1 f 4 5 6 8	2.444 60 GHz	-6.20 dBm			Freq Offs 01
7 8 9 10					
12 5G			STATUS		

Product	:	Wireless LAN DSC
Test Item	:	Occupied Bandwidth Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW) (2462MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
11	2462	16050	>500	Pass

### Figure Channel 11:

Agilent Spectrum Analyzer - Swept SA					
RL RF 50 Ω AC Center Freg 2.462000000 GHz	SENS	E:INT Avg Type	ALIGNAUTO : Log-Pwr TRA	CE 1 2 3 4 5 6	Frequency
PNO: Fas IFGain:Lo		Run	Τ\ [	PE MWWWWW DET P N N N N N	Auto Tun
10 dB/div Ref 20.00 dBm			Mkr2 2.453 -6.	55 GHZ 16 dBm	
10.0		∑ <sup>1</sup>			Center Fre
0.00		The hard and and a		-5.52 dBm	2.462000000 GH
20.0					Start Fro
30.0 40.0 10000000000000000000000000000000000			Wanter modeling	. de	2.437000000 GI
50.0				the multing	
50.0					Stop Fre 2.487000000 G
Center 2.46200 GHz			Snan	50.00 MHz	
	/BW 300 kHz		Sweep 4.80 ms		CF Ste 5.000000 MI
KR MODE TRC SOL X   1 N 1 f 2.463 25 GHz		n	ICTION WIDTH FUNCT	ON VALUE	<u>Auto</u> M
2 N 1 f 2.453 55 GHz   3 N 1 f 2.469 60 GHz		n n			Freq Offs
4 5 6					01
8					
9					
11					
SG			STATUS		

### 8. **Power Density**

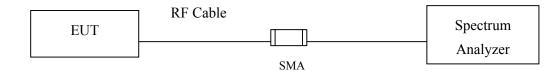
### 8.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2014
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2014
Х	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2014

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 C63.10, 2009; tested according to DTS test procedure of KDB 558074 for compliance to FCC 47CFR 15.247 requirements. The maximum power spectral density using KDB 558074 section 10.2 PKPSD (peak PSD) method.

### 8.5. Uncertainty

 $\pm$  1.27 dB

# 8.6. Test Result of Power Density

Product	:	Wireless LAN DSC
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	5.483	< 8dBm	Pass

## Figure Channel 1:

gilent Spectrum Analyzer - Swept SA RL RF 50Ω AC		CEN	SE:INT		ALIGN AUTO		
Center Freg 2.41200000	0 GHz	1		Avg Type	: Log-Pwr	TRACE 1 2 3 4	Frequency
0 dB/div Ref 20.00 dBm	PNO: Wide 🏳 IFGain:Low	┘ Trig: Free #Atten: 30	Run dB	Avg Hold:		түре Мижиу Det P N N N 5.483 dE	Hz Auto Tur
10.0		M	1-	Δο			Center Fre 2.412000000 GH
		у М				w	Start Fre 2.405850000 GH
30.0							<b>Stop Fre</b> 2.418150000 GF
0.0							CF Ste 1.230000 M Auto M
0.0							Freq Offs
Center 2.412000 GHz						Span 12.30 M	1Hz
Res BW 100 kHz	#VBW	300 kHz			Sweep	1.20 ms (1001 p	ots)
SG					STATUS	3	

Product	:	Wireless LAN DSC
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	5.591	< 8dBm	Pass

### Figure Channel 6:

RL RF 50 Ω enter Freg 2.437000	AC 000 GHz	SENSE:INT	ALIGN AUT Avg Type: Log-Pw	r TRACE 1 2 3 4 5 6	Frequency
dB/div Ref 20.00 dE	PNO: Wide 🖵 IFGain:Low	<sup>⊣</sup> Trig: Free Run #Atten: 30 dB	Avg Hoid>100/100	TYPE MWWWWW DET P NNNNN 1 2.436 511 GHz 5.591 dBm	Auto Tui
.0		1			Center Fr 2.437000000 G
	man		Andapada	Anny V	Start Fr 2.430887500 G
0					Stop Fr 2.443112500 G
0					CF St 1.222500 M Auto M
0					Freq Off 0
0					
nter 2.437000 GHz es BW 100 kHz	#VBM	300 kHz	Sween	Span 12.23 MHz 1.20 ms (1001 pts)	

Product	:	Wireless LAN DSC
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	5.503	< 8dBm	Pass

### Figure Channel 11:

RL RF 50 Ω A0		SENSE:INT	ALIGN AUTO Avg Type: Log-Pwr		Frequency
enter Freq 2.4620000	PNO: Wide C IFGain:Low	Trig: Free Run #Atten: 30 dB	Avg Hold:>100/100	TYPE MWWWWW DET P N N N N N	
dB/div Ref 20.00 dBn	n		Mkr	1 2.462 526 GHz 5.503 dBm	Auto Tui
0.0		<b>↓</b> 1			Center Fr 2.462000000 Gi
	mm	m r	Ampan	man	Start Fr 2.455887500 G
0.0				$\sim$	Stop Fr 2.468112500 G
.0					CF St
.0					1.222500 M <u>Auto</u> N
.0					Freq Offs 0
.0					
enter 2.462000 GHz Res BW 100 kHz	#VBW	300 kHz	Sween	Span 12.23 MHz 1.20 ms (1001 pts)	

Product	:	Wireless LAN DSC
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	2.943	< 8dBm	Pass

### Figure Channel 1:

RL RF 50 Ω enter Freq 2.412000		SENSE:INT	ALIGNAUTO Avg Type: Log-Pwr Avg Hold:>100/100		6 Frequency
) dB/div Ref 20.00 dE	PNO: Fast G IFGain:Low	#Atten: 30 dB		DET P NNNN 1 2.413 277 GH 2.943 dBr	z Auto Tun
0.0		1			Center Fre 2.412000000 GF
0.0	Amerikan tangah	windmy produc	Mennethanthrough	mmlay	Start Fro 2.400600000 G
0.0 when we want the second se					Stop Fr 2.423400000 G
.0					CF Sto 2.280000 M <u>Auto</u> M
0.0					Freq Offs
D.0					_
enter 2.41200 GHz Res BW 100 kHz	#VBW	300 kHz	Sweep	Span 22.80 MH 2.20 ms (1001 pt	

Product	:	Wireless LAN DSC
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	2.765	< 8dBm	Pass

### Figure Channel 6:

RL	RF 50 Ω			SE	NSE:INT		ALIGN AUTO		_	Frequency
enter F	req 2.4370	Р	<b>−IZ</b> NO: Fast ⊊ Gain:Low	Trig: Free #Atten: 30		Avg Type Avg Hold:	: Log-Pwr >100/100	TRAC TYP DE	E 123456 E M <del>WWWW</del> T P N N N N N	Trequency
) dB/div	Ref 20.00		Sum Low				Mkr1	2.438 2 2.7	77 GHz 65 dBm	Auto Tur
og										Center Fre
0.0					<b>●</b> 1					2.437000000 GI
00		mant	monternat	wontron	mon	monor	Month	Tran A		Start Fr
0.0			0		۰۶ 			I'm Pun		2.425600000 G
0.0	af a l							4		
22	المم م								λ. 	Stop Fr 2.448400000 G
).0 YY	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~								~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	
1.0										CF St 2.280000 M
0.0								-		<u>Auto</u> M
.0										Freq Offs
										. 0
).0										
	.43700 GHz	<u> </u>		200 1-11-			<b>.</b>		2.80 MHz	
tes DW	/ 100 kHz		#VBW	300 kHz			oweep	2.20 ms (	roor prs)	

Product	:	Wireless LAN DSC
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	2.504	< 8dBm	Pass

### Figure Channel 11:

RL RF 50 Ω AC	GH7	SENSE:INT	Avg Type	ALIGNAUTO	TRAC	E123456	Frequency
2.4020000	PNO: Fast	Trig: Free Run /Atten: 30 dB	Avg Hold:	> 100/100	TYP	E MWWWWW T P N N N N N	
0 dB/div Ref 20.00 dBm				Mkr1		77 GHz 04 dBm	Auto Tur
							Center Fre
0.0		1					2.462000000 Gł
.00	un transmiter you have	maring munther	al brown trug	Manala	4		
0.0	Se par de opri-	Ψ			amoling		Start Fr 2.450600000 G
لي الم					L L		
D.O						1	Stop Fr
			-			2 2010-10-10-10-10-10-10-10-10-10-10-10-10-	2.473400000 G
Y.						ካህ	CF St
0.0							2.280000 M
0.0							<u>Auto</u> M
0.0							Freq Offs
							0
0.0							
enter 2.46200 GHz						2.80 MHz	
Res BW 100 kHz	#VBW 3	00 kHz		Sweep	2.20 ms (	1001 pts)	

Product	:	Wireless LAN DSC
Test Item	:	Power Density Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW) (2412MHz)

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
1	2412	1.216	< 8dBm	Pass

# Figure Channel 1:

dB/div Ref 20.00	PNO: Fast 🕞 IFGain:Low	Trig: Free #Atten: 30		Avg Hold:			EMWWWW	
pg	dBm					DE 2.413 2	PNNNNN	Auto Tun
0.0								<b>Center Fr</b> 2.412000000 G
00 00 00 00 00 000 000 000 000 000 000	portron handrand	hoursel	million	Wyerdowy	Munh	www.hushn		<b>Start Fr</b> 2.400600000 G
1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0							V.	<b>Stop Fr</b> 2.423400000 G
.0							White the second	CF St 2.280000 M <u>Auto</u> M
.0								Freq Offs 0
enter 2.41200 GHz Res BW 100 kHz	#VBV	V 300 kHz			Sweep	Span 23 2.20 ms (1	2.80 MHz 1001 pts)	

:	Wireless LAN DSC
:	Power Density Data
:	No.3OATS
:	Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW) (2437MHz)
	:

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
6	2437	0.848	< 8dBm	Pass

### Figure Channel 6:

enter Freq 2.4370000	AC 000 GHz PNO: Fast 😱	SENSE:INT Trig: Free Run	ALIGNAUT Avg Type: Log-Pw Avg Hold:>100/100		456 Frequency
dB/div Ref 20.00 dB	IFGain:Low	#Atten: 30 dB	Mkr	1 2.438 277 G 0.848 dl	Hz Auto Tur
0.0					Center Fr 2.437000000 G
0.0 prayah (mor ~	lana barantana d	weberson produ	man Anna Anna	hampion	Start Fr 2.425600000 G
0.0 0.0 mm/V/1ml					Stop Fr 2.448400000 G
0.0 0.0				Nov Nov	CF St 2.280000 M <u>Auto</u> M
0.0					Freq Offs
0.0					
enter 2.43700 GHz Res BW 100 kHz	#VBW	300 kHz	Sweer	Span 22.80 M 2.20 ms (1001	

Product	:	Wireless LAN DSC
Test Item	:	Power Density Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 3: Transmit (802.11n MCS0 7.2Mbps 20M-BW) (2462MHz)

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
11	2462	0.580	< 8dBm	Pass

## Figure Channel 11:

enter Freq 2.4620		SENSE:INT	ALIGNAUTO Avg Type: Log-Pwr Avg Hold:>100/100	TRACE 1 2 3 4 5 6 TYPE MWWWWW DET P N N N N	+
dB/div Ref 20.00	IFGain:Low d <b>Bm</b>	#Atten: 30 dB	Mkr1	2.463 252 GHz 0.580 dBm	Auto Tun
0.0		<b>_</b> 1			Center Fre 2.462000000 GF
0.00 .00	montantanta	mandoney with	+ banker bank	Munny	Start Fro 2.449962500 G
0.0 May Martin Martin					<b>Stop Fr</b> 2.474037500 G
0.0				wybryn.	CF Sto 2.407500 M <u>Auto</u> M
0.0					Freq Offs
0.0					
enter 2.46200 GHz Res BW 100 kHz	#VE	300 kHz	Sweep	Span 24.08 MHz 2.33 ms (1001 pts)	

# 9. EMI Reduction Method During Compliance Testing

No modification was made during testing.