



## FCC PART 15.247 TEST REPORT

For

## **NEXXT SOLUTIONS**

3505 N.W 107TH AVE. MIAMI FLORIDA 33178 U.S.A

FCC ID: X4Y150U1

Report Type: Product Type: Wireless-N Broadband Router Original Report Test Engineer: Ares Liu **Report Number:** R1DG120710002-00A **Report Date:** 2012-07-27 fram Car Ivan Cao **Reviewed By:** EMC Engineer Bay Area Compliance Laboratories Corp. (Shenzhen) 6/F, the 3rd Phase of WanLi Industrial Building, ShiHua Road, FuTian Free Trade Zone Shenzhen, Guangdong, China Prepared By: Tel: +86-755-33320018 Fax: +86-755-33320008 www.baclcorp.com.cn

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\* This report contains data that are not covered by the NVLAP accreditation and are marked with an asterisk "\(\psi\)" (Rev.2)

## **TABLE OF CONTENTS**

GENERAL INFORMATION	4
PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT)	4
OBJECTIVE	
RELATED SUBMITTAL(S)/GRANT(S)	4
TEST METHODOLOGY	
TEST FACILITY	5
SYSTEM TEST CONFIGURATION	6
DESCRIPTION OF TEST CONFIGURATION	6
EUT Exercise Software	6
EQUIPMENT MODIFICATIONS	6
SUPPORT EQUIPMENT	
External Cable	
PRINTER	
BLOCK DIAGRAM OF TEST SETUP	
SUMMARY OF TEST RESULTS	9
FCC §15.247 (i) & §1.1307 (b) (1) & §2.1091- MAXIMUM PERMISSIBLE EXPOSURE (MPE)	10
APPLICABLE STANDARD	10
FCC §15.203 - ANTENNA REQUIREMENT	11
APPLICABLE STANDARD	11
ANTENNA CONNECTOR CONSTRUCTION	11
FCC §15.207 (a) – AC LINE CONDUCTED EMISSIONS	12
APPLICABLE STANDARD	12
MEASUREMENT UNCERTAINTY	12
EUT Setup	12
EMI TEST RECEIVER SETUP	13
TEST PROCEDURE	
TEST EQUIPMENT LIST AND DETAILS	
TEST RESULTS SUMMARY	
TEST DATA	
FCC §15.209, §15.205 & §15.247(d) - SPURIOUS EMISSIONS	
APPLICABLE STANDARD	
MEASUREMENT UNCERTAINTY	
EUT SETUP	
EMI TEST RECEIVER & SPECTRUM ANALYZER SETUP	
TEST PROCEDURE	
TEST EQUIPMENT LIST AND DETAILS	
TEST RESULTS SUMMARY	
TEST DATA	
FCC §15.247(a) (2) – 6 dB EMISSION BANDWIDTH	33
APPLICABLE STANDARD	
Test Procedure	
TEST EQUIPMENT LIST AND DETAILS	33
TEST DATA	
FCC §15.247(b) (3) - MAXIMUM PEAK OUTPUT POWER	41

APPLICABLE STANDARD	
Test Procedure	
TEST EQUIPMENT LIST AND DETAILS	41
Test Data	41
FCC §15.247(d) – 100 kHz BANDWIDTH OF FREQUENCY BAND EDGE	49
APPLICABLE STANDARD	49
Test Procedure	49
TEST EQUIPMENT LIST AND DETAILS	49
TEST DATA	49
FCC §15.247(e) - POWER SPECTRAL DENSITY	54
APPLICABLE STANDARD	54
Test Procedure	54
TEST EQUIPMENT LIST AND DETAILS.	
TEST DATA	

#### **GENERAL INFORMATION**

#### **Product Description for Equipment under Test (EUT)**

The *NEXXT SOLUTIONS*'s product, model number: ARN01154U3 (*FCC ID: X4Y150U1*) or ("EUT") in this report is a Wireless-N Broadband Router, which was measured approximately:28.0 cm (L) x9.5cm (W) x2.0cm (H), rated input voltage: DC 9V from adapter.

Report No.: R1DG120710002-00A

Adapter information: Model: TEA09U-09060

Input: 100-240V, 50/60Hz,0.3A

Output: 9V, 0.6A

Frequency Range:

802.11b/g/n20: 2412-2462MHz 802.11n40: 2422-2452MHz

#### **Objective**

This report is prepared on behalf of *NEXXT SOLUTIONS* in accordance with Part 2-Subpart J, Part 15-Subparts A, B and C of the Federal Communication Commissions rules.

The tests were performed in order to determine the compliance of the EUT with FCC Part 15-Subpart C, section 15.203, 15.205, 15.207, 15.209 and 15.247 rules.

#### Related Submittal(s)/Grant(s)

FCC Part 15B JBP submissions with FCC ID: X4Y150U1.

#### **Test Methodology**

All measurements contained in this report were conducted with ANSI C63.4-2009, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

All emissions measurement was performed and Bay Area Compliance Laboratories Corp. (Dongguan). The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

The uncertainty of any RF tests which use conducted method measurement is  $\pm 0.96$  dB, the uncertainty of any radiation on emissions measurement is  $\pm 4.0$  dB

FCC Part 15.247 Page 4 of 61

<sup>\*</sup> All measurement and test data in this report was gathered from production sample serial number:120710002 (Assigned by BACL,Dongguan). The EUT was received on 2012-07-11.

#### **Test Facility**

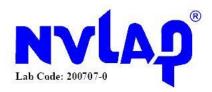
The Test site used by Bay Area Compliance Laboratories Corp. (Dongguan) to collect test data is located on the No.69 Pulongcun, Puxinhu Industrial Zone, Tangxia, Dongguan, Guangdong, China

Report No.: R1DG120710002-00A

Test site at Bay Area Compliance Laboratories Corp. (Dongguan) has been fully described in reports submitted to the Federal Communication Commission (FCC). The details of these reports have been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on February 02, 2012. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2009.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 273710. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

Additionally, Bay Area Compliance Laboratories Corp. (Shenzhen) is an ISO/IEC 17025 accredited laboratory, and is accredited by National Voluntary Laboratory Accredited Program (Lab Code 200707-0).



The current scope of accreditations can be found at <a href="http://ts.nist.gov/Standards/scopes/2007070.htm">http://ts.nist.gov/Standards/scopes/2007070.htm</a>

FCC Part 15.247 Page 5 of 61

## **SYSTEM TEST CONFIGURATION**

#### **Description of Test Configuration**

For 802.11b and 802.11g, 802.11n20 mode, 11 channels are provided to testing:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2412	7	2442
2	2417	8	2447
3	2422	9	2452
4	2427	10	2457
5	2432	11	2462
6	2437	/	/

Report No.: R1DG120710002-00A

EUT for 802.11b, 802.11g and 802.11 n20 modes were tested with Channel 1, 6 and 11.

For 802.11n40 mode, 7 channels are provided to testing:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2422	6	2447
2	2427	7	2452
3	2432	/	/
4	2437	/	/
5	2442	/	/

EUT was tested with Channel 1, 4 and 7.

The worst-case data rates are determined to be as follows for each mode based upon investigations by measuring the average power and PSD across all date rates bandwidths, and modulations.

#### **EUT Exercise Software**

The test was performed under "Duck 1.1.9" which was provided by the manufacturer.

### **Equipment Modifications**

No modification was made to the EUT tested.

FCC Part 15.247 Page 6 of 61

## **Support Equipment**

Manufacturer	Description	Model	Serial Number
Dell	Notebook	PP11L	N/A
DELL	Keyboard	SK-8115	CN-ODJ313-716716-05A-0DS0
HP	Printer	C3941A	JPTVO13237
SAST	Modem	AEM-2100	090200213
DELL	PC	GX620	CK2Z891

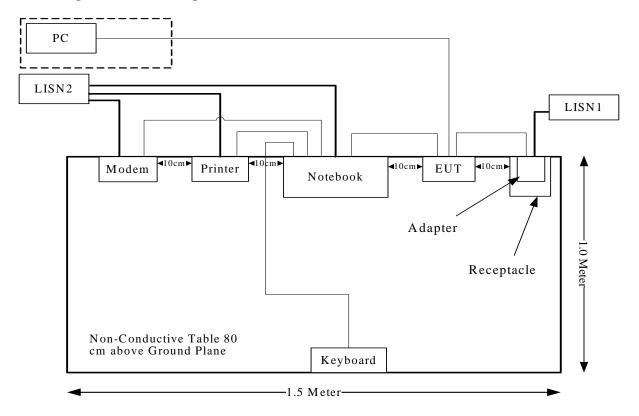
Report No.: R1DG120710002-00A

## **External Cable**

Cable Description	Length (m)	From Port	То
Shielded Detachable Printer Cable	1.2	Parallel Port of Notebook	Printer
Shielded Detachable Serial Cable	1.2	Serial Port of Notebook	Modem
RJ45 cable	1.2	RJ45 port of Notebook	EUT
RJ45 cable	10	RJ45 port of PC	EUT
Shielded Detachable Keyboard Cable	1.5	Keyboard Port of Notebook	Keyboard

FCC Part 15.247 Page 7 of 61

## **Block Diagram of Test Setup**



FCC Part 15.247 Page 8 of 61

## **SUMMARY OF TEST RESULTS**

FCC Rules	Description of Test	Result
§15.247 (i), §1.1307 (b)(1), §2.1091	Maximum Permissible exposure (MPE)	Compliance
§15.203	Antenna Requirement	Compliance
§15.207 (a)	AC Line Conducted Emissions	Compliance
§15.247(d)	Spurious Emissions at Antenna Port Compl	
\$15.205, \$15.209, \$15.247(d)	Spurious Emissions	Compliance
§15.247 (a)(2)	6 dB Emission Bandwidth Complia	
§15.247(b)(3)	Maximum Peak Output Power Compli	
§15.247(d)	100 kHz Bandwidth of Frequency Band Edge Complian	
§15.247(e)	Power Spectral Density Compliance	

Report No.: R1DG120710002-00A

FCC Part 15.247 Page 9 of 61

# FCC §15.247 (i) & §1.1307 (b) (1) & §2.1091- MAXIMUM PERMISSIBLE EXPOSURE (MPE)

#### **Applicable Standard**

According to subpart 15.247(i)and subpart §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

Report No.: R1DG120710002-00A

Limits for Maximum Permissible Exposure (MPE) (§1.1310, §2.1091)

(B) Limits for General Population/Uncontrolled Exposure					
Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm²)	Averaging Time (minutes)	
0.3–1.34	614	1.63	*(100)	30	
1.34–30	824/f	2.19/f	*(180/f²)	30	
30–300	27.5	0.073	0.2	30	
300–1500	/	/	f/1500	30	
1500-100,000	/	/	1.0	30	

f = frequency in MHz; \* = Plane-wave equivalent power density;

According to §1.1310 and §2.1091 RF exposure is calculated.

#### **Calculated Formulary:**

Predication of MPE limit at a given distance

 $S = PG/4\pi R^2 = power density (in appropriate units, e.g. mW/cm^2);$ 

P = power input to the antenna (in appropriate units, e.g., mW);

G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor, is normally numeric gain;

R = distance to the center of radiation of the antenna (appropriate units, e.g., cm);

#### **Calculated Data:**

Mode	Frequency	Ante	nna Gain	Cond Pov		Evaluation Distance	Power Density	MPE Limit
	(MHz)	(dBi)	(numeric)	(dBm)	(mW)	(cm)	$(mW/cm^2)$	(mW/cm <sup>2</sup> )
802.11b	2412	5	3.16	15.68	36.98	20	0.0233	1.0
802.11g	2437	5	3.16	12.87	19.36	20	0.0122	1.0
802.11n ht20	2412	5	3.16	12.65	18.41	20	0.0116	1.0
802.11n ht40	2437	5	3.16	12.41	17.42	20	0.0110	1.0

Result: The device meet FCC MPE at 20cm distance

FCC Part 15.247 Page 10 of 61

## FCC §15.203 - ANTENNA REQUIREMENT

#### **Applicable Standard**

According to § 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the user of a standard antenna jack or electrical connector is prohibited. The structure and application of the EUT were analyzed to determine compliance with section §15.203 of the rules. §15.203 state that the subject device must meet the following criteria:

Report No.: R1DG120710002-00A

- a. Antenna must be permanently attached to the unit.
- b. Antenna must use a unique type of connector to attach to the EUT. Unit must be professionally installed, and installer shall be responsible for verifying that the correct antenna is employed with the unit.

## **Antenna Connector Construction**

The EUT has a dipole antennas permanently attached to the EUT, which complied with 15.203, the maximum gain is 5.0dBi, please refer to the internal photos.

Result: Compliance.

FCC Part 15.247 Page 11 of 61

## FCC §15.207 (a) – AC LINE CONDUCTED EMISSIONS

#### **Applicable Standard**

FCC§15.207

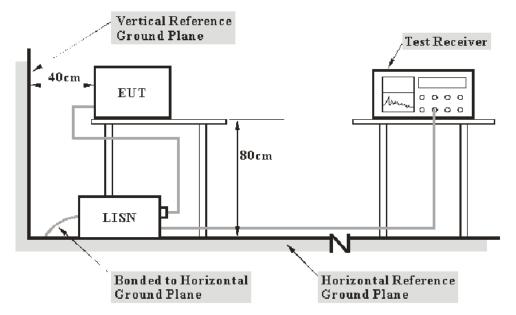
#### **Measurement Uncertainty**

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, and LISN.

Report No.: R1DG120710002-00A

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement at Bay Area Compliance Laboratory Corp. (Dongguan) is  $\pm 2.4$  dB (k=2, 95% level of confidence).

## **EUT Setup**



Note: 1. Support units were connected to second LISN.

2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The setup of EUT is according with per ANSI C63.4-2009 measurement procedure. The specification used was with the FCC Part 15.207 limits.

The spacing between the peripherals was 10 cm.

The adapter was connected to a 120 VAC/60 Hz power source

FCC Part 15.247 Page 12 of 61

## **EMI Test Receiver Setup**

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

Report No.: R1DG120710002-00A

Frequency Range	IF B/W
150 kHz – 30 MHz	9 kHz

#### **Test Procedure**

During the conducted emission test, the adapter was connected to the first LISN and the other support equipments were connected to the outlet of the second LISN.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All data was recorded in the Quasi-peak and average detection mode.

#### **Test Equipment List and Details**

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Reciever	ESCS 30	830245/006	2011-10-08	2012-10-07
Rohde & Schwarz	LISN	ESH3-Z5	843331/015	2011-10-08	2012-10-07
Rohde & Schwarz	LISN	ESH3-Z5	100113	2011-10-08	2012-10-07

<sup>\*</sup> Statement of Traceability: Bay Area Compliance Laboratory Corp. (Dongguan) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

#### **Test Results Summary**

According to the recorded data in following table, the EUT complied with the <u>FCC Part 15.207</u>, with the worst margin reading of:

7.81 dB at 0.495 MHz in the Line/Neutral conducted mode

#### **Test Data**

#### **Environmental Conditions**

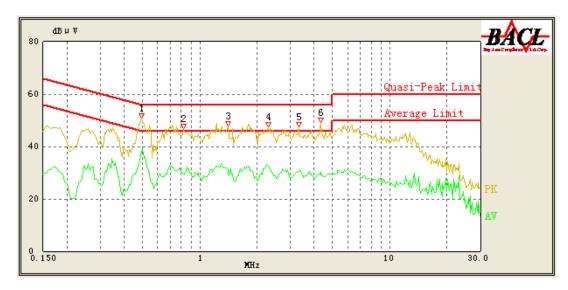
Temperature:	25 ° C
Relative Humidity:	48 %
ATM Pressure:	100.0 kPa

The testing was performed by Ares Liu on 2012-07-26.

FCC Part 15.247 Page 13 of 61

Test Mode: Transmitting

## 120 V, 60 Hz, Line:

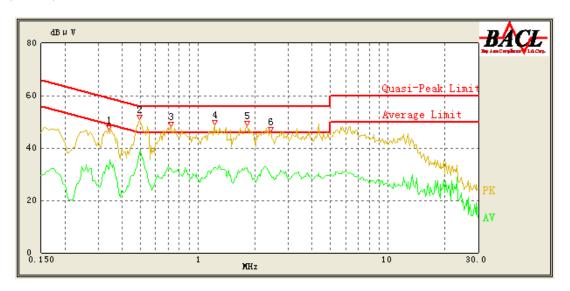


Report No.: R1DG120710002-00A

Frequency (MHz)	Corrected Result (dBµV)	Correction Factor (dB)	Limit (dBµV)	Margin (dB)	Detector (PK/QP/Ave.)
0.495	38.33	0.42	46.14	7.81	Ave.
0.495	47.37	0.42	56.14	8.77	QP
2.275	32.80	0.48	46.00	13.20	Ave.
2.290	41.68	0.48	56.00	14.32	QP
0.825	41.46	0.44	56.00	14.54	QP
1.405	31.02	0.46	46.00	14.98	Ave.
3.335	30.56	0.49	46.00	15.44	Ave.
4.335	30.31	0.50	46.00	15.69	Ave.
3.330	39.74	0.49	56.00	16.26	QP
0.820	29.63	0.44	46.00	16.37	Ave.
1.405	39.47	0.46	56.00	16.53	QP
4.335	38.86	0.50	56.00	17.14	QP

FCC Part 15.247 Page 14 of 61

## 120V, 60 Hz, Neutral:



Report No.: R1DG120710002-00A

Frequency (MHz)	Corrected Result (dBµV)	Correction Factor (dB)	Limit (dBµV)	Margin (dB)	Detector (PK/QP/Ave.)
0.495	38.33	0.42	46.14	7.81	Ave.
0.495	46.61	0.42	56.14	9.53	QP
1.220	32.63	0.46	46.00	13.37	Ave.
1.825	32.57	0.47	46.00	13.43	Ave.
0.725	32.16	0.44	46.00	13.84	Ave.
2.410	31.51	0.48	46.00	14.49	Ave.
1.825	41.44	0.47	56.00	14.56	QP
1.230	41.10	0.46	56.00	14.90	QP
0.720	40.47	0.44	56.00	15.53	QP
2.415	39.68	0.48	56.00	16.32	QP
0.350	31.98	0.42	50.57	18.59	Ave.
0.350	41.21	0.42	60.57	19.36	QP

FCC Part 15.247 Page 15 of 61

## FCC §15.209, §15.205 & §15.247(d) - SPURIOUS EMISSIONS

#### **Applicable Standard**

FCC §15.247 (d); §15.209; §15.205;

#### **Measurement Uncertainty**

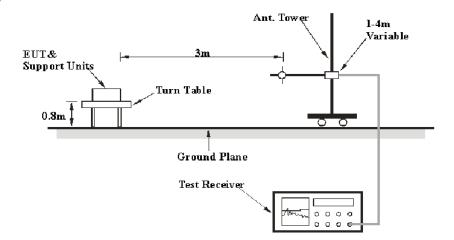
All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Report No.: R1DG120710002-00A

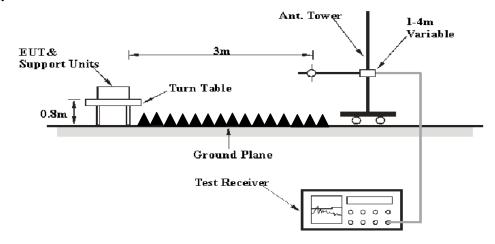
Based on CISPR 16-4-4, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement at Bay Area Compliance Laboratories Corp. (Dongguan) is  $4.0 \, dB(k=2, 95\%)$  level of confidence).

#### **EUT Setup**

#### **Below 1GHz:**



#### **Above 1GHz:**



FCC Part 15.247 Page 16 of 61

The radiated emission tests were performed in the 3 meters chamber test site, using the setup accordance with the ANSI C63.4-2009. The specification used was the FCC 15.209, and FCC 15.247 limits.

Report No.: R1DG120710002-00A

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.

The adapter was connected to a 120 VAC/60 Hz power source

#### **EMI Test Receiver & Spectrum Analyzer Setup**

The system was investigated from 30 MHz to 25 GHz.

During the radiated emission test, the EMI test receiver & Spectrum Analyzer Setup were set with the following configurations:

Frequency Range	RBW	Video B/W	Detector
30 MHz – 1000 MHz	100 kHz	300 kHz	QP
1000 MHz – 25 GHz	1 MHz	3 MHz	PK
1000 MHz – 25 GHz	1 MHz	10 Hz	Ave.

#### **Test Procedure**

During the radiated emission test, the adapter was connected to the first AC floor outlet and the other support equipments were connected to the second AC floor outlet.

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

Data was recorded in Quasi-peak detection mode for frequency range of 30 MHz-1 GHz, peak and Average detection modes for frequencies above 1 GHz.

#### **Corrected Amplitude & Margin Calculation**

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

Corrected Amplitude = Meter Reading + Antenna Factor + Cable Loss - Amplifier Gain

The "Margin" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:

Margin = Limit – Corrected Amplitude

FCC Part 15.247 Page 17 of 61

#### **Test Equipment List and Details**

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Reciever	ESCI	1166.5950.03	2011-10-08	2012-10-07
Sunol Sciences	Hybrid Antennas	JB3	A060611-1	2011-09-06	2012-09-05
HP	Pre-amplifier	8447E	2434A02181	2011-10-08	2012-10-07
R&S	Spectrum Analyzer	FSEM	1079 8500	2011-10-09	2012-10-08
Dayang	Horn Antenna	OMCDH10180	10279001B	2010-07-30	2015-07-29
Mini-Circuits	Wideband Amplifier	ZVA-183-S+	96901149	N/A	N/A

Report No.: R1DG120710002-00A

## **Test Results Summary**

According to the recorded data in following table, the EUT complied with the <u>FCC Title 47, Part 15, Section 15.205, 15.209 and 15.247</u>, with the worst margin reading of:

2.01 dB at 4824 MHz in the Vertical polarization (802.11b mode)

#### **Test Data**

#### **Environmental Conditions**

Temperature:	25 ° C
Relative Humidity:	48 %
ATM Pressure:	100.0 kPa

The testing was performed by Ares Liu on 2012-07-18.

FCC Part 15.247 Page 18 of 61

<sup>\*</sup> **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Mode: Transmitting

## 1) 30MHz-25GHz

## 802.11b Mode:

Frequency	Re	ceiver	Rx A	ntenna	Cable	Amplifier	Corrected	FCC 1	5.247
(MHz)	Reading (dBµV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)	loss (dB)	Gain (dB)	Amplitude (dBµV/m)	Limit (dBµV/m)	Margin (dB)
			Lov	w Channel:	2412(M	Hz)			
2412	50.83	AV	Н	31.11	3.93	0.00	85.86	N/A	N/A
2412	55.41	PK	Н	31.11	3.93	0.00	90.44	N/A	N/A
2412	69.62	AV	V	31.11	3.93	0.00	104.65	N/A	N/A
2412	74.51	PK	V	31.11	3.93	0.00	109.54	N/A	N/A
4824	41.24	AV	V	33.21	4.73	27.19	51.99	54.00	2.01*
3216.02	42.56	AV	V	31.25	4.96	27.42	51.35	54.00	2.65 *
2390	14.39	AV	V	30.98	3.84	0.00	49.22	54.00	4.78
2390	28.25	PK	V	30.98	3.84	0.00	63.08	74.00	10.92
610.4	34.61	QP	V	19.45	3.04	22.27	34.82	46.00	11.18
3216.02	47.36	PK	V	31.25	4.96	27.42	56.15	74.00	17.85
9648	14.94	AV	V	38.60	8.70	26.43	35.81	54.00	18.19
4824	43.43	PK	V	33.21	4.73	27.19	54.18	74.00	19.82
7236	15.22	AV	V	38.72	6.56	26.58	33.93	54.00	20.07
7236	34.56	PK	V	38.72	6.56	26.58	53.27	74.00	20.73
9648	31.45	PK	V	38.60	8.70	26.43	52.32	74.00	21.68
			Midd	lle Channe	l: 2437(N	MHz)			
2437	50.71	AV	Н	31.25	3.98	0.00	85.94	N/A	N/A
2437	55.28	PK	Н	31.25	3.98	0.00	90.51	N/A	N/A
2437	69.59	AV	V	31.25	3.98	0.00	104.82	N/A	N/A
2437	74.43	PK	V	31.25	3.98	0.00	109.66	N/A	N/A
4874	40.19	AV	V	33.32	4.76	27.03	51.25	54.00	2.75*
9748	14.54	AV	V	38.80	8.60	26.53	35.41	54.00	18.59
394.2	29.77	QP	V	15.99	2.41	21.76	26.41	46.00	19.59
7311	15.45	AV	V	38.86	6.70	26.65	34.36	54.00	19.64
4874	42.44	PK	V	33.32	4.76	27.03	53.50	74.00	20.50
7311	34.16	PK	V	38.86	6.70	26.65	53.07	74.00	20.93
9748	31.28	PK	V	38.80	8.60	26.53	52.15	74.00	21.85

Report No.: R1DG120710002-00A

FCC Part 15.247 Page 19 of 61

Frequency	Re	ceiver	Rx A	ntenna	Cable	Amplifier	Corrected	FCC 1	5.247
(MHz)	Reading (dBµV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)	loss (dB)	Gain (dB)	Amplitude (dBµV/m)	Limit (dBµV/m)	Margin (dB)
			Hig	h Channel:	2462(M	Hz)			
2462	50.25	AV	Н	31.39	3.93	0.00	85.57	N/A	N/A
2462	55.14	PK	Н	31.39	3.93	0.00	90.46	N/A	N/A
2462	69.49	AV	V	31.39	3.93	0.00	104.81	N/A	N/A
2462	74.05	PK	V	31.39	3.93	0.00	109.37	N/A	N/A
4924	40.49	AV	V	33.43	4.70	27.17	51.46	54.00	2.54 *
2483.5	14.46	AV	V	31.51	3.80	0.00	49.76	54.00	4.24
2483.5	31.18	PK	V	31.51	3.80	0.00	66.48	74.00	7.52
9848	14.46	AV	V	39.00	8.49	26.63	35.32	54.00	18.68
4924	43.24	PK	V	33.43	4.70	27.17	54.21	74.00	19.79
7386	14.34	AV	V	38.99	6.84	26.73	33.45	54.00	20.55
7386	33.85	PK	V	38.99	6.84	26.73	52.96	74.00	21.04
238.7	30.64	QP	V	12.19	1.87	21.48	23.21	46	22.79
9848	29.56	PK	V	39.00	8.49	26.63	50.42	74.00	23.58

<sup>\*</sup> Within measurement uncertainty.

FCC Part 15.247 Page 20 of 61

802.11g Mode:

Frequency	Re	ceiver	Rx A	ntenna	Cable	Amplifier	Corrected	FCC 1	5.247
(MHz)	Reading (dBµV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)	loss (dB)	Gain (dB)	Amplitude (dBµV/m)	Limit (dBµV/m)	Margin (dB)
			Lov	w Channel:	2412(MI	Hz)			
2412	48.84	AV	Н	31.11	3.93	0.00	83.87	N/A	N/A
2412	53.56	PK	Н	31.11	3.93	0.00	88.59	N/A	N/A
2412	67.85	AV	V	31.11	3.93	0.00	102.88	N/A	N/A
2412	72.46	PK	V	31.11	3.93	0.00	107.49	N/A	N/A
3216.02	43.15	AV	V	31.25	4.96	27.42	51.94	54.00	2.06 *
4824	39.34	AV	V	33.21	4.73	27.19	50.09	54.00	3.91 *
2390	14.75	AV	V	30.98	3.84	0.00	49.58	54.00	4.42
2390	29.02	PK	V	30.98	3.84	0.00	63.85	74.00	10.15
610.4	32.74	QP	V	19.45	3.04	22.27	32.95	46.00	13.05
9648	14.83	AV	V	38.60	8.70	26.43	35.70	54.00	18.30
3216.02	45.54	PK	V	31.25	4.96	27.42	54.33	74.00	19.67
7236	15.17	AV	V	38.72	6.56	26.58	33.88	54.00	20.12
4824	41.46	PK	V	33.21	4.73	27.19	52.21	74.00	21.79
7236	32.54	PK	V	38.72	6.56	26.58	51.25	74.00	22.75
9648	29.55	PK	V	38.60	8.70	26.43	50.42	74.00	23.58
			Midd	lle Channe	l: 2437(N	MHz)			
2437	48.64	AV	Н	31.25	3.98	0.00	83.87	N/A	N/A
2437	53.55	PK	Н	31.25	3.98	0.00	88.78	N/A	N/A
2437	67.5	AV	V	31.25	3.98	0.00	102.73	N/A	N/A
2437	72.54	PK	V	31.25	3.98	0.00	107.77	N/A	N/A
4874	38.27	AV	V	33.32	4.76	27.03	49.33	54.00	4.67
9748	14.38	AV	V	38.80	8.60	26.53	35.25	54.00	18.75
7311	14.47	AV	V	38.86	6.70	26.65	33.38	54.00	20.62
394.2	27.86	QP	V	15.99	2.41	21.76	24.50	46.00	21.50
4874	40.26	PK	V	33.32	4.76	27.03	51.32	74.00	22.68
7311	32.24	PK	V	38.86	6.70	26.65	51.15	74.00	22.85
9748	29.24	PK	V	38.80	8.60	26.53	50.11	74.00	23.89

Report No.: R1DG120710002-00A

FCC Part 15.247 Page 21 of 61

Frequency	Re	ceiver	Rx A	ntenna	Cable	Amplifier	Corrected	FCC 1	5.247		
(MHz)	Reading (dBµV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)	loss (dB)	Gain (dB)	Amplitude (dBµV/m)	Limit (dBµV/m)	Margin (dB)		
	High Channel: 2462(MHz)										
2462	48.27	AV	Н	31.39	3.93	0.00	83.59	N/A	N/A		
2462	53.15	PK	Н	31.39	3.93	0.00	88.47	N/A	N/A		
2462	67.64	AV	V	31.39	3.93	0.00	102.96	N/A	N/A		
2462	72.16	PK	V	31.39	3.93	0.00	107.48	N/A	N/A		
2483.5	14.34	AV	V	31.51	3.80	0.00	49.64	54.00	4.36		
4924	38.48	AV	V	33.43	4.70	27.17	49.45	54.00	4.55		
2483.5	29.26	PK	V	31.51	3.80	0.00	64.56	74.00	9.44		
9848	14.36	AV	V	39.00	8.49	26.63	35.22	54.00	18.78		
7386	14.24	AV	V	38.99	6.84	26.73	33.35	54.00	20.65		
4924	40.18	PK	V	33.43	4.70	27.17	51.15	74.00	22.85		
7386	31.27	PK	V	38.99	6.84	26.73	50.38	74.00	23.62		
238.7	29.38	QP	V	12.19	1.87	21.48	21.95	46	24.05		
9848	28.91	PK	V	39.00	8.49	26.63	49.77	74.00	24.23		

<sup>\*</sup> Within measurement uncertainty.

FCC Part 15.247 Page 22 of 61

## 802.11n20 Mode:

Frequency	Re	ceiver	Rx A	ntenna	Cable	Amplifier	Corrected	FCC 1	5.247
(MHz)	Reading (dBµV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)	loss (dB)	Gain (dB)	Amplitude (dBµV/m)	Limit (dBµV/m)	Margin (dB)
			Lo	w Channel:	2412(M	Hz)			
2412	49.24	AV	Н	31.11	3.93	0.00	84.27	N/A	N/A
2412	53.85	PK	Н	31.11	3.93	0.00	88.88	N/A	N/A
2412	68.42	AV	V	31.11	3.93	0.00	103.45	N/A	N/A
2412	72.84	PK	V	31.11	3.93	0.00	107.87	N/A	N/A
2390	14.69	AV	V	30.98	3.84	0.00	49.52	54.00	4.48
4824	38.52	AV	V	33.21	4.73	27.19	49.27	54.00	4.73
2390	29.54	PK	V	30.98	3.84	0.00	64.37	74.00	9.63
610.4	33.14	QP	V	19.45	3.04	22.27	33.35	46.00	12.65
3216.02	45.61	PK	V	31.25	4.96	27.42	54.40	67.84	13.44
3216.02	43.34	AV	V	31.25	4.96	27.42	52.13	67.84	15.71
9648	14.61	AV	V	38.60	8.70	26.43	35.48	54.00	18.52
7236	14.26	AV	V	38.72	6.56	26.58	32.97	54.00	21.03
7236	32.59	PK	V	38.72	6.56	26.58	51.30	74.00	22.70
4824	40.24	PK	V	33.21	4.73	27.19	50.99	74.00	23.01
9648	29.72	PK	V	38.60	8.70	26.43	50.59	74.00	23.41
			Mide	dle Channe	1: 2437(N	MHz)			
2437	49.12	AV	Н	31.25	3.98	0.00	84.35	N/A	N/A
2437	53.64	PK	Н	31.25	3.98	0.00	88.87	N/A	N/A
2437	67.64	AV	V	31.25	3.98	0.00	102.87	N/A	N/A
2437	72.71	PK	V	31.25	3.98	0.00	107.94	N/A	N/A
4874	38.65	AV	V	33.32	4.76	27.03	49.71	54.00	4.29
9748	14.62	AV	V	38.80	8.60	26.53	35.49	54.00	18.51
7311	14.59	AV	V	38.86	6.70	26.65	33.50	54.00	20.50
394.2	28.12	QP	V	15.99	2.41	21.76	24.76	46.00	21.24
7311	32.52	PK	V	38.86	6.70	26.65	51.43	74.00	22.57
9748	29.47	PK	V	38.80	8.60	26.53	50.34	74.00	23.66
4874	39.24	PK	V	33.32	4.76	27.03	50.30	74.00	23.70

Report No.: R1DG120710002-00A

FCC Part 15.247 Page 23 of 61

Frequency	Re	ceiver	Rx A	ntenna	Cable	Amplifier	Corrected	FCC 1	5.247
(MHz)	Reading (dBµV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)	loss (dB)	Gain (dB)	Amplitude (dBµV/m)	Limit (dBµV/m)	Margin (dB)
			Hig	h Channel:	2462(M	Hz)			
2462	48.63	AV	Н	31.39	3.93	0.00	83.95	N/A	N/A
2462	53.18	PK	Н	31.39	3.93	0.00	88.50	N/A	N/A
2462	67.76	AV	V	31.39	3.93	0.00	103.08	N/A	N/A
2462	72.64	PK	V	31.39	3.93	0.00	107.96	N/A	N/A
2483.5	14.57	AV	V	31.51	3.80	0.00	49.87	54.00	4.13
4924	38.79	AV	V	33.43	4.70	27.17	49.76	54.00	4.24
2483.5	29.79	PK	V	31.51	3.80	0.00	65.09	74.00	8.91
9848	14.59	AV	V	39.00	8.49	26.63	35.45	54.00	18.55
7386	15.35	AV	V	38.99	6.84	26.73	34.46	54.00	19.54
238.7	31.17	QP	V	12.19	1.87	21.48	23.74	46	22.26
7386	32.54	PK	V	38.99	6.84	26.73	51.65	74.00	22.35
9848	30.64	PK	V	39.00	8.49	26.63	51.50	74.00	22.50
4924	40.51	PK	V	33.43	4.70	27.17	51.48	74.00	22.52

<sup>\*</sup> Within measurement uncertainty.

FCC Part 15.247 Page 24 of 61

#### 802.11n40 Mode:

Frequency	Re	ceiver	Rx A	ntenna	Cable	Amplifier	Corrected	FCC 1	5.247
(MHz)	Reading (dBµV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)	loss (dB)	Gain (dB)	Amplitude (dBµV/m)	Limit (dBµV/m)	Margin (dB)
			Lo	w Channel:	2422(M	Hz)			
2422	46.64	AV	Н	31.16	3.95	0.00	81.75	N/A	N/A
2422	51.18	PK	Н	31.16	3.95	0.00	86.29	N/A	N/A
2422	65.64	AV	V	31.16	3.95	0.00	100.75	N/A	N/A
2422	70.34	PK	V	31.16	3.95	0.00	105.45	N/A	N/A
3216.02	41.14	AV	V	31.25	4.96	27.42	49.93	54.00	4.07
2390	14.57	AV	V	30.98	3.84	0.00	49.40	54.00	4.60
4844	35.34	AV	V	33.26	4.78	27.04	46.34	54.00	7.66
2390	29.65	PK	V	30.98	3.84	0.00	64.48	74.00	9.52
610.4	32.59	QP	V	19.45	3.04	22.27	32.80	46.00	13.20
9688	14.75	AV	V	38.68	8.66	26.47	35.62	54.00	18.38
3216.02	42.61	PK	V	31.25	4.96	27.42	51.40	74.00	22.60
9688	29.24	PK	V	38.68	8.66	26.47	50.11	74.00	23.89
7266	31.27	PK	V	38.78	6.62	26.61	50.06	74.00	23.94
4844	38.64	PK	V	33.26	4.78	27.04	49.64	74.00	24.36
7266	14.25	AV	V	38.78	6.62	26.61	33.04	74.00	40.96
			Mido	ile Channe	l: 2437(N	MHz)			
2437	46.59	AV	Н	31.25	3.98	0.00	81.82	N/A	N/A
2437	51.27	PK	Н	31.25	3.98	0.00	86.50	N/A	N/A
2437	65.37	AV	V	31.25	3.98	0.00	100.60	N/A	N/A
2437	70.19	PK	V	31.25	3.98	0.00	105.42	N/A	N/A
4874	40.32	AV	V	33.32	4.76	27.03	51.38	54.00	2.62*
9748	14.38	AV	V	38.80	8.60	26.53	35.25	54.00	18.75
7311	15.42	AV	V	38.86	6.70	26.65	34.33	54.00	19.67
4874	41.81	PK	V	33.32	4.76	27.03	52.87	74.00	21.13
7311	33.39	PK	V	38.86	6.70	26.65	52.30	74.00	21.70
9748	29.54	PK	V	38.80	8.60	26.53	50.41	74.00	23.59
394.2	25.58	QP	V	15.99	2.41	21.76	22.22	46.00	23.78

Report No.: R1DG120710002-00A

FCC Part 15.247 Page 25 of 61

Frequency	Receiver		Rx Antenna		Cable	Amplifier	Corrected	FCC 15.247	
(MHz)	Reading (dBµV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)	loss (dB)	Gain (dB)	Amplitude (dBµV/m)	Limit (dBµV/m)	Margin (dB)
High Channel: 2452(MHz)									
2452	46.24	AV	Н	31.33	4.00	0.00	81.57	N/A	N/A
2452	50.85	PK	Н	31.33	4.00	0.00	86.18	N/A	N/A
2452	65.61	AV	V	31.33	4.00	0.00	100.94	N/A	N/A
2452	69.93	PK	V	31.33	4.00	0.00	105.26	N/A	N/A
2483.5	14.5	AV	V	31.51	3.80	0.00	49.80	54.00	4.20
4904	36.44	AV	V	33.39	4.72	27.08	47.47	54.00	6.53
2483.5	30.65	PK	V	31.51	3.80	0.00	65.95	74.00	8.05
9808	14.62	AV	V	38.92	8.53	26.59	35.48	54.00	18.52
7356	14.34	AV	V	38.94	6.79	26.70	33.37	54.00	20.63
238.7	29.65	QP	V	12.19	1.87	21.48	22.22	46	23.78
9808	29.35	PK	V	38.92	8.53	26.59	50.21	74.00	23.79
4904	38.36	PK	V	33.39	4.72	27.08	49.39	74.00	24.61
7356	29.75	PK	V	38.94	6.79	26.70	48.78	74.00	25.22

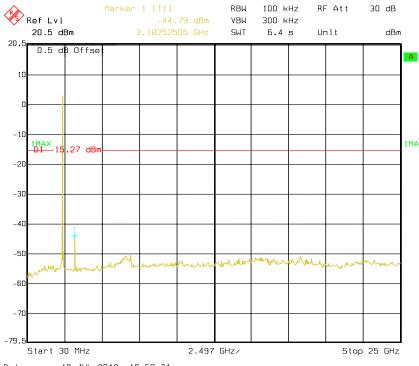
<sup>\*</sup> Within measurement uncertainty.

FCC Part 15.247 Page 26 of 61

## Conducted Spurious Emissions at Antenna Port

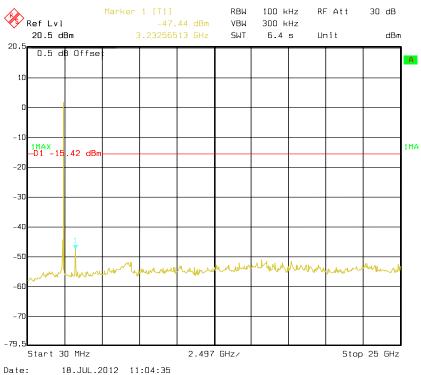
Report No.: R1DG120710002-00A

#### 802.11b Low Channel



#### Date: 18.JUL.2012 10:59:31

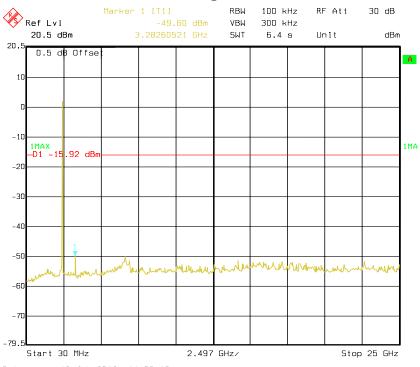
#### **802.11b Middle Channel**



FCC Part 15.247 Page 27 of 61

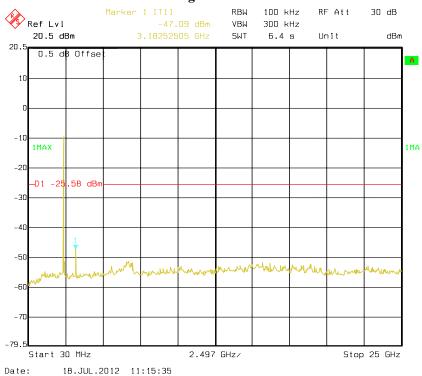
## 802.11b High Channel

Report No.: R1DG120710002-00A



#### Date: 18.JUL.2012 11:08:13

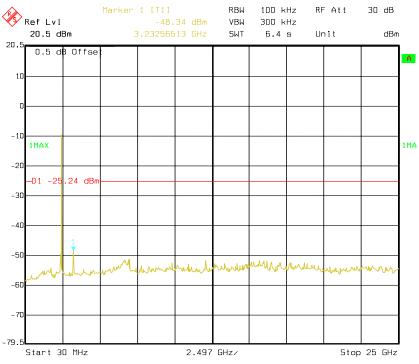
#### 802.11g Low Channel



FCC Part 15.247 Page 28 of 61

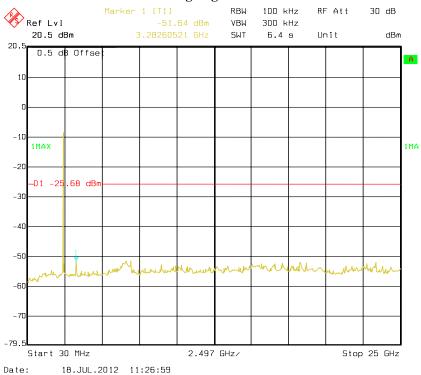
## 802.11g Middle Channel

Report No.: R1DG120710002-00A



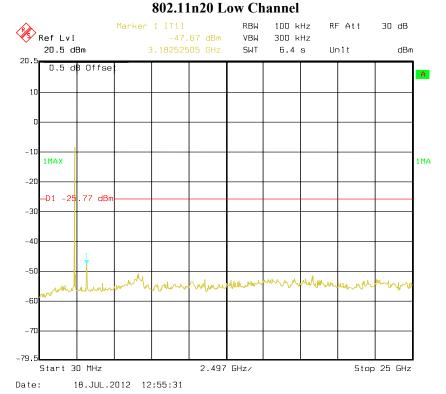
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#### 802.11g High Channel

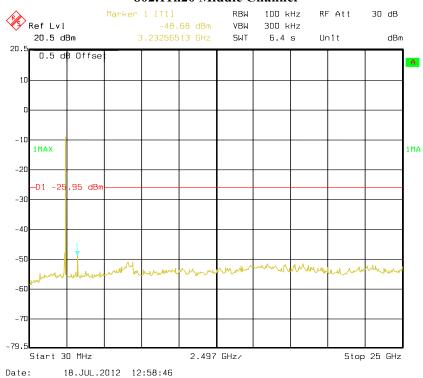


FCC Part 15.247 Page 29 of 61

Report No.: R1DG120710002-00A



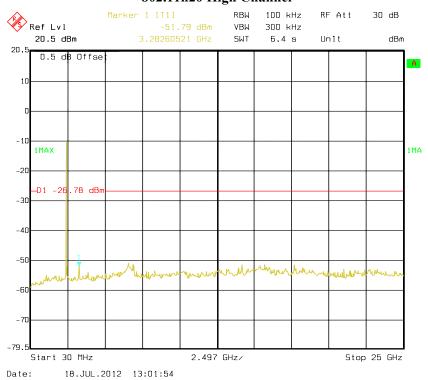
#### 802.11n20 Middle Channel



FCC Part 15.247 Page 30 of 61

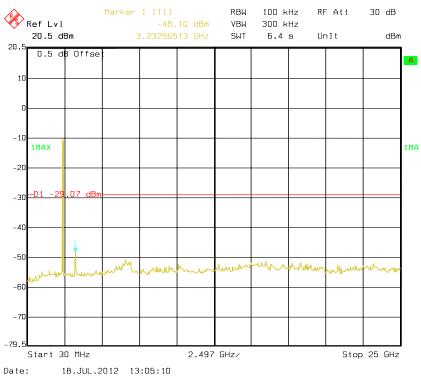
## 802.11n20 High Channel

Report No.: R1DG120710002-00A



#### 000 11 10 7

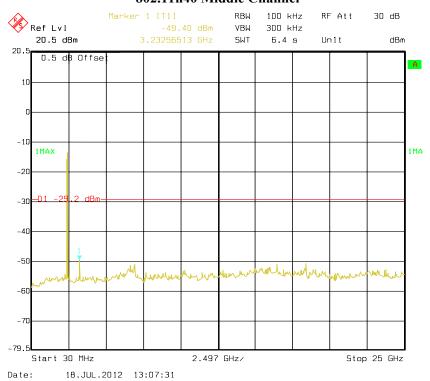
#### **802.11n40** Low Channel



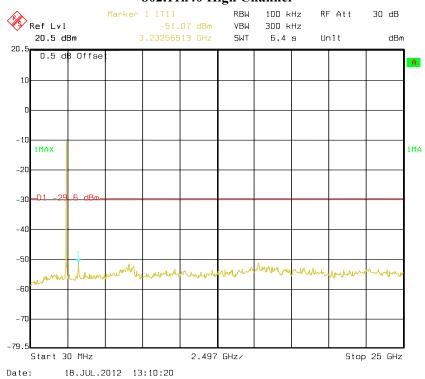
FCC Part 15.247 Page 31 of 61

#### 802.11n40 Middle Channel

Report No.: R1DG120710002-00A



#### 802.11n40 High Channel



FCC Part 15.247 Page 32 of 61

## FCC $\S15.247(a)$ (2) – 6 dB EMISSION BANDWIDTH

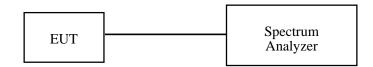
#### **Applicable Standard**

Systems using digital modulation techniques may operate in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

Report No.: R1DG120710002-00A

#### **Test Procedure**

- 1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
- 2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
- 3. Measure the frequency difference of two frequencies that were attenuated 6 dB from the reference level. Record the frequency difference as the emission bandwidth.
- 4. Repeat above procedures until all frequencies measured were complete.



#### **Test Equipment List and Details**

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Spectrum Analyzer	FSP38	100478	2012-05-27	2013-05-26

<sup>\*</sup> Statement of Traceability: Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

#### **Test Data**

#### **Environmental Conditions**

Temperature:	25 ° C
Relative Humidity:	48 %
ATM Pressure:	100.0kPa

The testing was performed by Ares Liu on 2012-07-17.

Test Result: Pass.

Please refer to the following tables and plots.

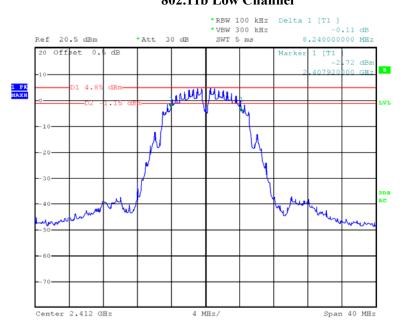
FCC Part 15.247 Page 33 of 61

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limit (kHz)			
802.11b mode						
Low	2412	8.24	>500			
Middle	2437	8.24	>500			
High	2462	8.24	>500			
802.11g mode						
Low	2412	15.92	>500			
Middle	2437	15.76	>500			
High	2462	15.28	>500			
802.11n20 mode						
Low	2412	17.36	>500			
Middle	2437	17.36	>500			
High	2462	17.28	>500			
802.11n40 mode						
Low	2422	36.32	>500			
Middle	2437	36.96	>500			
High	2452	36.64	>500			

FCC Part 15.247 Page 34 of 61

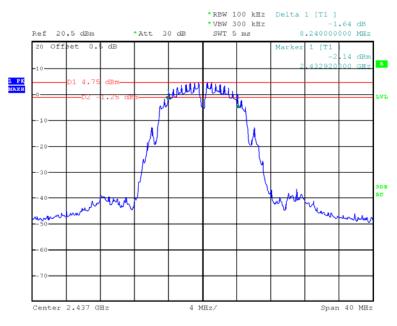
## 802.11b Low Channel

Report No.: R1DG120710002-00A



Date: 17.JUL.2012 10:53:17

#### **802.11b Middle Channel**

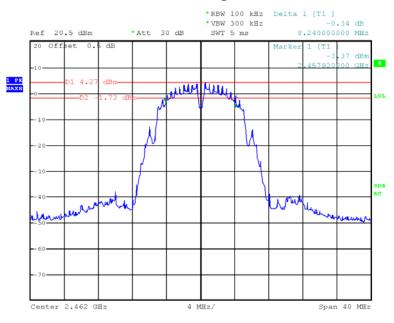


Date: 17.JUL.2012 11:17:41

FCC Part 15.247 Page 35 of 61

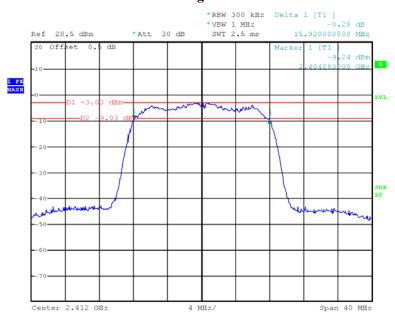
#### Report No.: R1DG120710002-00A

## 802.11b High Channel



Date: 17.JUL.2012 11:22:02

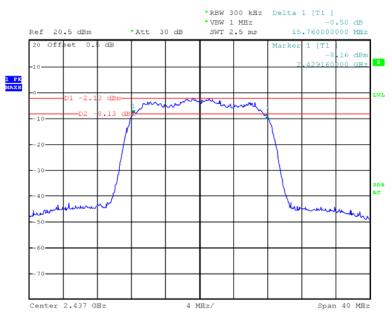
#### 802.11g Low Channel



Date: 17.JUL.2012 11:35:49

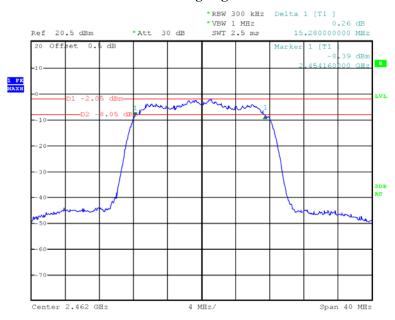
FCC Part 15.247 Page 36 of 61

# 802.11g Middle Channel



Date: 17.JUL.2012 11:46:08

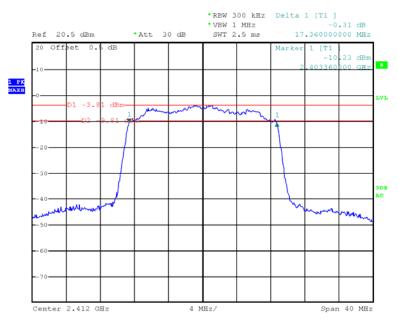
### 802.11g High Channel



Date: 17.JUL.2012 11:51:12

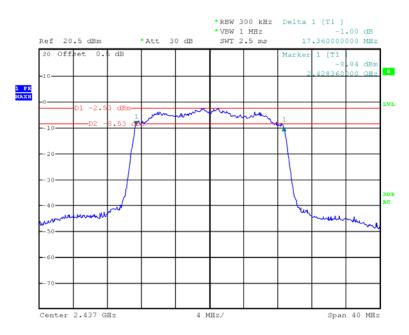
FCC Part 15.247 Page 37 of 61

### 802.11n20 Low Channel



Date: 17.JUL.2012 11:57:22

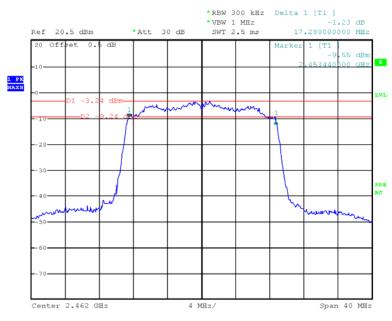
### 802.11n20 Middle Channel



Date: 17.JUL.2012 13:14:15

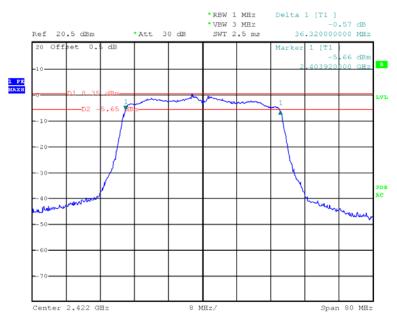
FCC Part 15.247 Page 38 of 61

# 802.11n20 High Channel



Date: 17.JUL.2012 13:21:05

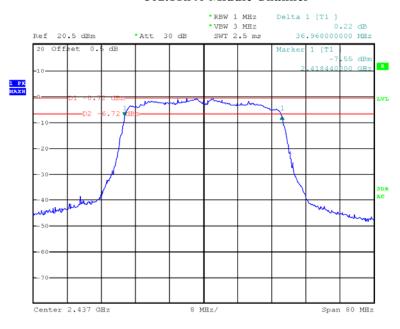
### **802.11n40** Low Channel



Date: 17.JUL.2012 13:28:11

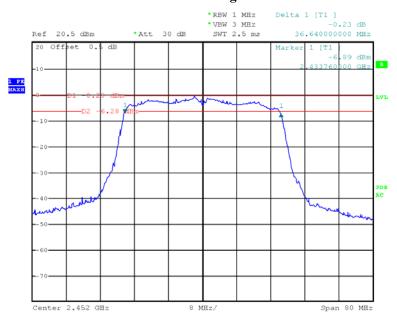
FCC Part 15.247 Page 39 of 61

#### 802.11n40 Middle Channel



Date: 17.JUL.2012 13:35:56

### 802.11n40 High Channel



Date: 17.JUL.2012 13:41:58

FCC Part 15.247 Page 40 of 61

# FCC §15.247(b) (3) - MAXIMUM PEAK OUTPUT POWER

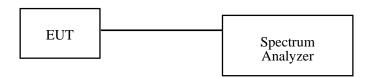
#### **Applicable Standard**

According to FCC §15.247(b) (3), for systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.

Report No.: R1DG120710002-00A

#### **Test Procedure**

- 1. Place the EUT on a bench and set it in transmitting mode.
- 2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to an EMI Test Receiver.
- 3. Add a correction factor to the display.



#### **Test Equipment List and Details**

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Spectrum Analyzer	FSP38	100478	2012-05-27	2013-05-26

<sup>\*</sup> Statement of Traceability: Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

#### **Test Data**

#### **Environmental Conditions**

Temperature:	25 ° C	
Relative Humidity:	48 %	
ATM Pressure:	100.0 kPa	

The testing was performed by Ares Liu on 2012-07-17.

Test Mode: Transmitting

FCC Part 15.247 Page 41 of 61

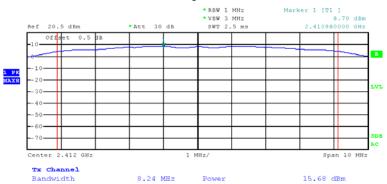
Channel	Frequency (MHz)	Reading Power (dBm)	Limit (dBm)	Result		
	802.11b					
Low	2412 MHz	15.68	30	pass		
Middle	2437 MHz	15.62	30	pass		
High	2462 MHz	15.26	30	pass		
802.11g						
Low	2412 MHz	12.79	30	pass		
Middle	2437 MHz	12.87	30	pass		
High	2462 MHz	12.54	30	pass		
802.11n20						
Low	2412 MHz	12.65	30	pass		
Middle	2437 MHz	12.43	30	pass		
High	2462 MHz	11.69	30	pass		
802.11n40						
Low	2422 MHz	12.19	30	pass		
Middle	2437 MHz	12.41	30	pass		
High	2452 MHz	11.82	30	pass		

Note: The antenna gain is 5.0 dBi.

Please refer to the following plots

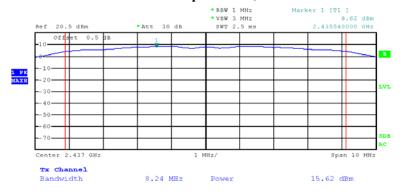
FCC Part 15.247 Page 42 of 61

### 802.11b RF Output Power, Low Channel



Date: 17.JUL.2012 10:57:54

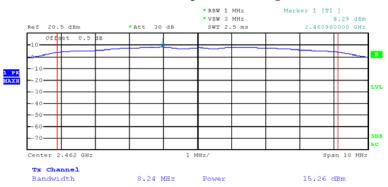
### 802.11b RF Output Power, Middle Channel



Date: 17.JUL.2012 11:19:22

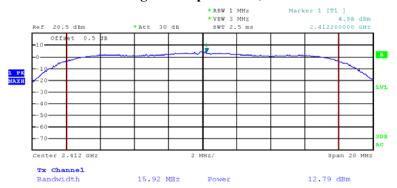
FCC Part 15.247 Page 43 of 61

# 802.11b RF Output Power, High Channel



Date: 17.JUL.2012 11:26:02

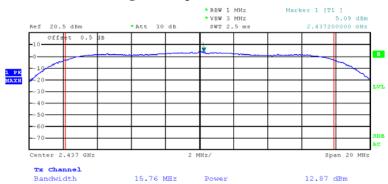
# 802.11g RF Output Power, Low Channel



Date: 17.JUL.2012 11:38:45

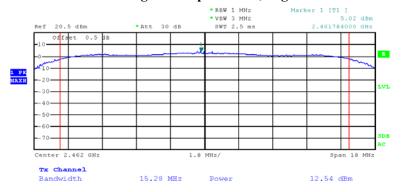
FCC Part 15.247 Page 44 of 61

### 802.11g RF Output Power, Middle Channel



Date: 17.JUL.2012 11:47:03

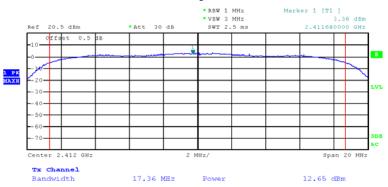
### 802.11g RF Output Power, High Channel



Date: 17.JUL.2012 11:52:51

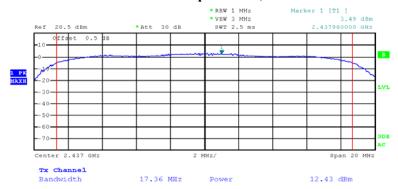
FCC Part 15.247 Page 45 of 61

# 802.11n20 RF Output Power, Low Channel



Date: 17.JUL.2012 11:59:59

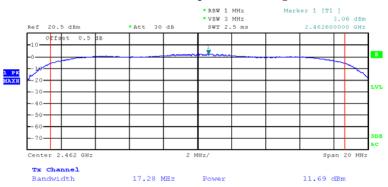
### 802.11n20 RF Output Power, Middle Channel



Date: 17.JUL.2012 13:15:03

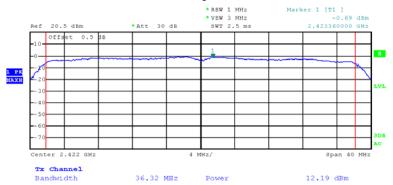
FCC Part 15.247 Page 46 of 61

# 802.11n20 RF Output Power, High Channel



Date: 17.JUL.2012 13:23:07

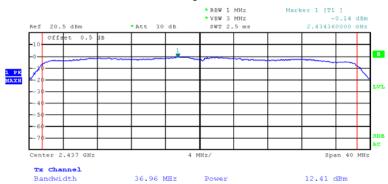
# 802.11n40 RF Output Power, Low Channel



Date: 17.JUL.2012 13:29:12

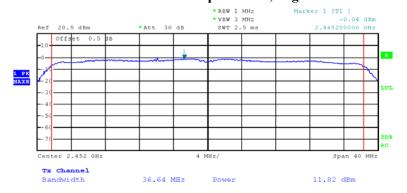
FCC Part 15.247 Page 47 of 61

### 802.11n40 RF Output Power, Middle Channel



Date: 17.JUL.2012 13:37:05

# 802.11n40 RF Output Power, High Channel



Date: 17.JUL.2012 13:43:07

FCC Part 15.247 Page 48 of 61

# FCC §15.247(d) – 100 kHz BANDWIDTH OF FREQUENCY BAND EDGE

Report No.: R1DG120710002-00A

#### **Applicable Standard**

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated 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, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

#### **Test Procedure**

- 1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
- 2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
- 3. Set RBW to 100 kHz and VBW of spectrum analyzer to 300 kHz with a convenient frequency span including 100 kHz bandwidth from band edge.
- 4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
- 5. Repeat above procedures until all measured frequencies were complete.

### **Test Equipment List and Details**

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Spectrum Analyzer	FSP38	100478	2012-05-27	2013-05-26

<sup>\*</sup> Statement of Traceability: Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

#### **Test Data**

#### **Environmental Conditions**

Temperature:	25 ° C	
Relative Humidity:	48 %	
ATM Pressure:	100.0 kPa	

The testing was performed by Ares Liu on 2012-07-17.

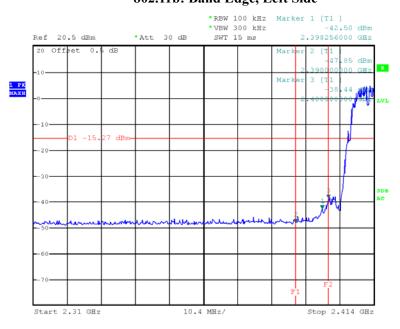
**Test Result:** Compliance

Please refer to following plots.

FCC Part 15.247 Page 49 of 61

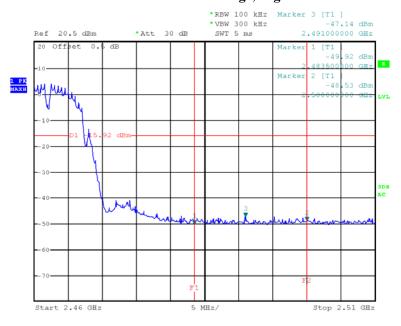
# 802.11b: Band Edge, Left Side

Report No.: R1DG120710002-00A



Date: 17.JUL.2012 11:14:55

### 802.11b: Band Edge, Right Side

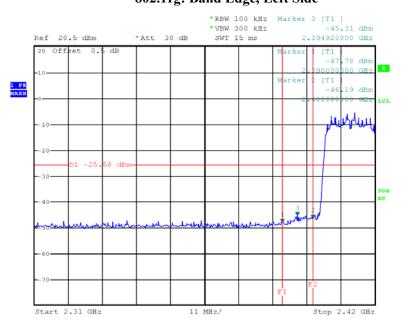


Date: 17.JUL.2012 11:28:26

FCC Part 15.247 Page 50 of 61

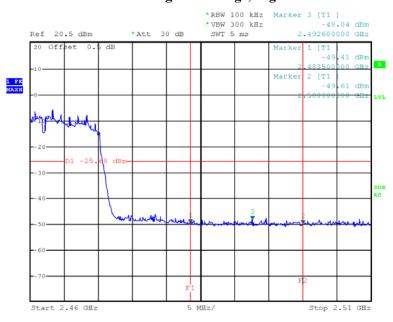
# 802.11g: Band Edge, Left Side

Report No.: R1DG120710002-00A



Date: 17.JUL.2012 11:41:55

### 802.11g: Band Edge, Right Side

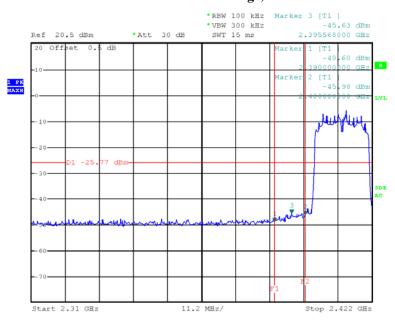


Date: 17.JUL.2012 11:54:55

FCC Part 15.247 Page 51 of 61

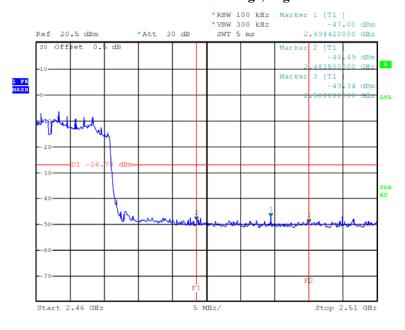
### 802.11n20: Band Edge, Left Side

Report No.: R1DG120710002-00A



Date: 17.JUL.2012 12:01:27

### 802.11n20: Band Edge, Right Side

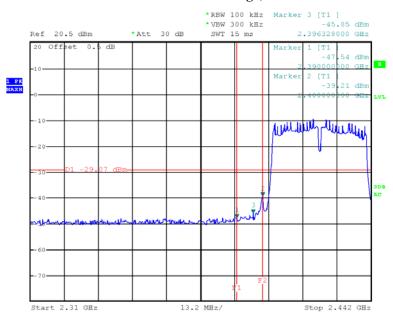


Date: 17.JUL.2012 13:24:45

FCC Part 15.247 Page 52 of 61

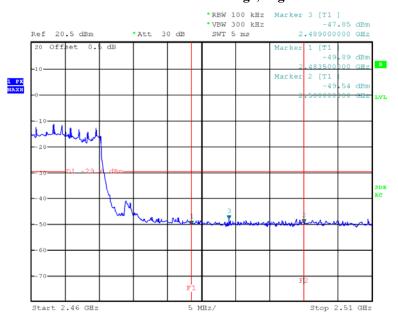
### 802.11n40: Band Edge, Left Side

Report No.: R1DG120710002-00A



Date: 17.JUL.2012 13:33:14

### 802.11n40: Band Edge, Right Side



Date: 17.JUL.2012 13:45:28

FCC Part 15.247 Page 53 of 61

# FCC §15.247(e) - POWER SPECTRAL DENSITY

#### **Applicable Standard**

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

Report No.: R1DG120710002-00A

#### **Test Procedure**

- 1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
- 2. Position the EUT was set without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
- 3. According to KDB 558074 D01 DTS Meas Guidance v01, set the RBW = 100 kHz, VBW  $\geq 300 \text{ kHz}$ , set the span to 5-30 % greater than the EBW.
- 4. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.
- 5. 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).

### **Test Equipment List and Details**

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Spectrum Analyzer	FSP38	100478	2012-05-27	2013-05-26

<sup>\*</sup> Statement of Traceability: Bay Area Compliance Lab Corp. (Dongguan) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

#### **Test Data**

#### **Environmental Conditions**

Temperature:	25 ° C	
Relative Humidity:	48 %	
ATM Pressure:	100.0 kPa	

The testing was performed by Ares Liu on 2012-07-17.

Test Mode: Transmitting

**Test Result:** Pass

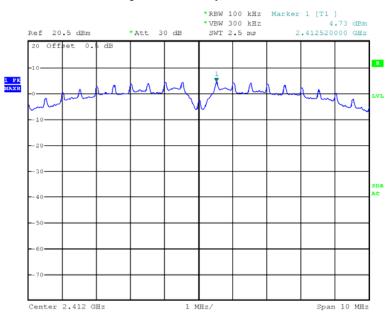
FCC Part 15.247 Page 54 of 61

**Note:** the antenna gain is 5.0 dBi.

Please refer to the following plots

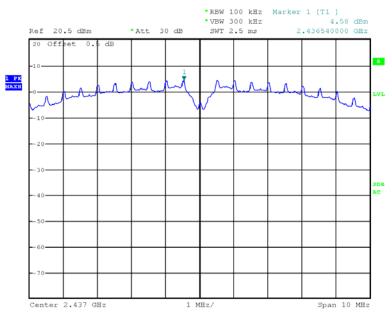
FCC Part 15.247 Page 55 of 61

### Power Spectral Density, 802.11b Low Channel



Date: 17.JUL.2012 11:00:36

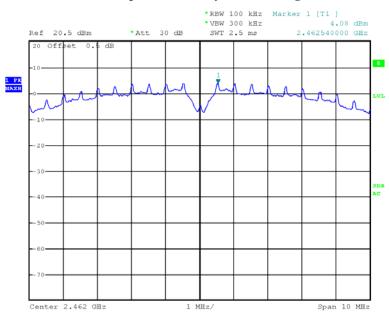
# Power Spectral Density, 802.11b Middle Channel



Date: 17.JUL.2012 11:20:13

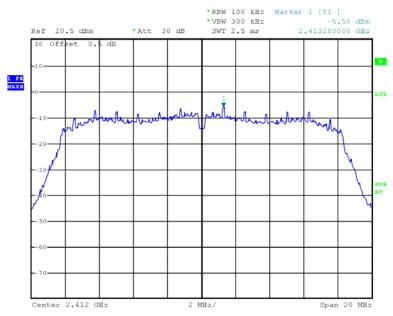
FCC Part 15.247 Page 56 of 61

# Power Spectral Density, 802.11b High Channel



Date: 17.JUL.2012 11:26:54

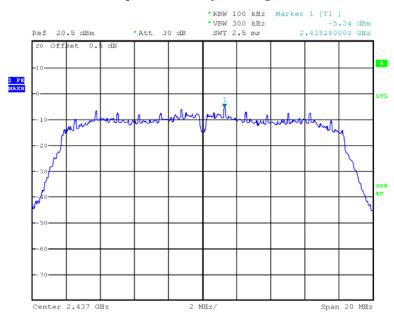
# Power Spectral Density, 802.11g Low Channel



Date: 17.JUL.2012 11:39:54

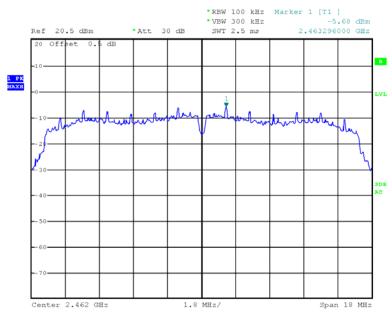
FCC Part 15.247 Page 57 of 61

# Power Spectral Density, 802.11g Middle Channel



Date: 17.JUL.2012 11:48:25

# Power Spectral Density, 802.11g High Channel



Date: 17.JUL.2012 11:53:25

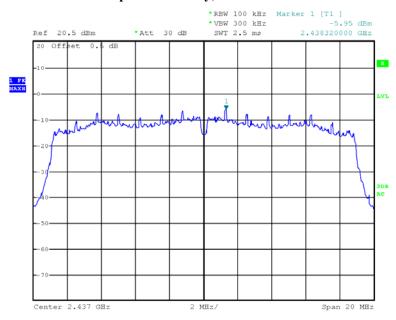
FCC Part 15.247 Page 58 of 61

### Power Spectral Density, 802.11n20 Low Channel



Date: 17.JUL.2012 12:00:30

### Power Spectral Density, 802.11n20 Middle Channel



Date: 17.JUL.2012 13:15:57

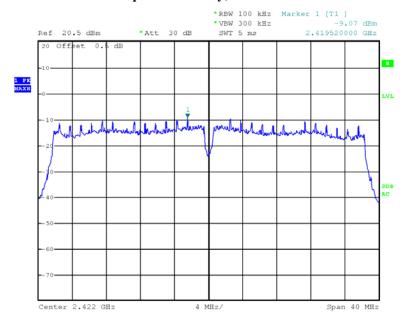
FCC Part 15.247 Page 59 of 61

### Power Spectral Density, 802.11n20 High Channel



Date: 17.JUL.2012 13:23:44

### Power Spectral Density, 802.11n40 Low Channel

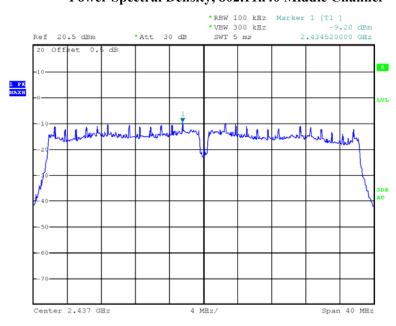


Date: 17.JUL.2012 13:30:07

FCC Part 15.247 Page 60 of 61

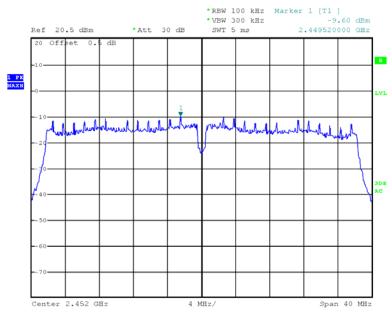
# Power Spectral Density, 802.11n40 Middle Channel

Report No.: R1DG120710002-00A



Date: 17.JUL.2012 13:38:00

# Power Spectral Density, 802.11n40 High Channel



Date: 17.JUL.2012 13:43:58

\*\*\*\*\* END OF REPORT \*\*\*\*\*

FCC Part 15.247 Page 61 of 61