FCC PART 15.247

TEST REPORT

For

Iconnect

No.9, Aly.58, Ln. 112, Ruiguang Rd., Neihu Dist., Taipei City, Taiwan

FCC ID: 2AB878812

Report Type:	Product Type:
Original Report	802.11ac AC1200 USB adapter

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Report Number:	RDG140717005-00A
Report Date:	2014-08-04
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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *Iconnect*'s product, model number: *AWUS036AC (FCC ID: 2AB878812) or* ("EUT") in this report is a *802.11ac AC1200 USB adapter*, which was measured approximately: 21.5 cm (L) x 2.6 cm (W) x 1.1 cm (H), rated input voltage: DC 5.0V from system.

Note: The series product, model AWUS036AC, AWUS036EAC, AWUS036AC_H, AWUS036EAC_H, WISP-UAC, Tube-UAC, UBDO-UAC are electrically identical except for appearance and model name, we selected AWUS036AC for fully testing, the details was explained in the attached declaration letter.

All measurement and test data in this report was gathered from production sample serial number: 140717005 (Assigned by BACL, Dongguan). The EUT was received on 2014-07-22.

Antenna information

Chain	Manufacturer	Model Name	Antenna Type	Max. Antenna Gain
0	Wanshih Electronic Co.,Ltd.	WSS025	Dual band dipole antenna	2.4~2.5 GHz: 2.0dBi 5.15~5.35 GHz: 2.0dBi 5.725~5.850 GHz: 2.0dBi
1	Wanshih Electronic Co.,Ltd.	WSS025	Dual band dipole antenna	2.4~2.5 GHz: 2.0dBi 5.15~5.35 GHz: 2.0dBi 5.725~5.850 GHz: 2.0dBi

Objective

This report is prepared on behalf of *Iconnect* in accordance with Part 2-Subpart J, Part 15-Subparts A, B and C of the Federal Communications Commission 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 15E NII submissions with FCC ID: *2AB878812.*

Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2003, 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).

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

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 C63.4-2003.

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.

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SYSTEM TEST CONFIGURATION

Description of Test Configuration

The system was configured for testing in testing mode, which was provided by manufacturer.
For 2.4GHz band, 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	/	/

For 802.11b, 802.11g, and 802.11n ht20 modes were tested with Channel 1, 6 and 11.For 802.11n ht40 mode were tested with Channel 3, 6 and 9.

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 data rates bandwidths, and modulations.

Equipment Modifications

No modification was made to the EUT tested.

EUT Exercise Software

The software "REALTEK 11ac 8812AU USB WLAN NIC Massproduction Kit" was used for testing, which was provided by manufacturer. The worst condition (maximum power) was setting by the software as following table:

Test Mode	Test Software Version	REALTEK 11ac 8812AU USB WLAN NIC Massproduction Kit		
802.11b	Test Frequency	2412MHz	2437MHz	2462MHz
	Data Rate	1Mbps	1Mbps	1Mbps
	Power Level Setting	38	38	36
802.11g	Test Frequency	2412MHz	2437MHz	2462MHz
	Data Rate	6Mbps	6Mbps	6Mbps
	Power Level Setting	35	34	33
802.11n ht20	Test Frequency	2412MHz	2437MHz	2462MHz
	Data Rate	MCS8	MCS8	MCS8
	Power Level Setting Chain0	28	28	25
	Power Level Setting Chain1	27	27	27
802.11n ht40	Test Frequency	2422MHz	2437MHz	2452MHz
	Data Rate	MCS8	MCS8	MCS8
	Power Level Setting Chain0	30	29	28
	Power Level Setting Chain1	28	28	28

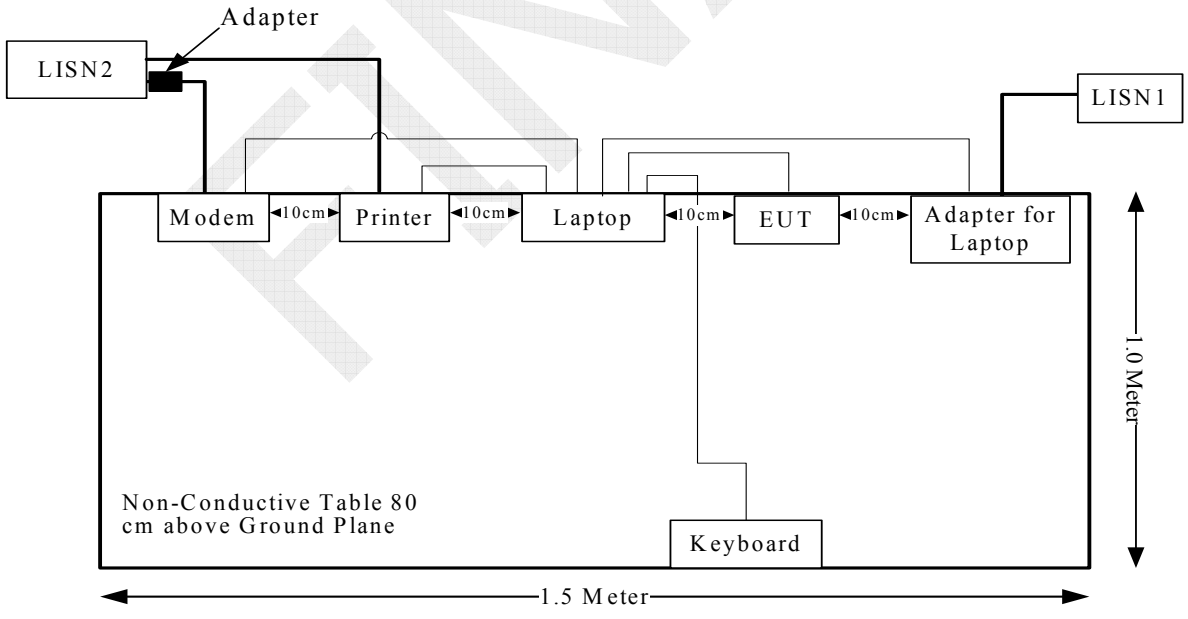
Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
DELL	Laptop	PP11L	QDS-BRCM1017
HP	Printer	C3941A	JPTVOB2337
DELL	Keyboard	L100	CNORH656658907BL05DC
SAST	Modem	AEM-2100	0293

External Cable

Cable Description	Shielding Type	Ferrite Core	Length (m)	From Port	To
Serial Cable	Yes	No	1.2	Serial Port of Laptop	Modem
Parallel Cable	Yes	No	1.2	Parallel Port of Laptop	Printer
Keyboard Cable	Yes	No	1.5	USB Port of Laptop	Keyboard
USB Extension Cable	Yes	No	1.4	USB Port of Laptop	EUT

Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
FCC §15.247 (i) & §1.1310 & §2.1091	Maximum Permissible Exposure	Compliance
§15.203	Antenna Requirement	Compliance
§15.207 (a)	AC Line Conducted Emissions	Compliance
§15.247(d)	Spurious Emissions at Antenna Port	Compliance
§15.205, §15.209, §15.247(d)	Spurious Emissions	Compliance
§15.247 (a)(2)	6 dB Emission Bandwidth	Compliance
§15.247(b)(3)	Maximum conducted output power	Compliance
§15.247(d)	100 kHz Bandwidth of Frequency Band Edge	Compliance
§15.247(e)	Power Spectral Density	Compliance

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FCC §15.247 (i) & §1.1310 & §2.1091- MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Applicable Standard

According to subpart 15.247(i)and subpart §1.1310, 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.

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/cm^2)**	**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 (MHz)**	**Antenna Gain**		**Conducted Power**		**Evaluation Distance (cm)**	**Power Density (mW/cm^2)**	**MPE Limit (mW/cm^2)**
		(dBi)	**(numeric)**	**(dBm)**	**(mW)**			
2.4G-802.11b	2437	2.0	1.58	17.68	58.61	20	0.018	1.0
2.4G-802.11g	2437	2.0	1.58	14.88	30.76	20	0.010	1.0
2.4G-802.11n HT20	2437	2.0	1.58	13.57	22.75	20	0.007	1.0
2.4G-802.11n HT40	2422	2.0	1.58	13.71	23.50	20	0.007	1.0

Result: The device meet FCC MPE at 20 cm distance

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:

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

This product used two external detachable dual band dipole antennas and with RP-SMA female connector, the maximum gain is 2.0 dBi for 2.4G and 5G band, which fulfill the requirement of this section, please refer to the EUT photos.

Result: Compliance.

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FCC §15.207 (a) – AC LINE CONDUCTED EMISSIONS

Applicable Standard

FCC§15.207

Measurement Uncertainty

Compliance or non- compliance with a disturbance limit shall be determined in the following manner：

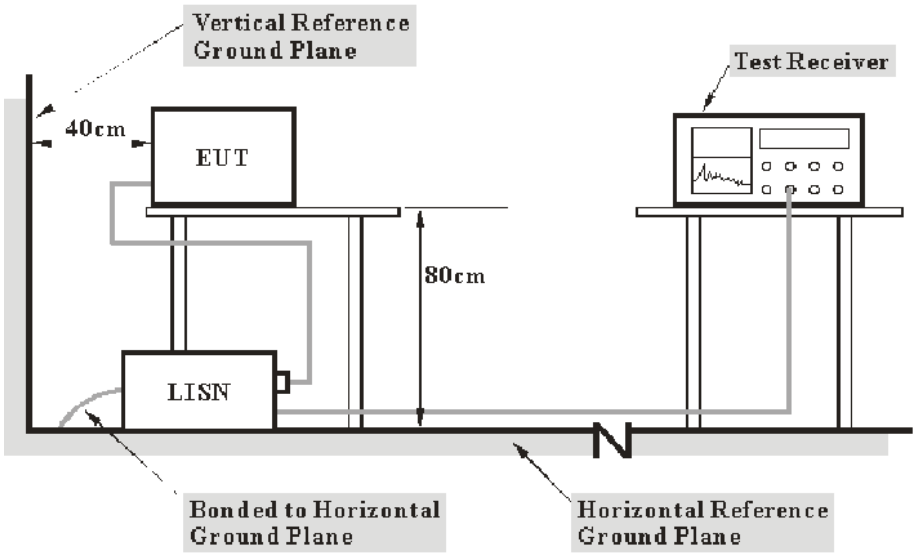
If U_{lab} is less than or equal to U_{cispr} of Table 1, then:
– compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit;
– non - compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit.
If U_{lab} is greater than U_{cispr} of Table 1, then:
– compliance is deemed to occur if no measured disturbance level, increased by ($U_{lab} - U_{cispr}$), exceeds the disturbance limit;
– non - compliance is deemed to occur if any measured disturbance level, increased by ($U_{lab} - U_{cispr}$), exceeds the disturbance limit.

Based on CISPR 16-4-2-2011, measurement uncertainty of conducted disturbance at mains port using AMN at Bay Area Compliance Laboratories Corp. (Dongguan) is 3.46 dB (150 kHz to 30 MHz).

Table 1 – Values of U_{cispr}

Measurement	U_{cispr}
Conducted disturbance at mains port using AMN (150 kHz to 30 MHz)	3.4 dB

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 C63.4-2003 measurement procedure. The specification used was with the FCC Part 15.207 limits.

The spacing between the peripherals was 10 cm.

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

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:

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

Test Procedure

During the conducted emission test, the adapter was connected to thefirst 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.

Corrected Amplitude & Margin Calculation

The basic equation is as follows:

$V_C = V_R + A_C + VDF$
$C_f = A_C + VDF$

Herein,
V_C (cord. Reading): corrected voltage amplitude
V_R: reading voltage amplitude
A_c: attenuation caused by cable loss
VDF: voltage division factor of AMN
C_f: Correction Factor

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

Margin = Limit – Corrected Amplitude

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	EMI Test Receiver	ESCS 30	830245/006	2013-11-20	2014-11-20
R&S	L.I.S.N	ESH3-Z5	843331/015	2013-09-25	2014-09-25
R&S	Two-line V-network	ENV 216	3560.6550.12	2014-01-22	2015-01-22
R&S	Test Software	EMC32	Version8.53.0	N/A	N/A

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Results Summary

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

8.6 dB at **16.251162 MHz** in the **Neutral** conducted mode

Test Data

Environmental Conditions

Temperature:	28.1 °C
Relative Humidity:	51 %
ATM Pressure:	99.8 kPa

The testing was performed by Dean Liu on 2014-07-22.

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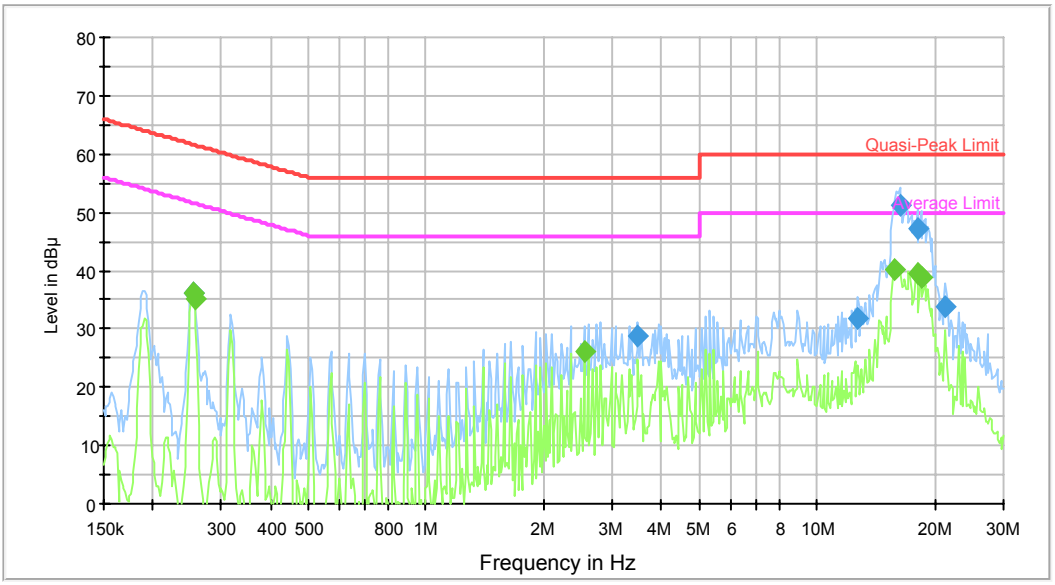
Test Mode: Transmitting

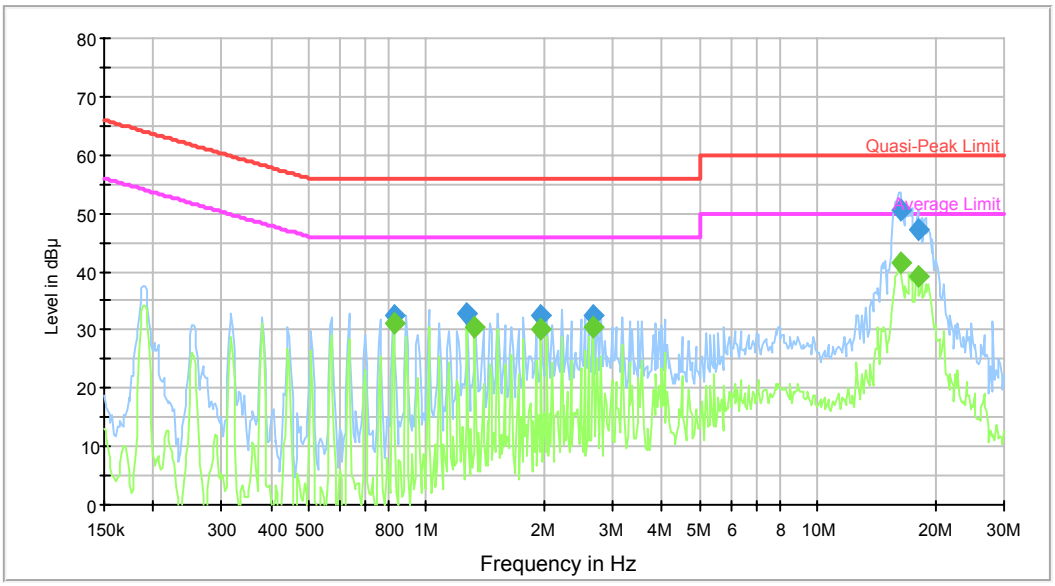
AC120 V, 60 Hz, Line:



Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.253797	36.3	9.000	L1	10.7	25.4	61.6	Compliance
3.491417	28.7	9.000	L1	10.7	27.3	56.0	Compliance
12.694276	31.9	9.000	L1	10.6	28.1	60.0	Compliance
16.251162	51.1	9.000	L1	10.7	8.9	60.0	Compliance
18.024837	47.3	9.000	L1	10.9	12.7	60.0	Compliance
21.307992	33.8	9.000	L1	11.1	26.2	60.0	Compliance

Frequency (MHz)	Average (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.253797	36.3	9.000	L1	10.7	15.4	51.6	Compliance
0.255827	35.0	9.000	L1	10.7	16.5	51.6	Compliance
2.538519	26.3	9.000	L1	10.5	19.7	46.0	Compliance
15.867293	40.0	9.000	L1	10.7	10.0	50.0	Compliance
18.024837	39.4	9.000	L1	10.9	10.6	50.0	Compliance
18.460903	38.9	9.000	L1	11.0	11.1	50.0	Compliance

AC120 V, 60 Hz, Neutral:



Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.825364	32.5	9.000	N	10.5	23.5	56.0	Compliance
1.269154	32.7	9.000	N	10.5	23.3	56.0	Compliance
1.967177	32.6	9.000	N	10.5	23.4	56.0	Compliance
2.662831	32.4	9.000	N	10.6	23.6	56.0	Compliance
16.251162	50.7	9.000	N	10.7	9.3	60.0	Compliance
18.024837	47.3	9.000	N	10.9	12.7	60.0	Compliance

Frequency (MHz)	Average (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.825364	31.3	9.000	N	10.5	14.7	46.0	Compliance
1.331304	30.6	9.000	N	10.5	15.4	46.0	Compliance
1.967177	30.0	9.000	N	10.5	16.0	46.0	Compliance
2.662831	30.5	9.000	N	10.6	15.5	46.0	Compliance
16.251162	41.4	9.000	N	10.7	8.6	50.0	Compliance
18.024837	39.0	9.000	N	10.9	11.0	50.0	Compliance

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

Applicable Standard

FCC §15.247 (d); §15.209; §15.205;

Measurement Uncertainty

Compliance or non- compliance with a disturbance limit shall be determined in the following manner:

If U_{lab} is less than or equal to U_{cispr} of Table 2, then:
- compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit;
- non - compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit.

If U_{lab} is greater than U_{cispr} of Table 2, then:
- compliance is deemed to occur if no measured disturbance level, increased by ($U_{lab} - U_{cispr}$), exceeds the disturbance limit;
- non - compliance is deemed to occur if any measured disturbance level, increased by ($U_{lab} - U_{cispr}$), exceeds the disturbance limit.

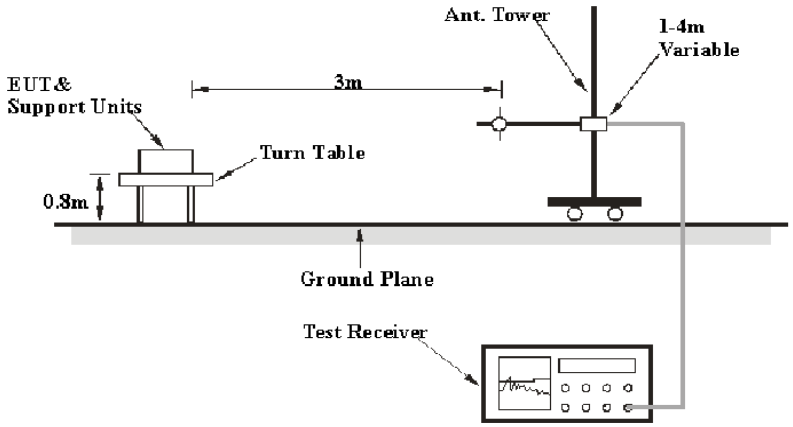
Based on CISPR 16-4-2-2011, measurement uncertainty of radiated emission at a distance of 3m at Bay Area Compliance Laboratories Corp. (Dongguan) is:
30M~200MHz: 5.0 dB
200M~1GHz: 6.2 dB
1G~6GHz: 4.45 dB
6G~18GHz: 5.23 dB

Table 2 – Values of U_{cispr}

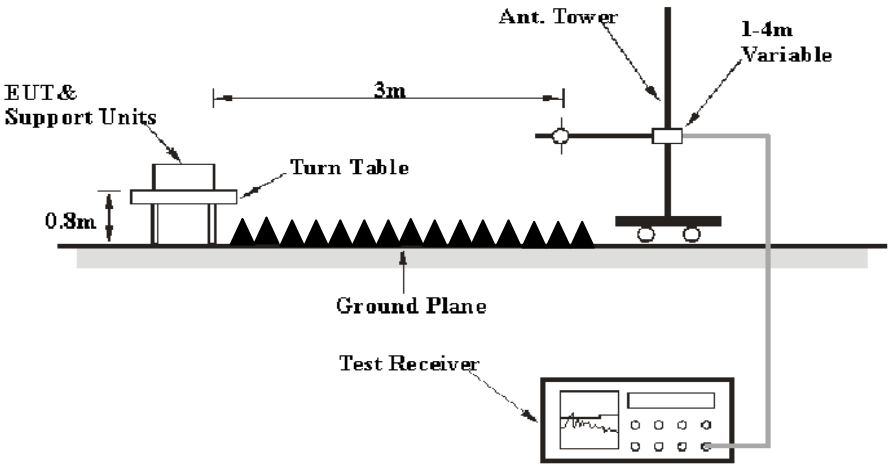
Measurement	U_{cispr}
Radiated disturbance (electric field strength at an OATS or in a SAC) (30 MHz to 1000 MHz)	6.3 dB
Radiated disturbance (electric field strength in a FAR) (1 GHz to 6 GHz)	5.2 dB
Radiated disturbance (electric field strength in a FAR) (6 GHz to 18 GHz)	5.5 dB

EUT Setup

Below 1GHz:



Above 1GHz:



The radiated emission tests were performed in the 3 meters chamber test site, using the setup accordance with the ANSI C63.4-2003. The specification used was the FCC 15.209, and FCC 15.247 limits.
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 of laptop 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	IF B/W	Detector
30 MHz – 1000 MHz	120 kHz	300 kHz	120 kHz	QP
Above 1 GHz	1MHz	3 MHz	/	PK
	1MHz	10 Hz	/	Ave.

Test Procedure

During the radiated emission test, the adapter of laptop 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 Loss and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

Corrected Amplitude = Meter Reading + Antenna Loss + 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

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	EMI Test Receiver	ESCI	100224	2014-05-09	2015-05-09
Sunol Sciences	Antenna	JB3	A060611-1	2011-09-06	2014-09-05
HP	Amplifier	8447E	2434A02181	2013-09-06	2014-09-06
R&S	Spectrum Analyzer	FSEM	DE31388	2014-05-09	2015-05-09
ETS LINDGREN	Horn Antenna	3115	000 527 35	2012-09-06	2015-09-06
Mini-Circuit	Amplifier	ZVA-213-S+	054201245	2014-02-19	2015-02-19
R&S	Spectrum Analyzer	FSP 38	100478	2014-05-09	2015-05-09
Ducommun Technolagies	Horn Antenna	ARH-4223-02	1007726-01 1304	2014-06-16	2017-06-15
Quinstar	Amplifier	QLW-18405536-JO	15964001001	2013-09-06	2014-09-06

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

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Test Results Summary

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

9.74 dB at **2483.5 MHz** in the **Vertical** polarization for 802.11g Mode

Test Data

Environmental Conditions

Temperature:	28.7 °C
Relative Humidity:	55 %
ATM Pressure:	99.9 kPa

The testing was performed by Dean Liu on 2014-07-25.

Test Mode: Transmitting

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802.11b Mode

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)					
Low Channel: 2412 MHz									
2412	65.34	PK	H	25.67	4.42	0.00	95.43	N/A	N/A
2412	61.73	AV	H	25.67	4.42	0.00	91.82	N/A	N/A
2412	76.38	PK	V	25.67	4.42	0.00	106.47	N/A	N/A
2412	72.41	AV	V	25.67	4.42	0.00	102.50	N/A	N/A
2390	26.46	PK	V	25.61	4.39	0.00	56.46	74.00	17.54
2390	13.36	AV	V	25.61	4.39	0.00	43.36	54.00	10.64
4824	37.08	PK	V	30.64	6.03	27.41	46.34	74.00	27.66
4824	32.72	AV	V	30.64	6.03	27.41	41.98	54.00	12.02
7236	32.28	PK	V	34.17	7.47	25.90	48.02	74.00	25.98
7236	18.96	AV	V	34.17	7.47	25.90	34.70	54.00	19.30
9648	28.90	PK	V	36.06	8.81	27.46	46.31	74.00	27.69
9648	17.98	AV	V	36.06	8.81	27.46	35.39	54.00	18.61
1670	35.80	PK	V	23.94	3.40	27.71	35.43	74.00	38.57
1670	23.09	AV	V	23.94	3.40	27.71	22.72	54.00	31.28
328	28.90	QP	V	14.65	2.15	21.59	24.11	46.00	21.89
Middle Channel: 2437 MHz									
2437	65.87	PK	H	25.74	4.41	0.00	96.02	N/A	N/A
2437	61.79	AV	H	25.74	4.41	0.00	91.94	N/A	N/A
2437	75.98	PK	V	25.74	4.41	0.00	106.13	N/A	N/A
2437	71.67	AV	V	25.74	4.41	0.00	101.82	N/A	N/A
4874	38.34	PK	V	30.77	6.09	27.42	47.78	74.00	26.22
4874	34.28	AV	V	30.77	6.09	27.42	43.72	54.00	10.28
7311	33.26	PK	V	34.35	7.51	25.88	49.24	74.00	24.76
7311	20.13	AV	V	34.35	7.51	25.88	36.11	54.00	17.89
9748	28.34	PK	V	36.30	8.83	27.24	46.23	74.00	27.77
9748	17.45	AV	V	36.30	8.83	27.24	35.34	54.00	18.66
1670	35.44	PK	V	23.94	3.40	27.71	35.07	74.00	38.93
1670	23.11	AV	V	23.94	3.40	27.71	22.74	54.00	31.26
2927	34.19	PK	V	27.01	6.71	27.54	40.37	74.00	33.63
2927	20.89	AV	V	27.01	6.71	27.54	27.07	54.00	26.93
328	28.70	QP	V	14.65	2.15	21.59	23.91	46.00	22.09
High Channel: 2462 MHz									
2462	64.19	PK	H	25.80	4.43	0.00	94.42	N/A	N/A
2462	60.56	AV	H	25.80	4.43	0.00	90.79	N/A	N/A
2462	75.43	PK	V	25.80	4.43	0.00	105.66	N/A	N/A
2462	71.44	AV	V	25.80	4.43	0.00	101.67	N/A	N/A
2483.5	26.68	PK	V	25.86	4.49	0.00	57.03	74.00	16.97
2483.5	13.67	AV	V	25.86	4.49	0.00	44.02	54.00	9.98
4924	37.37	PK	V	30.90	5.97	27.43	46.81	74.00	27.19
4924	31.87	AV	V	30.90	5.97	27.43	41.31	54.00	12.69
7386	20.09	PK	V	34.53	7.55	25.86	36.31	74.00	37.69
7386	20.09	AV	V	34.53	7.55	25.86	36.31	54.00	17.69
9848	28.96	PK	V	36.54	8.85	26.94	47.41	74.00	26.59
9848	18.60	AV	V	36.54	8.85	26.94	37.05	54.00	16.95
1670	36.30	PK	V	23.94	3.40	27.71	35.93	74.00	38.07
1670	23.95	AV	H	23.94	3.40	27.71	23.58	54.00	30.42
328	28.70	QP	V	14.65	2.15	21.59	23.91	46.00	22.09

802.11g Mode

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)					
Low Channel: 2412 MHz									
2412	59.86	PK	H	25.67	4.42	0.00	89.95	N/A	N/A
2412	49.69	AV	H	25.67	4.42	0.00	79.78	N/A	N/A
2412	71.67	PK	V	25.67	4.42	0.00	101.76	N/A	N/A
2412	61.54	AV	V	25.67	4.42	0.00	91.63	N/A	N/A
2390	25.69	PK	V	25.61	4.39	0.00	55.69	74.00	18.31
2390	12.66	AV	V	25.61	4.39	0.00	42.66	54.00	11.34
4824	31.83	PK	V	30.64	6.03	27.41	41.09	74.00	32.91
4824	19.67	AV	V	30.64	6.03	27.41	28.93	54.00	25.07
7236	30.32	PK	V	34.17	7.47	25.90	46.06	74.00	27.94
7236	18.73	AV	V	34.17	7.47	25.90	34.47	54.00	19.53
9648	28.33	PK	V	36.06	8.81	27.46	45.74	74.00	28.26
9648	19.88	AV	V	36.06	8.81	27.46	37.29	54.00	16.71
1670	35.26	PK	V	23.94	3.40	27.71	34.89	74.00	39.11
1670	23.29	AV	V	23.94	3.40	27.71	22.92	54.00	31.08
328	29.10	QP	V	14.65	2.15	21.59	24.31	46.00	21.69
Middle Channel: 2437 MHz									
2437	59.86	PK	H	25.74	4.41	0.00	90.01	N/A	N/A
2437	49.69	AV	H	25.74	4.41	0.00	79.84	N/A	N/A
2437	71.67	PK	V	25.74	4.41	0.00	101.82	N/A	N/A
2437	61.54	AV	V	25.74	4.41	0.00	91.69	N/A	N/A
4874	31.45	PK	V	30.77	6.09	27.42	40.89	74.00	33.11
4874	19.23	AV	V	30.77	6.09	27.42	28.67	54.00	25.33
7311	30.44	PK	V	34.35	7.51	25.88	46.42	74.00	27.58
7311	19.02	AV	V	34.35	7.51	25.88	35.00	54.00	19.00
9748	29.31	PK	V	36.30	8.83	27.24	47.20	74.00	26.80
9748	19.88	AV	V	36.30	8.83	27.24	37.77	54.00	16.23
1670	35.77	PK	V	23.94	3.40	27.71	35.40	74.00	38.60
1670	24.02	AV	V	23.94	3.40	27.71	23.65	54.00	30.35
2927	35.21	PK	V	27.01	6.71	27.54	41.39	74.00	32.61
2927	23.41	AV	V	27.01	6.71	27.54	29.59	54.00	24.41
328	28.90	QP	V	14.65	2.15	21.59	24.11	46.00	21.89
High Channel: 2462 MHz									
2462	62.14	PK	H	25.80	4.43	0.00	92.37	N/A	N/A
2462	50.33	AV	H	25.80	4.43	0.00	80.56	N/A	N/A
2462	70.28	PK	V	25.80	4.43	0.00	100.51	N/A	N/A
2462	60.25	AV	V	25.80	4.43	0.00	90.48	N/A	N/A
2483.5	26.63	PK	V	25.86	4.49	0.00	56.98	74.00	17.02
2483.5	13.91	AV	V	25.86	4.49	0.00	44.26	54.00	9.74
4924	32.10	PK	V	30.90	5.97	27.43	41.54	74.00	32.46
4924	20.56	AV	V	30.90	5.97	27.43	30.00	54.00	24.00
7386	30.24	PK	V	34.53	7.55	25.86	46.46	74.00	27.54
7386	19.13	AV	V	34.53	7.55	25.86	35.35	54.00	18.65
9848	29.66	PK	V	36.54	8.85	26.94	48.11	74.00	25.89
9848	19.78	AV	V	36.54	8.85	26.94	38.23	54.00	15.77
1670	36.11	PK	V	23.94	3.40	27.71	35.74	74.00	38.26
1670	23.56	AV	V	23.94	3.40	27.71	23.19	54.00	30.81
328	28.50	QP	V	14.65	2.15	21.59	23.71	46.00	22.29

802.11 n ht20 Mode

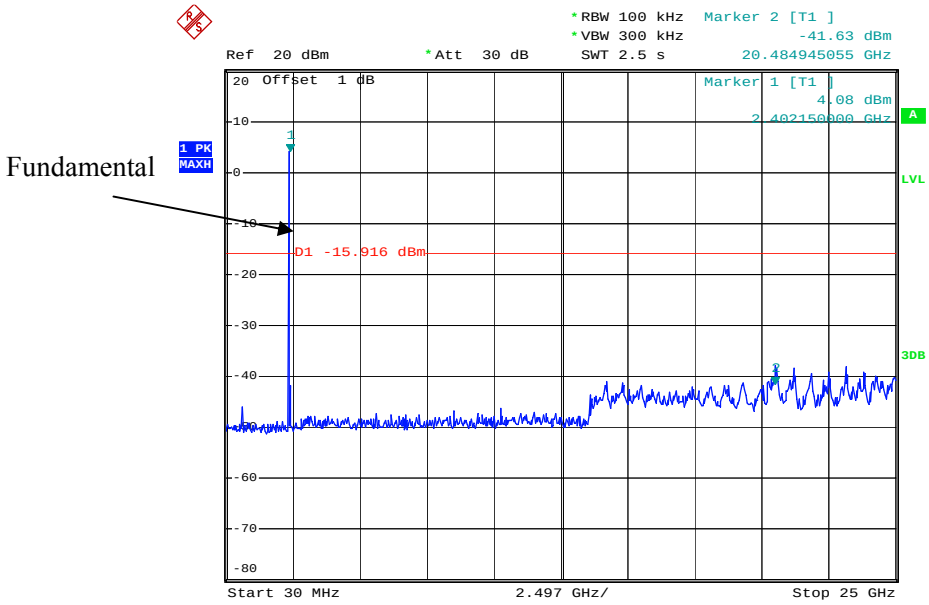
Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBµV/m)	Limit (dBµV/m)	Margin (dB)
	Reading (dBµV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)					
Low Channel: 2412 MHz									
2412	59.00	PK	H	25.67	4.42	0.00	89.09	N/A	N/A
2412	46.96	AV	H	25.67	4.42	0.00	77.05	N/A	N/A
2412	69.96	PK	V	25.67	4.42	0.00	100.05	N/A	N/A
2412	58.70	AV	V	25.67	4.42	0.00	88.79	N/A	N/A
2390	25.63	PK	H	25.61	4.39	0.00	55.63	74.00	18.37
2390	12.97	AV	H	25.61	4.39	0.00	42.97	54.00	11.03
4824	32.03	PK	H	30.64	6.03	27.41	41.29	74.00	32.71
4824	18.98	AV	H	30.64	6.03	27.41	28.24	54.00	25.76
7236	30.64	PK	H	34.17	7.47	25.90	46.38	74.00	27.62
7236	18.51	AV	H	34.17	7.47	25.90	34.25	54.00	19.75
9648	29.03	PK	H	36.06	8.81	27.46	46.44	74.00	27.56
9648	19.67	AV	H	36.06	8.81	27.46	37.08	54.00	16.92
1670	36.00	PK	H	23.94	3.40	27.71	35.63	74.00	38.37
1670	23.64	AV	H	23.94	3.40	27.71	23.27	54.00	30.73
328	29.10	QP	V	14.65	2.15	21.59	24.31	46.00	21.69
Middle Channel: 2437 MHz									
2437	58.92	PK	H	25.74	4.41	0.00	89.07	N/A	N/A
2437	47.38	AV	H	25.74	4.41	0.00	77.53	N/A	N/A
2437	68.72	PK	V	25.74	4.41	0.00	98.87	N/A	N/A
2437	56.72	AV	V	25.74	4.41	0.00	86.87	N/A	N/A
4874	31.46	PK	H	30.77	6.09	27.42	40.90	74.00	33.10
4874	19.22	AV	H	30.77	6.09	27.42	28.66	54.00	25.34
7311	30.27	PK	H	34.35	7.51	25.88	46.25	74.00	27.75
7311	19.30	AV	H	34.35	7.51	25.88	35.28	54.00	18.72
9748	29.74	PK	H	36.30	8.83	27.24	47.63	74.00	26.37
9748	19.68	AV	H	36.30	8.83	27.24	37.57	54.00	16.43
1870	36.08	PK	H	24.34	3.70	27.51	36.61	74.00	37.39
1870	25.79	AV	H	24.34	3.70	27.51	26.32	54.00	27.68
1670	35.02	PK	H	23.94	3.40	27.71	34.65	74.00	39.35
1670	24.76	AV	H	23.94	3.40	27.71	24.39	54.00	29.61
328	29.30	QP	V	14.65	2.15	21.59	24.51	46.00	21.49
High Channel: 2462 MHz									
2462	58.92	PK	H	25.80	4.43	0.00	89.15	N/A	N/A
2462	47.38	AV	H	25.80	4.43	0.00	77.61	N/A	N/A
2462	68.89	PK	V	25.80	4.43	0.00	99.12	N/A	N/A
2462	56.07	AV	V	25.80	4.43	0.00	86.30	N/A	N/A
2483.5	26.96	PK	H	25.86	4.49	0.00	57.31	74.00	16.69
2483.5	12.79	AV	H	25.86	4.49	0.00	43.14	54.00	10.86
4924	31.55	PK	H	30.90	5.97	27.43	40.99	74.00	33.01
4924	19.27	AV	H	30.90	5.97	27.43	28.71	54.00	25.29
7386	30.47	PK	H	34.53	7.55	25.86	46.69	74.00	27.31
7386	19.83	AV	H	34.53	7.55	25.86	36.05	54.00	17.95
9848	29.31	PK	H	36.54	8.85	26.94	47.76	74.00	26.24
9848	19.97	AV	H	36.54	8.85	26.94	38.42	54.00	15.58
1670	35.53	PK	H	23.94	3.40	27.71	35.16	74.00	38.84
1670	23.80	AV	H	23.94	3.40	27.71	23.43	54.00	30.57
328	29.00	QP	V	14.65	2.15	21.59	24.21	46.00	21.79

802.11 n ht40 Mode

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBµV/m)	Limit (dBµV/m)	Margin (dB)
	Reading (dBµV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)					
Low Channel: 2422 MHz									
2422	57.23	PK	H	25.70	4.41	0.00	87.34	N/A	N/A
2422	46.07	AV	H	25.70	4.41	0.00	76.18	N/A	N/A
2422	64.41	PK	V	25.70	4.41	0.00	94.52	N/A	N/A
2422	53.42	AV	V	25.70	4.41	0.00	83.53	N/A	N/A
2390	26.03	PK	V	25.61	4.39	0.00	56.03	74.00	17.97
2390	13.74	AV	V	25.61	4.39	0.00	43.74	54.00	10.26
4844	31.58	PK	V	30.69	6.08	27.42	40.93	74.00	33.07
4844	19.96	AV	V	30.69	6.08	27.42	29.31	54.00	24.69
7266	30.36	PK	V	34.24	7.48	25.89	46.19	74.00	27.81
7266	18.72	AV	V	34.24	7.48	25.89	34.55	54.00	19.45
9688	28.33	PK	V	36.15	8.82	27.37	45.93	74.00	28.07
9688	19.68	AV	V	36.15	8.82	27.37	37.28	54.00	16.72
1670	35.97	PK	V	23.94	3.40	27.71	35.60	74.00	38.40
1670	24.01	AV	V	23.94	3.40	27.71	23.64	54.00	30.36
328	28.70	QP	V	14.65	2.15	21.59	23.91	46.00	22.09
Middle Channel: 2437 MHz									
2437	58.92	PK	H	25.74	4.41	0.00	89.07	N/A	N/A
2437	47.38	AV	H	25.74	4.41	0.00	77.53	N/A	N/A
2437	68.72	PK	V	25.74	4.41	0.00	98.87	N/A	N/A
2437	56.72	AV	V	25.74	4.41	0.00	86.87	N/A	N/A
4874	31.54	PK	V	30.77	6.09	27.42	40.98	74.00	33.02
4874	19.78	AV	V	30.77	6.09	27.42	29.22	54.00	24.78
7311	31.08	PK	V	34.35	7.51	25.88	47.06	74.00	26.94
7311	19.27	AV	V	34.35	7.51	25.88	35.25	54.00	18.75
9748	28.67	PK	V	36.30	8.83	27.24	46.56	74.00	27.44
9748	19.89	AV	V	36.30	8.83	27.24	37.78	54.00	16.22
1670	36.02	PK	V	23.94	3.40	27.71	35.65	74.00	38.35
1670	24.33	AV	V	23.94	3.40	27.71	23.96	54.00	30.04
2927	34.88	PK	V	27.01	6.71	27.54	41.06	74.00	32.94
2927	24.26	AV	V	27.01	6.71	27.54	30.44	54.00	23.56
328	28.90	QP	V	14.65	2.15	21.59	24.11	46.00	21.89
High Channel: 2452 MHz									
2452	57.47	PK	H	25.78	4.41	0.00	87.66	N/A	N/A
2452	47.73	AV	H	25.78	4.41	0.00	77.92	N/A	N/A
2452	64.59	PK	V	25.78	4.41	0.00	94.78	N/A	N/A
2452	54.86	AV	V	25.78	4.41	0.00	85.05	N/A	N/A
2483.5	25.69	PK	V	25.86	4.49	0.00	56.04	74.00	17.96
2483.5	13.46	AV	V	25.86	4.49	0.00	43.81	54.00	10.19
4904	32.07	PK	V	30.85	6.06	27.43	41.55	74.00	32.45
4904	20.09	AV	V	30.85	6.06	27.43	29.57	54.00	24.43
7356	31.02	PK	V	34.45	7.53	25.87	47.13	74.00	26.87
7356	19.67	AV	V	34.45	7.53	25.87	35.78	54.00	18.22
9808	28.88	PK	V	36.44	8.84	27.09	47.07	74.00	26.93
9808	17.61	AV	V	36.44	8.84	27.09	35.80	54.00	18.20
1670	35.91	PK	V	23.94	3.40	27.71	35.54	74.00	38.46
1670	24.82	AV	V	23.94	3.40	27.71	24.45	54.00	29.55
328	28.80	QP	V	14.65	2.15	21.59	24.01	46.00	21.99

Conducted Spurious Emissions at Antenna Port

802.11b Low Channel



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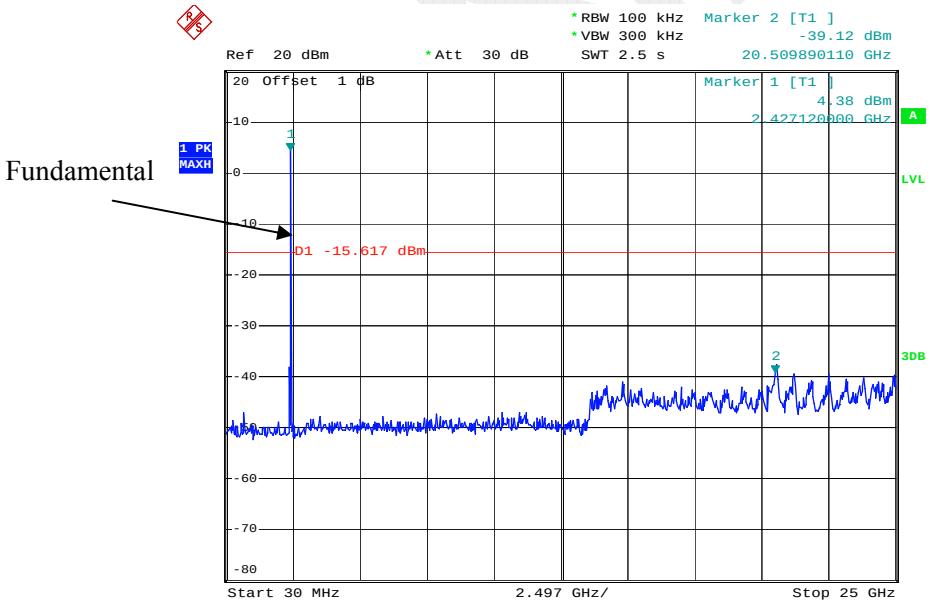
802.11b Middle Channel



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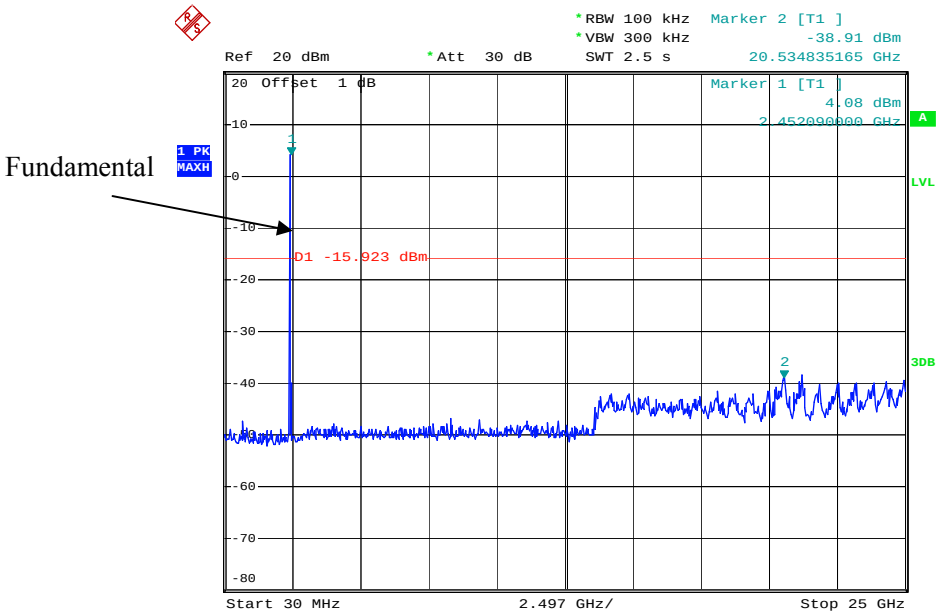
802.11b High Channel



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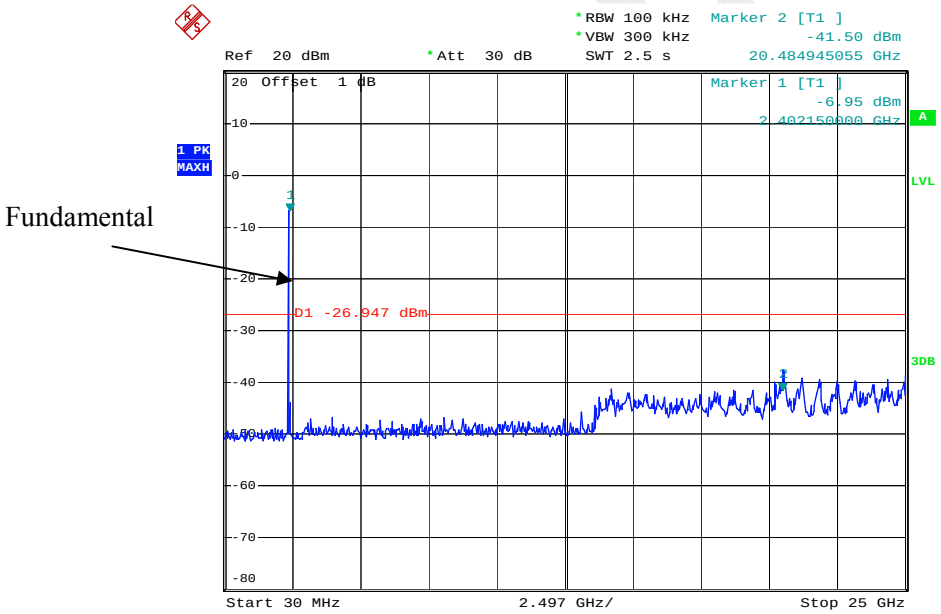
802.11g Low Channel



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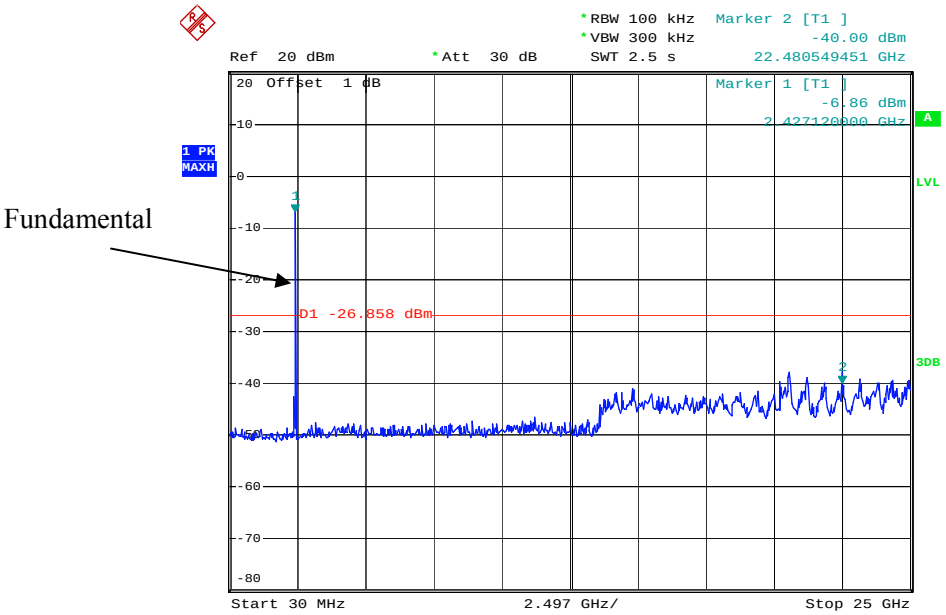
802.11g Middle Channel



Fundamental

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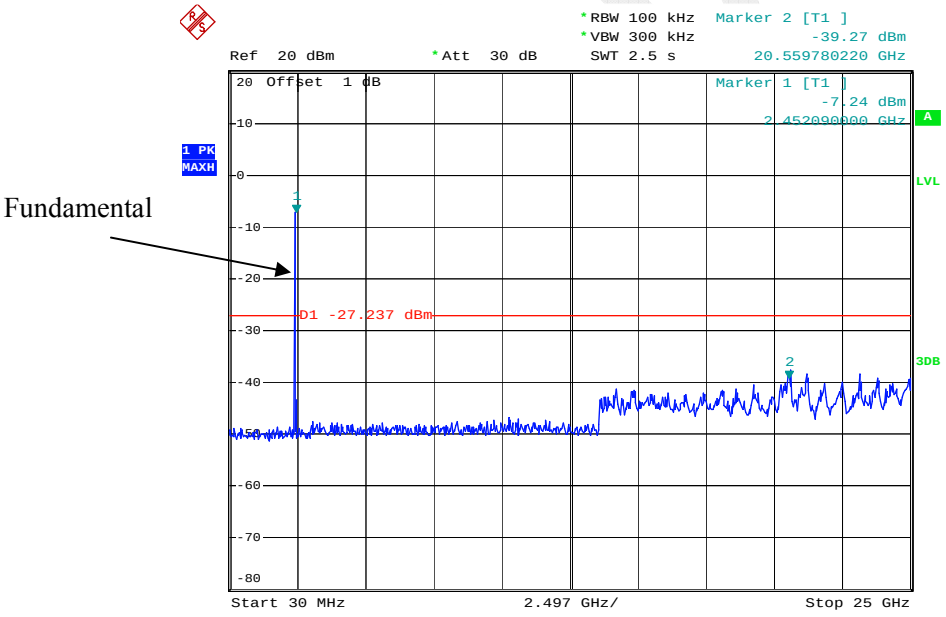
802.11g High Channel



Fundamental

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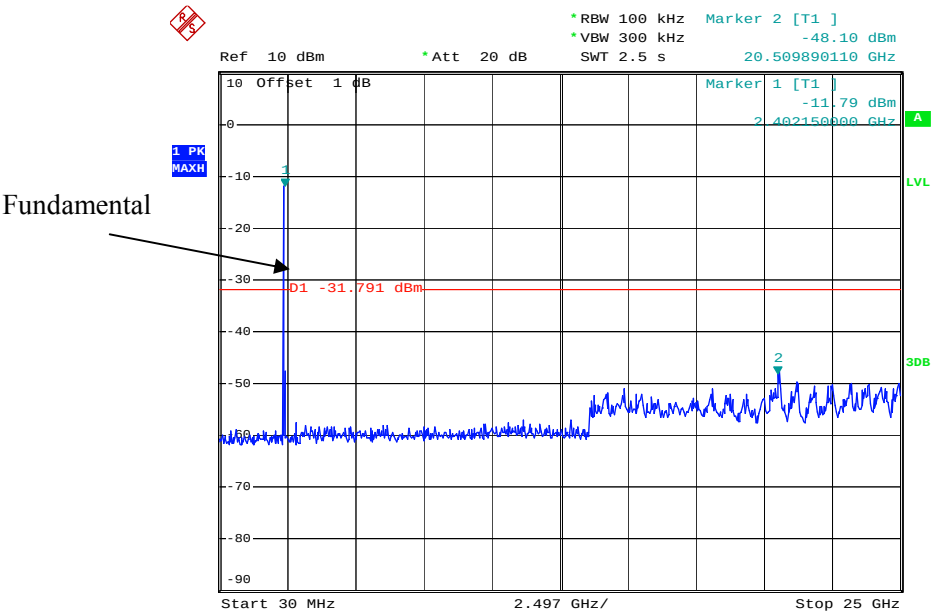
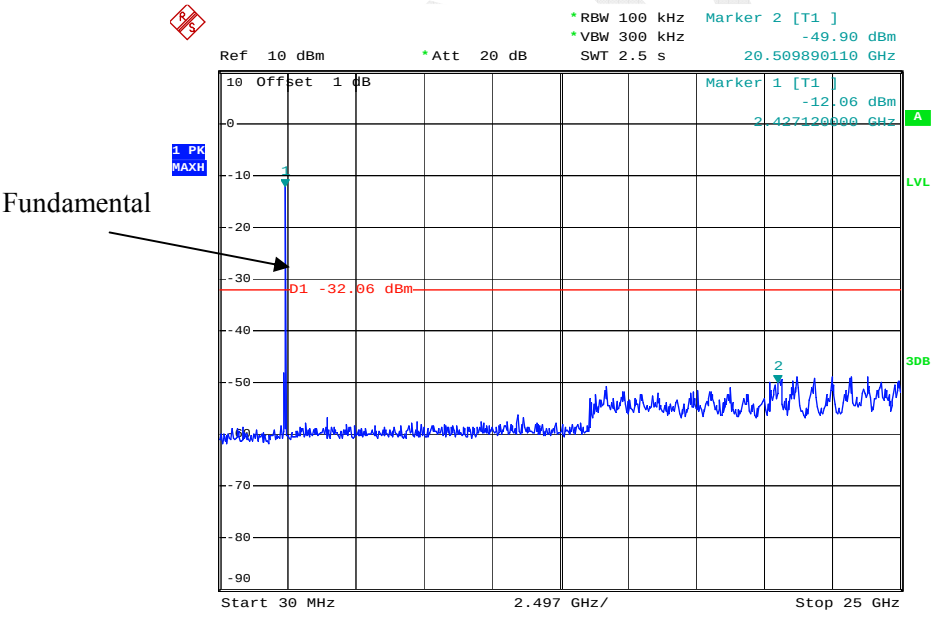
Chain 0: 802.11n ht20 Low Channel



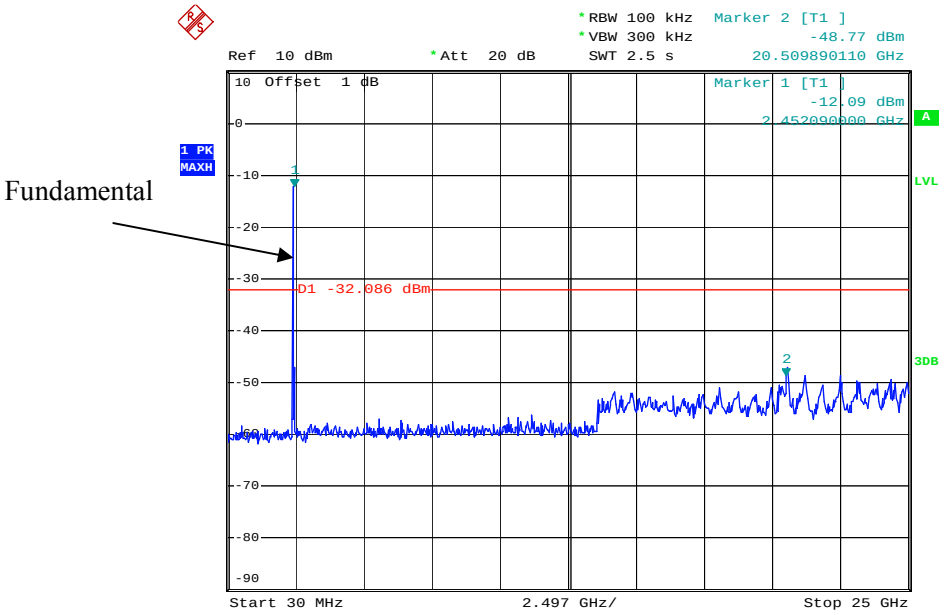
Date: 25.JUL.2014 17:10:02

Chain 0: 802.11n ht20 Middle Channel



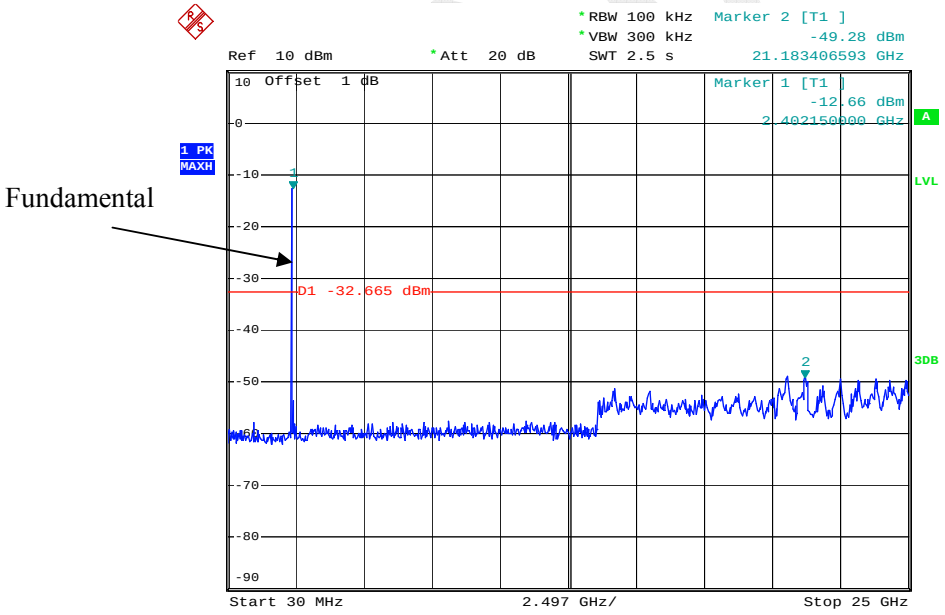
Date: 25.JUL.2014 17:12:37

Chain 0: 802.11n ht20 High Channel



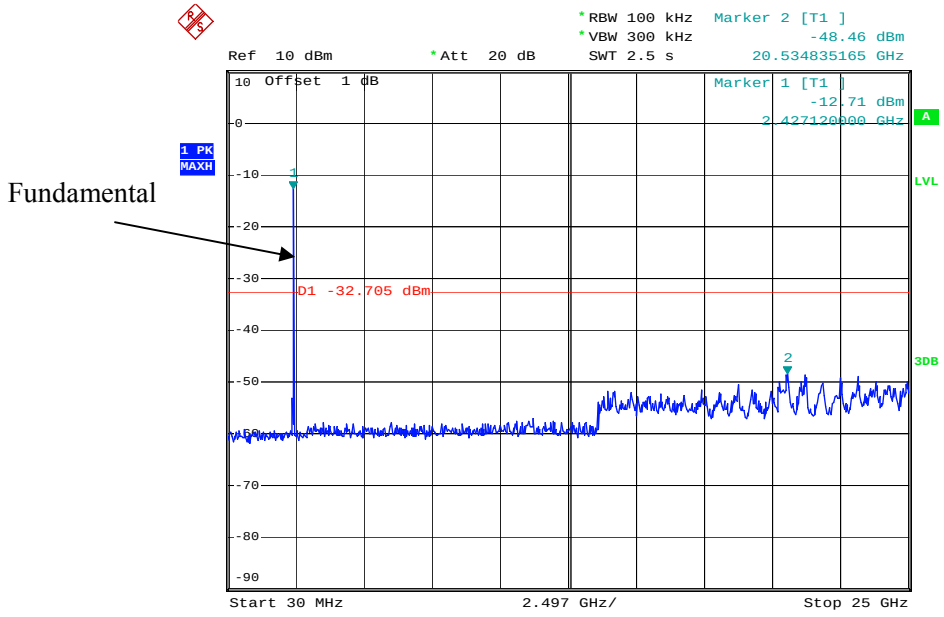
Date: 25.JUL.2014 17:35:36

Chain 1: 802.11n ht20 Low Channel



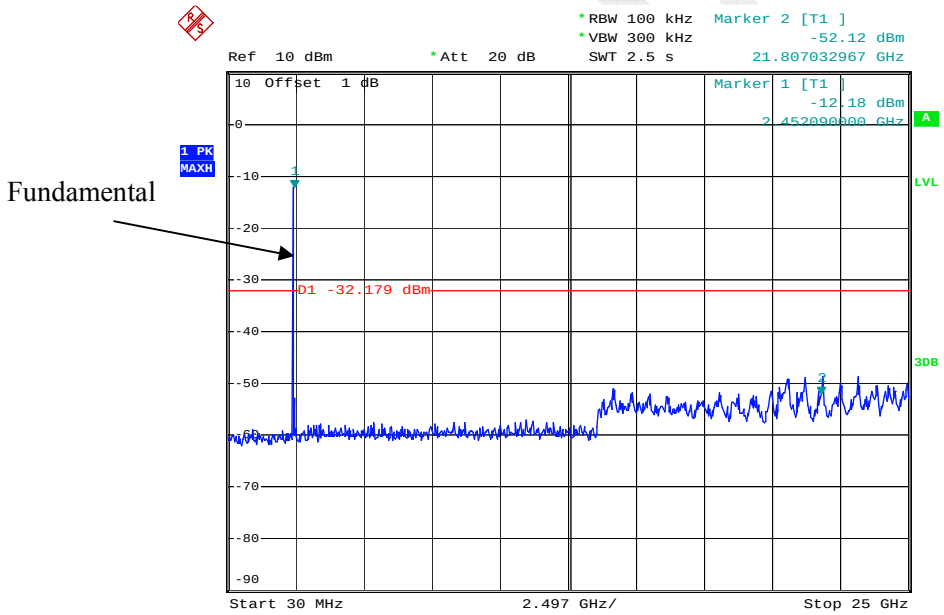
Date: 25.JUL.2014 17:51:37

Chain 1: 802.11n ht20 Middle Channel



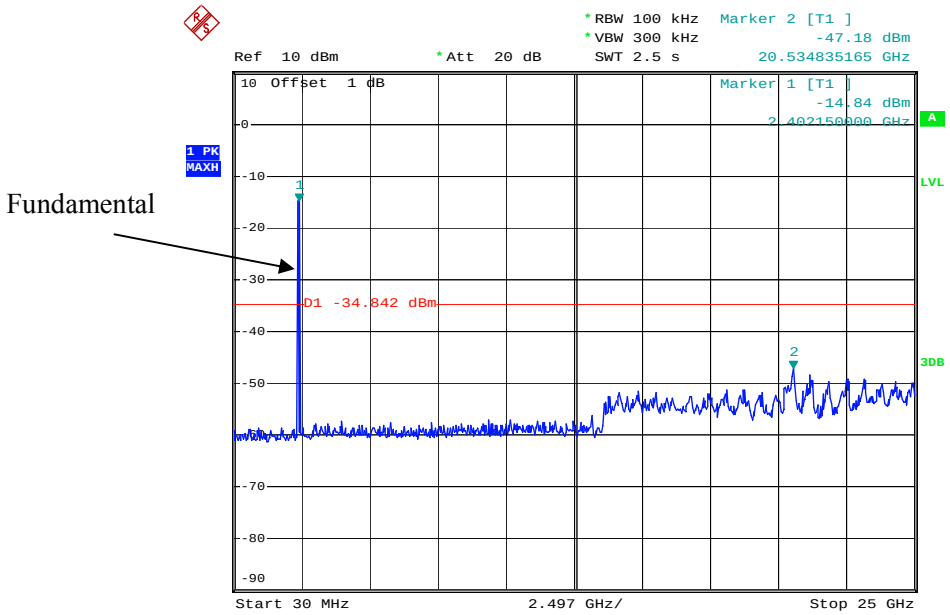
Date: 25.JUL.2014 17:53:17

Chain 1: 802.11n ht20 High Channel



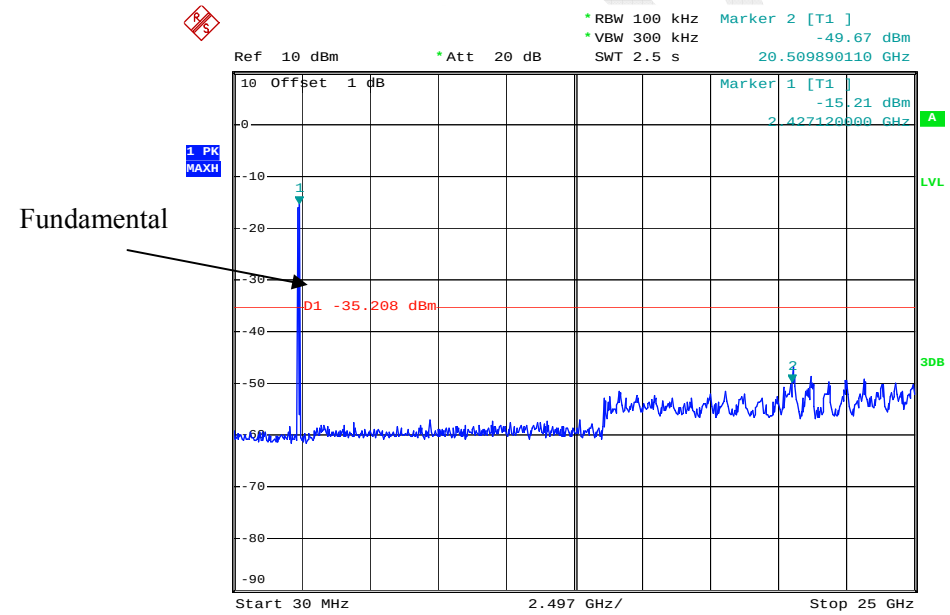
Date: 25.JUL.2014 17:54:41

Chain 0: 802.11n ht40 Low Channel



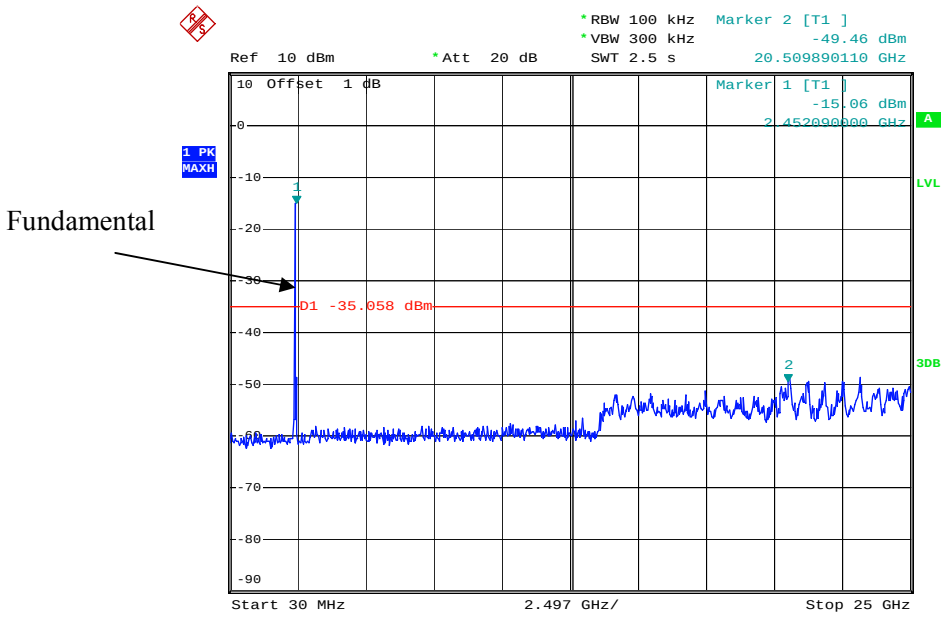
Date: 25.JUL.2014 17:41:59

Chain 0: 802.11n ht40 Middle Channel



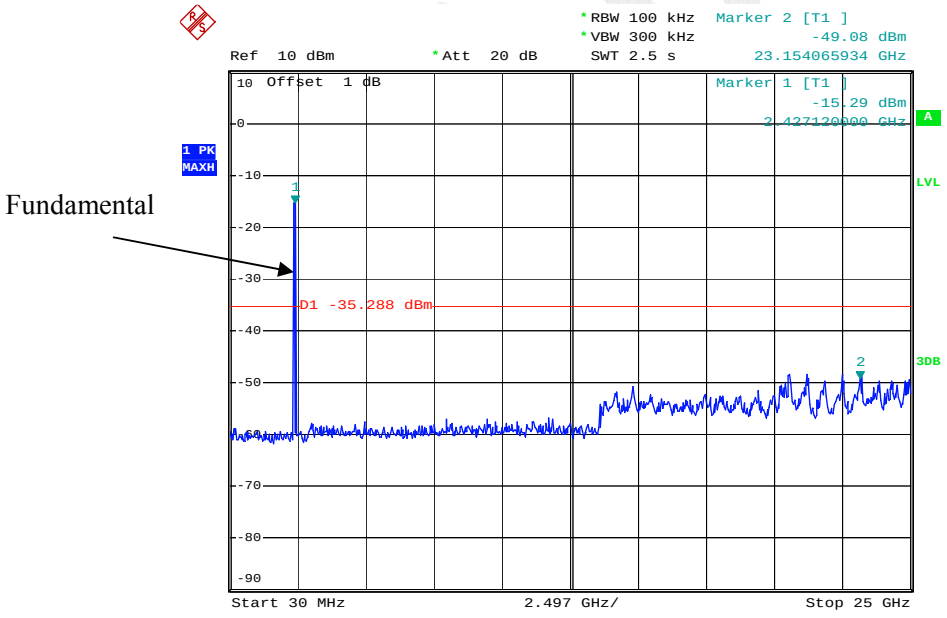
Date: 25.JUL.2014 17:40:08

Chain 0: 802.11n ht40 High Channel



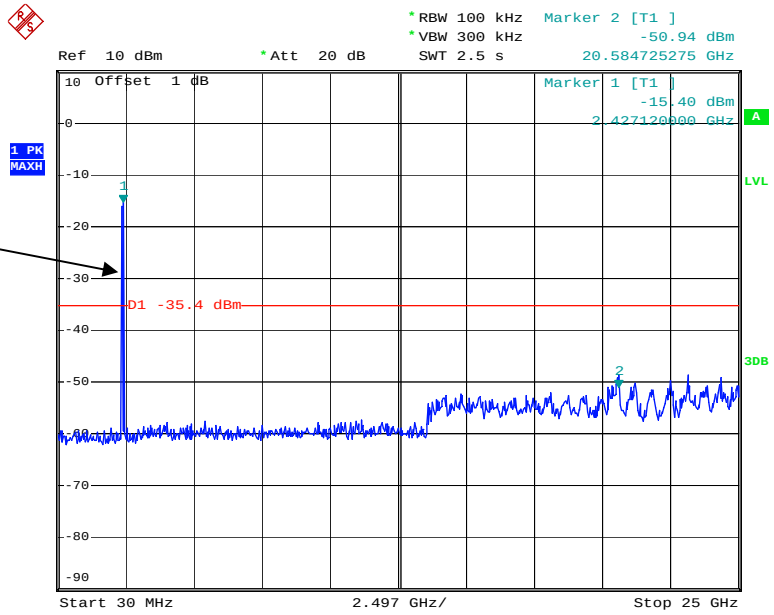
Date: 25.JUL.2014 17:38:04

Chain 1: 802.11n ht40 Low Channel



Date: 25.JUL.2014 17:46:14

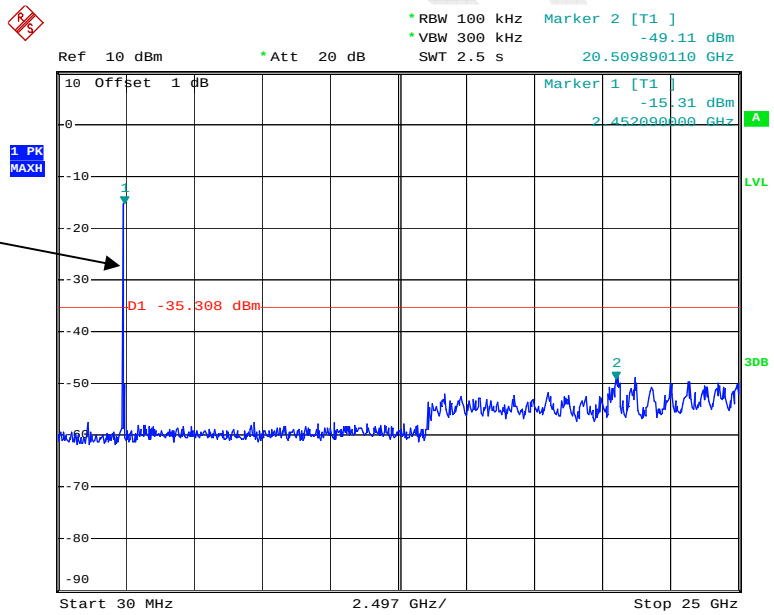
Chain 1: 802.11n ht40 Middle Channel



Fundamental

Date: 25.JUL.2014 17:48:06

Chain 1: 802.11n ht40 High Channel



Fundamental

Date: 25.JUL.2014 17:49:37

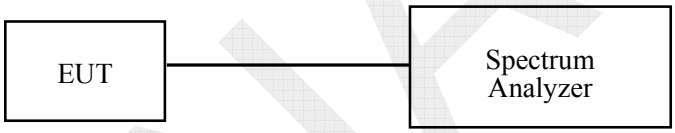
FCC §15.247(a) (2) – 6 dB EMISSION BANDWIDTH

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.

Test Procedure

According to KDB 558074 D01 DTS Meas Guidance v03r02 clause8.1 Option 1:
a) Set RBW = 100 kHz.
b) Set the video bandwidth (VBW) ≥ 3×RBW.
c) Detector = Peak.
d) Trace mode = max hold.
e) Sweep = auto couple.
f) Allow the trace to stabilize.
g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.



Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSP 38	100478	2014-05-09	2015-05-09

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data

Environmental Conditions

Temperature:	30.4 °C
Relative Humidity:	64 %
ATM Pressure:	99.9 kPa

The testing was performed by Dean Liu on 2014-07-25

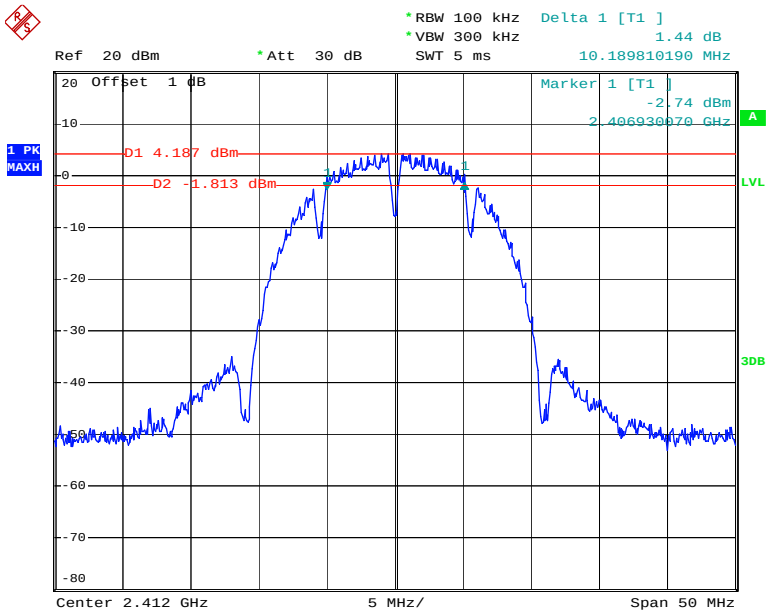
Test Mode: Transmitting

Test Result: Compliant. Please refer to the following tables and plots.

Test mode	Channel	Frequency	6 dB Bandwidth (MHz)		Limit
		(MHz)	Chain0	Chain1	(kHz)
2.4GHz band-802.11b	Low	2412	10.19	/	≥500
	Middle	2437	10.19	/	≥500
	High	2462	10.19	/	≥500
2.4GHz band-802.11g	Low	2412	16.63	/	≥500
	Middle	2437	16.63	/	≥500
	High	2462	16.63	/	≥500
2.4GHz band-802.11n ht20	Low	2412	17.78	17.83	≥500
	Middle	2437	17.78	17.88	≥500
	High	2462	17.83	17.78	≥500
2.4GHz band-802.11nht40	Low	2422	36.56	36.66	≥500
	Middle	2437	36.56	36.66	≥500
	High	2452	36.56	36.66	≥500

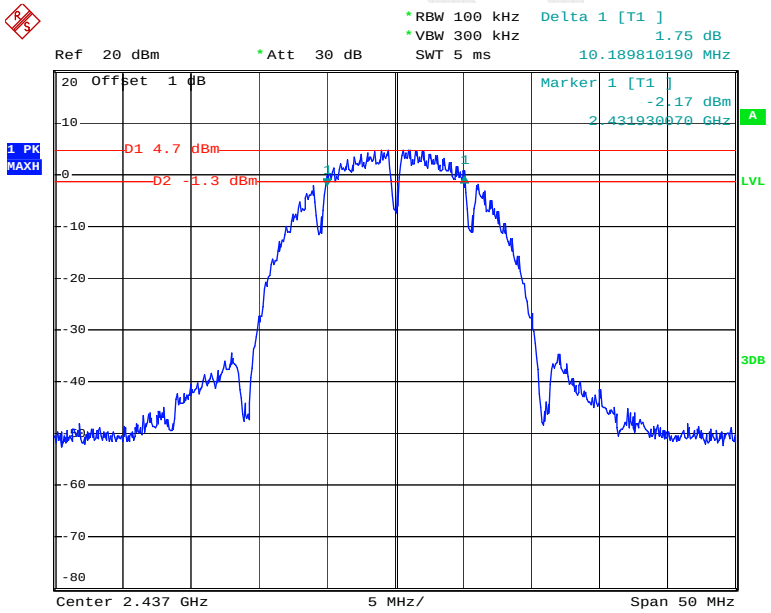
FINAL

802.11b Low Channel



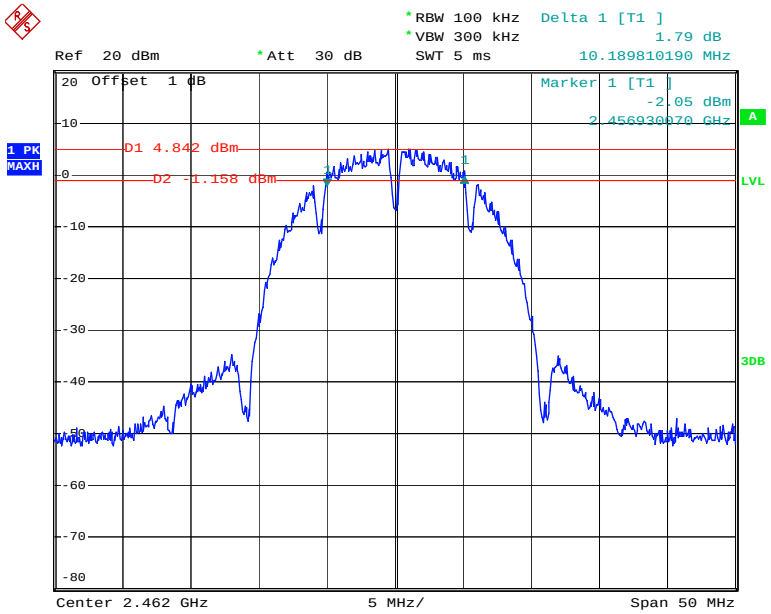
Date: 25.JUL.2014 16:45:25

802.11b Middle Channel



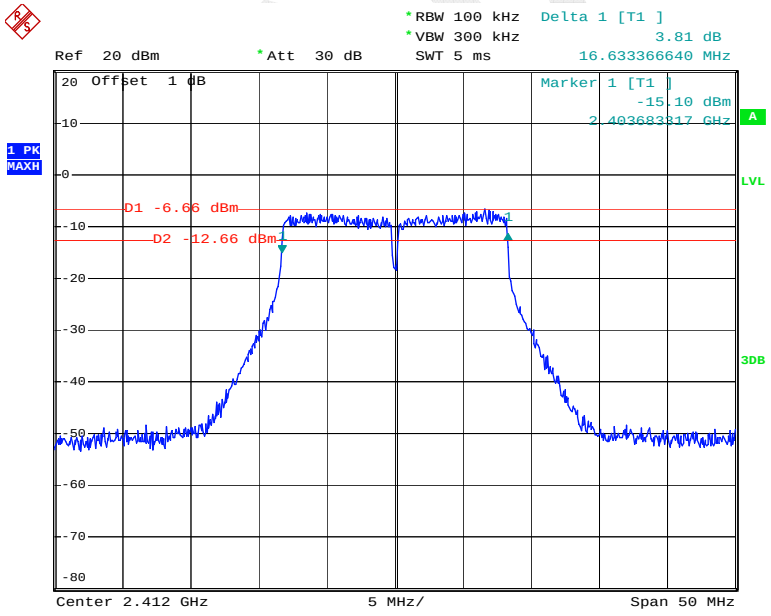
Date: 25.JUL.2014 16:47:19

802.11b High Channel



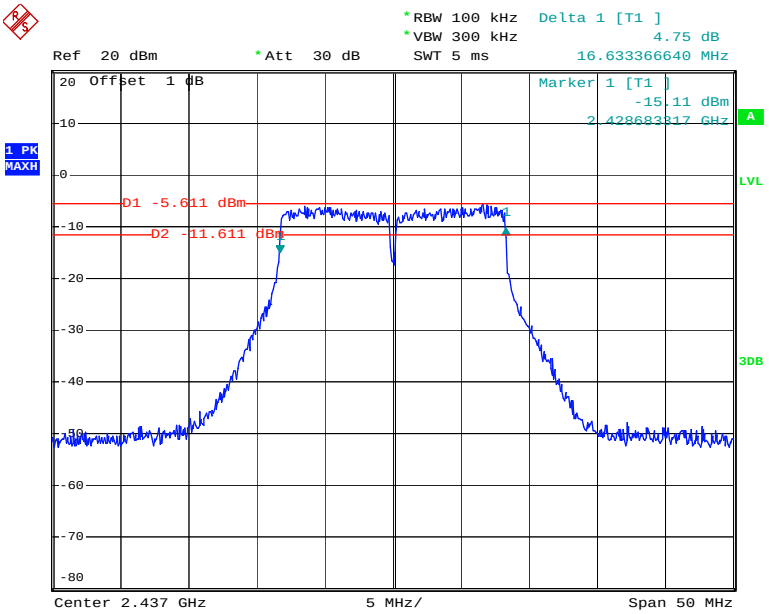
Date: 25.JUL.2014 16:48:29

802.11g Low Channel



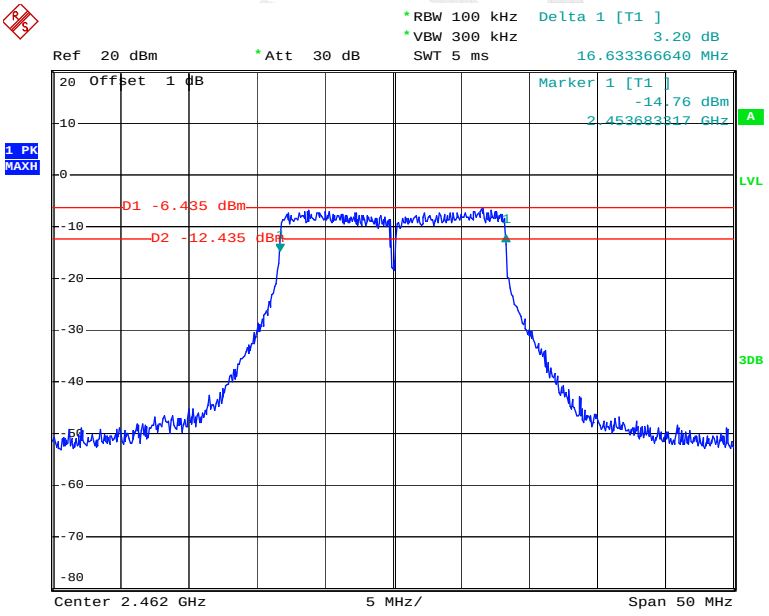
Date: 25.JUL.2014 16:52:45

802.11g Middle Channel



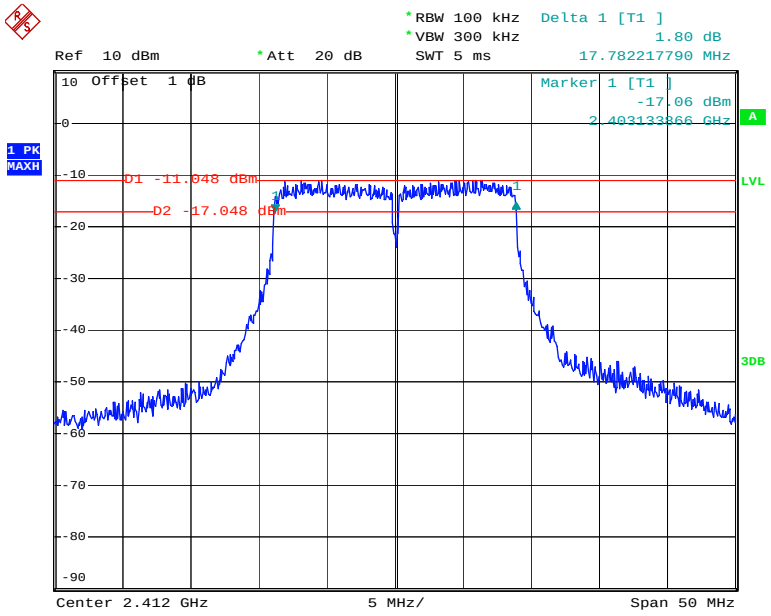
Date: 25.JUL.2014 16:55:22

802.11g High Channel



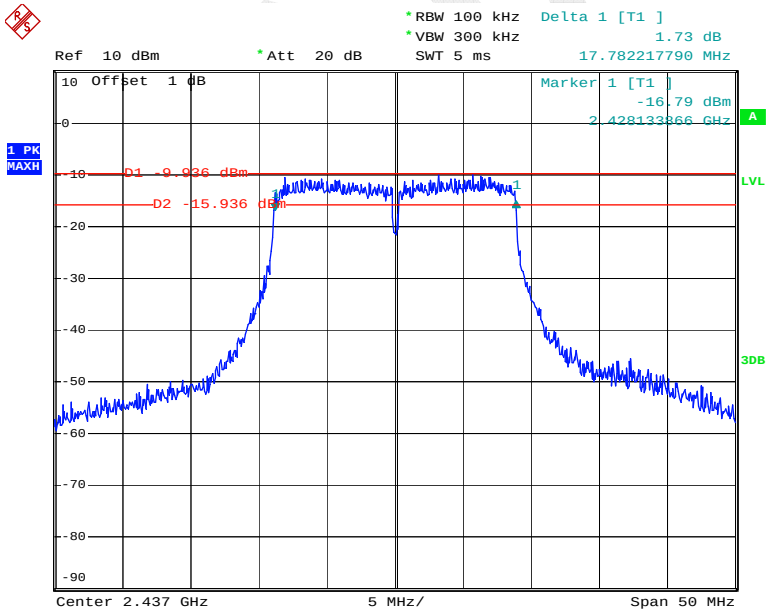
Date: 25.JUL.2014 16:57:09

Chain 0: 802.11n ht20 Low Channel



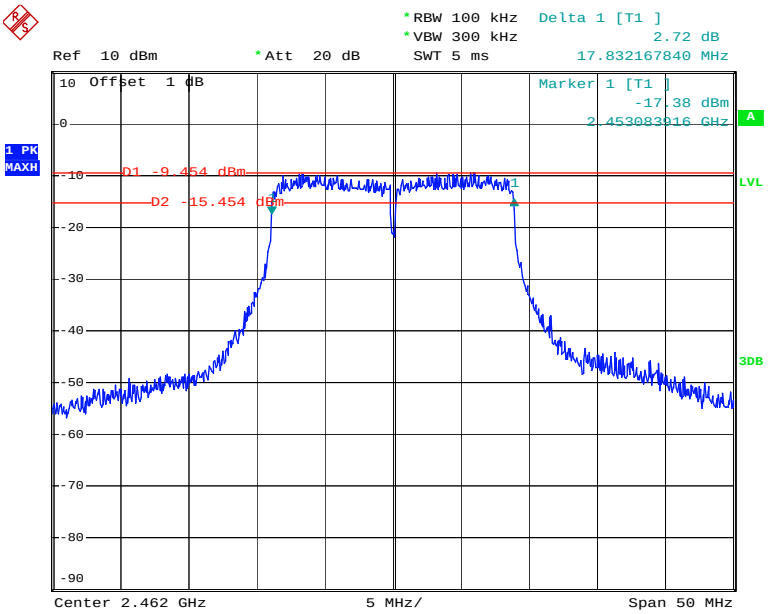
Date: 25.JUL.2014 17:09:14

Chain 0: 802.11n ht20 Middle Channel



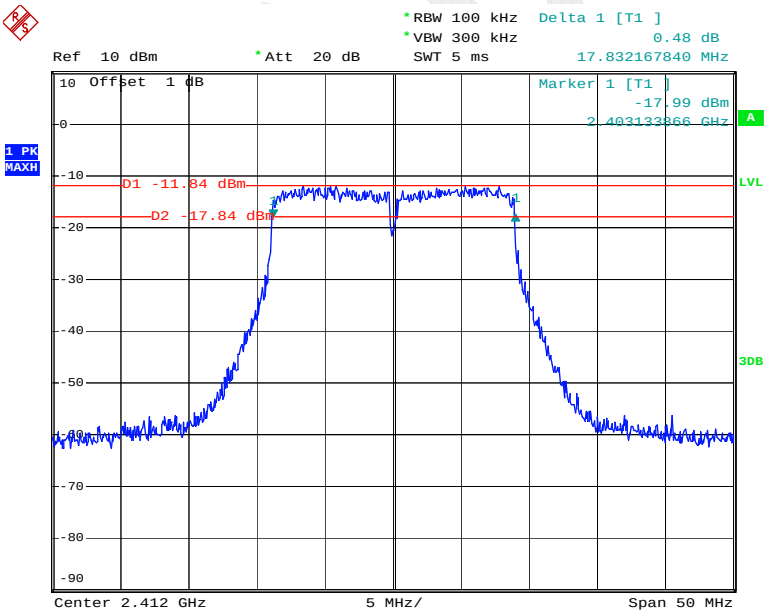
Date: 25.JUL.2014 17:11:44

Chain 0: 802.11n ht20 High Channel



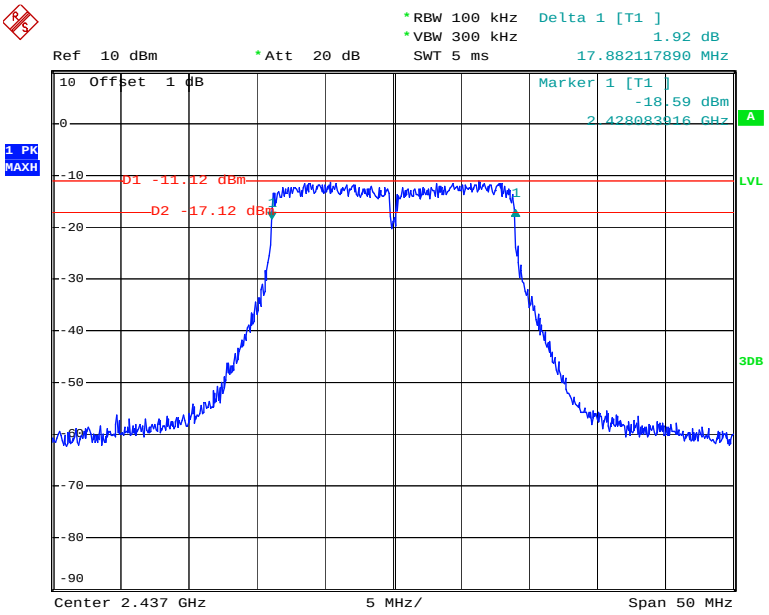
Date: 25.JUL.2014 17:34:11

Chain 1: 802.11n ht20 Low Channel



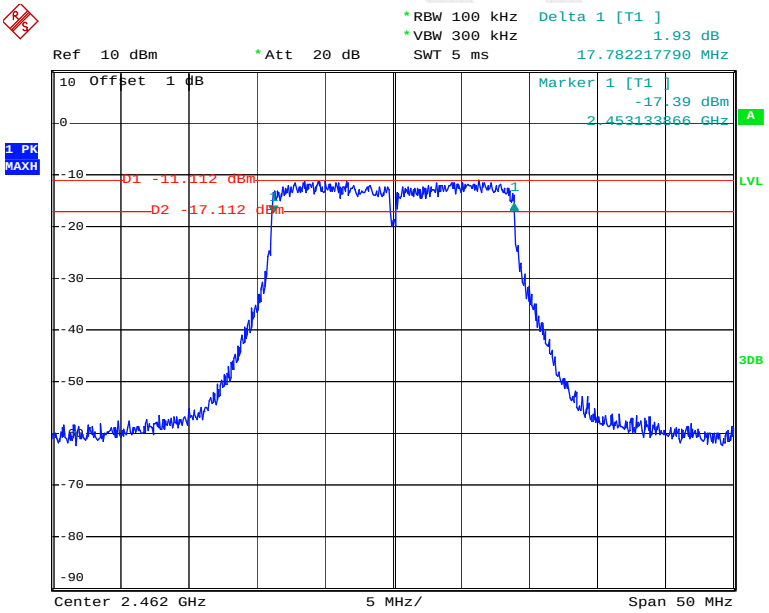
Date: 25.JUL.2014 17:50:47

Chain 1: 802.11n ht20 Middle Channel



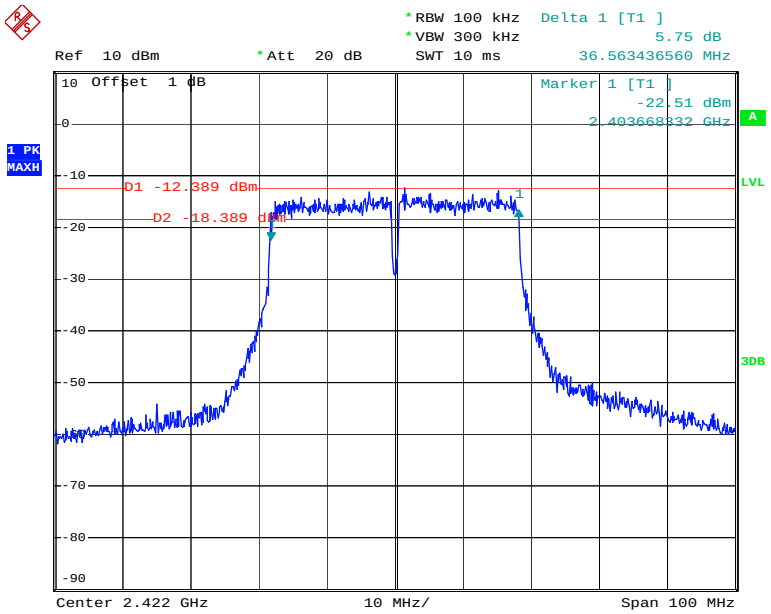
Date: 25.JUL.2014 17:52:25

Chain 1: 802.11n ht20 High Channel



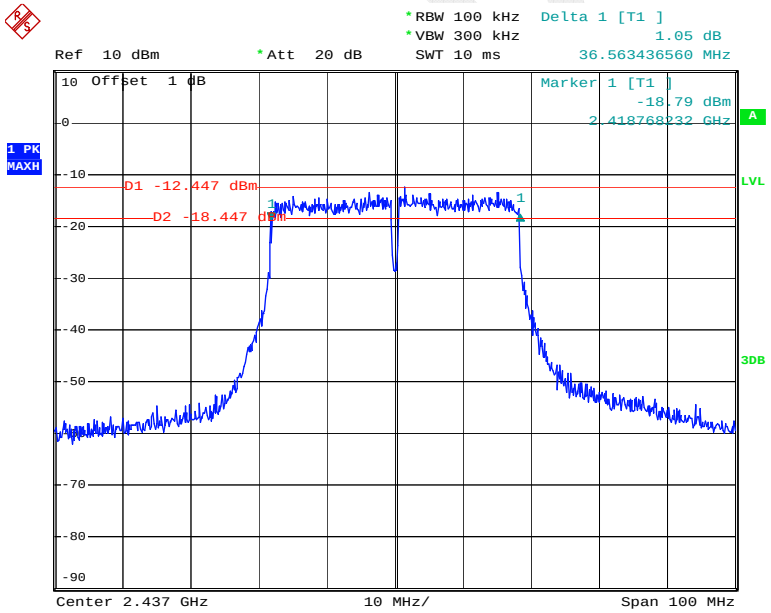
Date: 25.JUL.2014 17:53:52

Chain 0: 802.11n ht40 Low Channel



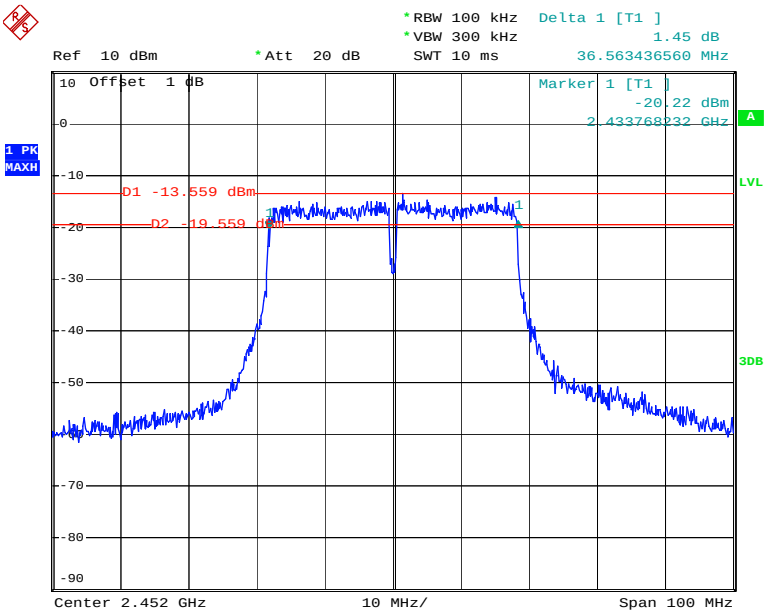
Date: 25.JUL.2014 17:40:40

Chain 0: 802.11n ht40 Middle Channel



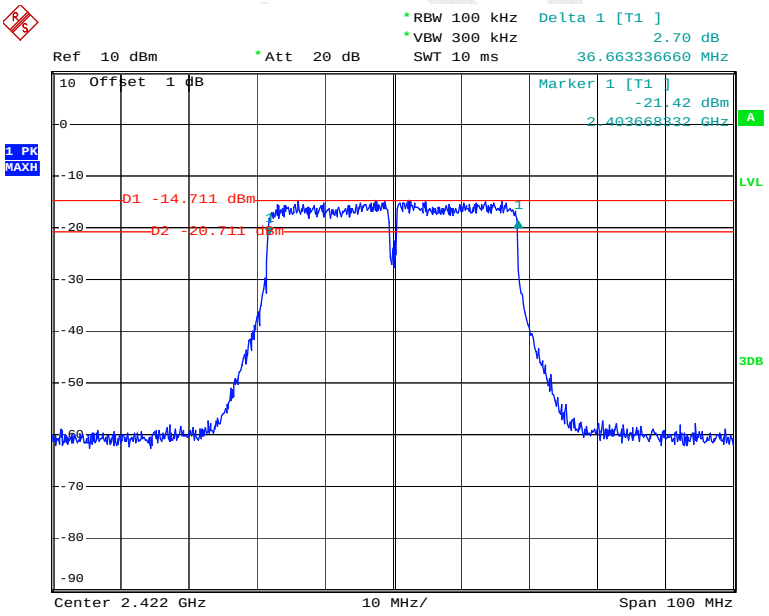
Date: 25.JUL.2014 17:39:06

Chain 0: 802.11n ht40 High Channel



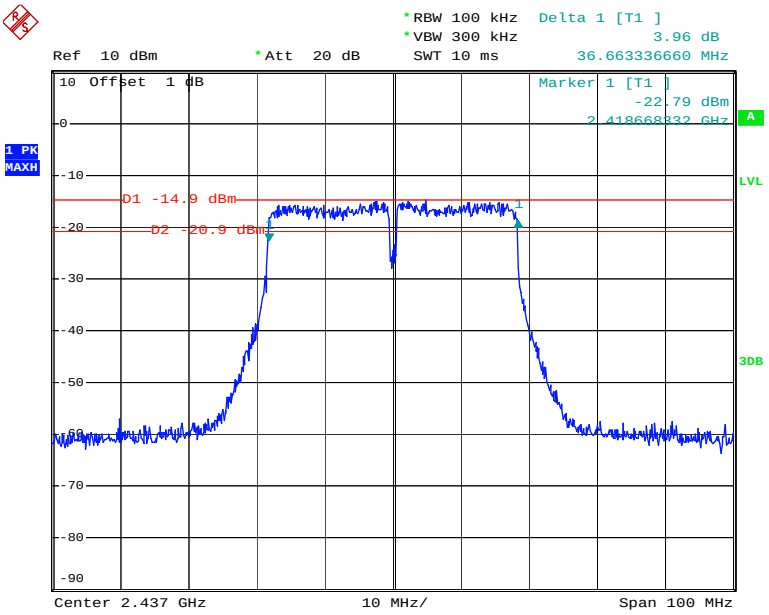
Date: 25.JUL.2014 17:36:52

Chain 1: 802.11n ht40 Low Channel



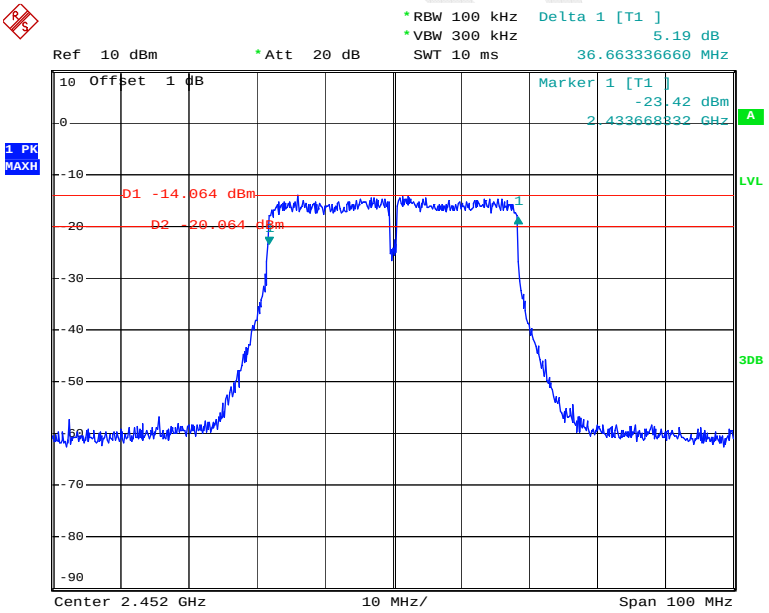
Date: 25.JUL.2014 17:44:53

Chain 1: 802.11n ht40 Middle Channel



Date: 25.JUL.2014 17:47:01

Chain 1: 802.11n ht40 High Channel



Date: 25.JUL.2014 17:48:40

FCC §15.247(b) (3) - MAXIMUM CONDUCTED OUTPUT POWER

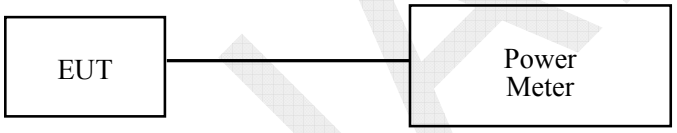
Applicable Standard

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.

Test Procedure

According to KDB 558074 D01 DTS Meas Guidance v03r02 clause9.2.2.2

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 test equipment.
3. Add a correction factor to the display.



Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Agilent	Wideband Power Sensor	N1921A	MY54210016	2013-12-12	2014-12-12
Agilent	Wideband Power Sensor	N1921A	MY54170013	2013-12-12	2014-12-12
Agilent	P-Series Power Meter	N1912A	MY5000448	2013-12-12	2014-12-12

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data

Environmental Conditions

Temperature:	30.4 °C
Relative Humidity:	64 %
ATM Pressure:	99.9 kPa

The testing was performed by Dean Liu on 2014-07-25

Test Mode: Transmitting

Test Result: Compliant. Please refer to the following table.

Test mode	Channel	Frequency	Max Peak Conducted Output Power (dBm)			Limit	Result
		(MHz)	Chain0	Chain1	Total	(dBm)	
2.4GHz band-802.11b	Low	2412	17.16	/	/	30	PASS
	Middle	2437	17.68	/	/	30	PASS
	High	2462	17.39	/	/	30	PASS
2.4GHz band-802.11g	Low	2412	14.67	/	/	30	PASS
	Middle	2437	14.88	/	/	30	PASS
	High	2462	14.51	/	/	30	PASS
2.4GHz band-802.11n ht20	Low	2412	10.46	10.42	13.45	30	PASS
	Middle	2437	10.70	10.42	13.57	30	PASS
	High	2462	10.46	10.57	13.53	30	PASS
2.4GHz band-802.11n ht40	Low	2422	10.51	10.89	13.71	30	PASS
	Middle	2437	10.44	10.59	13.53	30	PASS
	High	2452	10.61	10.45	13.54	30	PASS

FINAL

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

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
R&S	Spectrum Analyzer	FSP 38	100478	2014-05-09	2015-05-09

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data

Environmental Conditions

Temperature:	30.4 °C
Relative Humidity:	64 %
ATM Pressure:	99.9 kPa

The testing was performed by Dean Liu on 2014-07-25

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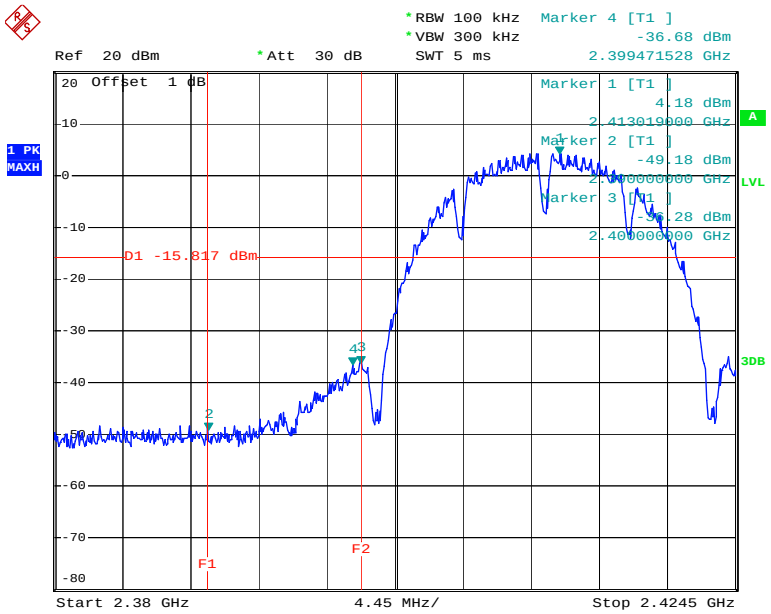
Test Mode: Transmitting

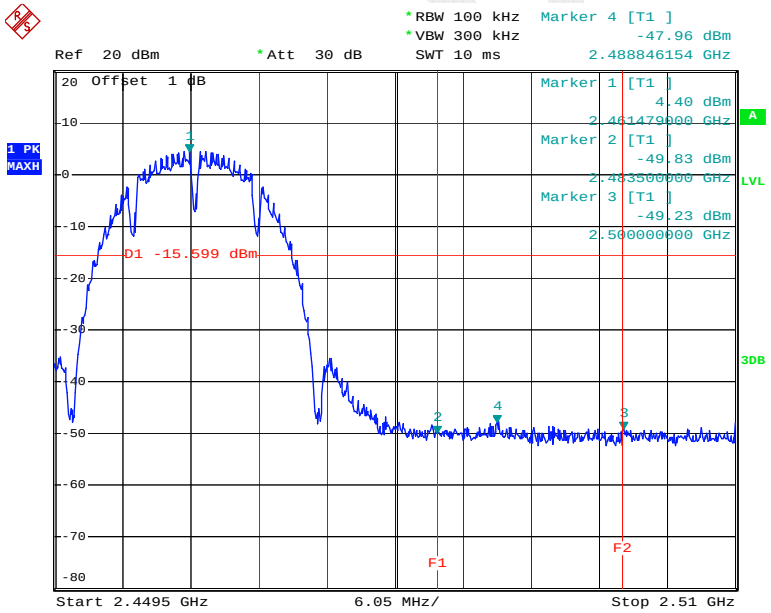
Test Result: Compliant. Please refer to the following plots.

802.11b: Band Edge, Left Side



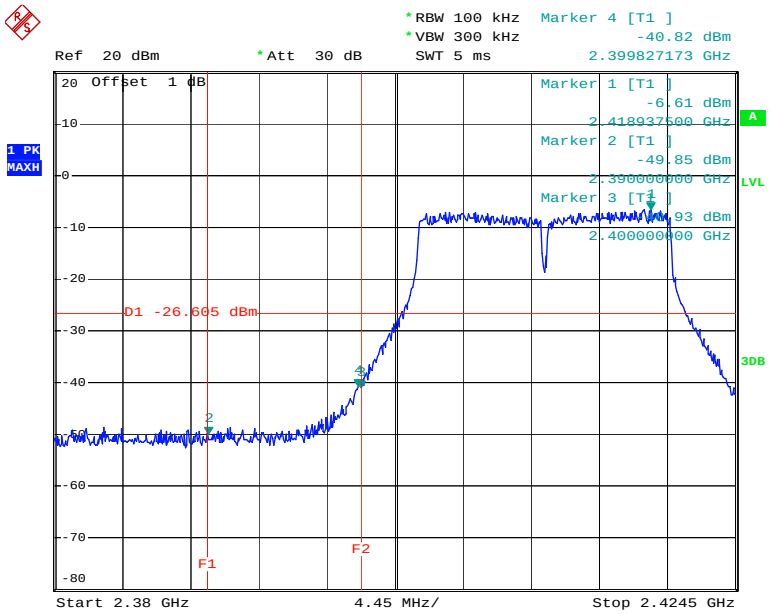
Date: 25.JUL.2014 16:46:45

802.11b: Band Edge, Right Side



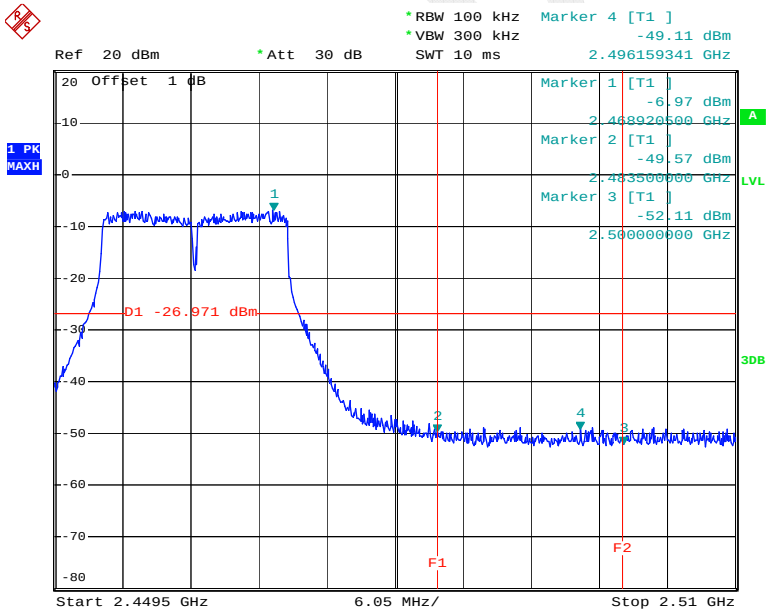
Date: 25.JUL.2014 16:49:44

802.11g: Band Edge, Left Side



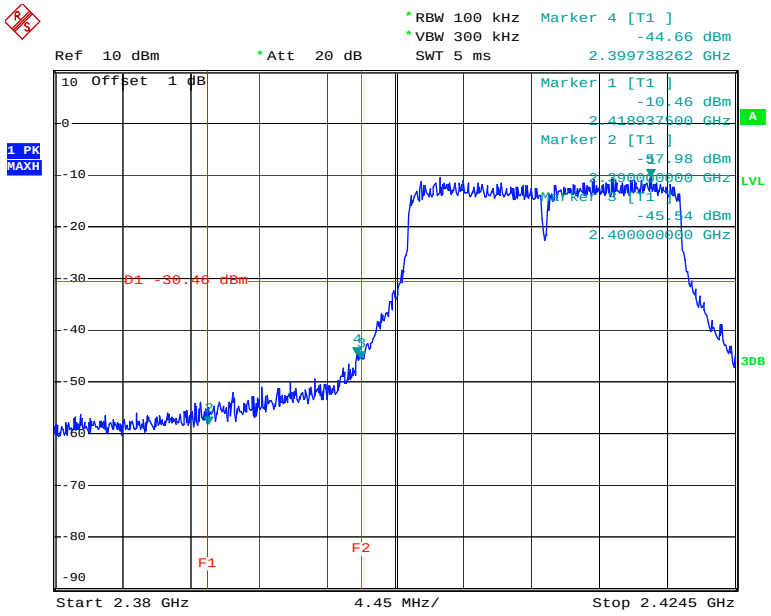
Date: 25.JUL.2014 16:54:37

802.11g: Band Edge, Right Side



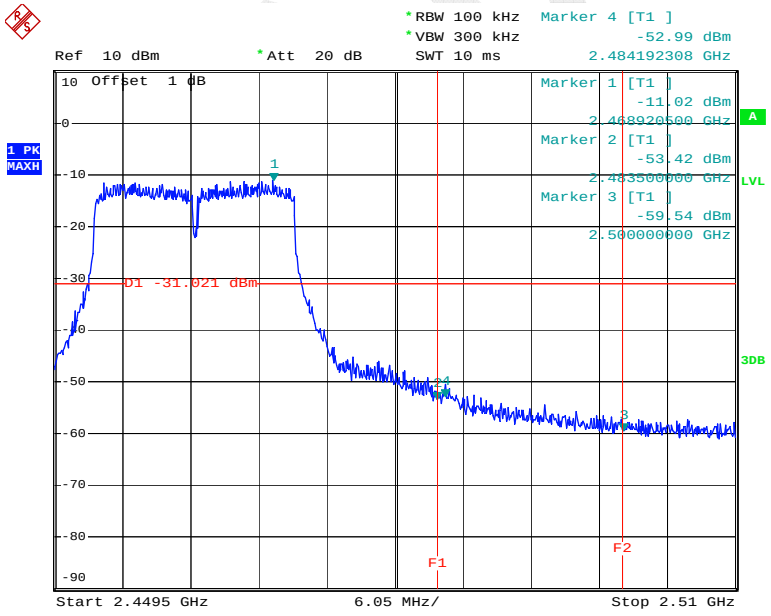
Date: 25.JUL.2014 16:58:30

Chain 0: 802.11n ht20 Band Edge, Left Side



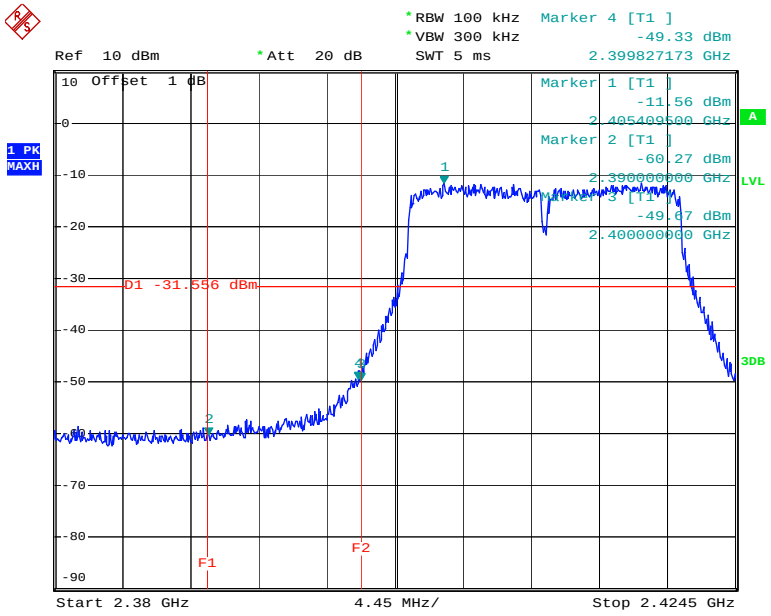
Date: 25.JUL.2014 17:10:14

Chain 0: 802.11n ht20 Band Edge, Right Side



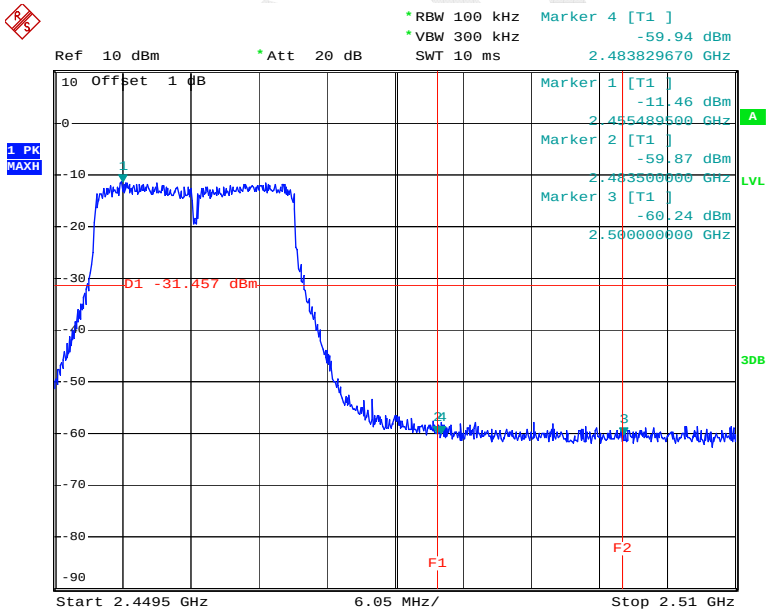
Date: 25.JUL.2014 17:35:48

Chain 1: 802.11n ht20 Band Edge, Left Side



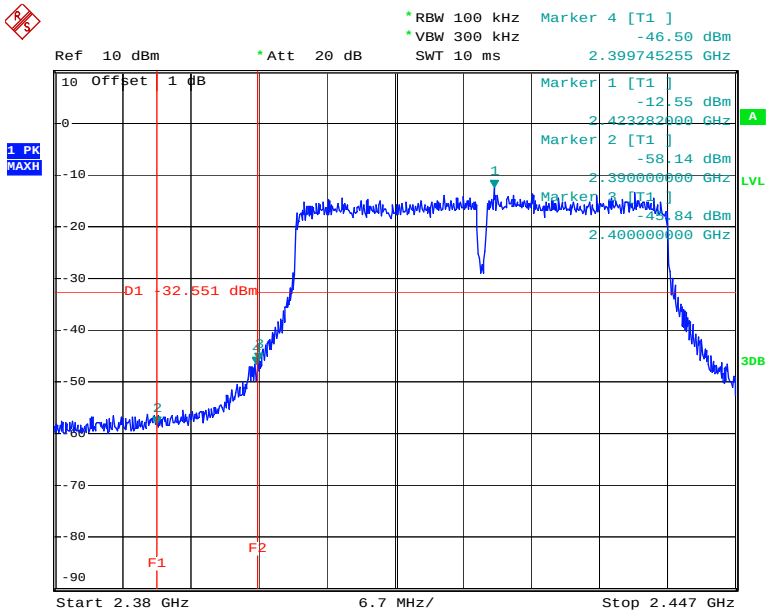
Date: 25.JUL.2014 17:51:49

Chain 1: 802.11n ht20 Band Edge, Right Side



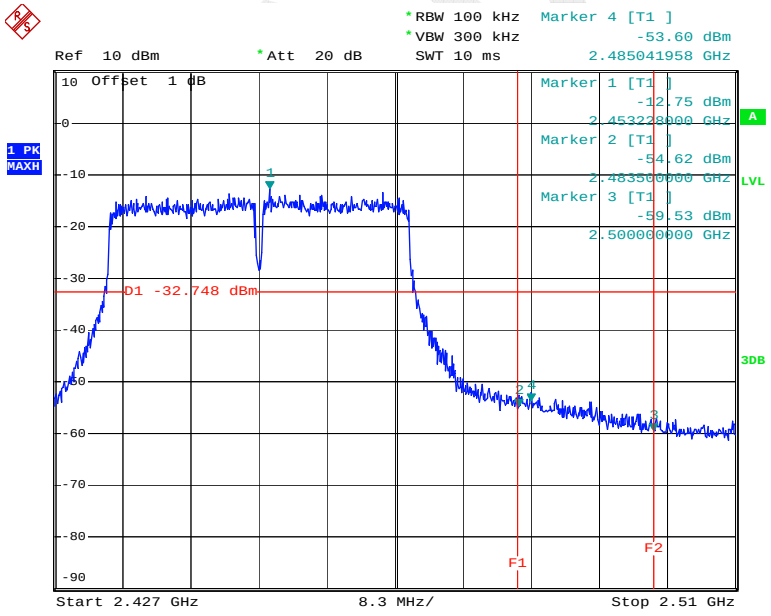
Date: 25.JUL.2014 17:54:53

Chain 0: 802.11n ht40 Band Edge, Left Side



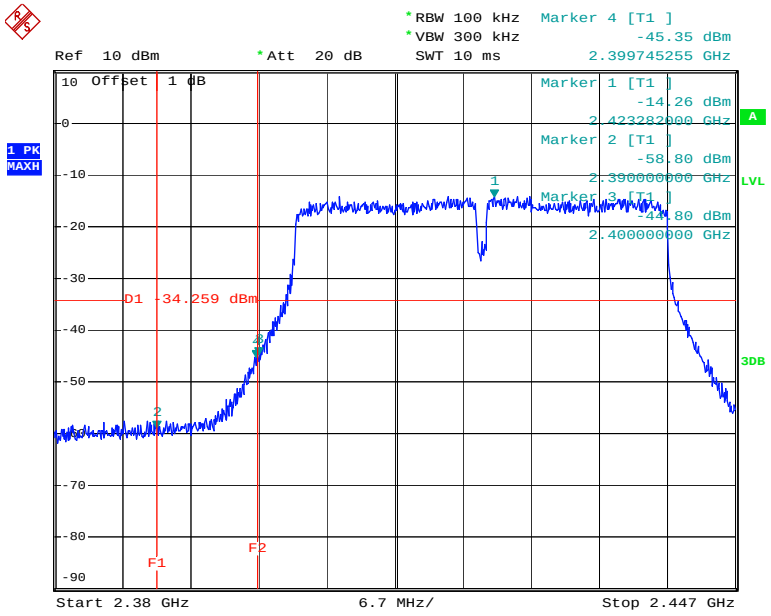
Date: 25.JUL.2014 17:42:12

Chain 0: 802.11n ht40 Band Edge, Right Side



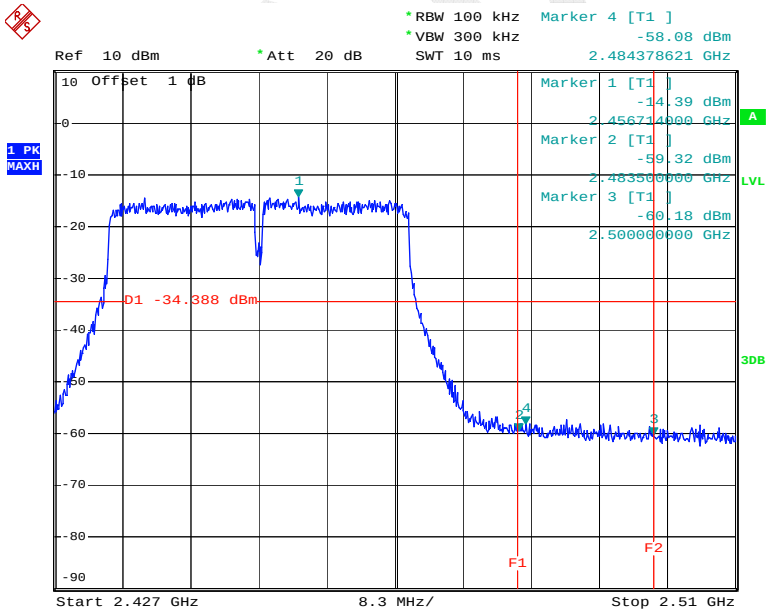
Date: 25.JUL.2014 17:38:16

Chain 1: 802.11n ht40 Band Edge, Left Side



Date: 25.JUL.2014 17:46:26

Chain 1: 802.11n ht40 Band Edge, Right Side



Date: 25.JUL.2014 17:49:49

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.

Test Procedure

According to KDB 558074 D01 DTS Meas Guidance v03r02 clause10.2:

a) Set analyzer center frequency to DTS channel center frequency.
b) Set the span to 1.5 times the DTS bandwidth.
c) Set the RBW to: 3 kHz ≤ RBW ≤ 100 kHz.
d) Set the VBW ≥ 3×RBW.
e) Detector = peak.
f) Sweep time = auto couple.
g) Trace mode = max hold.
h) Allow trace to fully stabilize.
i) Use the peak marker function to determine the maximum amplitude level within the RBW.
j) If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSP 38	100478	2014-05-09	2015-05-09

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data

Environmental Conditions

Temperature:	30.4 °C
Relative Humidity:	64 %
ATM Pressure:	99.9 kPa

The testing was performed by Dean Liu on 2014-07-25

FINAL

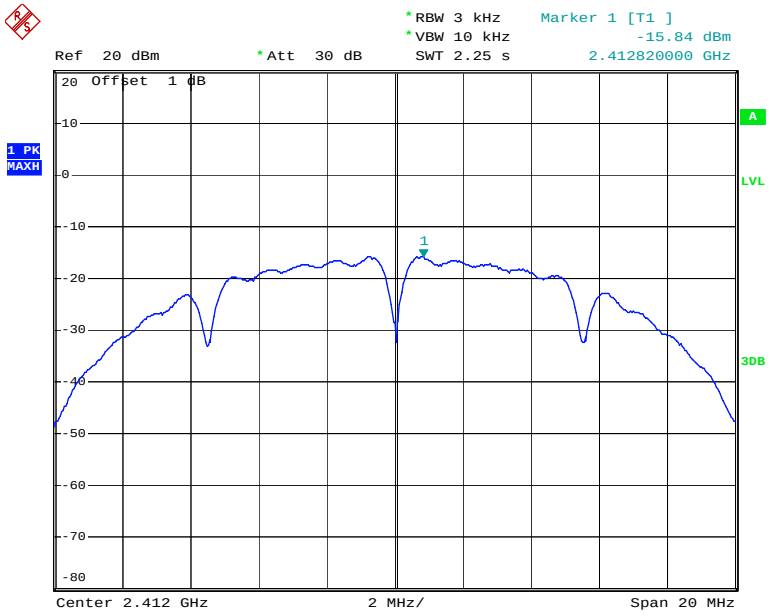
Test Mode: Transmitting

Test Result: Compliant. Please refer to the following table and plots.

Test mode	Channel	PSD (dBm/3kHz)			Limit	Result
		Chain0	Chain1	Total	(dBm/3kHz)	
2.4GHz band-802.11b	Low	-15.84	/	/	≤8	PASS
	Middle	-15.35	/	/	≤8	PASS
	High	-15.64	/	/	≤8	PASS
2.4GHz band-802.11g	Low	-20.91	/	/	≤8	PASS
	Middle	-21.09	/	/	≤8	PASS
	High	-21.01	/	/	≤8	PASS
2.4GHz band-802.11n ht20	Low	-24.38	-24.38	-21.37	≤8	PASS
	Middle	-24.65	-24.42	-21.52	≤8	PASS
	High	-25.41	-24.32	-21.82	≤8	PASS
2.4GHz band-802.11n ht40	Low	-27.99	-26.43	-24.13	≤8	PASS
	Middle	-28.27	-26.84	-24.49	≤8	PASS
	High	-27.97	-26.78	-24.32	≤8	PASS

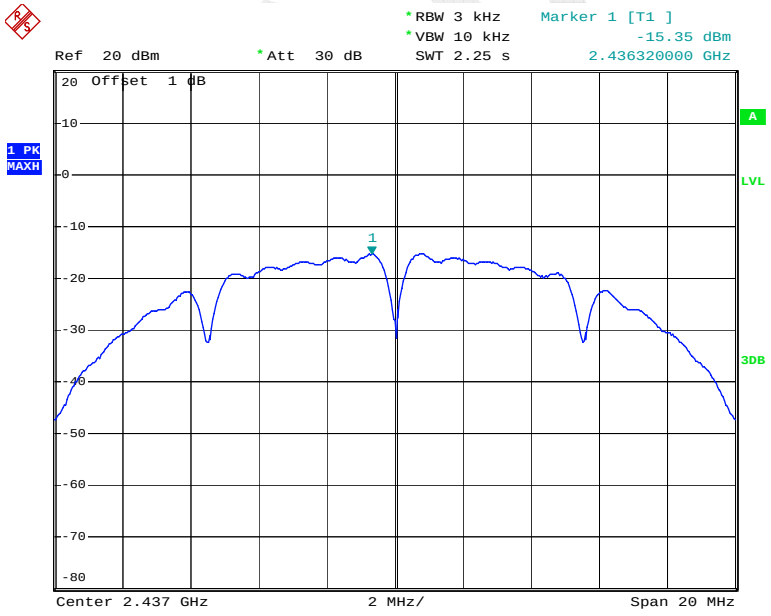
FINAL

Power Spectral Density, 802.11b Low Channel



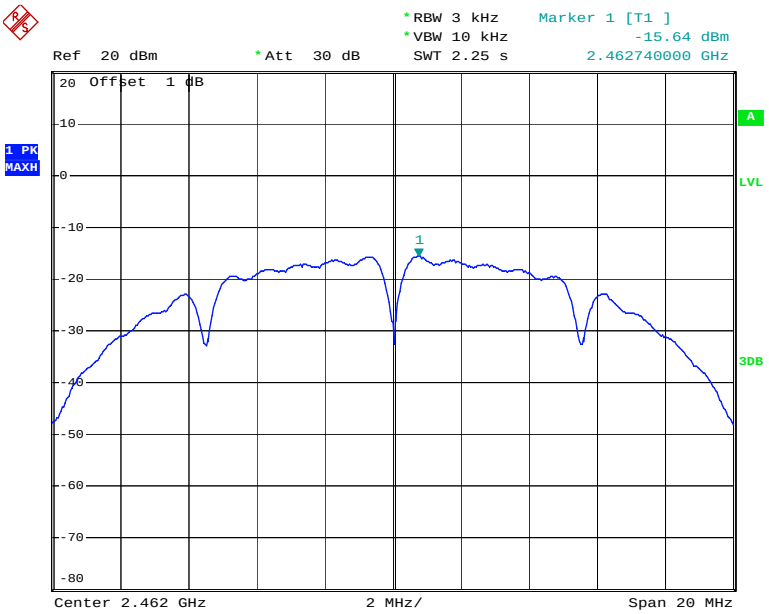
Date: 25.JUL.2014 16:45:51

Power Spectral Density, 802.11b Middle Channel



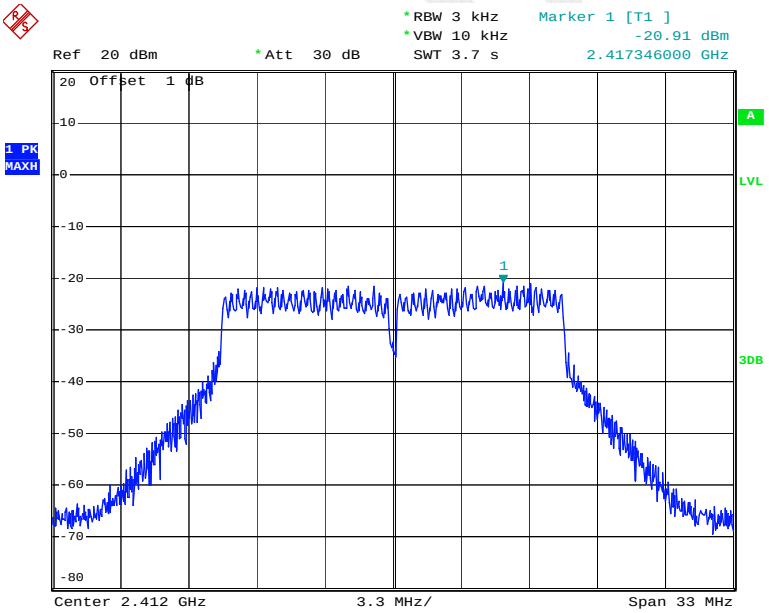
Date: 25.JUL.2014 16:47:44

Power Spectral Density, 802.11b High Channel



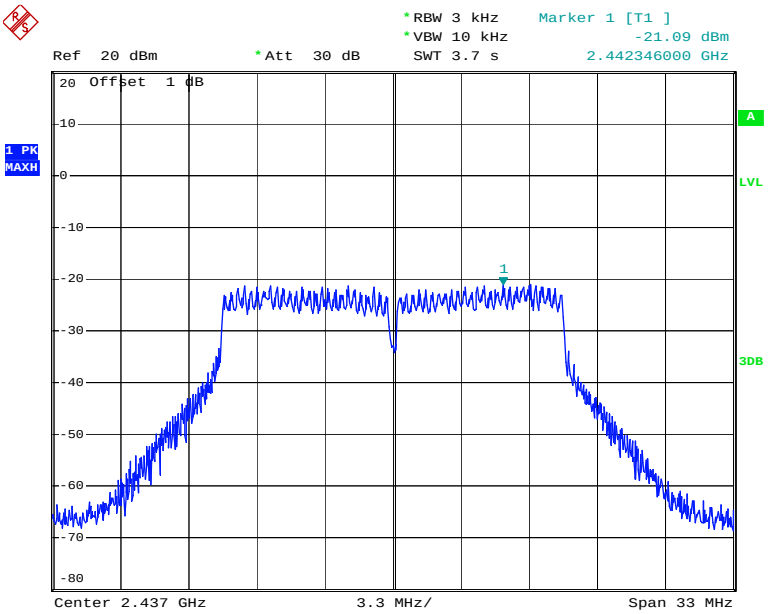
Date: 25.JUL.2014 16:49:14

Power Spectral Density, 802.11g Low Channel



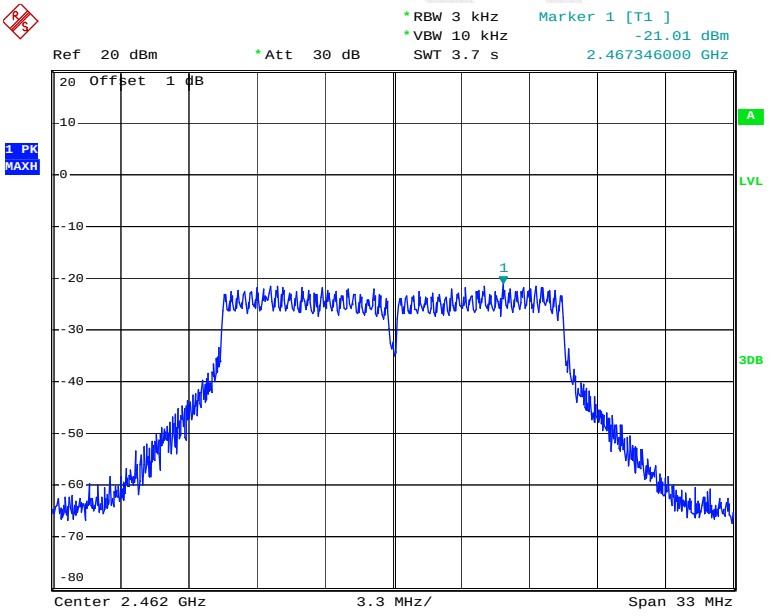
Date: 25.JUL.2014 16:53:58

Power Spectral Density, 802.11g Middle Channel



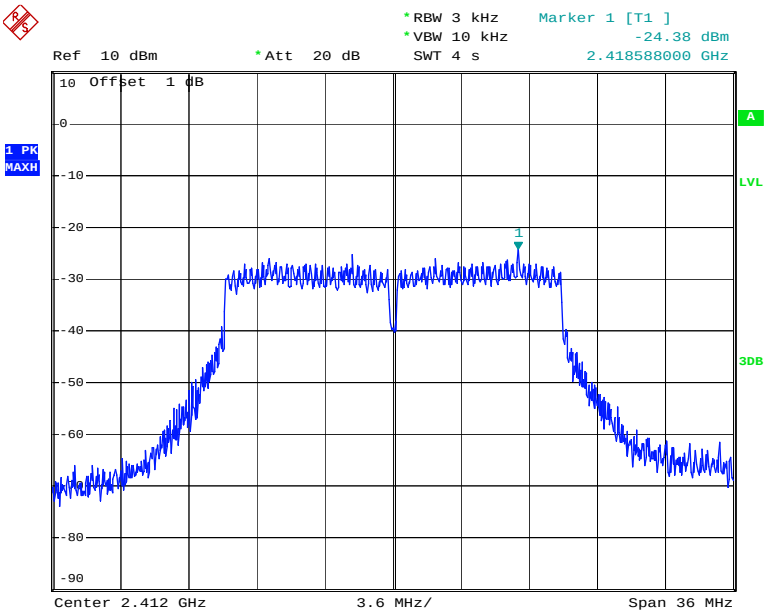
Date: 25.JUL.2014 16:56:01

Power Spectral Density, 802.11g High Channel



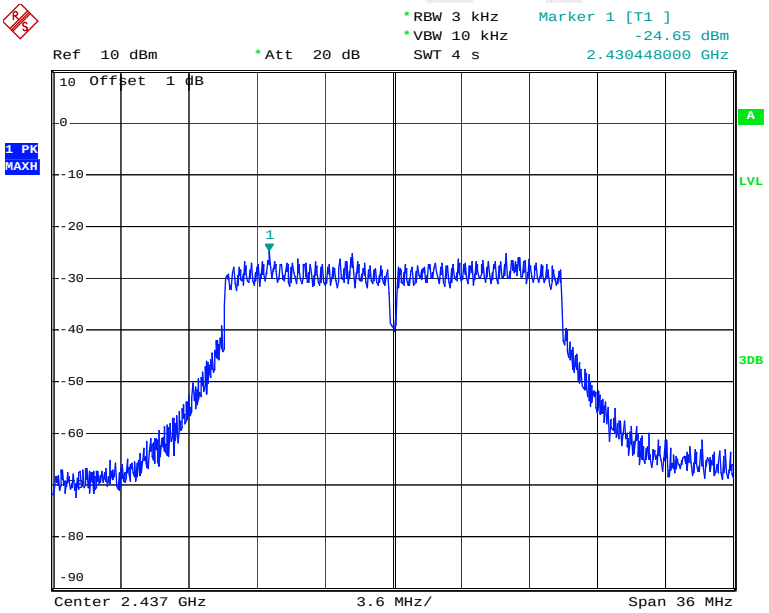
Date: 25.JUL.2014 16:57:39

Chain 0: Power Spectral Density, 802.11n ht20 Low Channel



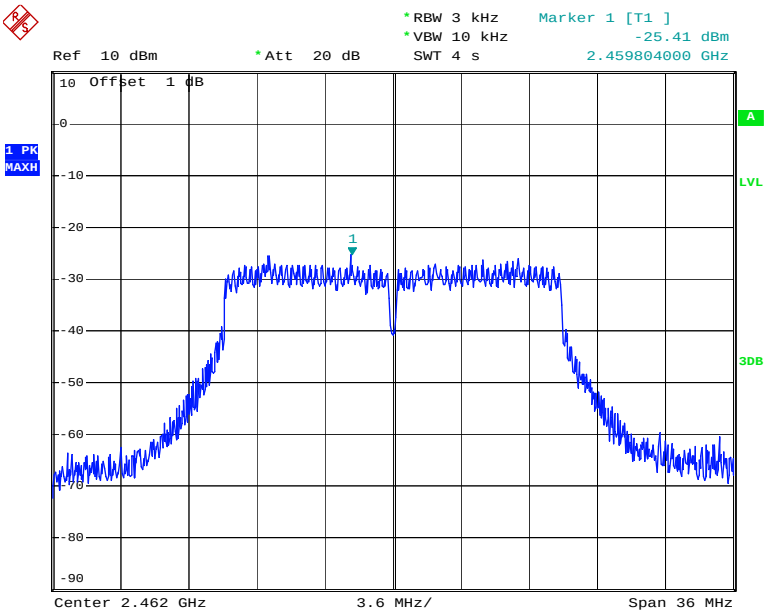
Date: 25.JUL.2014 17:09:49

Chain 0: Power Spectral Density, 802.11n ht20 Middle Channel



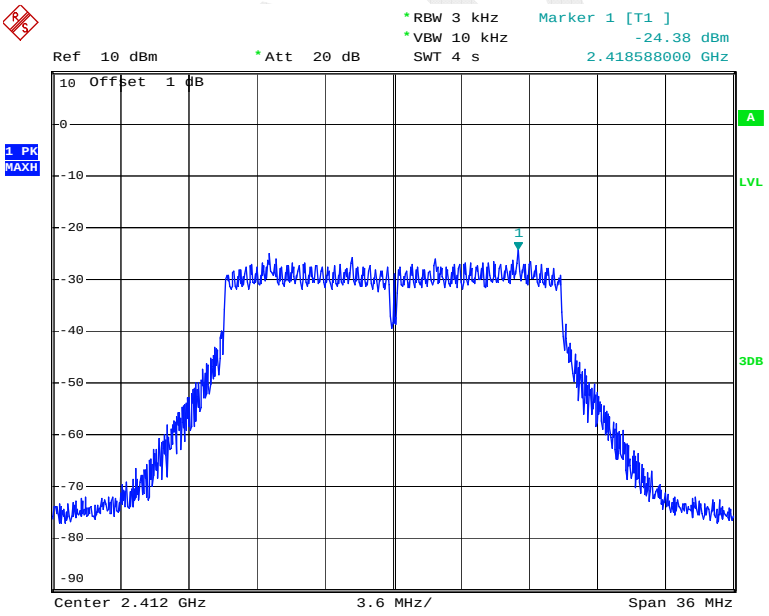
Date: 25.JUL.2014 17:12:17

Chain 0: Power Spectral Density, 802.11n ht20 High Channel



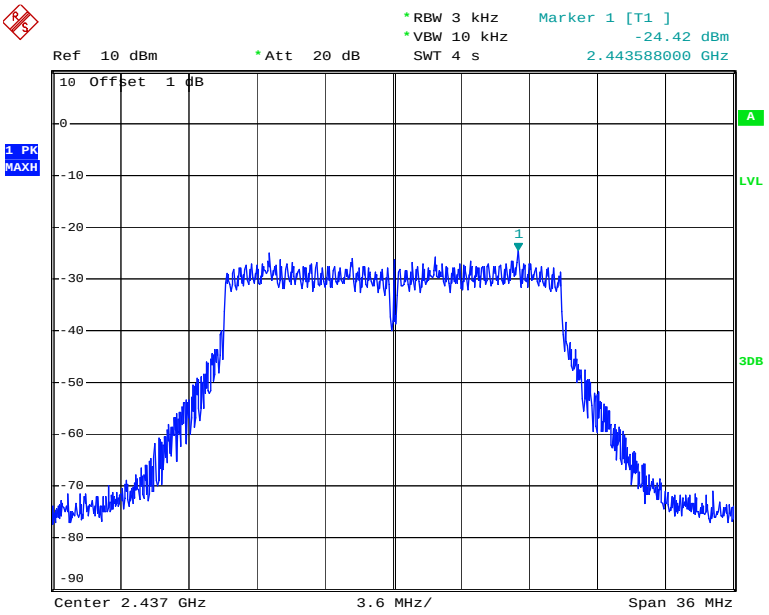
Date: 25.JUL.2014 17:35:11

Chain 1: Power Spectral Density, 802.11n ht20 Low Channel



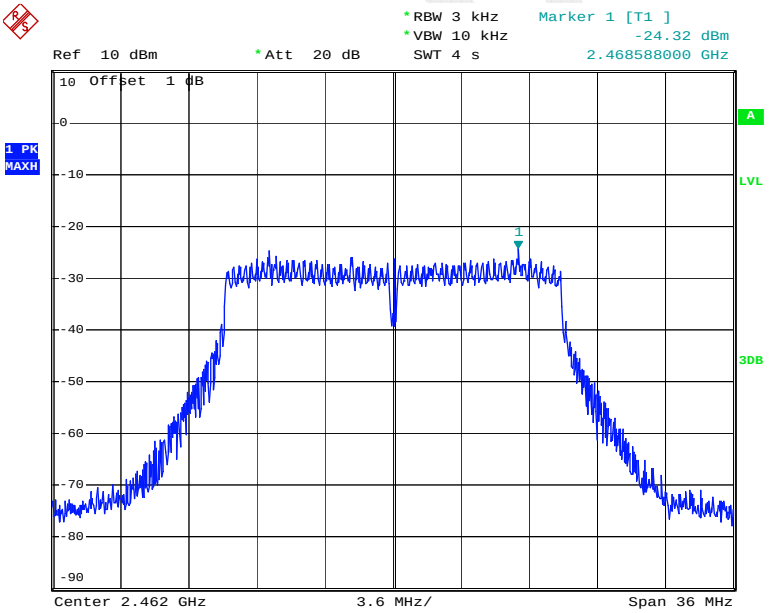
Date: 25.JUL.2014 17:51:23

Chain 1: Power Spectral Density, 802.11n ht20 Middle Channel



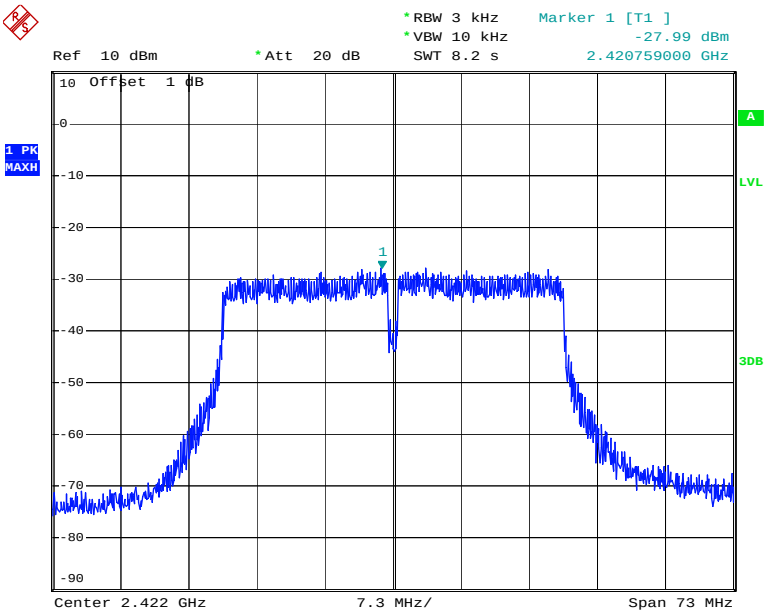
Date: 25.JUL.2014 17:52:55

Chain 1: Power Spectral Density, 802.11n ht20 High Channel



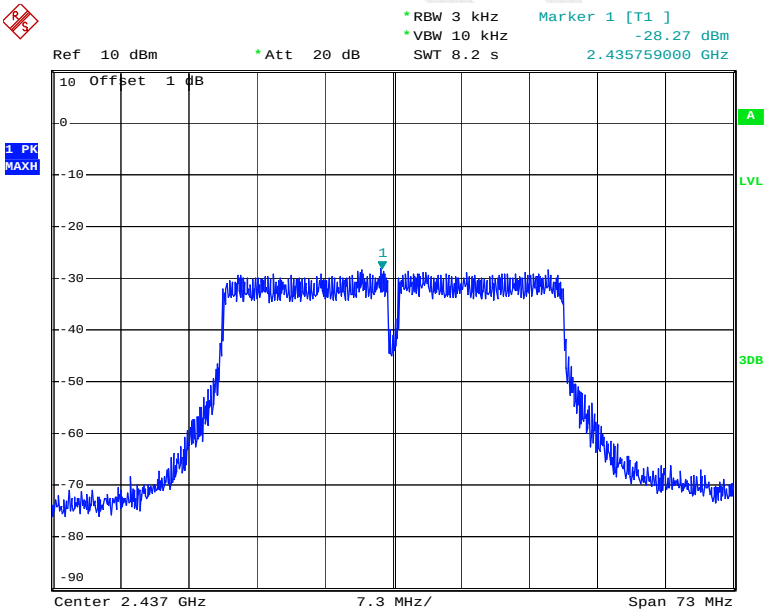
Date: 25.JUL.2014 17:54:24

Chain 0: Power Spectral Density, 802.11n ht40 Low Channel



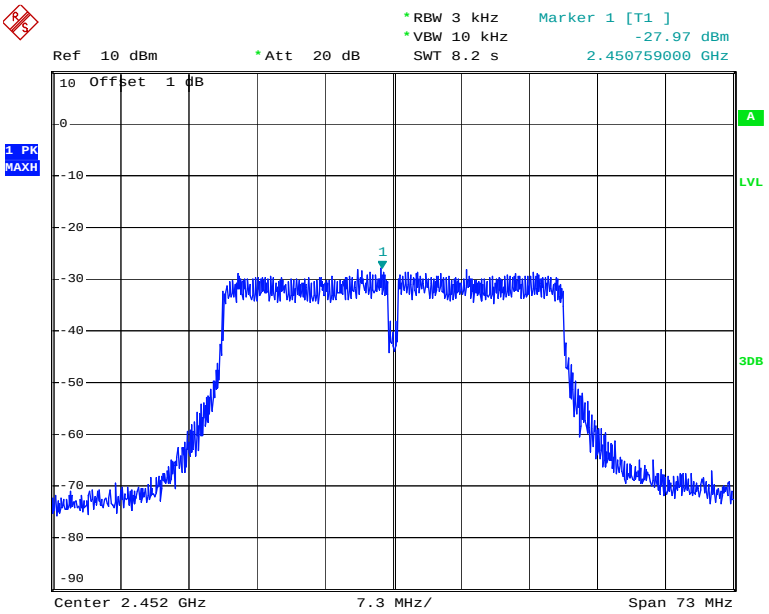
Date: 25.JUL.2014 17:41:25

Chain 0: Power Spectral Density, 802.11n ht40 Middle Channel



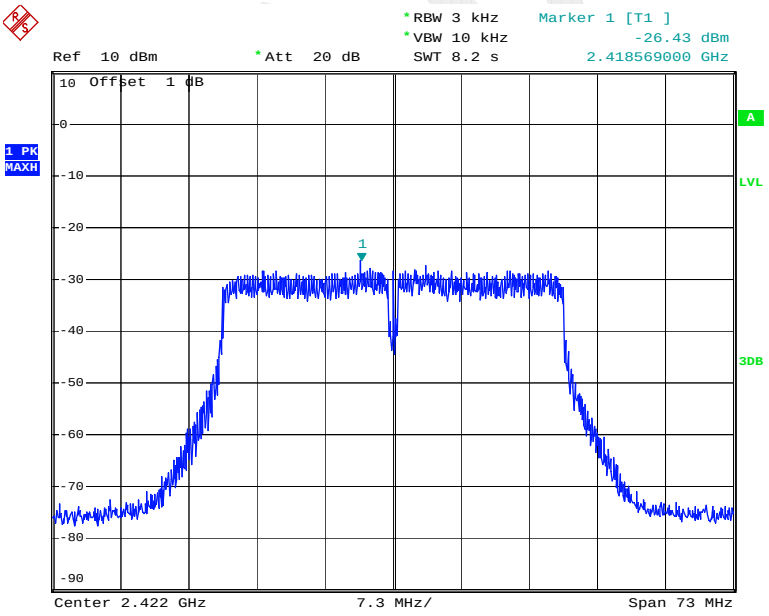
Date: 25.JUL.2014 17:39:48

Chain 0: Power Spectral Density, 802.11n ht40 High Channel



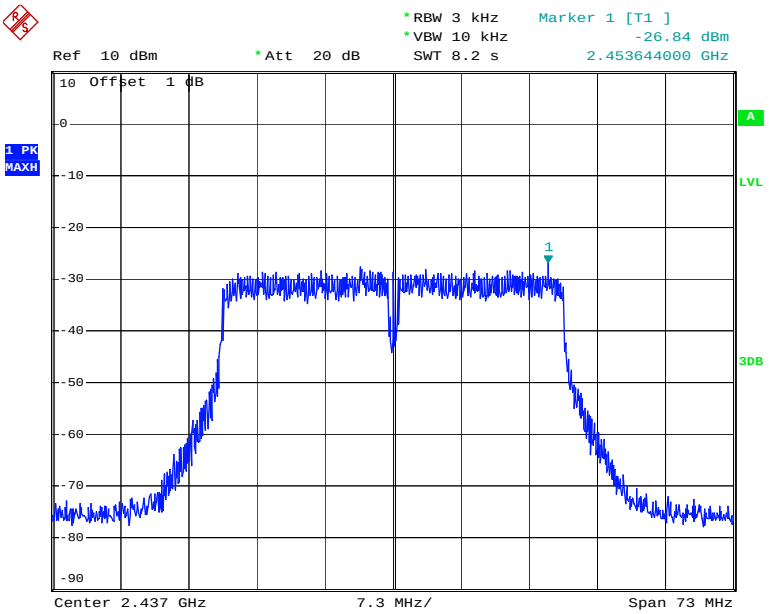
Date: 25.JUL.2014 17:37:52

Chain 1: Power Spectral Density, 802.11n ht40 Low Channel



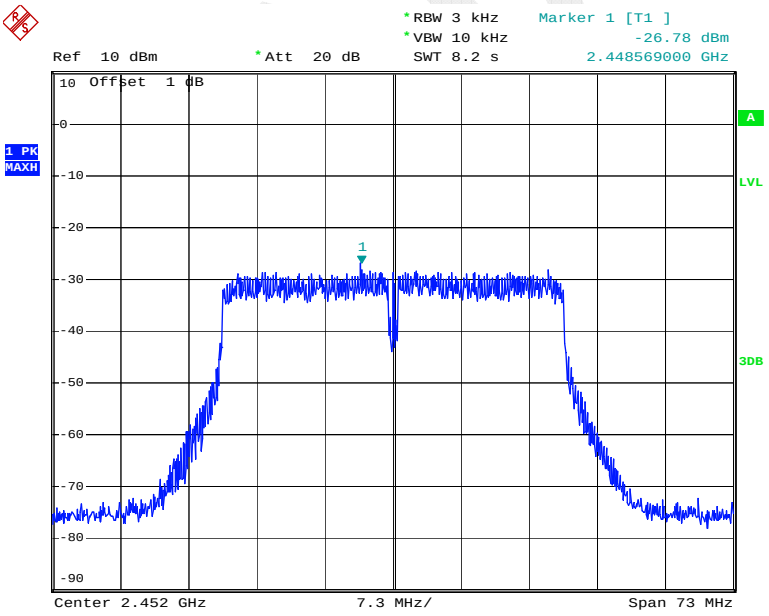
Date: 25.JUL.2014 17:45:48

Chain 1: Power Spectral Density, 802.11n ht40 Middle Channel



Date: 25.JUL.2014 17:47:53

Chain 1: Power Spectral Density, 802.11n ht40 High Channel



Date: 25.JUL.2014 17:49:22

DECLARATION OF SIMILARITY

Iconnect
Add: No.9, Aly. 58, Ln. 112, Ruiguang Rd., Neihu Dist., Taipei City,Taiwan
Tel: +886-2-27968477 Fax: +886-2-27968478

DECLARATION OF SIMILARITY

Date: 2014-7-25

Dear Sir or Madam:

We, Iconnect, hereby declare that product: 802.11ac AC1200 USB adapter, model: AWUSO36EAC, AWUSO36AC_H, AWUSO36EAC_H, WISP-UAC, Tube-UAC, UBDO-UAC is electrically identical with the model: AWUSO36AC which was tested by BACL with the same electromagnetic emissions and electromagnetic compatibility characteristics. The results of which are featured in BACL projects: RDG140717005.

A description of the difference between all the models as follows:
They are the same product, and just have the different model name.

Please contact me should there be need for any additional clarification or information.

Best Regards,

Signature:

Johnson Wang
Manager

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