FCC PART 15.247

TEST REPORT

For

Jiangsu SEUIC Technology Co., Ltd

No23, Wenzhu Road, Yuhuatai District, Nanjing, Jiangsu, China.

FCC ID: 2AC68-AUTOID7

Report Type:	Product Type:
Original Report	AUTOID7

Test Engineer:	Sevin Li
Report Number:	RSH140814051-00A
Report Date:	2014-10-17
Reviewed By:	Sula Huang RF Engineer
Test Laboratory:	Bay Area Compliance Laboratories Corp. (Dongguan) No.69 Pulongcun, Puxinhu Industrial Zone, Tangxia, Dongguan, Guangdong, China Tel: +86-769-86858888 Fax: +86-769-86858891 www.baclcorp.com.cn

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *Jiangsu SEUIC Technology Co., Ltd*'s product, model number: *AUTOID7P(FCC ID: 2AC68-AUTOID7)* (the "EUT") in this report was a *AUTOID7,* which was measured approximately: 17.8cm (L) x 6.5 cm (W) x 4.2 cm(H), rated input voltage: DC 3.7 V.

Note: The series product, model AUTOID7P, AUTOID7$\frac{1}{2}$ are electrically identical, the differences between them are the model name and appearance color, we selected AUTOID7P 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: 140814051 (Assigned by BACL.Dongguan). The EUT was received on 2014-08-21.*

Objective

This report is prepared on behalf of *Jiangsu SEUIC Technology Co., Ltd* in accordance with Part 2, Subpart J, Part 15, Subparts A, B and C of the Federal Communications Commission's 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 Part15C DSS submissions with FCC ID: 2AC68-AUTOID7.

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 Communications 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.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The system was configured for testing in an engineering mode, which was provided by manufacturer. For 2.4G 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.

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 software “ENGINEER MODE” embedded in the EUT was used, which was provided by manufacturer. The maximum power was set by default configuration.

Test Mode	Test Software Version	ENGINEER MODE		
802.11b	Test Frequency	2412MHz	2437MHz	2462MHz
	Data Rate	1Mbps	1Mbps	1Mbps
	Power Level Setting	9	9	9
802.11g	Test Frequency	2412MHz	2437MHz	2462MHz
	Data Rate	6Mbps	6Mbps	6Mbps
	Power Level Setting	8	8	8
802.11n-HT20	Test Frequency	2412MHz	2437MHz	2462MHz
	Data Rate	MCS0	MCS0	MCS0
	Power Level Setting	8	8	8

Equipment Modifications

No modification was made to the EUT.

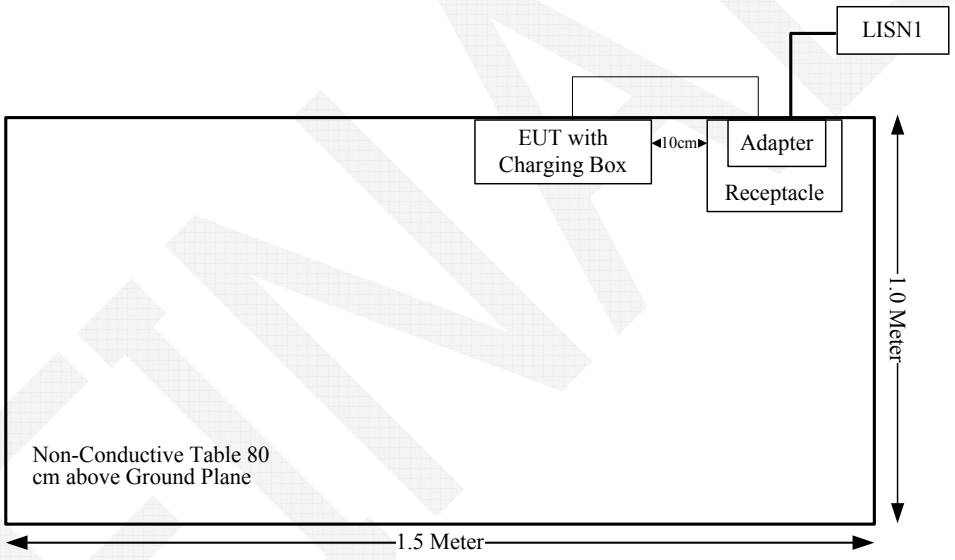
Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
/	/	/	/

External Cable

Cable Description	Shielding Type	Ferrite Core	Length (m)	From Port	To
Adapter Cable	No	No	1.6	Adapter	EUT

Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§15.247 (i), §1.1307 (b) (1) & §2.1093	RF 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

FCC §15.247 (i) & §2.1093 – RF EXPOSURE

Applicable Standard

According to §15.247(i) and §1.1310, systems operating under the provisions of this section shall be operated in a manner that ensure that the public is not exposed to radio frequency energy level in excess of the Commission's guideline.

According to KDB447498 D01 General RF Exposure Guidance v05r02:

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:
[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] · [√f(GHz)] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where

- f(GHz) is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison
- 3.0 and 7.5 are referred to as the numeric thresholds in the step 2 below

The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm according to 5) in section 4.1 is applied to determine SAR test exclusion.

Measurement Result

The maximum conducted (average) output power= 9.43 dBm(8.77mW) at 2412 MHz
[(max. power of channel, mW)/(min. test separation distance, mm)] · [√f(GHz)]
= 8.77/5*(√2.412) = 2.72 < 3.0

So the stand-alone SAR evaluation is not necessary.

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

The EUT has one integral antenna arrangement for Wi-Fi, and the antenna gain is 1 dBi, fulfill the requirement of this section. Please refer to the EUT photos.

Result: Compliance.

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：

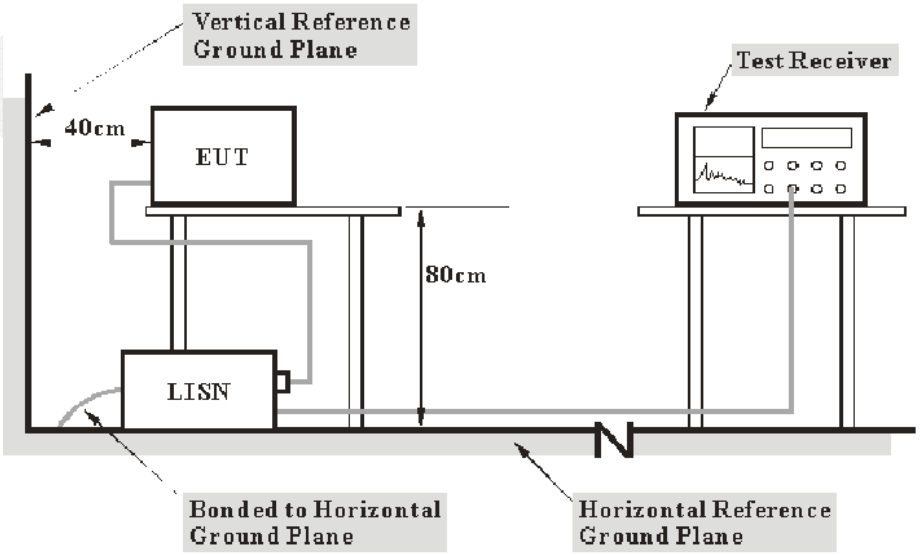
If U_{lab} is less than or equal to U_{cispr} of Table 1, then:
– compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit;
– non - compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit.
If U_{lab} is greater than U_{cispr} of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

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:

17.7 dB at **0.762149MHz** in the **Neutral** conducted mode

Test Data

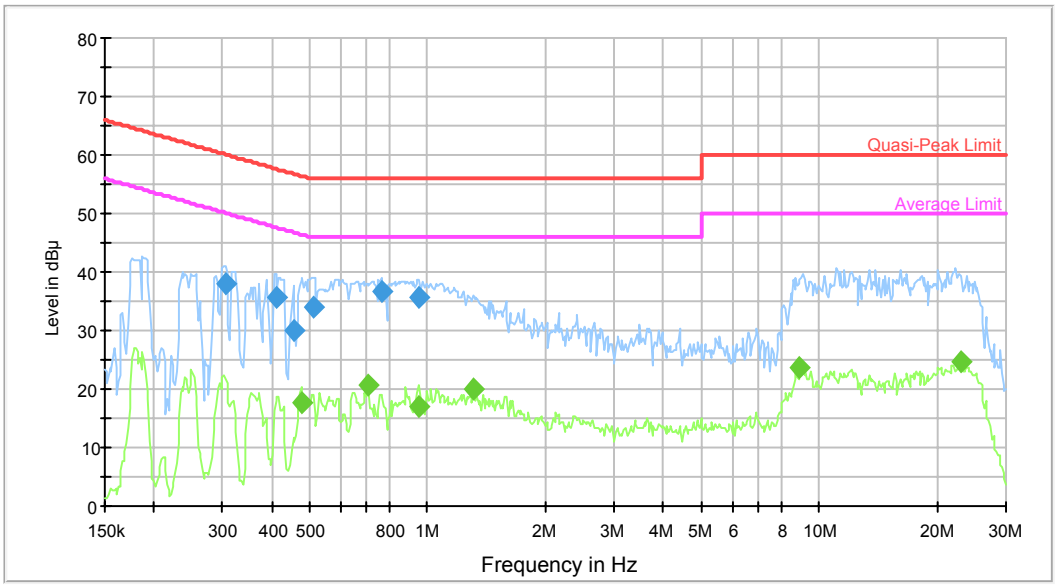
Environmental Conditions

Temperature:	27.6 °C
Relative Humidity:	53 %
ATM Pressure:	100.4 kPa

The testing was performed by Sevin Li on 2014-08-25.

Test Mode: Charging

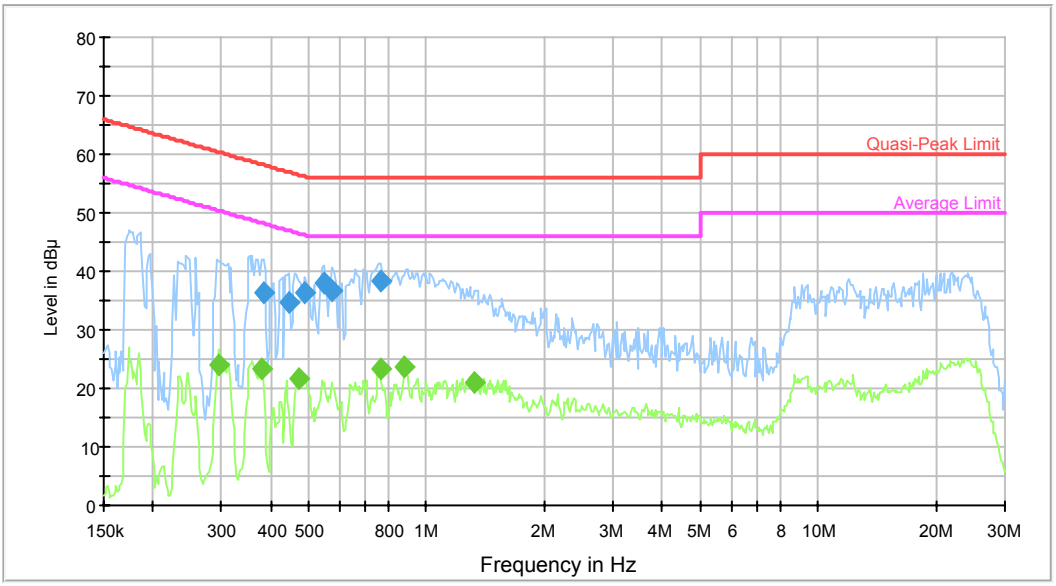
AC 120 V, 60 Hz, Line:



Frequency (MHz)	Corrected Quasi-Peak (dBµV)	Bandwidth (kHz)	Line	Corr. Factor (dB)	Margin (dB)	Limit (dBµV)	Comment
0.304845	37.9	9.000	L1	10.7	22.2	60.1	Compliance
0.409372	35.5	9.000	L1	10.5	22.2	57.7	Compliance
0.454052	30.1	9.000	L1	10.5	26.7	56.8	Compliance
0.511698	34.0	9.000	L1	10.3	22.0	56.0	Compliance
0.762149	36.7	9.000	L1	10.5	19.3	56.0	Compliance
0.952654	35.8	9.000	L1	10.4	20.2	56.0	Compliance

Frequency (MHz)	Corrected Average (dBµV)	Bandwidth (kHz)	Line	Corr. Factor (dB)	Margin (dB)	Limit (dBµV)	Comment
0.476287	17.5	9.000	L1	10.4	28.9	46.4	Compliance
0.703777	20.8	9.000	L1	10.6	25.2	46.0	Compliance
0.952654	17.1	9.000	L1	10.4	28.9	46.0	Compliance
1.310256	20.1	9.000	L1	10.4	25.9	46.0	Compliance
8.940144	23.6	9.000	L1	10.7	26.4	50.0	Compliance
23.075326	24.7	9.000	L1	10.9	25.3	50.0	Compliance

AC 120 V, 60 Hz, Neutral:



Frequency (MHz)	Corrected Quasi-Peak (dBµV)	Bandwidth (kHz)	Line	Corr. Factor (dB)	Margin (dB)	Limit (dBµV)	Comment
0.384091	36.4	9.000	N	10.8	21.8	58.2	Compliance
0.446873	34.8	9.000	N	10.6	22.1	56.9	Compliance
0.487810	36.2	9.000	N	10.4	20.0	56.2	Compliance
0.549741	38.1	9.000	N	10.3	17.9	56.0	Compliance
0.576662	36.8	9.000	N	10.4	19.2	56.0	Compliance
0.762149	38.3	9.000	N	10.5	17.7	56.0	Compliance

Frequency (MHz)	Corrected Average (dBµV)	Bandwidth (kHz)	Line	Corr. Factor (dB)	Margin (dB)	Limit (dBµV)	Comment
0.295282	23.9	9.000	N	11.1	26.5	50.4	Compliance
0.381043	23.3	9.000	N	10.9	25.0	48.3	Compliance
0.472507	21.8	9.000	N	10.5	24.7	46.5	Compliance
0.762149	23.3	9.000	N	10.5	22.7	46.0	Compliance
0.879690	23.5	9.000	N	10.5	22.5	46.0	Compliance
1.331304	21.0	9.000	N	10.5	25.0	46.0	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.

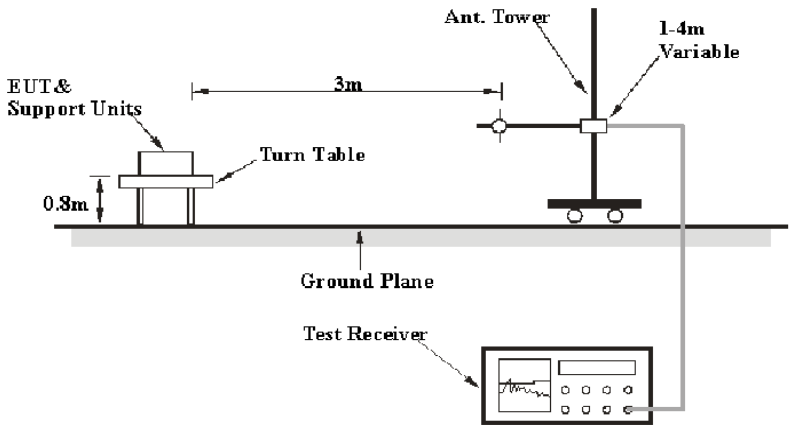
Based on CISPR 16-4-2-2011, measurement uncertainty of radiated emission at a distance of 3m at Bay Area Compliance Laboratories Corp. (Dongguan) is:
30M~200MHz: 5.0 dB
200M~1GHz: 6.2 dB
1G~6GHz: 4.45 dB
6G~18GHz: 5.23 dB

Table 2 – Values of U_{cispr}

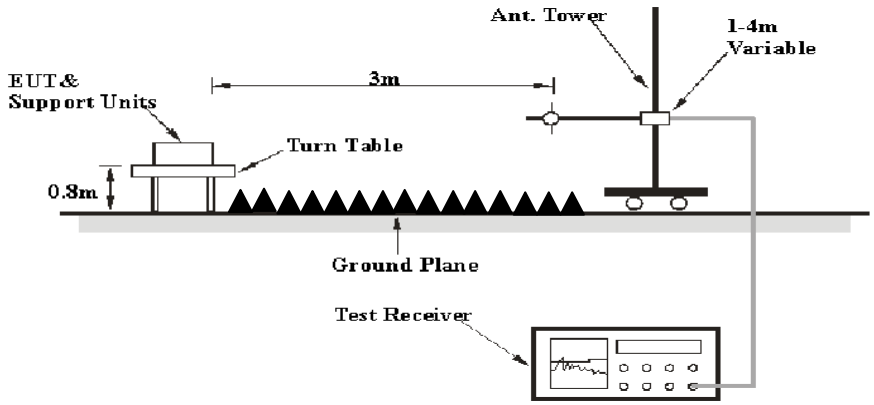
Measurement		U_{cispr}
Radiated disturbance (electric field strength at an OATS or in a SAC)	(30 MHz to 1000 MHz)	6.3 dB
Radiated disturbance (electric field strength in a FAR)	(1 GHz to 6 GHz)	5.2 dB
Radiated disturbance (electric field strength in a FAR)	(6 GHz to 18 GHz)	5.5 dB

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 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	1 MHz	3 MHz	/	PK
	1 MHz	10 Hz	/	Ave.

Test Procedure

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	A060611-3	2014-07-28	2017-07-27
HP	Amplifier	8447E	2434A02181	2014-09-01	2015-09-01
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
Ducommun Technolagies	Horn Antenna	ARH-4223-02	1007726-01 1304	2014-06-16	2017-06-15

*** 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 Title 47, Part 15, Section 15.205, 15.209 and 15.247, with the worst margin reading of:

3.21 dB at **4924 MHz** in the **Horizontal** polarization for 802.11b mode

Test Data

Environmental Conditions

Temperature:	25.4~29 °C-
Relative Humidity:	50~54 %
ATM Pressure:	99.6~100.7 kPa

The testing was performed by Sevin Li from 2014-09-02 to 2014-09-24.

Mode: Transmitting
802.11b mode

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	FCC 15.247	
	Reading (dBμV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB/m)				Limit (dBμV/m)	Margin (dB)
Low Channel: 2412 MHz									
2412	91.26	PK	V	25.67	4.42	27.33	94.02	N/A	N/A
2412	87.95	AV	V	25.67	4.42	27.33	90.71	N/A	N/A
2412	93.31	PK	H	25.67	4.42	27.33	96.07	N/A	N/A
2412	89.08	AV	H	25.67	4.42	27.33	91.84	N/A	N/A
2390	38.85	PK	H	25.61	4.39	27.32	41.53	74.00	32.47
2390	27.15	AV	H	25.61	4.39	27.32	29.83	54.00	24.17
4824	44.18	PK	H	30.64	6.03	27.41	53.44	74.00	20.56
4824	40.98	AV	H	30.64	6.03	27.41	50.24	54.00	3.76*
7236	31.8	PK	H	34.17	7.47	25.90	47.54	74.00	26.46
7236	20.36	AV	H	34.17	7.47	25.90	36.10	54.00	17.90
9648	30.21	PK	H	36.06	8.81	27.46	47.62	74.00	26.38
9648	19.08	AV	H	36.06	8.81	27.46	36.49	54.00	17.51
7525	31.29	PK	H	34.82	7.61	26.20	47.52	74.00	26.48
7525	19.85	AV	H	34.82	7.61	26.20	36.08	54.00	17.92
385.6	35.29	QP	V	15.83	2.38	21.73	31.77	46.00	14.23
Middle Channel: 2437 MHz									
2437	90.78	PK	V	25.74	4.41	27.34	93.59	N/A	N/A
2437	86.82	AV	V	25.74	4.41	27.34	89.63	N/A	N/A
2437	91.06	PK	H	25.74	4.41	27.34	93.87	N/A	N/A
2437	87.11	AV	H	25.74	4.41	27.34	89.92	N/A	N/A
4874	45.85	PK	H	30.77	6.09	27.42	55.29	74.00	18.71
4874	41.01	AV	H	30.77	6.09	27.42	50.45	54.00	3.55*
7311	32.14	PK	H	34.35	7.51	25.88	48.12	74.00	25.88
7311	20.38	AV	H	34.35	7.51	25.88	36.36	54.00	17.64
9748	29.65	PK	H	36.30	8.83	27.24	47.54	74.00	26.46
9748	19.62	AV	H	36.30	8.83	27.24	37.51	54.00	16.49
5972	31.76	PK	H	32.19	6.29	27.01	43.23	74.00	30.77
5972	20.54	AV	H	32.19	6.29	27.01	32.01	54.00	21.99
7525	32.45	PK	H	34.82	7.61	26.20	48.68	74.00	25.32
7525	20.14	AV	H	34.82	7.61	26.20	36.37	54.00	17.63
385.6	36.21	QP	V	15.83	2.38	21.73	32.69	46.00	13.31
High Channel: 2462 MHz									
2462	91.32	PK	V	25.80	4.43	27.35	94.20	N/A	N/A
2462	87.51	AV	V	25.80	4.43	27.35	90.39	N/A	N/A
2462	93.56	PK	H	25.80	4.43	27.35	96.44	N/A	N/A
2462	88.97	AV	H	25.80	4.43	27.35	91.85	N/A	N/A
2483.5	37.59	PK	H	25.86	4.49	27.36	40.58	74.00	33.42
2483.5	27.02	AV	H	25.86	4.49	27.36	30.01	54.00	23.99
4924	44.27	PK	H	30.90	5.97	27.43	53.71	74.00	20.29
4924	41.35	AV	H	30.90	5.97	27.43	50.79	54.00	3.21*
7386	32.14	PK	H	34.53	7.55	25.86	48.36	74.00	25.64
7386	21.07	AV	H	34.53	7.55	25.86	37.29	54.00	16.71
9848	29.88	PK	H	36.54	8.85	26.94	48.33	74.00	25.67
9848	18.67	AV	H	36.54	8.85	26.94	37.12	54.00	16.88
6220	31.54	PK	H	32.24	6.51	26.73	43.56	74.00	30.44
6220	20.21	AV	H	32.24	6.51	26.73	32.23	54.00	21.77
385.6	35.87	QP	V	15.83	2.38	21.73	32.35	46.00	13.65

**Within measurement uncertainty!*

802.11g mode

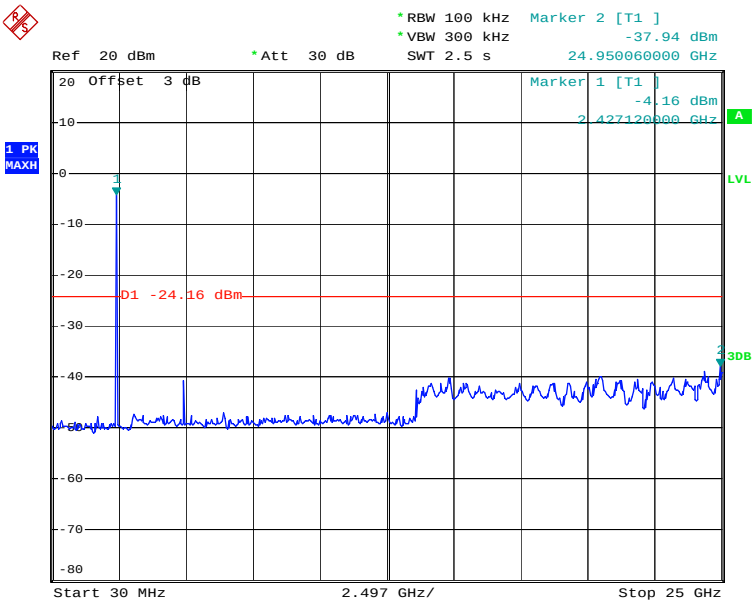
Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB/m)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	FCC 15.247	
	Reading (dBμV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)				Limit (dBμV/m)	Margin (dB)
Low Channel: 2412 MHz									
2412	94.84	PK	V	25.67	4.42	27.33	97.60	N/A	N/A
2412	84.63	AV	V	25.67	4.42	27.33	87.39	N/A	N/A
2412	94.19	PK	H	25.67	4.42	27.33	96.95	N/A	N/A
2412	82.98	AV	H	25.67	4.42	27.33	85.74	N/A	N/A
2390	50.14	PK	H	25.61	4.39	27.32	52.82	74.00	21.18
2390	34.26	AV	H	25.61	4.39	27.32	36.94	54.00	17.06
4824	51.24	PK	H	30.64	6.03	27.41	60.50	74.00	13.50
4824	37.91	AV	H	30.64	6.03	27.41	47.17	54.00	6.83
7236	34.24	PK	H	34.17	7.47	25.90	49.98	74.00	24.02
7236	22.62	AV	H	34.17	7.47	25.90	38.36	54.00	15.64
9648	29.45	PK	H	36.06	8.81	27.46	46.86	74.00	27.14
9648	18.36	AV	H	36.06	8.81	27.46	35.77	54.00	18.23
7525	31.52	PK	H	34.82	7.61	26.20	47.75	74.00	26.25
7525	20.06	AV	H	34.82	7.61	26.20	36.29	54.00	17.71
385.6	36.14	QP	V	15.83	2.38	21.73	32.62	46.00	13.38
Middle Channel: 2437 MHz									
2437	94.14	PK	V	25.74	4.41	27.34	96.95	N/A	N/A
2437	84.25	AV	V	25.74	4.41	27.34	87.06	N/A	N/A
2437	95.82	PK	H	25.74	4.41	27.34	98.63	N/A	N/A
2437	82.68	AV	H	25.74	4.41	27.34	85.49	N/A	N/A
4874	49.68	PK	H	30.77	6.09	27.42	59.12	74.00	14.88
4874	36.24	AV	H	30.77	6.09	27.42	45.68	54.00	8.32
7311	33.67	PK	H	34.35	7.51	25.88	49.65	74.00	24.35
7311	21.54	AV	H	34.35	7.51	25.88	37.52	54.00	16.48
9748	29.74	PK	H	36.30	8.83	27.24	47.63	74.00	26.37
9748	19.02	AV	H	36.30	8.83	27.24	36.91	54.00	17.09
5940	30.69	PK	H	32.19	6.32	26.93	42.27	74.00	31.73
5940	20.22	AV	H	32.19	6.32	26.93	31.80	54.00	22.20
385.6	35.74	QP	V	15.83	2.38	21.73	32.22	46.00	13.78
High Channel: 2462 MHz									
2462	94.21	PK	V	25.80	4.43	27.35	97.09	N/A	N/A
2462	84.1	AV	V	25.80	4.43	27.35	86.98	N/A	N/A
2462	94.92	PK	H	25.80	4.43	27.35	97.80	N/A	N/A
2462	83.27	PK	H	25.80	4.43	27.35	86.15	N/A	N/A
2483.5	49.24	PK	H	25.86	4.49	27.36	52.23	74.00	21.77
2483.5	33.26	AV	H	25.86	4.49	27.36	36.25	54.00	17.75
4924	52.36	PK	H	30.90	5.97	27.43	61.80	74.00	12.20
4924	38.78	AV	H	30.90	5.97	27.43	48.22	54.00	5.78
7386	33.69	PK	H	34.53	7.55	25.86	49.91	74.00	24.09
7386	21.42	AV	H	34.53	7.55	25.86	37.64	54.00	16.36
9848	29.65	PK	H	36.54	8.85	26.94	48.10	74.00	25.90
9848	18.92	AV	H	36.54	8.85	26.94	37.37	54.00	16.63
5990	31.58	PK	H	32.20	6.26	27.06	42.98	74.00	31.02
5990	20.27	AV	H	32.20	6.26	27.06	31.67	54.00	22.33
385.6	35.69	QP	V	15.83	2.38	21.73	32.17	46.00	13.83

802.11 n-HT20 mode

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	FCC 15.247	
	Reading (dBμV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB/m)				Limit (dBμV/m)	Margin (dB)
Low Channel: 2412 MHz									
2412	93.03	PK	V	25.67	4.42	27.33	95.79	N/A	N/A
2412	81.05	AV	V	25.67	4.42	27.33	83.81	N/A	N/A
2412	94.27	PK	H	25.67	4.42	27.33	97.03	N/A	N/A
2412	83.48	AV	H	25.67	4.42	27.33	86.24	N/A	N/A
2390	43.75	PK	H	25.61	4.39	27.32	46.43	74.00	27.57
2390	42.9	AV	H	25.61	4.39	27.32	45.58	54.00	8.42
4824	48.69	PK	H	30.64	6.03	27.41	57.95	74.00	16.05
4824	34.95	AV	H	30.64	6.03	27.41	44.21	54.00	9.79
7236	32.15	PK	H	34.17	7.47	25.90	47.89	74.00	26.11
7236	20.36	AV	H	34.17	7.47	25.90	36.10	54.00	17.90
9648	37.8	PK	H	36.06	8.81	27.46	55.21	74.00	18.79
9648	25.32	AV	H	36.06	8.81	27.46	42.73	54.00	11.27
7525	32.65	PK	H	34.82	7.61	26.20	48.88	74.00	25.12
7525	20.41	AV	H	34.82	7.61	26.20	36.64	54.00	17.36
385.6	35.29	QP	V	15.83	2.38	21.73	31.77	46.00	14.23
Middle Channel: 2437 MHz									
2437	92.87	PK	V	25.74	4.41	27.34	95.68	N/A	N/A
2437	80.29	AV	V	25.74	4.41	27.34	83.10	N/A	N/A
2437	93.69	PK	H	25.74	4.41	27.34	96.50	N/A	N/A
2437	81.66	AV	H	25.74	4.41	27.34	84.47	N/A	N/A
4874	49.21	PK	H	30.77	6.09	27.42	58.65	74.00	15.35
4874	33.16	AV	H	30.77	6.09	27.42	42.60	54.00	11.40
7311	32.69	PK	H	34.35	7.51	25.88	48.67	74.00	25.33
7311	20.17	AV	H	34.35	7.51	25.88	36.15	54.00	17.85
9748	29.62	PK	H	36.30	8.83	27.24	47.51	74.00	26.49
9748	18.95	AV	H	36.30	8.83	27.24	36.84	54.00	17.16
5940	32.66	PK	H	32.19	6.32	26.93	44.24	74.00	29.76
5940	19.97	AV	H	32.19	6.32	26.93	31.55	54.00	22.45
385.6	36.52	PK	V	15.83	2.38	21.73	33.00	46.00	13.00
High Channel: 2462 MHz									
2462	93.68	PK	V	25.80	4.43	27.35	96.56	N/A	N/A
2462	82.03	AV	V	25.80	4.43	27.35	84.91	N/A	N/A
2462	92.99	PK	H	25.80	4.43	27.35	95.87	N/A	N/A
2462	81.74	PK	H	25.80	4.43	27.35	84.62	N/A	N/A
2483.5	48.32	PK	H	25.86	4.49	27.36	51.31	74.00	22.69
2483.5	32.61	AV	H	25.86	4.49	27.36	35.60	54.00	18.40
4924	50.22	PK	H	30.90	5.97	27.43	59.66	74.00	14.34
4924	36.24	AV	H	30.90	5.97	27.43	45.68	54.00	8.32
7386	34.02	PK	H	34.53	7.55	25.86	50.24	74.00	23.76
7386	21.54	AV	H	34.53	7.55	25.86	37.76	54.00	16.24
9848	29.37	PK	H	36.54	8.85	26.94	47.82	74.00	26.18
9848	18.24	AV	H	36.54	8.85	26.94	36.69	54.00	17.31
5990	31.56	PK	H	32.20	6.26	27.06	42.96	74.00	31.04
5990	19.67	AV	H	32.20	6.26	27.06	31.07	54.00	22.93
385.6	36.09	QP	V	15.83	2.38	21.73	32.57	46.00	13.43

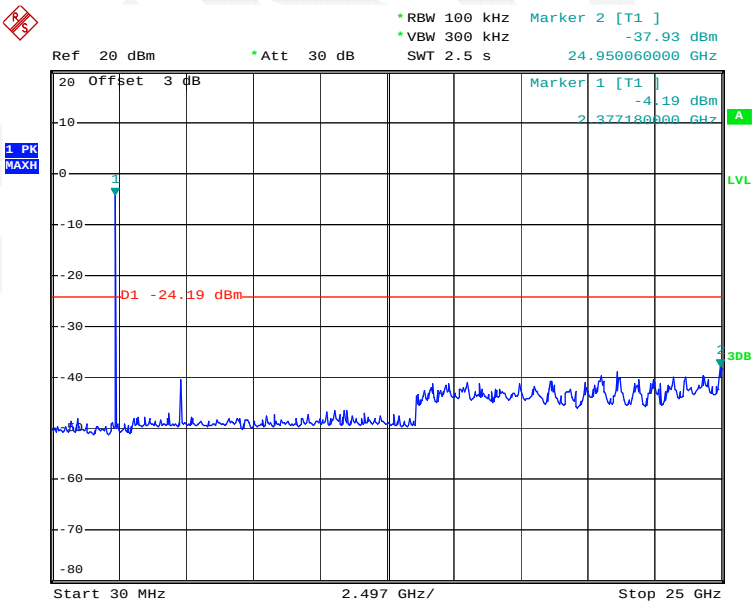
Conducted Spurious Emissions at Antenna Port

802.11b Low Channel



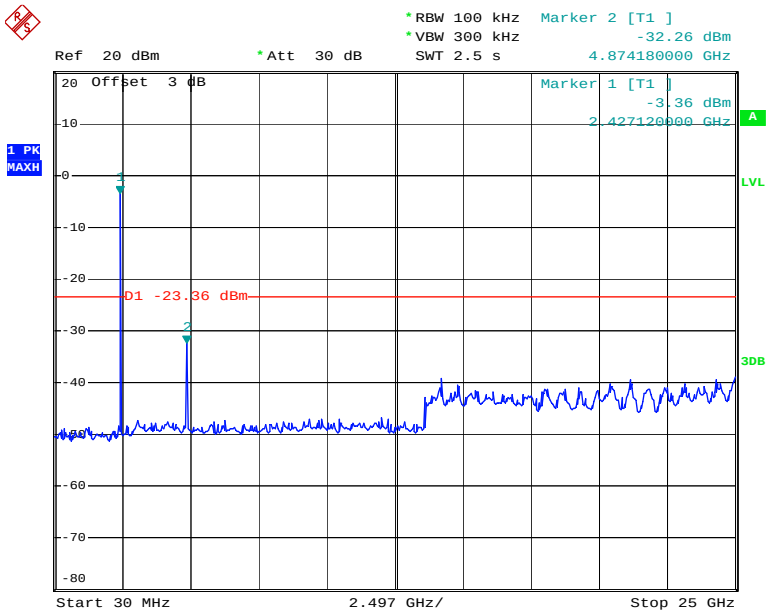
Date: 24.SEP.2014 21:35:44

802.11b Middle Channel



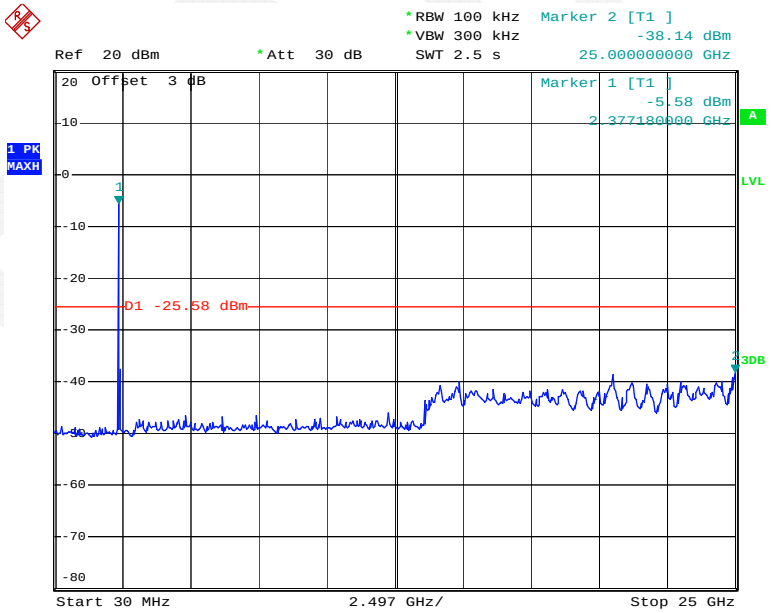
Date: 24.SEP.2014 20:21:46

802.11b High Channel



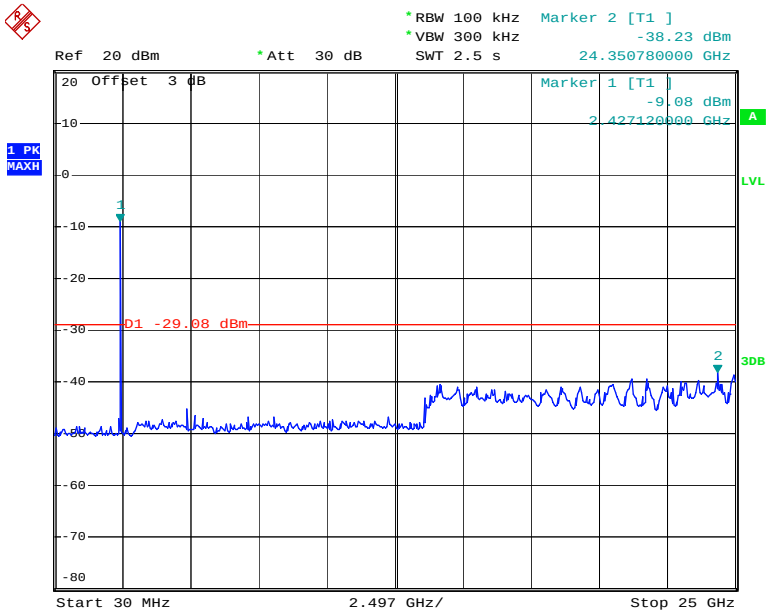
Date: 24.SEP.2014 20:48:15

802.11g Low Channel



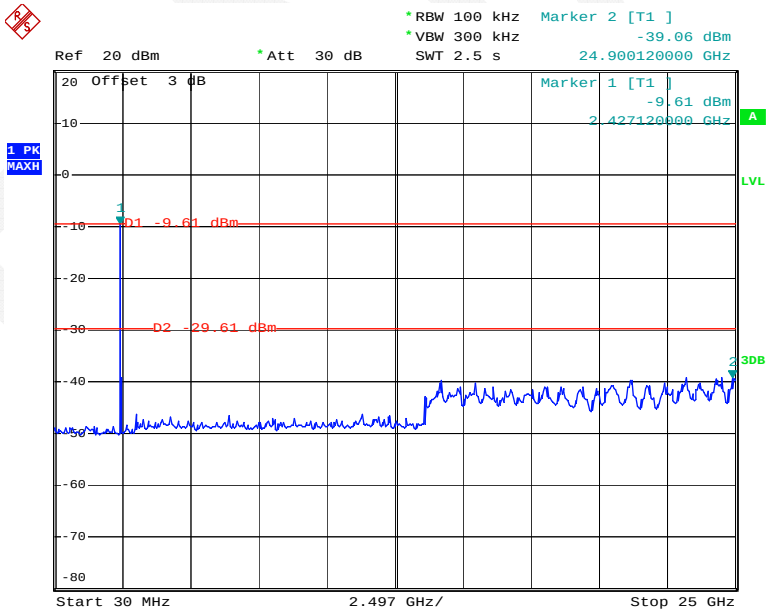
Date: 2.SEP.2014 20:28:15

802.11g Middle Channel



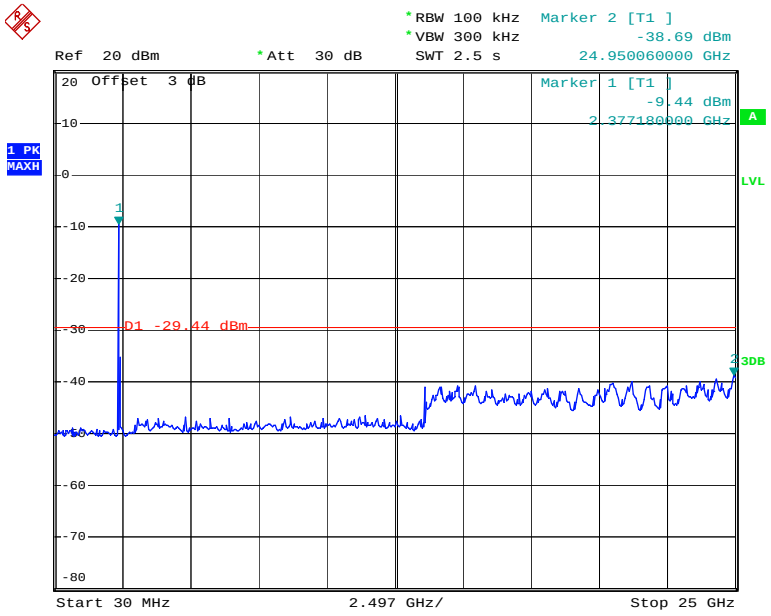
Date: 2.SEP.2014 21:07:20

802.11g High Channel



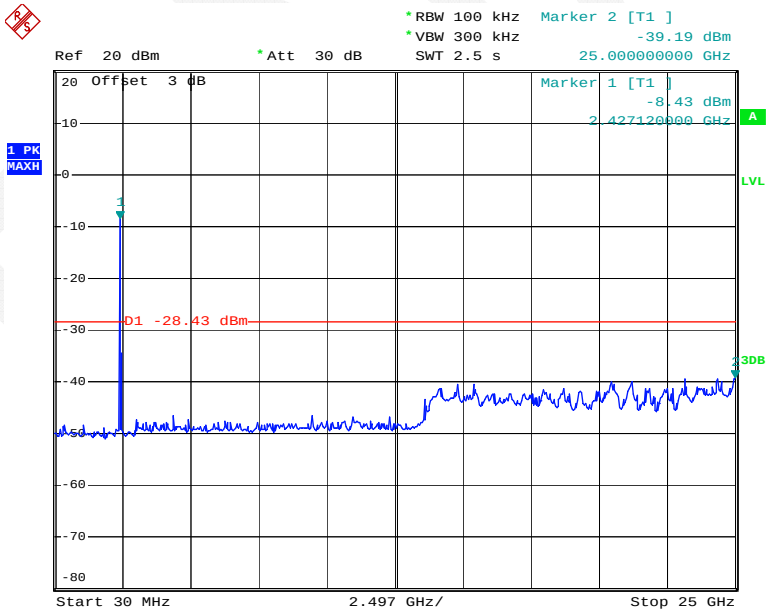
Date: 2.SEP.2014 21:40:20

802.11n-HT20 Low Channel



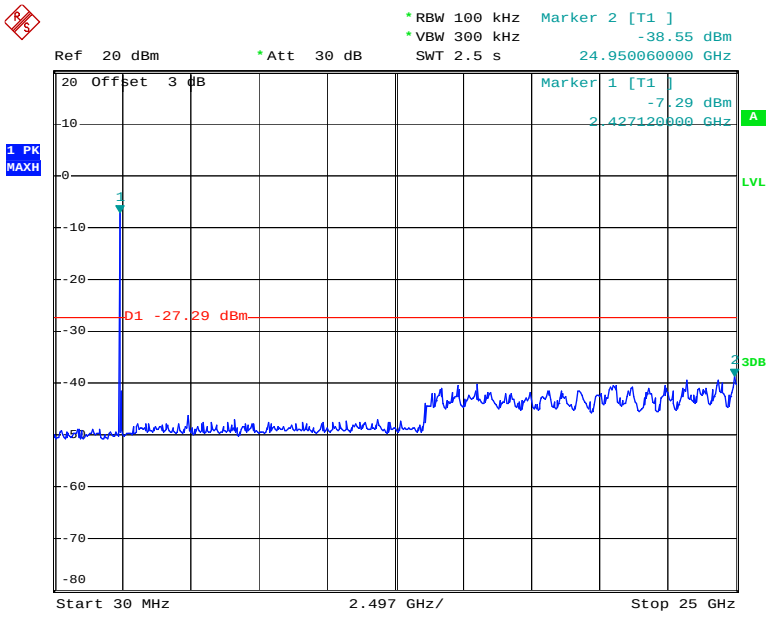
Date: 2.SEP.2014 22:03:32

802.11n-HT20 Middle Channel



Date: 2.SEP.2014 23:19:28

802.11n-HT20 High Channel



Date: 2.SEP.2014 22:31:27

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

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
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:	24.6~29.9 °C
Relative Humidity:	57~69 %
ATM Pressure:	99.6~100.7 kPa

** The testing was performed by Sevin Li from 2014-09-02 to 2014-09-24.*

Test Result: Pass.

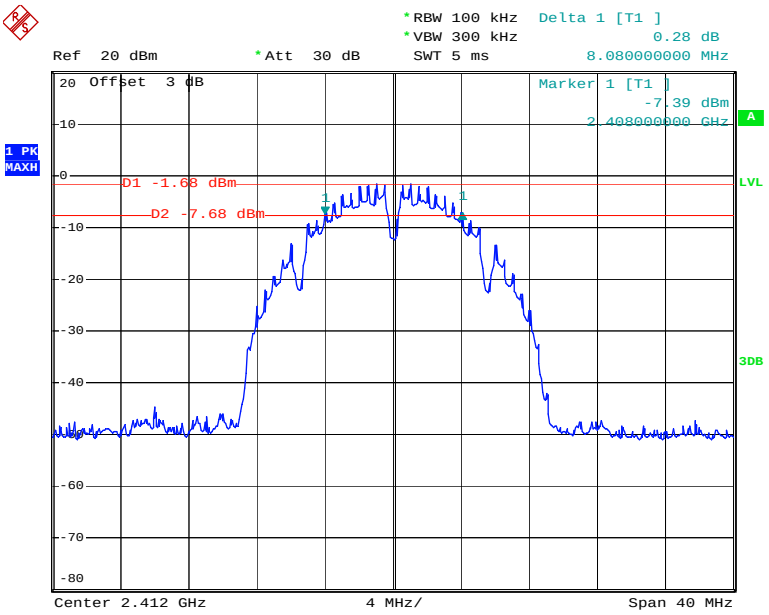
Please refer to the following tables and plots.

Test Mode: Transmitting

Test Mode	Channel	Frequency (MHz)	6 dB Bandwidth (MHz)
802.11b	Low	2412	8.08
	Middle	2437	8.08
	High	2462	8.08
802.11g	Low	2412	15.20
	Middle	2437	15.28
	High	2462	15.26
802.11n-HT20	Low	2412	15.28
	Middle	2437	15.20
	High	2462	15.12

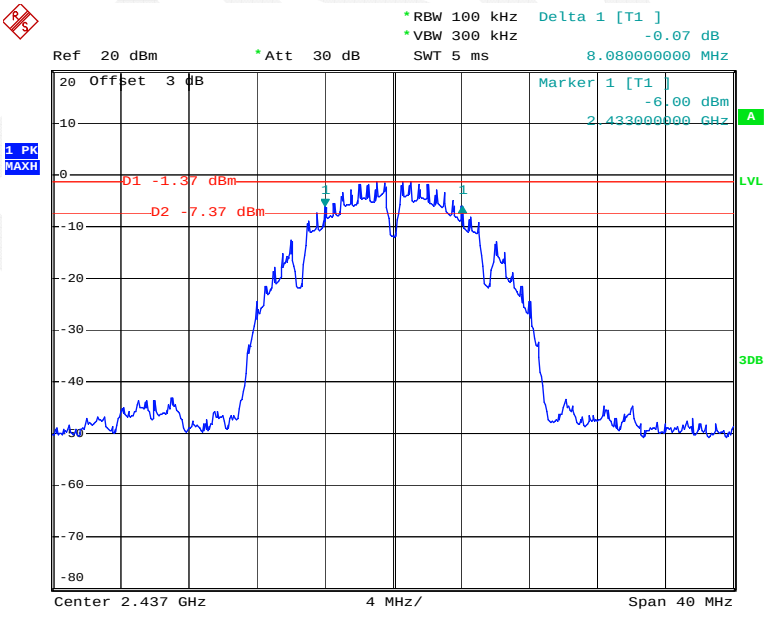
6 dB Bandwidth:

802.11b Low Channel



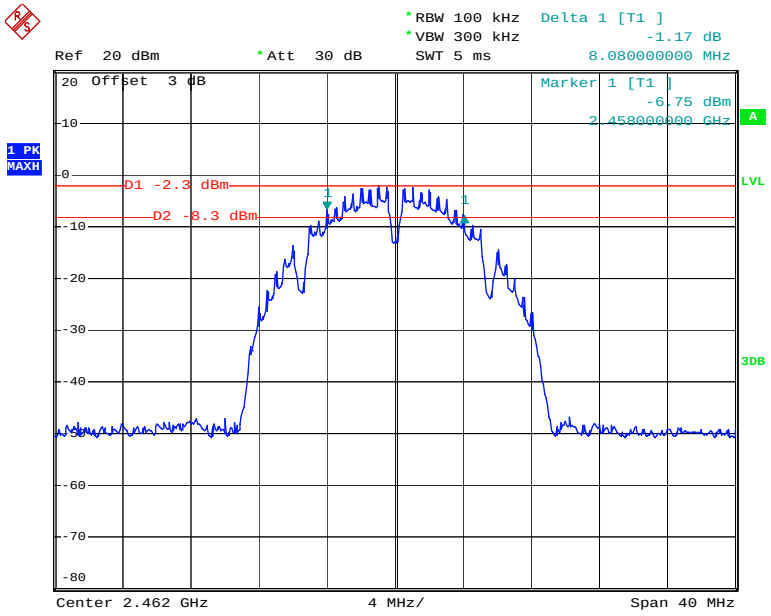
Date: 24.SEP.2014 20:19:04

802.11b Middle Channel



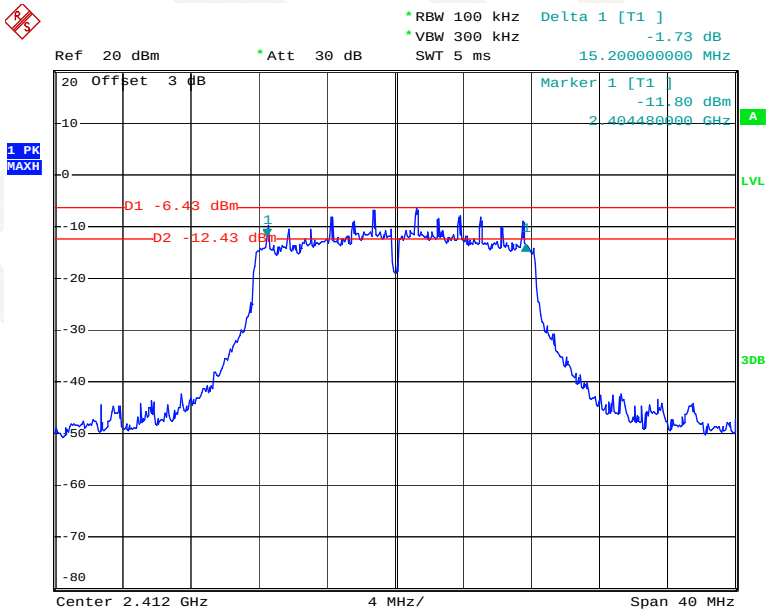
Date: 24.SEP.2014 20:52:05

802.11b High Channel



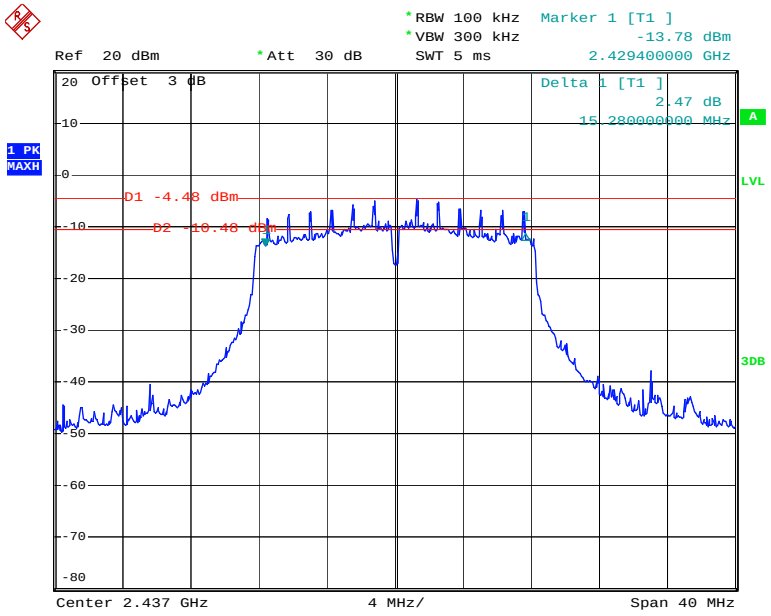
Date: 24.SEP.2014 21:32:42

802.11g Low Channel



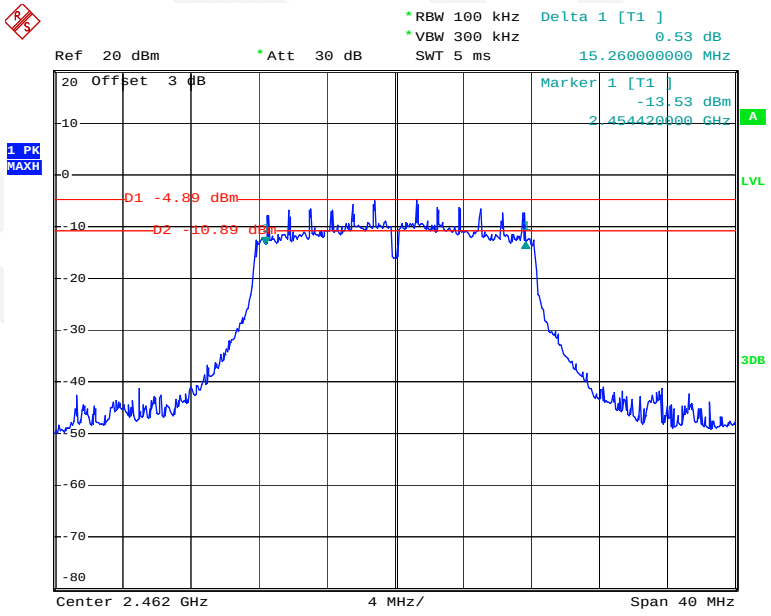
Date: 2.SEP.2014 20:24:27

802.11g Middle Channel



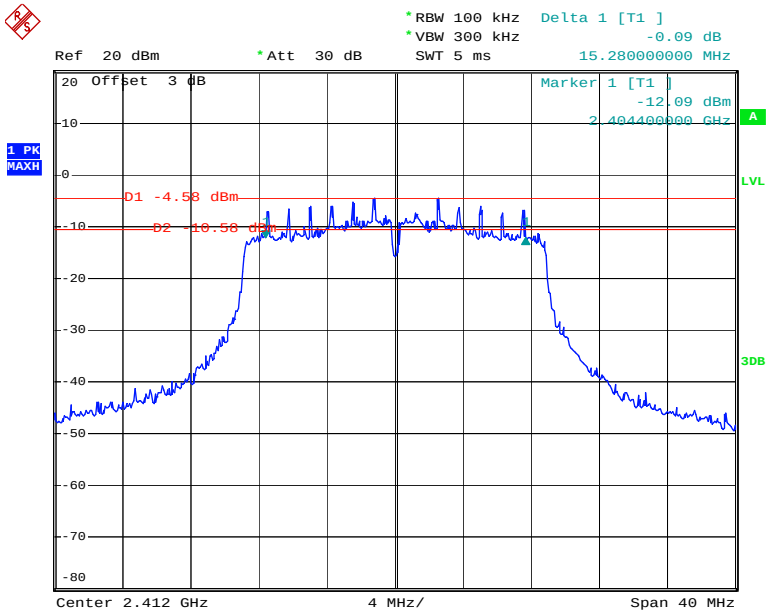
Date: 2.SEP.2014 20:56:19

802.11g High Channel



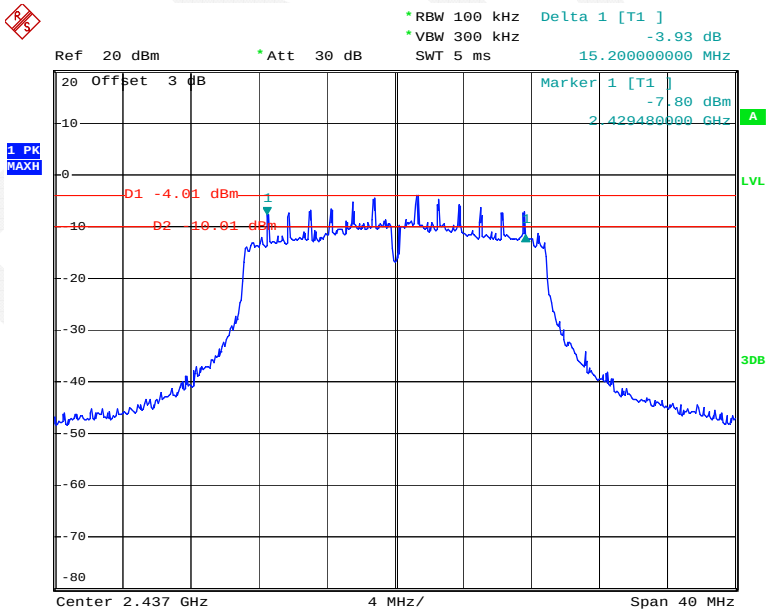
Date: 2.SEP.2014 21:33:45

802.11n-HT20 Low Channel



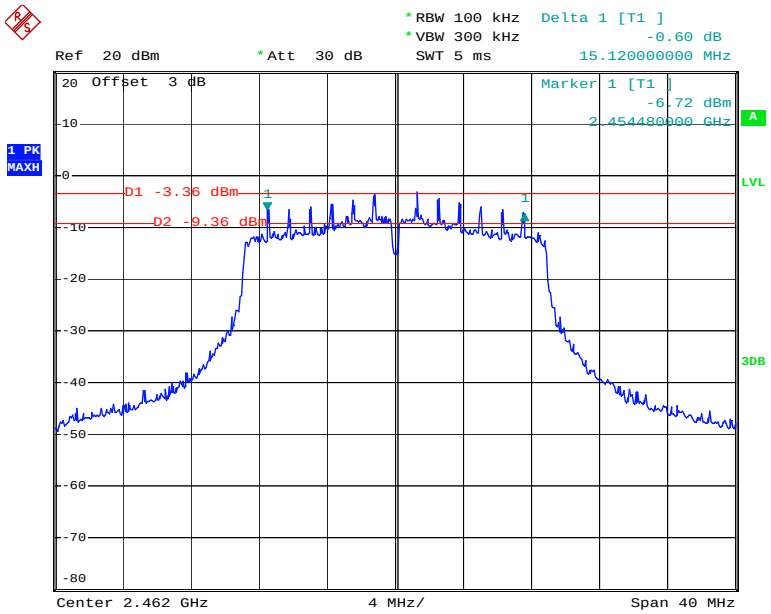
Date: 2.SEP.2014 21:59:36

802.11n-HT20 Middle Channel



Date: 2.SEP.2014 22:56:09

802.11n-HT20 High Channel



Date: 2.SEP.2014 23:14:14

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

1. According to KDB 558074 D01 DTS Meas Guidance v03r02, 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 a spectrum Analyzer.
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	MY54170013	2013-11-12	2014-11-12
Agilent	P-Series Power Meter	N1912A	MY5000448	2013-11-12	2014-11-12

*** 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:	24.6~29.9 °C
Relative Humidity:	57~69 %
ATM Pressure:	99.6~100.7 kPa

** The testing was performed by Sevin Li from 2014-09-02 to 2014-09-24.*

Test Mode: Transmitting

Please refer to the following tables and plots.

Test Mode	Channel	Frequency	Maximum conducted average output power	Limit	Result
		(MHz)	(dBm)	(dBm)	
802.11b	Low	2412	9.43	30	PASS
	Middle	2437	9.24	30	PASS
	High	2462	8.50	30	PASS
802.11 g	Low	2412	9.15	30	PASS
	Middle	2437	9.41	30	PASS
	High	2462	9.03	30	PASS
802.11n-HT20	Low	2412	9.23	30	PASS
	Middle	2437	8.37	30	PASS
	High	2462	9.23	30	PASS

Test Mode	Channel	Frequency	Maximum peak conducted output power	Limit	Result
		(MHz)	(dBm)	(dBm)	
802.11b	Low	2412	9.57	30	PASS
	Middle	2437	9.41	30	PASS
	High	2462	8.78	30	PASS
802.11 g	Low	2412	11.83	30	PASS
	Middle	2437	12.19	30	PASS
	High	2462	11.80	30	PASS
802.11n-HT20	Low	2412	12.88	30	PASS
	Middle	2437	12.41	30	PASS
	High	2462	12.83	30	PASS

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

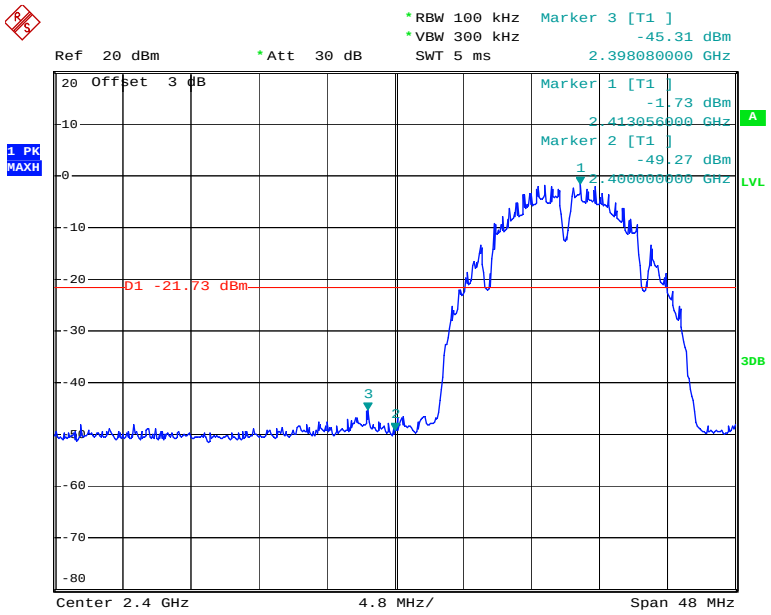
Temperature:	24.6~29.9 °C
Relative Humidity:	57~69 %
ATM Pressure:	99.6~100.7 kPa

** The testing was performed by Sevin Li from 2014-09-02 to 2014-09-24.*

Test Result: *Compliance*

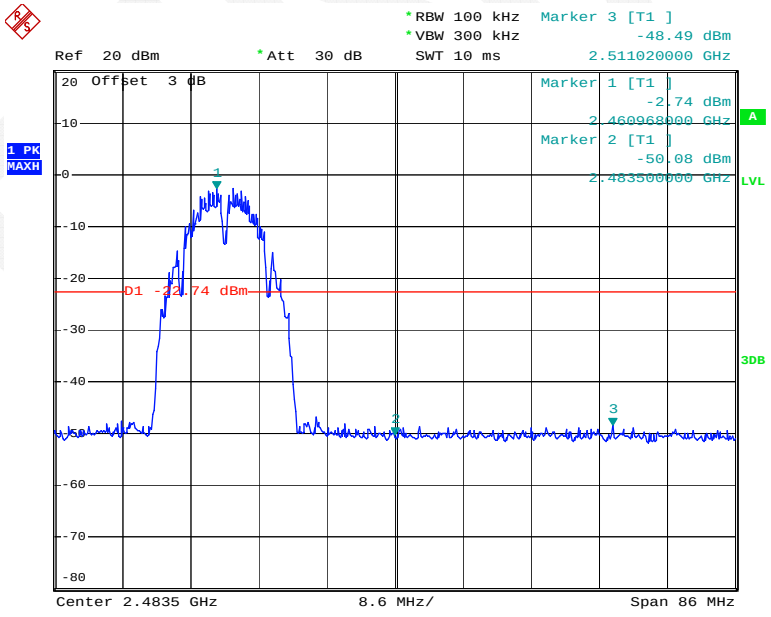
Please refer to following plots.

802.11b: Band Edge, Left Side



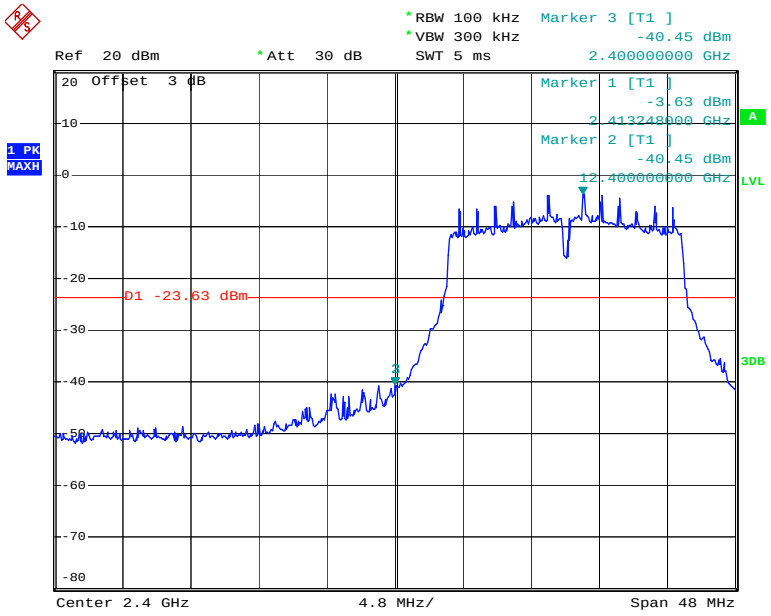
Date: 24.SEP.2014 20:22:27

802.11b: Band Edge, Right Side



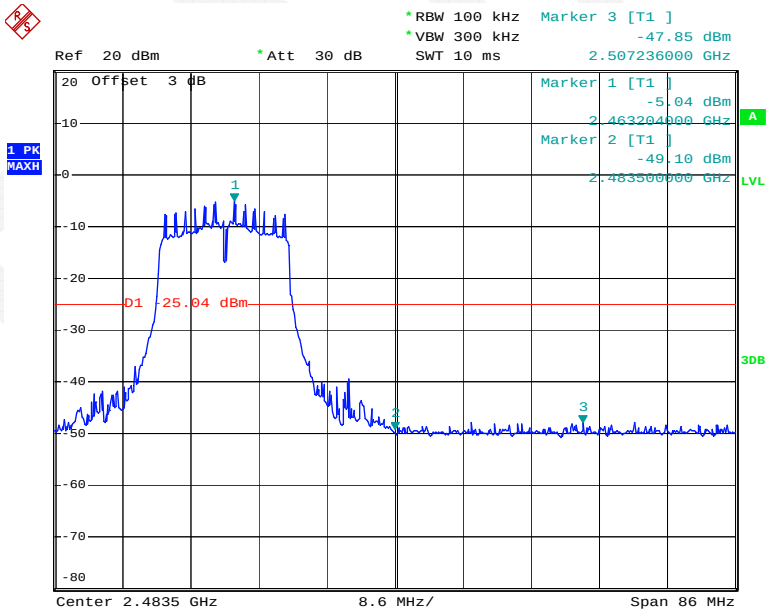
Date: 24.SEP.2014 21:36:11

802.11g: Band Edge, Left Side



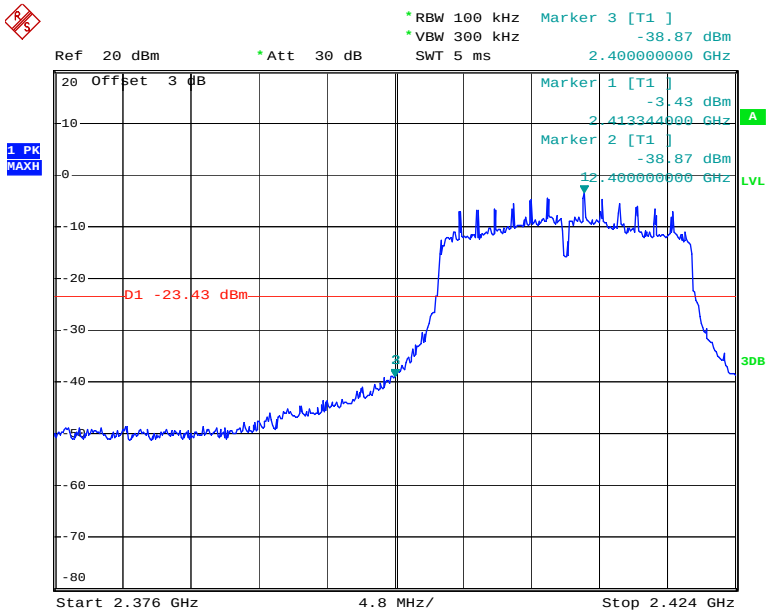
Date: 2.SEP.2014 20:28:40

802.11g: Band Edge, Right Side



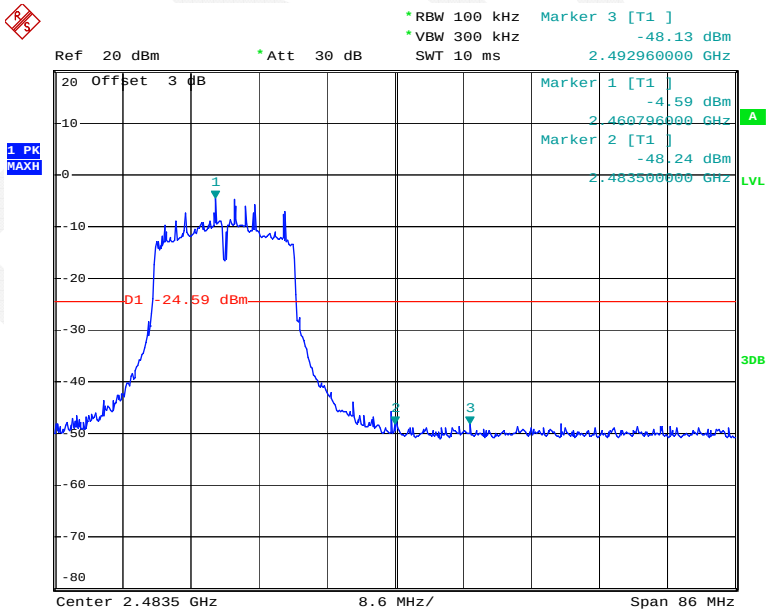
Date: 2.SEP.2014 21:43:06

802.11n-HT20 Band Edge, Left Side



Date: 2.SEP.2014 22:04:19

802.11n-HT20 Band Edge, Right Side



Date: 2.SEP.2014 23:21:12

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

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. Set the RBW = 3 kHz, VBW = 10 kHz, Set the span to 1.5 times the DTS bandwidth.
4. Use the peak marker function to determine the maximum amplitude level.

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:	24.6~29.9 °C
Relative Humidity:	57~69 %
ATM Pressure:	99.6~100.7 kPa

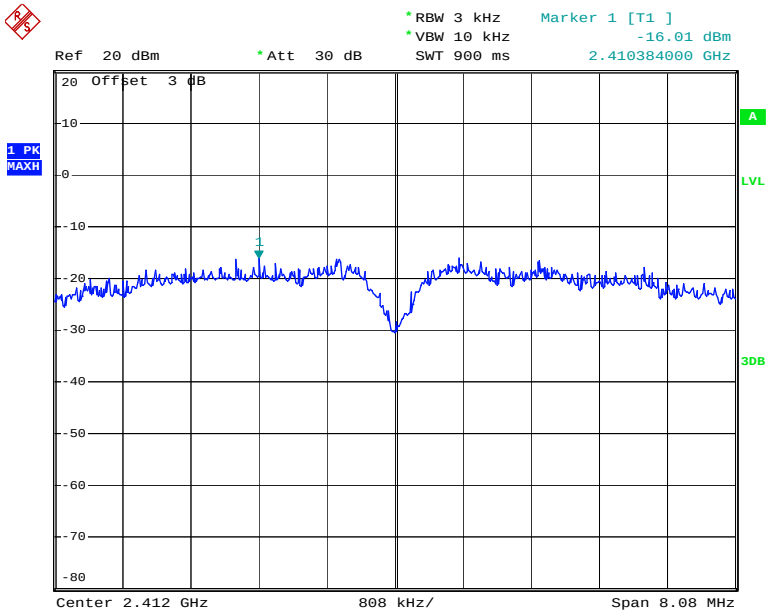
** The testing was performed by Sevin Li from 2014-09-02 to 2014-09-24.*

Test Mode: Transmitting

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

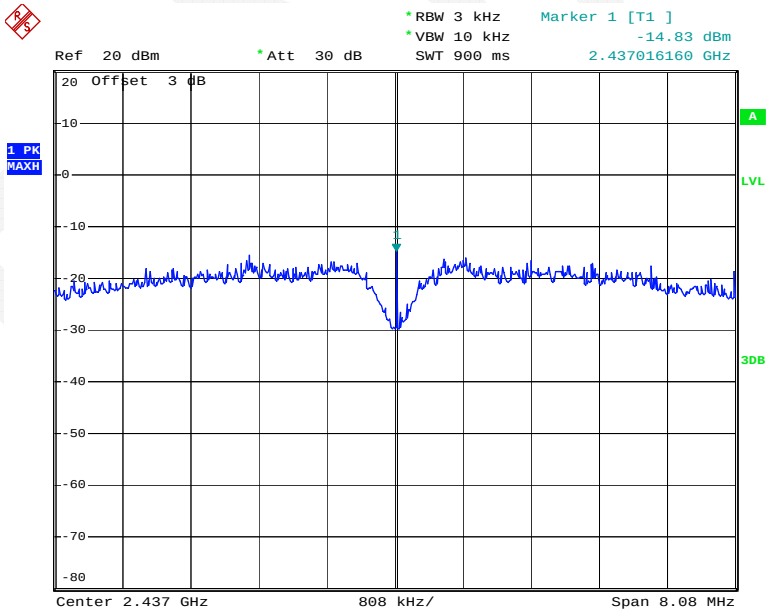
Test Mode	Channel	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Result
802.11b	Low	-16.01	≤8	PASS
	Middle	-14.83	≤8	PASS
	High	-16.97	≤8	PASS
802.11 g	Low	-22.82	≤8	PASS
	Middle	-21.51	≤8	PASS
	High	-21.63	≤8	PASS
802.11n-HT20	Low	-19.71	≤8	PASS
	Middle	-20.40	≤8	PASS
	High	-21.28	≤8	PASS

Power Spectral Density, 802.11b Low Channel



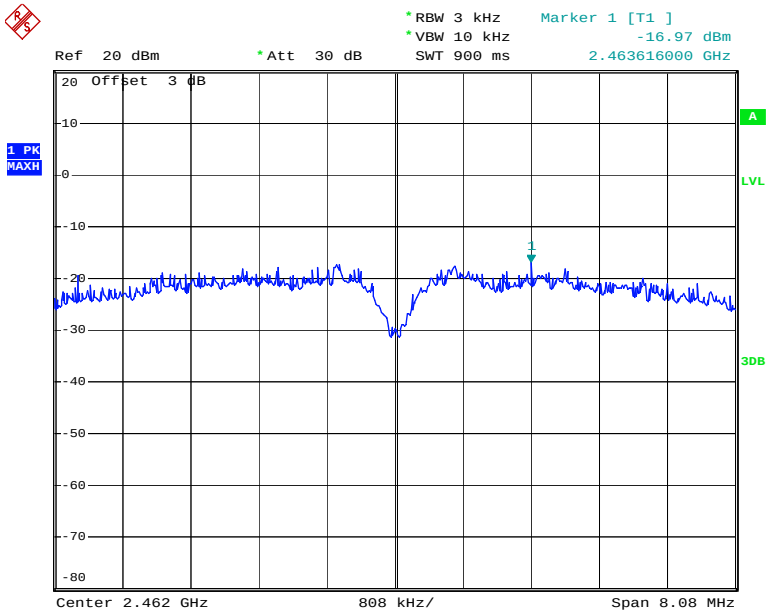
Date: 24.SEP.2014 20:21:22

Power Spectral Density, 802.11b Middle Channel



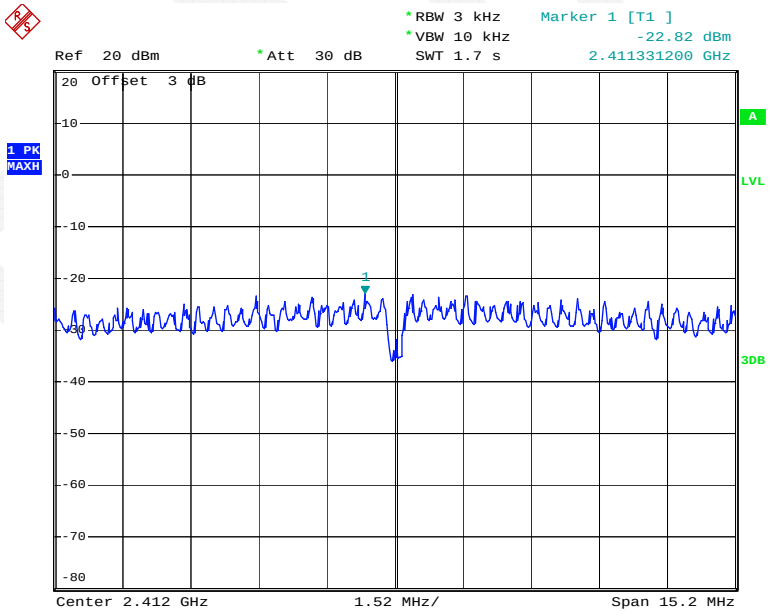
Date: 24.SEP.2014 20:53:48

Power Spectral Density, 802.11b High Channel



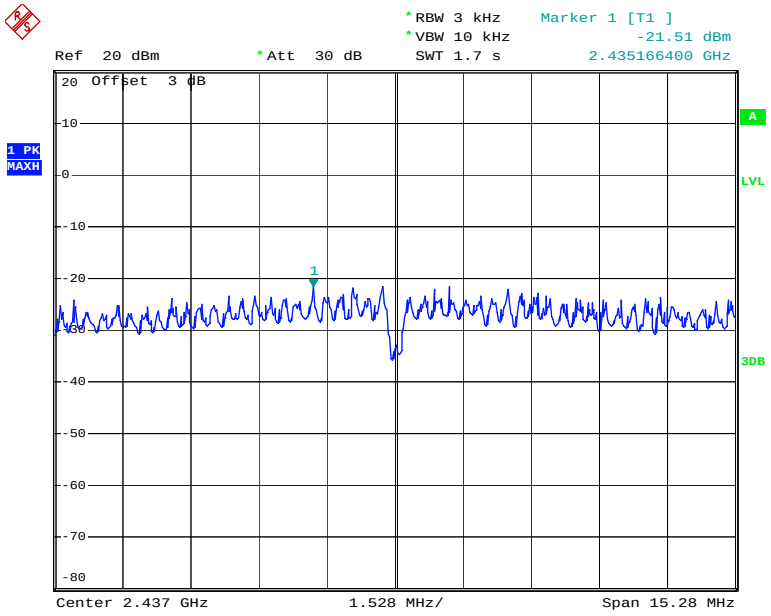
Date: 24.SEP.2014 21:35:05

Power Spectral Density, 802.11g Low Channel



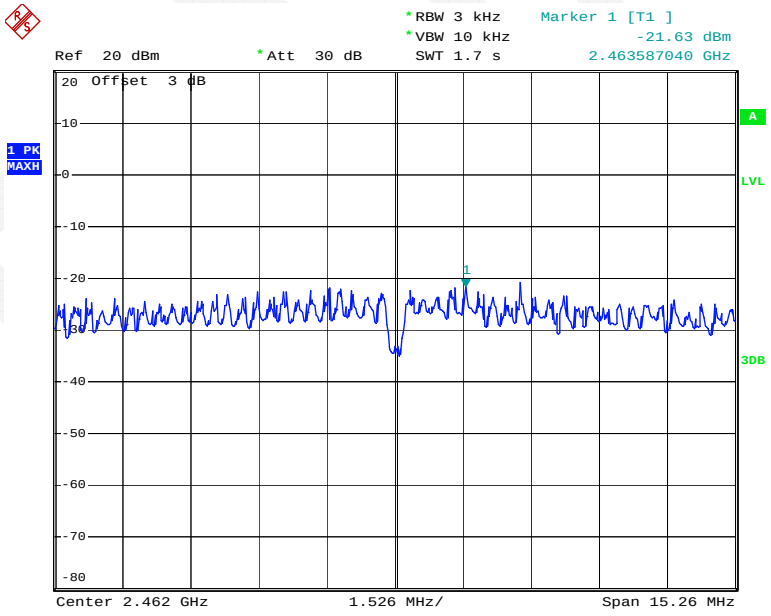
Date: 2.SEP.2014 20:27:33

Power Spectral Density, 802.11g Middle Channel



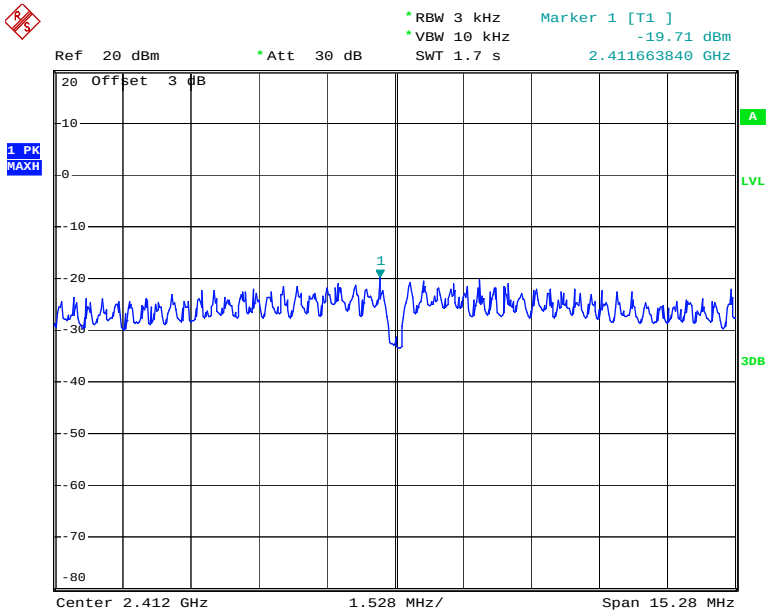
Date: 2.SEP.2014 21:05:50

Power Spectral Density, 802.11g High Channel



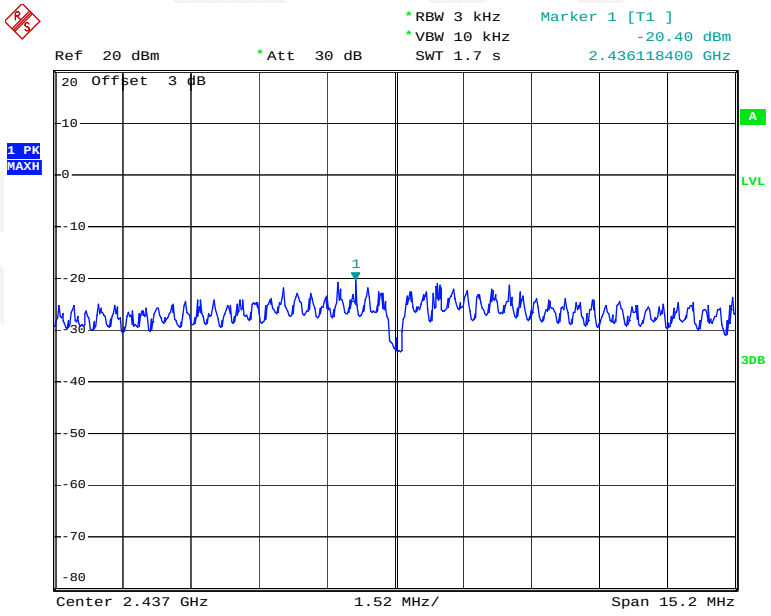
Date: 2.SEP.2014 21:38:59

Power Spectral Density, 802.11n-HT20 Low Channel



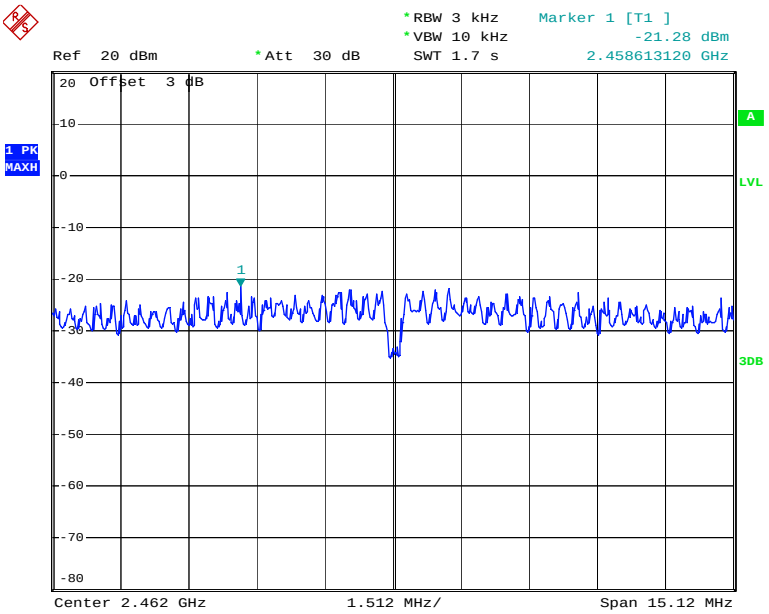
Date: 2.SEP.2014 22:02:42

Power Spectral Density, 802.11n-HT20 Middle Channel



Date: 2.SEP.2014 22:59:06

Power Spectral Density, 802.11n-HT20 High Channel



Date: 2.SEP.2014 23:18:14

DECLARATION LETTER

Jiangsu SEUIC Technology Co.,Ltd

Declaration of Alteration

To Whom It May Concern,

We, Jiangsu SEUIC Technology Co., Ltd hereby declare that there are some differences between our Multiple Models and testing products. Details as below:

(This is for your reference only.)

Products Description	Name	AUTOID Industrial Handheld Terminal
	Brand	SEUIC
	Manufacturer	Jiangsu SEUIC Technology Co., Ltd
	Project No.	

Differences Description			
Testing Products	Multiple Models	Differences Items	Details
AUTOID7P	AUTOID7$\frac{1}{2}$	They are the same products, and just have the different color and model name, the rest are the same.	

Notes: Testing products-the products tested by BACL
Multiple Model- have the same or similarappearance, structure, PCB, Material and function to the testing products, and only are different for little parameters.

Besides the differences in the table above, we declare the products are identical
We guarantee all the information provided above is true, and notice that we'll bear all the consequences caused by any false information or concealing

Best Regards,

Printed Name : Keen Zheng keen - zheng

Title: Engineer Manager

Date: 2014-10-22

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