FCC PART 15.247

TEST REPORT

For

ZIONCOM ELECTRONICS (SHENZHEN) LTD.

Building A1~A2, Lantian Science and Technology Park, Xinyu Road Xinqiao Henggang Block Shajing Street, Baoan District, Shenzhen City, China

FCC ID: X7D-IP04239

Report Type:	Product Type:
Original Report	300Mbps Wireless N Router

Test Engineer:	Dean Liu
Report Number:	RDG141023002-00
Report Date:	2014-11-03
Reviewed By:	Leon Chen 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

TABLE OF CONTENTS

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *ZIONCOM ELECTRONICS (SHENZHEN) LTD.*'s product, model number: *N300RT (FCC ID: X7D-IP04239) or* ("EUT") in this report is a *300Mbps Wireless N Router,* which was measured approximately: 14.5 cm (L) x7.4 cm (W) x 2.5 cm (H), rated input voltage: DC 9.0V from adapter.

Adapter information: KUANTEN
Model: SSA021F090050USD
Input: AC100-240V, 50/60Hz, 0.2A
Out put: DC 9V, 0.5A

Note: The series product, model N300RT, IP04239 are electrically identical, the only difference between them is the model name, we selected N300RT 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: 141023002 (Assigned by BACL.Dongguan). The EUT was received on 2014-10-23.*

Objective

This report is prepared on behalf of *ZIONCOM ELECTRONICS (SHENZHEN) 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)

N/A

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.

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.

For 802.11b and 802.11g, the EUT can transmit with ant 1 or ant 2, therefore investigated worst case to representative ant 1 in test report.

Equipment Modifications

No modification was made to the EUT tested.

EUT Exercise Software

The software “MP_TEST” was used for testing, which was provided by manufacturer. The worst condition (maximum power with 100% duty cycle) was setting by the software as following table:

Test Mode	Test Software Version	MP_TEST		
802.11b	Test Frequency	2412MHz	2437MHz	2462MHz
	Data Rate	1Mbps	1Mbps	1Mbps
	Power Level Setting	34	34	34
802.11g	Test Frequency	2412MHz	2437MHz	2462MHz
	Data Rate	6Mbps	6Mbps	6Mbps
	Power Level Setting	29	29	29
802.11n ht20	Test Frequency	2412MHz	2437MHz	2462MHz
	Data Rate	MCS0	MCS0	MCS0
	Power Level Setting	18	18	18
802.11n ht40	Test Frequency	2422MHz	2437MHz	2452MHz
	Data Rate	MCS0	MCS0	MCS0
	Power Level Setting	20	20	20

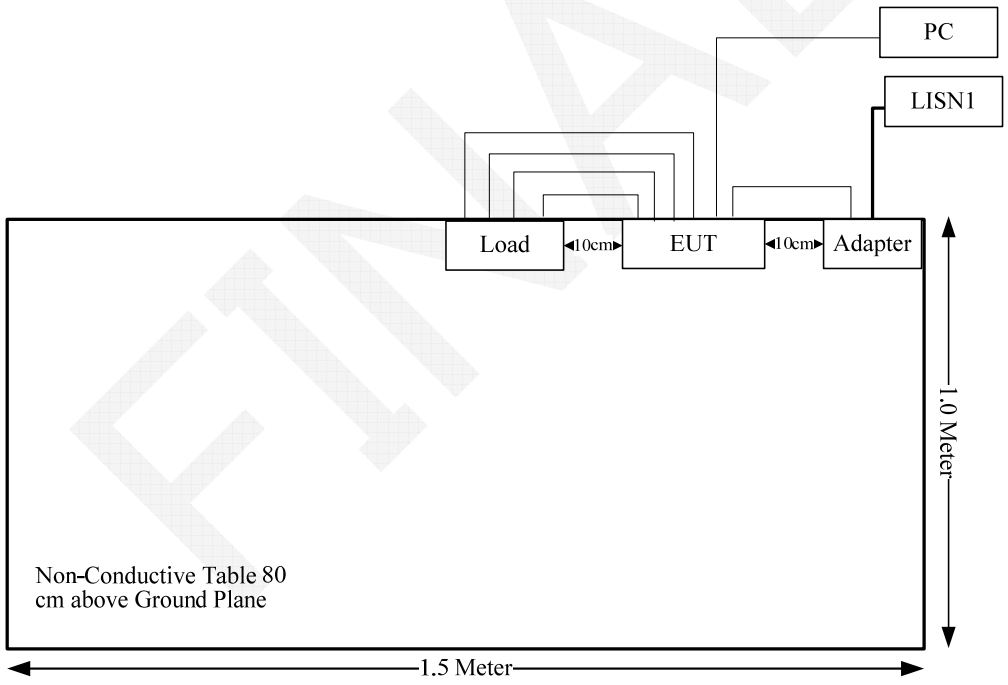
Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
DELL	PC	GX620	CK2Z89

External Cable

Cable Description	Shielding Type	Ferrite Core	Length (m)	From Port	To
RJ45 Cable*4	Yes	Yes	1	EUT	Load
RJ45 Cable	Yes	Yes	10	EUT	PC
Adapter DC Line	No	No	1.2	Adapter	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

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)

(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)			
802.11b	2412	5	3.16	18.32	67.92	20	0.0427	1.0
802.11g	2437	5	3.16	16.66	46.34	20	0.0291	1.0
802.11n HT20	2412	5	3.16	15.52	35.65	20	0.0224	1.0
802.11n HT40	2422	5	3.16	15.13	32.58	20	0.0205	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 un-detachable antennas, the maximum gain is 5.0 dBi, which 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：

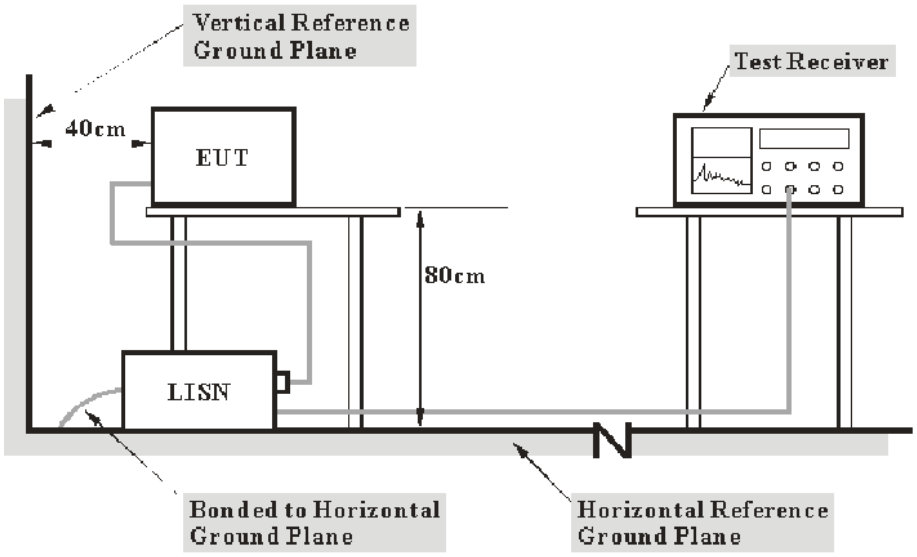
If U_{lab} is less than or equal to U_{cispr} of Table 1, then:
– compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit;
– non - compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit.
If U_{lab} is greater than U_{cispr} of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

12.2 dB at **0.409372 MHz** in the **Line** conducted mode

Test Data

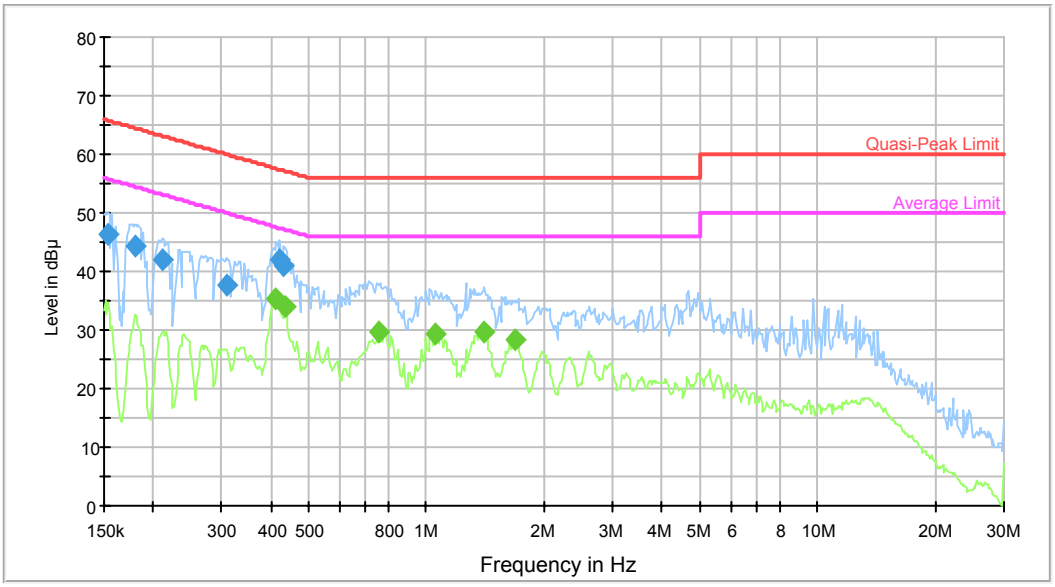
Environmental Conditions

Temperature:	25.5 °C
Relative Humidity:	51 %
ATM Pressure:	100.9 kPa

The testing was performed by Dean Liu on 2014-10-29.

Test Mode: Transmitting

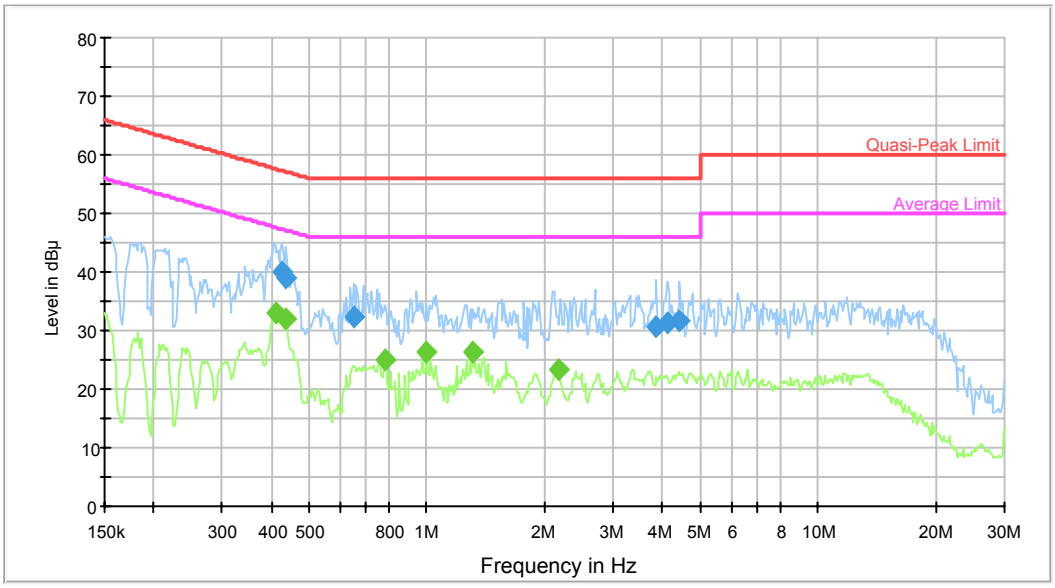
AC120 V, 60 Hz, Line:



Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.153629	46.3	9.000	L1	10.1	19.5	65.8	Compliance
0.180171	44.5	9.000	L1	10.4	20.0	64.5	Compliance
0.211298	42.0	9.000	L1	10.8	21.2	63.2	Compliance
0.307284	37.5	9.000	L1	10.7	22.5	60.0	Compliance
0.422630	41.9	9.000	L1	10.5	15.5	57.4	Compliance
0.432855	40.9	9.000	L1	10.5	16.3	57.2	Compliance

Frequency (MHz)	Average (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.409372	35.5	9.000	L1	10.5	12.2	47.7	Compliance
0.436318	33.9	9.000	L1	10.5	13.2	47.1	Compliance
0.756101	29.5	9.000	L1	10.5	16.5	46.0	Compliance
1.056628	29.4	9.000	L1	10.4	16.6	46.0	Compliance
1.396499	29.7	9.000	L1	10.4	16.3	46.0	Compliance
1.690804	28.3	9.000	L1	10.4	17.7	46.0	Compliance

AC120 V, 60 Hz, Neutral:



Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.426011	40.1	9.000	N	10.7	17.2	57.3	Compliance
0.436318	39.1	9.000	N	10.6	18.0	57.1	Compliance
0.649874	32.2	9.000	N	10.6	23.8	56.0	Compliance
3.872475	30.8	9.000	N	10.8	25.2	56.0	Compliance
4.127365	31.3	9.000	N	10.8	24.7	56.0	Compliance
4.434225	31.7	9.000	N	10.8	24.3	56.0	Compliance

Frequency (MHz)	Average (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.409372	33.2	9.000	N	10.7	14.5	47.7	Compliance
0.436318	31.9	9.000	N	10.6	15.2	47.1	Compliance
0.780588	25.0	9.000	N	10.5	21.0	46.0	Compliance
0.999305	26.2	9.000	N	10.5	19.8	46.0	Compliance
1.310256	26.4	9.000	N	10.5	19.6	46.0	Compliance
2.164561	23.3	9.000	N	10.5	22.7	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.

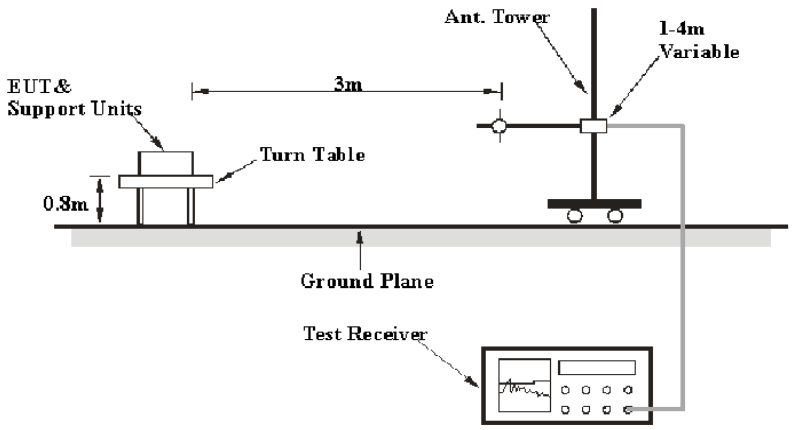
Based on CISPR 16-4-2-2011, measurement uncertainty of radiated emission at a distance of 3m at Bay Area Compliance Laboratories Corp. (Dongguan) is:
30M~200MHz: 5.0 dB
200M~1GHz: 6.2 dB
1G~6GHz: 4.45 dB
6G~18GHz: 5.23 dB

Table 2 – Values of U_{cispr}

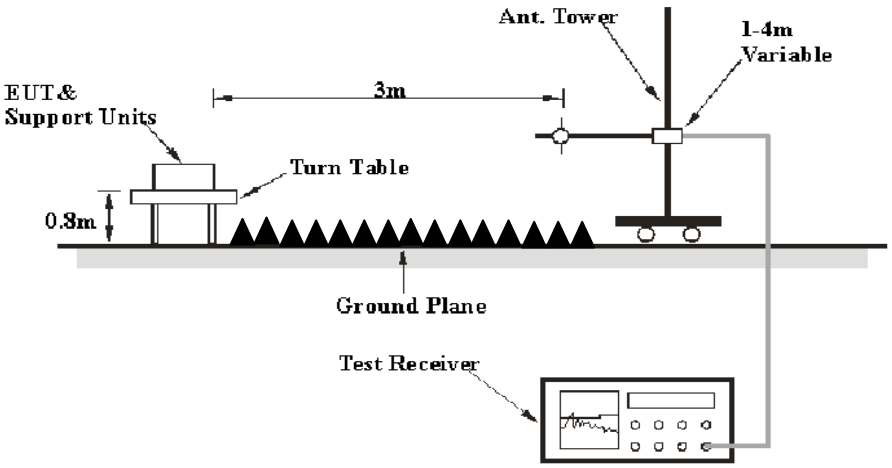
Measurement	U_{cispr}
Radiated disturbance (electric field strength at an OATS or in a SAC) (30 MHz to 1000 MHz)	6.3 dB
Radiated disturbance (electric field strength in a FAR) (1 GHz to 6 GHz)	5.2 dB
Radiated disturbance (electric field strength in a FAR) (6 GHz to 18 GHz)	5.5 dB

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 of EUT 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 EUT 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	A060611-3	2014-07-28	2017-07-27
HP	Amplifier	8447E	2434A02181	2014-09-01	2015-09-01
Agilent	Spectrum Analyzer	E440A	SG43360054	2014-03-24	2015-03-24
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
Quinstar	Amplifier	QLW-18405536-JO	15964001001	2014-09-06	2015-09-06
R&S	Test Receiver	ESPI	100120	2013-11-18	2014-11-18
R&S	Spectrum Analyzer	FSEM	DE31388	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 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:

0.63 dB at **7386MHz** in the **Vertical** polarization for 802.11b Mode

Test Data

Environmental Conditions

Temperature:	24.5 °C
Relative Humidity:	51 %
ATM Pressure:	100.9 kPa

The testing was performed by Dean Liu on 2014-10-28 and 2014-10-29.

Test Mode: Transmitting
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	62.08	PK	H	25.67	3.68	0.00	91.43	N/A	N/A
2412	57.91	AV	H	25.67	3.68	0.00	87.26	N/A	N/A
2412	72.83	PK	V	25.67	3.68	0.00	102.18	N/A	N/A
2412	69.37	AV	V	25.67	3.68	0.00	98.72	N/A	N/A
2362.6	27.17	PK	V	25.54	3.58	0.00	56.29	74.00	17.71
2362.6	14.16	AV	V	25.54	3.58	0.00	43.28	54.00	10.72
4824	38.45	PK	V	30.64	5.03	27.41	46.71	74.00	27.29
4824	35.26	AV	V	30.64	5.03	27.41	43.52	54.00	10.48
7236	41.35	PK	V	34.17	6.65	25.90	56.27	74.00	17.73
7236	36.10	AV	V	34.17	6.65	25.90	51.02	54.00	2.98*
9648	30.13	PK	V	36.06	8.55	27.46	47.28	74.00	26.72
9648	17.31	AV	V	36.06	8.55	27.46	34.46	54.00	19.54
3261.3	29.28	PK	V	28.04	6.05	27.32	36.05	74.00	37.95
3261.3	20.83	AV	V	28.04	6.05	27.32	27.60	54.00	26.40
108.57	32.00	QP	H	12.63	1.27	21.41	24.49	43.50	19.01
Middle Channel: 2437 MHz									
2437	62.57	PK	H	25.74	3.75	0.00	92.06	N/A	N/A
2437	58.95	AV	H	25.74	3.75	0.00	88.44	N/A	N/A
2437	73.27	PK	V	25.74	3.75	0.00	102.76	N/A	N/A
2437	69.92	AV	V	25.74	3.75	0.00	99.41	N/A	N/A
4874	39.01	PK	V	30.77	5.14	27.42	47.50	74.00	26.50
4874	36.25	AV	V	30.77	5.14	27.42	44.74	54.00	9.26
7311	38.11	PK	V	34.35	6.74	25.88	53.32	74.00	20.68
7311	35.40	AV	V	34.35	6.74	25.88	50.61	54.00	3.39
9748	28.18	PK	V	36.30	8.61	27.24	45.85	74.00	28.15
9748	17.01	AV	V	36.30	8.61	27.24	34.68	54.00	19.32
3261.3	29.06	PK	V	28.04	6.05	27.32	35.83	74.00	38.17
3261.3	20.74	AV	V	28.04	6.05	27.32	27.51	54.00	26.49
1719.4	28.14	PK	V	24.04	2.77	27.64	27.31	74.00	46.69
1719.4	19.53	AV	V	24.04	2.77	27.64	18.70	54.00	35.30
108.57	31.90	QP	H	12.63	1.27	21.41	24.39	43.50	19.11
High Channel: 2462 MHz									
2462	62.80	PK	H	25.80	3.75	0.00	92.35	N/A	N/A
2462	54.78	AV	H	25.80	3.75	0.00	84.33	N/A	N/A
2462	72.04	PK	V	25.80	3.75	0.00	101.59	N/A	N/A
2462	67.77	AV	V	25.80	3.75	0.00	97.32	N/A	N/A
2485.77	26.43	PK	V	25.86	3.66	0.00	55.95	74.00	18.05
2485.77	14.40	AV	V	25.86	3.66	0.00	43.92	54.00	10.08
4924	39.95	PK	V	30.90	5.34	27.43	48.76	74.00	25.24
4924	38.79	AV	V	30.90	5.34	27.43	47.60	54.00	6.40
7386	39.55	PK	V	34.53	6.83	25.86	55.05	74.00	18.95
7386	37.87	AV	V	34.53	6.83	25.86	53.37	54.00	0.63*
9848	28.46	PK	V	36.54	8.66	26.94	46.72	74.00	27.28
9848	17.20	AV	V	36.54	8.66	26.94	35.46	54.00	18.54
3383.3	28.77	PK	V	28.43	5.04	27.21	35.03	74.00	38.97
3383.3	20.87	AV	V	28.43	5.04	27.21	27.13	54.00	26.87
3261.3	29.11	PK	V	28.04	6.05	27.32	35.88	74.00	38.12

*Within measurement uncertainty!

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	59.13	PK	H	25.67	3.68	0.00	88.48	N/A	N/A
2412	50.41	AV	H	25.67	3.68	0.00	79.76	N/A	N/A
2412	68.45	PK	V	25.67	3.68	0.00	97.80	N/A	N/A
2412	59.76	AV	V	25.67	3.68	0.00	89.11	N/A	N/A
2387.4	26.03	PK	V	25.61	3.62	0.00	55.26	74.00	18.74
2387.4	14.59	AV	V	25.61	3.62	0.00	43.82	54.00	10.18
4824	33.00	PK	V	30.64	5.03	27.41	41.26	74.00	32.74
4824	18.88	AV	V	30.64	5.03	27.41	27.14	54.00	26.86
7236	33.56	PK	V	34.17	6.65	25.90	48.48	74.00	25.52
7236	21.97	AV	V	34.17	6.65	25.90	36.89	54.00	17.11
9648	28.66	PK	V	36.06	8.55	27.46	45.81	74.00	28.19
9648	19.58	AV	V	36.06	8.55	27.46	36.73	54.00	17.27
3261.3	29.33	PK	V	28.04	6.05	27.32	36.10	74.00	37.90
3261.3	21.02	AV	V	28.04	6.05	27.32	27.79	54.00	26.21
108.57	32.10	QP	H	12.63	1.27	21.41	24.59	43.50	18.91
Middle Channel: 2437 MHz									
2437	60.36	PK	H	25.74	3.75	0.00	89.85	N/A	N/A
2437	51.88	AV	H	25.74	3.75	0.00	81.37	N/A	N/A
2437	68.06	PK	V	25.74	3.75	0.00	97.55	N/A	N/A
2437	59.71	AV	V	25.74	3.75	0.00	89.20	N/A	N/A
4874	34.89	PK	V	30.77	5.14	27.42	43.38	74.00	30.62
4874	21.88	AV	V	30.77	5.14	27.42	30.37	54.00	23.63
7311	32.80	PK	V	34.35	6.74	25.88	48.01	74.00	25.99
7311	19.67	AV	V	34.35	6.74	25.88	34.88	54.00	19.12
9748	30.46	PK	V	36.30	8.61	27.24	48.13	74.00	25.87
9748	20.12	AV	V	36.30	8.61	27.24	37.79	54.00	16.21
3261.3	29.12	PK	V	28.04	6.05	27.32	35.89	74.00	38.11
3261.3	20.51	AV	V	28.04	6.05	27.32	27.28	54.00	26.72
1719.4	28.22	PK	V	24.04	2.77	27.64	27.39	74.00	46.61
1719.4	19.38	AV	V	24.04	2.77	27.64	18.55	54.00	35.45
108.57	32.20	QP	H	12.63	1.27	21.41	24.69	43.50	18.81
High Channel: 2462 MHz									
2462	59.80	PK	H	25.80	3.75	0.00	89.35	N/A	N/A
2462	51.45	AV	H	25.80	3.75	0.00	81.00	N/A	N/A
2462	67.68	PK	V	25.80	3.75	0.00	97.23	N/A	N/A
2462	59.35	AV	V	25.80	3.75	0.00	88.90	N/A	N/A
2484.2	26.44	PK	V	25.86	3.67	0.00	55.97	74.00	18.03
2484.2	14.92	AV	V	25.86	3.67	0.00	44.45	54.00	9.55
4924	35.70	PK	V	30.90	5.34	27.43	44.51	74.00	29.49
4924	23.41	AV	V	30.90	5.34	27.43	32.22	54.00	21.78
7386	32.75	PK	V	34.53	6.83	25.86	48.25	74.00	25.75
7386	19.70	AV	V	34.53	6.83	25.86	35.20	54.00	18.80
9848	30.13	PK	V	36.54	8.66	26.94	48.39	74.00	25.61
9848	21.13	AV	V	36.54	8.66	26.94	39.39	54.00	14.61
3261.3	29.26	PK	V	28.04	6.05	27.32	36.03	74.00	37.97
3261.3	21.42	AV	V	28.04	6.05	27.32	28.19	54.00	25.81
108.57	31.80	QP	H	12.63	1.27	21.41	24.29	43.50	19.21

802.11 n ht20 Mode

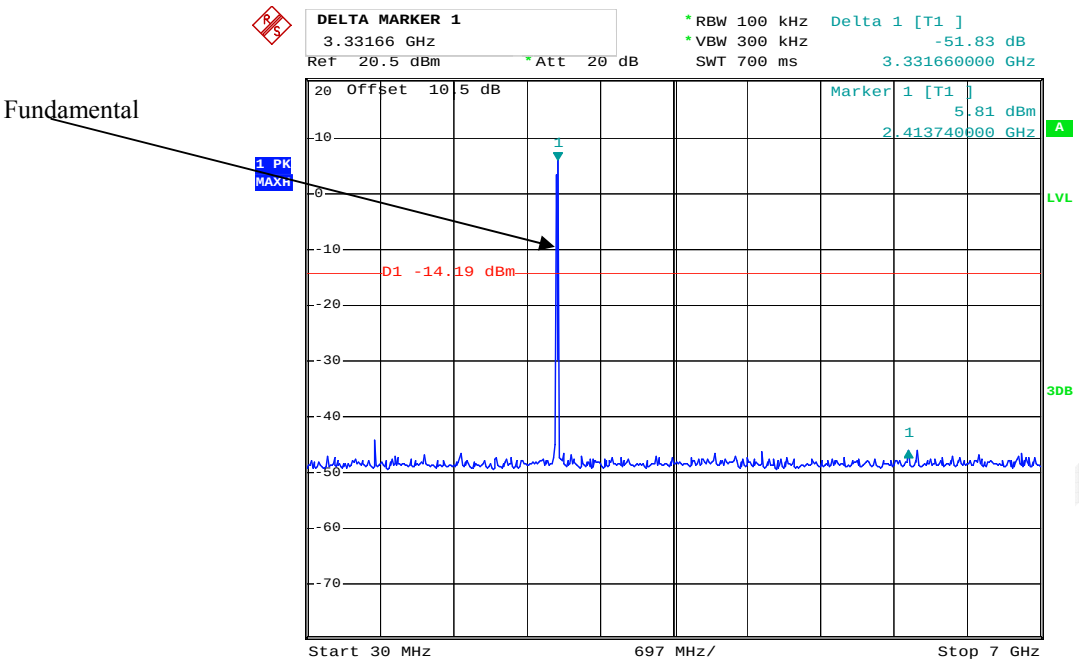
Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBµV/m)	Limit (dBµV/m)	Margin (dB)
	Reading (dBµV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)					
Low Channel: 2412 MHz									
2412	53.87	PK	H	25.67	3.68	0.00	83.22	N/A	N/A
2412	45.23	AV	H	25.67	3.68	0.00	74.58	N/A	N/A
2412	63.51	PK	V	25.67	3.68	0.00	92.86	N/A	N/A
2412	54.95	AV	V	25.67	3.68	0.00	84.30	N/A	N/A
2348.6	25.72	PK	V	25.51	3.55	0.00	54.78	74.00	19.22
2348.6	13.70	AV	V	25.51	3.55	0.00	42.76	54.00	11.24
4824	30.97	PK	V	30.64	5.03	27.41	39.23	74.00	34.77
4824	18.71	AV	V	30.64	5.03	27.41	26.97	54.00	27.03
7236	31.49	PK	V	34.17	6.65	25.90	46.41	74.00	27.59
7236	19.13	AV	V	34.17	6.65	25.90	34.05	54.00	19.95
9648	28.12	PK	V	36.06	8.55	27.46	45.27	74.00	28.73
9648	16.54	AV	V	36.06	8.55	27.46	33.69	54.00	20.31
3261.3	29.33	PK	V	28.04	6.05	27.32	36.10	74.00	37.90
3261.3	20.91	AV	V	28.04	6.05	27.32	27.68	54.00	26.32
108.57	32.20	QP	H	12.63	1.27	21.41	24.69	43.50	18.81
Middle Channel: 2437 MHz									
2437	55.23	PK	H	25.74	3.75	0.00	84.72	N/A	N/A
2437	46.24	AV	H	25.74	3.75	0.00	75.73	N/A	N/A
2437	63.48	PK	V	25.74	3.75	0.00	92.97	N/A	N/A
2437	54.40	AV	V	25.74	3.75	0.00	83.89	N/A	N/A
4874	31.76	PK	V	30.77	5.14	27.42	40.25	74.00	33.75
4874	19.58	AV	V	30.77	5.14	27.42	28.07	54.00	25.93
7311	31.56	PK	V	34.35	6.74	25.88	46.77	74.00	27.23
7311	19.96	AV	V	34.35	6.74	25.88	35.17	54.00	18.83
9748	28.64	PK	V	36.30	8.61	27.24	46.31	74.00	27.69
9748	17.31	AV	V	36.30	8.61	27.24	34.98	54.00	19.02
3261.3	29.90	PK	V	28.04	6.05	27.32	36.67	74.00	37.33
3261.3	21.29	AV	V	28.04	6.05	27.32	28.06	54.00	25.94
1719.4	28.22	PK	V	24.04	2.77	27.64	27.39	74.00	46.61
1719.4	20.08	AV	V	24.04	2.77	27.64	19.25	54.00	34.75
108.57	31.90	QP	H	12.63	1.27	21.41	24.39	43.50	19.11
High Channel: 2462 MHz									
2462	54.95	PK	H	25.80	3.75	0.00	84.50	N/A	N/A
2462	45.99	AV	H	25.80	3.75	0.00	75.54	N/A	N/A
2462	63.52	PK	V	25.80	3.75	0.00	93.07	N/A	N/A
2462	54.35	AV	V	25.80	3.75	0.00	83.90	N/A	N/A
2483.87	26.64	PK	V	25.86	3.67	0.00	56.17	74.00	17.83
2483.87	14.28	AV	V	25.86	3.67	0.00	43.81	54.00	10.19
4924	31.25	PK	V	30.90	5.34	27.43	40.06	74.00	33.94
4924	19.27	AV	V	30.90	5.34	27.43	28.08	54.00	25.92
7386	31.69	PK	V	34.53	6.83	25.86	47.19	74.00	26.81
7386	19.40	AV	V	34.53	6.83	25.86	34.90	54.00	19.10
9848	28.25	PK	V	36.54	8.66	26.94	46.51	74.00	27.49
9848	16.58	AV	V	36.54	8.66	26.94	34.84	54.00	19.16
3261.3	29.72	PK	V	28.04	6.05	27.32	36.49	74.00	37.51
3261.3	21.72	AV	V	28.04	6.05	27.32	28.49	54.00	25.51
108.57	32.20	QP	H	12.63	1.27	21.41	24.69	43.50	18.81

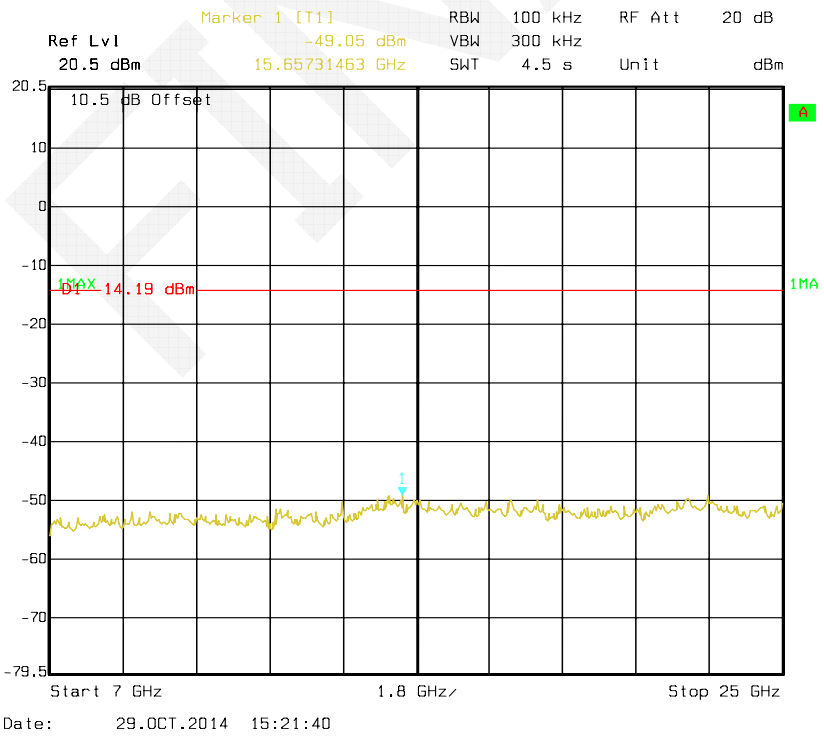
802.11 n ht40 Mode

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	50.89	PK	H	25.70	3.71	0.00	80.30	N/A	N/A
2422	42.3	AV	H	25.70	3.71	0.00	71.71	N/A	N/A
2422	59.92	PK	V	25.70	3.71	0.00	89.33	N/A	N/A
2422	51.2	AV	V	25.70	3.71	0.00	80.61	N/A	N/A
2384.8	24.94	PK	V	25.60	3.62	0.00	54.16	74.00	19.84
2384.8	13.93	AV	V	25.60	3.62	0.00	43.15	54.00	10.85
4844	31.06	PK	V	30.69	4.99	27.42	39.32	74.00	34.68
4844	19.06	AV	V	30.69	4.99	27.42	27.32	54.00	26.68
7266	31.93	PK	V	34.24	6.68	25.89	46.96	74.00	27.04
7266	18.62	AV	V	34.24	6.68	25.89	33.65	54.00	20.35
9688	28.54	PK	V	36.15	8.58	27.37	45.90	74.00	28.10
9688	16.48	AV	V	36.15	8.58	27.37	33.84	54.00	20.16
3261.3	29.28	PK	V	28.04	6.05	27.32	36.05	74.00	37.95
3261.3	20.83	AV	V	28.04	6.05	27.32	27.60	54.00	26.40
108.57	32.30	QP	H	12.63	1.27	21.41	24.79	43.50	18.71
Middle Channel: 2437 MHz									
2437	50.01	PK	H	25.74	3.75	0.00	79.50	N/A	N/A
2437	43.46	AV	H	25.74	3.75	0.00	72.95	N/A	N/A
2437	60.63	PK	V	25.74	3.75	0.00	90.12	N/A	N/A
2437	52.11	AV	V	25.74	3.75	0.00	81.60	N/A	N/A
4874	31.58	PK	V	30.77	5.14	27.42	40.07	74.00	33.93
4874	19.74	AV	V	30.77	5.14	27.42	28.23	54.00	25.77
7311	32.62	PK	V	34.35	6.74	25.88	47.83	74.00	26.17
7311	19.06	AV	V	34.35	6.74	25.88	34.27	54.00	19.73
9748	28.55	PK	V	36.30	8.61	27.24	46.22	74.00	27.78
9748	16.32	AV	V	36.30	8.61	27.24	33.99	54.00	20.01
3261.3	29.11	PK	V	28.04	6.05	27.32	35.88	74.00	38.12
3261.3	20.83	AV	V	28.04	6.05	27.32	27.60	54.00	26.40
1719.4	28.32	PK	V	24.04	2.77	27.64	27.49	74.00	46.51
1719.4	19.67	AV	V	24.04	2.77	27.64	18.84	54.00	35.16
108.57	32.20	QP	H	12.63	1.27	21.41	24.69	43.50	18.81
High Channel: 2452 MHz									
2452	52.04	PK	H	25.78	3.78	0.00	81.60	N/A	N/A
2452	43.5	AV	H	25.78	3.78	0.00	73.06	N/A	N/A
2452	59.97	PK	V	25.78	3.78	0.00	89.53	N/A	N/A
2452	51.49	AV	V	25.78	3.78	0.00	81.05	N/A	N/A
2488.78	25.8	PK	V	25.87	3.65	0.00	55.32	74.00	18.68
2488.78	14.48	AV	V	25.87	3.65	0.00	44.00	54.00	10.00
4904	31.22	PK	V	30.85	5.31	27.43	39.95	74.00	34.05
4904	19.28	AV	V	30.85	5.31	27.43	28.01	54.00	25.99
7356	32.53	PK	V	34.45	6.79	25.87	47.90	74.00	26.10
7356	19.16	AV	V	34.45	6.79	25.87	34.53	54.00	19.47
9808	28.16	PK	V	36.44	8.64	27.09	46.15	74.00	27.85
9808	16.71	AV	V	36.44	8.64	27.09	34.70	54.00	19.30
3261.3	29.33	PK	V	28.04	6.05	27.32	36.10	74.00	37.90
3261.3	21.26	AV	V	28.04	6.05	27.32	28.03	54.00	25.97
108.57	32.20	QP	H	12.63	1.27	21.41	24.69	43.50	18.81

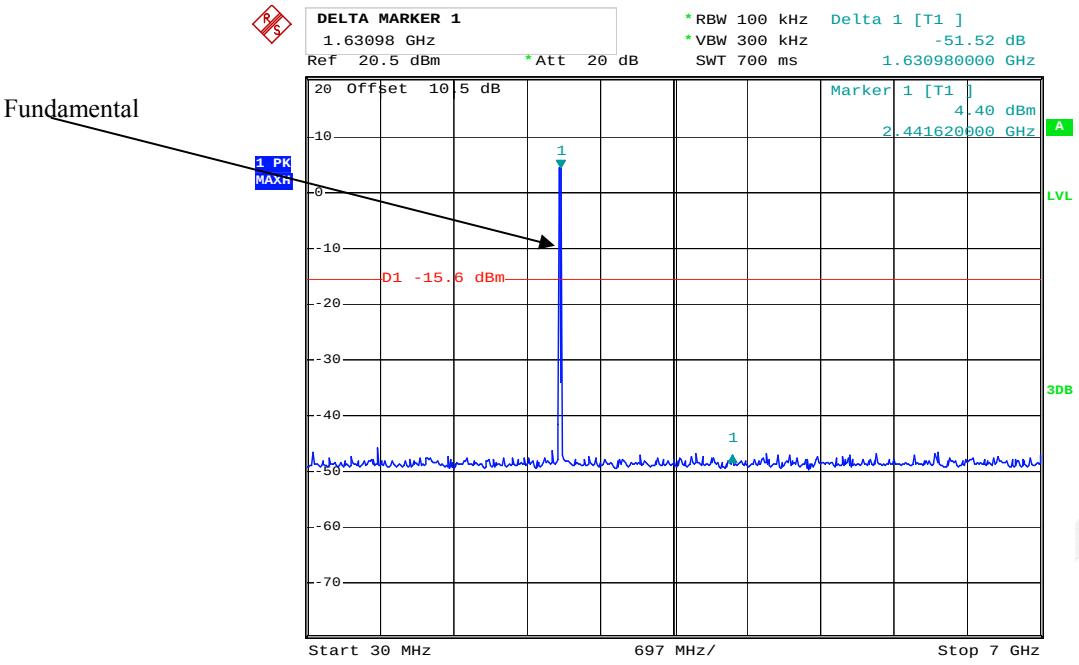
Conducted Spurious Emissions at Antenna Port

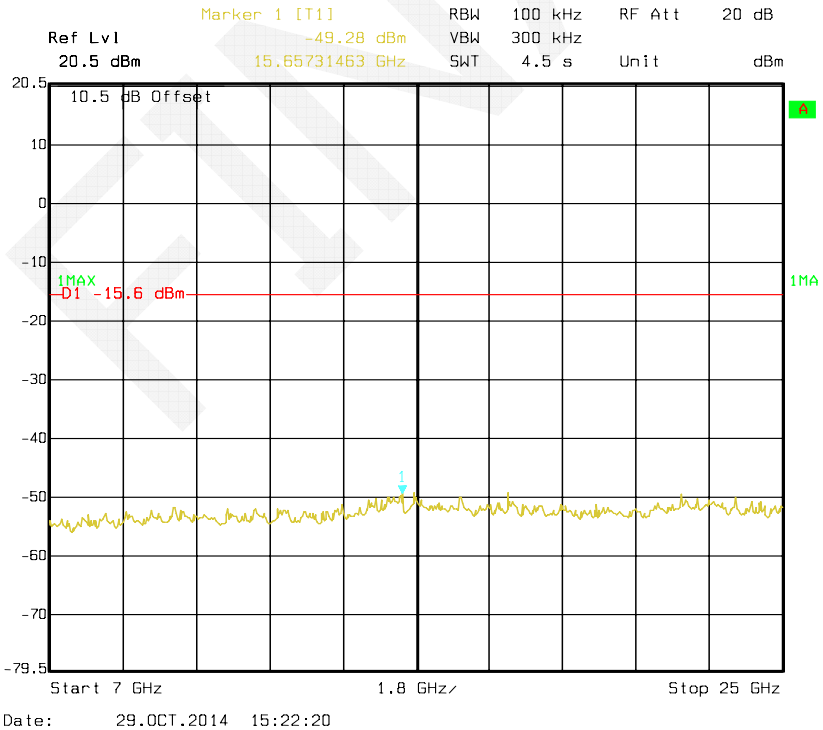
802.11b Low Channel



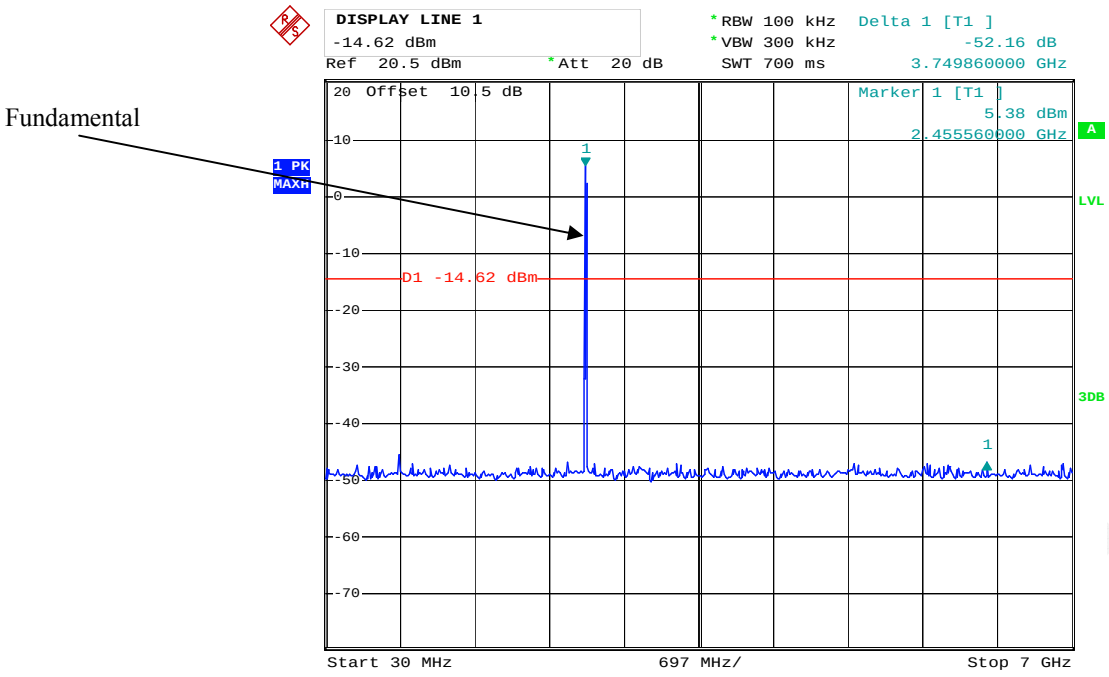


802.11b Middle Channel

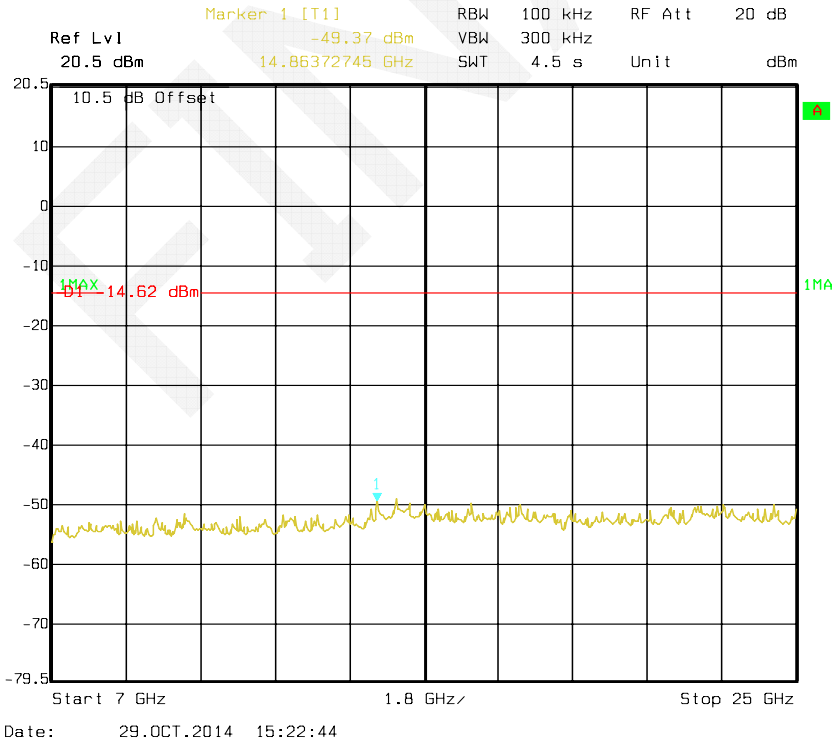




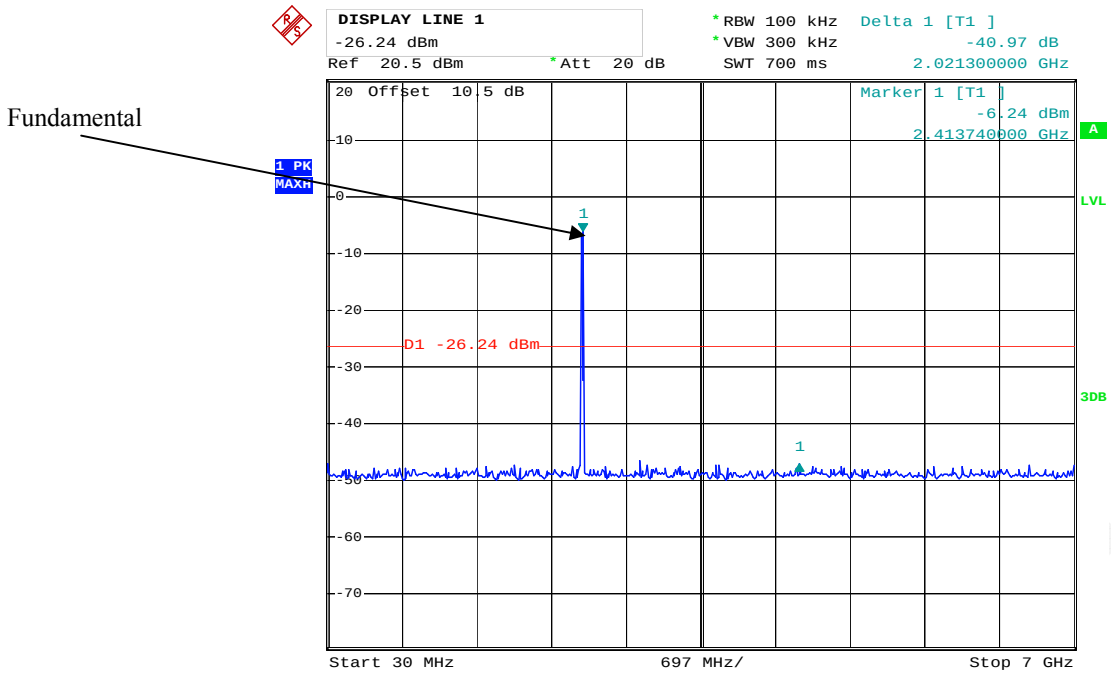
802.11b High Channel

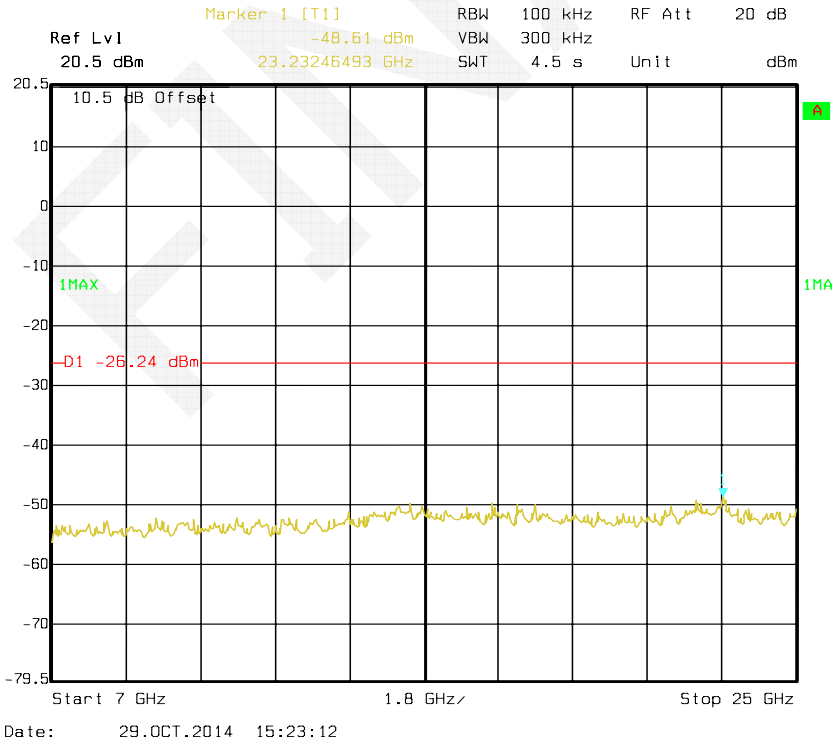


802.11g Low Channel

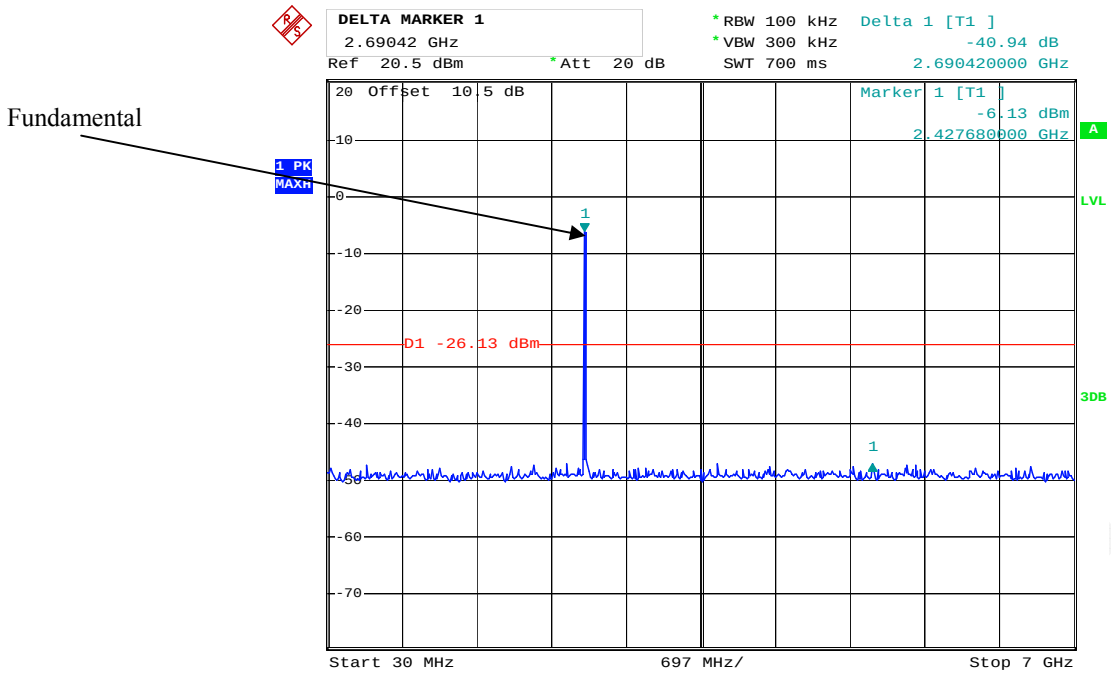


802.11g Low Channel





802.11g Middle Channel



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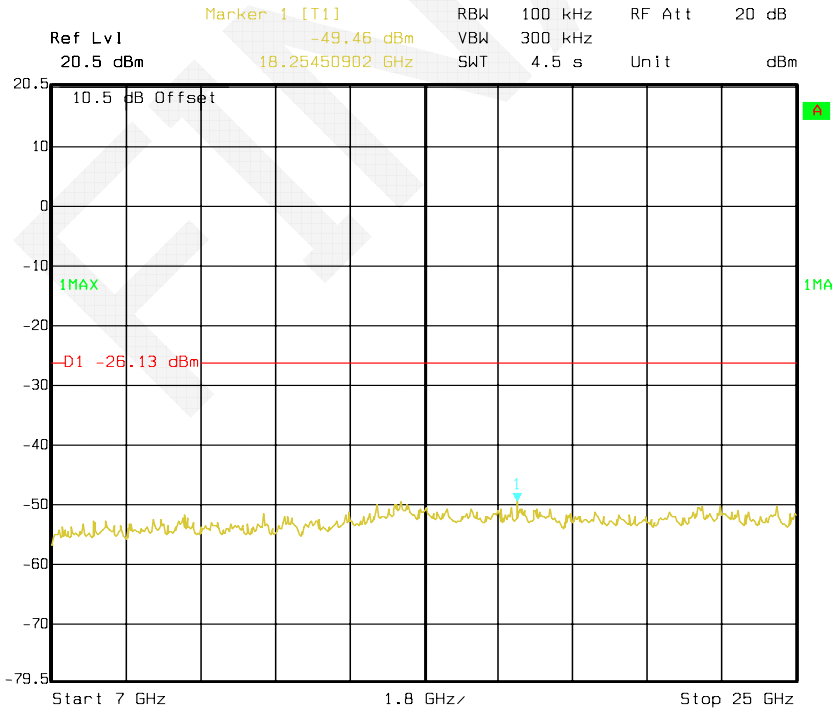

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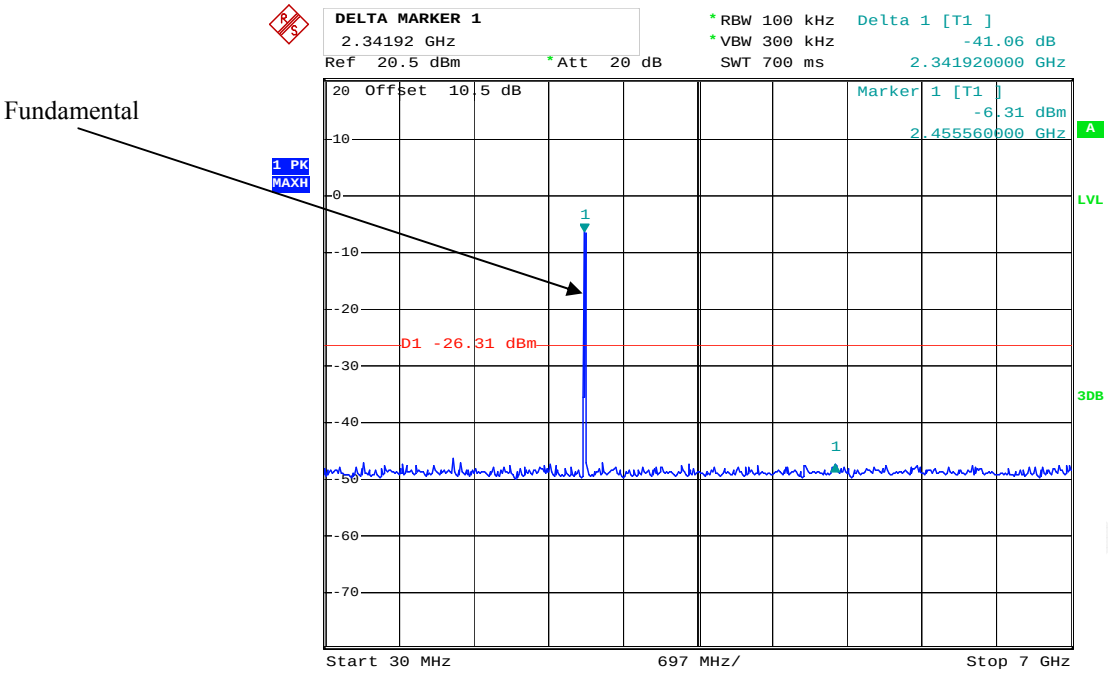
802.11g High Channel



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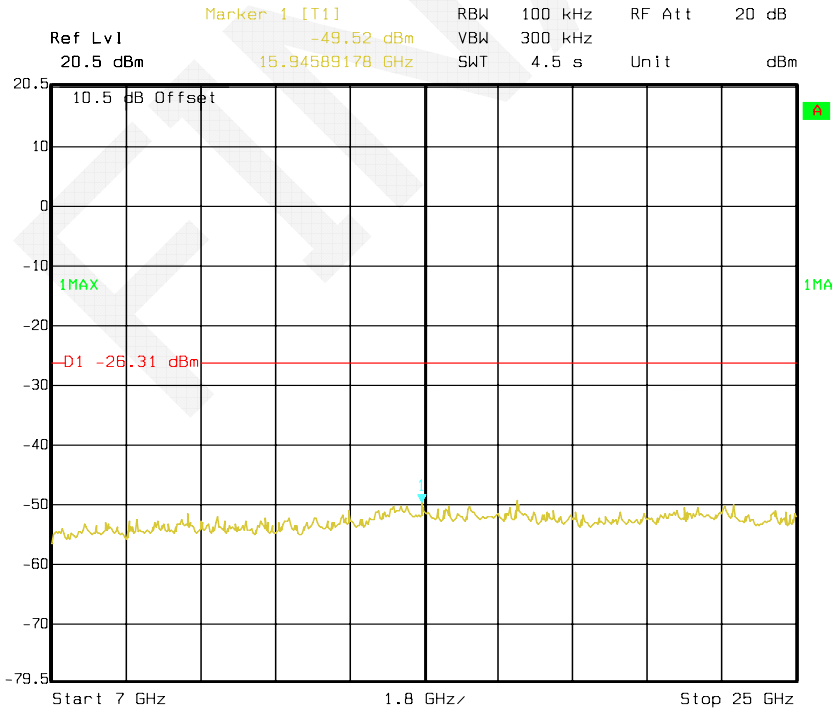

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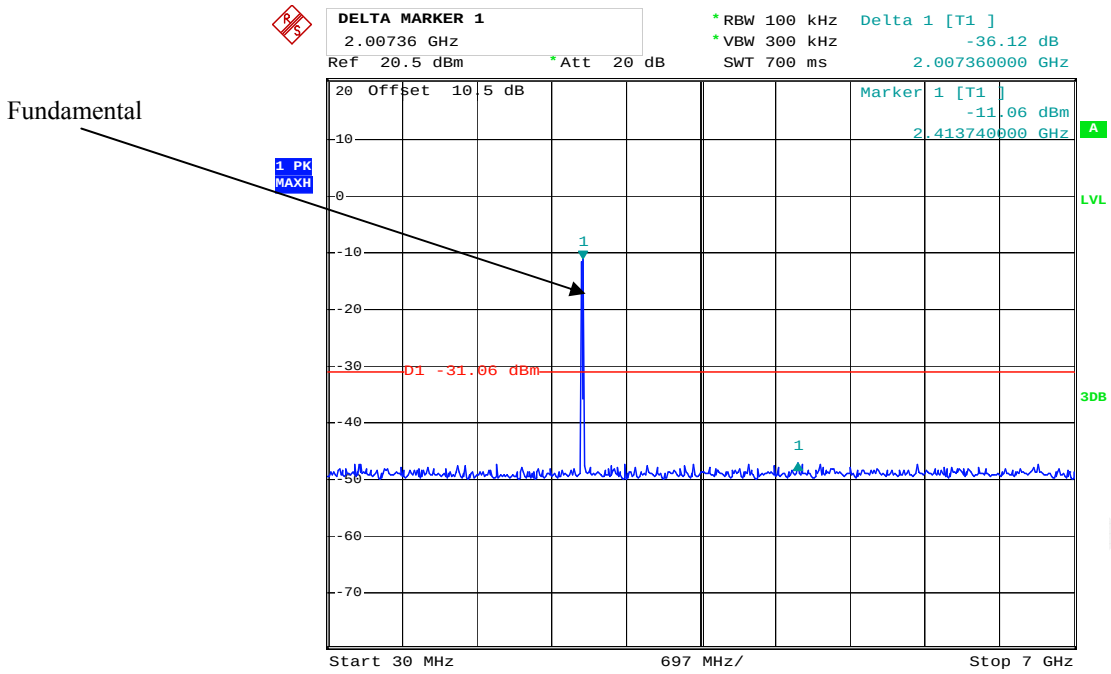
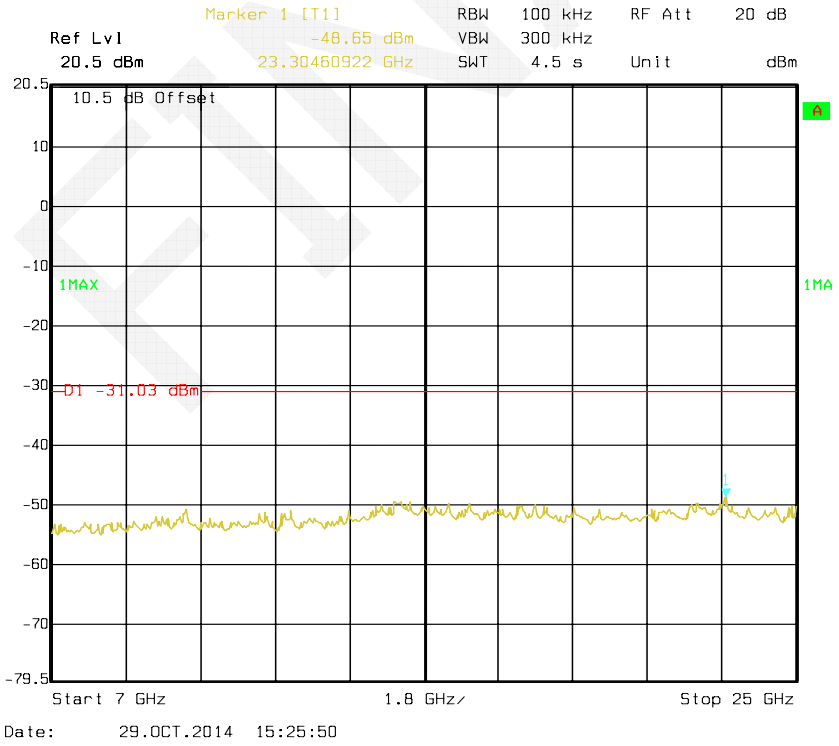
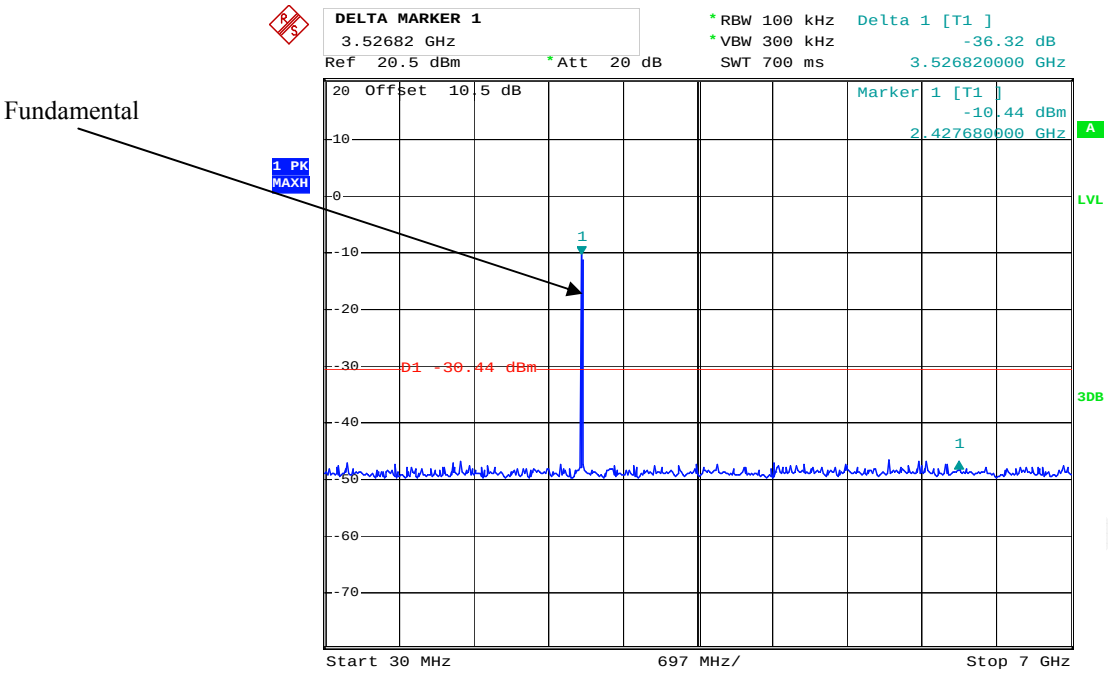
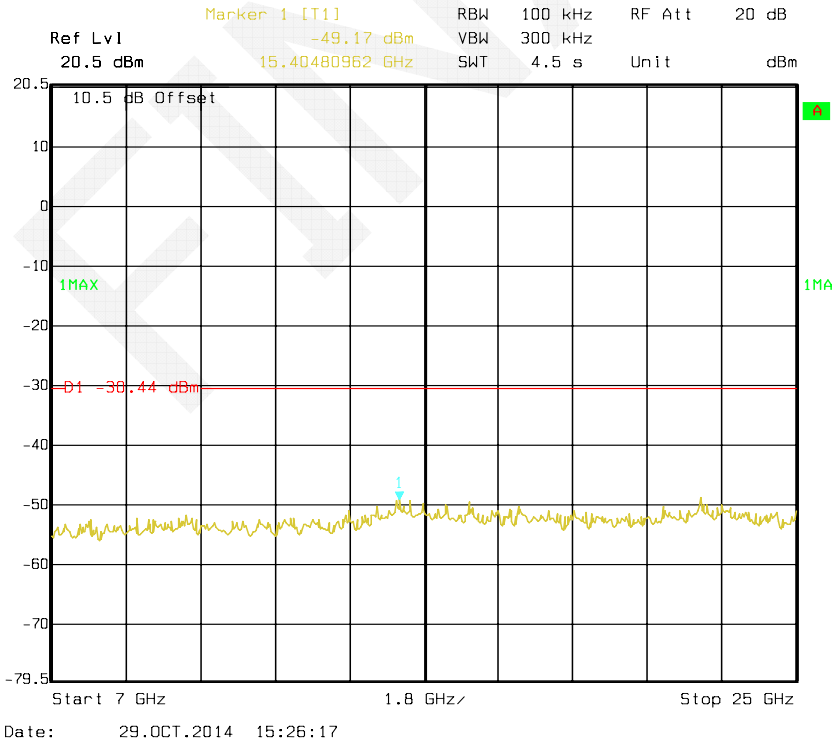
Ant 1: 802.11n ht20 Low Channel





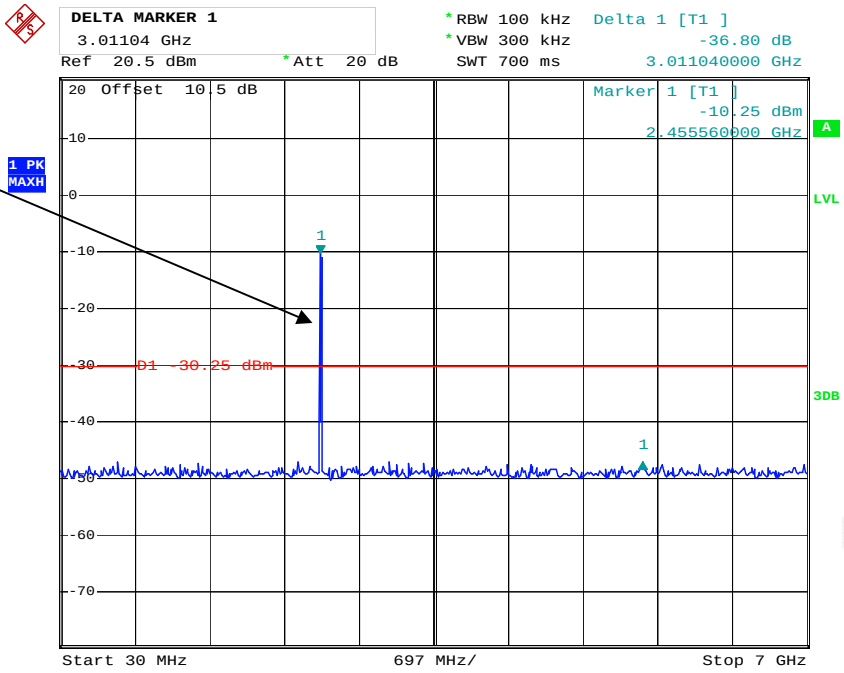
Ant 1: 802.11n ht20 Middle Channel

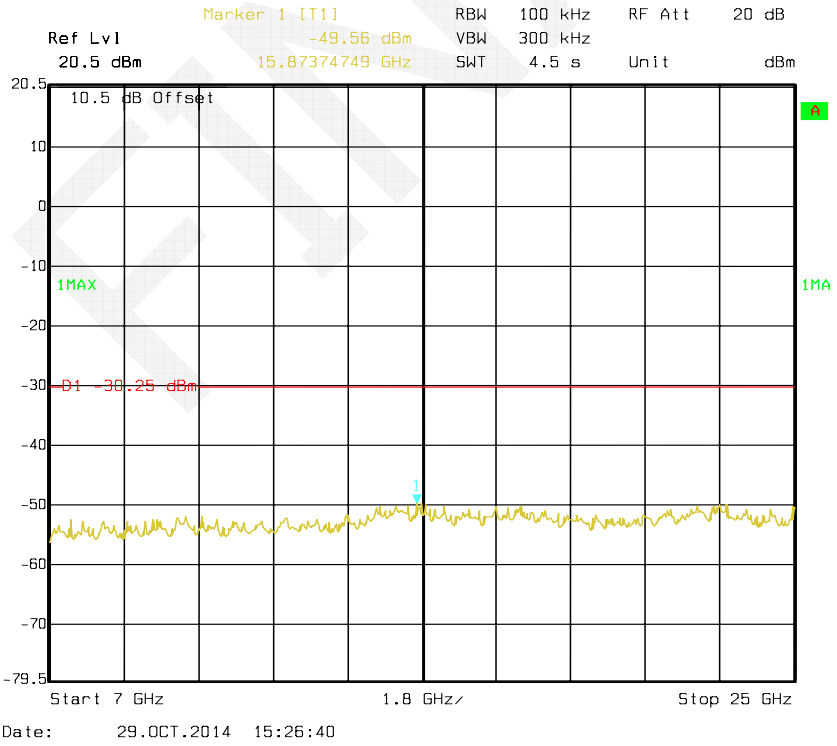




Ant 1: 802.11n ht20 High Channel

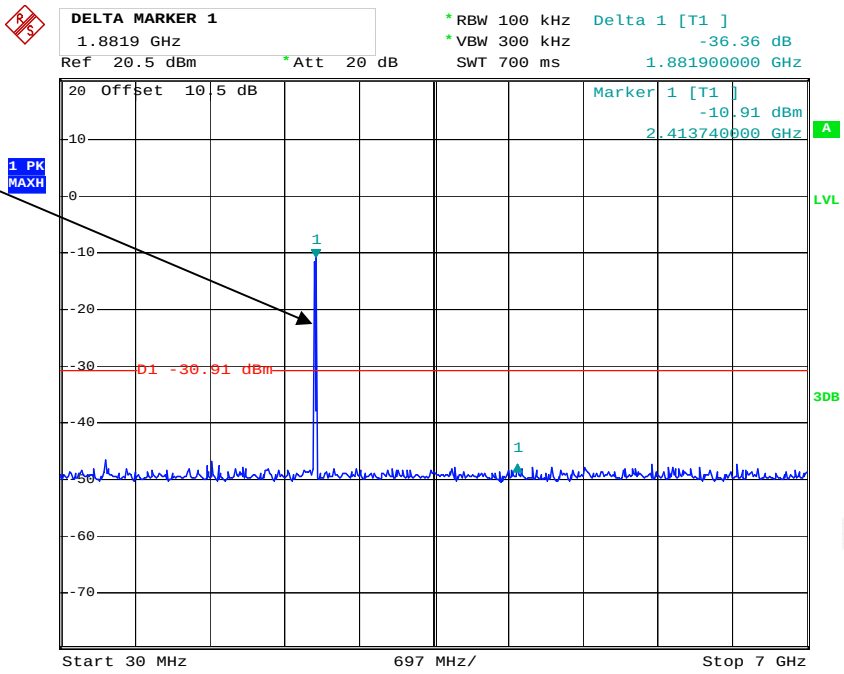
Fundamental



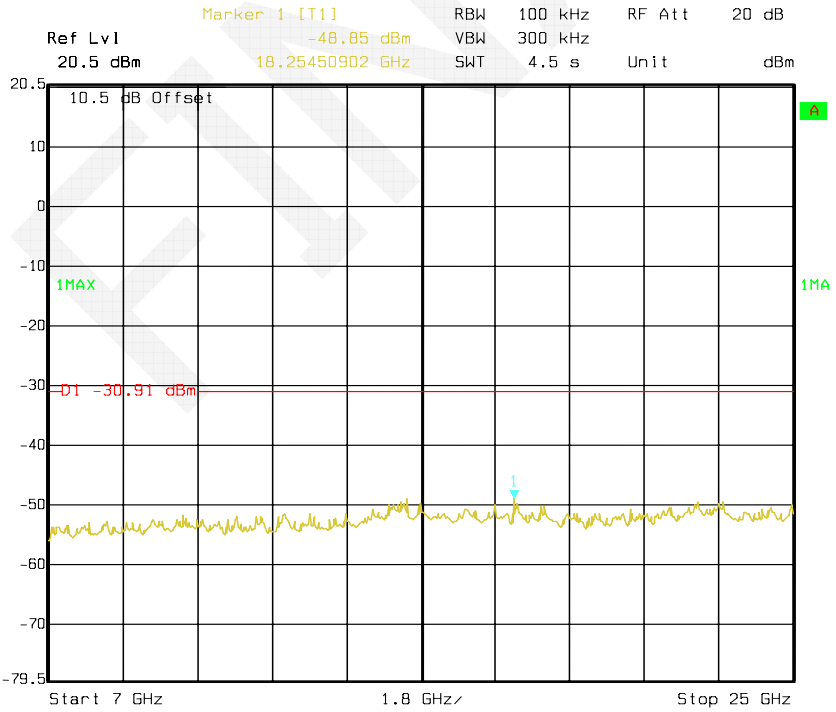


Ant 2: 802.11n ht20 Low Channel

Fundamental

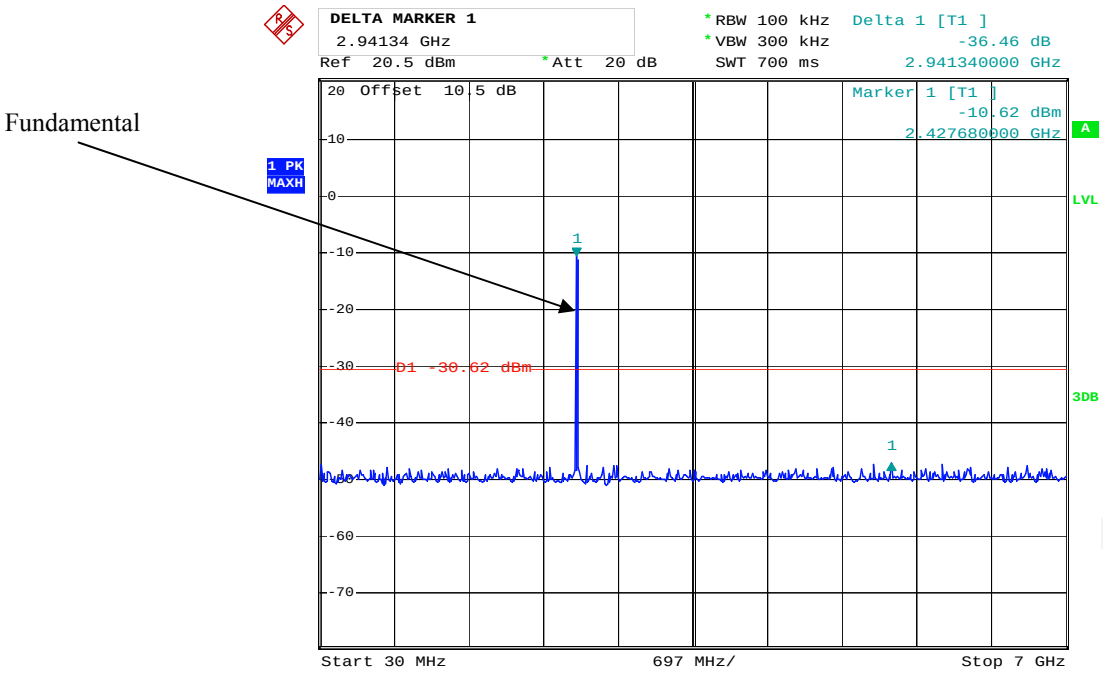


Date: 28.OCT.2014 16:55:14

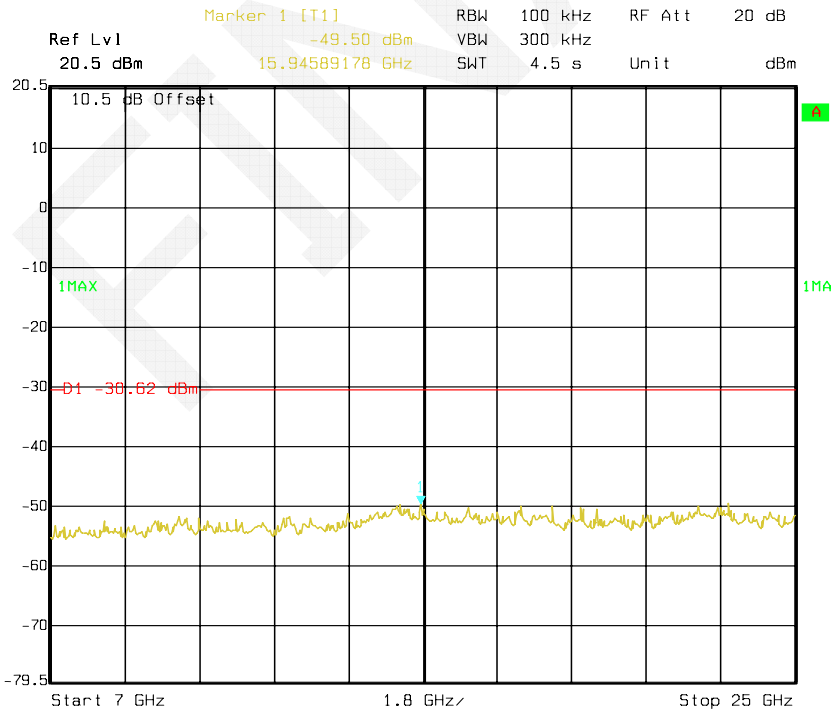


Date: 29.OCT.2014 15:28:36

Ant 2: 802.11n ht20 Middle Channel

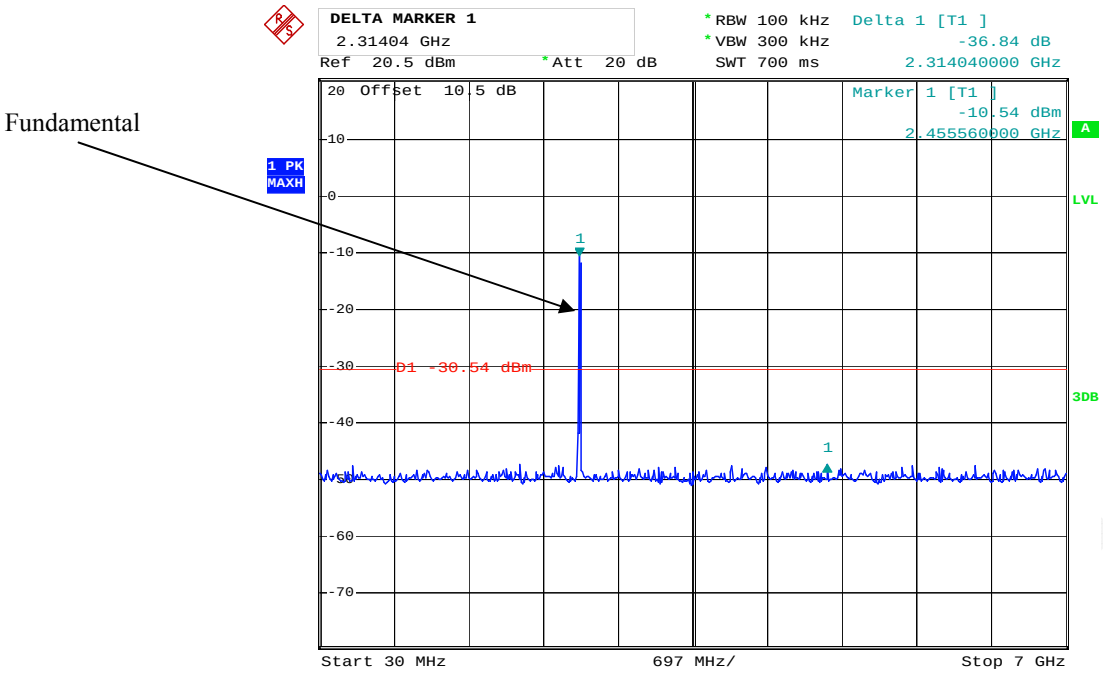


Date: 28.OCT.2014 16:58:05

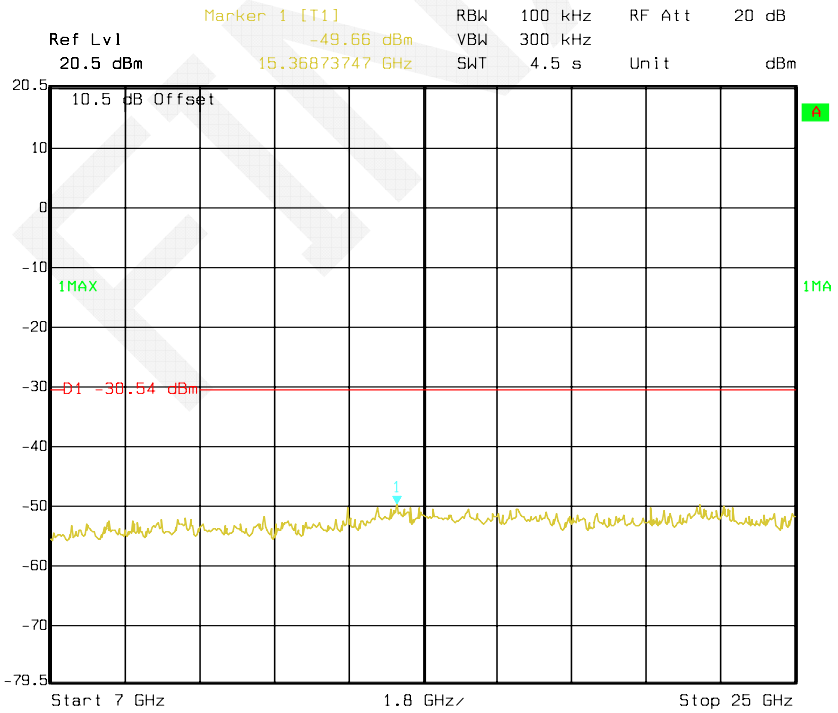


Date: 29.OCT.2014 15:29:17

Ant 2: 802.11n ht20 High Channel

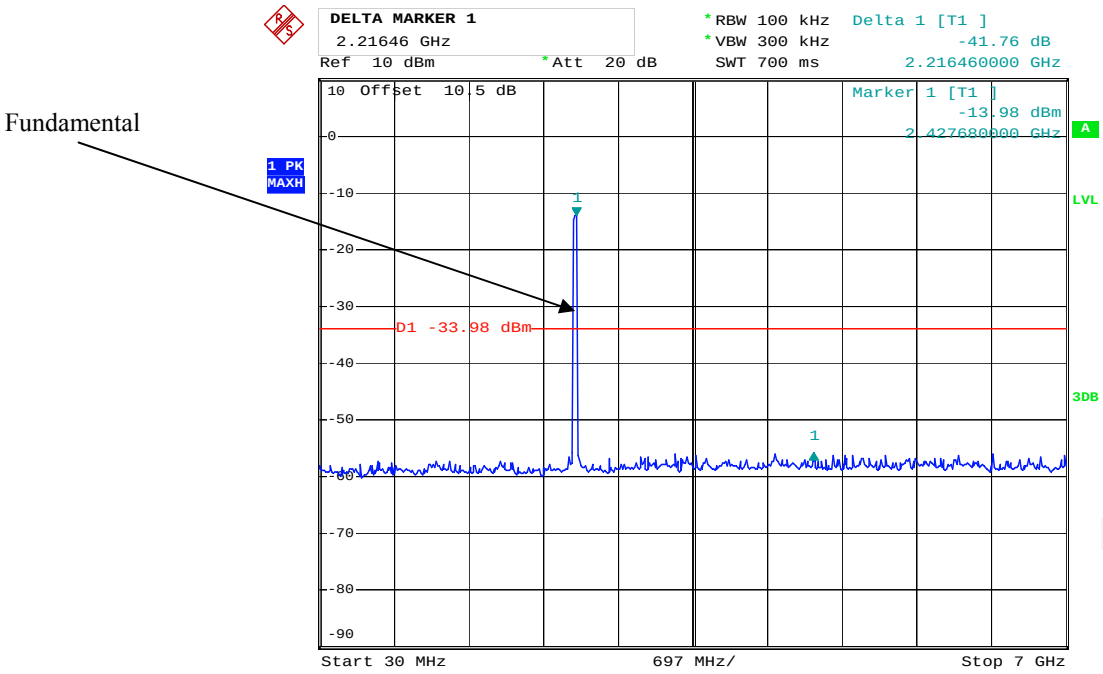


Date: 28.OCT.2014 17:00:04

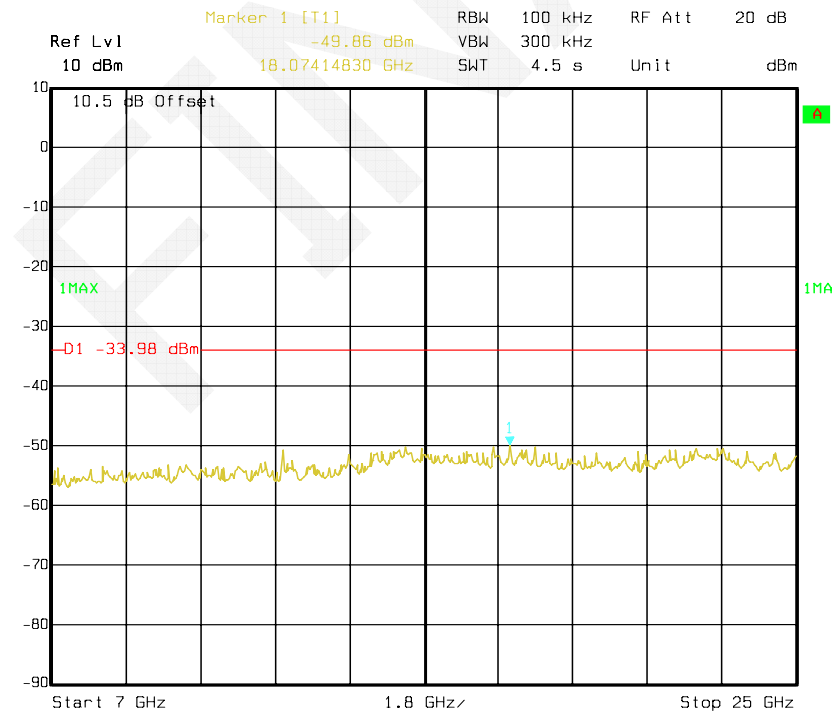


Date: 29.OCT.2014 15:29:39

Ant 1: 802.11n ht40 Low Channel

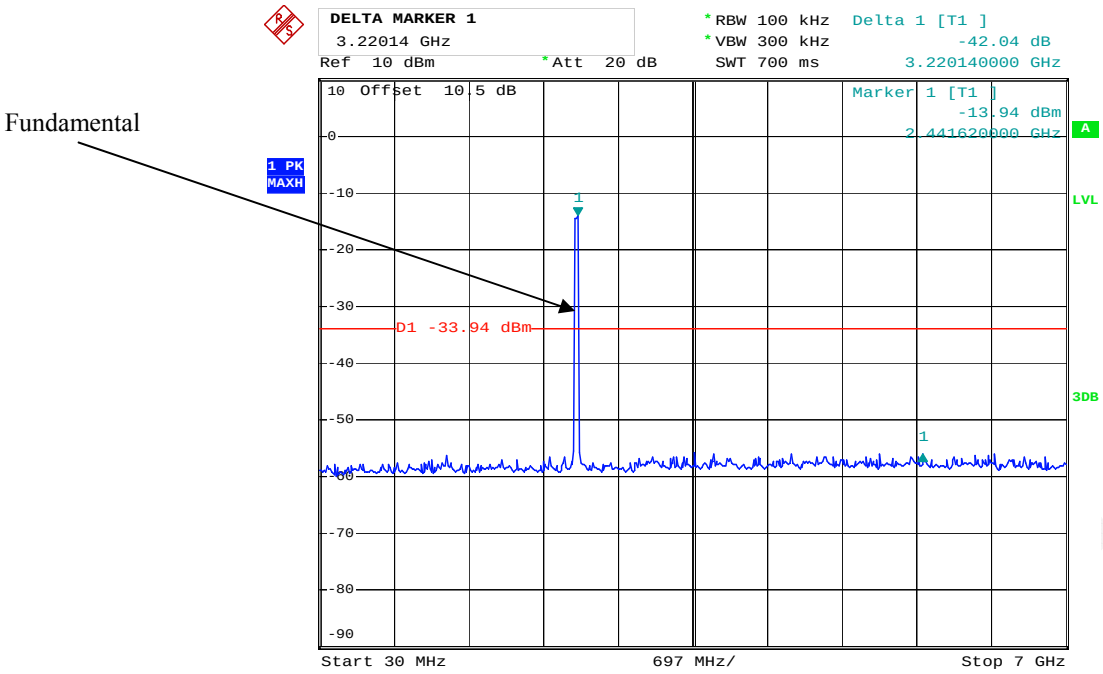


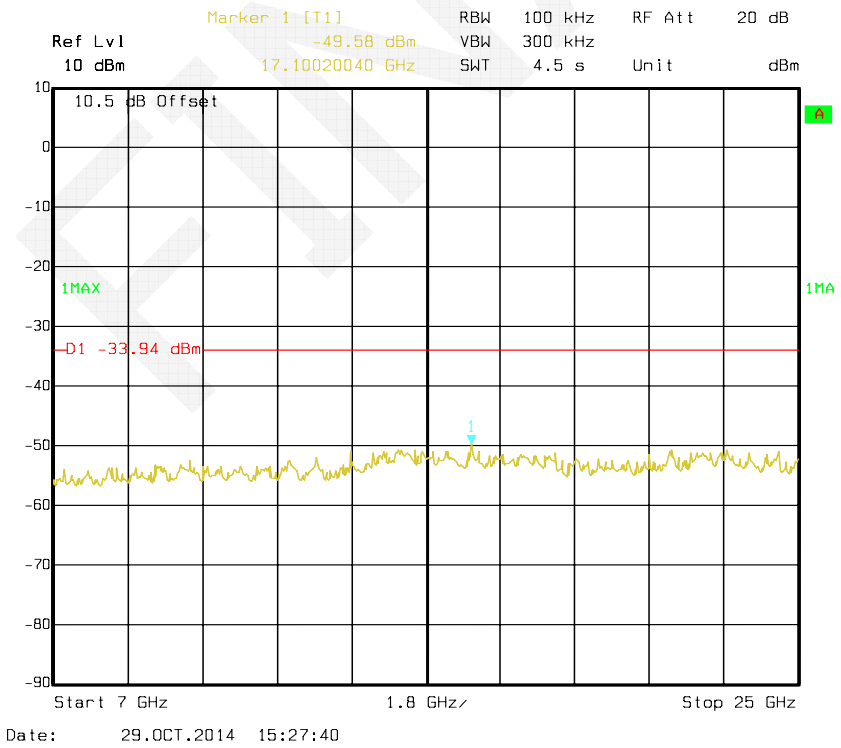
Date: 28.OCT.2014 16:35:22



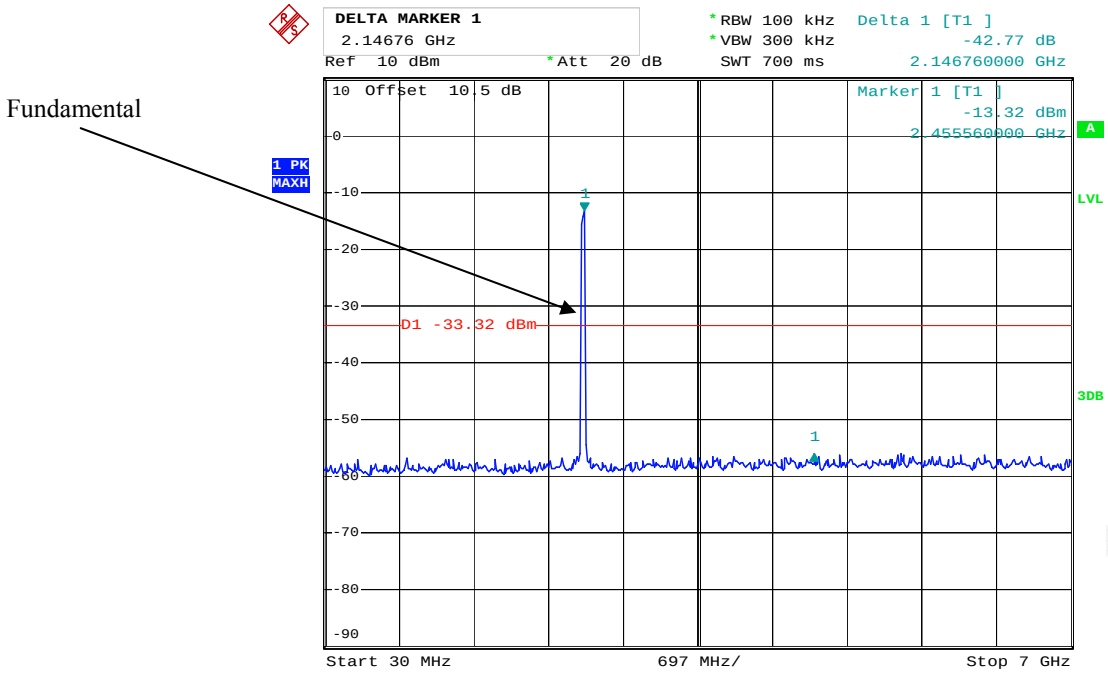
Date: 29.OCT.2014 15:27:13

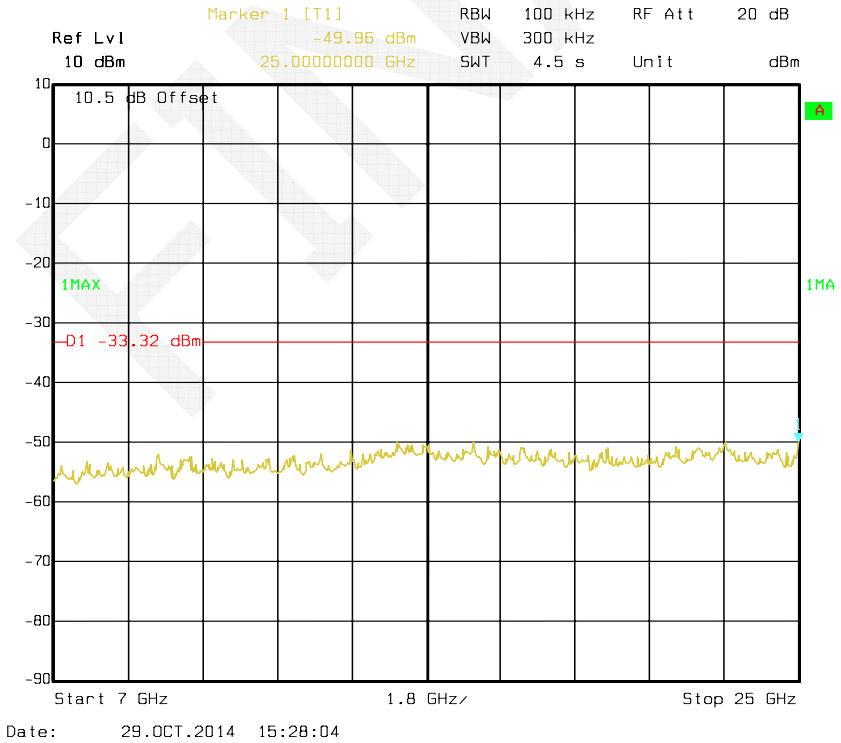
Ant 1: 802.11n ht40 Middle Channel



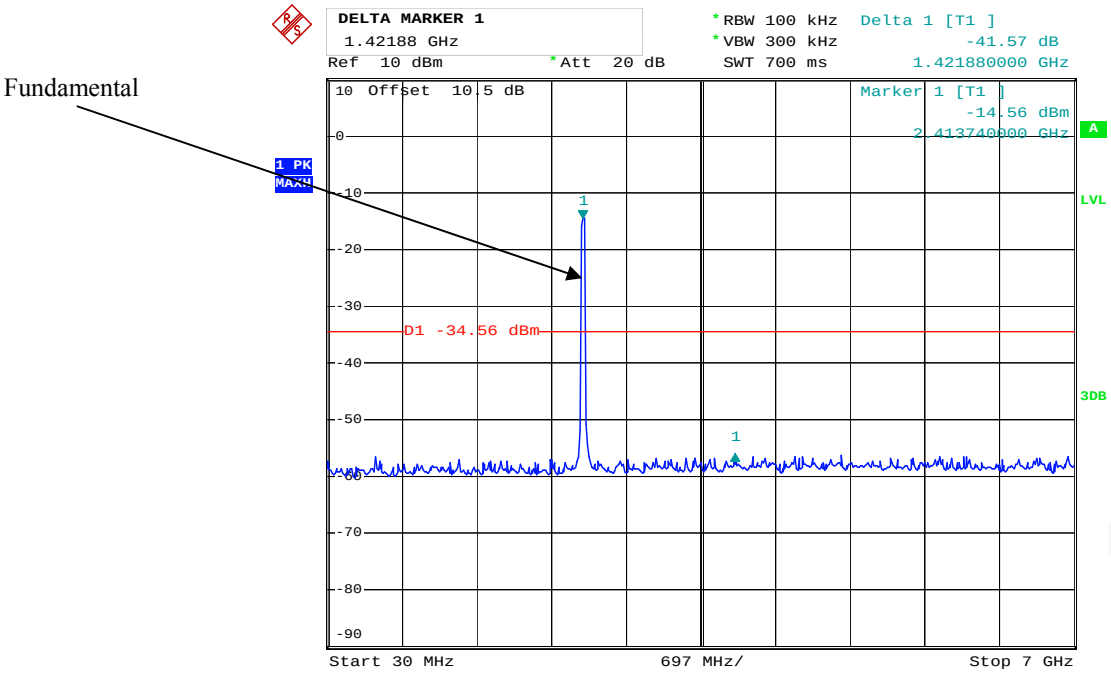


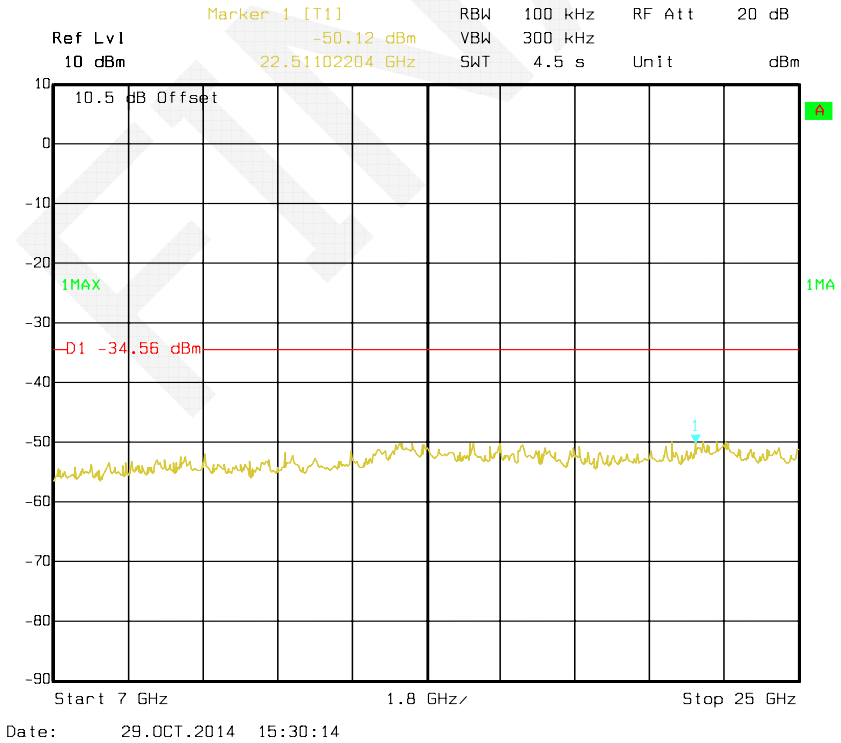
Ant 1: 802.11n ht40 High Channel



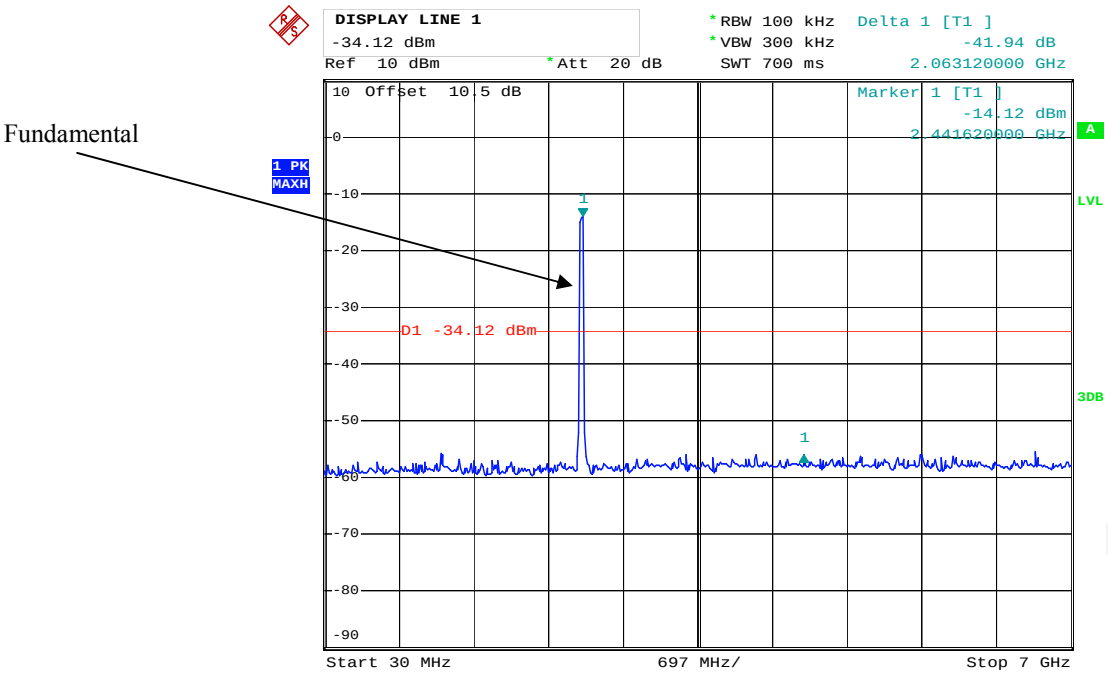


Ant 2: 802.11n ht40 Low Channel

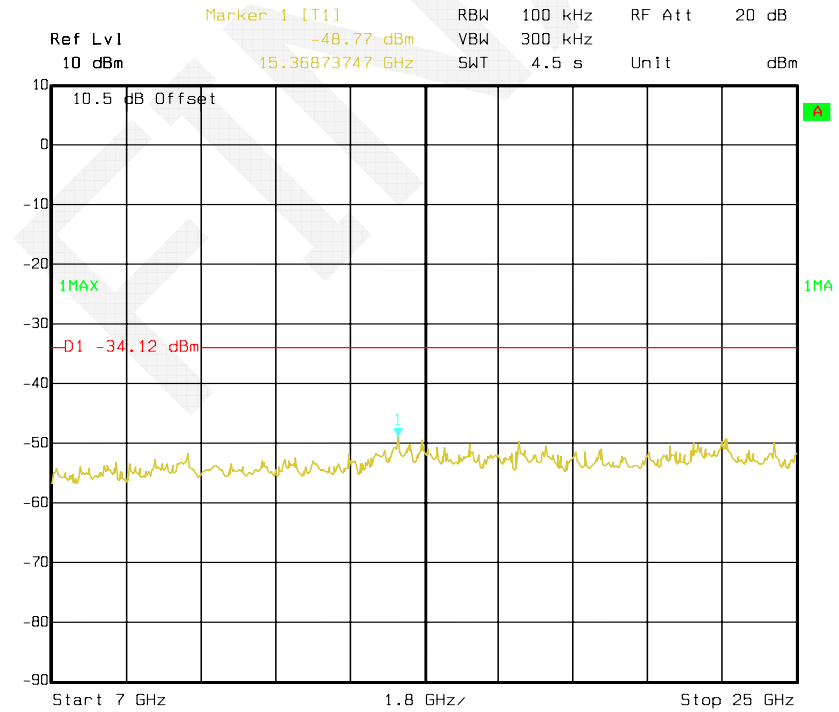




Ant 2: 802.11n ht40 Middle Channel

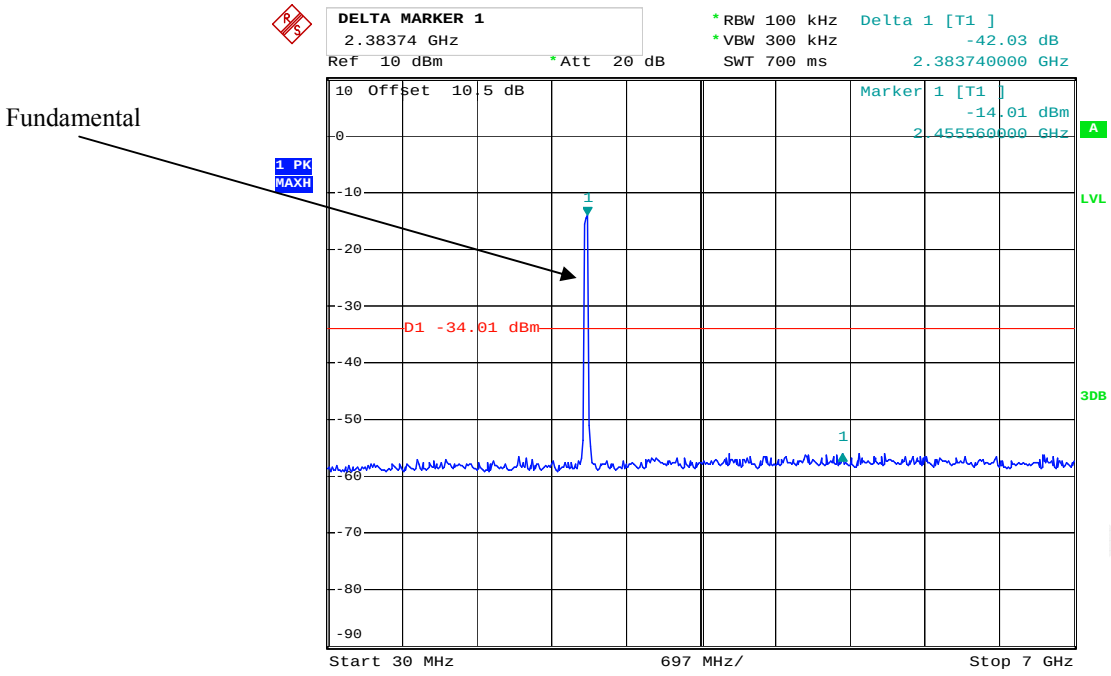


Date: 28.OCT.2014 17:10:10

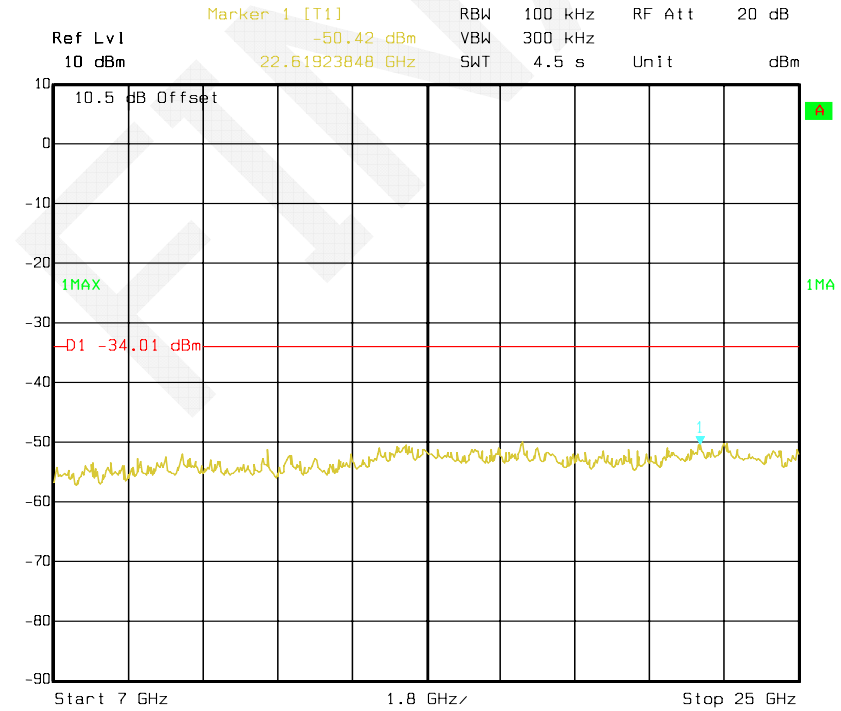


Date: 29.OCT.2014 15:30:38

Ant 2: 802.11n ht40 High Channel



Date: 28.OCT.2014 17:12:29



Date: 29.OCT.2014 15:31:02

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	Test Receiver	ESPI	100120	2013-11-18	2014-11-18

*** 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:	27.4 °C
Relative Humidity:	52 %
ATM Pressure:	100.9 kPa

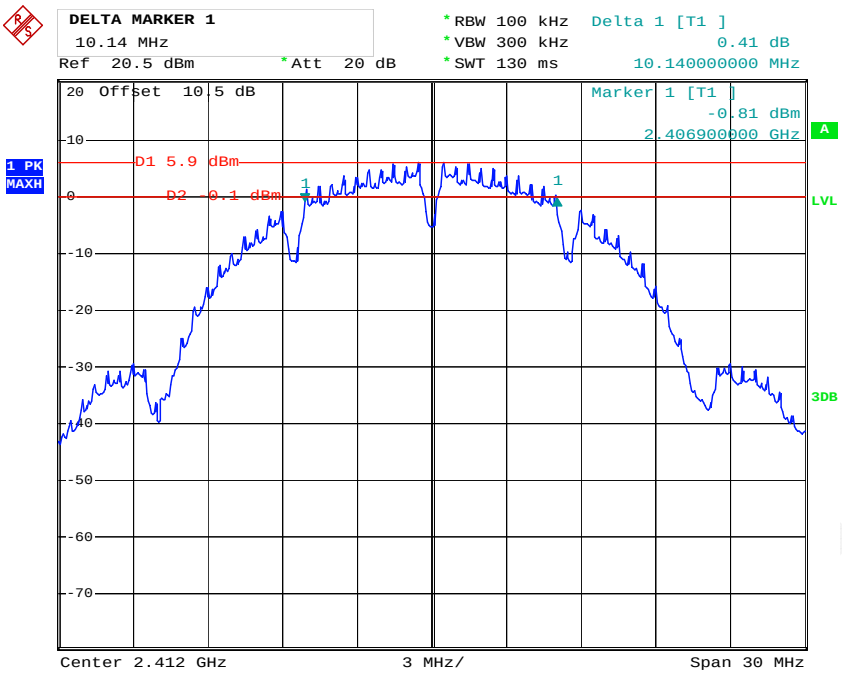
The testing was performed by Dean Liu on2014-10-28.

Test Mode: Transmitting

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

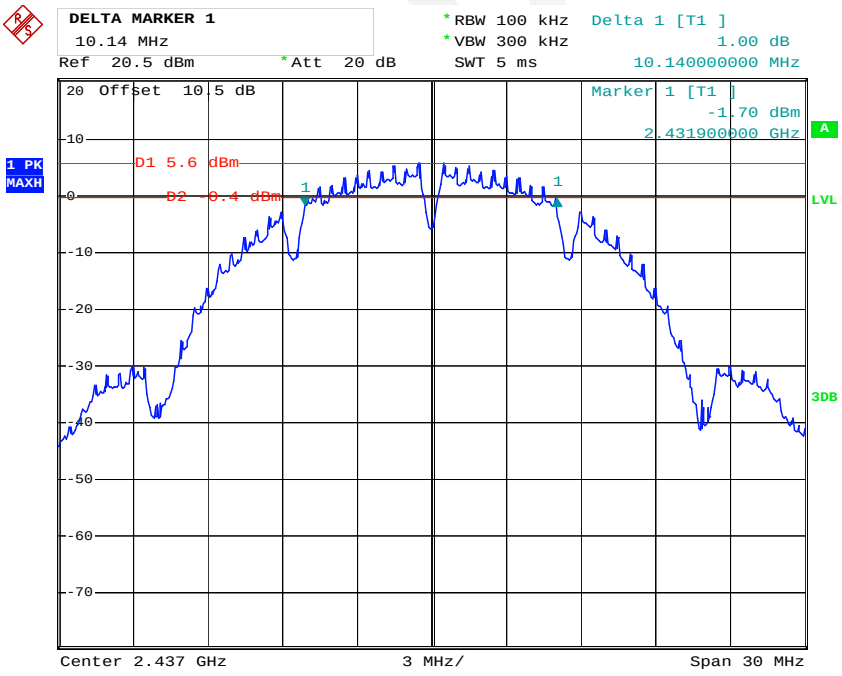
Test mode	Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Limit (kHz)
			Ant 1	Ant 2	
802.11b	Low	2412	10.14	/	≥500
	Middle	2437	10.14	/	≥500
	High	2462	10.14	/	≥500
802.11g	Low	2412	16.74	/	≥500
	Middle	2437	16.74	/	≥500
	High	2462	16.74	/	≥500
802.11n ht20	Low	2412	18.00	17.94	≥500
	Middle	2437	17.94	17.94	≥500
	High	2462	17.94	17.94	≥500
802.11nht40	Low	2422	36.60	36.60	≥500
	Middle	2437	36.60	36.60	≥500
	High	2452	36.60	36.60	≥500

802.11b Low Channel



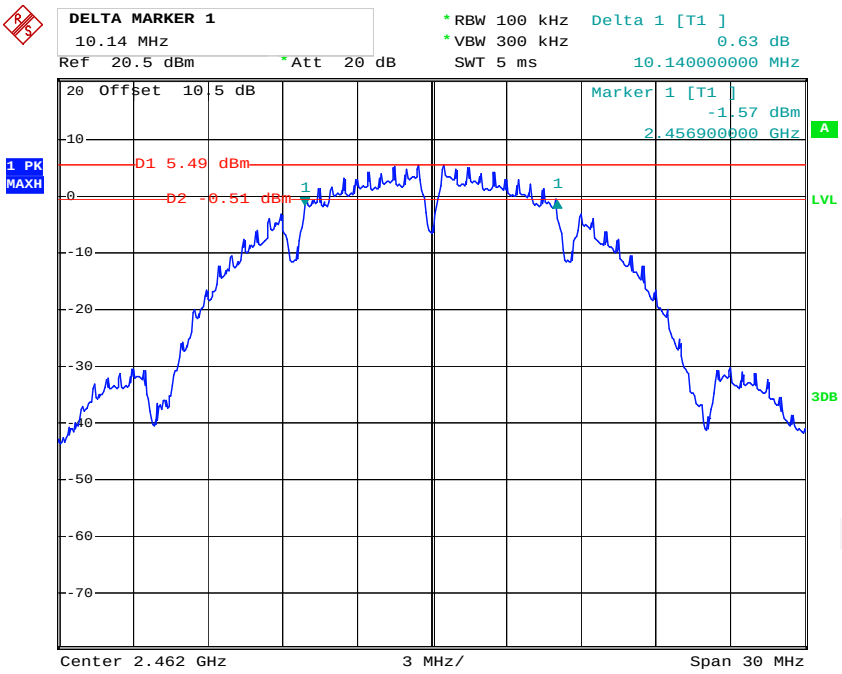
Date: 28.OCT.2014 14:51:17

802.11b Middle Channel



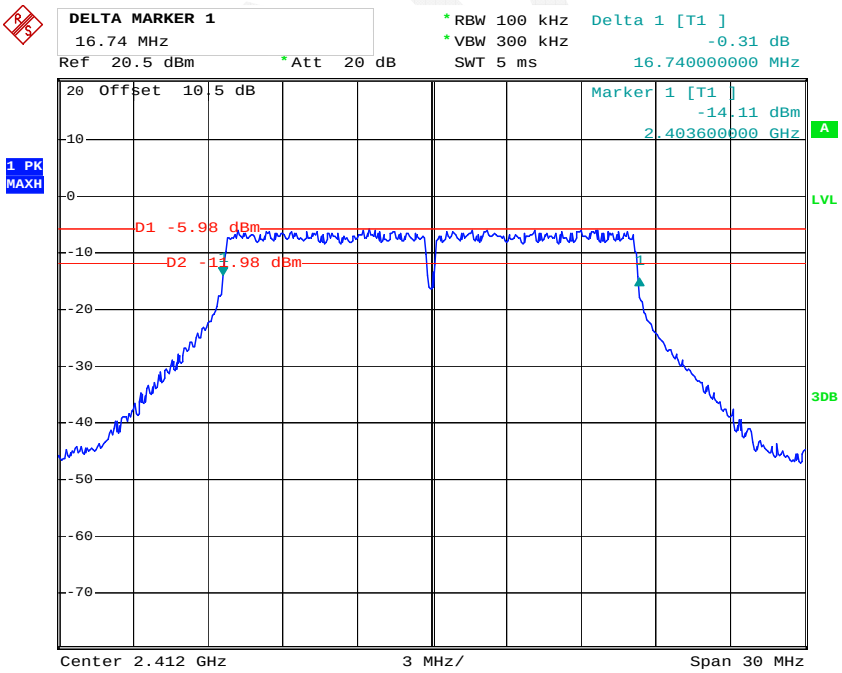
Date: 28.OCT.2014 15:06:48

802.11b High Channel



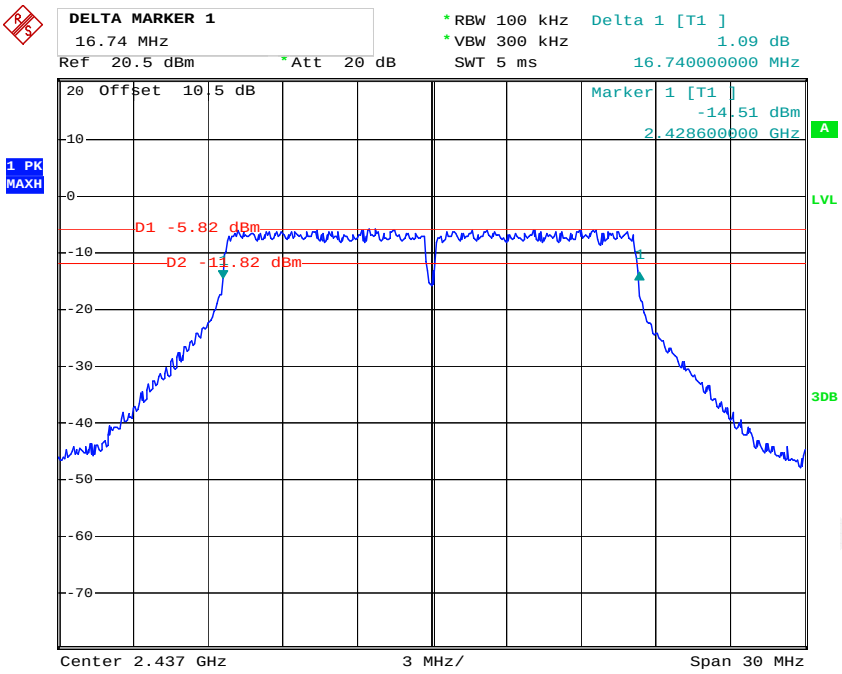
Date: 28.OCT.2014 15:10:58

802.11g Low Channel



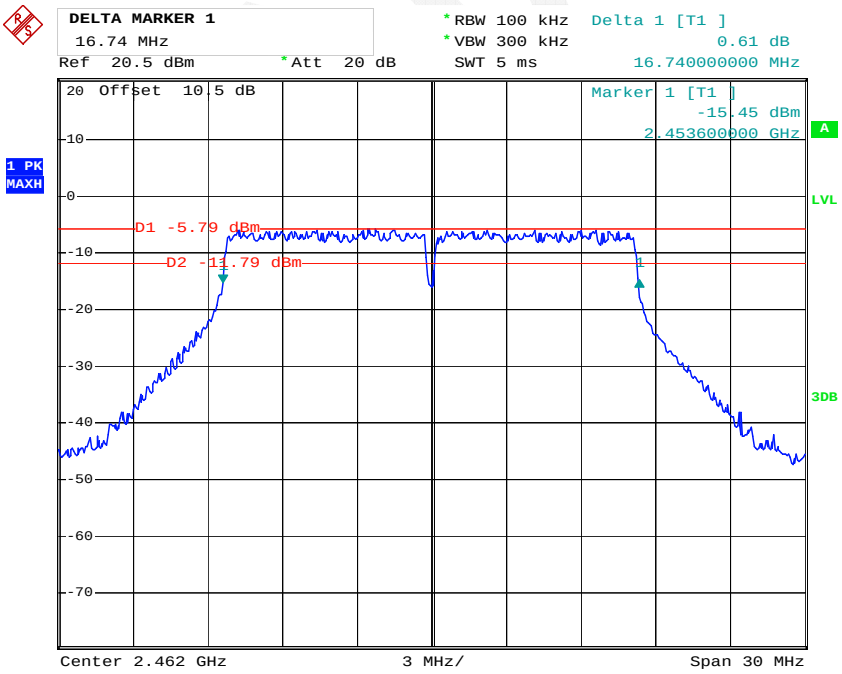
Date: 28.OCT.2014 15:54:13

802.11g Middle Channel



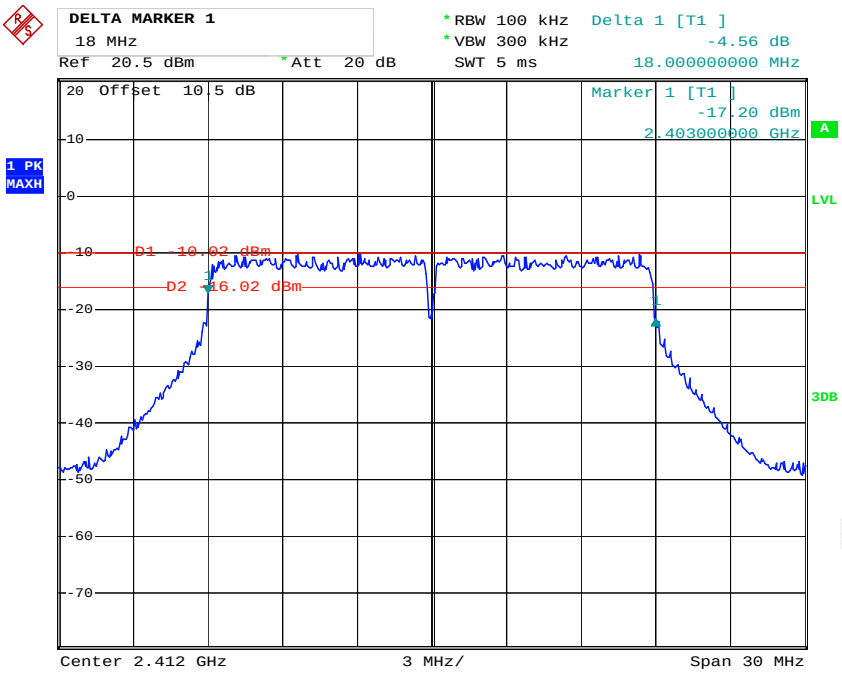
Date: 28.OCT.2014 15:50:02

802.11g High Channel



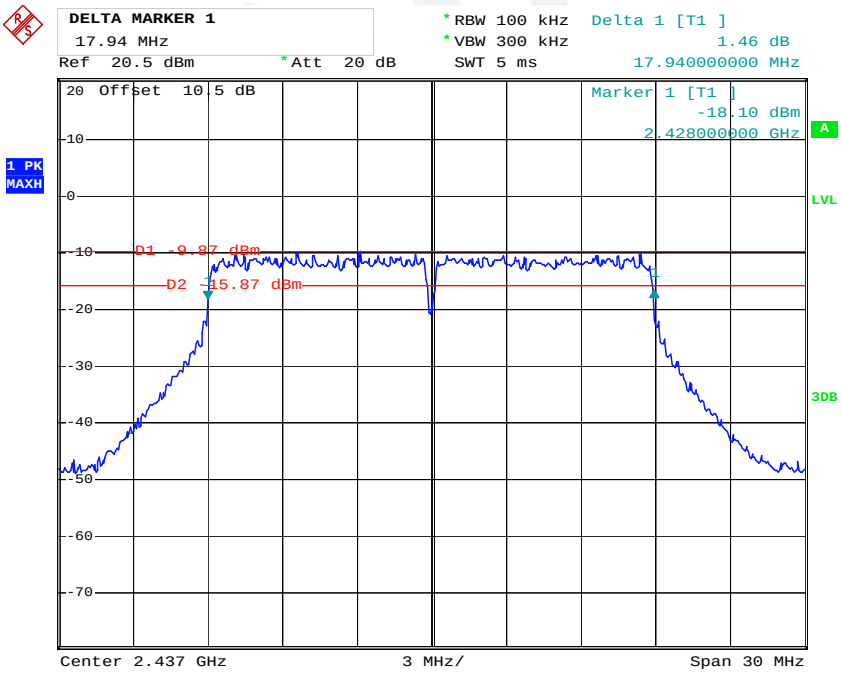
Date: 28.OCT.2014 15:44:33

Ant 1: 802.11n ht20 Low Channel



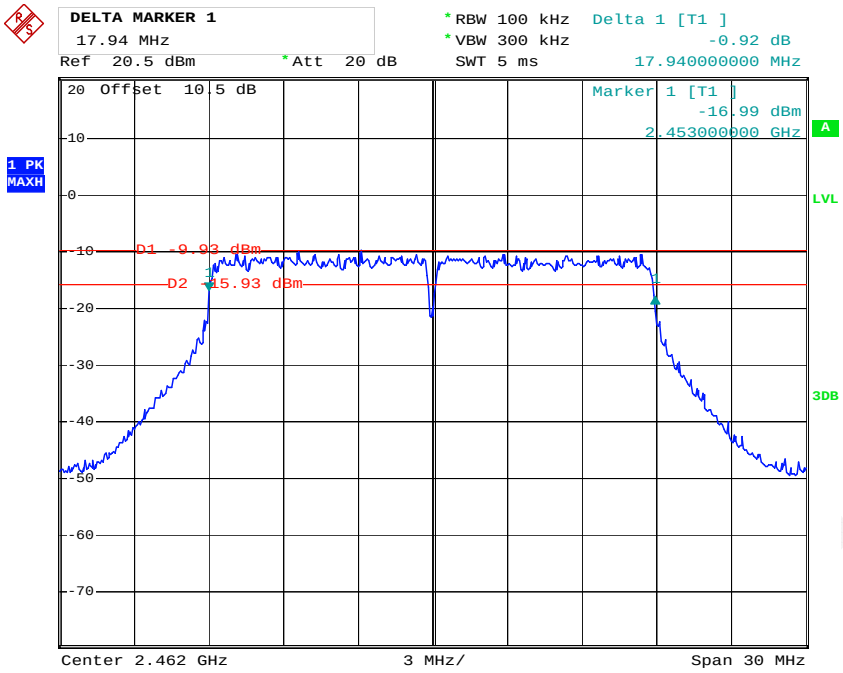
Date: 28.OCT.2014 16:03:56

Ant 1: 802.11n ht20 Middle Channel



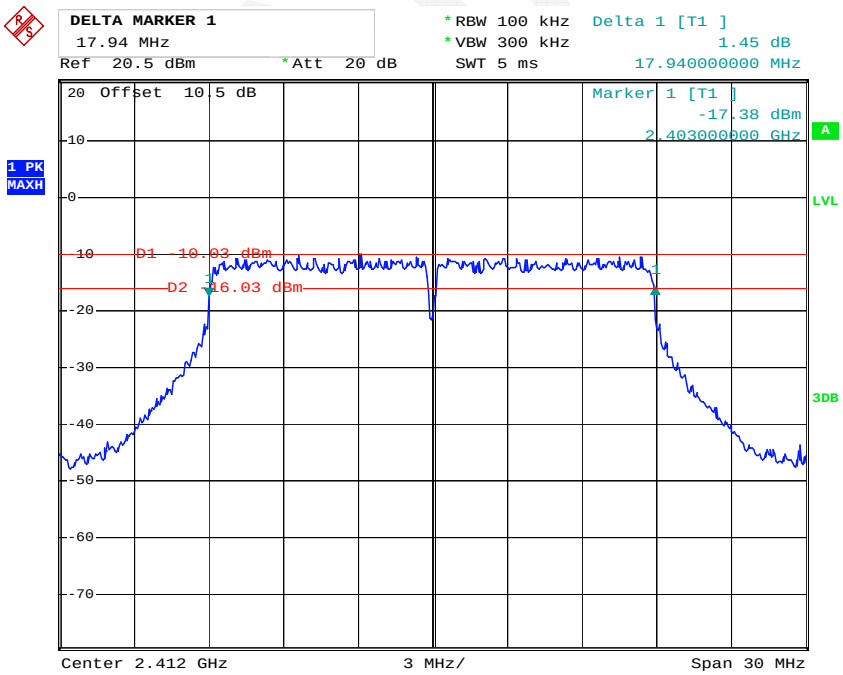
Date: 28.OCT.2014 16:09:10

Ant 1: 802.11n ht20 High Channel



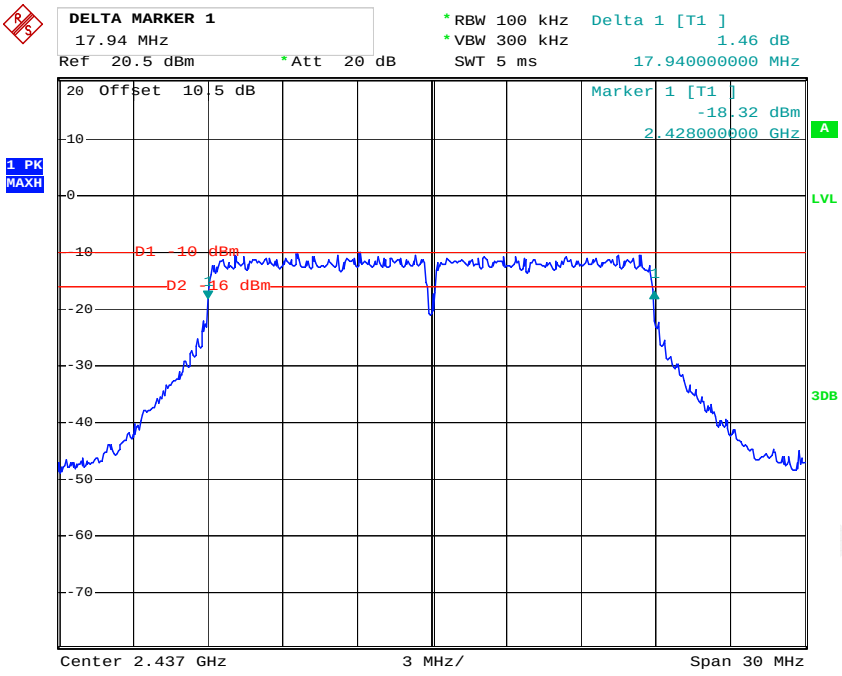
Date: 28.OCT.2014 16:13:21

Ant 2: 802.11n ht20 Low Channel



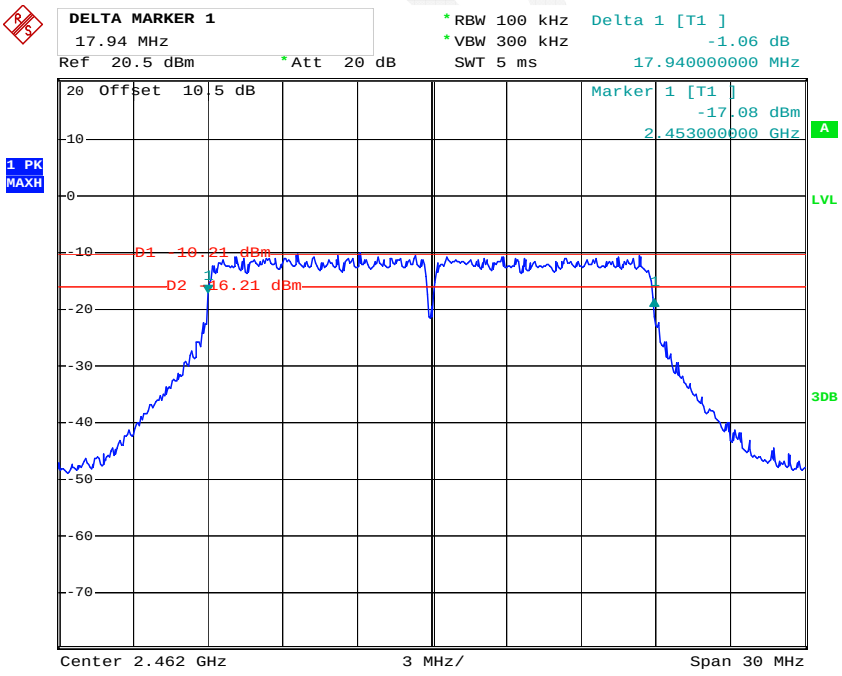
Date: 28.OCT.2014 16:53:54

Ant 2: 802.11n ht20 Middle Channel



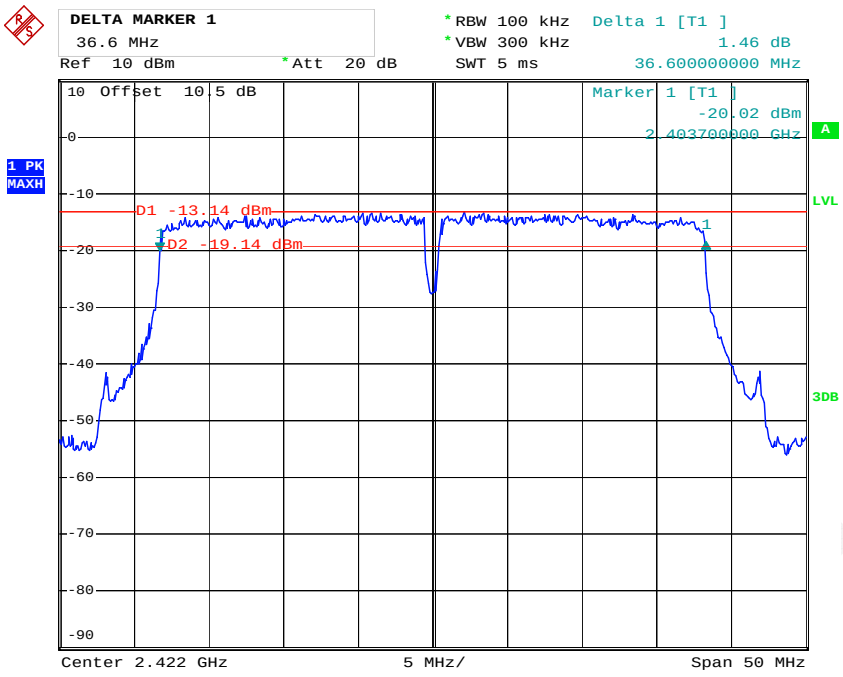
Date: 28.OCT.2014 16:57:09

Ant 2: 802.11n ht20 High Channel



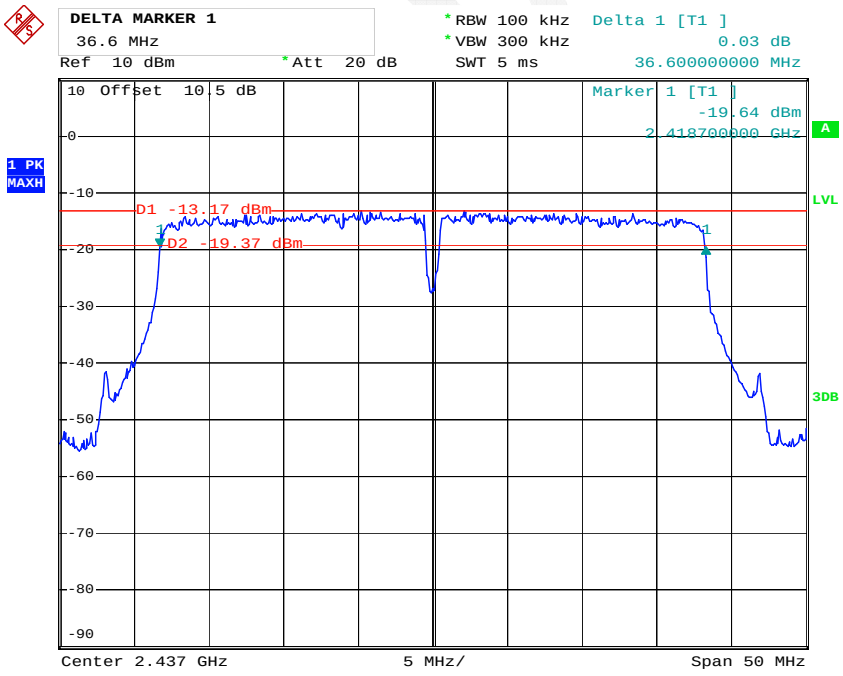
Date: 28.OCT.2014 16:59:13

Ant 1: 802.11n ht40 Low Channel



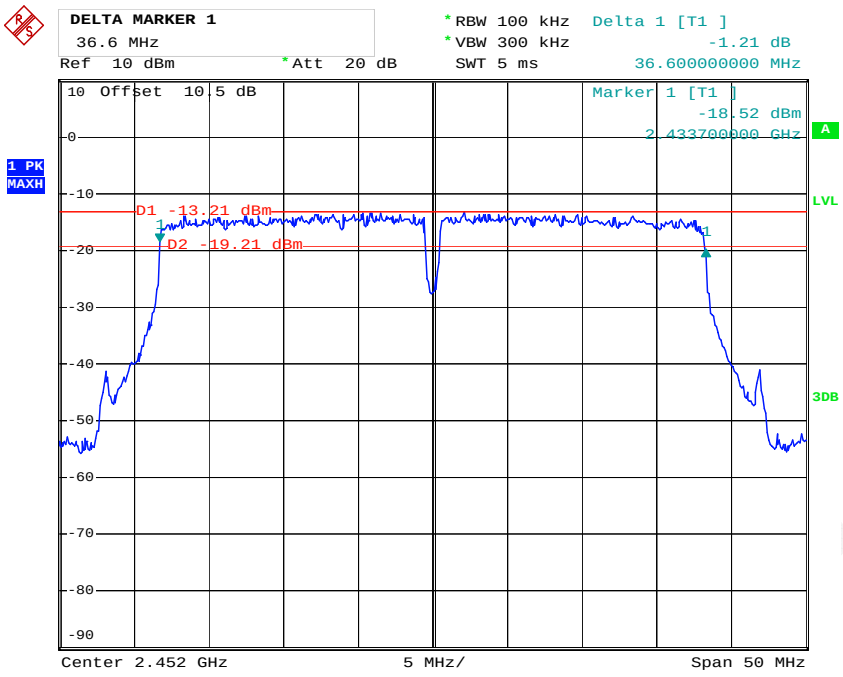
Date: 28.OCT.2014 16:33:45

Ant 1: 802.11n ht40 Middle Channel



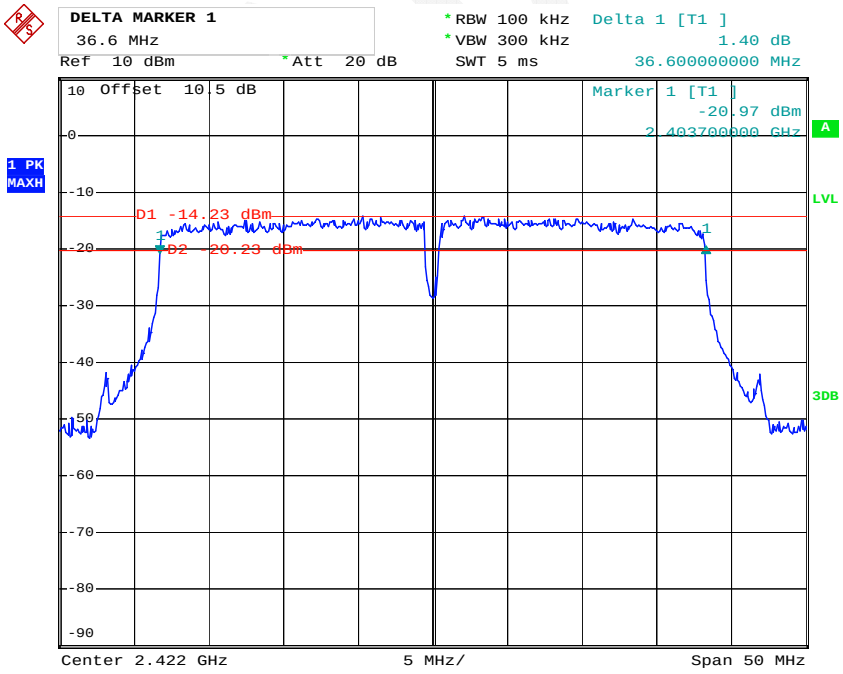
Date: 28.OCT.2014 16:28:38

Ant 1: 802.11n ht40 High Channel



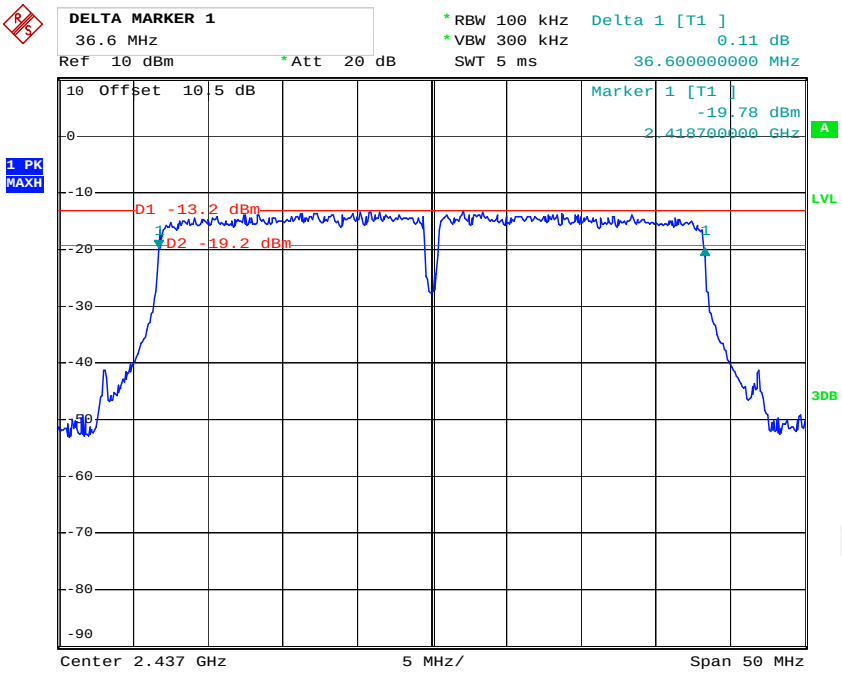
Date: 28.OCT.2014 16:32:40

Ant 2: 802.11n ht40 Low Channel



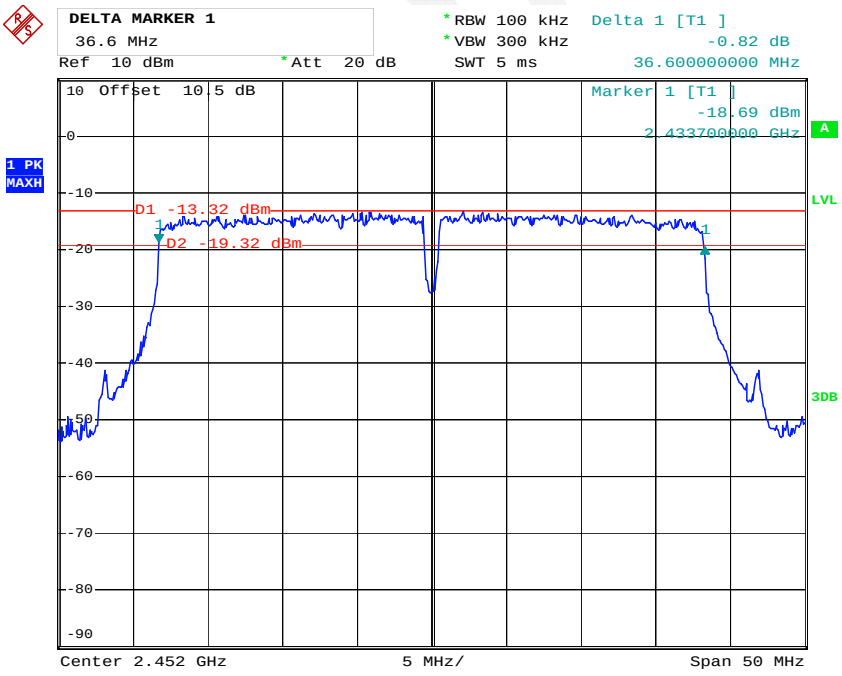
Date: 28.OCT.2014 17:04:13

Ant 2: 802.11n ht40 Middle Channel



Date: 28.OCT.2014 17:08:35

Ant 2: 802.11n ht40 High Channel



Date: 28.OCT.2014 17:11:12

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 clause 9.2

Peak power meter method

The maximum peak conducted output power may be measured using a broadband peak RF power meter. The power meter shall have a video bandwidth that is greater than or equal to the *DTS bandwidth* and shall utilize a fast-responding diode detector.

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:	27.4 °C
Relative Humidity:	52 %
ATM Pressure:	100.9 kPa

The testing was performed by Dean Liu on2014-10-28.

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)	Ant 1	Ant 2	Total	(dBm)	
802.11b	Low	2412	18.32		/	30	PASS
	Middle	2437	18.09		/	30	PASS
	High	2462	18.26		/	30	PASS
802.11g	Low	2412	16.49		/	30	PASS
	Middle	2437	16.66		/	30	PASS
	High	2462	16.54		/	30	PASS
802.11n ht20	Low	2412	12.56	12.45	15.52	30	PASS
	Middle	2437	12.52	12.36	15.45	30	PASS
	High	2462	12.43	12.25	15.35	30	PASS
802.11n ht40	Low	2422	12.14	12.09	15.13	30	PASS
	Middle	2437	12.14	12.08	15.12	30	PASS
	High	2452	12.10	12.09	15.11	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	Test Receiver	ESPI	100120	2013-11-18	2014-11-18

*** 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

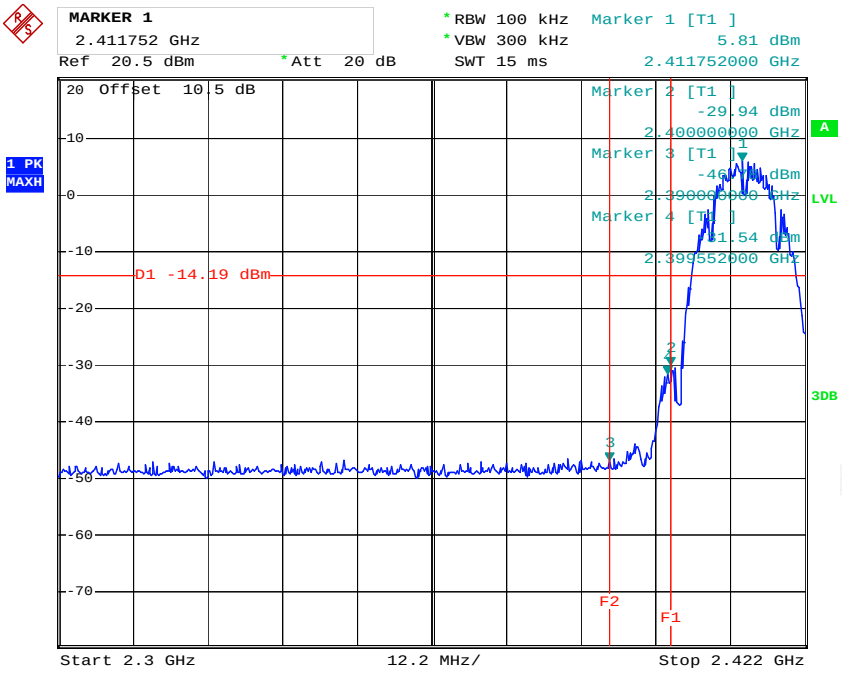
Temperature:	27.4 °C
Relative Humidity:	52 %
ATM Pressure:	100.9 kPa

The testing was performed by Dean Liu on2014-10-28.

Test mode: Transmitting

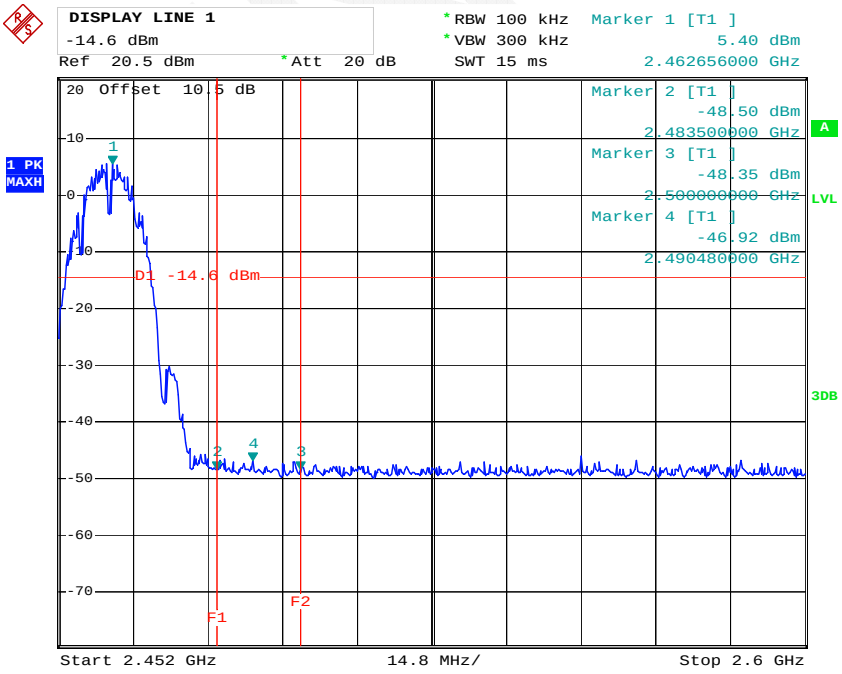
Test Result: Compliant. Please refer to following plots.

802.11b: Band Edge, Left Side



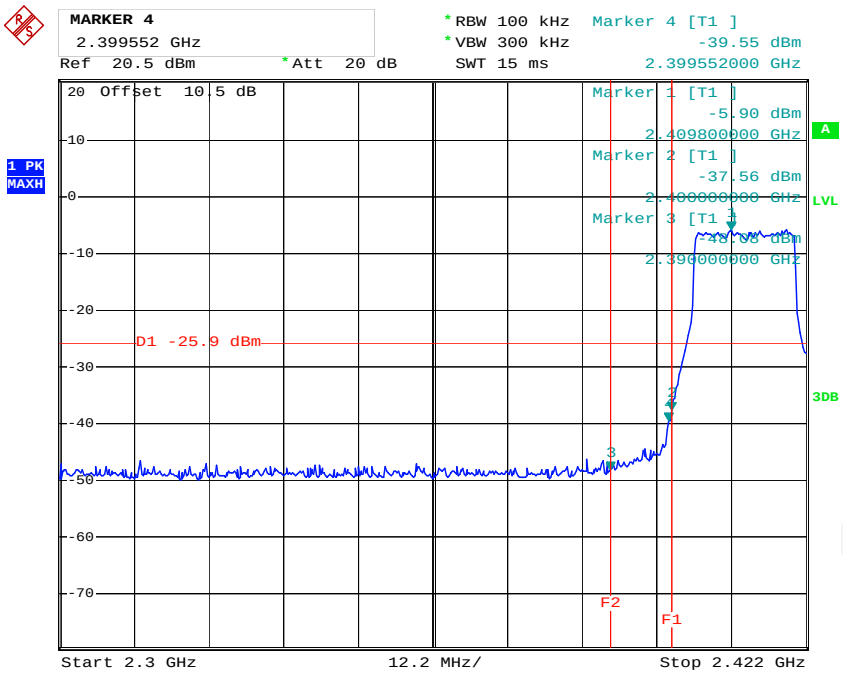
Date: 28.OCT.2014 14:58:03

802.11b: Band Edge, Right Side



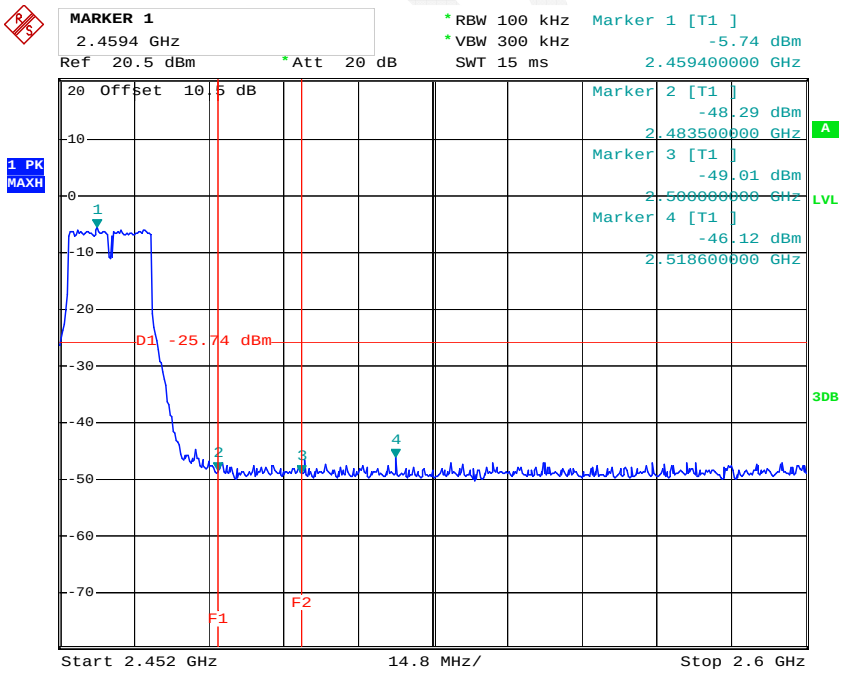
Date: 28.OCT.2014 15:15:28

802.11g: Band Edge, Left Side



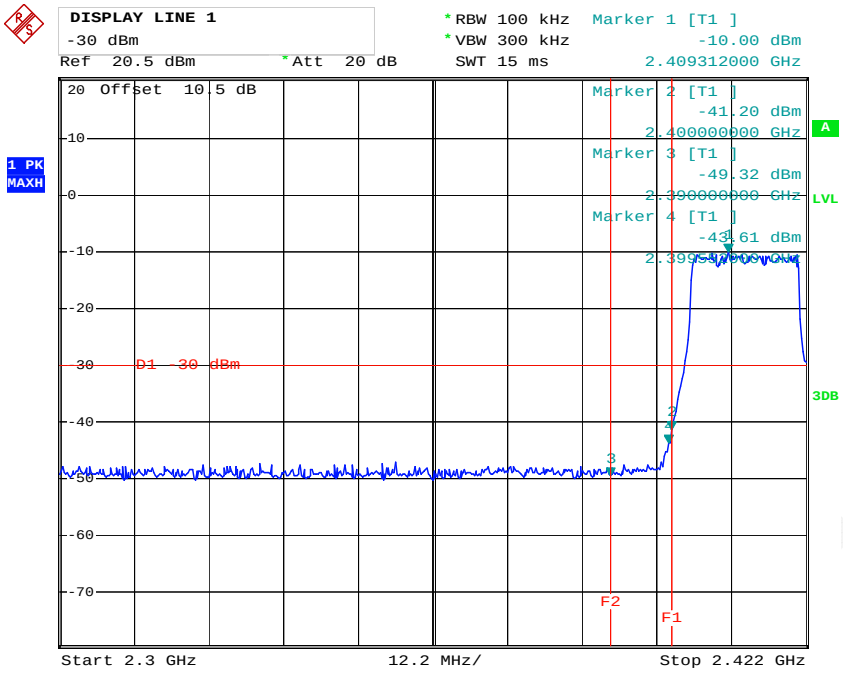
Date: 28.OCT.2014 15:56:40

802.11g: Band Edge, Right Side



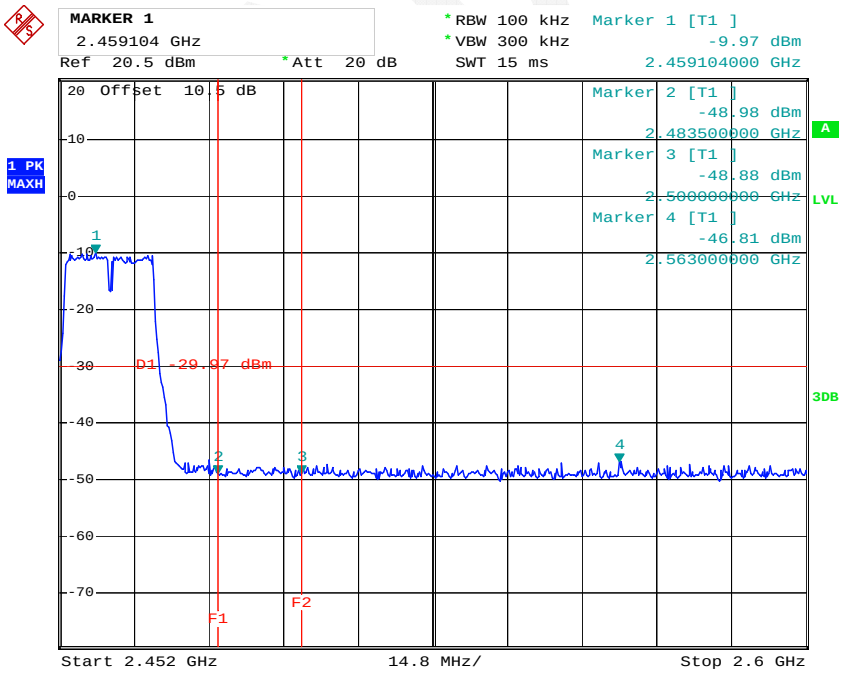
Date: 28.OCT.2014 15:48:25

Ant 1: 802.11n ht20 Band Edge, Left Side



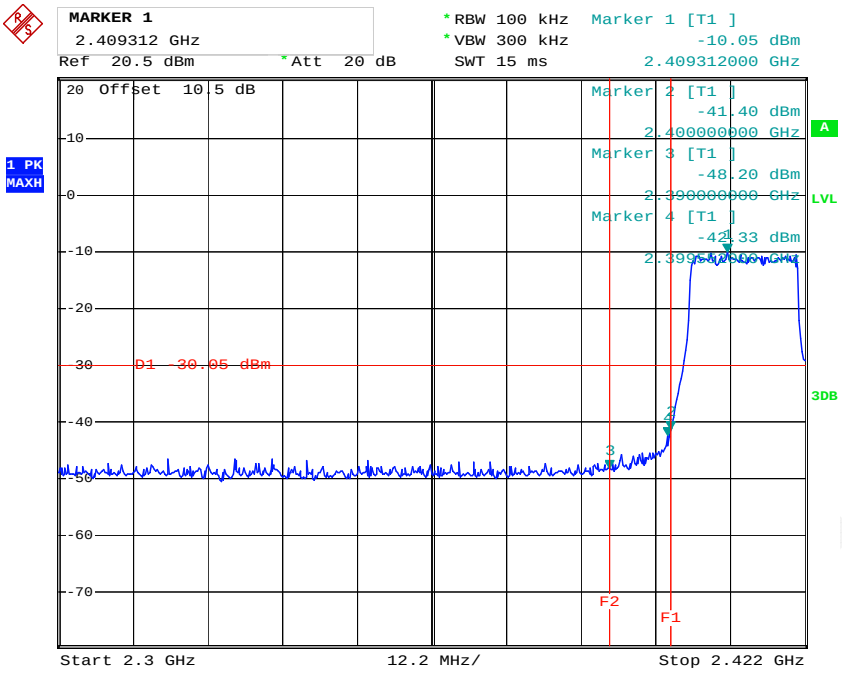
Date: 28.OCT.2014 16:06:14

Ant 1: 802.11n ht20 Band Edge, Right Side



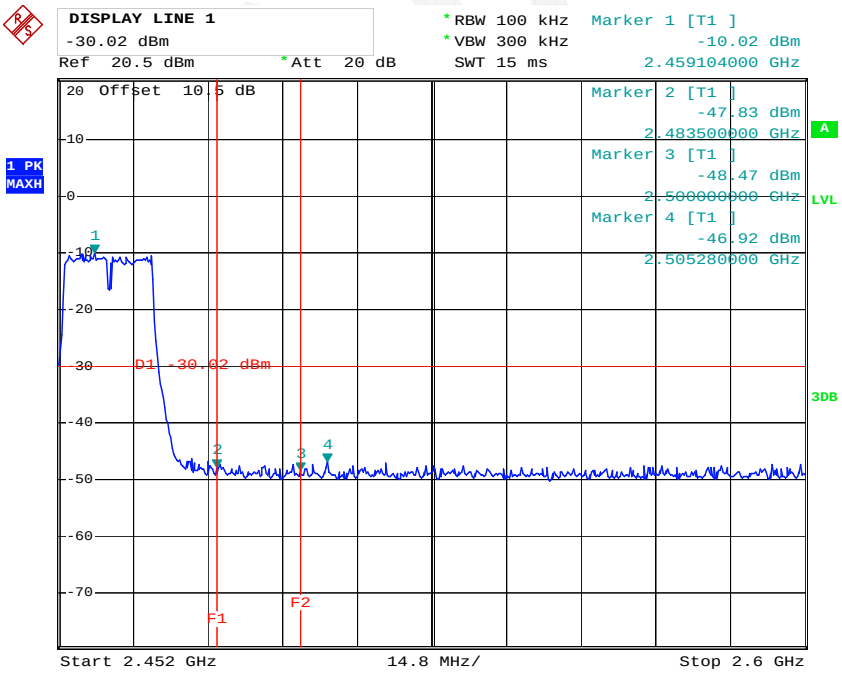
Date: 28.OCT.2014 16:15:36

Ant 2: 802.11n ht20 Band Edge, Left Side



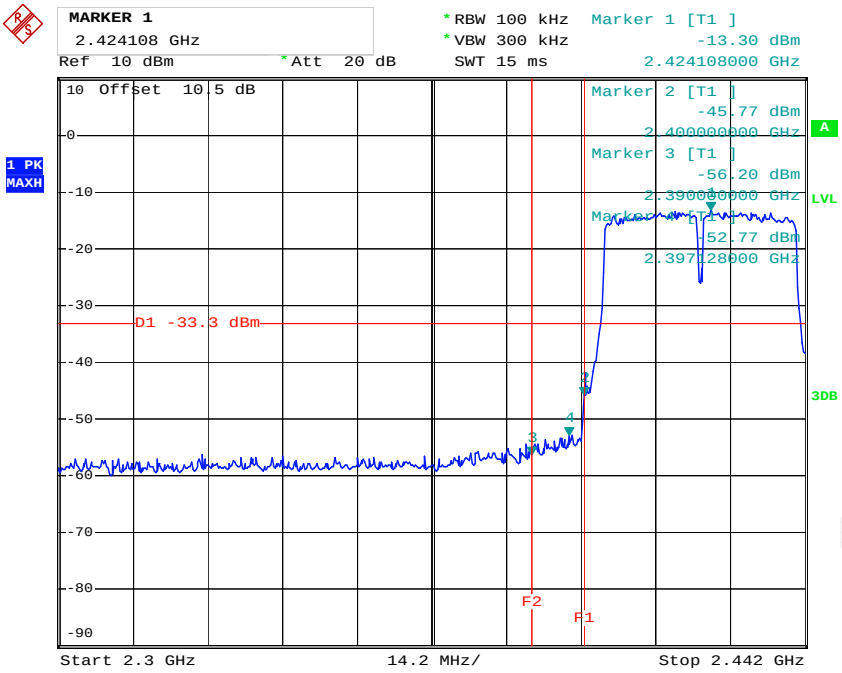
Date: 28.OCT.2014 16:56:05

Ant 2: 802.11n ht20 Band Edge, Right Side



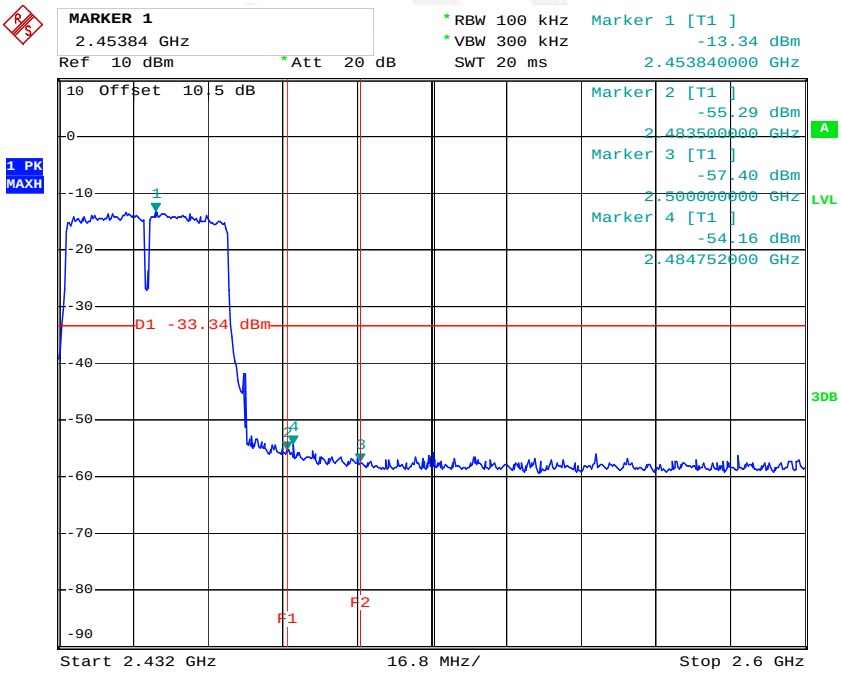
Date: 28.OCT.2014 17:00:56

Ant 1: 802.11n ht40 Band Edge, Left Side



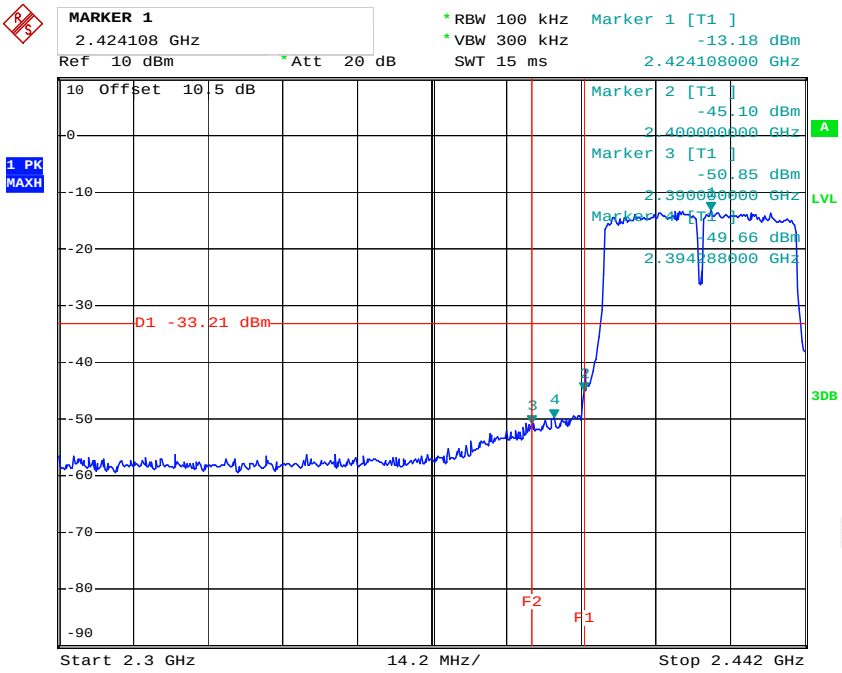
Date: 28.OCT.2014 16:36:08

Ant 1: 802.11n ht40 Band Edge, Right Side



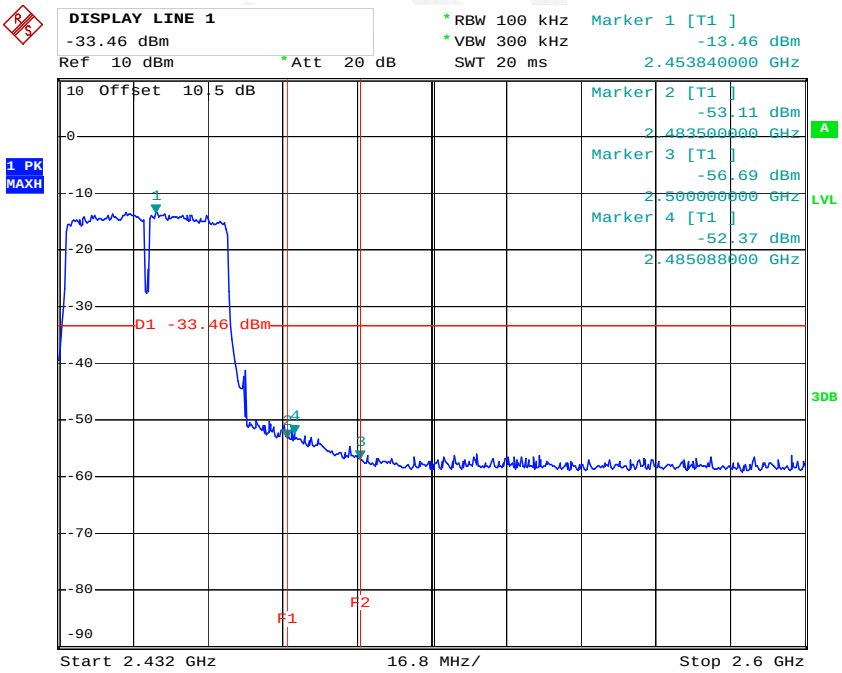
Date: 28.OCT.2014 16:26:38

Ant 2: 802.11n ht40 Band Edge, Left Side



Date: 28.OCT.2014 17:07:44

Ant 2: 802.11n ht40 Band Edge, Right Side



Date: 28.OCT.2014 17:13:32

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	Test Receiver	ESPI	100120	2013-11-18	2014-11-18

*** 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:	27.4 °C
Relative Humidity:	52 %
ATM Pressure:	100.9 kPa

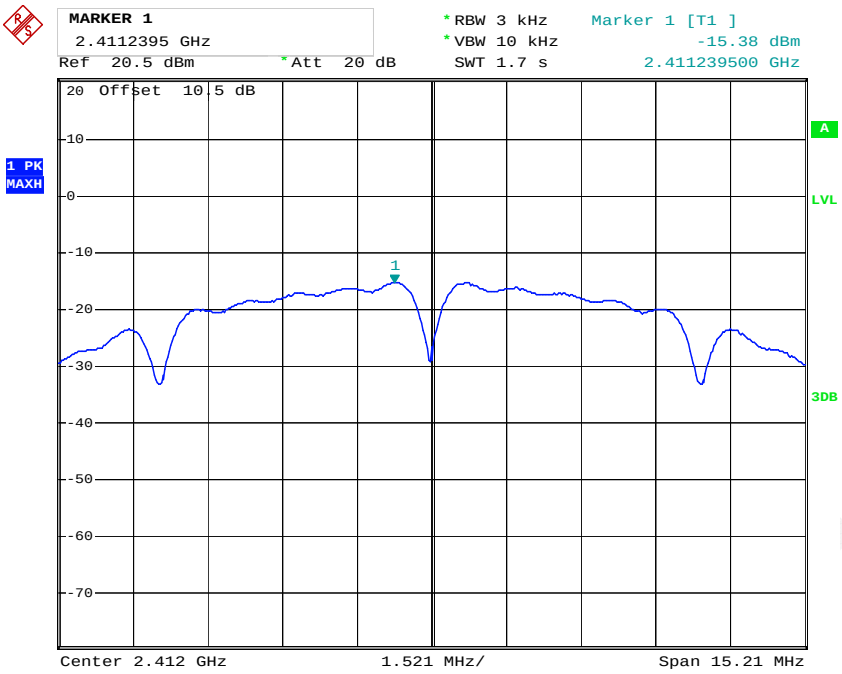
The testing was performed by Dean Liu on2014-10-28.

Test Mode: Transmitting

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

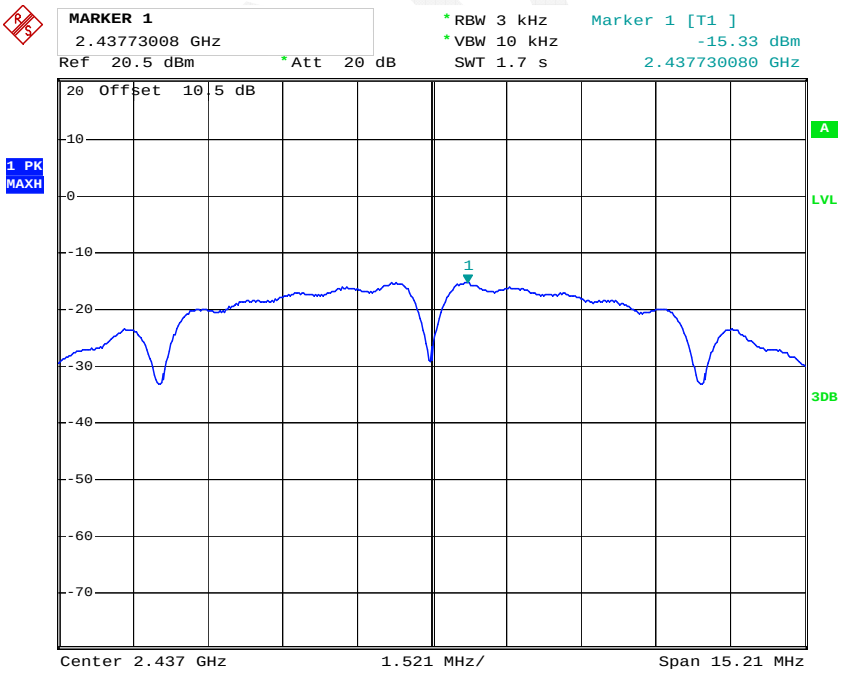
Test mode	Channel	Frequency (MHz)	PSD (dBm/3kHz)			Limit (dBm/3kHz)	Result
			Ant 1	Ant 2	Total		
802.11b	Low	2412	-15.38	/	/	≤8	PASS
	Middle	2437	-15.33	/	/	≤8	PASS
	High	2462	-15.47	/	/	≤8	PASS
802.11g	Low	2412	-19.91	/	/	≤8	PASS
	Middle	2437	-20.20	/	/	≤8	PASS
	High	2462	-19.90	/	/	≤8	PASS
802.11n ht20	Low	2412	-23.75	-24.06	-20.89	≤8	PASS
	Middle	2437	-23.82	-24.08	-20.94	≤8	PASS
	High	2462	-24.20	-24.82	-21.49	≤8	PASS
802.11n ht40	Low	2422	-25.98	-26.37	-23.16	≤8	PASS
	Middle	2437	-26.61	-26.86	-23.72	≤8	PASS
	High	2452	-26.59	-26.59	-23.58	≤8	PASS

Power Spectral Density, 802.11b Low Channel



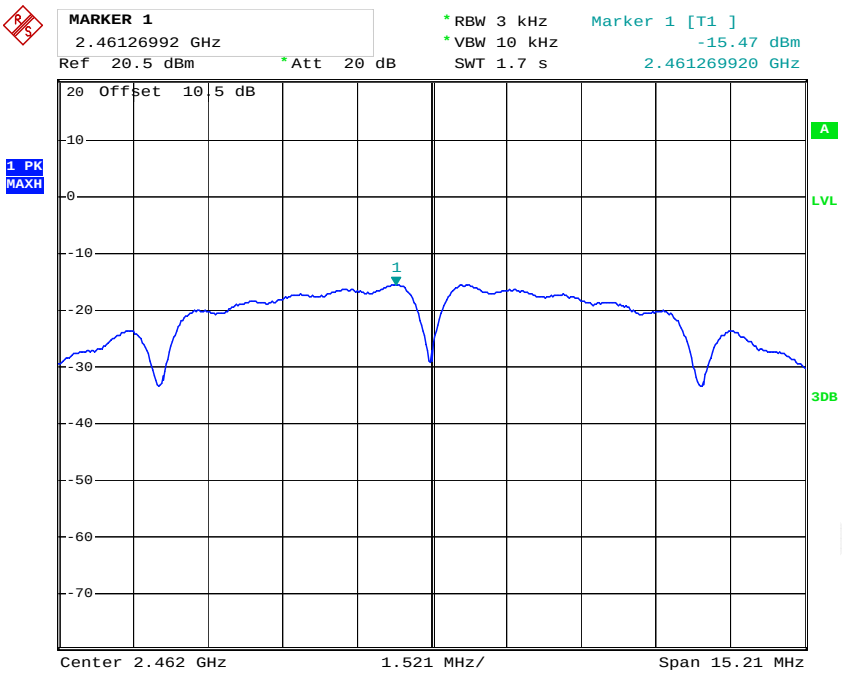
Date: 28.OCT.2014 16:40:53

Power Spectral Density, 802.11b Middle Channel



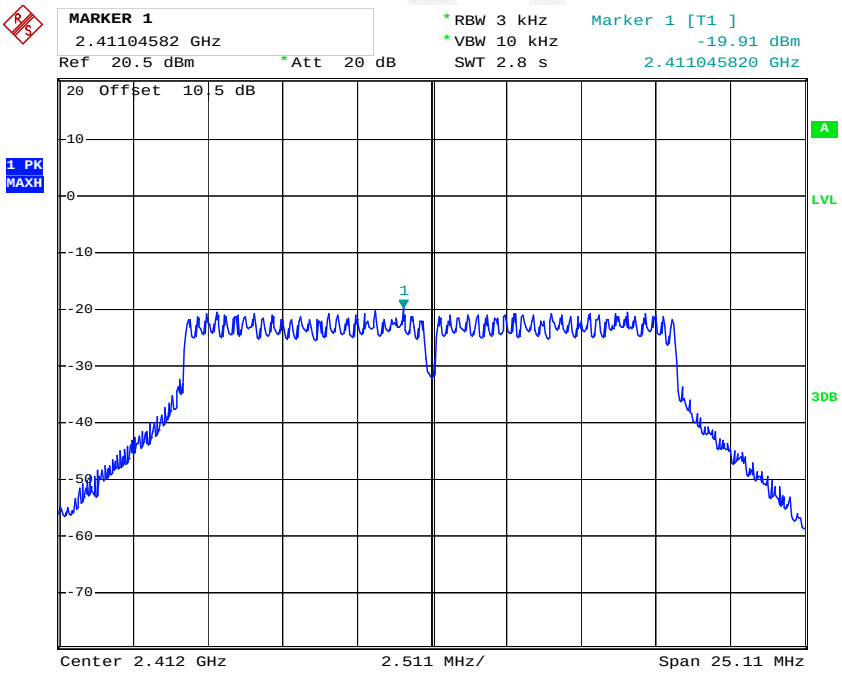
Date: 28.OCT.2014 16:41:13

Power Spectral Density, 802.11b High Channel



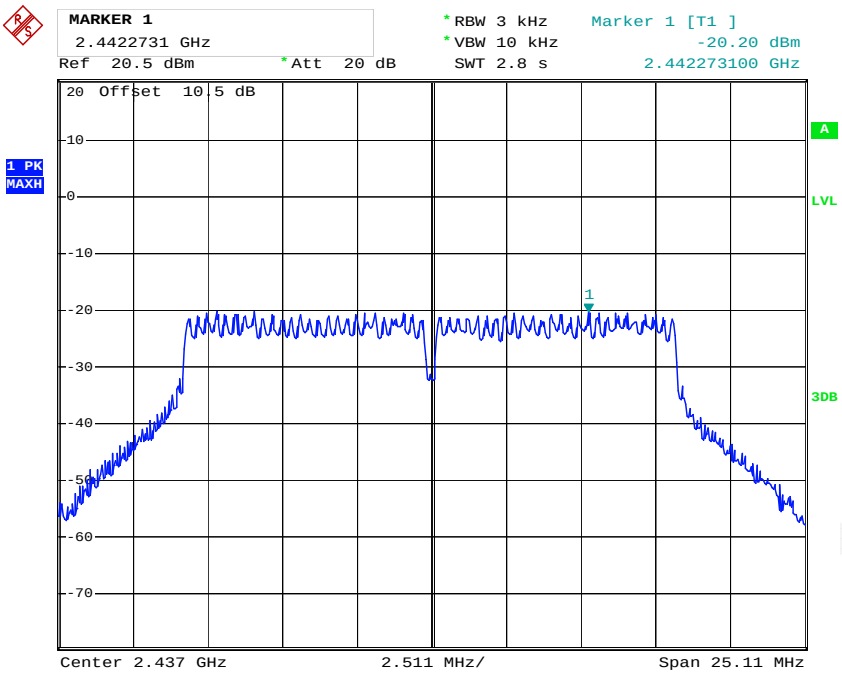
Date: 28.OCT.2014 16:41:28

Power Spectral Density, 802.11g Low Channel



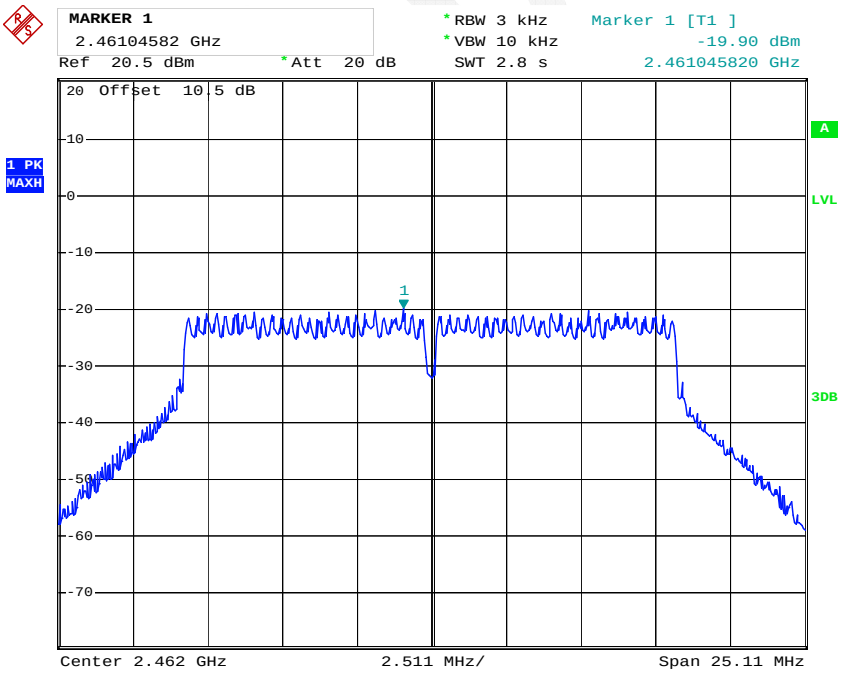
Date: 28.OCT.2014 15:54:40

Power Spectral Density, 802.11g Middle Channel



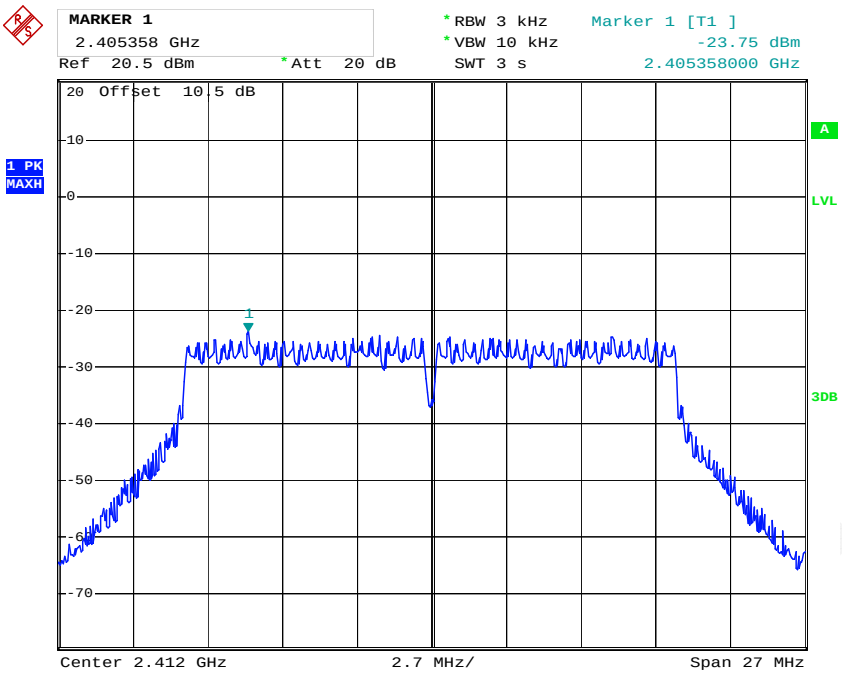
Date: 28.OCT.2014 18:14:47

Power Spectral Density, 802.11g High Channel



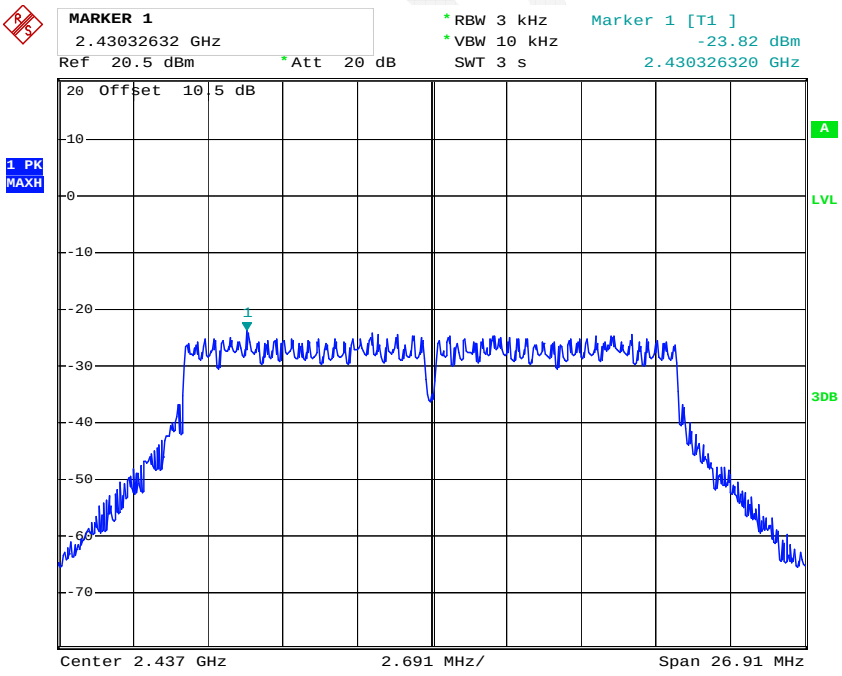
Date: 28.OCT.2014 15:45:47

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



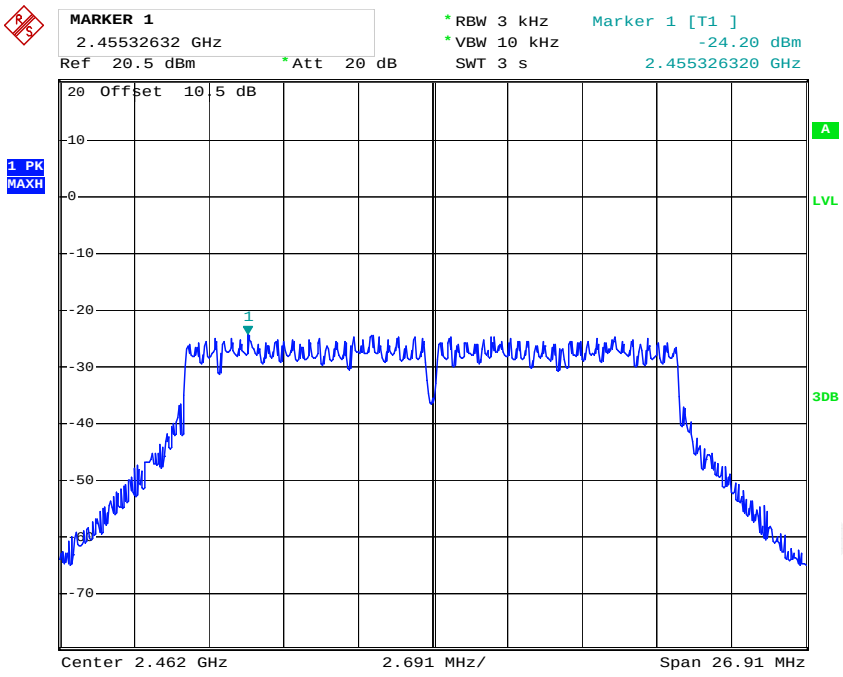
Date: 28.OCT.2014 16:04:33

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



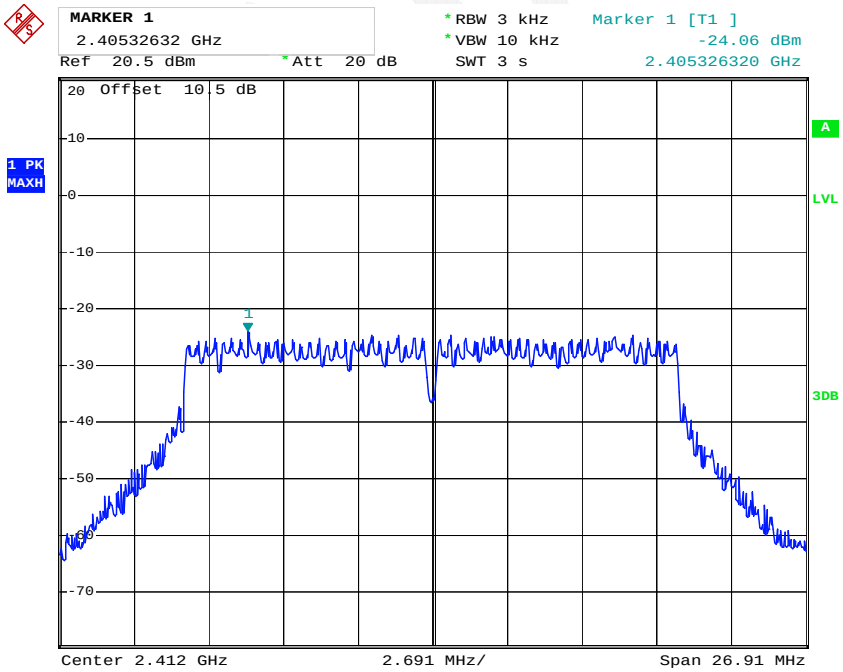
Date: 28.OCT.2014 16:10:04

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



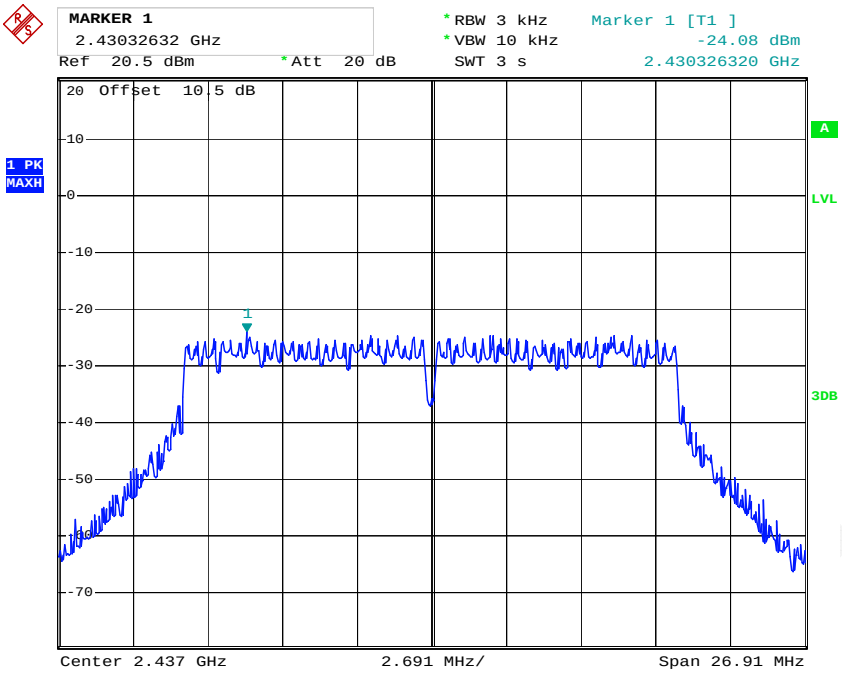
Date: 28.OCT.2014 16:16:21

Ant 2: Power Spectral Density, 802.11n ht20 Low Channel



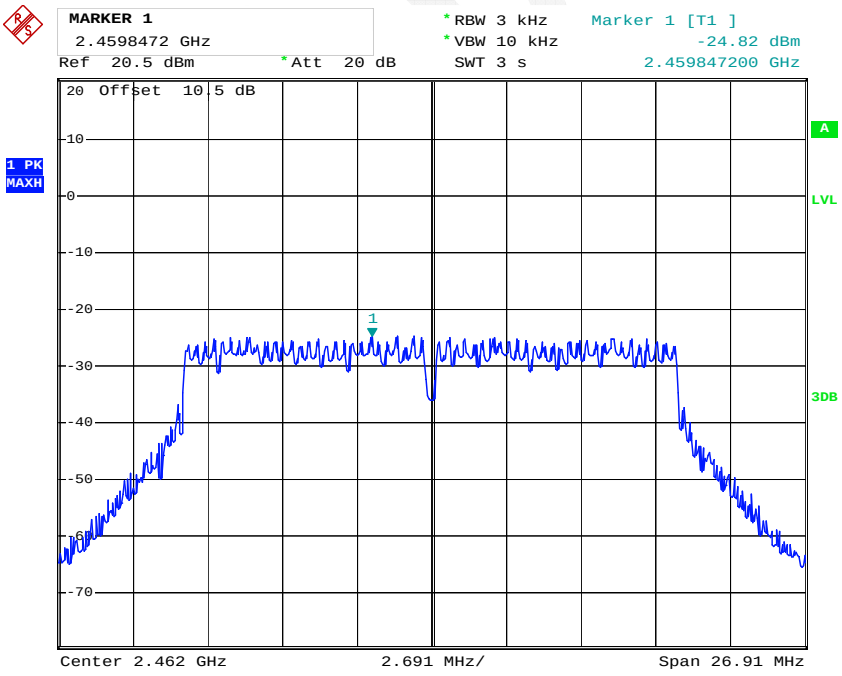
Date: 28.OCT.2014 16:54:31

Ant 2: Power Spectral Density, 802.11n ht20 Middle Channel



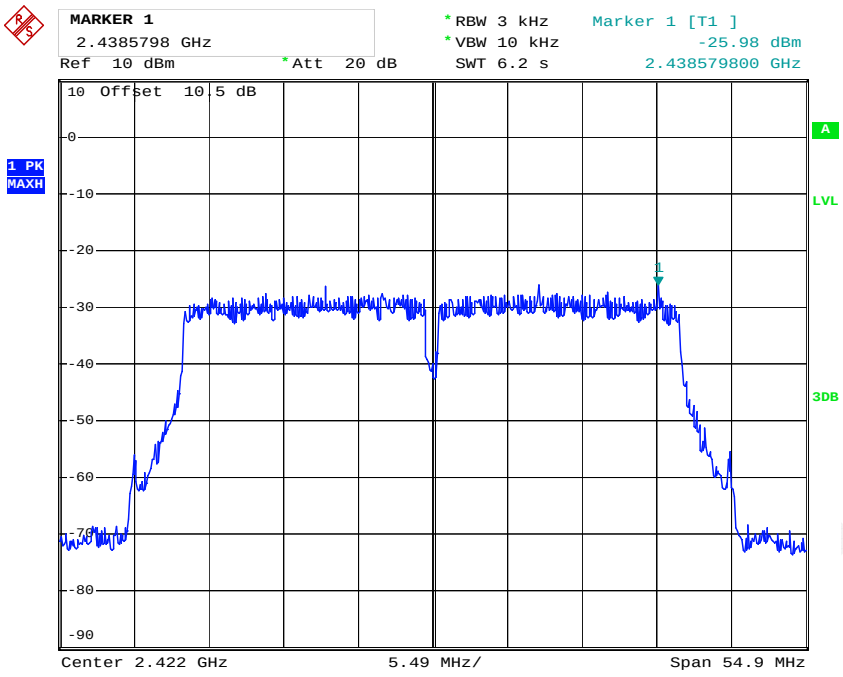
Date: 28.OCT.2014 16:57:42

Ant 2: Power Spectral Density, 802.11n ht20 High Channel



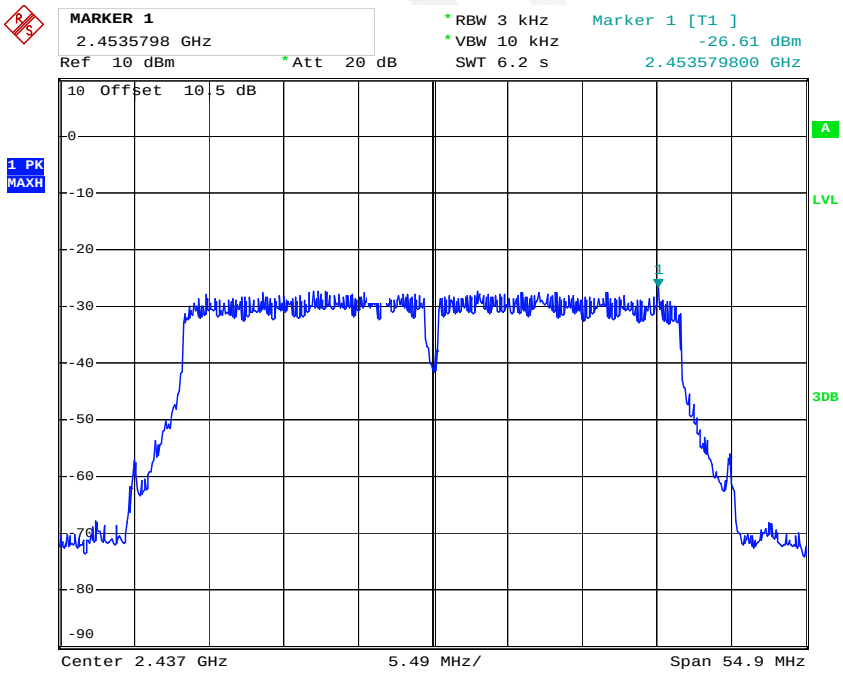
Date: 28.OCT.2014 17:01:20

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



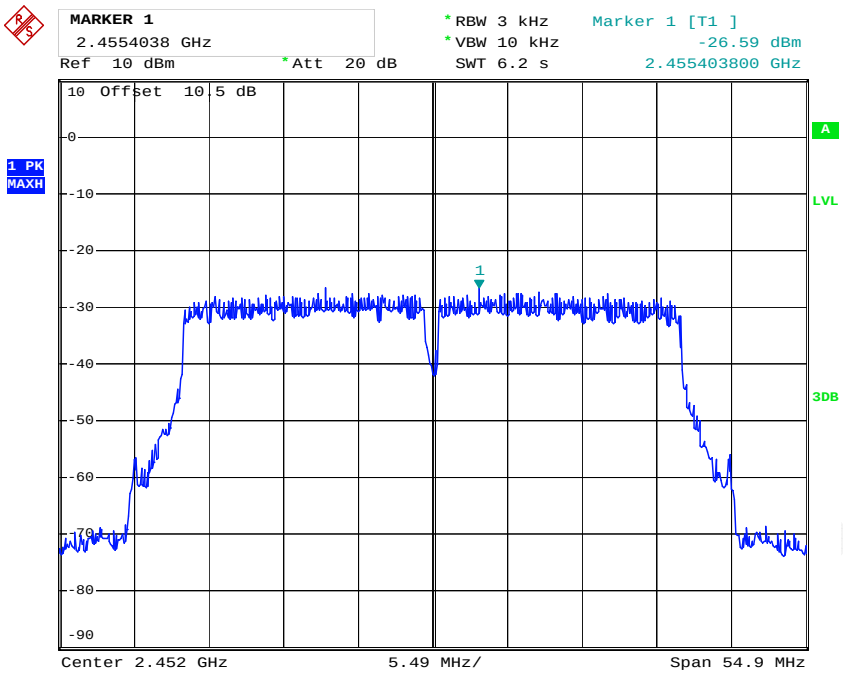
Date: 28.OCT.2014 16:34:24

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



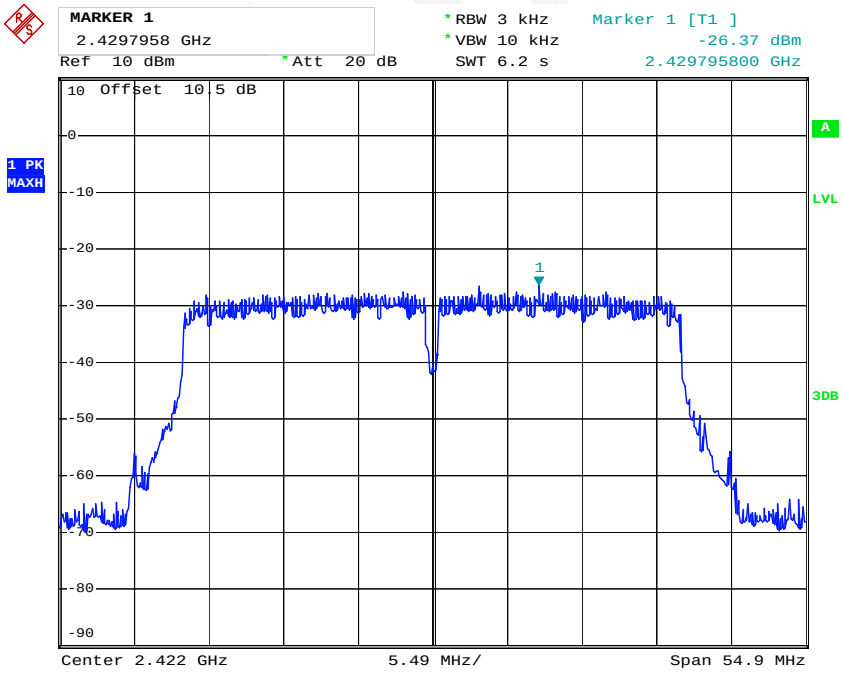
Date: 28.OCT.2014 16:30:15

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



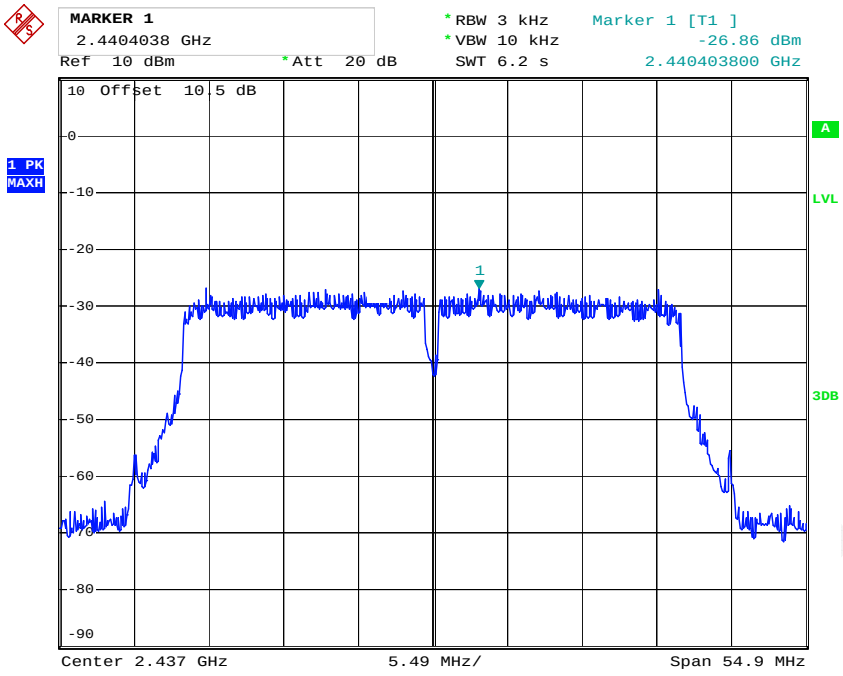
Date: 28.OCT.2014 16:31:58

Ant 2: Power Spectral Density, 802.11n ht40 Low Channel



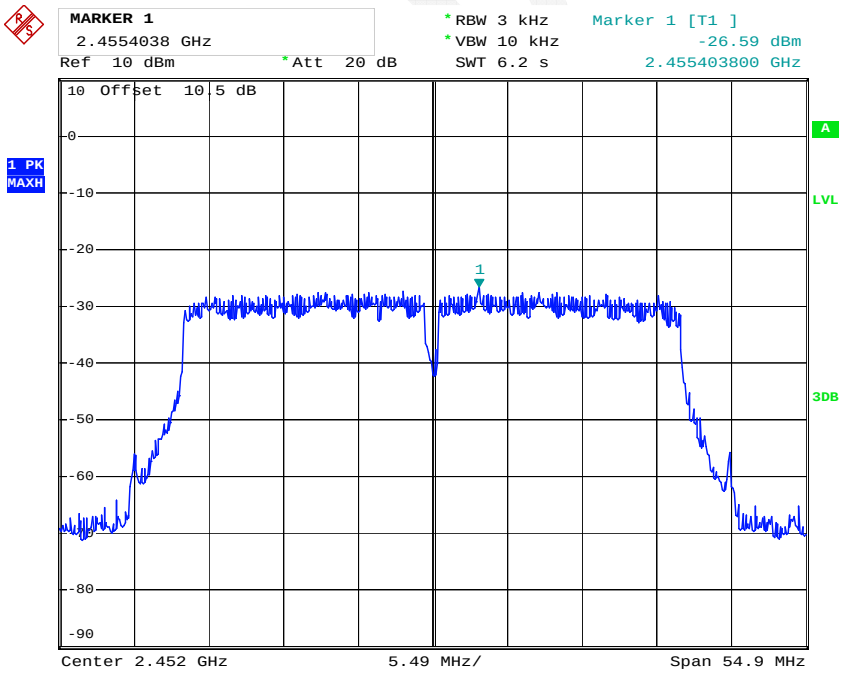
Date: 28.OCT.2014 17:05:40

Ant 2: Power Spectral Density, 802.11n ht40 Middle Channel



Date: 28.OCT.2014 17:09:15

Ant 2: Power Spectral Density, 802.11n ht40 High Channel



Date: 28.OCT.2014 17:14:27

DECLARATION LETTER

ZIONCOM ELECTRONICS (SHENZHEN) LTD.
Building A1~A2, Lantian Science and Technology Park, Xinyu Road Xinqiao Henggang Block Shajing Street, Baoan District, Shenzhen City, China
Tel: +86-755-6136 3299 Fax: +86-755-6136 3322

Product Similarity Declaration

Date: 2014-10-31

To Whom It May Concern,

We, ZIONCOM ELECTRONICS (SHENZHEN) LTD., hereby declare that our product 300Mbps Wireless N Router, Model Number: N300RT,IP04239 are electrically identical with the same electromagnetic emissions and electromagnetic compatibility characteristics. They are certified by BACL. Their only difference is the model name.

The rest are the same.

Please contact me if you have any question.

Signature:

Stone Xu
Project Manager

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