FCC PART 15.247

TEST REPORT

For

Coby Communications Ltd.

Unit C-E, 8/F, PO Shau Centre,115 How Ming Street , Kwun Tong Kowloon ,Hong Kong

FCC ID: S7IMID9762

Report Type:	**Product Type:**
Original Report	Mobile Internet Device

Test Engineer:	Leon Chen
Report Number:	R1DG1211300002-00B
Report Date:	2012-12-12
Reviewed By:	Ivan Cao EMC Engineer
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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *Coby Communications Ltd.*'s product, model number: MID9762 *(FCC ID: S7IMID9762) or* ("EUT") in this report is a Mobile Internet Device, which was measured approximately: 24.0 cm (L) x19.0cm (W) x1.0cm (H), rated input voltage: DC 3.7V from lithium battery or DC 5V from adapter.

Adapter Information: FLYPOWER
MODEL: PS12K0502000UE
INPUT: 100-240V, 50/60Hz, 0.35A
OUTPUT: 5.0V, 2000mA

** All measurement and test data in this report was gathered from production sample serial number: 121130002 (Assigned by BACL, Dongguan). The EUT was received on 2012-11-30.*

Objective

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

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

Related Submittal(s)/Grant(s)

FCC Part 15C DSS submissions with FCC ID: *S7IMID9762* for Bluetooth

Test Methodology

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

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

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

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 C63.4-2009.

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

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The EUT was configured for testing in an engineering mode which was provided by the manufacturer.

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

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

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

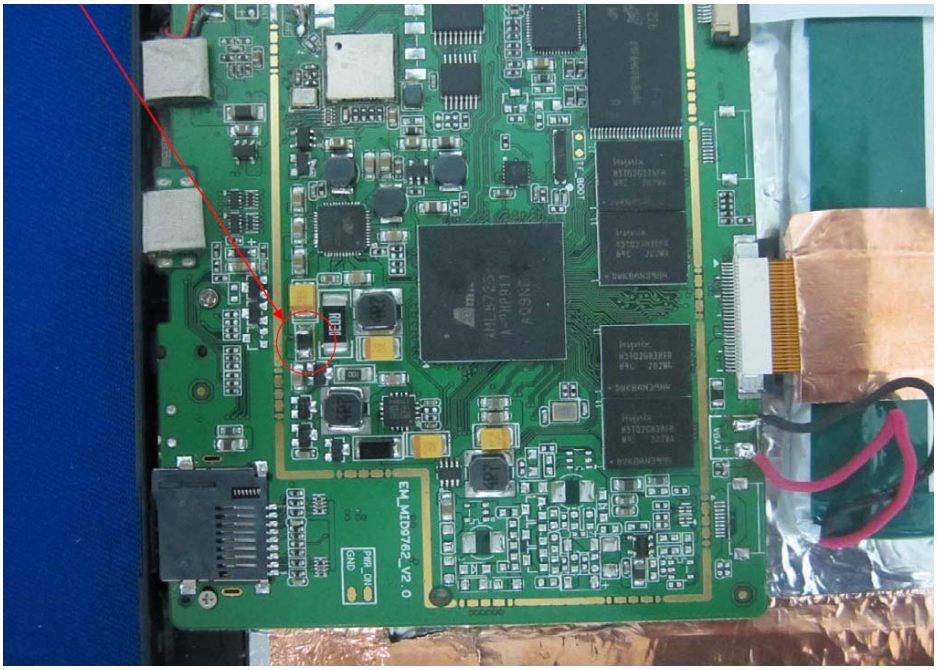
The worst-case data rates are determined to be as follows for each mode based upon investigations by measuring the average power and PSD across all date rates bandwidths, and modulations.

EUT Exercise Software

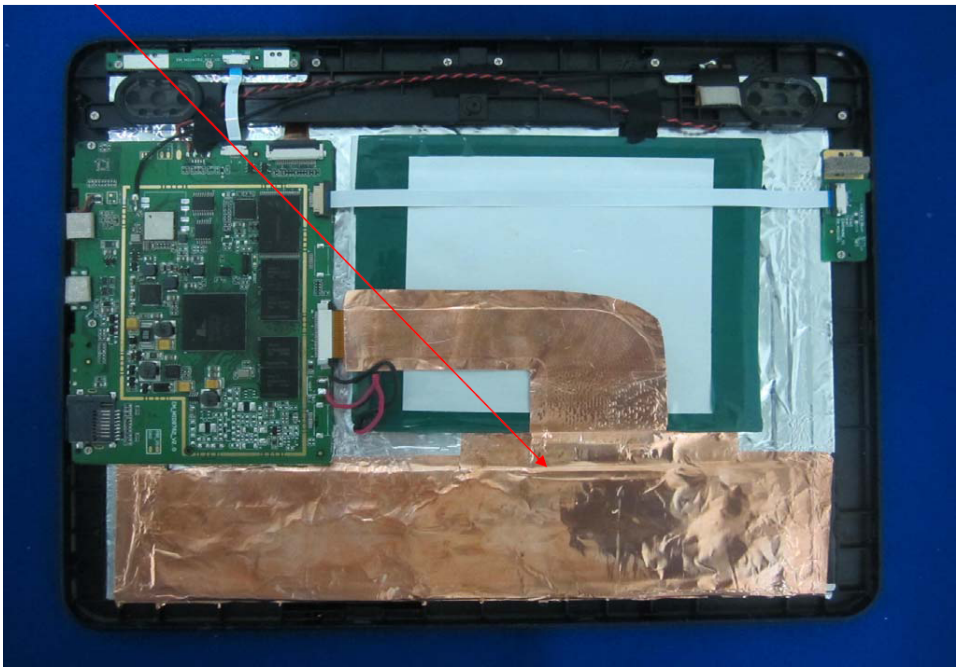
The test was performed under "*RF test*", which was provided by the manufacturer.

Equipment Modifications

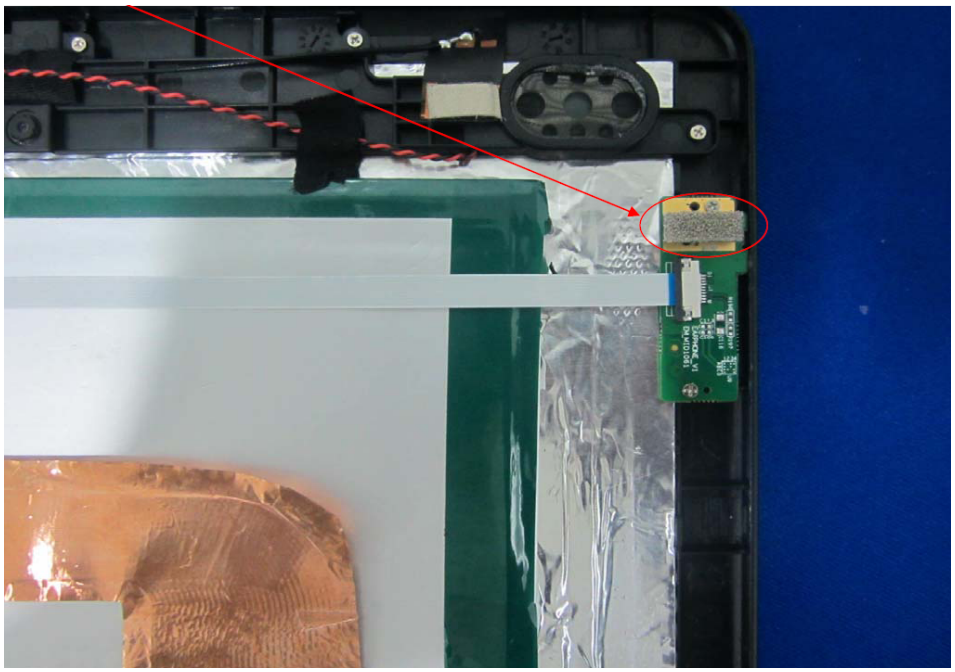
1 Change the element FB24 into 600Ω magnetic bead in the main board. (As shown in the picture below)



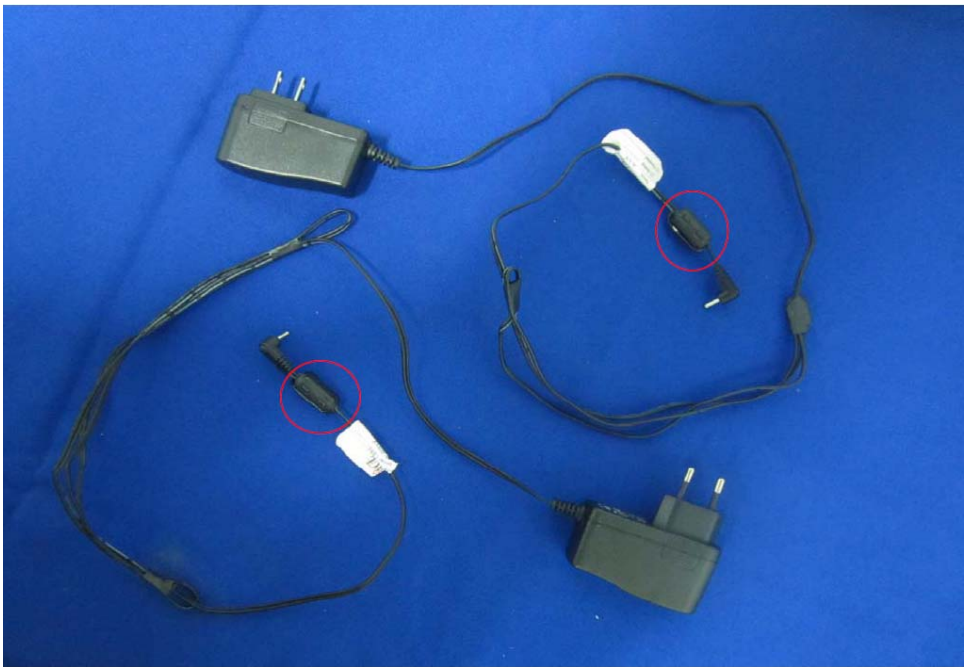
2 Shield the display line and display templates with copper foil. (As shown in the picture below)



3 Attach the conductive foam on the audio output plate. (As shown in the picture below)



4 Add the core on the power output line, and wound one circle. (As shown in the picture below)



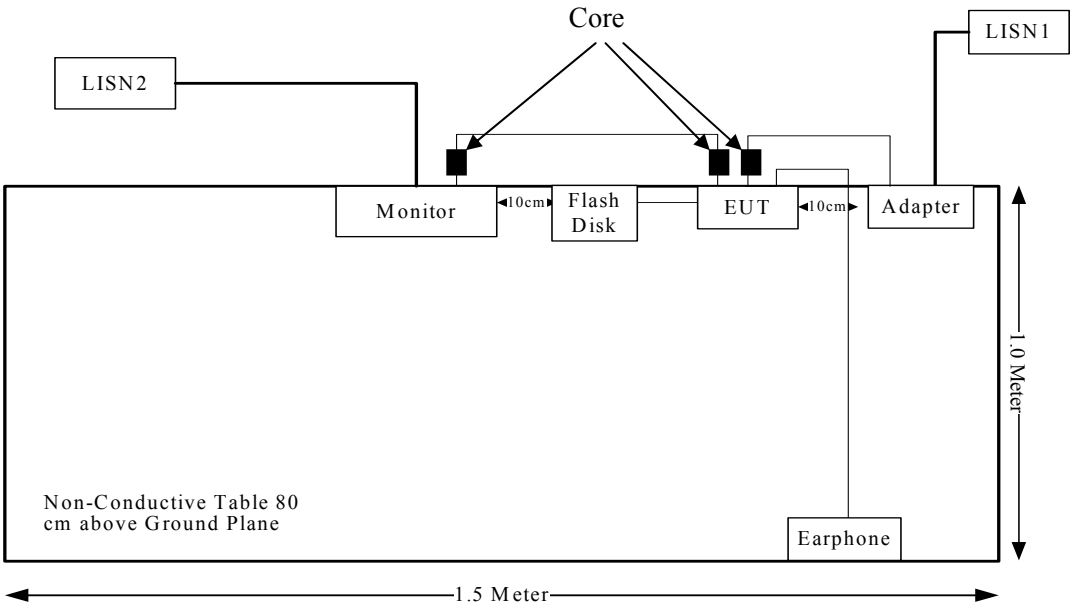
Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
DELL	Monitor	U3011t	CN-OPH5NY-74445-16T-290L
kingston	Flash Disk	DT101	N/A

External Cable

Cable Description	Length (m)	From Port	To
Shielded Detachable HDMI Cable	1.8	HDMI Port of Monitor	EUT
Shielded Detachable USB OTG Cable	0.1	Flash Disk	EUT

Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§1.1307, §2.1093	RF Exposure (SAR)	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 Peak Output Power	Compliance
§15.247(d)	100 kHz Bandwidth of Frequency Band Edge	Compliance
§15.247(e)	Power Spectral Density	Compliance

FCC §1.1307 & §2.1093 - RF EXPOSURE

Applicable Standard

FCC§1.1307 and §2.1093.

Test Result

Compliance, please refer to the SAR report: R1DG121130002-20.

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 an Internal Antenna soldered on the print circuit board, which complied with 15.203, the maximum gain is 1.0 dBi, please refer to the internal photos.

Result: Compliance.

FCC §15.207 (a) – AC LINE CONDUCTED EMISSIONS

Applicable Standard

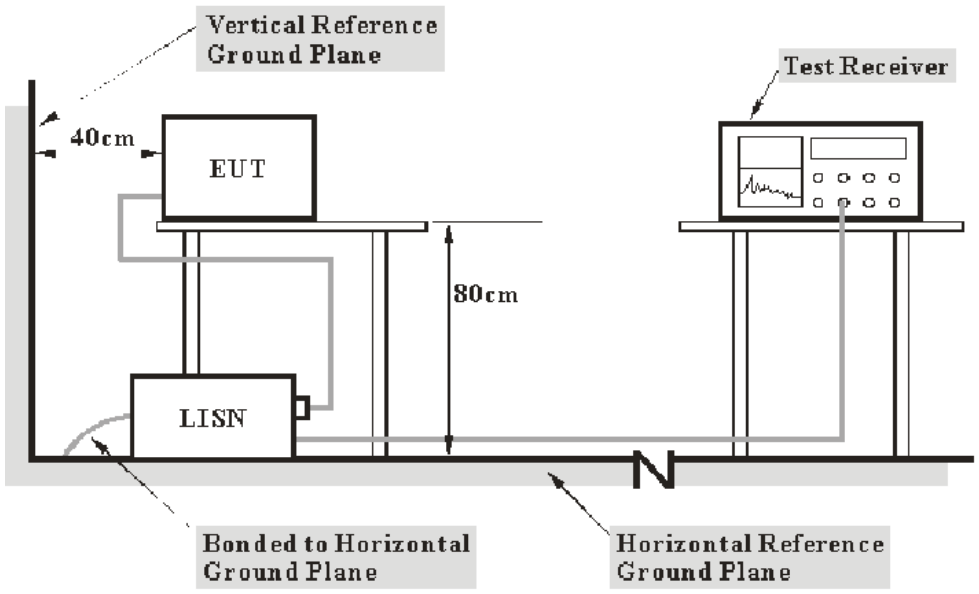
FCC§15.207

Measurement Uncertainty

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

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement at Bay Area Compliance Laboratory Corp. (Dongguan) is ±2.4 dB (k=2, 95% level of confidence), and the uncertainty will not be taken into consideration for all the test data recorded in the report.

EUT Setup



Note: 1. Support units were connected to second LISN.
2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

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

The spacing between the peripherals was 10 cm.

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

EMI Test Receiver Setup

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

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

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

Test Procedure

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

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	EMI Test Receiver	ESCS 30	830245/006	2012-11-29	2013-11-28
R&S	LISN1	ESH3-Z5	843331/015	2012-09-17	2013-09-16
R&S	LISN2	ESH3-Z5	100113	2012-11-29	2013-11-28

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:

13.14 dB at **0.440 MHz** in the **Neutral** conducted mode.

Test Data

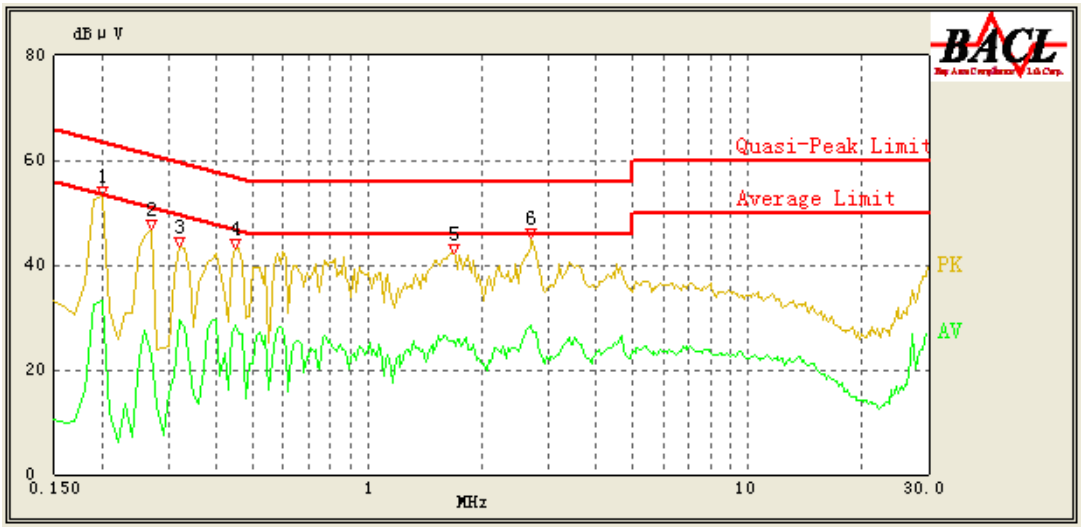
Environmental Conditions

Temperature:	23.2 ° C
Relative Humidity:	58 %
ATM Pressure:	101.2 kPa

The testing was performed by Leon Chen on 2012-12-05.

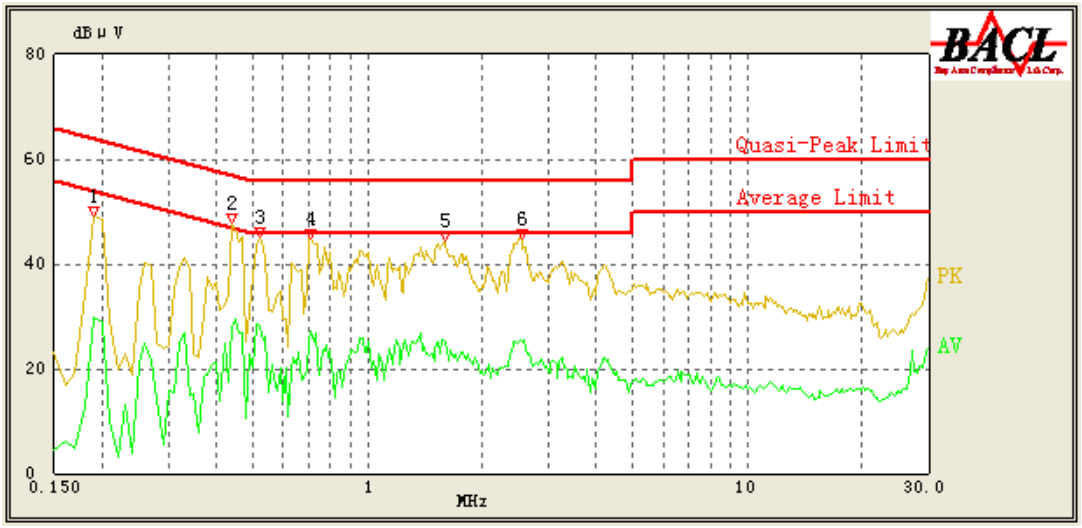
Test Mode: Transmitting

AC 120V/60 Hz, Line



Frequency (MHz)	Corrected Amplitude (dBμV)	Correction Factor (dB)	Limit (dBμV)	Margin (dB)	Detector (PK/ QP/Ave.)
2.700	28.48	0.34	46.00	17.52	AV
2.700	38.23	0.34	56.00	17.77	QP
0.200	46.34	0.40	64.57	18.23	QP
0.450	38.47	0.31	57.43	18.96	QP
0.450	28.40	0.31	47.43	19.03	AV
1.690	36.94	0.35	56.00	19.06	QP
1.690	25.36	0.35	46.00	20.64	AV
0.200	33.33	0.40	54.57	21.24	AV
0.320	29.51	0.34	51.14	21.63	AV
0.270	38.30	0.36	62.57	24.27	QP
0.320	36.76	0.34	61.14	24.38	QP
0.270	22.98	0.36	52.57	29.59	AV

AC 120V/60 Hz, Neutral



Frequency (MHz)	Corrected Amplitude (dBµV)	Correction Factor (dB)	Limit (dBµV)	Margin (dB)	Detector (PK/ QP/Ave.)
0.440	44.57	0.22	57.71	13.14	QP
0.520	40.71	0.21	56.00	15.29	QP
0.710	40.43	0.21	56.00	15.57	QP
1.600	39.39	0.25	56.00	16.61	QP
0.520	28.04	0.21	46.00	17.96	AV
0.710	27.24	0.21	46.00	18.76	AV
2.550	36.99	0.27	56.00	19.01	QP
0.440	27.90	0.22	47.71	19.81	AV
2.550	25.55	0.27	46.00	20.45	AV
1.600	25.33	0.25	46.00	20.67	AV
0.190	42.69	0.25	64.86	22.17	QP
0.190	29.69	0.25	54.86	25.17	AV

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

Applicable Standard

FCC §15.247 (d); §15.209; §15.205;

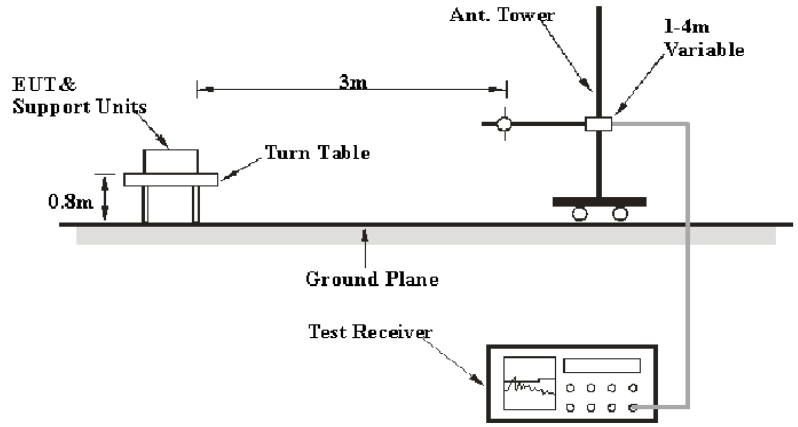
Measurement Uncertainty

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

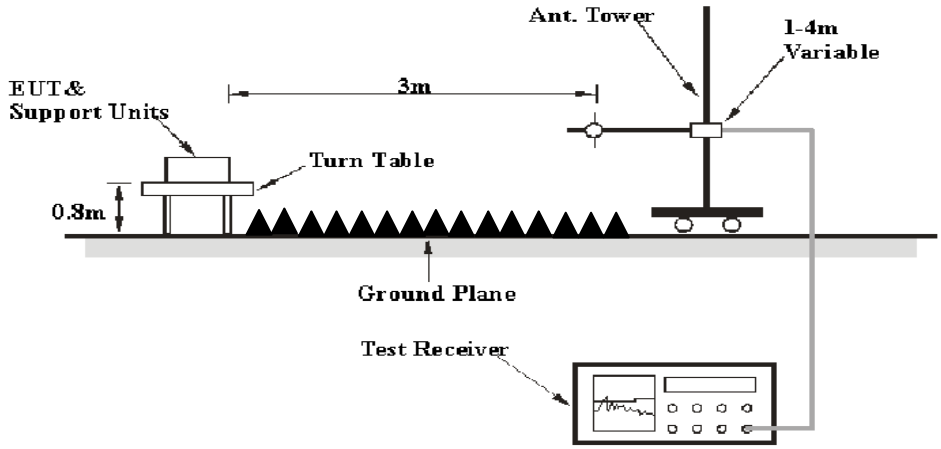
Based on CISPR 16-4-4, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement at Bay Area Compliance Laboratories Corp. (Dongguan) is 4.0 dB(k=2, 95% level of confidence) , and the uncertainty will not be taken into consideration for all the test data recorded in the report.

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 C63.4-2009. 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***	***Detector***
30 MHz – 1000 MHz	100 kHz	300 kHz	QP
1000 MHz – 25 GHz	1 MHz	3 MHz	PK
1000 MHz – 25 GHz	1 MHz	10 Hz	Ave.

Test Procedure

During the radiated emission test, the adapter was connected to the AC floor outlet.

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

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

Corrected Amplitude & Margin Calculation

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

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

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

Margin = Limit – Corrected Amplitude

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCI	100035	2012-05-14	2013-05-13
Sunol Sciences	Hybrid Antennas	JB3	A060611-1	2011-09-06	2013-09-05
HP	Pre-amplifier	8447E	2434A02181	2012-10-08	2013-10-07
R&S	Spectrum Analyzer	FSEM 30	DE31388	2012-03-15	2013-03-14
ETS-LINDGREN	Horn Antenna	3115	000 527 35	2012-09-06	2014-09-05
PICOSECOND	Amplifier	5828	2708	N/A	N/A

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:

3.41 dB at **9848 MHz** in the **Horizontal** polarization of 802.11n20 mode

Test Data

Environmental Conditions

Temperature:	23.8 ° C
Relative Humidity:	55 %
ATM Pressure:	101.2 kPa

The testing was performed by Leon Chen on 2012-12-01.

Mode: Transmitting

802.11b Mode:

Frequency	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	FCC 15.247	
(MHz)	Reading (dBμV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB(1/m))				Limit (dBμV/m)	Margin (dB)
Low Channel:2412MHz									
2412	75.65	AV	H	25.67	3.93	8.50	96.75	N/A	N/A
2412	81.97	PK	H	25.67	3.93	8.50	103.07	N/A	N/A
2412	78.86	AV	V	25.67	3.93	8.50	99.96	N/A	N/A
2412	85.15	PK	V	25.67	3.93	8.50	106.25	N/A	N/A
2390	34.36	PK	V	25.61	3.84	8.50	55.31	74.00	18.69
2390	21.24	AV	V	25.61	3.84	8.50	42.19	54.00	11.81
4824	28.45	PK	V	30.64	4.73	7.36	56.46	74.00	17.54
4824	15.57	AV	V	30.64	4.73	7.36	43.58	54.00	10.42
7236	27.36	PK	H	34.17	6.56	7.08	61.01	74.00	12.99
7236	14.54	AV	H	34.17	6.56	7.08	48.19	54.00	5.81
9648	29.26	PK	H	33.06	8.70	6.90	64.12	74.00	9.88
9648	15.68	AV	H	33.06	8.70	6.90	50.54	54.00	3.46
1404.5	47.49	PK	V	23.35	2.82	8.87	64.79	74.00	9.21
1404.5	23.84	AV	V	23.35	2.82	8.87	41.14	54.00	12.86
269.32	44.03	QP	H	13.65	2.00	21.50	38.18	46.00	7.82
Middle Channel:2437MHz									
2437	75.46	AV	H	25.74	3.98	8.50	96.68	N/A	N/A
2437	81.54	PK	H	25.74	3.98	8.50	102.76	N/A	N/A
2437	78.43	AV	V	25.74	3.98	8.50	99.65	N/A	N/A
2437	84.81	PK	V	25.74	3.98	8.50	106.03	N/A	N/A
4874	28.91	PK	V	30.77	4.76	7.32	57.12	74.00	16.88
4874	15.83	AV	V	30.77	4.76	7.32	44.04	54.00	9.96
7311	27.16	PK	H	34.35	6.70	7.19	61.02	74.00	12.98
7311	14.38	AV	H	34.35	6.70	7.19	48.24	54.00	5.76
9748	29.42	PK	H	33.30	8.60	6.94	64.38	74.00	9.62
9748	15.53	AV	H	33.30	8.60	6.94	50.49	54.00	3.51
1404.1	46.83	PK	V	23.35	2.81	8.87	64.12	74.00	9.88
1404.1	23.73	AV	V	23.35	2.81	8.87	41.02	54.00	12.98
6987.9	30.45	PK	H	33.57	6.09	9.11	61.00	74.00	13.00
6987.9	17.24	AV	H	33.57	6.09	9.11	47.79	54.00	6.21
269.59	43.89	QP	H	13.67	1.99	21.50	38.05	46.00	7.95
High Channel:2462MHz									
2462	75.51	AV	H	25.80	3.93	8.50	96.74	N/A	N/A
2462	81.72	PK	H	25.80	3.93	8.50	102.95	N/A	N/A
2462	78.52	AV	V	25.80	3.93	8.50	99.75	N/A	N/A
2462	84.98	PK	V	25.80	3.93	8.50	106.21	N/A	N/A
2483.5	37.86	PK	V	25.86	3.80	8.50	59.02	74.00	14.98
2483.5	23.9	AV	V	25.86	3.80	8.50	45.06	54.00	8.94
4924	28.83	PK	V	30.90	4.70	7.27	57.16	74.00	16.84
4924	15.75	AV	V	30.90	4.70	7.27	44.08	54.00	9.92
7386	27.47	PK	H	34.53	6.84	7.30	61.54	74.00	12.46
7386	14.21	AV	H	34.53	6.84	7.30	48.28	54.00	5.72
9848	29.23	PK	H	33.54	8.49	6.97	64.29	74.00	9.71
9848	15.42	AV	H	33.54	8.49	6.97	50.48	54.00	3.52
1403.8	47.43	PK	V	23.35	2.81	8.87	64.72	74.00	9.28
1403.8	24.99	AV	V	23.35	2.81	8.87	42.28	54.00	11.72
270.13	43.92	QP	H	13.69	1.98	21.50	38.09	46.00	7.91

802.11g Mode:

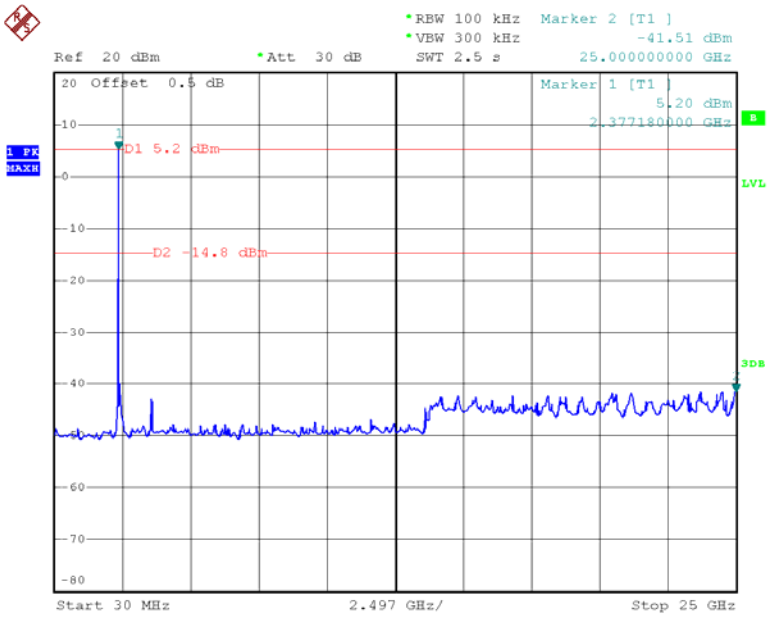
Frequency	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	FCC 15.247	
(MHz)	Reading (dBμV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB(1/m))				Limit (dBμV/m)	Margin (dB)
Low Channel:2412MHz									
2412	68.33	AV	H	25.67	3.93	8.50	89.43	N/A	N/A
2412	80.95	PK	H	25.67	3.93	8.50	102.05	N/A	N/A
2412	71.6	AV	V	25.67	3.93	8.50	92.70	N/A	N/A
2412	85.05	PK	V	25.67	3.93	8.50	106.15	N/A	N/A
2390	38.99	PK	V	25.61	3.84	8.50	59.94	74.00	14.06
2390	20.66	AV	V	25.61	3.84	8.50	41.61	54.00	12.39
4824	28.91	PK	V	30.64	4.73	7.36	56.92	74.00	17.08
4824	15.23	AV	V	30.64	4.73	7.36	43.24	54.00	10.76
7236	27.13	PK	H	34.17	6.56	7.08	60.78	74.00	13.22
7236	14.05	AV	H	34.17	6.56	7.08	47.70	54.00	6.30
9648	29.48	PK	H	33.06	8.70	6.90	64.34	74.00	9.66
9648	15.32	AV	H	33.06	8.70	6.90	50.18	54.00	3.82
1398.7	44.02	PK	V	23.34	2.81	8.87	61.30	74.00	12.70
1398.7	23.67	AV	V	23.34	2.81	8.87	40.95	54.00	13.05
269.32	43.97	QP	H	13.65	2.00	21.50	38.12	46.00	7.88
Middle Channel:2437MHz									
2437	68.27	AV	H	25.74	3.98	8.50	89.49	N/A	N/A
2437	80.75	PK	H	25.74	3.98	8.50	101.97	N/A	N/A
2437	71.15	AV	V	25.74	3.98	8.50	92.37	N/A	N/A
2437	84.86	PK	V	25.74	3.98	8.50	106.08	N/A	N/A
4874	28.88	PK	V	30.77	4.76	7.32	57.09	74.00	16.91
4874	15.34	AV	V	30.77	4.76	7.32	43.55	54.00	10.45
7311	27.13	PK	H	34.35	6.70	7.19	60.99	74.00	13.01
7311	14.08	AV	H	34.35	6.70	7.19	47.94	54.00	6.06
9748	29.38	PK	H	33.30	8.60	6.94	64.34	74.00	9.66
9748	15.52	AV	H	33.30	8.60	6.94	50.48	54.00	3.52
1399.3	45.41	PK	V	23.34	2.81	8.87	62.69	74.00	11.31
1399.3	23.84	AV	V	23.34	2.81	8.87	41.12	54.00	12.88
6980.8	32.33	PK	H	33.55	6.08	9.11	62.85	74.00	11.15
6980.8	17.12	AV	H	33.55	6.08	9.11	47.64	54.00	6.36
269.59	43.94	QP	H	13.67	1.99	21.50	38.10	46.00	7.90
High Channel:2462MHz									
2462	68.36	AV	H	25.80	3.93	8.50	89.59	N/A	N/A
2462	81.03	PK	H	25.80	3.93	8.50	102.26	N/A	N/A
2462	71.26	AV	V	25.80	3.93	8.50	92.49	N/A	N/A
2462	85.09	PK	V	25.80	3.93	8.50	106.32	N/A	N/A
2483.5	48.21	PK	V	25.86	3.80	8.50	69.37	74.00	4.63
2483.5	25.77	AV	V	25.86	3.80	8.50	46.93	54.00	7.07
4924	28.74	PK	V	30.90	4.70	7.27	57.07	74.00	16.93
4924	15.29	AV	V	30.90	4.70	7.27	43.62	54.00	10.38
7386	27.46	PK	H	34.53	6.84	7.30	61.53	74.00	12.47
7386	14.59	AV	H	34.53	6.84	7.30	48.66	54.00	5.34
9848	29.31	PK	H	33.54	8.49	6.97	64.37	74.00	9.63
9848	15.09	AV	H	33.54	8.49	6.97	50.15	54.00	3.85
1398.2	45.51	PK	V	23.34	2.81	8.87	62.79	74.00	11.21
1398.2	23.89	AV	V	23.34	2.81	8.87	41.17	54.00	12.83
270.13	43.72	QP	H	13.69	1.98	21.50	37.89	46.00	8.11

802.11n20 Mode:

Frequency	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	FCC 15.247	
(MHz)	Reading (dBμV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB(1/m))				Limit (dBμV/m)	Margin (dB)
Low Channel:2412MHz									
2412	67.73	AV	H	25.67	3.93	8.50	88.83	N/A	N/A
2412	80.44	PK	H	25.67	3.93	8.50	101.54	N/A	N/A
2412	70.27	AV	V	25.67	3.93	8.50	91.37	N/A	N/A
2412	83.97	PK	V	25.67	3.93	8.50	105.07	N/A	N/A
2390	39.25	PK	V	25.61	3.84	8.50	60.20	74.00	13.80
2390	19.71	AV	V	25.61	3.84	8.50	40.66	54.00	13.34
4824	28.31	PK	V	30.64	4.73	7.36	56.32	74.00	17.68
4824	14.45	AV	V	30.64	4.73	7.36	42.46	54.00	11.54
7236	27.32	PK	H	34.17	6.56	7.08	60.97	74.00	13.03
7236	14.26	AV	H	34.17	6.56	7.08	47.91	54.00	6.09
9648	29.19	PK	H	33.06	8.70	6.90	64.05	74.00	9.95
9648	15.42	AV	H	33.06	8.70	6.90	50.28	54.00	3.72
1403.2	38.47	PK	V	23.35	2.81	8.87	55.76	74.00	18.24
1403.2	21.94	AV	V	23.35	2.81	8.87	39.23	54.00	14.77
269.32	44.18	QP	H	13.65	2.00	21.50	38.33	46.00	7.67
Middle Channel:2437MHz									
2437	67.49	AV	H	25.74	3.98	8.50	88.71	N/A	N/A
2437	79.77	PK	H	25.74	3.98	8.50	100.99	N/A	N/A
2437	69.64	AV	V	25.74	3.98	8.50	90.86	N/A	N/A
2437	82.94	PK	V	25.74	3.98	8.50	104.16	N/A	N/A
4874	28.21	PK	V	30.77	4.76	7.32	56.42	74.00	17.58
4874	14.34	AV	V	30.77	4.76	7.32	42.55	54.00	11.45
7311	27.17	PK	H	34.35	6.70	7.19	61.03	74.00	12.97
7311	14.28	AV	H	34.35	6.70	7.19	48.14	54.00	5.86
9748	29.37	PK	H	33.30	8.60	6.94	64.33	74.00	9.67
9748	15.59	AV	H	33.30	8.60	6.94	50.55	54.00	3.45
1404.1	39.44	PK	V	23.35	2.81	8.87	56.73	74.00	17.27
1404.1	23.53	AV	V	23.35	2.81	8.87	40.82	54.00	13.18
6981.1	31.58	PK	H	33.55	6.08	9.11	62.10	74.00	11.90
6981.1	18.74	AV	H	33.55	6.08	9.11	49.26	54.00	4.74
269.59	43.91	QP	H	13.67	1.99	21.50	38.07	46.00	7.93
High Channel:2462MHz									
2462	67.51	AV	H	25.80	3.93	8.50	88.74	N/A	N/A
2462	79.87	PK	H	25.80	3.93	8.50	101.10	N/A	N/A
2462	69.58	AV	V	25.80	3.93	8.50	90.81	N/A	N/A
2462	82.91	PK	V	25.80	3.93	8.50	104.14	N/A	N/A
2483.5	45.75	PK	V	25.86	3.80	8.50	66.91	74.00	7.09
2483.5	22.7	AV	V	25.86	3.80	8.50	43.86	54.00	10.14
4924	28.15	PK	V	30.90	4.70	7.27	56.48	74.00	17.52
4924	14.51	AV	V	30.90	4.70	7.27	42.84	54.00	11.16
7386	27.15	PK	H	34.53	6.84	7.30	61.22	74.00	12.78
7386	14.37	AV	H	34.53	6.84	7.30	48.44	54.00	5.56
9848	29.24	PK	H	33.54	8.49	6.97	64.30	74.00	9.70
9848	15.53	AV	H	33.54	8.49	6.97	50.59	54.00	3.41
1404.1	39.51	PK	V	23.35	2.81	8.87	56.80	74.00	17.20
1404.1	23.64	AV	V	23.35	2.81	8.87	40.93	54.00	13.07
270.13	43.87	QP	H	13.69	1.98	21.50	38.04	46.00	7.96

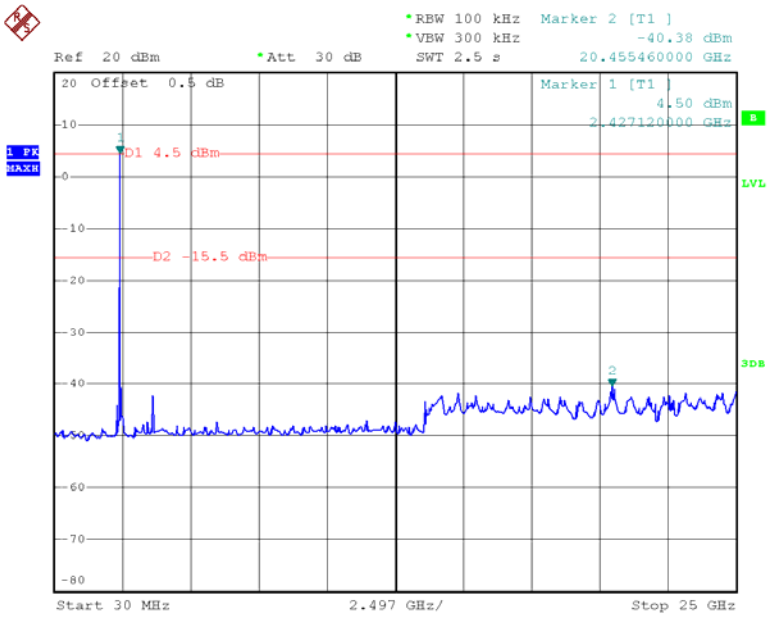
Conducted Spurious Emissions at Antenna Port

802.11b Low Channel



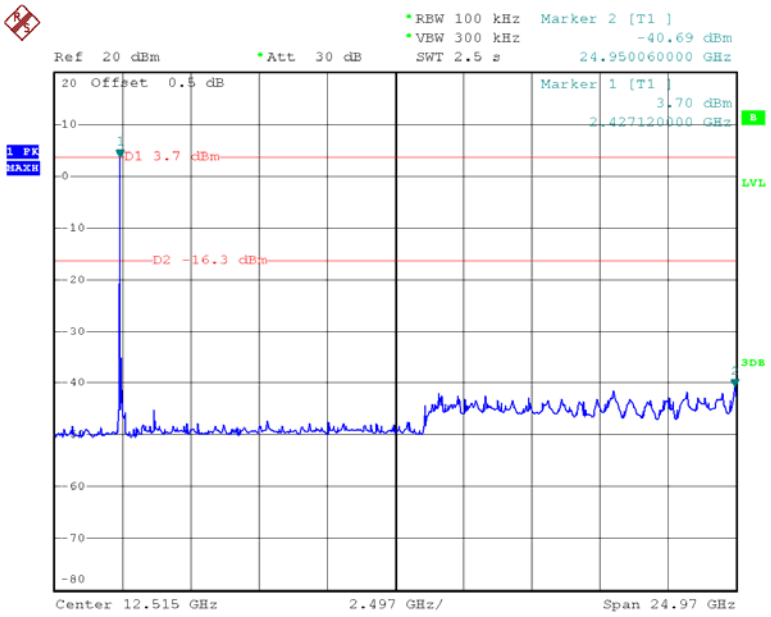
Date: 1.DEC.2012 14:28:54

802.11b Middle Channel



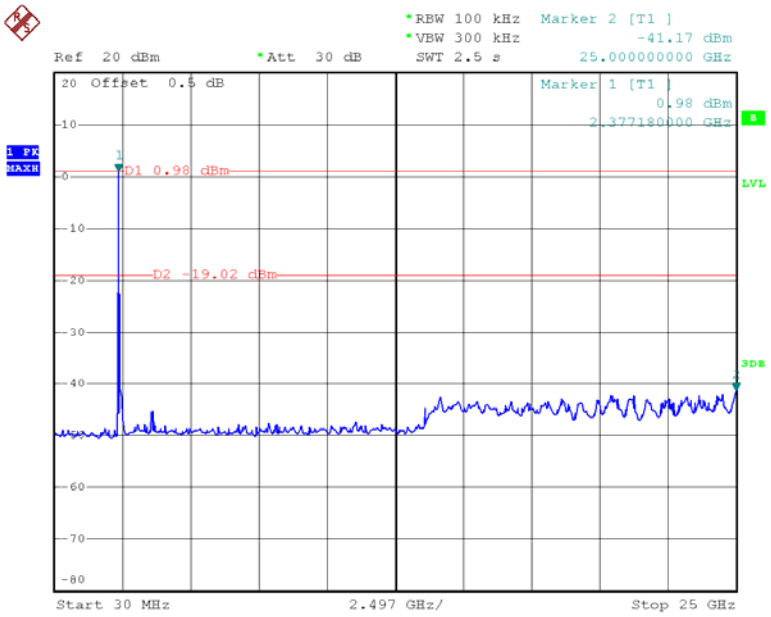
Date: 1.DEC.2012 14:30:16

802.11b High Channel



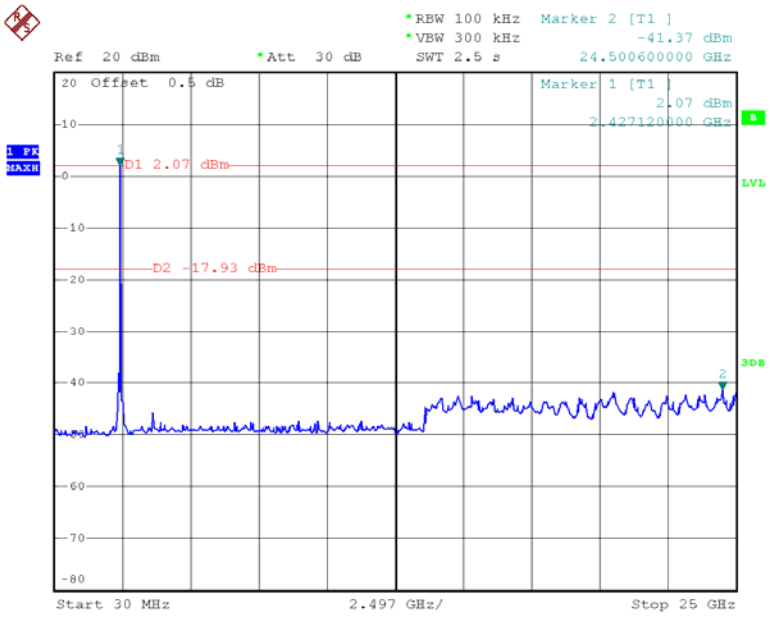
Date: 1.DEC.2012 14:43:42

802.11g Low Channel



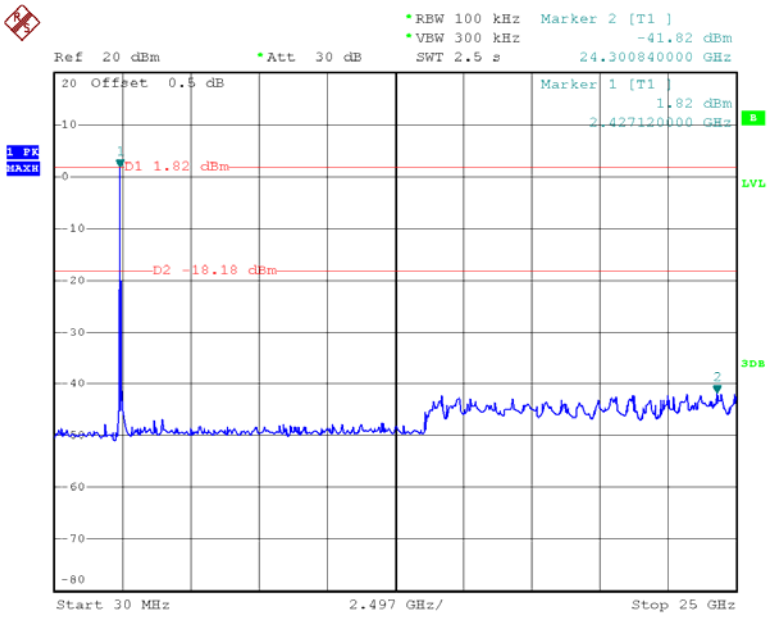
Date: 1.DEC.2012 15:20:04

802.11g Middle Channel



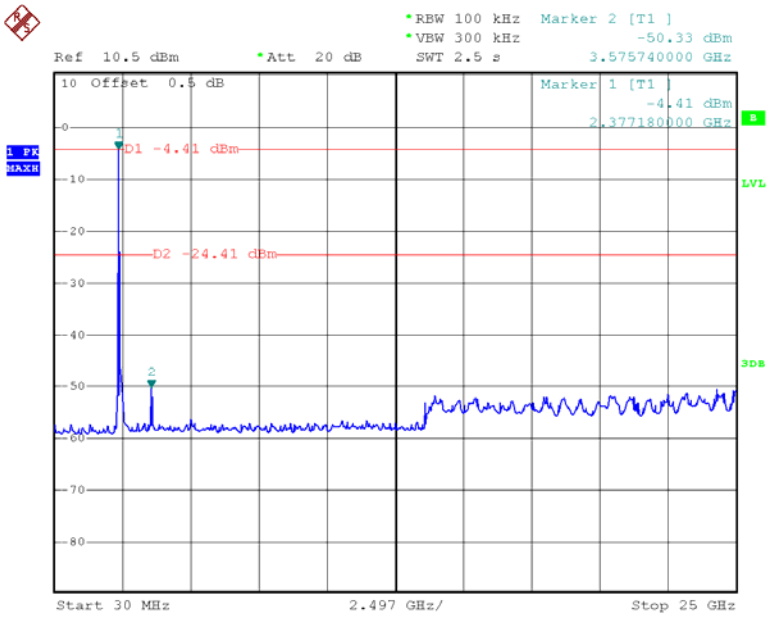
Date: 1.DEC.2012 14:59:33

802.11g High Channel



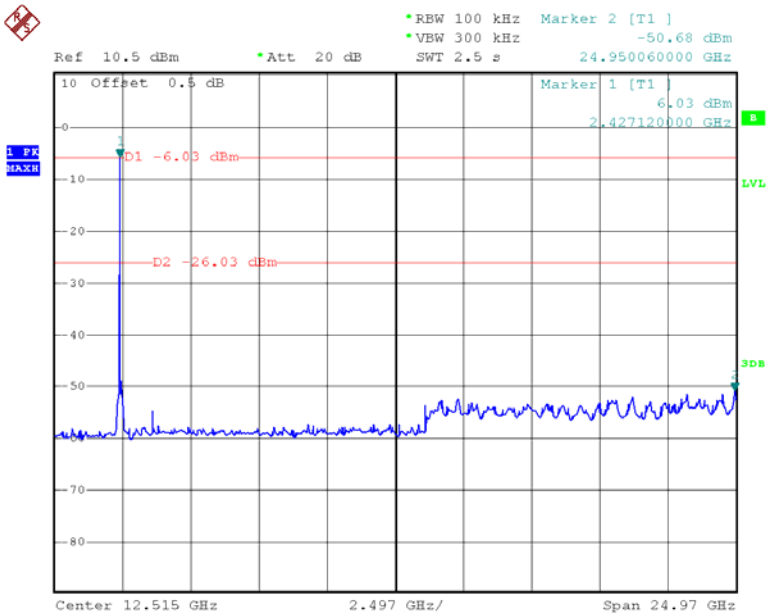
Date: 1.DEC.2012 14:57:42

802.11n20 Low Channel



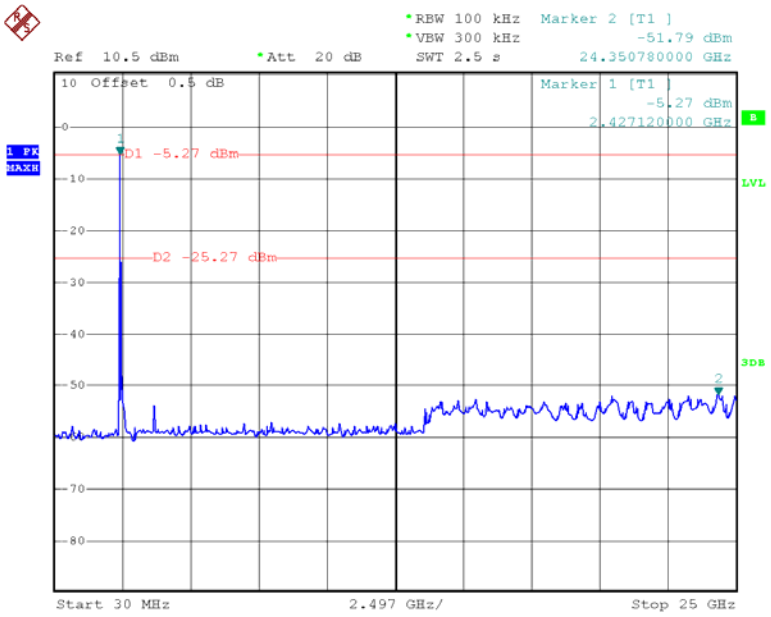
Date: 1.DEC.2012 15:51:38

802.11n20 Middle Channel



Date: 1.DEC.2012 15:52:44

802.11n20 High Channel



Date: 1.DEC.2012 15:59:57

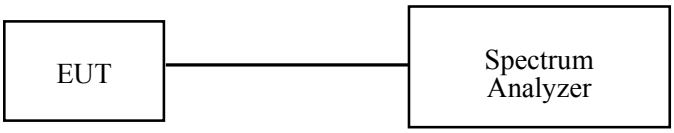
FCC §15.247(a) (2) – 6 dB EMISSION BANDWIDTH

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
Rohde & Schwarz	Spectrum Analyzer	FSP38	100478	2012-5-14	2013-5-13

Test Data

Environmental Conditions

Temperature:	23.8 ° C
Relative Humidity:	55 %
ATM Pressure:	101.2 kPa

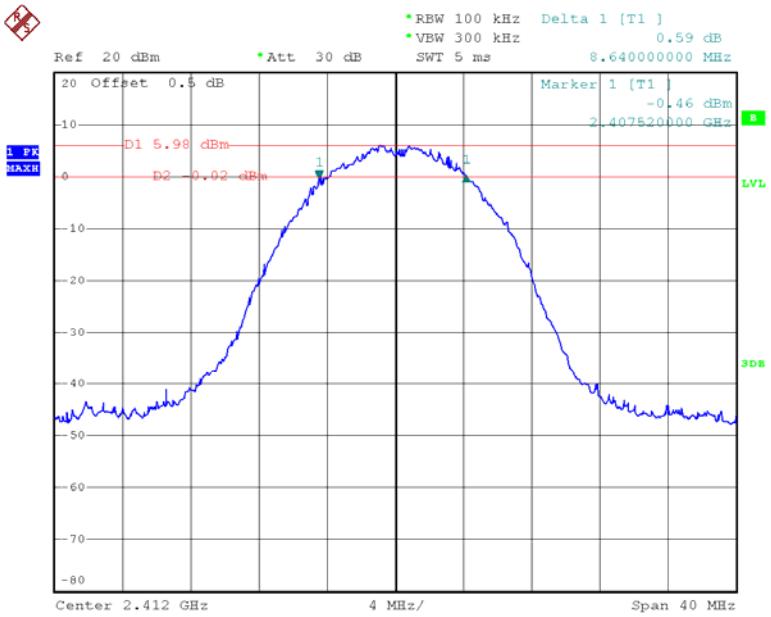
The testing was performed by Leon Chen on 2012-12-01.

Test Result: Pass.

Please refer to the following tables and plots.

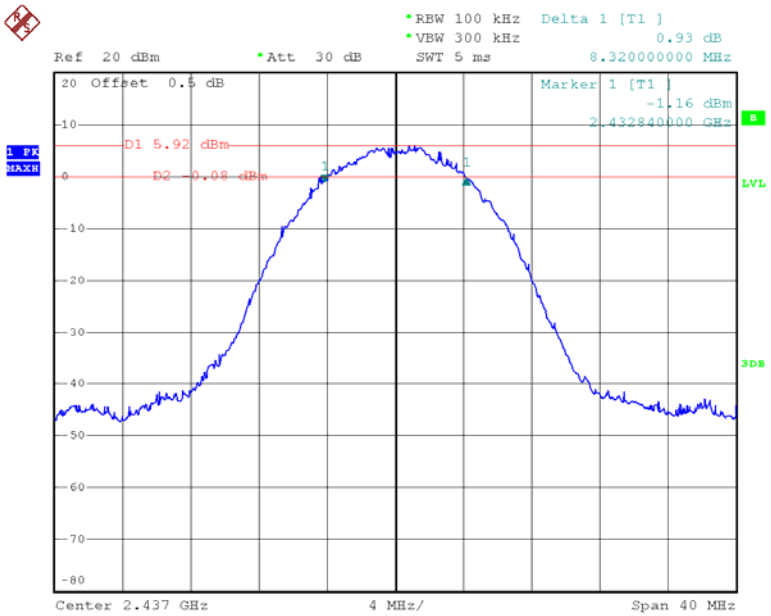
Channel	Frequency	6 dB Bandwidth	Limit
	(MHz)	(MHz)	(kHz)
802.11b mode			
Low	2412	8.64	>500
Middle	2437	8.32	>500
High	2462	8.32	>500
802.11g mode			
Low	2412	16.48	>500
Middle	2437	16.16	>500
High	2462	16.48	>500
802.11n20 mode			
Low	2412	17.36	>500
Middle	2437	17.12	>500
High	2462	17.12	>500

802.11b Low Channel



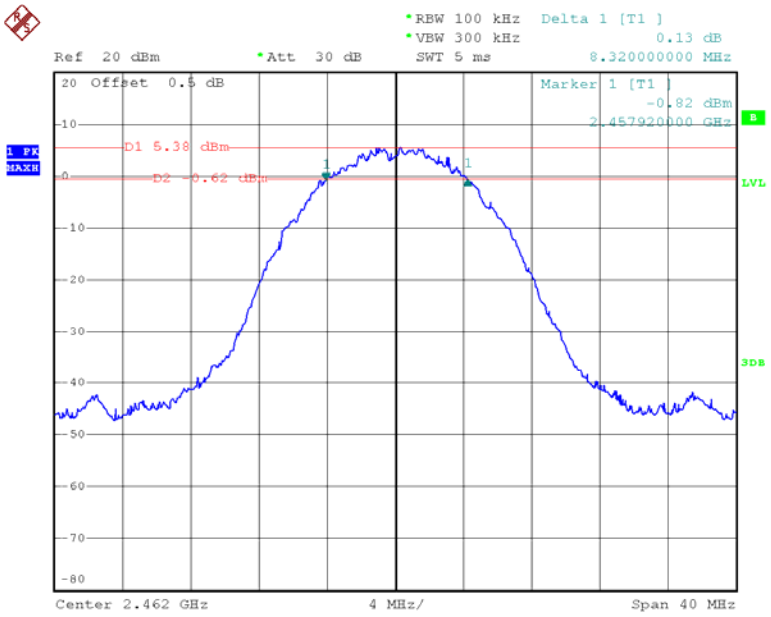
Date: 1.DEC.2012 14:23:20

802.11b Middle Channel



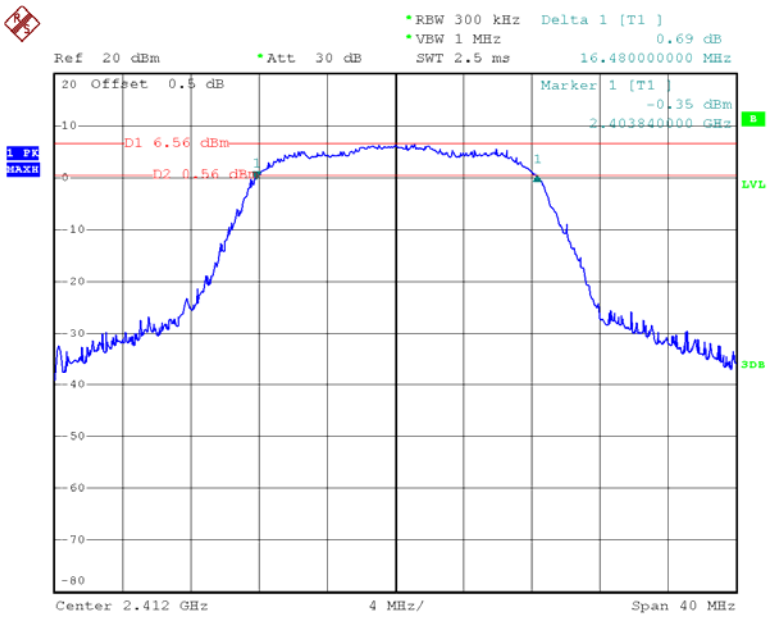
Date: 1.DEC.2012 14:31:29

802.11b High Channel



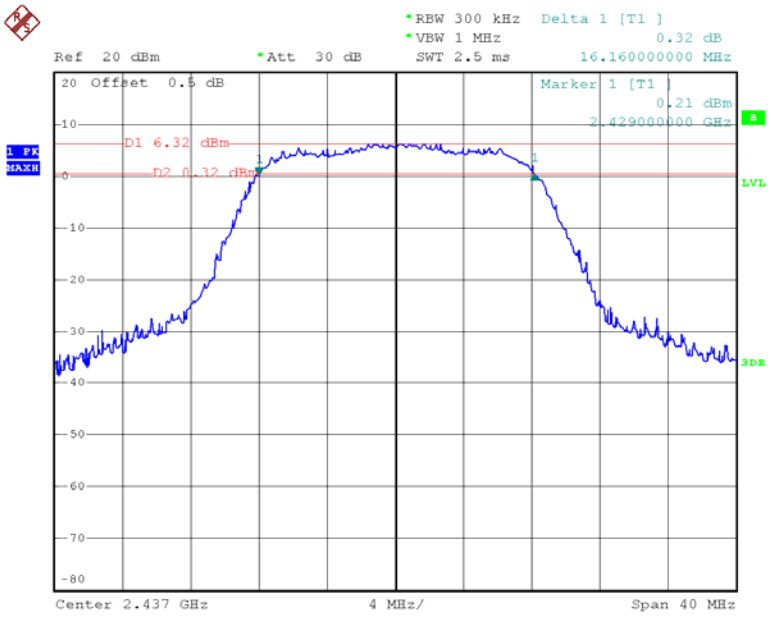
Date: 1.DEC.2012 14:44:44

802.11g Low Channel



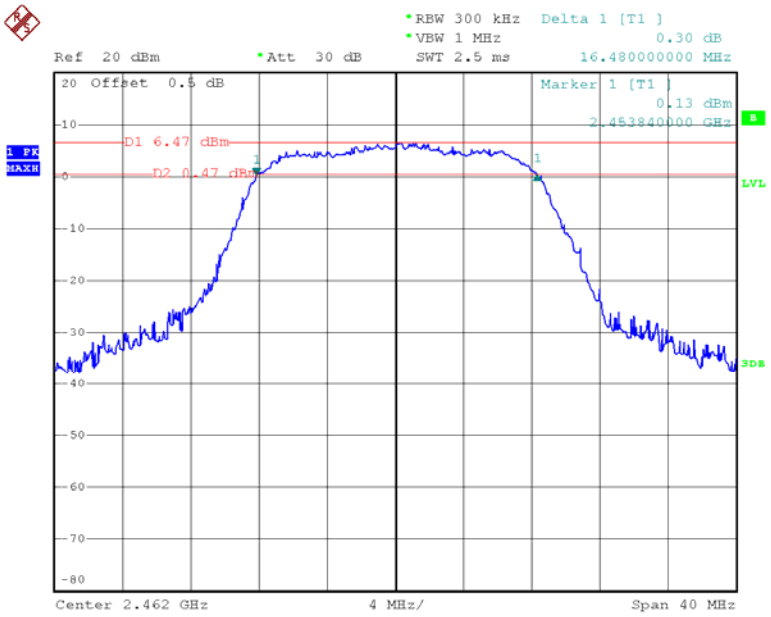
Date: 1.DEC.2012 15:05:17

802.11g Middle Channel



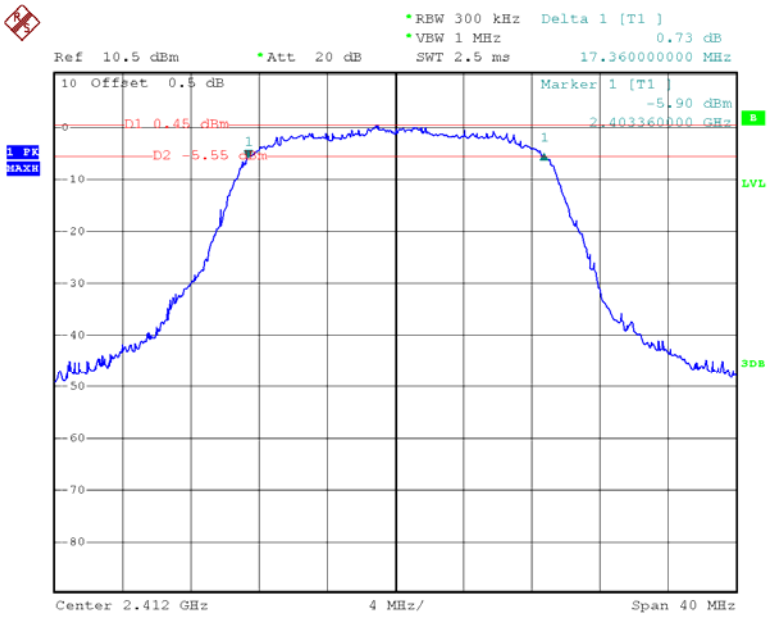
Date: 1.DEC.2012 15:01:10

802.11g High Channel



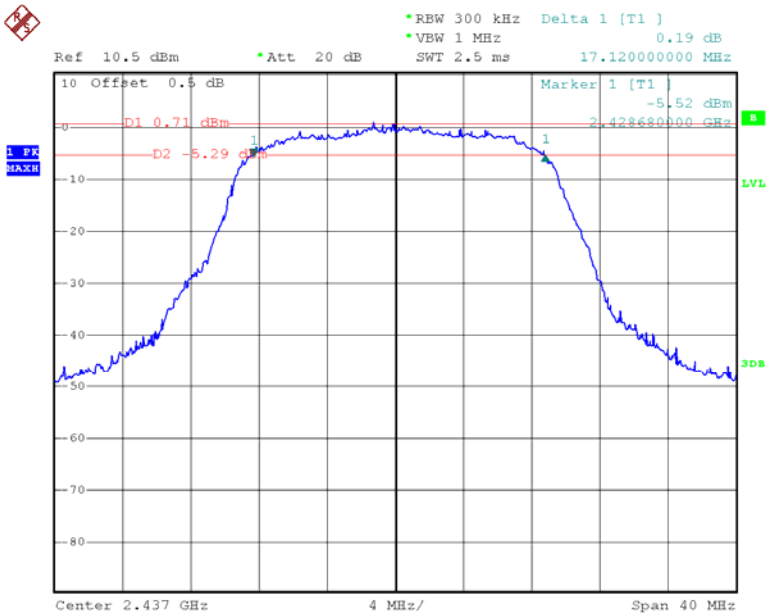
Date: 1.DEC.2012 14:52:53

802.11n20 Low Channel



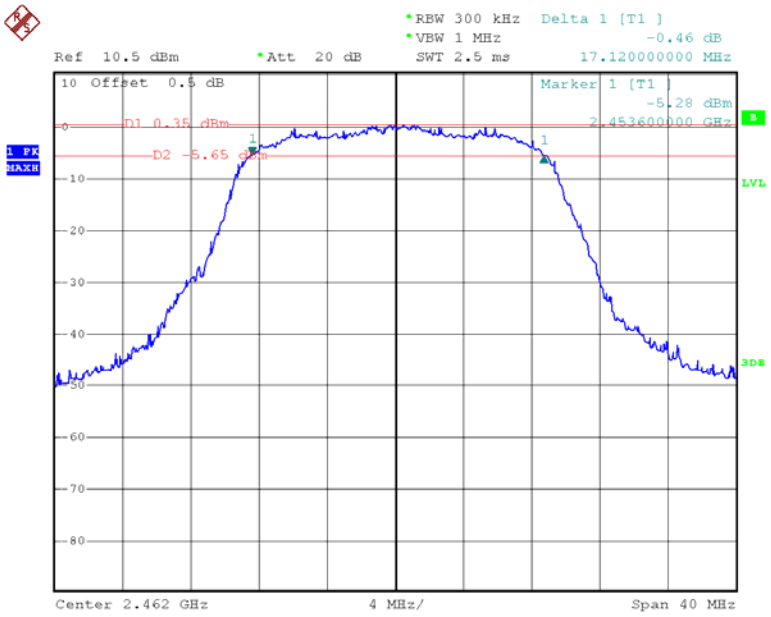
Date: 1.DEC.2012 15:41:34

802.11n20 Middle Channel



Date: 1.DEC.2012 15:54:32

802.11n20 High Channel



Date: 1.DEC.2012 15:57:10

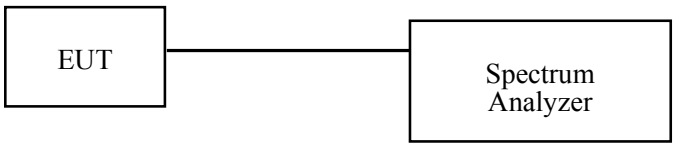
FCC §15.247(b) (3) - MAXIMUM PEAK OUTPUT POWER

Applicable Standard

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

Test Procedure

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



Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Spectrum Analyzer	FSP38	100478	2012-5-14	2013-5-13

Test Data

Environmental Conditions

Temperature:	22.9 ° C
Relative Humidity:	57 %
ATM Pressure:	101.2 kPa

The testing was performed by Leon Chen on 2012-12-01.

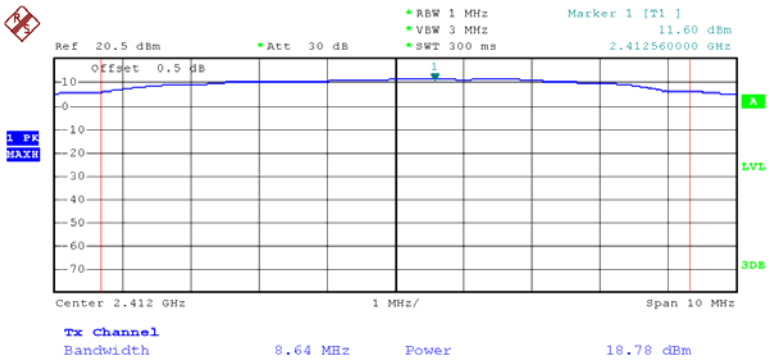
Test Mode: Transmitting

Channel	Frequency	Conducted Output Power	Limit	Result
	(MHz)	(dBm)	(dBm)	
802.11b mode				
Low	2412 MHz	18.78	30	PASS
Middle	2437 MHz	18.64	30	PASS
High	2462 MHz	18.67	30	PASS
802.11g mode				
Low	2412 MHz	16.15	30	PASS
Middle	2437 MHz	16.21	30	PASS
High	2462 MHz	16.21	30	PASS
802.11n20 mode				
Low	2412 MHz	16.16	30	PASS
Middle	2437 MHz	16.09	30	PASS
High	2462 MHz	16.18	30	PASS

The antenna gain is 1.0 dBi.

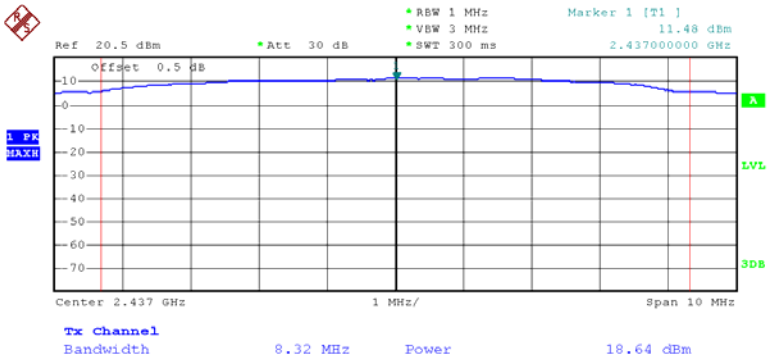
Please refer to the following plots

802.11b RF Output Power, Low Channel



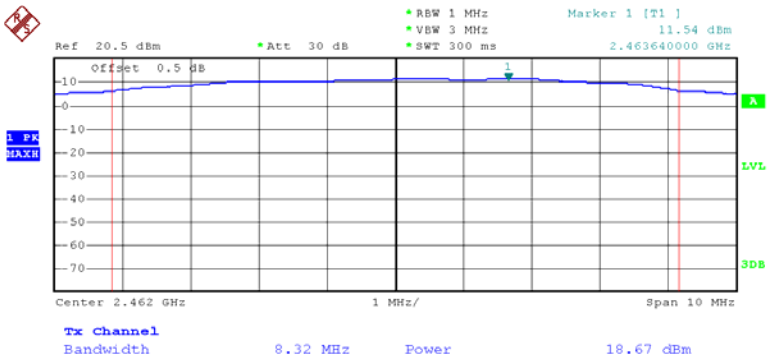
Date: 1.DEC.2012 14:25:22

802.11b RF Output Power, Middle Channel



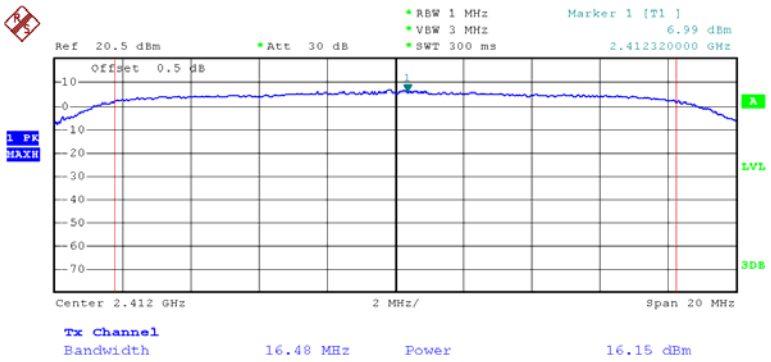
Date: 1.DEC.2012 14:31:59

802.11b RF Output Power, High Channel



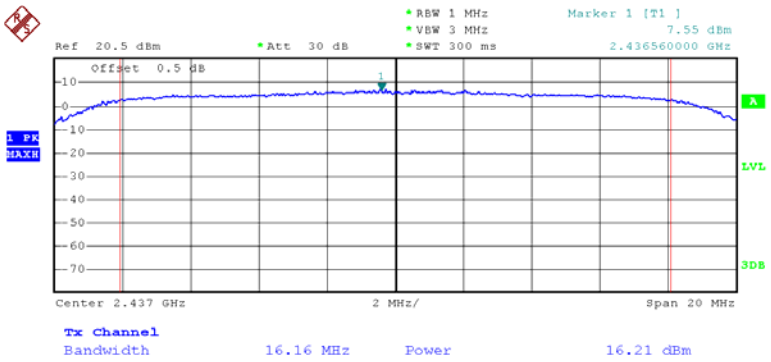
Date: 1.DEC.2012 14:44:54

802.11g RF Output Power, Low Channel



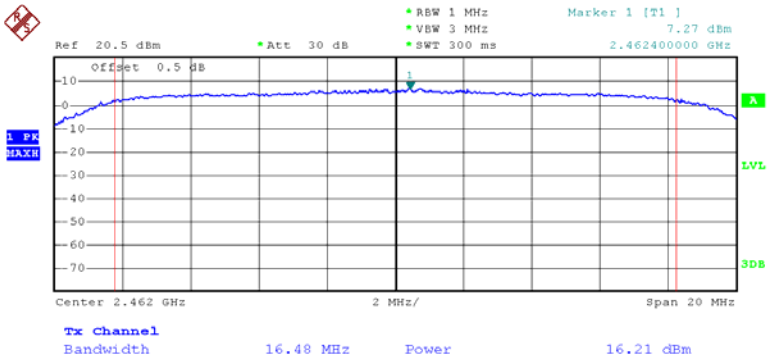
Date: 1.DEC.2012 15:27:04

802.11g RF Output Power, Middle Channel



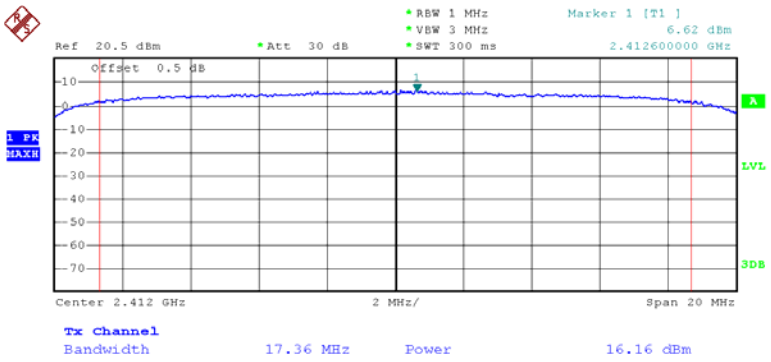
Date: 1.DEC.2012 15:28:21

802.11g RF Output Power, High Channel



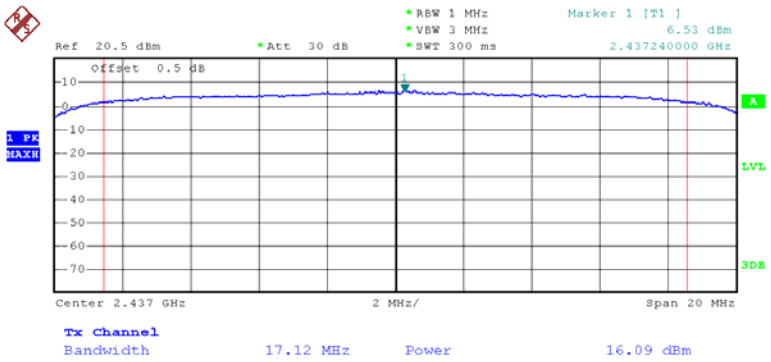
Date: 1.DEC.2012 15:29:38

802.11n20 RF Output Power, Low Channel



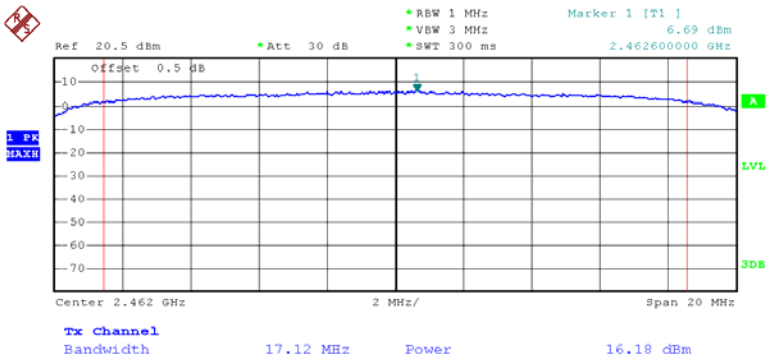
Date: 1.DEC.2012 15:42:57

802.11n20 RF Output Power, Middle Channel



Date: 1.DEC.2012 15:55:17

802.11n20 RF Output Power, High Channel



Date: 1.DEC.2012 15:57:37

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
Rohde & Schwarz	Spectrum Analyzer	FSP38	100478	2012-5-14	2013-5-13

Test Data

Environmental Conditions

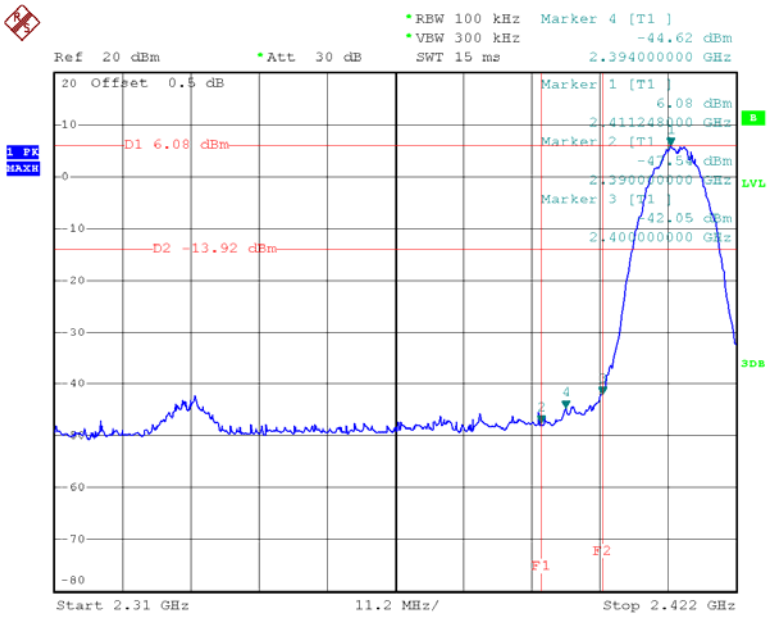
Temperature:	26.7 ° C
Relative Humidity:	59 %
ATM Pressure:	100.9kPa

The testing was performed by Leon Chen on 2012-12-0 1.

Test Result: *Compliance*

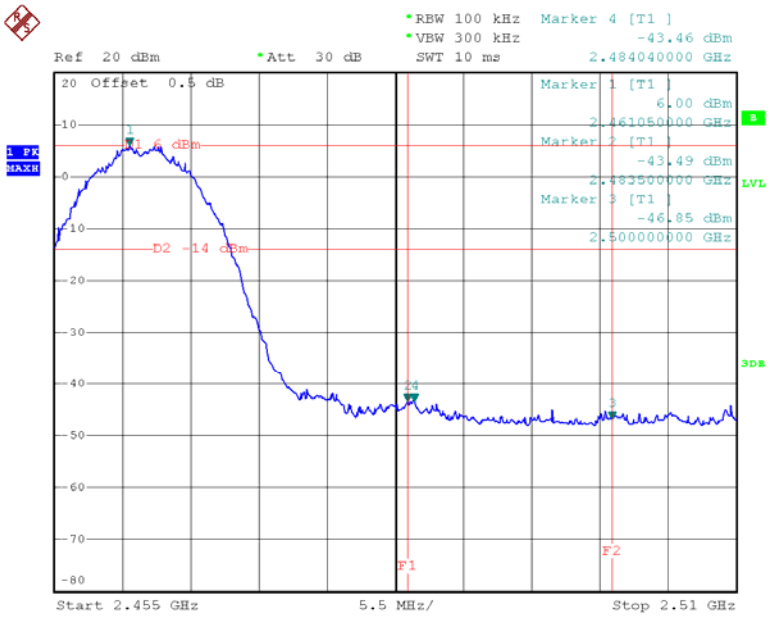
Please refer to following plots.

802.11b: Band Edge, Left Side



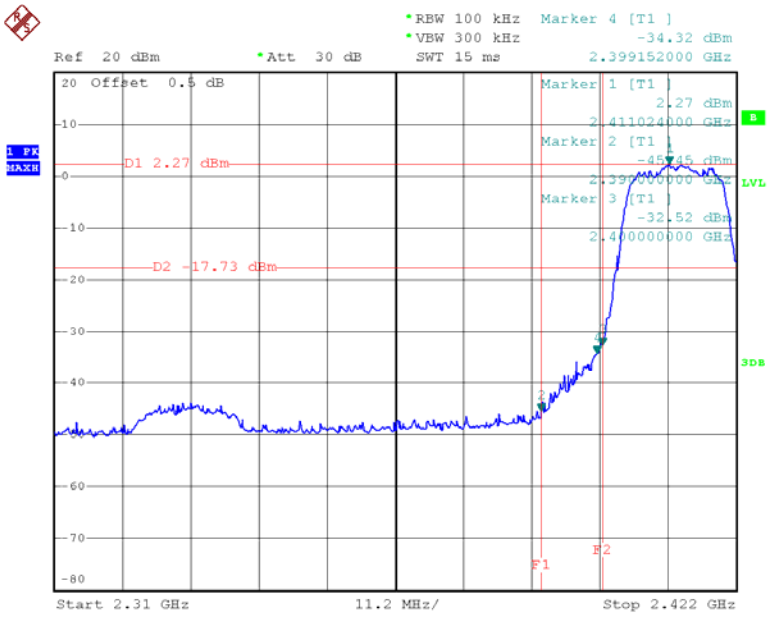
Date: 1.DEC.2012 14:28:07

802.11b: Band Edge, Right Side



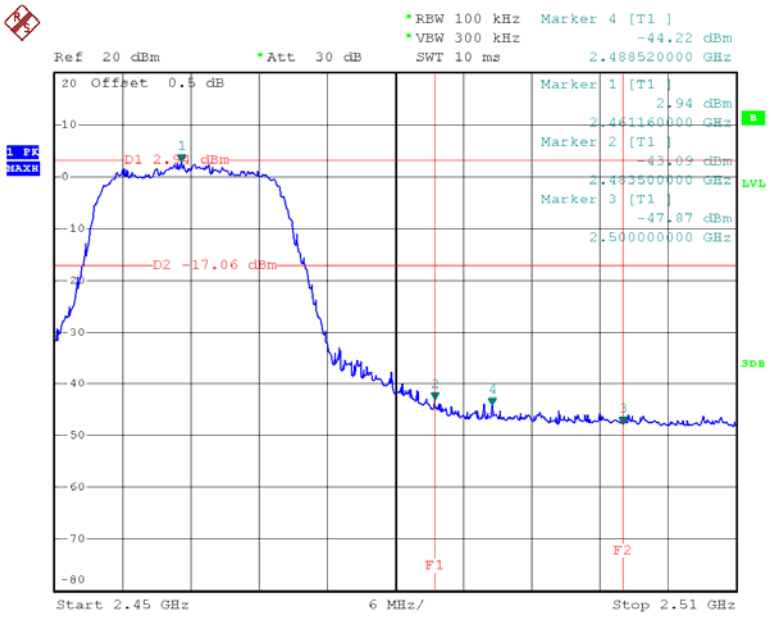
Date: 1.DEC.2012 14:47:52

802.11g: Band Edge, Left Side



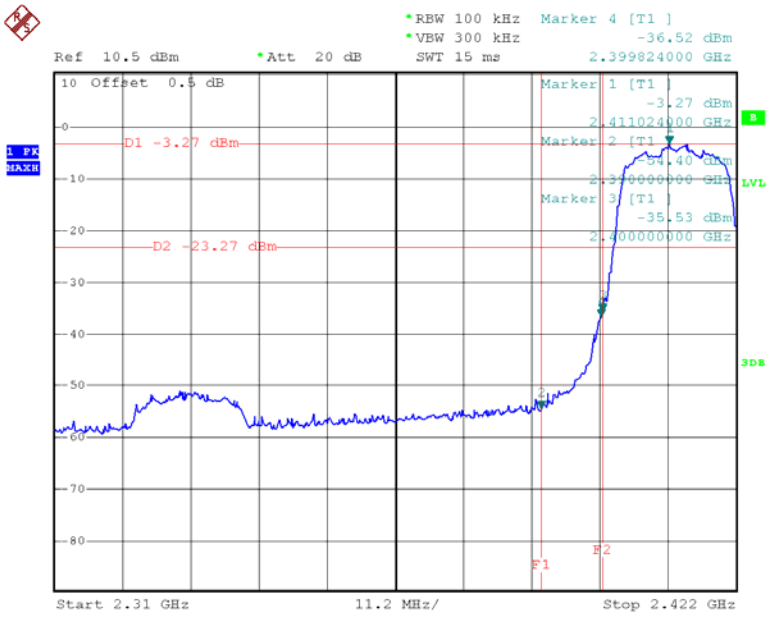
Date: 1.DEC.2012 15:07:58

802.11g: Band Edge, Right Side



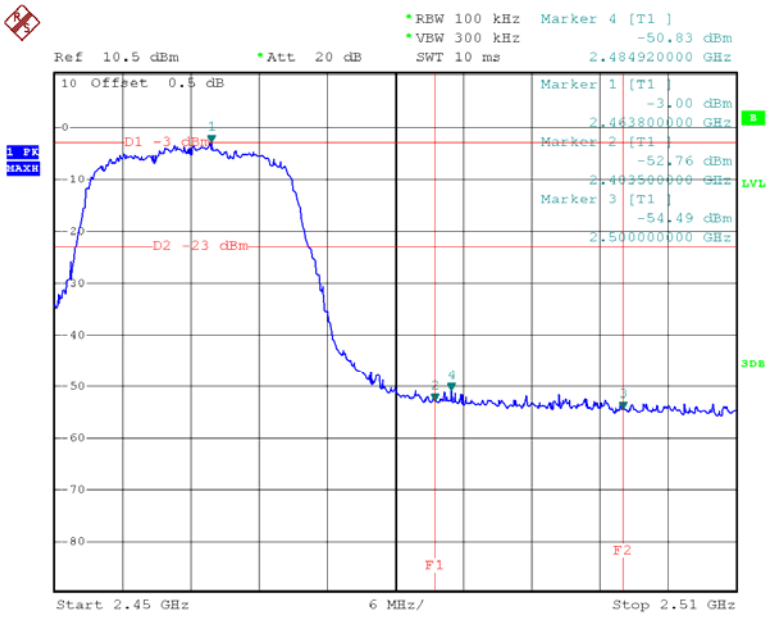
Date: 1.DEC.2012 14:56:41

802.11n20: Band Edge, Left Side



Date: 1.DEC.2012 15:45:39

802.11n20: Band Edge, Right Side



Date: 1.DEC.2012 15:59:11

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. According to KDB 558074 D01 DTS Meas Guidance v01, set the RBW = 100 kHz, VBW ≥ 300 kHz, set the span to 5-30 % greater than the EBW.
4. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.
5. Scale the observed power level to an equivalent value in 3 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where BWCF = 10log (3 kHz/100 kHz = -15.2 dB).

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Spectrum Analyzer	FSP38	100478	2012-5-14	2013-5-13

Test Data

Environmental Conditions

Temperature:	22.9 ° C
Relative Humidity:	57 %
ATM Pressure:	101.2kPa

The testing was performed by Leon Chen on 2012-12-01.

Test Mode: Transmitting

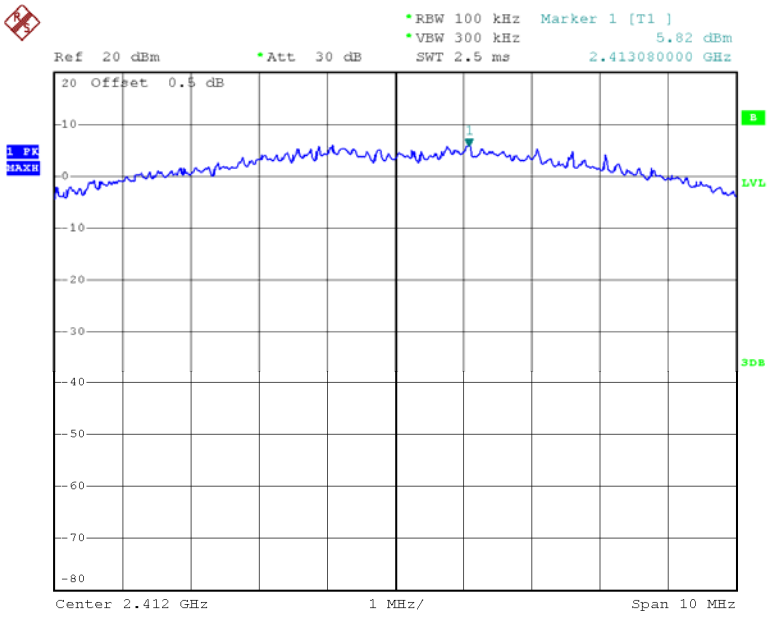
Test Result: Pass

Channel	Reading Level (dBm/100kHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Result
802.11b mode				
Low	5.82	-9.38	8	PASS
Middle	5.81	-9.39	8	PASS
High	5.50	-9.70	8	PASS
802.11g mode				
Low	-3.57	-18.77	8	PASS
Middle	-3.51	-18.71	8	PASS
High	-3.45	-18.65	8	PASS
802.11n20 mode				
Low	-3.40	-18.60	8	PASS
Middle	-3.70	-18.90	8	PASS
High	-3.54	-18.74	8	PASS

Note: the antenna gain is 1.0 dBi.

Please refer to the following plots

Power Spectral Density, 802.11b Low Channel



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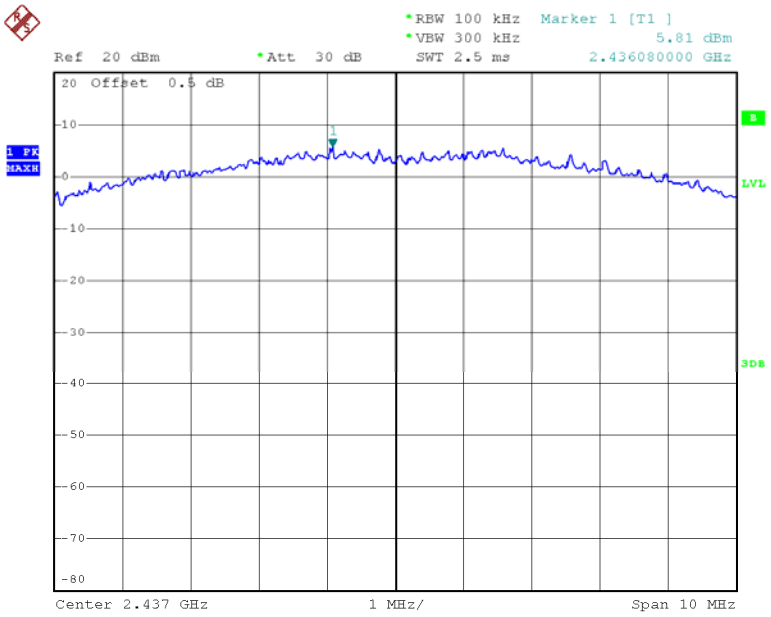
Power Spectral Density, 802.11b Middle Channel



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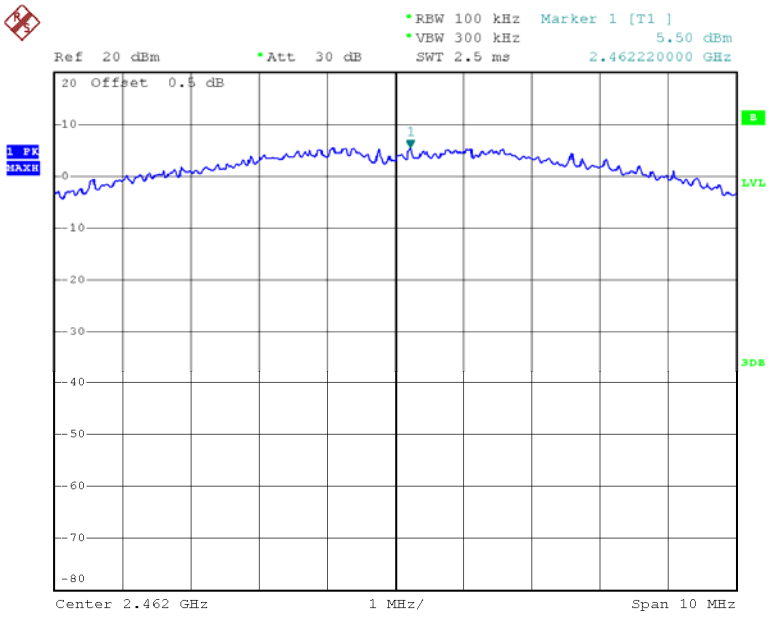
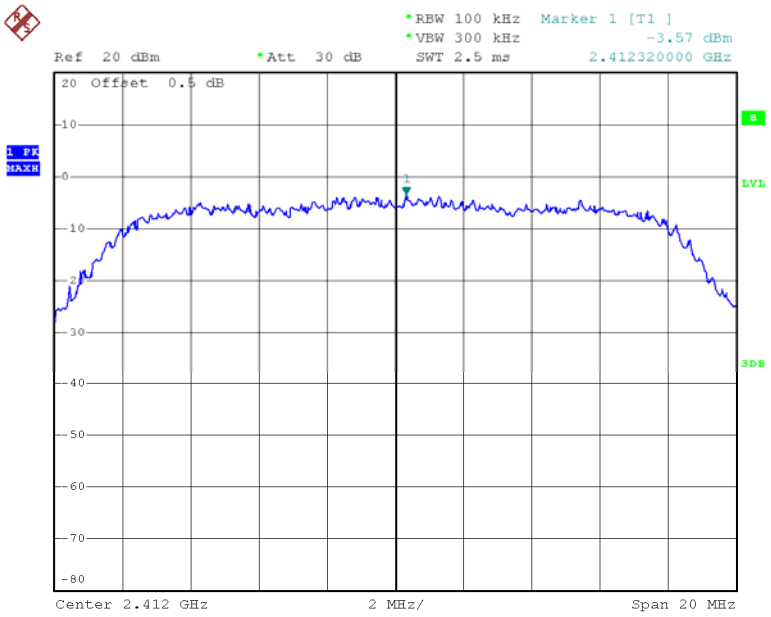
Power Spectral Density, 802.11b High Channel



Date: 1.DEC.2012 14:45:54

Power Spectral Density, 802.11g Low Channel



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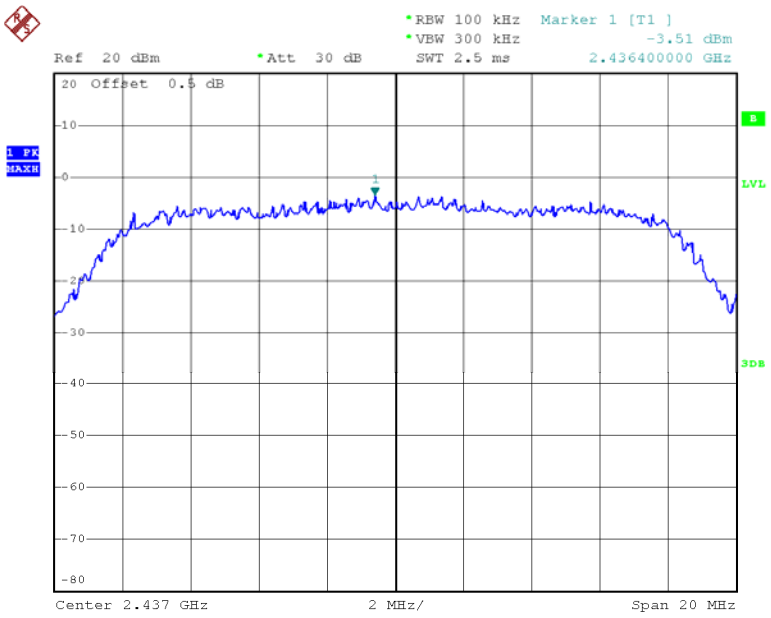
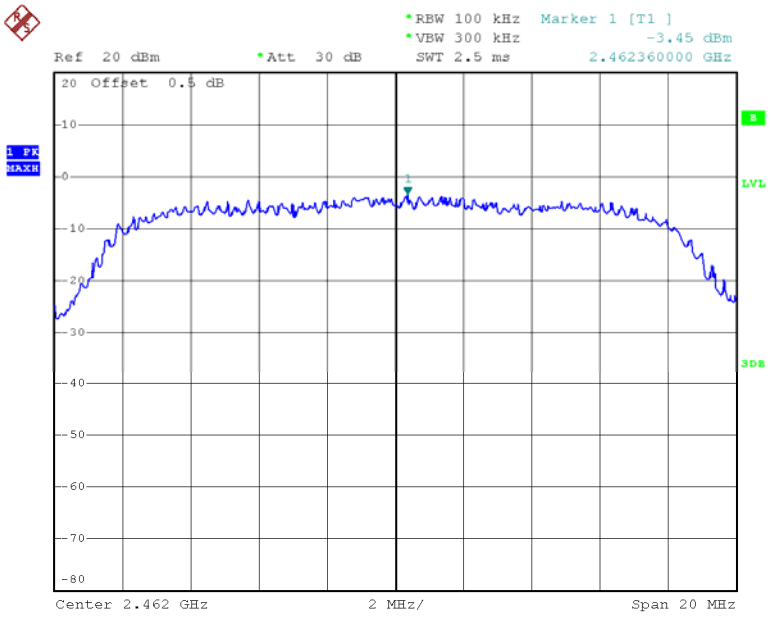
Power Spectral Density, 802.11g Middle Channel



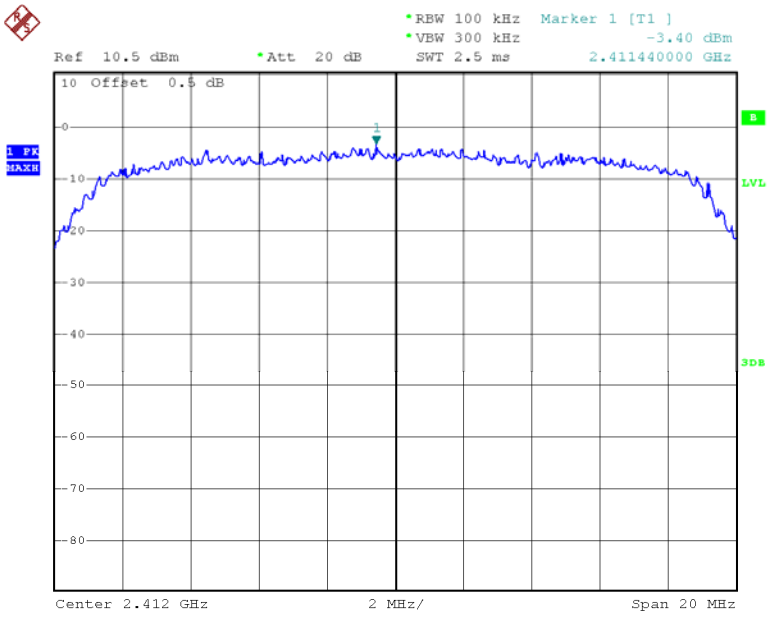
Date: 1.DEC.2012 15:28:36

Power Spectral Density, 802.11g High Channel



Date: 1.DEC.2012 15:30:06

Power Spectral Density, 802.11n20 Low Channel



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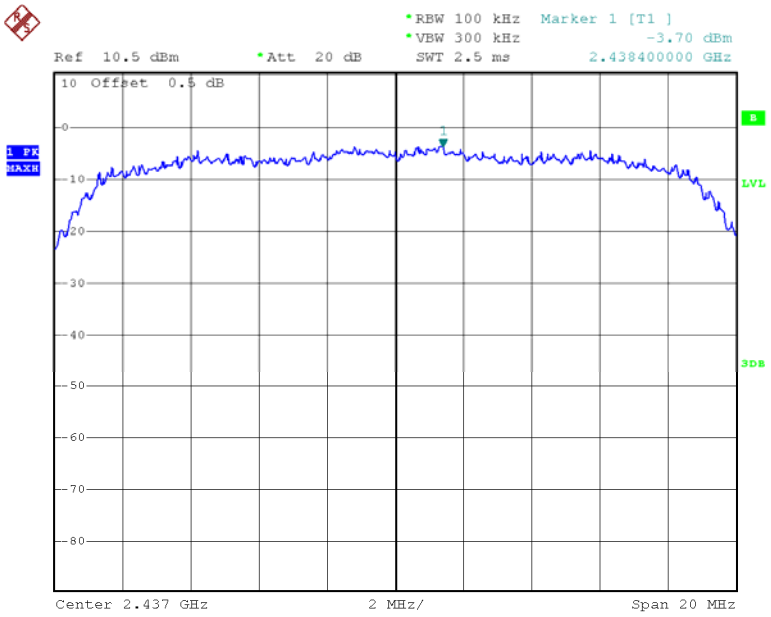
Power Spectral Density, 802.11n20 Middle Channel



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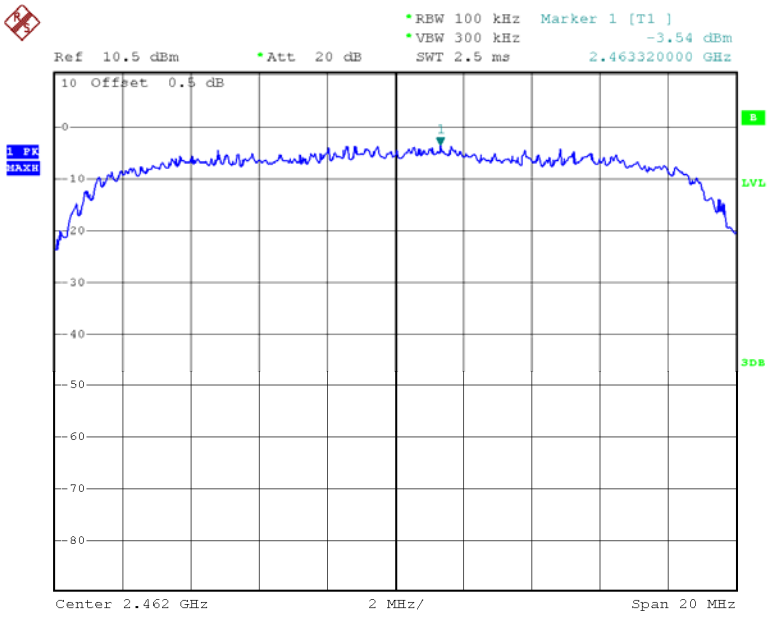
Power Spectral Density, 802.11n20 High Channel



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