

FCC PART 15.247 TEST REPORT

For

Silicon Application Corp.

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FCC ID: 2AINMLINKIT7687HDK

Report Type: Product Type: LINKIT7687HDK Original Report Lion Xiao **Test Engineer:** Lion Xiao **Report Number:** RDG160518001-00B **Report Date:** 2016-05-31 Dean. Laul Dean Liu **Reviewed By:** RF Engineer **Test Laboratory:** Bay Area Compliance Laboratories Corp. (Dongguan) No.69 Pulongeun, Puxinhu Industrial Zone, Tangxia, Dongguan, Guangdong, China Tel: +86-769-86858888 Fax: +86-769-86858891 www.baclcorp.com.cn

Note: This test report is prepared for the customer shown above and for the device described herein. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp. (Dongguan).

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The Silicon Application Corp.'s product, model number: LINKIT7687HDK (FCC ID: 2AINMLINKIT7687HDK) (the "EUT") in this report was a LINKIT7687HDK, which was measured approximately: 108.48 mm (L) x 60.45 mm (W) x 10.10 mm (H), rated input voltage: DC5.0V from USB port .

Report No.:RDG160518001-00B

All measurement and test data in this report was gathered from production sample serial number: 160518001 (Assigned by BACL, Dongguan). The EUT was received on 2016-05-19.

Objective

This report is prepared on behalf of *Silicon Application Corp*. 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 C63.10-2013, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices.

All emissions measurement was performed and Bay Area Compliance Laboratories Corp. (Dongguan).

Test Facility

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

Test site at Bay Area Compliance Laboratories Corp. (Dongguan) has been fully described in reports submitted to the Federal Communications Commission (FCC). The details of these reports have been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on February 06, 2015.

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

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SYSTEM TEST CONFIGURATION

Description of Test Configuration

The system was configured for testing in testing mode, which was provided by manufacturer. For 2.4GHz band, 11 channels are provided to testing:

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

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

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

Equipment Modifications

No modification was made to the EUT tested.

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EUT Exercise Software

The worst condition (maximum power with 100% duty cycle) was setting by the software as following table:

Test Mode	Test Software Version		QATool_Dbg.exe	
	Test Frequency	2412MHz	2437MHz	2462MHz
802.11b	Data Rate	1Mbps	1Mbps	1Mbps
002.110	Power Level Setting	1D	1D	1C
	Test Frequency	2412MHz	2437MHz	2462MHz
802.11g	Data Rate	6Mbps	6Mbps	6Mbps
002.11g	Power Level Setting	1B	1A	1A
	Test Frequency	2412MHz	2437MHz	2462MHz
802.11n	Data Rate	MCS0	MCS0	MCS0
ht20	Power Level Setting	1D	1D	1C
	Test Frequency	2422MHz	2437MHz	2452MHz
802.11n ht40	Data Rate	MCS0	MCS0	MCS0
002.11H Ht40	Power Level Setting	17	17	16

Support Equipment List and Details

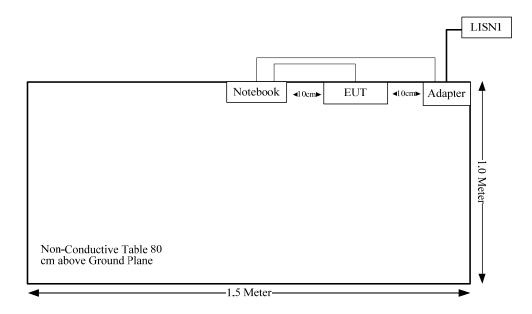
Manufacturer	Description	Model	Serial Number
Lenovo	Notebook	G510	CB30920865

External Cable

Cable Description	Shielding Type	Ferrite Core	Length (cm)	From Port	To
USB Cable	no	yes	0.8	USB Port of Laptop	EUT

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Block Diagram of Test Setup



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SUMMARY OF TEST RESULTS

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

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

Applicable Standard

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

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

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

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

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

Calculated Formulary:

Predication of MPE limit at a given distance

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

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

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

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

Calculated Data:

Frequency	Antenna Gain		Tune-up Power		Evaluation Distance	Power	MPE Limit
Range (MHz)	(dBi)	(numeric)	(dBm)	(mW)	(cm)	Density (mW/cm ²)	(mW/cm ²)
2412-2462	1	1.26	23	199.53	20	0.050	1.0

Note: The tune-up power and tolerance is 22 ± 1.0 dBm.

Result: The device meet FCC MPE at 20 cm distance.

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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:

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

Antenna Connector Construction

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

Result: Compliance.

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FCC §15.207 (a) - AC LINE CONDUCTED EMISSIONS

Applicable Standard

FCC§15.207

Measurement Uncertainty

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

If U_{lab} is less than or equal to U_{cispr} of Table 1, then:

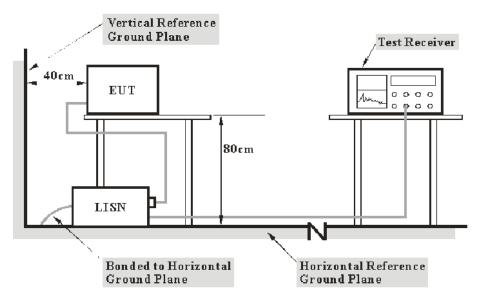
- compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit;
- non compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit. If U_{lab} is greater than U_{cispr} of Table 1, then:
- compliance is deemed to occur if no measured disturbance level, increased by $(U_{lab} U_{cispr})$, exceeds the disturbance limit;
- non compliance is deemed to occur if any measured disturbance level, increased by $(U_{\text{lab}} U_{\text{cispr}})$, 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 3.12 dB (150 kHz to 30 MHz).

Table 1 – Values of U_{cispr}

Measurement	$U_{ m cispr}$
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.

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The setup of EUT is according with per ANSI C63.10-2013 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 first 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

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Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	EMI Test Receiver	ESCS 30	830245/006	2015-12-10	2016-12-09
R&S	L.I.S.N	ESH2-Z5	892107/021	2015-07-16	2016-07-15
R&S	Two-line V-network	ENV 216	3560.6550.12	2015-11-26	2016-11-25
N/A	Coaxial Cable	1.8m	N/A	2016-05-06	2017-05-06
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:

15.1 dB at 0.381043 MHz in the Neutral conducted mode

Test Data

Environmental Conditions

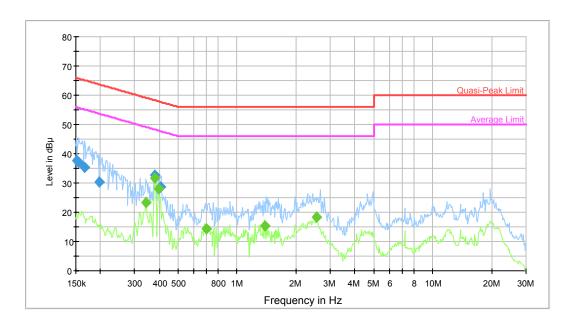
Temperature:	28.3°C
Relative Humidity:	66 %
ATM Pressure:	100.8 kPa

The testing was performed by Lion Xiao on 2016-05-20.

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Test Mode: Transmitting

AC120 V, 60 Hz, Line:

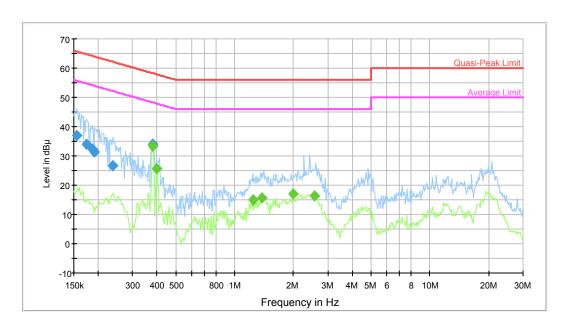


Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.151200	37.7	9.000	L1	10.2	28.2	65.9	Compliance
0.154858	37.1	9.000	L1	10.2	28.6	65.7	Compliance
0.166371	35.3	9.000	L1	10.1	29.8	65.1	Compliance
0.198249	30.4	9.000	L1	10.2	33.3	63.7	Compliance
0.381043	32.7	9.000	L1	10.2	25.6	58.3	Compliance
0.406123	28.5	9.000	L1	10.2	29.2	57.7	Compliance

Frequency (MHz)	Average (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.343548	23.4	9.000	L1	10.3	25.7	49.1	Compliance
0.381043	31.7	9.000	L1	10.2	16.6	48.3	Compliance
0.399703	28.1	9.000	L1	10.2	19.8	47.9	Compliance
0.698191	14.2	9.000	L1	10.4	31.8	46.0	Compliance
1.385415	15.5	9.000	L1	10.4	30.5	46.0	Compliance
2.538519	18.4	9.000	L1	10.4	27.6	46.0	Compliance

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AC120 V, 60 Hz, Neutral:



Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.156097	36.9	9.000	N	10.1	28.8	65.7	Compliance
0.174519	33.8	9.000	N	10.1	30.9	64.7	Compliance
0.187494	32.3	9.000	N	10.2	31.8	64.1	Compliance
0.192030	31.4	9.000	N	10.2	32.5	63.9	Compliance
0.238124	26.6	9.000	N	10.2	35.6	62.2	Compliance
0.381043	34.1	9.000	N	10.2	24.2	58.3	Compliance

Frequency (MHz)	Average (dBμV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.381043	33.2	9.000	N	10.2	15.1	48.3	Compliance
0.399703	25.8	9.000	N	10.2	22.1	47.9	Compliance
1.239175	15.1	9.000	N	10.4	30.9	46.0	Compliance
1.385415	15.7	9.000	N	10.4	30.3	46.0	Compliance
1.982914	16.9	9.000	N	10.4	29.1	46.0	Compliance
2.558827	16.3	9.000	N	10.4	29.7	46.0	Compliance

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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 $(U_{\text{lab}} U_{\text{cispr}})$, exceeds the disturbance limit;
- non compliance is deemed to occur if any measured disturbance level, increased by $(U_{\text{lab}} U_{\text{cispr}})$, exceeds the disturbance limit.

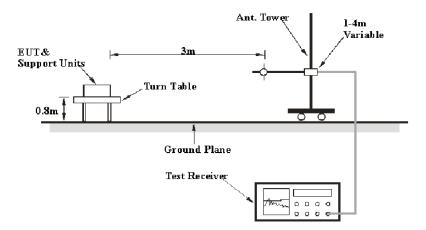
Based on CISPR 16-4-2: 2011, measurement uncertainty of radiated emission at a distance of 10m at Bay Area Compliance Laboratories Corp. (Dongguan) is:30M~200MHz: 4.55 dB for Horizontal, 4.57 dB for Vertical; 200M~1GHz: 4.66 dB for Horizontal, 4.56 dB for Vertical; measurement uncertainty of radiated emission at a distance of 3m at Bay Area Compliance Laboratories Corp. (Dongguan) is:30M~200MHz: 4.58 dB for Horizontal, 4.59 dB for Vertical; 200M~1GHz: 4.83 dB for Horizontal, 5.85 dB for Vertical; 1G~6GHz: 4.45 dB, 6G~18GHz: 5.23 dB

Table 2 – Values of U_{cispr}

Measurement	$U_{ m cispr}$
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

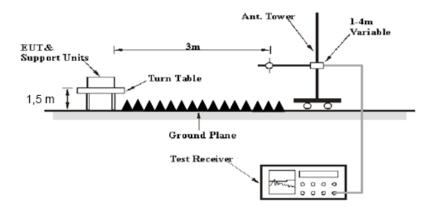
EUT Setup

Below 1GHz:



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Above 1GHz:



The radiated emission tests were performed in the 3 meters chamber test site, using the setup accordance with the ANSI C63.10-2013. 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 adapter was connected to a 120 VAC/60 Hz power source.

EMI Test Receiver & Spectrum Analyzer Setup

The system was investigated from 30 MHz to 25 GHz.

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

Frequency Range	RBW	Video B/W	IF B/W	Detector
30 MHz – 1000 MHz	120 kHz	300 kHz	120 kHz	QP
Above 1 GHz	1MHz	3 MHz	/	PK
Above I GHZ	1MHz	10 Hz	/	Av

Test Procedure

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

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

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

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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	2015-08-03	2016-08-02
Sunol Sciences	Antenna	JB3	A060611-3	2014-11-06	2017-11-05
HP	Amplifier	8447E	2434A02181	2015-09-01	2016-09-01
Agilent	Spectrum Analyzer	E4440A	SG43360054	2015-11-23	2016-11-22
ETS-Lindgren	Horn Antenna	3115	9808-5557	2015-09-06	2018-09-06
Mini-Circuit	Amplifier	ZVA-213-S+	054201245	2016-02-19	2017-02-19
R&S	Spectrum Analyzer	FSP 38	100478	2015-11-23	2016-11-22
Ducommun Technolagies	Horn Antenna	ARH-4223-02	1007726-01 1304	2014-06-16	2017-06-15
Quinstar	Amplifier	QLW- 18405536-JO	15964001001	2015-09-06	2016-09-06
N/A	Coaxial Cable	14m	N/A	2016-05-06	2017-05-06
N/A	Coaxial Cable	8m	N/A	2016-05-06	2017-05-06

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

Test Results Summary

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

Test Data

Environmental Conditions

Temperature:	28.1°C
Relative Humidity:	62 %
ATM Pressure:	100.8 kPa

^{*} The testing was performed by Lion Xiao on 2016-05-26.

Test Mode: Transmitting

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802.11b Mode

802.	11b Mode		1						
E	Re	eceiver	Rx A	ntenna	Cable	Amplifier	Corrected	T ::4	Manain
Frequency (MHz)	Reading	Detector	Polar	Factor	loss	Gain	Amplitude	Limit (dBµV/m)	Margin (dB)
(MIIIZ)	(dBµV)	(PK/QP/AV)	(H/V)	(dB)	(dB)	(dB)	(dBµV/m)	(ubµ v/III)	(ub)
			L	ow Chanr	nel: 2412	MHz			
2412	75.03	PK	Н	25.67	3.68	0.00	104.38	N/A	N/A
2412	70.66	AV	Н	25.67	3.68	0.00	100.01	N/A	N/A
2412	66.84	PK	V	25.67	3.68	0.00	96.19	N/A	N/A
2412	61.27	AV	V	25.67	3.68	0.00	90.62	N/A	N/A
2390	28.44	PK	Н	25.61	3.63	0.00	57.68	74.00	16.32
2390	15.53	AV	Н	25.61	3.63	0.00	44.77	54.00	9.23
4824	46.29	PK	Н	30.64	5.03	27.41	54.55	74.00	19.45
4824	41.91	AV	Н	30.64	5.03	27.41	50.17	54.00	3.83
7236	31.86	PK	Н	34.17	6.65	25.90	46.78	74.00	27.22
7236	19.36	AV	Н	34.17	6.65	25.90	34.28	54.00	19.72
9648	28.33	PK	Н	36.76	8.55	27.46	46.18	74.00	27.82
9648	15.98	AV	Н	36.76	8.55	27.46	33.83	54.00	20.17
3240	37.56	PK	Н	27.97	6.26	27.34	44.45	74.00	29.55
3240	25.31	AV	Н	27.97	6.26	27.34	32.20	54.00	21.80
268	34.3	QP	V	13.58	2.03	21.50	28.41	46.00	17.59
	•		Mi	ddle Char	nel: 243	7 MHz			
2437	74.21	PK	Н	25.74	3.75	0.00	103.70	N/A	N/A
2437	69.85	AV	Н	25.74	3.75	0.00	99.34	N/A	N/A
2437	65.98	PK	V	25.74	3.75	0.00	95.47	N/A	N/A
2437	60.32	AV	V	25.74	3.75	0.00	89.81	N/A	N/A
4874	46.26	PK	Н	30.77	5.14	27.42	54.75	74.00	19.25
4874	41.89	AV	Н	30.77	5.14	27.42	50.38	54.00	3.62
7311	31.89	PK	Н	34.35	6.74	25.88	47.10	74.00	26.90
7311	19.36	AV	Н	34.35	6.74	25.88	34.57	54.00	19.43
9748	28.33	PK	Н	36.80	8.61	27.24	46.50	74.00	27.50
9748	15.96	AV	Н	36.80	8.61	27.24	34.13	54.00	19.87
3240	37.22	PK	Н	27.97	6.26	27.34	44.11	74.00	29.89
3240	25.35	AV	Н	27.97	6.26	27.34	32.24	54.00	21.76
4038	34.79	PK	Н	29.89	4.65	27.18	42.15	74.00	31.85
4038	22.95	AV	Н	29.89	4.65	27.18	30.31	54.00	23.69
268	34.2	QP	V	13.58	2.03	21.50	28.31	46.00	17.69
	r	T		igh Chanı				,	
2462	74.05	PK	Н	25.80	3.75	0.00	103.60	N/A	N/A
2462	69.87	AV	Н	25.80	3.75	0.00	99.42	N/A	N/A
2462	65.01	PK	V	25.80	3.75	0.00	94.56	N/A	N/A
2462	60.98	AV	V	25.80	3.75	0.00	90.53	N/A	N/A
2483.5	28.89	PK	Н	25.86	3.67	0.00	58.42	74.00	15.58
2483.5	15.01	AV	Н	25.86	3.67	0.00	44.54	54.00	9.46
4924	45.52	PK	H	30.90	5.34	27.43	54.33	74.00	19.67
4924	40.40	AV	H	30.90	5.34	27.43	49.21	54.00	4.79
7386	31.73	PK	H	34.53	6.83	25.86	47.23	74.00	26.77
7386	19.42	AV	Н	34.53	6.83	25.86	34.92	54.00	19.08
9848	27.99	PK	H	36.84	8.66	26.94	46.55	74.00	27.45
9848	15.36	AV	H	36.84	8.66	26.94	33.92	54.00	20.08
3340	37.15	PK	H	28.29	4.86	27.25	43.05	74.00	30.95
3340	25.08	AV	H	28.29	4.86	27.25	30.98	54.00	23.02
268	34.1	QP	V	13.58	2.03	21.50	28.21	46.00	17.79

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802.11g Mode

802.11g		eceiver	Rx A	Antenna	Cable	Amplifier	Corrected	T	3.7
Frequency (MHz)	Reading (dBµV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)	loss (dB)	Gain (dB)	Amplitude (dBµV/m)	Limit (dBμV/m)	Margin (dB)
	Low Channel: 2412 MHz								
2412	74.33	PK	Н	25.67	3.68	0.00	103.68	N/A	N/A
2412	64.88	AV	Н	25.67	3.68	0.00	94.23	N/A	N/A
2412	65.84	PK	V	25.67	3.68	0.00	95.19	N/A	N/A
2412	55.59	AV	V	25.67	3.68	0.00	84.94	N/A	N/A
2390	32.60	PK	Н	25.61	3.63	0.00	61.84	74.00	12.16
2390	20.76	AV	Н	25.61	3.63	0.00	50.00	54.00	4.00
4824	35.62	PK	Н	30.64	5.03	27.41	43.88	74.00	30.12
4824	23.74	AV	Н	30.64	5.03	27.41	32.00	54.00	22.00
7236	31.56	PK	Н	34.17	6.65	25.90	46.48	74.00	27.52
7236	19.13	AV	Н	34.17	6.65	25.90	34.05	54.00	19.95
9648	28.63	PK	Н	36.76	8.55	27.46	46.48	74.00	27.52
9648	16.32	AV	H	36.76	8.55	27.46	34.17	54.00	19.83
3240	37.58	PK	Н	27.97	6.26	27.34	44.47	74.00	29.53
3240	25.25	AV	H	27.97	6.26	27.34	32.14	54.00	21.86
268	34.5	QP	V	13.58 iddle Chann	2.03	21.50	28.61	46.00	17.39
2437	74.56	PK	Н	25.74	3.75	0.00	104.05	N/A	N/A
2437	64.21	AV	Н	25.74	3.75	0.00	93.70	N/A N/A	N/A N/A
2437	65.36	PK	V	25.74	3.75	0.00	93.70	N/A N/A	N/A N/A
2437	55.28	AV	V	25.74	3.75	0.00	84.77	N/A	N/A
4874	35.68	PK	H	30.77	5.14	27.42	44.17	74.00	29.83
4874	23.33	AV	Н	30.77	5.14	27.42	31.82	54.00	22.18
7311	32.61	PK	Н	34.35	6.74	25.88	47.82	74.00	26.18
7311	20.36	AV	Н	34.35	6.74	25.88	35.57	54.00	18.43
9748	29.37	PK	Н	36.80	8.61	27.24	47.54	74.00	26.46
9748	17.25	AV	Н	36.80	8.61	27.24	35.42	54.00	18.58
3240	37.08	PK	Н	27.97	6.26	27.34	43.97	74.00	30.03
3240	25.81	AV	Н	27.97	6.26	27.34	32.70	54.00	21.30
4038	34.82	PK	Н	29.89	4.65	27.18	42.18	74.00	31.82
4038	22.30	AV	Н	29.89	4.65	27.18	29.66	54.00	24.34
268	34.2	QP	V	13.58	2.03	21.50	28.31	46.00	17.69
			I	High Channe	1: 2462 N	ИHz			
2462	75.86	PK	Н	25.80	3.75	0.00	105.41	N/A	N/A
2462	65.17	AV	Н	25.80	3.75	0.00	94.72	N/A	N/A
2462	66.56	PK	V	25.80	3.75	0.00	96.11	N/A	N/A
2462	56.38	AV	V	25.80	3.75	0.00	85.93	N/A	N/A
2483.5	32.81	PK	Н	25.86	3.67	0.00	62.34	74.00	11.66
2483.5	20.33	AV	Н	25.86	3.67	0.00	49.86	54.00	4.14
4924	35.75	PK	Н	30.90	5.34	27.43	44.56	74.00	29.44
4924	23.32	AV	Н	30.90	5.34	27.43	32.13	54.00	21.87
7386	31.37	PK	H	34.53	6.83	25.86	46.87	74.00	27.13
7386	19.68	AV	H	34.53	6.83	25.86	35.18	54.00	18.82
9848	28.62	PK	H	36.84	8.66	26.94	47.18	74.00	26.82
9848	15.97	AV	H	36.84	8.66	26.94	34.53	54.00	19.47
3240	37.38	PK	H	27.97	6.26	27.34	44.27	74.00	29.73
3240	25.22	AV	H	27.97	6.26	27.34	32.11	54.00	21.89
268	34.6	QP	V	13.58	2.03	21.50	28.71	46.00	17.29

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Report No.:RDG160518001-00B

802.11 n ht20 Mode

Емадиана	Re	eceiver	Rx A	ntenna	Cable	Amplifier	Corrected	Limit	Manain
Frequency (MHz)	Reading (dBµV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)	loss (dB)	Gain (dB)	Amplitude (dBµV/m)	(dBµV/m)	Margin (dB)
Low Channel: 2412 MHz									
2412	75.22	PK	Н	25.67	3.68	0.00	104.57	N/A	N/A
2412	65.81	AV	Н	25.67	3.68	0.00	95.16	N/A	N/A
2412	67.86	PK	V	25.67	3.68	0.00	97.21	N/A	N/A
2412	57.43	AV	V	25.67	3.68	0.00	86.78	N/A	N/A
2390	32.13	PK	Н	25.61	3.63	0.00	61.37	74.00	12.63
2390	20.98	AV	Н	25.61	3.63	0.00	50.22	54.00	3.78
4824	31.05	PK	Н	30.64	5.03	27.41	39.31	74.00	34.69
4824	18.65	AV	Н	30.64	5.03	27.41	26.91	54.00	27.09
7236	32.11	PK	Н	34.17	6.65	25.90	47.03	74.00	26.97
7236	20.09	AV	Н	34.17	6.65	25.90	35.01	54.00	18.99
9648	30.85	PK	Н	36.76	8.55	27.46	48.70	74.00	25.30
9648	18.97	AV	H	36.76	8.55	27.46	36.82	54.00	17.18
3240	37.69	PK	Н	27.97	6.26	27.34	44.58	74.00	29.42
3240	25.38	AV	Н	27.97	6.26	27.34	32.27	54.00	21.73
268	34.4	QP	V	13.58	2.03	21.50	28.51	46.00	17.49
2.127	77.00	DIZ		ddle Chan			105.45	37/4	37/4
2437	75.98	PK	H	25.74	3.75	0.00	105.47	N/A	N/A
2437	65.61	AV	H	25.74	3.75	0.00	95.10	N/A	N/A
2437	67.26	PK	V	25.74	3.75	0.00	96.75	N/A	N/A
2437	58.74	AV	V	25.74	3.75	0.00	88.23	N/A	N/A
4874	31.51	PK	H	30.77	5.14	27.42	40.00	74.00	34.00
4874	19.34	AV	Н	30.77	5.14	27.42	27.83	54.00	26.17
7311 7311	31.06 19.10	PK AV	H H	34.35 34.35	6.74 6.74	25.88 25.88	46.27 34.31	74.00 54.00	27.73 19.69
9748	32.31	PK	Н	36.80	8.61	27.24	50.48	74.00	23.52
9748	20.25	AV	Н	36.80	8.61	27.24	38.42	54.00	15.58
3240	37.68	PK	Н	27.97	6.26	27.34	44.57	74.00	29.43
3240	25.32	AV	Н	27.97	6.26	27.34	32.21	54.00	21.79
4038	34.55	PK	Н	29.89	4.65	27.18	41.91	74.00	32.09
4038	22.31	AV	H	29.89	4.65	27.18	29.67	54.00	24.33
268	34.3	QP	V	13.58	2.03	21.50	28.41	46.00	17.59
200	37.3	Q1		igh Chann			20.41	40.00	17.37
2462	75.62	PK	Н	25.80	3.75	0.00	105.17	N/A	N/A
2462	65.25	AV	Н	25.80	3.75	0.00	94.80	N/A	N/A
2462	66.89	PK	V	25.80	3.75	0.00	96.44	N/A	N/A
2462	56.62	AV	V	25.80	3.75	0.00	86.17	N/A	N/A
2483.5	32.09	PK	Н	25.86	3.67	0.00	61.62	74.00	12.38
2483.5	20.32	AV	Н	25.86	3.67	0.00	49.85	54.00	4.15
4924	31.66	PK	Н	30.90	5.34	27.43	40.47	74.00	33.53
4924	19.08	AV	Н	30.90	5.34	27.43	27.89	54.00	26.11
7386	31.54	PK	Н	34.53	6.83	25.86	47.04	74.00	26.96
7386	19.26	AV	Н	34.53	6.83	25.86	34.76	54.00	19.24
9848	31.96	PK	Н	36.84	8.66	26.94	50.52	74.00	23.48
9848	19.37	AV	Н	36.84	8.66	26.94	37.93	54.00	16.07
3240	37.36	PK	Н	27.97	6.26	27.34	44.25	74.00	29.75
3240	25.09	AV	Н	27.97	6.26	27.34	31.98	54.00	22.02
268	34.2	QP	V	13.58	2.03	21.50	28.31	46.00	17.69

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Report No.:RDG160518001-00B

802.11 n ht40 Mode

F	Re	eceiver	Rx A	ntenna	Cable	Amplifier	Corrected	T :	M
Frequency (MHz)	Reading (dBµV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)	loss (dB)	Gain (dB)	Amplitude (dBμV/m)	Limit (dBµV/m)	Margin (dB)
	•		L	ow Chann	el: 2422	MHz			
2422	75.33	PK	Н	25.70	3.71	0.00	104.74	N/A	N/A
2422	63.02	AV	Н	25.70	3.71	0.00	92.43	N/A	N/A
2422	66.72	PK	V	25.70	3.71	0.00	96.13	N/A	N/A
2422	54.11	AV	V	25.70	3.71	0.00	83.52	N/A	N/A
2390	34.57	PK	Н	25.61	3.63	0.00	63.81	74.00	10.19
2390	21.87	AV	Н	25.61	3.63	0.00	51.11	54.00	2.89
4844	31.88	PK	Н	30.69	4.99	27.42	40.14	74.00	33.86
4844	19.60	AV	Н	30.69	4.99	27.42	27.86	54.00	26.14
7266	32.15	PK	Н	34.24	6.68	25.89	47.18	74.00	26.82
7266	20.10	AV	Н	34.24	6.68	25.89	35.13	54.00	18.87
9688	29.12	PK	Н	36.78	8.58	27.37	47.11	74.00	26.89
9688	17.89	AV	Н	36.78	8.58	27.37	35.88	54.00	18.12
3240	37.74	PK	Н	27.97	6.26	27.34	44.63	74.00	29.37
3240	25.61	AV	Н	27.97	6.26	27.34	32.50	54.00	21.50
268	34.7	QP	V	13.58	2.03	21.50	28.81	46.00	17.19
	7			ddle Chan					
2437	74.23	PK	Н	25.74	3.75	0.00	103.72	N/A	N/A
2437	62.65	AV	Н	25.74	3.75	0.00	92.14	N/A	N/A
2437	65.99	PK	V	25.74	3.75	0.00	95.48	N/A	N/A
2437	53.61	AV	V	25.74	3.75	0.00	83.10	N/A	N/A
4874	31.18	PK	Н	30.77	5.14	27.42	39.67	74.00	34.33
4874	19.34	AV	Н	30.77	5.14	27.42	27.83	54.00	26.17
7311	31.99	PK	Н	34.35	6.74	25.88	47.20	74.00	26.80
7311	19.31	AV	Н	34.35	6.74	25.88	34.52	54.00	19.48
9748	28.68	PK	Н	36.80	8.61	27.24	46.85	74.00	27.15
9748	16.19	AV	Н	36.80	8.61	27.24	34.36	54.00	19.64
3240	37.61	PK	H	27.97	6.26	27.34	44.50	74.00	29.50
3240	25.97	AV	H	27.97	6.26	27.34	32.86	54.00	21.14
4038	35.55	PK	H	29.89	4.65	27.18	42.91	74.00	31.09
4038	23.32	AV	H	29.89	4.65	27.18	30.68	54.00	23.32
268	34.5	QP	V	13.58 igh Chann	2.03	21.50 MHz	28.61	46.00	17.39
2452	74.98	PK	Н	25.78	3.78	0.00	104.54	N/A	N/A
2452	62.08	AV	Н	25.78	3.78	0.00	91.64	N/A	N/A
2452	65.32	PK	V	25.78	3.78	0.00	94.88	N/A	N/A
2452	53.96	AV	V	25.78	3.78	0.00	83.52	N/A	N/A
2483.5	32.45	PK	H	25.86	3.67	0.00	61.98	74.00	12.02
2483.5	20.29	AV	H	25.86	3.67	0.00	49.82	54.00	4.18
4904	31.29	PK	H	30.85	5.31	27.43	40.02	74.00	33.98
4904	18.90	AV	H	30.85	5.31	27.43	27.63	54.00	26.37
7356	32.11	PK	Н	34.45	6.79	25.87	47.48	74.00	26.52
7356	19.95	AV	Н	34.45	6.79	25.87	35.32	54.00	18.68
9808	29.35	PK	Н	36.82	8.64	27.09	47.72	74.00	26.28
9808	16.83	AV	Н	36.82	8.64	27.09	35.20	54.00	18.80
3240	37.84	PK	Н	27.97	6.26	27.34	44.73	74.00	29.27
3240	25.26	AV	Н	27.97	6.26	27.34	32.15	54.00	21.85
268	34.6	QP	V	13.58	2.03	21.50	28.71	46.00	17.29
								- /	>

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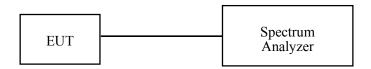
FCC $\S15.247(a)$ (2) – 6 dB EMISSION BANDWIDTH

Applicable Standard

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

Test Procedure

- a) Set RBW = 100 kHz.
- b) Set the video bandwidth (VBW) $\geq 3 \times RBW$
- c) Detector = Peak.
- d) Trace mode = \max hold.
- e) Sweep = auto couple.
- f) Allow the trace to stabilize.
- g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.



Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSP 38	100478	2015-11-23	2016-11-22
N/A	Coaxial Cable	0.1m	N/A	2016-05-06	2017-05-06
E-Microwave	DC Blocking	EMDCB-00036	0E01201047	2016-05-06	2017-05-06

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

Test Data

Environmental Conditions

Temperature:	28.7°C		
Relative Humidity:	61 %		
ATM Pressure:	100.2kPa		

^{*} The testing was performed by Lion Xiao on 2016-05-25.

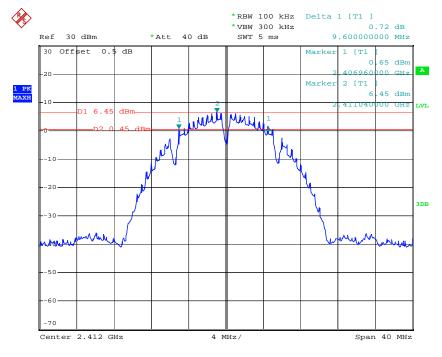
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Test Mode: Transmitting

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

Test mode	Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limit (MHz)
	Low	2412	9.60	≥0.5
802.11b	Middle	2437	9.52	≥0.5
	High	2462	9.60	≥0.5
	Low	2412	16.40	≥0.5
802.11g	Middle	2437	16.32	≥0.5
	High	2462	16.40	≥0.5
	Low	2412	17.52	≥0.5
802.11n20	Middle	2437	17.68	≥0.5
	High	2462	17.60	≥0.5
802.11n40	Low	2422	35.68	≥0.5
	Middle	2437	35.36	≥0.5
	High	2452	35.52	≥0.5

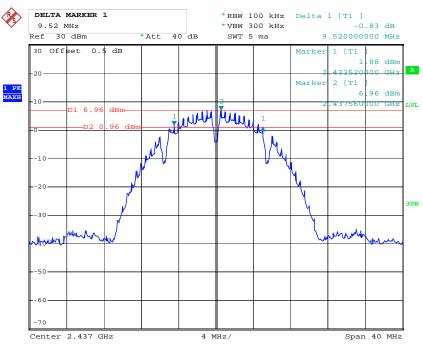
802.11b Low Channel



Date: 25.MAY.2016 17:50:18

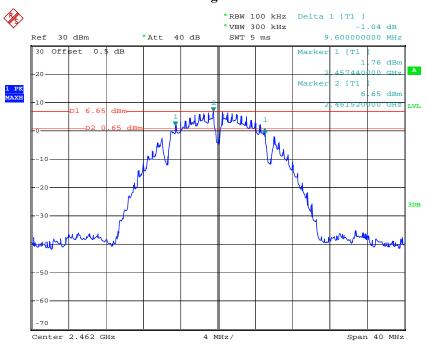
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802.11b Middle Channel



Date: 25.MAY.2016 18:21:52

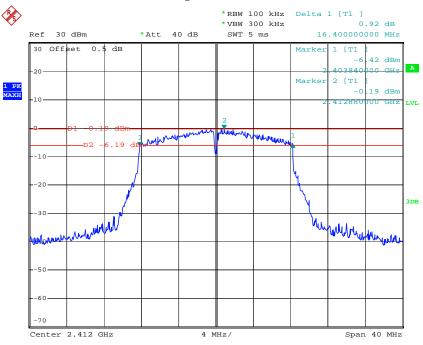
802.11b High Channel



Date: 25.MAY.2016 17:48:31

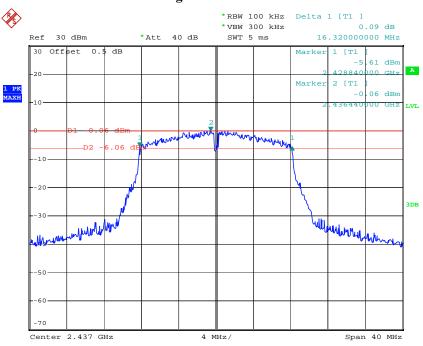
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802.11g Low Channel



Date: 25.MAY.2016 17:16:32

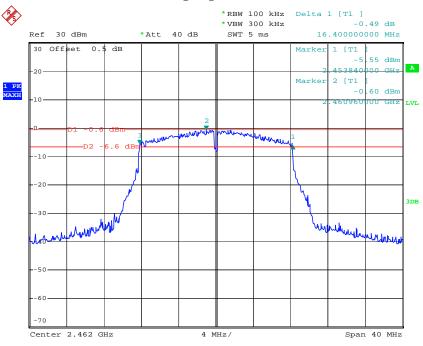
802.11g Middle Channel



Date: 25.MAY.2016 17:14:41

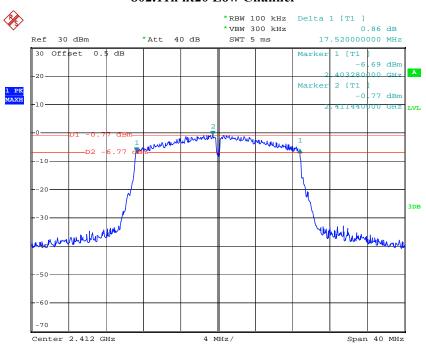
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802.11g High Channel



Date: 25.MAY.2016 17:20:33

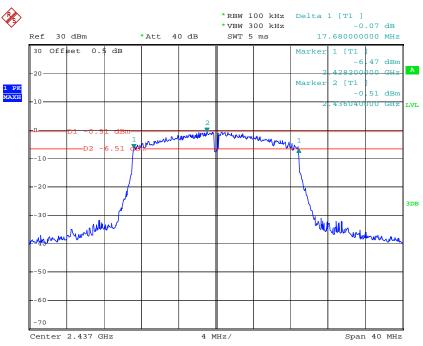
802.11n ht20 Low Channel



Date: 25.MAY.2016 17:22:58

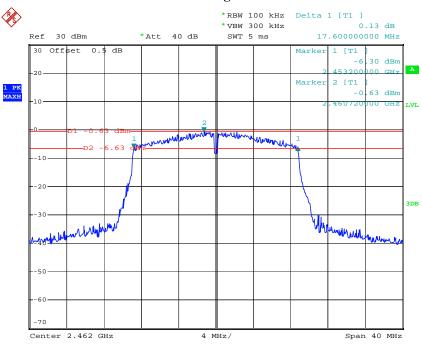
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802.11n ht20 Middle Channel



Date: 25.MAY.2016 17:24:39

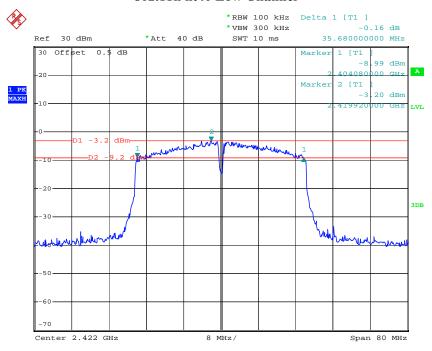
802.11n ht20 High Channel



Date: 25.MAY.2016 17:26:22

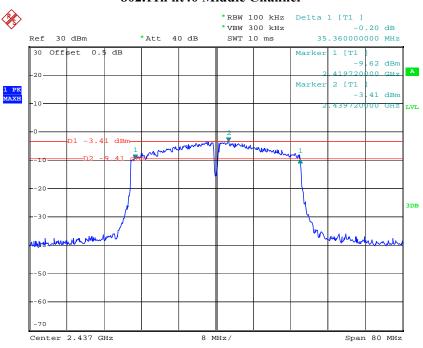
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802.11n ht40 Low Channel



Date: 25.MAY.2016 17:28:24

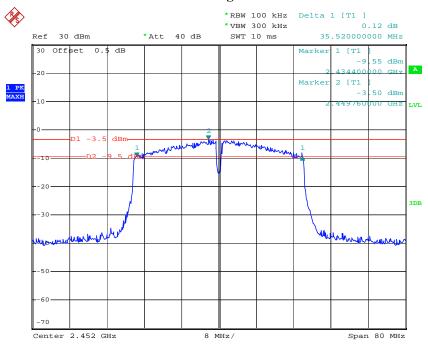
802.11n ht40 Middle Channel



Date: 25.MAY.2016 17:30:20

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802.11n ht40 High Channel



Date: 25.MAY.2016 17:31:55

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

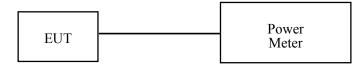
Applicable Standard

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 v03r05

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



Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Agilent	Wideband Power Sensor	N1921A	MY54210016	2015-11-03	2016-11-03
Agilent	Wideband Power Sensor	N1921A	MY54170013	2015-11-03	2016-11-03
Agilent	P-Series Power Meter	N1912A	MY5000448	2015-11-03	2016-11-03
N/A	Coaxial Cable	0.1m	N/A	2016-05-06	2017-05-06
E-Microwave	DC Blocking	EMDCB- 00036	0E01201047	2016-05-06	2017-05-06

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

Test Data

Environmental Conditions

Temperature:	28.7°C
Relative Humidity:	61 %
ATM Pressure:	100.2kPa

^{*} The testing was performed by Lion Xiao on 2016-05-25.

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Test Mode: Transmitting

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

Test mode	Channel	Frequency (MHz)	Max Peak Conducted Output Power (dBm)	Limit (dBm)	Result
	Ţ	` ′	` ′	` ′	G 1:
	Low	2412	19.95	30	Compliance
802.11b	Middle	2437	19.59	30	Compliance
	High	2462	19.01	30	Compliance
	Low	2412	19.48	30	Compliance
802.11g	Middle	2437	19.81	30	Compliance
	High	2462	19.93	30	Compliance
	Low	2412	20.59	30	Compliance
802.11n20	Middle	2437	20.74	30	Compliance
	High	2462	20.30	30	Compliance
	Low	2422	21.95	30	Compliance
802.11n40	Middle	2437	21.42	30	Compliance
	High	2452	21.69	30	Compliance

Test mode	Channel	Frequency (MHz)	Max Conducted Average Output Power (dBm)	Limit (dBm)	Result
	Low	2412		, ,	Commliance
	Low	2412	18.92	30	Compliance
802.11b	Middle	2437	18.67	30	Compliance
	High	2462	18.19	30	Compliance
	Low	2412	16.03	30	Compliance
802.11g	Middle	2437	16.38	30	Compliance
	High	2462	16.56	30	Compliance
	Low	2412	16.63	30	Compliance
802.11n20	Middle	2437	16.78	30	Compliance
	High	2462	16.34	30	Compliance
	Low	2422	16.53	30	Compliance
802.11n40	Middle	2437	16.05	30	Compliance
	High	2452	16.32	30	Compliance

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Report No.:RDG160518001-00B

Applicable Standard

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

Test Procedure

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

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSP 38	100478	2015-11-23	2016-11-22
N/A	Coaxial Cable	0.1m	N/A	2016-05-06	2017-05-06
E-Microwave	DC Blocking	EMDCB-00036	0E01201047	2016-05-06	2017-05-06

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

Test Data

Environmental Conditions

Temperature:	28.7°C
Relative Humidity:	61 %
ATM Pressure:	100.2kPa

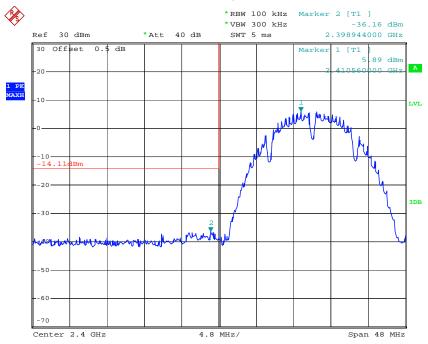
^{*} The testing was performed by Lion Xiao on 2016-05-25.

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Test mode: Transmitting

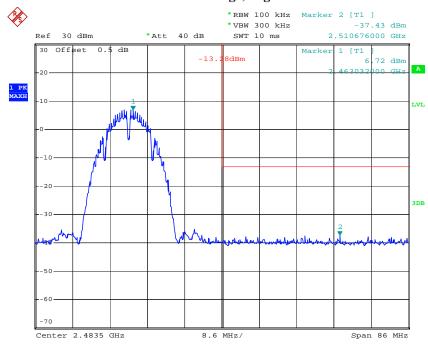
Test Result: Compliant. Please refer to following plots.

802.11b: Band Edge, Left Side



Date: 25.MAY.2016 17:51:26

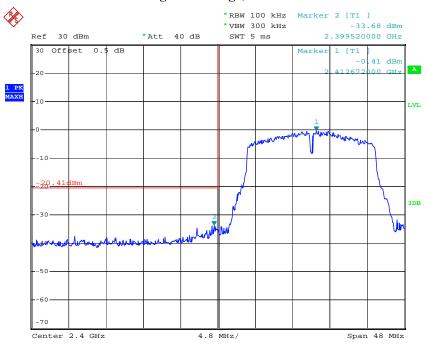
802.11b: Band Edge, Right Side



Date: 25.MAY.2016 17:49:38

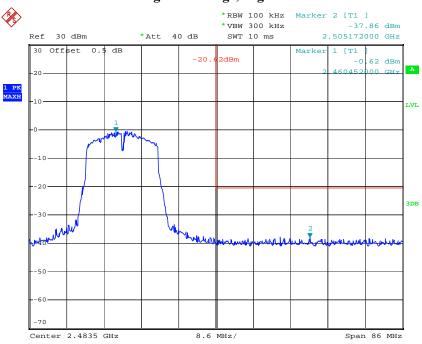
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802.11g: Band Edge, Left Side



Date: 25.MAY.2016 17:17:41

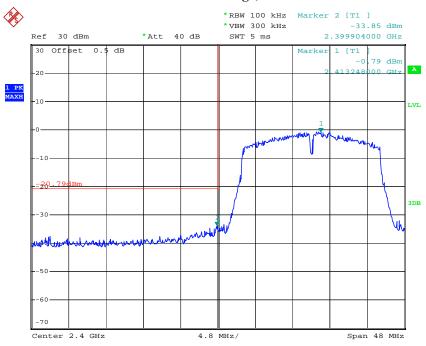
802.11g: Band Edge, Right Side



Date: 25.MAY.2016 17:21:45

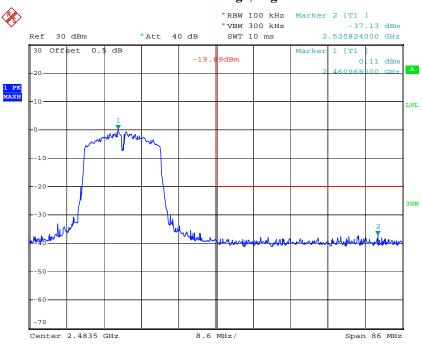
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802.11n ht20 Band Edge, Left Side



Date: 25.MAY.2016 17:24:07

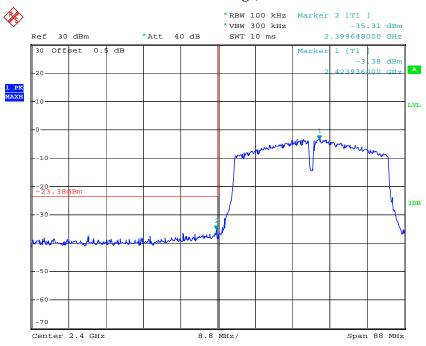
802.11n ht20 Band Edge, Right Side



Date: 25.MAY.2016 17:27:32

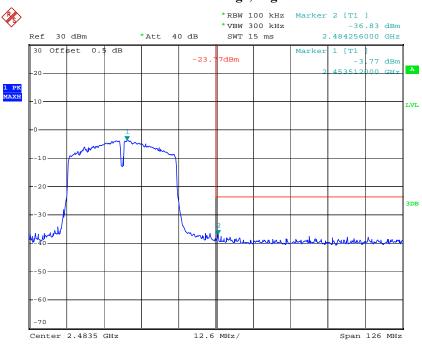
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802.11n ht40 Band Edge, Left Side



Date: 25.MAY.2016 17:29:48

802.11n ht40 Band Edge, Right Side



Date: 25.MAY.2016 17:33:33

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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

- 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: $3 \text{ kHz} \le \text{RBW} \le 100 \text{ kHz}$.
- d) Set the VBW $\geq 3 \times RBW$.
- e) Detector = peak.
- f) Sweep time = auto couple.
- g) Trace mode = max hold.
- h) Allow trace to fully stabilize.
- i) Use the peak marker function to determine the maximum amplitude level within the RBW.
- j) If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSP 38	100478	2015-11-23	2016-11-22
N/A	Coaxial Cable	0.1m	N/A	2016-05-06	2017-05-06
E-Microwave	DC Blocking	EMDCB- 00036	0E01201047	2016-05-06	2017-05-06

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

Test Data

Environmental Conditions

Temperature:	28.7°C
Relative Humidity:	61 %
ATM Pressure:	100.2kPa

^{*} The testing was performed by Lion Xiao on 2016-05-25.

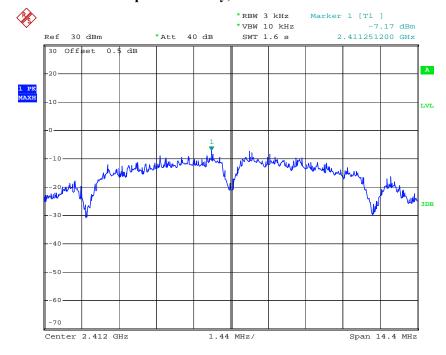
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Test Mode: Transmitting

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

Test mode	Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)
802.11b	Low	2412	-7.17	≪8
	Middle	2437	-7.59	≪8
	High	2462	-7.76	≤8
802.11g	Low	2412	-12.52	≤8
	Middle	2437	-12.02	≤8
	High	2462	-11.91	≤8
802.11n20	Low	2412	-12.22	≤8
	Middle	2437	-12.01	≤8
	High	2462	-12.41	≤8
802.11n40	Low	2422	-15.28	≤8
	Middle	2437	-15.70	≤8
	High	2452	-15.52	€8

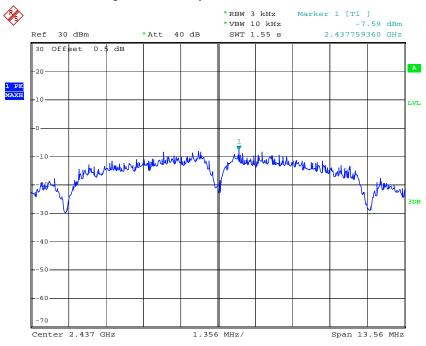
Power Spectral Density, 802.11b Low Channel



Date: 25.MAY.2016 17:51:07

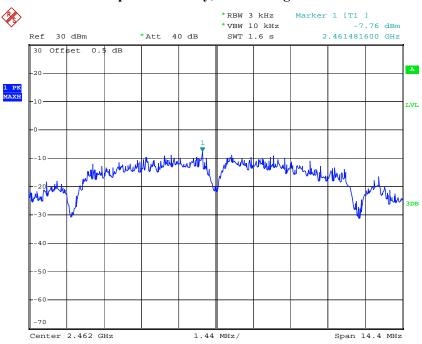
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Power Spectral Density, 802.11b Middle Channel



Date: 25.MAY.2016 17:47:53

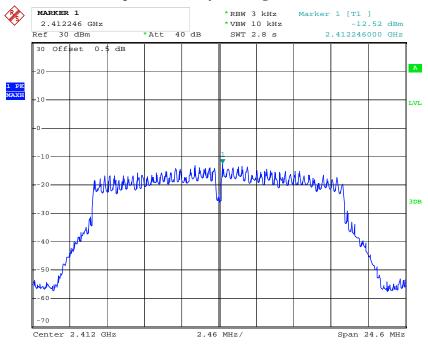
Power Spectral Density, 802.11b High Channel



Date: 25.MAY.2016 17:49:13

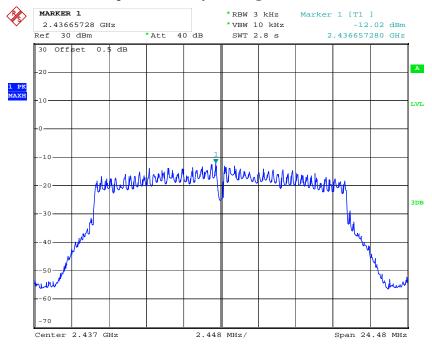
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Power Spectral Density, 802.11g Low Channel



Date: 25.MAY.2016 18:13:15

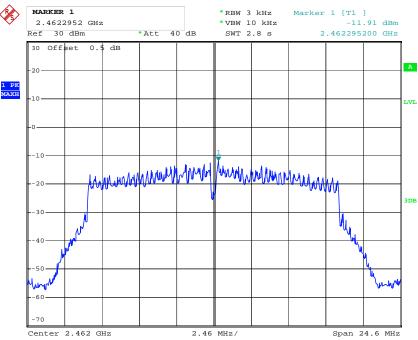
Power Spectral Density, 802.11g Middle Channel



Date: 25.MAY.2016 18:14:19

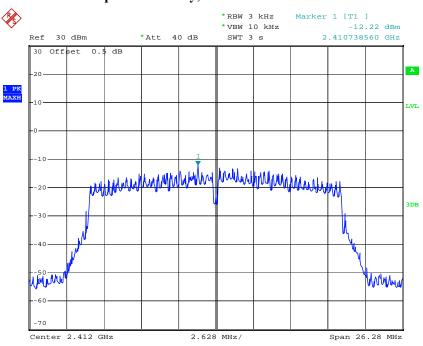
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Power Spectral Density, 802.11g High Channel



Date: 25.MAY.2016 18:15:59

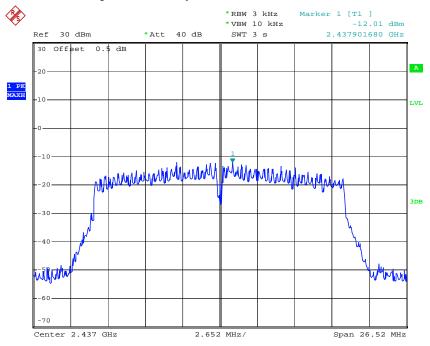
Power Spectral Density, 802.11n ht20 Low Channel



Date: 25.MAY.2016 17:23:43

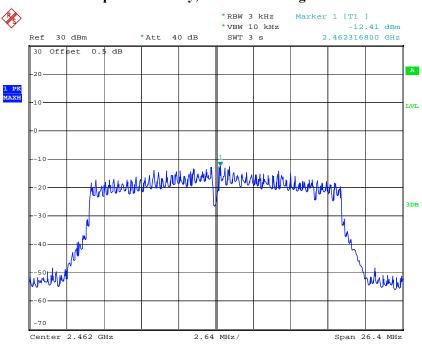
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Power Spectral Density, 802.11n ht20 Middle Channel



Date: 25.MAY.2016 17:25:37

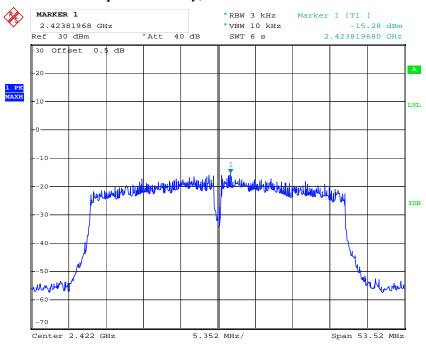
Power Spectral Density, 802.11n ht20 High Channel



Date: 25.MAY.2016 17:27:08

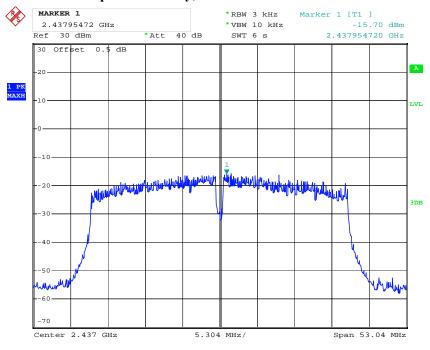
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Power Spectral Density, 802.11n ht40 Low Channel



Date: 25.MAY.2016 18:10:33

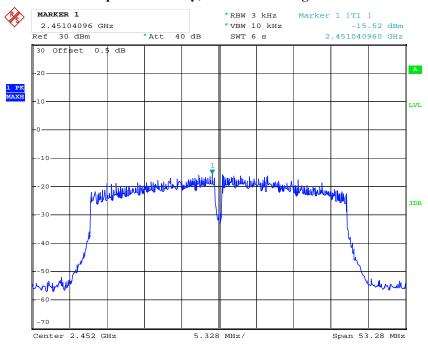
Power Spectral Density, 802.11n ht40 Middle Channel



Date: 25.MAY.2016 18:07:43

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Power Spectral Density, 802.11n ht40 High Channel



Date: 25.MAY.2016 17:57:46

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

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