

FCC PART 15.247 TEST REPORT

For

Dalian Cheering Technology Co.,Ltd.

321-1 Tuqiang Street RM308,DDA,Dalian,Liaoning,China 116023

FCC ID: 2ADHGCR210

Report Type:
Original Report

CASE Remote Air

Levin hu

Test Engineer:

Report Number:

Report Date:

Reviewed By:

Reviewed By:

Bay Area Compliance Laboratories Corp. (Chengdu) 5040, HuiLongWan Plaza, No. 1, ShaWan Road, JinNiu District, ChengDu, China Tel: 028-65523123, Fax: 028-65525125 www.baclcorp.com

Note: This test report was 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. (Chengdu). Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. This report was valid only with a valid digital signature.

TABLE OF CONTENTS

GENERAL INFORMATION	4
PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT)	
OBJECTIVE	
RELATED SUBMITTAL(S)/GRANT(S)	
TEST FACILITY	
SYSTEM TEST CONFIGURATION	
DESCRIPTION OF TEST CONFIGURATION	
EQUIPMENT MODIFICATIONS	
EUT Exercise Software	6
SUPPORT EQUIPMENT LIST AND DETAILS	
EXTERNAL CABLEBLOCK DIAGRAM OF TEST SETUP	
SUMMARY OF TEST RESULTS	
FCC §15.247 (i) & §1.1310 & §2.1093- RF EXPOSURE	
APPLICABLE STANDARD	
FCC §15.203 - ANTENNA REQUIREMENT	
APPLICABLE STANDARDANTENNA CONNECTOR CONSTRUCTION	
FCC §15.207 (a) – AC LINE CONDUCTED EMISSIONS	
APPLICABLE STANDARD	
MEASUREMENT UNCERTAINTY	
EUT SETUP	12
EMI TEST RECEIVER SETUP	
TEST PROCEDURE	
TEST EQUIPMENT LIST AND DETAILS	
TEST DATA	
FCC §15.209, §15.205 & §15.247(d) - SPURIOUS EMISSIONS	16
APPLICABLE STANDARD	
MEASUREMENT UNCERTAINTY	
EUT SETUP	17
EMI TEST RECEIVER & SPECTRUM ANALYZER SETUP	
CORRECTED AMPLITUDE & MARGIN CALCULATION	
TEST EQUIPMENT LIST AND DETAILS	
TEST DATA	
FCC §15.247(a) (2) – 6 dB EMISSION BANDWIDTH	
APPLICABLE STANDARD	
TEST PROCEDURE TEST EQUIPMENT LIST AND DETAILS	
TEST DATA	
FCC §15.247(b) (3) - MAXIMUM CONDUCTED OUTPUT POWER	32
APPLICABLE STANDARD	
Test Procedure	32
TEST EQUIPMENT LIST AND DETAILS	32

Bay Area Compliance Laboratories Corp. (Chengdu)

TEST DATA	32
FCC §15.247(d) – 100 kHz BANDWIDTH OF FREQUENCY BAND EDGE	34
APPLICABLE STANDARD	34
Test Procedure	
TEST EQUIPMENT LIST AND DETAILS	34
TEST DATA	
FCC §15.247(e) - POWER SPECTRAL DENSITY	40
APPLICABLE STANDARD	40
Test Procedure	40
TEST EQUIPMENT LIST AND DETAILS	40
TECT DATA	

Report No.: RBJ160918052

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *Dalian Cheering Technology Co.,Ltd.*'s product, the tested model number: *CR210 (FCC ID: 2ADHGCR210)* (the "EUT") in this report was a *CASE Remote Air*, which was measured approximately: 6.45 cm (L) x 3.7 cm (W) x 2.3 cm (H), rated input voltage: DC3.7V lithium battery or DC5V charging from USB Port.

*All measurement and test data in this report was gathered from final production sample, serial number: 160918052 (assigned by the BACL, Chengdu). It may have deviation from any other sample. The EUT supplied by the applicant was received on 2016-09-18, and EUT conformed to test requirement.

Objective

This report is prepared on behalf of *Dalian Cheering Technology Co.,Ltd.* in accordance with Part 2, Subpart J, Part 15, Subparts A, B and C of the Federal Communications Commission's rules

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

Related Submittal(s)/Grant(s)

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. (Chengdu). 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 ±3.17 dB, the uncertainty of any radiation on emissions measurement is:

30M~200MHz: ±4.7 dB; 200M~1GHz: ±6.0 dB; 1G~6GHz: ±5.13dB; 6G~25GHz: ±5.47dB;

And the uncertainty will not be taken into consideration for all test data recorded in the report.

Report No.: RBJ160918052 Page 4 of 47

Bay Area Compliance Laboratories Corp. (Chengdu)

Test Facility

The test site used by BACL to collect test data is located in the 5040, HuiLongWan Plaza, No. 1, ShaWan Road, JinNiu District, ChengDu, China

Test site at BACL 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 April 24, 2015. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2014.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 560332. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

Report No.: RBJ160918052 Page 5 of 47

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	1	1

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

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

Equipment Modifications

No modification was made to the EUT tested.

EUT Exercise Software

The software "art2_ver_2_67BIN" was used for testing, which was provided by manufacturer. The worst condition was setting by the software as following table:

Test Mode	Test Software Version		art2_ver_2_67BIN	
	Test Frequency	2412MHz	2437MHz	2462MHz
802.11b	Data Rate	1Mbps	1Mbps	1Mbps
002.110	Power Level Setting	55		55
	Test Frequency	2412MHz	2437MHz	2462MHz
802.11g	Data Rate	6Mbps	6Mbps	6Mbps
002.119	Power Level 63 Setting		62	61
	Test Frequency	2412MHz	2437MHz	2462MHz
802.11n	Data Rate	MCS0	MCS0	MCS0
ht20	Power Level Setting	63	62	61
	Test Frequency	2422MHz	2437MHz	2452MHz
802.11n	Data Rate	MCS0	MCS0	MCS0
ht40	Power Level Setting	64	63	62

Report No.: RBJ160918052 Page 6 of 47

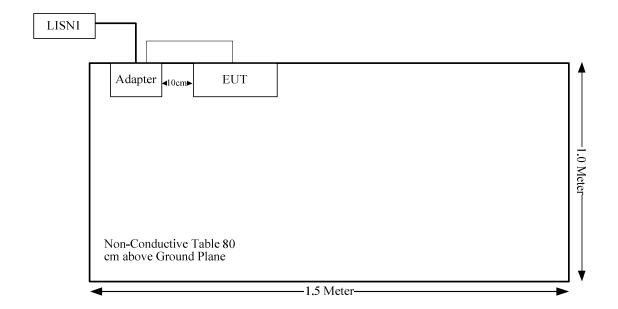
Support Equipment List and Details

Manufacturer	Description	Model	Serial Number	
Huntkey	Adapter	HKA01105021	0D16033003303	

External Cable

Cable Description	Shielding Type	Ferrite Core	Length (m)	From Port	То
USB Cable	no	no	0.23	EUT	Adapter

Block Diagram of Test Setup



Report No.: RBJ160918052 Page 7 of 47

SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
FCC §15.247 (i) & §1.1310 & §2.1093	RF Exposure	Compliance
§15.203	Antenna Requirement	Compliant
§15.207 (a)	AC Line Conducted Emissions	Compliant
§15.247(d)	Spurious Emissions at Antenna Port	Compliant
§15.205, §15.209, §15.247(d)	Spurious Emissions	Compliant
§15.247 (a)(2)	6 dB Emission Bandwidth	Compliant
§15.247(b)(3)	Maximum conducted output power	Compliant
§15.247(d)	100 kHz Bandwidth of Frequency Band Edge	Compliant
§15.247(e)	Power Spectral Density	Compliant

Report No.: RBJ160918052 Page 8 of 47

FCC §15.247 (i) & §1.1310 & §2.1093- RF EXPOSURE

Applicable Standard

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

According to KDB447498 D01 General RF Exposure Guidance v06:

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance,

mm)] $[\sqrt{f(GHz)}] \le 3.0$ for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where

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

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

Measurement Result

The max tune-up conducted power is 9.8 dBm (9.55 mW). [(max. power of channel, mW)/(min. test separation distance, mm)][$\sqrt{f(GHz)}$] = 9.55/5*($\sqrt{2.462}$) = 3.0 ≤ 3.0

So the stand-alone SAR evaluation is not necessary.

Report No.: RBJ160918052 Page 9 of 47

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, the antenna gain is 1.3 dBi, fulfill the requirement of this section. Please refer to the EUT photos.

Result: Compliance.

Report No.: RBJ160918052 Page 10 of 47

FCC §15.207 (a) - AC LINE CONDUCTED EMISSIONS

Applicable Standard

FCC§15.207

Measurement Uncertainty

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

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

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

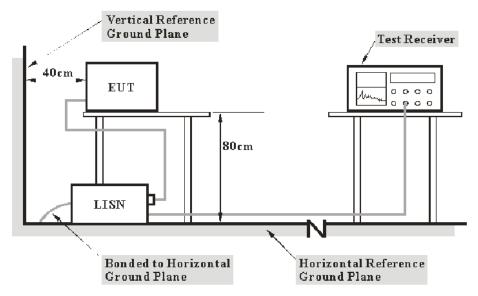
Based on CISPR 16-4-2:2011, measurement uncertainty of conducted disturbance at mains port using AMN at Bay Area Compliance Laboratories Corp. (Chengdu) is ±3.17 dB (150 kHz to 30 MHz).

Table 1 – Values of U_{cispr}

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

Report No.: RBJ160918052 Page 11 of 47

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 C63.10-2013 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 an AC 120 V/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.

Report No.: RBJ160918052 Page 12 of 47

Corrected Amplitude & Margin Calculation

The basic equation is as follows:

$$V_C = V_R + A_C + VDF$$

 $C_f = A_C + VDF$

Herein,

V_C (cord. Reading): corrected voltage amplitude

V_R: reading voltage amplitude A_c: attenuation caused by cable loss VDF: voltage division factor of AMN

C_f: Correction Factor

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

Margin = Limit – Corrected Amplitude

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCS 30	836858/0016	2015-12-02	2016-12-01
Rohde & Schwarz	L.I.S.N.	ENV216	3560.6550.06	2015-12-02	2016-12-01
Rohde & Schwarz	PULSE LIMITER	ESH3Z2	357.8810.52	2016-10-31	2017-10-30
N/A	Conducted Cable	NO.5	N/A	2016-11-10	2017-11-09

^{*} **Statement of Traceability:** BACL (Chengdu) attested that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data

Environmental Conditions

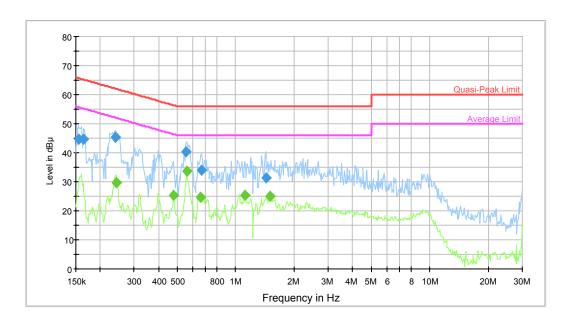
Temperature:	28.3 °C
Relative Humidity:	45 %
ATM Pressure:	100.8 kPa

The testing was performed by Kevin Hu on 2016-11-16.

Report No.: RBJ160918052 Page 13 of 47

Test Mode: Transmitting

AC120 V, 60 Hz, Line:

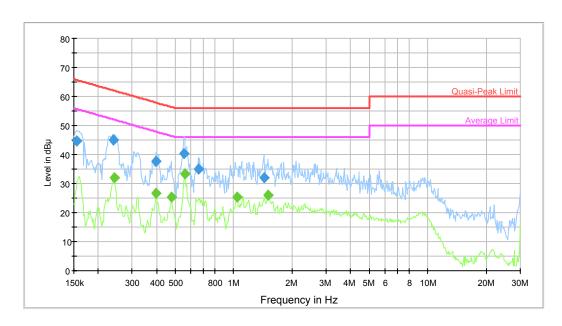


Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.154858	44.8	9.000	L1	18.79	20.9	65.7	Compliance
0.163741	44.6	9.000	L1	18.79	20.7	65.3	Compliance
0.240029	45.4	9.000	L1	18.87	16.7	62.1	Compliance
0.554139	40.2	9.000	L1	19.4	15.8	56.0	Compliance
0.665597	34.0	9.000	L1	19.39	22.0	56.0	Compliance
1.430284	31.3	9.000	L1	19.47	24.7	56.0	Compliance

Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.241949	29.5	9.000	L1	18.88	22.5	52.0	Compliance
0.480097	25.5	9.000	L1	19.36	20.8	46.3	Compliance
0.558572	33.7	9.000	L1	19.4	12.3	46.0	Compliance
0.660314	24.7	9.000	L1	19.39	21.3	46.0	Compliance
1.117238	25.4	9.000	L1	19.46	20.6	46.0	Compliance
1.512328	25.1	9.000	L1	19.48	20.9	46.0	Compliance

Report No.: RBJ160918052 Page 14 of 47

AC120 V, 60 Hz, Neutral:



Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.156097	44.8	9.000	L1	18.77	20.9	65.7	Compliance
0.240029	45.0	9.000	L1	18.85	17.0	62.1	Compliance
0.399703	37.7	9.000	L1	19.18	20.2	57.9	Compliance
0.554139	40.4	9.000	L1	19.38	15.6	56.0	Compliance
0.655073	34.9	9.000	L1	19.36	21.1	56.0	Compliance
1.430284	32.2	9.000	L1	19.47	23.8	56.0	Compliance

Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.241949	31.8	9.000	L1	18.86	20.2	52.0	Compliance
0.399703	26.8	9.000	L1	19.18	21.1	47.9	Compliance
0.476287	25.5	9.000	L1	19.34	20.9	46.4	Compliance
0.558572	33.4	9.000	L1	19.38	12.6	46.0	Compliance
1.039922	25.4	9.000	L1	19.46	20.6	46.0	Compliance
1.512328	25.9	9.000	L1	19.47	20.1	46.0	Compliance

Report No.: RBJ160918052 Page 15 of 47

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

Applicable Standard

FCC §15.247 (d); §15.209; §15.205;

Measurement Uncertainty

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

If U_{lab} is less than or equal to U_{cispr} of Table 2, then:

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

Based on CISPR 16-4-2-2011, measurement uncertainty of radiated emission at a distance of 3m at Bay Area Compliance Laboratories Corp. (Chengdu) is:

30M~200MHz: ±4.7 dB; 200M~1GHz: ±6.0 dB; 1G~6GHz: ±5.13 dB; 6G~25GHz: ±5.47 dB;

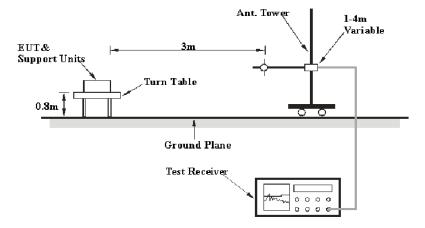
Table 2 – Values of U_{cisor}

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

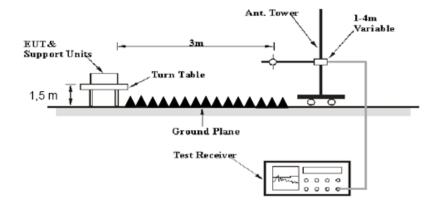
Report No.: RBJ160918052 Page 16 of 47

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 C63.10-2013. 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 spacing between the peripherals was 10 cm.

Report No.: RBJ160918052 Page 17 of 47

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:

30MHz-1000MHz:

Detector	RBW	Video B/W	IF B/W
QP	120 kHz	300 kHz	120kHz

1GHz-25GHz:

Detector	Duty cycle	RBW	Video B/W
PK	Any	1MHz	3 MHz
Avo	>98%	1MHz	10 Hz
Ave.	<98%	1MHz	1/T

Note: T is minimum transmission duration

Test Procedure

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

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

Corrected Amplitude & Margin Calculation

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

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

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

Margin = Limit –Corrected Amplitude

Report No.: RBJ160918052 Page 18 of 47

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Agilent	Amplifier	8447D	2944A10442	2015-12-02	2016-12-01
Rohde & Schwarz	EMI Test Receiver	ESCI	100028	2015-12-02	2016-12-01
Sunol Sciences	Broadband Antenna	JB3	A101808	2016-04-10	2019-04-09
Rohde & Schwarz	Spectrum Analyzer	FSEM30	100018	2015-12-02	2016-12-01
ETS	Horn Antenna	3115	003-6076	2015-12-02	2016-12-01
Ducommun Technologies	Horn Antenna	ARH-4223-02	1007726- 0113024	2014-06-16	2017-06-15
Mini-circuits	Amplifier	ZVA-183-S+	771001215	2016-05-20	2017-05-19
HP	Amplifier	8449B	3008A00277	2015-12-02	2016-12-01
EMCT	Semi-Anechoic Chamber	966	N/A	2015-04-24	2018-04-23
N/A	RF Cable (below 1GHz)	NO.1	N/A	2016-11-10	2017-11-09
N/A	RF Cable (below 1GHz)	NO.4	N/A	2016-11-10	2017-11-09
N/A	RF Cable (above 1GHz)	NO.2	N/A	2016-11-10	2017-11-09

^{*} **Statement of Traceability:** BACL (Chengdu) attested that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data

Environmental Conditions

Temperature:	25.3 °C
Relative Humidity:	38 %
ATM Pressure:	100.2 kPa

^{*} The testing was performed by Kevin Hu on 2016-11-21.

Test Mode: Tansmitting

Report No.: RBJ160918052 Page 19 of 47

30MHz-25GHz:

802.11b Mode

Fraguency	Re	ceiver	Rx Aı	ntenna	Cable	Amplifier	Corrected	l imit	Moreir
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)
			Lov	w Channe	l: 2412 N	ЛHz			
2412	62.52	PK	Н	23.50	3.00	0.00	89.02	N/A	N/A
2412	56.87	AV	Н	23.50	3.00	0.00	83.37	N/A	N/A
2412	67.45	PK	V	23.50	3.00	0.00	93.95	N/A	N/A
2412	61.73	AV	V	23.50	3.00	0.00	88.23	N/A	N/A
2390	29.12	PK	V	23.57	3.00	0.00	55.69	74.00	18.31
2390	15.34	AV	V	23.57	3.00	0.00	41.91	54.00	12.09
4824	41.02	PK	V	30.84	5.11	26.87	50.10	74.00	23.90
4824	33.5	AV	V	30.84	5.11	26.87	42.58	54.00	11.42
7236	35.87	PK	V	34.77	6.18	26.36	50.46	74.00	23.54
7236	27.36	AV	V	34.77	6.18	26.36	41.95	54.00	12.05
1642	32.05	PK	V	24.33	2.78	26.47	32.69	74.00	41.31
1642	25.46	AV	V	24.33	2.78	26.47	26.10	54.00	27.90
455.83	43.85	QP	Н	17.30	1.49	28.56	34.08	46.00	11.92
500.45	46.61	QP	Н	18.10	1.61	28.82	37.50	46.00	8.50
			Midd	dle Chann	el: 2437	MHz			
2437	62.31	PK	Н	23.41	3.00	0.00	88.72	N/A	N/A
2437	57.09	AV	Н	23.41	3.00	0.00	83.50	N/A	N/A
2437	67.23	PK	V	23.41	3.00	0.00	93.64	N/A	N/A
2437	61.05	AV	V	23.41	3.00	0.00	87.46	N/A	N/A
4874	41.08	PK	V	31.00	5.09	26.87	50.30	74.00	23.70
4874	33.76	AV	V	31.00	5.09	26.87	42.98	54.00	11.02
7311	35.64	PK	V	34.92	6.21	26.40	50.37	74.00	23.63
7311	27.42	AV	V	34.92	6.21	26.40	42.15	54.00	11.85
1572	31.5	PK	V	24.22	2.72	26.40	32.04	74.00	41.96
1572	24.88	AV	V	24.22	2.72	26.40	25.42	54.00	28.58
2046	33.52	PK	V	24.74	3.04	26.83	34.47	74.00	39.53
2046	26.46	AV	V	24.74	3.04	26.83	27.41	54.00	26.59
455.83	44.39	QP	Н	17.30	1.49	28.56	34.62	46.00	11.38
500.45	47.25	QP	Н	18.10	1.61	28.82	38.14	46.00	7.86
			Hig	h Channe					
2462	62.37	PK	Н	23.33	2.99	0.00	88.69	N/A	N/A
2462	57.32	AV	Н	23.33	2.99	0.00	83.64	N/A	N/A
2462	66.54	PK	V	23.33	2.99	0.00	92.86	N/A	N/A
2462	60.15	AV	V	23.33	2.99	0.00	86.47	N/A	N/A
2483.5	29.46	PK	V	23.26	2.99	0.00	55.71	74.00	18.29
2483.5	15.35	AV	V	23.26	2.99	0.00	41.60	54.00	12.40
4924	35.02	PK	V	31.16	5.07	26.88	44.37	74.00	29.63
4924	27.36	AV	V	31.16	5.07	26.88	36.71	54.00	17.29
7386	33.74	PK	V	35.07	6.25	26.43	48.63	74.00	25.37
7386	25.36	AV	V	35.07	6.25	26.43	40.25	54.00	13.75
1642	33.16	PK	V	24.33	2.78	26.47	33.80	74.00	40.20
1642	24.75	AV	V	24.33	2.78	26.47	25.39	54.00	28.61
455.83	45.69	QP	Н	17.30	1.49	28.56	35.92	46.00	10.08
500.45	47.28	QP	Н	18.10	1.61	28.82	38.17	46.00	7.83

Report No.: RBJ160918052 Page 20 of 47

802.11g Mode

F	Re	ceiver	Rx A	ntenna	Cable	Amplifier	Corrected	11	
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)
			Lo	w Channel	: 2412 M	Hz			
2412	63.05	PK	Н	23.50	3.00	0.00	89.55	N/A	N/A
2412	51.73	AV	Н	23.50	3.00	0.00	78.23	N/A	N/A
2412	67.25	PK	V	23.50	3.00	0.00	93.75	N/A	N/A
2412	55.74	AV	V	23.50	3.00	0.00	82.24	N/A	N/A
2390	28.49	PK	V	23.57	3.00	0.00	55.06	74.00	18.94
2390	15.23	AV	V	23.57	3.00	0.00	41.80	54.00	12.20
4824	35.49	PK	V	30.84	5.11	26.87	44.57	74.00	29.43
4824	23.04	AV	V	30.84	5.11	26.87	32.12	54.00	21.88
7236	33.18	PK	V	34.77	6.18	26.36	47.77	74.00	26.23
7236	21.34	AV	V	34.77	6.18	26.36	35.93	54.00	18.07
1545	32.05	PK	V	24.17	2.70	26.37	32.55	74.00	41.45
1545	20.46	AV	V	24.17	2.70	26.37	20.96	54.00	33.04
455.83	45.88	QP	Η	17.30	1.49	28.56	36.11	46.00	9.89
500.45	47.26	QP	Н	18.10	1.61	28.82	38.15	46.00	7.85
			Mid	dle Channe	el: 2437 l	MHz			
2437	63.32	PK	Н	23.41	3.00	0.00	89.73	N/A	N/A
2437	52.05	AV	Н	23.41	3.00	0.00	78.46	N/A	N/A
2437	66.75	PK	V	23.41	3.00	0.00	93.16	N/A	N/A
2437	55.62	AV	V	23.41	3.00	0.00	82.03	N/A	N/A
4874	36.21	PK	V	31.00	5.09	26.87	45.43	74.00	28.57
4874	23.56	AV	V	31.00	5.09	26.87	32.78	54.00	21.22
7311	32.97	PK	V	34.92	6.21	26.40	47.70	74.00	26.30
7311	21.91	AV	V	34.92	6.21	26.40	36.64	54.00	17.36
1469	32.18	PK	V	24.02	2.63	26.36	32.47	74.00	41.53
1469	20.25	AV	V	24.02	2.63	26.36	20.54	54.00	33.46
3018	32.09	PK	V	24.30	3.46	26.42	33.43	74.00	40.57
3018	20.18	AV	V	24.30	3.46	26.42	21.52	54.00	32.48
455.83	46.28	QP	Н	17.30	1.49	28.56	36.51	46.00	9.49
500.45	48.36	QP	Н	18.10	1.61	28.82	39.25	46.00	6.75
				gh Channe					
2462	60.74	PK	Н	23.33	2.99	0.00	87.06	N/A	N/A
2462	48.69	AV	Н	23.33	2.99	0.00	75.01	N/A	N/A
2462	66.58	PK	V	23.33	2.99	0.00	92.90	N/A	N/A
2462	54.88	AV	V	23.33	2.99	0.00	81.20	N/A	N/A
2483.5	30.42	PK	V	23.26	2.99	0.00	56.67	74.00	17.33
2483.5	16.38	AV	V	23.26	2.99	0.00	42.63	54.00	11.37
4924	35.65	PK	V	31.16	5.07	26.88	45.00	74.00	29.00
4924	27.91	AV	V	31.16	5.07	26.88	37.26	54.00	16.74
7386	34.15	PK	V	35.07	6.25	26.43	49.04	74.00	24.96
7386	24.77	AV	V	35.07	6.25	26.43	39.66	54.00	14.34
1455	33.05	PK	V	23.98	2.61	26.37	33.27	74.00	40.73
1455	25.01	AV	V	23.98	2.61	26.37	25.23	54.00	28.77
455.83	45.69	QP	H	17.30	1.49	28.56	35.92	46.00	10.08
500.45	47.29	QP	Н	18.10	1.61	28.82	38.18	46.00	7.82

Report No.: RBJ160918052 Page 21 of 47

802.11 n ht20 Mode

E	Re	ceiver	Rx A	ntenna	Cable	Amplifier	Corrected		
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)
			Lov	v Channe	l: 2412 N	ИHz			
2412	63.49	PK	Н	23.50	3.00	0.00	89.99	N/A	N/A
2412	52.72	AV	Н	23.50	3.00	0.00	79.22	N/A	N/A
2412	67.75	PK	V	23.50	3.00	0.00	94.25	N/A	N/A
2412	56.41	AV	V	23.50	3.00	0.00	82.91	N/A	N/A
2390	28.44	PK	V	23.57	3.00	0.00	55.01	74.00	18.99
2390	15.27	AV	V	23.57	3.00	0.00	41.84	54.00	12.16
4824	35.84	PK	V	30.84	5.11	26.87	44.92	74.00	29.08
4824	22.9	AV	V	30.84	5.11	26.87	31.98	54.00	22.02
7236	33.59	PK	V	34.77	6.18	26.36	48.18	74.00	25.82
7236	21.18	AV	V	34.77	6.18	26.36	35.77	54.00	18.23
1652	32.36	PK	V	24.34	2.79	26.48	33.01	74.00	40.99
1652	19.97	AV	V	24.34	2.79	26.48	20.62	54.00	33.38
455.83	46.28	QP	Н	17.30	1.49	28.56	36.51	46.00	9.49
500.45	46.29	QP	Н	18.10	1.61	28.82	37.18	46.00	8.82
			Mido	lle Chann	el: 2437	MHz			•
2437	62.49	PK	Н	23.41	3.00	0.00	88.90	N/A	N/A
2437	50.16	AV	Н	23.41	3.00	0.00	76.57	N/A	N/A
2437	66.25	PK	V	23.41	3.00	0.00	92.66	N/A	N/A
2437	54.34	AV	V	23.41	3.00	0.00	80.75	N/A	N/A
4874	36.22	PK	V	31.00	5.09	26.87	45.44	74.00	28.56
4874	23.3	AV	V	31.00	5.09	26.87	32.52	54.00	21.48
7311	32.71	PK	V	34.92	6.21	26.40	47.44	74.00	26.56
7311	21.32	AV	V	34.92	6.21	26.40	36.05	54.00	17.95
1482	32.34	PK	V	24.05	2.65	26.35	32.69	74.00	41.31
1482	20.99	AV	V	24.05	2.65	26.35	21.34	54.00	32.66
2235	32.45	PK	V	24.10	3.02	26.85	32.72	74.00	41.28
2235	20.69	AV	V	24.10	3.02	26.85	20.96	54.00	33.04
455.83	47.22	QP	Н	17.30	1.49	28.56	37.45	46.00	8.55
500.45	45.93	QP	Н	18.10	1.61	28.82	36.82	46.00	9.18
				h Channe					
2462	62.47	PK	Н	23.33	2.99	0.00	88.79	N/A	N/A
2462	51.35	AV	Н	23.33	2.99	0.00	77.67	N/A	N/A
2462	66.81	PK	V	23.33	2.99	0.00	93.13	N/A	N/A
2462	55.33	AV	V	23.33	2.99	0.00	81.65	N/A	N/A
2483.5	29.24	PK	V	23.26	2.99	0.00	55.49	74.00	18.51
2483.5	15.41	AV	V	23.26	2.99	0.00	41.66	54.00	12.34
4924	34.53	PK	V	31.16	5.07	26.88	43.88	74.00	30.12
4924	27.85	AV	V	31.16	5.07	26.88	37.20	54.00	16.80
7386	33.25	PK	V	35.07	6.25	26.43	48.14	74.00	25.86
7386	24.68	AV	V	35.07	6.25	26.43	39.57	54.00	14.43
2304	33.06	PK	V	23.87	3.01	26.86	33.08	74.00	40.92
2304	25.45	AV	V	23.87	3.01	26.86	25.47	54.00	28.53
455.83	46.96	QP	Н	17.30	1.49	28.56	37.19	46.00	8.81
500.45	45.88	QP	Н	18.10	1.61	28.82	36.77	46.00	9.23

Report No.: RBJ160918052 Page 22 of 47

802.11 n ht40 Mode

F	Re	ceiver	Rx A	ntenna	Cable	Amplifier	Corrected		
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)
			Lov	v Channe	l: 2422 N	ЛHz			
2422	63.45	PK	Н	23.47	3.00	0.00	89.92	N/A	N/A
2422	51.12	AV	Н	23.47	3.00	0.00	77.59	N/A	N/A
2422	67.39	PK	V	23.47	3.00	0.00	93.86	N/A	N/A
2422	55.68	AV	V	23.47	3.00	0.00	82.15	N/A	N/A
2390	29.52	PK	V	23.57	3.00	0.00	56.09	74.00	17.91
2390	16.24	AV	V	23.57	3.00	0.00	42.81	54.00	11.19
4844	40.79	PK	V	30.90	5.10	26.87	49.92	74.00	24.08
4844	33.67	AV	V	30.90	5.10	26.87	42.80	54.00	11.20
7266	35.46	PK	V	34.83	6.19	26.38	50.10	74.00	23.90
7266	26.87	AV	V	34.83	6.19	26.38	41.51	54.00	12.49
1385	32.13	PK	V	23.80	2.51	26.44	32.00	74.00	42.00
1385	26.23	AV	V	23.80	2.51	26.44	26.10	54.00	27.90
455.83	47.67	QP	Н	17.30	1.49	28.56	37.90	46.00	8.10
500.45	48.29	QP	Н	18.10	1.61	28.82	39.18	46.00	6.82
			Mido	lle Chann	el: 2437	MHz			
2437	62.5	PK	Н	23.41	3.00	0.00	88.91	N/A	N/A
2437	51.83	AV	Н	23.41	3.00	0.00	78.24	N/A	N/A
2437	67.64	PK	V	23.41	3.00	0.00	94.05	N/A	N/A
2437	55.77	AV	V	23.41	3.00	0.00	82.18	N/A	N/A
4874	36.13	PK	V	31.00	5.09	26.87	45.35	74.00	28.65
4874	23.58	AV	V	31.00	5.09	26.87	32.80	54.00	21.20
7311	32.84	PK	V	34.92	6.21	26.40	47.57	74.00	26.43
7311	21.16	AV	V	34.92	6.21	26.40	35.89	54.00	18.11
1528	32.77	PK	V	24.14	2.69	26.36	33.24	74.00	40.76
1528	21.13	AV	V	24.14	2.69	26.36	21.60	54.00	32.40
2230	32.25	PK	V	24.12	3.02	26.85	32.54	74.00	41.46
2230	20.87	AV	V	24.12	3.02	26.85	21.16	54.00	32.84
455.83	46.96	QP	Н	17.30	1.49	28.56	37.19	46.00	8.81
500.45	48.26	QP	Н	18.10	1.61	28.82	39.15	46.00	6.85
		_		h Channe			r	T	1
2452	61.86	PK	Н	23.36	3.00	0.00	88.22	N/A	N/A
2452	49.62	AV	Н	23.36	3.00	0.00	75.98	N/A	N/A
2452	66.45	PK	V	23.36	3.00	0.00	92.81	N/A	N/A
2452	54.53	AV	V	23.36	3.00	0.00	80.89	N/A	N/A
2483.5	30.15	PK	V	23.26	2.99	0.00	56.40	74.00	17.60
2483.5	16.07	AV	V	23.26	2.99	0.00	42.32	54.00	11.68
4904	35.76	PK	V	31.09	5.08	26.87	45.06	74.00	28.94
4904	23.74	AV	V	31.09	5.08	26.87	33.04	54.00	20.96
7356	33.32	PK	V	35.01	6.23	26.42	48.14	74.00	25.86
7356	21.58	AV	V	35.01	6.23	26.42	36.40	54.00	17.60
1585	33.1	PK	V	24.24	2.73	26.41	33.66	74.00	40.34
1585	22.08	AV	V	24.24	2.73	26.41	22.64	54.00	31.36
455.83	47.64	QP	H	17.30	1.49	28.56	37.87	46.00	8.13
500.45	48.29	QP	Н	18.10	1.61	28.82	39.18	46.00	6.82

Report No.: RBJ160918052 Page 23 of 47

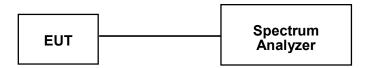
FCC §15.247(a) (2) – 6 dB EMISSION BANDWIDTH

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

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



Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Signal Analyzer	FSIQ26	831929/005	2016-09-21	2017-09-20
N/A	RF Cable	N/A	N/A	Each Time	/

^{*} **Statement of Traceability:** BACL (Chengdu) attested that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data

Environmental Conditions

Temperature:	28.6 °C	
Relative Humidity:	34 %	
ATM Pressure:	100.2 kPa	

^{*} The testing was performed by Kevin Hu on 2016-10-22.

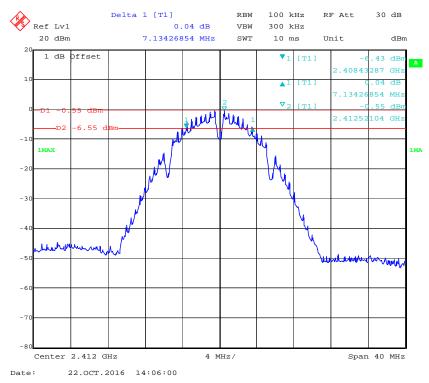
Report No.: RBJ160918052 Page 24 of 47

Test Mode: Transmitting

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

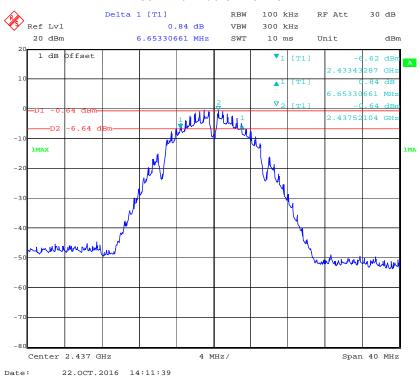
Test mode	Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limit (MHz)
	Low	2412	7.13	≥0.5
802.11b	Middle	2437	6.65	≥0.5
	High	2462	7.13	≥0.5
	Low	2412	16.51	≥0.5
802.11g	Middle	2437	16.59	≥0.5
	High	2462	16.59	≥0.5
	Low	2412	17.8	≥0.5
802.11n20	Middle	2437	17.8	≥0.5
	High	2462	17.8	≥0.5
802.11 n40	Low	2422	34.31	≥0.5
	Middle	2437	32.38	≥0.5
	High	2452	34.31	≥0.5

802.11b Low Channel

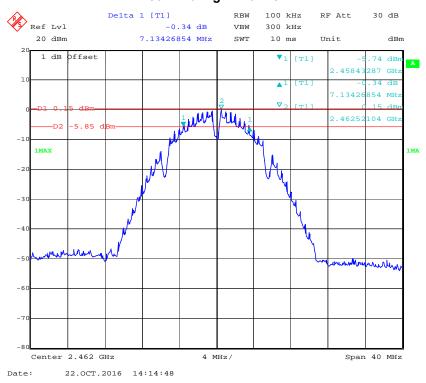


Report No.: RBJ160918052 Page 25 of 47

802.11b Middle Channel

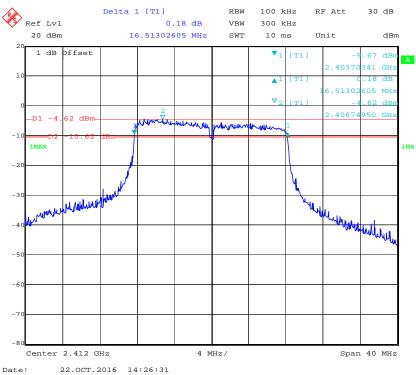


802.11b High Channel

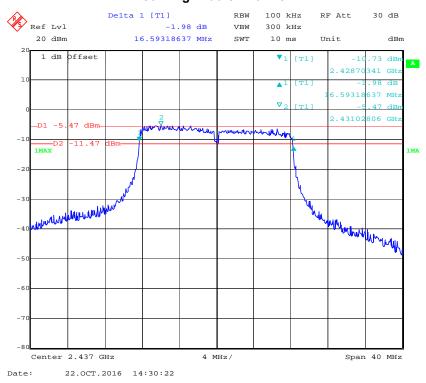


Report No.: RBJ160918052 Page 26 of 47

802.11g Low Channel

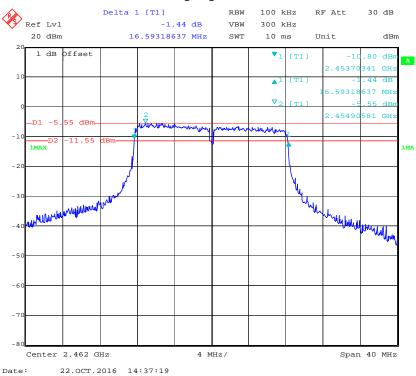


802.11g Middle Channel

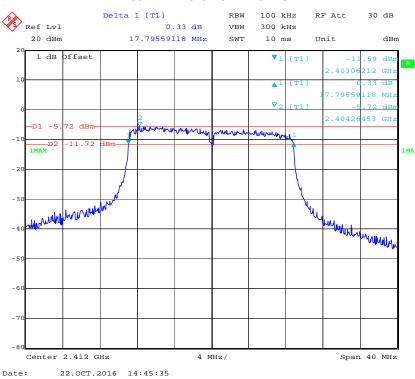


Report No.: RBJ160918052 Page 27 of 47

802.11g High Channel

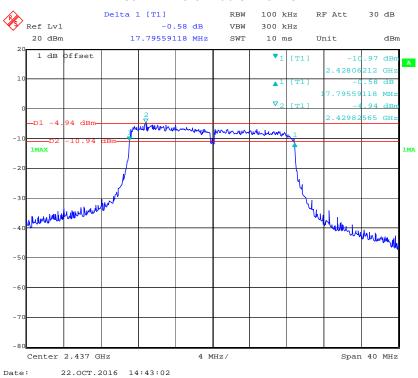


802.11n ht20 Low Channel

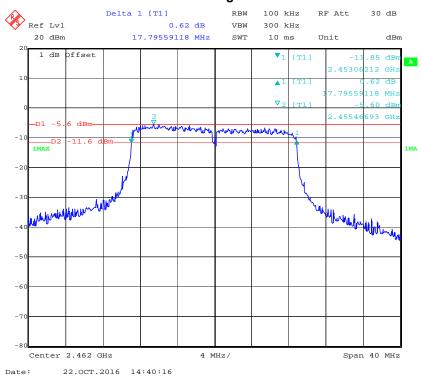


Report No.: RBJ160918052 Page 28 of 47

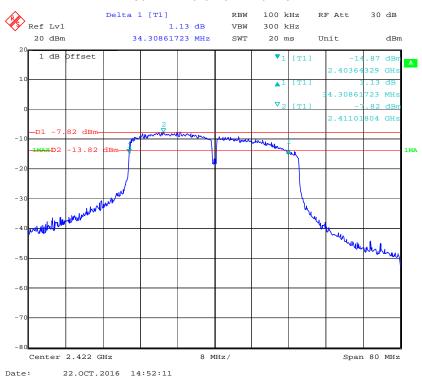
802.11n ht20 Middle Channel



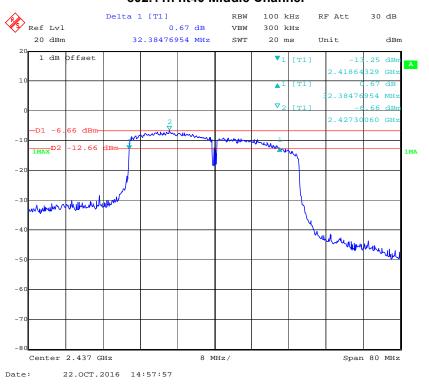
802.11n ht20 High Channel



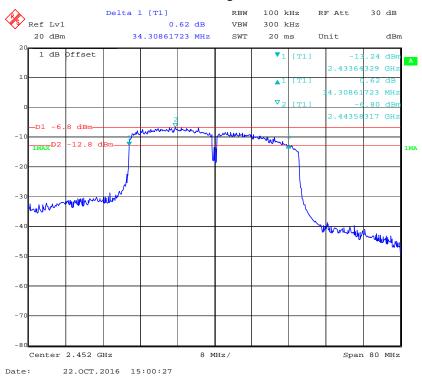
802.11n ht40 Low Channel



802.11n ht40 Middle Channel



802.11n ht40 High Channel



Report No.: RBJ160918052 Page 31 of 47

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

Applicable Standard

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

Test Procedure

- 1. 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	MY54170074	2016-01-03	2017-01-03
Agilent	P-Series Power Meter	N1912A	MY5000798	2016-01-03	2017-01-03
N/A	RF Cable	N/A	N/A	Each Time	1

^{*} Statement of Traceability: BACL (Chengdu) attested that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data

Environmental Conditions

Temperature:	28.6 °C	
Relative Humidity:	34 %	
ATM Pressure:	100.2 kPa	

^{*} The testing was performed by Kevin Hu on 2016-10-22.

Report No.: RBJ160918052 Page 32 of 47

Bay Area Compliance Laboratories Corp. (Chengdu)

Test Mode: Transmitting

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

Test mode	Channel	Frequency (MHz)	Max Conducted Peak Output Power (dBm)	Max Conducted Average Output Power (dBm)	Limit (dBm)
	Low	2412	11.01	9.35	30
802.11b	Middle	2437	10.83	9.17	30
†	High	2462	11.4	9.65	30
	Low	2412	14.3	9.57	30
802.11g	Middle	2437	14.36	9.62	30
	High	2462	14.36	9.65	30
	Low	2412	14.28	9.48	30
802.11n20	Middle	2437	14.4	9.58	30
	High	2462	14.42	9.64	30
	Low	2422	16.11	8.75	30
802.11n40	Middle	2437	15.62	8.45	30
	High	2452	15.79	8.53	30

Report No.: RBJ160918052 Page 33 of 47

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	Signal Analyzer	FSIQ26	831929/005	2016-09-21	2017-09-20
N/A	RF Cable	N/A	N/A	Each Time	1

^{*} Statement of Traceability: BACL (Chengdu) attested that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Report No.: RBJ160918052 Page 34 of 47

Test Data

Environmental Conditions

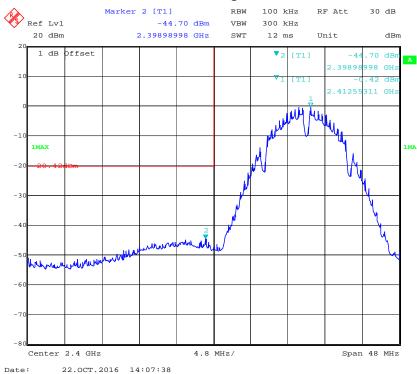
Temperature:	28.6 °C	
Relative Humidity:	34 %	
ATM Pressure:	100.2 kPa	

^{*} The testing was performed by Kevin Hu on 2016-10-22.

Test mode: Transmitting

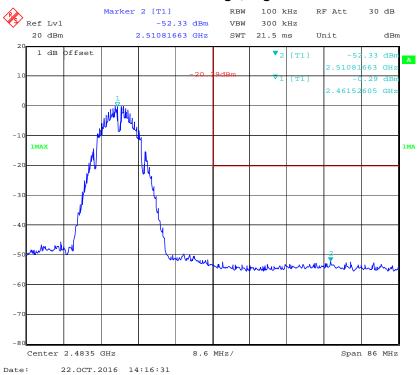
Test Result: Compliant. Please refer to following plots.

802.11b: Band Edge, Left Side

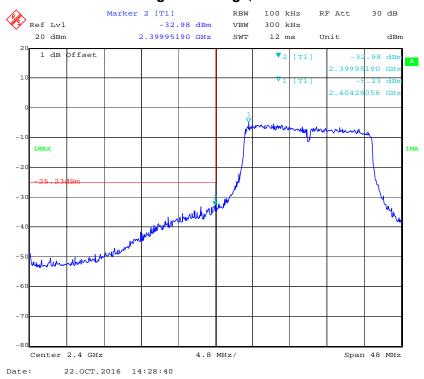


Report No.: RBJ160918052 Page 35 of 47

802.11b: Band Edge, Right Side

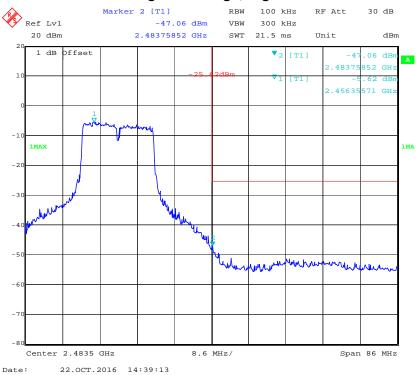


802.11g: Band Edge, Left Side

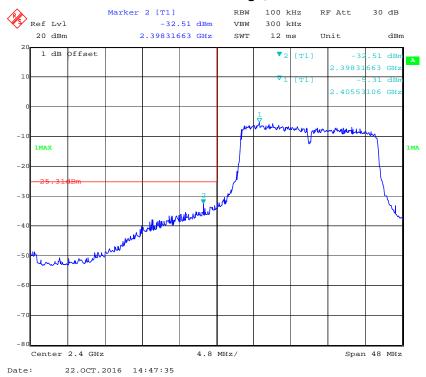


Report No.: RBJ160918052 Page 36 of 47

802.11g: Band Edge, Right Side

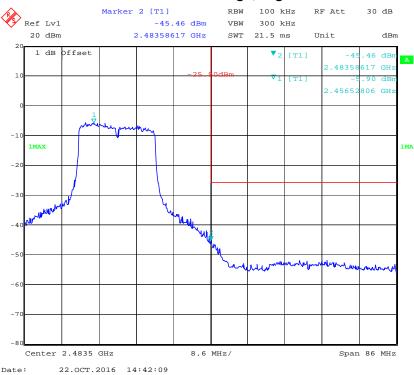


802.11n ht20 Band Edge, Left Side



Report No.: RBJ160918052 Page 37 of 47

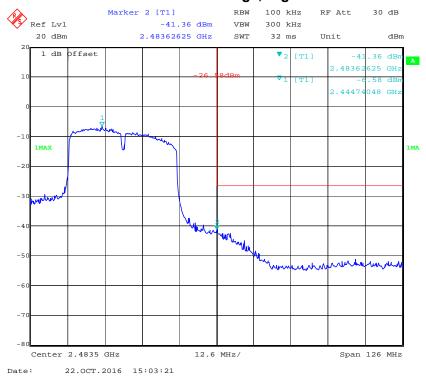
802.11n ht20 Band Edge, Right Side



802.11n ht40 Band Edge, Left Side



802.11n ht40 Band Edge, Right Side



Report No.: RBJ160918052 Page 39 of 47

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

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Signal Analyzer	FSIQ26	831929/005	2016-09-21	2017-09-20
N/A	RF Cable	N/A	N/A	Each Time	/

^{*} Statement of Traceability: BACL (Chengdu) attested that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data

Environmental Conditions

Temperature:	28.6 °C	
Relative Humidity:	34 %	
ATM Pressure:	100.2 kPa	

^{*} The testing was performed by Kevin Hu on 2016-10-22.

Report No.: RBJ160918052 Page 40 of 47

Bay Area Compliance Laboratories Corp. (Chengdu)

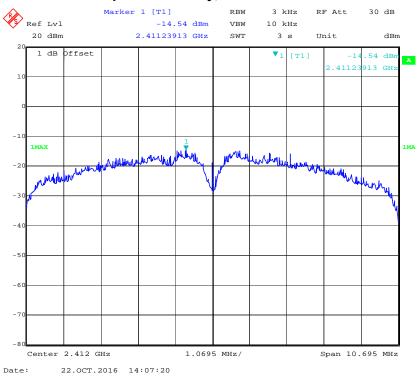
Test Mode: Transmitting

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

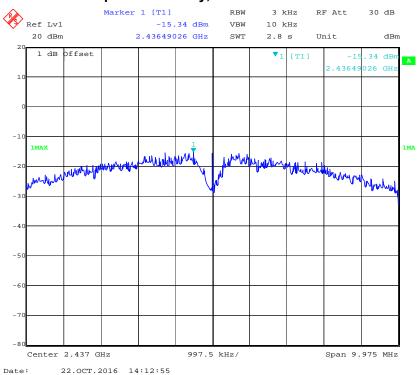
Test mode	Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)
	Low	2412	-14.54	≤8
802.11b	Middle	2437	-15.34	≤8
	High	2462	-14.46	≤8
	Low	2412	-17	≤8
802.11g	Middle	2437	-16.17	≤8
	High	2462	-16.87	≤8
	Low	2412	-17.31	≤6
802.11n20	Middle	2437	-15.87	≤6
	High	2462	-17.84	≤6
	Low	2422	-19.65	≤6
802.11n40	Middle	2437	-16.4	≤6
	High	2452	-18.22	≤6

Report No.: RBJ160918052 Page 41 of 47

Power Spectral Density, 802.11b Low Channel

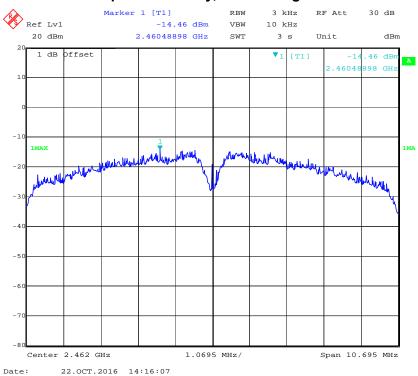


Power Spectral Density, 802.11b Middle Channel

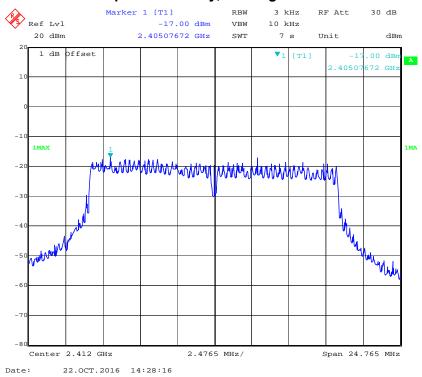


Report No.: RBJ160918052 Page 42 of 47

Power Spectral Density, 802.11b High Channel

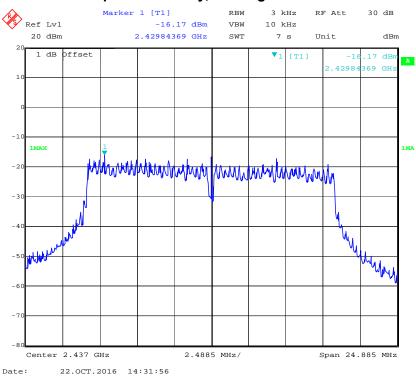


Power Spectral Density, 802.11g Low Channel

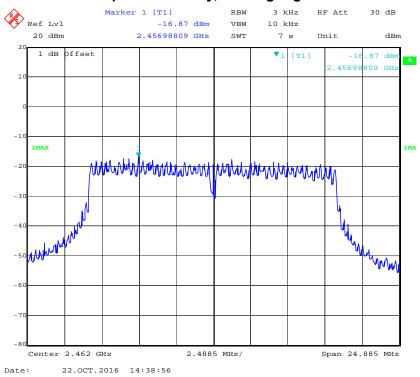


Report No.: RBJ160918052 Page 43 of 47

Power Spectral Density, 802.11g Middle Channel

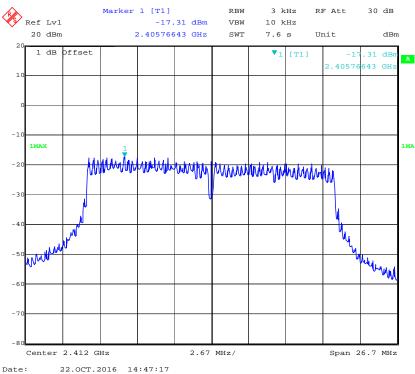


Power Spectral Density, 802.11g High Channel

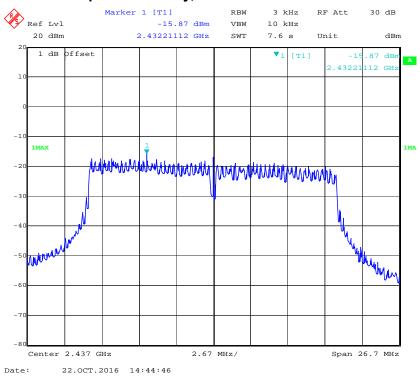


Report No.: RBJ160918052 Page 44 of 47

Power Spectral Density, 802.11n ht20 Low Channel

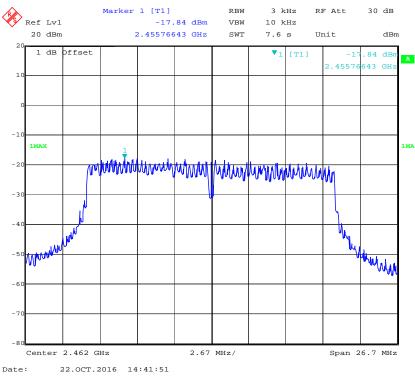


Power Spectral Density, 802.11n ht20 Middle Channel

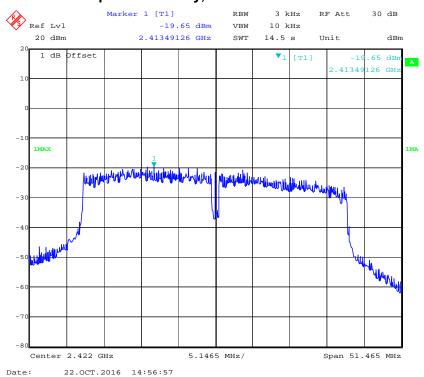


Report No.: RBJ160918052 Page 45 of 47

Power Spectral Density, 802.11n ht20 High Channel

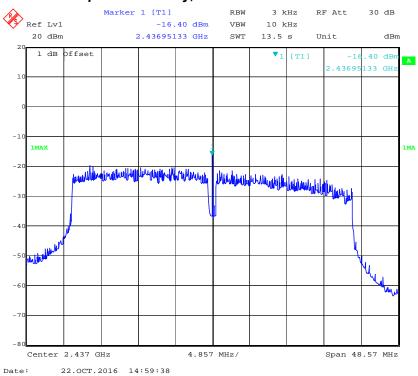


Power Spectral Density, 802.11n ht40 Low Channel

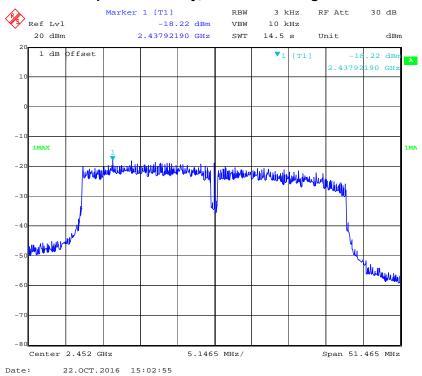


Report No.: RBJ160918052 Page 46 of 47

Power Spectral Density, 802.11n ht40 Middle Channel



Power Spectral Density, 802.11n ht40 High Channel



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