FCC PART 15.247

TEST REPORT

For

Skyrocket Toys LLC

12910 Culver Blvd, Suite F, Los Angeles, CA 90066, U.S.A

FCC ID: O5301736RX24G

Report Type:	Product Name:
Original Report	Sky Viper Streaming Drone with GPS

Test Engineer:	Jacky Gu
Report Number:	RDG170710005A
Report Date:	2017-07-15
Reviewed By:	Henry Ding EMC Leader
Test Laboratory:	Bay Area Compliance Laboratories Corp. (Chengdu) No.5040, Huilongwan Plaza, No.1, Shawan Road, Jinniu District, Chengdu, Sichuan, China Tel: 028-65525123, Fax: 028-65525125 www.baclcorp.com

TABLE OF CONTENTS

GENERAL INFORMATION 3
PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT) 3
OBJECTIVE 3
RELATED SUBMITTAL(S)/GRANT(S) 3
TEST METHODOLOGY 3
TEST FACILITY 4
SYSTEM TEST CONFIGURATION 5
DESCRIPTION OF TEST CONFIGURATION 5
EUT EXERCISE SOFTWARE 5
BLOCK DIAGRAM OF TEST SETUP 7
SUMMARY OF TEST RESULTS 8
FCC §15.247 (i) , §1.1310 , §2.1091- MAXIMUM PERMISSIBLE EXPOSURE (MPE) 9
APPLICABLE STANDARD 9
FCC §15.203 - ANTENNA REQUIREMENT 10
APPLICABLE STANDARD 10
ANTENNA INFORMATION AND CONNECTOR CONSTRUCTION 10
FCC §15.209, §15.205 , §15.247(d) - SPURIOUS EMISSIONS 11
APPLICABLE STANDARD 11
EUT SETUP 11
EMI TEST RECEIVER & SPECTRUM ANALYZER SETUP 12
TEST PROCEDURE 12
CORRECTED AMPLITUDE & MARGIN CALCULATION 12
TEST EQUIPMENT LIST AND DETAILS 13
TEST DATA 13
FCC §15.247(a) (2)–6 dB EMISSION BANDWIDTH 16
APPLICABLE STANDARD 16
TEST PROCEDURE 16
TEST EQUIPMENT LIST AND DETAILS 16
TEST DATA 17
FCC §15.247(b) (3) - MAXIMUM CONDUCTED OUTPUT POWER 21
APPLICABLE STANDARD 21
TEST PROCEDURE 21
TEST EQUIPMENT LIST AND DETAILS 21
TEST DATA 22
FCC §15.247(d) – 100 kHz BANDWIDTH OF FREQUENCY BAND EDGE 23
APPLICABLE STANDARD 23
TEST PROCEDURE 23
TEST EQUIPMENT LIST AND DETAILS 23
TEST DATA 24
FCC §15.247(e) - POWER SPECTRAL DENSITY 27
APPLICABLE STANDARD 27
TEST PROCEDURE 27
TEST EQUIPMENT LIST AND DETAILS 27
TEST DATA 27

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The ***Skyrocket Toys LLC***'s product, model number: ***01736 (FCC ID: O5301736RX24G)*** (the "EUT") in this report was a ***Sky Viper Streaming Drone with GPS***, which was measured approximately: 31 cm (L) x 31 cm (W) x 4.8 cm (H), rated input voltage: DC 3.7V from battery. The battery can be removed for charging.

**All measurement and test data in this report was gathered from final production sample, serial number: 170710005 (assigned by the BACL, Chengdu). It may have deviation from any other sample. The EUT supplied by the applicant was received on 2017-07-05, and EUT conformed to test requirement.*

Objective

This report is prepared on behalf of ***Skyrocket Toys LLC*** in accordance with Part 2, Subpart J, Part 15, Subparts A and C of the Federal Communications Commission's rules.

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

Related Submittal(s)/Grant(s)

FCC Part 15C DXX submissions with FCC ID: O5301736RX24G.
Submitted with the part of a system with FCC ID: O5301736TX24G.

Test Methodology

All measurements detailed in this Test Report were performed in accordance with ANSI C63.10-2013 "American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices".

All of the measurements detailed in this Test Report were performed by Bay Area Compliance Laboratories Corp. (Chengdu).

The Bay Area Compliance Laboratories Corp. Chengdu's measurement Uncertainties (calculated for a k=2 Coverage Factor corresponding to approximately 95% Coverage) were as follows:

-For all of the AC Line Conducted Emissions Tests reported herein: ±3.17 dB.

-For of all of the Direct Antenna Conducted Emissions Tests reported herein: ±0.56 dB.

-For of all of the direct Radiated Emissions Tests reported herein are:
30 MHz to 200 MHz: ±4.7 dB;
200 MHz to 1 GHz: ±6.0 dB;
1 GHz to 6 GHz: ±5.13dB; and,
6 GHz to 40 GHz: ±5.47dB.

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

Test Facility

The test site used by BACL to collect test data is located in the No.5040, Huilongwan Plaza, No.1, Shawan Road, Jinniu District, Chengdu, Sichuan, 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.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The system was configured for testing in testing mode, which was provided by manufacturer.

The device employed 802.11b/g modes, and 11 channels are provided:

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	/	/

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.

EUT Exercise Software

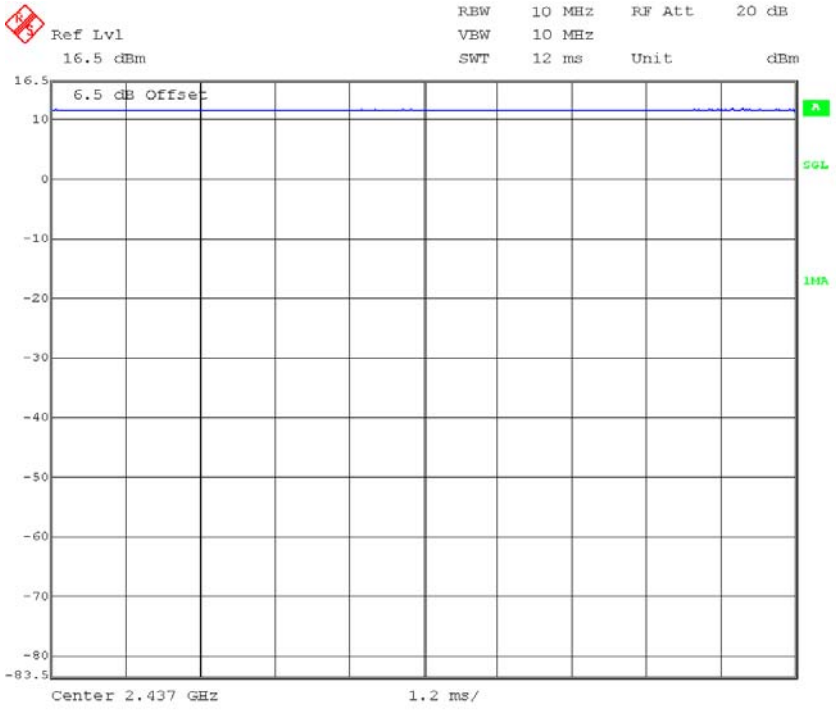
The software “MT7601 USB QA V1.0.4.0” was used for testing, and the commands were provided by manufacturer. The maximum power and duty cycle was set by commands as following table:

Test Mode	Test Software Version	MT7601 USB QA V1.0.4.0		
802.11b	Test Frequency	2412MHz	2437MHz	2462MHz
	Data Rate	1Mbps	1Mbps	1Mbps
	Power Level Setting	0C	0C	0C
802.11g	Test Frequency	2412MHz	2437MHz	2462MHz
	Data Rate	6Mbps	6Mbps	6Mbps
	Power Level Setting	04	03	03

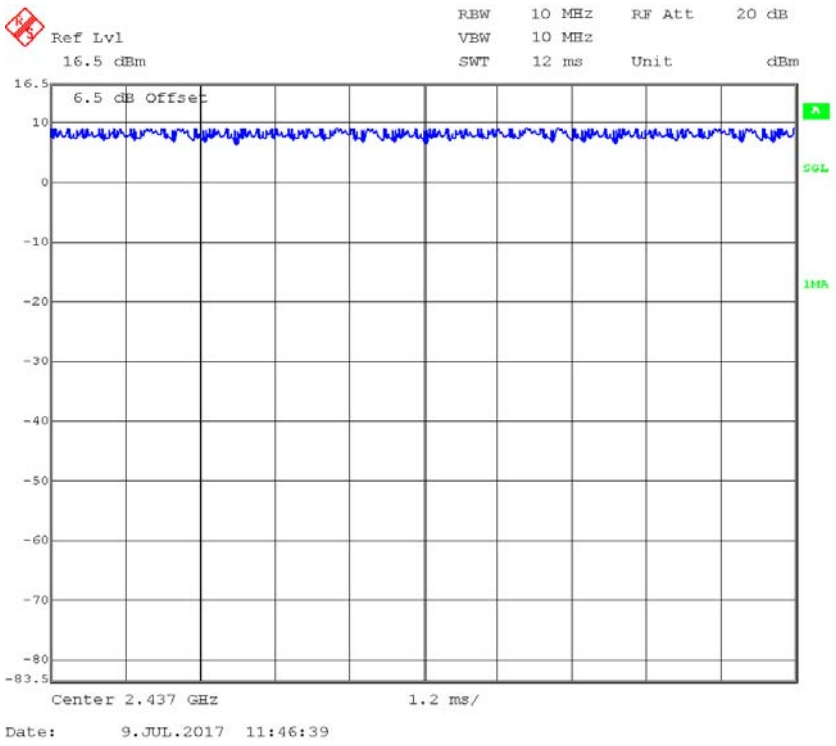
The duty cycle as below:

Mode	T_{on} (ms)	T_{on+off} (ms)	Duty Cycle (%)
802.11b	12	12	100%
802.11g	12	12	100%

802.11b

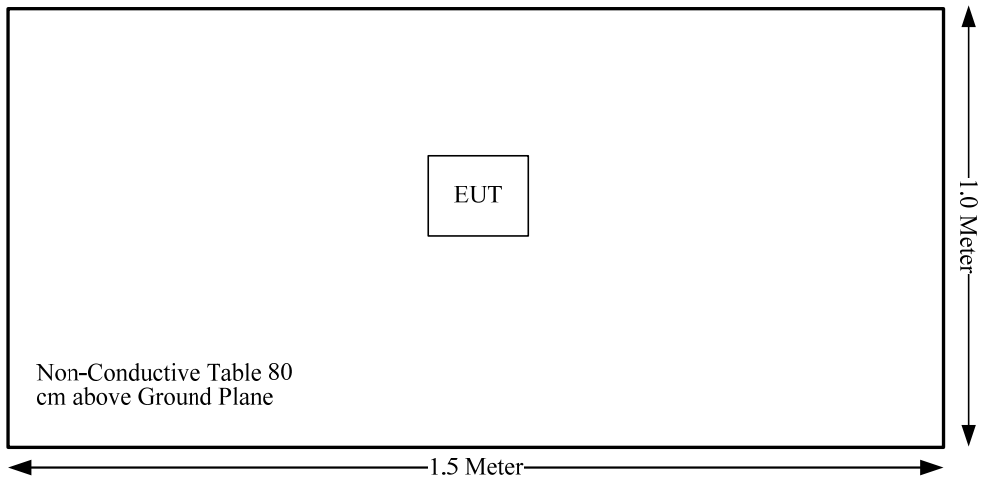


802.11g

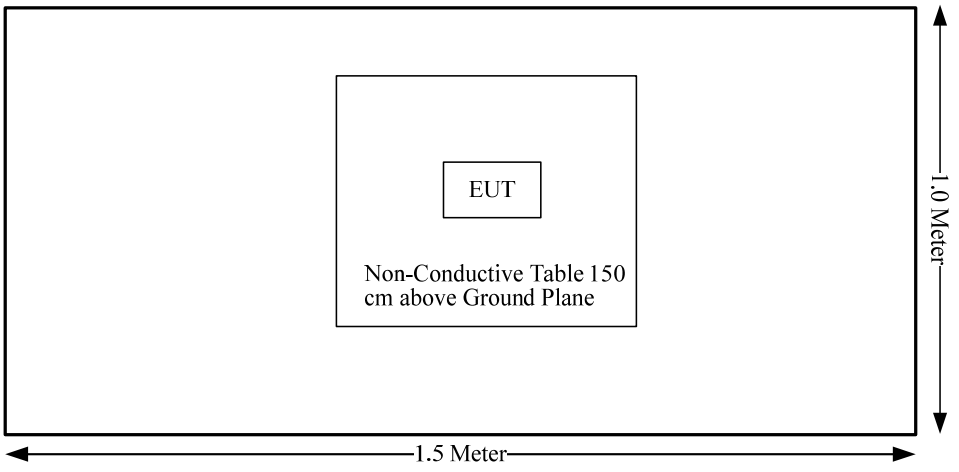


Block Diagram of Test Setup

Radiation test below 1GHz:



Radiation test above 1GHz:



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
FCC §15.247 (i) & §1.1310 & §2.1091	Maximum Permissable Exposure (MPE)	Compliance
FCC§15.203	Antenna Requirement	Compliance
§15.207 (a)	AC Line Conducted Emissions	Not Applicable
§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

Note:
Not Applicable: The EUT is powered by battery.

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/cm^2)**	**Averaging Time (minutes)**
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*(180/f²)	30
30–300	27.5	0.073	0.2	30
300–1500	/	/	f/1500	30
1500–100,000	/	/	1.0	30

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

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

Calculation Formula:

Prediction of power density at the distance of the applicable MPE limit:
$S = PG/4\pi R^2$ = 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 (MHz)	**Antenna Gain**		**Tune-up Power**		**Evaluation Distance (cm)**	**Power Density**	**MPE Limit**
	(dBi)	**(numeric)**	**(dBm)**	**(mW)**		**(mW/cm^2)**	**FCC (mW/cm^2)**
2412-2462	2	1.58	23	199.53	20.00	0.0629	1.0

Result: Compliance, The device meets MPE requirement for Devices Used by the General Public (Uncontrolled Environment) at distance ≥20 cm.

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 Information And Connector Construction

The EUT have an IPEX port connect to the internal antenna. The Maximum gain is 2.0 dBi, compliance the requirements, Please refer to the EUT photos.

Result: Compliance. Please refer to the EUT photos

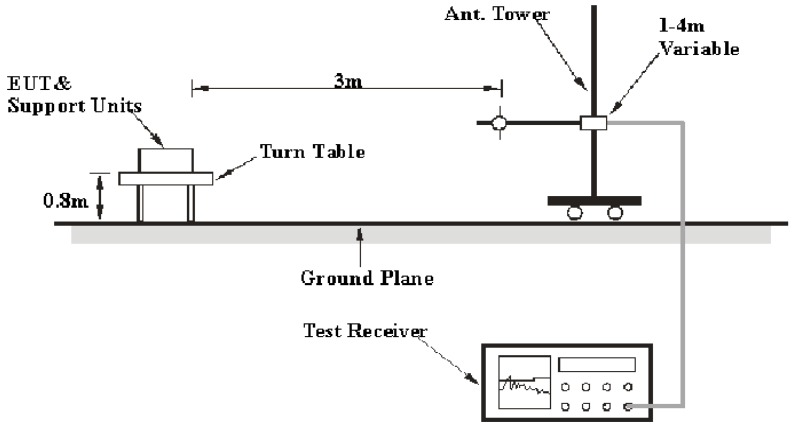
FCC §15.209, §15.205 , §15.247(d) - SPURIOUS EMISSIONS

Applicable Standard

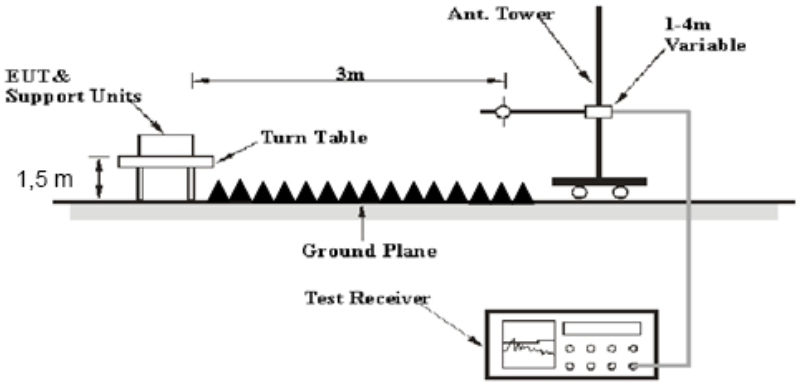
FCC §15.247 (d); §15.209; §15.205

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.

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:

30-1000MHz:

Frequency Range	RBW	Video B/W	IF B/W	Detector
30 MHz – 1000 MHz	120 kHz	300 kHz	120 kHz	QP

1GHz- 25GHz:

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

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 Factor and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

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

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

Margin = Limit –Corrected Amplitude

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Agilent	Amplifier	8447D	2944A10442	2016-12-02	2017-12-01
Rohde & Schwarz	EMI Test Receiver	ESCI	100028	2016-12-02	2017-12-01
Sunol Sciences	Broadband Antenna	JB3	A121808	2016-04-10	2019-04-09
Rohde & Schwarz	Spectrum Analyzer	FSEM30	100018	2016-12-02	2017-12-01
ETS	Horn Antenna	3115	003-6076	2016-12-02	2017-12-01
Ducommun Technologies	Horn Antenna	ARH-4223-02	1007726-0113024	2017-06-16	2020-06-15
Mini-circuits	Amplifier	ZVA-183-S+	771001215	2017-05-20	2018-05-19
HP	Amplifier	8449B	3008A00277	2016-12-02	2017-12-01
EMCT	Semi-Anechoic Chamber	966	966-1	2015-04-24	2018-04-23
Unknown	RF Cable (below 1GHz)	Unknown	NO.1	2016-11-10	2017-11-09
Unknown	RF Cable (below 1GHz)	Unknown	NO.4	2016-11-10	2017-11-09
Unknown	RF Cable (above 1GHz)	Unknown	NO.2	2016-11-10	2017-11-09

*** Statement of Traceability:** BACL(Chengdu) attests that all of the calibrations on the equipment items listed above were traceable to NIM or to another internationally recognized National Metrology Institute (NMI), and were compliant with the NIST HB 150-2016 Normative Annex B “Implementation of traceability policy in accredited laboratories”.

Test Data

Environmental Conditions

Temperature:	28 °C
Relative Humidity:	51 %
ATM Pressure:	100.1 kPa

** The testing was performed by Jacky Gu on 2017-07-11.*

Test Mode: Transmitting

30MHz-25GHz:802.11b

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)					
Frequency: 2412 MHz									
2412	75.32	PK	H	23.50	3.00	0.00	101.82	N/A	N/A
2412	71.64	AV	H	23.50	3.00	0.00	98.14	N/A	N/A
2412	79.26	PK	V	23.50	3.00	0.00	105.76	N/A	N/A
2412	76.24	AV	V	23.50	3.00	0.00	102.74	N/A	N/A
2390	30.85	PK	V	23.57	3.00	0.00	57.42	74.00	16.58
2390	18.92	AV	V	23.57	3.00	0.00	45.49	54.00	8.51
4824	40.57	PK	V	30.84	5.11	26.87	49.65	74.00	24.35
4824	25.40	AV	V	30.84	5.11	26.87	34.48	54.00	19.52
7236	38.28	PK	V	34.77	6.18	26.36	52.87	74.00	21.13
7236	23.15	AV	V	34.77	6.18	26.36	37.74	54.00	16.26
5785	37.83	PK	V	32.64	5.77	26.64	49.60	74.00	24.40
5785	23.35	AV	V	32.64	5.77	26.64	35.12	54.00	18.88
781.75	33.85	QP	V	21.75	2.28	28.48	29.40	46.00	16.60
476.2	36.01	QP	V	18.05	1.61	28.67	27.00	46.00	19.00
Frequency: 2437 MHz									
2437	75.29	PK	H	23.41	3.00	0.00	101.70	N/A	N/A
2437	71.45	AV	H	23.41	3.00	0.00	97.86	N/A	N/A
2437	79.13	PK	V	23.41	3.00	0.00	105.54	N/A	N/A
2437	76.03	AV	V	23.41	3.00	0.00	102.44	N/A	N/A
4874	40.70	PK	V	31.00	5.09	26.87	49.92	74.00	24.08
4874	25.58	AV	V	31.00	5.09	26.87	34.80	54.00	19.20
7311	38.50	PK	V	34.92	6.21	26.40	53.23	74.00	20.77
7311	23.36	AV	V	34.92	6.21	26.40	38.09	54.00	15.91
5835	37.91	PK	V	32.70	5.81	26.64	49.78	74.00	24.22
5835	23.43	AV	V	32.70	5.81	26.64	35.30	54.00	18.70
6488	37.28	PK	V	33.39	6.13	26.53	50.27	74.00	23.73
6488	22.90	AV	V	33.39	6.13	26.53	35.89	54.00	18.11
781.75	33.65	QP	V	21.75	2.28	28.48	29.20	46.00	16.80
476.2	36.51	QP	V	18.05	1.61	28.67	27.50	46.00	18.50
Frequency: 2462 MHz									
2462	75.85	PK	H	23.33	2.99	0.00	102.17	N/A	N/A
2462	71.73	AV	H	23.33	2.99	0.00	98.05	N/A	N/A
2462	79.62	PK	V	23.33	2.99	0.00	105.94	N/A	N/A
2462	75.24	AV	V	23.33	2.99	0.00	101.56	N/A	N/A
2483.5	31.75	PK	V	23.26	2.99	0.00	58.00	74.00	16.00
2483.5	20.66	AV	V	23.26	2.99	0.00	46.91	54.00	7.09
4924	40.41	PK	V	31.16	5.07	26.88	49.76	74.00	24.24
4924	25.19	AV	V	31.16	5.07	26.88	34.54	54.00	19.46
7386	37.27	PK	V	35.07	6.25	26.43	52.16	74.00	21.84
7386	23.21	AV	V	35.07	6.25	26.43	38.10	54.00	15.90
5865	37.51	PK	V	32.74	5.84	26.65	49.44	74.00	24.56
5865	23.38	AV	V	32.74	5.84	26.65	35.31	54.00	18.69
781.75	33.75	QP	V	21.75	2.28	28.48	29.30	46.00	16.70
476.2	36.11	QP	V	18.05	1.61	28.67	27.10	46.00	18.90

802.11g

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)					
Frequency: 2412 MHz									
2412	76.31	PK	H	23.50	3.00	0.00	102.81	N/A	N/A
2412	66.22	AV	H	23.50	3.00	0.00	92.72	N/A	N/A
2412	79.42	PK	V	23.50	3.00	0.00	105.92	N/A	N/A
2412	69.41	AV	V	23.50	3.00	0.00	95.91	N/A	N/A
2390	36.75	PK	V	23.57	3.00	0.00	63.32	74.00	10.68
2390	20.67	AV	V	23.57	3.00	0.00	47.24	54.00	6.76
4824	41.24	PK	V	30.84	5.11	26.87	50.32	74.00	23.68
4824	25.50	AV	V	30.84	5.11	26.87	34.58	54.00	19.42
7236	38.28	PK	V	34.77	6.18	26.36	52.87	74.00	21.13
7236	23.26	AV	V	34.77	6.18	26.36	37.85	54.00	16.15
5385	38.41	PK	V	32.09	5.41	26.67	49.24	74.00	24.76
5385	23.93	AV	V	32.09	5.41	26.67	34.76	54.00	19.24
781.75	33.55	QP	V	21.75	2.28	28.48	29.10	46.00	16.90
476.2	36.21	QP	V	18.05	1.61	28.67	27.20	46.00	18.80
Frequency: 2437 MHz									
2437	76.21	PK	H	23.41	3.00	0.00	102.62	N/A	N/A
2437	66.40	AV	H	23.41	3.00	0.00	92.81	N/A	N/A
2437	79.15	PK	V	23.41	3.00	0.00	105.56	N/A	N/A
2437	69.43	AV	V	23.41	3.00	0.00	95.84	N/A	N/A
4874	40.56	PK	V	31.00	5.09	26.87	49.78	74.00	24.22
4874	25.45	AV	V	31.00	5.09	26.87	34.67	54.00	19.33
7311	37.40	PK	V	34.92	6.21	26.40	52.13	74.00	21.87
7311	23.17	AV	V	34.92	6.21	26.40	37.90	54.00	16.10
5766	38.37	PK	V	32.62	5.75	26.64	50.10	74.00	23.90
5766	23.79	AV	V	32.62	5.75	26.64	35.52	54.00	18.48
6145	37.21	PK	V	33.05	6.01	26.62	49.65	74.00	24.35
6145	23.03	AV	V	33.05	6.01	26.62	35.47	54.00	18.53
781.75	33.45	QP	V	21.75	2.28	28.48	29.00	46.00	17.00
476.2	36.41	QP	V	18.05	1.61	28.67	27.40	46.00	18.60
Frequency: 2462 MHz									
2462	76.48	PK	H	23.33	2.99	0.00	102.80	N/A	N/A
2462	67.26	AV	H	23.33	2.99	0.00	93.58	N/A	N/A
2462	78.24	PK	V	23.33	2.99	0.00	104.56	N/A	N/A
2462	69.38	AV	V	23.33	2.99	0.00	95.70	N/A	N/A
2483.5	31.39	PK	V	23.26	2.99	0.00	57.64	74.00	16.36
2483.5	20.95	AV	V	23.26	2.99	0.00	47.20	54.00	6.80
4924	40.47	PK	V	31.16	5.07	26.88	49.82	74.00	24.18
4924	25.41	AV	V	31.16	5.07	26.88	34.76	54.00	19.24
7386	37.65	PK	V	35.07	6.25	26.43	52.54	74.00	21.46
7386	23.18	AV	V	35.07	6.25	26.43	38.07	54.00	15.93
6425	37.11	PK	V	33.33	6.10	26.55	49.99	74.00	24.01
6425	23.02	AV	V	33.33	6.10	26.55	35.90	54.00	18.10
781.75	33.75	QP	V	21.75	2.28	28.48	29.30	46.00	16.70
476.2	36.21	QP	V	18.05	1.61	28.67	27.20	46.00	18.80

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

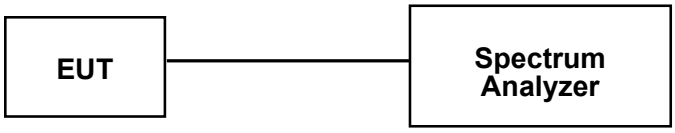
Applicable Standard

According to FCC §15.247(a) (2)

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
Unknown	RF Cable	Unknown	C-2	Each Time	/

*** Statement of Traceability:** BACL(Chengdu) attests that all of the calibrations on the equipment items listed above were traceable to NIM or to another internationally recognized National Metrology Institute (NMI), and were compliant with the NIST HB 150-2016 Normative Annex B “Implementation of traceability policy in accredited laboratories”.

Test Data

Environmental Conditions

Temperature:	26 °C
Relative Humidity:	57 %
ATM Pressure:	100.1 kPa

** The testing was performed by Jacky Gu on 2017-07-09.*

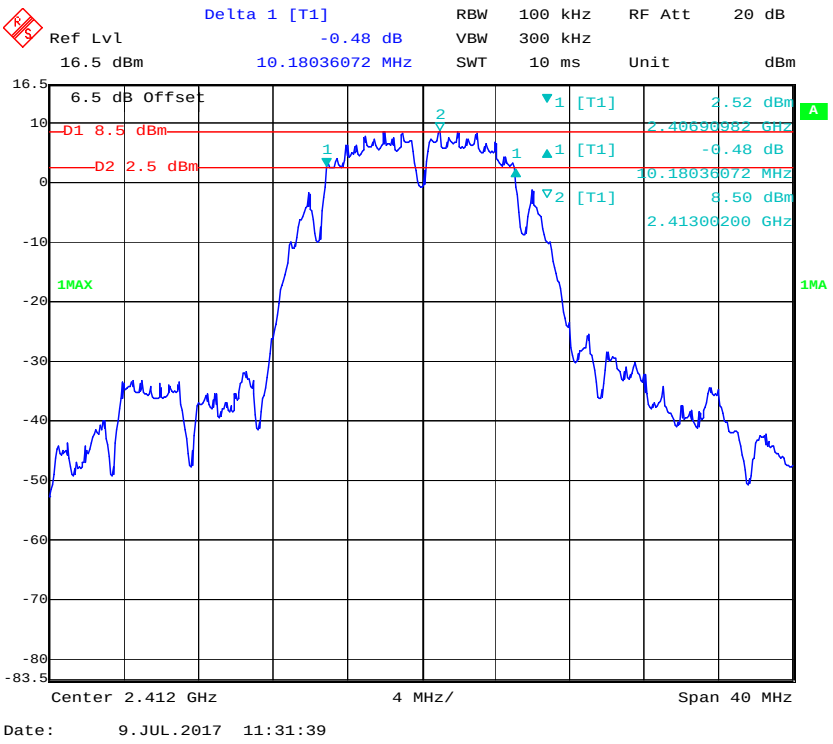
Test Mode: Transmitting

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

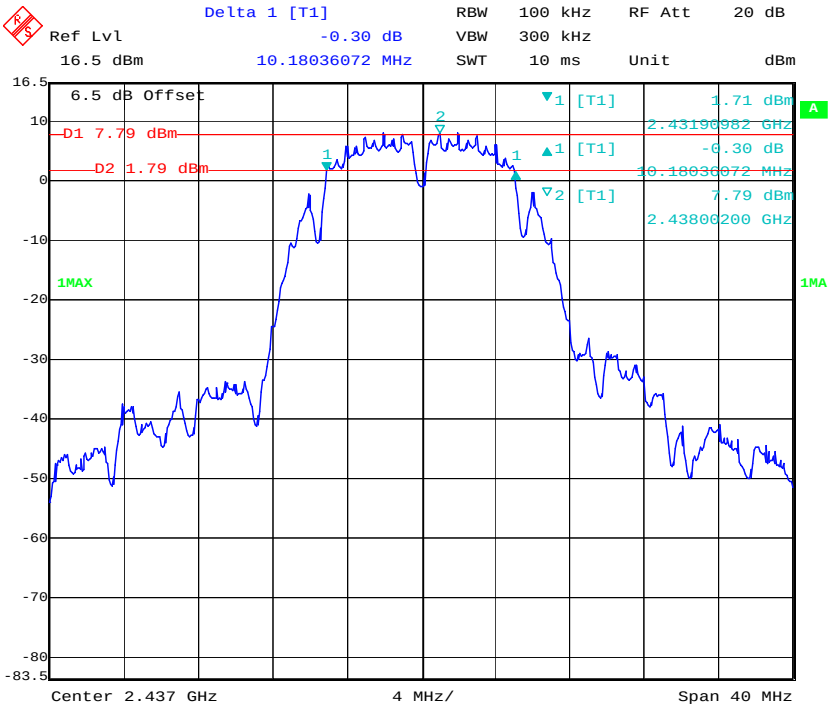
Test mode	Channel	Frequency (MHz)	6 dB Emission Bandwidth (MHz)	Limit (MHz)
802.11b	Low	2412	10.18	≥0.5
	Middle	2437	10.18	≥0.5
	High	2462	10.18	≥0.5
802.11g	Low	2412	16.59	≥0.5
	Middle	2437	16.59	≥0.5
	High	2462	16.59	≥0.5

6dB Bandwidth:

802.11b Low Channel

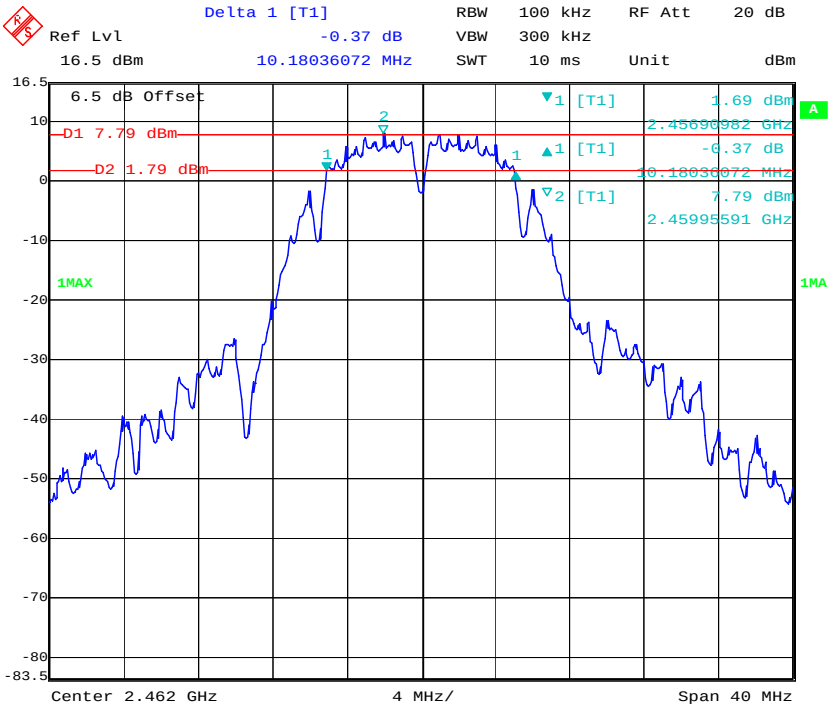


802.11b Middle Channel



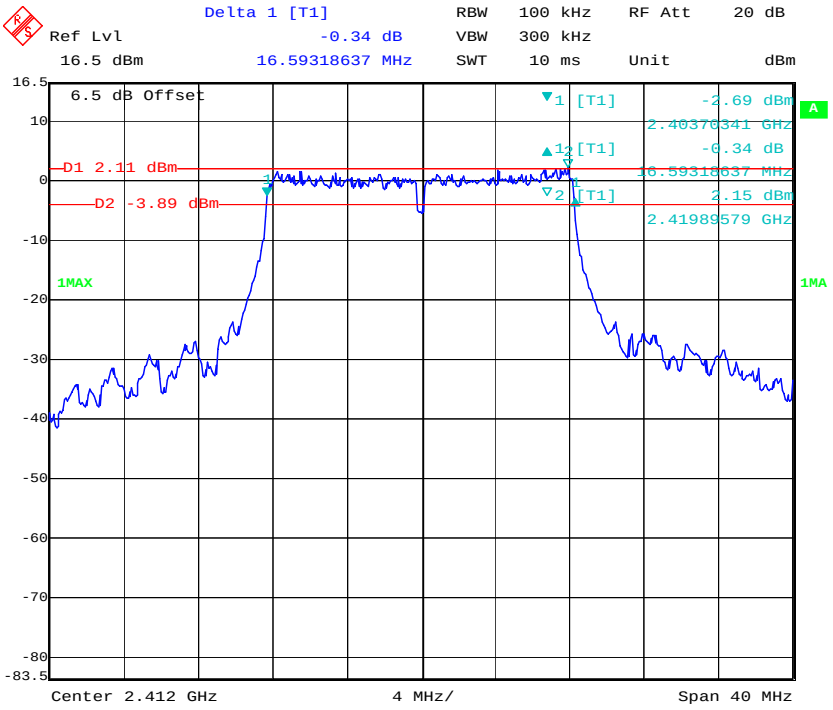
Date: 9.JUL.2017 11:33:52

802.11b High Channel



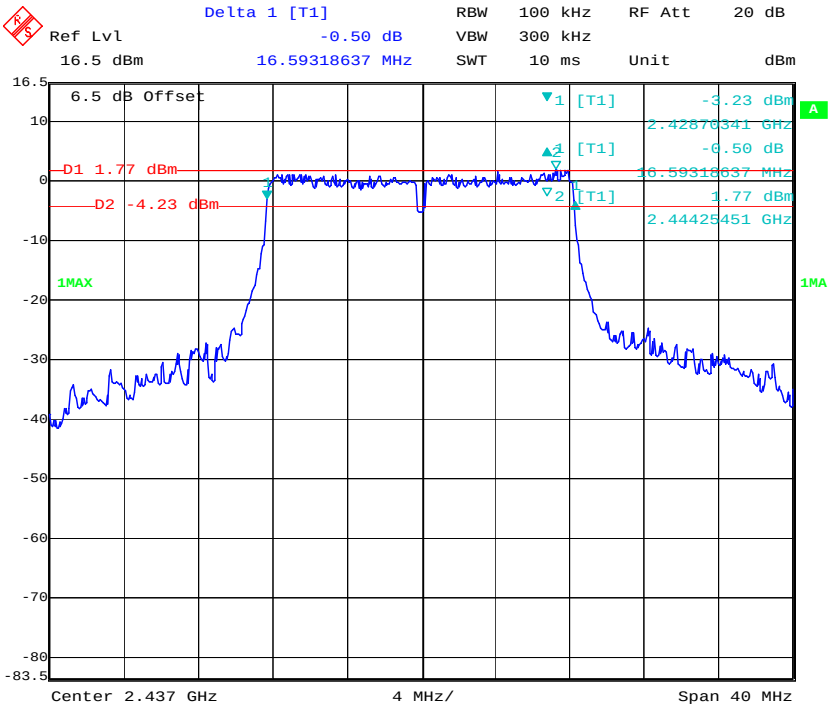
Date: 9.JUL.2017 11:35:30

802.11g Low Channel



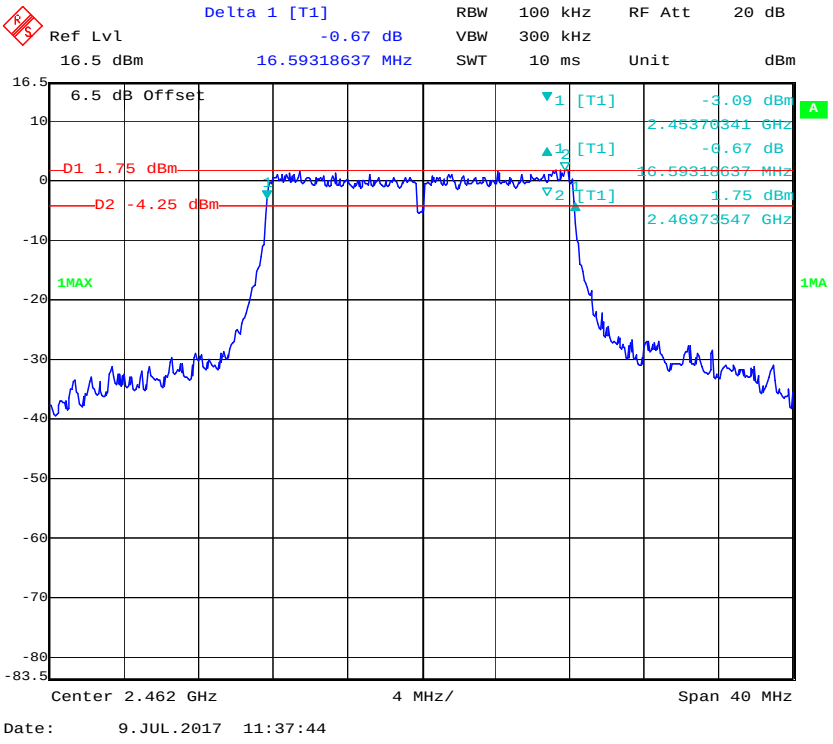
Date: 9.JUL.2017 11:41:44

802.11g Middle Channel



Date: 9.JUL.2017 11:39:53

802.11g High Channel



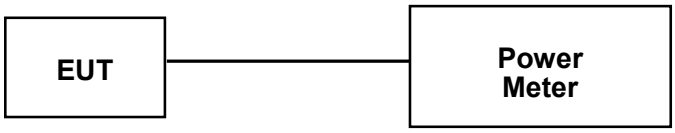
FCC §15.247(b) (3) - MAXIMUM CONDUCTED OUTPUT POWER

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	2017-01-03	2018-01-02
Agilent	P-Series Power Meter	N1912A	MY5000798	2017-01-03	2018-01-02
Unknown	RF Cable	Unknown	C-2	Each Time	/

*** Statement of Traceability:** BACL(Chengdu) attests that all of the calibrations on the equipment items listed above were traceable to NIM or to another internationally recognized National Metrology Institute (NMI), and were compliant with the NIST HB 150-2016 Normative Annex B “Implementation of traceability policy in accredited laboratories”.

Test Data

Environmental Conditions

Temperature:	26 °C
Relative Humidity:	57 %
ATM Pressure:	100.1 kPa

** The testing was performed by Jacky Gu on 2017-07-09.*

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)
802.11b	Low	2412	21.43	30
	Middle	2437	21.08	30
	High	2462	21.05	30
802.11g	Low	2412	22.68	30
	Middle	2437	22.61	30
	High	2462	22.54	30

FCC §15.247(d) – 100 kHz BANDWIDTH OF FREQUENCY BAND EDGE

Applicable Standard

According to FCC§15.247(d):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
Unknown	RF Cable	Unknown	C-2	Each Time	/

*** Statement of Traceability:** BACL(Chengdu) attests that all of the calibrations on the equipment items listed above were traceable to NIM or to another internationally recognized National Metrology Institute (NMI), and were compliant with the NIST HB 150-2016 Normative Annex B “Implementation of traceability policy in accredited laboratories”.

Test Data

Environmental Conditions

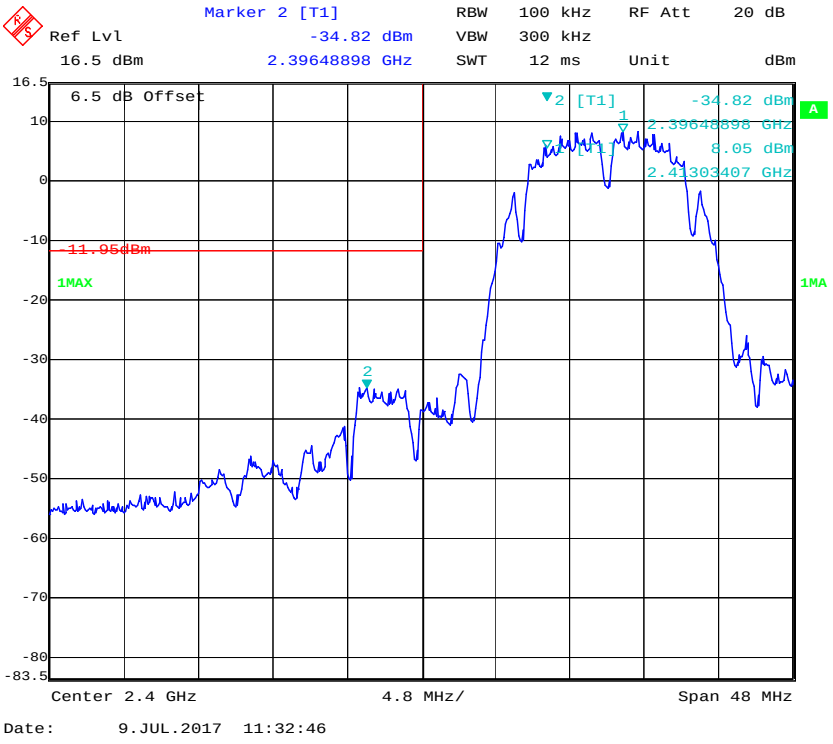
Temperature:	26 °C
Relative Humidity:	57 %
ATM Pressure:	100.1 kPa

** The testing was performed by Jacky Gu on 2017-07-09.*

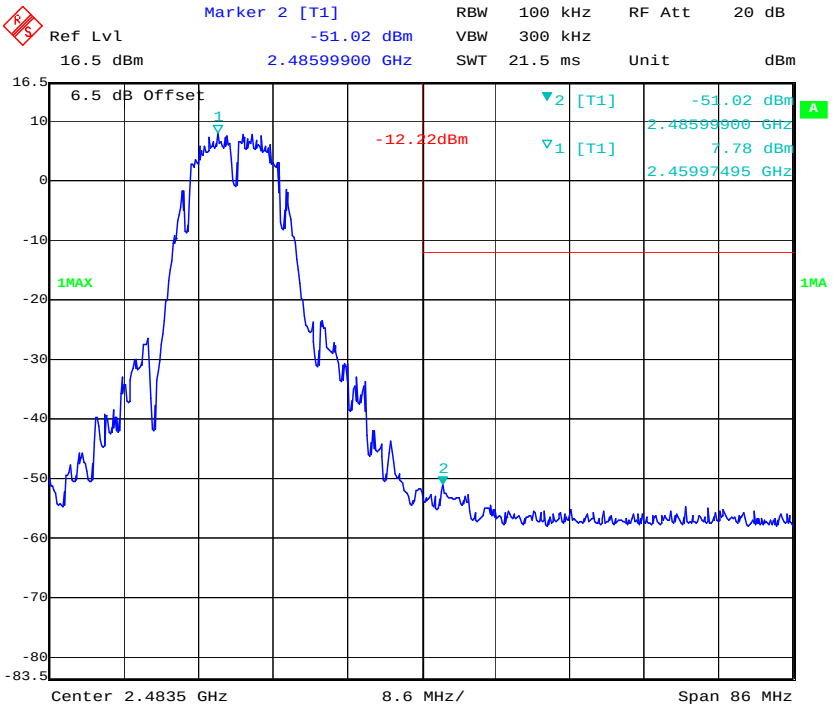
Test mode: Transmitting

Test Result: Compliant. Please refer to following plots.

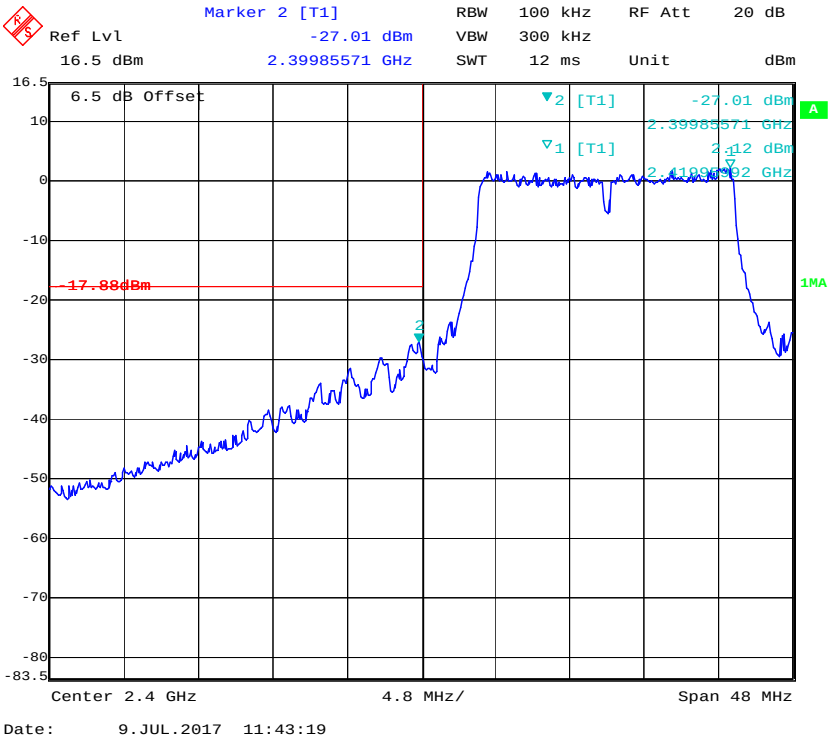
Chain 0, 802.11b: Band Edge, Left Side



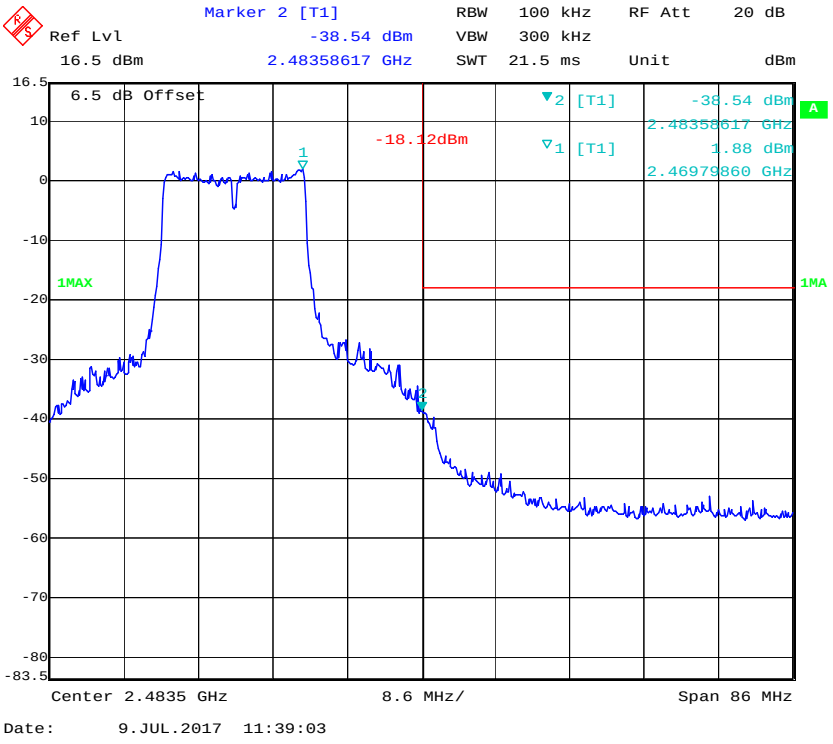
Chain 0, 802.11b: Band Edge, Right Side



Chain 0, 802.11g: Band Edge, Left Side



Chain 0, 802.11g: Band Edge, Right Side



FCC §15.247(e) - POWER SPECTRAL DENSITY

Applicable Standard

According to FCC§15.247(e):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 kHz ≤ RBW ≤ 100 kHz.
d) Set the VBW ≥ 3×RBW.
e) Detector = peak.
f) Sweep time = auto couple.
g) Trace mode = max hold.
h) Allow trace to fully stabilize.
i) Use the peak marker function to determine the maximum amplitude level within the RBW.
j) If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Signal Analyzer	FSIQ26	831929/005	2016-09-21	2017-09-20
Unknown	RF Cable	Unknown	C-2	Each Time	/

*** Statement of Traceability:** BACL(Chengdu) attests that all of the calibrations on the equipment items listed above were traceable to NIM or to another internationally recognized National Metrology Institute (NMI), and were compliant with the NIST HB 150-2016 Normative Annex B “Implementation of traceability policy in accredited laboratories”.

Test Data

Environmental Conditions

Temperature:	26 °C
Relative Humidity:	57 %
ATM Pressure:	100.1 kPa

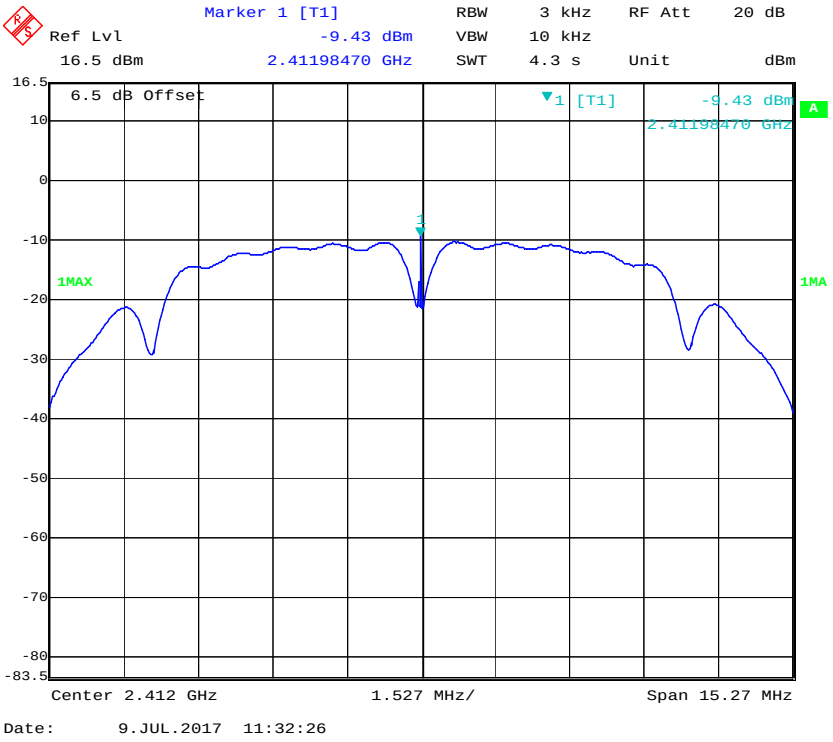
** The testing was performed by Jacky Gu on 2017-07-09.*

Test Mode: Transmitting

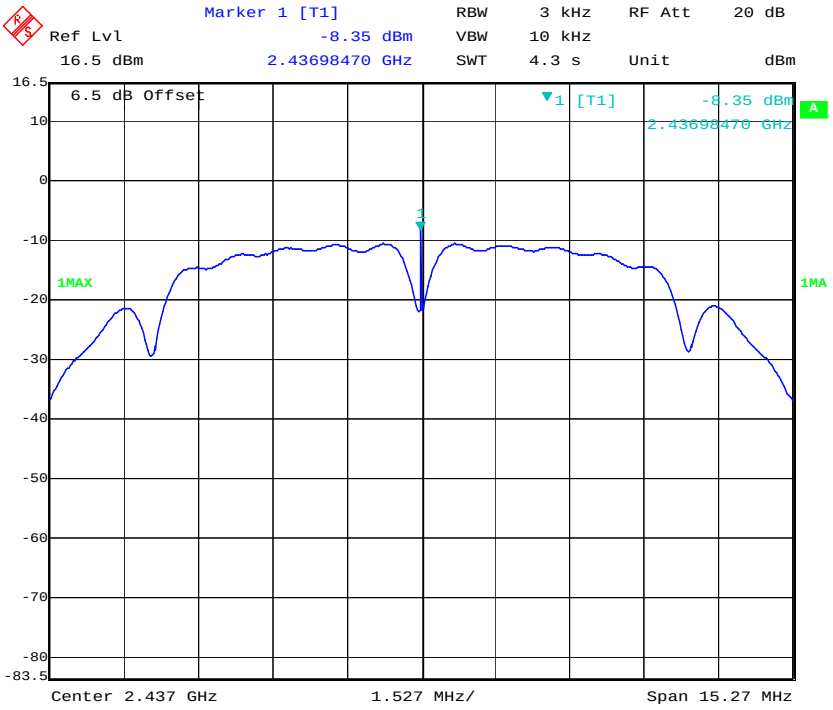
Test Result: Compliant. Please refer to the following table

Test mode	Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)
802.11b	Low	2412	-9.43	≤8
	Middle	2437	-8.35	≤8
	High	2462	-10.84	≤8
802.11g	Low	2412	-12.41	≤8
	Middle	2437	-12.11	≤8
	High	2462	-12.02	≤8

Power Spectral Density, 802.11b Low Channel

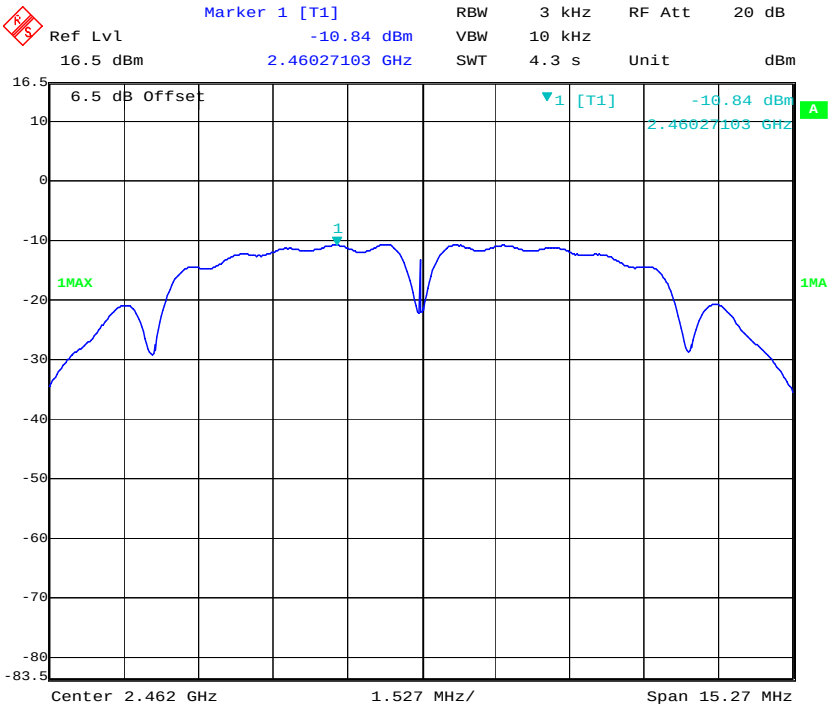


Power Spectral Density, 802.11b Middle Channel



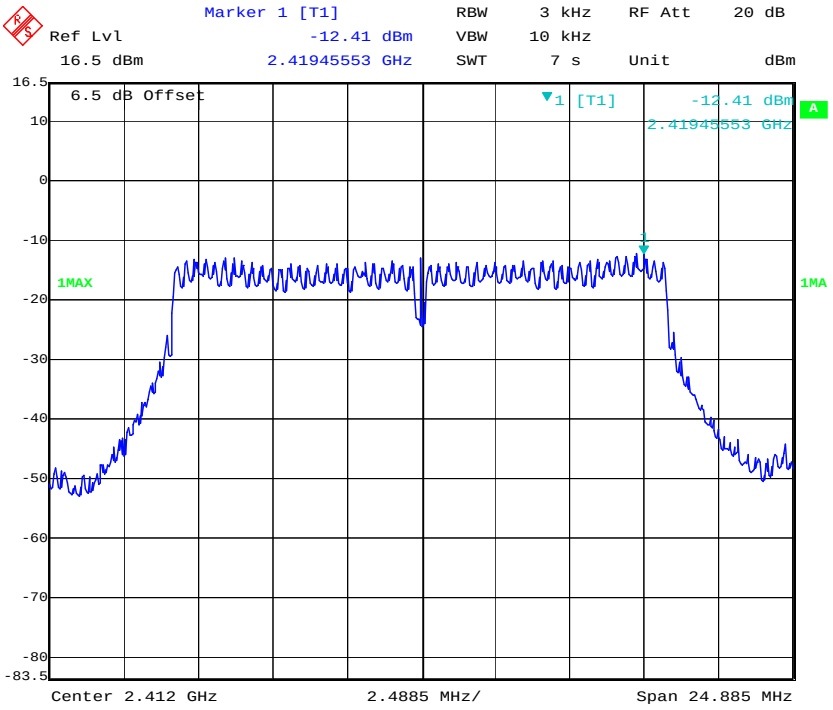
Date: 9.JUL.2017 11:34:46

Power Spectral Density, 802.11b High Channel

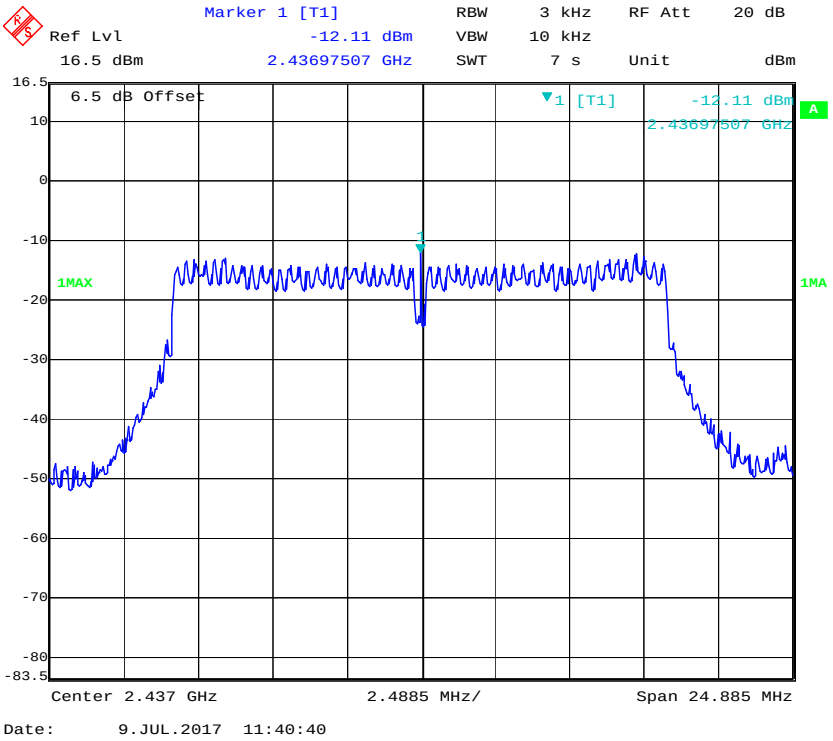


Date: 9.JUL.2017 11:36:24

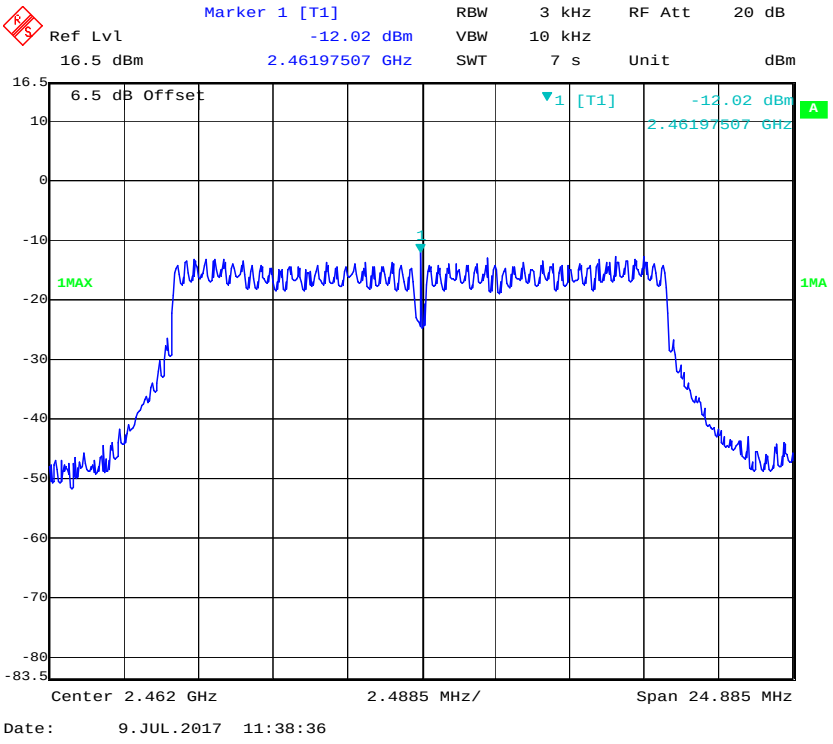
Power Spectral Density, 802.11g Low Channel



Power Spectral Density, 802.11g Middle Channel



Power Spectral Density, 802.11g High Channel



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