FCC PART 15.407

TEST REPORT

For

SZ DJI TECHNOLOGY CO., LTD

14th floor, West Wing, Skyworth Semiconductor Design Building NO.18 Gaoxin South 4th Ave, Nanshan, Shenzhen, Guangdong, China

FCC ID: SS3-GL800A1703

Report Type:	**Product Name:**
Class II permissive change	Cendence

Report Number:	RDG170707002-00BA1
Report Date:	2017-07-21
Reviewed By:	Allen Qiao RF Engineer Allen Qiao
Test Laboratory:	Bay Area Compliance Laboratories Corp. (Dongguan) No.69 Pulongcun, Puxinhu Industry Area, Tangxia, Dongguan, Guangdong, China Tel: +86-769-86858888 Fax: +86-769-86858891 www.baclcorp.com.cn

TABLE OF CONTENTS

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *SZ DJI TECHNOLOGY CO., LTD*'s product, model number: *GL800A**(FCC ID: SS3-GL800A1703)*** (the "EUT") in this report was a *Cendence,* which was measured approximately: 32.0 cm (L) x17.0 cm (W) x 5.0 cm(H), rated input voltage: DC7.6V from Rechargeable Battery.

All measurement and test data in this report was gathered from production sample serial number: 170707002 (Assigned by BACL, Dongguan). The EUT was received on 2017-07-07.

Objective

This type approval report is prepared on behalf of *SZ DJI TECHNOLOGY CO., LTD* in accordance with Part 2-Subpart J, Part 15-Subparts A, and E of the Federal Communications Commission's rules.

The tests were performed in order to determine compliance with FCC Rules Part 15, Subpart E, section 15.203, 15.205, 15.207, 15.209 and 15.407 rules.

This is the Class II Permissive Change application of the device, the original application certified on 2017-05-26. The difference between the original device and the current one is as follows:

1. Changed the LB antenna. The gain of the new antenna is 8.91dBi for 2.4GHz band, 8.50dBi for 5.8GHz band.
2. Reduced the conducted output power of LB antenna port.

The change made to the device affected all the test results except conducted emissions, Emission Bandwidth and Frequency stability, so we updated related test datas.

Related Submittal(s)/Grant(s)

FCC Part 15C DTS submissions with FCC ID: SS3-GL800A1703.
Part of system granted with FCC ID: SS3-T650A1609.
Original submission with FCC ID: SS3-GL800A1703 which was granted on 2017-05-26.

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).

Measurement Uncertainty

Parameter	Measurement Uncertainty
Occupied Channel Bandwidth	±5 %
RF output power, conducted	±0.61dB
Power Spectral Density, conducted	±0.61 dB
Unwanted Emissions, radiated	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~40GHz: 5.23 dB
Unwanted Emissions	±1.5 dB
Temperature	±1℃
Humidity	±5%
DC and low frequency voltages	±0.4%
Duty Cycle	1%
AC Power Lines Conducted Emission	3.12 dB (150 kHz to 30 MHz)

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 Industry Area, Tangxia, Dongguan, Guangdong, China

Bay Area Compliance Laboratories Corp. (Dongguan) has been accredited to ISO 17025 by CNAS(Lab code: L5662). And accredited to ISO 17025 by NVLAP(Test Laboratory Accreditation Certificate Number 500069-0), the FCC Designation No. CN5002 under the KDB 974614 D01.

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.

Bay Area Compliance Laboratories Corp. (Dongguan) was registered with ISED Canada under ISED Canada Registration Number 3062D.

SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
FCC §15.407 (f) & §1.1310 & §2.1093	RF Exposure	Compliance
§15.203	Antenna Requirement	Compliance
§15.407(b)(6)&§15.207(a)	Conducted Emissions	Compliance*
§15.205& §15.209 &§15.407(b) (1),(6),(7)	Unwanted Emission	Compliance
§15.407(b) (1),(2),(3),(4)	Out Of Band Emissions	Compliance
§15.407(a)	Emission Bandwidth	Compliance*
§15.407(a)(1)	Maximum Conducted Output Power	Compliance
§15.407 (a)(1),(5)	Power Spectral Density	Compliance
§15.407(g)	Frequency stability	Compliance*

Note:
The changes made to the device affected the test items for LB, no changes made to the 10MHz mode, for the 10MHz mode, please refer to the original report: RDG170326002B.

Compliance*: The changes made to the device don't affected the results of this test item, please refer to the original grant test report No. RDG170326002B with FCC ID: SS3-GL800A1703, which was issued by Bay Area Compliance Laboratories Corp. (Chengdu).

SYSTEM TEST CONFIGURATION

Description of Test Configuration

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

For 5GHz band, the device employed two antennas For LB mode, only antenna 2 was used for transmitting, and 42 channels are provided:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	5727	22	5775.3
2	5729.3	23	5777.6
3	5731.6	24	5779.9
~	~	~	~
19	5768.4	40	5816.7
20	5770.7	41	5819
21	5773	42	5821.3

The device test with channel 1, 22, 42.

EUT Exercise Software

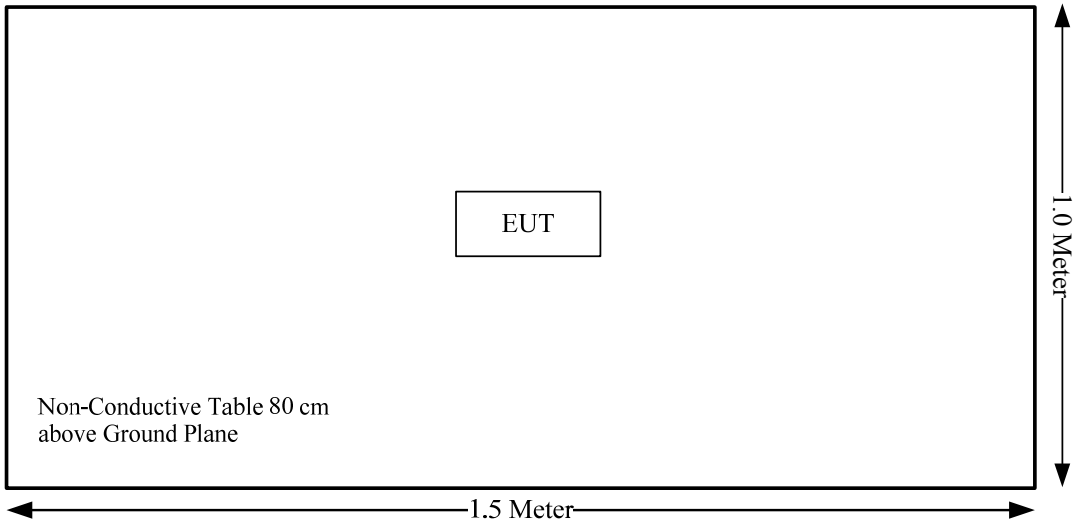
The software “DJI-RF Certification” was used for testing, which was provided by manufacturer. The maximum power for LB mode was configured as default setting by software, The software used for changing channels and modes. the dutycycle information please refer to the original report.

Equipment Modifications

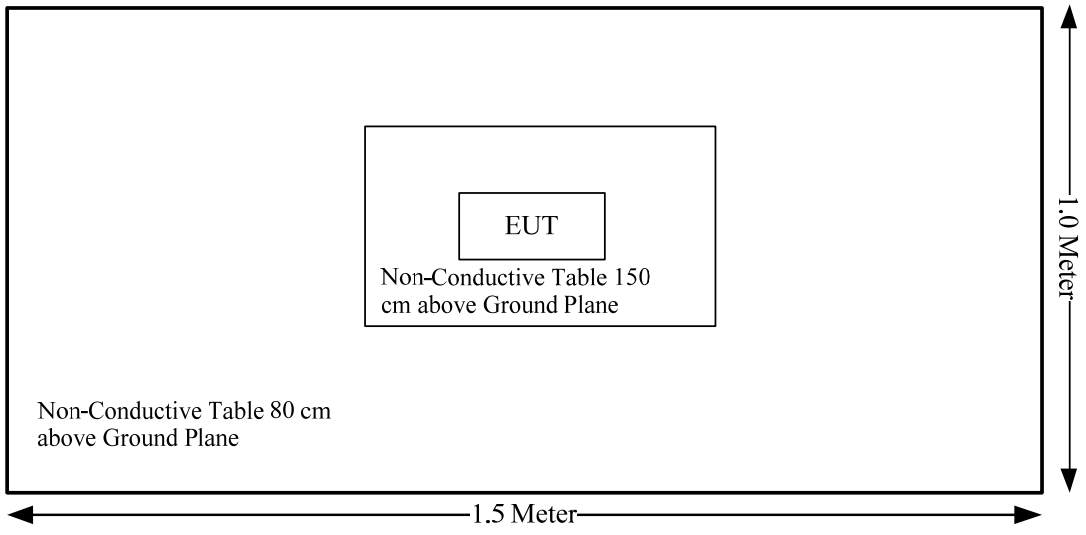
No modification was made to the EUT.

Block Diagram of Test Setup

Radiation Test Below 1GHz:



Radiation Test Above 1GHz:



FCC §15.407 (f) & §1.1310 & §2.1093- RF EXPOSURE

Applicable Standard

According to subpart 15.407(f), §1.1310 and §2.1093.

Test Result

Compliant, please refer to the SAR report: RDG170707002-20AA1.

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 use of a standard antenna jack or electrical connector is prohibited.
And according to FCC 47 CFR section 15.407 (a)(1),if transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Antenna Connector Construction

The EUT has 2 external antennas arrangement for LB mode with MMCX connector, Antenna 1 only for receiving, antenna 2 for transmitting and receiving, the antenna gain are 8.91dBi for 2.4GHz band, 8.50dBi for 5.8GHz band. Please refer to the EUT photos.

Result: Compliance.

FCC §15.209, §15.205 & §15.407(b) –UNWANTED EMISSION

Applicable Standard

FCC §15.407; §15.209; §15.205;

(b) Undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

(1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

(2) For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

(3) For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

(4) For transmitters operating in the 5.725-5.85 GHz band:

(i) All emissions shall be limited to a level of −27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

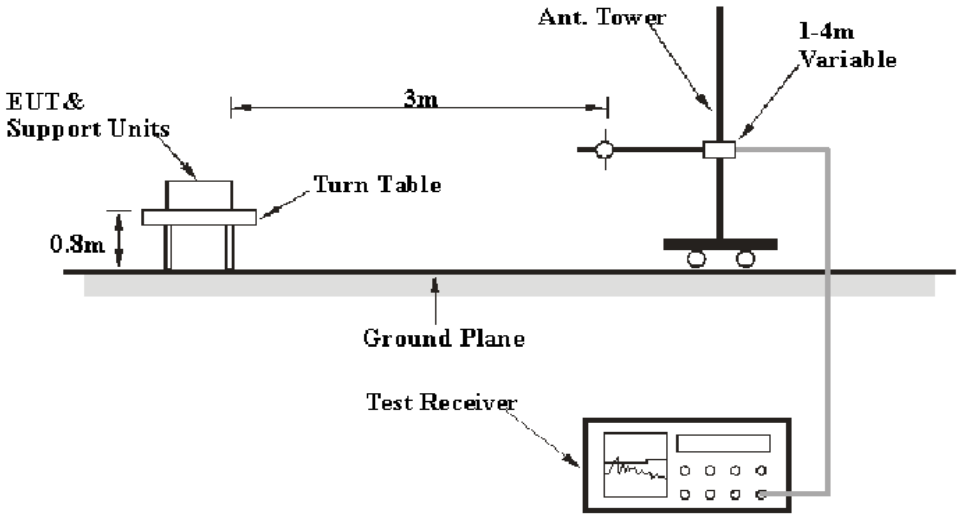
(5) The emission measurements shall be performed using a minimum resolution bandwidth of 1 MHz. A lower resolution bandwidth may be employed near the band edge, when necessary, provided the measured energy is integrated to show the total power over 1 MHz.

(6) Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in §15.209. Further, any U-NII devices using an AC power line are required to comply also with the conducted limits set forth in §15.207.

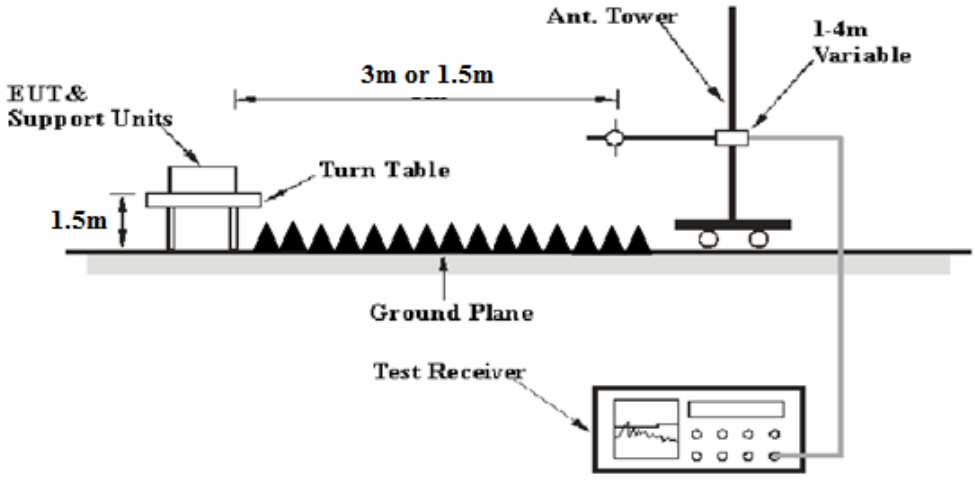
(7) The provisions of §15.205 apply to intentional radiators operating under this section.

EUT Setup

Below 1 GHz:



Above 1 GHz:



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 15.407 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 40 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- 40GHz:

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

Note: T is minimum transmission duration

Test Procedure

During the radiated emission test, the adapter was connected to the first 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-1GHz, peak and Average detection modes for frequencies above 1GHz.

According to KDB 789033 D02 General UNII Test Procedures New Rules v01r04, emission shall be computed as: E [dBμV/m] = EIRP[dBm] + 95.2, for d = 3 meters.

According to C63.10, the above 1G test result shall be extrapolated to the specified distance using an extrapolation factor of 20dB/decade from 3m to 1.5m
Distance extrapolation factor =20 log (specific distance [3m]/test distance [1.5m]) dB
Extrapolation result = Corrected Amplitude (dBμV/m) - distance extrapolation factor (6dB)

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 –Extrapolation result

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	EMI Test Receiver	ESCI	100224	2016-09-01	2017-08-31
Sunol Sciences	Antenna	JB3	A060611-1	2014-11-06	2017-11-05
HP	Amplifier	8447E	2434A02181	2016-09-01	2017-09-01
R&S	Spectrum Analyzer	FSU 26	200256	2016-12-08	2017-12-08
ETS-Lindgren	Horn Antenna	3115	000 527 35	2016-01-05	2019-01-04
Ducommun Technolagies	Horn Antenna	ARH-4223-02	1007726-02 1304	2017-06-16	2020-06-15
Mini-Circuit	Amplifier	ZVA-213-S+	SN054201245	2017-02-19	2018-02-19
Quinstar	Amplifier	QLW-18405536-JO	15964001001	2016-09-06	2017-09-06
Unknown	Coaxial Cable	Chamber A-1	4m	2016-09-01	2017-09-01
Unknown	Coaxial Cable	Chamber B-1	0.75m	2016-09-01	2017-09-01
Unknown	Coaxial Cable	Chamber A-2	10m	2016-09-01	2017-09-01
Unknown	Coaxial Cable	Chamber B-2	8m	2016-09-01	2017-09-01
Farad	Test Software	EZ-EMC	V1.1.4.2	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 Data

Environmental Conditions

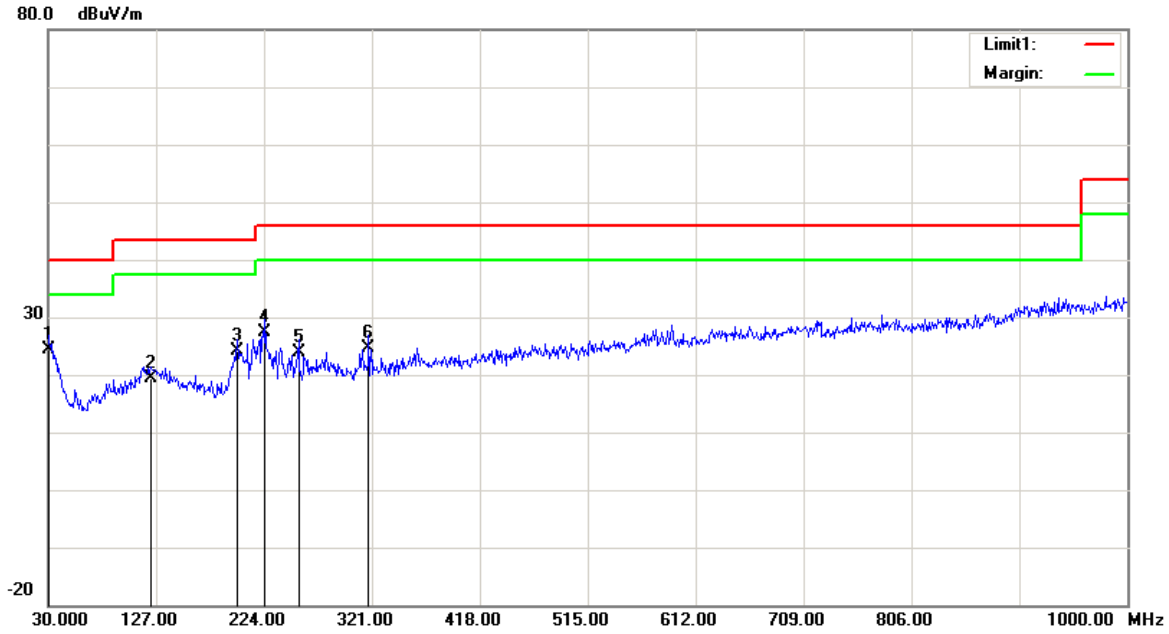
Temperature:	26.4~27.6 °C
Relative Humidity:	34~46 %
ATM Pressure:	100.1~100.3 kPa

The testing was performed by Tony Zeng from 2017-07-13 to 2017-07-14.

Test Mode: Transmitting (LB Mode)

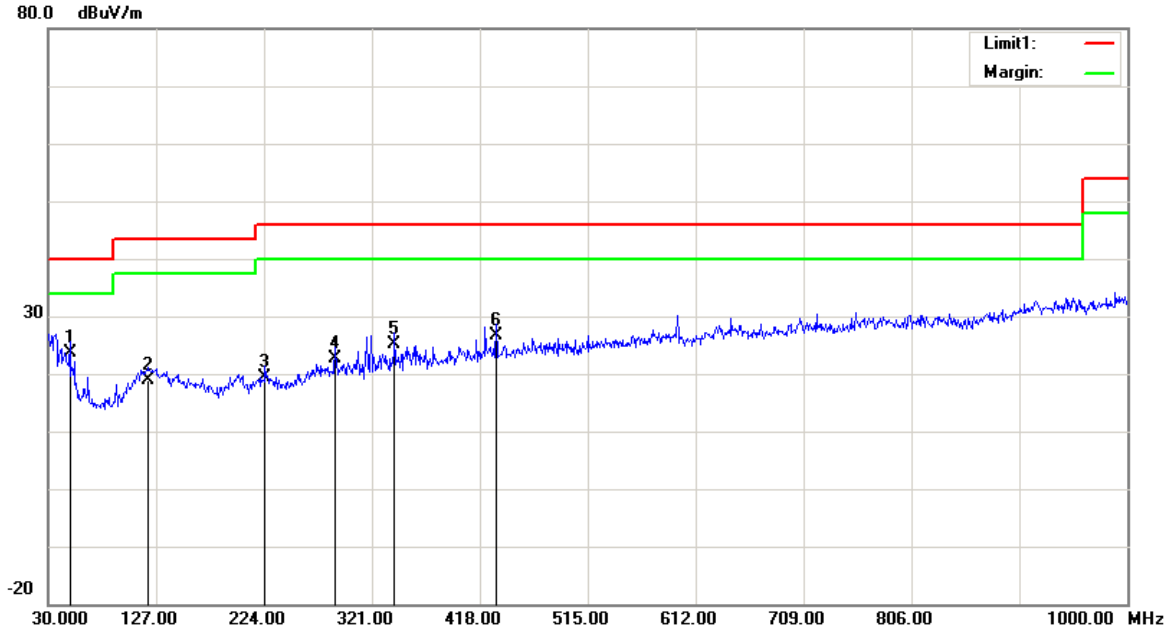
1) 30MHz-1GHz(Middle channel was the worst)**:**

Horizontal:



Frequency (MHz)	Receiver Reading (dBuV)	Detector	Correction Factor (dB/m)	Cord. Amp. (dBuV/m)	Limit (dBuV/m)	Margin (dB)
30.0000	23.43	QP	1.07	24.50	40.00	15.50
122.1500	24.13	QP	-4.73	19.40	43.50	24.10
199.7500	30.52	QP	-6.32	24.20	43.50	19.30
224.9700	34.43	QP	-6.93	27.50	46.00	18.50
255.0400	30.29	QP	-6.29	24.00	46.00	22.00
318.0900	28.85	QP	-4.25	24.60	46.00	21.40

Vertical:



Frequency (MHz)	Receiver Reading (dBuV)	Detector	Correction Factor (dB/m)	Cord. Amp. (dBuV/m)	Limit (dBuV/m)	Margin (dB)
49.4000	35.18	QP	-11.48	23.70	40.00	16.30
120.2100	23.92	QP	-4.92	19.00	43.50	24.50
224.9700	26.23	QP	-6.93	19.30	46.00	26.70
288.0200	26.70	QP	-4.10	22.60	46.00	23.40
341.3700	28.75	QP	-3.65	25.10	46.00	20.90
432.5500	28.55	QP	-1.95	26.60	46.00	19.40

2)1-40GHz (For above 1GHz, test performed at 1.5m distance EUT to antenna)

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	Extrapolation Result dBμV/m	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)						
LB mode, Low Channel:5727 MHz										
5727	74.39	PK	H	34.19	4.67	0.00	113.25	107.25	N/A	N/A
5727	59.35	AV	H	34.19	4.67	0.00	98.21	92.21	N/A	N/A
5727	85.47	PK	V	34.19	4.67	0.00	124.33	118.33	N/A	N/A
5727	71.91	AV	V	34.19	4.67	0.00	110.77	104.77	N/A	N/A
5725	45.27	PK	V	34.19	4.67	0.00	84.13	78.13	122.20	44.07
5720	31.53	PK	V	34.19	4.66	0.00	70.38	64.38	110.80	46.42
5700	27.47	PK	V	34.18	4.65	0.00	66.30	60.30	105.20	44.90
5650	26.44	PK	V	34.16	4.60	0.00	65.20	59.20	68.20	9.00
11454	46.63	PK	V	38.95	6.85	36.62	55.81	49.81	74.00	24.19
11454	33.09	AV	V	38.95	6.85	36.62	42.27	36.27	54.00	17.73
17181	46.78	PK	V	41.25	8.69	37.05	59.67	53.67	74.00	20.33
17181	32.36	AV	V	41.25	8.69	37.05	45.25	39.25	54.00	14.75
6952	46.78	PK	V	35.10	5.32	35.93	51.27	45.27	74.00	28.73
6952	33.69	AV	V	35.10	5.32	35.93	38.18	32.18	54.00	21.82
LB mode,Middle Channel:5775.3 MHz										
5775.3	76.39	PK	H	34.21	4.70	0.00	115.30	109.30	N/A	N/A
5775.3	61.71	AV	H	34.21	4.70	0.00	100.62	94.62	N/A	N/A
5775.3	90.93	PK	V	34.21	4.70	0.00	129.84	123.84	N/A	N/A
5775.3	79.97	AV	V	34.21	4.70	0.00	118.88	112.88	N/A	N/A
11550.6	46.43	PK	H	39.00	6.86	36.61	55.68	49.68	74.00	24.32
11550.6	33.28	AV	H	39.00	6.86	36.61	42.53	36.53	54.00	17.47
17325.9	46.81	PK	H	42.09	8.67	36.83	60.74	54.74	74.00	19.26
17325.9	32.96	AV	H	42.09	8.67	36.83	46.89	40.89	54.00	13.11
6321	46.75	PK	H	34.24	5.06	35.78	50.27	44.27	74.00	29.73
6321	33.65	AV	H	34.24	5.06	35.78	37.17	31.17	54.00	22.83
9656	45.89	PK	H	37.96	6.29	36.27	53.87	47.87	74.00	26.13
9656	32.58	AV	H	37.96	6.29	36.27	40.56	34.56	54.00	19.44
LB mode,High Channel:5821.3 MHz										
5821.3	74.95	PK	H	34.23	4.70	0.00	113.88	107.88	N/A	N/A
5821.3	59.09	AV	H	34.23	4.70	0.00	98.02	92.02	N/A	N/A
5821.3	90.52	PK	V	34.23	4.70	0.00	129.45	123.45	N/A	N/A
5821.3	76.11	AV	V	34.23	4.70	0.00	115.04	109.04	N/A	N/A
5850	27.17	PK	H	34.24	4.67	0.00	66.08	60.08	122.20	62.12
5855	27.73	PK	H	34.24	4.66	0.00	66.63	60.63	110.80	50.17
5875	28.12	PK	H	34.25	4.64	0.00	67.01	61.01	105.20	44.19
5925	28.63	PK	H	34.27	4.63	0.00	67.53	61.53	68.20	6.67
11642.6	46.66	PK	H	39.00	6.89	36.63	55.92	49.92	74.00	24.08
11642.6	33.23	AV	H	39.00	6.89	36.63	42.49	36.49	54.00	17.51
17463.9	46.69	PK	H	42.89	8.65	36.63	61.60	55.60	74.00	18.40
17463.9	33.36	AV	H	42.89	8.65	36.63	48.27	42.27	54.00	11.73
8935	46.81	PK	H	37.66	6.01	36.22	54.26	48.26	74.00	25.74
8935	32.94	AV	H	37.66	6.01	36.22	40.39	34.39	54.00	19.61

FCC §15.407(b)–OUT- OF-BAND EMISSIONS

Applicable Standard

FCC §15.407

(b) Undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

(1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

(2) For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

(3) For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

(4) For transmitters operating in the 5.725-5.85 GHz band:

(i) All emissions shall be limited to a level of −27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

(ii) Devices certified before March 2, 2017 with antenna gain greater than 10 dBi may demonstrate compliance with the emission limits in §15.247(d), but manufacturing, marketing and importing of devices certified under this alternative must cease by March 2, 2018. Devices certified before March 2, 2018 with antenna gain of 10 dBi or less may demonstrate compliance with the emission limits in §15.247(d), but manufacturing, marketing and importing of devices certified under this alternative must cease before March 2, 2020.

(5) The emission measurements shall be performed using a minimum resolution bandwidth of 1 MHz. A lower resolution bandwidth may be employed near the band edge, when necessary, provided the measured energy is integrated to show the total power over 1 MHz.

Test Procedure

According to KDB 789033 D02 General UNII Test Procedures New Rules v01r04.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSU 26	200256	2016-12-08	2017-12-08
Unknown	Coaxial Cable	0.1m	C-1	Each Time	/

*** 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

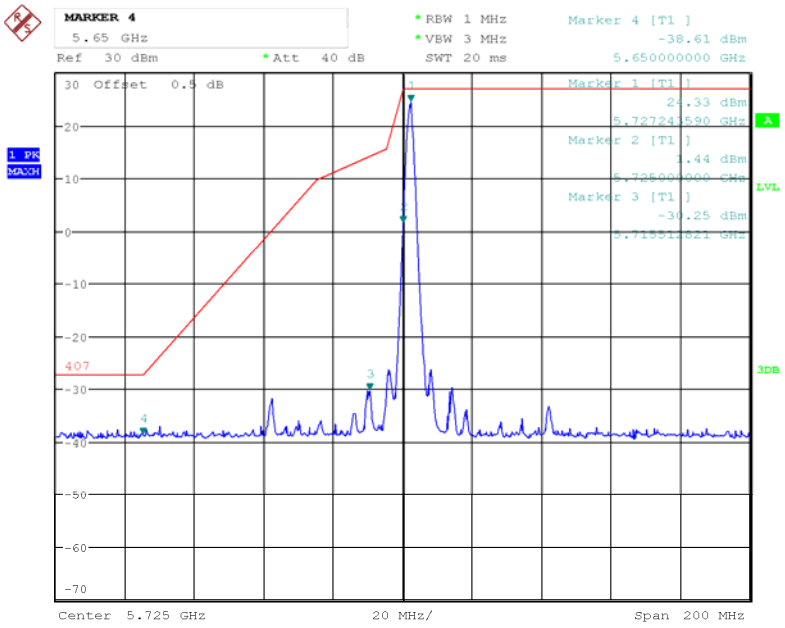
Temperature:	25.7 °C
Relative Humidity:	61 %
ATM Pressure:	100.5 kPa

The testing was performed by Calvin Chen on 2017-07-18.

Test Result: Pass.(all emissions out of band under limits more than 8.5dB, please refer the plots)

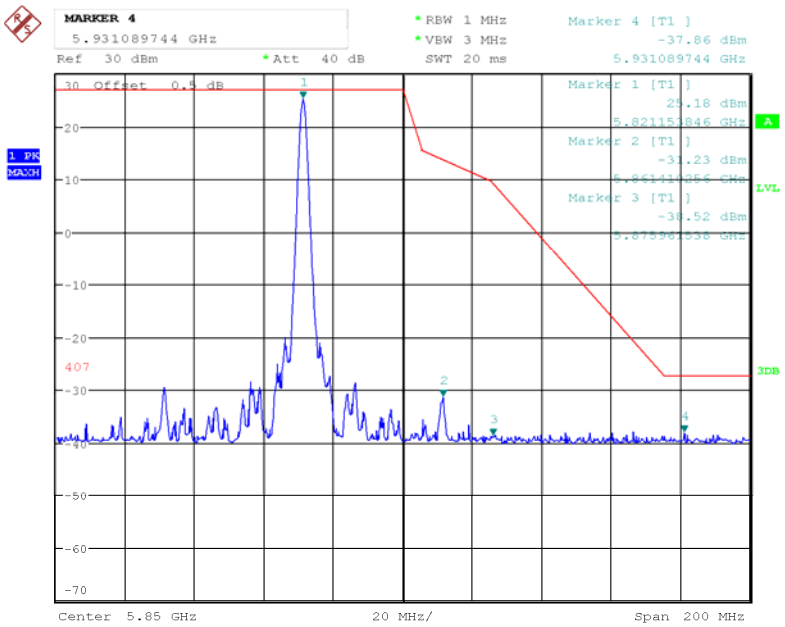
Please refer to the following tables and plots.

LB Low Channel



Date: 18.JUL.2017 15:11:59

LB High Channel



Date: 18.JUL.2017 15:14:05

FCC §15.407(a) –MAXIMUM CONDUCTED OUTPUT POWER

Applicable Standard

(a) Power limits:

(1) For the band 5.15-5.25 GHz.

(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(2) For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output

power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(3) For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(4) The maximum conducted output power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivalent voltage.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Agilent	Wideband Power Sensor	N1921A	MY54210016	2016-11-03	2017-11-03
Agilent	Wideband Power Sensor	N1921A	MY54170013	2016-11-03	2017-11-03
Agilent	P-Series Power Meter	N1912A	MY5000448	2016-11-03	2017-11-03
Dongzhixu	High Temperature Test Chamber	DP1000	201105083-4	2016-09-10	2017-09-09
Unknown	Coaxial Cable	0.1m	C-1	Each Time	/

*** 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 Procedure

According to KDB 789033 D02 General UNII Test Procedures New Rules v01r04.

Test Data

Environmental Conditions

Temperature:	25.7 °C
Relative Humidity:	61 %
ATM Pressure:	100.5 kPa

The testing was performed by Calvin Chen on 2017-07-18.

Test Mode: Transmitting

Mode	Frequency (MHz)	Conducted RMS Output Power (dBm)	Limits (dBm)	Result
LB	5727	14.07	27.5	PASS
	5775.3	17.13	27.5	PASS
	5821.3	16.57	27.5	PASS

Note: the antenna gain is 8.50 dBi at 5.8GHz band, the power limit was reduced by 2.5dBi.

FCC §15.407(a) - POWER SPECTRAL DENSITY

Applicable Standard

(a) Power limits:

(1) For the band 5.15-5.25 GHz.

(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(2) For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output

power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(3) For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

Test Procedure

According to KDB 789033 D02 General UNII Test Procedures New Rules v01r04.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSU 26	200256	2016-12-08	2017-12-08
Unknown	Coaxial Cable	0.1m	C-1	Each Time	/

*** 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:	25.2 °C
Relative Humidity:	51 %
ATM Pressure:	100.3 kPa

The testing was performed by Calvin Chen on 2017-07-19.

Test Mode: Transmitting

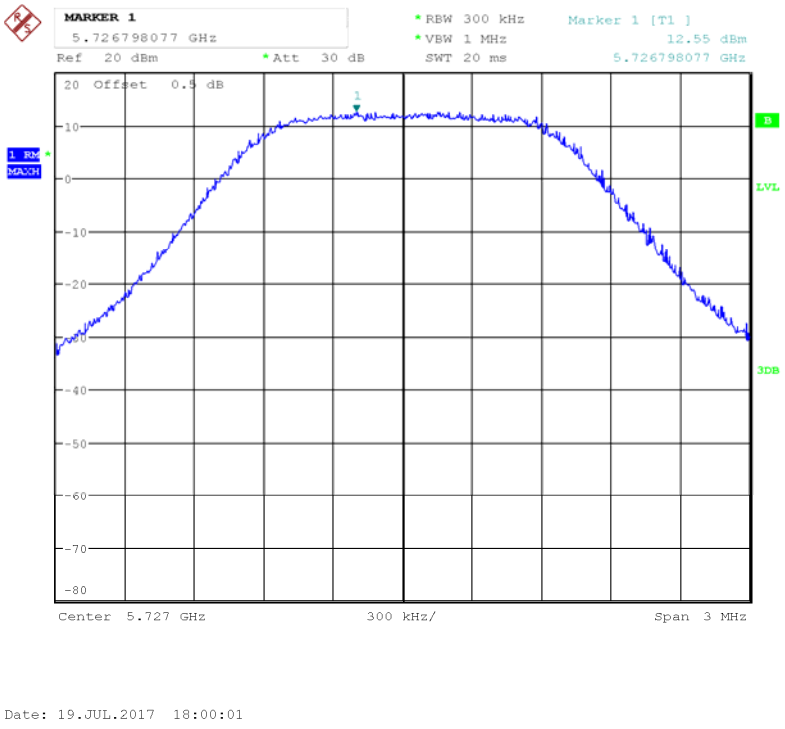
Test Result:Compliance.Please refer to the following table and plot.

LB Mode:

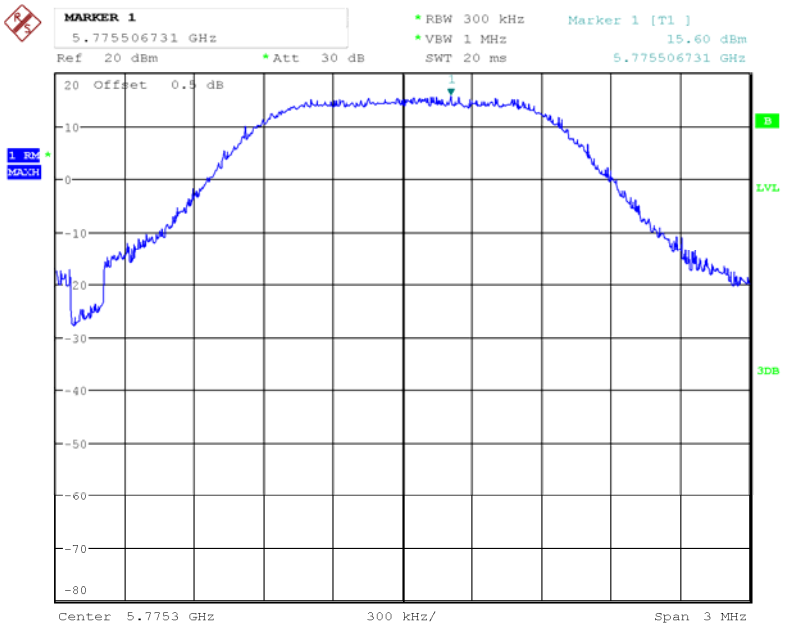
Channel	Frequency (MHz)	PSD (dBm/300kHz)	Total (dBm/500kHz)	Limit (dBm/500kHz)
Low	5727	12.55	14.77	30
Middle	5775.3	15.6	17.82	30
High	5821.3	15.03	17.25	30

Note:
The measurement bandwidth of Maximum PSD is specified in 500 kHz, add 10log(500kHz/RBW) to the measured result, whereas RBW (< 500 kHz) is the reduced resolution bandwidth of the spectrum analyzer set during measurement.
Note: the antenna gain is 8.50 dBi at 5.8GHz band, the PSD limit was reduced by 2.5dBi.

LB, Low Channel

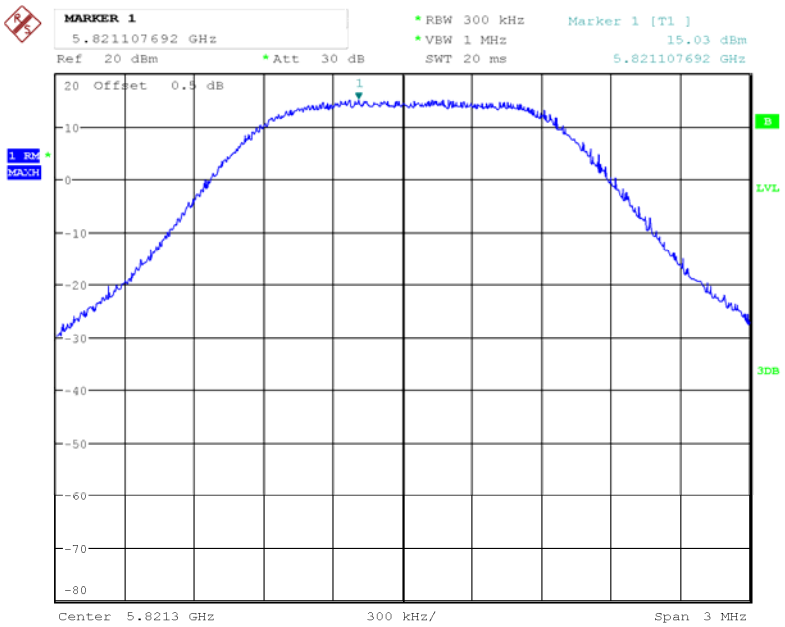


LB, Middle Channel



Date: 19.JUL.2017 17:59:43

LB, High Channel



Date: 19.JUL.2017 17:58:49

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