FCC PART 15.247

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-WM331A1609

Report Type:	**Product Name:**
Original Report	Phantom 4 Pro

Test Engineer:	*Lorin Bian*
Report Number:	RDG160820002A
Report Date:	2016-10-20
Reviewed By:	Henry Ding EMC Leader
Test Laboratory:	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

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The ***SZ DJI TECHNOLOGY CO., LTD*'s** product, model number: ***WM331A (FCC ID: SS3-WM331A1609)*** or (the "EUT") in this report was a ***Phantom 4 Pro***, which was measured approximately: 500 mm (L) x 500 mm (W) x 185 mm(H), rated input voltage: DC 15.2V from lithium battery.

**All measurement and test data in this report was gathered from final production sample, serial number: 160820002 (assigned by the BACL, Chengdu). It may have deviation from any other sample. The EUT supplied by the applicant was received on 2016-08-20, and EUT conformed to test requirement.*

Objective

This report is prepared on behalf of ***SZ DJI 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, 15.209 and 15.247 rules.

Related Submittal(s)/Grant(s)

FCC Part 15E NII submissions with FCC ID: SS3-WM331A1609.
FCC Part 15C DXX submissions with FCC ID: SS3-WM331A1609.
Part of system submissions with FCC ID: SS3-GL300E1609.

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.

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.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The system was configured for testing in Engineering Mode, which was provided by the manufacturer.

For 2.4GHz band, 8 channels are provided:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2406.5	5	2446.5
2	2416.5	6	2456.5
3	2426.5	7	2466.5
4	2436.5	8	2476.5

The device employed 4 internal antennas, support 2T2R MIMO mode, the system configures two of them transmitting and two receiving depending on better performance by the system automatically recognizes.

For antenna port conducted test items, based on output power testing, the two highest power ports was chose for full test.

EUT Exercise Software

The software “DJI-RF Certification” was used for testing, which was provided by manufacturer. The maximum power and duty cycle was configured by system default setting. The default setting level as below:

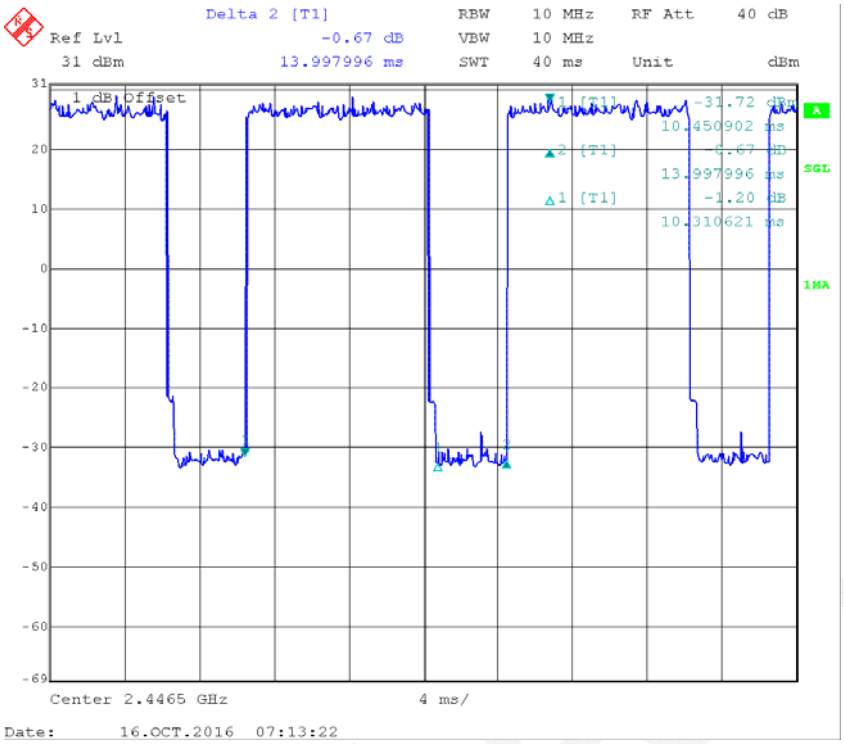
Test Software Version	DJI-RF Certification		
Frequency (MHz)	2406.5	2416.5~2466.5	2476.5
Power Level Setting	15	21	14

For difference power level configured by system default setting, all test items performed at Low, Middle and High Channel, output power, radiation bandedge test with additional channels according to the power setting and power test results.

The duty cycle as below:

T_{on} (ms)	T_{on+off} (ms)	Duty Cycle (%)
10.31	14.0	73.64%

The minimum transmission duration(T) is 10.31ms.



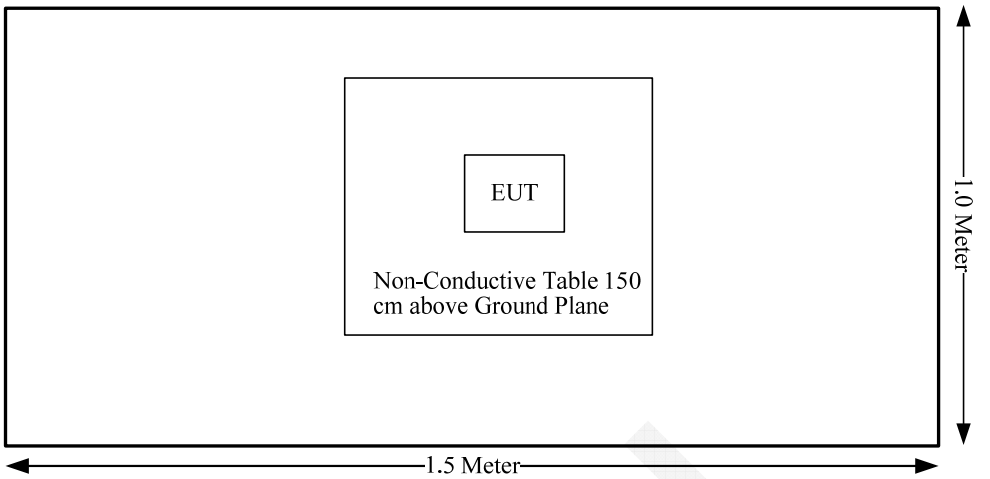
Equipment Modifications

No modification was made to the EUT.

Block Diagram of Test Setup

Radiation test below 1GHz:

Radiation test above 1GHz:



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§15.247 (i), §1.1307 & §2.1091	Maximum Permissible Exposure (MPE)	Compliant
§15.203	Antenna Requirement	Compliant
§15.207 (a)	AC Line Conducted Emissions	Not Applicable
§15.205, §15.209, §15.247(d)	Spurious Emissions	Compliant
§15.247 (a)(2)	6 dB Bandwidth	Compliant
§15.247(b)(3)	Maximum Peak Conducted Output Power	Compliant
§15.247(d)	100 kHz Bandwidth of Frequency Band Edge	Compliant
§15.247(e)	Power Spectral Density	Compliant

FCC §15.247 (i) & §1.1307 & §2.1091- MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Applicable Standard

According to subpart 15.247(i) and subpart §1.1307, 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.

Calculated Formulary:

Predication of MPE limit at a given distance
$S = PG/4\pi R^2$ = power density (in appropriate units, e.g. mW/cm^2);
P = power input to the antenna (in appropriate units, e.g., mW);
G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor, is normally numeric gain;
R = distance to the center of radiation of the antenna (appropriate units, e.g., cm);

Calculated Data:

Frequency Range (MHz)	**Antenna Gain**		**Maximum Power Including Tolerance**		**Evaluation Distance (cm)**	**Power Density (mW/cm^2)**	**MPE Limit (mW/cm^2)**
	(dBi)	**(numeric)**	**(dBm)**	**(mW)**			
2406.5-2476.5	1.60	1.45	29	794.33	20.00	0.2285	1.0

Note: The Maximum Power Including Tolerance was declared by manufacturer. 2.4GHz and 5.8GHz can`t transmission simultaneously.

Result: The device meet FCC MPE at 20 cm distance

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.
c. 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 4 internal antennas arrangement for 2.4GHz band, all the antennas gain are 1.6 dBi@2.4GHz, fulfill the requirement of the item. Please refer to the internal photos.

Result: Compliance.

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.

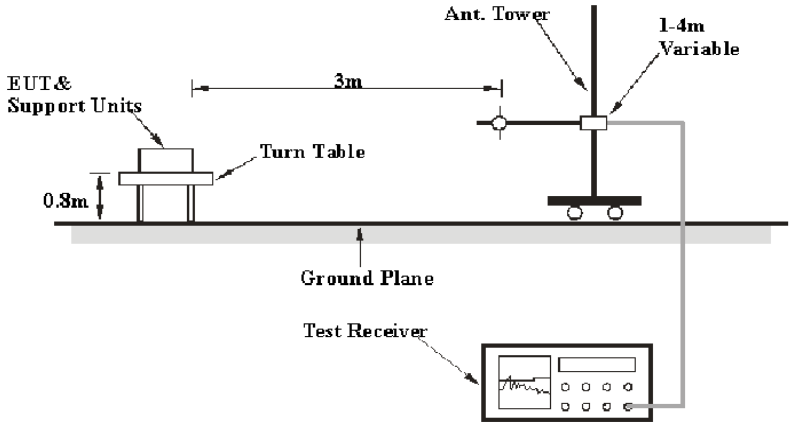
Based on CISPR 16-4-2-2011, measurement uncertainty of radiated emission at a distance of 3m at Bay Area Compliance Laboratories Corp. (Chengdu) is:
30M~200MHz: ±4.7 dB;
200M~1GHz: ±6.0 dB;
1G-6GHz: ±5.13dB;
6G~25GHz: ±5.47 dB;

Table 2 – Values of U_{cispr}

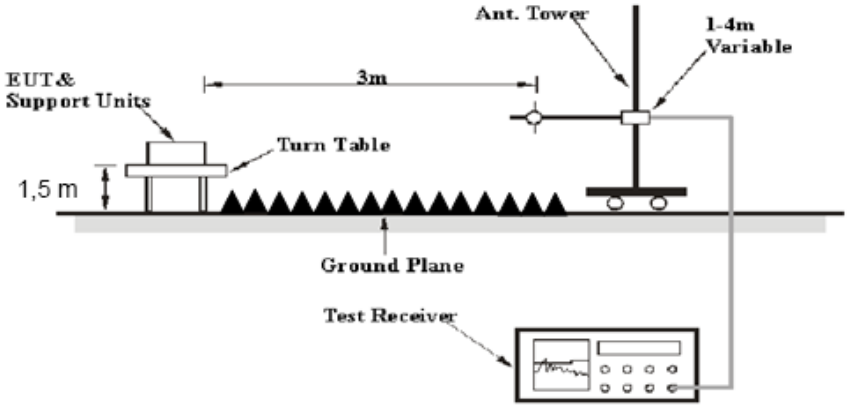
Measurement		U_{cispr}
Radiated disturbance (electric field strength at an OATS or in a SAC)	(30 MHz to 1000 MHz)	6.3 dB
Radiated disturbance (electric field strength in a FAR)	(1 GHz to 6 GHz)	5.2 dB
Radiated disturbance (electric field strength in a FAR)	(6 GHz to 18 GHz)	5.5 dB

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:

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
Ave.	>98%	1MHz	10 Hz
	<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

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
EM TEST	Horn Antenna	3115	003-6076	2015-12-02	2016-12-01
Ducommun Technologies	Horn Antenna	ARH-4223-02	1007726-0113028	2014-06-16	2017-06-15
Mini-circuits	Amplifier	ZVA-213-S+	771001215	2016-05-20	2017-05-19
EMCT	Semi-Anechoic Chamber	966	N/A	2015-04-24	2018-04-23
N/A	RF Cable (below 1GHz)	NO.1	N/A	2015-11-10	2016-11-09
N/A	RF Cable (below 1GHz)	NO.4	N/A	2015-11-10	2016-11-09
N/A	RF Cable (above 1GHz)	NO.2	N/A	2015-11-10	2016-11-09

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

Test Results Summary

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

Please refer to the data as follows.

Test Data

Environmental Conditions

Temperature:	26.9 °C
Relative Humidity:	39 %
ATM Pressure:	100.7 kPa

The testing was performed by Lorin Bian on 2016-09-22.

Test Result: Compliance, please Refer to the following data

Test Mode: Transmitting(antenna 0 and 2 transmitting was the worst)

30MHz-25GHz(additional channel bandedge test performed at worst polarization):

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)					
2406.5 MHz									
2406.5	76.54	PK	H	23.52	3.00	0.00	103.06	N/A	N/A
2406.5	63.25	AV	H	23.52	3.00	0.00	89.77	N/A	N/A
2406.5	84.68	PK	V	23.52	3.00	0.00	111.20	N/A	N/A
2406.5	71.06	AV	V	23.52	3.00	0.00	97.58	N/A	N/A
2390	28.74	PK	V	23.57	3.00	0.00	55.31	74.00	18.69
2390	16.95	AV	V	23.57	3.00	0.00	43.52	54.00	10.48
4813	33.94	PK	V	30.80	5.12	26.87	42.99	74.00	31.01
4813	21.06	AV	V	30.80	5.12	26.87	30.11	54.00	23.89
7219.5	33.47	PK	V	34.74	6.17	26.36	48.02	74.00	25.98
7219.5	20.75	AV	V	34.74	6.17	26.36	35.30	54.00	18.70
3520	33.69	PK	V	27.08	4.21	26.59	38.39	74.00	35.61
3520	21.09	AV	V	27.08	4.21	26.59	25.79	54.00	28.21
265.71	45.74	QP	V	13.31	1.24	27.49	32.80	46.00	13.20
299.66	45.01	QP	V	14.10	1.03	27.54	32.60	46.00	13.40
2446.5 MHz									
2446.5	82.14	PK	H	23.38	3.00	0.00	108.52	N/A	N/A
2446.5	68.92	AV	H	23.38	3.00	0.00	95.30	N/A	N/A
2446.5	89.74	PK	V	23.38	3.00	0.00	116.12	N/A	N/A
2446.5	76.28	AV	V	23.38	3.00	0.00	102.66	N/A	N/A
4893	32.97	PK	V	31.06	5.08	26.87	42.24	74.00	31.76
4893	20.69	AV	V	31.06	5.08	26.87	29.96	54.00	24.04
7339.5	33.79	PK	V	34.98	6.23	26.41	48.59	74.00	25.41
7339.5	20.92	AV	V	34.98	6.23	26.41	35.72	54.00	18.28
3222	33.93	PK	V	25.44	3.76	26.49	36.64	74.00	37.36
3222	20.74	AV	V	25.44	3.76	26.49	23.45	54.00	30.55
3054	33.64	PK	V	24.50	3.51	26.43	35.22	74.00	38.78
3054	20.69	AV	V	24.50	3.51	26.43	22.27	54.00	31.73
265.71	46.25	QP	V	13.31	1.24	27.49	33.31	46.00	12.69
299.66	46.95	QP	V	14.10	1.03	27.54	34.54	46.00	11.46
2476.5 MHz									
2476.5	77.89	PK	H	23.28	2.99	0.00	104.16	N/A	N/A
2476.5	63.59	AV	H	23.28	2.99	0.00	89.86	N/A	N/A
2476.5	84.69	PK	V	23.28	2.99	0.00	110.96	N/A	N/A
2476.5	71.33	AV	V	23.28	2.99	0.00	97.60	N/A	N/A
2483.5	34.55	PK	V	23.26	2.99	0.00	60.80	74.00	13.20
2483.5	22.39	AV	V	23.26	2.99	0.00	48.64	54.00	5.36
4953	34.62	PK	V	31.25	5.05	26.88	44.04	74.00	29.96
4953	22.41	AV	V	31.25	5.05	26.88	31.83	54.00	22.17
7429.5	34.26	PK	V	35.16	6.27	26.45	49.24	74.00	24.76
7429.5	21.69	AV	V	35.16	6.27	26.45	36.67	54.00	17.33
3350	33.69	PK	V	26.16	3.96	26.54	37.27	74.00	36.73
3350	21.06	AV	V	26.16	3.96	26.54	24.64	54.00	29.36
265.71	45.72	QP	V	13.31	1.24	27.49	32.78	46.00	13.22
299.66	45.93	QP	V	14.10	1.03	27.54	33.52	46.00	12.48

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)					
Additional channel, 2416.5 MHz									
2416.5	90.14	PK	V	23.48	3.00	0.00	116.62	N/A	N/A
2416.5	78.25	AV	V	23.48	3.00	0.00	104.73	N/A	N/A
2390	28.74	PK	V	23.57	3.00	0.00	55.31	74.00	18.69
2390	16.59	AV	V	23.57	3.00	0.00	43.16	54.00	10.84
Additional channel, 2466.5 MHz									
2466.5	89.74	PK	V	23.31	2.99	0.00	116.04	N/A	N/A
2466.5	78.14	AV	V	23.31	2.99	0.00	104.44	N/A	N/A
2483.5	39.78	PK	V	23.26	2.99	0.00	66.03	74.00	7.97
2483.5	20.74	AV	V	23.26	2.99	0.00	46.99	54.00	7.01

FCC §15.247(a) (2) – 6dB 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:	27.3 °C
Relative Humidity:	32 %
ATM Pressure:	100.6 kPa

The testing was performed by Lorin Bian on 2016-10-16.

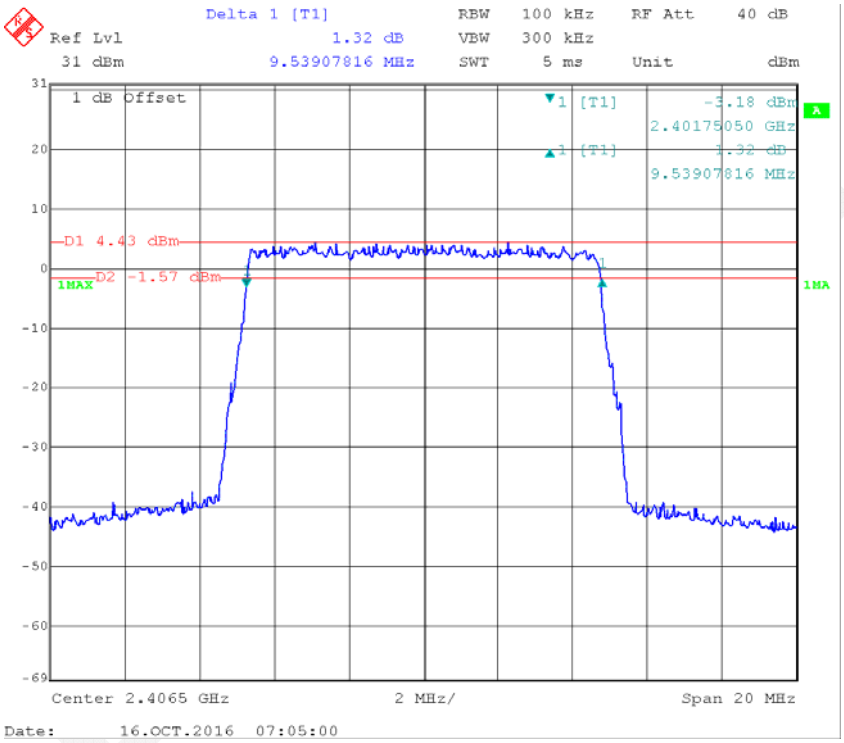
Test Result: Compliance.

Please refer to the following tables and plots.

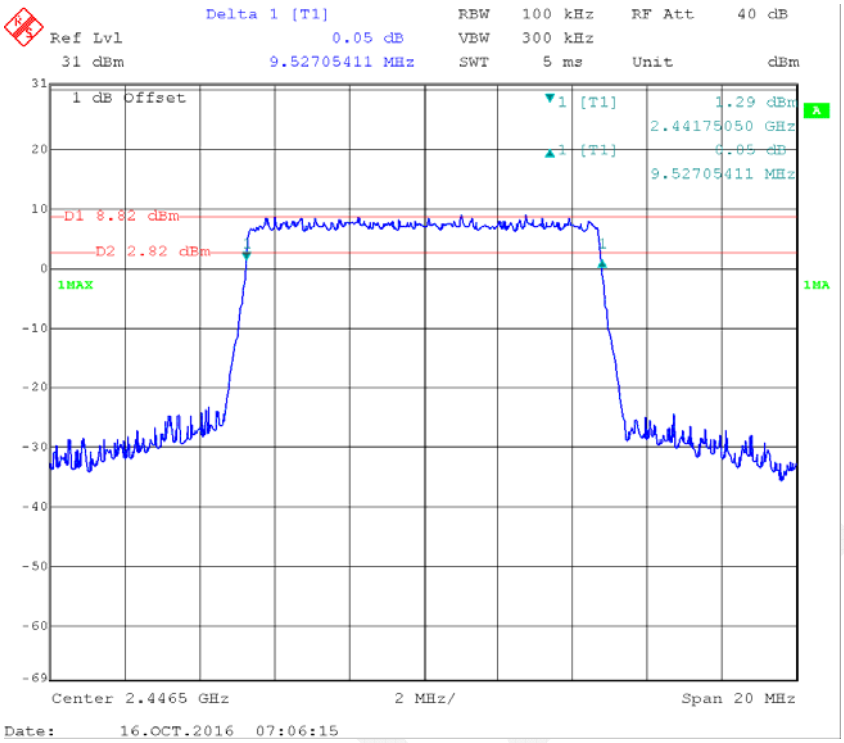
Test Mode: Transmitting(Test performed at Chain 0)

Channel	Frequency (MHz)	6 dB Emission Bandwidth (MHz)	Limit (MHz)
Low	2406.5	9.539	≥0.5
Middle	2446.5	9.527	≥0.5
High	2476.5	9.523	≥0.5

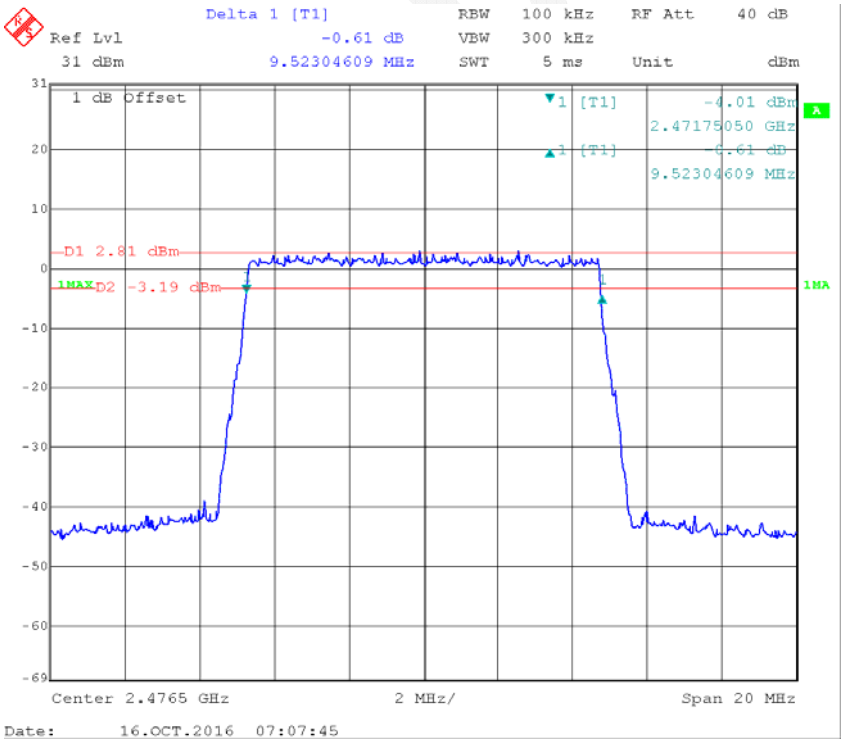
Low Channel



Middle Channel



High Channel



FCC §15.247(b) (3) - MAXIMUM PEAK 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 a Test Equipment.

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	/

*** 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:	27.3 °C
Relative Humidity:	32 %
ATM Pressure:	100.6 kPa

The testing was performed by Lorin Bian on 2016-10-16.

Test Mode: Transmitting

Frequency	Conducted Peak Output Power (dBm)					Limits
(MHz)	Chain 0	Chain 1	Chain 2	Chain 3	Maximum Total	(dBm)
2406.5	23.03	22.54	22.61	22.37	25.84	30
2416.5	25.65	25.58	25.91	25.64	28.79	30
2446.5	25.75	25.69	25.93	25.64	28.85	30
2466.5	25.42	25.41	25.77	25.37	28.61	30
2476.5	21.26	20.48	20.68	20.54	23.99	30

Note: the device support 2T2R MIMO mode, Maximum total power was combined two highest antenna ports.

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	/

*** 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

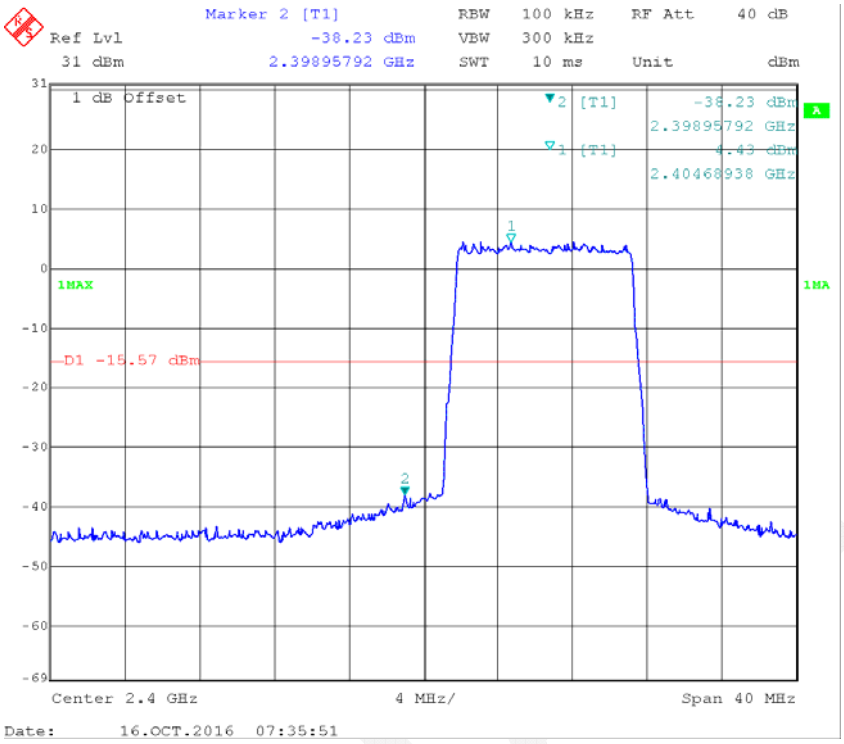
Temperature:	27.3 °C
Relative Humidity:	32 %
ATM Pressure:	100.6 kPa

The testing was performed by Lorin Bian on 2016-10-16.

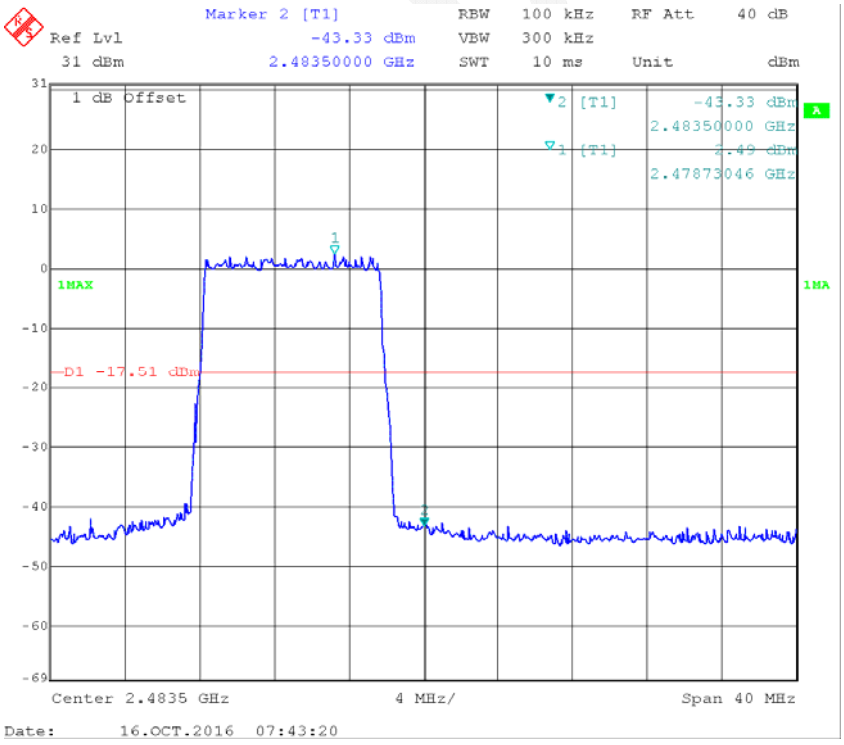
Test mode: Transmitting

Test Result: Compliant. Please refer to following plots.

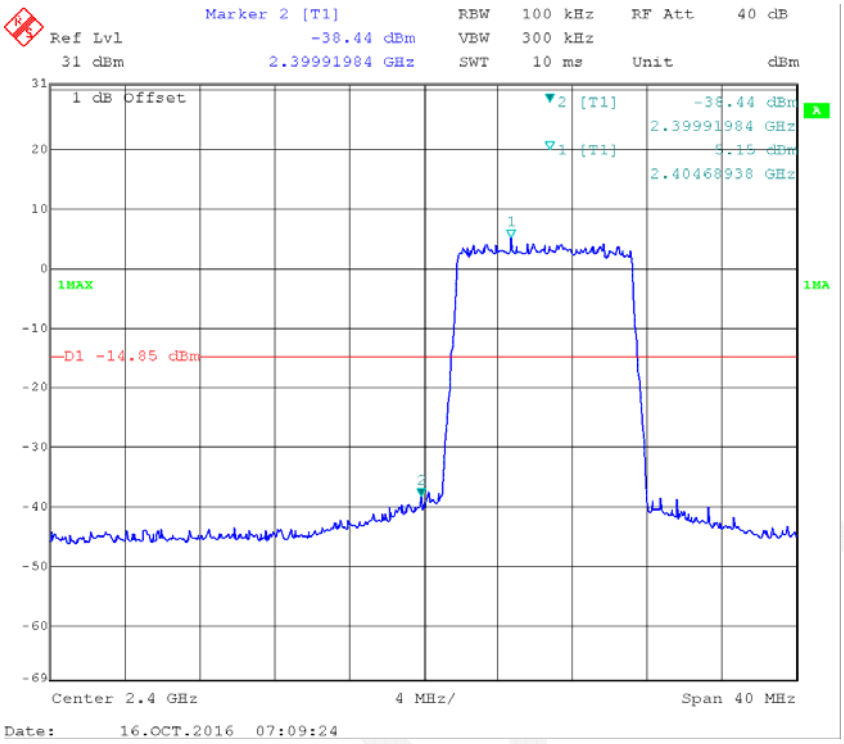
Chain 0, Band Edge, Left Side



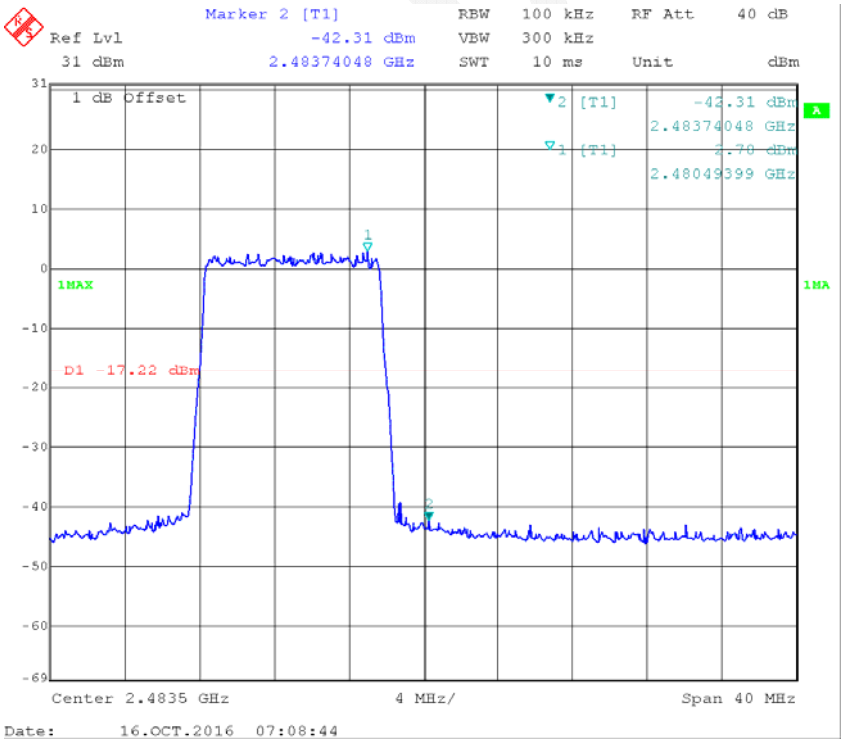
Chain 0, Band Edge, Right Side



Chain 2, Band Edge, Left Side



Chain 2, Band Edge, Right Side



FCC §15.247(e) - POWER SPECTRAL DENSITY

Applicable Standard

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

Test Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT was set without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Set the RBW = 3 kHz, VBW = 10 kHz, Set the span to 1.5 times the DTS bandwidth.
4. Use the peak marker function to determine the maximum amplitude level.

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:	28.7 °C
Relative Humidity:	43 %
ATM Pressure:	100.7 kPa

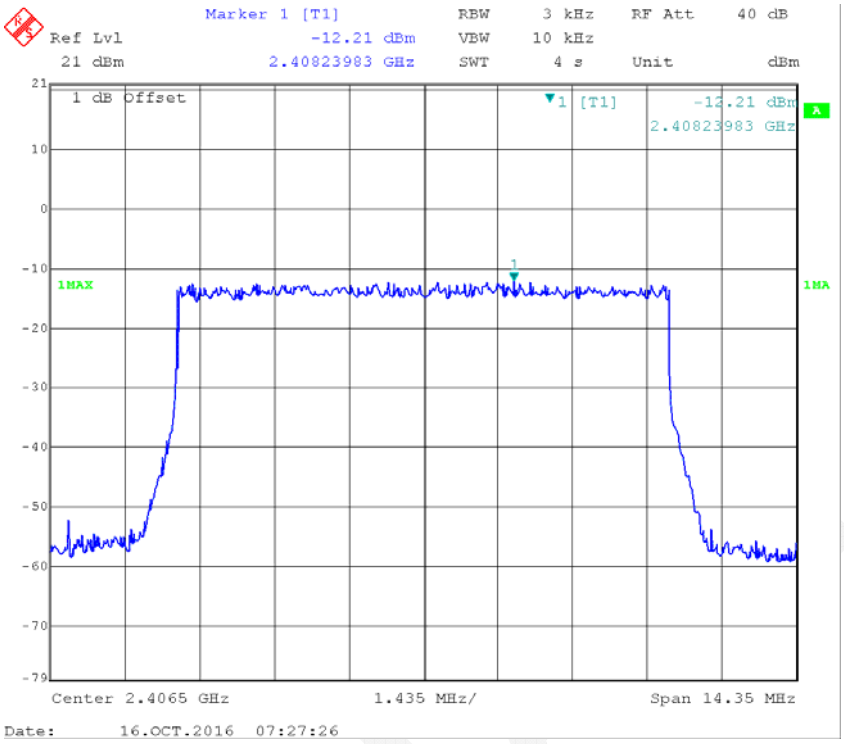
The testing was performed by Lorin Bian *on 2016-10-16.*

Test Mode: Transmitting

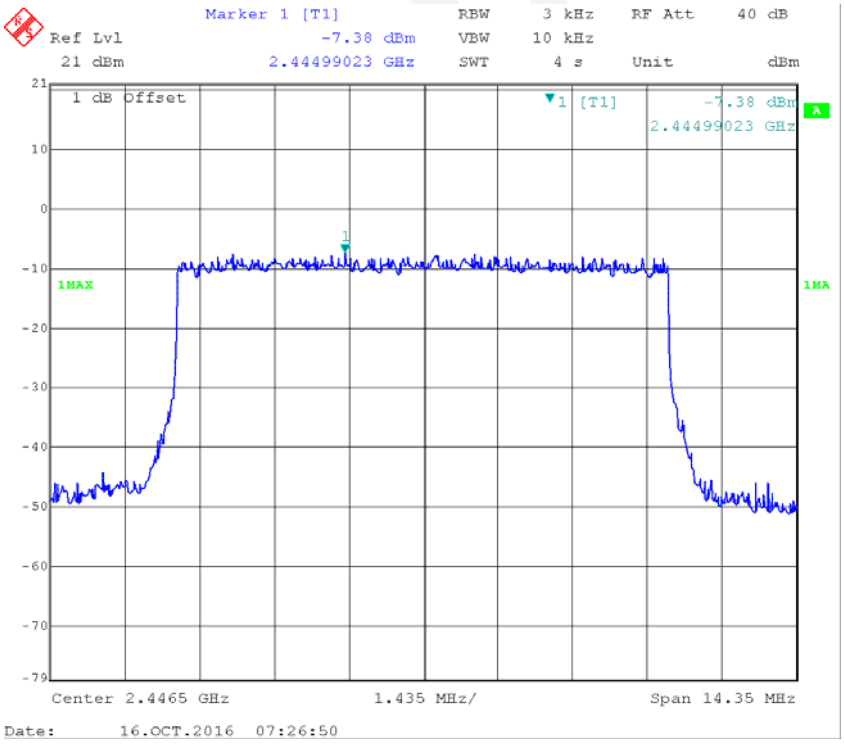
Channel	Frequency	Power Spectral Density (dBm/3kHz)					Limits	Result
	MHz	Chain 0	Chain 1	Chain 2	Chain 3	Total	dBm/3kHz	
Low	2406.5	-12.21	12.65	-12.6-	-12.85	-9.39	8	Compliance
Middle	2446.5	-7.38	-7.77	-7.67	-8.00	-4.51	8	Compliance
High	2476.5	-14.09	-14.33	-13.85	-14.13	-10.96	8	Compliance

Please refer to the following plots.

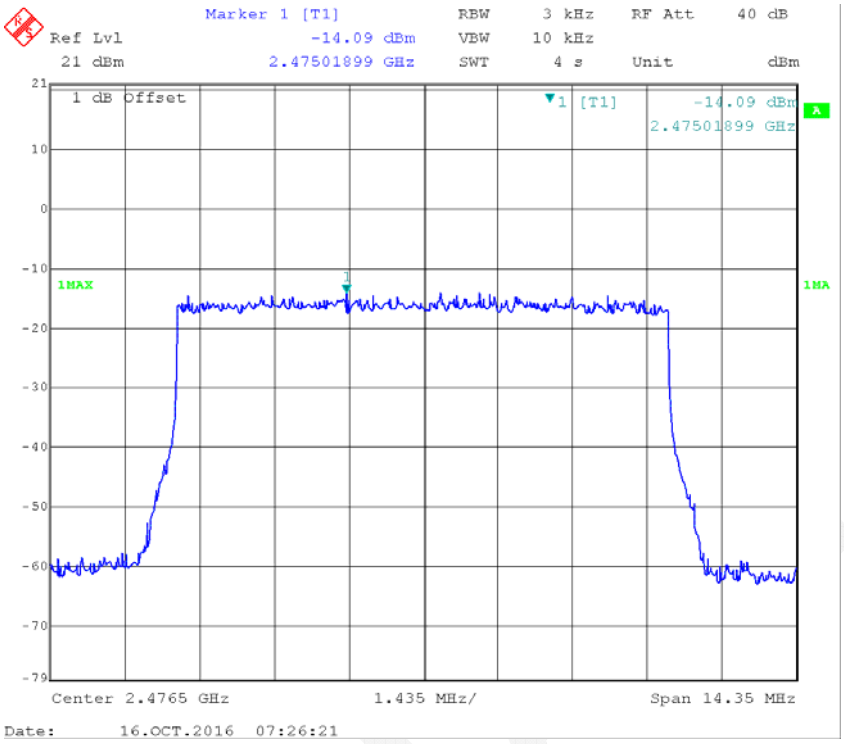
Chain 0, Power Spectral Density, Low Channel



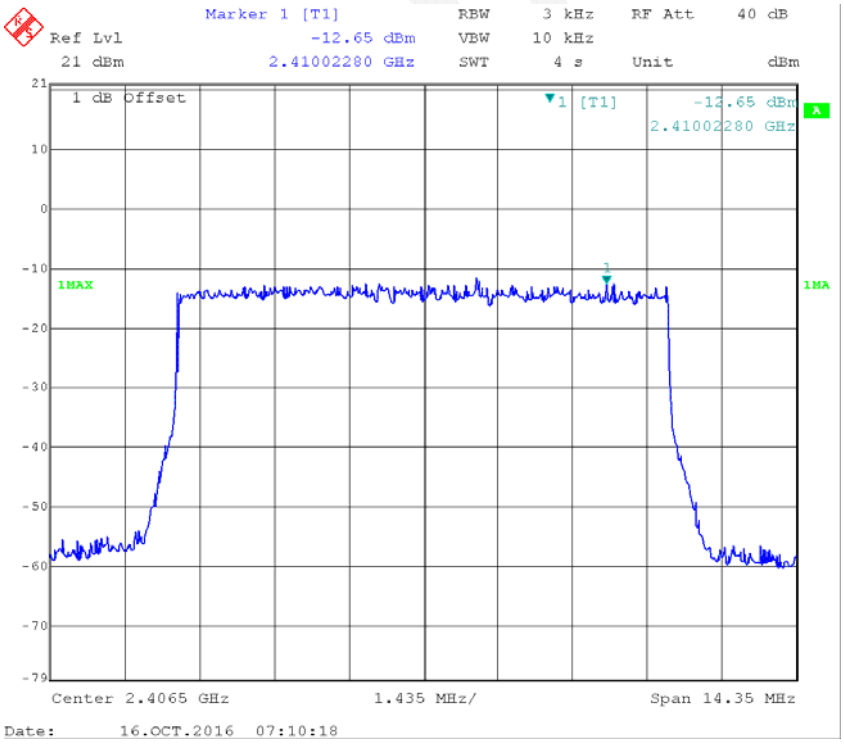
Chain 0, Power Spectral Density, Middle Channel



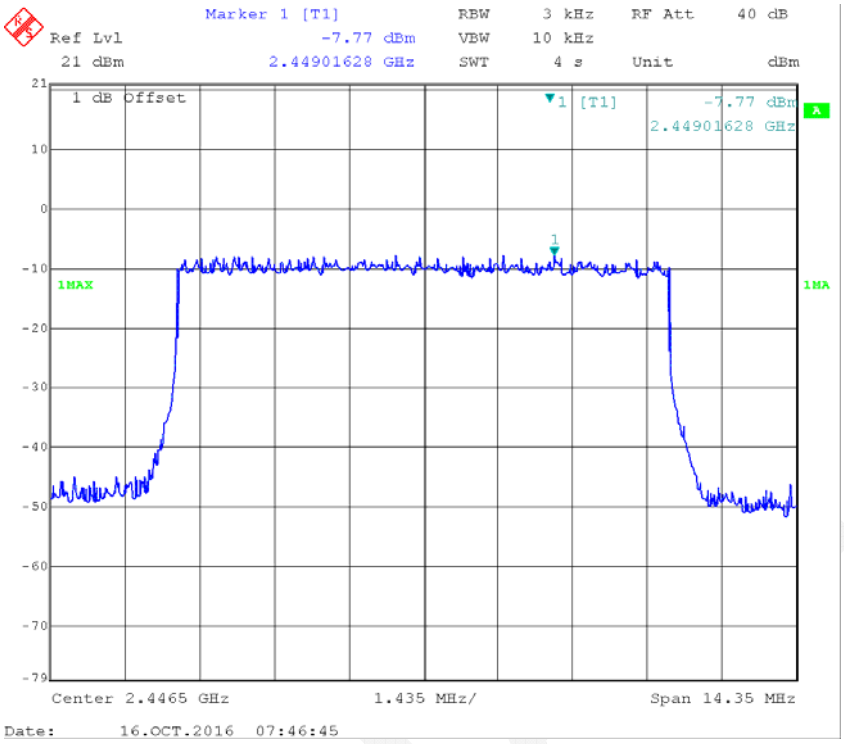
Chain 0, Power Spectral Density, High Channel



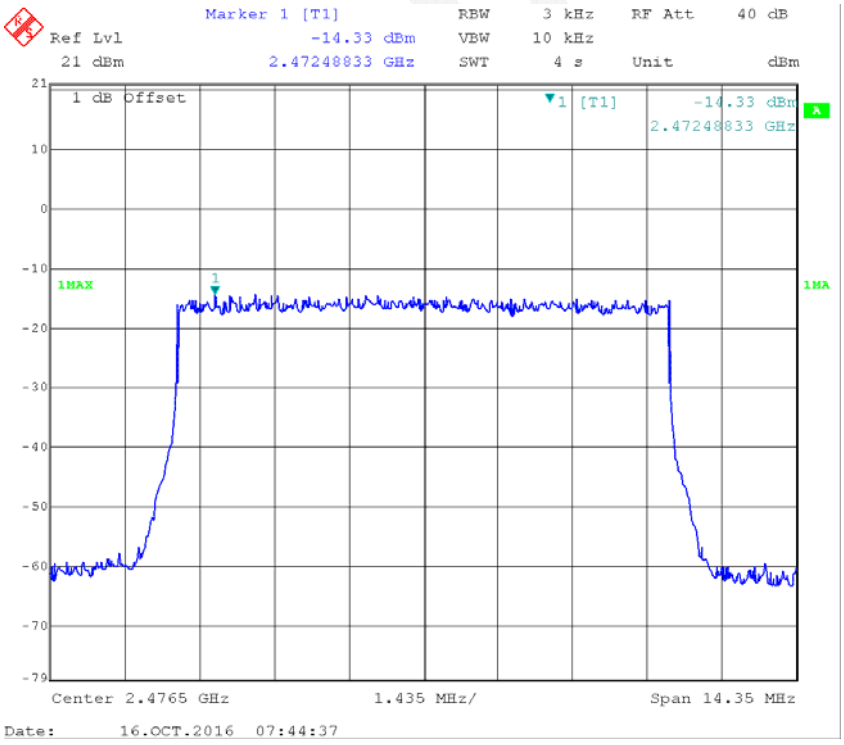
Chain 1, Power Spectral Density, Low Channel



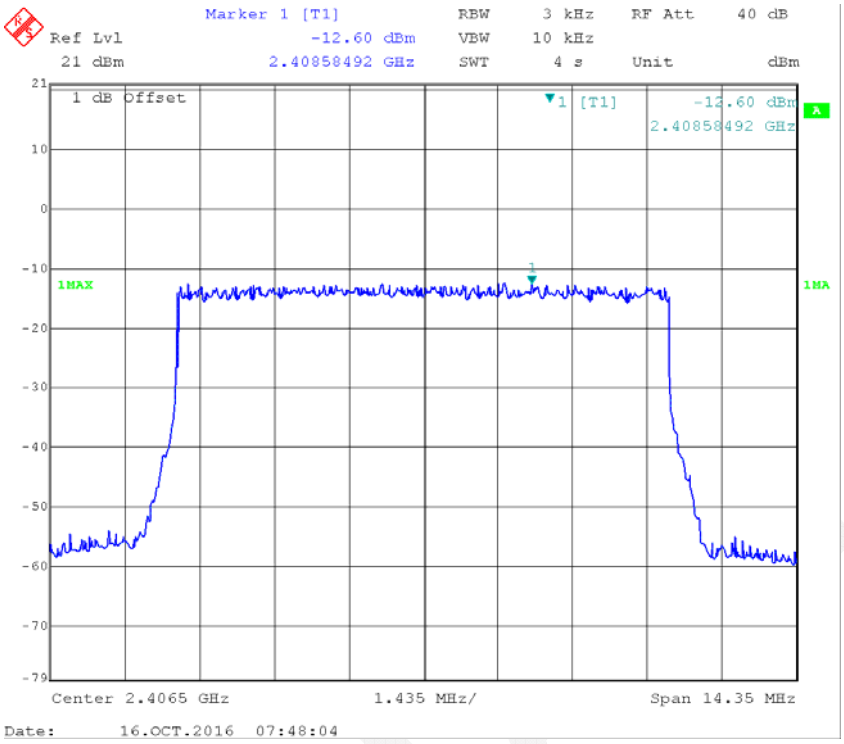
Chain 1, Power Spectral Density, Middle Channel



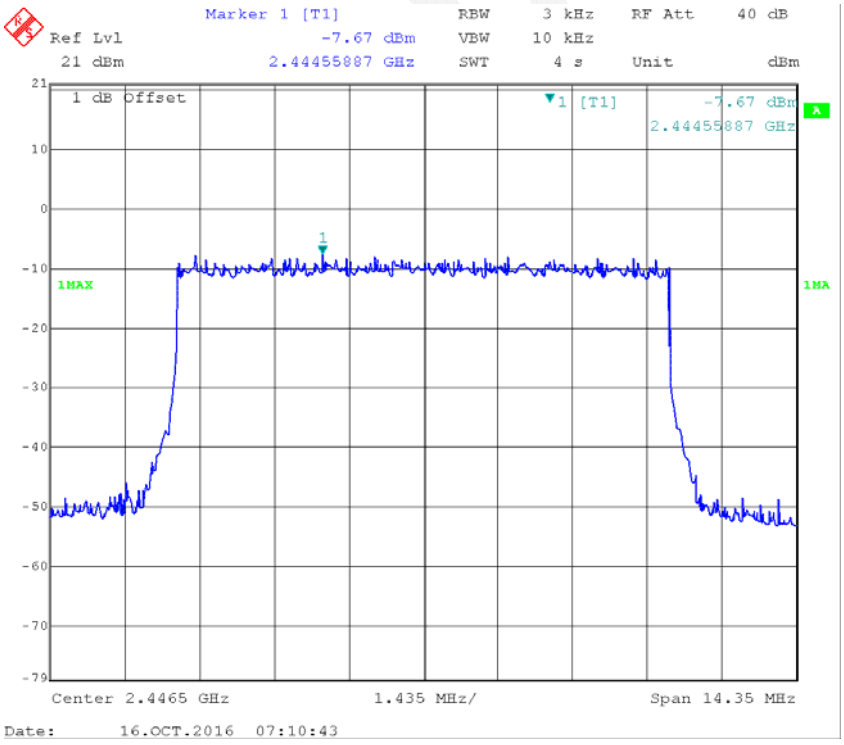
Chain 1, Power Spectral Density, High Channel



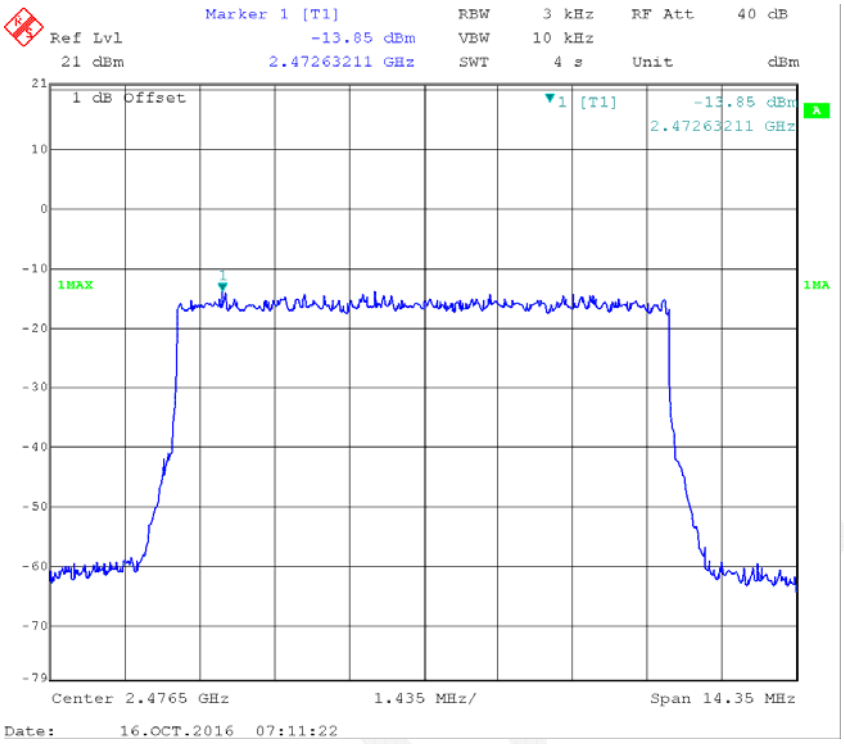
Chain 2, Power Spectral Density, Low Channel



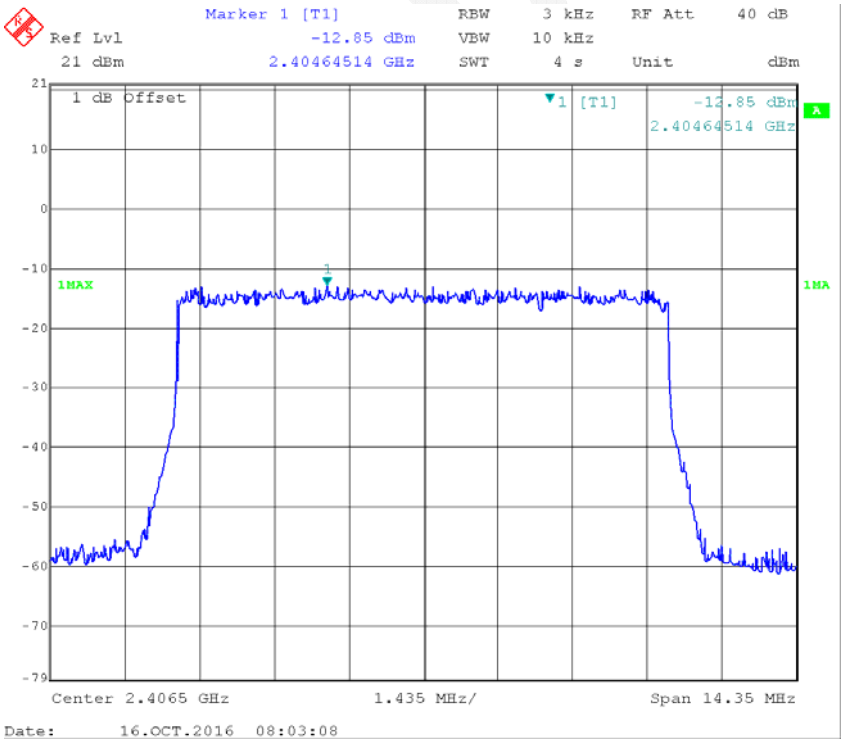
Chain 2, Power Spectral Density, Middle Channel



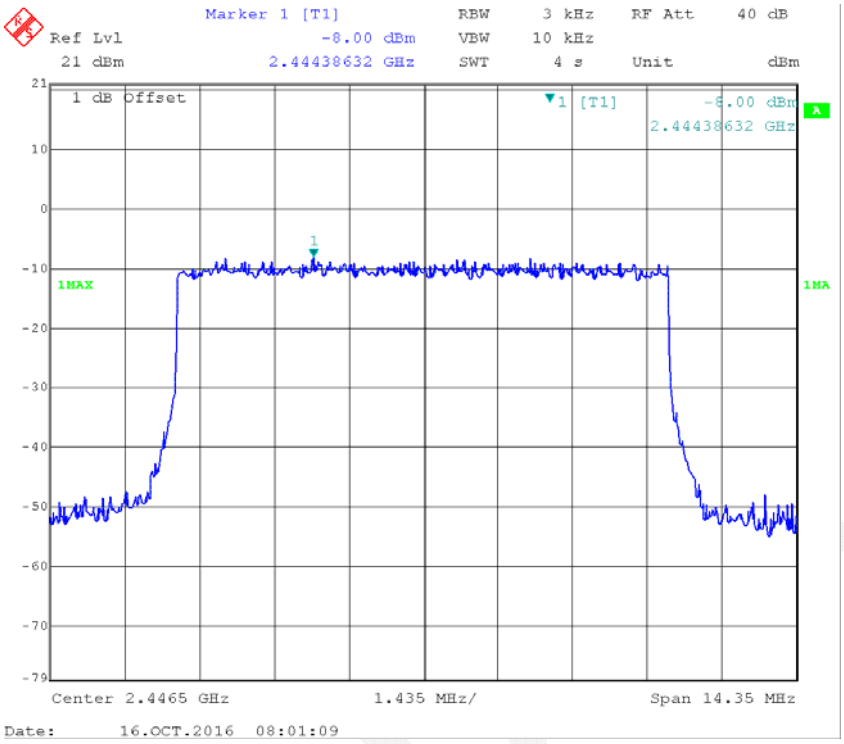
Chain 2, Power Spectral Density, High Channel



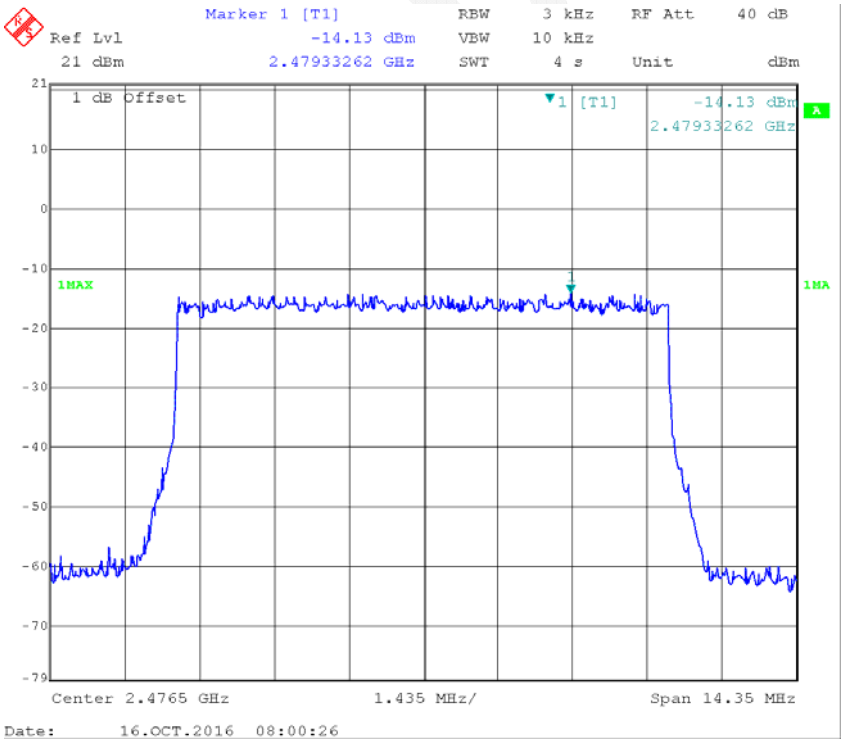
Chain 3, Power Spectral Density, Low Channel



Chain 3, Power Spectral Density, Middle Channel



Chain 3, Power Spectral Density, High Channel



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