



TESTING LABORATORY  
CERTIFICATE #4820.01



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RSS-247, ISSUE 2, FEBRUARY 2017

## TEST REPORT

For

**SZ DJI TECHNOLOGY CO., LTD**

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Shenzhen, Guangdong, China

**FCC ID: SS3-RC1B1809**  
**IC: 11805A-RC1B1809**

<b>Report Type:</b> Original Report	<b>Product Type:</b> Remote Controller
<b>Report Number:</b> RDG180921002-00B	
<b>Report Date:</b> 2018-10-24	
Jerry Zhang	
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**Note:** This test report is prepared for the customer shown above and for the device described herein. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp. (Dongguan). This report must not be used by the customer to claim product certification, approval, or endorsement by A2LA\* or any agency of the Federal Government. \* This report may contain data that are not covered by the A2LA accreditation and are marked with an asterisk “\*”.

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## GENERAL INFORMATION

### Product Description for Equipment under Test (EUT)

<b>EUT Type:</b>		Remote Controller
<b>EUT Name:</b>		C2
<b>EUT Model:</b>		RC1B
<b>FCC ID:</b>		SS3-RC1B1809
<b>IC:</b>		11805A-RC1B1809
<b>Rated Input Voltage:</b>		DC 3.83V from battery or DC 5 V from adapter
<b>Nominal Adapter Information</b>	<b>Model:</b>	F2C60
	<b>Input:</b>	100-240V~1.8A, 50-60Hz
	<b>Output:</b>	17.6V-3.41A or 17.0V-3.53A (Main);5V-2A Total(USB A + Micro USB)
<b>External Dimension:</b>		145mm(L)*80mm(W)*60mm(H)
<b>Serial Number:</b>		180921002
<b>EUT Received Date:</b>		2018.09.21

### Objective

This report is prepared on behalf of **SZ DJI TECHNOLOGY CO., LTD** in accordance with Part 2, Subpart J, Part 15, Subparts A, and C of the Federal Communications Commission's rules and RSS-247, Issue 2, February 2017, RSS-Gen Issue 5, April 2018 of the Innovation, Science and Economic Development Canada.

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, 15.207, 15.209, 15.247 rules and RSS-247, Issue 2, February 2017, RSS-Gen Issue 5, April 2018 of the Innovation, Science and Economic Development Canada.

### Related Submittal(s)/Grant(s)

FCC Part 15E NII and Part 15B JAB submissions with FCC ID: SS3-RC1B1809.  
RSS-247 FHSS, RSS-247 LE-LAN submissions with IC:11805A-RC1B1809.  
Part of system submissions with FCC ID: SS3-L1P1805, or FCC ID: SS3-L1Z1805;  
IC: 11805A-L1P1805, or IC: 11805A-L1Z1805.

### 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 and KDB 558074 D01 15.247 Meas Guidance v05, and RSS-247, Issue 2, February 2017, RSS-Gen Issue 5, April 2018 of the Innovation, Science and Economic Development Canada.

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: 4.55 dB, 200M~1GHz: 5.92 dB, 1G~6GHz: 4.98 dB, 6G~18GHz: 5.89 dB, 18G~26.5G: 5.47 dB, 26.5G~40G: 5.63 dB
Unwanted Emissions, conducted	±1.5 dB
Temperature	±1 °C
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.

The test site has been approved by the FCC under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No. : 897218, the FCC Designation No. : CN1220.

The test site has been registered with ISED Canada under ISED Canada Registration Number 3062D.

## SYSTEM TEST CONFIGURATION

### Description of Test Configuration

The system was configured for testing in engineering mode.

The device supports SDR modes (including 1.4MHz mode, 10MHz mode, 20 MHz mode), the system configure 1T2R, only main antenna can transmit.

For 1.4MHz modes, 30 channels are provided to testing:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2407.5	19	2443.5
2	2409.5	...	...
...	...	...	...
...	...	...	...
...	...	29	2463.5
18	2441.5	30	2465.5

For 10MHz modes, the device employs 73 channels as below:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2405.5	38	2442.5
2	2406.5	...	...
...	...	...	...
...	...	...	...
...	...	72	2476.5
37	2441.5	73	2477.5

For 20MHz modes, the device employs 62 channels as below:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2410.5	33	2442.5
2	2411.5	...	...
...	...	...	...
...	...	...	...
...	...	61	2470.5
32	2441.5	62	2471.5

### Equipment Modifications

No modification was made to the EUT tested.

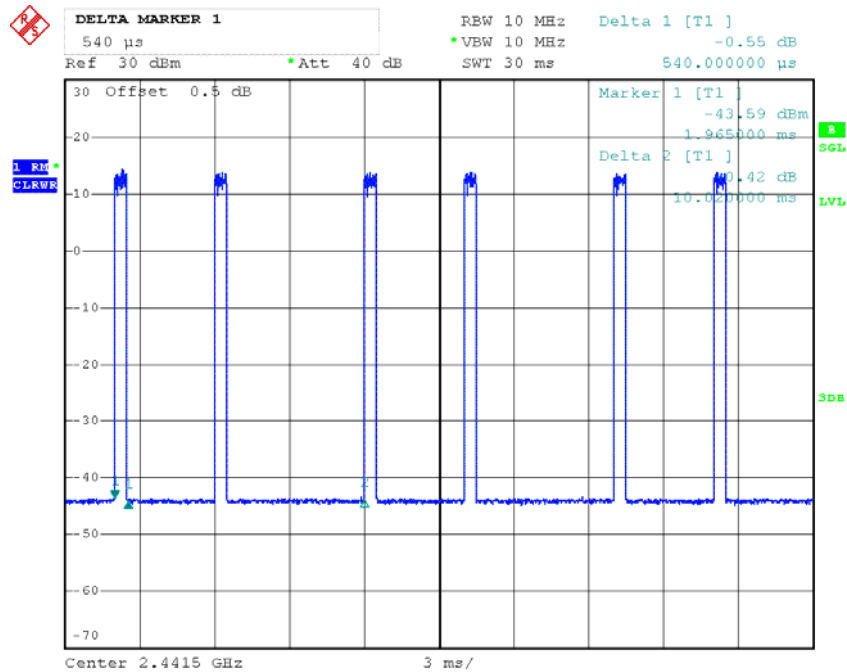
### EUT Exercise Software

The software “DjiRfCertConsole\_V1.3.5.56” was used for testing, which was provided by manufacturer. The maximum power with maximum duty cycle was configured as default setting, Per pretest the conducted output power, 10MHz, 20MHz mode’s power in difference power level, all test items performed at Low, Middle and High Channel, radiation bandedge test and output power were tested with additional channels according to the pretest output power test results.

The maximum duty cycle as following table:

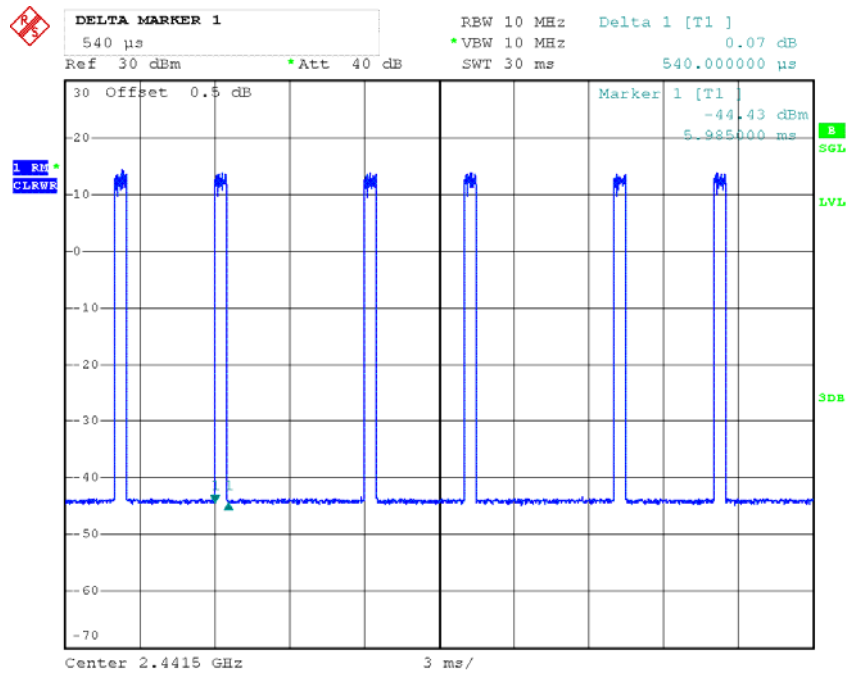
Test mode	T <sub>on</sub> (ms)	T <sub>on+off</sub> (ms)	Duty Cycle (%)
1.4MHz	0.54+0.54=1.08	10.02	10.78%
10MHz	3.13+5.16=8.29	10.045	82.53%
20MHz	5.09+3.08=8.17	10.028	81.47%

### 1.4M-1



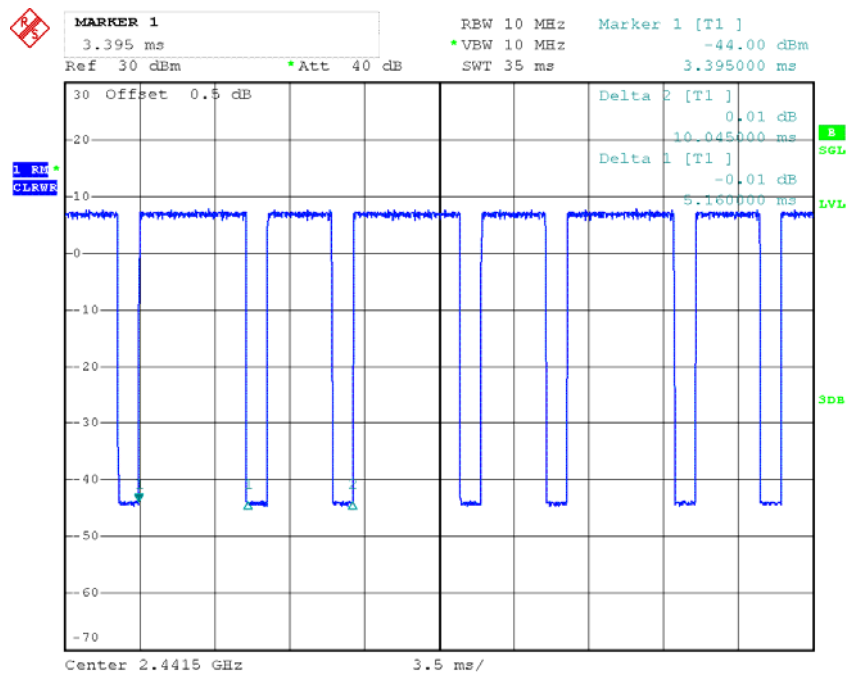
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## 1.4M-2



Date: 24.OCT.2018 14:40:41

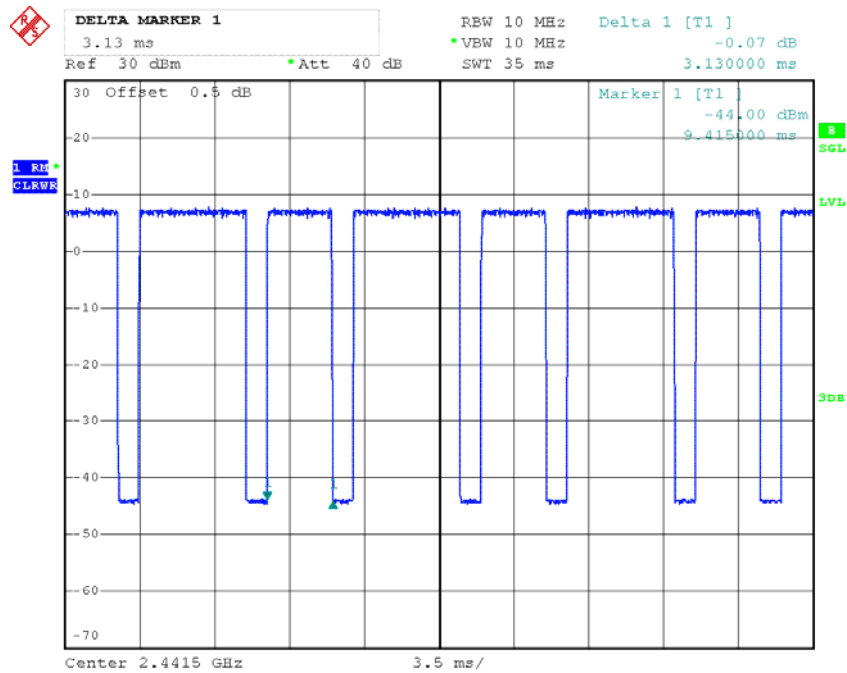
## 10M-1



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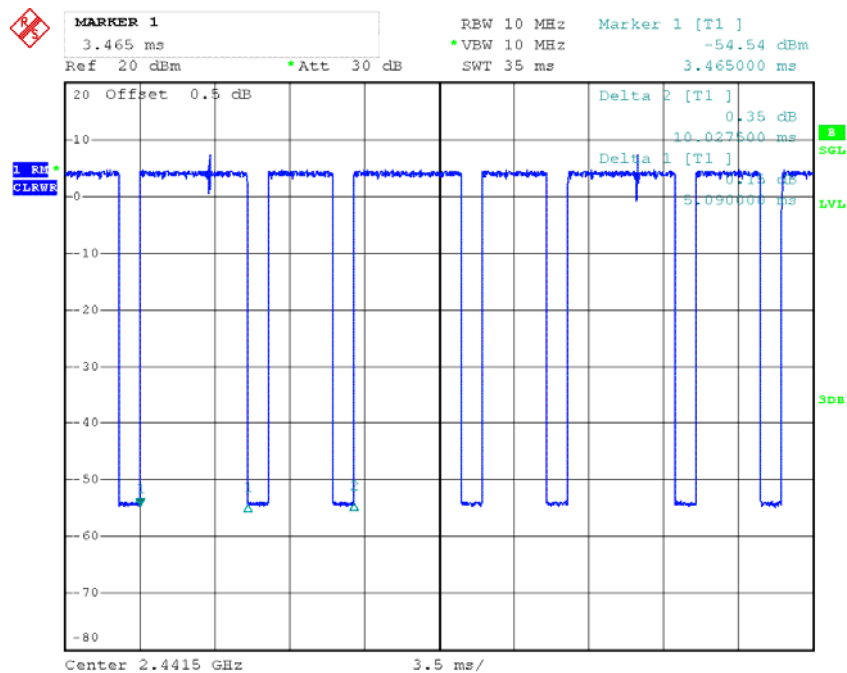


# 10M-2



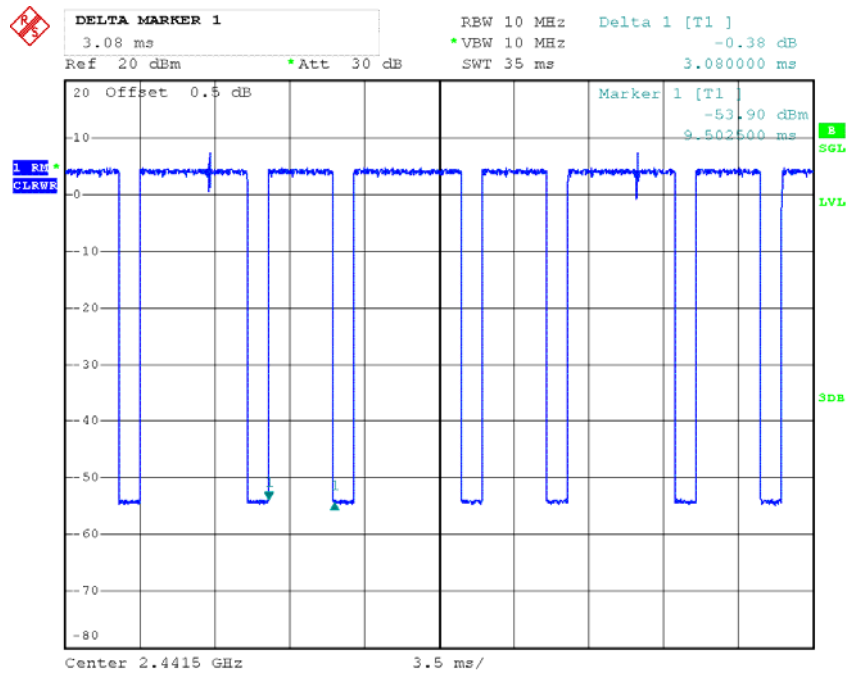
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# 20M-1



Date: 24.OCT.2018 14:43:40

20M-2



Date: 24.OCT.2018 14:44:01

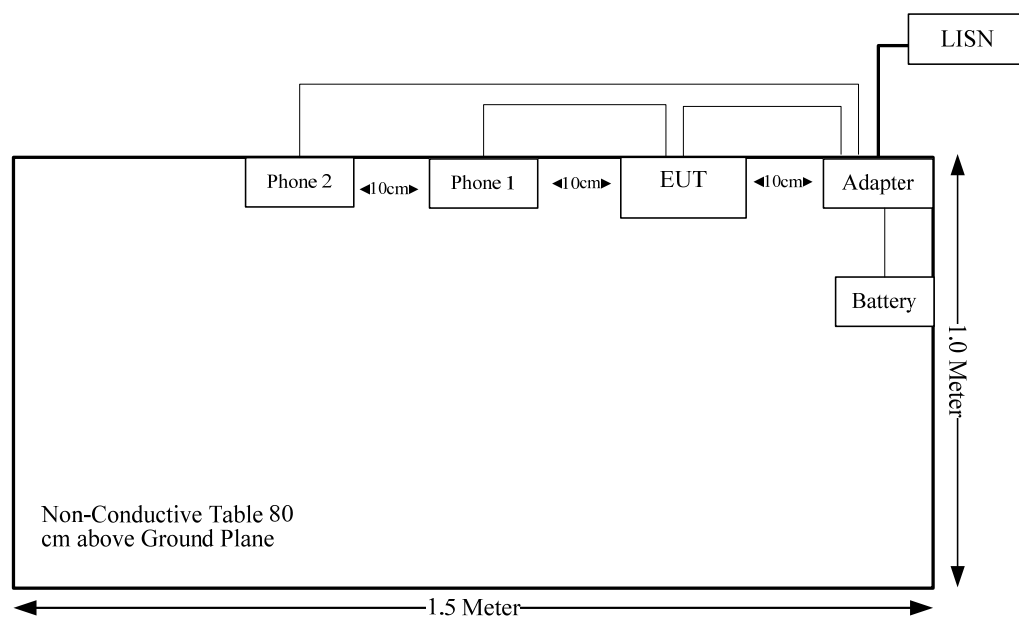
### Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
APPLE	iPhone 8(Phone 1)	MGAA2CG/A	FK1R96UYG5QT
APPLE	iPhone 8(Phone 2)	MNH22CH/A	DNPSLHL1HG78
DJI	UAV(unmanned aerial vehicle)	MAVIC 2	N/A
DJI	Battery	FB2-3850mAh-15.4V	N/A

### Support Cable List and Details

Cable Description	Shielding Type	Ferrite Core	Length (m)	From Port	To
Micro USB Cable	yes	no	0.1	Micro USB Port of EUT	Phone 1
USB-A Cable	yes	no	1.2	USB A Port of Adapter	Phone 2
Micro USB Cable of adapter	yes	no	0.1	Adapter	EUT
DC Power Cable of adapter	yes	no	0.2	Adapter	Battery

### Block Diagram of Test Setup



**SUMMARY OF TEST RESULTS**

Rules	Description of Test	Result
FCC §15.247 (i) & §1.1310 & §2.1093 RSS-102 Clause 4	RF Exposure	Compliance
FCC§15.203, RSS-Gen Clause 6.8	Antenna Requirement	Compliance
FCC§15.207 (a), RSS-Gen Clause 8.8	AC Line Conducted Emissions	Compliance
FCC§15.205, §15.209, FCC §15.247(d), RSS-247 Clause 5.5 RSS-Gen Clause 8.10	Spurious Emissions	Compliance
FCC§15.247 (a)(2), RSS-247 Clause 5.2 a) RSS-Gen Clause 6.7	6 dB Bandwidth	Compliance
FCC§15.247(b)(3), RSS-247 Clause 5.4 d)	Maximum Conducted Output Power	Compliance
FCC§15.247(d), RSS-247 Clause5.5	100 kHz Bandwidth of Frequency Band Edge	Compliance
FCC§15.247(e), RSS-247 Clause5.2 b)	Power Spectral Density	Compliance

**FCC §15.247 (i) & §1.1310 & §2.1093, RSS-102 §4- RF EXPOSURE****Applicable Standard**

According to §15.247(i), §1.1310 and §2.1093.

According to RSS-102 §4 Table 3, SAR limits for device used by the general public

Body Region	Average SAR (W/Kg)	Averaging Time (minutes)	Mass Average (g)
Whole Body	0.08	6	Whole Body
Localized Head, Neck and Trunk	1.6	6	1
Localized Limbs	4	6	10

**Test Result**

Compliant, please refer to the SAR report: RDG180921002-20.

## **FCC §15.203& RSS-GEN CLAUSE 6.8 - ANTENNA REQUIREMENT**

### **Applicable Standard**

According to FCC§ 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.

According to RSS-Gen Clause 6.8, The applicant for equipment certification shall provide a list of all antenna types that may be used with the transmitter, where applicable (i.e. for transmitters with detachable antenna), indicating the maximum permissible antenna gain (in dBi) and the required impedance for each antenna. The test report shall demonstrate the compliance of the transmitter with the limit for maximum equivalent isotropically radiated power (e.i.r.p.) specified in the applicable RSS, when the transmitter is equipped with any antenna type, selected from this list.

For expediting the testing, measurements may be performed using only the antenna with highest gain of each combination of transmitter and antenna type, with the transmitter output power set at the maximum level. However, the transmitter shall comply with the applicable requirements under all operational conditions and when in combination with any type of antenna from the list provided in the test report (and in the notice to be included in the user manual, provided below).

When measurements at the antenna port are used to determine the RF output power, the effective gain of the device's antenna shall be stated, based on a measurement or on data from the antenna's manufacturer.

The test report shall state the RF power, output power setting and spurious emission measurements with each antenna type that is used with the transmitter being tested.

For licence-exempt equipment with detachable antennas, the user manual shall also contain the following notice in a conspicuous location:

*This radio transmitter [enter the device's ISED certification number] has been approved by Innovation, Science and Economic Development Canada to operate with the antenna types listed below, with the maximum permissible gain indicated. Antenna types not included in this list that have a gain greater than the maximum gain indicated for any type listed are strictly prohibited for use with this device.*

Immediately following the above notice, the manufacturer shall provide a list of all antenna types which can be used with the transmitter, indicating the maximum permissible antenna gain (in dBi) and the required impedance for each antenna type.

**Antenna Information And Connector Construction**

The EUT has 2 antennas permanently attached to the unit, the device supports 1T2R, only main antenna can transmit, fulfill the requirement of the item. Please refer to the internal photos.

Antenna	Manufacturer	Model Number	Antenna Type	Connector Type	input impedance (Ohm)	Antenna Gain /Frequency
SDR Main	DJI	WM240 RC ANT L	PCB	IPEX	50	5.0 dBi/2.4GHz 4.0 dBi/5.8GHz
SDR Aux	DJI	WM240 RC ANT R	PCB	IPEX	50	5.0 dBi/2.4GHz 4.0 dBi/5.8GHz

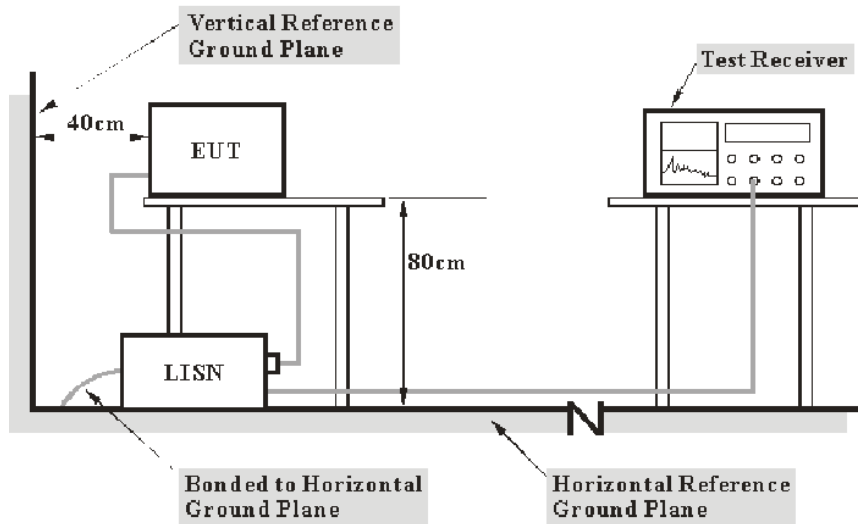
**Result:** Compliance.

## FCC §15.207 (a) & RSS-GEN CLAUSE 8.8– AC LINE CONDUCTED EMISSIONS

### Applicable Standard

FCC§15.207(a), RSS-Gen Clause 8.8.

### EUT Setup



Note: 1. Support units were connected to second LISN.  
2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC Part 15.207 and the RSS-Gen limits.

The spacing between the peripherals was 10 cm.

The adapter was connected to the main lisn with a 120 V/60 Hz AC power source.

### EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

Frequency Range	IF B/W
150 kHz – 30 MHz	9 kHz



## Test Procedure

During the conducted emission test, the adapter was connected to the first LISN.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All data was recorded in the Quasi-peak and average detection mode.

## Corrected Amplitude & Margin Calculation

The basic equation is as follows:

$$V_C = V_R + A_C + VDF$$

$$C_f = A_C + VDF$$

Herein,

$V_C$  (cord. Reading): corrected voltage amplitude

$V_R$ : reading voltage amplitude

$A_C$ : attenuation caused by cable loss

VDF: voltage division factor of AMN

$C_f$ : Correction Factor

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

$$\text{Margin} = \text{Limit} - \text{Corrected Amplitude}$$

## Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	EMI Test Receiver	ESCS 30	830245/006	2017-12-11	2018-12-11
Unknown	Coaxial Cable	C-NJNJ-50	C-0200-01	2018-09-05	2019-09-05
R&S	Test Software	EMC32	Version8.53.0	N/A	N/A
R&S	Two-line V-network	ENV 216	101614	2017-12-08	2018-12-08

\* **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).

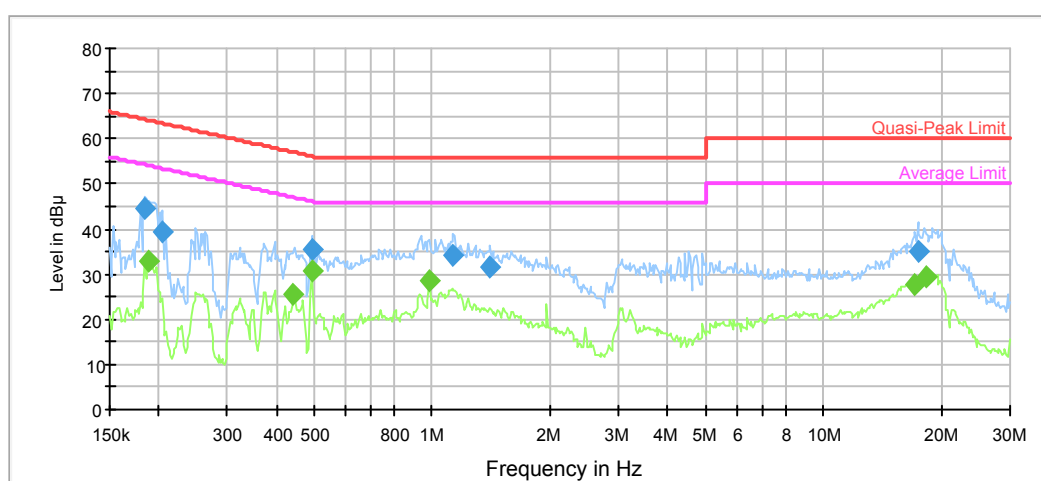
**Test Data****Environmental Conditions**

<b>Temperature:</b>	25.3°C
<b>Relative Humidity:</b>	49 %
<b>ATM Pressure:</b>	100.4 kPa

The testing was performed by Lily Xie on 2018-09-29.

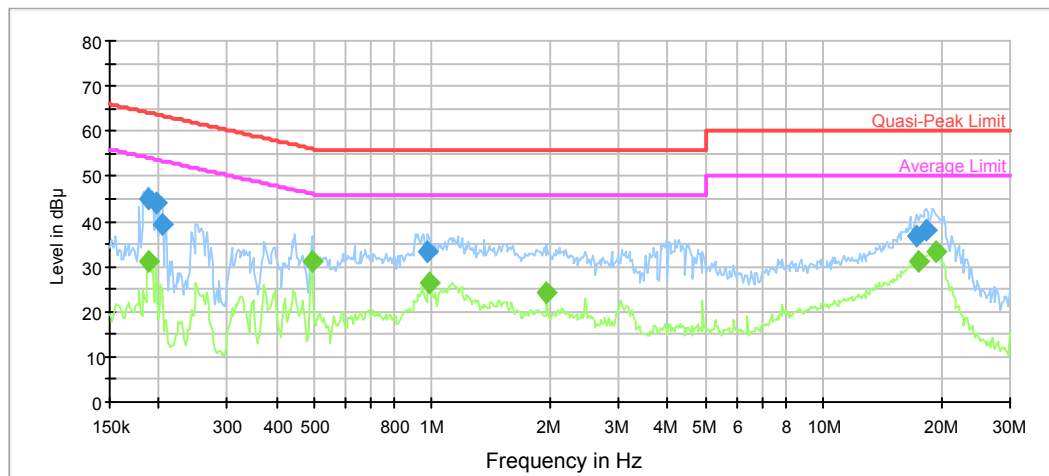
Test Mode: Transmitting

AC120 V, 60 Hz, Line:



Frequency (MHz)	QuasiPeak (dBμV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.184529	44.5	9.000	L1	10.8	19.8	64.3	Compliance
0.204669	39.5	9.000	L1	10.6	23.9	63.4	Compliance
0.491712	35.5	9.000	L1	9.9	20.6	56.1	Compliance
1.135185	34.0	9.000	L1	9.8	22.0	56.0	Compliance
1.407671	31.7	9.000	L1	9.8	24.3	56.0	Compliance
17.459396	35.2	9.000	L1	10.0	24.8	60.0	Compliance

Frequency (MHz)	Average (dBμV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.188994	33.0	9.000	L1	10.7	21.1	54.1	Compliance
0.443327	25.7	9.000	L1	9.9	21.3	47.0	Compliance
0.491712	30.5	9.000	L1	9.9	15.6	46.1	Compliance
0.983506	28.6	9.000	L1	9.8	17.4	46.0	Compliance
17.046987	27.6	9.000	L1	10.0	22.4	50.0	Compliance
18.314388	29.2	9.000	L1	10.0	20.8	50.0	Compliance

**AC120 V, 60 Hz, Neutral:**

Frequency (MHz)	QuasiPeak (dBμV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.188994	44.8	9.000	N	10.7	19.3	64.1	Compliance
0.196675	44.0	9.000	N	10.6	19.7	63.7	Compliance
0.204669	39.5	9.000	N	10.6	23.9	63.4	Compliance
0.975701	33.2	9.000	N	9.8	22.8	56.0	Compliance
17.320829	36.7	9.000	N	10.0	23.3	60.0	Compliance
18.314388	38.0	9.000	N	10.0	22.0	60.0	Compliance

Frequency (MHz)	Average (dBμV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.188994	31.2	9.000	N	10.7	22.9	54.1	Compliance
0.491712	31.2	9.000	N	9.9	14.9	46.1	Compliance
0.983506	26.5	9.000	N	9.8	19.5	46.0	Compliance
1.967177	24.1	9.000	N	9.8	21.9	46.0	Compliance
17.459396	31.3	9.000	N	10.0	18.7	50.0	Compliance
19.364939	33.2	9.000	N	10.0	16.8	50.0	Compliance

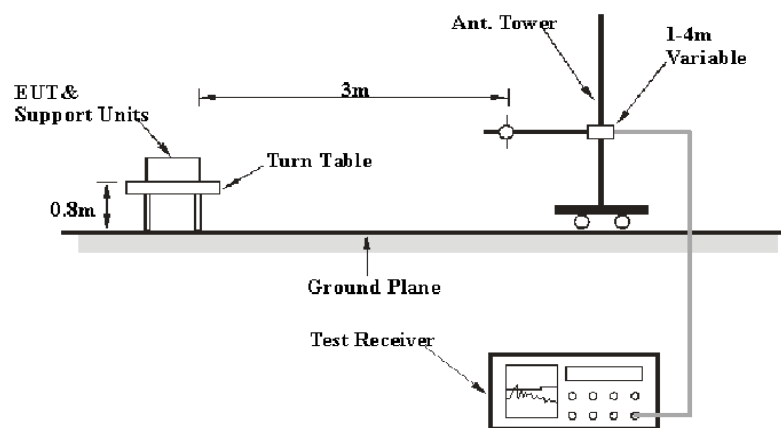
## FCC §15.209, §15.205, §15.247(d) & RSS-247 CLAUSE 5.5, RSS-GEN CLAUSE 8.10- SPURIOUS EMISSIONS

### Applicable Standard

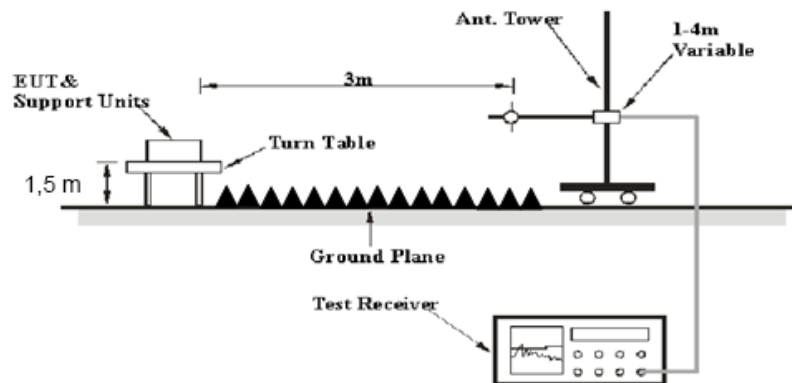
FCC §15.247 (d); §15.209; §15.205, RSS-247 §5.5, RSS-GEN Clause 8.10.

### EUT Setup

#### Below 1GHz:



#### Above 1GHz:



The radiated emission tests were performed in the 3 meters chamber test site A for the range 30MHz to 1GHz and the 3 meters chamber B test site for above 1GHz, using the setup accordance with the ANSI C63.10-2013. The specification used was the FCC 15.209, and FCC 15.247, the RSS-247 Clause 5.5, RSS-Gen Clause 8.10 limits..

The spacing between the peripherals was 10 cm.

## EMI Test Receiver & Spectrum Analyzer Setup

The system was investigated from 30 MHz to 26.5 GHz.

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

30MHz-1000MHz:

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

1GHz- 26.5GHz:

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

$$\text{Corrected Amplitude} = \text{Meter Reading} + \text{Antenna Factor} + \text{Cable Loss} - \text{Amplifier Gain}$$

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:

$$\text{Margin} = \text{Limit} - \text{Corrected Amplitude}$$

**Test Equipment List and Details**

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	EMI Test Receiver	ESCI	100224	2017-12-11	2018-12-11
Farad	Test Software	EZ-EMC	V1.1.4.2	N/A	N/A
Sunol Sciences	Antenna	JB3	A060611-1	2017-11-10	2020-11-10
Unknown	Coaxial Cable	C-NJNJ-50	C-0400-01	2018-09-05	2019-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-0075-01	2018-09-05	2019-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-1000-01	2018-09-05	2019-09-05
HP	Amplifier	8447D	2727A05902	2018-09-05	2019-09-05
Agilent	Spectrum Analyzer	E4440A	SG43360054	2018-01-04	2019-01-04
ETS-Lindgren	Horn Antenna	3115	000 527 35	2016-01-05	2019-01-04
Ducommun Technologies	Horn Antenna	ARH-4223-02	1007726-01 1304	2016-11-18	2019-11-18
MITEQ	Amplifier	AFS42-00101800- 25-S-42	2001271	2018-09-05	2019-09-05
Quinstar	Amplifier	QLW-18405536-JO	15964001001	2018-06-27	2019-06-27
Unknown	Coaxial Cable	C-SJSJ-50	C-0800-01	2018-09-05	2019-09-05
Unknown	Coaxial Cable	C-2.4J2.4J-50	C-0700-02	2018-06-27	2019-06-27
E-Microwave	Band-stop Filters	OBSF-2400-2483.5- S	OE01601525	2018-06-16	2019-06-16
Micro-tronics	High Pass Filter	HPM50111	S/N-G217	2018-06-16	2019-06-16

\* **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**

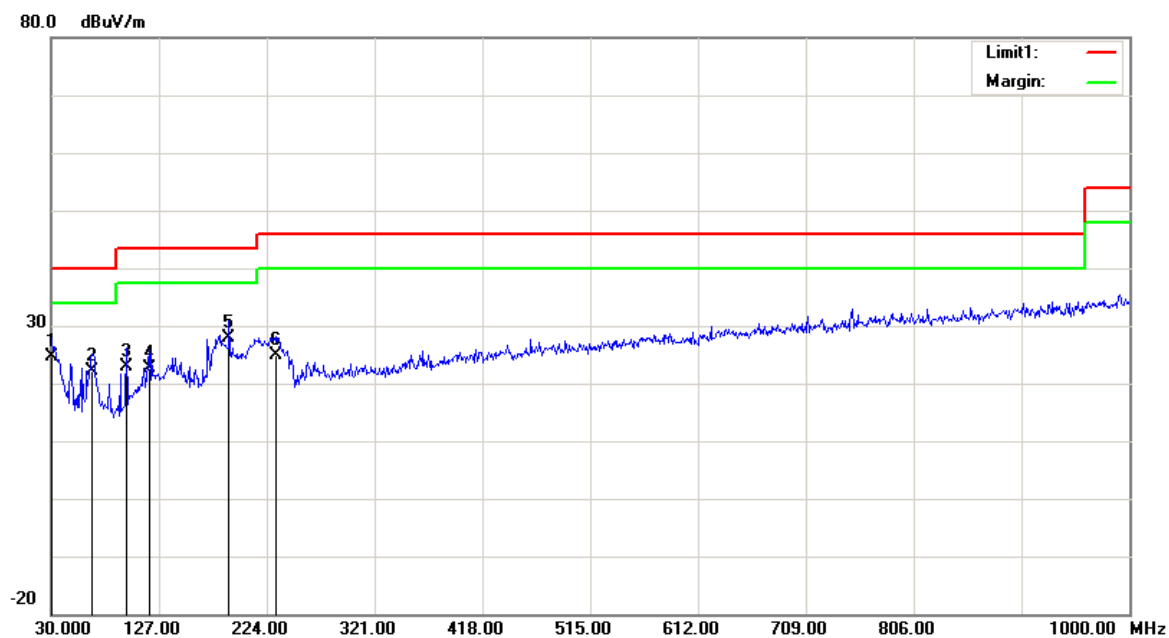
<b>Temperature:</b>	26.3~26.4°C
<b>Relative Humidity:</b>	34~36 %
<b>ATM Pressure:</b>	100.6~100.9 kPa

\* The testing was performed by Tyler Pan and Vern Shen from 2018-09-28 to 2018-09-29.

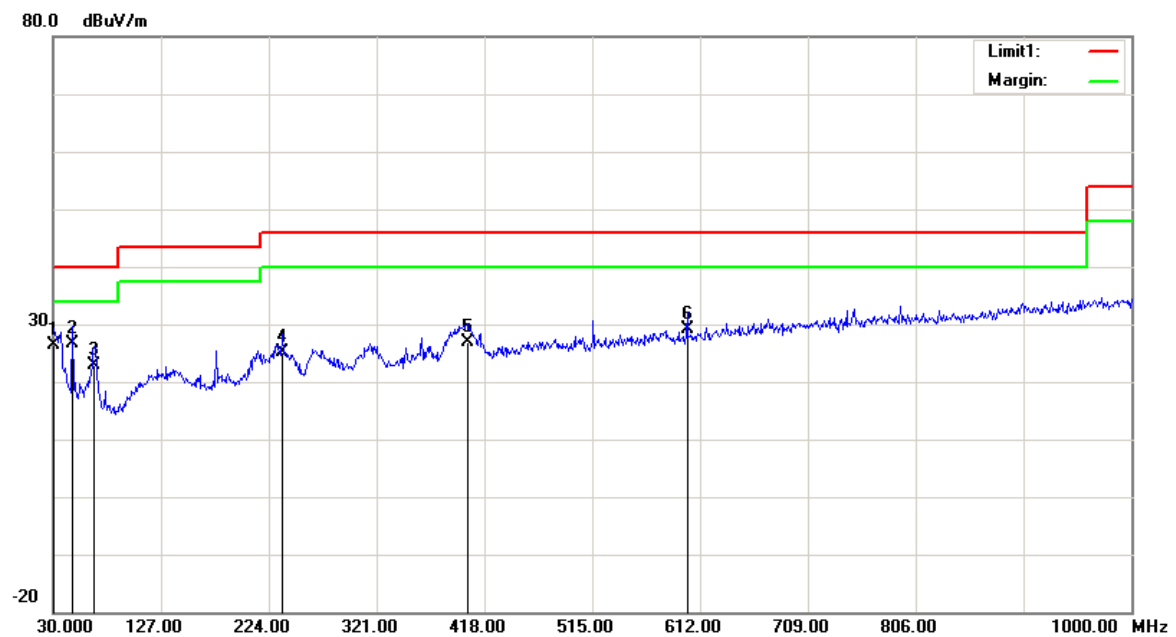
Test Mode: Transmitting

1) 30MHz-1GHz (1.4MHz mode 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	23.16	QP	1.54	24.70	40.00	15.30
66.8600	33.65	QP	-11.55	22.10	40.00	17.90
97.9000	32.59	QP	-9.59	23.00	43.50	20.50
118.2700	27.55	QP	-4.85	22.70	43.50	20.80
190.0500	34.97	QP	-7.07	27.90	43.50	15.60
231.7600	31.27	QP	-6.27	25.00	46.00	21.00

**Vertical:**

Frequency (MHz)	Receiver Reading (dBuV)	Detector	Correction Factor (dB/m)	Cord. Amp. (dBuV/m)	Limit (dBuV/m)	Margin (dB)
30.0000	24.86	QP	1.54	26.40	40.00	13.60
47.4600	37.06	QP	-10.46	26.60	40.00	13.40
66.8600	34.55	QP	-11.55	23.00	40.00	17.00
236.6100	31.30	QP	-6.10	25.20	46.00	20.80
402.4800	28.71	QP	-1.71	27.00	46.00	19.00
600.3600	27.80	QP	1.30	29.10	46.00	16.90



**2) 1-26.5GHz:****1.4MHz Mode:**

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector	Polar (H/V)	Factor (dB/m)					
Low Channel: 2407.5 MHz									
2407.50	88.14	PK	H	28.12	1.80	0.00	118.06	N/A	N/A
2407.50	78.20	AV	H	28.12	1.80	0.00	108.12	N/A	N/A
2407.50	92.46	PK	V	28.12	1.80	0.00	122.38	N/A	N/A
2407.50	82.34	AV	V	28.12	1.80	0.00	112.26	N/A	N/A
2390.00	27.02	PK	V	28.08	1.80	0.00	56.90	74.00	17.10
2390.00	14.88	AV	V	28.08	1.80	0.00	44.76	54.00	9.24
4815.00	47.40	PK	V	32.93	3.18	37.20	46.31	74.00	27.69
4815.00	34.88	AV	V	32.93	3.18	37.20	33.79	54.00	20.21
7222.50	46.25	PK	V	35.78	4.79	37.25	49.57	74.00	24.43
7222.50	33.69	AV	V	35.78	4.79	37.25	37.01	54.00	16.99
Middle Channel: 2441.5 MHz									
2441.50	88.61	PK	H	28.18	1.82	0.00	118.61	N/A	N/A
2441.50	78.53	AV	H	28.18	1.82	0.00	108.53	N/A	N/A
2441.50	93.21	PK	V	28.18	1.82	0.00	123.21	N/A	N/A
2441.50	93.30	AV	V	28.18	1.82	0.00	123.30	N/A	N/A
4883.00	47.56	PK	V	33.07	3.28	37.21	46.70	74.00	27.30
4883.00	36.10	AV	V	33.07	3.28	37.21	35.24	54.00	18.76
7324.50	46.32	PK	V	36.04	4.62	37.38	49.60	74.00	24.40
7324.50	33.75	AV	V	36.04	4.62	37.38	37.03	54.00	16.97
High Channel: 2465.5 MHz									
2465.50	87.16	PK	H	28.23	1.83	0.00	117.22	N/A	N/A
2465.50	77.10	AV	H	28.23	1.83	0.00	107.16	N/A	N/A
2465.50	94.40	PK	V	28.23	1.83	0.00	124.46	N/A	N/A
2465.50	84.36	AV	V	28.23	1.83	0.00	114.42	N/A	N/A
2483.50	27.78	PK	V	28.27	1.84	0.00	57.89	74.00	16.11
2483.50	16.78	AV	V	28.27	1.84	0.00	46.89	54.00	7.11
4931.00	47.68	PK	V	33.16	3.26	37.23	46.87	74.00	27.13
4931.00	35.25	AV	V	33.16	3.26	37.23	34.44	54.00	19.56
7396.50	46.14	PK	V	36.23	4.49	37.47	49.39	74.00	24.61
7396.50	33.66	AV	V	36.23	4.49	37.47	36.91	54.00	17.09

**10MHz Mode:**

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector	Polar (H/V)	Factor (dB/m)					
Low channel:2405.5 MHz									
2405.50	65.21	PK	H	28.11	1.80	0.00	95.12	N/A	N/A
2405.50	53.89	AV	H	28.11	1.80	0.00	83.80	N/A	N/A
2405.50	73.81	PK	V	28.11	1.80	0.00	103.72	N/A	N/A
2405.50	62.20	AV	V	28.11	1.80	0.00	92.11	N/A	N/A
2390.00	24.37	PK	V	28.08	1.80	0.00	54.25	74.00	19.75
2390.00	13.34	AV	V	28.08	1.80	0.00	43.22	54.00	10.78
4811.00	47.12	PK	V	32.92	3.18	37.20	46.02	74.00	27.98
4811.00	34.71	AV	V	32.92	3.18	37.20	33.61	54.00	20.39
7216.50	45.86	PK	V	35.76	4.80	37.24	49.18	74.00	24.82
7216.50	33.45	AV	V	35.76	4.80	37.24	36.77	54.00	17.23
Middle channel:2441.5 MHz									
2441.50	66.15	PK	H	28.18	1.82	0.00	96.15	N/A	N/A
2441.50	54.83	AV	H	28.18	1.82	0.00	84.83	N/A	N/A
2441.50	75.98	PK	V	28.18	1.82	0.00	105.98	N/A	N/A
2441.50	64.47	AV	V	28.18	1.82	0.00	94.47	N/A	N/A
4883.00	47.35	PK	V	33.07	3.28	37.21	46.49	74.00	27.51
4883.00	34.78	AV	V	33.07	3.28	37.21	33.92	54.00	20.08
7324.50	46.21	PK	V	36.04	4.62	37.38	49.49	74.00	24.51
7324.50	33.86	AV	V	36.04	4.62	37.38	37.14	54.00	16.86
Additional channel: 2471.5 MHz									
2471.50	75.94	PK	V	28.24	1.84	0.00	106.02	N/A	N/A
2471.50	64.43	AV	V	28.24	1.84	0.00	94.51	N/A	N/A
2483.50	27.89	PK	V	28.27	1.84	0.00	58.00	74.00	16.00
2483.50	15.23	AV	V	28.27	1.84	0.00	45.34	54.00	8.66
Additional channel:2472.5 MHz									
2472.50	68.81	PK	V	28.25	1.84	0.00	98.90	N/A	N/A
2472.50	57.21	AV	V	28.25	1.84	0.00	87.30	N/A	N/A
2483.50	31.89	PK	V	28.27	1.84	0.00	62.00	74.00	12.00
2483.50	16.34	AV	V	28.27	1.84	0.00	46.45	54.00	7.55
High channel:2475.5 MHz									
2477.50	58.71	PK	H	28.26	1.84	0.00	88.81	N/A	N/A
2477.50	47.10	AV	H	28.26	1.84	0.00	77.20	N/A	N/A
2477.50	67.43	PK	V	28.26	1.84	0.00	97.53	N/A	N/A
2477.50	55.93	AV	V	28.26	1.84	0.00	86.03	N/A	N/A
2483.50	41.97	PK	V	28.27	1.84	0.00	72.08	74.00	1.92
2483.50	22.62	AV	V	28.27	1.84	0.00	52.73	54.00	1.27
4955.00	46.78	PK	V	33.21	3.23	37.24	45.98	74.00	28.02
4955.00	34.22	AV	V	33.21	3.23	37.24	33.42	54.00	20.58
7432.50	45.88	PK	V	36.32	4.43	37.51	49.12	74.00	24.88
7432.50	33.40	AV	V	36.32	4.43	37.51	36.64	54.00	17.36

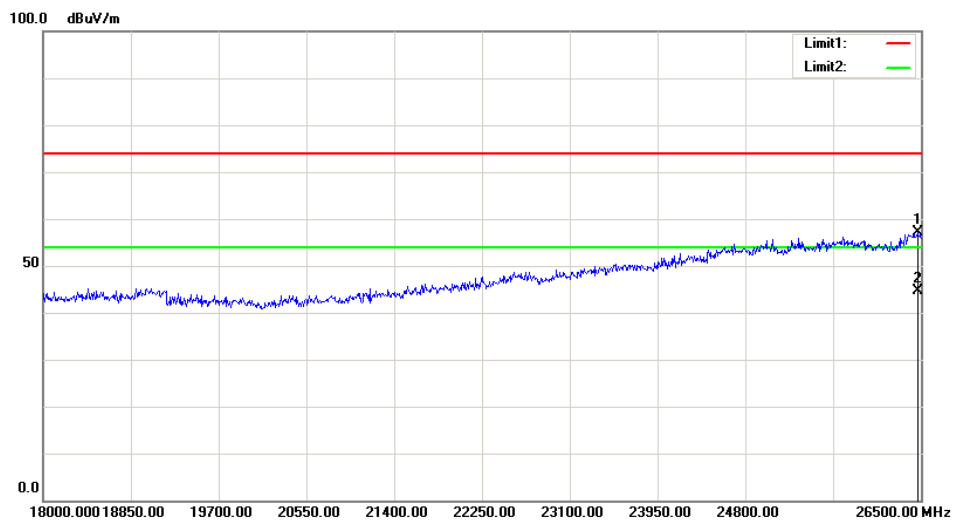
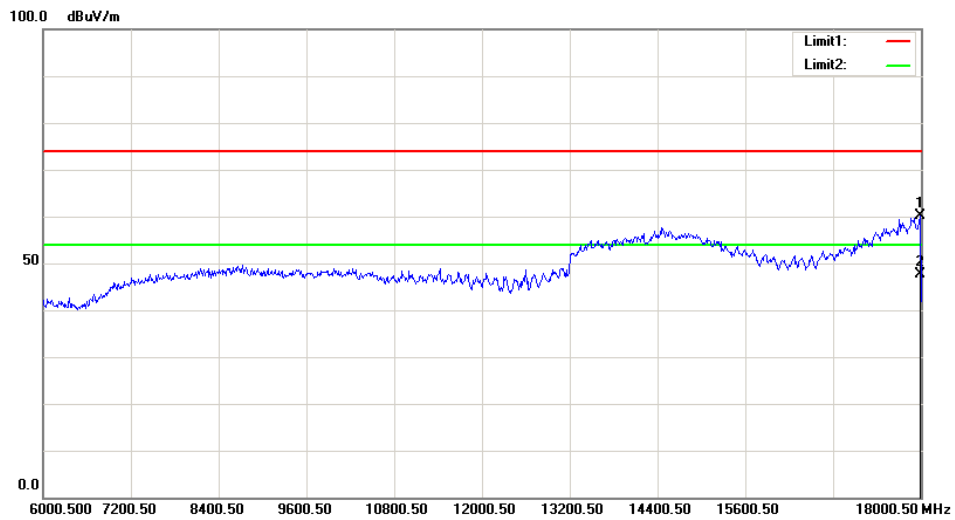
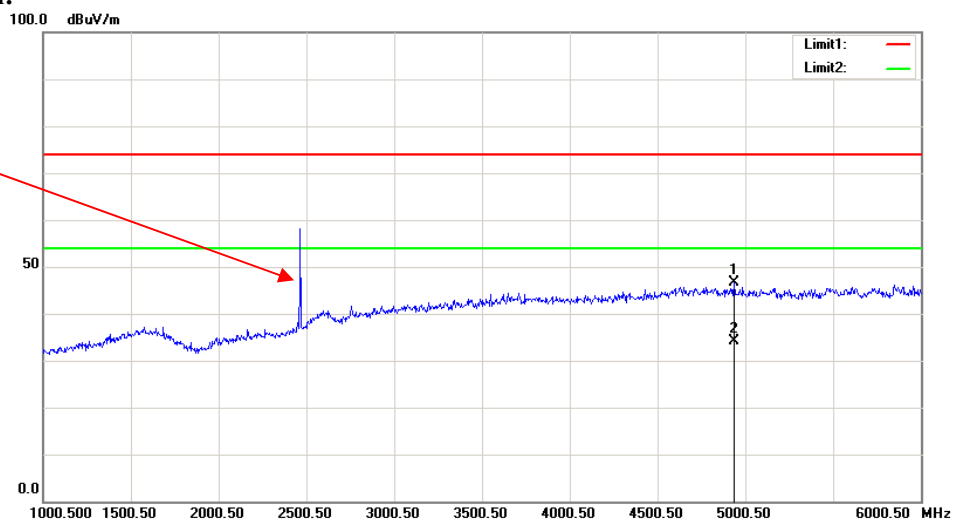
**20MHz:**

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector	Polar (H/V)	Factor (dB/m)					
Low channel:2410.5 MHz									
2410.50	58.16	PK	H	28.12	1.81	0.00	88.09	N/A	N/A
2410.50	44.76	AV	H	28.12	1.81	0.00	74.69	N/A	N/A
2410.50	64.81	PK	V	28.12	1.81	0.00	94.74	N/A	N/A
2410.50	51.35	AV	V	28.12	1.81	0.00	81.28	N/A	N/A
2390.00	26.11	PK	V	28.08	1.80	0.00	55.99	74.00	18.01
2390.00	13.41	AV	V	28.08	1.80	0.00	43.29	54.00	10.71
4821.00	46.76	PK	V	32.94	3.19	37.20	45.69	74.00	28.31
4821.00	34.34	AV	V	32.94	3.19	37.20	33.27	54.00	20.73
7231.50	46.10	PK	V	35.80	4.78	37.26	49.42	74.00	24.58
7231.50	33.69	AV	V	35.80	4.78	37.26	37.01	54.00	16.99
Additional channel:2411.5 MHz									
2411.50	70.52	PK	V	28.12	1.81	0.00	100.45	N/A	N/A
2411.50	57.10	AV	V	28.12	1.81	0.00	87.03	N/A	N/A
2390.00	25.66	PK	V	28.08	1.80	0.00	55.54	74.00	18.46
2390.00	13.45	AV	V	28.08	1.80	0.00	43.33	54.00	10.67
Middle channel:2441.5 MHz									
2441.50	66.10	PK	H	28.18	1.82	0.00	96.10	N/A	N/A
2441.50	52.67	AV	H	28.18	1.82	0.00	82.67	N/A	N/A
2441.50	71.96	PK	V	28.18	1.82	0.00	101.96	N/A	N/A
2441.50	58.57	AV	V	28.18	1.82	0.00	88.57	N/A	N/A
4883.00	46.63	PK	V	33.07	3.28	37.21	45.77	74.00	28.23
4883.00	34.26	AV	V	33.07	3.28	37.21	33.40	54.00	20.60
7324.50	45.96	PK	V	36.04	4.62	37.38	49.24	74.00	24.76
7324.50	33.65	AV	V	36.04	4.62	37.38	36.93	54.00	17.07
Additional channel:2467.5 MHz									
2467.50	72.21	PK	V	28.24	1.83	0.00	102.28	N/A	N/A
2467.50	59.74	AV	V	28.24	1.83	0.00	89.81	N/A	N/A
2483.50	27.82	PK	V	28.27	1.84	0.00	57.93	74.00	16.07
2483.50	15.44	AV	V	28.27	1.84	0.00	45.55	54.00	8.45
Additional channel:2468.5 MHz									
2468.50	66.27	PK	V	28.24	1.83	0.00	96.34	N/A	N/A
2468.50	52.80	AV	V	28.24	1.83	0.00	82.87	N/A	N/A
2483.50	26.45	PK	V	28.27	1.84	0.00	56.56	74.00	17.44
2483.50	14.16	AV	V	28.27	1.84	0.00	44.27	54.00	9.73
High channel:2471.5 MHz									
2471.50	57.92	PK	H	28.24	1.84	0.00	88.00	N/A	N/A
2471.50	44.56	AV	H	28.24	1.84	0.00	74.64	N/A	N/A
2471.50	66.28	PK	V	28.24	1.84	0.00	96.36	N/A	N/A
2471.50	52.61	AV	V	28.24	1.84	0.00	82.69	N/A	N/A
2483.50	26.41	PK	V	28.27	1.84	0.00	56.52	74.00	17.48
2483.50	14.35	AV	V	28.27	1.84	0.00	44.46	54.00	9.54
4943.00	46.75	PK	V	33.19	3.25	37.24	45.95	74.00	28.05
4943.00	34.34	AV	V	33.19	3.25	37.24	33.54	54.00	20.46
7414.50	45.87	PK	V	36.28	4.46	37.49	49.12	74.00	24.88
7414.50	33.45	AV	V	36.28	4.46	37.49	36.70	54.00	17.30

**Worst Test plots(1.4M mode middle channel was the worst case)**

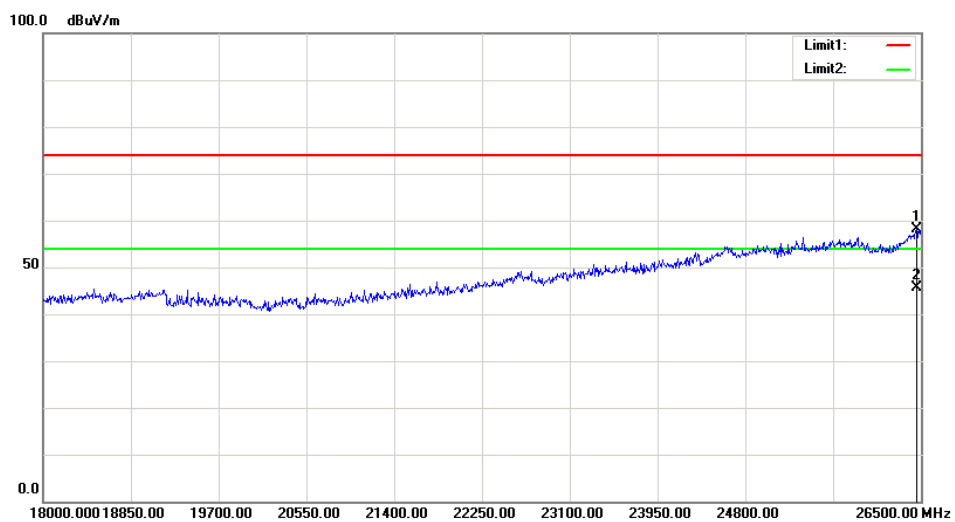
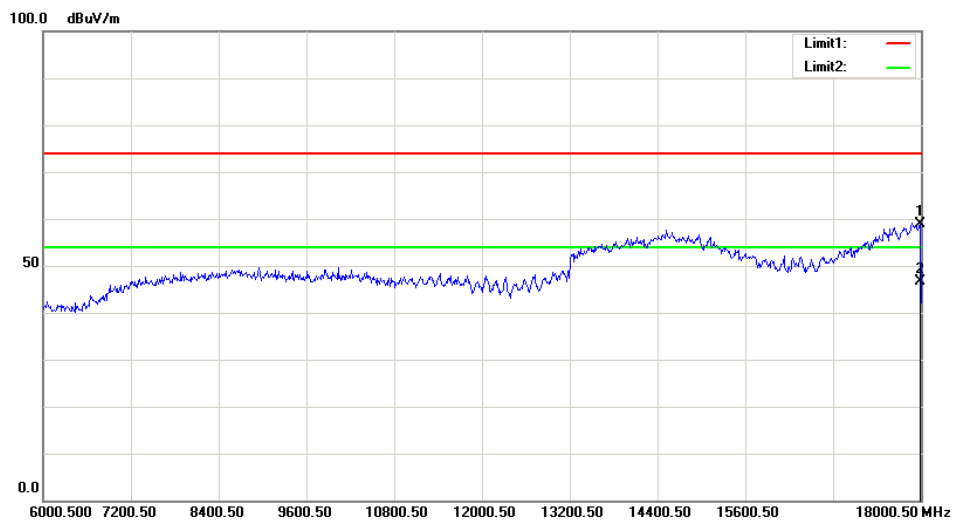
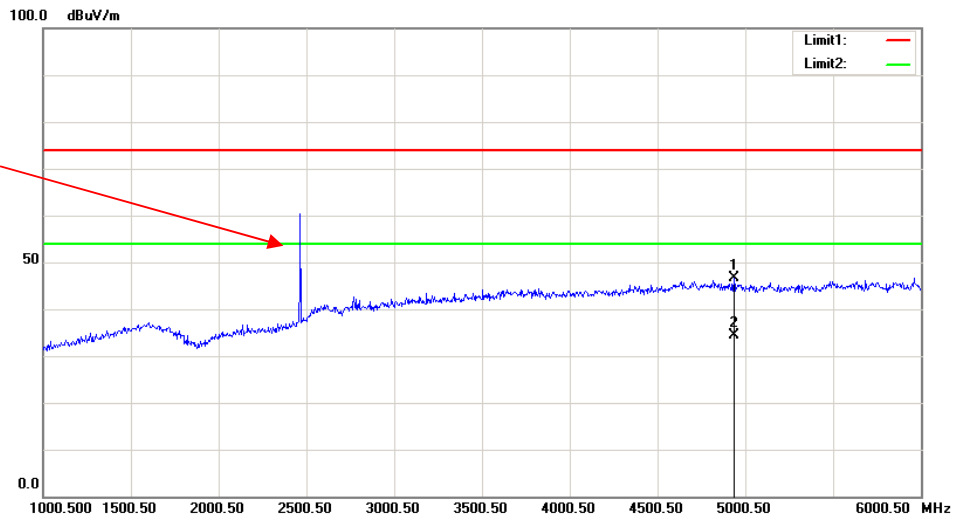
**Horizontal:**

Fundamental  
Test with Band  
Rejection Filter



**Vertical:**

Fundamental  
Test with Band  
Rejection Filter



## **FCC §15.247(a) (2) & RSS-247 CLAUSE 5.2 a) & RSS-GEN CLAUSE 6.7–6 dB EMISSION BANDWIDTH AND 99% OCCUPIED 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.

According to RSS-247 Clause 5.2 a)

The minimum 6 dB bandwidth shall be 500 kHz.

According to RSS-Gen Clause 6.7

The occupied bandwidth or the “99% emission bandwidth” is defined as the frequency range between two points, one above and the other below the carrier frequency, within which 99% of the total transmitted power of the fundamental transmitted emission is contained. The occupied bandwidth shall be reported for all equipment in addition to the specified bandwidth required in the applicable RSSs.

In some cases, the “x dB bandwidth” is required, which is defined as the frequency range between two points, one at the lowest frequency below and one at the highest frequency above the carrier frequency, at which the maximum power level of the transmitted emission is attenuated x dB below the maximum in-band power level of the modulated signal, where the two points are on the outskirts of the in-band emission.

The following conditions shall be observed for measuring the occupied bandwidth and x dB bandwidth:

- The transmitter shall be operated at its maximum carrier power measured under normal test conditions.
- The span of the spectrum analyzer shall be set large enough to capture all products of the modulation process, including the emission skirts, around the carrier frequency, but small enough to avoid having other emissions (e.g. on adjacent channels) within the span.
- The detector of the spectrum analyzer shall be set to “Sample”. However, a peak, or peak hold, may be used in place of the sampling detector since this usually produces a wider bandwidth than the actual bandwidth (worst-case measurement). Use of a peak hold (or “Max Hold”) may be necessary to determine the occupied / x dB bandwidth if the device is not transmitting continuously.
- The resolution bandwidth (RBW) shall be in the range of 1% to 5% of the actual occupied / x dB bandwidth and the video bandwidth (VBW) shall not be smaller than three times the RBW value. Video averaging is not permitted.

Note: It may be necessary to repeat the measurement a few times until the RBW and VBW are in compliance with the above requirement.

For the 99% emission bandwidth, the trace data points are recovered and directly summed in linear power level terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% of the total is reached, and that frequency recorded. The process is repeated for the highest frequency data points (starting at the highest frequency, at the right side of the span, and going down in frequency). This frequency is then recorded. The difference between the two recorded frequencies is the occupied bandwidth (or the 99% emission bandwidth).

## Test Procedure

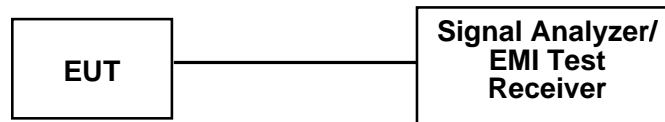
### 6dB bandwidth test:

- Set RBW = 100 kHz.
- Set the video bandwidth (VBW)  $\geq 3 \times \text{RBW}$ .
- Detector = Peak.
- Trace mode = max hold.
- Sweep = auto couple.
- Allow the trace to stabilize.
- 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.

### 99% Occupied bandwidth test:

Use Occupied bandwidth test function, measure the 99% Occupied bandwidth.

Repeat above procedures until all frequencies measured were complete.



## Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Signal Analyzer	FSIQ26	831929/005	2018-08-03	2019-08-03
Unknown	Coaxial Cable	C-SJ00-0010	C0010/01	Each time	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**

<b>Temperature:</b>	27.2 °C
<b>Relative Humidity:</b>	63 %
<b>ATM Pressure:</b>	100.4 kPa

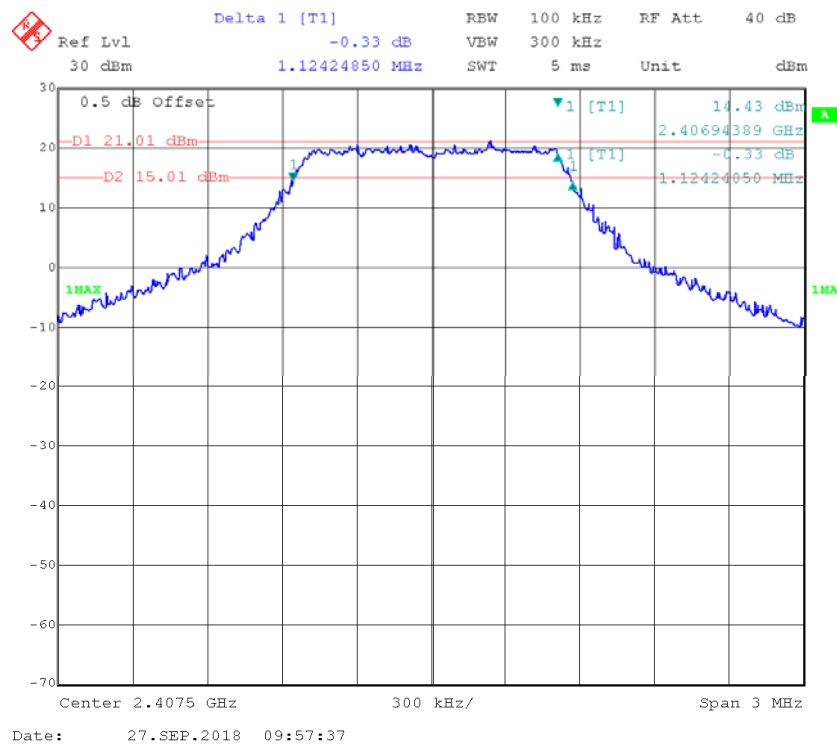
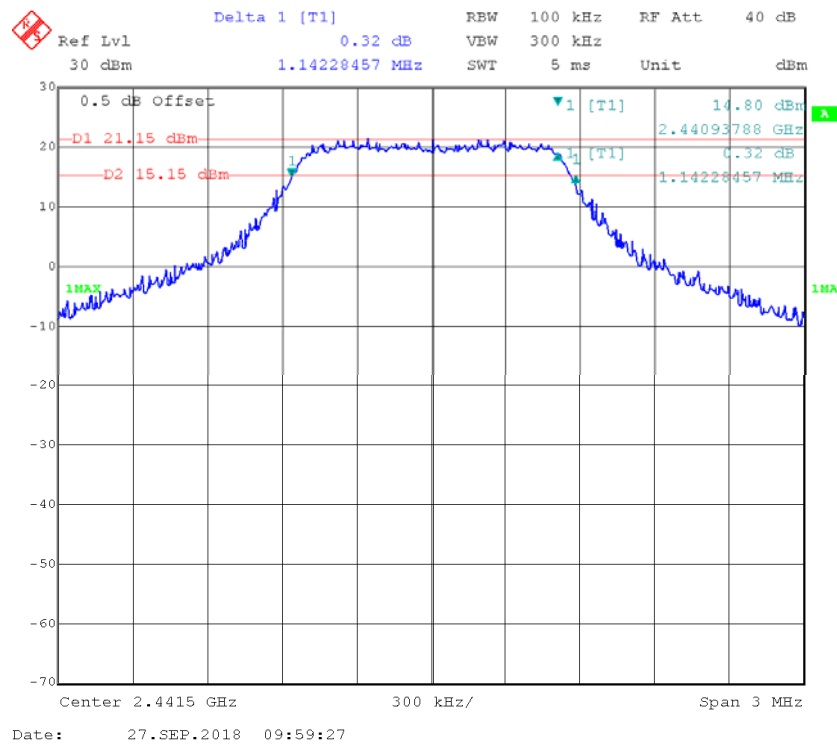
\* The testing was performed by Andy Huang on 2018-09-27.

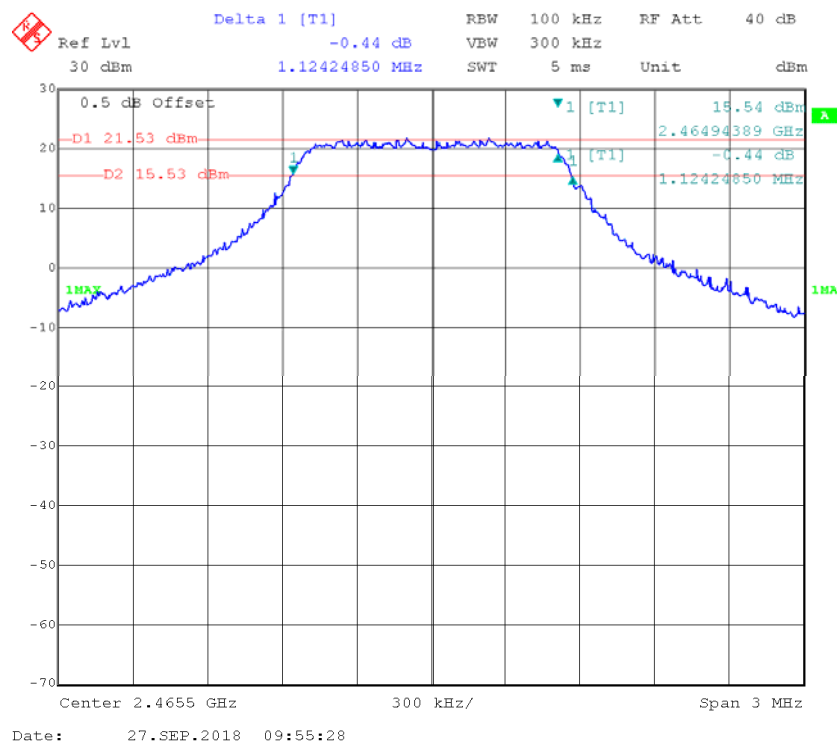
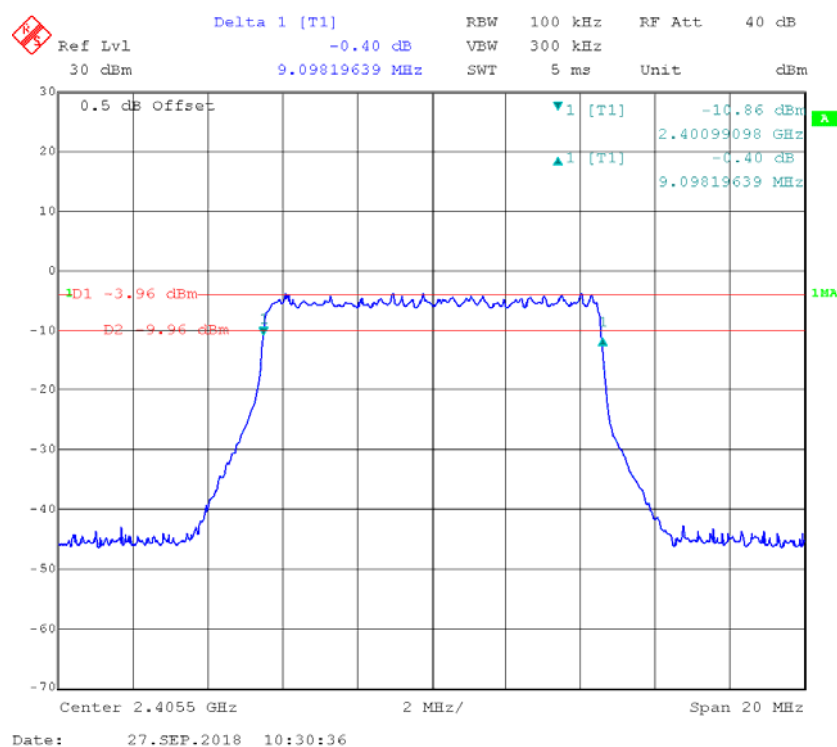
Test Mode: Transmitting

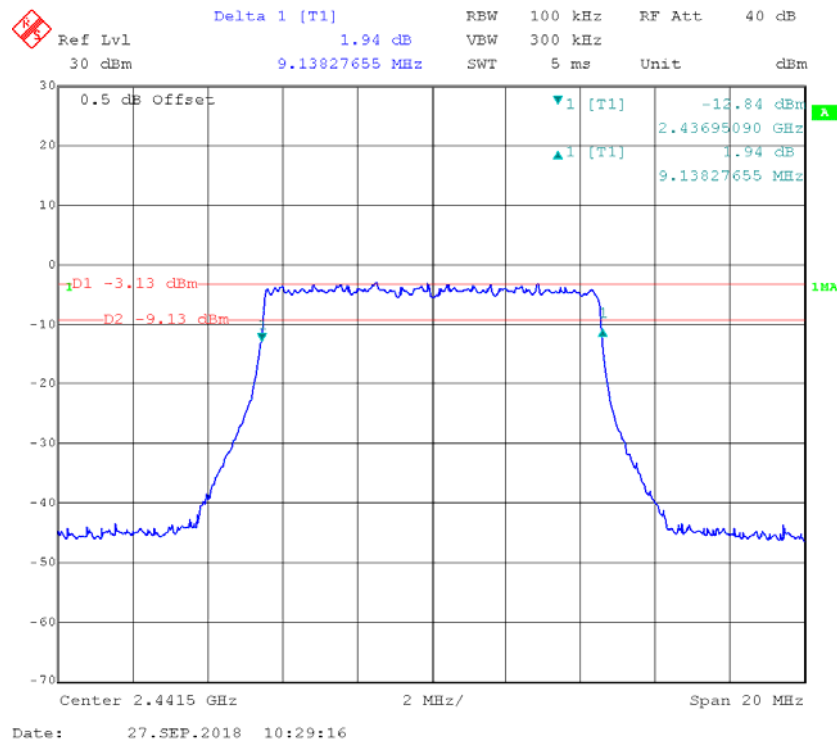
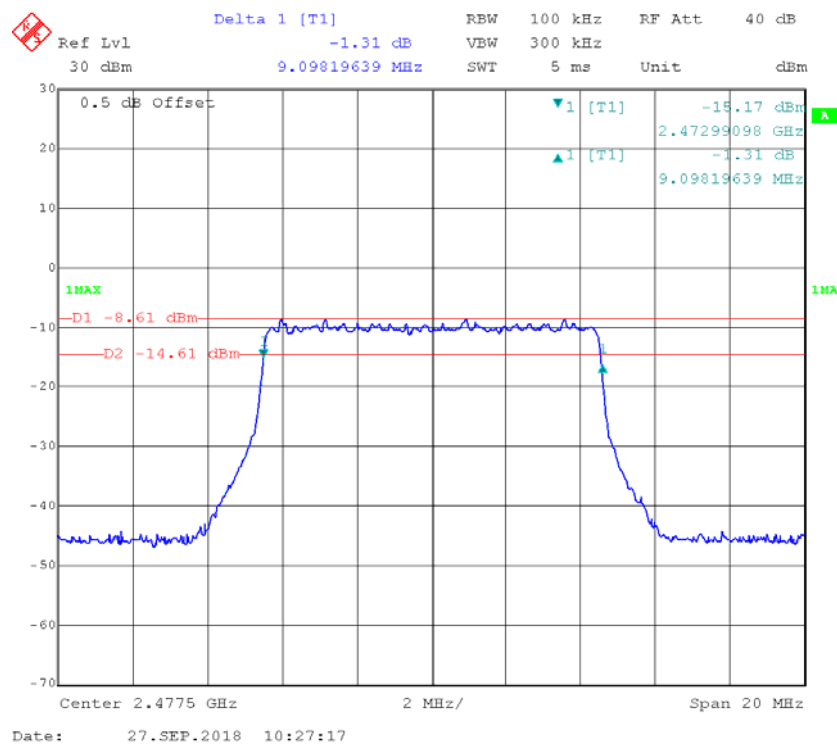
Test Result: Compliance. Please refer to the following table and plots

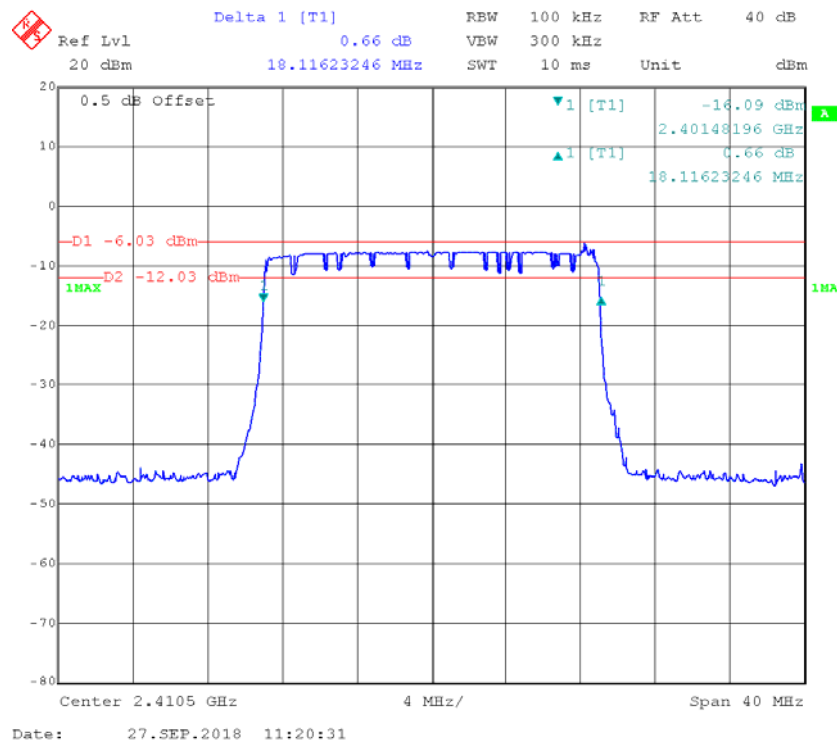
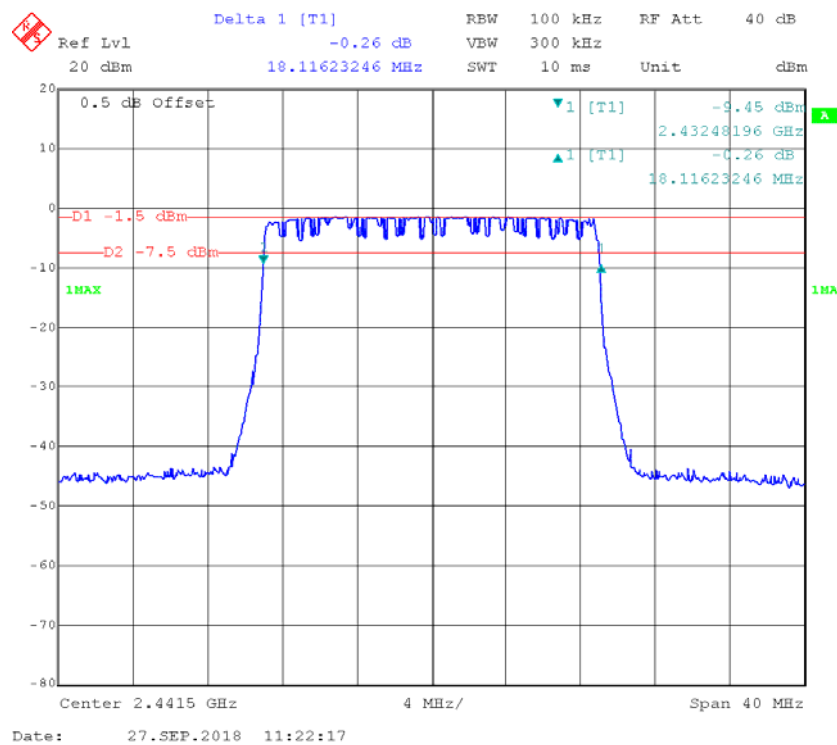
Test mode	Channel	Frequency (MHz)	6 dB Emission Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Limit (MHz)
1.4MHz	Low	2407.5	1.12	1.22	$\geq 0.5$
	Middle	2441.5	1.14	1.21	$\geq 0.5$
	High	2465.5	1.12	1.21	$\geq 0.5$
10MHz	Low	2405.5	9.10	9.02	$\geq 0.5$
	Middle	2441.5	9.14	8.98	$\geq 0.5$
	High	2477.5	9.10	8.98	$\geq 0.5$
20MHz	Low	2410.5	18.12	17.88	$\geq 0.5$
	Middle	2441.5	18.12	17.72	$\geq 0.5$
	High	2471.5	18.12	17.80	$\geq 0.5$



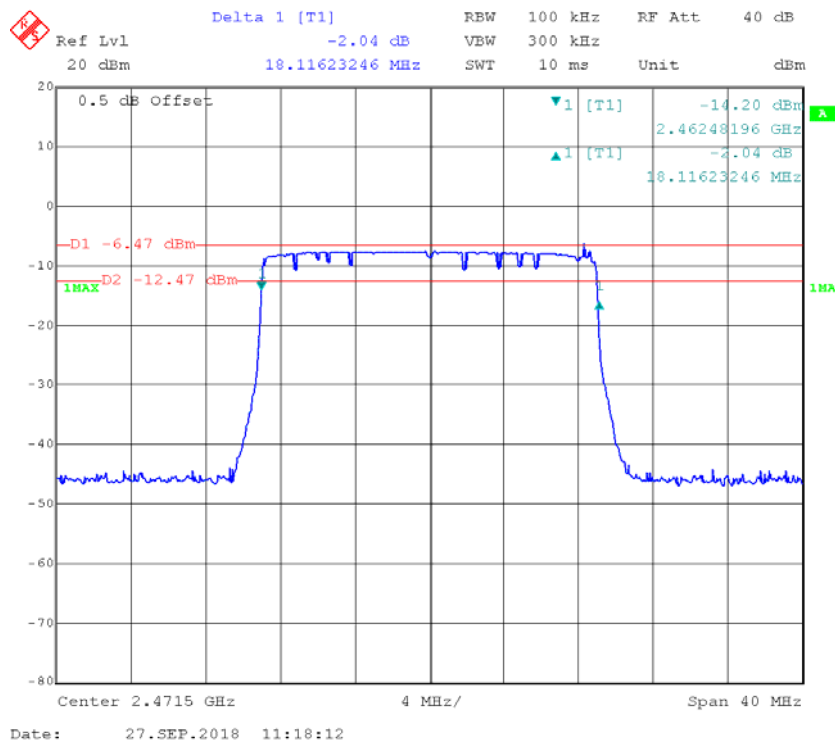
**6dB bandwidth:****1.4M Low Channel****1.4M Middle Channel**

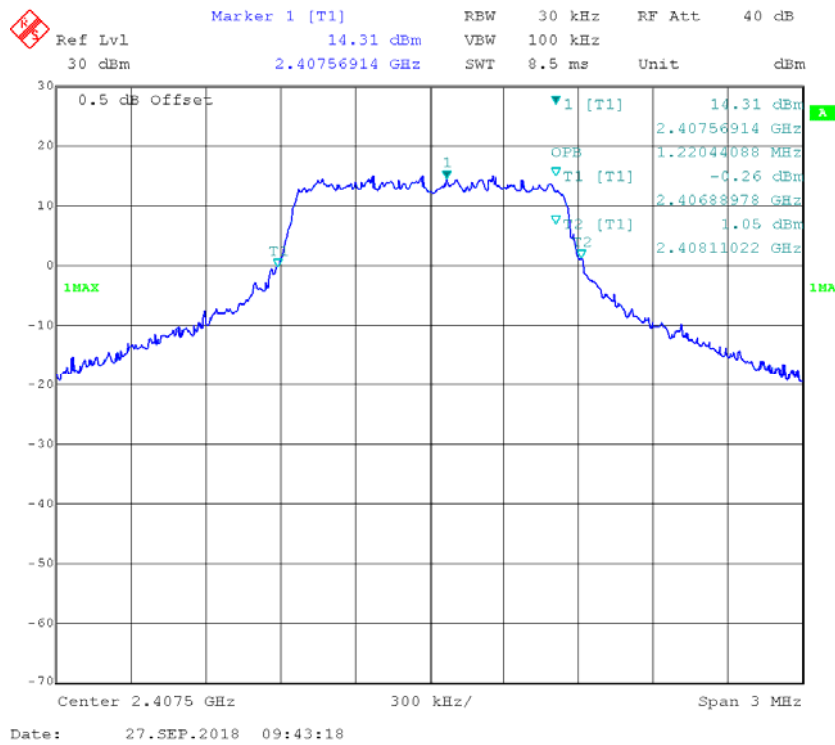
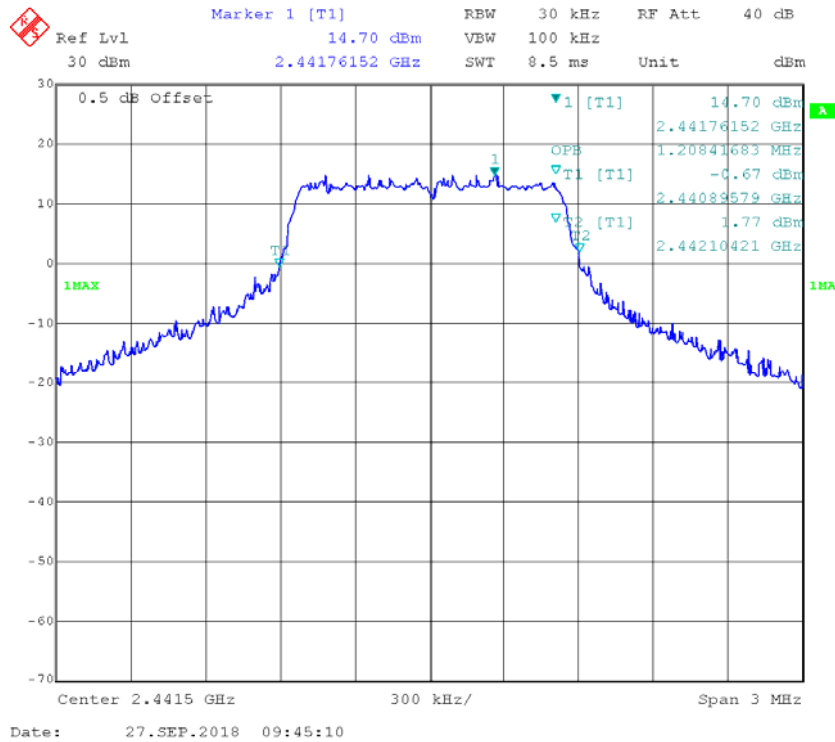
**1.4M High Channel****10M Low Channel**

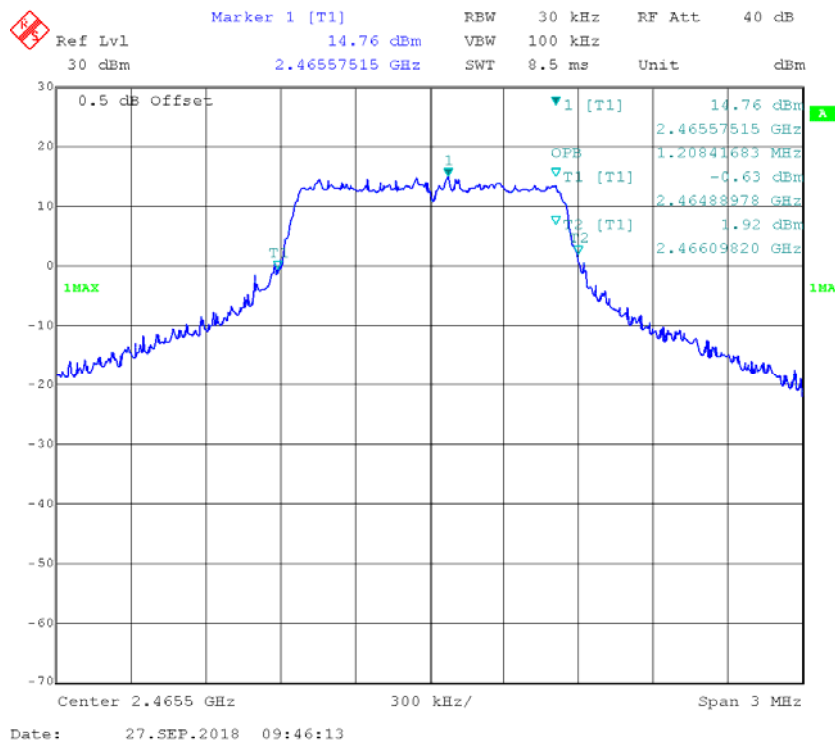
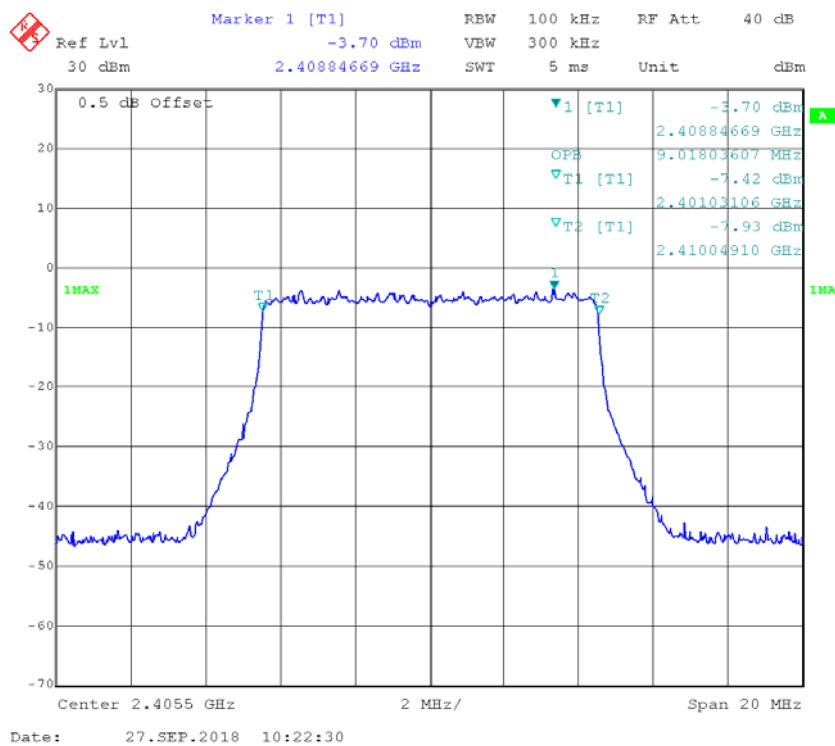
**10M Middle Channel****10M High Channel**

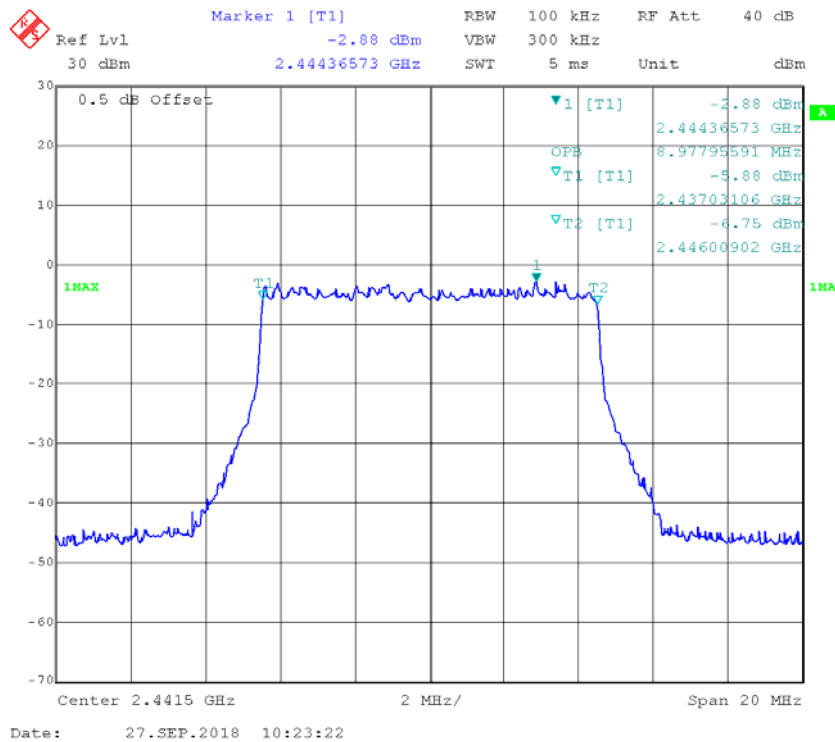
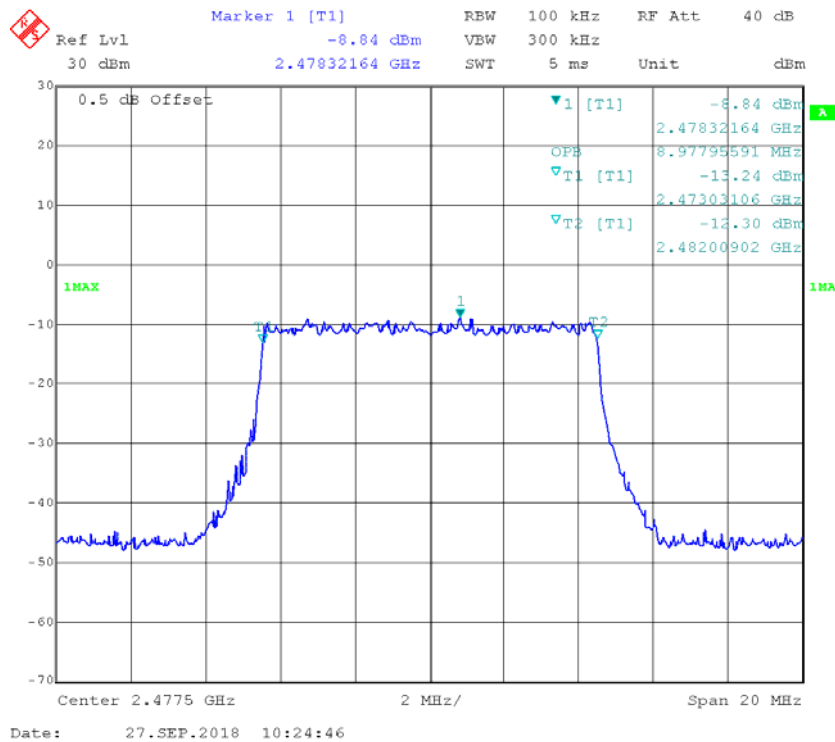
**20M Low Channel****20M Middle Channel**

### 20M High Channel



**99% Occupied bandwidth:****1.4M Low Channel****1.4M Middle Channel**

**1.4M High Channel****10M Low Channel**

**10M Middle Channel****10M High Channel**



Marker 1 [T1] RBW 300 kHz RF Att 40 dB

Ref Lvl 0.42 dBm VBW 1 MHz

20 dBm 2.41310521 GHz SWT 5 ms Unit dBm

0.5 dB Offset

1 [T1] 0.42 dBm

OPB 17.87575150 MHz

T1 [T1] -3.17 dBm

T2 [T1] 2.40156212 GHz

-3.59 dBm

2.41943788 GHz

1MAX

Center 2.4105 GHz 4 MHz/ Span 40 MHz

Date: 27.SEP.2018 11:10:13

Ref Lvl 20 dBm Marker 1 [T1] 6.66 dBm RBW 300 kHz RF Att 40 dB  
 2.44202104 GHz VSWR 1 MHz SWT 5 ms Unit dBm

0.5 dB Offset

1 [T1] 6.66 dBm  
 2.44202104 GHz  
 2.43272244 GHz  
 2.45043788 GHz

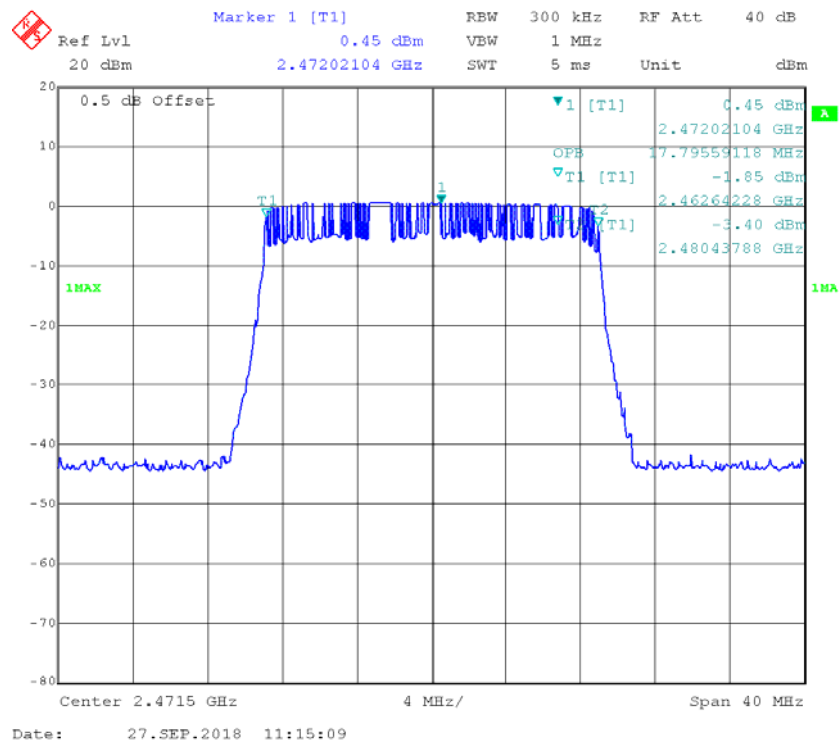
OPB  
 T1 T2  
 T1 T2  
 T1 T2

1MAX 1MA

Center 2.4415 GHz 4 MHz/ Span 40 MHz

Date: 27.SEP.2018 11:11:40

### 20M High Channel



## FCC §15.247(b) (3)& RSS-247 CLAUSE 5.4 d) - MAXIMUM PEAK CONDUCTED OUTPUT POWER

### Applicable Standard

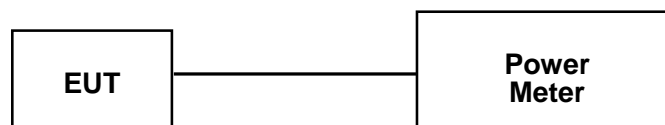
According to FCC §15.247(b) (3), for systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted 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.

According to RSS-247§5.4 d) For DTSs employing digital modulation techniques operating in the bands 902-928 MHz and 2400-2483.5 MHz, the maximum peak conducted output power shall not exceed 1W. Except as provided in Section 5.4(e), the e.i.r.p. shall not exceed 4 W.

As an alternative to a peak power measurement, compliance can be based on a measurement of the maximum conducted output power. The maximum conducted output power is the total transmit power delivered to all antennas and antenna elements, averaged across all symbols in the signalling 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 transmitting at a reduced power level. If multiple modes of operation are implemented, 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.
4. Set the power Meter to test Peak output power, record the result as peak power.
5. Set the power meter to test average output power, record the result as average power.



### Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Agilent	USB Wideband Power Sensor	U2022XA	MY5417006	2017-12-11	2018-12-11
Unknown	Coaxial Cable	C-SJ00-0010	C0010/01	Each time	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**

<b>Temperature:</b>	27.2 °C
<b>Relative Humidity:</b>	63 %
<b>ATM Pressure:</b>	100.4 kPa

\* The testing was performed by Andy Huang on 2018-09-27.

Test Mode: Transmitting

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

Test Mode	Frequency (MHz)	Maximum Conducted Output Power (dBm)			Peak EIPR (dBm)	EIPR Limit for ISED (dBm)
		Peak	Average	Limit		
1.4MHz	2407.5	27.39	20.38	30	32.39	36
	2441.5	27.65	20.53	30	32.65	36
	2465.5	27.37	20.56	30	32.37	36
10MHz	2405.5	15.95	7.43	30	20.95	36
	2441.5	16.59	7.70	30	21.59	36
	2471.5	16.62	7.67	30	21.62	36
	2472.5	9.98	1.79	30	14.98	36
	2477.5	9.90	1.70	30	14.9	36
20MHz	2410.5	10.25	1.56	30	15.25	36
	2411.5	17.55	7.36	30	22.55	36
	2441.5	17.35	7.55	30	22.35	36
	2467.5	17.49	7.53	30	22.49	36
	2468.5	10.86	1.63	30	15.86	36
	2471.5	10.94	1.61	30	15.94	36

Note: Antenna gain is 5.0dBi. the duty cycle factor have been calculated into the average power.

## **FCC §15.247(d)& RSS-247 CLAUSE 5.5 – 100 kHz BANDWIDTH OF FREQUENCY BAND EDGE**

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### **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)).

According to RSS-247 Clause 5.5:

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced 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 that the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under section 5.4(d), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-Gen is not required.

### **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	2018-08-03	2019-08-03
Unknown	Coaxial Cable	C-SJ00-0010	C0010/01	Each time	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**

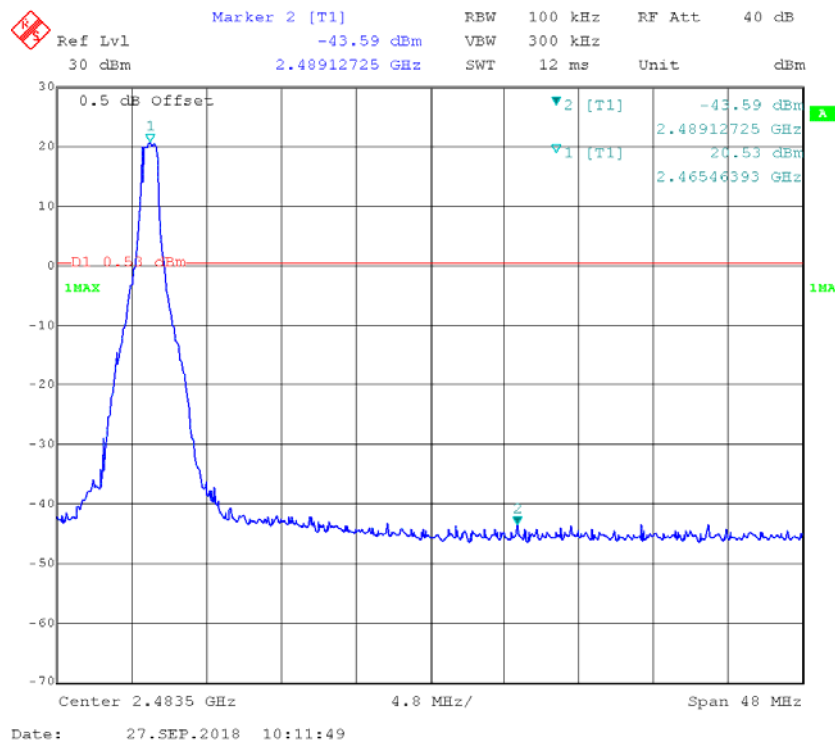
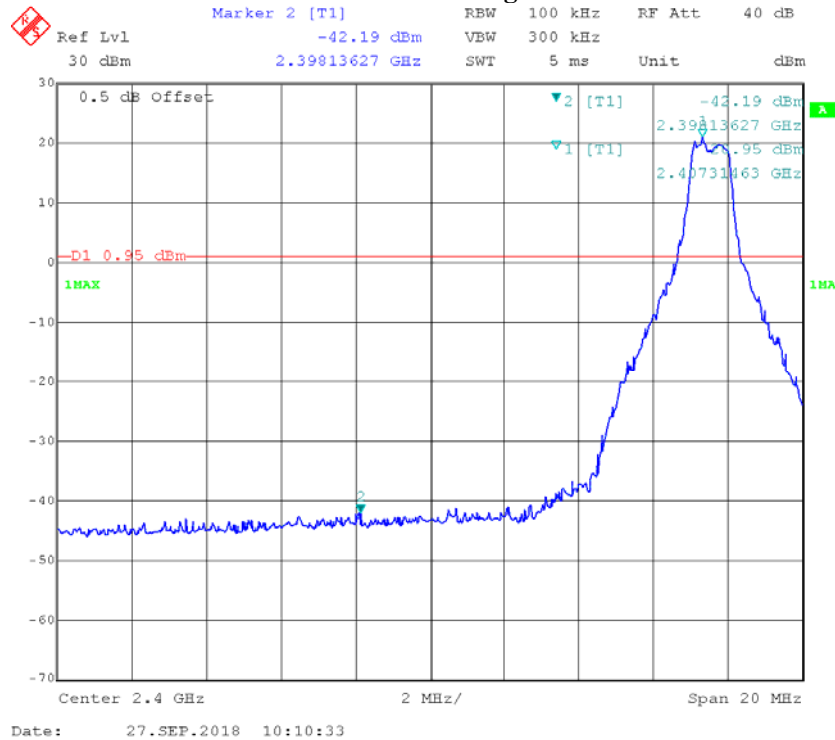
Temperature:	27.2 °C
Relative Humidity:	63 %
ATM Pressure:	100.4 kPa

\* The testing was performed by Andy Huang on 2018-09-27.

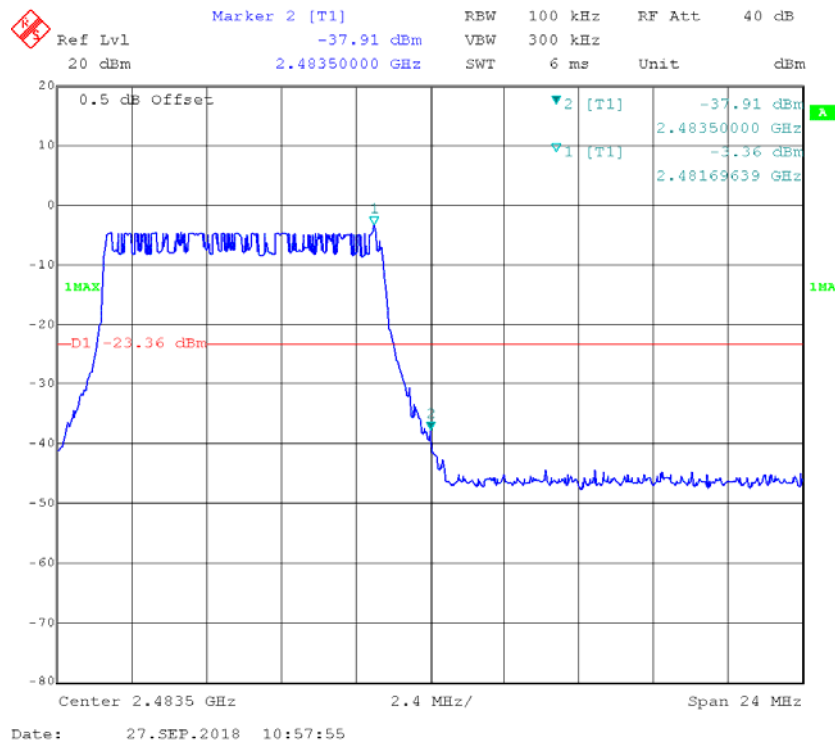
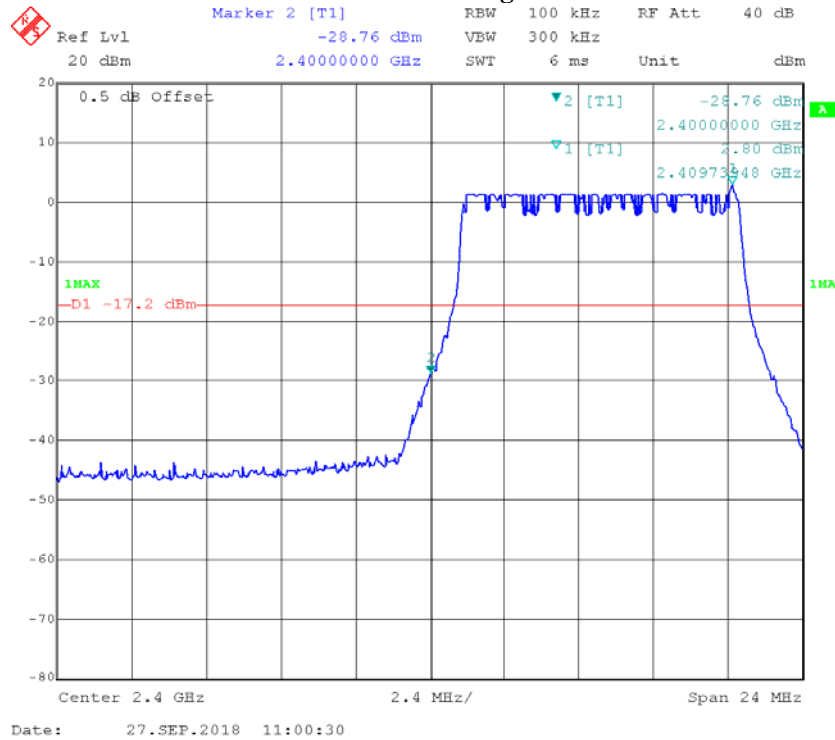
Test mode: Transmitting

Test Result: Compliance. Please refer to following plots.

### 1.4M Band Edge

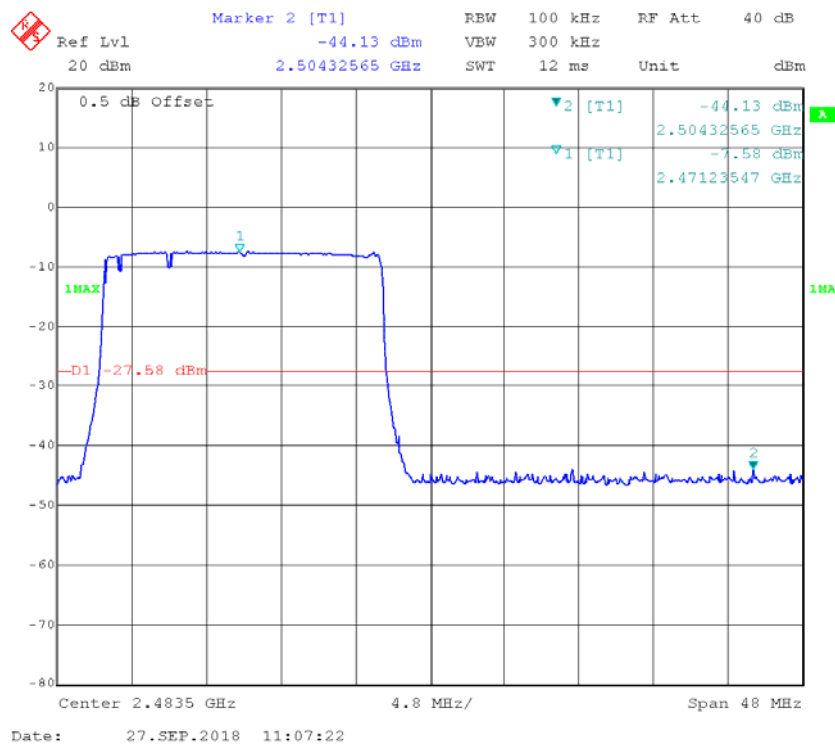
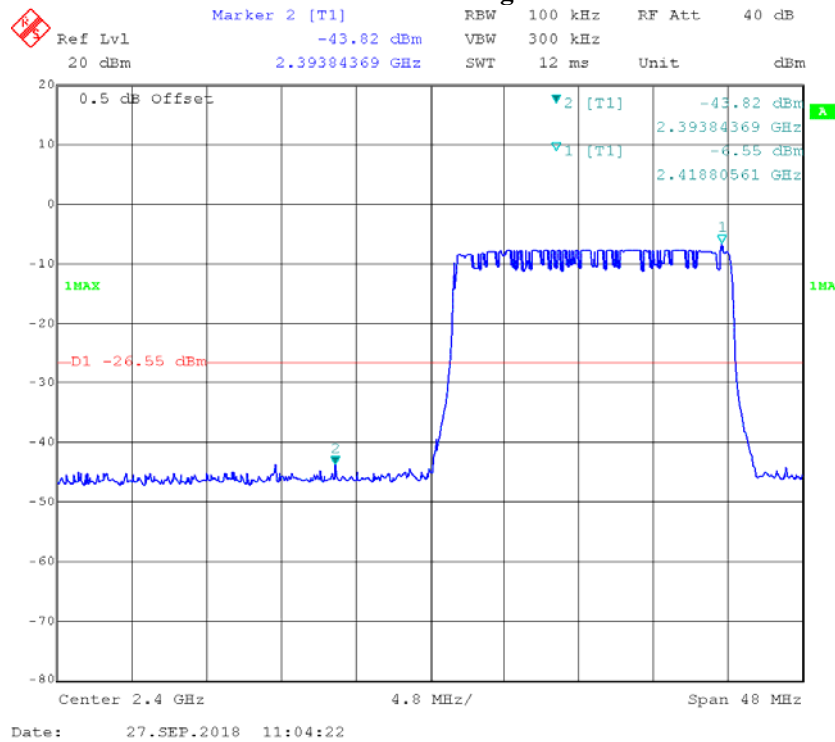


### 10M Band Edge





## 20M Band Edge



**FCC §15.247(e) & RSS-247 CLAUSE 5.2 b - 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.

According to RSS-247 Clause 5.2 b):

- b) The transmitter power spectral density conducted from the transmitter 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 section 5.4(d), (i.e. the power spectral density shall be determined using the same method as is used to determine the conducted output power).

**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	2018-08-03	2019-08-03
Unknown	Coaxial Cable	C-SJ00-0010	C0010/01	Each time	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**

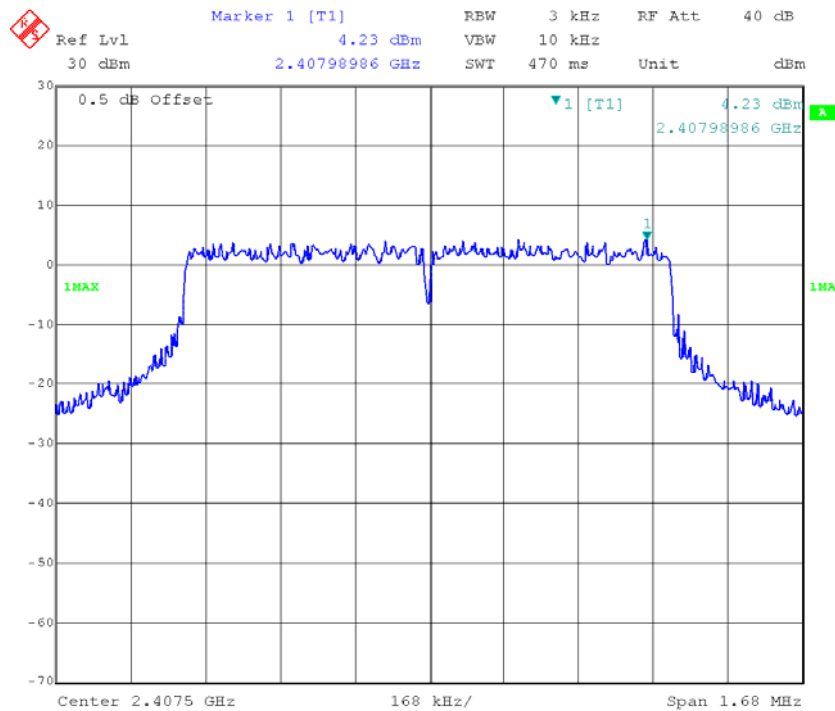
<b>Temperature:</b>	27.2 °C
<b>Relative Humidity:</b>	63 %
<b>ATM Pressure:</b>	100.4 kPa

*\* The testing was performed by Andy Huang on 2018-09-27.*

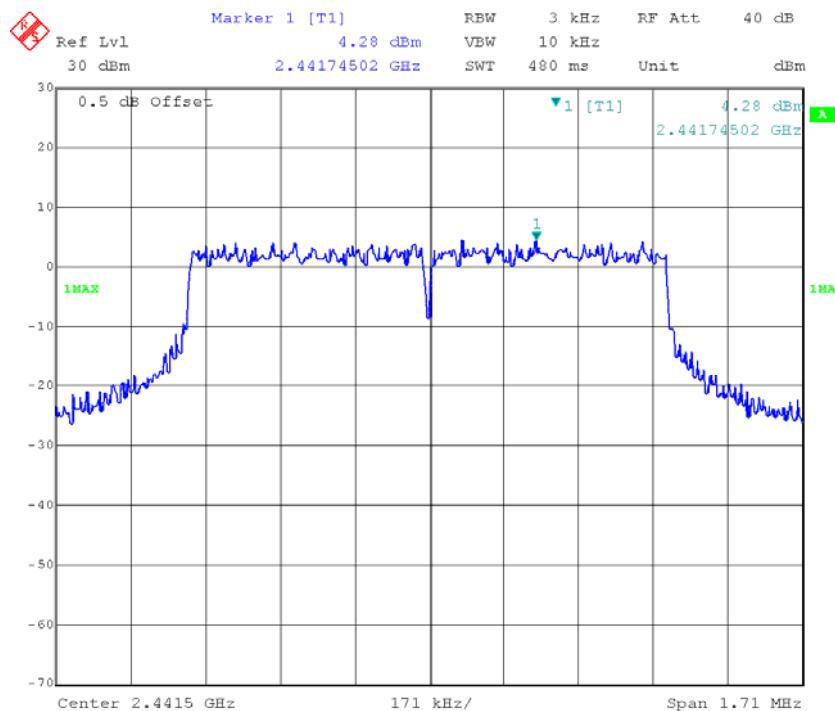
*Test Mode: Transmitting*

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

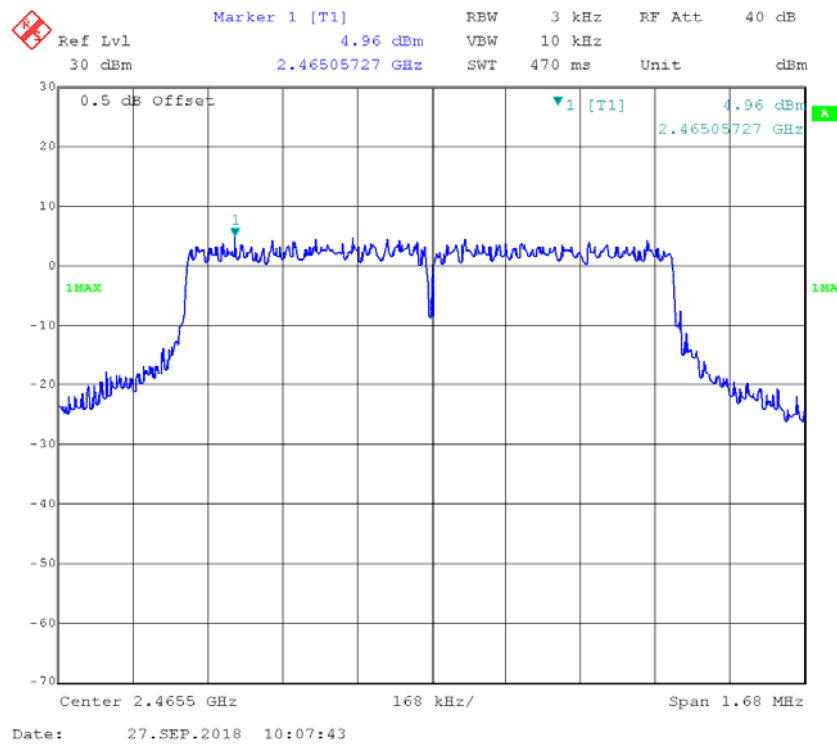
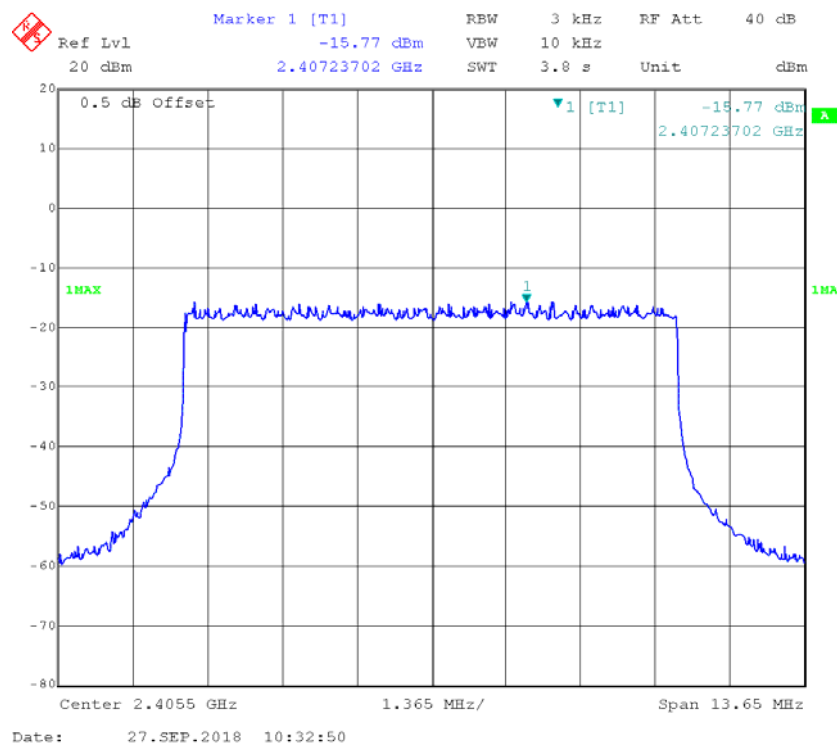
Test mode	Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)
1.4MHz	Low	2407.5	4.23	≤8
	Middle	2441.5	4.28	≤8
	High	2465.5	4.96	≤8
10MHz	Low	2405.5	-15.77	≤8
	Middle	2441.5	-16.37	≤8
	High	2477.5	-23.32	≤8
20MHz	Low	2410.5	-24.47	≤8
	Middle	2441.5	-19.89	≤8
	High	2471.5	-24.15	≤8

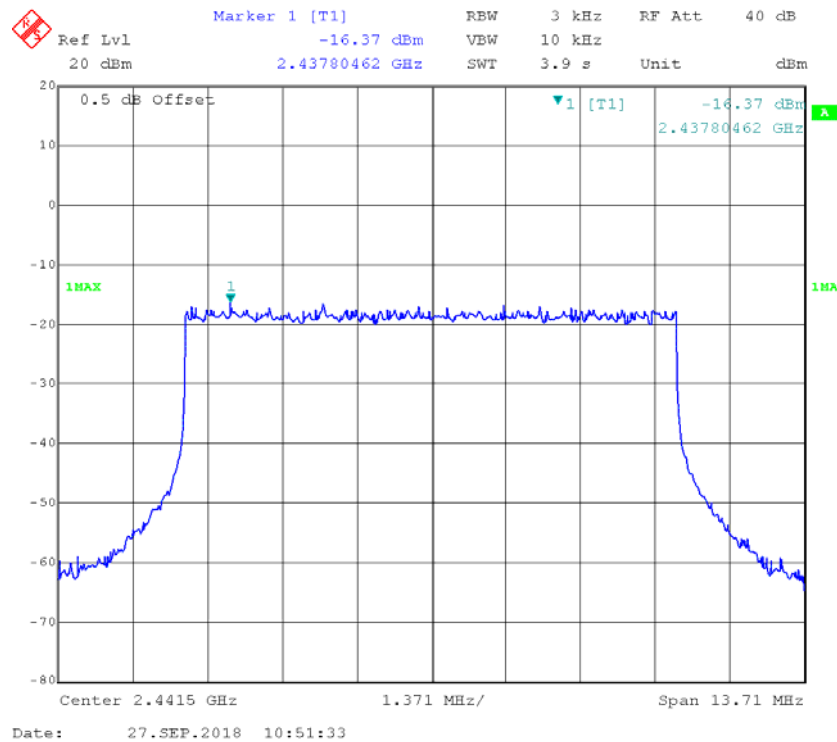
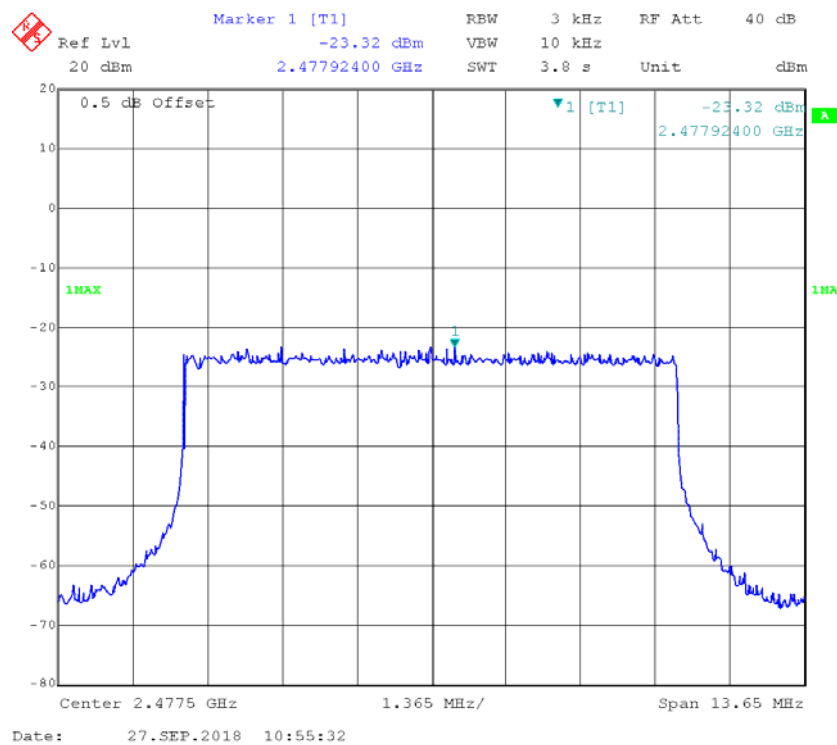
**1.4MHz, Power Spectral Density, Low Channel**

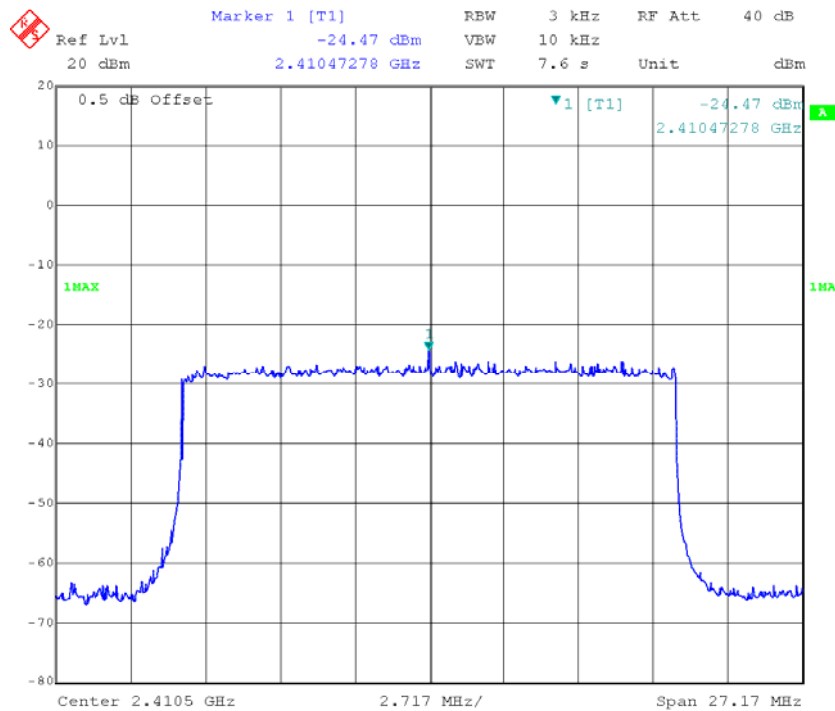
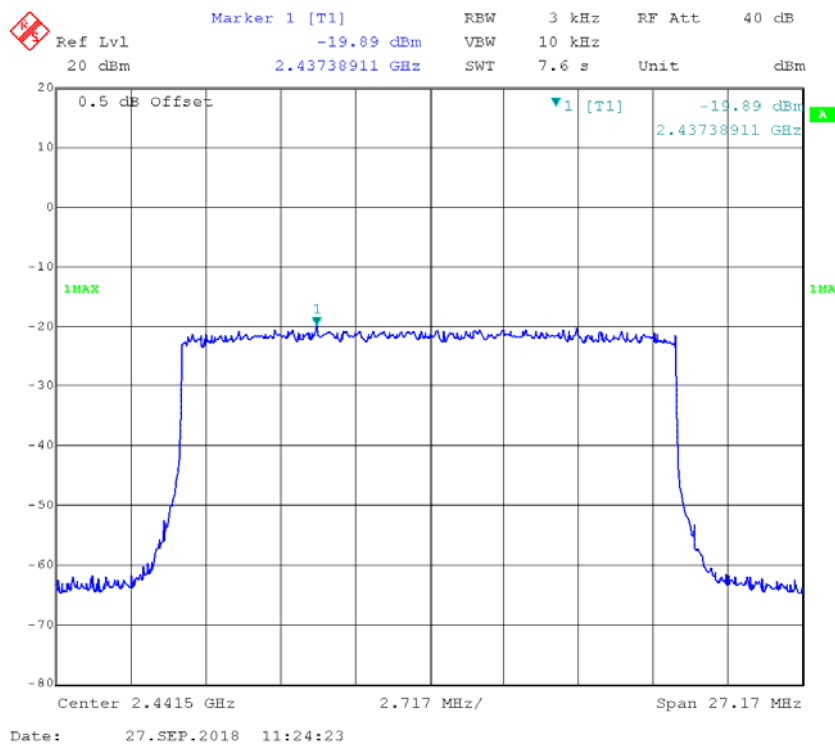
Date: 27.SEP.2018 10:05:09

**1.4MHz, Power Spectral Density, Middle Channel**

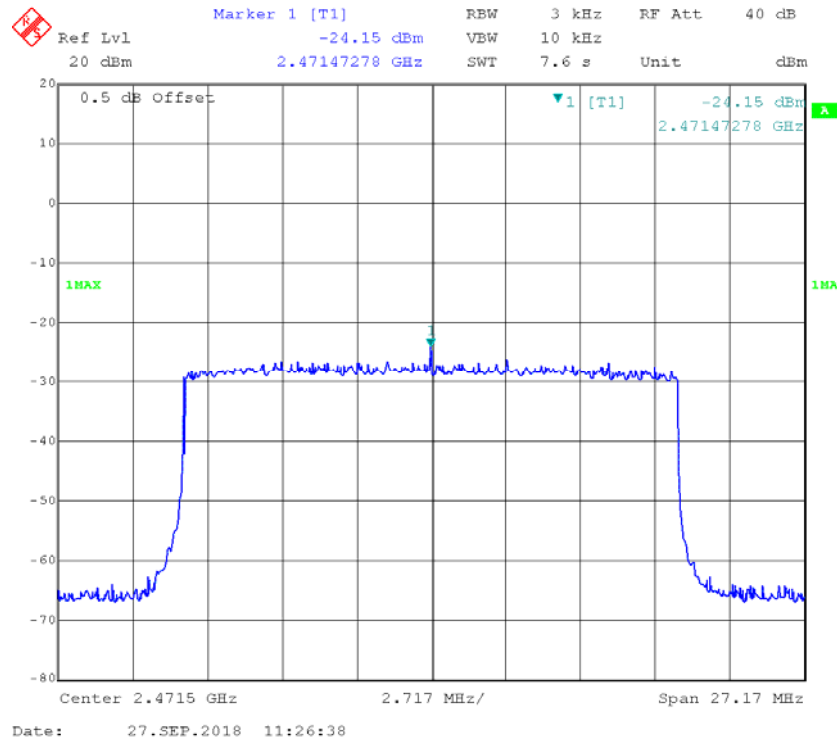
Date: 27.SEP.2018 10:06:35

**1.4MHz, Power Spectral Density, High Channel****10MHz, Power Spectral Density, Low Channel**

**10MHz, Power Spectral Density, Middle Channel****10MHz, Power Spectral Density, High Channel**

**20MHz, Power Spectral Density, Low Channel****20MHz, Power Spectral Density, Middle Channel**

### 20MHz, Power Spectral Density, High Channel



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