



**FCC PART 15.407
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RSS-247, ISSUE 2, FEBRUARY 2017**

TEST REPORT

For

SZ DJI TECHNOLOGY CO., LTD

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Nanshan, Shenzhen, Guangdong, China

**FCC ID: SS3-WM331S1801
IC: 11805A-WM331S1801**

Report Type: Original Report	Product Name: Phantom 4 Pro V2.0
Report Number: <u>RDG180105004-00B</u>	
Report Date:	<u>2018-02-02</u>
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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).

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

EUT Name:	Phantom 4 Pro V2.0
EUT Model:	WM331S
FCC ID:	SS3-WM331S1801
IC:	11805A-WM331S1801
Rated Input Voltage:	DC 15.2V from battery
External Dimension:	Length (285.49mm)*Width (285.49mm)*High (180.16mm)
Serial Number:	180105004
EUT Received Date:	2018.01.05

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. And RSS-247, Issue 2, February 2017, RSS-Gen Issue 4, November 2014 of the Innovation, Science and Economic Development Canada.

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, and RSS-247, Issue 2, February 2017, RSS-Gen Issue 4, November 2014 of the Innovation, Science and Economic Development Canada.

Related Submittal(s)/Grant(s)

FCC submissions with Part 15B JBP and Part 15C DTS, FCC ID: SS3-WM331S1801.

ISED submissions with RSS-247 DTSS, IC: 11805A-WM331S1801.

Part of system submissions with FCC ID: SS3-GL300L1801, IC: 11805A-GL300L1801.

Test Methodology

All measurements detailed in this Test Report were performed in accordance with ANSI C63.10-2013 "American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices". RSS-247, Issue 2, February 2017, RSS-Gen Issue 4, November 2014 of the Innovation, Science and Economic Development Canada. And KDB 789033 D02 General U-NII Test Procedures New Rules v02r01

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

The device employs 1.4MHz, 10 MHz, 20 MHz modes. And the EUT has 2 antennas, the system configure 1T1R depending on better performance by the system automatically recognizes.

For 1.4MHz mode, 60 channels are employed:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	5728.5	31	5788.5
2	5730.5	32	5790.5
3	5732.5	33	5792.5
...
28	5782.5	58	5842.5
29	5784.5	59	5844.5
30	5786.5	60	5846.5

Test was performed with Channel: 1, 30 and 60.

For 10MHz mode, 115 channels are employed:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	5730.5	59	5788.5
2	5731.5
...
...	...	114	5843.5
...	...	115	5844.5
58	5787.5	/	/

Test was performed with Channel: 1, 58 and 116

For 20MHz mode, 105 channels are employed:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	5735.5	54	5788.5
2	5736.5
...
...	...	104	5838.5
...	...	105	5839.5
53	5787.5	/	/

Test was performed with Channel: 1, 53 and 105

Equipment Modifications

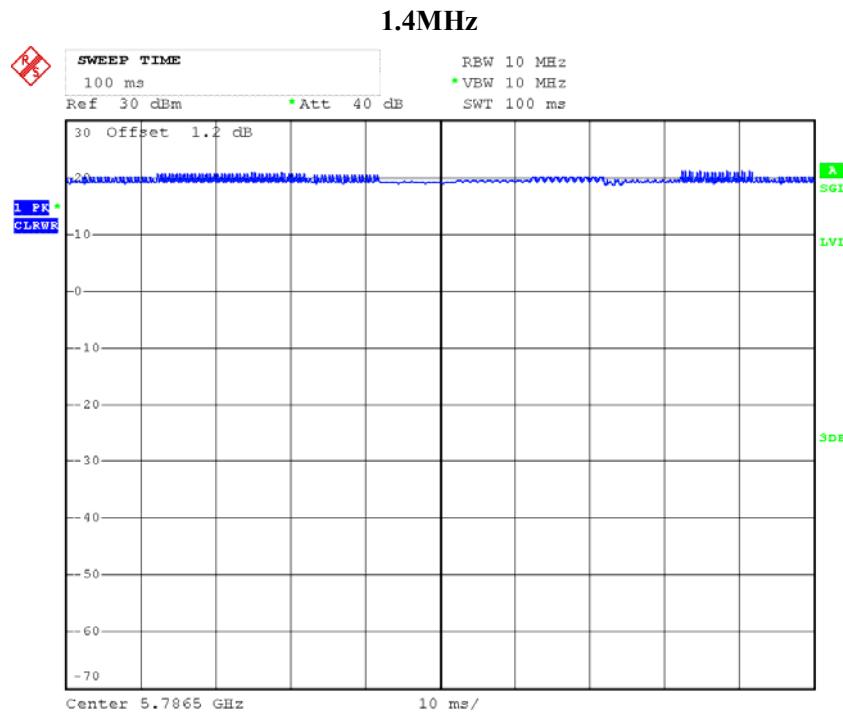
No modification was made to the EUT tested.

EUT Exercise Software

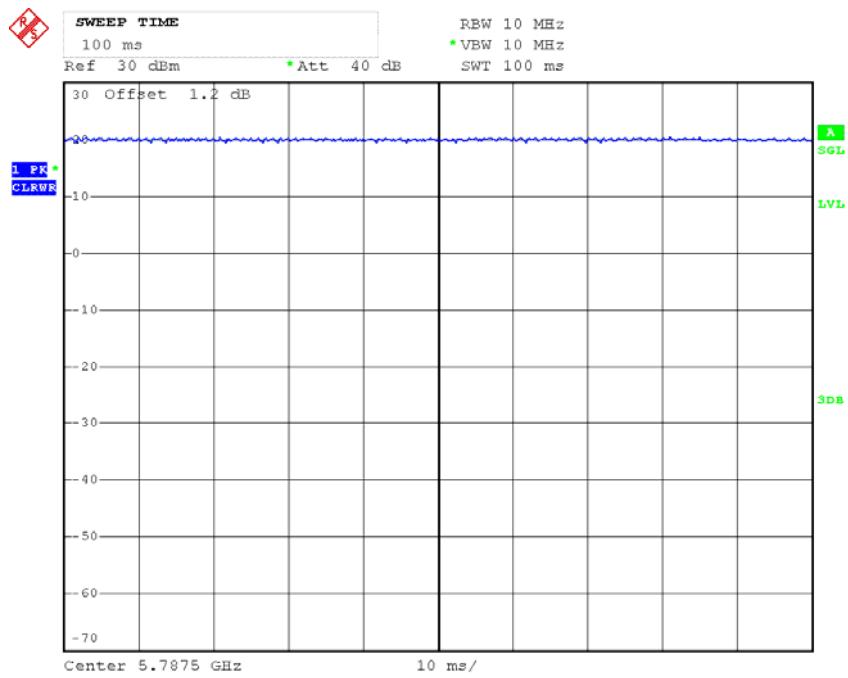
The software “DjiRfCertConsole_V1.3.0.51” was used for testing, which was provided by manufacturer. The maximum power with maximum duty cycle was configured as default setting,

The duty cycle as below:

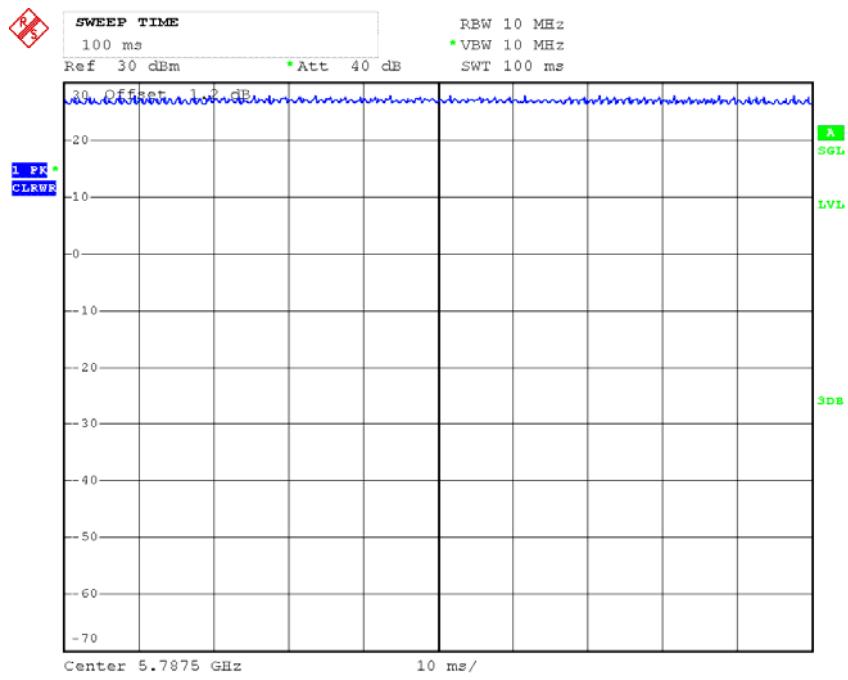
Mode	T _{on} (ms)	T _{on+off} (ms)	Duty Cycle (%)
1.4MHz	100	100	100
10MHz	100	100	100
20MHz	100	100	100



Date: 1.FEB.2018 17:50:23

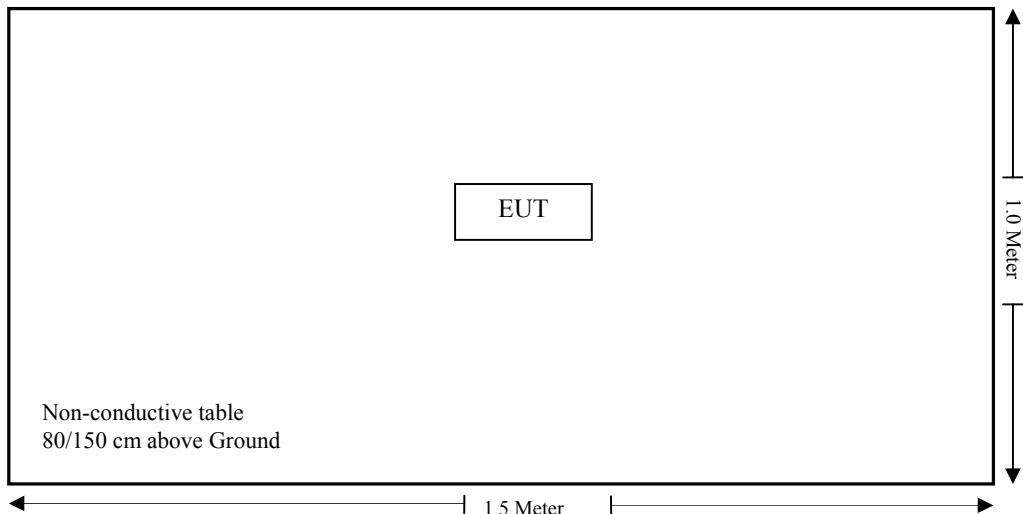
10MHz

Date: 10.JAN.2018 18:58:18

20MHz

Date: 10.JAN.2018 17:59:20

Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

Rules	Description of Test	Result
§15.407 (f) & §1.1310 & §2.1091	Maximum Permissible Exposure (MPE)	Compliance
RSS-102 § 2.5.2	Exemption Limits For Routine Evaluation-RF Exposure Evaluation	Compliance
FCC§15.203 RSS-GEN§8.3	Antenna Requirement	Compliance
FCC§15.207 (a) RSS-Gen §8.8	AC Line Conducted Emissions	Not Applicable
FCC§15.205& §15.209 &§15.407(b) RSS-247§6.2	Undesirable Emission& Restricted Bands	Compliance
FCC§15.407(b) (1),(2),(3),(4) RSS-247§6.2	Out Of Band Emissions	Compliance
FCC§15.407(a) RSS-247 §6.2 RSS-Gen§6.6	Emission Bandwidth	Compliance
FCC§15.407(a) RSS-247 §6.2	Conducted Transmitter Output Power	Compliance
FCC§15.407 (a) RSS-247 §6.2	Power Spectral Density	Compliance
FCC§15.407(g)	Frequency stability	Compliance

Note:

Not Applicable: the device powered by battery.

FCC §15.407 (f) & §1.1310 & §2.1091- MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Applicable Standard

According to subpart 15.407(f) and subpart §1.1310, systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

Limits for Maximum Permissible Exposure (MPE) (§1.1310, §2.1091)

(B) Limits for General Population/Uncontrolled Exposure				
Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Averaging Time (minutes)
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*(180/f ²)	30
30–300	27.5	0.073	0.2	30
300–1500	/	/	f/1500	30
1500–100,000	/	/	1.0	30

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

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

Calculation formula:

Prediction of power density at the distance of the applicable MPE limit

$S = PG/4\pi R^2$ = power density (in appropriate units, e.g. mW/cm²);

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 Band	Antenna Gain		Max. Target Power including Tolerance		Evaluation Distance (cm)	Power Density (W/m ²)	MPE Limit (W/m ²)
	(dBi)	(numeric)	(dBm)	(mW)			
2.4GHz Band	3	2.00	22	158.49	20.00	0.06	1.0
5.8GHz Band	3	2.00	23	199.53	20.00	0.08	1.0

Note: the Max. Target Power including Tolerance was declared by manufacturer.

The 2.4GHz band and 5.8GHz band can't transmit simultaneously

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

RSS-102 § 2.5.2 - EXEMPTION LIMITS FOR ROUTINE EVALUATION – RF EXPOSURE EVALUATION

Applicable Standard

According to RSS-102 § (2.5.2):

RF exposure evaluation is required if the separation distance between the user and/or bystander and the device's radiating element is greater than 20 cm, except when the device operates as follows:

- below 20 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 1 W (adjusted for tune-up tolerance);
- at or above 20 MHz and below 48 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than $4.49/f^{0.5}$ W (adjusted for tune-up tolerance), where f is in MHz;
- at or above 48 MHz and below 300 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 0.6 W (adjusted for tune-up tolerance);
- at or above 300 MHz and below 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than $1.31 \times 10^{-2} f^{0.6834}$ W (adjusted for tune-up tolerance), where f is in MHz;
- at or above 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 5 W (adjusted for tune-up tolerance).

In these cases, the information contained in the RF exposure technical brief may be limited to information that demonstrates how the e.i.r.p. was derived.

Calculated Data:

The maximum power including tune-up tolerance is 23dBm@ 5.8 GHz band, the maximum antenna gain is 3.0 dBi @ 5.8GHz band, so the maximum e.r.i.p. is 26 dBm (0.398W),

Exemption from Routine Evaluation Limit is:

$$1.31 \times 10^{-2} f^{0.6834} = 1.31 \times 10^{-2} \times 5728.5^{0.6834} = 4.85 > 0.398 \text{ W}$$

So the device is compliance exemption from Routine Evaluation Limits –RF exposure Evaluation.

Result: Compliance

FCC §15.203 ,RSS-GEN§8.3- ANTENNA REQUIREMENT

Applicable Standard

According to § 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the user of a standard antenna jack or electrical connector is prohibited. The structure and application of the EUT were analyzed to determine compliance with section §15.203 of the rules. §15.203 state that the subject device must meet the following criteria:

- a. Antenna must be permanently attached to the unit.
- b. Antenna must use a unique type of connector to attach to the EUT.

Unit must be professionally installed, and installer shall be responsible for verifying that the correct antenna is employed with the unit.

According to RSS-Gen §8.3, The applicant for equipment certification, as per RSP-100, must provide a list of all antenna types that may be used with the licence-exempt transmitter, indicating the maximum permissible antenna gain (in dBi) and the required impedance for each antenna.

Licence-exempt transmitters that have received equipment certification may operate with different types of antennas. However, it is not permissible to exceed the maximum equivalent isotropically radiated power (e.i.r.p.) limits specified in the applicable standard (RSS) for the licence-exempt apparatus.

Testing shall be performed using the highest gain antenna of each combination of licence-exempt transmitter and antenna type, with the transmitter output power set at the maximum level.⁹ When a measurement at the antenna connector is used to determine RF output power, the effective gain of the device's antenna shall be stated, based on a measurement or on data from the antenna manufacturer.

User manuals for transmitters equipped with detachable antennas shall also contain the following notice in a conspicuous location:

This radio transmitter (identify the device by certification number or model number if Category II) has been approved by Industry Canada to operate with the antenna types listed below with the maximum permissible gain indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

Immediately following the above notice, the manufacturer shall provide a list of all antenna types approved for use with the transmitter, indicating the maximum permissible antenna gain (in dBi).

Antenna Connector Construction

The EUT has 2 antennas permanently attached to the unit, and the antennas gain is 3.0 dBi, fulfill the requirement of the item. Please refer to the internal photos.

Result: Compliance.

**FCC §15.209, §15.205 , §15.407(b) &RSS-247 §6.2, RSS-GEN§8.10–
UNWANTED EMISSION****Applicable Standard**

According to 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.

(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.

(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.

(8) When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the upper and lower frequency band edges as the design of the equipment permits.

According to RSS-247§6.2

Frequency band 5150-5250 MHz

6.2.1.2 Unwanted emission limits

For transmitters with operating frequencies in the band 5150-5250 MHz, all emissions outside the band 5150-5350 MHz shall not exceed -27 dBm/MHz e.i.r.p. Any unwanted emissions that fall into the band 5250-5350 MHz shall be attenuated below the channel power by at least 26 dB, when measured using a resolution bandwidth between 1 and 5% of the occupied bandwidth (i.e. 99% bandwidth), above 5250 MHz. The 26 dB bandwidth may fall into the 5250-5350 MHz band; however, if the occupied bandwidth also falls within the 5250-5350 MHz band, the transmission is considered as intentional and the devices shall comply with all requirements in the band 5250-5350 MHz including implementing dynamic frequency selection (DFS) and TPC, on the portion of the emission that resides in the 5250-5350 MHz band.

Frequency band 5250-5350 MHz

6.2.2.2 Unwanted emission limits

Devices shall comply with the following:

- a) All emissions outside the band 5250-5350 MHz shall not exceed -27 dBm/MHz e.i.r.p.; or
- b) All emissions outside the band 5150-5350 MHz shall not exceed -27 dBm/MHz e.i.r.p. and its power shall comply with the spectral power density for operation within the band 5150-5250 MHz. The device, except devices installed in vehicles, shall be labelled or include in the user manual the following text "for indoor use only."

Frequency bands 5470-5600 MHz and 5650-5725 MHz:

6.2.3.2 Unwanted emission limits

Emissions outside the band 5470-5600 MHz and 5650-5725 MHz shall not exceed -27 dBm/MHz e.i.r.p. However, devices with bandwidth overlapping the band edge of 5725 MHz can meet the emission limit of -27 dBm/MHz e.i.r.p. at 5850 MHz instead of 5725 MHz.

Frequency band 5725-5850 MHz

6.2.4.2 Unwanted emission limits

Devices operating in the band 5725-5850 MHz with antenna gain greater than 10 dBi can have unwanted emissions that comply with either the limits in this section or in section 5.5 until six (6) months after the publication date of this standard for certification. Certified devices that do not comply with emission limits in this section shall not be manufactured, imported, distributed, leased, offered for sale or sold after April 1, 2018.

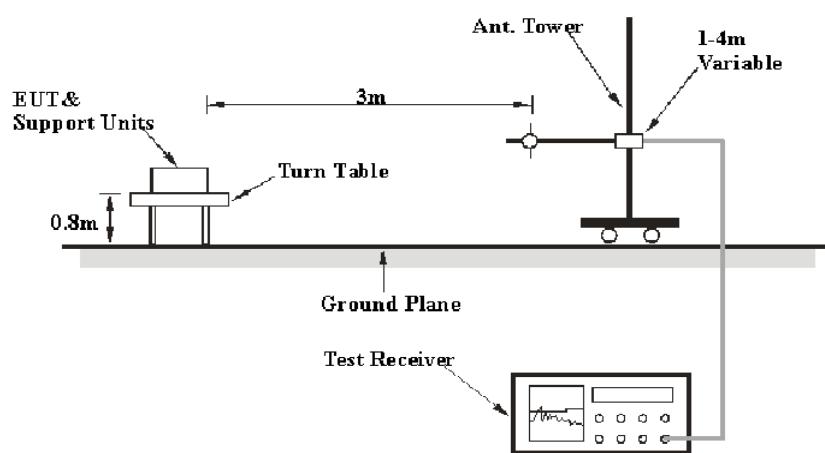
Devices operating in the band 5725-5850 MHz with antenna gain of 10 dBi or less can have unwanted emissions that comply with either the limits in this section or in section 5.5 until April 1, 2018 for certification. Certified devices that do not comply with emission limits in this section shall not be manufactured, imported, distributed, leased, offered for sale or sold after April 1, 2020.

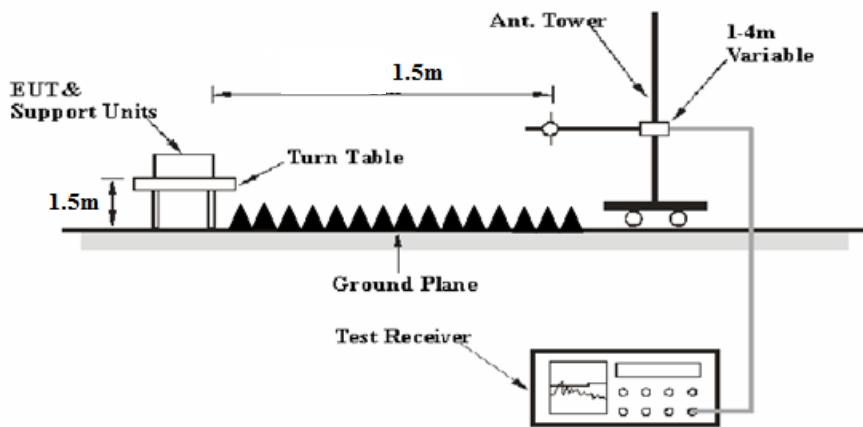
Devices operating in the band 5725-5850 MHz shall have e.i.r.p. of unwanted emissions comply with the following:

- a) 27 dBm/MHz at frequencies from the band edges decreasing linearly to 15.6 dBm/MHz at 5 MHz above or below the band edges;
- b) 15.6 dBm/MHz at 5 MHz above or below the band edges decreasing linearly to 10 dBm/MHz at 25 MHz above or below the band edges;
- c) 10 dBm/MHz at 25 MHz above or below the band edges decreasing linearly to -27 dBm/MHz at 75 MHz above or below the band edges; and
- d) -27 dBm/MHz at frequencies more than 75 MHz above or below the band edges.

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, FCC 15.407 and RSS-247, RSS-Gen 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:

30-1000MHz:

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

1GHz- 40GHz:

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

Test Procedure

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

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

According to KDB 789033 D02 General U-NII Test Procedures New Rules v02r01, emission shall be computed as: $E [\text{dB}\mu\text{V/m}] = \text{EIRP}[\text{dBm}] + 95.2$, 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 = $20 \log (\text{specific distance [3m]}/\text{test distance [1.5m]})$ dB= 6.02 dB

All emissions under the average limit and under the noise floor have not recorded in the report.

Corrected Amplitude & Margin Calculation

For the range 30MHz-1GHz, 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:

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

For the range 1GHz-40GHz, Test performed at 1.5m, the Corrected Amplitude is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading and the Distance extrapolation factor. The basic equation is as follows:

Corrected Amplitude

= Meter Reading + Antenna Factor + Cable Loss - Amplifier Gain-Distance extrapolation factor

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:

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

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	EMI Test Receiver	ESCI	100224	2017-09-01	2018-09-01
Sunol Sciences	Antenna	JB3	A060611-1	2017-11-10	2020-11-10
HP	Amplifier	8447D	2727A05902	2017-09-05	2018-09-05
N/A	Coaxial Cable	C-NJNJ-50	C-0400-01	2017-09-05	2018-09-05
N/A	Coaxial Cable	C-NJNJ-50	C-0075-01	2017-09-05	2018-09-05
N/A	Coaxial Cable	C-NJNJ-50	C-1000-01	2017-09-05	2018-09-05
Agilent	Spectrum Analyzer	E4440A	SG43360054	2017-12-08	2018-12-08
ETS-Lindgren	Horn Antenna	3115	000 527 35	2016-01-05	2019-01-05
MITEQ	Amplifier	AFS42-00101800-25-S-42	2001271	2017-09-05	2018-09-05
Ducommun Technologies	Horn Antenna	ARH-4223-02	1007726-02 1304	2017-06-16	2020-06-15
Ducommun Technologies	Horn Antenna	ARH-2823-02	1007726-01 1302	2016-11-18	2019-11-18
Quinstar	Amplifier	QLW-18405536-JO	15964001001	2017-06-27	2018-06-27
N/A	Coaxial Cable	C-SJSJ-50	C-0800-01	2017-09-05	2018-09-05
Chengdu OuLi	Bandrejector Filter	5725-5850	005	2017-09-05	2018-09-05
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

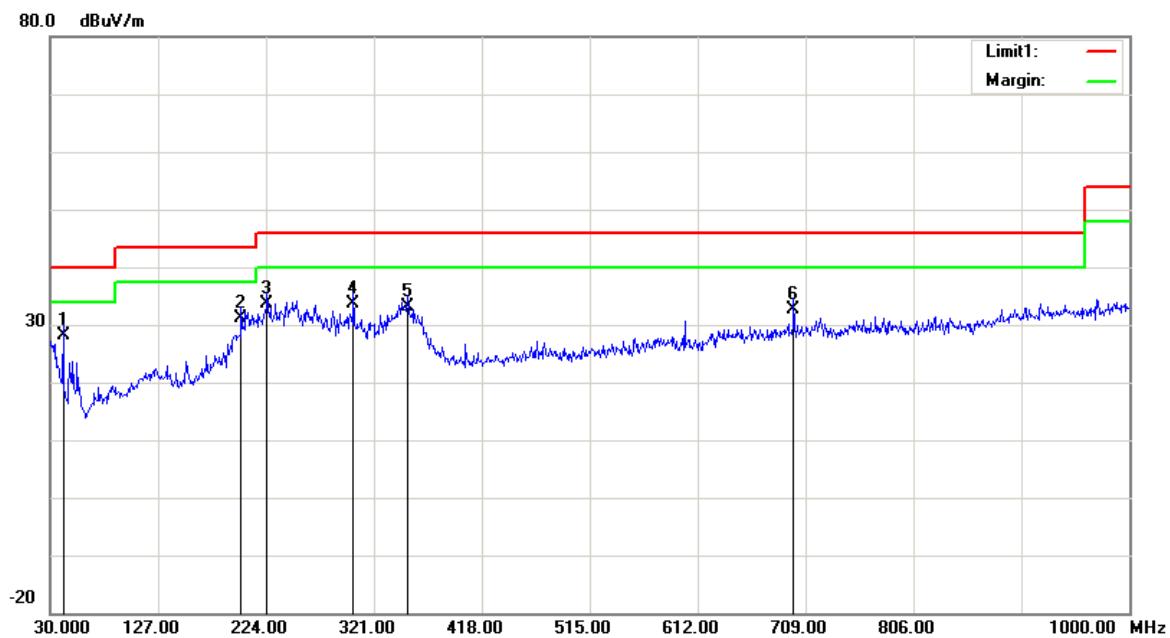
Environmental Conditions

Temperature:	18.4 ~ 18.6 °C
Relative Humidity:	34 ~ 38 %
ATM Pressure:	101.5 ~ 102.1 kPa

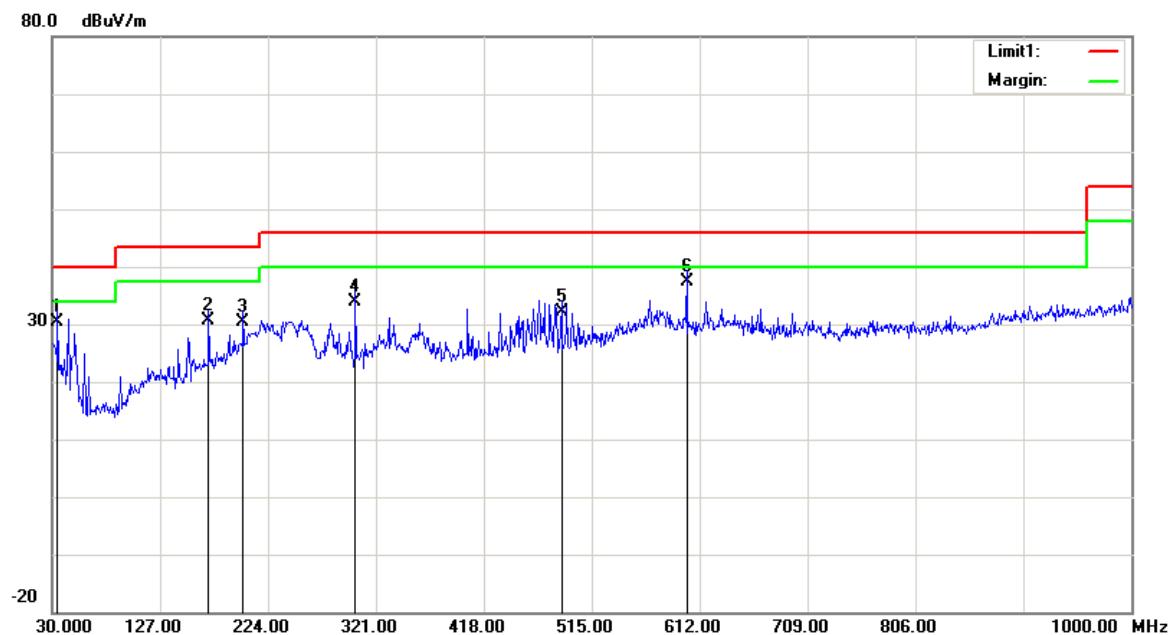
The testing was performed by Steven Zuo & Blake Yang on 2018-01-11 & 2018-01-15.

Test Mode: Transmitting

1) 30MHz-1GHz(10MHz Chain 0 High channel was the worst):

Horizontal:

Frequency (MHz)	Receiver Reading (dB μ V)	Detector	Correction Factor (dB/m)	Cord. Amp. (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
41.6400	35.49	QP	-7.39	28.10	40.00	11.90
201.6900	37.26	QP	-6.16	31.10	43.50	12.40
224.9700	40.38	QP	-6.78	33.60	46.00	12.40
302.5700	38.11	QP	-4.41	33.70	46.00	12.30
351.0700	36.23	QP	-3.13	33.10	46.00	12.90
698.3300	30.09	QP	2.51	32.60	46.00	13.40

Vertical:

Frequency (MHz)	Receiver Reading (dB _u V)	Detector	Correction Factor (dB/m)	Cord. Amp. (dB _u V/m)	Limit (dB _u V/m)	Margin (dB)
34.8500	32.87	QP	-2.47	30.40	40.00	9.60
170.6500	38.00	QP	-7.40	30.60	43.50	12.90
201.6900	36.66	QP	-6.16	30.50	43.50	13.00
302.5700	38.21	QP	-4.41	33.80	46.00	12.20
487.8400	33.46	QP	-1.26	32.20	46.00	13.80
600.3600	37.30	QP	0.20	37.50	46.00	8.50

2) 1-40GHz

1.4MHz mode

Chain 0:

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
	Reading (dB μ V)	Detector	Polar (H/V)	Factor (dB/m)					
Low Channel: 5728.5 MHz									
5728.50	72.92	PK	H	34.19	3.69	0.00	104.78	N/A	N/A
5728.50	62.61	AV	H	34.19	3.69	0.00	94.47	N/A	N/A
5728.50	82.73	PK	V	34.19	3.69	0.00	114.59	N/A	N/A
5728.50	72.32	AV	V	34.19	3.69	0.00	104.18	N/A	N/A
5725.00	35.68	PK	V	34.19	3.69	0.00	67.54	122.20	54.66
5720.00	32.47	PK	V	34.19	3.69	0.00	64.33	110.80	46.47
5700.00	28.62	PK	V	34.18	3.68	0.00	60.46	105.20	44.74
5650.00	26.48	PK	V	34.16	3.63	0.00	58.25	68.20	9.95
11457.00	53.43	PK	V	38.96	6.59	37.33	55.63	74.00	18.37
11457.00	41.39	AV	V	38.96	6.59	37.33	43.59	54.00	10.41
17185.50	48.59	PK	V	41.28	8.77	38.64	53.98	74.00	20.02
17185.50	35.57	AV	V	41.28	8.77	38.64	40.96	54.00	13.04
Middle Channel: 5786.5 MHz									
5786.50	73.72	PK	H	34.21	3.71	0.00	105.62	N/A	N/A
5786.50	53.83	AV	H	34.21	3.71	0.00	85.73	N/A	N/A
5786.50	83.43	PK	V	34.21	3.71	0.00	115.33	N/A	N/A
5786.50	73.68	AV	V	34.21	3.71	0.00	105.58	N/A	N/A
11573.00	53.42	PK	V	39.00	6.61	37.44	55.57	74.00	18.43
11573.00	41.41	AV	V	39.00	6.61	37.44	43.56	54.00	10.44
17359.50	48.55	PK	V	42.29	8.81	38.52	55.11	74.00	18.89
17359.50	35.25	AV	V	42.29	8.81	38.52	41.81	54.00	12.19
High Channel: 5846.5 MHz									
5846.50	74.74	PK	H	34.24	3.75	0.00	106.71	N/A	N/A
5846.50	64.86	AV	H	34.24	3.75	0.00	96.83	N/A	N/A
5846.50	84.37	PK	V	34.24	3.75	0.00	116.34	N/A	N/A
5846.50	74.81	AV	V	34.24	3.75	0.00	106.78	N/A	N/A
5850.00	32.29	PK	V	34.24	3.75	0.00	64.26	122.20	57.94
5855.00	29.55	PK	V	34.24	3.75	0.00	61.52	110.80	49.28
5875.00	28.25	PK	V	34.25	3.77	0.00	60.25	105.20	44.95
5925.00	26.45	PK	V	34.27	3.80	0.00	58.50	68.20	9.70
11693.00	53.26	PK	V	39.00	6.65	37.58	55.31	74.00	18.69
11693.00	41.46	AV	V	39.00	6.65	37.58	43.51	54.00	10.49
17539.50	48.66	PK	V	43.34	8.85	38.38	56.45	74.00	17.55
17539.50	35.44	AV	V	43.34	8.85	38.38	43.23	54.00	10.77

Chain 1:

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
	Reading (dB μ V)	Detector	Polar (H/V)	Factor (dB/m)					
Low Channel: 5728.5 MHz									
5728.50	72.92	PK	H	34.19	3.69	0.00	104.78	N/A	N/A
5728.50	62.56	AV	H	34.19	3.69	0.00	94.42	N/A	N/A
5728.50	82.64	PK	V	34.19	3.69	0.00	114.50	N/A	N/A
5728.50	72.42	AV	V	34.19	3.69	0.00	104.28	N/A	N/A
5725.00	35.75	PK	V	34.19	3.69	0.00	67.61	122.20	54.59
5720.00	32.33	PK	V	34.19	3.69	0.00	64.19	110.80	46.61
5700.00	28.57	PK	V	34.18	3.68	0.00	60.41	105.20	44.79
5650.00	26.31	PK	V	34.16	3.63	0.00	58.08	68.20	10.12
11457.00	53.56	PK	V	38.96	6.59	37.33	55.76	74.00	18.24
11457.00	41.48	AV	V	38.96	6.59	37.33	43.68	54.00	10.32
17185.50	48.54	PK	V	41.28	8.77	38.64	53.93	74.00	20.07
17185.50	35.27	AV	V	41.28	8.77	38.64	40.66	54.00	13.34
Middle Channel: 5786.5 MHz									
5786.50	74.44	PK	H	34.21	3.71	0.00	106.34	N/A	N/A
5786.50	54.53	AV	H	34.21	3.71	0.00	86.43	N/A	N/A
5786.50	84.20	PK	V	34.21	3.71	0.00	116.10	N/A	N/A
5786.50	74.55	AV	V	34.21	3.71	0.00	106.45	N/A	N/A
11573.00	54.24	PK	V	39.00	6.61	37.44	56.39	74.00	17.61
11573.00	42.23	AV	V	39.00	6.61	37.44	44.38	54.00	9.62
17359.50	49.24	PK	V	42.29	8.81	38.52	55.80	74.00	18.20
17359.50	36.12	AV	V	42.29	8.81	38.52	42.68	54.00	11.32
High Channel: 5846.5 MHz									
5846.50	74.71	PK	H	34.24	3.75	0.00	106.68	N/A	N/A
5846.50	64.97	AV	H	34.24	3.75	0.00	96.94	N/A	N/A
5846.50	84.85	PK	V	34.24	3.75	0.00	116.82	N/A	N/A
5846.50	75.11	AV	V	34.24	3.75	0.00	107.08	N/A	N/A
5850.00	32.67	PK	V	34.24	3.75	0.00	64.64	122.20	57.56
5855.00	29.84	PK	V	34.24	3.75	0.00	61.81	110.80	48.99
5875.00	28.73	PK	V	34.25	3.77	0.00	60.73	105.20	44.47
5925.00	26.92	PK	V	34.27	3.80	0.00	58.97	68.20	9.23
11693.00	53.73	PK	V	39.00	6.65	37.58	55.78	74.00	18.22
11693.00	41.94	AV	V	39.00	6.65	37.58	43.99	54.00	10.01
17539.50	49.07	PK	V	43.34	8.85	38.38	56.86	74.00	17.14
17539.50	35.77	AV	V	43.34	8.85	38.38	43.56	54.00	10.44

10MHz mode:**Chain 0:**

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
	Reading (dB μ V)	Detector	Polar (H/V)	Factor (dB/m)					
Low Channel: 5730.5 MHz									
5730.50	76.76	PK	H	34.19	3.69	0.00	108.62	N/A	N/A
5730.50	66.61	AV	H	34.19	3.69	0.00	98.47	N/A	N/A
5730.50	86.45	PK	V	34.19	3.69	0.00	118.31	N/A	N/A
5730.50	76.32	AV	V	34.19	3.69	0.00	108.18	N/A	N/A
5725.00	68.72	PK	V	34.19	3.69	0.00	100.58	122.20	21.62
5720.00	58.56	PK	V	34.19	3.69	0.00	90.42	110.80	20.38
5700.00	30.33	PK	V	34.18	3.68	0.00	62.17	105.20	43.03
5650.00	28.27	PK	V	34.16	3.63	0.00	60.04	68.20	8.16
11461.00	53.37	PK	V	38.96	6.59	37.34	55.56	74.00	18.44
11461.00	41.36	AV	V	38.96	6.59	37.34	43.55	54.00	10.45
17191.50	48.55	PK	V	41.31	8.77	38.64	53.97	74.00	20.03
17191.50	35.49	AV	V	41.31	8.77	38.64	40.91	54.00	13.09
Middle Channel: 5787.5 MHz									
5787.50	76.98	PK	H	34.21	3.71	0.00	108.88	N/A	N/A
5787.50	67.08	AV	H	34.21	3.71	0.00	98.98	N/A	N/A
5787.50	86.76	PK	V	34.21	3.71	0.00	118.66	N/A	N/A
5787.50	76.66	AV	V	34.21	3.71	0.00	108.56	N/A	N/A
11571.00	53.45	PK	V	39.00	6.61	37.44	55.60	74.00	18.40
11571.00	41.44	AV	V	39.00	6.61	37.44	43.59	54.00	10.41
17356.50	48.72	PK	V	42.27	8.81	38.52	55.26	74.00	18.74
17356.50	35.54	AV	V	42.27	8.81	38.52	42.08	54.00	11.92
High Channel: 5844.5 MHz									
5844.50	77.17	PK	H	34.24	3.75	0.00	109.14	N/A	N/A
5844.50	67.64	AV	H	34.24	3.75	0.00	99.61	N/A	N/A
5844.50	87.13	PK	V	34.24	3.75	0.00	119.10	N/A	N/A
5844.50	77.08	AV	V	34.24	3.75	0.00	109.05	N/A	N/A
5850.00	66.32	PK	V	34.24	3.75	0.00	98.29	122.20	23.91
5855.00	55.82	PK	V	34.24	3.75	0.00	87.79	110.80	23.01
5875.00	29.24	PK	V	34.25	3.77	0.00	61.24	105.20	43.96
5925.00	26.45	PK	V	34.27	3.80	0.00	58.50	68.20	9.70
11689.00	53.72	PK	V	39.00	6.65	37.58	55.77	74.00	18.23
11689.00	41.32	AV	V	39.00	6.65	37.58	43.37	54.00	10.63
17533.50	48.66	PK	V	43.31	8.85	38.39	56.41	74.00	17.59
17533.50	35.66	AV	V	43.31	8.85	38.39	43.41	54.00	10.59

Chain 1:

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
	Reading (dB μ V)	Detector	Polar (H/V)	Factor (dB/m)					
Low Channel: 5730.5 MHz									
5730.50	76.84	PK	H	34.19	3.69	0.00	108.70	N/A	N/A
5730.50	66.59	AV	H	34.19	3.69	0.00	98.45	N/A	N/A
5730.50	86.32	PK	V	34.19	3.69	0.00	118.18	N/A	N/A
5730.50	76.28	AV	V	34.19	3.69	0.00	108.14	N/A	N/A
5725.00	68.63	PK	V	34.19	3.69	0.00	100.49	122.20	21.71
5720.00	58.49	PK	V	34.19	3.69	0.00	90.35	110.80	20.45
5700.00	30.42	PK	V	34.18	3.68	0.00	62.26	105.20	42.94
5650.00	28.34	PK	V	34.16	3.63	0.00	60.11	68.20	8.09
11461.00	53.28	PK	V	38.96	6.59	37.34	55.47	74.00	18.53
11461.00	41.33	AV	V	38.96	6.59	37.34	43.52	54.00	10.48
17191.50	48.63	PK	V	41.31	8.77	38.64	54.05	74.00	19.95
17191.50	35.46	AV	V	41.31	8.77	38.64	40.88	54.00	13.12
Middle Channel: 5787.5 MHz									
5787.50	77.02	PK	H	34.21	3.71	0.00	108.92	N/A	N/A
5787.50	67.11	AV	H	34.21	3.71	0.00	99.01	N/A	N/A
5787.50	86.69	PK	V	34.21	3.71	0.00	118.59	N/A	N/A
5787.50	76.73	AV	V	34.21	3.71	0.00	108.63	N/A	N/A
11571.00	53.55	PK	V	39.00	6.61	37.44	55.70	74.00	18.30
11571.00	41.47	AV	V	39.00	6.61	37.44	43.62	54.00	10.38
17356.50	48.77	PK	V	42.27	8.81	38.52	55.31	74.00	18.69
17356.50	35.61	AV	V	42.27	8.81	38.52	42.15	54.00	11.85
High Channel: 5844.5 MHz									
5844.50	77.24	PK	H	34.24	3.75	0.00	109.21	N/A	N/A
5844.50	67.53	AV	H	34.24	3.75	0.00	99.50	N/A	N/A
5844.50	86.93	PK	V	34.24	3.75	0.00	118.90	N/A	N/A
5844.50	77.15	AV	V	34.24	3.75	0.00	109.12	N/A	N/A
5850.00	66.42	PK	V	34.24	3.75	0.00	98.39	122.20	23.81
5855.00	55.89	PK	V	34.24	3.75	0.00	87.86	110.80	22.94
5875.00	28.96	PK	V	34.25	3.77	0.00	60.96	105.20	44.24
5925.00	26.48	PK	V	34.27	3.80	0.00	58.53	68.20	9.67
11689.00	53.64	PK	V	39.00	6.65	37.58	55.69	74.00	18.31
11689.00	41.37	AV	V	39.00	6.65	37.58	43.42	54.00	10.58
17533.50	48.68	PK	V	43.31	8.85	38.39	56.43	74.00	17.57
17533.50	35.62	AV	V	43.31	8.85	38.39	43.37	54.00	10.63

20MHz mode:**Chain 0:**

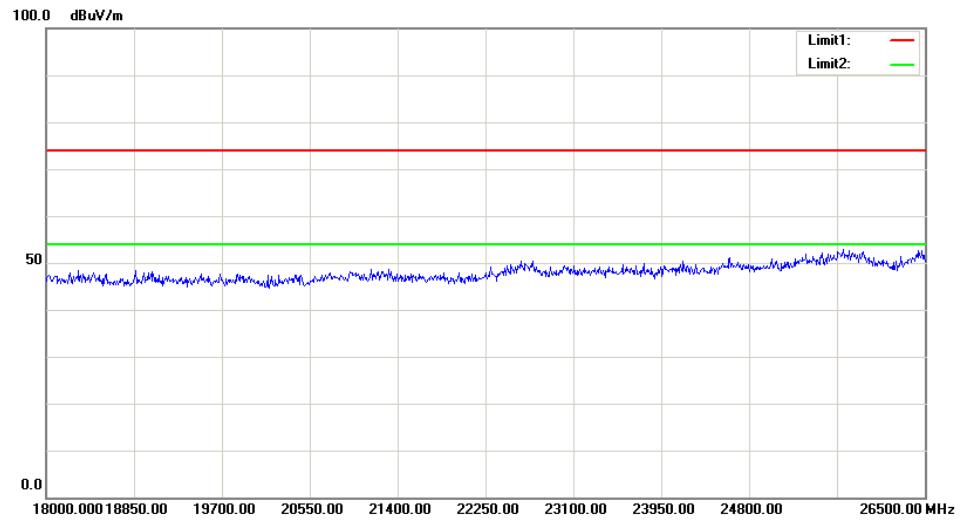
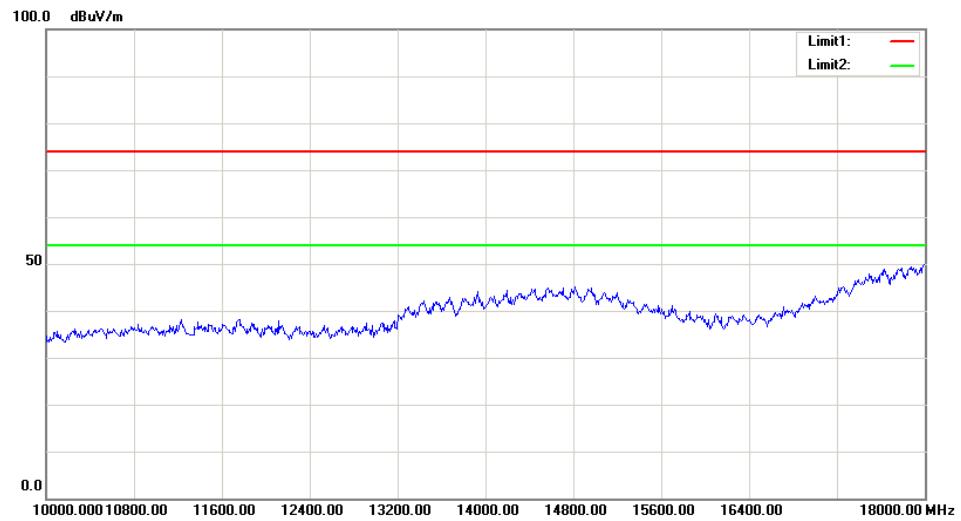
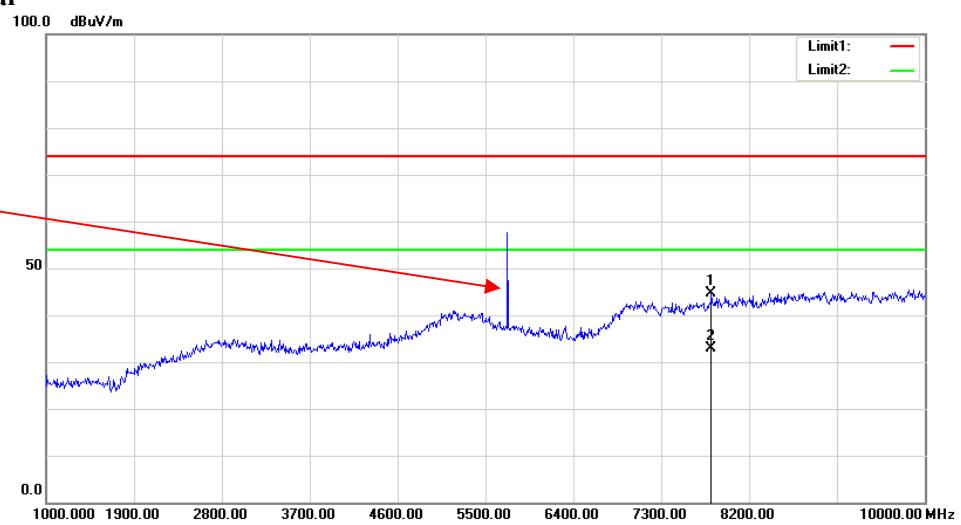
Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
	Reading (dB μ V)	Detector	Polar (H/V)	Factor (dB/m)					
Low Channel: 5735.5 MHz									
5735.50	76.91	PK	H	34.19	3.69	0.00	108.77	N/A	N/A
5735.50	66.87	AV	H	34.19	3.69	0.00	98.73	N/A	N/A
5735.50	85.53	PK	V	34.19	3.69	0.00	117.39	N/A	N/A
5735.50	75.49	AV	V	34.19	3.69	0.00	107.35	N/A	N/A
5725.00	62.34	PK	V	34.19	3.69	0.00	94.20	122.20	28.00
5720.00	57.86	PK	V	34.19	3.69	0.00	89.72	110.80	21.08
5700.00	35.26	PK	V	34.18	3.68	0.00	67.10	105.20	38.10
5650.00	28.48	PK	V	34.16	3.63	0.00	60.25	68.20	7.95
11471.00	53.33	PK	V	38.97	6.59	37.34	55.53	74.00	18.47
11471.00	41.26	AV	V	38.97	6.59	37.34	43.46	54.00	10.54
17206.50	48.65	PK	V	41.40	8.77	38.63	54.17	74.00	19.83
17206.50	35.56	AV	V	41.40	8.77	38.63	41.08	54.00	12.92
Middle Channel: 5787.5 MHz									
5787.50	77.47	PK	H	34.22	3.71	0.00	109.38	N/A	N/A
5787.50	67.52	AV	H	34.22	3.71	0.00	99.43	N/A	N/A
5787.50	85.72	PK	V	34.22	3.71	0.00	117.63	N/A	N/A
5787.50	75.64	AV	V	34.22	3.71	0.00	107.55	N/A	N/A
11575.00	53.41	PK	V	39.00	6.61	37.45	55.55	74.00	18.45
11575.00	41.24	AV	V	39.00	6.61	37.45	43.38	54.00	10.62
17362.50	48.82	PK	V	42.30	8.81	38.52	55.39	74.00	18.61
17362.50	35.46	AV	V	42.30	8.81	38.52	42.03	54.00	11.97
High Channel: 5839.5 MHz									
5839.50	77.78	PK	H	34.24	3.74	0.00	109.74	N/A	N/A
5839.50	67.82	AV	H	34.24	3.74	0.00	99.78	N/A	N/A
5839.50	86.17	PK	V	34.24	3.74	0.00	118.13	N/A	N/A
5839.50	76.34	AV	V	34.24	3.74	0.00	108.30	N/A	N/A
5850.00	61.43	PK	V	34.24	3.75	0.00	93.40	122.20	28.80
5855.00	57.26	PK	V	34.24	3.75	0.00	89.23	110.80	21.57
5875.00	40.37	PK	V	34.25	3.77	0.00	72.37	105.20	32.83
5925.00	28.68	PK	V	34.27	3.80	0.00	60.73	68.20	7.47
11679.00	53.46	PK	V	39.00	6.65	37.56	55.53	74.00	18.47
11679.00	41.37	AV	V	39.00	6.65	37.56	43.44	54.00	10.56
17518.50	48.62	PK	V	43.21	8.85	38.40	56.26	74.00	17.74
17518.50	35.46	AV	V	43.21	8.85	38.40	43.10	54.00	10.90

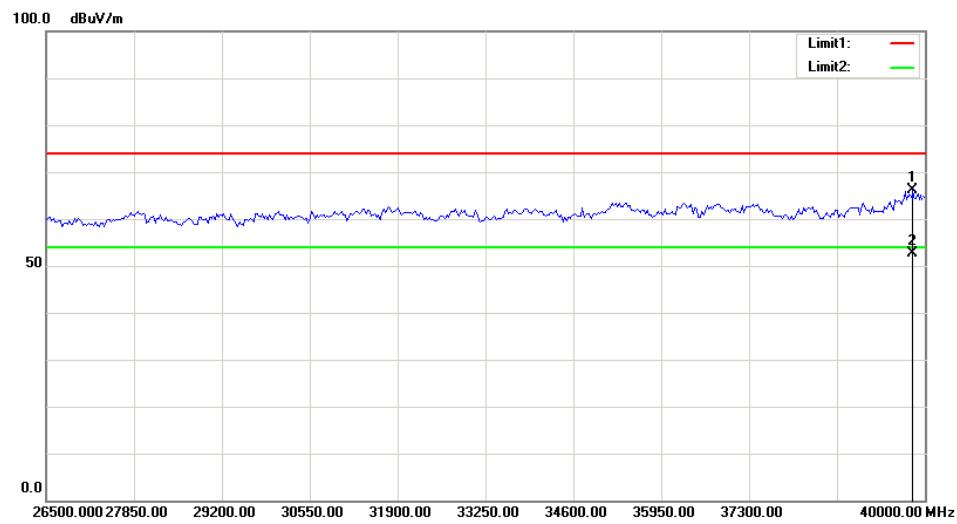
Chain 1:

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
	Reading (dB μ V)	Detector	Polar (H/V)	Factor (dB/m)					
Low Channel: 5735.5 MHz									
5735.50	77.39	PK	H	34.19	3.69	0.00	109.25	N/A	N/A
5735.50	67.35	AV	H	34.19	3.69	0.00	99.21	N/A	N/A
5735.50	86.01	PK	V	34.19	3.69	0.00	117.87	N/A	N/A
5735.50	75.97	AV	V	34.19	3.69	0.00	107.83	N/A	N/A
5725.00	62.82	PK	V	34.19	3.69	0.00	94.68	122.20	27.52
5720.00	58.34	PK	V	34.19	3.69	0.00	90.20	110.80	20.60
5700.00	35.74	PK	V	34.18	3.68	0.00	67.58	105.20	37.62
5650.00	28.96	PK	V	34.16	3.63	0.00	60.73	68.20	7.47
11471.00	53.81	PK	V	38.97	6.59	37.34	56.01	74.00	17.99
11471.00	41.74	AV	V	38.97	6.59	37.34	43.94	54.00	10.06
17206.50	49.13	PK	V	41.40	8.77	38.63	54.65	74.00	19.35
17206.50	36.04	AV	V	41.40	8.77	38.63	41.56	54.00	12.44
Middle Channel: 5787.5 MHz									
5787.50	78.12	PK	H	34.22	3.71	0.00	110.03	N/A	N/A
5787.50	68.34	AV	H	34.22	3.71	0.00	100.25	N/A	N/A
5787.50	88.42	PK	V	34.22	3.71	0.00	120.33	N/A	N/A
5787.50	78.56	AV	V	34.22	3.71	0.00	110.47	N/A	N/A
11575.00	54.29	PK	V	39.00	6.61	37.45	56.43	74.00	17.57
11575.00	42.22	AV	V	39.00	6.61	37.45	44.36	54.00	9.64
17362.50	49.61	PK	V	42.30	8.81	38.52	56.18	74.00	17.82
17362.50	36.52	AV	V	42.30	8.81	38.52	43.09	54.00	10.91
High Channel: 5839.5 MHz									
5839.50	78.03	PK	H	34.24	3.74	0.00	109.99	N/A	N/A
5839.50	67.85	AV	H	34.24	3.74	0.00	99.81	N/A	N/A
5839.50	87.86	PK	V	34.24	3.74	0.00	119.82	N/A	N/A
5839.50	77.52	AV	V	34.24	3.74	0.00	109.48	N/A	N/A
5850.00	65.38	PK	V	34.24	3.75	0.00	97.35	122.20	24.85
5855.00	56.46	PK	V	34.24	3.75	0.00	88.43	110.80	22.37
5875.00	43.27	PK	V	34.25	3.77	0.00	75.27	105.20	29.93
5925.00	28.69	PK	V	34.27	3.80	0.00	60.74	68.20	7.46
11679.00	53.64	PK	V	39.00	6.65	37.56	55.71	74.00	18.29
11679.00	41.32	AV	V	39.00	6.65	37.56	43.39	54.00	10.61
17518.50	48.72	PK	V	43.21	8.85	38.40	56.36	74.00	17.64
17518.50	35.35	AV	V	43.21	8.85	38.40	42.99	54.00	11.01

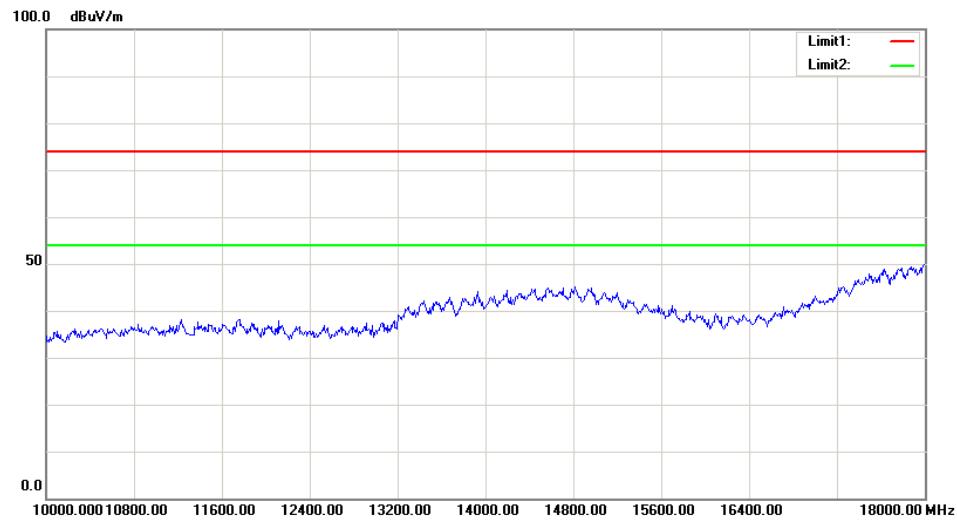
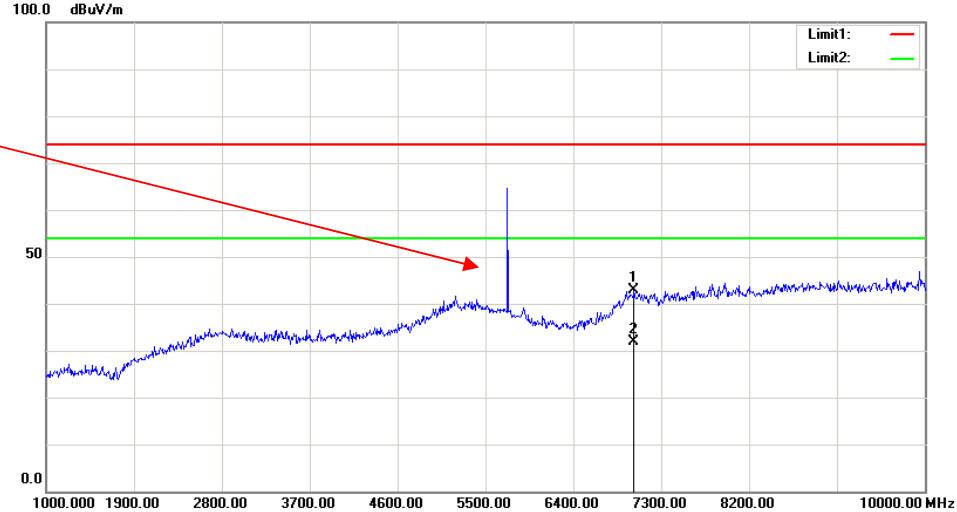
Worst plots (10MHz mode chain 0 High channel)**Horizontal**

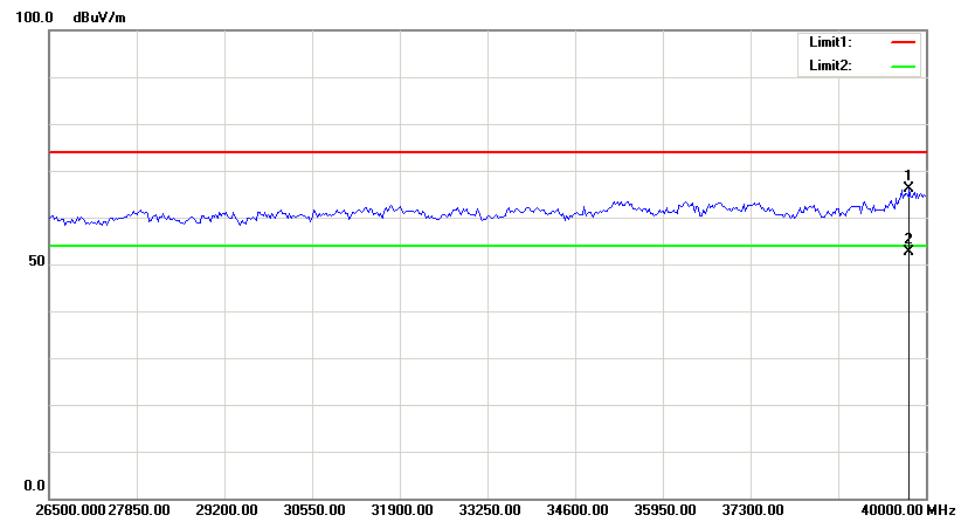
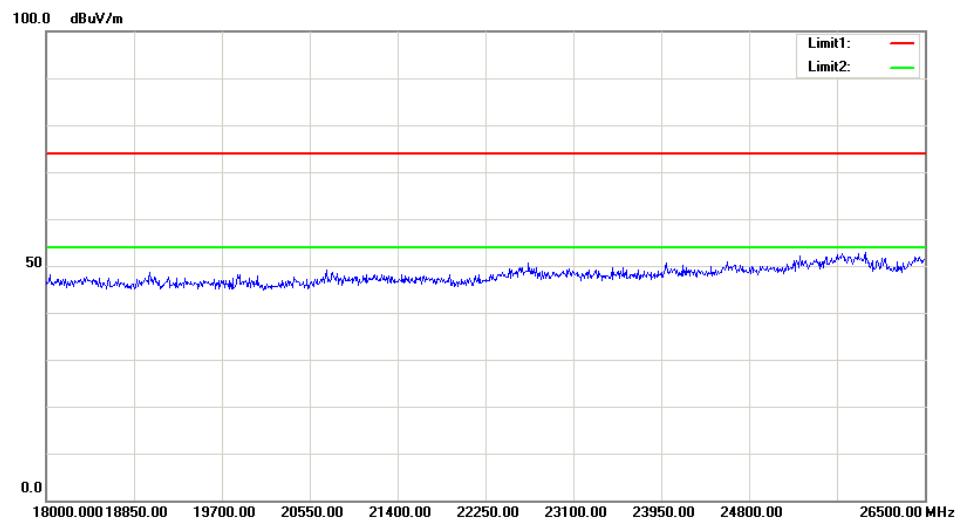
Fundamental
Test with Band
Rejection Filter



**Vertical**

Fundamental Test with Band Rejection Filter





FCC §15.407(a)& RSS-247 §6.2,RSS-Gen §6.6– EMISSION BANDWIDTH

Applicable Standard

15.407(a), RSS-247 §6.2 and RSS-Gen §6.6

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	EMI Test Receiver	ESPI	100120	2017-12-11	2018-12-11
N/A	Coaxial Cable	C-SJ00-0010	C0010/04	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

KDB 789033 D02 General U-NII Test Procedures New Rules v02r01.

Test Data

Environmental Conditions

Temperature:	20~21.4 °C
Relative Humidity:	34~35 %
ATM Pressure:	101.8~102.1 kPa

The testing was performed by Andy Huang on 2018-01-10&2018-02-01.

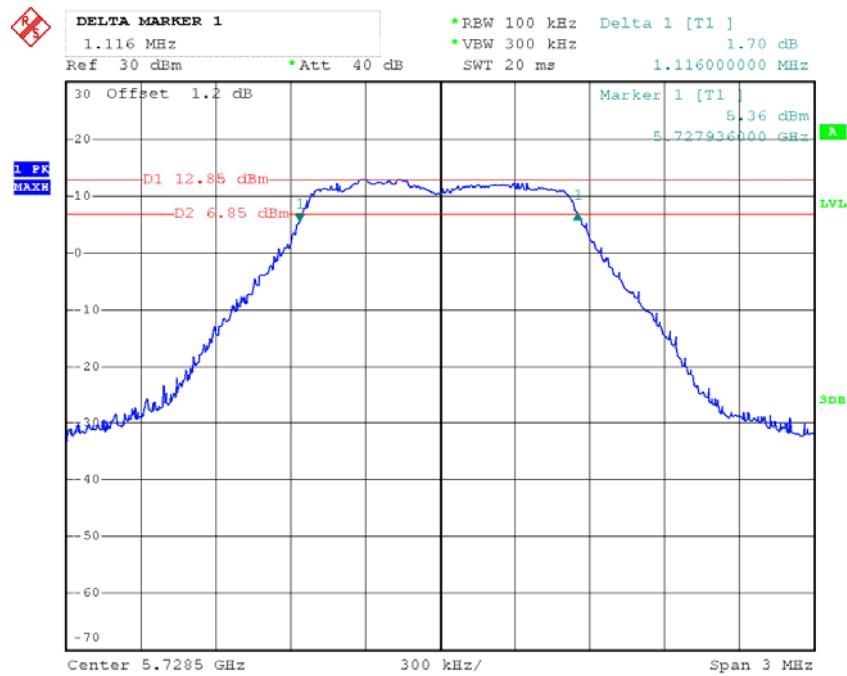
Test Result: Pass.

Test mode: Transmitting (Test was performed at chain 0)

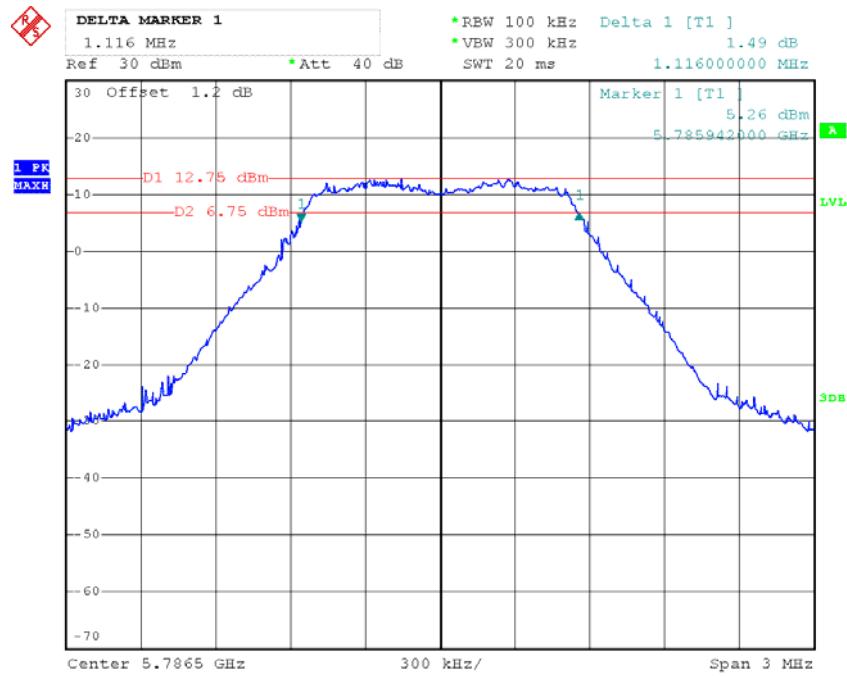
Please refer to the following tables and plots.

Mode	Channel	Frequency (MHz)	6 dB Emission Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
1.4M	Low	5728.5	1.116	1.158
	Middle	5786.5	1.116	1.164
	High	5846.5	1.128	1.146
10M	Low	5730.5	9.08	8.96
	Middle	5787.5	9.04	8.96
	High	5844.5	9.08	8.96
20M	Low	5735.5	18.24	17.76
	Middle	5787.5	18.08	17.84
	High	5839.5	18.08	17.84

Note: For 5725-5850MHz band, the 99% Occupied Bandwidth have not fall into the band 5470-5725MHz.

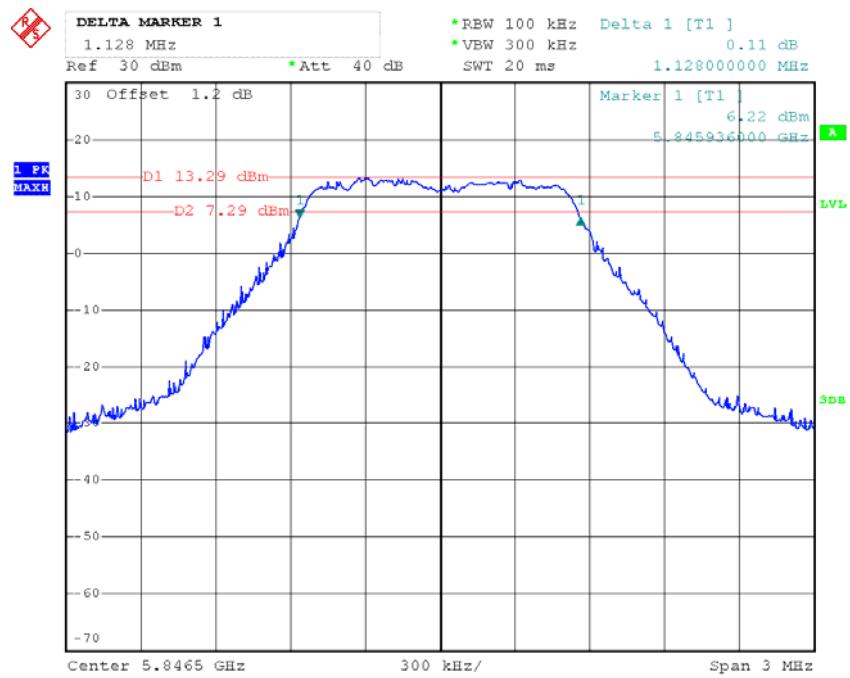
6dB Bandwidth:**1.4MHz Low Channel**

Date: 10.JAN.2018 19:45:01

1.4MHz Middle Channel

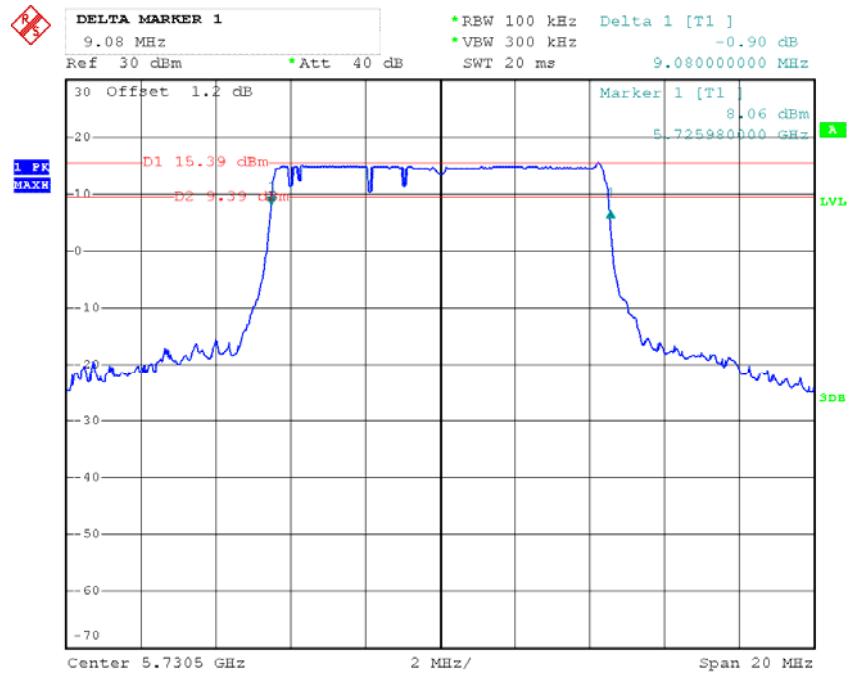
Date: 1.FEB.2018 18:00:11

1.4MHz High Channel

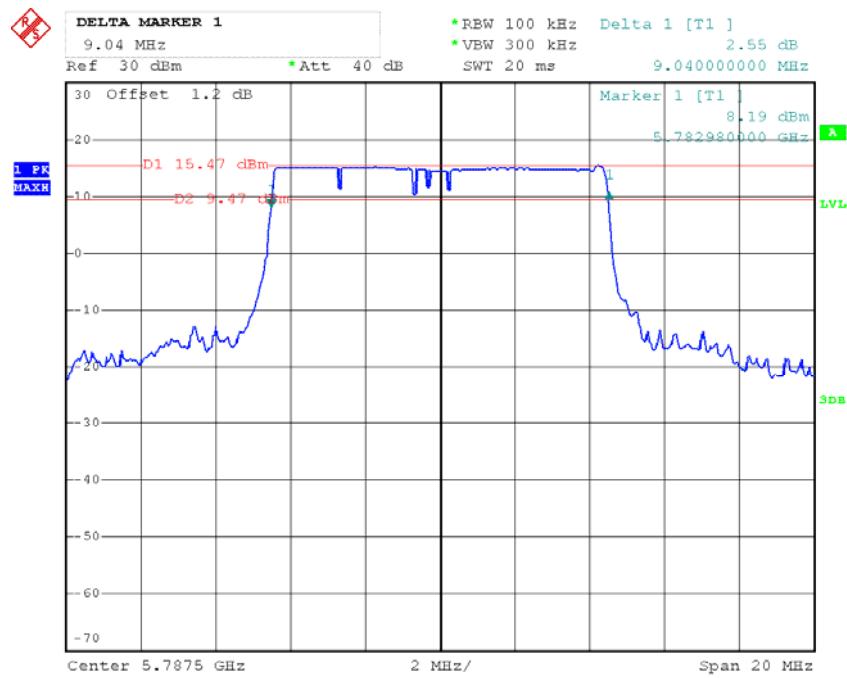


Date: 10.JAN.2018 19:47:16

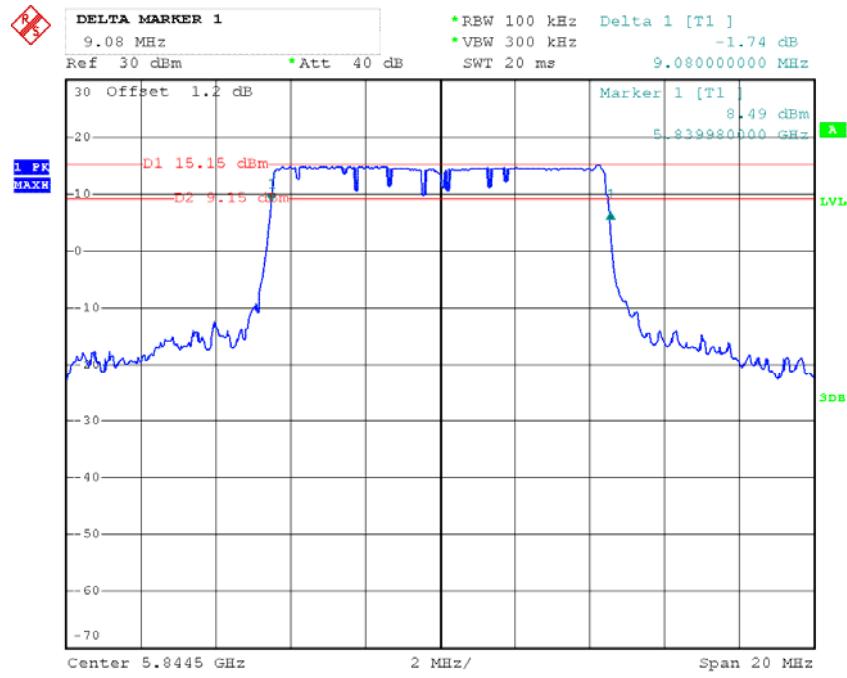
10MHz Low Channel



Date: 10.JAN.2018 18:39:31

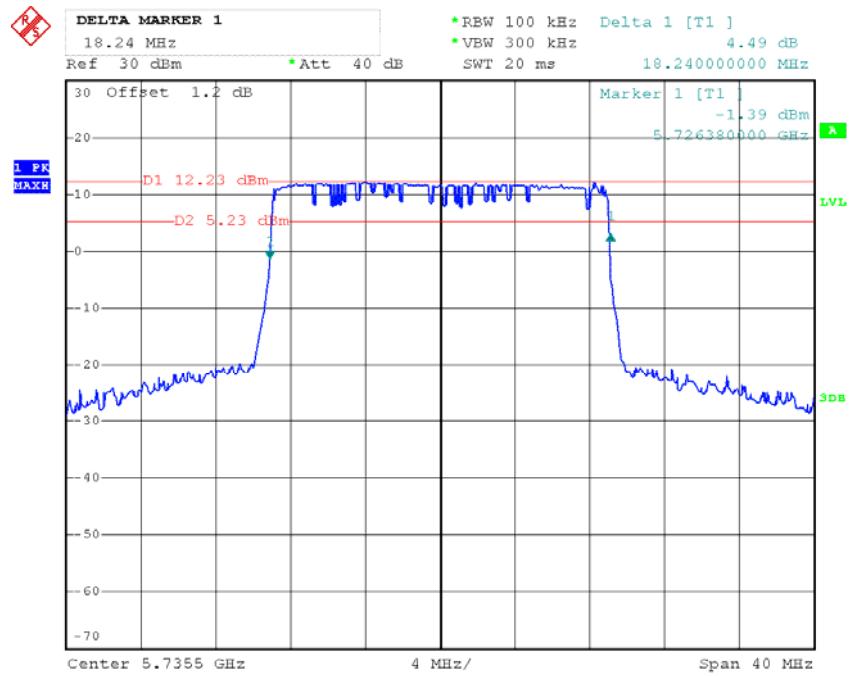
10MHz Middle Channel

Date: 10.JAN.2018 18:37:37

10MHz High Channel

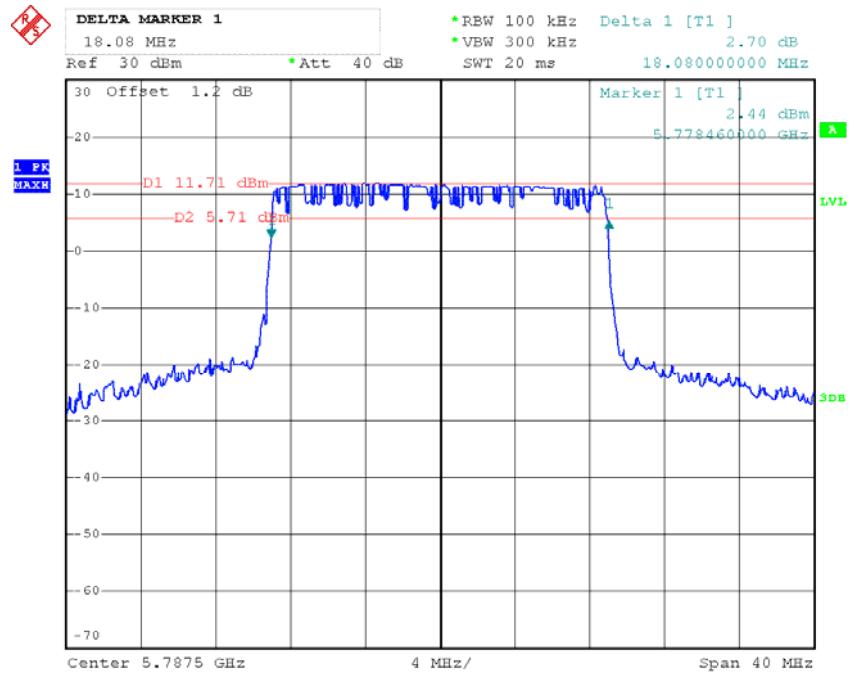
Date: 10.JAN.2018 18:35:44

20MHz Low Channel

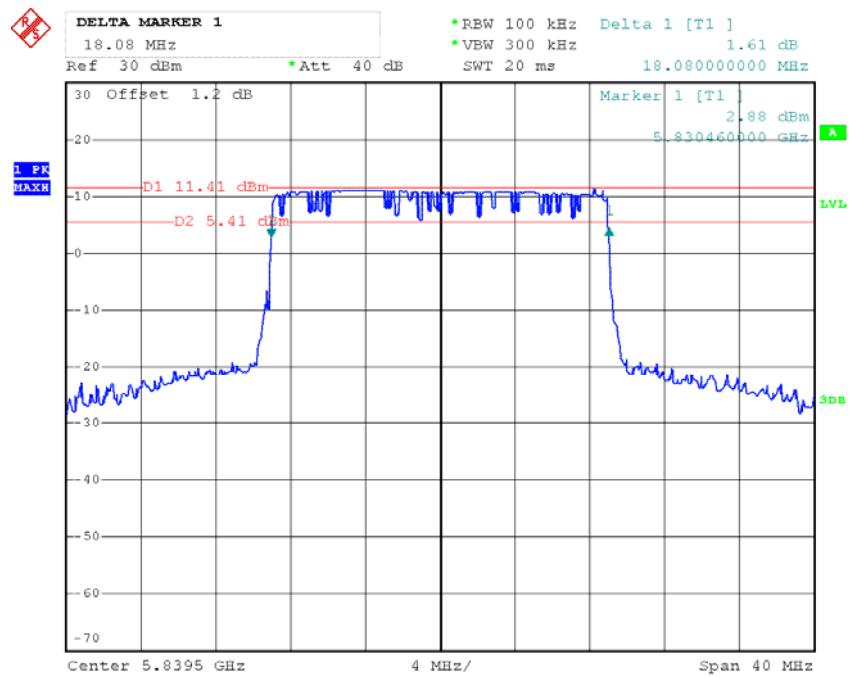


Date: 10.JAN.2018 18:05:15

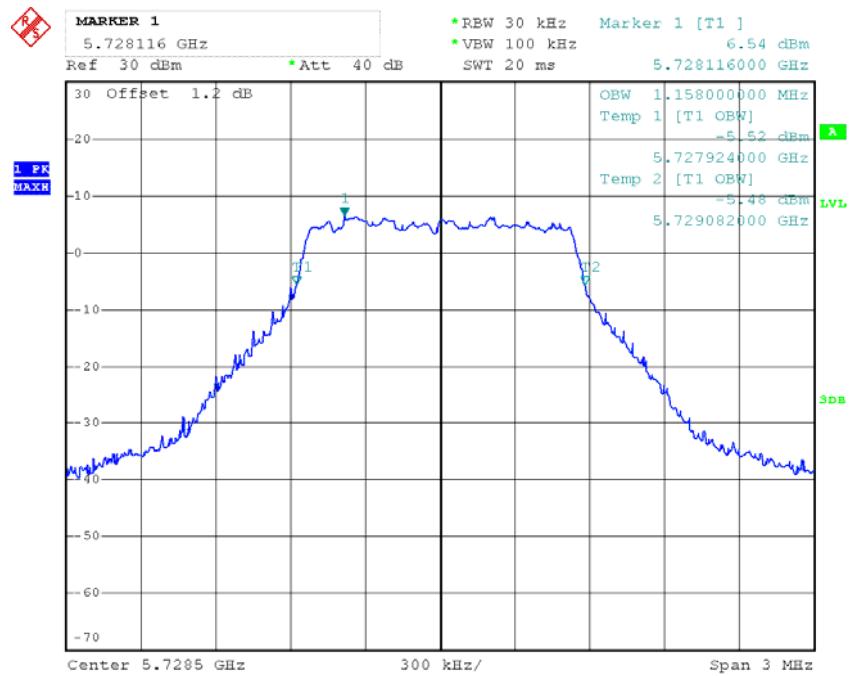
20MHz Middle Channel



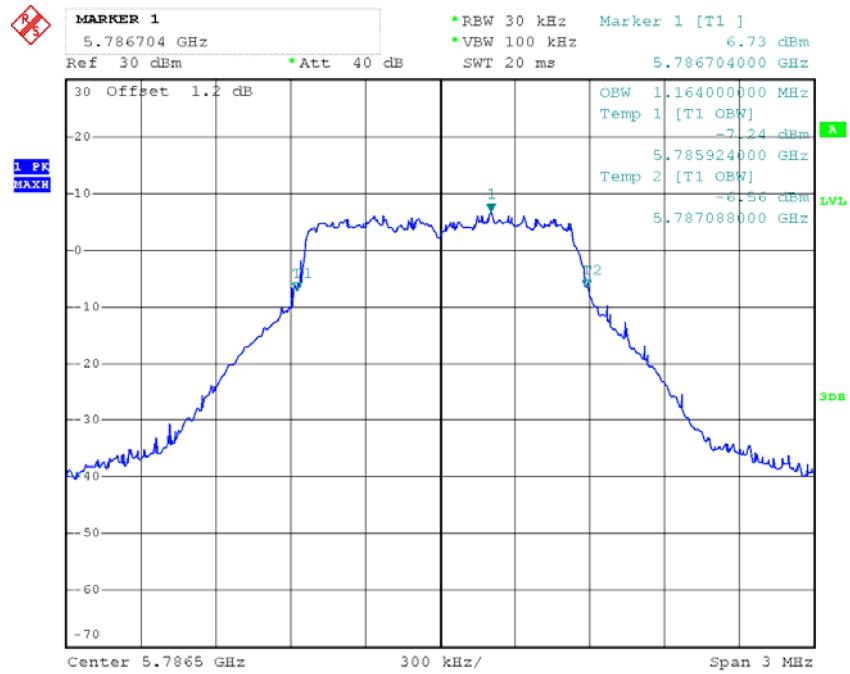
Date: 10.JAN.2018 18:07:06

20MHz High Channel

Date: 10.JAN.2018 18:08:58

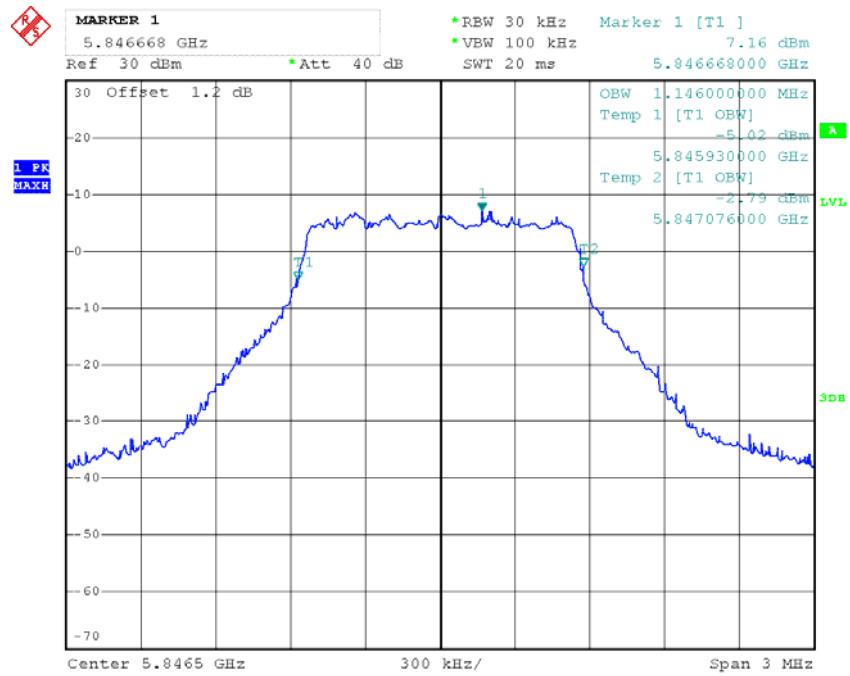
99% Occupied Bandwidth:**1.4MHz Low Channel**

Date: 10.JAN.2018 19:53:39

1.4MHz Middle Channel

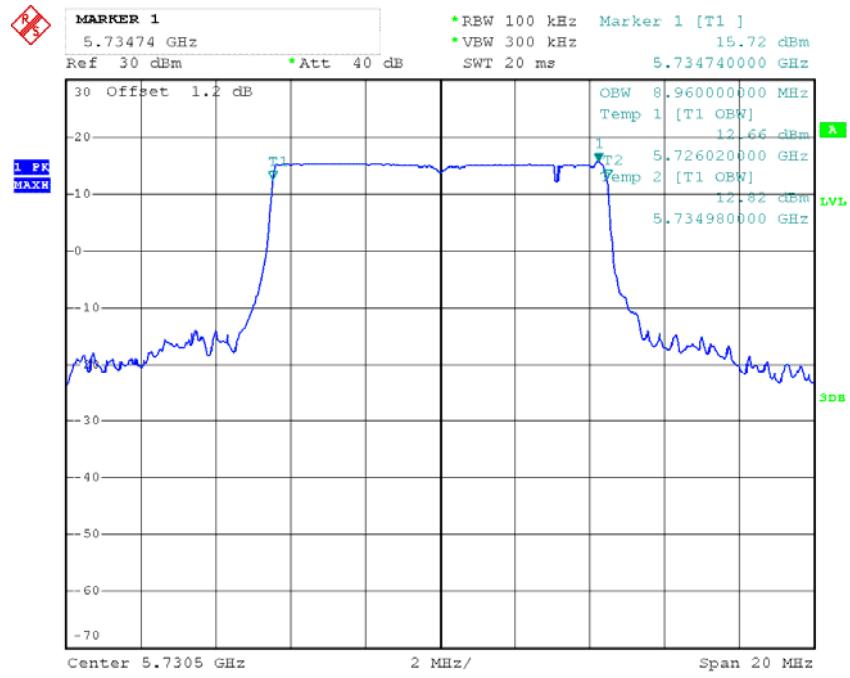
Date: 1.FEB.2018 17:44:35

1.4MHz High Channel

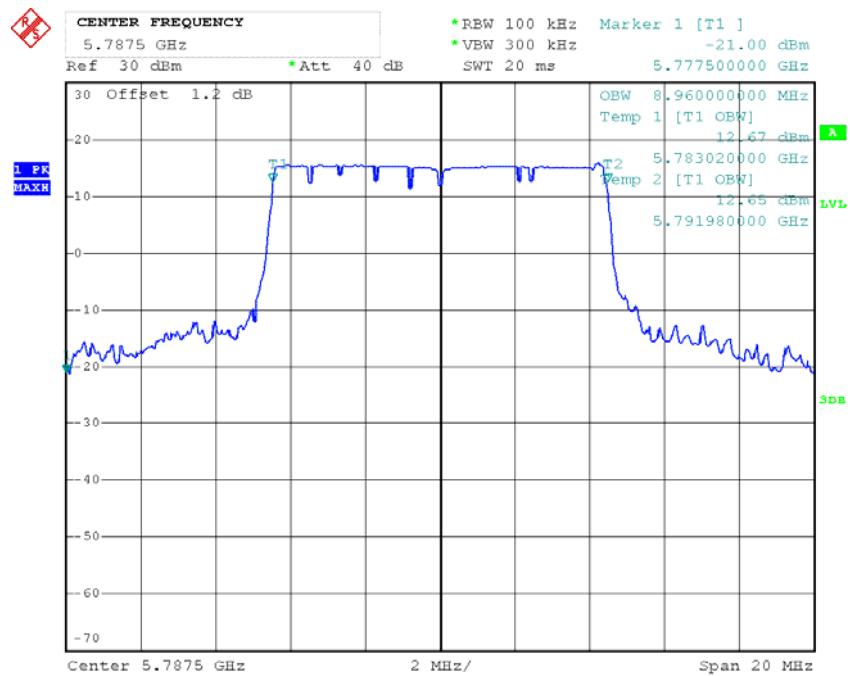


Date: 10.JAN.2018 19:52:09

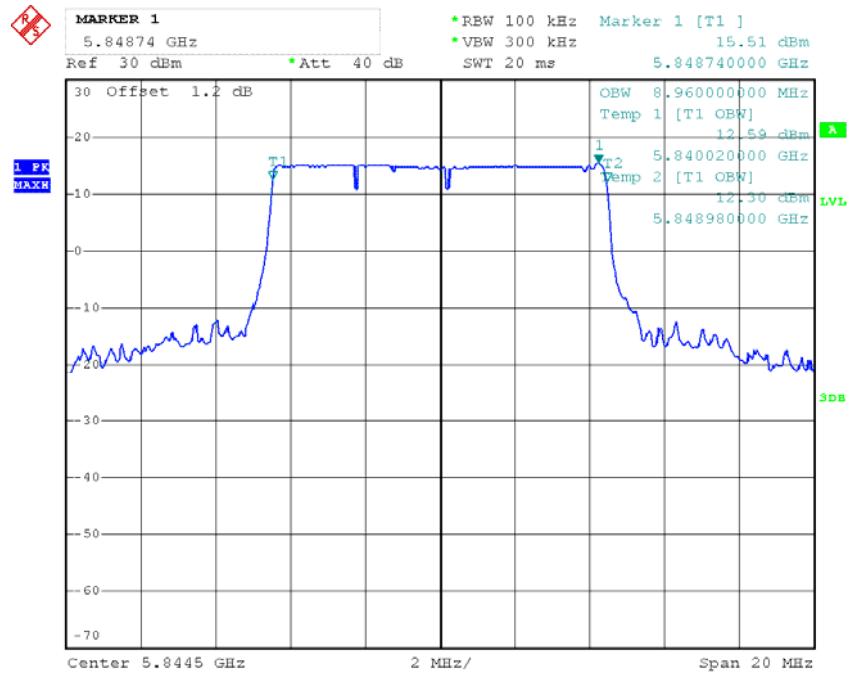
10MHz Low Channel



Date: 10.JAN.2018 18:42:13

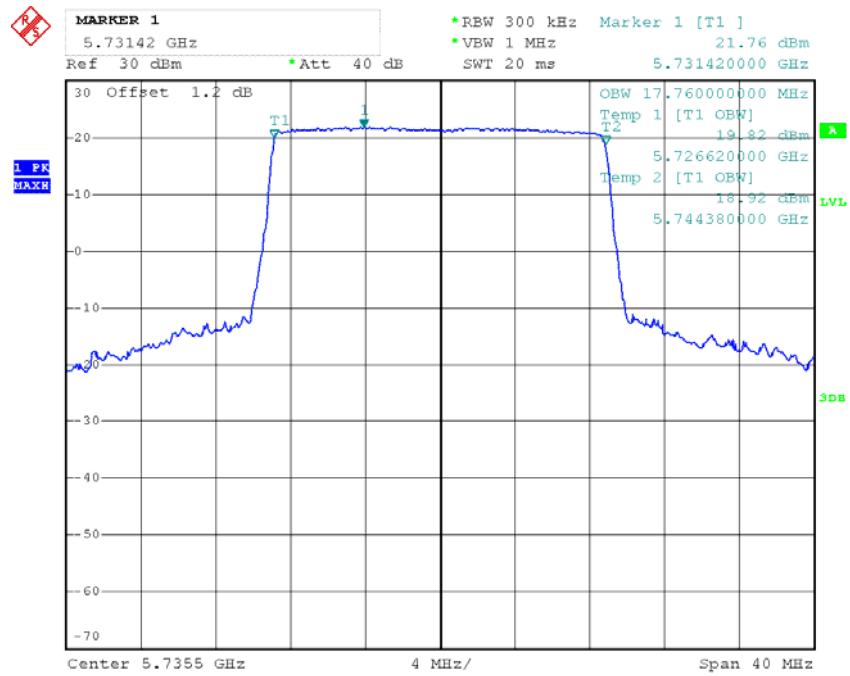
10MHz Middle Channel

Date: 10.JAN.2018 18:43:51

10MHz High Channel

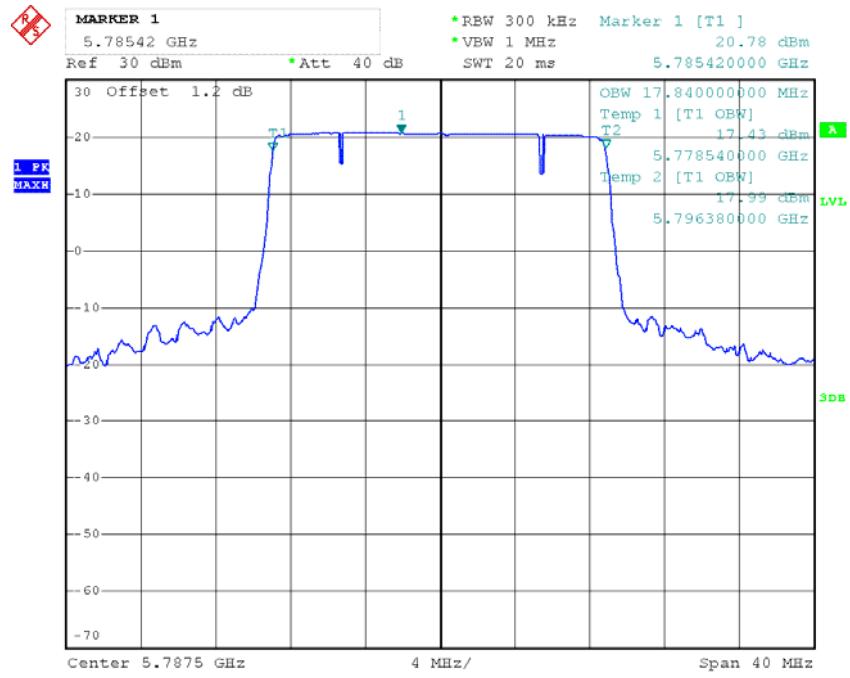
Date: 10.JAN.2018 18:45:33

20MHz Low Channel



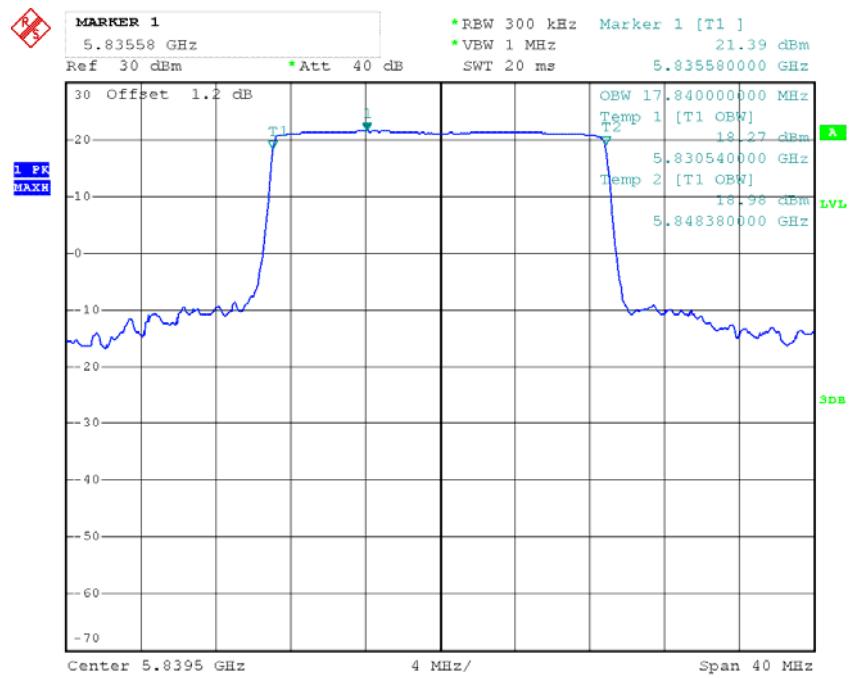
Date: 10.JAN.2018 17:54:37

20MHz Middle Channel



Date: 10.JAN.2018 17:01:58

20MHz High Channel



Date: 10.JAN.2018 16:59:46

FCC §15.407(a) & RSS-247 §6.2– MAXIMUM CONDUCTED OUTPUT POWER

Applicable Standard

According to FCC §15.407(a)

(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.

According to RSS-247 §6.2:

Frequency band 5150-5250 MHz

6.2.1.1 Power limits

For OEM devices installed in vehicles, the maximum e.i.r.p. shall not exceed 30 mW or $1.76 + 10 \log_{10}B$, dBm, whichever is less stringent. Devices shall implement transmitter power control (TPC) in order to have the capability to operate at least 3 dB below the maximum permitted e.i.r.p. of 30 mW.

For other devices, the maximum e.i.r.p. shall not exceed 200 mW or $10 + 10 \log_{10}B$, dBm, whichever power is less. B is the 99% emission bandwidth in megahertz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

Frequency band 5250-5350 MHz

6.2.2.1 Power limits

For OEM devices installed in vehicles, the maximum e.i.r.p. shall not exceed 30 mW or $1.76 + 10 \log_{10}B$, dBm, whichever is less. Devices shall implement TPC in order to have the capability to operate at least 3 dB below the maximum permitted e.i.r.p. of 30 mW.

Devices, other than devices installed in vehicles, shall comply with the following:

- a) The maximum conducted output power shall not exceed 250 mW or $11 + 10 \log_{10}B$, dBm, whichever is less. The power spectral density shall not exceed 11 dBm in any 1.0 MHz band;
- b) The maximum e.i.r.p. shall not exceed 1.0 W or $17 + 10 \log_{10}B$, dBm, whichever is less. B is the 99% emission bandwidth in megahertz. Note that devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

Frequency bands 5470-5600 MHz and 5650-5725 MHz

6.2.3.1 Power limits

The maximum conducted output power shall not exceed 250 mW or $11 + 10 \log_{10}B$, dBm, whichever is less. The power spectral density shall not exceed 11 dBm in any 1.0 MHz band.

The maximum e.i.r.p. shall not exceed 1.0 W or $17 + 10 \log_{10}B$, dBm, whichever is less. B is the 99% emission bandwidth in megahertz. Note that devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

Frequency band 5725-5850 MHz

6.2.4.1 Power limits

For equipment operating in the band 5725-5850 MHz, the minimum 6 dB bandwidth shall be at least 500 kHz.

The maximum conducted output power shall not exceed 1 W. The output 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 output 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 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-multipoint³ systems, omnidirectional applications and multiple collocated transmitters transmitting the same information.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Agilent	Wideband Power Sensor	N1921A	MY54210016	2017-11-03	2018-11-03
Agilent	Wideband Power Sensor	N1921A	MY54170013	2017-11-03	2018-11-03
Agilent	P-Series Power Meter	N1912A	MY5000448	2017-11-03	2018-11-03
N/A	Coaxial Cable	C-SJ00-0010	C0010/04	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 U-NII Test Procedures New Rules v02r01.

Test Data

Environmental Conditions

Temperature:	21.4 °C
Relative Humidity:	35 %
ATM Pressure:	101.8 kPa

The testing was performed by Andy Huang on 2018-01-10.

Test Mode: Transmitting

Mode	Frequency (MHz)	Conducted Average Output Power (dBm)		Limit (dBm)	Result
		Chain 0	Chain 1		
1.4MHz	5728.5	12.87	12.14	30	PASS
	5786.5	12.18	12.55	30	PASS
	5846.5	12.85	12.16	30	PASS
10MHz	5730.5	22.32	21.73	30	PASS
	5787.5	21.94	21.61	30	PASS
	5844.5	22.42	21.57	30	PASS
20MHz	5735.5	21.92	21.32	30	PASS
	5787.5	21.63	21.33	30	PASS
	5839.5	22.25	21.27	30	PASS

FCC §15.407(a)& RSS-247 §6.2 - POWER SPECTRAL DENSITY**Applicable Standard**

According to FCC §15.407(a)

(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.

According to RSS-247 §6.2:

Frequency band 5150-5250 MHz

6.2.1.1 Power limits

For OEM devices installed in vehicles, the maximum e.i.r.p. shall not exceed 30 mW or $1.76 + 10 \log_{10}B$, dBm, whichever is less stringent. Devices shall implement transmitter power control (TPC) in order to have the capability to operate at least 3 dB below the maximum permitted e.i.r.p. of 30 mW.

For other devices, the maximum e.i.r.p. shall not exceed 200 mW or $10 + 10 \log_{10}B$, dBm, whichever power is less. B is the 99% emission bandwidth in megahertz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

Frequency band 5250-5350 MHz

6.2.2.1 Power limits

For OEM devices installed in vehicles, the maximum e.i.r.p. shall not exceed 30 mW or $1.76 + 10 \log_{10}B$, dBm, whichever is less. Devices shall implement TPC in order to have the capability to operate at least 3 dB below the maximum permitted e.i.r.p. of 30 mW.

Devices, other than devices installed in vehicles, shall comply with the following:

- a) The maximum conducted output power shall not exceed 250 mW or $11 + 10 \log_{10}B$, dBm, whichever is less. The power spectral density shall not exceed 11 dBm in any 1.0 MHz band;
- b) The maximum e.i.r.p. shall not exceed 1.0 W or $17 + 10 \log_{10}B$, dBm, whichever is less. B is the 99% emission bandwidth in megahertz. Note that devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

Frequency bands 5470-5600 MHz and 5650-5725 MHz

6.2.3.1 Power limits

The maximum conducted output power shall not exceed 250 mW or $11 + 10 \log_{10}B$, dBm, whichever is less. The power spectral density shall not exceed 11 dBm in any 1.0 MHz band.

The maximum e.i.r.p. shall not exceed 1.0 W or $17 + 10 \log_{10}B$, dBm, whichever is less. B is the 99% emission bandwidth in megahertz. Note that devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

Frequency band 5725-5850 MHz

6.2.4.1 Power limits

For equipment operating in the band 5725-5850 MHz, the minimum 6 dB bandwidth shall be at least 500 kHz.

The maximum conducted output power shall not exceed 1 W. The output 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 output 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 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-multipoint³ systems, omnidirectional applications and multiple collocated transmitters transmitting the same information.

Test Procedure

According to KDB 789033 D02 General U-NII Test Procedures New Rules v02r01.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	EMI Test Receiver	ESPI	100120	2017-12-08	2018-12-08
N/A	Coaxial Cable	C-SJ00-0010	C0010/04	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:	20~21.4 °C
Relative Humidity:	34~35 %
ATM Pressure:	101.8~102.1 kPa

The testing was performed by Andy Huang from 2018-01-10 to 2018-02-01.

Test Mode: Transmitting

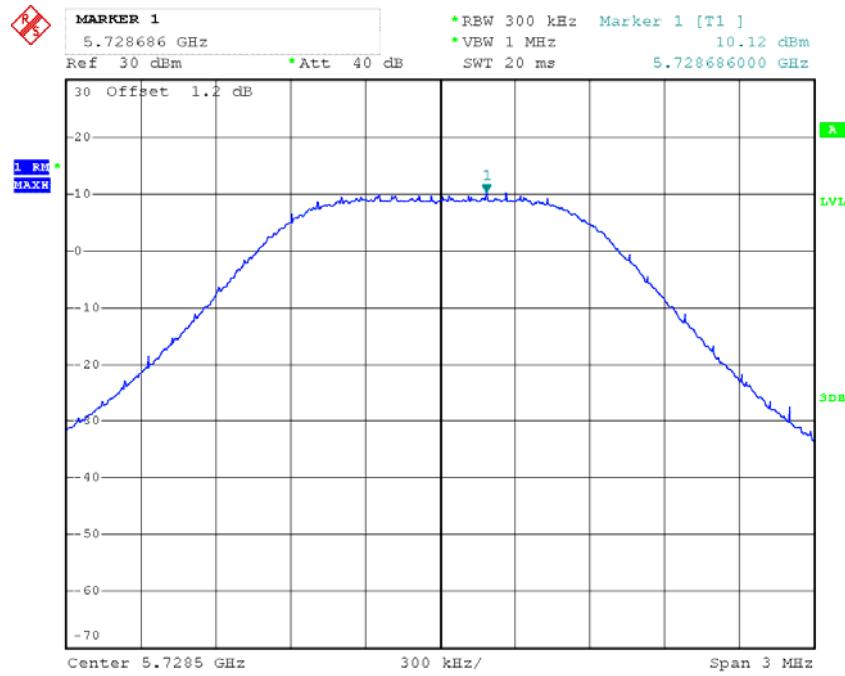
Test Result: Compliance. Please refer to the following table and plot.

Mode	Frequency (MHz)	Reading (dBm/300kHz)		Power spectral density (dBm/500kHz)		Limit (dBm/500kHz)
		Chain 0	Chain 1	Chain 0	Chain 1	
1.4MHz	5728.5	10.12	11.18	12.34	13.4	30
	5786.5	9.96	10.28	12.18	12.5	30
	5846.5	9.85	10.51	12.07	12.73	30
10MHz	5730.5	12.68	12.94	14.9	15.16	30
	5787.5	11.09	13.43	13.31	15.65	30
	5844.5	13.36	13.15	15.58	15.37	30
20MHz	5735.5	9.89	9.26	12.11	11.48	30
	5787.5	9.59	9.31	11.81	11.53	30
	5839.5	10.73	8.96	12.95	11.18	30

Note : For 5.8GHz band, If measurement bandwidth of Maximum PSD is specified in 500 kHz, add $10\log(500\text{kHz}/\text{RBW})$ to the measured result, whereas RBW (< 500 kHz) is the reduced resolution bandwidth of the spectrum analyzer set during measurement.

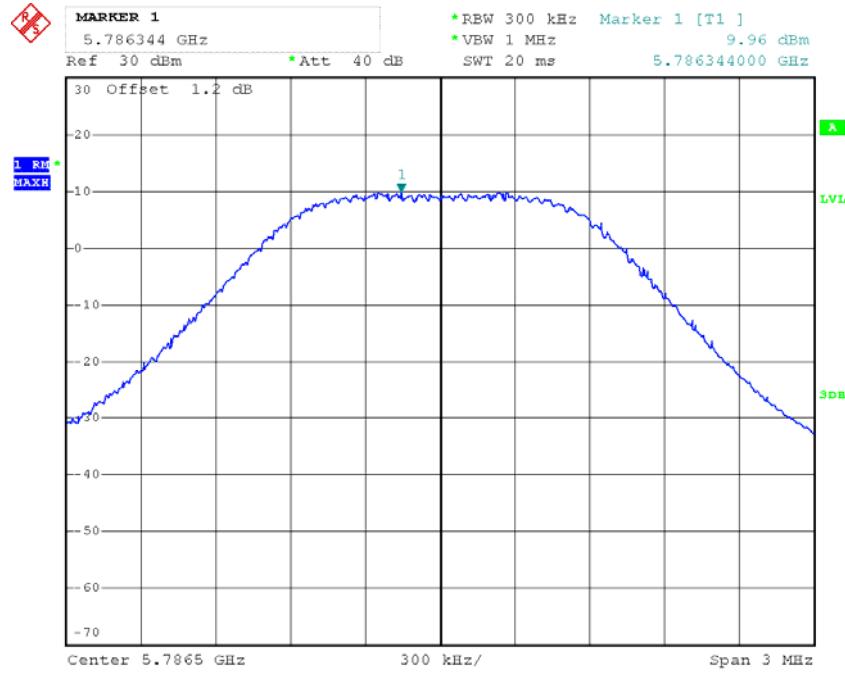
Chain0:

1.4M Low Channel

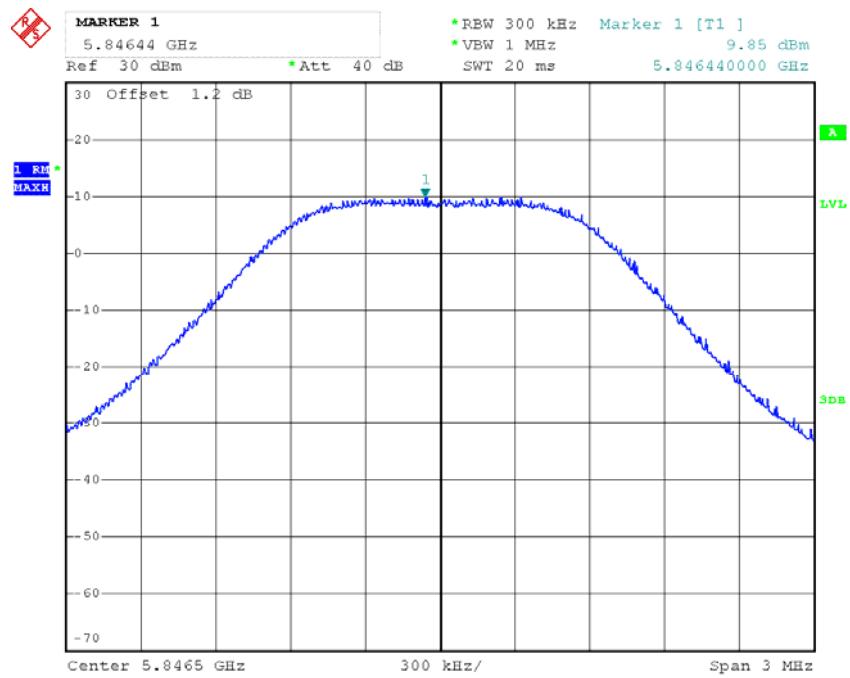


Date: 25.JAN.2018 09:26:40

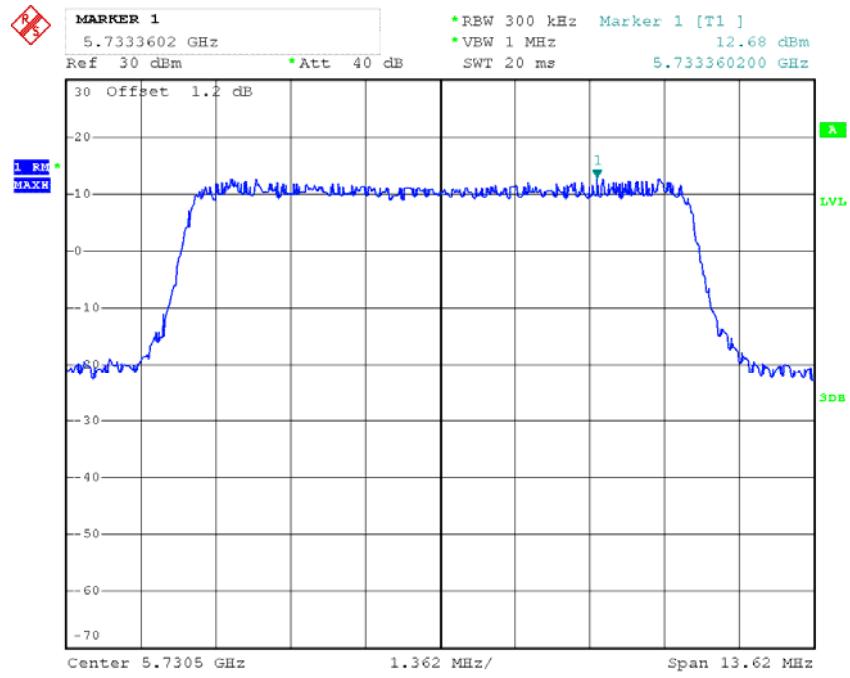
1.4M Middle Channel



Date: 1.FEB.2018 17:49:14

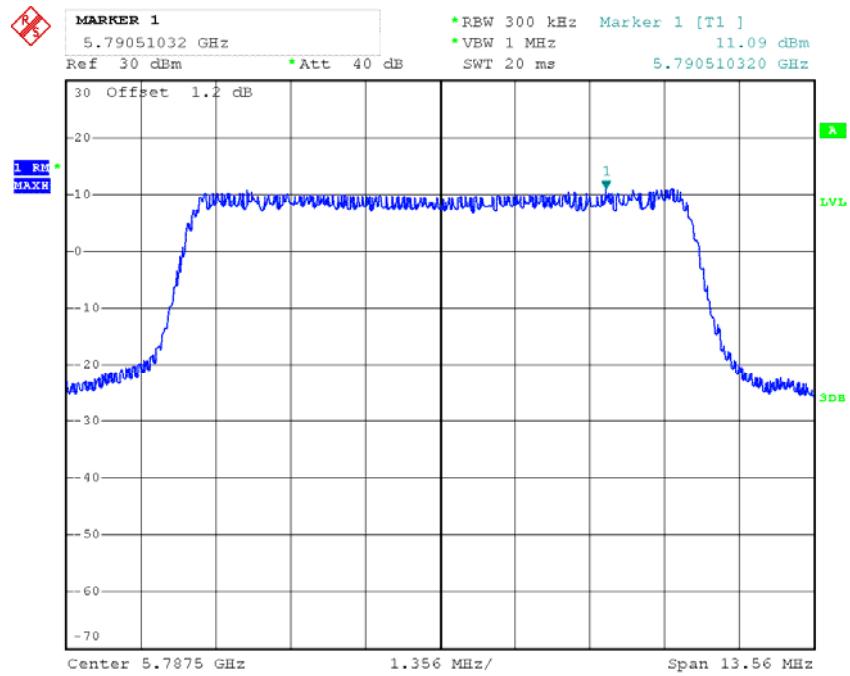
1.4M High Channel

Date: 25.JAN.2018 09:28:11

10M Low Channel

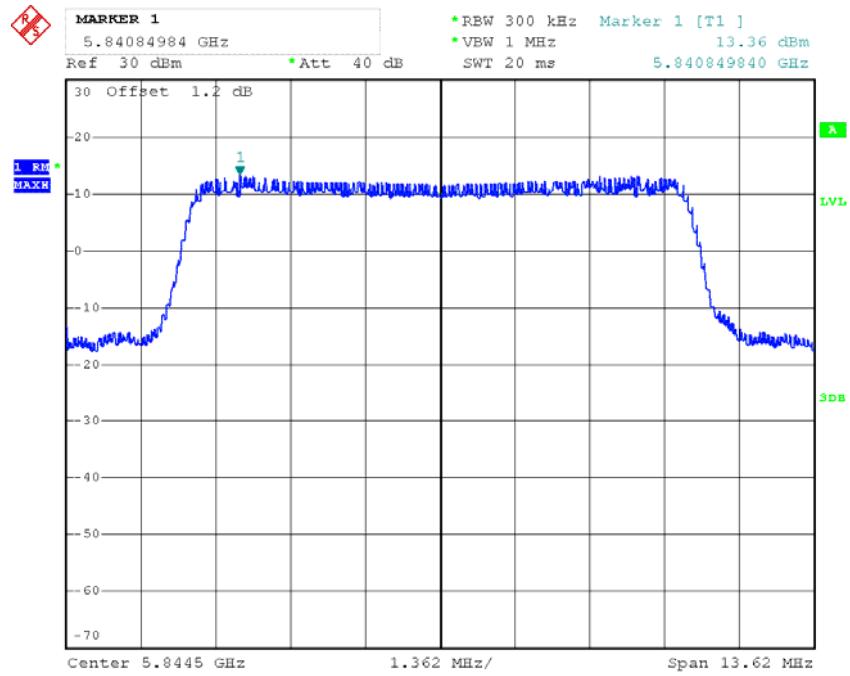
Date: 10.JAN.2018 18:53:27

10M Middle Channel

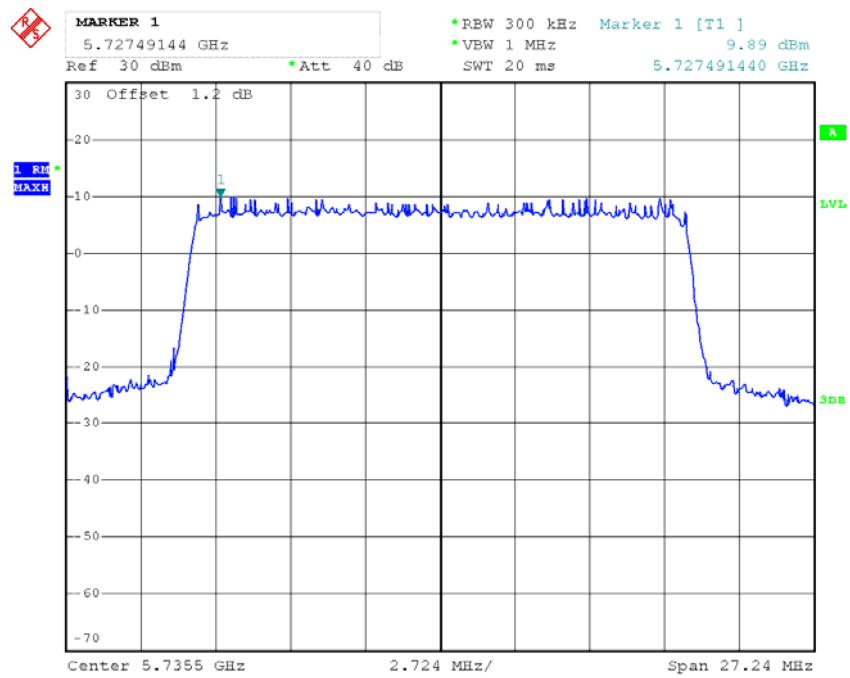


Date: 25.JAN.2018 09:32:33

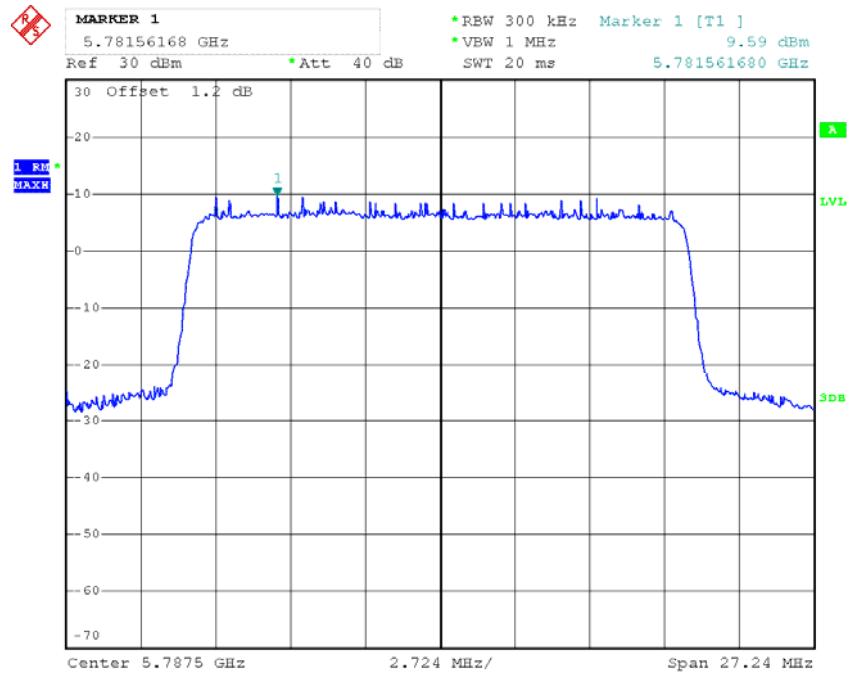
10M High Channel



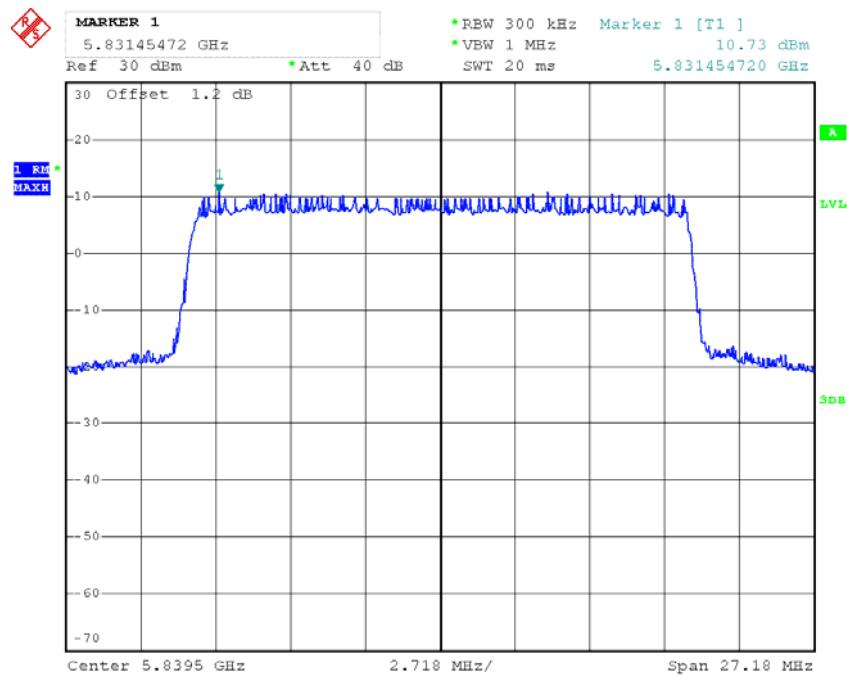
Date: 10.JAN.2018 18:54:27

20M Low Channel

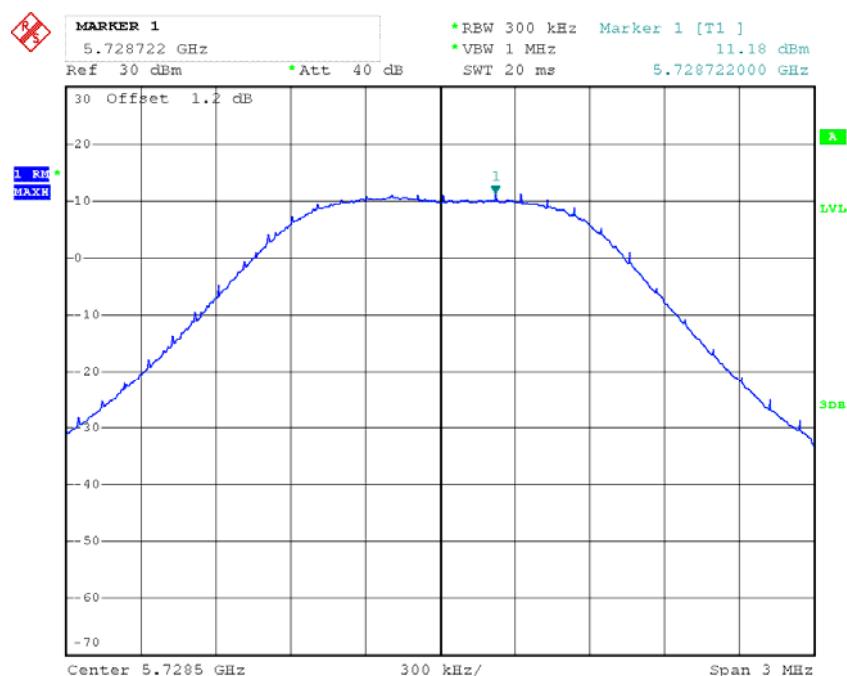
Date: 10.JAN.2018 18:18:59

20M Middle Channel

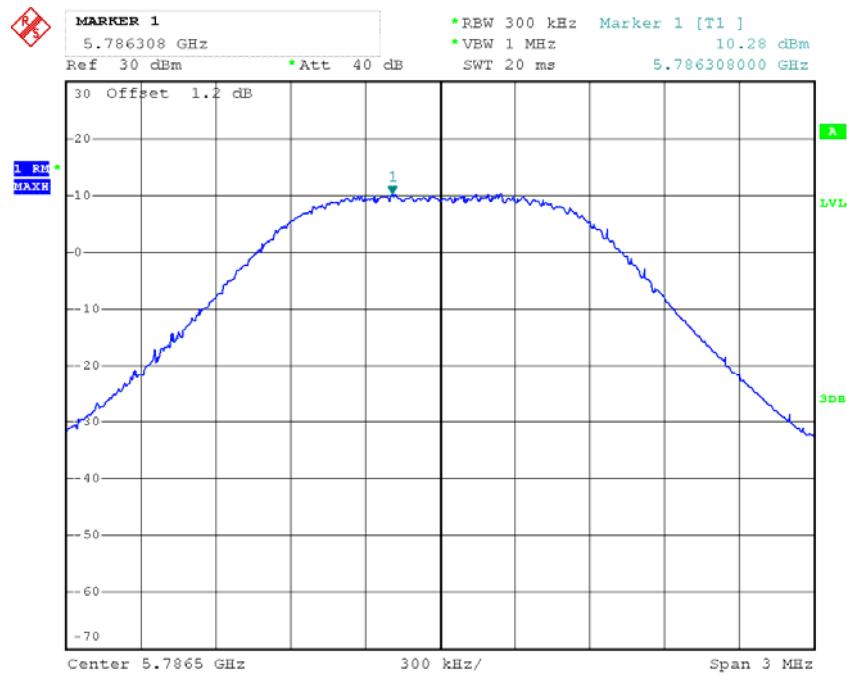
Date: 10.JAN.2018 18:18:35

20M High Channel

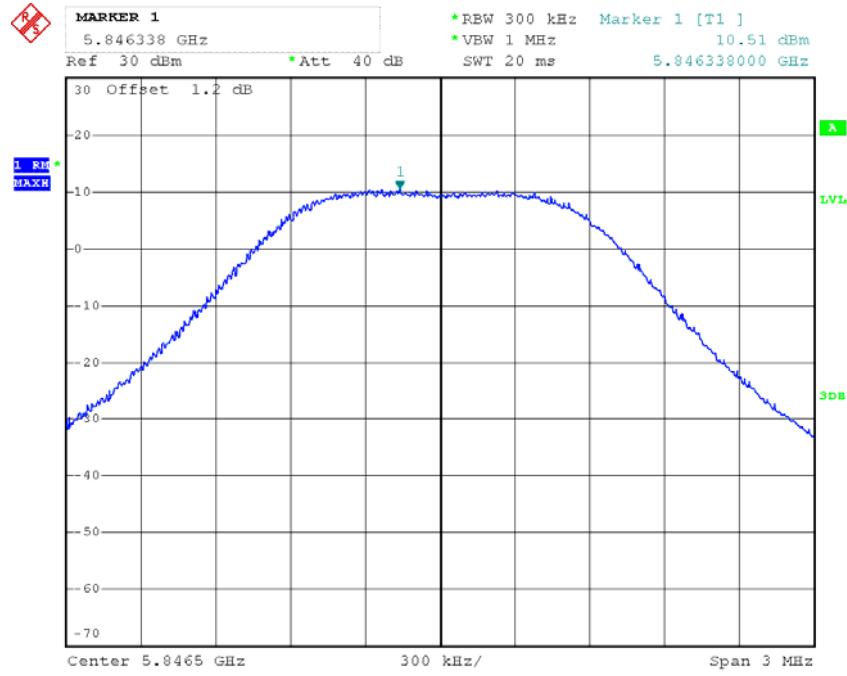
Date: 10.JAN.2018 18:18:05

Chain1:**1.4M Low Channel**

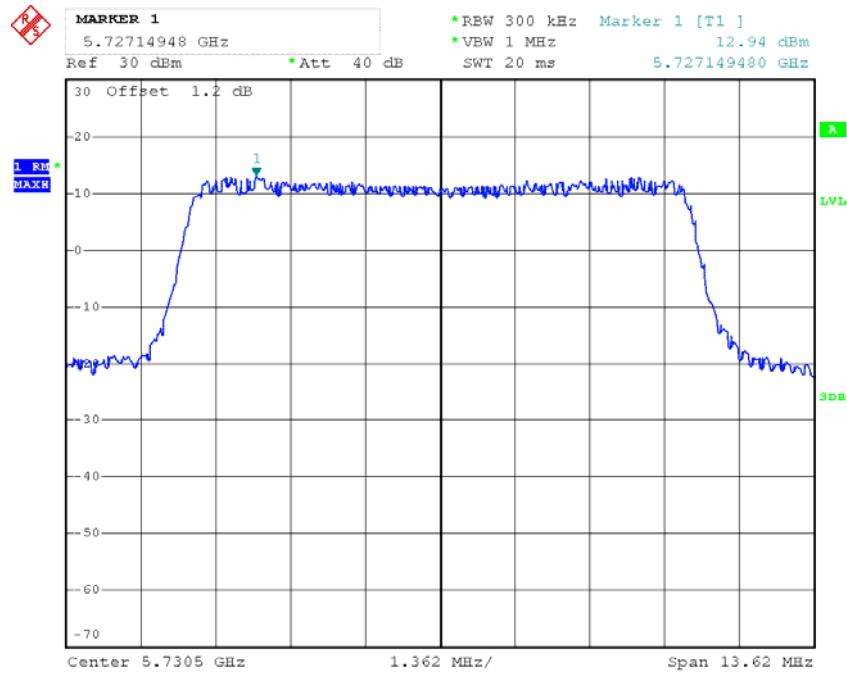
Date: 10.JAN.2018 20:20:26

1.4M Middle Channel

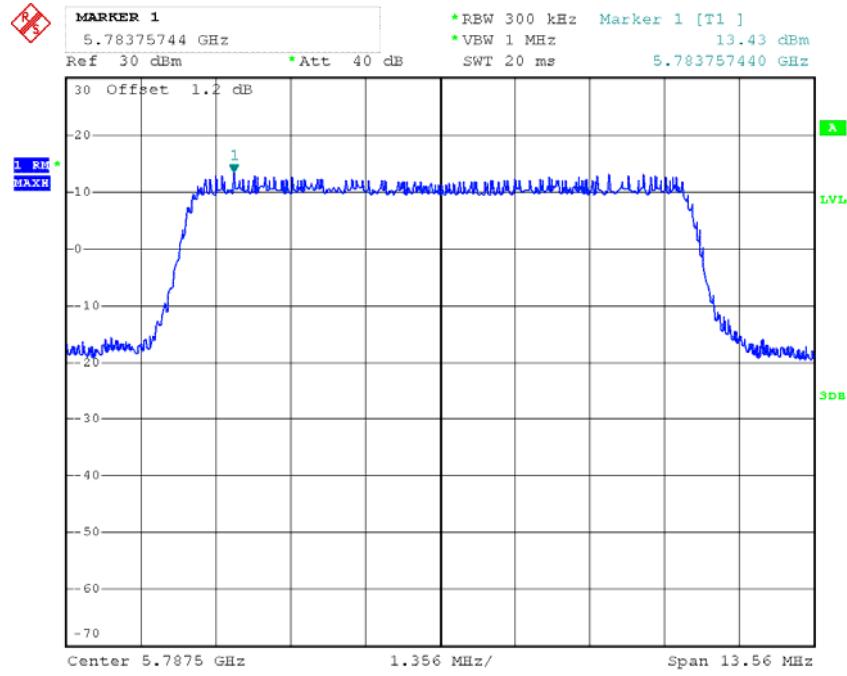
Date: 1.FEB.2018 17:47:48

1.4M High Channel

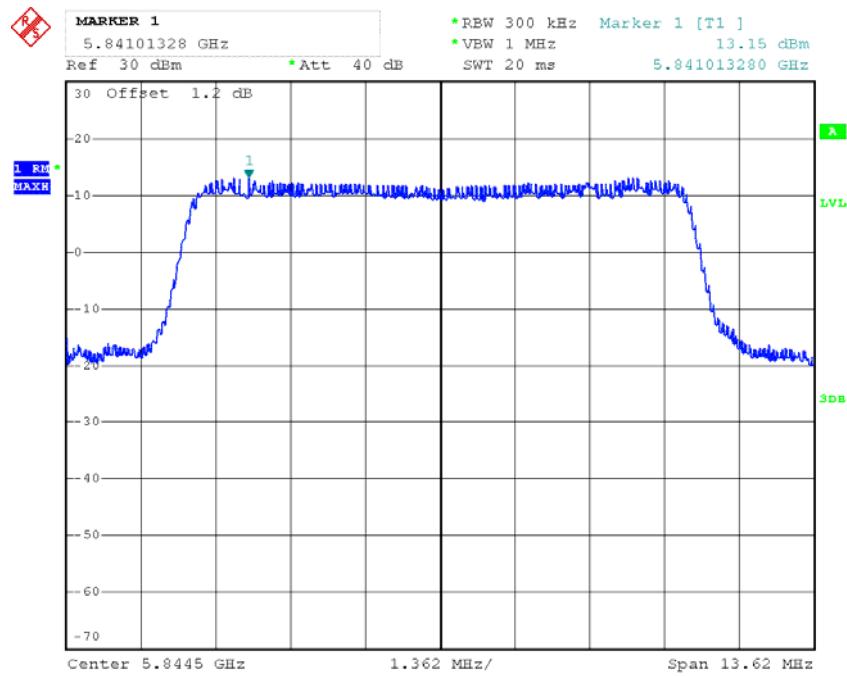
Date: 10.JAN.2018 20:22:53

10M Low Channel

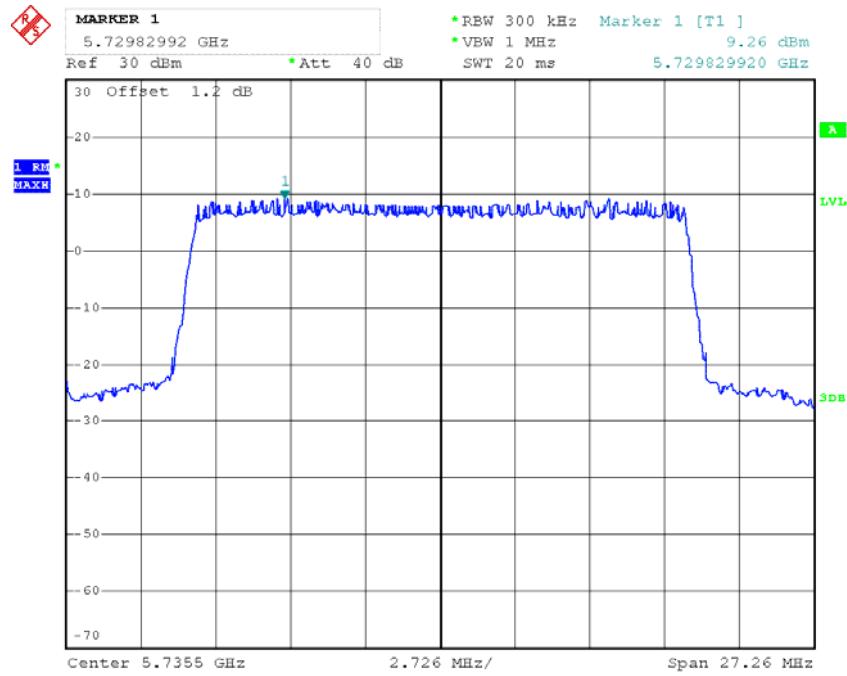
Date: 10.JAN.2018 18:50:31

10M Middle Channel

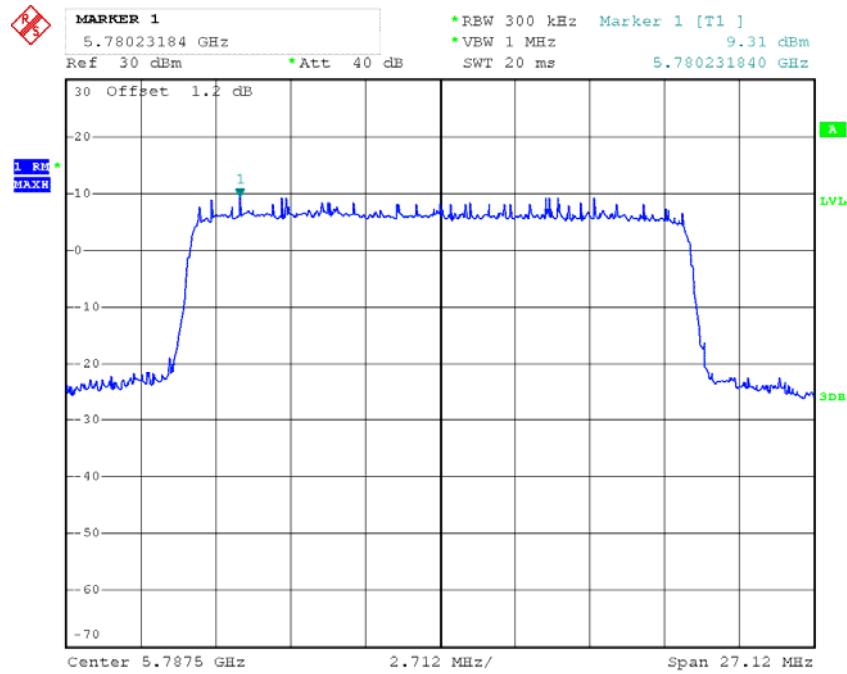
Date: 10.JAN.2018 18:51:09

10M High Channel

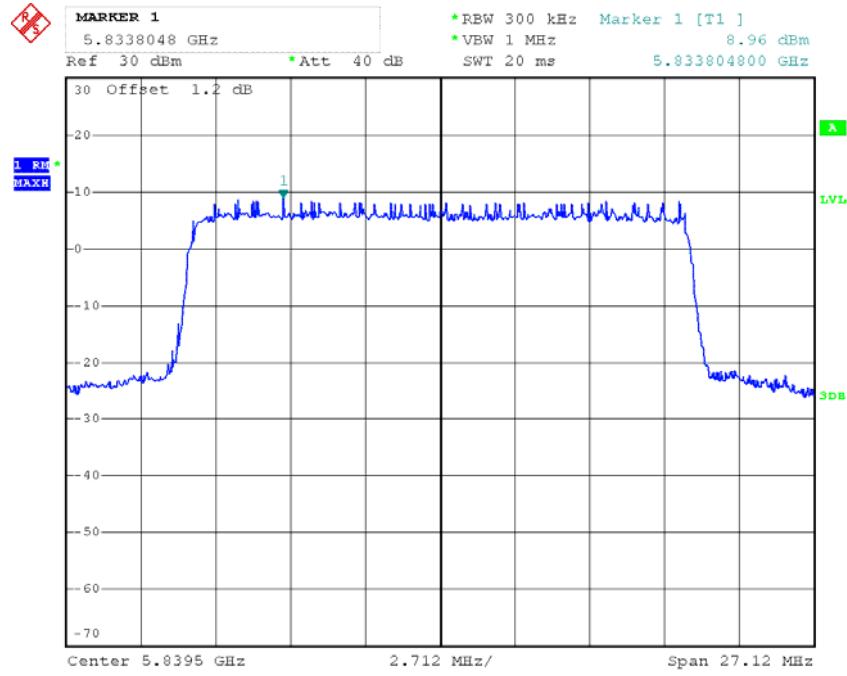
Date: 10.JAN.2018 18:52:02

20M Low Channel

Date: 10.JAN.2018 18:15:33

20M Middle Channel

Date: 10.JAN.2018 18:16:03

20M High Channel

Date: 10.JAN.2018 18:16:28

FCC §15.407(b)& RSS-247 §6.2 – 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.

According to RSS-247§6.2

Frequency band 5150-5250 MHz

6.2.1.2 Unwanted emission limits

For transmitters with operating frequencies in the band 5150-5250 MHz, all emissions outside the band 5150-5350 MHz shall not exceed -27 dBm/MHz e.i.r.p. Any unwanted emissions that fall into the band 5250-5350 MHz shall be attenuated below the channel power by at least 26 dB, when measured using a resolution bandwidth between 1 and 5% of the occupied bandwidth (i.e. 99% bandwidth), above 5250 MHz. The 26 dB bandwidth may fall into the 5250-5350 MHz band; however, if the occupied bandwidth also falls within the 5250-5350 MHz band, the transmission is considered as intentional and the devices shall comply with all requirements in the band 5250-5350 MHz including implementing dynamic frequency selection (DFS) and TPC, on the portion of the emission that resides in the 5250-5350 MHz band.

Frequency band 5250-5350 MHz**6.2.2.2 Unwanted emission limits**

Devices shall comply with the following:

- a) All emissions outside the band 5250-5350 MHz shall not exceed -27 dBm/MHz e.i.r.p.; or
- b) All emissions outside the band 5150-5350 MHz shall not exceed -27 dBm/MHz e.i.r.p. and its power shall comply with the spectral power density for operation within the band 5150-5250 MHz. The device, except devices installed in vehicles, shall be labelled or include in the user manual the following text “for indoor use only.”

Frequency bands 5470-5600 MHz and 5650-5725 MHz:**6.2.3.2 Unwanted emission limits**

Emissions outside the band 5470-5600 MHz and 5650-5725 MHz shall not exceed -27 dBm/MHz e.i.r.p. However, devices with bandwidth overlapping the band edge of 5725 MHz can meet the emission limit of -27 dBm/MHz e.i.r.p. at 5850 MHz instead of 5725 MHz.

Frequency band 5725-5850 MHz**6.2.4.2 Unwanted emission limits**

Devices operating in the band 5725-5850 MHz with antenna gain greater than 10 dBi can have unwanted emissions that comply with either the limits in this section or in section 5.5 until six (6) months after the publication date of this standard for certification. Certified devices that do not comply with emission limits in this section shall not be manufactured, imported, distributed, leased, offered for sale or sold after April 1, 2018.

Devices operating in the band 5725-5850 MHz with antenna gain of 10 dBi or less can have unwanted emissions that comply with either the limits in this section or in section 5.5 until April 1, 2018 for certification. Certified devices that do not comply with emission limits in this section shall not be manufactured, imported, distributed, leased, offered for sale or sold after April 1, 2020.

Devices operating in the band 5725-5850 MHz shall have e.i.r.p. of unwanted emissions comply with the following:

- a) 27 dBm/MHz at frequencies from the band edges decreasing linearly to 15.6 dBm/MHz at 5 MHz above or below the band edges;
- b) 15.6 dBm/MHz at 5 MHz above or below the band edges decreasing linearly to 10 dBm/MHz at 25 MHz above or below the band edges;
- c) 10 dBm/MHz at 25 MHz above or below the band edges decreasing linearly to -27 dBm/MHz at 75 MHz above or below the band edges; and
- d) -27 dBm/MHz at frequencies more than 75 MHz above or below the band edges.

Test Procedure

According to KDB 789033 D02 General U-NII Test Procedures New Rules v02r01.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	EMI Test Receiver	ESPI	100120	2017-12-11	2018-12-11
N/A	Coaxial Cable	C-SJ00-0010	C0010/04	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

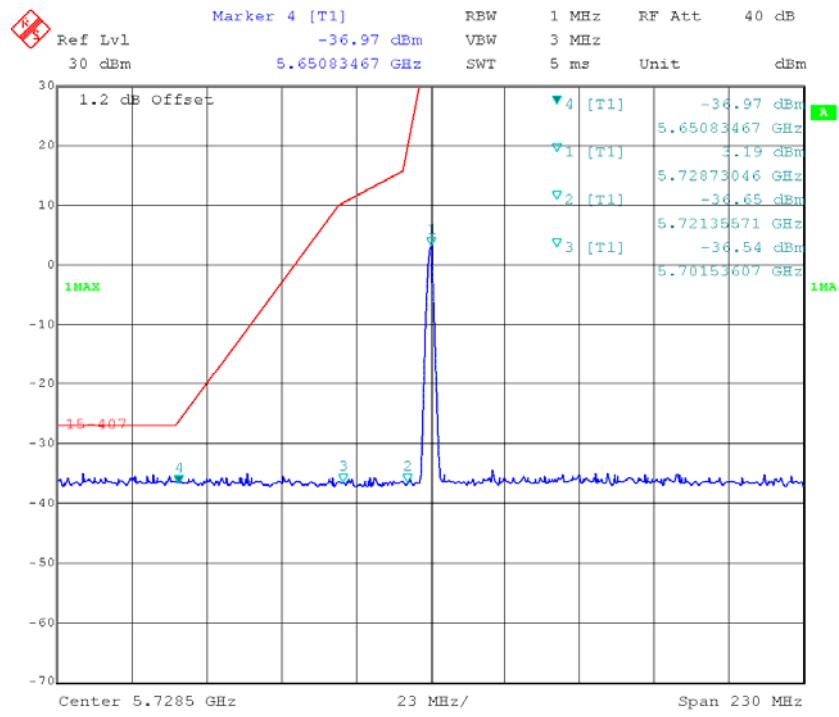
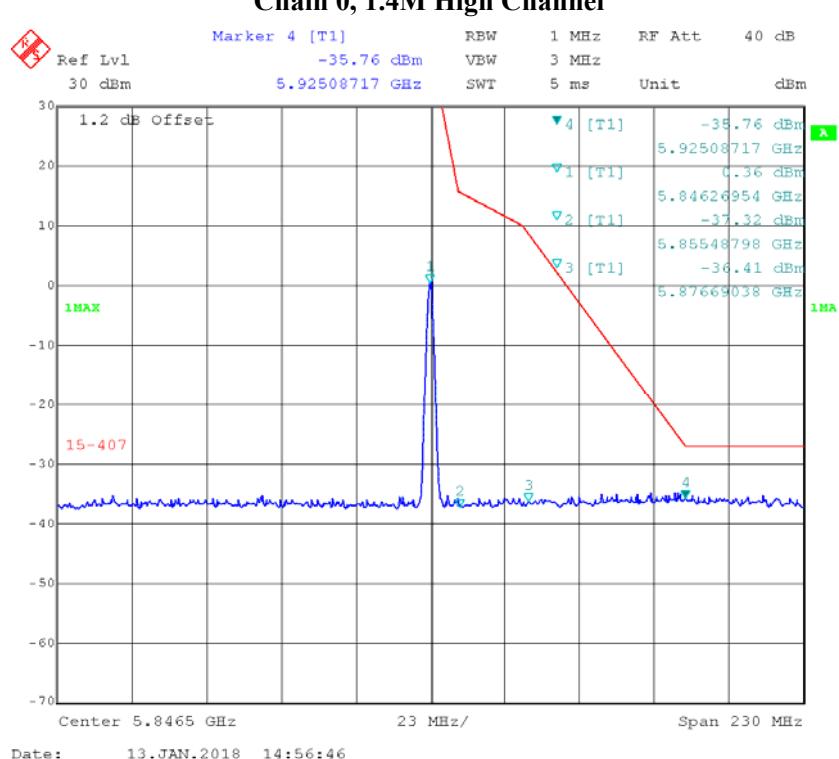
Environmental Conditions

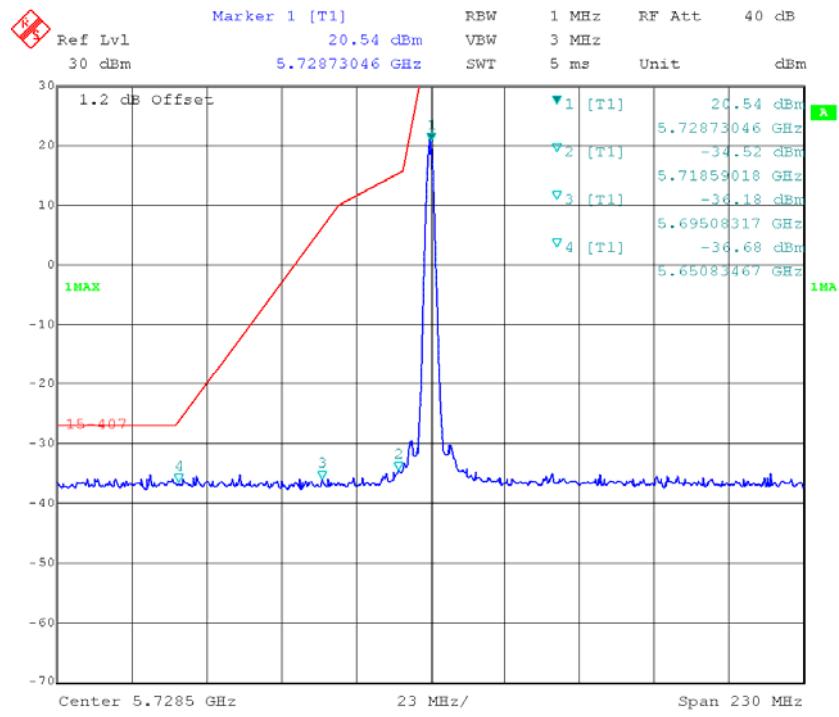
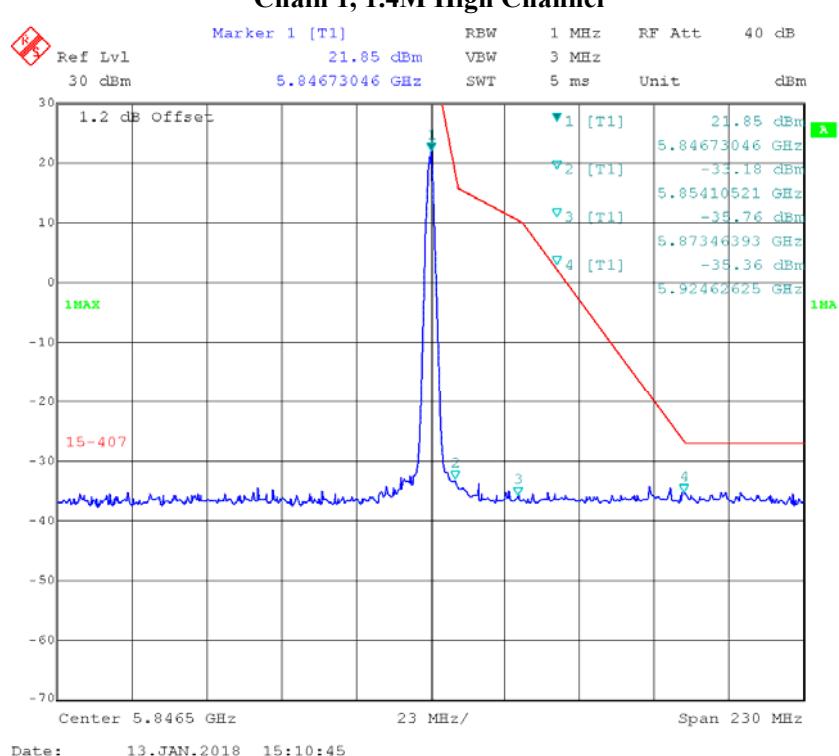
Temperature:	22.9 °C
Relative Humidity:	36 %
ATM Pressure:	101.1 kPa

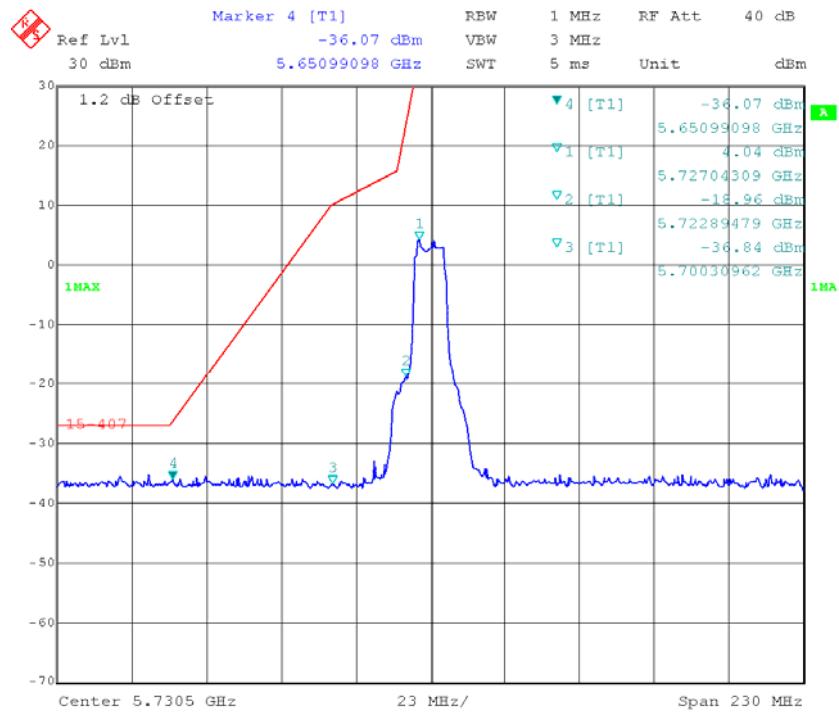
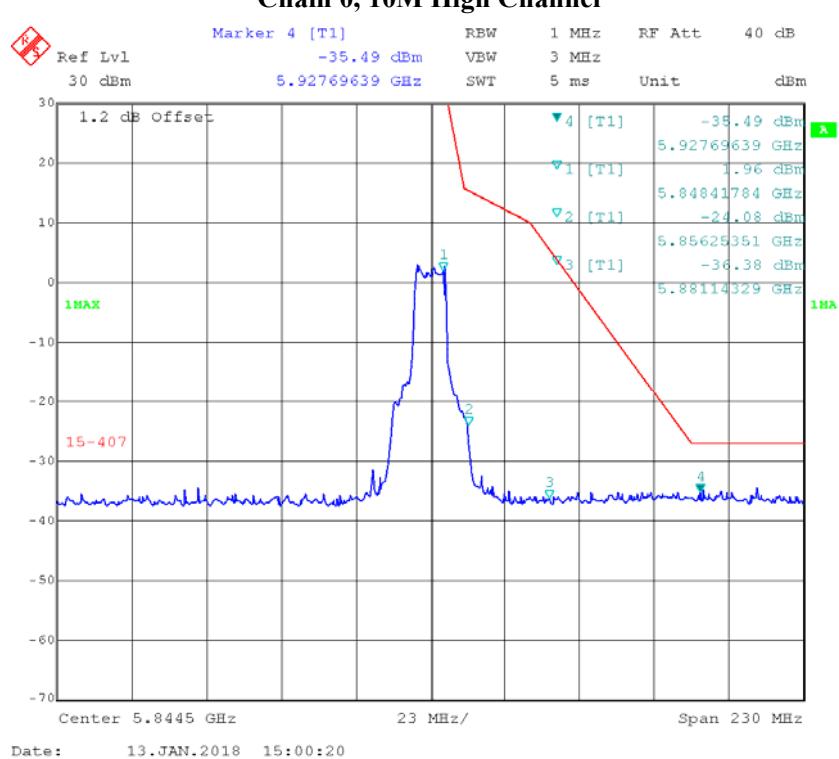
The testing was performed by Andy Huang on 2018-01-13.

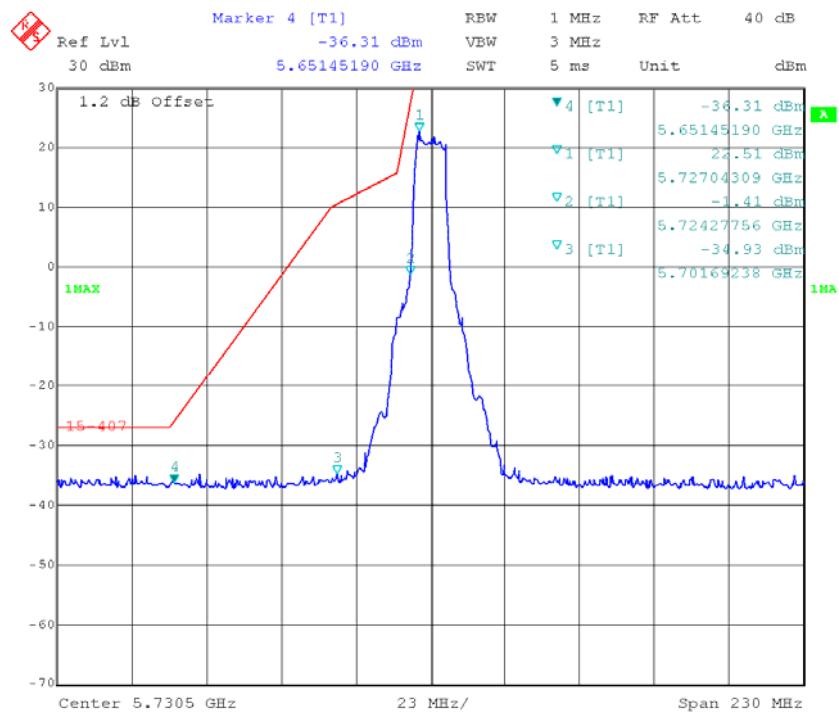
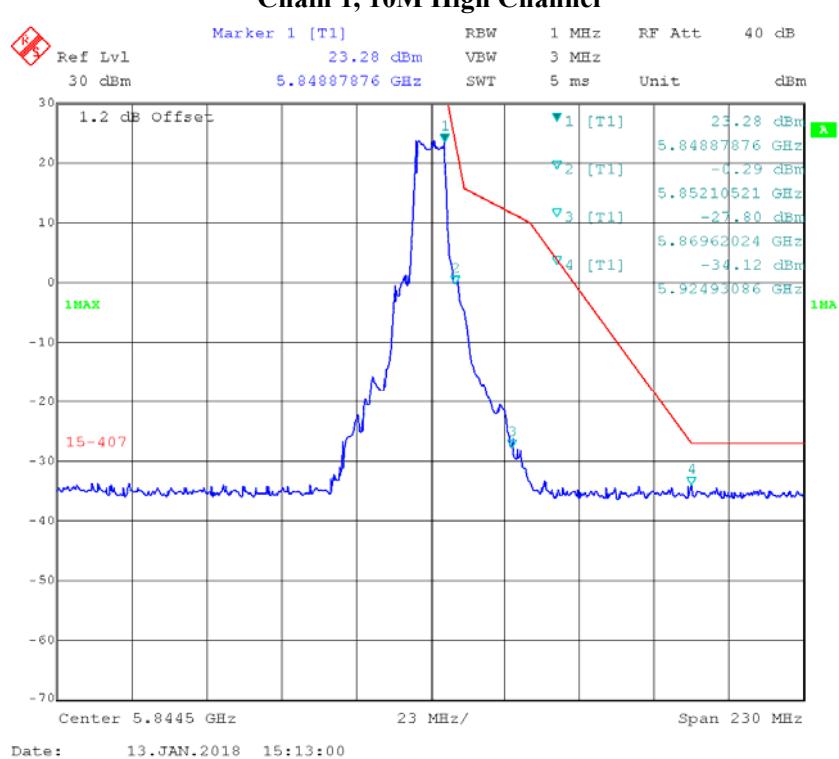
Test Result: Pass.

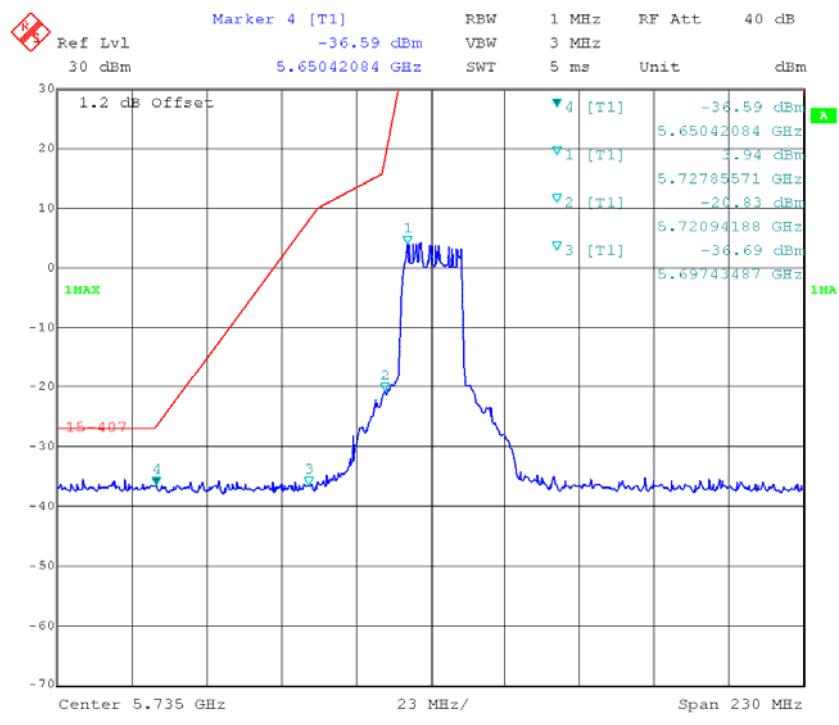
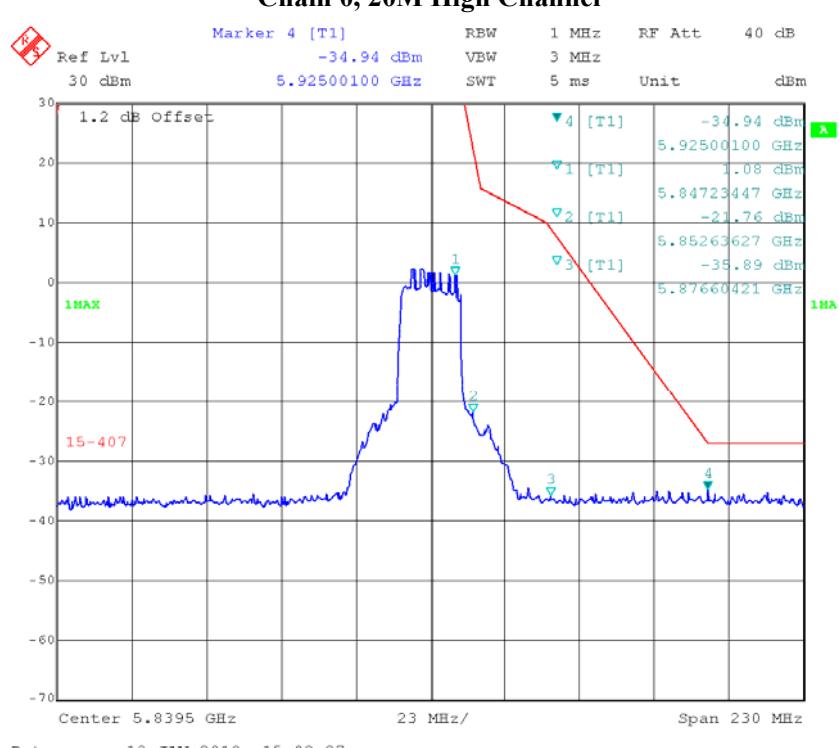
Please refer to the following tables and plots.

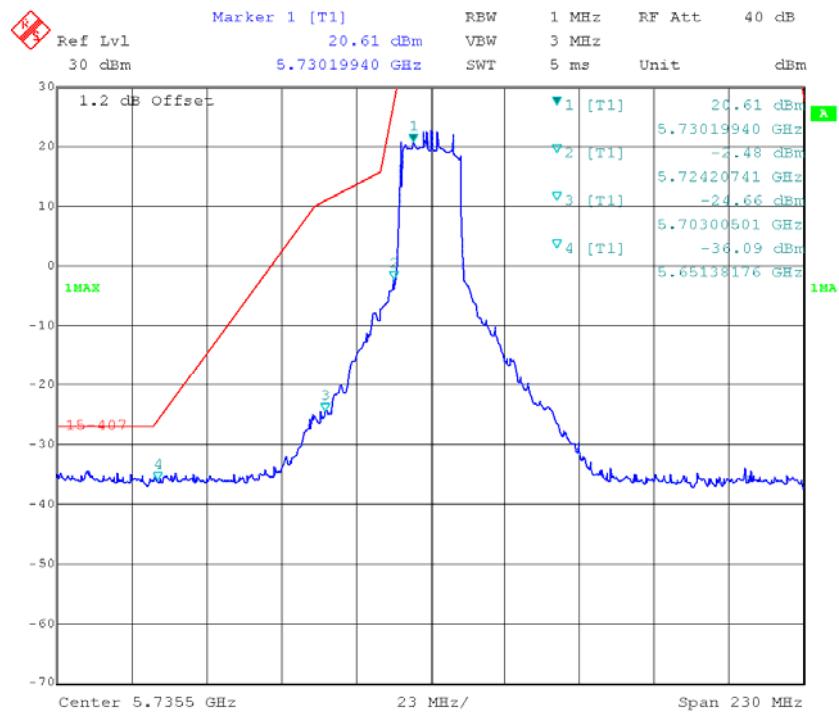
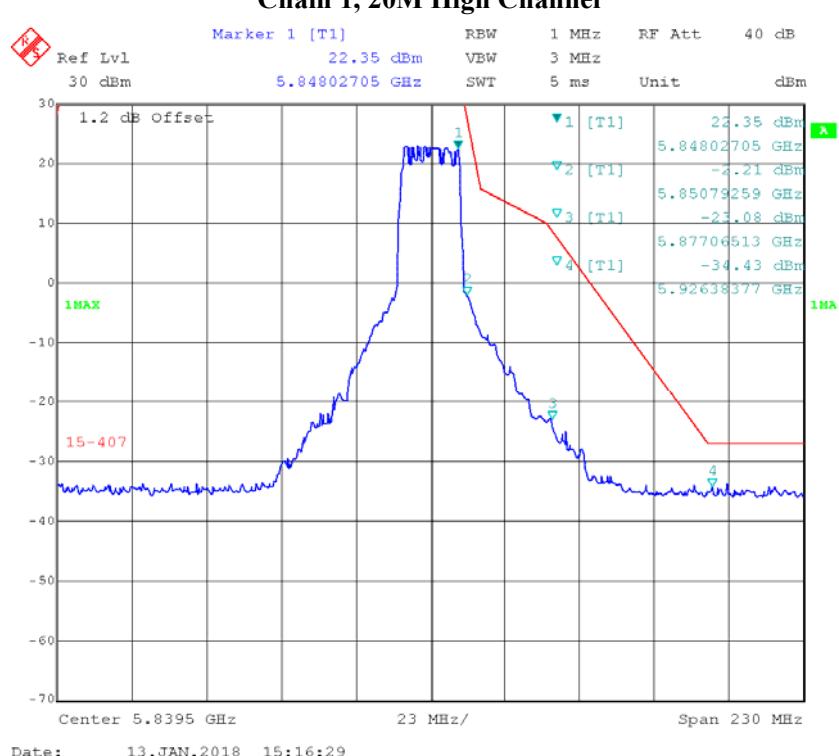
Chain 0, 1.4M Low Channel**Chain 0, 1.4M High Channel**

Chain 1, 1.4M Low Channel**Chain 1, 1.4M High Channel**

Chain 0, 10M Low Channel**Chain 0, 10M High Channel**

Chain 1, 10M Low Channel**Chain 1, 10M High Channel**

Chain 0, 20M Low Channel**Chain 0, 20M High Channel**

Chain 1, 20M Low Channel**Chain 1, 20M High Channel**

FCC §15.407(g) – FREQUENCY STABILITY

Applicable Standard

FCC §15.407

(g) Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the users manual.

Test Procedure

According to C63.10-2013 clause 6.8.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	EMI Test Receiver	ESPI	100120	2017-12-11	2018-12-11
N/A	Coaxial Cable	C-SJ00-0010	C0010/04	Each Time	/
UNI-T	Multimeter	UT39A	M130199938	2017-05-09	2018-05-09
Dongzhixu	High Temperature Test Chamber	DP1000	201105083-4	2017-09-10	2018-09-09

* **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:	22.9 °C
Relative Humidity:	36 %
ATM Pressure:	101.1 kPa

The testing was performed by Andy Huang on 2018-01-13.

Test Mode: Transmitting

Test Result: Pass.

1.4M:

Temperature	Voltage	f _L at Low Test Channel	f _H at High Test Channel	Limit
°C	V _{DC}	MHz	MHz	
0	15.2	5727.922	5847.077	f _L and f _H Within 5725~5850MHz range
10		5727.926	5847.074	
20		5727.924	5847.076	
30		5727.921	5847.072	
40		5727.923	5847.079	
25	13.68	5727.925	5847.08	
25	16.72	5727.924	5847.083	

10M:

Temperature	Voltage	f _L at Low Test Channel	f _H at High Test Channel	Limit
°C	V _{DC}	MHz	MHz	
0	15.2	5726.04	5848.89	f _L and f _H Within 5725~5850MHz range
10		5726.11	5848.95	
20		5726.16	5848.97	
30		5726.09	5848.98	
40		5726.08	5848.99	
25	13.68	5726.13	5848.92	
25	16.72	5726.01	5848.94	

20M:

Temperature	Voltage	f _L at Low Test Channel	f _H at High Test Channel	Limit
°C	V _{DC}	MHz	MHz	
0	15.2	5726.58	5848.37	f _L and f _H Within 5725~5850MHz range
10		5726.64	5848.33	
20		5726.62	5848.38	
30		5726.7	5848.34	
40		5726.73	5848.36	
25	13.68	5726.77	5848.33	
25	16.72	5726.74	5848.31	

Note: the f_L and f_H determined by 99% Occupied bandwidth low edge at Low test channel and High edge at High test channel.

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