

FCC PART 15.407

TEST REPORT

For

SZ DJI TECHNOLOGY CO., LTD

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Nanshan, Shenzhen, Guangdong, China

FCC ID: SS3-GL300K1801

Report Type: Original Report	Product Name: C1
Report Number: RDG180206002-00B	
Report Date: 2018-03-22	
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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

EUT Name:	C1
EUT Model:	GL300K
FCC ID:	SS3-GL300K1801
Adapter	Model:PH4C 100 Input:AC100-240V,1.4A,50-60Hz Output: DC 17.5V, 5.7A(total);17.5V,0-2A(output 1); 17.5V,0-5.7A(output 2)
Rated Input Voltage:	DC 7.4V from battery or DC 17.5V from charger
External Dimension:	18.2cm(L)*17.2cm(W)*13.2cm(H)
Serial Number:	180206002
EUT Received Date:	2018.02.06

Objective

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

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

Related Submittal(s)/Grant(s)

FCC submissions with Part 15C DTS, FCC ID: SS3-GL300K1801.
FCC submissions with Part 15B JBP, FCC ID: SS3-GL300K1801.
Part of system submissions with FCC ID: SS3-WM331S1801.

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". 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 802.11 a/n ht20 modes, 1.4MHz, 10MHz and 20MHz modes, And the EUT has 2 external PCB antennas for 1.4/10/20MHz modes and 2 internal FPC antennas for 802.11a/n. For 1.4/10/20MHz modes, the system configure 1T1R depending on better performance by the system automatically recognizes. For 802.11a/n ht20 modes, the device supports SISO and MIMO modes.

For 802.11a/n ht20 modes 5150~5250 MHz band, 6 channels are provided to testing:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	44	5220
38	5190	46	5230
40	5200	48	5240

802.11a, 802.11n ht20 modes were tested with Channel 36, 40 and 48.

For 802.11a/n ht20 modes 5725~5850MHz band, 5 channels are provided to testing:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
149	5745	159	5795
153	5765	165	5825
157	5785	/	/

802.11a, 802.11n ht20 Channel 149, 157 and 165 was tested.

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

For 1.4MHz, 10MHz and 20MHz mode, 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 test software was used for change channels and bandwidths.

For 802.11a/n ht20 mode, the software “RF Certification” was used for testing, which was provided by manufacturer. The worst-case data rates are determined to be as follows for each mode based upon investigations by measuring the average power and PSD across all data rates bandwidths, and modulations. Per pretest, the MIMO mode was the worst and reported in the report, the worst power and data rate setting as below list:

5150-5250MHz

Software and version			RF Certification	
Mode	Channel	Frequency (MHz)	Data Rate	Power Level
802.11a	Low	5180	6Mbps	6
	Middle	5200	6Mbps	10
	High	5240	6Mbps	10
802.11n ht20	Low	5180	MCS0	6
	Middle	5200	MCS0	10
	High	5240	MCS0	10

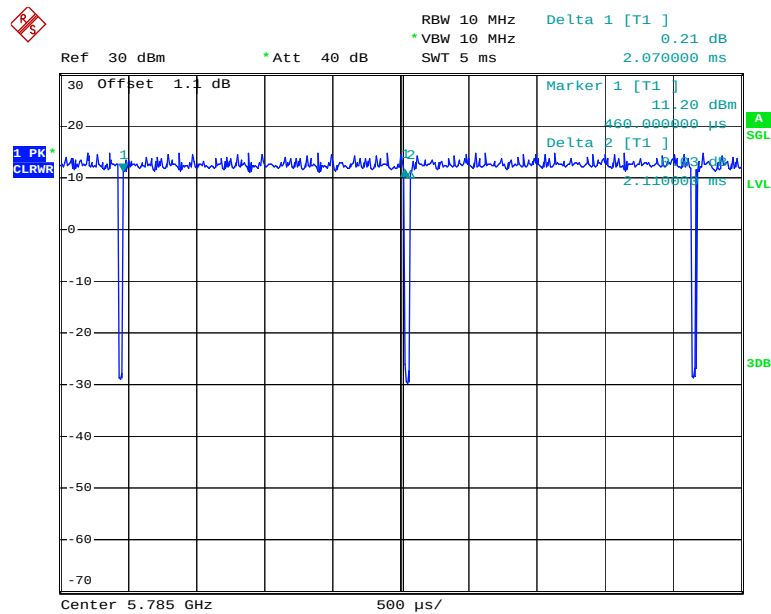
5725-5850MHz

Software and version			RF Certification	
Mode	Channel	Frequency (MHz)	Data Rate	Power Level
802.11a	Low	5745	6Mbps	10
	Middle	5785	6Mbps	10
	High	5825	6Mbps	10
802.11n ht20	Low	5745	MCS0	10
	Middle	5785	MCS0	10
	High	5825	MCS0	10

The duty cycle as below:

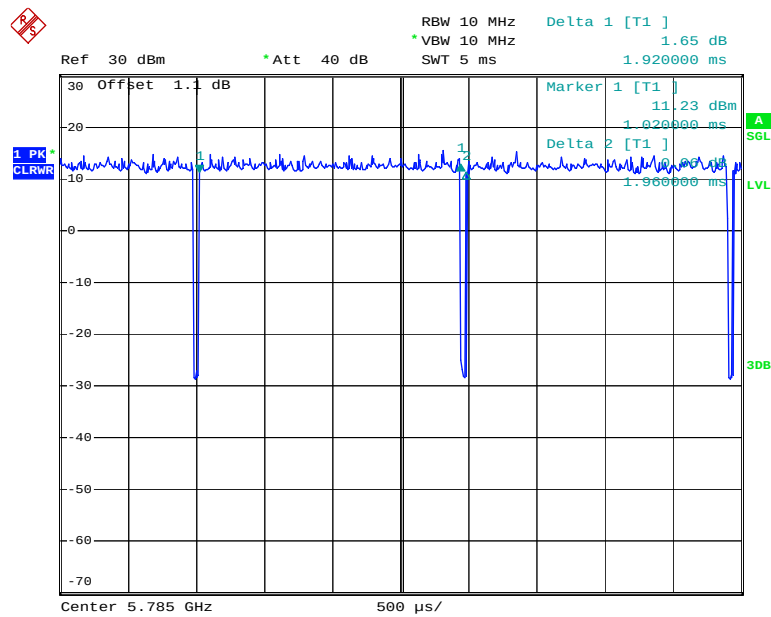
Mode	T _{on} (ms)	T _{on+off} (ms)	Duty Cycle (%)
802.11a	2.07	2.11	98
802.11n ht20	1.92	1.96	98
1.4MHz	100	100	100
10MHz	100	100	100
20MHz	100	100	100

802.11a mode



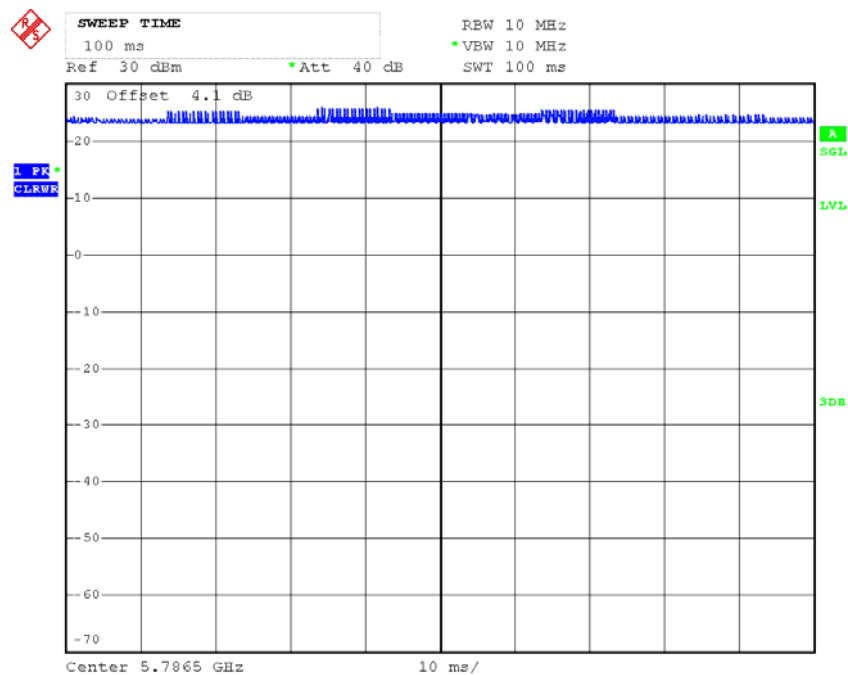
Date: 2.MAR.2018 00:11:32

802.11n ht20 mode



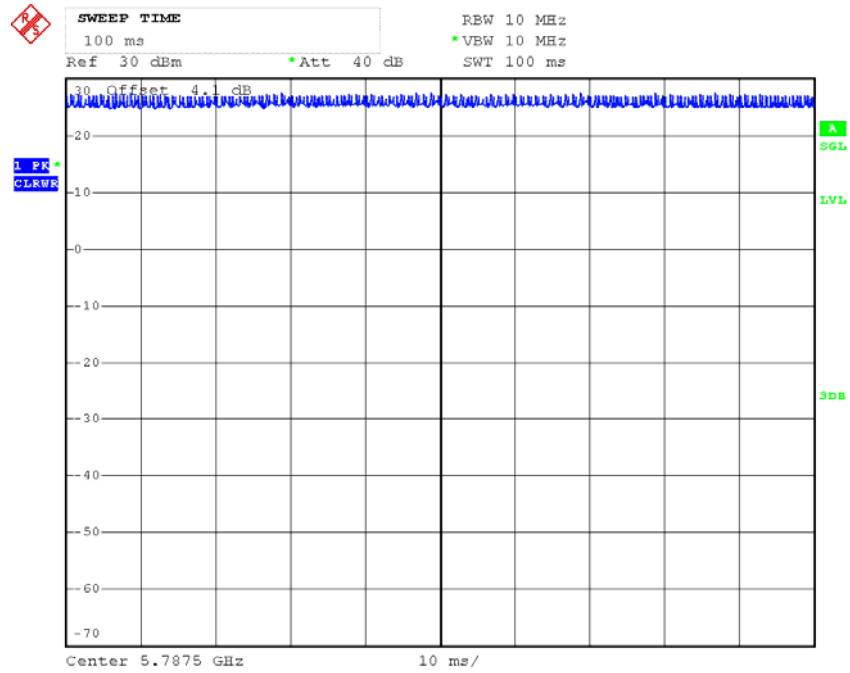
Date: 2.MAR.2018 00:10:57

1.4MHz



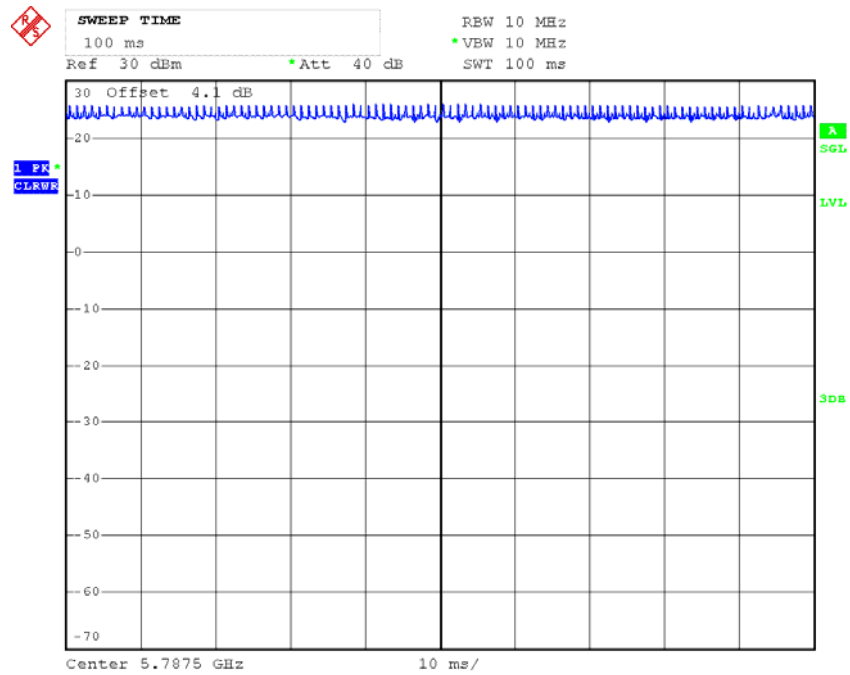
Date: 11.FEB.2018 09:54:59

10MHz



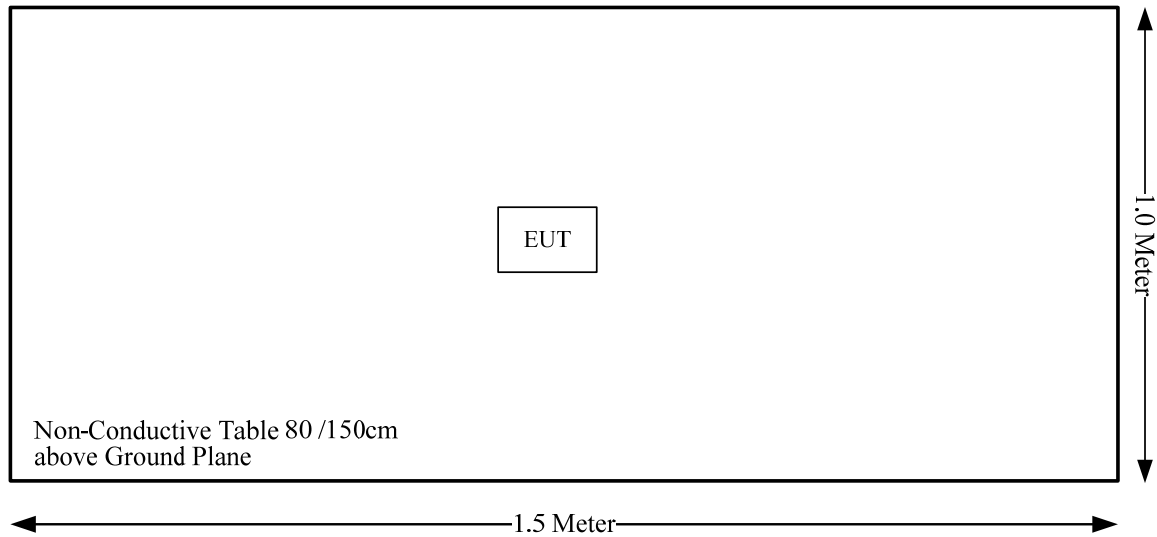
Date: 11.FEB.2018 10:56:47

20MHz



Date: 11.FEB.2018 14:01:41

Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

Rules	Description of Test	Result
FCC §15.407 (f) & §1.1310 & §2.1093	RF Exposure	Compliance
FCC§15.203	Antenna Requirement	Compliance
FCC§15.207 (a)	AC Line Conducted Emissions	Not Applicable
FCC§15.205& §15.209 &§15.407(b)	Undesirable Emission& Restricted Bands	Compliance
FCC§15.407(b) (1),(2),(3),(4)	Out Of Band Emissions	Compliance
FCC§15.407(a)	Emission Bandwidth	Compliance
FCC§15.407(a)	Conducted Transmitter Output Power	Compliance
FCC§15.407 (a)	Power Spectral Density	Compliance

Not Applicable: The device powered by battery.

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

Applicable Standard

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

Test Result

Compliant, please refer to the SAR report: RDG180206002-20A.

FCC §15.203 - ANTENNA REQUIREMENT

Applicable Standard

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

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

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

Antenna Connector Construction

The EUT have two internal antennas for WIFI mode and two external antenna for 1.4/10/20MHz mode. fulfill the requirement of the item. And the antennas gain in the below information list,

Antenna	Brand	Model	Antenna Type	Antenna Connector	Maximum Antenna gain (dBi)
1.4/10/20MHz	DJI	GL300K_ANT	PCB Pattern	IPEX	2.4G band: 3.30dBi 5.8G band: 4.48dBi
802.11a/b/g/n HT20	DJI	YC.DZ.A00122	FPC Pattern	IPEX	2.4G band: 4.9dBi 5150-5250 band: 3.51dBi 5750-5850 band: 6.07 dBi

Result: Compliance.

FCC §15.209, §15.205 , §15.407(b)–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.

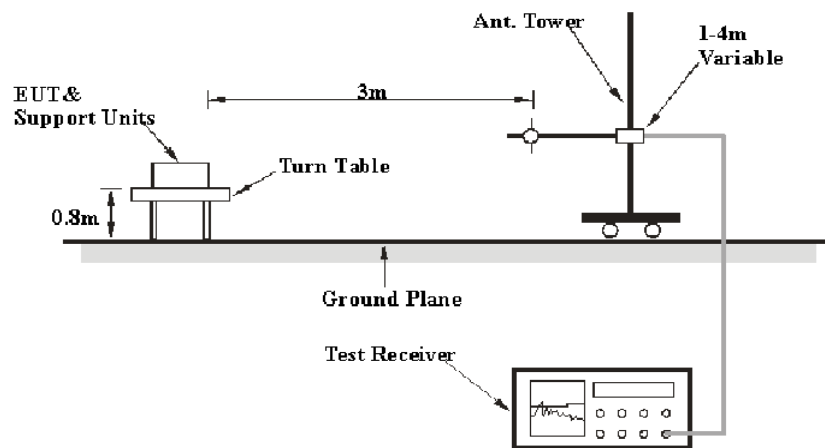
(6) Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in §15.209. Further, any U-NII devices using an AC power line are required to comply also with the conducted limits set forth in §15.207.

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

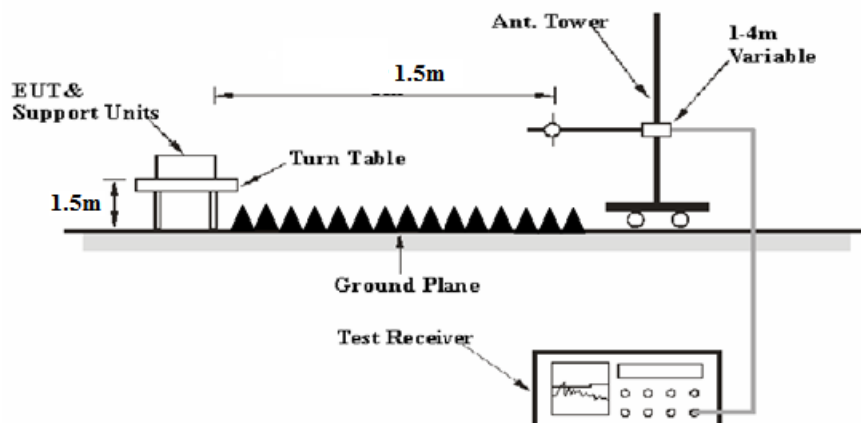
(8) When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the upper and lower frequency band edges as the design of the equipment permits.

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 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 UNII Test Procedures New Rules v02r01, emission shall be computed as: $E [dB\mu V/m] = EIRP[dBm] + 95.2$, for $d = 3$ meters.

According to C63.10, the above 1G test result shall be extrapolated to the specified distance using an extrapolation factor of 20dB/decade from 3m to 1.5m

Distance extrapolation factor = $20 \log (\text{specific distance } [3m] / \text{test distance } [1.5m])$ 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:

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

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:

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

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:

$$\begin{aligned} \text{Corrected Amplitude} &= \text{Meter Reading} + \text{Antenna Factor} + \text{Cable Loss} - \text{Amplifier Gain} \\ \text{Extrapolation result} &= \text{Corrected Amplitude} - \text{Distance extrapolation factor} \end{aligned}$$

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:

$$\text{Margin} = \text{Extrapolation result} - \text{Limit}$$

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	A060611-2	2017-08-25	2020-08-25
HP	Amplifier	8447D	2727A05902	2017-09-05	2018-09-05
unknown	Coaxial Cable	4m	C0400/01	2017-09-05	2018-09-05
unknown	Coaxial Cable	0.75m	C0075/01	2017-09-05	2018-09-05
unknown	Coaxial Cable	10m	C1000/01	2017-09-05	2018-09-05
Agilent	Spectrum Analyzer	E4440A	SG43360054	2018-01-04	2019-01-04
ETS-Lindgren	Horn Antenna	3115	000 527 35	2016-01-05	2019-01-05
MITEQ	Amplifier	AFS42-00101800-25-S-42	2001271	2017-09-05	2018-09-05
Ducommun Technologies	Horn Antenna	ARH-4223-02	1007726-021304	2017-06-16	2020-06-15
Ducommun Technologies	Horn Antenna	ARH-2823-02	1007726-011302	2016-11-18	2019-11-18
Quinstar	Amplifier	QLW-18405536-JO	15964001001	2017-06-27	2018-06-27
unknown	Coaxial Cable	8m	C0800/01	2017-09-05	2018-09-05
R&S	Spectrum Analyzer	FSP 38	100478	2017-12-08	2018-12-08
Chengdu OuLi	Bandrejection Filter	5725-5850	005	2017-09-05	2018-09-05
Chengdu OuLi	Bandrejection Filter	5150-5350	004	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**

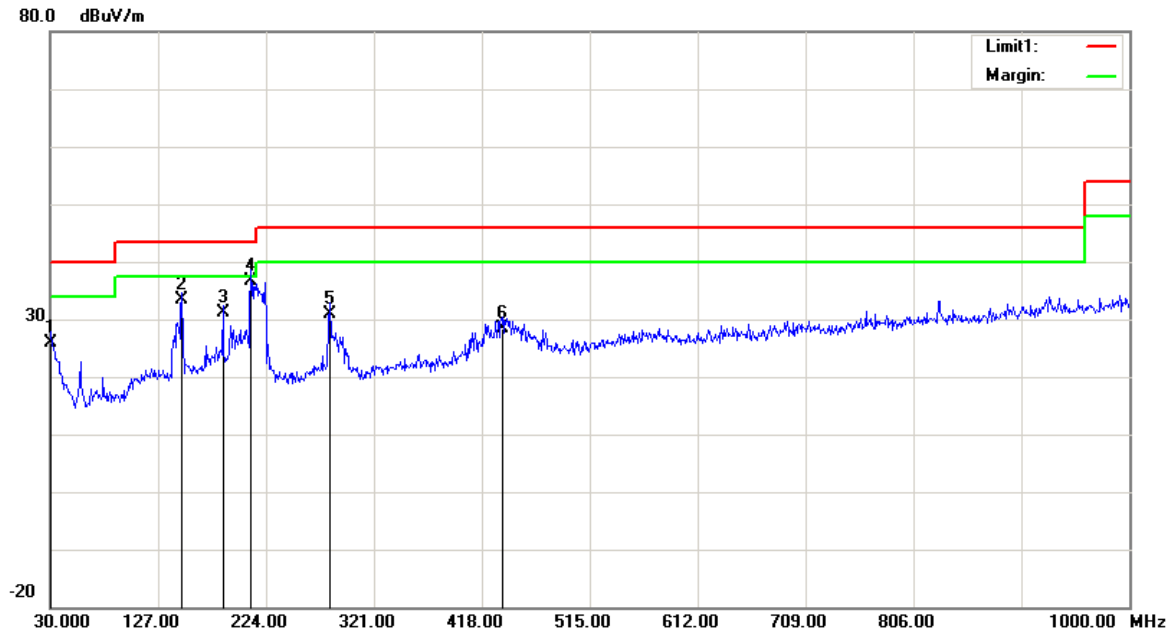
Temperature:	19.6 °C
Relative Humidity:	34 %
ATM Pressure:	101.1 ~101.3 kPa

The testing was performed by Sunny Cen on 2018-02-10 & 2018-02-11.

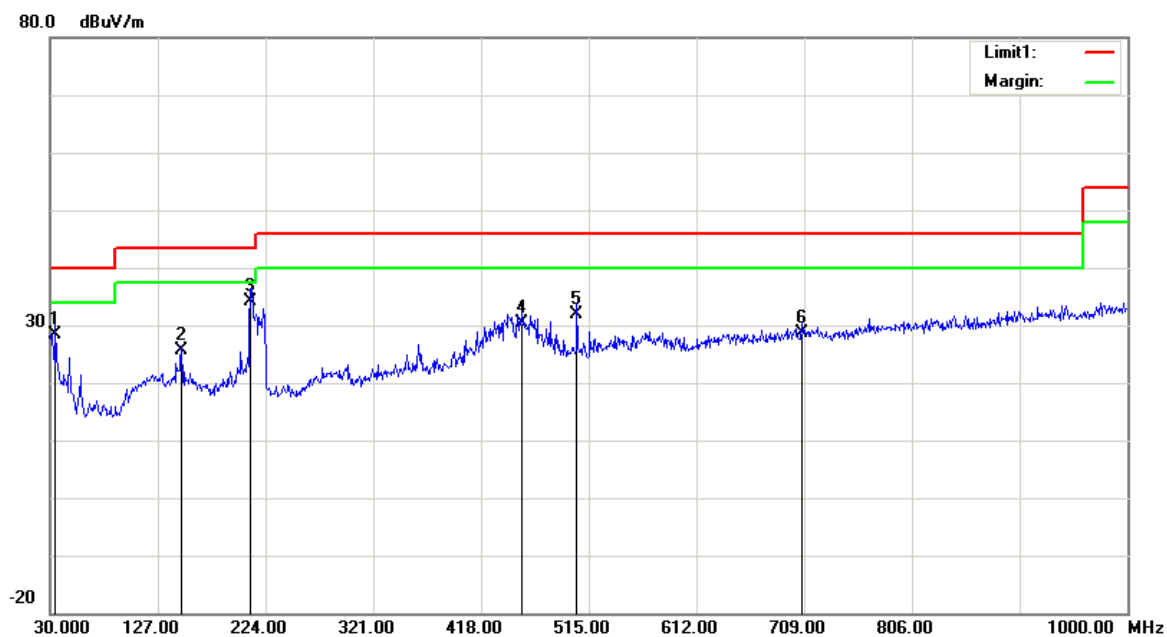
Test Mode: Transmitting

1) 30MHz-1GHz(Chain 0 1.4MHz mode middle 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)
30.0000	24.72	QP	1.08	25.80	40.00	14.20
148.3400	39.90	QP	-6.50	33.40	43.50	10.10
185.2000	39.16	QP	-7.96	31.20	43.50	12.30
210.4200	44.13	QP	-7.43	36.70	43.50	6.80
281.2300	34.43	QP	-3.63	30.80	46.00	15.20
436.4300	30.22	QP	-1.72	28.50	46.00	17.50

Vertical:

Frequency (MHz)	Receiver Reading (dBμV)	Detector	Correction Factor (dB/m)	Cord. Amp. (dBμV/m)	Limit (dBμV/m)	Margin (dB)
34.8500	30.77	QP	-2.47	28.30	40.00	11.70
148.3400	32.10	QP	-6.50	25.60	43.50	17.90
210.4200	41.63	QP	-7.43	34.20	43.50	9.30
454.8600	31.69	QP	-1.29	30.40	46.00	15.60
504.3300	32.81	QP	-0.91	31.90	46.00	14.10
707.0600	25.84	QP	2.76	28.60	46.00	17.40

2) 1-40GHz:

5150-5250MHz, 802.11a Mode(MIMO mode was the worst):

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	Extrapolation result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector	Polar (H/V)	Factor (dB/m)						
Low Channel: 5180 MHz										
5180.00	70.81	PK	H	33.59	3.58	0.00	107.98	101.96	N/A	N/A
5180.00	60.34	AV	H	33.59	3.58	0.00	97.51	91.49	N/A	N/A
5180.00	73.05	PK	V	33.59	3.58	0.00	110.22	104.2	N/A	N/A
5180.00	62.67	AV	V	33.59	3.58	0.00	99.84	93.82	N/A	N/A
5150.00	27.94	PK	V	33.54	3.56	0.00	65.04	59.02	74.00	14.98
5150.00	14.67	AV	V	33.54	3.56	0.00	51.77	45.75	54.00	8.25
10360.00	57.02	PK	V	38.17	6.29	36.85	64.63	58.61	74.00	15.39
10360.00	45.23	AV	V	38.17	6.29	36.85	52.84	46.82	54.00	7.18
15540.00	52.14	PK	V	38.06	8.85	39.04	60.01	53.99	74.00	20.01
15540.00	39.57	AV	V	38.06	8.85	39.04	47.44	41.42	54.00	12.58
Middle Channel: 5200 MHz										
5200.00	71.46	PK	H	33.62	3.60	0.00	108.68	102.66	N/A	N/A
5200.00	61.43	AV	H	33.62	3.60	0.00	98.65	92.63	N/A	N/A
5200.00	74.28	PK	V	33.62	3.60	0.00	111.50	105.48	N/A	N/A
5200.00	64.51	AV	V	33.62	3.60	0.00	101.73	95.71	N/A	N/A
10400.00	55.77	PK	V	38.18	6.32	36.86	63.41	57.39	74.00	16.61
10400.00	44.23	AV	V	38.18	6.32	36.86	51.87	45.85	54.00	8.15
15600.00	51.20	PK	V	38.00	8.83	39.09	58.94	52.92	74.00	21.08
15600.00	39.20	AV	V	38.00	8.83	39.09	46.94	40.92	54.00	13.08
High Channel: 5240 MHz										
5240.00	69.74	PK	H	33.68	3.52	0.00	106.94	100.92	N/A	N/A
5240.00	59.32	AV	H	33.68	3.52	0.00	96.52	90.5	N/A	N/A
5240.00	72.65	PK	V	33.68	3.52	0.00	109.85	103.83	N/A	N/A
5240.00	62.15	AV	V	33.68	3.52	0.00	99.35	93.33	N/A	N/A
5350.00	26.28	PK	V	33.86	3.52	0.00	63.66	57.64	74.00	16.36
5350.00	15.42	AV	V	33.86	3.52	0.00	52.80	46.78	54.00	7.22
10480.00	54.83	PK	V	38.20	6.37	36.88	62.52	56.5	74.00	17.50
10480.00	43.56	AV	V	38.20	6.37	36.88	51.25	45.23	54.00	8.77
15720.00	49.75	PK	V	37.88	8.79	39.18	57.24	51.22	74.00	22.78
15720.00	38.68	AV	V	37.88	8.79	39.18	46.17	40.15	54.00	13.85

802.11n ht20 Mode(MIMO mode was the worst):

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	Extrapolation result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector	Polar (H/V)	Factor (dB/m)						
Low Channel: 5180 MHz										
5180.00	71.49	PK	H	33.59	3.58	0.00	108.66	102.64	N/A	N/A
5180.00	61.85	AV	H	33.59	3.58	0.00	99.02	93	N/A	N/A
5180.00	74.62	PK	V	33.59	3.58	0.00	111.79	105.77	N/A	N/A
5180.00	63.87	AV	V	33.59	3.58	0.00	101.04	95.02	N/A	N/A
5150.00	27.72	PK	V	33.54	3.56	0.00	64.82	58.8	74.00	15.20
5150.00	14.68	AV	V	33.54	3.56	0.00	51.78	45.76	54.00	8.24
10360.00	56.37	PK	V	38.17	6.29	36.85	63.98	57.96	74.00	16.04
10360.00	43.88	AV	V	38.17	6.29	36.85	51.49	45.47	54.00	8.53
15540.00	51.85	PK	V	38.06	8.85	39.04	59.72	53.7	74.00	20.30
15540.00	38.44	AV	V	38.06	8.85	39.04	46.31	40.29	54.00	13.71
Middle Channel: 5200 MHz										
5200.00	71.28	PK	H	33.62	3.60	0.00	108.50	102.48	N/A	N/A
5200.00	62.41	AV	H	33.62	3.60	0.00	99.63	93.61	N/A	N/A
5200.00	74.51	PK	V	33.62	3.60	0.00	111.73	105.71	N/A	N/A
5200.00	62.43	AV	V	33.62	3.60	0.00	99.65	93.63	N/A	N/A
10400.00	55.35	PK	V	38.18	6.32	36.86	62.99	56.97	74.00	17.03
10400.00	44.24	AV	V	38.18	6.32	36.86	51.88	45.86	54.00	8.14
15600.00	51.78	PK	V	38.00	8.83	39.09	59.52	53.5	74.00	20.50
15600.00	37.92	AV	V	38.00	8.83	39.09	45.66	39.64	54.00	14.36
High Channel: 5240 MHz										
5240.00	70.81	PK	H	33.68	3.52	0.00	108.01	101.99	N/A	N/A
5240.00	60.43	AV	H	33.68	3.52	0.00	97.63	91.61	N/A	N/A
5240.00	73.33	PK	V	33.68	3.52	0.00	110.53	104.51	N/A	N/A
5240.00	63.42	AV	V	33.68	3.52	0.00	100.62	94.6	N/A	N/A
5350.00	29.45	PK	V	33.86	3.52	0.00	66.83	60.81	74.00	13.19
5350.00	14.63	AV	V	33.86	3.52	0.00	52.01	45.99	54.00	8.01
10480.00	55.85	PK	V	38.20	6.37	36.88	63.54	57.52	74.00	16.48
10480.00	45.00	AV	V	38.20	6.37	36.88	52.69	46.67	54.00	7.33
15720.00	51.37	PK	V	37.88	8.79	39.18	58.86	52.84	74.00	21.16
15720.00	38.49	AV	V	37.88	8.79	39.18	45.98	39.96	54.00	14.04

5725-5850MHz 802.11a Mode(MIMO mode was the worst):

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	Extrapolation result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector	Polar (H/V)	Factor (dB/m)						
Low Channel: 5745 MHz										
5745.00	77.24	PK	H	34.20	3.69	0.00	115.13	109.11	N/A	N/A
5745.00	67.16	AV	H	34.20	3.69	0.00	105.05	99.03	N/A	N/A
5745.00	77.59	PK	V	34.20	3.69	0.00	115.48	109.46	N/A	N/A
5745.00	67.34	AV	V	34.20	3.69	0.00	105.23	99.21	N/A	N/A
5725.00	36.54	PK	V	34.19	3.69	0.00	74.42	68.4	122.20	53.80
5720.00	34.17	PK	V	34.19	3.69	0.00	72.05	66.03	110.80	44.77
5700.00	29.63	PK	V	34.18	3.68	0.00	67.49	61.47	105.20	43.73
5650.00	24.32	PK	V	34.16	3.63	0.00	62.11	56.09	68.20	12.11
11490.00	55.41	PK	V	38.99	6.59	37.35	63.64	57.62	74.00	16.38
11490.00	44.46	AV	V	38.99	6.59	37.35	52.69	46.67	54.00	7.33
17235.00	50.72	PK	V	41.56	8.78	38.61	62.45	56.43	74.00	17.57
17235.00	38.52	AV	V	41.56	8.78	38.61	50.25	44.23	54.00	9.77
Middle Channel: 5785 MHz										
5785.00	77.58	PK	H	34.21	3.71	0.00	115.50	109.48	N/A	N/A
5785.00	67.19	AV	H	34.21	3.71	0.00	105.11	99.09	N/A	N/A
5785.00	77.72	PK	V	34.21	3.71	0.00	115.64	109.62	N/A	N/A
5785.00	66.49	AV	V	34.21	3.71	0.00	104.41	98.39	N/A	N/A
11570.00	57.61	PK	V	39.00	6.61	37.44	65.78	59.76	74.00	14.24
11570.00	46.10	AV	V	39.00	6.61	37.44	54.27	48.25	54.00	5.75
17355.00	52.52	PK	V	42.26	8.81	38.52	65.07	59.05	74.00	14.95
17355.00	40.74	AV	V	42.26	8.81	38.52	53.29	47.27	54.00	6.73
High Channel: 5825 MHz										
5825.00	76.49	PK	H	34.23	3.73	0.00	114.45	108.43	N/A	N/A
5825.00	66.53	AV	H	34.23	3.73	0.00	104.49	98.47	N/A	N/A
5825.00	76.88	PK	V	34.23	3.73	0.00	114.84	108.82	N/A	N/A
5825.00	66.84	AV	V	34.23	3.73	0.00	104.80	98.78	N/A	N/A
5850.00	34.88	PK	V	34.24	3.75	0.00	72.87	66.85	122.20	55.35
5855.00	33.61	PK	V	34.24	3.75	0.00	71.60	65.58	110.80	45.22
5875.00	27.54	PK	V	34.25	3.77	0.00	65.56	59.54	105.20	45.66
5925.00	25.34	PK	V	34.27	3.80	0.00	63.41	57.39	68.20	10.81
11650.00	57.62	PK	V	39.00	6.64	37.53	65.73	59.71	74.00	14.29
11650.00	46.19	AV	V	39.00	6.64	37.53	54.30	48.28	54.00	5.72
17475.00	52.53	PK	V	42.96	8.84	38.44	65.89	59.87	74.00	14.13
17475.00	39.92	AV	V	42.96	8.84	38.44	53.28	47.26	54.00	6.74

802.11n ht20 Mode(MIMO mode was the worst):

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	Extrapolation result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector	Polar (H/V)	Factor (dB/m)						
Low Channel: 5745 MHz										
5745.00	77.26	PK	H	34.20	3.69	0.00	115.15	109.13	N/A	N/A
5745.00	67.59	AV	H	34.20	3.69	0.00	105.48	99.46	N/A	N/A
5745.00	77.47	PK	V	34.20	3.69	0.00	115.36	109.34	N/A	N/A
5745.00	67.88	AV	V	34.20	3.69	0.00	105.77	99.75	N/A	N/A
5725.00	49.08	PK	V	34.19	3.69	0.00	86.96	80.94	122.20	41.26
5720.00	38.54	PK	V	34.19	3.69	0.00	76.42	70.4	110.80	40.40
5700.00	27.06	PK	V	34.18	3.68	0.00	64.92	58.9	105.20	46.30
5650.00	26.31	PK	V	34.16	3.63	0.00	64.10	58.08	68.20	10.12
11490.00	58.84	PK	V	38.99	6.59	37.35	67.07	61.05	74.00	12.95
11490.00	47.69	AV	V	38.99	6.59	37.35	55.92	49.9	54.00	4.10
17235.00	53.24	PK	V	41.56	8.78	38.61	64.97	58.95	74.00	15.05
17235.00	41.55	AV	V	41.56	8.78	38.61	53.28	47.26	54.00	6.74
Middle Channel: 5785 MHz										
5785.00	77.33	PK	H	34.21	3.71	0.00	115.25	109.23	N/A	N/A
5785.00	67.53	AV	H	34.21	3.71	0.00	105.45	99.43	N/A	N/A
5785.00	77.81	PK	V	34.21	3.71	0.00	115.73	109.71	N/A	N/A
5785.00	67.98	AV	V	34.21	3.71	0.00	105.90	99.88	N/A	N/A
11570.00	58.12	PK	V	39.00	6.61	37.44	66.29	60.27	74.00	13.73
11570.00	46.62	AV	V	39.00	6.61	37.44	54.79	48.77	54.00	5.23
17355.00	51.87	PK	V	42.26	8.81	38.52	64.42	58.4	74.00	15.60
17355.00	41.72	AV	V	42.26	8.81	38.52	54.27	48.25	54.00	5.75
High Channel: 5825 MHz										
5825.00	75.78	PK	H	34.23	3.73	0.00	113.74	107.72	N/A	N/A
5825.00	65.43	AV	H	34.23	3.73	0.00	103.39	97.37	N/A	N/A
5825.00	76.71	PK	V	34.23	3.73	0.00	114.67	108.65	N/A	N/A
5825.00	66.39	AV	V	34.23	3.73	0.00	104.35	98.33	N/A	N/A
5850.00	37.58	PK	V	34.24	3.75	0.00	75.57	69.55	122.20	52.65
5855.00	33.41	PK	V	34.24	3.75	0.00	71.40	65.38	110.80	45.42
5875.00	27.98	PK	V	34.25	3.77	0.00	66.00	59.98	105.20	45.22
5925.00	25.49	PK	V	34.27	3.80	0.00	63.56	57.54	68.20	10.66
11650.00	58.64	PK	V	39.00	6.64	37.53	66.75	60.73	74.00	13.27
11650.00	47.21	AV	V	39.00	6.64	37.53	55.32	49.3	54.00	4.70
17475.00	52.48	PK	V	42.96	8.84	38.44	65.84	59.82	74.00	14.18
17475.00	41.39	AV	V	42.96	8.84	38.44	54.75	48.73	54.00	5.27

1.4MHz Chain 0:

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	Extrapolation result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)						
Low Channel: 5728.5 MHz										
5728.50	78.39	PK	H	34.19	3.69	0.00	116.27	110.25	N/A	N/A
5728.50	68.49	AV	H	34.19	3.69	0.00	106.37	100.35	N/A	N/A
5728.50	91.45	PK	V	34.19	3.69	0.00	129.33	123.31	N/A	N/A
5728.50	81.43	AV	V	34.19	3.69	0.00	119.31	113.29	N/A	N/A
5725.00	39.46	PK	V	34.19	3.69	0.00	77.34	71.32	122.20	50.88
5720.00	34.71	PK	V	34.19	3.69	0.00	72.59	66.57	110.80	44.23
5700.00	29.54	PK	V	34.18	3.68	0.00	67.40	61.38	105.20	43.82
5650.00	24.78	PK	V	34.16	3.63	0.00	62.57	56.55	68.20	11.65
11457.00	59.96	PK	V	38.96	6.59	37.33	68.18	62.16	74.00	11.84
11457.00	43.74	AV	V	38.96	6.59	37.33	51.96	45.94	54.00	8.06
17185.50	51.38	PK	V	41.28	8.77	38.64	62.79	56.77	74.00	17.23
17185.50	35.84	AV	V	41.28	8.77	38.64	47.25	41.23	54.00	12.77
Middle Channel: 5786.5 MHz										
5786.50	78.69	PK	H	34.21	3.71	0.00	116.61	110.59	N/A	N/A
5786.50	68.44	AV	H	34.21	3.71	0.00	106.36	100.34	N/A	N/A
5786.50	91.98	PK	V	34.21	3.71	0.00	129.90	123.88	N/A	N/A
5786.50	80.42	AV	V	34.21	3.71	0.00	118.34	112.32	N/A	N/A
11573.00	58.47	PK	V	39.00	6.61	37.44	66.64	60.62	74.00	13.38
11573.00	42.53	AV	V	39.00	6.61	37.44	50.70	44.68	54.00	9.32
17359.50	52.17	PK	V	42.29	8.81	38.52	64.75	58.73	74.00	15.27
17359.50	36.41	AV	V	42.29	8.81	38.52	48.99	42.97	54.00	11.03
High Channel: 5846.5 MHz										
5846.50	81.46	PK	H	34.24	3.75	0.00	119.45	113.43	N/A	N/A
5846.50	71.42	AV	H	34.24	3.75	0.00	109.41	103.39	N/A	N/A
5846.50	93.12	PK	V	34.24	3.75	0.00	131.11	125.09	N/A	N/A
5846.50	82.87	AV	V	34.24	3.75	0.00	120.86	114.84	N/A	N/A
5850.00	41.41	PK	V	34.24	3.75	0.00	79.40	73.38	122.20	48.82
5855.00	35.28	PK	V	34.24	3.75	0.00	73.27	67.25	110.80	43.55
5875.00	30.49	PK	V	34.25	3.77	0.00	68.51	62.49	105.20	42.71
5925.00	26.74	PK	V	34.27	3.80	0.00	64.81	58.79	68.20	9.41
11693.00	63.23	PK	V	39.00	6.65	37.58	71.30	65.28	74.00	8.72
11693.00	46.18	AV	V	39.00	6.65	37.58	54.25	48.23	54.00	5.77
17539.50	52.63	PK	V	43.34	8.85	38.38	66.44	60.42	74.00	13.58
17539.50	37.87	AV	V	43.34	8.85	38.38	51.68	45.66	54.00	8.34

1.4MHz Chain 1:

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	Extrapolation result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)						
Low Channel: 5728.5 MHz										
5728.50	81.46	PK	H	34.19	3.69	0.00	119.34	113.32	N/A	N/A
5728.50	71.42	AV	H	34.19	3.69	0.00	109.30	103.28	N/A	N/A
5728.50	93.12	PK	V	34.19	3.69	0.00	131.00	124.98	N/A	N/A
5728.50	82.87	AV	V	34.19	3.69	0.00	120.75	114.73	N/A	N/A
5725.00	41.41	PK	V	34.19	3.69	0.00	79.29	73.27	122.20	48.93
5720.00	35.28	PK	V	34.19	3.69	0.00	73.16	67.14	110.80	43.66
5700.00	30.49	PK	V	34.18	3.68	0.00	68.35	62.33	105.20	42.87
5650.00	26.74	PK	V	34.16	3.63	0.00	64.53	58.51	68.20	9.69
11457.00	63.23	PK	V	38.96	6.59	37.33	71.45	65.43	74.00	8.57
11457.00	46.18	AV	V	38.96	6.59	37.33	54.40	48.38	54.00	5.62
17185.50	53.44	PK	V	41.28	8.77	38.64	64.85	58.83	74.00	15.17
17185.50	37.19	AV	V	41.28	8.77	38.64	48.60	42.58	54.00	11.42
Middle Channel: 5786.5 MHz										
5786.50	81.35	PK	H	34.21	3.71	0.00	119.27	113.25	N/A	N/A
5786.50	71.26	AV	H	34.21	3.71	0.00	109.18	103.16	N/A	N/A
5786.50	92.97	PK	V	34.21	3.71	0.00	130.89	124.87	N/A	N/A
5786.50	81.34	AV	V	34.21	3.71	0.00	119.26	113.24	N/A	N/A
11573.00	61.47	PK	V	39.00	6.61	37.44	69.64	63.62	74.00	10.38
11573.00	43.55	AV	V	39.00	6.61	37.44	51.72	45.7	54.00	8.30
17359.50	52.94	PK	V	42.29	8.81	38.52	65.52	59.5	74.00	14.50
17359.50	36.85	AV	V	42.29	8.81	38.52	49.43	43.41	54.00	10.59
High Channel: 5846.5 MHz										
5846.50	80.47	PK	H	34.24	3.75	0.00	118.46	112.44	N/A	N/A
5846.50	69.55	AV	H	34.24	3.75	0.00	107.54	101.52	N/A	N/A
5846.50	92.43	PK	V	34.24	3.75	0.00	130.42	124.4	N/A	N/A
5846.50	81.59	AV	V	34.24	3.75	0.00	119.58	113.56	N/A	N/A
5850.00	42.69	PK	V	34.24	3.75	0.00	80.68	74.66	122.20	47.54
5855.00	36.46	PK	V	34.24	3.75	0.00	74.45	68.43	110.80	42.37
5875.00	29.74	PK	V	34.25	3.77	0.00	67.76	61.74	105.20	43.46
5925.00	26.35	PK	V	34.27	3.80	0.00	64.42	58.4	68.20	9.80
11693.00	63.52	PK	V	39.00	6.65	37.58	71.59	65.57	74.00	8.43
11693.00	45.65	AV	V	39.00	6.65	37.58	53.72	47.7	54.00	6.30
17539.50	53.22	PK	V	43.34	8.85	38.38	67.03	61.01	74.00	12.99
17539.50	37.19	AV	V	43.34	8.85	38.38	51.00	44.98	54.00	9.02

10MHz, Chain 0:

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	Extrapolation result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)						
Low Channel: 5730.5 MHz										
5730.50	75.09	PK	H	34.19	3.69	0.00	112.97	106.95	N/A	N/A
5730.50	63.09	AV	H	34.19	3.69	0.00	100.97	94.95	N/A	N/A
5730.50	84.81	PK	V	34.19	3.69	0.00	122.69	116.67	N/A	N/A
5730.50	74.40	AV	V	34.19	3.69	0.00	112.28	106.26	N/A	N/A
5725.00	66.52	PK	V	34.19	3.69	0.00	104.40	98.38	122.20	23.82
5720.00	39.92	PK	V	34.19	3.69	0.00	77.80	71.78	110.80	39.02
5700.00	28.28	PK	V	34.18	3.68	0.00	66.14	60.12	105.20	45.08
5650.00	22.66	PK	V	34.16	3.63	0.00	60.45	54.43	68.20	13.77
11461.00	57.59	PK	V	38.96	6.59	37.34	65.80	59.78	74.00	14.22
11461.00	41.97	AV	V	38.96	6.59	37.34	50.18	44.16	54.00	9.84
17191.50	51.87	PK	V	41.31	8.77	38.64	63.31	57.29	74.00	16.71
17191.50	35.24	AV	V	41.31	8.77	38.64	46.68	40.66	54.00	13.34
Middle Channel: 5787.5 MHz										
5787.50	74.20	PK	H	34.22	3.71	0.00	112.13	106.11	N/A	N/A
5787.50	62.94	AV	H	34.22	3.71	0.00	100.87	94.85	N/A	N/A
5787.50	84.14	PK	V	34.22	3.71	0.00	122.07	116.05	N/A	N/A
5787.50	73.63	AV	V	34.22	3.71	0.00	111.56	105.54	N/A	N/A
11575.00	58.84	PK	V	39.00	6.61	37.45	67.00	60.98	74.00	13.02
11575.00	43.42	AV	V	39.00	6.61	37.45	51.58	45.56	54.00	8.44
17362.50	53.08	PK	V	42.30	8.81	38.52	65.67	59.65	74.00	14.35
17362.50	36.34	AV	V	42.30	8.81	38.52	48.93	42.907	54.00	11.09
High Channel:5844.5 MHz										
5844.50	73.15	PK	H	34.24	3.75	0.00	111.14	105.12	N/A	N/A
5844.50	62.42	AV	H	34.24	3.75	0.00	100.41	94.39	N/A	N/A
5844.50	84.17	PK	V	34.24	3.75	0.00	122.16	116.14	N/A	N/A
5844.50	72.11	AV	V	34.24	3.75	0.00	110.10	104.08	N/A	N/A
5850.00	66.97	PK	V	34.24	3.75	0.00	104.96	98.94	122.20	23.26
5855.00	40.13	PK	V	34.24	3.75	0.00	78.12	72.1	110.80	38.70
5875.00	27.42	PK	V	34.25	3.77	0.00	65.44	59.42	105.20	45.78
5925.00	23.39	PK	V	34.27	3.80	0.00	61.46	55.44	68.20	12.76
11689.00	58.41	PK	V	39.00	6.65	37.58	66.48	60.46	74.00	13.54
11689.00	42.59	AV	V	39.00	6.65	37.58	50.66	44.64	54.00	9.36
17533.50	49.87	PK	V	43.31	8.85	38.39	63.64	57.62	74.00	16.38
17533.50	33.86	AV	V	43.31	8.85	38.39	47.63	41.61	54.00	12.39

10MHz, Chain 1:

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	Extrapolation result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)						
Low Channel: 5730.5 MHz										
5730.50	75.87	PK	H	34.19	3.69	0.00	113.75	107.73	N/A	N/A
5730.50	64.33	AV	H	34.19	3.69	0.00	102.21	96.19	N/A	N/A
5730.50	86.24	PK	V	34.19	3.69	0.00	124.12	118.1	N/A	N/A
5730.50	74.58	AV	V	34.19	3.69	0.00	112.46	106.44	N/A	N/A
5725.00	67.22	PK	V	34.19	3.69	0.00	105.10	99.08	122.20	23.12
5720.00	41.27	PK	V	34.19	3.69	0.00	79.15	73.13	110.80	37.67
5700.00	29.16	PK	V	34.18	3.68	0.00	67.02	61	105.20	44.20
5650.00	24.38	PK	V	34.16	3.63	0.00	62.17	56.15	68.20	12.05
11461.00	60.85	PK	V	38.96	6.59	37.34	69.06	63.04	74.00	10.96
11461.00	45.32	AV	V	38.96	6.59	37.34	53.53	47.51	54.00	6.49
17191.50	54.32	PK	V	41.31	8.77	38.64	65.76	59.74	74.00	14.26
17191.50	38.74	AV	V	41.31	8.77	38.64	50.18	44.16	54.00	9.84
Middle Channel: 5787.5 MHz										
5787.50	74.61	PK	H	34.22	3.71	0.00	112.54	106.52	N/A	N/A
5787.50	63.55	AV	H	34.22	3.71	0.00	101.48	95.46	N/A	N/A
5787.50	85.36	PK	V	34.22	3.71	0.00	123.29	117.27	N/A	N/A
5787.50	74.31	AV	V	34.22	3.71	0.00	112.24	106.22	N/A	N/A
11575.00	60.48	PK	V	39.00	6.61	37.45	68.64	62.62	74.00	11.38
11575.00	44.65	AV	V	39.00	6.61	37.45	52.81	46.79	54.00	7.21
17362.50	53.24	PK	V	42.30	8.81	38.52	65.83	59.81	74.00	14.19
17362.50	37.29	AV	V	42.30	8.81	38.52	49.88	43.857	54.00	10.14
High Channel:5844.5 MHz										
5844.50	74.21	PK	H	34.24	3.75	0.00	112.20	106.18	N/A	N/A
5844.50	63.25	AV	H	34.24	3.75	0.00	101.24	95.22	N/A	N/A
5844.50	84.74	PK	V	34.24	3.75	0.00	122.73	116.71	N/A	N/A
5844.50	72.34	AV	V	34.24	3.75	0.00	110.33	104.31	N/A	N/A
5850.00	67.82	PK	V	34.24	3.75	0.00	105.81	99.79	122.20	22.41
5855.00	41.05	PK	V	34.24	3.75	0.00	79.04	73.02	110.80	37.78
5875.00	28.37	PK	V	34.25	3.77	0.00	66.39	60.37	105.20	44.83
5925.00	24.93	PK	V	34.27	3.80	0.00	63.00	56.98	68.20	11.22
11689.00	59.74	PK	V	39.00	6.65	37.58	67.81	61.79	74.00	12.21
11689.00	43.58	AV	V	39.00	6.65	37.58	51.65	45.63	54.00	8.37
17533.50	54.16	PK	V	43.31	8.85	38.39	67.93	61.91	74.00	12.09
17533.50	38.25	AV	V	43.31	8.85	38.39	52.02	46	54.00	8.00

20MHz, Chain 0:

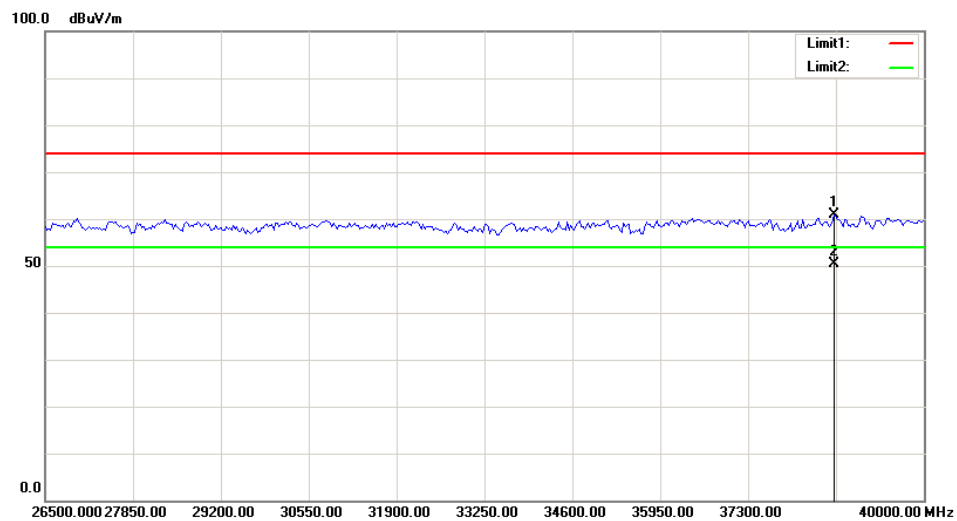
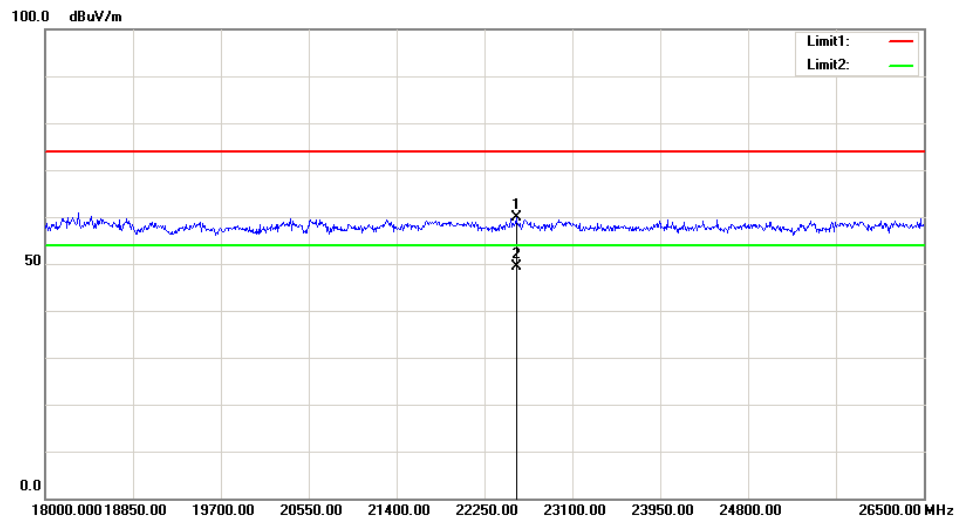
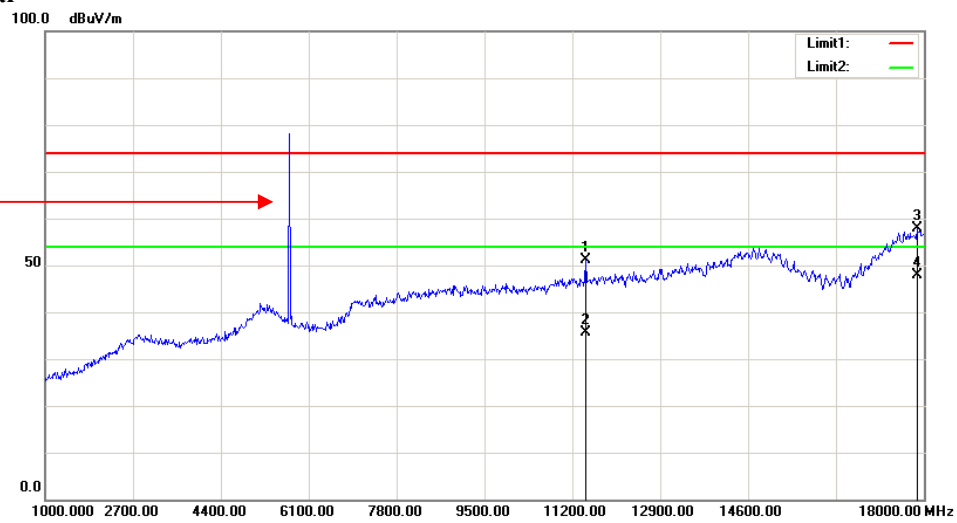
Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	Extrapolation result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)						
Low Channel: 5735.5 MHz										
5735.50	74.73	PK	H	34.19	3.69	0.00	112.61	106.59	N/A	N/A
5735.50	63.32	AV	H	34.19	3.69	0.00	101.20	95.18	N/A	N/A
5735.50	85.13	PK	V	34.19	3.69	0.00	123.01	116.99	N/A	N/A
5735.50	74.29	AV	V	34.19	3.69	0.00	112.17	106.15	N/A	N/A
5725.00	64.83	PK	V	34.19	3.69	0.00	102.71	96.69	122.20	25.51
5720.00	40.80	PK	V	34.19	3.69	0.00	78.68	72.66	110.80	38.14
5700.00	27.71	PK	V	34.18	3.68	0.00	65.57	59.55	105.20	45.65
5650.00	23.56	PK	V	34.16	3.63	0.00	61.35	55.33	68.20	12.87
11471.00	59.89	PK	V	38.97	6.59	37.34	68.11	62.09	74.00	11.91
11471.00	45.15	AV	V	38.97	6.59	37.34	53.37	47.35	54.00	6.65
17206.50	53.42	PK	V	41.40	8.77	38.63	64.96	58.94	74.00	15.06
17206.50	36.26	AV	V	41.40	8.77	38.63	47.80	41.78	54.00	12.22
Middle Channel: 5787.5 MHz										
5787.50	73.03	PK	H	34.22	3.71	0.00	110.96	104.94	N/A	N/A
5787.50	62.26	AV	H	34.22	3.71	0.00	100.19	94.17	N/A	N/A
5787.50	83.13	PK	V	34.22	3.71	0.00	121.06	115.04	N/A	N/A
5787.50	73.98	AV	V	34.22	3.71	0.00	111.91	105.89	N/A	N/A
11575.00	58.12	PK	V	39.00	6.61	37.45	66.28	60.26	74.00	13.74
11575.00	42.83	AV	V	39.00	6.61	37.45	50.99	44.97	54.00	9.03
17362.50	53.36	PK	V	42.30	8.81	38.52	65.95	59.93	74.00	14.07
17362.50	36.13	AV	V	42.30	8.81	38.52	48.72	42.697	54.00	11.30
High Channel: 5839.5 MHz										
5839.50	72.46	PK	H	34.24	3.74	0.00	110.44	104.42	N/A	N/A
5839.50	60.73	AV	H	34.24	3.74	0.00	98.71	92.69	N/A	N/A
5839.50	83.46	PK	V	34.24	3.74	0.00	121.44	115.42	N/A	N/A
5839.50	71.86	AV	V	34.24	3.74	0.00	109.84	103.82	N/A	N/A
5850.00	54.70	PK	V	34.24	3.75	0.00	92.69	86.67	122.20	35.53
5855.00	39.52	PK	V	34.24	3.75	0.00	77.51	71.49	110.80	39.31
5875.00	27.54	PK	V	34.25	3.77	0.00	65.56	59.54	105.20	45.66
5925.00	22.28	PK	V	34.27	3.80	0.00	60.35	54.33	68.20	13.87
11679.00	59.65	PK	V	39.00	6.65	37.56	67.74	61.72	74.00	12.28
11679.00	42.88	AV	V	39.00	6.65	37.56	50.97	44.95	54.00	9.05
17518.50	53.84	PK	V	43.21	8.85	38.40	67.50	61.48	74.00	12.52
17518.50	36.64	AV	V	43.21	8.85	38.40	50.30	44.28	54.00	9.72

20MHz, Chain 1:

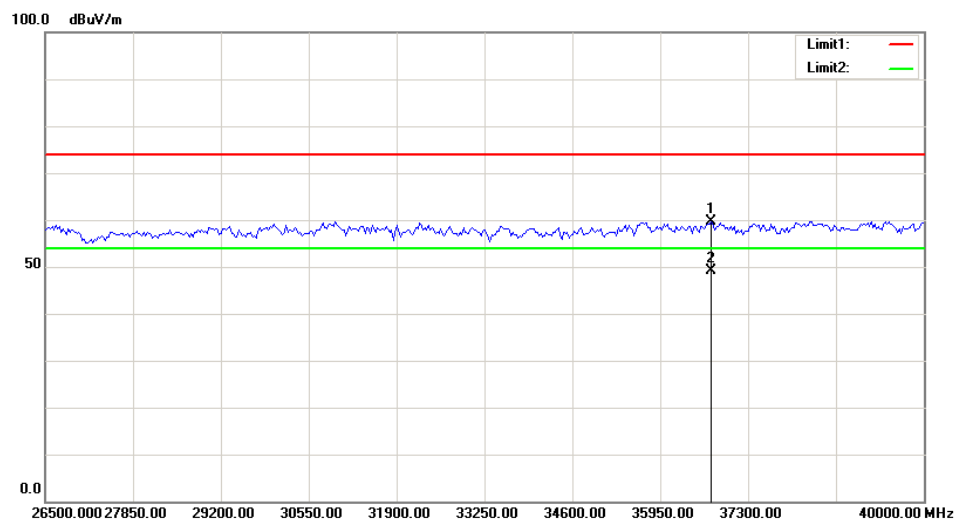
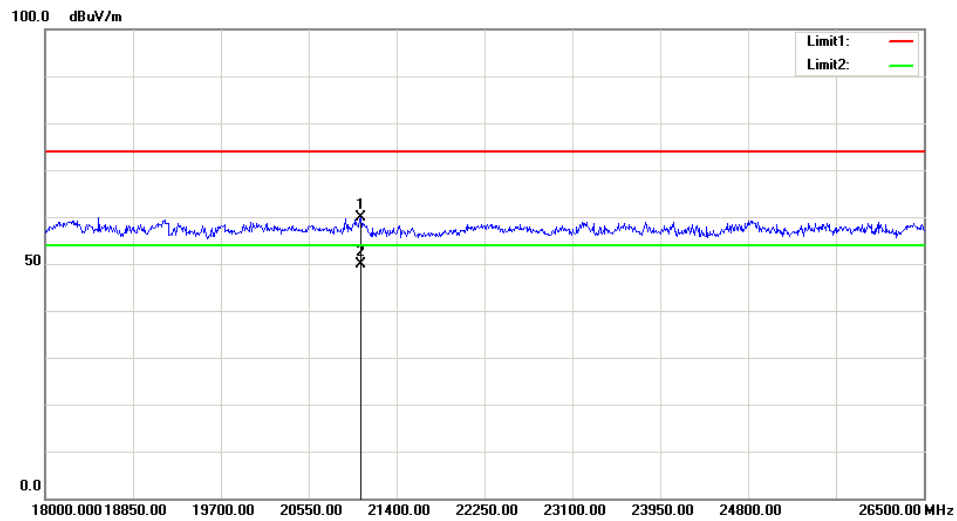
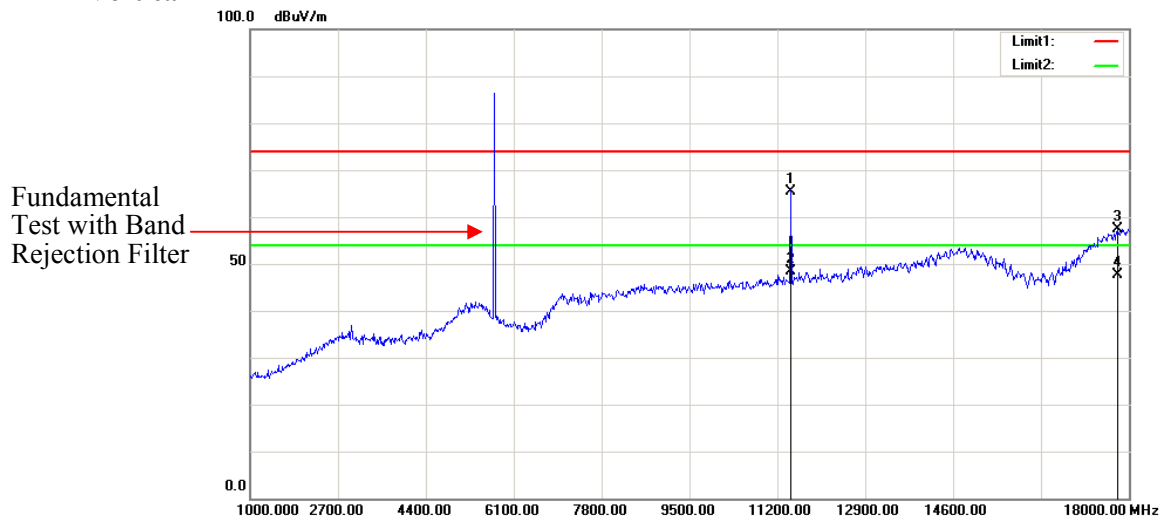
Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	Extrapolation result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)						
Low Channel: 5735.5 MHz										
5735.50	75.41	PK	H	34.19	3.69	0.00	113.29	107.27	N/A	N/A
5735.50	63.79	AV	H	34.19	3.69	0.00	101.67	95.65	N/A	N/A
5735.50	86.22	PK	V	34.19	3.69	0.00	124.10	118.08	N/A	N/A
5735.50	74.16	AV	V	34.19	3.69	0.00	112.04	106.02	N/A	N/A
5725.00	66.57	PK	V	34.19	3.69	0.00	104.45	98.43	122.20	23.77
5720.00	41.15	PK	V	34.19	3.69	0.00	79.03	73.01	110.80	37.79
5700.00	28.29	PK	V	34.18	3.68	0.00	66.15	60.13	105.20	45.07
5650.00	23.79	PK	V	34.16	3.63	0.00	61.58	55.56	68.20	12.64
11471.00	61.03	PK	V	38.97	6.59	37.34	69.25	63.23	74.00	10.77
11471.00	45.43	AV	V	38.97	6.59	37.34	53.65	47.63	54.00	6.37
17206.50	53.24	PK	V	41.40	8.77	38.63	64.78	58.76	74.00	15.24
17206.50	38.74	AV	V	41.40	8.77	38.63	50.28	44.26	54.00	9.74
Middle Channel: 5787.5 MHz										
5787.50	74.01	PK	H	34.22	3.71	0.00	111.94	105.92	N/A	N/A
5787.50	63.52	AV	H	34.22	3.71	0.00	101.45	95.43	N/A	N/A
5787.50	84.23	PK	V	34.22	3.71	0.00	122.16	116.14	N/A	N/A
5787.50	74.40	AV	V	34.22	3.71	0.00	112.33	106.31	N/A	N/A
11575.00	59.86	PK	V	39.00	6.61	37.45	68.02	62	74.00	12.00
11575.00	43.87	AV	V	39.00	6.61	37.45	52.03	46.01	54.00	7.99
17362.50	53.33	PK	V	42.30	8.81	38.52	65.92	59.9	74.00	14.10
17362.50	36.40	AV	V	42.30	8.81	38.52	48.99	42.967	54.00	11.03
High Channel: 5839.5 MHz										
5839.50	73.40	PK	H	34.24	3.74	0.00	111.38	105.36	N/A	N/A
5839.50	62.45	AV	H	34.24	3.74	0.00	100.43	94.41	N/A	N/A
5839.50	83.75	PK	V	34.24	3.74	0.00	121.73	115.71	N/A	N/A
5839.50	72.86	AV	V	34.24	3.74	0.00	110.84	104.82	N/A	N/A
5850.00	54.75	PK	V	34.24	3.75	0.00	92.74	86.72	122.20	35.48
5855.00	40.37	PK	V	34.24	3.75	0.00	78.36	72.34	110.80	38.46
5875.00	27.56	PK	V	34.25	3.77	0.00	65.58	59.56	105.20	45.64
5925.00	23.43	PK	V	34.27	3.80	0.00	61.50	55.48	68.20	12.72
11679.00	59.74	PK	V	39.00	6.65	37.56	67.83	61.81	74.00	12.19
11679.00	43.58	AV	V	39.00	6.65	37.56	51.67	45.65	54.00	8.35
17518.50	54.16	PK	V	43.21	8.85	38.40	67.82	61.8	74.00	12.20
17518.50	38.25	AV	V	43.21	8.85	38.40	51.91	45.89	54.00	8.11

Worst plots (5725-5850MHz 802.11n ht20 Mode low channel)
Horizontal

Fundamental
Test with Band
Rejection Filter



Vertical



FCC §15.407(a)– EMISSION BANDWIDTH**Applicable Standard**

15.407(a)

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSP 38	100478	2017-12-08	2018-12-08
R&S	EMI Test Receiver	ESPI	100120	2017-12-11	2018-12-11
Unknown	Coaxial Cable	C-SJ00-0010	C0010/01	Each time	/

* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Procedure

According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01 .

Test Data**Environmental Conditions**

Temperature:	21.1 ~ 26.5 °C
Relative Humidity:	35 ~ 59 %
ATM Pressure:	100.6 ~ 102.1 kPa

The testing was performed by Andy Huang from 2018-02-11 to 2018-03-12.

Test Result: Pass.

Please refer to the following tables and plots.

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

5150-5250 MHz:

Mode	Channel	Frequency (MHz)	26 dB Emission Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
802.11 a	Low	5180	25.2	18.88
	Middle	5200	27.28	19.04
	High	5240	25.12	18.96
802.11n ht20	Low	5180	28.96	19.84
	Middle	5200	30.16	20.16
	High	5240	30.16	19.76

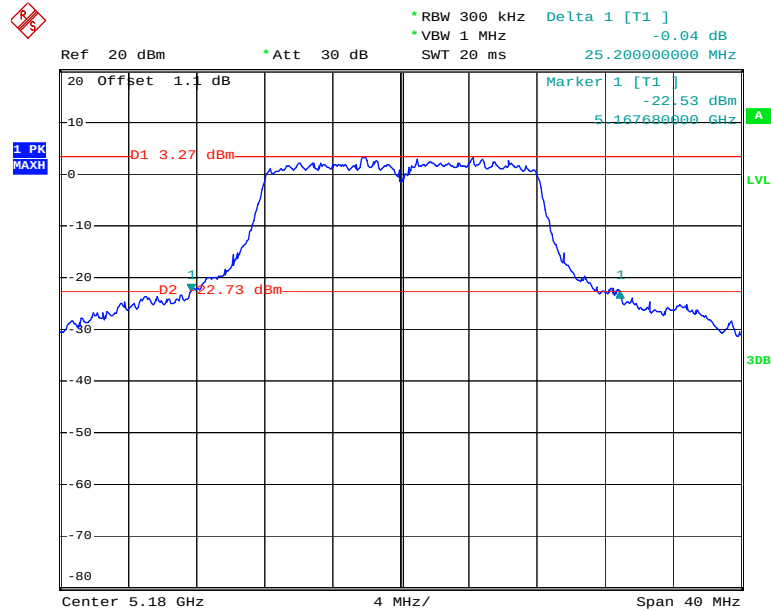
5725-5850 MHz:

Mode	Channel	Frequency (MHz)	6 dB Emission Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
802.11 a	Low	5745	16.00	19.12
	Middle	5785	16.00	18.88
	High	5825	16.16	18.88
802.11n ht20	Low	5745	16.88	20.08
	Middle	5785	16.96	19.84
	High	5825	17.04	19.84
1.4MHz	Low	5728.5	1.116	1.176
	Middle	5786.5	1.116	1.176
	High	5846.5	1.164	1.176
10MHz	Low	5730.5	9.04	8.92
	Middle	5787.5	9.04	8.96
	High	5844.5	9.04	8.96
20MHz	Low	5735.5	18.16	17.76
	Middle	5787.5	18.08	17.76
	High	5839.5	18.16	17.76

Note: the 99% Occupied Bandwidth has not fell into the frequency 5250-5350MHz and 5470-5725MHz, please refer to the test plots of 99% Occupied Bandwidth.

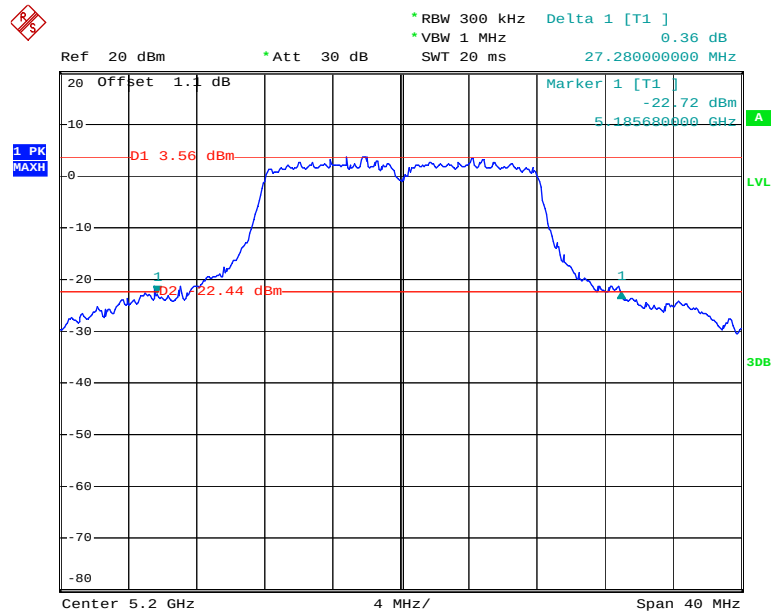
5150-5250MHz
26dB Bandwidth:

802.11a Low Channel

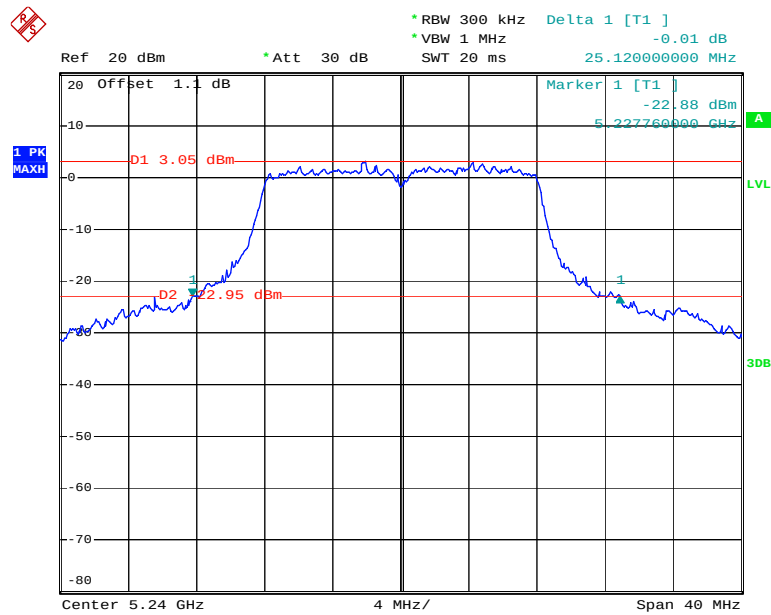


Date: 1.MAR.2018 21:34:30

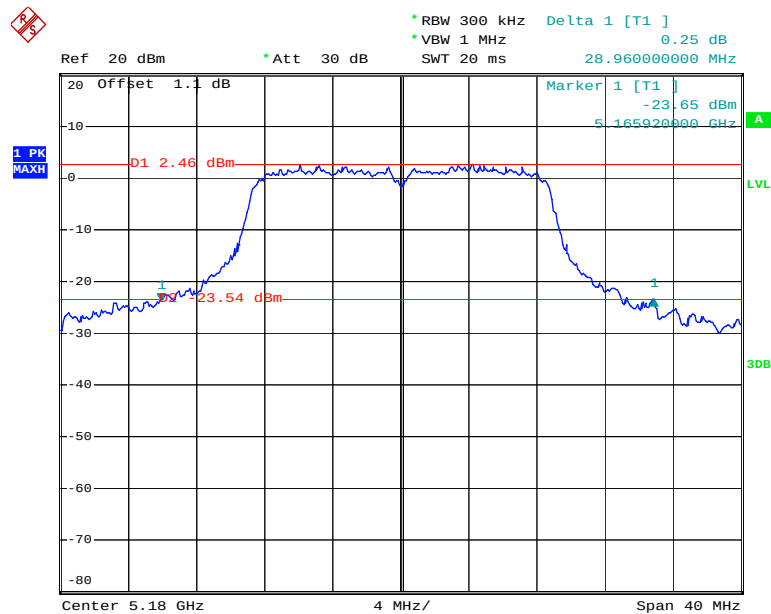
802.11a Middle Channel



Date: 1.MAR.2018 21:52:23

802.11a High Channel

Date: 1.MAR.2018 21:53:38

802.11n ht20 Low Channel

Date: 1.MAR.2018 21:59:29

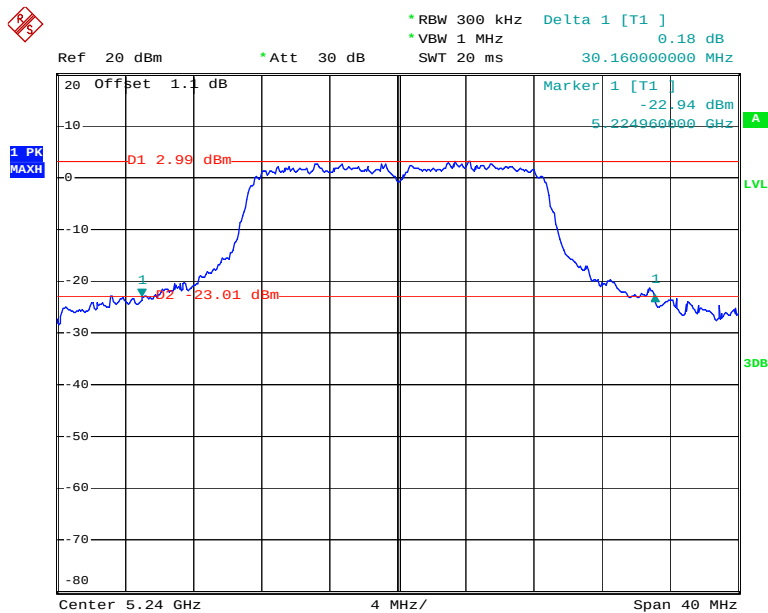
Ref 20 dBm * Att 30 dB * RBW 300 kHz Delta 1 [T1] -0.12 dB
 VBW 1 MHz SWT 20 ms 30.160000000 MHz

20 Offset 1.1 dB Marker 1 [T1] -21.90 dBm
 5.194960000 GHz

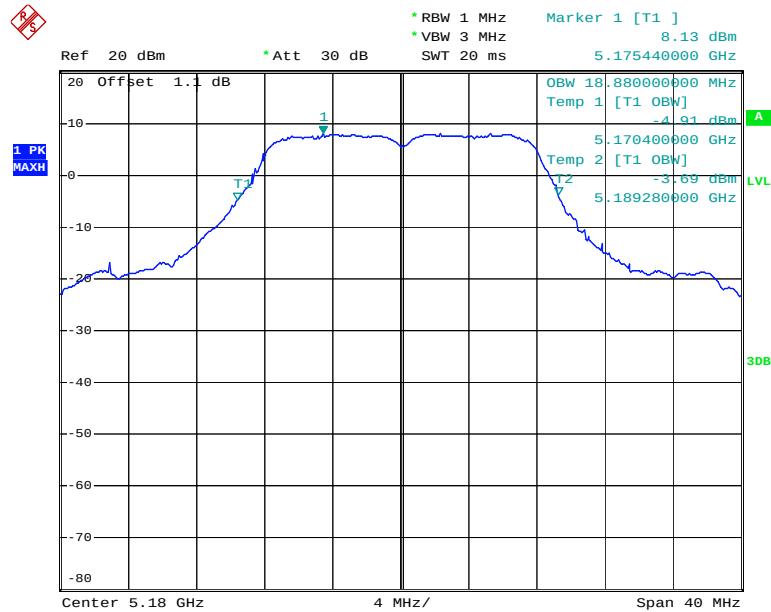
1 PK MAXH D1 4.01 dBm D2 -21.99 dBm

Center 5.2 GHz 4 MHz/ Span 40 MHz

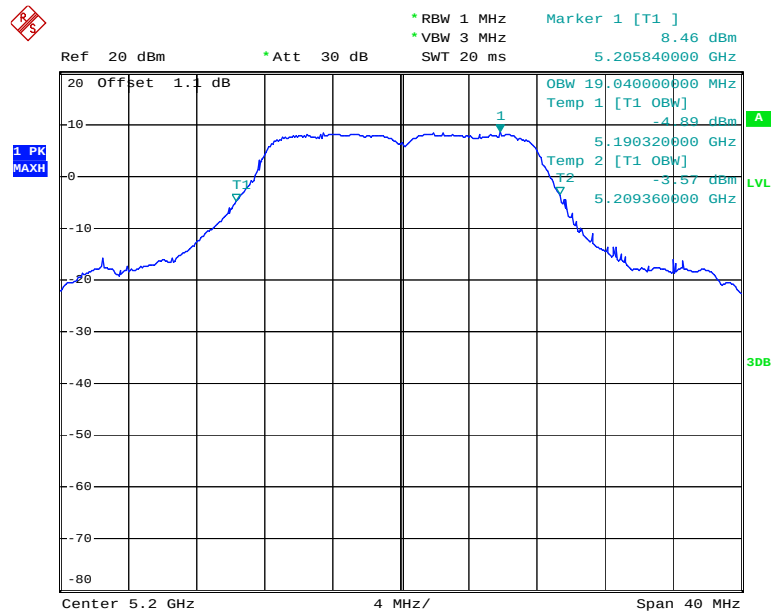
802.11n ht20 High Channel



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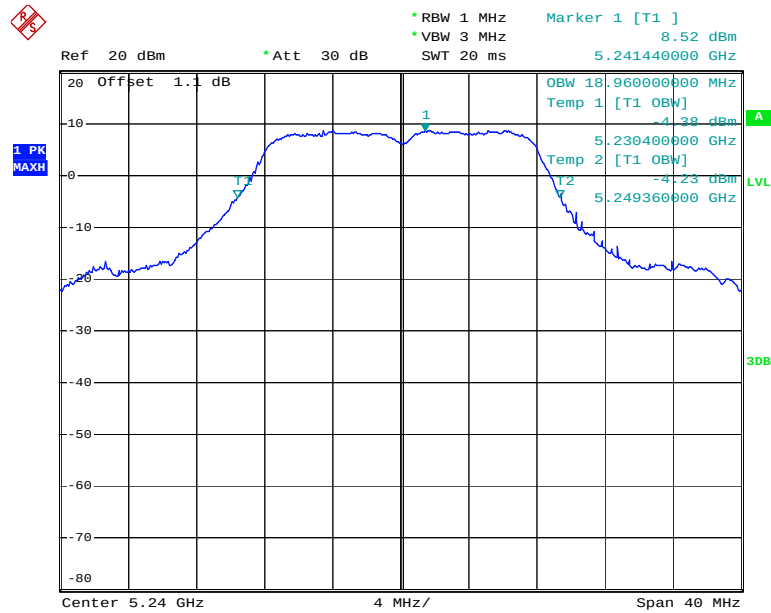
99% Occupied Bandwidth:**802.11a Low Channel**

Date: 1.MAR.2018 21:34:45

802.11a Middle Channel

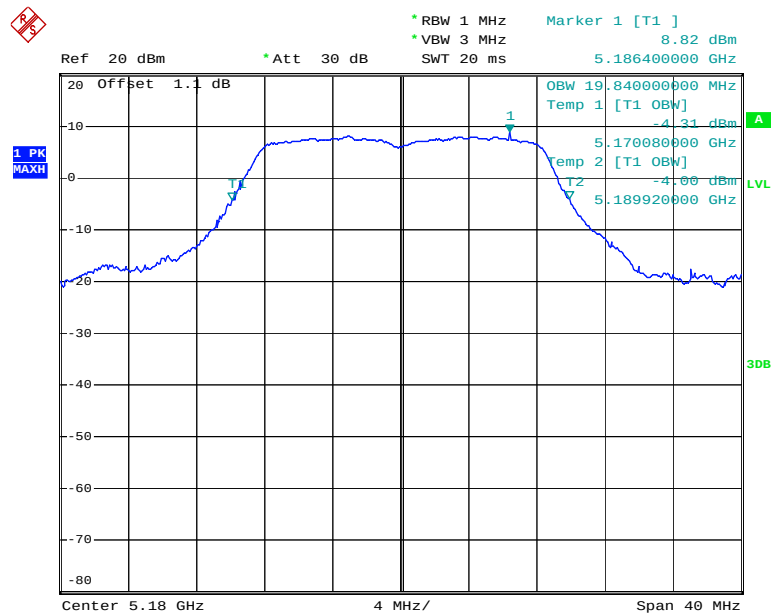
Date: 1.MAR.2018 21:52:39

802.11a High Channel



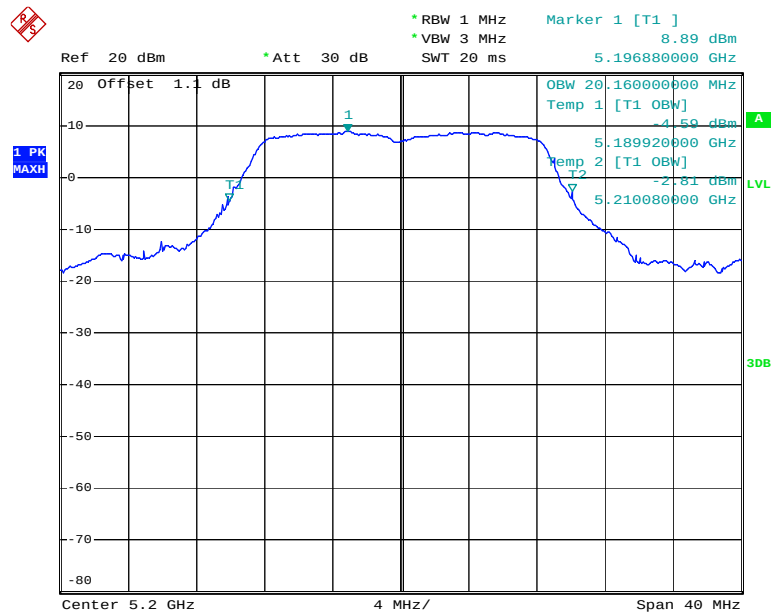
Date: 12.MAR.2018 09:49:44

802.11n ht20 Low Channel



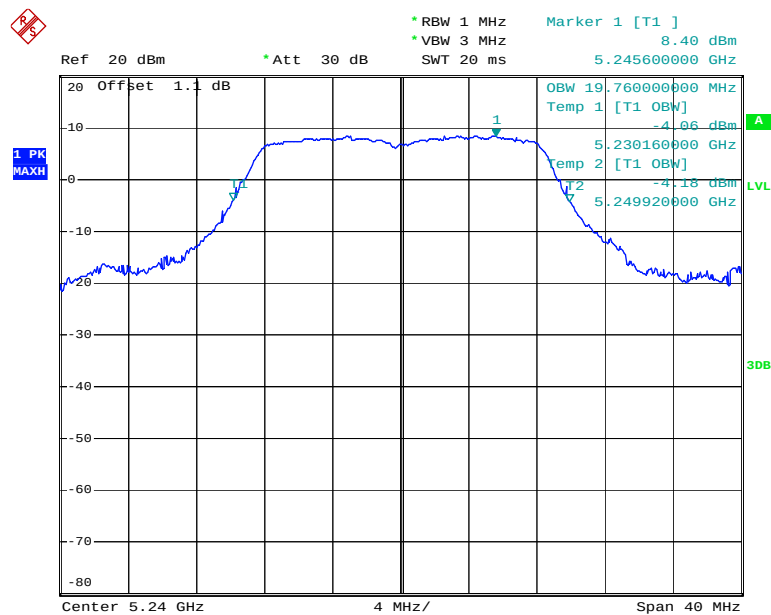
Date: 1.MAR.2018 21:59:48

802.11n ht20 Middle Channel



Date: 1.MAR.2018 22:04:21

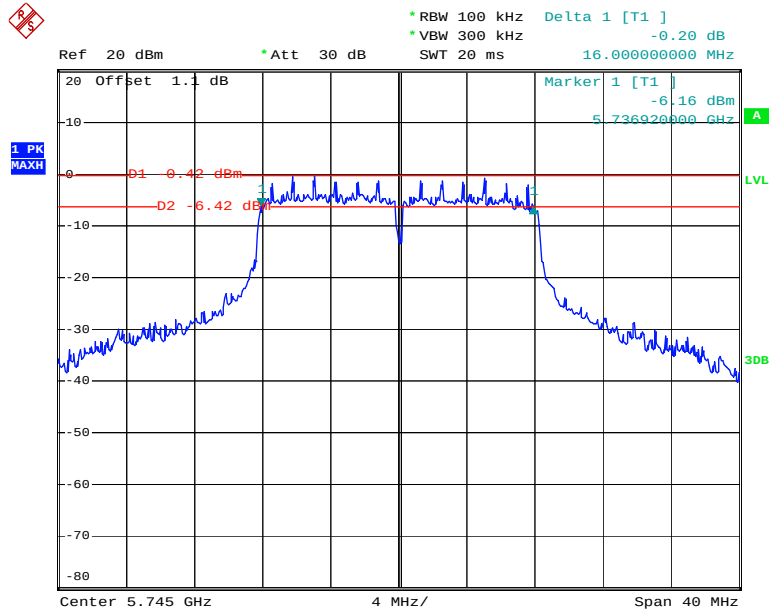
802.11n ht20 High Channel



Date: 12.MAR.2018 09:50:41

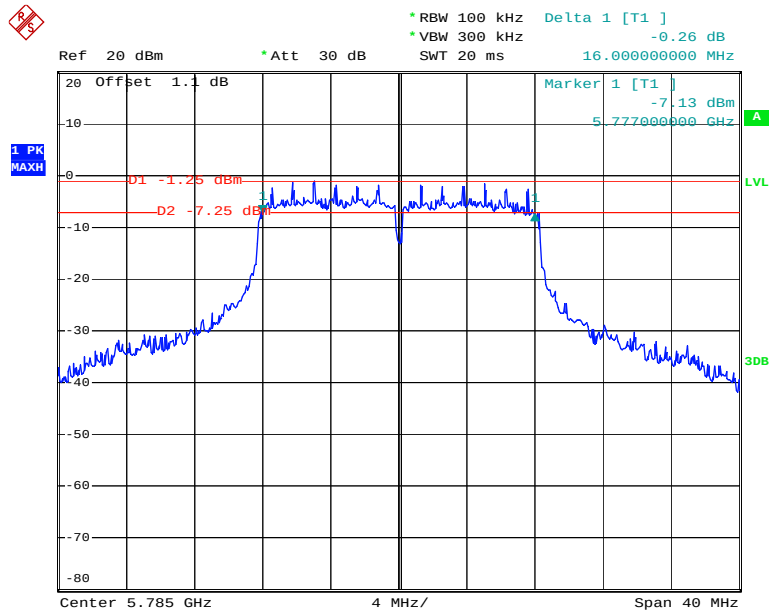
5725-5850 MHz:
6dB Bandwidth:

802.11a Low Channel



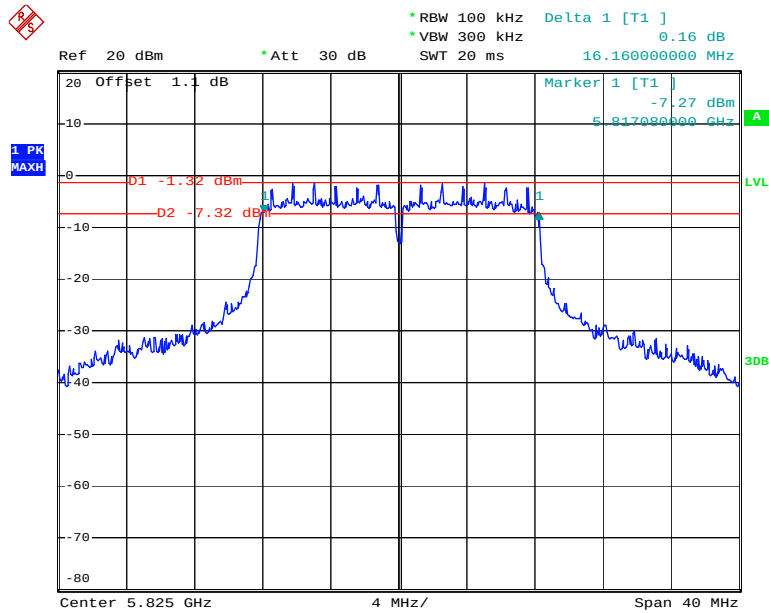
Date: 2.MAR.2018 20:26:42

802.11a Middle Channel



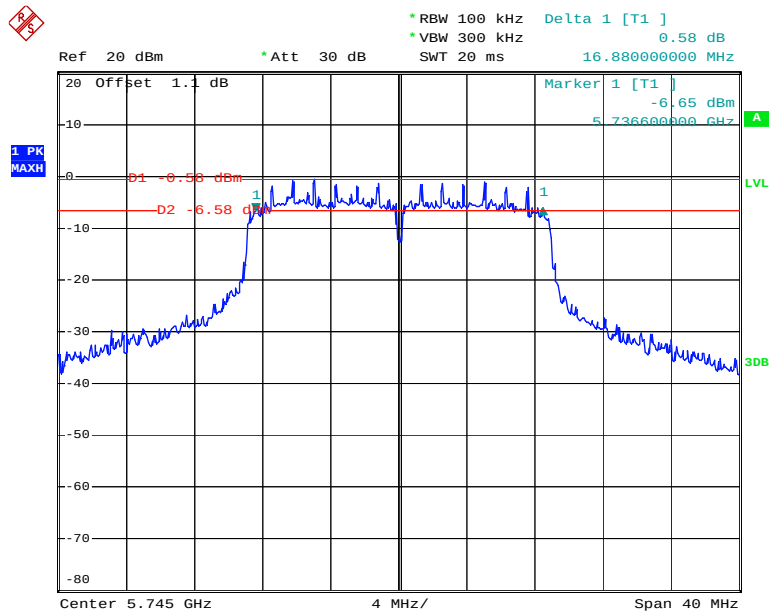
Date: 2.MAR.2018 20:27:19

802.11a High Channel



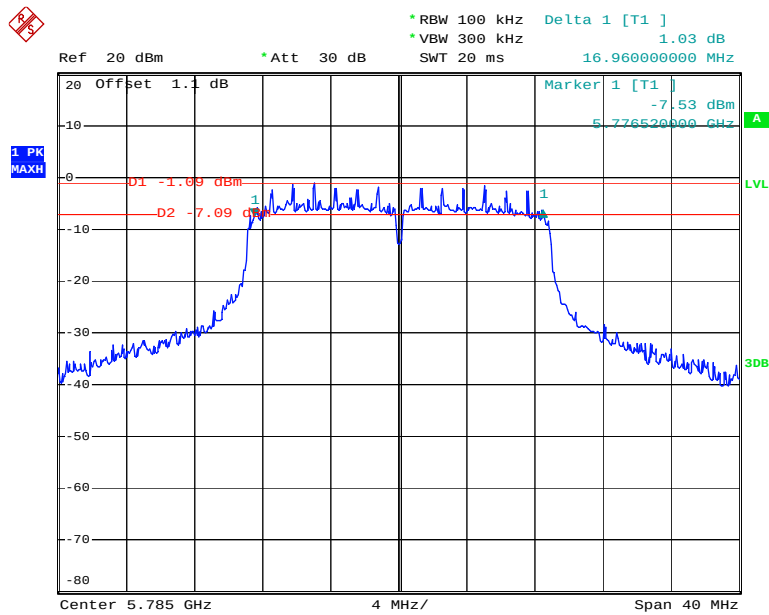
Date: 2.MAR.2018 20:28:07

802.11n ht20 Low Channel



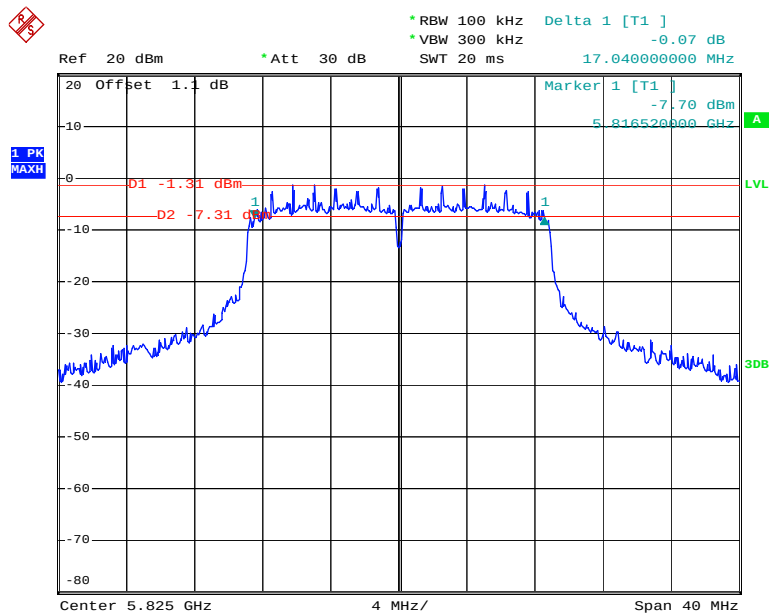
Date: 2.MAR.2018 20:29:32

802.11n ht20 Middle Channel



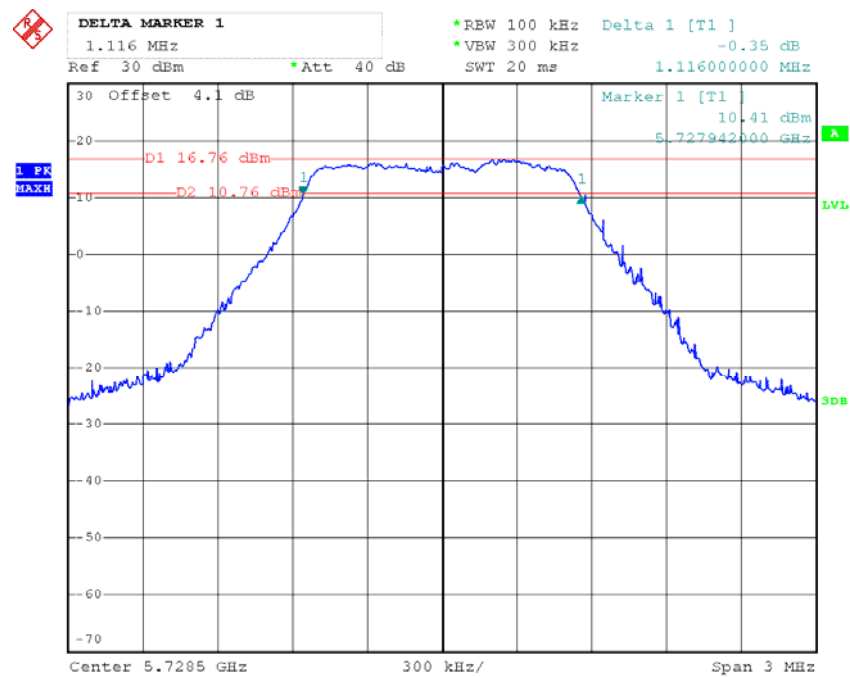
Date: 2.MAR.2018 20:29:06

802.11n ht20 High Channel



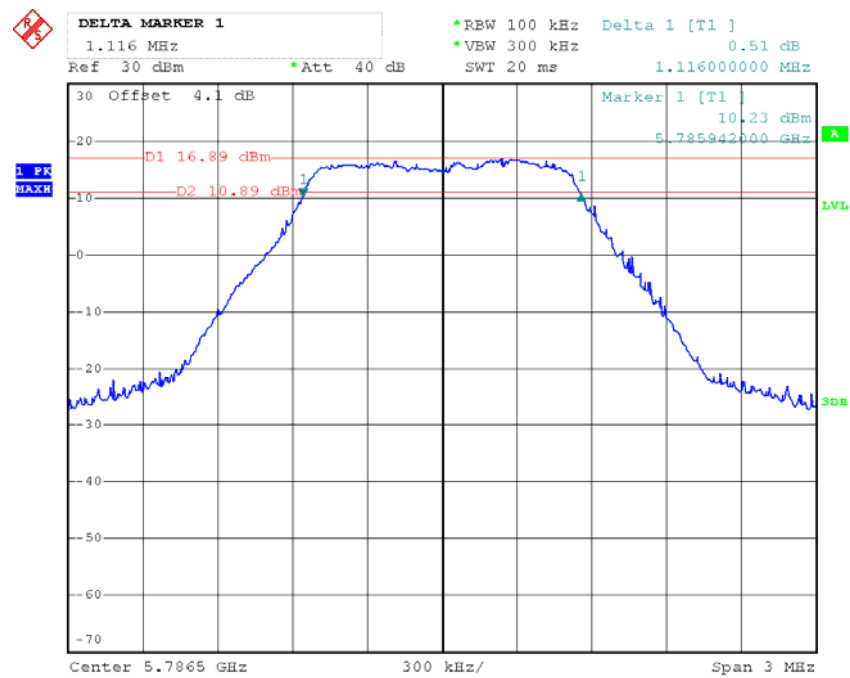
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1.4M Low Channel



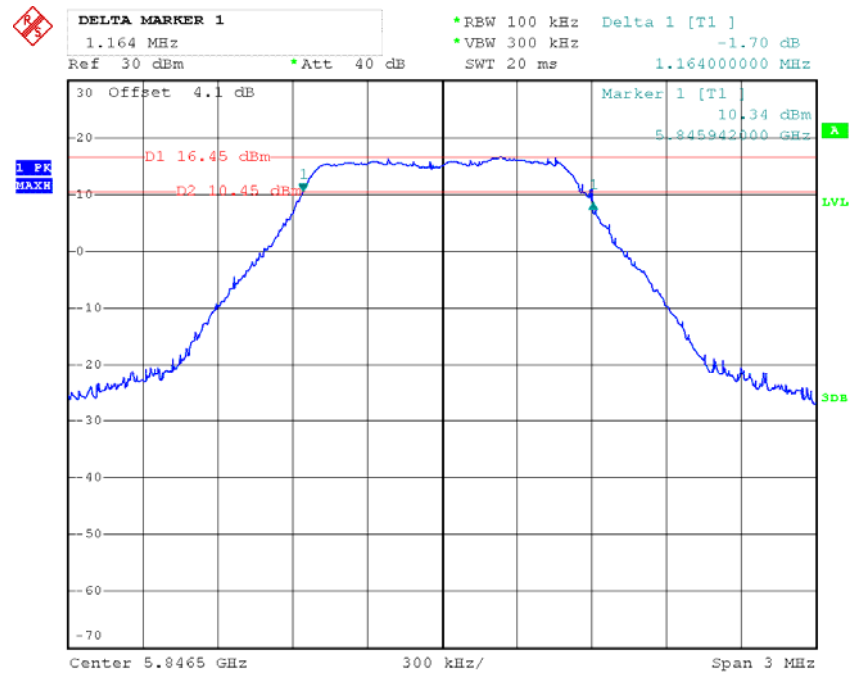
Date: 11.FEB.2018 09:57:47

1.4M Middle Channel



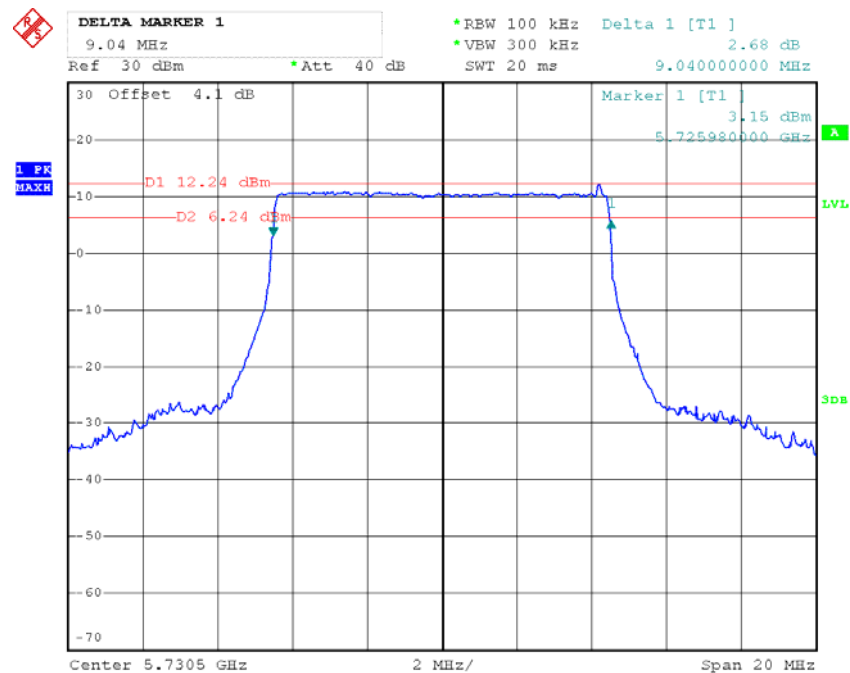
Date: 11.FEB.2018 09:59:34

1.4M High Channel



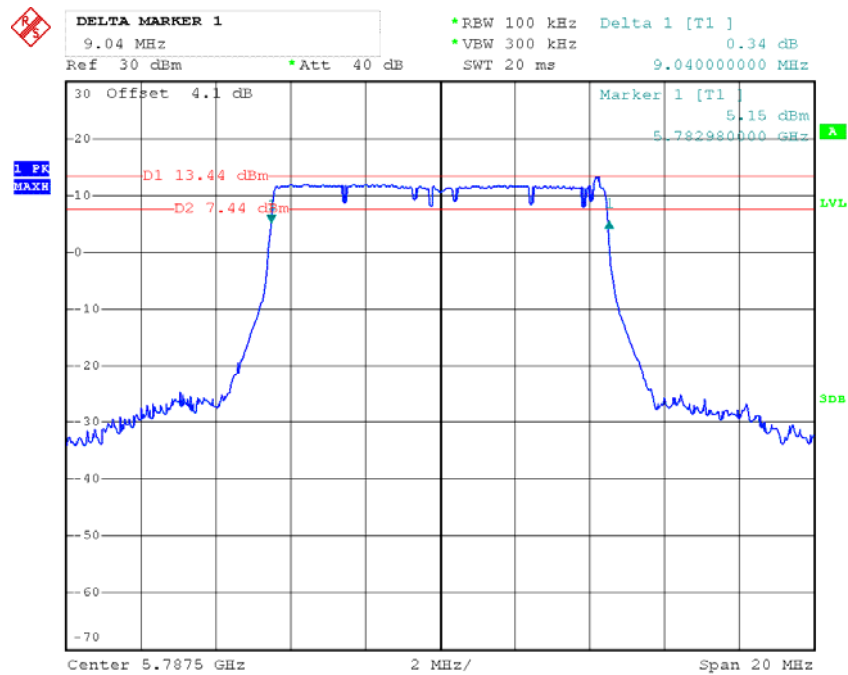
Date: 11.FEB.2018 10:14:01

10M Low Channel



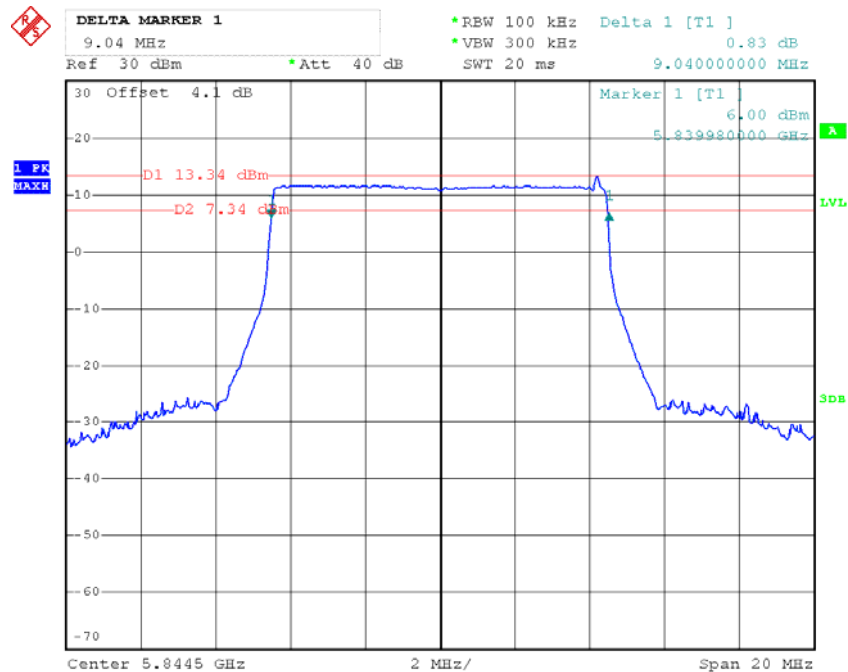
Date: 11.FEB.2018 13:06:53

10M Middle Channel



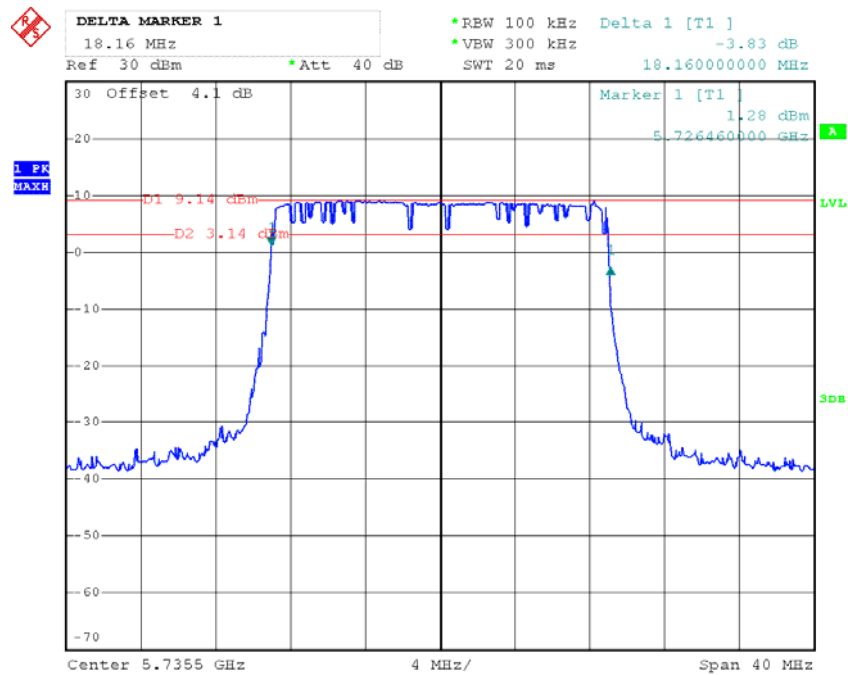
Date: 11.FEB.2018 13:10:43

10M High Channel



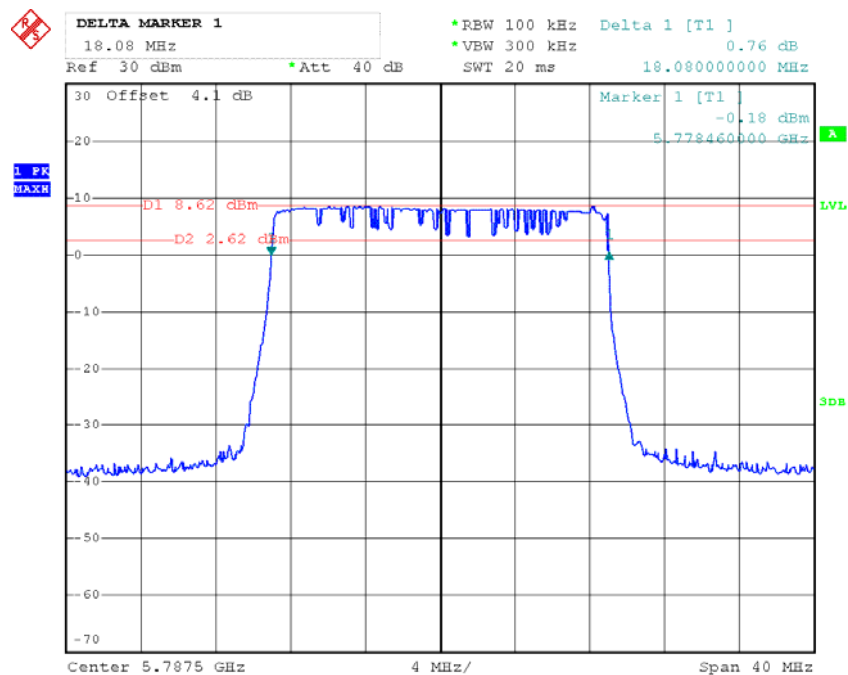
Date: 11.FEB.2018 13:21:32

20M Low Channel

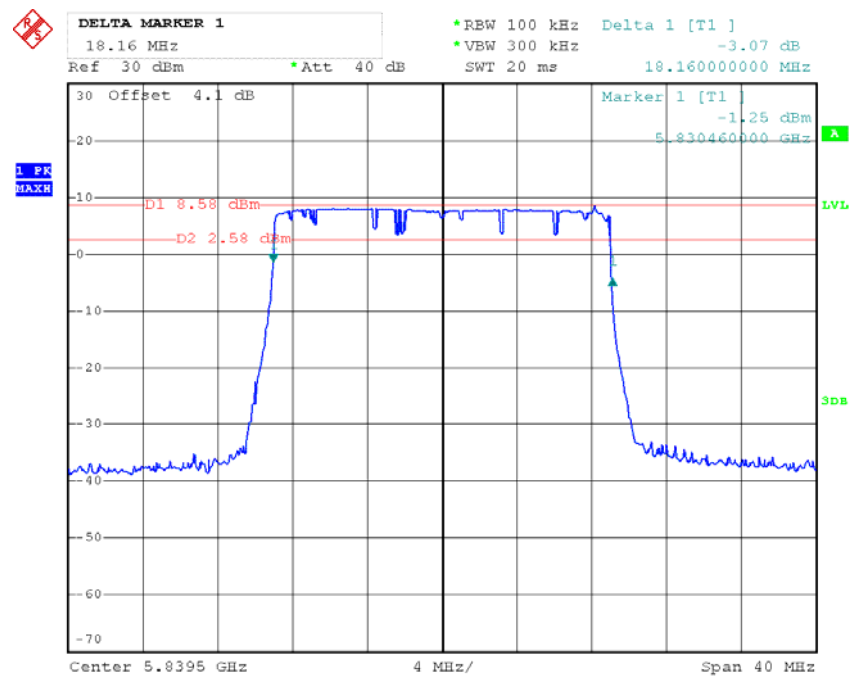


Date: 11.FEB.2018 14:12:41

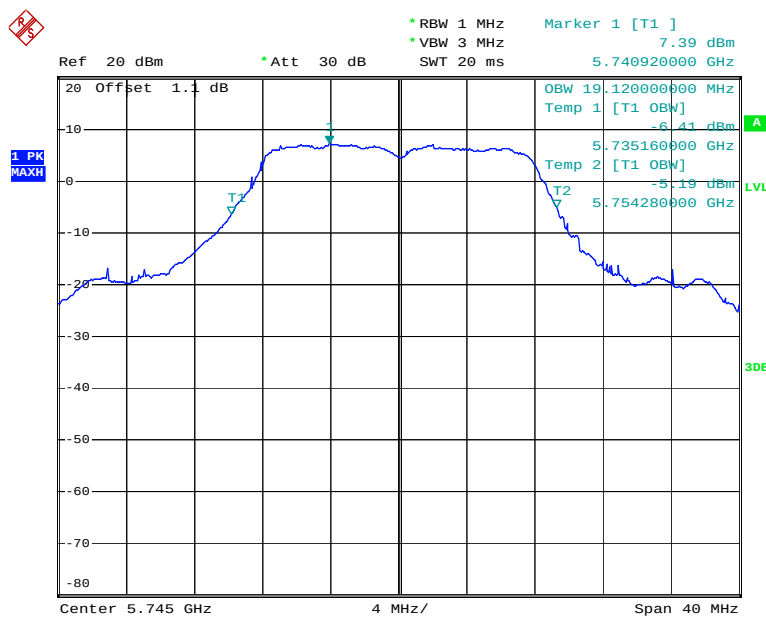
20M Middle Channel



Date: 11.FEB.2018 14:14:54

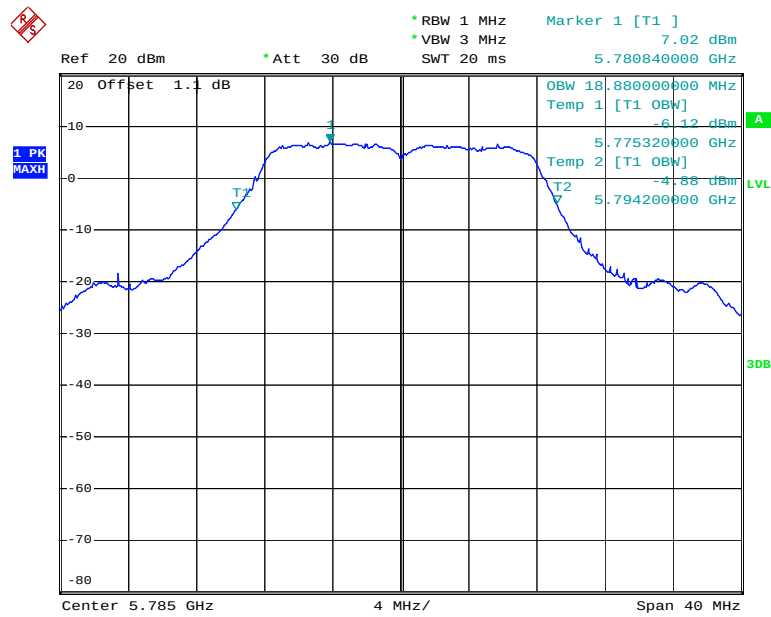
20M High Channel

Date: 11.FEB.2018 14:17:24

99% Occupied Bandwidth:**802.11a Low Channel**

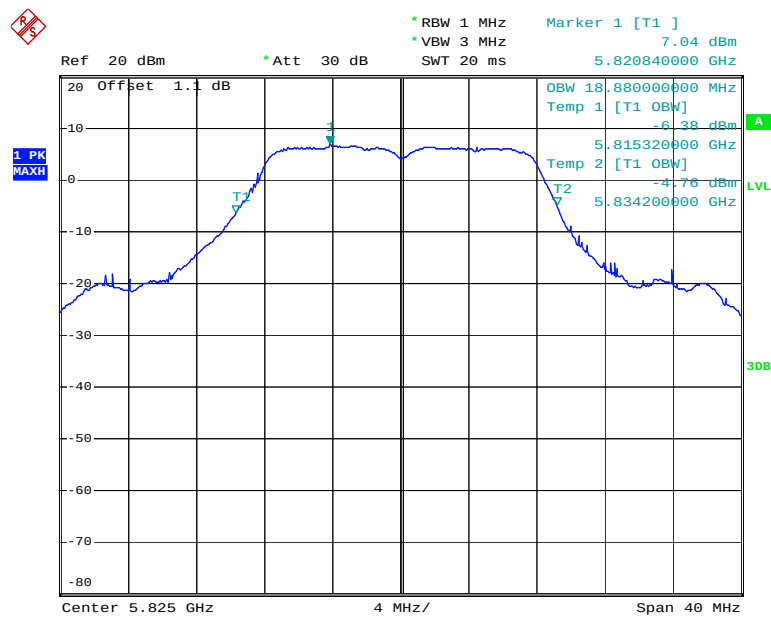
Date: 1.MAR.2018 21:18:30

802.11a Middle Channel



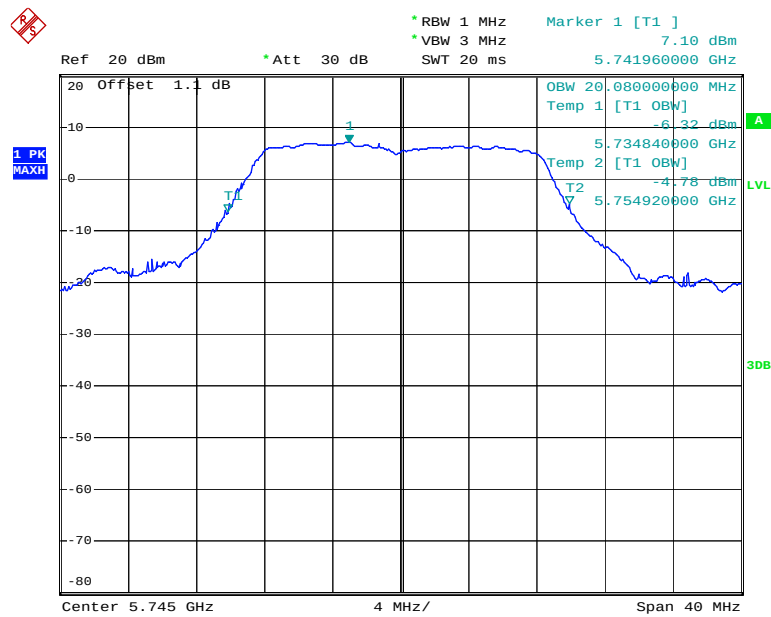
Date: 1.MAR.2018 21:20:38

802.11a High Channel



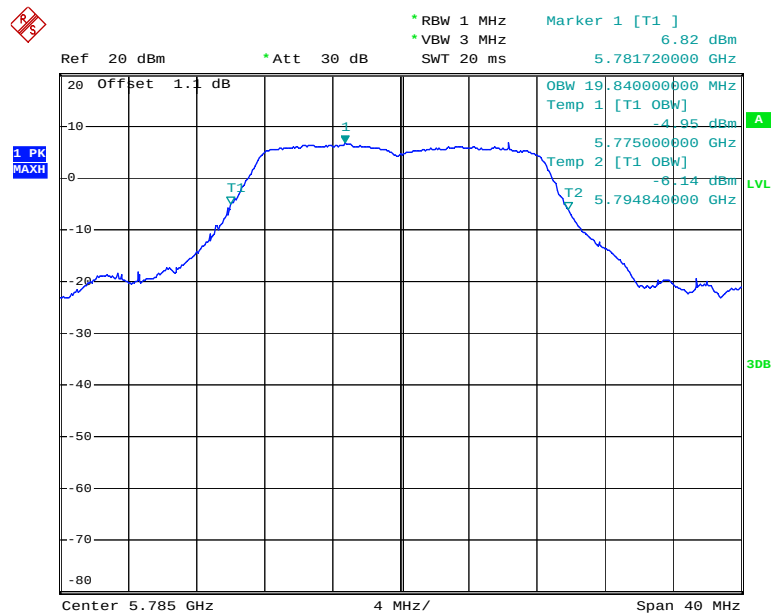
Date: 1.MAR.2018 21:21:58

802.11n ht20 Low Channel



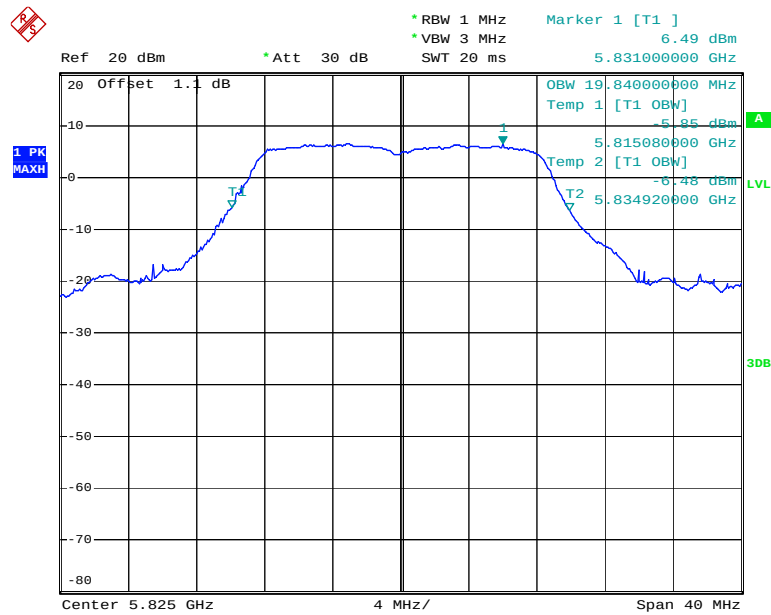
Date: 1.MAR.2018 21:24:05

802.11n ht20 Middle Channel



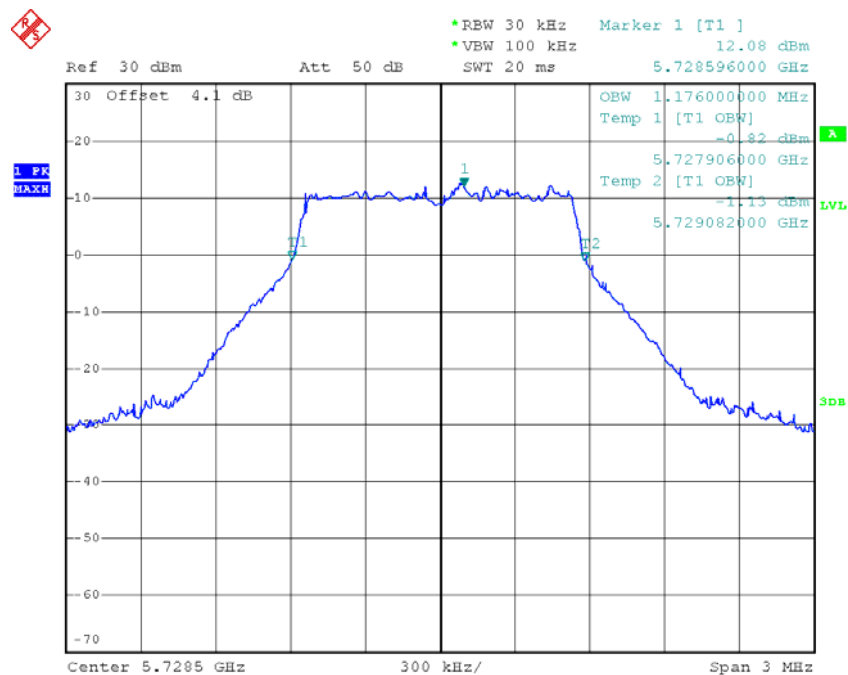
Date: 1.MAR.2018 21:26:10

802.11n ht20 High Channel

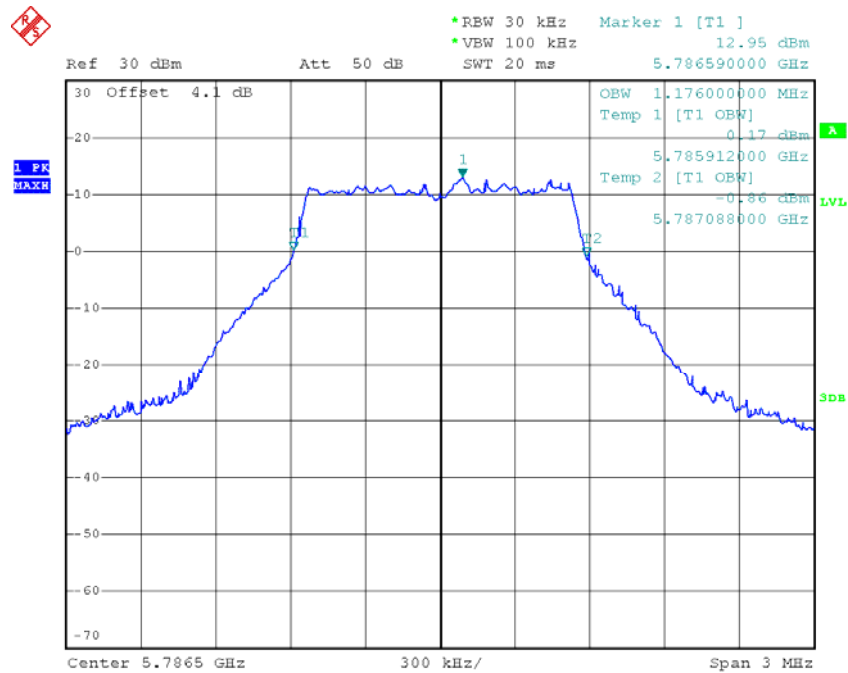


Date: 1.MAR.2018 21:27:45

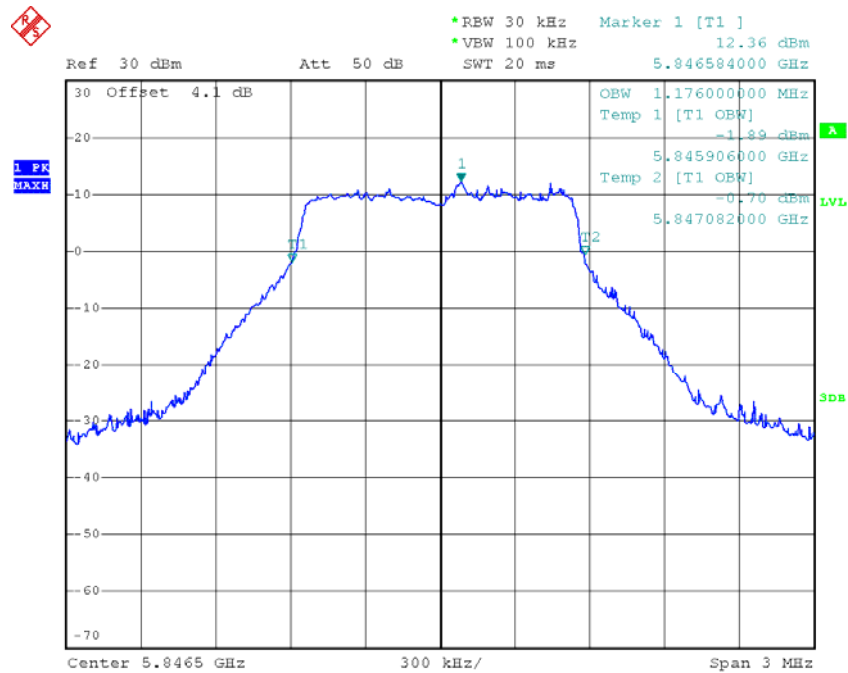
1.4M Low Channel



Date: 7.MAR.2018 18:41:42

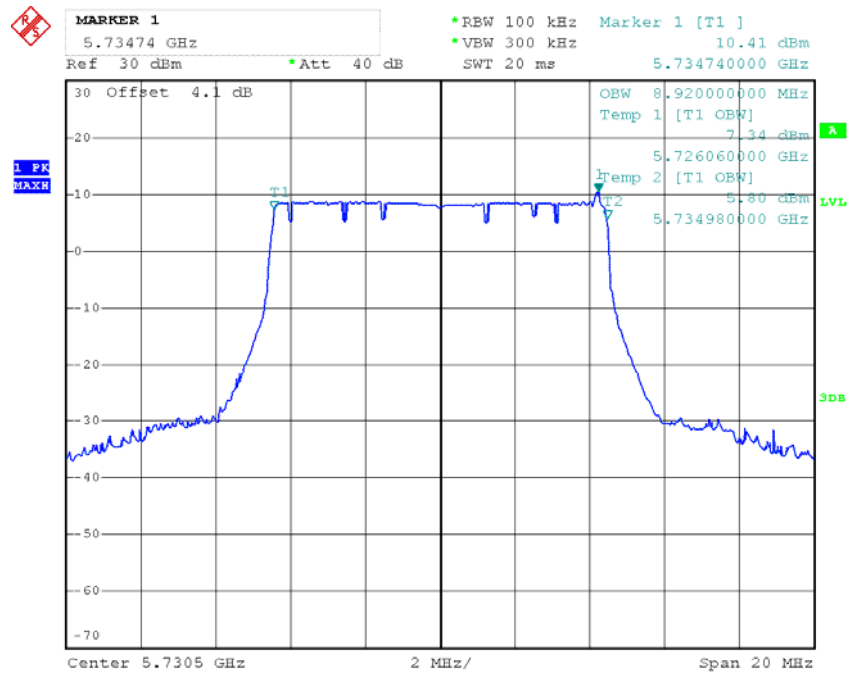
1.4M Middle Channel

Date: 7.MAR.2018 18:40:13

1.4M High Channel

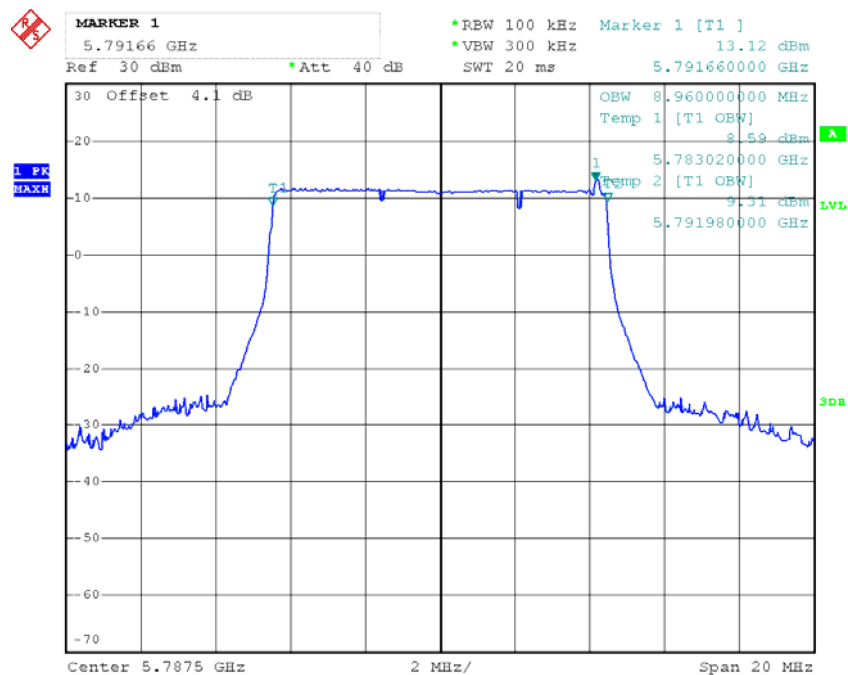
Date: 7.MAR.2018 18:42:15

10M Low Channel



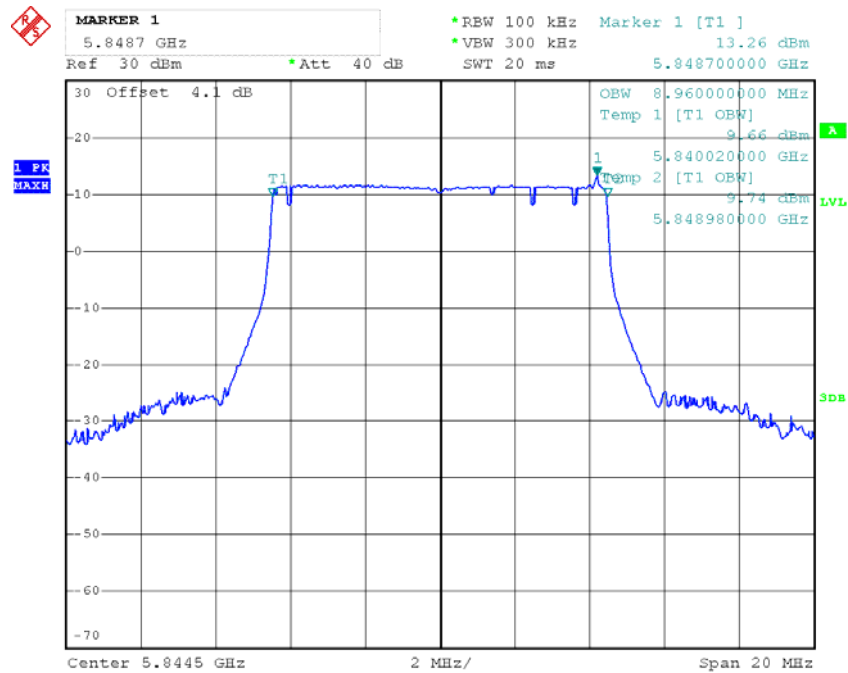
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10M Middle Channel



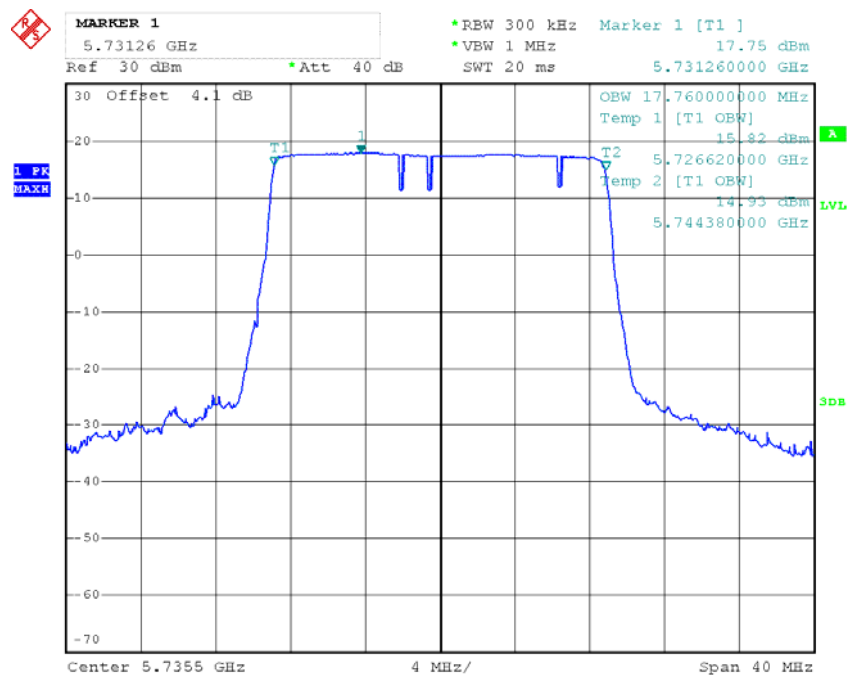
Date: 11.FEB.2018 11:46:55

10M High Channel



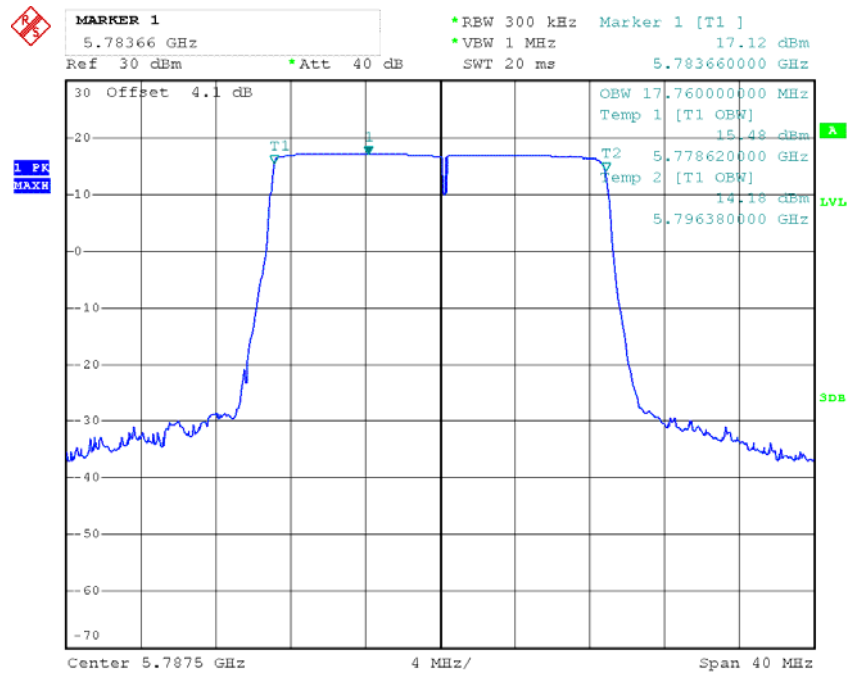
Date: 11.FEB.2018 11:48:20

20M Low Channel



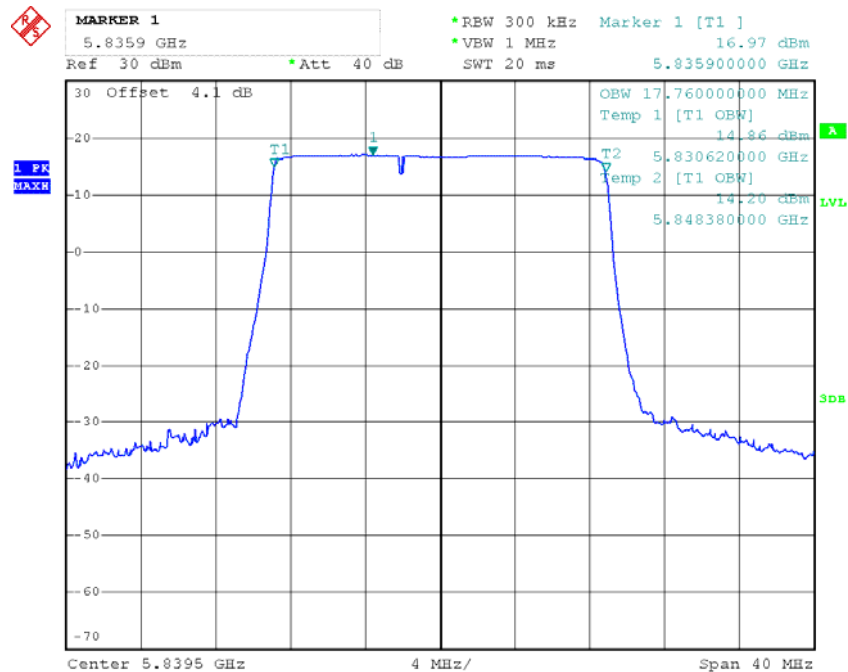
Date: 11.FEB.2018 14:07:58

20M Middle Channel



Date: 11.FEB.2018 14:05:50

20M High Channel



Date: 11.FEB.2018 14:09:49

FCC §15.407(a)– 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 $11 \text{ dBm} + 10 \log B$, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum

power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

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

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

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Agilent	Wideband Power Sensor	N1921A	MY54210016	2017-12-11	2018-12-11
Agilent	P-Series Power Meter	N1912A	MY5000448	2017-12-11	2018-12-11
Unknown	Coaxial Cable	0.1m	C-1	Each Time	/

* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Procedure

According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01

Test Data**Environmental Conditions**

Temperature:	26.5 °C
Relative Humidity:	54 %
ATM Pressure:	100.6 kPa

The testing was performed by Andy Huang on 2018-03-05.

Test Mode: Transmitting

802.11a/n ht20:

UNII Band	Mode	Frequency (MHz)	Maximum Conducted Average Output Power (dBm)			Limit (dBm)
			Chain 0	Chain 1	Total	
5150-5250MHz	802.11 a	5180	7.96	9.66	11.9	24
		5200	13.77	12.41	16.15	24
		5240	10.43	12.39	14.53	24
	802.11n ht20	5180	8.9	9.59	12.27	24
		5200	13.81	12.44	16.19	24
		5240	10.52	11.5	14.05	24
5725-5850MHz	802.11 a	5745	11.38	12.49	14.98	30
		5785	10.87	11.89	14.42	30
		5825	10.61	11.52	14.1	30
	802.11n ht20	5745	11.08	12.25	14.71	30
		5785	10.62	11.81	14.27	30
		5825	10.49	11.3	13.92	30

1.4MHz/10MHz/20MHz mode:

Mode	Frequency (MHz)	Conducted Average Output Power (dBm)		Limit (dBm)	Result
		Chain 0	Chain 1		
1.4MHz	5728.5	16.62	17.09	30	PASS
	5786.5	17.94	17.95	30	PASS
	5846.5	18.29	18.01	30	PASS
10MHz	5730.5	17.23	18.05	30	PASS
	5787.5	18.32	18.21	30	PASS
	5844.5	18.36	18.84	30	PASS
20MHz	5735.5	17.25	17.93	30	PASS
	5787.5	17.91	18.08	30	PASS
	5839.5	18.48	18.53	30	PASS

FCC §15.407(a) - 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 colocated 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 $11 + 10 \log B$ dBm, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output

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

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

Test Procedure

According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSP 38	100478	2017-12-08	2018-12-08
R&S	EMI Test Receiver	ESPI	100120	2017-12-11	2018-12-11
Unknown	Coaxial Cable	C-SJ00-0010	C0010/01	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:	21.1 °C~26.5 °C
Relative Humidity:	35 %~ 60 %
ATM Pressure:	100.6 kPa~102.1 kPa

The testing was performed by Andy Huang from 2018-02-11 to 2018-03-20.

Test Mode: Transmitting

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

802.11a/n ht20 mode:

5150-5250MHz:

Mode	Frequency (MHz)	Reading (dBm/MHz)		Total (dBm/MHz)	Limit (dBm/MHz)
		Chain 0	Chain 1		
802.11 a	5180	-1.65	-2.37	1.02	11
	5200	0.37	0.47	3.43	11
	5240	0.70	0.61	3.67	11
802.11n ht20	5180	-1.72	-2.65	0.85	11
	5200	1.06	1.96	4.54	11
	5240	0.79	0.65	3.73	11

Note: the maximum antenna gain is 3.51 dBi, the device employed Cyclic Delay Diversity (CDD) for 802.11 MIMO transmitting, per KDB 662911 D01 Multiple Transmitter Output v02r01, for power spectral density (PSD) measurements on the devices:

$$\text{Array Gain} = 10 \log(N_{\text{ANT}}/N_{\text{SS}}) \text{ dB.}$$

So:

$$\text{Directional gain} = \text{GANT} + \text{Array Gain} = 3.51 + 10 \log(1) = 3.51 \text{ dBi}$$

5725-5850MHz

Mode	Frequency (MHz)	Reading (dBm/300kHz)		Total (dBm/ 500kHz)		Total (dBm/ 500kHz)	Limit (dBm/ 500kHz)
		Chain 0	Chain 1	Chain 0	Chain 1		
802.11 a	5745	-4.81	-2.83	-2.59	-0.61	1.52	29.93
	5785	-4.49	-3.05	-2.27	-0.83	1.52	29.93
	5825	-5.33	-3.55	-3.11	-1.33	0.88	29.93
802.11n ht20	5745	-3.07	-1.97	-0.85	0.25	0.25	29.93
	5785	-4.25	-3.28	-2.03	-1.06	-1.06	29.93
	5825	-4.40	-3.59	-2.18	-1.37	-1.37	29.93

Note: the maximum antenna gain is 6.07 dBi, the device employed Cyclic Delay Diversity (CDD) for 802.11 MIMO transmitting, per KDB 662911 D01 Multiple Transmitter Output v02r01, for power spectral density (PSD) measurements on the devices:

$$\text{Array Gain} = 10 \log(N_{\text{ANT}}/N_{\text{SS}}) \text{ dB.}$$

So:

$$\text{Directional gain} = \text{GANT} + \text{Array Gain} = 6.07 + 10 \log(1) = 6.07 \text{ dBi}$$

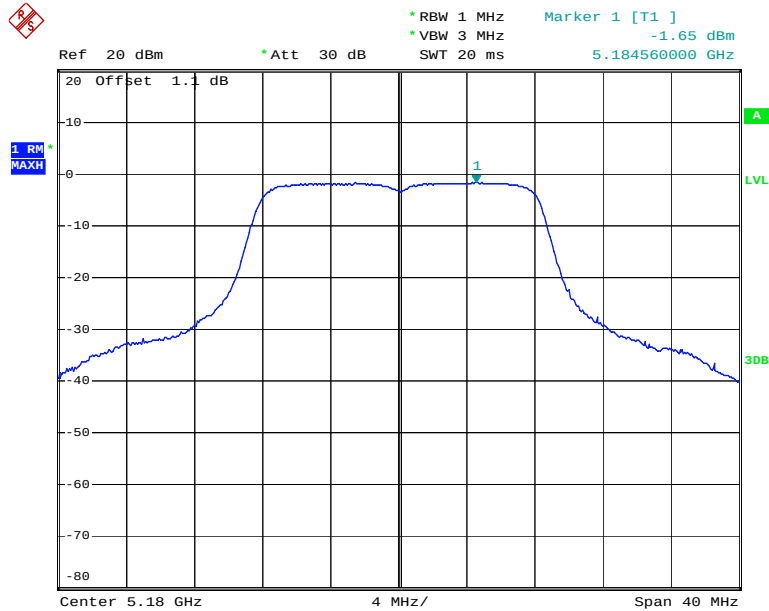
1.4MHz/10MHz/20MHz mode:

Mode	Frequency (MHz)	Reading (dBm/300kHz)		Power Density (dBm/500kHz)		
		Chain 0	Chain 1	Chain 0	Chain 1	Limit
1.4MHz	5728.5	14.83	15.44	17.05	17.66	30
	5786.5	14.76	14.9	16.98	17.12	30
	5846.5	14.58	14.5	16.8	16.72	30
10MHz	5730.5	8.68	9.59	10.9	11.81	30
	5787.5	9.31	9.38	11.53	11.6	30
	5844.5	9.63	9.37	11.85	11.59	30
20MHz	5735.5	4.81	6.33	7.03	8.55	30
	5787.5	5.68	5.69	7.9	7.91	30
	5839.5	5.81	5.99	8.03	8.21	30

Note 1: 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 ($< 500 \text{ KHz}$) is the reduced resolution bandwidth of the spectrum analyzer set during measurement.

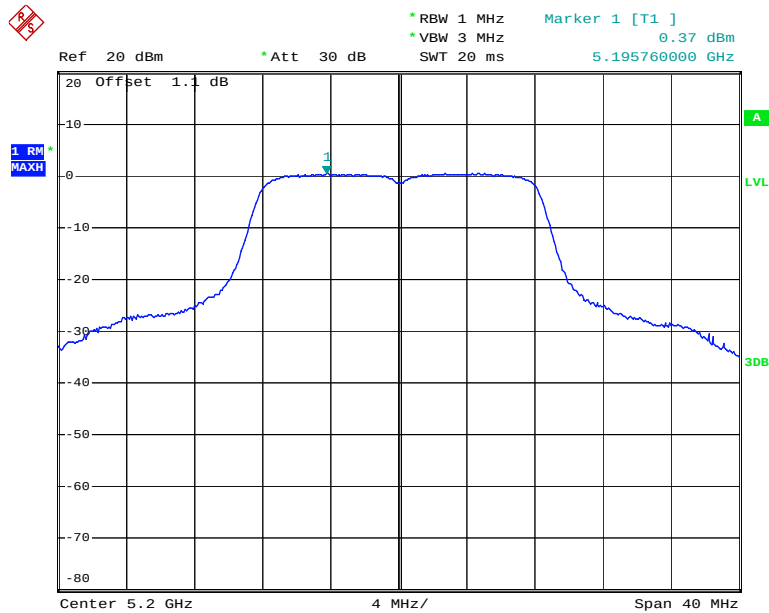
5150-5250MHz
Chain 0:

802.11a, Low Channel



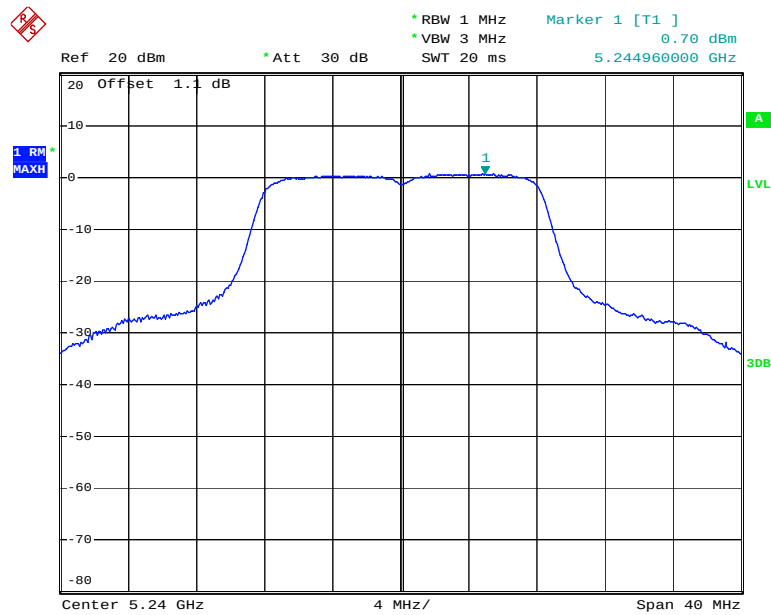
Date: 1.MAR.2018 23:50:13

802.11a, Middle Channel



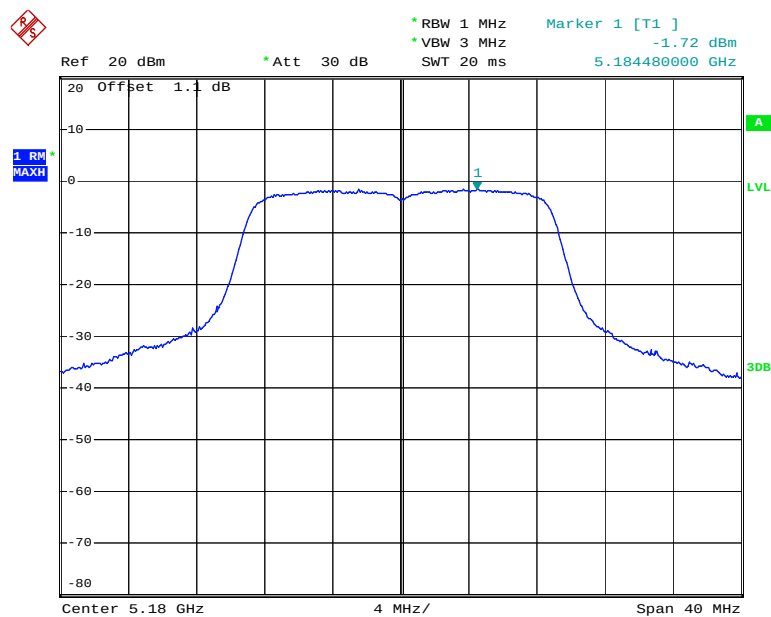
Date: 1.MAR.2018 21:52:53

802.11a, High Channel



Date: 12.MAR.2018 10:13:56

802.11n ht20, Low Channel



Date: 1.MAR.2018 23:50:56

Ref 20 dBm * Att 30 dB * RBW 1 MHz VBW 3 MHz SWT 20 ms 1.06 dBm 5.203600000 GHz

20 Offset 1.1 dB

1. RM MAXH

1

30

40

50

60

70

80

Center 5.2 GHz 4 MHz/ Span 40 MHz

Date: 1.MAR.2018 22:04:36

Ref 20 dBm * Att 30 dB * RBW 1 MHz * VBW 3 MHz * SWT 20 ms Marker 1 [T1] 0.79 dBm 5.245040000 GHz

20 Offset 1.1 dB

1. RM MAXH

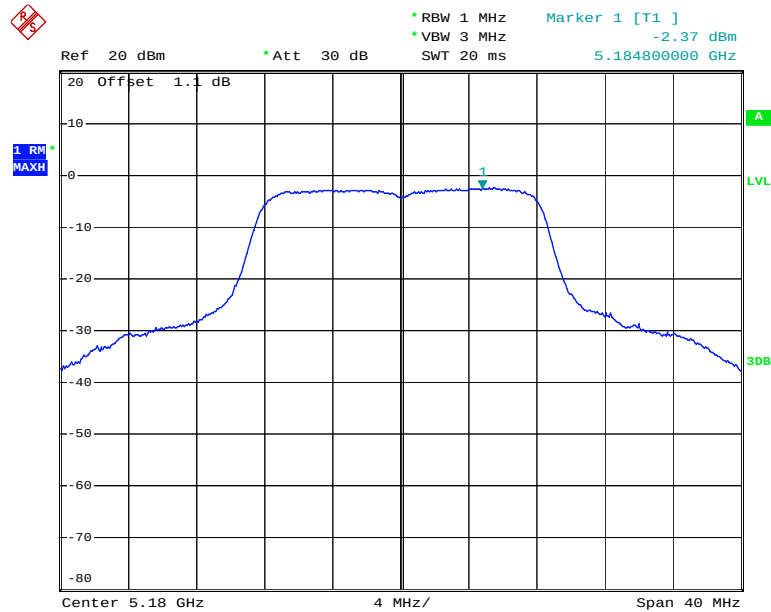
1

Center 5.24 GHz 4 MHz/ Span 40 MHz

Date: 12.MAR.2018 10:08:28

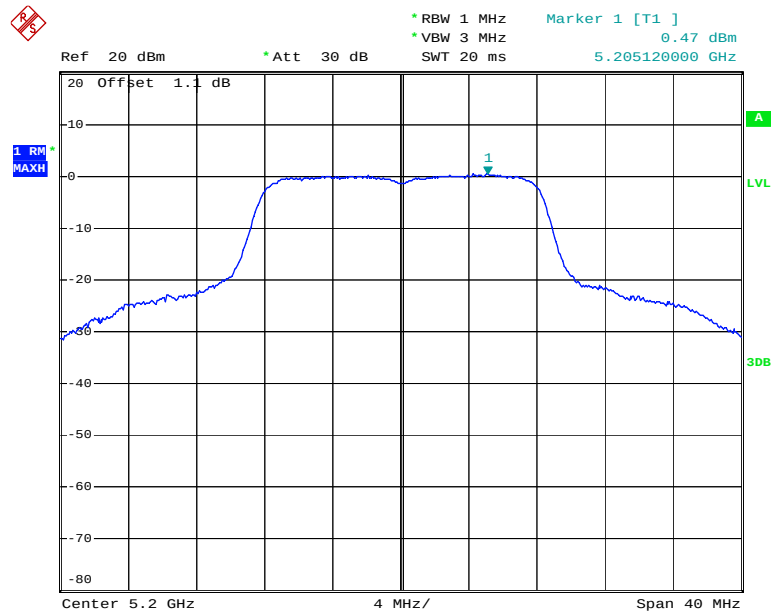
Chain 1:

802.11a, Low Channel



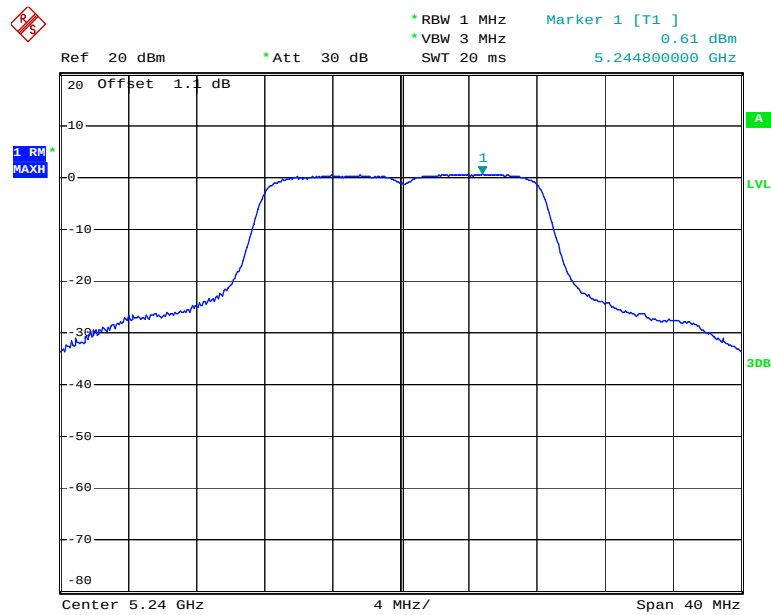
Date: 1.MAR.2018 23:51:50

802.11a, Middle Channel



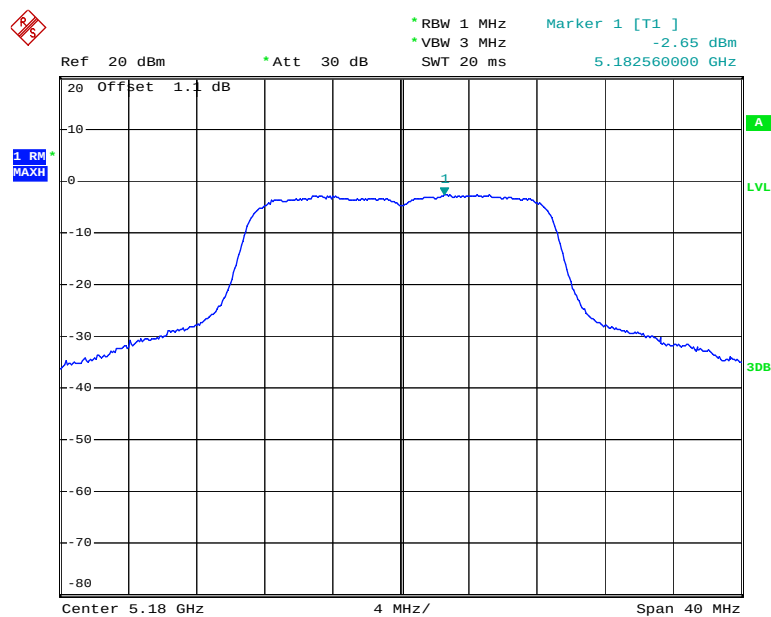
Date: 1.MAR.2018 23:53:24

802.11a, High Channel



Date: 12.MAR.2018 10:23:26

802.11n ht20, Low Channel



Date: 1.MAR.2018 23:51:32

[illegible]

Date: 1.MAR.2018 22:36:38

Ref 20 dBm * Att 30 dB * RBW 1 MHz * VBW 3 MHz * SWT 20 ms 0.65 dBm 5.242560000 GHz

20 Offset 1.1 dB

1 RM MAXH

1

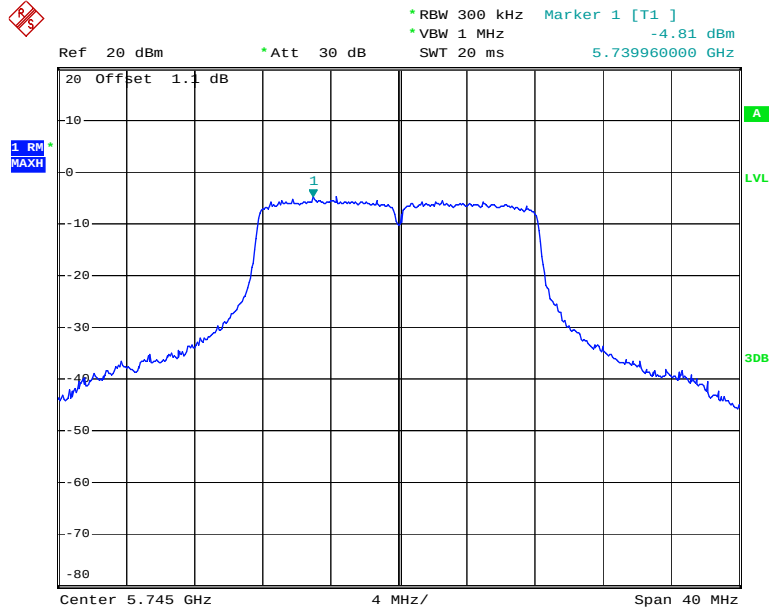
3dB

Center 5.24 GHz 4 MHz/ Span 40 MHz

Date: 12.MAR.2018 10:22:42

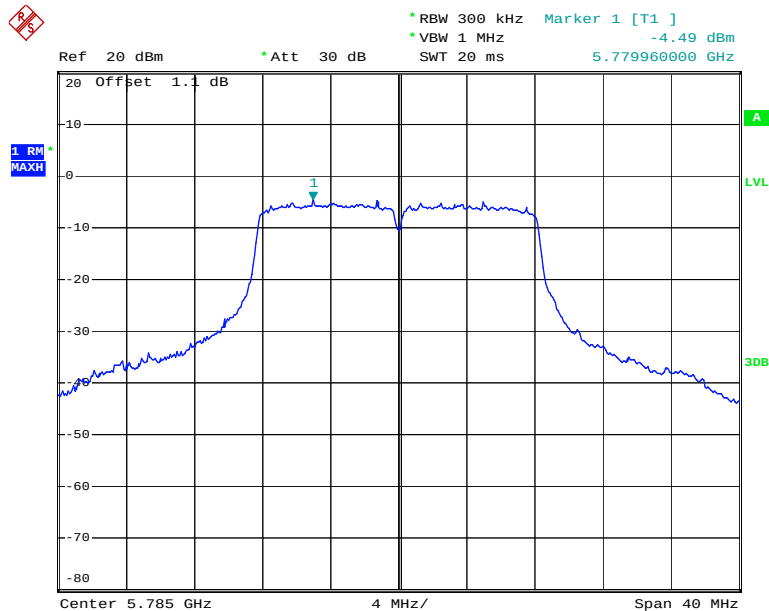
5725-5850MHz
Chain 0:

802.11a, Low Channel



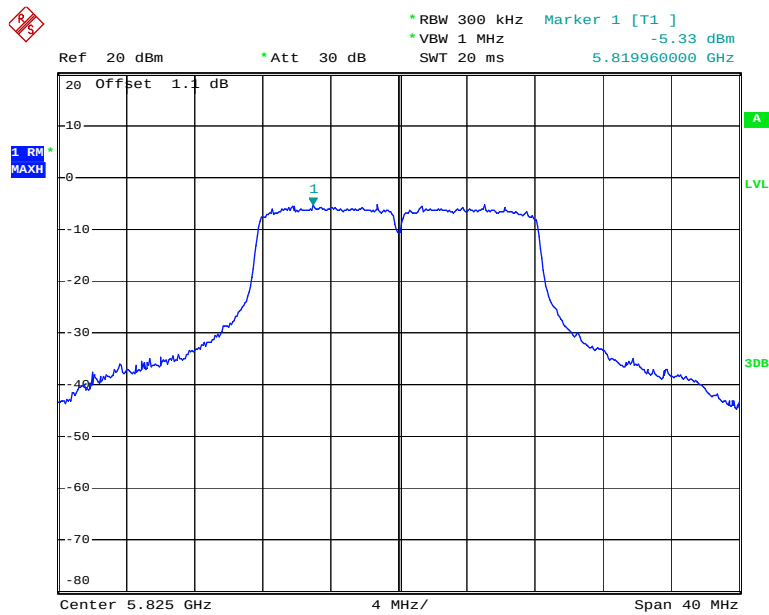
Date: 20.MAR.2018 11:17:25

802.11a, Middle Channel



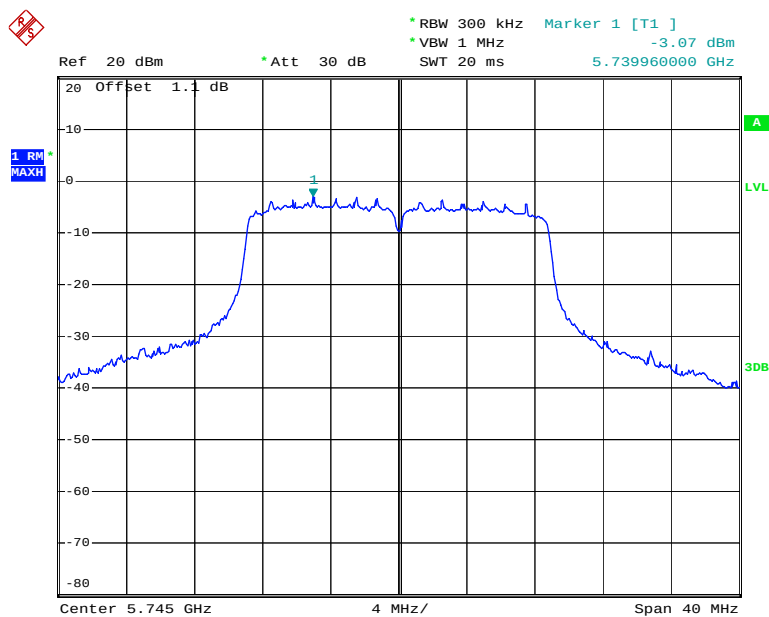
Date: 20.MAR.2018 11:18:37

802.11a, High Channel



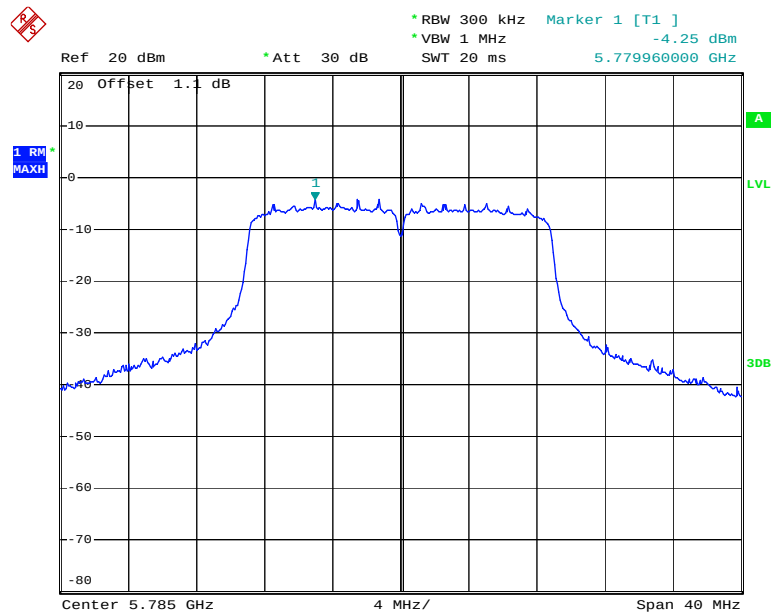
Date: 20.MAR.2018 11:19:19

802.11n ht20, Low Channel



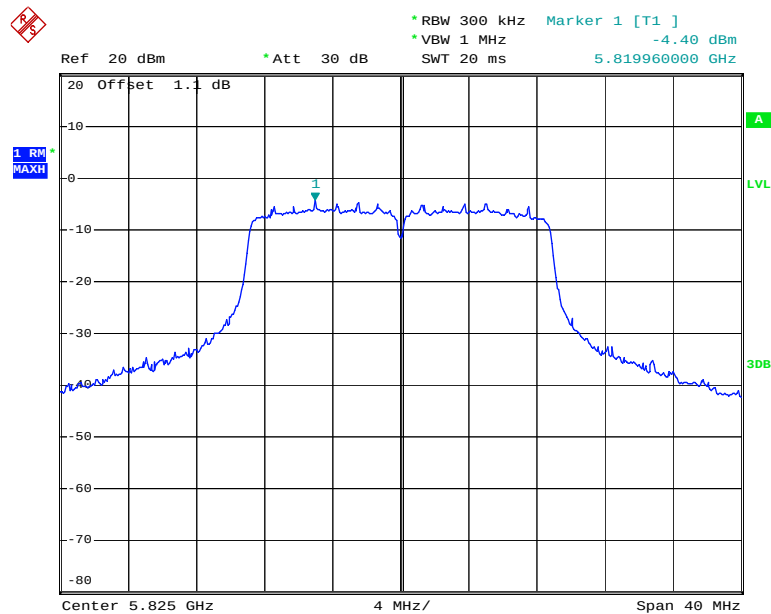
Date: 20.MAR.2018 11:21:14

802.11n ht20, Middle Channel



Date: 20.MAR.2018 11:20:28

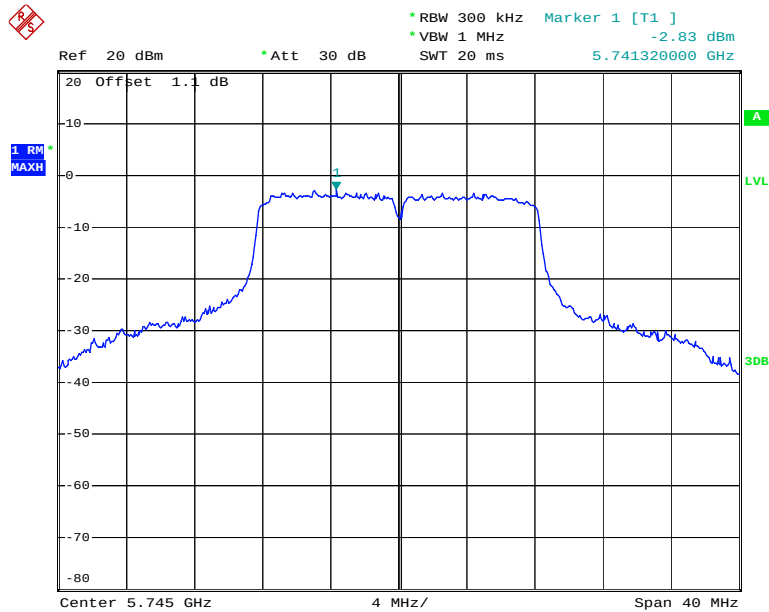
802.11n ht20, High Channel



Date: 20.MAR.2018 11:19:57

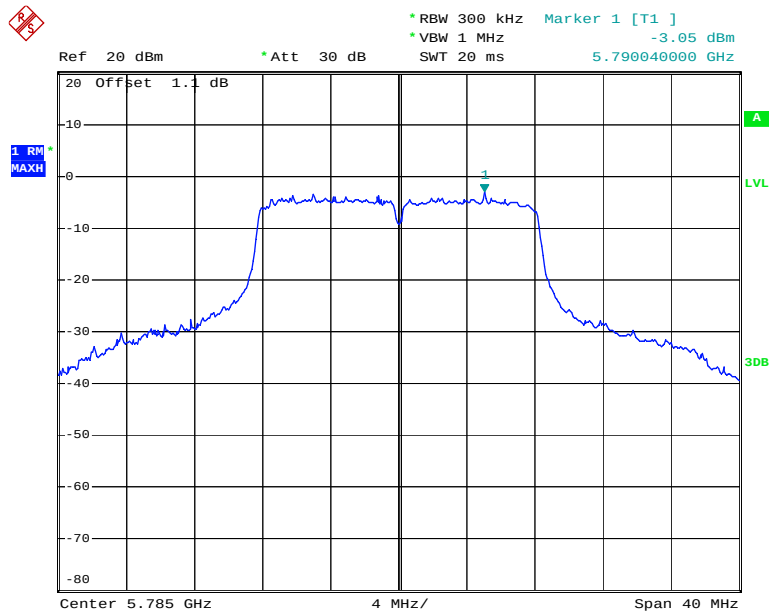
Chain 1:

802.11a, Low Channel



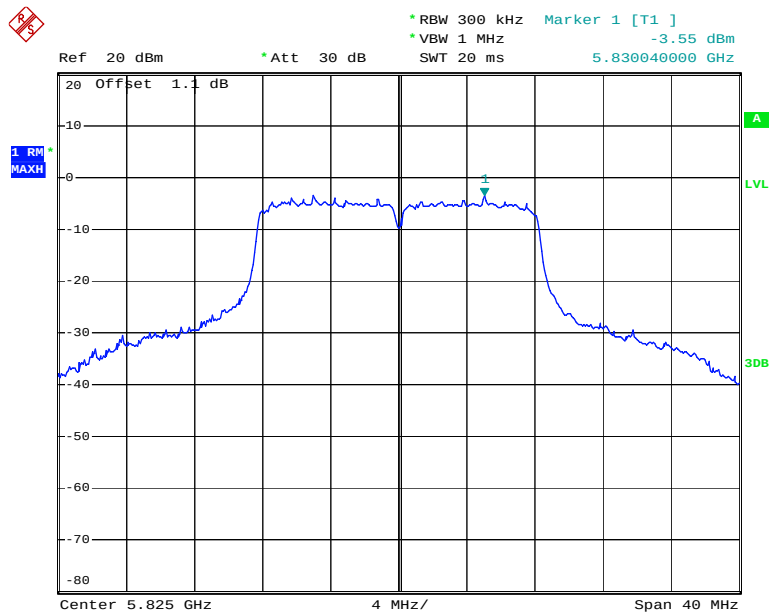
Date: 20.MAR.2018 11:29:19

802.11a, Middle Channel



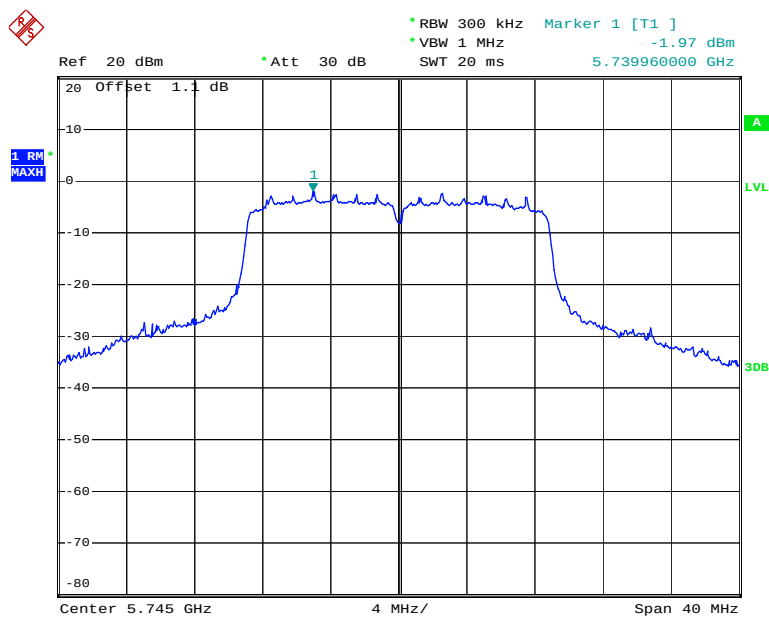
Date: 20.MAR.2018 11:28:13

802.11a, High Channel



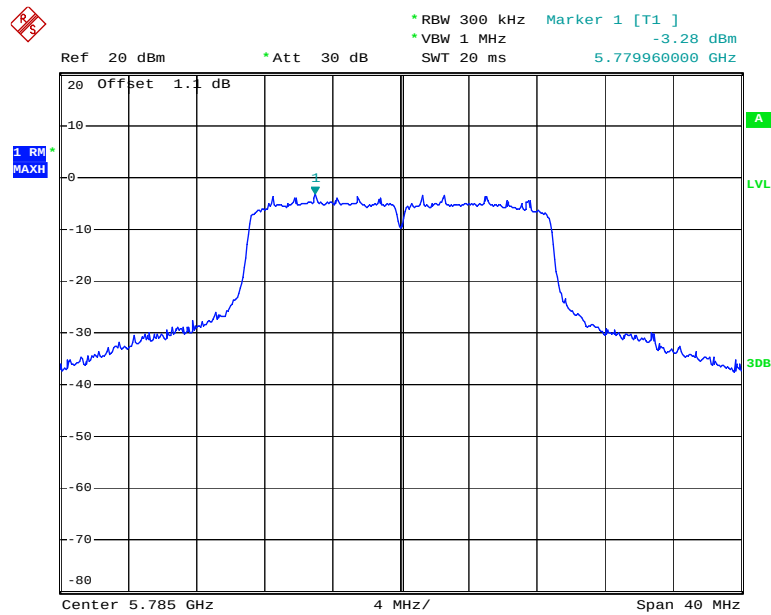
Date: 20.MAR.2018 11:27:27

802.11n ht20, Low Channel



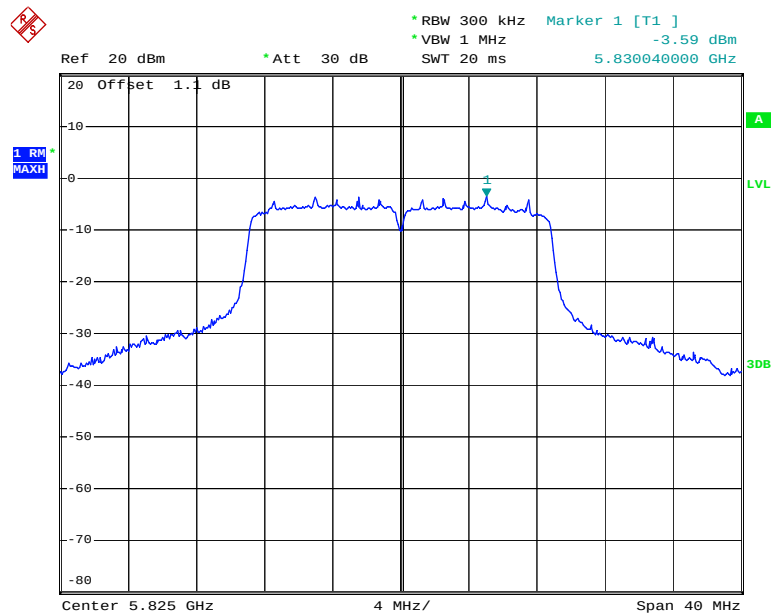
Date: 20.MAR.2018 11:24:14

802.11n ht20, Middle Channel



Date: 20.MAR.2018 11:25:04

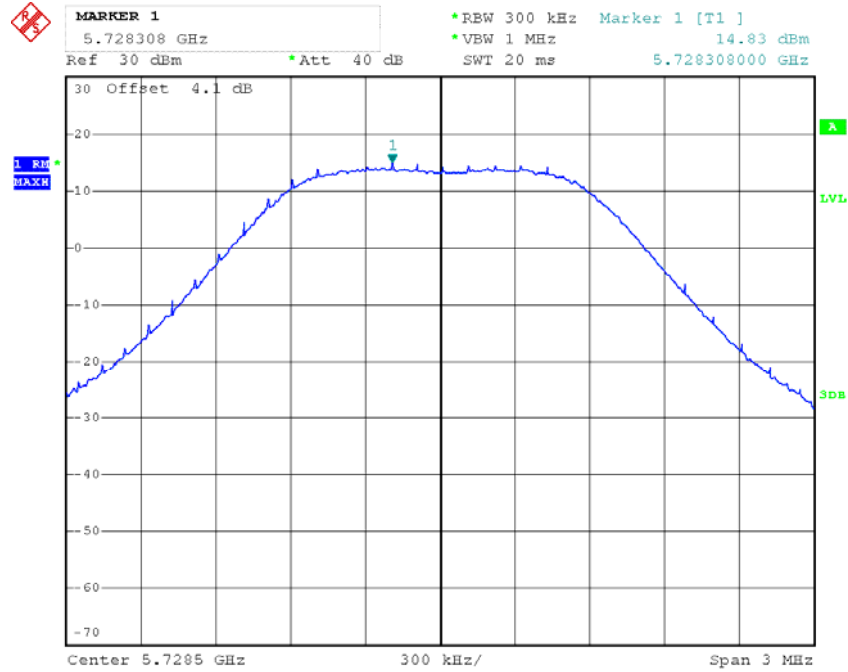
802.11n ht20, High Channel



Date: 20.MAR.2018 11:25:37

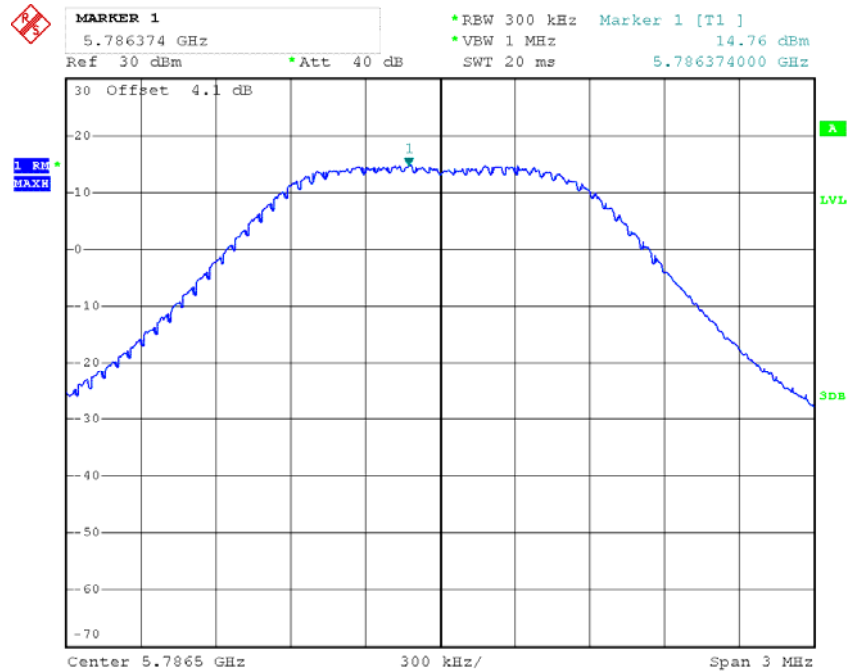
1.4/10/20MHz:
Chain 0:

1.4M Low Channel



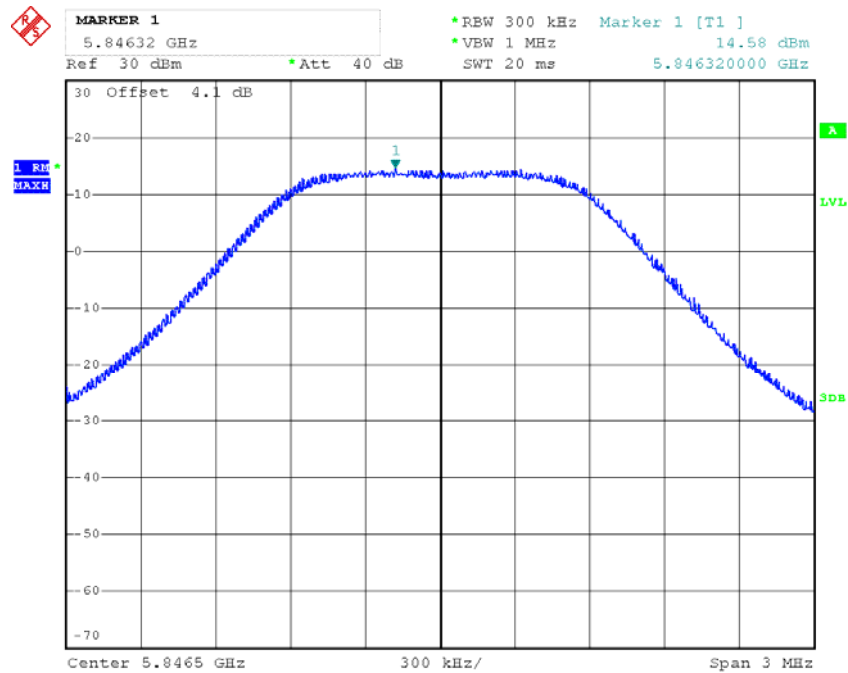
Date: 11.FEB.2018 10:45:28

1.4M Middle Channel



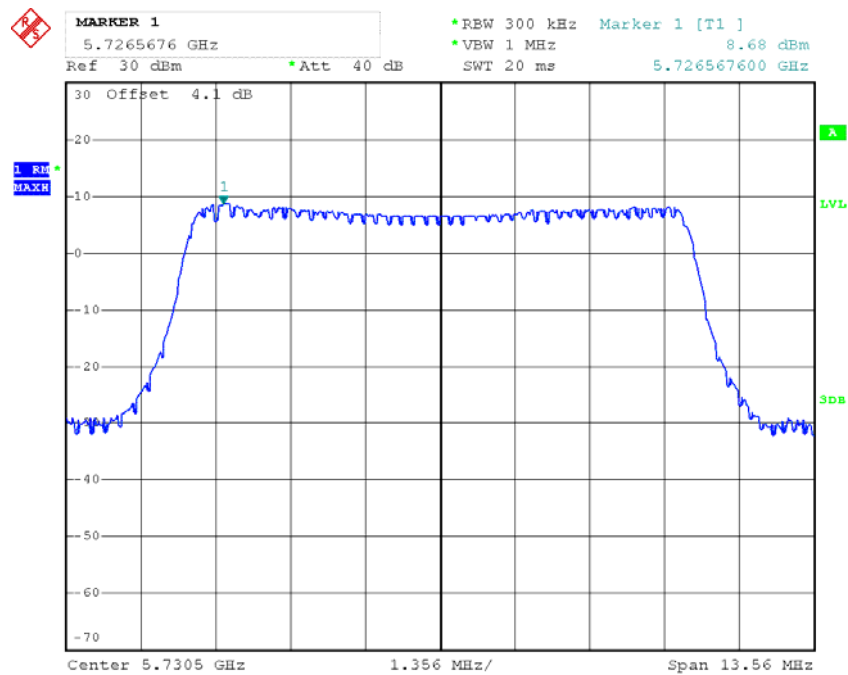
Date: 11.FEB.2018 10:43:26

1.4M High Channel

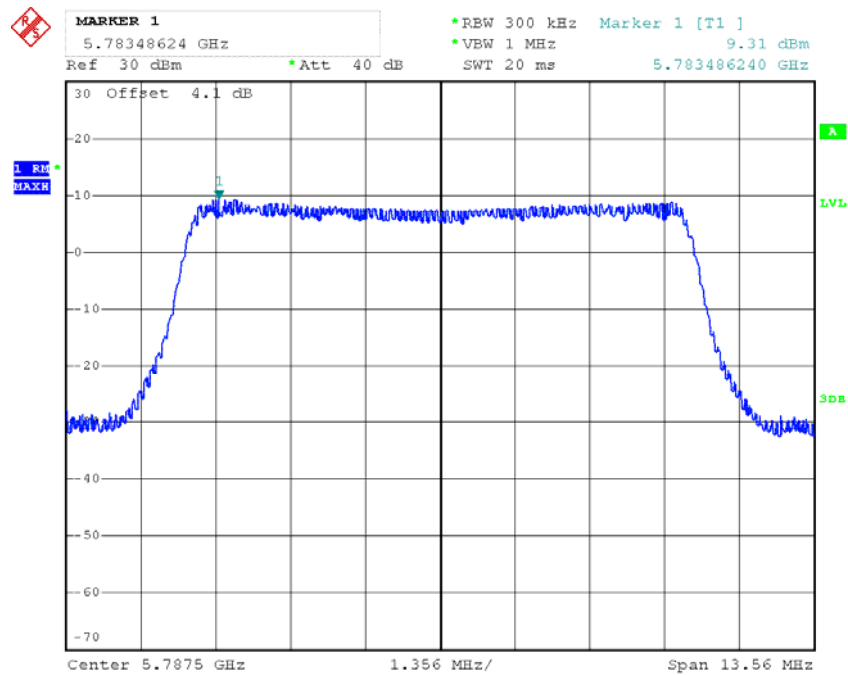


Date: 11.FEB.2018 10:42:22

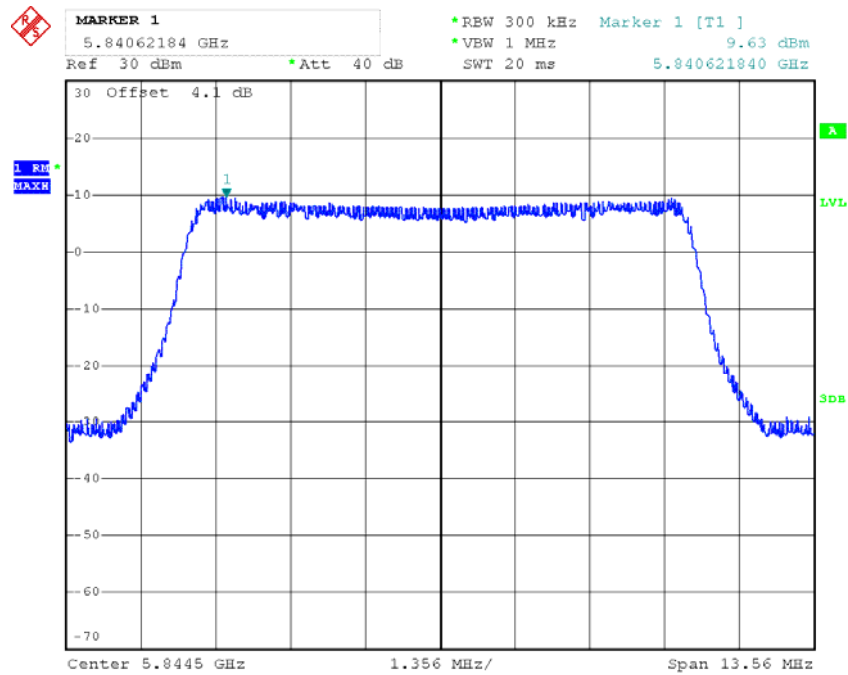
10M Low Channel



Date: 11.FEB.2018 13:44:33

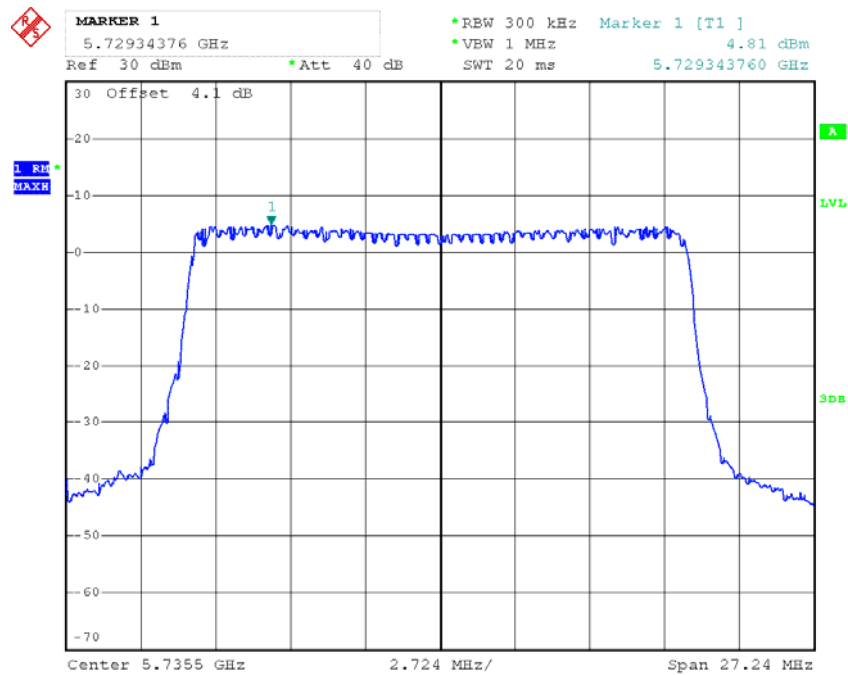
10M Middle Channel

Date: 11.FEB.2018 13:46:03

10M High Channel

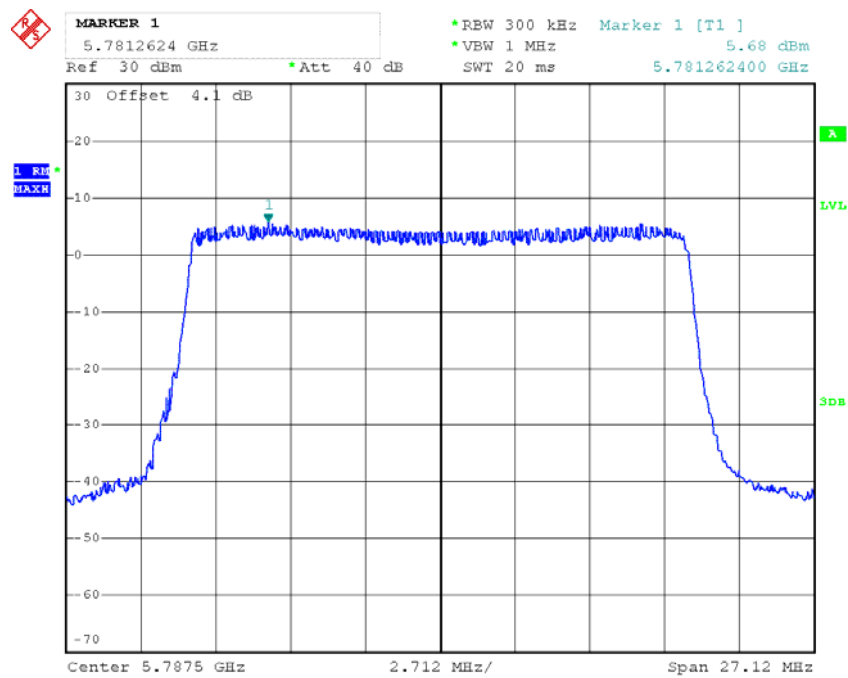
Date: 11.FEB.2018 13:47:13

20M Low Channel



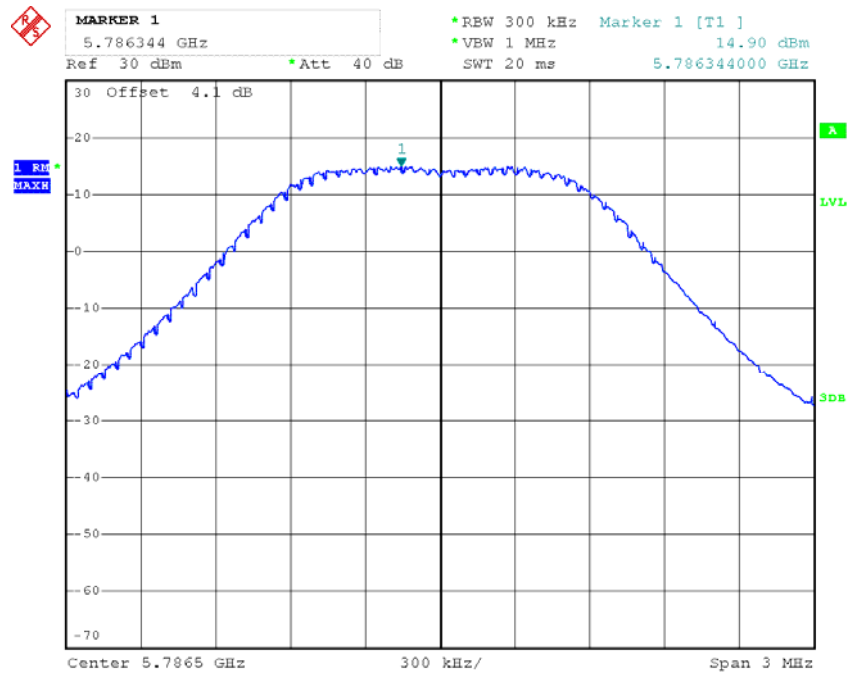
Date: 11.FEB.2018 14:55:55

20M Middle Channel



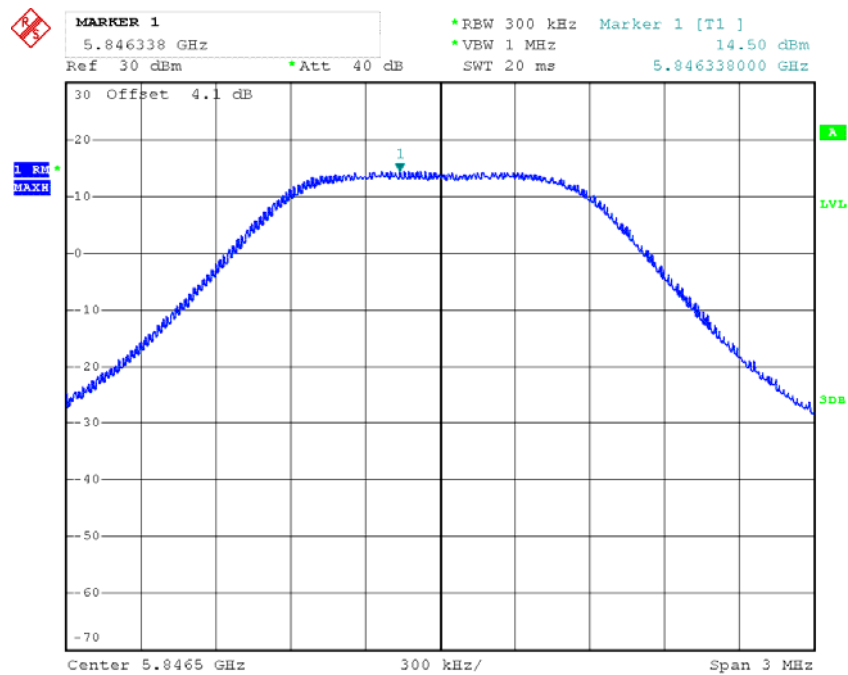
Date: 11.FEB.2018 14:57:39

1.4M Middle Channel



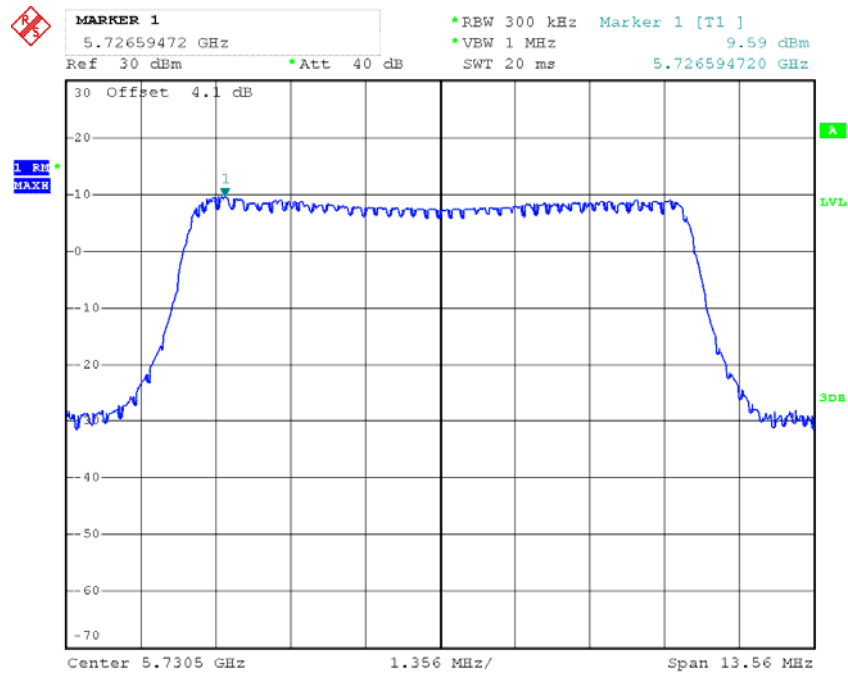
Date: 11.FEB.2018 10:36:10

1.4M High Channel



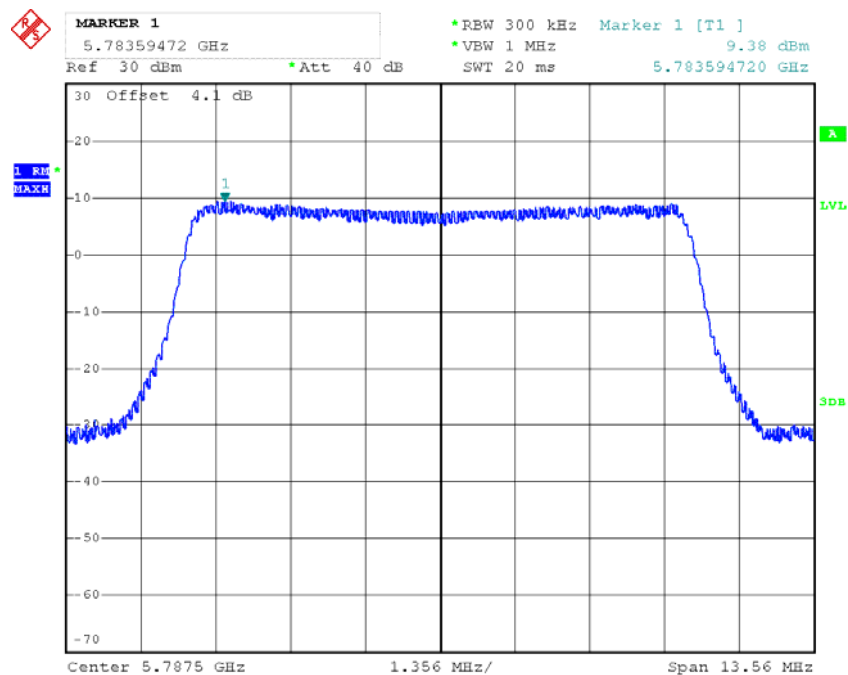
Date: 11.FEB.2018 10:38:07

10M Low Channel



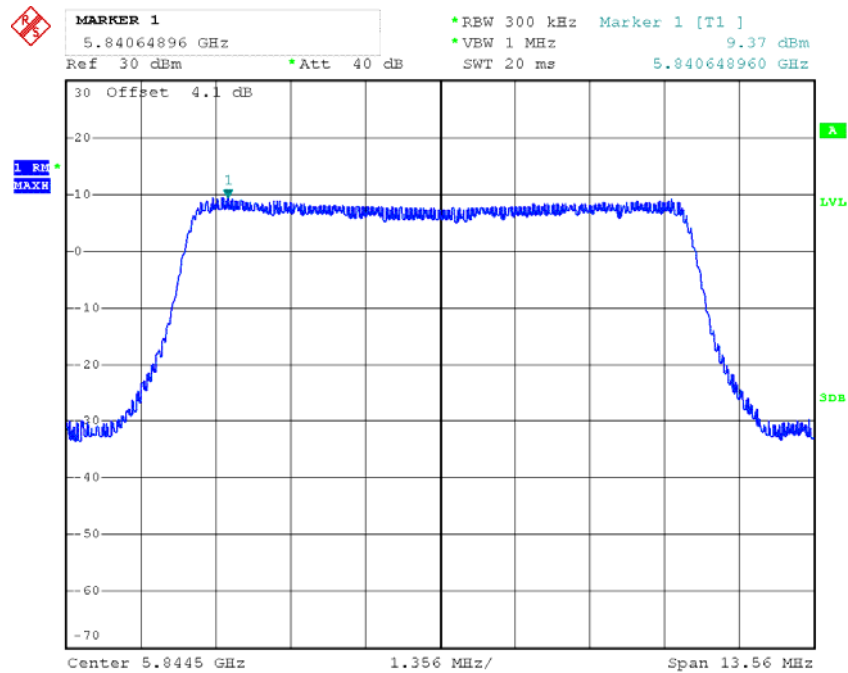
Date: 11.FEB.2018 13:37:08

10M Middle Channel



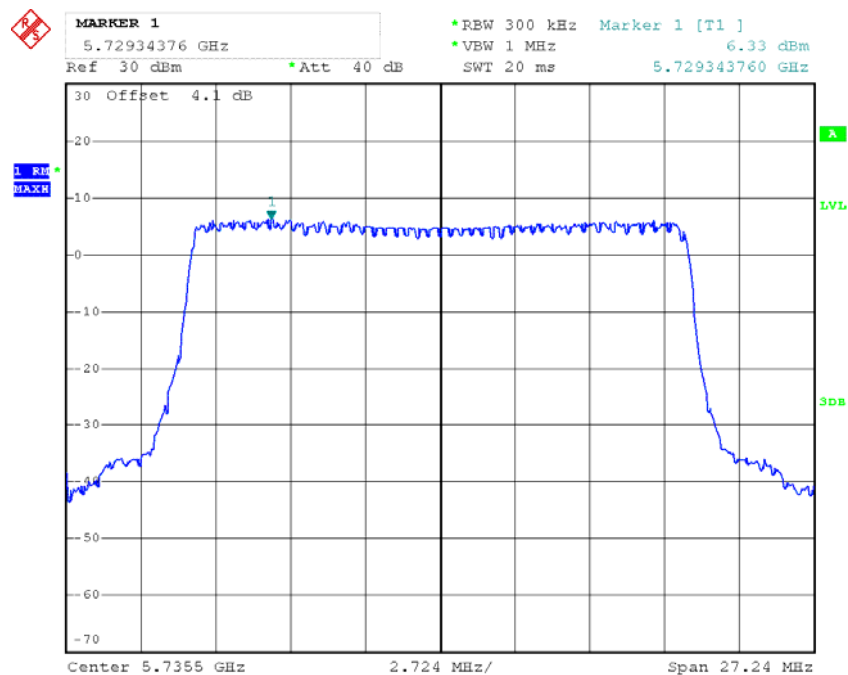
Date: 11.FEB.2018 13:39:05

10M High Channel



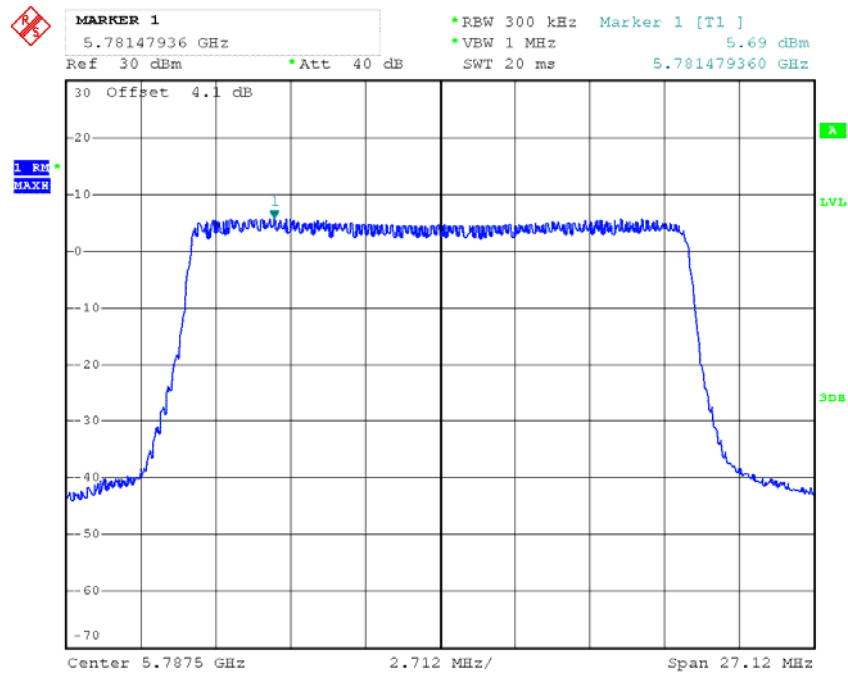
Date: 11.FEB.2018 13:41:01

20M Low Channel



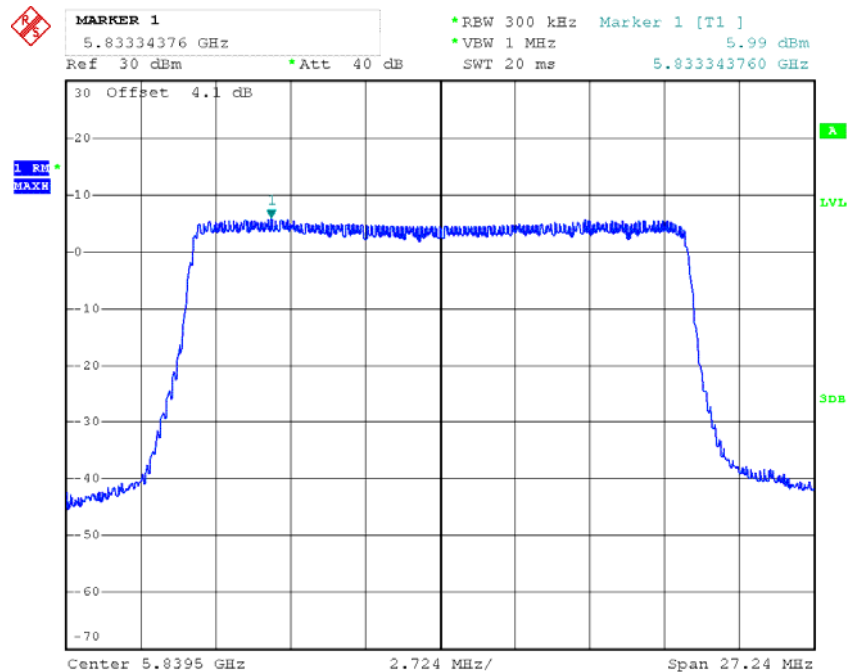
Date: 11.FEB.2018 14:32:14

20M Middle Channel



Date: 11.FEB.2018 14:34:12

20M High Channel



Date: 11.FEB.2018 14:36:35

FCC §15.407(b) – OUT- OF-BAND EMISSIONS

Applicable Standard

FCC §15.407

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

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

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

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

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

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

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

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

Test Procedure

According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01 .

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSP 38	100478	2017-12-08	2018-12-08
R&S	EMI Test Receiver	ESPI	100120	2017-12-11	2018-12-11
Unknown	Coaxial Cable	C-SJ00-0010	C0010/01	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:	21.1 ~ 26.5°C
Relative Humidity:	35 ~ 59 %
ATM Pressure:	100.6 ~ 102.1 kPa

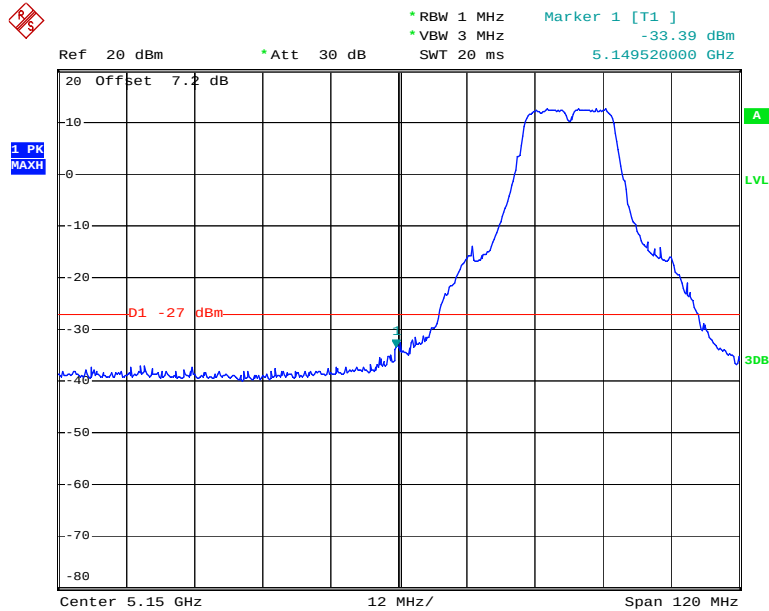
The testing was performed by Andy Huang from 2018-02-11 to 2018-03-12..

Test Result: Pass. Please refer to the following plots.

Mode	Bandedge	Reading (dBm/MHz)		Total dBm/MHz	Limit (dBm/MHz)
		Chain 0	Chain 1		
802.11a	Left	-33.39	-28.59	-27.35	-27
	Right	-34.7	-34.74	-31.71	
802.11n20	Left	-33.24	-28.81	-27.47	
	Right	-35.89	-36.15	-33.01	

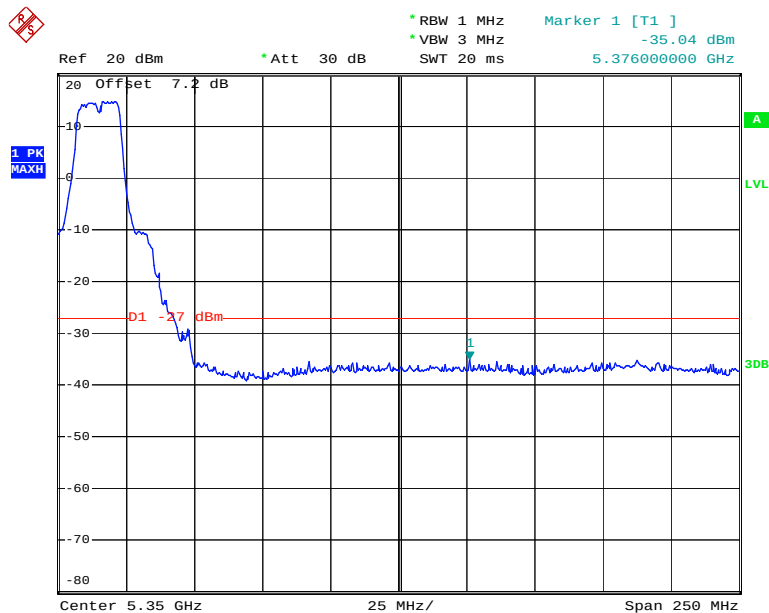
5150-5250MHz (Antenna gain+cable loss was offsetted in the display)
Chain 0:

802.11a, Low Channel



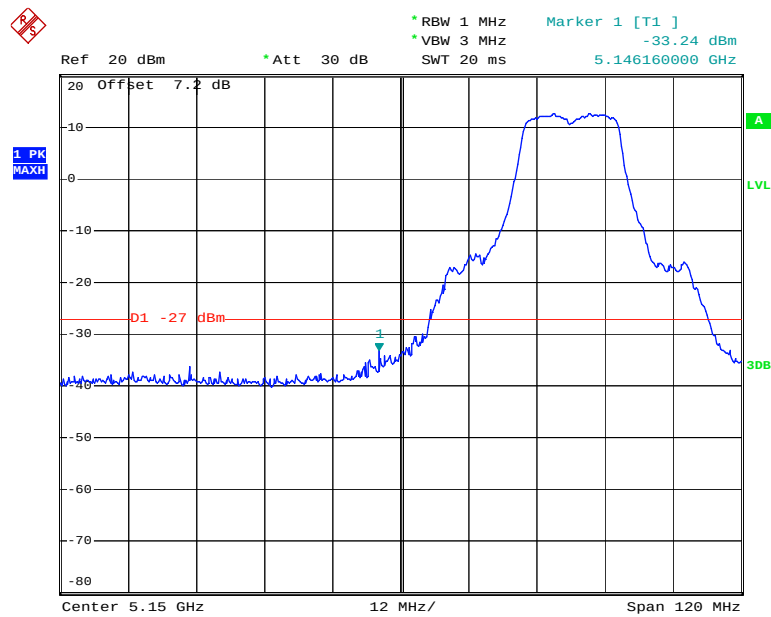
Date: 2.MAR.2018 21:37:37

802.11a, High Channel



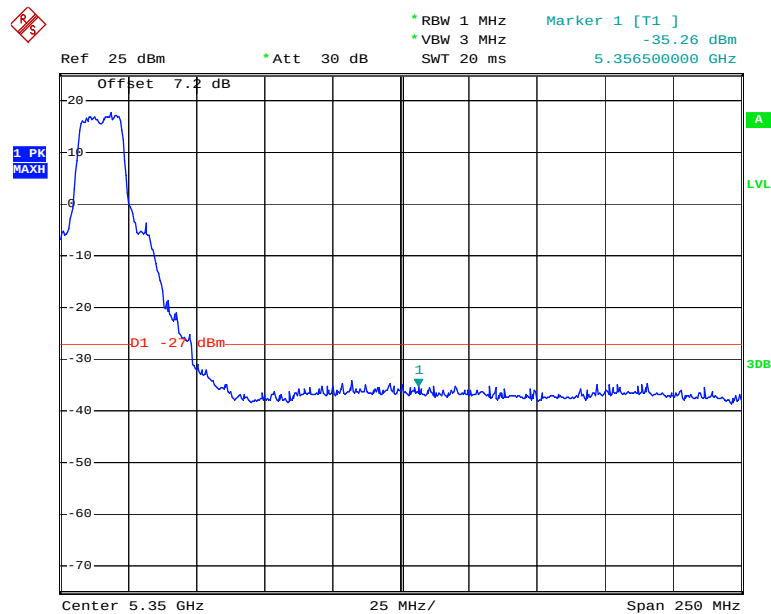
Date: 12.MAR.2018 09:35:02

802.11n ht20, Low Channel



Date: 2.MAR.2018 21:38:02

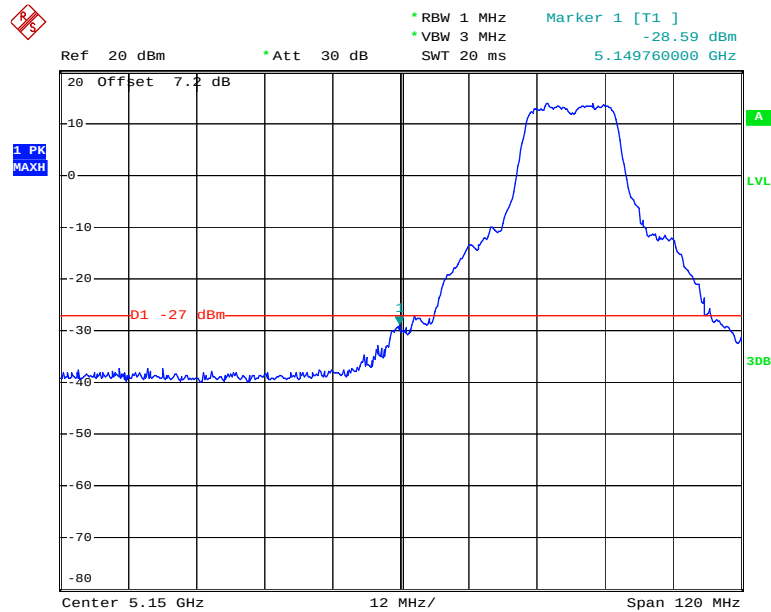
802.11n ht20, High Channel



Date: 12.MAR.2018 09:35:46

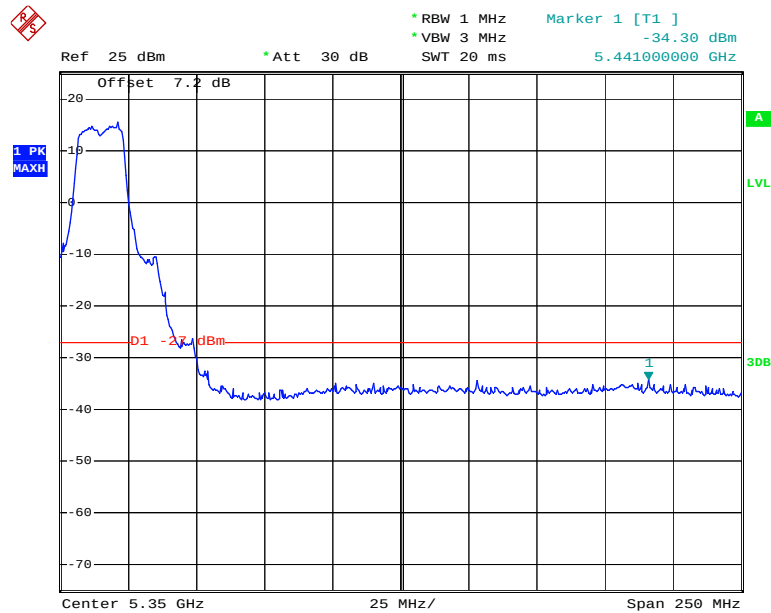
Chain 1:

802.11a, Low Channel



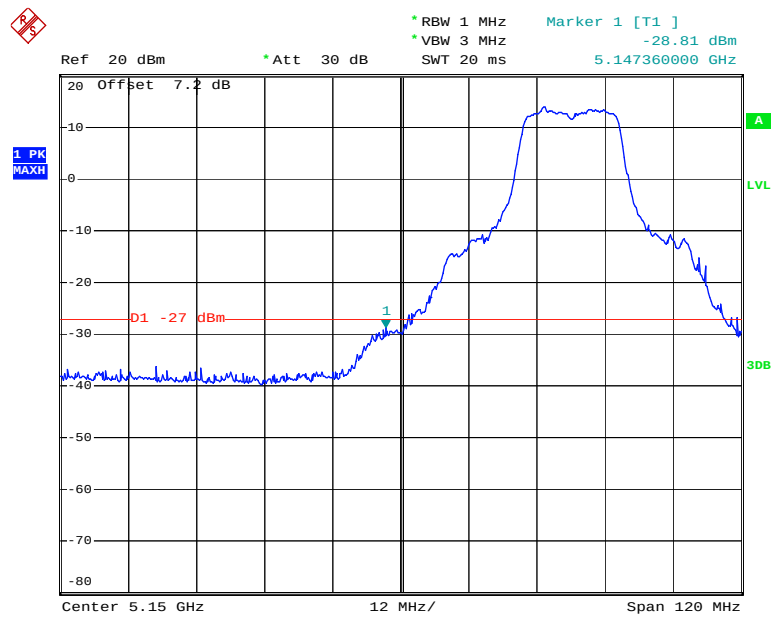
Date: 2.MAR.2018 21:31:08

802.11a, High Channel



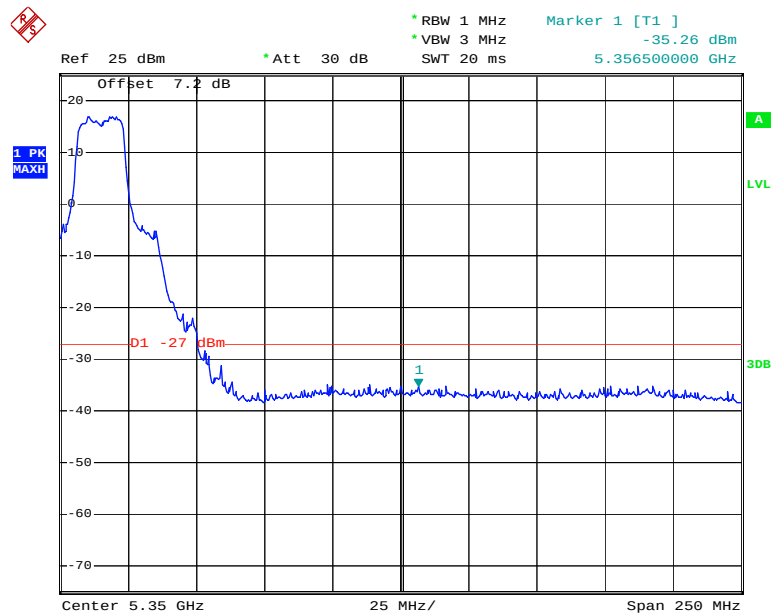
Date: 12.MAR.2018 09:38:12

802.11n ht20, Low Channel



Date: 2.MAR.2018 21:33:47

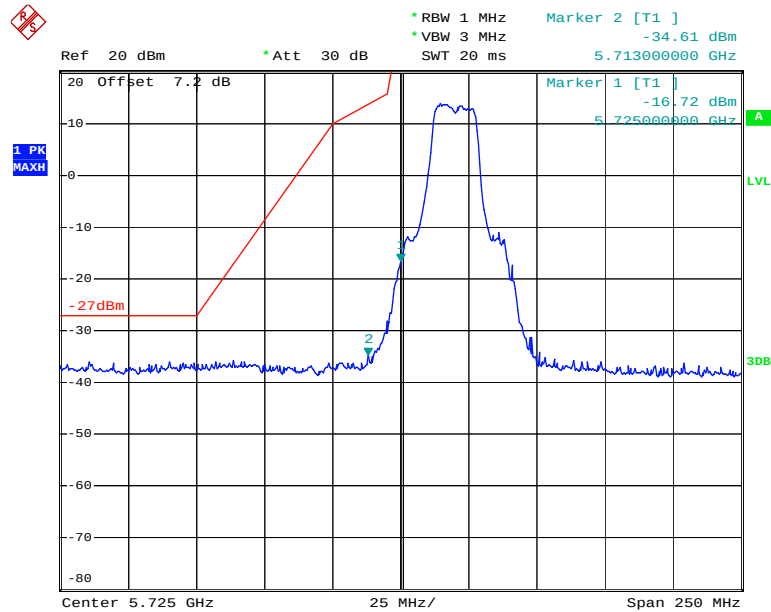
802.11n ht20, High Channel



Date: 12.MAR.2018 09:36:45

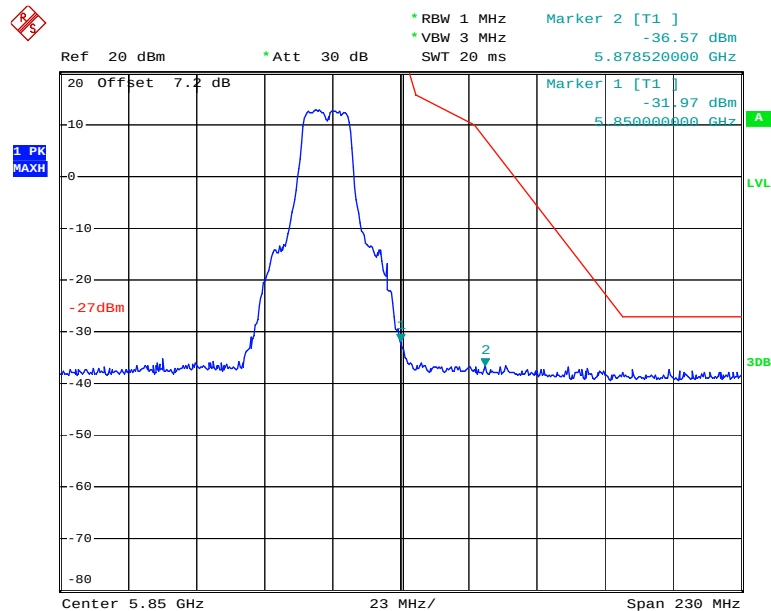
5725-5850MHz, Chain 0:

802.11a, Low Channel



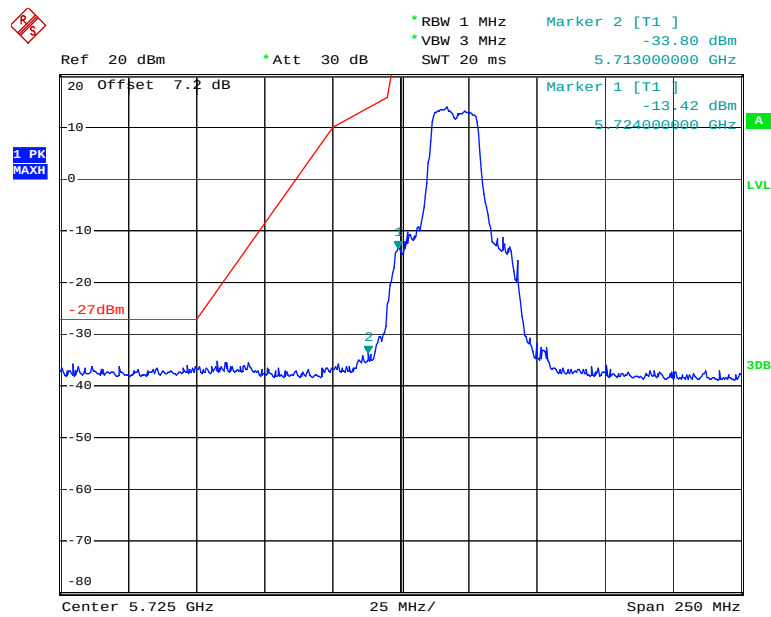
Date: 2.MAR.2018 21:15:36

802.11a, High Channel



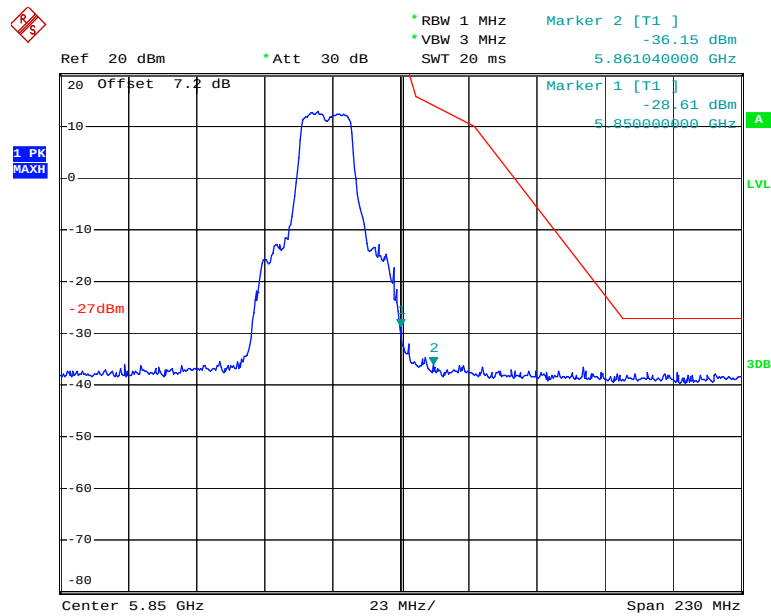
Date: 2.MAR.2018 21:16:43

802.11n ht20, Low Channel



Date: 2.MAR.2018 21:18:45

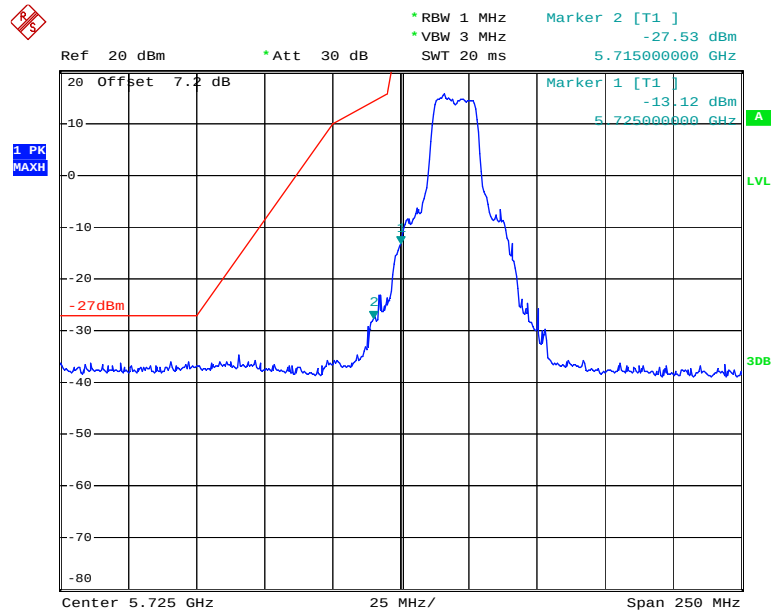
802.11n ht20, High Channel



Date: 2.MAR.2018 21:17:53

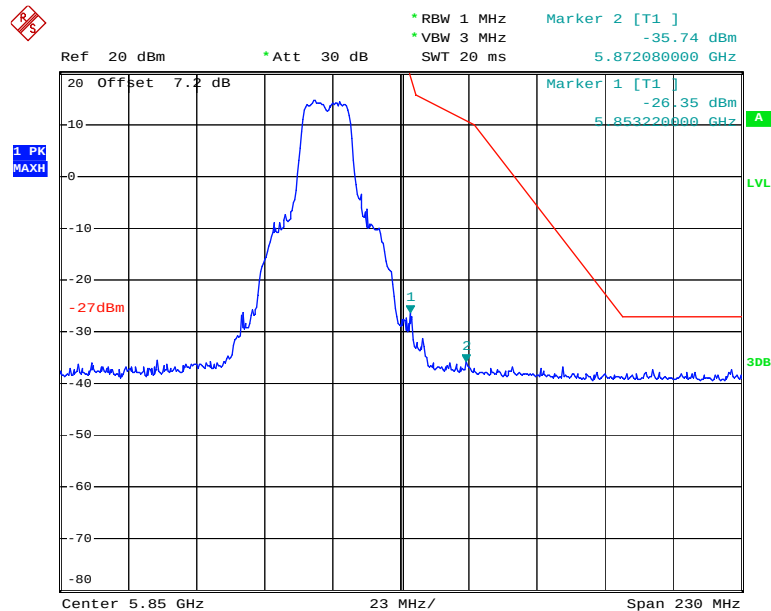
Chain 1:

802.11a, Low Channel



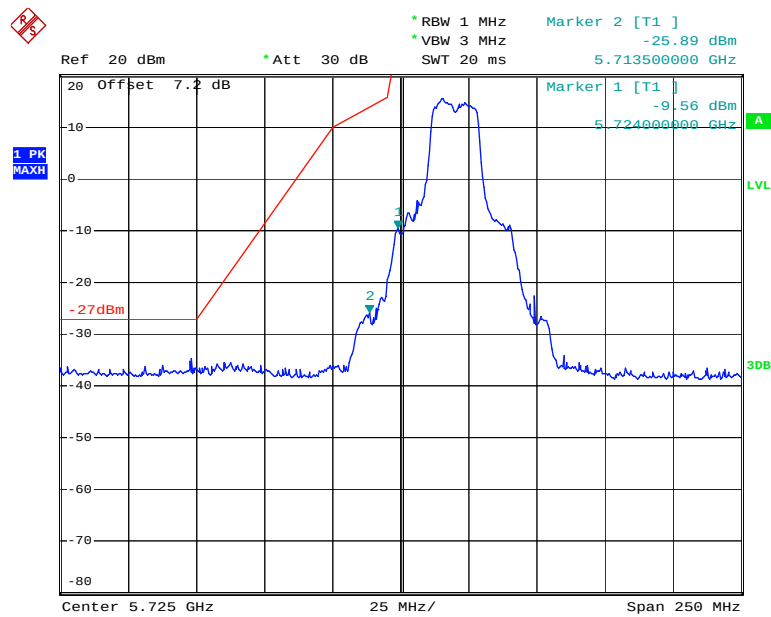
Date: 2.MAR.2018 21:19:56

802.11a, High Channel



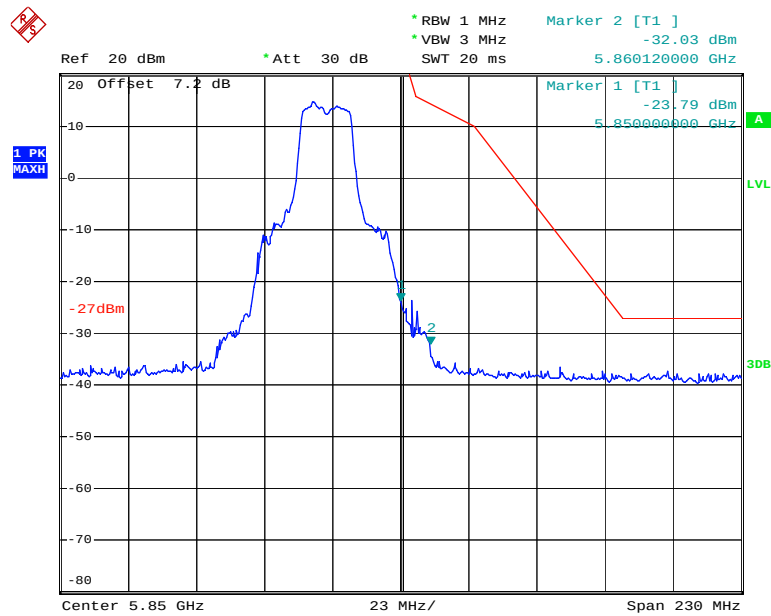
Date: 2.MAR.2018 21:20:46

802.11n ht20, Low Channel



Date: 2.MAR.2018 21:22:52

802.11n ht20, High Channel



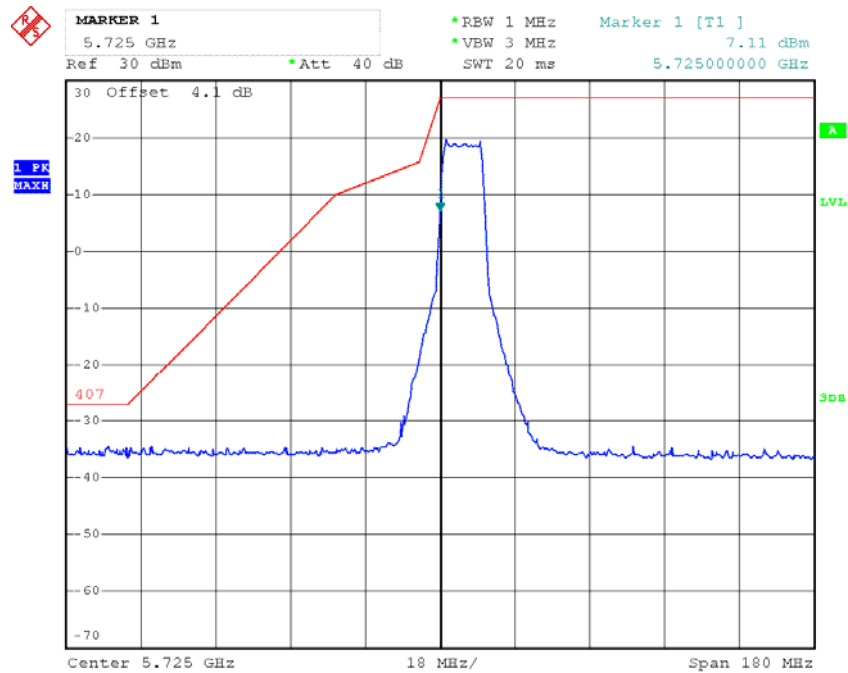
Date: 2.MAR.2018 21:21:53

1.4M Low Channel



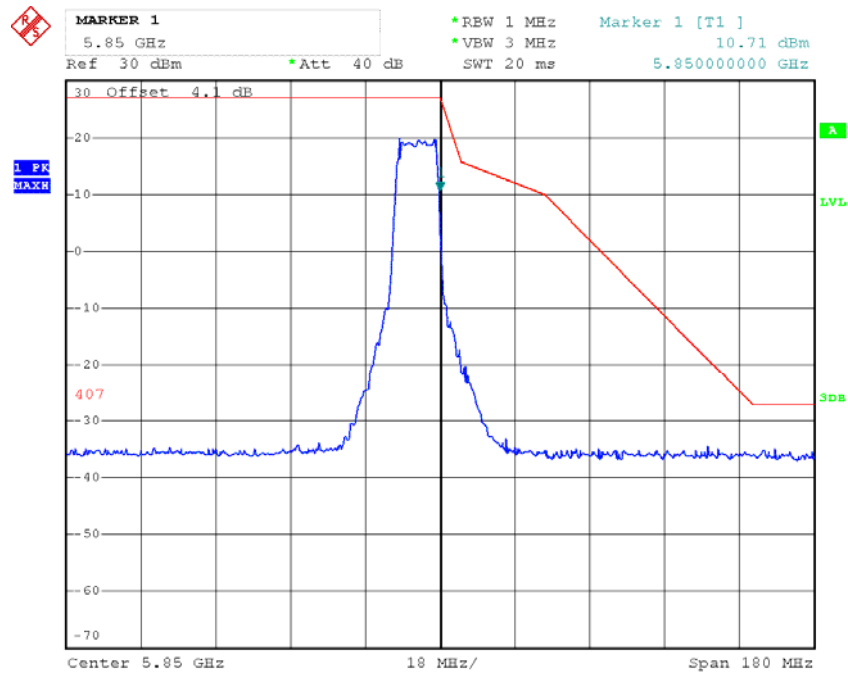
Date: 11.FEB.2018 10:50:52

10M Low Channel



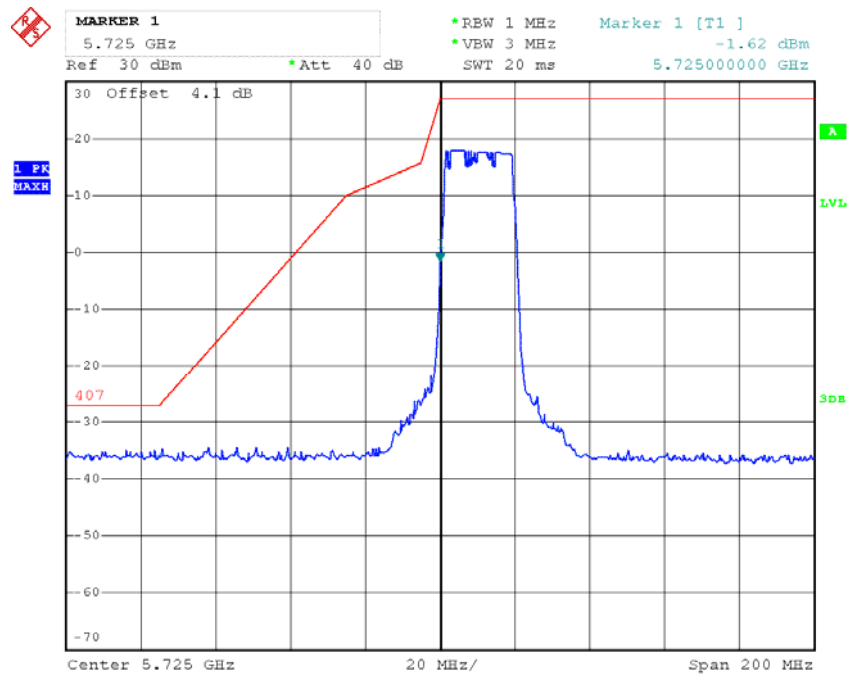
Date: 11.FEB.2018 13:55:43

10M High Channel



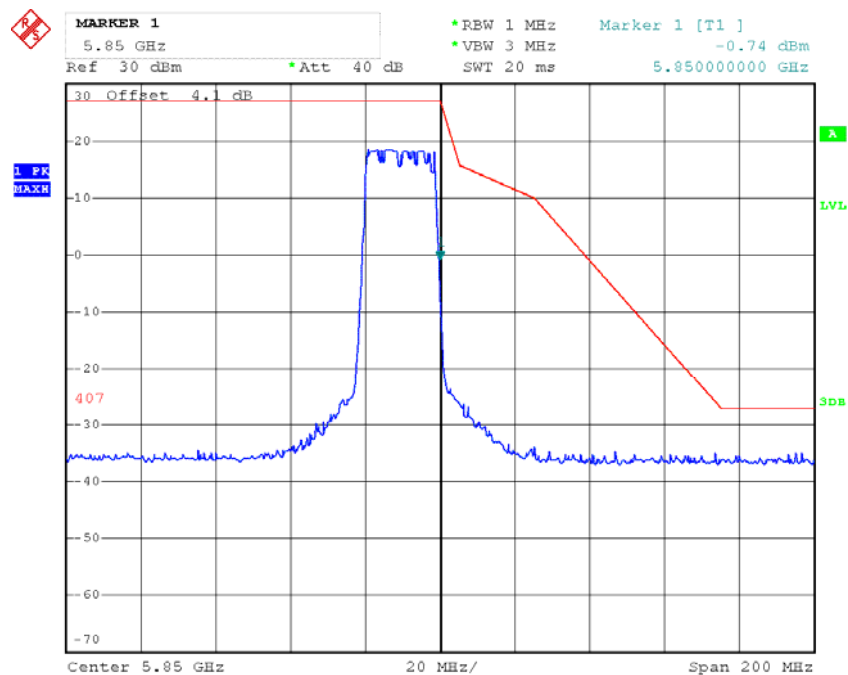
Date: 11.FEB.2018 13:50:57

20M Low Channel



Date: 11.FEB.2018 14:51:45

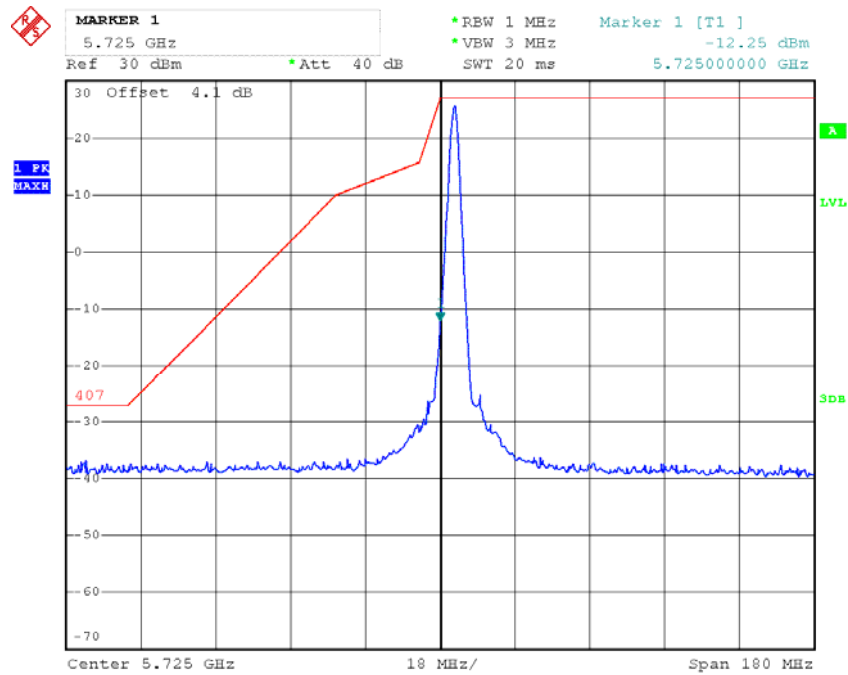
20M High Channel



Date: 11.FEB.2018 14:53:44

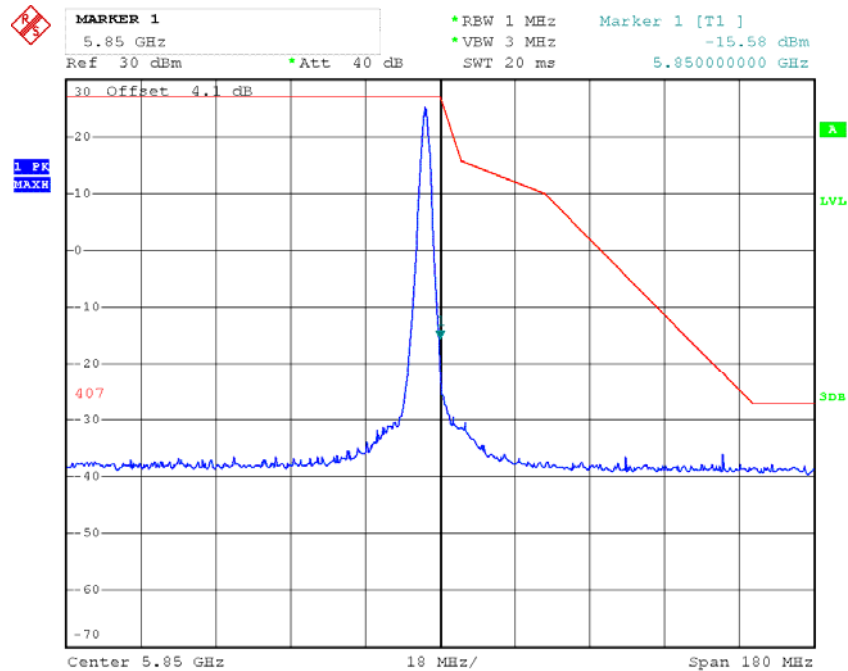
Chain 1:

1.4M Low Channel



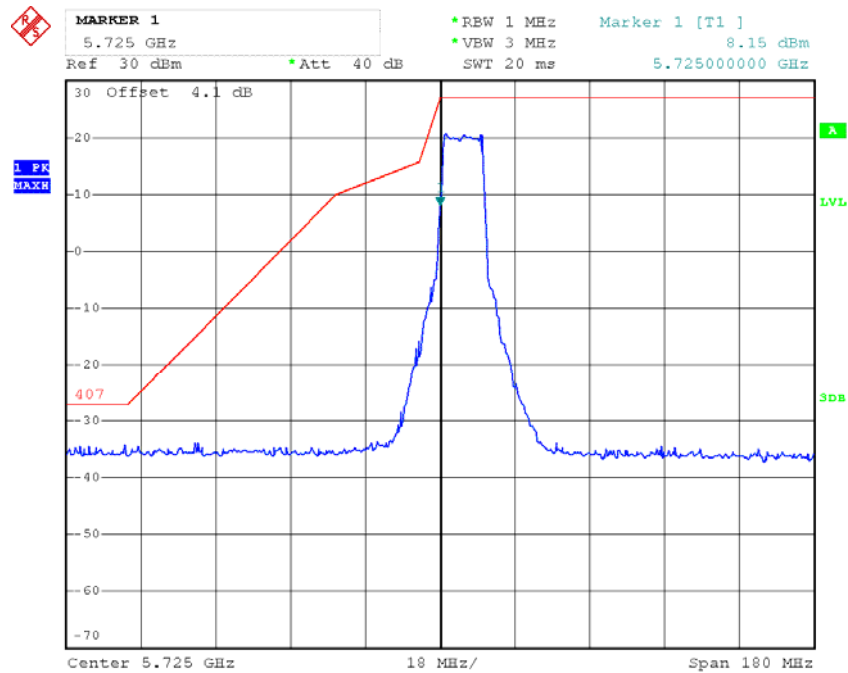
Date: 11.FEB.2018 10:28:11

1.4M High Channel



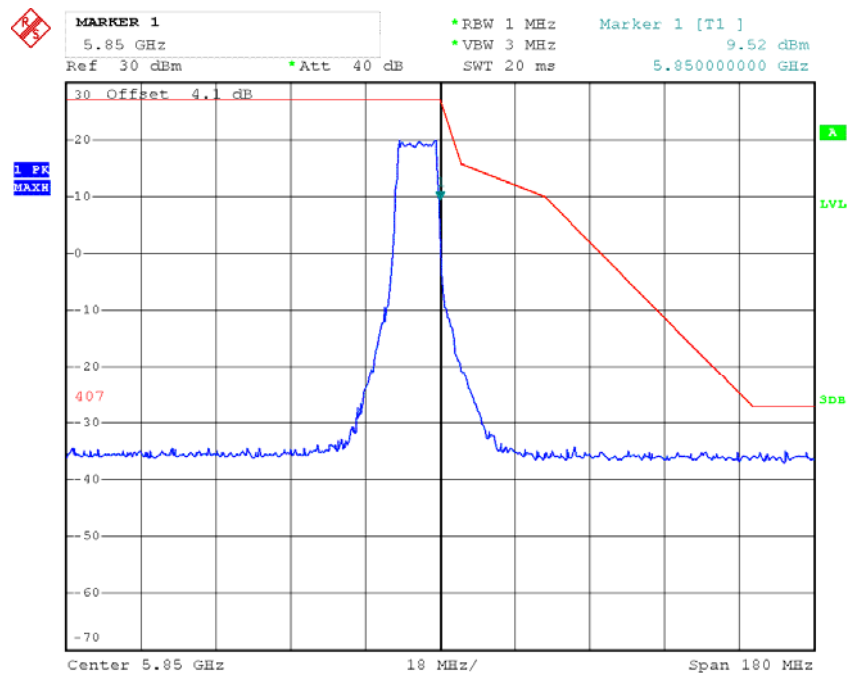
Date: 11.FEB.2018 10:30:02

10M Low Channel

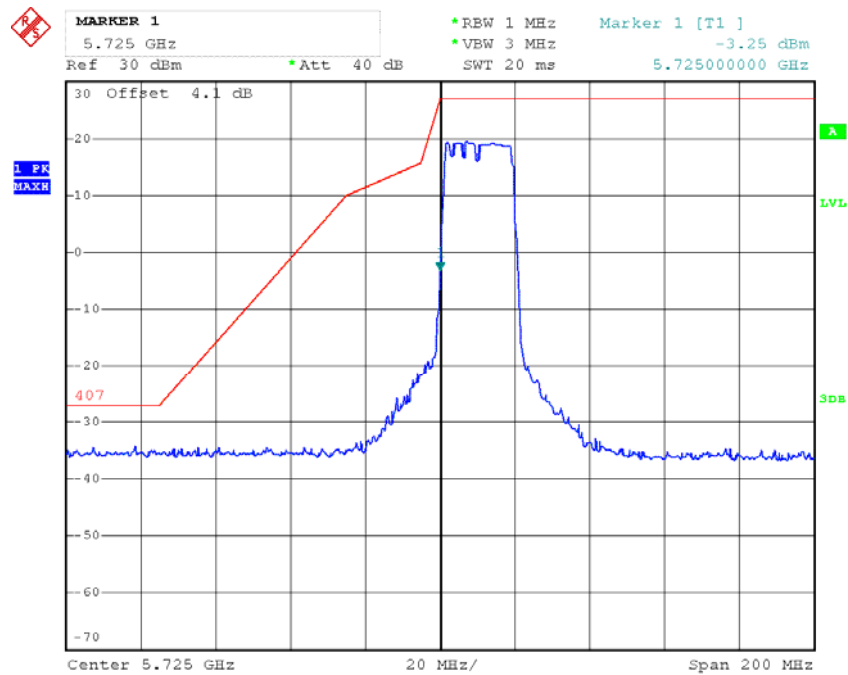


Date: 11.FEB.2018 13:27:16

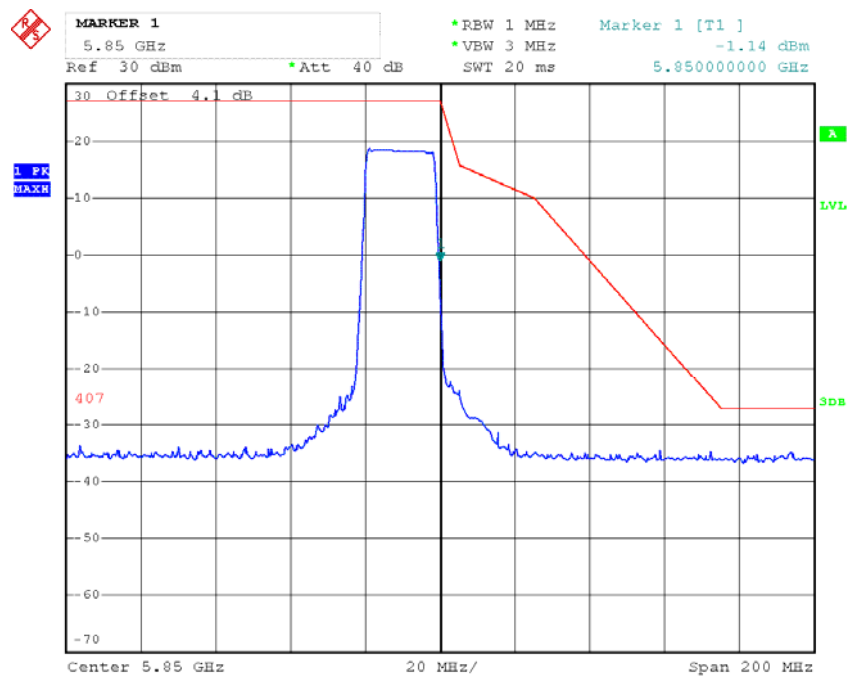
10M High Channel



Date: 11.FEB.2018 13:30:09

20M Low Channel

Date: 11.FEB.2018 14:48:51

20M High Channel

Date: 11.FEB.2018 14:46:45

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