

ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT**INTENTIONAL RADIATOR CERTIFICATION TO
FCC PART 15 SUBPART E REQUIREMENT**

OF

Applicant: Sharp Corporation, Mobile Communication B.U.
2-13-1, Hachihonmatsu-lida, Higashi-hiroshima-shi,
Hiroshima 739-0192, Japan

Manufacturer: Sharp Corporation
1 Takumi-cho, Sakai-ku, Sakai-Shi, Osaka 590-8522, Japan

Product Name: Smart Phone

Report Number: ER/2018/30017

FCC ID: APYHRO00259

FCC Rule Part: §15.407, Cat: NII

Issue Date: Mar. 28, 2018

Date of Test: Mar. 05, 2018 ~ Mar. 23, 2018

Date of EUT Received: Mar. 05, 2018

We hereby certify that:

The above equipment was tested by SGS Taiwan Ltd. Electronics & Communication Laboratory. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10:2013 and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits.

The test results of this report relate only to the tested sample identified in this report.

Tested By:

Marcus Tseng

Marcus Tseng / Sr. Engineer

Approved By:

Jim Chang

Jim Chang / Manager



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Revision History

Report Number	Revision	Description	Effected Page	Issue Date	Revised By
ER/2018/30017	Rev.00	Initial creation of document	All	Mar. 28, 2018	Violetta Tang

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1. GENERAL INFORMATION

1.1 Product Description

General:

Product Name:	Smart Phone	
Hardware Version:	DVT	
Software Version:	N/A	
Power Supply:	3.85V from Rechargeable Li-ion Battery	
	Battery:	Model No.: UBATIA286AFN2, Supplier: SCUD (FUJIAN) Electronics Co., Ltd.

WLAN 5GHz:

Wi-Fi	Frequency Range	Channels	Avg. Power (dBm)	Modulation Technology
11a_20	5180~5240	4	14.84	OFDM
	5260~5320	4	14.90	
	5500~5700	11	14.73	
11n_HT / ac_VHT 20M	5180~5240	4	HT: 17.66 (Worst Case)	OFDM
	5260~5320	4	HT: 17.54 (Worst Case)	
	5500~5700	11	HT: 17.69 (Worst Case)	
11n_HT / ac_VHT 40M	5190~5230	2	HT: 17.53 (Worst Case)	OFDM
	5270~5310	2	HT: 17.54 (Worst Case)	
	5510~5670	5	HT: 17.73 (Worst Case)	
11ac VHT80M	5210	1	14.72	OFDM
	5290	1	14.52	
	5530~5610	2	17.71	
Modulation Type		64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in 802.11ac only		
Transition Rate:		802.11 a: 6/9/12/18/24/36/48/54 Mbps 802.11 n_20MHz: 6.5 – 144.4Mbps 802.11 n_40MHz: 13.5 – 300.0Mbps 802.11 ac_20MHz: 6.5 –173.3Mbps 802.11 ac_40MHz: 13.5 –400.0Mbps 802.11 ac_80MHz: 29.3 – 866.7Mbps		
Antenna Designation:		IFA Antenna, 5150~5250MHz Gain: -3.6dBi (Main) / -3.9dBi(Aux) 5250~5350MHz Gain: -3.6dBi (Main) / -3.9dBi(Aux) 5470~5725MHz Gain: -1.7dBi (Main) / -3.6dBi(Aux)		

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1.2 Test Methodology of Applied Standards

FCC Part 15, Subpart E §15.407

KDB 789033 D02 v01r04 General UNII Test Procedures New Rules

FCC KDB 662911 D01 Multiple Transmitter Output

KDB 644545 D03 v01 Guidance for IEEE 802.11ac

ANSI C63.10:2013

Note: All test items have been performed and record as per the above standards.

1.3 Test Facility

SGS Taiwan Ltd. Electronics & Communication Laboratory No.134, Wu Kung Road, Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803

(TAF code 0513)

FCC Registration Numbers are: 509634 / TW0001

1.4 Special Accessories

There are no special accessories used while test was conducted.

1.5 Equipment Modifications

There was no modification incorporated into the EUT.

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2. SYSTEM TEST CONFIGURATION

2.1 EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

2.2 EUT Exercise

An engineering test mode (software/firmware) that applicant provided was utilized to manipulate the EUT into transmit, selection of the test channel, and modulation scheme.

2.3 Test Procedure

2.3.1 Conducted Emissions

The EUT is placed on a turn table which is 0.8 m above ground plane. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30 MHz. The CISPR Quasi-Peak and Average detector mode is employed according to §15.207. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

2.3.2 Radiated Emissions

The EUT is placed on a turn table. For emissions testing at or below 1 GHz, the table height shall be 0.8 m above the reference ground plane. For emission measurements above 1 GHz, the table height shall be 1.5 m. The turn table shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. emission, the relative positions of this transmitter (EUT) was rotated through three orthogonal axes and measurement procedures for electric field radiated emissions above 1 GHz the EUT measurement is to be made "while keeping the antenna in the 'cone of radiation' from that area and pointed at the area both in azimuth and elevation, with polarization oriented for maximum response." is still within the 3dB illumination BW of the measurement antenna.

2.4 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuation factor between EUT conducted port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly EUT RF output level.

Note:

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

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2.5 Configuration of Tested System

Fig. 2-1 Radiated & AC Power Line Conducted Emission



Fig. 2-2 Conducted (Antenna Port) Emission

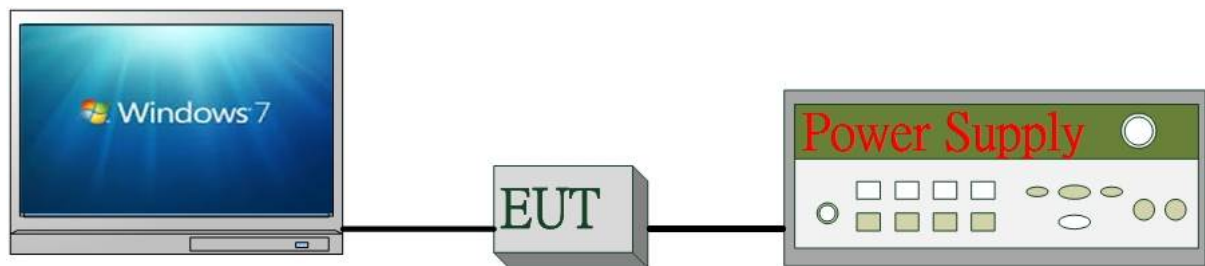


Table 2-1 Equipment Used in Tested System

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Data Cable	Power Cord
1.	WLAN Test Software	N/A	N/A	N/A	N/A	N/A
2.	DC Power Supply	Anritsu	E3640A	MY52410006	N/A	Unshielded
3.	Notebook	Lenovo	T440	P0000564	Shielded	Unshielded

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3. SUMMARY OF TEST RESULT

FCC Rules	Description Of Test	Result
§15.207	AC Power Line Conducted Emission	Compliant
§15.403(i) §15.407(e)	26 dB Emission Bandwidth	Compliant
§15.407(a)	Maximum Conducted Output Power	Compliant
§15.407(a)	Power Spectral Density	Compliant
§15.407(b)	Undesirable Radiated Emissions	Compliant
§15.407(c)	Transmission in case of Absence of Information	Compliant
§15.407(g)	Frequency Stability	Compliant
§15.203 §15.407(a)	Antenna Requirement	Compliant

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4. DESCRIPTION OF TEST MODES

4.1 Operated in U-NII Bands

Operated band in 5150 MHz ~5250 MHz:

802.11a / n HT20 Mode, 802.11ac VHT20 Mode	
Channel	Frequency
36	5180
40	5200
44	5220
48	5240

802.11 n HT40 Mode, 802.11ac VHT40 Mode	
channel	Frequency
38	5190
46	5230

802.11ac VHT80 Mode	
channel	Frequency
42	5210

Operated band in 5250 MHz ~5350 MHz:

802.11a / n HT20 Mode, 802.11ac VHT20 Mode	
channel	Frequency
52	5260
56	5280
60	5300
64	5320

802.11 n HT40 Mode, 802.11ac VHT40 Mode	
channel	Frequency
54	5270
62	5310

802.11ac VHT80 Mode	
Channel	Frequency
58	5290

Operated band in 5470 MHz ~5725 MHz:

802.11a / n HT20 Mode, 802.11ac VHT20 Mode	
Channel	Frequency
100	5500
104	5520
108	5540
112	5560
116	5580
120	5600
124	5620
128	5640
132	5660
136	5680
140	5700

802.11 n HT40 Mode, 802.11ac VHT40 Mode	
channel	Frequency
102	5510
110	5550
118	5590
126	5630
134	5670

802.11ac VHT80 Mode	
channel	Frequency
106	5530
122	5610

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4.2 The Worst Test Modes and Channel Details

1. The EUT has been tested under operating condition.
2. Test program used to control the EUT for staying in continuous transmitting mode is prorammed.
3. Investigation has been done on all the possible configurations for searching the worst case.
4. The given UE is pre-scanned among 802.11n and ac modes, and 802.11n yields the highest reading that generates the highest emission.

RADIATED EMISSION TEST:

RADIATED EMISSION TEST (BELOW 1 GHz)						
MODE	FREQUENCY BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)	ANTENNA PORT
802.11a	5180~5240	36 to 48	36,44,48	OFDM	6	MAIN
802.11ac_VHT80	5210	42	42	OFDM	MCS8	MIMO
802.11a	5260~5320	52 to 64	52,60,64	OFDM	6	MAIN
802.11ac_VHT80	5290	58	58	OFDM	MCS8	MIMO
802.11a	5500~5700	100 to 140	100,116,140	OFDM	6	MAIN
802.11ac_VHT80	5530~5610	106 to 122	106,122	OFDM	MCS8	MIMO
RADIATED EMISSION TEST (ABOVE 1 GHz)						
MODE	FREQUENCY BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)	ANTENNA PORT
802.11a	5180~5240	36 to 48	36,44,48	OFDM	6	MAIN
802.11n_HT20				OFDM	MCS8	MIMO
802.11n_HT40	5190~5230	38 to 46	38,46	OFDM	MCS8	MIMO
802.11ac_VHT80	5210	42	42	OFDM	MCS8	MIMO
802.11a	5260~5320	52 to 64	52,60,64	OFDM	6	MAIN
802.11n_HT20				OFDM	MCS8	MIMO
802.11n_HT40	5270~5310	54 to 62	54,62	OFDM	MCS8	MIMO
802.11ac_VHT80	5290	58	58	OFDM	MCS8	MIMO
802.11a	5500~5700	100 to 140	100,116,140	OFDM	6	MAIN
802.11n_HT20				OFDM	MCS8	MIMO
802.11n_HT40	5510~5670	102 to 134	102,110,134	OFDM	MCS8	MIMO
802.11ac_VHT80	5530~5610	106 to 122	106,122	OFDM	MCS8	MIMO

Note:

The field strength of radiation emission was measured as EUT stand-up position (H mode) and lie down position (E1, E2 mode) for 802.11a/n/ac WLAN Transmitter for channel Low, Mid and High, the worst case E1 position was reported.

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ANTENNA PORT CONDUCTED MEASUREMENT:

CONDUCTED TEST						
MODE	FREQUENCY BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)	ANTENNA PORT
802.11a	5180~5240	36 to 48	36,44,48	OFDM	6	MAIN
802.11n_HT20				OFDM	MCS8	MIMO
802.11n_HT40	5190~5230	38 to 46	38,46	OFDM	MCS8	MIMO
802.11ac_VHT80	5210	42	42	OFDM	MCS8	MIMO
802.11a	5260~5320	52 to 64	52,60,64	OFDM	6	MAIN
802.11n_HT20				OFDM	MCS8	MIMO
802.11n_HT40	5270~5310	54 to 62	54,62	OFDM	MCS8	MIMO
802.11ac_VHT80	5290	58	58	OFDM	MCS8	MIMO
802.11a	5500~5700	100 to 140	100,116,140	OFDM	6	MAIN
802.11n_HT20				OFDM	MCS8	MIMO
802.11n_HT40	5510~5670	102 to 134	102,110,134	OFDM	MCS8	MIMO
802.11ac_VHT80	5530~5610	106 to 122	106,122	OFDM	MCS8	MIMO

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5. MEASUREMENT UNCERTAINTY

Test Items	Uncertainty
AC Power Line Conducted Emission	+/- 2.586 dB
26dB Emission Bandwidth	+/- 123.36 Hz
The Maximum Output Power Measurement	+/- 0.96 dB
Peak Power Spectral Density Measurement	+/- 1.67 dB
Frequency Stability	+/- 123.36 Hz
Temperature	+/- 0.65 °C
Humidity	+/- 4.6 %
DC / AC Power Source	DC= +/- 0.13%, AC=+/- 0.2%

Radiated Spurious Emission:

Measurement uncertainty (Polarization : Vertical)	9kHz-30MHz: +/-2.87dB
	30MHz - 180MHz: +/- 3.37dB
	180MHz -417MHz: +/- 3.19dB
	0.417GHz-1GHz: +/- 3.19dB
	1GHz - 18GHz: +/- 4.04dB
	18GHz - 40GHz: +/- 4.04dB

Measurement uncertainty (Polarization : Horizontal)	9kHz-30MHz: +/-2.87dB
	30MHz - 167MHz: +/- 4.22dB
	167MHz -500MHz: +/- 3.44dB
	0.5GHz-1GHz: +/- 3.39dB
	1GHz - 18GHz: +/- 4.08dB
	18GHz - 40GHz: +/- 4.08dB

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

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6. CONDUCTED EMISSION TEST

6.1 Standard Applicable

Frequency range within 150 kHz to 30 MHz shall not exceed the Limit table as below.

Frequency range MHz	Limits dB(μV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50

Note

- 1.The lower limit shall apply at the transition frequencies
- 2.The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.

6.2 Measurement Equipment Used

EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
EMI Test Receiver	R&S	ESCI7	100760	2017/06/06	2018/06/05
Coaxial Cables	N/A	WK CE Cable	N/A	2018/01/02	2019/01/01
Notebook	Lenovo	T440P	P0000564	N/A	N/A
LISN	SCHWARZBECK	NSLK 8127	8127-649	2017/05/22	2018/05/21

6.3 EUT Setup

1. The conducted emission tests were performed in the test site, using the setup in accordance with the ANSI C63.10:2013.
2. The AC/DC Power adaptor of EUT was plug-in LISN. The rear of the EUT and peripherals were placed flushed with the rear of the tabletop.
3. The LISN was connected with 120Vac/60Hz power source.

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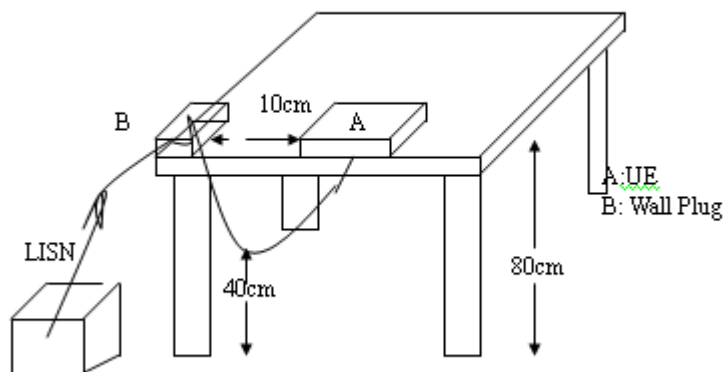
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6.4 Test SET-UP



6.5 Measurement Procedure

1. The EUT was placed on a table which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all phases of power being supplied by given UE are completed.

6.6 Measurement Result

Note: Refer to next page for measurement data and plots.

Note2: The * reveals the worst-case results that closet to the limit.

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AC POWER LINE CONDUCTED EMISSION TEST DATA

Site: Conduction Room

Phase: L1

Temperature: 20 °C

Limit: FCC Class B Conduction(QP)

Power: AC 120V/60Hz

Humidity: 58 %

Mode: Operation

Note:

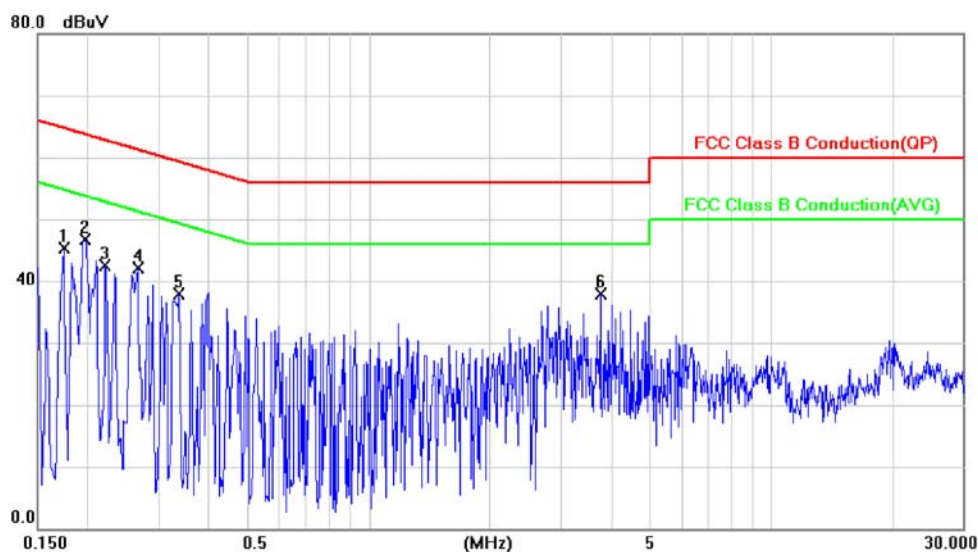
Conducted Emission

File :Data

Data :#2

Date: 2018/3/21

Time: 下午 08:31:55



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
1		0.1740	45.27	0.00	45.27	64.77	-19.50	peak	
2	*	0.1965	46.79	0.00	46.79	63.76	-16.97	peak	
3		0.2220	42.44	0.00	42.44	62.74	-20.30	peak	
4		0.2660	42.20	0.00	42.20	61.24	-19.04	peak	
5		0.3380	37.84	0.00	37.84	59.25	-21.41	peak	
6		3.7660	37.94	0.06	38.00	56.00	-18.00	peak	

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Site: Conduction Room

Phase: **N**

Temperature: 20 °C

Limit: FCC Class B Conduction(QP)

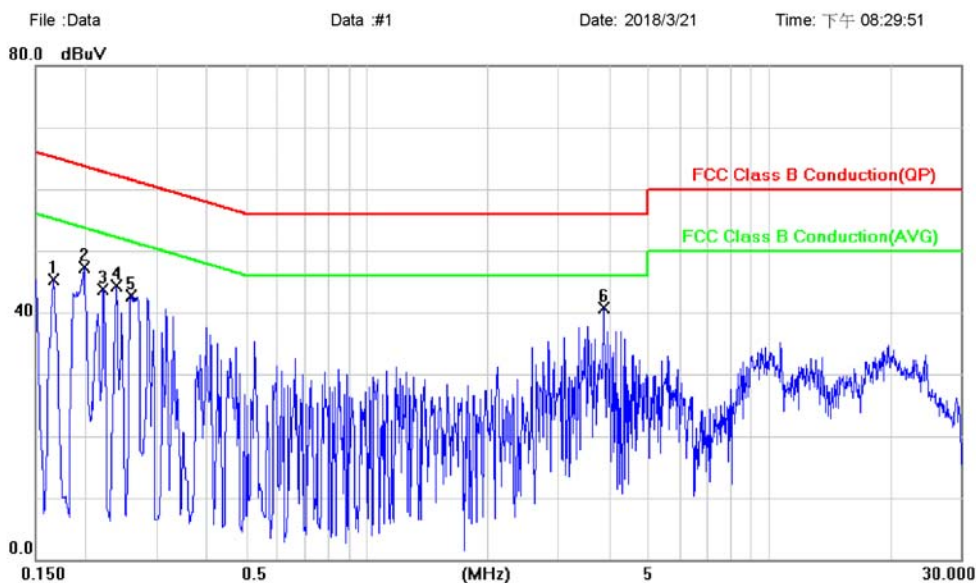
Power: AC 120V/60Hz

Humidity: 58 %

Mode: Operation

Note:

Conducted Emission



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
1		0.1660	45.29	0.00	45.29	65.16	-19.87	peak	
2		0.1980	47.29	0.00	47.29	63.69	-16.40	peak	
3		0.2220	43.74	0.00	43.74	62.74	-19.00	peak	
4		0.2380	44.25	0.00	44.25	62.17	-17.92	peak	
5		0.2587	42.68	0.00	42.68	61.47	-18.79	peak	
6 *		3.8940	40.66	0.06	40.72	56.00	-15.28	peak	

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7. DUTY CYCLE TEST SIGNAL

Pre-analysis Check: While conducting average power measurement, duty cycle of each mode shall be checked to ensure its duty cycle in order to compensate for the loss due to insufficient ratio of duty cycle.

All duty cycle is pre-scanned, and result as obtained below shows only the most representative ones where duty cycle is conducted as the given transmission with given virtual operation that expresses the percentage.

Formula:

$$\text{Duty Cycle} = \text{Ton} / (\text{Ton} + \text{Toff})$$

Measurement Procedure:

1. Set span = Zero
2. RBW = 8MHz
3. VBW = 8MHz,
4. Detector = Peak

Duty Cycle:

Mode	Duty Cycle (%)	Duty Factor (dB) = $10 \cdot \log (1/\text{Duty Cycle})$	1/T (kHz)	VBW setting (kHz)
802.11a	98.23	0.08	0.88	1.00
802.11n_20	98.10	0.08	0.74	1.00
802.11n_40	96.19	0.17	4.66	5.00
802.11ac_80	92.54	0.34	2.78	3.00

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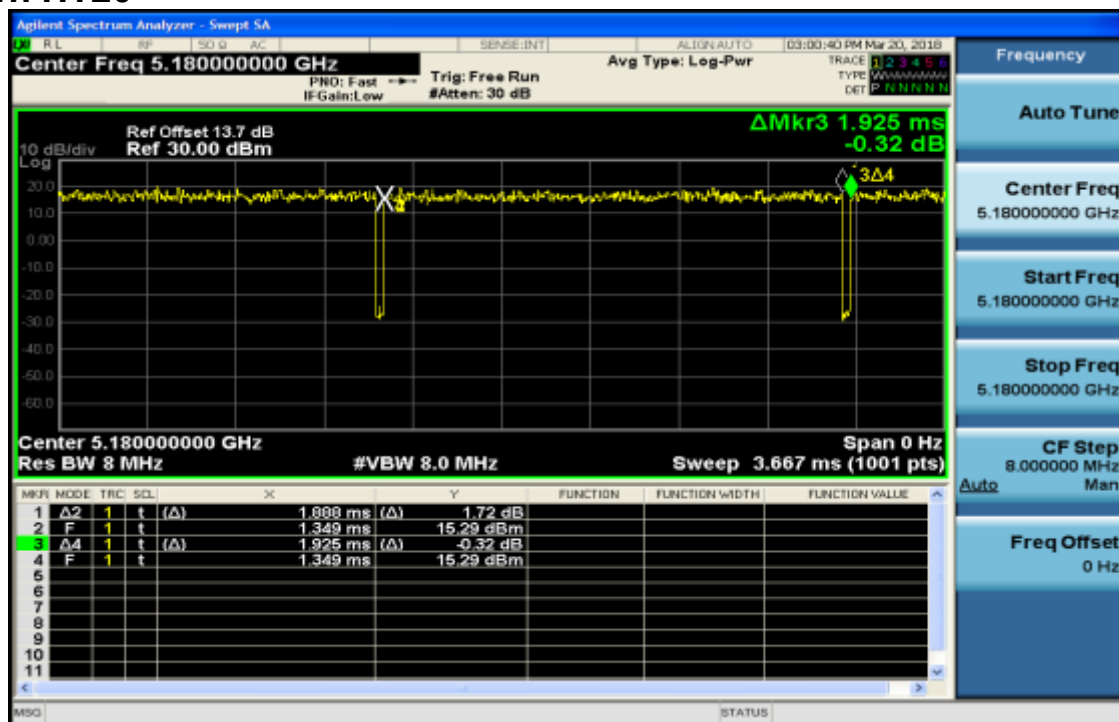
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DUTY CYCLE TEST SIGNAL Measurement Result 802.11a



802.11n HT20



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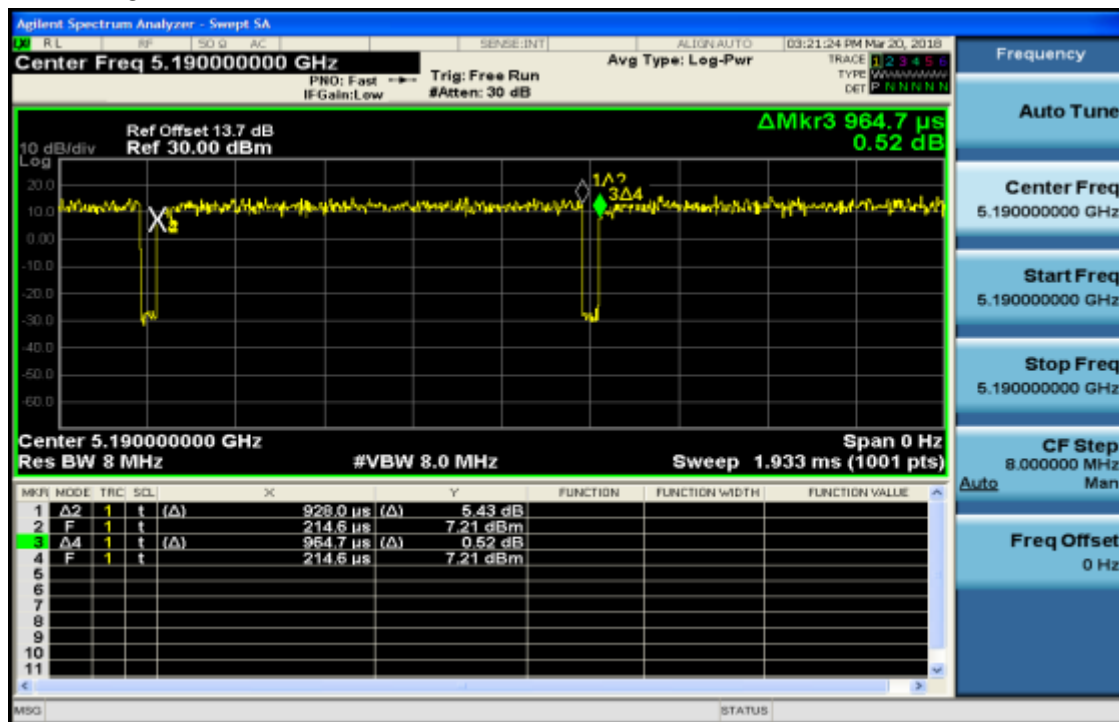
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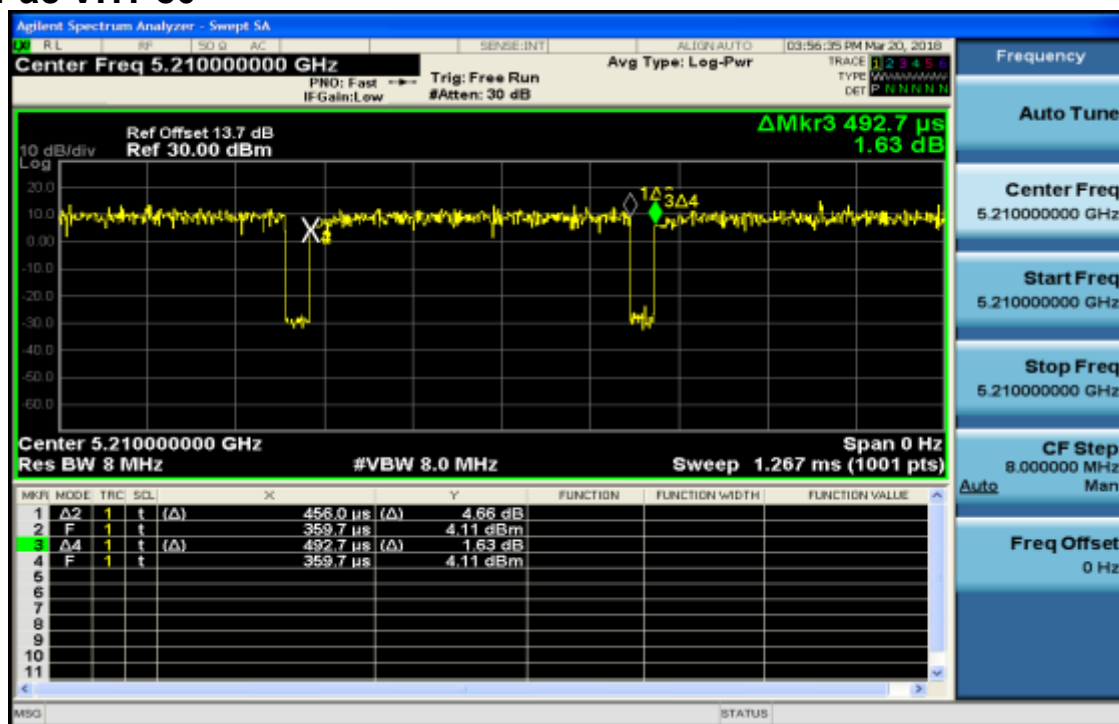
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802.11n HT 40



802.11 ac VHT 80



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8. 26DB EMISSION BANDWIDTH MEASUREMENT

8.1 Standard Applicable

There is no limit bandwidth for U-NII-1, U-NII-2-A and U-NII-2-C.

The minimum of 6dB Bandwidth measurement is 0.5 MHz for U-NII-3

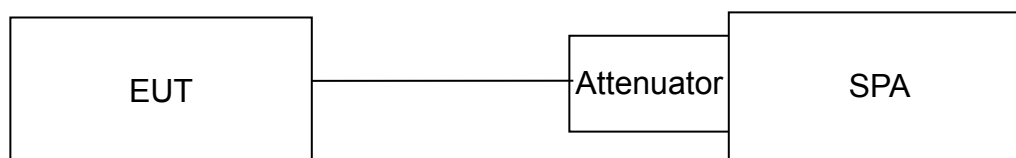
8.2 Measurement Procedure

1. Place the EUT on the table and set it in transmitting mode.
2. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules .
3. Remove the antenna from the EUT and then connect a low loss RF cable from the Antenna port to the spectrum analyzer.
 - a. 26dB Band width Measurement: Set the spectrum analyzer as 1% of emission BW Sweep=auto, Detector = Peak, Trace Mode = Max Hold, Manually readjust RBW until the RBW/EBW ratio is 1% based on EBW as observed on the result of pre-sequence measurement.
 - b. Mark the peak frequency and -26dB (upper and lower) frequency.
4. Repeat the procedures as list above until all test default channels (low, middle, and high) are completed.
5. Repeat above procedures until all test default channel measured were complete.

8.3 Measurement Equipment Used

EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
EXA Spectrum Analyzer	Agilent	N9010A	MY54200716	2017/10/16	2018/10/15
DC Power Supply	Anritsu	E3640A	MY52410006	2017/11/28	2018/11/27
Attenuator	Mini-Circuit	BW-S10W2+	2	2018/01/02	2019/01/01
Notebook	Lenovo	T440	P0000564	N/A	N/A

8.4 Test Set-up



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8.5 Measurement Result

26dB Bandwidth

802.11a_Main

Frequency (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5180	21.46	13.315
5220	21.75	13.375
5240	22.26	13.476
5260	21.47	13.319
5300	21.39	13.303
5320	21.94	13.412
5500	21.37	13.299
5580	21.79	13.383
5700	21.67	13.358

802.11n_HT20_Main

Frequency (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5180	22.39	13.500
5220	22.58	13.538
5240	22.73	13.565
5260	22.20	13.463
5300	22.84	13.587
5320	22.68	13.556
5500	22.69	13.558
5580	22.53	13.527
5700	22.77	13.574

802.11n_HT20_Aux1

Frequency (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5180	23.09	13.634
5220	22.32	13.487
5240	23.44	13.700
5260	22.39	13.501
5300	22.87	13.593
5320	22.61	13.542
5500	22.55	13.532
5580	22.69	13.559
5700	22.67	13.554

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802.11n_HT40_Main

Frequency (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5190	41.58	16.189
5230	42.50	16.284
5270	42.08	16.240
5310	41.75	16.206
5510	43.00	16.335
5550	42.61	16.295
5670	43.26	16.361

802.11n_HT40_Aux1

Frequency (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5190	41.91	16.223
5230	42.21	16.254
5270	42.25	16.258
5310	42.21	16.254
5510	42.19	16.252
5550	43.05	16.340
5670	42.59	16.293

802.11ac_VHT80_Main

Frequency (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5210	85.34	19.312
5290	82.04	19.140
5530	85.14	19.301
5610	84.81	19.284

802.11ac_VHT80_Aux1

Frequency (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5210	85.66	19.328
5290	85.32	19.311
5530	85.39	19.314
5610	85.24	19.306

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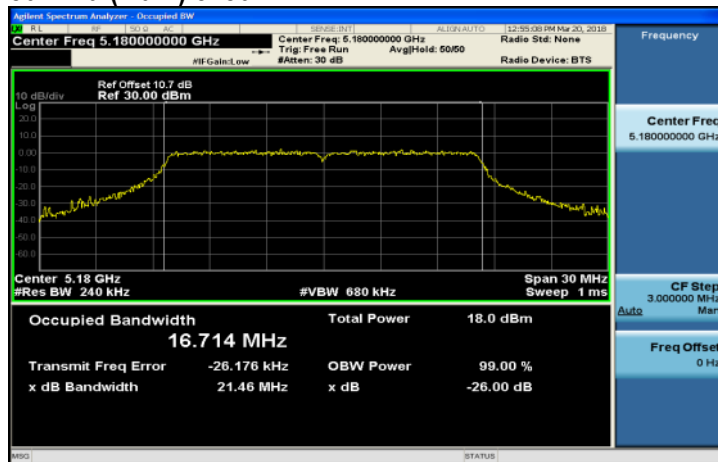
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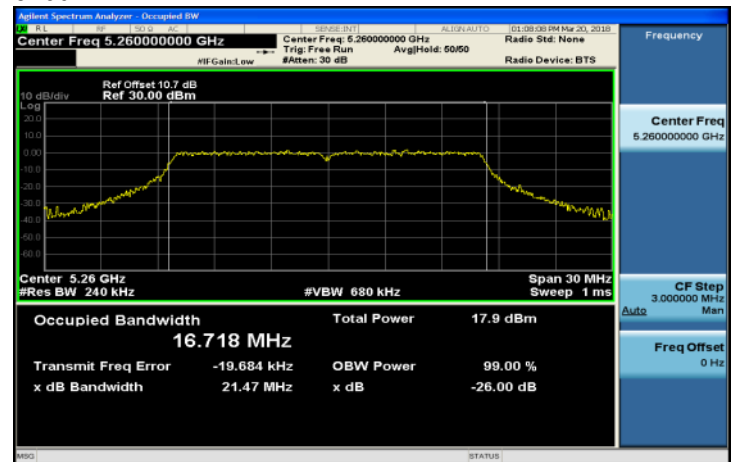
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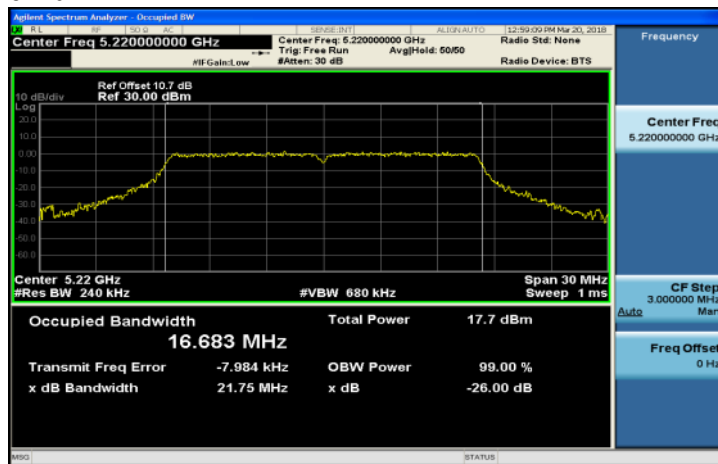
802.11a (Main) 5180MHz



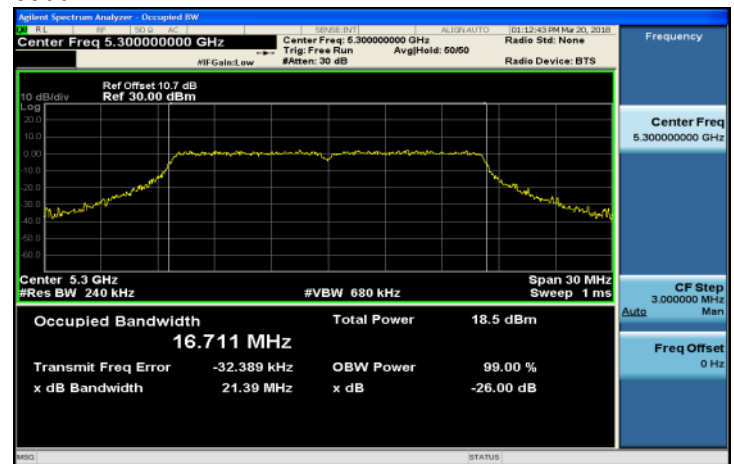
5260MHz



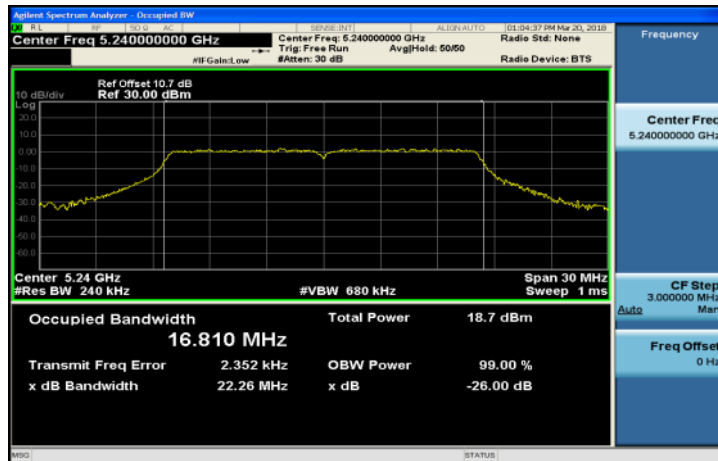
5220MHz



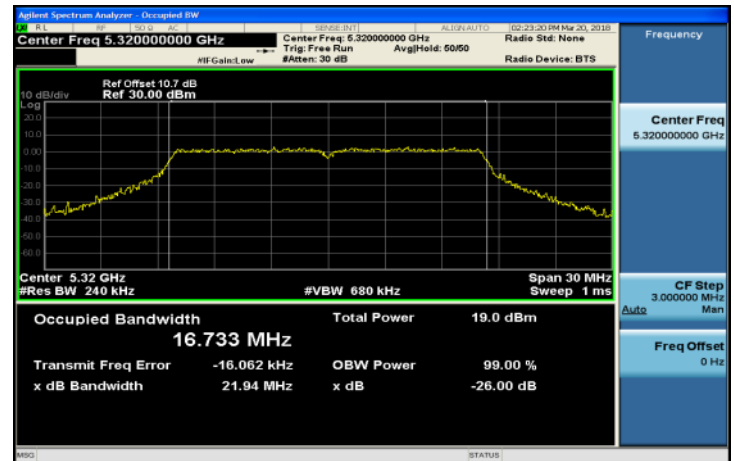
5300MHz



5240MHz



5320MHz



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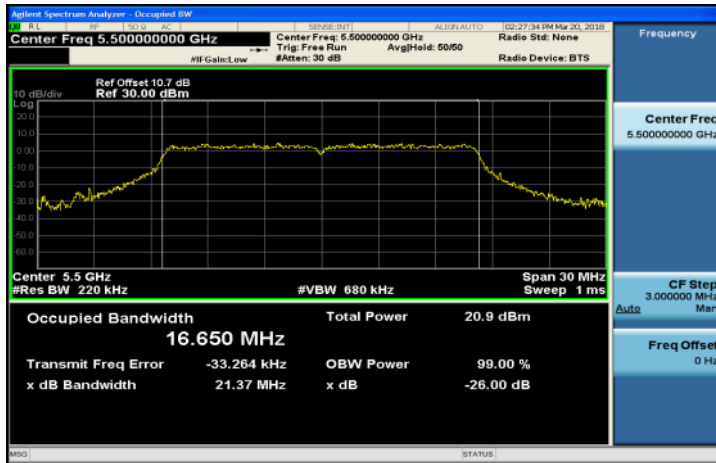
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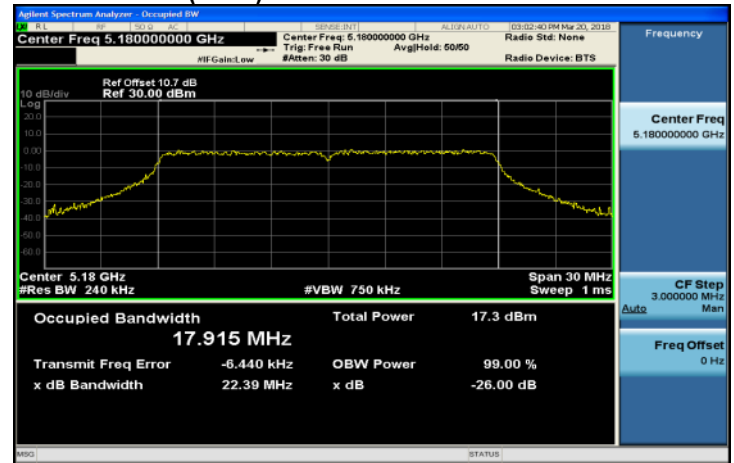
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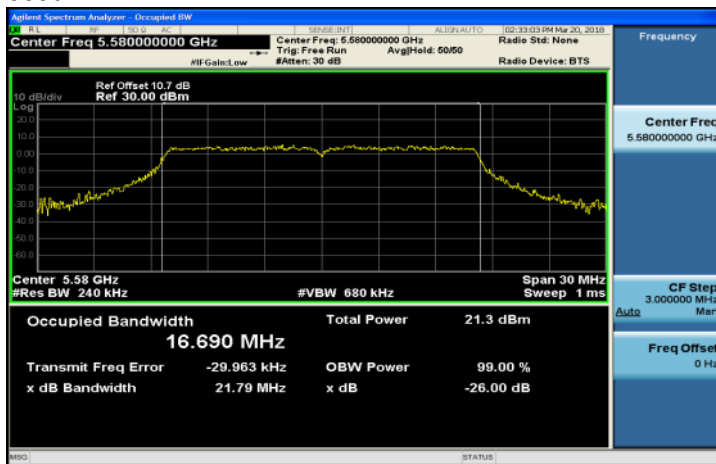
5500MHz



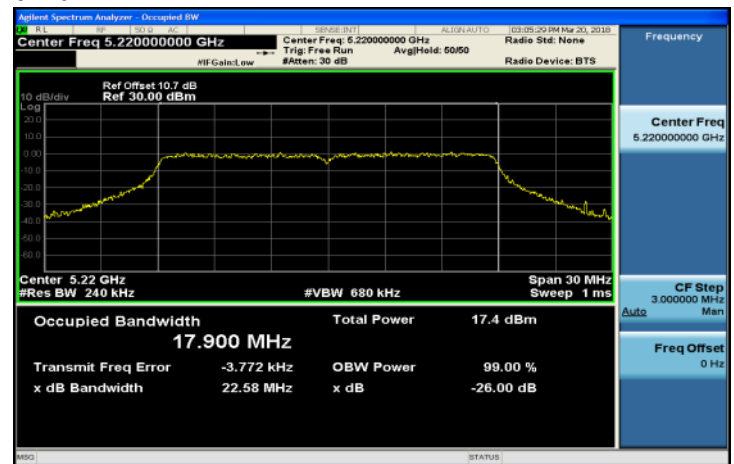
802.11n HT20 (Main) 5180 MHz



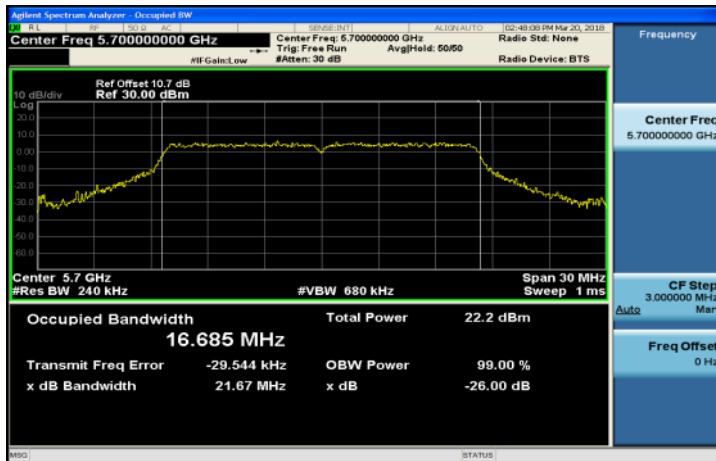
5580MHz



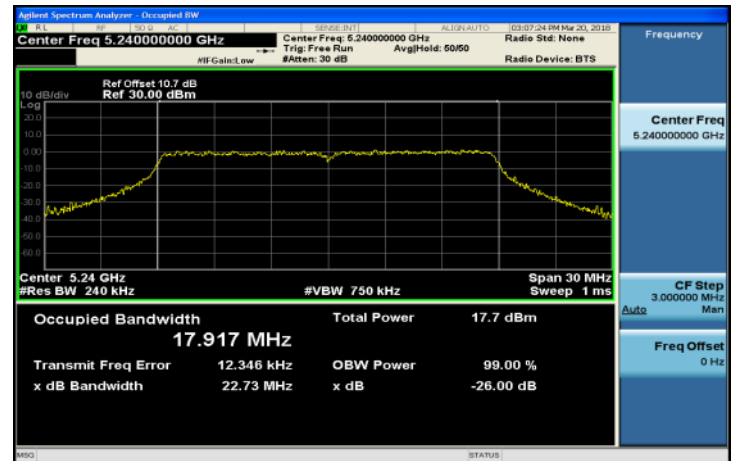
5220 MHz



5700MHz



5240 MHz



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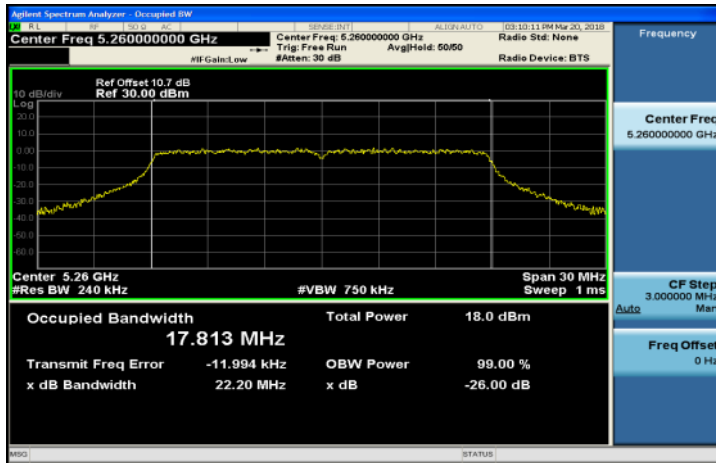
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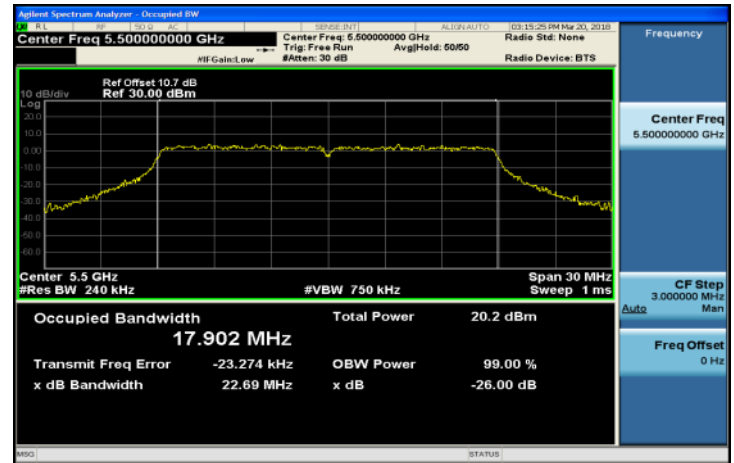
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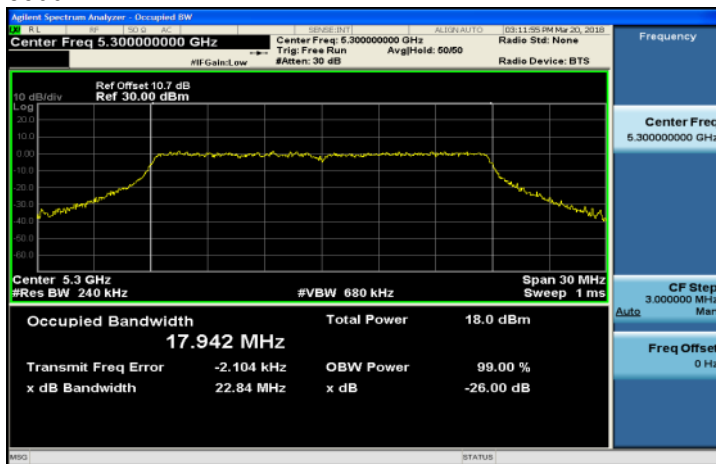
5260 MHz



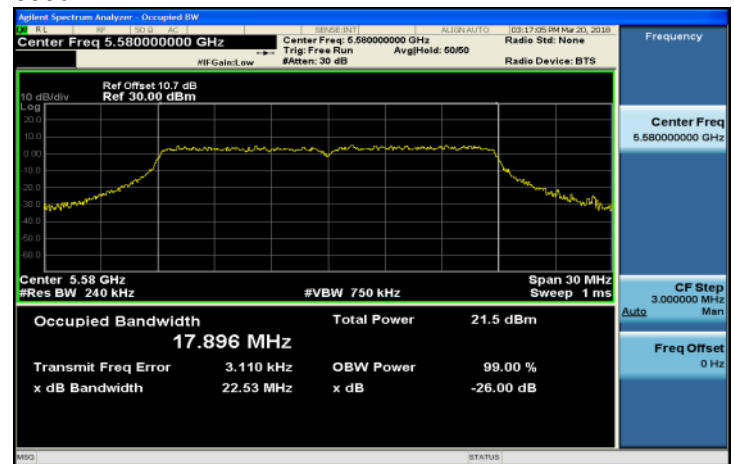
5500 MHz



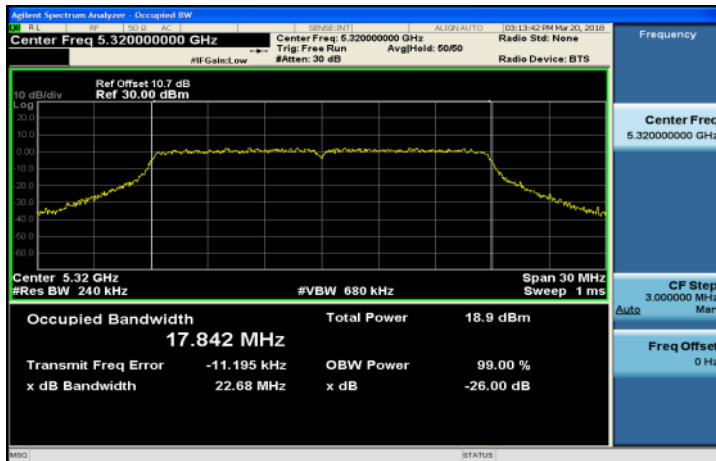
5300 MHz



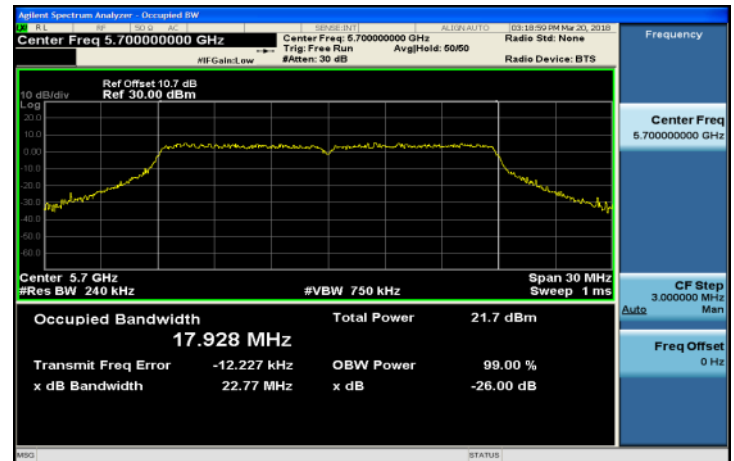
5580 MHz



5320 MHz



5700 MHz



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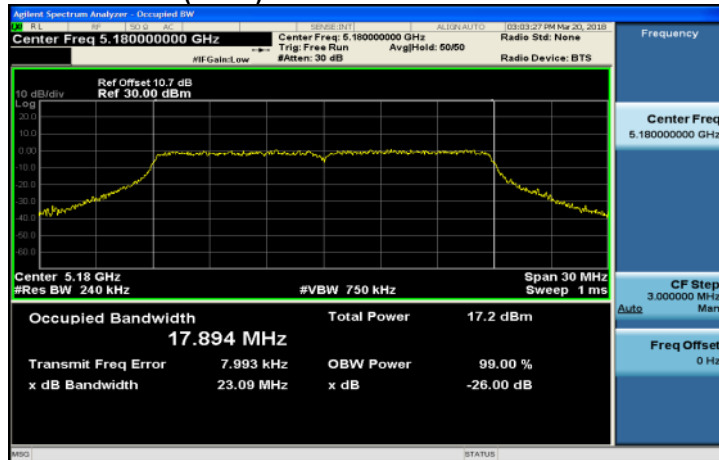
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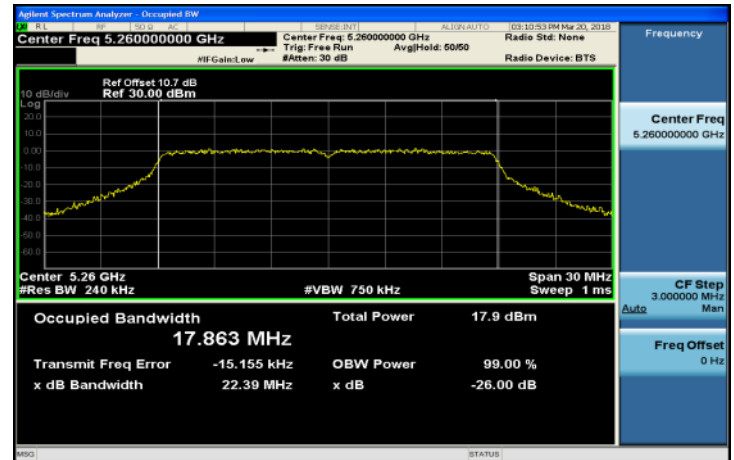
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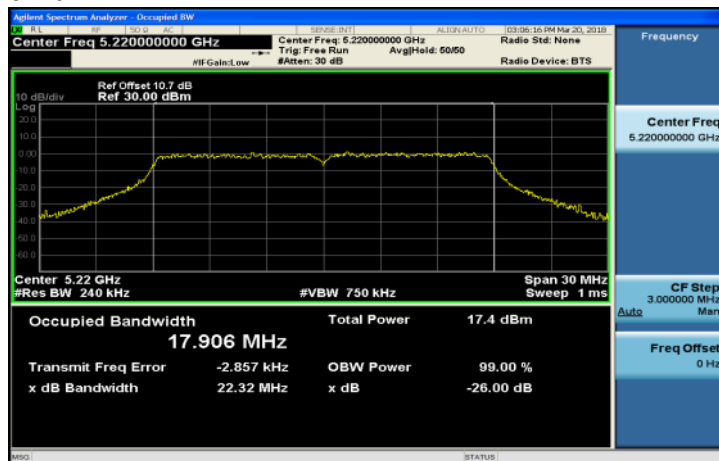
802.11n HT20 (Aux1) 5180 MHz



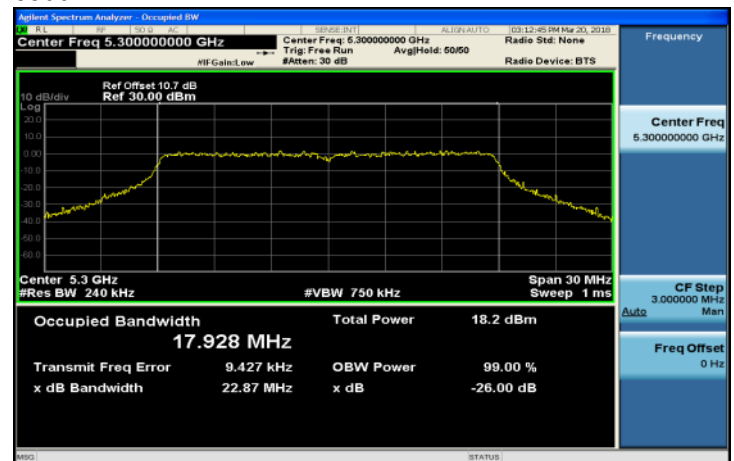
5260 MHz



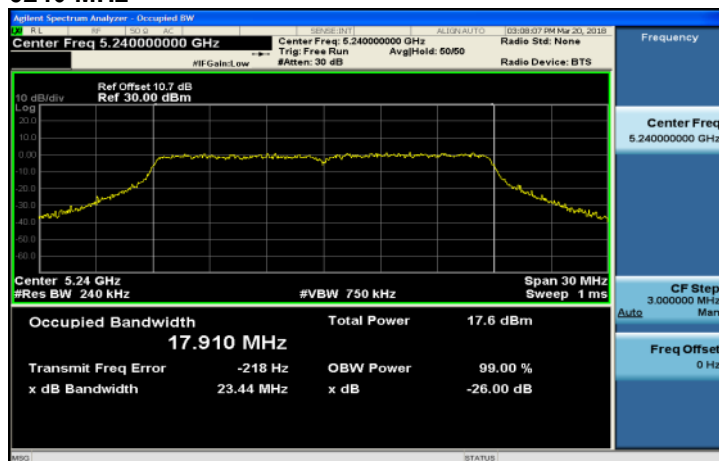
5220 MHz



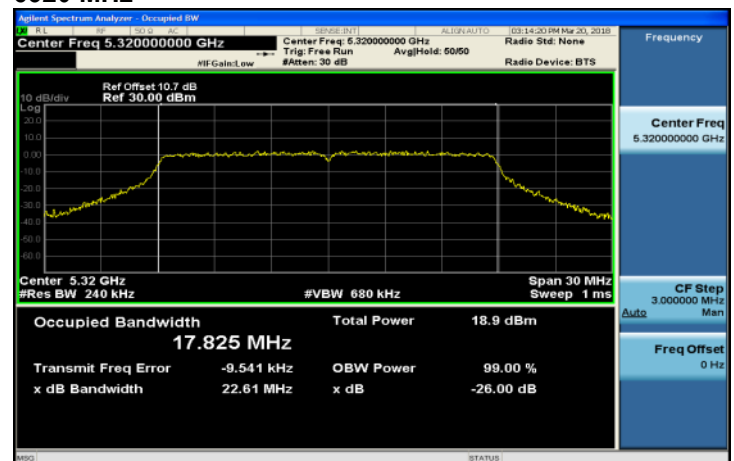
5300 MHz



5240 MHz



5320 MHz



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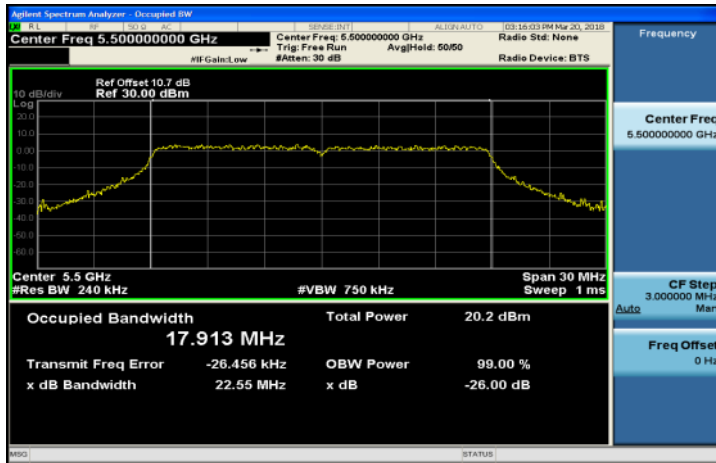
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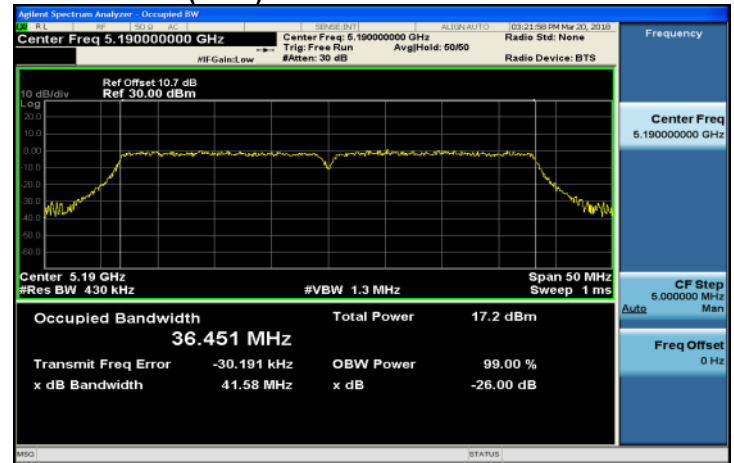
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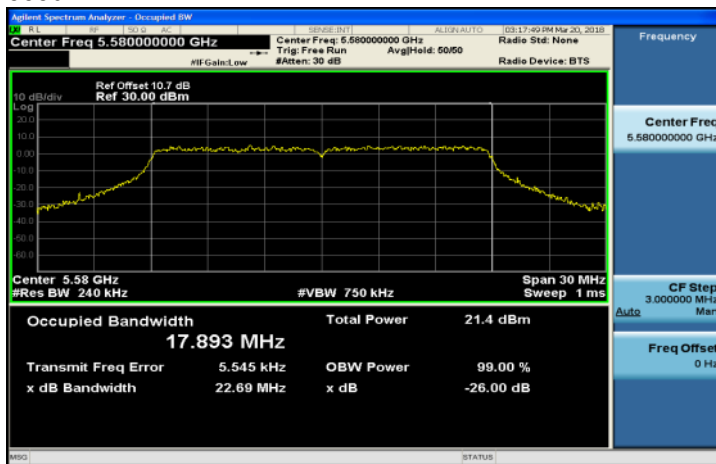
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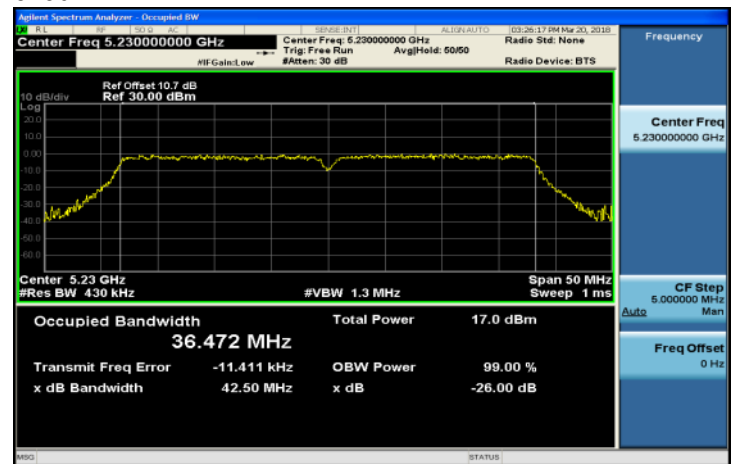
802.11n HT40 (Main) 5190 MHz



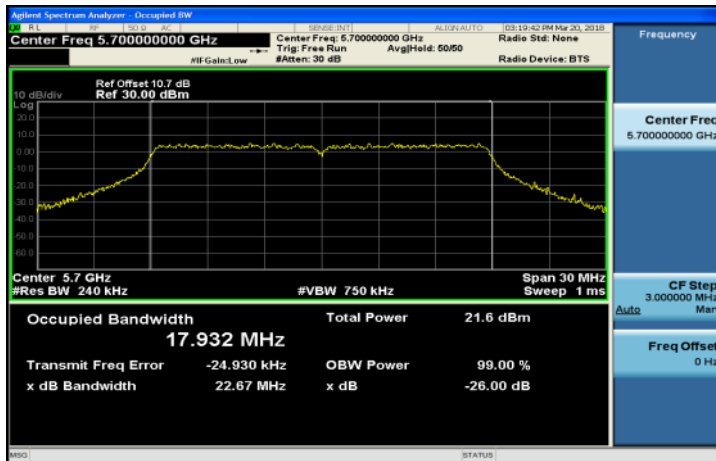
5580 MHz



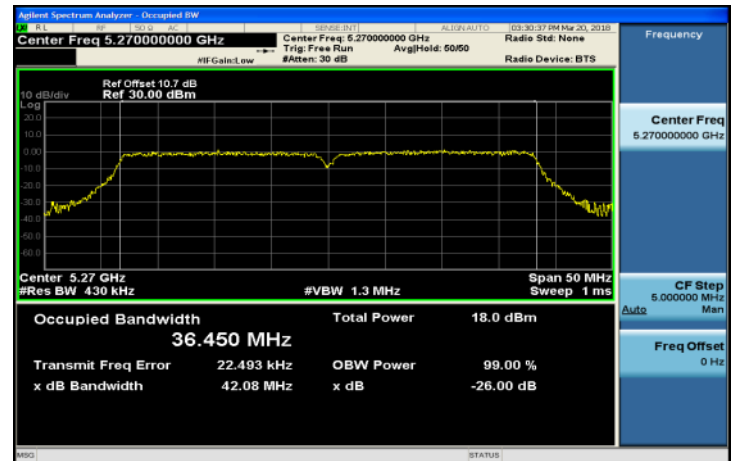
5230 MHz



5700 MHz



5270 MHz



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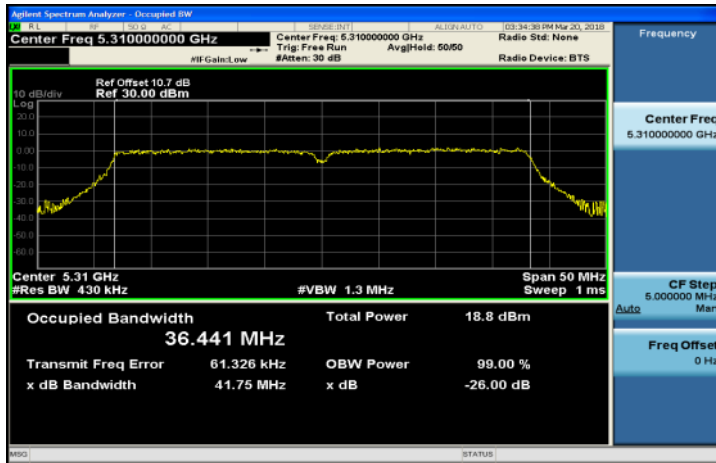
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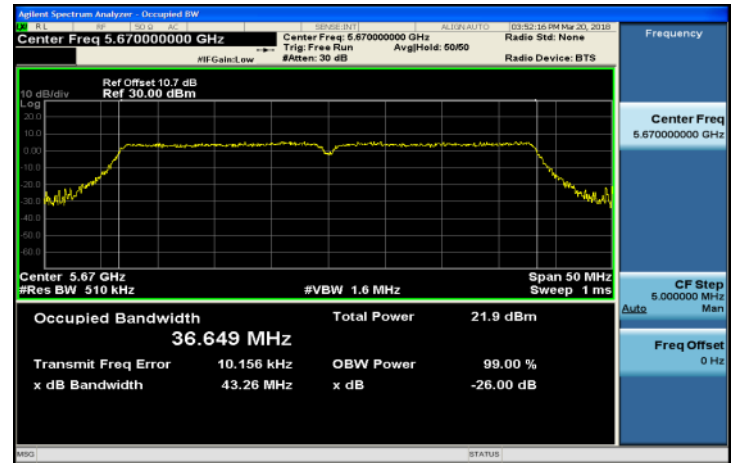
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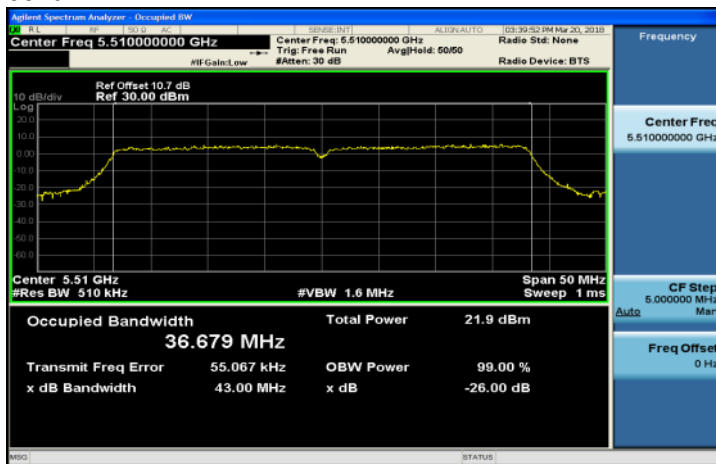
5310MHz



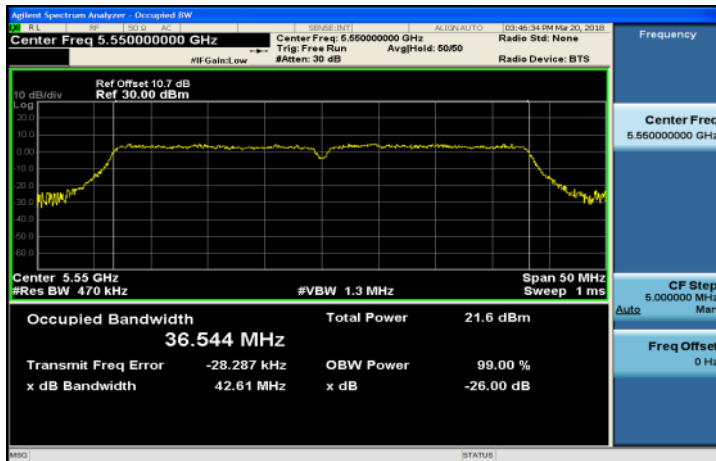
5670 MHz



5510 MHz



5550 MHz

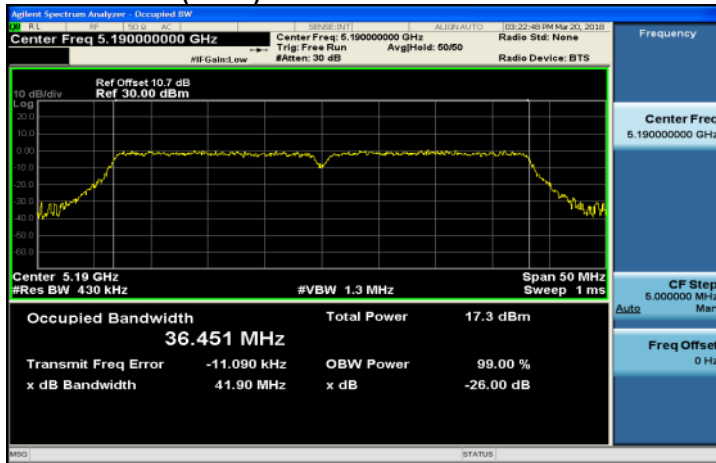


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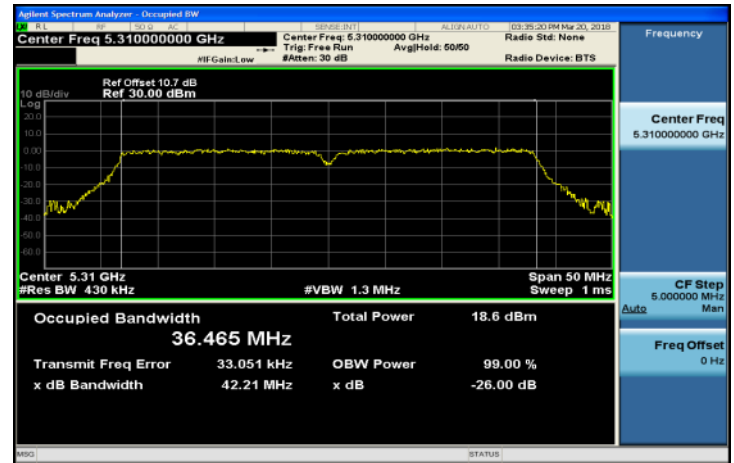
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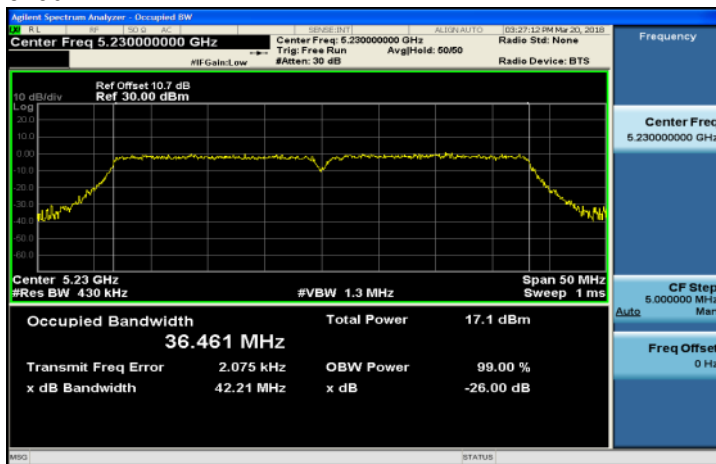
802.11n HT40 (Aux1) 5190 MHz



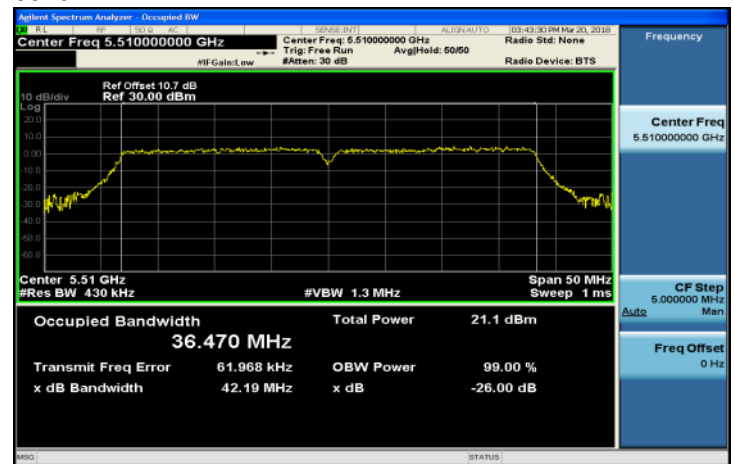
5310MHz



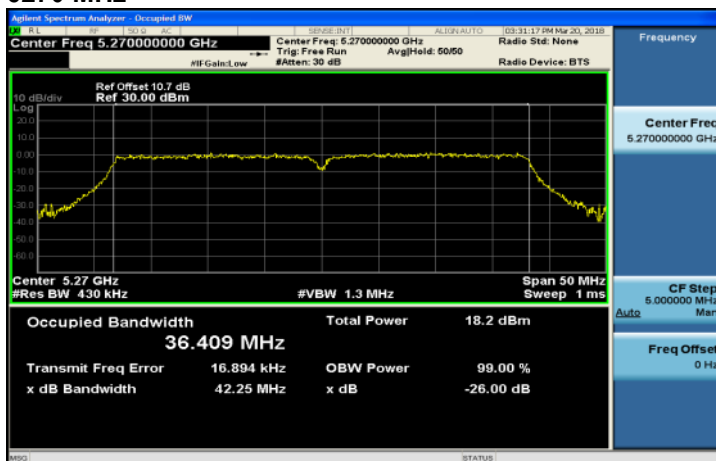
5230 MHz



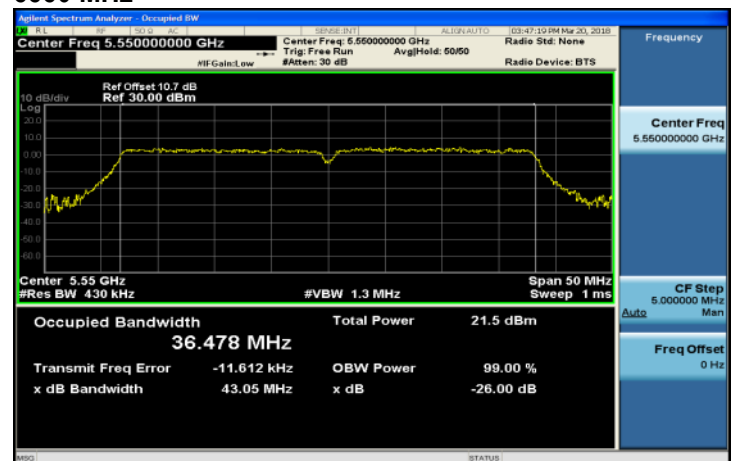
5510 MHz



5270 MHz



5550 MHz



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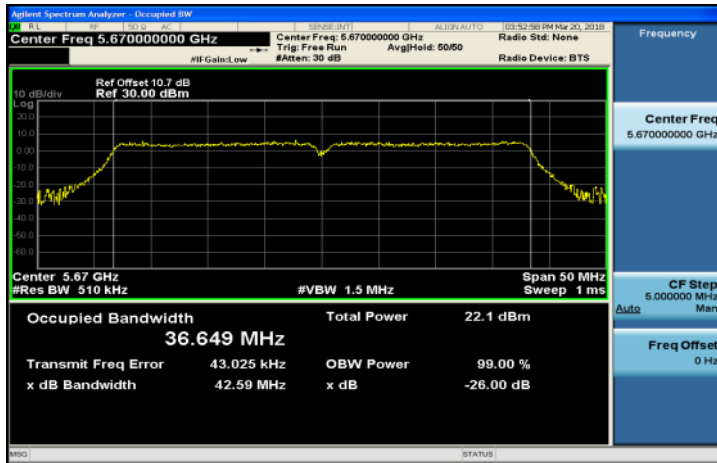
t (886-2) 2299-3279

f (886-2) 2298-0488

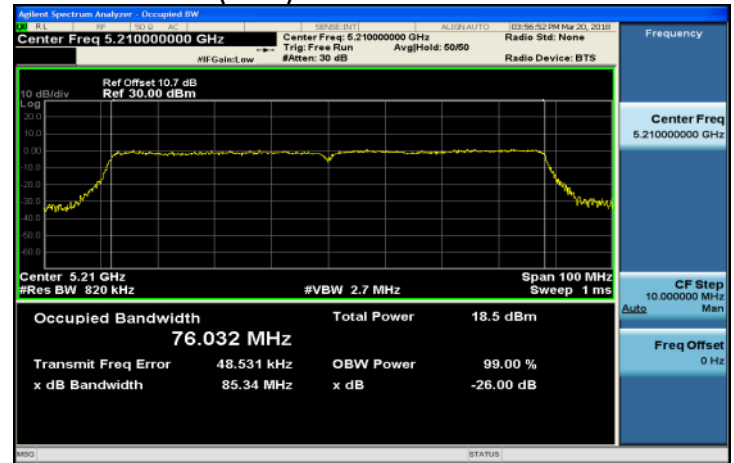
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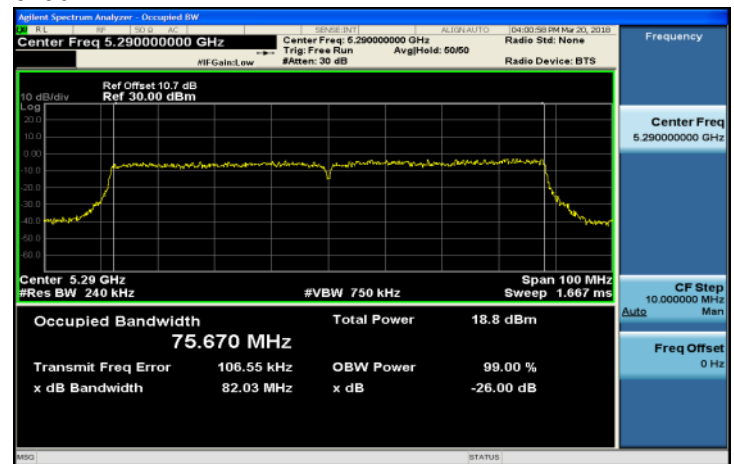
5670 MHz



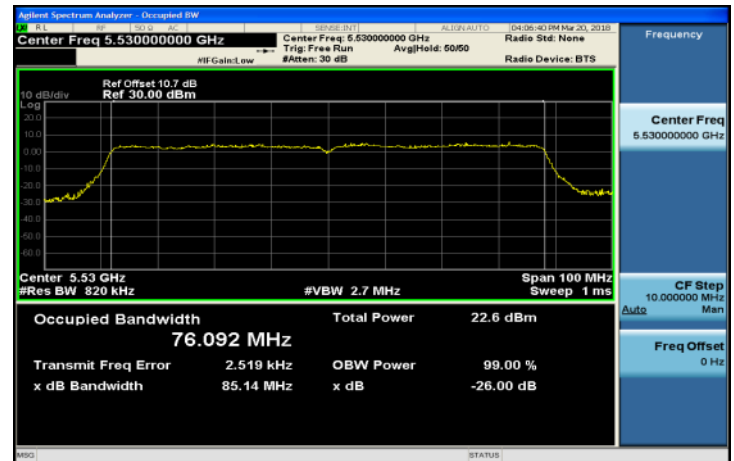
802.11ac VHT80 (Main) 5210 MHz



5290 MHz



5530 MHz



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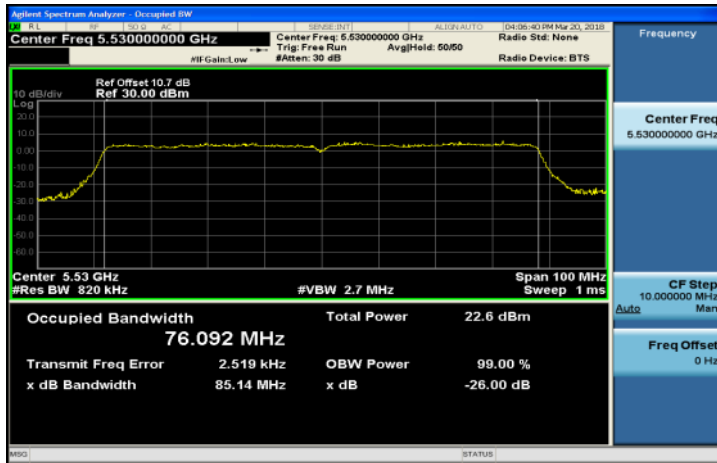
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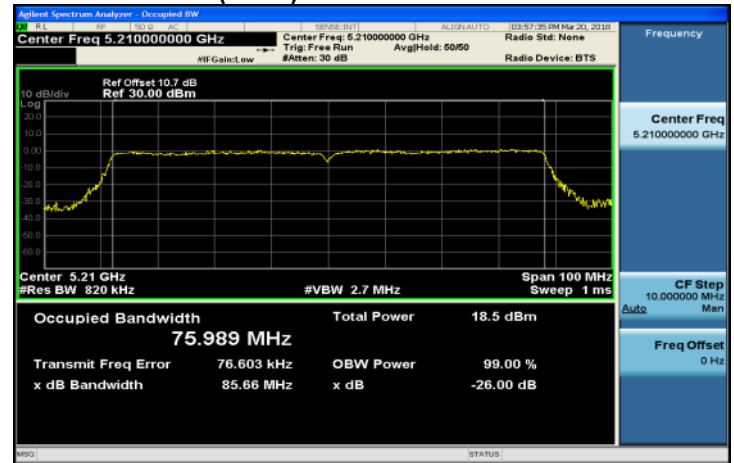
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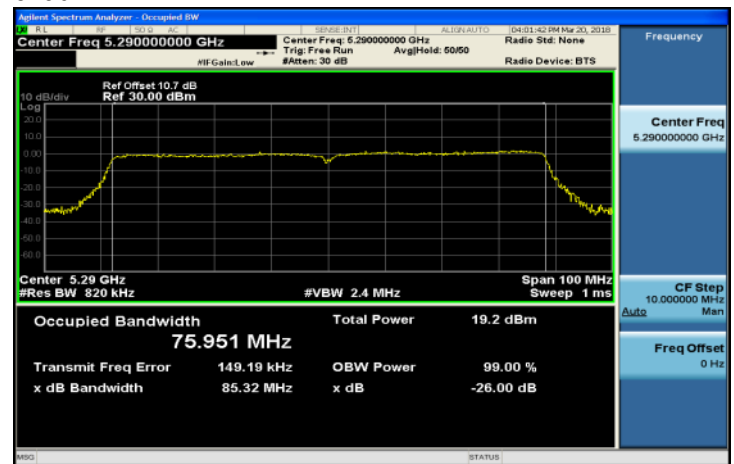
5610 MHz



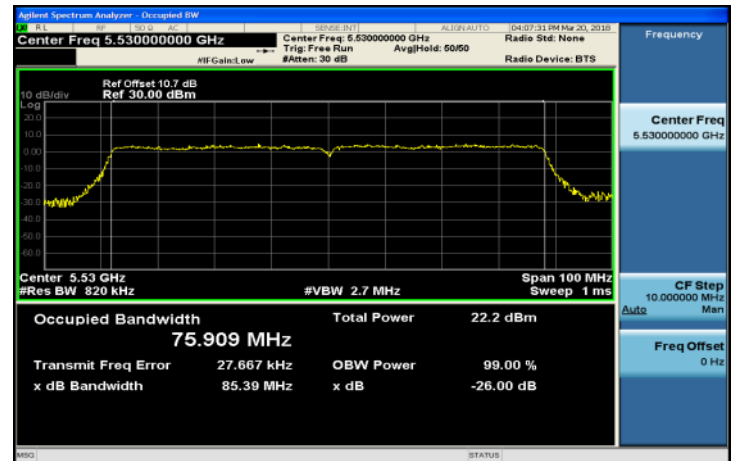
802.11ac VHT80 (Aux1) 5210 MHz



5290 MHz



5530 MHz



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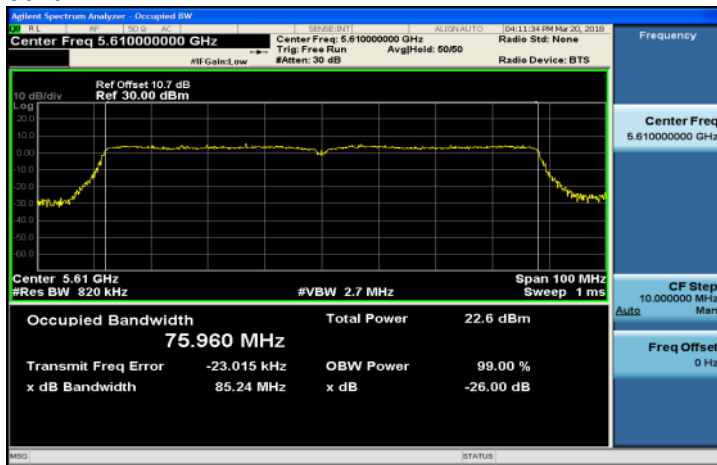
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5610 MHz



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9. MAXIMUM CONDUCTED OUTPUT POWER MEASUREMENT

9.1 Standard Applicable

OPERZTION Band	EUT CATEGORY		LIMIT
U-NII-1		Access Point (Mater device)	1 Watt(30dBm)
		Fixed point-to-point Acess Ponit	1 Watt(30dBm)
	√	Mobile and portable clinet device	250mW(23.98dBm)
U-NII-2A	√		250mW(23.98dBm) or 11dBm+10 log B
U-NII-2C	√		250mW(23.98dBm) or 11dBm+10 log B
U-NII-3			1 Watt(30dBm)

If transmitting antennas of directional gain greater than 6 dBi are used, both the transmit power and the power spectral density shall be reduced by the amount in dB that the direction-al gain of the antenna exceeds 6 dBi.

Note:

The antenna gain is granter than 6 dBi in MIMO mode the limit reduce as below:

Directional gain = gain of antenna element + 10 log (# of TX antenna elements)

	Effective Legacy Gain (dBi)	Limit
UNII-1	-3.6+3.01=-0.59dBi	23.98dBm
UNII-2A	-3.6+3.01=-0.59dBi	23.98dBm
U-NII-2C	-1.7+3.01=1.31dBi	23.98dBm

Therefore the limit no needs to reduce for the UNII-1, U-NII-2A and U-NII-2C band.

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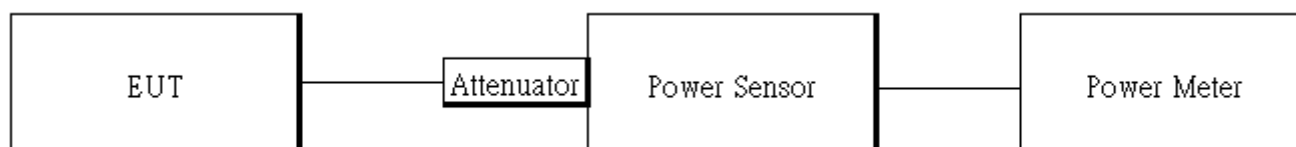
9.2 Measurement Procedure

1. Place the EUT on the table and set it in transmitting mode.
2. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules.
3. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the power meter
4. Power Meter is used as the auxiliary test equipment to conduct the output power measurement.
5. Record the max. reading and add $10 \log(1/\text{duty cycle})$.
6. Repeat above procedures until all frequency (low, middle, and high channel) measured were complete.

9.3 Measurement Equipment Used

EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Power Meter	Anritsu	ML2496A	1242004	2017/10/16	2018/10/15
DC Power Supply	Anritsu	E3640A	MY52410006	2017/11/28	2018/11/27
Attenuator	Mini-Circuit	BW-S10W2+	2	2018/01/02	2019/01/01
Notebook	Lenovo	T440	P0000564	N/A	N/A

9.4 Test Set-up



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9.5 Measurement Result

Conducted output power

802.11a_Main

CH	Frequency (MHz)	Data Rate	TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)	RESULT
36	5180	6	11.70	14.781	30	PASS
44	5220	6	14.84	30.459	30	PASS
48	5240	6	14.83	30.389	30	PASS
52	5260	6	14.90	30.882	23.98 or $11+10\log(B) = 24.32$	PASS
60	5300	6	14.86	30.599	23.98 or $11+10\log(B) = 24.30$	PASS
64	5320	6	11.94	15.621	23.98 or $11+10\log(B) = 24.41$	PASS
100	5500	6	11.90	15.478	23.98 or $11+10\log(B) = 24.30$	PASS
116	5580	6	14.73	29.697	23.98 or $11+10\log(B) = 24.38$	PASS
140	5700	6	11.79	15.091	23.98 or $11+10\log(B) = 24.36$	PASS

802.11n_HT20_MIMO

CH	Frequency (MHz)	Data Rate	Avg. POWER (dBm)		TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)	RESULT
			CH 0	CH 1				
36	5180	MCS8	12.75	10.58	14.89	30.804	30	PASS
44	5220	MCS8	14.57	14.31	17.53	56.610	30	PASS
48	5240	MCS8	14.68	14.46	17.66	58.323	30	PASS
52	5260	MCS8	14.57	14.34	17.54	56.800	23.98 or $11+10\log(B) = 24.46$	PASS
60	5300	MCS8	14.56	14.31	17.52	56.543	23.98 or $11+10\log(B) = 24.59$	PASS
64	5320	MCS8	11.66	11.24	14.54	28.458	23.98 or $11+10\log(B) = 24.54$	PASS
100	5500	MCS8	11.77	11.6	14.77	30.011	23.98 or $11+10\log(B) = 24.53$	PASS
116	5580	MCS8	14.67	14.53	17.69	58.716	23.98 or $11+10\log(B) = 24.53$	PASS
140	5700	MCS8	11.67	11.32	14.59	28.744	23.98 or $11+10\log(B) = 24.55$	PASS

802.11n_HT40_MIMO

CH	Frequency (MHz)	Data Rate	Avg. POWER (dBm)		TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)	RESULT
			CH 0	CH 1				
38	5190	MCS8	12.52	10.6	14.84	30.483	30	PASS
46	5230	MCS8	14.38	14.32	17.53	56.565	30	PASS
54	5270	MCS8	14.41	14.32	17.54	56.763	23.98 or $11+10\log(B) = 27.24$	PASS
62	5310	MCS8	11.72	10.98	14.54	28.452	23.98 or $11+10\log(B) = 27.21$	PASS
102	5510	MCS8	11.72	11.53	14.80	30.209	23.98 or $11+10\log(B) = 27.25$	PASS
110	5550	MCS8	14.58	14.53	17.73	59.299	23.98 or $11+10\log(B) = 27.30$	PASS
134	5670	MCS8	11.57	11.12	14.53	28.354	23.98 or $11+10\log(B) = 27.29$	PASS

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802.11ac_VHT80_MIMO

CH	Frequency (MHz)	Data Rate	Avg. POWER (dBm)		TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)		RESULT
			CH 0	CH 1					
42	5210	MCS8	12.09	10.52	14.72	29.621	30		PASS
58	5290	MCS8	11.52	10.81	14.52	28.313	23.98	or $11+10\log(B) = 30.14$	PASS
106	5530	MCS8	11.47	11.26	14.71	29.558	23.98	or $11+10\log(B) = 30.30$	PASS
122	5610	MCS8	14.65	14.07	17.71	59.022	23.98	or $11+10\log(B) = 30.28$	PASS

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10. POWER SPECTRAL DENSITY

10.1 Standard Applicable

OPERZTION Band	EUT CATEGORY		LIMIT
U-NII-1		Access Point (Mater device)	17dBm/ MHz
		Fixed point-to-point Acess Ponit	
	√	Mobile and portable clinet device	11dBm/ MHz
U-NII-2A	√		11dBm/ MHz
U-NII-2C	√		11dBm/ MHz
U-NII-3			30dBm/ 500kHz

If transmitting antennas of directional gain greater than 6 dBi are used, both the transmit power and the power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Note:

The antenna gain is granter than 6 dBi in MIMO mode the limit reduce as below:

Directional gain = gain of antenna element + 10 log (# of TX antenna elements)

	Effective Legacy Gain (dBi)	Limit
UNII-1	-3.6+3.01=-0.59dBi	11dBm
UNII-2A	-3.6+3.01=-0.59dBi	11dBm
U-NII-2C	-1.7+3.01=1.31dBi	11dBm

Therefore the limit needs to reduce for the UNII-1, U-NII-2A and U-NII-2C band.

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10.2 Measurement Procedure

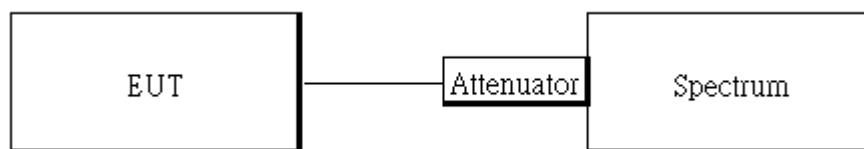
1. Place the EUT on the table and set it in transmitting mode.
2. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules .
3. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to Spectrum.
4. **For U-NII1, U-NII-2A, U-NII-2C Band:**
Set RBW=1MHz, VBW=3MHz, where span is enough to capture the entire bandwidth, Sweep time = Auto (601 pts), detector = sample, traces 100 sweeps of video averaging. (SA-2 with the omission of procedure x, the integration with 26dB EBW bandwidth)
5. Use the cursor on spectrum to peak search the highest level of trace
6. Record the max. reading and add 10 log(1/duty cycle).
7. Repeat above procedures until all default test channel (low, middle, and high) was complete.

Note: For the test of PSD at MIMO mode, the highest emission of worst case employing Measure and add 10 log (N) technical is reported on this report after the comparison between Main Antenna at single transmitting mode and Aux that yields the higher value. The MIMO transmitting mode produces higher value of outcome.

10.3 Measurement Equipment Used

EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
EXA Spectrum Analyzer	Agilent	N9010A	MY54200716	2017/10/16	2018/10/15
DC Power Supply	Anritsu	E3640A	MY52410006	2017/11/28	2018/11/27
Attenuator	Mini-Circuit	BW-S10W2+	2	2018/01/02	2019/01/01
Notebook	Lenovo	T440	P0000564	N/A	N/A

10.4 Test Set-up



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10.5 Measurement Result

POWER DENSITY 802.11a MODE					
Frequency (MHz)	PPSD W/O Duty Factor (dBm)	Duty Factor	PPSD With Duty Factor (dBm)	Limit (dBm)	Margin (dB)
5180	-1.75	0.08	-1.67	11	-12.67
5220	-2.06	0.08	-1.98	11	-12.98
5240	-2.14	0.08	-2.06	11	-13.06
5260	-1.81	0.08	-1.73	11	-12.73
5300	-1.11	0.08	-1.03	11	-12.03
5320	-0.67	0.08	-0.59	11	-11.59
5500	1.09	0.08	1.17	11	-9.83
5580	1.48	0.08	1.56	11	-9.44
5700	2.16	0.08	2.24	11	-8.76

POWER DENSITY 802.11n HT20 MODE					
Frequency (MHz)	PPSD W/O Duty Factor (dBm)	Duty Factor	PPSD With Duty Factor (dBm)	Limit (dBm)	Margin (dB)
5180	0.07	0.08	0.15	11	-10.85
5220	0.52	0.08	0.60	11	-10.40
5240	0.16	0.08	0.24	11	-10.76
5260	0.76	0.08	0.84	11	-10.16
5300	1.36	0.08	1.44	11	-9.56
5320	1.91	0.08	1.99	11	-9.01
5500	3.18	0.08	3.26	11	-7.74
5580	4.23	0.08	4.31	11	-6.69
5700	4.51	0.08	4.59	11	-6.41

POWER DENSITY 802.11n HT40 MODE					
Frequency (MHz)	PPSD W/O Duty Factor (dBm)	Duty Factor	PPSD With Duty Factor (dBm)	Limit (dBm)	Margin (dB)
5190	-3.23	0.17	-3.06	11	-14.06
5230	-3.46	0.17	-3.29	11	-14.29
5270	-3.03	0.17	-2.86	11	-13.86
5310	-1.85	0.17	-1.68	11	-12.68
5510	0.75	0.17	0.92	11	-10.08
5550	1.83	0.17	2.00	11	-9.00
5670	1.68	0.17	1.85	11	-9.15

POWER DENSITY 802.11ac VHT80 MODE					
Frequency (MHz)	PPSD W/O Duty Factor (dBm)	Duty Factor	PPSD With Duty Factor (dBm)	Limit (dBm)	Margin (dB)
5210	-6.31	0.34	-5.97	11	-16.97
5290	-5.86	0.34	-5.52	11	-16.52
5530	-3.28	0.34	-2.94	11	-13.94
5610	-2.59	0.34	-2.25	11	-13.25

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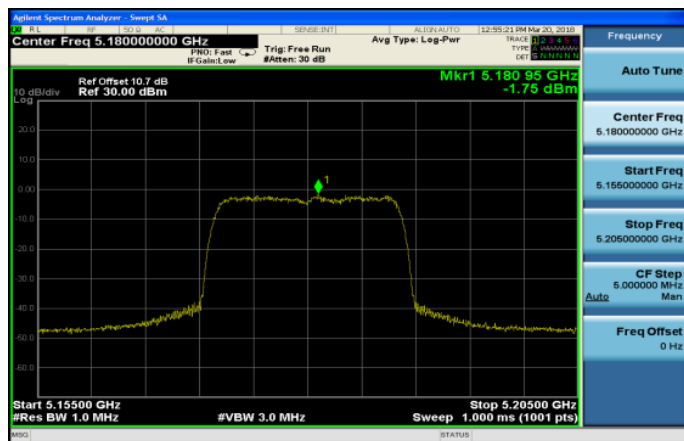
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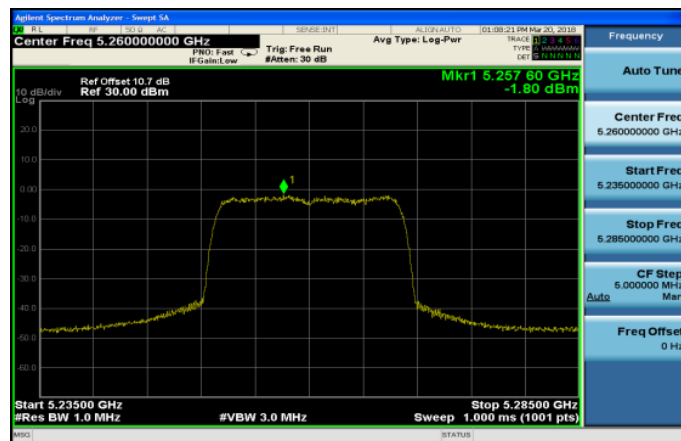
802.11a 5150~5250 MHz

Peak Power Spectral Density Data Plot (CH Low 5180 MHz)

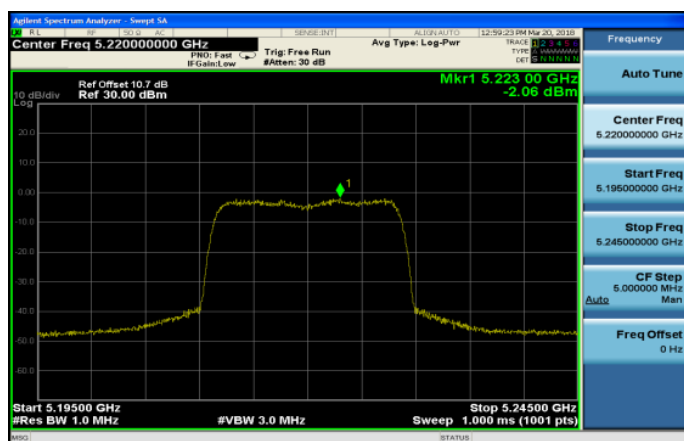


802.11a 5250~5350 MHz

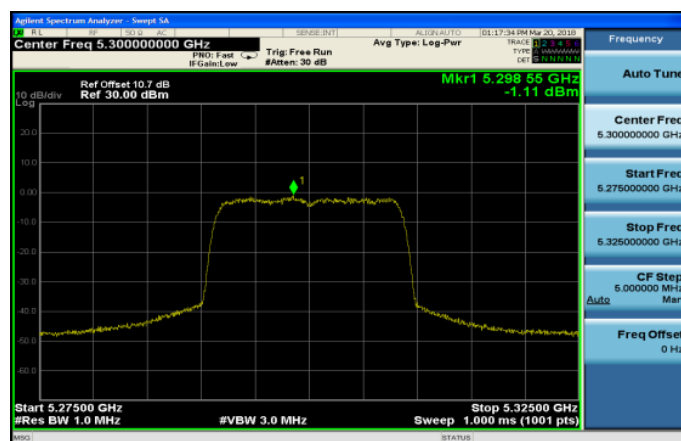
Peak Power Spectral Density Data Plot (CH Low 5260 MHz)



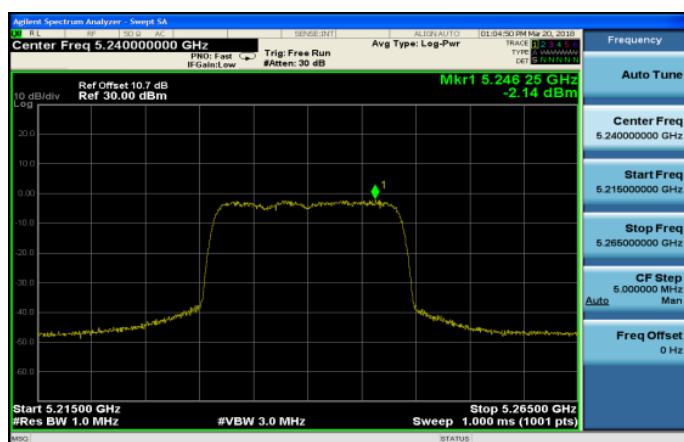
Peak Power Spectral Density Data Plot (CH Mid 5220 MHz)



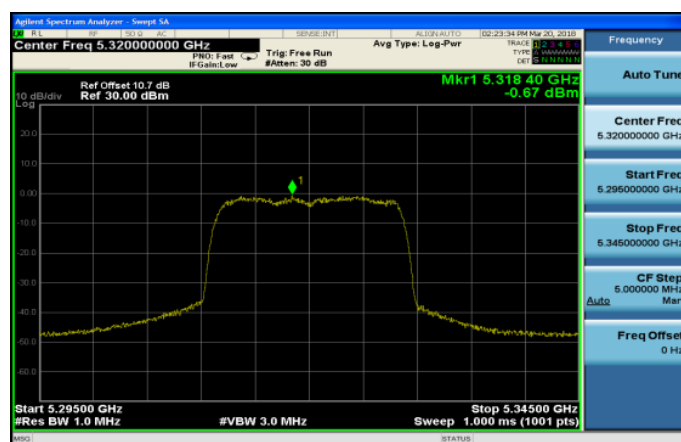
Peak Power Spectral Density Data Plot (CH Mid 5300 MHz)



Peak Power Spectral Density Data Plot (CH High 5240 MHz)



Peak Power Spectral Density Data Plot (CH High 5320 MHz)



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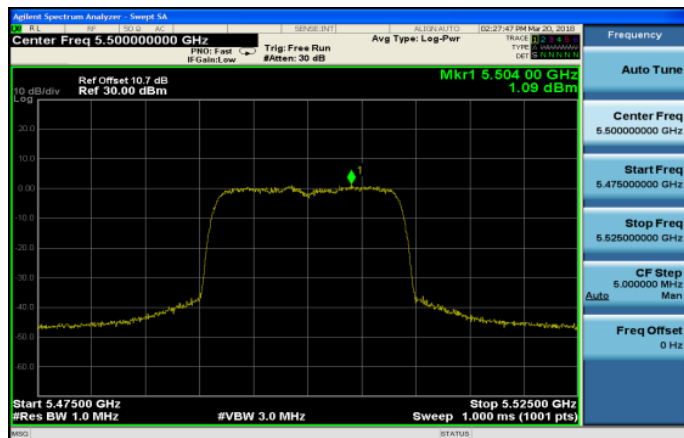
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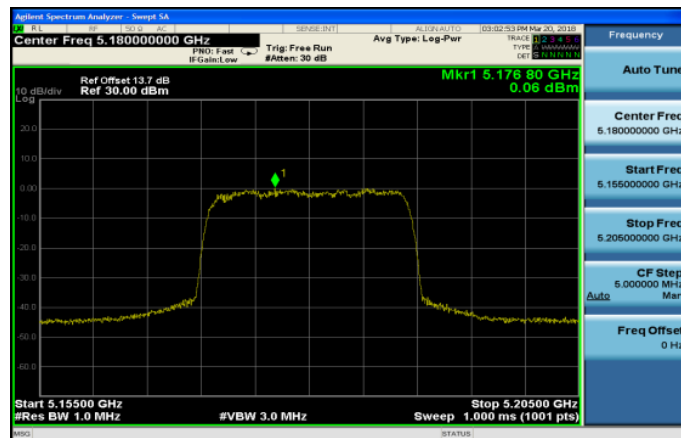
802.11a 5470~5725 MHz

Peak Power Spectral Density Data Plot (CH Low 5500 MHz)

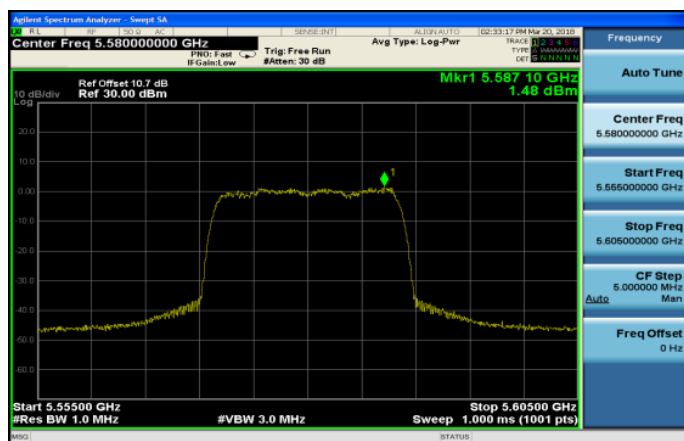


802.11n HT20, 5150~5250 MHz

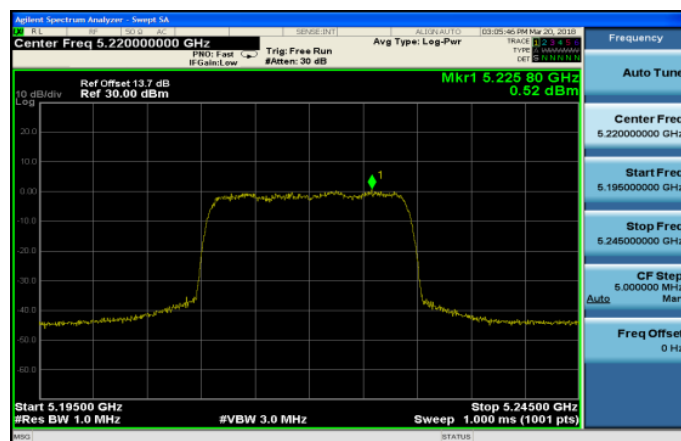
Peak Power Spectral Density Data Plot (CH Low 5180 MHz)



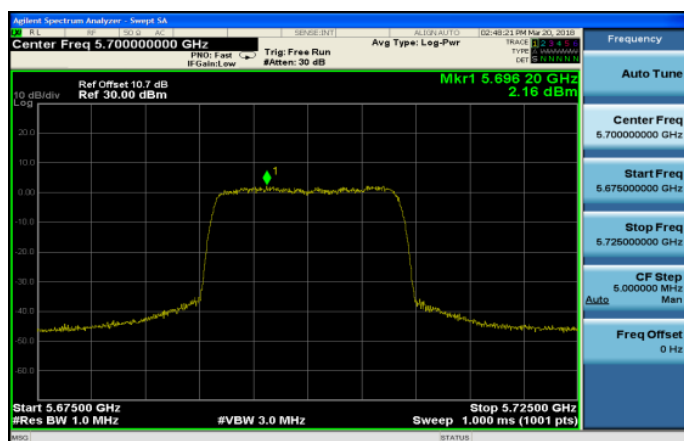
Peak Power Spectral Density Data Plot (CH Mid 5580 MHz)



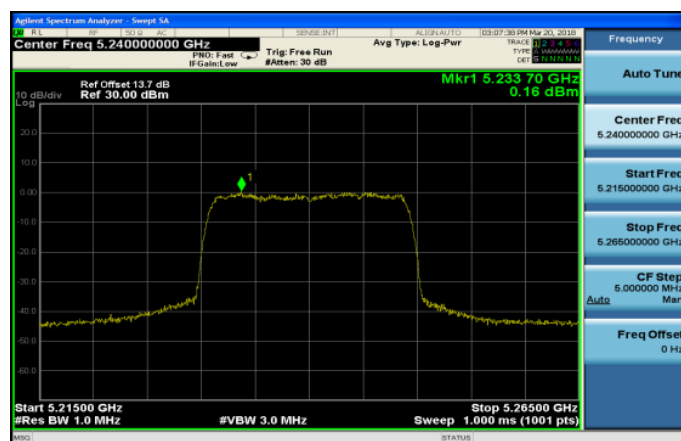
Peak Power Spectral Density Data Plot (CH Mid 5220 MHz)



Peak Power Spectral Density Data Plot (CH High 5700 MHz)



Peak Power Spectral Density Data Plot (CH High 5240 MHz)



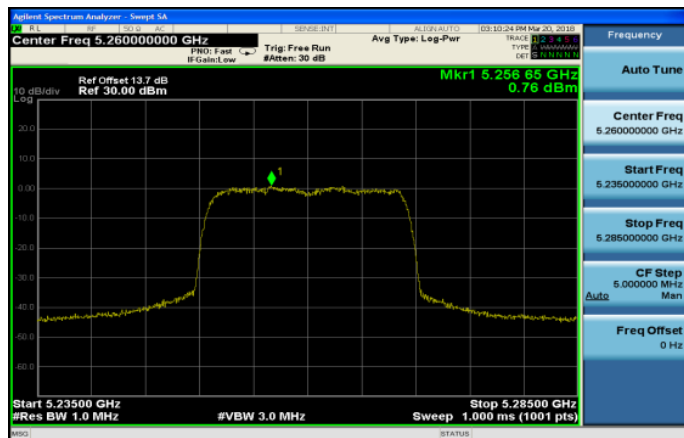
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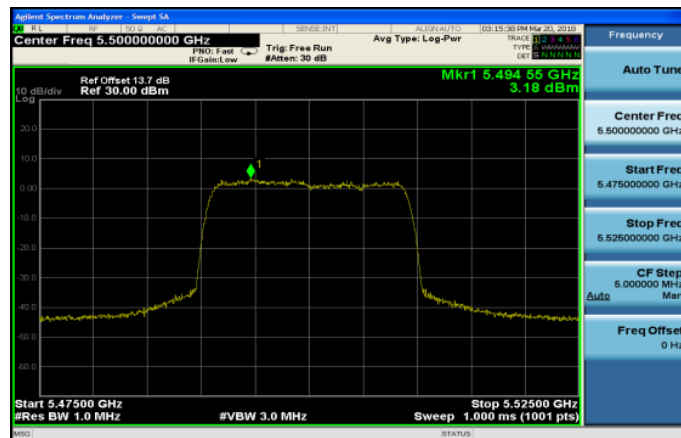
802.11n HT20, 5250~5350 MHz

Peak Power Spectral Density Data Plot (CH Low 5260MHz)

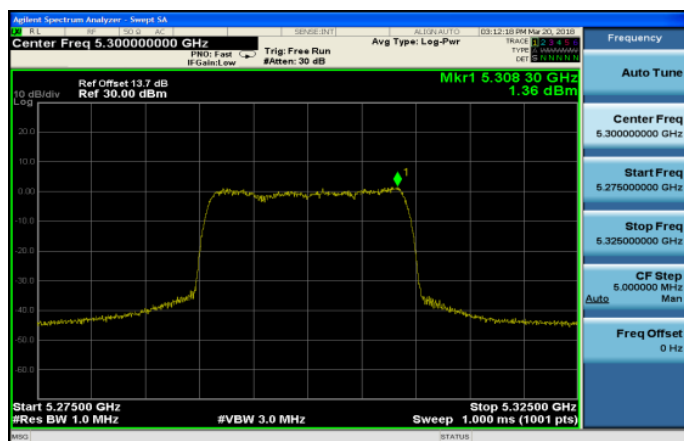


802.11n HT20, 5470~5725 MHz

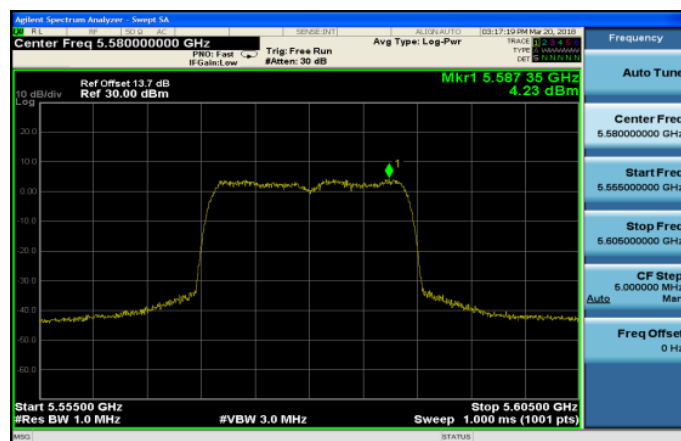
Peak Power Spectral Density Data Plot (CH Low 5500 MHz)



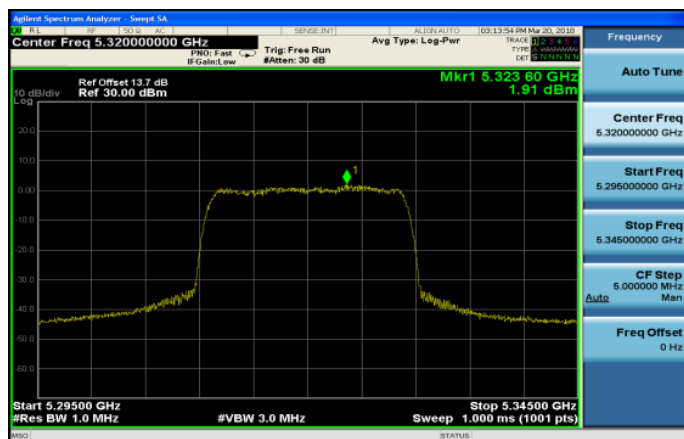
Peak Power Spectral Density Data Plot (CH Mid 5300 MHz)



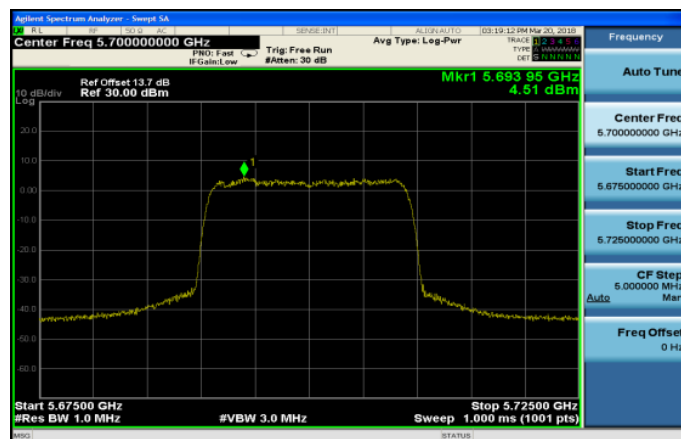
Peak Power Spectral Density Data Plot (CH Mid 5580MHz)



Peak Power Spectral Density Data Plot (CH High 5320 MHz)



Peak Power Spectral Density Data Plot (CH High 5700 MHz)



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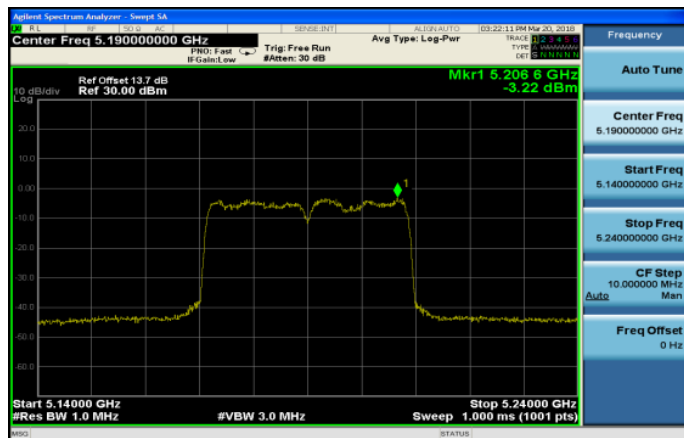
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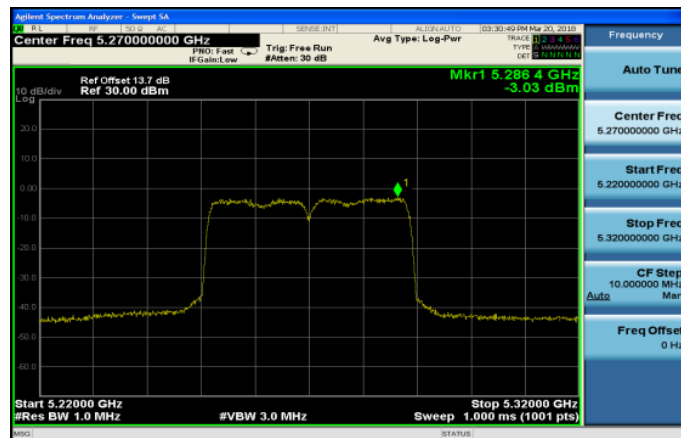
802.11n HT40, 5150~5250 MHz

Peak Power Spectral Density Data Plot (CH Low 5190 MHz)

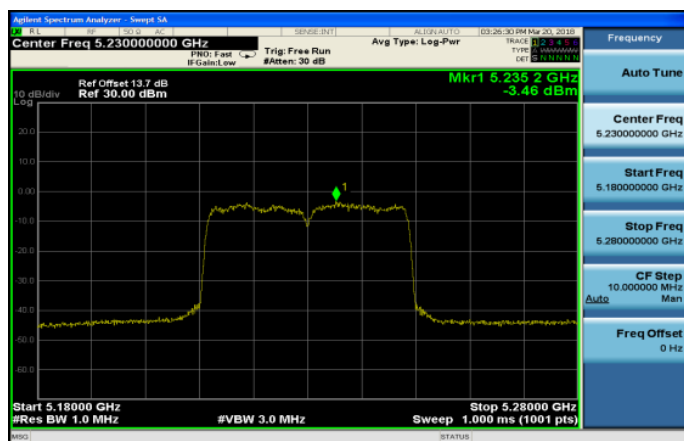


802.11n HT40, 5250~5350 MHz

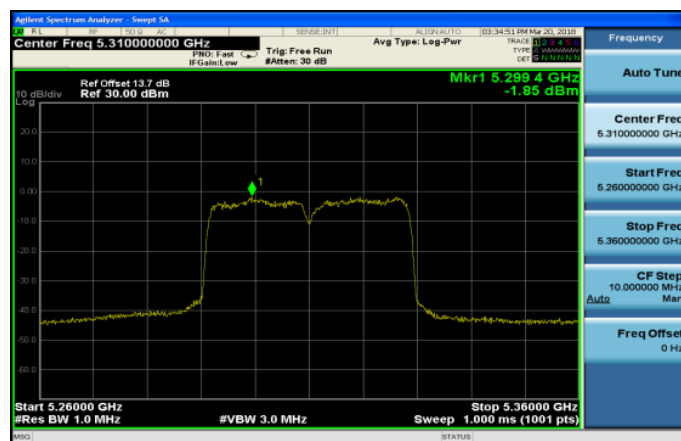
Peak Power Spectral Density Data Plot (CH Low 5270 MHz)



Peak Power Spectral Density Data Plot (CH High 5230 MHz)



Peak Power Spectral Density Data Plot (CH High 5310 MHz)



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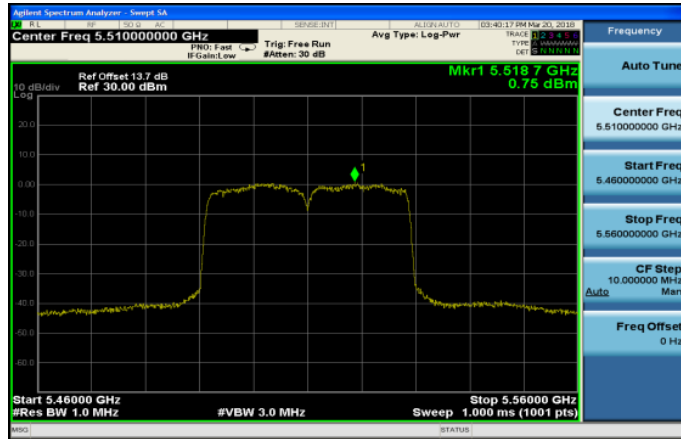
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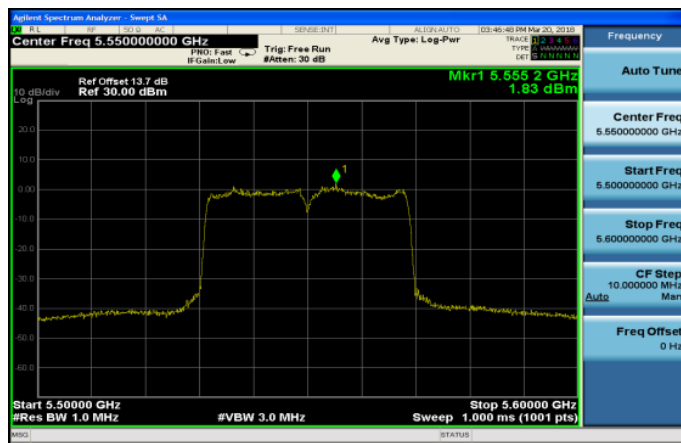
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802.11n HT40, 5470~5725 MHz

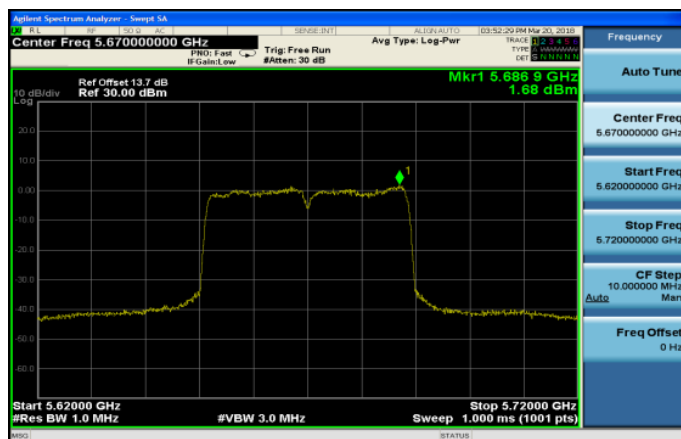
Peak Power Spectral Density Data Plot (CH Low 5510 MHz)



Peak Power Spectral Density Data Plot (CH Mid 5550 MHz)

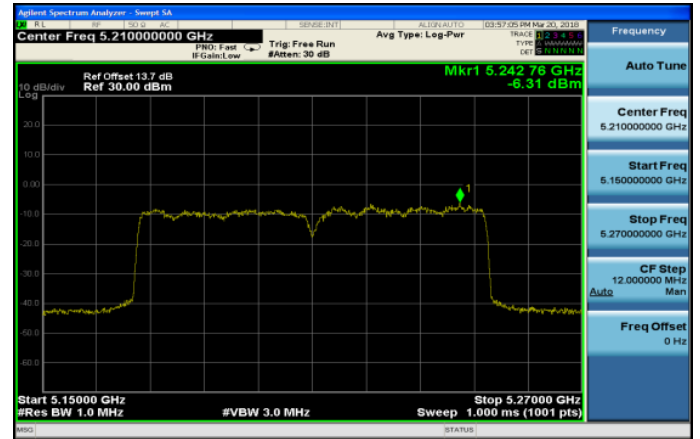


Peak Power Spectral Density Data Plot (CH High 5670 MHz)



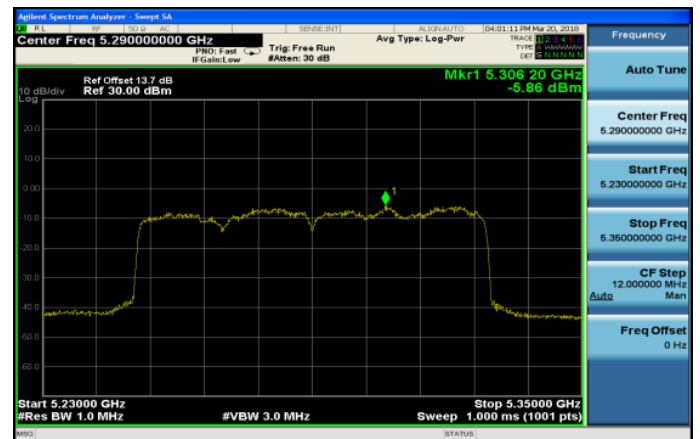
802.11ac VHT80, 5150~5250 MHz

Peak Power Spectral Density Data Plot (CH Mid 5210 MHz)



802.11ac VHT80, 5250~5350 MHz

Peak Power Spectral Density Data Plot (CH Mid 5290 MHz)



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802.11ac VHT80, 5470~5725 MHz

Peak Power Spectral Density Data Plot (CH Low 5530 MHz)



802.11ac VHT80, 5470~5725 MHz

Peak Power Spectral Density Data Plot (CH High 5610 MHz)



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11. UNDESIRABLE RADIATED EMISSION MEASUREMENT

11.1 Standard Applicable

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 5.725-5.85 GHz band: 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.

APPLICABLE TO	LIMIT	
FCC KDB 789033 D02 General UNII Test Procedures New Rules	FIELD STRENGTH AT 3m	
	PK: 74 (dBμV/m)	AV 54 (dBμV/m)
APPLICABLE TO	EIRP LIMIT	FIELD STRENGTH AT 3m
15.407(b)(1)	PK: -27 (dBm/MHz)	PK: 68.3 (dBμV/m)
15.407(b)(2)		
15.407(b)(3)		
15.407(b)(4)(i)	PK:-27 (dBm/MHz) *1 PK:10 (dBm/MHz) *2 PK:15.6 (dBm/MHz) *3 PK:27 (dBm/MHz) *4	PK: 68.2(dBμV/m) *1 PK:105.2 (dBμV/m) *2 PK: 110.8(dBμV/m) *3 PK:122.2 (dBμV/m) *4
*1 beyond 75 MHz or more above of the bandedge. *2 below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above. *3 below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above. *4 from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.		

EIRP = $(E \cdot d)^2 / 30$, where E is the field in V/m, d is the measurement distance (3m),
EIRP is the equivalent isotropically radiated power in Watts.

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Unwanted spurious emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table:

Frequency (MHz)	Field strength (microvolts/meter)	Distance (meters)
0.009-0.490	2400/F(KHz)	300
0.490-1.705	24000/F(KHz)	30
1.705-30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Note:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBμV/m) = 20 log Emission level (dBμV/m)

11.2 Measurement Equipment Used

EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Bi-log Antenna	SCHWAZBECK	VULB9168	378	2017/12/29	2018/12/28
Horn Antenna	Schwarzbeck	BBHA9120D	1441	2017/08/04	2018/08/03
Horn Antenna	Schwarzbeck	BBHA9170	184	2017/12/12	2018/12/11
Loop Antenna	ETS.LINDGREN	6502	148045	2017/09/26	2018/09/25
Spectrum Analyzer	Agilent	E4446A	MY51100003	2017/05/10	2018/05/09
EMI Test Receiver	R&S	ESCI7	100760	2017/06/06	2018/06/05
Pre-Amplifier	HP	8449B	3008A00578	2018/01/02	2019/01/01
Pre-Amplifier	HP	8447D	2944A07676	2018/01/02	2019/01/01
Pre-Amplifier	EMC Instruments Corp.	EMC0126530	980038	2018/01/02	2019/01/01
Filter 2400-2483.5 MHz	EWT	EWT-14-0166	M1	2018/01/02	2019/01/01
Low Loss Cable	Huber Suhner	966_RX	9	2018/01/02	2019/01/01
Notebook	Lenovo	T440	P0000564	N/A	N/A

Note: N.C.R refers to Not Calibrated Required.

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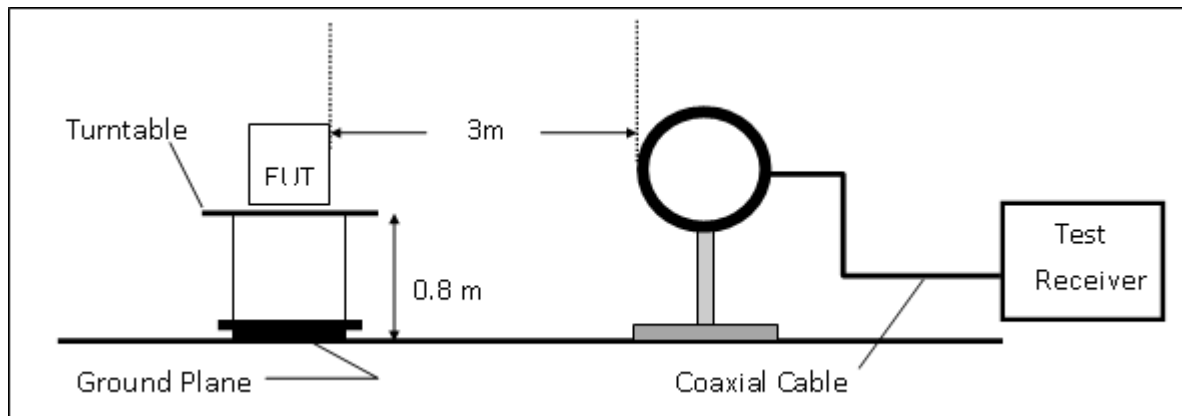
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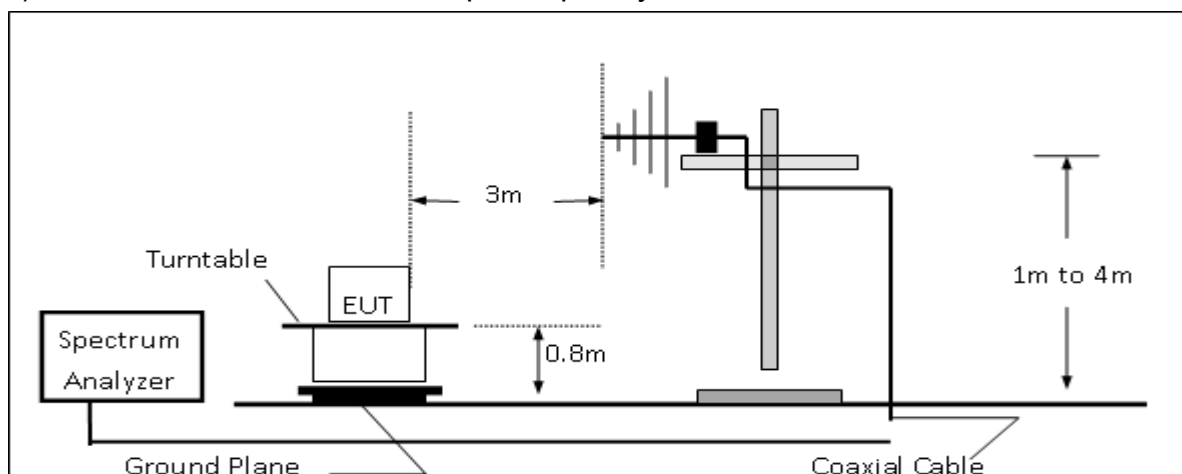
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11.3 Test SET-UP

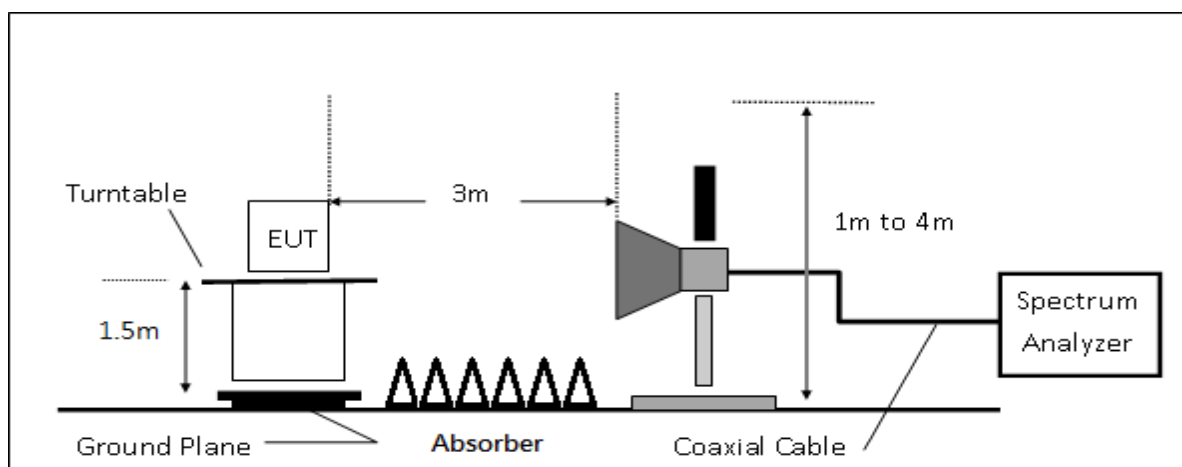
(A) Radiated Emission Test Set-UP Frequency Below 30MHz.



(B) Radiated Emission Test Set-UP, Frequency form 30MHz to 1000MHz



(C) Radiated Emission Test Set-UP Frequency Over 1 GHz



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11.4 Measurement Procedure

1. The EUT was placed on a turn table which is 0.8m above ground plane.
2. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules.
3. The EUT was placed on a turn table with 0.8m for frequency < 1GHz and 1.5m for frequency > 1GHz above ground plane.
4. The turn table shall rotate 360 degrees to determine the position of maximum emission level.
5. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emissions.
6. Set the spectrum analyzer as RBW=120 kHz and VBW=300 kHz for Peak Detector (PK) and Quasi-peak (QP) at frequency below 1 GHz.
7. Set the spectrum analyzer as RBW=1 MHz, VBW=3 MHz for Peak Detector at frequency above 1 GHz.
8. Set the spectrum analyzer as RBW=1 MHz, VBW=10 Hz (Duty cycle > 98%) or VBW ≥ 1/T (Duty cycle < 98%) for Average Detector at frequency above 1 GHz.
9. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
10. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
11. Repeat above procedures until all frequency measured were complete.

11.5 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor (if any) from the measured reading. The basic equation with a sample calculation is as follows:

$$FS = RA + AF + CL - AG$$

Where	FS = Field Strength	CL = Cable Attenuation Factor (Cable Loss)
	RA = Reading Amplitude	AG = Amplifier Gain
	AF = Antenna Factor	

Actual FS(dBμV/m) = SPA. Reading level(dBμV) + Factor(dB)

Factor(dB) = Antenna Factor(dBμV/m) + Cable Loss(dB) – Pre_Amplifier Gain(dB)

Note :

“F” : denotes Fundamental Frequency. ; “H” : denotes Harmonic Frequency.

“E” : denotes Band Edge Frequency. ; “S” : denotes Spurious Frequency.

11.6 Test Results of Radiated Spurious Emissions form 9 kHz to 30 MHz

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit per 15.31(o) was not reported.

11.7 Measurement Result

Refer to next page for tabular data sheets.

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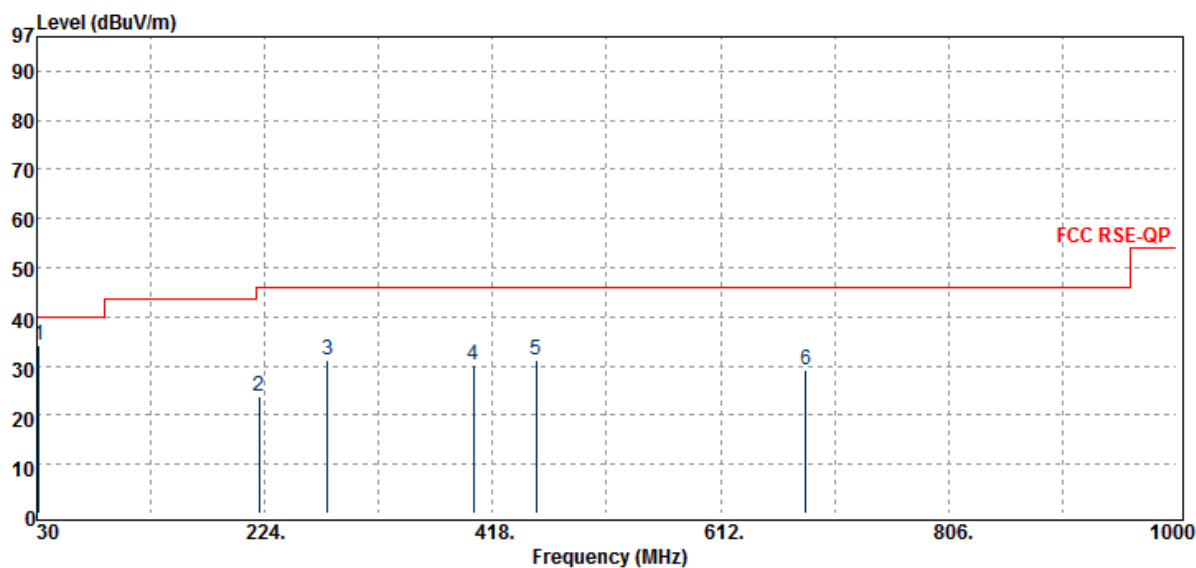
Radiated Spurious Emission Measurement Result

Below 1GHz Worst-Case Data:

802.11a 5150~5250 MHz

Operation Band :802.11aB1
Fundamental Frequency :5220 MHz
Operation Mode :Tx CH MID
EUT Pol. :E1 Plane

Test Date :2018-03-19
Temp./Humi. :23 deg_C / 62 RH
Engineer :Tin
Measurement Antenna Pol. :VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
31.94	S	Peak	43.00	-8.88	34.12	40.00	-5.88
219.15	S	Peak	32.95	-9.08	23.87	46.00	-22.13
277.35	S	Peak	37.54	-6.27	31.27	46.00	-14.73
401.51	S	Peak	33.36	-3.27	30.09	46.00	-15.91
454.86	S	Peak	33.44	-2.33	31.11	46.00	-14.89
684.75	S	Peak	27.46	1.58	29.04	46.00	-16.96

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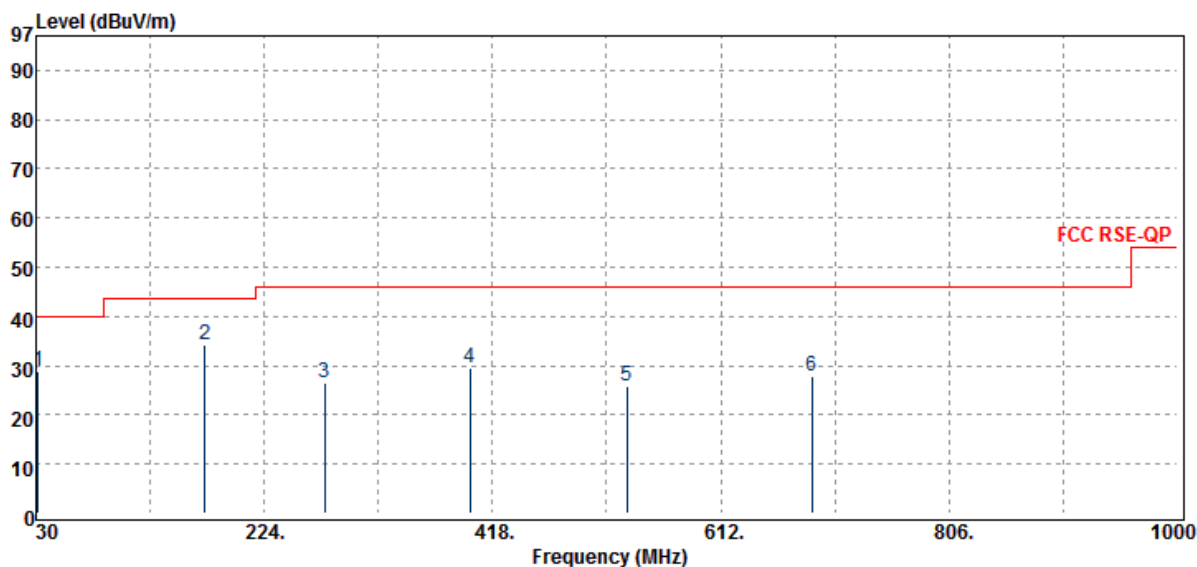
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Operation Band :802.11aB1
Fundamental Frequency :5220 MHz
Operation Mode :Tx CH MID
EUT Pol. :E1 Plane

Test Date :2018-03-19
Temp./Humi. :23 deg_C / 62 RH
Engineer :Tin
Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBUV	Factor dB	Actual FS dBUV/m	Limit @3m dBUV/m	Margin dB
31.94	S	Peak	37.74	-8.88	28.86	40.00	-11.14
173.56	S	Peak	41.77	-7.70	34.07	43.50	-9.43
275.41	S	Peak	32.99	-6.38	26.61	46.00	-19.39
398.60	S	Peak	32.94	-3.41	29.53	46.00	-16.47
532.46	S	Peak	27.40	-1.60	25.80	46.00	-20.20
689.60	S	Peak	25.83	1.88	27.71	46.00	-18.29

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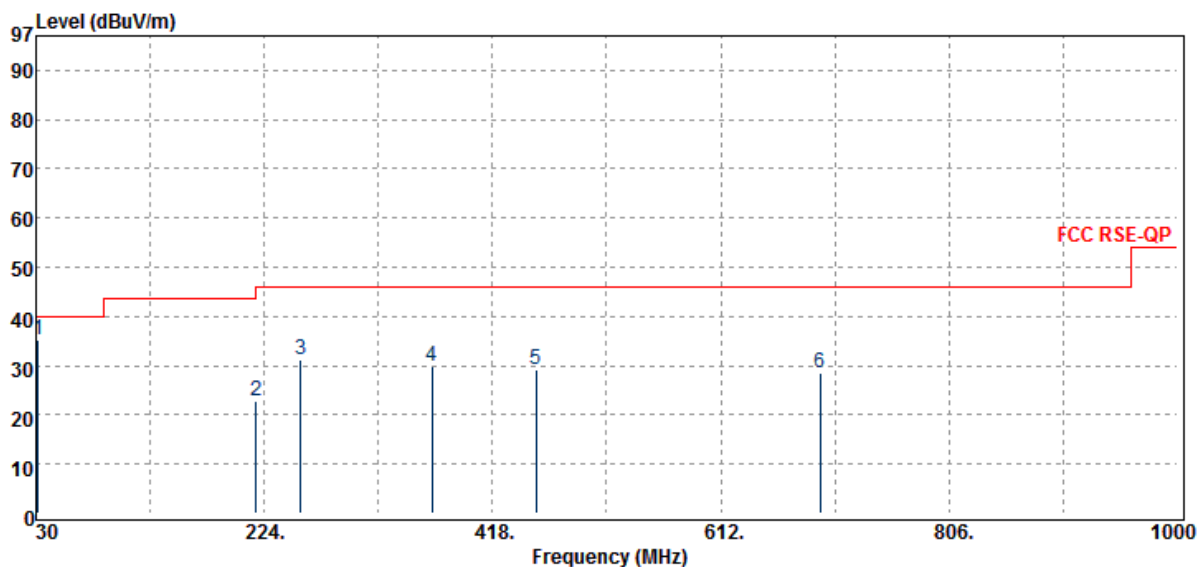
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802.11a 5250~5350 MHz

Operation Band :802.11aB2
Fundamental Frequency :5300 MHz
Operation Mode :Tx CH MID
EUT Pol. :E1 Plane

Test Date :2018-03-19
Temp./Humi. :23 deg_C / 62 RH
Engineer :Tin
Measurement Antenna Pol. :VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBUV	Factor dB	Actual FS dBUV/m	Limit @3m dBUV/m	Margin dB
31.94	S	Peak	44.04	-8.88	35.16	40.00	-4.84
217.21	S	Peak	32.06	-9.12	22.94	46.00	-23.06
255.04	S	Peak	38.50	-7.15	31.35	46.00	-14.65
366.59	S	Peak	33.99	-4.02	29.97	46.00	-16.03
454.86	S	Peak	31.51	-2.33	29.18	46.00	-16.82
696.39	S	Peak	27.45	1.13	28.58	46.00	-17.42

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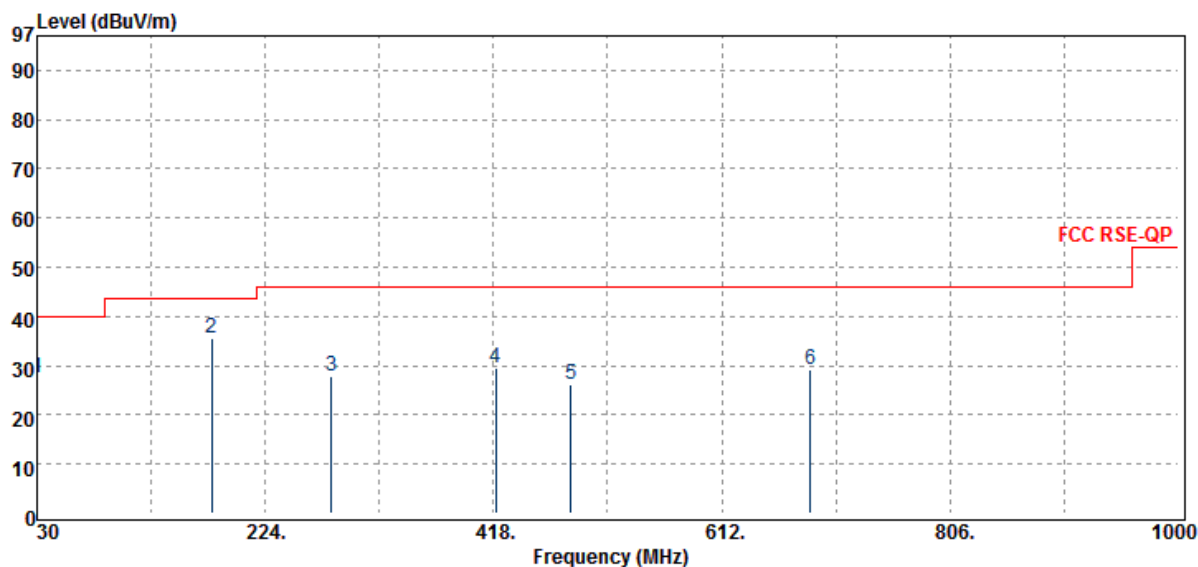
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Operation Band :802.11aB2
Fundamental Frequency :5300 MHz
Operation Mode :Tx CH MID
EUT Pol. :E1 Plane

Test Date :2018-03-19
Temp./Humi. :23 deg_C / 62 RH
Engineer :Tin
Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBUV	Factor dB	Actual FS dBUV/m	Limit @3m dBUV/m	Margin dB
30.00	S	Peak	36.64	-8.96	27.68	40.00	-12.32
178.41	S	Peak	43.54	-8.06	35.48	43.50	-8.02
280.26	S	Peak	33.92	-6.12	27.80	46.00	-18.20
419.94	S	Peak	32.37	-2.77	29.60	46.00	-16.40
483.96	S	Peak	28.91	-2.70	26.21	46.00	-19.79
687.66	S	Peak	27.35	1.76	29.11	46.00	-16.89

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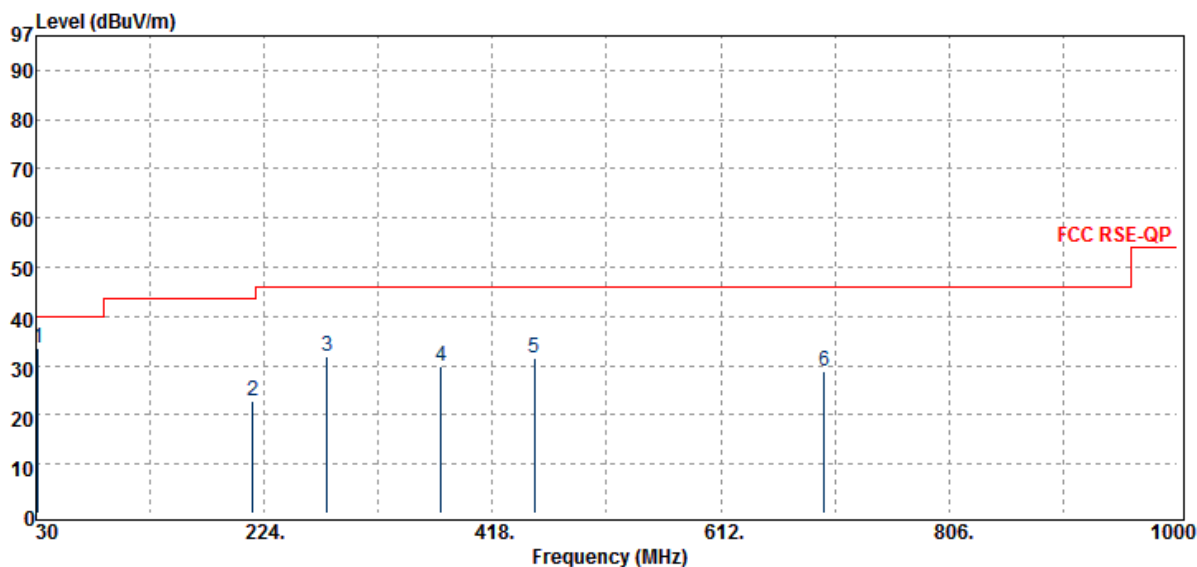
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802.11a, 5470~5725 MHz

Operation Band :802.11aB3
Fundamental Frequency :5580 MHz
Operation Mode :Tx CH MID
EUT Pol. :E1 Plane

Test Date :2018-03-19
Temp./Humi. :23 deg_C / 62 RH
Engineer :Tin
Measurement Antenna Pol. :VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBUV	Factor dB	Actual FS dBUV/m	Limit @3m dBUV/m	Margin dB
31.94	S	Peak	42.45	-8.88	33.57	40.00	-6.43
214.30	S	Peak	32.04	-9.17	22.87	43.50	-20.63
277.35	S	Peak	38.01	-6.27	31.74	46.00	-14.26
374.35	S	Peak	33.81	-3.96	29.85	46.00	-16.15
453.89	S	Peak	33.92	-2.41	31.51	46.00	-14.49
700.27	S	Peak	26.93	1.82	28.75	46.00	-17.25

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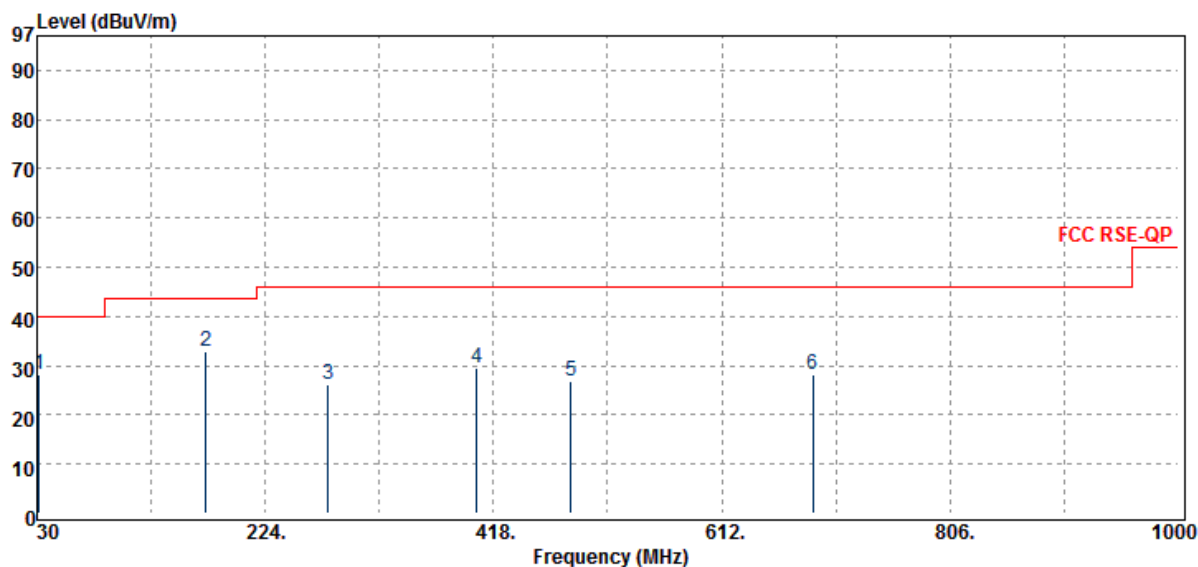
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Operation Band :802.11aB3
Fundamental Frequency :5580 MHz
Operation Mode :Tx CH MID
EUT Pol. :E1 Plane

Test Date :2018-03-19
Temp./Humi. :23 deg_C / 62 RH
Engineer :Tin
Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBUV	Factor dB	Actual FS dBUV/m	Limit @3m dBUV/m	Margin dB
31.94	S	Peak	37.08	-8.88	28.20	40.00	-11.80
173.56	S	Peak	40.53	-7.70	32.83	43.50	-10.67
277.35	S	Peak	32.50	-6.27	26.23	46.00	-19.77
403.45	S	Peak	32.68	-3.07	29.61	46.00	-16.39
483.96	S	Peak	29.66	-2.70	26.96	46.00	-19.04
689.60	S	Peak	26.46	1.88	28.34	46.00	-17.66

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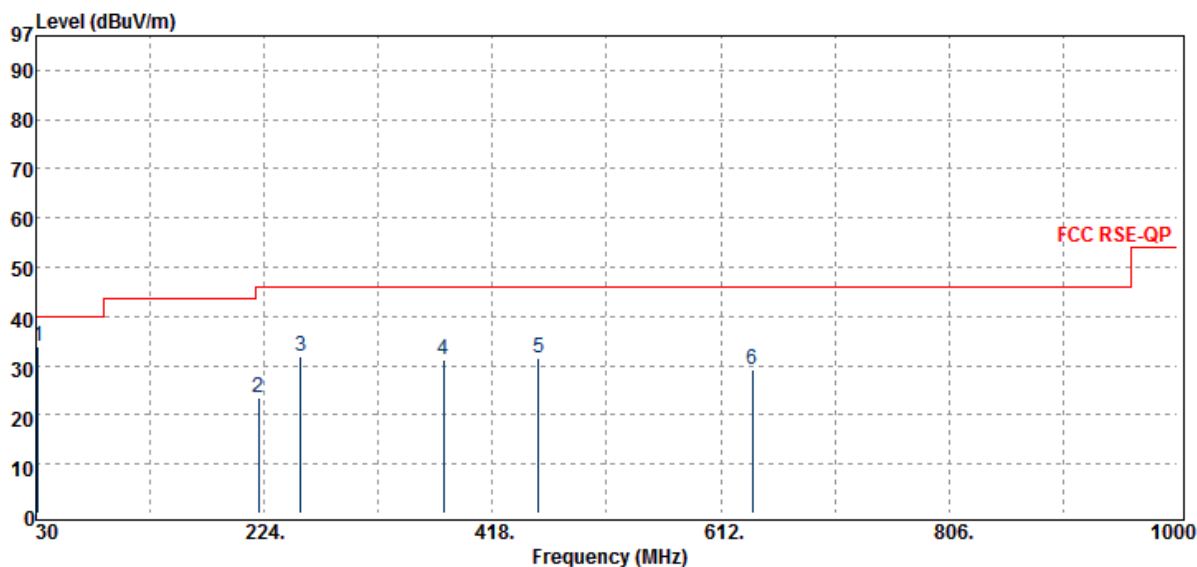
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802.11ac VHT80 5150~5250 MHz

Operation Band :802.11ac80B1
Fundamental Frequency :5210 MHz
Operation Mode :Tx CH LOW
EUT Pol. :E1 Plane

Test Date :2018-03-19
Temp./Humi. :23 deg_C / 62 RH
Engineer :Tin
Measurement Antenna Pol. :VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBUV	Factor dB	Actual FS dBUV/m	Limit @3m dBUV/m	Margin dB
31.94	S	Peak	42.61	-8.88	33.73	40.00	-6.27
219.15	S	Peak	32.63	-9.08	23.55	46.00	-22.45
255.04	S	Peak	38.93	-7.15	31.78	46.00	-14.22
376.29	S	Peak	35.22	-3.92	31.30	46.00	-14.70
456.80	S	Peak	33.83	-2.37	31.46	46.00	-14.54
639.16	S	Peak	28.48	0.84	29.32	46.00	-16.68

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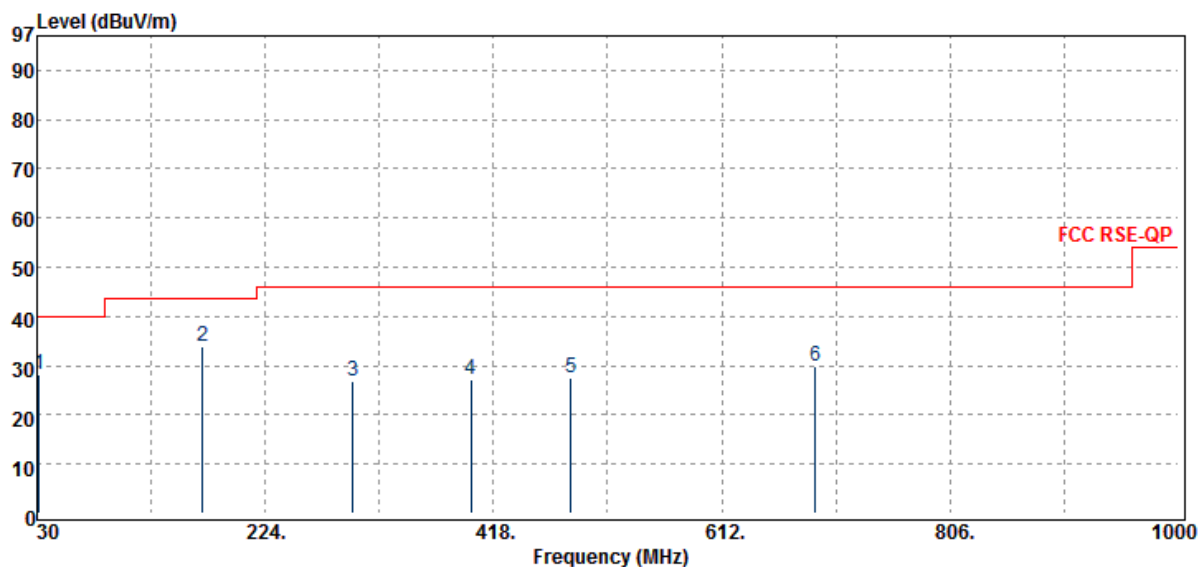
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Operation Band :802.11ac80B1
 Fundamental Frequency :5210 MHz
 Operation Mode :Tx CH LOW
 EUT Pol. :E1 Plane

Test Date :2018-03-19
 Temp./Humi. :23 deg_C / 62 RH
 Engineer :Tin
 Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBUV	Factor dB	Actual FS dBUV/m	Limit @3m dBUV/m	Margin dB
31.94	S	Peak	37.07	-8.88	28.19	40.00	-11.81
170.65	S	Peak	41.28	-7.38	33.90	43.50	-9.60
298.69	S	Peak	32.43	-5.55	26.88	46.00	-19.12
398.60	S	Peak	30.64	-3.41	27.23	46.00	-18.77
483.96	S	Peak	30.15	-2.70	27.45	46.00	-18.55
691.54	S	Peak	28.19	1.57	29.76	46.00	-16.24

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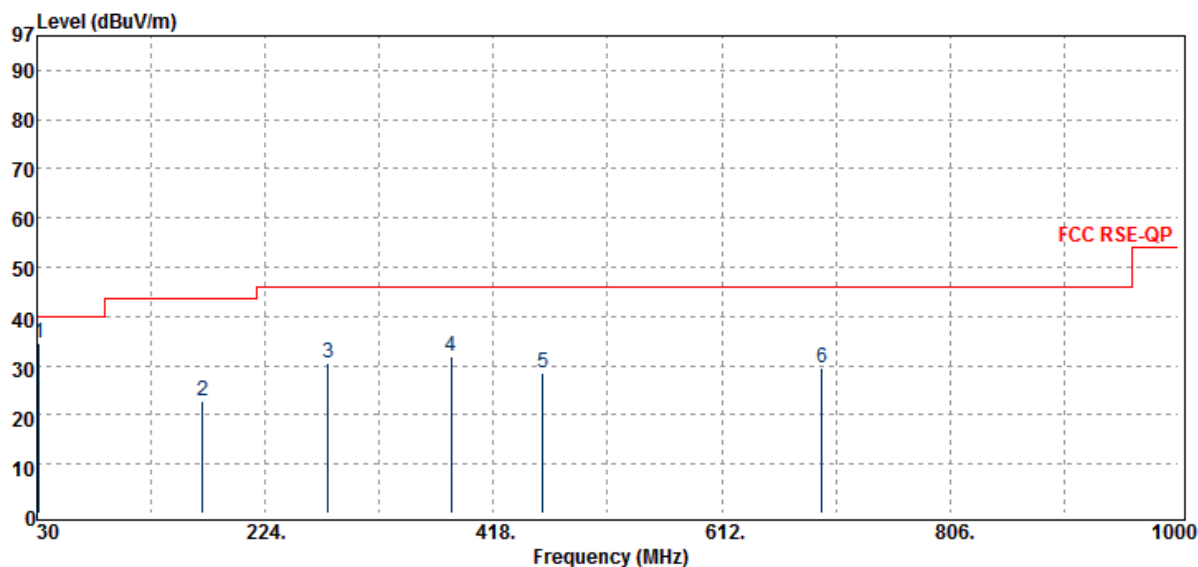
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802.11ac VHT80 5250~5350 MHz

Operation Band :802.11ac80B2
Fundamental Frequency :5290 MHz
Operation Mode :Tx CH HIGH
EUT Pol. :E1 Plane

Test Date :2018-03-19
Temp./Humi. :23 deg_C / 62 RH
Engineer :Tin
Measurement Antenna Pol. :VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Margin dB
31.94	S	Peak	43.59	-8.88	34.71	40.00	-5.29
170.65	S	Peak	30.31	-7.38	22.93	43.50	-20.57
277.35	S	Peak	36.68	-6.27	30.41	46.00	-15.59
382.11	S	Peak	35.51	-3.78	31.73	46.00	-14.27
459.71	S	Peak	31.12	-2.46	28.66	46.00	-17.34
697.36	S	Peak	28.37	1.33	29.70	46.00	-16.30

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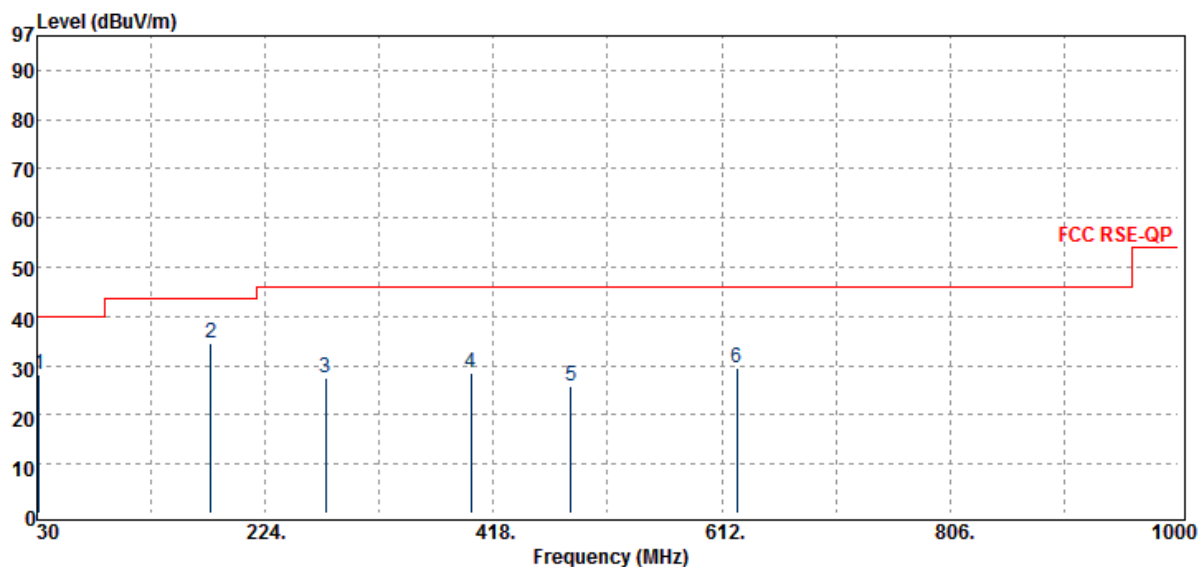
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Operation Band :802.11ac80B2
Fundamental Frequency :5290 MHz
Operation Mode :Tx CH HIGH
EUT Pol. :E1 Plane

Test Date :2018-03-19
Temp./Humi. :23 deg_C / 62 RH
Engineer :Tin
Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBUV	Factor dB	Actual FS dBUV/m	Limit @3m dBUV/m	Margin dB
31.94	S	Peak	37.20	-8.88	28.32	40.00	-11.68
177.44	S	Peak	42.66	-7.99	34.67	43.50	-8.83
275.41	S	Peak	34.04	-6.38	27.66	46.00	-18.34
398.60	S	Peak	31.98	-3.41	28.57	46.00	-17.43
483.96	S	Peak	28.53	-2.70	25.83	46.00	-20.17
624.61	S	Peak	28.95	0.71	29.66	46.00	-16.34

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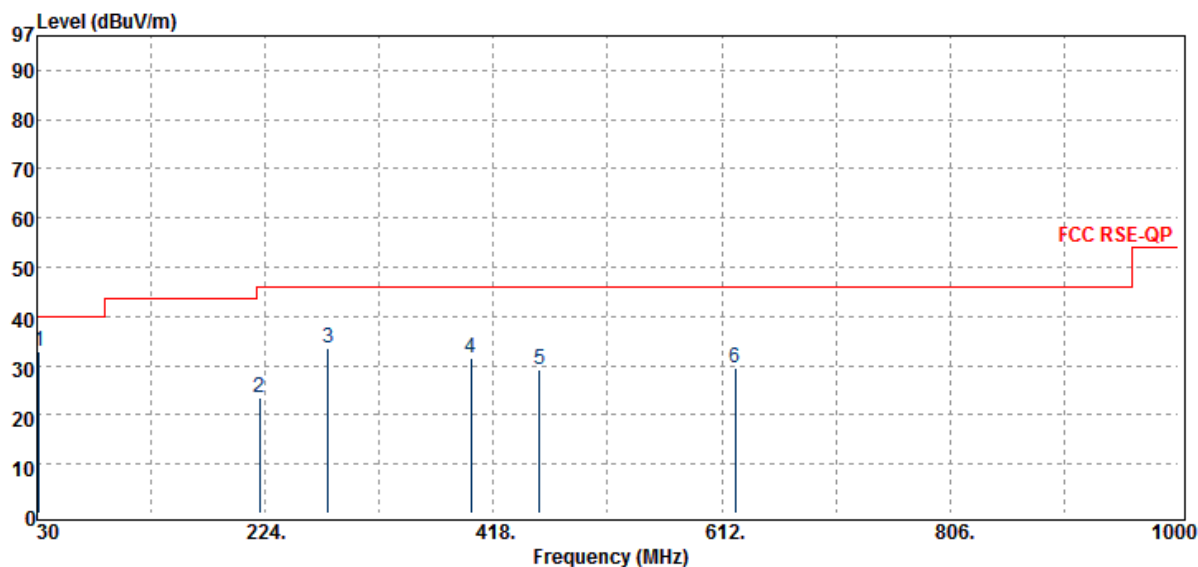
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802.11ac VHT80 5470~5725 MHz

Operation Band :802.11ac80B3
Fundamental Frequency :5530 MHz
Operation Mode :Tx CH LOW
EUT Pol. :E1 Plane

Test Date :2018-03-19
Temp./Humi. :23 deg_C / 62 RH
Engineer :Tin
Measurement Antenna Pol. :VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBUV	Factor dB	Actual FS dBUV/m	Limit @3m dBUV/m	Margin dB
31.94	S	Peak	41.93	-8.88	33.05	40.00	-6.95
219.15	S	Peak	32.62	-9.08	23.54	46.00	-22.46
277.35	S	Peak	39.97	-6.27	33.70	46.00	-12.30
398.60	S	Peak	34.86	-3.41	31.45	46.00	-14.55
456.80	S	Peak	31.57	-2.37	29.20	46.00	-16.80
623.64	S	Peak	28.88	0.64	29.52	46.00	-16.48

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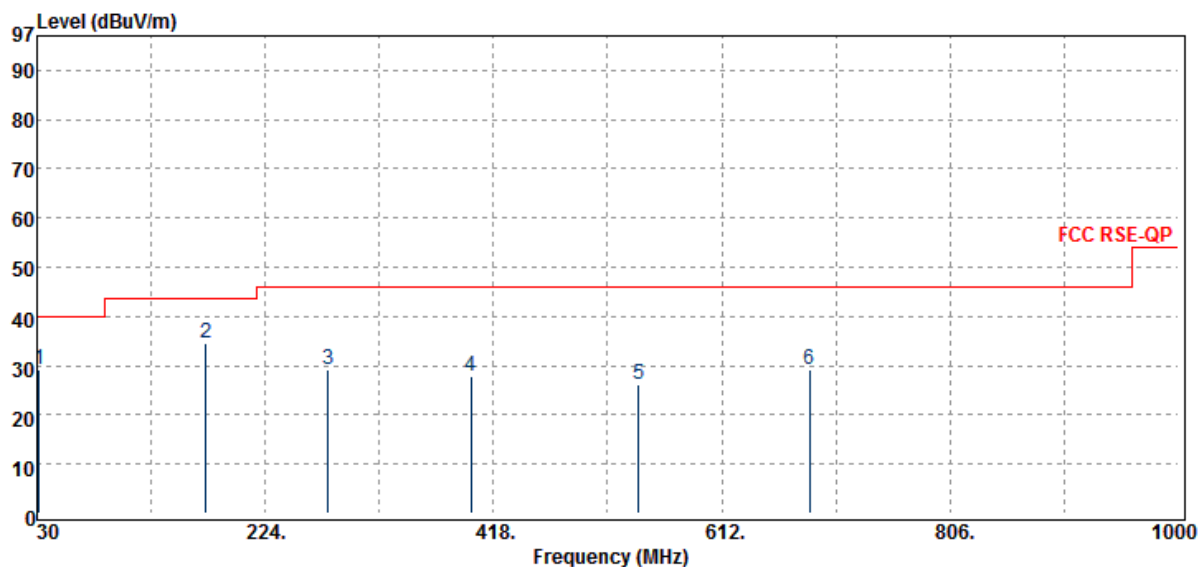
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Operation Band :802.11ac80B3
Fundamental Frequency :5530 MHz
Operation Mode :Tx CH LOW
EUT Pol. :E1 Plane

Test Date :2018-03-19
Temp./Humi. :23 deg_C / 62 RH
Engineer :Tin
Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBUV	Factor dB	Actual FS dBUV/m	Limit @3m dBUV/m	Margin dB
31.94	S	Peak	38.11	-8.88	29.23	40.00	-10.77
173.56	S	Peak	42.41	-7.70	34.71	43.50	-8.79
277.35	S	Peak	35.37	-6.27	29.10	46.00	-16.90
398.60	S	Peak	31.21	-3.41	27.80	46.00	-18.20
541.19	S	Peak	27.46	-1.40	26.06	46.00	-19.94
686.69	S	Peak	27.60	1.70	29.30	46.00	-16.70

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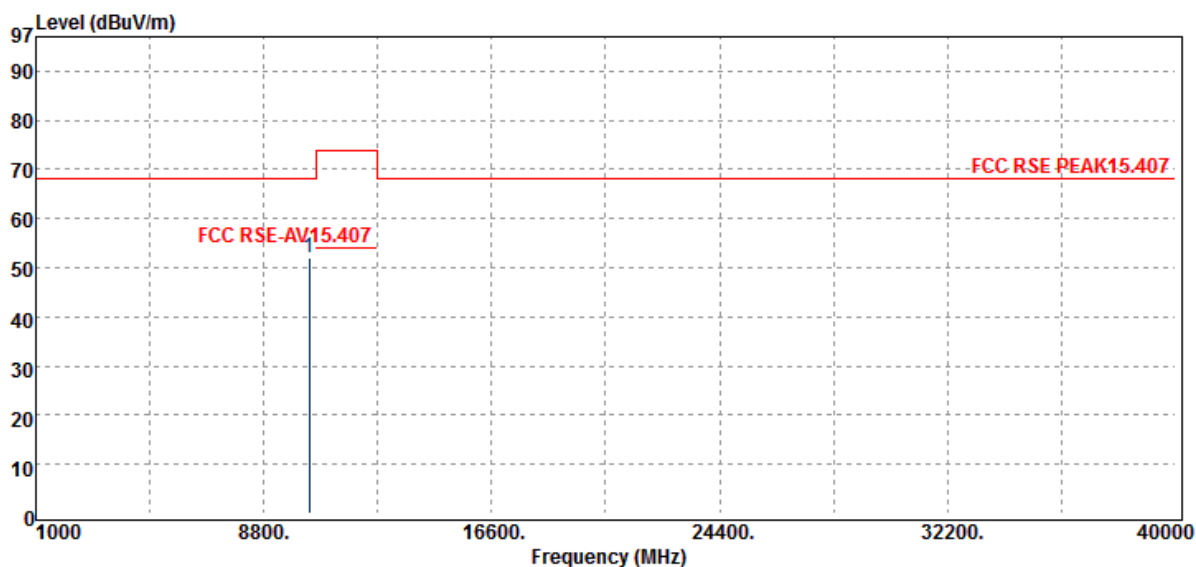
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Above 1GHz Worst-Case Data:

Radiated Spurious Emission Measurement Result 802.11a, 5150~5250 MHz

Operation Band	:802.11aB1	Test Date	:2018-03-20
Fundamental Frequency	:5180 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH LOW	Engineer	:Tin
EUT Pol.	:E1 Plane	Measurement Antenna Pol.	:VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Safe Margin dB
10360.00	H	Peak	31.77	20.41	52.18	68.30	-16.12

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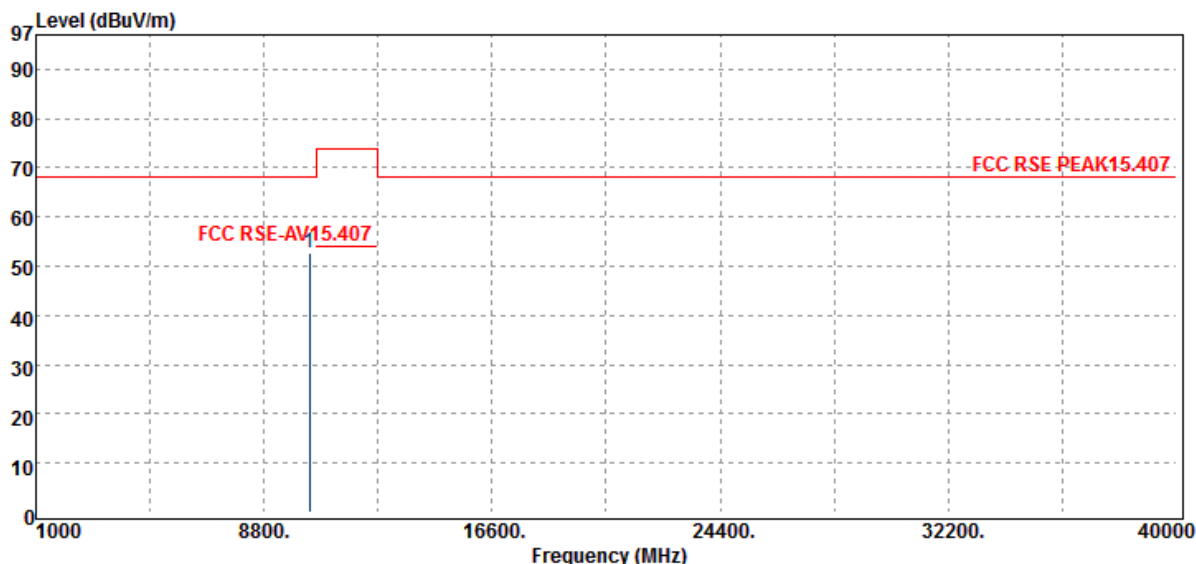
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Operation Band :802.11aB1
Fundamental Frequency :5180 MHz
Operation Mode :Tx CH LOW
EUT Pol. :E1 Plane

Test Date :2018-03-20
Temp./Humi. :23 deg_C / 62 RH
Engineer :Tin
Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Safe Margin dB
10360.00	H	Peak	32.42	20.41	52.83	68.30	-15.47

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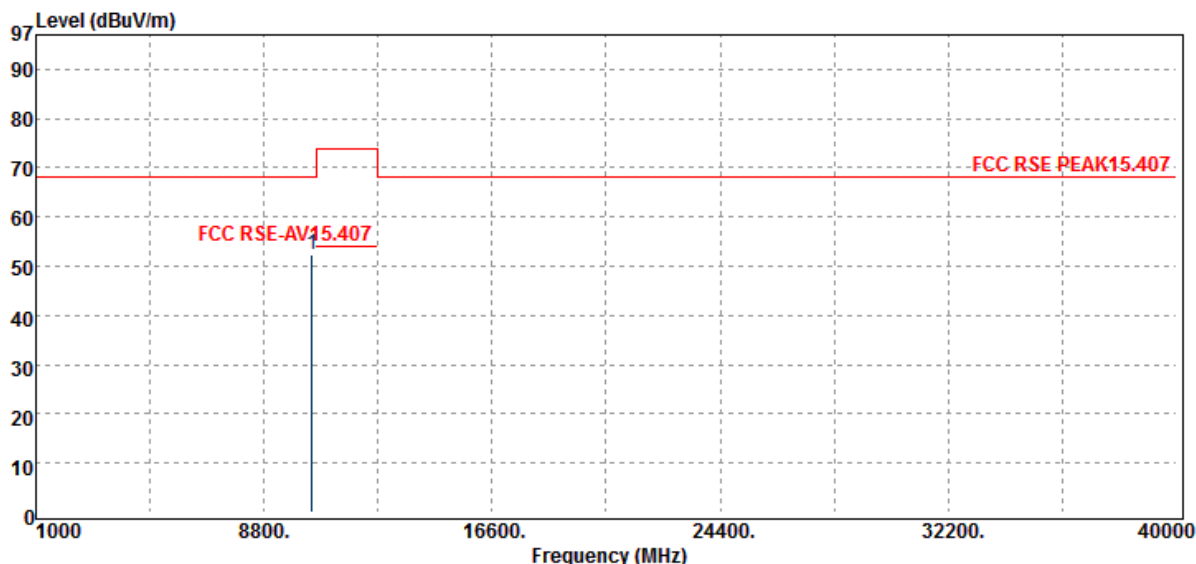
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Operation Band :802.11aB1
Fundamental Frequency :5220 MHz
Operation Mode :Tx CH MID
EUT Pol. :E1 Plane

Test Date :2018-03-20
Temp./Humi. :23 deg_C / 62 RH
Engineer :Tin
Measurement Antenna Pol. :VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Safe Margin dB
10440.00	H	Peak	31.66	20.75	52.41	68.30	-15.89

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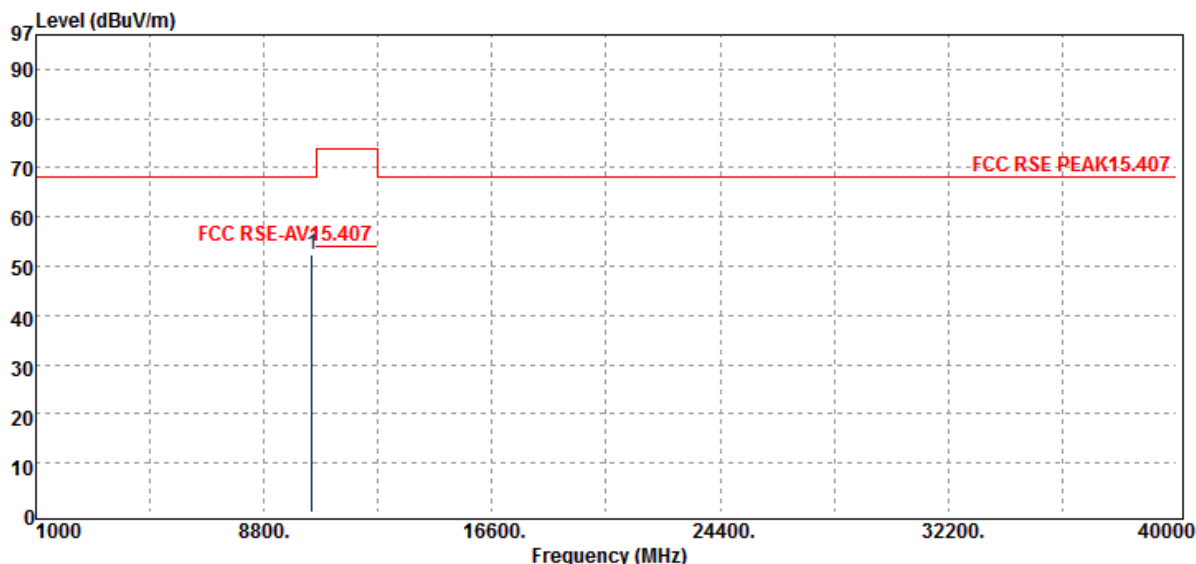
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Operation Band :802.11aB1
Fundamental Frequency :5220 MHz
Operation Mode :Tx CH MID
EUT Pol. :E1 Plane

Test Date :2018-03-20
Temp./Humi. :23 deg_C / 62 RH
Engineer :Tin
Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Safe Margin dB
10440.00	H	Peak	31.68	20.75	52.43	68.30	-15.87

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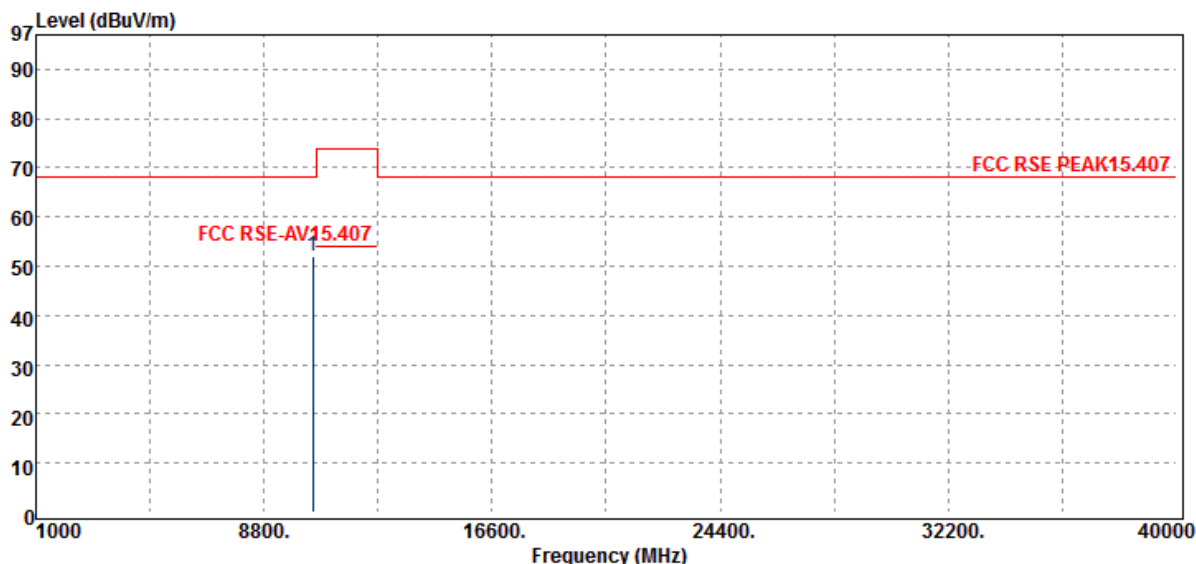
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Operation Band :802.11aB1
Fundamental Frequency :5240 MHz
Operation Mode :Tx CH HIGH
EUT Pol. :E1 Plane

Test Date :2018-03-20
Temp./Humi. :23 deg_C / 62 RH
Engineer :Tin
Measurement Antenna Pol. :VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Safe Margin dB
10480.00	H	Peak	31.33	20.79	52.12	68.30	-16.18

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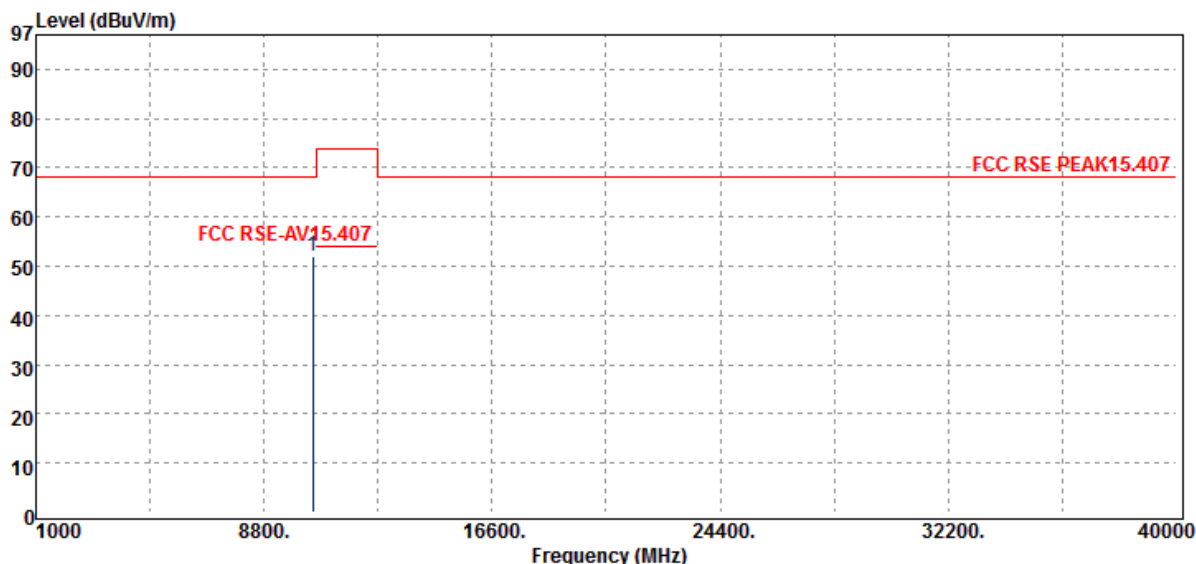
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Operation Band :802.11aB1
Fundamental Frequency :5240 MHz
Operation Mode :Tx CH HIGH
EUT Pol. :E1 Plane

Test Date :2018-03-20
Temp./Humi. :23 deg_C / 62 RH
Engineer :Tin
Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Safe Margin dB
10480.00	H	Peak	31.17	20.79	51.96	68.30	-16.34

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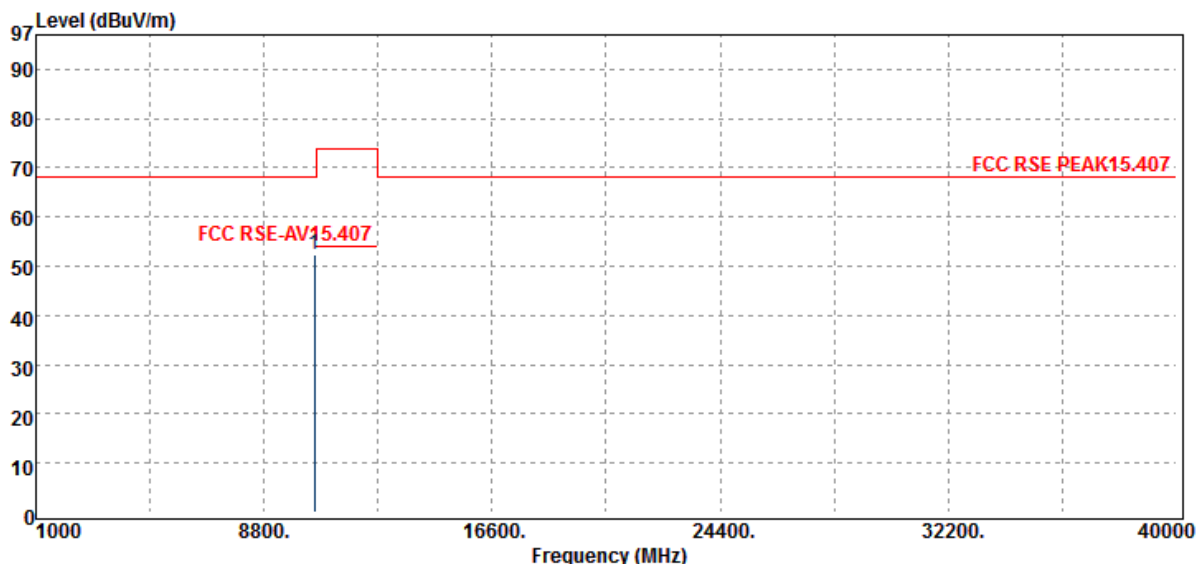
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Radiated Spurious Emission Measurement Result 802.11a, 5250MHz-5350MHz

Operation Band	:802.11aB2	Test Date	:2018-03-20
Fundamental Frequency	:5260 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH LOW	Engineer	:Tin
EUT Pol.	:E1 Plane	Measurement Antenna Pol.	:VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Safe Margin dB
10520.00	H	Peak	31.70	20.78	52.48	68.30	-15.82

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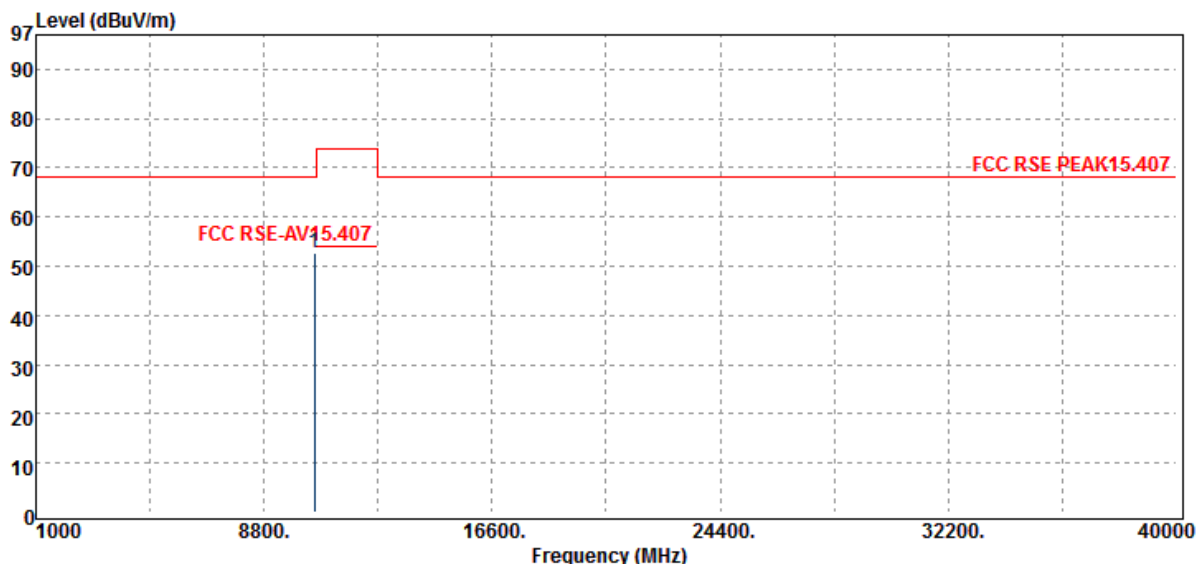
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Operation Band :802.11aB2
Fundamental Frequency :5260 MHz
Operation Mode :Tx CH LOW
EUT Pol. :E1 Plane

Test Date :2018-03-20
Temp./Humi. :23 deg_C / 62 RH
Engineer :Tin
Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Safe Margin dB
10520.00	H	Peak	32.04	20.78	52.82	68.30	-15.48

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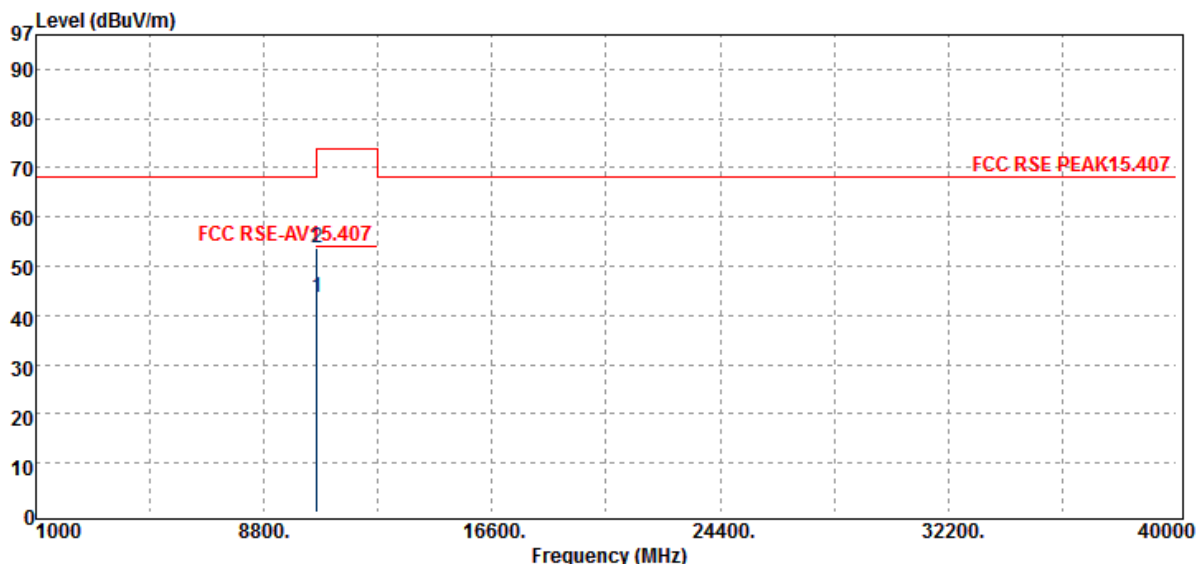
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Operation Band :802.11aB2
Fundamental Frequency :5300 MHz
Operation Mode :Tx CH MID
EUT Pol. :E1 Plane

Test Date :2018-03-20
Temp./Humi. :23 deg_C / 62 RH
Engineer :Tin
Measurement Antenna Pol. :VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Safe Margin dB
10600.00	H	Average	22.34	21.18	43.52	54.00	-10.48
10600.00	H	Peak	32.53	21.18	53.71	74.00	-20.29

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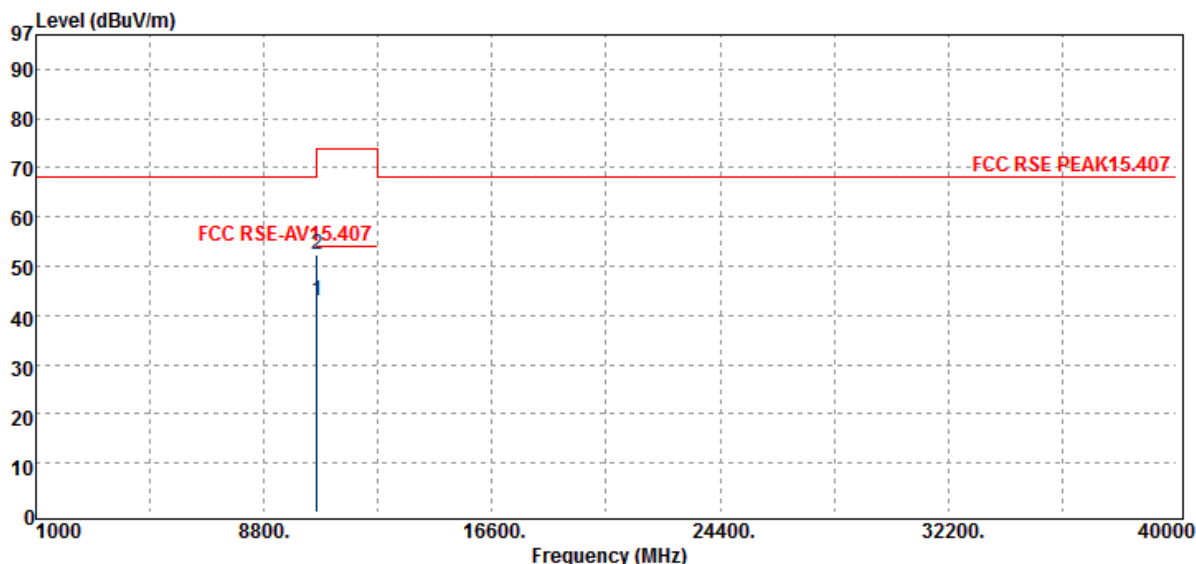
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Operation Band :802.11aB2
Fundamental Frequency :5300 MHz
Operation Mode :Tx CH MID
EUT Pol. :E1 Plane

Test Date :2018-03-20
Temp./Humi. :23 deg_C / 62 RH
Engineer :Tin
Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Safe Margin dB
10600.00	H	Average	21.74	21.18	42.92	54.00	-11.08
10600.00	H	Peak	31.02	21.18	52.20	74.00	-21.80

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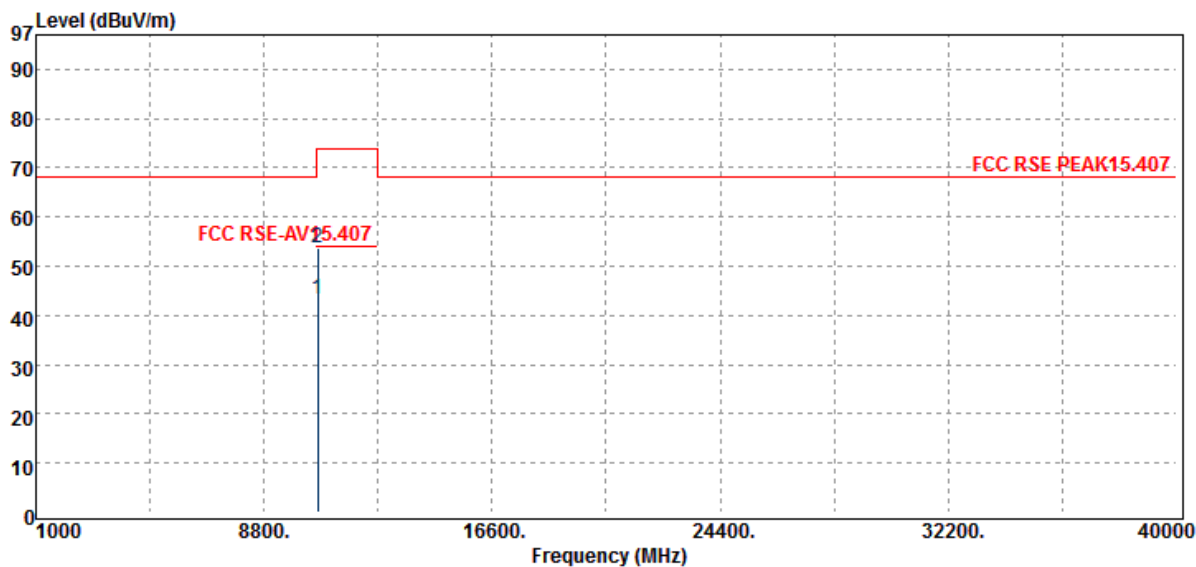
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Operation Band	:802.11aB2	Test Date	:2018-03-20
Fundamental Frequency	:5320 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH HIGH	Engineer	:Tin
EUT Pol.	:E1 Plane	Measurement Antenna Pol.	:VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Safe Margin dB
10640.00	H	Average	22.20	21.24	43.44	54.00	-10.56
10640.00	H	Peak	32.49	21.24	53.73	74.00	-20.27

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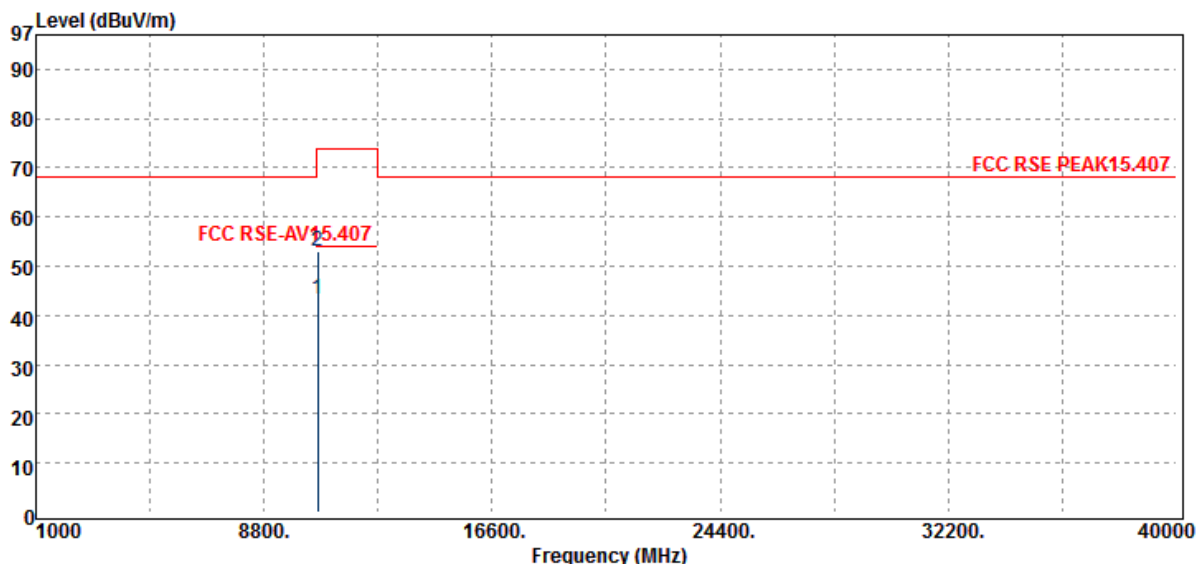
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Operation Band	:802.11aB2	Test Date	:2018-03-20
Fundamental Frequency	:5320 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH HIGH	Engineer	:Tin
EUT Pol.	:E1 Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Safe Margin dB
10640.00	H	Average	22.20	21.24	43.44	54.00	-10.56
10640.00	H	Peak	31.76	21.24	53.00	74.00	-21.00

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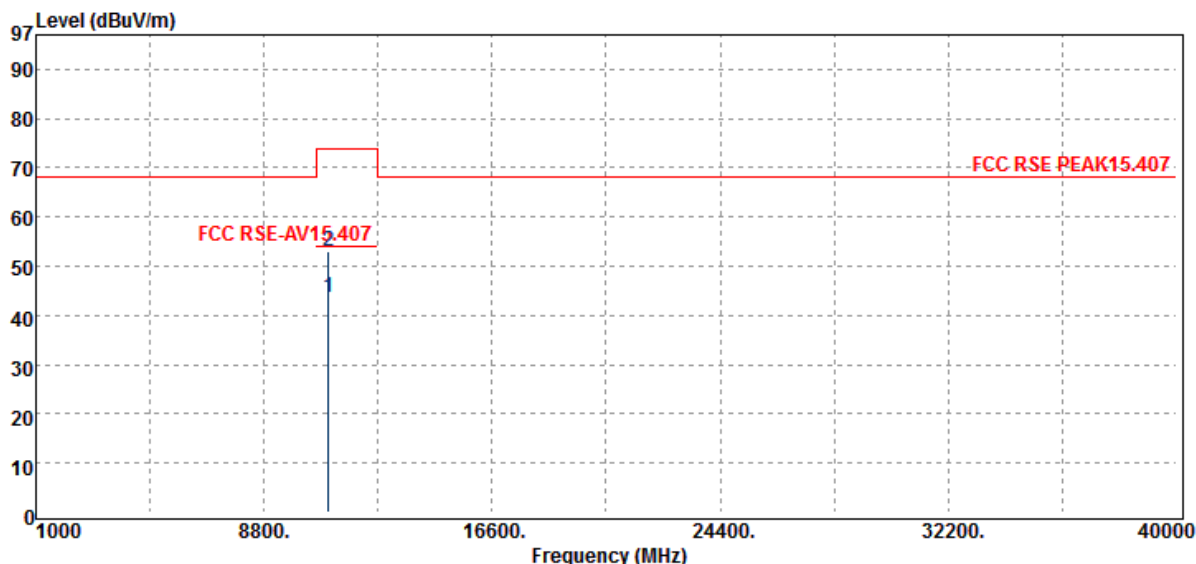
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Radiated Spurious Emission Measurement Result 802.11a, 5470~5725 MHz

Operation Band	:802.11aB3	Test Date	:2018-03-20
Fundamental Frequency	:5500 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH LOW	Engineer	:Tin
EUT Pol.	:E1 Plane	Measurement Antenna Pol.	:VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Safe Margin dB
11000.00	H	Average	21.52	22.17	43.69	54.00	-10.31
11000.00	H	Peak	31.02	22.17	53.19	74.00	-20.81

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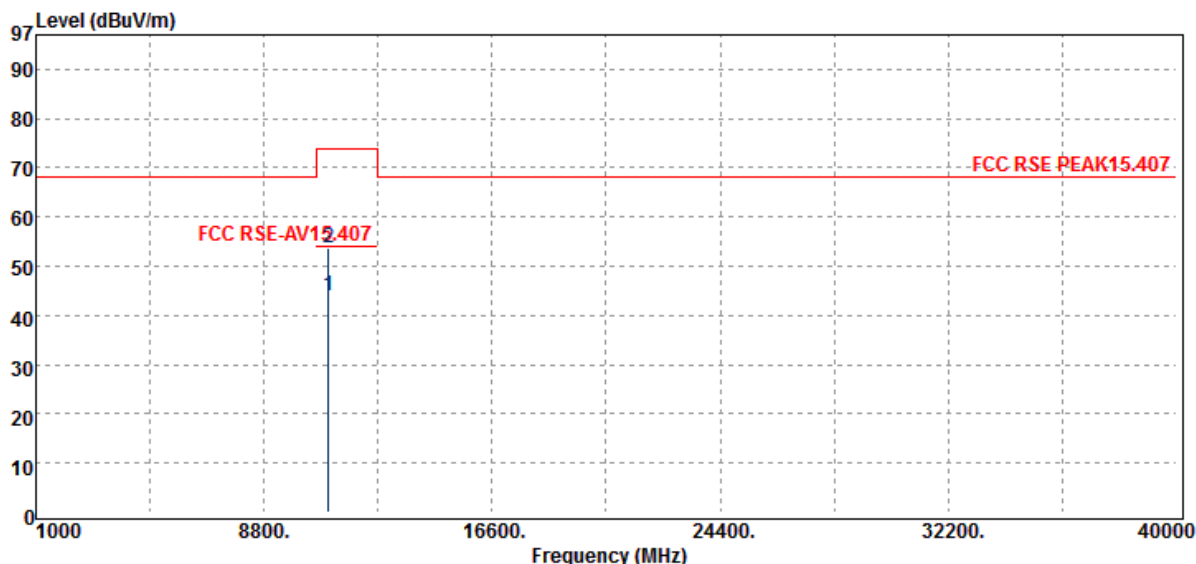
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Operation Band :802.11aB3
Fundamental Frequency :5500 MHz
Operation Mode :Tx CH LOW
EUT Pol. :E1 Plane

Test Date :2018-03-20
Temp./Humi. :23 deg_C / 62 RH
Engineer :Tin
Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Safe Margin dB
11000.00	H	Average	21.84	22.17	44.01	54.00	-9.99
11000.00	H	Peak	31.59	22.17	53.76	74.00	-20.24

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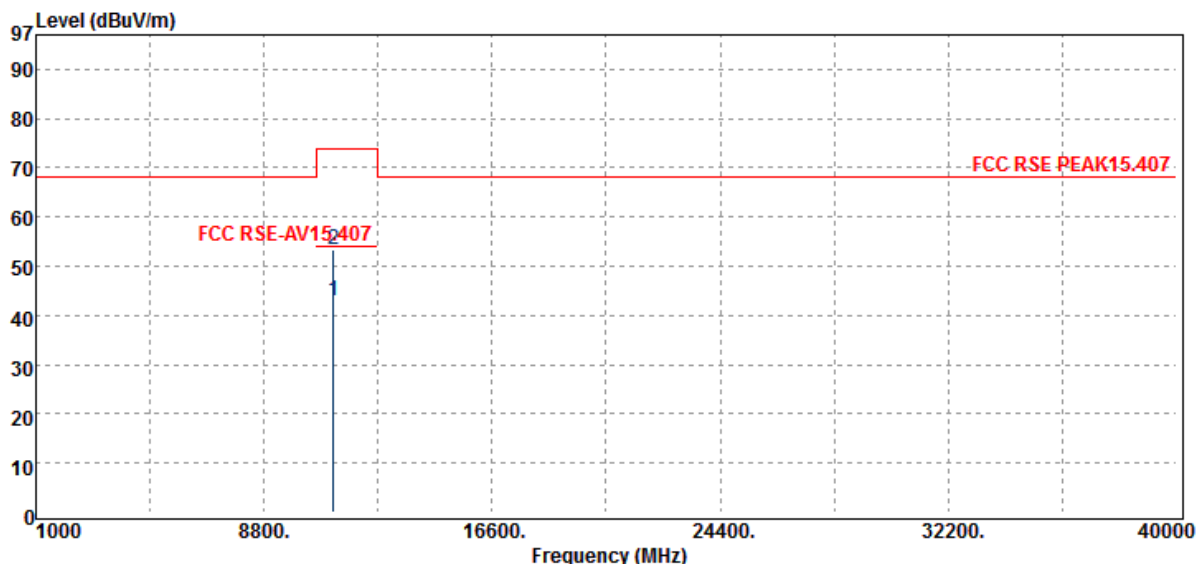
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Operation Band :802.11aB3
Fundamental Frequency :5580 MHz
Operation Mode :Tx CH MID
EUT Pol. :E1 Plane

Test Date :2018-03-20
Temp./Humi. :23 deg_C / 62 RH
Engineer :Tin
Measurement Antenna Pol. :VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Safe Margin dB
11160.00	H	Average	20.78	22.31	43.09	54.00	-10.91
11160.00	H	Peak	31.14	22.31	53.45	74.00	-20.55

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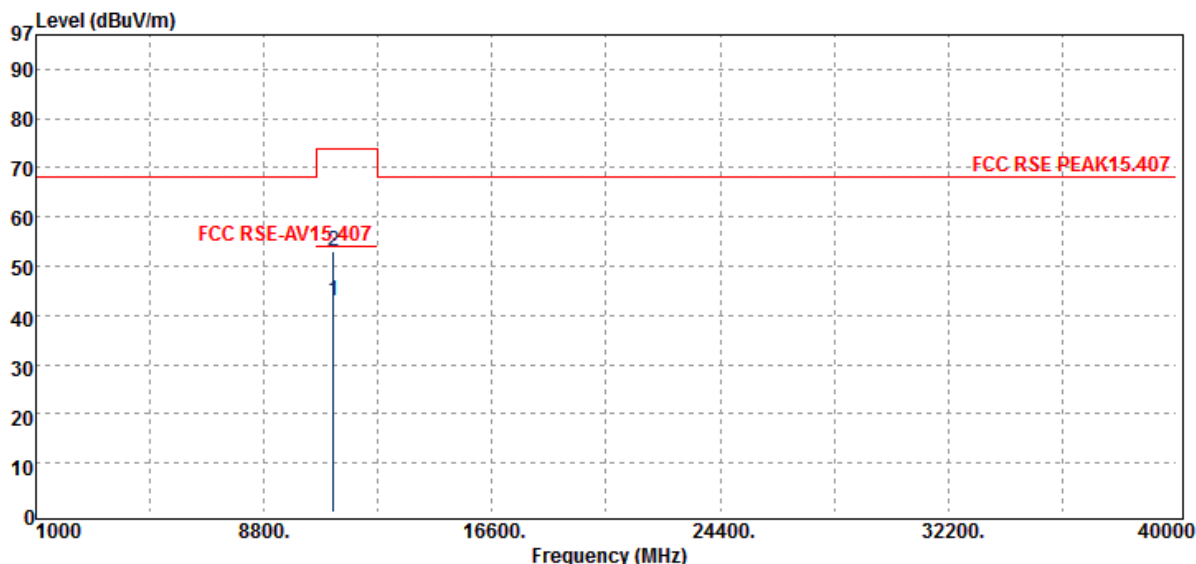
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Operation Band :802.11aB3
Fundamental Frequency :5580 MHz
Operation Mode :Tx CH MID
EUT Pol. :E1 Plane

Test Date :2018-03-20
Temp./Humi. :23 deg_C / 62 RH
Engineer :Tin
Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Safe Margin dB
11160.00	H	Average	20.59	22.31	42.90	54.00	-11.10
11160.00	H	Peak	30.74	22.31	53.05	74.00	-20.95

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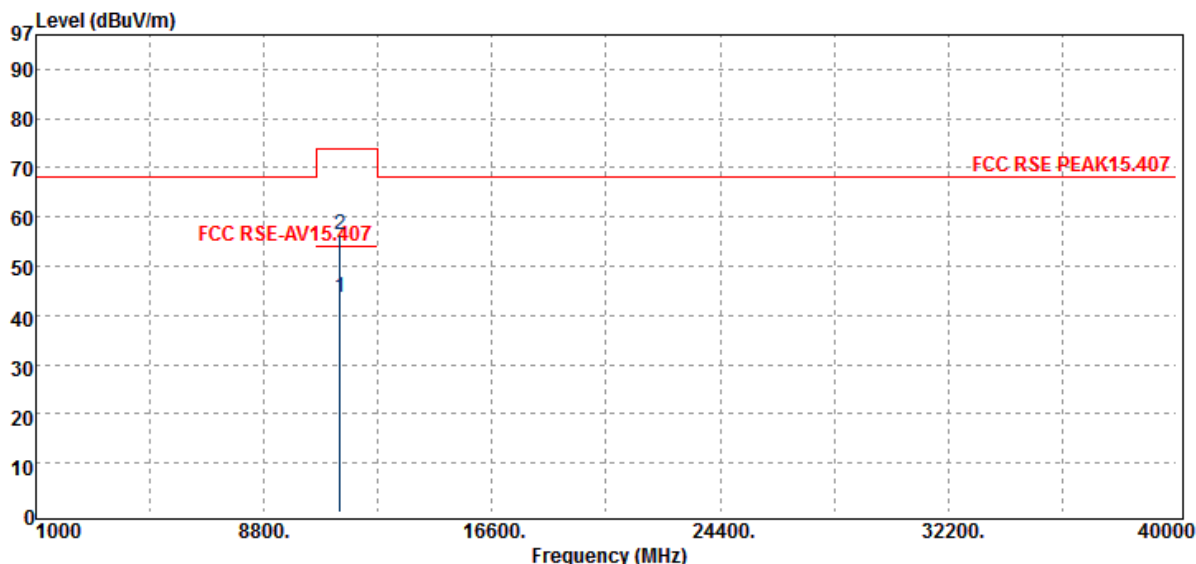
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Member of SGS Group

Operation Band :802.11aB3
Fundamental Frequency :5700 MHz
Operation Mode :Tx CH HIGH
EUT Pol. :E1 Plane

Test Date :2018-03-20
Temp./Humi. :23 deg_C / 62 RH
Engineer :Tin
Measurement Antenna Pol. :VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Safe Margin dB
11400.00	H	Average	21.21	22.42	43.63	54.00	-10.37
11400.00	H	Peak	34.00	22.42	56.42	74.00	-17.58

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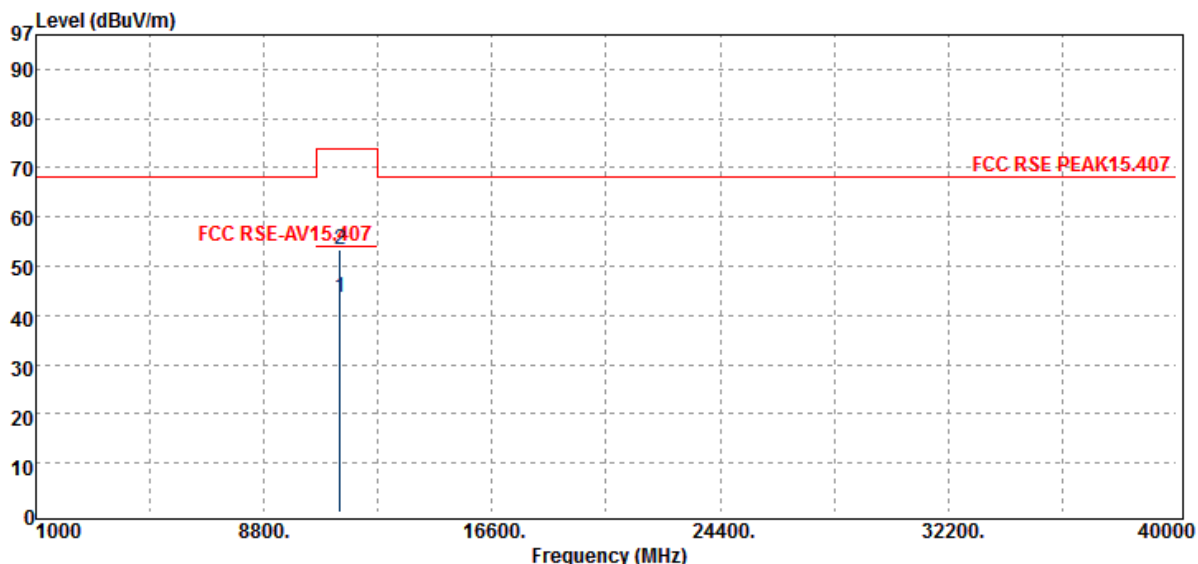
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Operation Band :802.11aB3
Fundamental Frequency :5700 MHz
Operation Mode :Tx CH HIGH
EUT Pol. :E1 Plane

Test Date :2018-03-20
Temp./Humi. :23 deg_C / 62 RH
Engineer :Tin
Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Safe Margin dB
11400.00	H	Average	21.09	22.42	43.51	54.00	-10.49
11400.00	H	Peak	31.09	22.42	53.51	74.00	-20.49

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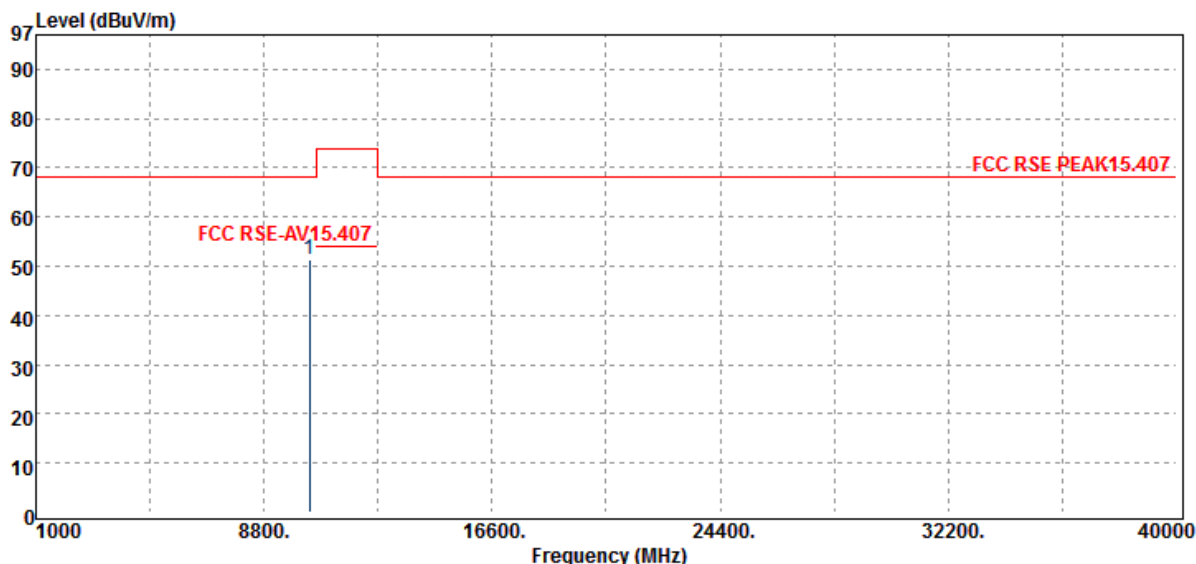
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Radiated Spurious Emission Measurement Result 802.11n HT20, 5150~5250 MHz

Operation Band	:802.11n20B1	Test Date	:2018-03-20
Fundamental Frequency	:5180 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH LOW	Engineer	:Tin
EUT Pol.	:E1 Plane	Measurement Antenna Pol.	:VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Safe Margin dB
10360.00	H	Peak	31.01	20.41	51.42	68.30	-16.88

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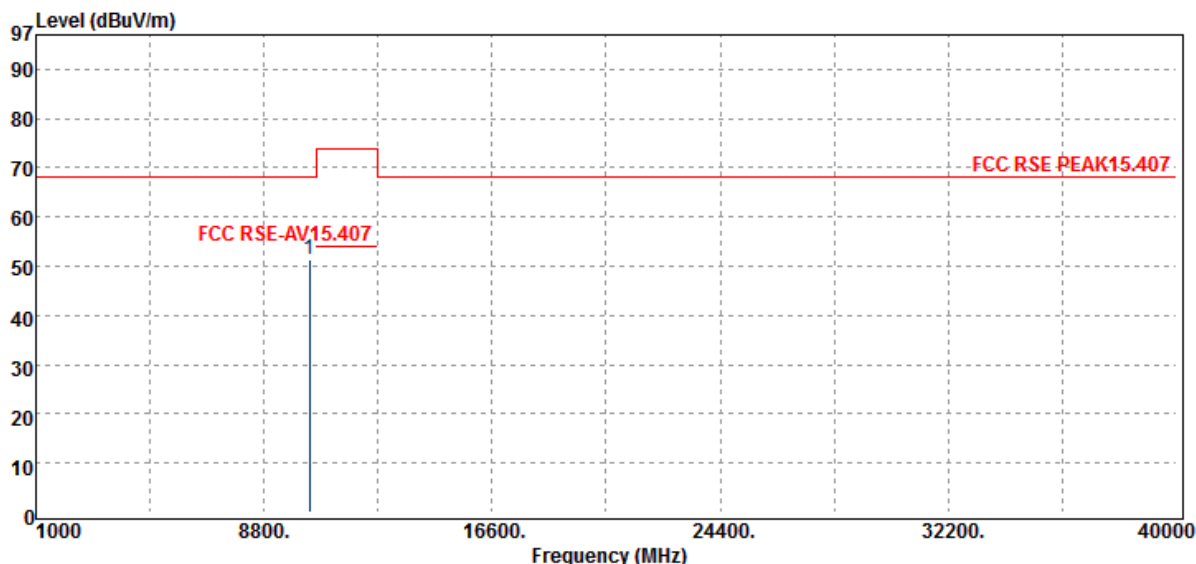
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Operation Band :802.11n20B1
Fundamental Frequency :5180 MHz
Operation Mode :Tx CH LOW
EUT Pol. :E1 Plane

Test Date :2018-03-20
Temp./Humi. :23 deg_C / 62 RH
Engineer :Tin
Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Safe Margin dB
10360.00	H	Peak	30.88	20.41	51.29	68.30	-17.01

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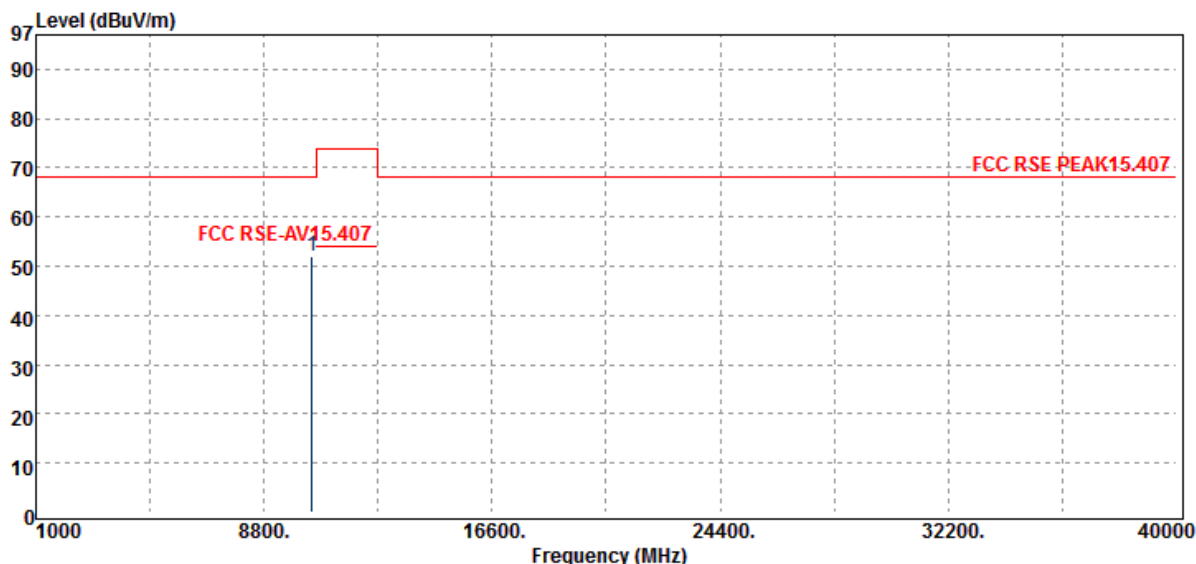
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Operation Band :802.11n20B1
Fundamental Frequency :5220 MHz
Operation Mode :Tx CH MID
EUT Pol. :E1 Plane

Test Date :2018-03-20
Temp./Humi. :23 deg_C / 62 RH
Engineer :Tin
Measurement Antenna Pol. :VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Safe Margin dB
10440.00	H	Peak	31.40	20.75	52.15	68.30	-16.15

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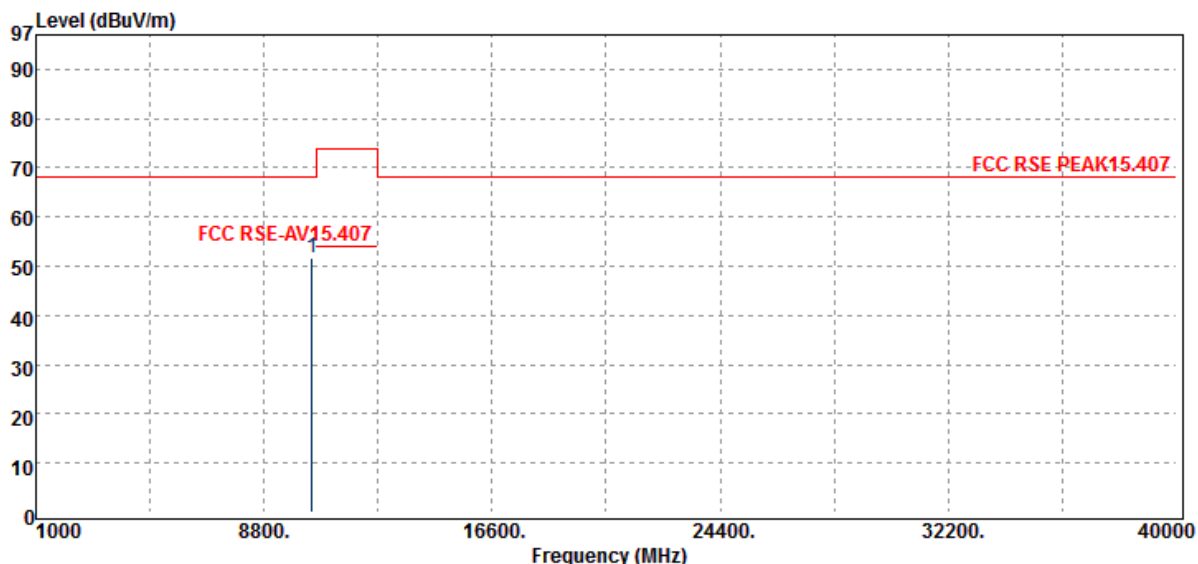
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Operation Band :802.11n20B1
Fundamental Frequency :5220 MHz
Operation Mode :Tx CH MID
EUT Pol. :E1 Plane

Test Date :2018-03-20
Temp./Humi. :23 deg_C / 62 RH
Engineer :Tin
Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Safe Margin dB
10440.00	H	Peak	30.80	20.75	51.55	68.30	-16.75

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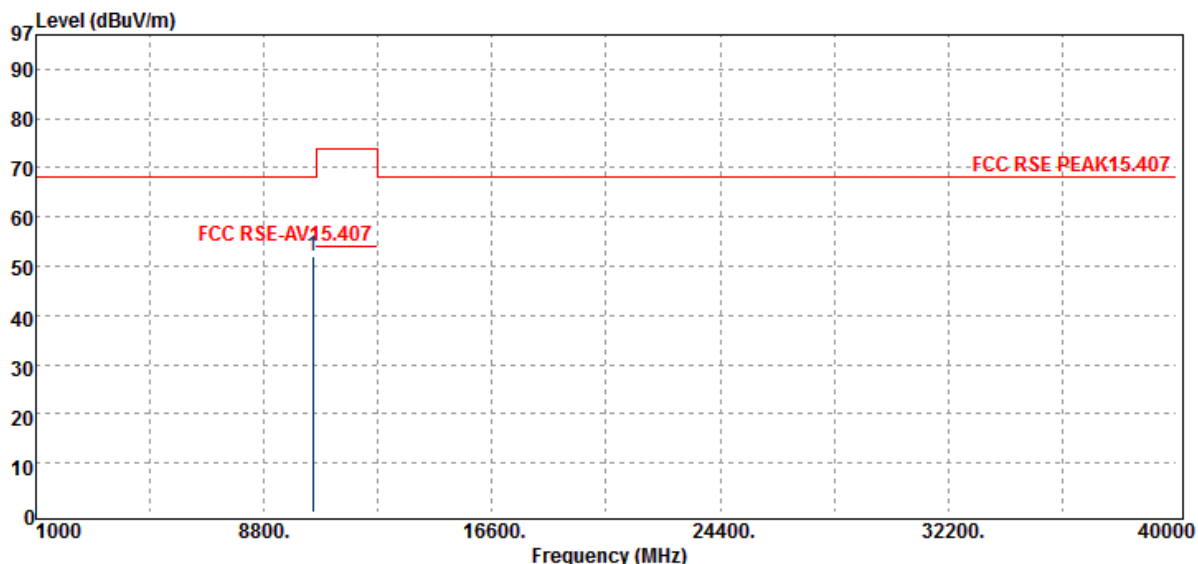
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Operation Band :802.11n20B1
Fundamental Frequency :5240 MHz
Operation Mode :Tx CH HIGH
EUT Pol. :E1 Plane

Test Date :2018-03-20
Temp./Humi. :23 deg_C / 62 RH
Engineer :Tin
Measurement Antenna Pol. :VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Safe Margin dB
10480.00	H	Peak	31.20	20.79	51.99	68.30	-16.31

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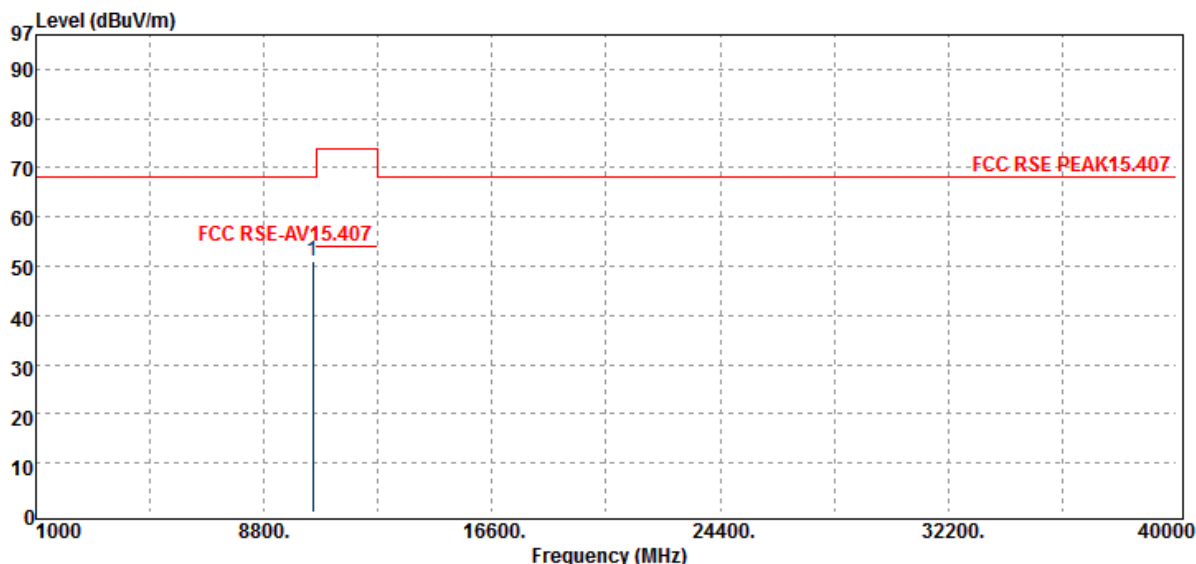
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Operation Band :802.11n20B1
Fundamental Frequency :5240 MHz
Operation Mode :Tx CH HIGH
EUT Pol. :E1 Plane

Test Date :2018-03-20
Temp./Humi. :23 deg_C / 62 RH
Engineer :Tin
Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Safe Margin dB
10480.00	H	Peak	30.07	20.79	50.86	68.30	-17.44

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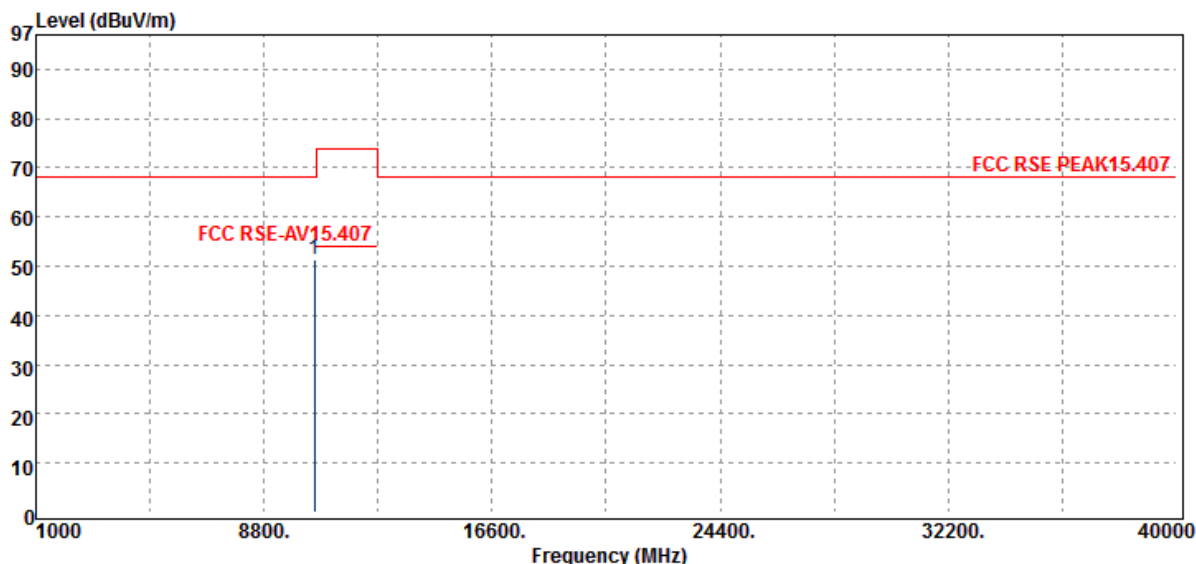
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Radiated Spurious Emission Measurement Result 802.11n HT20, 5250~5350 MHz

Operation Band	:802.11n20B2	Test Date	:2018-03-20
Fundamental Frequency	:5260 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH LOW	Engineer	:Tin
EUT Pol.	:E1 Plane	Measurement Antenna Pol.	:VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Safe Margin dB
10520.00	H	Peak	30.54	20.78	51.32	68.30	-16.98

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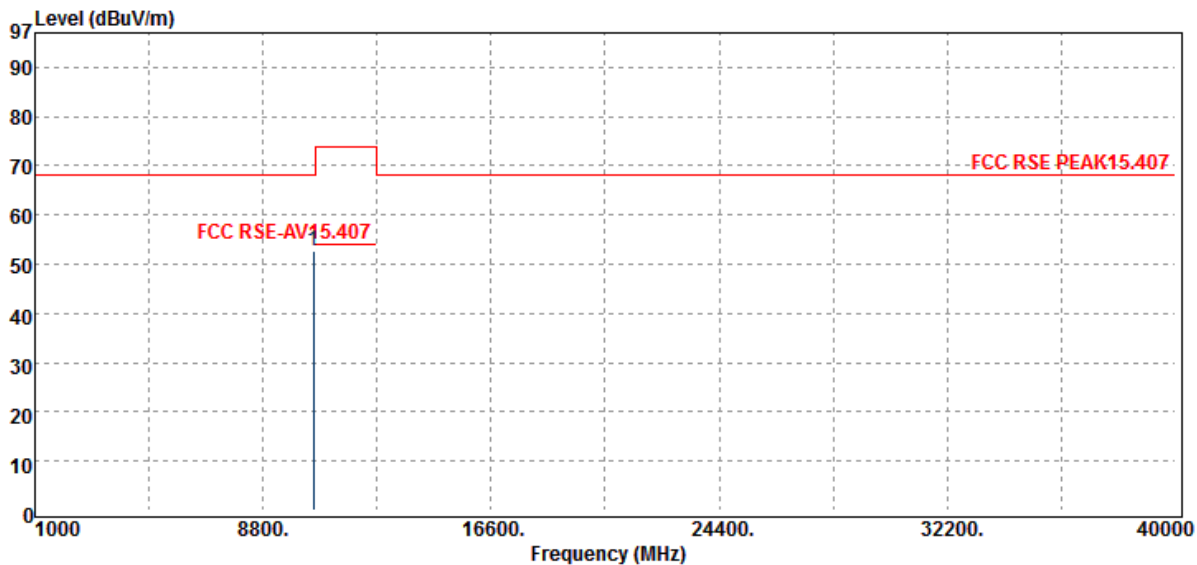
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Operation Band	:802.11n20B2	Test Date	:2018-03-20
Fundamental Frequency	:5260 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH LOW	Engineer	:Tin
EUT Pol.	:E1 Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Safe Margin dB
10520.00	H	Peak	31.92	20.78	52.70	68.30	-15.60

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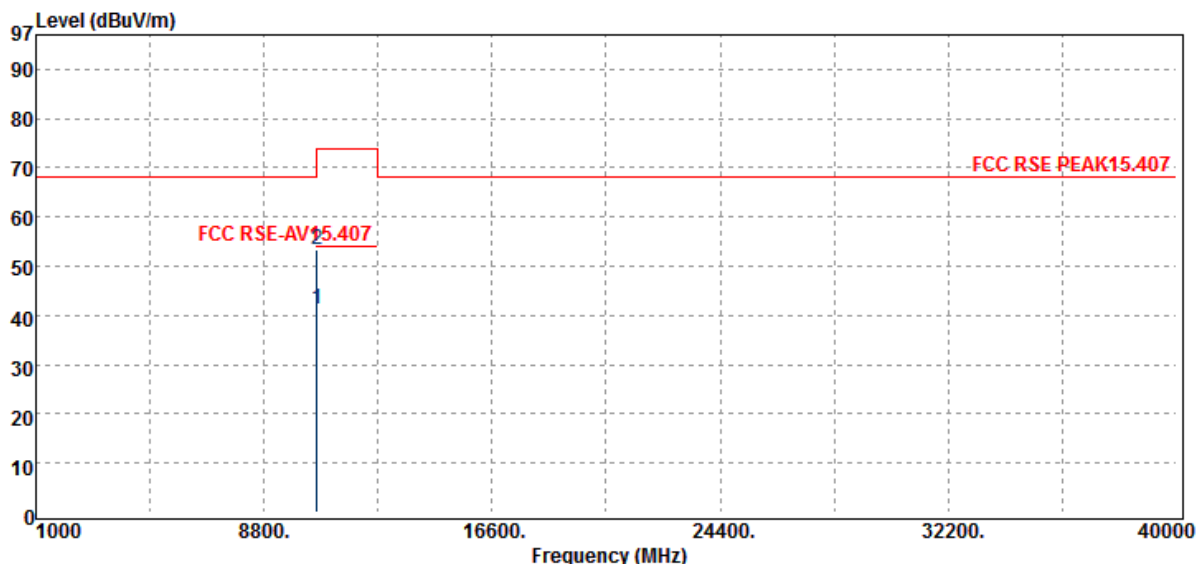
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Operation Band	:802.11n20B2	Test Date	:2018-03-20
Fundamental Frequency	:5300 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH MID	Engineer	:Tin
EUT Pol.	:E1 Plane	Measurement Antenna Pol.	:VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Safe Margin dB
10600.00	H	Average	20.24	21.18	41.42	54.00	-12.58
10600.00	H	Peak	32.21	21.18	53.39	74.00	-20.61

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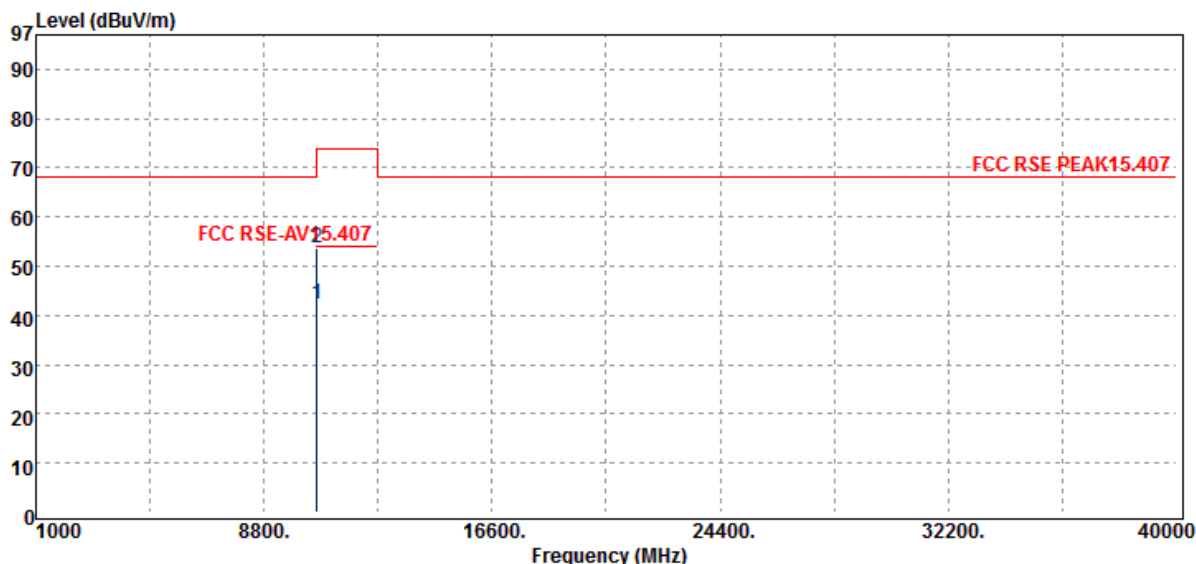
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Operation Band	:802.11n20B2	Test Date	:2018-03-20
Fundamental Frequency	:5300 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH MID	Engineer	:Tin
EUT Pol.	:E1 Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Safe Margin dB
10600.00	H	Average	21.19	21.18	42.37	54.00	-11.63
10600.00	H	Peak	32.36	21.18	53.54	74.00	-20.46

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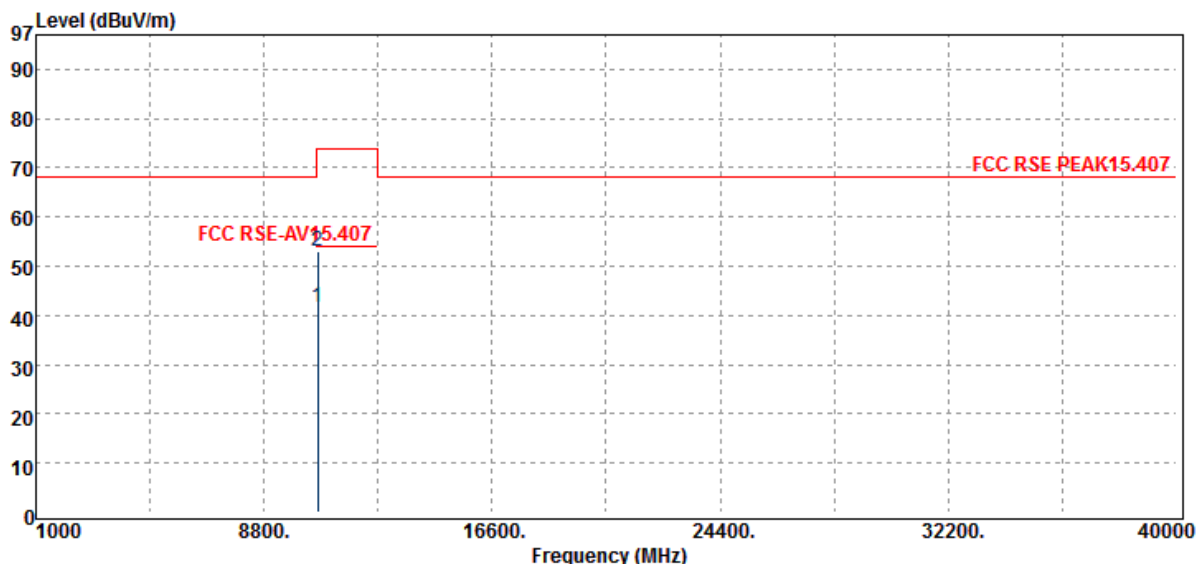
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Operation Band	:802.11n20B2	Test Date	:2018-03-20
Fundamental Frequency	:5320 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH HIGH	Engineer	:Tin
EUT Pol.	:E1 Plane	Measurement Antenna Pol.	:VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Safe Margin dB
10640.00	H	Average	20.43	21.24	41.67	54.00	-12.33
10640.00	H	Peak	31.69	21.24	52.93	74.00	-21.07

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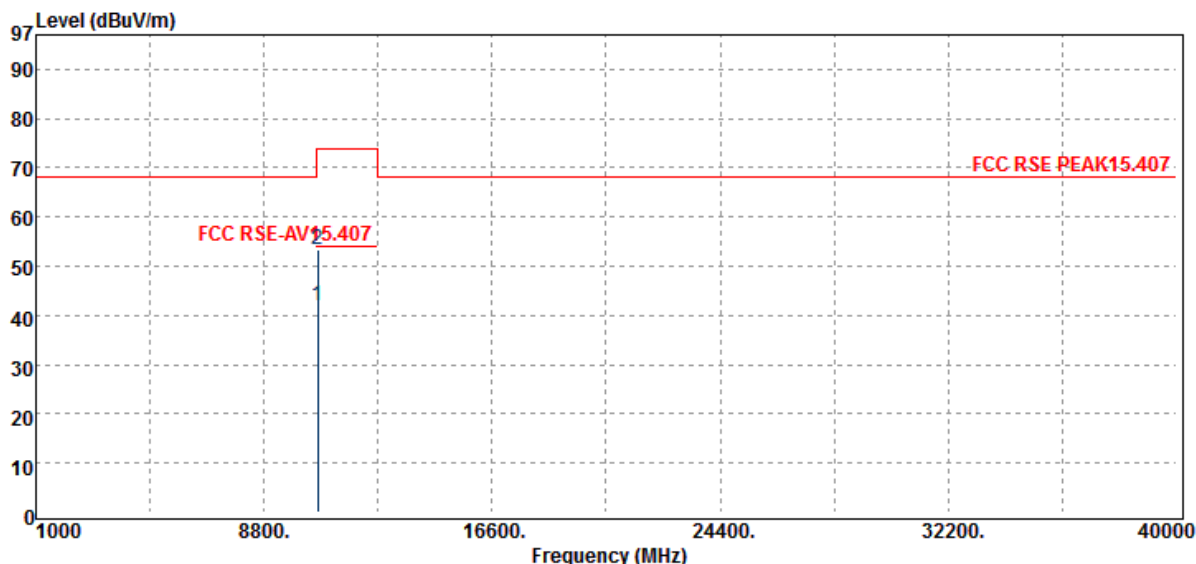
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Operation Band	:802.11n20B2	Test Date	:2018-03-20
Fundamental Frequency	:5320 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH HIGH	Engineer	:Tin
EUT Pol.	:E1 Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Safe Margin dB
10640.00	H	Average	20.87	21.24	42.11	54.00	-11.89
10640.00	H	Peak	32.05	21.24	53.29	74.00	-20.71

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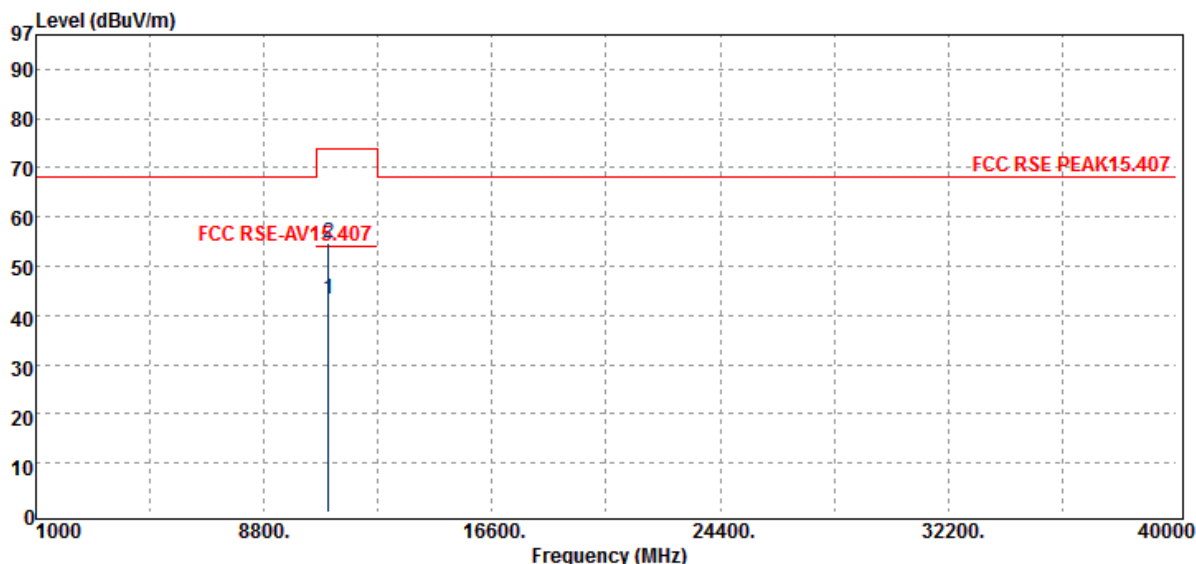
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Radiated Spurious Emission Measurement Result 802.11n HT20, 5470~5725 MHz

Operation Band	:802.11n20B3	Test Date	:2018-03-20
Fundamental Frequency	:5500 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH LOW	Engineer	:Tin
EUT Pol.	:E1 Plane	Measurement Antenna Pol.	:VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Safe Margin dB
11000.00	H	Average	21.03	22.17	43.20	54.00	-10.80
11000.00	H	Peak	32.47	22.17	54.64	74.00	-19.36

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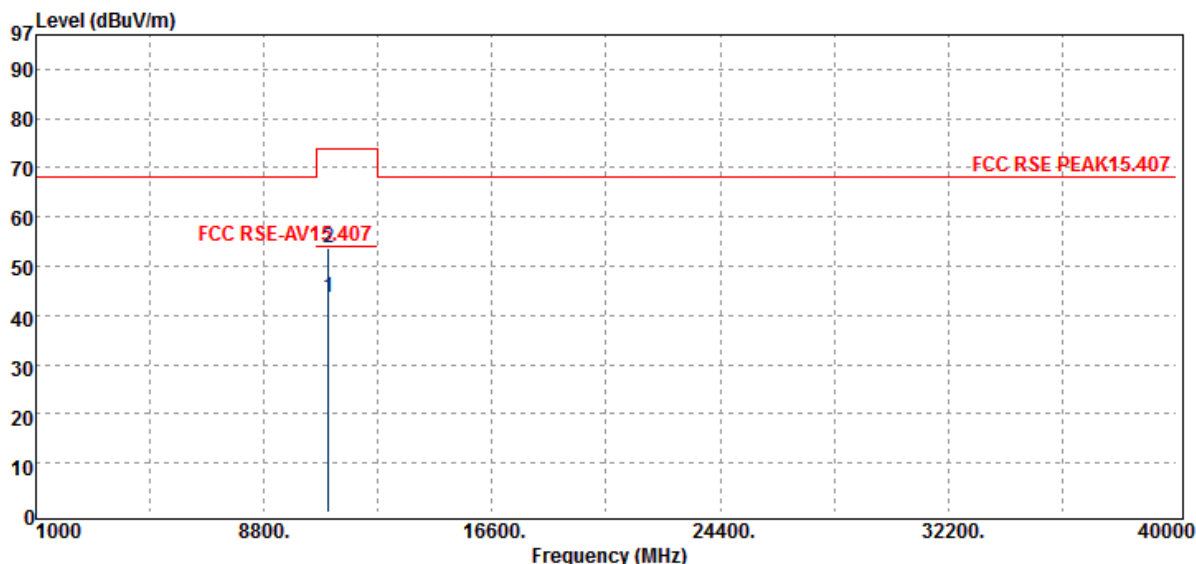
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Operation Band	:802.11n20B3	Test Date	:2018-03-20
Fundamental Frequency	:5500 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH LOW	Engineer	:Tin
EUT Pol.	:E1 Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Safe Margin dB
11000.00	H	Average	21.39	22.17	43.56	54.00	-10.44
11000.00	H	Peak	31.57	22.17	53.74	74.00	-20.26

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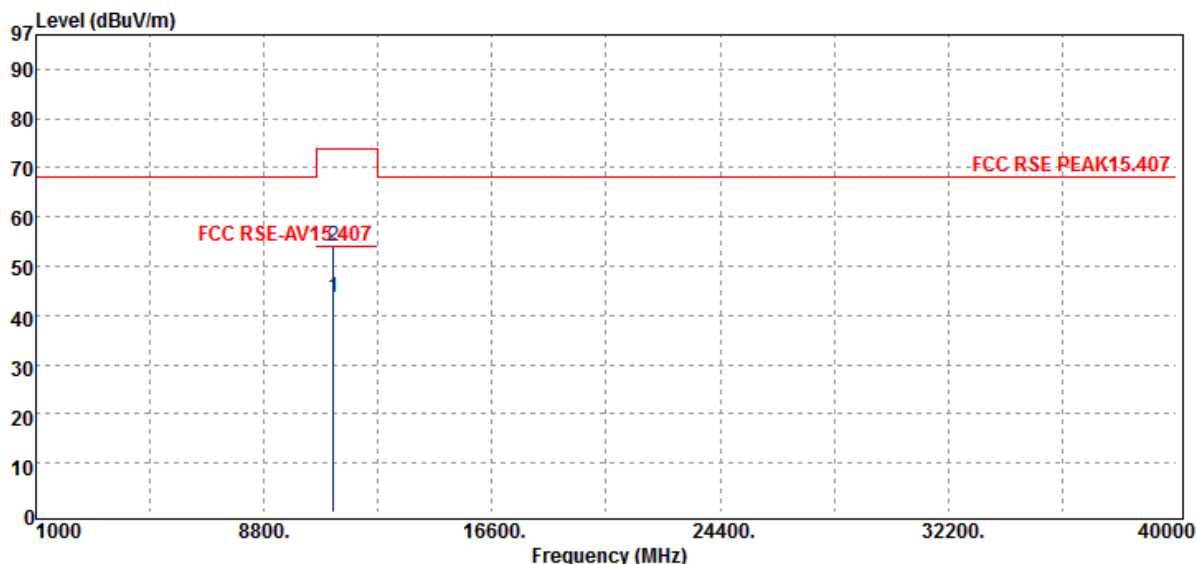
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Operation Band	:802.11n20B3	Test Date	:2018-03-20
Fundamental Frequency	:5580 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH MID	Engineer	:Tin
EUT Pol.	:E1 Plane	Measurement Antenna Pol.	:VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Safe Margin dB
11160.00	H	Average	21.16	22.31	43.47	54.00	-10.53
11160.00	H	Peak	31.85	22.31	54.16	74.00	-19.84

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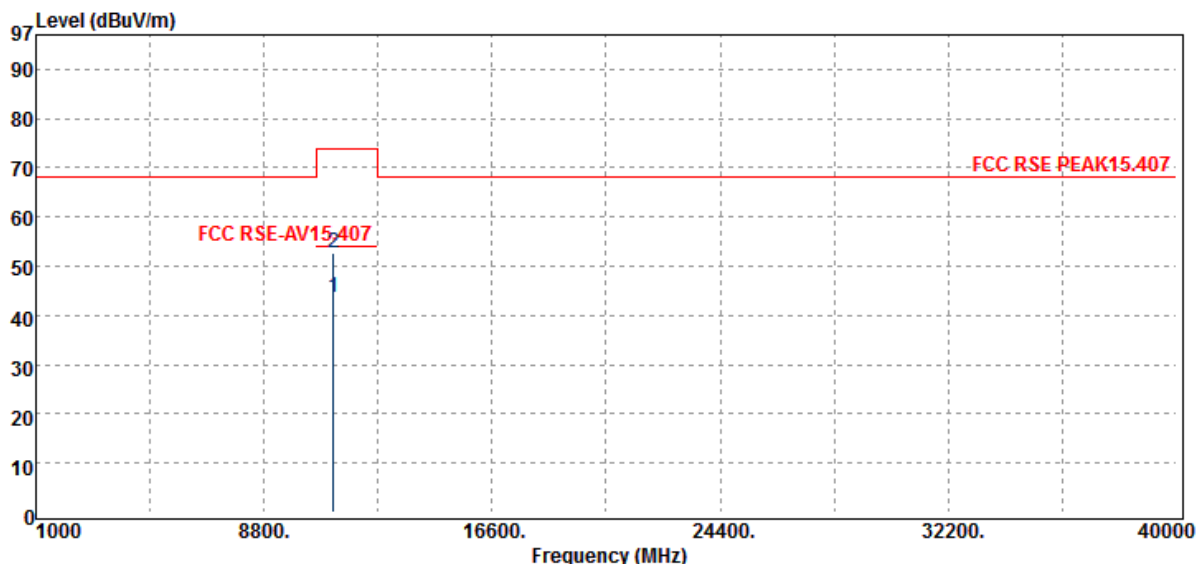
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Operation Band	:802.11n20B3	Test Date	:2018-03-20
Fundamental Frequency	:5580 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH MID	Engineer	:Tin
EUT Pol.	:E1 Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Safe Margin dB
11160.00	H	Average	21.26	22.31	43.57	54.00	-10.43
11160.00	H	Peak	30.34	22.31	52.65	74.00	-21.35

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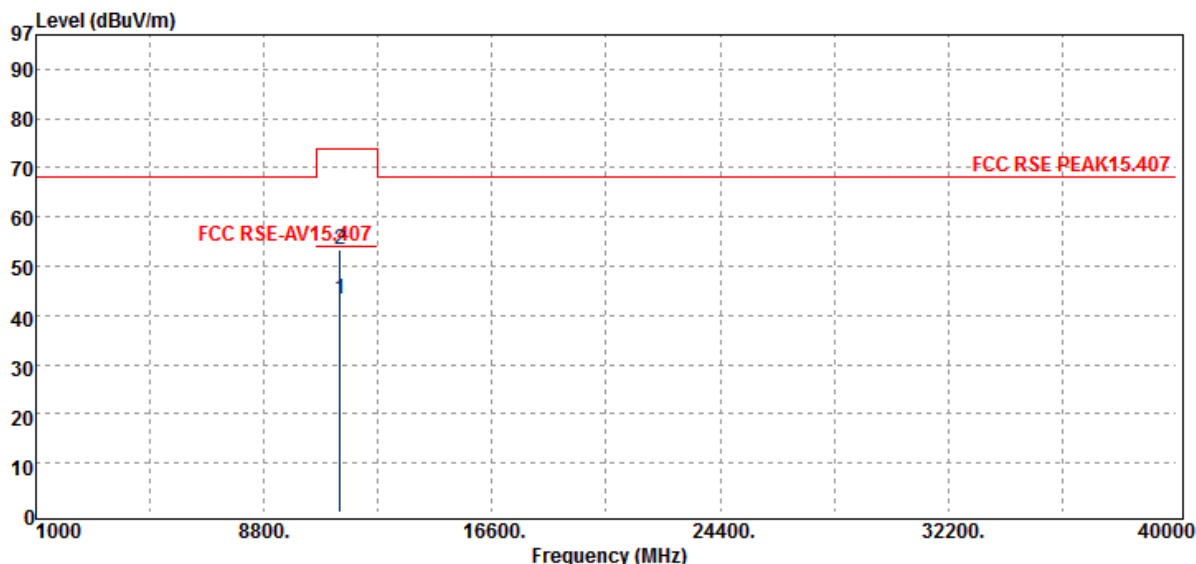
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Operation Band	:802.11n20B3	Test Date	:2018-03-20
Fundamental Frequency	:5700 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH HIGH	Engineer	:Tin
EUT Pol.	:E1 Plane	Measurement Antenna Pol.	:VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Safe Margin dB
11400.00	H	Average	20.88	22.42	43.30	54.00	-10.70
11400.00	H	Peak	30.87	22.42	53.29	74.00	-20.71

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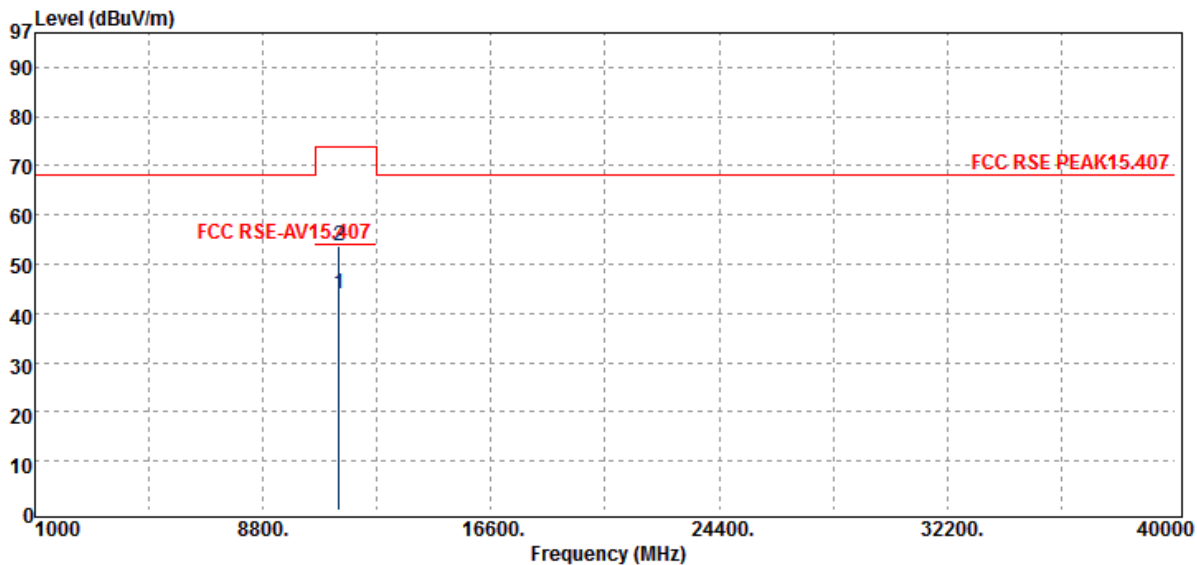
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Operation Band	:802.11n20B3	Test Date	:2018-03-20
Fundamental Frequency	:5700 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH HIGH	Engineer	:Tin
EUT Pol.	:E1 Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Safe Margin dB
11400.00	H	Average	21.66	22.42	44.08	54.00	-9.92
11400.00	H	Peak	31.36	22.42	53.78	74.00	-20.22

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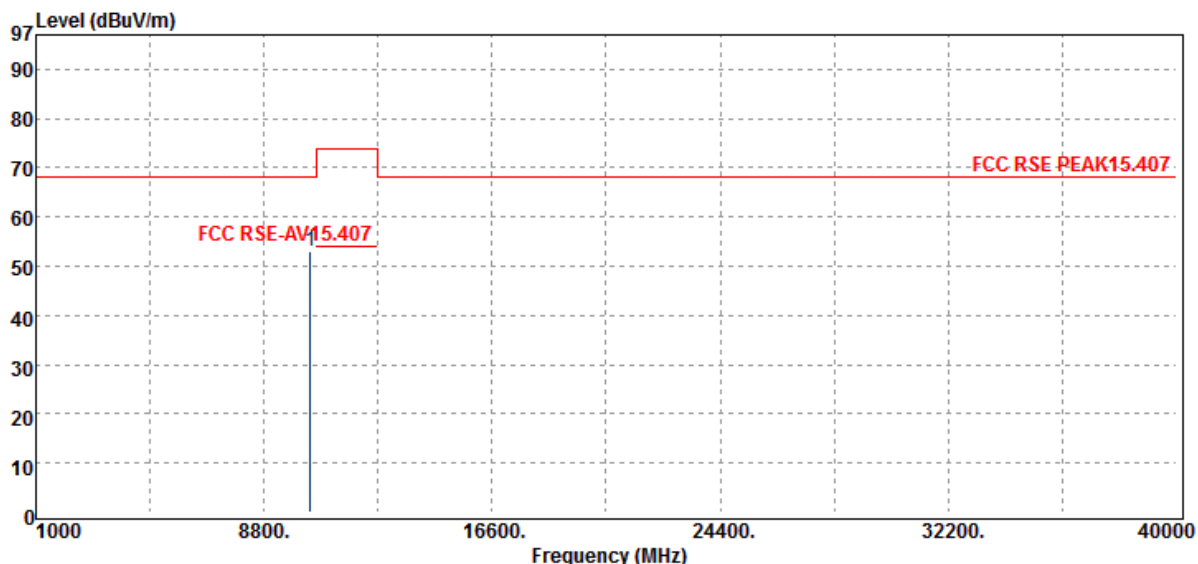
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Radiated Spurious Emission Measurement Result 802.11n HT40, 5150~5250 MHz

Operation Band	:802.11n40B1	Test Date	:2018-03-20
Fundamental Frequency	:5190 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH LOW	Engineer	:Tin
EUT Pol.	:E1 Plane	Measurement Antenna Pol.	:VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Safe Margin dB
10380.00	H	Peak	32.51	20.48	52.99	68.30	-15.31

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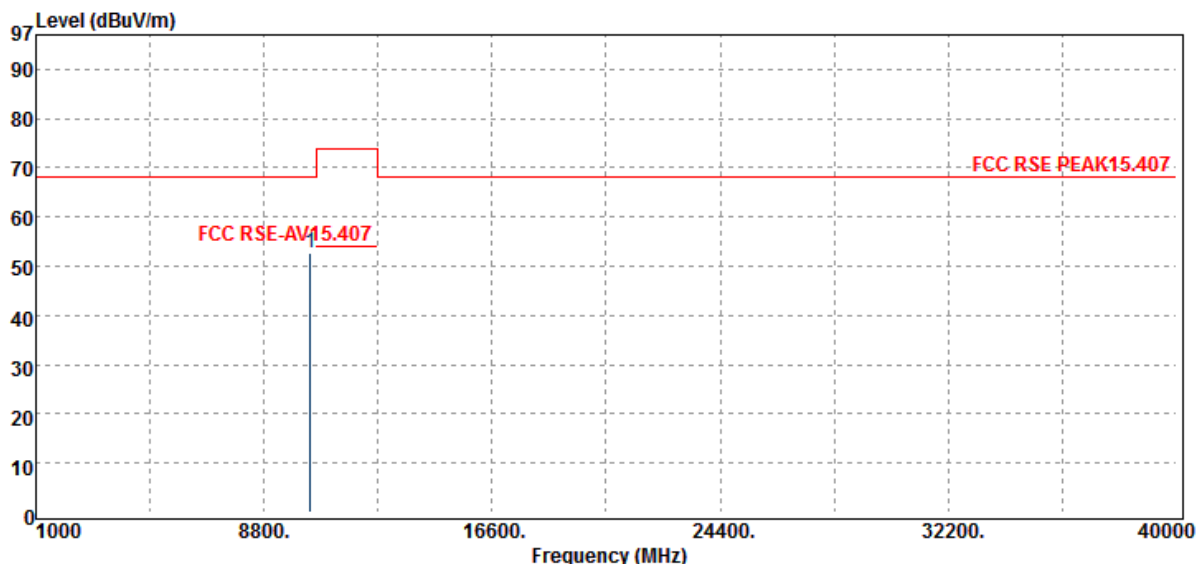
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Operation Band :802.11n40B1
Fundamental Frequency :5190 MHz
Operation Mode :Tx CH LOW
EUT Pol. :E1 Plane

Test Date :2018-03-20
Temp./Humi. :23 deg_C / 62 RH
Engineer :Tin
Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Safe Margin dB
10380.00	H	Peak	32.23	20.48	52.71	68.30	-15.59

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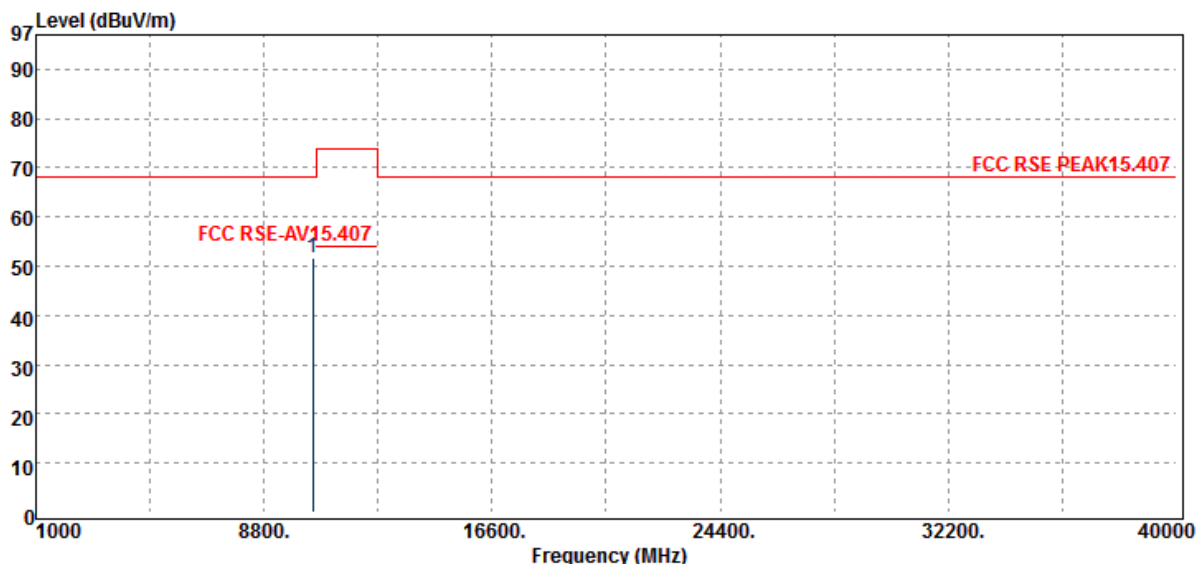
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Operation Band :802.11n40B1
Fundamental Frequency :5230 MHz
Operation Mode :Tx CH HIGH
EUT Pol. :E1 Plane

Test Date :2018-03-20
Temp./Humi. :23 deg_C / 62 RH
Engineer :Tin
Measurement Antenna Pol. :VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Safe Margin dB
10460.00	H	Peak	30.90	20.77	51.67	68.30	-16.63

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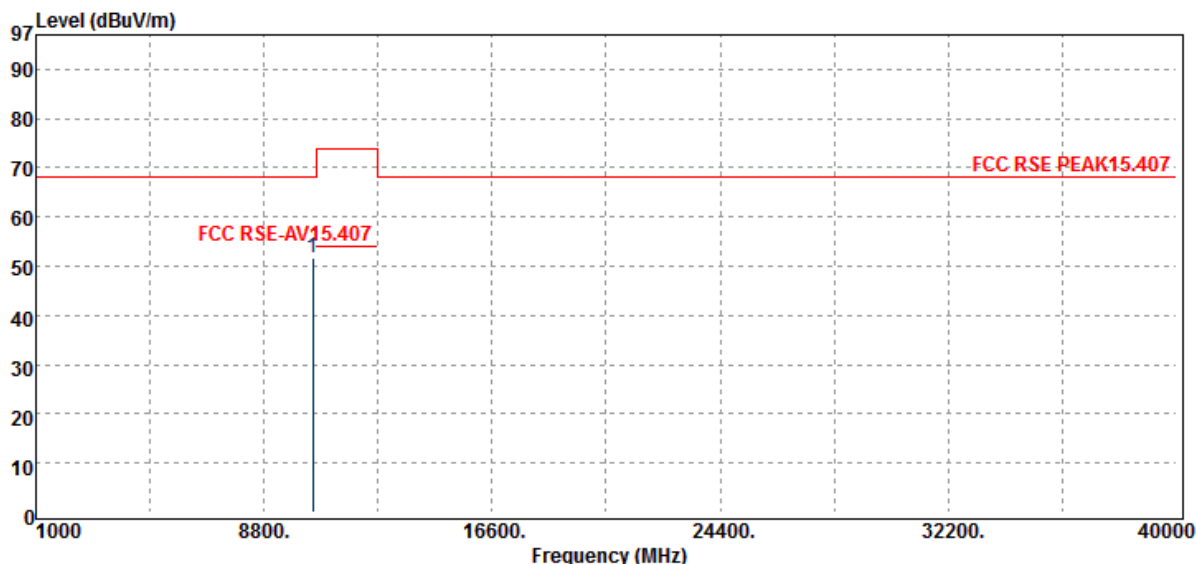
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Operation Band :802.11n40B1
Fundamental Frequency :5230 MHz
Operation Mode :Tx CH HIGH
EUT Pol. :E1 Plane

Test Date :2018-03-20
Temp./Humi. :23 deg_C / 62 RH
Engineer :Tin
Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Safe Margin dB
10460.00	H	Peak	30.97	20.77	51.74	68.30	-16.56

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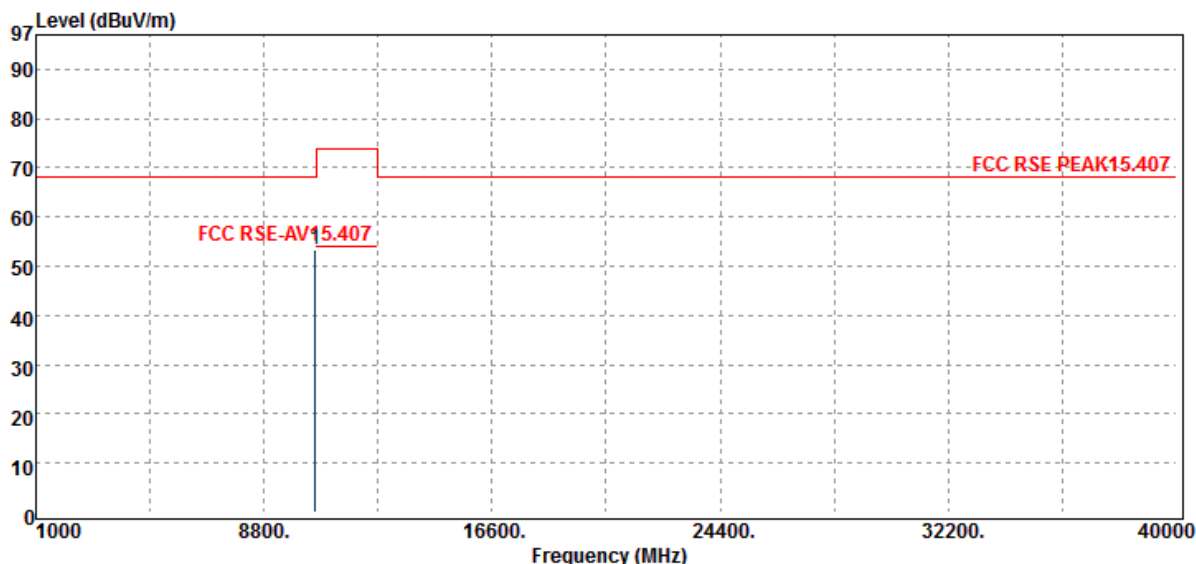
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Operation Band	:802.11n40B2	Test Date	:2018-03-20
Fundamental Frequency	:5270 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH LOW	Engineer	:Tin
EUT Pol.	:E1 Plane	Measurement Antenna Pol.	:VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Safe Margin dB
10540.00	H	Peak	32.55	20.82	53.37	68.30	-14.93

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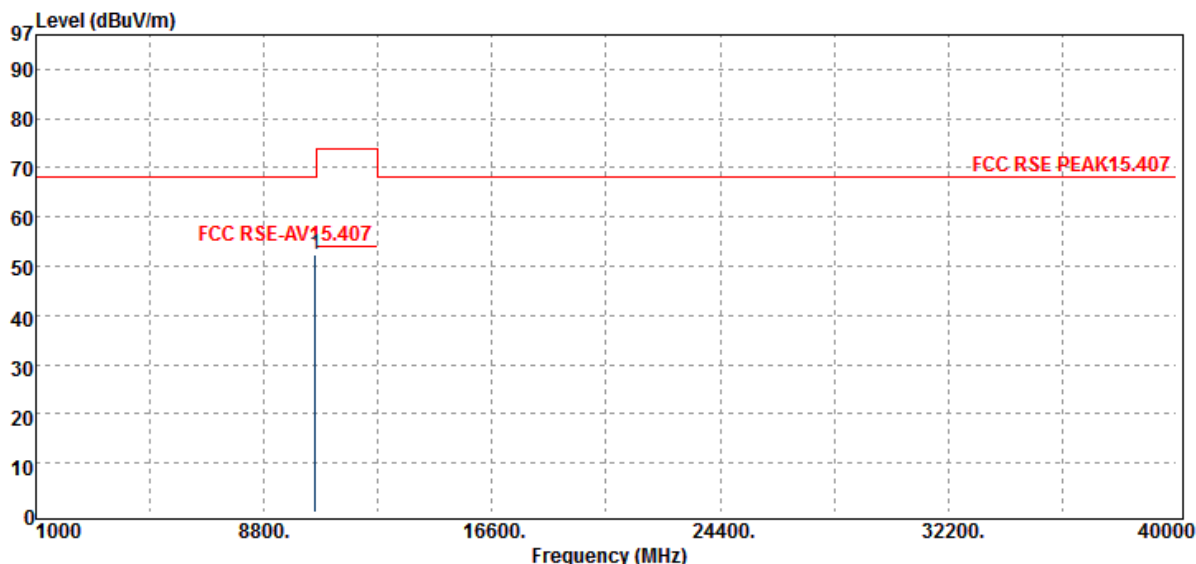
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Operation Band	:802.11n40B2	Test Date	:2018-03-20
Fundamental Frequency	:5270 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH LOW	Engineer	:Tin
EUT Pol.	:E1 Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Safe Margin dB
10540.00	H	Peak	31.51	20.82	52.33	68.30	-15.97

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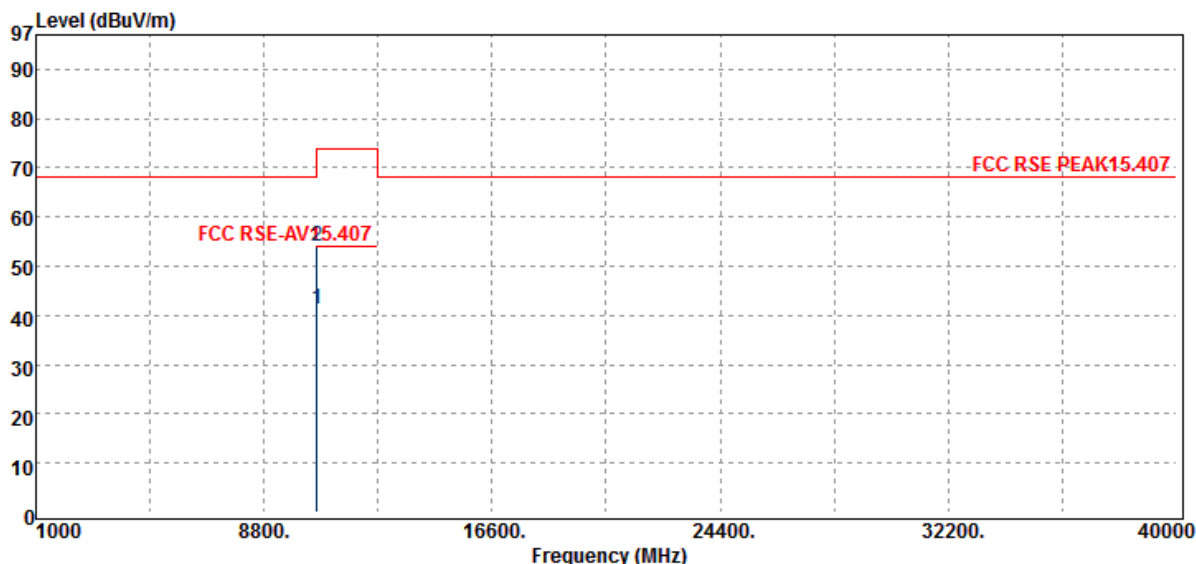
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Operation Band	:802.11n40B2	Test Date	:2018-03-20
Fundamental Frequency	:5310 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH HIGH	Engineer	:Tin
EUT Pol.	:E1 Plane	Measurement Antenna Pol.	:VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Safe Margin dB
10620.00	H	Average	20.20	21.21	41.41	54.00	-12.59
10620.00	H	Peak	32.67	21.21	53.88	74.00	-20.12

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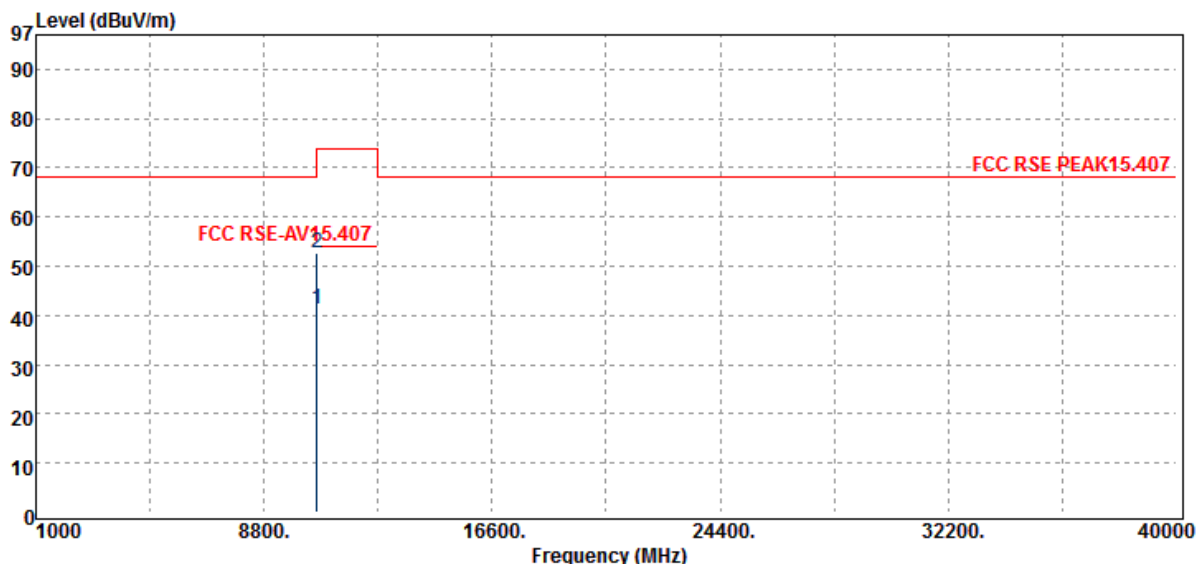
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Operation Band	:802.11n40B2	Test Date	:2018-03-20
Fundamental Frequency	:5310 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH HIGH	Engineer	:Tin
EUT Pol.	:E1 Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Safe Margin dB
10620.00	H	Average	20.23	21.21	41.44	54.00	-12.56
10620.00	H	Peak	31.59	21.21	52.80	74.00	-21.20

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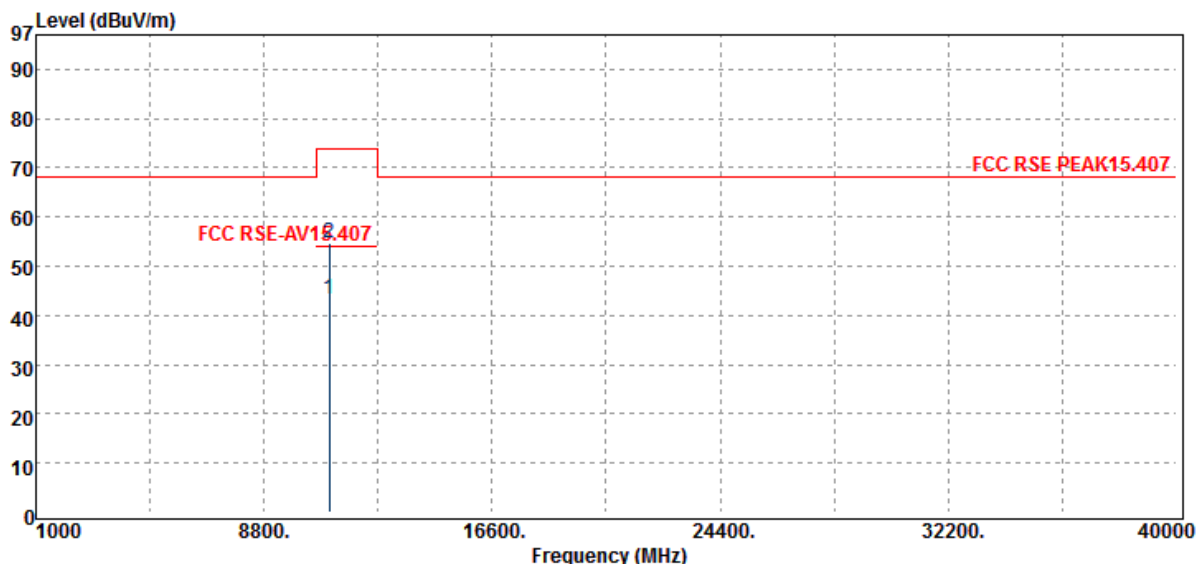
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Radiated Spurious Emission Measurement Result 802.11n HT40, 5470~5725 MHz

Operation Band	:802.11n40B3	Test Date	:2018-03-20
Fundamental Frequency	:5510 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH LOW	Engineer	:Tin
EUT Pol.	:E1 Plane	Measurement Antenna Pol.	:VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Safe Margin dB
11020.00	H	Average	21.10	22.28	43.38	54.00	-10.62
11020.00	H	Peak	32.55	22.28	54.83	74.00	-19.17

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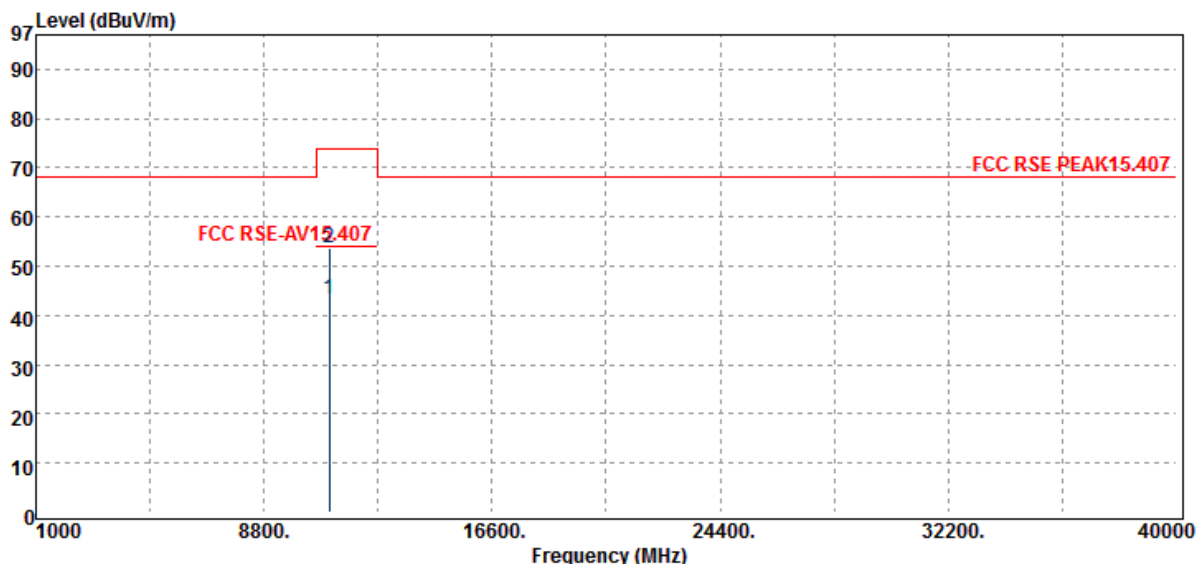
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Operation Band	:802.11n40B3	Test Date	:2018-03-20
Fundamental Frequency	:5510 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH LOW	Engineer	:Tin
EUT Pol.	:E1 Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Safe Margin dB
11020.00	H	Average	21.16	22.28	43.44	54.00	-10.56
11020.00	H	Peak	31.31	22.28	53.59	74.00	-20.41

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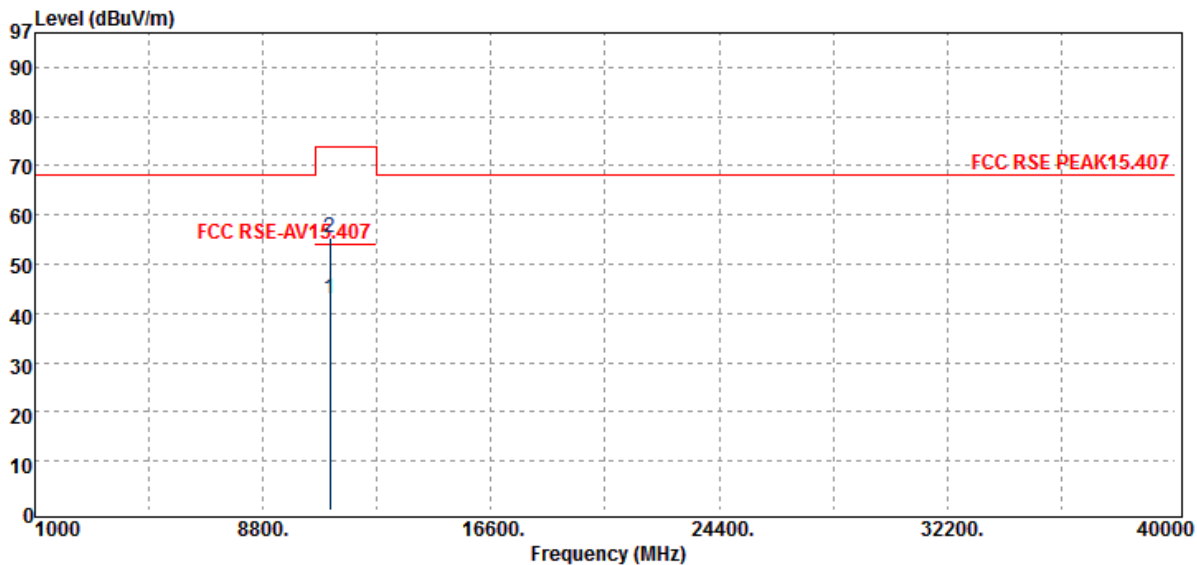
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Operation Band	:802.11n40B3	Test Date	:2018-03-20
Fundamental Frequency	:5550 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH MID	Engineer	:Tin
EUT Pol.	:E1 Plane	Measurement Antenna Pol.	:VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Safe Margin dB
11100.00	H	Average	20.44	22.38	42.82	54.00	-11.18
11100.00	H	Peak	32.99	22.38	55.37	74.00	-18.63

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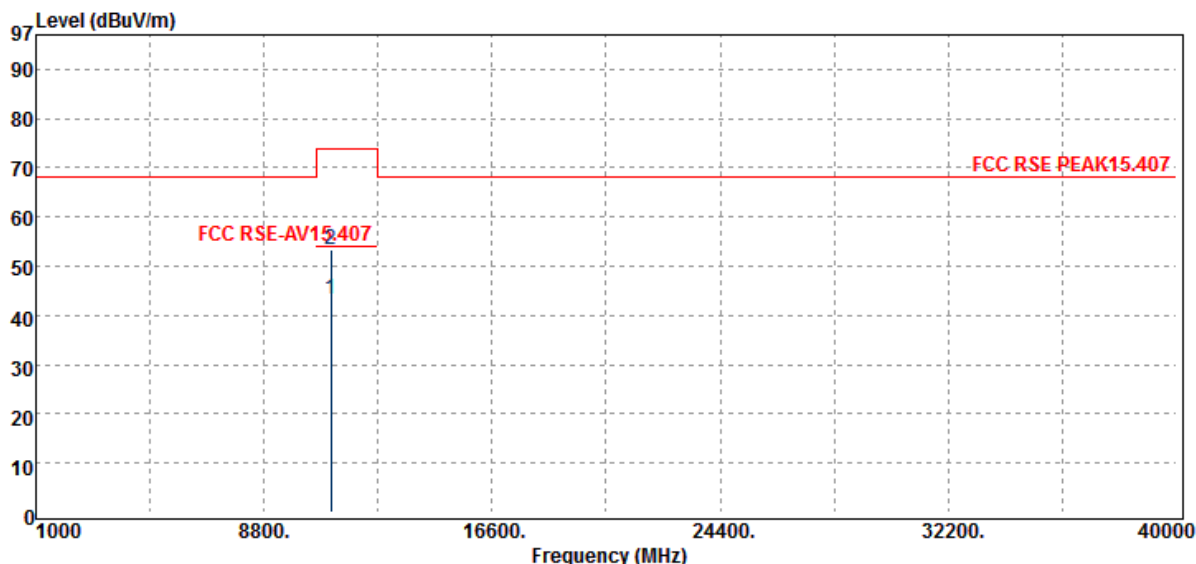
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Operation Band :802.11n40B3
Fundamental Frequency :5550 MHz
Operation Mode :Tx CH MID
EUT Pol. :E1 Plane

Test Date :2018-03-20
Temp./Humi. :23 deg_C / 62 RH
Engineer :Tin
Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Safe Margin dB
11100.00	H	Average	20.78	22.38	43.16	54.00	-10.84
11100.00	H	Peak	30.94	22.38	53.32	74.00	-20.68

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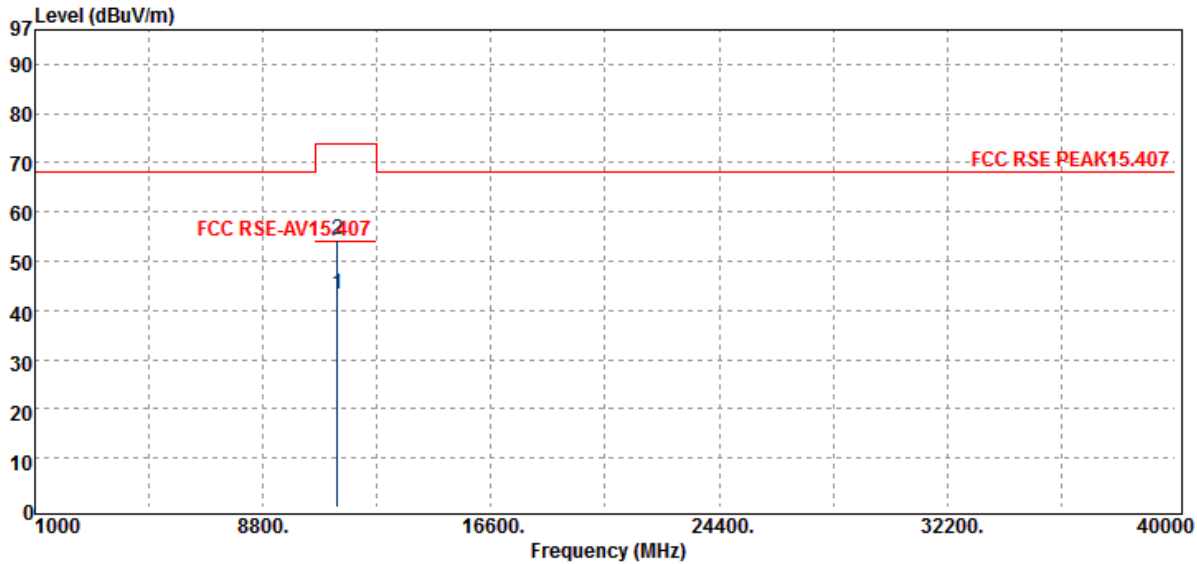
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Operation Band	:802.11n40B3	Test Date	:2018-03-20
Fundamental Frequency	:5670 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH HIGH	Engineer	:Tin
EUT Pol.	:E1 Plane	Measurement Antenna Pol.	:VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Safe Margin dB
11340.00	H	Average	21.08	22.34	43.42	54.00	-10.58
11340.00	H	Peak	31.93	22.34	54.27	74.00	-19.73

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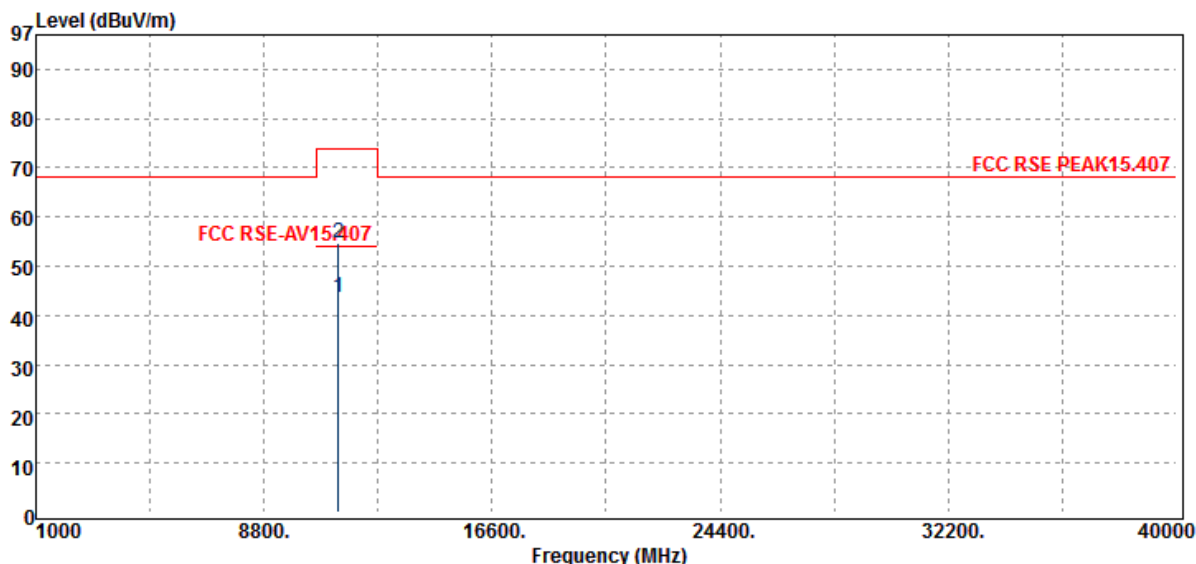
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Operation Band :802.11n40B3
Fundamental Frequency :5670 MHz
Operation Mode :Tx CH HIGH
EUT Pol. :E1 Plane

Test Date :2018-03-20
Temp./Humi. :23 deg_C / 62 RH
Engineer :Tin
Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Safe Margin dB
11340.00	H	Average	21.42	22.34	43.76	54.00	-10.24
11340.00	H	Peak	32.30	22.34	54.64	74.00	-19.36

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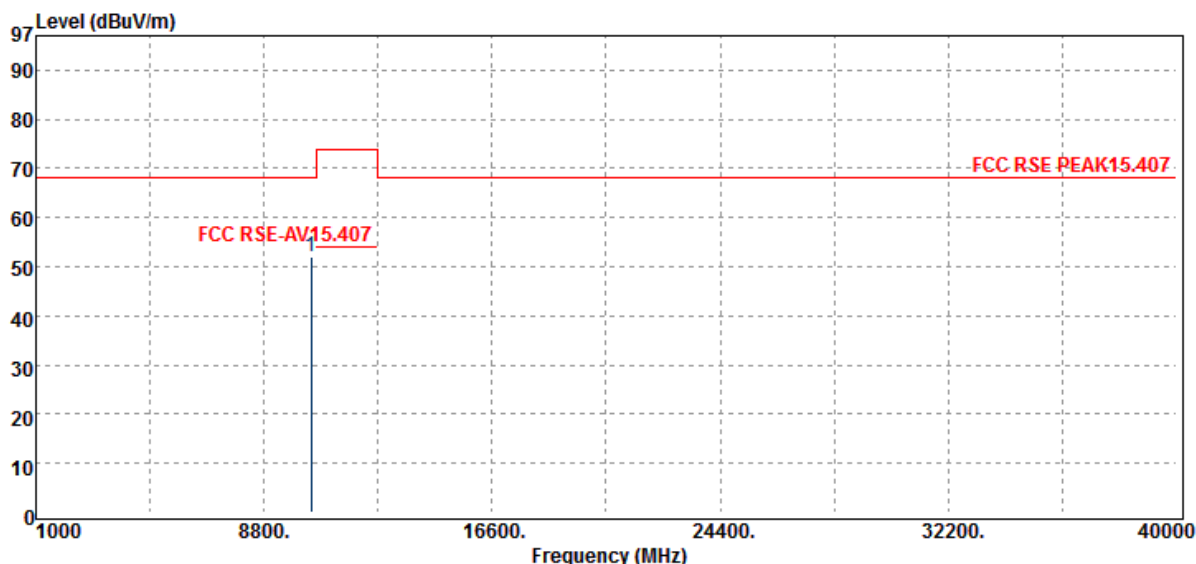
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Radiated Spurious Emission Measurement Result 802.11ac VHT80, 5150~5250 MHz

Operation Band	:802.11ac80B1	Test Date	:2018-03-20
Fundamental Frequency	:5210 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH LOW	Engineer	:Tin
EUT Pol.	:E1 Plane	Measurement Antenna Pol.	:VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Safe Margin dB
10420.00	H	Peak	31.36	20.69	52.05	68.30	-16.25

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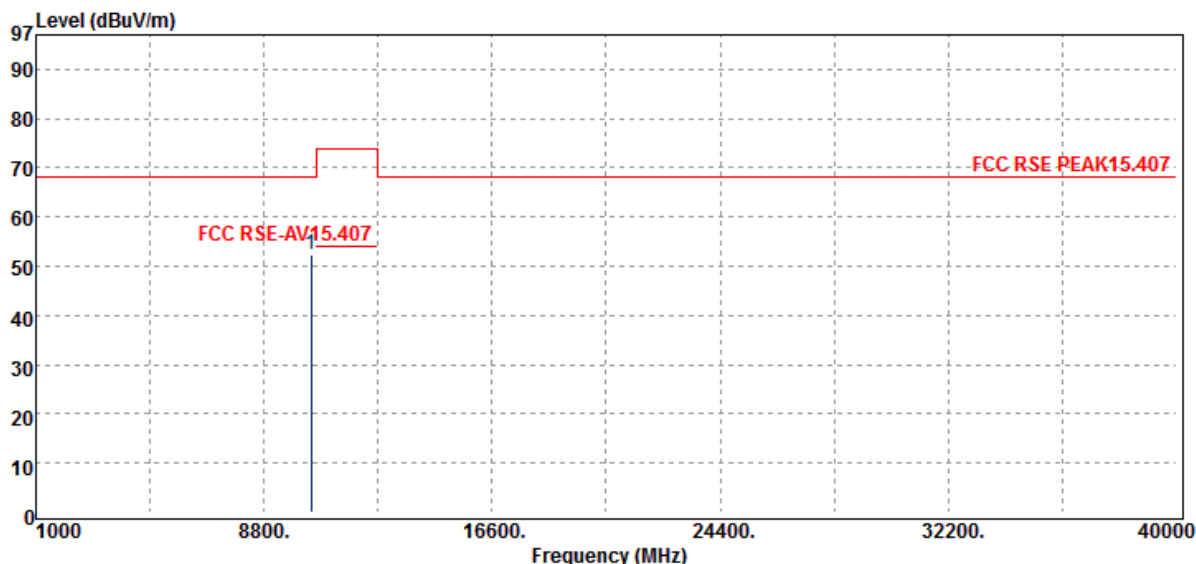
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Operation Band :802.11ac80B1
Fundamental Frequency :5210 MHz
Operation Mode :Tx CH LOW
EUT Pol. :E1 Plane

Test Date :2018-03-20
Temp./Humi. :23 deg_C / 62 RH
Engineer :Tin
Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Safe Margin dB
10420.00	H	Peak	31.51	20.69	52.20	68.30	-16.10

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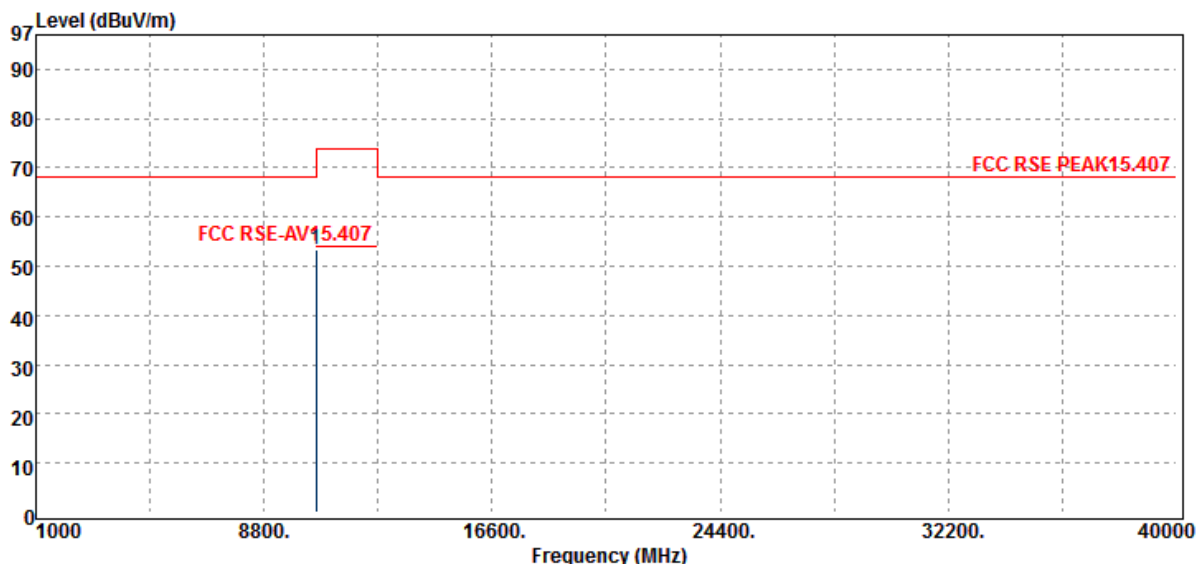
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Radiated Spurious Emission Measurement Result 802.11ac VHT80, 5250~5350 MHz

Operation Band	:802.11ac80B2	Test Date	:2018-03-20
Fundamental Frequency	:5290 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH HIGH	Engineer	:Tin
EUT Pol.	:E1 Plane	Measurement Antenna Pol.	:VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Safe Margin dB
10580.00	H	Peak	32.46	21.03	53.49	68.30	-14.81

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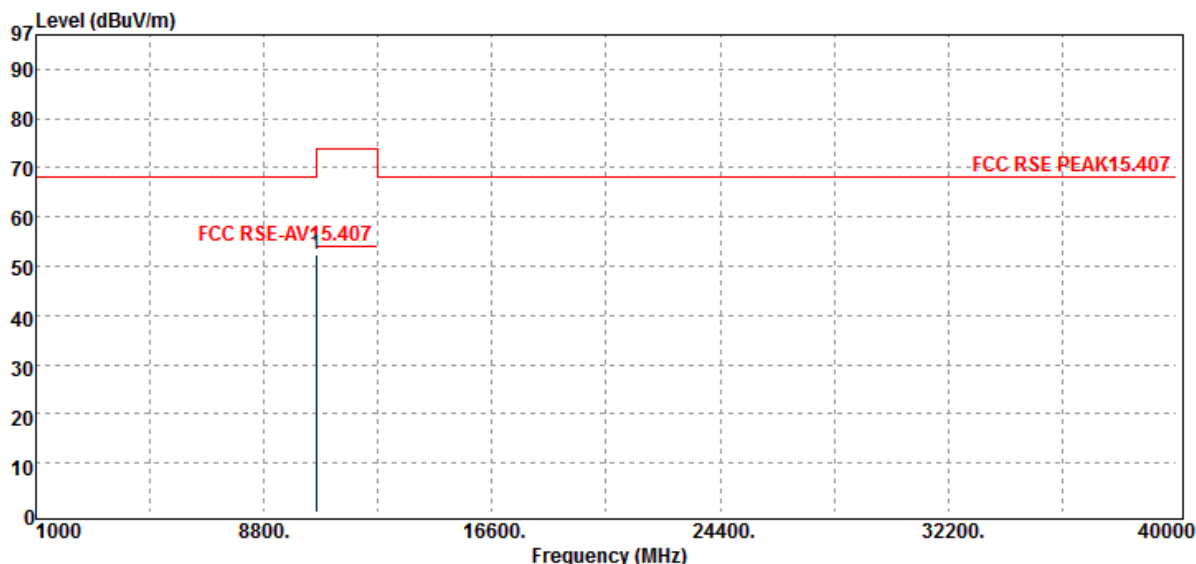
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Operation Band :802.11ac80B2
Fundamental Frequency :5290 MHz
Operation Mode :Tx CH HIGH
EUT Pol. :E1 Plane

Test Date :2018-03-20
Temp./Humi. :23 deg_C / 62 RH
Engineer :Tin
Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Safe Margin dB
10580.00	H	Peak	31.29	21.03	52.32	68.30	-15.98

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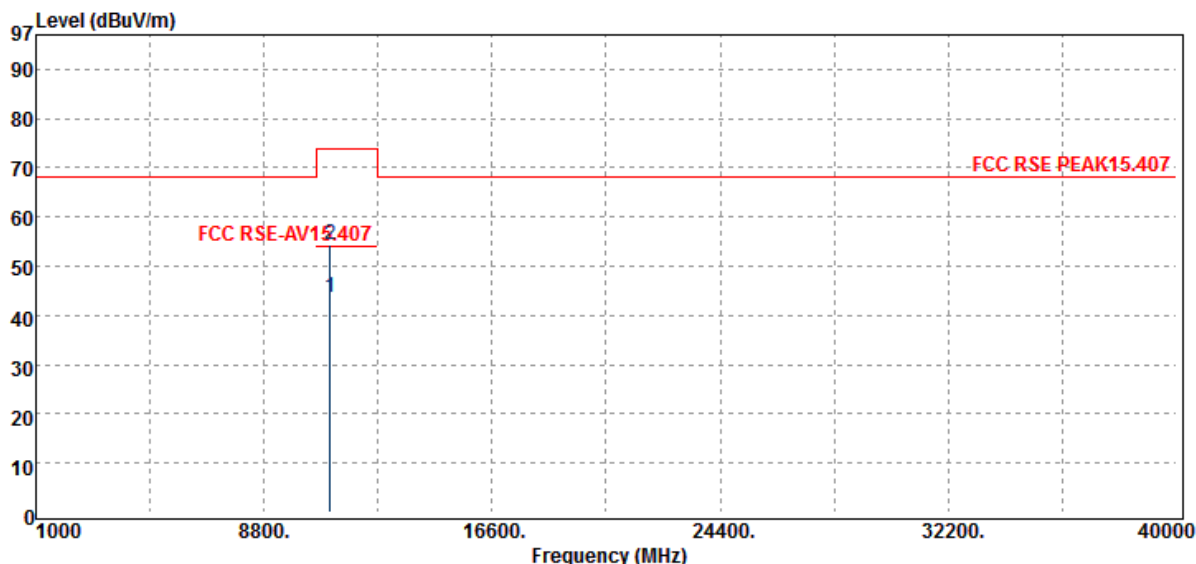
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Radiated Spurious Emission Measurement Result 802.11ac VHT80, 5470~5725 MHz

Operation Band	:802.11ac80B3	Test Date	:2018-03-20
Fundamental Frequency	:5530 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Tx CH LOW	Engineer	:Tin
EUT Pol.	:E1 Plane	Measurement Antenna Pol.	:VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Safe Margin dB
11060.00	H	Average	21.13	22.41	43.54	54.00	-10.46
11060.00	H	Peak	31.91	22.41	54.32	74.00	-19.68

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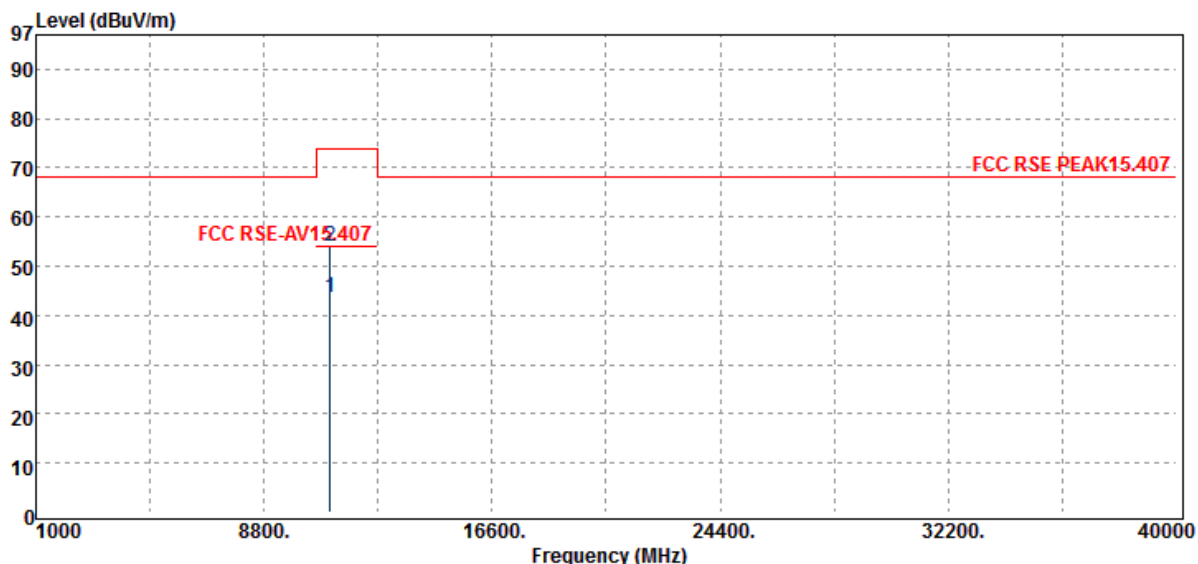
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Operation Band :802.11ac80B3
Fundamental Frequency :5530 MHz
Operation Mode :Tx CH LOW
EUT Pol. :E1 Plane

Test Date :2018-03-20
Temp./Humi. :23 deg_C / 62 RH
Engineer :Tin
Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Safe Margin dB
11060.00	H	Average	21.28	22.41	43.69	54.00	-10.31
11060.00	H	Peak	31.59	22.41	54.00	74.00	-20.00

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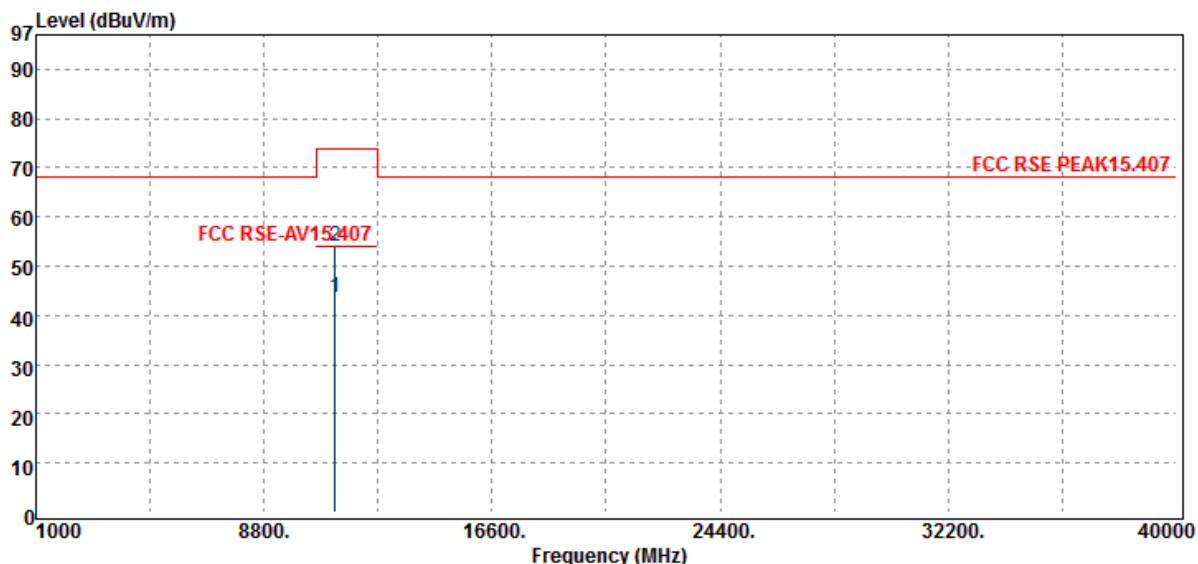
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Operation Band :802.11ac80B3
Fundamental Frequency :5610 MHz
Operation Mode :Tx CH HIGH
EUT Pol. :E1 Plane

Test Date :2018-03-20
Temp./Humi. :23 deg_C / 62 RH
Engineer :Tin
Measurement Antenna Pol. :VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Safe Margin dB
11220.00	H	Average	21.27	22.36	43.63	54.00	-10.37
11220.00	H	Peak	31.51	22.36	53.87	74.00	-20.13

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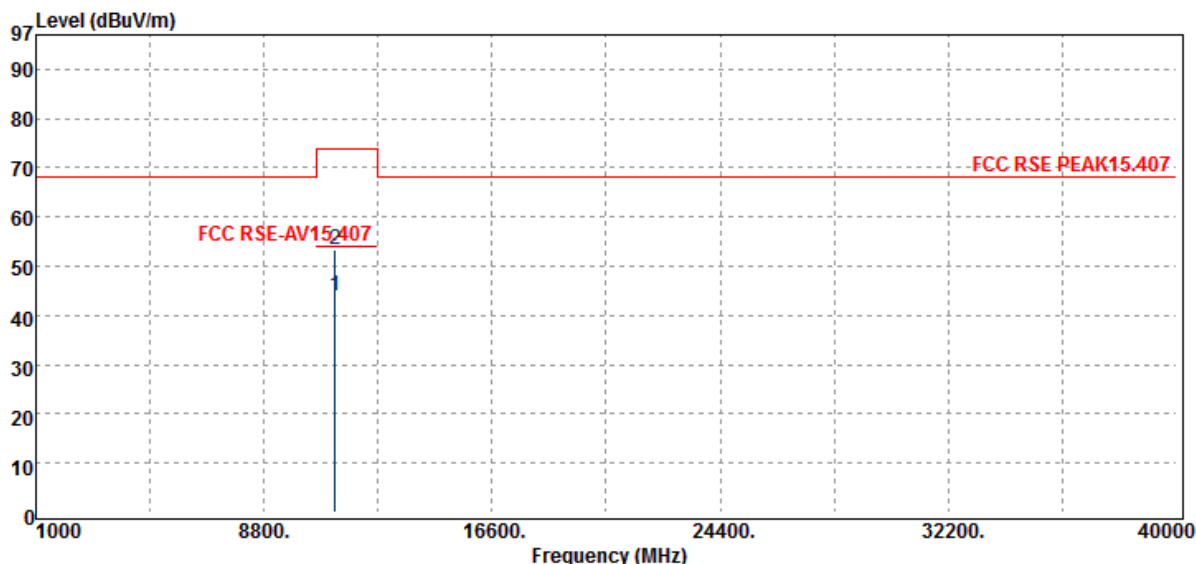
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Operation Band :802.11ac80B3
Fundamental Frequency :5610 MHz
Operation Mode :Tx CH HIGH
EUT Pol. :E1 Plane

Test Date :2018-03-20
Temp./Humi. :23 deg_C / 62 RH
Engineer :Tin
Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Safe Margin dB
11220.00	H	Average	21.62	22.36	43.98	54.00	-10.02
11220.00	H	Peak	30.85	22.36	53.21	74.00	-20.79

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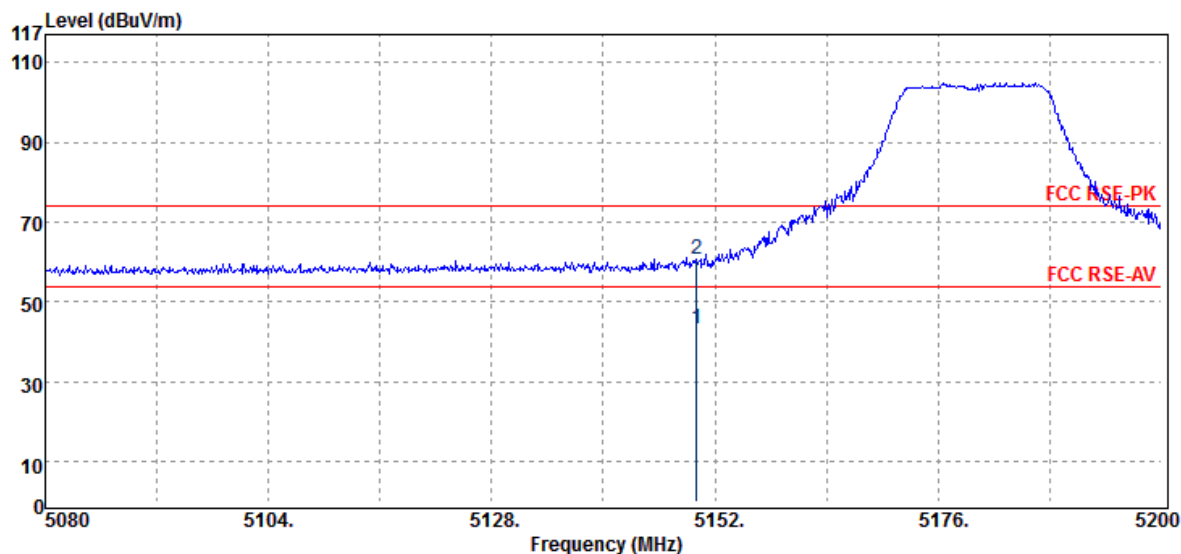
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Band Edge falling to restricted band

802.11a mode

Operation Band :802.11aB1
Fundamental Frequency :5180 MHz
Operation Mode :Bandedge CH LOW
EUT Pol. :E1 Plane

Test Date :2018-03-16
Temp./Humi. :23 deg_C / 62 RH
Engineer :Tin
Measurement Antenna Pol. :VERTICAL



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
5150.00	E	Average	35.16	8.32	43.48	54.00	-10.52
5150.00	E	Peak	52.58	8.32	60.90	74.00	-13.10

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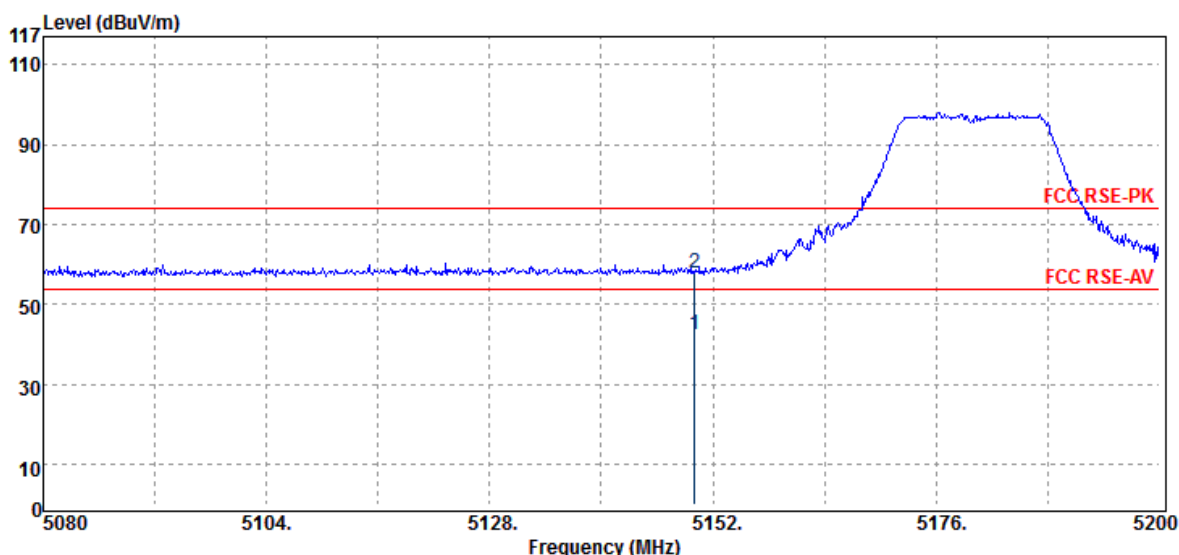
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Operation Band :802.11aB1
 Fundamental Frequency :5180 MHz
 Operation Mode :Bandedge CH LOW
 EUT Pol. :E1 Plane

Test Date :2018-03-16
 Temp./Humi. :23 deg_C / 62 RH
 Engineer :Tin
 Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
5150.00	E	Average	34.24	8.32	42.56	54.00	-11.44
5150.00	E	Peak	49.62	8.32	57.94	74.00	-16.06

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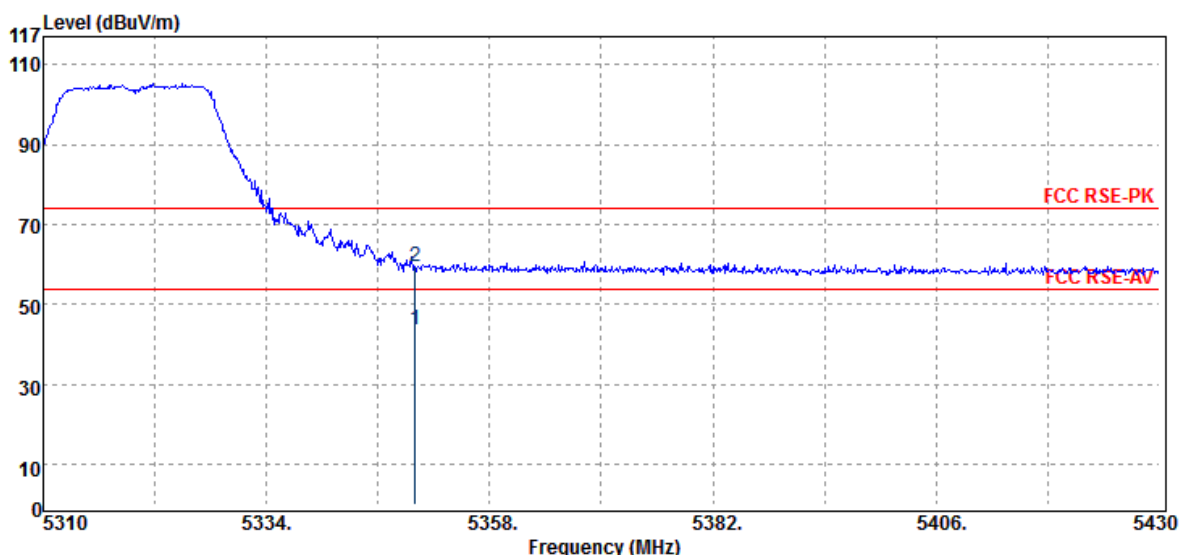
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Operation Band :802.11aB2
Fundamental Frequency :5320 MHz
Operation Mode :Bandedge CH HIGH
EUT Pol. :E1 Plane

Test Date :2018-03-16
Temp./Humi. :23 deg_C / 62 RH
Engineer :Tin
Measurement Antenna Pol. :VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
5350.00	E	Average	35.20	8.63	43.83	54.00	-10.17
5350.00	E	Peak	50.72	8.63	59.35	74.00	-14.65

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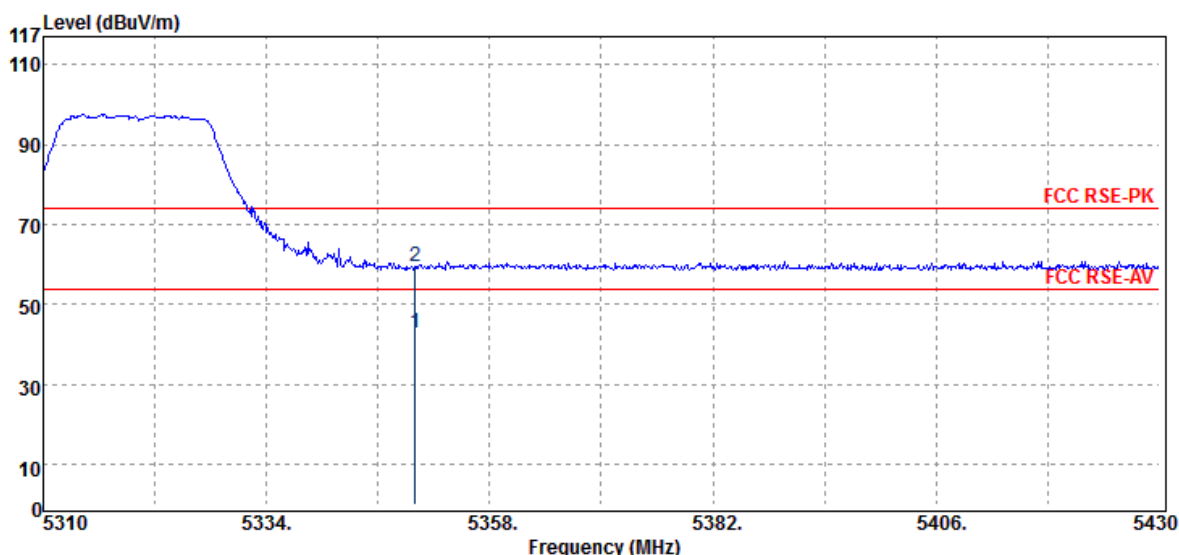
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Operation Band :802.11aB2
Fundamental Frequency :5320 MHz
Operation Mode :Bandedge CH HIGH
EUT Pol. :E1 Plane

Test Date :2018-03-16
Temp./Humi. :23 deg_C / 62 RH
Engineer :Tin
Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
5350.00	E	Average	34.24	8.63	42.87	54.00	-11.13
5350.00	E	Peak	51.01	8.63	59.64	74.00	-14.36

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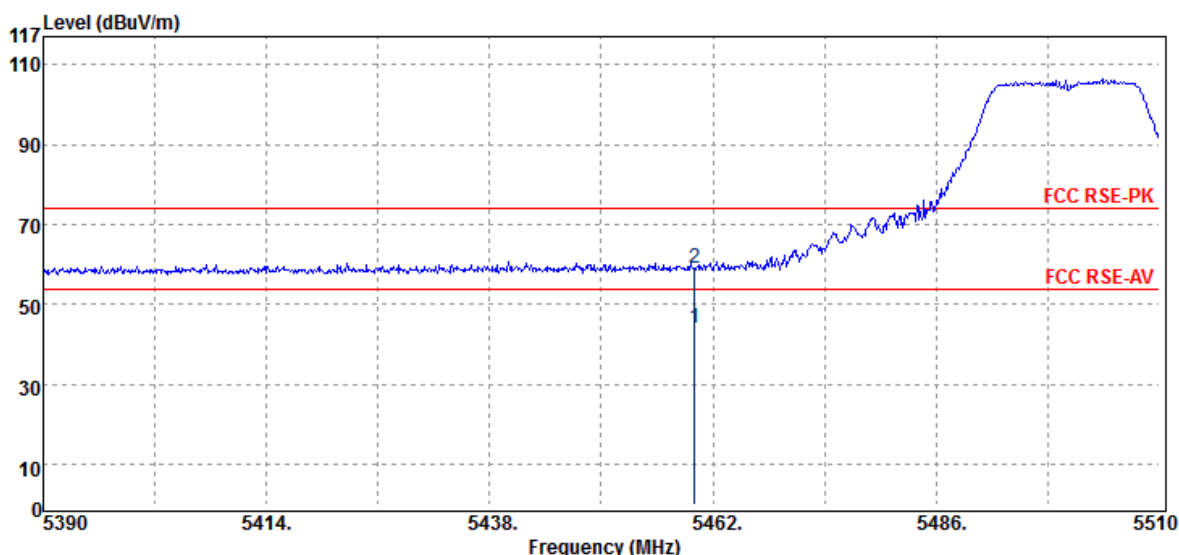
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Operation Band :802.11aB3
Fundamental Frequency :5500 MHz
Operation Mode :Bandedge CH LOW
EUT Pol. :E1 Plane

Test Date :2018-03-16
Temp./Humi. :23 deg_C / 62 RH
Engineer :Tin
Measurement Antenna Pol. :VERTICAL



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBuV	dB	dBuV/m	dBuV/m	dB
5460.00	E	Average	35.22	8.75	43.97	54.00	-10.03
5460.00	E	Peak	50.44	8.75	59.19	74.00	-14.81

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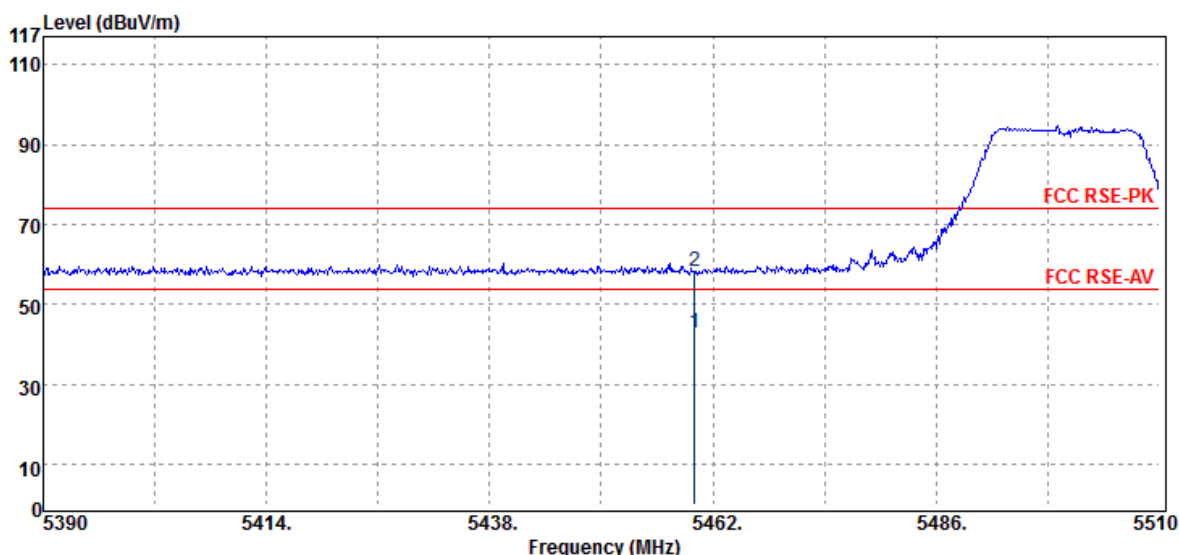
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Operation Band :802.11aB3
Fundamental Frequency :5500 MHz
Operation Mode :Bandedge CH LOW
EUT Pol. :E1 Plane

Test Date :2018-03-16
Temp./Humi. :23 deg_C / 62 RH
Engineer :Tin
Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
5460.00	E	Average	34.28	8.75	43.03	54.00	-10.97
5460.00	E	Peak	49.46	8.75	58.21	74.00	-15.79

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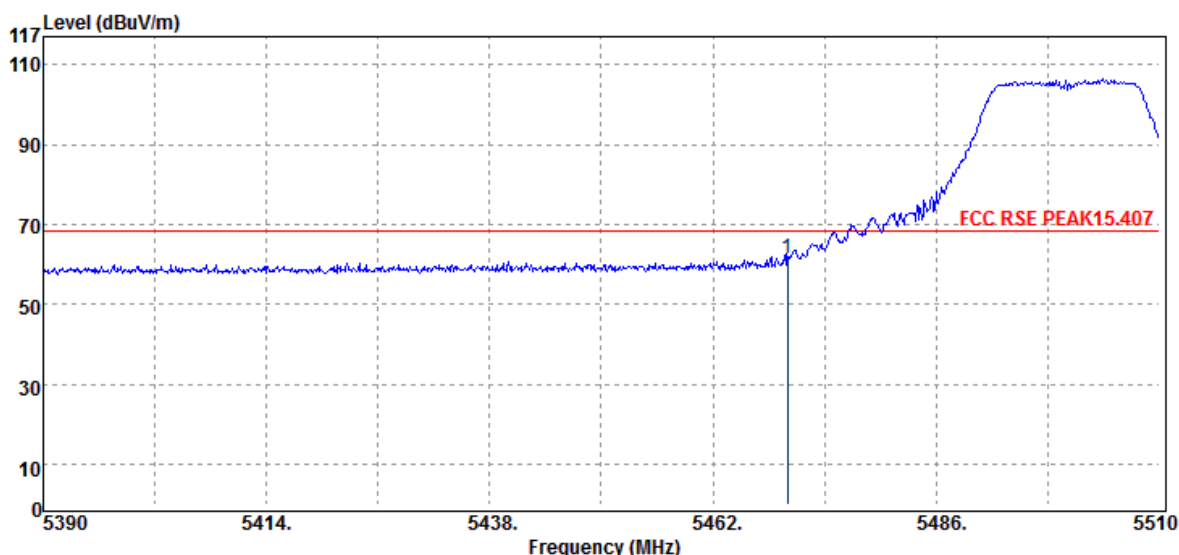
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Operation Band	:802.11aB3	Test Date	:2018-03-16
Fundamental Frequency	:5500 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Bandedge CH LOW RSE	Engineer	:Tin
EUT Pol.	:E1 Plane	Measurement Antenna Pol.	:VERTICAL



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
5470.00	E	Peak	52.95	8.74	61.69	68.30	-6.61

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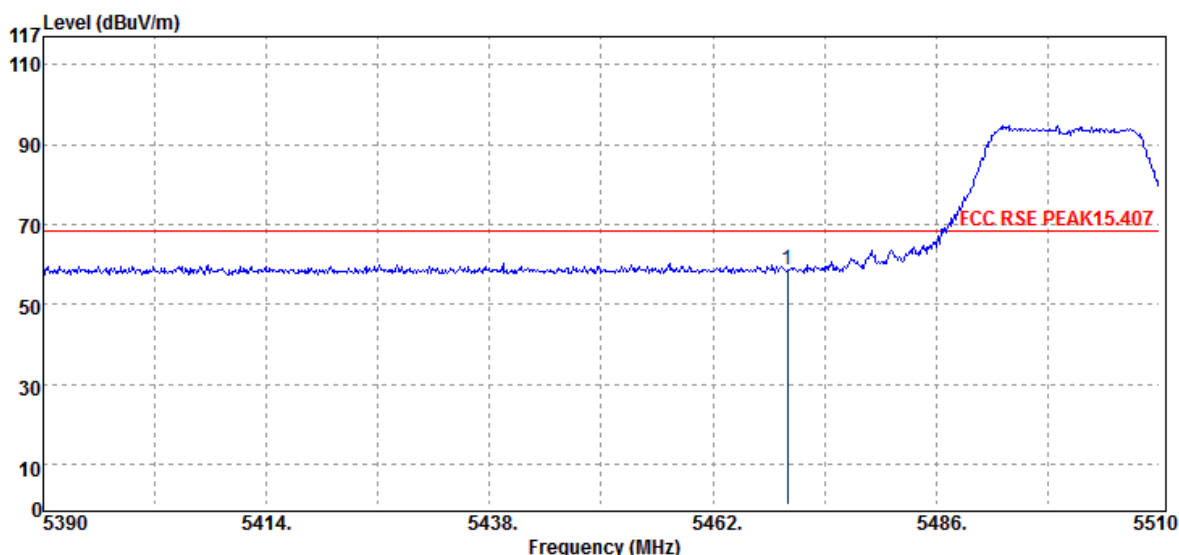
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Operation Band	:802.11aB3	Test Date	:2018-03-16
Fundamental Frequency	:5500 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Bandedge CH LOW RSE	Engineer	:Tin
EUT Pol.	:E1 Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
5470.00	E	Peak	49.98	8.74	58.72	68.30	-9.58

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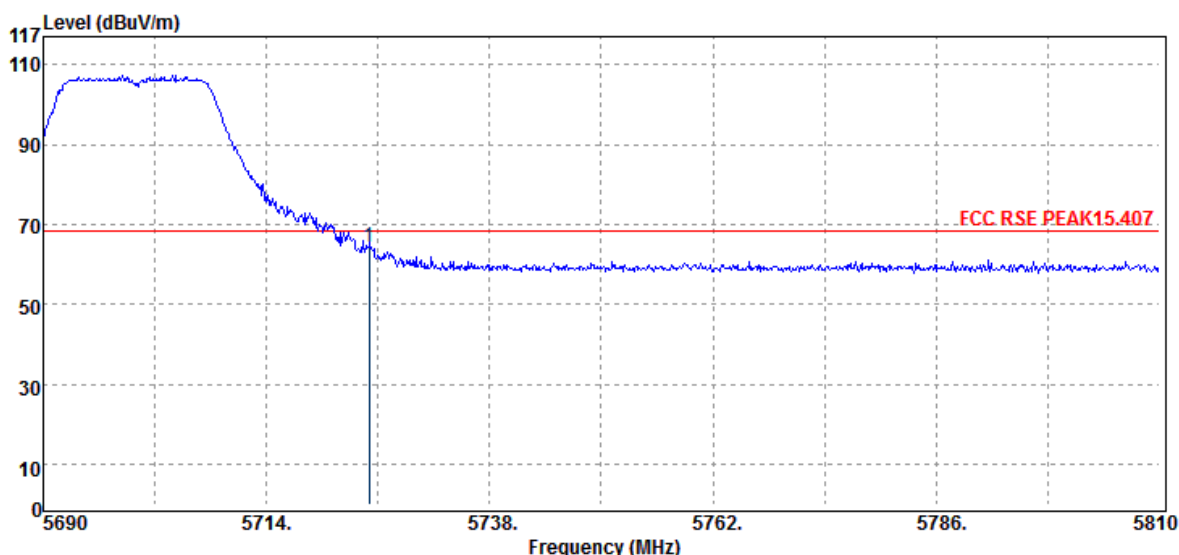
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Operation Band	:802.11aB3	Test Date	:2018-03-19
Fundamental Frequency	:5700 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Bandedge CH HIGH RSE	Engineer	:Tin
EUT Pol.	:E1 Plane	Measurement Antenna Pol.	:VERTICAL



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
5725.00	E	Peak	54.87	9.44	64.31	68.30	-3.99

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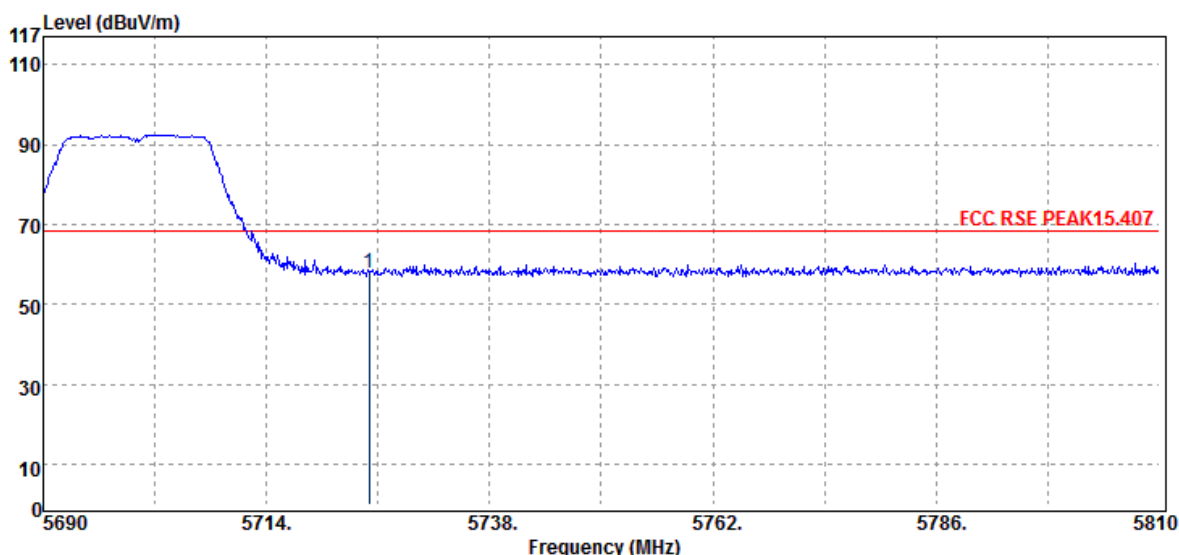
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Operation Band	:802.11aB3	Test Date	:2018-03-19
Fundamental Frequency	:5700 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Bandedge CH HIGH RSE	Engineer	:Tin
EUT Pol.	:E1 Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
5725.00	E	Peak	48.59	9.44	58.03	68.30	-10.27

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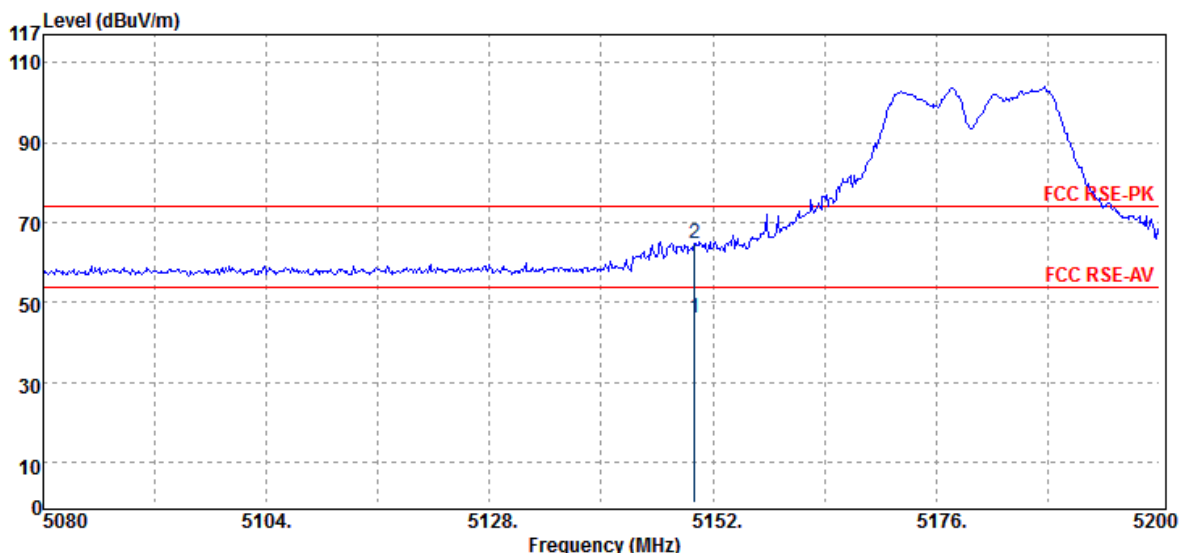
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802.11n20 HT mode

Operation Band :802.11n20B1
 Fundamental Frequency :5180 MHz
 Operation Mode :Bandedge CH LOW
 EUT Pol. :E1 Plane

Test Date :2018-03-19
 Temp./Humi. :23 deg_C / 62 RH
 Engineer :Tin
 Measurement Antenna Pol. :VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
5150.00	E	Average	37.74	8.32	46.06	54.00	-7.94
5150.00	E	Peak	56.33	8.32	64.65	74.00	-9.35

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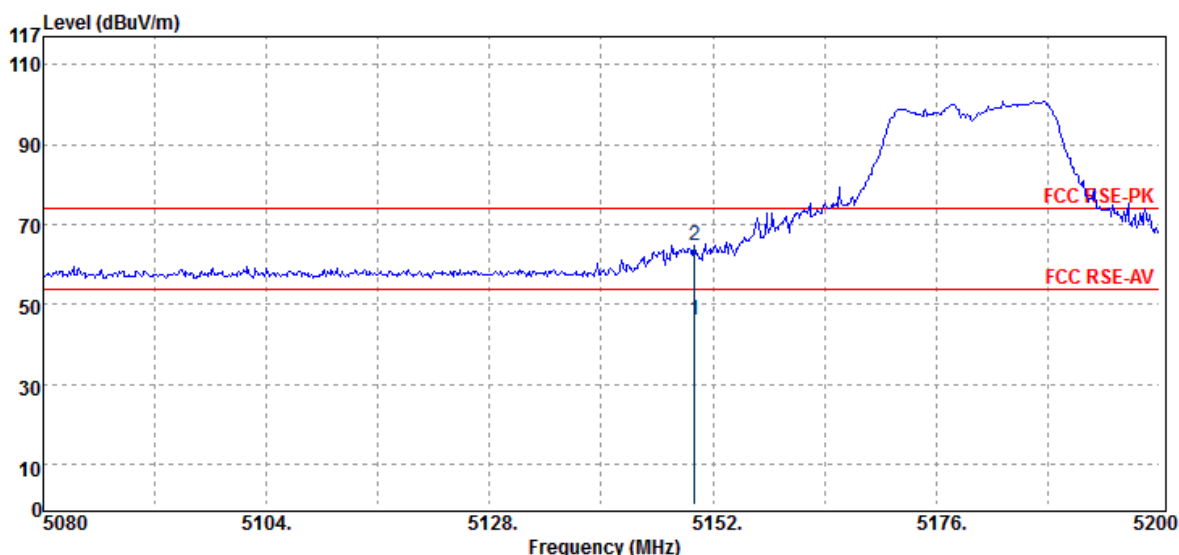
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Operation Band :802.11n20B1
Fundamental Frequency :5180 MHz
Operation Mode :Bandedge CH LOW
EUT Pol. :E1 Plane

Test Date :2018-03-19
Temp./Humi. :23 deg_C / 62 RH
Engineer :Tin
Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
5150.00	E	Average	37.66	8.32	45.98	54.00	-8.02
5150.00	E	Peak	56.46	8.32	64.78	74.00	-9.22

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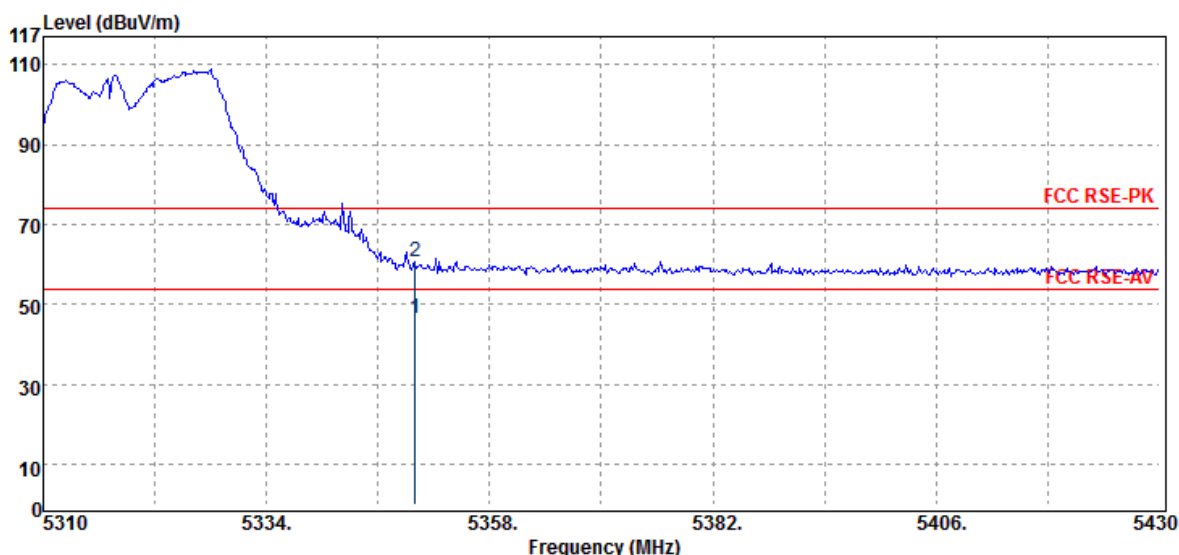
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Member of SGS Group

Operation Band :802.11n20B2
 Fundamental Frequency :5320 MHz
 Operation Mode :Bandedge CH HIGH
 EUT Pol. :E1 Plane

Test Date :2018-03-19
 Temp./Humi. :23 deg_C / 62 RH
 Engineer :Tin
 Measurement Antenna Pol. :VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
5350.00	E	Average	37.87	8.63	46.50	54.00	-7.50
5350.00	E	Peak	52.30	8.63	60.93	74.00	-13.07

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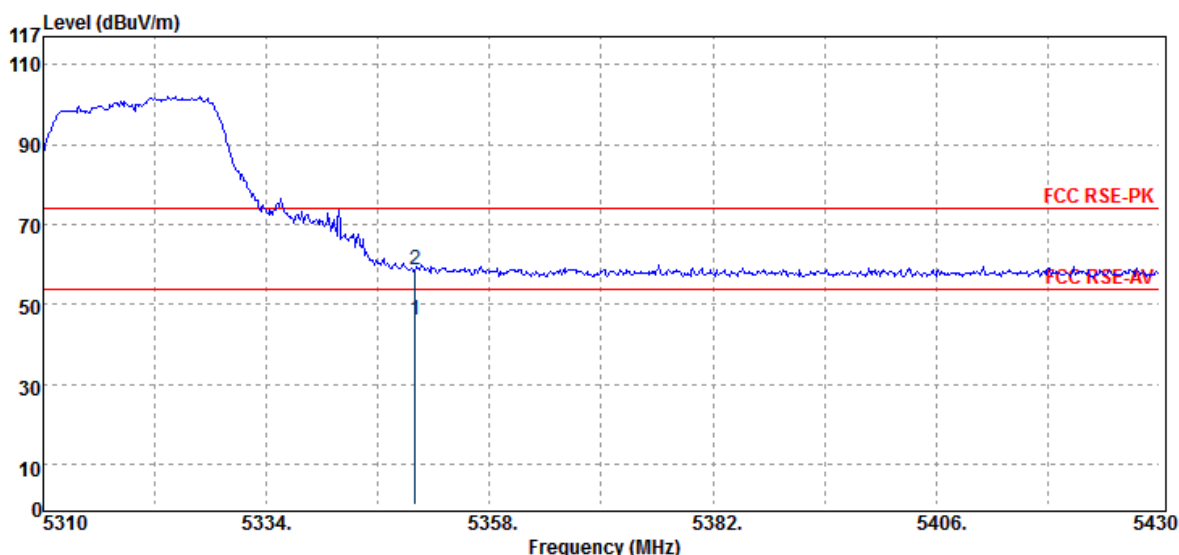
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Operation Band :802.11n20B2
Fundamental Frequency :5320 MHz
Operation Mode :Bandedge CH HIGH
EUT Pol. :E1 Plane

Test Date :2018-03-19
Temp./Humi. :23 deg_C / 62 RH
Engineer :Tin
Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
5350.00	E	Average	37.40	8.63	46.03	54.00	-7.97
5350.00	E	Peak	50.21	8.63	58.84	74.00	-15.16

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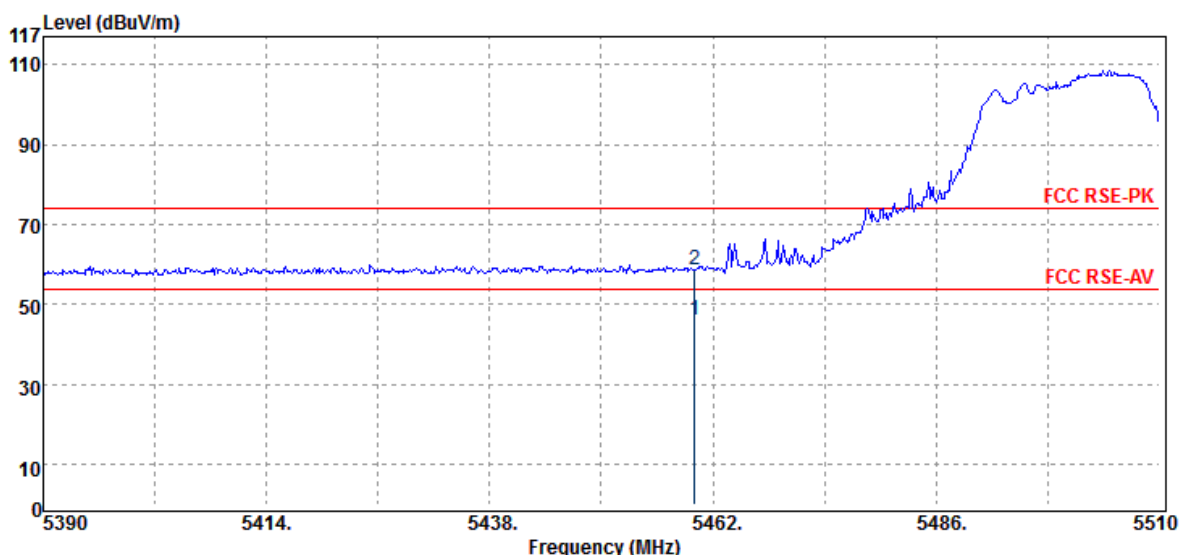
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Operation Band :802.11n20B3
Fundamental Frequency :5500 MHz
Operation Mode :Bandedge CH LOW
EUT Pol. :E1 Plane

Test Date :2018-03-19
Temp./Humi. :23 deg_C / 62 RH
Engineer :Tin
Measurement Antenna Pol. :VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
5460.00	E	Average	37.35	8.75	46.10	54.00	-7.90
5460.00	E	Peak	49.93	8.75	58.68	74.00	-15.32

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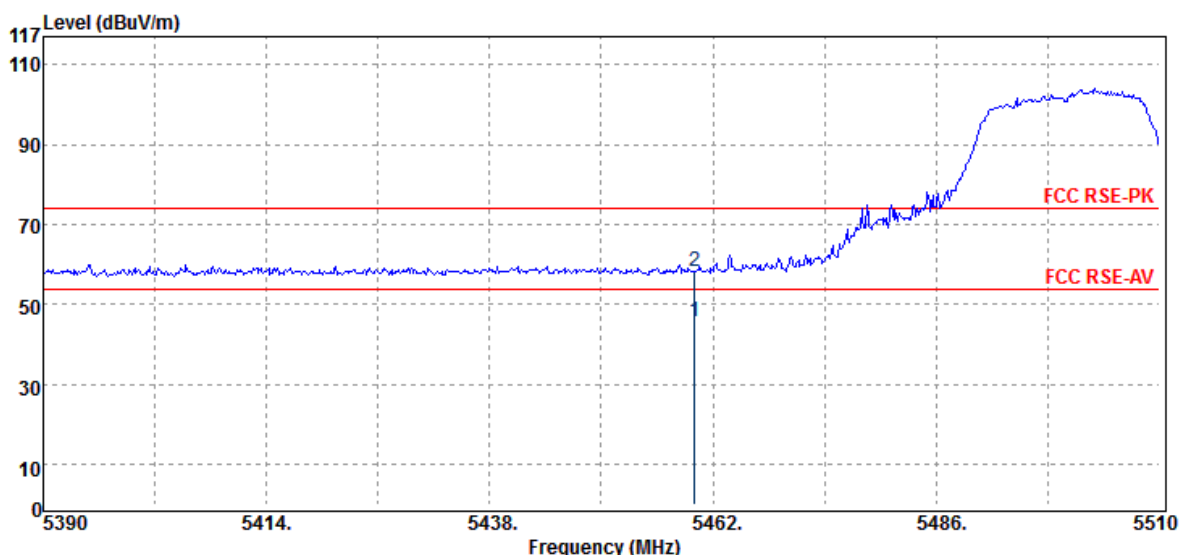
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Operation Band :802.11n20B3
Fundamental Frequency :5500 MHz
Operation Mode :Bandedge CH LOW
EUT Pol. :E1 Plane

Test Date :2018-03-19
Temp./Humi. :23 deg_C / 62 RH
Engineer :Tin
Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
5460.00	E	Average	37.14	8.75	45.89	54.00	-8.11
5460.00	E	Peak	49.50	8.75	58.25	74.00	-15.75

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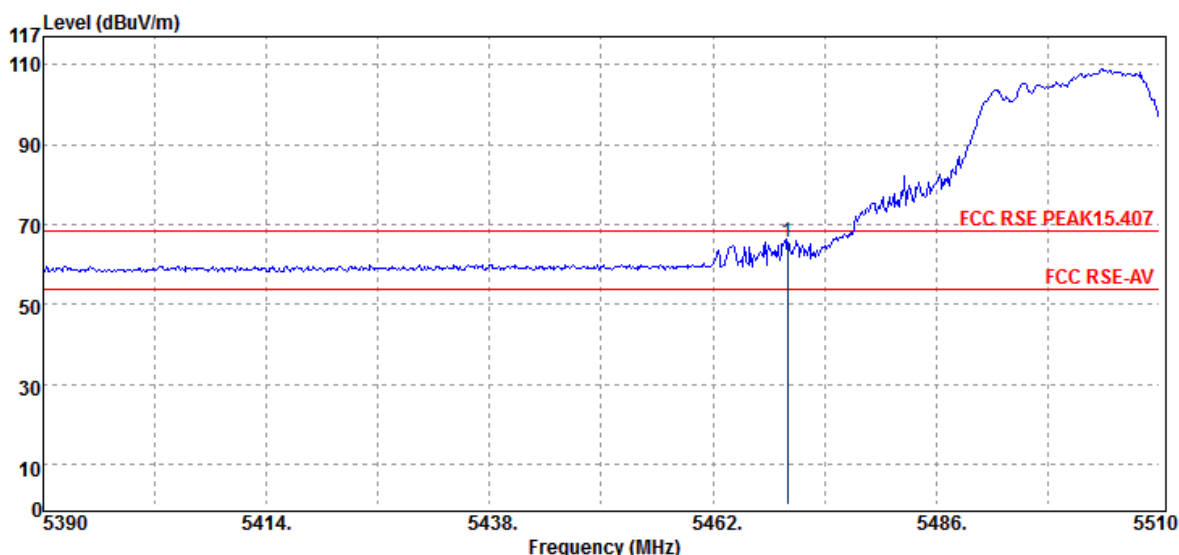
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Operation Band	:802.11n20B3	Test Date	:2018-03-19
Fundamental Frequency	:5500 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Bandedge CH LOW RSE	Engineer	:Tin
EUT Pol.	:E1 Plane	Measurement Antenna Pol.	:VERTICAL



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
5470.00	E	Peak	56.98	8.74	65.72	68.30	-2.58

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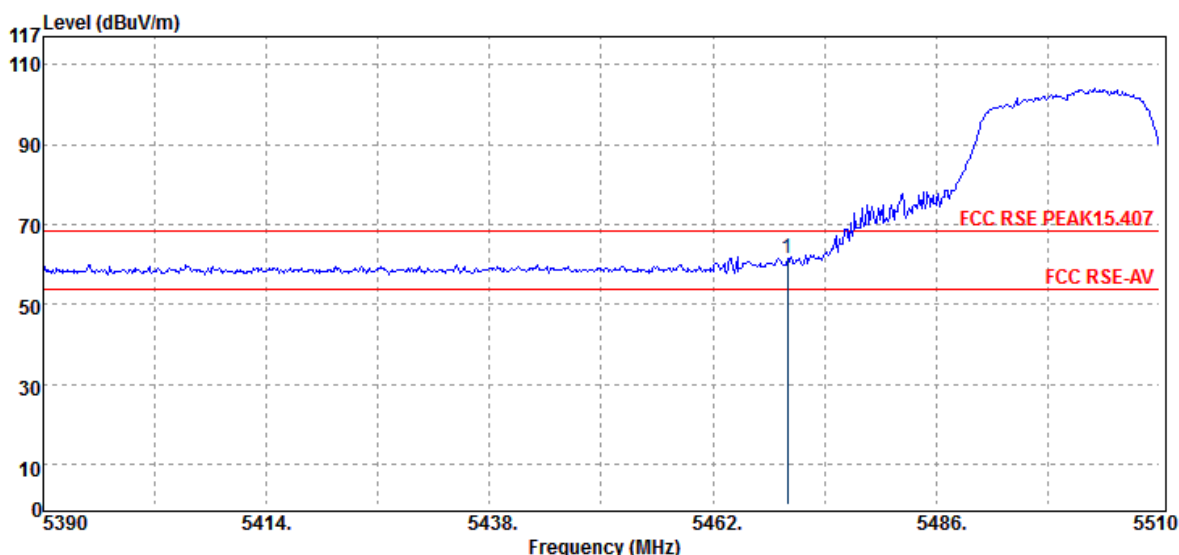
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Operation Band	:802.11n20B3	Test Date	:2018-03-19
Fundamental Frequency	:5500 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Bandedge CH LOW RSE	Engineer	:Tin
EUT Pol.	:E1 Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
5470.00	E	Peak	52.81	8.74	61.55	68.30	-6.75

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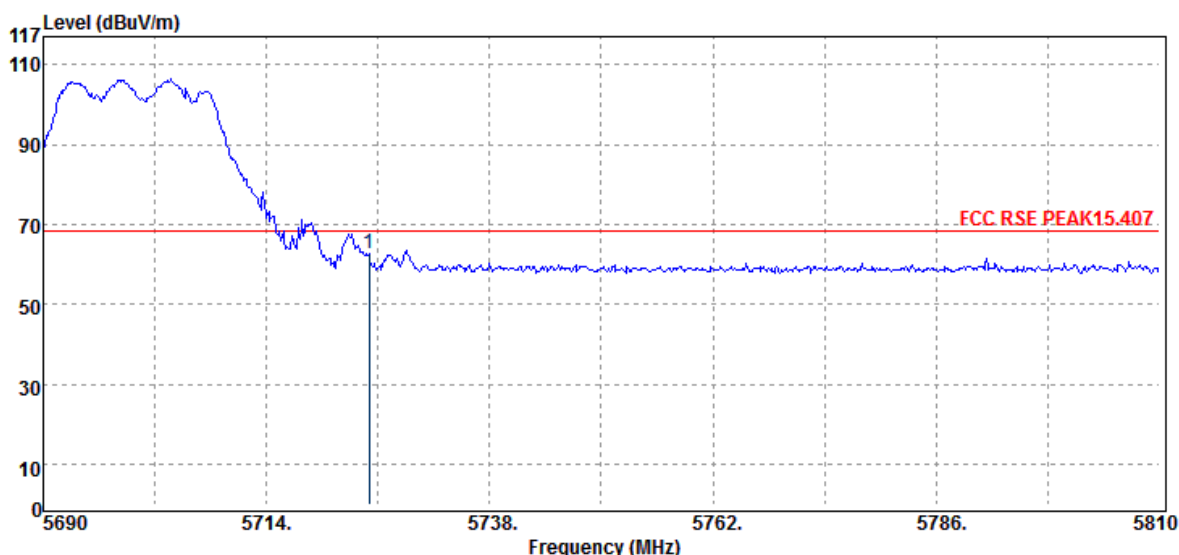
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Operation Band	:802.11n20B3	Test Date	:2018-03-23
Fundamental Frequency	:5700 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Bandedge CH HIGH RSE	Engineer	:Tin
EUT Pol.	:E1 Plane	Measurement Antenna Pol.	:VERTICAL



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
5725.00	E	Peak	53.27	9.44	62.71	68.30	-5.59

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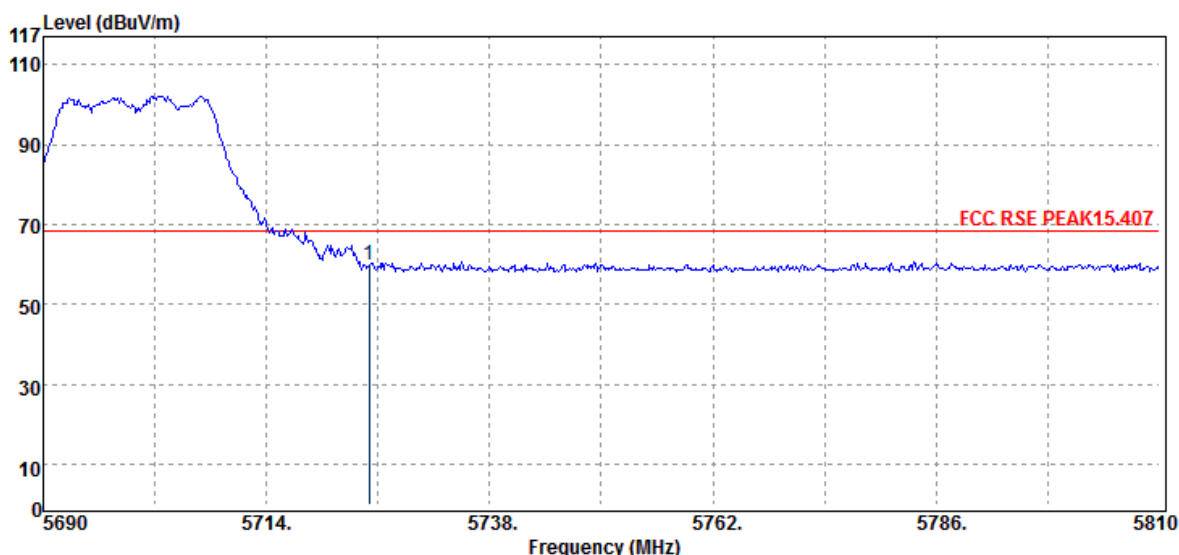
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Operation Band	:802.11n20B3	Test Date	:2018-03-23
Fundamental Frequency	:5700 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Bandedge CH HIGH RSE	Engineer	:Tin
EUT Pol.	:E1 Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
5725.00	E	Peak	50.40	9.44	59.84	68.30	-8.46

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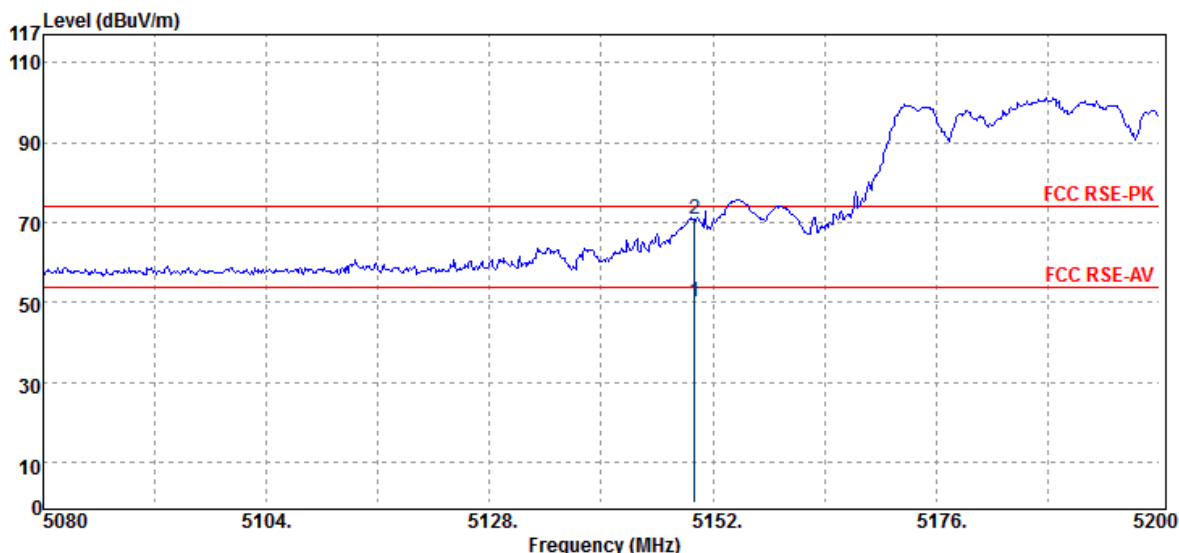
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802.11n40 HT mode

Operation Band :802.11n40B1
Fundamental Frequency :5190 MHz
Operation Mode :Bandedge CH LOW
EUT Pol. :E1 Plane

Test Date :2018-03-23
Temp./Humi. :23 deg_C / 62 RH
Engineer :Tin
Measurement Antenna Pol. :VERTICAL



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBuV	dB	dBuV/m	dBuV/m	dB
5150.00	E	Average	41.99	8.32	50.31	54.00	-3.69
5150.00	E	Peak	62.61	8.32	70.93	74.00	-3.07

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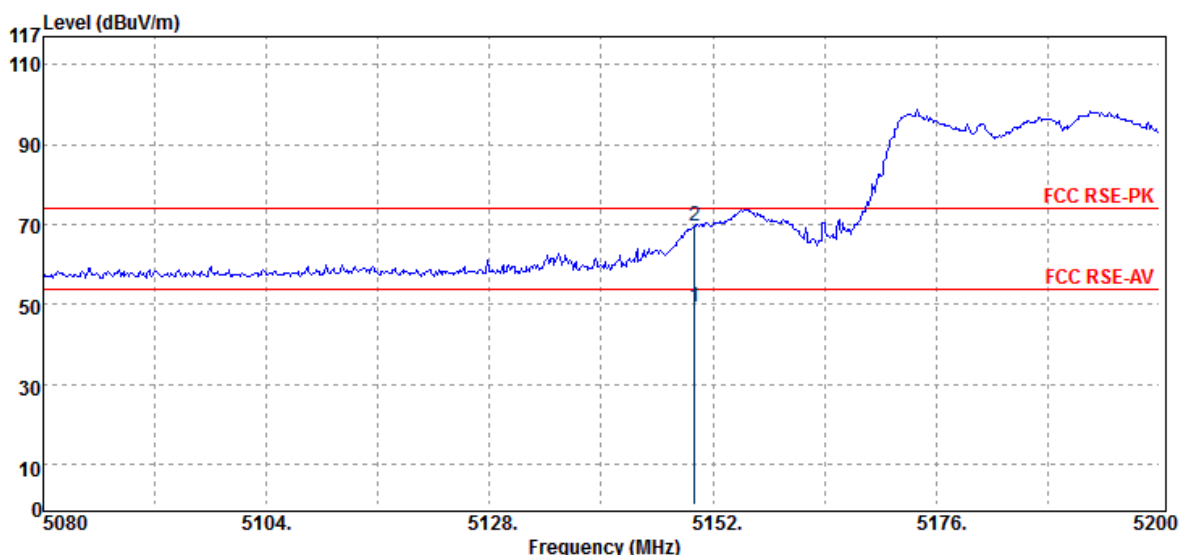
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Operation Band :802.11n40B1
Fundamental Frequency :5190 MHz
Operation Mode :Bandedge CH LOW
EUT Pol. :E1 Plane

Test Date :2018-03-19
Temp./Humi. :23 deg_C / 62 RH
Engineer :Tin
Measurement Antenna Pol. :HORIZONTAL



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
5150.00	E	Average	40.99	8.32	49.31	54.00	-4.69
5150.00	E	Peak	61.21	8.32	69.53	74.00	-4.47

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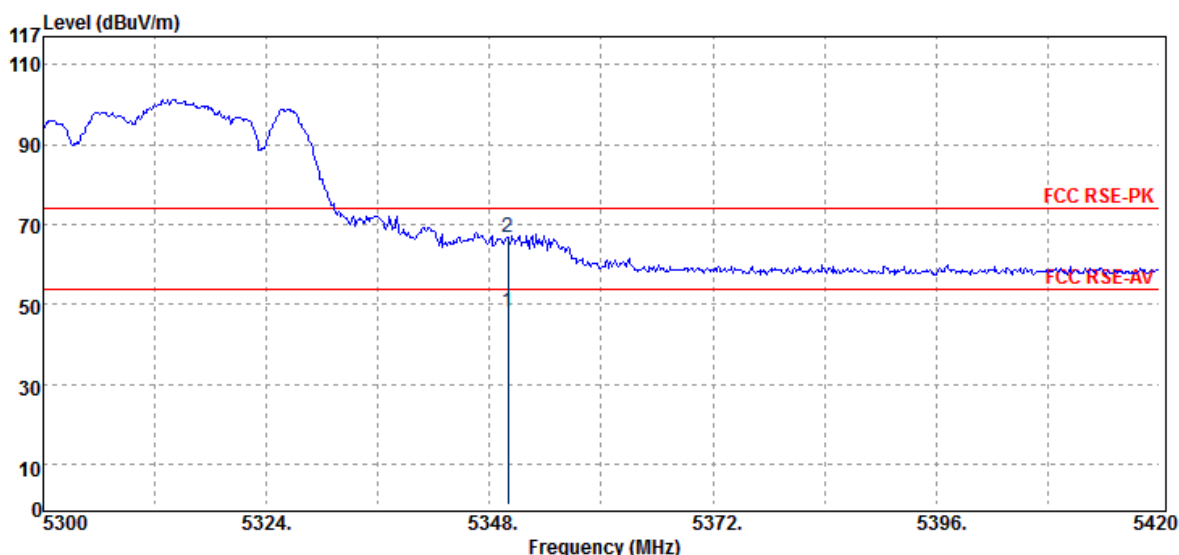
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Operation Band :802.11n40B2
Fundamental Frequency :5310 MHz
Operation Mode :Bandedge CH HIGH
EUT Pol. :E1 Plane

Test Date :2018-03-19
Temp./Humi. :23 deg_C / 62 RH
Engineer :Tin
Measurement Antenna Pol. :VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
5350.00	E	Average	39.72	8.63	48.35	54.00	-5.65
5350.00	E	Peak	58.13	8.63	66.76	74.00	-7.24

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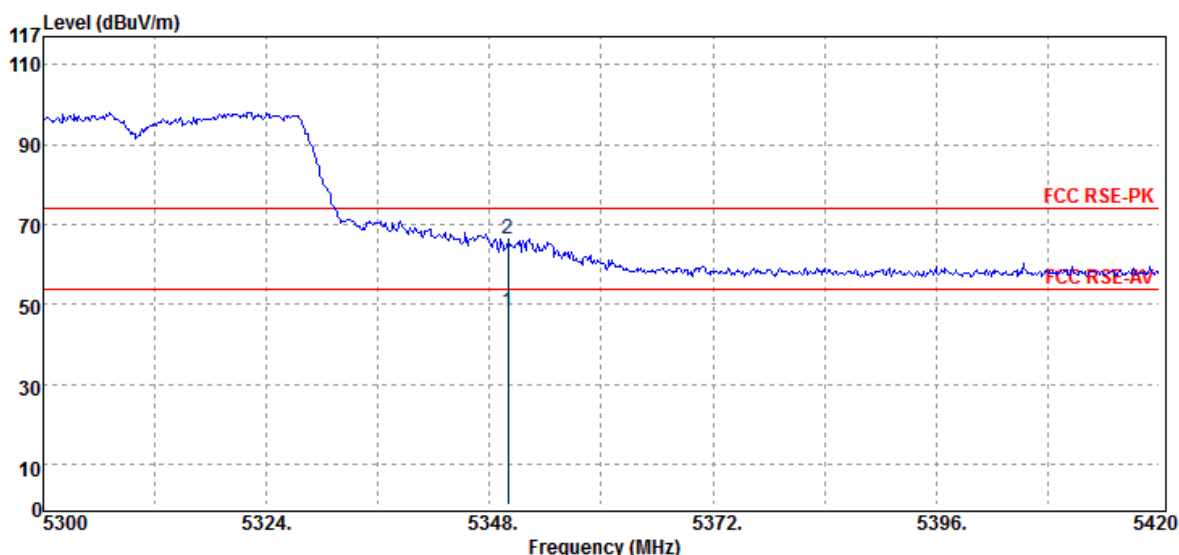
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Member of SGS Group

Operation Band :802.11n40B2
 Fundamental Frequency :5310 MHz
 Operation Mode :Bandedge CH HIGH
 EUT Pol. :E1 Plane

Test Date :2018-03-19
 Temp./Humi. :23 deg_C / 62 RH
 Engineer :Tin
 Measurement Antenna Pol. :HORIZONTAL



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
5350.00	E	Average	39.42	8.63	48.05	54.00	-5.95
5350.00	E	Peak	57.88	8.63	66.51	74.00	-7.49

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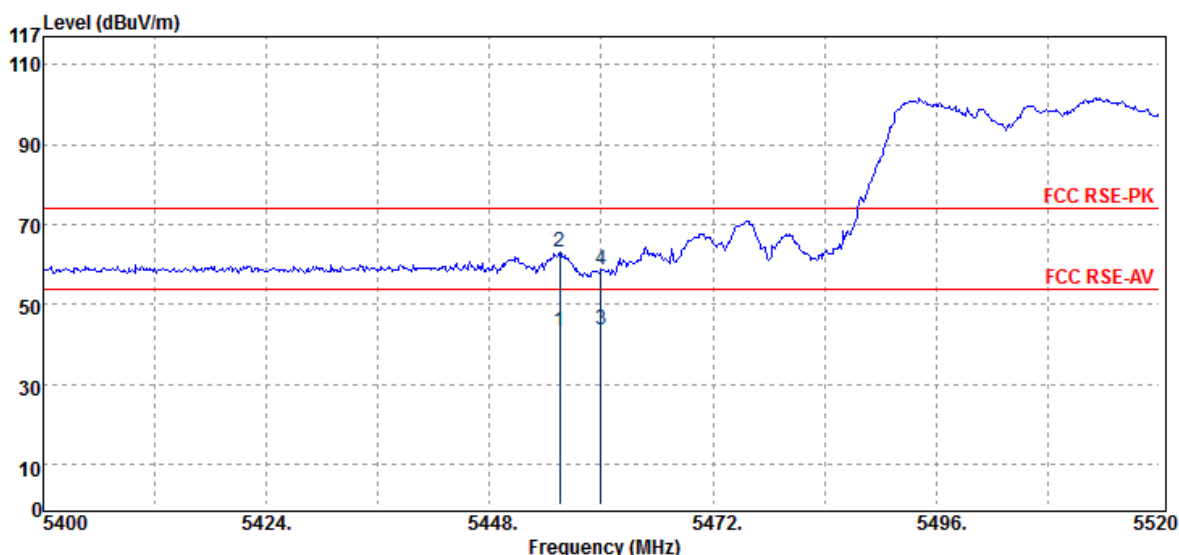
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Operation Band :802.11n40B3
Fundamental Frequency :5510 MHz
Operation Mode :Bandedge CH LOW
EUT Pol. :E1 Plane

Test Date :2018-03-23
Temp./Humi. :23 deg_C / 62 RH
Engineer :Tin
Measurement Antenna Pol. :VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
5455.56	E	Average	34.76	8.75	43.51	54.00	-10.49
5455.56	E	Peak	54.39	8.75	63.14	74.00	-10.86
5460.00	E	Average	34.80	8.75	43.55	54.00	-10.45
5460.00	E	Peak	49.84	8.75	58.59	74.00	-15.41

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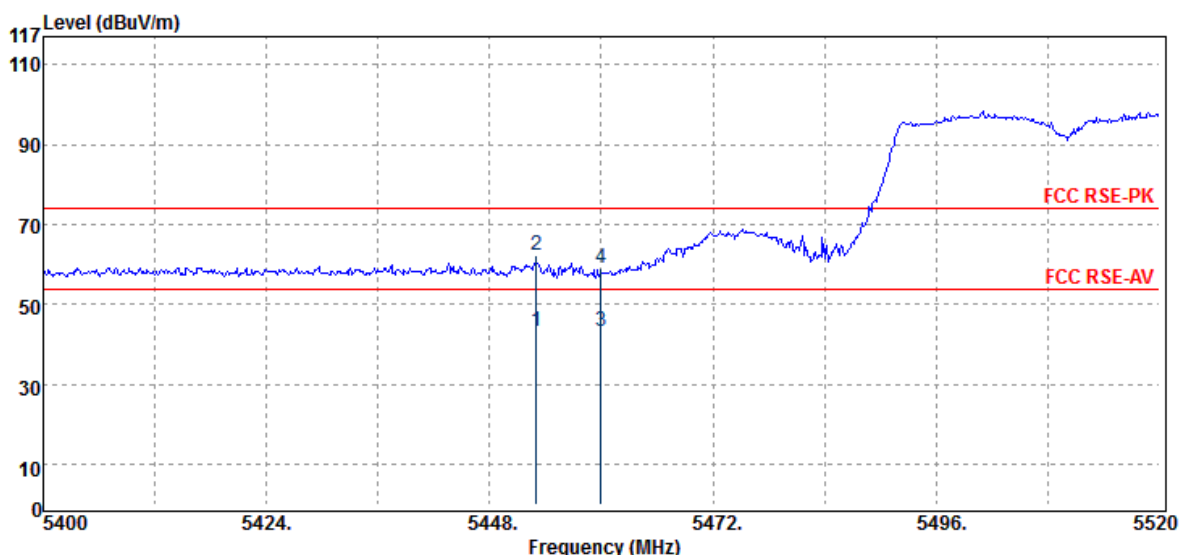
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Operation Band :802.11n40B3
 Fundamental Frequency :5510 MHz
 Operation Mode :Bandedge CH LOW
 EUT Pol. :E1 Plane

Test Date :2018-03-23
 Temp./Humi. :23 deg_C / 62 RH
 Engineer :Tin
 Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
5453.04	E	Average	34.51	8.76	43.27	54.00	-10.73
5453.04	E	Peak	53.45	8.76	62.21	74.00	-11.79
5460.00	E	Average	34.72	8.75	43.47	54.00	-10.53
5460.00	E	Peak	50.18	8.75	58.93	74.00	-15.07

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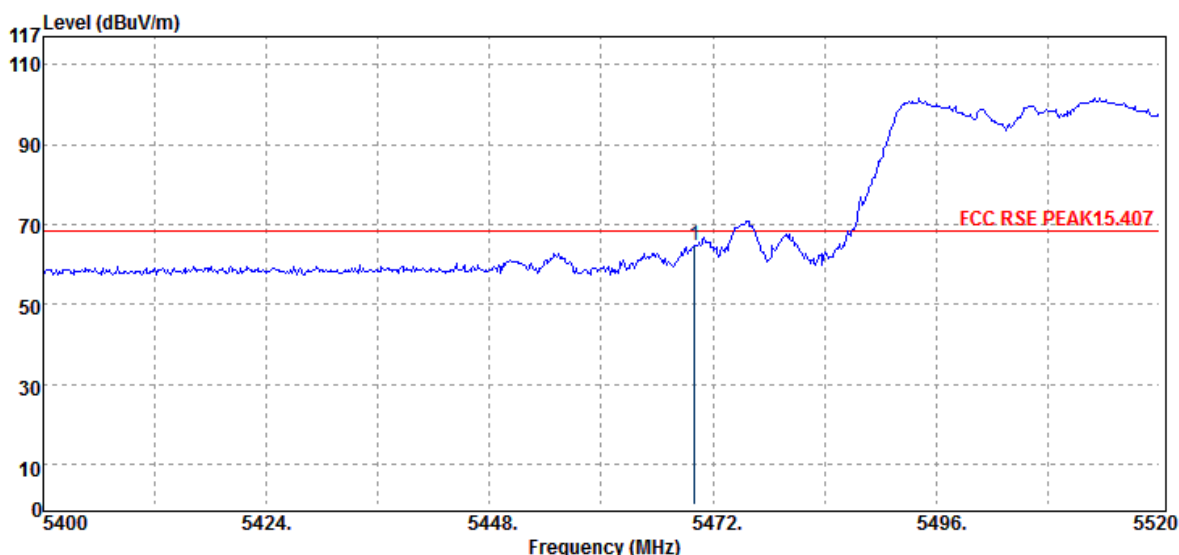
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Operation Band	:802.11n40B3	Test Date	:2018-03-23
Fundamental Frequency	:5510 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Bandedge CH LOW RSE	Engineer	:Tin
EUT Pol.	:E1 Plane	Measurement Antenna Pol.	:VERTICAL



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBuV	dB	dBuV/m	dBuV/m	dB
5470.00	E	Peak	56.01	8.74	64.75	68.30	-3.55

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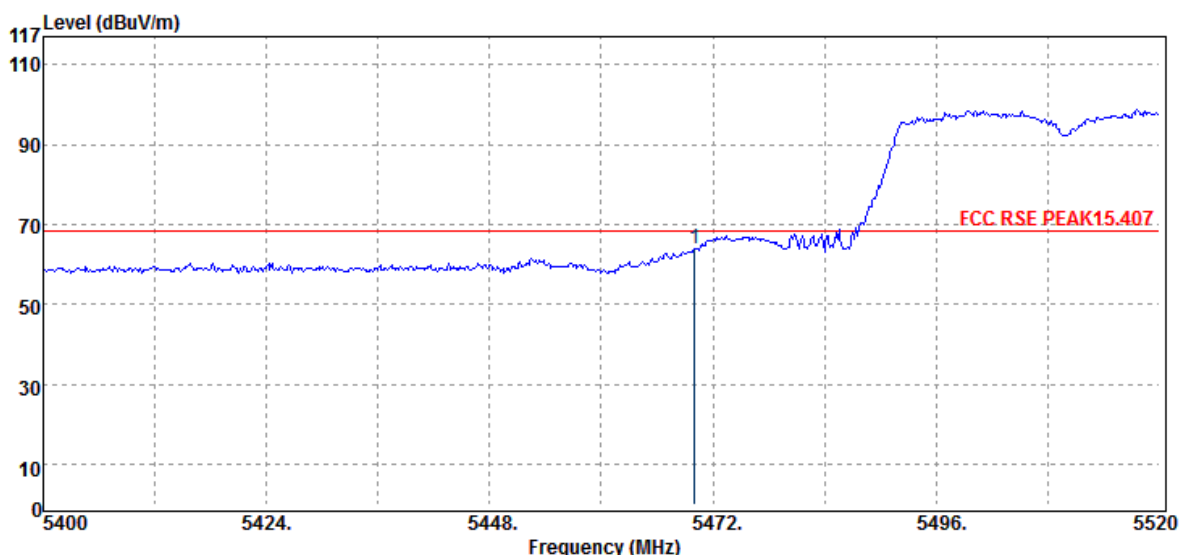
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Operation Band	:802.11n40B3	Test Date	:2018-03-23
Fundamental Frequency	:5510 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Bandedge CH LOW RSE	Engineer	:Tin
EUT Pol.	:E1 Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
5470.00	E	Peak	55.08	8.74	63.82	68.30	-4.48

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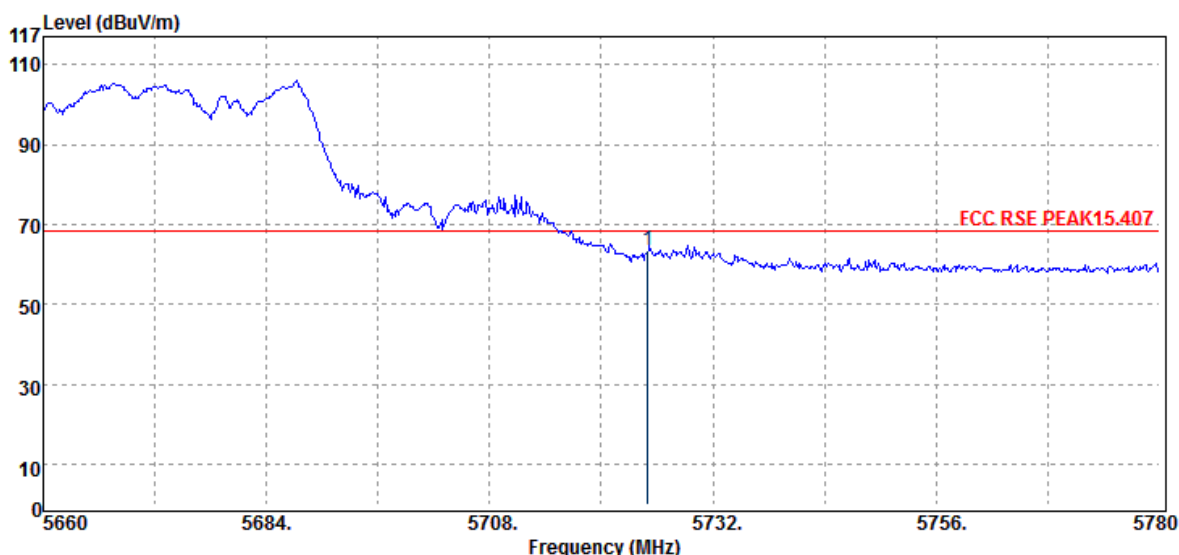
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Operation Band	:802.11n40B3	Test Date	:2018-03-19
Fundamental Frequency	:5670 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Bandedge CH HIGH RSE	Engineer	:Tin
EUT Pol.	:E1 Plane	Measurement Antenna Pol.	:VERTICAL



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
5725.00	E	Peak	54.16	9.44	63.60	68.30	-4.70

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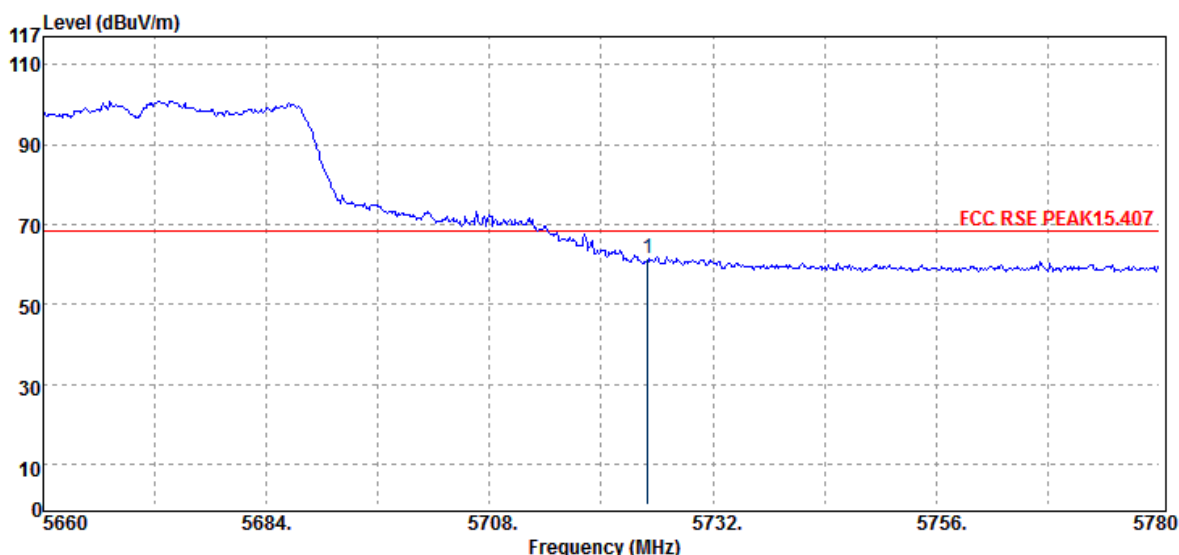
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Operation Band	:802.11n40B3	Test Date	:2018-03-19
Fundamental Frequency	:5670 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Bandedge CH HIGH RSE	Engineer	:Tin
EUT Pol.	:E1 Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
5725.00	E	Peak	52.01	9.44	61.45	68.30	-6.85

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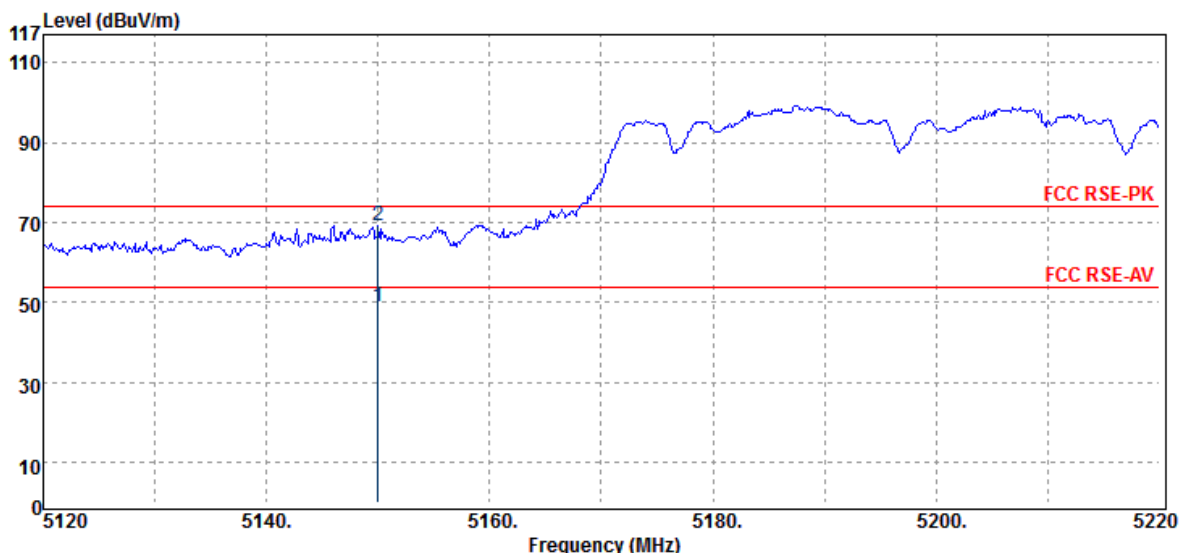
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802.11ac VHT80 mode

Operation Band :802.11ac80B1
Fundamental Frequency :5210 MHz
Operation Mode :Bandedge CH LOW
EUT Pol. :E1 Plane

Test Date :2018-03-19
Temp./Humi. :23 deg_C / 62 RH
Engineer :Tin
Measurement Antenna Pol. :VERTICAL



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
5150.00	E	Average	40.51	8.32	48.83	54.00	-5.17
5150.00	E	Peak	60.93	8.32	69.25	74.00	-4.75

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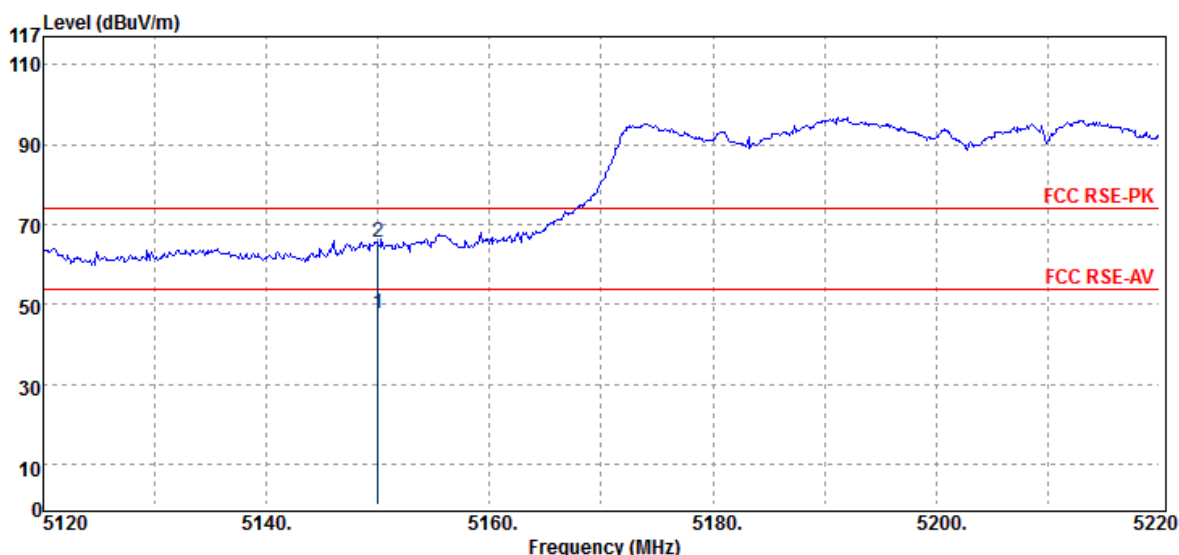
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Operation Band :802.11ac80B1
 Fundamental Frequency :5210 MHz
 Operation Mode :Bandedge CH LOW
 EUT Pol. :E1 Plane

Test Date :2018-03-19
 Temp./Humi. :23 deg_C / 62 RH
 Engineer :Tin
 Measurement Antenna Pol. :HORIZONTAL



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBuV	dB	dBuV/m	dBuV/m	dB
5150.00	E	Average	39.59	8.32	47.91	54.00	-6.09
5150.00	E	Peak	57.29	8.32	65.61	74.00	-8.39

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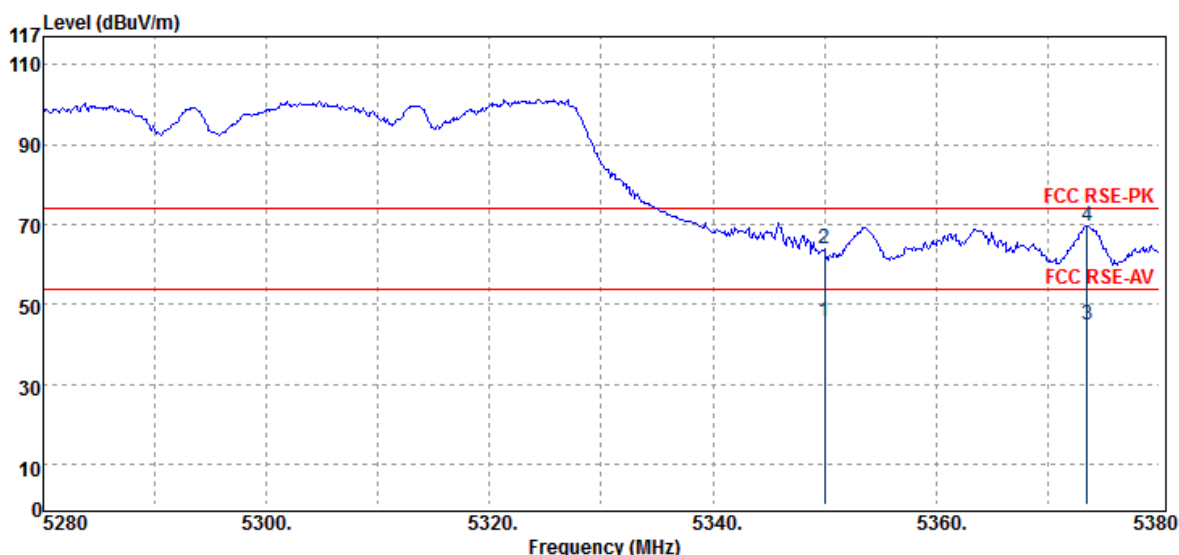
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Operation Band :802.11ac80B2
Fundamental Frequency :5290 MHz
Operation Mode :Bandedge CH HIGH
EUT Pol. :E1 Plane

Test Date :2018-03-19
Temp./Humi. :23 deg_C / 62 RH
Engineer :Tin
Measurement Antenna Pol. :VERTICAL



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
5350.00	E	Average	37.20	8.63	45.83	54.00	-8.17
5350.00	E	Peak	55.42	8.63	64.05	74.00	-9.95
5373.50	E	Average	36.34	8.63	44.97	54.00	-9.03
5373.50	E	Peak	61.02	8.63	69.65	74.00	-4.35

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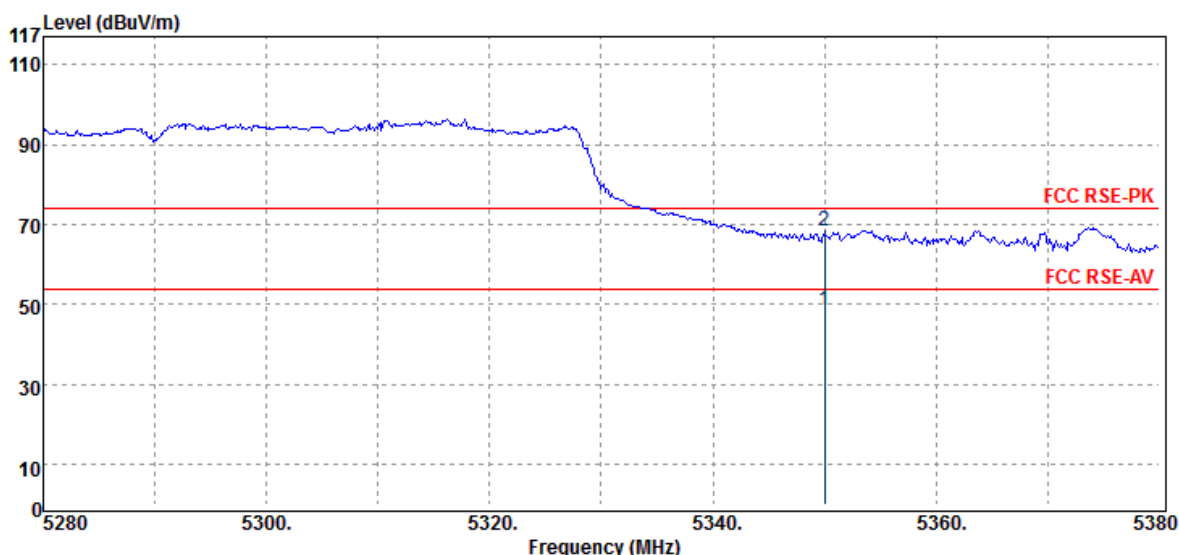
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Operation Band :802.11ac80B2
 Fundamental Frequency :5290 MHz
 Operation Mode :Bandedge CH HIGH
 EUT Pol. :E1 Plane

Test Date :2018-03-19
 Temp./Humi. :23 deg_C / 62 RH
 Engineer :Tin
 Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dB μ V	Factor dB	Actual FS dB μ V/m	Limit @3m dB μ V/m	Margin dB
5350.00	E	Average	39.80	8.63	48.43	54.00	-5.57
5350.00	E	Peak	59.61	8.63	68.24	74.00	-5.76

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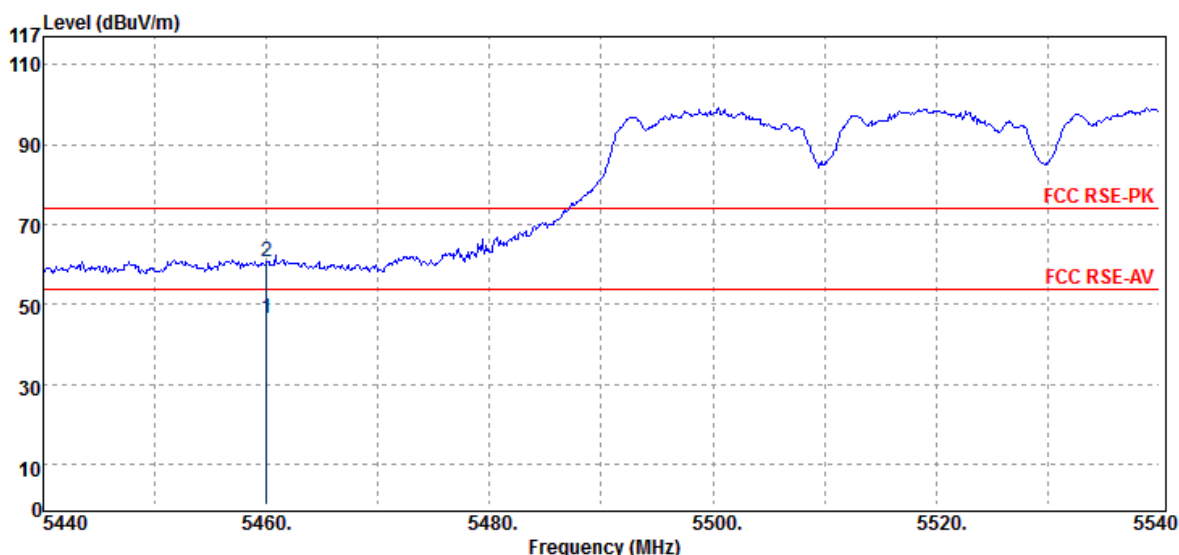
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Operation Band :802.11ac80B3
 Fundamental Frequency :5530 MHz
 Operation Mode :Bandedge CH LOW
 EUT Pol. :E1 Plane

Test Date :2018-03-23
 Temp./Humi. :23 deg_C / 62 RH
 Engineer :Tin
 Measurement Antenna Pol. :VERTICAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
5460.00	E	Average	37.80	8.75	46.55	54.00	-7.45
5460.00	E	Peak	52.16	8.75	60.91	74.00	-13.09

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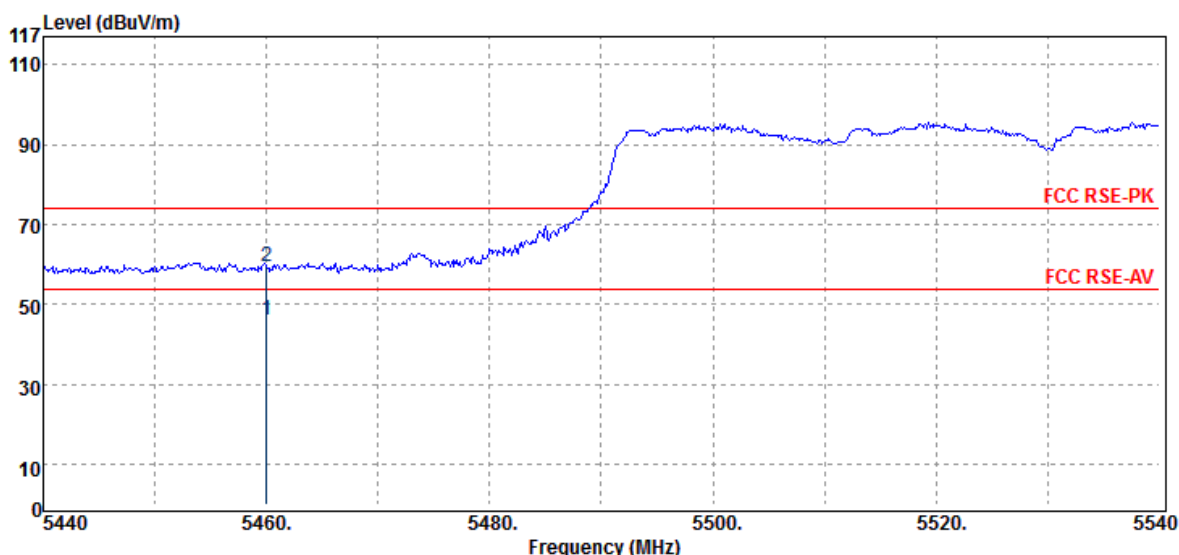
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Operation Band :802.11ac80B3
Fundamental Frequency :5530 MHz
Operation Mode :Bandedge CH LOW
EUT Pol. :E1 Plane

Test Date :2018-03-23
Temp./Humi. :23 deg_C / 62 RH
Engineer :Tin
Measurement Antenna Pol. :HORIZONTAL



Freq. MHz	Note F/H/E/S	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
5460.00	E	Average	37.58	8.75	46.33	54.00	-7.67
5460.00	E	Peak	50.91	8.75	59.66	74.00	-14.34

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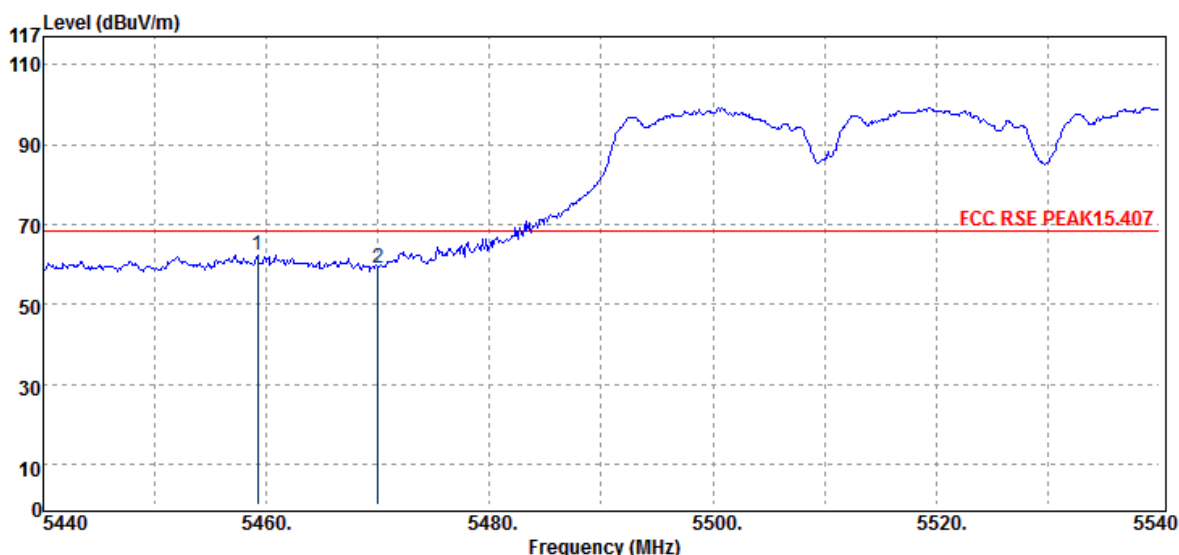
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Operation Band	:802.11ac80B3	Test Date	:2018-03-23
Fundamental Frequency	:5530 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Bandedge CH LOW RSE	Engineer	:Tin
EUT Pol.	:E1 Plane	Measurement Antenna Pol.	:VERTICAL



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
5459.20	E	Peak	53.69	8.75	62.44	68.30	-5.86
5470.00	E	Peak	50.17	8.74	58.91	68.30	-9.39

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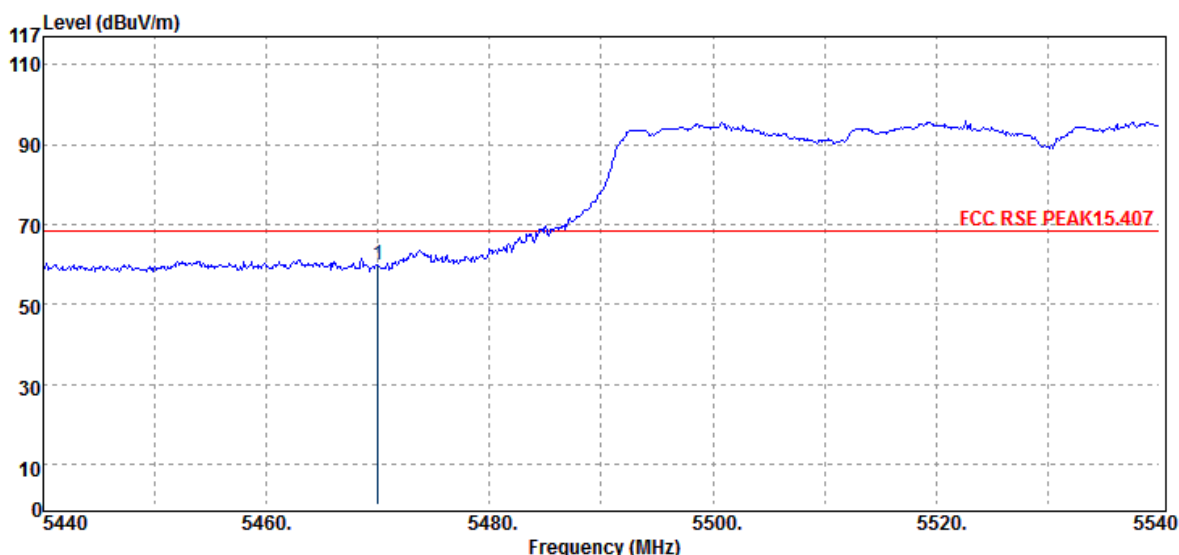
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Operation Band	:802.11ac80B3	Test Date	:2018-03-23
Fundamental Frequency	:5530 MHz	Temp./Humi.	:23 deg_C / 62 RH
Operation Mode	:Bandedge CH LOW RSE	Engineer	:Tin
EUT Pol.	:E1 Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq.	Note	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBμV	dB	dBμV/m	dBμV/m	dB
5470.00	E	Peak	51.21	8.74	59.95	68.30	-8.35

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12. TRANSMISSION IN THE ABSENCE OF DATA

12.1 Standard Applicable

According to §15.407(c)

The device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure. These provisions are not intended to preclude the transmission of control or signaling information or the use of repetitive codes used by certain digital technologies to complete frame or burst intervals. Applicants shall include in their application for equipment authorization a description of how this requirement is met.

12.2 Result

While the EUT is not transmitting any information, the EUT can automatically discontinue transmission and become standby mode for power saving. The EUT can detect the controlling signal of ASK message transmitting from remote device and verify whether it shall resend or discontinue transmission.

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13. FREQUENCY STABILITY

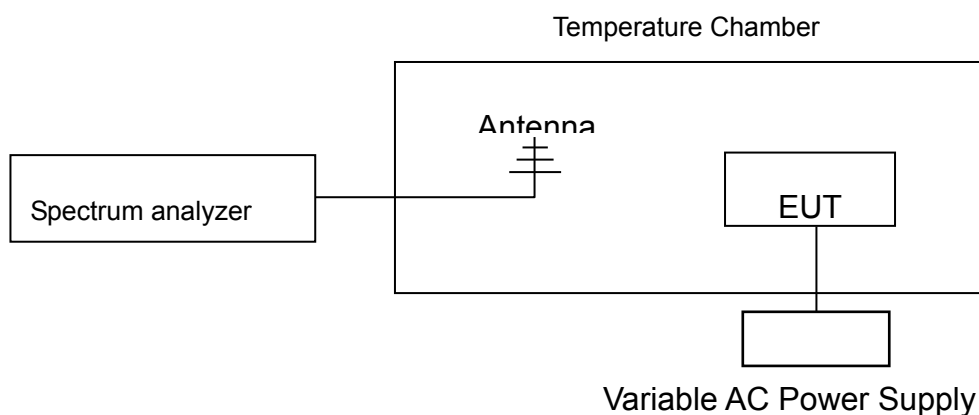
13.1 Standard Applicable

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 user's manual.

13.2 Measurement Procedure

1. The EUT was placed inside temperature chamber and powered and powered by nominal DC voltage.
2. Set EUT as normal operation.
3. Turn the EUT on and couple its output to spectrum.
4. Turn the EUT off and set the chamber to the highest temperature specified.
5. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT and measure the operating frequency.
6. Repeat step with the temperature chamber set to the lowest temperature.

13.3 Test SET-UP



13.4 Measurement Equipment Used:

EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
EXA Spectrum Analyzer	Agilent	N9010A	MY54200716	2017/10/16	2018/10/15
DC Power Supply	Anritsu	E3640A	MY52410006	2017/11/28	2018/11/27
Attenuator	Mini-Circuit	BW-S10W2+	2	2018/01/02	2019/01/01
Notebook	Lenovo	T440	P0000564	N/A	N/A

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13.5 Measurement Result

Startup:

Operation Mode	802.11 a	Test Date	2018.03.20
Temperature	:23 °C	Test By	Mike
Humidity	:68 %		

Test Temp.	Test Voltage	Channel	Measured Frequency (MHz)	Spectrum Frequency (MHz)	ΔFrequency (MHz)
-10 °C	4.43V	36	5180	5,179.98486	0.00000292
		44	5220	5,219.98486	0.00000290
		48	5240	5,239.98486	0.00000289
		52	5260	5,259.98486	0.00000288
		60	5300	5,299.98486	0.00000286
		64	5320	5,319.98486	0.00000285
		100	5500	5,499.98486	0.00000275
		116	5580	5,579.98486	0.00000271
	3.27V	140	5700	5,699.98486	0.00000266
		36	5180	5,179.98486	0.00000292
		44	5220	5,219.98486	0.00000290
		48	5240	5,239.98486	0.00000289
		52	5260	5,259.98486	0.00000288
		60	5300	5,299.98486	0.00000286
		64	5320	5,319.98486	0.00000285
		100	5500	5,499.98486	0.00000275
		116	5580	5,579.98486	0.00000271
		140	5700	5,699.96997	0.00000527

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25 °C	3.85V	36	5180	5,179.98486	0.00000292
		44	5220	5,219.98486	0.00000290
		48	5240	5,239.98486	0.00000289
		52	5260	5,259.98486	0.00000288
		60	5300	5,299.98486	0.00000286
		64	5320	5,319.98486	0.00000285
		100	5500	5,499.98486	0.00000275
		116	5580	5,579.98486	0.00000271
		140	5700	5,699.98486	0.00000266
55 °C	4.43V	36	5180	5,179.98486	0.00000292
		44	5220	5,219.98486	0.00000290
		48	5240	5,239.98486	0.00000289
		52	5260	5,259.98486	0.00000288
		60	5300	5,299.98486	0.00000286
		64	5320	5,319.98486	0.00000285
		100	5500	5,499.98486	0.00000275
		116	5580	5,579.98486	0.00000271
		140	5700	5,699.98486	0.00000266
	3.27V	36	5180	5,179.98486	0.00000292
		44	5220	5,219.98486	0.00000290
		48	5240	5,239.98486	0.00000289
		52	5260	5,259.98486	0.00000288
		60	5300	5,299.98486	0.00000286
		64	5320	5,319.98486	0.00000285
		100	5500	5,499.98486	0.00000275
		116	5580	5,579.98486	0.00000271
		140	5700	5,699.98486	0.00000266

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Operation Mode	802.11 n_HT40	Test Date	2018.03.20
Temperature	:23 °C	Test By	Mike
Humidity	:68 %		

Test Temp.	Test Voltage	Channel	Measured Frequency (MHz)	Spectrum Frequency (MHz)	ΔFrequency (MHz)
-10 °C	4.43V	38	5190	5,189.97510	0.00000480
		46	5230	5,229.97510	0.00000476
		54	5270	5,269.97510	0.00000473
		62	5310	5,309.97510	0.00000469
		102	5510	5,509.97510	0.00000452
		110	5550	5,549.97510	0.00000449
		134	5670	5,669.97510	0.00000439
	3.27V	38	5190	5,189.97510	0.00000480
		46	5230	5,229.97510	0.00000476
		54	5270	5,269.97510	0.00000473
		62	5310	5,309.97510	0.00000469
		102	5510	5,509.97510	0.00000452
		110	5550	5,549.97510	0.00000449
		134	5670	5,669.97510	0.00000439

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25 °C	3.85V	38	5190	5,189.97510	0.00000480
		46	5230	5,229.97510	0.00000476
		54	5270	5,269.97510	0.00000473
		62	5310	5,309.97510	0.00000469
		102	5510	5,509.97510	0.00000452
		110	5550	5,549.97510	0.00000449
		134	5670	5,669.97510	0.00000439
55 °C	4.43V	38	5190	5,189.97510	0.00000480
		46	5230	5,229.97510	0.00000476
		54	5270	5,269.97510	0.00000473
		62	5310	5,309.97510	0.00000469
		102	5510	5,509.97510	0.00000452
		110	5550	5,549.97510	0.00000449
		134	5670	5,670.00000	0.00000000
	3.27V	38	5190	5,189.97510	0.00000480
		46	5230	5,229.97510	0.00000476
		54	5270	5,269.97510	0.00000473
		62	5310	5,309.97510	0.00000469
		102	5510	5,509.97510	0.00000452
		110	5550	5,549.97510	0.00000449
		134	5670	5,669.97510	0.00000439

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Operation Mode	802.11 ac_VHT80	Test Date	2018.03.20
Temperature	:23 °C	Test By	Mike
Humidity	:68 %		

Test Temp.	Test Voltage	Channel	Measured Frequency (MHz)	Spectrum Frequency (MHz)	ΔFrequency (MHz)
-10 °C	4.43V	42	5210	5,209.95020	0.00000956
		58	5290	5,290.04981	-0.00000941
		106	5530	5,529.95020	0.00000901
		122	5610	5,609.95020	0.00000888
	3.27V	42	5210	5,210.00000	0.00000000
		58	5290	5,290.04981	-0.00000941
		106	5530	5,529.95020	0.00000901
		122	5610	5,610.00000	0.00000000
25 °C	3.85V	42	5210	5,210.00000	0.00000000
		58	5290	5,290.04981	-0.00000941
		106	5530	5,529.95020	0.00000901
		122	5610	5,609.95020	0.00000888
55 °C	4.43V	42	5210	5,209.95020	0.00000956
		58	5290	5,290.04981	-0.00000941
		106	5530	5,530.00000	0.00000000
		122	5610	5,609.95020	0.00000888
	3.27V	42	5210	5,210.00000	0.00000000
		58	5290	5,290.04981	-0.00000941
		106	5530	5,529.95020	0.00000901
		122	5610	5,610.00000	0.00000000

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Operation Mode	802.11 a	Test Date	2018.03.20
Temperature	:23 °C	Test By	Mike
Humidity	:68 %		

Test Temp.	Test Voltage	Channel	Measured Frequency (MHz)	Spectrum Frequency (MHz)	ΔFrequency (MHz)
-10 °C	4.43V	36	5180	5,179.98850	0.00000222
		44	5220	5,219.98061	0.00000371
		48	5240	5,239.99298	0.00000134
		52	5260	5,259.98118	0.00000358
		60	5300	5,299.98164	0.00000346
		64	5320	5,319.98467	0.00000288
		100	5500	5,499.97700	0.00000418
		116	5580	5,579.99201	0.00000143
		140	5700	5,699.99058	0.00000165
	3.27V	36	5180	5,179.99164	0.00000161
		44	5220	5,219.98552	0.00000277
		48	5240	5,239.98283	0.00000328
		52	5260	5,259.99325	0.00000128
		60	5300	5,299.97762	0.00000422
		64	5320	5,319.99464	0.00000101
		100	5500	5,499.98800	0.00000218
		116	5580	5,579.98994	0.00000180
		140	5700	5,699.96089	0.00000686
25 °C	3.85V	36	5180	5,179.97611	0.00000461
		44	5220	5,219.98952	0.00000201
		48	5240	5,239.97750	0.00000429
		52	5260	5,259.98302	0.00000323
		60	5300	5,299.98648	0.00000255
		64	5320	5,319.99363	0.00000120
		100	5500	5,499.97592	0.00000438
		116	5580	5,579.98332	0.00000299
		140	5700	5,699.98891	0.00000195

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55 °C	4.43V	36	5180	5,179.99441	0.00000108
		44	5220	5,219.98515	0.00000285
		48	5240	5,239.98681	0.00000252
		52	5260	5,259.99158	0.00000160
		60	5300	5,299.98234	0.00000333
		64	5320	5,319.98748	0.00000235
		100	5500	5,499.98052	0.00000354
		116	5580	5,579.99130	0.00000156
		140	5700	5,699.99076	0.00000162
	3.27V	36	5180	5,179.99400	0.00000116
		44	5220	5,219.97519	0.00000475
		48	5240	5,239.97707	0.00000438
		52	5260	5,259.99225	0.00000147
		60	5300	5,299.98307	0.00000319
		64	5320	5,319.98943	0.00000199
		100	5500	5,499.98675	0.00000241
		116	5580	5,579.97541	0.00000441
		140	5700	5,699.98649	0.00000237

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Operation Mode	802.11 n_HT40	Test Date	2018.03.20
Temperature	:23 °C	Test By	Mike
Humidity	:68 %		

Test Temp.	Test Voltage	Channel	Measured Frequency (MHz)	Spectrum Frequency (MHz)	ΔFrequency (MHz)
-10 °C	4.43V	38	5190	5,189.96850	0.00000607
		46	5230	5,229.97711	0.00000438
		54	5270	5,269.97792	0.00000419
		62	5310	5,309.96558	0.00000648
		102	5510	5,509.97928	0.00000376
		110	5550	5,549.98294	0.00000307
		134	5670	5,669.97570	0.00000429
	3.27V	38	5190	5,189.96939	0.00000590
		46	5230	5,229.98260	0.00000333
		54	5270	5,269.97721	0.00000432
		62	5310	5,309.96599	0.00000641
		102	5510	5,509.97069	0.00000532
		110	5550	5,549.97935	0.00000372
		134	5670	5,669.97820	0.00000385

25 °C	3.85V	38	5190	5,189.97581	0.00000466
		46	5230	5,229.97363	0.00000504
		54	5270	5,269.96550	0.00000655
		62	5310	5,309.98350	0.00000311
		102	5510	5,509.98025	0.00000358
		110	5550	5,549.96913	0.00000556
		134	5670	5,669.97377	0.00000463
55 °C	4.43V	38	5190	5,189.98196	0.00000348
		46	5230	5,229.98073	0.00000369
		54	5270	5,269.97624	0.00000451
		62	5310	5,309.97665	0.00000440
		102	5510	5,509.98439	0.00000283
		110	5550	5,549.97512	0.00000448
		134	5670	5,669.99850	0.00000026
	3.27V	38	5190	5,189.96674	0.00000641
		46	5230	5,229.98463	0.00000294
		54	5270	5,269.97884	0.00000402
		62	5310	5,309.97232	0.00000521
		102	5510	5,509.97513	0.00000451
		110	5550	5,549.97224	0.00000500
		134	5670	5,669.97600	0.00000423

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Operation Mode	802.11 ac_VHT80	Test Date	2018.03.20
Temperature	:23 °C	Test By	Mike
Humidity	:68 %		

Test Temp.	Test Voltage	Channel	Measured Frequency (MHz)	Spectrum Frequency (MHz)	ΔFrequency (MHz)
-10 °C	4.43V	42	5210	5,209.94484	0.00001059
		58	5290	5,290.04804	-0.00000908
		106	5530	5,529.95028	0.00000899
		122	5610	5,609.94847	0.00000919
	3.27V	42	5210	5,210.00770	-0.00000148
		58	5290	5,290.05251	-0.00000993
		106	5530	5,529.95302	0.00000850
		122	5610	5,609.99090	0.00000162
25 °C	3.85V	42	5210	5,209.99499	0.00000096
		58	5290	5,290.04269	-0.00000807
		106	5530	5,529.95523	0.00000810
		122	5610	5,609.95739	0.00000760
55 °C	4.43V	42	5210	5,209.95896	0.00000788
		58	5290	5,290.05315	-0.00001005
		106	5530	5,530.00527	-0.00000095
		122	5610	5,609.94736	0.00000938
	3.27V	42	5210	5,210.00600	-0.00000115
		58	5290	5,290.04835	-0.00000914
		106	5530	5,529.95070	0.00000891
		122	5610	5,609.99566	0.00000077

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Operation Mode	802.11 a	Test Date	2018.03.20
Temperature	:23 °C	Test By	Mike
Humidity	:68 %		

Test Temp.	Test Voltage	Channel	Measured Frequency (MHz)	Spectrum Frequency (MHz)	ΔFrequency (MHz)
-10 °C	4.43V	36	5180	5,179.98318	0.00000325
		44	5220	5,219.97913	0.00000400
		48	5240	5,239.97773	0.00000425
		52	5260	5,259.98970	0.00000196
		60	5300	5,299.98247	0.00000331
		64	5320	5,319.98548	0.00000273
		100	5500	5,499.98022	0.00000360
		116	5580	5,579.99269	0.00000131
		140	5700	5,699.97900	0.00000368
	3.27V	36	5180	5,179.97808	0.00000423
		44	5220	5,219.99022	0.00000187
		48	5240	5,239.98562	0.00000274
		52	5260	5,259.97945	0.00000391
		60	5300	5,299.98111	0.00000356
		64	5320	5,319.98193	0.00000340
		100	5500	5,499.98548	0.00000264
		116	5580	5,579.99300	0.00000125
		140	5700	5,699.97661	0.00000410

25 °C	3.85V	36	5180	5,179.97756	0.00000433
		44	5220	5,219.98253	0.00000335
		48	5240	5,239.99052	0.00000181
		52	5260	5,259.97697	0.00000438
		60	5300	5,299.98609	0.00000262
		64	5320	5,319.98974	0.00000193
		100	5500	5,499.98782	0.00000221
		116	5580	5,579.99005	0.00000178
		140	5700	5,699.98957	0.00000183

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55 °C	4.43V	36	5180	5,179.99035	0.00000186
		44	5220	5,219.98738	0.00000242
		48	5240	5,239.98745	0.00000239
		52	5260	5,259.99452	0.00000104
		60	5300	5,299.99383	0.00000116
		64	5320	5,319.97721	0.00000428
		100	5500	5,499.97567	0.00000442
		116	5580	5,579.97496	0.00000449
		140	5700	5,699.98391	0.00000282
	3.27V	36	5180	5,179.97616	0.00000460
		44	5220	5,219.97764	0.00000428
		48	5240	5,239.98575	0.00000272
		52	5260	5,259.99430	0.00000108
		60	5300	5,299.99356	0.00000122
		64	5320	5,319.99251	0.00000141
		100	5500	5,499.97741	0.00000411
		116	5580	5,579.99092	0.00000163
		140	5700	5,699.98001	0.00000351

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Operation Mode	802.11 n_HT40	Test Date	2018.03.20
Temperature	:23 °C	Test By	Mike
Humidity	:68 %		

Test Temp.	Test Voltage	Channel	Measured Frequency (MHz)	Spectrum Frequency (MHz)	ΔFrequency (MHz)
-10 °C	4.43V	38	5190	5,189.97066	0.00000565
		46	5230	5,229.97367	0.00000503
		54	5270	5,269.98053	0.00000369
		62	5310	5,309.98371	0.00000307
		102	5510	5,509.97070	0.00000532
		110	5550	5,549.97317	0.00000484
		134	5670	5,669.96514	0.00000615
	3.27V	38	5190	5,189.97174	0.00000545
		46	5230	5,229.96949	0.00000583
		54	5270	5,269.96519	0.00000660
		62	5310	5,309.97091	0.00000548
		102	5510	5,509.97890	0.00000383
		110	5550	5,549.96844	0.00000569
		134	5670	5,669.96868	0.00000552
25 °C	3.85V	38	5190	5,189.97026	0.00000573
		46	5230	5,229.97184	0.00000539
		54	5270	5,269.97074	0.00000555
		62	5310	5,309.97027	0.00000560
		102	5510	5,509.96522	0.00000631
		110	5550	5,549.97322	0.00000482
		134	5670	5,669.97137	0.00000505
55 °C	4.43V	38	5190	5,189.98018	0.00000382
		46	5230	5,229.98209	0.00000343
		54	5270	5,269.97465	0.00000481
		62	5310	5,309.98178	0.00000343
		102	5510	5,509.96725	0.00000594
		110	5550	5,549.96783	0.00000580
		134	5670	5,670.00582	-0.00000103
	3.27V	38	5190	5,189.96770	0.00000622
		46	5230	5,229.98162	0.00000352
		54	5270	5,269.97170	0.00000537
		62	5310	5,309.98449	0.00000292
		102	5510	5,509.97809	0.00000398
		110	5550	5,549.96870	0.00000564
		134	5670	5,669.97783	0.00000391

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Operation Mode	802.11 ac_VHT80	Test Date	2018.03.20
Temperature	:23 °C	Test By	Mike
Humidity	:68 %		

Test Temp.	Test Voltage	Channel	Measured Frequency (MHz)	Spectrum Frequency (MHz)	ΔFrequency (MHz)
-10 °C	4.43V	42	5210	5,209.95766	0.00000813
		58	5290	5,290.05519	-0.00001043
		106	5530	5,529.94679	0.00000962
		122	5610	5,609.95203	0.00000855
	3.27V	42	5210	5,209.99187	0.00000156
		58	5290	5,290.04841	-0.00000915
		106	5530	5,529.94872	0.00000927
		122	5610	5,610.00264	-0.00000047
25 °C	3.85V	42	5210	5,210.00777	-0.00000149
		58	5290	5,290.05293	-0.00001001
		106	5530	5,529.94379	0.00001016
		122	5610	5,609.95737	0.00000760
55 °C	4.43V	42	5210	5,209.94792	0.00001000
		58	5290	5,290.05717	-0.00001081
		106	5530	5,529.99951	0.00000009
		122	5610	5,609.94850	0.00000918
	3.27V	42	5210	5,210.00118	-0.00000023
		58	5290	5,290.05841	-0.00001104
		106	5530	5,529.95589	0.00000798
		122	5610	5,609.99211	0.00000141

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10 Minutes:

Operation Mode	802.11 a	Test Date	2018.03.20
Temperature	:23 °C	Test By	Mike
Humidity	:68 %		

Test Temp.	Test Voltage	Channel	Measured Frequency (MHz)	Spectrum Frequency (MHz)	ΔFrequency (MHz)
-10 °C	4.43V	36	5180	5,179.97501	0.00000482
		44	5220	5,219.98453	0.00000296
		48	5240	5,239.99204	0.00000152
		52	5260	5,259.97680	0.00000441
		60	5300	5,299.97617	0.00000450
		64	5320	5,319.99263	0.00000139
		100	5500	5,499.97527	0.00000450
		116	5580	5,579.98989	0.00000181
		140	5700	5,699.98749	0.00000219
	3.27V	36	5180	5,179.97861	0.00000413
		44	5220	5,219.99480	0.00000100
		48	5240	5,239.97716	0.00000436
		52	5260	5,259.98360	0.00000312
		60	5300	5,299.97871	0.00000402
		64	5320	5,319.97872	0.00000400
		100	5500	5,499.97807	0.00000399
		116	5580	5,579.98220	0.00000319
		140	5700	5,699.96720	0.00000576

25 °C	3.85V	36	5180	5,179.97700	0.00000444
		44	5220	5,219.99473	0.00000101
		48	5240	5,239.98191	0.00000345
		52	5260	5,259.97867	0.00000406
		60	5300	5,299.98384	0.00000305
		64	5320	5,319.97779	0.00000417
		100	5500	5,499.99177	0.00000150
		116	5580	5,579.98446	0.00000278
		140	5700	5,699.99101	0.00000158

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55 °C	4.43V	36	5180	5,179.99379	0.00000120
		44	5220	5,219.97819	0.00000418
		48	5240	5,239.98707	0.00000247
		52	5260	5,259.97839	0.00000411
		60	5300	5,299.97695	0.00000435
		64	5320	5,319.97495	0.00000471
		100	5500	5,499.97710	0.00000416
		116	5580	5,579.99318	0.00000122
		140	5700	5,699.98971	0.00000181
	3.27V	36	5180	5,179.99197	0.00000155
		44	5220	5,219.98015	0.00000380
		48	5240	5,239.99160	0.00000160
		52	5260	5,259.98839	0.00000221
		60	5300	5,299.97546	0.00000463
		64	5320	5,319.99442	0.00000105
		100	5500	5,499.98902	0.00000200
		116	5580	5,579.97789	0.00000396
		140	5700	5,699.99196	0.00000141

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Operation Mode	802.11 n_HT40	Test Date	2018.03.20
Temperature	:23 °C	Test By	Mike
Humidity	:68 %		

Test Temp.	Test Voltage	Channel	Measured Frequency (MHz)	Spectrum Frequency (MHz)	ΔFrequency (MHz)
-10 °C	4.43V	38	5190	5,189.96537	0.00000667
		46	5230	5,229.98080	0.00000367
		54	5270	5,269.97031	0.00000563
		62	5310	5,309.97798	0.00000415
		102	5510	5,509.98283	0.00000312
		110	5550	5,549.97085	0.00000525
		134	5670	5,669.96674	0.00000587
	3.27V	38	5190	5,189.98176	0.00000352
		46	5230	5,229.96791	0.00000614
		54	5270	5,269.97452	0.00000484
		62	5310	5,309.97703	0.00000433
		102	5510	5,509.96519	0.00000632
		110	5550	5,549.97808	0.00000395
		134	5670	5,669.97888	0.00000373
25 °C	3.85V	38	5190	5,189.97977	0.00000390
		46	5230	5,229.97741	0.00000432
		54	5270	5,269.97862	0.00000406
		62	5310	5,309.97000	0.00000565
		102	5510	5,509.98167	0.00000333
		110	5550	5,549.98038	0.00000354
		134	5670	5,669.97098	0.00000512
55 °C	4.43V	38	5190	5,189.98476	0.00000294
		46	5230	5,229.98367	0.00000312
		54	5270	5,269.97182	0.00000535
		62	5310	5,309.96686	0.00000624
		102	5510	5,509.97832	0.00000393
		110	5550	5,549.97140	0.00000515
		134	5670	5,670.00907	-0.00000160
	3.27V	38	5190	5,189.98388	0.00000311
		46	5230	5,229.97240	0.00000528
		54	5270	5,269.97070	0.00000556
		62	5310	5,309.97261	0.00000516
		102	5510	5,509.96594	0.00000618
		110	5550	5,549.98424	0.00000284
		134	5670	5,669.96577	0.00000604

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Operation Mode	802.11 ac_VHT80	Test Date	2018.03.20
Temperature	:23 °C	Test By	Mike
Humidity	:68 %		

Test Temp.	Test Voltage	Channel	Measured Frequency (MHz)	Spectrum Frequency (MHz)	ΔFrequency (MHz)
-10 °C	4.43V	42	5210	5,209.94897	0.00000979
		58	5290	5,290.04831	-0.00000913
		106	5530	5,529.95683	0.00000781
		122	5610	5,609.94185	0.00001037
	3.27V	42	5210	5,210.00042	-0.00000008
		58	5290	5,290.04575	-0.00000865
		106	5530	5,529.94067	0.00001073
		122	5610	5,609.99264	0.00000131
25 °C	3.85V	42	5210	5,210.00809	-0.00000155
		58	5290	5,290.04845	-0.00000916
		106	5530	5,529.95850	0.00000750
		122	5610	5,609.94945	0.00000901
55 °C	4.43V	42	5210	5,209.95088	0.00000943
		58	5290	5,290.04826	-0.00000912
		106	5530	5,529.99859	0.00000025
		122	5610	5,609.94807	0.00000926
	3.27V	42	5210	5,210.00270	-0.00000052
		58	5290	5,290.05590	-0.00001057
		106	5530	5,529.94757	0.00000948
		122	5610	5,609.99108	0.00000159

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14. ANTENNA REQUIREMENT

14.1 Standard Applicable

According to §15.203, an intentional radiator shall be designed to ensure that no antenna other than furnished by the responsible party shall be used with the device.

According to §15.407, 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.

14.2 Antenna Connected Construction

An embedded-in antenna design is used.

The antenna is designed with unique type RF connector and no consideration of replacement. Please see EUT photo and antenna spec. for details.

The antenna gain is less than 6dBi. Therefore, it is not necessary to reduce maximum output power limit.

~ End of Report ~

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