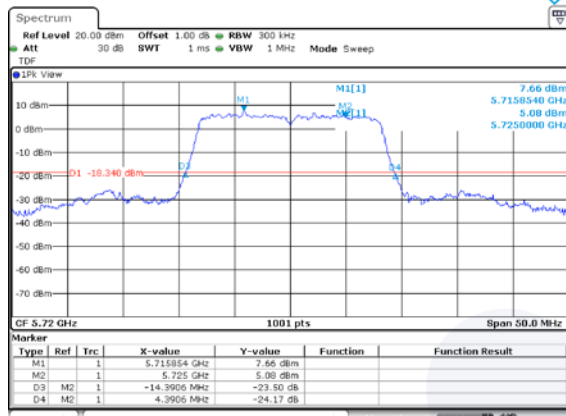
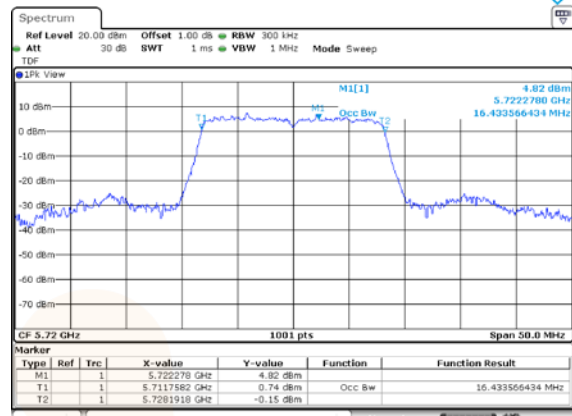
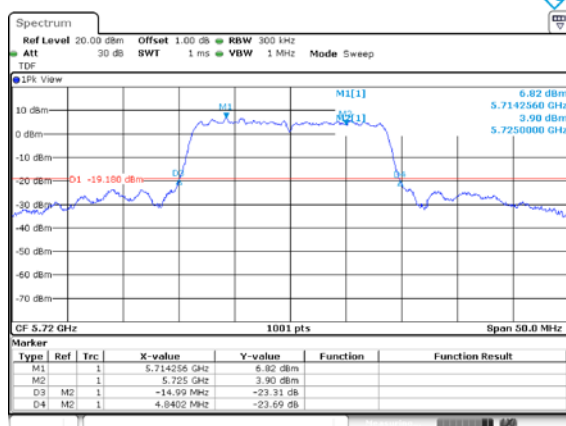
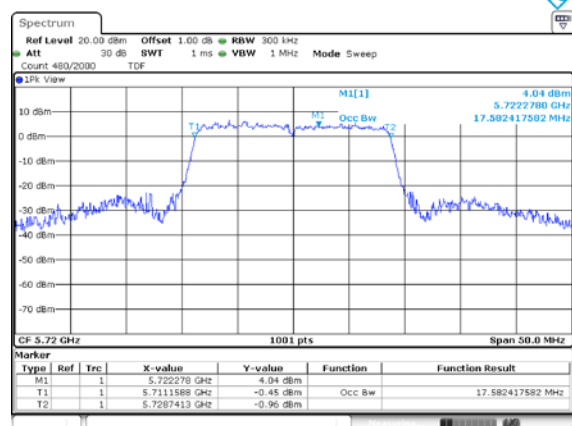


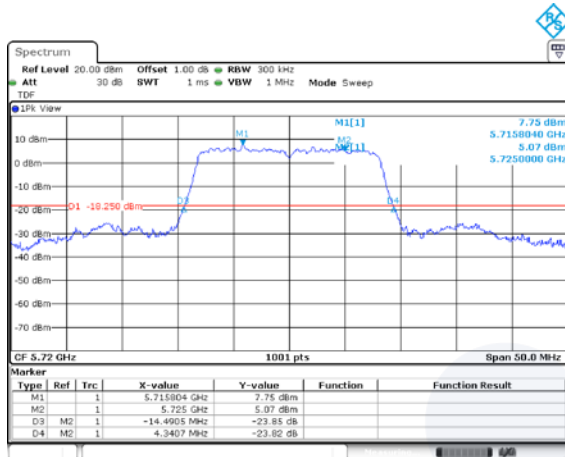
[DC 5 V]

26 dB bandwidth**802.11a****99% bandwidth****802.11a****802.11n HT20****802.11n HT20****802.11ac VHT20****802.11ac VHT20**

DC 12 V

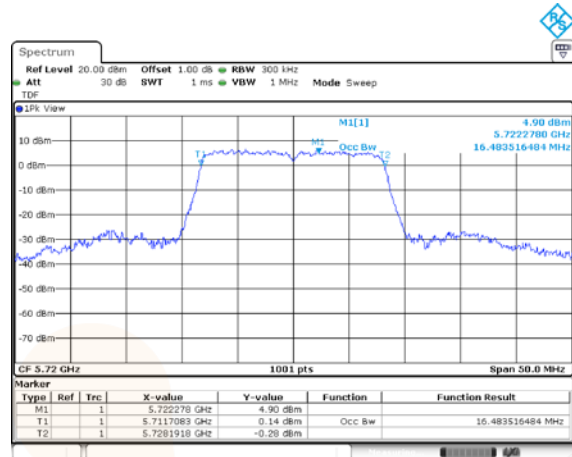
26 dB bandwidth

802.11a

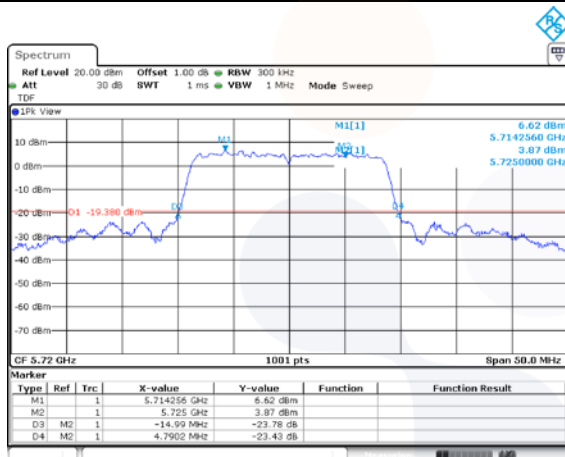


99% bandwidth

802.11a



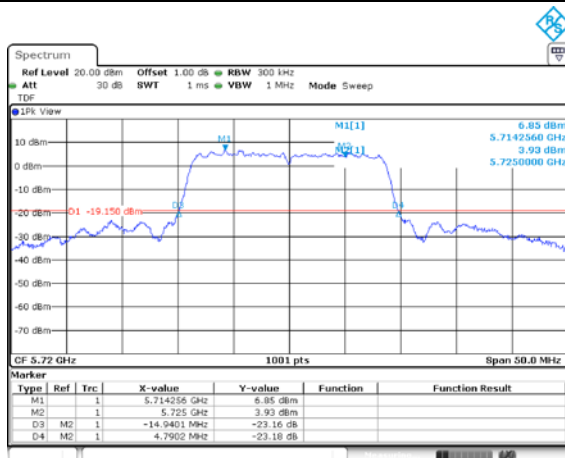
802.11n HT20



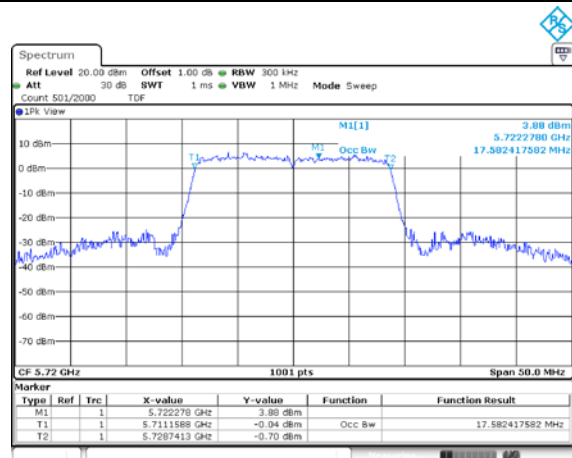
802.11n HT20



802.11ac VHT20



802.11ac VHT20



6dB bandwidth

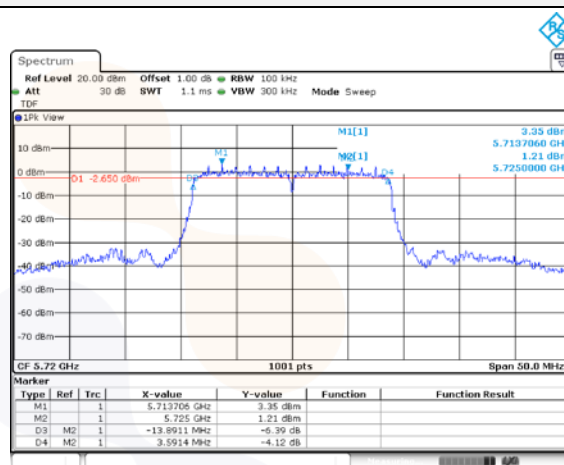
[DC 5 V]

Test mode	Band	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (MHz)
802.11a	UNII-3	5 720	3.14	0.50
802.11n HT20			3.59	0.50
802.11ac VHT20			3.59	0.50

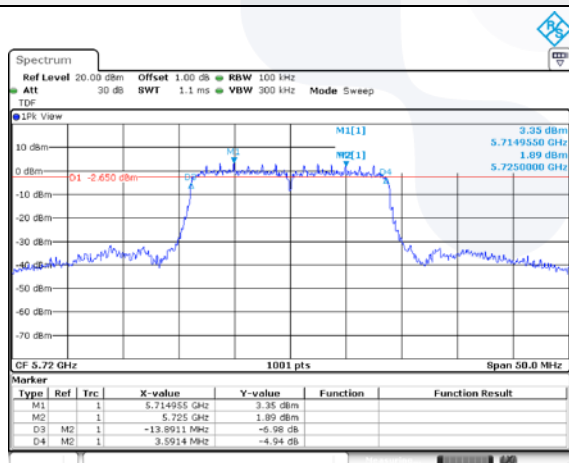
802.11a



802.11n HT20



802.11ac VHT20



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[DC 12 V]

Test mode	Band	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (MHz)
802.11a	UNII-3	5 720	3.14	0.50
802.11n HT20			3.59	0.50
802.11ac VHT20			3.59	0.50

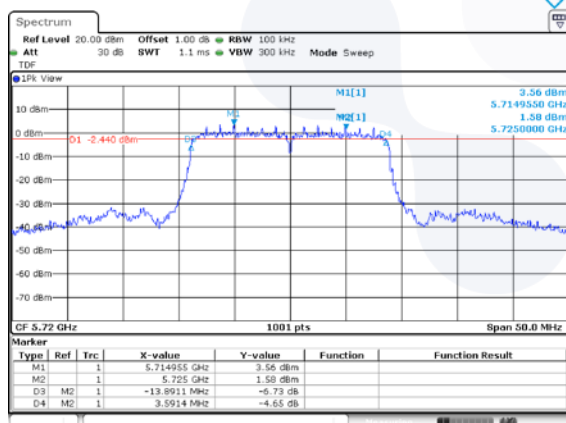
802.11a



802.11n HT20



802.11ac VHT20



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Conducted Output Power**[DC 5 V]**

Test mode	Band	Frequency (MHz)	Measured output power			FCC Limit (dBm)	IC Limit (dBm)
			Reading (dBm)	DCF (dB)	Result (dBm)		
802.11a	UNII-2C	5 720	14.52	0.22	14.74	23.39	22.35
802.11n HT20			13.32	0.26	13.58	23.91	22.60
802.11ac VHT20			13.38	0.25	13.63	23.98	22.58
802.11a	UNII-3	5 720	7.85	0.22	8.07	30.00	30.00
802.11n HT20			7.27	0.26	7.53	30.00	30.00
802.11ac VHT20			6.95	0.25	7.20	30.00	30.00

Note:

1. Conducted Output power(dBm) = Average Reading (dBm) + DCF(dB)

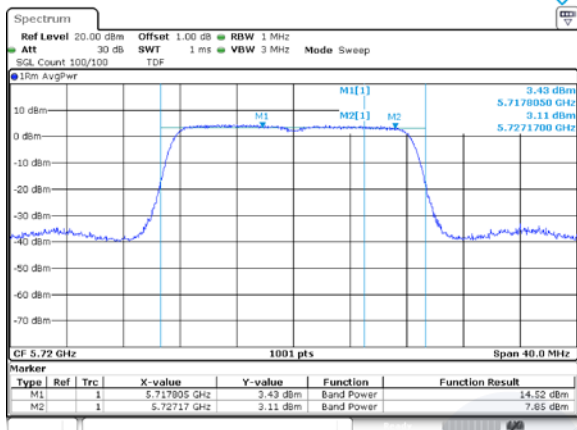
E.I.R.P.

Test mode	Band	Frequency (MHz)	Measured output power			MAX e.i.r.p Limit (dBm)
			Conducted Output Power (dBm)	ANT gain (dB)	MAX e.i.r.p (dBm)	
802.11a	UNII-2C	5 720	14.74	-0.40	14.34	28.35
802.11n HT20			13.58		13.18	28.60
802.11ac VHT20			13.63		13.23	28.58
802.11a	UNII-3	5 720	8.07	-0.70	7.37	30.00
802.11n HT20			7.53		6.83	30.00
802.11ac VHT20			7.20		6.50	30.00

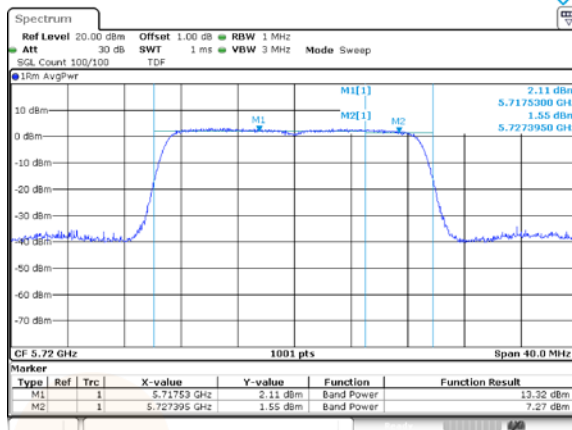
Notes:

1. E.I.R.P. Calculation: E.I.R.P. (dBm) = Conducted output power (dBm) + Antenna gain (dBi)

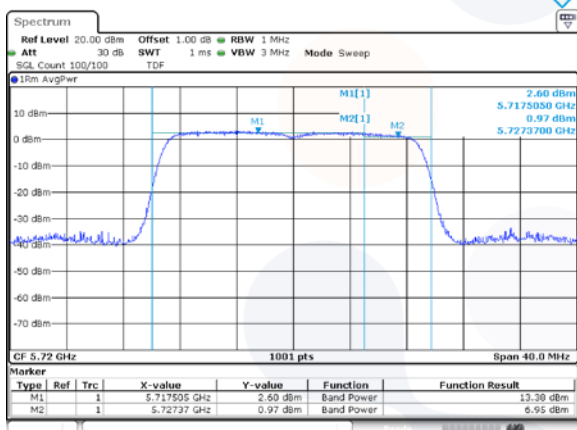
802.11a



802.11n HT20



802.11ac VHT20



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Conducted Output Power**[DC 12 V]**

Test mode	Band	Frequency (MHz)	Measured output power			FCC Limit (dBm)	IC Limit (dBm)
			Reading (dBm)	DCF (dB)	Result (dBm)		
802.11a	UNII-2C	5 720	14.51	0.22	14.73	23.39	22.35
802.11n HT20			13.39	0.26	13.65	23.91	22.60
802.11ac VHT20			13.46	0.25	13.71	23.98	22.58
802.11a	UNII-3	5 720	7.81	0.22	8.03	30.00	30.00
802.11n HT20			7.24	0.26	7.50	30.00	30.00
802.11ac VHT20			7.40	0.25	7.65	30.00	30.00

Note:

1. Conducted Output power(dBm) = Average Reading (dBm) + DCF(dB)

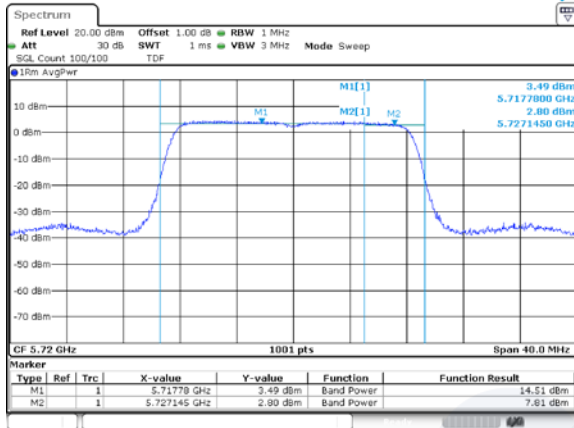
E.I.R.P.

Test mode	Band	Frequency (MHz)	Measured output power			MAX e.i.r.p Limit (dBm)
			Conducted Output Power (dBm)	ANT gain (dB)	MAX e.i.r.p (dBm)	
802.11a	UNII-2C	5 720	14.73	-0.40	14.33	28.35
802.11n HT20			13.65		13.25	28.60
802.11ac VHT20			13.71		13.31	28.58
802.11a	UNII-3	5 720	8.03	-0.70	7.33	30.00
802.11n HT20			7.50		6.80	30.00
802.11ac VHT20			7.65		6.95	30.00

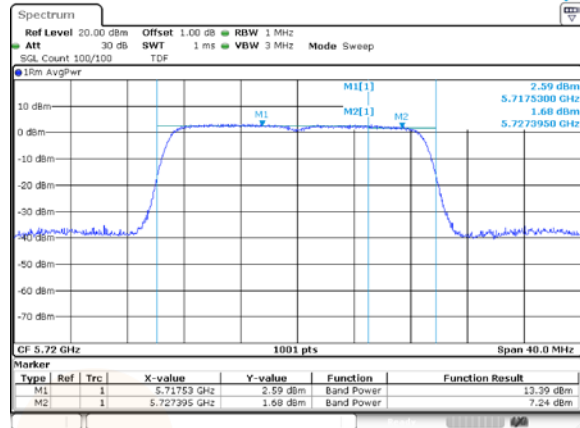
Notes:

1. E.I.R.P. Calculation: E.I.R.P. (dBm) = Conducted output power (dBm) + Antenna gain (dBi)

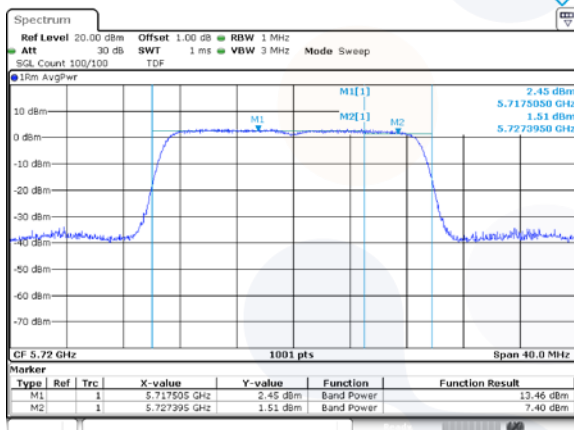
802.11a



802.11n HT20



802.11ac VHT20



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Power Spectral Density**[DC 5 V]**

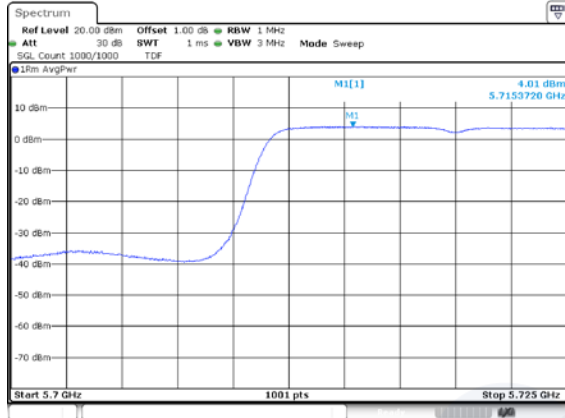
Test mode	Band	Frequency (MHz)	Measured PSD (dBm/MHz)	DCF (dB)	Maximum PSD (dB m/MHz)	Limit (dBm/MHz)
802.11a	UNII-2C	5 720	4.01	0.00	4.01	11.00
802.11n HT20			2.94	0.26	3.20	
802.11ac VHT20			2.78	0.25	3.03	

Test mode	Band	Frequency (MHz)	Measured PSD (dBm/MHz)	DCF (dB)	Maximum PSD (dB m/MHz)	Limit (dBm/MHz)
802.11a	UNII-3	5 720	0.48	0.00	0.48	11.00
802.11n HT20			-0.61	0.26	-0.35	
802.11ac VHT20			-0.73	0.25	-0.48	

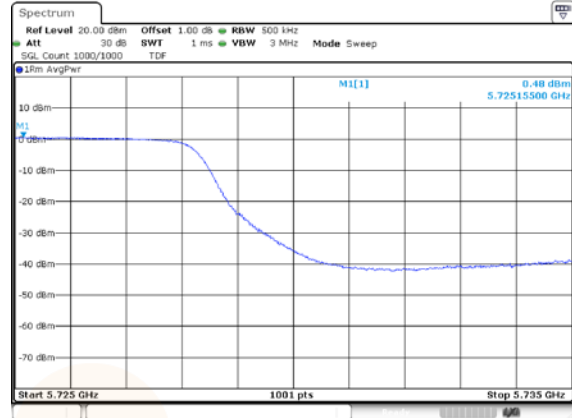
Note:

- Maximum PSD(dB m/MHz) = Reading (dB m/MHz) + DCF(dB)
- The Unit of UNII-2C is (dB m / MHz) and Unit of UNII-3 is (dB m / 500kHz)

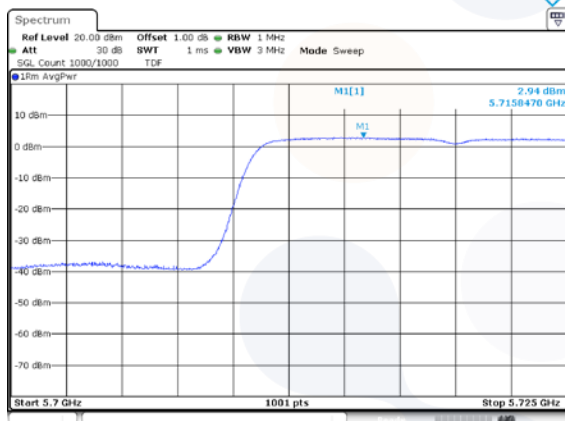
UNII-2C / 802.11a



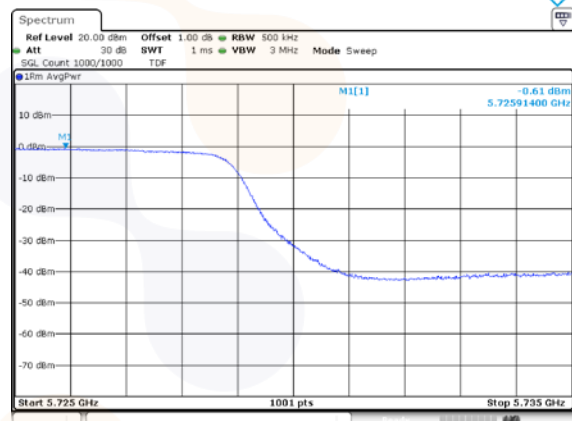
UNII-3 / 802.11a



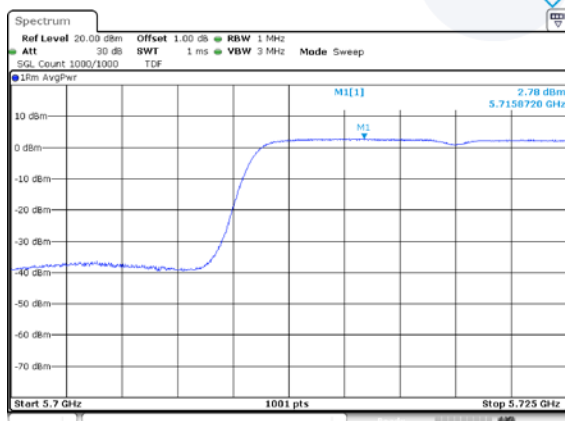
UNII-2C / 802.11n HT20



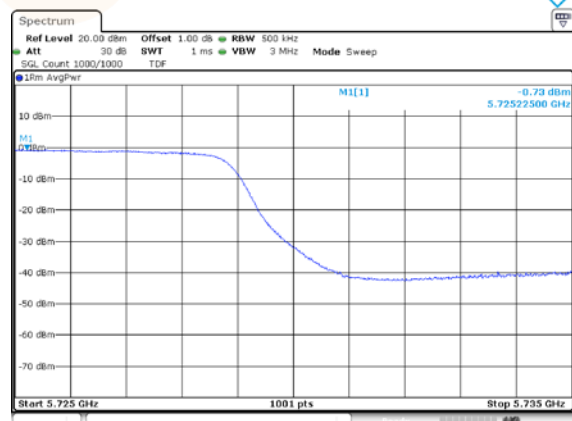
UNII-3 / 802.11n HT20



UNII-2C / 802.11ac VHT20



UNII-3 / 802.11ac VHT20



[DC 12 V]

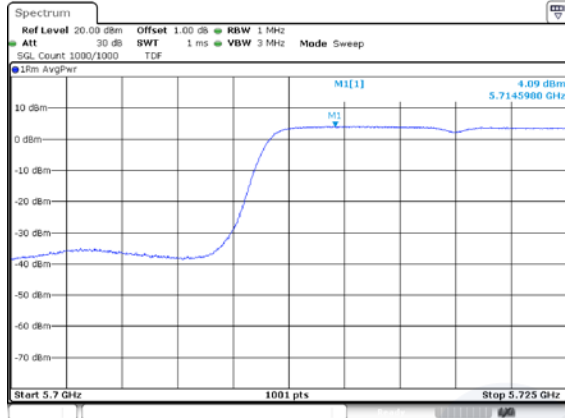
Test mode	Band	Frequency (MHz)	Measured PSD (dBm/MHz)	DCF (dB)	Maximum PSD (dB m/MHz)	Limit (dBm/MHz)
802.11a	UNII-2C	5 720	4.09	0.00	4.09	11.00
802.11n HT20			2.92	0.26	3.18	
802.11ac VHT20			2.87	0.25	3.12	

Test mode	Band	Frequency (MHz)	Measured PSD (dBm/MHz)	DCF (dB)	Maximum PSD (dB m/MHz)	Limit (dBm/MHz)
802.11a	UNII-3	5 720	0.67	0.00	0.67	11.00
802.11n HT20			-0.42	0.26	-0.16	
802.11ac VHT20			-0.52	0.25	-0.27	

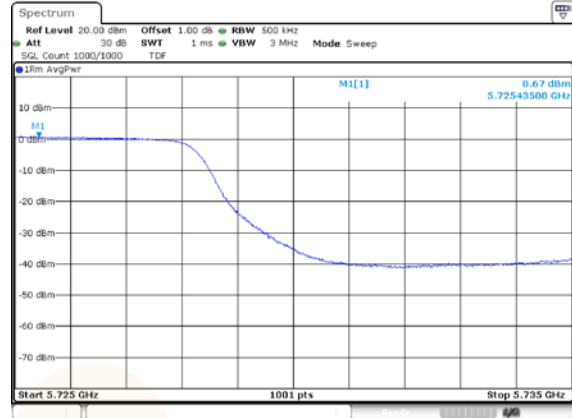
Note:

- Maximum PSD(dB m/MHz) = Reading (dB m/MHz) + DCF(dB)
- The Unit of UNII-2C is (dB m / MHz) and Unit of UNII-3 is (dB m / 500kHz)

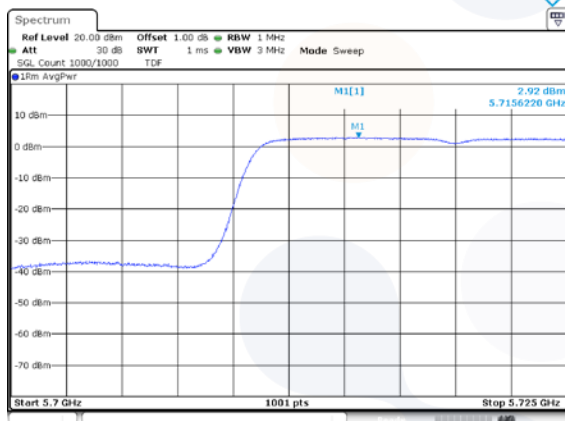
UNII-2C / 802.11a



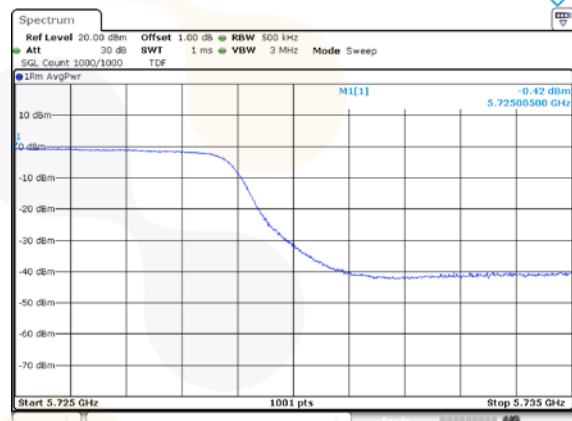
UNII-3 / 802.11a



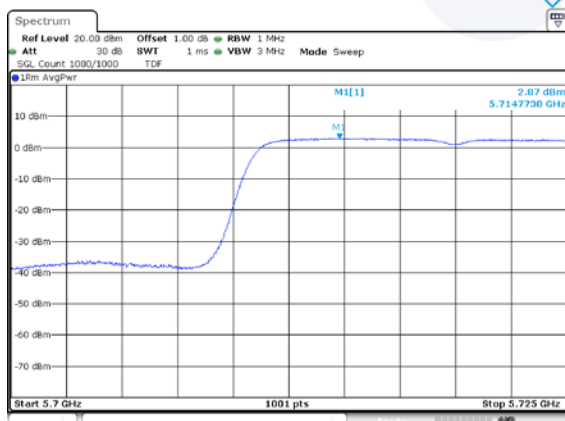
UNII-2C / 802.11n HT20



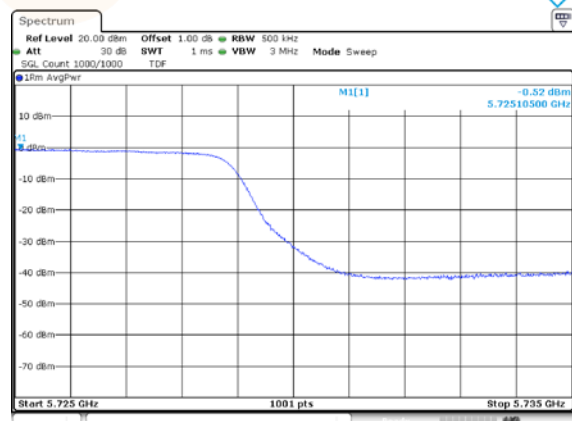
UNII-3 / 802.11n HT20



UNII-2C / 802.11ac VHT20

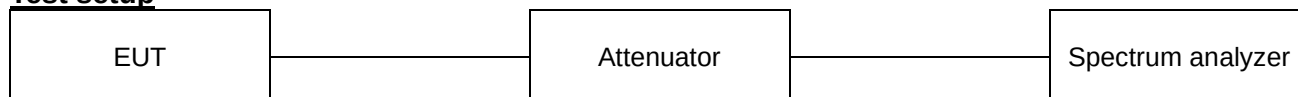


UNII-3 / 802.11ac VHT20



7.6. Frequency stability

Test setup



Limit

According to §15.407(g),

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

According to RSS-GEN(6.11),

For licence-exempt devices, the following conditions apply:

- (a) at the temperatures of -20°C (-4°F), +20°C (+68°F) and +50°C (+122°F), and at the manufacturer's rated supply voltage
- (b) at the temperature of +20°C (+68°F) and at $\pm 15\%$ of the manufacturer's rated supply voltage

If the frequency stability limits are only met within a temperature range that is smaller than the range specified in (a) for licensed or licence-exempt devices, the frequency stability requirement will be deemed to be met if the transmitter is automatically prevented from operating outside this smaller temperature range and if the published operating characteristics for the equipment are revised to reflect this restricted temperature range.

If the device contains both licence and licence-exempt transmitter modules, the device's frequency stability shall be measured under the most stringent condition specified in the applicable RSS of the transmitter module.

In addition, if an unmodulated carrier is not available, the method used to measure frequency stability shall be described in the test report.

According to RSS-GEN(8.11),

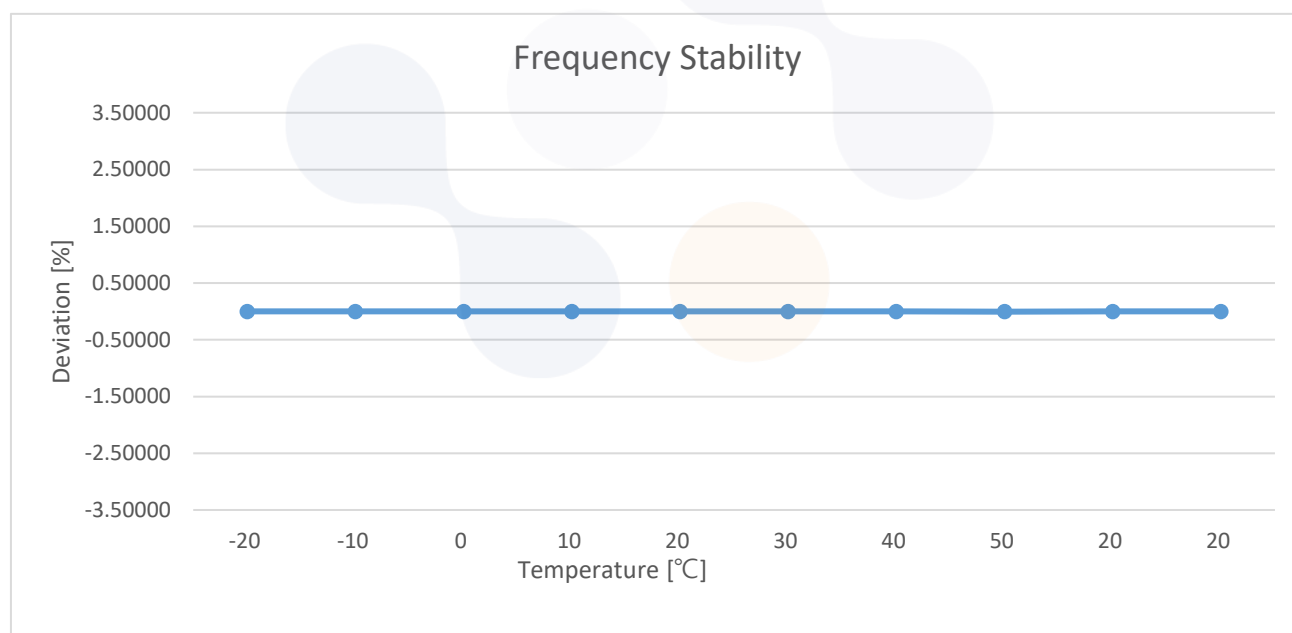
If the frequency stability of the licence-exempt radio apparatus is not specified in the applicable RSS, the fundamental emissions of the radio apparatus should be kept within at least the central 80% of its permitted operating frequency band in order to minimize the possibility of out-of-band operation. In addition, its occupied bandwidth shall be entirely outside the restricted bands and the prohibited TV bands of 54-72 MHz, 76-88 MHz, 174-216 MHz, and 470-602 MHz, unless otherwise indicated.

Test procedure

ANSI C63.10-2013 - Section 6.8.1

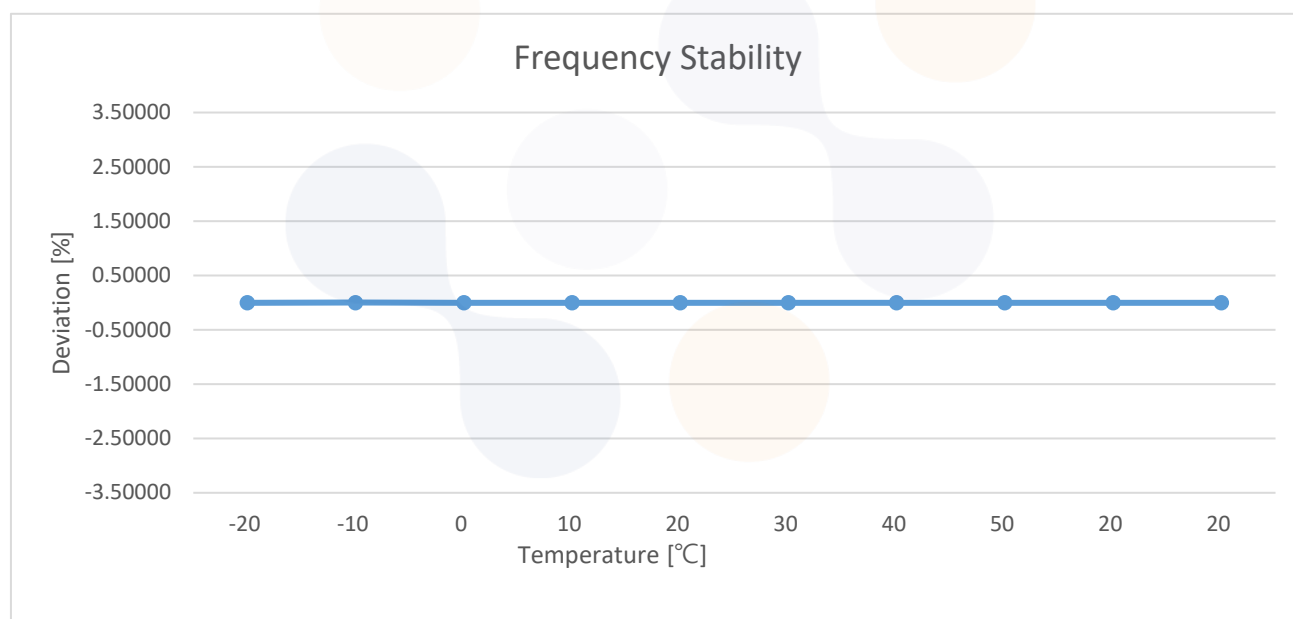
Test results**[DC 5 V]**Test band : UNII-1Frequency (Hz) : 5 180 000 000

Voltage (%)	Power (V)	Temp. (°C)	Frequency (Hz)	Frequency error (Hz)	Deviation	
					(ppm)	(%)
100%	5.00	-20	5 180 004 800	4 800	0.93	0.000 09
		-10	5 180 012 190	12 190	2.35	0.000 24
		0	5 179 998 600	-1 400	-0.27	-0.000 03
		+10	5 179 986 610	-13 390	-2.58	-0.000 26
		+20	5 179 975 820	-24 180	-4.67	-0.000 47
		+30	5 179 958 840	-41 160	-7.95	-0.000 80
		+40	5 179 956 040	-43 960	-8.49	-0.000 85
		+50	5 179 947 850	-52 150	-10.07	-0.001 01
85%	4.25	+20	5 179 973 230	-26 770	-5.17	-0.000 52
115%	5.75	+20	5 179 971 630	-28 370	-5.48	-0.000 55



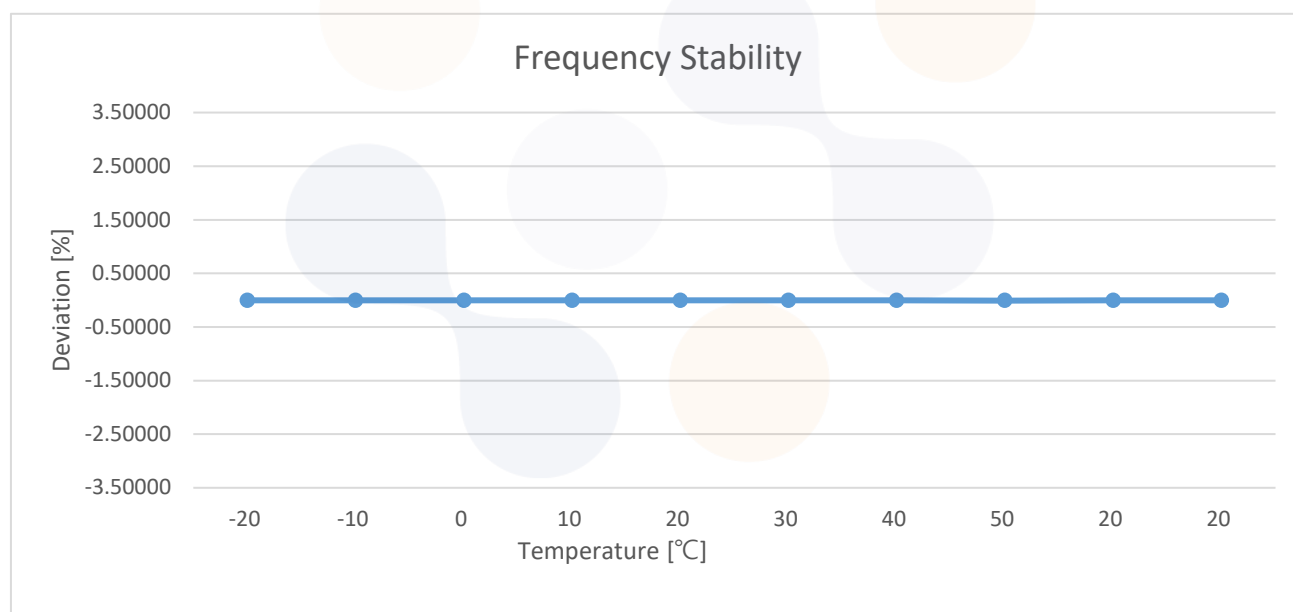
Test band : UNII-2AFrequency (Hz) : 5 260 000 000

Voltage (%)	Power (V)	Temp. (°C)	Frequency (Hz)	Frequency error (Hz)	Deviation	
					(ppm)	(%)
100%	5.00	-20	5 260 009 790	9 790	1.86	0.000 19
		-10	5 260 011 590	11 590	2.20	0.000 22
		0	5 260 008 590	8 590	1.63	0.000 16
		+10	5 259 983 020	-16 980	-3.23	-0.000 32
		+20	5 259 973 830	-26 170	-4.98	-0.000 50
		+30	5 259 955 240	-44 760	-8.51	-0.000 85
		+40	5 259 949 450	-50 550	-9.61	-0.000 96
		+50	5 259 945 250	-54 750	-10.41	-0.001 04
85%	4.25	+20	5 259 970 830	-29 170	-5.55	-0.000 56
115%	5.75	+20	5 259 969 830	-30 170	-5.74	-0.000 57



Test band : UNII-2CFrequency (Hz) : 5 500 000 000

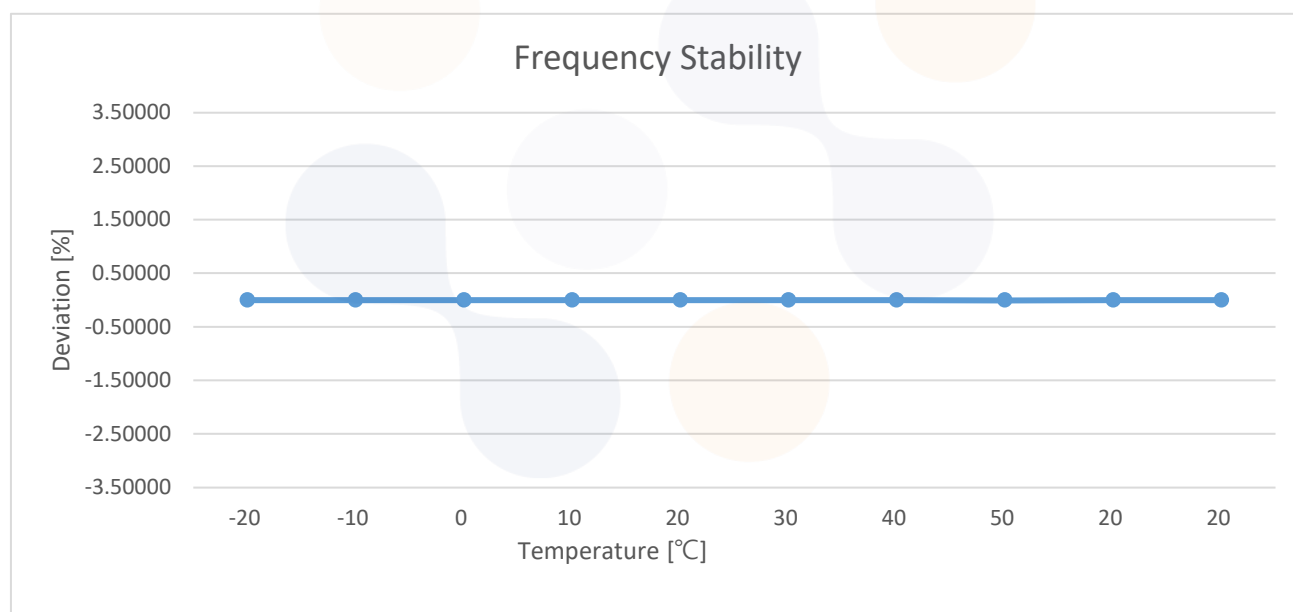
Voltage (%)	Power (V)	Temp. (°C)	Frequency (Hz)	Frequency error (Hz)	Deviation	
					(ppm)	(%)
100%	5.00	-20	5 500 015 380	15 380	2.80	0.000 28
		-10	5 500 012 590	12 590	2.29	0.000 23
		0	5 500 006 790	6 790	1.23	0.000 12
		+10	5 499 979 620	-20 380	-3.71	-0.000 37
		+20	5 499 970 430	-29 570	-5.38	-0.000 54
		+30	5 499 952 650	-47 350	-8.61	-0.000 86
		+40	5 499 947 650	-52 350	-9.52	-0.000 95
		+50	5 499 942 860	-57 140	-10.39	-0.001 04
85%	4.25	+20	5 499 968 230	-31 770	-5.78	-0.000 58
115%	5.75	+20	5 499 967 230	-32 770	-5.96	-0.000 60



Test band : UNII-3

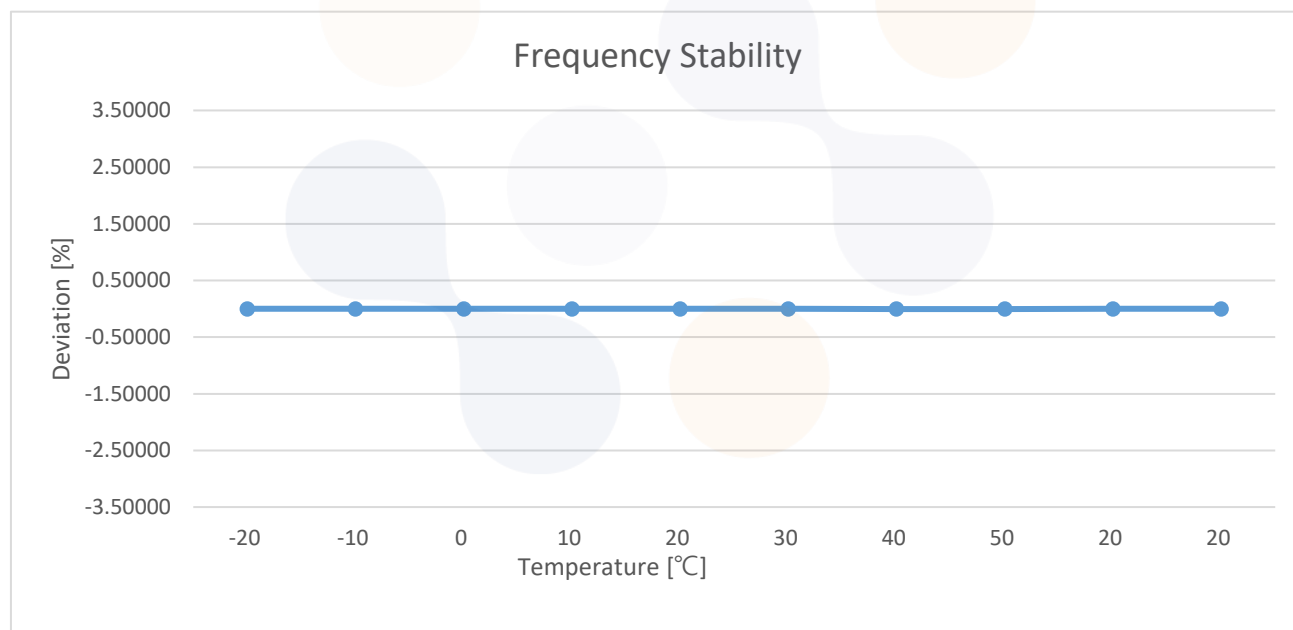
Frequency (Hz) : 5 745 000 000

Voltage (%)	Power (V)	Temp. (°C)	Frequency (Hz)	Frequency error (Hz)	Deviation	
					(ppm)	(%)
100%	5.00	-20	5 745 014 590	14 590	2.54	0.000 25
		-10	5 745 012 190	12 190	2.12	0.000 21
		0	5 745 003 600	3 600	0.63	0.000 06
		+10	5 744 976 020	-23 980	-4.17	-0.000 42
		+20	5 744 969 230	-30 770	-5.36	-0.000 54
		+30	5 744 948 250	-51 750	-9.01	-0.000 90
		+40	5 744 944 660	-55 340	-9.63	-0.000 96
		+50	5 744 940 260	-59 740	-10.40	-0.001 04
85%	4.25	+20	5 744 967 030	-32 970	-5.74	-0.000 57
115%	5.75	+20	5 744 966 030	-33 970	-5.91	-0.000 59



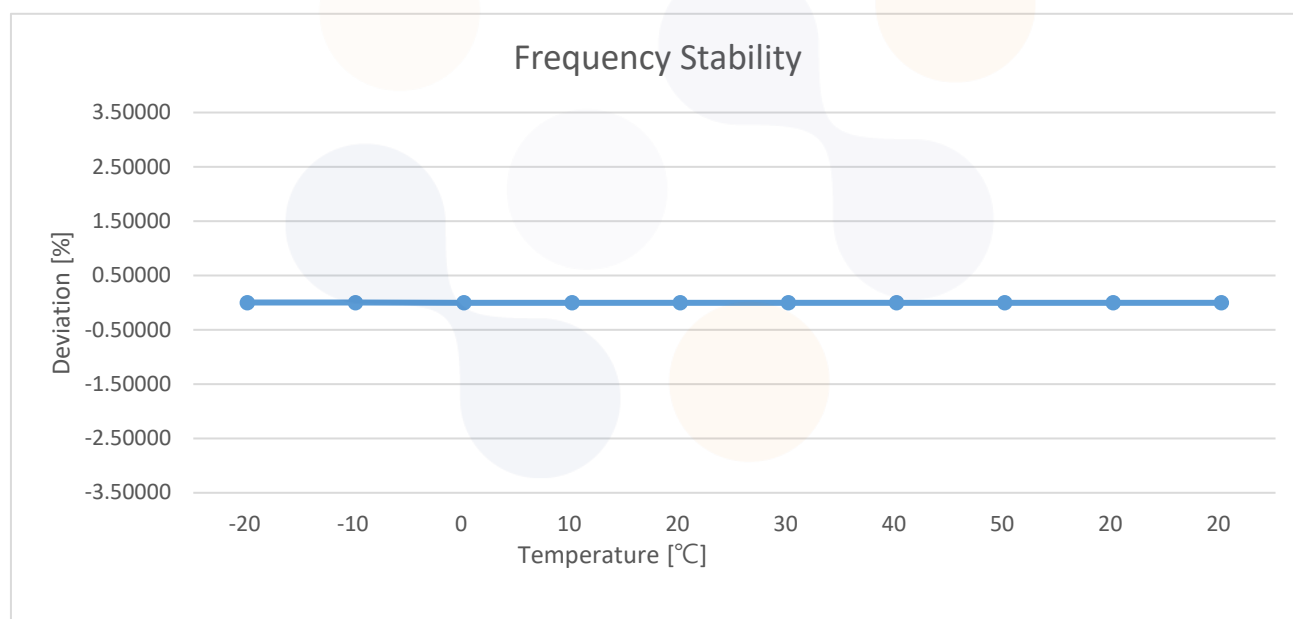
[DC 12 V]Test band : UNII-1Frequency (Hz) : 5 180 000 000

Voltage (%)	Power (V)	Temp. (°C)	Frequency (Hz)	Frequency error (Hz)	Deviation	
					(ppm)	(%)
100%	12.00	-20	5 180 007 990	7 990	1.54	0.000 15
		-10	5 180 011 990	11 990	2.31	0.000 23
		0	5 180 008 390	8 390	1.62	0.000 16
		+10	5 179 994 610	-5 390	-1.04	-0.000 10
		+20	5 179 985 410	-14 590	-2.82	-0.000 28
		+30	5 179 966 430	-33 570	-6.48	-0.000 65
		+40	5 179 951 250	-48 750	-9.41	-0.000 94
		+50	5 179 946 850	-53 150	-10.26	-0.001 03
85%	10.20	+20	5 179 982 420	-17 580	-3.39	-0.000 34
115%	13.80	+20	5 179 980 420	-19 580	-3.78	-0.000 38



Test band : UNII-2AFrequency (Hz) : 5 260 000 000

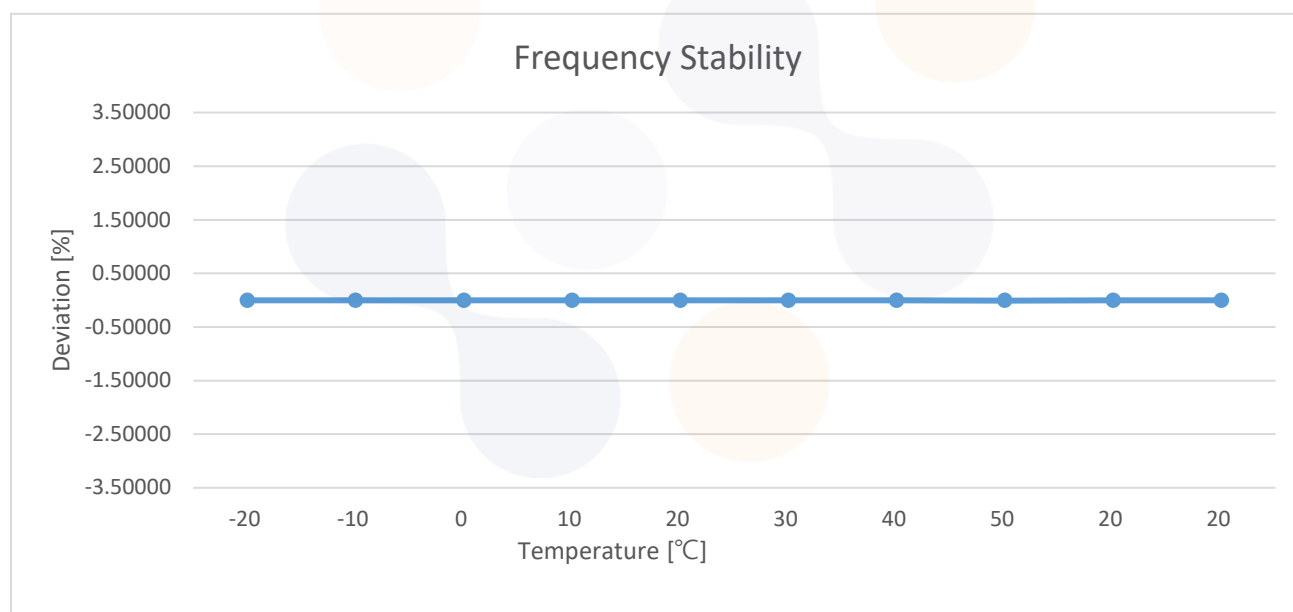
Voltage (%)	Power (V)	Temp. (°C)	Frequency (Hz)	Frequency error (Hz)	Deviation	
					(ppm)	(%)
100%	12.00	-20	5 260 010 990	10 990	2.09	0.000 21
		-10	5 260 011 590	11 590	2.20	0.000 22
		0	5 260 003 400	3 400	0.65	0.000 07
		+10	5 259 992 210	-7 790	-1.48	-0.000 15
		+20	5 259 978 220	-21 780	-4.14	-0.000 41
		+30	5 259 959 640	-40 360	-7.67	-0.000 77
		+40	5 259 951 650	-48 350	-9.19	-0.000 92
		+50	5 259 945 250	-54 750	-10.41	-0.001 04
85%	10.20	+20	5 259 977 020	-22 980	-4.37	-0.000 44
115%	13.80	+20	5 259 975 620	-24 380	-4.64	-0.000 46



Test band : UNII-2C

Frequency (Hz) : 5 500 000 000

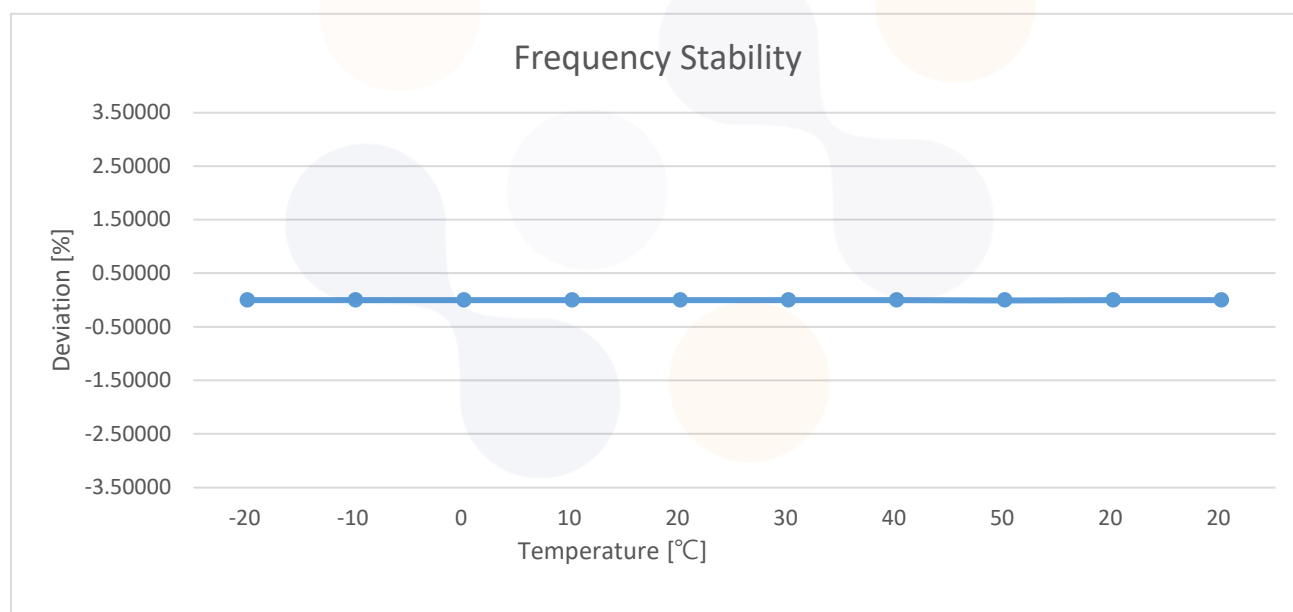
Voltage (%)	Power (V)	Temp. (°C)	Frequency (Hz)	Frequency error (Hz)	Deviation	
					(ppm)	(%)
100%	12.00	-20	5 500 014 190	14 190	2.58	0.000 26
		-10	5 500 012 590	12 590	2.29	0.000 23
		0	5 500 002 800	2 800	0.51	0.000 05
		+10	5 499 988 010	-11 990	-2.18	-0.000 22
		+20	5 499 971 430	-28 570	-5.19	-0.000 52
		+30	5 499 955 240	-44 760	-8.14	-0.000 81
		+40	5 499 948 050	-51 950	-9.45	-0.000 95
		+50	5 499 944 060	-55 940	-10.17	-0.001 02
85%	10.20	+20	5 499 970 430	-29 570	-5.38	-0.000 54
115%	13.80	+20	5 499 969 230	-30 770	-5.59	-0.000 56



Test band : UNII-3

Frequency (Hz) : 5 745 000 000

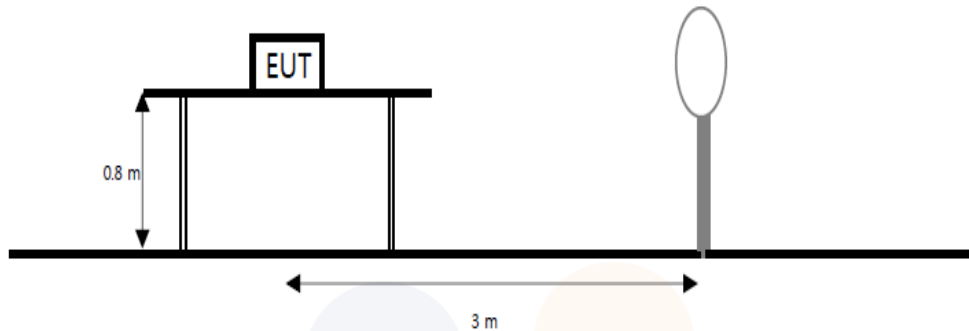
Voltage (%)	Power (V)	Temp. (°C)	Frequency (Hz)	Frequency error (Hz)	Deviation	
					(ppm)	(%)
100%	12.00	-20	5 745 014 990	14 990	2.61	0.000 26
		-10	5 745 012 790	12 790	2.23	0.000 22
		0	5 745 002 400	2 400	0.42	0.000 04
		+10	5 744 982 420	-17 580	-3.06	-0.000 31
		+20	5 744 966 830	-33 170	-5.77	-0.000 58
		+30	5 744 953 050	-46 950	-8.17	-0.000 82
		+40	5 744 945 050	-54 950	-9.56	-0.000 96
		+50	5 744 940 660	-59 340	-10.33	-0.001 03
85%	10.20	+20	5 744 966 230	-33 770	-5.88	-0.000 59
115%	13.80	+20	5 744 965 830	-34 170	-5.95	-0.000 60



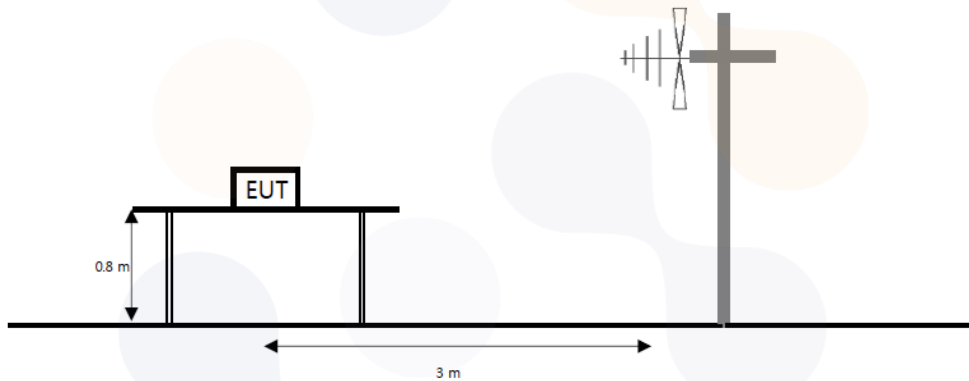
7.7. Spurious Emission, Band Edge and Restricted bands

Test setup

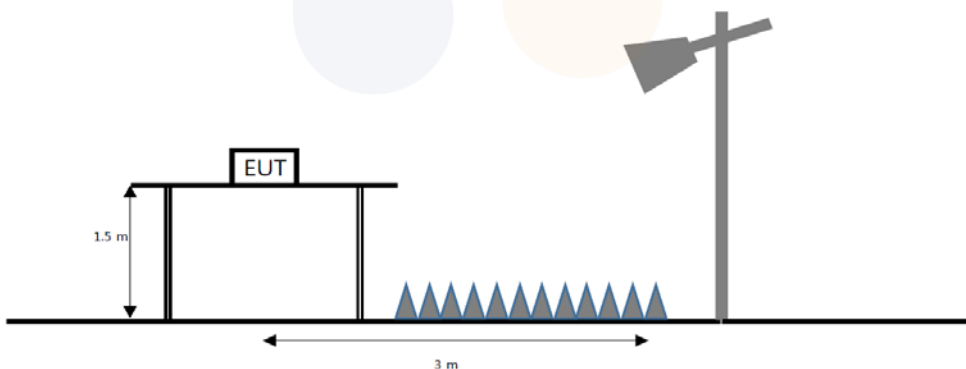
The diagram below shows the test setup that is utilized to make the measurements for emission from 9 kHz to 30 MHz Emissions



The diagram below shows the test setup that is utilized to make the measurements for emission from 30 MHz to 1 GHz emissions.



The diagram below shows the test setup that is utilized to make the measurements for emission from 1 GHz to the tenth harmonic of the highest fundamental frequency or to 40 GHz emissions, whichever is lower.



Limit

FCC

According to section 15.209(a) except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field strength ($\mu\text{V/m}$)	Measurement distance (m)
0.009 - 0.490	2 400/F(kHz)	300
0.490 - 1.705	24 000/F(kHz)	30
1.705 - 30	30	30
30 - 88	100**	3
88 - 216	150**	3
216 - 960	200**	3
Above 960	500	3

**Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54–72 MHz, 76–88 MHz, 174–216 MHz or 470–806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., Section 15.231 and 15.241.

According to section 15.205(a) and (b) only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.009 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
0.495 - 0.505	16.694 75 - 16.695 25	608 - 614	5.35 - 5.46
2.173 5 - 2.190 5	16.804 25 - 16.804 75	960 - 1 240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1 300 - 1 427	8.025 - 8.5
4.177 25 - 4.177 75	37.5 - 38.25	1 435 - 1 626.5	9.0 - 9.2
4.207 25 - 4.207 75	73 - 74.6	1 645.5 - 1 646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1 660 - 1 710	10.6 - 12.7
6.267 75 - 6.268 25	108 - 121.94	1 718.8 - 1 722.2	13.25 - 13.4
6.311 75 - 6.312 25	123 - 138	2 200 - 2 300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2 310 - 2 390	15.35 - 16.2
8.362 - 8.366	156.524 75 - 156.525	2 483.5 - 2 500	17.7 - 21.4
8.376 25 - 8.386 75	25	2 690 - 2 900	22.01 - 23.12
8.414 25 - 8.414 75	156.7 - 156.9	3 260 - 3 267	23.6 - 24.0
12.29 - 12.293	162.012 5 - 167.17	3 332 - 3 339	31.2 - 31.8
12.519 75 - 12.520 25	167.72 - 173.2	3 345.8 - 3 358	36.43 - 36.5
12.576 75 - 12.577 25	240 - 285	3 600 - 4 400	Above 38.6
13.36 - 13.41	322 - 335.4		

The field strength of emissions appearing within these frequency bands shall not exceed the limits shown in section 15.209. At frequencies equal to or less than 1 000 MHz, compliance with the limits in section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1 000 MHz, compliance with the emission limits in section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in section 15.35 apply to these measurements.

According to section 15.407(b), undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

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

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

For transmitters operating in the 5.47-5.725 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.

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.

IC

According to RSS-247(5.5), In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided that the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under section 5.4(d), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-Gen is not required.

According to RSS-Gen(8.9), Except where otherwise indicated in the applicable RSS, radiated emissions shall comply with the field strength limits shown in table 5 and table 6. Additionally, the level of any transmitter unwanted emission shall not exceed the level of the transmitter's fundamental emission.

Table 5- General field strength limits at frequencies above 30 MHz

Frequency(MHz)	Field strength ($\mu\text{V}/\text{m}$ at 3 m)
30 to 88	100
88 to 216	150
216 to 960	200
Above 960	500

Table 6- General field strength limits at frequencies below 30 MHz

Frequency	Magnetic field strength (H-Field) ($\mu\text{A}/\text{m}$)	Measurement distance(m)
9 – 490 kHz ¹⁾	6.37/F (F in kHz)	300
490 – 1705 kHz	63.7/F (F in kHz)	30
1.705 - 30 MHz	0.08	30

According to RSS-Gen(8.10), Restricted frequency bands, identified in table 7, are designated primarily for safety-of-life services (distress calling and certain aeronautical activities), certain satellite downlinks, radio astronomy and some government uses. Except where otherwise indicated, the following conditions related to the restricted frequency bands apply:

- The transmit frequency, including fundamental components of modulation, of licence-exempt radio apparatus shall not fall within the restricted frequency bands listed in table 7 except for apparatus compliant with RSS-287, Emergency Position Indicating Radio Beacons (EPIRB), Emergency Locator Transmitters (ELT), Personal Locator Beacons (PLB), and Maritime Survivor Locator Devices (MSLD).
- Unwanted emissions that fall into restricted frequency bands listed in table 7 shall comply with the limits specified in table 5 and table 6.
- Unwanted emissions that do not fall within the restricted frequency bands listed in table 7 shall comply either with the limits specified in the applicable RSS or with those specified in table 5 and table 6.

Table 7- Restricted frequency bands*

MHz	MHz	GHz
0.090 - 0.110	149.9 - 150.05	9.0 - 9.2
0.495 - 0.505	156.52475 - 156.52525	9.3 - 9.5
2.1735 - 2.1905	156.7 - 156.9	10.6 - 12.7
3.020 - 3.026	162.0125 - 167.17	13.25 - 13.4
4.125 - 4.128	167.72 - 173.2	14.47 - 14.5
4.17725 - 4.17775	240 - 285	15.35 - 16.2
4.20725 - 4.20775	322 - 335.4	17.7 - 21.4
5.677 - 5.683	399.9 - 410	22.01 - 23.12
6.215 - 6.218	608 - 614	23.6 - 24.0
6.26775 - 6.26825	960 - 1427	31.2 - 31.8
6.31175 - 6.31225	1435 - 1626.5	36.43 - 36.5
8.291 - 8.294	1645.5 - 1646.5	Above 38.6
8.362 - 8.366	1660 - 1710	
8.37625 - 8.38675	1718.8 - 1722.2	
8.41425 - 8.41475	2200 - 2300	
12.29 - 12.293	2310 - 2390	
12.51975 - 12.52025	2483.5 - 2500	
12.57675 - 12.57725	2655 - 2900	
13.36 - 13.41	3260 - 3267	
16.42 - 16.423	3332 - 3339	
16.69475 - 16.69525	3345.8 - 3358	
16.80425 - 16.80475	3500 - 4400	
25.5 - 25.67	4500 - 5150	
37.5 - 38.25	5350 - 5460	
73 - 74.6	7250 - 7750	
74.8 - 75.2	8025 - 8500	
108 - 138	--	

* Certain frequency bands listed in table 7 and in bands above 38.6 GHz are designated for licence-exempt applications. These frequency bands and the requirements that apply to related devices are set out in the 200 and 300 series of RSSs.

Test procedure

ANSI C63.10-2013 Section 12.7.7.2, 12.7.5, 12.7.6
KDB 789033 D02 v02r01 – Section G

Test settings

Peak field strength measurements

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = as specified in table
3. VBW $\geq$ (3 $\times$ RBW)
4. Detector = peak
5. Sweep time = auto
6. Trace mode = max hold
7. Allow sweeps to continue until the trace stabilizes

Table. RBW as a function of frequency

Frequency	RBW
9 kHz to 150 kHz	200 Hz to 300 Hz
0.15 MHz to 30 MHz	9 kHz to 10 kHz
30 MHz to 1 000 MHz	100 kHz to 120 kHz
> 1 000 MHz	1 MHz

Average field strength measurements

Trace averaging with continuous EUT transmission at full power

If the EUT can be configured or modified to transmit continuously ($D \geq 98\%$), then the average emission levels shall be measured using the following method (with EUT transmitting continuously):

1. RBW = 1 MHz (unless otherwise specified).
2. VBW $\geq (3 \times \text{RBW})$.
3. Detector = RMS (power averaging), if $[\text{span} / (\# \text{ of points in sweep})] \leq (\text{RBW} / 2)$. Satisfying this condition may require increasing the number of points in the sweep or reducing the span. If this condition cannot be satisfied, then the detector mode shall be set to peak.
4. Averaging type = power (i.e., rms):
 - 1) As an alternative, the detector and averaging type may be set for linear voltage averaging.
 - 2) Some instruments require linear display mode to use linear voltage averaging. Log or dB averaging shall not be used.
5. Sweep time = auto.
6. Perform a trace average of at least 100 traces.

Trace averaging across ON and OFF times of the EUT transmissions followed by duty cycle correction

If continuous transmission of the EUT ($D \geq 98\%$) cannot be achieved and the duty cycle is constant (duty cycle variations are less than $\pm 2\%$), then the following procedure shall be used:

1. The EUT shall be configured to operate at the maximum achievable duty cycle.
2. Measure the duty cycle D of the transmitter output signal as described in 11.6.
3. RBW = 1 MHz (unless otherwise specified).
4. VBW $\geq [3 \times \text{RBW}]$.
5. Detector = RMS (power averaging), if $[\text{span} / (\# \text{ of points in sweep})] \leq (\text{RBW} / 2)$. Satisfying this condition may require increasing the number of points in the sweep or reducing the span. If this condition cannot be satisfied, then the detector mode shall be set to peak.
6. Averaging type = power (i.e., rms):
 - 1) As an alternative, the detector and averaging type may be set for linear voltage averaging.
 - 2) Some instruments require linear display mode to use linear voltage averaging. Log or dB averaging shall not be used.
7. Sweep time = auto.
8. Perform a trace average of at least 100 traces.
9. A correction factor shall be added to the measurement results prior to comparing with the emission limit to compute the emission level that would have been measured had the test been performed at 100% duty cycle. The correction factor is computed as follows:
 - 1) If power averaging (rms) mode was used in step f), then the applicable correction factor is $[10 \log (1 / D)]$, where D is the duty cycle.
 - 2) If linear voltage averaging mode was used in step f), then the applicable correction factor is $[20 \log (1 / D)]$, where D is the duty cycle.
 - 3) If a specific emission is demonstrated to be continuous ($D \geq 98\%$) rather than turning ON and OFF with the transmit cycle, then no duty cycle correction is required for that emission.

Band edge measurements

Integration Method

For maximum emissions measurements, follow the procedures described in II.G.5., "Procedures for unwanted maximum Emissions Measurements above 1000 MHz. Except for the following changes:

1. Set RBW = 100 kHz
2. Set VBW $\geq 3 \times$ RBW
3. Perform a band-power integration across the 1 MHz bandwidth in which the band edge emission level is to be measured. CAUTION: you must ensure that the spectrum analyzer or EMI receiver is set for peak detection and max-hold for this measurement.

For average emissions measurements, follow the procedures described in II.G.6., "Procedures for average unwanted Emissions Measurements above 1000 MHz. Except for the following changes:

1. Set RBW = 100 kHz
2. Set VBW $\geq 3 \times$ RBW
3. Perform a band-power integration across the 1 MHz bandwidth in which the band edge emission level is to be measured.

Notes:

1. $f < 30$ MHz, extrapolation factor of 40 dB/decade of distance. $F_d = 40\log(D_m/D_s)$

$f \geq 30$ MHz, extrapolation factor of 20 dB/decade of distance. $F_d = 20\log(D_m/D_s)$

Where:

F_d = Distance factor in dB

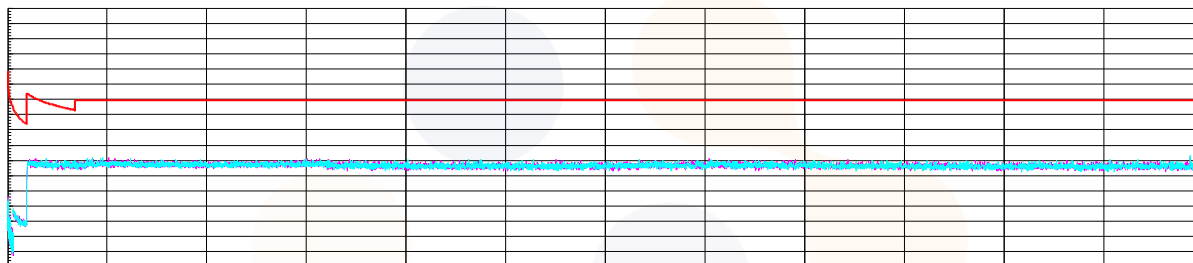
D_m = Measurement distance in meters

D_s = Specification distance in meters

2. Factors(dB) = Antenna factor(dB/m) + Cable loss(dB) + or Amp. gain(dB) + or F_d (dB)
3. The worst-case emissions are reported however emissions whose levels were not within 20 dB of respective limits were not reported.
4. Average test would be performed if the peak result were greater than the average limit.
5. ¹⁾ means restricted band.
6. Above 1 GHz the worst results between two antenna polarizations (H and V) were documented in the test report.
7. Below 30 MHz frequency range, In order to search for the worst result, all orientations about parallel, perpendicular, and ground-parallel were investigated then reported. when the emission level was higher than 20 dB of the limit, then the following statement shall be made: "No spurious emissions were detected within 20 dB of the limit."
8. For above 1 GHz pre-scan to detect harmonic and spurious emissions, the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 30 kHz for peak measurements.
9. The limits in CFR 47, Part 15, Subpart C, paragraph 15.209 (a), are identical to those in RSS-GEN Section 8.9, Table 6, since the measurements are performed in terms of magnetic field strength and converted to electric field strength levels (as reported in the table) using the free space impedance of 377Ω. For example, the measurement frequency X kHz resulted in a level of Y dBμV/m, which is equivalent to $Y - 51.5 = Z$ dBμA/m, which has the same margin, W dB, to the corresponding RSS-GEN Table 6 limit as it has to be 15.209(a) limit.

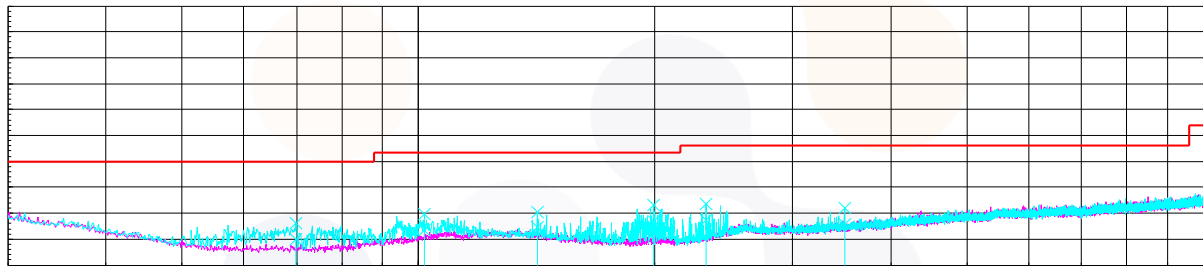
[DC 5 V]**Test results (Below 30 MHz) – Worst case: 802.11ac VHT20 / UNII-2C_5 700 MHz**

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μ V))	(dB)	(dB)	(dB)	(dB(μ V/m))	(dB(μ V/m))	(dB)
Quasi peak data								
No spurious emissions were detected within 20 dB of the limit.								

Horizontal/Vertical

Test results (Below 1 000 MHz) – Worst case: 802.11ac VHT20 / UNII-2C_5 700 MHz

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Quasi peak data								
69.89	V	27.80	12.29	-29.97	-	10.12	40.00	29.88
101.90	V	26.10	16.78	-29.43	-	13.45	43.50	30.05
141.79	V	26.00	17.12	-28.73	-	14.39	43.50	29.11
199.75	V	30.00	15.10	-28.08	-	17.02	43.50	26.48
232.85	V	28.80	16.09	-27.45	-	17.44	46.00	28.56
349.25	V	22.20	19.80	-26.09	-	15.91	46.00	30.09

Horizontal/Vertical

Test results (Above 1 000 MHz)

UNII-1

802.11a_Lowest Channel (5 180 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 149.40 ¹⁾	H	44.87	34.22	-24.13	-	54.96	74.00	19.04
10 441.82	V	59.14	37.57	-48.41	-	48.30	68.20	19.90
15 569.28 ¹⁾	V	57.80	39.90	-46.80	-	50.90	74.00	23.10
Average Data								
5 149.40 ¹⁾	H	33.01	34.22	-24.13	0.22	43.32	54.00	10.68

802.11a_Middle Channel (5 200 MHz)

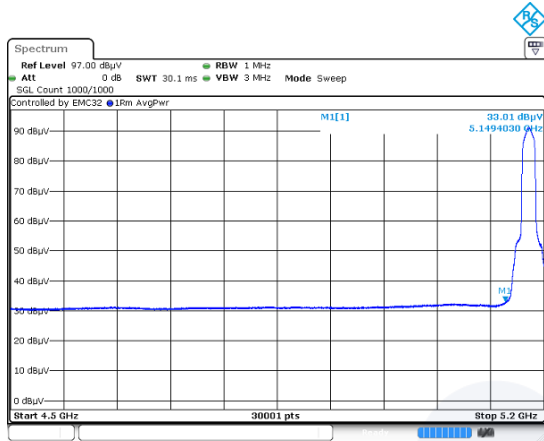
Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
10 401.95	V	57.95	37.54	-48.49	-	47.00	68.20	21.20
15 574.65 ¹⁾	H	57.58	39.90	-46.81	-	50.67	74.00	23.33
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

802.11a_Highest Channel (5 240 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
10 475.55	V	58.41	37.59	-48.35	-	47.65	68.20	20.55
15 697.70 ¹⁾	V	57.80	39.90	-46.83	-	50.87	74.00	23.13
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

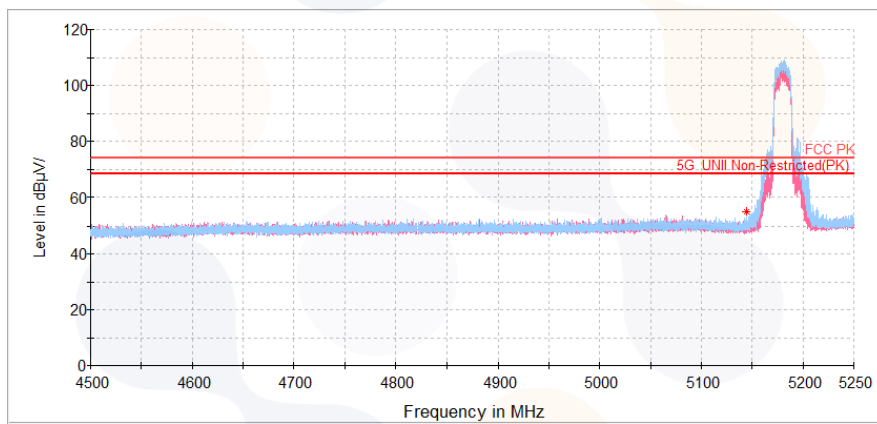
802.11a_Lowest Channel (5 180 MHz)

Average data



Blank

Horizontal/Vertical for Band-edge



802.11n_HT20_Lowest Channel (5 180 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 149.78 ¹⁾	H	43.04	34.22	-24.13	-	53.13	74.00	20.87
10 322.60	V	58.50	37.49	-48.65	-	47.34	68.20	20.86
15 557.78 ¹⁾	V	57.34	39.90	-46.80	-	50.44	74.00	23.56
Average Data								
5 149.78 ¹⁾	H	32.83	34.22	-24.13	0.26	43.18	54.00	10.82

802.11n_HT20_Middle Channel (5 200 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
10 394.67	H	57.83	37.54	-48.51	-	46.86	68.20	21.34
15 622.57 ¹⁾	V	57.44	39.90	-46.81	-	50.53	74.00	23.47
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

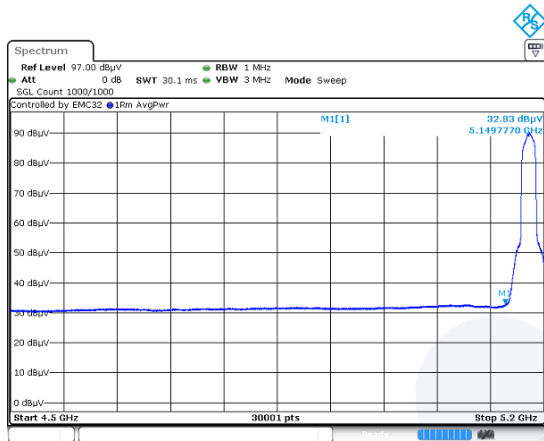
802.11n_HT20_Highest Channel (5 240 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
10 490.12	V	58.16	37.59	-48.32	-	47.43	68.20	20.77
15 698.85 ¹⁾	H	57.68	39.90	-46.83	-	50.75	74.00	23.25
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

In order to simplify the report, attached plots were only the lowest margin condition

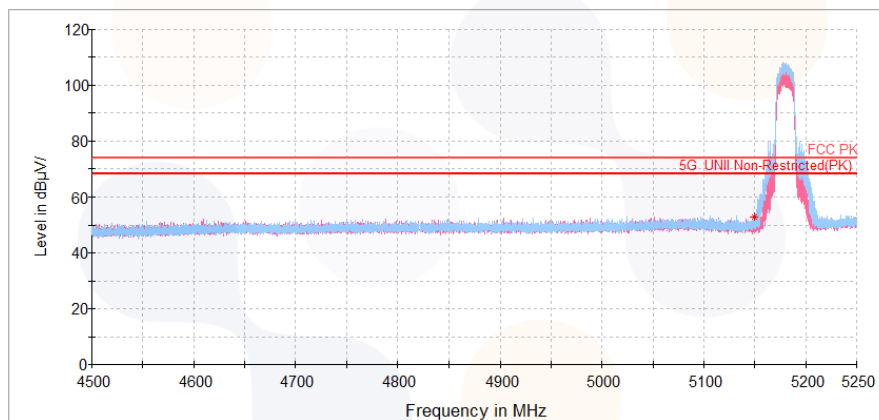
802.11n_HT20_Lowest Channel (5 180 MHz)

Average data



Blank

Horizontal/Vertical for Band-edge



802.11ac_VHT20_Lowest Channel (5 180 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 149.99 ¹⁾	H	43.68	34.22	-24.13	-	53.77	74.00	20.23
10 342.15	H	58.14	37.51	-48.61	-	47.04	68.20	21.16
15 537.85 ¹⁾	V	57.68	39.90	-46.80	-	50.78	74.00	23.22
Average Data								
5 149.99 ¹⁾	H	32.92	34.22	-24.13	0.25	43.26	54.00	10.74

802.11ac_VHT20_Middle Channel (5 200 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
10 432.23	H	57.70	37.56	-48.43	-	46.83	68.20	21.37
15 619.12 ¹⁾	H	57.49	39.90	-46.81	-	50.58	74.00	23.42
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

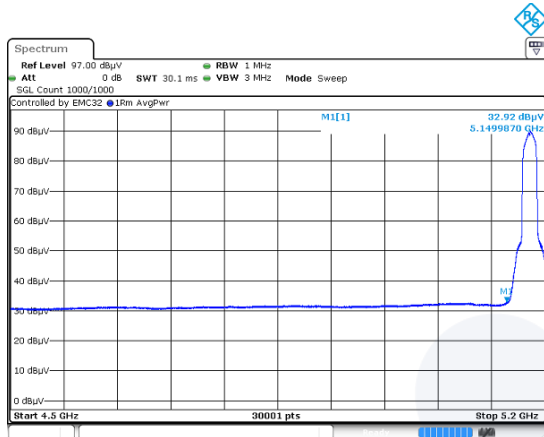
802.11ac_VHT20_Highest Channel (5 240 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
10 477.08	V	57.73	37.59	-48.35	-	46.97	68.20	21.23
15 694.63 ¹⁾	H	57.43	39.90	-46.83	-	50.50	74.00	23.50
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

In order to simplify the report, attached plots were only the lowest margin condition

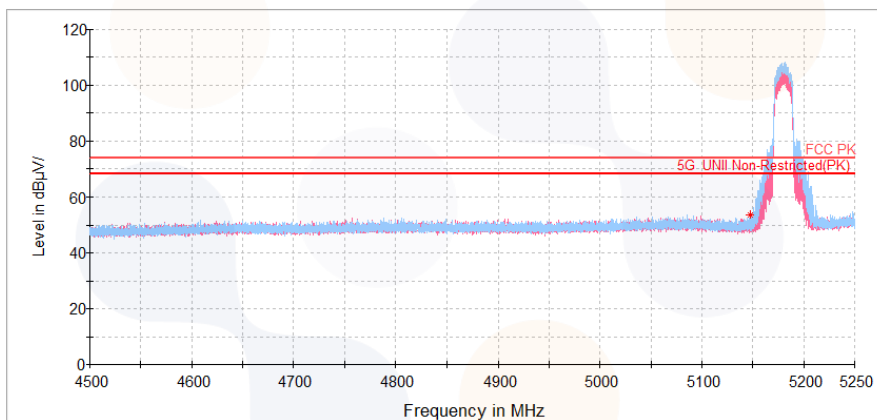
802.11ac_VHT20_Lowest Channel (5 180 MHz)

Average data



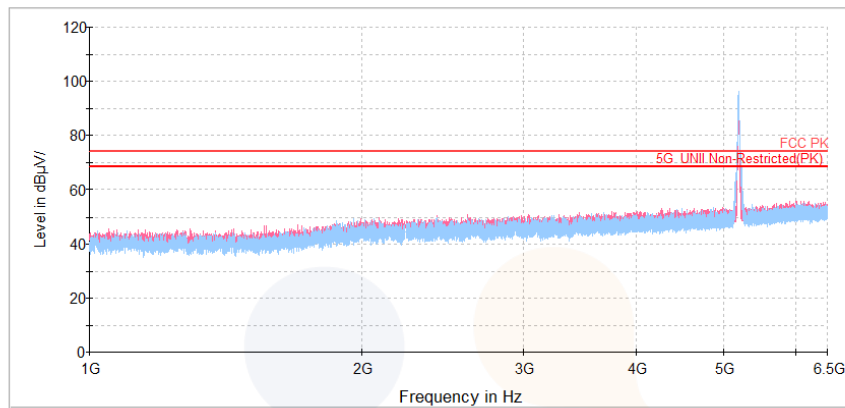
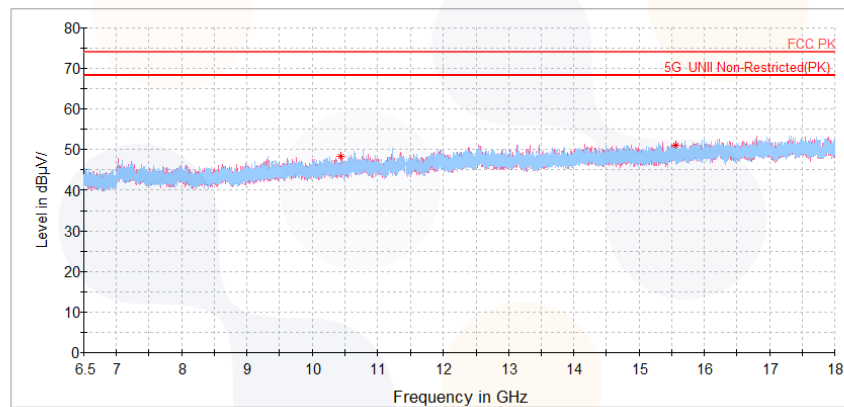
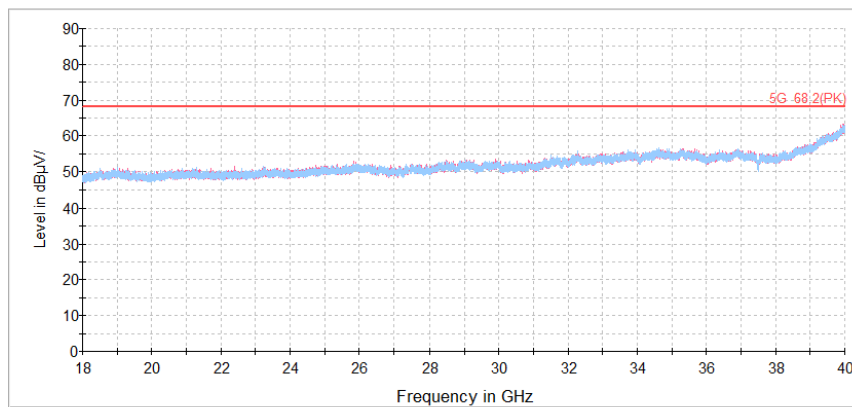
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Horizontal/Vertical for Band-edge



Plot of Harmonics and Spurious Emissions

In order to simplify the report, attached plots were only the lowest margin condition

802.11a_UNII-1_Lowest Channel (5 180 MHz)**Horizontal/Vertical for 1 GHz ~ 6.5 GHz****Horizontal/Vertical for 6.5 GHz ~ 18 GHz****Horizontal/Vertical for 18 GHz ~ 40 GHz**

UNII-2A**802.11a_Lowest Channel (5 260 MHz)**

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
10 550.68	H	58.95	37.63	-48.33	-	48.25	68.20	19.95
15 767.47 ¹⁾	H	57.58	39.90	-46.84	-	50.64	74.00	23.36
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

802.11a_Middle Channel (5 280 MHz)

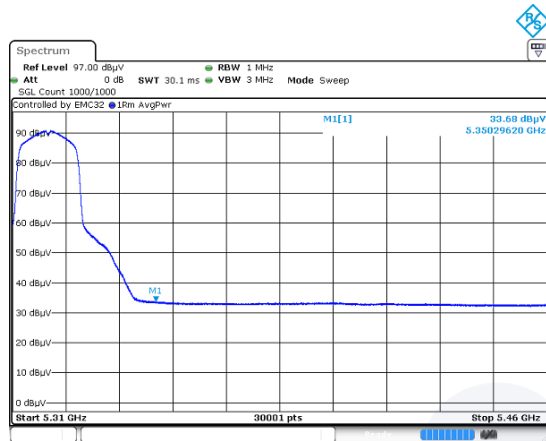
Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
10 556.82	H	58.09	37.63	-48.34	-	47.38	68.20	20.82
15 817.68 ¹⁾	V	57.61	39.90	-46.85	-	50.66	74.00	23.34
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

802.11a_Highest Channel (5 320 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 350.30 ¹⁾	H	44.52	34.38	-23.36	-	55.54	74.00	18.46
10 654.18 ¹⁾	V	58.61	37.69	-48.40	-	47.90	74.00	26.10
15 928.47 ¹⁾	H	57.93	39.90	-46.87	-	50.96	74.00	23.04
Average Data								
5 350.30 ¹⁾	H	33.68	34.38	-23.36	0.22	44.92	54.00	9.08

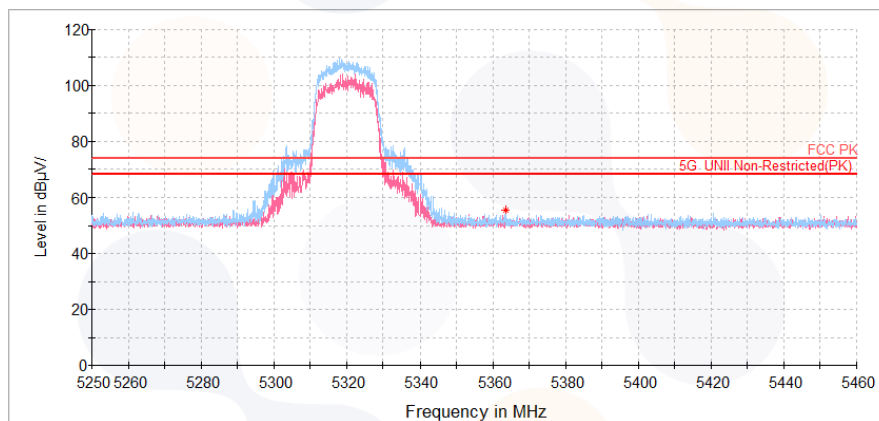
802.11a_Highest Channel (5 320 MHz)

Average data



Blank

Horizontal/Vertical for Band-edge



802.11n_HT20_Lowest Channel (5 260 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
10 526.53	H	58.46	37.62	-48.32	-	47.76	68.20	20.44
15 787.78 ¹⁾	H	57.90	39.90	-46.84	-	50.96	74.00	23.04
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

802.11n_HT20_Middle Channel (5 280 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
10 565.25	V	58.11	37.64	-48.34	-	47.41	68.20	20.79
15 839.92 ¹⁾	V	57.35	39.90	-46.85	-	50.40	74.00	23.60
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

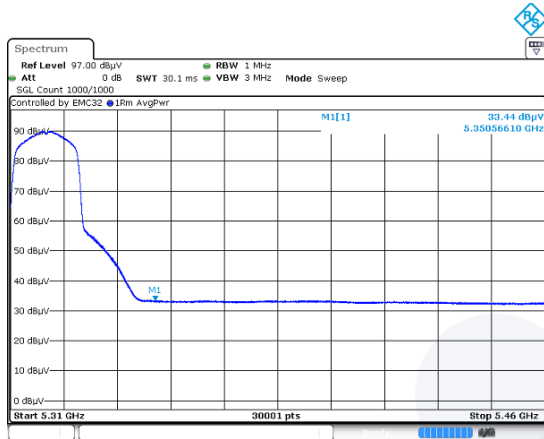
802.11n_HT20_Highest Channel (5 320 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 350.57 ¹⁾	H	43.22	34.38	-23.36	-	54.24	74.00	19.76
10 653.42 ¹⁾	H	59.03	37.69	-48.40	-	48.32	74.00	25.68
15 931.15 ¹⁾	H	57.52	39.90	-46.87	-	50.55	74.00	23.45
Average Data								
5 350.57 ¹⁾	H	33.44	34.38	-23.36	0.26	44.72	54.00	9.28

In order to simplify the report, attached plots were only the lowest margin condition

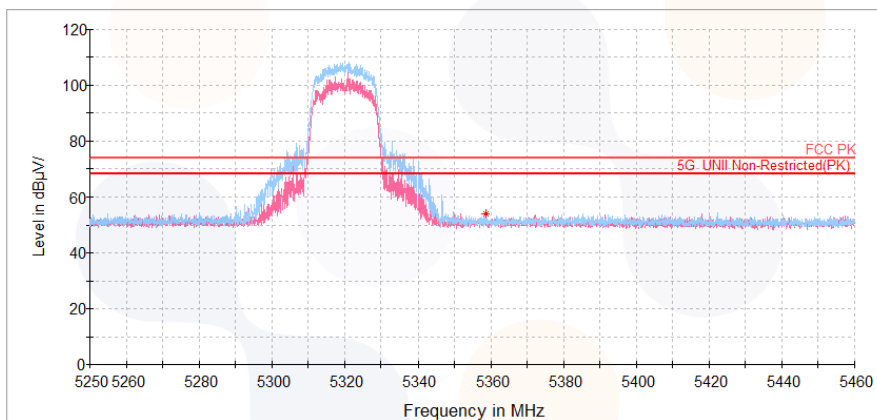
802.11n_HT20_Highest Channel (5 320 MHz)

Average data



Blank

Horizontal/Vertical for Band-edge



802.11ac_VHT20_Lowest Channel (5 260 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
10 569.85	H	57.64	37.64	-48.34	-	46.94	68.20	21.26
15 812.70 ¹⁾	H	57.73	39.90	-46.85	-	50.78	74.00	23.22
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

802.11ac_VHT20_Middle Channel (5 280 MHz)

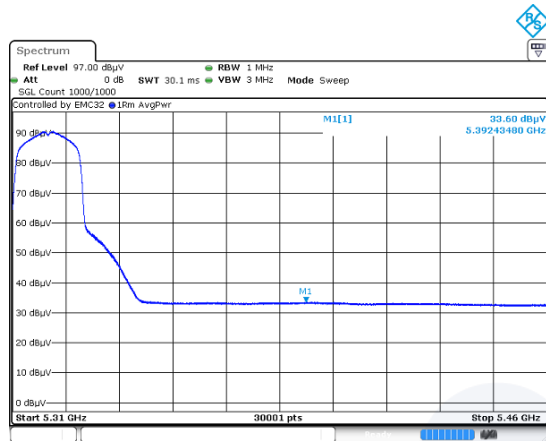
Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
10 587.48	H	58.46	37.65	-48.36	-	47.75	68.20	20.45
15 832.25 ¹⁾	H	57.29	39.90	-46.85	-	50.34	74.00	23.66
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

802.11ac_VHT20_Highest Channel (5 320 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 392.43 ¹⁾	H	43.66	34.41	-23.66	-	54.41	74.00	19.59
10 644.98 ¹⁾	V	58.15	37.69	-48.39	-	47.45	74.00	26.55
15 974.85 ¹⁾	H	57.79	39.90	-46.88	-	50.81	74.00	23.19
Average Data								
5 392.43 ¹⁾	H	33.60	34.41	-23.66	0.25	44.60	54.00	9.40

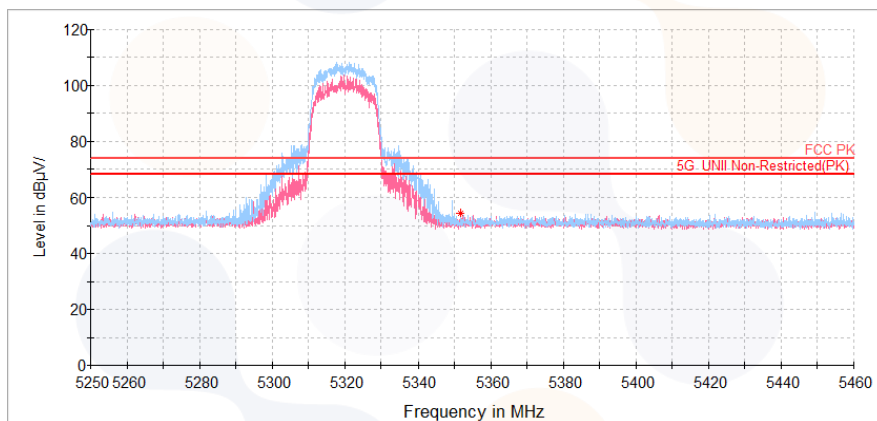
802.11ac_VHT20_Highest Channel (5 320 MHz)

Average data



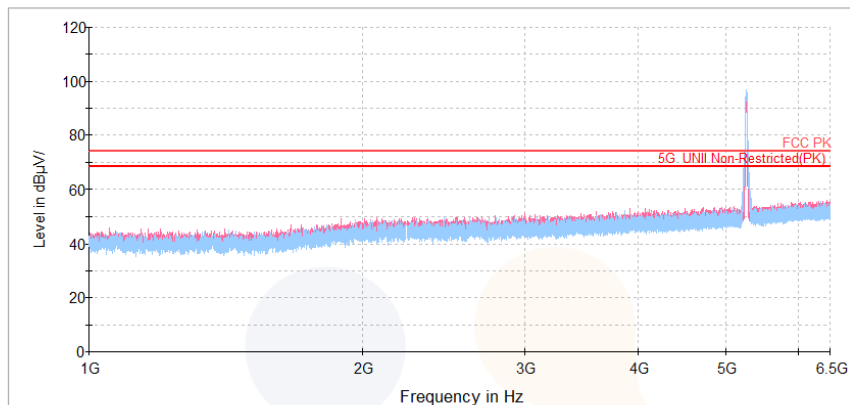
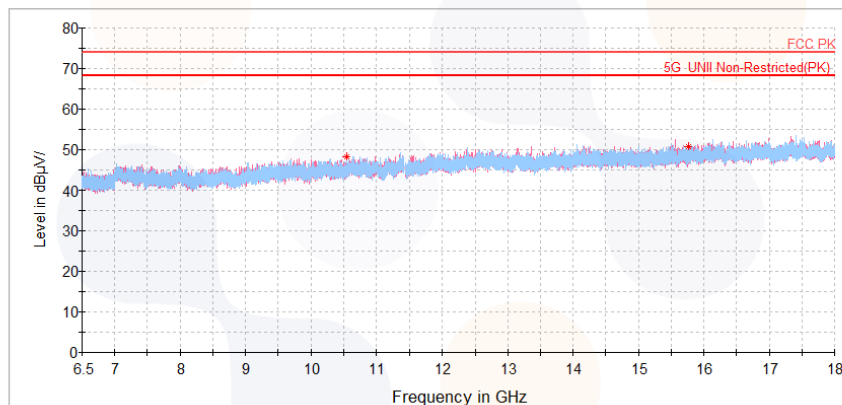
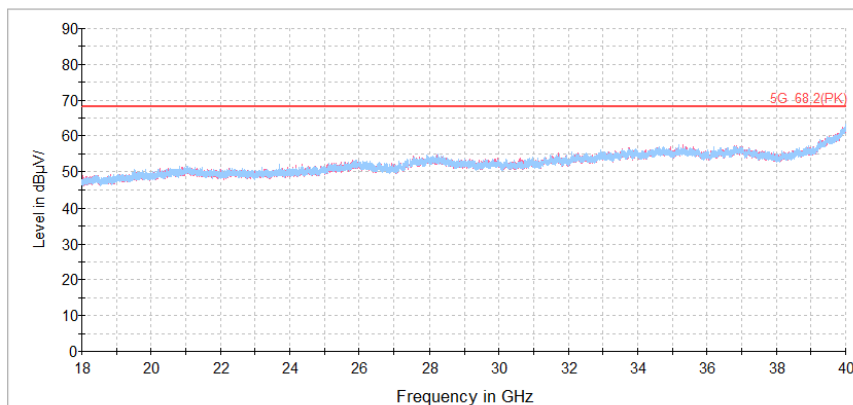
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Horizontal/Vertical for Band-edge



Plot of Harmonics and Spurious Emissions

In order to simplify the report, attached plots were only the lowest margin condition

802.11a_UNII-2A_Lowest Channel (5 260 MHz)**Horizontal/Vertical for 1 GHz ~ 6.5 GHz****Horizontal/Vertical for 6.5 GHz ~ 18 GHz****Horizontal/Vertical for 18 GHz ~ 40 GHz**

UNII-2C**802.11a_Lowest Channel (5 500 MHz)**

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 458.95 ¹⁾	H	42.56	34.47	-23.27	-	53.76	74.00	20.24
11 016.05 ¹⁾	V	58.41	37.91	-48.61	-	47.71	74.00	26.29
16 548.70	V	56.14	41.25	-46.15	-	51.24	68.20	16.96
Average Data								
5 458.95 ¹⁾	H	33.37	34.47	-23.27	0.22	44.79	54.00	9.21

802.11a_Middle Channel (5 600 MHz)

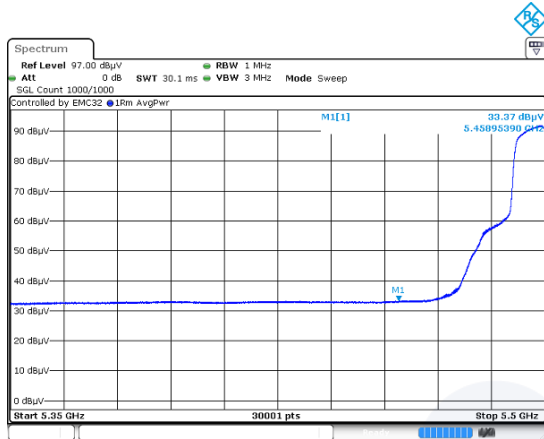
Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
11 219.98 ¹⁾	H	57.97	38.08	-48.57	-	47.48	74.00	26.52
16 786.75	H	56.06	41.49	-46.03	-	51.52	68.20	16.68
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

802.11a_Highest Channel (5 700 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 725.98	H	45.82	34.86	-23.14	-	57.54	68.20	10.66
11 385.97 ¹⁾	H	59.57	38.21	-48.54	-	49.24	74.00	24.76
17 109.13	H	54.97	41.44	-45.81	-	50.60	68.20	17.60
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

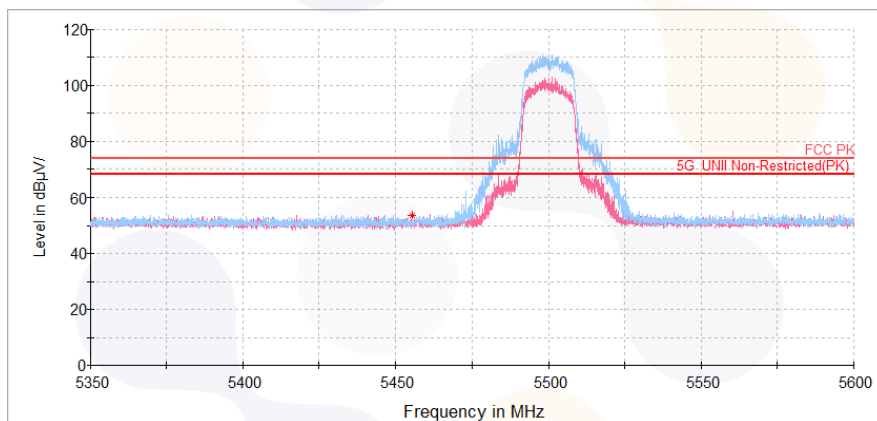
802.11a_Lowest Channel (5 500 MHz)

Average data



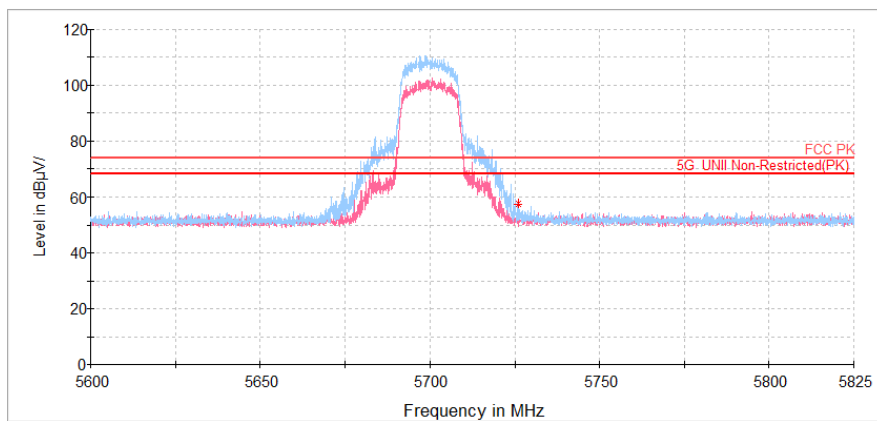
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Horizontal/Vertical for Band-edge



Highest Channel (5 700 MHz)

Horizontal/Vertical for Band-edge



802.11n_HT20_Lowest Channel (5 500 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 419.92 ¹⁾	H	43.34	34.44	-23.56	-	54.22	74.00	19.78
10 986.53 ¹⁾	H	59.95	37.89	-48.61	-	49.23	74.00	24.77
16 508.07	V	55.99	41.21	-46.16	-	51.04	68.20	17.16
Average Data								
5 419.92 ¹⁾	H	33.31	34.44	-23.56	0.26	44.45	54.00	9.55

802.11n_HT20_Middle Channel (5 600 MHz)

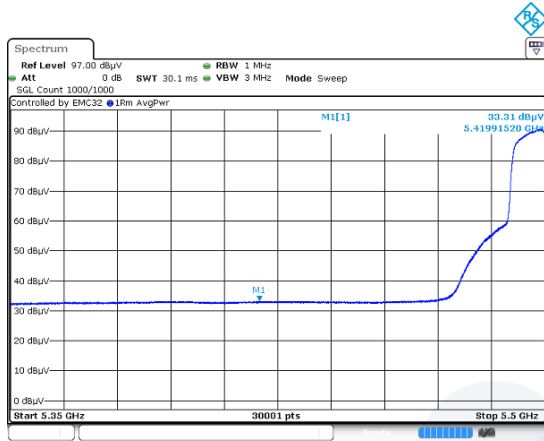
Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
11 177.05 ¹⁾	V	58.51	38.04	-48.58	-	47.97	74.00	26.03
16 769.88	H	56.99	41.47	-46.04	-	52.42	68.20	15.78
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

802.11n_HT20_Highest Channel (5 700 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 725.93	H	47.39	34.86	-23.14	-	59.11	68.20	9.09
11 394.02 ¹⁾	V	59.30	38.22	-48.54	-	48.98	74.00	25.02
17 199.22	V	56.66	41.48	-45.70	-	52.44	68.20	15.76
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

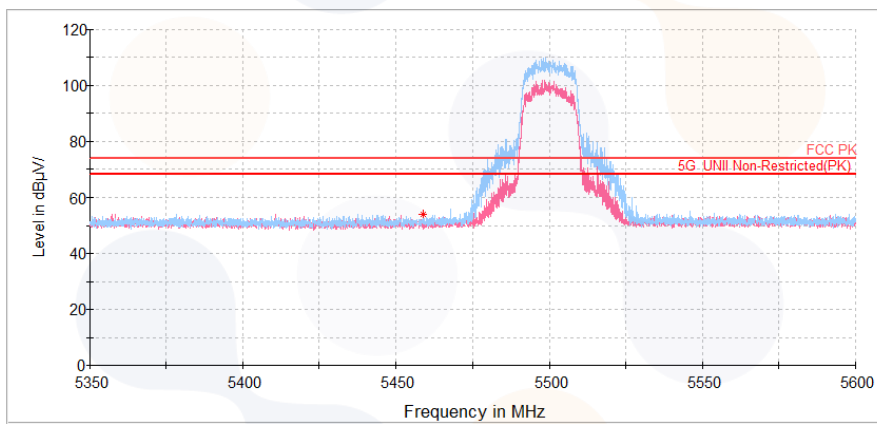
802.11n_HT20_Lowest Channel (5 500 MHz)

Average data



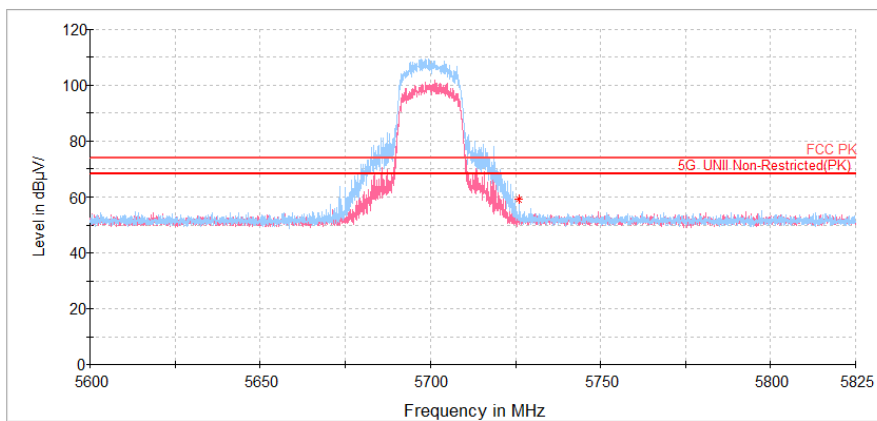
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Horizontal/Vertical for Band-edge



Highest Channel (5 700 MHz)

Horizontal/Vertical for Band-edge



802.11ac_VHT20_Lowest Channel (5 500 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 421.44 ¹⁾	H	44.03	34.44	-23.55	-	54.92	74.00	19.08
11 010.68 ¹⁾	H	58.80	37.91	-48.61	-	48.10	74.00	25.90
16 526.47	H	55.52	41.23	-46.16	-	50.59	68.20	17.61
Average Data								
5 421.44 ¹⁾	H	33.21	34.44	-23.55	0.25	44.35	54.00	9.65

802.11ac_VHT20_Middle Channel (5 600 MHz)

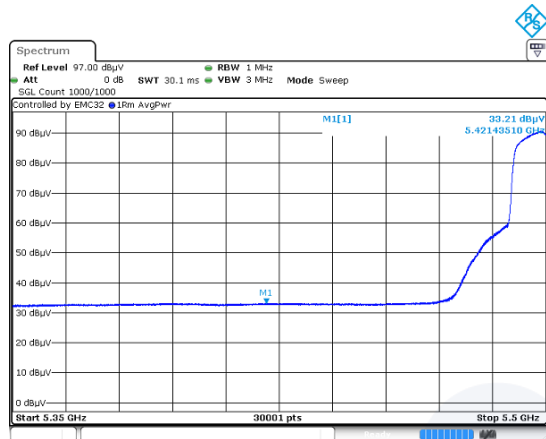
Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
11 174.75 ¹⁾	V	58.29	38.04	-48.58	-	47.75	74.00	26.25
16 803.23	H	55.66	41.50	-46.03	-	51.13	68.20	17.07
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

802.11ac_VHT20_Highest Channel (5 700 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 726.41	H	48.37	34.86	-23.14	-	60.09	68.20	8.11
11 435.80 ¹⁾	V	58.56	38.25	-48.53	-	48.28	74.00	25.72
17 129.83	H	55.60	41.45	-45.78	-	51.27	68.20	16.93
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

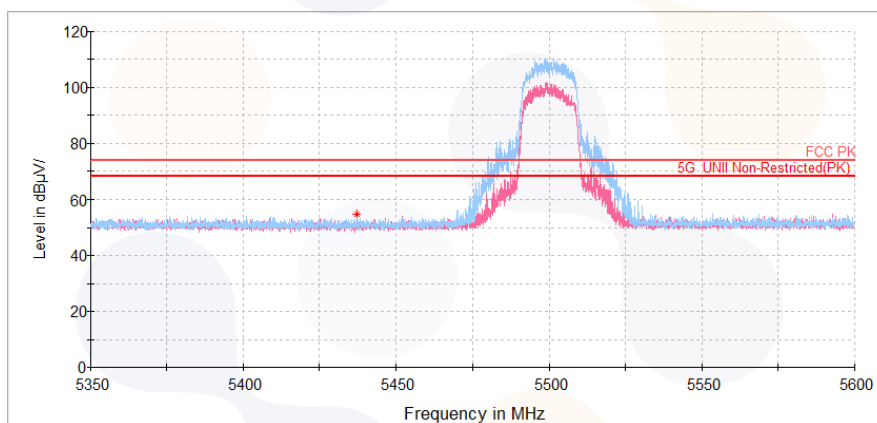
802.11ac_VHT20_Lowest Channel (5 500 MHz)

Average data



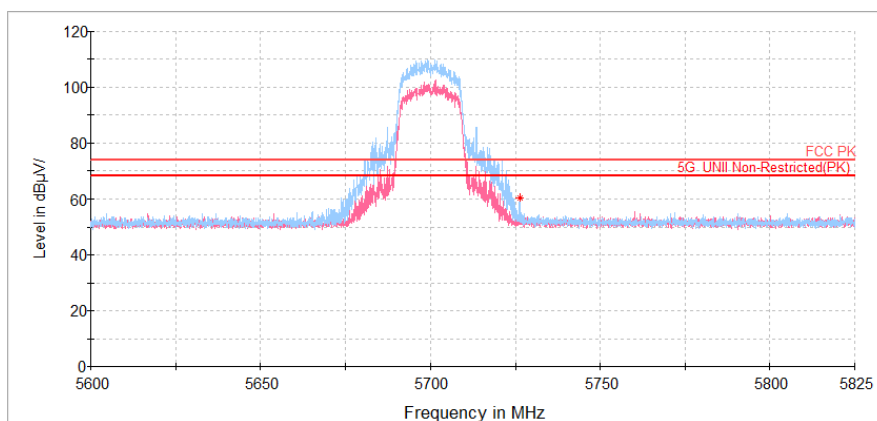
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Horizontal/Vertical for Band-edge



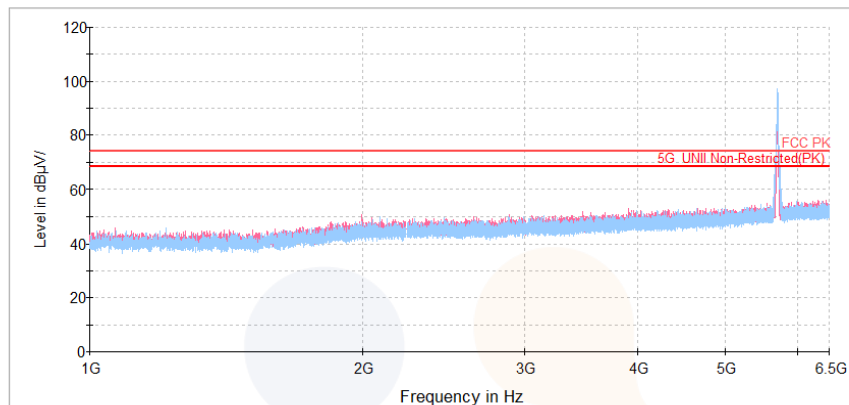
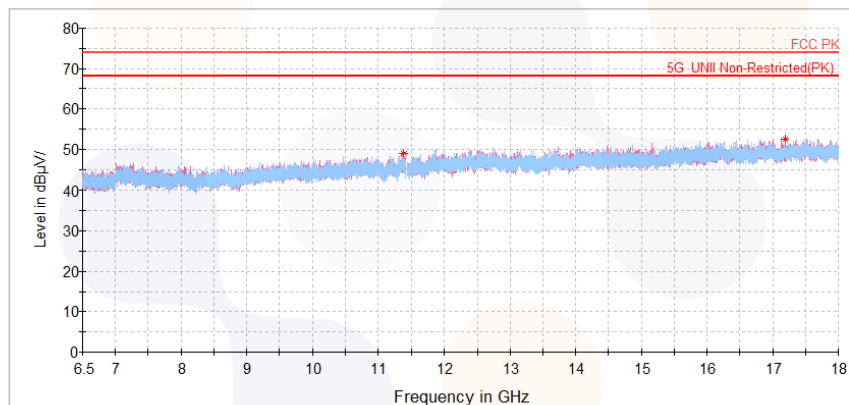
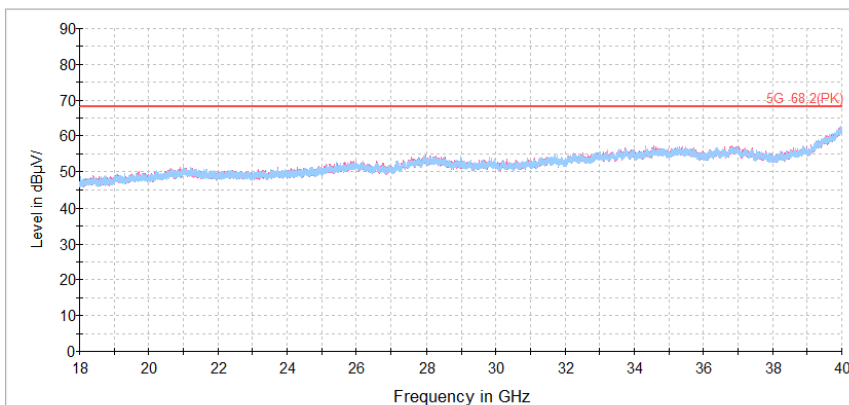
Highest Channel (5 700 MHz)

Horizontal/Vertical for Band-edge



Plot of Harmonics and Spurious Emissions

In order to simplify the report, attached plots were only the lowest margin condition

802.11n HT20_UNII-2C_Highest Channel (5 700 MHz)**Horizontal/Vertical for 1 GHz ~ 6.5 GHz****Horizontal/Vertical for 6.5 GHz ~ 18 GHz****Horizontal/Vertical for 18 GHz ~ 40 GHz**

Straddle Channel**802.11a (5 720 MHz)**

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
11 411.27 ¹⁾	V	58.07	38.23	-48.54	-	47.76	74.00	26.24
17 213.02	H	55.74	41.49	-45.69	-	51.54	68.20	16.66
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

802.11n HT20 (5 720 MHz)

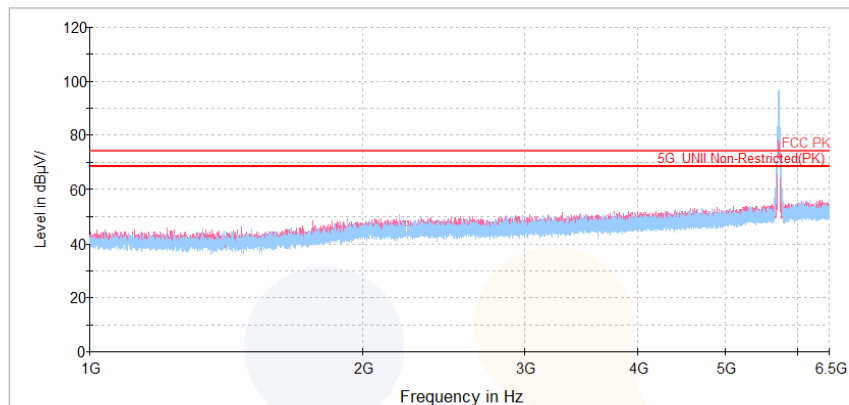
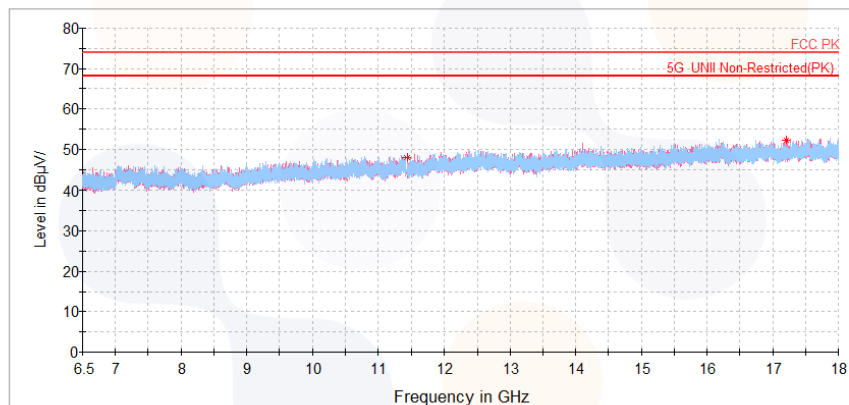
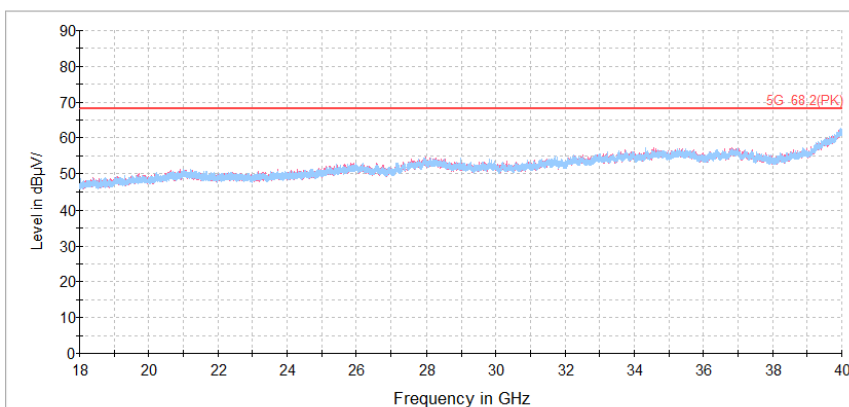
Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
11 382.90 ¹⁾	V	58.43	38.21	-48.54	-	48.10	74.00	25.90
17 199.60	H	55.83	41.48	-45.70	-	51.61	68.20	16.59
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

802.11ac VHT20 (5 720 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
11 430.05 ¹⁾	V	58.18	38.24	-48.53	-	47.89	74.00	26.11
17 202.28	V	56.39	41.48	-45.70	-	52.17	68.20	16.03
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

Plot of Harmonics and Spurious Emissions

In order to simplify the report, attached plots were only the lowest margin condition

802.11ac VHT20_Straddle Channel (5 720 MHz)**Horizontal/Vertical for 1 GHz ~ 6.5 GHz****Horizontal/Vertical for 6.5 GHz ~ 18 GHz****Horizontal/Vertical for 18 GHz ~ 40 GHz**

UNII-3**802.11a_Lowest Channel (5 745 MHz)**

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 724.39	H	59.40	34.86	-23.15	-	71.11	120.81	49.70
11 481.42 ¹⁾	H	57.68	38.29	-48.52	-	47.45	74.00	26.55
17 194.23	V	56.06	41.48	-45.71	-	51.83	68.20	16.37
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

802.11a_Middle Channel (5 785 MHz)

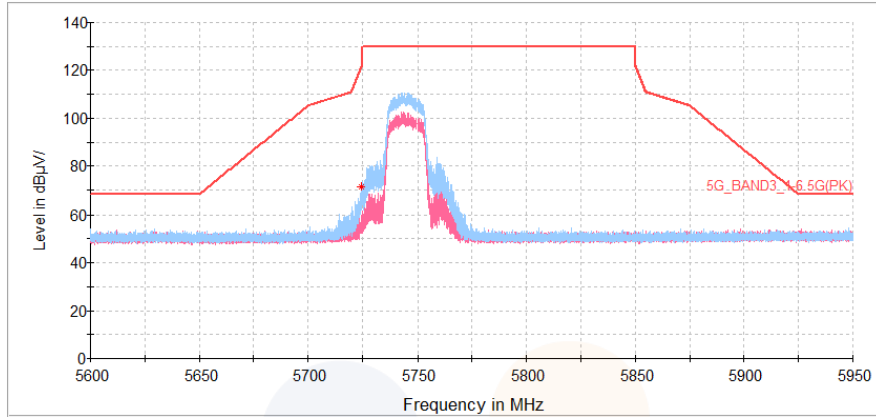
Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
11 520.13 ¹⁾	V	59.52	38.32	-48.54	-	49.30	74.00	24.70
17 313.45	H	56.49	41.53	-45.57	-	52.45	68.20	15.75
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

802.11a_Highest Channel (5 825 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 850.44	H	45.22	35.06	-22.88	-	57.40	121.20	63.80
11 658.90 ¹⁾	V	58.20	38.49	-48.64	-	48.05	74.00	25.95
17 437.27	H	55.46	41.57	-45.42	-	51.61	68.20	16.59
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

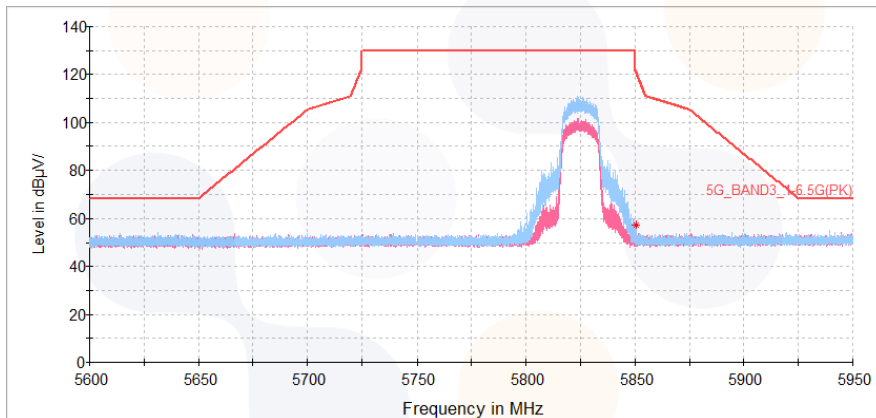
802.11a_Lowest Channel (5 745 MHz)

Horizontal/Vertical for Band-edge



802.11a_Highest Channel (5 825 MHz)

Horizontal/Vertical for Band-edge



802.11n_HT20_Lowest Channel (5 745 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 724.76	H	61.42	34.86	-23.14	-	73.14	121.66	48.52
11 507.48 ¹⁾	H	57.79	38.31	-48.53	-	47.57	74.00	26.43
17 228.35	H	55.61	41.49	-45.67	-	51.43	68.20	16.77
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

802.11n_HT20_Middle Channel (5 785 MHz)

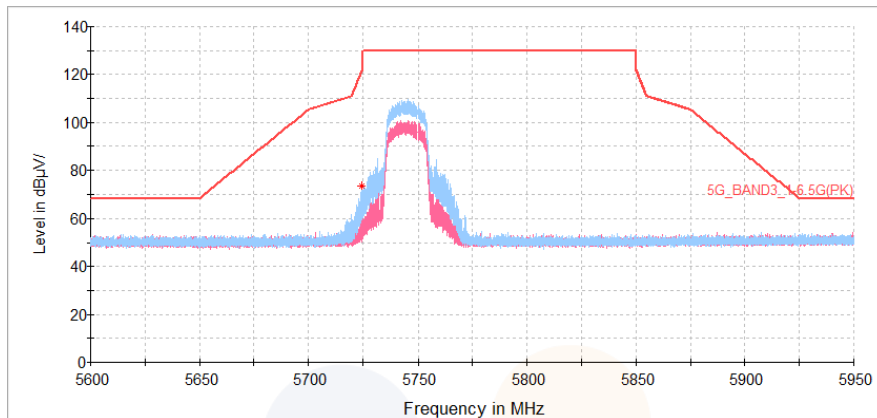
Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
11 556.93 ¹⁾	V	57.82	38.37	-48.56	-	47.63	74.00	26.37
17 335.68	V	55.73	41.53	-45.54	-	51.72	68.20	16.48
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

802.11n_HT20_Highest Channel (5 825 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 851.84	H	44.52	35.06	-22.89	-	56.69	118.01	61.32
11 636.28 ¹⁾	V	58.31	38.46	-48.63	-	48.14	74.00	25.86
17 198.07	V	55.91	41.48	-45.70	-	51.69	68.20	16.51
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

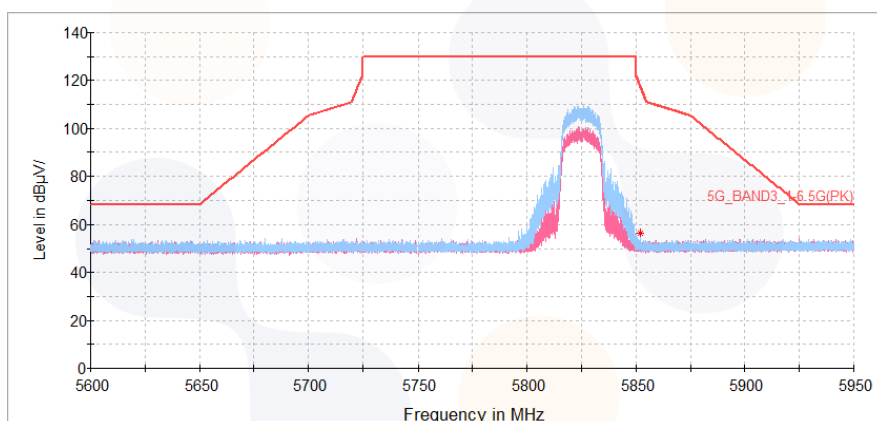
802.11n_HT20_Lowest Channel (5 745 MHz)

Horizontal/Vertical for Band-edge



802.11n_HT20_Highest Channel (5 825 MHz)

Horizontal/Vertical for Band-edge



802.11ac_VHT20_Lowest Channel (5 745 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 724.86	H	57.66	34.86	-23.14	-	69.38	121.87	52.49
11 498.28 ¹⁾	V	58.35	38.30	-48.52	-	48.13	74.00	25.87
17 211.48	V	56.16	41.48	-45.69	-	51.95	68.20	16.25
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

802.11ac_VHT20_Middle Channel (5 785 MHz)

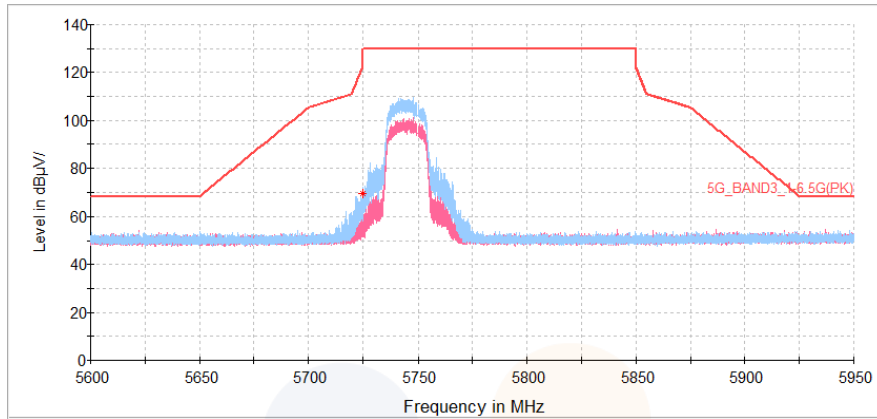
Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
11 601.78 ¹⁾	H	59.27	38.42	-48.60	-	49.09	74.00	24.91
17 333.38	H	57.21	41.53	-45.55	-	53.19	68.20	15.01
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

802.11ac_VHT20_Highest Channel (5 825 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 851.06	H	47.20	35.06	-22.89	-	59.37	119.80	60.42
11 678.07 ¹⁾	H	57.45	38.51	-48.66	-	47.30	74.00	26.70
17 448.77	H	55.72	41.58	-45.41	-	51.89	68.20	16.31
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

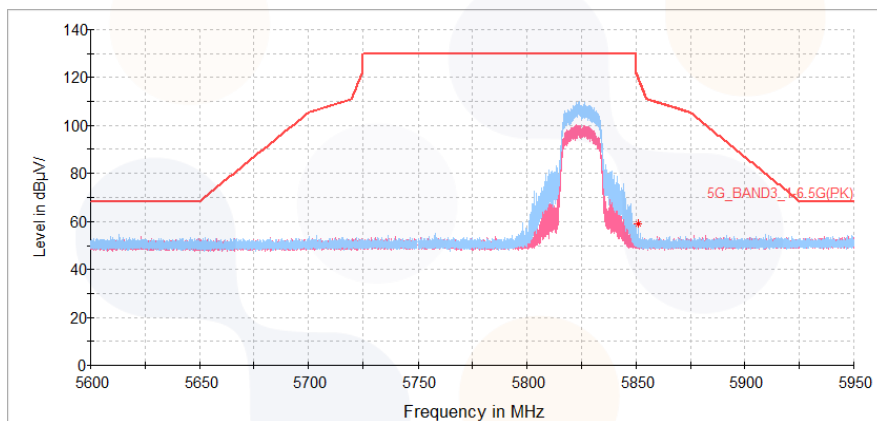
802.11ac_VHT20_Lowest Channel (5 745 MHz)

Horizontal/Vertical for Band-edge



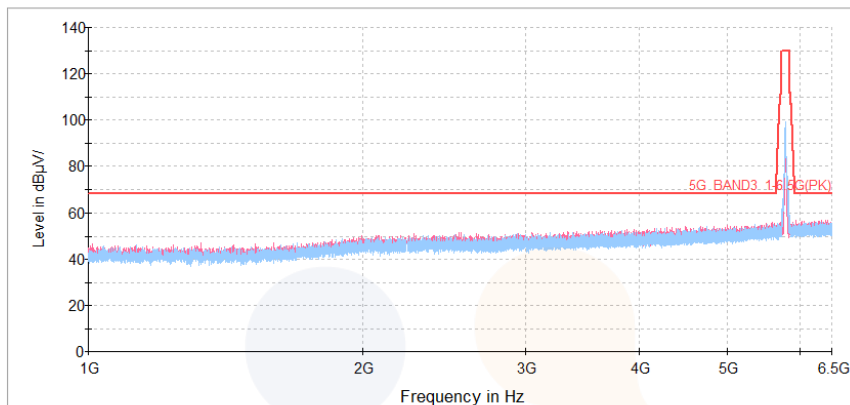
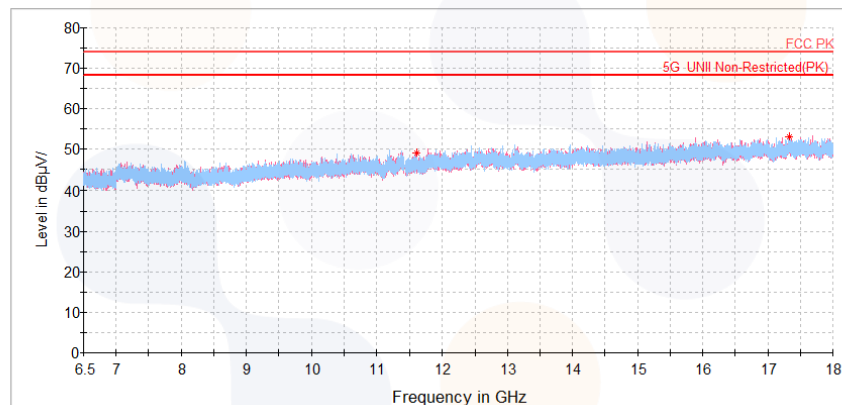
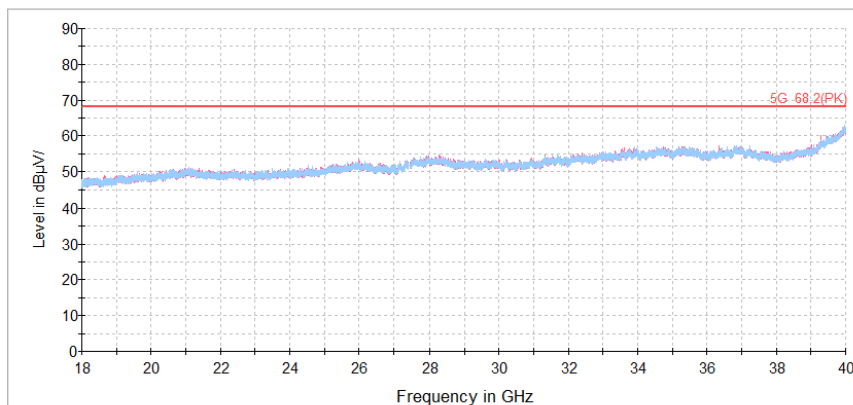
802.11ac_VHT20_Highest Channel (5 825 MHz)

Horizontal/Vertical for Band-edge



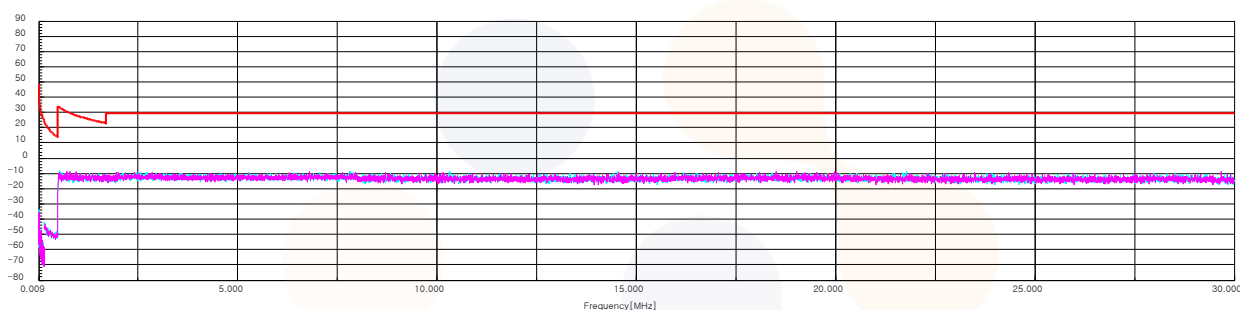
Plot of Harmonics and Spurious Emissions

In order to simplify the report, attached plots were only the lowest margin condition

802.11ac VHT20_UNII-3_Middle Channel (5 785 MHz)**Horizontal/Vertical for 1 GHz ~ 6.5 GHz****Horizontal/Vertical for 6.5 GHz ~ 18 GHz****Horizontal/Vertical for 18 GHz ~ 40 GHz**

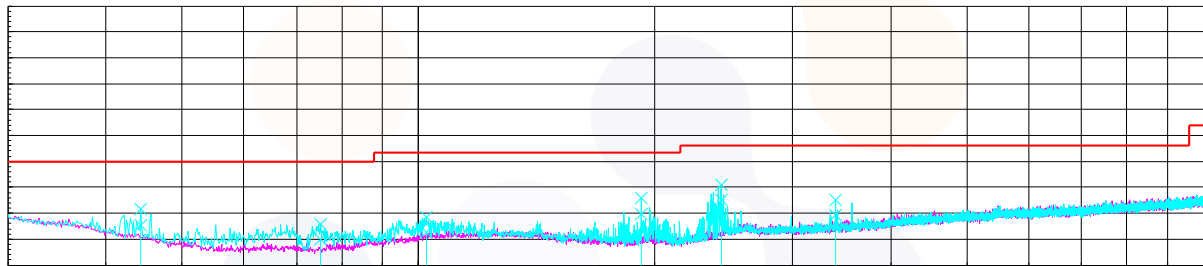
[DC 12 V]**Test results (Below 30 MHz) – Worst case: 802.11ac VHT20 / UNII-2C_5 700 MHz**

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μ V))	(dB)	(dB)	(dB)	(dB(μ V/m))	(dB(μ V/m))	(dB)
Quasi peak data								
No spurious emissions were detected within 20 dB of the limit.								

Horizontal/Vertical

Test results (Below 1 000 MHz) – 802.11ac VHT20 / UNII-2C_5 700 MHz

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Quasi peak data								
44.31	V	29.10	16.82	-30.55	-	15.37	40.00	24.63
75.23	V	27.40	12.42	-29.92	-	9.90	40.00	30.10
102.39	V	25.00	16.88	-29.42	-	12.46	43.50	31.04
192.35	V	32.90	14.90	-28.08	-	19.72	43.50	23.78
243.16 ¹⁾	V	35.00	17.47	-27.34	-	25.13	46.00	20.87
340.04	V	25.70	19.60	-26.25	-	19.05	46.00	26.95

Horizontal/Vertical

Test results (Above 1 000 MHz)**UNII-1****802.11a_Lowest Channel (5 180 MHz)**

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 149.12 ¹⁾	H	46.04	34.22	-24.13	-	56.13	74.00	17.87
10 380.10	H	58.79	37.53	-48.54	-	47.78	68.20	20.42
15 555.48 ¹⁾	H	57.78	39.90	-46.80	-	50.88	74.00	23.12
Average Data								
5 149.73 ¹⁾	H	32.96	34.22	-24.13	0.22	43.27	54.00	10.73

802.11a_Middle Channel (5 200 MHz)

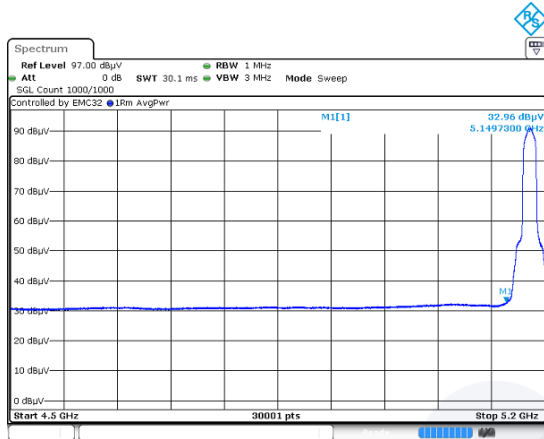
Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
10 401.57	H	58.82	37.54	-48.49	-	47.87	68.20	20.33
15 612.60 ¹⁾	V	57.63	39.90	-46.81	-	50.72	74.00	23.28
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

802.11a_Highest Channel (5 240 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
10 463.67	V	58.49	37.58	-48.37	-	47.70	68.20	20.50
15 760.95 ¹⁾	V	57.90	39.90	-46.84	-	50.96	74.00	23.04
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

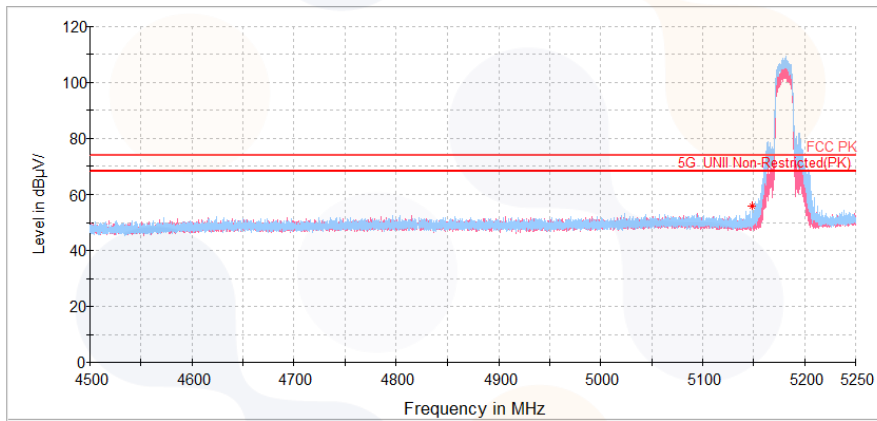
802.11a_Lowest Channel (5 180 MHz)

Average data



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Horizontal/Vertical for Band-edge



802.11n_HT20_Lowest Channel (5 180 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 149.99 ¹⁾	H	43.54	34.22	-24.13	-	53.63	74.00	20.37
10 387.00	V	57.74	37.53	-48.52	-	46.75	68.20	21.45
15 535.17 ¹⁾	H	57.82	39.90	-46.80	-	50.92	74.00	23.08
Average Data								
5 149.99 ¹⁾	H	32.83	34.22	-24.13	0.26	43.18	54.00	10.82

802.11n_HT20_Middle Channel (5 200 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
10 389.68	H	59.31	37.53	-48.52	-	48.32	68.20	19.88
15 600.33 ¹⁾	V	57.47	39.90	-46.81	-	50.56	74.00	23.44
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

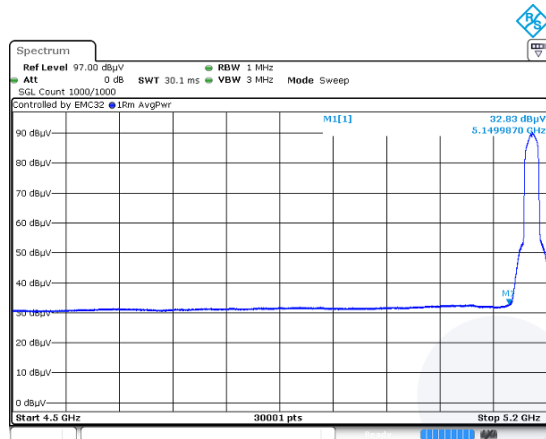
802.11n_HT20_Highest Channel (5 240 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
10 490.88	H	57.45	37.59	-48.32	-	46.72	68.20	21.48
15 742.55 ¹⁾	H	57.47	39.90	-46.84	-	50.53	74.00	23.47
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

In order to simplify the report, attached plots were only the lowest margin condition

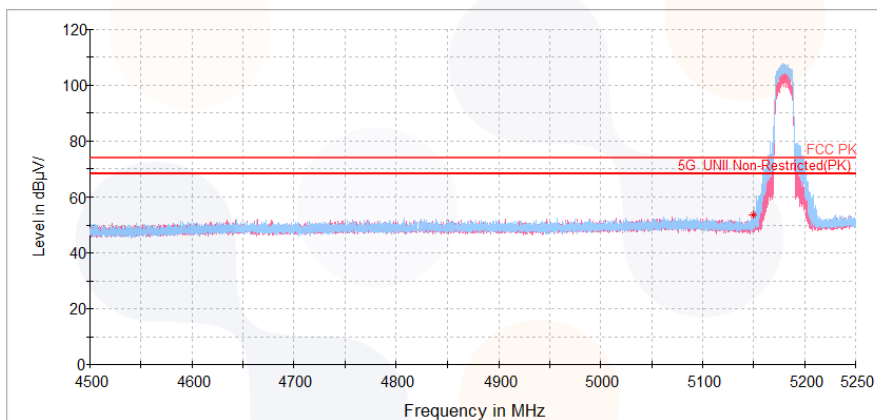
802.11n_HT20_Lowest Channel (5 180 MHz)

Average data



Blank

Horizontal/Vertical for Band-edge



802.11ac_VHT20_Lowest Channel (5 180 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 149.40 ¹⁾	H	43.28	34.22	-24.13	-	53.37	74.00	20.63
10 324.90	H	58.31	37.49	-48.64	-	47.16	68.20	21.04
15 564.30 ¹⁾	V	57.28	39.90	-46.80	-	50.38	74.00	23.62
Average Data								
5 149.40 ¹⁾	H	32.77	34.22	-24.13	0.25	43.11	54.00	10.89

802.11ac_VHT20_Middle Channel (5 200 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
10 414.22	V	58.99	37.55	-48.47	-	48.07	68.20	20.13
15 624.87 ¹⁾	V	57.71	39.90	-46.81	-	50.80	74.00	23.20
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

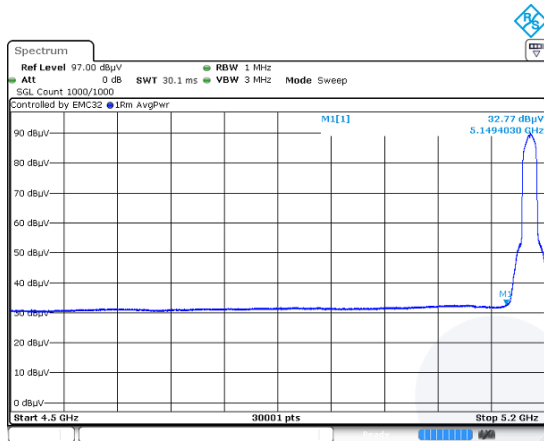
802.11ac_VHT20_Highest Channel (5 240 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
10 465.20	H	57.74	37.58	-48.37	-	46.95	68.20	21.25
15 716.48 ¹⁾	V	57.41	39.90	-46.83	-	50.48	74.00	23.52
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

In order to simplify the report, attached plots were only the lowest margin condition

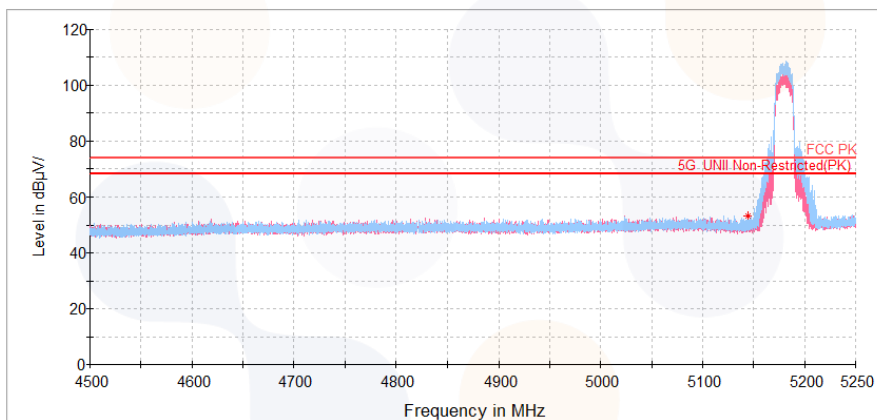
802.11ac_VHT20_Lowest Channel (5 180 MHz)

Average data



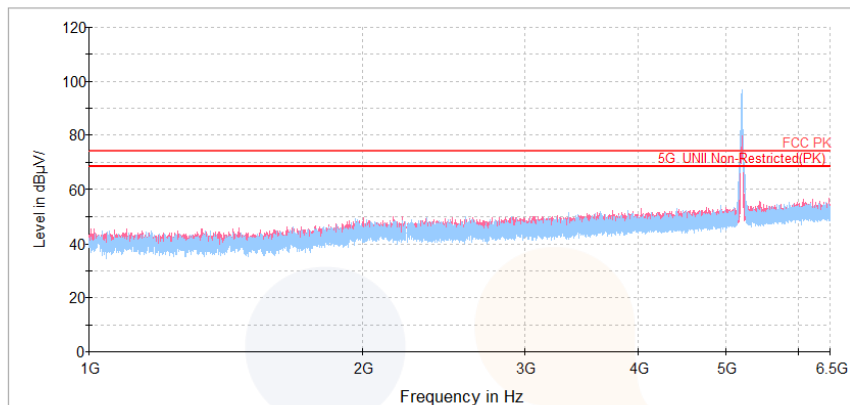
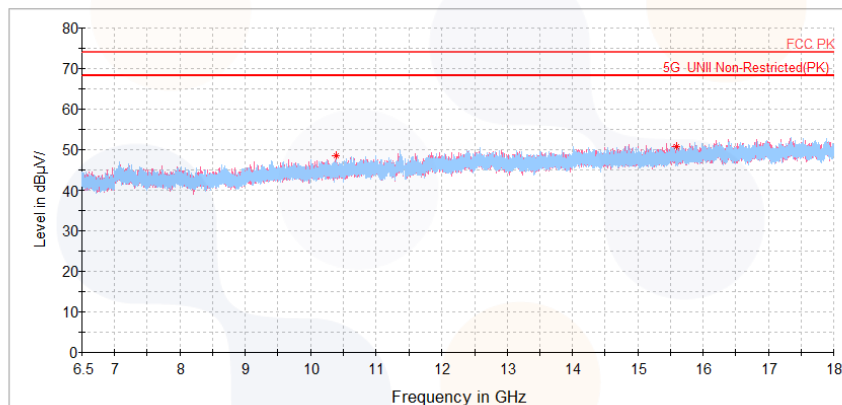
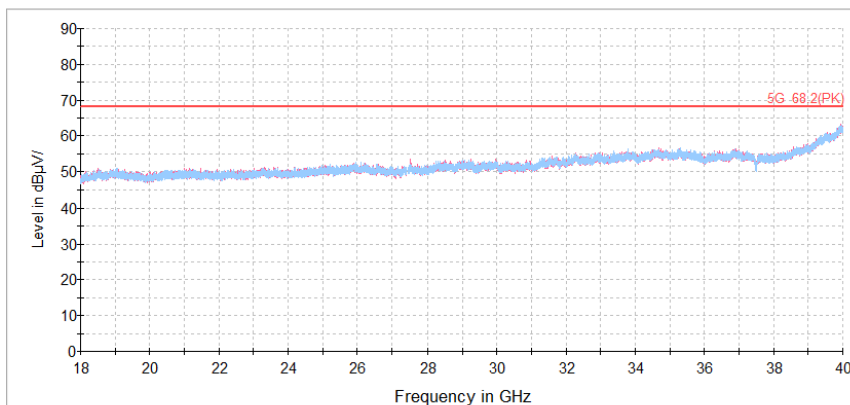
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Horizontal/Vertical for Band-edge



Plot of Harmonics and Spurious Emissions

In order to simplify the report, attached plots were only the lowest margin condition

802.11n HT20_UNII-1_Middle Channel (5 200 MHz)**Horizontal/Vertical for 1 GHz ~ 6.5 GHz****Horizontal/Vertical for 6.5 GHz ~ 18 GHz****Horizontal/Vertical for 18 GHz ~ 40 GHz**

UNII-2A**802.11a_Lowest Channel (5 260 MHz)**

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
10 577.52	V	58.76	37.65	-48.35	-	48.06	68.20	20.14
15 795.07 ¹⁾	H	57.90	39.90	-46.84	-	50.96	74.00	23.04
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

802.11a_Middle Channel (5 280 MHz)

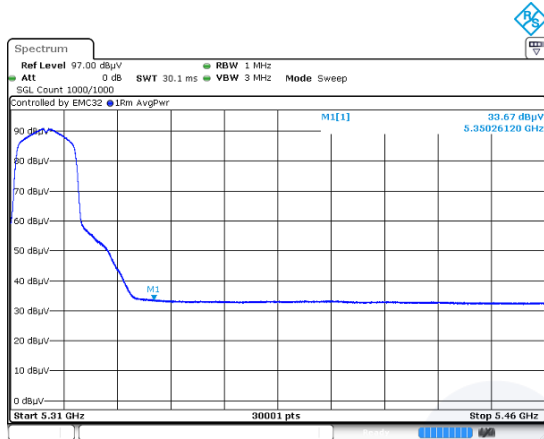
Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
10 577.52	V	58.00	37.65	-48.35	-	47.30	68.20	20.90
15 840.30 ¹⁾	V	57.39	39.90	-46.85	-	50.44	74.00	23.56
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

802.11a_Highest Channel (5 320 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 350.26 ¹⁾	H	42.72	34.38	-23.36	-	53.74	74.00	20.26
10 631.57 ¹⁾	V	58.99	37.68	-48.38	-	48.29	74.00	25.71
15 960.67 ¹⁾	H	57.83	39.90	-46.87	-	50.86	74.00	23.14
Average Data								
5 350.26 ¹⁾	H	33.67	34.38	-23.36	0.22	44.91	54.00	9.09

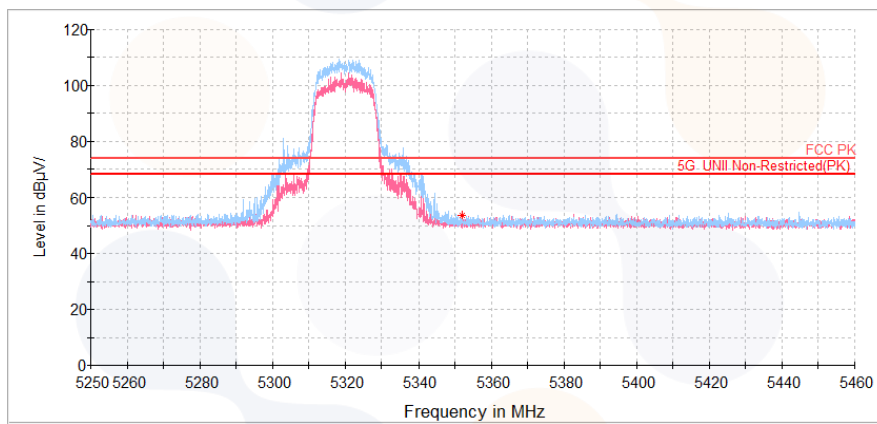
802.11a_Highest Channel (5 320 MHz)

Average data



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Horizontal/Vertical for Band-edge



802.11n_HT20_Lowest Channel (5 260 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
10 549.92	V	59.90	37.63	-48.33	-	49.20	68.20	19.00
15 780.88 ¹⁾	V	57.57	39.90	-46.84	-	50.63	74.00	23.37
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

802.11n_HT20_Middle Channel (5 280 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
10 611.25 ¹⁾	V	59.21	37.67	-48.37	-	48.51	74.00	25.49
15 826.88 ¹⁾	V	57.59	39.90	-46.85	-	50.64	74.00	23.36
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

802.11n_HT20_Highest Channel (5 320 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 350.93 ¹⁾	H	42.77	34.38	-23.36	-	53.79	74.00	20.21
10 630.80 ¹⁾	V	60.06	37.68	-48.38	-	49.36	74.00	24.64
15 958.37 ¹⁾	V	57.14	39.90	-46.87	-	50.17	74.00	23.83
Average Data								
5 350.93 ¹⁾	H	33.40	34.38	-23.36	0.26	44.68	54.00	9.32

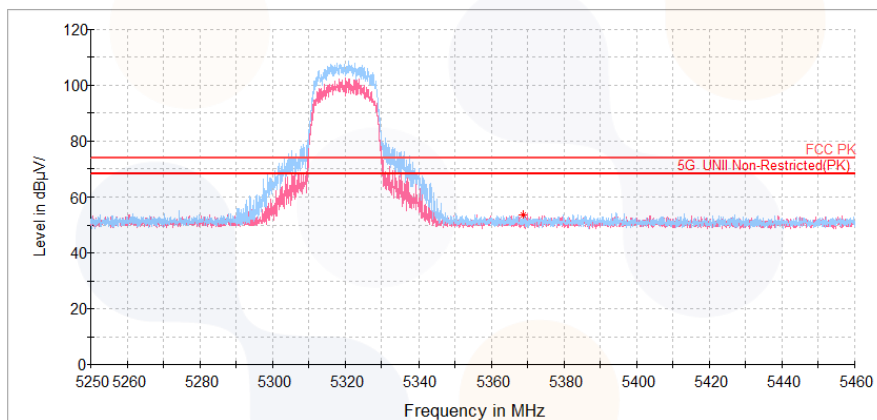
In order to simplify the report, attached plots were only the lowest margin condition

802.11n_HT20_Highest Channel (5 320 MHz)

Average data



Horizontal/Vertical for Band-edge



802.11ac_VHT20_Lowest Channel (5 260 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
10 512.73	V	58.12	37.61	-48.31	-	47.42	68.20	20.78
15 767.47 ¹⁾	V	57.30	39.90	-46.84	-	50.36	74.00	23.64
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

802.11ac_VHT20_Middle Channel (5 280 MHz)

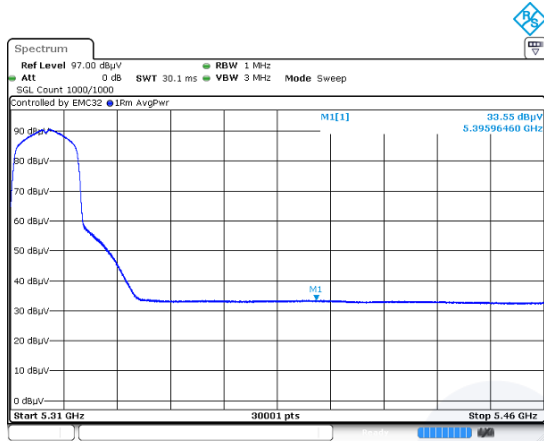
Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
10 656.87 ¹⁾	V	58.37	37.69	-48.40	-	47.66	74.00	26.34
15 853.33 ¹⁾	H	57.80	39.90	-46.85	-	50.85	74.00	23.15
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

802.11ac_VHT20_Highest Channel (5 320 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 395.96 ¹⁾	H	45.29	34.42	-23.68	-	56.03	74.00	17.97
10 658.40 ¹⁾	H	58.29	37.70	-48.40	-	47.59	74.00	26.41
15 977.92 ¹⁾	H	57.95	39.90	-46.88	-	50.97	74.00	23.03
Average Data								
5 395.96 ¹⁾	H	33.55	34.42	-23.68	0.25	44.54	54.00	9.46

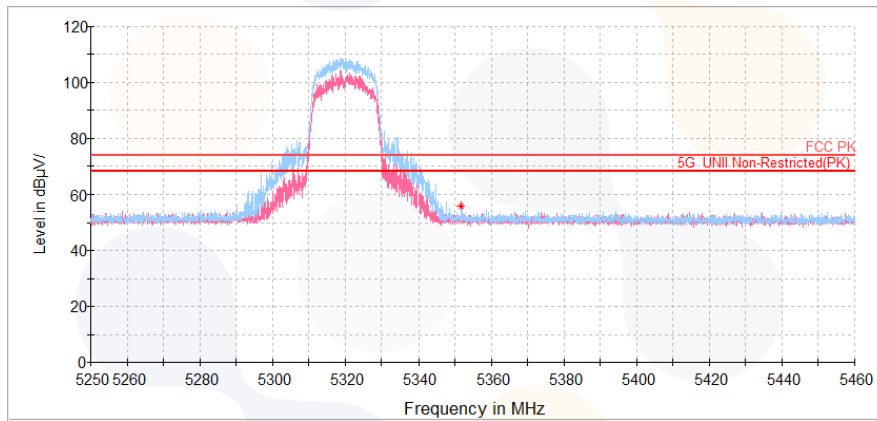
802.11ac_VHT20_Highest Channel (5 320 MHz)

Average data



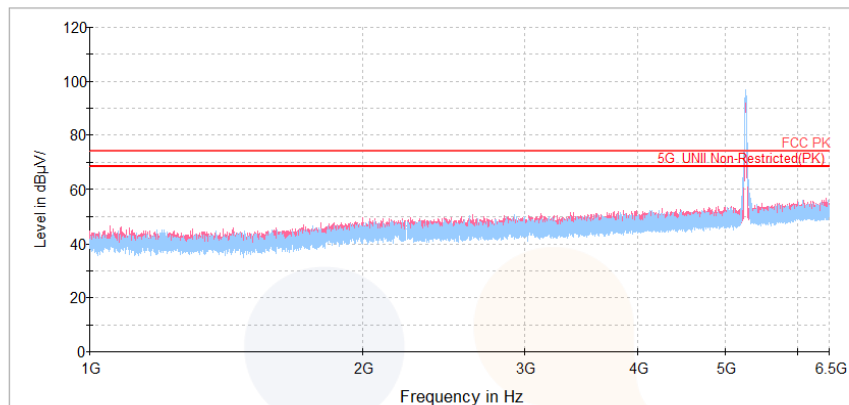
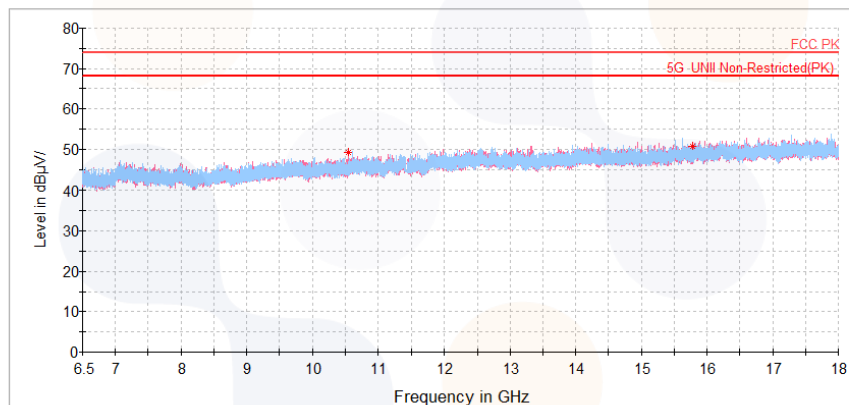
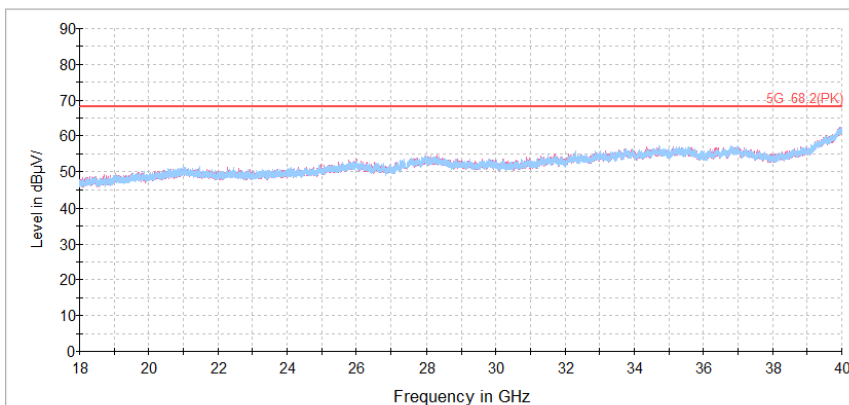
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Horizontal/Vertical for Band-edge



Plot of Harmonics and Spurious Emissions

In order to simplify the report, attached plots were only the lowest margin condition

802.11n HT20_UNII-2A_Lowest Channel (5 260 MHz)**Horizontal/Vertical for 1 GHz ~ 6.5 GHz****Horizontal/Vertical for 6.5 GHz ~ 18 GHz****Horizontal/Vertical for 18 GHz ~ 40 GHz**

UNII-2C

802.11a_Lowest Channel (5 500 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 457.35 ¹⁾	H	43.06	34.47	-23.28	-	54.25	74.00	19.75
11 011.83	H	58.80	37.91	-48.61	-	48.10	74.00	25.90
16 540.27 ¹⁾	V	56.66	41.24	-46.15	-	51.75	68.20	16.45
Average Data								
5 457.35 ¹⁾	H	33.32	34.47	-23.28	0.22	44.73	54.00	9.27

802.11a_Middle Channel (5 600 MHz)

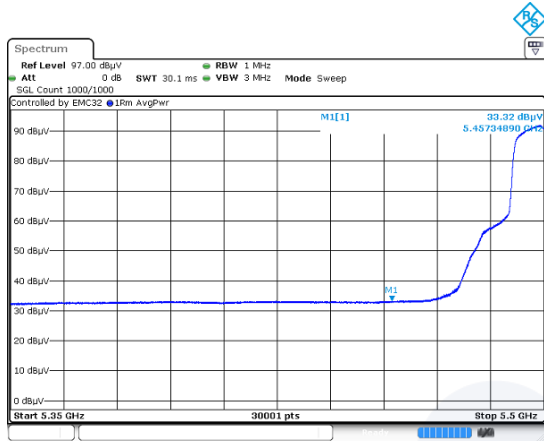
Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
11 198.52 ¹⁾	H	58.97	38.06	-48.58	-	48.45	74.00	25.55
16 812.05	H	56.06	41.51	-46.02	-	51.55	68.20	16.65
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

802.11a_Highest Channel (5 700 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 727.52	H	44.95	34.86	-23.13	-	56.68	68.20	11.52
11 441.17 ¹⁾	V	58.62	38.25	-48.53	-	48.34	74.00	25.66
17 149.38	V	56.11	41.46	-45.76	-	51.81	68.20	16.39
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

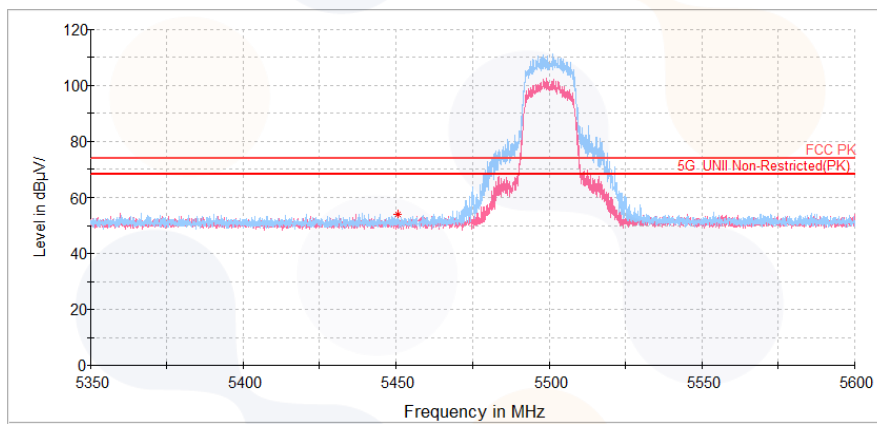
802.11a_Lowest Channel (5 500 MHz)

Average data



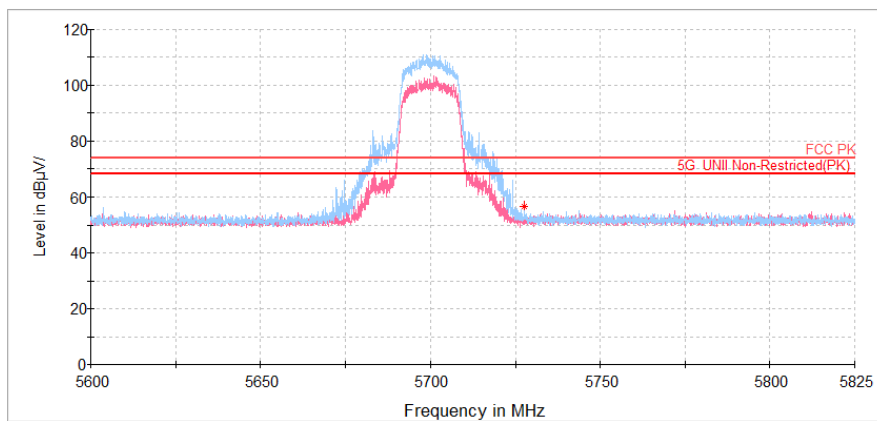
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Horizontal/Vertical for Band-edge



Highest Channel (5 700 MHz)

Horizontal/Vertical for Band-edge



802.11n_HT20_Lowest Channel (5 500 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 425.88 ¹⁾	H	42.85	34.44	-23.52	-	53.77	74.00	20.23
10 953.18 ¹⁾	V	59.06	37.87	-48.59	-	48.34	74.00	25.66
16 516.88	V	55.49	41.22	-46.16	-	50.55	68.20	17.65
Average Data								
5 425.88 ¹⁾	H	33.23	34.44	-23.52	0.26	44.41	54.00	9.59

802.11n_HT20_Middle Channel (5 600 MHz)

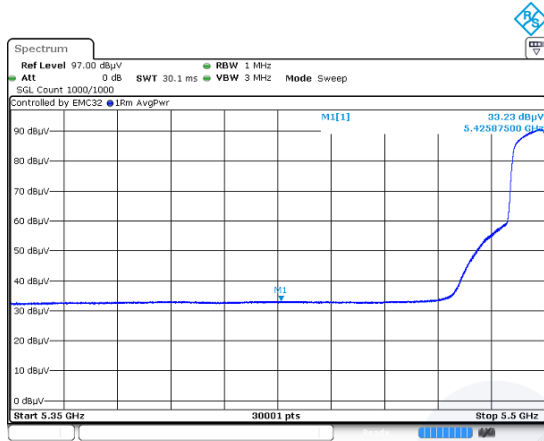
Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
11 210.02 ¹⁾	V	58.36	38.07	-48.58	-	47.85	74.00	26.15
16 782.15	V	56.68	41.48	-46.04	-	52.12	68.20	16.08
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

802.11n_HT20_Highest Channel (5 700 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 725.49	H	48.03	34.86	-23.14	-	59.75	68.20	8.45
11 365.27 ¹⁾	V	58.99	38.19	-48.55	-	48.63	74.00	25.37
17 106.45	H	55.74	41.44	-45.81	-	51.37	68.20	16.83
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

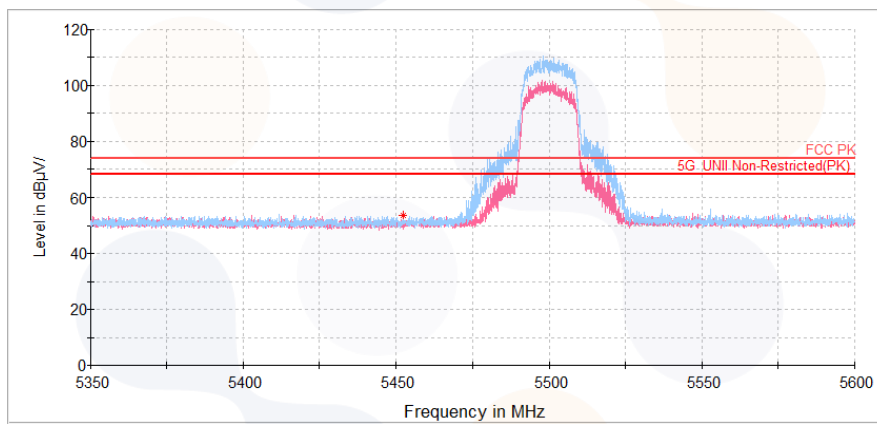
802.11n_HT20_Lowest Channel (5 500 MHz)

Average data



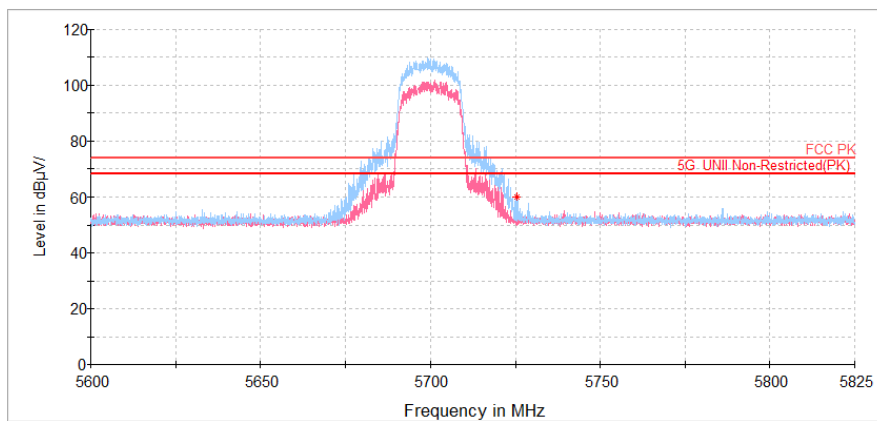
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Horizontal/Vertical for Band-edge



Highest Channel (5 700 MHz)

Horizontal/Vertical for Band-edge



802.11ac_VHT20_Lowest Channel (5 500 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 458.81 ¹⁾	H	42.87	34.47	-23.27	-	54.07	74.00	19.93
11 026.02 ¹⁾	V	58.48	37.92	-48.61	-	47.79	74.00	26.21
16 429.87	V	56.60	41.39	-46.27	-	51.72	68.20	16.48
Average Data								
5 458.81 ¹⁾	H	33.28	34.47	-23.27	0.25	44.73	54.00	9.27

802.11ac_VHT20_Middle Channel (5 600 MHz)

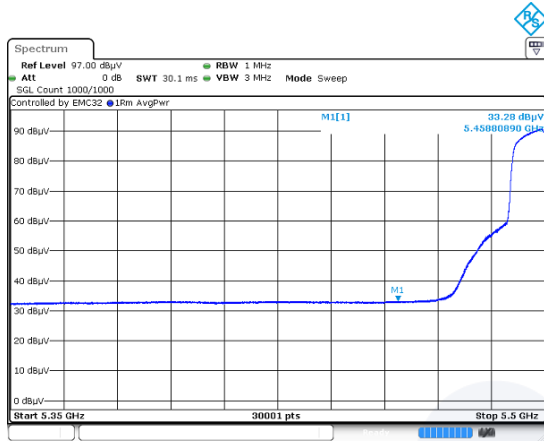
Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
11 198.90 ¹⁾	H	58.99	38.06	-48.58	-	48.47	74.00	25.53
16 844.63	V	56.59	41.54	-46.01	-	52.12	68.20	16.08
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

802.11ac_VHT20_Highest Channel (5 700 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 726.41	H	48.67	34.86	-23.14	-	60.39	68.20	7.81
11 345.33 ¹⁾	V	58.88	38.18	-48.55	-	48.51	74.00	25.49
17 175.07	H	55.91	41.47	-45.73	-	51.65	68.20	16.55
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

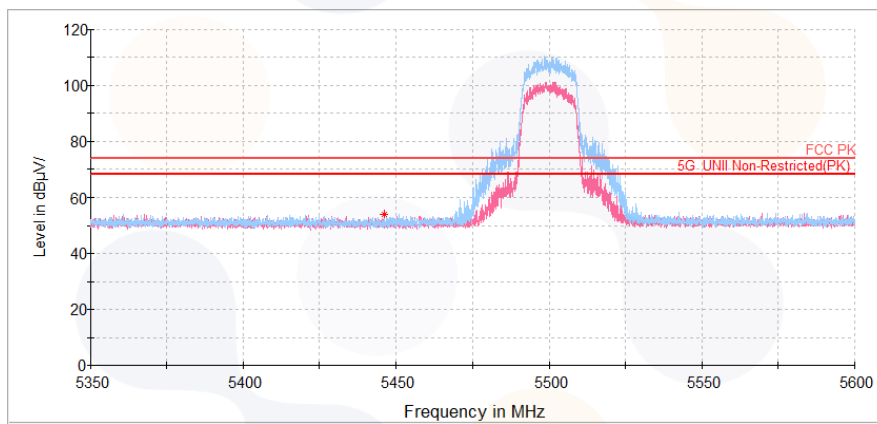
802.11ac_VHT20_Lowest Channel (5 500 MHz)

Average data



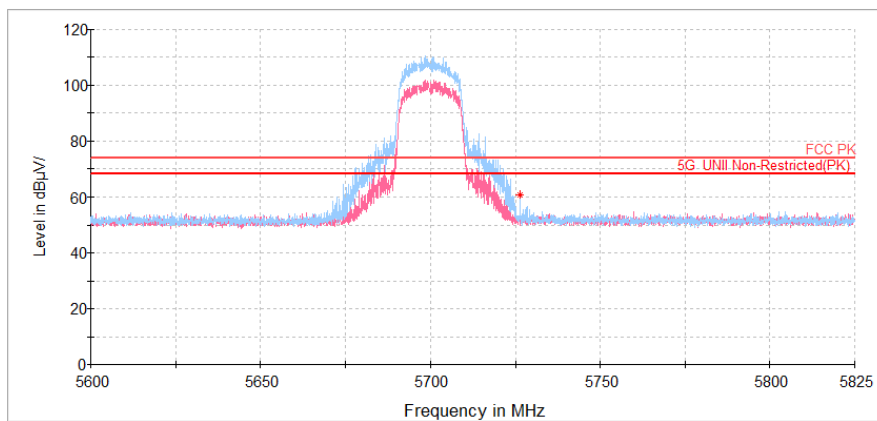
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Horizontal/Vertical for Band-edge



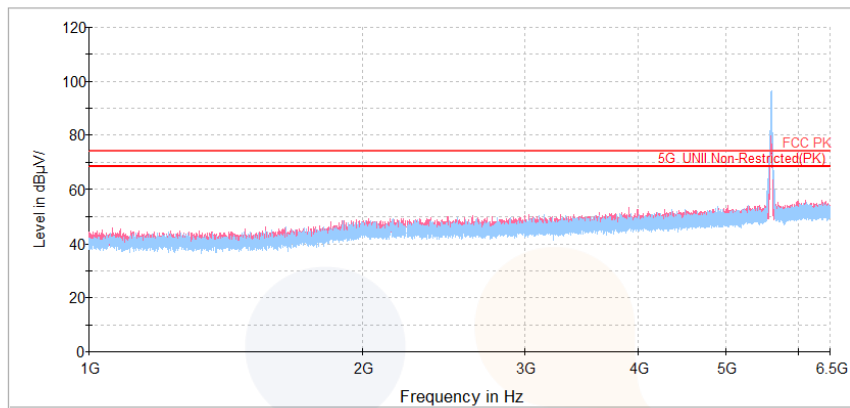
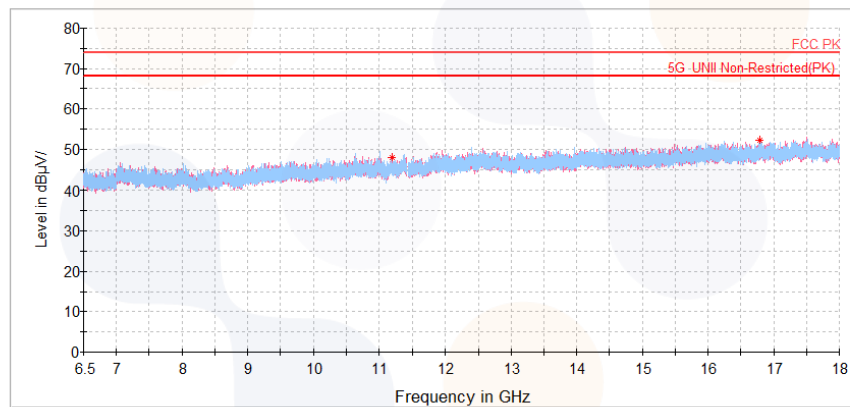
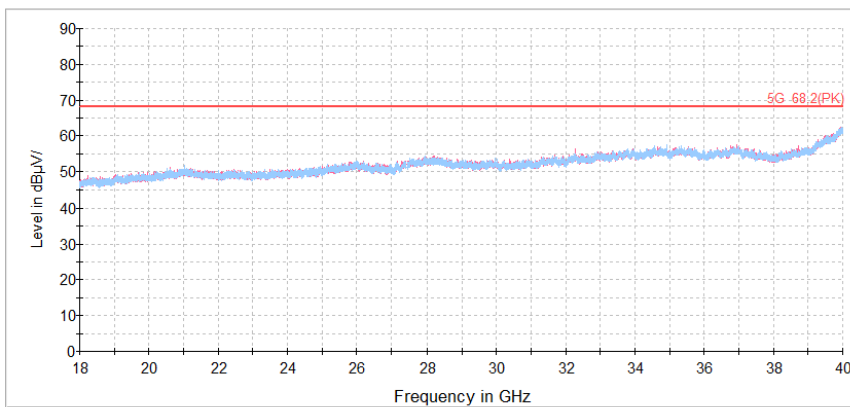
Highest Channel (5 700 MHz)

Horizontal/Vertical for Band-edge



Plot of Harmonics and Spurious Emissions

In order to simplify the report, attached plots were only the lowest margin condition

802.11n HT20_UNII-2C_Middle Channel (5 600 MHz)**Horizontal/Vertical for 1 GHz ~ 6.5 GHz****Horizontal/Vertical for 6.5 GHz ~ 18 GHz****Horizontal/Vertical for 18 GHz ~ 40 GHz**

Straddle Channel**802.11a (5 720 MHz)**

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
11 410.12 ¹⁾	H	58.56	38.23	-48.54	-	48.25	74.00	25.75
17 143.25	H	56.59	41.46	-45.77	-	52.28	68.20	15.92
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

802.11n HT20 (5 720 MHz)

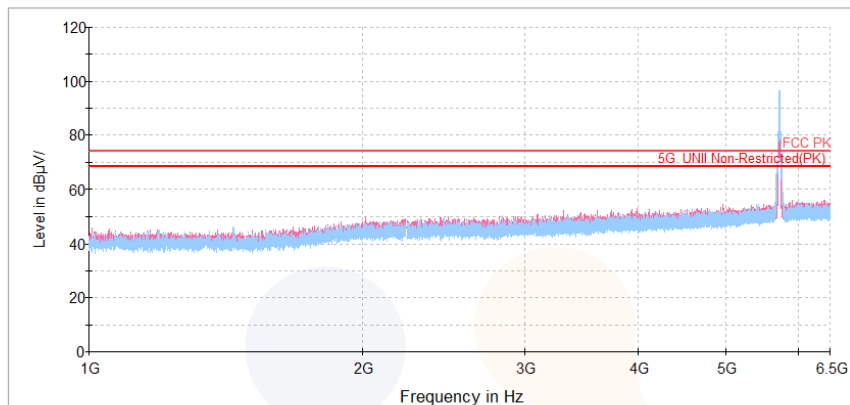
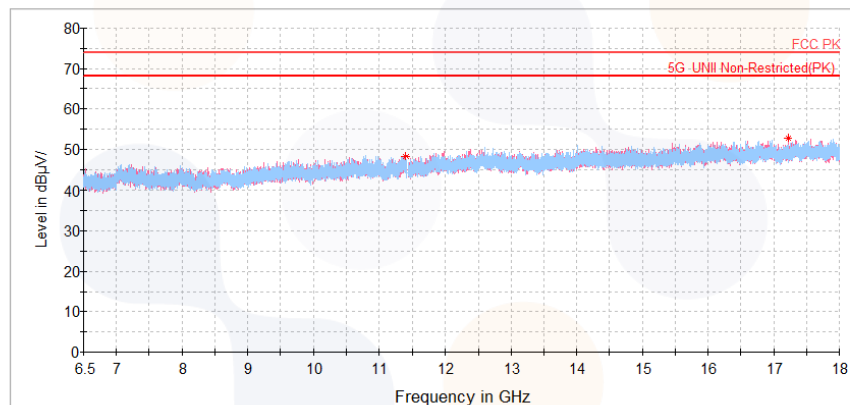
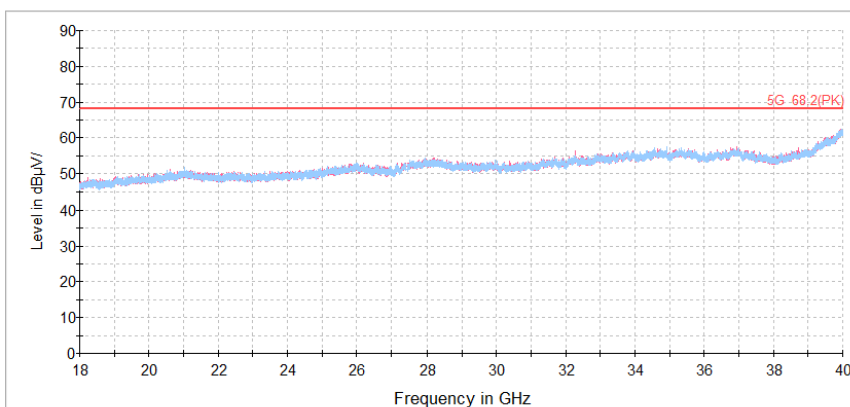
Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
11 401.68 ¹⁾	H	58.62	38.22	-48.54	-	48.30	74.00	25.70
17 218.77	V	56.82	41.49	-45.68	-	52.63	68.20	15.57
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

802.11ac VHT20 (5 720 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
11 442.70 ¹⁾	V	57.56	38.25	-48.53	-	47.28	74.00	26.72
17 190.40	H	56.26	41.48	-45.71	-	52.03	68.20	16.17
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

Plot of Harmonics and Spurious Emissions

In order to simplify the report, attached plots were only the lowest margin condition

802.11n HT20_ Straddle Channel (5 720 MHz)**Horizontal/Vertical for 1 GHz ~ 6.5 GHz****Horizontal/Vertical for 6.5 GHz ~ 18 GHz****Horizontal/Vertical for 18 GHz ~ 40 GHz**

UNII-3**802.11a_Lowest Channel (5 745 MHz)**

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 725.00	H	60.52	34.86	-23.14	-	72.24	122.19	49.95
11 471.07 ¹⁾	V	56.97	38.28	-48.53	-	46.72	74.00	27.28
17 224.90	V	55.54	41.49	-45.67	-	51.36	68.20	16.84
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

802.11a_Middle Channel (5 785 MHz)

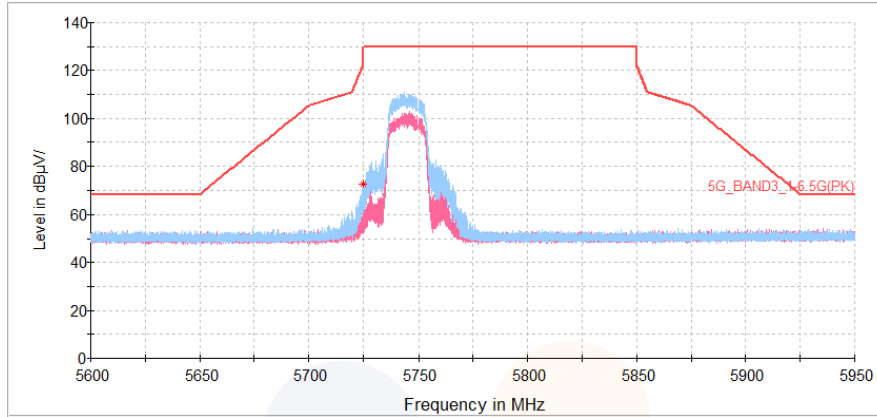
Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
11 566.90 ¹⁾	H	58.19	38.38	-48.57	-	48.00	74.00	26.00
17 278.95	H	56.48	41.51	-45.61	-	52.38	68.20	15.82
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

802.11a_Highest Channel (5 825 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 850.93	H	42.48	35.06	-22.88	-	54.66	120.09	65.43
11 629.38 ¹⁾	H	57.10	38.46	-48.62	-	46.94	74.00	27.06
17 424.62	H	55.51	41.57	-45.44	-	51.64	68.20	16.56
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

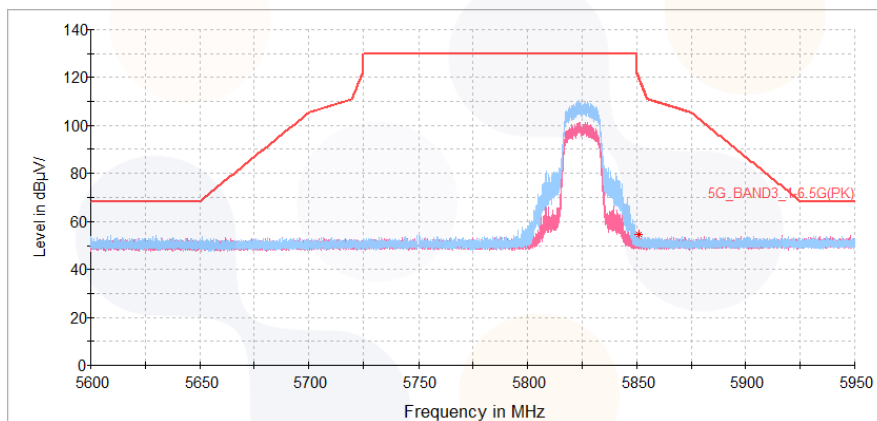
802.11a_Lowest Channel (5 745 MHz)

Horizontal/Vertical for Band-edge



802.11a_Highest Channel (5 825 MHz)

Horizontal/Vertical for Band-edge



802.11n_HT20_Lowest Channel (5 745 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 724.38	H	60.09	34.86	-23.15	-	71.80	120.78	48.98
11 492.15 ¹⁾	H	57.81	38.29	-48.52	-	47.58	74.00	26.42
17 191.93	V	57.26	41.48	-45.71	-	53.03	68.20	15.17
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

802.11n_HT20_Middle Channel (5 785 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
11 564.22 ¹⁾	H	59.64	38.38	-48.57	-	49.45	74.00	24.55
17 321.12	H	55.97	41.53	-45.56	-	51.94	68.20	16.26
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

802.11n_HT20_Highest Channel (5 825 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 851.07	H	47.42	35.06	-22.89	-	59.59	119.77	60.18
11 615.20 ¹⁾	H	58.41	38.44	-48.61	-	48.24	74.00	25.76
17 512.02	V	57.56	40.89	-45.36	-	53.09	68.20	15.11
Average Data								
No spurious emissions were detected within 20 dB of the limit.								