8.3 MAXIMUM PEAK POWER DENSITY

8.3.1 Applicable Standard

According to FCC Part 15.407(a)(1) for UNII Band I
According to FCC Part 15.407(a)(2) for UNII Band II-A and UNII Band II-C
According to FCC Part 15.407(a)(3) for UNII Band III
According to 789033 D02 Section II(F)

8.3.2 Conformance Limit

- For the band 5.15-5.25 GHz,

(a) (1) (i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).
(a) (1) (ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. 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.
(a) (1) (iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.
(a) (1) (iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. 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.

- For the 5.25-5.35 GHz and 5.47-5.725 GHz bands

(b) (2) the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

- For the band 5.725-5.85 GHz

(a) (3)For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

8.3.3 Test Configuration

Test according to clause 6.1 radio frequency test setup

8.3.4 Test Procedure

Methods refer to FCC KDB 789033

1) Create an average power spectrum for the EUT operating mode being tested by following the instructions in section E)2) for measuring maximum conducted output power using a spectrum analyzer or EMI receiver: select the appropriate test method (SA-3, or alternatives to each) and apply it up to, but not including, the step labeled, “Compute power…”.

2) Use the peak search function on the instrument to find the peak of the spectrum.

3) The result is the PPSD.
4) The above procedures make use of 500kHz resolution bandwidth to satisfy the 500kHz measurement bandwidth specified in the 15.407(a)(5). That rule section also permits use of resolution bandwidths less than 1 MHz “provided that the measured power is integrated to show the total power over the measurement bandwidth” (i.e., 1 MHz). If measurements are performed using a reduced resolution bandwidth and integrated over 500kHz bandwidth
Note: As a practical matter, it is recommended to use reduced RBW of 500 kHz for the sections 5.c) and 5.d) above, since RBW=500 kHz is available on nearly all spectrum analyzers.

8.3.5 Test Results

☒ 802.11a mode			
Temperature :	28℃	Test By:	King Kong
Humidity :	65 %		

Band	Channel Number	Channel Freq. (MHz)	Power Spectral Density		Limit	Verdict
			Ant0	Ant1		
UNII Band I	CH36	5180	2.03	2.12	≤9.49dBm/1MHz	Pass
	CH40	5200	2.19	2.09	≤9.49dBm/1MHz	Pass
	CH48	5240	1.95	1.93	≤9.49dBm/1MHz	Pass
UNII Band II-A	CH52	5260	1.64	2.17	≤9.49dBm/1MHz	Pass
	CH56	5280	1.78	2.36	≤9.49dBm/1MHz	Pass
	CH64	5320	1.97	2.29	≤9.49dBm/1MHz	Pass
UNII Band II-C	CH100	5500	1.40	1.09	≤9.49dBm/1MHz	Pass
	CH120	5600	0.71	-0.46	≤9.49dBm/1MHz	Pass
	CH140	5700	0.30	-1.22	≤9.49dBm/1MHz	Pass
UNII Band III	CH149	5745	-2.68	-3.93	≤28.49dBm/500K Hz	Pass
	CH157	5785	-2.27	-4.95	≤28.46dBm/500K Hz	Pass
	CH165	5825	-1.95	-4.53	≤28.46dBm/500K Hz	Pass
Note: N/A (Not Applicable)						

☒ 802.11n(VHT20) mode			
Temperature :	28℃	Test By:	King Kong
Humidity :	65 %		

Band	Channel Number	Channel Freq. (MHz)	Power Spectral Density			Limit	Verdict
			Ant0	Ant1	Ant0+Ant1		
UNII Band I	CH36	5180	1.82	1.67	4.76	≤9.49dBm/1MHz	Pass
	CH40	5200	1.64	1.46	4.56	≤9.49dBm/1MHz	Pass
	CH48	5240	1.36	1.27	4.33	≤9.49dBm/1MHz	Pass
UNII Band II-A	CH52	5260	1.17	1.70	4.45	≤9.49dBm/1MHz	Pass
	CH56	5280	1.02	1.61	4.34	≤9.49dBm/1MHz	Pass
	CH64	5320	1.22	1.77	4.51	≤9.49dBm/1MHz	Pass
UNII Band II-C	CH100	5500	0.70	0.82	3.77	≤9.49dBm/1MHz	Pass
	CH120	5600	0.11	-0.09	3.02	≤9.49dBm/1MHz	Pass
	CH140	5700	-0.16	-0.87	2.51	≤9.49dBm/1MHz	Pass
UNII Band III	CH149	5745	-3.04	-2.67	0.16	≤28.49dBm/500K Hz	Pass
	CH157	5785	-2.79	-4.41	-0.51	≤28.46dBm/500K Hz	Pass
	CH165	5825	-2.36	-4.80	-0.40	≤28.46dBm/500K Hz	Pass

☒ 802.11ac(VHT20) mode

Temperature :	28℃	Test By:	King Kong
Humidity :	65 %		

Band	Channel Number	Channel Freq. (MHz)	Power Spectral Density			Limit	Verdict
			Ant0	Ant1	Ant0+Ant1		
UNII Band I	CH36	5180	1.60	2.74	5.22	≤9.49dBm/1MHz	Pass
	CH40	5200	1.41	2.77	5.15	≤9.49dBm/1MHz	Pass
	CH48	5240	1.34	2.48	4.96	≤9.49dBm/1MHz	Pass
UNII Band II-A	CH52	5260	0.92	2.62	4.86	≤9.49dBm/1MHz	Pass
	CH56	5280	0.98	2.63	4.89	≤9.49dBm/1MHz	Pass
	CH64	5320	1.23	2.65	5.01	≤9.49dBm/1MHz	Pass
UNII Band II-C	CH100	5500	0.78	1.70	4.27	≤9.49dBm/1MHz	Pass
	CH120	5600	0.17	-0.99	2.64	≤9.49dBm/1MHz	Pass
	CH140	5700	-0.18	-0.95	2.46	≤9.49dBm/1MHz	Pass
UNII Band III	CH149	5745	-3.09	-2.60	0.17	≤28.49dBm/500KHz	Pass
	CH157	5785	-2.82	-4.39	-0.52	≤28.46dBm/500KHz	Pass
	CH165	5825	-2.07	-4.80	-0.21	≤28.46dBm/500KHz	Pass

☒ 802.11n(VHT40) mode

Temperature :	28℃	Test By:	King Kong
Humidity :	65 %		

Band	Channel Number	Channel Freq. (MHz)	Power Spectral Density			Limit	Verdict
			Ant0	Ant1	Ant0+Ant1		
UNII Band I	CH38	5190	-0.97	-1.45	1.81	≤9.49dBm/1MHz	Pass
	CH46	5230	-1.11	-0.83	2.04	≤9.49dBm/1MHz	Pass
UNII Band II-A	CH54	5270	-1.39	-0.65	2.01	≤9.49dBm/1MHz	Pass
	CH62	5310	-1.03	-0.52	2.24	≤9.49dBm/1MHz	Pass
UNII Band II-C	CH102	5510	-1.54	-1.69	1.40	≤9.49dBm/1MHz	Pass
	CH118	5590	-2.33	-1.13	1.32	≤9.49dBm/1MHz	Pass
	CH134	5670	-1.93	-1.95	1.07	≤9.49dBm/1MHz	Pass
UNII Band III	CH151	5755	-5.49	-5.03	-2.24	≤28.49dBm/500KHz	Pass
	CH159	5795	-4.90	-5.66	-2.25	≤28.49dBm/500KHz	Pass

☒ 802.11ac(VHT40) mode

Temperature :	28℃	Test Date :	April 24, 2018
Humidity :	65 %	Test By:	King Kong

Band	Channel Number	Channel Freq. (MHz)	Power Spectral Density			Limit	Verdict
			Ant0	Ant1	Ant0+Ant1		
UNII Band I	CH38	5190	-2.80	-1.00	1.20	≤9.49dBm/1MHz	Pass
	CH46	5230	-2.89	-1.18	1.06	≤9.49dBm/1MHz	Pass
UNII Band II-A	CH54	5270	-3.04	-1.20	0.99	≤9.49dBm/1MHz	Pass
	CH62	5310	-2.96	-1.32	0.95	≤9.49dBm/1MHz	Pass
UNII Band II-C	CH102	5510	-3.30	-2.17	0.31	≤9.49dBm/1MHz	Pass
	CH118	5590	-3.95	-2.74	-0.29	≤9.49dBm/1MHz	Pass
	CH134	5670	-3.71	-3.48	-0.58	≤9.49dBm/1MHz	Pass
UNII Band III	CH151	5755	-6.86	-5.21	-2.95	≤28.49dBm/500KHz	Pass
	CH159	5795	-6.47	-6.06	-3.25	≤28.49dBm/500KHz	Pass

☒ 802.11ac(VHT80) mode

Temperature :	28℃	Test Date :	February 07, 2018
Humidity :	65 %	Test By:	King Kong

Band	Channel Number	Channel Freq. (MHz)	Power Spectral Density			Limit	Verdict
			Ant0	Ant1	Ant0+Ant1		
UNII Band I	CH42	5210	-10.54	-10.44	-7.48	≤9.49dBm/1MHz	Pass
UNII Band II-A	CH58	5290	-13.33	-13.48	-10.39	≤9.49dBm/1MHz	Pass
UNII Band II-C	CH106	5530	-12.51	-12.44	-9.46	≤9.49dBm/1MHz	Pass
	CH122	5610	-13.93	-14.16	-11.03	≤9.49dBm/1MHz	Pass
UNII Band III	CH155	5775	-16.93	-17.21	-14.06	≤28.49dBm/500KHz	Pass

8.4 FREQUENCY STABILITY

8.4.1 Applicable Standard

According to FCC Part 15.407(g)
ANSI C63.10 Section 6.8

8.4.2 Conformance Limit

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.

8.4.3 Test Configuration

Test according to clause 6.1 radio frequency test setup

8.4.4 Test Procedure

The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
Set to the maximum power setting and enable the EUT transmit continuously
Set RBW = 10 kHz.
Set the video bandwidth (VBW) =30 kHz.
Set Span= Entire absence of modulation emissions bandwidth
Set Detector = Peak.
Set Trace mode = max hold.
Set Sweep = auto couple.
Allow the trace to stabilize.
The test extreme voltage is to change the primary supply voltage from 85 to 115 percent of the nominal value.
Beginning at each temperature level specified in user manual, the frequency shall be measured within one minute after application of primary power to the transmitter and at intervals of no more than one minute thereafter until ten minutes have elapsed or until sufficient measurements are obtained to indicate clearly that the frequency has stabilized within the applicable tolerance, whichever time period is greater. During each test, the ambient temperature shall not be allowed to rise more than 10° centigrade above the respective beginning ambient temperature level
Measure and record the results in the test report.

8.4.5 Test Results

Two antenna have been tested, and the worst results have been recorded in the report.

Antenna 0		5180	
Temperature :	--	Test Date :	April 24, 2018
Humidity :	65 %	Test By:	King Kong

Voltage(V)	Temp(℃)	Test Frequency (MHz)	Max. Deviation (KHz)	Verdict
Vnom	-20	5179.998	-2	Pass
	-10	5179.998	-2	Pass
	0	5179.998	-2	Pass
	10	5179.996	-4	Pass
	20	5179.997	-3	Pass
	30	5179.996	-4	Pass
	40	5179.995	-5	Pass
	50	5179.995	-5	Pass
85% Vnom	20	5179.998	-2	Pass
115% Vnom	20	5179.997	-3	Pass

Antenna 0		5200	
Temperature :	--	Test Date :	April 24, 2018
Humidity :	65 %	Test By:	King Kong

Voltage(V)	Temp(℃)	Test Frequency (MHz)	Max. Deviation (KHz)	Verdict
Vnom	-20	5199.989	-11	Pass
	-10	5199.989	-11	Pass
	0	5199.990	-10	Pass
	10	5199.990	-10	Pass
	20	5200.003	3	Pass
	30	5199.988	-12	Pass
	40	5199.989	-11	Pass
	50	5199.986	-14	Pass
85% Vnom	20	5199.990	-10	Pass
115% Vnom	20	5199.990	-10	Pass

Antenna 0		5240	
Temperature :	--	Test Date :	April 24, 2018
Humidity :	65 %	Test By:	King Kong

Voltage(V)	Temp(℃)	Test Frequency (MHz)	Max. Deviation (KHz)	Verdict
Vnom	-20	5239.997	-3	Pass
	-10	5239.996	-4	Pass
	0	5239.997	-3	Pass
	10	5239.996	-4	Pass
	20	5239.994	-6	Pass
	30	5239.996	-4	Pass
	40	5239.992	-8	Pass
	50	5239.994	-6	Pass
85% Vnom	20	5239.997	-3	Pass
115% Vnom	20	5239.996	-4	Pass

Antenna 0		5260	
Temperature :	--	Test Date :	April 24, 2018
Humidity :	65 %	Test By:	King Kong

Voltage(V)	Temp(℃)	Test Frequency (MHz)	Max. Deviation (KHz)	Verdict
Vnom	-20	5260.003	3	Pass
	-10	5260.006	6	Pass
	0	5260.005	5	Pass
	10	5260.006	6	Pass
	20	5260.005	5	Pass
	30	5260.006	6	Pass
	40	5260.003	3	Pass
	50	5260.007	7	Pass
85% Vnom	20	5260.006	6	Pass
115% Vnom	20	5260.004	4	Pass

Antenna 0		5280	
Temperature :	--	Test Date :	April 24, 2018
Humidity :	65 %	Test By:	King Kong

Voltage(V)	Temp(℃)	Test Frequency (MHz)	Max. Deviation (KHz)	Verdict
Vnom	-20	5280.004	4	Pass
	-10	5280.005	5	Pass
	0	5280.009	9	Pass
	10	5280.008	8	Pass
	20	5280.007	7	Pass
	30	5280.003	3	Pass
	40	5280.008	8	Pass
	50	5280.005	5	Pass
85% Vnom	20	5280.004	4	Pass
115% Vnom	20	5280.008	8	Pass

Antenna 0		5320	
Temperature :	--	Test Date :	April 24, 2018
Humidity :	65 %	Test By:	King Kong

Voltage(V)	Temp(℃)	Test Frequency (MHz)	Max. Deviation (KHz)	Verdict
Vnom	-20	5319.988	-12	Pass
	-10	5319.986	-14	Pass
	0	5319.988	-12	Pass
	10	5319.984	-16	Pass
	20	5319.988	-12	Pass
	30	5319.984	-16	Pass
	40	5319.988	-12	Pass
	50	5319.986	-14	Pass
85% Vnom	20	5319.988	-12	Pass
115% Vnom	20	5319.988	-12	Pass

Antenna 0		5500	
Temperature :	--	Test Date :	April 24, 2018
Humidity :	65 %	Test By:	King Kong

Voltage(V)	Temp(℃)	Test Frequency (MHz)	Max. Deviation (KHz)	Verdict
Vnom	-20	5500.001	1	Pass
	-10	5500.002	2	Pass
	0	5500.003	3	Pass
	10	5500.003	3	Pass
	20	5500.002	2	Pass
	30	5500.002	2	Pass
	40	5499.999	-1	Pass
	50	5499.999	-1	Pass
85% Vnom	20	5500.003	3	Pass
115% Vnom	20	5500.001	1	Pass

Antenna 0		5600	
Temperature :	--	Test Date :	April 24, 2018
Humidity :	65 %	Test By:	King Kong

Voltage(V)	Temp(℃)	Test Frequency (MHz)	Max. Deviation (KHz)	Verdict
Vnom	-20	5600.008	8	Pass
	-10	5600.009	9	Pass
	0	5600.009	9	Pass
	10	5600.008	8	Pass
	20	5600.011	11	Pass
	30	5600.009	9	Pass
	40	5600.008	8	Pass
	50	5600.011	11	Pass
85% Vnom	20	5600.010	10	Pass
115% Vnom	20	5600.008	8	Pass

Antenna 0		5700	
Temperature :	--	Test Date :	April 24, 2018
Humidity :	65 %	Test By:	King Kong

Voltage(V)	Temp(℃)	Test Frequency (MHz)	Max. Deviation (KHz)	Verdict
Vnom	-20	5699.993	-7	Pass
	-10	5699.994	-6	Pass
	0	5699.992	-8	Pass
	10	5699.993	-7	Pass
	20	5699.992	-8	Pass
	30	5699.991	-9	Pass
	40	5699.992	-8	Pass
	50	5699.995	-5	Pass
85% Vnom	20	5699.992	-8	Pass
115% Vnom	20	5699.992	-8	Pass

Antenna 0		5745	
Temperature :	--	Test Date :	May04, 2017
Humidity :	65 %	Test By:	King Kong

Voltage(V)	Temp(℃)	Test Frequency (MHz)	Max. Deviation (KHz)	Verdict
Vnom	-20	5745.000	0	Pass
	-10	5744.999	-1	Pass
	0	5745.002	2	Pass
	10	5745.003	3	Pass
	20	5745.004	4	Pass
	30	5745.001	1	Pass
	40	5745.000	0	Pass
	50	5745.002	2	Pass
85% Vnom	20	5745.002	2	Pass
115% Vnom	20	5745.002	2	Pass

Antenna 0		5785	
Temperature :	--	Test Date :	April 24, 2018
Humidity :	65 %	Test By:	King Kong

Voltage(V)	Temp(℃)	Test Frequency (MHz)	Max. Deviation (KHz)	Verdict
Vnom	-20	5784.999	-1	Pass
	-10	5785.001	1	Pass
	0	5785.003	3	Pass
	10	5785.002	2	Pass
	20	5785.002	2	Pass
	30	5785.004	4	Pass
	40	5785.002	2	Pass
	50	5785.005	5	Pass
85% Vnom	20	5785.005	5	Pass
115% Vnom	20	5785.005	5	Pass

Antenna 0		5825	
Temperature :	--	Test Date :	April 24, 2018
Humidity :	65 %	Test By:	King Kong

Voltage(V)	Temp(℃)	Test Frequency (MHz)	Max. Deviation (KHz)	Verdict
Vnom	-20	5824.997	-3	Pass
	-10	5824.995	-5	Pass
	0	5824.996	-4	Pass
	10	5824.993	-7	Pass
	20	5824.992	-8	Pass
	30	5824.994	-6	Pass
	40	5824.997	-3	Pass
	50	5824.994	-6	Pass
85% Vnom	20	5824.993	-7	Pass
115% Vnom	20	5824.998	-2	Pass

Antenna 0		5190	
Temperature :	--	Test Date :	April 24, 2018
Humidity :	65 %	Test By:	King Kong

Voltage(V)	Temp(℃)	Test Frequency (MHz)	Max. Deviation (KHz)	Verdict
Vnom	-20	5189.989	-11	Pass
	-10	5189.989	-11	Pass
	0	5189.986	-14	Pass
	10	5189.986	-14	Pass
	20	5189.988	-12	Pass
	30	5189.989	-11	Pass
	40	5189.989	-11	Pass
	50	5189.987	-13	Pass
85% Vnom	20	5189.986	-14	Pass
115% Vnom	20	5189.987	-13	Pass

Antenna 0		5230	
Temperature :	--	Test Date :	April 24, 2018
Humidity :	65 %	Test By:	King Kong

Voltage(V)	Temp(℃)	Test Frequency (MHz)	Max. Deviation (KHz)	Verdict
Vnom	-20	5229.984	-16	Pass
	-10	5229.985	-15	Pass
	0	5229.987	-13	Pass
	10	5229.985	-15	Pass
	20	5229.984	-16	Pass
	30	5229.986	-14	Pass
	40	5229.987	-13	Pass
	50	5229.987	-13	Pass
85% Vnom	20	5229.984	-16	Pass
115% Vnom	20	5229.984	-16	Pass

Antenna 0		5270	
Temperature :	--	Test Date :	April 24, 2018
Humidity :	65 %	Test By:	King Kong

Voltage(V)	Temp(℃)	Test Frequency (MHz)	Max. Deviation (KHz)	Verdict
Vnom	-20	5269.997	-3	Pass
	-10	5269.994	-6	Pass
	0	5269.997	-3	Pass
	10	5269.997	-3	Pass
	20	5269.993	-7	Pass
	30	5269.996	-4	Pass
	40	5269.994	-6	Pass
	50	5269.995	-5	Pass
85% Vnom	20	5269.994	-6	Pass
115% Vnom	20	5269.996	-4	Pass

Antenna 0		5310	
Temperature :	--	Test Date :	April 24, 2018
Humidity :	65 %	Test By:	King Kong

Voltage(V)	Temp(℃)	Test Frequency (MHz)	Max. Deviation (KHz)	Verdict
Vnom	-20	5309.997	-3	Pass
	-10	5309.999	-1	Pass
	0	5309.996	-4	Pass
	10	5309.997	-3	Pass
	20	5309.999	-1	Pass
	30	5309.998	-2	Pass
	40	5309.996	-4	Pass
	50	5309.997	-3	Pass
85% Vnom	20	5309.998	-2	Pass
115% Vnom	20	5309.994	-6	Pass

Antenna 0		5510	
Temperature :	--	Test Date :	April 24, 2018
Humidity :	65 %	Test By:	King Kong

Voltage(V)	Temp(℃)	Test Frequency (MHz)	Max. Deviation (KHz)	Verdict
Vnom	-20	5510.009	9	Pass
	-10	5510.011	11	Pass
	0	5510.009	9	Pass
	10	5510.008	8	Pass
	20	5510.009	9	Pass
	30	5510.008	8	Pass
	40	5510.008	8	Pass
	50	5510.010	10	Pass
85% Vnom	20	5510.008	8	Pass
115% Vnom	20	5510.010	10	Pass

Antenna 0		5590	
Temperature :	--	Test Date :	April 24, 2018
Humidity :	65 %	Test By:	King Kong

Voltage(V)	Temp(℃)	Test Frequency (MHz)	Max. Deviation (KHz)	Verdict
Vnom	-20	5590.002	2	Pass
	-10	5590.003	3	Pass
	0	5590.002	2	Pass
	10	5590.003	3	Pass
	20	5590.003	3	Pass
	30	5590.005	5	Pass
	40	5590.001	1	Pass
	50	5590.002	2	Pass
85% Vnom	20	5590.005	5	Pass
115% Vnom	20	5590.002	2	Pass

Antenna 0		5670	
Temperature :	--	Test Date :	April 24, 2018
Humidity :	65 %	Test By:	King Kong

Voltage(V)	Temp(℃)	Test Frequency (MHz)	Max. Deviation (KHz)	Verdict
Vnom	-20	5669.987	-13	Pass
	-10	5669.985	-15	Pass
	0	5669.987	-13	Pass
	10	5669.983	-17	Pass
	20	5669.986	-14	Pass
	30	5669.985	-15	Pass
	40	5669.985	-15	Pass
	50	5669.986	-14	Pass
85% Vnom	20	5669.984	-16	Pass
115% Vnom	20	5669.983	-17	Pass

Antenna 0		5755	
Temperature :	--	Test Date :	April 24, 2018
Humidity :	65 %	Test By:	King Kong

Voltage(V)	Temp(℃)	Test Frequency (MHz)	Max. Deviation (KHz)	Verdict
Vnom	-20	5754.998	-2	Pass
	-10	5754.997	-3	Pass
	0	5755.000	0	Pass
	10	5754.999	-1	Pass
	20	5754.998	-2	Pass
	30	5755.001	1	Pass
	40	5754.997	-3	Pass
	50	5754.997	-3	Pass
85% Vnom	20	5755.001	1	Pass
115% Vnom	20	5754.997	-3	Pass

Antenna 0		5795	
Temperature :	--	Test Date :	April 24, 2018
Humidity :	65 %	Test By:	King Kong

Voltage(V)	Temp(℃)	Test Frequency (MHz)	Max. Deviation (KHz)	Verdict
Vnom	-20	5794.991	-9	Pass
	-10	5794.991	-9	Pass
	0	5794.988	-12	Pass
	10	5794.989	-11	Pass
	20	5794.988	-12	Pass
	30	5794.989	-11	Pass
	40	5794.990	-10	Pass
	50	5794.991	-9	Pass
85% Vnom	20	5794.992	-8	Pass
115% Vnom	20	5794.989	-11	Pass

Antenna 0		5210	
Temperature :	--	Test Date :	February 07, 2018
Humidity :	65 %	Test By:	King Kong

Voltage(V)	Temp(℃)	Test Frequency (MHz)	Max. Deviation (KHz)	Verdict
Vnom	-20	5209.988	-12	Pass
	-10	5209.988	-12	Pass
	0	5209.988	-12	Pass
	10	5209.988	-12	Pass
	20	5209.989	-11	Pass
	30	5209.989	-11	Pass
	40	5209.991	-10	Pass
	50	5209.987	-14	Pass
85% Vnom	20	5209.988	-12	Pass
115% Vnom	20	5209.989	-11	Pass

Antenna 0		5290	
Temperature :	--	Test Date :	February 07, 2018
Humidity :	65 %	Test By:	King Kong

Voltage(V)	Temp(℃)	Test Frequency (MHz)	Max. Deviation (KHz)	Verdict
Vnom	-20	5290.014	14	Pass
	-10	5290.015	15	Pass
	0	5290.013	12	Pass
	10	5290.014	14	Pass
	20	5290.013	12	Pass
	30	5290.016	16	Pass
	40	5290.014	14	Pass
	50	5290.014	14	Pass
85% Vnom	20	5290.013	12	Pass
115% Vnom	20	5290.014	14	Pass

Antenna 0		5530	
Temperature :	--	Test Date :	February 07, 2018
Humidity :	65 %	Test By:	King Kong

Voltage(V)	Temp(℃)	Test Frequency (MHz)	Max. Deviation (KHz)	Verdict
Vnom	-20	5529.990	-11	Pass
	-10	5529.990	-11	Pass
	0	5529.990	-11	Pass
	10	5529.988	-12	Pass
	20	5529.989	-11	Pass
	30	5529.990	-11	Pass
	40	5529.991	-10	Pass
	50	5529.990	-11	Pass
85% Vnom	20	5529.988	-12	Pass
115% Vnom	20	5529.990	-11	Pass

Antenna 0		5610	
Temperature :	--	Test Date :	February 07, 2018
Humidity :	65 %	Test By:	King Kong

Voltage(V)	Temp(℃)	Test Frequency (MHz)	Max. Deviation (KHz)	Verdict
Vnom	-20	5610.000	-1	Pass
	-10	5609.997	-3	Pass
	0	5609.997	-3	Pass
	10	5609.997	-3	Pass
	20	5610.000	-1	Pass
	30	5609.998	-2	Pass
	40	5610.000	-1	Pass
	50	5610.000	-1	Pass
85% Vnom	20	5609.996	-5	Pass
115% Vnom	20	5609.997	-3	Pass

Antenna 0		5775	
Temperature :	--	Test Date :	February 07, 2018
Humidity :	65 %	Test By:	King Kong

Voltage(V)	Temp(℃)	Test Frequency (MHz)	Max. Deviation (KHz)	Verdict
Vnom	-20	5775.010	10	Pass
	-10	5775.012	11	Pass
	0	5775.011	11	Pass
	10	5775.012	11	Pass
	20	5775.008	7	Pass
	30	5775.009	8	Pass
	40	5775.009	8	Pass
	50	5775.008	7	Pass
85% Vnom	20	5775.010	10	Pass
115% Vnom	20	5775.011	11	Pass

8.5 UNDESIRABLE RADIATED SPURIOUS EMISSION

8.5.1 Applicable Standard

According to FCC Part 15.407 (b)
According to 789033 D02 Section II(G)

8.5.2 Conformance Limit

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 5.47-5.725 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.
The emission measurements shall be performed using a minimum resolution bandwidth of 1 MHz. A lower resolution bandwidth may be employed near the band edge, when necessary, provided the measured energy is integrated to show the total power over 1 MHz.
Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in §15.209
The emissions from an intentional radiator shall not exceed the field strength levels specified in the following table 15.209(a):

Restricted Frequency(MHz)	Field Strength (μV/m)	Field Strength (dBμV/m)	Measurement Distance
0.009-0.490	2400/F(KHz)	20 log (uV/m)	300
0.490-1.705	2400/F(KHz)	20 log (uV/m)	30
1.705-30	30	29.5	30
30-88	100	40	3
88-216	150	43.5	3
216-960	200	46	3
Above 960	500	54	3

The provisions of §15.205 apply to intentional radiators operating under this section,15.205 Restricted bands of operation

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
10.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	(2)
13.36-13.41			

Remark: 1. Emission level in dBuV/m=20 log (uV/m)
2. Measurement was performed at an antenna to the closed point of EUT distance of meters.
3. Only spurious frequency is permitted to locate within the Restricted Bands specified in provision of ξ 15.205, and the emissions located in restricted bands also comply with 15.209 limit.

8.5.3 Test Configuration

Test according to clause 6.2 radio frequency test setup

8.5.4 Test Procedure

■ Unwanted Emissions Measurements below 1000 MHz

Compliance shall be demonstrated using CISPR quasi-peak detection; however, peak detection is permitted as an alternative to quasi-peak detection.
The EUT was placed on a turn table which is 0.8m above ground plane.
And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
Repeat above procedures until all frequency measured was complete.
We use software control the EUT, Let EUT hopping on and transmit with highest power, All the modes have been tested and the worst result was reported.
Use the following spectrum analyzer settings:
Set RBW=120kHz for f < 1 GHz(30MHz to 1GHz), 200Hz for f<150KHz(9KHz to 150KHz), 9KHz for <30MHz (150KHz to 30KHz).
Set the VBW > RBW.
Detector = Peak.
Trace mode = max hold.
Follow the guidelines in ANSI C63.10-2013 with respect to maximizing the emission by rotating the EUT, measuring the emission while the EUT is situated in three orthogonal planes (if appropriate), adjusting the measurement antenna height and polarization, etc. A pre-amp and a high pass filter are required for this test, in order to provide the measuring system with sufficient sensitivity. Allow the trace to stabilize. The peak reading of the emission, after being corrected by the antenna factor, cable loss, pre-amp gain, etc., is the peak field strength, which must comply with the limit specified in Section 15.35(b). Submit this data.
Repeat above procedures until all frequency measured was complete.

■ Unwanted Maximum peak Emissions Measurements above 1000 MHz

Maximum emission levels are measured by setting the analyzer as follows:
RBW = 1 MHz.
VBW ≥ 3 MHz.
Detector = Peak.
Sweep time = auto.
Trace mode = max hold.
Allow sweeps to continue until the trace stabilizes. Note that if the transmission is not continuous, the time required for the trace to stabilize will increase by a factor of approximately 1/x, where x is the duty cycle. For example, at 50 percent duty cycle, the measurement time will increase by a factor of two relative to measurement time for continuous transmission.

■ Unwanted Average Emissions Measurements above 1000 MHz

Method VB (Averaging using reduced video bandwidth): Alternative method.
RBW = 1 MHz.
Video bandwidth. • If the EUT is configured to transmit with duty cycle ≥ 98 percent, set VBW ≤ RBW/100 (i.e., 10 kHz) but not less than 10 Hz.
• If the EUT duty cycle is < 98 percent, set VBW ≥ 1/T, where T is defined in section II.B.1.a).
Video bandwidth mode or display mode • The instrument shall be set to ensure that video filtering is applied in the power domain. Typically, this requires setting the detector mode to RMS and setting the Average-VBW Type to Power (RMS).
• As an alternative, the analyzer may be set to linear detector mode. Ensure that video filtering is applied in linear voltage domain (rather than in a log or dB domain). Some analyzers require linear display mode in order to accomplish this. Others have a setting for Average-VBW Type, which can be set to “Voltage” regardless of the display mode.
Detector = Peak.
Sweep time = auto.
Trace mode = max hold.
Allow max hold to run for at least 50 traces if the transmitted signal is continuous or has at least 98 percent duty cycle. For lower duty cycles, increase the minimum number of traces by a factor of 1/x, where x is the duty cycle. For example, use at least 200 traces if the duty cycle is 25 percent. (If a specific emission is demonstrated to be continuous—i.e., 100 percent duty cycle—rather than turning on and off with the transmit cycle, at least 50 traces shall be averaged.)

■ Band edge measurements.

Unwanted band-edge emissions may be measured using either of the special band-edge measurement techniques (the marker-delta or integration methods) described below. Note that the marker-delta method is primarily a radiated measurement technique that requires the 99% occupied bandwidth edge to be within 2 MHz of the authorized band edge, whereas the integration method can be used in either a radiated or conducted measurement without any special requirement with regards to the displacement of the unwanted emission(s) relative to the authorized bandwidth.

Marker-Delta Method.

The marker-delta method, as described in ANSI C63.10, can be used to perform measurements of the radiated unwanted emissions level of emissions provided that the 99% occupied bandwidth of the fundamental is within 2 MHz of the authorized band-edge.

8.5.5 Test Results

■ ☒For Undesirable radiated Spurious Emission in UNII Band I

The modes 802.11a/n/ac has been tested and the worst result recorded as below:

- ☒Undesirable radiated Spurious Emission Above 1GHz (1GHz to 40GHz)

Temperature :	28℃	Test Date :	April 24, 2018
Humidity :	65 %	Test By:	King Kong
Test mode:	802.11a	Frequency(MHz):	5180

Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
3335.25	V	52.59	-42.64	-27.00	-15.64
5930.49	V	54.07	-41.16	-27.00	-14.16
9411.57	V	59.42	-35.81	-27.00	-8.81
3704.89	H	50.9	-44.33	-27.00	-17.33
6389.75	H	57.99	-37.24	-27.00	-10.24
9708.48	H	61.03	-34.20	-27.00	-7.20

Temperature :	28℃	Test Date :	April 24, 2018
Humidity :	65 %	Test By:	King Kong
Test mode:	802.11a	Frequency(MHz):	5220

Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
3845.5	V	53.93	-41.3	-27.00	-14.3
6441.69	V	56.9	-38.33	-27.00	-11.33
9411.24	V	62.96	-32.27	-27.00	-5.27
3328.75	H	52.39	-42.84	-27.00	-15.84
7221.59	H	61.15	-34.08	-27.00	-7.08
10371.14	H	64.2	-31.03	-27.00	-4.03

Temperature :	28℃	Test Date :	April 24, 2018
Humidity :	65 %	Test By:	King Kong
Test mode:	802.11a	Frequency(MHz):	5240

Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
4147.2	V	56.33	-38.90	-27.00	-11.90
6074.77	V	56.23	-39.00	-27.00	-12.00
9230.82	V	62.75	-32.48	-27.00	-5.48
3344.86	H	51.54	-43.69	-27.00	-16.69
6814.39	H	59.64	-35.59	-27.00	-8.59
10140.54	H	63.74	-31.49	-27.00	-4.49

Note: (1) Emission Level= Reading Level+Probe Factor +Cable Loss.
(2) EIRP[dBm] = E[dBμV/m] + 20 log(d[meters]) - 104.77
d is the measurement distance in 3 meters

- ☒Undesirable radiated Undesirable radiated Spurious Emission in Band Edge

Temperature :	28℃	Test Date :	April 24, 2018
Humidity :	65 %	Test By:	King Kong
Test mode:	802.11a	Frequency(MHz):	5180

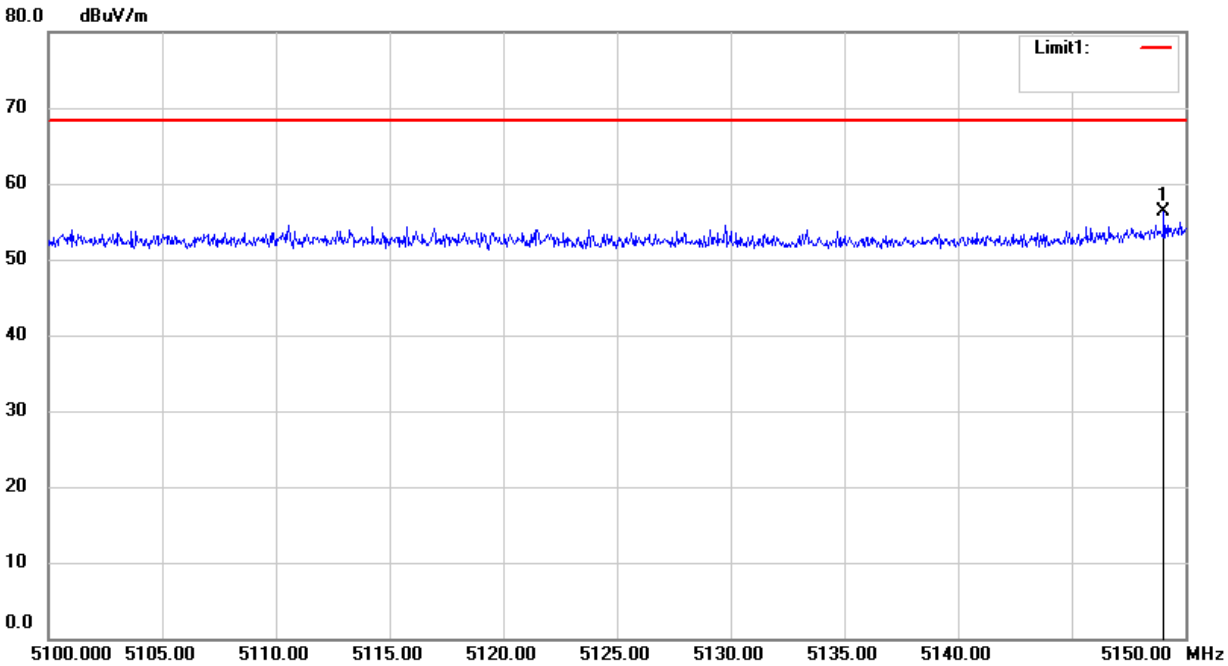
Freq. (MHz)	Ant.Pol. H/V	Field Strength (RBW=100KHz) (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Verdict
5149.75	V	54.57	-40.66	-27.00	Pass
5149.50	H	56.38	-38.85	-27.00	Pass

Temperature :	28℃	Test Date :	April 24, 2018
Humidity :	65 %	Test By:	King Kong
Test mode:	802.11a	Frequency(MHz):	5240

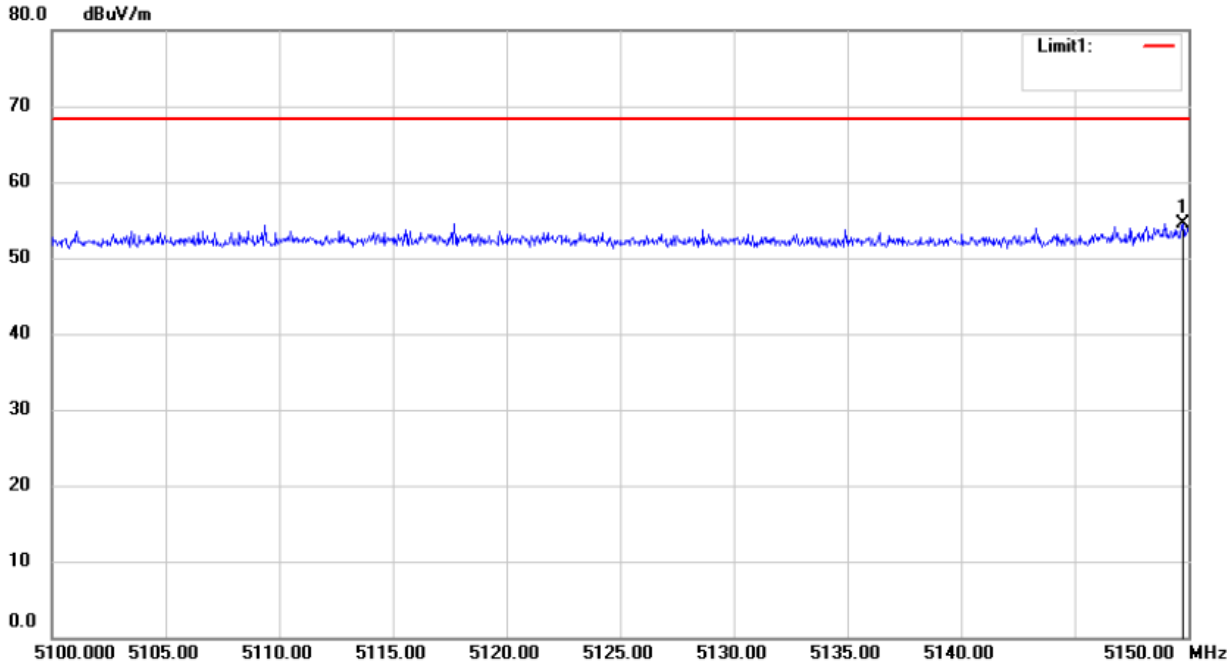
Freq. (MHz)	Ant.Pol. H/V	Field Strength (RBW=100KHz) (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Verdict
5353.20	V	52.33	-42.90	-27.00	Pass
5351.60	H	53.08	-42.15	-27.00	Pass

Note: (1) Emission Level= Reading Level+Probe Factor +Cable Loss.
(2) EIRP[dBm] = E[dBμV/m] + 20 log(d[meters]) - 104.77
d is the measurement distance in 3 meters

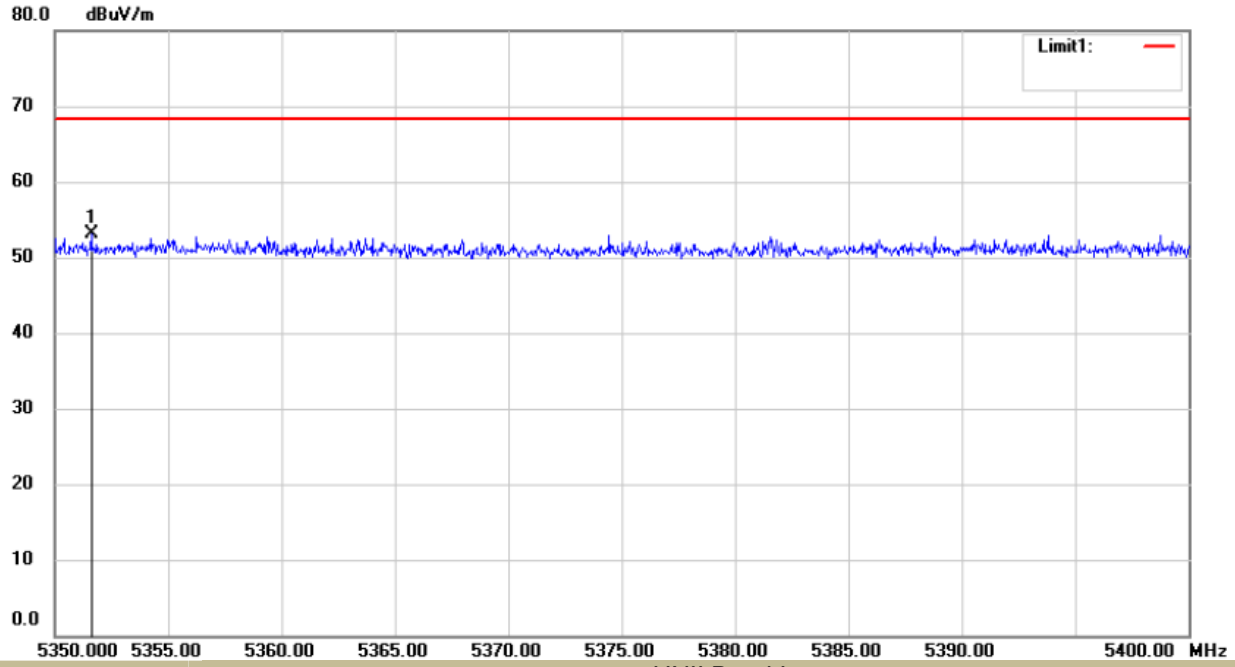
Test Model	UNII Band I Undesirable radiated Spurious Emission in Restricted Band (5100-5150MHz) ☒802.11a ☐802.11n(HT20) ☐802.11n(HT40) ☒5180 ☐5200 ☐5240 Ant.Pol H



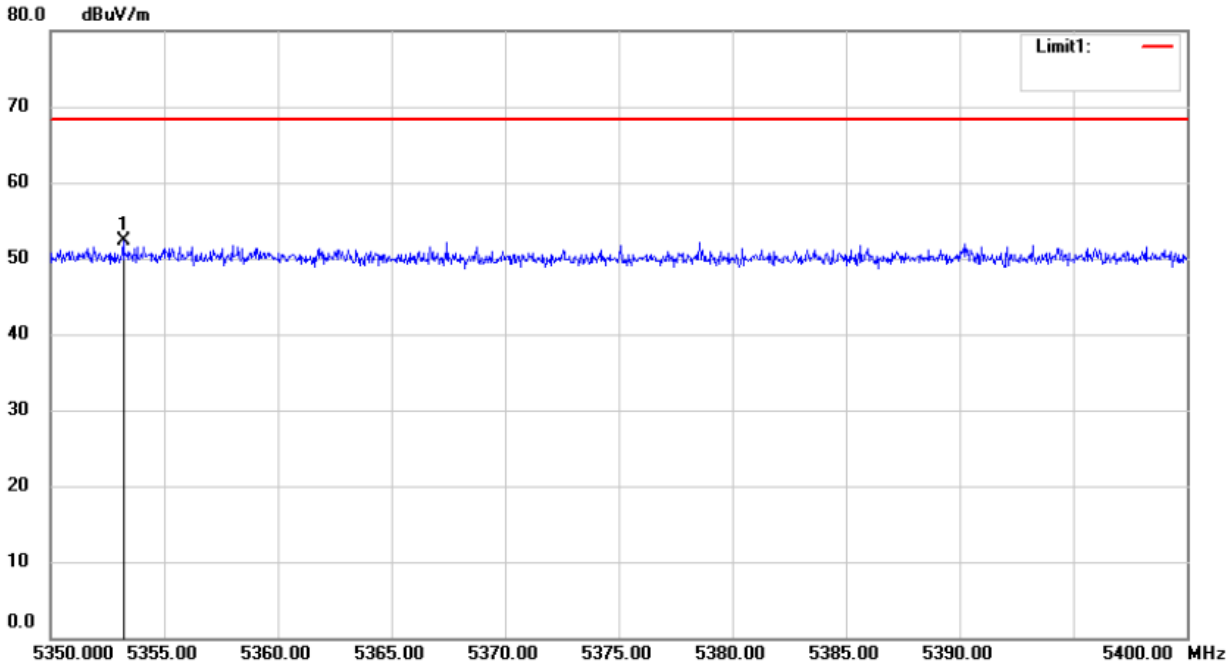
Test Model	UNII Band I Undesirable radiated Spurious Emission in Restricted Band (5100-5150MHz) ☒802.11a ☐802.11n(HT20) ☐802.11n(HT40) ☒5180 ☐5200 ☐5240 Ant.Pol V



Test Model	UNII Band I Undesirable radiated Spurious Emission in Restricted Band (5350-5400MHz) ☒802.11a ☐802.11n(HT20) ☐802.11n(HT40) ☐5180 ☐5200 ☒5240 Ant.Pol H



Test Model	UNII Band I Undesirable radiated Spurious Emission in Restricted Band (5350-5400MHz) ☒802.11a ☐802.11n(HT20) ☐802.11n(HT40) ☐5180 ☐5200 ☒5240 Ant.Pol V



■ ☒For Undesirable radiated Spurious Emission in UNII Band II-A
All the modes 802.11a/n/ac has been tested and the worst result 802.11a recorded as below:
● ☒Undesirable radiated Spurious Emission Above 1GHz (1GHz to 40GHz)

Temperature :	28℃	Test Date :	April 28, 2018
Humidity :	65 %	Test By:	King Kong
Test mode:	802.11a	Frequency(MHz):	5260

Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
3663.5	V	55.9	-39.33	-27.00	-12.33
6215.31	V	57.16	-38.07	-27.00	-11.07
9478.85	V	62.92	-32.31	-27.00	-5.31
3918.48	H	52.84	-42.39	-27.00	-15.39
6976.35	H	62.07	-33.16	-27.00	-6.16
10328.19	H	63.15	-32.08	-27.00	-5.08

Temperature :	28℃	Test Date :	April 28, 2018
Humidity :	65 %	Test By:	King Kong
Test mode:	802.11a	Frequency(MHz):	5280

Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
3339.37	V	54.66	-40.57	-27.00	-13.57
6347.63	V	58.85	-36.38	-27.00	-9.38
9367.01	V	64.84	-30.39	-27.00	-3.39
3485.81	H	53.15	-42.08	-27.00	-15.08
6736.09	H	60.19	-35.04	-27.00	-8.04
9831.32	H	64.12	-31.11	-27.00	-4.11

Temperature :	28℃	Test Date :	April 28, 2018
Humidity :	65 %	Test By:	King Kong
Test mode:	802.11a	Frequency(MHz):	5320

Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
3947.38	V	56.04	-39.19	-27.00	-13.44
6311.57	V	56.17	-39.06	-27.00	-13.31
10228.02	V	63.99	-31.24	-27.00	-5.49
3133.26	H	53.62	-41.61	-27.00	-15.86
6574.96	H	62.72	-32.51	-27.00	-6.76
9516.89	H	60.23	-35.00	-27.00	-8.00

Note: (1) Emission Level= Reading Level+Probe Factor +Cable Loss.
(2) EIRP[dBm] = E[dBμV/m] + 20 log(d[meters]) - 104.77
d is the measurement distance in 3 meters

- ☒Undesirable radiated Undesirable radiated Spurious Emission in Band Edge

Temperature :	28℃	Test Date :	April 28, 2018
Humidity :	65 %	Test By:	King Kong
Test mode:	802.11a	Frequency(MHz):	5260

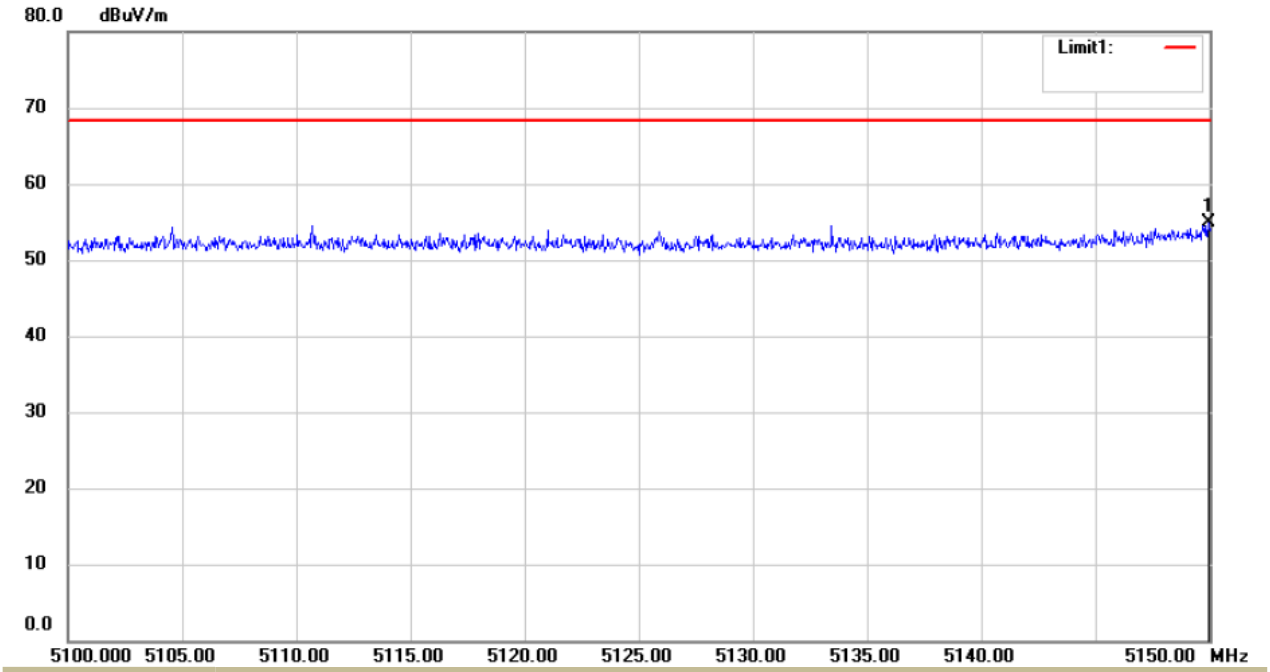
Freq. (MHz)	Ant.Pol. H/V	Field Strength (RBW=100KHz) (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Verdict
5147.90	V	53.10	-42.13	-27.00	Pass
5149.95	H	54.88	-40.35	-27.00	Pass

Temperature :	28℃	Test Date :	April 28, 2018
Humidity :	65 %	Test By:	King Kong
Test mode:	802.11a	Frequency(MHz):	5320

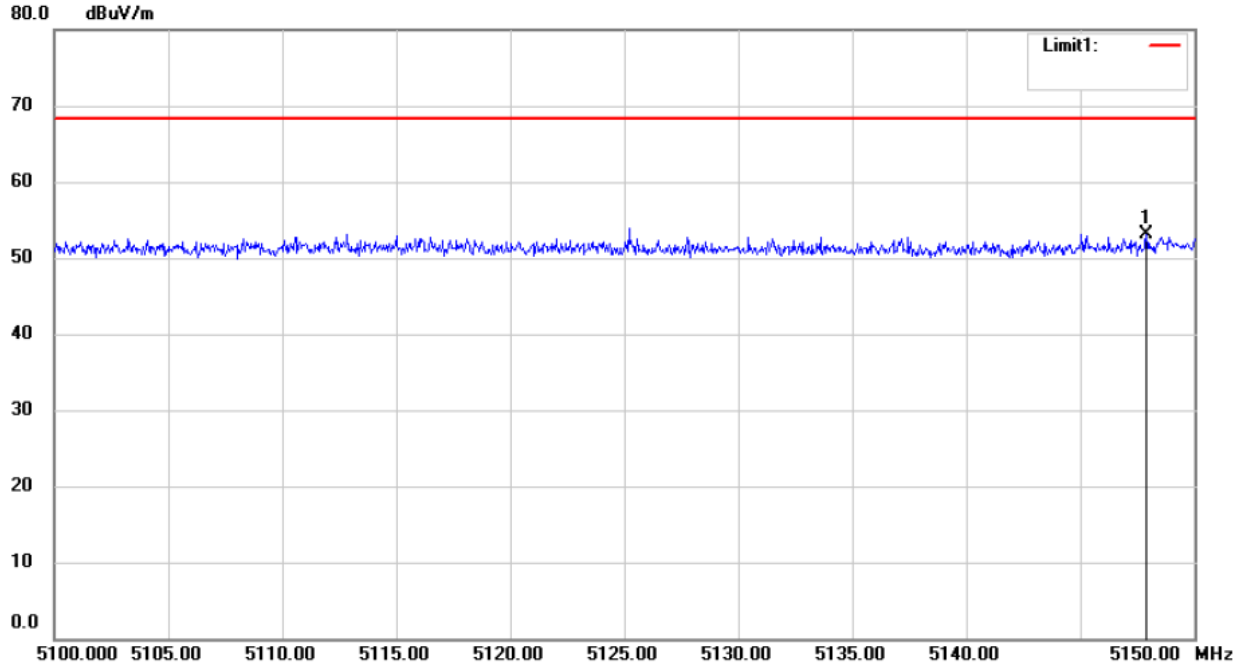
Freq. (MHz)	Ant.Pol. H/V	Field Strength (RBW=100KHz) (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Verdict
5355.50	V	54.04	-41.19	-27.00	Pass
5351.75	H	53.80	-41.43	-27.00	Pass

Note: (1) Emission Level= Reading Level+Probe Factor +Cable Loss.
(2) EIRP[dBm] = E[dBμV/m] + 20 log(d[meters]) - 104.77
d is the measurement distance in 3 meters

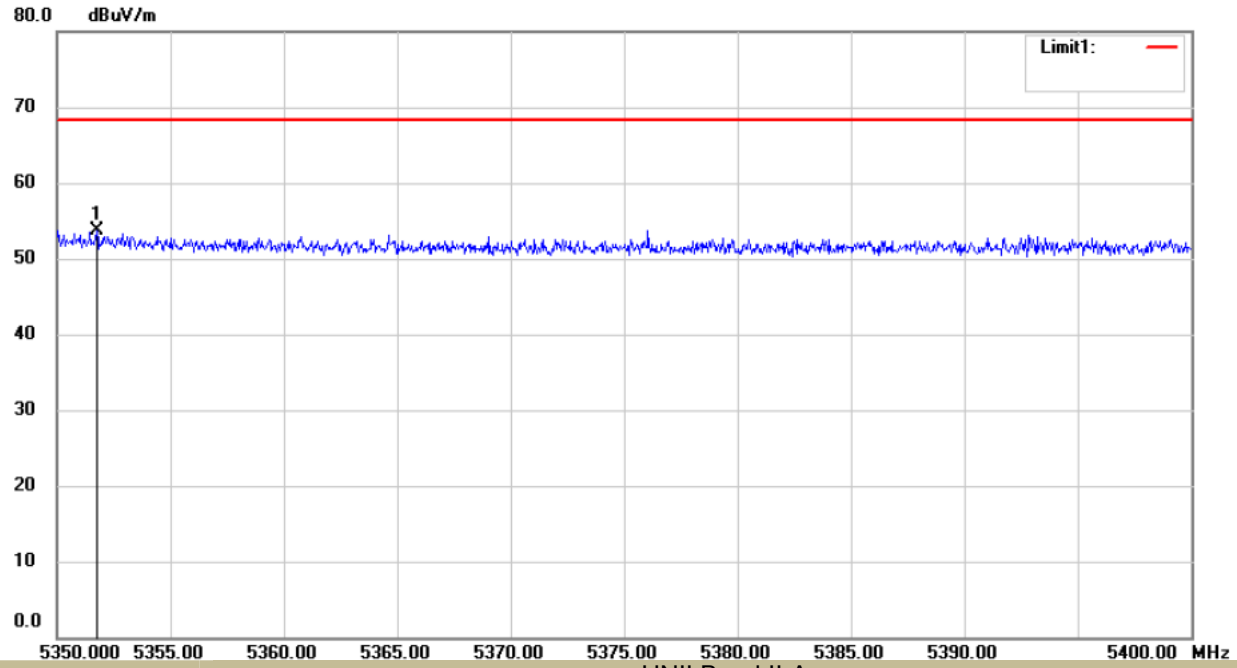
Test Model	UNII Band II-A Undesirable radiated Undesirable radiated Spurious Emission in Band Edge ☒802.11a ☐802.11n(HT20) ☐802.11n(HT40) ☒5260 Ant.Pol H



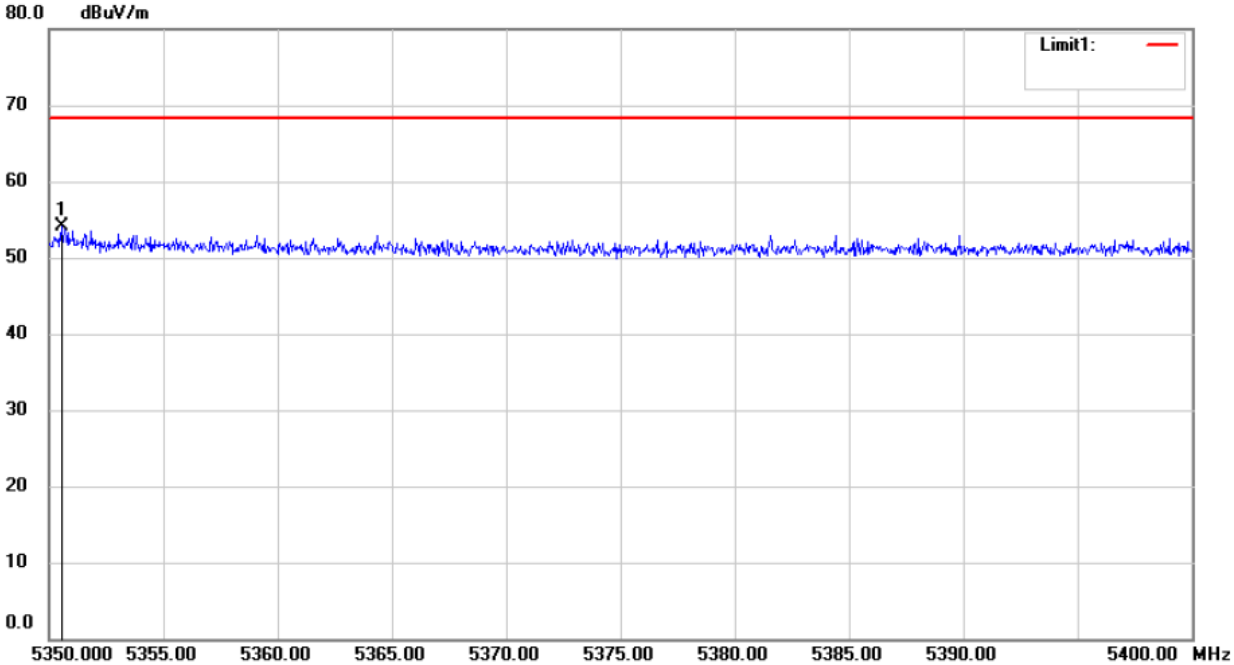
Test Model	UNII Band II-A Undesirable radiated Undesirable radiated Spurious Emission in Band Edge ☒802.11a ☐802.11n(HT20) ☐802.11n(HT40) ☒5260 Ant.Pol V



Test Model	UNII Band II-A Undesirable radiated Undesirable radiated Spurious Emission in Band Edge ☒802.11a ☐802.11n(HT20) ☐802.11n(HT40) ☒5320 Ant.Pol H



Test Model	UNII Band II-A Undesirable radiated Undesirable radiated Spurious Emission in Band Edge ☒802.11a ☐802.11n(HT20) ☐802.11n(HT40) ☒5320 Ant.Pol V



■ ☒For Undesirable radiated Spurious Emission in UNII Band II-C
All the modes 802.11a/n/ac has been tested and the worst result 802.11a recorded as below:

● ☒Undesirable radiated Spurious Emission Above 1GHz (1GHz to 40GHz)

Temperature :	28℃	Test Date :	April 28, 2018
Humidity :	65 %	Test By:	King Kong
Test mode:	802.11a	Frequency(MHz):	5500

Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
3471.22	V	55.47	-39.76	-27.00	-12.76
6720.4	V	56.96	-38.27	-27.00	-11.27
10146.91	V	63.42	-31.81	-27.00	-4.81
3074.04	H	54.03	-41.2	-27.00	-14.2
7340.87	H	60.17	-35.06	-27.00	-8.06
10302.58	H	63.04	-32.19	-27.00	-5.19

Temperature :	28℃	Test Date :	April 28, 2018
Humidity :	65 %	Test By:	King Kong
Test mode:	802.11a	Frequency(MHz):	5600

Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
4124.58	V	55.98	-39.25	-27.00	-12.25
6560.75	V	57.43	-37.8	-27.00	-10.8
9685.25	V	63.09	-32.14	-27.00	-5.14
3046.81	H	54.96	-40.27	-27.00	-13.27
6978.51	H	60.03	-35.2	-27.00	-8.2
10395.92	H	63.9	-31.33	-27.00	-4.33

Temperature :	28℃	Test Date :	April 28, 2018
Humidity :	65 %	Test By:	King Kong
Test mode:	802.11a	Frequency(MHz):	5700

Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
3367.86	V	54.56	-40.67	-27.00	-13.67
5939.42	V	57.8	-37.43	-27.00	-10.43
9693.94	V	62.78	-32.45	-27.00	-5.45
3812.83	H	54.55	-40.68	-27.00	-13.68
6928.54	H	62.1	-33.13	-27.00	-6.13
9770.05	H	62.04	-33.19	-27.00	-6.19

Note: (1) Emission Level= Reading Level+Probe Factor +Cable Loss.
(2) EIRP[dBm] = E[dBμV/m] + 20 log(d[meters]) - 104.77
d is the measurement distance in 3 meters

- Undesirable radiated Undesirable radiated Spurious Emission in Band Edge

Temperature :	28℃	Test Date :	April 28, 2018
Humidity :	65 %	Test By:	King Kong
Test mode:	802.11a	Frequency(MHz):	5260

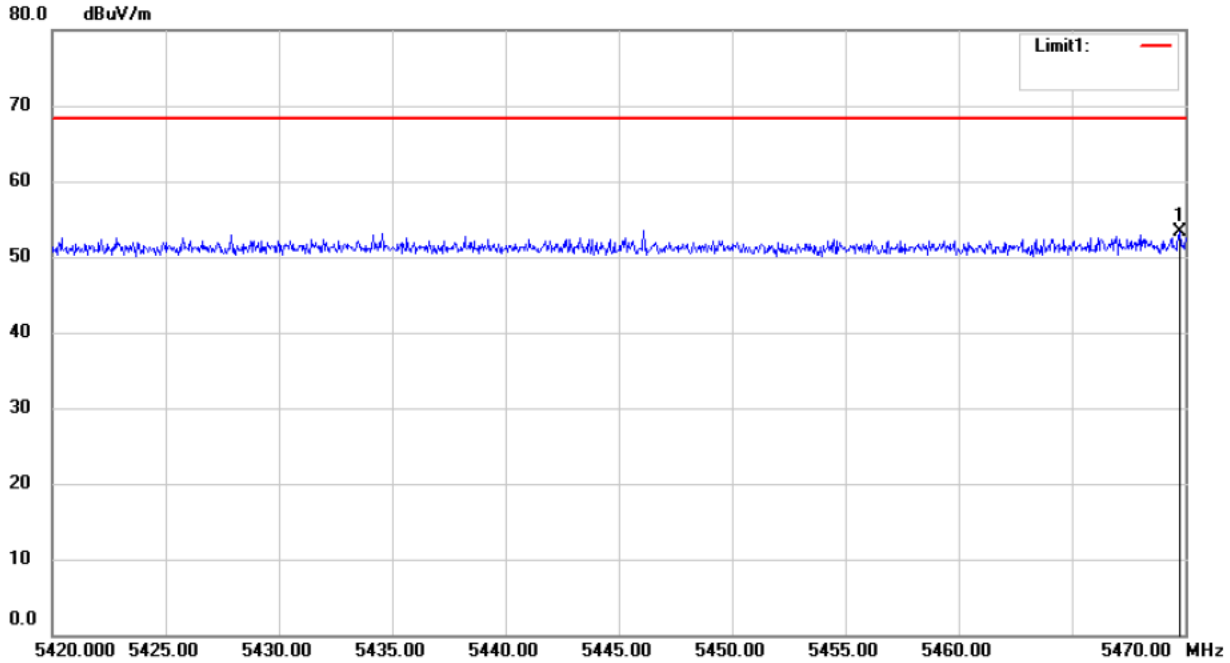
Freq. (MHz)	Ant.Pol. H/V	Field Strength (RBW=100KHz) (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Verdict
5469.75	V	53.29	-41.94	-27.00	Pass
5468.50	H	54.40	-40.83	-27.00	Pass

Temperature :	28℃	Test Date :	April 28, 2018
Humidity :	65 %	Test By:	King Kong
Test mode:	802.11a	Frequency(MHz):	5320

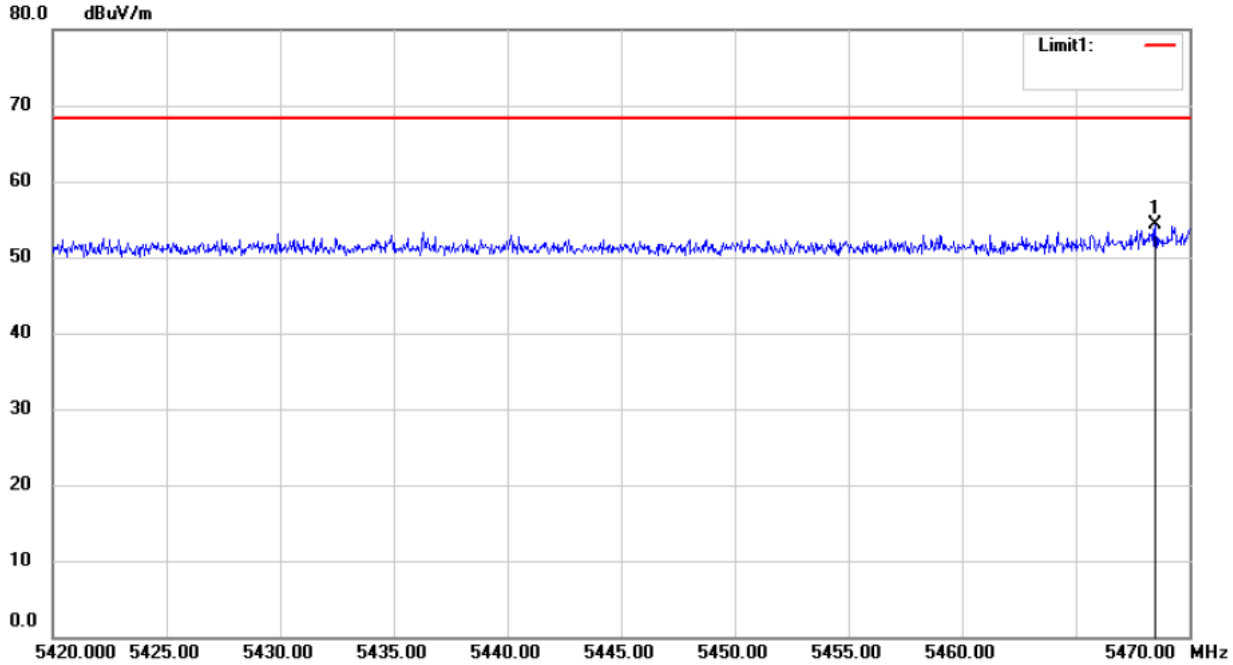
Freq. (MHz)	Ant.Pol. H/V	Field Strength (RBW=100KHz) (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Verdict
5725.05	V	62.09	-33.14	-27.00	Pass
5725.20	H	59.99	-35.24	-27.00	Pass

Note: (1) Emission Level= Reading Level+Probe Factor +Cable Loss.
(2) EIRP[dBm] = E[dBμV/m] + 20 log(d[meters]) - 104.77
d is the measurement distance in 3 meters

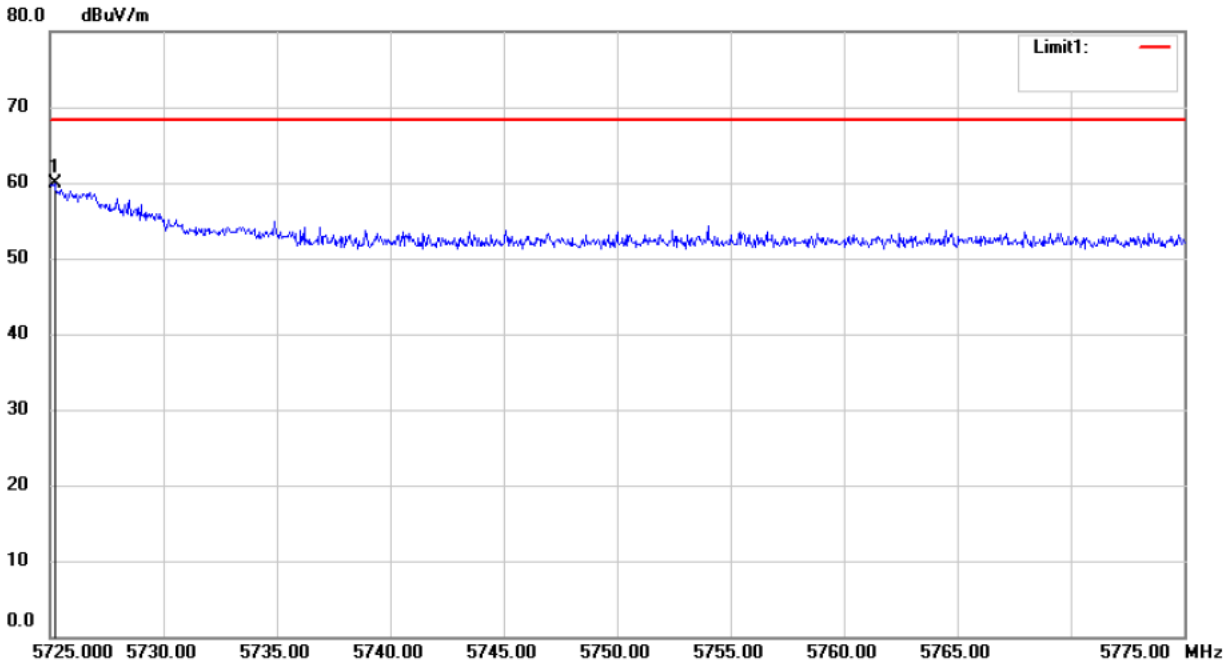
Test Model	UNII Band II-C Undesirable radiated Undesirable radiated Spurious Emission in Band Edge ☒802.11a ☐802.11n(HT20) ☐802.11n(HT40) ☒5500 Ant.Pol H



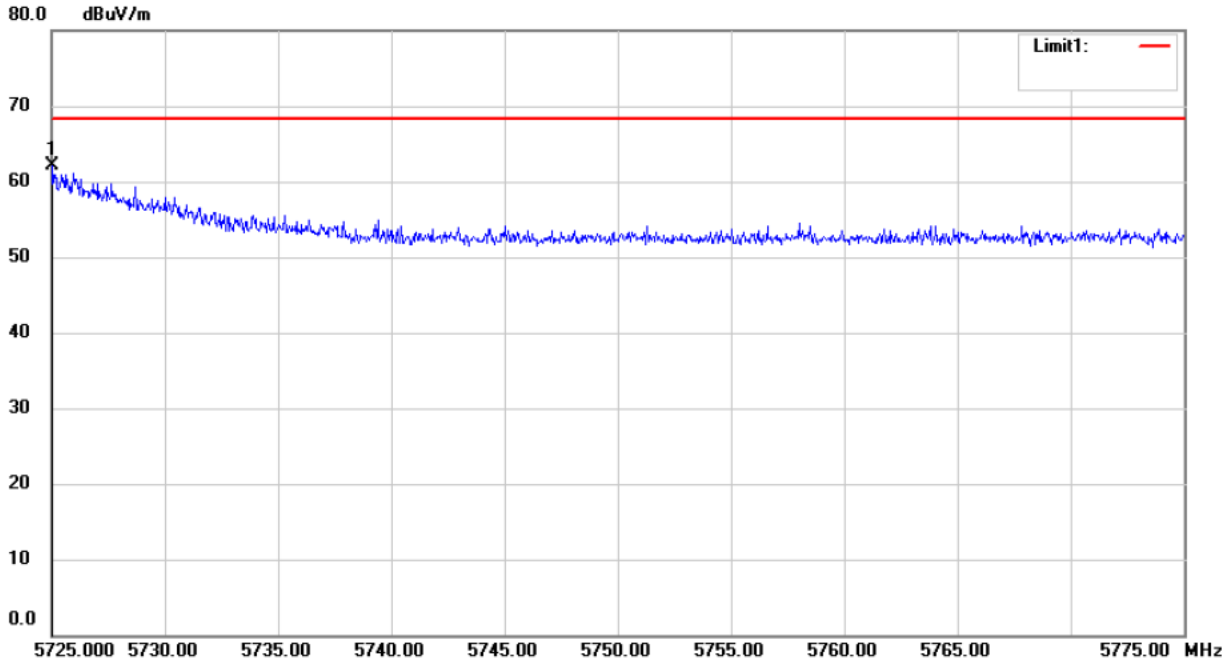
Test Model	UNII Band II-C Undesirable radiated Undesirable radiated Spurious Emission in Band Edge ☒802.11a ☐802.11n(HT20) ☐802.11n(HT40) ☒5500 Ant.Pol V



Test Model	UNII Band II-C Undesirable radiated Undesirable radiated Spurious Emission in Band Edge ☒802.11a ☐802.11n(HT20) ☐802.11n(HT40) ☒5700 Ant.Pol H



Test Model	UNII Band II-C Undesirable radiated Undesirable radiated Spurious Emission in Band Edge ☒802.11a ☐802.11n(HT20) ☐802.11n(HT40) ☒5700 Ant.Pol V



■ ☒For Undesirable radiated Spurious Emission in UNII Band III

All the modes 802.11a/n/ac has been tested and the worst result 802.11a recorded as below:

● ☒Undesirable radiated Spurious Emission Above 1GHz (1GHz to 40GHz)

Temperature :	28℃	Test Date :	April 28, 2018
Humidity :	65 %	Test By:	King Kong
Test mode:	802.11a	Frequency(MHz):	5745

Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
3907.09	V	54.5	-40.73	-27.00	-13.73
6699.39	V	58.05	-37.18	-27.00	-10.18
9331.32	V	62.69	-32.54	-27.00	-5.54
3651.17	H	53.72	-41.51	-27.00	-14.51
6887.88	H	62.59	-32.64	-27.00	-5.64
9717.61	H	62.04	-33.19	-27.00	-6.19

Temperature :	28℃	Test Date :	April 28, 2018
Humidity :	65 %	Test By:	King Kong
Test mode:	802.11a	Frequency(MHz):	5785

Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
3948.78	V	55.23	-40.00	-27.00	-13.00
6726.18	V	58.71	-36.52	-27.00	-9.52
9856.39	V	61.63	-33.60	-27.00	-6.60
3171.82	H	54.92	-40.31	-27.00	-13.31
6925.03	H	60.4	-34.83	-27.00	-7.83
9448.72	H	61.48	-33.75	-27.00	-6.75

Temperature :	28℃	Test Date :	April 28, 2018
Humidity :	65 %	Test By:	King Kong
Test mode:	802.11a	Frequency(MHz):	5825

Freq. (MHz)	Ant.Pol. H/V	Field Strength (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Over(dB)
4136.74	V	56.89	-38.34	-27.00	-11.34
6776.45	V	57.57	-37.66	-27.00	-10.66
9601.24	V	63.43	-31.80	-27.00	-4.80
3128.77	H	52.55	-42.68	-27.00	-15.68
6917.40	H	60.41	-34.82	-27.00	-7.82
10210.53	H	62.48	-32.75	-27.00	-5.75

Note: (1) Emission Level= Reading Level+Probe Factor +Cable Loss.
(2) EIRP[dBm] = E[dBμV/m] + 20 log(d[meters]) - 104.77
d is the measurement distance in 3 meters

- ☒Undesirable radiated Spurious Emission in band edge

Temperature :	28℃	Test Date :	April 28, 2018
Humidity :	65 %	Test By:	King Kong
Test mode:	802.11a	Frequency:	5745

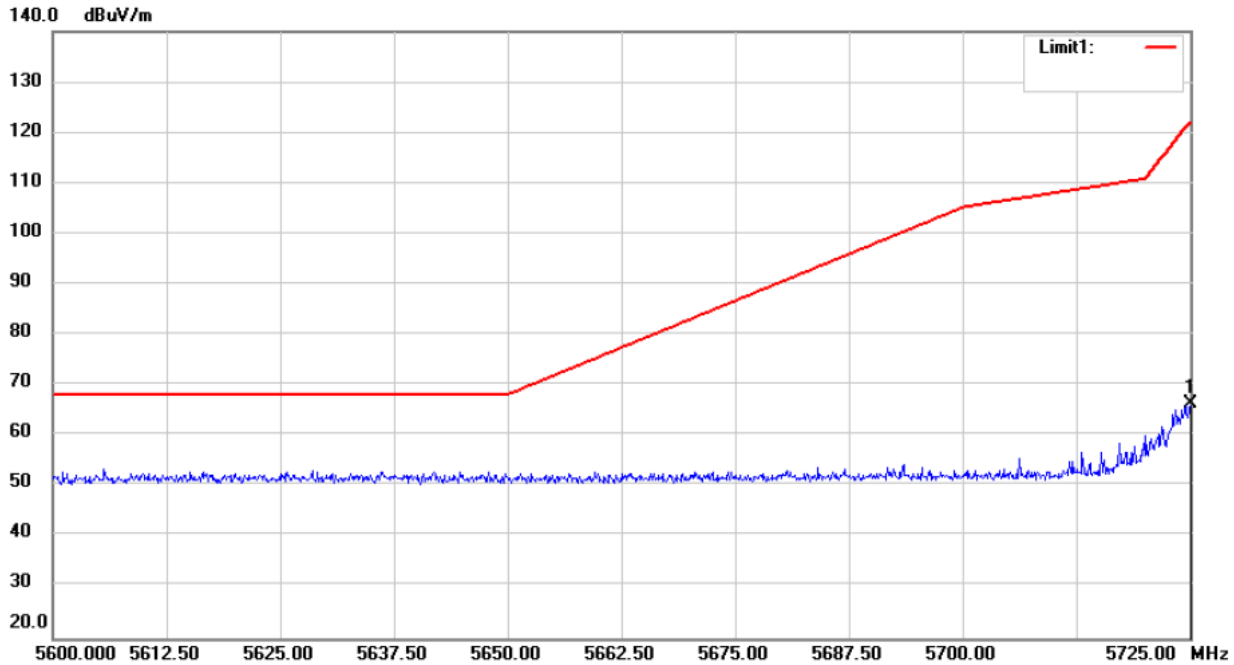
Freq. (MHz)	Ant.Pol. H/V	Field Strength (RBW=100KHz) (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Verdict
5724.375	V	67.82	-27.41	25.58	PASS
5725.000	H	66.37	-28.86	27.00	PASS

Temperature :	28℃	Test Date :	April 28, 2018
Humidity :	65 %	Test By:	King Kong
Test mode:	802.11a	Frequency:	5825

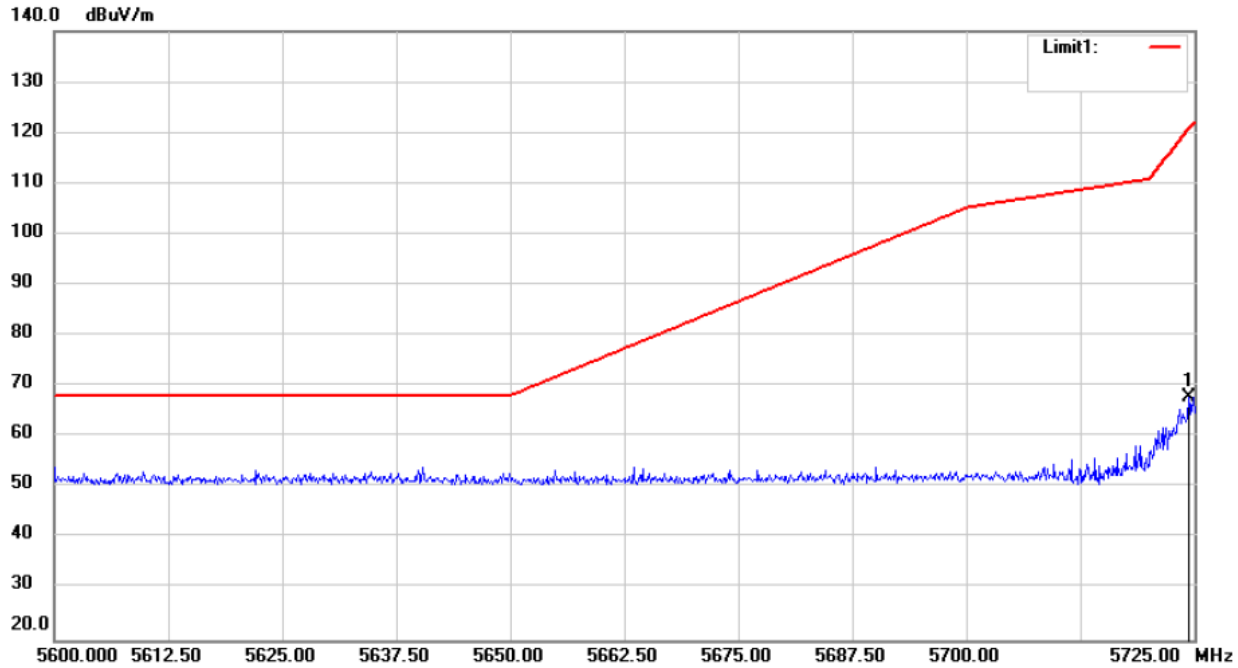
Freq. (MHz)	Ant.Pol. H/V	Field Strength (RBW=100KHz) (dBuV/m)	E.I.R.P (dBm)	Limit (dBm)	Verdict
5850.00	V	64.64	-30.59	27.00	PASS
5850.00	H	65.77	-29.46	27.00	PASS

Note: (1) Emission Level= Reading Level+Probe Factor +Cable Loss.
(2) EIRP[dBm] = E[dBμV/m] + 20 log(d[meters]) - 104.77
d is the measurement distance in 3 meters

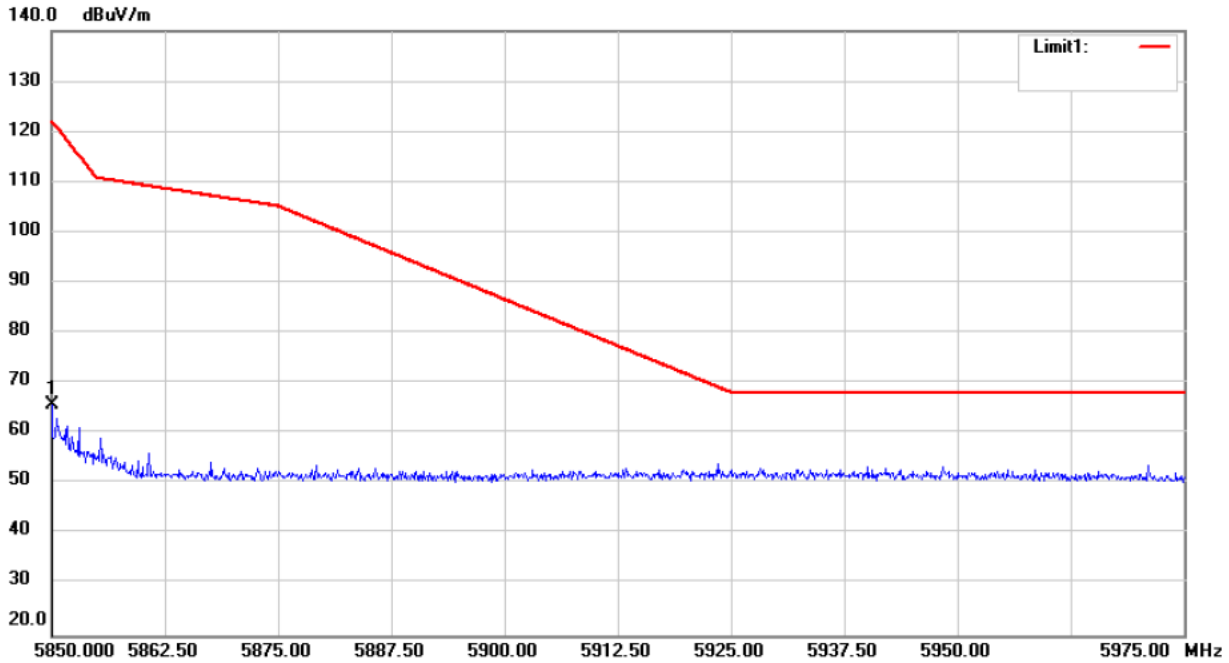
Test Model	UNII Band III Undesirable radiated Undesirable radiated Spurious Emission in Band Edge ☒802.11a ☐802.11n(HT20) ☐802.11n(HT40) ☒5745 Ant.Pol H



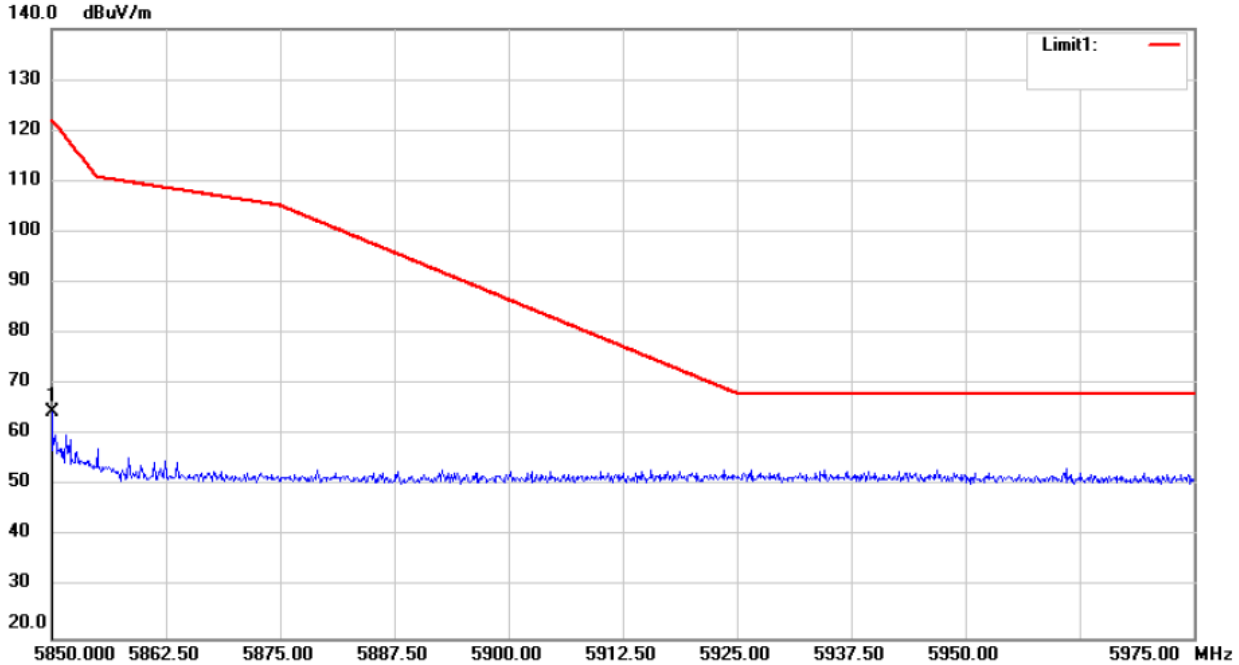
Test Model	UNII Band III Undesirable radiated Undesirable radiated Spurious Emission in Band Edge ☒802.11a ☐802.11n(HT20) ☐802.11n(HT40) ☒5745 Ant.Pol V



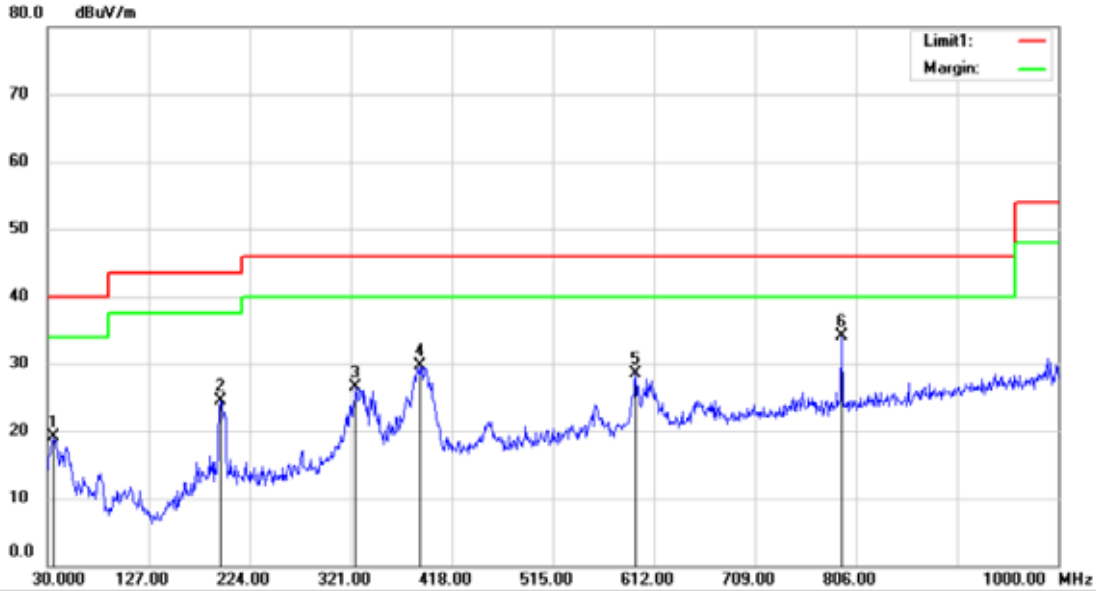
Test Model	UNII Band III Undesirable radiated Undesirable radiated Spurious Emission in Band Edge ☒802.11a ☐802.11n(HT20) ☐802.11n(HT40) ☒5825 Ant.Pol H



Test Model	UNII Band III Undesirable radiated Undesirable radiated Spurious Emission in Band Edge ☒802.11a ☐802.11n(HT20) ☐802.11n(HT40) ☒5825 Ant.Pol V

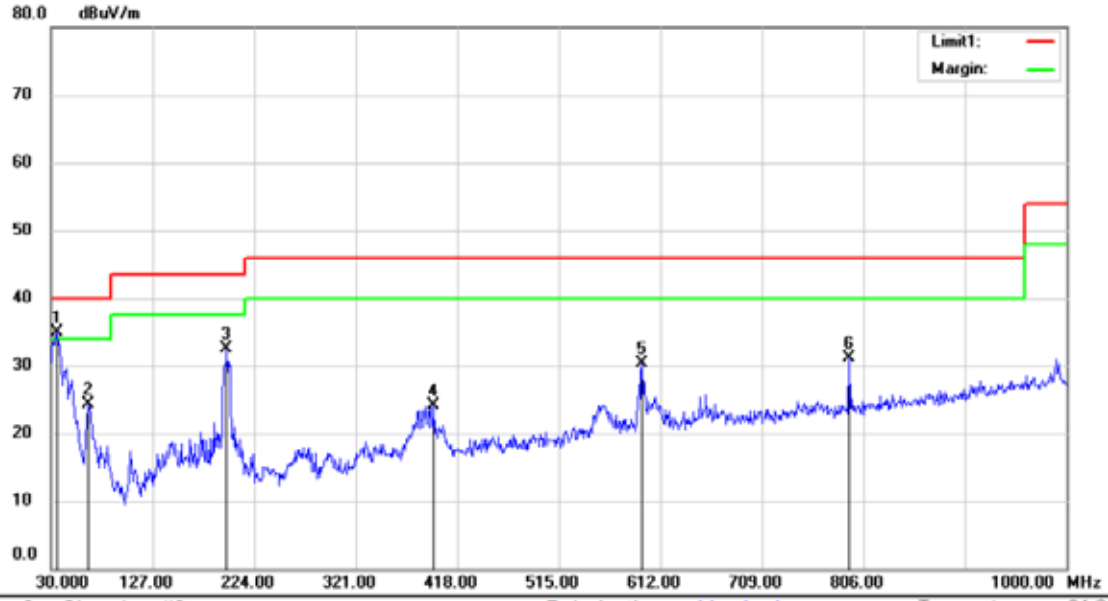


- Undesirable radiated Spurious Emission below 1GHz (30MHz to 1GHz)
  All mode have been tested, and the worst results have been recorded in the report.



Site 3m Chamber #3 Polarization: *Horizontal* Temperature: 24 C
Limit: (RE)FCC PART 15C Power: AC 120V/60Hz Humidity: 53 %
Mode:WIFI5G A20 5180
Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		35.8200	35.76	-16.58	19.18	40.00	-20.82	QP			
2		195.8700	40.08	-15.58	24.50	43.50	-19.00	QP			
3		325.8500	38.19	-11.64	26.55	46.00	-19.45	QP			
4		387.9300	39.67	-9.89	29.78	46.00	-16.22	QP			
5		594.5400	33.69	-5.19	28.50	46.00	-17.50	QP			
6	*	792.4200	36.21	-2.09	34.12	46.00	-11.88	QP			



Site 3m Chamber #3 Polarization: *Vertical* Temperature: 24 C

Limit: (RE)FCC PART 15C Power: AC 120V/60Hz Humidity: 53 %

Mode:WIFI5G A20 5180

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	35.8200	51.49	-16.58	34.91	40.00	-5.09	QP			
2		65.8900	40.98	-16.58	24.40	40.00	-15.60	QP			
3		197.8100	47.86	-15.33	32.53	43.50	-10.97	QP			
4		395.6900	33.87	-9.79	24.08	46.00	-21.92	QP			
5		594.5400	35.42	-5.19	30.23	46.00	-15.77	QP			
6		792.4200	33.14	-2.09	31.05	46.00	-14.95	QP			

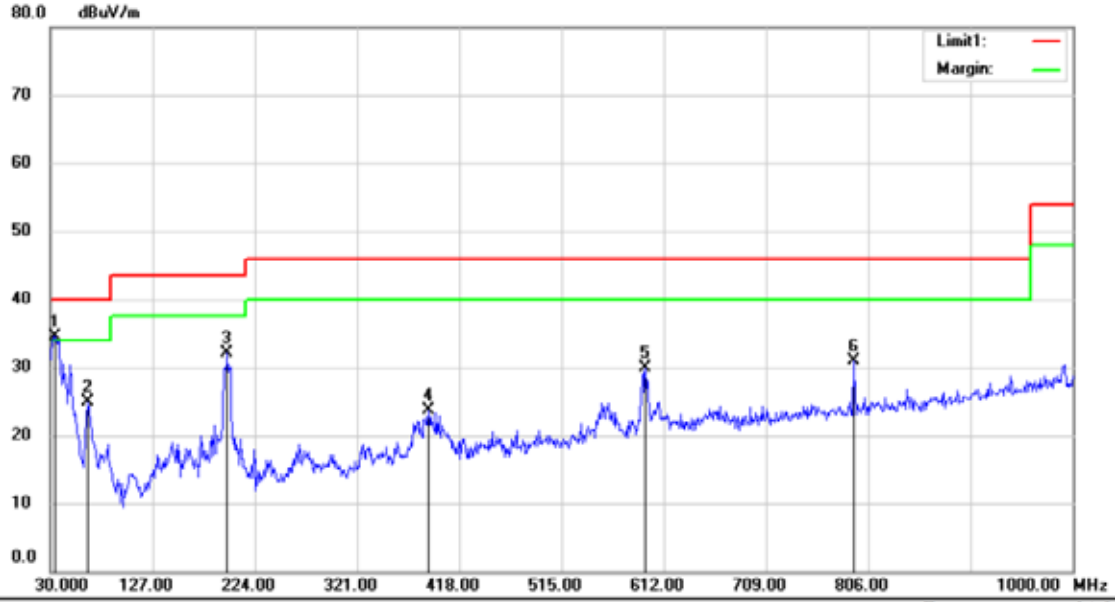
Site 3m Chamber #3 Polarization: *Horizontal* Temperature: 24 C

Limit: (RE)FCC PART 15C Power: AC 120V/60Hz Humidity: 53 %

Mode:WIFI5G A20 5200

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		37.7600	35.39	-15.73	19.66	40.00	-20.34	QP			
2		197.8100	40.59	-15.33	25.26	43.50	-18.24	QP			
3		330.7000	39.01	-11.37	27.64	46.00	-18.36	QP			
4		385.9900	40.35	-9.90	30.45	46.00	-15.55	QP			
5		612.0000	32.83	-4.77	28.06	46.00	-17.94	QP			
6	*	792.4200	37.12	-2.09	35.03	46.00	-10.97	QP			



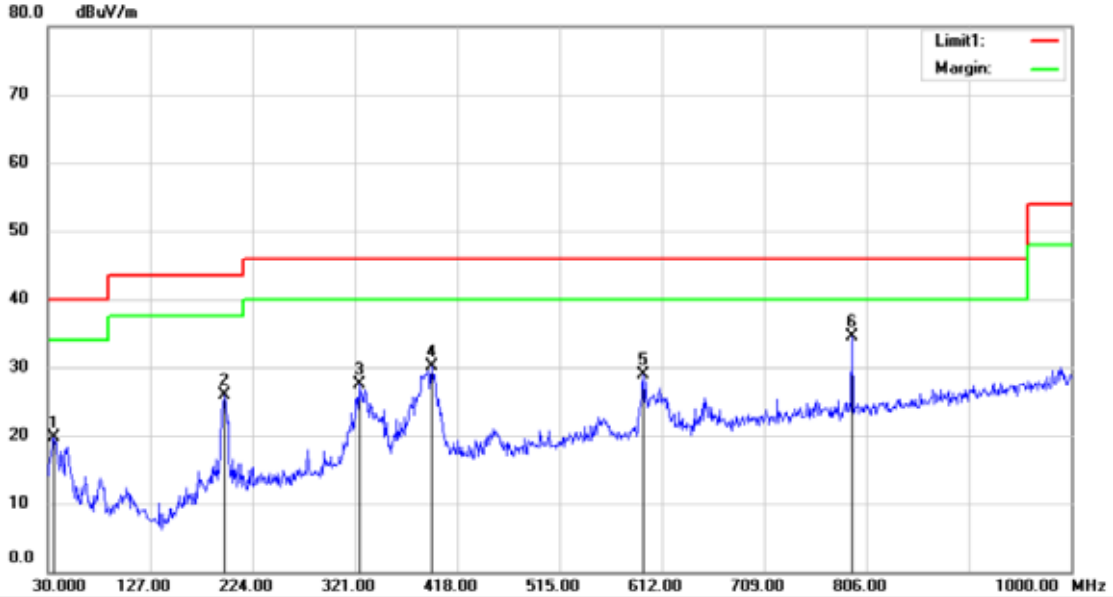
Site 3m Chamber #3 Polarization: *Vertical* Temperature: 24 C

Limit: (RE)FCC PART 15C Power: AC 120V/60Hz Humidity: 53 %

Mode:WIFI5G A20 5200

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	33.8800	51.63	-17.05	34.58	40.00	-5.42	QP			
2		65.8900	41.58	-16.58	25.00	40.00	-15.00	QP			
3		197.8100	47.36	-15.33	32.03	43.50	-11.47	QP			
4		388.9000	33.51	-9.88	23.63	46.00	-22.37	QP			
5		594.5400	35.08	-5.19	29.89	46.00	-16.11	QP			
6		792.4200	33.09	-2.09	31.00	46.00	-15.00	QP			



Site 3m Chamber #3 Polarization: *Horizontal* Temperature: 24 C

Limit: (RE)FCC PART 15C Power: AC 120V/60Hz Humidity: 53 %

Mode:WIFI5G A20 5240

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		35.8200	36.31	-16.58	19.73	40.00	-20.27	QP			
2		197.8100	41.30	-15.33	25.97	43.50	-17.53	QP			
3		324.8800	39.11	-11.70	27.41	46.00	-18.59	QP			
4		393.7500	39.86	-9.83	30.03	46.00	-15.97	QP			
5		594.5400	34.02	-5.19	28.83	46.00	-17.17	QP			
6	*	792.4200	36.66	-2.09	34.57	46.00	-11.43	QP			

Site 3m Chamber #3 Polarization: *Vertical* Temperature: 24 C

Limit: (RE)FCC PART 15C Power: AC 120V/60Hz Humidity: 53 %

Mode:WIFI5G A20 5240

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	33.8800	51.76	-17.05	34.71	40.00	-5.29	QP			
2		64.9200	41.30	-16.19	25.11	40.00	-14.89	QP			
3		197.8100	46.94	-15.33	31.61	43.50	-11.89	QP			
4		385.0200	34.42	-9.90	24.52	46.00	-21.48	QP			
5		593.5700	32.81	-5.22	27.59	46.00	-18.41	QP			
6		831.2200	35.92	-1.69	34.23	46.00	-11.77	QP			

Site 3m Chamber #3 Polarization: *Horizontal* Temperature: 24 C

Limit: (RE)FCC PART 15C Power: AC 120V/60Hz Humidity: 53 %

Mode:WIFI5G A20 5260

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		37.7600	35.69	-15.73	19.96	40.00	-20.04	QP			
2		197.8100	40.90	-15.33	25.57	43.50	-17.93	QP			
3		326.8200	38.85	-11.58	27.27	46.00	-18.73	QP			
4		388.9000	41.23	-9.88	31.35	46.00	-14.65	QP			
5		594.5400	33.34	-5.19	28.15	46.00	-17.85	QP			
6	*	792.4200	36.22	-2.09	34.13	46.00	-11.87	QP			

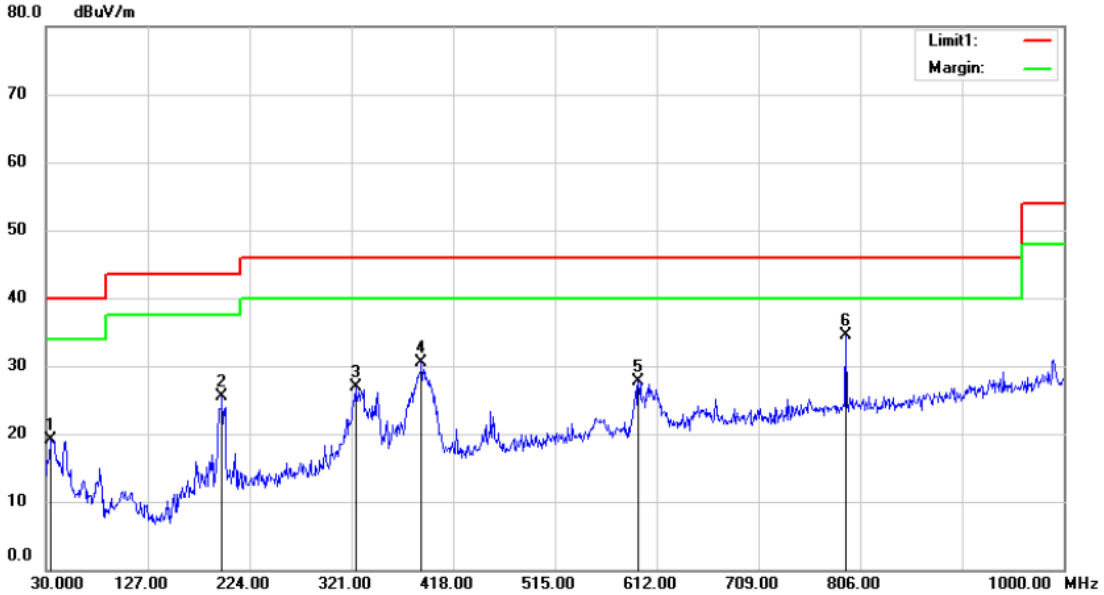
Site 3m Chamber #3 Polarization: *Vertical* Temperature: 24 C

Limit: (RE)FCC PART 15C Power: AC 120V/60Hz Humidity: 53 %

Mode:WIFI5G A20 5260

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	34.8500	51.31	-16.84	34.47	40.00	-5.53	QP			
2		65.8900	41.21	-16.58	24.63	40.00	-15.37	QP			
3		197.8100	47.72	-15.33	32.39	43.50	-11.11	QP			
4		384.0500	34.81	-9.92	24.89	46.00	-21.11	QP			
5		596.4800	33.92	-5.12	28.80	46.00	-17.20	QP			
6		792.4200	32.55	-2.09	30.46	46.00	-15.54	QP			



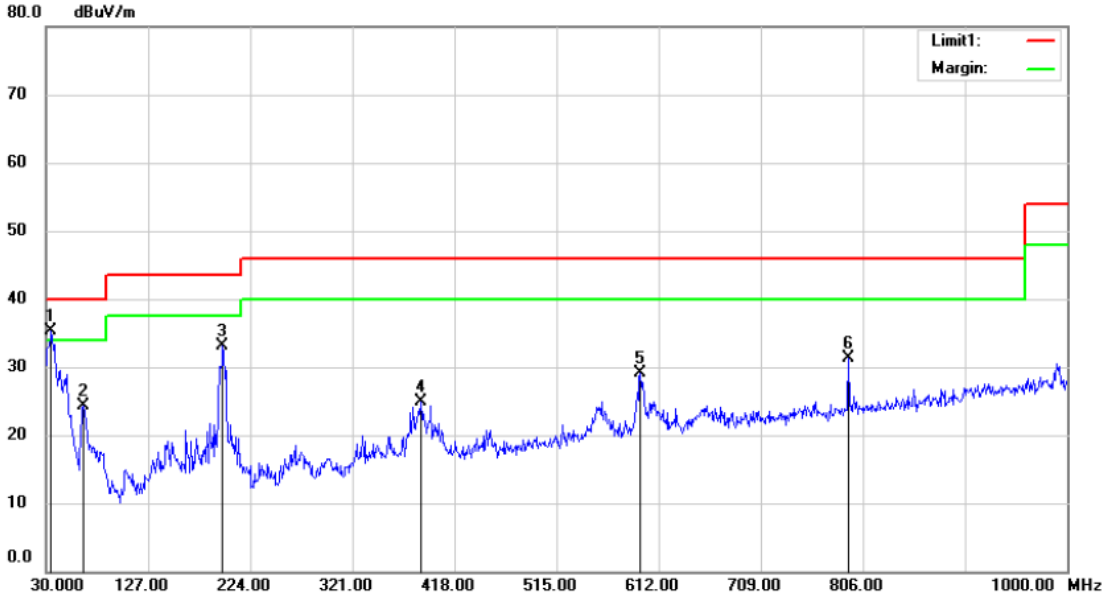
Site 3m Chamber #3 Polarization: ***Horizontal*** Temperature: 24 C

Limit: (RE)FCC PART 15C Power: AC 120V/60Hz Humidity: 53 %

Mode: WIFI5G A20 5280

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		34.8500	35.98	-16.84	19.14	40.00	-20.86	QP			
2		197.8100	40.87	-15.33	25.54	43.50	-17.96	QP			
3		324.8800	38.61	-11.70	26.91	46.00	-19.09	QP			
4		387.9300	40.44	-9.89	30.55	46.00	-15.45	QP			
5		594.5400	32.91	-5.19	27.72	46.00	-18.28	QP			
6	*	792.4200	36.64	-2.09	34.55	46.00	-11.45	QP			



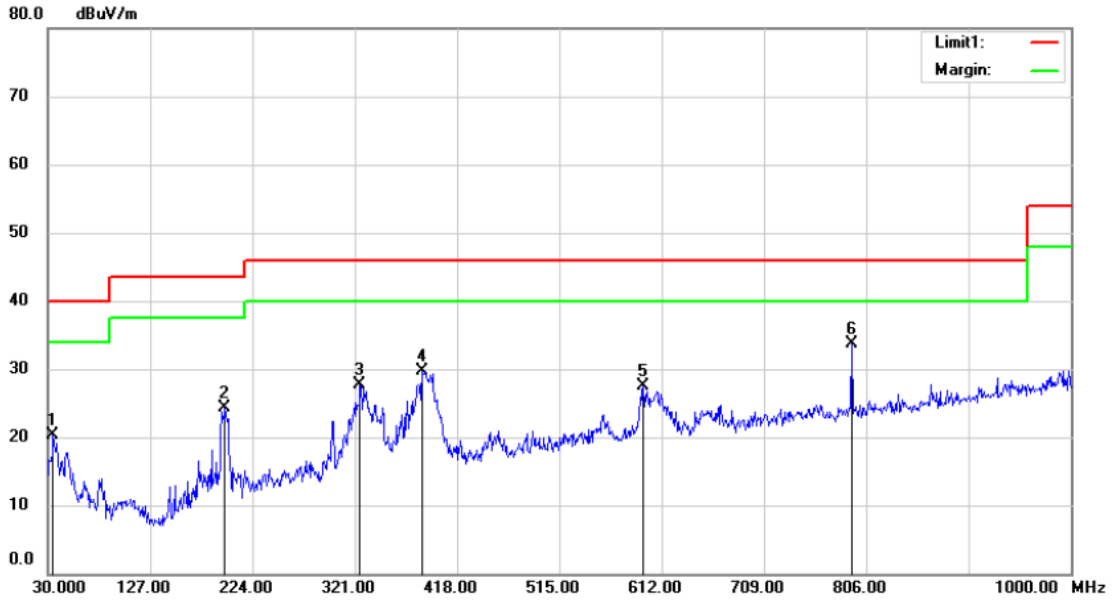
Site 3m Chamber #3 Polarization: ***Vertical*** Temperature: 24 C

Limit: (RE)FCC PART 15C Power: AC 120V/60Hz Humidity: 53 %

Mode:WIFI5G A20 5280

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	34.8500	52.24	-16.84	35.40	40.00	-4.60	QP			
2		65.8900	40.82	-16.58	24.24	40.00	-15.76	QP			
3		197.8100	48.39	-15.33	33.06	43.50	-10.44	QP			
4		385.9900	34.79	-9.90	24.89	46.00	-21.11	QP			
5		594.5400	34.26	-5.19	29.07	46.00	-16.93	QP			
6		792.4200	33.42	-2.09	31.33	46.00	-14.67	QP			



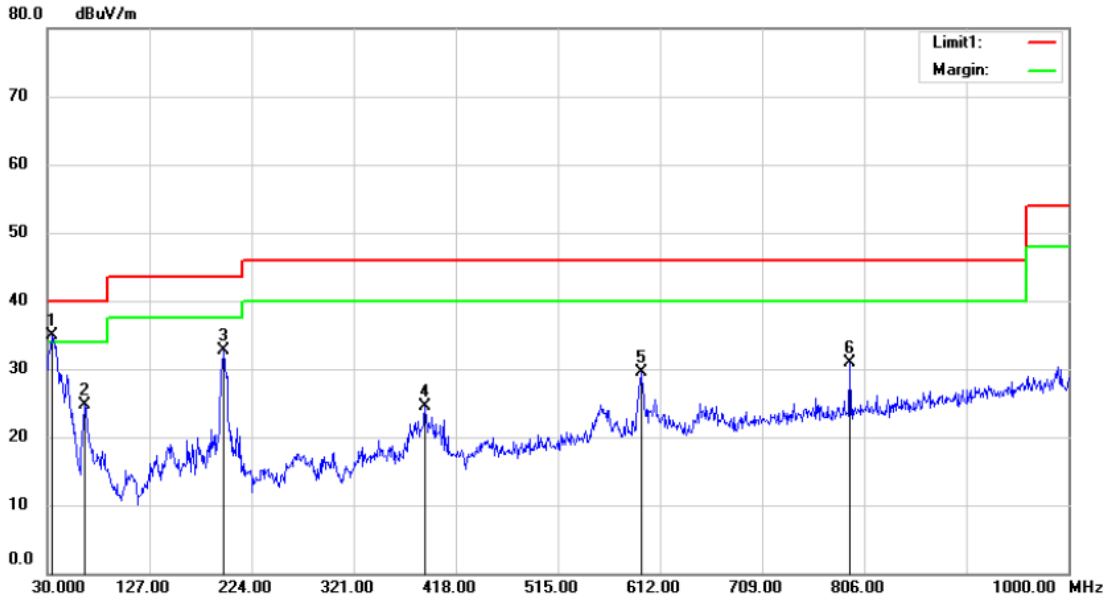
Site 3m Chamber #3 Polarization: ***Horizontal*** Temperature: 24 C

Limit: (RE)FCC PART 15C Power: AC 120V/60Hz Humidity: 53 %

Mode:WIFI5G A20 5320

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		34.8500	37.22	-16.84	20.38	40.00	-19.62	QP			
2		197.8100	39.68	-15.33	24.35	43.50	-19.15	QP			
3		325.8500	39.37	-11.64	27.73	46.00	-18.27	QP			
4		385.0200	39.66	-9.90	29.76	46.00	-16.24	QP			
5		594.5400	32.65	-5.19	27.46	46.00	-18.54	QP			
6	*	792.4200	35.75	-2.09	33.66	46.00	-12.34	QP			



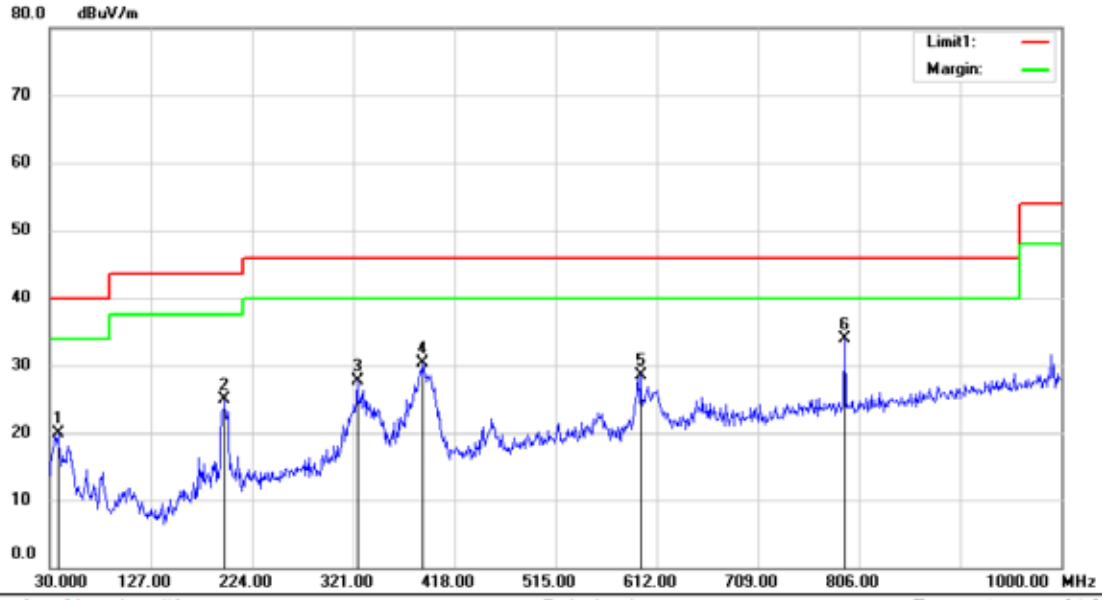
Site 3m Chamber #3 Polarization: ***Vertical*** Temperature: 24 C

Limit: (RE)FCC PART 15C Power: AC 120V/60Hz Humidity: 53 %

Mode:WIFI5G A20 5320

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	34.8500	51.82	-16.84	34.98	40.00	-5.02	QP			
2		65.8900	41.29	-16.58	24.71	40.00	-15.29	QP			
3		197.8100	48.05	-15.33	32.72	43.50	-10.78	QP			
4		388.9000	34.36	-9.88	24.48	46.00	-21.52	QP			
5		594.5400	34.71	-5.19	29.52	46.00	-16.48	QP			
6		792.4200	33.03	-2.09	30.94	46.00	-15.06	QP			



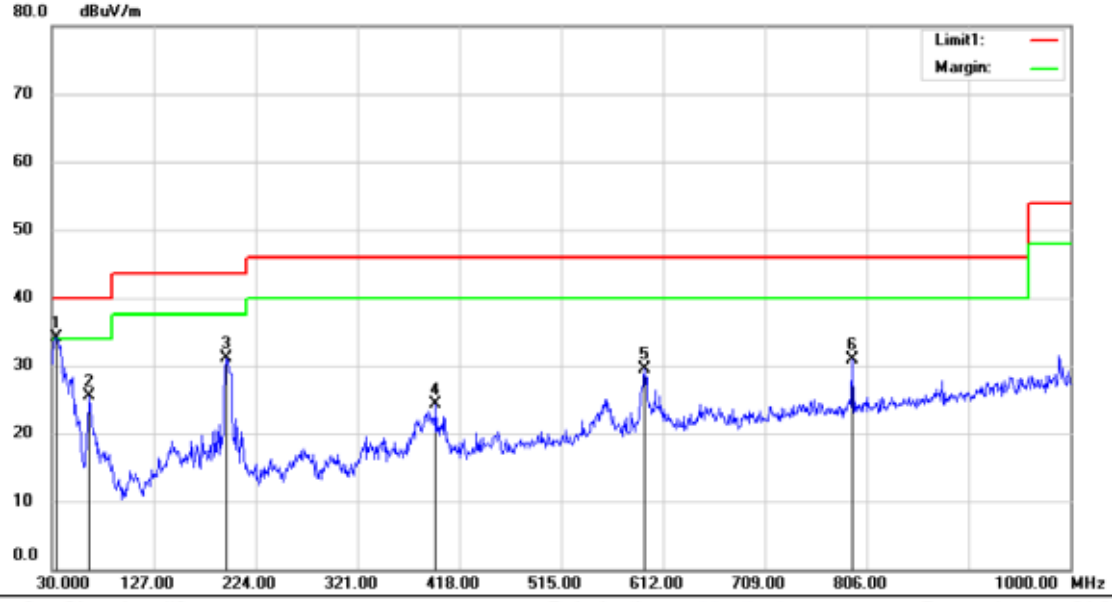
Site 3m Chamber #3 Polarization: *Horizontal* Temperature: 24 C

Limit: (RE)FCC PART 15C Power: AC 120V/60Hz Humidity: 53 %

Mode:WIFI5G A20 5500

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		37.7600	35.71	-15.73	19.98	40.00	-20.02	QP			
2		197.8100	40.22	-15.33	24.89	43.50	-18.61	QP			
3		324.8800	39.41	-11.70	27.71	46.00	-18.29	QP			
4		387.9300	40.22	-9.89	30.33	46.00	-15.67	QP			
5		596.4800	33.72	-5.12	28.60	46.00	-17.40	QP			
6	*	792.4200	36.02	-2.09	33.93	46.00	-12.07	QP			



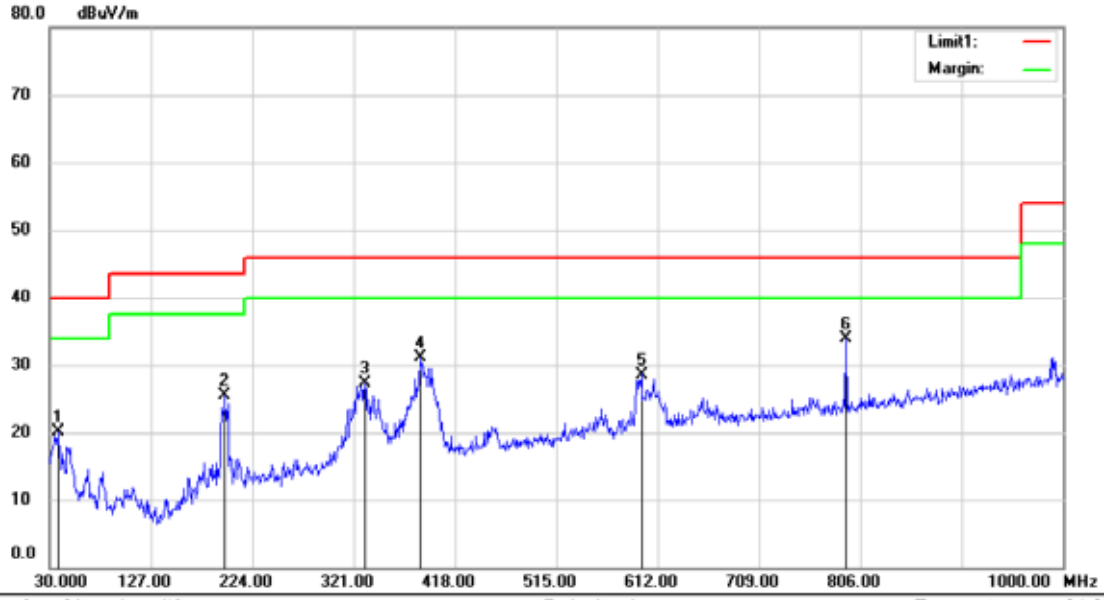
Site 3m Chamber #3 Polarization: *Vertical* Temperature: 24 C

Limit: (RE)FCC PART 15C Power: AC 120V/60Hz Humidity: 53 %

Mode:WIFI5G A20 5500

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	34.8500	51.03	-16.84	34.19	40.00	-5.81	QP			
2		65.8900	42.08	-16.58	25.50	40.00	-14.50	QP			
3		195.8700	46.71	-15.58	31.13	43.50	-12.37	QP			
4		395.6900	34.01	-9.79	24.22	46.00	-21.78	QP			
5		594.5400	34.69	-5.19	29.50	46.00	-16.50	QP			
6		792.4200	33.00	-2.09	30.91	46.00	-15.09	QP			



Site 3m Chamber #3 Polarization: *Horizontal* Temperature: 24 C

Limit: (RE)FCC PART 15C Power: AC 120V/60Hz Humidity: 53 %

Mode:WIFI5G A20 5600

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		37.7600	35.81	-15.73	20.08	40.00	-19.92	QP			
2		197.8100	40.90	-15.33	25.57	43.50	-17.93	QP			
3		331.6700	38.65	-11.30	27.35	46.00	-18.65	QP			
4		385.0200	40.93	-9.90	31.03	46.00	-14.97	QP			
5		596.4800	33.72	-5.12	28.60	46.00	-17.40	QP			
6	*	792.4200	36.01	-2.09	33.92	46.00	-12.08	QP			

Site 3m Chamber #3 Polarization: *Vertical* Temperature: 24 C

Limit: (RE)FCC PART 15C Power: AC 120V/60Hz Humidity: 53 %

Mode:WIFI5G A20 5600

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	34.8500	51.41	-16.84	34.57	40.00	-5.43	QP			
2		65.8900	41.61	-16.58	25.03	40.00	-14.97	QP			
3		194.9000	48.00	-15.70	32.30	43.50	-11.20	QP			
4		378.2300	33.37	-10.06	23.31	46.00	-22.69	QP			
5		594.5400	35.24	-5.19	30.05	46.00	-15.95	QP			
6		792.4200	32.75	-2.09	30.66	46.00	-15.34	QP			

Site 3m Chamber #3 Polarization: *Horizontal* Temperature: 24 C

Limit: (RE)FCC PART 15C Power: AC 120V/60Hz Humidity: 53 %

Mode:WIFI5G A20 5700

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		34.8500	36.03	-16.84	19.19	40.00	-20.81	QP			
2		197.8100	39.92	-15.33	24.59	43.50	-18.91	QP			
3		326.8200	39.81	-11.58	28.23	46.00	-17.77	QP			
4		388.9000	41.31	-9.88	31.43	46.00	-14.57	QP			
5		594.5400	34.19	-5.19	29.00	46.00	-17.00	QP			
6	*	792.4200	36.16	-2.09	34.07	46.00	-11.93	QP			

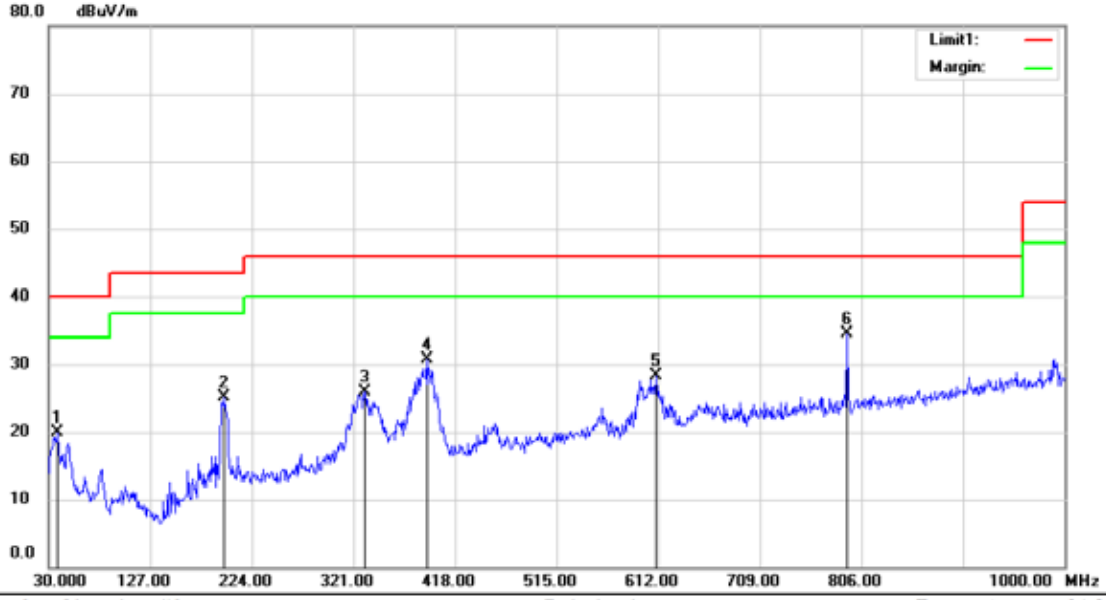
Site 3m Chamber #3 Polarization: *Vertical* Temperature: 24 C

Limit: (RE)FCC PART 15C Power: AC 120V/60Hz Humidity: 53 %

Mode:WIFI5G A20 5700

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	35.8200	51.20	-16.58	34.62	40.00	-5.38	QP			
2		65.8900	41.24	-16.58	24.66	40.00	-15.34	QP			
3		197.8100	48.27	-15.33	32.94	43.50	-10.56	QP			
4		386.9600	33.87	-9.89	23.98	46.00	-22.02	QP			
5		594.5400	35.94	-5.19	30.75	46.00	-15.25	QP			
6		792.4200	33.00	-2.09	30.91	46.00	-15.09	QP			



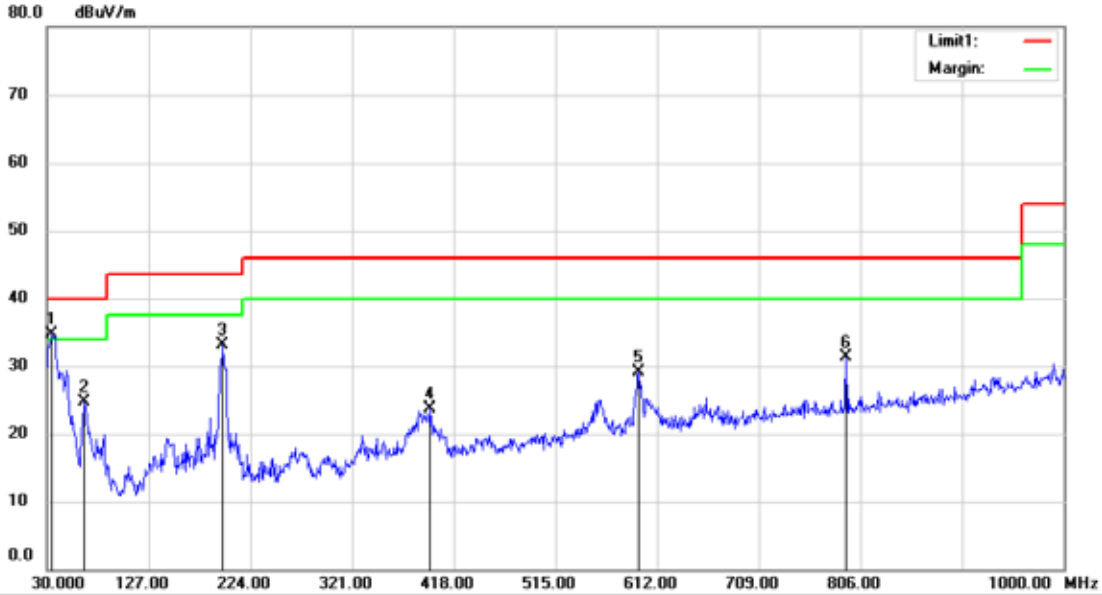
Site 3m Chamber #3 Polarization: *Horizontal* Temperature: 24 C

Limit: (RE)FCC PART 15C Power: AC 120V/60Hz Humidity: 53 %

Mode:WIFI5G A20 5745

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		38.7300	35.39	-15.43	19.96	40.00	-20.04	QP			
2		197.8100	40.45	-15.33	25.12	43.50	-18.38	QP			
3		331.6700	37.27	-11.30	25.97	46.00	-20.03	QP			
4		390.8400	40.48	-9.87	30.61	46.00	-15.39	QP			
5		610.0600	32.98	-4.75	28.23	46.00	-17.77	QP			
6	*	792.4200	36.60	-2.09	34.51	46.00	-11.49	QP			



Site 3m Chamber #3 Polarization: *Vertical* Temperature: 24 C

Limit: (RE)FCC PART 15C Power: AC 120V/60Hz Humidity: 53 %

Mode:WIFI5G A20 5745

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	34.8500	51.47	-16.84	34.63	40.00	-5.37	QP			
2		65.8900	41.28	-16.58	24.70	40.00	-15.30	QP			
3		197.8100	48.48	-15.33	33.15	43.50	-10.35	QP			
4		395.6900	33.42	-9.79	23.63	46.00	-22.37	QP			
5		594.5400	34.31	-5.19	29.12	46.00	-16.88	QP			
6		792.4200	33.43	-2.09	31.34	46.00	-14.66	QP			

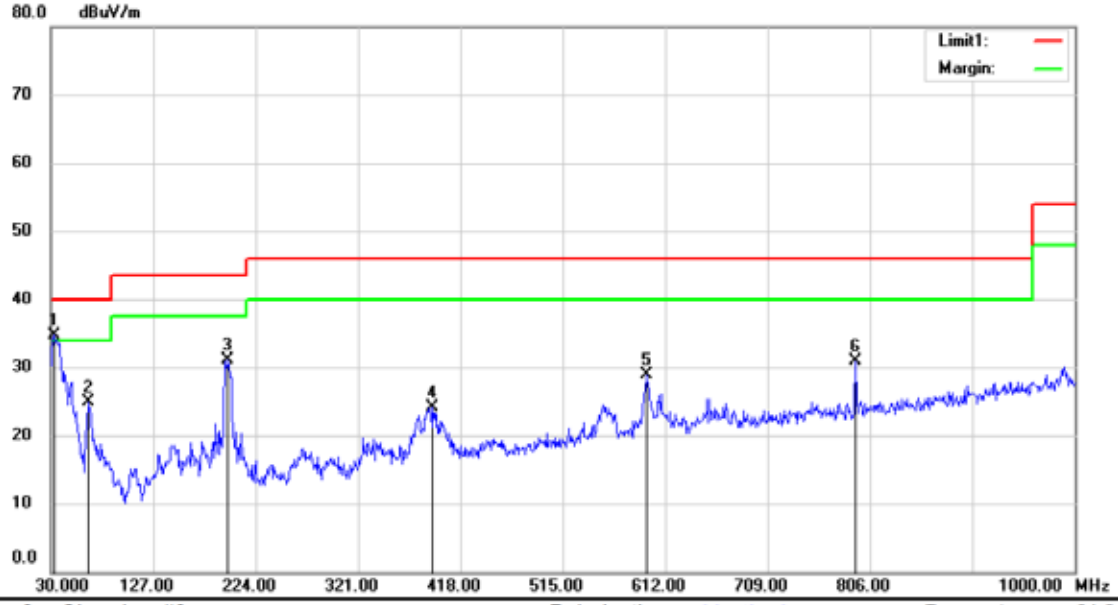
Site 3m Chamber #3 Polarization: ***Horizontal*** Temperature: 24 C

Limit: (RE)FCC PART 15C Power: AC 120V/60Hz Humidity: 53 %

Mode:WIFI5G A20 5785

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		35.8200	36.83	-16.58	20.25	40.00	-19.75	QP			
2		195.8700	40.99	-15.58	25.41	43.50	-18.09	QP			
3		326.8200	38.20	-11.58	26.62	46.00	-19.38	QP			
4		395.6900	40.63	-9.79	30.84	46.00	-15.16	QP			
5		594.5400	33.64	-5.19	28.45	46.00	-17.55	QP			
6	*	792.4200	36.70	-2.09	34.61	46.00	-11.39	QP			



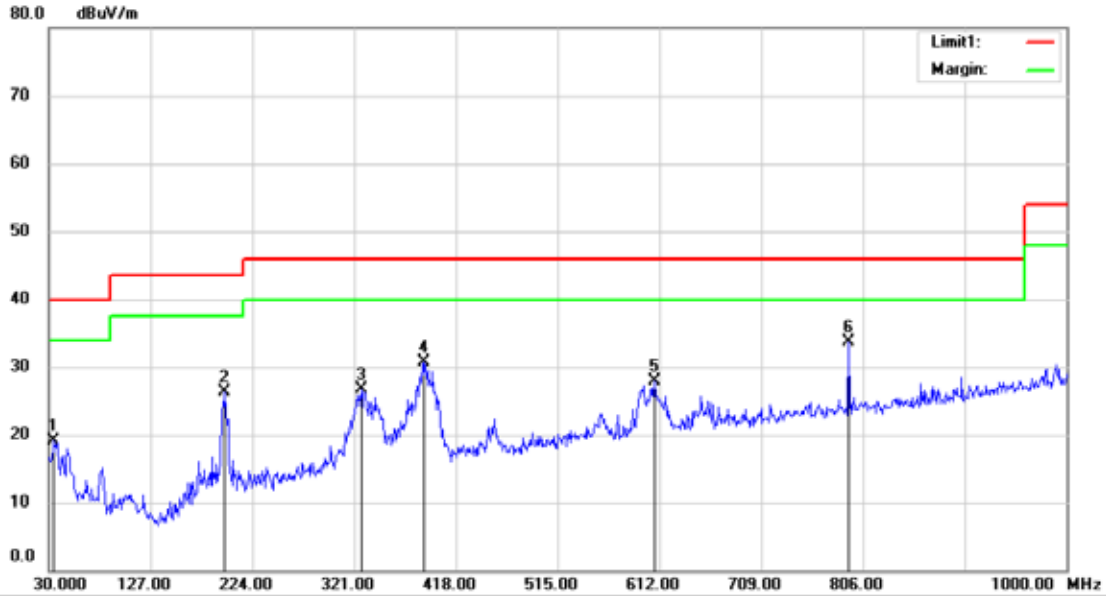
Site 3m Chamber #3 Polarization: *Vertical* Temperature: 24 C

Limit: (RE)FCC PART 15C Power: AC 120V/60Hz Humidity: 53 %

Mode:WIFI5G A20 5785

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	32.9100	51.83	-17.03	34.80	40.00	-5.20	QP			
2		65.8900	41.50	-16.58	24.92	40.00	-15.08	QP			
3		197.8100	46.50	-15.33	31.17	43.50	-12.33	QP			
4		391.8100	33.96	-9.85	24.11	46.00	-21.89	QP			
5		594.5400	34.14	-5.19	28.95	46.00	-17.05	QP			
6		792.4200	32.97	-2.09	30.88	46.00	-15.12	QP			



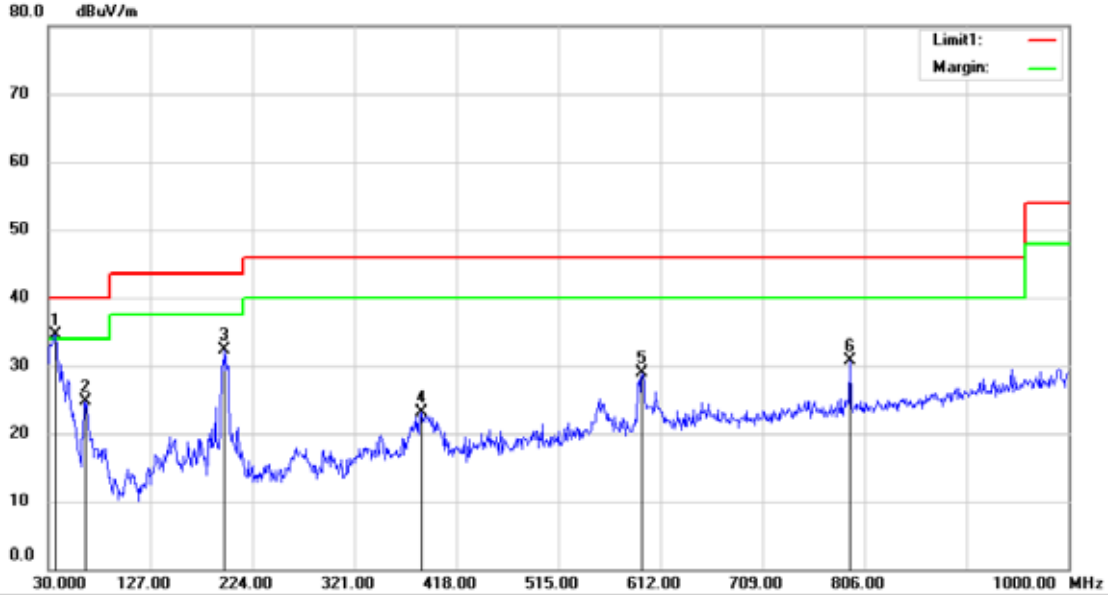
Site 3m Chamber #3 Polarization: ***Horizontal*** Temperature: 24 C

Limit: (RE)FCC PART 15C Power: AC 120V/60Hz Humidity: 53 %

Mode:WIFI5G A20 5825

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		34.8500	35.85	-16.84	19.01	40.00	-20.99	QP			
2		197.8100	41.59	-15.33	26.26	43.50	-17.24	QP			
3		327.7900	38.32	-11.53	26.79	46.00	-19.21	QP			
4		387.9300	40.55	-9.89	30.66	46.00	-15.34	QP			
5		607.1500	32.78	-4.83	27.95	46.00	-18.05	QP			
6	*	792.4200	35.76	-2.09	33.67	46.00	-12.33	QP			



Site 3m Chamber #3 Polarization: *Vertical* Temperature: 24 C

Limit: (RE)FCC PART 15C Power: AC 120V/60Hz Humidity: 53 %

Mode:WIFI5G A20 5825

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	36.7900	50.74	-16.17	34.57	40.00	-5.43	QP			
2		65.8900	41.36	-16.58	24.78	40.00	-15.22	QP			
3		197.8100	47.59	-15.33	32.26	43.50	-11.24	QP			
4		385.0200	32.91	-9.90	23.01	46.00	-22.99	QP			
5		594.5400	34.00	-5.19	28.81	46.00	-17.19	QP			
6		792.4200	32.74	-2.09	30.65	46.00	-15.35	QP			

8.6 POWER LINE CONDUCTED EMISSIONS

8.6.1 Applicable Standard

According to FCC Part 15.207(a)

8.6.2 Conformance Limit

Conducted Emission Limit		
Frequency(MHz)	Quasi-peak	Average
0.15-0.5	66-56	56-46
0.5-5.0	56	46
5.0-30.0	60	50

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

8.6.3 Test Configuration

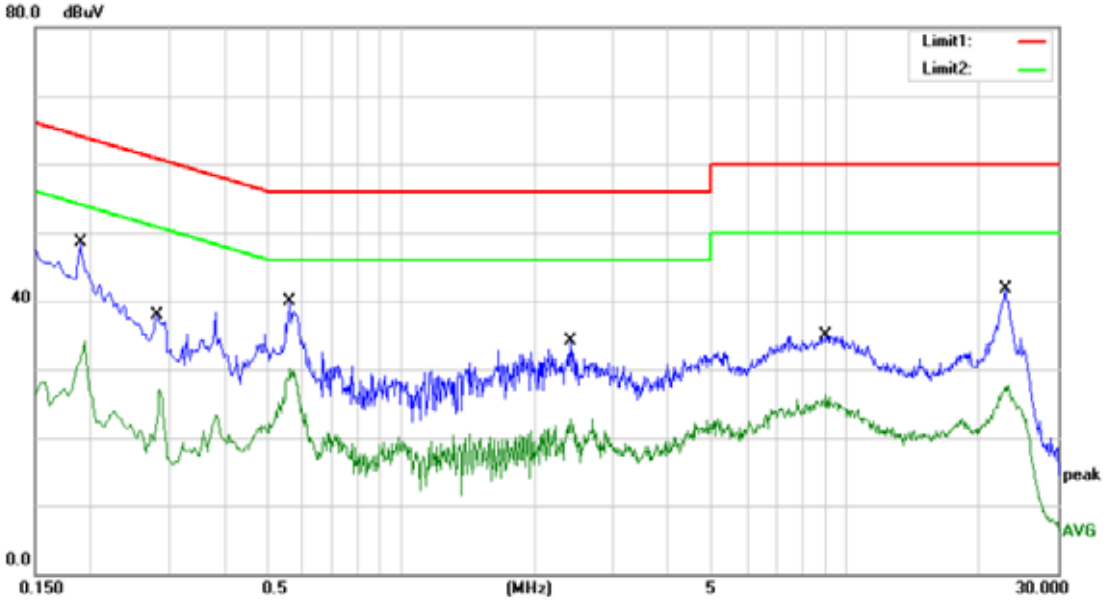
Test according to clause 6.3 conducted emission test setup

8.6.4 Test Procedure

The EUT was placed on a table which is 0.8m above ground plane.
Maximum procedure was performed on the highest emissions to ensure EUT compliance.
Repeat above procedures until all frequency measured were complete.

8.6.5 Test Results

Pass



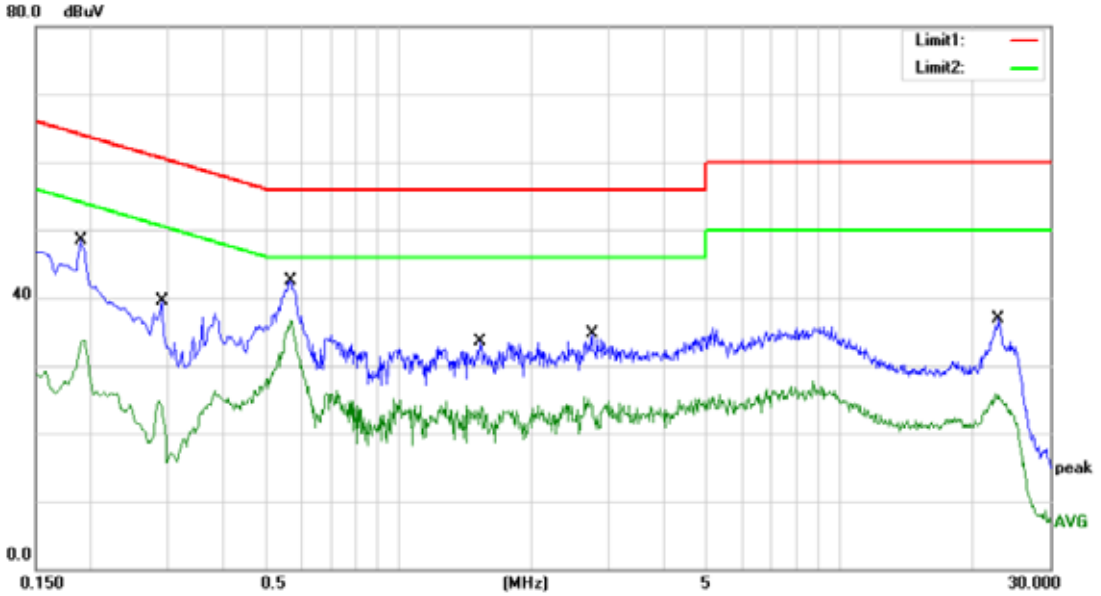
Site Conduction #1 Phase: *L1* Temperature: 24.9

Limit: (CE)FCC PART 15 C Power: AC 120V/60Hz Humidity: 54 %

Mode: WIFI+BT ON

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.1900	38.20	10.22	48.42	64.04	-15.62	QP	
2		0.1900	23.81	10.22	34.03	54.04	-20.01	AVG	
3		0.2820	27.81	10.04	37.85	60.76	-22.91	QP	
4		0.2820	16.95	10.04	26.99	50.76	-23.77	AVG	
5		0.5620	29.92	9.92	39.84	56.00	-16.16	QP	
6		0.5620	20.21	9.92	30.13	46.00	-15.87	AVG	
7		2.3980	24.21	9.83	34.04	56.00	-21.96	QP	
8		2.3980	12.82	9.83	22.65	46.00	-23.35	AVG	
9		9.0580	25.09	9.80	34.89	60.00	-25.11	QP	
10		9.0580	16.59	9.80	26.39	50.00	-23.61	AVG	
11		22.8860	31.61	10.11	41.72	60.00	-18.28	QP	
12		22.8860	17.56	10.11	27.67	50.00	-22.33	AVG	



Site Conduction #1 Phase: N Temperature: 24.9

Limit: (CE)FCC PART 15 C Power: AC 120V/60Hz Humidity: 54 %

Mode: WIFI+BT ON

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1900	38.18	10.22	48.40	64.04	-15.64	QP	
2		0.1900	23.57	10.22	33.79	54.04	-20.25	AVG	
3		0.2900	29.44	10.03	39.47	60.52	-21.05	QP	
4		0.2900	14.70	10.03	24.73	50.52	-25.79	AVG	
5		0.5700	32.62	9.92	42.54	56.00	-13.46	QP	
6	*	0.5700	26.70	9.92	36.62	46.00	-9.38	AVG	
7		1.5300	23.62	9.88	33.50	56.00	-22.50	QP	
8		1.5300	14.18	9.88	24.06	46.00	-21.94	AVG	
9		2.7460	24.94	9.83	34.77	56.00	-21.23	QP	
10		2.7460	15.41	9.83	25.24	46.00	-20.76	AVG	
11		22.9980	26.76	10.11	36.87	60.00	-23.13	QP	
12		22.9980	15.69	10.11	25.80	50.00	-24.20	AVG	

8.7 ANTENNA APPLICATION

8.7.1 Antenna Requirement

Standard	Requirement
FCC CRF Part 15.203	An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, §15.213, §15.217, §15.219, or §15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.407 (a), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

8.7.2 Result

PASS.

The EUT has two FPC antennas for WIFI, the antenna max gain is 4.51 dBi,

Note:

☒ Antenna use a permanently attached antenna which is not replaceable.

☐ Not using a standard antenna jack or electrical connector for antenna replacement

☐ The antenna has to be professionally installed (please provide method of installation)

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which in accordance to section 15.203, please refer to the internal photos.